

A photograph of a construction site. In the foreground, there is a large pile of grey rocks and a trench. Several orange surveying stakes are visible in the ground. In the middle ground, there are yellow excavators and other construction equipment. The background shows a clear blue sky and some distant buildings or structures.

Construction Storm Water Workshop

2009

**California Regional Water Quality
Control Board
Central Valley Region, Sacramento
Office**

**Storm Water Construction Compliance
and Enforcement Unit:**

Primary Coverage Areas

**San Joaquin, Solano, Yolo, Contra Costa,
Lake**

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Key topics to be addressed:

- **Regulations**
- **Enforcement**
- **Water Board Expectations**
- **Top problems observed on Construction Sites**

What are the Storm Water Laws Affecting Construction?

Federal Government



State and Regional Government



City/County Regulations



Contractor

Congress acts again...more federal regulations

In 1987, the Clean Water Act was further amended to address storm water discharges.

In 1990, the EPA published Phase I regulations requiring large and medium municipalities, many industries, and construction sites > 5 acres to obtain NPDES storm water permits

In 1999, the EPA published the Phase II regulations to bring in the small municipalities and small construction sites

Phase I and II NPDES Stormwater Regulations

	MUNICIPALITIES	INDUSTRIAL FACILITIES	CONSTRUCTION ACTIVITIES
PHASE I	Large & medium storm sewer operators	Eleven categories of industrial activity	Construction activities disturbing 5 or greater acres
PHASE II	Small storm sewer operators	Revised no exposure exclusion for facilities regulated under PHASE I	Small construction activities disturbing equal to or greater than 1 acre and less than 5 acres

Municipalities, industries and construction activities are all affected.

Phase I Requirements

- Individual Permit issued by Regional Board.
- Provide adequate legal authority to control pollutants to the MS4 from construction sites with land disturbance greater than or equal to one acre in size.
- Review Construction Plans
- Require BMPs to control Sediment and pollutants from construction sites to the MS4.

Phase I cont.

- Inspect construction sites to ensure proper BMP implementation and compliance with local requirements.
- Each Permittee shall implement and enforce a program to control runoff from all construction sites subject to the NPDES General Construction Permit.

Phase II Requirements

- Six minimum Control Measures
- Public Education
- Public Participation
- Illicit Discharge Detection and Elimination
- Construction Site Storm Water Runoff Control
- Post Construction Storm Water Management
- Pollution Prevention/Good Housekeeping for Municipal Operations

Construction Site Storm Water Runoff Control

- The Permittee must develop a program to control the discharge of pollutants from construction sites greater than or equal to one acre in size within its permitted jurisdiction. The program must include inspections of construction sites and enforcement actions against violators.

**CALIFORNIA REGIONAL
WATER BOARD
PROGRESSIVE
ENFORCEMENT TOOLS**

The Regional Board has a number of ways it can respond to stormwater violations

Informal Enforcement

- Verbal Warning
- Staff Enforcement Letter
- Notice of Violation





Formal Enforcement

- Cleanup and Abatement Order
- Administrative Civil Liability (ACL)
- Joint enforcement with Department of Fish and Game and U.S. EPA
- Referral to District Attorney, Environmental Circuit Prosecutor, or Attorney General

State Administrative Penalties

Maximum Penalties are \$10,000 per day, plus \$10/gallon of sediment- laden or polluted water discharged for each violation

Minimum Amount is the economic savings of the Violation



**REGION 5
RECENT STORM WATER
ACLS/ ENFORCEMENT**

<u>DISCHARGER</u>	<u>ACL</u>	<u>COUNTY</u>
Seeno Construction	\$3,000,000	Contra Costa
French Bar Bluffs	\$1,100,000	Stanislaus
PL Roseville (West Park)	\$700,000	Placer
Roseville Fiddment LLC	\$600,000	Placer
Grizzley Ranch	\$ 575,000	Plumas
Natchionni & Knighten	\$ 315,000	Shasta
SRSCD	\$250,000	Sacramento
RW Hertel	\$200,000	Stanislaus
CRV Enterprises Inc.	\$225,000	Calaveras
Tehama Market Assoc.	\$250,000	Tehama
Lakemont Homes (joint agreement)	\$175,000	El Dorado
Freeport Regional Water Auth	\$100,000	Sacramento
Ochoa & Shehan	\$80,000	Shasta
Lemke Construction	\$25,000	Calaveras
Thunder Mountain Lodge	\$10,000	Amador
EPIK Homes	\$10,000	Shasta
EBMUD/FRWA	\$212,000	Sac/San Joaquin



RWQCB Expectations

Construction Projects – Minimize Water Quality Impacts From Land Development

- All Construction Sites > 1 acres
- Must Have An NPDES Permit: NOI
- SWPPP (Living Document, Dynamic and Defensible);
- Implementation of Effective Pollution Prevention BMPs
- Monitor the site



**Top Problems
Observed
On Construction Sites**

Lack of an Effective Combination of Erosion and Sediment Control BMPs













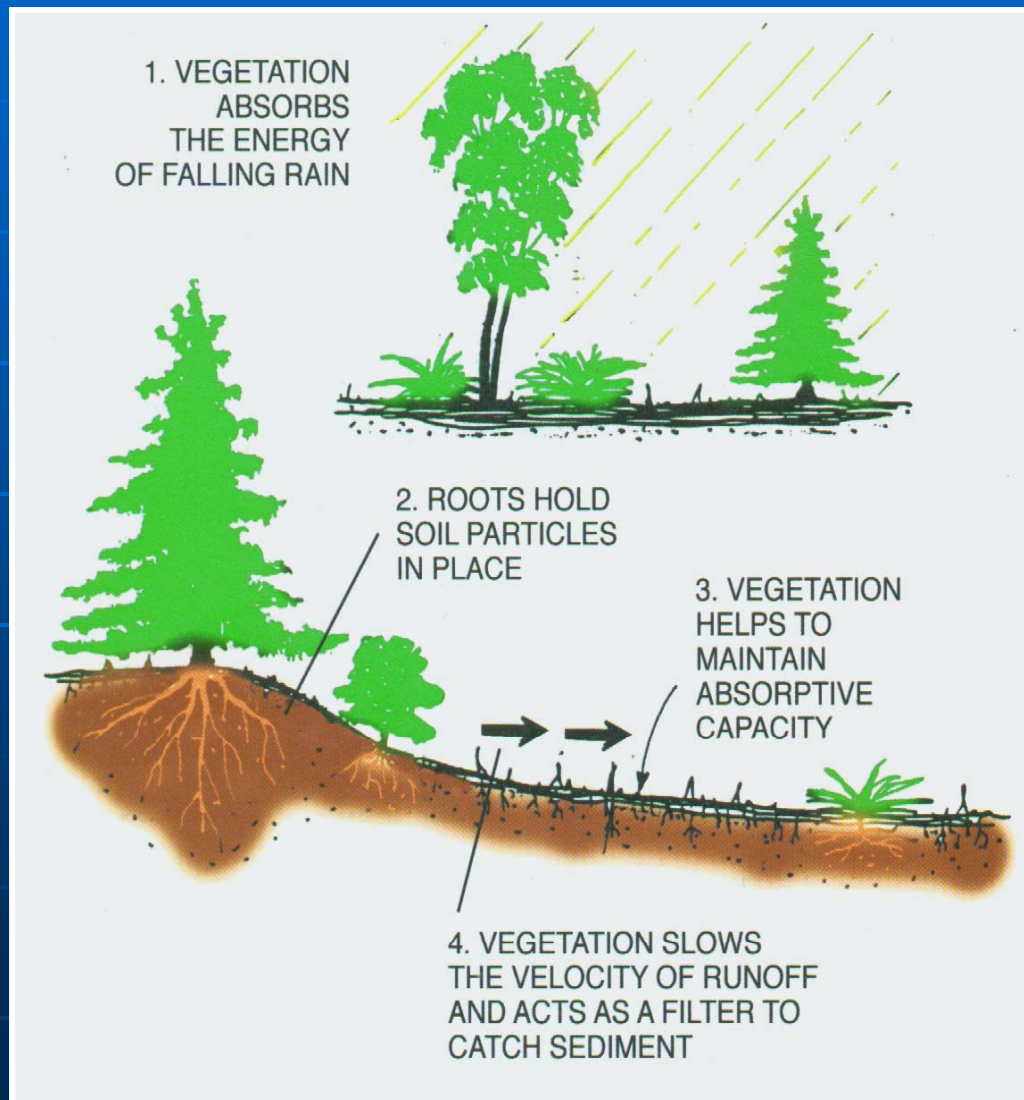


A photograph of a construction site. In the foreground, there is a large, dark pile of mulch or soil. In the background, a yellow tractor is visible on the right side. The sky is overcast with grey clouds. The text "Erosion Control is the Key to Effective Storm Water Management" is overlaid in the center in a bold, yellow font.

**Erosion Control is the
Key to Effective Storm
Water Management**

The First Order of Business

Preserve existing vegetation



Existing vegetation has already stabilized the area it is growing in, to some degree, so if you can leave it in place, do it!

Without plants, we would have lost all our topsoil already. They are uniquely and perfectly suited to prevent erosion in all its forms.



Tracking up and down reduces erosion
By 20 to 30 %







Three step hydroseeding with mulch

- Step One: Apply seed and fertilizer
- Step Two: Apply mulch (2 tons per acre)
- Step Three: Apply tactifier (glue)





Bonded Fiber Matrix - BFM













**Ineffective Installation
Monitoring and
Maintenance of BMPs**

**Token measures
do not prevent
storm water
pollution and
result in civil
liabilities.**



Straw Mulch





















Fiber Rolls

Fiber Rolls are alternative to hay bales and silt fences in almost every situation.

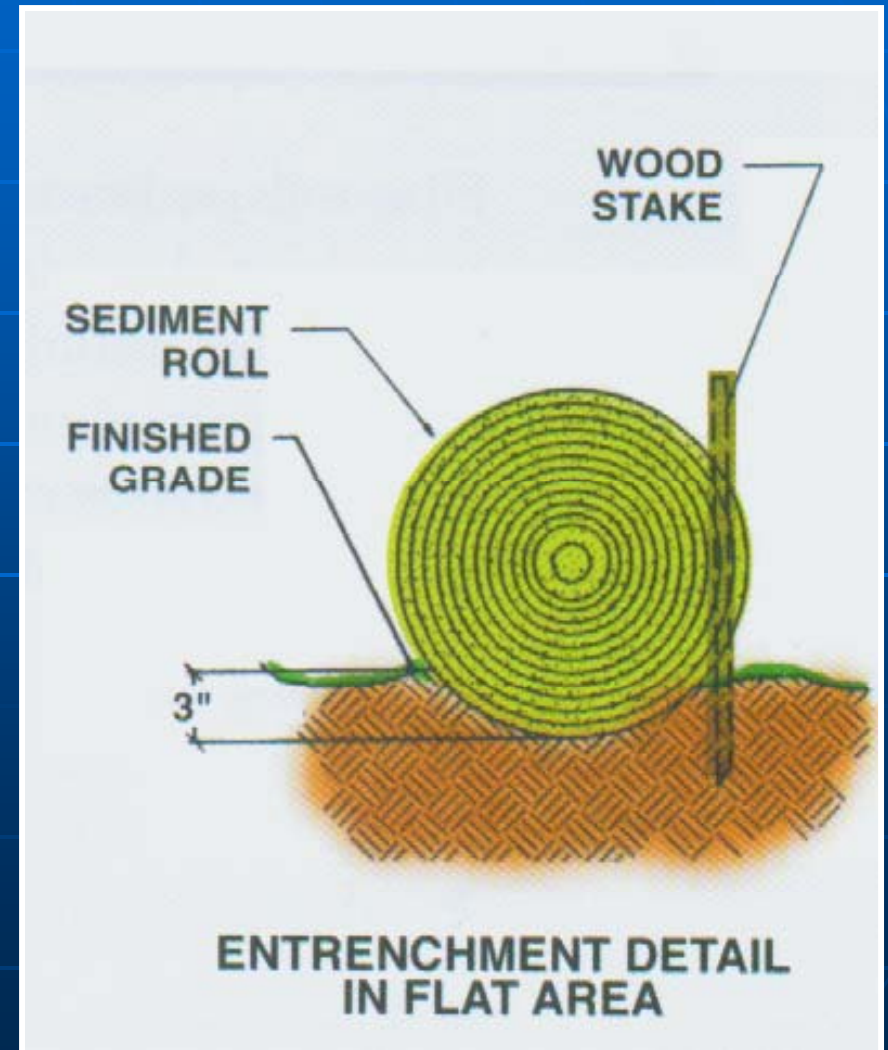
Installation Instructions:

Place rolls into key trench 3 inches deep

Place excavated soil on uphill or flow side of the roll

Rolls should be abutted at the ends, not overlapped

Alternate stakes on both sides of the roll, every six inches









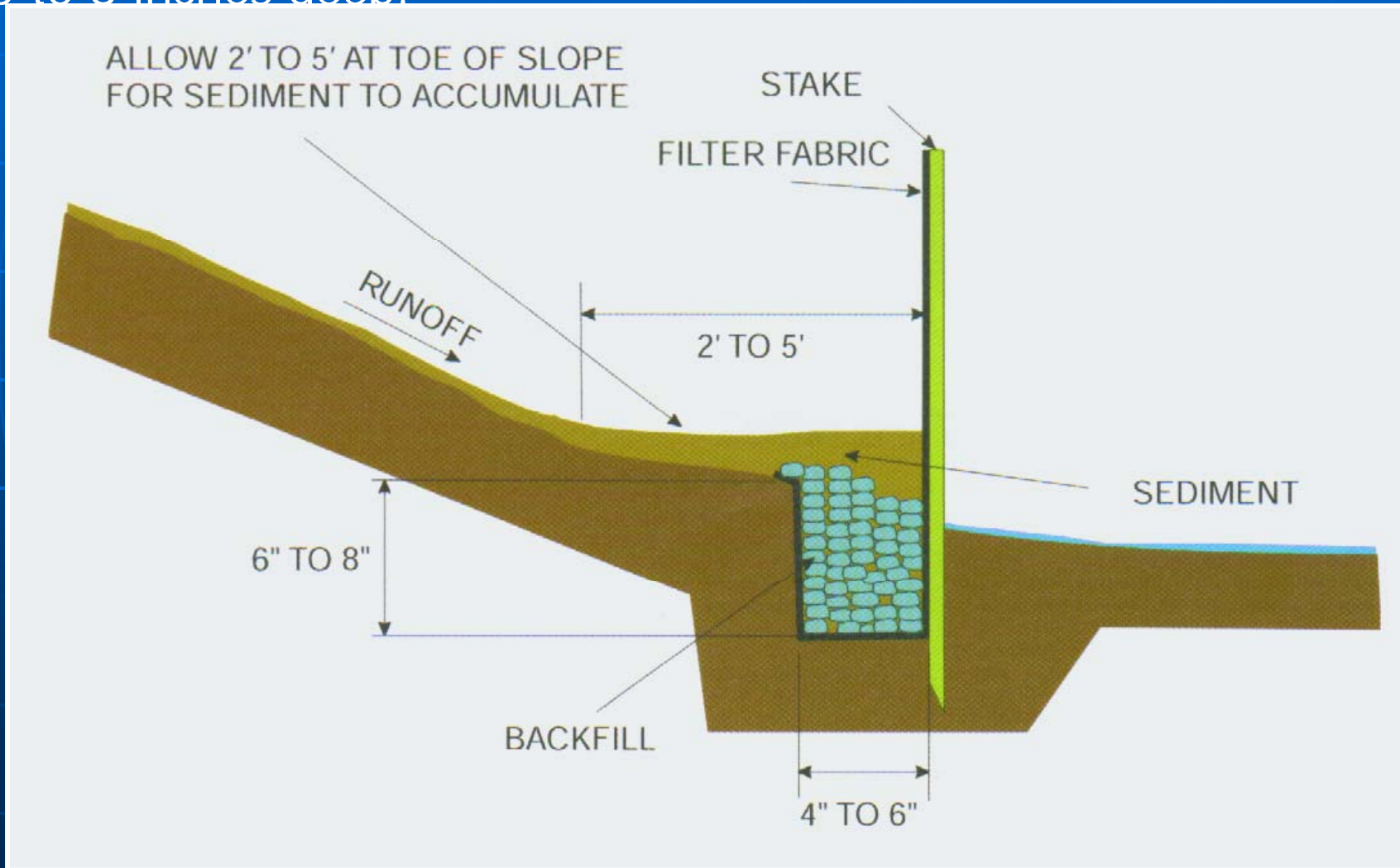
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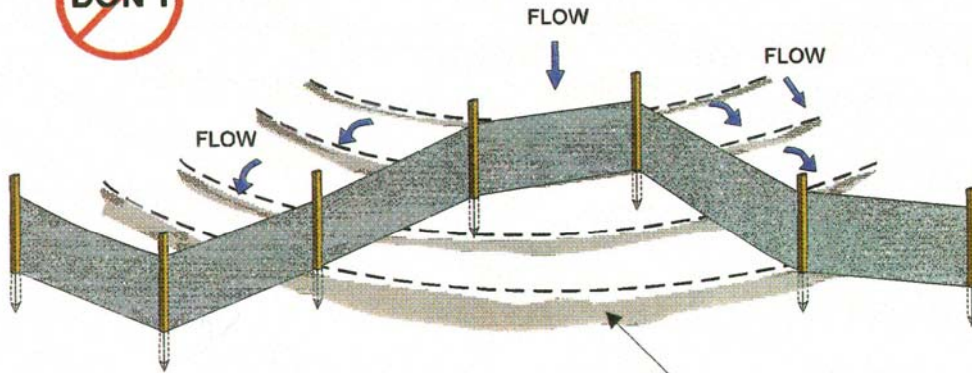
This is how to do it right.

Key in filter fabric a minimum of 4" below the ground surface and 2 to 5 feet from slope toe, then backfill with dirt or gravel to 6 to 8 inches deep.



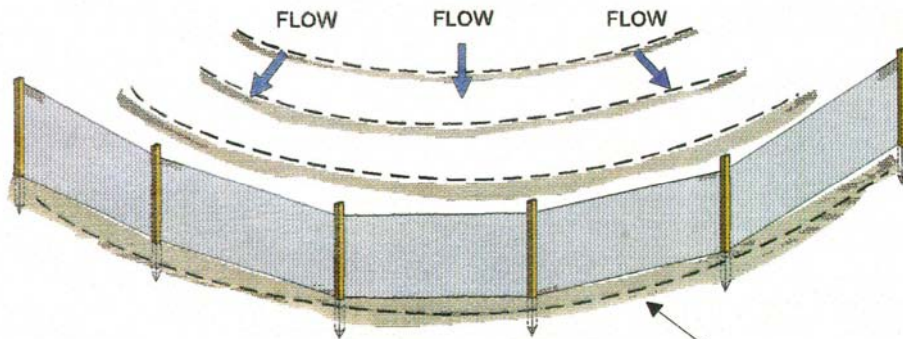


DON'T



SILT FENCE NOT ON CONTOUR RESULTS IN FLOW DIVERSION AND CONCENTRATION

DO



ALIGN SILT FENCE ALONG CONTOURS

SILT FENCE

Always align silt fences along the natural contours of slopes. If silt fences divert and concentrate flow, they only make the problem worse. To be effective, silt fences must disrupt the flow of runoff.













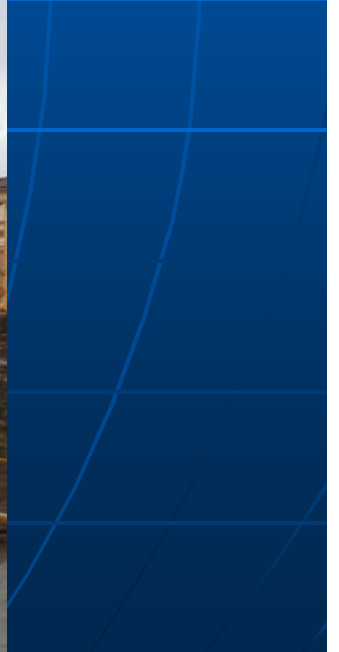


A photograph of a residential development during construction. The houses are in various stages of completion, with some roofs still covered in stacks of lumber. The yards are cluttered with debris, including a wooden frame structure in the foreground and a pallet on the ground. The scene is captured during the "golden hour" of late afternoon, with warm lighting. The text "Not so Good Housekeeping Practices" is overlaid in large, bold, yellow letters across the center of the image.

Not so Good Housekeeping Practices







Utilize Covered Dumpsters

Covered dumpsters are (BAT)





Tracking on Roadways





So how do you clean this up?



Wrong Answer!





Right Answer!

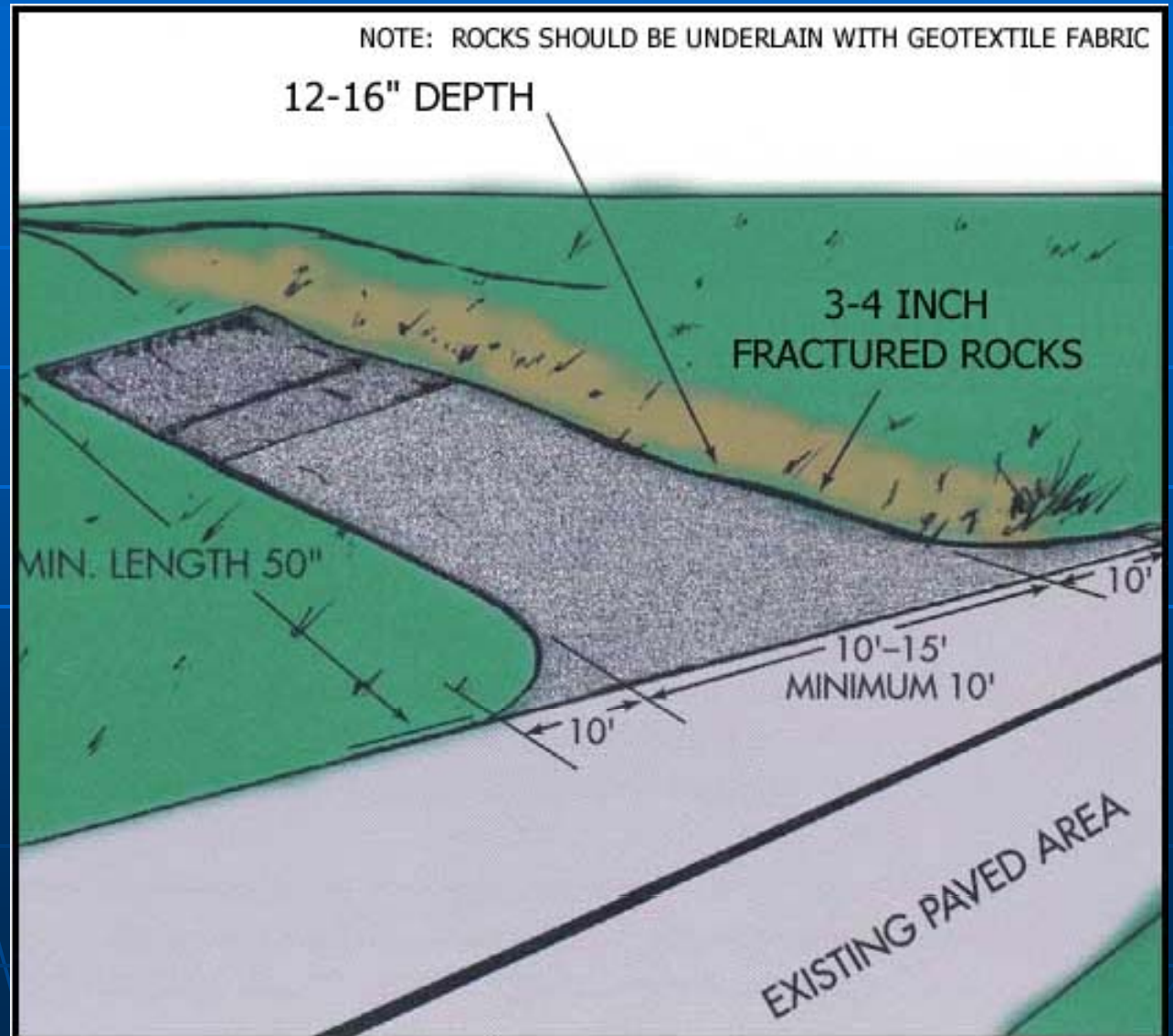




Construction Entrance Controls

A very significant source of non-storm water pollutants discharge is tracking mud from construction site entrances.

This is very easy to mitigate, as shown to the right.









Improper Washing of Streets









Sweep streets, walks and driveways before washing down!

Don't cause another problem!







Stockpile Management











Ineffective Concrete Washout Areas







Effective Concrete Washouts







Placement and Condition of Toilets





Materials Stockpile Area



Secondary containment for equipment



Ineffective Drain Inlet Protection and Maintenance









Effective application





Storage of Materials





**Paint / Stucco /
Concrete / and Related
Discharges**





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STUCCO
PIT


Bio-Matrix Gold
Spill-Sorbent
For absorbing liquid
and chemical spills
and cleaning up
messes

All-Purpose Absorbent
US-11
Absorbent



Asphalt and concrete cutting





Power Washing and Washing of Driveways

- If you power wash or hose down driveways you must protect the storm drain with BMPs
- Use BMPs such as rock bags, weighted fiber rolls, or berms to pond the water and then pump it to the side or back of the lot using a pump or shop vacuum system.



A photograph of a construction site. In the foreground, there is a large area of dirt and concrete. A worker in a yellow safety vest and pants is standing on the right side, holding a shovel. In the background, several other workers in similar gear are visible, working on a large area of dirt. A large yellow text overlay is centered on the image, reading "Improper Landscaping Activities".

Improper Landscaping Activities



**Avoid
landscaping
in the rain!**



A photograph of a stream with a concrete weir structure, surrounded by dense vegetation. The text "De-Watering Activities" is overlaid in yellow.

De-Watering Activities







Advance Treatment











Any Questions?