

CONTRACTOR SHALL PAY PARTICULAR ATTENTION TO THE FOLLOWING MINIMUM STANDARDS.

- 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. **ONCE GRADING IS COMPLETED, APPLY PERMANENT SEEDING TO AREAS NOT RECEIVING STRUCTURES, PAVEMENT, HARDSCAPE OR OTHER LANDSCAPING MATERIALS.**
- 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. **ON-SITE SOIL STOCKPILES SHALL HAVE SILT FENCE ALONG THE DOWNHILL PERIMETER. A TEMPORARY SEED MIX IS TO BE APPLIED OVER SOIL STOCKPILES IF THEY ARE TO REMAIN AS-IS FOR LONGER THAN 14 DAYS.**
- 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. **SEE MINIMUM STANDARD 1.**
- 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 uplope land disturbance takes place. **INSTALL SILT FENCE, CONSTRUCT SEDIMENT TRAP AND DIVERSION DIKES AS SHOWN ON THIS PLAN.**
- Stabilization measures shall be applied to earthen structures such as dams, dikes and diversions immediately after installation. **APPLY TEMPORARY SEEDING TO TEMPORARY DIVERSION DIKE AND ANY OTHER EARTHEN STRUCTURES IMMEDIATELY FOLLOWING CONSTRUCTION.**
- 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 trap 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 25-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.
- CONSTRUCT SEDIMENT TRAP WHERE SHOWN ON THIS PLAN, AND TO THE DIMENSIONS SHOWN AND LISTED. WHERE SEDIMENT TRAP MUST BE ADJUSTED TO ACCOMMODATE GRADING OPERATIONS, CONTRACTOR SHALL VERIFY THAT DESIGN VOLUMES AND ELEVATIONS ARE MAINTAINED.**
- Out 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. **AREAS TO RECEIVE PERMANENT SEEDING ARE TO BE INSPECTED PERIODICALLY. RESEED ANY AREAS THAT DO NOT HAVE AN ESTABLISHMENT OF A GOOD STAND OF GRASS AFTER INITIAL APPLICATION OF PERMANENT SEEDING. APPLY SLOPE STABILIZATION MATTING WHERE INDICATED ON PLANS. ADDITIONAL SLOPE STABILIZATION MEASURES ARE TO BE CONSIDERED AS CONDITIONS DICTATE.**
- Concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel, flume or slope drain structure. **THE PLAN MINIMIZES THE POTENTIAL FOR CONCENTRATED RUNOFF TO FLOW DOWN UNPROTECTED CONSTRUCTED SLOPES. SHOULD CONCENTRATED FLOW OCCUR, CONTRACTOR SHALL REPAIR OR IMPROVE THE GRADE TO DISPERSE FLOW ACROSS A BROAD AREA, OR PROVIDE AN APPROPRIATE TEMPORARY SLOPE DRAINAGE STRUCTURE.**
- Whenever water seeps from a slope face, adequate drainage or other protection shall be provided. **NOT APPLICABLE. SERPAP THROUGH SLOPES IS NOT ANTICIPATED TO BE ENCOUNTERED ON THIS PROJECT. SHOULD SERPAP OCCUR, ADEQUATE DRAINAGE SHALL BE ESTABLISHED TO CONVEY WATER TO A CONTROLLED POINT OF DISCHARGE AND TO PROTECT THE SLOPE.**
- 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. **PLACE INLET PROTECTION ON CURB INLETS & GRATE INLETS AFTER INSTALLATION.**
- 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 reaching channel. **INSTALL OUTLET PROTECTION WHERE SHOWN AND TO THE SPECIFIED DESIGN DIMENSIONS.**
- 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. **WORK IS PROPOSED ALONG THE BANK OF THE LIVE WATERCOURSE, UNNAMED TRIBUTARY TO MURRAY RUN. ADVANCE THE CONSTRUCTION TO MAINTAIN THE CHANNEL TO MEET THE REQUIREMENTS WHILE COMPLETING THE STORM DRAIN OUTFALL PIPE INSTALLATION AND ALL RELATED WORK IN THIS AREA.**
- 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. **NOT APPLICABLE. NO CROSSINGS OF THE LIVE WATERCOURSE, UNNAMED TRIBUTARY TO MURRAY RUN, ARE PROPOSED OR ANTICIPATED WITH THIS PROJECT.**
- All applicable federal, state and local chapters pertaining to working in or crossing live watercourses shall be met. **NOT APPLICABLE. NO WORK IS PROPOSED IN OR CROSSING A LIVE WATERCOURSE. THE CONTRACTOR SHALL ADHERE TO ALL APPLICABLE REQUIREMENTS WHILE WORK IS PROPOSED ALONG THE BANK OF THE LIVE WATERCOURSE, UNNAMED TRIBUTARY TO MURRAY RUN, ADJACENT TO THIS PROJECT.**
- The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed. **NOT APPLICABLE. NO WORK IS PROPOSED IN OR CROSSING A LIVE WATERCOURSE. THE CONTRACTOR SHALL INSURE THE STABILIZATION OF THE STREAM BANK & BED FOLLOWING THE COMPLETION OF THE STORM DRAIN INSTALLATION WORK PERFORMED ALONG THE BANK OF THE LIVE WATERCOURSE, UNNAMED TRIBUTARY TO MURRAY RUN, ADJACENT TO THIS PROJECT.**
- 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 developing 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.
 - Reestablishment shall be accomplished in accordance with this chapter.
 - Applicable safety chapters shall be complied with.
- INSTALL UNDERGROUND UTILITIES IN ACCORDANCE WITH THESE REQUIREMENTS, AS SHOWN ON THIS PLAN AND IN COORDINATION WITH THE UTILITY SERVICE PROVIDERS.**
- 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. This provision shall apply to individual development lots as well as to larger land-disturbing activities. **FOLLOW ABOVE REQUIREMENTS FOR ACCESS TO THE SITE. THE CONSTRUCTION ENTRANCE SHOWN ON THE PLAN SHALL BE INSTALLED AS A FIRST STEP OF CONSTRUCTION, AND CONTRACTOR SHALL TAKE PARTICULAR CARE TO AVOID TRANSPORT OF MUD AND SEDIMENT ONTO STARKLEY ROAD.**
- 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. **REMOVE TEMPORARY MEASURES IN ACCORDANCE WITH ABOVE REQUIREMENTS, AND WITH THE PRIOR APPROVAL OF ROANOKE COUNTY.**
- Properties and waterways downstream from development sites shall be protected from sediment disposition, 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 requirements for natural or man-made channels.
 - Concentrated stormwater runoff leaving a development site shall be discharged directly into an adequate natural or man-made reaching 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
 - (a) Natural channels shall be analyzed by the use of a two-year storm to verify that stormwater will not overlap 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 overlap 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.
 - If existing natural receiving channels or previously constructed man-made channels or pipes are not adequate, the applicant shall:
 - Improve the channels to a condition where a ten-year storm will not overlap 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 is satisfactory to the VESCP 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 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.
 - Outfall from a detention facility shall be discharged to a receiving channel, and energy dissipaters shall be placed at the outfall of 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 or parcels in a residential, commercial or industrial development shall not be considered to be separate developments. Instead, the project, 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.
 - 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 of 101-561 A of the Act and this subsection shall be satisfied by compliance with water quantity requirements in the Stormwater Management Act (101-603.2 et seq. of the Code of Virginia) and attendant regulations, unless such land-disturbing activities are in accordance with 4VAC50-60-48 of the Virginia Stormwater Management Program (VSNP) Permit Regulations.
 - Compliance with the water quantity minimum standards set out in 4VAC50-60-58 of the Virginia Stormwater Management Program (VSNP) Permit Regulations shall be deemed to satisfy the requirements of Minimum Standard 18.

THIS PROJECT IS GRADIENTED AND IS SUBJECT TO THE PART IIC REGULATIONS.

AN EXISTING STORMWATER MANAGEMENT BASIN WAS CONSTRUCTED TO SERVE THIS DEVELOPMENT FOR STORMWATER QUANTITY AS PART OF THE APPROVED PLANS AND CALCULATIONS FOR THE OLDE DOMINION OFFICE PARK. NUTRIENT CREDITS WILL BE ACQUIRED TO MEET THE MINIMUM POLLUTANT REMOVAL REQUIREMENTS. REFER TO STORMWATER MANAGEMENT CALCULATIONS FOUND IN THE "PROJECT CALCULATIONS" WORKBOOK ASSOCIATED WITH THIS PROJECT.

EROSION CONTROL NARRATIVE

PROJECT DESCRIPTION

THE PROJECT AREA IS LOCATED 2630 ELECTRIC ROAD IN ROANOKE COUNTY AND CONSISTS OF SITE GRADING, STORM DRAIN AND RETAINING WALL CONSTRUCTION AND THE CONSTRUCTION OF A TWO-STORY COMMERCIAL BUILDING WITH ASSOCIATED PARKING. TOTAL DISTURBED AREA IS APPROXIMATELY 6,400 SF. (0.15 AC.).

EXISTING SITE CONDITIONS

THE SITE CURRENTLY VACANT LOT IN THE OLDE DOMINION OFFICE PARK.

ADJACENT AREAS

THE PROJECT AREA IS SURROUNDED BY THE OLDE DOMINION OFFICE PARK ON THE NORTH AND SOUTH, A RESIDENTIAL LOT TO THE EAST AND ELECTRIC ROAD TO THE WEST.

OFFSITE AREAS

NO OFFSITE AREAS ARE CURRENTLY ASSOCIATED WITH THIS PLAN. ALL MATERIAL THAT IS REMOVED FROM OR DELIVERED TO THIS SITE IN ASSOCIATION WITH THIS PROJECT SHALL BE FROM A PERMITTED CUT OR FILL SITE. THE LOCATION OF ALL OFF-SITE FILL OR BORROW AREAS ASSOCIATED WITH THE CONSTRUCTION PROJECT WILL BE PROVIDED TO ROANOKE COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT. AN EROSION CONTROL PLAN OR MEASURES MAY BE REQUIRED FOR THIS AREA.

SOILS

SOILS INFORMATION IS BASED ON AN INSPECTION OF THE USDA WEB SOIL SURVEY AND HAS NOT BEEN FIELD VERIFIED. THE ONSITE SOILS ARE INDICATED TO BE CHISWELL-LITZ COMPLEX, 15 TO 35% SLOPES (MAP UNIT 6D).

THE CHISWELL SOIL, HYDROLOGIC SOIL GROUP D, POSSESSES THE FOLLOWING CHARACTERISTICS AND PROPERTIES:

DEPTH THE RESTRICTIVE FEATURE: 10 TO 20 INCHES TO BEDROCK DEPTH TO WATER TABLE: MORE THAN 80 INCHES
DRAINAGE CLASS: WELL DRAINED AVAILABLE WATER CAPACITY: VERY LOW
PERMEABILITY: MODERATELY LOW TO MODERATELY HIGH

TYPICAL PROFILE: 0 TO 2 INCHES - CHANNERY SILT LOAM; 2 TO 12 INCHES - VERY CHANNERY SILT LOAM; 12 TO 22 INCHES - BEDROCK

THE LITZ SOIL, HYDROLOGIC SOIL GROUP C, POSSESSES THE FOLLOWING CHARACTERISTICS AND PROPERTIES:

DEPTH THE RESTRICTIVE FEATURE: 20 TO 40 INCHES TO BEDROCK DEPTH TO WATER TABLE: MORE THAN 80 INCHES
DRAINAGE CLASS: WELL DRAINED AVAILABLE WATER CAPACITY: LOW
PERMEABILITY: MODERATELY LOW TO MODERATELY HIGH

TYPICAL PROFILE: 0 TO 5 INCHES - CHANNERY SILT LOAM; 5 TO 24 INCHES - VERY CHANNERY SILT LOAM; 24 TO 34 INCHES - BEDROCK

CRITICAL AREAS

THE CONTRACTOR SHALL TAKE SPECIAL CARE TO MINIMIZE THE POTENTIAL FOR ANY SEDIMENT LEAVING THE SITE ONTO ADJACENT PROPERTY AND/OR THE EXISTING STORM DRAIN SYSTEM. ANY DOWNSTREAM PROBLEMS RESULTING FROM THIS PROJECT SHALL BE CORRECTED IMMEDIATELY.

MINIMUM STANDARDS

REFER TO DEQ MINIMUM STANDARDS.

EROSION AND SEDIMENT CONTROL MEASURES

CONSTRUCTION ENTRANCE (3.02) - A STONE CONSTRUCTION ENTRANCE WILL BE INSTALLED TO MINIMIZE THE AMOUNT OF MUD TRANSPORTED INTO EXISTING ROADS.

SILT FENCE (3.05) - SILT FENCE WILL BE INSTALLED AT THE LOWER ENDS OF THE PROJECT SITE TO INTERCEPT SEDIMENT LADEN RUN-OFF PRIOR TO EXITING THE SITE.

INLET PROTECTION (3.07) - INLET PROTECTION WILL BE INSTALLED AT EACH STORM DRAIN INLET TO MINIMIZE THE AMOUNT OF SEDIMENT LADEN RUNOFF FROM ENTERING THE STORM DRAIN SYSTEM.

TEMPORARY DIVERSION DIKE (3.09) - A TEMPORARY RIDGE OF COMPACTED SOIL WILL BE CONSTRUCTED TO DIVERT UPSLOPE RUNOFF AWAY FROM A DISTURBED AREA, AND/OR TO DIVERT SEDIMENT LADEN RUNOFF FROM A DISTURBED AREA TO A SEDIMENT TRAPPING MEASURE.

TEMPORARY SEEDING (3.31) - TEMPORARY SEEDING SHALL BE APPLIED TO TEMPORARY DIVERSION DIKES, TOPSOIL STOCKPILES, AND ALL AREAS TO BE ROUGH GRADED, BUT NOT FINISHED GRADED DURING THE INITIAL PHASE OF CONSTRUCTION. TEMPORARY SEEDING SHALL BE FAST GERMINATING, TEMPORARY VEGETATION AND INSTALLED IMMEDIATELY FOLLOWING GRADING, OR INSTALLATION IF A TEMPORARY MEASURE. SEE ALSO MINIMUM STANDARDS.

PERMANENT SEEDING (3.32) - PERMANENT SEEDING SHALL BE INSTALLED ON ALL DISTURBED AREAS OF THE SITE NOT OTHERWISE STABILIZED.

MULCHING (3.35) - ALL DISTURBED AREAS SHALL BE MULCHED AFTER SEEDING. STRAW MULCH SHALL BE APPLIED AT A RATE OF TWO TONS PER ACRE AND ANCHORED WITH 750 LBS PER ACRE OF FIBER MULCH OVER THE SEEDING AREA.

SOIL STABILIZATION & MATTING (3.36) - SLOPES GREATER THAN 3:1 SHALL HAVE A PROTECTIVE COVERING OR MAT INSTALLED TO MINIMIZE EROSION AND AID IN ESTABLISHMENT OF PERMANENT VEGETATIVE STABILIZATION.

PERMANENT STABILIZATION AREAS NOT COVERED BY DRIVEWAYS, WALKS OR OTHER PERMANENT HARD SURFACE SHALL BE STABILIZED WITH PERMANENT SEEDING. THE CONTRACTOR SHALL ENSURE THAT A STRONG STAND OF GRASS IS ESTABLISHED BEFORE THE REMOVAL OF EROSION CONTROL MEASURES.

MAINTENANCE

ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED BI-WEEKLY AND AFTER EVERY RUNOFF PRODUCING RAINFALL. A LOG OF DATES AND INSPECTIONS SHALL BE KEPT. ANY DEFICIENCIES THAT ARE FOUND SHALL BE CORRECTED IMMEDIATELY. ACCUMULATED SEDIMENT AT TRAPPING MEASURES SHALL BE ROUTINELY REMOVED. THE CONTRACTOR AND RLD SHALL PAY PARTICULAR ATTENTION TO THE FOLLOWING:

ALL DITCHES, SWALES, AND NATURAL WATERCOURSES DOWNSTREAM OF THIS PROJECT SHALL BE FIELD INSPECTED DURING AND AFTER CONSTRUCTION BY THE RLD TO ENSURE COMPLIANCE WITH DEQ'S MS-19. IF EROSION OR SCOUR IS OCCURRING THE DEVELOPER SHALL BE RESPONSIBLE FOR ALL CORRECTIVE MEASURES.

SEDIMENT TRAP SHALL BE INSPECTED REGULARLY AND ACCUMULATED SEDIMENT SHALL BE REMOVED AS NECESSARY TO MAINTAIN DESIGN VOLUMES.

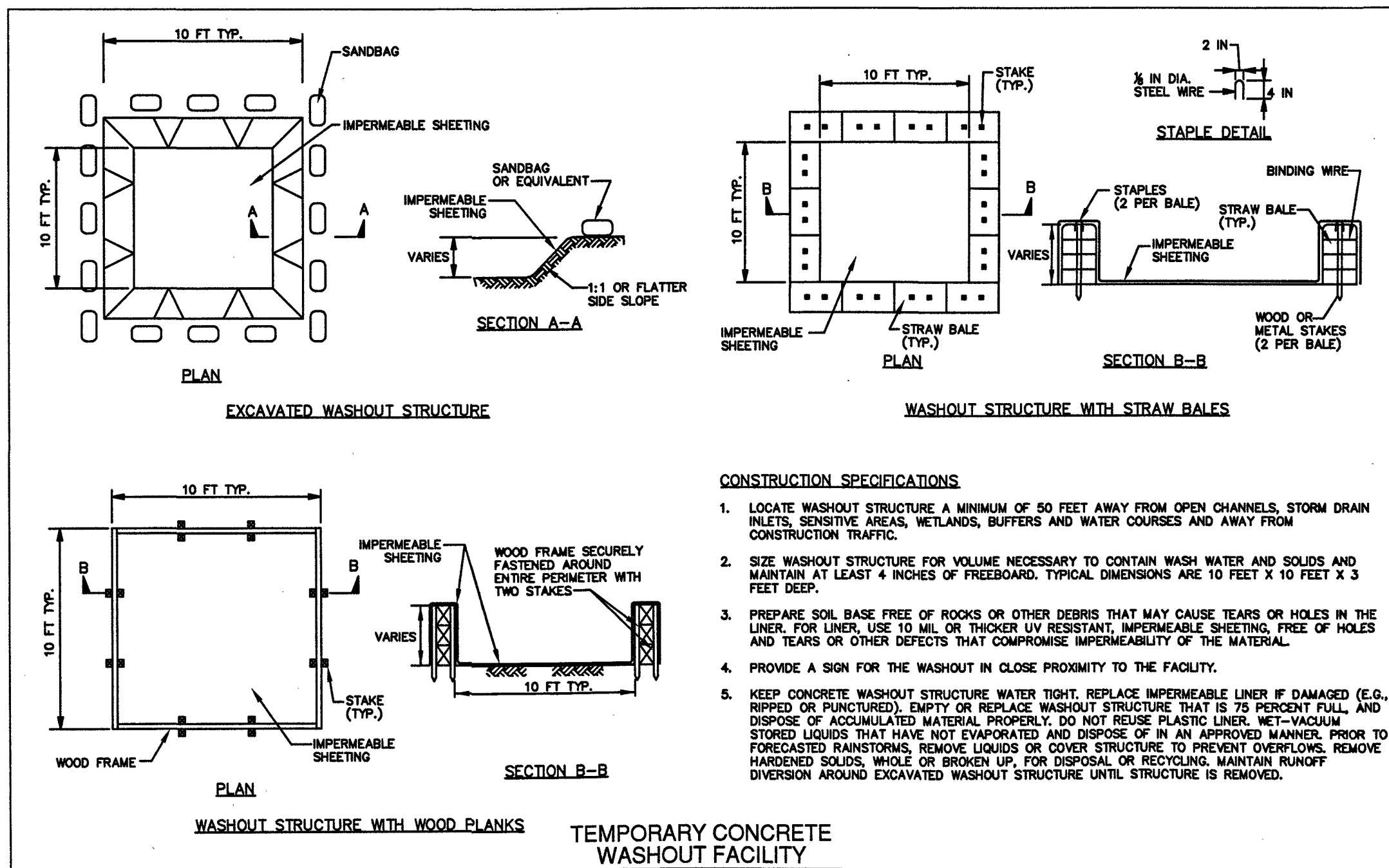
EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL AFTER ALL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED AND THEN TEMPORARY MEASURES PROPERLY REMOVED.

ALL SEEDING AREAS WILL BE CHECKED REGULARLY TO ENSURE THAT A GOOD STAND OF GRASS IS MAINTAINED. AREAS SHALL BE FERTILIZED AND RESEEDING AS REQUIRED TO ACHIEVE A GOOD STAND OF GRASS.

THE CONSTRUCTION ENTRANCE SHALL BE CHECKED REGULARLY TO ENSURE THAT MUD IS NOT TRANSPORTED ONTO THE ADJACENT ROADS. THE STONE SHALL BE REMOVED, CLEANED, OR REPLACED AS REQUIRED FOR THE CONSTRUCTION ENTRANCE TO FUNCTION PROPERLY.

STORMWATER MANAGEMENT CONSIDERATION

AN EXISTING STORMWATER MANAGEMENT BASIN WAS CONSTRUCTED TO SERVE THIS DEVELOPMENT FOR STORMWATER QUANTITY AS PART OF THE APPROVED PLANS AND CALCULATIONS FOR THE OLDE DOMINION OFFICE PARK. NUTRIENT CREDITS WILL BE ACQUIRED TO MEET THE MINIMUM POLLUTANT REMOVAL REQUIREMENTS. REFER TO STORMWATER MANAGEMENT CALCULATIONS FOUND IN THE "PROJECT CALCULATIONS" WORKBOOK ASSOCIATED WITH THIS PROJECT.



CONSTRUCTION SPECIFICATIONS

- LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN VALETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
- SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 12 FEET X 3 FEET DEEP.
- PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
- PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
- KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., PIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER, WET-VACUUM, STORED SOLIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

EROSION & SEDIMENT CONTROL COST ESTIMATE

ALL COSTS GIVEN ARE COMPLETE IN PLACE

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
CONSTRUCTION ENTRANCE	EACH	0	\$1,200.00	\$0.00
SILT FENCE	L.F.	186	\$4.00	\$744.00
DIVERSION DIKE	L.F.	160	\$5.00	\$800.00
INLET PROTECTION	EACH	4	\$150.00	\$600.00
OUTLET PROTECTION	EACH	0	\$260.00	\$0.00
TEMPORARY SEEDING	S.F.	4,366	\$0.04	\$174.24
SEDIMENT TRAP	EACH	0	\$1,500.00	\$0.00
PERMANENT SEEDING AND MULCHING	S.F.	4,360	\$0.05	\$217.50
SLOPE MATTING	S.F.	1,000	0.25	\$250.00
CONSTRUCTION ROAD STABILIZATION	S.F.	0	\$0.35	\$0.00
LEVEL SPREADER / OUTLET PROTECTION	EACH	0	\$1,000.00	\$0.00
SUB-TOTAL				\$2,785.74
10% CONTINGENCY				\$278.57
TOTAL PROJECT COST				\$3,064.74

GENERAL EROSION AND SEDIMENT CONTROL NOTES,
ROANOKE COUNTY, VIRGINIA

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 62-02-00 EROSION AND SEDIMENT CONTROL REGULATIONS.

ES-2: THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE ONSITE PRECONSTRUCTION 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 AND NARRATIVE, AS WELL AS A COPY OF THE LAND DISTURBING PERMIT, SHALL BE MAINTAINED ON THE SITE AT ALL TIMES. THE EROSION AND SEDIMENT CONTROL ADMINISTRATOR WILL DELIVER THESE MATERIALS AT THE PRECONSTRUCTION CONFERENCE.

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 THE LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.

ES-8: DURING DEWATERING OPERATION, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.

ES-9: THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY. AN INSPECTION REPORT MUST BE COMPLETED ONCE EVERY FIVE WORKING DAYS, BEGINNING WITH COMMENCEMENT OF THE LAND DISTURBING ACTIVITY, AND WITHIN 48 HOURS OF ANY RUNOFF-PRODUCING RAINFALL EVENT. REPORTS MUST BE FILED IN THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP), WHICH MUST BE KEPT ONSITE. FAILURE TO COMPLETE A REPORT WILL BE GROUNDS FOR IMMEDIATE REVOCATION OF THE LAND DISTURBING PERMIT. A STANDARD INSPECTION REPORT FORM WILL BE SUPPLIED, WHICH SHOULD BE COPIED AS NECESSARY. THIS PROVISION IN NO WAY WAIVES THE RIGHT OF ROANOKE COUNTY PERSONNEL TO CONDUCT SITE INSPECTIONS. NOR DOES IT DENY THE RIGHT OF THE PERMITTEE (S) TO ACCOMPANY THE INSPECTOR (S).

TEMPORARY STABILIZATION

TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN 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.

T8 TEMPORARY SEEDING MIXTURE

PLANTING DATES	SPECIES	RATE (LBS./ACRE)
SEPT. 1 - FEB. 15	50/50 MIX OF ANNUAL RYEGRASS (LOLIUM MULTI-FLORUM) & CEREAL (WINTER) RYE (SECALE CEREALE)	50 - 100
FEB. 16 - APR. 30	ANNUAL RYEGRASS (LOLIUM MULTI-FLORUM)	60 - 100
MAY. 1 - AUG. 31	GERMAN MILLET (SETARIA ITALICA)	50
LIME:	90 LB / 1000 SF PULVERIZED AGRICULTURAL LIMESTONE	
FERTILIZER:	10-10-10 @ 10 LB / 1000 SF	

PERMANENT STABILIZATION

ALL AREAS DISTURBED BY CONSTRUCTION WILL BE STABILIZED WITH PERMANENT SEEDING WITHIN 7 DAYS OR IMMEDIATELY FOLLOWING FINISH GRADING. SEEDING WILL BE DONE ACCORDING TO STANDARD AND STANDARD 3.32 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK. PERMANENTLY SEEDING AREAS SHALL BE PROTECTED DURING ESTABLISHMENT WITH STRAW MULCH.

P8 PERMANENT SEEDING MIXTURE

SEEDING AREA:	SEEDING RATE:
GENERAL TURF	K-31 FESCUE 200 lbs/ac (Optional) PERENNIAL RYEGRASS 20 lbs/ac
GENERAL SLOPE (3:1 or less)	K-31 FESCUE 128 lbs/ac RED TOP GRASS 2 lbs/ac SEASONAL NURSE CROP 20 lbs/ac
STEEP SLOPE (Greater than 3:1)	K-31 FESCUE 108 lbs/ac RED TOP GRASS 2 lbs/ac SEASONAL NURSE CROP 20 lbs/ac CROWN VETCH

SEASONAL NURSE CROP SCHEDULE

March, April - May 15th
May 16th - August 15th
August 16th - September, October
November - February

LIME: 90 LB / 1000 SF PULVERIZED AGRICULTURAL LIMESTONE

FERTILIZER: 10-20-10 @ 12 LB / 1000 SF

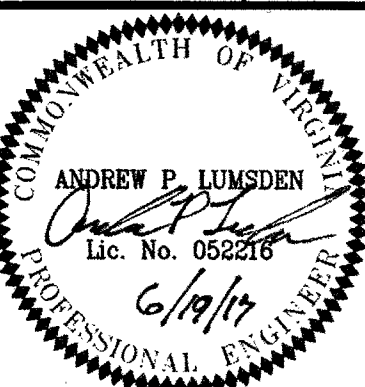
IF REQUIRED, SHALL BE USED OVER ALL SEEDING AREAS AND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 1.75 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.

SOIL CONDITIONS:

INCORPORATION OF LIME AND FERTILIZER, SELECTION OF CERTIFIED SEED, MULCHING, MAINTENANCE OF NEW SEEDINGS 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, CULTIPACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRABLE, SEEDBED. MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH.

LUMSDEN ASSOCIATES, P.C.
ENGINEERS-SURVEYORS-PLANNERS
ROANOKE, VIRGINIA



EROSION & SEDIMENT
CONTROL NARRATIVE,
NOTES AND DETAILS

DEVELOPMENT PLAN FOR
LOT 2A

OLDE DOMINION
OFFICE PARK

2630 ELECTRIC ROAD
ROANOKE COUNTY, VIRGINIA

REVISIONS	DESCRIPTION	DATE	NO
1			1
2			2
3			3
4			4
5			5

DATE: June 19, 2017

SCALE: NO SCALE

COMMISSION NO: 17-014

SHEET 5 OF 5