

EROSION & SEDIMENT CONTROL NARRATIVE

PROJECT DESCRIPTION

The purpose of this project is to construct a proposed single family residential subdivision which includes the construction of a two-way street with one intersection. This project will include all necessary grading and utility construction to serve the project site. Disturbed Area is 33 acres.

EXISTING SITE CONDITIONS

The proposed site is located on approximately 49.71 acres that is currently vacant and consists of rolling slopes with the terrain slopes being in the 2% to 20% range. Partially located in the flood plane and within both the City of Roanoke and Roanoke County, Virginia.

ADJACENT AREAS

The project site is bordered to the north by residential and religious properties; to the east by residential properties; to the south by Glade Creek; Norfolk and Southern Railroad tracks; and to the west by Mountain Brook Drive.

SOILS

Soils found at this site are common to the area. Chiswell-Lutz complex, 15% to 25% slopes; Chiswell-Lutz complex, 25% to 50% slopes; Combs loam, 0 to 2% slopes, occasionally flooded; Speedwell loam, 0 to 2% slopes occasionally flooded.

CRITICAL EROSION AREAS

1. The potential critical erosion areas are fill and cut slopes.
2. Outlet of storm drain pipe.
3. Stormwater flow to Glade Creek.

EROSION AND SEDIMENT CONTROL MEASURES

Unless otherwise indicated, all vegetative and structural erosion and sediment control practices shall be constructed and maintained according to minimum standards and specifications of the handbook. The minimum standards of the VESCR shall be adhered to unless otherwise waived or approved by a variance.

STRUCTURAL PRACTICES

1. Safety Fence (Section 3.01) A protective barrier installed to prevent access to an erosion control measure and to prohibit the undesirable use of an erosion control measure by the public.
2. Temporary Construction Entrance (Section 3.02) The temporary construction entrance will be installed to limit tracking onto public roads. Should tracking occur the road will be immediately cleaned.
3. Construction Road Stabilization (Section 3.03) All roads and parking areas on the site shall be stabilized with gravel immediately after grading. Traffic is prohibited from entering drainage swales or streams unless absolutely necessary.
4. Silt Fence (Section 3.05) Temporary silt fences will be installed as indicated on the site plan.
5. Inlet Protection (Section 3.07) Inlet protection will be placed at all storm structure inlets to prevent sediment from entering the system.
6. Temporary Diversion Dike (Section 3.09) Temporary Diversion Dikes will divert runoff to a controlled outlet.
7. Temporary Right-of-Way Diversion (Section 3.11) A ridge of compacted soil or loose rock or gravel constructed across disturbed rights-of-way and similar sloping areas.
8. Temporary Sediment Trap (Section 3.13) A small ponding area formed by constructing an earthen embankment with a stone outlet across a drainage swale.
9. Temporary Sediment Basin (Section 3.14) The two temporary sediment basins will collect runoff from them disturbed area and allow the sediment to settle before leaving the site.
10. Stormwater Conveyance Channel (Section 3.17) The proposed conveyance channel will collect runoff and prevent erosion of the existing drainage ditch. The channel will remain after construction is finished.
11. Outlet Protection (Section 3.18) Outlet protection will be placed at the outlets of pipes or paved channels to protect the outlet structure, and to minimize the potential for downstream erosion by reducing the velocity and energy of concentrated stormwater flows.
12. Check Dams (Section 3.20) Small temporary stone dams constructed across a swale or drainage ditch to reduce the velocity of concentrated stormwater flows.
13. Surface Roughing (Section 3.29) To aid in establishment of vegetative cover with seed, to reduce runoff velocity and increase infiltration, to reduce erosion and provide for sediment trapping, a rough soil surface with horizontal depressions will be created by operating a tillage or other suitable implement on the contour of all slopes at or exceeding 3:1.
14. Temporary Seeding (Section 3.31) Temporary seeding will be placed on all disturbed areas that will not be brought to final grade within one year or less. Temporary seeding will aid in the reduction of dust and sediment. Temporary seeding will be:
 - Sept. 1 - Feb. 15 50/50 Mix of Annual Ryegrass 50-100 (lbs./acre)
 - Feb. 16 - Apr. 30 Annual Ryegrass 60-100 (lbs./acre)
 - May 1 - Aug. 31 German Millet 50 (lbs./acre)
15. Permanent Seeding (Section 3.32) After final grading permanent seeding will be employed to reduce erosion and sediment yield.

General Slope (3:1 OR LESS)	
Kentucky 31 Fescue	128 lbs.
Red Top Grass	100 lbs.
Seasonal Nurse Crop*	20 lbs.
	150 lbs.

Low-Maintenance Slope (Steeper than 3:1)

Kentucky 31 Fescue	108 lbs.
Red Top Grass	2 lbs.
Seasonal Nurse Crop*	20 lbs.
Crownvetch**	20 lbs.
	150 lbs.

*Use seasonal nurse crop in accordance with seeding dates as stated below:

March, April through May 15th	Annual Ryegrass
May 16th through August 15th	Foral Millet
August 16th through September, October	Annual Ryegrass
November through February	Winter Ryegrass

**If Platane is used, increase to 30 lbs./acre. All legume seed must be properly inoculated. Weeping Liveoak may also be included in any slope or low-maintenance mixture during warmer seeding periods; add 10-20 lbs./acre in mixes

16. Mulching (Section 3.35) Application of plant residues or other suitable materials to the soil surface to prevent erosion by protecting the soil surface from raindrop impact and reducing the velocity of overland flow, to foster the growth of vegetation by increasing available moisture and providing insulation against extreme heat and cold. Areas which have been permanently seeded should be mulched immediately following seeding.

17. Soil Stabilization Blankets & Matting (Section 3.36) To aid in controlling erosion on critical areas by providing a microclimate which protects young vegetation and promotes its establishment, the installation shall be required of a protection covering (blanket) or a soil stabilization mat on a prepared planting area of a steep slope, channel or shoreline.

18. Tree Preservation and Protection (Section 3.38) Protection of desirable trees from mechanical and other injury during land disturbing and construction activity.

19. Dust Control (Section 3.39) If arid conditions prevail dust control practices will be employed as required.

MANAGEMENT

1. Construction should be sequenced so that grading operations can begin and end as quickly as possible.
2. Erosion and Sediment control devices shall be installed as the first step of construction.
3. Areas which are not to be disturbed shall be clearly marked by flags, signs.
4. The grading contractor shall be responsible for the installation and maintenance of all erosion and sediment control practices. Inspections are to be made periodically and after every significant rainfall.
5. After achieving adequate stabilization, the temporary E&S controls will be cleaned up and removed, and the sediment basins will be cleaned out and converted to permanent stormwater management basins.

PERMANENT STABILIZATION

All areas disturbed by construction shall be stabilized with permanent seeding immediately following final grading. Seeding shall be done with Kentucky 31 Tall Fescue according to Std. & Spec. 3.32, PERMANENT SEEDING, of the handbook. 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. In all seeding operations, seed, fertilizer and lime will be applied prior to mulching.

MAINTENANCE OF DETENTION FACILITIES

The applicant 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.

STORMWATER MANAGEMENT

Calculation of runoff before and after development indicates that there will be a net increase in peak runoff as a result of project development. Consequently, stormwater will be managed by BMP's constructed with this project.

MAINTENANCE

In general, all erosion and sediment control measures will be checked daily and after each significant rainfall. Any items not found in accordance with the Virginia Erosion and Sediment Control Handbook will be immediately replaced and/or repaired. The following items will be checked in particular:

1. The sediment basin and trap will be cleaned out when the level of sediment buildup reaches the cleanout point indicated on the riser pipe.
2. The gravel outlets 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 reaches 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 re-seeded as needed.

GENERAL

The erosion and sediment control measures shown on the construction plans are the minimum measures required. Due to construction phasing and other considerations all measures can not be shown. The owner, through his contractor, will employ whatever measures which may be required to assure that sediment laden runoff does not leave the site.

All materials and measures employed for erosion and sediment control will be in accordance with the Virginia Erosion and Sediment Control Handbook, latest edition.

If, during construction, additional Erosion and Sediment Control measures are deemed necessary, they shall be installed as directed by the Owner, Engineer or County agent.

This project is to be constructed consistent with the 2013 Virginia Erosion and Sediment Control Regulations.

OFF-SITE AREAS

The location of all off-site borrow or waste areas associated with the construction of this project will be provided to the Planning Division. An Erosion and Sediment Control Plan and permit will be required for the site.

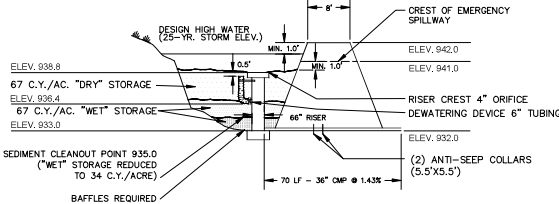
UNDERGROUND UTILITY LINE INSTALLATION

1. No more than (500) Five hundred linear feet of trench may be open at one time.
2. Excavated material shall be placed on uphill side of trenches.
3. Effluent from dewatering operations shall be filtered through an approved sediment trapping device and discharged in a manner that does not adversely affect flowing streams or off-site property.
4. Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.
5. Rehabilitation shall be accomplished in accordance to VESCR.
6. All safety regulations shall be followed.

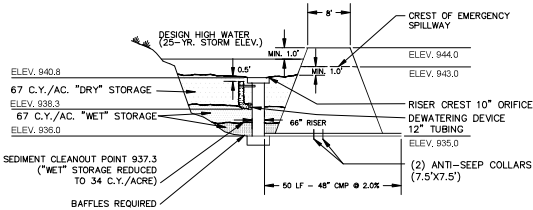
F&S LEGEND

- | | |
|----|--|
| SW | 3.01 SAFETY FENCE |
| CE | 3.02 CONSTRUCTION ENTRANCE |
| SF | 3.05 SILT FENCE |
| IP | 3.07 INLET PROTECTION |
| DD | 3.09 TEMPORARY DIVERSION DIKE |
| FW | 3.11 TEMPORARY RIGHT-OF-WAY DIVERSION |
| ST | 3.13 TEMPORARY SEDIMENT TRAP |
| SB | 3.14 TEMPORARY SEDIMENT BASIN |
| SC | 3.17 STORMWATER CONVEYANCE CHANNEL |
| OP | 3.18 OUTLET PROTECTION |
| SR | 3.29 SURFACE ROUGHING |
| TS | 3.31 TEMPORARY SEEDING |
| PS | 3.32 PERMANENT SEEDING |
| MU | 3.35 MULCHING |
| BM | 3.36 SOIL STABILIZATION BLANKETS AND MATTING |

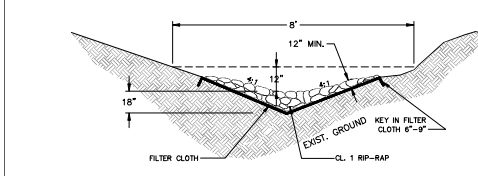
SEDIMENT BASIN 1 - PHASE 1 PRINCIPAL SPILLWAY DESIGN



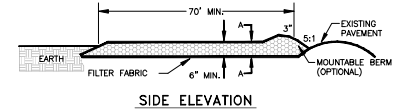
SEDIMENT BASIN 2 - PHASE 2 PRINCIPAL SPILLWAY DESIGN



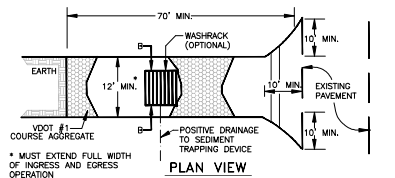
STORMWATER CONVEYANCE CHANNEL



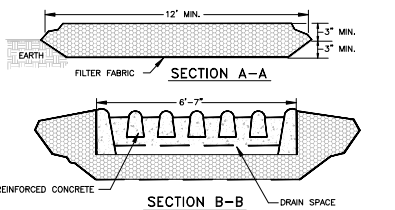
STONE CONSTRUCTION ENTRANCE



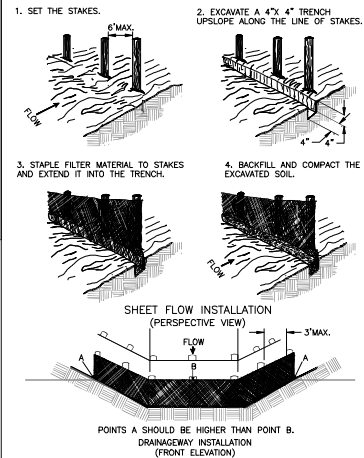
SIDE ELEVATION



PLAN VIEW



CONSTRUCTION OF A SILT FENCE (WITHOUT WIRE SUPPORT)



City of Roanoke
Planning, Building, & Development
COMPREHENSIVE DEVELOPMENT PLAN
APPROVED
by Ken Richardson 06/07/2021

MOUNTAIN BROOK VILLAS
COMPREHENSIVE
DEVELOPMENT PLAN
ROANOKE, VIRGINIA

EROSION & SEDIMENT
CONTROL SHEET

NO. 1000 AS R
Lic. No. 22942
4-21-21
PROFESSIONAL ENGINEER

Drawn By MCP
Checked By RCW
Project Date 05/17/20
Drawing 4343
Commission No. 4343

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