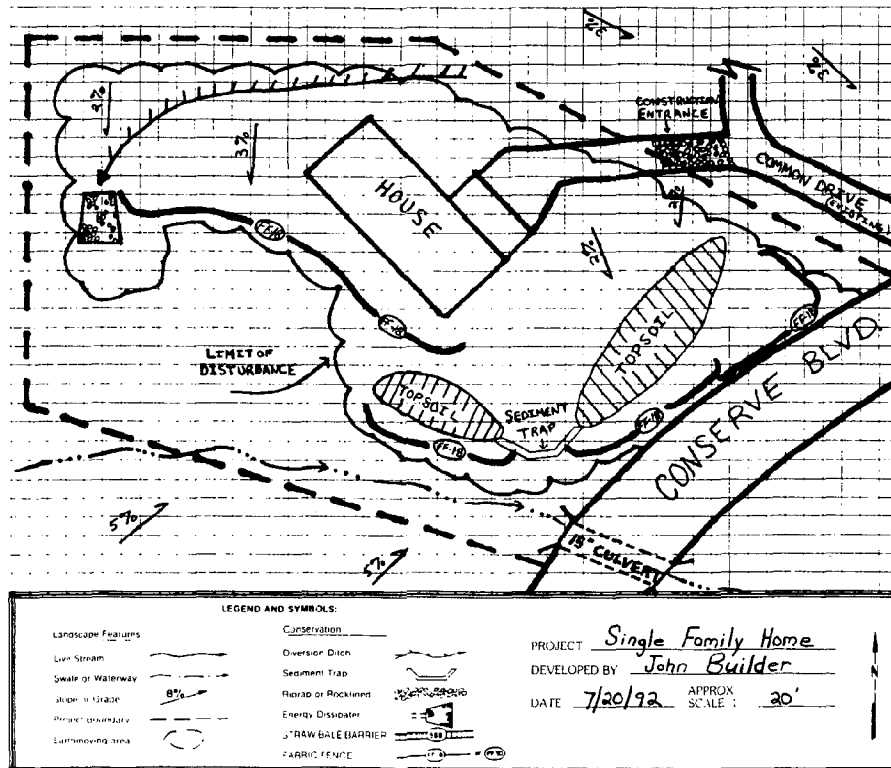


EROSION AND SEDIMENTATION POLLUTION CONTROL PLAN GUIDE FOR SMALL PROJECTS

Erosion & Sediment Control Plan



1995

A Publication of the Southeast Pennsylvania
 Association of Conservation Districts

SOUTHEAST PENNSYLVANIA ASSOCIATION OF CONSERVATION DISTRICTS

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WARNING

This guide is for use on low hazard projects which we have defined as follows:

1. Disturbs less than one acre of earth.
2. Slopes must not exceed 8% within the disturbed area.
3. Maximum off-site drainage to be diverted cannot exceed five acres.
4. For projects within special protection watersheds, consult your local Conservation District for additional guidance.

The Conservation District reserves the right to determine whether or not this guide is acceptable.

INTRODUCTION

This document was designed to assist in the development of Erosion and Sediment Pollution Control Plans for projects which disturb less than 1 acre, and are "low hazard" involving minimal disturbance of gently sloping areas. Existing erosion and sediment control publications concentrate on the larger complex projects. The material addressed in these publications is often understandable only by qualified professionals. To determine the essential requirements for a small project is nearly impossible. The existing manuals do not attempt to make a distinction between multi-million dollar projects, and the single lot improvement project.

Your local Conservation District would like to clear up this confusion, and simplify the erosion and sediment pollution control planning process. Our intent is to take a step by step outlined approach to the development of an erosion and sediment pollution control plan.

If erosion control plans are required by a local municipality for your project this manual may not be sufficient. Local regulation can require more stringent controls and procedures than those proposed by the manual. Erosion and Sediment Control Plans for small projects properly prepared with the assistance of this manual will satisfy the requirements of Chapter 102 pertaining to plan development and content. The local Conservation District reserves the right to determine whether or not this manual can be used due to the objective nature of the term "Low Hazard."

Please be aware that other federal, state, and local permits maybe required. To check on possible permit requirements contact The Department of Environmental Protection's Regional Office in Conshohocken. Please look in the Blue Pages under State Government for the current phone number. Also contact the local municipality in which the construction is to take place to check on their requirements.

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 into the waters of the Commonwealth any substance which creates a nuisance. The law is not this simple and straight forward, but the bottom line is essentially the same. Sediment with its number one rating, by volume, as a pollutant to Pennsylvania's waters is listed as a nuisance.

A copy of Chapter 102 is available from your local conservation district. Please consult the latest version of these regulations when preparing your plan if you have questions not covered by this guide. Chapter 102 is a set of rules and regulations administered by the Department of Environmental Protection, Bureau of Land and Water Conservation. The regulations attempt to provide controls to alleviate the sediment pollution problem. Anyone who disturbs vegetation, or exposes the earth's surface to the forces of erosion is subject to these controls. The primary element of Chapter 102 is the Erosion and Sediment Pollution Control Plan. This plan is required to include information on site characteristics, proposed alterations, and a step by step outline on how accelerated erosion and the resulting sedimentation will be controlled throughout the duration of the project.

The regulations require that every project which involves disturbing the earth's soil layer develop the type of plan described above. Projects which disturb 25 acres or more, and do not meet several conditions must obtain an Earth Disturbance Permit. Small projects must develop and implement the required erosion and sediment control plan, but no earth disturbance permits or reviews are required by Chapter 102. A small project which fails to produce an erosion and sediment control plan during an official site inspection is subject to the same fines and penalties as a larger permitted site.

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

Chapter 102 regulations attempt to keep sedimentation from damaging the waters of the Commonwealth. The regulations require an Erosion and Sediment Pollution Control Plan to be developed, implemented, and maintained. The regulations although complex simply attempt to keep erosion and sediment from becoming a nuisance.

GENERAL FACTORS TO BE CONSIDERED IN DEVELOPING A PLAN

A. Practice Proper Site Grading - Hold Site Grading to a Minimum

The risk of severe erosion increases in relationship to the amount of site alteration. Steeply sloping sites generally will require more grading than gently sloping sites. Excessive cutting and filling may alter the ground water system, open seeps or expose unstable soils. Improperly compacted fills may also be extremely erosive.

All of the topsoil from areas where cuts and fills have been made should be stockpiled and redistributed uniformly after grading. This is the key to revegetating the site.

B. Save Existing Vegetation, Especially Trees

Vegetative Cover is the best soil protection against erosion. A good sod can be up to 98% effective in controlling erosion. Vegetation to be saved should be protected during the construction process. Trees and shrubs that are to be saved should be marked and roped off along the entire drip line, (area under the crown of the tree.) This procedure protects the plants from damage by construction equipment. Filling around trees should be avoided. Advice on how to best protect trees is available from D.C.N.R., Bureau of Forestry.

C. Minimize the Area and Time of Exposure

It is risky to remove all the vegetation and topsoil from areas, but sometimes it cannot be avoided. When this happens, plan the construction sequence to keep the size and time of exposure to a minimum. Stabilize all areas as soon as you can. Applying a stone base to your access or driveway the same day it is cut in is an excellent example.

D. Timing of Your Project

Always try to schedule earthmoving activities during the growing season. Permanent seedings become established best when planted in the Spring or early Fall.

VEGETATION TO CONTROL EROSION

The use of vegetation to control erosion and sedimentation should be given primary consideration when developing your E&S control plan. Areas of moderate slopes and fertile soil can be easily stabilized by using plants and cultural 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 and at the completion of the change more permanent cover crops should be used. Adequate soil cover for soil stabilization is when vegetation covers 70% of each square yard.

Sites that have exposed subsoil, steep slopes, shallow depth to bedrock, droughty conditions or other limiting properties require additional treatment. Such sites demand special attention be given to 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 because they erode severely and are the source of much sediment.

Since vegetation is considered the most effective and practical erosion control practice it is recommended that you consult the Penn State Agronomy Guide. The information contained in this publication stems from current research and development of erosion control plantings. Information from selecting good quality seed to maintaining established areas is well presented, and will be a valuable asset to your erosion control plan design efforts. The proper seed mixtures can be obtained from building supply stores, farm product stores, or even ordered from seed

catalogs. Local Hardware stores sell seed mixtures which can be combined with another mixture to obtain the recommended amounts. Included in this guide are seeding mixtures and preparations for standard sites. This information if used will provide adequate stabilization on sites which do not have any special problems.

RECOMMENDATIONS FOR REVEGETATION

A. LIME - AGRICULTURAL GRADE LIMESTONE

Adding lime to the soil is vital to your revegetation efforts. The majority of disturbed sites are acid and infertile. Acid precipitation complicates this pH problem. A soil test from a reputable laboratory is recommended. If soil test results are not available apply lime at the following rates:

Lime	4 tons per acre	190 lbs. per 1000 s.f.
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B. FERTILIZER - COMMERCIAL TYPE 10-20-20

The need for fertilizer can not be underestimated. Fertilizer will greatly increase the growth of both the plant and its roots. Once again a soil test is the preferred alternative. If soil test results are not available apply fertilizer as follows:

Fertilizer	930 lbs. per acre	25 lbs. per 1000 s.f.
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C. MULCH - HAY OR STRAW

All areas which are seeded with either temporary or permanent seed mixtures should be mulched. Mulch is a loose layer 3/4" to 1" deep of Hay or Straw. Mulch reduces soil erosion, aids seed germination, and conserves moisture. Hay or straw should not be chopped or finely broken during application. Mulch should be applied as follows:

Mulch	3 tons per acre	140 lbs. per 1000 s.f.
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D. SEEDED PREPARATION AND SEEDING METHODS

Prior to seeding, apply the recommended amount of limestone and work as deeply as possible into the soil. At seeding time work recommended fertilizer as deep as possible into the soil. Seed at the recommended rates and follow with an adequate layer of mulch.

Seed can be applied to disturbed areas in many ways. Broadcast seeding by either hand or spreader, drill, and hydroseeding are some examples. Hydroseeding is a common practice on Construction Sites. The lime, fertilizer, and seed mixture is added at one time. Warning: To achieve adequate revegetation the seedbed still must be properly graded and tilled. Wood Cellulose a paper-like product is often substituted for mulch. The rate of application should be 320 lbs. per 1,000 square yards. This is not the preferred alternative. Wood Cellulose is better applied at a rate of 160 lbs. per 1,000 square yards as a tack coat to hold straw or hay mulch in place.

If temporary seeding is necessary divide the fertilizer and lime recommendations. Apply the following as part of the temporary seeding:

Lime	1 ton per acre	50 lbs. per 1000 s.f.
Fertilizer	150 lbs. per acre	5 lbs. per 1000 s.f.

Then apply the remainder of the recommended rates during the final seeding process.

E. TEMPORARY SEED MIXTURE

Annual Ryegrass is a quick germinating species of grass which can be seeded at almost anytime. If you plan to leave your project disturbed and inactive for 20 days or more a temporary seeding should be applied immediately. If your site is going to remain inactive for 6 months or more, however a permanent seeding is necessary.

Annual Ryegrass	40 lbs. per acre	1 lbs. per 1000 s.f.
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F. PERMANENT SEED MIXTURES

Establishing a permanent vegetative cover is the final step to effective erosion and sediment pollution control. It is recommended that the Penn State Agronomy Guide be consulted. To make this guide comprehensive we have selected a few mixtures which will meet the requirements of Chapter 102 - Erosion Control.

Lawn and Mowed Areas

A. Kentucky Bluegrass	30 lbs. per acre	12 oz. per 1,000 s.f.
Redtop	3 lbs. per acre	2 oz. per 1,000 s.f.
Perennial Ryegrass	20 lbs. per acre	8 oz. per 1,000 s.f.
*TOTAL SEEDING	53 lbs. per acre	22 oz. per 1,000 s.f.
or		
B. Pennlawn-Fine Fescue	40 lbs. per acre	16 oz. per 1,000 s.f.
Redtop	3 lbs. per acre	2 oz. per 1,000 s.f.
Perennial Ryegrass	20 lbs. per acre	8 oz. per 1,000 s.f.
*TOTAL SEEDING	63 lbs. per acre	26 oz. per 1,000 s.f.

Slopes or Un-Mowed Areas

**Crownvetch	25 lbs. per acre	10 oz. per 1,000 s.f.
Perennial Ryegrass	25 lbs. per acre	10 oz. per 1,000 s.f.
*TOTAL SEEDING	50 lbs. per acre	20 oz. per 1,000 s.f.

* - All mixtures given above are for PLS - Pure Live Seed 100%. To calculate PLS, the percentage of pure seed is multiplied by the percentage of germination, and the product is divided by 100. (85% Pure Seed x 72% germination) divided by = 61% PLS. To determine how much seed to plant, divide the percentage into 100. Example: 100 Divided by 61 = 1.63. Thus, every pound of seed mixture called for should then be 1.63 lbs.

** - Crownvetch is a Legume and will require an inoculant. Please contact your seed supplier for specific directions on applying the required inoculant.

G. TIME OF SEEDING - Permanent

For best results, grass and legume seedings should be made in the Spring; however, with proper establishment techniques, disturbed sites can be seeded almost anytime from spring to fall. A general rule is as follows:

- (1) Legume seedings need a growing period of at least 10 to 12 weeks prior to hard frosts.
- (2) Grasses generally require at least 4 to 6 weeks of growth prior to hard frosts.

ABOVE SITE DRAINAGE

It is important to consider the possible problems that can be created by run-off from above your project. Run-off 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 run-off.

In order to evaluate the issue purchasing a topographic map of your area may prove beneficial. Topographic maps are available from the U.S. Geological Survey, Map Sales, Federal Center, Box 25286, Denver, CO 80225. Small projects can often be observed in the field. Check for existing signs of erosion within the project area. Look for concentrated run-off sources such as downspouts from roof gutters, swale outlets, and springs.

Methods to divert the run-off will be listed in the Control Practice section. Keeping clean run-off from picking up sediment from your project will be very beneficial.

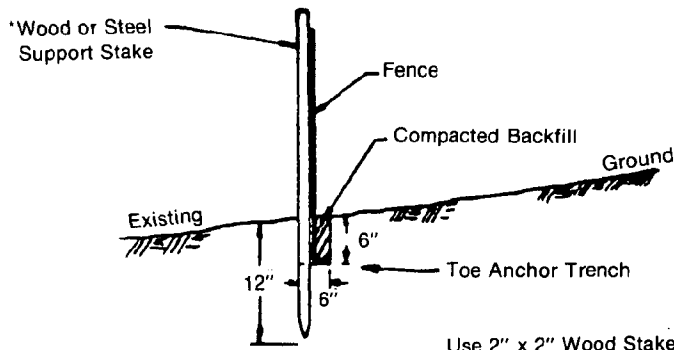
E & S CONTROL PRACTICES

This next section is devoted strictly to providing the erosion and sediment control plan designer with standards and specifications, for the most frequently used control practices. A few of the following designs call for specific engineering calculations. If the practice is intended to be left in place for a permanent control structure the Conservation District highly recommends seeking professional assistance. Since this manual is intended only for "Low Hazard" sites, however, the majority of the necessary controls can be designed with the following sheets as guidelines.

The design specifications were developed from the requirements presented in the "Erosion and Sediment Pollution Control Program Manual of April 1990" by the Bureau of Land and Water Conservation of the Department of Environmental Protection .

These controls are not the only controls which can be utilized. If you design controls other than those included in this manual simply include a design sketch with your erosion and sediment control plan. Soil information is presented in the County Soil Survey available from your local Conservation District Office.

Filter Fabrics Fence Installation Details

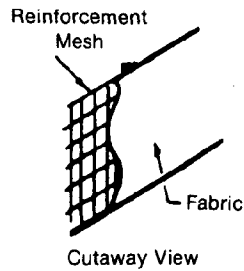
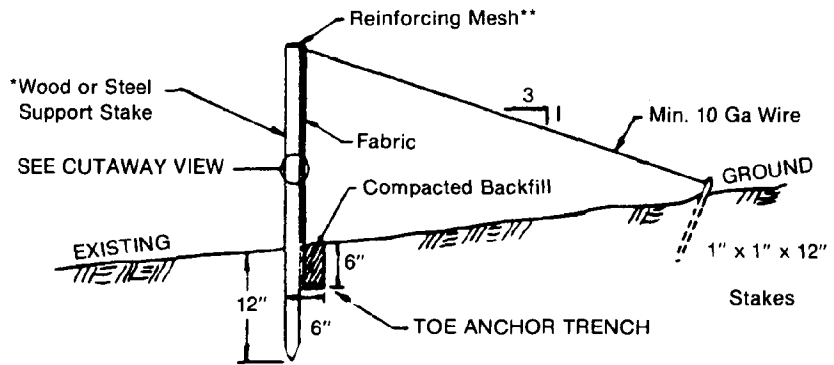


STANDARD SECTION
18" FENCE HEIGHT

Use 2" x 2" Wood Stakes (Min)
or Steel Stake of equal strength

*SPACING OF SUPPORT STAKES @ 8' MAX.

REINFORCED SECTION
30" FENCE HEIGHT



**MESH: Either Industrial Polypropolene
or Steel mesh w/Max 6"
Opening = 1" - Min. 14 Ga.

* SPACING OF SUPPORT STAKES
@ 8" MAX.

TABLE 5.2 Maximum Slope Lengths for Filter Fabric Fences		
Slope - Percent	Maximum Slope Length (ft) Above Fences	
	18" High Fence	30" High Fence
2 (or less)	250	500
5	100	250
10	50	150
15	35	100
20	25	70
25	20	55
30	15	45
35	15	40
40	15	35
45	10	30
50	10	25

Slope - Percent: A 2% slope would equal a two foot vertical drop in 100 feet of horizontal distance.

(Slope Length is calculated based on drainage area; multiple rows of silt fence is not acceptable.)

FILTER FABRIC FENCE (SILT FENCE)

INSTALLATION:

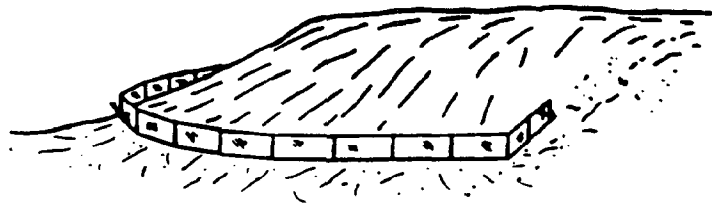
- (1) A trench will be plowed or otherwise excavated to the required depth with little, if any, disturbance to the downslope side of the trench. The bottom of the trench and the fence top will be placed at level grade.
- (2) Support stakes will be driven to the 12" minimum depth below the existing ground surface, at 8' maximum intervals.
- (3) Stretch and fasten fabric to the upslope side of the support stakes (if a reinforced section, fasten reinforcement mesh prior to fastening the fabric).
- (4) Where ends of fabric come together, they will be overlapped, folded and stapled to prevent sediment bypass.
- (5) The toe anchor will be backfilled and compacted to a density equal to surrounding soils.
- (6) If constructing a reinforced section, attach guy wires to support stakes. Provisions should be made for easy loosening and removal of guy wires to allow for access to perform maintenance work.

MAINTENANCE:

- (1) The fence installation should be inspected after every precipitation event and weekly. Any necessary repairs will be made immediately.
- (2) Accumulated sediments will be removed as required to keep the fence functional. In all cases remove deposits where accumulations reach 1/2 the above ground height of the fence.
- (3) All undercutting or erosion of the toe anchor will be repaired immediately with compacted backfill materials.

RESTRICTIONS:

- (1) The formation of concentrated flows on the drainage slope above a filter fabric fence installation is not permitted. If concentrated flows do occur, direct slope stabilization measures must be employed to prevent such conditions.
- (2) Filter fabric fences will not be placed in any area of concentrated flows such as ditches, swales, channels, etc.
- (3) Filter fabric fences will not be used in areas where rock or rocky soils prevent the full and uniform anchoring of the fence toe.
- (4) Filter fabric material will not be placed across the entrance to pipes or culverts and will not be wrapped around the principal spillway structures of sediment traps or basins.



ILLUSTRATION

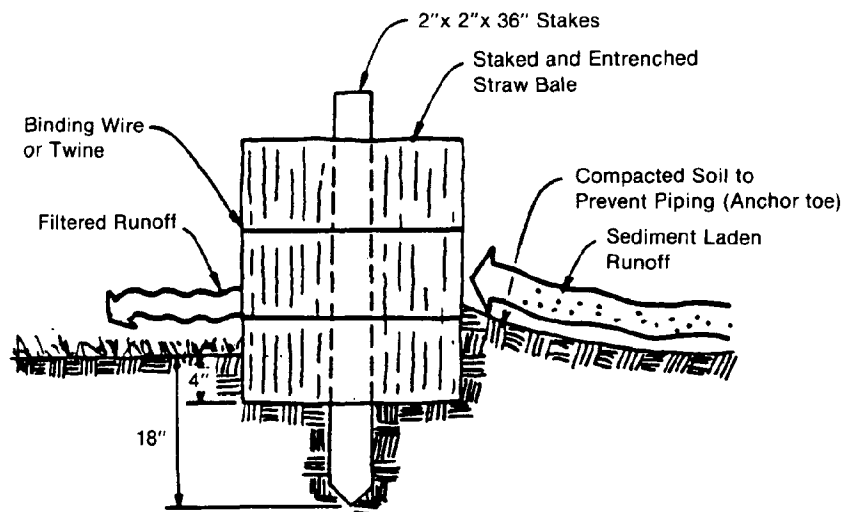
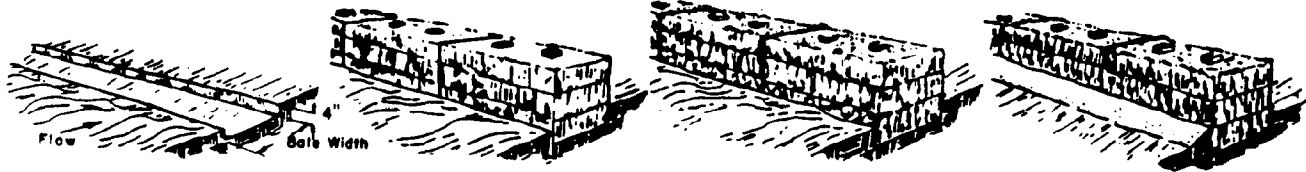
Straw Bale Barrier

1. Excavate the Trench.

2. Place and Stake Straw Bales.

3. Wedge Loose Straw Between Bales.

4. Backfill and Compact the Excavated Soil. (Anchor Toe)



INSTALLATION:

- (1) The anchoring trench will be constructed to the required grade and depth shown.
- (2) Support stakes will be driven to the 18" minimum depth.
- (3) The anchoring trench will be backfilled and compacted to a density equal to undisturbed site soils.

MAINTENANCE:

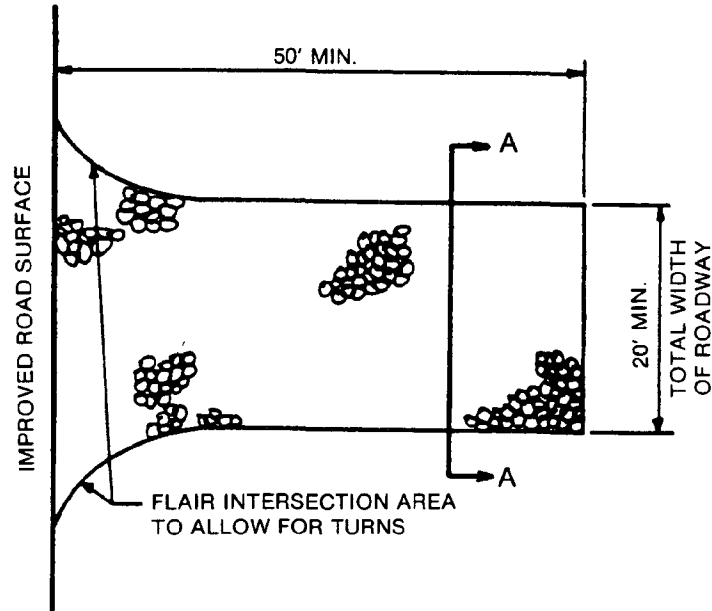
- (1) The barrier will be inspected after every runoff event. Dislodged bales should be reset, staked and backfilled to the requirements listed under "Installation". All clogged or inoperative bales will be replaced.
- (2) Accumulated sediments will be removed as required and in all cases where uniform accumulations reach 1/3 the above ground height of the barrier.
- (3) All undercutting or erosion of the anchor toe will be repaired immediately with compacted backfill materials.

RESTRICTIONS:

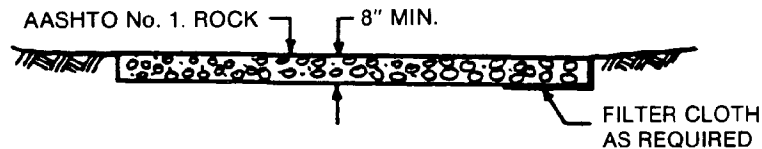
- (1) Restrictions are the same as fabric fence.
- (2) Slope length limitations are the same as fabric fence.
- (3) Straw bale barriers will be replaced every three months or more often if the bales deteriorate.

Rock Construction Entrance Details

PLAN VIEW



TYPICAL SECTION A-A



DESIGN:

- (1) Rock construction entrances will be constructed to the minimum width, length and thickness dimensions shown.
- (2) Rock will be AASHTO Number 1 as specified in Section 703.2 of the PennDOT Publication 408.
- (3) For installation on clayey or poorly drained soils, a geotextile fabric underlayment, of a type recommended for such applications by the manufacturer, will be used.

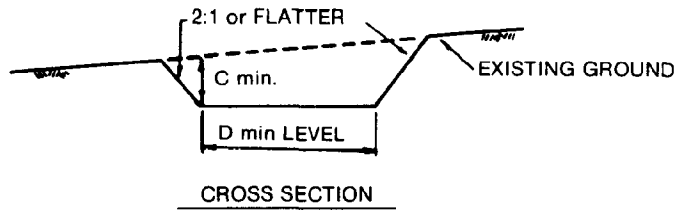
CONSTRUCTION:

- (1) Construction will be to the dimensions shown on the construction drawings.

MAINTENANCE:

- (1) 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. At the end of each construction day, all sediment deposited on public roadways, will be removed and returned to the construction site. Washing of the roadway with water is not permitted.

TEMPORARY SWALE



DIMENSIONS

- C. - Depth 1.5' (includes 1/2' freeboard)
- D. - Bottom width 4'

CONSTRUCTION SPECIFICATIONS

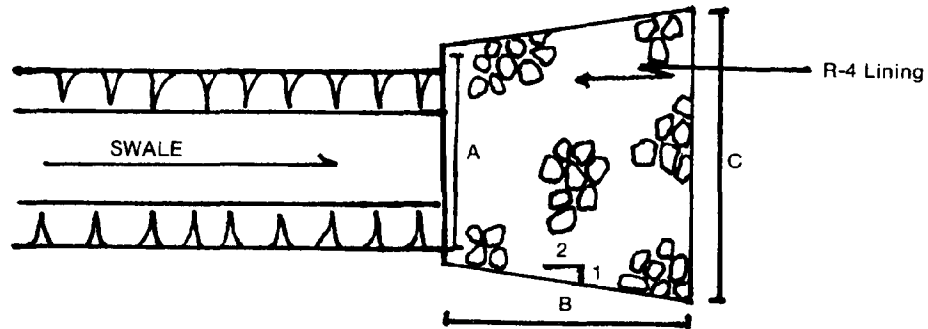
1. All temporary swales shall have uninterrupted positive grade to an outlet.
2. Diverted runoff from a disturbed area shall be conveyed to a sediment trapping device.
3. Diverted runoff from an undisturbed area shall outlet directly into an undisturbed stabilized area at non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the swale.
5. The swale shall be excavated or shaped to line, grade, and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. Fills shall be compacted by earth moving equipment.
7. All earth removed and not needed on construction shall be placed so that it will not interfere with the functioning of the swale.
8. Maximum Drainage area is 5 Acres.
9. Maximum Slope of Swale 8.0%.
10. Periodic inspections and maintenance must be provided.

Flow Channel Stabilization

<u>Channel Grade</u>	<u>Type of Stabilization</u>
0.5 - 1.0%	Seed and Straw Mulch
1.0% - 2.5%	* Jute Matting (or equivalent) with Straw Mulch
2.5 - 8.0%	* Sod Lining

* Requires rock apron outlet (illustrated next page)

ROCK APRON OUTLET PROTECTION



DIMENSIONS

- A - 12' (Match with grades from outlet of swale)
- B - 10' Length
- C - 16' Outlet End

CONSTRUCTION SPECIFICATIONS

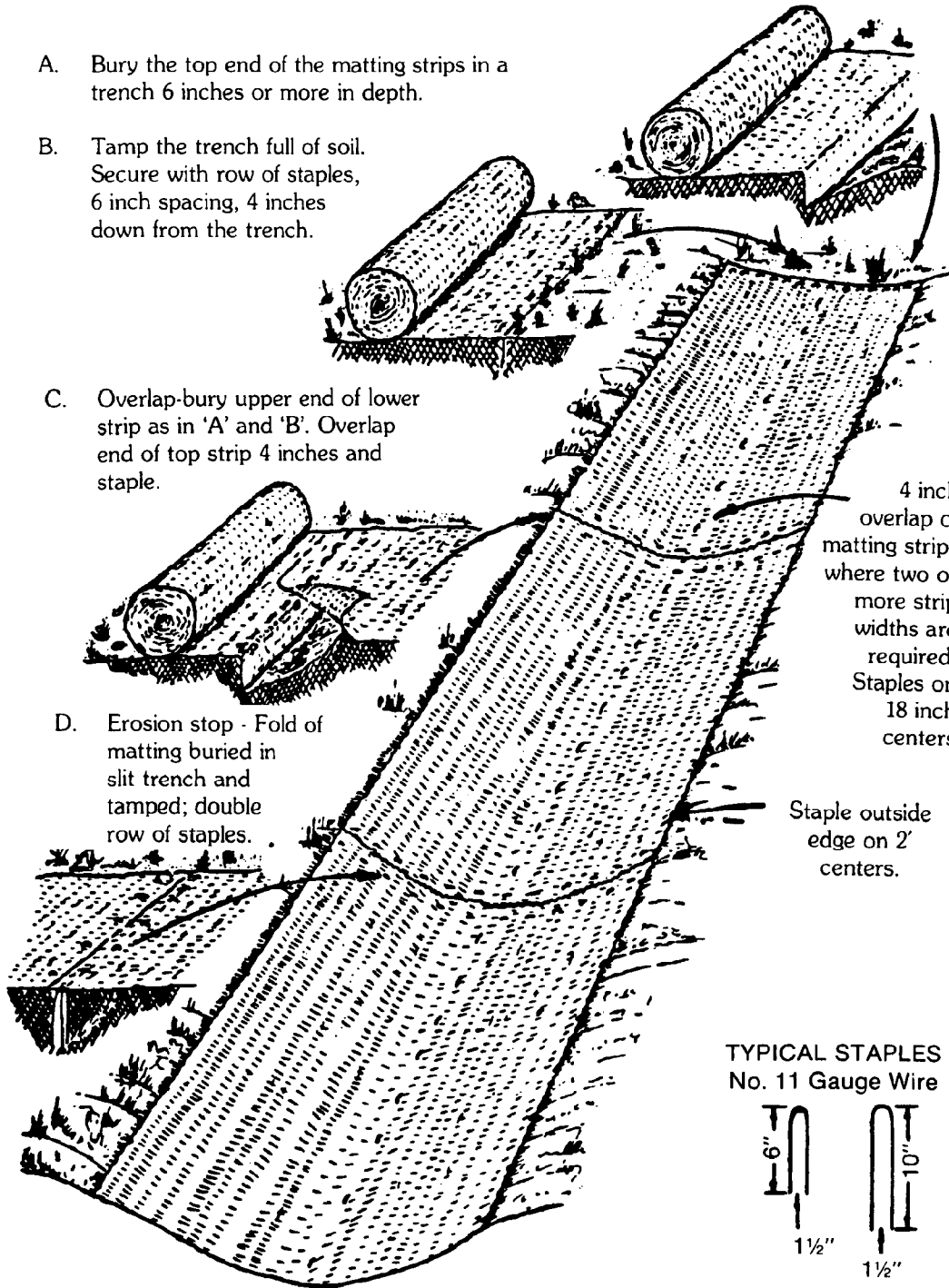
1. Rock Aprons are required to reduce the outlet velocity of a swale to 3.0 f.p.s. or less.
2. R-4 Rock has a maximum diameter of 12" and a minimum diameter of 3".
3. The placement of a layer of geotextile prior to installing the rock lining is recommended.
4. Outlets must discharge to a stable non-erosive outlet.

DETAIL FOR STABILIZING WATERWAYS WITH JUTE OR EXCELSIOR MATTINGS

- A. Bury the top end of the matting strips in a trench 6 inches or more in depth.
- B. Tamp the trench full of soil. Secure with row of staples, 6 inch spacing, 4 inches down from the trench.

- C. Overlap-bury upper end of lower strip as in 'A' and 'B'. Overlap end of top strip 4 inches and staple.

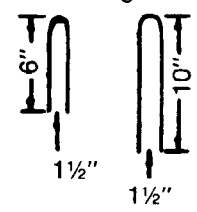
- D. Erosion stop - Fold of matting buried in slit trench and tamped; double row of staples.



4 inch overlap of matting strips where two or more strip widths are required. Staples on 18 inch centers

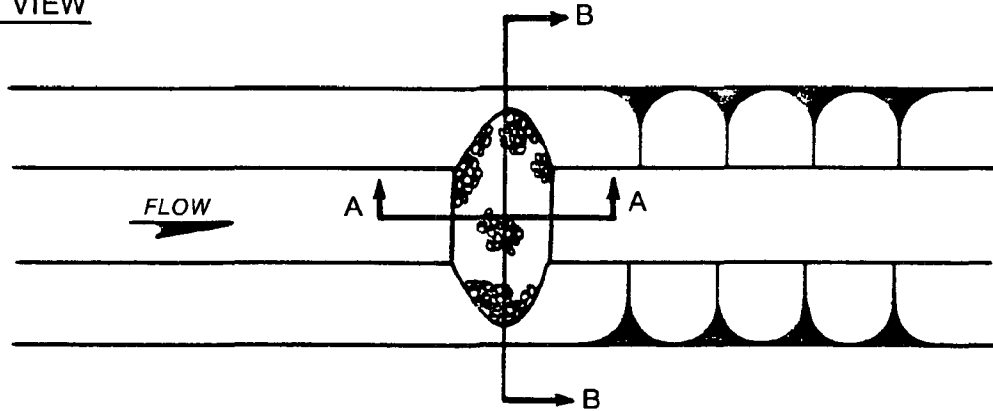
Staple outside edge on 2' centers.

TYPICAL STAPLES
No. 11 Gauge Wire

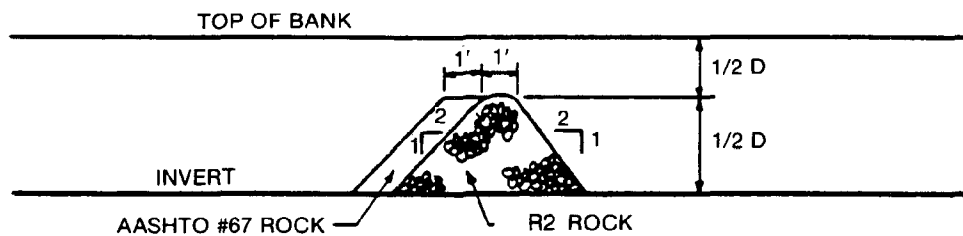


Rock Filter Details

PLAN VIEW



TYPICAL SECTION A-A



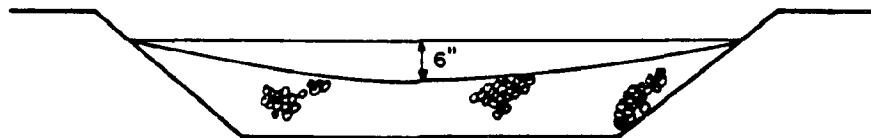
AASHTO #67 ROCK

R2 ROCK

D = Depth of water at channel capacity.

D = 1.5 feet

TYPICAL SECTION B-B



DESIGN:

- (1) Rock filters will be constructed with AASHTO Number 67 and R-4 rock as specified in Sections 703.2 and 850.2 of PennDOT's Publication 408.
- (2) Free standing rock channel filters will be constructed to the dimensions shown above.

MAINTENANCE:

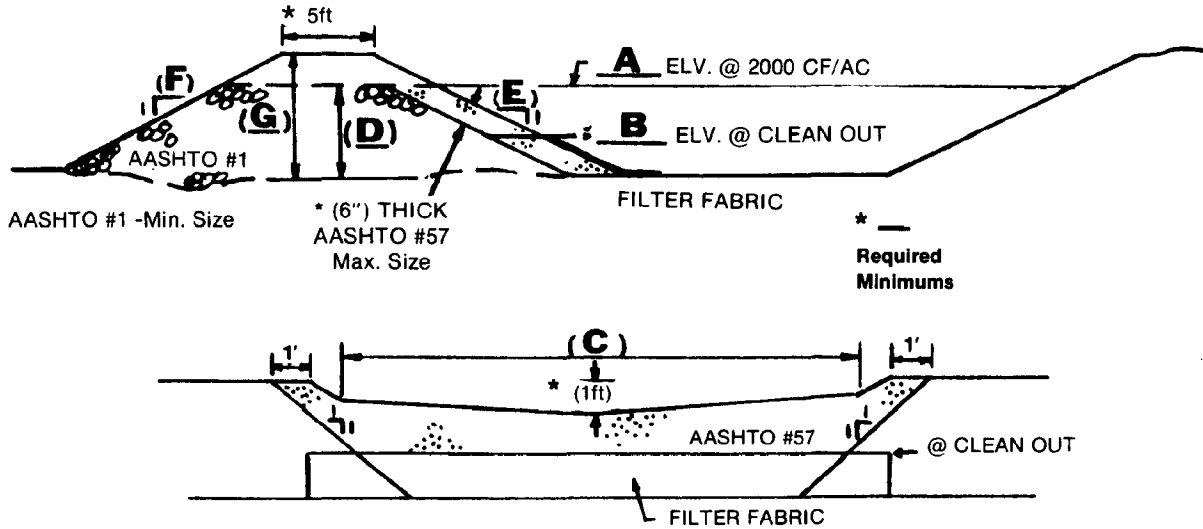
- (1) Rock filters will be removed when clogged with sediments. Materials must be washed completely free of foreign materials or new rock used to rebuild the filter.
- (2) Accumulated sediment should be removed after each rainfall event.

RESTRICTIONS:

- (1) Not for use in natural drainageways or streams.
- (2) Use only in vegetated channels constructed as part of the project until the channel has stabilized.

EMBANKMENT SEDIMENT TRAP

PROJECT NAME:	SAMPLE TRAP		
LOCATION:	Low Hazard Erosion & Sediment Control Guide		
PREPARED BY:	DATE:	SHEET #	OF
CHECKED BY:	DATE:		



TRAP NO. : A

NOTE: Show all details and construction dimensions on plan drawings.

DRAINAGE AREA : 1 ACRES (5 ac. max.)
REQ'D. CAPACITY : 2,000 CUBIC FEET (2000 cf x # ac.)
AVERAGE WIDTH : 20 FEET
AVERAGE LENGTH : 40 FEET (10 ft. min.)
LENGTH TO WIDTH : 2 : 1 RATIO (2:1 min.)
AVERAGE DEPTH : 2.5 FEET (2 ft. min. ave. depth req'd.)

ACTUAL CAPACITY A: 2,179 CUBIC FEET (cap. at point A)
CLEAN OUT ELEV. B: 1 foot FEET (700 cf x # ac.)
SPILLWAY WIDTH C: 6 FEET (2 x # ac.)
SPILLWAY HEIGHT D: 2.5 FEET (4 feet max.)
INSIDE SPILLWAY SIDE SLOPES vert = 1 : Hor. = 2 (1:2 min)
OUTSIDE SPILLWAY SIDE SLOPES vert = 1 : Hor. = 2 (1:2 min)
EMBANK. HEIGHT G: 3.5 (5 feet max)

ELEV.	AVE. AREA	VOLUME	CUMULATIVE VOLUME
0	16 x 36 = 576 s.f.		
		688 c.f.	688 c.f.
1	20 x 40 = 800 s.f.		
		928 c.f.	1,616 c.f.
2	24 x 44 = 1,056 s.f.		
		563 c.f.	2,179 c.f.
3 2.5	26 x 46 = 1,196 s.f.		
4			

EMBANKMENT SEDIMENT TRAP

INSTALLATION:

- (1) A trap should be installed in a location which captures the majority of the disturbed area naturally.
- (2) Traps must be able to de-water at least down to the clean out elevation.
- (3) Stone outlets must have a top width of greater than 5 feet and side slopes to match earthen berm.
- (4) Geo-textile should only be placed as illustrated in detail

MAINTENANCE:

- (1) Sediment should be removed from trap when sediment accumulates to the clean-out level at a point halfway between the inflow of sediment laden run-off and the outlet.
- (2) A clean out stake should be placed at the location noted in item (1) with the clean out elevation marked.
- (3) The filter fabric on the outlet should be cleaned after each rainfall event.
- (4) If the stone filter should become clogged it should be replaced.

RESTRICTIONS:

- (1) Maximum drainage area to a sediment trap is 5 acres.
- (2) Drainage areas include both disturbed and undisturbed areas.
- (3) If a trap can not outlet to a natural waterway the outlet width should be 6 feet per acre. Traps should only outlet to areas which are stable.
- (4) Outlet traps only where they will not cause erosion or property damage.

DESIGN:

The design detail is included with a sample worksheet. The trap sample dimensions should be suitable for most projects using this guide if the drainage area is one acre or less. Use the worksheet - Appendix A - to alter the design for your sediment trap if conditions require.

(Please make a copy for your use on site.)

**EROSION AND SEDIMENT CONTROL PLAN
DEVELOPMENT GUIDE NARRATIVE**

1. Name of Responsible Individual: _____
Address: _____ P.O.: _____
Phone Number: (_____) _____ Zip Code: _____
2. Project is Located in what Municipality: _____
3. Has the municipality been contacted: _____
4. Tax parcel # for project site: _____
5. New home construction projects on lots purchased from a larger development, should locate a copy of the erosion and sediment control plan for the development. If applicable please give name of development, and list any special requirements:

6. Attach a copy of a general location map, and give written directions for locating the project site in the space below:

I. GENERAL INFORMATION ON PROJECT

- A. Briefly describe your project and extent of earthmoving:

- C. Estimate dates for project start up and completion:
START: _____ END: _____
- D. Give the name of the nearest named receiving stream:

- E. Have Wetlands been delineated: _____
If no check justification
____ Hydric Soils, or possible wetlands are avoided
____ Wetlands do not exist
____ Other: _____

F. Soils information for the project must be provided:

(1) Soil Type	(2) Is the Soil Hydric?	(3) Other Limitations
_____	_____	_____
_____	_____	_____
_____	_____	_____

(1) - List soil symbol ex: (GeA2) for U.S.D.A. - Soil Survey

(2) - Hydric Soil lists are available from the Conservation District Office.

II. STORMWATER RUNOFF AND DRAINAGE

- A. Are steep slopes in excess of 10% apart of your project, or are the immediate surrounding areas _____
- B. Offsite run-off onto your project must be controlled. Does off-site drainage exist _____
- C. Will your project increase run-off velocities or channelize stormwater run-off _____

***Note:** All yes answers to the above questions must be addressed in your erosion and sediment control plan with appropriate controls.

III. SEQUENCE OF CONSTRUCTION

In order for an erosion and sediment control plan to be effective all phases of construction must take place in an orderly sequence. Every effort should be made to minimize the amount of earth to be distributed, and limit the time disturbed earth is exposed to the forces of erosion. The first step in nearly all projects would be the installation of sediment barriers or trap below the project, and installation of any needed practices to handle run-off onto the 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 final stabilization is complete. Please use the space below and label each step in numerical order.

IV. TEMPORARY CONTROLS

This section is needed to detail any/all temporary erosion control practices that will be implemented. List each control separately, explain why it is needed, and 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.

A. Check if applicable

- Straw Bale Barrier
- Filter Fabric
- Temporary Swale
- Rock Filters

- Sediment Trap
- Rock Const. entrance
- Temporary Seeding
- Other

List Other Controls: _____

B. Check if applicable

- All items check above will be to the specifications of this guide.
- Alternative controls and/or specifications are proposed and will be attached.

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. In other words soil can not be left exposed. Re-established vegetation, rip-rap, and pavement, etc. are examples of permanent controls. Re-vegetating an area descriptions should include the seeding mixture to be used, top soil applications, lime, and fertilizer instructions.

A. Check if applicable

- Permanent Vegetation will be established per the recommendations of this guide
- Alternative specifications have been developed for re-vegetation and are set forth on appendix B.

VI. MAINTENANCE PROGRAM

All erosion control practices require maintenance to function properly. Specific requirements for maintenance are described on the design detail sheets. Please note the following required maintenance procedures and check other applicable procedures for control measures you will be using:

VI. Maintenance.....continued

Required Until the site is stabilized, all erosion and sedimentation controls must be maintained properly. Maintenance must include inspections of all erosion sedimentation controls after each storm event and or a weekly basis. All preventative and remedial maintenance work, including clean out, repair, replacement, mulching, and renetting, must be performed immediately.

Required Should any measures contained within this plan prove incapable of adequately removing sediment from on-site flows prior to discharge or of stabilizing the surfaces involved, additional measures must be immediately implemented by the property owner to eliminate all such problems.

Required After final site stabilization has been achieved, temporary erosion and sedimentation controls must be removed. Areas disturbed during removal of the controls must be stabilized.

(Check if Applicable)

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

_____ Sediment must be removed where accumulations reach 1/3 the above ground height of straw bale dikes.

_____ Stormwater inlets must be protected until the tributary areas are stabilized, and control measures maintained after each storm event.

_____ Sediment must be removed from traps when storage capacities are reduced to 1300 cubic feet per tributary acre.

_____ Sediment traps must be protected from unauthorized acts of third parties.

Other: _____

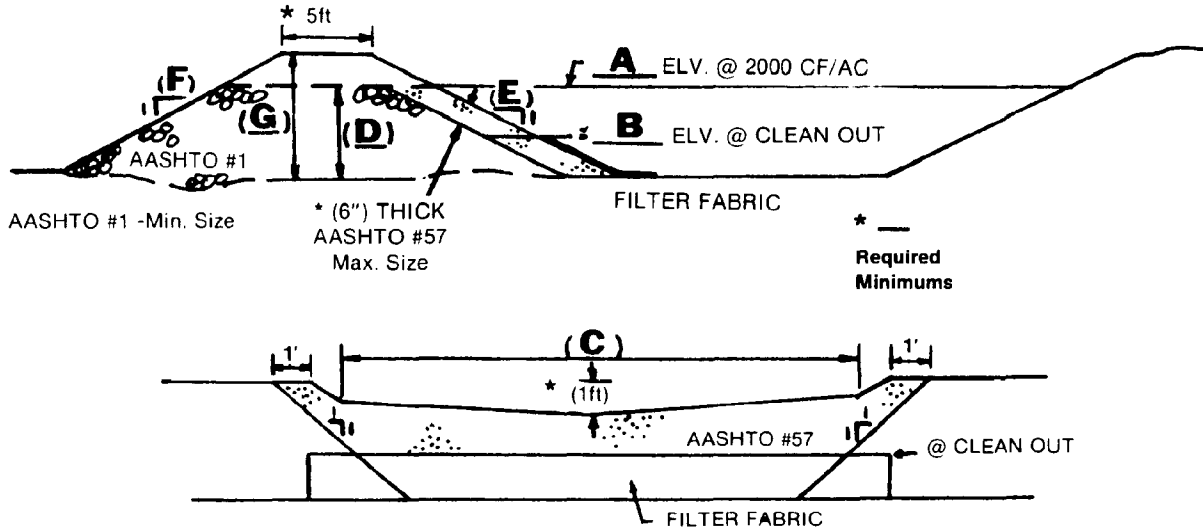
VII. EROSION CONTROL PLAN - DRAWING

A plan drawing illustrating your erosion control plan is required. A blank plan has been included to assist you in this effort. A sample plan using this sheet has been included in appendix C. If a blueprint plan is available for your lot use it to develop your plan of inlieu of the attached blank plan.

APPENDIX A

EMBANKMENT SEDIMENT TRAP

PROJECT NAME: _____
 LOCATION: _____
 PREPARED BY: _____ DATE: _____ SHEET # OF _____
 CHECKED BY: _____ DATE: _____



TRAP NO. : _____ NOTE: Show all details and construction dimensions on plan drawings.

DRAINAGE AREA : _____ ACRES (5 ac. max.)
 REQ'D. CAPACITY : _____ CUBIC FEET (2000 cf x # ac.)
 AVERAGE WIDTH : _____ FEET
 AVERAGE LENGTH : _____ FEET (10 ft. min.)
 LENGTH TO WIDTH : _____ RATIO (2:1 min.)
 AVERAGE DEPTH : _____ FEET (2 ft. min. ave. depth req'd.)

ACTUAL CAPACITY A: _____ CUBIC FEET (cap. at point A)
 CLEAN OUT ELEV. B: _____ FEET (700 cf x # ac.)
 SPILLWAY WIDTH C: _____ FEET (2 x # ac.)
 SPILLWAY HEIGHT D: _____ FEET (4 feet max.)
 INSIDE SPILLWAY SIDE SLOPES vert = 1 : Hor. = E: _____ (1:2 min)
 OUTSIDE SPILLWAY SIDE SLOPES vert = 1 : Hor. = E: _____ (1:2 min)
 EMBANK. HEIGHT G: _____ (5 feet max)

ELEV.	AVE. AREA	VOLUME	CUMULATIVE VOLUME
0			
1			
2			
3			
4			

EROSION AND SEDIMENTATION CONTROL PLAN

STANDARD WORKSHEET #8

TEMPORARY AND PERMANENT SEEDING SPECIFICATIONS

PROJECT NAME: _____

LOCATION: _____

PREPARED BY: _____

DATE: _____

SHEET # OF _____

CHECKED BY: _____

DATE: _____

SPECIFICATIONS: The Department recommends the use of the Penn State Agronomy Guide as the standard to use for the selection of species, seed specifications, mixtures, liming and fertilizing, time of seeding and seeding methods. Specification for these items may also be obtained from PennDOT's publication #408, Section 800 or by contacting the applicable county conservation district. Upon selection of a reference, or by individual development by the plan preparer, the following Specification will exist for this project:

SOURCE OF SPECIFICATIONS: _____

(TEMPORARY) SPECIES*: _____

% PURE LIVE SEED: _____ %

APPLICATION RATE: _____ **LBS./ACRE**

FERTILIZER TYPE: _____ **(X-X-X)**

FERTILIZER APPL. RATE: _____ **LBS./ACRE**

LIMING RATE: _____ **LBS./ACRE**

FINAL DATE FOR SEEDING: _____

(PERMANENT) SPECIES*: _____

% PURE LIVE SEED: _____ %

APPLICATION RATE: _____ **LBS./ACRE**

FERTILIZER TYPE: _____ **(X-X-X)**

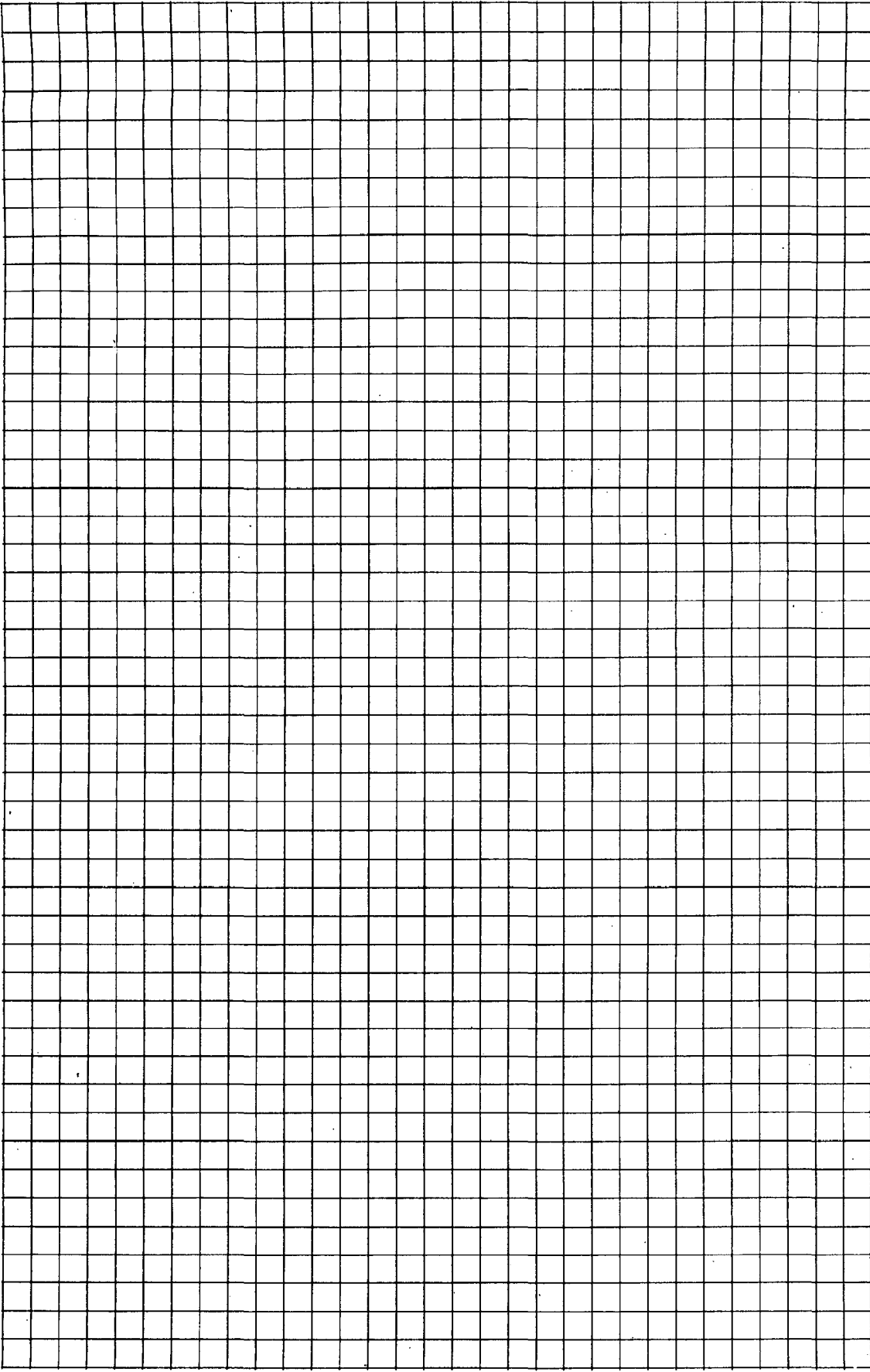
FERTILIZER APPL. RATE: _____ **LBS./ACRE**

LIMING RATE: _____ **LBS./ACRE**

FINAL DATE FOR SEEDING: _____

* If more than one species is used, indicate application rate for each species.

Erosion & Sediment Control Plan



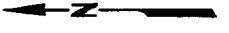
LEGEND AND SYMBOLS:

Landscape Features

- Live Stream
- Swale or Waterway
- Slope or Grade
- Project Boundary
- Earthmoving area

Conservation

- Diversion Ditch
- Sediment Trap
- Riprap or Rocklined
- Energy Dissipater
- STRAW BALE BARRIER
- FABRIC FENCE



PROJECT: _____

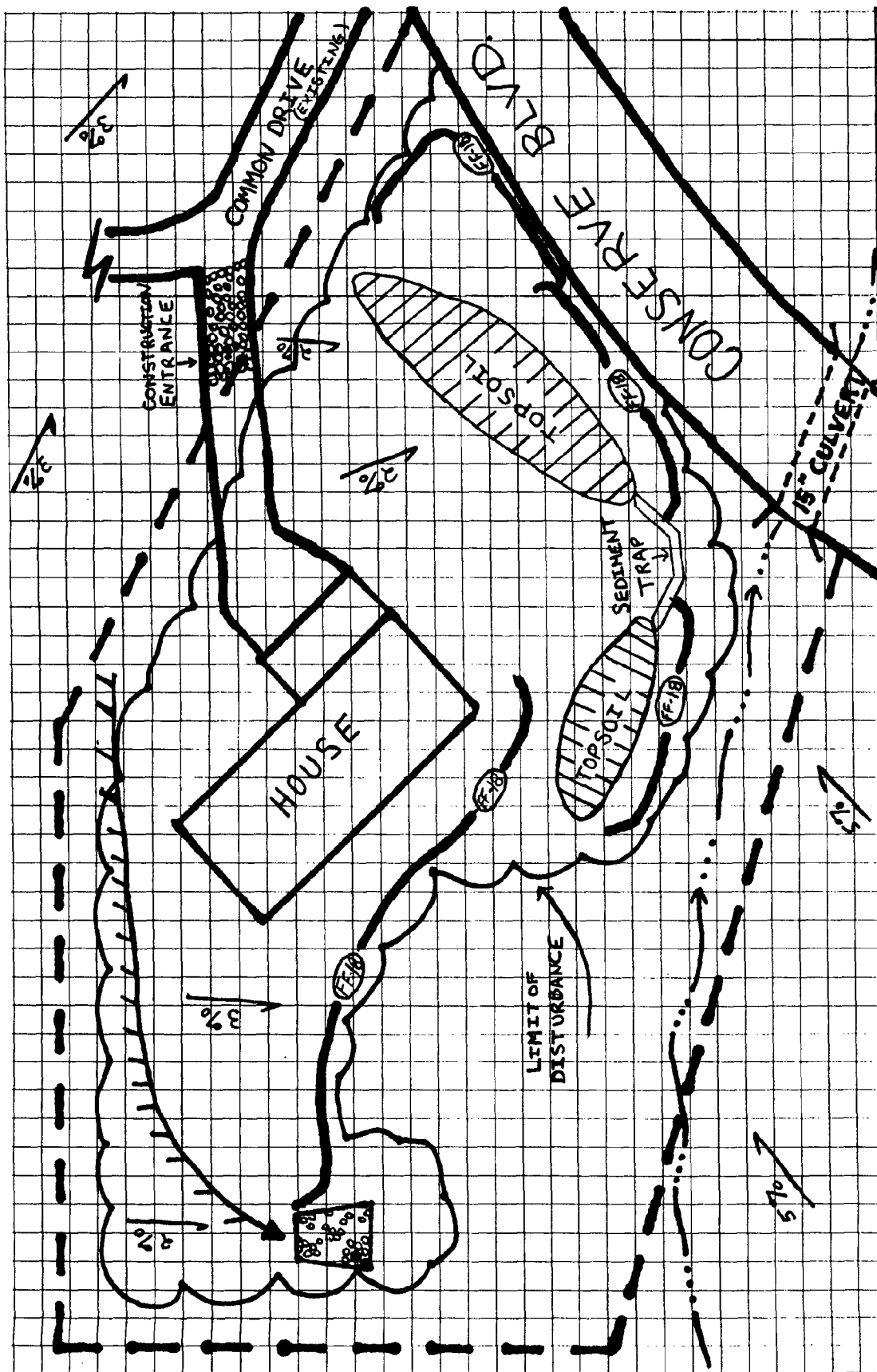
DEVELOPED BY: _____

DATE: _____

APPROX. SCALE: 1" = _____

APPENDIX C

Erosion & Sediment Control Plan



LEGEND AND SYMBOLS:

Landscape Features	Conservation
Live Stream	Conservation
Swale or Waterway	Diversion Ditch
Slope or Grade	Sediment Trap
Project Boundary	Riprap or Rocklined
Earthmoving area	Energy Dissipater
	STRAW BALE BARRIER
	FABRIC FENCE

PROJECT: Single Family Home
 DEVELOPED BY: John Builder
 DATE: 7/20/92 APPROX. SCALE: 1" = 20'

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