



Illustration by Libby Walker Davidson

WETLANDS FACT SHEET

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Topic: Erosion Control

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BACKGROUND

Soil disturbance associated with construction activities can cause sediments to move into wetlands and surface water bodies during runoff events if soils are not properly stabilized. Because wetlands are characterized by periodic high water levels and are often associated with streams and rivers, construction activities in or near wetlands must be carefully planned to prevent off-site sediment transport. Sediments may reach wetlands and surface waters from poorly executed logging operations or construction jobs in streams feeding wetlands or on sites upslope of wetlands.

IMPACTS OF OFF-SITE SEDIMENTS ON WETLANDS

Sediments carried in stormwater runoff from parking lots, roads, and other urban structures may contain petroleum-based contaminants, such as oil, gasoline, or grease. In agricultural areas, sediments may also contain fertilizers, insecticides, and pesticides. The introduction of sediments and their associated pollutants into a wetland may affect any of the functions provided by the wetland, such as water quality protection, flood storage, and hydrophytic vegetation.

Wetlands can improve water quality by removing sediments and other pollutants from surface waters. There is a limit, however, to the amount of sediments and pollutants individual wetlands can receive before the natural biological, chemical, and physical processes are overloaded. Many wetlands occur along streams or lakes. When these wetlands become overloaded with sediments and pollutants, the excess will flow directly into the adjacent waterbodies, resulting in decreased water quality downstream.

Eroded sediments can also affect the natural plant community that occurs in wetlands. Excessive sediments and their associated nutrients can change the environment and encourage the growth of aggressive, nuisance species, such as purple loosestrife and phragmites. These species can outcompete native plants, form monocultures, and reduce habitat complexity.

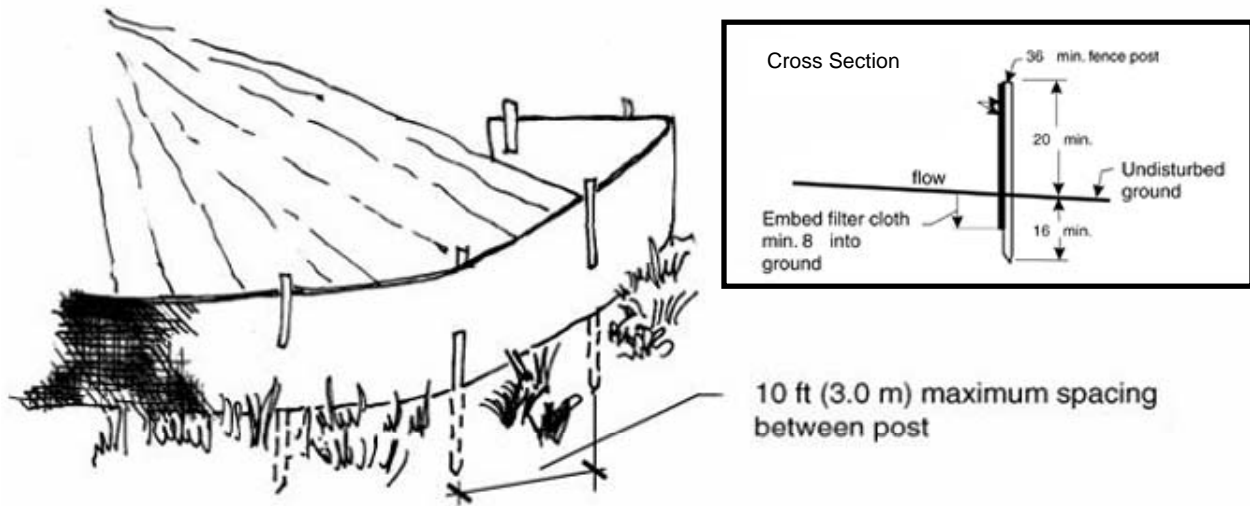
An introduction of pollutant-laden sediments into wetlands may constitute a violation of Vermont Water Quality Standards or the Vermont Wetland Rules.

TECHNIQUES TO CONTROL OFF-SITE SEDIMENT

When doing construction work in a wetland or buffer zone, it is important to divert surface water runoff away from areas with exposed soil. Water diverted around exposed soil can reduce the potential for transport of sediment to surface waters.

Probably the most common method for sediment control in areas of soil disturbance is the use of a sediment barrier. Pre-manufactured silt fence is readily available, but must be properly installed, i.e. keyed into native

soil 4-6 inches to prevent sediments from washing underneath the barrier. Barriers also need to be regularly maintained to insure their effectiveness. Sediments need to be cleaned out when they have reached half the height of the fence, and before major predicted rainfall events. Removed sediments should be disposed of in a stable, upland area where further transport is unlikely.



Below large exposed soil areas, where diversion of runoff is impossible, temporary or permanent sedimentation basins can be employed. On larger projects, these should be properly designed and sized to prevent overtopping or failure, and to provide for sufficient detention time to allow settling out of particles. Other erosion control methods and materials are available. More information on erosion prevention and sediment control, including the *Vermont Handbook for Erosion Prevention and Sediment Control* are available at:

http://www.anr.state.vt.us/dec/waterq/stormwater/htm/sw_cgp.htm

Vegetation and mulch are the most effective means of controlling sediment transport when minimal runoff is expected. Plant material binds the soil through its roots; leaves and mulch absorb much of the energy of falling rain, discouraging the dislodging and transport of soil particles. If vegetation cannot be quickly established, periodic mulching is recommended on exposed areas. Frequently, side slopes for work in wetlands or buffers are made as steep as possible to minimize impacts. These steep slopes are more susceptible to erosion than flatter slopes, so temporary mulch and quick establishment of vegetation are extremely important. Temporary mulching also saves maintenance time; barriers down slope are much slower to fill and need less frequent cleaning. Jute mats, or similar devices, may be used on steep slopes until the vegetation has become established to prevent erosion.

Any temporary measure of erosion control, whether temporary sediment basin, silt fence, haybales, diversion ditch or other measures, must be removed following the successful establishment of vegetation and pavement on a project.

Early planning is essential for work in or upslope of wetlands. Publications and assistance are available free of charge from the Water Quality Division. All of the erosion control techniques discussed above, and others, are included in the Department's publication, *Vermont Handbook for Soil Erosion and Sediment Control on Construction Sites*. Also available from the Department of Forests, Parks and Recreation is a pocket sized guide, *Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont*.