THIS PROJECT CONSISTS OF IMPROVEMENTS ASSOCIATED WITH A NEW AUTOMOTIVE REPAIR SHOP TO BE LOCATED AT 7240 WILLIAMSON ROAD IN ROANOKE, VA. THE SITE AREA IS 4.38 ACRES, AND THE DISTURBED AREA IS 0.51 ACRES. USED FOR THIS PROJECT: PROPOSED IMPROVEMENTS INCLUDE A NEW 1,185 SQUARE-FOOT BUILDING AND ASSOCIATED DRIVE AISLES, PARKING AREAS, CURBING, WATER AND SEWER SYSTEMS. SITE WORK INCLUDES DEMOLITION OF PORTIONS OF THE EXISTING

ACCESS WILL BE PROVIDED FROM AN EXISTING ENTRANCE OFF PETERS CREEK ROAD TO THE PARKING LOT WEST OF PROPOSED BUILDING.

# EXISTING SITE CONDITIONS

CURRENTLY, THE SITE IS A LARGE PARKING LOT WITH A BANK KIOSK. THE EXISTING SITE IS IMPERVIOUS.

THE EXISTING ELEVATIONS RANGE FROM APPROXIMATELY 1069 FEET TO 1062 FEET WITH RELATIVELY MODERATE SLOPES THROUGHOUT THE CENTER OF THE PROPERTY. THE EXISTING SITE IS IMPERVIOUS WITH TYPE D SOILS. CURRENTLY, THE MAJORITY OF THE SITE DRAINS TOWARDS GRATE INLETS LOCATED AT THE SOUTHERN DRIVE AISLE IN THE PARKING LOT. 3.05 SILT FENCE/COMPOST FILTER SOCK (SILTSOXXTM OR SIMILAR): A TEMPORARY SEDIMENT BARRIER TO CONTROL EROSION IN

THE SUBJECT SITE IS BORDERED BY EXISTING COMMERCIAL TO THE WEST, AND SOUTH. PETERS CREEK ROAD TO THE NORTH AND LEE HIGHWAY TO THE EAST.

OFF-SITE LAND DISTURBANCE IS LIMITED TO UTILITY CONNECTIONS FOR WATER AND SEWER.

ACCORDING TO THE NATURAL RESOURCE CONSERVATION SERVICE MAP THE SOILS ON SITE ARE CLASSIFIED AS:

# COMPONENT: UDORTHENTS (60%)

MAP UNIT: 52 - 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 PERMANENT STABILIZATION WILL BE ACHIEVED WITH SODDING AND SEEDING AS SHOWN ON THE LANDSCAPING AND PHASE II IS GREATER THAN 60 INCHES. AVAILABLE WATER TO A DEPTH OF 60 INCHES (OR RESTRICTED DEPTH) 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.

## COMPONENT: URBAN LAND (25%)

GENERATED BRIEF SOIL DESCRIPTIONS ARE CREATED FOR MAJOR SOIL COMPONENTS. THE URBAN LAND IS A MISCELLANEOUS AREA.

## FOR MORE DETAILED SOILS INFORMATION, SEE THE FINAL GEOTECHNICAL REPORT

NO CRITICAL AREAS ARE IDENTIFIED WITH THIS PROJECT, AND NO AREAS ARE EXPECTED TO BECOME CRITICAL DURING

# PERMANENT STABILIZATION

PERMANENT STABILIZATION SHALL BE PROVIDED BY THE SITE CONTRACTOR AND WILL BE ACHIEVED WITH SEEDING OR SODDING AS SHOWN ON THE LANDSCAPING PLAN SHEET FOR ALL VEGETATED AREAS. CONCRETE, PAVEMENT, AND

# OTHER IMPERVIOUS SURFACES WILL STABILIZE THE REMAINDER OF THE SITE.

SOIL STOCKPILE NOTE NO SOIL STOCKPILES ARE ANTICIPATED FOR THIS PROJECT.

BETWEEN THE TIME THE EROSION CONTROL PLAN IS IMPLEMENTED AND FINAL SITE STABILIZATION IS ACHIEVED, ALL DISTURBED AREAS AND EROSION CONTROLS MUST BE INSPECTED ONCE EVERY FOUR (4) CALENDAR DAYS OR ONCE EVERY FIVE (5) CALENDAR DAYS AND WITHIN FORTY-EIGHT (48) HOURS FOLLOWING A RUNOFF PRODUCING RAINFALL

EXAMPLES OF PARTICULAR ITEMS TO BE EVALUATED DURING SITE INSPECTIONS ARE LISTED BELOW. THIS LIST IS NOT INTENDED TO BE COMPREHENSIVE. DURING EACH INSPECTION, EACH INSPECTOR MUST EVALUATE OVERALL EROSION CONTROL SYSTEM PERFORMANCE, AS WELL AS THE EFFECTIVENESS OF SYSTEM COMPONENTS. ADDITIONAL FACTORS SHOULD BE CONSIDERED AS APPROPRIATE TO THE CIRCUMSTANCES.

- LOCATIONS WHERE VEHICLES ENTER AND EXIT THE SITE MUST BE INSPECTED FOR EVIDENCE OF OFF-SITE SEDIMENT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO TRACKING. A STABILIZED CONSTRUCTION ENTRANCE WILL BE CONSTRUCTED WHERE VEHICLES ENTER AND EXIT. REMOVE SEDIMENT THIS ENTRANCE WILL BE MAINTAINED OR SUPPLEMENTED AS NECESSARY TO PREVENT SEDIMENT FROM LEAVING THE SITE ON VEHICLES. SEDIMENT TRACKED ONTO PUBLIC ROADWAYS MUST BE SHOVELED OR SWEPT FROM THE ROADWAY AND RE-DEPOSITED ON SITE IN A MANNER THAT MINIMIZES ITS OFFSITE RELEASE POTENTIAL.
- INLET PROTECTION AND SEDIMENT BASIN WILL BE CHECKED REGULARLY FOR SEDIMENT BUILDUP WHICH MAY PREVENT DRAINAGE. IF THE GRAVEL IS CLOGGED BY SEDIMENT, IT SHALL BE REMOVED AND CLEANED OR REPLACED.
- STOCKPILED ON THE UP SLOPE SIDE OF THE BARRIER. ADDITIONAL SEDIMENT BARRIERS MUST BE CONSTRUCTED
- INSPECTIONS WILL EVALUATE DISTURBED AREAS AND AREAS USED FOR STORING MATERIALS THAT ARE EXPOSED RAINFALL FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM. IF NECESSARY, THE MATERIALS MUST BE COVERED OR ORIGINAL COVERS MUST BE REPAIRED OR SUPPLEMENTED. ALSO, PROTECTIVE BERMS MUST BE CONSTRUCTED, IF NEEDED, IN ORDER TO CONTAIN RUNOFF FROM MATERIAL GRASSED AREAS WILL BE INSPECTED TO CONFIRM THAT A HEALTHY STAND OF GRASS IS MAINTAINED. THE SITE
- HAS ACHIEVED FINAL STABILIZATION WHEN TURF GRASS COVER PROVIDES PERMANENT STABILIZATION OF THE SOIL IS NOT CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO COMPLETED.
- ALL DISCHARGE POINTS MUST BE INSPECTED TO DETERMINE WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING IMPACTS TO RECEIVING WATERS.

BASED UPON THE RESULTS OF THE INSPECTIONS, EACH EROSION AND SEDIMENT CONTROL MEASURE SHALL BE REPAIRED AND/OR MAINTAINED IN ACCORDANCE WITH THE MAINTENANCE REQUIREMENTS SPECIFIED IN THE CORRESPONDING SECTION OF THE <u>VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK</u>. THE CONTRACTOR SHALL MAINTAIN A COPY OF THIS HANDBOOK ON SITE AT ALL TIMES DURING CONSTRUCTION.

### TABLE 3.32-D (Revised June 2003) PERMANENT SEEDING SPECIFICATIONS FOR PIEDMONT AREA

SEED <sup>1</sup>		
LAND USE	SPECIES	APPLICATION PER ACRE
Minimum Care Lawn (Commercial or Residential)	Tall Fescue <sup>1</sup> Perennial Ryegrass Kentucky Bluegrass <sup>1</sup>	95-100% 0-5% 0-5% TOTAL: 175-200 lbs
High-Maintenance Lawn	Tall Fescue <sup>1</sup>	TOTAL: 200-250 lbs
General Slope (3:1 or less)	Tall Fescue <sup>1</sup> Red Top Grass or Creeping Red Fescue Seasonal Nurse Crop <sup>2</sup>	128 lbs. 2 lbs <u>20 lbs</u> TOTAL: 150 lbs
Low-Maintenance Slope (Steeper than 3:1)	Tall Fescue <sup>1</sup> Red Top Grass or Creeping Red Fescue Seasonal Nurse Crop <sup>2</sup> Crownvetch <sup>3</sup>	108 lbs. 2 lbs 20 lbs. <u>20 lbs.</u> TOTAL: 150 lbs

variety list is available at the local County Extension office or through VCIA at 804-746-4884 or at http://sudan.cses.vt.edu/html/Turf/turf/publications/publications2.html

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

Annual Rye February 16th - April Foxtail Millet May 1st - August 15th . August 16th - October . November - February 15th Winter Rye

 Substitute Sericea lespedeza for Crownvetch east of Farmville, VA (May through September use hulled seed all other periods, use unhulled Sericea). If Flatpea is used, increase rate to 30 lbs./acre. If Weeping Lovegrass is sed, include in any slope or low maintenance mixture during warmer seeding periods, increase to 30 -40

# FERTILIZER & LIME

Apply 10-20-10 fertilizer at a rate of 500 lbs. / acre (or 12 lbs. / 1,000 sq. ft.) Apply Pulverized Agricultural Limestone at a rate of 2 tons/acre (or 90 lbs. / 1,000 sq. ft.)

A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site. Incorporate the lime and fertilizer into the top 4-6 inches of the soil by disking or by other means. · When applying Slowly Available Nitrogen, use rates available in <u>Erosion & Sediment Control Technical Bullet</u>i

# 4, 2003 Nutrient Management for Development Sites at http://www.dcr.state.va.us/sw/e&s.htm#pubs

## **EROSION CONTROL MEASURES**

THE FOLLOWING EROSION CONTROL MEASURES AS SHOWN ON THE EROSION CONTROL PLAN SHEET(S) OF THE SITE PLAN WILL BE

3.01 SAFETY FENCE - SAFETY FENCE WILL BE INSTALLED AROUND THE PERIMETER OF THE SITE. THE PURPOSE OF THIS PRACTICE TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR IS TO PREVENT UNDESIRABLE ACCESS AND USE OF AN EROSION CONTROL DEVICE BY THE PUBLIC.

3.02 TEMPORARY STONE CONSTRUCTION ENTRANCE — A STABILIZED STONE PAD WITH A FILTER FABRIC UNDERLINER WILL BE PROVIDED AT THE PRIMARY CONSTRUCTION ACCESS POINT. THE PURPOSE OF THIS PRACTICE IS TO REDUCE THE AMOUNT OF MUD E. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THIS CHAPTER. TRANSPORTED ONTO PAVED PUBLIC ROADS BY MOTOR VEHICLES OR RUNOFF. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR THE WASHING AND REWORKING OF EXISTING STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY. THE USE OF WATER TRUCKS TO REMOVE MATERIALS DROPPED, WASHED, OR TRACKED ONTO ROADWAYS WILL NOT BE PERMITTED UNDER ANY CIRCUMSTANCES.

SHEET FLOW AND LOW FLOW CHANNEL SITUATIONS. SILT FENCE CONSISTS OF A SYNTHETIC FILTER FABRIC (USUALLY BLACK) ENTRENCHED INTO THE GROUND, STRETCHED TIGHT AND ATTACHED TO SUPPORT POSTS SPACED 6 FEET APART. SEDIMENT DEPOSITS SHALL BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE—HALF THE HEIGHT OF THE BARRIER. FABRIC SHALL BE REPLACED IF IT HAS DECOMPOSED OR BECOME INEFFECTIVE.

3.32 PERMANENT SEEDING - THE ESTABLISHMENT OF PERENNIAL VEGETATIVE COVER ON DISTURBED AREAS BY PLANTING SEED WILL BE PROVIDED AS SHOWN ON THE LANDSCAPING PLAN. PERMANENT SEEDING SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED AS PER MS-1. THE PURPOSE OF THIS PRACTICE IS TO REDUCE EROSION AND DECREASE SEDIMENT YIELD FROM DISTURBED AREAS AND TO PERMANENTLY STABILIZE DISTURBED AREAS IN A MANNER THAT IS ECONOMICAL, ADAPTABLE TO SITE CONDITIONS, AND ALLOWS SELECTION OF THE MOST APPROPRIATE PLANT MATERIALS.

3.33 SODDING: STABILIZATION OF FINE-GRADED DISTURBED AREAS BY ESTABLISHING PERMANENT GRASS STANDS WITH SOD WILL BE PROVIDED FOR ALL AREAS ON-SITE AS SHOWN ON THE LANDSCAPING PLAN. THE PURPOSE OF THIS PRACTICE IS TO ESTABLISH PERMANENT TURF IMMEDIATELY AND TO PREVENT EROSION AND DAMAGE FROM SEDIMENT AND RUNOFF BY STABILIZING THE SOIL SURFACE.

### PERMANENT STABILIZATION

EROSION CONTROL PLAN SHEETS OF THE SITE PLAN FOR ALL VEGETATED AREAS. CONCRETE, PAVEMENT, AND OTHER IMPERVIOUS SURFACES WILL STABILIZE THE REMAINDER OF THE SITE.

## <u>MS-19 MINIMUM STANDARDS</u>

CONVEYANCE CHANNEL AND RECEIVING CHANNEL.

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 14 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 STOCK PILES 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.

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.

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-8 CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE

MS-10 ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT

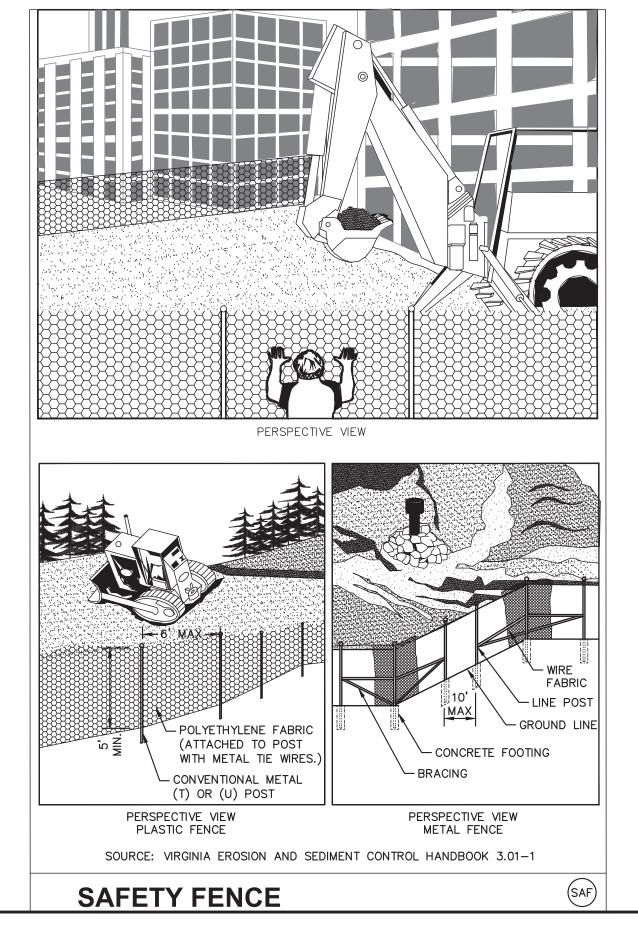
MS-11 BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE

SEDIMENT BARRIERS MUST BE INSPECTED AND, IF NECESSARY, THEY MUST BE ENLARGED OR CLEANED IN ORDER TO MS-12 WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STARILIZE THE WORK AREA TO THE CREATEST EXTENT POSSIRLE 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.

> 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 REQUIREMENTS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.

SURFACE EXCLUSIVE OF AREAS THAT HAVE BEEN PAVED OR COVERED BY BUILDING(S). PERMANENT STABILIZATION MS-15 THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS



MS-16 UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION

TO OTHER APPLICABLE CRITERIA: A. 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

MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.

APPLICABLE SAFETY REQUIREMENTS SHALL BE COMPLIED WITH.

REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS:

MS-17 WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE ES-3: ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN 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. 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 VESCP 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.

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. STREAM RESTORATION AND RELOCATION PROJECTS THAT INCORPORATE NATURAL CHANNEL DESIGN CONCEPTS ARE NOT MAN-MADE CHANNELS AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY

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.

B. ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER: (1) 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 (2)(A) 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. (A) 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 (B) 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.

ADEQUATE, THE APPLICANT SHALL: (1) IMPROVE THE CHANNELS TO A CONDITION WHERE A TEN-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO CHANNEL THE BED OR BANKS; OR

(2) IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN-YEAR STORM IS CONTAINED WITHIN THE

(3) 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 PREDEVELOPMENT PEAK RUNOFF RATE FROM A TEN-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MANMADE CHANNEL; OR (4) PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE VESCP AUTHORITY TO PREVENT DOWNSTREAM EROSION.

D. 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 CONDITION OF THE SUBJECT PROJECT.

IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION, HE SHALL OBTAIN APPROVAL FROM THE VESCP 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.

G. OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL, AND ENERGY DISSIPATORS SHALL BE PLACED AT THE OUTFALL OF ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL.

H. ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.

VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) PERMIT REGULATIONS.

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.

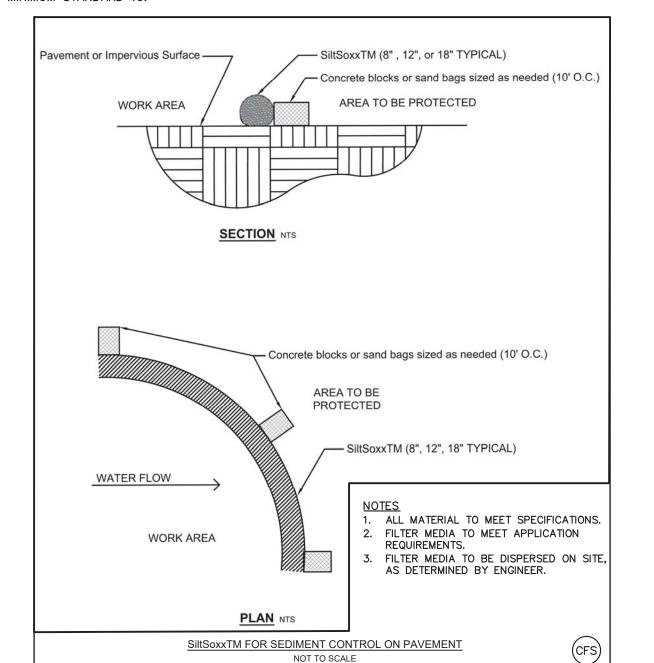
IN APPLYING THESE STORMWATER MANAGEMENT CRITERIA, INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL COMMERCIAL OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD, THE DEVELOPMENT, AS A WHOLE, SHALL BE CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING CALCULATIONS.

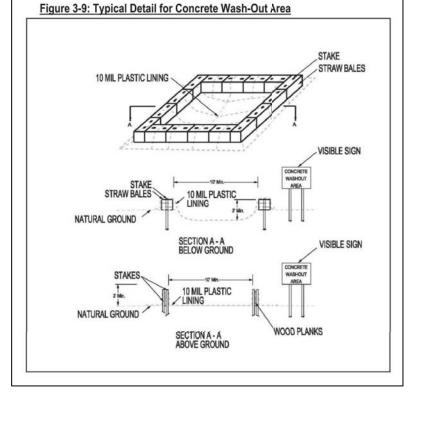
K. ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON THE PHYSICAL, CHEMICAL AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS AND OTHER WATERS OF THE

ANY PLAN APPROVED PRIOR TO JULY 1, 2014, THAT PROVIDES FOR STORMWATER MANAGEMENT THAT ADDRESSES ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS SHALL SATISFY THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS IF THE PRACTICES ARE DESIGNED TO (I) DETAIN THE WATER QUALITY VOLUME AND TO RELEASE IT OVER 48 HOURS; (II) DETAIN AND RELEASE OVER A 24-HOUR PERIOD THE EXPECTED RAINFALL RESULTING FROM THE ONE YEAR, 24-HOUR STORM; AND (III) REDUCE THE ALLOWABLE PEAK FLOW RATE RESULTING FROM THE 1.5, 2, AND 10-YEAR, 24-HOUR STORMS TO A LEVEL THAT IS LESS THAN OR EQUAL TO THE PEAK FLOW RATE FROM THE SITE ASSUMING IT WAS IN A GOOD FORESTED CONDITION, ACHIEVED THROUGH MULTIPLICATION OF THE FORESTED PEAK FLOW RATE BY A REDUCTION FACTOR THAT IS EQUAL TO THE RUNOFF VOLUME FROM THE SITE WHEN IT WAS IN A GOOD FORESTED CONDITION DIVIDED BY THE RUNOFF VOLUME FROM THE SITE IN ITS PROPOSED CONDITION, AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE

CHANNELS AS DEFINED IN ANY REGULATIONS PROMULGATED PURSUANT TO § 62.1-44.15:54 OR 62.1-44.15:65 OF THE ACT. M. FOR PLANS APPROVED ON AND AFTER JULY 1, 2014, THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF § 62.1-44.15:52 A OF THE ACT AND THIS SUBSECTION SHALL BE SATISFIED BY COMPLIANCE WITH WATER QUANTITY REQUIREMENTS IN THE STORMWATER MANAGEMENT ACT (§62.1-44.15:24 ET SEQ. OF THE CODE OF VIRGINIA) AND ATTENDANT REGULATIONS, UNLESS SUCH LAND-DISTURBING ACTIVITIES ARE IN ACCORDANCE WITH 9VAC25-870-48 OF THE

N. COMPLIANCE WITH THE WATER QUANTITY MINIMUM STANDARDS SET OUT IN 9VAC25-870-66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) PERMIT REGULATIONS SHALL BE DEEMED TO SATISFY THE REQUIREMENTS OF MINIMUM STANDARD 19.





GENERAL EROSION AND SEDIMENT CONTROL NOTES: (FROM VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK)

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 9VAC25-840-40 EROSION AND SEDIMENT CONTROL REGULATIONS.

ES-2: THE CHESTERFIELD COUNTY ENVIRONMENTAL ENGINEER 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-4: A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL

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 CHESTERFIELD COUNTY ENVIRONMENTAL INSPECTOR.

ES-6: THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE CHESTERFIELD COUNTY ENVIRONMENTAL

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 SEDIMENT TRAPPING/FILTERING DEVICE. NO CONTAMINATED EFFLUENT OR GROUNDWATER MAY BE DISCHARGED WITHOUT A SEPARATE VPDES DISCHARGE PERMIT FROM THE VDEQ.

ES-9: THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES NOT LESS THAN ONCE EVERY FOURTEEN (14) CALENDAR DAYS AND WITHIN 48 HOURS FOLLOWING A RUNOFF PRODUCING RAINFALL EVENT (0.5 INCH OR GREATER RAINFALL WITHIN A 24-HOUR PERIOD). A RAIN GAUGE SHALL BE INSTALLED ON-SITE TO DETERMINE IF AN INSPECTION TRIGGERING RAINFALL EVENT HAS OCCURRED. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.

ES-10: DUST CONTROL SHALL BE PROVIDED IN COMPLIANCE WITH APPLICABLE LOCAL AND STATE DUST CONTROL REGULATIONS.

GENERAL EROSION AND SEDIMENT CONTROL NOTES (CONTINUED): (FROM VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK)

ES-11: NO SOLID MATERIALS, INCLUDING BUILDING MATERIALS, ARE ALLOWED TO BE DISCHARGED FROM THE SITE WITH C. IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT STORMWATER. ALL SOLID WASTE, INCLUDING DISPOSABLE MATERIALS INCIDENTAL TO THE MAJOR CONSTRUCTION ACTIVITIES, MUST BE COLLECTED, REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH ALL STATE AND

> ES-12: ALL PERSONNEL INVOLVED WITH CONSTRUCTION ACTIVITIES MUST COMPLY WITH STATE AND LOCAL SANITARY OR SEPTIC SYSTEM REGULATIONS. TEMPORARY SANITARY FACILITIES WHERE PROVIDED AT THE SITE THROUGHOUT THE CONSTRUCTION PHASE MUST BE UTILIZED BY ALL CONSTRUCTION PERSONNEL AND SHALL BE SERVICED BY A COMMERCIAL OPERATOR WHEN PROVIDED.

ES-13: NON-STORMWATER COMPONENTS OF SITE DISCHARGE MUST BE CLEAN WATER. WATER USED FOR CONSTRUCTION, WHEN USED FOR CONSTRUCTION, WHICH DISCHARGES FROM THE SITE, MUST ORIGINATE FROM A PUBLIC WATER SUPPLY OR PRIVATE WELL APPROVED BY THE VA DEPARTMENT OF HEALTH. WATER USED FOR CONSTRUCTION THAT DOES NOT ORIGINATE FROM AN APPROVED PUBLIC SUPPLY MUST NOT DISCHARGE FROM THE SITE.

ES-14: MATERIALS RESULTING FROM CLEARING AND GRUBBING SHALL BE STOCKPILED UP SLOPE FROM ADEQUATE SEDIMENTATION CONTROLS OR HAULED OFF-SITE.

ES-15: THE USE OF DETERGENTS FOR LARGE SCALE WASHING IS PROHIBITED.

ES-16: CHEMICALS, PAINTS, SOLVENTS, FERTILIZIERS, AND OTHER TOXIC MATERIAL MUST BE STORED IN WATERPROOF CONTAINERS. EXCEPT DURING APPLICATION, THE CONTENTS MUST BE KEPT LOCKED IN TRUCKS OR WITHIN LOCKED STORAGE FACILITIES. RUNOFF CONTAINING SUCH MATERIAL MUST BE COLLECTED, REMOVED FROM SITE, TREATED, AND DISPOSED AT AN APPROVED SOLID WASTE OR CHEMICAL DISPOSAL FACILITY.

eural. and LAURA P. ANDERSON Lic. No. 060895 2/23/2023

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