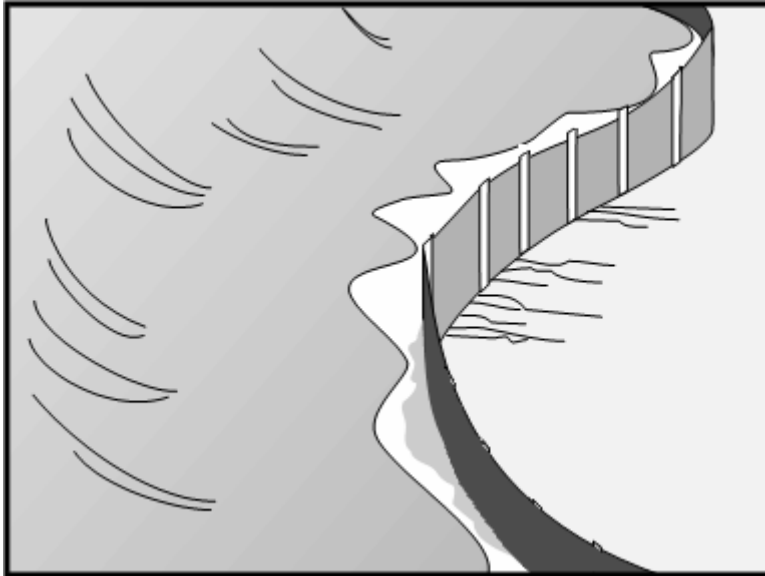

Silt Fence or Filter Fabric Fence

SC-1



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description

A sediment barrier composed of permeable geotextile filter fabric attached to supporting posts. Wire fencing may provide additional support. The silt fence intercepts the flow of sediment laden runoff, which filters the water and traps the sediment.

Applications

- Along the site perimeter.
- Around temporary stockpiles.
- Along streams and channels.
- Below the toe of cleared or erodible slopes.
- Downslope of exposed soil areas.

Installation and Implementation Requirements

- Primarily use where sheet flow occurs.
- Install silt fence along or parallel to contours.
- Ends of silt fence shall be turned uphill and the geotextiles should be overlapped.
- Silt fence posts shall be driven 14 inches minimum into the trench (see silt fence detail) and the geotextile filter fabric shall be embedded a minimum of 6 inches vertically into the ground or install according to manufacturer's recommendation.

Limitations

- Avoid installing silt fence on slope. However if silt fence is placed on slope, fence posts may need additional embedment.
- Do not install in streams, channels, or areas of concentrated flow.
- Do not use to divert flow.

Silt Fence or Filter Fabric Fence

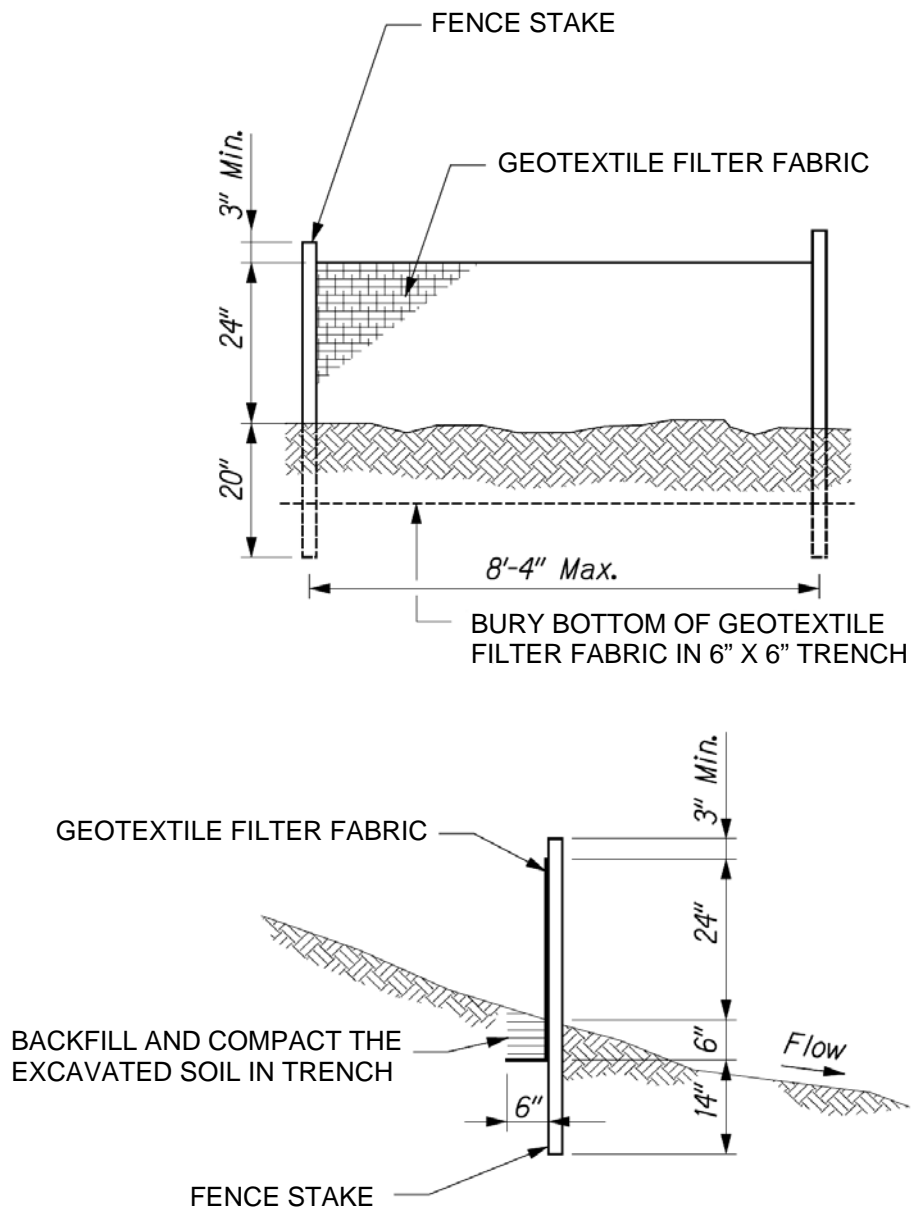
SC-1

Inspections and Maintenance

- Inspect weekly during dry periods as well as within 24 hours of any rainfall of 0.5 inch or greater which occurs in a 24-hour period and daily during periods of prolonged rainfall.
- Repair or replace damaged fence or posts.
- Remove accumulated sediment when depth reaches 1/3 the barrier height.

Silt Fence or Filter Fabric Fence

SC-1



NOTES:

1. THE FILTER FABRIC SHALL BE A MINIMUM OF 36 INCHES WIDE.
2. IF SILT FENCE IS OBTAINED FROM MANUFACTURER AS A PACKAGE (I.E. FABRIC ATTACHED TO POST) THE MANUFACTURER'S INSTALLATION INSTRUCTION SHALL BE ADHERED TO.
3. FENCE STAKES MAY BE WOOD OR METAL, MUST BE CAPABLE OF SUPPORTING ANTICIPATED LOADS.

SILT FENCE
NTS

Source: Water Pollution and Erosion Control Details, Fort Weaver Road Widening Vicinity of Aawa Drive to Geiger Road, Depart of Transportation Highways Division, 2007.

Vegetated Buffer Strips and Channels

SC-5



Source: Modified from Knoxville BMP Manual, 2003.

Description

Vegetative buffer strips and channels protect soil from erosion, increase infiltration, and remove sediment from surface runoff. Located adjacent to pollutant sources such as construction sites, vegetated buffer strips also provide protection to downstream receiving inlets or water bodies.

Applications

- Any site which is suitable for establishment of vegetation.
- Vegetated buffer strips are appropriate for uncurbed, paved areas; steep and potentially unstable slopes; and areas adjacent to sensitive water bodies.
- Vegetated channels are appropriate for surface runoff conveyed by channels to downstream inlets or receiving waters.

Installation and Implementation Requirements

- Refer to SM-16 (Preservation of Existing Vegetation) in this manual if existing vegetation will be used as a buffer strip.
- Installation of a buffer strip with new vegetation shall comply with the following:
 - Prior to cultivation of the designated buffer strip area, remove and dispose of all weeds and debris in accordance with *2005 Standard Specifications for Road and Bridge Construction*;
 - During construction, strip and stockpile good topsoil for surface preparation purposes prior to planting activities;
 - Plant the area upon completion of grading in the area;
 - Fine grade and roll areas to be planted after cultivating soil and, if applicable, installing the irrigation system;
 - Provide additional watering or irrigation of vegetation to supplement rainfall until vegetation has been established;
 - Fertilize vegetation in accordance with manufacturers' instructions and grass/soil requirements determined by testing of the soil;

Vegetated Buffer Strips and Channels

SC-5

Installation and Implementation Requirements (Continued)

- Vehicular traffic passing through vegetated buffer strips or channels shall be avoided to protect vegetation from damage and maximize its effectiveness;
- Comply with applicable regulations and manufacturers' instructions when applying fertilizers, pesticides, soil amendments, or chemicals;
- Comply with the following during seeding activities:
 - Add soil amendments such as fertilizer when preparing seedbed. Apply mulch after seeding to protect vegetation during establishment. Select an appropriate seed mixture based on site conditions. Dense grasses are more effective in reducing flow velocities and removing sediment. Thick root structures are necessary for erosion control,
 - Use proper equipment and methods to ensure uniform distribution and appropriate seed placement, and
 - Overseed, repair bare spots, and apply additional mulch as necessary; and
- Comply with the following during sodding activities:
 - Protect sod with tarps or other types of protective covering during delivery and do not allow sod to dry between harvesting and placement,
 - Any irregular or uneven areas observed prior to or during the plant establishment period shall be restored to a smooth and even appearance,
 - Prior to placing sod, ground surface shall be smooth and uniform,
 - Areas, which will be planted with sod and are adjacent to paved surfaces such as sidewalks and concrete headers, shall be 1.5±0.25 inches below the top grade of the paved surface after fine grading, rolling, and settlement of the soil.
 - Ends of adjacent strips of sod shall be staggered a minimum of 24 inches,
 - Edges and ends of sod shall be placed firmly against paved borders,
 - After placement of the sod, lightly roll sodded area to eliminate air pockets and ensure close contact with the soil,
 - After rolling, water the sodded area to moisten the soil to a depth of 4 inches,
 - Do not allow sod to dry,
 - Avoid planting sod during extremely hot or wet weather, and
 - Sod shall not be placed on slopes steeper than 3:1 (H:V) if the area will be mowed.

Limitations

- Site conditions such as availability of land.
- Flow depth and vegetative condition determine BMP effectiveness.
- May require irrigation to maintain vegetation.

Vegetated Buffer Strips and Channels

SC-5

Limitations (Continued)

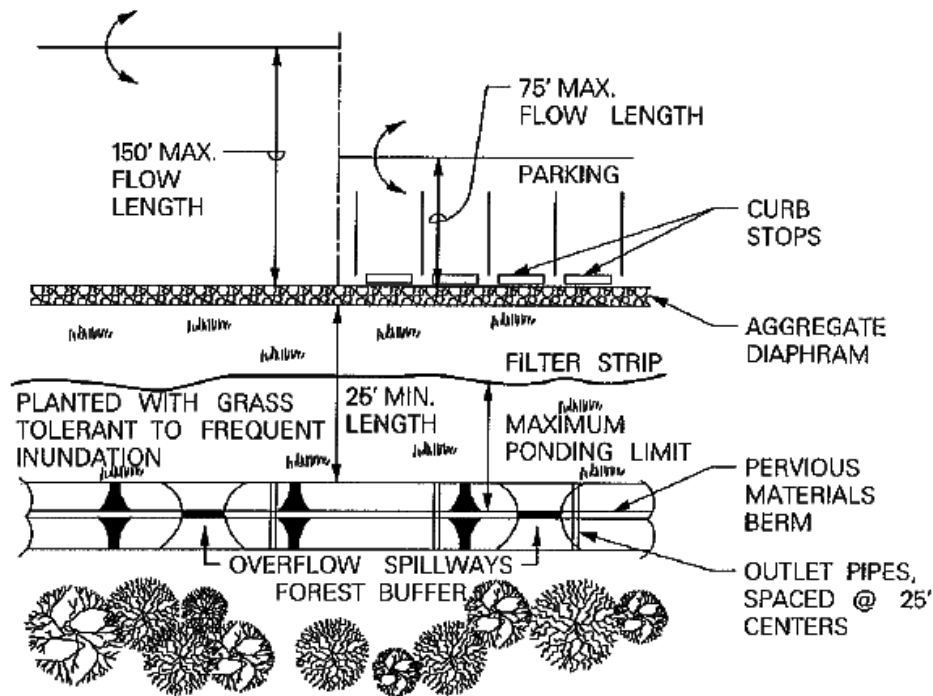
- High maintenance requirements may exist depending on the design condition of the vegetation.
- Unless existing vegetation is used as a buffer strip, an area will need to be provided specifically for a buffer strip and vegetation will need to be established.
- Maintaining sheet flow in buffer strips may be difficult.
- Vegetated channels require a larger area than lined channels.
- Vegetated channels require gradual slopes since runoff with high flow velocity may flow over grass rather than through it.

Inspections and Maintenance

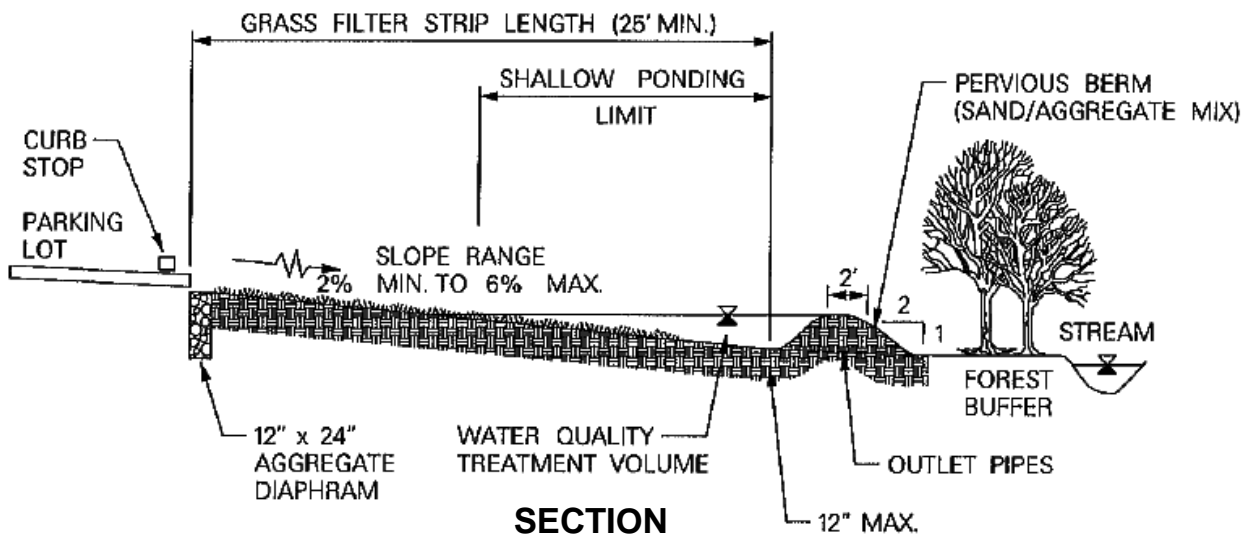
- Inspect weekly during dry periods as well as within 24 hours of any rainfall of 0.5 inch or greater which occurs in a 24-hour period and daily during periods of prolonged rainfall until vegetation is established. Repair eroded or damaged areas as necessary.
- Maintenance activities include mowing, weeding, and verification of a properly operating irrigation system, if applicable.
- Properly remove and dispose of clippings from mowing and trimming in accordance with *2005 Standard Specifications for Road and Bridge Construction*.

Vegetated Buffer Strips And Channels

SC-5



PLAN
NTS



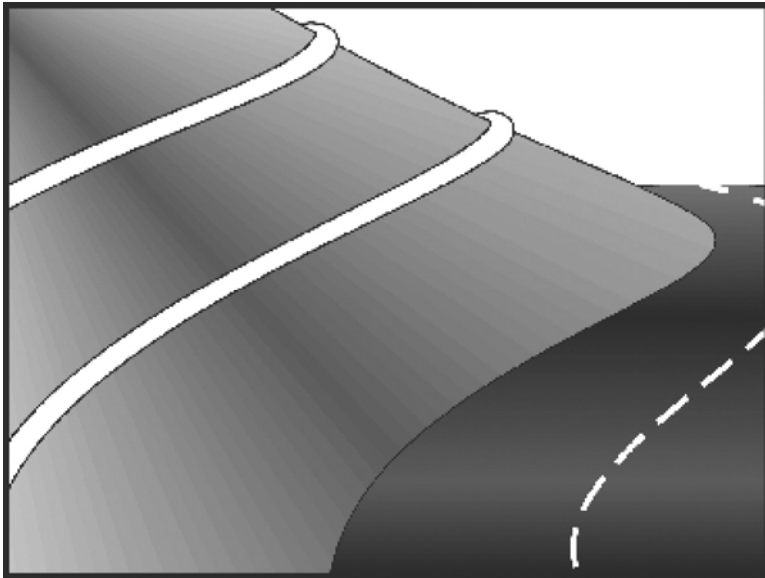
SECTION
NTS

TYPICAL VEGETATED BUFFER STRIP

Source: Prince George's County, Low-Impact Development Design Strategies:
An Integrated Environmental Design Approach, 1999.

Compost Filter Berm

SC-8



Source: Truckee Meadows Construction Site Best Management Practices Handbook, 2003.

Description	A dike consisting of composted material and placed perpendicular to runoff to reduce flow velocity and retain sediment and other pollutants.
Applications	<ul style="list-style-type: none">• Along the site perimeter.• Along the slope face.• Check dam in small drainage ditches.• Inlet protection for storm drains.• Appropriate for small drainage areas and low surface velocity flows (less than 1 cfs).• May be used in combination with other BMPs such as a compost blanket or silt fence for high rainfall areas and steeper or longer slopes.
Installation and Implementation Requirements	<ul style="list-style-type: none">• Usually located at the base of slopes, however, additional berms may be used for increased erosion protection.• Berm size is determined by factors including slope length and grade, soil characteristics, climate, and presence of existing vegetation.• Berms may be vegetated or unvegetated.• Compost quality shall comply with all local, state, and Federal requirements.

Compost Filter Berm

SC-8

Installation and Implementation Requirements (Continued)

- Installation of a compost filter sock, which consists of a mesh tube filled with composted material, as a type of compost filter berm shall comply with the following:
 - Assemble by tying a knot at one end of the mesh sock, filling the sock with compost, and knotting the other end of the sock. A pneumatic blower may be used to fill the sock with compost;
 - Use a filter sock equivalent to the length of the slope where practicable;
 - When use of multiple socks is required, place socks end-to-end and interlock the ends;
 - Anchor filter socks to ground; and
 - Turn ends of filter sock up slope to prevent flow around ends.
- Material for compost berm may be left at the site and used as a soil amendment.
- Mesh socks filled with compost may also be used for areas of concentrated flow such as near streams or shorelines.

Limitations

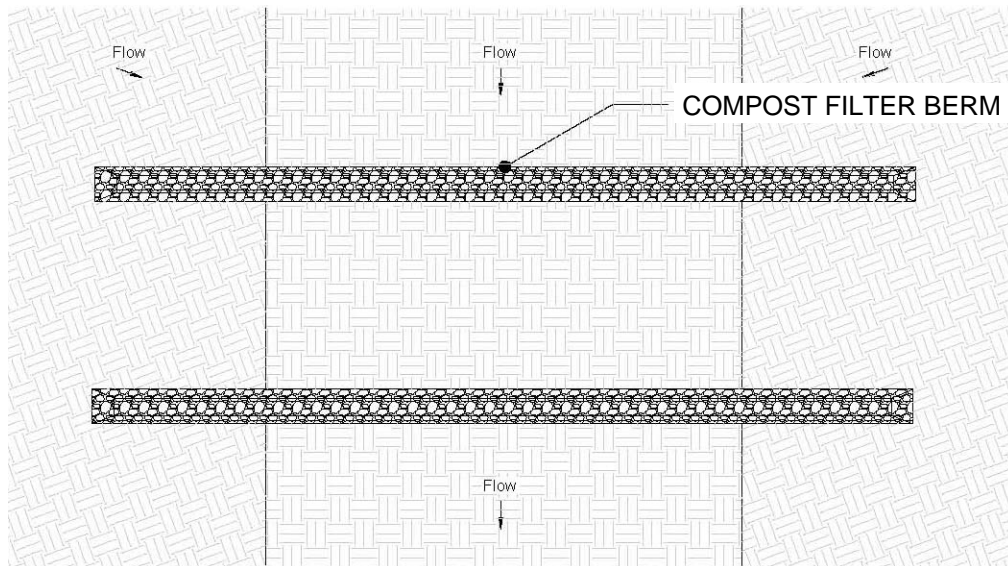
- Unsuitable for areas with concentrated runoff unless a low flow rate and small drainage area warrants use of a filter berm.
- Heavy vegetation must be removed to ensure close contact of compost with the ground surface.

Inspections and Maintenance

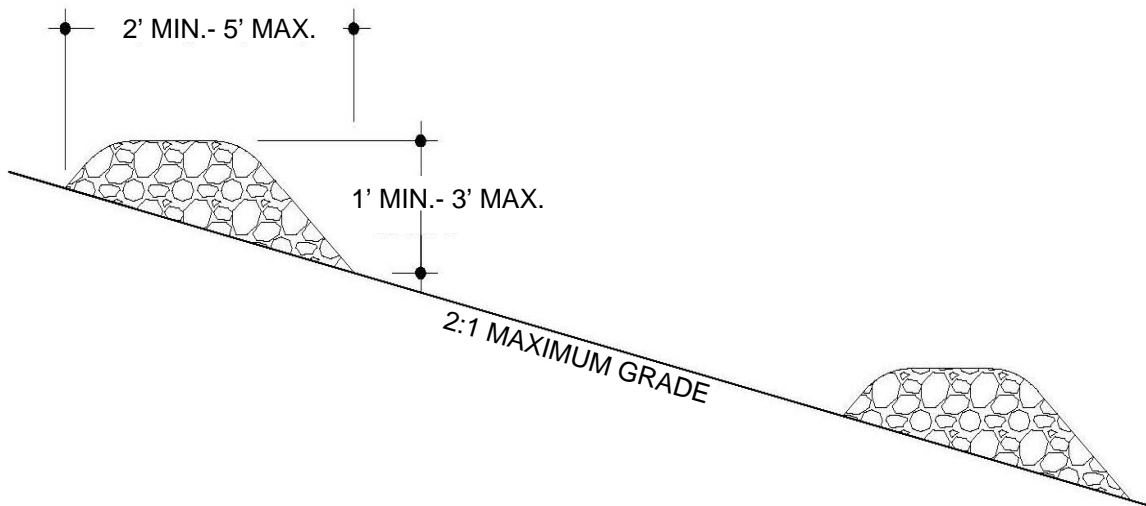
- Inspect weekly during dry periods as well as within 24 hours of any rainfall of 0.5 inch or greater which occurs in a 24-hour period and daily during periods of prolonged rainfall.
- Remove sediment which has accumulated to within 1/3 of the berm height.
- Replace disturbed or damaged areas of the berm.
- Significant washout may indicate a larger berm or additional BMPs such as a compost blanket or silt fence are required.

Compost Filter Berm

SC-8



PLAN
NTS



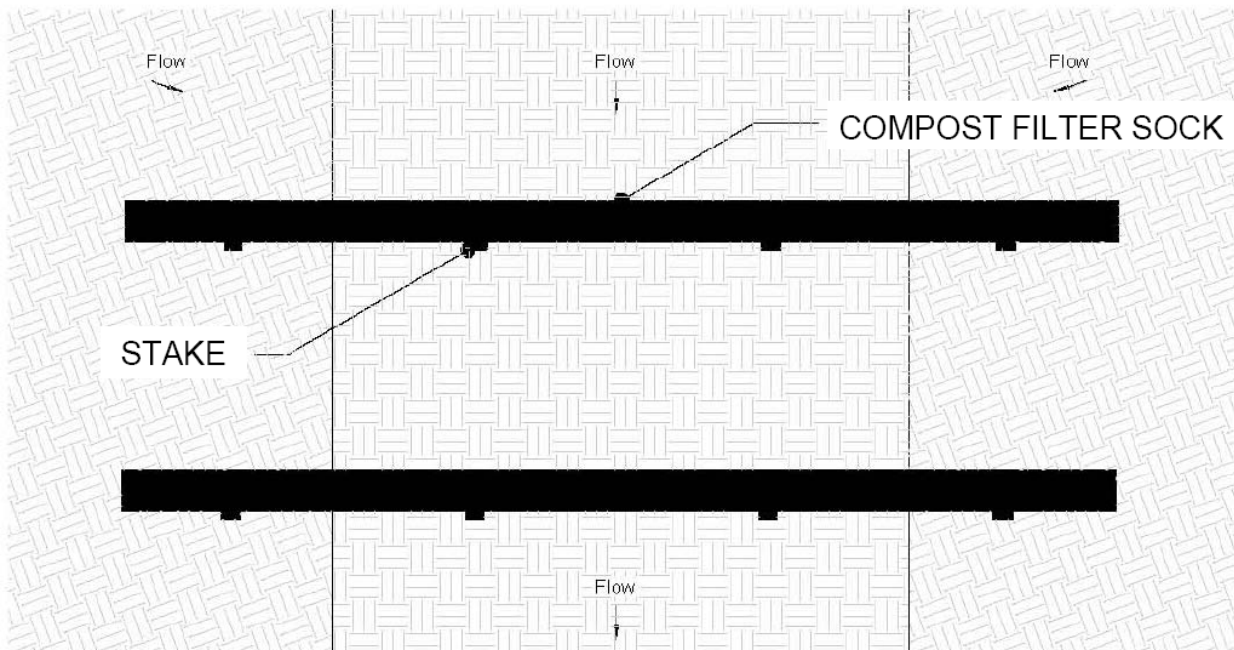
SECTION
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COMPOST FILTER BERM

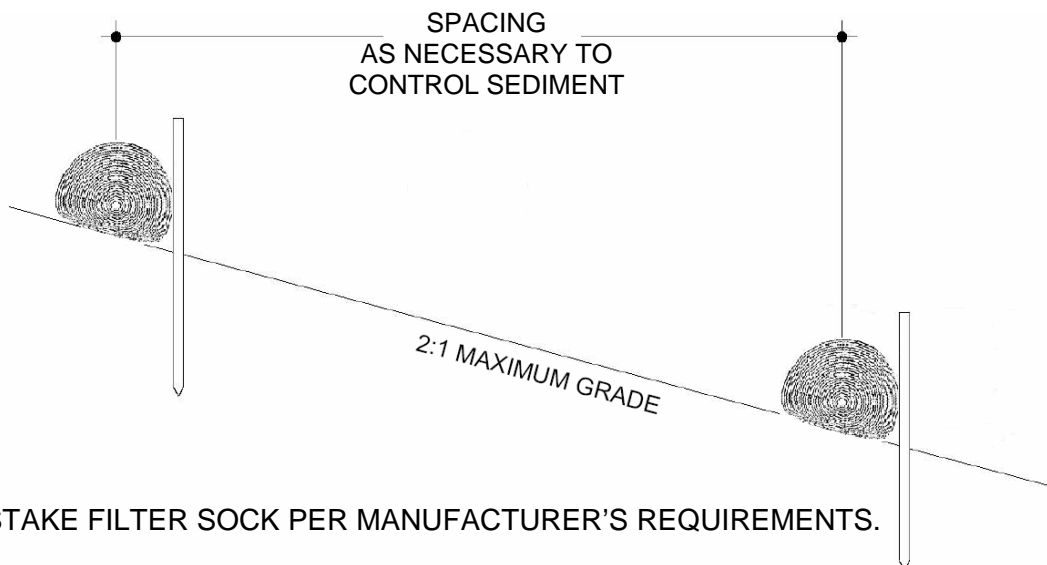
Source: Texas Commission on Environmental Quality, www.tceq.state.tx.us/assets/public/assistance/compost/erosioncontroldrawings.pdf accessed September 2006.

Compost Filter Berm

SC-8



PLAN
NTS



NOTE: STAKE FILTER SOCK PER MANUFACTURER'S REQUIREMENTS.

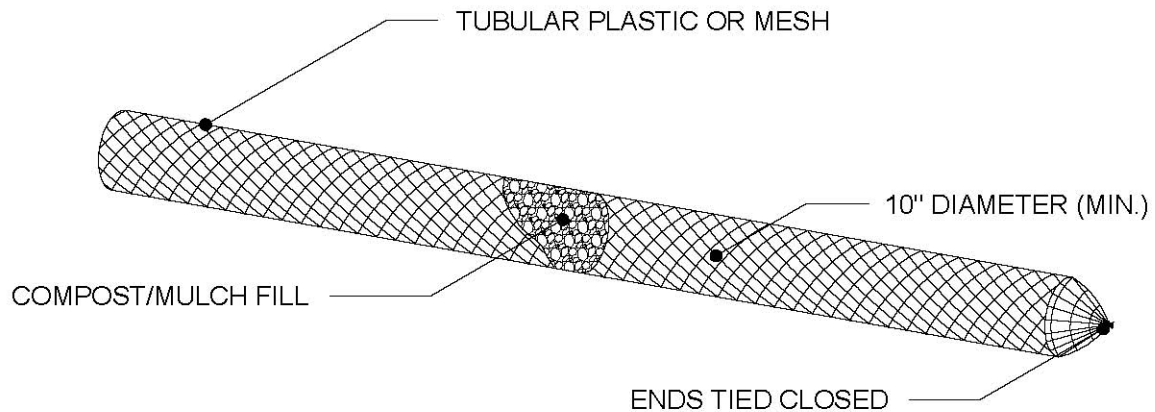
SECTION
NTS

COMPOST FILTER BERM (FILTER SOCK)

Source: Adapted from Texas Commission on environmental Quality, www.tceq.state.tx.us/assets/public/assistance/compost/erosioncontroldrawings.pdf accessed September 2006

Compost Filter Berm

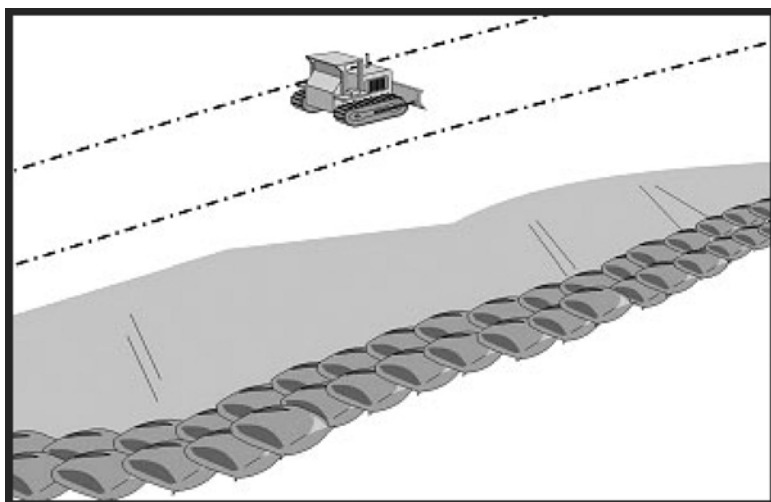
SC-8



COMPOST FILTER BERM (FILTER SOCK)

NTS

Source: Texas Commission on Environmental Quality, www.tceq.state.tx.us/assets/public/assistance/compost/erosioncontroldrawings.pdf accessed September 2006.



Source: Caltrans Construction Site Best Management Practices Manual, 2003.

Description	Stacked sandbags, which intercept sediment-laden sheetflow runoff to allow sediment to settle prior to discharge off-site.
Applications	<ul style="list-style-type: none">• Along the site perimeter.• Along streams and channels.• Utility trench barriers in channels.• Across swales with small catchments.• Diversion dike or berm.• Below toe of exposed slopes.• Temporary sediment trap.• Around stockpiles.
Installation and Implementation Requirements	<ul style="list-style-type: none">• Install bags end-to-end along a level contour.• Turn ends of sandbag barrier up slope to prevent flow around ends.• May be used in combination with soil stabilization controls up slope.• Materials for sandbag barrier shall comply with the following:<ul style="list-style-type: none">○ Sandbag shall be woven polypropylene or polyamide fabric with ultraviolet protection to avoid rapid deterioration of fabric.○ Bag dimensions can vary but must be able to withstand anticipated flows.○ Fill material shall consist of non-cohesive, permeable material free from clay and deleterious material.
Limitations	<ul style="list-style-type: none">• Drainage area shall not exceed 5 acres.• Avoid installing at locations which may compromise traffic safety.• Burlap material shall not be used for sandbags.

Sandbag Barrier

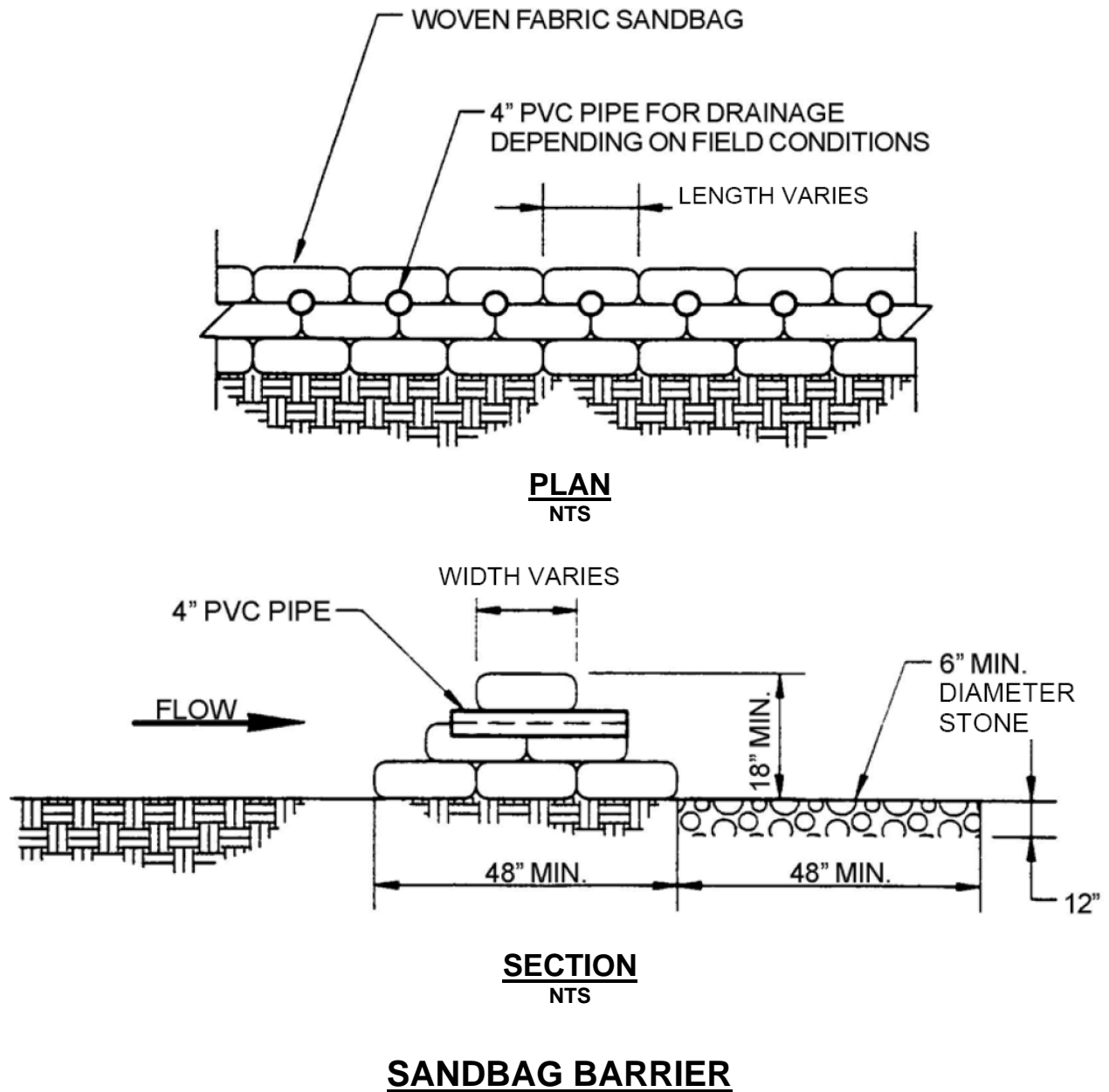
SC-13

Inspections and Maintenance

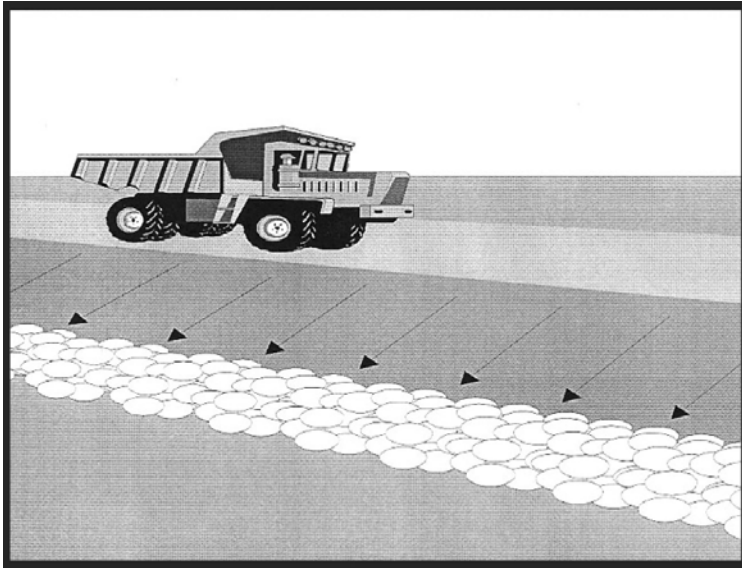
- Inspect weekly during dry periods as well as within 24 hours of any rainfall of 0.5 inch or greater which occurs in a 24-hour period and daily during periods of prolonged rainfall.
- Reshape or replace sandbags as necessary.
- Remove and properly dispose of sediment, which has accumulated to a depth of 6 inches.

Sandbag Barrier

SC-13



Source: CCH Best Management Practices Manual for Construction Sites in Honolulu, 1999.



Source: Knoxville BMP Manual, 2003.

Description	A berm composed of rock or brush placed across an area where sheet flow may occur. Sedimentation will occur as runoff intercepted by the berm is detained.
Applications	<ul style="list-style-type: none">• Check dams across construction roads with mild slopes.• Below the toe of slopes.• Along the site perimeter, streams, or channels.• Around temporary spoil areas.• Downstream of small cleared areas.• Sediment traps at culvert or pipe outlets.
Installation and Implementation Requirements	<ul style="list-style-type: none">• Use stones between ¾ to 3 inches in diameter or brush wrapped in geotextile filter fabric. Brush from site clearing may be used.• Place across areas of sheet flow.• If stones are used across an area of concentrated flow, use larger stones placed in staked and woven wire sheathing.• Construct along a level contour.• Provide an area behind berm for detention and sedimentation.
Limitations	<ul style="list-style-type: none">• Adequate detention area behind berm is necessary to prevent flooding upstream.• Drainage area shall not exceed 5 acres.• Removal of stone berms may be difficult resulting in limited usefulness in landscaped areas.

Brush or Rock Filter

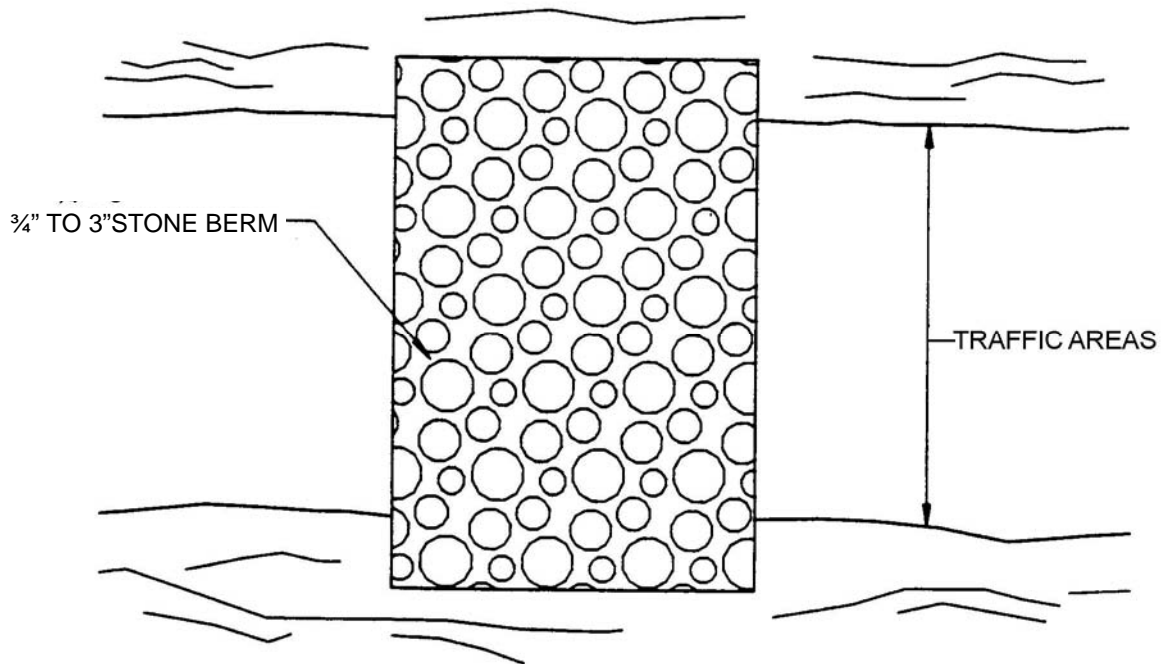
SC-14

Inspections and Maintenance

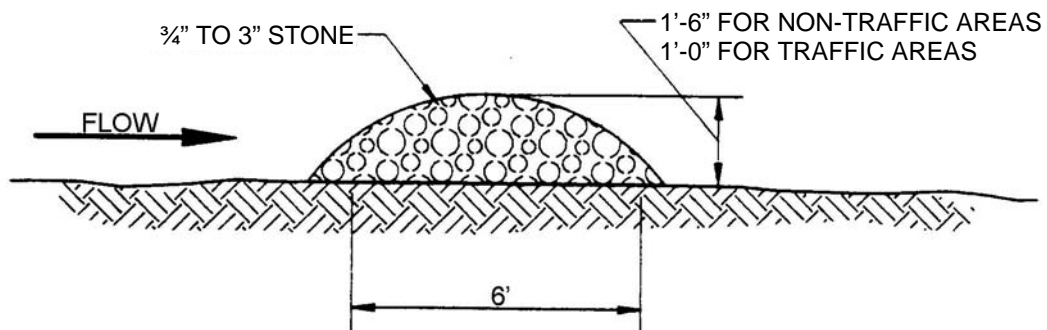
- Inspect weekly during dry periods as well as within 24 hours of any rainfall of 0.5 inch or greater which occurs in a 24-hour period and daily during periods of prolonged rainfall.
- Reshape berm and replace any missing or dislodged stone or brush.
- Remove and dispose of sediment on upstream side of filter upon reaching a depth of six inches.

Brush or Rock Filter

SC-14



PLAN
NTS



SECTION
NTS

BRUSH OR ROCK FILTER

Source: CCH Best Management Practices Manual for Construction Sites in Honolulu, 1999.