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Single Family Residential Erosion/Sediment Control Standards Booklet

Stop Work Order (SWO) fee increased to $750 on 7.1.17

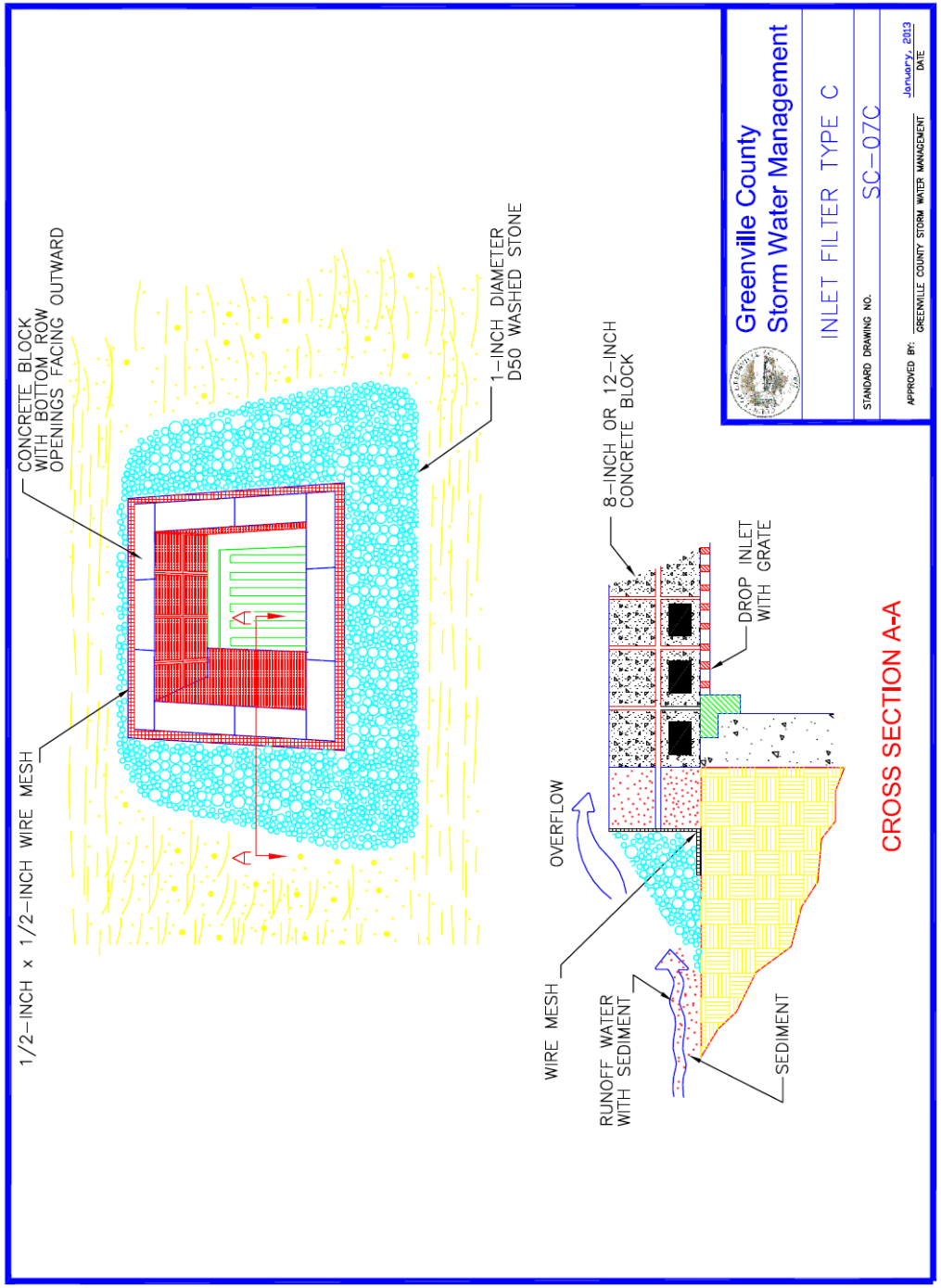
Revised: May 2013

SINGLE FAMILY RESIDENTIAL DRAINAGE REQUIREMENTS

On undeveloped land, most rainwater soaks into the ground and flows slowly to nearby lakes and streams. When land is cleared or covered with impervious surface, the rainwater flows quickly across the site and can result in flooding and erosion. Although single family homes are typically smalls sites, the cumulative effect of uncontrolled rainwater from these sites can be significant to downstream property and water bodies.

Residential sites which generate an increase in surface runoff of greater than 1 cubic foot/second (CFS) due to change in land cover and/or topography must incorporate low impact development (LID) methods and BMP's to reduce affects to downstream water quality and quantity. LID encourage infiltration and disbursement of concentrated flow. LID includes dislocating roof drains from the storm drain system or road way, and directing them to rain gardens, cisterns/rain barrels, bio-retention swales or natural tree buffers. Other methods include level spreaders and/or the installation of pervious pavement for driveways, patios and walkways. See Greenville County's Design Manual for LID methods to control flow from single family lots.

Each method has associated restrictions that may make it inappropriate for certain sites. The applicant is advised to read each method carefully to determine which is most suitable for the site. A combination of methods may be used. If the site cannot accommodate the methods shown, has severe site constraints, or could aggravate downstream flooding problems, the county may require that a licensed design professional provide a design plan.



*For larger image please refer to Detail SC-07C at www.greenvillecounty.org/land_development/dm_appendixf.asp

SINGLE FAMILY RESIDENTIAL

EROSION AND SEDIMENT CONTROL STANDARDS

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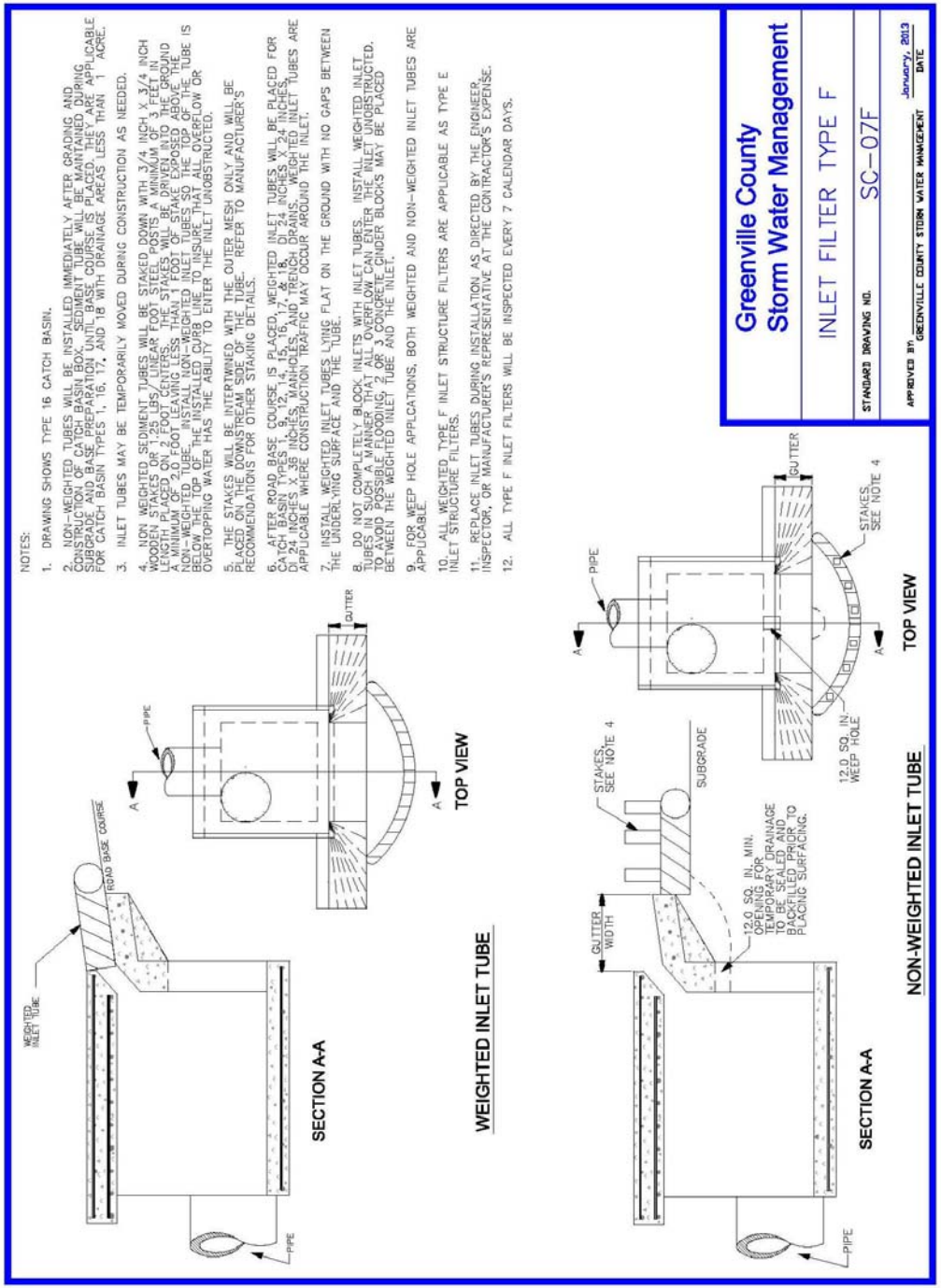
Introduction

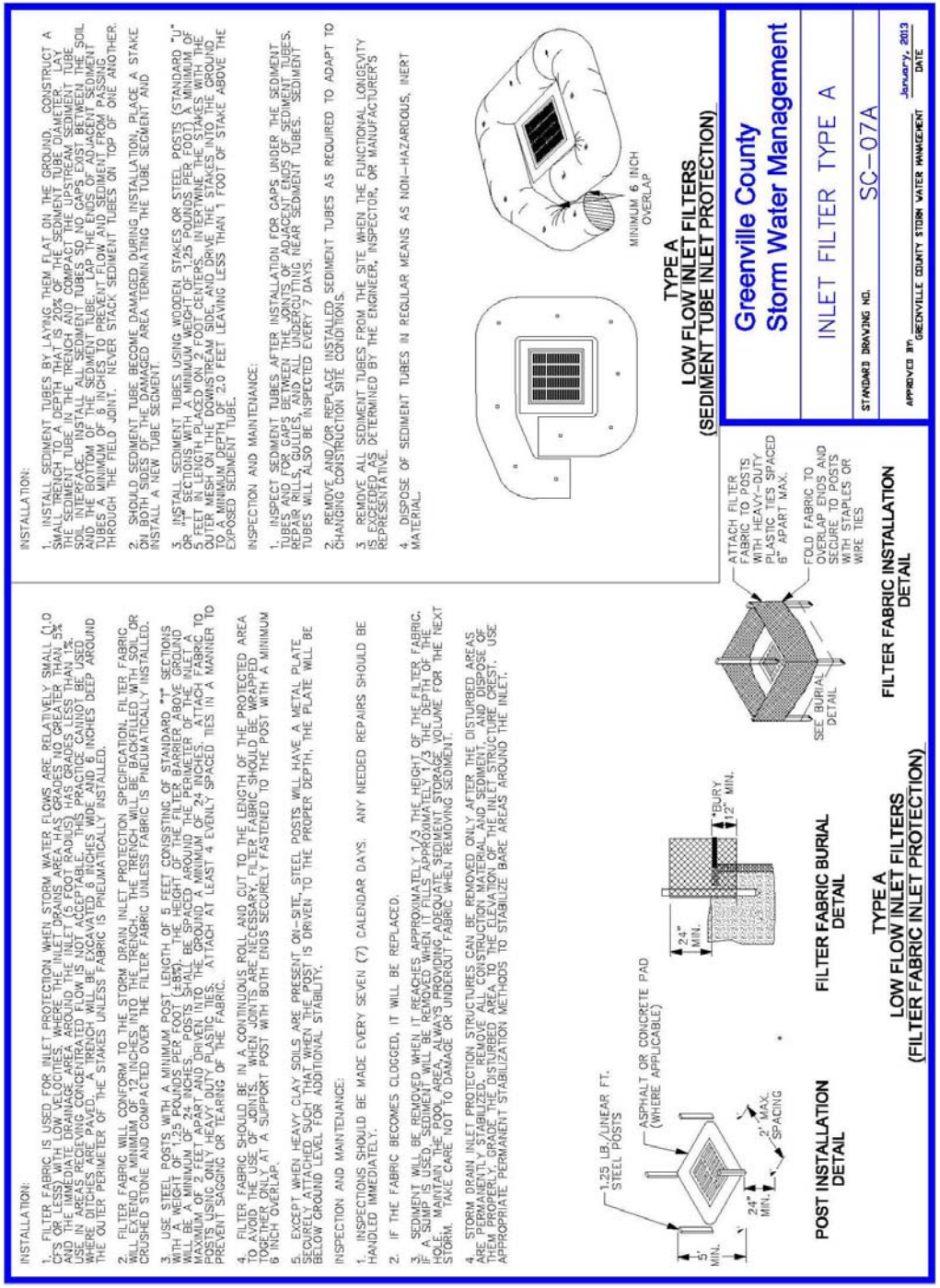
This booklet contains standard plans and procedures sufficient for typical residential land disturbing activities, though it is not intended to address all cir-cumstances. All projects that will involve land disturbing activities (e.g. clearing, grading or grub-bing) must provide erosion and sediment control measures to prevent the concentration of stormwater runoff and the transport of sediment from the site to storm drains, surface waters, wetlands, adjacent properties, and roadways. Roadways are conduits for stormwater and it is important to keep them sediment and debris free. The primary goal is pe-rimeter control with best management practices (BMP's) being utilized to prevent erosion and minimize off-site sediment impact. The Permit Holder is responsible for ensuring that adequate BMP's are in place and functioning as designed until the site is stabilized.

When making the determination if lot-to-lot protection is necessary al-ways keep in mind the intent of the standard; and that is **"to prevent ero-sion and minimize sediment from leaving the site"**. Failure to do so may result in damage to adjacent property and/or to the storm drain system, and possibly contribute to sediment and pollutants entering surface waters. If any ques-tions or concerns arise, please contact Greenville County's Land Development Division (LDD) at 864.467.4610.

NOTE: IF THIS PARCEL CONTAINS A FRESHWATER WETLAND OR A CREEK THIS HANDBOOK IS NOT ACCEPTABLE FOR LAND DISTURBANCE PERMITTING. PLEASE VISIT THE LDD OFFICE IN SUITE 3900 TO OBTAIN A PERMIT FOR THIS SITE. IF WETLANDS ARE FOUND ON THIS SITE DURING OUR INSPECTIONS, AND THE APPROPRIATE PERMITS HAVE NOT BEEN OBTAINED, VIOLATIONS AND FINES WILL APPLY.



*For larger image please refer to Detail SC-07F at www.greenvillecounty.org/land_development/dm_appendixf.asp



*For larger image please refer to Detail SC-07A at www.greenvillecounty.org/land_development/dm_appendixf.asp

RESIDENTIAL EROSION AND SEDIMENT CONTROL REQUIREMENTS

In order to comply with the requirements imposed by the National Pollutant Discharge Elimination System (NPDES) Permit issued to Greenville County by the South Carolina Department of Health and Environmental Control (SCDHEC) and the Environmental Protection Agency (EPA), Greenville County has adopted a comprehensive Stormwater Ordinance to manage certain pollutants generated from construction sites. LDD is responsible for the coordination and oversight of all stormwater related activities as outlined in the Stormwater Ordinance by the issuance of Land Disturbance (Grading) Permits. All land disturbing activities that result in a change in the natural cover or topography must utilize BMP's to prevent violations of the Federal Clean Water Act. All land disturbing activities are subject to permitting requirements.

Residential permitting will fall into one of the categories below:

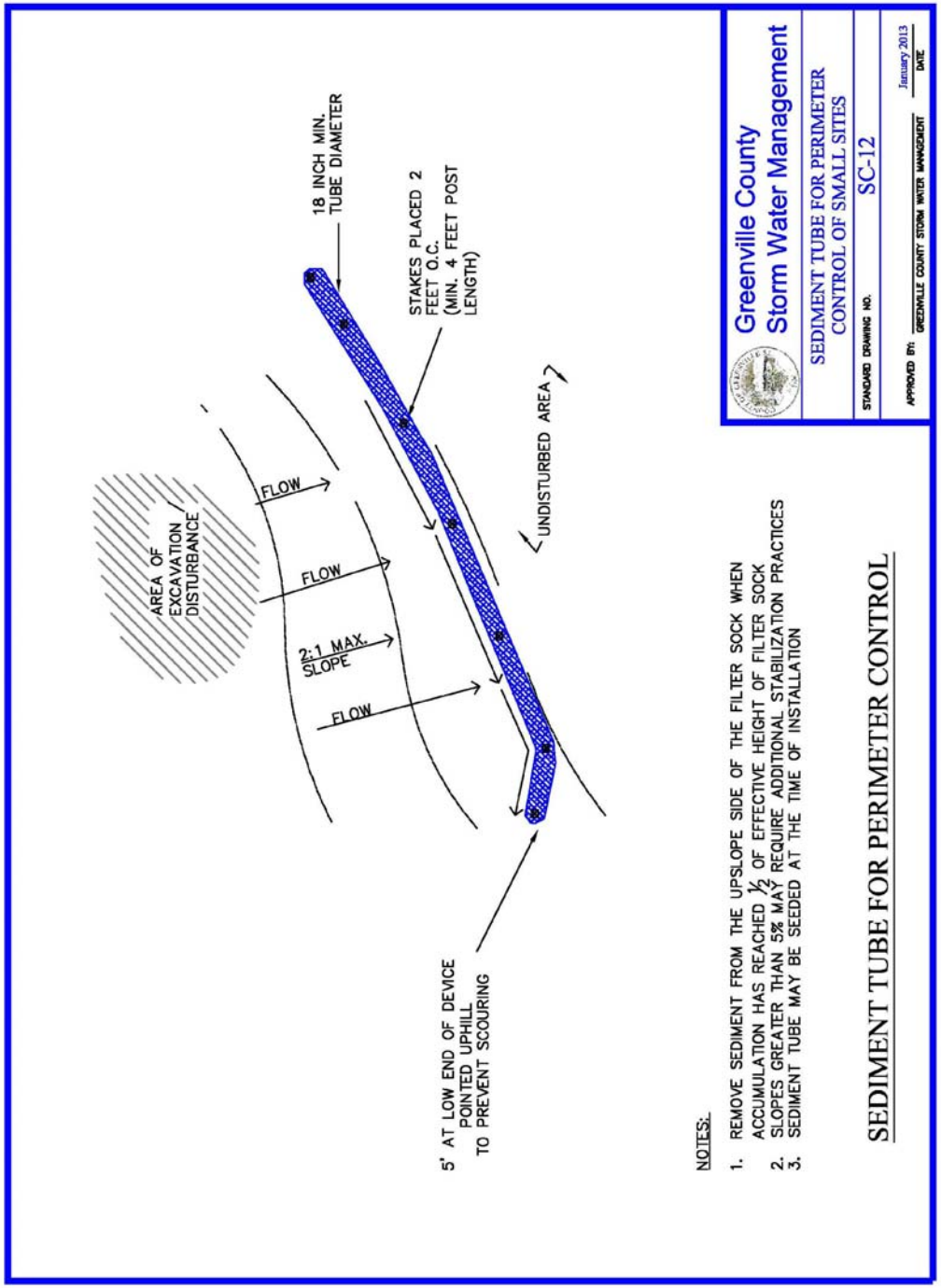
- If the lot is part of a subdivision platted after 2003, land disturbing activity may be covered under an active permit for that subdivision. All construction activity must comply with erosion control plans for individual lots as shown on the subdivision's storm water management and sediment control plan. BMP's must be installed and maintained as outlined in this booklet. Failure to install or maintain such measures will result in a Stop Work Order and Notice of Violation. If the site continues to produce off-site impacts a Land Disturbance (Grading) permit may be required. LDD reserves the right to require a licensed design professional to oversee the project. Fines of up to $7,500.00/violation/day may be imposed if the site becomes a habitual offender.

- For individual lots not located within a permitted subdivision and **disturbing more than 5,000 ft but less than 1 acre** the LDD will allow the building permit to act in the place of a separate Land Disturbance (Grading) Permit; therefore, a separate Land Disturbance (Grading) Permit **is not required**. However, BMP's must be installed and maintained as outlined in this booklet. Failure to install or maintain such measures will result in a Stop Work Order and Notice of Violation. If the site continues to produce off-site impacts a Land Disturbance (Grading) permit may be required. LDD reserves the right to require a licensed design professional to oversee the project. Fines of up to $7.500.00/violation/day may be imposed if the site becomes a habitual offender.

Residential lots **disturbing 1 acre of land or more and not part of a larger common plan of development** will be required to obtain a Land Disturbance (Grading) Permit, as well as submit a Notice of Intent (NOI) and any applicable fees to South Carolina Department of Health and Environmental Control (SCDHEC) for coverage under the Construction General Permit. LDD reserves the right to require a licensed design professional to oversee the project.

PERMIT HOLDER/CONRACTOR(S) RESPONSIBILITIES

1. The Permit Holder is responsible for the correct installation and on-going maintenance of all lot specific erosion and sediment control devices.
2. Periodic inspections of the site shall be conducted as necessary to ensure that erosion and sediment control measures are functioning as designed. In addition to periodic inspections, state law and the Greenville County Stormwater Ordinance requires that a inspection be conducted within 24 hours after the end of a rain event greater than or equal to ½" . Any problems noted during these inspections shall be corrected immediately.
3. Once construction has commenced, the Permit Holder is responsible for inlet protection on their lots, as well as curb inlets along the street. It is critical that sediment not be allowed to invade the stormwater system.
4. The Permit Holder is responsible for the installation, maintenance, and upkeep of stabilized construction entrance. A stabilized construction entrance is an area of aggregate underlain with geo-textile material located at any point where traffic will be entering/ exiting the construction site. The purpose of the stabilized construction entrance is to reduce or eliminate sediment and/or debris being tracked onto roadways. If sediment and/or debris migrates into the roadway the contractor shall take immediate steps to have it removed. Instruction and illustration details on stabilized construction entrances can be found on pages 10 and 11 of this booklet.
5. The Permit Holder is responsible for the actions of all sub-contractors and delivery personnel at the worksite as they relate to stormwater and erosion control. Establishing appropriate places for staging and the storage of building materials and paint is required. A wash out area is needed for "wet" construction materials (e.g. paint and concrete).
6. The Permit Holder is responsible for all off-site impacts. These impacts include, but are not limited to mud, dirt, debris, and trash leaving the site by means of wind, water, humans, or machinery. Should any off-site impacts occur, the Permit Holder is responsible for mitigating the situation immediately.
7. Erosion and sediment control measures must remain in place and properly maintained throughout the construction period. The site must be vegetated or otherwise stabilized before the measures can be removed.



*For larger image please refer to Detail SC-12 at www.greenvillecounty.org/land_development/dm_appendixf.asp

PERIMETER CONTROL FOR SMALL SITES

Sediment tubes – Sediment tubes can be used in place of a silt fence around the perimeter of relatively flat small sites (less than 1 disturbed acre) and individual single lots.

Overland slope length – The maximum length to the Perimeter Control is 100 ft.

Sediment Tube Material – Pre-installed tube diameter should be 18” to 24”. 30 lb’s/ft for 18” and 4 lb’s/ft for 24”. 10’ minimum in length. Materials must be certified 100% weed free. When curled excelsior wood fiber is used, 80% of the fiber materials are a minimum of four (4) inches in length. When washed shredded recycled rubber particles are used, a minimum of 98% of metal is removed. Materials are enclosed by a tubular, flexible outer netting treated with ultraviolet stabilizers.

***Do not use straw, curled excelsior wood, or natural coconut rolled erosion control products (RECPs) that are rolled up to create a sediment tube for ditch checks device. Do not use straw bales, natural pine needles, leaf mulch, and or grass clippings.

Table 1: Minimum Performance Requirements for Sediment Tubes

Property	Value
Pre-installed Tube Diameter	18.0-inch minimum 24.0-inch minimum
Mass per Unit Length	3.0 lbs/ft +/- 10% minimum for 18-in diameter, 4.0 lbs/ft +/- 10% minimum for 24-in diameter
Length per Tube	10-ft minimum^2

Height – Sediment tubes for Perimeter Control shall be 7” above the ground.

Trench – Dig a small U-shaped trench to a depth that is 20% of the permiter control diameter/height. Lay the Perimeter Control flat in the U-shaped trench and compact the upstreat Perimeter Control soil interface with soil.

Staking Post – Install Perimeter Control using 4’ wooden posts (3/4 inch x 3/4 inch) or steel posts (1.25 lbs/ linear foot).

Spacing – Space stakes on 6-foot centers and drive them into the ground to a depth of 2 feet.

Maintenance – Inspect Perimeter Control weekly and after each rainfall event that produces 1/2-inches or greater. Check and repair, when necessary, where runoff has eroded a channel beneath the Perimeter Control, or where the Perimeter Control has sagged, undercut, or collapsed by overtopping.

Remove – Remove Perimeter Control within 30 days after final stabilization is achieved. Gather and dispose Perimeter Control in trash. Backfill all trenches, depressions, or other ground disturbances caused by the removal of Permiter Control and then permanently stabilize disturbed areas.

INSPECTION

1. For permitted projects, LDD personnel will check erosion and sediment control measures with routine inspections within the subdivision. Inspections will ensure the proper placement and that the erosion and sediment control measures are functioning as intended.

2. The Building Codes Inspector will also review the site during the course of scheduled inspections. If BMP's are not maintained the inspector will report all violations to the LDD Inspection staff. The LDD Inspector may issue a Stop Work Order and a Notice of Violation.

3. Minor corrections to erosion and sediment control measures must be completed within 24 hours. If corrections are not completed within that time frame, a Stop Work Order will be posted and a Notice of Violation issued. A fee of $500 will be assessed to release the stop work order and fines not to exceed $7,500.00/ violation/day may be assessed if the site or the builder/ contractor becomes a habitual offender.

BEST MANAGEMENT PRACTICES

Inlet Protection - Ensure that the BMP's are in place and functioning for both area inlets and curb inlets along the street frontage.

Protection of Adjacent Lots- Install BMP's along the common lot line of adjacent undisturbed lots.

Temporary Construction Entrance - Prior to any delivery of material or construction of any kind, a stabilized construction entrance shall be installed.

Grading/Excavation - Install all BMP's prior to excavation, where practical.

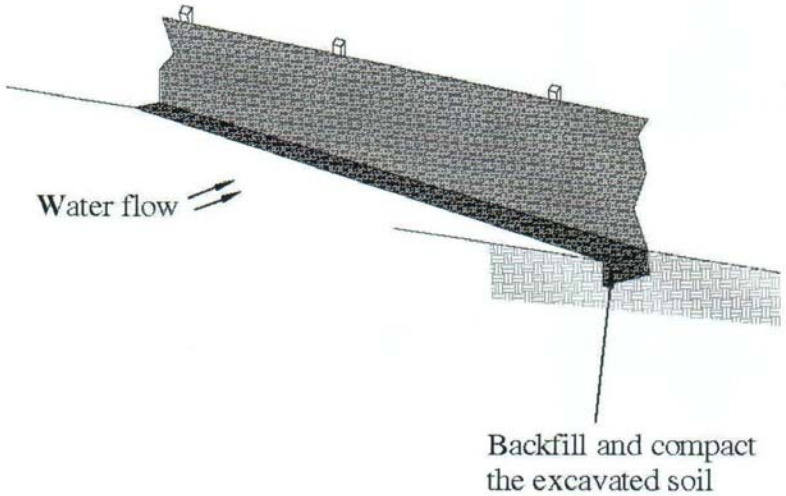
Stabilized Stockpiles - Install BMP's to stabilize stockpiles to prevent off-site impacts.

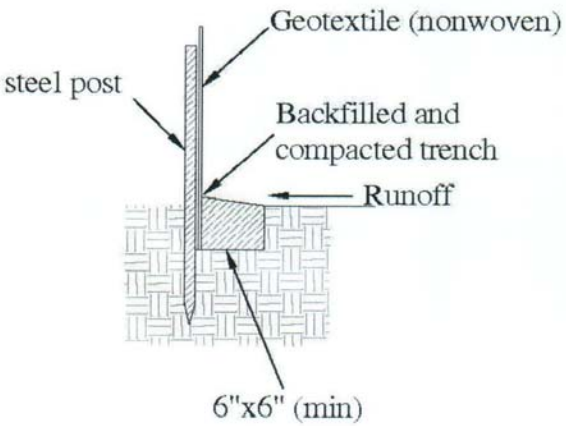
Backfill - Complete installations of all BMP's per the specified design.

Maintenance - The Permit Holder is responsible for maintaining and repairing all BMP's as necessary to ensure no off-site impacts occur.

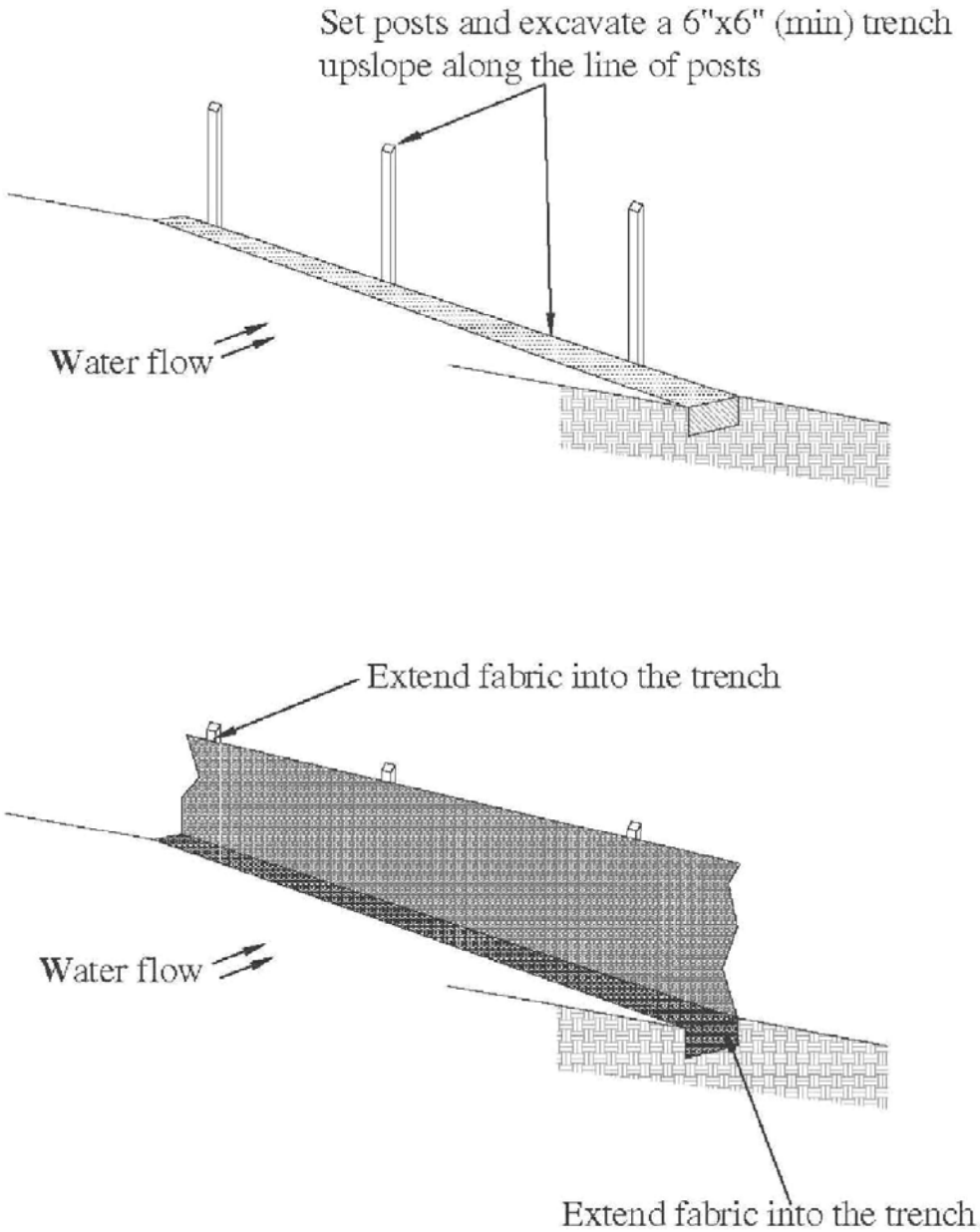
Final Grading - BMP's may be removed in order to complete final grading and stabilization. BMP's must be maintained until 70% of the disturbed area is stabilized.

Installation (continue)

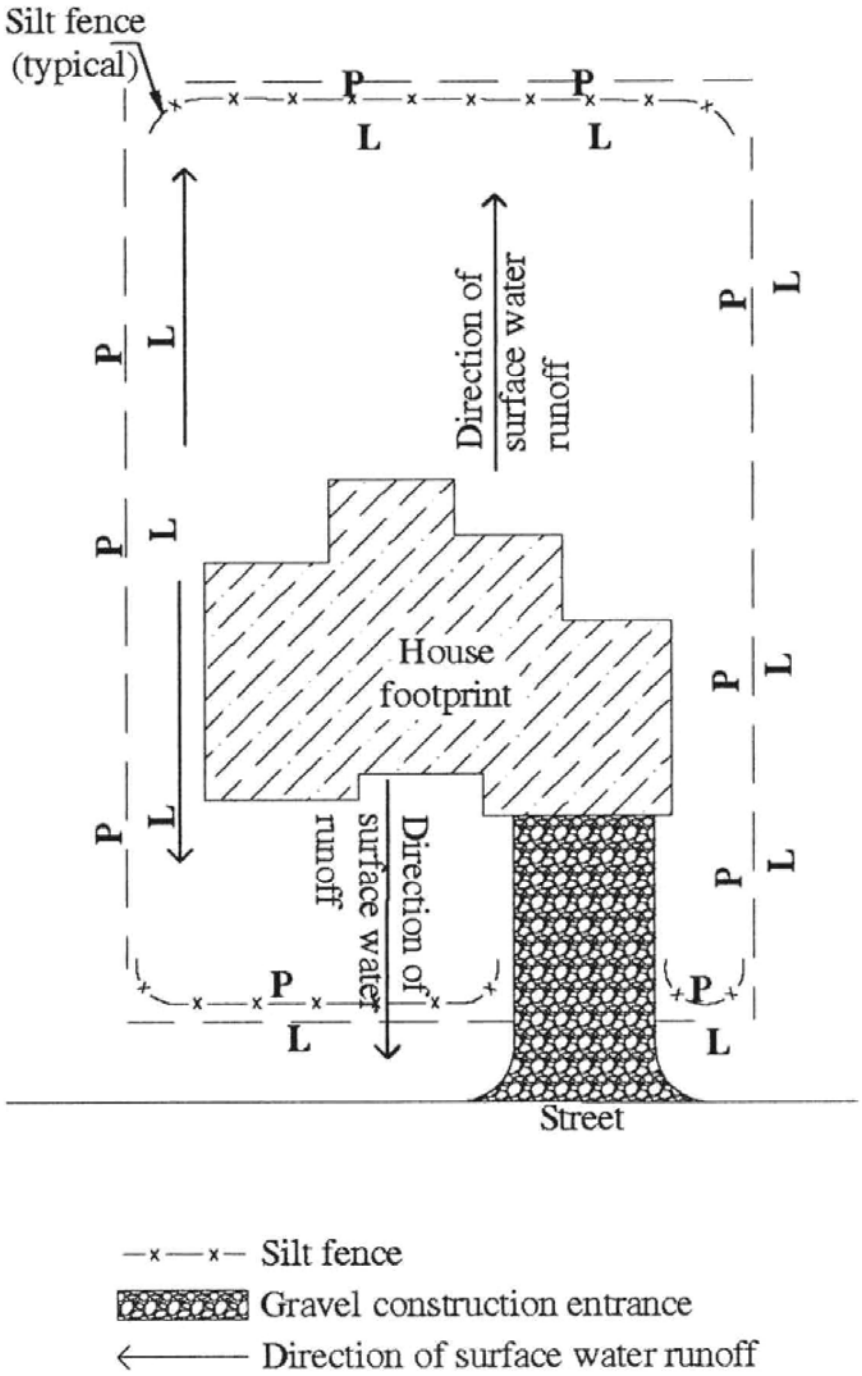




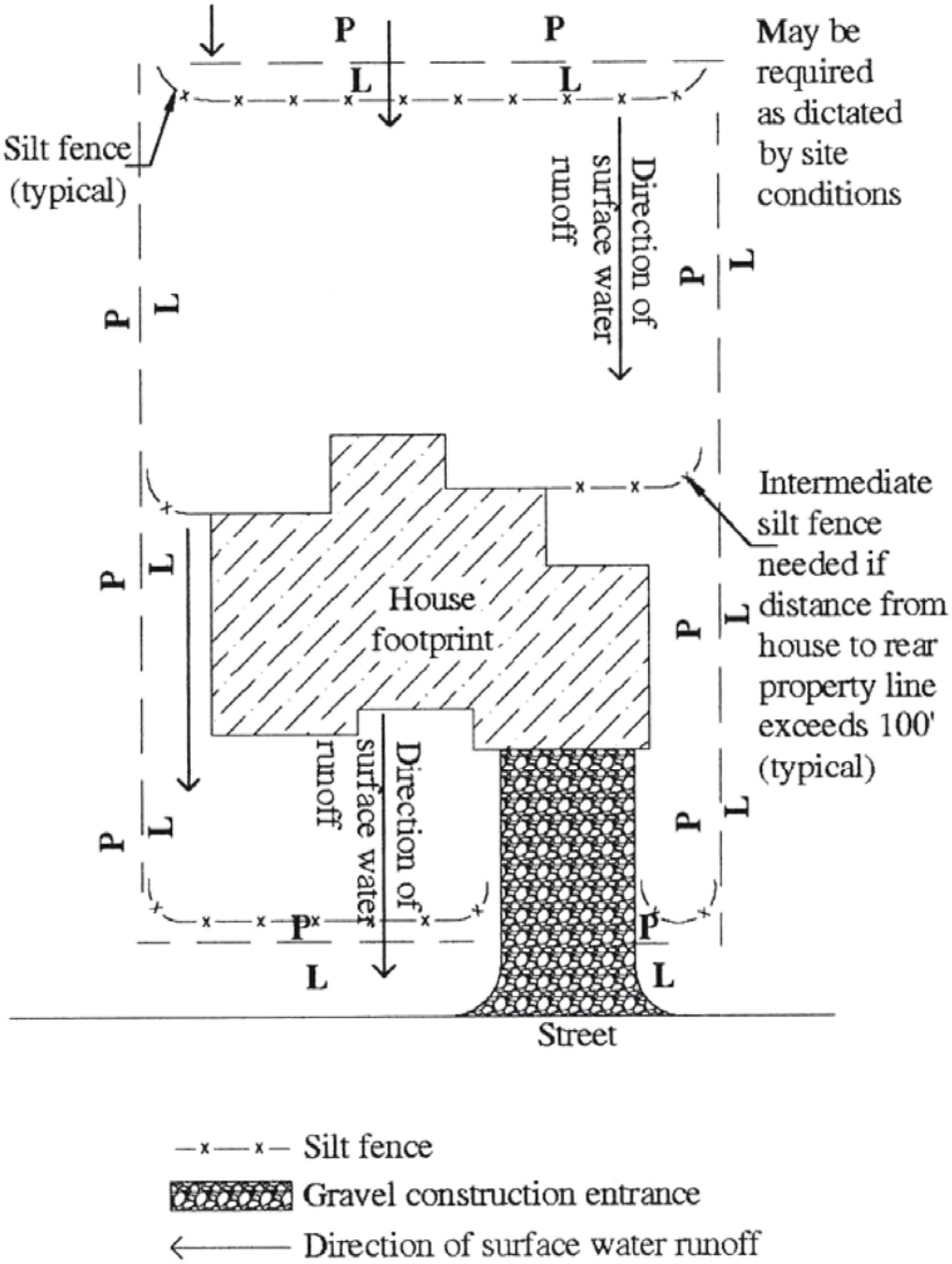
Installation

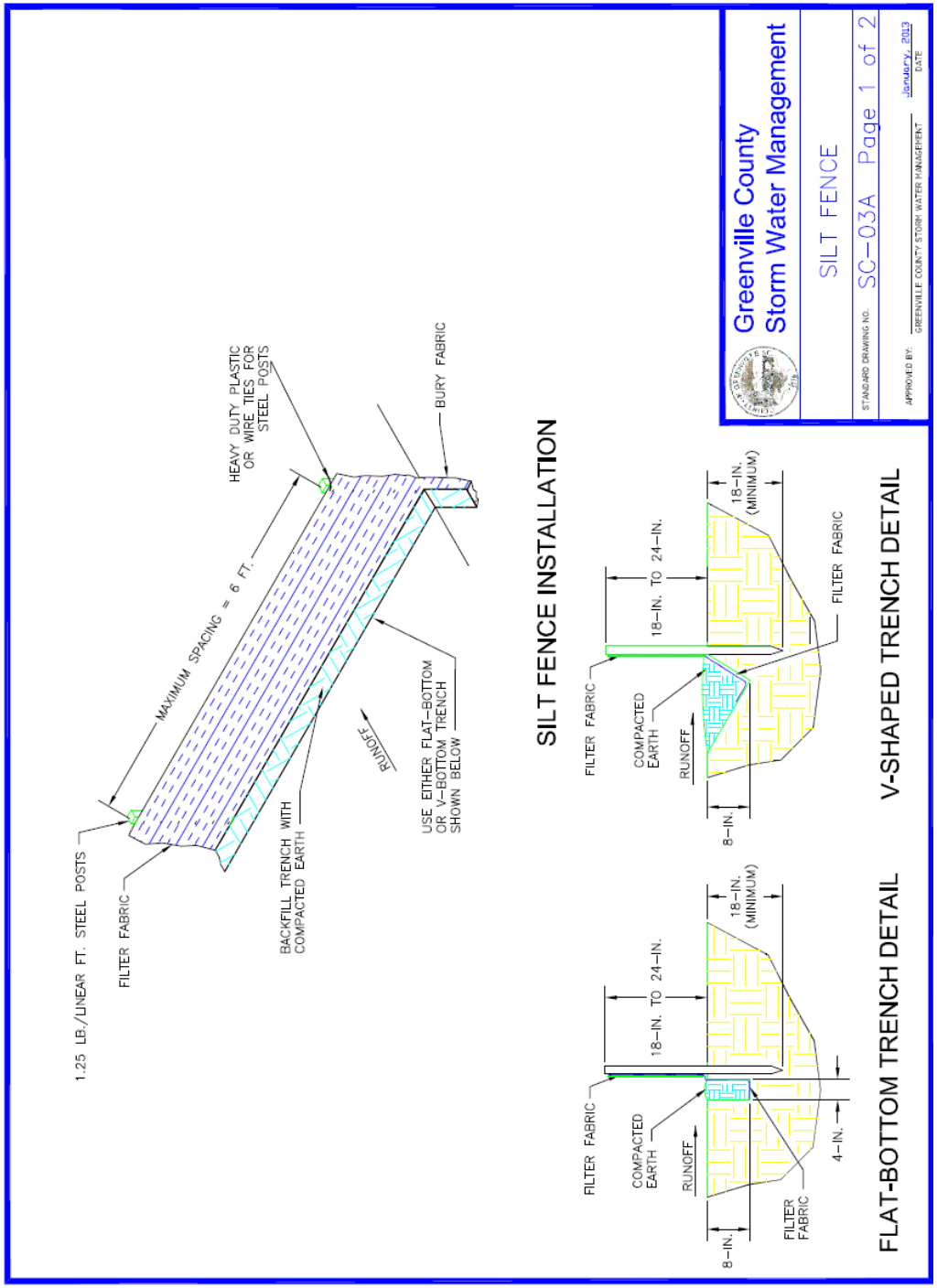


Single Family Lot Erosion Control Plan – Type A



Single Family Lot Erosion Control Plan – Type B





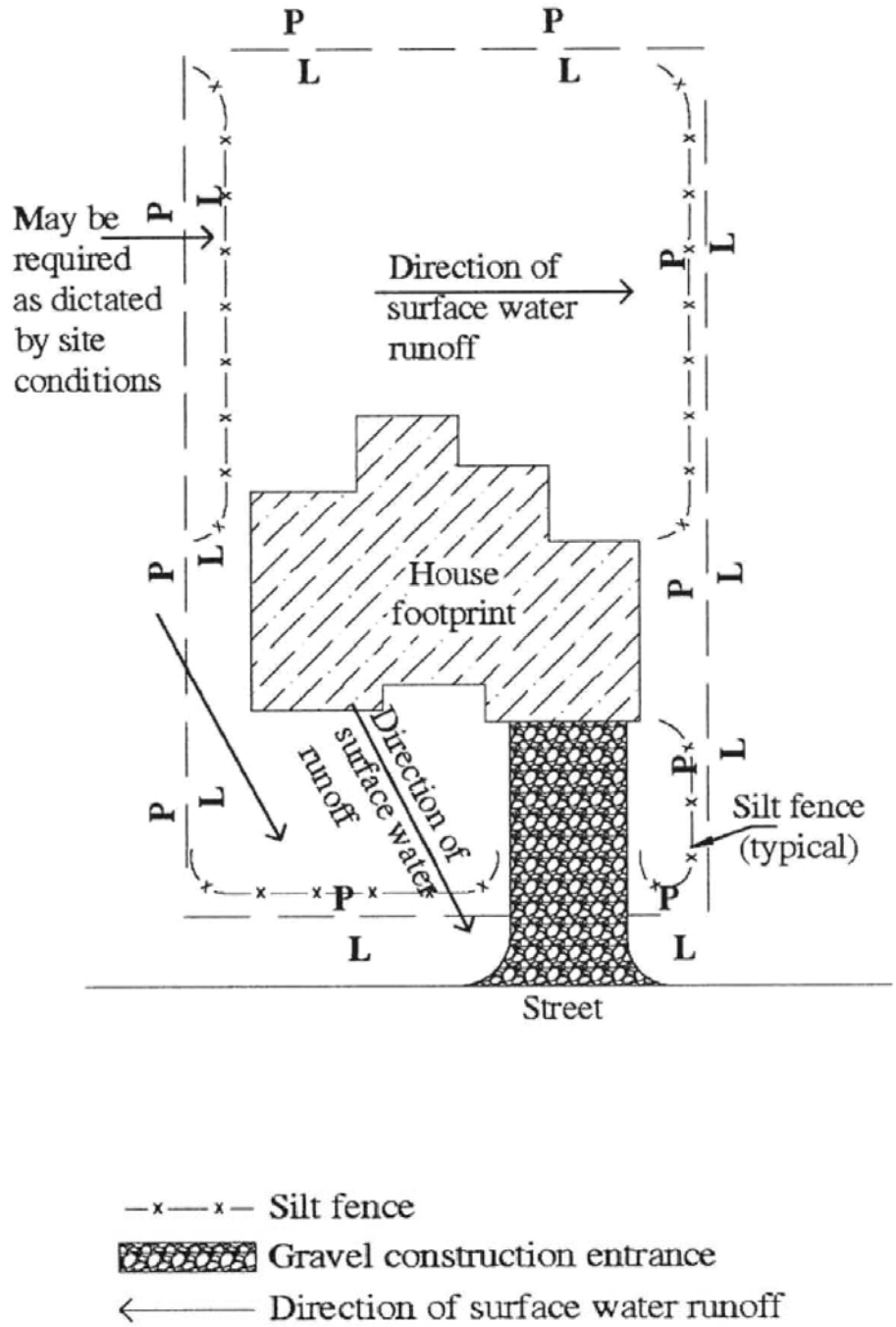
*For larger image please refer to Detail SC-03A at www.greenvillecounty.org/land_development/dm_appendixf.asp

Table 1

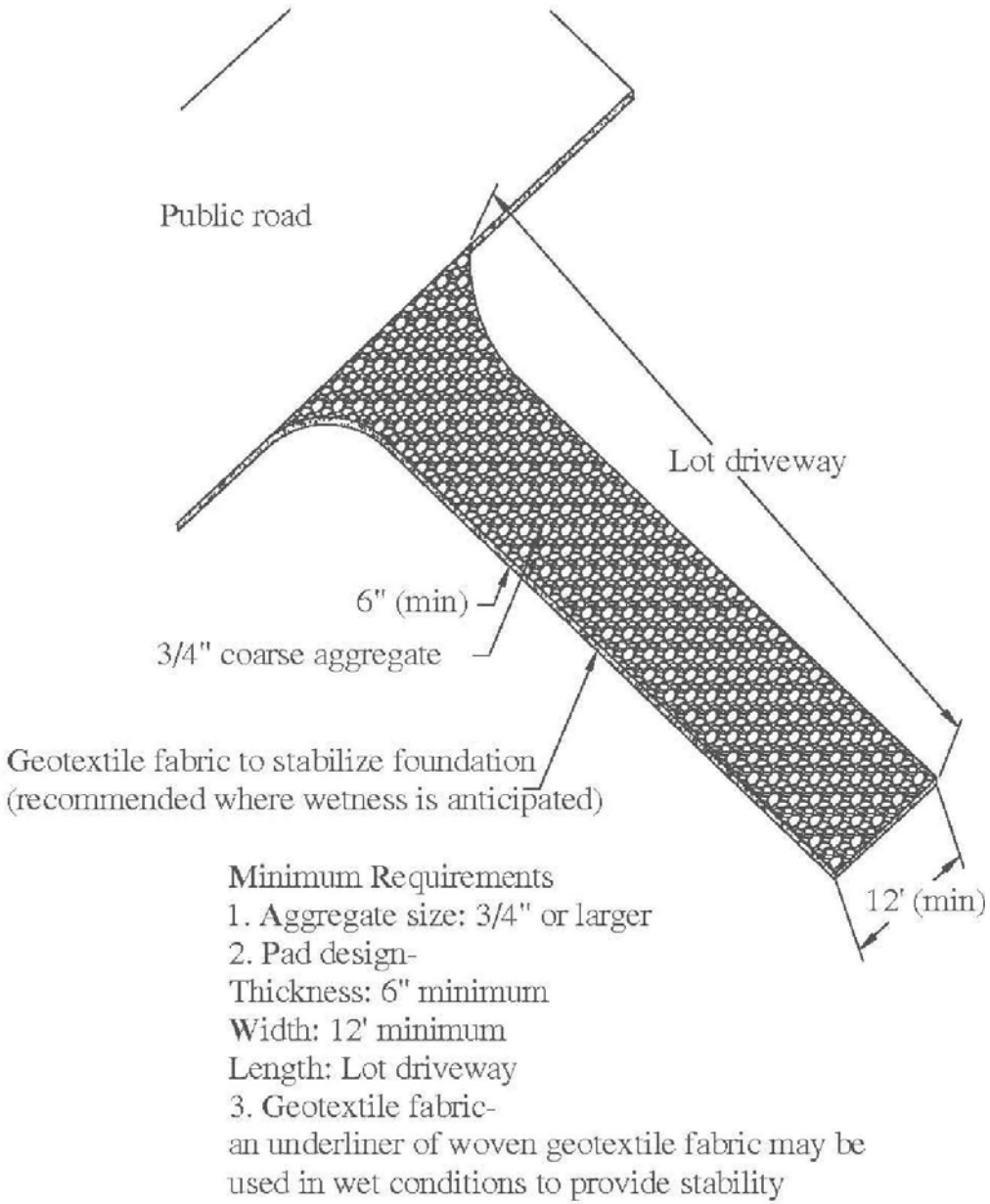
Specifications For Sediment Fence Fabric

Physical Property	Minimum Requirement
Filtering Efficiency	80%
Tensile Strength	90 Lb/linear inch
Ultraviolet Stability	70%

Single Family Lot Erosion Control Plan – Type C



Temporary Construction Entrance



RESIDENTIAL

SEDIMENT FENCE
Minimum Requirements and Installation

Overland Slope Length - Maximum of 100'. Flare ends of fence uphill to temporarily impound water.

Spacing of support posts - Drive posts at least 18" into the ground on the downslope side of the trench. Space posts a maximum of 6' on center. Attach a continuous length of fabric to upslope side of fence posts. Minimize the number of joints. Avoid joints at low points in the fence line. Overlap, do not abut, ends of fabric.

Trench - Dig trench at least 4" wide and 8" deep along the fence alignment. Bottom 1' of fence must be buried a minimum of 8" deep lapping 4" toward the upslope side and covered by compacted backfill.

Impounded water height - Depth of impounded water should not exceed 1.5' at any point along fence. Do not place silt fence in areas of concentrated flow.

Sediment depth – Sediment must be removed when it reaches approximately 1/3 height of the fence.

Support posts - 1.25 Lb/linear foot steel. Steel posts should have projections for fastening fabric.

Support wire – Support wire fence (14-gauge with 6" mesh) is necessary if contributing slope is greater than 3%. Fasten support wire fence to upslope side of posts, extending 6" into trench.

Synthetic geotextile fabric - Conforming to specifications in Table 1 and containing ultraviolet light inhibitors and stabilizers. Maximum design life of 6 months. Attach fabric to steel posts using heavy-duty plastic or wire ties that are evenly spaced. Affix ties no less than 4 places spaced a maximum of 6" apart.

Maintenance - Inspect silt fence weekly and after each rainfall event of 1/2" or greater. Make necessary repairs immediately. Should the fabric of the silt fence collapse, tear, decompose or become ineffective, replace promptly.

Removal – Silt fence should be removed within 30 days after final stabilization is achieved. Disturbed areas resulting from fence removal should be permanently stabilized.

NOTE: IF BMP'S ARE DAMAGED WHEN THE UTILITIES ARE INSTALLED THE PERMIT HOLDER IS RESPONSIBLE FOR SEDIMENT AND EROSION CONTROL AS WELL AS THE REPAIR OR RE-INSTALLATION OF THE DAMAGED BMP'S.

ALWAYS INSTALL SILT FENCE PER MANUFACTURES INSTRUCTIONS