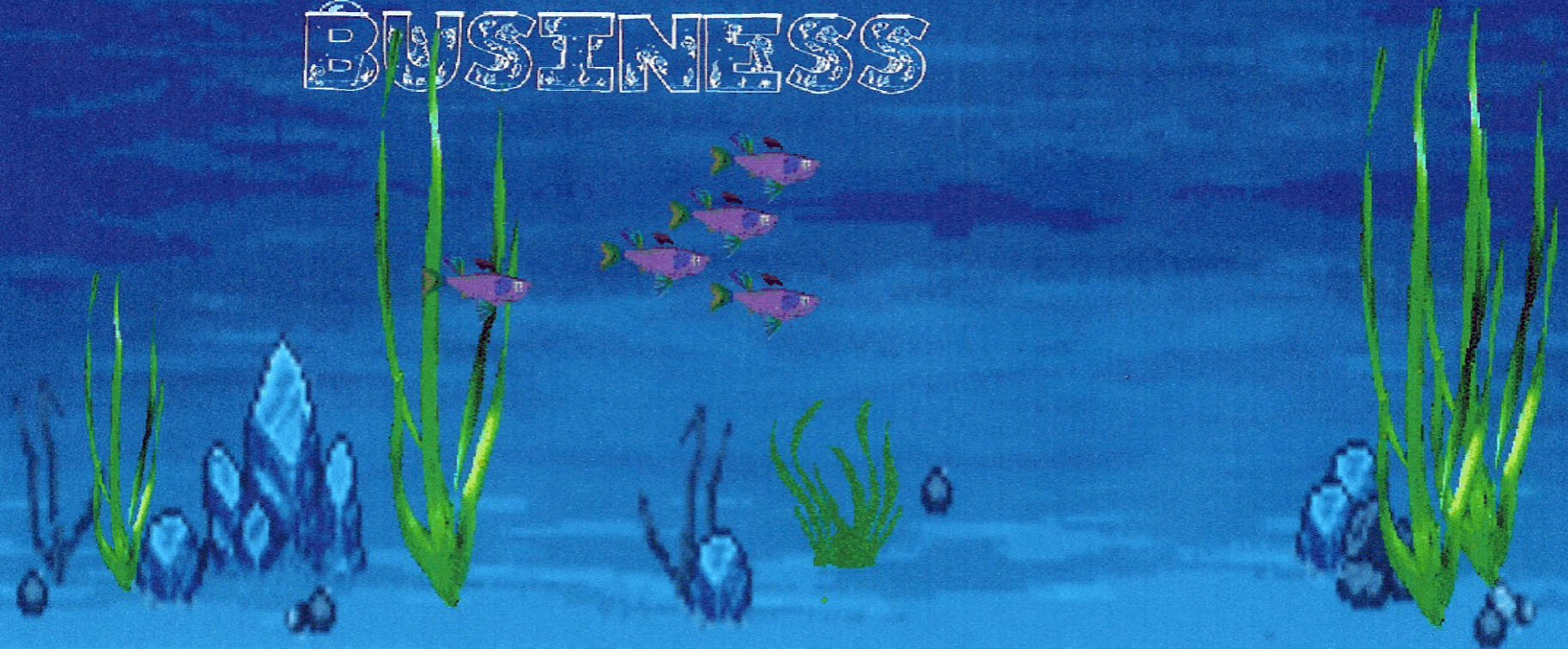


CLEAN WATER



IS

EVERYBODY'S
BUSINESS



Nearly 40 percent of all surveyed bodies of water in the U.S. do not meet the Environmental Protection Agency's (EPA's) water quality standards because of untreated polluted runoff that is often discharged directly into those water bodies.

The 1972 Clean Water Act (CWA) prohibits the discharge of any pollutant from a point source into a U.S. body of water unless that discharge is authorized by a National Pollutant Discharge Elimination System (NPDES) permit.

The Clean Water Act: Phase I

The CWA was amended by Congress in 1987. This amendment required the EPA to establish phased NPDES requirements for storm water discharges. The EPA published the Phase I NPDES permit application requirements for certain industries and large municipal separate storm sewer systems in 1990. More than 100,000 industrial facilities were directly affected by this requirement.

Phase I also included the medium and large MS4s. An MS4 is any municipal separate storm sewer system in an incorporated place that serves a population of over 100,000 people.

The Clean Water Act: Phase II

The EPA promulgated application requirements for Phase II Storm Water Program in August of 1995. Phase II required all small MS4s that discharged pollutants into a U.S. body of water to have an NPDES permit.

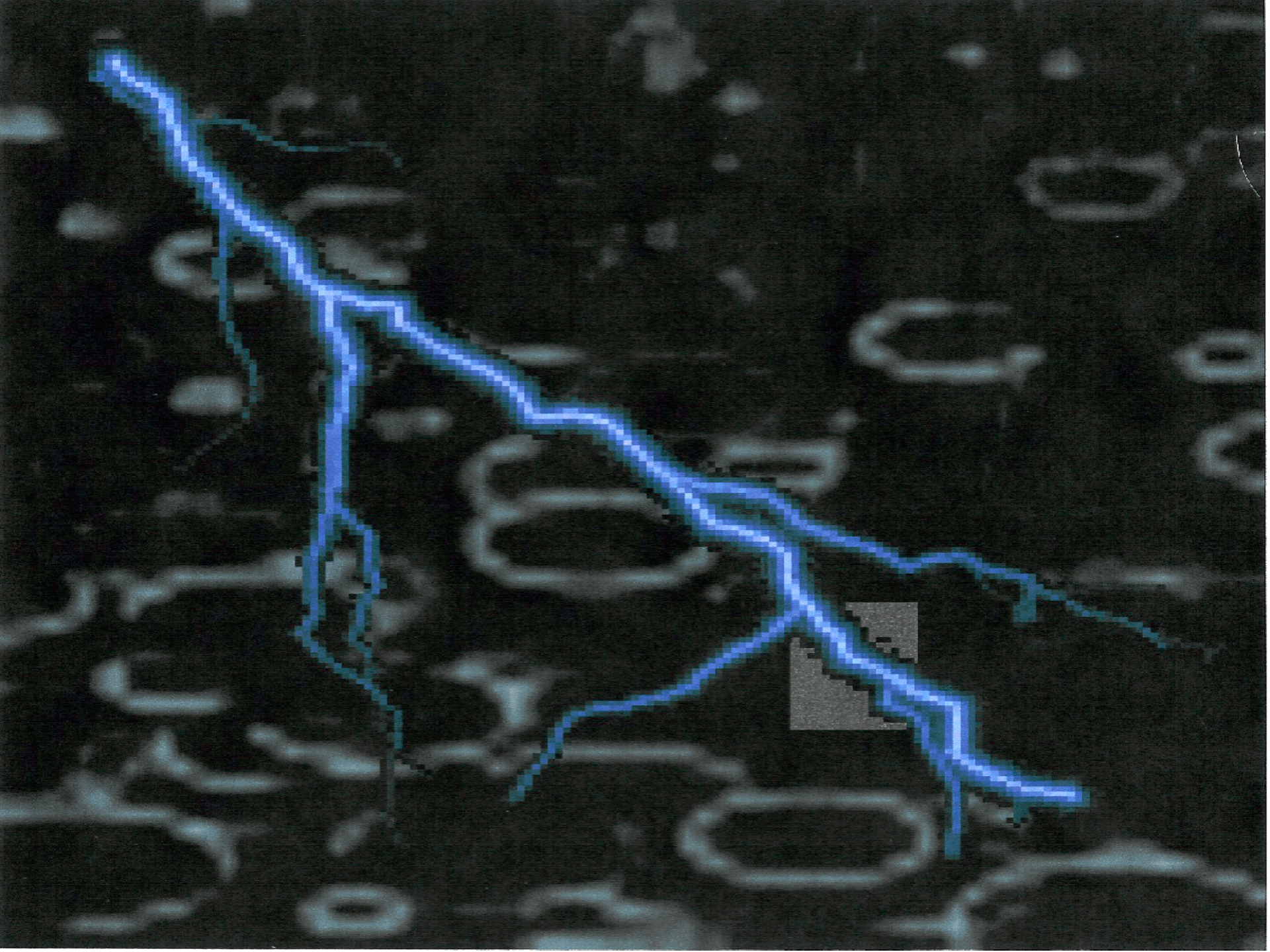
A small MS4 is a municipal separate storm sewer system that services populations of less than 100,000.

Construction activities disturbing between one and five acres must also be permitted. All Phase II regulated entities must be permitted by March of 2003.

Regulated small MS4s and construction sites must design programs to reduce their discharge to the “maximum extent practicable,” protect water quality and satisfy the water quality requirements of the CWA.

The Phase II rule also defines the storm water management program as a program comprised of the following six “Best Management Practices” or BMPs:

- Public education and outreach
- Public participation and involvement
- Illicit discharge detection and elimination
- Construction site runoff control
- Post-construction runoff control
- Pollution prevention and good housekeeping



After the Storm





Stormwater runoff occurs when precipitation from rain or snowmelt flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent stormwater from naturally soaking into the ground.

*Why is stormwater runoff
a problem?*



Stormwater can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water.



The effects of pollution



Polluted stormwater runoff can have many adverse effects on plants, fish, animals, and people.

Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.

Excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.



The effects of pollution

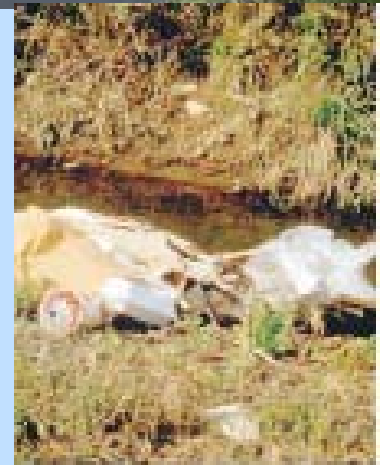


Bacteria and other pathogens can wash into swimming areas and create health hazards, often making beach closures necessary.

Debris—plastic bags, six-pack rings, bottles, and cigarette butts—washed into waterbodies can choke, suffocate, or disable aquatic life like ducks, fish, turtles, and birds.

Household hazardous wastes like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.

Polluted stormwater often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.



So what's being done about polluted runoff?

The Clean Water Act includes the National Pollutant Discharge Elimination System (NPDES) permitting program.

As of January 2003, 44 states and territories are authorized to issue NPDES stormwater permits. If your state isn't authorized to operate the NPDES stormwater permit program, EPA issues the permits. Permits vary from state to state.

- Develop and implement a stormwater pollution prevention plan
- Submit a permit application or notice of intent (NOI)
- Comply with the permit, including maintaining BMPs and inspecting the site

Best Management Practice (BMP)

A BMP is a method used to prevent or control stormwater runoff and the discharge of pollutants, including sediment, into local waterbodies.

The Plan

You must have a Plan that includes erosion and sediment control and pollution prevention BMPs.

These Plans require:

- Advance planning and training to ensure proper implementation of the BMPs
- Erosion and sediment control BMPs in place until the area is permanently stabilized
- Pollution prevention BMPs
- Regular inspections

Our Plan



Storm Water Pollution Prevention
Program Summary

for

North Dakota State University

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Stormwater Pollution Solutions

Recycle or properly dispose of household products that contain chemicals, such as insecticides, pesticides, paint, solvents, and used motor oil and other auto fluids. Don't pour them onto the ground or into storm drains.



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n* is essential to changing people's behavior. Signs and markers near storm drains warn residents that pollutants entering the drains will be carried untreated into a local waterbody.

Stormwater Pollution Solutions

Residential



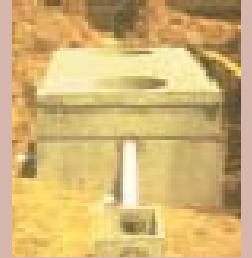
Lawn care

Excess fertilizers and pesticides applied to lawns and gardens wash off and pollute streams. In addition, yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.



Septic Systems

Leaking and poorly maintained septic systems release nutrients and pathogens (bacteria and viruses) that can be picked up by stormwater and discharged into nearby waterbodies.



Stormwater Pollution Solutions



Pet Waste

Pet waste can be a major source of bacteria and excess nutrients in local Waters.

Auto Care

Washing your car and degreasing auto parts at home can send detergents and other contaminants through the storm sewer system. Dumping automotive fluids into storm drains has the same result as dumping the materials directly into a waterbody.



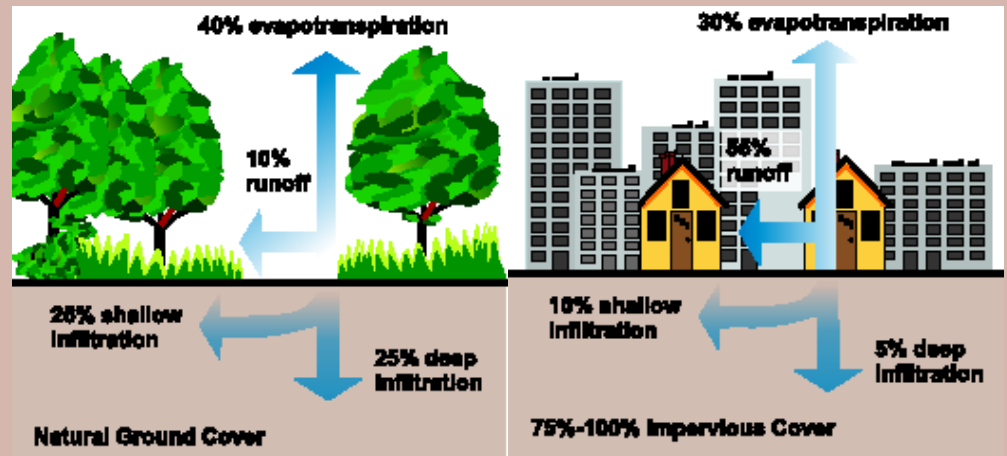
Stormwater Pollution Solutions

Residential landscaping

Rain Barrels



Permeable Pavement



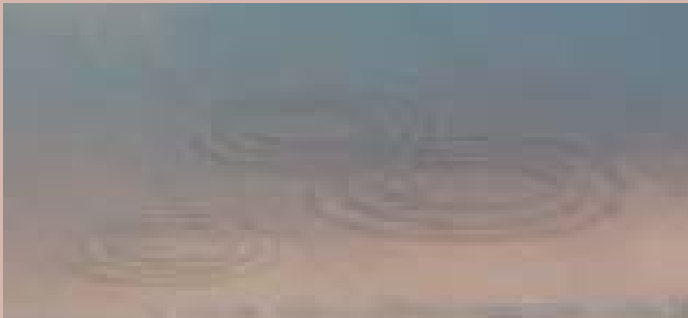
Rain Gardens, Grassy Swales, Vegetated Filter Strips



Stormwater Pollution Solutions



Dirt, oil, and debris that collect in parking lots and paved areas can be washed into the storm sewer system and eventually enter local waterbodies.



Stormwater Pollution Solutions



Lack of vegetation on streambanks can lead to erosion. Overgrazed pastures can also contribute excessive amounts of sediment to local waterbodies.

Excess fertilizers and pesticides can poison aquatic animals and lead to destructive algae blooms. Livestock in streams can contaminate waterways with bacteria, making them unsafe for human contact.



Stormwater Pollution Solutions

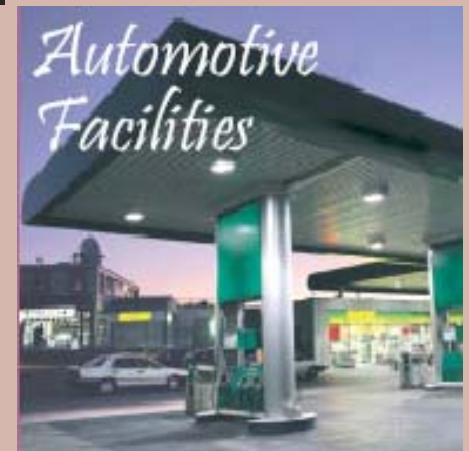
Uncovered fueling stations allow spills to be washed into storm drains. Cars waiting to be repaired can leak fuel, oil, and other harmful fluids that can be picked up by stormwater.

Clean up spills immediately and properly dispose of cleanup materials.

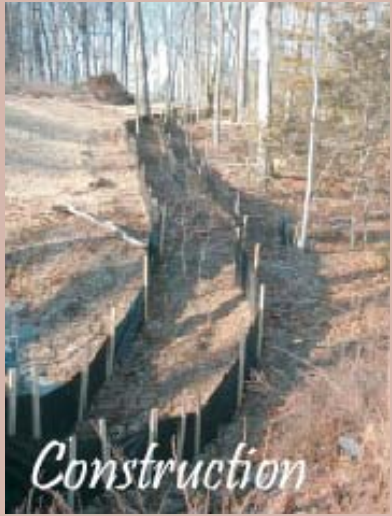
Provide cover over fueling stations and design or retrofit facilities for spill containment.

Properly maintain fleet vehicles to prevent oil, gas, and other discharges from being washed into local waterbodies.

Install and maintain oil/water separators.



Stormwater Pollution Solutions



Construction

Erosion controls that aren't maintained can cause excessive amounts of sediment and debris to be carried into the stormwater system. Construction vehicles can leak fuel, oil, and other harmful fluids that can be picked up by stormwater and deposited into local waterbodies.

Protect Natural Features



Bad



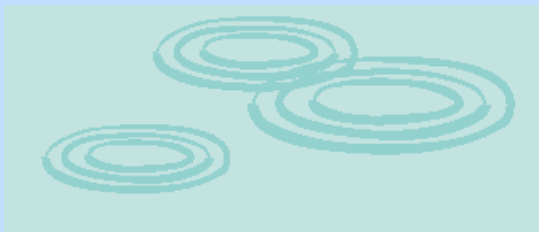
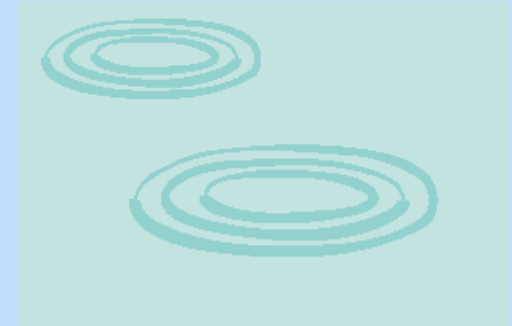
Good

Minimize clearing.

Minimize the amount of exposed soil.

Identify and protect areas where existing vegetation, such as trees, will not be disturbed by construction activity.

Protect streams, stream buffers, wild woodlands, wetlands, or other sensitive areas from any disturbance or construction activity by fencing or otherwise clearly marking these areas.



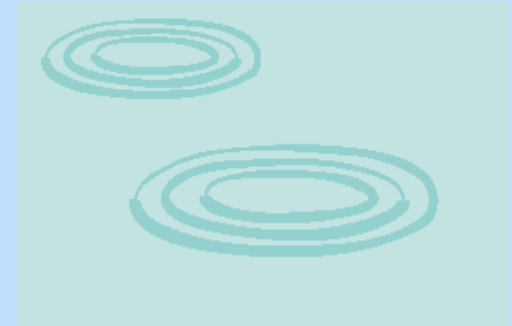
Vegetative Buffers



Bad

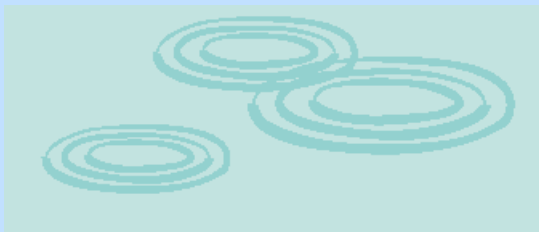


Good



Protect and install vegetative buffers along waterbodies to slow and filter stormwater runoff.

Maintain buffers by mowing or replanting periodically to ensure their effectiveness.



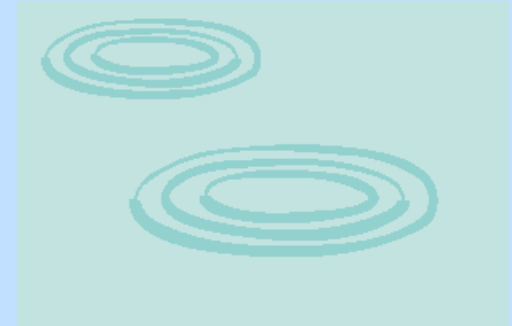
Site Stabilization



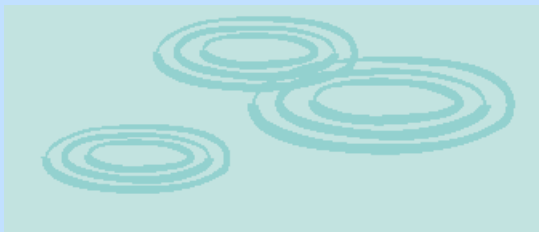
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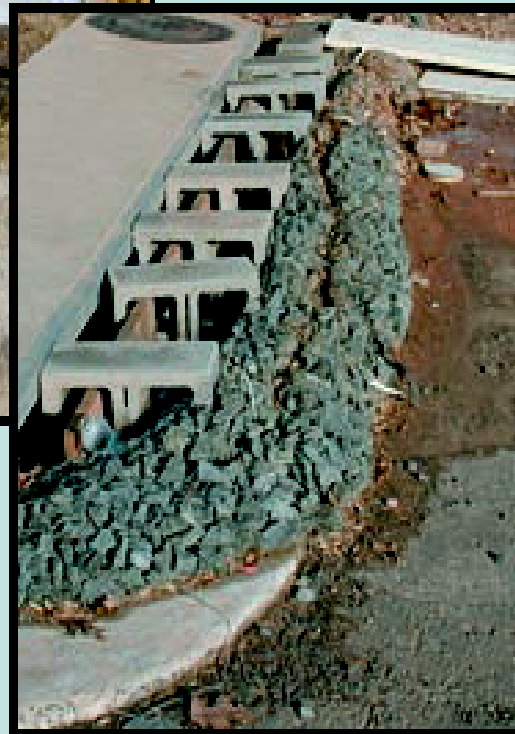
Vegetate, mulch, or otherwise stabilize all exposed areas as soon as land alterations have been completed.



Storm Drain Inlet Protection

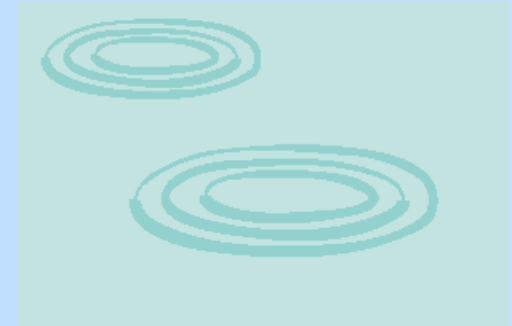


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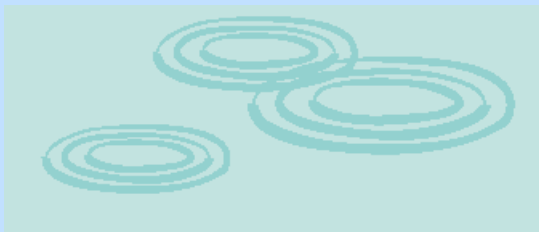




Use rock or other appropriate material to cover the storm drain inlet to filter out trash and debris.

Make sure the rock size is appropriate (usually 1 to 2 inches in diameter).

If you use inlet filters, maintain them regularly.



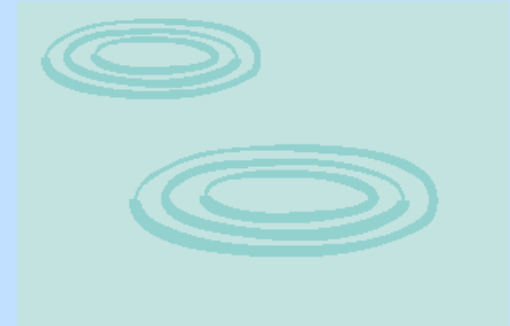
Dirt Stockpiles



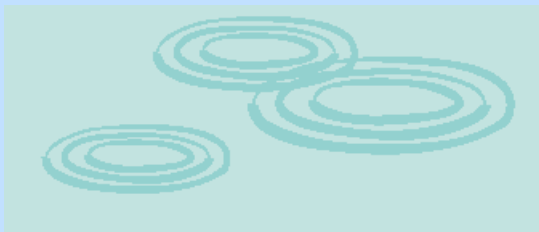
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Good



Cover or seed all dirt stockpiles.



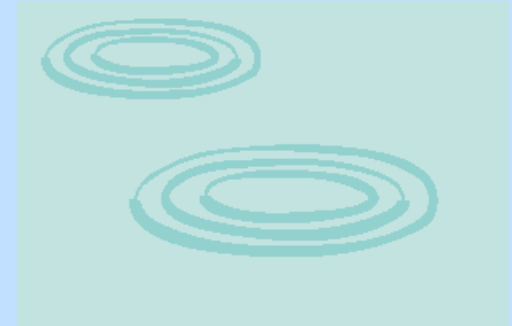
Slopes



Bad

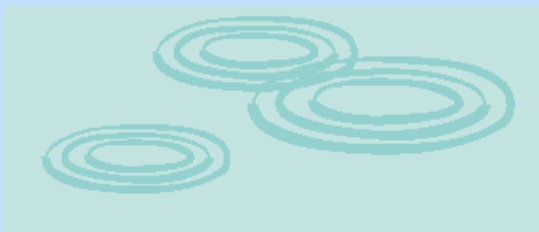


Good



Rough grade or terrace slopes.

Break up long slopes with sediment barriers, or under drain, or divert stormwater away from slopes.



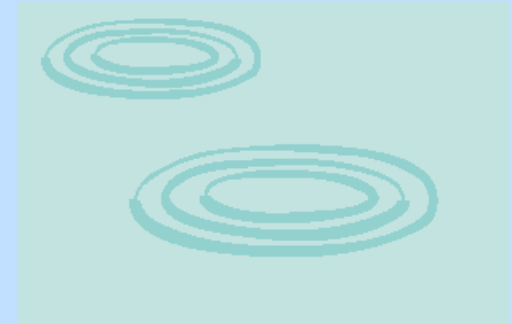
Construction Entrances



Bad



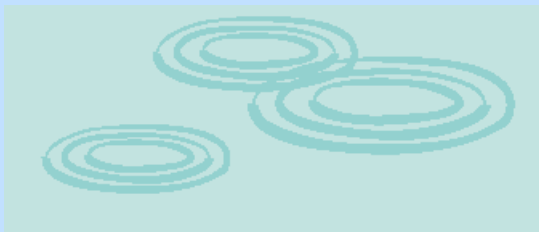
Good



Remove mud and dirt from the tires of construction vehicles before they enter a paved roadway.

Properly size entrance BMPs for all anticipated vehicles.

Make sure that the construction entrance does not become buried in soil.



Construction Phasing

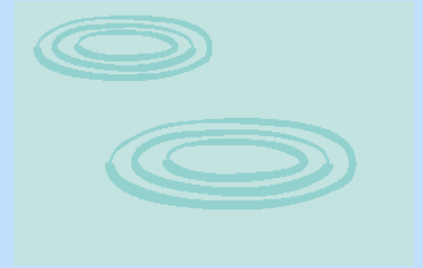


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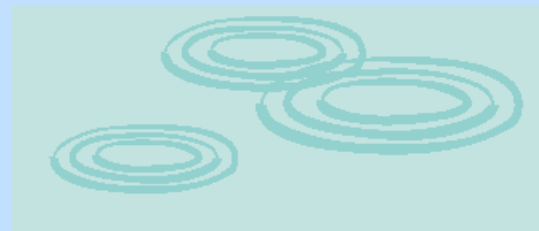
Sequence construction activities so that the soil is not exposed for long periods of time.



Schedule or limit grading to small areas.

Install key sediment control practices before site grading begins.

Schedule site stabilization activities, such as landscaping, to be completed immediately after the land has been graded to its final contour.



Silt Fencing



Bad



Good

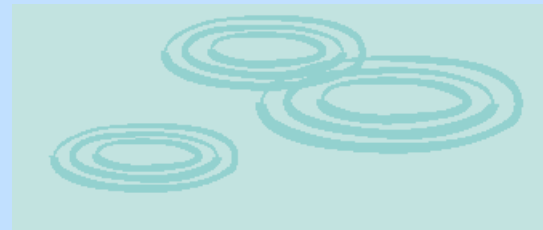
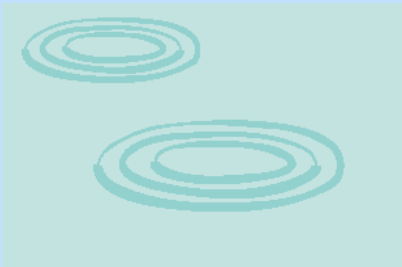
Inspect and maintain silt fences after each rainstorm.

Make sure the bottom of the silt fence is buried in the ground.

Securely attach the material to the stakes.

Don't place silt fences in the middle of a waterway or use them as a check dam.

Make sure stormwater is not flowing around the silt fence.



Urban Legends

Fiction

Stormwater runoff is natural and harmless because it consists of just rainwater.

Fact

The rain is not to blame for the problems caused by stormwater runoff. Indeed, rainfall is natural and harmless, but the pollution that contaminates it during its journey over roads, parking lots, buildings and other urban structures is not.

Fiction

Industrial sources pose a much greater pollution threat than urban stormwater discharges.

Fact

Stormwater runoff rivals or exceeds discharges from factories and sewage plants as a source of pollution throughout the United States.

Fiction

Local governments cannot afford to pay the astronomical rates to implement even minimal measures to control pollution from stormwater runoff.

Fact

Stormwater management is not free, but neither is its price tag "astronomical." Many workable and effective stormwater management measures are affordable and within the bounds of existing municipal budgets. And the money spent is a good investment.

Fiction

Urban stormwater discharges cause no significant harm to our lakes, rivers and oceans.

Fact

Urban stormwater is one of the most significant sources of pollution in our nation's rivers, lakes and estuaries.

Fiction

No real technical or management solutions exist to solve stormwater problems.

Fact

Because humans create urban stormwater pollution, humans can reduce or prevent it through responsible, efficient urban design, public works, pollution prevention, and homeowner practices. Workable, demonstrated techniques and management measures exist to reduce stormwater runoff.



Remember: Only rain down the drain!

For more information, visit
www.epa.gov/npdes/stormwater
or
www.epa.gov/nps