



"A Partner in Conservation Since 1935"

United States Department of Agriculture
Natural Resources Conservation Service
760 South Broadway
Salina, Kansas 67401-4604

Phone: 785-823-4500
FAX: 785-823-4540
www.ks.nrcs.usda.gov

March 30, 2006

KANSAS ENGINEERING TECHNICAL NOTE NO. KS-4

SUBJECT: ENG - Temporary Erosion Control - Silt Fence

Purpose. To provide guidance on silt fences

Effective Date. Effective upon receipt

What is Temporary Erosion Control?

This is an erosion control system that is installed to protect the soil from erosion until the permanent vegetation has established itself.

What is a Silt Fence?

This is a temporary barrier made of woven wire and fabric filter cloth that is used to catch sediment-laden runoff from small areas of disturbed soil.

Silt fences are easy to construct; and materials are available from hardware stores, nurseries, and lumberyards.

When is it Used?

Silt fences are used for specific situations. Major considerations are slope, slope length, and the amount of drainage area from which the fence will catch runoff. Here are some design considerations:

<u>Slope Steepness</u>	<u>Maximum Slope Length (feet)</u>
2:1 = 50%	50
3:1 = 33%	75
4:1 = 25%	125
5:1 = 20%	175
<5:1 = <20%	200

For longer slopes, add additional silt fences.

(more)

DIST: A, F

Drainage Area

The area that contributes runoff to be caught by the silt fence should not be greater than ½ acre for 100 feet of fence.

Type of Runoff

Silt fences are designed to catch runoff that is in the form of “sheet flow” and not “concentrated flow.” They should be installed on the contour of a slope.

Sheet flow differs from concentrated flow in that the runoff is spread evenly over the ground surface (like a sheet) rather than across small rills, drainageways, gullies, ditches, or other areas of concentrated flow.

Methods and Materials

Fence Posts

Posts should be at least 36 inches long. Wood posts should be of hardwood with a minimum cross sectional area of 3 inches. Steel posts should be standard T-type or U-type and should weigh no less than 1 pound per linear foot.

Geotextile Fabric

FILTER X, MIRAFAI 100X, STABILINKA T140, or equivalent products approved by the Natural Resources Conservation Service (NRCS) should be used. Filter fabric (geotextile) rolls should be a minimum of 36 inches wide.

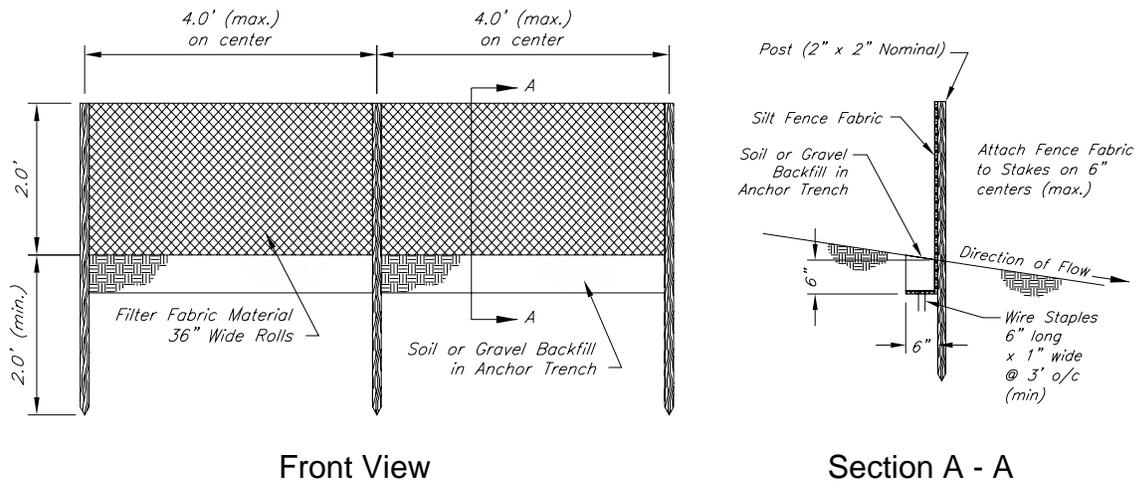
Prefabricated Unit

GEOFAB, ENVIROFENCE, or equivalent products approved by NRCS should be used.

Fasteners

The geotextile may be attached to the posts using geotextile pockets, staples, or nails. Staples shall be a minimum of No. 17 gauge and have a 0.75-inch wide crown with 0.5-inch long legs. Nails shall be a minimum of 14 gauge and shall be 1 inch long with 0.75-inch button heads. Spacing shall be a maximum of 6 inches.

Figure 1 Silt Fence Barrier



Construction Notes for Fabricated Silt Fence:

1. Posts are to be installed on the downhill side of the filter fabric.
2. Backfill anchor trench with compacted soil or gravel.
3. Install silt fence along contour lines with a short section turned upgrade at each end of the barrier.
4. When possible, lay out the silt fence 5.0 to 6.0 feet beyond the toe of the slope.
5. Extend the bottom 12 inches of the filter fabric to line the downhill side and bottom of the trench.
6. When two sections of geotextile need to be joined, splice together the geotextile at a support post with a minimum overlap of 18 inches and seal securely.
7. Maintain properly functioning silt fences throughout the duration of the project or until the disturbed areas have established vegetation sufficient for NRCS approval.
8. Remove sediment as it accumulates and place it in a stable area approved by the engineer.
9. Posts should be either standard steel T-type OR U-type (weighing 1 pound per linear foot) or hardwood (nominal 2 inches by 2 inches).

Decommissioning

The silt fence can be removed when the ground upslope and downslope of the fence has adequate ground cover to control all erosion that would be caused by runoff. The fence material and stakes are to be removed from the site and disposed of in an acceptable manner.

References

Data was provided by the following:

NRCS, Davis, California
NRCS, Bozeman, Montana
Kansas Standard Drawing

Contact

Technical assistance is available from the Natural Resources Conservation Service (NRCS) at your local USDA Service Center (listed in the telephone book under United State Government). More information is also available on the Kansas Web site at www.ks.nrcs.usda.gov.

JOHN F. OURADA, PE
State Conservation Engineer