

EROSION CONTROL REQUIREMENTS

PROJECT DESCRIPTION

The purpose of this project is to construct a sanitary sewer along Valleypointe Parkway and tying into the existing sewer on Concourse Drive. The site is located in Roanoke County, Virginia at the intersection of Woodhaven Road and Valleypointe Parkway. The total disturbed area for the project is approximately 0.852 acres.

ADJACENT PROPERTY

The sanitary sewer extension is located along Valleypointe Parkway Extension and ties into the existing sanitary sewer located on Concourse Drive in Roanoke, Virginia. The extension is bordered by industrial property owned by English Construction and the Roanoke County Board of Supervisors to the north and residential properties to the south.

SOILS

Refer to this drawing Soils Map information.

CRITICAL EROSION AREAS

Early establishment and proper maintenance of perimeter controls will provide sedimentation control.

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 Virginia Erosion and Sediment Control Handbook. The minimum standards of the VESCH shall be adhered to unless otherwise waived or approved by a variance by local authorities having jurisdiction.

STRUCTURAL PRACTICES

- Temporary Construction Entrance - 3.02**
A temporary construction entrance shall be provided at the location indicated on the plans. It is imperative that this measure be maintained throughout construction.
- Silt Fence Barrier - 3.05**
Silt fence sediment barriers shall be installed downslope of areas with minimal grades to filter sediment-laden runoff from sheet flow as indicated.
- Storm Drain Inlet Protection - 3.07**
Stone filters shall be placed at the inlet of all drainage structures as indicated.
- Culvert Inlet protection - 3.08**
A sediment filter located at the inlet to a storm sewer culvert.
- Temporary Diversion Dike - 3.09**
A ridge of compacted soil constructed at the top of base of a sloping disturbed area which diverts off-site runoff away from unprotected slopes to a stabilized outlet, or to divert sediment-laden runoff to a sediment trapping structure.
- Temporary Sediment Trap - 3.13**
A small ponding area formed by constructing an earthen embankment with a stone outlet across as drainage swales to detain sediment laden runoff from small disturbed areas for enough time to allow most of the suspended solids to settle out.
- Temporary Sediment Basin - 3.14**
A temporary barrier or dam with a controlled stormwater release structure formed by construction an embankment of compacted soil across a drainage way.
- Outlet Protection - 3.18**
Riprap shall be placed at the outlet of all pipes as indicated.
- Rock Check Dams - 3.20**
Small temporary stone dams constructed across a swale or drainage ditch
- Soil Stabilization Blankets & Matting - 3.36**
The installation of a protective blanket or soil stabilization mat on a prepared planting of a steep slope, channel, or shoreline.
- Tree Protection - 3.38**
Protection of desirable trees from mechanical and other injury during land disturbing and construction activity.

VEGETATIVE PRACTICES

- Topsoiling (Temporary Stockpile) - 3.30**
Topsoil shall be stripped from areas to be graded and stockpiled for later spreading. Stockpile locations shall be located onsite and shall be stabilized with temporary silt fence and vegetation.
- Temporary Seeding - 3.31**
All denuded areas which will be left dormant for more than 30 days shall be seeded with fast germinating temporary vegetation immediately following grading of these areas. Seeding of the seed mixture shall depend on the time of year it is applied.

MANAGEMENT STRATEGIES

- Provide sediment trapping measures as a first step in grading and seed and mulch immediately following installation.
- Provide temporary seeding or other stabilization immediately after grading.
- Isolate trenching for utilities and drainage from downstream conveyances in order to minimize perimeter controls.
- All erosion and sediment control practices shall be maintained until they are no longer required to comply with the contract documents or state law.

PERMANENT STABILIZATION

All non-paved areas disturbed by construction shall be stabilized with permanent seeding immediately following finish grading. Seeding shall be in accordance with Std. & Spec. 3.32, PERMANENT SEEDING. Seed type shall be as specified for "Minimum Care Lawns" and "General Slopes" in the Handbook. Mulch (straw or fiber) shall be used on all seeded surfaces. In all seeding operations seed, fertilizer and lime shall be applied prior to mulching.

MAINTENANCE (See "Minimum Standards" for additional information).
All erosion and sediment control measures shall be checked daily and after each run-off producing rainfall. The following items shall be checked in particular

- Check the silt fence after every storm event to ensure effective operation and remove sediment when the level of sediment deposition reaches half way to the top of the barrier.
- Check the gravel inlet protection for sediment buildup which will prevent drainage. If the gravel is clogged by sediment; remove and clean, or replace.
- Check the silt fence barrier for undermining or deterioration of the fabric. Remove sediment when the level of sediment deposition reaches half way to the top of the barrier.
- Check the seeding areas to ensure that a stand of grass is maintained. Fertilize and reseed as needed.
- Check the culvert inlet protection for sediment buildup. Clean or replace aggregate if clogged by sediment. Remove sediment and restore the impoundment to its original dimensions when sediment has accumulated to one half of the design depth.

GENERAL EROSION AND SEDIMENT CONTROL NOTES

- ES-1: Unless otherwise indicated, construct and maintain all vegetative and structural erosion and sediment control practices according to minimum standards and specifications of the Virginia Erosion and Sediment Control Handbook and Virginia Regulations VR 625-02-01.
- ES-2: Roanoke County having jurisdiction will make a continuing review and evaluation of the methods and effectiveness of the erosion control plan.
- ES-3: Place all erosion and sediment control measures prior to or as the first step in clearing, grading, or land disturbance.
- ES-4: Maintain a copy of the approved erosion and sediment control plan 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, offsite borrow or waste area), submit a supplementary erosion control plan to the Architect/Engineer for review and acceptance.
- ES-6: Provide additional erosion control measures necessary to prevent erosion and sedimentation as determined by The County of Roanoke field manager.
- ES-7: All disturbed areas shall drain to approved sediment control measures at all times during land-disturbing activities and during site development.
- ES-8: During dewatering operations, pump water into an approved filtering device.
- ES-9: Inspect all erosion control measures daily and after each runoff-producing rainfall event. Make any necessary repairs or cleanup to maintain the effectiveness of the erosion control measures immediately.

EROSION AND SEDIMENT MINIMUM STANDARDS

An erosion and sediment control program adopted by a district or locality must be consistent with the following criteria, techniques and methods:

- MS-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.
- MS-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.
- MS-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.
- MS-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.
- MS-5: Stabilization measures shall be applied to earthen structures such as dams, dikes and diversions immediately after installation.
- MS-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.
 - The minimum storage capacity of a sediment trap shall be 134 cubic yards per acre of drainage area and the traps shall only control drainage areas less than three acres.
 - 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.
- MS-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.
- MS-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.
- MS-9: Whenever water seeps from a slope face, adequate drainage or other protection shall be provided.
- MS-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.
- MS-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.
- MS-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. Nonnegotiable 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.
- MS-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.
- MS-14: All applicable federal, state and local regulations pertaining to work in or crossing live watercourses shall be met.
- MS-15: The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed.
- MS-16: 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 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.
 - Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.
 - Restabilization shall be accomplished in accordance with these regulations.
 - Applicable safety regulations shall be complied with.

- MS-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 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.
- MS-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.

EROSION CONTROL SEQUENCING

This site is being prepared for a recreation center. It is to be graded to proposed contours as shown on the grading plan. Existing topography varies in slope from approximately 2-30%. No critical erosion problems are anticipated as all erosion measures are to be implemented prior to land disturbance. All unpaved areas are to be seeded according to specifications within 7 days after rough grading has been completed.

EROSION CONTROL NOTE

The location of all offsite fill or borrow areas associated with the construction project will be provided to Roanoke County Department of Community Development. An Erosion Control Plan or measure may be required for this area.

MINIMUM STANDARDS (continued)

- MS-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:
 - 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.
 - Adequacy of all channels and pipes shall be verified in the following manner:
 - 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
 - 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
 - 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
 - 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.
 - If existing natural receiving channels or previously constructed man-made channels or pipes are not adequate, the applicant shall:
 - 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
 - Improve the pipe or pipe system to a condition where the ten-year storm is contained within the appurtenances; or
 - 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
 - Provide a combination of channel improvement, stormwater detention or other measures which are satisfactory to the plan-approving authority to prevent downstream erosion.
 - The applicant shall provide evidence of permission to make the improvements.
 - All hydrologic analyses shall be based on the existing watershed characteristics and the ultimate development of the subject project.
 - 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.
 - Outfall from a detention facility shall be discharged to a receiving channel, and energy dissipators shall be placed at the outfall from all detention facilities as necessary to provide a stabilized transition from the facility to the receiving channel.
 - All on-site channels must be verified to be adequate.
 - 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.
 - In applying these stormwater runoff criteria, individual lots of 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.
 - 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.

SOILS SUMMARY

MAPPING UNIT	POTENTIAL	K VALUE	SLOPE	MAPPING UNIT NAME	SOIL CHARACTERISTICS
35				PITS, QUARRIES	GENERATED BRIEF SOIL DESCRIPTIONS ARE CREATED FOR MAJOR SOIL COMPONENTS. THE PITS IS A MISCELLANEOUS AREA.
37	C	0.32	7-15%	SEQUOIA SILT LOAM	THE SEQUOIA COMPONENT MAKES UP 75 PERCENT OF THE MAP UNIT. SLOPES ARE 7 TO 15 PERCENT. THIS COMPONENT IS ON HILLS ON UPLANDS. THE PARENT MATERIAL CONSISTS OF RESIDUUM WEATHERED FROM SHALE AND SILTSTONE. DEPTH TO A ROOT RESTRICTIVE LAYER, BEDROCK (PARALITHIC), IS 20 TO 40 INCHES. THE NATURAL DRAINAGE CLASS IS WELL DRAINED. WATER MOVEMENT IN THE MOST RESTRICTIVE LAYER IS MODERATELY HIGH. AVAILABLE WATER TO A DEPTH OF 60 INCHES IS LOW. SHRINK-SWELL POTENTIAL IS LOW. THIS SOIL IS NOT FLOODED. IT IS NOT PONDED. THERE IS NO ZONE OF WATER SATURATION WITHIN A DEPTH OF 72 INCHES. ORGANIC MATTER CONTENT IN THE SURFACE HORIZON IS ABOUT 1 PERCENT. NONIRRIGATED LAND CAPABILITY CLASSIFICATION IS 4E. THIS SOIL DOES NOT MEET HYDRIC CRITERIA.
52			0-30%	UDORTHENTS-URBAN LAND COMPLEX	THE UDORTHENTS COMPONENT MAKES UP 60 PERCENT OF THE MAP UNIT. SLOPES ARE 0 TO 30 PERCENT. THIS COMPONENT IS ON FILLS. THE PARENT MATERIAL CONSISTS OF FILL MATERIAL. DEPTH TO A ROOT RESTRICTIVE LAYER IS GREATER THAN 60 INCHES. AVAILABLE WATER TO A DEPTH OF 60 INCHES IS VERY LOW. SHRINK-SWELL POTENTIAL IS LOW. THIS SOIL IS NOT FLOODED. IT IS NOT PONDED. THERE IS NO ZONE OF WATER SATURATION WITHIN A DEPTH OF 72 INCHES. THIS SOIL DOES NOT MEET HYDRIC CRITERIA.
54	E	0.28	14-45%	WEIKERT-BERKS COMPLEX,	THE WEIKERT COMPONENT MAKES UP 45 PERCENT OF THE MAP UNIT. SLOPES ARE 15 TO 45 PERCENT. THIS COMPONENT IS ON HILLS ON UPLANDS. THE PARENT MATERIAL CONSISTS OF RESIDUUM WEATHERED FROM ACID SHALE AND SILTSTONE AND FINE-GRAINED SANDSTONE. DEPTH TO A ROOT RESTRICTIVE LAYER, BEDROCK (LITHIC), IS 10 TO 20 INCHES. THE NATURAL DRAINAGE CLASS IS SOMEWHAT EXCESSIVELY DRAINED. WATER MOVEMENT IN THE MOST RESTRICTIVE LAYER IS HIGH. AVAILABLE WATER TO A DEPTH OF 60 INCHES IS VERY LOW. SHRINKSWELL POTENTIAL IS LOW. THIS SOIL IS NOT FLOODED. IT IS NOT PONDED. THERE IS NO ZONE OF WATER SATURATION WITHIN A DEPTH OF 72 INCHES. ORGANIC MATTER CONTENT IN THE SURFACE HORIZON IS ABOUT 2 PERCENT. NONIRRIGATED LAND CAPABILITY CLASSIFICATION IS 7E. THIS SOIL DOES NOT MEET HYDRIC CRITERIA.



SCALE: 1"=200'

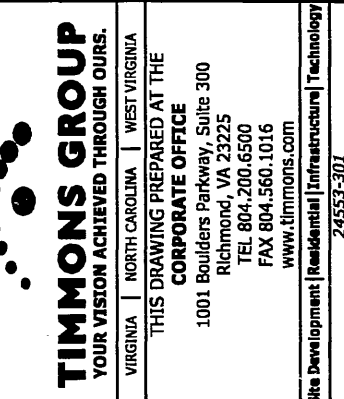
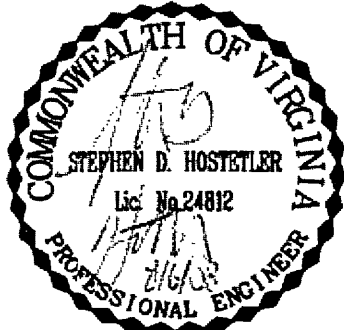
NOT APPROVED

VALLEYPOINTE PARKWAY
SANITARY SEWER EXTENSION
HOLLINS MAGISTERIAL DISTRICT
ROANOKE COUNTY, VIRGINIA

PROJECT NO:
461920
DATE:
JULY 30, 2008
DESIGNED BY:
JULY 30, 2008
DRAWN BY:
WLP
CHECKED BY:
RSD

NOTES &
DETAILS

C2.1



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