

PHASE II SEQUENCE OF CONSTRUCTION

CONTROL HANDBOOK.

BE MAINTAINED IN ACCORDANCE WITH THE LATEST

EDITION OF THE VIRGINIA EROSION AND SEDIMENT

2. INSTALL SEDIMENT TRAP #3 PER SHEET C6 AND

FOR SEDIMENT TRAP #3 WILL BE PIPE #16.

BACKFILL TRAPS ACCORDINGLY.

ON ALL DRAINAGE STRUCTURES.

FIELD AS SITE CONDITIONS WARRANT.

6. AS GRADING OPERATIONS PROGRESS, CLEAN OUT THE

4. INSTALL STORM SEWER AND PLACE INLET PROTECTION

SEDIMENT CONTROL MEASURES AS NEEDED IN THE

5. INSTALL UTILITIES AND BEGIN VUILDING CONSTRUCTION.

SIDEWALKS, PAVING AND PERMANENT AND TEMPORARY

SEEDING. PLACE TOPSOIL ON LANDSCAPE AREAS AND

6. COMPLETE SITE WORK CONSTRUCTION INCLUDING

SEED PER SCHEDULE ON THIS DRAWING.

MEASURES AT ALL TIMES DURING CONSTRUCTION.

APPROVED BY COUNTY INSPECTION STAFF.

MEASURES ARE TO REMAIN IN PLACE UNTIL REMOVAL IS

ACCUMULATED SEDIMENT IN THE SEDIMENT TRAPS AND

THE LOCAL EROSION CONTROL INSPECTOR HAS

AUTHORITY TO ADD OR DELETE EROSION AND !

EROSION CONTROL NARRATIVE

OCCUR DURING THIS PHASE. THE LAND DISTURBANCE WILL INCLUDE OUT AND FILL GRADING

ADJACENT AREAS: THE SITE IS BORDERED BY COMMERCIAL USES TO THE WEST AND SOUTH, AND

BORDERED BY RESIDENTIAL AREAS TO THE NORTH AND WEST. OFFSITE AREAS: NO OFFSITE AREAS WILL BE AFFECTED BY THIS DEVELOPMENT.

SOILS: THE SOILS ON THIS SITE PREDOMINANTLY CONSIST OF ACKWATER SILT LOAM WITH 2 TO 6 PERCENT SLOPES. THE SITE ALSO CONTAINS SMALLER AREAS OF WICKHAM FINE SANDY LOAM, LYNCHBURG LOAM, MONTROSS SILT LOAM, AND EMPORIA FINE SANDY LOAM.

CRITICAL AREAS: THERE ARE NO CRITICAL AREAS ONSITE.

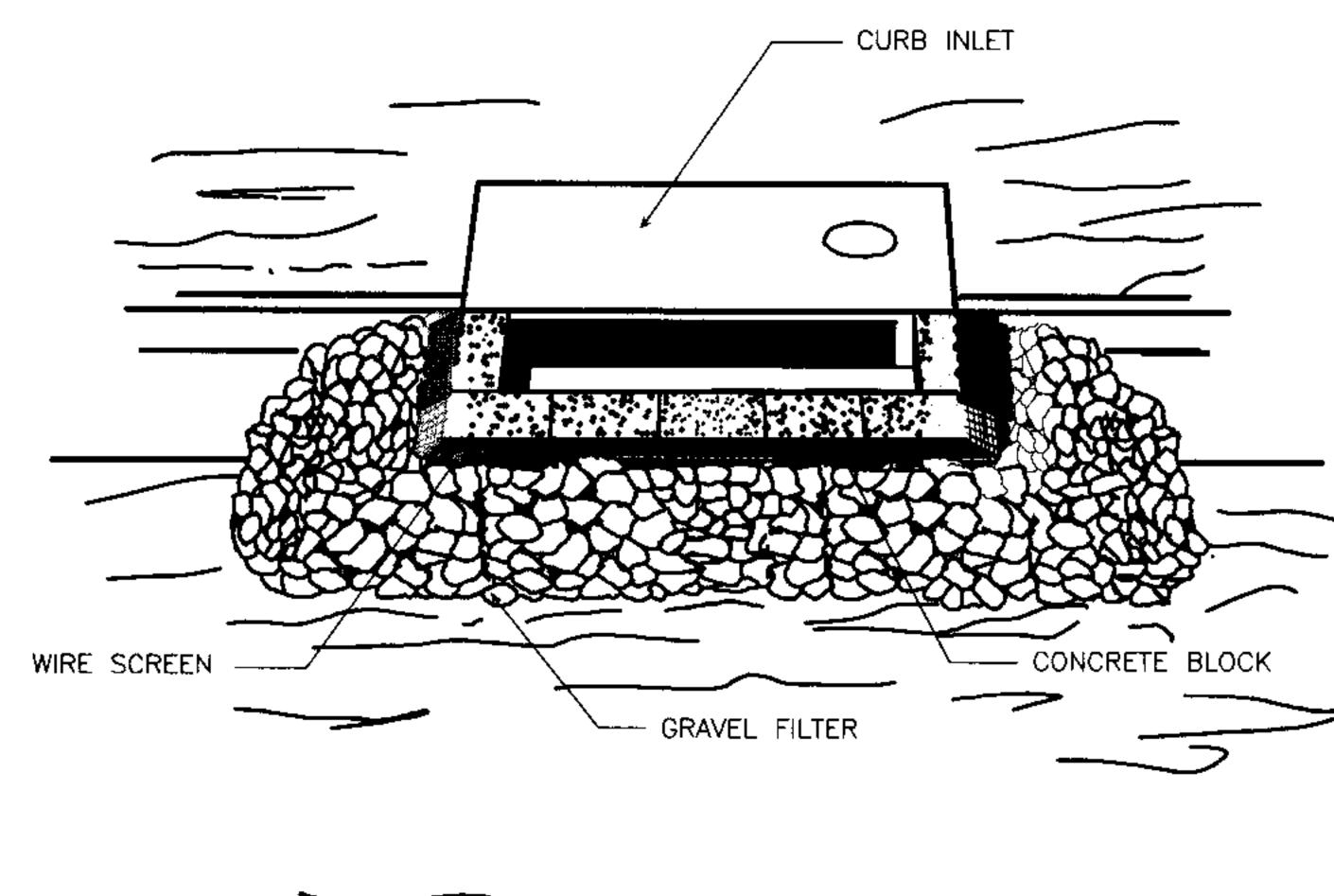
<u>EROSION AND SEDIMENT CONTROL MEASURES:</u> TWO SEDIMENT TRAPS, DIVERSION DIKES, INLET PROTECTION, AND PERIMETER SILT FENCE WILL SERVE AS THE PRIMARY EROSION CONTROL MEASURES THROUGHOUT THE CONSTRUCTION PROCESS. YELLOW AND BLACK CAUTION TAPE WILL BE INSTALLED ALONG THE RIDGE OF THE BERM LOCATED ALONG THE NORTH AND EAST BOUNDARY OF THE PARCEL.

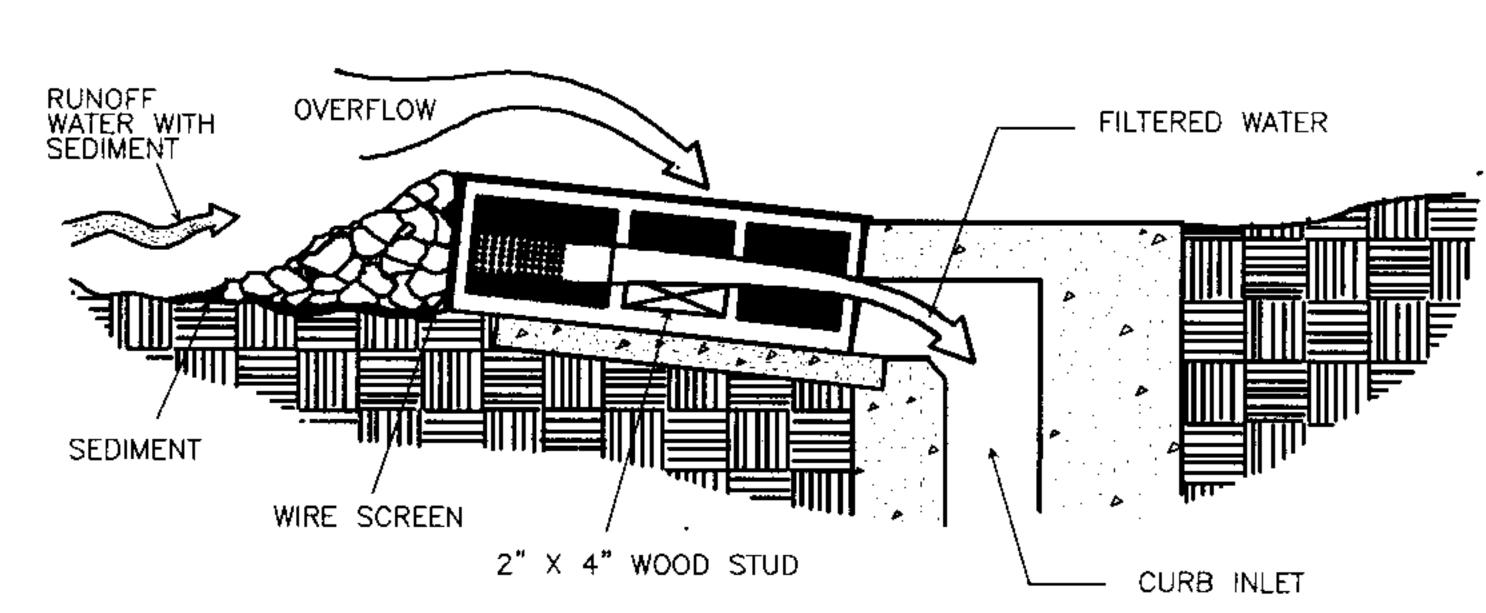
PERMANENT STABILIZATION: ALL DENUDED AND UNGRAVELLED AREAS SHALL BE SEEDED IN ACCORDANCE WITH STATE REGULATIONS. PLEASE SEE SEEDING CHARTS ON THIS SHEET.

STORMWATER RUNOFF CONSIDERATIONS: THIS PHASE OF CONSTRUCTION WILL RESULT IN AN INCREASE IN THE PRE—DEVELOPED RUNOFF RATES FOR THE SITE. RUNOFF FROM THE SITE WILL CONTINUE BEING PICKED UP IN THE SURROUNDING EXISTING STORM SEWER. THE EXISTING STORM SEWER IS ADEQUATE FOR THE INCREASED RUNOFF AND DRAINS TO AN EXISTING STORMWATER MANAGEMENT BASIN LOCATED ON THE SOUTH SIDE OF CROSSINGS BLVD ..

CALCULATIONS: STORM SEWER CALCULATIONS HAVE BEEN SUBMITTED TO COUNTY AND STATE AGENCIES FOR REVIEW.

BLOCK & GRAVEL CURB INLET SEDIMENT FILTER

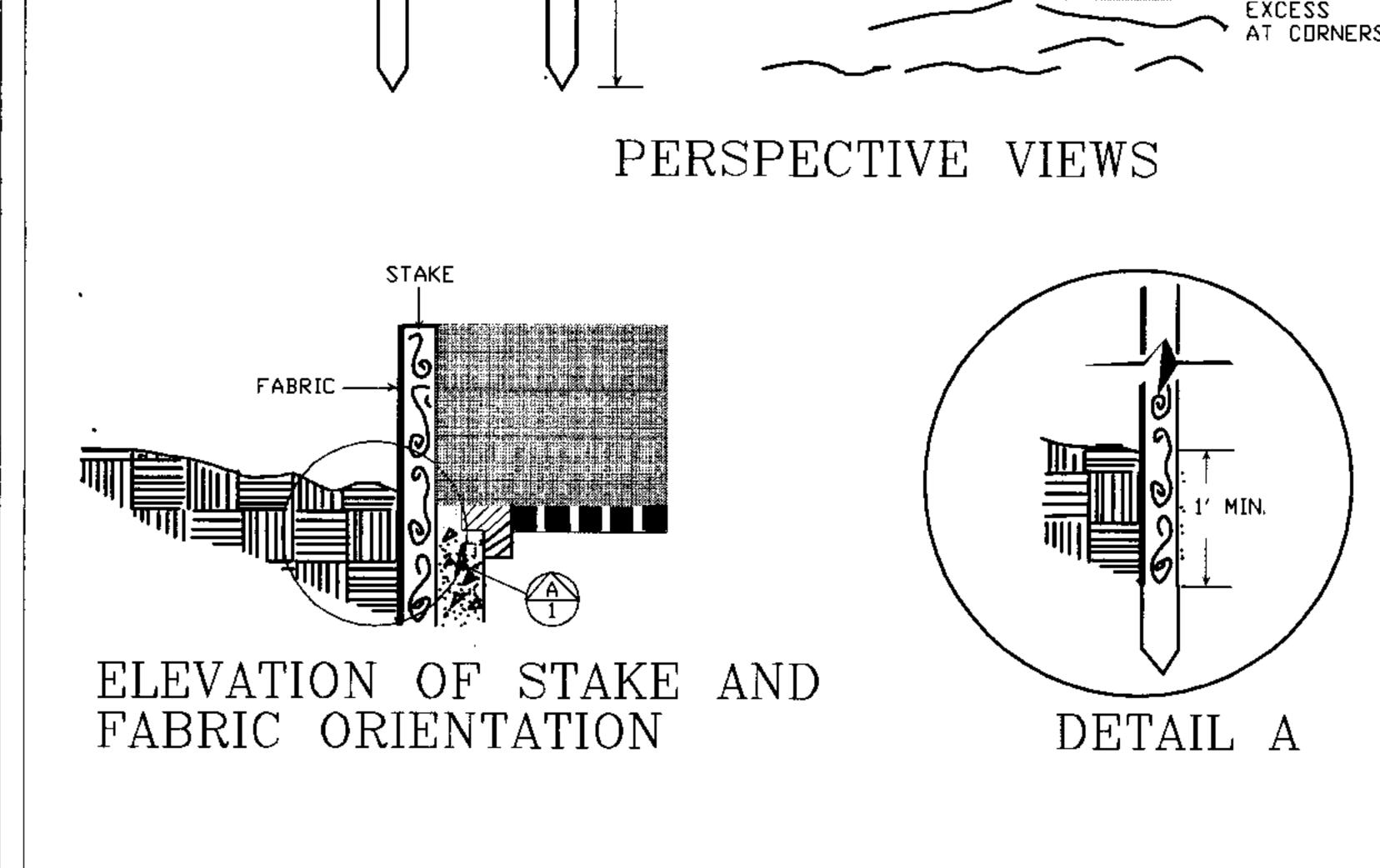




SPECIAL APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE AN OVERFLOW CAPABILITY IS NECESSARY TO PREVENT EXCESSIVE PONDING IN FRONT OF THE STRUCTURE.

* GRAVEL SHALL BE VDOT #3, #357 OR #5 COARSE AGGREGATE



SILT FENCE DROP INLET

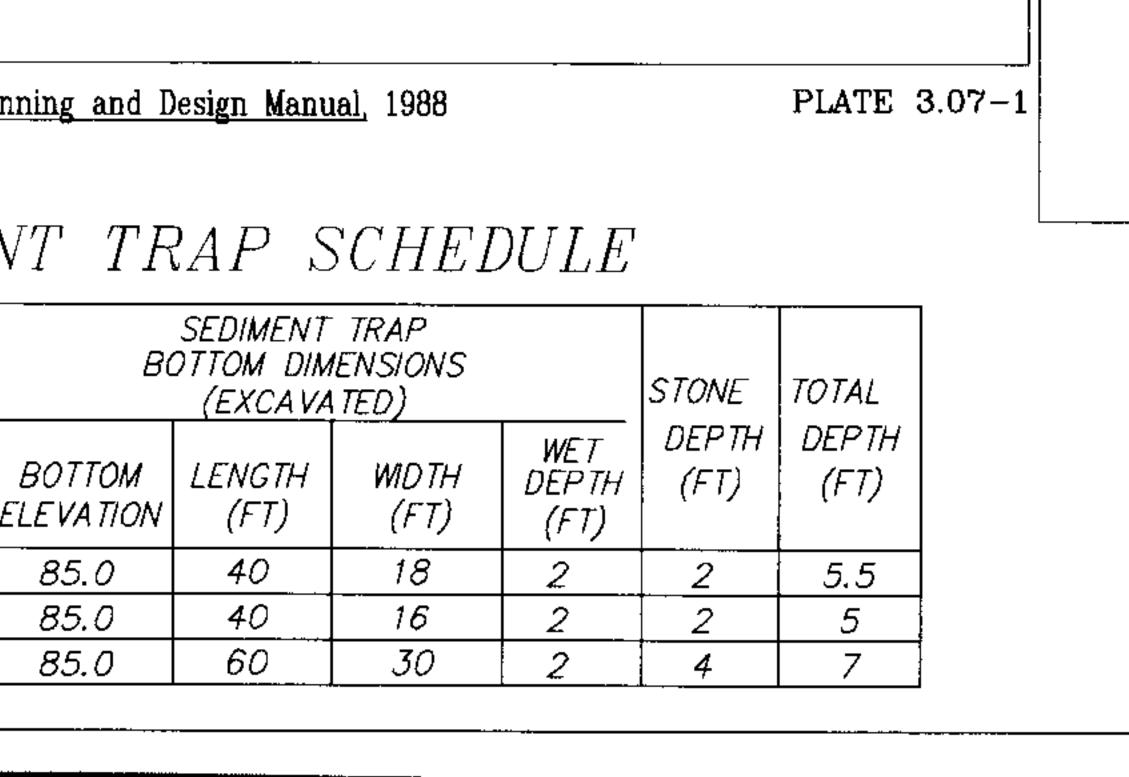
PROTECTION

2 X 4' VOOD FRAME

SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPE NO GREATER THAN 5%) WHERE THE INLET SHEET OR OVERLAND FLOWS (NOT 1 C.F.S.) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET OR HIGHWAY MEDIANS.

PLATE 3.07-8 SOURCE: N.C. Erosion and Sediment Control Planning and Design Manual, 1988



------ 4.5′ MIN. ----- . TEMPORARY DIVERSION DIKE (3.09-1)

TEMPORARY SEDIMENT TRAP SCHEDULE

4VAC50-30-40. MINIMUM STANDARDS

- An erosion and sediment control program adopted by a district or locality must be consistent with 17. Where a the following criteria, techniques and methods: Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven days to denuded areas that may not be at final grade but will remain dormant for longer than 30 days. Permanent stabilization shall be applied to areas that are to
- be left dormant for more than one year. During construction of the project, soil stock piles and borrow areas shall be stabilized or protected with sediment trapping measures. The applicant is responsible for the temporary
- protection and permanent stabilization of all soil stockpiles on site as well as borrow areas and soil intentionally transported from the project site. A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is
- achieved that is uniform, mature enough to survive and will inhibit erosion. Sediment basins and traps, perimeter dikes, sediment barriers and other measures intended to trap sediment shall be constructed as a first step in any land—disturbing activity and shall be
- made functional before upslope land disturbance takes place. Stabilization measures shall be applied to earthen structures such as dams, dikes and
- diversions immediately after installation.
- Sediment traps and sediment basins shall be designed and constructed based upon the total drainage area to be served by the trap or basin. A) The minimum storage capacity of a sediment trap shall be 134 cubic yards per acre of drainage area and the trap shall only control drainage areas less than three acres, B) Surface runoff from disturbed areas that is comprised of flow from drainage areas greater than or equal to three acres shall be controlled by a sediment basin. The minimum storage capacity of a sediment basin shall be 134 cubic yards per acre of drainage area. The outfall
- system shall, at a minimum, maintain the structural integrity of the basin during a 25—year storm of 24—hour duration. Runoff coefficients used in runoff calculations shall correspond to a bare earth condition or those conditions expected to exist while the sediment basin is utilized. Cut and fill slopes shall be designed and constructed in a manner that will minimize erosion. Slopes that are found to be eroding excessively within one year of permanent stabilization shall be provided with additional slope stabilizing measures until the problem is corrected.
- Concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel, flume or slope drain structure. Whenever water seeps from a slope face, adequate drainage or other protection shall be
- provided. All storm sewer inlets that are made operable during construction shall be protected so that sediment—laden water cannot enter the conveyance system without first being filtered or otherwise treated to remove sediment.
- . Before newly constructed stormwater conveyance channels or pipes are made operational, adequate outlet protection and any required temporary or permanent channel lining shall be installed in both the conveyance channel and receiving channel.
- . When work in a live watercourse is performed, precautions shall be taken to minimize encroachment, control sediment transport and stabilize the work area to the greatest extent possible during construction. Nonerodible material shall be used for the construction of causeways and cofferdams. Earthen fill may be used for these structures if armored by nonerodible cover materials.
- . When a live watercourse must be crossed by construction vehicles more than twice in any six—month period, a temporary vehicular stream crossing constructed of nonerodible material shall be provided.
- 14. All applicable federal, state and local chapters pertaining to working in or crossing live
- watercourses shall be met. 15. The bed and banks of a watercourse shall be stabilized immediately after work in the
- watercourse is completed. 16. Underground utility lines shall be installed in accordance with the following standards in addition
- A) No more than 500 linear feet of trench may be opened at one time. B) Excavated material shall be placed on the uphill side of trenches. C) Effluent from dewatering operations shall be filtered or passed through an approved
- sediment trapping device, or both, and discharged in a manner that does not adversely affect flowing streams or off-site property. D) Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.
- .) Restabilization shall be accomplished in accordance with this chapter.
-) Applicable safety chapters shall be complied with.

to other applicable criteria:

made to minimize the transport of sediment by vehicular tracking onto the paved surface. cleaned thoroughly at the end of each day. Sediment shall be removed from the roads by shoveling or sweeping and transported to a sediment control disposal area. Street washing shall be allowed only after sediment is removed in this manner. This provision shall apply to individual development lots as well as to larger land—disturbing activities. 18. All temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer needed, unless otherwise

SOURCE: VA. DSWC

authorized by the local program authority. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent 19. Properties and waterways downstream from development sites shall be protected from sediment deposition, erosion and damage due to increases in volume, velocity and peak flow rate of stormwater runoff for the stated frequency storm of 24—hour duration in accordance with the

following standards and criteria: A) Concentrated stormwater runoff leaving a development site shall be discharged directly into an adequate natural or man-made receiving channel, pipe or storm sewer system. For those sites where runoff is discharged into a pipe or pipe system, downstream stability analyses at the outfall of the pipe or pipe system shall be performed.

B) Adequacy of all channels and pipes shall be verified in the following manner: (1) The applicant shall demonstrate that the total drainage area to the point of analysis within the channel is one hundred times greater than the contributing drainage area of the project in question; or

(2) (a) Natural channels shall be analyzed by the use of a two—year storm to verify that stormwater will not overtop channel banks nor cause erosion of channel bed or banks. (b) All previously constructed man—made channels shall be analyzed by the use of a ten—year storm to verify that stormwater will not overtop its banks and by the use of c Two—year storm to demonstrate that stormwater will not cause erosion of channel bed or banks; and

(c) Pipes and storm sewer systems shall be analyzed by the use of a ten—year storm to verify that stormwater will be contained within the pipe or system. C) If existing natural receiving channels or previously constructed man—made channels or pipes are not adequate, the applicant shall: (1) Improve the channels to a condition where a ten-year storm will not overtop the banks

and a two—year storm will not cause erosion to channel the bed or banks; or (2) Improve the pipe or pipe system to a condition where the ten-year storm is contained within the appurtenances; (3) Develop a site design that will not cause the pre-development peak runoff rate from a two-year storm to increase when runoff outfalls into a natural channel or will not cause the pre-development peak runoff rate from a ten-year storm to increase when runoff outfalls into a man-made channel; or

(4) Provide a combination of channel improvement, stormwater detention or other measures which is satisfactory to the plan approving authority to prevent downstream erosion. d. The applicant shall provide evidence of permission to make the improvements. e. All hydrologic analyses shall be based on the existing watershed characteristics and

the ultimate development condition of the subject project. f. If the applicant chooses an option that includes stormwater detention, he shall obtain approval from the locality of a pion for maintenance of the detention facilities. The plan shall set forth the maintenance requirements of the facility and the person responsible for performing the maintenance. g. Outfall from a detention facility shall be discharged to a receiving channel, and energy

dissipators shall be placed at the outfall of all detention facilities as necessary to provide a stabilized transistion from the facility to the receiving channel. h. All on—site channels must be verified to be adequate. i Increased volumes of sheet flows that may cause erosion or sedimentation on adjacent property shall be diverted to a stable outlet, adequate channel, pipe or pipe system, or to a detention facility.

j. In applying these stormwater management criteria, individual lots or parcels in a

residential, commercial or industrial development shall not be considered to be separate

development projects. Instead, the development, as a whole, shall be considered to be a single development project. Hydrologic parameters that reflect the ultimate development condition shall be used in all engineering calculations. k. All measures used to protect properties and waterways shall be employed in a manner which minimizes impacts on the physical, chemical and biological integrity of rivers, streams and other waters of the state.

MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES:

FROM SILT FENCE WHEN IT REACHES ONE-HALF THE HEIGHT OF THE

SILT FENCE: INSPECT AFTER EACH RAINFALL EVENT. REMOVE SEDIMENT

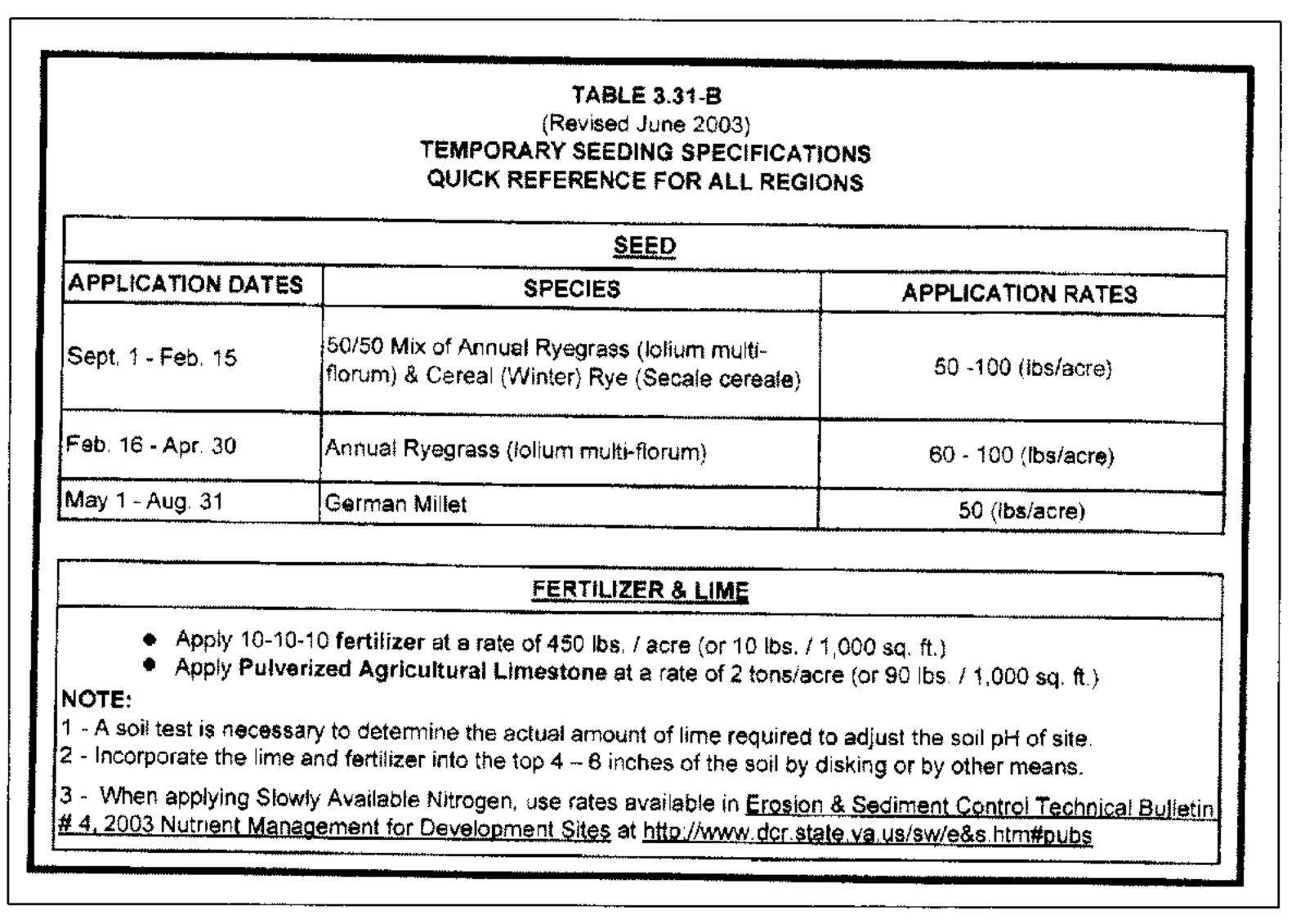
BARRIER. REPAIR ANY TORN FENCE PROMPTLY. SEDIMENT TRAP: 1. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN VOLUME OF THE WET STORAGE(THIS LEVEL SHOULD BE MARKED OR PAINTED ON THE STRUCTURE), SEDIMENT REMOVAL FROM THE BASIN SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE AND CAUSE SEDIMENTATION PROBLEMS. 2. FILTER STONE SHALL BE REGULARLY CHECKED TO ENSURE THAT

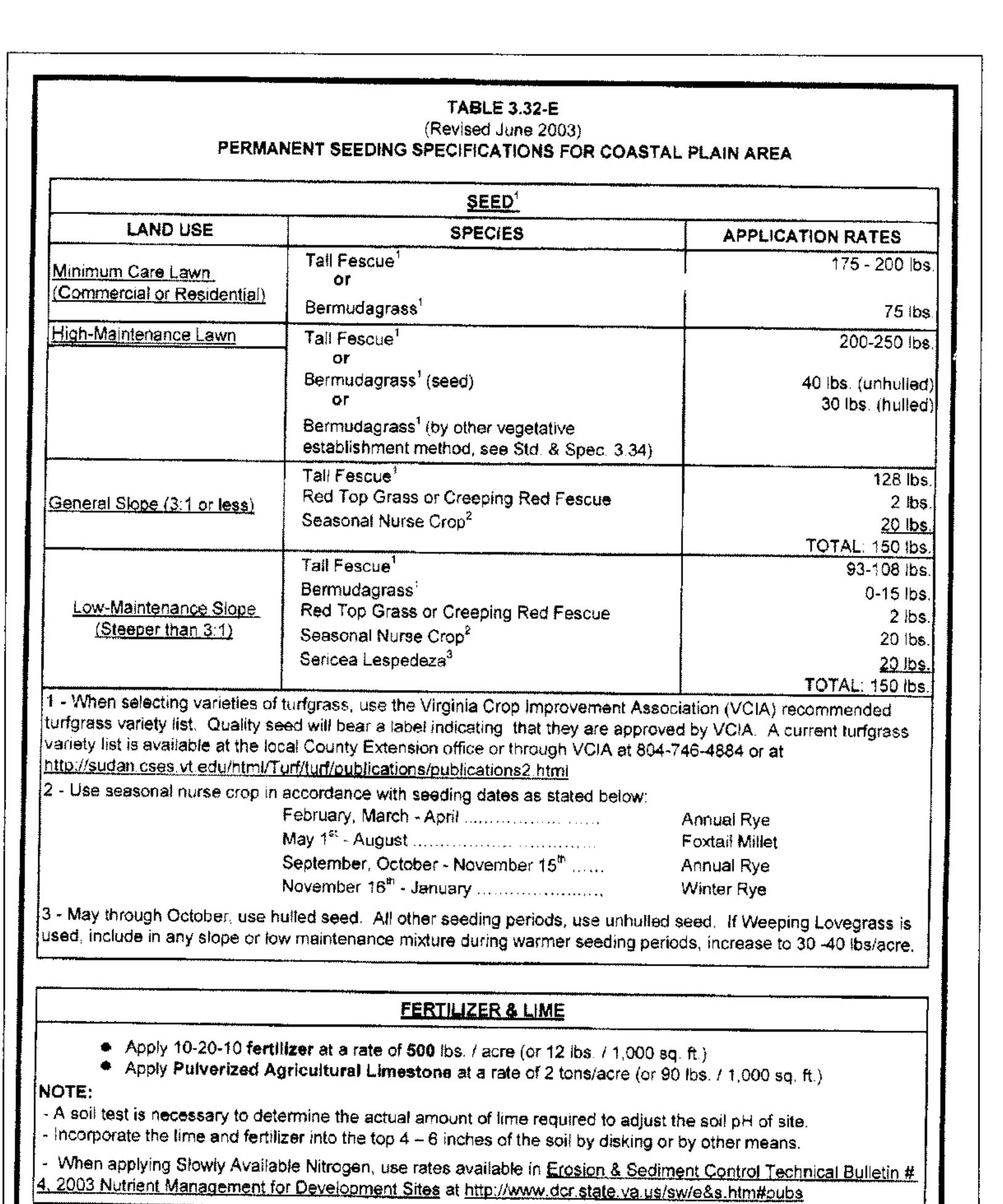
FILTRATION PERFORMANCE IS MAINTAINED. STONE CHOKED WITH SEDIMENT SHALL BE REMOVED AND CLEANED OR REPLACED. 3. THE STRUCTURE SHOULD BE CHECKED REGULARLY TO ENSURE THAT IT I STRUCTURALLY SOUND AND HAS NOT BEEN DAMAGED BY EROSION OR CONSTRUCTION EQUIPMENT. THE HEIGHT OF THE STONE OUTLET SHOULD BE CHECKED TO ENSURE THAT ITS CENTER IS AT LEAST 1 FOOT BELOW THE TOP OF THE EMBANKMENT. 4. INSPECT AFTER EACH RAIN.

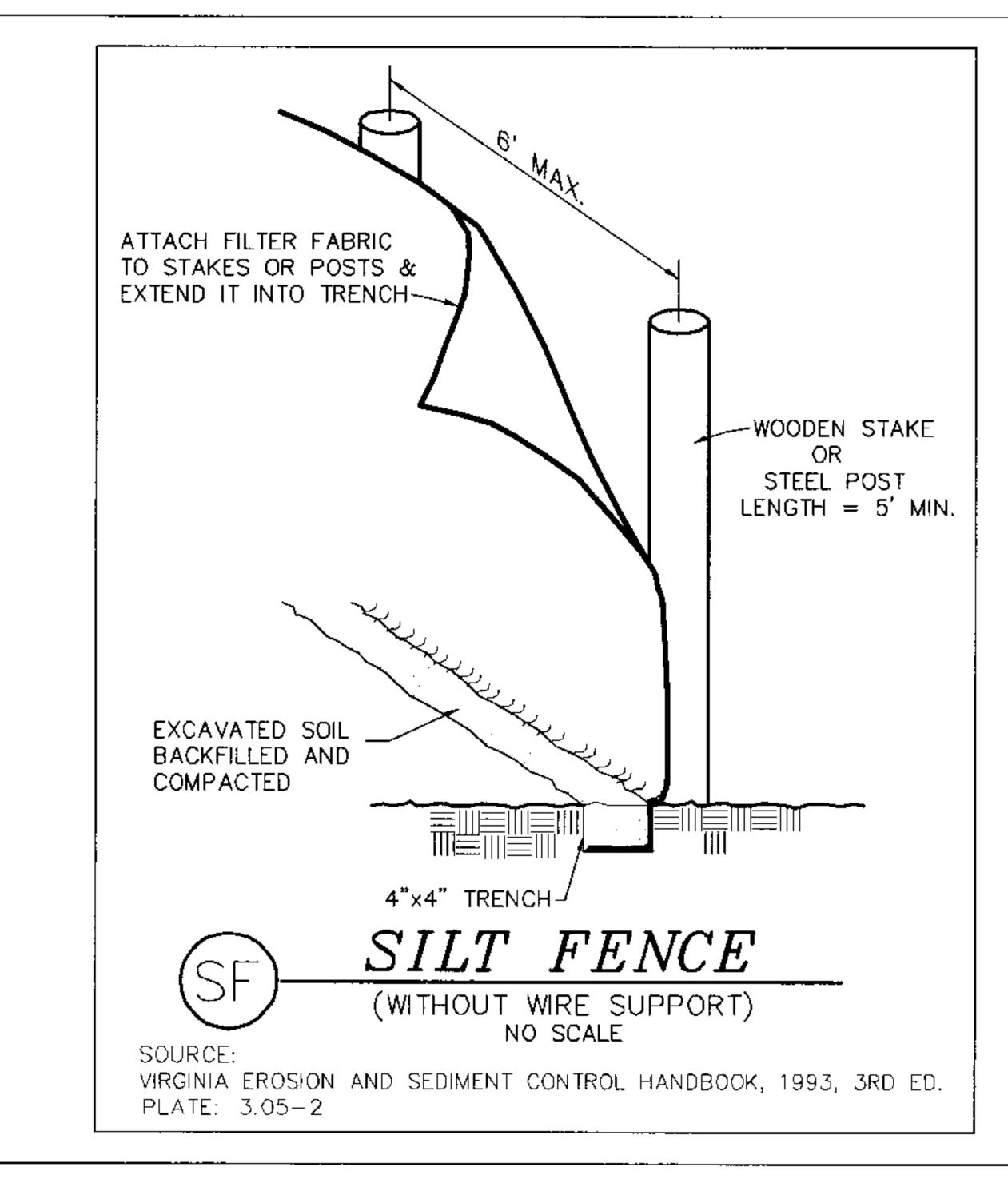
CONSTRUCTION ENTRANCE: TOPDRESS WITH ADDITIONAL STONE OR WASH AND REWORK EXISTING STONE AS NEEDED TO PREVENT MUD FROM BEING TRACKED OFF THE SITE. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED

INLET PROTECTION: INSPECT AFTER EACH RAIN, REMOVE SEDIMENT WHEN IT ACCUMULATES TO ONE-HALF THE DESIGN DEPTH OF THE TRAP. EROSION BLANKET OR MAT: INSPECT AFTER EACH RAIN FOR EROSION OR REPAIR ANY DISLOCATION OR FAILURE IMMEDIATELY AND REINSTALL THE

DIVERSION DITCHES: INSPECT AFTER EACH RAIN AND EVERY TWO WEEKS. REPAIR THE DIKE, FLOW CHANNEL, OUTLET OR SEDIMENT TRAPPING FCILITY AS NECESSARY, DAMAGES CAUSED BY CONSTRUCTION TRAFFIC OR OTHER ACTIVITIES MUST BE REPAIRED BEFORE THE END OF EACH WORKING DAY.







67 CU. YD./ACRE

67 CU. YD./ACRE

(EXCAVATED)

COARSE AGGREGATE SHALL BE VDOT # 3, # 357 OR # 5

OUTLET (PERSPECTIVE VIEW)

AGGREGATE * *---

EXCAVATED AREA

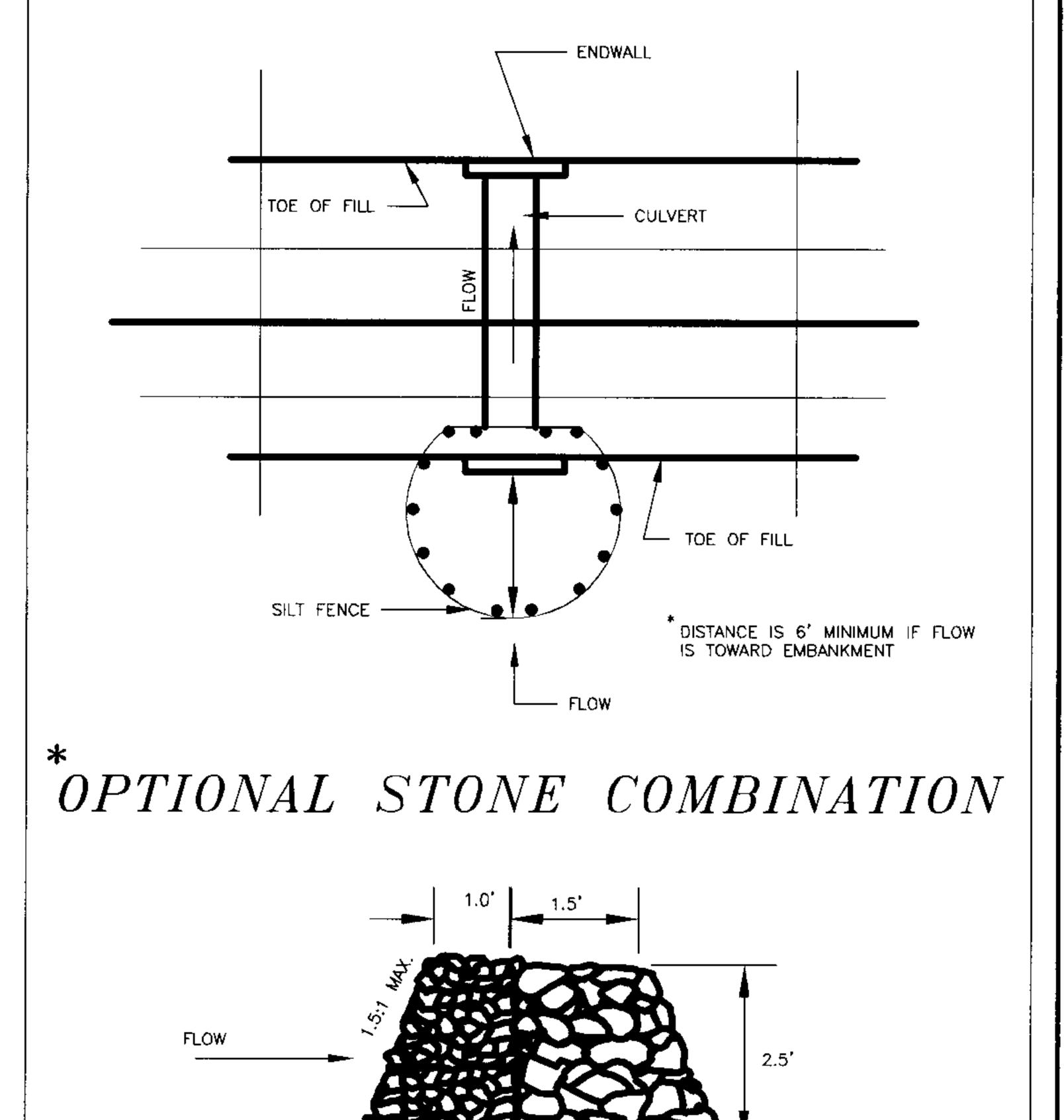
CROSS SECTION OF OUTLET

─ FILTER CLOTH

VDOT #3, #357 OR #5 COARSE AGGREGATE

-LENGTH OF STONE OUTLET=

SILT FENCE CULVERT INLET PROTECTION



"VDOT #3, #357, #5, #56 OR #57 COARSE AGGREGATE

TO REPLACE SILT FENCE IN "HORSESHOE "WHEN

SOURCE: ADAPTED from VDOT Standard Sheets and Va. DSWC

HIGH VELOCITY OF FLOW IS EXPECTED

PLATE. 3.08-1

CHECKED BY

SHEET NO.