

EROSION AND SEDIMENT CONTROL NARRATIVE

PROJECT DESCRIPTION: THE PURPOSE OF THIS PROJECT IS TO BACKFILL AROUND THE EXISTING HAGNING ROCK WATER TANK USING MATERIAL THAT IS CURRENTLY STORED IN THE CUL-DE-SAC OF CONNORS RUN. THE SITE IS LOCATED ALONG AT THE TERMINUS CONNORS RUN IN THE COUNTY OF ROANOKE, VIRGINIA. THE LIMITS OF CLEARING AND GRADING FOR THIS PROJECT IS APPROXIMATELY 1.16 AC.

EXISTING SITE CONDITIONS: THE SITE IS AN UNDEVELOPED TRACT OF LAND THAT IS CURRENTLY COVERED WITH A MIX OF GRASS AND WOODS. PORTIONS OF THE SITE WILL REMAIN UNDISTURBED DUE TO TOPOLOGY. THERE IS A CREEK ON THE PROPERTY THAT RUNS FROM NORTH TO SOUTH.

ADJACENT PROPERTY: THE PROJECT IS SURROUNDED BY PROPERTIES IN THE R1 ZONE.

OFF-SITE AREAS: THE DEVELOPMENT WILL BE A "BALANCED" SITE AND NO EXCESS MATERIAL WILL BE EXPORTED NOR WILL ANY MATERIAL BE IMPORTED FROM OTHER PROPERTIES.

SOILS: A SUBSURFACE INVESTIGATION HAS NOT BEEN PROVIDED. SOIL INFORMATION IS AVAILABLE ON THE RESIDUAL SOILS THAT IS SUGGESTED IN THE "SOIL SURVEY OF ROANOKE COUNTY AND THE CITIES OF ROANOKE AND SALEM, VIRGINIA" AS PREPARED BY THE UNITED STATES DEPARTMENT OF AGRICULTURE. THIS SURVEY IDENTIFIES THE ORIGINAL SOIL MATERIAL AS A MIX OF HAYESVILLE & EVARD FINE SANDY LOAM. THESE SOILS HAVE THE FOLLOWING CHARACTERISTICS: 1)WELL DRAINED 2) 3"-4" OF TOPSOIL 3) +/- 3" OF FINE SANDY LOAM 4) MEDIUM TO RAPID PERMEABILITY 5)RAPID SURFACE RUN-OFF AND 6) HIGH EROSION POTENTIAL.

CRITICAL EROSION AREAS: STEEP SLOPES SHALL BE STABILIZED IMMEDIATELY. THE CREEK SHALL BE PROTECTED AT ALL TIMES.

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, THIRD EDITION" (VESCH). THE MINIMUM STANDARDS OF THE VESCH SHALL BE ADHERED TO UNLESS OTHERWISE DIRECTED BY THE LOCAL PROGRAM ADMINISTRATOR.

STRUCTURAL - CONSTRUCTION ENTRANCE-STD. 3.02.....A STONE PAD LOCATED AT THE POINT OF INGRESS/EGRESS TO REDUCE SOIL TRANSPORTED ON PUBLIC ROADS. CONSTRUCTION ROAD STABILIZATION-STD. 3.03.....TEMPORARY STONE STABILIZATION OF ACCESS ROADS IMMEDIATELY AFTER GRADING TO REDUCE EROSION. SILT FENCE-STD. 3.05.....A TEMPORARY SEDIMENT BARRIER CONSTRUCTED OF POSTS, FILTER FABRIC AND IN SOME CASES WIRE SUPPORT FENCE TO INTERCEPT AND DETAIN SEDIMENT. STORM INLET PROTECTION-STD. 3.07.....SEDIMENT TRAPPING MEASURES AROUND DROP OR CURB INLETS PRIOR TO PERMANENT STABILIZATION. TEMP. DIVERSION DIKE-STD. 3.09.....A RIDGE OF COMPACTED SOIL WHICH DIVERTS SEDIMENT LADEN RUNOFF TO A SEDIMENT TRAPPING STRUCTURE. TEMP. RIGHT-OF-WAY DIVERSION-STD. 3.11.....A RIDGE OF COMPACTED SOIL OR GRAVEL CONSTRUCTED ACROSS A DISTURBED RIGHT OF WAY TO A STABILIZED OUTLET. TEMPORARY SEDIMENT TRAP-STD. 3.13.....A SMALL PONDING AREA, FORMED BY CONSTRUCTING AN EARTHEN EMBANKMENT WITH A STONE OUTLET TO DETAIN SEDIMENT LADEN RUNOFF FROM SMALL DISTURBED AREAS. STORMWATER CONVEYANCE CHANNEL-STD. 3.17.....A PERMANENT CHANNEL DESIGNED TO CARRY CONCENTRATED FLOWS WITHOUT EROSION. OUTLET PROTECTION-STD. 3.18.....THE INSTALLATION OF RIPRAP CHANEL SECTIONS BELOW STORM DRAIN OUTLETS TO REDUCE EROSION AND UNDERCUTTING FROM SCOUR AT OUTLETS. RIP RAP-STD. 3.19.....A PERMANENT, EROSION RESISTANT GROUND COVER OF LARGE LOOSE ANGULAR STONE INSTALLED WHEREVER EXPECTED SOIL MAY ERODE. LEVEL SPREADER-STD. 3.21.....AN OUTLET FOR DIKES AND DIVERSIONS CONSISTING OF AN EXCAVATED DEPRESSION CONSTRUCTED AT ZERO GRADE TO CONVERT CONCENTRATED RUNOFF TO SHEET FLOW. DEWATERING STRUCTURE-STD. 3.26.....A TEMPORARY SETTLING AND FILTERING DEVICE FOR WATER WHICH IS DISCHARGED FROM DEWATERING ACTIVITIES.

VEGETATIVE - TOPSOILING-STD. 3.30.....PRESERVING AND USING TOPSOIL TO PROVIDE A SUITABLE GROWTH MEDIUM FOR VEGETATION USED TO STABILIZE DISTURBED AREAS. TEMPORARY SEEDING-STD. 3.31.....ESTABLISHMENT OF TEMPORARY VEGETATIVE COVER ON DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR PERIODS OF 30 DAYS TO ONE YEAR BY SEEDING. PERMANENT SEEDING-STD. 3.32.....ESTABLISHMENT OF PERMANENT VEGETATIVE COVER BY PLACING SEED ON ROUGH GRADED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A YEAR OR MORE. MULCHING-3.35.....APPLICATION OF PLANT RESIDUES OR OTHER SUITABLE MATERIALS TO DISTURBED SURFACES TO PREVENT EROSION AND REDUCE OVERLAND FLOW VELOCITIES. SOIL STABILIZATION BLANKETS & MATTING-3.36.....THE INSTALLATION OF A PROTECTIVE BLANKET OR A SOIL STABILIZATION MAT ON A STEEP SLOPE, CHANNEL, OR SHORELINE.

MANAGEMENT STRATEGIES: A) CONSTRUCTION WILL BE SEQUENCED SO THAT GRADING OPERATIONS CAN BEGIN AND END AS QUICKLY AS POSSIBLE. B) SEDIMENT TRAPPING MEASURES WILL BE INSTALLED AS A FIRST STEP IN GRADING. C) THE LOCAL PROGRAM ADMINISTRATOR RESERVES THE RIGHT TO ADD TO, DELETE OR OTHERWISE CHANGE THE EROSION CONTROL MEASURES AS DEEMED NECESSARY DUE TO ACTUAL FIELD CONDITIONS BY WRITTEN NOTIFICATION TO THE CONTRACTOR. D) ALL CUT AND FILL SLOPES SHALL BE SEEDDED WITHIN SEVEN (7) DAYS OF ACHIEVING FINAL GRADE. E) ONLY AFTER INSPECTION AND APPROVAL FROM THE LOCAL PROGRAM ADMINISTRATOR MAY ITEMS BE REMOVED FOLLOWING THE STABILIZATION OF THE CONTRIBUTING AREAS.

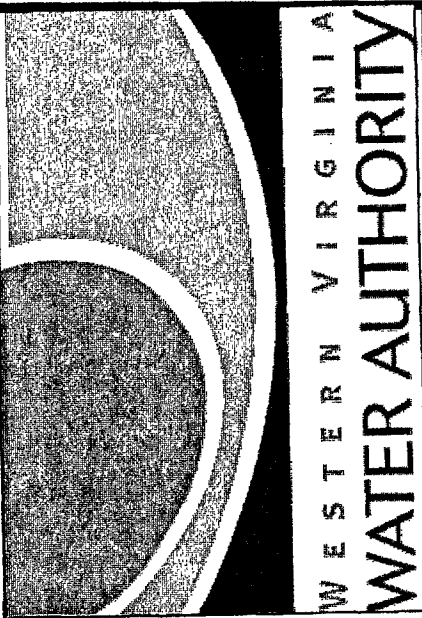
INSPECTIONS: THE GENERAL CONTRACTOR SHALL INSPECT DISTURBED AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED, AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION, STRUCTURAL CONTROL MEASURES, AND THE AREA OF CONSTRUCTION VEHICLE ACCESS AT LEAST EVERY FOURTEEN (14) CALENDAR DAYS, AND WITHIN 48 HOURS OF THE END OF A STORM EVENT PRODUCING 1/2" OR GREATER OF PRECIPITATION. WHERE AREAS HAVE BEEN FINALLY OR TEMPORARILY STABILIZED OR RUNOFF IS UNLIKELY DUE TO WINTER CONDITIONS (SITE IS COVERED WITH SNOW, ICE, OR FROZEN GROUND EXISTS) SUCH INSPECTIONS SHALL BE CONDUCTED AT LEAST ONCE EVERY MONTH. A) INSPECT DISTURBED AREAS AND AREAS OF MATERIALS STORAGE THAT ARE EXPOSED TO PRECIPITATION FOR EVIDENCE OF, OR THE POTENTIAL FOR SEDIMENT ENTERING THE STORM DRAIN SYSTEM. INSPECT E&S CONTROLS IN ACCORDANCE WITH REQUIREMENTS STATED HEREIN, AND INSPECT POINTS OF STORM DRAIN DISCHARGE FOR EXCESSIVE SEDIMENTATION. CORRECT SITE CONTROLS AS REQUIRED TO REDUCE SEDIMENTATION OF STORM DRAINS, CULVERTS, AND RECEIVING CHANNELS. B) IF CONTROLS OR SEDIMENT PREVENTION AREAS ARE FOUND TO BE IN NEED OF REPAIR OR MODIFICATION, THE GENERAL CONTRACTOR SHALL PROVIDE ADDITIONAL MEASURES OR MODIFICATIONS TO EXISTING MEASURES AS REQUIRED. ANY ADDITIONAL MEASURES OR MODIFICATIONS TO EXISTING MEASURES SHALL BE RECORDED AS FIELD REVISIONS TO THESE PLANS. IN THE EVENT THAT ADDITIONAL CONTROLS ARE FOUND TO BE REQUIRED, THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING THESE CONTROLS BEFORE THE NEXT ANTICIPATED STORM EVENT. IF IMPLEMENTATION BEFORE THE NEXT STORM EVENT IS IMPRACTICAL, THEY SHALL BE IMPLEMENTED AS SOON AS PRACTICAL. C) A REPORT SUMMARIZING THE SCOPE OF INSPECTIONS, NAME OF INSPECTOR, INSPECTOR'S QUALIFICATIONS, DATES OF INSPECTIONS, MAJOR OBSERVATIONS PERTAINING TO THE IMPLEMENTATION OF THESE EROSION CONTROL PLANS, AND ACTIONS TAKEN SHALL BE MADE AND RETAINED AS A PART OF THESE PLANS. MAJOR OBSERVATIONS OF THESE REPORTS SHALL INCLUDE: THE LOCATIONS OF EXCESSIVE SEDIMENTATION FROM THE SITE; LOCATIONS OF CONTROLS IN NEED OF REPAIR; LOCATIONS OF FAILED OR INADEQUATE CONTROLS; AND LOCATIONS WHERE ADDITIONAL CONTROLS ARE NEEDED.

STORMWATER MANAGEMENT: SEE STORMWATER QUANTITY AND QUALITY CALCULATIONS. THIS DEVELOPMENT IS LESS THAN 16% IMPERVIOUS; THEREFORE, THE LOW DENSITY DEVELOPMENT ACTS AS THE BMP FOR THIS DEVELOPMENT. THIS PROJECT WAS ACCOUNTED FOR IN THE CALCULATIONS FOR THE SWM PONDS CONSTRUCTED IN HANGING ROCK TERRACE.

MINIMUM STANDARDS

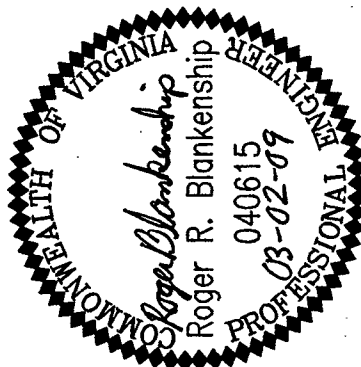
THE FOLLOWING STANDARDS ARE TO BE PROVIDED OR ADDRESSED ON EVERY DEVELOPMENT PROJECT EXCEEDING 5000 S.F. IN AREA OF DISTURBANCE. THESE STANDARDS ARE CONSIDERED A MINIMUM AND MAY REQUIRE ADDITIONAL MEASURES AS DEEMED NECESSARY BY THE LOCAL APPROVING AUTHORITY OR THE CONSULTING ENGINEER.

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.	<div>TS</div> <div>PS</div> <div>MU</div> <div>FOR ALL DENUDED AREAS</div>
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.	<div>TS</div> <div>PS</div> <div>MU</div> <div>FOR PROVIDED STOCKPILE</div>
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.	<div>TS</div> <div>PS</div> <div>MU</div> <div>FOR ALL DENUDED AREAS</div>
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.	<div>ST</div> <div>FOR ALL DRAINAGE DIVIDES</div>
5	STABILIZATION METHODS SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.	<div>TS</div> <div>PS</div> <div>MU</div> <div>FOR ALL EARTHEN STRUCTURES</div>
6	SEDIMENT TRAPS AND BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.	SEE SUPPLEMENTAL CALCULATIONS
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.	<div>TS</div> <div>PS</div> <div>MU</div> <div>FOR ALL ERODING SLOPES</div>
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.	<div>SCC</div> <div>SHOULD SEEPS OCCUR IN ANY EXISTING OR NEW CUT OR FILL SLOPE, THE CONTRACTOR SHALL FIRST INSURE THAT THERE ARE NOT AREAS OF PONDING WATER AT THE TOPS OF THE SLOPES, AND THEN SHALL CONTACT BOTH THE DESIGN ENGINEER AND THE PROJECT GEOTECHNICAL ENGINEER FOR ON-SITE EVALUATION OF THE AREAS OF SEEPAGE.</div>
9	WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.	
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.	<div>IP</div> <div>CIP</div> <div>FOR ALL STORM WATER INTAKES</div>
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.	<div>RR</div> <div>OP</div> <div>FOR ALL STORMWATER OUTLETS</div>
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.	<div>SF</div> <div>FOR THE PROTECTION OF THE NATURAL WATERCOURSE</div>
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.	PERMANENT CROSSING
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.	<div>TS</div> <div>PS</div> <div>MU</div>
15	THE BEDS AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.	<div>TS</div> <div>PS</div> <div>MU</div>
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)RESTALLIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS. 6)APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.	<div>NOT APPLICABLE</div> <div>ALL UTILITY PIPING ON-SITE</div>
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.	<div>CE</div> <div>FOR ALL POINTS OF INGRESS/EGRESS</div>
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.	<div>TS</div> <div>PS</div> <div>MU</div> <div>SELF-EXPLANATORY</div>
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.	SEE PLANS & CALC'S



ENGINEERING SERVICES

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HANGING ROCK TERRACE
WATER STORAGE TANK
BACKFILL

Designed By:	RRB
Drawn By:	RRB
Checked By:	RWB
Date:	02/26/09
Scale:	N.T.S.
Plan #:	00-00
Sheet:	3 OF 3