

# ***NPDES***

## ***Storm Water Associated With Construction Activities***

***Presented by:  
Department of Health  
Clean Water Branch***



# NPDES WORKSHOP

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## Storm Water Associated With Construction Activities

### Outline:

- I. Overview of the NPDES Program
- II. Clean Water - Compliance
- III. Examples of Ineffective/Effective Erosion Control
- IV. Our Goal / Resources

# I. Overview of the NPDES Program



# Overview of NPDES Program

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## Storm Water Associated With Construction Activities

- NPDES (National Pollutant Discharge Elimination System) Program
  - **Clean Water Act (CWA)**
    - **CWA, Section 301(a) – No discharge to waters of the U.S. without a permit**
    - **CWA, Section 402 – establishes the NPDES program**
  - **EPA has delegated permitting authority to the Department of Health, Clean Water Branch.**



# Overview of NPDES Program

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## Storm Water Associated With Construction Activities

- NPDES Federal Regulation
  - **Code of Federal Regulations, Title 40, Protection of Environment (40 CFR)**
  
- NPDES State Statutes and Rules
  - **Hawaii Revised Statutes, Chapter 342D - Water Pollution**
  - **Hawaii Administrative Rules (HAR), Chapter 11-55 - Water Pollution Control**
  - **HAR, Chapter 11-54 - Water Quality Standards**

# Overview of NPDES Program

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## Storm Water Associated With Construction Activities

- NPDES (National Pollutant Discharge Elimination System) Program
  - **Purpose of the NPDES program is to protect human health and the environment**



# Overview of NPDES Program

## Storm Water Associated With Construction Activities

### ➤ Who Needs an NPDES Permit?

- NPDES permits are needed for discharges of wastewaters from new, old, or modified point sources from municipal, industrial and federal facilities
- NPDES permits are also needed for storm water discharges from certain municipal and industrial facilities and construction activities.



# Overview of NPDES Program

## Storm Water Associated With Construction Activities

### ➤ Who Needs an NPDES Storm Water Permit?

- Coverage under an NPDES storm water permit is required for construction activities, including clearing, grading and excavation, that result in the disturbance of one (1) or more acres of total land area.

Note: The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale.





***“We don’t have any storm water discharges...”***

# Overview of NPDES Program

## Storm Water Associated With Construction Activities

### ► What is storm water?

- 40 Code of Federal Regulations (CFR) §122.26(b)(13):

Storm water - means storm water runoff, snow melt runoff, and surface runoff and drainage.

- Includes only discharges which result from precipitation



# Overview of NPDES Program

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## Storm Water Associated With Construction Activities

### ► Storm water runoff

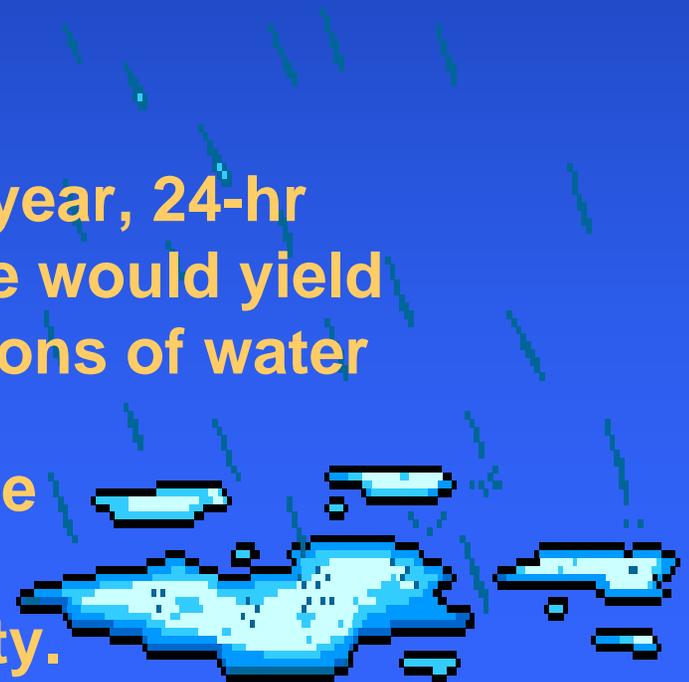
- 1-inch of rain over 1 acre of land yields approx. 3600 cubic feet or 27,000 gallons of water.

- Example:

Location: Hanalei, Kauai

A rain storm event from a 10 year, 24-hr storm (14 in.) on a 20 acre site would yield approximately 7.5 million gallons of water

A portion of this rainfall will be absorbed into the ground, depending on soil permeability.



# Overview of NPDES Program

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## Storm Water Associated With Construction Activities

- Why Do We Care About Storm Water Runoff?

*“When it rains, it drains...”*

- **Impacts caused by quantity of runoff**
  - stream hydrology changes
  - geomorphological impacts
- **Impacts caused by quality of runoff**



# Overview of NPDES Program

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## Storm Water Associated With Construction Activities

- Why Do We Care About Storm Water Runoff?
  - **Polluted storm water runoff is the leading cause of impairment to nearly 40% of US water bodies that do not meet Water Quality Standards.**
  - **In Hawaii:**
    - **102 of 1052 coastline miles and**
    - **2704 of 3904 total assessed stream miles do not meet State Water Quality Standards.**



# Overview of NPDES Program

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## Storm Water Associated With Construction Activities

(Why Do We Care About Storm Water Runoff? cont'd...)

- **Typical Pollutants found in Industrial and Urban Storm Water**

- sediments / suspended solids
- nutrients (nitrogen & phosphorus)
- metals (copper, zinc, lead, cadmium)
- pesticides / herbicides
- oil and grease (PAHs)
- high/low temperatures
- toxic chemicals
- bacteria



# Effects of Polluted Storm Water Runoff from Construction Activities...









## II. Clean Water - Compliance



# Clean Water - Compliance

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1. Legal Duty: Don't put anything in State waters without permission
  - **Hawaii Revised Statutes (HRS) § 342D-50(a):**

*“No person, including any public body, shall discharge any water pollutant into state waters, or cause or allow any water pollutant to enter state waters, except as in compliance with the provisions of this chapter, rules adopted pursuant to this chapter, or a permit or variance issued by the Director.”*



# Clean Water - Compliance

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## 1. Legal Duty (continued)

### ➤ Definitions

- Person – includes everyone.  
(e.g., human, partnership, corp., trust, government agencies [incl. counties, U.S.]
- Water Pollutant – means anything except pure water (e.g., silt, oil, litter);

HRS § 342D-1 defines “Water Pollutant” as:

*“Dredged spoil, solid refuse, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical waste, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, soil, sediment, cellar dirt and industrial, municipal, and agricultural waste.”*

# Clean Water - Compliance

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## 1. Legal Duty (continued)

### ➤ Definitions (continued)

- **State Waters** – means all waters, fresh, brackish, or salt, around and within the State, including but not limited to, coastal waters, streams, rivers, drainage ditches, ponds, reservoirs, canals, ground waters, and lakes; provided that drainage ditches, ponds, and reservoirs required as part of a water pollution control system are excluded.



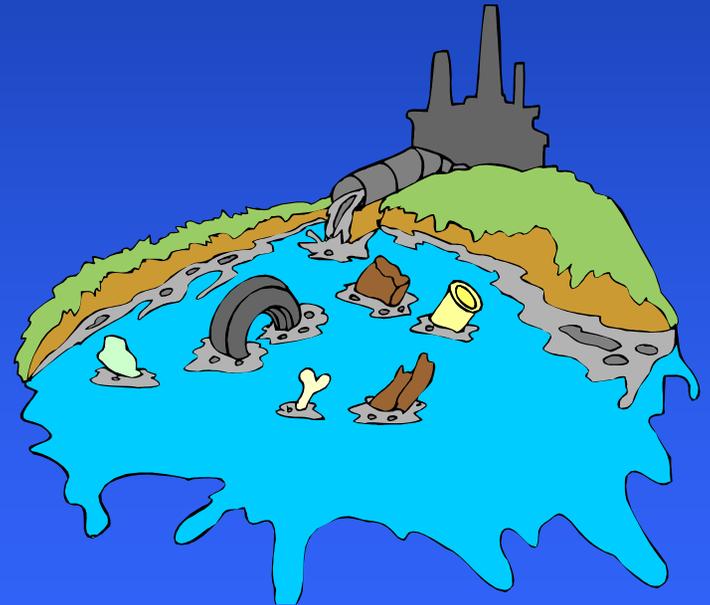
# Clean Water - Compliance

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2. Legal Duty: Don't violate DOH rules or permits.

- **HRS § 342D-50(d):**

**No person, including any public body, shall violate any rule adopted pursuant to this chapter or any permit or variance issued or modified pursuant to this chapter.**



# Clean Water - Compliance

3. Legal Duty: Don't harm water quality.

- **Hawaii Administrative Rules (HAR) Chapter 11-54, "Water Quality Standards"**
  - Includes narrative (subjective) and numerical (objective) standards.
  - Both types are enforceable.
  - Subjective standards can be enforced without water samples in many cases.



# Clean Water - Compliance

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## *3. Legal Duty (continued)*

- **Basic water quality criteria is applicable to all waters. Narrative standards include some of the following:**

**HAR §11-54-04(a):**

***All waters shall be free of substances attributable to domestic, industrial, or other controllable sources of pollutants, including:***

- (1) Materials that will settle to form objectionable sludge or bottom deposits***

# Clean Water - Compliance

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## *3. Legal Duty (continued)*

- (2) Floating debris, oil, grease, scum or other floating materials;**
- (3) Substances in amounts sufficient to produce taste in the water or detectable off-flavor in the flesh of fish, or in amounts sufficient to produce objectionable color, turbidity, or other conditions in the receiving waters.**
- (4) High or low temperatures; biocides; pathogenic organisms; toxic, radio active, corrosive or other deleterious substances at levels or in**

# Clean Water - Compliance

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## *3. Legal Duty (continued)*

### **(4) (continued...)**

***combinations sufficient to be toxic or harmful to human, animal, plant, or aquatic life, or in amounts sufficient to interfere with any beneficial use of the water.***

### **(5) *Substances or conditions or combinations thereof in concentrations which produce undesirable aquatic life;***

# Clean Water - Compliance

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## *3. Legal Duty (continued)*

- (6) Soil particles resulting from erosion on land involved in earthwork, such as the construction of public works; highways, subdivisions, recreational, commercial, or industrial developments; or the cultivation and management of agricultural lands. [emphasis added]***

# Clean Water - Compliance

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4. Legal Duty. No “illicit discharges” to storm water systems.

- **Definition of “illicit discharge” - 40 Code of Federal Regulations (CFR) §122.26(b)(2)**
- **There should be no non-storm water discharges into State waters except for NPDES permitted discharges and *certain non-storm water discharges* provided that the discharges are not a source of pollutants [40 Code of Federal Regulations (CFR) 122.26(d)(2)(iv)(B)(1)].**

(e.g. fire hydrant testing water, air condition condensation; spring water; residential car washing; lawn watering; street wash water...)

# Clean Water - Compliance

## 5. Consequences of Non-Compliance

- **Warning Letter - Notice of Apparent Violation (NAV) or Notice of Potential Violation (NPV) letter**
- **Administrative / Civil Penalties - Notice and Finding of Violation and Order (NFVO)**
  - monetary penalties up to \$25,000 per day per violation.
- **Criminal Enforcement**
  - monetary penalties up to \$50,000 per day per violation and jail time possible



## U.S. Environmental Protection Agency

### Civil Enforcement

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EPA Home > Compliance and Enforcement > Civil Enforcement > Information Resources > Cases and Settlements > Wal-Mart II Storm Water Settlement

## WAL-MART II STORM WATER SETTLEMENT

*The largest settlement for storm water violations EPA and DOJ have achieved*

On Wednesday, May 12, 2004, the Department of Justice and the U.S. Environmental Protection Agency, along with the U.S. Attorney's Offices for the Southern District of New York, the District of Columbia, the States of Tennessee, and Utah reached a settlement with Wal-Mart Stores Inc. for storm water violations at Wal-Mart stores across the country. Under this Clean Water Act settlement, Wal-Mart has agreed to pay \$3.1 million civil penalty and reduce storm water runoff at its sites by instituting better control measures. Storm water runoff is one of the most significant sources of water pollution in the nation, comparable to contamination from industrial and sewage sources. This settlement sets a very high bar for regulation of this pervasive problem.

Wal-Mart is one of the largest commercial developers in the country, building well over 200 stores each year across the U. S. under the brand names Wal-Mart Stores, Wal-Mart Supercenters, and Sam's Clubs.

"Storm water requirements have been in place for a long time. Developers like Wal-Mart must share responsibility with their construction contractors to ensure compliance," said Assistant Attorney General Thomas L. Sansonetti of the Justice Department's Environment and Natural Resources Division. "Today's settlement is a strong signal of this Administration's commitment to increase enforcement of our nation's environmental laws and regulations."

"Runoff from construction sites is a primary contributor to the impairment of water quality in the nation. EPA is vigorously enforcing federal regulations to help reduce this problem," said Thomas V. Skinner, acting Assistant Administrator of EPA's Office of Enforcement and Compliance Assurance. "I want to commend Wal-Mart for negotiating a settlement that will be good for the environment and good for business."

Today's settlement is the second enforcement action resulting in a settlement with Wal-Mart for violations of the Clean Water Act. In 2001, Wal-Mart and several contractors entered into a settlement with the U.S. to address storm water violations at 17 sites in several states. The settlement included a penalty of \$1 million and required Wal-Mart to develop a storm water training program for its contractors and to inspect and oversee storm water controls at construction sites. EPA subsequently determined through inspections that Wal-Mart had not achieved consistent compliance at construction sites.

The settlement resolves violations of discharging pollutants without a permit and violations of storm water regulations by Wal-Mart and its contractors for alleged violations at over 24 construction sites in California, Colorado, Delaware, Michigan, New Jersey, South Dakota, Tennessee, Texas and Utah. The settlement includes a civil penalty of \$3.1 million, and an environmental project costing \$250,000 that will protect sensitive wetlands or waterways in one of the affected states. This settlement requires Wal-Mart to comply with storm water permitting requirements and ensures rigorous oversight of its 150 contractors. Wal-Mart will be required to use qualified personnel to oversee construction, conduct training and frequent inspections, report to EPA and take quick corrective action.

The settlement was lodged today for a 30-day public comment period in the United States District Court for Delaware.

"... Wal-Mart has agreed to pay \$3.1 million civil penalty and reduce storm water runoff at its sites by instituting better control measures."

"Runoff from construction sites is a primary contributor to the impairment of water quality in the nation. EPA is vigorously enforcing federal regulations..."

### III. Examples of

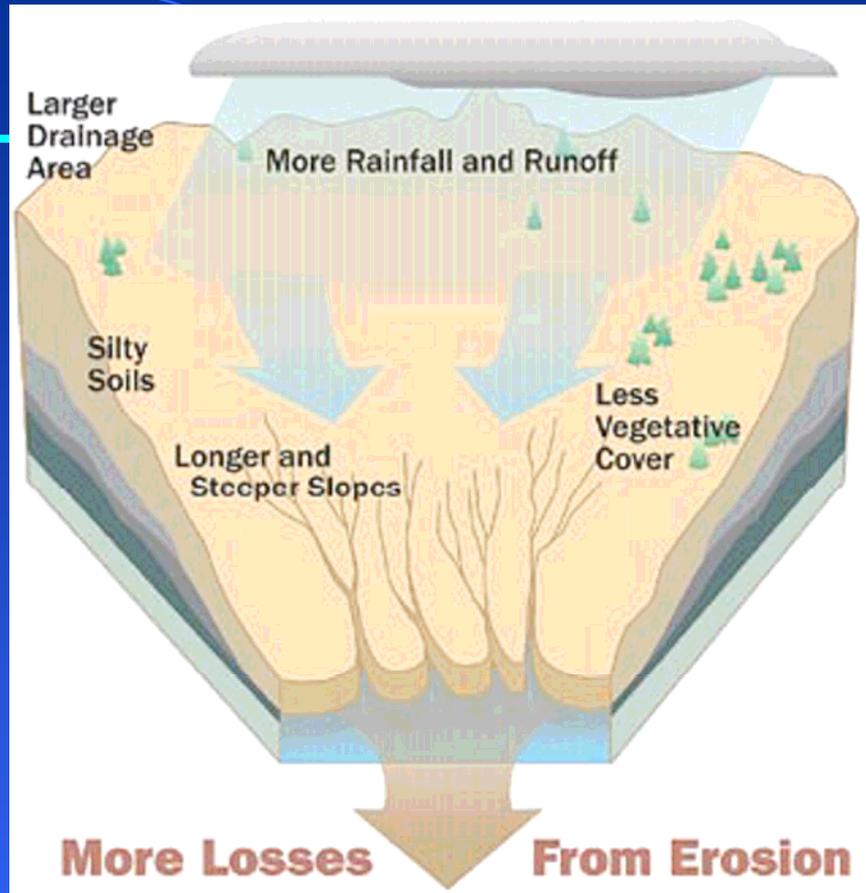
EFFECTIVE & INEFFECTIVE



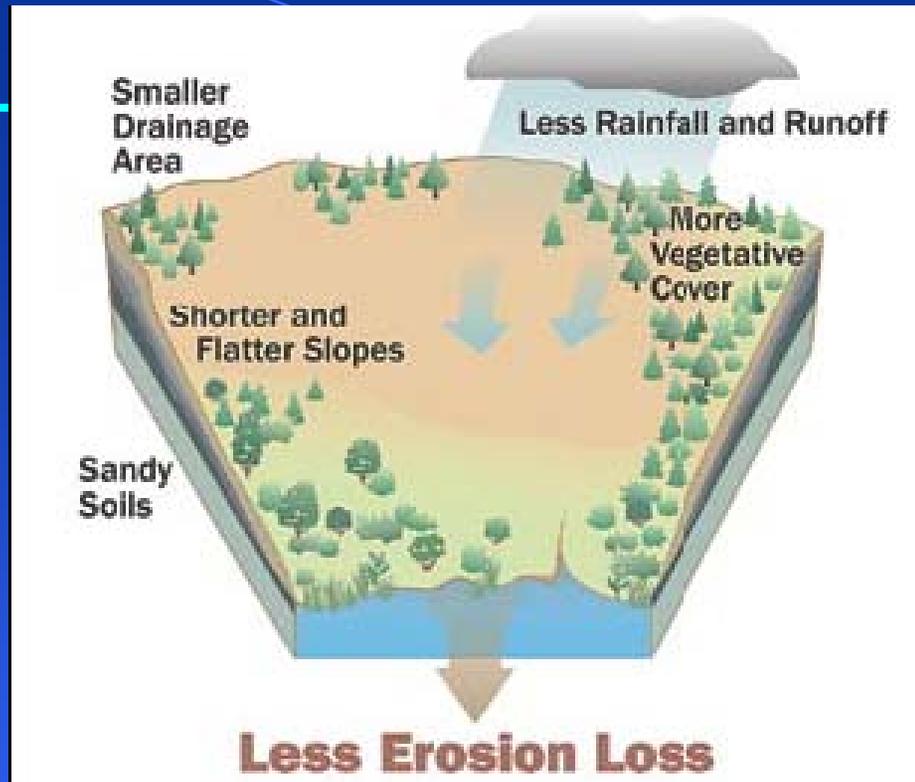
Erosion Control and  
Best Management Practices

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**What contributes to erosion?**



*Factors influencing erosion. Heavy rainfall, steep slopes, removal of most existing vegetation, and erodible soils result in higher soil losses from erosion.*



*Lower rainfall amounts, flatter slopes, preserving existing vegetation, and less erodible soils result in lower soil losses from erosion.*

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# Pre-Construction Planning



*Limiting the amount of bare soil exposed to the weather  
by working in  
phases reduces erosion and sediment control expenses.*



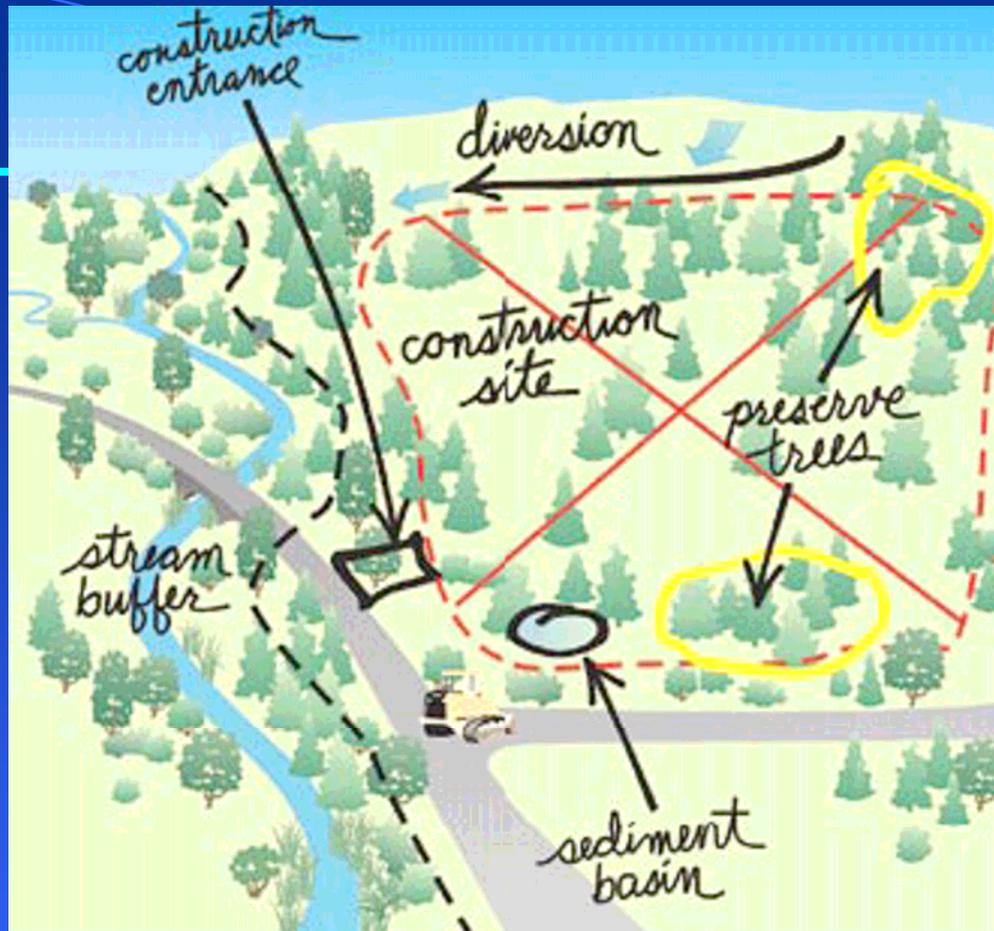
*Preserving existing vegetation at the site makes the final development*

*more attractive and saves money by reducing clearing, excavation,*

*and erosion control expenses.*

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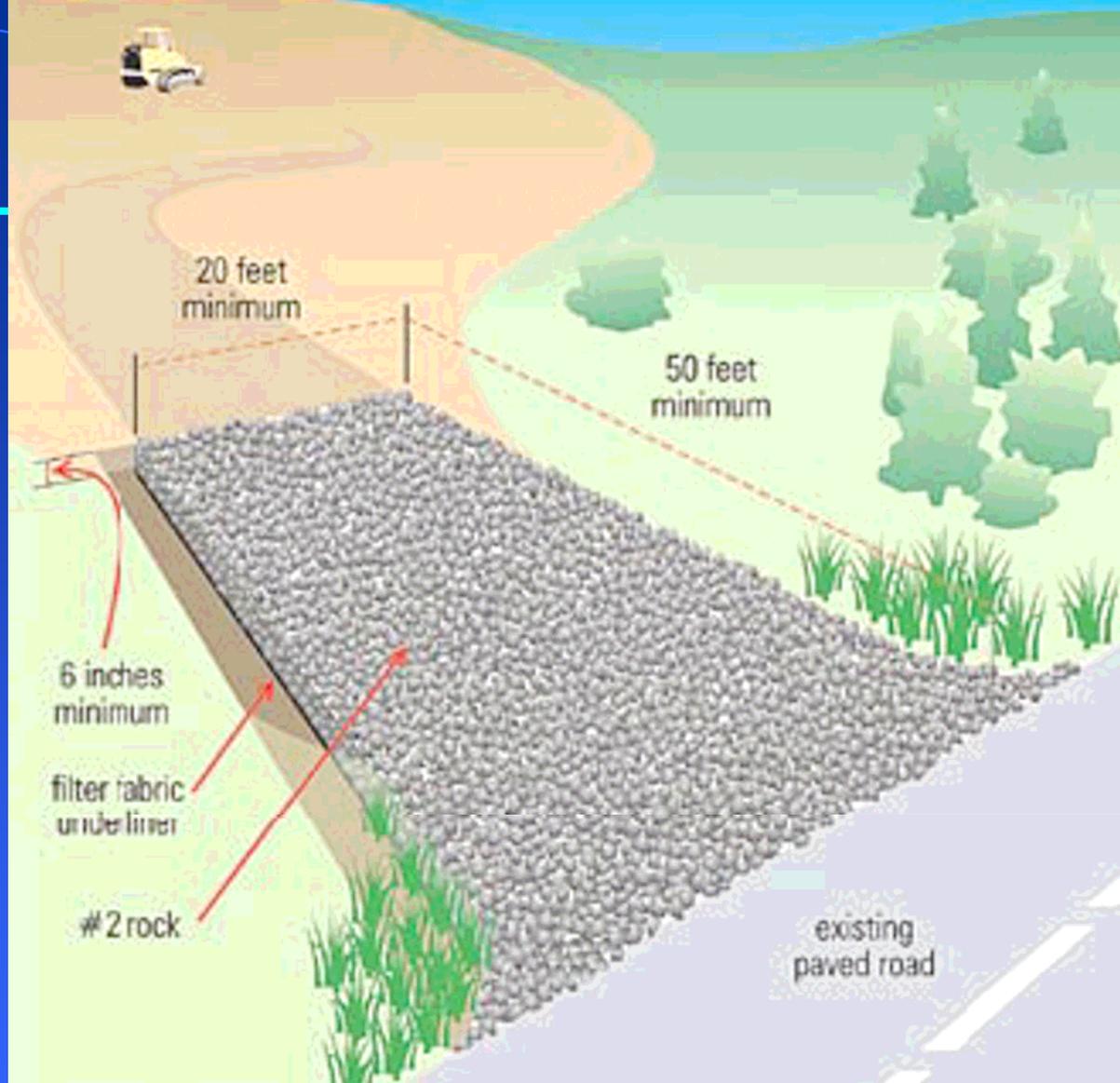
**Phase your construction work to  
minimize exposed soil areas**



*Identify drainage areas and drainage ditches and channels. Install diversions, grassed channels, sediment traps/basins, downslope sediment barriers, and rock construction entrance before beginning work.*

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**Install construction entrances  
and control dust**



*Construction entrance detail. Entrance/exit pad must keep mud from tracking onto paved roads.*



*Rock pad was installed properly with right sized rock, but lack of filter fabric underliner is causing rock to spread and sink into the soil. Note tracking of mud onto paved road. Mud tracked on roadways violates*

*BMP standards*



*Rock sizing, placement, and pad sizing are good, but sediment from unprotected slopes and ditches is washing onto paved highway.*



*Poor construction entrance. Rock pad is poorly constructed; rock is too small. Use filter fabric under rock and larger sized rock, such as #2. No mud should be tracked onto paved roads open for traffic.*



*Rock sizing and placement look OK for a residential site, and very little mud appears on the pavement. The pad is a little thin, however, and it looks like some drivers are not using it—note track marks near curb.*

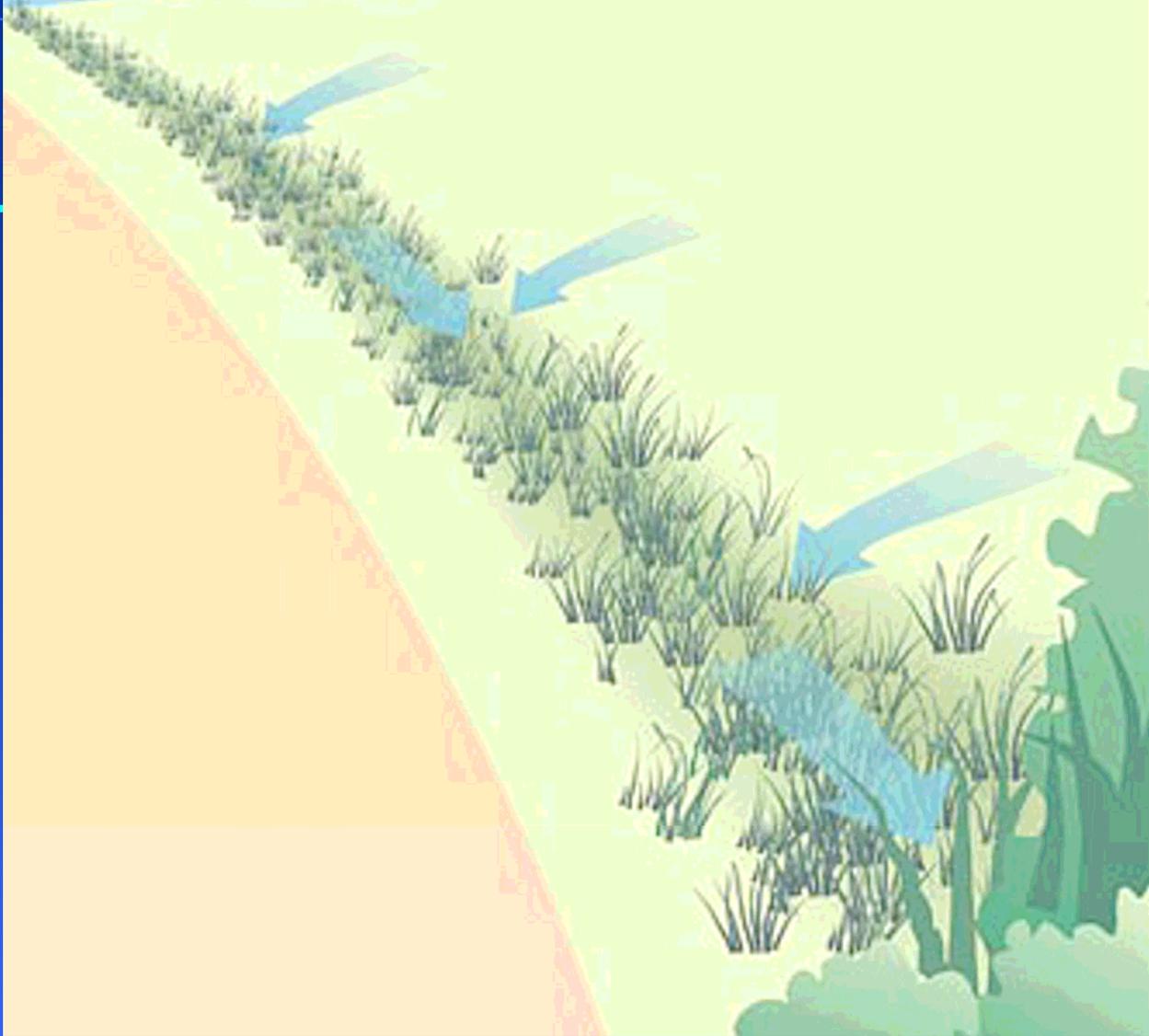
*Entire area needs seed and mulch.*

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# Diverting Offsite Runoff Around Exposed Soils



*Berms and ditches diverting clean upland runoff around construction sites reduce erosion and sedimentation problems. Seed berms and ditches after construction.*



*Diversion ditches should be lined with grass at a minimum, and blankets if slopes exceed 10:1 (10%)*



*Vegetated buffers above or below your work site are always a plus. They trap sediment before it can wash into waterways, and prevent bank erosion.*



*Good construction, seeding, and stabilization of diversion berm. Note that diversion ditch is lined with grass on flatter part of slope, and with rock on steeper part.*



*Good installation of rocklined berm to divert rain runoff around residential construction site on steep slope near a river. Diversion ditches can be lined with grass if channel slopes are 20:1 or less, and with blankets or turf mats if they are steeper.*

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# Protecting Bare Soils With Seed, Mulch, or Other Products



*Erosion and sediment loss is virtually eliminated on seeded areas (left side). Rills and small gullies form quickly on unseeded slopes (right).*



*Good mix of sod, seed, and mulch at site of new community center.*

*Note that inlet should be protected by installing a rock or sandbag berm to pond water before it flows into the inlet.*



*Poor seed establishment on slope. Use erosion control blankets or turf reinforcement mats when slopes are steep (greater than 4:1) and soil quality is poor. Terracing or benching steep slopes also helps.*



*Poor management of bare soil areas on residential construction site.  
Temporary or permanent seed or mulch must be applied as soon as  
final grade is achieved.*



*Installing sod immediately after grading work is complete can reduce erosion and sediment loss to near zero.*



*Excellent soil coverage at stream bank stabilization project using hand scattered straw, jute matting, and erosion blanket.*