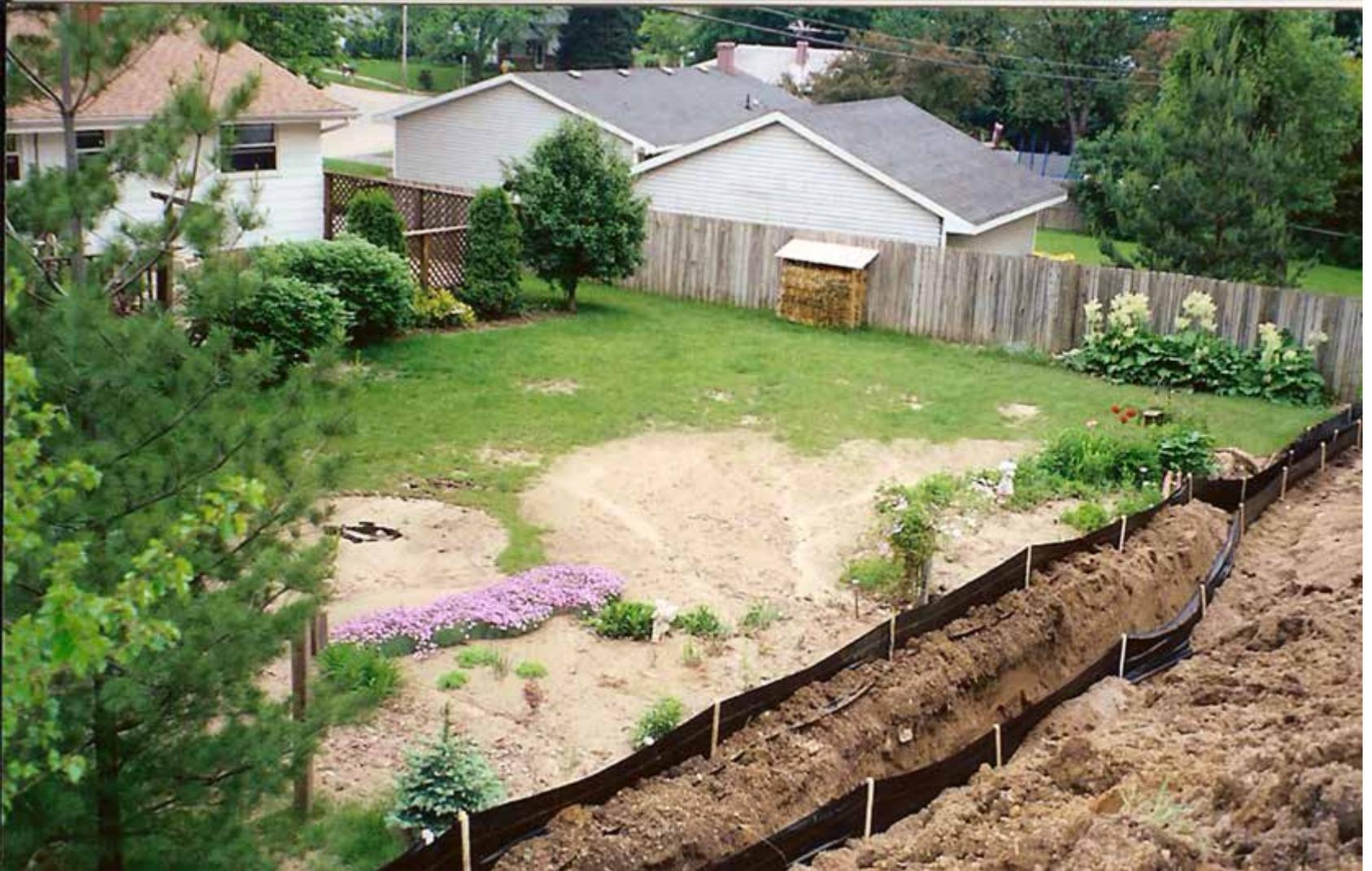


Water Resource Division

Dust & Sediment Best Management Practices (BMPs)



Sediment discharge to waters of the State



Sediment discharge to adjacent property



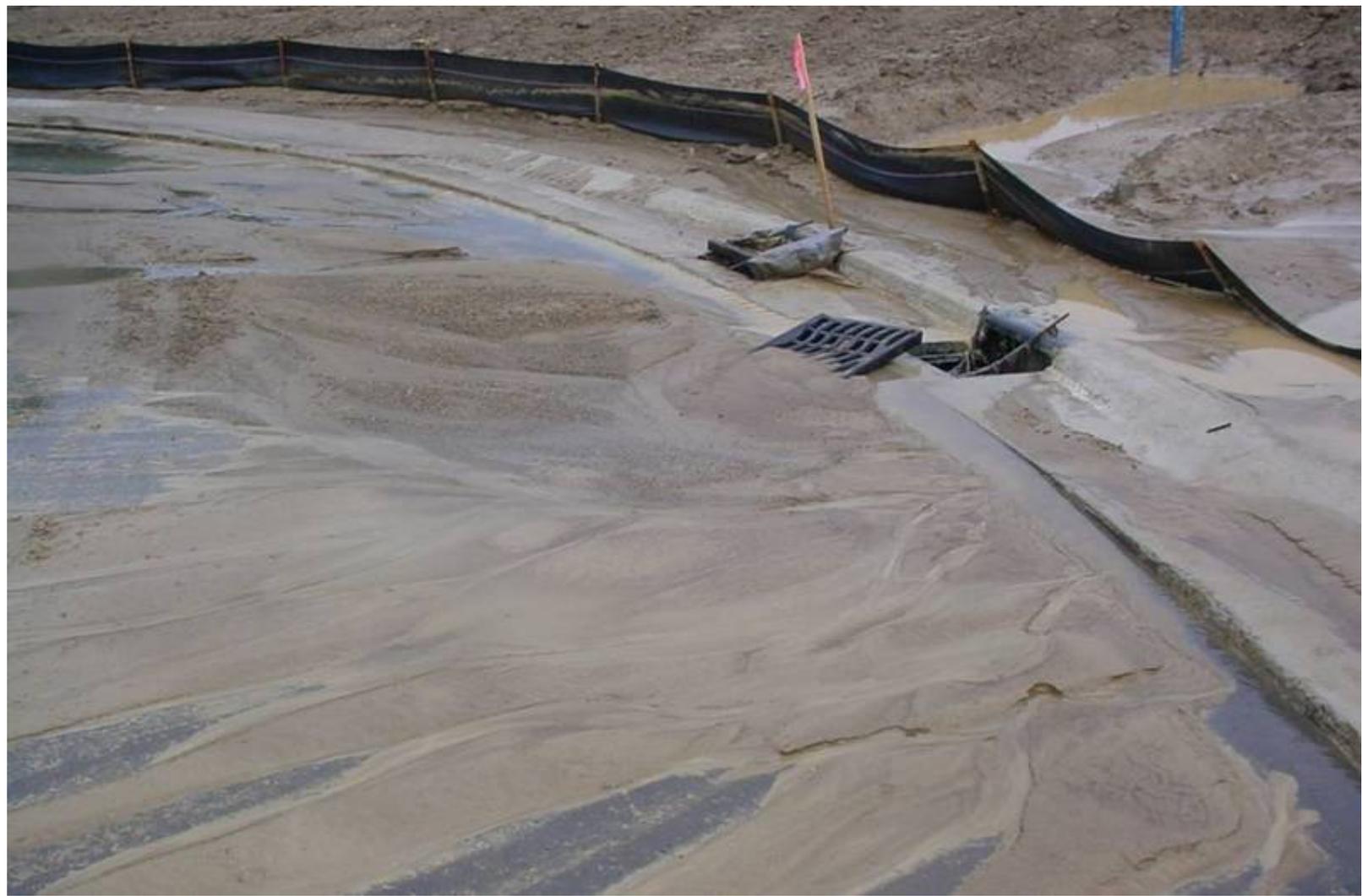
Incorrect installation of silt fence....



creates a channel effect during a rain event....



allowing soil erosion and sedimentation to occur....



and a discharge of sediment into the storm sewer....



and an eventual “mud slide”, closing the road... ..



the storm sewer then discharges to the onsite sedimentation basin....



which quickly became full....



and utilized its emergency over flow....



which discharged from its outlet....



.....sediment laden water into the adjoining wetland /
water of the state.

Site BMPs

Use BMPs with other BMPs for maximum effectiveness

- I Combine BMPS
 - Dust suppressants (water)
 - Catch basin inserts
 - Sedimentation basins



Combining BMPS (continued)

- I Limit exposure
 - Cover piles
 - Do not store materials near surface waters or storm drains



Surface Water Regulations & Dust Suppressants

- | Discharge of materials such as dust suppressants to surface waters requires a surface water discharge permit
- | No specific dust suppressant regulations related to surface water
- | Must comply with the Natural Resources and Environmental Protection Act (NREPA)
- | Prevent runoff of dust suppressants into surface waters or storm sewers
- | Do not apply near surface waters or storm sewers



Groundwater Regulations & Dust Suppressants

- | The following are authorized without groundwater permit:
 - (A) Water.
 - (B) Calcium chloride.
 - (C) Lignosulfate products.
 - (D) Emulsified asphalt or resin stabilizers.
 - (E) Vegetable by products.

- | Substances not included on this list require a groundwater discharge permit before they can be used for dust suppression in MI.



Sedimentation Basins



Site Entrance/ Exit

- | Defined entrance
- | Hard surface
- | Washed gravel
- | Wheel wash
- | Sweep entrance if possible
- | Sweep track out



Silt Fence

- | Commonly used and misused
- | Requires proper installation and maintenance



Failing silt fence

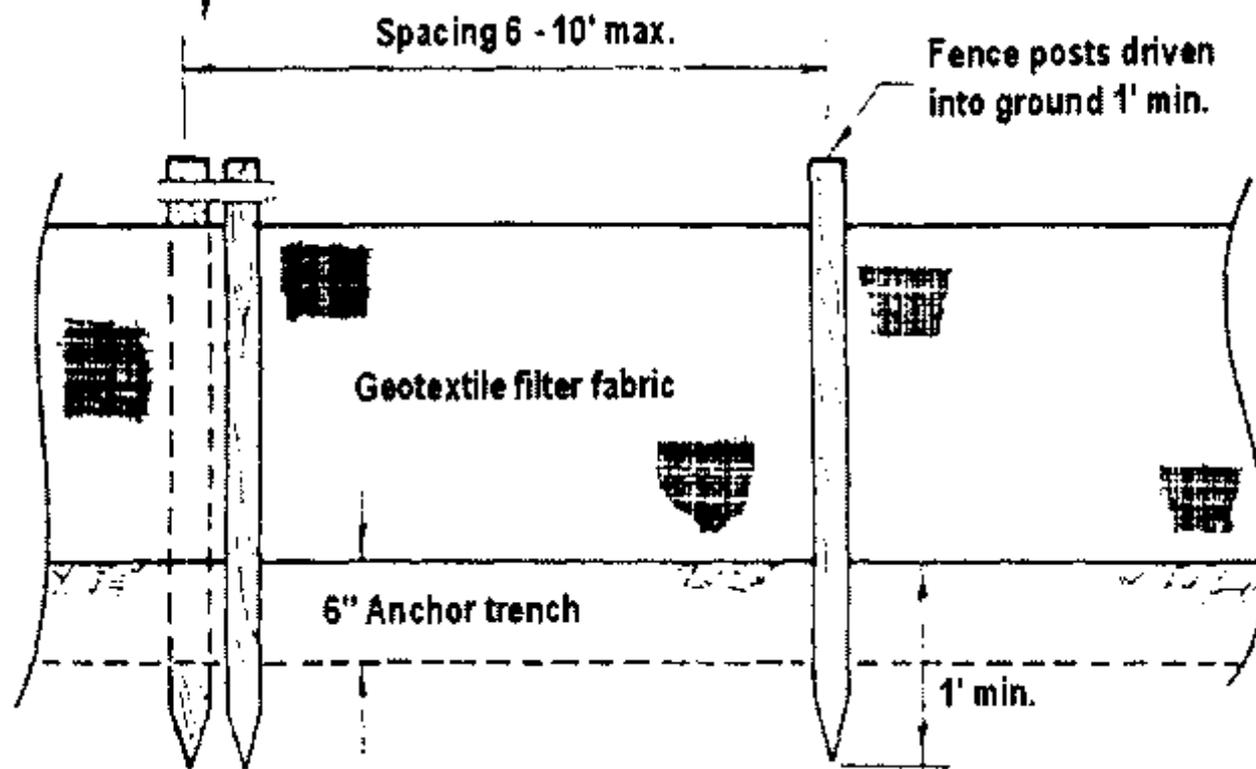


Improper silt fence installation

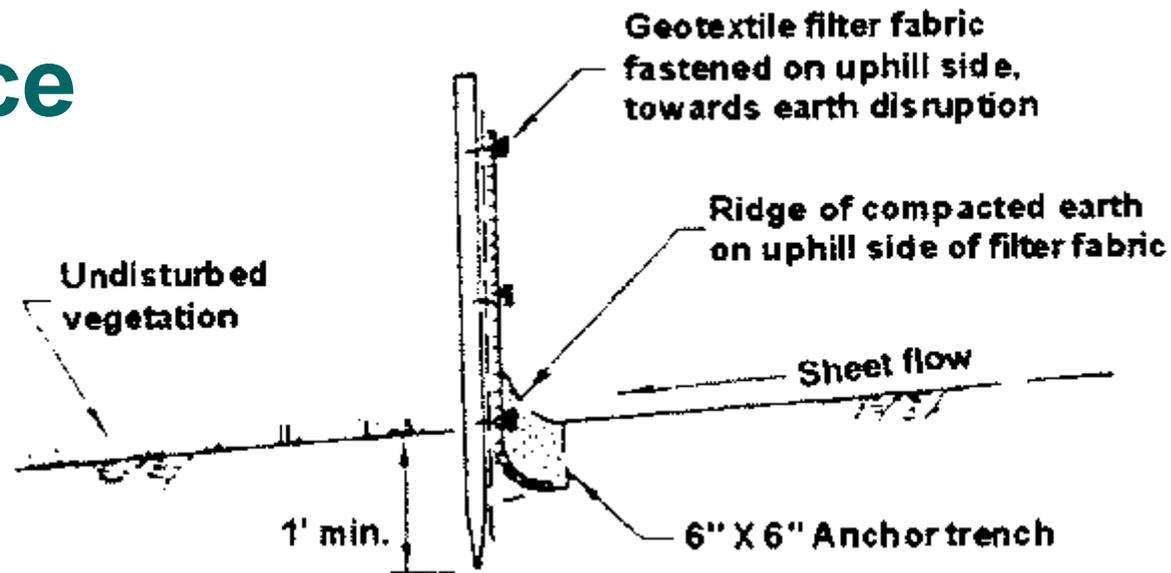




More silt fence...a lot more.



Silt Fence



Compost Socks



EPA.gov: Installation of filter socks in a road ditch by Earth Corps for Indiana Department of Transportation. The filter socks will be staked through the center. Source: Filtrex International, LLC.

Storm sewer inlet protection

- 1 Requires proper installation and maintenance
- 1 Use in conjunction with other practices



A person works to prevent a spill from entering a storm sewer (DAWG, 2000)



IA NRCS

Storm sewer inlet protection

I Proprietary storm water treatment devices

- remove heavy metals and oils
 - I need to be protected from heavy sediment loads
- Inserts designed to remove sediment
- Inspect regularly
- Remove sediment before they are full





Unprotected catch basin

Site Stabilization



Vegetative Practices

- | Requires proper timing, installation and maintenance
- | Use in conjunction with other practices
- | Best for sheet flow





Banks not stabilized, stream not protected, and check dam is blown out.....



....stream becomes sediment laden.

Erosion Control Blankets



Check Dams

- | Require proper design, installation and maintenance
- | Use in conjunction with other practices



Road and Parking Lot BMPs

Street Sweeping

- | Streets accumulate significant amounts of pollutants that contribute to stormwater pollutant runoff to surface waters.
- | Street sweeping can be an effective measure in reducing pollutants in stormwater runoff.



Types of Sweepers

- | Efficiency varies with sweeper type

Table 9.8 Washoff Reductions for Weekly Street Sweeping(%)
(Claytor, 1999a; Sutherland and Jelen, 1997; Kurahashi and Associates, 1997)

Street Type/Sweeper Type	TSS Removal	N/P Removal
<i>Residential Street</i>		
•• Mechanical	30%	24%
•• Regenerative Air	64%	51%
•• Vacuum Assisted	78%	62%
<i>Major Road</i> (<i>applied to all but residential</i>)		
• Mechanical	5%	4%
• Regenerative Air	22%	18%
• Vacuum Assisted	79%	63%

Sweeping Frequency

- I Efficiency varies with frequency

Interim pollutant removal rates from street sweeping for TSS, TP and TN.

Frequency	TSS	TP	TN
Monthly	16%	4 %	4 %
Twice a month	24%	5 %	6 %
Weekly	24%	5 %	6 %
Twice a Week	32%	8 %	9 %

Source: CWP Tech Memo 1- Literature Review

Street Sweeping

- I Schedule sweeping
 - Traffic volume
 - land use
 - field observations of sediment and trash accumulation
 - proximity to surface waters
- I Sweep a minimum of once per year





- | Sweeper that removes fine sediments
- | Routine equipment maintenance
- | Removal of sediment from curb gutters
- | Sweeping before spring runoff
- | Street Sweepings Storage and Disposal

-
- | To evaluate the effectiveness, municipalities should maintain accurate logs of the number of curb-miles swept and the amount of waste collected (CASQA, 2003).

Truck Washout

- | Review procedures
- | Designate washout area
- | Prevent discharge to storm sewer or surface waters
- | Direct washout to sanitary if possible with approval
- | Line washout pit and properly dispose of waste



Gravel Road Maintenance

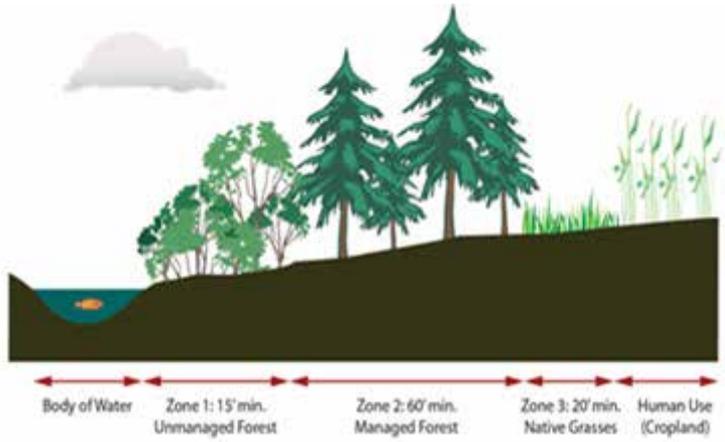
- | **Divert runoff through stabilized areas**
- | **Avoid direct runoff to surface waters**
- | **Reduce runoff velocities**
- | **Minimize areas of disturbance (stabilize bare areas)**



Roadside Vegetation

- | Maintenance practices for roadside vegetation also help determine the stormwater quality of road runoff.
- | Use vegetation with higher salt tolerances
- | Minimize roadside spraying of vegetation (mow when appropriate)
- | Select deep rooted vegetation that promotes infiltration

Riparian Buffers



PA Sea Grant



Monitoring

- Monitor and Maintain BMPs



Poor housekeeping

Training

- | Staff and contractors
- | Can help prevent storm water pollution
- | Teach employees that their actions have an impact on water quality and they are examples for the community

Resources

- | Pollution Prevention and Good Housekeeping Menu of BMPs
<https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#poll>
- | Techniques for Tracking, Evaluating and Reporting the Implementation of Non Point Source Control Measures
<http://www.epa.gov/owow/nps/urban2.html>
- | BMP Design, Pollutants Controlled Calculation Assistance, and other Technical Manuals
http://www.michigan.gov/deq/0,1607,7-135-3313_3682_3714-118554--,00.html



**Questions
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