

DEVELOPERS/CONTRACTORS ARE RESPONSIBLE TO INSPECT ALL EROSION CONTROL DEVICES AND BMPs ARE INSTALLED AND FUNCTIONING PROPERLY AS REQUIRED BY THE STATE CONSTRUCTION GENERAL PERMIT. A CONSTRUCTION SITE INSPECTION CHECKLIST AND INSPECTION LOG SHALL BE MAINTAINED AT THE PROJECT SITE AT ALL TIMES AND AVAILABLE FOR REVIEW BY THE BUILDING OFFICIAL.

Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and at two-week intervals in the non-rainy season to verify continued BMP implementation.

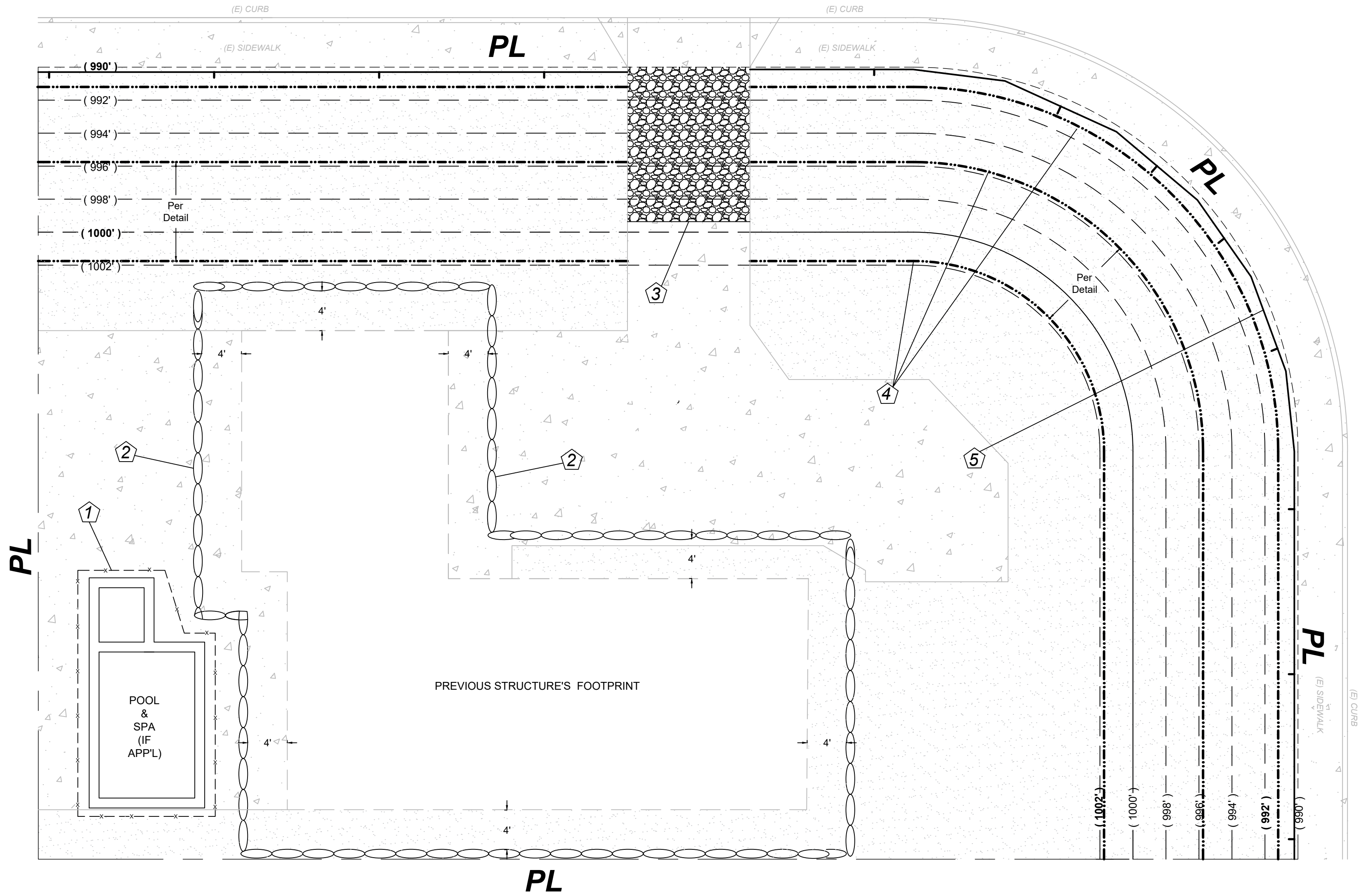
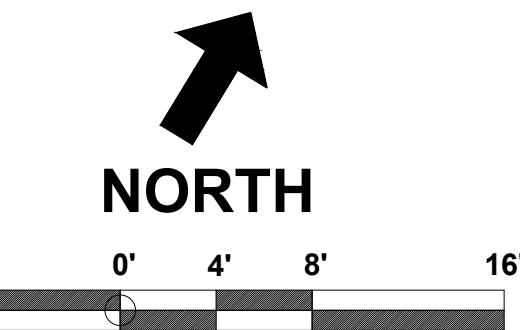
Check areas protected to ensure coverage.

Most dust control measures require frequent, often daily, or multiple times per day attention.

ADDITIONAL NOTES:

CONTRACTOR MAY NEED TO IMPLEMENT ADDITIONAL BEST MANAGEMENT PRACTICES DURING REBUILD/CONSTRUCTION PHASE.

5 SILT FENCING PER ESCP SHEET 5 DETAIL SC-1



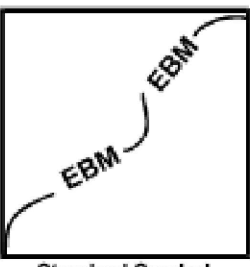
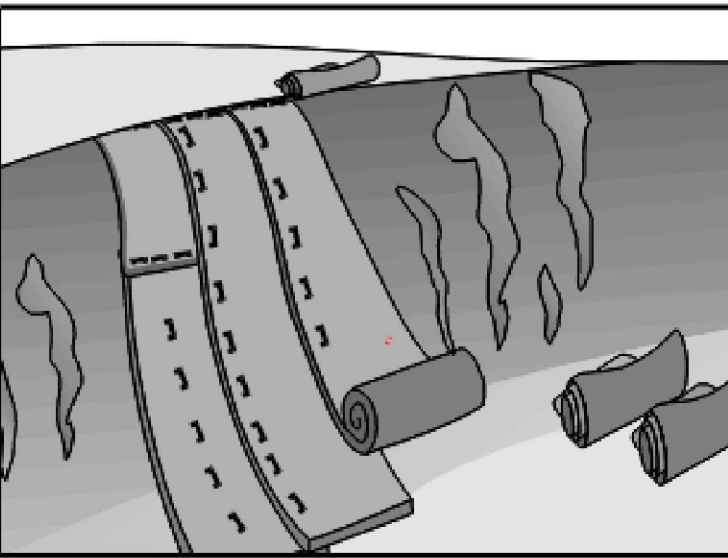
LINETYPES & LEGEND	
Property Line (PL)	
Sandbags	
Fiber Rolls	
Silt Fencing	
Fire Debris Limits	
Pool Barrier	
Concrete/Paving	
Landscaping	

NO.	DATE	DESCRIPTION
<i>REVISIONS</i>		



Geotextiles, Mats, Plastic Covers and Erosion Control Blankets

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- BMP Objectives**
- Soil Stabilization
 - Sediment Control
 - Tracking Control
 - ▲ Wind Erosion Control
 - Non-Storm Water Management
 - Materials and Waste Management

Definition and Purpose This Best Management Practice (BMP) involves the placement of geotextiles, mats, plastic covers, or erosion control blankets to stabilize disturbed soil areas and protect soils from erosion by wind or water. This is one of five temporary soil stabilization alternatives to consider.

Appropriate Applications These measures are used when disturbed soils may be particularly difficult to stabilize, including the following situations:

- Steep slopes, generally steeper than 1:3 (V:H).
- Slopes where the erosion potential is high, adjacent to water bodies, or Environmentally Sensitive Areas (ESAs).
- Slopes and disturbed soils where mulch must be anchored.
- Disturbed areas where plants are slow to develop.
- Channels with high flow velocities.
- Stockpiles.

Limitations ■ Blankets and mats are more expensive than other erosion control measures, due to labor and material 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).
- Blankets and mats must be removed and disposed of prior to application of permanent soil stabilization measures.

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Standards and Specifications

Material Selection

There are many types of erosion control blankets and mats, and selection of the appropriate type shall be based on the specific type of application and site conditions.

Geotextiles

- Material shall be a woven polypropylene fabric with minimum thickness of 0.06 inch, minimum width of 12 ft and shall have minimum tensile strength of 150 lbs (warp), 80 lbs (fill) in conformance with the requirements in ASTM Designation: D 4632. The permittivity of the fabric shall be approximately 0.07 sec⁻¹ in conformance with the requirements in ASTM Designation: D4491. The fabric shall have an ultraviolet (UV) stability of 70 percent in conformance with the requirements in ASTM designation: D4355. Geotextile blankets shall be secured in place with wire staples or sandbags and by keying into tops of slopes and edges to prevent infiltration of surface waters under the geotextile. Staples shall be made of 11 gauge steel wire and shall be U-shaped with 8-inch legs and 2-inch crown.

Plastic Covers

- Plastic sheeting shall have a minimum thickness of 6 mils, and shall be keyed in at the top of the slope and firmly held in place with sandbags or other weights placed no more than 10 ft apart. Seams are typically taped or weighted down their entire length, and there shall be and overlap of at least 12 to 24 inches at all seams. Edges shall be embedded a minimum of 6 inches in soil.

Erosion Control Blankets/Mats

- Biodegradable rolled erosion control products (RECPs) are typically composed of jute fibers, curled wood fibers, straw, coconut fiber, or a combination of these materials. For an RECP to be considered 100% biodegradable, the netting, sewing or adhesive system that holds the biodegradable mulch fibers together must also be biodegradable.

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- **Jute** is a natural fiber that is made into a yarn, which is loosely woven into a biodegradable mesh. It is designed to be used in conjunction with vegetation and has limited longevity. The material is supplied in rolled strips, which shall be secured to the soil with U-shaped staples or stakes in accordance with manufacturers' recommendations.

- **Excelsior (curled wood fiber)** blanket material shall consist of machine produced mats of curled wood excelsior with 80 percent of the fiber 6 inches or longer. The excelsior blanket shall be of consistent thickness. The wood fiber shall be evenly distributed over the entire area of the blanket. The top surface of the blanket shall be covered with a photodegradable extruded plastic mesh. The blanket shall be smolder resistant without the use of chemical additives and shall be non-toxic and non-injurious to plant and animal life. Excelsior blanket shall be furnished in rolled strips, a minimum of 48 inches wide, and shall have an average weight of 0.8 lb/yd², ±10 percent, at the time of manufacture. Excelsior blankets shall be secured in place with wire staples. Staples shall be made of 11 gauge steel wire and shall be U-shaped with 8-inch legs and 2-inch crown.

- **Straw blanket** shall be machine-produced mats of straw with a lightweight biodegradable netting top layer. The straw shall be attached to the netting with biodegradable thread or glue strips. The straw blanket shall be of consistent thickness. The straw shall be evenly distributed over the entire area of the blanket. Straw blanket shall be furnished in rolled strips a minimum of 6.5 ft wide, a minimum of 80 ft long and a minimum of 0.5 lb/yd². Straw blankets shall be secured in place with wire staples. Staples shall be made of 11 gauge steel wire and shall be U-shaped with 8-inch legs and 2-inch crown.

- **Wood fiber blanket** is composed of biodegradable fiber mulch with extruded plastic netting held together with adhesives. The material is designed to enhance revegetation. The material is furnished in rolled strips, which shall be secured to the ground with U-shaped staples or stakes in accordance with manufacturers' recommendations.

- **Coconut fiber blanket** shall be machine-produced mats of 100% coconut fiber with biodegradable netting on the top and bottom. The coconut fiber shall be attached to the netting with biodegradable thread or glue strips. The coconut fiber blanket shall be of consistent thickness. The coconut fiber shall be evenly distributed over the entire area of the blanket. Coconut fiber blanket shall be furnished in rolled strips with a minimum of 6.5 ft wide, a minimum of 80 ft long and a minimum of 0.5 lb/yd². Coconut fiber blankets shall be secured in place with wire staples. Staples shall be made of 11 gauge steel wire and shall be U-shaped with 8-inch legs and 2-inch crown.

- **Coconut fiber mesh** is a thin permeable membrane made from coconut

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or corn fiber that is spun into a yarn and woven into a biodegradable mat. It is designed to be used in conjunction with vegetation and typically has longevity of several years. The material is supplied in rolled strips, which shall be secured to the soil with U-shaped staples or stakes in accordance with manufacturers' recommendations.

- **Straw coconut fiber blanket** shall be machine-produced mats of 70% straw and 30% coconut fiber with a biodegradable netting top layer and a biodegradable bottom net. The straw and coconut fiber shall be attached to the netting with biodegradable thread or glue strips. The straw coconut fiber blanket shall be of consistent thickness. The straw and coconut fiber shall be evenly distributed over the entire area of the blanket. Straw coconut fiber blanket shall be furnished in rolled strips a minimum of 6.5 ft wide, a minimum of 80 ft long and a minimum of 0.5 lb/yd². Straw coconut fiber blankets shall be secured in place with wire staples. Staples shall be made of 11 gauge steel wire and shall be U-shaped with 8-inch legs and 2-inch crown.

- Non-biodegradable RECPs are typically composed of polypropylene, polyethylene, nylon or other synthetic fibers. In some cases, a combination of biodegradable and synthetic fibers is used to construct the RECP. Netting used to hold these fibers together is typically non-biodegradable as well.

- **Plastic netting** is a lightweight biaxially-oriented netting designed for securing loose mulches like straw to soil surfaces to establish vegetation. The netting is biodegradable. The netting is supplied in rolled strips, which shall be secured with U-shaped staples or stakes in accordance with manufacturers' recommendations.

- **Plastic mesh** is an open-weave geotextile that is composed of an extruded synthetic fiber woven into a mesh with an opening size of less than 0.2 inch. It is used with revegetation or may be used to secure loose fiber such as straw to the ground. The material is supplied in rolled strips, which shall be secured to the soil with U-shaped staples or stakes in accordance with manufacturers' recommendations.

- **Synthetic fiber with netting** is a mat that is composed of durable synthetic fibers treated to resist chemicals and ultraviolet light. The mat is a dense, three-dimensional mesh of synthetic (typically polyolefin) fibers stitched between two polypropylene nets. The mats are designed to be revegetated and provide a permanent composite system of soil, roots, and geotextile. The material is furnished in rolled strips, which shall be secured with U-shaped staples or stakes in accordance with manufacturers' recommendations.

- **Bonded synthetic fibers** consist of a three-dimensional geotextile nylon (or other synthetic) matting. Typically it has more than 90% open area, which facilitates root growth. Its tough root-reinforcing system anchors vegetation and protects against hydraulic lift and shear forces created by

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high volume discharges. It can be installed over prepared soil, followed by seeding into the mat. Once vegetated, it becomes an invisible composite system of soil, roots, and geotextile. The material is furnished in rolled strips that shall be secured with U-shaped staples or stakes in accordance with manufacturers' recommendations.

- **Combination synthetic and biodegradable RECPs** consist of biodegradable fibers, such as wood fiber or coconut fiber, with a heavy polypropylene net stitched to the top and a high-strength continuous-filament geotextile or net stitched to the bottom. The material is designed to enhance revegetation. The material is furnished in rolled strips, which shall be secured with U-shaped staples or stakes in accordance with manufacturers' recommendations.

Site Preparation

- Proper site preparation is essential to ensure complete contact of the blanket or matting with the soil.
- Grade and shape the area of installation.
- Remove all rocks, clods, vegetation or other obstructions so that the installed blankets or mats will have complete, direct contact with the soil.
- Prepare seedbed by loosening 2 in. to 3 in. of topsoil.

Seeding

Seed the area before blanket installation for erosion control and revegetation. Seeding after mat installation is often specified for turf reinforcement application. When seeding prior to blanket installation, all check slots and other areas disturbed during installation must be re-seeded. Where soil filling is specified, seed the matting and the entire disturbed area after installation and prior to filling the mat with soil.

Anchoring

- U-shaped wire staples, metal geotextile stake pins or triangular wooden stakes can be used to anchor mats and blankets to the ground surface.
- Staples shall be made of 11 gauge steel wire and shall be U-shaped with 8-inch legs and 2-inch crown.
- Metal stake pins shall be 0.188 in. diameter steel with a 1.5 in. steel washer at the head of the pin.
- Wire staples and metal stakes shall be driven flush to the soil surface.
- All anchors shall be 6 in. to 18 in. long and have sufficient ground penetration to resist pullout. Longer anchors may be required for loose soils.



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Installation on Slopes

Installation shall be in accordance with the manufacturer's recommendations. In general, these will be as follows:

- Begin at the top of the slope and anchor the blanket in a 6 in. deep by 6 in. wide trench. Backfill the trench and tamp earth firmly.
- Unroll the blanket down slope in the direction of water flow.
- Overlap the edges of adjacent parallel rolls 2 in. to 3 in. and staple every 3 ft.
- When blankets must be spliced, place blankets end over end (shingle style) with 6 in. overlap. Staple through overlapped area, approximately 12 in. apart.
- Lay blankets loosely and maintain direct contact with the soil. Do not stretch.
- Staple blankets sufficiently to anchor blanket and maintain contact with the soil. Staples shall be placed down the center and staggered with the staples placed along the edges. Steep slopes, 1:1 (V:H) to 1:2 (V:H), require a minimum of 2 staples/yd². Moderate slopes, 1:2 (V:H) to 1:3 (V:H), require a minimum of 1½ staples/yd², placing 1 staple/yd on centers. Gentle slopes require a minimum of 1 staple/yd².

Installation in Channels

Installation shall be in accordance with the manufacturer's recommendations. In general, these will be as follows:

- Dig initial anchor trench 12 in. deep and 6 in. wide across the channel at the lower end of the project area.
- Excavate intermittent check slots, 6 in. deep and 6 in. wide across the channel at 25 ft to 30 ft intervals along the channels.
- Cut longitudinal channel anchor slots 4 in. deep and 4 in. wide along each side of the installation to bury edges of matting, whenever possible extend matting 2 in. to 3 in. above the crest of the channel side slopes.
- Beginning at the downstream end and in the center of the channel, place the initial end of the first roll in the anchor trench and secure with fastening devices at 12 in. intervals. Note: matting will initially be upside down in anchor trench.
- In the same manner, position adjacent rolls in anchor trench, overlapping the preceding roll a minimum of 3 in.
- Secure these initial ends of mats with anchors at 12 in. intervals, backfill and compact soil.



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- Unroll center strip of matting upstream. Stop at next check slot or terminal anchor trench. Unroll adjacent mats upstream in similar fashion, maintaining a 3 in. overlap.
- Fold and secure all rolls of matting snugly into all transverse check slots. Lay mat in the bottom of the slot then fold back against it. Anchor through both layers of mat at 12 in. intervals, then backfill and compact soil. Continue rolling all mat widths upstream to the next check slot or terminal anchor trench.

- Alternate method for non-critical installations: Place two rows of anchors on 6 in. centers at 25 ft to 30 ft intervals in lieu of excavated check slots.
- Shingle-lap spliced ends by a minimum of 12 in. apart on 12 in. intervals.
- Place edges of outside mats in previously excavated longitudinal slots, anchor using prescribed staple pattern, backfill and compact soil.

- Anchor, fill and compact upstream end of mat in a 12 in. by 6 in. terminal trench.

- Secure mat to ground surface using U-shaped wire staples, geotextile pins, or wooden stakes.

- Seed and fill turf reinforcement matting with soil, if specified.

Soil Filling (if specified for turf reinforcement)

- Always consult the manufacturer's recommendations for installation.
- Do not drive tracked or heavy equipment over mat.
- Avoid any traffic over matting if loose or wet soil conditions exist.
- Use shovels, rakes or brooms for fine grading and touch up.
- Smooth out soil filling, just exposing top netting of mat.

Temporary Soil Stabilization Removal

- When no longer required for the work, temporary soil stabilization shall become the property of the Contractor. Temporary soil stabilization removed from the project site shall be disposed of in conformance with all applicable laws and regulations. If approved by the Engineer, the contractor may leave the temporary soil stabilizer in place.



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Maintenance and Inspection

Areas treated with temporary soil stabilization shall be maintained to provide adequate erosion control. Temporary soil stabilization shall be reapplied or replaced on exposed soils when area becomes exposed or exhibits visible erosion.

- Inspect all slopes and areas stabilized with geotextiles, mats, plastic covers, or erosion control blankets weekly and before and after every rainfall events. During extended rainfall events, inspect all slopes and areas stabilized with geotextiles, mats, plastic covers, or erosion control blankets at least once every 24 hours.

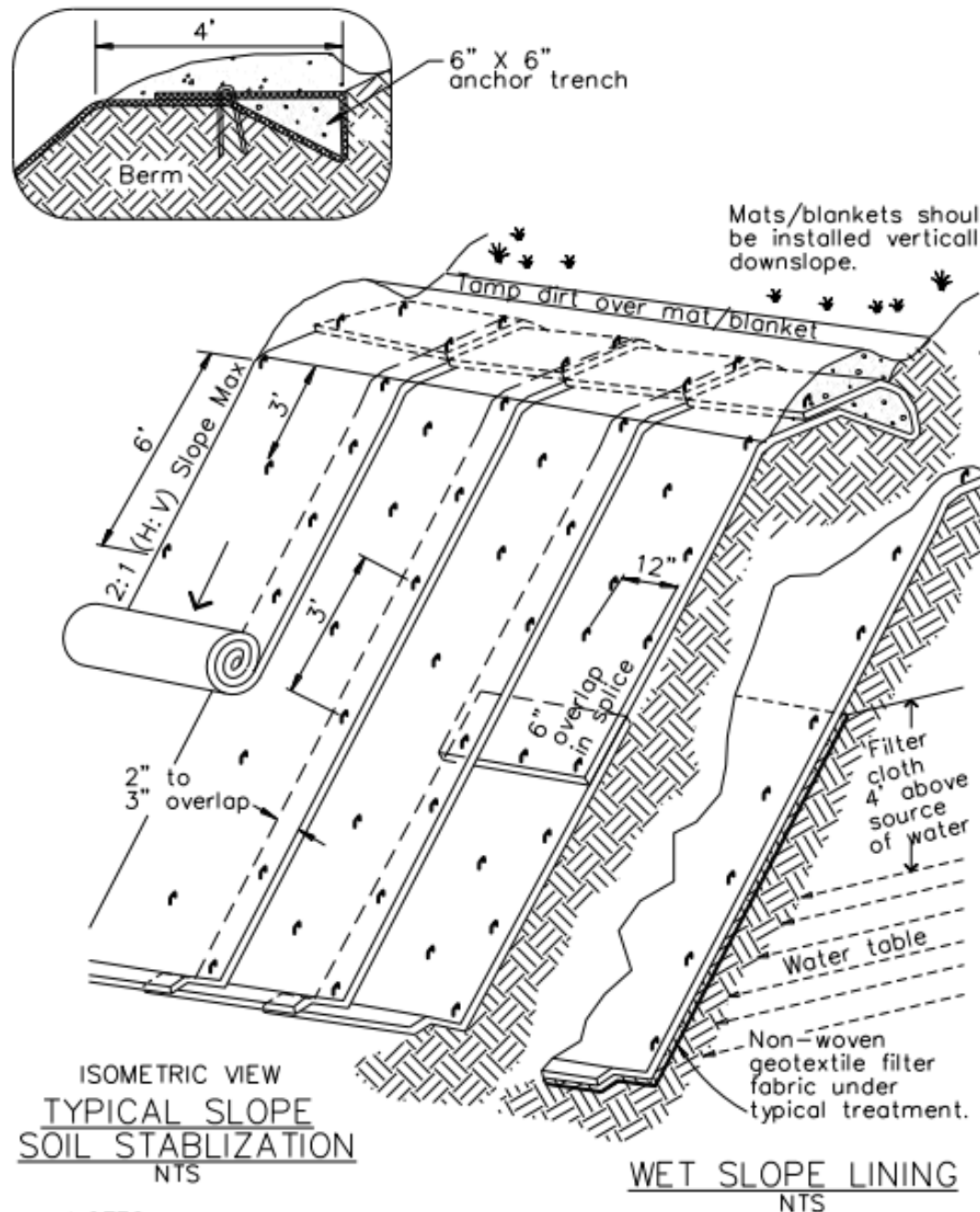
- Any failures shall be repaired immediately. If washout or breakage occurs, the material shall be re-installed after repairing the damage to the slope.



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NOTES:

1. Slope surface shall be free of rocks, 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.
3. Install per manufacturer's recommendations

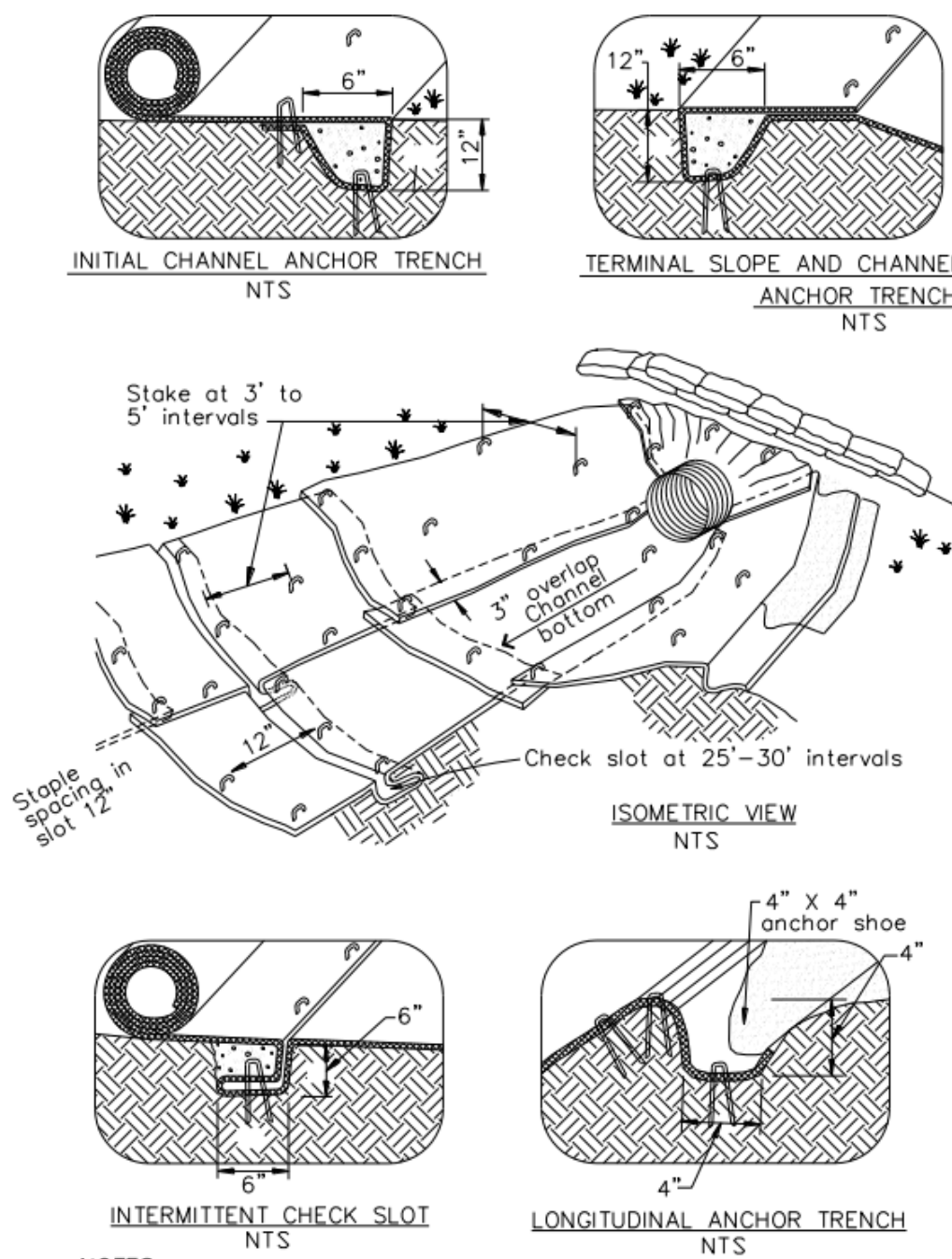
TYPICAL INSTALLATION DETAIL



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NOTES:

1. Check slots to be constructed per manufacturers specifications.
2. Staking or stapling layout per manufacturers specifications.
3. Install per manufacturer's recommendations

TYPICAL INSTALLATION DETAIL



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NO.	DATE	DESCRIPTION
REVISIONS		

PREPARED BY:



ESCP Fire-Affected Property

SHEET

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