VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS
MINIMUM STANDARDS 1-19

4VAC50-30-40 Minimum Standards.

1. 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.

2. During construction of the project, soil stockpiles 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.

3. 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.

4. 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.

5. Stabilization measures shall be applied to earthen structures such as dams, dikes and diversions immediately after installation.

6. 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 twenty-five 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.

7. 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.

8. Concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel, flume or slope drain structure.

9. Whenever water seeps from a slope face, adequate drainage or other protection shall be provided.

10. 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.

11. 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.

12. 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.

13. 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 regulations 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 to other applicable criteria:
   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.
   e. Restabilization shall be accomplished in accordance with these regulations.
   f. Applicable safety regulations shall be complied with.

17. Where construction vehicle access routes intersect paved or public roads, provisions shall be made to minimize the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a paved or public road surface, the road surface shall be 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 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 further erosion and sedimentation.

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; and
      (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 a 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 channel to a condition where a ten-year storm will not overtop the banks and a two-year storm will not cause erosion to the channel bed or banks; or
      (2) Improve the pipe or pipe system to a condition where the ten-year storm is contained within the appurtenances; or
      (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 of the subject project.
   f. If the applicant chooses an option that includes stormwater detention he shall obtain approval from the locality of a plan 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 transition 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 runoff 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.

EROSION AND SEDIMENT CONTROL NARRATIVE

THE PURPOSE OF THIS PROJECT IS TO CONSTRUCT HIDDEN OAKS, A 25 LOT SUBDIVISION WITH PUBLIC SANITARY SEWER AND WATER. APPROXIMATELY 2.10 ACRES WILL BE DISTURBED DURING THE CONSTRUCTION OF THIS PROJECT. THIS SUBDIVISION IS ON APPROXIMATELY 18 ACRES LOCATED TO THE EAST AND WEST OF VDOT SERVICE ROAD No. 7 WHICH IN TURN IS LOCATED OFF COTTONWOOD LANE, STATE ROUTE 1512 IN PRINCE GEORGE Co. Va., IT'S WESTERN BOUNDARY IS INTERSTATE 295.

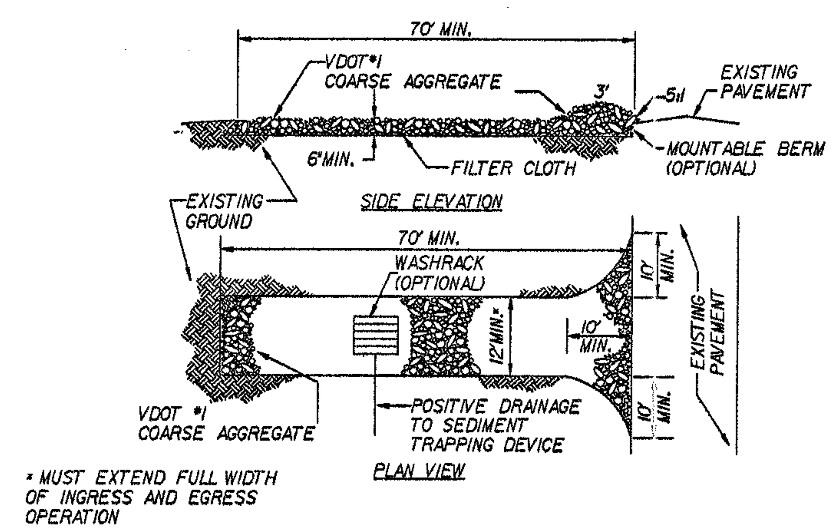
THIS SITE HAS LEVEL TO GENTLY ROLLING TOPOGRAPHY AND IS CURRENTLY VACANT WITH MODERATE WOODS. STORMWATER WILL BE CONTAINED WITHIN A CURB AND GUTTER/STORM SEWER SYSTEM AND WILL HAVE TWO OUTFALLS. THE FIRST OUTFALL WILL DISCHARGE TO THE NW BETWEEN LOTS 20 & 21 TO AN EXISTING 30" CMP UNDER I-295. A SECOND OUTFALL WILL DISCHARGE TO THE SOUTH THRU A STORM WATER MANAGEMENT BASIN LOCATED BETWEEN LOTS 7 & 8. THE POST DEVELOPED 2 YR AND 10 YR DISCHARGE FROM THE SWM BASIN IS LESS THAN PRE DEVELOPED 2 YR AND 10 YEAR RATES. THE EXISTING DRAINAGE PATTERN IS GENERALLY EAST TO WEST AND NORTH TO SOUTH. THE NATURAL TOPOGRAPHY INDICATES SLIGHT SWALES FROM EAST TO WEST ON THE WEST END OF THIS PROJECT AND A MORE DEFINED CHANNEL FROM NORTH TO SOUTH ON THE EAST END. THERE WERE NO WETLANDS AREAS FOUND ON THIS PROJECT.

EXISTING LAND USE TO THE SOUTH IS RESIDENTIAL AND WILL NOT BE DIRECTLY AFFECTED BY THE DESIGN RUNOFF DUE TO THE SWM BASIN DISCHARGING LESS THAN THE PRE DEVELOPED RATE. NO OFFSITE ACTIVITIES WHICH WILL CAUSE EROSION ARE TO OCCUR DURING THE CONSTRUCTION OF THIS PROJECT. EROSION CONTROL MEASURES WILL BE TAKEN AT EACH STEP OF THE CONSTRUCTION SEQUENCE INCLUDING TEMPORARY CONSTRUCTION ENTRANCES, SILT FENCE, CHECK DAMS, INLET PROTECTION AND CULVERT INLET PROTECTION. ACKWATER SOILS ARE PREDOMINATE WITHIN THIS SITE AND ARE DEEMED A SLIGHT TO MODERATE EROSION HAZARD.

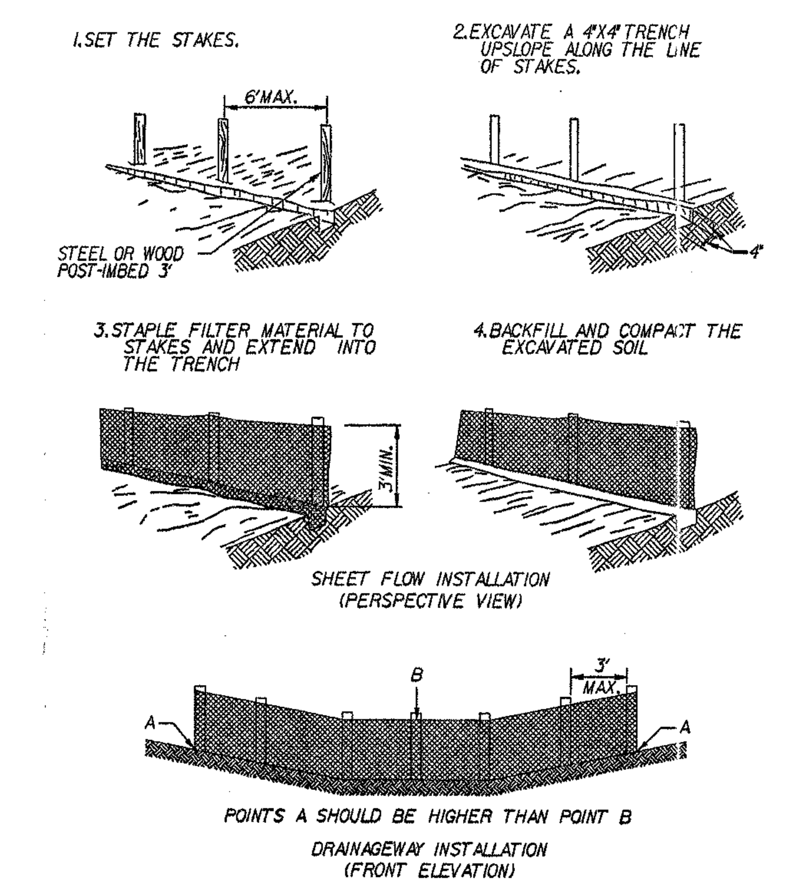
EROSION AND SEDIMENT CONTROL
SEQUENCE OF EVENTS

1. NOTIFY THE PRINCE GEORGE Co. EROSION AND SEDIMENT CONTROL ADMINISTRATOR AT 804-733-2608 FOR A PRE-CONSTRUCTION MEETING AND ONSITE VISIT ONE WEEK PRIOR TO START OF CONSTRUCTION.
2. INSTALL CONSTRUCTION ENTRANCES, SILT FENCE AND CHECK DAMS LOCATED WITHIN THE SILT FENCE AS SHOWN ON PLANS.
3. CLEAR AND GRUB ROADS, SWM BASIN SITE AND EASEMENTS.
4. BEGIN ROUGH GRADING ROADS.
5. CONSTRUCT STORM WATER MANAGEMENT BASIN.
6. INSTALL STORM SEWER WITH THE ASSOCIATED INLET PROTECTION AND CULVERT INLET PROTECTION
7. INSTALL PERMANENT DIVERSION BERM AT REAR OF LOTS 24 & 25 AND REAR YARD SWALE ON LOTS 1, 2 & 3. PROVIDE CHECK DAMS AS SHOWN ON PLAN.
8. INSTALL UTILITIES AS SHOWN ON PLAN. PROVIDE CHECK DAMS AS SHOWN ON PLAN ALONG VDOT SERVICE ROAD No. 7.
9. INSTALL CURB AND GUTTER AS SHOWN ON PLAN.
10. SEED AND MULCH SHOULDERS AND CUT/FILL SLOPES IMMEADIATELY AFTER INSTALLATION OF CURB AND GUTTER.
11. FINE GRADE ROADS
12. INSTALL BASE STONE AS SHOWN ON PLAN.
13. SEED AND MULCH ALL REMAINING DENUDED AREAS.
14. INSTALL PAVEMENT AS SHOWN ON PLAN.
15. ALL EROSION CONTROL DEVICES SHALL BE INSPECTED DAILY AND MAINTENANCE PERFORMED ON A CONTINUING BASES TO INSURE THE PROTECTION OF DOWNSTREAM PROPERTIES.
16. NO EROSION CONTROL DEVICE SHALL BE REMOVED UNTIL AN ADEQUATE STAND OF GRASS HAS BEEN ACHIEVED.

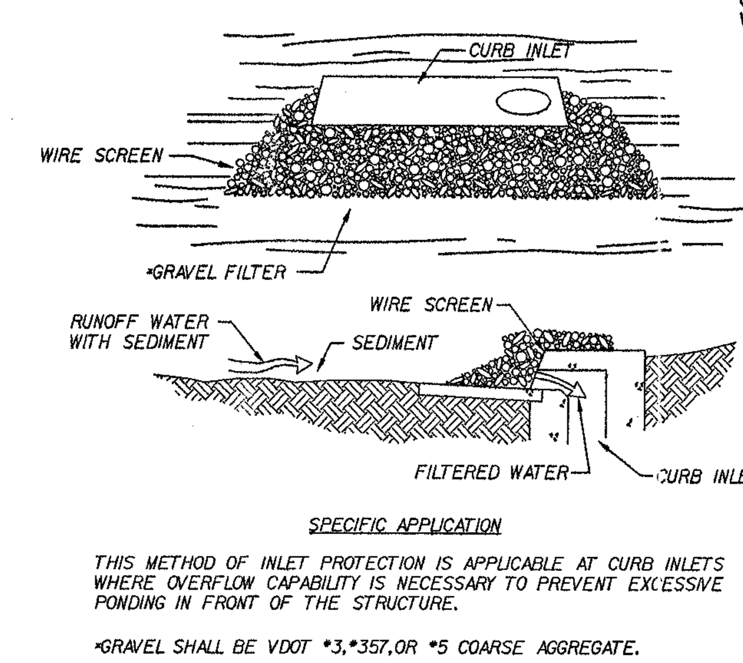
NOTE: ALL EROSION CONTROL MEASURES SHOWN ON THIS PLAN ARE TO BE CONSTRUCTED, MAINTAINED AND REMOVED IN ACCORDANCE WITH THE CURRENT EDITION OF THE VIRGINIA EROSION AND SEDIMENT CONTROL



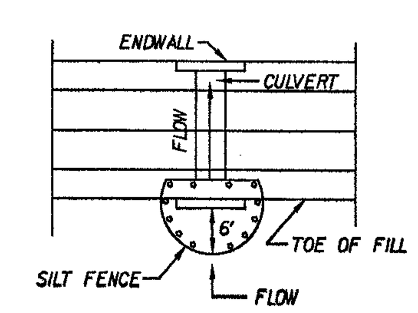
TEMPORARY STONE CONSTRUCTION ENTRANCE
STD & SPEC 3.02
NO SCALE



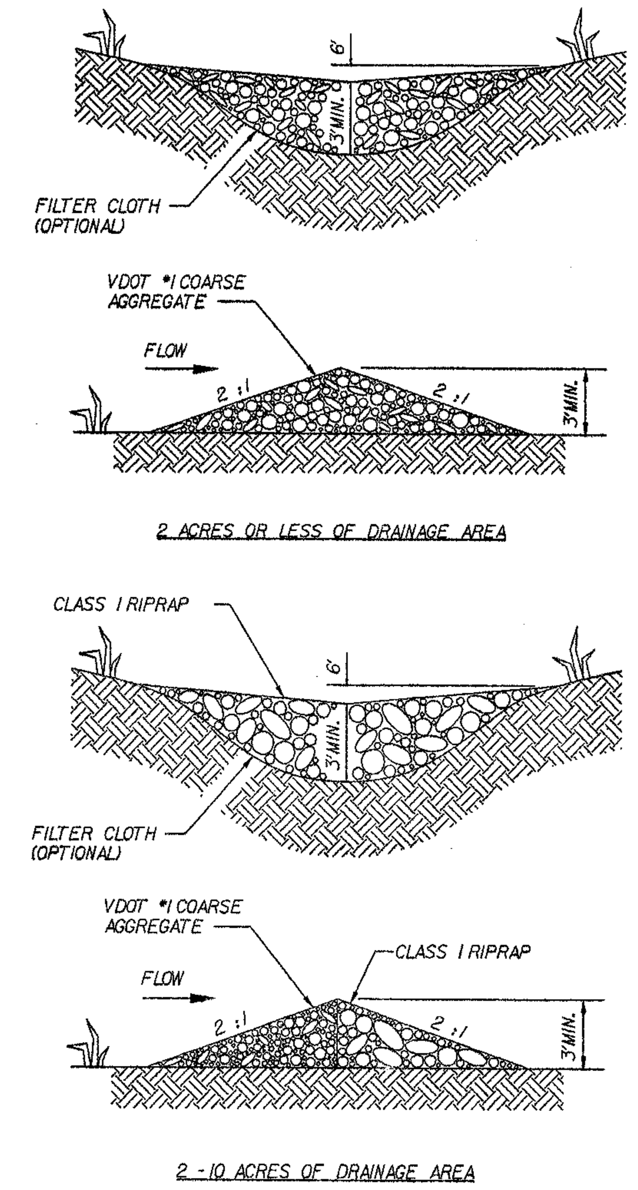
TEMPORARY SILT FENCE
STD & SPEC 3.05-2
NO SCALE



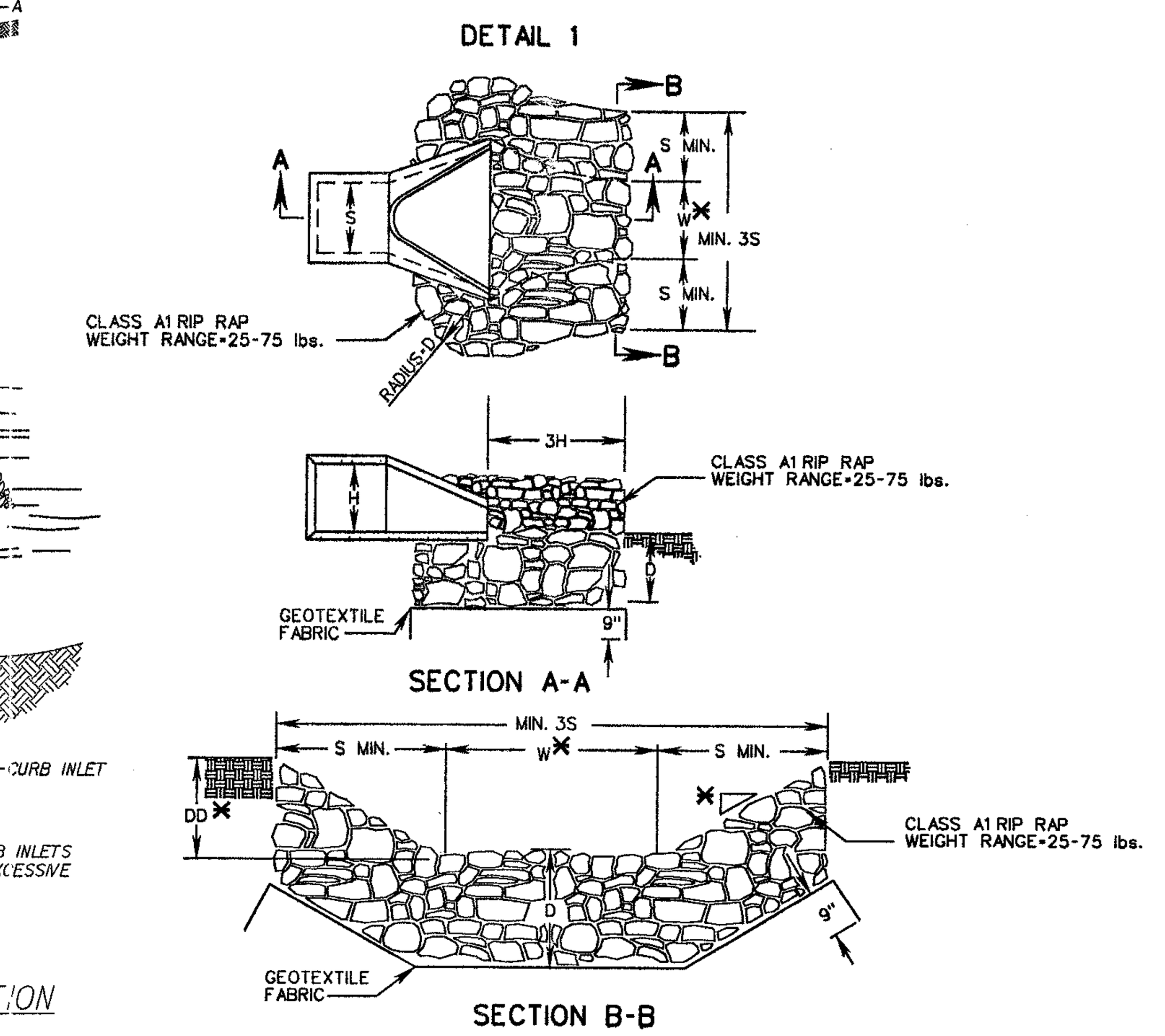
STORM DRAIN INLET PROTECTION
STD & SPEC 3.07-6
NO SCALE



CULVERT INLET PROTECTION
STD & SPEC 3.08-1
NO SCALE



ROCK CHECK DAM
STD & SPEC 3.20
NO SCALE



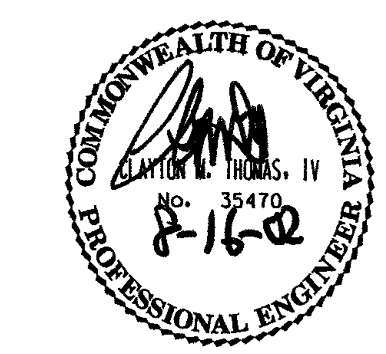
NOTES:

1. FOR MULTIPLE LINE INSTALLATIONS DIMENSION S IS TO GOVERN THE PROTECTION OUTSIDE THE CHANNEL WIDTH (W).
2. ON ANY SECONDARY ROADS INSTALLATION REQUIRING EROSION CONTROL STONE WHERE NO ENDWALL OR ENDSECTION IS SPECIFIED ON PLANS, CONSTRUCTION IS TO BE IN ACCORDANCE WITH DETAIL 2 SHOWN ABOVE.
3. GEOTEXTILE FABRIC TO BE INSTALLED UNDER ALL EROSION CONTROL STONE IN ACCORDANCE WITH THE SPECIFICATIONS.
4. S - DIAMETER OF CIRCULAR CULVERT OR SPAN FOR BOX, ELLIPTICAL OR ARCH CULVERT. H - DIAMETER OF CIRCULAR CULVERT OR RISE/HEIGHT FOR BOX, ELLIPTICAL OR ARCH CULVERT.
5.* USE TYPICAL SECTION SHOWN ON PLANS OR FOR SIDESLOPE, BOTTOM WIDTH AND DEPTH OF CHANNEL, MATCH EXISTING DITCH OR NATURAL GROUND.

SPECIFICATION REFERENCE
204
245
303
414

EC-1	MIN. DEPTH "D"
CLASS I	2'
CLASS II	3'

EC-1 VDOT STD. 114.01



ROBERT H.CROWDER, Inc
P.O.BOX 850 PRINCE GEORGE,VA 23875
Phone: 804-861-5217 Fax: 804-861-9115

REVISION	DATE
Co./VDOT	08/02/02
Co./VDOT	08/08/02

HIDDEN OAKS
BLAND DISTRICT
PRINCE GEORGE COUNTY, VIRGINIA
EROSION CONTROL NOTES & DETAILS

DATE: MAY 10,2002	
SCALE: AS SHOWN	
DESIGN:	DRAWN:
CHECK:	CHECK:
JOB NO.:	
SHEET 4 OF 11	