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Silt Fences

**Description/Goals**

Silt fences are geotextile, semi-permeable sheets supported by posts and anchored in the ground to intercept sediment-laden runoff. They remove sediment partially by filtering the runoff and partially by slowing it down, providing an opportunity for settling. Silt fences are a "perimeter control", or a device used to prevent eroded sediment from leaving the construction site. Their efficiency for sediment removal ranges from 33% (W&H Pacific and CH2M-Hill, 1993) to 86% (Horner et al., 1990) depending on site conditions. They can be an effective tool when used properly.

APPROXIMATE

Cost: \$2.50 - \$3.00/ft

EFFECTIVENESS

Low *Min* *High*

Erosion/Sediment Control		✓
Long-Term Pollution Reduction	✓	
Habitat / Stream Protection		✓

EASE OF APPLICATION

Difficult *Average* *Easy*

Installation	✓
Maintenance	✓

Limitations

- Steep slopes or channels
- Construction traffic

Conditions that Limit the Effectiveness of Silt Fences

	Slope erodes. Length of string 1/2 to 1/3 ft. Distance from 50 feet from fence. Posts 100 ft. or more from 25 feet
	Silt fence is not aligned parallel to slope contours
	Slope of the site erodes and no contour system, allowing flow to bypass the fence
	Spacing between posts is greater than 50 ft
	Debris is not intercepted directly enough to prevent underlying
	Spacing between posts is greater than 50 ft
	Fence requires concentrated flow without interruptions
	Installed before an outlet pipe or weir
	Silt fence in landscape of the proposed site
	Silt fence placement does not consider water-erosion habits
	Maximum capacity is not met. Silt fence erodes, causing and increasing erosion potential
	Alignment of silt fence controls the amount of flow at discharge, but does not reduce flow

Source: Watershed Protection Techniques Vol. 2-83

TECHNIQUES/CHALLENGES AND LIMITATIONS

Silt fences can be used on most construction sites, but their effectiveness is limited by improper design, installation and maintenance. The previous table outlines twelve conditions that can limit the effectiveness of silt fences. Rectifying these situations can greatly improve the performance of silt fences.

INNOVATIONS/IMPROVEMENTS

Two silt fence innovations, demonstrated below are the use of a "Super Silt Fence", a Scoop Trap and Silt Fence Anchors. The super silt fence, used in suburban Maryland, uses a chain link fence as a backing for the silt fence and uses stronger geotextile fabric. This technique, however, is very expensive compared with traditional silt fence (about \$9/linear foot). The scoop trap, a "mini-sediment trap" used before a silt fence, provides extra settling and protects the silt fence when it is used in an area of concentrated flow.

A third innovation, the Silt Fence Anchor, clips to the bottom of the geotextile, ensuring that it remains in place throughout construction. For more information on this product, contact Brooks Emory of EnviroGuard, Inc. at (205) 324-3250.



Source: Erosion Prevention Techniques Vol. 2 48

SILT FENCE SUPPLIERS

Acme Bag Company
San Diego, CA
(619) 235-4460

Nicolon/Miraf Group
Lake Forest, CA
(714) 859-2850

Santa Fe Bag Company
Yreka, CA
(213) 585-7225

Synthetic Industries
Chattanooga, TN
(800) 621-0444

For more information contact the International Erosion Control Association at (800) 455-4322 or ask your county Soil and Water Conservation District about local suppliers.

REFERENCES

Homer, R.R., J. Gaudry and M.H. Korteberg. 1990. *Improving the Cost Effectiveness of Highway Construction Site Erosion and Pollution Control*. Washington State Transportation Center, Federal Highway Administration. Seattle, WA. 79 pp.

W&H Pacific and CH2M-Hill. 1993. *Demonstration Project Using Yard Debris Compost for Erosion Control*. Portland Metropolitan Service District. Portland, OR. 90 pp.



Source: EnviroGuard, Inc., Birmingham, Alabama