

EROSION AND SEDIMENT CONTROL PRACTICES

SAFETY FENCE—Std. 3.01	a protective barrier installed to prohibit undesirable use of an erosion control measure.
CONSTRUCTION ENTRANCE—Std. 3.02	a stone pad, located at points of vehicular ingress and egress on a construction site, to reduce the soil transported onto public roads and other paved areas.
CONSTRUCTION ROAD STABILIZATION—Std. 3.03	temporary stabilization with stone of access roads, subdivision streets, parking areas and other traffic areas immediately after grading to reduce erosion caused by vehicles during wet weather.
STRAW BALE BARRIER—Std. 3.04	a temporary barrier composed of straw bales placed across or at the toe of a slope to intercept and detain sediment.
SILT FENCE—Std. 3.05	a temporary barrier constructed of posts, filter fabric and, in some cases, a wire support fence, placed across or at the toe of a slope to intercept and detain sediment.
BRUSH BARRIER—Std. 3.06	a temporary barrier composed of limbs, weeds, vines, root mat, rock and other cleared materials pushed together to form a berm, placed across or at the toe of a slope to intercept and detain sediment.
INLET PROTECTION—Std. 3.07	installation of a sediment trapping measure around drop inlets or curb inlet structures prior to permanent stabilization of the disturbed area.
CULVERT INLET PROTECTION—Std. 3.08	a sediment filter located at the inlet to storm sewer culverts which prevents sediment from entering, accumulating in and being transferred by the culvert.
DIVERSION DIKE—Std. 3.09	a ridge of compacted soil constructed at the top or base of a sloping disturbed area which diverts off-site runoff away from unprotected slopes and to a stabilized outlet OR to divert sediment laden runoff to sediment trapping structure.
FILL DIVERSION—Std. 3.10	a channel with a supporting ridge on the lower side, constructed along the top of an active earth fill in order to divert runoff away from the unprotected slope to a stabilized outlet or sediment trapping structure.
RIGHT-OF-WAY DIVERSIONS—Std. 3.11	a ridge of compacted soil or loose gravel constructed across a disturbed right-of-way or similar sloping area to divert the runoff to a stabilized outlet.
DIVERSIONS—Std. 3.12	a permanent channel with a ridge on the lower side constructed across a slope to reduce slope length and intercept and divert stormwater runoff to a stabilized outlet at non-erosive velocities.
SEDIMENT TRAP—Std. 3.13	a small ponding area, formed by constructing an earthen embankment with a stone outlet across a drainage swale, to detain sediment-laden runoff from small disturbed areas.
SEDIMENT BASIN—Std. 3.14	a temporary barrier or dam with a controlled stormwater release structure which is formed by constructing an embankment of compacted soil across a drainage way, to detain sediment-laden runoff from large disturbed areas to allow for suspended solids to settle out.
TEMPORARY SLOPE DRAINS—Std. 3.15	a flexible tubing or conduit, used before permanent drainage structures are installed, intended to conduct concentrated runoff safely from the top to the bottom of a disturbed slope without causing erosion on or below the slope.
PAVED FLUME—Std. 3.16	a permanent concrete-lined channel constructed to conduct concentrated runoff from the top to the bottom of a slope without causing erosion on or below the slope.
STORMWATER CONVEYANCE CHANNEL—Std. 3.17	a permanent channel designed to carry concentrated flows without erosion. Applicable to manmade channels, including roadside ditches, and natural channels that are modified to accommodate increased flows generated by land development; not generally applicable to major, continuous-flowing natural streams.
OUTLET PROTECTION—Std. 3.18	the installation of riprap channel sections and/or stilling basins below storm drain outlets to reduce erosion and under-cutting from scouring at outlets and to reduce flow velocities before stormwater enters receiving channels below these outlets.
RIPRAP—Std. 3.19	a permanent erosion-resistant ground cover of large, loose, angular stone installed wherever soil conditions, water turbulence and velocity, expected vegetative cover, etc. are such that soil may erode under design flow conditions.
CHECK DAMS—Std. 3.20	small, temporary stone dams constructed across a drainage ditch to reduce the velocity of concentrated flows, reducing erosion of the swale or ditch.
LEVEL SPREADER—Std. 3.21	an outlet for dikes and diversions consisting of an excavated depression constructed at zero grade across a slope to convert concentrated, sediment-free runoff to sheet flow and release it onto areas of undisturbed soil which is stabilized by existing vegetation.
VEGETATIVE STREAMBANK STABILIZATION—Std. 3.22	the establishment of appropriate vegetation on streambanks to protect the banks from erosion.
STRUCTURAL STREAMBANK STABILIZATION—Std. 3.23	stabilizing the banks of live streams with permanent structural measures to protect them from erosion.
VEHICULAR STREAM CROSSING—Std. 3.24	a temporary structural span across a live stream to provide vehicular access to construction activity on either side of the stream while keeping sediment out of the stream and preventing damage to the channel bed and banks.
UTILITY STREAM CROSSING—Std. 3.25	a strategy for crossing small waterways when in-stream utility construction is involved. The strategy helps to prevent sediment from entering the affected watercourse and minimizes the amount of disturbance within the stream itself.
DEWATERING STRUCTURE—Std. 3.26	a temporary settling and filtering device for water, which is discharged from dewatering activities.
TURBIDITY CURTAIN—Std. 3.27	a floating geotextile material which minimizes sediment transport from a disturbed area adjacent to or within a body of water.
SUBSURFACE DRAINS—Std. 3.28	a perforated conduit installed beneath the ground to intercept and convey groundwater. Prevents sloping soils from becoming excessively wet and subject to sloughing, and improves the quality of the vegetative growth medium in excessively wet areas by lowering the water table.
SURFACE ROUGHENING—Std. 3.29	grading practices such as stair-stepping or grooving slopes or leaving slopes in a roughened condition by not fine-grading them.
TOPSOILING—Std. 3.30	preserving and using topsoil to provide a suitable growth medium for vegetation used to stabilize disturbed areas.
TEMPORARY SEEDING—Std. 3.31	establishment of temporary vegetative cover on disturbed areas that will not be brought to final grade for periods of 30 days to 1-year by seeding with appropriate rapidly growing plants.
PERMANENT SEEDING—Std. 3.32	establishment of perennial vegetative cover by planting seed on rough-graded areas that will not be brought to final grade for a year or more or where permanent, long-lived vegetative cover is needed on fine-graded areas.
SODDING—Std. 3.33	stabilizing fine-graded areas by establishing permanent grass stands with sod. Provides immediate protection against erosion, and is especially effective in grassed swales and water-ways or in areas where an immediate aesthetic effect is desirable.

EROSION AND SEDIMENT CONTROL 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 VIRGINIA REGULATIONS VR 625-02-00 EROSION AND SEDIMENT CONTROL REGULATIONS.
- 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.
- 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.
- ES-8: DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.
- ES-9: THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUN-OFF PRODUCING RAINFALL EVENT, ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.

EROSION AND SEDIMENT CONTROL NARRATIVE

PROJECT DESCRIPTION:

The purpose of this project is the development of a cluster home subdivision. This type of development design technique concentrates residential dwellings in specific areas on the site to allow the remaining land to be used for recreation, common open space and preservation of large environmental areas. The owner of the property, Mr. Fred E. Taylor, Jr., will construct the development. The development is located in the County of Roanoke, Virginia between two state maintained roads, Merriman Road and Crystal Creek Drive and specifically identified as Tax Parcels 87.17-6-11.3, 87.17-6-12 and 87.05-1-27.

The site will accommodate approximately 18 dwellings with four cul-de-sac private roadways. Two new private entrances off of the previously mentioned roads will provide access to the site.

EXISTING SITE CONDITIONS:

The existing property is mainly a large wooded tract with very little undergrowth; this is due in fact that over 70% percent of the site has slopes greater than 25%. There is currently a pond embankment constructed along Merriman Road to facilitate as a stormwater management area and as an amenity to the homeowners association. There is also a Harvey family cemetery located atop of the hill, which will be left intact. Located in the southeastern portion of the original property are several farm sheds, which will remain and be subdivided off from the proposed subdivision tract.

ADJACENT PROPERTY:

The western property line is bounded by a church facility owned and operated by the Terumah Foundation, Inc. and recognized as 'Church of the Holy Spirit'. The northern property line is bounded by Merriman Road, a 60' wide public right-of-way with a two-lane roadway. Across from the road are several residential homes and vacant tracts. The eastern property line is bounded by the two residential homes, owned by the developer's family and a large vacant tract of land owned by the Roanoke County School Board. The southern property line is bounded the residual of the Roanoke County School Board and by two more large tract of farmland. The southern property line also is paralleled by the two-lane road known as Crystal Creek Road, which is maintained by VDOT, by a 30' prescriptive easement. Paralleling the road is Back Creek, a FEMA study watercourse.

SOILS:

No soils report has been prepared for this project.

CRITICAL EROSION AREAS:

If proper construction methods and utilization of the proposed soil erosion measures, the only potentially critical erosion areas are:

1. The control of the stormwater runoff across the grading operation as the access road is constructed off of Crystal Creek Drive. Installing a diversion and a temporary slope drain across the top of the cut will minimize the erosion along the excavated slopes and help maintain stability.
2. The plan submitted for approval has been developed through careful consideration of this critical area. If erosion control devices fail to eliminate sediment from leaving the site, clean up will be required immediately.

EROSION AND SEDIMENT CONTROL MEASURES:

Unless otherwise stated, all vegetative and structural erosion and sediment control practices will be constructed and maintained in accordance with the minimum standards and specifications found in the Virginia Erosion and Sediment Control Handbook (1992 Edition). If during construction, additional erosion control devices are deemed necessary, they shall be installed as directed by the County of Roanoke personnel.

MANAGEMENT STRATEGIES:

1. Construction shall be sequenced so that the grading operations can begin and end as quickly as possible.
2. Erosion and sediment control devices will be installed as a first step of construction and as work progress on site.
3. The General Contractor will be responsible for the installation and maintenance of all erosion and sediment control devices throughout the construction phases and responsibility may only be forwarded to the grading contractor.
4. Inspections are to be made periodically and after every runoff producing rainfall.
5. Repairs to damaged or deficient control measures will be made immediately upon discovery of damage or upon notification from the County of Roanoke.

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:
 - The construction entrance shall be maintained in a condition to prevent tracking and flow of mud onto public right-of-ways.
 - All silt fence barriers shall be checked regularly for undermining and sediment build-up.
 - All diversion ditches shall be checked for sediment buildup in 'flat' areas, which could create overtopping and check for excessive erosion along the bottom in 'steep' sections, which require stabilization to prevent sediment from being disposed of off-site.
 - All areas not sodded and receiving standard seed mixtures will be checked regularly to see that a good stand of grass has been established. Any areas not growing shall be fertilized and reseeded as needed.

REMOVAL OF CONTROL MEASURES:

All temporary erosion and sediment control devices will be removed within thirty (30) days after final site stabilization or after temporary measures are no longer deemed necessary, unless otherwise directed by the County of Roanoke.

STORMWATER MANAGEMENT:

Supplementary calculation have been provided indicating that there are two distinct drainage sheds and that after development, all areas are in compliance with Minimum Std. 19 of the Virginia Erosion & Sediment Control Regulations.

SUMMARY OF MINIMUM STANDARDS

Permanent or temporary soil stabilization shall be applied to denuded areas within seven (7) days after final grade has been reached on any portion of the site. Temporary soil stabilization shall be applied within seven (7) days to denuded areas that may be at final grade but will remain dormant (undisturbed) for longer than thirty (30) days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one (1) year.

During construction of the project, soil stockpiles shall be stabilized or protected with sediment trapping measures. The contractor is responsible for the temporary protection and permanent stabilization of all soil stockpiles on site as well as 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, in the opinion of the local program administrator or designated agent, 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 methods shall be applied to earthen structures such as dams, dikes and diversions immediately after installation.

Cut and fill slopes shall be constructed in a manner that will minimize erosion. Slopes that are found to be eroding excessively within one (1) year of permanent stabilization shall be provided with additional slope stabilization 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 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 (6) month period, a temporary stream crossing constructed of nonerodible material.

All applicable federal, state and local regulations pertaining to working in or crossing live watercourses shall be met. The beds and banks of any watercourse shall be stabilized immediately after work in the watercourse is completed.

Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:

- no more than 500 linear feet of any trench may be opened at one time.
- excavated material shall be placed on the uphill side of trenches.
- 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.
- reestablishment shall be accomplished in accordance with these regulations.
- applicable safety regulations shall be complied with.

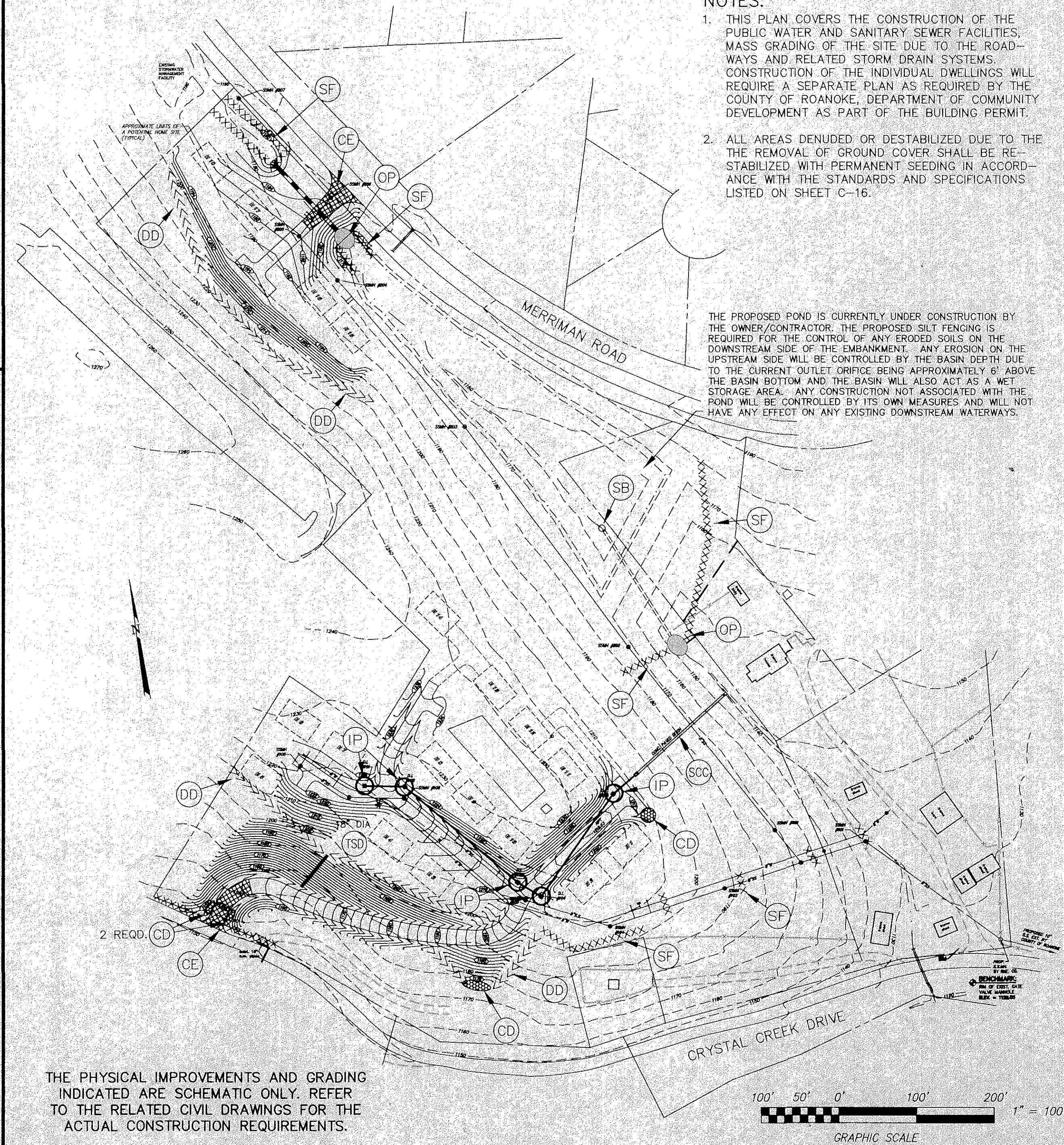
Where construction vehicle access routes intersect paved public roads, provisions shall be made to minimize the transport of sediment by vehicle traveling onto the paved surfaces. Where sediment is transported onto a public road surface, the road shall be cleaned thoroughly at the end of each day. Sediment 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.

All temporary erosion and sediment control measures shall be removed within thirty (30) days after final site stabilization or after the temporary measures are no longer needed, unless otherwise authorized by the local program administrator. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

VIRGINIA UNIFORM CODING SYSTEM for Erosion and Sediment Control Practices

NO.	TITLE	KEY	SYMBOL	NO.	TITLE	KEY	SYMBOL	NO.	TITLE	KEY	SYMBOL
3.01	SAFETY FENCE	SAF		3.14	TEMPORARY SEDIMENT BASIN	SB		3.27	TURBIDITY CURTAIN	TC	
3.02	TEMPORARY GRAVEL CONSTRUCTION ENTRANCE	CE		3.15	TEMPORARY SLOPE DRAIN	TSD		3.28	SUBSURFACE DRAIN	SD	
3.03	CONSTRUCTION ROAD STABILIZATION	CRS		3.16	PAVED FLUME	PF		3.29	SURFACE ROUGHENING	SR	
3.04	STRAW BALE BARRIER	STB		3.17	STORMWATER CONVEYANCE CHANNEL	SCC		3.30	TOPSOILING	TO	
3.05	SILT FENCE	SF	XXXXXXXXXXXX	3.18	OUTLET PROTECTION	OP		3.31	TEMPORARY SEEDING	TS	
3.06	BRUSH BARRIER	BB		3.19	RIPRAP	RR		3.32	PERMANENT SEEDING	PS	
3.07	STORM DRAIN INLET PROTECTION	IP		3.20	ROCK CHECK DAMS	CD		3.33	SODDING	SO	
3.08	CULVERT INLET PROTECTION	CIP		3.21	LEVEL SPREADER	LS		3.34	BERMUDA GRASS AND ZOYSIAURASS ESTABLISHMENT	BE Z	
3.09	TEMPORARY DIVERSION DIKE	DD		3.22	VEGETATIVE STREAMBANK STABILIZATION	VSS		3.35	MULCHING	MU	
3.10	TEMPORARY FILL DIVERSION	FD		3.23	STRUCTURAL STREAMBANK STABILIZATION	SSS		3.36	SOIL STABILIZATION BLANKETS AND MATTING	SA	
3.11	TEMPORARY RIGHT-OF-WAY DIVERSION	RWD		3.24	TEMPORARY VEHICULAR STREAM CROSSING	VSC		3.37	TREES, SHRUBS, VINES AND GROUND COVERS	VEG	
3.12	DIVERSION	DV		3.25	UTILITY STREAM CROSSING	USC		3.38	TREE PRESERVATION AND PROTECTION	TP	
3.13	TEMPORARY SEDIMENT TRAP	ST		3.26	DEWATERING STRUCTURE	DS		3.39	DUST CONTROL	DC	

EROSION & SEDIMENT CONTROL PLAN



THE PHYSICAL IMPROVEMENTS AND GRADING INDICATED ARE SCHEMATIC ONLY. REFER TO THE RELATED CIVIL DRAWINGS FOR THE ACTUAL CONSTRUCTION REQUIREMENTS.

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Tax Parcel: See Plans
W.D. # 01-0111
S.D. #
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EROSION & SEDIMENT CONTROL PLAN
SPEEDWELL
PROPOSED CLUSTER HOME SUBDIVISION
ROANOKE COUNTY, VIRGINIA