

Kentucky Erosion Prevention and Sediment Control Guide

A guide to preventing erosion and controlling sediment from construction activities in Kentucky

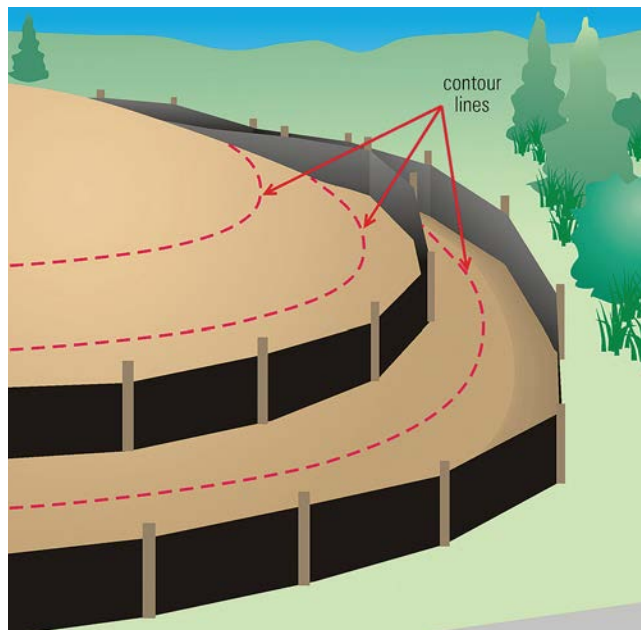
Using Silt Fence and Other Sediment Barriers

Sediment barrier placement

Sediment barriers – silt fences or rock filters – are required below (downhill from) areas of bare soil. Hay or straw bales must not be used as sediment filters due to their inherent weakness and tendency to fall apart. There are several factors to consider in placing silt fences, rock sediment filters, or other commercial sediment barriers:

- Place filters on downhill edge of bare soil areas.
- Make sure the filter catches all the muddy runoff.
- The goal is to pond runoff, to filter and settle it out.
- Install multiple sediment filters on long slopes.
- Spacing on long slopes is every 60 to 110 feet.
- Put filters across slopes, on the contour (level).

Silt fences should be installed on the contour below bare soil areas. Use multiple fences on long slopes 60 to 80 feet apart. Remove accumulated sediment before it reaches halfway up the fence.



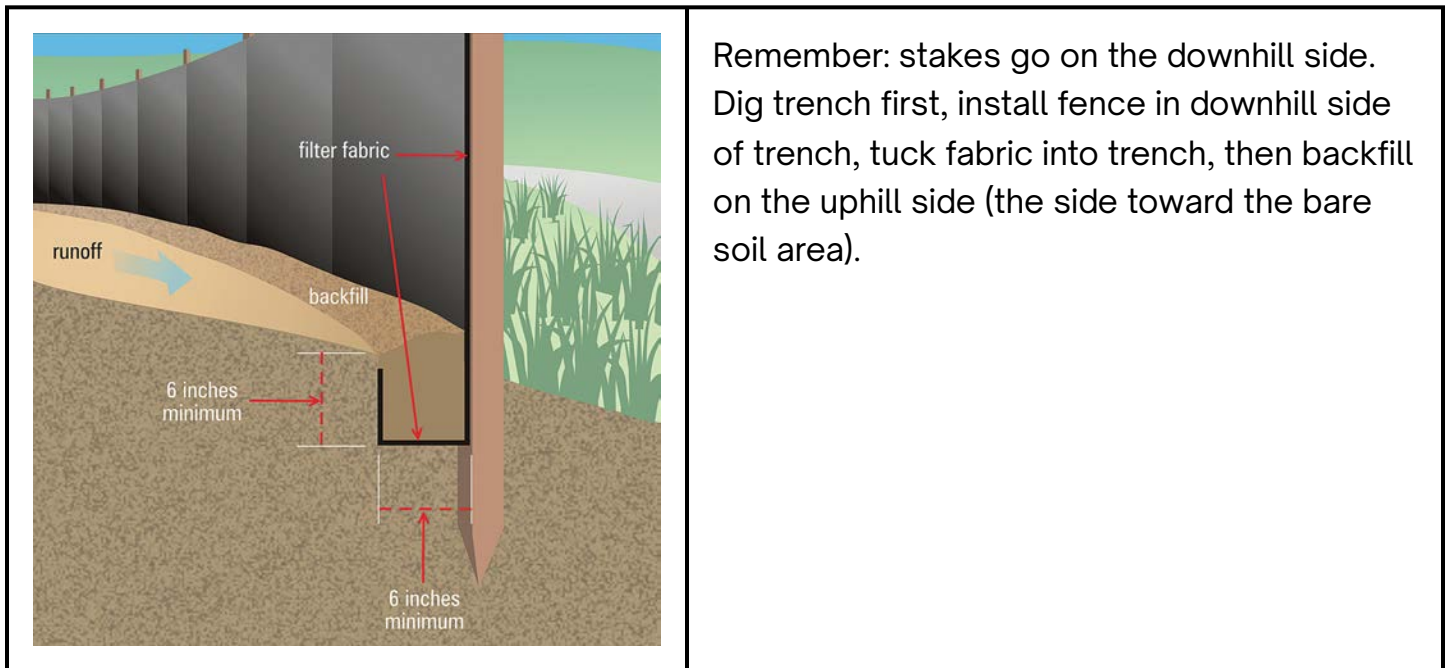
Silt fence installation

Each 100-foot section of silt fence can filter runoff from about $\frac{1}{4}$ acre (about 110 feet uphill). To install a silt fence correctly, follow these steps:

- Note the location and extent of the bare soil area.
- Mark silt fence location just below bare soil areas.
- Make sure fence will catch all flows from area.
- Dig trench 6 inches deep across slopes.
- Unroll silt fence along trench.
- Join fencing by rolling the end stakes together.
- Make sure stakes are on downhill side of fence.
- Drive stakes in against downhill side of trench.
- Drive stakes until 8 to 10 inches of fabric is in trench.
- Push fabric into trench; spread along bottom.
- Fill trench with soil and tamp down.

Silt fencing should not be installed:

- Up and down hills.
- Above (uphill from) areas of bare soil.
- In ditches, channels, or streams.



Remember: stakes go on the downhill side. Dig trench first, install fence in downhill side of trench, tuck fabric into trench, then backfill on the uphill side (the side toward the bare soil area).

Silt fence spacing on sloping sites

Slope Angle	Soil Type		
	Silty	Clays	Sandy
Very Steep (1:1)	50 ft.	75 ft.	100 ft.
Steep (2:1)	75 ft.	100 ft.	125 ft.
Moderate (4:1)	100 ft.	125 ft.	150 ft.
Slight (10:1)	125 ft.	150 ft.	200 ft.



For silt fences treating high flows from steep slopes, reinforce the silt fence with woven wire and metal fence posts. Install wire fencing between the posts and the silt fence filter fabric, so pressure on the fabric from uphill flows is distributed across the wire fencing, then to the posts.

If muddy runoff flows along the uphill side of a silt fence, install “J-hooks” every 40 to 80 feet. These are curved sections of silt fence that act as small dams to stop, pond up and filter or settle out flows.

Use J-hooks to trap and pond muddy runoff flowing along uphill side of silt fence. Turn ends of silt fence toward the uphill side to prevent bypassing. Use multiple J-hooks every 50 to 150 feet for heavier flows.

Silt fence slicing devices

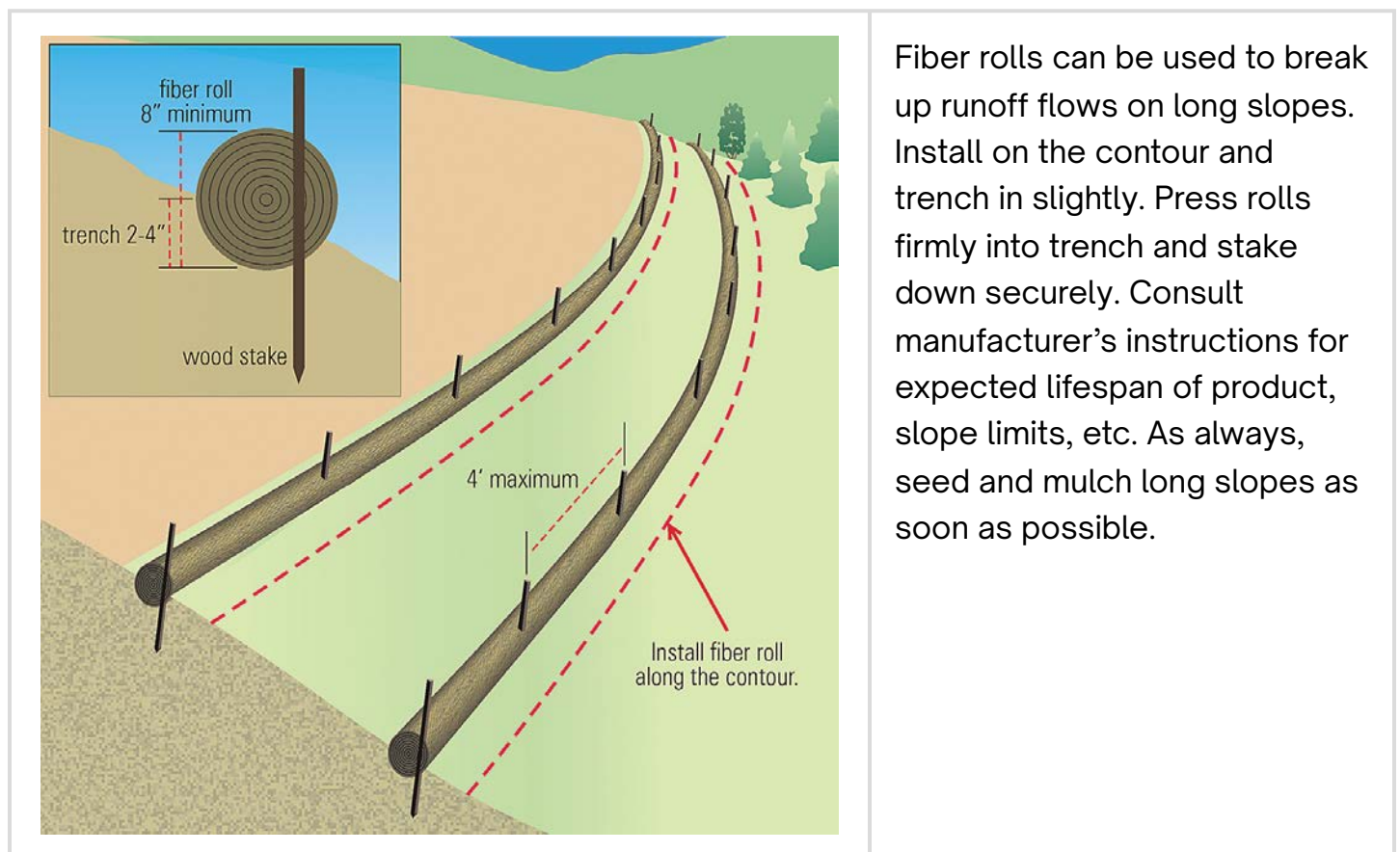
Tractor-mounted equipment that “slices” silt fence into the ground can provide a better installation than the open trench method. The equipment uses a chisel-point or vibratory plow to create a narrow slit in the ground. Rolled silt fencing is pushed into the slit, creating a very tight seal that prevents water from blowing out the bottom of the fence. Posts are driven and attached to the fence after the fencing is installed.

Besides better performance, the slicing method is also faster. For slicing and all other applications, posts are spaced 6 feet apart or less.

Other sediment barriers

Brush cleared from the site can make an excellent sediment filter if it is properly placed and built up well. Brush barriers are installed on the contour and are 2 to 5 feet high and 4 to 10 feet wide at the base. Walk them down slightly with a loader or dozer to compress the material in the brush barrier. Stuff additional brush on the uphill side where bypasses or undercutting are evident.

Fiber rolls and other commercial products made from coconut fiber, plastic, wood shavings, or other material can also be used as sediment barriers on slopes flatter than 10:1. Follow manufacturers' installation instructions and ensure that sediment filter spacing on slopes is correct. Make sure runoff does not bypass brush barrier, coconut rolls, or other barriers underneath or around the ends.

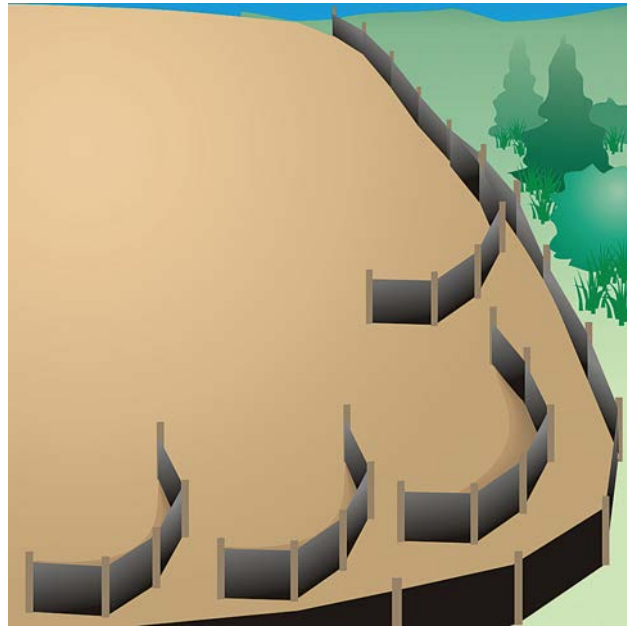


Maintenance of sediment barriers

Sediment collecting behind silt fences must be removed before it is halfway up the fence. Move collected sediment to a vegetated area or other place where it will not wash into ditches, channels, or streams. Re-trench and tamp down fencing that is undercut by gullies.

Stop uphill gully formation by grading, seeding, and mulching, or filling with rock, soil, brush, or other material. Use erosion control blankets or turf reinforcement mats to control large areas of uphill erosion. Replace broken or bent-over stakes. Inspect places where fences are joined to make sure joint is solid. Install J-hooks where water flows along silt fence if

necessary. Remove all silt fences and grade and seed the area when grass is established, before the project is completed.



Silt fences don't have to be on the property line. Placing them on slopes with the ends turned up to trap sheet flow provides better performance. Stagger fence sections to ensure total coverage. Clean out when sediment reaches one-third of the fence height. Repair as needed, and remove when grass is well established.



Very good use of continuous “super” (reinforced) silt fence and shot rock sediment barrier (far side) to filter muddy runoff from commercial development site. Note that wire fencing is installed between the filter fabric and the posts.



Good use of J-hook in silt fence to trap sediment in water running along fence. Sediment must be removed when it reaches one-third of the silt fence height.



Very good installation of multiple silt fences on long slope. Turn ends of fencing uphill to prevent bypass. Leave silt fences up until grass is well established on all areas of the slope. Re-seed bare areas as soon as possible. Remove or spread accumulated sediment and remove silt fence after all grass is up.



Poor example. Silt fence not trenched in at bottom.



Silt fence only placed in areas where erosion was already occurring and not the entire site.



Silt fence placement incorrect and not trenched in. Poor installation has resulted in water flowing around the edge and under the silt fence.



Good application of silt fence to protect drop inlet. Make sure fencing is trenched in and soil around fabric is compacted.



Sediment barrier installed backwards. Silt fence fabric should face bare soil area. Stakes go on downhill side. Straw bales can be used to back-up fence on downhill side, but not alone.

Resources

[Environment Canterbury - YouTube Video on Silt Fence Installation](#)

[Stanley "Dirt Monkey" Genadek - YouTube Video on Silt Fence and Biolog Installation](#)

[EPA Fiber Rolls](#)

[EPA Silt Fences](#)