NARRATIVE

PROJECT DESCRIPTION

The purpose of this project is the construction of a 500,000 gallon elevated storage tank and 4,450 feet of water supply main. The site is located south of Petersburg, Virginia. The total site area is 694.37 Acres. Approximately 2.82 acres will be disturbed during the construction of this site. This site plan proposes approximately 0.24 acres of impervious area.

EXISTING SITE CONDITIONS

This site is very flat terrain (0 - 2%) on the top of a hill, draining to the south, west and east from the tank site area. Ultimately all of this area drains towards 2nd Swamp, to the east. The site is currently wooded and will need to be cleared as proposed with these plans. There are currently no siginifacant existing erosion/drainage problems that this plan needs to address. No other disturbances are planned other than what is shown by the limits of disturbance hereon. Pre-developed divides have been shown on the SWM/BMP Analyses Plan (Sheet C11). The post developed divides have also been shown on this same drawing. The increase in stormwater runoff will be mitigated using to small detention ponds as shown on these plans.

ADJACENT PROPERTY

To the east of this site lies Johnson Road, a public roadway maintained by VDOT. To the north, south, west and east (across Johnson Road) are the lands owned by Richard Bland College.

OFF-SITE AREAS

Topsoil must be stripped from the graded area and stockpiled for use in final grading and permanent stabilization. The stockpiles will be kept on-site. No off-site areas are being considered for the development of these improvements. If it is determined that an off-site area is necessary, the contractor shall submit a supplementary E&S plan to the owner covering the off-site stockpile area which would have to be approved by the plan approving authority before any off-site activity commences.

SOILS

Please see sheet C12 for soils information.

CRITICAL EROSION AREAS

There are no critical erosion areas within this portion of the development.

STRUCTURAL PRACTICES

1. Temporary Construction Entrance - 3.02
A temporary construction entrance with a wash rack shall be installed along Johnson Road, as shown on sheet C12. During muddy conditions, drivers of construction vehicles will be required to wash their wheels before entering the highway.
2. Silt Fence Barrier - 3.05
Silt fence sediment barriers will be installed downslope of areas with minimal grades to filter sediment-laden runoff from sheet flow as indicated on sheets C2 - C8 and C12.
3. Culvert Inlet Protection - 3.08
All storm culvert inlets shall be protected during construction. Sediment - laden water shall be filtered before entering the storm culvert inlets, as shown on sheet C12.
4. Temporary Diversion Dike - 3.09
A system of temporary diversion dikes, to direct flow into the sediment trap and the sediment basin, will be installed below major graded areas as indicated on sheet C12.
5. Sediment Trap - 3.13
two sediment traps will be required as shown on sheet C12. The computations for the size of the sediment traps can be found on drawing C12 as well.
6. Outlet Protection - 3.18
Riprap is to be placed at the outlet of all pipes as indicated on sheet 3 per the detail shown on sheet 5.
7. Check Dam - 3.20
Several rock check dams will be installed upslope of the sediment traps as shown on sheet C12, to reduce the velocity of concentrated flows which will help to increase the effectiveness of the sediment traps.
9. Tree Protection - 3.38
A fence barrier is to be placed around the trees and vegetated areas which will not be disturbed to protect the trees and other vegetation from construction equipment and soil compaction as indicated on sheets C2 - C8 and C12.

VEGETATIVE PRACTICES

1. Topsoiling (Stockpile) - 3.30
Top soil will be stripped from areas to be graded and stockpiled for later use. Stockpile locations shall be located on-site and are to be stabilized temporary vegetation.
2. Temporary Seeding - 3.31
All denuded areas which will be left dormant for extended periods of time shall be seeded with fast germinating temporary vegetation immediately following grading. As it is planned to be seeded in late fall 2006, a mixture of rye and annual ryegrass should be used.
3. Permanent Seeding - 3.32
All areas disturbed by construction and not scheduled to be worked upon within a year shall be permanently seeded. This also applies to any area that has remained temporarily seeded for one year. Seeding shall be done with "General Slope" mix as shown on Table 3.32D, Page III-304 of the VE&SCHB. Liming and fertilizing shall follow the guidelines outlined in the same standard and specification. Seedbed preparation shall conform to the guidelines provided on Page III-305 of the VE&SCHB.
4. Erosion Control Blankets - 3.36 or Mulch - 3.35
Erosion control blankets will be installed over fill slopes which have been brought to final grade and have been seeded to protect the slopes from rill and gully erosion and to allow seed to germinate properly. Mulch (straw or fiber) will be used on relatively flat areas and will be applied as a second step in the seeding operation.

EROSION AND SEDIMENTATION CONTROL SEQUENCE

PHASE 1:
1. Install tree protection fencing as shown on sheet C12.
2. Install the temporary construction entrance, diversion dikes, sediment traps, silt fencing, and Culvert 1 as shown on sheet C12. The diversion dikes and sediment traps shall be mulched and seeded immediately following installation. The sediment traps basin shall remain in place as long as possible.
3. Clear the remainder of the site and rough grade.

PHASE 2:
1. Install piped utilities, storage tank and roadway as shown on sheets C2 - C8 and C12. No more than 500' of utility trench shall be open at any one time. Trenching activities should be done in accordance with the utility installation detail shown hereon.
2. Once final grades have been reached the site will be seeded with permanent seeding.
3. Remove any remaining Erosion and Sedimentation Control measures as approved by the VA DCR inspector.

MAINTENANCE

In general, all erosion and sediment control measures will be checked daily and after each significant rainfall. The following items will be checked in particular:
1. The sediment traps will be checked regularly for sediment cleanout.
2. The gravel outlet of the sediment trap will be checked regularly for sediment buildup which will prevent drainage. If the gravel is clogged by sediment, it shall be removed and cleaned or replaced.
3. The silt fence barrier will be checked regularly for undermining or deterioration of the fabric. Sediment shall be removed when the level of sediment deposition has reached half way to the top of the barrier.
4. The seeded areas will be checked regularly to ensure that a good stand is maintained. Areas should be fertilized and reseeded as needed.
5. The VA DCR inspector has the authority to add or delete Erosion and Sedimentation controls as necessary in the field as site conditions change. In addition, no sediment basin or sediment trap can be removed without written authorization.

STORMWATER RUNOFF

Pre and post developed analyses have been shown on drawing C11. Please see sheet C11 for the Stormwater Management Narrative.

MINIMUM STANDARDS

MS-1. Temporary and permanent stabilization of denuded areas within 7 days. See numbers 2 and 3 of the Vegetative Practices section.
MS-2. Protection or stabilization of on-site and off-site soil stock piles and borrows areas. See the Offsite Areas section.
MS-3. Permanent stabilization of denuded areas not otherwise stabilized. See number 3 of the Vegetative Practices section.
MS-4. Install erosion and sediment controls as the first step in land disturbing activity. See Erosion and Sedimentation Control Sequence, number 2.
MS-5. Earthen controls and structures stabilized immediately upon installation. See Erosion and Sedimentation Control Sequence, number 2.
MS-6. Trap and basin design. See sediment trap computations on drawing C12.
MS-7. Design and construction of cut and fill slopes. See number 3 in the Maintenance section.
MS-8. Concentrated flow down cut and fill slopes. This is not applicable, this site plan does not indicate any concentrated runoff flowing down a slope.
MS-9. Slopes protected from seeps. This is not applicable.
MS-10. Operational stormwater inlets must be protected. This is not applicable, there are no storm inlets proposed in this plan.
MS-11. Outlets must be protected and stormwater conveyance channels stabilized before being made operational. See number 6, Structural Practices section.
MS-12. Minimize impacts when working in and around live water courses. This is not applicable, there are no live water courses within the construction limits of this project.
MS-13. temporary vehicular stream crossings for more than 2 trips 6 months. This is not applicable, there are no live water courses within the construction limits of this project.
MS-14. Other federal, state and local regulations pertaining to work in live watercourses. This is not applicable, there are no live water courses within the construction limits of this project.
MS-15. Stabilize disturbed bed and banks of watercourse. This is not applicable, there are no live water courses within the construction limits of this project.
MS-16. Utility installations (<500 feet of open trench, stockpile upgradient, filter dewatering effluent, backfill and compact, other safety requirements). See Item 1under Phase 2 of the Erosion and sedimentation Control Sequence.
MS-17. Keep paved or public areas clean. See sheet 3, the erosion and sedimentation controls shown thereon address this concern.
MS-18. Remove temporary controls within 30 days when no longer needed. See number 5 of the Maintenance section.
MS-19. Address increases in stormwater volume, velocity, and peak runoff. See stormwater runoff above.

REGISTERED LAND DISTURBER

Paul A. Bernard; PE# 012668; Expiration Date 10/31/2007

GENERAL NOTES

ES-1: Unless otherwise indicated, all vegetative and structural erosion and sediment control practices will be constructed and maintained according to minimum standards and specifications of the Virginia Erosion and Sediment Control Handbook and the *Virginia Erosion and Sediment Control Regulations* (4VAC5O-30).

ES-2: The plan-approving authority must be notified one week prior to the pre-construction conference, one week prior to the commencement of land disturbing activity, and one week prior to the final inspection. The name of the Responsible Land Disturber must be provided to the plan-approving authority prior to actual engagement in the land-disturbing activity shown on the approved plan. If the name is not provided prior to engaging in the land-disturbing activity, the plan's approval will be revoked.

ES-3: All erosion and sediment control measures are to be placed prior to or as the first step in clearing.

ES-4: A copy of the approved erosion and sediment control plan shall be maintained on the site at all times.

ES-5: Prior to commencing land disturbing activities in areas other than indicated on these plans (including, but not limited to, off-site borrow or waste areas), the contractor shall submit a supplementary erosion control plan to the owner for review and approval by the plan-approving authority.

ES-6: The contractor is responsible for installation of any additional erosion control measures necessary to prevent erosion and sedimentation as determined by the plan-approving authority.

ES- 7: All disturbed areas are to drain to approved sediment control measures at all times during land disturbing activities and during site development until final stabilization is achieved, after which, upon approval of the plan-approving authority, the controls shall be removed. Trapped sediment and the disturbed soil areas resulting from the removal of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

ES-8: During dewatering operations, water shall be pumped into an approved filtering device.

ES-9: The contractor shall inspect all erosion control measures at least every 2 weeks and immediately after each runoff-producing rainfall event. Any necessary repairs or cleanup to maintain the effectiveness of the erosion control devices shall be made immediately.

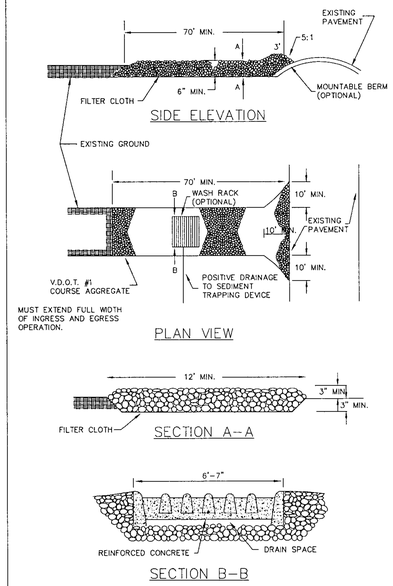
ES-10: The contractor is responsible for the daily removal of sediment that has been transported onto a paved or public road surface.

ES-11: Seeding operations shall be initiated within 7 days after reaching final grade or upon suspension of grading operations for anticipated duration of greater than 30 days or upon completion of grading operations for a specific area.

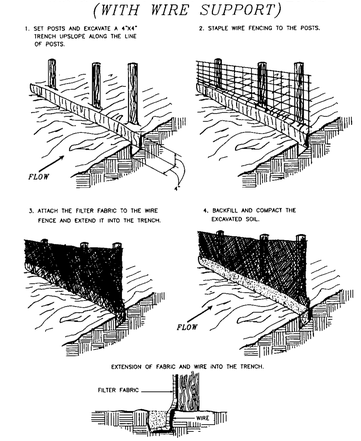
ES-12: The contractor shall be responsible for preventing surface and air movement of dust from exposed soils which may present health hazards, traffic safety problems, or harm animal or plant life.

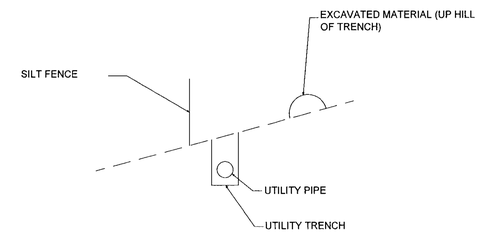
ES-13: A Virginia Stormwater Management Program Permit (VSMPP) for the discharge of stormwater from construction activities is required for projects disturbing 1 acre or greater. A VSMPP is also required for projects disturbing 2,500 square feet or greater in a designated Chesapeake Bay Preservation Area. Visit the Virginia Stormwater Management Program Permitting web page at http://www.dcr.state.va.us/sw/vsmp.htm for more information.

STONE CONSTRUCTION ENTRANCE



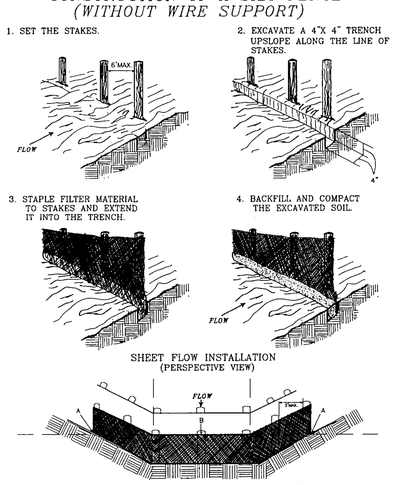
CONSTRUCTION OF A SILT FENCE (WITH WIRE SUPPORT)



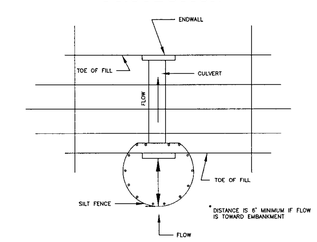


UTILITY INSTALLATION DETAIL

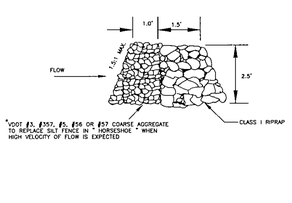
CONSTRUCTION OF A SILT FENCE (WITHOUT WIRE SUPPORT)



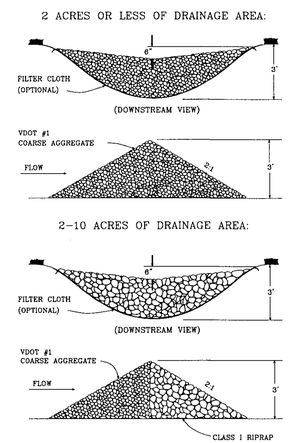
SILT FENCE CULVERT INLET PROTECTION



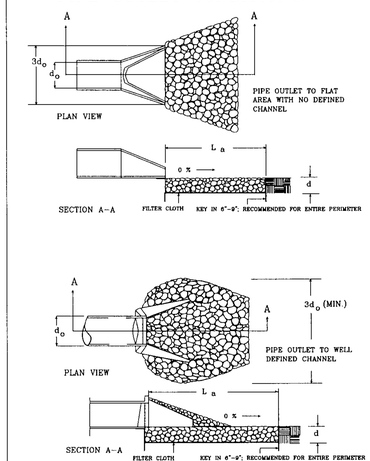
*OPTIONAL STONE COMBINATION



ROCK CHECK DAM



PIPE OUTLET CONDITIONS



NOTES: 1. APRON LINING MAY BE RIPRAP, GROUTED RIPRAP, GABION BASKET, OR CONCRETE.
2. La IS THE LENGTH OF THE RIPRAP APRON AS CALCULATED USING PLATES 3.18-3 AND 3.18-4.
3. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER, BUT NOT LESS THAN 6 INCHES.

DATE	NO.	REVISION	APPROVAL
02/13/07	1	RESPOND TO VDOT/BCOM COMMENTS	KMB

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COMMONWEALTH OF VIRGINIA
KENNETH M. BATBUIT
No. 028257
2/14/07
PROFESSIONAL ENGINEER

EROSION AND SEDIMENTATION CONTROL DETAILS AND NARRATIVE

RICHARD BLAND COLLEGE CONSTRUCTION OF ELEVATED WATER STORAGE TANK

PRINCE GEORGE & DINWIDDIE COUNTY VIRGINIA

PLOTTING SCALE: NTS
DATE PLOTTED: 9/27/2006
FILE: C13.dwg
DRAWN BY: DJM
DESIGNED BY: DJM
REVIEWED BY: KMB
PROJECT NO.: 210640004

SHEET C13 OF

I:\21064 - Richard Bland College\RBC Tanks\Sheets\Water\Storage Tank Drawings\C13.dwg