

Targeted Constituents

● Significant Benefit		▸ Partial Benefit		○ Low or Unknown Benefit	
● Sediment	○ Heavy Metals	○ Floatable Materials	○ Oxygen Demanding Substances		
○ Nutrients	○ Toxic Materials	○ Oil & Grease	○ Bacteria & Viruses	○ Construction Wastes	

Implementation Requirements

● High		▸ Medium		○ Low	
● Capital Costs	▸ O & M Costs	▸ Maintenance	● Suitability for Slopes >5%	○ Training	

Description

Prevent or reduce the discharge of pollutants to the storm drain system or to watercourses for sloped areas that would otherwise be unstable or have high erosion potential. This will be accomplished by stabilizing soil utilizing rolled and bound fiber material to intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide some sediment removal from runoff.

Suitable Applications

Slopes where soils must be stabilized. Site conditions that may warrant use of geotextile blankets and mats include:

- Steep slopes, generally steeper than 3:1 (H:V).
- Slopes where the erosion hazard is high.
- Critical slopes adjacent to sensitive areas, such as streams, wetlands, or other highly valued resources needing protection.
- Channels with flows exceeding 2 ft/s (0.6 m/s) to 4 ft/s (1.2 m/s).
- Channels intended to be vegetated and where the design flow exceeds the permissible velocity. The allowable velocity for turf reinforcement mats after vegetative establishment is up to 10 ft/s (3 m/s).

Appropriate mat and/or blanket materials must be selected for the specific site application.

Application Criteria

These systems should be designed by a licensed professional civil engineer.

Refer to TCP-10: Geotextiles for discussion of material selection, site preparation, seeding, anchoring, installation on slopes, installation in channels, soil filling, and fiber roles. Figures PESC-02-01 through 3 have also been provided to aid in evaluating

geotextiles in permanent applications.

Applying geotextiles permanently is most often done in support of permanent vegetation, upland and in-channel slope stabilization and erosion prevention. They are also often applied in construction of sediment traps, basins or dry/wet detention ponds outlets or emergency overflow structures.

Maintenance

In the long-term, regular inspection and maintenance is critical to guarantee the geotextile effectiveness.

- All blankets and mats should be inspected periodically after installation.
- Depending on the sensitivity of the protected area, inspections should be performed quarterly or biannually to ensure that any soil settlement or other unforeseen factors have not effected the geotextile fabric or fasteners. Thereafter inspections may be reduced to annually or biennially (every two years).
- Protected areas should be inspected after significant rain storms to check for erosion and undermining. Any failures should be repaired immediately, including replacement of fasteners.
- If washout or breakages occur, re-install the material after repairing the damage to the slope or channel.
- Inspect fiber rolls biannually (twice a year), preferably in late fall and early spring. Perform required maintenance including repair or replacement of split, torn, unraveling, or slumping fiber rolls.
- Geotextiles should also be inspected after extremely long or intensive storm events such as 10-year or less frequent storm events.

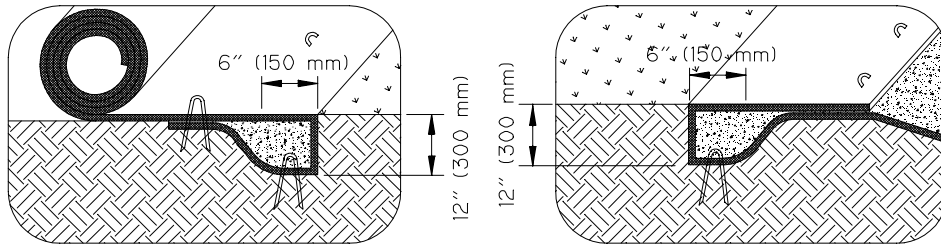
Limitations

Blankets and mats are typically more expensive than other erosion control measures, primarily due to labor costs. This usually limits their application to areas inaccessible to hydraulic equipment, or where other measures are not applicable, such as channels. Blankets and mats are generally not suitable for excessively rocky sites, or areas where the final vegetation will be mowed (since staples and netting can catch in mowers).

Primary References

California Storm Water Best Management Practice Handbooks, Construction Handbook, CDM et.al. for the California SWQTF, 1993.

Caltrans Storm Water Quality Handbooks, Construction Contractor’s Guide and Specifications, April 1997.

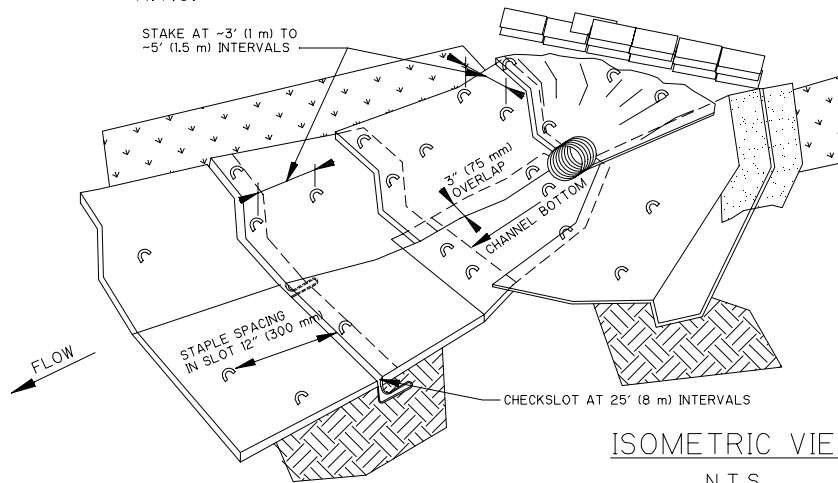


INITIAL CHANNEL ANCHOR TRENCH

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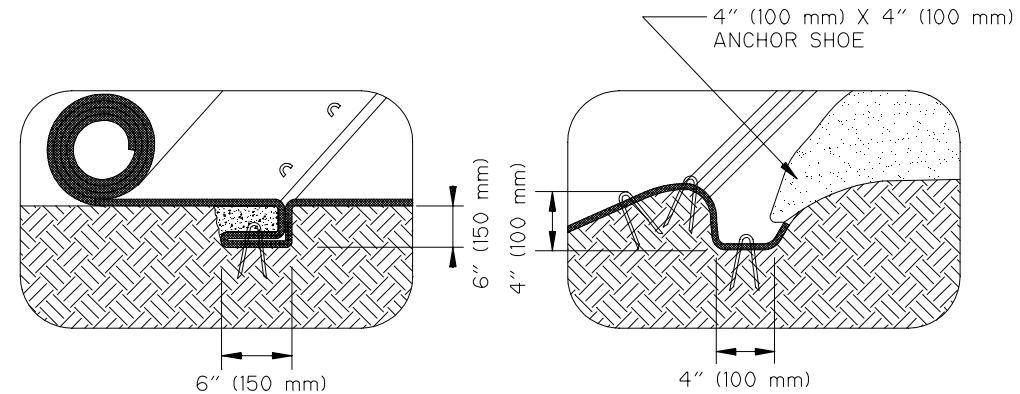
TERMINAL SLOPE AND CHANNEL ANCHOR TRENCH

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ISOMETRIC VIEW

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INTERMITTENT CHECK SLOT

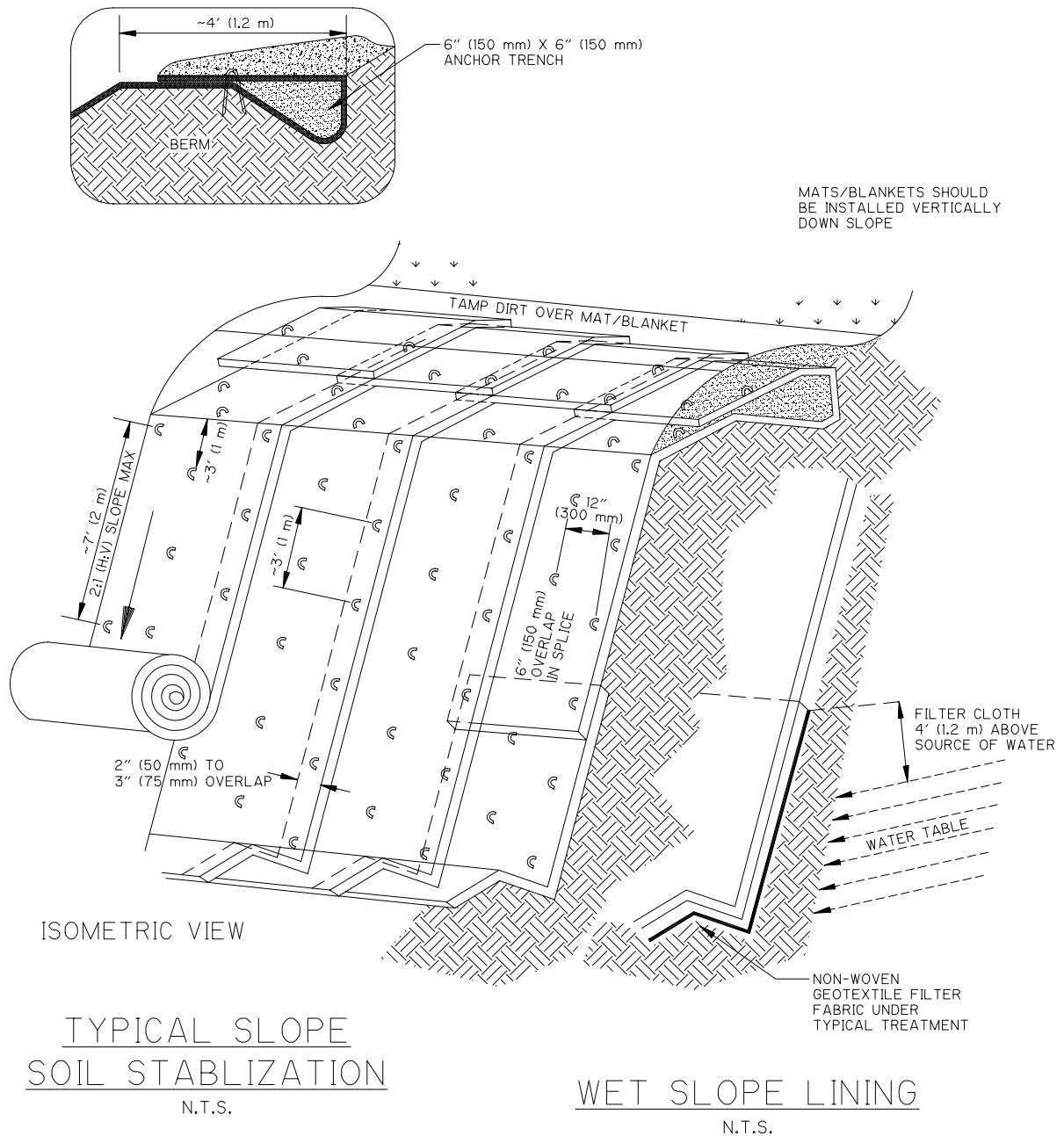
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LONGITUDINAL ANCHOR TRENCH

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- NOTES:
1. CHECK SLOTS TO BE CONSTRUCTED PER MANUFACTURER'S SPECIFICATIONS.
 2. STAKING OR STAPLING LAYOUT PER MANUFACTURER'S SPECIFICATIONS.

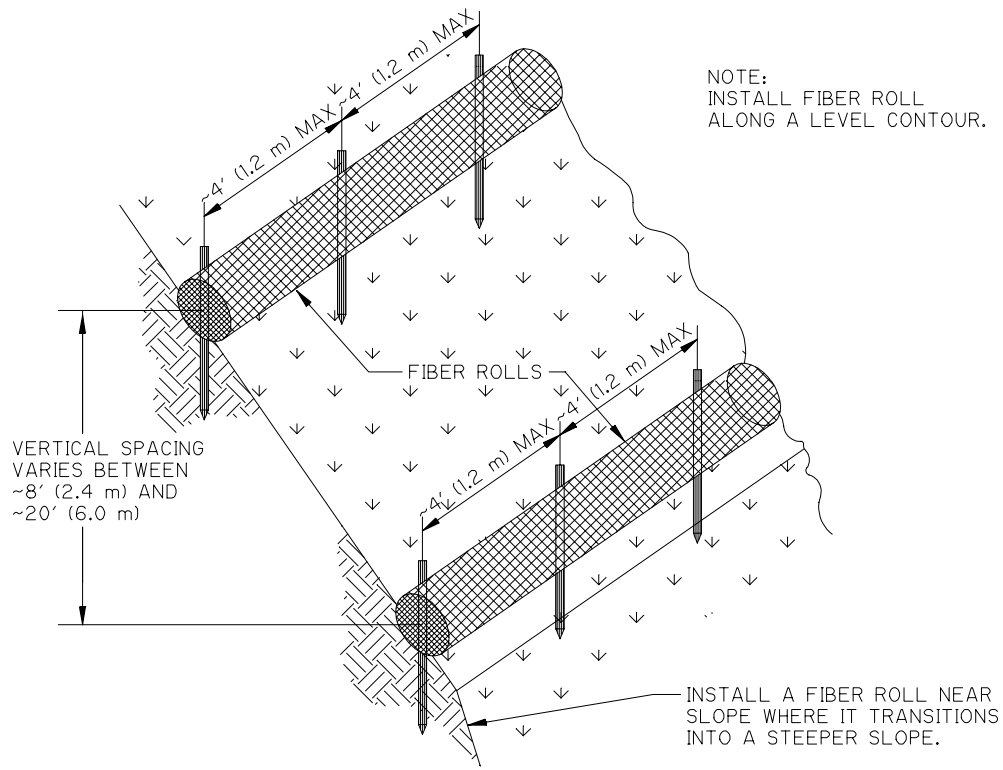
Figure PESC-02-1
Anchoring Geotextiles in Channels



NOTES:

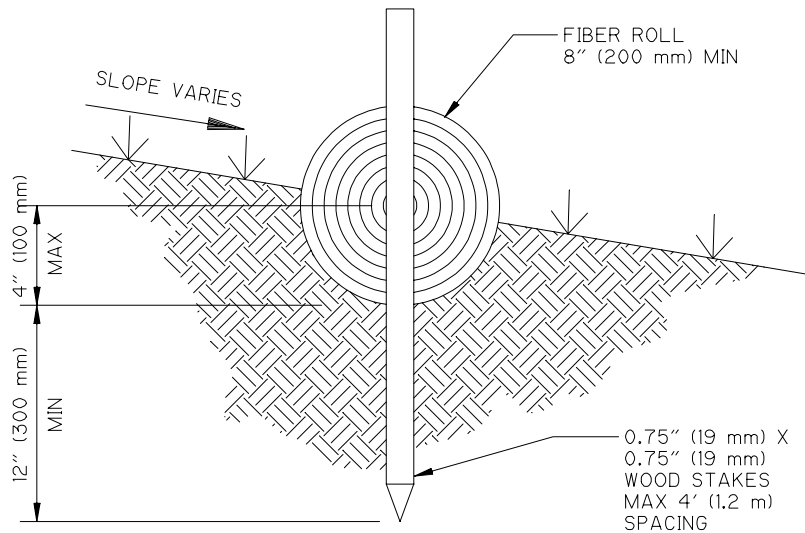
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, SOIL CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.

Figure PESC-02-2
Anchoring Geotextiles on Embankments



TYPICAL FIBER ROLL INSTALLATION

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ENTRENCHMENT DETAIL

N.T.S.

Figure PESC-02-3
Fiber Rolls