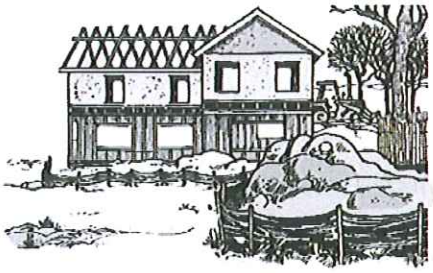


Erosion Control for Home Builders

By controlling erosion, home builders help keep our lakes and streams clean.

Eroding construction sites are a leading cause of water quality problems in Wisconsin. For every acre under construction, about a dump truck and a half of soil washes into a nearby lake or stream unless the builder uses erosion controls. Problems caused by this sediment include:

Taxes
Cleaning up sediment in streets, sewers and ditches adds extra costs to local government budgets.

Lower property values
Neighboring property values are damaged when a lake or stream fills with sediment. Shallow areas encourage weed growth and create boating hazards.

Poor fishing
Muddy water drives away fish like northern pike that rely on sight to feed. As it settles, sediment smothers gravel beds where fish like smallmouth bass find food and lay their eggs. Soil particles in suspension can act like a sand blaster during a storm and damage fish gills.

Nuisance growth of weeds and algae
Sediment carries fertilizers that fuel algae and weed growth.

Dredging
The expense of dredging sediment from lakes, harbors and navigation channels is paid for by taxpayers.

This fact sheet includes the diagrams and step-by-step instructions needed by builders on most home sites. Additional controls may be needed for sites that have steep slopes, are adjacent to lakes and streams, receive a lot of runoff from adjacent land, or are larger than an acre.

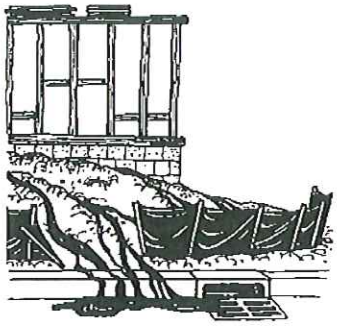
If you need help developing an erosion control plan or training your staff, contact your local building inspection, zoning or erosion control office.

Controlling Erosion is Easy

Erosion control is important even for home sites of an acre or less. The materials needed are easy to find and relatively inexpensive – straw bales or silt fence, stakes, gravel, plastic tubes, and grass seed. Putting these materials to use is a straightforward process. Only a few controls are needed on most sites:

- Preserving existing trees and grass where possible to prevent erosion;
- Revegetating the site as soon as possible;
- Silt fence or straw bales to trap sediment on the downslope sides of the lot;
- Placing soil piles away from any roads or waterways;
- Diversions on upslope side and around stockpilkes;
- Stone/rock access drive used by all vehicles to limit tracking of mud onto streets;
- Cleanup of sediment carried off-site by vehicles or storms; and
- Downspout extenders to prevent erosion from roof runoff.

GWQ001 Erosion Control for Home Builders. Additional copies are available from Cooperative Extension Publications, 45 N. Charter St., Madison, WI 53715, 608/262-3346 (toll-free 877-947-7827) or Dept. of Commerce, P.O. Box 2509, Madison, WI 53701-2509, 608/267-4405.



A poorly installed silt fence will not prevent soil erosion. Fabric must be buried in a trench and sections must overlap (see diagram on back of this fact sheet).

WARNING! Extra measures may be needed if your site:

- is within 300 feet of a stream or wetland;
- is within 1000 feet of a lake;
- is steep (slopes of 12% or more);
- receives runoff from 10,000 sq. ft. or more of adjacent land;
- has more than an acre of disturbed ground.

For information on appropriate measures for these sites, contact your local building inspection, zoning or erosion control office.

Straw Bale or Silt Fence

- Install within 24 hours of land disturbance.
- Install on downslope sides of site parallel to contour of the land.
- Extended ends upslope enough to allow water to pond behind fence.
- Bury eight inches of fabric in trench (see back page).
- Stake (two stakes per bale).
- Leave no gaps. Stuff straw between bales, overlap sections of silt fence, or twist ends of silt fence together.
- Inspect and repair once a week and after every ½-inch rain. Remove sediment if deposits reach half the fence height. Replace bales after three months.
- Maintain until a lawn is established.

Soil Piles

- Cover with plastic and locate away from any downslope street, driveway, stream, lake, wetland, ditch or drainageway.
- Temporary seed such as annual rye or winter wheat is recommended for topsoil piles.

Access Drive

- Install an access drive using two-to-three-inch aggregate prior to placing the first floor decking on foundation.
- Lay stone six inches deep and at least seven feet wide from the foundation to the street (or 50 feet if less).
- Use to prevent tracking mud onto the road by all vehicles.
- Maintain throughout construction.
- In clay soils, use of geotextile under the stone is recommended.

Sediment Cleanup

- By the end of each work day, sweep or scrape up soil tracked onto the road.
- By the end of the next work day after a storm, clean up soil washed off-site.

Sewer Inlet Protection

- Protect on-site storm sewer inlets with straw bales, silt fences or equivalent measures.
- Inspect, repair and remove sediment deposits after every storm.

Downspout Extenders

- Not required, but highly recommended.
- Install as soon as gutters and downspouts are completed to prevent erosion from roof runoff.
- Use plastic drainage pipe to route water to a grassed or paved area. Once a lawn is established, direct runoff to the lawn or other pervious areas.
- Maintain until a lawn is established.

Preserving Existing Vegetation

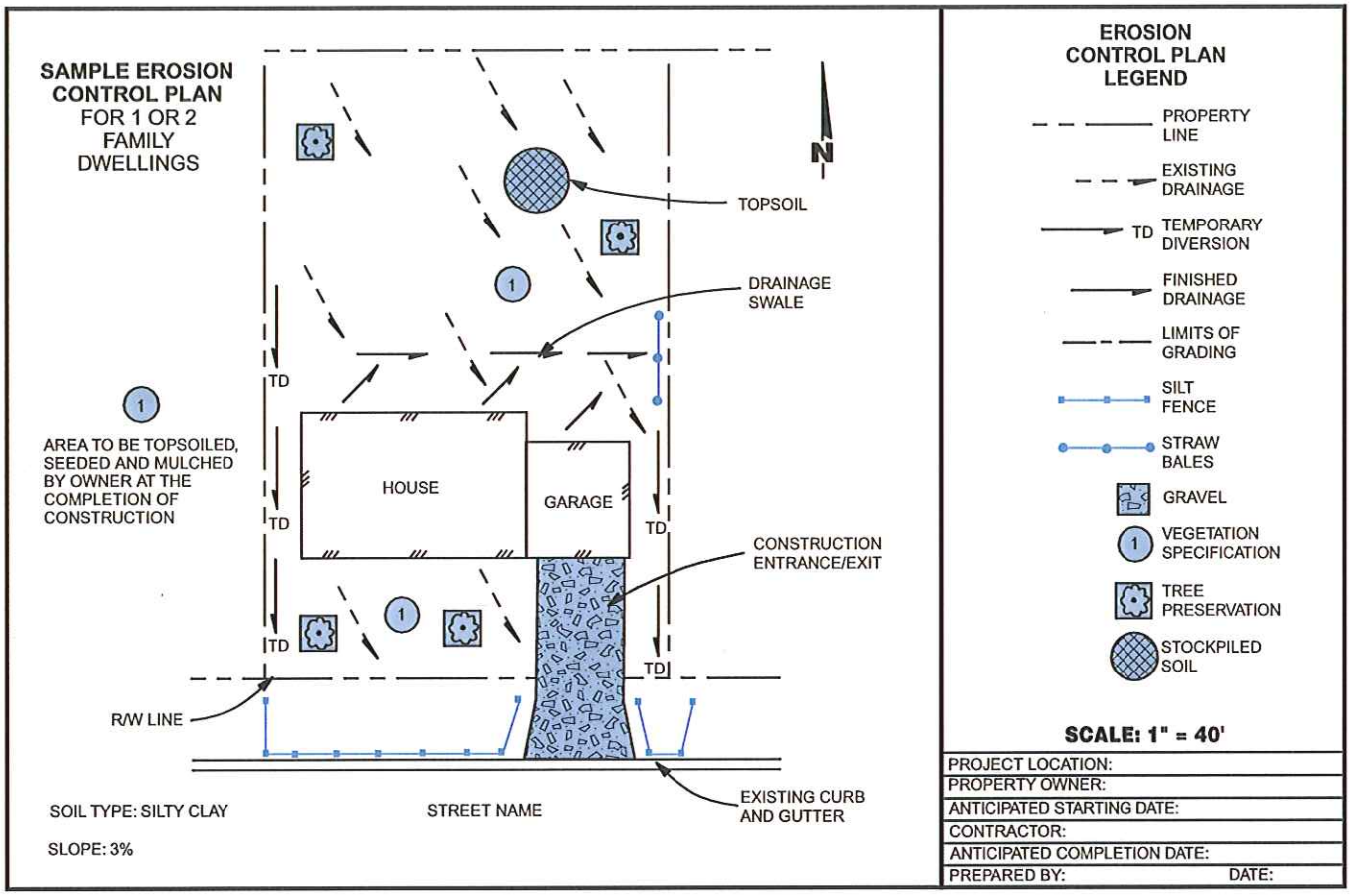
- Wherever possible, preserve existing trees, shrubs, and other vegetation.
- To prevent root damage, do not grade, place soil piles, or park vehicles near trees marked for preservation.
- Place plastic mesh or snow fence barriers around trees to protect the root area below their branches.

Revegetation

- Seed, sod or mulch bare soil as soon as possible. Vegetation is the most effective way to control erosion.

Seeding and Mulching

- Spread four to six inches of topsoil.
- Fertilize and lime if needed according to soil test (or apply 10 lb./1000 sq. ft. of 10-10-10 fertilizer).
- Seed with an appropriate mix for the site (see table).
- Rake lightly to cover seed with 1/4" of soil. Roll lightly.
- Mulch with straw (70-90 lb. or one bale per 1000 sq. ft.).
- Anchor mulch by punching into the soil, watering, or by using netting or other measures on steep slopes.
- Water gently every day or two to keep soil moist. Less watering is needed once grass is two inches tall.



Sodding

- Spread four to six inches of topsoil.
- Fertilize and lime if needed according to soil test (or apply 10 lb./1000 sq. ft. of 10-10-10 fertilizer).
- Lightly water the soil.
- Lay sod. Tamp or roll lightly.
- On slopes, lay sod starting at the bottom and work toward the top. Laying in a brickwork pattern. Peg each piece down in several places.
- Initial watering should wet soil six inches deep (or until water stands one inch deep in a straight-sided container). Then water lightly every day or two to keep soil moist but not saturated for two weeks.
- Generally, the best times to sod and seed are early fall (Aug. 15-Sept. 15) or spring (May). If construction is completed after September 15, final seeding should be delayed. Sod may be laid until November 1. Temporary seed (such as rye or winter wheat) may be planted until October 15. Mulch or matting may be applied after October 15, if weather permits. Straw bale or silt fences must be maintained until final seeding or sodding is completed in spring (by June 1).

Concrete Wash Water

- Dispose of concrete wash water in an area of soil away from surface waters where soil can act as a filter or evaporate the water. Dispose of remaining cement. Be aware that this water can kill vegetation.

De-Watering

- Dispose of de-watering water in a pervious area. Prevent the discharge of sediment from de-watering operations into storm sewers and surface waters.

Material Storage

- Manage chemicals, materials and other compounds to avoid contamination of runoff.

Typical Lawn Seed Mixtures

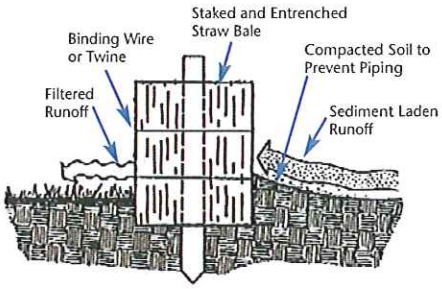
	Percent by Weight	
Grass	Sunny Site	Shady Site
Kentucky bluegrass	65%	15%
Fine fescue	20%	70%
Perennial ryegrass	15%	15%
Seeding rate (lb./1000 sq. ft.)	3-4	4-5

Source: R.C. Newman, Lawn Establishment, UW-Extension, 1988.

COMMONLY USED EROSION CONTROLS

Straw Bale Fences

Cross Section of Straw Bale Installation



Source: Michigan Soil Erosion and Sedimentation Control Guidebook, 1975.

How to Install a Straw Bale Fence

1. Excavate a 4" deep trench.

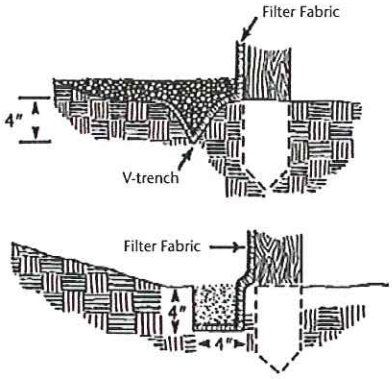
2. Place bales in trench with bindings around sides away from the ground. Leave no gaps between bales.

3. Anchor bales using two steel rebars or 2" x 2" wood stakes per bale. Drive stakes into the ground at least 8".

4. Backfill and compact the excavated soil.

Silt Fences

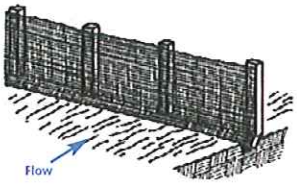
Cross Sections of Trenches for Silt Fences



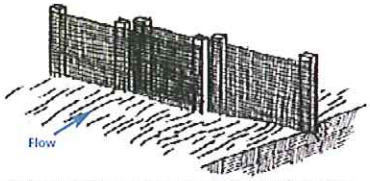
Sources: North Carolina Erosion and Sediment Control Planning and Design Manual, 1988.

How to Install a Silt Fence

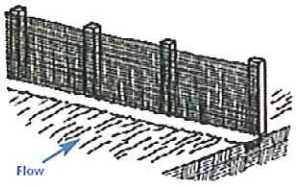
1. Excavate a 4" x 4" trench along the contour.



2. Stake the silt fence on downslope side of trench. Extended 8" of fabric into the trench.



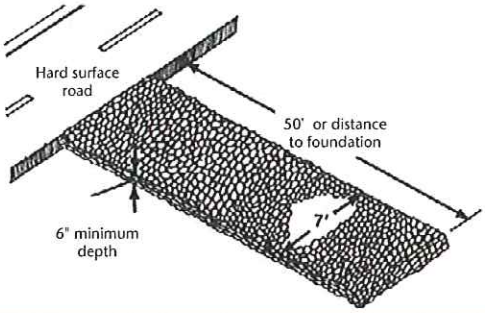
3. When joints are necessary, overlap ends for the distance between two stakes.



4. Backfill and compact the excavated soil.

Access Drive

How to Install an Access Drive



1. Install as soon as possible after start of grading.
2. Use two-to-three-inch aggregate stone.
3. Drive must be at least seven feet wide and 50 feet long or the distance to the foundation, whichever is less.
4. Replace as needed to maintain six-inch depth.

This publication is available from county UW-Extension offices or from Extension Publications, 630 W. Mifflin St., Madison, WI 53703. (608) 262-3346.

A publication of the University of Wisconsin–Extension in cooperation with the Wisconsin Department of Natural Resources.

Author: Carolyn Johnson, UW–Extension.

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Standard Erosion Control Plan
for 1- & 2-Family Dwelling Construction Sites

According to Chapters SPS 320 & 321 of the Wisconsin Uniform Dwelling Code, soil erosion control information needs to be included on the plot plan which is submitted and approved prior to the issuance of building permits for 1- & 2-family dwelling units in those jurisdictions where the soil erosion control provisions of the Uniform Dwelling Code are enforced. This Standard Erosion Control Plan is provided to assist in meeting this requirement.

Instructions:

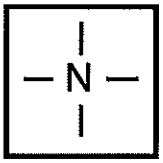
1. Complete this plan by filling in requested information, completing the site diagram and marking appropriate boxes on the inside of this form.
2. In completing the site diagram, give consideration to potential erosion that may occur before, during, and after grading. Water runoff patterns can change signifcantly as a site is reshaped.
3. Submit this plan at the time of building permit application.

PROJECT LOCATION _____

BUILDER _____ OWNER _____

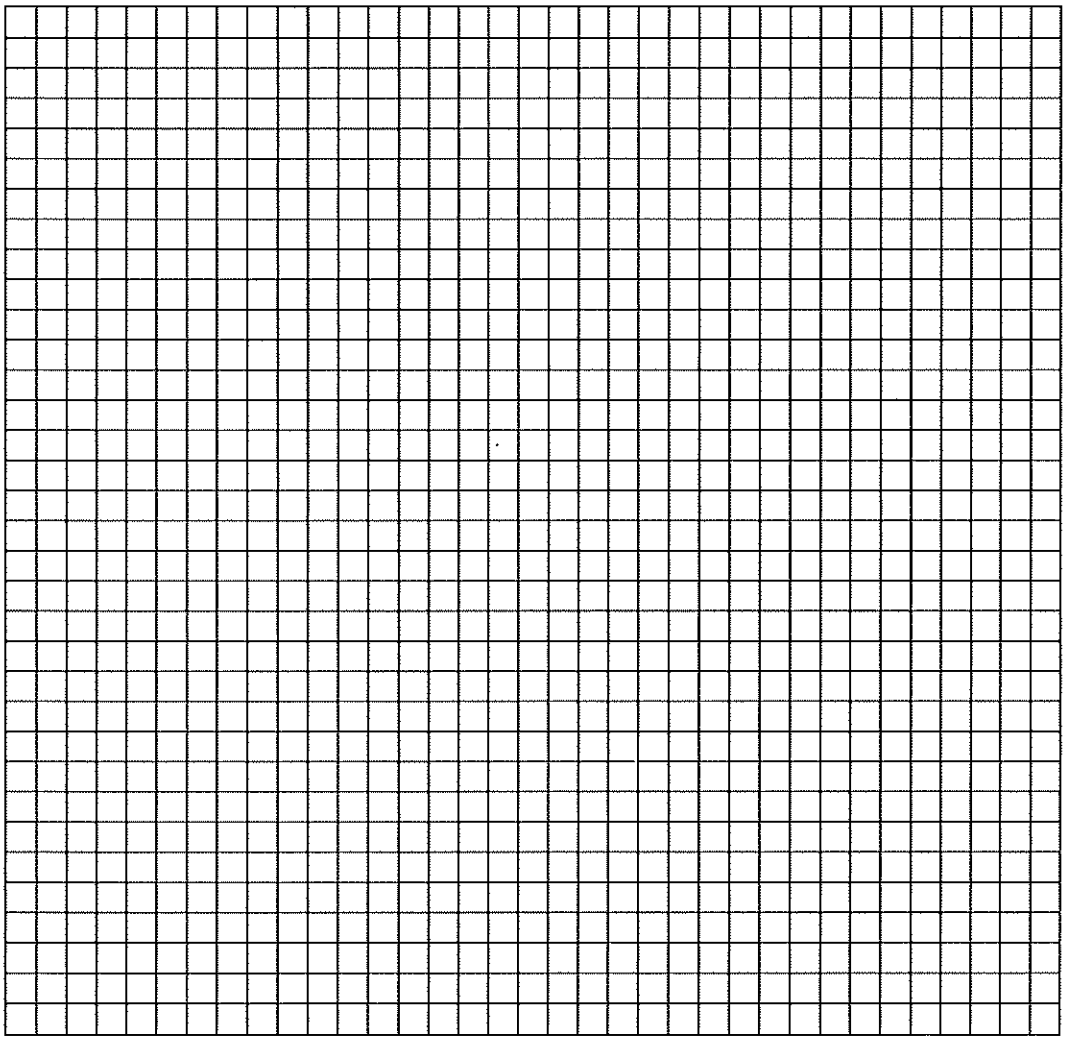
WORKSHEET COMPLETED BY _____ DATE _____

Please indicate north by completing the arrow.



SITE DIAGRAM

Scale: 1 inch = ____feet



EROSION CONTROL PLAN LEGEND

- PROPERTY LINE
- EXISTING DRAINAGE
- TD TEMPORARY DIVERSION
- FINISHED DRAINAGE
- LIMITS OF GRADING
- SILT FENCE
- STRAW BALES
- GRAVEL
- 1 VEGETATION SPECIFICATION
- TREE PRESERVATION
- STOCKPILED SOIL