

Erosion of soil during land conversion, can result in major impacts to neighboring waterways. It is estimated that more than 5 tons of soil can be washed away from a quarter-acre home construction site, if proper preventive steps aren't taken.

Stormwater runoff carries with it contaminants and increases in velocity as it moves across the land surface. More runoff means less infiltration, which can impact localized groundwater recharge.

With increased energy and volume, the stormwater enters neighboring waterways, cuts away at banks and creek beds resulting in property loss and increased stream maintenance costs. Water quality is impaired and essential aquatic habitat is lost.

What you do early in a construction project, can make all the difference in protecting neighboring water resources, controlling stormwater runoff and reducing erosion within the development, as well as off site.

Planning—the key to managing nonpoint source pollution!

Site choice insures that extensive surface modifications will not be needed, and that the proposed land use will not interfere with existing natural drainage patterns.

Sites with extreme slope may not be suitable for landuses with building structures, roadways or other hard surfaces.

Modifying surface elevations can result in changing the overall drainage pattern of the site. In addition, moving soils to change slopes breaks up natural soil structure, which allows soil to more quickly erode or reduces infiltrative capabilities if soils are compacted.

Site design should include best management practices that help reduce the amount of stormwater runoff that is generated and prevent erosion by protecting soils and reducing runoff energy.

Hard surfaces should be minimized. When soils are conducive, every effort should be made to insure infiltration of stormwater through installation of swales and porous materials rather than curb and gutter drainage.

Include existing natural resources as features of the development, and design buffers to preserve those features.

Lots should be configured to utilize shorter roads, while road widths should accommodate planned uses only, including minimum standards for maintenance and emergency vehicles. Cul-de-sacs should include vegetated centers, rather than solid surfaces.



Site preparation should be phased in to minimize exposed or disturbed soil. Site entrances and exits should be clearly marked and constructed of materials to reduce tracking of soils off site by construction vehicles.

Prior to any excavation, site-specific erosion control devices should be properly placed and regularly inspected to insure they are functioning as planned. Replace those mechanisms not serving the intended site use and repair or reinforce any devices that have been damaged or deteriorated with time.

Conserve and protect buffered areas along waterway corridors, wetlands and forested areas.

Retention/detention ponds and sediment settling ponds should also be installed as needed to collect stormwater and sediments generated during construction. Regularly remove and properly dispose of accumulated sediments.

Exposed soils should be temporarily seeded or covered in a way to prevent exposure to the forces of rainfall or runoff.

Site Completion does not occur until all mechanisms are in place and properly functioning to control erosion and stormwater runoff.

Upon completion of construction, site should be inspected to insure proper vegetative growth has occurred on exposed soils.

New erosion evidence should be evaluated and steps taken to prevent further deterioration through installation of solutions that better address the discovered erosion problem.

Maintenance of temporary settling ponds, and regular maintenance of permanent stormwater runoff and erosion control devices should be scheduled.

Key Principles for Erosion Control and Stormwater Management

- Avoid use of building sites with extreme slopes.
- Identify natural drainage patterns and avoid disrupting them.
- Extensive earthmoving or extreme land surface modification should be avoided.
- Construct perimeter berms and temporary retention areas to eliminate off-site drainage onto construction site, and keep potential sediment and stormwater runoff on site.
- Prepare project entrances and exits with materials that reduce tracking soils off site.
- Properly install adequate erosion control devices or structures, as recommended in approved manuals.
- Maintain natural buffers—Install filter strips for added protection along waterways.
- Phase in the project—Do not strip the entire site of vegetation at one time.
- Keep hard surfaces to a minimum by reducing length and widths of roads, innovative lot placement, and use of porous materials for sidewalks and parking lots.
- Consider infiltration as a means to manage stormwater runoff, only when soils are suitable.
- Apply a temporary seed mixture to disturbed soils as soon as possible
- Temporarily seed or cover stockpiled top soils or excavated soils.
- Incorporate management and maintenance schedules of stormwater control structures into site plan.
- Identify responsible parties to continue with maintenance of control structures and procedures once the project is complete.
- Educate new property owners about the care and preservation of installed permanent erosion control and stormwater management practices and devices.

For regulations and more information about Erosion and Stormwater Runoff Control, check out these websites:

Center for Watershed Protection
www.cwp.org

Indiana Department of Environmental Management,
Office of Water
www.in.gov/dem/water

Indiana Department of Natural Resources
www.in.gov/dnr

Minnesota Pollution Control Agency—*Protecting Water Quality in Urban Areas: A Manual*
www.pca.state.mn.us/water/pubs/sw-bmpmanual.html

Nonpoint Education for Municipal Officials—
University of Connecticut—*Linking Land Use to Water Quality*
<http://nemo/uconn.edu/>

U.S. Environmental Protection Agency—*Technology Fact Sheets*
<http://notes.tetrattech-ffx.com/newsnotes.nsf>

Urban Water Resources Council of the American Society of Civil Engineers—*National Stormwater Best Management Practice Database*
www.bmpdatabase.org

Michiana Area Council of Governments
and

St. Joseph River Basin Commission
227 W. Jefferson Blvd.—#1120
South Bend, IN 46601-1830
Phone: 574-287-1829 FAX: 574-287-1840
www.macog.com

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*Reducing
Nonpoint Source
Pollution,*



*Soil Erosion, and
Stormwater
Runoff—It's all
in the planning!*

A self-assessment CD which further illustrates some of the principles in this brochure, is available upon request from the Michiana Area Council of Governments