

EROSION AND SEDIMENT CONTROL NARRATIVE

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO CONSTRUCT A NEW CHURCH AND ASSOCIATED PARKING, UTILITIES AND OTHER APPURTENANCES. THE BUILDING MAY BE PHASED, BUT THE CIVIL INFRASTRUCTURE WILL BE CONSTRUCTED AS PART OF THIS PLAN.

THE PROPOSED CONSTRUCTION WILL DISTURB APPROXIMATELY 4.71 ACRES.

ALL PROPOSED ELEVATIONS REPRESENT FINAL GRADES OF THE FINISHED SURFACE.

EXISTING SITE CONDITIONS

THE SITE LIES ADJACENT TO A FLOODPLAIN AND THE VAST MAJORITY OF ITS SURFACE HAS BEEN CLEARED AND IS NOW COMPRISED OF WELL-KEPT GRASS WITH CORN PLANTED SEASONALLY. THE SITE SLOPES GENTLY FROM NORTHWEST TO SOUTHEAST, EXCEPT FOR THE NORTHERN BORDER WHICH IS COMPRISED OF A 3:1+/- EMBANKMENT OF APPARENT FILL MATERIAL WHICH LEADS UP TO ROUTE 419.

ADJACENT AREAS

THE SITE IS BORDERED ON THE EAST BY AN EXISTING INSURANCE OFFICE, ON THE NORTH BY ROUTE 419 (ELECTRIC ROAD), ON THE WEST BY A RESIDENTIAL AREA ACCESSED VIA STONEYBROOK DRIVE AND ON THE SOUTH BY AN EXISTING CREEK WHICH DRAINS APPROXIMATELY 450 ACRES. A FLOOD STUDY WAS PREPARED FOR THIS SITE AS PART OF THIS PROJECT.

OFFSITE AREAS

BORROW MATERIAL WILL BE REQUIRED AS PART OF THIS PROJECT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THIS MATERIAL AND TO COMPLY WITH ALL APPLICABLE LAWS AND REGULATIONS.

SOILS

THE SITE IS SHOWN ON THE NRCS SOILS MAPS AS BEING COMPRISED OF UDORETHENTS-URBAN LAND COMPLEX. IT WAS TREATED ACCORDINGLY IN THE FLOOD STUDY.

CRITICAL AREAS

THE TYPICAL CUT/FILL EMBANKMENT SLOPES ARE 3:1 EXCEPT FOR A VERY SMALL AREA IN THE NORTHWEST CORNER WHERE THE CUT SLOPE IS 2.5:1.

THE TOP OF THE STREAM BANK WILL BE GRADED SLIGHTLY AND A VERY MINOR AMOUNT OF FILL INSTALLED. THE FLOOD STUDY ADDRESSES THIS FILL MATERIAL WHICH ONLY RAISES THE FLOODPLAIN A MAXIMUM OF 0.11 FEET. THE STREAMBED WILL NOT BE DISTURBED. ADDITIONALLY, SILT FENCE, DIVERSION DIKES, AND A SEDIMENT BASIN WILL PREVENT SOIL LADEN RUNOFF FROM ENTERING THE EXISTING STREAM DURING CONSTRUCTION.

EROSION AND SEDIMENT CONTROL MEASURES

UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE LATEST EDITION OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK.

PHASING

THE FIRST PHASE IS MEANT TO WORK WITH THE SITE AS IT PRESENTLY EXISTS AND THE SECOND IS TO WORK WITH THE SITE ONCE THE GRADING HAS BEEN COMPLETED AND THE STORMWATER PIPING HAS BEEN INSTALLED.

PHASE I:

THE PHASE I ELEMENTS INCLUDE ALL PERIMETER CONTROLS AND SHALL BE CONSTRUCTED IN THE FOLLOWING ORDER: CONSTRUCTION ENTRANCE AT BRIDLE LANE, NEW SANITARY SEWER ALONG THE CREEK, SILT FENCE BETWEEN THE SEDIMENT BASIN AND THE CREEK/ADJACENT PROPERTY, SEDIMENT BASIN WITH OUTLET RISER AND PIPING, DIVERSION DIKES, AND REMAINING SILT FENCE. IT IS IMPORTANT THAT THE ABOVE ORDER BE FOLLOWED TO PREVENT THE SILT FENCE FROM BEING SUBJECT TO HIGH FLOWS AND MUST BE INSTALLED PRIOR TO BEGINNING OF CONSTRUCTION OF THE BASIN ITSELF.

THE PERMANENT STORMWATER MANAGEMENT POND ACTS AS THE SEDIMENT BASIN DURING THIS PHASE, HOWEVER, THE PG-5 CONCRETE LOW FLOW DITCH IN THE BOTTOM OF THE POND/BASIN SHALL NOT BE CONSTRUCTED UNTIL THE BASIN IS RETROFIT TO FUNCTION AS THE FINAL POND AT END PHASE II.

AS DESCRIBED ABOVE, CONSTRUCTING THE NEW SANITARY SEWER PARALLEL TO THE CREEK IS ALSO PART OF PHASE I AND IT SHALL BE COMPLETED BEFORE BEGINNING THE SEDIMENT BASIN. IT IS ALSO IMPORTANT TO REITERATE THAT THE SILT FENCE BETWEEN THE PROPOSED SEDIMENT TRAP AND THE CREEK/ADJACENT PROPERTY SHALL BE CONSTRUCTED PRIOR TO THE SEDIMENT TRAP IN ORDER TO PROTECT THOSE ENTITIES.

PHASE II:

PHASE II CONSISTS OF INSTALLING THE INLET PROTECTION ON THE NEW STORM DRAIN STRUCTURES AND FITTING THE STORMWATER POND TO ITS FINAL CONFIGURATION. PERMANENT SEEDING IS ALSO INCLUDED, AS IS EC-2 STABILIZATION MATTING WHICH SHALL BE APPLIED TO ALL AREAS 3:1 OR STEEPER AS INDICATED ON THE PHASE II E&S DRAWING.

AT THE END OF PHASE II, THE SEDIMENT BASIN SHALL BE CLEANED OUT AND ITS OUTLET CONTROL STRUCTURE CONFIGURED TO ITS FINAL FORM. THIS INCLUDES THE PG-5 CONCRETE CHANNEL. SEE ADDITIONAL INFORMATION ON THIS PAGE FOR CONVERTING THE SEDIMENT BASIN TO ITS FINAL CONFIGURATION.

CONVERTING SEDIMENT BASIN TO PERMANENT STORMWATER MANAGEMENT POND

DO NOT UNDERTAKE CONVERSION UNTIL ALL UPSTREAM AREAS HAVE BEEN PERMANENTLY STABILIZED AND APPROVED BY THE COUNTY'S INSPECTOR.

1. PUMP DOWN THE SEDIMENT BASIN INTO A SEDIMENT BAY, THEN MUCK-OUT SEDIMENT TRAP TO REMOVE ALL ACCUMULATED SEDIMENT AND REACH FINAL INVERT GRADE.
2. REMOVE 8" DIAMETER CIRCULAR ORIFICE AND SUPPORT ARM ATTACHED TO RISER STRUCTURE AND SEAL THE OPENING WATERTIGHT WITH HYDRAULIC CEMENT.
3. REMOVE PLUG FROM 6" PVC POND DRAIN AT ES-1. ENSURE THAT PERMANENT TRASHRACK IS INSTALLED ON ES-1 IF IT WAS NOT PREVIOUSLY INSTALLED.
4. CONSTRUCT CONCRETE CHANNELS WITHIN STORMWATER MANAGEMENT POND.
5. APPLY PERMANENT SEEDING AND EC-2 TO INSIDE/OUTSIDE OF POND.

PERMANENT STABILIZATION

PERMANENT STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN (7) DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN (7) DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.

THE CONTRACTOR SHALL PROVIDE ALL PERMANENT STABILIZATION MEASURES AND SHALL MAINTAIN THEM UNTIL THE COUNTY'S EROSION AND SEDIMENT CONTROL INSPECTOR DECLARES THAT THEY MAY BE REMOVED.

PERMANENT SEED SHALL BE PROVIDED AT THE FOLLOWING RATES:

TS TEMPORARY SEEDING MIXTURE

1 SEPTEMBER TO 15 FEBRUARY  
50/50 MIX OF ANNUAL RYEGRASS  
CERIAL WINTER RYE @ 50-100  
LBS./ACRE

16 FEBRUARY TO 30 APRIL ANNUAL  
RYEGRASS @ 60-100 LBS./ACRE

1 MAY TO 31 AUGUST GERMAN  
MILLET @ 50 LBS./ACRE

FERTILIZER: 10-20-10 OR EQUIVALENT NUTRIENTS  
RATE: 600 LBS./ACRE (14 LBS./1000 SF.)

MULCH: STRAW MULCH SHALL BE USED OVER ALL SEEDED AREAS AND  
SHALL BE APPLIED IN ACCORDANCE WITH SECTION 1.75 OF THE  
VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST  
EDITION.

MULCHING RATE: STRAW OR HAY: 1.5-2 TONS/ACRE (70-90 LBS./1000 SF.)

THE FOLLOWING MINIMUM STANDARDS SHALL BE MET (VESCH CH 8)

MS-1: TEMPORARY AND PERMANENT STABILIZATION OF DENUDED AREAS (PERMANENT WITHIN 7 DAYS FOR AREAS AT FINAL GRADE, TEMPORARY FOR AREAS NOT FINAL GRADE FOR 14 DAYS)  
A) ARE PRACTICES SHOWN ON PLANS? (YES)  
B) ARE LIMITS OF CLEARING AND GRADING SHOWN ON PLANS? (YES)  
C) SEED SPECIFICATIONS. (ON PLANS)

MS-2: PROTECTION OF STABILIZATION OF ON-SITE AND OFF-SITE STOCKPILES AND BORROW AREAS. (ONSITE STOCKPILES HAVE BEEN ADDRESSED IN THE SEEDING AND DEWATERING PORTION OF THE NARRATIVE. OFFSITE STOCKPILES OR BORROW AREAS ARE THE RESPONSIBILITY OF THE CONTRACTOR AS DESCRIBED IN THE NARRATIVES.)

MS-3: PERMANENT STABILIZATION OF DENUDED AREAS NOT OTHERWISE STABILIZED. (PERMANENT STABILIZATION HAS BEEN ADDRESSED.)

MS-4: INSTALL E&S MEASURES AS FIRST STEP IN LAND-DISTURBING ACTIVITY. (THIS IS ADDRESSED ON THE PLANS AND NARRATIVES.)

MS-5: EARTHEN CONTROLS AND STRUCTURES STABILIZED IMMEDIATELY UPON INSTALLATION. (THIS IS COVERED IN THE PLANS AND NARRATIVES.)

MS-6: PROVIDE SEDIMENT TRAPS WHERE NECESSARY. (THE PERMANENT STORMWATER DETENTION POND WILL ACT AS A SEDIMENT BASIN DURING CONSTRUCTION AND WILL BE RETROFITTED TO ITS FINAL FORM AFTER THE CONTRIBUTING AREAS ARE STABILIZED.

MS-7: DESIGN AND CONSTRUCTION OF CUT AND FILL SLOPES TO MINIMIZE EROSION. (THERE ARE NO UNDISTURBED SLOPES STEEPER THAN 2:1. THERE ARE SOME 2:1 SLOPES ON THE SOUTH SIDE OF THE CREEK, BUT THEY ARE OUTSIDE THE LIMITS OF CONSTRUCTION.

MS-8: CONCENTRATED FLOW DOWN CUT AND FILL SLOPES MUST BE IN ADEQUATE CHANNEL, FLUME OR SLOPE DRAIN.

(THERE IS NO CONCENTRATED FLOW WITHIN CUT AND FILL SLOPES. HOWEVER, THERE IS A SMALL EXISTING CHANNEL ON THE NORTH SIDE OF THE SITE. IT IS OUTSIDE THE LIMITS OF CONSTRUCTION AND IT COLLECTS WATER FROM A VDOT CULVERT UNDER ROUTE 419. THIS CHANNEL IS IDENTIFIED AS OUTFALL 'A' ON THE DRAINAGE DIVIDES SHEET.

MS-9: SLOPES PROTECT FROM SEEPAGE. (NONE OF THE EXISTING SLOPES SHOW ANY SIGNS OF SEEPAGE. IF SEEPAGE OCCURS, THE PROPER SOLUTIONS WILL BE IMPLEMENTED.

MS-10: STORM SEWER INLETS MUST HAVE ADEQUATE INLET PROTECTION. (INLET PROTECTION AND CULVERT INLET PROTECTION ARE SHOWN WHERE APPROPRIATE.)

MS-11: OUTLET PROTECTION AND CHANNEL LINING IS REQUIRED PRIOR TO OPERATING STORM SEWER SYSTEM. (OUTLET PROTECTION AND CHANNEL LININGS ARE PROVIDED WHERE NECESSARY.)

MS-12: MINIMIZE IMPACTS WHEN WORKING IN AND AROUND LIVE WATERCOURSES.  
A) A DEQ PERMIT MAY BE REQUIRED. (THIS PROJECT IS LOCATED ADJACENT TO A LIVE WATERCOURSE, BUT NO DISTURBANCE TO ITS BANKS IS TAKING PLACE BELOW THE ORDINARY HIGH WATER LEVEL.)

MS-13: IF MORE THAN TWO STREAM CROSSINGS IN SIX MONTHS, THERE MUST BE A TEMPORARY VEHICULAR STREAM CROSSING INSTALLED. (NO TEMPORARY VEHICULAR STREAM CROSSINGS ARE NECESSARY.)

MS-14: ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS PERTAINING TO WORKING IN OR AROUND LIVE WATERCOURSES SHALL BE MET. (THIS PROJECT WILL NOT DISTURB THE WATERCOURSE IN SUCH A WAY THAT PERMITS WILL BE REQUIRED.)

MS-15: THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED. (A MINOR AMOUNT OF FILL WILL BE PLACED NEAR THE TOP BANK IN A SMALL AREA. THIS SHALL BE STABILIZED IMMEDIATELY UPON PLACEMENT.)

MS-16: UTILITY EXCAVATIONS  
A) NO MORE THAN 500 FEET OF OPEN TRENCH AT ANY TIME.  
B) EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCH.  
C) EFFLUENT OF DEWATERING MUST BE FILTERED.  
D) PROPER BACKFILL AND COMPACTION  
E) RE-STABILIZE IMMEDIATELY. (ANY RELEVANT ITEMS ARE ADDRESSED WITHIN THE PLANS.)

MS-17: KEEP PAVED OR PUBLIC AREA CLEAN - CONSTRUCTION ENTRANCES (A CONSTRUCTION ENTRANCE HAS BEEN PROVIDED.)

MS-18: TEMPORARY MEASURES SHOULD BE REMOVED WITHIN 30 DAYS WHEN THEY ARE NO LONGER NEEDED. (THE CONTRACTOR HAS BEEN INSTRUCTED VIA THESE PLANS TO REMOVE EROSION AND SEDIMENT CONTROL MEASURES WHEN THE INSPECTOR HAS DETERMINED THAT THEY ARE NO LONGER NEEDED.)

MS-19: ADDRESS INCREASES IN STORMWATER VOLUME, VELOCITY, AND PEAK RUNOFF. (STORMWATER RUNOFF IS DETAILED IN THE STORMWATER MANAGEMENT POND AND RELEASED AT A RATE LESS THAN THE PREDEVELOPED RATE. THE POND'S DISCHARGE ENTERS AN EXISTING ADEQUATE STREAM CHANNEL AND ITS VELOCITY IS ATTENUATED BY RIP-RAP OUTLET PROTECTION. SEE THE SUPPORTING CALCULATIONS BOOKLET SUBMITTED WITH THIS PLAN FOR ADDITIONAL INFORMATION.)

MS #19

PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITE SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION & DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY & PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24 HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA

A. CONCENTRATED STORMWATER FLOW 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 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; AND  
(B) 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  
(C) 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.

STORMWATER MANAGEMENT BASIN PROVIDED

EROSION-SILTATION CONTROL

COST ESTIMATE

ALL COSTS GIVEN ARE COMPLETE IN PLACE

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
CONSTRUCTION ENTRANCE	EA	2	\$1200.00	\$2,400
CONSTRUCTION ROAD STABILIZATION	SY.			
SILT FENCE	LF	915	\$4	\$3,660
STORM DRAIN INLET PROTECTION	EA	4	150.00	\$600
CULVERT INLET PROTECTION	EA	1	400.00	\$400
DIVERSION	LF	550	\$5	\$2,750
SEDIMENT BASIN	EA	1	5,000	\$5,000
TEMPORARY SLOPE DRAIN	EA		750.00	
OUTLET PROTECTION	EA	2	250.00	\$500
TEMPORARY SEEDING	SF	205,170	0.04	\$8,207
PERMANENT SEEDING	SF	64,500	0.05	\$3225
BLANKET MATTING	SF	44,426	0.25	\$11,107
SEDIMENT TRAP	EA		\$5000/EA	
RIPRAP	TONS	37	20/EA	\$740
ROCK CHECK DAMS	EA		200/EA	
STORM CONVEYANCE CHANNEL	LF		4/LF	
SUB-TOTAL				\$ 38,589
10% CONTINGENCY				\$ 3,858
			TOTAL PROJECT COST \$	42,447

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PERMANENT SEEDING MIXTURE

TYPE A (SLOPES FLATTER THAN 3:1)

15 OCTOBER TO 1 FEBRUARY  
K-31 FESCUE @ 5 LB / 1000 SF  
BORZY WINTER RYE @ 1/2 LB / 1000 SF

1 FEBRUARY TO 1 JUNE  
K-31 FESCUE @ 5 LB / 1000 SF  
ANNUAL RYE @ 1/2 LB / 1000 SF

1 JUNE TO 1 SEPTEMBER  
K-31 FESCUE @ 5 LB / 1000 SF  
GERMAN MILLET @ 1/2 LB / 1000 SF

1 SEPTEMBER TO 15 OCTOBER  
K-31 FESCUE @ 5 LB / 1000 SF  
ANNUAL RYE @ 1/2 LB / 1000 SF

TYPE B (SLOPES 3:1 OR STEEPER)

KENTUCKY 31 FESCUE: 108 LBS./ACRE  
RED TOP GRASS: 2 LBS./ACRE  
SEASONAL NURSE CROP: 20 LBS./ACRE

CROWNVEITCH: 20 LBS./ACRE  
TOTAL: 150 LBS./ACRE

SEASONAL NURSE CROP SEEDING DATES:  
MARCH, APRIL - 15 MAY ANNUAL RYE  
16 MAY - 15 AUGUST FOXTAIL MILLET  
16 AUGUST - OCTOBER ANNUAL RYE  
NOVEMBER - FEBRUARY WINTER RYE

LIME: 2 TONS/ACRE (90 LBS./1000 SF) PULVERIZED AGRICULTURAL LIMESTONE

FERTILIZER: 10-20-10 OR EQUIVALENT NUTRIENTS  
RATE: 1000 LBS./ACRE (23 LBS./1000 SF.)

MULCH:

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STRAW OR FIBER MULCH SHALL BE USED OVER ALL SEEDED AREAS AND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 1.75 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.

MULCHING RATE: STRAW OR HAY: 1.5-2 TONS/ACRE (70-90 LBS./1000 SF.)  
FIBER MULCH: 1500 LBS./ACRE (35 LBS./1000 SF.)

SOIL CONDITIONING:

INCORPORATION OF LIME AND FERTILIZER, SELECTION OF CERTIFIED SEED, PROTECTION OF NEW SEEDINGS, AND RESEEDING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE VIRGINIA SOIL EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION. ADDITIONAL SEEDING TO BE PERFORMED AS REQUIRED BY THE INSPECTOR.

SEED APPLICATION: APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTPACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRIABLE, SEEDBED. MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH.

C. IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:  
(1) 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  
(2) IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES; OR  
(3) DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUN-OFF 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  
(4) PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE PLAN-APPROVING AUTHORITY TO PREVENT DOWNSTREAM EROSION.

D. THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.  
E. ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT OF THE SUBJECT PROJECT.  
F. 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.  
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.  
I. 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.  
J. IN APPLYING THESE STORMWATER RUNOFF CRITERIA, INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL, COMMERCIAL OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO SEPARATE DEVELOPMENT PROJECTS. TO SEPARATE 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 STATE.

DATE: 05/02/2014

11/16/2015

12/16/2015

07/12/2016

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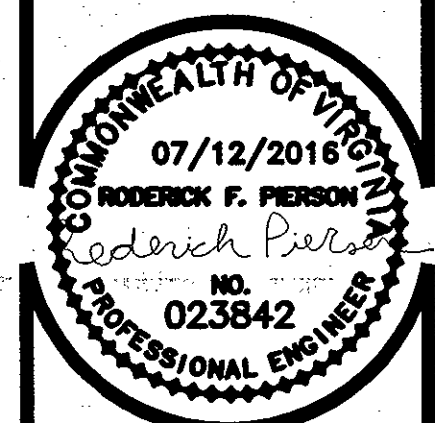
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SITE PLAN FOR  
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COUNTY OF ROANOKE, VIRGINIA

EROSION  
&  
SEDIMENT  
CONTROL  
NOTES



COMMISSION  
R201410

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APPROVED