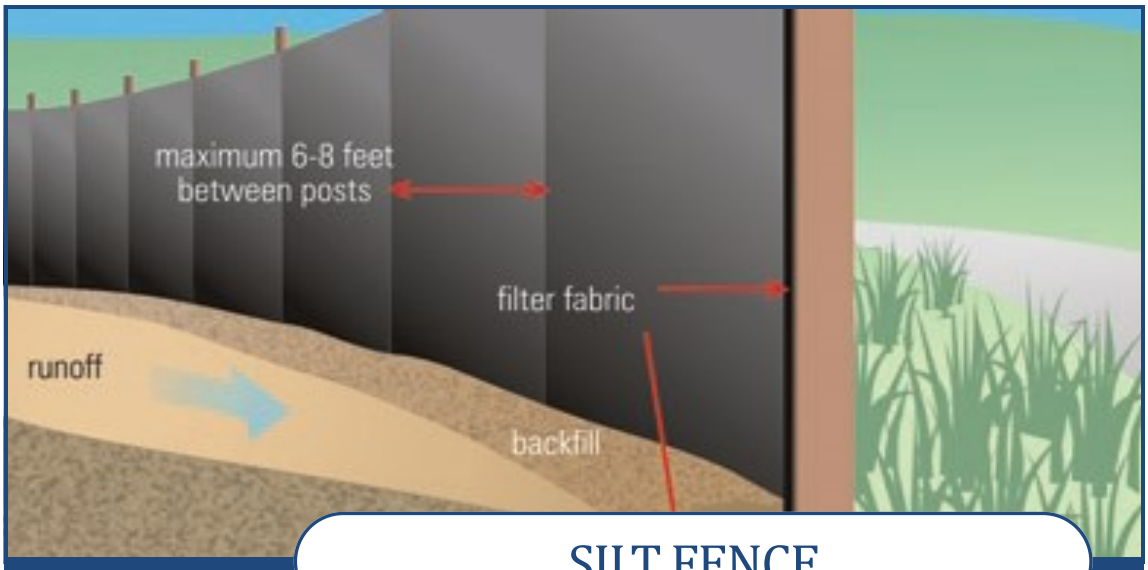
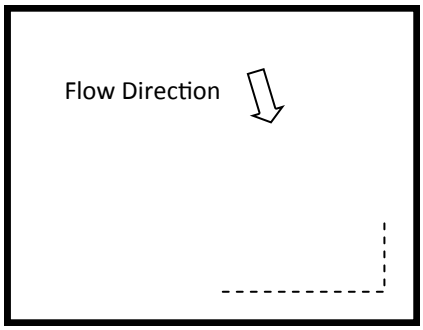


SILT FENCE

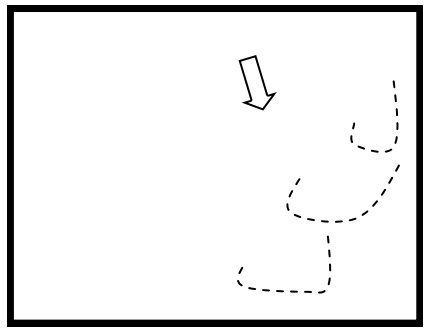
The purpose of silt fence is to retain the soil on disturbed land until the activities disturbing the land are sufficiently completed to allow revegetation and permanent soil

A silt fence is a temporary sediment barrier made of porous fabric. It's held up by wooden or metal posts driven into the ground, so it's inexpensive and relatively easy to remove. The fabric ponds sediment-laden stormwater runoff, causing sediment to be retained by the settling processes. A single 100 foot (ft) run of silt fence may hold 50 tons of sediment in place. Most construction sites today do have silt fences. But many do not work effectively because they are not well designed, installed, or maintained. The focus of this fact sheet is—how to make silt fences work.

Placement is important because where a fence starts, runs, and ends is critical to its effectiveness. Improper placement can make the fence a complete waste of money. Analyze the construction site's contours to determine the proper placement. Segment the site into manageable sediment storage areas for using multiple silt fence runs.



Old Way—one continuous piece of fencing



New Way (J-hook) —several pieces of fencing

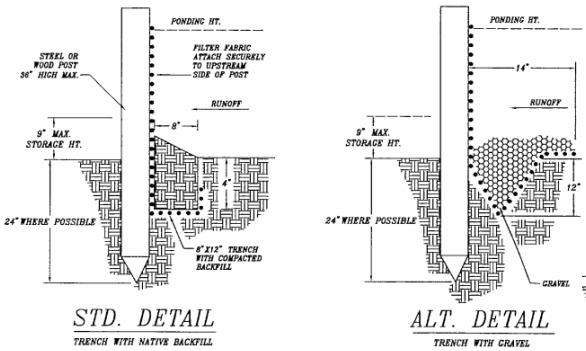
INSTALLATION

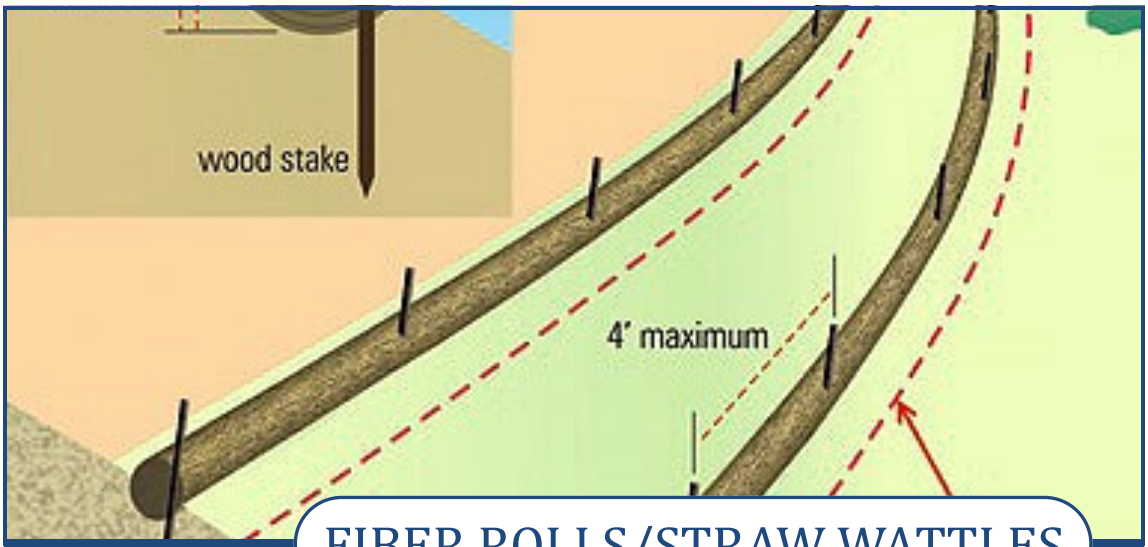
TRENCHING AND SLICING

Installing a silt fence properly requires that the bottom of the fence be trenched into the ground. Proper installation inhibits water from undermining the fence and leaving the fence ineffectual. Two popular methods of installation include using a slicer, which creates a thin trench and installs the fence fabric in one pass, the other installation method uses a trencher or hand tools to create a trench in which the fence fabric is placed. Both methods are effective but the automated slicer, pictured below, offers a little more strength because of how the surrounding soil is not disturbed during installation.

Regardless of the installation method, proper attachment of the fabric to the posts is critical to combining the strength of the fabric and support posts into a unified structure. It must be able to support 24" of sediment and water. For steel posts use three plastic ties per post (50 lb test strength), located in the top 8" of the fabric, with each tie hung on a post nipple, placed diagonally to attach as many vertical and horizontal threads as possible. For wooden posts use several staples per post, with a wood lath to overlay the fabric.

Metal-mesh backed fencing is necessary in areas with anticipated heavy sediment loads, steeper slopes and during winter [wet season (October 15-April 15)] periods. Spacing of stakes should be 10 ft. maximum with metal-mesh fencing and 6ft. maximum without mesh backing.





FIBER ROLLS/STRAW WATTLES

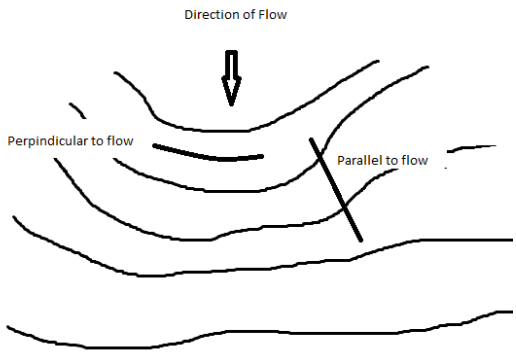
Fiber rolls complement permanent best management practices used for source control and revegetation

Fiber rolls (also called fiber logs or straw wattles) are tube-shaped erosion-control devices filled with straw, flax, rice, coconut fiber material, or composted material. Each roll is wrapped with UV-degradable polypropylene netting for longevity or with 100 percent biodegradable materials like burlap, jute, or coir. When installed in combination with straw mulch, erosion control blankets, hydraulic mulches, or bounded fiber matrices for slope stabilization, these devices reduce the effects of long or steep slopes. Fiber rolls also help to slow, filter, and spread overland flows. This helps to prevent erosion and minimizes rill and gully development.

Suitable 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 with minimal grade
- Down-slope of exposed soil areas
- At operational storm drains as a form of inlet protection
- Around temporary stockpiles

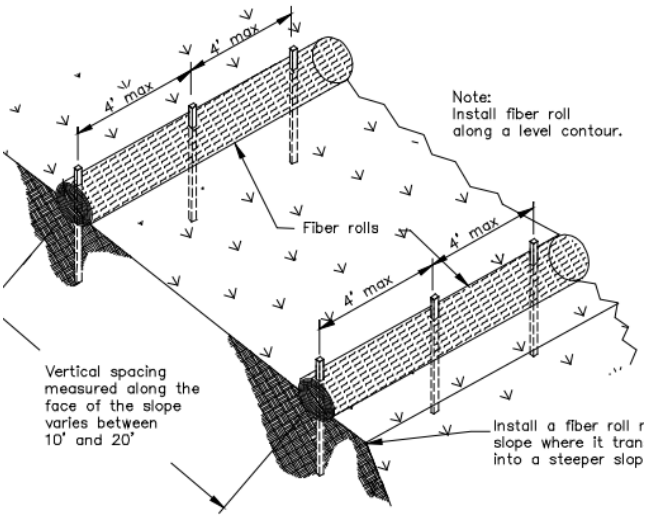
It is critical that rolls/wattles are installed perpendicular to water movement, and parallel to slope contours. Do not install parallel to the flow path. The rolls/wattles should be slightly overlapped when placed in a row.



INSTALLATION

TRENCHING AND STAKING

Fiber rolls are not effective unless trenched in and staked. Installing a fiber roll is relatively easy. The primary concern when using this BMP is that it is anchored appropriately to prevent the roll from being transported or moved during a large event, thus leaving it ineffectual. Trenching is also important when installing the rolls on slopes because even on minimally sloped sites water may undermine the rolls and create rills and gullies– trenching helps prevent this scenario.



Two types of staking methods can be used. In general, the most common method is to drive a stake through the center of the wattle, every four feet is recommended (pictured to the left). The second method utilizes stakes and some sort of rope to secure the wattle. This is more laborious but is required on steeper slopes or in areas where higher flows may be expected (pictured below), especially during the rainy season.

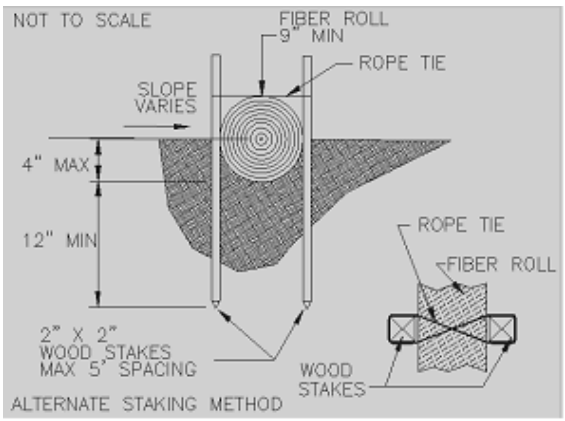
Remember, that in both staking methods the wattle should be trenched in at a minimum of two (2) inches for it to be effective.

Slope Installation:

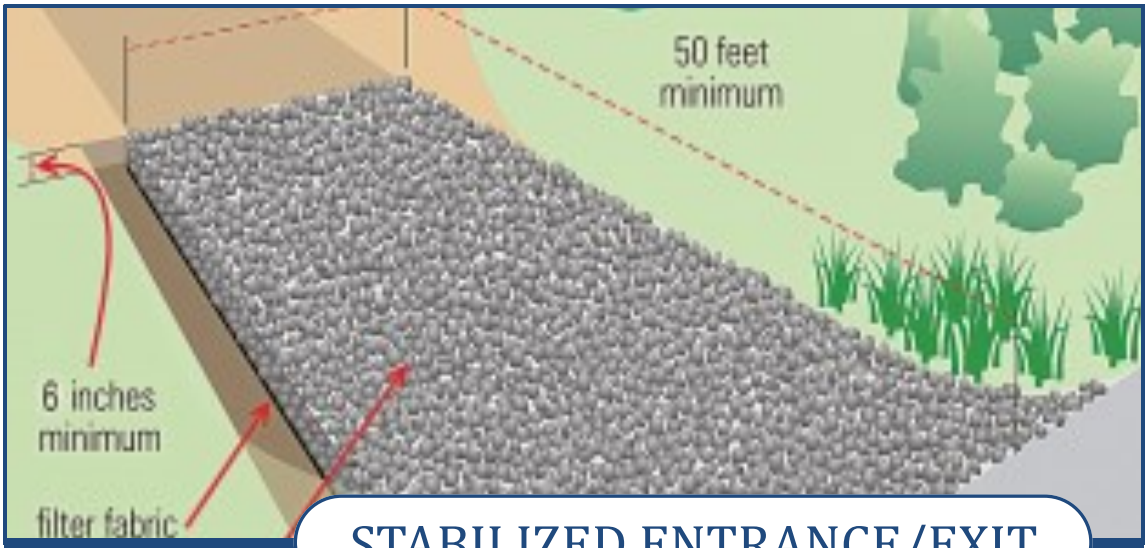
4:1 (H:V) or flatter: Fiber rolls should be placed at a maximum interval of 20 feet

between 4:1 and 2:1 (H:V) Fiber Rolls should be placed at a maximum interval of 15 feet (a closer spacing is more effective)

2:1 (H:V) or greater: Fiber Rolls should be placed at a maximum interval of 10 ft, (a closer spacing is more effective)



Temporary installations should be removed when up gradient areas are stabilized with permanent ground cover



STABILIZED ENTRANCE/EXIT

A stabilized construction access is defined by a point of entrance/exit to a construction site that is stabilized to reduce the tracking of mud and dirt onto public roads

Stabilized construction site entrances and exits should be implemented at all constructions sites. This BMP is especially important on sites where dirt or mud can be tracked onto public roads, adjacent to water bodies, where poor soils are encountered, where dust is a problem during dry weather conditions, and during wet season conditions.

Stabilized Construction Site Entrances should limit the points of entrance and exit to the construction site. All vehicles should use the designated entrance and exit. Design of the entrance/exit should support the heaviest of vehicles, and should be properly graded to prevent runoff from leaving the site.

The use of manufactured steel plates (rumble plates) with ribs for entrance/exit access is allowed and maybe a necessary secondary BMP to the stabilized entrance/exit if off-tracking continues to occur.

Street sweeping/vacuuming may be needed if off-tracking is persistent. Removal of sediment deposits on public roadways shall be removed within 24-hours

Other solutions like a longer stabilized entrance/exit area or the use of a larger aggregate (do not exceed 6 in) may also aid if off-tracking is persistent.

Periodic top-dressing of the aggregate may be required to ensure the integrity of the entrance during construction. Crushed Rock material shall be added when surface voids are no longer visible.

INSTALLATION

DIMENSIONS AND MATERIALS

A stabilized construction site entrance /exit may vary slightly depending on the site. However, the following elements/requirements should be used every time.

Required materials and dimensions (minimum standards):

- The aggregate used shall be 2-inch crushed rock or 1 to 3 inch diameter washed well graded gravel.
- The entrance shall be properly graded to prevent runoff from leaving the site
- Shall be constructed on relatively level ground
- Dimension must be at a minimum 50 feet in length and 24 feet wide with a radius of 10 feet
- The depth shall be at a minimum 6 inches

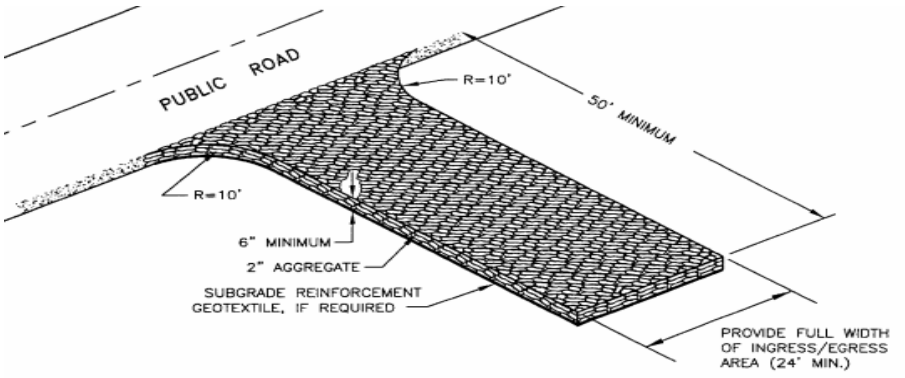
Optional materials:

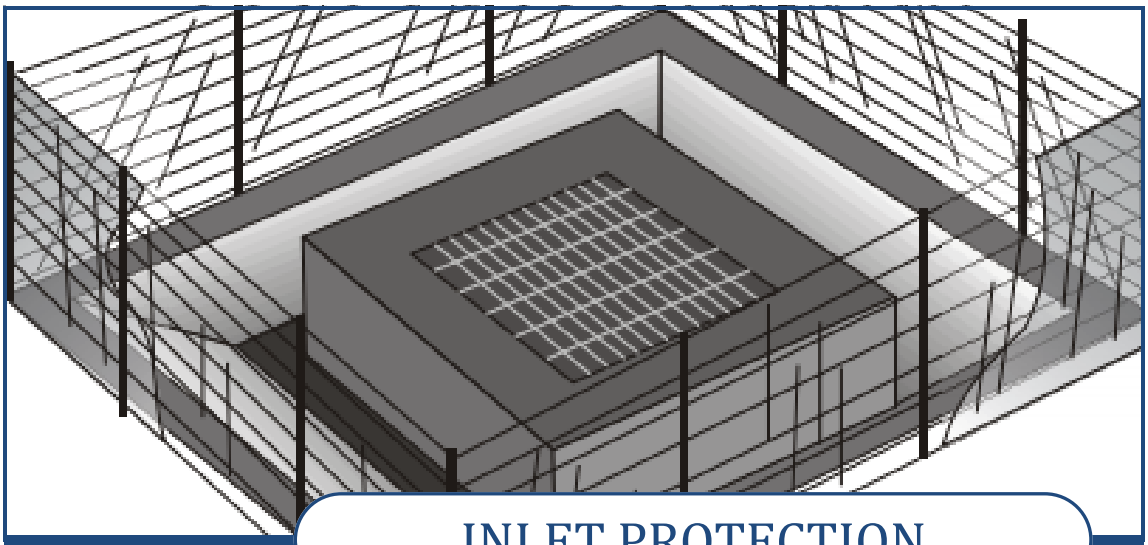
- If subgrade reinforcement is necessary, a geotextile fabric shall be placed under the aggregate. This must be removed upon final stabilization

Inspections:

These and all BMPs must be inspected regularly. It is recommended that they be inspected:

- Monthly or more regularly,
- Prior to any forecasted rain events,
- Daily during extended rain events, and
- After the conclusion of rain events.





INLET PROTECTION

Storm drain inlet protection consists of a sediment filter or an impounding area in, around or upstream of a storm drain, drop inlet, or curb inlet.

Storm drain inlet protection measures temporarily pond runoff before it enters the storm drain allowing sediment to settle. Some filter configurations also remove sediment by filtering, but usually the ponding action results in the greatest sediment reduction. Temporary geotextile storm drain inserts attach underneath storm drain grates to capture and filter storm water.

Every storm drain inlet receiving runoff from unstabilized or otherwise active work areas should be protected. Inlet protection should be used in conjunction with other erosion and sediment controls to prevent sediment-laden storm water and non-storm water discharges from entering the storm drain system.

Common inlet protection techniques include:

- Silt fence
- Excavated inlet sediment trap
- Gravel bag barrier—recommended
- Block and Gravel filter
- Temporary geotextile storm drain insert

http://www.townoftruckee.com/departments/building-and-safety

http://www.townoftruckee.com/departments/engineering/clean-water-program

INSTALLATION

TECHNIQUES AND MATERIALS

Inlet protection is the last line of defense for water quality prior to water entering the system and being transported to a creek or stream.

Installation techniques and materials vary depending upon the type of protection being utilized. However, certain criteria remains consistent regardless of the technique.

Required materials and techniques:

- Grates and spaces around all inlets should be sealed to prevent seepage of sediment-laden water
- Provide area around the inlet for water to pond without flooding structures and property

Inspections:

- Inspect Inlet protection BMP weekly (important during the rain y season)
- Inspect drain inlet barriers before and after storms,
- At 24-hour intervals during extended storms, and
- Check to determine if sediment is by-passing the barrier during inspections.
- Check for deterioration and tears of filter fabrics and bags and replace if necessary (see pic. below)
- Sediment that accumulates in the BMP should be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height (see pic below).

Drain inlet protection needs to be removed once the construction site is stabilized and the permit has been terminated. Clean and regrade area around the inlet. The area should be free of sediment and debris at the time of final inspection.