

Construction Site Soil Erosion and Sediment Control

Soil is a valuable natural resource that is vital to the maintenance of the natural environment as we know it. Everyday, hundreds of thousands of tons of unprotected soil are washed away by erosion.

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What is soil erosion?

Soil erosion is the detachment and movement of soil particles by water, wind, ice, or gravity.

What is sediment?

Sediment is the result of erosion. Once soil particles have detached from the surface, are transported from their site of origin and have come to rest on other ground surfaces or in bodies of water, watercourses, or wetlands, they are referred to as sediment.

Why be concerned about soil erosion and sediment control?

- **It's The Law:** Soil erosion and sediment control requirements are a part of several Federal and State regulations and may be required by local ordinances as well.
- **Surface Water Quality:** Based on the most recent *Illinois Water Quality Report* (IEPA 1998), nearly 45% of Illinois' streams and more than 75% of lake acres assessed are adversely impacted by nonpoint source pollutants (NPS). Urban runoff and construction site erosion have been identified as significant sources of this pollution.
- **Chemical Pollutants:** Chemicals, such as some pesticides, phosphorus, as well as toxicants and trace metals, can be transported with sediment to receiving waters where they cause additional damage to aquatic ecosystems.
- **Construction Sites:** Construction site erosion is a significant source of sediment and other NPS pollutants. Soil erosion from a construction site without proper soil erosion and sediment control practices in place can average between 20-200 tons/acre/year--This is ten to twenty times greater than typical soil losses on agricultural lands.
- **Fish and Aquatic Plants:** Suspended solids reduce sunlight penetration needed for aquatic plants, reduce survival rates for fish eggs, interfere with fish feeding habits, and clog and damage fish gills which increases risk of infection and disease. Sediment deposits destroy fish spawning areas, resulting in the loss of sensitive or threatened fish species, adversely impact aquatic insects which are at the base of the food chain, reduce channel capacity, and decrease the overall quality of lakes, streams, and wetlands.
- **Damage on Wetland Mitigation Sites:** Findings from a June 1998 Wetland Mitigation and Section 404 (of the Clean Water Act) Permit Compliance Study conducted in the Chicago Region found that approximately 70% of permitted sites examined showed evidence of sediment accumulation resulting from erosion. Active erosion entering mitigation sites was observed on 14% of the permit sites. Other studies show sediment deposition of less than 0.1 inch results in a 60-90% decrease in wetland seed germination from new seedlings or from wetland seed banks. Decreased species diversity is also a result of sediment deposition, with less desirable species often becoming prevalent.



What costs are associated with construction site erosion?

- **Flooding:** Sediment accumulation reduces stormwater conveyance and storage functions of streams, wetlands, storm sewers, detention basins, highway drainage ditches, and floodplains, which can result in flooding.

- **Water Treatment:** Over time, municipal and industrial water supply reservoirs lose storage capacity, navigable channels must continually be dredged, and the cost of filtering and disposing of muddy water in preparation for human or industrial use increases.

- **Safety and Nuisance Issues:** Sediment on roadways creates potential safety issues and is a nuisance.

- **Increased Construction Costs:** Uncontrolled erosion and sediment deposition increases construction costs. Sediment fills drainage channels, detention basins and storm sewers and plugs culverts and storm drainage systems, which then require frequent and costly maintenance. Construction sites that are not effectively stabilized can cause serious erosion problems that require regrading. Damage to new plantings on mitigation sites or other areas often require replanting at a significant cost.

- **Negative Public Perception:** The public often observes muddy water leaving a construction site. Erosion and sediment control measures may cost more up-front, but in the long-term are cost-effective. Failure to comply with local, state, or federal law may result in significant penalties. Environmental compliance problems can adversely affect public perception.



What can be done to control soil erosion and provide sediment control?

- **Preventative Action:** Numerous studies show that it is more cost effective and institutionally feasible to develop measures to prevent or reduce pollutants in stormwater during new development than to correct problems caused by these pollutants later.

- **Establish Local Ordinances:** Many counties and municipalities have adopted soil erosion and sediment control ordinances which, when consistently enforced and coordinated with state and federal permit authorities, can be an extremely effective method to minimize damages caused by erosion and sediment.

- **Best Management Practices:** Implementing appropriate best management practices on construction sites protects and improves local surface water resources and community infrastructure investments.

- **Incorporate Soil Erosion and Sediment Control As An Integral Part of Construction:** Planning for soil erosion and sediment control should be considered as important as any other component of the development process. Proper implementation and maintenance of planned practices will assure that costs incurred will be offset by economic, environmental and other benefits.



Where To Go For Help:

All agencies listed on this factsheet can provide guidance or referrals on planning and implementing a successful soil erosion and sediment control program. Call county level NRCS and SWCD offices who have field personnel to assist in training and provide consultation in the selection of appropriate best management practices. NRCS is listed in the phonebook under U.S. Government. Visit the NRCS Home Page at www.il.nrcs.usda.gov