

EROSION AND SEDIMENT CONTROL NARRATIVE:

PROJECT DESCRIPTION

The project consists of the extension of the public sanitary sewer system to serve the future development of tax parcel 054.02-05-51.00. Total disturbed area is approximately 0.11 acre.

EXISTING SITE CONDITIONS

The existing site is currently an undeveloped parcel of land zoned R1.

ADJACENT PROPERTIES

The site is adjacent to Susquehanna Range and Westward Lake Drive and has R1 zoned properties surrounding the property on the north, south, and west.

OFF-SITE AREAS

Temporary/Permanent seeding is proposed for all area disturbed by the construction where the roadway section is not being replaced.

SOILS

On site soils are identified as 49D Tumbling loam. Soils information is from the U.S. Department of Agriculture soils survey map containing a soils survey of Roanoke County and the Cities of Roanoke and Salem Virginia.

CRITICAL EROSION AREAS

Silt fence should be installed to prevent sediment laden runoff from entering the public right of way or adjacent properties. G.C. shall make sure no sediment laden runoff enters the existing ditch line.

EROSION AND SEDIMENT CONTROL MEASURES

All measures to be in accordance with the Virginia Erosion and Sediment Control Handbook, latest edition.

Silt Fence-3.05

A temporary sediment barrier constructed of posts, filter fabric, and wire support fence placed to intercept and detain sediment.

Temporary Seeding-3.31

Disturbed areas shall receive temporary seeding immediately after construction is completed within that area or within 30 days.

Permanent Seeding-3.32

Areas not receiving buildings, paving or landscaping will be seeded.

Mulching-3.35

Areas not receiving buildings, paving, landscaping, or seeding shall be mulched.

MANAGEMENT STRATEGIES

1. Construction will be sequenced so that grading operations can begin and end as quickly as possible.

2. Immediately after trenches are backfill and compacted seeding shall be applied to prevent erosion from the disturbed area.

3. Other measures will be installed as work progresses into those areas.

4. Permanent seeding or other stabilization will follow immediately after grading. The job superintendent shall be responsible for the installation and maintenance of all erosion and sediment control practices.

5. After achieving adequate stabilization, the temporary erosion and sediment control measures will be cleaned and removed.

PERMANENT STABILIZATION

All areas disturbed by construction which do not receive paving shall be stabilized with permanent seeding as specified. All seeding shall be tacked and mulched and placed immediately after reaching finished grade.

STORMWATER MANAGEMENT

This project is exempt from Roanoke County's Stormwater Management requirements under Section 23-1.3(E)4 of the Stormwater Management Ordinance. This project does not add impervious surface to the disturbed area, therefore, compliance with water quality requirements shall not apply.

MAINTENANCE

In general, all erosion and sediment control measures will be checked daily and after each significant rainfall. In particular:

Silt fence will be checked regularly for undermining or deterioration of the fabric. Sediment shall be removed when the level of sediment deposition reaches halfway to the top of the barrier.

The seeded areas shall be checked regularly to ensure that a good stand is maintained. Areas should be fertilized and reseeded as needed.

The contractor shall inspect all erosion control devices immediately after each significant rainfall and daily during periods of prolonged or heavy rainfall and repair all structures as necessary with in 48 hours.

E&SC CONSTRUCTION SEQUENCE:

1. INSTALL SILT FENCE BELOW EXISTING MANHOLE AND BELOW CLEARED AREA FOR MATERIAL AND EQUIPMENT STORAGE.

2. CLEAR AND GRUB 30'x30' AREA FOR MATERIAL AND EQUIPMENT STORAGE.

3. INSTALL SANITARY SEWER & WATER IMPROVEMENTS IN ACCORDANCE WITH SHEET C-2. AS EVERY 100 FEET OF SANITARY LINE INSTALLATION IS COMPLETE, G.C. SHALL MULCH AND SEED DISTURBED AREA AND INSTALL SILT FENCE BELOW THE NEXT 100 FEET.

4. APPLY TEMPORARY AND/OR PERMANENT STABILIZATION MEASURES IMMEDIATELY TO ANY DISTURBED AREAS WHERE WORK HAS BEEN EITHER DELAYED OR COMPLETED.

5. G.C. SHALL REPAIR ROADWAYS WITH MATERIALS AS IN THE EXISTING SECTION.

6. G.C. SHALL MULCH AND SEED THE 30'x30' CLEARED AREA FOR STORAGE.

7. ONCE FINAL STABILIZATION HAS BEEN ESTABLISHED THE SILT FENCE CAN BE REMOVED FROM THE SITE.

GENERAL UTILITY NOTES

1. SUPPLY AND INSTALL ALL MATERIALS AND METHODS FOR WATERLINES, SANITARY SEWERS AND STORM DRAINAGE IN ACCORDANCE WITH THE SPECIFICATIONS AND REQUIREMENTS OF WWA DESIGN AND CONSTRUCTION STANDARDS AND THE VIRGINIA DEPARTMENT OF TRANSPORTATION "ROAD AND BRIDGE STANDARDS AND SPECIFICATIONS", LATEST EDITION.

2. OBTAIN ALL REQUIRED PERMITS AND NOTIFY APPROPRIATE OFFICIALS 48 HOURS PRIOR TO COMMENCEMENT OF WORK. OBTAIN INFORMATION FROM WWA CONCERNING PERMITS AND CONNECTIONS TO EXISTING LINES.

3. ALL WORK SHALL BE SUBJECT TO INSPECTION BY ROANOKE CITY. NOTIFY APPROPRIATE OFFICIALS PRIOR TO COMMENCEMENT OF WORK.

4. SITE SHALL BE TO SUB GRADE PRIOR TO INSTALLATION OF UTILITIES. ALL UTILITIES SHALL BE IN PLACE PRIOR TO PLACEMENT OF PAVEMENT BASE MATERIAL.

5. BACKFILL MATERIAL AND PIPE BEDDING SHALL BE IN COMPLIANCE WITH WWA STANDARDS AND SPECIFICATIONS.

6. MINIMIZE ANY DISTURBANCE TO EXISTING WATER SERVICE, SEWER LINES OR ANY OTHER UTILITY DURING CONSTRUCTION AND PROVIDE QUALITY WORKMANSHIP.

7. MAKE ALL PIPE JOINTS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND WWA DESIGN AND CONSTRUCTION STANDARDS, LATEST EDITION AND ALL APPLICABLE CITY STANDARDS. MAKE JOINTS BETWEEN DIFFERENT PIPE MATERIALS WITH STANDARD FITTINGS MANUFACTURED FOR THE PURPOSE.

8. MAINTAIN ALL WATER LINES AT TEN (10) FEET HORIZONTAL SEPARATION FROM SEWER LINES AND MANHOLES; MEASURE THE DISTANCE EDGE-TO-EDGE. WHEN LOCAL CONDITIONS PREVENT THE DESIRED HORIZONTAL SEPARATION, THE WATERLINE MAY BE LAID CLOSER TO THE SEWER OR MANHOLE PROVIDED THAT THE BOTTOM OF THE WATERLINE SHALL BE AT LEAST EIGHTEEN (18) INCHES ABOVE THE TOP OF THE SEWER. WHERE THIS VERTICAL SEPARATION CANNOT BE OBTAINED, CONSTRUCT THE SEWER OF AWWA APPROVED WATER PIPE AND PRESSURE TREAT IN PLACE PRIOR TO BACKFILLING. THE SEWER MANHOLE SHALL BE OF WATERTIGHT CONSTRUCTION TESTED IN PLACE.

9. ALL WATER TAPS TO BE PERFORMED BY WWA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING TAPPING SLEEVE AND VALVE.

10. ALL SANITARY SEWER TAPS TO BE PERFORMED BY WWA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EXCAVATION AND SHORING PER OSHA REGULATIONS. CONTRACTOR SHALL PROVIDE CENTERMARK FOR TAPPING.

11. LOCATE AND UNCOVER VALVE VAULTS AND MANHOLES AFTER PAVING AND ADJUST TO FINAL GRADE, IF NECESSARY.

12. PRIOR TO COMMENCING WITH ANY UNDERGROUND PIPE CONSTRUCTION OF GRADING (EXCAVATION), THE GENERAL CONTRACTOR SHALL CALL MISS UTILITY OF VIRGINIA (TOLL FREE 1-800-552-7001) AT LEAST 48 HOURS PRIOR TO COMMENCING. THE G.C. IS RESPONSIBLE FOR ANY DAMAGE CAUSED TO ANY UTILITY, PUBLIC OR PRIVATE, AS A RESULT OF NOT CONTACTING MISS UTILITY AND SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER/DEVELOPER.

13. EXISTING UTILITY LOCATIONS SHOWN ARE A RESULT OF FIELD SURVEYS, AND AVAILABLE RECORD LOCATIONS ARE APPROXIMATE. GENERAL CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES SHOWN ON THE PLANS IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK. CONTACT THE ENGINEER IMMEDIATELY IF: 1) ANY LOCATION OR ELEVATION IS DIFFERENT FROM THAT SHOWN ON THE PLANS. 2) IF THERE APPEARS TO BE ANY CONFLICT, UPON DISCOVERY OF ANY UTILITY NOT SHOWN ON THE PLANS. G.C. SHALL CALL "MISS UTILITY" OF VIRGINIA.

14. IN AREAS OF WATER LINE CONSTRUCTION, GRADES SHALL BE WITHIN SIX (6) INCHES OF FINAL GRADE PRIOR TO BEGINNING CONSTRUCTION.

15. MINIMUM COVER OVER WATER AND SANITARY SEWER LINES SHALL BE THREE (1.5) FEET.

16. THE CONTRACTOR SHALL INSTALL ALL WATER SERVICE CONNECTIONS AND METER BOXES.

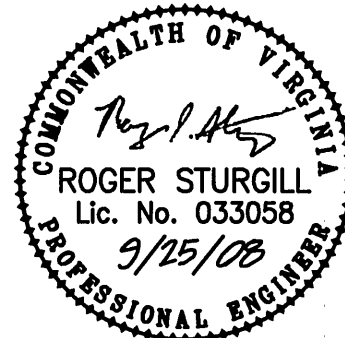
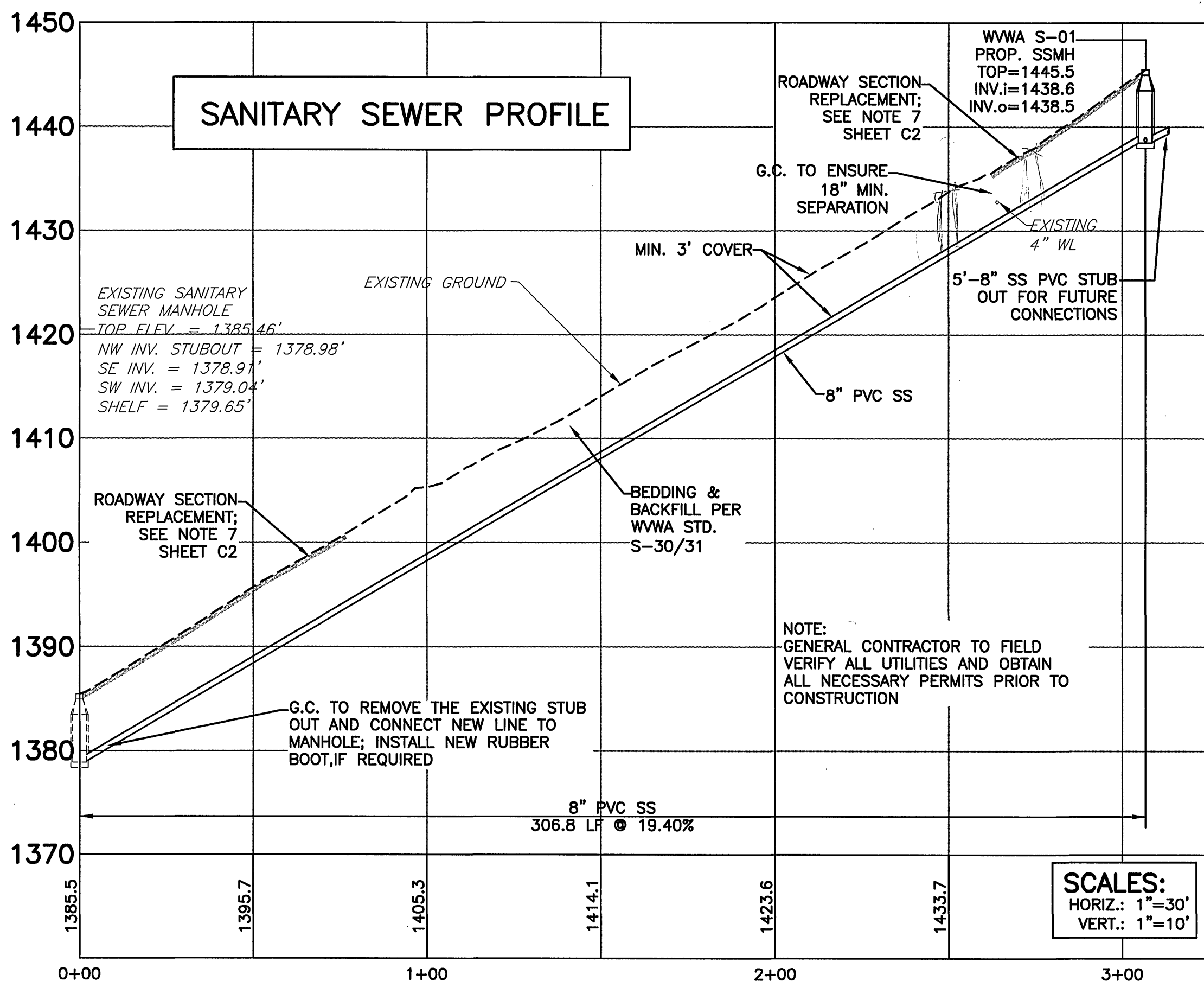
17. CONNECT PIPE TO MANHOLES THROUGH PRE CAST OPENINGS AND JOIN WITH EITHER A FLEXIBLE BOOT ADAPTER.

18. FIELD MARK FUTURE SERVICE CONNECTIONS BY A TREATED, SOLID WOODED (2"x4") MARKER THREE (3) FEET LONG SET VERTICALLY PLUMB WITH THE END OF THE CAPPED EXTENSION. PAINT THE TOPS OF THE MARKERS YELLOW AND SET FLUSH WITH THE FINISHED GRADE. SHOW THE LOCATION AND INVERT DEPTH OF THE SERVICE CONNECTION ON THE AS-BUILT PLANS.

MINIMUM STANDARDS

THE FOLLOWING STANDARDS ARE TO BE PROVIDED OR ADDRESSED ON EVERY DEVELOPMENT PROJECT EXCEEDING 5000 S.F. IN AREA OF DISTURBANCE. THESE STANDARDS ARE CONSIDERED A MINIMUM AND MAY REQUIRE ADDITIONAL MEASURES AS DEEMED NECESSARY BY THE LOCAL APPROVING AUTHORITY OR THE CONSULTING ENGINEER.

No.	CRITERIA, TECHNIQUE OR METHOD	PRACTICES PROVIDED
1	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.	(TS) (PS) (MU) FOR ALL DENUDED AREAS
2	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.	(TS) (PS) (MU) FOR PROVIDED STOCKPILE
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, IN THE OPINION OF THE LOCAL PROGRAM ADMINISTRATOR OR DESIGNATED AGENT, IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.	(TS) (PS) (MU) FOR ALL DENUDED AREAS
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.	NOT APPLICABLE
5	STABILIZATION METHODS SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.	(TS) (PS) (MU) FOR ALL EARTHEN STRUCTURES
6	SEDIMENT TRAPS AND BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.	NOT APPLICABLE
7	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.	(TS) (PS) (MU) FOR ALL ERODING SLOPES
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.	NOT APPLICABLE
9	WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.	NOT APPLICABLE
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.	NOT APPLICABLE
11	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.	NOT APPLICABLE
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.	NOT APPLICABLE NO STREAMS ON-SITE
13	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.	NOT APPLICABLE NO STREAMS ON-SITE
14	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.	NOT APPLICABLE NO STREAMS ON-SITE
15	THE BEDS AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.	NOT APPLICABLE NO STREAMS ON-SITE
16	UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA: 1) NO MORE THAN 500 LINEAR FEET OF ANY TRENCH MAY BE OPENED AT ONE TIME. 2) EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES. 3) 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. 4) MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION. 5) RE-STABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS. 6) APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.	G.C. TO FOLLOW MS 16 WITH ALL UTILITY INSTALLATION
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.	NOT APPLICABLE
18	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.	(TS) (PS) (MU)
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 APPLICABLE CRITERIA.	NOT APPLICABLE



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WESTWARD LAKE DRIVE
SANITARY SEWER EXTENSION
PROFILES & NOTES
CATAWBA DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY: A.J.S.

DESIGNED BY: A.J.S.

CHECKED BY: S.M.H.

DATE: 07/16/2008

REVISIONS:

08/22/08 - 1st REVIEW

09/25/08 - 2nd REVIEW

SCALE: AS SHOWN

SHEET NO.

C-3

JOB NO.

R0800184.00