

Erosion and Sedimentation Control

***For
Small
Projects***



**Carbon Conservation District
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TO USERS OF THE "EROSION AND SEDIMENTATION CONTROL
FOR SMALL PROJECTS" BOOKLET:

THIS DOCUMENT WAS DESIGNED TO ASSIST IN THE DEVELOPMENT OF
EROSION AND SEDIMENT CONTROL PLANS FOR PROJECTS WHICH
REPRESENT A LOW HAZARD. THESE PROJECTS DO NOT CONSIST OF EARTH
MOVING ACTIVITIES THAT ARE PROPOSED FOR STEEP SLOPES, MAJOR
STREAM AND WETLAND CROSSINGS, LONG ACCESS ROAD CONSTRUCTION,
MAJOR SLOPE CUTS OR FILLS, ETC.

IF YOUR SITE CONTAINS ANY OF THE ABOVE HAZARDOUS SITUATIONS, IT IS
RECOMMENDED THAT YOU CONTACT A PERSON THAT IS KNOWLEDGEABLE IN
THE DESIGN OF EROSION CONTROL PLANS. AS REQUIRED BY
PENNSYLVANIA'S EROSION CONTROL REGULATION, A PERSON TRAINED AND
KNOWLEDGEABLE IN EROSION CONTROL DESIGN MUST PREPARE THE PLAN.
HOWEVER, WITH LOW HAZARD SITES, AND THE ASSISTANCE OF THIS
BOOKLET, YOU MAY DESIGN YOUR OWN EROSION CONTROL PLAN.

IF YOU HAVE ANY QUESTIONS, PLEASE FEEL FREE TO CONTACT THE
CONSERVATION DISTRICT.

**PLEASE REMEMBER TO ALLOW THE DISTRICT
THIRTY (30) DAYS TO REVIEW YOUR PLANS!!**

INTRODUCTION - SOIL EROSION AND SEDIMENTATION CONTROL FOR SMALL PROJECTS

Major problems occur when large amounts of soil sediment enter our streams and waterways. This accelerated erosion is most often caused by surface mining, poorly managed cropland, construction site activity, unstable urban/suburban stream banks, and logging projects. Sediment also causes degradation to other properties downhill from the point of the earthmoving activity.

By volume, sediment pollution is the greatest source of pollution of the streams and waterways of Pennsylvania. Sediment in Pennsylvania's natural waters adversely affect aquatic ecosystems by destroying habitat, disrupting the food chain, impairing aquatic reproduction, and possibly modifying the chemical balances in the stream.

Due to the many problems associated with soil washing from construction sites, Pennsylvania's Environmental Quality Board approved statewide regulations for Erosion and Sedimentation Control in September of 1972. The regulations require all landowners, developers, and contractors who are involved in an earthmoving activity, regardless of the size of the project, to develop and implement a plan to control erosion on the site during and after construction.

The Carbon Conservation District, by delegation agreement with the Department of Environmental Protection, has the direct responsibility of administering the Erosion Control Program in Carbon County. The Carbon Conservation District will review the erosion control plans to ensure that the plans meet the requirements stated in the regulation. Site inspecting and complaint handling are also completed by the Conservation District.

This document was designed to assist in the development of erosion control plans for smaller, low hazard construction site projects. Existing erosion control publications often need the clarification of qualified professionals and engineers. This document will assist you in the development of an erosion control plan for smaller projects to meet the requirements of the Department's Clean Stream Law and the Erosion Control Regulations. The intent of this document is to give you, the landowner, a step-by-step outlined approach to the development of an erosion control plan suitable for your small project. These projects do not consist of earth moving activities that are proposed for steep slopes, major stream and wetland crossings, long access road construction, major slope cuts or fills, etc.

If your site contains any of the above hazardous situations, it is recommended that you contact a person that is knowledgeable in the design of erosion control plans. As required by Pennsylvania's erosion control regulation, a person trained and knowledgeable in erosion control design must prepare the plan. However, with low hazard sites, and the assistance of this booklet, you may design your own erosion control plan.

Erosion and sediment control plans for small projects properly prepared with the assistance of this document will satisfy the above mentioned requirements. Please be aware that other federal, state and local permits may be required. It is recommended that you contact the conservation district and the local municipality regarding other permit requirements prior to the start of your project.

CHAPTER 102 - EROSION CONTROL REGULATIONS

The reason for Chapter 102 "Erosion Control Regulations" is to implement the intent of the Clean Streams Law of Pennsylvania. The Clean Streams Law prohibits the discharge of any nuisance-creating substance into natural waters of the Commonwealth. Sediment, with its number one rating by volume as a pollutant to Pennsylvania's waters, is listed as a nuisance. In addition, the protection of the adjacent landowner from sedimentation is a very important consideration of an Erosion and Sedimentation Control Plan.

The regulations provide controls to alleviate a sediment pollution problem. Regardless of the size of the project, anyone who disturbs vegetation or exposes the earth's surface to the forces of erosion is subject to these regulations. The primary focus of Chapter 102 is the Erosion and Sediment Control Plan and its implementation.

THE EROSION AND SEDIMENT CONTROL PLAN IS REQUIRED TO INCLUDE INFORMATION ON:

1. Site Characteristics
 - a. Topography
 - b. Type of vegetative cover
 - c. Soil characteristics
 - d. Description of disturbance to any waterway (if applicable)
2. Proposed Alterations
 - a. Size of disturbance (acreage)
 - b. Topography changes (cut & fill)
 - c. Drainageway and vegetative alterations
3. Methods of controlling Erosion & Sediment during project duration
 - a. Silt fence
 - b. Hay bales
 - c. Vegetative (mulch & seeding)
 - d. Filter strips
 - e. Stabilized stone construction entrances

The regulations require that the landowner obtain an Erosion and Sedimentation Control Plan prior to the start of construction. This plan must be available on site during the construction of your project. It is recommended that a copy be given to your contractor.

Local municipalities, the Department of Environmental Protection, and other various permitting bureaus may also require an erosion and sediment control plan be submitted for review by the Conservation District prior to construction. Local municipalities may have rules and regulations that are more stringent than Chapter 102.

**Instructions for completing your
" Erosion and Sedimentation Control Plan"**

**This page should also be used as a checklist as you complete your
Erosion Control Plan.**

- 1) Review pages contained within this booklet on information relative to the Erosion Control Law of Pennsylvania. There is information provided that should help you with the development of your site specific plan.
- 2) Complete narrative section, (pages 1 & 2), for your project. All information requested must be provided as requested on pages 1 & 2. A sample is provided for you to use as an example.
- 3) Draw a site plan map for your project using provided site plan map. A sample map is provided for you to use as an example. Please use the various symbols to illustrate your project as shown in the map legend at the bottom of the site plan map.
- 4) Complete Application **page 1**. Include with the applicable fee as outlined in the "Carbon Conservation District Fee Schedule" document.
- 5) Submit all completed pages to the Conservation District for review.

The Carbon Conservation District will accept the application only when all of the necessary information and fees are supplied. Please allow the Conservation District adequate time to review your plan. The maximum review time will be **30 days**.

Plans and plan revisions will be reviewed in the order in which they are received!

******PLEASE NOTE******

It may be necessary for you to contact a person trained and knowledgeable in soil erosion control techniques to assist you in the development of your plans. The complexity of your project will determine this need. The Conservation District may require this plan to be developed by a trained individual knowledgeable in erosion control techniques.

I. CARBON CONSERVATION DISTRICT FEE SCHEDULE

- A. The following fees will be charged by the Carbon Conservation District for Erosion and Sedimentation Pollution Control. Plan review as authorized by Pennsylvania Act 217 Conservation District Law. Applications cannot be accepted or processed for review without the appropriate fee, completed application form and the required number of plans. All plans must be submitted in a folded manner. No rolled plans will be accepted.

IA(1) RESIDENTIAL SUBDIVISIONS

SINGLE LOT EROSION CONTROL PLAN REVIEW ----- \$300.00 per LOT

OR

FOR RESIDENTIAL SUBDIVISION INFRASTRUCTURE CONSTRUCTION (ROADS, DRAINAGE FACILITIES, STORM WATER COMPONENTS, ETC.) FEE WILL BE BASED ON TOTAL NUMBER OF PROPOSED LOTS.

<u>*Residential Developments</u>				<u>General Fee</u>
1			Lot	\$ 300.00
2	to	4	Lots	\$1050.00
5	to	10	Lots	\$1970.00
11	to	25	Lots	\$3060.00
26	to	40	Lots	\$3990.00
41	to	55	Lots	\$5480.00
56	to	70	Lots	\$6120.00
70	plus		Lots	\$6120.00 + \$200.00 PER lot over 70 lots

- RESIDENTIAL DEVELOPMENT MEANS SINGLE FAMILY HOMES BUILT ON AN INDIVIDUAL LOT.

IA(2) Industrial, Municipal Governments, Authorities, School Districts, Commercial, Mining, Residential Land Development Plans, Roads and Others

0	to	0.99 Acres	\$1620.00
1	to	4.99 Acres	\$2810.00
5	to	9.99 Acres	\$4080.00
10	to	14.99 Acres	\$4780.00
15	to	19.99 Acres	\$5485.00
20.00	to	24.99 Acres	\$6505.00
25 acres & above			\$6505.00 plus \$200.00 per acre over 24.99 acres

- COMMERCIAL, INDUSTRIAL, MULTI-FAMILY RESIDENTIAL LAND DEVELOPMENT PLANS INCLUDE: APARTMENTS, TOWNHOUSES, OFFICE BUILDINGS, RETAIL STORES, RESTAURANTS, SCHOOLS, ROADS, PLAYGROUNDS, GOLF COURSES, HOTELS/MOTELS, CAMPGROUNDS, WAREHOUSES, MINING OPERATIONS (coal & non-coal), ATHLETIC FIELDS, UTILITY LINE INSTALLATION, CHURCHES AND OTHER NON-PROFITS. PARKING LOT AREAS FOR ANY OF THE ABOVE ARE INCLUDED.

IA(3) Timber Harvesting, DEP Chapter 105 Permits, other (based on disturbed acreage for the project(s))

less than 25 acres	\$500.00
25 to 49.99 Acres	\$570.00
50 to 249.99 Acres	\$750.00
50 acres or greater	\$750.00 plus \$3.00 per acre over 249.99

II. WAIVER OF FEES

- A. Fees will be waived only for an application filed under the name of Carbon County or the Commonwealth of Pennsylvania. This exemption does not apply to any private nonprofit organization, authorities outside of Carbon County or supersede Title 25, Chapter 102 Erosion Regulations.

III. PROJECT AREA DELINEATION

- A. To determine the fee for projects based on acreage delineation, the **total disturbed area** for that project will be calculated and used for determining the fee. **Open space** within the project **will be included** in this calculation.

IV. APPLICABILITY OF FEE SCHEDULE

A. The fee schedule shall apply to plans that are submitted to the Conservation District requesting determination of Erosion and Sedimentation pollution control adequacy. All initial E&SC Plan submissions with 5 or more acres of earth disturbance must include an NPDES (National Pollutant Discharge Elimination System Permit for Construction Activities) permit application. All initial E&SC Plan submissions with 1 to 4.99 acres of earth disturbance and a point source discharge must include an NPDES Permit application. "Point source discharge to surface waters of the commonwealth" applies only to projects between 1 and 4.99 acres.

The Conservation District will assume that all sites will have a point source discharge. If a plan preparer believes a project does not meet these criteria and does not submit an NPDES permit application package, then written justification (may be included in the transmittal letter) must be submitted with the request for E&SC plan review. The Conservation District's first review letter will address whether or not the request for permit exemption is accepted. An applicant needing to apply for a (NPDES) permit shall do so by using the appropriate NPDES program documentation. This appropriate NPDES Permit fee will be paid to the "CARBON CONSERVATION DISTRICT NPDES FUND". If the project is phased or parceled, each phase or parcel will be individually subject to the appropriate fee based on number of lots or acreage delineation. Each resubmission of different projects on the same tract of land will be charged according to the fee schedule.

Fees will be based upon proposed land-use of the project not the zoning classification. For example: A residential home (with no industrial/commercial activity) being constructed on a lot with a zoning classification of industrial/ commercial, the fee would be based on a single lot.

B. Single lot plan revisions (does not include major revisions) requesting determination of adequacy, resubmitted within thirty (30) days after the District determined original plan to be adequate, shall be subject to a \$25.00 processing fee. Other larger plan revisions will be subject to a minimum fee of \$100.00 or at the discretion of the District Manager (see section C for major plan revision fee calculation). To be eligible for this provision a cover letter must be included with the resubmitted plan that outlines and details the extent of the revision.

C. Plans resubmitted that do not meet the requirements of section B and where major revisions are proposed (road relocation, lot layout, parking lot relocation & additions, major site grading changes, additional buildings or lots, major changes to the erosion control layout & design, etc.), the review fee will be subject to 50% of the original fee.

D. INADEQUATE/DEFICIENT PLAN REVIEWS – If, after the first technical review, the plan is deemed inadequate, the second submission is subject to a charge of 25% of the original fee. Each subsequent submission after the second technical review will be subject to a charge of 50% of the original fee. If the plan has been deemed adequate by the Carbon Conservation District and a major revision is to be made please refer to section "C".

E. Each plan deemed adequate shall be valid for a period of five (5) years. If project construction has not commenced within the five (5) year period, the District will require submittal of a new plan and fee based on the Districts' current fee structure.

F. The Conservation District Manager and/or District Board shall have the ability to waive fees for minor revisions or corrections to a plan on a case-by-case basis. To be eligible for this provision, a cover letter must be included with the resubmitted plan that outlines the extent of all revisions. The Manager/District Board also reserves the right to hold such a request until the next regular District Board meeting, to gain approval or disapproval by the Board.

V. ADMINISTRATIVE PROCEDURES

A. The applicant shall submit a check or money order payable to the CARBON CONSERVATION DISTRICT, two (2) complete sets of Erosion and Sedimentation Pollution Control Plans and one (1) copy of the review application. **All plans must be submitted in a folded manner. No rolled plans will be accepted.** If a NPDES Permit is required please contact the Conservation District prior to the submittal to discuss submission requirements.

B. The Carbon Conservation District will accept the application when all of the necessary information and fees are supplied. Incomplete plans will be returned to the applicant. If a check submitted with the application is returned NSF, the District will assess a \$50.00 service charge, in addition to the fee, paid in full, before the plan is reviewed. If an adequacy review letter has been issued prior to the discovery of an NSF check, the District will coordinate with the local municipality for permits to be pulled and work to be stopped on the project until all fees are paid in full. The approximate review time will be thirty (30) days. Plans and plan revisions will be reviewed in the order in which they are received.

C. The Conservation District reviews an Erosion and Sediment Control Plan solely to determine whether it is adequate to satisfy the requirements of Title 25 PA Code Section 102.1 et seq., The Erosion control Regulations of the Department of Environmental Protection. By a determination that the plan is adequate to meet these requirements, neither the Conservation District nor the County assumes any responsibility for the implementation of the plan or the proper construction and operation of the facilities contained in the plan.

D. The Conservation District encourages that a pre-application meeting is scheduled between the landowner, plan designer and the District Staff prior to the submittal of larger plans. This meeting is necessary to discuss the project and permitting requirements and could eliminate unnecessary paperwork and deficient submittals.

**EROSION AND SEDIMENT POLLUTION CONTROL PLAN REVIEW
FEE SCHEDULERESOLUTION**

- I. **TITLE:** This Resolution may be cited as the Carbon Conservation District Fee Schedule for Erosion and Sediment Pollution Control Plan Reviews.
- II. **AUTHORITY:** The Carbon Conservation District by authority of Pennsylvania Act 217 Conservation District Law, hereby adopts the Carbon Conservation District Fee Schedule for Erosion and Sediment Pollution Control Plan Reviews.
- III. **EFFECTIVE DATE:** This Resolution/Amendment(s) shall become effective **December 1, 2021** and shall remain in effect until modified, amended, or rescinded by the Carbon Conservation District Board of Directors.
- IV. **INTENT:** The purpose of this fee is to help defray the cost incurred by the Carbon Conservation District in its delegated authority of the State's Erosion and Sediment Control Program in accordance with PA Title 25 Chapter 102 Erosion Control, Rules and Regulations of the Department of Environmental Protection.
- V. **APPROVAL:** Be it resolved this day, May 25, 1989, that the Carbon Conservation District does hereby agree to charge a fee for the review of Erosion and Sediment Pollution Control Plans as authorized by Pennsylvania Act 217, Conservation District Law, in accordance with the attached fees and conditions.

Josiah W. H. Behrens III

Josiah W. H. Behrens III, District Chairman

10/28/2021

Date

Amendment #1 approved 04/22/1990
Amendment #2 approved 01/28/1999
Amendment #3 approved 03/22/2001
Amendment #4 approved 12/13/2001
Amendment #5 approved 02/26/2004 effective 03/01/2004
Amendment #6 approved 08/26/2004 effective 09/01/2004
Amendment #7 approved 5/26/2005 effective 06/01/2005
Amendment #8 approved 3/16/2006 effective 4/1/2006
Amendment #9 approved 1/24/2008 effective 2/1/2008
Amendment #10 approved 11/19/08 effective 1/1/2009
Amendment #11 approved 1/26/2012 effective 2/1/2012
Amendment #12 approved 9/26/2013 effective 10/10/2013
Amendment #13 approved 2/25/2016 effective 3/1/2016
Amendment #14 approved 2/28/2019 effective 3/1/2019
Amendment #15 approved 10/28/2021 effective 12/1/2021

VEGETATION TO CONTROL EROSION

The use of vegetation to control erosion and sedimentation should be given primary consideration when developing your erosion and sediment plan. Areas of moderate slopes and fertile soil may be easily stabilized by using plants and tillage methods common in the region. Establishing heavy plant cover on moderate slopes will usually protect the site from erosion. During land use changes, a temporary cover of annual vegetation is sufficient. At the completion of the change, more permanent cover crops should be used. Adequate soil cover for soil stabilization is accomplished when vegetation covers 75% or more of each square yard.

Critical areas are those areas having exposed subsoil, steep slopes, shallow depth to bedrock, droughty conditions or other limiting properties which may require additional treatment. It is necessary to give special attention to critical area's seedbed preparation, adjusted fertility levels, supplemental irrigation, adapted seedlings or plantings, and site protection until the vegetative cover is established. More emphasis must be placed on the stabilization of critical areas due to severe erosion and production of sediment. Adequate vegetative cover for soil stabilization on these critical areas is accomplished when vegetation covers 70% of each square yard.

Since vegetation is considered the most effective and practical erosion control practice, a special supplement has been included in the Appendix. The proper seed mixtures can be obtained from building supply stores or farm product stores, or may be ordered from seed catalogs. Local hardware stores sell seed mixtures which can be combined with another mixture to obtain the recommended amounts.

ABOVE SITE DRAINAGE

It is important to consider the possible problems that may be created by runoff from above project. Runoff should be diverted safely around any disturbed areas, or be slowed and carefully directed through the area of disturbance. Unprotected soil erodes severely when exposed to concentrated runoff.

In order to evaluate the above site drainage, purchasing a topographic map of your area may prove beneficial. Topographic maps are available from the U.S. Geological Survey, Reston, Virginia 22092 or by contacting your County Conservation District. Small projects above site drainage may often be observed in the field. Prior to earthmoving check for existing signs of erosion within the project area. Look for concentrated runoff sources such as downspouts from roof gutters, swale outlets, and springs.

Methods to divert the runoff will be listed in the Control Practice section. Keeping clean runoff from picking up sediment from your project will be very beneficial in minimizing erosion.

RECOMMENDATIONS FOR REVEGETATION

Seeding Recommendations

The Department recommends the Penn State University's "Agronomy Guide" as the standard for the selection of species, seed specifications, mixtures, time of seeding, and seeding methods. The "Agronomy Guide" is available from your County Cooperative Extension Service Office.

Need for Soil Amendments

Because an earth disturbing activity removes the top layer of soil, much of the nutrients needed for plant growth are removed right along with it. In addition, the clay subsoils prevalent in this region tend to be quite acidic. This, coupled with acid precipitation, makes for some substantial PH problems. As a result, soil amendments are needed for reliable revegetation under these conditions.

Liming and Fertilizing

Lime and fertilizer should be applied in accordance with soil test recommendations. If soil test results are not available, apply at least 4 to 6 tons of agricultural grade limestone, and 1000 pounds of 10-20-20 fertilizer (100 lbs. of nitrogen, 200 lbs. of phosphorus, and 200 lbs. of potassium) per acre.

Seeding Methods

Prior to seeding, apply the recommended amount of limestone and work it as deeply as possible into the soil. At seeding time, work recommended fertilizer as deeply as possible into the soil. Inoculate legume seeds (Crown Vetch, Birdsfoot Trefoil, Flatpea, etc.) with the specific legume inoculant just before seeding - 24 hours or less.

Broadcast Seeding

Unless weather conditions following broadcast seeding are very favorable - cool and moist with frequent precipitation - most of the surface applied seeds imbibe water, germinate and die because they are not surrounded by a layer of firmed fine soil to provide a ready water source. However, surface broadcasting of seed followed by rolling plus the application of straw or hay mulch. Mulching alone can create excellent germination and establishment. If seed must be broadcast and not mulched or rolled, the rates recommended in the Seeding Mixture Table should be doubled.

Hydroseeding

Hydroseeding is a method of seeding in which lime, fertilizer, grass seeds, legume seeds, and inoculant are mixed with water and applied as a slurry, generally at a rate of 1000 gallons per acre.

When hydroseeding legumes and fertilizer together, add the legume inoculant just before application since some fertilizers are harmful to Root-Nodule Bacteria. Do not allow the seed and inoculant to be in contact with the fertilizer in the hydroseeder for longer than 30 minutes to one hour. If the inoculant is in the tank for longer than one hour, add a new supply of inoculant. Use five times the rate of inoculant recommended on the package when seeding with a hydroseeder.

Mulching

All erosion control areas, regardless of seeding method, should be mulched to reduce soil erosion and aid seed germination. Hay and straw are preferred mulches and should be applied to produce a layer of 3/4 to 1 inch in depth. Generally, 4 tons of mulch per acre or 4 bales per 1,000 square feet are sufficient.

Figure 5.11 - Broad Based Dips

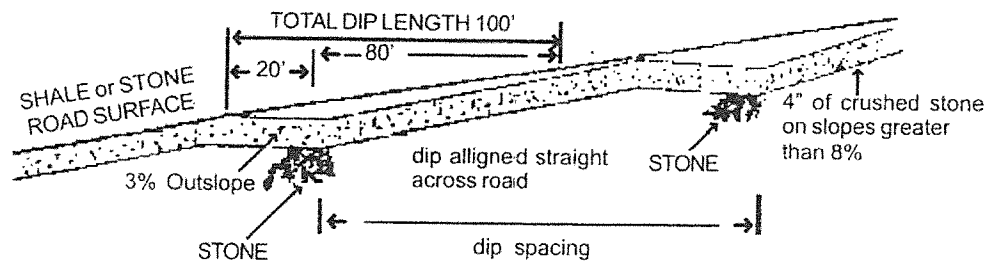


Table 5.8 - Spacing of Broad Dips.

Road Grade %	Spacing (ft.)
2	300
3	250
4	200
5	180
6	170
7	160
8	150
9-10	140

Figure 5.12 - Water Bars

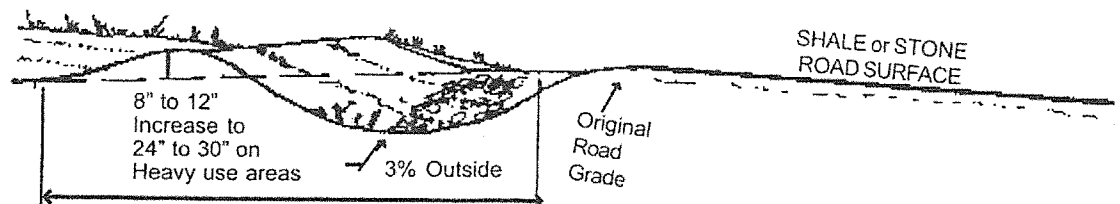
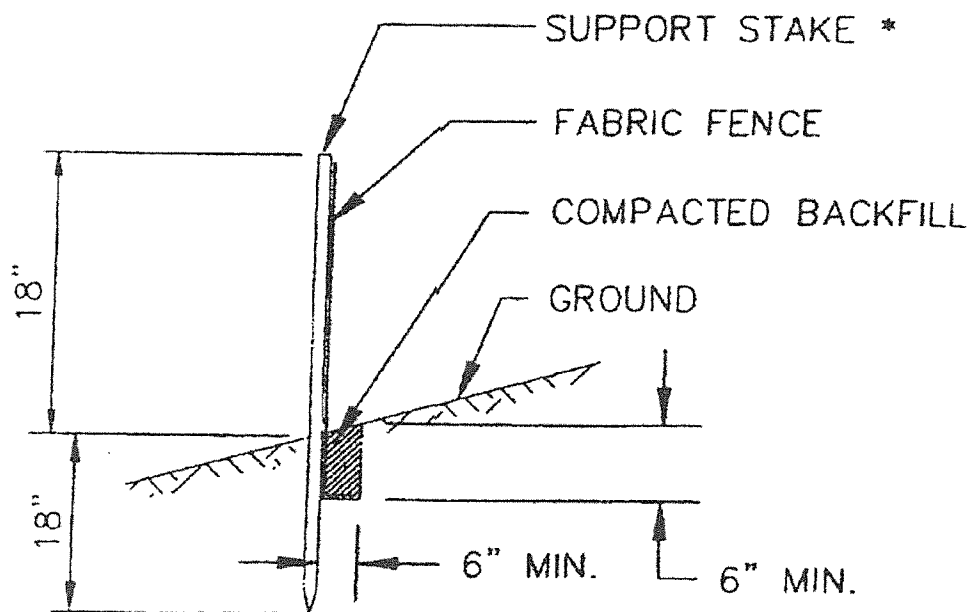
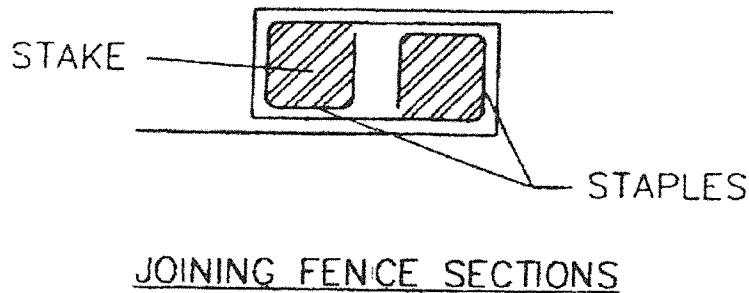


Table 5.9 - Spacing of Water Bars

Road/Trail Grade %	Space between water bars (ft.)
2	250
5	135
10	80
15	60
20	45
25	40
30	35
40	30

STANDARD CONSTRUCTION DETAIL #19

Standard Filter Fabric Fence (18" High)



Stakes spaced @ 8' maximum. Use 2"x 2" wood or equivalent steel stakes.

Filter Fabric Fence must be placed at level existing grade. Both ends of the fence must be extended at least 8 feet up slope at 45 degrees to the main fence alignment.

Accumulation must be removed when accumulations reach 1/2 the above ground height of the fence.

Any section of Filter fabric fence which has been undermined or topped must be immediately replaced with a Rock Filter Outlet. See Standard Construction Detail # 18.

Table 115. Seed Mixtures for conservation plantings.

<u>Seeding Rate PLS¹</u>				<u>Seeding Rate PLS</u>			
Key to Mixtures in Table 116	Species	Most Sites	Adverse Sites	Key to Mixtures in Table 116	Species	Most Sites	Adverse Sites
1 ²	Spring Oats, winter wheat, or winter rye	64 90 56	96 120 112	7	Birdsfoot trefoil, plus Crownvetch, plus tall fescue	6 10 20	10 20 30
2 ³	Tall fescue, fine fescue, or Kentucky bluegrass plus redtop ⁴ , or perennial ryegrass	60 35 25 3 15	75 40 30 3 20	8	Flatpea, plus tall fescue or perennial ryegrass	20 20 20	30 30 25
3	Birdsfoot trefoil, plus tall fescue, plus redtop	6 30 3	10 35 3	9 ⁵	Serecialspezeza plus - tall fescue, plus - redtop	10 20 3	20 25 3
4	Birdsfoot trefoil, plus reed canarygrass, plus redtop	6 10 3	10 15 3	10	Tall fescue, plus fine fescue	40 10	60 15
5	Crownvetch, plus tall fescue, or perennial ryegrass	10 20 20	15 25 25	11	Deertongue grass, plus weeping lovegrass, plus birdsfoot treefoil	15 1 6	20 1 10
6 ⁶	Crownvetch, plus annual ryegrass	10 20	15 25	12 ⁷	Switchgrass or big bluestem, plus weeping lovegrass, plus birdsfoot trefoil	15 1 6	20 1 10

PLS means pure live seed. PLS is the product of the percentage of pure seed times percentage germination divided by 100. For example, to secure the actual planting rate for switchgrass, divide 12 pounds PLS by the PLS percentage shown on the seed tag or calculated as previously discussed. Thus, if the PLS content of a given seedlot is 35%, divide 12 PLS by 0.35 to obtain 34.3 pounds of seed, the amount of seed required to plant 1 acre. All mixtures in this table are shown in terms of PLS.

²If high-quality seed is used, for most sites seed spring oats at a rate of 2 bushels per acre, winter wheat at 11.5 bushels per acre, and winter rye at 1 bushel per acre. If germination is below 90%, increase these suggested seeding rates by 0.5 bushel per acre.

³This mixture is suitable for frequent mowing. Do not cut shorter than 4 inches.

⁴Keep seeding rate to that recommended in table. These species have many seeds per pound and are very competitive. To seed small quantities of small seeds such as weeping lovegrass and redtop, dilute with dry sawdust, sand, rice hulls, buckwheat hulls, etc.

⁵Use only in extreme southeastern or extreme southwestern Pennsylvania. Serecia lespezeza is not well adapted to most of Pennsylvania.

⁶Use for highway slopes and similar sites where the desired species after establishment is Crownvetch.

⁷Do not mow shorter than 9 to 10 inches.

Reference --- **PENN STATE AGRONOMY GUIDE**

Table 116. Mixtures for Various Sites

Grass and legume-grass mixtures suitable for erosion control and stabilization of various conservation structures are listed below. Carefully study Table 115 before selecting a seed mixture. Variable drainage refers to areas where well-drained soils and poorly drained soils are intermingled.

		Use mixtures from Table 115	
		Small grain	Seed mixture (select one mixtm
Slopes and banks (nonmoved)			
Well-drained	1 plus	5, 8, or 12	
Variable drainage	1 plus	3 or 7	
Slopes and banks (mowed)			3, 5, 7, or 12
Well drained	1 plus	2 or 10	
Gullies and eroded areas		1 plus	
Conservation structures			
Sod waterways, spillways, frequent water flow areas	1 plus		2, 3, or 4
Drainage ditches			
shallow, less than 3 feet deep	1 plus		2,
3, or 4			
deep, nonmowed		1 plus	
5 or 7			
Pond banks, dikes, levees, dams, diversion channels, and occasional water flow areas			
mowed areas	1 plus		2 or 3
nonmowed areas		1 plus	5
or 7			
for hay or silage on diversion channels	1 plus		adapted hay
mixtures;			
and occasional water flow areas			see
"Perennial Forage Corps f<			
			Hay and Silage"
Highways'			
Nonmowed areas			
pure crownvetch	1 plus	5 or 6	
well-drained	1 plus	5, 7, 8,	9, or 10
variable drainage	1 plus	3 or 7	
poorly drained	1 plus	3 or 4	
Areas mowed several times per year	1 plus	2, 3, or	10
Utility right-of-way			
Well-drained	1 plus	5, 8, or	10
Variable drainage	1 plus	3 or 7	
Effluent disposal areas		3 or 4	
Sanitary landfill areas	1 plus	3, 5, 7,	11, or 12

Stripmined spoils, mine wastes, fly ash, slag, settling-basin residues, and other severely disturbed areas (lime to soil test)' Contact the Pennsylvania Department of Transportation district roadside specialist for specific suggestions on treatment techniques and management practices. Names and phone numbers are available from your county extension agent.

Table 117. Temporary cover for erosion control on construction sites and other sediment-producing areas where additional soil disturbance is anticipated.

- *** **Mulching:** Mulching alone will help protect areas from erosion. Mulches also provide initial protection if area is to be seeded later. Use hay or straw at a rate of 3 tons per acre. See information under "Mulching" subheading. For information on other suitable mulching materials, contact the Pennsylvania Department of Transportation district roadside specialist.
- *** **Site Preparation:** Apply 1 ton of agricultural-grade limestone per acre, plus fertilizer at the rate of 50-50-50 per acre, and work in where possible. Secure a soil test before making a permanent seeding. After seeding, mulch with hay or straw at a rate of 3 tons per acre.

<u>SPECIES</u>	<u>lb/Acre</u>
For spring seeding (up to June 15)	
Annual ryegrass or spring	40
oats, or spring oats plus	96 (3 bu)
ryegrass	64 oats (2 bu) plus
	20 lb annual or
	perennial ryegrass
or winter wheat or	180(3bu)
winter rye	168(3bu)
For late spring and summer seeding	
(June 16 to August 15)	
Annual ryegrass	40
or Japanese or foxtail millet,	35
or sudangrass,	40
or spring oats,	96 (3 bu)
or winter wheat,	180(3bu)
or winter rye	168(3bu)
For late summer and fall seeding	
(August 16 and later)	
Annual ryegrass	40
or winter rye,	168(3bu)
or winter wheat	180(3bu)
or spring oats	
(can be used but will winter kill)	96 (3 bu)

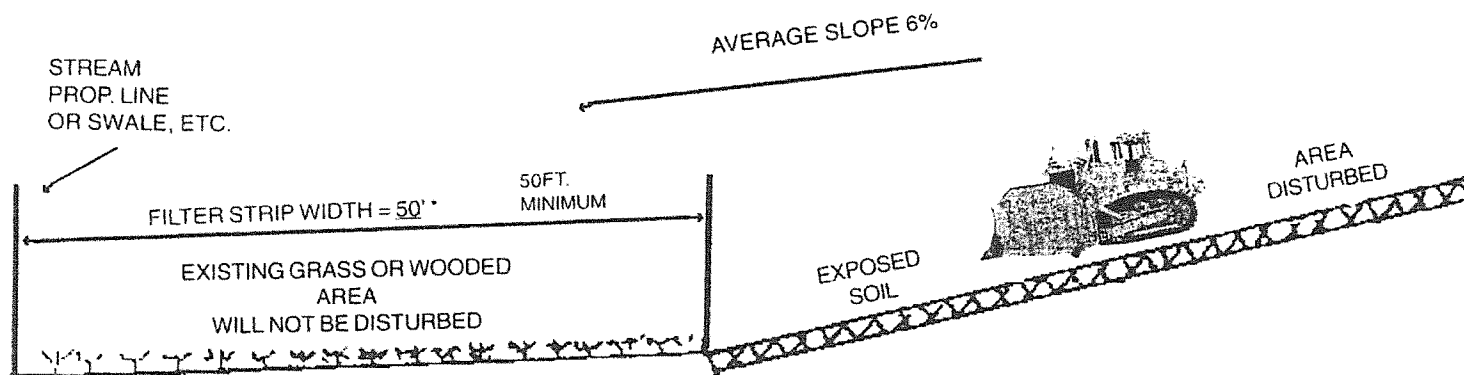
Standard Worksheet and Design Specifications

Note: Please complete if proposing to use vegetative filter strips as a temporary erosion measure.

Vegetative filter strips are areas of existing ground cover that are left undisturbed and managed to remove sediment from the project site. In most cases, these areas are vegetated with grass and situated in a wooded section of your property.

Filter strips are located between the lower edge of the proposed earth disturbance and a stream, drainage ditch or swale, township or a state road, wetland, property boundary line, etc.. The filter strip is considered to be operational when there is a minimum of 80% ground cover left undisturbed. A minimum of 50 feet width between the edges of disturbance must be maintained; however, a simple design calculation should be provided as required. (See Below).

STANDARD CONSTRUCTION DETAIL



DESIGN: (Please provide the following design information)

To determine filter strip width, use the following calculation:

**** FILTER STRIPS SHALL NOT BE LESS THAN 50 FEET WIDE ****

STRIP # _____ = (2 x SLOPE) + 25 FEET = _____ FEET WIDE

STRIP # _____ = (2 x SLOPE) + 25 FEET = _____ FEET WIDE

* Example: Natural Slope of the Land in Area where the Filter Strip will be located is 6%.
Then:

STRIP # 1 = (2 x 6) + 25 FEET = 37 FEET WIDE
(Less than 50' use 50' as required)

MAINTENANCE:

Undertake required grading to repair erosion gullies or any other form of concentrated flow channel on upslope drainage area.

After runoff events, remove accumulated sediment deposits and, if necessary, regrade and reseed filter strip areas to maintain sheet flow conditions. Silt fence or Haybale Barriers will be installed if filter strips fail.

ROCK CONSTRUCTION ENTRANCE

Rock Construction Entrances are used at the entering and exiting points to paved or public roads from your construction site.

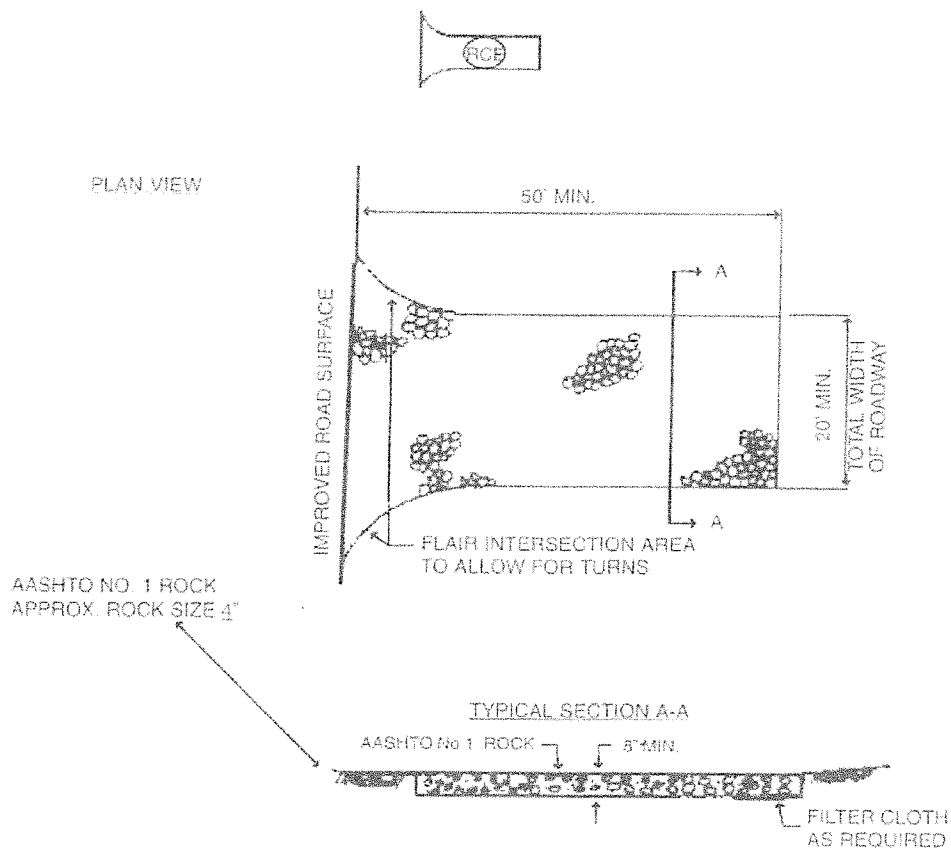
For installation on clayey or poorly drained soils, a filter cloth (geotextile fabric) underlayment of a type recommended for such applications by the manufacturer, should be used. This underlayment is placed before the stone as specified in Chapter 5, Standards and Specs. (DEP BLWC Erosion & Sediment Pollution Control Manual).

At the end of each construction day all sediment deposited on public roadways will be removed and returned to the construction site. It is not recommended to wash the roadway with water.

Stabilized construction entrances should be installed first to provide a controlled entrance to and exit from your construction site.

The structure's thickness will be constantly maintained to the specified dimension by adding rock.

A STOCKPILE OF ROCK MATERIAL WILL BE MAINTAINED ON THE SITE FOR THIS PURPOSE.



GLOSSARY

Broad Based Dips - Structures that can be used for access roads to control runoff. Broad Based Dips can be used instead of culverts for cross drainage where no intermittent or perennial streams are present.

Chapter 102 - Applicable Rules and Regulations for the control of erosion and sedimentation. Adopted by the DEP, Bureau of Land & Water Conservation.

Contour Line - A line joining two points of equal elevation, usually found on a map, ex. Topographic Maps.

Diversion - A channel or dike constructed up slope from a project for the purpose of diverting water away from the unprotected slope.

Erosion - The natural process by which the surface of the land is worn away by the action of water, wind, or chemical action.

Erosion and Sediment Control Plan - A plan which is designed to minimize accelerated erosion and sedimentation.

Filter Fabric Fence - A temporary barrier of previous geotextile fabric used to intercept sediment laden runoff from small drainage areas of disturbed soil. (Silt Fence)

Grassed Waterway - A vegetative channel used to outlet collected runoff.

Rock Construction Entrances - Structures placed at points of ingress to and egress from disturbed areas from/to public roads. These structures are installed as a tire cleaning device. Sediment is kept to a minimum on public roads through the installation of this control measure.

Sediment - Soils or other surficial materials transported by surface water as a product of erosion.

Sedimentation - The process by which sediment is deposited on the surface of stream bottoms.

Slope - Steep is greater than 8% , moderate is 3% to 8%, and flat is 0% to 3%.
EXAMPLE: 8% Slope = 8 feet of elevation change in 100 feet

Straw Bale Dike - A temporary barrier installed across or at the toe of a slope for the purpose of intercepting and detaining small amounts of sediment.

Topography - The detailed mapping or description of the features of a relatively small land area.

Topographic Map - A map showing topographic features, usually by means of contour lines.

Vegetated Filter Strip - An area of undisturbed vegetation (80% ground cover) located between the earth disturbance activity and a stream, wetland, property line, drainage swale, etc... This area will be utilized to filter sediment laden runoff before leaving the site. The width of these filter strips is determined by a calculation (page 13) and shall be a minimum of 50 feet wide.

Water Bars - Water Bars are used to control water runoff down temporary/permanent roads. Upon stabilization of a road, water bars may be left or removed.

SAMPLE PLAN WRITE-UPS THAT CAN BE USED TO FILL IN FOR YOUR SITE SPECIFIC EROSION CONTROL PLAN DEVELOPMENT. USE THESE SAMPLES WHEN FILLING OUT YOUR EROSION CONTROL PLAN NARRATIVE.

I. SAMPLE OF AN OUTLINED CONSTRUCTION SEQUENCE. THE TEMPORARY EROSION CONTROL MEASURES SHOULD BE INSTALLED PRIOR TO THE START OF CONSTRUCTION. THEY WILL BE IN PLACE, AND FUNCTIONAL, IF A STORM EVENT OCCURS.

- 1) Install silt fence and/or hay bales as shown on plan map.
- 2) Install driveway with stabilized stone construction entrance as shown on plan map.
- 3) Start home construction and septic system construction.
- 4) Final grade disturbed areas.
- 5) Stabilize all disturbed areas as indicated.
- 6) Remove temporary erosion and sedimentation controls (silt fence, hay bales, etc.) after grass stabilization is established. A minimum of 70% stabilization must be achieved before the temporary erosion controls could be removed.

II. TEMPORARY CONTROLS (REFER TO TEMPORARY CONTROLS SAMPLE PLAN WRITE-UP FOR ILLUSTRATING THE TEMPORARY CONTROLS THAT YOU ARE PROPOSING FOR YOUR PROJECT)

- Silt fence and/or hay bales will be installed as shown on the plan map.
- A stabilized stone construction entrance will be installed as shown on the plan map where driveway and construction traffic will enter the site.
- No disturbance is proposed in existing wooded/grassed section below the earth disturbance activity. The existing vegetation will act as a buffer strip to trap sediment. A minimum of 75 feet of existing vegetation will be left undisturbed in this area.
- Temporary rock filters will be installed as shown on plan map. These rock filters will be used in areas of concentrated flows to trap sediment.
- A temporary seeding of spring oats, or winter rye, or winter wheat will be applied to all final graded areas. This will be applied because the permanent seeding will not take place immediately following final grading operations.
- A grass/wooded buffer strip will be used as indicated on plan map

III. PERMANENT CONTROLS -- SAMPLE PLAN WRITE-UP FOR ILLUSTRATING THE PERMANENT EROSION CONTROLS THAT WILL BE USED FOR THIS PROJECT.

- All disturbed areas will be limed, fertilized, seeded and then mulched.
- Driveway will be stabilized with shale/stone.
- Stone will be placed in the road swales to prevent erosion from occurring.
- Water-bars will be placed on the road following installation procedures outlined in this narrative. These structures will divert runoff from the road that will prevent erosion.

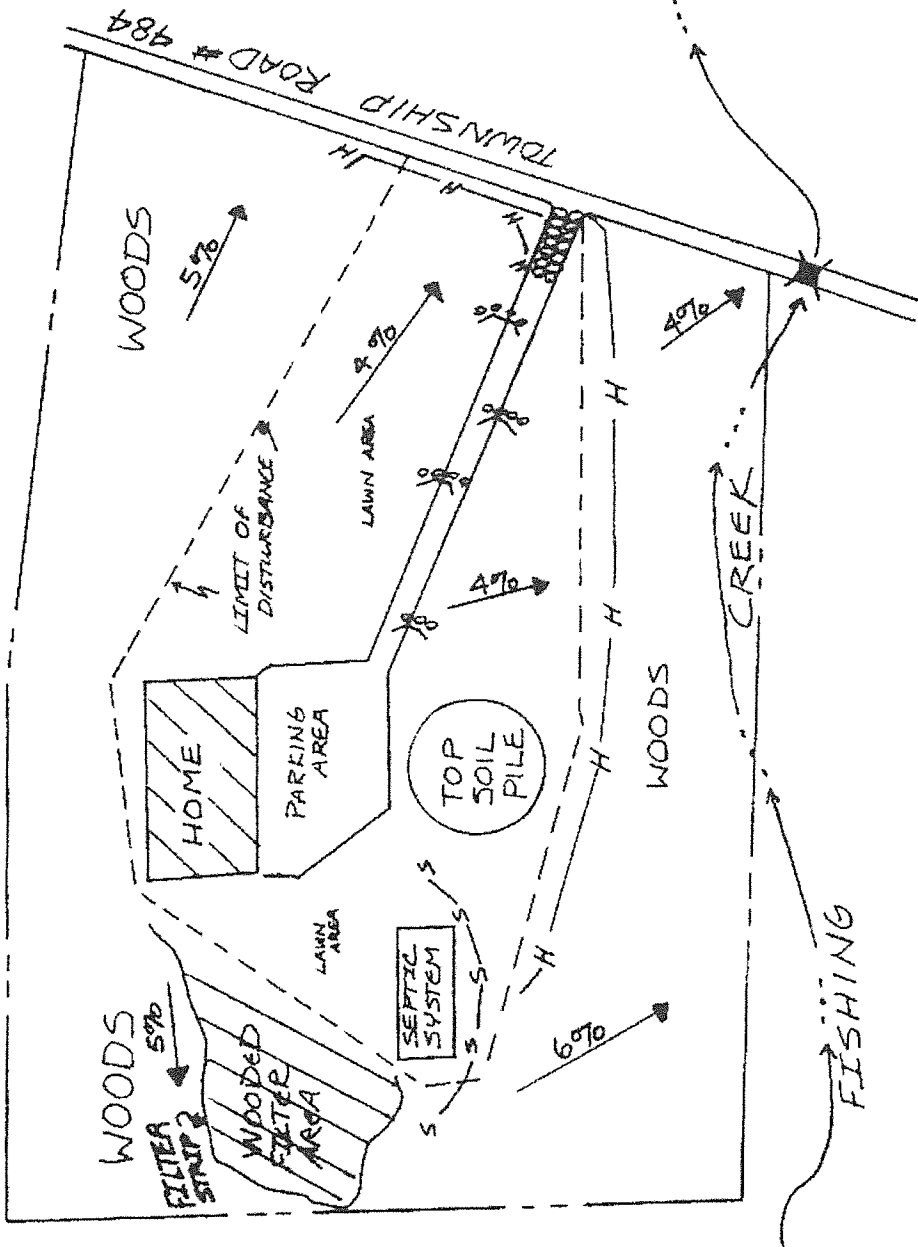
REINFORCED FILTER FABRIC FENCE

Filter fabric fence must be installed at level grade. Both ends of each fence section must be extended at least 8 feet upslope at 45 degrees to the main fence alignment.

Sediment must be removed where accumulations reach 1/2 the above ground height of the fence.

Any fence section which has been undetermined or topped must be immediately replaced with a rock filter outlet. See rock Filter Outlet Detail.

PLAN SAMPLE



PROJECT NAME: DOE HOME
BY: JOHN DOE
DATE: 8-8-91

MAP LEGEND & SYMBOLS

ROAD	TWP RD 489
STREAM	
PROPERTY BOUNDARY LINE	
SLOPE % & DIRECTION	5%
LIMIT OF EARTH DISTURBANCE	
DRAINAGE SWALE	
SILT FENCE BARRIER	S — S
HAY BALE BARRIER	H — H
ROCK CONSTRUCTION ENTRANCE	
ROCK FILTER BERM	
VEGETATIVE FILTER AREA	
	WOODS OR GRASS
	FILTER STRIP

EROSION AND SEDIMENTATION CONTROL APPLICATION

Application must be completed and accompanied by the required fee, plans and narrative for erosion and sedimentation control reviews. All plans and drawings submitted that are larger than letter/legal size must be folded. No rolled plans or drawings will be accepted. The District allows thirty (30) days for the review of a project.

Municipality_____ Zoning Classification_____

Location/Development_____

Total Parcel Area Acre(s)_____ Total Disturbed Acres_____

Landowner/Applicant_____ Telephone#_____

e-mail:_____ Fax#_____

Address_____

Plan Designer:_____

Address_____

e-mail:_____ Telephone#_____

Fax# _____

The undersigned agrees to comply with all requirements of Pennsylvania DEP Title 25 Chapter 102, Erosion and Sedimentation Control Rules and Regulations, and further agrees to obtain all necessary federal, state, county and local permits associated with subject project.

Signature of Landowner/Applicant or Agent

Date

Make check payable to the CARBON CONSERVATION DISTRICT.

FOR DISTRICT USE ONLY

Name of Project_____

Application # _____

Required Fee _____

Date Received _____

PLEASE SEND THIS APPLICATION PAGE WITH YOUR PLAN SUBMITTAL. KEEP ALL REMAINING PAGES.

EROSION AND SEDIMENT CONTROL PLAN NARRATIVE

1. Name of Responsible Individual: _____

Address: _____

City: _____ State: _____ Zip: _____ Phone: _____

2. Project Municipality: _____

3. Has the municipality been contacted concerning this project? (Check on local requirements, zoning, and State requirements).: _____

4. For new home construction project on lots purchased from a larger development, it is necessary to obtain a copy of the erosion and sediment control plan for the development. Please give the name of development, and list any special requirements:

Attach a copy of a general location map, and give written directions for locating the project site: _____

I. GENERAL INFORMATION ON PROJECT

A. Briefly describe the project: _____

B. List soil(s) located within project area: _____ (Use official soil name(s) from the Carbon County Soil Survey)

C. Total parcel acres: _____ Total disturbed acres: _____ **

D. Estimated dates for project start and completion:

START: _____ END: _____

E. Give the name of the nearest named receiving stream or body of water:

**Total disturbed areas(s) include dimensions of all disturbed area(s) associated with this project. The disturbed area(s) should include home site, access driveway, septic system, lawn area, soil borrow or fill areas, well site, utility line(s) installation, etc. Calculate using square feet.

II. STORM WATER RUNOFF AND DRAINAGE:

Are steep slopes in excess of 15% a part of your project, or the immediate surrounding area? If so, indicate how these areas will be stabilized.

Will runoff from above the project site present problems or need to be controlled during construction? If so, indicate how runoff will be diverted or controlled.

III. SEQUENCE OF CONSTRUCTION (see sample plans page for information)

In order for an erosion and sediment control plan to be effective, all phases of construction must take place in an orderly sequence. The first step in nearly all projects would be the installation of all temporary controls that are proposed for your project. The sequence should then describe the various construction steps necessary to complete the project and end with the removal of all temporary controls after the final stabilization has been completed.

Please use the space below to illustrate the proposed construction sequence for the project in the order mentioned above. Number each stage individually starting with the installation of the temporary controls.

IV. TEMPORARY CONTROLS

This section is needed to detail any temporary erosion control practices that will be implemented for your project. In most cases, the temporary controls may be used for erosion and sedimentation control purposes. List each control separately, explain why it is necessary, and the date when it can safely be removed. Drawings and designs for any practice not illustrated in this manual should be attached and referenced in this section.

V. PERMANENT CONTROLS

Prior to completion of the project, State Law requires that steps be taken to provide permanent stabilization. All disturbed areas must be protected to prevent accelerated erosion. Soil cannot be left exposed. Re-establishment of vegetation, rock rip-rap stabilization in swales, and stone placement on driveways are examples of permanent erosion controls that could be incorporated into the project. Re-vegetating descriptions should include the seeding mixture(s) to be used, top soil placement, lime and fertilizer application, and mulching requirements.

****ALL DISTURBED AREAS MUST IMMEDIATELY BE TEMPORARILY OR PERMANENTLY STABILIZED WITH CONTROL MEASURES OUTLINED WITHIN THIS BOOKLET****

VI. MAINTENANCE PROGRAM

All erosion control practices require maintenance to function properly. Hay bale dikes deteriorate and clog with sediment. Newly seeded areas may fail to germinate or be washed out by heavy rain. For example, hay bale dikes and filter fabric fences should be cleaned when they are at half of their capacity. Please describe efforts you will make to insure that all erosion control practices continue to function properly and list the person(s) responsible for the maintenance program.

STOP - CALL BEFORE YOU DIG!

PENNSYLVANIA LAW REQUIRES
THREE WORKING DAYS NOTICE

Pennsylvania One Call System, Inc.



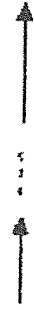
1-800-242-1776

MAP LEGEND & SYMBOLS

ROAD

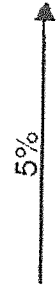
TWP RD 489

STREAM



PROPERTY BOUNDARY LINE

SLOPE % & DIRECTION



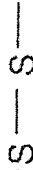
LIMIT OF EARTH DISTURBANCE



DRAINAGE SWALE



SILT FENCE BARRIER



HAY BALE BARRIER



ROCK CONSTRUCTION
ENTRANCE



ROCK FILTER BERM



VEGETATIVE FILTER



AREA
WOODS OR
GRASS



FILTER
STRIP

