

GENERAL NOTES:

- I. Soil
- A. Soil preparation and revegetation shall consist of seeding fescue between March 1 and June 1 at a rate of 30 pounds per acre. See Appendix A of the Model Sediment and Erosion Control Regulations for Urban Development.
- B. Owner, Developer assumes full responsibility as to performance of grading operation and assurance that all properties and county roads will be adequately protected.
- C. If Siltation Control Devices are destroyed by heavy rains, vandalism, etc., they are to be replaced immediately by Contractor.
- D. Proposed phasing of development (rough dates) including:
-a) Clearing (estimated duration of exposed areas).
 -b) Grading and construction (installation of temporary sediment control, storm drainage, paving)
 -c) Final Grading and Landscaping (vegetative cover)
- E. Where natural vegetation is removed during grading, vegetation shall be re-established in such a density as to prevent erosion. Permanent type grasses shall be established as soon as possible or during the next seeding period after grading has been completed.
- F. When grading operations are completed or suspended for more than 30 days permanent grass must be established at sufficient density to provide erosion control on the site. Between permanent grass seeding periods, temporary cover shall be provided according to the Designated Officials recommendation. All finished grades (areas not to be disturbed by future improvements) in excess of 20% slopes (5:1) shall be mulched and tacked at the rate of 100 pounds per 1,000 square feet when seeded.
- G. All lots shall be seeded and mulched before an occupancy permit shall be issued except that a temporary occupancy permit may be issued by the Building Department in cases of undue hardship because of unfavorable ground conditions.
- H. Any wells and/or springs which may exist on this property should be located and treated in a manner acceptable to the local governing authority.
- I. All existing trash, debris and broken concrete pieces on site must be removed and disposed of off site, and outside of the City of Wildwood.
- J. Debris and foundation material from any existing on-site building or structure which is scheduled to be razed for this development must be disposed of off site and outside of the City of O'Fallon, Missouri.
- K. Soft soils in the bottom and banks of existing or former pond sites or tributaries should be removed, spread out and permitted to dry sufficiently to be used as fill. None of this material should be placed in proposed public right-of-way locations or on any storm sewer location.

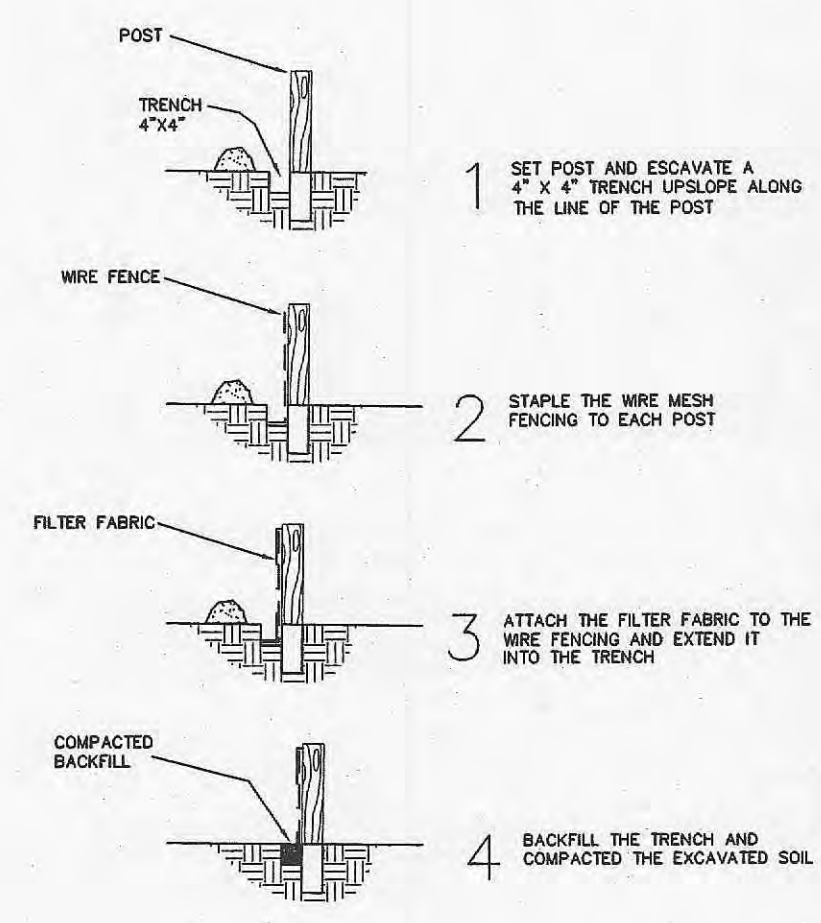
- II. Bid Yardage:
- A. The total yardage for this project is based on a 15% shrinkage factor.
- B. This shrinkage factor is subject to change, due to soil conditions, (types and moisture content) weather conditions, and the percent compaction actually achieved. As a result, adjustments in final grades may be required.
- C. The earth quantities were obtained from the existing topography using aerial photogrammetric procedures, with contours at two foot intervals, with a tolerance of plus or minus one foot or 1/2 contour interval.
- D. The computed bid yardage is to finished grade and does not include subgrade removal.
- E. This site is calculated to be a balanced on site grading, without having to haul in or haul out any materials. But due to the above conditions, some sites may not balance exactly. It is the contractor's responsibility to notify the engineer if it expects to have a shortage or surplus of material.

- III Siltation Control
- A. Siltation control shall consist of temporary berms and swales to divert storm water runoff to a natural discharge point. (See grading plan for locations.) At which point there shall be a double row of straw bales with four feet of separation between rows. The straw bales shall be placed with a one foot separation between bales and straw bales shall be staggered. In areas where a berm and swale are not feasible, a single row of straw bales shall be placed end to end to protect adjacent property and right-of-ways (This shall be the responsibility of the grading contractor or developer if so agreed).
- B. Upon completion of storm sewers, straw bales shall be placed on all sides of appropriate structures to keep silt out of storm sewer (This shall be the responsibility of the sewer contractor or the developer if so agreed) All straw bales shall be securely anchored and properly maintained until all disturbed areas are paved or vegetation is established. A synthetic filter barrier may be used in place of straw bales.
- C. Temporary siltation control measures shall be maintained until vegetative cover is established at a sufficient density to provide erosion control on the site.

SYNTHETIC FILTER BARRIER
SILTATION CONTROL

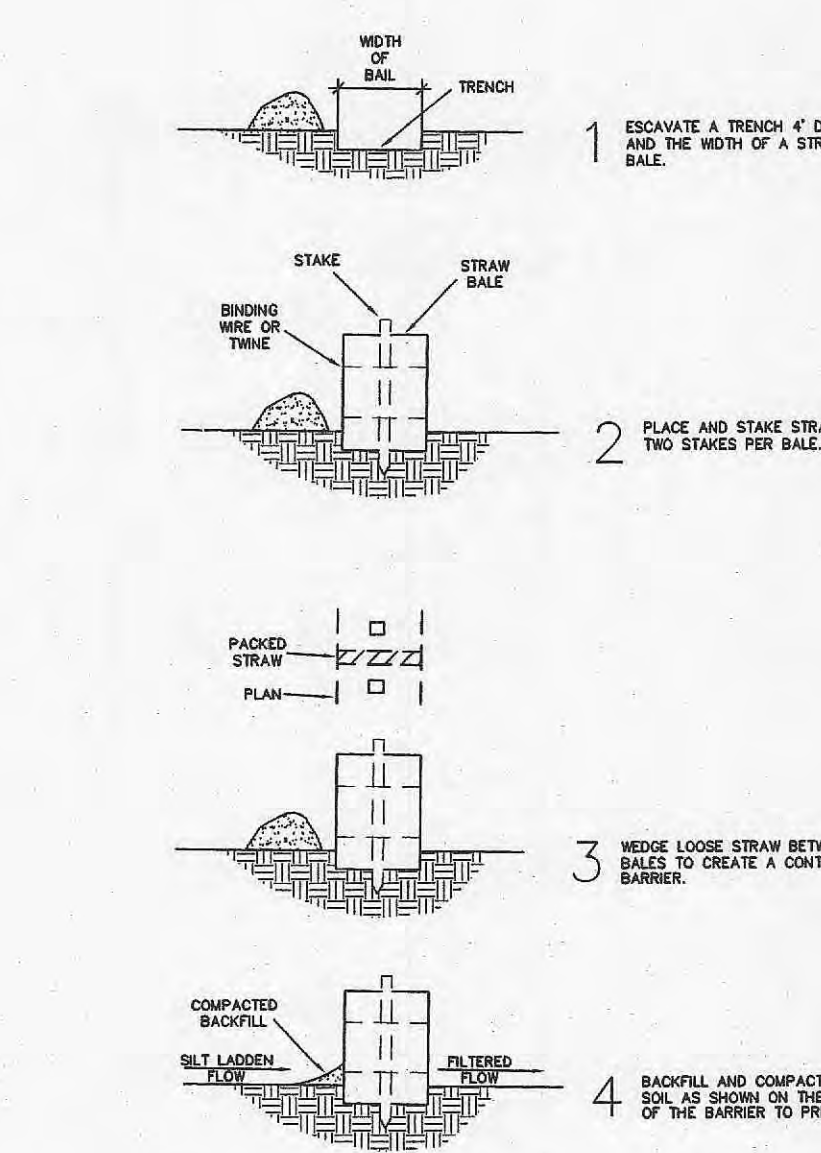
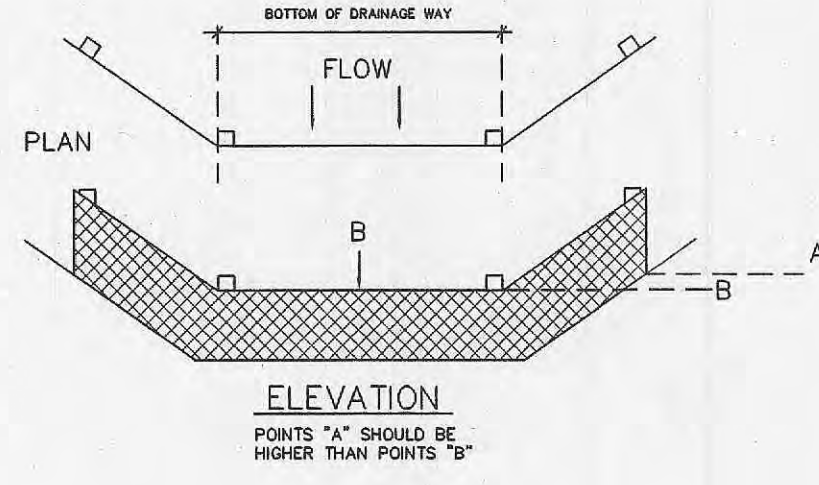
NOT TO SCALE

Install WEBTEC J-2 24" SILT FENCE on posts at 8 foot centers or equivalent product. Install as recommended by manufacturer. If equivalent product is not available, then use installation procedure outlined below.



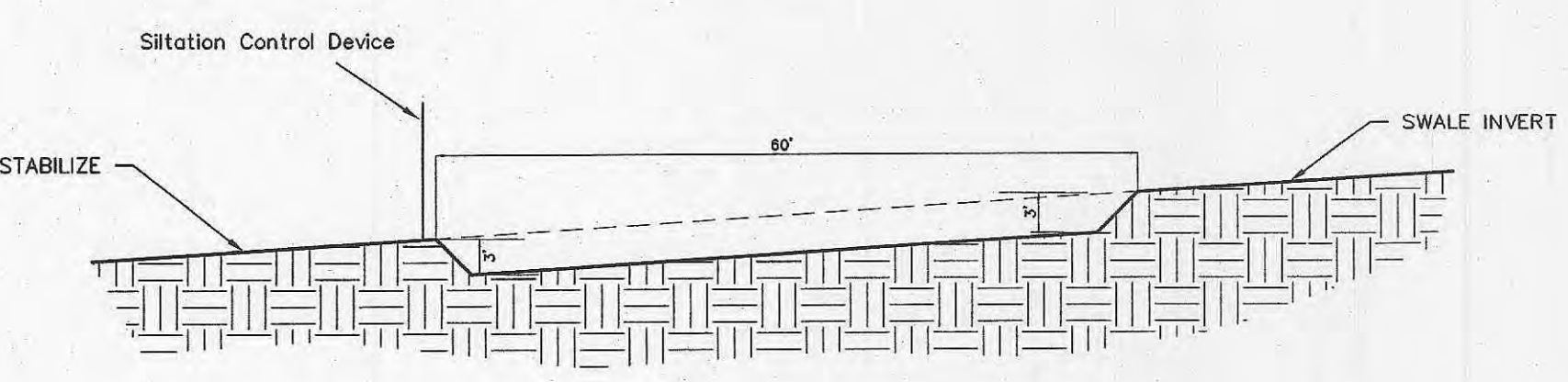
MAINTENANCE

1. Filter barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Any required repairs shall be made immediately.
2. Should the fabric decompose or become ineffective prior to the end of the expected usable life and the barrier still be necessary, the fabric shall be replaced promptly.
3. Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately half the height of the barrier.
4. Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform with the existing grade, prepared and seeded.



STRAW BALE BARRIER
SILTATION CONTROL

NOT TO SCALE



- NOTES:
1. THE SWALE SEDIMENT TRAP SHALL BE 20' x 60' TO PROVIDE MINIMUM STORAGE OF 1800 CUBIC FEET PER ACRE OF DRAINAGE AREA.
 2. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
 3. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION SHALL BE MINIMIZED.
 4. THE SEDIMENT TRAP SHALL BE REMOVED AND AREA STABILIZED WHEN THE CONTRIBUTORY DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
 5. THE SWALE SEDIMENT TRAP WILL BE PROPERLY BACK FILLED AND THE SWALE RECONSTRUCTED.
 6. THE SUMP OF THE CATCH BASIN TO BE LOCATED 3' ABOVE THE BOTTOM OF THE SEDIMENT TRAP, PER DETAIL.

SWALE SEDIMENT TRAP

NOT TO SCALE

VEGETATIVE ESTABLISHMENT
For Urban Development Sites

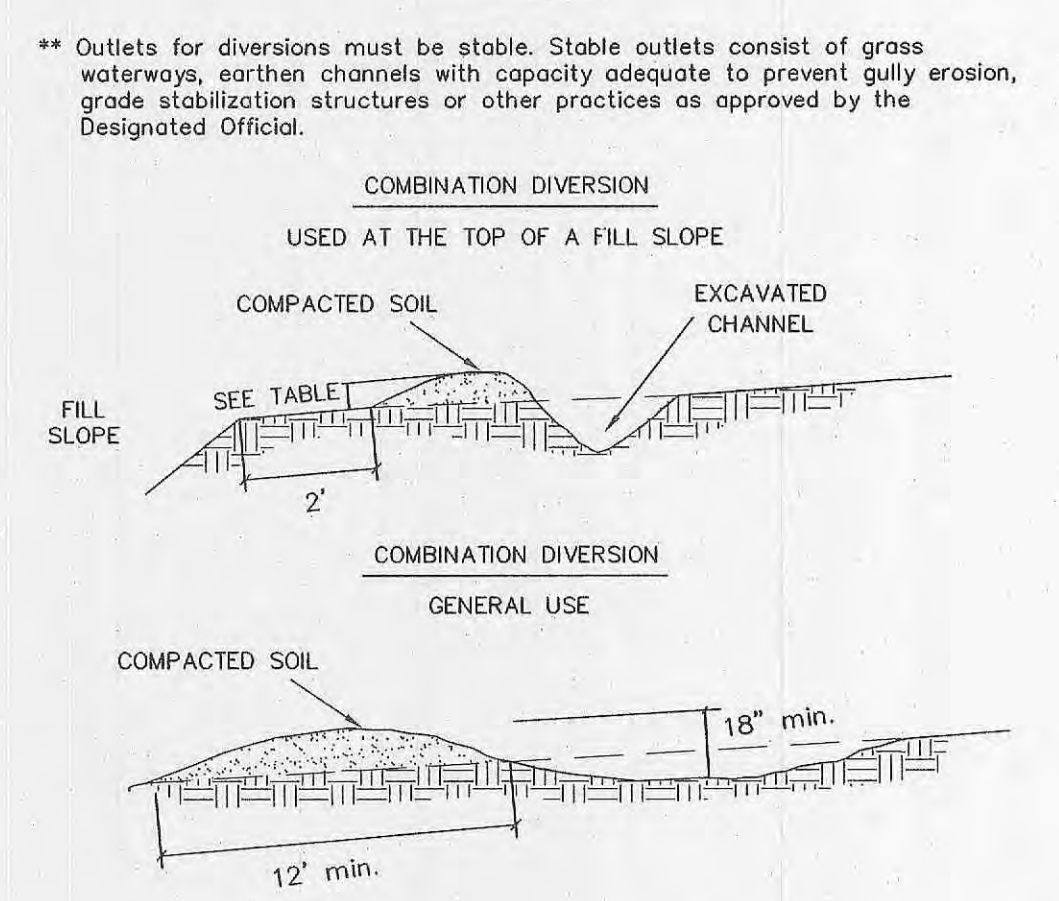
APPENDIX A

- Seeding rates:
- Permanent:
- Tall Fescue - 30 lbs./ac.
 - Smooth Brome - 20 lbs./ac.
 - combined: Fescue @ 15 lbs./ac. and Brome @ 10 lbs./ac.
- Temporary:
- Wheat or Rye - 150 lbs./ac. (3.5 lbs. per 1000 sf)
 - Oats - 120 lbs./ac. (2.75 lbs. per 1000 sf)
- Seeding periods:
- Fescue or Brome - March 1 to June 1
August 1 to October 1
 - Wheat or Rye - March 15 to November 1
Oats - March 15 to September 15
- Mulch rates: 100 lbs. per 1,000 sq. feet (4,356 lbs. per acre)
- Fertilizer rates: Nitrogen 30 lbs./ac.
Phosphate 30 lbs./ac.
Potassium 30 lbs./ac.
Lime 600 lbs./ac.

*ENM = effective neutralizing material as per State evaluation of quarried rock.

DIVERSIONS
For Urban Development Sites

APPENDIX B



GRASS LINED CHANNEL

PHYSICAL DESCRIPTION:
Trapezoidal or parabolic stormwater conveyance channel lined with vegetation, designed to direct runoff and reduce the flow velocity of concentrated runoff. Channels should outlet into sediment traps, detention/retention basins, or other stable outlets. In areas with seasonally high water tables or seepage problems, subsurface drains are included under the channel. Grassed channels have a limited ability to control runoff from large storms and are often used in combination with other BMP's, such as subsurface drains and slope stabilization.

WHERE BMP IS TO BE INSTALLED:
Used in areas where erosion-resistant conveyances are needed, including areas with highly erodible soils and moderately steep channel slopes - less than 5%. Channels should only be installed where space is available for a relatively large cross section. Channels should not make sharp, unnatural changes in direction or grade of flow.

CONDITIONS FOR EFFECTIVE USE OF BMP:
Type of Flow: Concentrated flow
Flow Properties: Maximum velocity of 5 fps

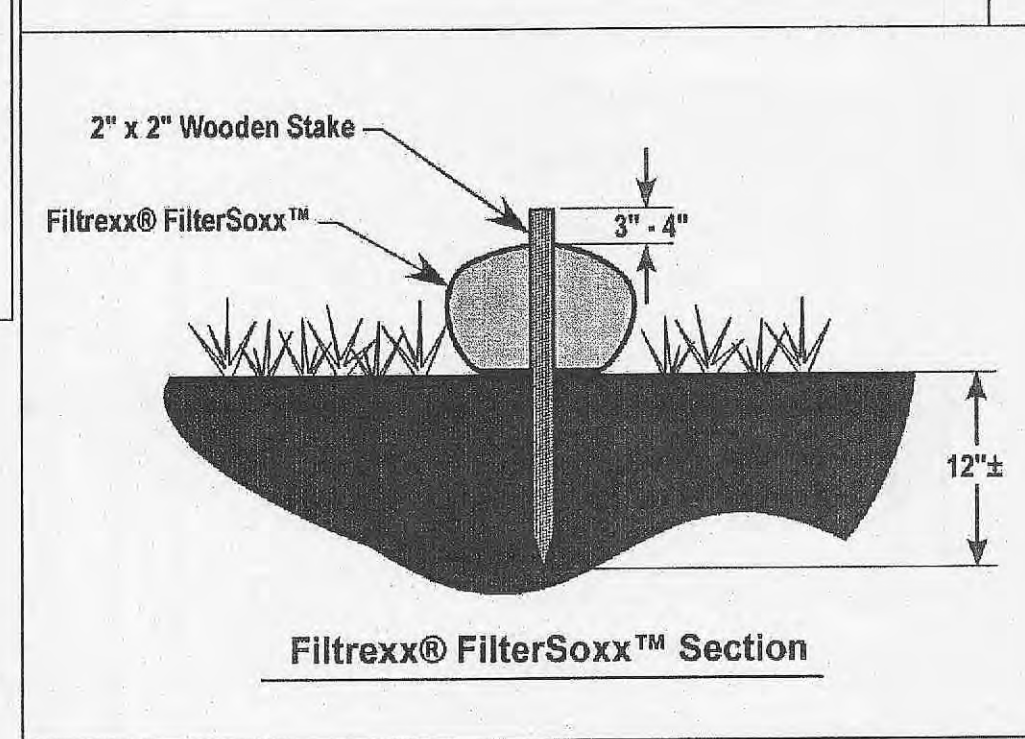
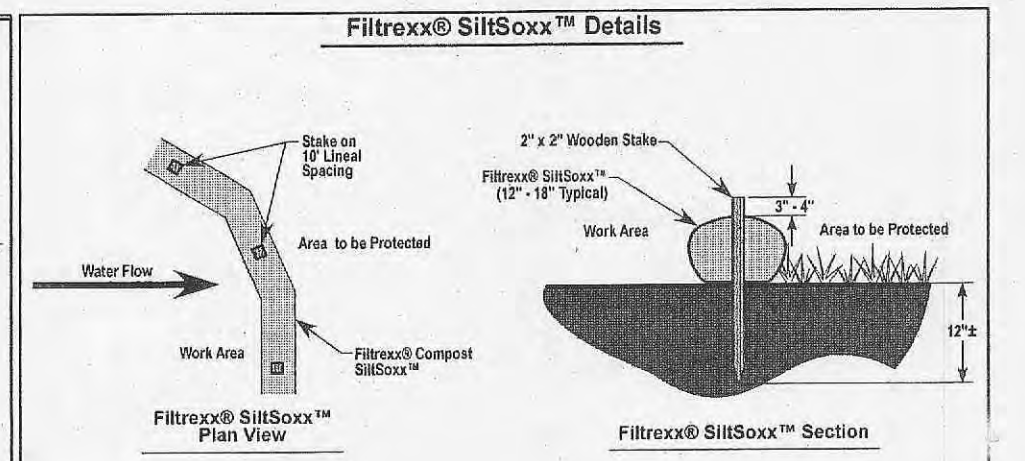
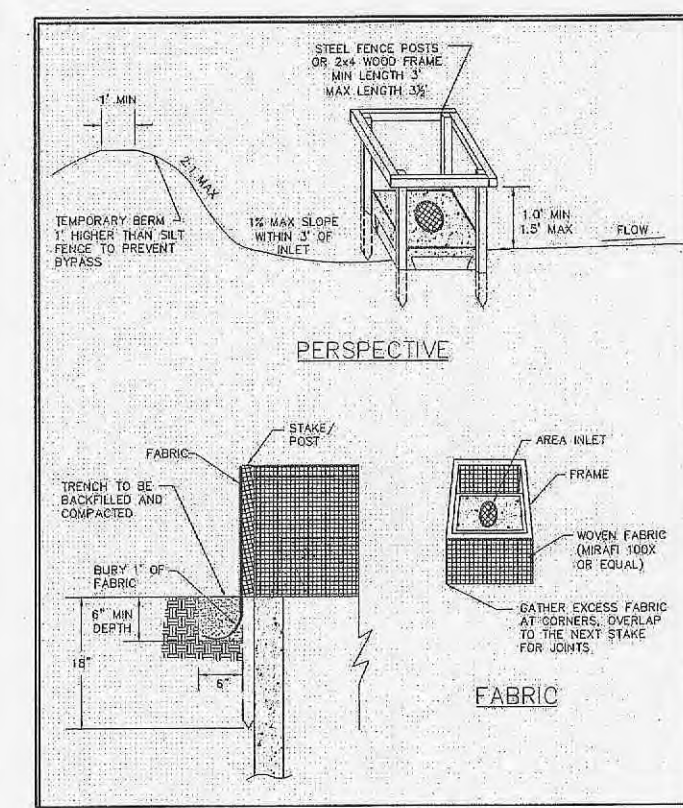
WHEN BMP IS TO BE INSTALLED:
Immediately after clearing, prior to upstream grading activities.

INSTALLATION/CONSTRUCTION PROCEDURES:
✓ Excavate and shape channel to required section
✓ Install subsurface drain, if needed
✓ Install erosion resistant lining, such as rip-rap or sod, at concentrated inflow points
✓ Prepare and fertilize soil
✓ Install sod, seed with protection such as erosion control blankets or turf reinforcement mats, or hydroseeding
✓ Sod should be perpendicular to flow, with a brick-like joint pattern. Stakes, staples and/or net corners and centers of sod strips as required.
✓ Install lath or post at each end of channel, end at 20 foot intervals. Mark maximum allowable sediment depth at 6 inches.
✓ Water immediately after installation - enough to soak 4 inches into soil without causing runoff.

DAM PROCEDURES:
✓ Water sod daily for 3 weeks - enough to soak 4 inches into soil without causing runoff
✓ Inspect at least every two weeks and after every storm for the duration of construction or 6 months, whichever is longer
✓ Remove any blockage and/or debris from channel, channel outlet or road crossing
✓ Reposition areas of sod that have moved
✓ Remove sediment accumulation once sediment reaches 9" in depth, as indicated on the monitoring posts - replace vegetation if necessary
✓ Repair any eroded areas, vegetation, and stabilize as needed
✓ Do not mow until 3 inches of new growth occurs. During the first 4 months do not mow more than 1/3 the grass height.

SITE CONDITIONS FOR REMOVAL:
Temporary channels can be removed after permanent storm sewer system is operational.

NOT TO SCALE



NOT TO SCALE

NOT TO SCALE

NOT TO SCALE

ENGINEERS' CERTIFICATION:
The following applies to ALL sheets and documents involved in the preparation of the plans and documents for this project. The responsibility for Professional Engineering liability on this project is limited to the set of plans displaying the signature and on original stamped seal of the Engineer on each sheet. ALL responsibility is Disclaimed: until ALL review agency approvals are granted; for all other plan sheets issued prior to this issue date; for this set when another set is issued after this date; if the sheets are used individually instead of a set. This applies for ALL sheets and documents involved in this project whether this certification appears on it or not. Copyright. All Rights Reserved.

ZAVRADINOS & ASSOCIATES, INC. DBA
ZAVRADINOS ENGINEERING & SURVEYING

STEVEN W. POLK
NUMBER E-18668
DATE 5/17/06