



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 Bentonville. 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 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.

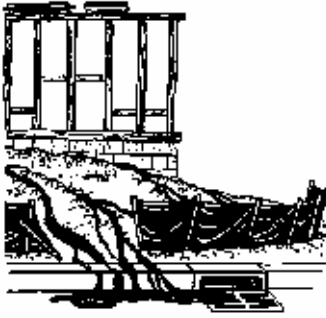
Dredging

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.

The City of Bentonville has adopted the Stormwater Pollution Prevention and Erosion Control Ordinance (Ord. #2006-167). You can find the ordinance on The City of Bentonville's web site at www.bentonvillear.com on the cover page at the lower right hand corner under the heading of "Other Information".

EROSION CONTROL PRACTICES FOR HOME SITES



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 or alternative BMP's approved by the City of Bentonville

- Install within 24 hours of land disturbance.
- Install on down slope 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 1/2 -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 down slope street, driveway, stream, lake, wetland, ditch or drainage way.
- 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

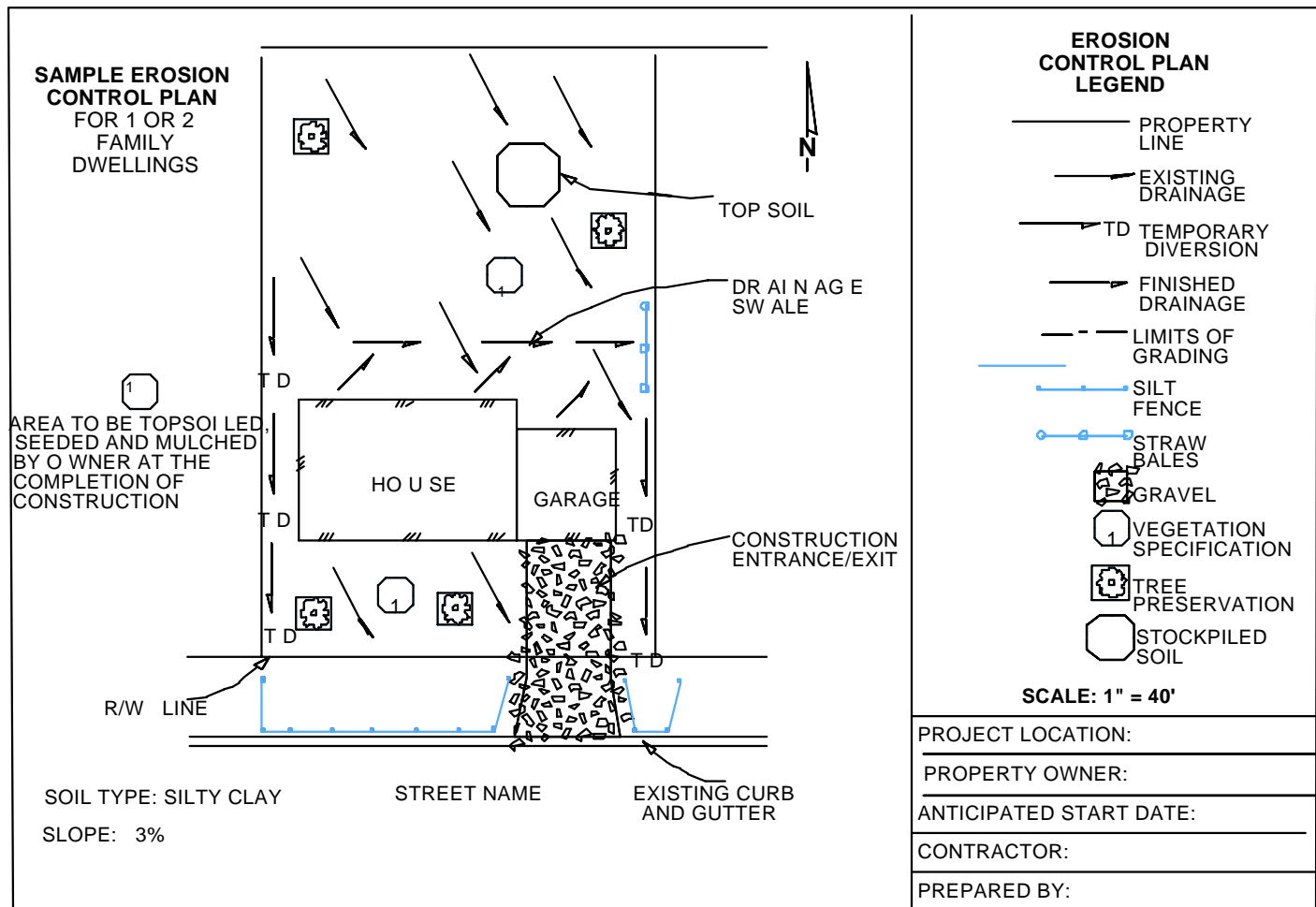
- Wherever possible, preserve existing trees, shrubs, and other vegetation.
- To prevent root damage, do not grade, place soil piles, or park vehicles near trees marked for preservation.
- Place plastic mesh or snow fence barriers around trees to protect the root area below their branches.

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

Grass	Percent by Weight	
	Sunny Site	Shady Site
Kentucky Bluegrass	65%	15%
Fine fescue	20%	70%
Perennial ryegrass	15%	15%

Seeding rate 3-4 4-5 (lb./1000 sq. ft.)

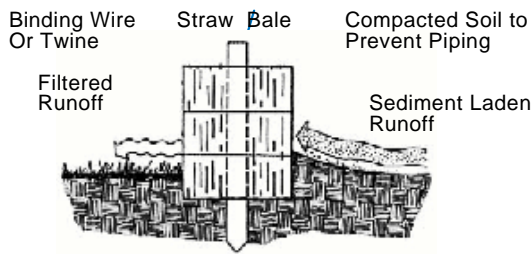
Source: R.C. Newman, Lawn Establishment, UW-Extension, 1988.



COMMONLY USED EROSION CONTROLS

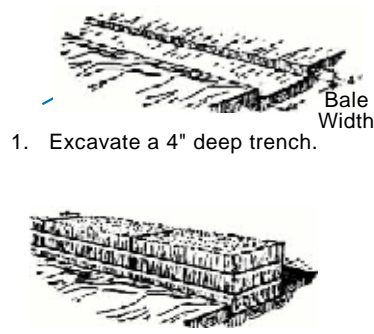
Straw Bale Fences

Cross Section of Straw Bale Installation Staked and Entrenched

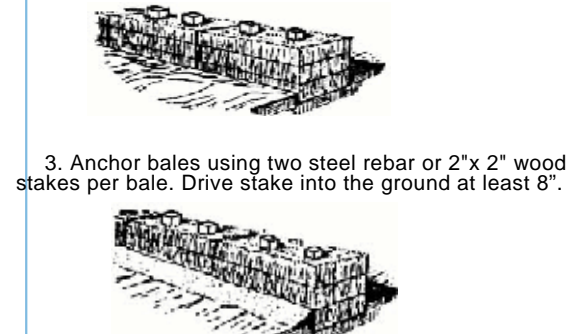


Source: Michigan Soil Erosion and Sedimentation Control Guidebook, 1975.

How to Install a Straw Bale Fence



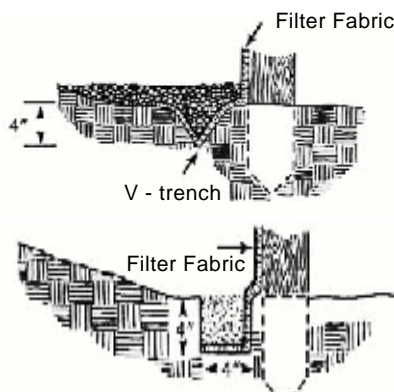
2. Place bales in trench with bindings around sides away from the ground. Leave no gaps between bales.



4. Backfill and compact the excavated soil.

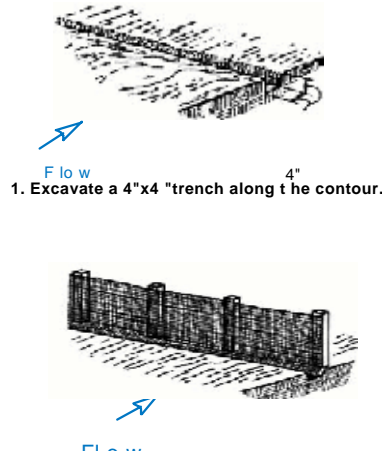
Silt Fences

Cross Sections of Trenches for Silt Fences

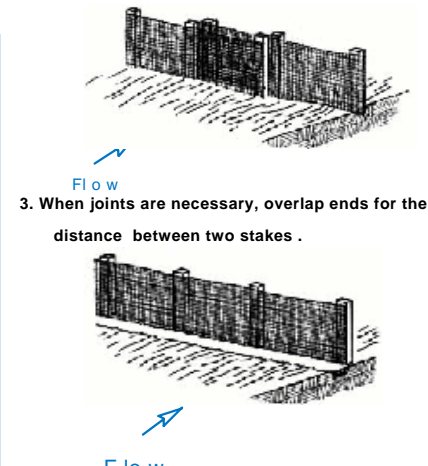


Sources: North Carolina Erosion and Sediment Control Planning and Design Manual, 1988.

How to Install a Silt Fence



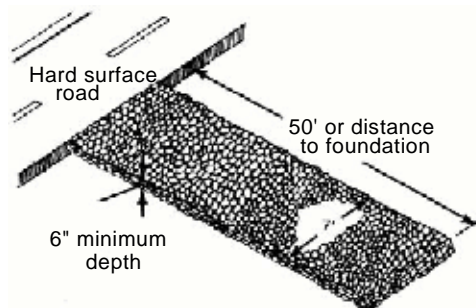
2. Stake the silt fence on down slope side of trench. Extend 8" of fabric into the trench.



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.

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 down slope sides of the lot;
- Placing soil piles away from any roads or waterways;
- Diversions on upslope side and around stockpiles;
- 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;
- Downspout extenders to prevent erosion from roof runoff.

Storm Water Pollution Prevention Plan (SWPPP)

For

Small Construction Sites

**(Please note this document is intended for guidance only and does not ensure permit compliance.)*

- **PROJECT NAME:**
- **PROJECT SITE:**
- **LOT #**
- **ADDRESS of SITE:**
- **OWNER NAME and ADDRESS:**
- **OWNER TELEPHONE NUMBER:**
- **SITE AREA, Approximately how many feet:**
- **PROJECT DESCRIPTION:**
- **SEQUENCE OF ACTIVITIES:**

- **EROSION AND SEDIMENT CONTROLS:**

- **TIMING OF CONTROLS/MEASURES**

- **WASTE MATERIALS:**

- **SANITARY WASTE:**

- **CONTROLS INSPECTION AND MAINTANCE PRACTIES:**

- **NON-STORM WATER DISCHARGES:**

- **MATERIAL MANAGEMENT PRACTICES:**

- **COMPLETION OF JOB:**

- **Member of Company:**

- **303(d) list, TMDL, others:**

Keep one of the following paragraphs whichever is applicable.

The storm water from the construction site discharges to XXXX (receiving stream). This water body is not on the list of impaired water bodies (i.e., 303(d) list) for siltation/turbidity. Since this water body is not impaired, a TMDL is not applicable to this construction project.

or

The storm water from the construction site discharges to XXXX (receiving stream). This water body is on the list of impaired water bodies (i.e., 303(d) list) for siltation/turbidity. Even though this project discharges to an impaired water body, a TMDL has not been written for the water body. Therefore, a TMDL is not applicable to this construction project.

or

The storm water from the construction site discharges to XXXX (receiving stream). This water body is on the list of impaired water bodies (i.e., 303(d) list) for siltation/turbidity. A TMDL has been written for the water body that is applicable to the construction project. The following information documents the construction projects compliance with the TMDL.

- **CERTIFICATION:**

I certify under penalty of law that this document and all the attachments were prepared under my direction or supervision in accordance with Storm Water Permit Number ARR1500000. I am aware that there are significant penalties for submission false information, including the possible of fine and imprisonment for knowing violations.

Signed (Operator): _____ Position _____

Singed (Member): _____ Position _____

Signed(Member): _____ Position _____

Small Construction Inspection Form

Name of Company:

Site Location:

Date	Location	Silt Fence OK?	Hay Bales OK?	Initial Stabilization OK?	Amount of Rain (inches)	Time	Inspectors Initials	Correction

CERTIFICATION:

I certify under penalty of law that this document and all the attachments were prepared under my direction or supervision in accordance with Storm Water Permit Number ARR1500000. I am aware that there are significant penalties for submission false information, including the possible of fine and imprisonment for knowing violations.

Signed: _____

Title: _____

Date: _____

SMALL (LESS THAN 5 ACRES) CONSTRUCTION SITE NOTICE

FOR THE
Arkansas Department of Environmental Quality (ADEQ)
Storm Water Program
NPDES GENERAL PERMIT NO. ARR150000

The following information is posted in compliance with **Part I.B.7.a.iv** of the ADEQ General Permit Number **ARR150000** for discharges of storm water runoff from small construction sites. Additional information regarding the ADEQ storm water program may be found on the internet at:

www.adeq.state.ar.us/water/branch_npdes/stormwater

Permit Number	ARR150000
Contact Name: Phone Number:	_____ _____
Project Description (Name, Location, etc.): Start Date: End Date: Total Acres:	_____ _____ _____ _____
Location of Storm Water Pollution Prevention Plan:	_____

For Construction Sites Authorized under **Part I.B.6.c** (Small Construction Sites Authorization) the following certification must be completed:

I _____ (Typed or Printed Name of Person Completing this Certification) certify under penalty of law that I have read and understand the eligibility requirements for claiming an authorization under Part I.B.2.a.iii of the ADEQ General Permit Number ARR150000. A storm water pollution prevention plan has been developed and implemented according to the requirements contained in Part I.B.7.a.iv of the permit. A copy of this signed notice is supplied to the operator of the MS4 if discharges enter a regulated small, medium, or large MS4 system as defined in Part II.C of the ADEQ General Permit Number ARR150000. I am aware there are significant penalties for providing false information or for conducted unauthorized discharges, including the possibility of fine and imprisonment for knowing violations.

Signature and Title

Date