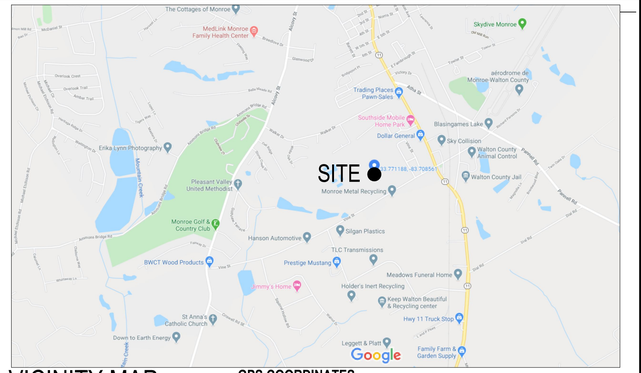
SITE DEVELOPMENT PLANS
FOR
150 VINE ST EROSION CONTROL PLAN

M0210001A00
150 VINE ST
MONROE GA, 30655
ZONING - M1

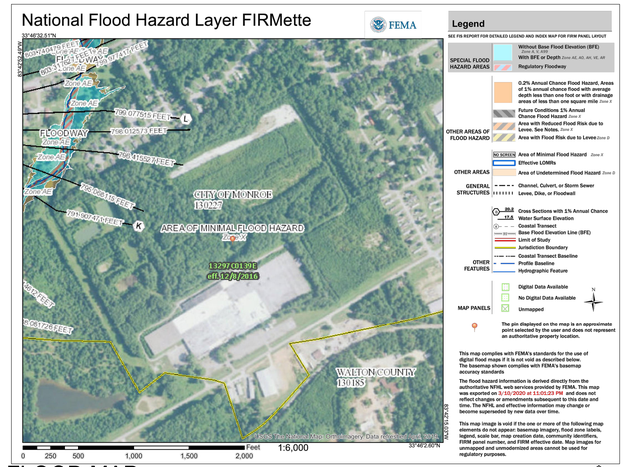
S H E E T I N D E X

ANY EXPOSED PIECES OF CERAMIC SHALL BE BURIED AND COVERED PER THE PREVIOUS LANDFILL CLOSING PLAN PROVIDED BY OTHERS.



VICINITY MAP
NOT TO SCALE

GPS COORDINATES
N 33° 46' 16.28" W -83° 42' 30.82
N 33.771188 W -83.708561



FLOOD MAP
NOT TO SCALE

LEGEND

STANDARD ABBREVIATIONS

APPROX.= APPROXIMATE	DIA = DIAMETER	GM = GAS METER	OHE = OVER HEAD POWER	SS = SANITARY SEWER
BLDG = BUILDING	DS = DOWNSPOUT	GP = GUY POLE	PB = PLAT BOOK	SSMH = SANITARY SEWER MANHOLE
BM = BENCH MARK	DWCB = DOUBLE WING CATCH BASIN	GV = GAS VALVE	PG = PAGE	SWCB = SINGLE WING CATCH BASIN
C&G = CURB AND GUTTER	ESⅅC = EROSION, SEDIMENTATION, AND POLLUTION CONTROL	ICV = IRRIGATION CONTROL VALVE	℄ = PROPERTY LINE	TC = TRAFFIC CONTROL BOX
CI = CURB INLET		IE = INVERT ELEVATION	POB = POINT OF BEGINNING	TMP = TAX MAP PARCEL
C.L. = CHAIN LINK	FDC = FIRE DEPARTMENT CONNECTION	IMP = IMPERVIOUS	PP = POWER POLE	W = WATER
CMP = CORRUGATED METAL PIPE	FFE = FINISH FLOOR ELEVATION	IPF = IRON PIN FOUND	PVC = POLYVINYL CHLORIDE PIPE	WM = WATER METER
CO = CLEAN OUT	FH = FIRE HYDRANT	JB = JUNCTION BOX	RBF = REBAR FOUND	WV = WATER VALVE
CPP = CORRUGATED PLASTIC PIPE	FO = FIBER OPTIC	LA = LOCAL ISSUING AUTHORITY	RCP = REINFORCED CONCRETE PIPE	
CTP = CRIMP TOP FOUND	FT = FEET	LP = LIGHT POLE	R/W = RIGHT OF WAY	
DB = DEED BOOK	GI = GRATE INLET	NTS = NOT TO SCALE	SMH = STORM MANHOLE	

STANDARD SYMBOLS

= BM	= FH	= GP	= LP	= SIGN	= TELE PEDESTAL
= BM IDENTIFICATION	–FO–FO– = FO	= GUY WIRE	–OHE–OHE– = POWER (OVERHEAD)	= SMH	= TRAFFIC WIRE
= CO	–GAS–GAS– = GAS LINE	= H/C PARKING	–P–P–P– = POWER (UNDERGROUND)	–SS–SS– = SS LINE	= TRANSFORMER
= DS	GM = GAS METER	= ICV	PB = POWER BOX	= SSMH	–W–W– = WATER LINE
= FDC	= GAS VALVE	= IPF	PM = POWER METER	= TC	WM = WM
–X–X–X– = FENCE	= GATE	LB = LIGHT BOX	= PP	= TELECOMM STRUCTURE	= WV

DEVELOPER
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CONTRACTOR
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ADDRESS: XXXXX
XXXXX
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PHONE: (XXX) XXX-XXXX
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SURVEYOR
EXISTING CONDITIONS DERIVED FROM RECENT AERIAL DRONE PHOTOGRAPHY AND GIS TOPOGRAPHY DATA

SITE DESIGNER
COMPANY: GEORGIA CIVIL, INC.
ADDRESS: P.O. BOX 896
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LEVEL II CERTIFIED DESIGN PROFESSIONAL
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GEORGIA811 www.Georgia811.com
Contact 811 before you dig

Utilities/Services shown are for Contractors' convenience. Items are shown schematically and neither the site design professional nor the owner assumes any responsibility for variances in their actual location. This plan may not show and/or may incorrectly show utilities located on site. Contractor shall be responsible to secure and use the services of a private utility locator firm during the entire course of work and shall pay for said services. Contractor shall locate utilities prior to any disturbance (including field verifying location and depth of utilities that are to be saved and protected). Contractor shall notify the site design professional of any utility conflicts prior to installation of new utilities, grading, etc. The Contractor, at their expense, shall be responsible to repair, replace and/or relocate, as necessary, any utilities damaged, whether shown or not. Abandonment, relocation, etc. of utilities shall be coordinated with the respective utility company.

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Professional Seal

GEORGIA REGISTERED NO. PE031649 PROFESSIONAL ENGINEER JASON P. BROWN

Project Information

150 VINE ST EROSION CONTROL PLAN
PARCEL NO. : M0210001A00
150 VINE ST
MONROE GA, 30655
ZONING-M1

DRAWING DATE:	7.9.2020
DRAWN BY:	MKS
CHECKED BY:	JPB

REVISIONS

DATE:	DESCRIPTION:
09.10.20	CITY COMMENTS
10.13.20	GSWCC COMMENTS
10.26.20	GSWCC COMMENTS

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Sheet Title

COVER SHEET

Sheet Number

CV-1.0

GENERAL NOTES:

1. ALL UTILITY INSTALLATION SHALL BE IN ACCORDANCE WITH CITY OF MONROE WATER AND SEWER STANDARDS AND SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND REVIEWING SAID STANDARDS AND SPECIFICATIONS.
2. NOTIFY CITY OF MONROE INSPECTION 24 HRS BEFORE BEGINNING OF CONSTRUCTION.
3. CONTRACTOR SHALL THOROUGHLY REVIEW CONSTRUCTION PLANS AND BE FAMILIAR WITH EXISTING CONDITIONS BY SITE VISITATION, PRIOR TO FORMULATING BID.
4. CONTRACTOR SHALL VERIFY CONDITIONS AND DIMENSIONS BEFORE PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCY FOUND IN THIS SET SHALL BE REFERRED TO THE SITE DESIGN PROFESSIONAL BY THE CONTRACTOR FOR CLARIFICATION BEFORE PROCEEDING WITH THE WORK. CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR DISCREPANCIES WHICH ARE NOT REPORTED.
5. CONSTRUCTION SHALL MEET OR EXCEED CITY OF MONROE MINIMUM STANDARDS AND SPECIFICATIONS.
6. CONTRACTOR SHALL ADHERE TO NORMAL WORKING HOURS AS PER CITY OF MONROE ORDINANCES. CONSTRUCTION OUTSIDE OF NORMAL WORKING HOURS, MAY BE ALLOWED UPON PRIOR APPROVAL BY CITY OF MONROE .
7. THE CONTRACTOR SHALL DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES, INCLUDING SHORING, AND SHALL ADHERE TO FEDERAL, STATE, COUNTY AND LOCAL LAWS, ORDINANCES, AND REGULATIONS WHICH IN ANY MANNER AFFECT THE CONDUCT OF WORK, INCLUDING, BUT NOT LIMITED TO, INITIATING, MAINTAINING, AND SUPERVISING SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK (I.E. THE REQUIREMENTS OF APPLICABLE REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)). CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD CITY OF MONROE AND ITS AGENTS, THE OWNER AND THE SITE DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN THE CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.
8. THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATER CREATES A HAZARDOUS CONDITION.
9. DO NOT BREAK THESE DOCUMENTS INTO PARTS AND SUB-PARTS. THE SITE DESIGN PROFESSIONAL AND OWNER ASSUMES NO RESPONSIBILITY FOR THE SEPARATION OF THESE DOCUMENTS BY ANY ENTITY OF THE CONTRACTING INDUSTRY. EACH CONTRACTING ENTITY SHALL BE RESPONSIBLE FOR ALL OF THE WORK RELATED TO THEIR TRADES WHEREVER IT MAY BE SHOWN WITHIN THE CONTRACT DOCUMENT PACKAGES.
10. NO WORK SHALL BE PERFORMED WITHIN GEORGIA DEPARTMENT OF TRANSPORTATION RIGHT OF WAY (IF APPLICABLE) UNTIL PERMIT(S) (INCLUDING GEORGIA DEPARTMENT OF TRANSPORTATION UTILITY ENCROACHMENT PERMIT) ARE OBTAINED FROM GEORGIA DEPARTMENT OF TRANSPORTATION AND ON SITE.
11. BARRICADES, SUFFICIENT LIGHTS, TRAFFIC SAFETY SIGNS, AND OTHER TRAFFIC CONTROL MEASURES AS DEEMED NECESSARY FOR THE PROTECTION AND SAFETY OF THE PUBLIC SHALL BE PROVIDED AND MAINTAINED THROUGHOUT CONSTRUCTION ON ROADS ACCESSED BY THE GENERAL PUBLIC.
12. SIGNS (LOCATION, NUMBER, AND SIZE) ARE NOT APPROVED UNDER THIS DEVELOPMENT PERMIT. A SEPARATE PERMIT IS REQUIRED FOR EACH SIGN.
13. NO CERTIFICATE OF OCCUPANCY SHALL BE ISSUED UNTIL SITE IMPROVEMENTS ARE COMPLETE.
14. ACCESS TO BUILDINGS DURING CONSTRUCTION SHALL BE MAINTAINED AND OPEN TO EMERGENCY VEHICLES AT ALL TIMES, THROUGH THE USE OF EXISTING OR TEMPORARY ROADS, DRIVES, AND/OR WALKS.
15. SITE LIGHTING SHALL BE FULLY SHIELDED. SITE LIGHTING IS TO BE DESIGNED BY OTHERS.
16. ALL WORK SHALL COMPLY WITH APPLICABLE FEDERAL, STATE, COUNTY, AND LOCAL CODES AND ALL NECESSARY LICENSES AND PERMITS SHALL BE OBTAINED BY CONTRACTOR.
17. CONTRACTOR IS RESPONSIBLE FOR QUANTITY TAKE OFFS AND ESTIMATING ALL QUANTITIES FOUND WITHIN THE SITE WORK CONSTRUCTION DRAWINGS. ANY QUANTITY TAKE OFFS OR ESTIMATES PROVIDED BY THE SITE DESIGN PROFESSIONAL ON THESE DOCUMENTS OR OTHERWISE SHALL BE VERIFIED BY THE CONTRACTOR BY PERFORMING HIS/HER OWN QUANTITY TAKE OFF AND/OR ESTIMATE. ANY COST FOR ANY DISCREPANCY IN QUANTITY TAKE OFF OR ESTIMATE PROVIDED BY SITE DESIGN PROFESSIONAL AND REQUIRED CONSTRUCTION QUANTITIES SHALL BE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR AT NO ADDITIONAL COST TO THE SITE DESIGN PROFESSIONAL AND/OR OWNER AND/OR OWNER'S REPRESENTATIVE.

DEMOLITION REQUIREMENTS:

1. THE CONTRACTOR SHALL INSPECT ALL STRUCTURES, FACILITIES, AND AREAS SLATED FOR DEMOLITION TO GAIN A FULL UNDERSTANDING OF THE WORK REQUIRED. THE CONTRACTOR SHALL TAKE WHATEVER MEASURES NECESSARY TO PROTECT THE SAFETY OF THE PUBLIC, HIS/HER EMPLOYEES AND AGENTS DURING THE INSPECTION AND SUBSEQUENT WORK. THE OWNER, CLIENT AND SITE DESIGN PROFESSIONAL ARE NOT RESPONSIBLE FOR THE CONDITION OF THE BUILDINGS, FACILITIES, OR OTHER AREAS SLATED FOR DEMOLITION.
2. THE CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION FROM THE OWNER TO DEMOLISH ANY STRUCTURE ON THE SITE BEFORE PROCEEDING WITH WORK.
3. ALL WORK PERFORMED ON THE SITE SHALL ADHERE TO ALL (OSHA) OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION SAFETY STANDARDS.
4. ALL MATERIALS NOT SLATED FOR REUSE SHALL BE DISPOSED OF OFF SITE IN A LEGAL MANNER. THE CONTRACTOR MAY SALVAGE ALL MATERIALS NOT DESIGNATED BY THE OWNER TO BE SAVED. THE CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE AND STORE SAFELY ALL MATERIALS SLATED TO BE SAVED OR REUSED. THE CONTRACTOR SHALL DOCUMENT EXISTING CONDITIONS USING PHOTOGRAPHS PRIOR TO START OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS TO REPAIR OR REPLACE MATERIALS DAMAGED DUE TO HIS WORK OR FAILURE TO PROTECT THROUGHOUT THE DURATION OF HIS CONTRACT.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL APPROPRIATE UTILITY OWNERS, OPERATORS AND USERS PRIOR TO DISCONNECTION AND DEMOLITION. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE AUTHORITY HAVING JURISDICTION. ALL PLUGS, STOPS, AND CAPS SHALL BE PER AGENCIES REQUIREMENTS AND IF NONE EXIST THEN A 3000 PSI CONCRETE PLUG WITH A THICKNESS EQUAL TO THE DIAMETER OF THE PIPE SHALL BE USED.
6. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY AND STOP ALL WORK IN AREAS WHERE HAZARDOUS MATERIALS ARE DISCOVERED. WHEN REQUIRED, THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE ENVIRONMENTAL AND HEALTH AGENCIES. THE CONTRACTOR SHALL FLAG OFF ALL ACCESS WITH SUFFICIENT FLAGGING THAT THERE IS AN APPARENT WARNING OF THE PRESENCE OF HAZARDOUS MATERIALS.
7. NO BURNING, EXPLOSIVES OR OTHER POTENTIALLY DANGEROUS METHODS OF DEMOLITION SHALL BE ALLOWED UNLESS WRITTEN PERMISSION IS GRANTED BY THE OWNER AND ALL APPROPRIATE PERMITS ARE GRANTED.
8. THE CONTRACTOR SHALL PROVIDE WHAT EVER SAFETY EQUIPMENT AND DEVICES ARE NECESSARY TO PROTECT THE ADJACENT PROPERTIES, STRUCTURES AND OTHER AREAS SLATED TO REMAIN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS TO REPAIR OR REPLACE ANY DAMAGE CAUSED BY HIS/HER WORK. THIS SHALL ALSO INCLUDE EROSION CONTROL, DUST CONTROL AND SETTLEMENT.
9. ALL AREAS SHALL BE BROUGHT BACK TO THEIR ORIGINAL GRADE OR THAT OF THE SURROUNDING AREA, WHICH EVER IS CLOSER TO THE FINAL GRADES OF THE PROJECT FOR THAT AREA. ALL TEMPORARY SLOPES SHALL NOT EXCEED 3 HORIZONTAL TO 1 VERTICAL. ALL AREAS REQUIRING FILL SHALL BE COMPACTED TO THE REQUIREMENTS OF THE AREA BUT IN NO CASE LESS THAN 90% OF MODIFIED PROCTOR (ASTM D 1557).
10. THE CONTRACTOR SHALL PROVIDE NECESSARY EROSION CONTROL MEASURES DURING THE DEMOLITION AND REMOVAL OF EXISTING SITE FEATURES.
11. THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM BUILDINGS AT ALL TIMES.
12. EXISTING BUILDINGS, APPURTENANCES, CANOPIES AND FOUNDATIONS ON THE PROPERTY SHALL BE PROTECTED UNLESS OTHERWISE NOTED.
13. THE CONTRACTOR SHALL MAINTAIN SAFE, CLEARLY MARKED PEDESTRIAN ACCESS ROUTES TO BUILDING ENTRANCES THROUGHOUT ALL PHASES OF CONSTRUCTION. ACCESS TO BUILDINGS SHALL BE MAINTAINED AT ALL TIMES.
14. SERVICES SHOWN ARE TO ASSIST CONTRACTOR IN LOCATING UTILITIES. ITEMS ARE SHOWN SCHEMATICALLY AND NEITHER THE ARCHITECT, SITE DESIGN PROFESSIONAL, NOR THE OWNER ASSUMES ANY RESPONSIBILITY FOR VARIANCES IN THE ACTUAL LOCATION OF THE EXISTING UTILITIES.
15. THE CONTRACTOR SHALL REPAIR OR REPLACE AS NECESSARY ANY UTILITIES DAMAGED, WHETHER SHOWN ON THESE PLANS OR NOT, AT NO ADDITIONAL COST TO THE CONTRACT.
16. EXISTING UTILITY APPURTENANCES (CLEAN OUTS, VALVE/METER BOXES AND/OR COVERS, MANHOLES, ETC.) LOCATED WITHIN THE LIMITS OF CONSTRUCTION SHALL BE RELOCATED AS NECESSARY OR ADJUSTED TO FINISHED GRADE AT THE EXPENSE OF THE CONTRACTOR.
17. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY PROVIDER OF DAMAGE TO ANY ACTIVE UTILITY AND PROVIDE CORRECTIVE MEASURES AS DIRECTED BY THE UTILITY PROVIDER AT NO ADDITIONAL COST TO THE CONTRACT.
18. EXISTING ITEMS TO REMAIN WITHIN THE PROJECT LIMITS SHALL BE RETAINED IN PLACE AND PROTECTED FROM DAMAGE DURING CONSTRUCTION, UNLESS OTHERWISE NOTED OR DIRECTED BY THE OWNER AND/OR THE OWNER'S REPRESENTATIVE.
19. ALL DISPOSAL SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL CODES.
20. THERE SHALL BE NO ON SITE BURIAL.
21. WORK DONE AHEAD OF SCHEDULE OR FOR TEMPORARY PROVISIONS SHALL HAVE EXISTING DISTURBED SURFACES PATCHED TO MATCH ORIGINAL CONDITIONS UNTIL NEW CONSTRUCTION REPLACES SUCH REPAIRS OR MODIFICATIONS.
22. PAVEMENT AREAS TO BE SAVED SHALL BE ABRASION SAW CUT PRIOR TO DEMOLITION. FAILURE TO PROVIDE A CLEAN EDGE MAY RESULT IN ADDITIONAL DEMOLITION AND NEW PAVEMENT INSTALLATION PAID FOR AND EXECUTED BY THE CONTRACTOR.
23. LIMITS OF CURB AND GUTTER DEMOLITION ARE SUBJECT TO THE NEAREST CONSTRUCTION JOINT. CURB AND GUTTER AND WALKS SHALL BE REPAIRED TO THE NEAREST CONSTRUCTION JOINT.
24. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER FOR THE REMOVAL OF EXISTING LANDSCAPE MATERIALS OR SITE FEATURES WHICH THE OWNER ELECTS TO RETAIN.
25. DEMOLITION WITHIN THE DRIP-LINE OF EXISTING SPECIMEN TREES SHALL BE ACCOMPLISHED UTILIZING MANUAL PROCEDURES WITHOUT DAMAGING THE ROOT SYSTEM OF THE TREE(S).
26. THE CONTRACTOR SHALL NOT CONSIDER DEMOLITION DESIGNATIONS AND NOTES TO BE ALL-INCLUSIVE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT AND ASSESS EACH AREA AND TO PERFORM THE DEMOLITION AS REQUIRED TO ACCOMMODATE THE SCHEDULED NEW CONSTRUCTION.

STAKING REQUIREMENTS:

1. SURVEYING WORK PERFORMED BY THE CONTRACTOR SHALL BE SUFFICIENT AND ACCURATE TO CONSTRUCT THE WORK IN ACCORDANCE WITH THE SITE WORK CONSTRUCTION DRAWINGS. LAYOUT AND STAKING WORK SHALL BE IN ACCORDANCE WITH GENERAL ACCEPTED SURVEYING PRACTICES AND PROVISIONS OF THE CONTRACT.
2. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR ACTUAL BUILDING DIMENSIONS. CONTRACTOR SHALL NOT STAKE BUILDING DIMENSIONS FROM THE BUILDING(S) SHOWN ON THE SITE WORK CONSTRUCTION DRAWINGS. REFERENCES IN THESE DOCUMENTS TO BUILDING SQUARE FOOTAGES ARE FOR OWNER'S PURPOSES ONLY. DO NOT RELY ON THESE NUMBERS FOR ANY OTHER PURPOSE.
3. CONTRACTOR SHALL STAKE BUILDING CORNERS AND HAVE APPROVAL FROM THE ARCHITECT AND/OR SITE DESIGN PROFESSIONAL BEFORE COMMENCING THE CONSTRUCTION OF ANY FOOTINGS.
4. DIMENSIONS SHOWN ARE TO THE FACE OF CURB(S), UNLESS OTHERWISE NOTED. ANGLES ARE 90° (INCLUDING STREET CENTER-LINES) UNLESS NOTED OTHERWISE.
5. CURB AND GUTTER RADII ARE 5.0 FT. UNLESS OTHERWISE NOTED.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE PRESERVATION AND OR PERPETUATION OF EXISTING RIGHT-OF-WAY MONUMENTS, BENCHMARKS CONTROL POINTS AND REFERENCE MARKS (AS APPLICABLE) WITHIN THE CONTRACTOR'S AREA OF WORK. THE CONTRACTOR SHALL NOT DISTURB OR REMOVE EXISTING RIGHT-OF-WAY MONUMENTS, BENCHMARKS CONTROL POINTS AND REFERENCE MARKS WITHOUT THE PERMISSION OF CITY OF MONROE , AND CONTRACTOR SHALL BEAR THE EXPENSE OF RESETTING EXISTING RIGHT-OF-WAY MONUMENTS, BENCHMARKS CONTROL POINTS AND REFERENCE MARKS WHICH MAY BE DISTURBED OR REMOVED WITH OR WITHOUT PERMISSION. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 15 WORKING DAYS NOTICE TO TCITY OF MONROE PRIOR TO DISTURBANCE OR REMOVAL OF EXISTING RIGHT-OF-WAY MONUMENTS, BENCHMARKS CONTROL POINTS AND REFERENCE MARKS. THE CONTRACTOR SHALL UTILIZE THE SERVICES OF A GEORGIA LICENSED LAND SURVEYOR TO RESET DISTURBED OR REMOVED RIGHT-OF-WAY MONUMENTS, BENCHMARKS CONTROL POINTS AND REFERENCE MARKS OR PROVIDE WITNESS MONUMENTS, AND FILE THE REQUIRED DOCUMENTATION WITH CITY OF MONROE .
7. THE CONTRACTOR (UNLESS OTHERWISE INSTRUCTED BY THE OWNER) SHALL PROVIDE STAKING AND LAYOUT SERVICES, INCLUDING BUT NOT LIMITED TO, CENTERLINE STAKES, ADDITIONAL LINES, CONNECTIONS, RAMPS, SLOPE STAKES, GRADE STAKES, CONSTRUCTION BENCHMARKS AND REFERENCE STAKES LOCATING DRAINAGE, ROADWAY, AND UTILITIES NECESSARY FOR THE PROJECT. ALIGNMENT CONTROL ESTABLISHED BY THE CONTRACTOR SHALL BE REFERENCED, AND A COPY OF THE REFERENCES SHALL BE FURNISHED TO THE SITE DESIGN PROFESSIONAL.
8. THE CONTRACTOR SHALL VERIFY ALL INVERTS OF EXISTING STORM AND SANITARY SEWER TIE-INS AND ALL GRADES AT EXISTING PAVEMENT TIE-INS BEFORE PROCEEDING WITH ANY SITE WORK.
9. ALL CONTROL SHALL BE VERIFIED BEFORE PROCEEDING. SURVEYOR SHALL VERIFY INVERTS AT ALL GRAVITY STORM AND SEWER TIE IN POINTS BEFORE PROCEEDING. SURVEYOR SHALL VERIFY TIE POINT ELEVATIONS AT ALL ACCESS POINTS BEFORE PROCEEDING.

CLEAR AND GRUB REQUIREMENTS:

1. THE CONTRACTOR SHALL REVIEW PLANS AND IDENTIFY AND SAFELY MARK ALL PLANTS AND TREES TO BE SAVED. THE CONTRACTOR SHALL PROTECT ALL PLANTS AND TREES TO BE SAVED THROUGH OUT THE CONTRACT. THIS SHALL INCLUDE PROHIBITING ANY WORK WITHIN THE DRIP LINE OF THE TREE EXCEPT UNDER THE SUPERVISION OF A LICENSED LANDSCAPE ARCHITECT. THIS INCLUDES NOT PARKING ANY EQUIPMENT OR HAVING ANY STORAGE AREAS WITHIN THE DRIP LINE OF THE TREE EXCEPT UNDER THE SUPERVISION OF A LICENSED LANDSCAPE ARCHITECT.
2. ALL AREAS TO BE CLEARED AND GRUBBED SHALL BE SURVEYED IN THE FIELD TO ESTABLISH THE APPROPRIATE LIMITS OF WORK.
3. THE CONTRACTOR SHALL TAKE WHAT EVER MEASURES NECESSARY TO LOCATE AND PROTECT EXISTING UTILITIES, STRUCTURES, AND OTHER FACILITIES TO REMAIN.
4. ALL TREES, SHRUBS, STUMPS, ROOTS AND OTHER DEBRIS SHALL BE REMOVED FROM SITE AND DISPOSED OF IN A LEGAL MANNER.
5. NO BURNING SHALL BE ALLOWED ON THE SITE.

COMPACTION FOR UTILITY INSTALLATION:

1. ANALYTICAL COMPACTION RESULTS SHALL BE SUBMITTED TO CITY OF MONROE ENGINEERING DEPARTMENT (OR SIMILAR DEPARTMENT). THE FOLLOWING APPLIES TO STORMWATER, SANITARY SEWER, AND WATER:
   a. BACKFILL UNDER PERMANENT CONCRETE OR BITUMINOUS PAVEMENT, AND AS ELSEWHERE SPECIFIED OR INDICATED ON THE PLANS, SHALL BE APPROVED BANK-RUN SAND OR GRAVEL OR CRUSHED STONE FREE FROM LARGE STONES AND CONTAINING NOT MORE THAN TEN PERCENT (10%) BY WEIGHT OF LOAM OR CLAY. THIS BACKFILL SHALL BE COMPACTED TO ONE HUNDRED PERCENT (100%) AS DETERMINED BY THE MODIFIED PROCTOR TEST FROM PIPE BEDDING TO TWO (2) FEET BELOW TRENCH TOP. MECHANICAL VIBRATING EQUIPMENT SHALL BE USED TO ACHIEVE THE REQUIRED COMPACTION. PAVEMENT SHALL BE REPLACED IMMEDIATELY AFTER THE BACKFILLING IS COMPLETED.
   b. BACKFILL UNDER GRAVEL OR CRUSHED STONE SURFACED ROADWAYS SHALL BE THE APPROVED SUITABLE EXCAVATED MATERIAL PLACED IN SIX (6) INCH LAYERS THOROUGHLY COMPACTED FOR THE FULL DEPTH AND WIDTH OF THE TRENCH, CONFORMING TO THE COMPACTION, DENSITY COMPACTION METHOD AND MATERIALS AS SPECIFIED IN "2" ABOVE.
   c. BACKFILL IN UNPAVED AREAS SHALL BE COMPACTED WITH MECHANICAL VIBRATING EQUIPMENT TO NINETY PERCENT (90%) AS DETERMINED BY THE MODIFIED PROCTOR TEST. BACKFILL MATERIAL FROM PIPE BEDDING TO GROUND SURFACE SHALL BE EXCAVATED FREE FROM LARGE STONES & OTHER DEBRIS.

GRADING / EARTHWORK REQUIREMENTS:

1. PRIOR TO STARTING ANY CUTS OR FILLS, THE CONTRACTOR SHALL STRIP AND STOCKPILE ALL TOPSOIL. STRIPPING OF TOPSOIL CAN ONLY COMMENCE AFTER THE CLEAR AND GRUB OPERATIONS ARE COMPLETE IN THAT AREA. TOPSOIL SHALL BE STOCKPILED IN AREAS DESIGNATED ON THE PLANS OR APPROVED WITH THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL REVIEW THE SOILS REPORTS, BORING LOGS AND WHEN NECESSARY HIS OWN FIELD VERIFICATION SO AS TO BE FAMILIAR WITH THE DEPTH OF TOPSOIL. THE CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO PREVENT OVER AND UNDER REMOVAL.
2. UNLESS OTHERWISE NOTED, THE GRADES SHOWN ON THE PLANS ARE FINISHED GRADES. THEREFORE, PAVEMENT, FLOORS, SUBBASE AND OTHER IMPROVEMENTS MUST BE SUBTRACTED TO CALCULATE SUBGRADE ELEVATIONS. THE CONTRACTOR SHALL COORDINATE THE STAKING OF THE SITE GRADING WITH THE SURVEYOR AND ENGINEER OF RECORD BEFORE PROCEEDING WITH CONSTRUCTION STAKING.
3. THE CONTRACTOR SHALL MAINTAIN A SURVEY GRID OF NOT LESS THAN 100' X 100' OR OTHER MEANS ACCEPTABLE TO THE OWNER'S REPRESENTATIVE THAT SHALL INDICATE LOCATION AND AMOUNT OF CUT OR FILLS REMAINING. AT SUBGRADE THIS GRID SHALL BE 50' X 50' WITH LOCATION AND FINAL GRADE MARKED CLEARLY OR SURVEY SHALL BE COMPLETED DEMONSTRATING THAT THE SUBGRADE IS +/- 0.1 FEET OF REQUIRED SUBGRADE.
4. UNLESS OTHERWISE NOTED ON THE DRAWINGS OR IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL RETAIN AND PAY ALL COST FOR SOIL COMPACTION TESTING TO BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY. FOR EACH LIFT PLACED, COMPACTION TESTING SHALL BE DONE EVERY 2000 SQUARE FEET. IN TRENCHES, COMPACTION TESTING SHALL BE DONE EVERY OTHER LIFT WITH AT LEAST 1 TEST FOR EVERY 100 LINEAR FEET.
5. COMPACTION REQUIREMENTS SHALL BE THOSE OUTLINED IN THE GEOTECHNICAL EVALUATION. IF THE GEOTECHNICAL EVALUATION IS NOT CLEAR OR DOES NOT GIVE REQUIREMENTS THE FOLLOWING SHALL BE USED. UNDER AND TO 20 FEET OUTSIDE THE BUILDING ENVELOPE THE SOILS SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM DRY DENSITY PER ASTM D 1557 (MODIFIED PROCTOR). ALL LANDSCAPE AND LAWN AREAS SHALL BE COMPACTED TO 90% MAXIMUM DRY DENSITY PER ASTM D 1557 (MODIFIED PROCTOR). THE TESTING LAB SHALL TEST SOILS IN ACCORDANCE ASTM D 2922 (NUCLEAR METHOD) WITH PROCTORS FOR EACH SOIL TYPE.
6. UNLESS OTHERWISE NOTED IN THE GEOTECHNICAL REPORT OR ON THE DRAWINGS, THE ON SITE MATERIAL SHALL BE USED TO MAKE FILLS. ALL MATERIAL TO BE USED FOR FILL SHALL BE FREE OF ORGANICS, FROZEN MATERIALS, CONTAMINATED MATERIALS, DEBRIS AND ANY ROCKS LARGER THAN 4 INCHES. FOR FILL PLACEMENT WITHIN 1 FOOT OF SUBGRADE, NO ROCK SHALL BE GREATER THAN 2 INCHES IN DIAMETER. THE CONTRACTOR SHALL BEAR ALL COSTS ASSOCIATED WITH DRYING, SEGREGATING OR OTHER REQUIRED METHODS TO TREAT SOILS TO MEET COMPACTION AND OTHER REQUIREMENTS.
7. FILLS SHALL BE PLACED IN LIFTS NOT TO EXCEED 6 INCHES IN ALL AREAS.
8. IF IMPORTED MATERIAL IS REQUIRED, THE SOURCE AND A RANDOM COMPOSITE SAMPLE SHALL BE REVIEWED BY THE TESTING LABORATORY PRIOR TO BEING BROUGHT TO SITE. THE TESTING LABORATORY SHALL TEST FOR PERCENT PASSING THE 200 SIEVE THAT DOES NOT EXCEED THE EXISTING ON SITE MATERIAL OR IN NO CASE GREATER THAN 35%. THEY SHALL ALSO VERIFY CONSISTENCY WITH EXISTING ON SITE MATERIALS AND ALL OTHER REQUIREMENTS. WAIVERS TO THESE REQUIREMENTS CAN ONLY BE GIVEN JOINTLY BY OWNER AND THE GEOTECHNICAL ENGINEER THAT PREPARED THE GEOTECHNICAL REPORT.
9. THE TESTING LAB MAY RESTRICT SOME ON SITE MATERIALS FROM BEING USED AS FILL IN BUILDING OR PAVEMENT AREAS WHEN IT IS THEIR OPINION THAT THE MATERIAL WILL NOT MEET REQUIREMENTS STATED HERE OR IN THE GEOTECHNICAL REPORT. IF SUCH CONDITIONS DO EXIST AND OTHER MATERIAL IS NOT AVAILABLE ON SITE, THE OWNER'S REPRESENTATIVE MUST AUTHORIZE IN WRITING THE USE OF IMPORT MATERIAL UNLESS THERE WILL BE NO ADDITION COST TO THE CONTRACT.
10. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EARTHWORK OPERATIONS FROM WEATHER AND GROUND WATER INCLUDING KEEPING POSITIVE DRAINAGE, DIVERTING DRAINAGE, DEWATERING AND SEALING DISTURBED AREAS WITH A STEEL DRUM ROLLER PRIOR TO INCLEMENT WEATHER.
11. PRIOR PLACEMENT OF FILLS, IN AREAS WHERE THE FINAL DEPTH WILL BE LESS THAN 4 FEET, THE AREA SHALL BE PROOF ROLLED WITH A 10 TON ROLLER OR A LOADED 10 WHEEL DUMP TRUCK. SOFT AREAS SHALL BE SCARIFIED, DRIED AND RE-COMPACTED PRIOR TO FILL BEING PLACED. RETEST BY PROOF ROLL AS NECESSARY.
12. ALL FINAL SUBGRADE UNDER PROPOSED PAVEMENT, BUILDING OR OTHER STRUCTURE SHALL BE PROOF ROLLED AS DESCRIBED ABOVE FOR THE IDENTIFICATION OF SOFT AREAS. AREAS FOUND TO BE UNACCEPTABLE TO THE GEOTECHNICAL ENGINEER OR THE GEOTECHNICAL ENGINEER'S TECHNICIAN SHALL BE SCARIFIED, DRIED AND RECOMPACTED. RETEST BY PROOF ROLL AS NECESSARY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL PROOF ROLLS WITH THE GEOTECHNICAL ENGINEER AND SHALL HAVE THE GEOTECHNICAL ENGINEER OR THE GEOTECHNICAL ENGINEER'S TECHNICIAN ON SITE AT THE TIME OF ALL PROOF ROLLING.
13. TRENCH EXCAVATION REQUIRING SHEETING, SHORING OR OTHER STABILIZING DEVICES SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER AND MEET ALL O.S.H.A. REQUIREMENTS. ALL EXCAVATIONS SHALL MAINTAIN SAFE SIDE SLOPES IN ACCORDANCE WITH LOCAL, STATE, AND O.S.H.A. REQUIREMENTS. NO STOCKING OF MATERIAL CLOSE TO AN OPEN CUT OR STEEP SLOPE SHALL BE PERMITTED IN AN EFFORT TO PREVENT CAVE-INS.
14. TRENCH EXCAVATIONS SHALL BE MADE UNIFORM AND STRAIGHT TO WIDTHS DETERMINED BY CITY OF MONROE . IF NO GUIDELINES FROM CITY OF MONROE EXIST, THE FOLLOWING SHALL BE USED: (FOR PIPES 36 INCHES OR LESS THE TRENCH WIDTH SHALL BE THE DIAMETER PLUS 2 FEET), (FOR PIPES 36 INCHES OR GREATER THE WIDTH SHALL BE THE DIAMETER PLUS 3 FEET). ADDITIONAL WIDTH SHALL ONLY BE ALLOWED WHEN COMPACTION EQUIPMENT LIMITATIONS REQUIRE AND ONLY AFTER APPROVAL OF THE ENGINEER OF RECORD. NO MORE TRENCH SHALL BE OPEN IN ONE DAY THAN CAN BE PROPERLY BACKFILLED IN THAT SAME DAY TO MINIMIZE WEATHER AND SAFETY CONCERNS. WHEN BACKFILLING AROUND PIPES PROVIDE UNIFORM SUPPORT AT INVERT AND PROPER COMPACTION UNDER, ALONG AND OVER THE PIPE. CARE SHALL BE GIVEN WHILE BACKFILLING AROUND PIPES TO PREVENT DAMAGE TO THE PIPES INCLUDING: PLACING BACKFILL/BEDDING BY HAND, USING HAND OPERATED PLATE TAMPS OR JUMPING JACKS, AND OTHER LOAD RESTRICTIVE TECHNIQUES UNTIL FILLS ARE A MINIMUM OF 2 FEET OR MANUFACTURER'S RECOMMEND DEPTH, WHICH EVER IS GREATER, ABOVE THE TOP OF THE PIPE. COMPACTION REQUIREMENTS ARE NOT RELIEVED IN THESE AREAS AND SHALL REMAIN AS STATED ON THE DRAWINGS OR AS NOTED ABOVE.
15. IF ROCK IS ENCOUNTERED THAT WAS NOT INDICATED ON THE PLANS OR GEOTECHNICAL REPORT, THE AREA FOR REMOVAL SHALL BE MEASURED AND REVIEWED WITH THE OWNER'S REPRESENTATIVE PRIOR TO ROCK REMOVAL. ROCK WILL BE DEFINED AS THE NATURAL EARTH MATERIALS THAT CAN NOT BE REMOVED WITH A D9 DOZIER WITH A SINGLE TOOTH RIPPER.
16. WHERE ROCK IS ADJACENT TO A STRUCTURE OR UTILITY, THE ROCK SHALL BE REMOVED TO A MINIMUM OF 6 INCHES BELOW AND 1 TIMES THE DIAMETER, BUT NOT LESS THAN 1 FOOT OR GREATER THAN 3 FEET ON ANY SIDE.
17. NO EXPLOSIVES SHALL BE ALLOWED UNTIL ALL PERMITS ARE GRANTED AND THE OWNER HAS SIGNED OFF. PRE AND POST BLAST REPORTS SHALL BE KEPT AND RECORDED. ALL STRUCTURES WITHIN THE AREA OF THE BLAST SHALL RECEIVE A PRE-BLAST SURVEY. ALL BLASTING SHALL BE PERFORMED BY A LICENSED BLASTER.
18. UNLESS OTHERWISE NOTED ON THE DRAWINGS, THE CONTRACTOR SHALL REMOVE ALL EXCESS TOPSOIL, CUT MATERIAL OR WASTE MATERIAL FROM SITE AND DISPOSE OF IN A LEGAL MANNER.
19. NO FILL SHALL BE PLACED ON EXISTING GROUND WITHIN THE LIMITS OF DISTURBANCE UNTIL THE GROUND HAS BEEN CLEARED OF WEEDS, DEBRIS, TOPSOIL AND OTHER DELETERIOUS MATERIAL, SCARIFIED TO A MINIMUM DEPTH OF 6 INCHES OR TO A DEPTH RECOMMENDED BY THE GEOTECHNICAL REPORT AND INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO THE PLACING OF FILL. DELETERIOUS MATERIALS, I.E., LUMBER, LOGS, BRUSH, OR ANY OTHER ORGANIC MATERIALS OR RUBBISH SHALL BE REMOVED FROM AREAS TO RECEIVE COMPACTED FILL. UNSUITABLE MATERIALS, SUCH AS TOPSOIL, WEATHERED BEDROCK, ETC., SHALL BE REMOVED AS REQUIRED BY GEOTECHNICAL ENGINEER (AND ENGINEERING GEOLOGIST, WHERE EMPLOYED) FROM AREAS TO RECEIVE COMPACTED FILL OR DRAINAGE STRUCTURE(S). CONSTRUCT FILL TO GRADES OR SUBGRADES AS SHOWN WITH SELECT FILL MATERIAL COMPACTED TO 95% STANDARD PROCTOR (UNLESS OTHERWISE NOTED). PLACE AND COMPACT IN 6 INCH LIFTS. ALL SOILS WITHIN 12 INCHES OF PAVEMENT SUBGRADE SHALL BE COMPACTED TO AT LEAST 98% OF THEIR STANDARD PROCTOR MAXIMUM DRY DENSITY.
20. GRADED AREAS TO BE LANDSCAPED OR GRASSED SHALL BE BROUGHT TO THE ELEVATIONS SHOWN ON THE GRADING PLAN(S).
21. CONTRACTOR SHALL VERIFY DIMENSIONS, GRADES AND BENCHMARK(S) BEFORE BEGINNING ANY WORK.
22. THERE SHALL BE NO DISTURBANCE BEYOND PROPERTY LINES, UNLESS WRITTEN PERMISSION FROM ADJACENT PROPERTY OWNERS IS OBTAINED. EXISTING GRADES ALONG PROPERTY LINES SHALL BE MAINTAINED (UNLESS OTHERWISE NOTED).
23. THE MAX. SLOPES FOR CUT OR FILL SHALL BE 2H:1V, UNLESS OTHERWISE NOTED ON THE PLANS AND EXCEPT EARTHEN DAM EMBANKMENTS SHALL BE 3H:1V AND AS NOTED BELOW. THE SLOPE OF CUT OR FILL SHALL BE UNIFORM THROUGHOUT FOR EACH SECTION OF CUT OR FILL EXCEPT WHEN BENCHING IS APPROVED BY CITY OF MONROE . WHEN A CUT IS MADE IN ROCK THAT REQUIRES BLASTING, THE SLOPE MAY BE STEEPER IF PRE-SPLITTING IS EMPLOYED AND UPON SUBMISSION OF A GEOTECHNICAL REPORT WHICH SUBSTANTIATES THE INTEGRITY OF THE ROCK IN THE STEEPER CONDITION, SUBJECT TO THE REVIEW AND APPROVAL OF CITY OF MONROE AND/OR SITE DESIGN PROFESSIONAL. (NOTE: NO BLASTING SHALL OCCUR WITHOUT A VALID PERMIT ISSUED BY CITY OF MONROE AND THE OWNER HAS SIGNED OFF.)
24. EMBANKMENTS SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED A COMPACTED THICKNESS OF 6 INCHES PER LAYER AND SHALL BE COMPACTED TO A DENSITY OF 98% OF THE MAX. LABORATORY DRY WEIGHT PER CUBIC FOOT AS DETERMINED BY AASHTO METHOD T-99 IN AREAS WHERE STRUCTURES, PARKING LOTS AND DRIVES, STREETS AND UTILITIES ARE TO BE PLACED ABOVE OR BELOW THESE SLOPES.
25. CONTOURS AND SPOT ELEVATIONS SHOWN ARE ONLY CONTROLS AND THE PROFILES THEY FORM SHALL BE SMOOTH AND CONTINUOUS (PARTICULARLY IN PARKING AREAS AND DRIVES).
26. GRADING SHALL BE PERFORMED UNDER THE SUPERVISION OF A GEOTECHNICAL ENGINEER WHO SHALL CERTIFY THAT FILL HAS BEEN PROPERLY PLACED AND WHO SHALL SUBMIT A FINAL COMPACTION REPORT FOR FILLS OVER 1' DEEP.
27. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM BUILDING(S) AT ALL TIMES.
28. ANALYTICAL COMPACTION RESULTS SHALL BE SUBMITTED TO CITY OF MONROE ENGINEERING DEPARTMENT (OR SIMILAR DEPARTMENT) AND TO THE GEOTECHNICAL ENGINEER OF RECORD.
29. ALL GRADING AND PIPE BED PREPARATION SHALL BE PERFORMED ACCORDING TO REQUIREMENTS SET FORTH BY THE GEOTECHNICAL ENGINEER OF RECORD.
30. CONTRACTOR SHALL OBTAIN A COPY OF THE GEOTECHNICAL REPORT FROM THE OWNER AND FOLLOW ALL RECOMMENDATIONS OF THE REPORT WHEN PERFORMING SITE WORK.
31. AT A MINIMUM, FOR TRENCH CONSTRUCTION, BACKFILL UNDER PERMANENT CONCRETE OR BITUMINOUS PAVEMENT AND AS ELSEWHERE SPECIFIED OR INDICATED ON THE PLANS, TRENCHES SHALL BE APPROVED BANK-RUN SAND OR GRAVEL OR CRUSHED STONE FREE FROM LARGE STONES AND CONTAINING NOT MORE THAN TEN PERCENT (10%) BY WEIGHT OF LOAM OR CLAY. THIS BACKFILL SHALL BE COMPACTED TO ONE HUNDRED PERCENT (100%) AS DETERMINED BY THE MODIFIED PROCTOR TEST FROM PIPE BEDDING TO TWO (2) FEET BELOW TRENCH TOP. MECHANICAL VIBRATING EQUIPMENT SHALL BE USED TO ACHIEVE THE REQUIRED COMPACTION. PAVEMENT SHALL BE REPLACED IMMEDIATELY AFTER THE BACKFILLING IS COMPLETED.
32. BACKFILL UNDER GRAVEL OR CRUSHED STONE SURFACED ROADWAYS SHALL BE THE APPROVED SUITABLE EXCAVATED MATERIAL PLACED IN SIX (6) INCH LAYERS THOROUGHLY COMPACTED FOR THE FULL DEPTH AND WIDTH OF THE TRENCH, CONFORMING TO THE COMPACTION, DENSITY COMPACTION METHOD AND MATERIALS AS SPECIFIED ABOVE.
33. BACKFILL IN UNPAVED AREAS SHALL BE COMPACTED WITH MECHANICAL VIBRATING EQUIPMENT TO NINETY PERCENT (90%) AS DETERMINED BY THE MODIFIED PROCTOR TEST. BACKFILL MATERIAL FROM PIPE BEDDING TO GROUND SURFACE SHALL BE EXCAVATED FREE FROM LARGE STONES & OTHER DEBRIS.

PAVEMENT AND STRUCTURAL BASE REQUIREMENTS:

1. THE TYPE OF SUBBASE REQUIRED FOR EACH USE SHALL BE CALLED OUT ON THE DRAWINGS. IF NO REFERENCE IS MADE ON THE DRAWINGS OR DETAILS TO THE TYPE OF SUBBASE REQUIRED THE FOLLOWING SHALL BE USED. THE SOURCE OF THE MATERIAL SHALL BE ONE OF APPROVED FOR USE BY THE GEORGIA DEPARTMENT OF TRANSPORTATION. THE MATERIAL SHALL BE A CRUSHED STONE CONFORMING TO AASHTO M 147-65 (1980 OR LATEST REVISION), GRADE A. GRAVEL OR OTHER MATERIALS CAN ONLY BE SUBSTITUTED FOR CRUSH STONE WHEN APPROVED IN WRITING BY THE OWNER AND SITE DESIGN PROFESSIONAL. MATERIAL SUPPLIED FOR USE AS SUBBASE SHALL HAVE 100% PASSING THE 2 INCH SIEVE, 30% TO 65% PASSING THE 3/8 INCH SIEVE, 25% TO 55% PASSING THE NO.4 SIEVE, 15% TO 40% PASSING THE NO. 40 SIEVE AND 2% TO 10% PASSING THE NO. 200 SIEVE.
2. SUBBASE SHALL BE PLACED IN LIFTS NOT TO EXCEED 6 INCHES AND COMPACTED TO THE REQUIREMENTS STATED IN THE GEOTECHNICAL REPORT. IF NOT STATED, THE COMPACTION REQUIREMENT SHALL BE 95% OF MAXIMUM DRY DENSITY PER ASTM D1557 (MODIFIED PROCTOR).
3. FINAL GRADING OF SUBBASE SHALL BE TO +/- 1 INCH OF THAT DESIGNATED ON THE DRAWINGS AND +/- 1 INCH OF THE REQUIRED THICKNESS OF 8 INCHES OR GREATER AND +/- 1/2 INCH FOR THICKNESS LESS THAN 8 INCHES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS IN PREPARING THE SUBGRADE TO RECEIVE SUBBASE. THIS SHALL INCLUDE FINE GRADING AND COMPACTING AS NECESSARY TO MEET THE REQUIREMENTS STATED HERE AND UNDER "GRADING / EARTHWORK REQUIREMENTS".
5. THE AMOUNT OF TESTING REQUIRED TO VERIFY THE COMPACTION SHALL BE THE SAME AS STATED UNDER "GRADING / EARTHWORK REQUIREMENTS".
6. IF REQUIRED, STABILIZING FABRIC SHALL MEET THE FOLLOWING REQUIREMENTS "MODULUS (LOAD AT 10% ELONGATION) = 115LB PER ASTM D1682-64", "GRAB TENSILE STRENGTH 200LB PER ASTM D 1682-64"," MULLEN BURST STRENGTH = 400PSI PER ASTM D 3786-87","TRAPEZOID TEAR STRENGTH WHEN APPLICABLE = 115LB PER ASTM D 1117-80","COEFFICIENT OF PERMEABILITY K (CM/SEC) = 0.015 PER ASTM D 4491-85","WATER FLOW RATE (GPM/SF)= 60 PER ASTM D 4491-85". WHEN STABILIZING FABRIC IS USED IT SHALL BE PULLED TIGHT AND ALL WRINKLES REMOVED. OVERLAPS SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
7. IF REQUIRED, FILTER FABRIC SHALL MEET THE FOLLOWING REQUIREMENTS "GRAB TENSILE ELONGATION = 50% PER ASTM D1682-64", "GRAB TENSILE STRENGTH 70LB PER ASTM D 1682-64","MULLEN BURST STRENGTH = 200PSI PER ASTM D 3786-87","TRAPEZOID TEAR STRENGTH WHEN APPLICABLE = 35 LB PER ASTM D 1117-80","COEFFICIENT OF PERMEABILITY K (CM/SEC) = 0.2 PER ASTM D 4491-85","WATER FLOW RATE (GPM/SF) = 180 PER ASTM D 4491-85". WHEN FILTER FABRIC IS USED IT SHALL BE PULLED TIGHT AND ALL WRINKLES REMOVED. OVERLAPS SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

TRAFFIC SIGNAGE AND PAVEMENT MARKINGS:

1. PAVEMENT MARKINGS SHALL BE THE TYPE, COLOR, SIZE AND LOCATIONS SHOWN ON THE PLANS. IF THE INFORMATION ON THE PLANS IS NOT COMPLETE AND AUTHORITY HAVING JURISDICTION DOES NOT HAVE REQUIREMENTS REGARDING THIS, USE THE FOLLOWING. PAINT SHALL BE SUPPLIED IN ACCORDANCE WITH AASHTO: M 248 LATEST ADDITION. COLORS SHALL BE AS FOLLOWS (YELLOW- PARKING STALLS, HANDICAP PARKING AND CHARACTERS, PARKING ISLANDS, TRAFFIC CONTROL LETTERING AND CHARACTERS AND FIRE LANES) (WHITE - STOP BARS, PEDESTRIAN CROSSINGS AND STOP LETTERING).
2. THE PAVEMENT SHALL BE CLEAN AND FREE OF DIRT, DUST, MOISTURE, OILS AND OTHER FOREIGN MATERIALS. ANY OLD PAVEMENT MARKINGS SHALL BE REMOVED UNLESS PAINTS ARE COMPATIBLE AND OVERLAY IDENTICALLY. THE SURFACE OF THE PAVEMENT PRIOR TO APPLICATION SHALL BE 45 DEGREES F AND RISING UNLESS MANUFACTURE'S RECOMMENDATIONS ARE GREATER.
3. THE SIGNAGE SHALL BE THE TYPE AND LOCATED PER THE DRAWINGS. THE SIGNAGE SHALL BE PROVIDED IN ACCORDANCE WITH THE LOCAL HIGHWAY, COUNTY HIGHWAY AND STATE DEPARTMENT OF TRANSPORTATION. IF LOCAL, COUNTY OR STATE CODES DO NOT EXIST USE AASHTO: M268.
4. POSTS, BRACKETS AND FRAMES SHALL BE STEEL PER ASTM A-36, A-242, A-441, A-572, A588, GRADE 50 AND HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A123. ALL CUTTING, DRILLING OR OTHER POLE MODIFICATIONS SHALL BE PAINTED WITH GALVANIZING PAINT. ALL BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL.
5. POST HOLES SHALL BE A MINIMUM OF FOUR FEET DEEP AND 12 INCHES IN DIAMETER UNLESS POOR SOILS OR FROST CONDITIONS REQUIRE GREATER DEPTH. SIGN POSTS SHALL BE KEPT PLUMB, 6 INCHES OFF BOTTOM AND CENTERED AS 3000 PSI CONCRETE IS PLACED AROUND THE POST. THE OVERALL SIGN AND POST SYSTEM SHOULD BE ABLE TO WITHSTAND 33 POUNDS PER SQUARE FOOT.
6. CONTRACTORS CAN PLACE SIGNS ON POSTS AFTER CONCRETE HAS CURED FOR SEVEN DAYS OR ¾ STRENGTH IS ACHIEVED.
7. ALL HANDICAP STRIPING AND SIGNAGE SHALL MEET THE AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. FIRE LANE STRIPING AND SIGNAGE SHALL MEET THE REQUIREMENTS OF THE LOCAL BUILDING INSPECTOR AND FIRE DEPARTMENT.
8. OULD HAVE TOOLED OR CUT JOINTS TO 1/3 THE DEPTH IN SQUARES OR AS CLOSE TO SQUARE AS POSSIBLE NOT EXCEEDING 5FT X5FT.

SITE CONCRETE - INCLUDING CURB, SIDEWALKS & GUTTERS:

1. THE DIMENSIONS SHALL BE THOSE SHOWN ON THE DRAWINGS. THE CONCRETE MIX SHALL BE 4000 PSI AT 28 DAYS MADE WITH TYPE I OR TYPE II CEMENT, PER ASTM C 150, AND AGGREGATES MEETING STATE DEPARTMENT OF TRANSPORTATION REQUIREMENTS. SLUMP FOR SLIP FORMING SHALL BE 1 INCH +/- ½ INCH AND FOR FORMED CONCRETE THE SLUMP SHALL BE 3 INCH +/- 1 INCH. AIR ENTRAINMENT MIXTURE SHALL MEET THE REQUIREMENTS OF ASTM C 260 4% +/- 1 ½% FOR SLIP FORM WORK AND 6% +/- 1 ½% FOR FORMED AND PLACED CONCRETE. WATER REDUCING AGENT SHALL CONFORM TO ASTM C 494, TYPE A. CURING COMPOUNDS SHALL CONFORM TO ASTM C309, TYPE I, CLASS A MOISTURE LOSS OF NOT MORE THAN .055 GR/SQ CM WHEN APPLIED AT 200 SQ FT PER GALLON.
2. CURBS AND GUTTERS SHALL BE PLACED ON COMPACTED SUBBASE, CONSISTENT WITH THE PAVEMENT SUBBASE, AS SHOWN ON THE DRAWINGS. WHEN SUBBASE DETAILS ARE MISSING AND NO AGENCY HAS JURISDICTION USE THE FOLLOWING: CURBS AND GUTTERS SHALL BE PLACED ON A MINIMUM OF 6 INCHES OF GAB ON 98% STANDARD PROCTOR SUBGRADE.
3. ALL FORMING, PLACEMENT, MATERIALS AND CURING SHALL CONFORM TO THE LATEST ADDITION OF ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" AND ALL SIMILAR STATE DEPARTMENT OF TRANSPORTATION REQUIREMENTS.
4. REINFORCING SHALL BE IN ACCORDANCE WITH THAT SPECIFIED ON THE DRAWINGS AND THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI) "MANUAL OF STANDARD PRACTICES". REINFORCING STEEL SHALL BE ASTM A 615, GRADE 60, DEFORMED. WELDED WIRE FABRIC SHALL BE ASTM A 185, WELDED WIRE STEEL FABRIC.
5. SIDEWALKS AND GUTTERS SHALL HAVE A BROOM FINISH PERPENDICULAR TO FLOW WITH A PICTURE FRAME EDGE JOINT ALL THE WAY AROUND. CURBS SHALL HAVE A SMOOTH FINISH OR LIGHT RUB FINISH, BUT CONSISTENT THROUGH OUT THE PROJECT.
6. EXPANSION JOINTS SHALL BE PLACED EVERY 40 FEET AND AT ADJOINING STRUCTURES SUCH AS WALLS, MANHOLES AND VAULTS. EXPANSION JOINT MATERIAL SHALL BE PREMOLDED, ½ INCH MATERIAL WITH ½ INCH CAP IN ACCORDANCE WITH ASTM D1751. AFTER CONCRETE HAS SET, THE CAP SHOULD BE REMOVED AND VOID FILLED WITH WATERPROOF JOINT FILLER. CURB AND GUTTER SHALL BE CUT OR TOOL JOINTED TO 1/3 THE DEPTH EVERY 10 FEET. SIDEWALKS SHOULD HAVE TOOLED OR CUT JOINTS TO 1/3 THE DEPTH IN SQUARES OR AS CLOSE TO SQUARE AS POSSIBLE NOT EXCEEDING 5FT X5FT.

ASPHALT PAVEMENT REQUIREMENTS:

1. ASPHALT SHALL BE THE TYPE(S) SPECIFIED ON THE DRAWINGS. REFER TO PAVING LEGEND AND PAVING DETAILS PROVIDED. ALL ASPHALT SHALL BE PRODUCED IN STATE APPROVED PLANTS WITH STATE APPROVED PRODUCTS.
2. ASPHALT SHALL ONLY BE PLACED WHEN THE OUTSIDE TEMPERATURE IS 45°F AND RISING. ASPHALT SHALL NEVER BE PLACED ON FROZEN MATERIAL, DURING ANY TYPE OF PRECIPITATION OR WHEN PRECEDING PRECIPITATION HAS SATURATED ANY PORTION OF THE SUBBASE AND/OR SUBGRADE.
3. SURFACES ABUTTING THE NEW ASPHALT SHALL BE TACK COATED PRIOR TO PLACEMENT OF ASPHALT INCLUDING CURBS, GUTTER, EXISTING AND NEW STRUCTURES. TACK COAT SHALL BE APPLIED NEATLY TO MATCH THE LINES AND GRADES OF THE PROPOSED ABUTTING ASPHALT AT A RATE OF 0.05 TO 0.15 GALLONS PER SQUARE YARD.
4. ASPHALT SHALL BE PLACED IN LAYERS EQUAL TO THOSE SPECIFIED ON THE PLANS. THE THICKNESS OF EACH LAYER OR THE THICKNESS OF ALL LAYERS COMBINED SHALL NOT VARY MORE THAN 1/4 INCH FOR THICKNESS OF 0 TO 4 INCHES AND 1/2 INCH FOR THICKNESS OF 4 INCHES OR GREATER, FROM THOSE SPECIFIED ON THE DRAWINGS. IF MORE THAN 60% OF TEST CORES SAMPLED FAIL TO EQUAL OR EXCEED THE REQUIRED DEPTH, THE PAVEMENT SHALL BE CONSIDERED FAILED AND BE SUBJECT TO REPAIRS, REPLACEMENT OR REASONABLE COMPENSATION OF WHICH THE CONTRACTOR SHALL BEAR ALL COSTS. THE ASPHALT SHALL ALSO BE TESTED FOR SMOOTHNESS BY LAYING A 16 FOOT STRAIGHT EDGE ON THE PAVEMENT AND VERIFYING THAT THERE ARE NO GAPS GREATER THAN 1/4 INCH IN ANY DIRECTION.
5. PLACEMENT AND COMPACTION REQUIREMENTS SHALL BE THE SAME AS THOSE SPECIFIED BY THE GEORGIA DEPARTMENT OF TRANSPORTATION. THE ROLLING SHALL BE DONE IN SUCH A MANNER THAT WILL MATCH JOINTS AND LEAVE A SMOOTH UNIFORM SURFACE, WHILE PROVIDING THE PROPER COMPACTION, WHICH SHALL BE 95% OF THE LABORATORY DENSITY.
6. WHEN MATCHING INTO EXISTING PAVEMENT ALL MATCH JOINTS SHALL BE SAW CUT TO PROVIDE A STRAIGHT SMOOTH JOINT. THE ASPHALT DEPTH AT THE MATCH POINT SHALL BE EQUAL TO THAT OF THE PROPOSED OR EXISTING WHICH EVER IS GREATER.
7. PAVING EQUIPMENT SHALL BE OF GOOD CONDITION AND QUALITY. ASPHALT SHALL BE PLACED BY MECHANICAL EQUIPMENT EXCEPT IN SMALL AREAS THAT ARE INACCESSIBLE TO A PAVER. ASPHALT SHALL BE TRANSPORTED IN COVERED TRUCKS AND SCHEDULED IN SUCH A MANNER THAT SHALL MAINTAIN ASPHALT TEMPERATURE. ASPHALT SHALL BE REJECTED WHEN THE TEMPERATURES FALL BELOW 250 DEGREES F OR THE MINIMUM TEMPERATURES SPECIFIED BY THE GEORGIA DEPARTMENT OF TRANSPORTATION, WHICHEVER IS HIGHER.
8. THE TYPE OF SUBBASE REQUIRED FOR EACH USE SHALL BE CALLED OUT ON THE DRAWINGS. IF NO REFERENCE IS MADE ON THE DRAWINGS OR DETAILS TO THE TYPE OF SUBBASE REQUIRED THE FOLLOWING SHALL BE USED. THE SOURCE OF THE MATERIAL SHALL BE ONE APPROVED FOR USE BY THE APPLICABLE STATE'S "DEPARTMENT OF TRANSPORTATION". THE MATERIAL SHALL BE A CRUSHED STONE CONFORMING TO AASHTO M 147-65 (1980 OR LATEST REVISION), GRADE A. GRAVEL OR OTHER MATERIALS CAN ONLY BE SUBSTITUTED FOR CRUSH STONE WHEN APPROVED IN WRITING BY THE OWNER AND ENGINEER. MATERIAL SUPPLIED FOR USE AS SUBBASE SHALL HAVE 100% PASSING THE 2 INCH SIEVE, 30% TO 65% PASSING THE 3/8 INCH SIEVE, 25% TO 55% PASSING THE NO. 4 SIEVE, 15% TO 40% PASSING THE NO. 40 SIEVE AND 2% TO 10% PASSING THE NO. 200 SIEVE.
9. SUBBASE SHALL BE PLACED IN LIFTS NOT TO EXCEED 6 INCHES AND COMPACTED TO THE REQUIREMENTS STATED IN THE SOILS REPORT. IF NOT STATED, THE COMPACTION REQUIREMENT SHALL BE 95% OF MAXIMUM DRY DENSITY PER ASTM D1557 (MODIFIED PROCTOR).
10. FINAL GRADING OF SUBBASE SHALL BE TO +/- 1 INCH OF THAT DESIGNATED ON THE DRAWINGS AND +/- 1 INCH OF THE REQUIRED THICKNESS FOR THICKNESS OF 8 INCHES OR GREATER AND +/- ½ INCH FOR THICKNESS LESS THAN 8 INCHES.
11. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL COSTS IN PREPARING THE SUBGRADE TO RECEIVE SUBBASE. THIS SHALL INCLUDE FINE GRADING AND COMPACTING AS NECESSARY TO MEET THE REQUIREMENTS STATED HERE AND UNDER "EARTHWORK".
12. THE AMOUNT OF TESTING REQUIRED TO VERIFY THE COMPACTION SHALL BE THE SAME AS STATED UNDER "EARTHWORK".
13. IF REQUIRED, STABILIZING FABRIC SHALL MEET THE FOLLOWING REQUIREMENTS "MODULUS (LOAD AT 10% ELONGATION) =115LB PER ASTM D1682-64", "GRAB TENSILE STRENGTH 200LB PER ASTM D 1682-64", "MULLEN BURST STRENGTH = 400PSI PER ASTM D 3786-87", "TRAPEZOID TEAR STRENGTH WHEN APPLICABLE = 115LB PER ASTM D1117-80", "COEFFICIENT OF PERMEABILITY K CM/SEC = .015 PER ASTM D 4491-85", "WATER FLOW RATE GPM/SF= 60 PER ASTM D 4491-85". WHEN STABILIZATION FABRIC IS USED IT SHALL BE PULLED TIGHT AND ALL WRINKLES REMOVED. OVERLAPS SHALL BE IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS.
14. IF REQUIRED, FILTER FABRIC SHALL MEET THE FOLLOWING REQUIREMENTS "GRAB TENSILE ELONGATION =50% PER ASTM D1682-64", "GRAB TENSILE STRENGTH 70LB PER ASTM D 1682-64", "MULLEN BURST STRENGTH = 200PSI PER ASTM D 3786-87", "TRAPEZOID TEAR STRENGTH WHEN APPLICABLE = 35LB PER ASTM D1117-80", "COEFFICIENT OF PERMEABILITY K CM/SEC = .2 PER ASTM D 4491-85", "WATER FLOW RATE GPM/SF= 180 PER ASTM D 4491-85". WHEN FILTER FABRIC IS USED IT SHALL BE PULLED TIGHT AND ALL WRINKLES REMOVED. OVERLAPS SHALL BE IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS.
15. DEBRIS AND OTHER FOREIGN MATTER. THE CONTRACTOR SHALL CLEAN ANY SECTIONS REQUIRING SUCH AT NO ADDITIONAL COST TO THE CONTRACT.

SEEDING & LANDSCAPING:

1. TOPSOIL SHALL BE REMOVED FROM STOCKPILES AND SPREAD IN THE AREAS SHOWN ON THE PLANS. THE DEPTH OF TOPSOIL SHALL BE AS SHOWN ON THE PLANS. IF THE DEPTH OF TOPSOIL IS NOT GIVEN THE FOLLOWING SHALL BE USED: "A MINIMUM OF 4 INCHES IN LAWN AREAS" AND "A MINIMUM OF 12 INCHES IN LANDSCAPE PLANTING AREAS".
2. AFTER THE TOPSOIL IS IN PLACE IT SHALL BE FINE GRADED REMOVING ALL ROOTS, STICKS, STONES AND DEBRIS GREATER THAN 2 INCHES IN ANY DIMENSION. THE TOPSOIL SHALL BE FINE GRADED TO THE LINES AND GRADES SHOWN ON THE PLANS.
3. THE TOPSOIL SOIL SHALL HAVE A PH OF 5.5 TO 7.6 AND AN ORGANIC CONTENT OF 3 TO 20%. THE GRADATION OF THE TOPSOIL SHALL BE 100% PASSING 2" SIEVE, 85 TO 100% PASSING THE 1 INCH SIEVE, 65 TO 100% PASSING THE ¼ INCH SIEVE AND 20 TO 80% PASSING THE NO. 200 SIEVE.
4. LIME OF TYPE RECOMMENDED FOR SOIL CONDITIONING SHALL BE USED TO TREAT ACIDIC SOILS.
5. LAWN FERTILIZER SHALL BE 55% NITROGEN, 10% PHOSPHORUS AND 10% POTASH WHERE 50% OF THE NITROGEN IS DERIVED FROM UREAFORM SOURCE.
6. LAWN SEED (WHEN NOT GIVEN ON THE PLANS) SHALL BE "50% BY WEIGHT, 85% PURITY, 85% GERMINATION OF PENNFINE PERENNIAL RYE"; "30% BY WEIGHT, 97% PURITY, 85% GERMINATION OF PENNLAWN RED FESCUE"; "20% BY WEIGHT, 85% PURITY, 80% GERMINATION OF COMMON KENTUCKY BLUEGRASS".
7. WHEN PLACING BY HYDROSEEDING, APPLICATION FERTILIZER SHALL BE PLACED AT 80 POUNDS PER ACRE, HYDROMULCH AT 1,200 POUNDS PER ACRE, WATER AT 500 GALLONS PER ACRE AND SEED AT A MINIMUM OF 220 POUNDS PER ACRE. ALL OVER SPRAY AREAS SHALL BE PROPERLY CLEANED AND RESTORED AT NO EXPENSE TO THE CONTRACT.
8. IF PLACING BY MECHANICAL MEANS, FERTILIZER SHALL BE PLACED AT 25 POUNDS PER 1,000 SQUARE FEET, SEED AT 5 POUNDS PER 1,000 SQUARE FEET, AND STRAW MULCH AT 2 TONS PER ACRE. PLACE FERTILIZER AND SEED, THEN LIGHTLY RAKE AND THE ROLL WITH 200 POUND ROLLER. MULCH THE AREA AND THEN WATER. STRAW MAY NEED TO BE SECURED TO PREVENT IT BLOWING AWAY.
9. WATER LAWN AREAS AS NEEDED TO PROMOTE GROWTH. THE CONTRACTOR WILL BE RESPONSIBLE TO WATER, RESEED OR WORK WHEN NECESSARY TO INSURE THE GROWTH OF THE LAWN UNTIL A COMPLETE AND UNIFORM STAND OF GRASS HAS GROWN AND BEEN CUT AT LEAST TWICE.
10. UNLESS OTHERWISE NOTED ON THE DRAWINGS, ALL AREAS NOT RECEIVING STRUCTURES, PAVEMENT, RIP RAP, LANDSCAPING OR OTHER IMPROVEMENTS OR FUTURE IMPROVEMENTS SHALL BE CONSIDERED LAWN AREAS AND RECEIVE TOPSOIL AND SEEDING PER DRAWINGS AND ABOVE STATED REQUIREMENTS.
11. PLANTINGS SHALL BE SUPPLIED IN ACCORDANCE WITH THE PLANS AND ANSI 260.1 "AMERICAN STANDARD FOR NURSERY STOCK" IN GOOD HEALTH, VIGOROUS, AND FREE OF INSECTS, LARVAE, EGGS, DEFECTS AND DISEASE.
12. PLANTING BEDS SHALL BE PREPARED BY LOOSENING THE TOP 1 FOOT OF TOPSOIL. PLANTS SHALL BE LOCATED PER THE PLANS. THE HOLES SHALL BE EXCAVATED (PER THE DETAILS ON THE DRAWINGS) WITH THE CENTER SLIGHTLY HIGHER TO PROMOTE DRAINAGE. USE A TOPSOIL BACKFILL MIX OF 4 PARTS TOPSOIL, 1 PART PEAT MOSS, 1/2 PART WELL ROTTED MANURE, AND 10 POUNDS 5-10-5 PLANTING FERTILIZER AND PROPERLY MIXED PER CUBIC YARD. BERM AROUND PLANTS TO FORM A BOWL SHAPE.
13. WEED BARRIER MADE FROM FIBERGLASS AND ULTRA-VIOLET LIGHT RESISTANT SHALL BE PLACE UNDER ALL PLANTING BEDS PRIOR MULCHING.
14. ALL TREES AND SHRUBS SHALL BE STAKED AS DETAILED ON THE DRAWINGS. TREE WRAPPING WILL BE PROVIDED AT THE BASE OF ALL TREES AS DETAILED.
15. MULCH SHALL BE 50% SHREDDED BARK AND 50% WOOD CHIPS, ¾ TO 2 INCH IN SIZE, UNIFORMLY MIXED AND FREE OF ELM WOOD. MULCH SHALL BE PLACED UNIFORMLY OVER THE PLANTING BED ALLOWING NO WEED BARRIER TO BE SEEN.
16. ALL LANDSCAPING SHALL BE GUARANTEED FOR ONE YEAR AFTER FINAL ACCEPTANCE. ANY PLANTINGS IN NEED OF REPLACEMENT WILL BE GUARANTEED FROM THE TIME OF REPLACEMENT IF AFTER FINAL ACCEPTANCE.

UTILITY REQUIREMENTS:

1. ALL REQUIRED R/W ENCROACHMENT PERMITS SHALL BE SECURED, BEFORE PROCEEDING WITH WORK.
2. THE CONTRACTOR SHALL NOTIFY EACH INDIVIDUAL UTILITY OWNER OF HIS/HER OPERATION PLAN IN THE AREA OF THE UTILITIES. PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL CONTACT THE UTILITY OWNERS AND REQUEST THAT THEY PROPERLY LOCATE THEIR RESPECTIVE UTILITY ON THE GROUND. THIS NOTIFICATION SHALL BE GIVEN AT LEAST THREE (3) BUSINESS DAYS PRIOR TO COMMENCEMENT OF OPERATIONS AROUND THE UTILITY.
3. UNLESS OTHERWISE NOTED, UTILITY OWNERS ARE TO RESET, RELAY OR READJUST PUBLIC AND PRIVATE UTILITIES CONFLICTING WITH PROPOSED IMPROVEMENT, THE CONTRACTOR SHALL BE REQUIRED TO COOPERATE WITH THE OWNERS OF LOCAL UTILITIES IN THE ADJUSTMENT OF THEIR FACILITIES WHERE THEY INTERFERE WITH CONSTRUCTION. THE COSTS FOR THE WORK SHALL BE AT THE CONTRACTORS EXPENSE. CONTRACTOR SHALL COORDINATE THE REMOVAL AND/OR RELOCATION OF EXISTING GAS AND WATER METERS, VALVES, LINES, POWER, TELEPHONE, CABLE LINES, ETC. THAT SERVICE THE EXISTING BUILDINGS WITH THE APPROPRIATE UTILITY COMPANIES.
4. UTILITIES SHOWN ARE TO ASSIST THE CONTRACTOR IN LOCATING UTILITIES. ITEMS ARE SHOWN SCHEMATICALLY AND NEITHER THE ARCHITECT, SITE DESIGN PROFESSIONAL, NOR THE OWNER ASSUMES ANY RESPONSIBILITY FOR VARIANCES IN THEIR ACTUAL LOCATION. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF UTILITIES PRIOR TO EXCAVATION OR DEMOLITION. ADDITIONAL UTILITIES MAY NOT BE SHOWN ON THESE PLANS. IF THE CONTRACTOR DAMAGES ANY EXISTING UTILITIES DURING CONSTRUCTION WHETHER SHOWN OR NOT IN THE SITE WORK CONSTRUCTION DRAWINGS, HE/SHE SHALL, AT HIS/HER EXPENSE, IMMEDIATELY REPLACE OR REPAIR THE UTILITIES TO THEIR ORIGINAL CONDITION AND QUALITY, AS APPROVED BY CITY OF MONROE AND REPRESENTATIVE OF THE APPROPRIATE UTILITY COMPANY. CONTRACTOR SHALL NOTIFY UTILITY PROVIDER AND THE SITE DESIGN PROFESSIONAL OF RECORD PRIOR TO PROCEEDING.
5. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONTACTING APPROPRIATE UTILITY PROVIDERS PRIOR TO SUBMITTING HIS/HER BID IN ORDER TO DETERMINE THE EXTENT TO WHICH UTILITY RELOCATIONS AND/OR ADJUSTMENT WILL AFFECT THE SCHEDULING OF WORK FOR THE PROJECT. SOME UTILITIES MAY NEED TO BE ADJUSTED CONCURRENTLY WITH THE CONTRACTORS OPERATIONS, WHILE SOME WORK MAY BE REQUIRED "AROUND" UTILITIES THAT REMAIN IN PLACE. THE CONTRACTOR SHALL RECEIVE NO ADDITIONAL COMPENSATION FOR ANY DELAYS OR INCONVENIENCE CAUSED BY THE UTILITY ADJUSTMENTS.
6. MATERIAL AND INSTALLATION SHALL BE IN COMPLIANCE WITH CITY OF MONROE REQUIREMENTS.
7. REFER TO ARCHITECTURAL AND M.E.P. PLANS FOR LOCATION OF WATER, SEWER AND GAS LINES WITHIN PROPOSED BUILDINGS. CONTRACTOR SHALL COORDINATE TIE-IN OF UTILITIES WITH ARCHITECTURAL PLANS AND M.E.P. REPRESENTATIVE.
8. EARTHWORK OPERATIONS SHALL COMPLY WITH REQUIREMENTS OF O.S.H.A. CONSTRUCTION STANDARDS, PART 1926, SUBPART P, EXCAVATIONS, TRENCHING, AND SHORING AND SUBPART O, MOTOR VEHICLES, MECHANIZED EQUIPMENT, AND MARINE OPERATIONS, AND SHALL BE CONDUCTED IN A MANNER ACCEPTABLE TO THE SITE DESIGN PROFESSIONAL.
9. A MINIMUM HORIZONTAL SEPARATION OF 10' SHALL BE MAINTAINED BETWEEN WATER LINES AND SANITARY SEWERS. AN 18 INCH MINIMUM VERTICAL SEPARATION SHALL BE MAINTAINED AT CROSSINGS. WHEN CROSSING A WATERLINE OR SEWER LINE, PIPE JOINTS SHALL BE PLACED AS FAR AWAY AS POSSIBLE FROM THE OTHER PIPE.
10. PEDESTRIAN AND LOCAL VEHICULAR TRAFFIC SHALL BE MAINTAINED FOR UTILITY WORK WITHIN PUBLIC RIGHT-OF-WAYS. SAFETY DEVICES AND FLAG MEN SHALL BE PROVIDED BY THE CONTRACTOR AT HIS/HER EXPENSE. WRITTEN PERMISSION TO CLOSE THE CONSTRUCTION AREA TO TRAFFIC SHALL BE OBTAINED FROM THE APPROPRIATE GOVERNMENT AGENCY PRIOR TO THE CLOSING.
11. CONTRACTOR SHALL MEET LOCAL UTILITY COMPANY REGULATIONS IN ANY READJUSTMENT OR RELOCATION OF EXISTING SERVICES. WHEN CONSTRUCTION INVOLVES THE REMOVAL OF FENCE, POLES, SIDEWALKS, DRIVE, TEMPORARY OR FIXED STRUCTURES; THE CONTRACTOR AT HIS/HER EXPENSE SHALL PROVIDE FOR TEMPORARY SERVICE OR CONTAINMENT TO THE AFFECTED PROPERTY, AND SHALL REPLACE SUCH ITEMS WITH SIMILAR OR BETTER MATERIALS AS SOON AS PRACTICAL OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE FOLLOWING UTILITY INSTALLATION.
12. USE OF PRECAST INVERT MANHOLES IS ACCEPTABLE PROVIDED INVERTS ARE NOT FIELD MODIFIED.
13. EXISTING PIPE CAN ONLY BE CUT IN THE PRESENCE OF CITY OF MONROE REPRESENTATIVE(S). CUT-IN MANHOLE IS REQUIRED UNLESS DOGHOUSE MANHOLE IS SPECIFICALLY APPROVED BY CITY OF MONROE PRIOR TO CONSTRUCTION.
14. NO TREES OR PERMANENT STRUCTURES SHALL BE ALLOWED IN SANITARY SEWER EASEMENT, UNLESS OTHERWISE APPROVED BY CITY OF MONROE .
15. SEWER MAINS AND LATERAL(S) SHALL HAVE TRACER WIRE INSTALLED TO THE STRUCTURE FOUNDATION, UNLESS OTHERWISE APPROVED BY CITY OF MONROE .
16. ALL UTILITIES, INCLUDING BUT NOT LIMITED TO WATER AND SANITARY SEWER UTILITIES AND STORM DRAIN FACILITIES SHALL BE INSTALLED AND THE TRENCHES BACKFILLED AND THOROUGHLY COMPACTED BEFORE ANY PAVEMENT OR BASE IS INSTALLED.
17. AUTHORIZED PUBLIC UNDERGROUND UTILITIES SHALL BE LOCATED WITHIN THE RIGHT-OF-WAY OF A PUBLIC STREET OR WITHIN AN EASEMENT DESIGNATED FOR SUCH USE. WITHIN PUBLIC STREET RIGHT-OF-WAY, PLACEMENT OF THE VARIOUS AUTHORIZED UTILITIES (POWER, GAS, CABLE TV, WATER AND SEWER) SHALL CONFORM TO THE SPECIFIC LOCATIONS DESIGNATED FOR SUCH USE BY CITY OF MONROE .
18. NO OTHER UNDERGROUND UTILITIES, SUCH AS PRIVATE LAWN SPRINKLER SYSTEMS, YARD LIGHTING, ETC., SHALL BE INSTALLED WITHIN A PUBLIC RIGHT-OF-WAY OR EASEMENT EXCEPT BY AUTHORIZATION OF CITY OF MONROE . SUCH AUTHORIZATION, IF ISSUED, SHALL REQUIRE THE APPLICANT TO ASSUME ALL REPAIR COSTS OF THE APPLICANT'S FACILITIES SHOULD THEY BE DAMAGED DURING THE COURSE OF INSTALLATION, MAINTENANCE OR REPAIR OF ANY OF THE PUBLIC UTILITIES AUTHORIZED TO OCCUPY SAID RIGHT-OF-WAY OR EASEMENT.
19. EXISTING UTILITY APPURTENANCES (CLEAN OUTS, VALVE/METER BOXES AND/OR COVERS, MANHOLES, ETC.) LOCATED WITHIN THE LIMITS OF CONSTRUCTION SHALL BE RELOCATED AS NECESSARY OR ADJUSTED TO FINISHED GRADE AT NO ADDITIONAL COST TO THE CONTRACT.
20. IF UNDERGROUND ABANDONED PIPES ARE DISCOVERED DURING CONSTRUCTION, CONTRACTOR SHALL REFER TO CITY OF MONROE FOR REMOVAL OR ABANDONMENT REQUIREMENTS. AT A MINIMUM, CONTRACTOR SHALL REMOVE OR ADEQUATELY PLUG ABANDONED UNDERGROUND PIPES, OR A COMBINATION OF BOTH, IF THESE MEASURES ARE APPROVED BY CITY OF MONROE .
21. CONTRACTOR SHALL SAWCUT ASPHALT ONLY IN SITUATIONS THAT DO NOT ALLOW FOR JACK AND BORE (CONTRACTOR SHALL OBTAIN NECESSARY PERMITS TO SAWCUT STREETS). CONTRACTOR MAY BE REQUIRED TO BACK TAP EXISTING WATER MAIN WITH DOMESTIC SERVICE TAP OR FIRE SERVICE TAP, IF SUFFICIENT CLEARANCE IS NOT AVAILABLE (SO THAT CURB AND GUTTER IS NOT DAMAGED). IF CURB AND GUTTER IS DAMAGED, CONTRACTOR SHALL REPLACE IT TO ORIGINAL CONDITION AT NO COST TO THE OWNER.
22. CONTRACTOR SHALL CONTACT CITY OF MONROE WATER DEPARTMENT AND HAVE CITY OF MONROE DEPARTMENT INSPECTOR PRESENT DURING TAPS.

ALL UTILITY MATERIALS, INSTALLATION, TESTING, AND PROCEDURES SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS SET FORTH BY THE LOCAL AUTHORITY HAVING JURISDICTION. IF THERE IS A DISCREPANCY BETWEEN STATED STANDARDS AND SPECIFICATIONS ON THESE PLANS AND THE STATED STANDARDS AND SPECIFICATIONS OF THE LOCAL AUTHORITY HAVING JURISDICTION, THE CONTRACTOR SHALL ADHERE TO THE STANDARDS AND SPECIFICATIONS OF THE LOCAL AUTHORITY HAVING JURISDICTION.

CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING, READING, UNDERSTANDING, AND ADHERING TO THE THE MANUAL OF STANDARDS FOR DESIGN AND CONSTRUCTION SPECIFICATIONS IF THIS DOCUMENT IS PROVIDED FOR AT THE AGENCY HAVING JURISDICTION.

SANITARY SEWER SYSTEM REQUIREMENTS:

1. THE SANITARY SEWER SYSTEM SHALL BE SUPPLIED AND PLACED IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL (HAVING JURISDICTION) REQUIREMENTS.
2. ALL SANITARY SEWER MATERIALS, SIZES, TYPES AND SPECIFICS ARE LISTED ON THE DRAWINGS. IF THE PLANS DO NOT LIST ALL INFORMATION OR ARE UNCLEAR, USE THE FOLLOWING:
   - SANITARY PIPE AND FITTINGS SHALL BE POLYVINYL CHLORIDE (PVC) PER ASTM D 3034, SDR 35, WITH GASKETS PER ASTM D 3212, ELASTOMERIC SEAL. THE PIPE SHALL BE BED 6 INCHES BELOW AND UP HALF ITS DIAMETER WITH CLEAN STONE OF A UNIFORM MIX RANGING IN SIZE OF 1/4 TO 3/4 INCH.
   - FORCEMAIN PIPE SHALL BE POLYVINYL CHLORIDE (PVC) PER ASTM D 2241, SDR 21 OR LOWER IF PRESSURES ARE HIGH IN SYSTEM WITH GASKETS PER ASTM D 3139, AND ELASTOMERIC SEAL. THE PIPE SHALL BE ENCLOSED IN A RUN OF CRUSH STONE GRAVEL MATERIAL WITH 100% PASSING THE 2" SIEVE AND 2 TO 10% PASSING THE 200 SIEVE.
   - MANHOLES SHALL BE PROVIDED PER ASTM C 478 WITH STEEL CORE POLYETHYLENE STEPS. GASKETS BETWEEN RISERS SHALL BE RUBBER PER ASTM C 443 AND MORTARED WATER TIGHT WITH A WATERPROOF/PLUG MORTAR. THE INVERT SHALL BE MADE WITH CONCRETE OR 1/2 ROUND SECTION OF PIPE. PIPE JOINTS SHALL BE PRESS WEDGE OR CAST IN PLACE BOOT. BOTH SHALL HAVE ADDITIONAL VOIDS FILLED WITH WATERPROOF/PLUG MORTAR. ADJUSTMENT RINGS SHALL BE PRECAST CONCRETE 4000 PSI AND 5 TO 8% AIR ENTRAINMENT. EXTERIOR MANHOLES SHALL BE COATED WITH A SEAL COAT ACCEPTABLE TO CITY OF MONROE .
   - CLEANOUTS SHALL BE MADE OF THE SAME PIPE MATERIAL AS THE CARRIER PIPE. A CAST IRON FRAME AND COVER SHALL BE PROVIDED FOR ACCESS AT GRADE AND DESIGNED FOR H-20 LOADING. THE CLEANOUT SHALL BE ENCASED IN STONE OF THE SAME TYPE AS THE BEDDING FOR THE FULL DEPTH OF THE CLEANOUT. CLEANOUTS SHALL BE NO MORE THAN 90 FEET APART ON LATERALS.
   - MANHOLE FRAMES AND COVERS SHALL BE PER ASTM A 48, CLASS 30B, FULLY COATED WITH THE LETTERING "SANITARY" CAST INTO IT. THE MINIMUM SIZE SHALL BE A 24 INCH INSIDE OPENING AND DESIGN FOR A MINIMUM OF H-20 LOADING.
3. ALL PIPE SHALL BE PLACED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND TO THE LINES AND GRADES SHOWN ON THE DRAWINGS. CARE SHALL BE GIVEN DURING BACKFILL OPERATIONS NOT TO MOVE OR DAMAGE PIPE OR APPURTENANCES WHILE ACHIEVING THE APPROPRIATE COMPACTION REQUIREMENTS.
4. ALL SYSTEMS SHALL BE VISUALLY INSPECTED FOR ALIGNMENT AND WORKMANSHIP. ALL DEBRIS, DIRT OR OTHER FOREIGN OBJECTS SHALL BE REMOVED AND THE SYSTEM FLUSHED CLEAN.
5. ALL TAPS TO MAIN LINES SHALL BE MADE WITH SADDLES WHEN THE TAP IS 1/2 THE DIAMETER OR LESS OF THE EXISTING PIPE BUT MADE WITH A SLEEVE WHEN THE TAP IS GREATER THAN 1/2 THE DIAMETER OR EQUAL TO THE EXISTING PIPE. IF CONNECTIONS ARE REQUIRED TO EQUAL SIZE PIPES OF 8 INCHES OR GREATER, A MANHOLE SHALL BE INSTALLED OVER THE CONNECTION POINT AND INVERTS FORMED. WHEN CONNECTING TO AN EXISTING MANHOLE, THE CONNECTING PIPE HOLE SHALL BE CORED AND A PRESS WEDGE INSTALLED. THE CONNECTION SHALL BE MORTARED UP WITH WATERPROOF/PLUG MORTAR. INSIDE THE EXISTING MANHOLE, THE EXISTING INVERT SHALL BE BROKE OUT IN A MANNER THAT PROTECTS FROM DEBRIS ENTERING THE LIVE SYSTEM, WHILE A NEW INVERT IS FORMED.
6. SANITARY MANHOLES SHALL BE VISUALLY LAMPED AFTER BACKFILL TO VERIFY ALIGNMENT, CLEANLINESS, AND THERE IS NO DAMAGE TO THE SYSTEM. AFTER THE SYSTEM HAS BEEN BACKFILLED FOR 30 DAYS, THE SYSTEM SHALL BE RELAMPED AND TESTED WITH A MANDREL SIZED AT 95% OF THE INTENDED INSIDE DIAMETER.
7. GRAVITY SYSTEMS SHALL BE AIR TESTED BETWEEN MANHOLES TO 3.5 PSI FOR 5 MINUTES PER ASTM F 1417 FOR PLASTIC PIPES.
8. MANHOLES SHALL BE TESTED SEPARATELY FOR LEAKAGE OR INFILTRATION USING ASTM C 969. THE ALLOWED LEAKAGE = 0.1 GALLONS / {(FEET OF DIAMTER)(FEET OF HEAD)(#OF HOURS)} AND THE TEST SHALL RUN FOR 24 HOURS.
9. WHEN NECESSARY TO VERIFY THE SYSTEM INTEGRITY, THE ENTIRE SYSTEM MAY BE TESTED FOR INFILTRATION AND EXFILTRATION USING ASTM C 969. THE SYSTEM SHALL BE BROKEN UP INTO SECTIONS WHEN NECESSARY TO CONSIDER GROUNDWATER DEPTH, LENGTH AND ELEVATION DIFFERENCES.
10. FAILURE OF ANY TESTING SHALL REQUIRE THE CONTRACTOR TO REPAIR OR REPLACE THE FAILED SECTION AT NO ADDITIONAL EXPENSE TO THE CONTRACT.
11. AFTER ALL TESTING IS COMPLETE AND BEFORE THE SYSTEM IS TURNED OVER TO CITY OF MONROE , THE SYSTEM SHALL BE CHECKED TO VERIFY IT IS CLEAN AND FREE OF DIRT, DEBRIS AND OTHER FOREIGN MATTER. THE CONTRACTOR SHALL CLEAN ANY SECTIONS REQUIRING SUCH AT NO ADDITIONAL COST TO THE CONTRACT.

STORM WATER SYSTEM:

1. THE STORM WATER SYSTEM SHALL BE SUPPLIED AND PLACED IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REQUIREMENTS. THE LOCAL STORM WATER AUTHORITY FOR THIS PROJECT IS CITY OF MONROE AND THE EROSION CONTROL AND RUN-OFF AUTHORITY IS CITY OF MONROE .
2. STORM DESIGN INCLUDES MANY VARIABLES, SUCH AS PIPE ROUGHNESS COEFFICIENT, THAT CAN AFFECT THE ACTUAL FINAL RUN-OFF. IF NO ALTERNATIVE MATERIALS ARE LISTED ON THE UTILITY DRAWINGS NO SUBSTITUTIONS MAY BE MADE BY THE CONTRACTOR UNLESS FIRST REVIEWED AND ACCEPTED BY THE ENGINEER.
3. ALL STORM MATERIAL SIZES, TYPES AND SPECIFICS ARE LISTED ON THE DRAWINGS.
4. WHENEVER CLEAN STONE IS USED FOR BEDDING, BACKFILL OR ENCASEMENT, FILTER FABRIC SHALL BE PLACED BETWEEN THE NATURAL AND BACKFILL SOILS TO PREVENT MIGRATION OF FINES INTO THE VOIDS, AS NECESSARY. ANTI-SEEP COLLARS SHALL ALSO BE INCORPORATED AT THE PROJECT LIMIT AND ALONG THE PIPE TO PREVENT WATER FLOW WITHIN THE STONE BEDDING OR ENCASEMENT. ANTI-SEEP COLLARS MAY NOT BE REQUIRED WHEN USING PERFORATED PIPE. ANTI-SEEP COLLARS SHALL BE INCORPORATED AT POND AND BASIN OUTLETS TO PREVENT WATER MIGRATION ALONG PIPE BEDDING OR ENCASEMENT MATERIAL.
5. END SECTIONS SHALL BE THE SAME MATERIAL AS THE PRECEDING PIPE AND APPROPRIATE COLLAR.
6. MANHOLES SHALL BE PROVIDED PER ASTM C 478 WITH STEEL CORE POLYETHYLENE STEPS. THE MANHOLE SHALL BE SIZED TO A MINIMUM OF 2 FOOT GREATER THAN THE LARGEST DIAMETER PIPE ENTERING OR EXISTING. INCREASE SIZE OF MANHOLE IF, IN THE SAME HORIZONTAL PLANE, THERE ARE TWO AREAS WHERE THE AREA BETWEEN TWO PIPES IS LESS THAN 8 INCHES OR HALVE OR THE CIRCUMFERENCE IS SUPPORTED BY LESS THAN 1/2 OF THE DIAMETER OF THE MANHOLE. INVERTS SHALL BE SMOOTH CAST IN PLACE CONCRETE. UNLESS OTHERWISE INDICATED, COVER 4 INCH WEEPS WITH FILTER FABRIC. 2 INCH STONE SHALL BE PROVIDED AT THE CROWN OF PIPES AND AT SUBGRADE ELEVATION. GASKETS BETWEEN RISERS SHALL BE RUBBER PER ASTM C 443. ADJUSTMENT RINGS SHALL BE PRECAST CONCRETE 4000 PSI AND 5 TO 8% AIR ENTRAINMENT.
7. INLETS SHALL MEET THE SAME REQUIREMENTS AS THOSE LISTED FOR MANHOLES.
8. GRATES SHALL BE RETICULINE AND GALVANIZED PER ASTM A123. MINIMUM GRATE OPENING SIZE WILL BE 18" X 24" AND DESIGN FOR A MINIMUM OF H-20 LOADING.
9. MANHOLE FRAMES AND COVERS SHALL BE PER ASTM A 48, CLASS 30B, FULLY COATED WITH THE LETTERING "STORM" CAST INTO IT. THE MINIMUM SIZE WILL BE A 24 INCH INSIDE OPENING AND DESIGN FOR A MINIMUM OF H-20 LOADING.
10. CLEANOUTS SHALL BE MADE OF THE SAME PIPE MATERIAL AS THE CARRIER PIPE. A CAST IRON FRAME AND COVER SHALL BE PROVIDED FOR ACCESS AT GRADE AND DESIGNED FOR H-20 LOADING. THE CLEANOUT SHALL BE ENCASED IN STONE OF THE SAME TYPE AS THE PIPE BEDDING FOR THE FULL DEPTH OF THE CLEANOUT.
11. RIP RAP SHALL BE PLACED AT THE END OF ALL OUTFALL STRUCTURES. UNLESS OTHERWISE NOTED, THE RIP RAP SHALL BE A CLEAN DURABLE STONE WITH AVERAGE WEIGHTS OF 100 POUNDS. THE RIP RAP SHALL BE PLACED ON 1 FOOT OF GRAVEL SUBBASE OR STABILIZING FABRIC.
12. DRY WELLS SHALL MEET THE SAME REQUIREMENTS AS THOSE LISTED FOR MANHOLES WITH THE ADDITION OF OPENINGS OF APPROXIMATELY 15% OF THE RINGS INTERIOR SURFACE. THE OPENINGS SHALL BE 1 X 3 INCH SLOTS OR 1 INCH DIAMETER ON THE INSIDE SURFACE. DRY WELLS SHALL BE BACKFILLED WITH A MINIMUM OF 1 FOOT OF CLEAN STONE SIZED BETWEEN 3 AND 4 INCHES. OUTSIDE THE STONE THE ENTIRE STRUCTURE SHALL BE WRAPPED IN FILTER FABRIC TO PREVENT OUTSIDE SOILS FROM ENTERING THE STONE AND DRY WELL.
13. UNLESS OTHERWISE NOTED, TRENCH DRAINS SHALL BE MADE WITH 4 INCH PERFORATED CORRUGATED POLYETHYLENE PIPE ENCASED IN CLEAN STONE SIZED BETWEEN 2 INCH AND ¼ INCH AND THEN WRAPPED IN FILTER FABRIC. OUTSIDE DIMENSIONS OF THE TRENCH DRAIN WILL NOT BE LESS THAN 1 FOOT.
14. ALL JOINTS BETWEEN PIPES AND PRECAST STRUCTURES SHALL BE MORTARED TIGHT.
15. ALL PIPE SHALL BE PLACED IN ACCORDANCE WITH THE MANUFACTURES RECOMMENDATION AND TO THE LINES AND GRADES SHOWN ON THE DRAWINGS. CARE SHALL BE GIVEN DURING BACKFILL OPERATIONS NOT TO MOVE OR DAMAGE PIPE OR APPURTENANCES WHILE ACHIEVING THE APPROPRIATE COMPACTION REQUIREMENTS.
16. ALL SYSTEMS SHALL BE VISUALLY INSPECTED FOR ALIGNMENT AND WORKMANSHIP. ALL DEBRIS, DIRT OR OTHER FOREIGN OBJECTS SHALL BE REMOVED AND THE SYSTEM FLUSHED CLEAN.
17. ANY PIPES FOUND WITH DIAMETER DEFLECTIONS GREATER THAN 5% OF THE SPECIFIED PIPE DIAMETER WILL BE REPAIRED OR REPLACED. ANY ALIGNMENT DIFFERENTIALS GREATER THAN 5% OF THE DIAMETER OF THE PIPE WILL BE CORRECTED OR REPLACED.
18. ANY CLEANING, REPAIRS OR REPLACEMENT REQUIRED, DUE TO FAILURE OF TESTING OR POOR WORKMANSHIP, SHALL BE DONE BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE CONTRACT.

WATER SYSTEM AND SERVICES REQUIREMENTS:

1. THE WATER SYSTEMS AND SERVICES SHALL BE SUPPLIED AND PLACED IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL (HAVING JURISDICTION) REQUIREMENTS.
2. IF CITY OF MONROE DOES NOT HAVE SPECIFIC REQUIREMENTS REGARDING MATERIALS AND PLACEMENT, THE FOLLOWING SHALL BE USED:
   - ALL WATER PIPING, FITTINGS AND APPURTENANCES SHALL BE PLACED A MINIMUM OF 6 INCHES BELOW FROST LINE OR 5 FEET WHICH EVER IS GREATER. PIPE SIZES 4 INCHES AND UP SHALL BE DUCTILE IRON OR POLYVINYL CHLORIDE AS INDICATED ON THE DRAWINGS (IF NOT SHOWN USE DUCTILE IRON). PIPE SIZES BELOW 4 INCHES SHALL BE COPPER OR POLYETHYLENE AS INDICATED ON THE DRAWINGS (IF NOT SHOWN USE COPPER).
   - THE MINIMUM SEPARATION BETWEEN WATER MAINS AND SERVICES AND SEWER MAINS AND LATERALS SHALL BE 18 INCHES MEASURED VERTICALLY FROM OUTSIDE TO OUTSIDE OF PIPES AT THE CROSSING. A STANDARD LENGTH OF WATER PIPE SHALL BE CENTERED AT THE CROSSING TO MAXIMIZE THE DISTANCE BETWEEN THE CROSSING AND THE NEAREST WATER MAIN OR SERVICE PIPE JOINT. WHEN THE WATER MAIN OR SERVICE RUNS UNDER THE SEWER LINE, A GRAVEL OR CRUSH STONE BACKFILL MEETING THE REQUIREMENTS OF SUBBASE SHALL BE PLACED AND COMPACTED AROUND THE WATER PIPE (UP TO HALF THE DIAMETER OF THE SEWER PIPE) TO PROVIDE ADEQUATE SUPPORT TO THE SEWER LINE. WATER MAINS AND SERVICES AND SEWER MAINS AND LATERALS RUNNING PARALLEL SHALL HAVE A MINIMUM HORIZONTAL SEPARATION OF 10 FEET MEASURED FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE.
   - DUCTILE IRON PIPE SHALL BE PROVIDED IN ACCORDANCE WITH AWWA C151, (6 INCH DIAMETER AND GREATER SHALL BE CLASS 50) AND (SMALLER THAN 6" SHALL BE CLASS 51). DUCTILE IRON PIPE SHALL BE LINED WITH A CEMENT MORTAR AND SEAL COATED IN ACCORDANCE WITH AWWA C104. GASKETS SHALL BE PROVIDED IN ACCORDANCE WITH AWWA C111. FITTINGS SHALL BE DUCTILE IRON IN ACCORDANCE WITH AWWA C153 COMPACT FITTINGS WITH A PRESSURE RATING OF 350 PSI.
   - STANDARD DUCTILE IRON OR CAST IRON FITTINGS SHALL BE SUPPLIED IN ACCORDANCE WITH AWWA C110 WITH A PRESSURE RATING OF 250 PSI. THE LINING AND GASKETS FOR THE FITTING SHALL MEET THE SAME REQUIREMENTS AS THE PIPE. PLASTIC WRAP PIPES IN ACCORDANCE WITH AWWA C105 AND TAR COAT ALL FITTING BOLTS WHEN EVER SOILS ARE PRIMARILY CLAY OR NOT PH BALANCED. SEE GEOTECHNICAL REPORT FOR SOILS TYPE AND RECOMMENDATIONS.
   - PVC (POLYVINYL CHLORIDE) PIPE SHALL BE FURNISHED IN ACCORDANCE WITH AWWA C900 FOR PIPE 4 INCHES OR GREATER AND ASTM D 1785, SCHEDULE 40, GASKETS PER ASTM F 477-ELASTOMERIC SEAL, SOLVENT CEMENT PER ASTM D 2564 FOR PIPES SMALLER THAN 4 INCHES. TEN GAUGE COPPER TRACE WIRE SHALL BE PLACED WITH ALL PIPE.
   - THRUST RESTRAINTS SHALL BE USED AT ALL FITTINGS, PLUGS, AND APPURTENANCES THAT CAUSE A CHANGE IN DIRECTION, FLOW OR ARE SUBJECT TO THRUST OR HAMMERING BY WATER FLOW. THRUST RESTRAINTS INCLUDE CONCRETE THRUST BLOCKS (3000 PSI), ANCHORING JOINTS AND TIE RODS. CONCRETE THRUST BLOCKS SHALL BE USED UNLESS SPACE, ACCESS OR MAINTENANCE PROHIBIT THEIR USE.
   - COPPER WATER PIPE SHALL BE SUPPLIED IN ACCORDANCE WITH ASTM B 88-TYPE K, SEAMLESS WITH FITTINGS PER AWWA C800.
   - PE (POLYETHYLENE) PIPE SHALL BE FURNISHED IN ACCORDANCE WITH AWWA C9010 AND ASTM D2737.
   - GATE VALVES SHALL BE NONRISING STEM, DOUBLE DISC, BRONZE DISC RESILIENT SEATED, CAST IRON OR DUCTILE IRON BODY AND BONNET IN ACCORDANCE WITH AWWA C509 AND PRESSURE RATED FOR 250 PSI. TEN GAUGE COPPER TRACER WIRE SHALL BE PLACED WITH ALL PIPES.
   - VALVE BOX SHALL BE CAST IRON WITH A BASE COMPATIBLE WITH VALVE, 5 INCHES IN DIAMETER, SCREW TYPE EXTENSION AT TOP AND A COVER THAT READS "WATER".
   - CURB STOPS SHALL HAVE A BRONZE BODY, GROUND KEY PLUG OR BALL WITH WIDE TEE HEAD. THE CURB STOP SHALL BE COMPATIBLE WITH ADJOINING PIPES. THE SERVICE BOX SHALL HAVE A TELESCOPING TOP SECTION WITH A LENGTH THAT PLACES THE ADJUSTMENT CENTERED WHEN BURIED TO THE APPROPRIATE DEPTH. THE SERVICE BOX SHALL BE OF A SIZE AND TYPE THAT IS COMPATIBLE WITH THE CURB STOP. THE COVER SHALL HAVE THE LETTERING "WATER".
3. ALL METERS, VAULTS AND BACKFLOW SHALL MEET THE REQUIREMENTS OF CITY OF MONROE .
4. FIRE HYDRANTS SHALL CONFORM TO THE REQUIREMENTS OF CITY OF MONROE AND AWWA C502. DRAIN STONE SHALL HAVE 100% PASSING THE 1-1/2 INCH SIEVE, 90-100% PASSING THE 1 INCH SIEVE, 35-95% PASSING THE 1/2 INCH SIEVE AND 0-15% PASSING THE 1/4 INCH SIEVE. ALL HYDRANTS SHALL INCLUDE A GATE VALVE AND BOX LOCATED AT THE HYDRANT BRANCH TO SHUT OFF THE HYDRANT LINE.
5. DUCTILE IRON PIPE SHALL BE INSTALLED IN ACCORDANCE WITH AWWA C600 AND BE ENCASED IN SELECT BACKFILL WHICH MEANS NO STONE OR OTHER MATERIAL GREATER THAN 2 INCHES IN ANY DIRECTION.
6. PVC, PE AND COPPER PIPE SHALL BE PLACED PER MANUFACTURERS RECOMMENDATIONS AND EMBEDDED IN A 6 INCH SAND ENCASEMENT MEASURED FROM OUTSIDE SURFACE OF THE PIPE TO THE OUTSIDE OF SAND ENCASEMENT.
7. ALL BEDDING AND ENCASEMENTS SHALL BE COMPACTED WITH CARE TO ACHIEVE PROPER COMPACTION WITHOUT DAMAGING THE PIPE, FITTINGS OR APPURTENANCES.
8. ALL WATER MAIN FITTINGS AND VALVES SHALL BE TESTED FOR PRESSURE AND LEAKAGE IN ACCORDANCE WITH AWWA C600. TEST WATER SHALL BE POTABLE. TEST PRESSURE SHALL NOT BE LESS THAN 1.25 TIMES THE WORKING PRESSURE AT THE HIGHEST POINT AND 1.5 TIMES THE WORKING PRESSURE AT THE TESTING POINT. THE PRESSURE MAY NOT DROP MORE THAN 5 PSI DURING THE 2 HOUR TEST. LEAKAGE SHALL NOT EXCEED MORE THAN (L=(SD(P)^0.5)/133,200) WHERE "L= ALLOWABLE LEAKAGE, IN GALLONS PER HOUR" " S= LENGTH OF PIPE TESTED, IN FEET" " D= NOMINAL DIAMETER OF PIPE, IN INCHES" "P=AVERAGE TEST PRESSURE DURING TEST, IN POUNDS PER SQUARE INCH (GAUGE) DURING THE SAME 2 HOUR DURATION.
9. ALL TAP AND/OR CONNECTION MATERIAL AND WORK SHALL BE DONE IN ACCORDANCE WITH AND COORDINATED WITH CITY OF MONROE . WHEN THE AUTHORITY SO REQUIRES, THE TAPS AND/OR CONNECTIONS SHALL BE DONE BY THE AUTHORITY THEMSELVES AND PAID FOR BY THE CONTRACTOR.
10. OTHER FITTING AND APPURTENANCES NOT PART OF THE MAIN LINE TESTING SHALL BE TESTED BY VISUAL INSPECTION FOR LEAKAGE UNDER NORMAL WORKING PRESSURES.
11. ALL MAIN LINES AND APPROPRIATE APPURTENANCES SHALL BE FLUSHED AND DISINFECTED IN ACCORDANCE WITH AWWA C651 AND THE REQUIREMENTS OF THE APPROPRIATE HEALTH DEPARTMENT.
12. THE CONTRACTOR SHALL COORDINATE ALL TESTING AND DISINFECTING WITH CITY OF MONROE . IF PROFESSIONAL ENGINEER CERTIFICATION IS REQUIRED, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE AT LEAST TEN DAYS PRIOR TO THE START OF WORK.
13. FAILURE OF ANY TESTING SHALL REQUIRE THE CONTRACTOR TO REPAIR OR REPLACED THE FAILED SECTION AT NO ADDITIONAL EXPENSE TO THE CONTRACT.

JASON P. BROWN
LEVEL II CERTIFIED DESIGN PROFESSIONAL
#53274 - EXP. 05.01.2023

24-HOUR CONTACT
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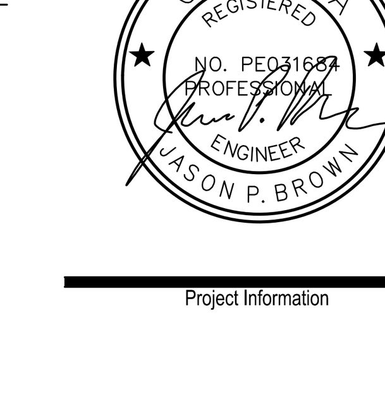

Project Information

150 VINE ST EROSION CONTROL PLAN

PARCEL NO. : M0210001A00
150 VINE ST
MONROE GA, 30655
ZONING-M1

DRAWING DATE:	7.9.2020
DRAWN BY:	MKS
CHECKED BY:	JPB

REVISIONS	
DATE:	DESCRIPTION:
09.10.20	CITY COMMENTS
10.13.20	GSWCC COMMENTS
10.26.20	GSWCC COMMENTS

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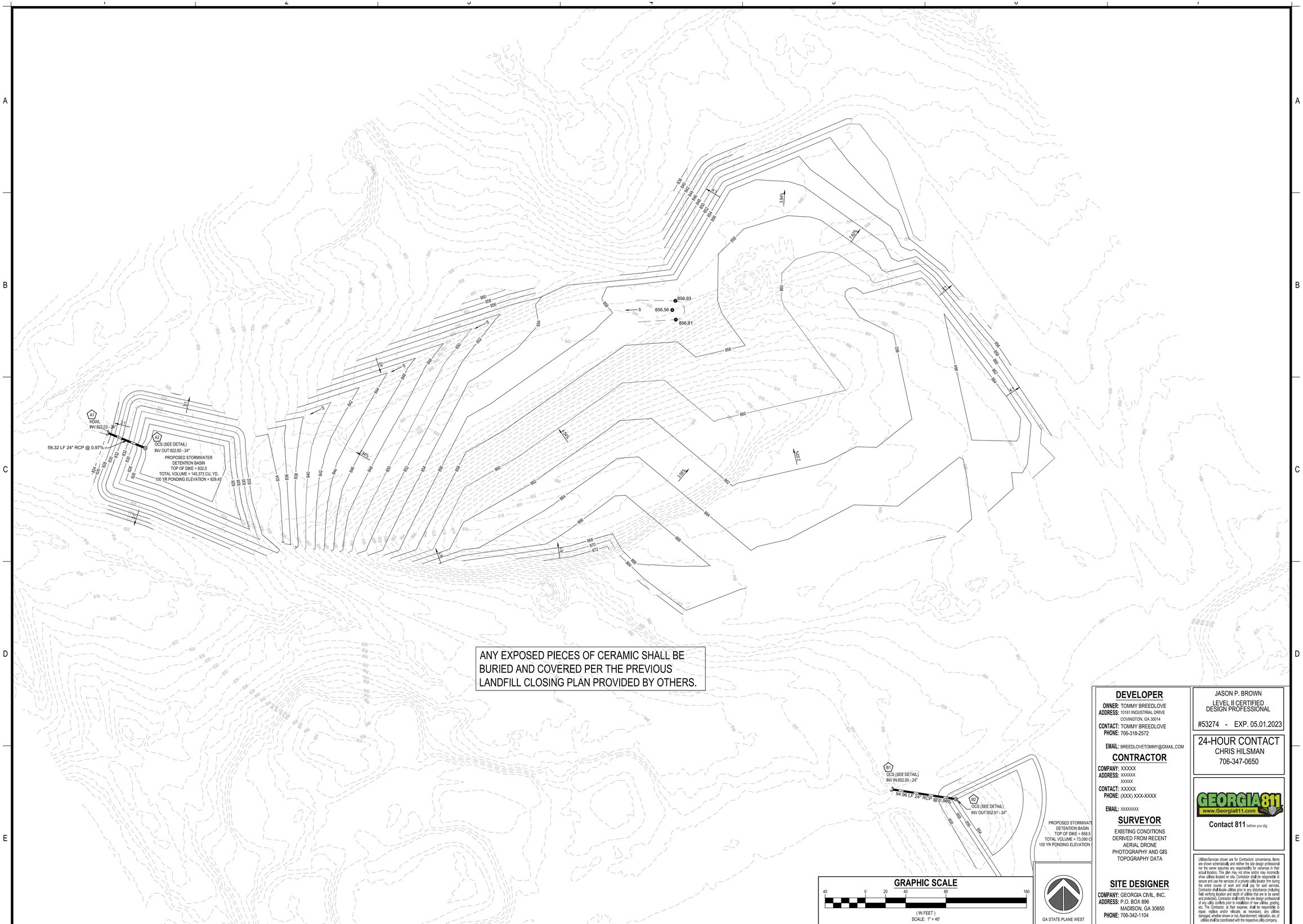
Sheet Title

GENERAL NOTES

Sheet Number

C-1.1



DEVELOPER

OWNER: TOMMY BREEDLOVE
ADDRESS: 10161 INDUSTRIAL DRIVE
COVINGTON, GA 30014
CONTACT: TOMMY BREEDLOVE
PHONE: 706-318-2572

EMAIL: BREEDLOVETOMMY@GMAIL.COM

CONTRACTOR

COMPANY: XXXXX
ADDRESS: XXXXXX
XXXXX
CONTACT: XXXXX
PHONE: (XXX) XXX-XXXX

EMAIL: XXXXXXX

SURVEYOR

EXISTING CONDITIONS
DERIVED FROM RECENT
AERIAL DRONE
PHOTOGRAPHY AND GIS
TOPOGRAPHY DATA

SITE DESIGNER

COMPANY: GEORGIA CIVIL, INC.
ADDRESS: P.O. BOX 896
MADISON, GA 30650
PHONE: 706-342-1104

JASON P. BROWN
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#53274 - EXP. 05.01.2023

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Professional Seal

GEORGIA REGISTERED NO. PE031649 PROFESSIONAL ENGINEER JASON P. BROWN

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150 VINE ST
MONROE GA, 30655
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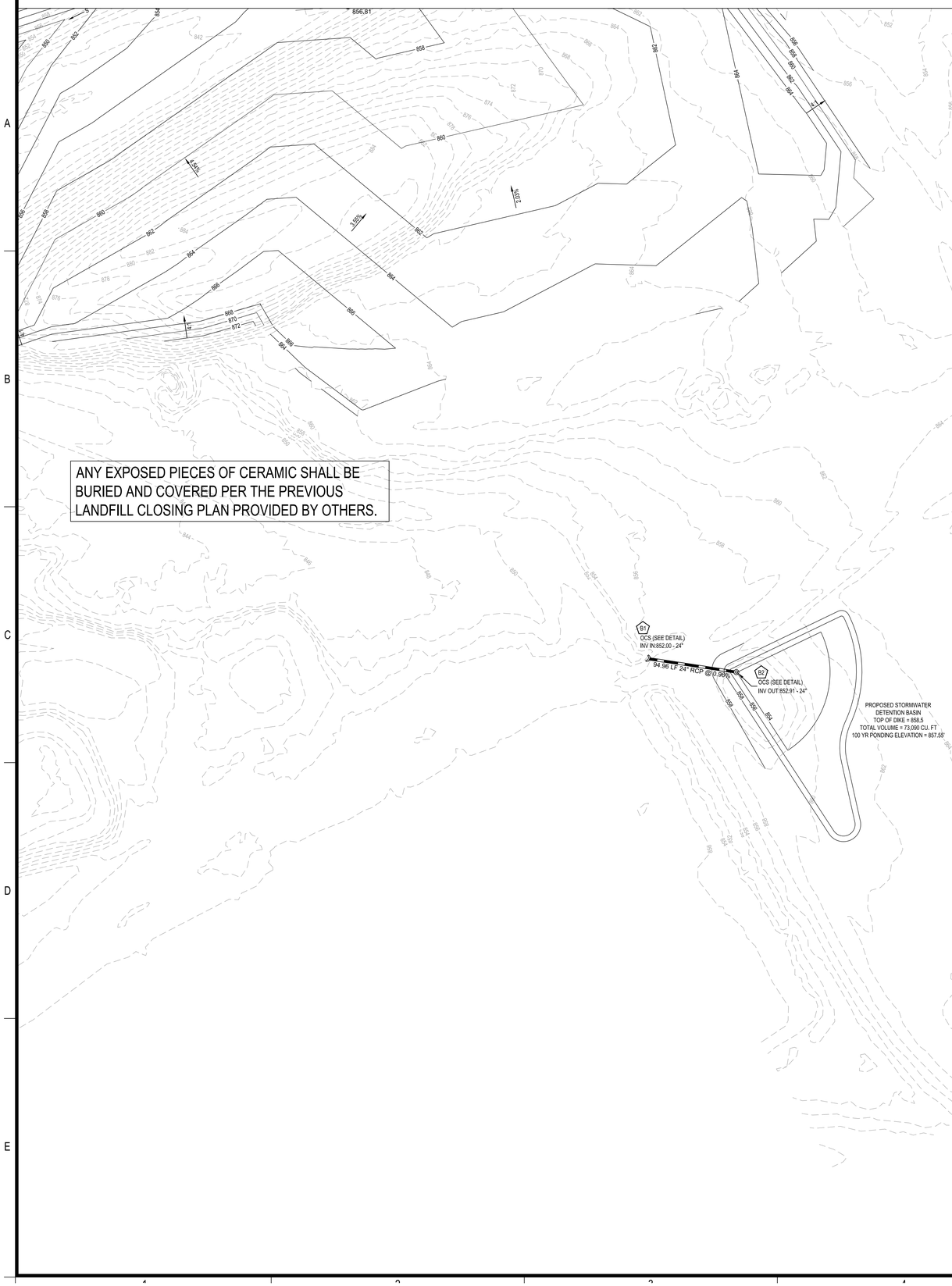
Sheet Title

GRADING AND
DRAINAGE PLAN 1 OF 2

Sheet Number

C-2.1



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

SCALE: 1" = 40'

GA STATE PLANE WEST

DEVELOPER

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PHONE: 706-318-2572

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CONTRACTOR

COMPANY: XXXXX
ADDRESS: XXXXXX
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CONTACT: XXXXX
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SURVEYOR

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Project Information

150 VINE ST EROSION CONTROL PLAN

PARCEL NO. : M0210001A00
150 VINE ST
MONROE GA, 30655
ZONING-M1

DRAWING DATE:	7.9.2020
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Sheet Title

GRADING AND
DRAINAGE PLAN 2 OF 2

Sheet Number

C-2.2

ASTM D2321 (1) (CSA B182.11) CLASS DESCRIPTION		ASTM D2487 NOTATION	ASTM D2487 DESCRIPTION	AASHTO M43 NOTATION	AASHTO M145 NOTATION	BNQ 2560	1 1/2 IN. (40mm)	3/8" (9.5mm)	No. 4 (4.75mm)	NO. 200 (0.075mm)	LL	PI	Cu	Cc
							ASTM D2321 (1) (CSA B182.11) – PERCENTAGE PASSING SIEVE SIZES				ATTERBERG LIMITS		COEFFICIENTS	
I (2)	CRUSHED ROCK, ANGULAR 3	N/A	ANGULAR CRUSHED STONE OR ROCK, CRUSHED GRAVEL, CRUSHED SLAG; LARGE VOIDS WITH LITTLE OR NO FINES	5, 56, 57 (4) 6, 67 (4)	N/A		100%	<25%	<15%	<12%	NON PLASTIC		N/A	
II	CLEAN, COARSE-GRAINED SOILS	GW	WELL-GRADED GRAVEL, GRAVEL-SAND MIXTURES; LITTLE OR NO FINES	5, 6	A1, A3	CG-14, MG-20	100%		<50% of "COARSE FRACTION"	<5%	NON PLASTIC		>4	1 to 3
		GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES; LITTLE OR NO FINES	56, 57, 67									4	<1 or >3
		SW	WELL-GRADED SANDS, GRAVELLY SANDS; LITTLE OR NO FINES						>50% of "COARSE FRACTION"				>6	1 to 3
		SP 6	POORLY-GRADED SANDS, GRAVELLY SAND; LITTLE OR NO FINES										<6	<1 or >3
	COARSE-GRAINED SOILS, BODERLINE CLEAN TO W/FINES	GW-GC, SP-SM	SANDS AND GRAVELS WHICH ARE BORDERLINE BETWEEN CLEAN AND WITH FINES	N/A			100%		VARIES	5% TO 12%	NON PLASTIC		SAME AS FOR GW, GP, SW AND SP	
III	COURSE-GRAINED SOILS WITH FINES	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES	GRAVEL & SAND WITH <10% FINES	A-2-4, A-2-5, A-2-6, OR A-4 OR A-6 SOILS WITH MORE THAN 30% RETAINED ON #200 SIEVE		100%		<50% of "COARSE FRACTION"	12% TO 50%	N/A	<4 OR <"A" LINE	N/A	
		GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES									<7 & >"A" LINE		
		SM	SILTY SANDS, SAND-CLAY MIXTURES						>50% of "COARSE FRACTION"			>4 OR <"A" LINE		
		SC	CLAYEY SANDS, SAND-CLAY MIXTURES									>7 & >"A" LINE		
	INORGANIC FINE-GRAINED SOILS	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY						100%	> 30% (RETAINED)	<50	<4 OR <"A" LINE		
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY; GRAVELLY, SANDY, OR SILTY CLAYS; LEAN CLAYS							> 30% (RETAINED)		>7 & >"A" LINE		
IV (5)	INORGANICS FINE-GRAINED SOILS	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY	N/A	A-2-7 OR A-4 OR A-6 SOILS WITH 30% OR LESS RETAINED ON #200 SIEVE		100%		100%	< 30% (Retained)	<50	<4 or <"A" LINE	N/A	
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY; GRAVELLY, SANDY, OR SILTY CLAYS; LEAN CLAYS	N/A								>7 & >"A" LINE		
V (7)	INORGANIC FINE-GRAINED SOILS	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS	N/A	A5, A7		100%		100%	>50%	>50	<"A" LINE	N/A	
		CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	N/A								>"A" LINE		
	ORGANIC SOILS OR HIGHLY ORGANIC SOILS	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	N/A			100%		100%	>50%	<50	<4 OR <"A" LINE	N/A	
		OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	N/A							>50	<"A" LINE		
		PT	PEAT AND OTHER HIGH ORGANIC SOILS	N/A										

NOTES:

1. REFER TO ASTM D2321 / CSA B182.11 / BNQ 2560 FOR MORE COMPLETE SOIL DESCRIPTIONS.
2. CLASS I MATERIALS ALLOW FOR A BROADER RANGE OF FINES THAN PREVIOUS VERSIONS OF D2321 / B182.11. WHEN SPECIFYING CLASS I MATERIAL FOR INFILTRATION SYSTEMS, THE ENGINEERING SHALL INCLUDE A REQUIREMENT FOR AN ACCEPTABLE LEVEL OF FINES.
3. ALL PARTICLE FACES SHALL BE FRACTURED.
4. ASSUMES LESS THAN 25% PASSES THE 3/8" SIEVE.
5. CLASS IV MATERIALS REQUIRE A GEOTECHNICAL EVALUATION PRIOR TO USE AND SHOULD ONLY BE USED AS BACKFILL UNDER THE GUIDANCE OF A QUALIFIED ENGINEER.
6. UNIFORM FINE SANDS (SP) WITH MORE THAN 50% PASSING A 100 SIEVE BEHAVE LIKE SILTS AND SHOULD BE TREATED AS CLASS III SOILS IF ALLOWED.
7. CLASS V MATERIALS SHALL NOT BE PERMITTED AS BEDDING AND BACKFILL MATERIAL.

PIPE GAUGE CHART

SPIRAL RIB (ALUMINIZED TYPE 2) PIPE

16 GAUGE PIPE DIAMETER	14 GAUGE PIPE DIAMETER	12 GAUGE PIPE DIAMETER
12" 15" 18" 21" 24" 27" 30"	33" 36" 39" 42" 48"	54" AND LARGER

ASTM D2321

CLASS DESCRIPTION

I	II	III
CRUSHED ROCK ANGULAR	CLEAN COARSE-GRAINED SOILS COARSE-GRAINED SOILS, BORDERLINE CLEAN TO W/FINES	COARSE-GRAINED SOILS W/FINES INORGANIC FINE GRAINED SOILS

TABLE NO. I ROUND PIPE - CONCRETE - CORRUGATED STEEL - CORRUGATED ALUMINUM

MINIMUM CLASS OF CONCRETE OR MINIMUM THICKNESS OF STEEL AND ALUMINUM

PIPE DIAMETER (INCHES)	TYPE	MINIMUM COVER (INCHES)	1 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 50	50 - 60	60 - 70	70 - 80	80 - 90	PIPE DIAMETER (INCHES)
			HEIGHT OF FILL IN FEET ABOVE TOP OF PIPE												
12	CONCRETE	12	III	III	IV	V	V	V	V	V	V	V	V		12
	STEEL 1	12	.064	.064	.064	.064	.064	.064	.064	.064	.064	.064	.064	.064	
	ALUM 1	12	.060	.060	.060	.060	.075	.075	.075	.075	.075	.075	.075	.075	
15	CONCRETE	12	III	III	IV	V	V	V	V	V	V	V	V		15
	STEEL 1	12	.064	.064	.064	.064	.064	.064	.064	.064	.064	.064	.064	.064	
	ALUM 1	12	.060	.060	.060	.060	.075	.075	.075	.075	.075	.075	.075	.105	
18	CONCRETE	12	III	III	IV	V	V	V	V	V	V	V	V		18
	STEEL 1	12	.064	.064	.064	.064	.064	.064	.064	.064	.064	.064	.064	.064	
	ALUM 1	12	.060	.060	.060	.060	.075	.075	.075	.075	.105	.105	.105	.105	
24	CONCRETE	12	III	III	IV	V	V	V	V	V	V	V	V		24
	STEEL 1	12	.064	.064	.064	.064	.064	.064	.064	.064	.064	.064	.079	.079	
	ALUM 1	12	.060	.060	.060	.075	.075	.075	.075	.105	.105	.105	.105		
30	CONCRETE	12	III	III	IV	V	V	V	V	V	V	V	V		30
	STEEL 1	12	.064	.064	.064	.064	.064	.064	.064	.064	.079	.079	.109	.109	
	ALUM 1	12	.075	.075	.075	.075	.075	.105	.105	.105	.135	.135			
36	CONCRETE	12	III	III	IV	V	V	V	V	V	V	V	V		36
	STEEL 1	12	.064	.064	.064	.064	.064	.064	.064	.079	.079	.109	.109	.138	
	STEEL 2	12	.064	.064	.064	.064	.064	.064	.064	.064	.079	.079	.109	.109	
	ALUM 1	12	.075	.105	.105	.105	.105	.105	.135	.135	.135	.135			
	ALUM 2	12	.060	.060	.060	.060	.075	.075	.105	.105	.105	.135			
42	CONCRETE	12	III	III	IV	V	V	V	V	V	V	V	V		
	STEEL 1	12	.064	.064	.064	.064	.064	.064	.064	.079	.109	.109	.138	.138	
	STEEL 2	12	.064	.064	.064	.064	.064	.064	.064	.079	.109	.109	.109	.138	
	ALUM 1	12	.105	.105	.135	.135	.164	.164							
	ALUM 2	12	.060	.060	.060	.075	.075	.105	.105	.105	.135	.135			
48	CONCRETE	12	III	III	IV	V	V	V	V	V	V	V	V		48
	STEEL 1	12	.064	.064	.064	.064	.064	.064	.079	.109	.109	.138	.138	.168	
	STEEL 2	12	.064	.064	.064	.064	.064	.064	.064	.079	.109	.109	.138	.138	
	ALUM 1	12	.105	.105	.135	.164	.164	.164							
	ALUM 2	12	.060	.060	.060	.075	.075	.105	.105	.135	.135	.164	.164		
54	CONCRETE	12	III	III	IV	V	V	V	V	V	V	V	V		54
	STEEL 1	12	.079	.079	.079	.079	.079	.079	.079	.109	.138	.138	.168		
	STEEL 2	12	.064	.064	.064	.064	.064	.064	.079	.109	.109	.138	.138	.168	
	ALUM 1	15	.105	.105	.135	.164	.164	.164							
	ALUM 2	15	.060	.060	.060	.075	.075	.105	.135	.135	.164	.164			
60	CONCRETE	12	III	III	IV	V	V	V	V	V	V	V	V		60
	STEEL 1	12	.109	.109	.109	.109	.109	.109	.109	.109	.138	.168			
	STEEL 2	12	.064	.064	.064	.064	.064	.079	.079	.109	.138	.138	.168	.168	
	ALUM 1	15	.135	.135	.164	.164	.164	.164							
	ALUM 2	15	.060	.060	.075	.105	.105	.135	.135	.164	.164				
66	CONCRETE	12	III	III	IV	V	V	V	V	V	V	V			66
	STEEL 1	12	.138	.138	.138	.138	.138	.138	.138	.138	.168	.168			
	STEEL 2	12	.064	.064	.064	.064	.064	.079	.109	.109	.138	.168	.168		
	ALUM 1	18	.164	.164	.164	.164	.164								
	ALUM 2	18	.075	.075	.105	.105	.135	.135	.164	.164					
72	CONCRETE	12	III	III	IV	V	V	V	V	V	V	V			72
	STEEL 1	12	.138	.138	.138	.138	.138	.138	.138	.138	.168				
	STEEL 2	12	.064	.064	.064	.064	.079	.109	.109	.138	.138	.168			
	ALUM 1	18	.164	.164	.164	.164	.164								
	ALUM 2	18	.075	.075	.105	.105	.135	.164	.164	.164					
78	CONCRETE	12	III	III	IV	V	V	V	V	V	V				78
	STEEL 1	15	.168	.168	.168	.168	.168	.168	.168	.168					
	STEEL 2	15	.064	.064	.064	.064	.079	.109	.109	.138	.168	.168			
	ALUM 2	21	.075	.075	.105	.105	.135	.164	.164						
84	CONCRETE	12	III	III	IV	V	V	V	V	V	V				84
	STEEL 1	15	.168	.168	.168	.168	.168	.168	.168	.168					
	STEEL 2	15	.064	.064	.064	.079	.079	.109	.109	.138	.168				
	ALUM 2	21	.105	.105	.105	.135	.135	.164	.164						
90	CONCRETE	12	III	III											90
	STEEL 2	18	.064	.064	.064	.079	.109	.109	.138	.138	.168				
	ALUM 2	24	.105	.105	.135	.135	.164								
96	CONCRETE	12	III	III											96
	STEEL 2	18	.079	.079	.079	.079	.109	.109	.138	.168					
	ALUM 2	24	.105	.105	.135	.135	.164								
102	CONCRETE	12	III	III											102
	STEEL 2	24	.079	.079	.079	.109	.109	.138	.138	.168					
	ALUM 2	24	.135	.164	.164										
108	CONCRETE	12	III	III											108
	STEEL 2	24	.109	.109	.109	.109	.109	.138	.138	.168					
	ALUM 2	24	.135	.164											
114	CONCRETE														114
	STEEL 2	24	.109	.109	.109	.109	.109	.138	.168						
	ALUM 2	24	.164	.164											
120	CONCRETE														120
	STEEL 2	24	.109	.109	.109	.109	.138	.138	.168						
	ALUM 2	24	.164	.164											

IMPERFECT BACKFILL IS NOT REQUIRED FOR CONDTIONS SHOWN ON THE LEFT SIDE OF THE HEAVY LINE. USE NORMAL BACKFILL.

FOR CONDITIONS TO THE RIGHT OF THE HEAVY LINE, CLASS V CONCRETE PIPE REQUIRES IMPERFECT BACKFILL ACCORDING TO DETAIL "A" OR "B" ON SHEET 1 OF 3..

TABLE NO.3-(INFORMATION ONLY)	COR. METAL THICKNESS	EQUIVALENT GAGE
STEEL	.064	16
	0.079	14
	0.109	12
	0.138	10
	0.168	8
ALUMINUM	0.060	16
	0.075	14
	0.105	12
	0.135	10
	0.164	8

STEEL 1 OR ALUM 1 DENOTES CORRUGATION PROFILE 2 2/3" X 1/2"

STEEL 2 OR ALUM 2 DENOTES CORRUGATION PROFILE 3" X 1" (OR 5" X 1" FOR STEEL PIPE ONLY)

ALL STEEL AND ALUMINUM PIPE SHALL BE LOCK-SEAM OR WELDED-SEAM (HELICAL) CONSTRUCTION.

MINIMUM COVER VALUES APPLY TO HS-20 LIVE LOAD. MINIMUM COVER NEEDED FOR CONSTRUCTION VEHICLES MAY BE GREATER AND IS THE RESPONSIBILITY OF THE CONTRACTOR.

TRENCH CONSTRUCTION IS REQUIRED FOR CONDITIONS ON BOTH SIDES OF HEAVY LINE. SEE SHEET 1 OF 3.

FOR CONDITIONS TO RIGHT OF HEAVY LINE, CONCRETE PIPE REQUIRES IMPERFECT BACKFILL ACCORDING TO SPECIFICATIONS AND THIS STANDARD.

TABLE VALUES FOR ALUMINUM CORRUGATED PIPE (OR ALUMINUM SPIRAL RIB PIPE) ARE COMPUTED BASED UPON ALCLAD ALLOY 3004-H34 HAVING MINIMUM YIELD STRENGTH, fy=24,000 PSI. IF ALUMINUM PIPE IS OTHERWISE FURNISHED AS 3004-H32 (fy=20,000 PSI), THE TABLE NO. 1 ALLOWABLE FILL HEIGHTS SHALL BE ADJUSTED AS FOLLOWS:

A. ALL MINIMUM COVER VALUES SHALL BE INCREASED BY 15 PERCENT. (EXAMPLE: 12 INCHES BECOMES 13.8 INCHES)
B. ALL HEIGHT OF FILL VALUES SHALL BE DECREASED BY 15 PERCENT. (EXAMPLE: 35-40 FEET BECOMES 29.7-34.0 FEET)

BY	REVISION	DATE
	GEN. REV. NOTES	9-26-01
GJP	ADDED SEAM CONST. NOTE	3-9-99

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
STANDARD
CONCRETE & METAL PIPE CULVERTS
SHEET 2 OF 3
(FILL HEIGHTS FOR CONCRETE & CORRUGATED METAL PIPE)
NO SCALE
OCTOBER 21, 1998
NUMBER 1030D
STATE: GA. | PROJECT NUMBER | SHEET NO. | TOTAL SHEETS

TABLE NO. 1 R ROUND PIPE - SPIRAL RIB STEEL - SPIRAL RIB ALUMINUM

MINIMUM THICKNESS OF STEEL AND ALUMINUM

PIPE DIAMETER (INCHES)	TYPE	MINIMUM COVER (INCHES)	1 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 50	50 - 60	60 - 70	70 - 80	80 - 90	PIPE DIAMETER (INCHES)
			HEIGHT OF FILL (FEET) ABOVE TOP OF PIPE												
12															12
15															15
18	STEEL R	12	.064	.064	.064	.064	.064	.064	.064	.064	.064	.079	.079		18
	ALUM R	12	.060	.060	.060	.060	.060	.060	.075	.075					
24	STEEL R	12	.064	.064	.064	.064	.064	.064	.064	.079	.079	.109	.109		24
	ALUM R	12	.060	.060	.060	.060	.075	.075	.105	.105	.105				
30	STEEL R	12	.064	.064	.064	.064	.064	.064	.079	.079	.109	.109	.109		30
	ALUM R	15	.060	.060	.060	.075	.075	.105	.105	.105					
36	STEEL R	12	.064	.064	.064	.064	.064	.079	.079	.109	.109	.109			36
	ALUM R	18	.060	.060	.075	.075	.105	.105	.105	.135	.135				
42	STEEL R	12	.064	.064	.064	.064	.079	.079	.109	.109	.109				42
	ALUM R	21	.075	.075	.075	.105	.105	.105	.135	.135					
48	STEEL R	12	.064	.064	.064	.079	.079	.109	.109	.109					48
	ALUM R	24	.105	.105	.105	.105	.105	.135	.135						
54	STEEL R	15	.064	.064	.064	.079	.079	.109	.109						54
	ALUM R	24	.105	.105	.105	.105	.135	.135	.135						
60	STEEL R	15	.079	.079	.079	.079	.109	.109	.109						60
	ALUM R	24	.105	.105	.105	.105	.135	.135							
66	STEEL R	18	.079	.079	.079	.109	.109	.109	.109						66
	ALUM R	24	.135	.135	.135	.135	.135								
72	STEEL R	18	.109	.109	.109	.109	.109	.109							72
	ALUM R	27	.135	.135	.135	.135	.135								
78	STEEL R	21	.109	.109	.109	.109	.109								78
84	STEEL R	21	.109	.109	.109	.109	.109								84
90															90
96															96
102															102
108															108
114															114
120															120

R DENOTES SPIRAL RIB PROFILE 3/4" X 3/4" X 7-1/2"

TABLE VALUES FOR ALUMINUM SPIRAL RIB PIPE ARE COMPUTED BASED UPON ALCLAD ALLOY 3004-H34 HAVING MINIMUM YIELD STRENGTH, fy=24,000 PSI. IF ALUMINUM PIPE IS OTHERWISE FURNISHED AS 3004-H32 (fy=20,000 PSI), ALLOWABLE FILL HEIGHTS SHALL BE ADJUSTED AS FOLLOWS:

A. ALL MINIMUM COVER VALUES SHALL BE INCREASED BY 15 PERCENT. (EXAMPLE: 12 IN. BECOMES 13.8 IN.)
B. ALL HEIGHT OF FILL VALUES SHALL BE DECREASED BY 15 PERCENT. (EXAMPLE: 35-40 FT. BECOMES 29.7-34.0 FT.)

MINIMUM COVER VALUES APPLY TO HS-20 LIVE LOAD. MINIMUM COVER NEEDED FOR CONSTRUCTION VEHICLES MAY BE GREATER AND IS THE RESPONSIBILITY OF THE CONTRACTOR.

TRENCH CONSTRUCTION IS REQUIRED FOR ALL INSTALLATIONS.

TABLE NO. 2 (PIPE-ARCH)

TABLE SHOWING MINIMUM THICKNESS IN INCHES OF CORRUGATED STEEL AND CORRUGATED ALUMINUM PIPE-ARCH AND MAXIMUM HEIGHTS OF FILL IN FEET ABOVE THE TOP OF THE PIPE-ARCH.

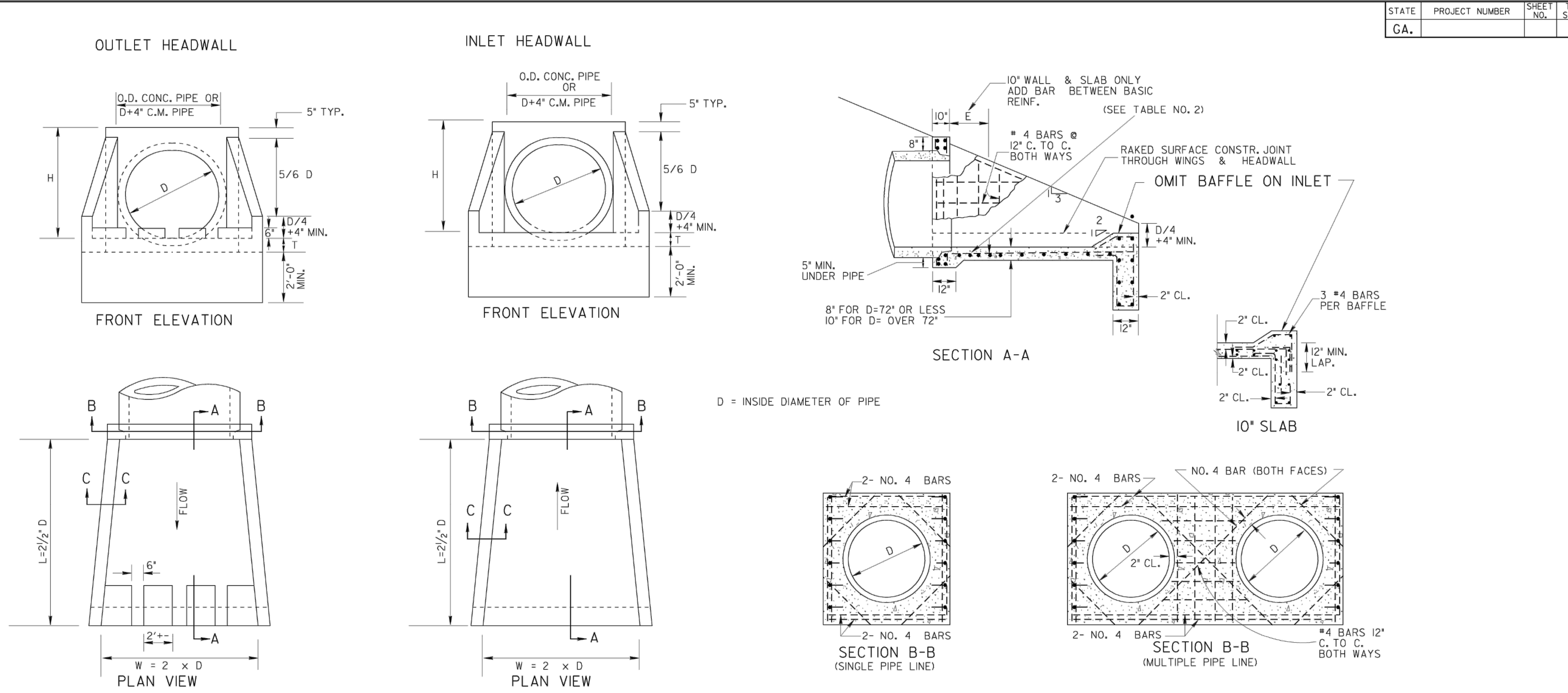
DIAMETER OF PIPE OF EQUAL PERIPHERY INCH	NOM.-MIN. SPAN INCH	NOM.-MIN. RISE INCH	MIN. THICKNESS (INCHES) COR. STEEL ①	COR. STEEL ②	COR. ALUMINUM	MIN. COVER (INCHES)	MAX. HT. FILL (FEET)
15	17	13	.064			18	13
					.060	18	15
18	21	15	.064			18	12
					.060	18	14
21	24	18	.064			18	10
					.060	18	13
24	28	20	.064			18	9
					.075	18	11
30	35	24	.064			18	9
					.075	18	9
36	42	29	.064			18	7
					.105	18	7
	40	31		.079		18	12
42	49	33	.079			18	7
					.105	18	7
	46	36	.079	.079		18	12
48	57	38	.109			18	7
					.135	18	7
	53	41		.079		18	12
54	64	43	.109			18	7
					.135	18	7
	60	46		.079		18	12
60	71	47	.138			18	7
					.164	18	7
	66	51		.079		18	12
66	77	52	.168			18	7
	73	55		.079		18	15
77	83	57	.168			18	8
	81	59		.079		18	15
78	87	63		.079		18	14
84	95	67		.109		18	12
90	103	71		.109		24	11

NOTE FOR TABLE NO. 2.
ALTERNATE SPAN-RISE COMBINATIONS FOR PIPE-ARCHES, HAVING EQUAL PERIPHERY TO THAT SHOWN, MAY BE SUBSTITUTED IF LISTED IN AASHTO SPECIFICATION.

BY	REVISION	DATE

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
STANDARD
CONCRETE & METAL PIPE CULVERTS
SHEET 3 OF 3
(FILL HEIGHTS FOR SPIRAL RIB METAL PIPE & FOR PIPE ARCH)
NO SCALE
SEPT., 2001
NUMBER 1030D
STATE: GA. | PROJECT NUMBER | SHEET NO. | TOTAL SHEETS

STATE: GA. | PROJECT NUMBER | SHEET NO. | TOTAL SHEETS



D	CU. YDS. CONCRETE (PAY QUANTITIES) ✱ FOR SINGLE LINE – INLET	FOR SINGLE LINE – OUTLET	ADD FOR ADD'L LINE – INLET	ADD FOR ADD'L LINE – OUTLET	LBS. STEEL (GIVEN FOR INFORMATION ONLY) FOR SINGLE LINE – INLET	FOR SINGLE LINE – OUTLET	ADD FOR EACH ADD'L LINE – INLET	ADD FOR EACH ADD'L LINE – OUTLET
15"	0.87	0.93	0.60	0.66	102	113	73	83
18"	1.10	1.16	0.85	0.93	106	117	93	104
24"	1.61	1.69	1.29	1.37	127	138	124	134
30"	2.21	2.32	1.83	1.96	170	180	154	164
36"	2.92	3.05	2.49	2.63	238	254	196	212
42"	3.73	3.87	3.00	3.17	290	306	231	247
48"	4.62	4.80	3.58	3.74	335	351	265	281
54"	5.63	5.83	4.17	4.38	407	428	319	340
60"	6.72	6.95	4.82	5.01	456	477	360	391
72"	9.22	9.48	6.24	6.46	623	649	475	494
84"	14.84	15.19	9.05	9.29	1517	1539	1017	1044
96"	18.88	19.27	11.13	11.41	2118	2150	1323	1350

TABLE NO. 1 - QUANTITIES FOR HEADWALLS

✱NOTE: QUANTITIES SHOWN WILL BE ACTUAL PAY QUANTITIES FOR CLASS "A" CONCRETE, INCLUDING REINFORCED STEEL. NO ADJUSTMENT WILL BE MADE FOR AS BUILT QUANTITIES.

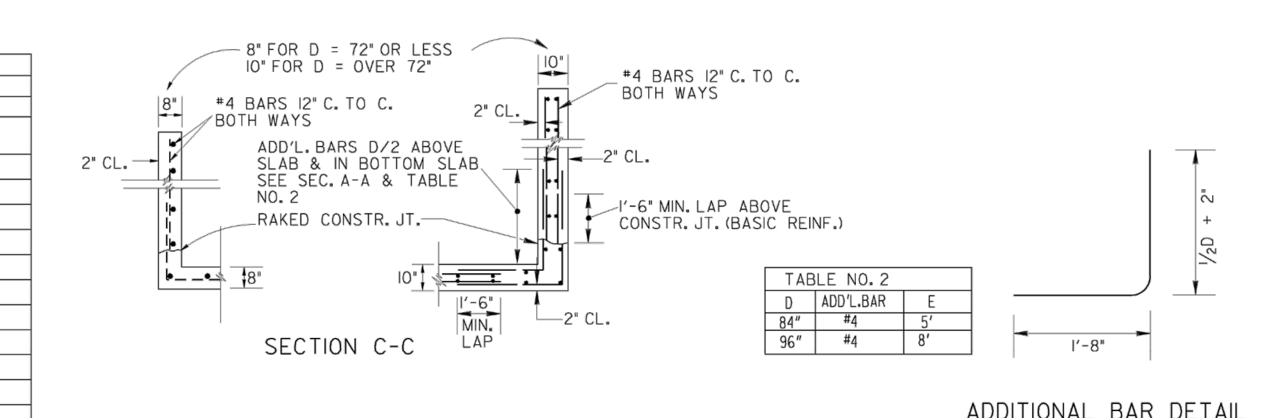


TABLE NO. 2 D	ADD'L.BAR	E
84"	#4	5'
96"	#4	8'

D - INSIDE DIAMETER OF PIPE CULVERT

H = D + 10" MIN. FOR C.M. PIPE
H = D + PIPE WALL THICKNESS + 8" FOR CONC. PIPE (13/12 D + 9" TYP.)

T = 8" FOR D = 72" OR LESS
T = 10" FOR D = OVER 72"

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
STANDARD
TAPERED
INLET HEADWALL - OUTLET HEADWALL
(BUILT-IN-PLACE)
NO SCALE
REV. & REDR. OCT., 1999
(SUBMITTED) STATE ROAD & AIRPORT DESIGN ENGR.
(APPROVED) CHIEF ENGINEER
NUMBER 1125

georgia civil
CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
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www.georgiacivil.com

Professional Seal

GEORGIA REGISTERED NO. PE031684 PROFESSIONAL ENGINEER JASON P. BROWN

Project Information

150 VINE ST EROSION CONTROL PLAN

PARCEL NO. : M0210001A00
150 VINE ST
MONROE GA, 30655
ZONING-M1

DRAWING DATE:	7.9.2020
DRAWN BY:	MKS
CHECKED BY:	JPB

REVISIONS

DATE:	DESCRIPTION:
09.10.20	CITY COMMENTS
10.13.20	GSWCC COMMENTS
10.26.20	GSWCC COMMENTS

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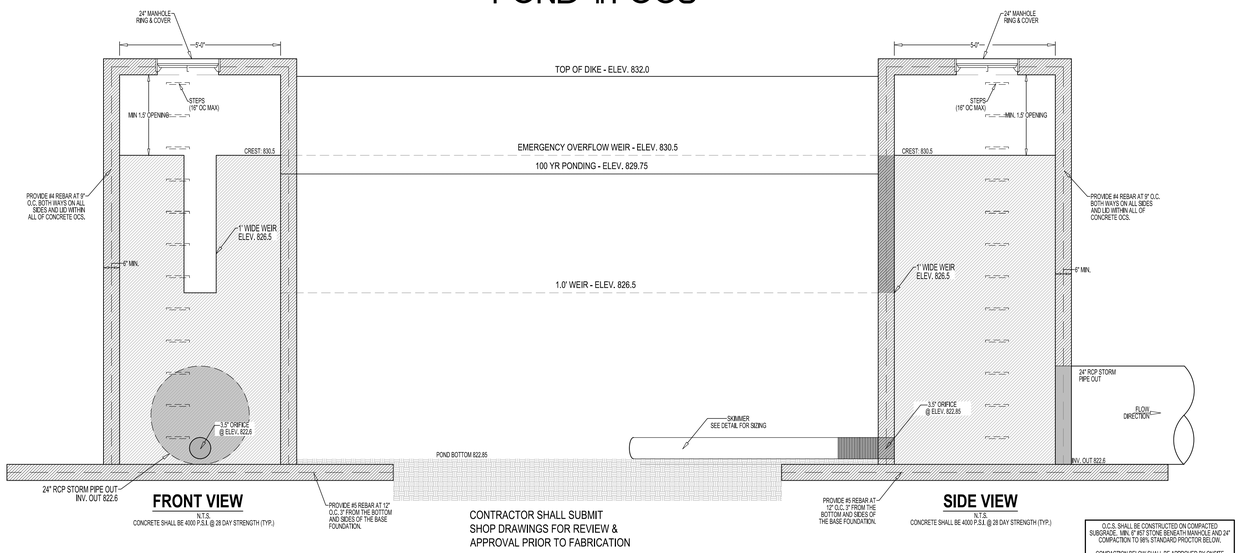
Sheet Title

STORMWATER MANAGEMENT SYSTEM DETAILS

Sheet Number

C-2.3

POND #1 OCS



CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW & APPROVAL PRIOR TO FABRICATION

ROUND OUTLET CONTROL STRUCTURE

PRECAST OUTLET CONTROL STRUCTURE BOX SHALL EXTEND A MINIMUM OF 6" LOWER THAN THE LOWEST INVERT. PRECAST STRUCTURE SHALL BE OPEN IN THE BOTTOM WHEN DELIVERED TO SITE, AND SHALL BE SET INTO CONCRETE WHEN BASE FOUNDATION IS POURED IN PLACE. SIX INCHES BELOW THE LOWEST INVERT, #5 REBAR SHALL EXTEND THROUGH DRILLED HOLES, ONE FOOT ON CENTER, ON ALL FOUR SIDES. CONTINUOUS SECTIONS OF #5 REBAR SHALL EXTEND THROUGH THE HOLES FORM ONE SIDE OF THE BOX, ACROSS THE INSIDE OF THE BOX, AND THROUGH THE MATCHING HOLE ON THE OTHER SIDE OF THE BOX. THE REBAR SHALL EXTEND A MINIMUM OF 10" BEYOND EACH OUTSIDE FACE OF THE BOX AND BE WIRED TO THE REBAR SET IN THE CONCRETE BASE FOUNDATION. CONCRETE SHALL BE POURED AND FINISHED UP TO THE ELEVATION OF THE LOWEST INVERT ON THE INSIDE AND OUTSIDE OF THE OUTLET CONTROL STRUCTURE BOX.

O.C.S. SHALL BE CONSTRUCTED ON COMPACTED SUBGRADE. MIN. 6" #57 STONE BENEATH MANHOLE AND 24" COMPACTION TO 98% STANDARD PROCTOR BELOW.

COMPACTION BELOW SHALL BE APPROVED BY ONSITE GEOTECHNICAL ENGINEER.

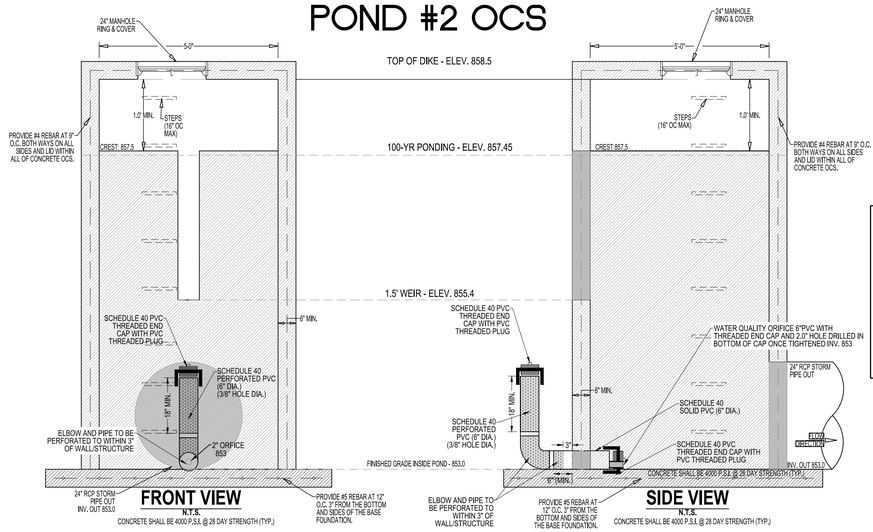
ALL PIPE SLOPES & LENGTHS ARE CALCULATED FROM CENTER OF STORM STRUCTURE TO CENTER OF STORM STRUCTURE.

CONCRETE SHALL BE 4000 P.S.I. @ 28 DAY STRENGTH (TYP.)

NOTES:

1. STONE FILTER SHALL BE #4 STONE.
2. ALL CONCRETE TO BE 6" MIN. THICKNESS.
3. OCS MANHOLE SHALL BE OFFSET TO PROVIDE DIRECT ACCESS TO STRUCTURE ACCESS STEPS.

POND #2 OCS



O.C.S. SHALL BE CONSTRUCTED ON COMPACTED SUBGRADE. MIN. 6" #57 STONE BENEATH MANHOLE AND 24" COMPACTION TO 98% STANDARD PROCTOR BELOW.

COMPACTION BELOW SHALL BE APPROVED BY ONSITE GEOTECHNICAL ENGINEER.

ALL PIPE SLOPES & LENGTHS ARE CALCULATED FROM CENTER OF STORM STRUCTURE TO CENTER OF STORM STRUCTURE.

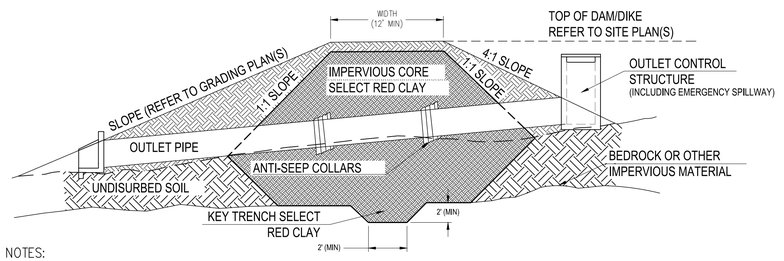
CONCRETE SHALL BE 4000 P.S.I. @ 28 DAY STRENGTH (TYP.)

NOTES:

1. STONE FILTER SHALL BE #4 STONE.
2. ALL CONCRETE TO BE 6" MIN. THICKNESS.
3. OCS MANHOLE SHALL BE OFFSET TO PROVIDE DIRECT ACCESS TO STRUCTURE ACCESS STEPS.

ROUND OUTLET CONTROL STRUCTURE

PRECAST OUTLET CONTROL STRUCTURE BOX SHALL EXTEND A MINIMUM OF 6" LOWER THAN THE LOWEST INVERT. PRECAST STRUCTURE SHALL BE OPEN IN THE BOTTOM WHEN DELIVERED TO SITE, AND SHALL BE SET INTO CONCRETE WHEN BASE FOUNDATION IS POURED IN PLACE. SIX INCHES BELOW THE LOWEST INVERT, #5 REBAR SHALL EXTEND THROUGH DRILLED HOLES, ONE FOOT ON CENTER, ON ALL FOUR SIDES. CONTINUOUS SECTIONS OF #5 REBAR SHALL EXTEND THROUGH THE HOLES FORM ONE SIDE OF THE BOX, ACROSS THE INSIDE OF THE BOX, AND THROUGH THE MATCHING HOLE ON THE OTHER SIDE OF THE BOX. THE REBAR SHALL EXTEND A MINIMUM OF 10" BEYOND EACH OUTSIDE FACE OF THE BOX AND BE WIRED TO THE REBAR SET IN THE CONCRETE BASE FOUNDATION. CONCRETE SHALL BE POURED AND FINISHED UP TO THE ELEVATION OF THE LOWEST INVERT ON THE INSIDE AND OUTSIDE OF THE OUTLET CONTROL STRUCTURE BOX.



NOTES:

1. ALL FILL MATERIAL FOR DAM/DIKE SHALL BE COMPACTED TO 98% MAXIMUM DENSITY AS DETERMINED BY STANDARD PROTOR TEST.
2. SELECT CORE MATERIAL SHALL BE OBTAINED FROM ON-SITE SOURCE AS IDENTIFIED AND DIRECTED BY GEOTECHNICAL ENGINEER.
3. ANTI-SEEP COLLARS/BRICK COLLAR WALLS SHALL BE INSTALLED AT ALL PIPE JOINTS WITHIN LIMITS OF DAM/DIKE.
4. PER HYDROLOGY STUDY CALCULATIONS THE OUTLET CONTROL STRUCTURE(S) ARE DESIGNED TO INCLUDE THE REQUIRED EMERGENCY SPILLWAY. PLEASE SEE HYDROLOGY STUDY FOR DETAILED CALCULATIONS.

DETENTION BASIN DAM/DIKE

NOT TO SCALE

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www.georgiacivil.com

Professional Seal

GEORGIA REGISTERED NO. PE031649 PROFESSIONAL ENGINEER JASON P. BROWN

Project Information

150 VINE ST EROSION CONTROL PLAN

PARCEL NO. : M0210001A00
150 VINE ST
MONROE GA, 30655
ZONING-M1

DRAWING DATE:	7.9.2020
DRAWN BY:	MKS
CHECKED BY:	JPB

REVISIONS

DATE:	DESCRIPTION:
09.10.20	CITY COMMENTS
10.13.20	GSWCC COMMENTS
10.26.20	GSWCC COMMENTS

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Sheet Title

STORMWATER MANAGEMENT SYSTEM DETAILS

Sheet Number

C-2.4

CONTACT INFORMATION:

PRIMARY PERMITTEE
NAME: TOMMY BREEDLOVE
ADDRESS: 10161 INDUSTRIAL DRIVE
COVINGTON, GA 30014
CONTACT: TOMMY BREEDLOVE
PHONE: 706-318-2572
EMAIL: breedlovetommy@gmail.com

JASON P. BROWN
LEVEL II CERTIFIED
DESIGN PROFESSIONAL
#53274 - EXP. 05.01.2023

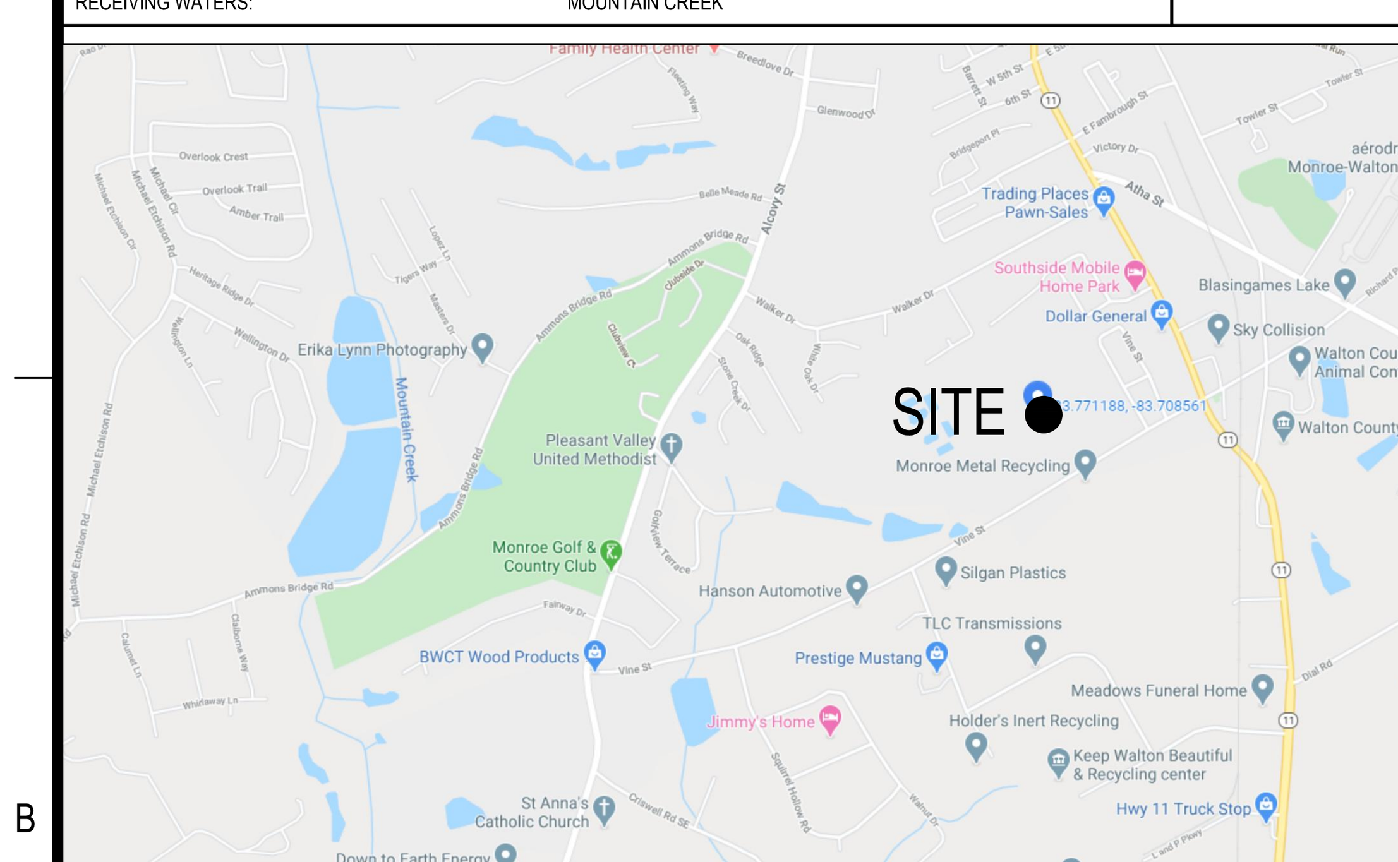
24-HOUR CONTACT
CHRIS HILSMAN
706-347-0650

NATURE OF CONSTRUCTION ACTIVITY:

PROJECT LOCATION:	N 33.771188 W -83.708561
PROJECT ADDRESS:	150 VINE STREET, MONROE GA, 30655
PROJECT TYPE:	CLEARING AND GRUBBING
IMPROVEMENTS TO BE MADE:	CLEARING AND GRUBBING, ADDITION OF GRAVEL DRIVE
SITE ACREAGE:	87.02 AC
DISTURBED ACREAGE:	27.7 AC
STATE WATERS ON SITE:	NO
WETLANDS OR WATERS OF US ON SITE:	NO
RECEIVING WATERS:	MOUNTAIN CREEK

ESTIMATE OF RUNOFF COEFFICIENT OR PEAK DISCHARGE FLOW PRE AND POST DEVELOPMENT CONDITIONS:

PRE 1 CN VALUE:	55
POST 1 CN VALUE:	76
PRE Q 25YR (CFS):	13.1
POST Q 25YR (CFS):	10.2



VICINITY MAP
NOT TO SCALE

GPS COORDINATES
N 33° 46' 16.28" W -83° 42' 30.82
N 33.771188 W -83.708561

I certify under penalty of law that this plan was prepared after a site visit to the locations described herein by myself or my authorized agent, under my direct supervision.

Signed: ________ Date: 08.12.20
SIGNATURE OF PLAN PREPARER AND DATE

EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN CERTIFICATION:

I certify that the permittee's Erosion, Sedimentation and Pollution Control Plan provides for an appropriate and comprehensive system of Best Management Practices (BMP's) required by the Georgia Water Quality Control Act and the document "Manual for Erosion and Sediment Control in Georgia" (Manual) published by the Georgia Soil and Water Conservation Commission as of January 1 of the year in which the land-disturbing activity was permitted, provides for the sampling of the receiving water(s) or the sampling of the storm water outfalls and that the designed system of best management practices and sampling methods is expected to meet the requirements contained in the General NPDES Permit No. GAR 100001.

Signed: ________ Date: 08.12.20
Georgia Civil Inc.
JASON P. BROWN
Level II Certified Design Professional # 52374 - Exp. 5-1-2023

I certify that I, as the professional who prepared the ES&PC Plan, will inspect the installation of the initial phase of Erosion, Sedimentation, and Pollution Control approved BMP's shown on the plan within 7 days after initial construction activity begins.

Signed: ________ Date: 08.12.20
SIGNATURE OF PLAN PREPARER AND DATE

STATE WATERS BUFFER STATEMENT:

Non-exempt activities shall not be conducted within the 25 or 50 foot undisturbed stream buffers as measured from the point of wrested vegetation or within 25 feet of the coastal marshland buffer as measured from the Jurisdictional Determination Line without first acquiring the necessary variances and permits.

NPDES Permit Part IV.

(i). No construction activities shall be conducted within a 25 foot buffer along the banks of all state waters, as measured horizontally from the point where vegetation has been wrested by normal stream flow or wave action, except where the Director has determined to allow a variance that is at least as protective of natural resources and the environment in accordance with the provisions of O.C.G.A. 12-7-6, or where a drainage structure or a roadway drainage structure must be constructed, provided that adequate erosion control measures are incorporated in the project plans and specifications and are implemented, or along any ephemeral stream, or where bulkheads and sewalls must be constructed to prevent the erosion of the shoreline on Lake Oconee and Lake Sinclair.

(ii). No construction activities shall be conducted within a 50 foot buffer, as measured horizontally from the point where vegetation has been wrested by normal stream flow or wave action, along the banks of any State waters classified as "trout streams" except when approval is granted by the Director for alternate buffer requirements in accordance wit the provisions of O.C.G.A. 12-7-6, or where a roadway drainage structure must be constructed; provided, however, that small springs and streams classified as "trout steams" which discharge an average annual flow of 25 gallons per minute or less shall have a 25 foot buffer or they may be piped, at the discretion of the permittee, pursuant to the terms of a rule providing for a general variance promulgated by the Board of Natural Resources including notification of such to EPD and the Local Issuing Authority of the location and extent of piping and prescribed methodology for minimizing the impact of such piping and for measuring the volume of water discharged by the stream. Any such pipe must stop short of the downstream permittee's property, and the permittee must comply with the buffer requirement for any adjacent trout streams.

(iii). No construction activity shall be conducted within a 25 foot buffer along coastal marshlands, as measured horizontally from the coastal marshland-upland interface, as determined in accordance with Part 4 of Article 4 of Chapter 5 of Title 12, the Coastal Marshlands Protection Act of 1970, and the rules and regulations promulgated thereunder, except where the Director determines to allow a variance that is at least as protective of natural resources and the environment in accordance with the provisions of O.C.G.A. 12-7-6, or where otherwise allowed by the Director pursuant to Code Section 12-2-8, or where an alteration within the buffer area has been authorized pursuant to Code Section 12-5-286, or for maintenance of any currently serviceable structure, landscaping, or hardscaping, including bridges, roads, parking lots, golf courses, golf cart paths, retaining walls, bulkheads, and patios, provided that adequate erosion control measures are incorporated into the project plans and specifications and such measures are fully implemented, or where a drainage structure or roadway structure is constructed or maintained, provided that adequate erosion control measures are incorporated into the project plans and specifications and such measures are fully implemented, or on the landward side of any currently serviceable shoreline stabilization structure, or for the maintenance of any manmade stormwater detention basin, golf course pond, or impoundment that is located entirely within the property of a single individual, partnership, or corporation, provided that adequate erosion control measures are incorporated into the project plans and specifications and such measures are fully implemented.

(iv). For buffers required pursuant to Part IV.(i). and (ii) and (iii), no construction activities shall be conducted within a buffer and a buffer shall remain in its natural, undisturbed, state of vegetation until all land-disturbing activities on the construction site are completed. During coverage under this permit, a buffer cannot be thinned or trimmed of vegetation and a protective vegetative cover must remain to protect water quality and aquatic habitat and a natural canopy must be left in sufficient quantity to keep shade on the stream bed or marsh.

BUFFER ENCROACHMENTS DESCRIPTION AND VARIANCE:

NONE REQUIRED

GSWCC EROSION CONTROL NOTES:

1. Any amendments/revisions to the ES&PC Plan which have a significant effect on BMPs with a hydraulic component must be certified by the design professional.
2. Waste materials shall not be discharged to waters of the State, except as authorized by a Section 404 permit.
3. The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to land disturbing activities.
4. The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to land disturbing activities.
5. Erosion control measures will be maintained at all times. If full implementation of the approved Plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source.
6. Any disturbance left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding.

ADDITIONAL EROSION CONTROL NOTES:

1. Maximum cut slopes are 2:1, 2 horizontal to 1 vertical, unless otherwise noted.
2. Maximum fill slopes are 3:1, 3 horizontal to 1 vertical, unless otherwise noted.
3. All buffers, tree save areas, and/or limits of disturbance shall be clearly marked in the field by the contractor by flagging or fencing and signage, prior to commencement of any land disturbance activities or clearing/grubbing activities. Buffers, tree save areas, and areas beyond limits of disturbance are to be left undisturbed in their natural state.
4. Contractor shall not disturb underground utilities while installing Erosion, Sedimentation and Pollution Control Practices. Contractor shall have all utilities field located before proceeding with any work.
5. Contractor shall notify design professional 48 hours before beginning each phase of construction.
6. Contractor shall notify (Local Issuing Authority) inspectors 24 hours before beginning each phase of construction.
7. Construction debris and/or waste shall not be buried or burned on site. All construction debris and/or waste shall be taken to a state approved landfill.
8. All buffers and tree save areas shall be clearly identified by flagging and/or fencing prior to commencement of any land disturbance activities.
9. The installation of erosion and sedimentation control measures and practices shall occur prior to land disturbing activities and construction on the site and shall be maintained until permanent ground cover is established to 70% of 100% of the disturbed area.
10. All Erosion, Sedimentation and Pollution Control best management practices shall be inspected and repaired of damage daily. Any accumulated silt shall be removed and spread on site and controlled with temporary mulching and/or grassing.
11. Maintenance of all soil erosion and sedimentation control measures and practices whether temporary or permanent shall be the responsibility of the contractor. The Owner shall be responsible for making sure the Contractor is property performing this maintenance.
12. Any discrepancy within these plans shall be referred to the design professional by the contractor for clarification before proceeding with work.
13. Sediment storage maintenance indicators must be installed in sediment storage structures, indicating the 1/3 full volume.
14. Contractor shall provide temporary diversion berms and down drains on fill slopes to prevent erosion prior to stabilization.
15. Contractor shall remove accumulated sediment from detention basin at end of construction when all disturbed areas have been fully stabilized.

ANY REFERENCE TO PERMIT IS REFERRING TO NPDES PERMIT NO. GAR100001.
ANY REFERENCE TO ANY PART IS REFERRING TO A PART OF NPDES PERMIT NO. GAR100001.

This plan has been prepared to meet the requirements under the State of Georgia, Department of Natural Resources, Environmental Protection Division (EPD), General Permit No. GAR100001 for authorization to discharge under the National Pollutant Discharge Elimination System (NPDES), Stormwater Discharges Associated with Construction Activity for Stand Alone Construction Projects. Daily, weekly and monthly inspections as required by Permit No. GAR100001 shall be performed by certified personnel provided by the Contractor. Sampling requirements as required by Permit No. GAR100001 shall be performed by certified personnel provided by the Contractor.

Contractor shall make sure construction is in accordance with regulations of the NPDES Permit No. GAR100001. This includes but is not limited to:

*Site stabilization practices
*BMP maintenance and inspections
*Spill control practices
*Waste control practices
*Monitoring plans and practices
*Vegetative and structural erosion control practices
*Pollution prevention plan and practices
*Material management practices for spill prevention plans
*Wetland and state water protection practices
*Reporting practices

POLLUTION REDUCTION PRACTICES FOR STORM WATER DISCHARGES:

STABILIZATION (VEGETATIVE) MEASURES:

ALL STABILIZATION (VEGETATIVE) MEASURES SHALL BE IMPLEMENTED AS STATED IN THE MANUAL FOR EROSION AND SEDIMENTATION CONTROL IN GEORGIA (LATEST EDITION).

(Bf) Buffer Zone - A strip of undisturbed, original vegetation; enhanced or restored existing vegetation; or re-establishment of vegetation surrounding disturbed areas or bordering streams, ponds, wetlands, lakes, or coastal water to provide a buffer zone for one or more of the following purposes: reduce storm runoff velocities, act as visual screen, reduce construction noise, improve aesthetics on disturbed land, filtering and infiltrating runoff, cooling rivers/streams by creating shade, provide food and cover for wildlife, flood protection, or protect channel banks from scour and erosion.

(Ds1) Disturbed Area Stabilization (with Mulching Only)- Applying plant residues or other suitable materials, produced on site if possible, to the soil surface in order to reduce runoff, conserve moisture, prevent surface compaction or crusting, control undesirable vegetation, modify soil temperature, or increase biological activity in the soil. This practice is applicable where stabilizing disturbed/denuded areas is not practical utilizing seeding or planting.

(Ds2) Disturbed Area Stabilization (with Temporary Seeding)- Establishing temporary vegetative cover with fast growing seedlings for seasonal protection on disturbed/denuded areas in order to reduce runoff and sediment damage of downstream resources, protect the soil surface from erosion, improve wildlife habitat, improve aesthetics, improve tilth, infiltration and aeration as well as organic matter for permanent plantings. This practice is applicable for up to six months or until permanent vegetative cover can be installed. It should be coordinated with permanent measures to assure economical and effective stabilization.

(Ds3) Disturbed Area Stabilization (with Permanent Vegetation)- Planting of perennial vegetation such as trees, shrubs, vines, or legumes on exposed areas for final permanent stabilization in order to protect the soil surface from erosion, reduce damage from sediment and runoff to downstream areas, improve wildlife habitat and visual resources, and improve aesthetics. It will apply on cut and fill slopes, earth spillways, borrow areas, spoil areas and severely eroded or gullied lands.

(Ds4) Disturbed Area Stabilization (with Sodding)- Establishing an immediate and permanent vegetative cover using sods in order to reduce runoff and erosion, improve aesthetics and land value, reduce dust and sediments, stabilize waterways and critical areas, filter sediments, nutrients, reduce downstream complaints, reduce likelihood of legal action, reduce likelihood of work stoppage due to legal action, and increase "good neighbor" benefits.

(Du) Dust Control on Disturbed Areas- Controlling surface and air movement of dust on construction sites, roads, and demolition sites in order to prevent surface and air movement of dust from exposed soil surfaces, reduce the presence of airborne substances which may be harmful or injurious to human health, welfare, or safety, or to animals or plant life. Methods and materials which can be used include mulches, vegetative cover, spray-on adhesives, mechanical manipulation of existing soil surfaces, irrigation, barriers, chemicals, and stone surface covers.

(Fl-Co) Flocculants and Coagulants- Formulated to assist in the solid/liquid separation of suspended particles (which are characteristically very small) in solution. The suspended stability of such particles (colloidal complex) is due to both their small size and the electrical charge between particles.

(Sb) Streambank Stabilization (Using Permanent Vegetation)- Using native plant materials to maintain and enhance streambanks, or to prevent, or restore and repair small streambank erosion problems in order to lessen the impact of rain directly on the soil, trap sediment from adjacent land, form a root mat to stabilize and reinforce the soil on the streambank, provide wildlife habitat, enhance stream appearance, and lower summertime water temps.

(Ss) Slope Stabilization- A protective covering used to prevent erosion and establish vegetation on steep slopes, shore lines, or channels in order to stabilize the soil and act as a rain drop impact dissipater while providing a microclimate which protects young vegetation and promotes its establishment.

(Tac) Tackifiers- Substances used to anchor soil, compost, seed, straw, hay or mulch by causing organic material to bind together and discourage it from drifting downslope. Tackifiers also conserve moisture; prevent surface compaction, increase soil infiltration, soil fertility, enhanced seed germination, increased soil cohesion, enhanced soil stabilization, reduced stormwater runoff turbidity and reduction in loss of topsoil.

STRUCTURAL PRACTICES:

ALL STRUCTURAL PRACTICES SHALL BE IMPLEMENTED AS STATED IN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA (LATEST EDITION).

(Cd) Check Dam- A small temporary barrier, grade control structure, or dam constructed across a swale or drainage ditch which drains five (5) acres or less (not to be used in a live stream) in order to reduce erosion by slowing the velocity of concentrated storm water flows.

(Ch) Channel Stabilization- Improving, constructing or stabilizing an open channel for water conveyance. Open channels are to be non-erosive, with no sediment deposition and able to provide adequate capacity for flood water, drainage, other water management practices, or any combination thereof.

(Co) Construction Exit- A stone stabilized pad located where traffic leaves a construction site to a public right-of-way, street, alley, sidewalk, parking, etc. (i.e. bare soil to paved area) in order to reduce/eliminate depositing construction area mud onto public rights-ofway by motor vehicles or by runoff.

(Cr) Construction Road Stabilization- Roads, parking areas, and other on-site transportation routes that are stabilized with coarse aggregate between the time of initial grading and final stabilization in order to provide a fixed route for construction traffic, reduce erosion, reduce subsequent re-grading of permanent roadbeds, and provide a stable base for paving.

(Dc) Stream Diversion Channel- A temporary channel that diverts a live stream and allows work "in the dry" while protecting streambed(s) from erosion. This diversion is used when in-stream work is unavoidable, as with linear projects such as utilities or roads that frequently cross and impact live streams and create a potential for excessive sediment loss by both the disturbance of the approach areas and by the work within the streambed and banks.

(Di) Diversion- An earth channel with a compacted supporting ridge on the lower side; constructed above, across, or below a slope to reduce slope lengths, break-up concentrations of runoff, intercept runoff, and move water to stable outlets at non-erosive velocities.

(Dn1) Temporary Downdrain Structure- A flexible conduit of heavy-duty plastic or other material used as a temporary structure to convey storm water down the face of a cut or fill slope without causing slope erosion and allowing the establishment of vegetation on the slope. Flexible downdrains are removed once the permanent water disposal system is installed.

(Dn2) Permanent Downdrain Structure- A permanent paved chute, pipe or sectional conduit of prefabricated material designed to safely conduct surface runoff from the top to the bottom of a slope thus minimizing erosion. Downdrain structures are to be used where concentrated water will cause excessive erosion of cut and fill slopes.

(Fr) Filter Ring- A temporary stone barrier used in conjunction with other sediment control measures and constructed at storm drain inlets and pond outlets, in order to reduce flow velocities, prevent failure of other sediment control devices, and prevent sediment from leaving the site or entering drainage systems, prior to permanent stabilization of the disturbed areas.

(Ga) Gabion- Large, multi-celled, wire mesh boxes, filled with rocks, which form flexible monolithic building blocks used in channel revetments, retaining walls, abutments, check dams, etc. to prevent erosion and sediment damage to a specific structure. When properly wired together, they can be used to stabilize steep or highly erosive slopes.

(Gr) Grade Stabilization Structure- Structures of concrete, rock masonry, steel, aluminum, treated wood, etc. that are installed to stabilize the grade in natural or artificial channels and to prevent the formation or advance of gullies and to reduce erosion and sediment pollution.

(Lv) Level Spreader- A storm flow outlet device structure constructed at zero grade across a slope where concentrated runoff may be intercepted and diverted at non-erosive sheet flow velocities onto undisturbed areas stabilized by existing vegetation.

(Rd) Rock Filter Dam- A permanent or temporary stone filter dam, which can be used in conjunction with a temporary sediment trap, installed across small streams, drainageways with a drainage area of 50 acres or less and outlets for sediment traps in order to serve as a sediment-filtering device and to reduce storm water flow velocities. This structure is not intended to substantially impound water and may require a US Army Corps of Engineers permit.

(Re) Retaining Wall- A constructed wall of concrete, masonry, reinforced concrete, cribbing, treated timbers, gabions, stone dry wall, rip-rap or other durable material in order to stabilize cut or fill slopes where maximum permissible slopes of earth are not obtainable without the use of the wall.

(Rt) Retrofitting- A device or structure, such as half round corrugated metal pipe or similar, placed in front of a permanent stormwater detention pond outlet or roadway drainage structure to serve as a temporary sediment filter, thus allowing permanent stormwater detention basin structures to function as temporary sediment retention basins for land-disturbing projects, and allow roadway drainage to be used for temporary sediment storage.

(Sd1) Sediment Barrier- A temporary structure constructed of silt fence, straw, hay bales, brush piles, mulch berms, compost filter sock, gravel or other filtering materials (typically supported by steel or wood posts), that are used to minimize and prevent sediment carried by sheet flow from leaving the site until final stabilization. Silt fence shall not be installed across streams, waterways, or other concentrated flow areas.

(Sd2) Inlet Sediment Trap- A temporary protective device formed at or around a storm drain inlet to trap sediment in runoff water from small, disturbed areas and prevent sediment from entering a storm drainage system prior to permanent stabilization of the disturbed area draining to the inlet. Clean out of these facilities is normally required after each heavy rainfall.

(Sd3) Temporary Sediment Basin- A basin created by construction of an embankment, barrier or dam containing a principal spillway pipe and an emergency spillway that are normally situated within natural drainageways and at the lowest point on a construction site. Structure size will vary depending on the size of the drainage area, soil type, volume of sediments to be trapped, rainfall pattern(s), structure location, etc. Permanent sediment basins are designed to fit into the overall plan of the completed development. Sd3's are designed to detain runoff waters and trap sediment from erodible areas in order to protect downstream properties.

(Sd4) Temporary Sediment Trap- A small temporary pond (with no pipe or riser) that drains a disturbed area so that sediment can settle out. Sd4's are designed to collect and store sediment from small tributary areas with no unusual drainage features that have been cleared and/or graded for construction.

(Sk) Floating Surface Skimmer- A buoyant device that drains surface water of sediment ponds, traps or basins and releases it at a controlled rate of flow. It "skims" the water surface where sediment concentrations are at a minimum instead of draining from the bottom where sediment concentrations are higher, and drains to a riser or the backside of a dam.

(SpB) Seep Berm- A linear control device constructed as a diversion (perpendicular to the direction of the runoff) to enhance dissipation and infiltration of runoff while using intermediate dikes to create multiple sedimentation chambers allowing smaller storms to seep out while diverting larger flows to a sediment storage area.

(Sr) Temporary Stream Crossing- A temporary structure installed across a flowing stream or watercourse for use by construction equipment without moving sediment into streams, damaging the streambed or channel, or causing flooding. The structure may consist of a pipe, bridge, or other suitable device permitting vehicular traffic to cross streams or watercourses.

(St) Storm Drain Outlet Protection- A paved or short section of rip-rap channel placed at the outlet of a storm drain system in order to reduce the velocity of water flows below storm drain outlets, and to prevent erosion from concentrated flow.

(Su) Surface Roughening- Providing a rough soil surface with horizontal depressions created by operating a tillage or other suitable implement on the contour, or by having slopes in a roughhead condition by not fine-grading them, in order to aid in establishment of vegetative cover with seed, to reduce runoff velocity and increase infiltration and to reduce erosion and provide for sediment trapping.

(Tc) Turbidity Curtain- A floating or staked barrier installed within the water in order to minimize turbidity and silt migration from work occurring within the water or as a supplement to perimeter control BMPs at the water's edge. Silt or turbidity is confined to the area within the boundary created by the installation, such that suspended particles drop out of the water column over time.

(Tp) Topsoiling- Stripping off the more fertile top soil, storing it, then spreading it over the disturbed area after completion of construction activities, in order to provide a suitable soil medium for vegetative growth on areas where other measures will not produce or maintain a desirable stand.

(Wt) Vegetated Waterway or Stormwater Conveyance Channel- Outlets for diversions, terraces, berms, or other structures. They may be natural or constructed, shaped to required dimensions, and paved or vegetated for disposal of storm water runoff. For waterways to be successful, it is essential that a protective cover of vegetation or other erosion protective measures be implemented.

INTENDED LAND DISTURBANCE CONSTRUCTION ACTIVITY SEQUENCE:

Initial Phase:
1. Install Initial Perimeter Silt Fence, and Construction Entrance.
2. Coordinate Site Review Meeting with Engineer and/or Local Issuing Authority

Intermediate Phase:
1. Install pipe systems at detention ponds.
2. Throughout Land Disturbance Process Maintain Existing BMP's (Vegetative and Structural Practices)
3. Throughout Land Disturbance Process Continue NPDES Monitoring and Reporting
4. Begin Clearing, Grubbing, Topsoiling, and Grading Operations
5. Install Topsoil pile and immediately grass/mulch and install surrounding silt fence.
6. As areas are brought to finish grade, grass and blanket any areas that are finish grade or that will be left bare for 14 days.
7. Each fill slope shall have a diversion at the top that is maintained and reinstalled as the slope is constructed.
8. Start PAM applications and continue every 14 days throughout project.
9. Grass / mulch disturbed areas and install intermediate BMPs.
10. Finish Grade shoulders and stabilize disturbed areas with permanent vegetation.
11. Continue to apply PAM, Mulching, and Grassing at each step to limit soil exposure.

Final Phase:
1. Throughout Land Disturbance Process Maintain Existing BMP's (Vegetative and Structural Practices)
2. Throughout Land Disturbance Process Continue NPDES Monitoring and Reporting
3. Install GAB throughout parking area.
4. Achieve Final Site Stabilization.
5. Coordinate Site Review Meeting with Engineer and/or Local Issuing Authority Inspector
6. Clean silt from all storm systems.
7. Remove any temporary BMP practices once site stabilization is achieved and signed off by Engineer.
8. Coordinate Site Review Meeting with Engineer for final site approval.

CRITICAL AREAS AND ADDITIONAL MEASURES:

1. Critical Area: Install silt fence as shown to prevent sediment runoff

CONCRETE WASHOUT:

Contractor shall install a concrete washdown. This area is only for the washdown of items such as tools, concrete mixer chutes, hoppers and the rear of the vehicles.
WASHOUT OF THE DRUM AT THE CONSTRUCTION SITE IS PROHIBITED.

WASTE DISPOSAL, SANITARY SEWER, SEPTIC TANK REGULATIONS (ES&PC PLAN COMPLIANCE):

Construction Debris shall be recycled to the extent deemed practical by Owner/Contractor. All waste generated from the development of this site,including but not limited to, solid waste, liquid waste, chemical waste, construction waste, sanitary sewer discharge, septic tank and septic systems waste, shall be collected and disposed of in a manner that follows all local, state, and federal laws and regulations for collection and disposal of each type of waste. All required signage, notification, documentation, and training of personnel on correct handling of waste shall be done in a manner that follows all local, state, and federal laws and regulations. Owner/Contractor is responsible for obtaining the services (and facilities) of a licensed Waste Management Company in the state of Georgia to adequately and safely handle waste collection and disposal. Solid materials, including building materials, shall not be discharged to waters of the State, except as authorized by a Section 404 permit.

BMP'S FOR PETROLEUM SPILLS AND LEAKS:

1. Fix any leaks immediately, maintain and clean equipment regularly
2. Designate areas for equipment maintenance and fueling that are located on level ground and away from any water sources.
3. Park and service equipment on top of tarps to insure any spills or leaks do not get into the ground.
4. Store all fluids and containers in a leak-proof, locked container to insure safe storage.
5. Collect and remove all leftover lubricants, containers, and trash, especially tires, batteries, pieces or parts of equipment, and all fluid containers.
6. Maintain a spill-containment and clean up kit. At a minimum, a kit for petroleum products should include:
   a. A leak proof container to catch leaking fluid.
   b. A shovel, rake, and other hand tools to create dirt berms.
   c. Absorbent pads, absorbent substances such as cat litter or oil drying agents, that will absorb fluids before soaking into ground.
   d. Various hoses, plugs, and clamps to control a hydraulic line break. A variety of locking "vise grips" pliers can be used in emergency.
   e. Large plastic bags to store any contaminated materials for disposal.
7. Temporary fueling areas shall be installed and operated in compliance with Georgia E.P.D. regulations.

CONSTRUCTION MATERIALS:

Contractor shall at all times have all construction materials protected from rainfall. Contractor shall utilize tarps, plastic sheeting, roof cover, trailers or any other method to make sure all construction material is covered at all times during construction.

PRODUCT SPECIFIC PRACTICES:

All pollutants from waste disposal practices, soil additives, remediation of spills and leaks of petroleum products, concrete truck washout, etc., should any of these occur, shall be controlled by the implementation of appropriate best management practices. the site shall be in compliance with all applicable state and local waste disposal, sanitary sewer or septic system regulations.

Petroleum Based Products - Containers for products such as fuels, lubricants, and tars shall be inspected daily for leaks and spills. This includes onsite vehicles and machinery daily inspections and regular preventative maintenance of such equipment. Equipment maintenance areas shall be located away from State Waters, natural drains, and storm water drainage inlets. In addition, temporary fueling tanks shall have a secondary containment liner to prevent/minimize site contamination. Discharge of oils, fuels, and lubricants is prohibited. Proper disposal methods includes collection in a suitable container and disposal as required by local and State regulations.

Paints/Finishes/Solvents - All products shall be stored in tightly sealed original containers when not in use. Excess product shall not be discharged to the storm water collection system. Excess product, materials used with these products, and product containers shall be disposed of according to manufacturer's specifications and recommendations.

Fertilizer/Herbicides - These products shall be applied at rates that do not exceed the manufacturer's specifications or above the guidelines set forth in the crop establishment or in the GSWCC Manual for Erosion and Sediment Control in Georgia. Any storage of these materials will be under roof in sealed containers.

Building Materials - No building or construction materials shall be buried or disposed of onsite. All such material shall be disposed of in proper waste disposal procedures.

Concrete Truck Washing - NO concrete trucks shall be allowed to wash out or discharge surplus concrete or drum wash water onsite. Concrete wash down of tools, concrete mixer chutes, hoppers and the rear of vehicles will only be allowed in a designated area provided for this purpose, as shown on the drawings. the following best management practices will be followed:

(1) Contain all wash water on soil, in a bowl shaped area created in the designated wash area to prevent the wash water from flowing from the washout area;

(2) Use the minimum amount of water to wash down the tools, concrete mixer chutes, hoppers and the rear of vehicles;

(3) Remove any concrete sediment from the area surrounding the washout area before it hardens; and

(4) Remove all concrete residue from the designated area once it has hardened.

MEASURES INSTALLED DURING CONSTRUCTION PROCESS TO CONTROL POLLUTANTS IN STORM WATER THAT MAY REMAIN AFTER CONSTRUCTION IS COMPLETE.:

1. St
2. Ds3, Ds4
3. Cd-S

POSSIBLE POLLUTANT SOURCES FOR THIS PROJECT:

Sediment Loss, Construction Debris, Petroleum Products, Concrete Products, Epoxies and Grouts, Fertilizers (Overuse), Tac applications (Overuse), Paint Products, Asphalt Products. Contractor shall maintain a clean working environment at all times and reduce and contain the pollution generated by these and other pollutants that are to be utilized for the construction of this project. Contractor shall follow all local, state, and federal laws in handling all polluting products.

NON-STORM WATER DISCHARGES ALLOWED UNDER PERMIT:

1. Fire fighting activities
2. Fire hydrant flushing
3. Potable water sources including water line flushing
4. Irrigation drainage
5. Air conditioning condensation
6. Springs
7. Uncontained Ground Water
8. Foundation or footing drains where flows are not contaminated with process materials or pollutants.

Each of these discharges shall be treated for storm water pollutants in BMPs applied on the site. Discharge from each of these shall be routed to a temporary sediment basin within the same drainage area.

HAZARDOUS WASTES:

All hazardous waste materials will be disposed of in the manner specified by local, state, and/or federal regulations and by the manufacturer of such products. The job site superintendent, who will also be responsible for seeing that these practices are followed, will instruct site personnel in these practices. Material Safety Data Sheets (MSDS's) for each substance with hazardous properties that is used on the job site will be obtained and used for the proper management of potential wastes that may result from these products. An MSDS will be posted in the immediate area where such product is stored and/or used and another copy of each MSDS will be maintained in the ESPCP file at the job site construction trailer office. Each employee who must handle a substance with hazardous properties will be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

The contractor will implement the Spill Prevention Control Countermeasures (SPCC) Plan found within this ESPCP and will train all personnel in the proper cleanup and handling of spilled materials. No spilled hazardous materials or hazardous waste will be allowed to come in contact with the stormwater discharges. If such contact occurs, the stormwater discharge will be contained on site until appropriate measures in compliance with state and federal regulations are taken to dispose of such contaminated stormwater. It shall be the responsibility of the job site superintendent to properly train all personnel in the use of the SPCC plan.

SANITARY WASTES:

A minimum of one portable sanitary unit will be provided for every ten (10) workers on the site. All sanitary waste will be collected from the portable units a minimum of one time per week by a licensed portable facility provider in complete compliance with local and state regulations.

All sanitary waste units will be located in one area where the likelihood of the unit contributing storm water discharge is negligible. Additional containment BMP's must be implemented, such as gravel bags or specially designed plastic skid containers around the base to prevent wastes from contributing to storm water discharges. The location of sanitary waste units must be identified on the ES&PC Plan b the contractor once the locations have been determined.

Sanitary sewer will be provided by Municipal Authority/Septic System at the completion of this Project.

SPILL CLEANUP AND CONTROL PRACTICES:

Local, state and manufacturer's recommended methods for spill clean up will be clearly posted and procedures will be made available to site personnel. Material and equipment necessary for spill cleanup will be kept in the material storage areas. Typical materials and equipment includes, but is not limited to, brooms, dustpans, mops, rags, gloves, goggles, cat litter, sand, sawdust and properly labeled plastic and metal waste containers. Spill prevention practices and procedures will be reviewed after a spill and adjusted as necessary to prevent future spills. All spills will be cleaned up immediately upon discovery. All spills will be reported as required by local, state and federal regulations. For spills that impact surface water (leave a sheen on surface water), the National Response Center (NRC) will be contacted within 24 hours at 1-800-424-8802. For spills of an unknown amount, the NRC will be contacted within 24 hours at 1-800-424-8802. For spills greater than 25 gallons and no surface water impacts, the Georgia EPD will be contacted within 24 hours. For spills less than 25 gallons and no surface water impacts, the spill will be cleaned up and local agencies will be contacted as required. The contractor shall notify the licensed professional who prepared this plan if more than 1,320 gallons of petroleum is stored onsite (this includes capacities of equipment) or if any one piece of equipment has capacity greater than 660 gallons. The contractor will need a spill prevention containment and countermeasures plan prepared by that licensed professional.

All pollutants from waste disposal practices, soil additives, remediation of spills and leaks of petroleum products, concrete truck washout, etc., should any of these occur, will be controlled by the implementation of appropriate best management practices. The site will be in compliance with all applicable state and local waste disposal, sanitary sewer or septic system regulations.

NON-EXEMPT ACTIVITIES:

Where applicable, non-exempt activities shall not be conducted within the 25 or 50-foot undisturbed stream buffers as measured from the point of wrested vegetation without first acquiring the necessary variances and permits.

SOIL SERIES (PER NRCS MAPS SOILS ARE SHOWN AS):

CZB3	CECIL SANDY CLAY LOAM	2 TO 6 PERCENT SLOPES
CZC3	CECIL SANDY CLAY LOAM	6 TO 10 PERCENT SLOPES
CdD2	CECIL COARSE SANDY LOAM	10 TO 15 PERCENT SLOPES
CdB2	CECIL COARSE SANDY LOAM	2 TO 6 PERCENT SLOPES
LCE2	LOUISBURG LOAMY COARSE SAND	15 TO 25 PERCENT SLOPES
AxB2	APPLING COARSE SANDY LOAM	2 TO 6 PERCENT SLOPES
CdC2	CECIL COARSE SANDY LOAM	6 TO 10 PERCENT SLOPES
DjB	DURHAM LOAMY COARSE SAND	2 TO 6 PERCENT SLOPES

GSWCC EROSION CONTROL NOTES:

The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to land disturbing activities.

Erosion control measures will be maintained at all times. If full implementation of the approved plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source.

Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding.

Any amendments/revisions to the ES&PC Plan which have a significant effect on BMPs with a hydraulic component must be certified by the design professional.

REQUIRED INSPECTIONS AND RECORD KEEPING BY THE PRIMARY PERMITTEE:

NPDES Permit Part IV.D.4. Inspections.

a. Permittee requirements

(1). Each day when any type of construction activity has taken place at a primary permittee's site, certified personnel provided by the primary permittee shall inspect (these inspections must be conducted until a Notice of Termination is submitted):

(a) all areas at the primary permittee's site where petroleum products are stored, used, or handled for spills and leaks from vehicles and equipment;

(b) all locations at the primary permittee's site where vehicles enter or exit the site for evidence of off-site sediment tracking.

(2). Measure AND RECORD RAINFALL WITHIN DISTURBED AREAS OF HTE SITE THAT HAVE NOT MET FINAL STABILIZATION ONCE EVERY 24 HOURS except any non-working Saturday, non-working Sunday and non-working Federal holiday. The data collected for the purpose of compliance with this permit shall be representative of the monitored activity. Measurement of rainfall may be suspended if all areas of the site have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region.

(3). Certified personnel (provided by primary permittee) shall inspect the following at least once every seven (7) calendar days and within 24 hours of the end of a storm that is 0.5 inches rainfall or greater (unless such storm ends after 5:00 PM on any Friday, any non-working Saturday, non-working Sunday or any non-working Federal holiday, in which case inspections shall be completed by the end of the next business day and/or working day, whichever occurs first):

(a) disturbed areas of the primary permittee's construction site (that have not undergone final stabilization);

(b) areas used by the primary permittee for storage of materials that are exposed to precipitation (that have not undergone final stabilization); and

(c) structural control measures. Erosion and sediment control measures identified in the Plan applicable to the primary permittee's site shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s). For areas of a site that have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region, the permittee must comply with Part IV.D .4.a.(4). These inspections must be conducted until a Notice of Termination is submitted.

(4). Certified personnel (provided by the primary permittee) shall inspect at least once per month during the term of this permit (i.e., until a Notice of Termination is received by EPD) the areas of the site that have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region. These areas shall be inspected for evidence of, or the potential for, pollutants entering the drainage system and the receiving water(s). Erosion and sediment control measures identified in the Plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s).

(5). Based on the results of each inspection, the site description and the pollution prevention and control measures identified in the Erosion, Sedimentation and Pollution Control Plan, the Plan shall be revised as appropriate not later than seven (7) calendar days following each inspection. Implementation of such changes shall be made as soon as practical but in no case later than seven (7) calendar days following each inspection.

(6). A report of each inspection that includes the name(s) of certified personnel making each inspection, the date(s) of each inspection, construction phase (i.e., initial, intermediate or final), major observations relating to the implementation of the Erosion, Sedimentation and Pollution Control Plan, and actions taken in accordance with Part IV.D.4.a.(5). of the permit shall be made and retained at the site or be readily available at a designated alternate location until the entire site or that portion of a construction project that has been phased has undergone final stabilization and a Notice of Termination is submitted to EPD. Such reports shall be readily available by end of the second business day and/or working day and shall identify all incidents of best management practices that have not been properly installed and/or maintained as described in the Plan. Where the report does not identify any incidents, the inspection report shall contain a certification that the best management practices are in compliance with the Erosion, Sedimentation and Pollution Control Plan. The report shall be signed in accordance with Part V.G.2. of this permit.

ANALYTICAL METHODS TO BE USED TO COLLECT AND ANALYZE SAMPLES:

NPDES Permit Part IV.D.6. Sampling Requirements.

a. Sampling Requirements shall include the following:

(1). A USGS topographic map, a topographic map or a drawing (referred to as a topographic map) that is a scale equal to or more detailed than a 1 :24000 map showing the location of the site or the stand alone construction;

(a) the location of all perennial and intermittent streams and other water bodies as shown on a USGS topographic map, and all other perennial and intermittent streams and other water bodies located during mandatory field verification, into which the storm water is discharged and

(b) the receiving water and/or outfall sampling locations. When the permittee has chosen to use a USGS topographic map and the receiving water(s) is not shown on the USGS topographic map, the location of the receiving water(s) must be hand-drawn on the USGS topographic map from where the stormwater(s) enters the receiving water(s) to the point where the receiving water(s)combines with the first blue line stream shown on the USGS topographic map;

(2). A written narrative of site specific analytical methods used to collect, handle and analyze the samples including quality control/quality assurance procedures. This narrative must include precise sampling methodology for each sampling location;

(3). When the permittee has determined that some or all outfalls will be sampled, a rationale must be included on the Plan for the NTU limit(s) selected from Appendix B. This rationale must include the size of the construction site, the calculation of the size of the surface water drainage area, and the type of receiving water(s) (i.e., trout stream or supporting warm water fisheries); and

(4). Any additional information EPD determines necessary to be part of the Plan. EPD will provide written notice to the permittee of the information necessary and the time line for submittal.

b. Sample Type. All sampling shall be collected by "grab samples" and the analysis of these samples must be conducted in accordance with methodology and test procedures established by 40 CFR Part 136 (unless other test procedures have been approved); the guidance document titled "NPDES Storm Water Sampling Guidance Document, EPA 833-B-92-001" and guidance documents that may be prepared by the EPD.

(1). Sample containers should be labeled prior to collecting the samples.

(2). Samples should be well mixed before transferring to a secondary container.

(3). Large mouth, well cleaned and rinsed glass or plastic jars should be used for collecting samples. The jars should be cleaned thoroughly to avoid contamination.

(4). Manual, automatic or rising stage sampling may be utilized. Samples required by this permit should be analyzed immediately, but in no case later than 48 hours after collection. However, samples from automatic samplers must be collected no later than the next business day after their accumulation, unless flow through automated analysis is utilized. If automatic sampling is utilized and the automatic sampler is not activated during the qualifying event, the permittee must utilize manual sampling or rising stage sampling during the next qualifying event. Dilution of samples is not required. Samples may be analyzed directly with a properly calibrated turbidimeter. Samples are not required to be cooled.

(5). Sampling and analysis of the receiving water(s) or outfalls beyond the minimum frequency stated in this permit must be reported to EPD as specified in Part IV.E.

c. Sampling Points.

(1). For construction activities the primary permittee must sample all receiving water(s), or all outfall(s), or a combination of receiving water(s) and outfall(s). Samples taken for the purpose of compliance with this permit shall be representative of the monitored activity and representative of the water quality of the receiving water(s) and/or the storm water outfalls using the following minimum guidelines:

(a). The upstream sample for each receiving water(s) must be taken immediately upstream of the confluence of the first storm water discharge from the permitted activity (i.e., the discharge farthest upstream at the site) but downstream of any other storm water discharges not associated with the permitted activity. Where appropriate, several upstream samples from across the receiving water(s) may need to be taken and the arithmetic average of the turbidity of these samples used for the upstream turbidity value.

(b). The downstream sample for each receiving water(s) must be taken downstream of the confluence of the last storm water discharge from the permitted activity (i.e., the discharge farthest downstream at the site) but upstream of any other storm water discharge not associated with the permitted activity. Where appropriate, several downstream samples from across the receiving water(s) may need to be taken and the arithmetic average of the turbidity of these samples used for the downstream turbidity value.

(c). Ideally the samples should be taken from the horizontal and vertical center of the receiving water(s) or the storm water outfall channel(s).

(d). Care should be taken to avoid stirring the bottom sediments in the receiving water(s) or in the outfall storm water channel.

(e). The sampling container should be held so that the opening faces upstream.

(f). The samples should be kept free from floating debris.

(g). Permittees do not have to sample sheetflow that flows onto undisturbed natural areas or areas stabilized by the project. For purposes of this section, stabilized shall mean, for unpaved areas and areas not covered by permanent structures and areas located outside the waste disposal limits of a landfill cell that has been certified by EPD for waste disposal, 100% of the soil surface is uniformly covered in permanent vegetation with a density of 70% or greater, or landscaped according to the Plan (uniformly covered with landscaping materials in planned landscaped areas), or equivalent permanent stabilization measures as defined in the Manual (excluding a crop of annual vegetation and a seeding of target crop perennials appropriate for the region).

(h). All sampling pursuant to this permit must be done in such a way (including generally accepted sampling methods, locations, timing, and frequency) as to accurately reflect whether storm water runoff from the construction site is in compliance with the standard set forth in Parts 111.D.3. or 111.D.4, whichever is applicable.

d. Sampling Frequency.

(1). The primary permittee must sample in accordance with the Plan at least once for each rainfall event described below. For a qualifying event, the permittee shall sample at the beginning of any storm water discharge to a monitored receiving water and/or from a monitored outfall location within in forty-five (45) minutes or as soon as possible.

(2). However, where manual and automatic sampling are impossible (as defined in this permit), or are beyond the permittee's control, the permittee shall take samples as soon as possible, but in no case more than twelve (12) hours after the beginning of the storm water discharge. (3). Sampling by the permittee shall occur for the following qualifying events:

(a). For each area of the site that discharges to a receiving water or from an outfall, the first rain event that reaches or exceeds 0.5 inch with a storm water discharge that occurs during normal business hours as defined in this permit after all clearing and grubbing operations have been completed, but prior to completion of mass grading operations, in the drainage area of the location selected as the sampling location;

(b). In addition to (a) above, for each area of the site that discharges to a receiving water or from an outfall, the first rain event that reaches or exceeds 0.5 inch with a storm water discharge that occurs during normal business hours as defined in this permit either 90 days after the first sampling event or after all mass grading operations have been completed, but prior to submittal of a NOT, in the drainage area of the location selected as the sampling location, whichever comes first;

(c). At the time of sampling performed pursuant to (a) and (b) above, if BMPs in any area of the site that discharges to a receiving water or from an outfall are not properly designed, installed and maintained, corrective action shall be defined and implemented within two (2) business days, and turbidity samples shall be taken from discharges from that area of the site for each subsequent rain event that reaches or exceeds 0.5 inch during normal business hours* until the selected turbidity standard is attained, or until post-storm event inspections determine that BMPs are properly designed, installed and maintained;

(d). Where sampling pursuant to (a), (b) or (c) above is required but not possible (or not required because there was no discharge), the permittee, in accordance with Part IV.D.4.a.(6), must include a written justification in the inspection report of why sampling was not performed. Providing this justification does not relieve the permittee of any subsequent sampling obligations under (a), (b) or (c) above; and

(e). Existing construction activities, i.e., those that are occurring on or before the effective date of this permit, that have met the sampling required by (a) above shall sample in accordance with (b). Those existing construction activities that have met the sampling required by (b) above shall not be required to conduct additional sampling other than as required by (c) above.

* Note that the permittee may choose to meet the requirements of (a) and (b) above by collecting turbidity samples from any rain event that reaches or exceeds 0.5 inch and allows for sampling at any time of the day or week.

RETENTION OF RECORDS:

1. The primary permittee shall retain the following records at the construction site or the records shall be readily available at a designated alternate location from commencement of construction until such time as a NOT is submitted in accordance with Part VI:
   a. A copy of all Notices of Intent submitted to EPD;
   b. A copy of the Erosion, Sedimentation and Pollution Control Plan required by this permit;
   c. The design professional's report of the results of the inspection conducted in accordance with Part IV.A.5. of this permit;
   d. A copy of all monitoring information, results, and reports required by this permit;
   e. A copy of all inspection reports generated in accordance with Part IV.D.4.a. of this permit;
   f. A copy of all violation summaries and violation summary reports generated in accordance with Part III.D.2. of this permit; and
   g. Daily rainfall information collected in accordance with Part IV.D.4.a.(1)(c) of this permit.
2. Copies of all Notices of Intent, Notices of Termination, reports, plans, monitoring reports, monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, Erosion, Sedimentation and Pollution Control Plans, records of all data used to complete the Notice of Intent to be covered by this permit and all other records required by this permit shall be retained by the permittee who either produced or used it for a period of at least three years from the date that the NOT is submitted in accordance with Part VI of this permit. These records must be maintained at the permittee's primary place of business or at a designated alternative location once the construction activity has ceased at the permitted site. This period may be extended by request of the EPD at any time upon written notification to the permittee.

NPDES Permit Part IV.E. Reporting:

1. The applicable permittees are required to submit the sampling results to the EPD at the address shown in Part II.C. by the fifteenth day of the month following the reporting period. Reporting periods are months during which samples are taken in accordance with this permit. Sampling results shall be in a clearly legible format. Upon written notification, EPD may require the applicable permittee to submit the sampling results on a more frequent basis. Sampling and analysis of any storm water discharge(s) or the receiving water(s) beyond the minimum frequency stated in this permit must be reported in a similar manner to the EPD. The sampling reports must be signed in accordance with Part V.G.2. Sampling reports must be submitted to EPD using hte electronic submittal service provided by EPD. Sampling reports must be submitted to EPD until such time as a NOT is submitted in accordance with Part VI.
2. All sampling reports shall include the following information:
   a. The rainfall amount, date, exact place and time of sampling or measurements;
   b. The name(s) of the certified personnel who performed the sampling and measurements;
   c. The date(s) analyses were performed;
   d. The time(s) analyses were initiated;
   e. The name(s) of the certified personnel who performed the analyses;
   f. References and written procedures, when available, for the analytical techniques or methods used;
   g. The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results;
   h. Results which exceed 1000 NTU shall be reported as "exceeds 1000 NTU;" and
   i. Certification statement that sampling was conducted as per the Plan .
3. All written correspondence required by this permit shall be submitted by return receipt certified mail (or similar service) to:

Mountain District- Atlanta Satellite
Georgia Environmental Protection Division
4244 International Parkway, Suite 114
Atlanta, GA 30354-3906
(404) 362-2671

The permittee shall retain a copy of the proof of submittal at the construction site or the proof of submittal shall be readily available at a designated location from commencement of construction until such time as a NOT is submitted in accordance with Part VI. If an electronic submittal is provided by EPD then the written correspondence may be submitted electronically; if required, a paper copy must also be submitted by return receipt certified mail or similar service.

INITIAL INSPECTION AND REPORTING:

For stand alone projects that begin construction activity after the effective date of this permit, the primary permittee must retain the design professional who prepared the Erosion, Sedimentation and Pollution Control Plan, except when the primary permittee has requested in writing and EPD has agreed to an alternate design professional, to inspect the installation of the initial sediment storage requirements and perimeter control BMPs which the design professional designed within seven (7) days after installation. The design professional shall determine if these BMPs have been installed and are being maintained as designed. The design professional shall report the results of the inspection to the primary permittee within seven (7) days and the permittee must correct all deficiencies within two (2) business days of receipt of the inspection report from the design professional unless weather related site conditions are such that additional time is required.

MINIMUM QUALIFICATIONS OF INSPECTORS:

"Design Professional" means a professional licensed by the state of GA in the field of: engineering, architecture, landscape architecture, forestry, geology, or land surveying; or a person that is a certified professional in erosion and sediment control (CPESC) with a current certification by Envirocert International, Inc. Design professionals shall practice in a manner that complies with applicable GA law governing professional licensure.

"Certified Personnel" means a person who has successfully completed the appropriate certification course approved by the State Soil and Water Conservation Commission.

georgia civil
CIVIL ENGINEERING
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LAND SURVEYING
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www.georgiacivil.com

Professional Seal

GEORGIA REGISTERED NO. PE031684 PROFESSIONAL ENGINEER JASON P. BROWN

Project Information

150 VINE ST EROSION CONTROL PLAN
PARCEL NO. : M0210001A00
150 VINE ST
MONROE GA, 30655
ZONING-M1

DRAWING DATE:	7.9.2020
DRAWN BY:	MKS
CHECKED BY:	JPB

REVISIONS

DATE:	DESCRIPTION:
09.10.20	CITY COMMENTS
10.13.20	GSWCC COMMENTS
10.26.20	GSWCC COMMENTS

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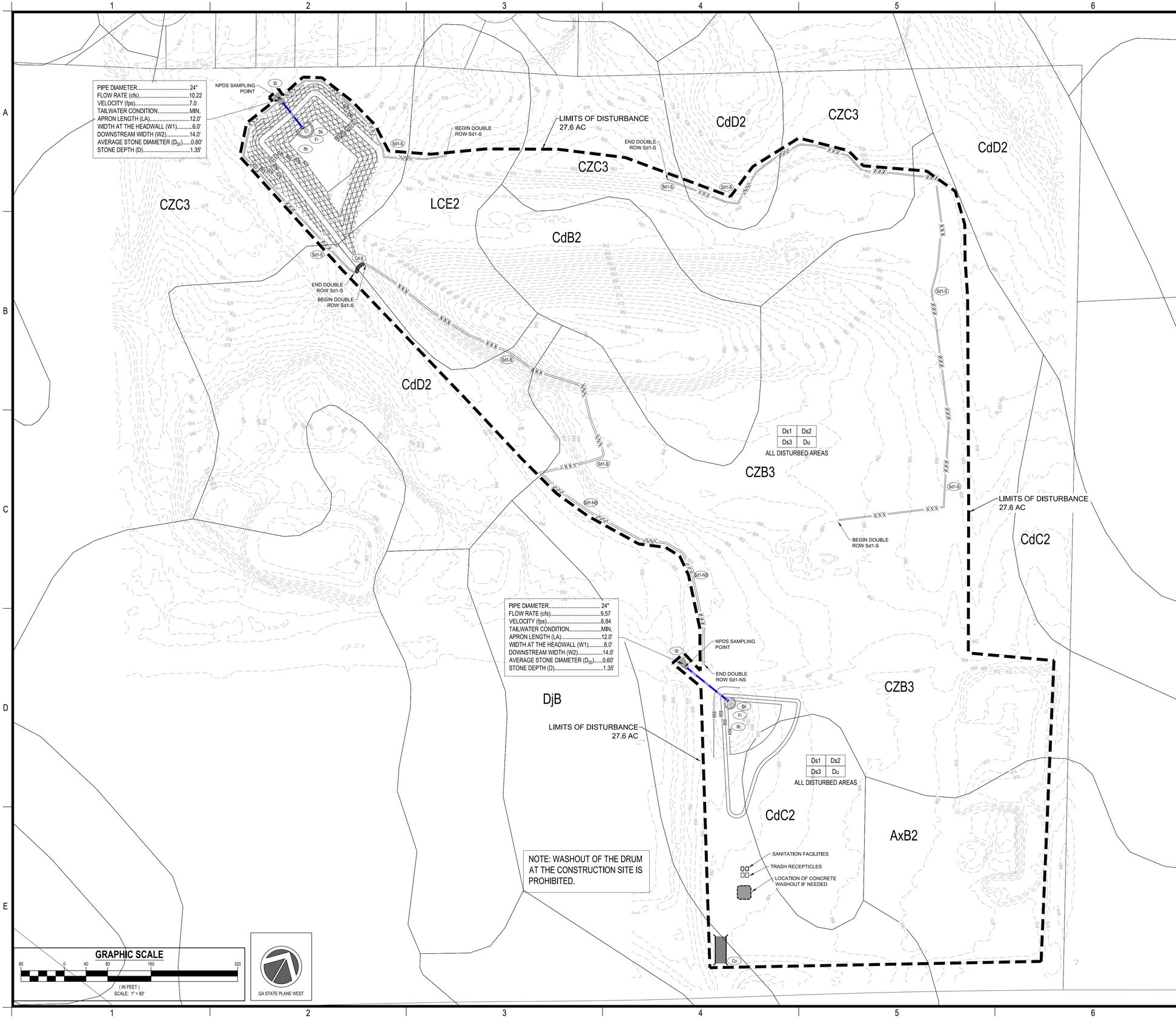
Sheet Title

EROSION, SEDIMENTATION, AND POLLITION CONTROL NOTES

Sheet Number

C-3.1



GEORGIA UNIFORM CODING SYSTEM
SOIL EROSION & SEDIMENT CONTROL

STRUCTURAL PRACTICES

Code	Practice	Code	Practice
Cd-Fs	Compost Filter Sock	Sd2-D	Inlet Sediment Trap (Gravel Drop Inlet Protection)
Cd-Hb	Straw-Bale Check Dams	Sd2-P	Inlet Sediment Trap (Curb Inlet Protection)
Cd-S	Stone Check Dams	Sd2-S	Inlet Sediment Trap (Sod Inlet Protection)
Ch-1	Channel Stabilization - Category 1 (Vegetated/Sod)	Sd3	Temporary Sediment Basin
Ch-2	Channel Stabilization - Category 2 (Rip-Rap, TRM)	Sd4	Temporary Sediment Trap
Ch-3	Channel Stabilization - Category 3 (Concrete)	Sk	Floating Filter Surface Skimmer
Co	Construction Exit	SpB	Seep Berm
Cr	Construction Road Stabilization	St-B	Temporary Stream Crossing (Bridge)
Dc-A	Stream Diversion Channel (Geotextile, Sod, or Polyethylene film)	St-C	Temporary Stream Crossing (Culvert)
Dc-B	Stream Diversion Channel (Geotextile alone)	St	Storm Drain Outlet Protection
Dc-C	Stream Diversion Channel (Class I Rip-Rap and Geotextile)	Su	Surface Roughening
Di	Diversion	Tc-F	Turbidity Curtain (Floating)
Dn1	Temporary Downdrain Structure	Tc-S	Turbidity Curtain (Staked)
Dn2	Permanent Downdrain Structure	Tp	Topsoiling
Fr	Filter Ring	Wt	Vegetated Waterway or Stormwater Conveyance Channel
Ga	Gabion		
Gr	Grade Stabilization Structure		
Lv	Level Spreader		
Rd	Rock Filter Dam		
Re	Retaining Wall		
Rt-B	Retrofit (Slotted Board Dam w/ Stone or Filter Fabric)		
Rt-P	Retrofit (Perforated Half- Round Pipe w/ Stone Filter)		
Rt-Sg	Retrofit (Silt Control Gate)		
Sd1-Bf	Sediment Barrier (Type = Brush Barrier)		
Sd1-Ns	Sediment Barrier (Type = Non-Sensitive Areas)		
Sd1-S	Sediment Barrier (Type = Sensitive Areas)		
Sd1-Cf	Sediment Barrier (Type = Compost Filter Media Sock)		
Sd2-B	Inlet Sediment Trap (Baffle Box)		
Sd2-Bg	Inlet Sediment Trap (Block & Gravel Drop Inlet Protection)		
Sd2-E	Inlet Sediment Trap (Excavated Inlet Sediment Trap)		
Sd2-F	Inlet Sediment Trap (Filter Fabric w/ Supporting Frame)		

VEGETATIVE MEASURES

Bf	Buffer Zone
Cs	Coastal Dune Stabilization (w/ Vegetation)
Ds1	Disturbed Area Stabilization (w/ Mulching Only)
Ds2	Disturbed Area Stabilization (w/ Temporary Seeding)
Ds3	Disturbed Area Stabilization (w/ Permanent Vegetation)
Ds4	Disturbed Area Stabilization (w/ Sodding)
Du	Dust Control on Disturbed Areas
Fl-Co	Flocculants Coagulants
Sb	Streambank Stabilization (Using Permanent Vegetation)
Ss	Slope Stabilization (Rolled Erosion Control Products (RECPs))
Tac-1	Tackifiers: Type I (Synthetic Polymers)
Tac-2	Tackifiers: Type II (Organic Polymers)
Tac-3	Tackifiers: Type III (Synthetic/ Organic Blends)
Tac-4	Tackifiers: Type IV (Organic Tack-fibers w/ Synthetic Fibers)
Tac-5	Tackifiers: Type V (Synthetic/Organic Blends w/ Synthetic Fibers)

PHASE 1 DISTURBANCE: 27.6 AC ACRES

REFER TO SHEET C-1.1 AND C-3.1 FOR EROSION, SEDIMENTATION, AND POLLUTION CONTROL NOTES

Maintenance of all soil erosion and sedimentation control measures and practices, whether temporary or permanent, shall be at all times the responsibility of the property owner.

GSWCC EROSION CONTROL NOTES:

The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to land disturbing activities.

Erosion control measures will be maintained at all times. If full implementation of the approved plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source.

Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding.

Any amendments/revisions to the ES&PC Plan which have a significant effect on BMPs with a hydraulic component must be certified by the design professional.

JASON P. BROWN
LEVEL II CERTIFIED DESIGN PROFESSIONAL
#53274 - EXP. 05.01.2023

24-HOUR CONTACT
CHRIS HILSMAN
706-347-0650

GEORGIA811 www.Georgia811.com
Contact 811 before you dig

Utilities/Services shown are for Contractors' convenience. Items are shown schematically and neither the site design professional nor the owner assumes any responsibility for variances in their actual location. This plan may not show and/or may incorrectly show utilities located on site. Contractor shall be responsible to secure and use the services of a private utility locator firm during the entire course of work and shall pay for said services. Contractor shall locate utilities prior to any disturbance (including field verifying location and depth of utilities that are to be saved and protected). Contractor shall notify the site design professional of any utility conflicts prior to installation of new utilities, grading, etc. The Contractor, at their expense, shall be responsible to repair, replace and/or relocate, as necessary, any utilities damaged, whether shown or not. Abandonment, relocation, etc. of utilities shall be coordinated with the respective utility company.

DEVELOPER
OWNER: TOMMY BREEDLOVE
ADDRESS: 10161 INDUSTRIAL DRIVE
COVINGTON, GA 30014
CONTACT: TOMMY BREEDLOVE
PHONE: 706-318-2572
EMAIL: BREEDLOVETOMMY@GMAIL.COM

CONTRACTOR
COMPANY: XXXXX
ADDRESS: XXXXX
XXXX
CONTACT: XXXXX
PHONE: (XXX) XXX-XXXX
EMAIL: XXXXXXX

SURVEYOR
EXISTING CONDITIONS DERIVED FROM RECENT AERIAL DRONE PHOTOGRAPHY AND GIS TOPOGRAPHY DATA

SITE DESIGNER
COMPANY: GEORGIA CIVIL, INC.
ADDRESS: P.O. BOX 896
MADISON, GA 30650
PHONE: 706-342-1104

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Professional Seal

GEORGIA REGISTERED NO. PE031649 PROFESSIONAL ENGINEER JASON P. BROWN

Project Information

150 VINE ST EROSION CONTROL PLAN

PARCEL NO. : M0210001A00
150 VINE ST
MONROE GA, 30655
ZONING-M1

DRAWING DATE:	7.9.2020
DRAWN BY:	MKS
CHECKED BY:	JPB

REVISIONS

DATE:	DESCRIPTION:
09.10.20	CITY COMMENTS
10.13.20	GSWCC COMMENTS
10.26.20	GSWCC COMMENTS

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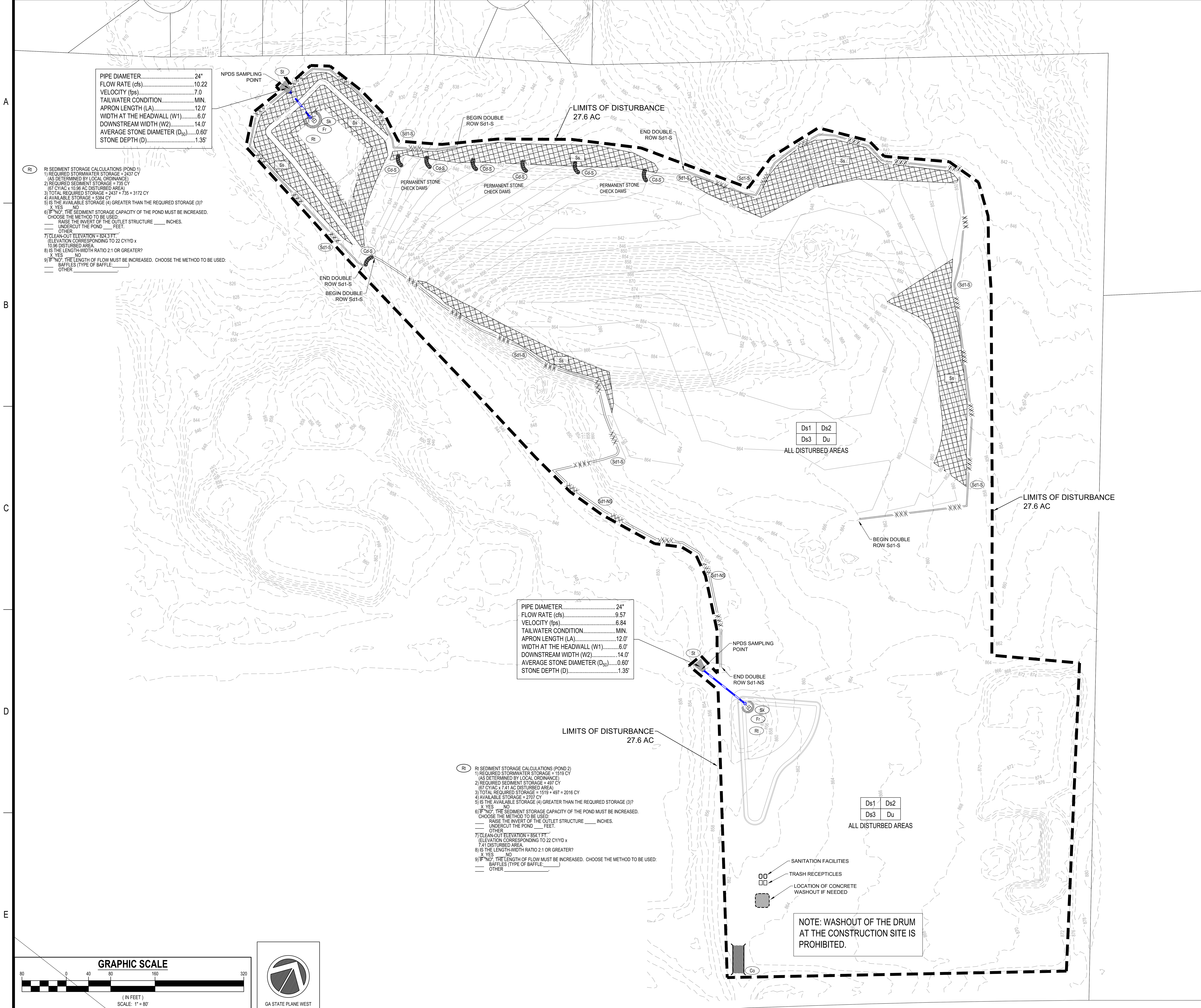
Sheet Title

PHASE I EROSION, SEDIMENTATION, AND POLLITION CONTROL PLAN

Sheet Number

C-3.2



PIPE DIAMETER.................................... 24"
FLOW RATE (cfs)..................................10.22
VELOCITY (fps)....................................7.0
TAILWATER CONDITION.....................MIN.
APRON LENGTH (LA)...........................12.0'
WIDTH AT THE HEADWALL (W1)...........6.0'
DOWNSTREAM WIDTH (W2)................14.0'
AVERAGE STONE DIAMETER (D_{50})......0.60'
STONE DEPTH (D)................................1.35'

(Rt) Rt SEDIMENT STORAGE CALCULATIONS (POND 1)
1) REQUIRED STORMWATER STORAGE = 2437 CY
(AS DETERMINED BY LOCAL ORDINANCE)
2) REQUIRED SEDIMENT STORAGE = 735 CY
(67 CY/AC x 10.96 AC DISTURBED AREA)
3) TOTAL REQUIRED STORAGE = 2437 + 735 = 3172 CY
4) AVAILABLE STORAGE = 5384 CY
5) IS THE AVAILABLE STORAGE (4) GREATER THAN THE REQUIRED STORAGE (3)?
X YES ___NO
6) IF "NO", THE SEDIMENT STORAGE CAPACITY OF THE POND MUST BE INCREASED.
CHOOSE THE METHOD TO BE USED:
___ RAISE THE INVERT OF THE OUTLET STRUCTURE _____ INCHES.
___ UNDERCUT THE POND ____ FEET.
___ OTHER ___________________.
7) CLEAN-OUT ELEVATION = 824.3 FT.
(ELEVATION CORRESPONDING TO 22 CY/YD x
10.96 DISTURBED AREA.
8) IS THE LENGTH-WIDTH RATIO 2:1 OR GREATER?
X YES ____NO
9) IF "NO", THE LENGTH OF FLOW MUST BE INCREASED. CHOOSE THE METHOD TO BE USED:
___ BAFFLES (TYPE OF BAFFLE:_______)
___ OTHER ___________________.

PIPE DIAMETER.................................... 24"
FLOW RATE (cfs)..................................9.57
VELOCITY (fps)....................................6.84
TAILWATER CONDITION.....................MIN.
APRON LENGTH (LA)...........................12.0'
WIDTH AT THE HEADWALL (W1)...........6.0'
DOWNSTREAM WIDTH (W2)................14.0'
AVERAGE STONE DIAMETER (D_{50})......0.60'
STONE DEPTH (D)................................1.35'

(Rt) Rt SEDIMENT STORAGE CALCULATIONS (POND 2)
1) REQUIRED STORMWATER STORAGE = 1519 CY
(AS DETERMINED BY LOCAL ORDINANCE)
2) REQUIRED SEDIMENT STORAGE = 497 CY
(67 CY/AC x 7.41 AC DISTURBED AREA)
3) TOTAL REQUIRED STORAGE = 1519 + 497 = 2016 CY
4) AVAILABLE STORAGE = 2707 CY
5) IS THE AVAILABLE STORAGE (4) GREATER THAN THE REQUIRED STORAGE (3)?
X YES ___NO
6) IF "NO", THE SEDIMENT STORAGE CAPACITY OF THE POND MUST BE INCREASED.
CHOOSE THE METHOD TO BE USED:
___ RAISE THE INVERT OF THE OUTLET STRUCTURE _____ INCHES.
___ UNDERCUT THE POND ____ FEET.
___ OTHER ___________________.
7) CLEAN-OUT ELEVATION = 854.1 FT.
(ELEVATION CORRESPONDING TO 22 CY/YD x
7.41 DISTURBED AREA.
8) IS THE LENGTH-WIDTH RATIO 2:1 OR GREATER?
X YES ____NO
9) IF "NO", THE LENGTH OF FLOW MUST BE INCREASED. CHOOSE THE METHOD TO BE USED:
___ BAFFLES (TYPE OF BAFFLE:_______)
___ OTHER ___________________.

NOTE: WASHOUT OF THE DRUM AT THE CONSTRUCTION SITE IS PROHIBITED.

GRAPHIC SCALE
80 0 40 80 160 320
(IN FEET)
SCALE: 1" = 80'

GA STATE PLANE WEST

GEORGIA UNIFORM CODING SYSTEM
SOIL EROSION & SEDIMENT CONTROL

STRUCTURAL PRACTICES

Code	Practice	Code	Practice
Cd-Fs	Compost Filter Sock	Sd2-G	Inlet Sediment Trap (Gravel Drop Inlet Protection)
Cd-Hb	Straw-Bale Check Dams	Sd2-P	Inlet Sediment Trap (Curb Inlet Protection)
Cd-S	Stone Check Dams	Sd2-S	Inlet Sediment Trap (Sod Inlet Protection)
Ch-1	Channel Stabilization - Category 1 (Vegetated/Sod)	Sd3	Temporary Sediment Basin
Ch-2	Channel Stabilization - Category 2 (Rip-Rap, TRM)	Sd4	Temporary Sediment Trap
Ch-3	Channel Stabilization - Category 3 (Concrete)	Sk	Floating Filter Surface Skimmer
Co	Construction Exit	SpB	Seep Berm
Cr	Construction Road Stabilization	Sr-B	Temporary Stream Crossing (Bridge)
Dc-A	Stream Diversion Channel (Geotextile, Sod, or Polyethylene film)	Sr-C	Temporary Stream Crossing (Culvert)
Dc-B	Stream Diversion Channel (Geotextile alone)	St	Storm Drain Outlet Protection
Dc-C	Stream Diversion Channel (Class I Rip-Rap and Geotextile)	Su	Surface Roughening
Di	Diversion	Tc-F	Turbidity Curtain (Floating)
Dn1	Temporary Downdrain Structure	Tc-S	Turbidity Curtain (Staked)
Dn2	Permanent Downdrain Structure	Tp	Topsoiling
Fr	Filter Ring	Wt	Vegetated Waterway or Stormwater Conveyance Channel
Ga	Gabion		
Gr	Grade Stabilization Structure		
Lv	Level Spreader		
Rd	Rock Filter Dam		
Re	Retaining Wall		
Rt-B	Retrofit (Slotted Board Dam w/ Stone or Filter Fabric)		
Rt-P	Retrofit (Perforated Half- Round Pipe w/ Stone Filter)		
Rt-Sg	Retrofit (Silt Control Gate)		
Sd1-BB	Sediment Barrier (Type = Brush Barrier)		
Sd1-NS	Sediment Barrier (Type = Non-Sensitive Areas)		
Sd1-S	Sediment Barrier (Type = Sensitive Areas)		
Sd1-Cf	Sediment Barrier (Type = Compost Filter Media Sock)		
Sd2-B	Inlet Sediment Trap (Baffle Box)		
Sd2-Bg	Inlet Sediment Trap (Block & Gravel Drop Inlet Protection)		
Sd2-E	Inlet Sediment Trap (Excavated Inlet Sediment Trap)		
Sd2-F	Inlet Sediment Trap (Filter Fabric w/ Supporting Frame)		

Indicate type

VEGETATIVE MEASURES

Code	Practice	Symbol
Bf	Buffer Zone	Bf
Cs	Coastal Dune Stabilization (w/ Vegetation)	Cs
Ds1	Disturbed Area Stabilization (w/ Mulching Only)	Ds1
Ds2	Disturbed Area Stabilization (w/ Temporary Seeding)	Ds2
Ds3	Disturbed Area Stabilization (w/ Permanent Vegetation)	Ds3
Ds4	Disturbed Area Stabilization (w/ Sodding)	Ds4
Du	Dust Control on Disturbed Areas	Du
Fl-Co	Flocculants Coagulants	Fl-Co
Sb	Streambank Stabilization (Using Permanent Vegetation)	Sb
Ss	Slope Stabilization (Rolled Erosion Control Products (RECPs))	Ss
Tac-1	Tackifiers: Type I (Synthetic Polymers)	Tac-1
Tac-2	Tackifiers: Type II (Organic Polymers)	Tac-2
Tac-3	Tackifiers: Type III (Synthetic/ Organic Blends)	Tac-3
Tac-4	Tackifiers: Type IV (Organic Tackifiers w/ Synthetic Fibers)	Tac-4
Tac-5	Tackifiers: Type V (Synthetic/Organic Blends w/ Synthetic Fibers)	Tac-5

PHASE 2 DISTURBANCE:
27.6 AC ACRES

Maintenance of all soil erosion and sedimentation control measures and practices, whether temporary or permanent, shall be at all times the responsibility of the property owner.

REFER TO SHEET C-1.1 AND C-3.1 FOR EROSION, SEDIMENTATION, AND POLLUTION CONTROL NOTES

GSWCC EROSION CONTROL NOTES:

The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to land disturbing activities.

Erosion control measures will be maintained at all times. If full implementation of the approved plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source.

Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding.

Any amendments/revisions to the ES&PC Plan which have a significant effect on BMPs with a hydraulic component must be certified by the design professional.

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SURVEYOR
EXISTING CONDITIONS DERIVED FROM RECENT AERIAL DRONE PHOTOGRAPHY AND GIS TOPOGRAPHY DATA

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Professional Seal

GEORGIA REGISTERED NO. PE031684 PROFESSIONAL ENGINEER JASON P. BROWN

Project Information

150 VINE ST EROSION CONTROL PLAN
PARCEL NO. : M0210001A00
150 VINE ST
MONROE GA, 30655
ZONING-M1

DRAWING DATE:	7.9.2020
DRAWN BY:	MKS
CHECKED BY:	JPB

REVISIONS

DATE:	DESCRIPTION:
09.10.20	CITY COMMENTS
10.13.20	GSWCC COMMENTS
10.26.20	GSWCC COMMENTS

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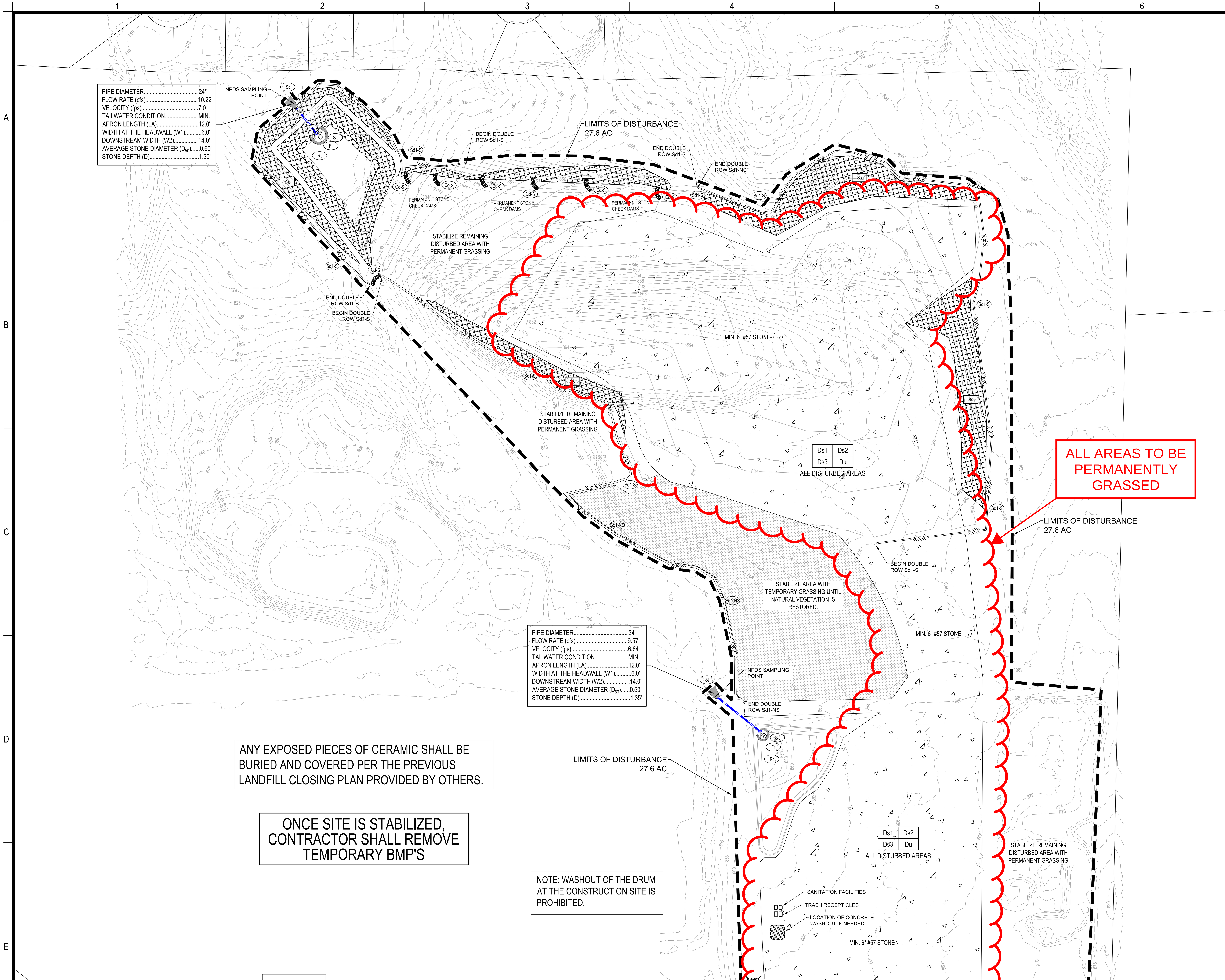
Sheet Title

PHASE II EROSION, SEDIMENTATION, AND POLLITION CONTROL PLAN

Sheet Number

C-3.3



ANY EXPOSED PIECES OF CERAMIC SHALL BE BURIED AND COVERED PER THE PREVIOUS LANDFILL CLOSING PLAN PROVIDED BY OTHERS.

ONCE SITE IS STABILIZED, CONTRACTOR SHALL REMOVE TEMPORARY BMP'S

NOTE: WASHOUT OF THE DRUM AT THE CONSTRUCTION SITE IS PROHIBITED.

GRAPHIC SCALE

80 0 40 80 160 320

(IN FEET)
SCALE: 1" = 80'

GA STATE PLANE WEST

GEORGIA UNIFORM CODING SYSTEM
SOIL EROSION & SEDIMENT CONTROL

STRUCTURAL PRACTICES

Code	Practice	Symbol	Code	Practice	Symbol
Cd-Fs	Compost Filter Sock	Cd-Fs 12" dia	Sd2-G	Inlet Sediment Trap (Gravel Drop Inlet Protection)	Sd2-⊡
Cd-Hb	Straw-Bale Check Dams	Cd-Hb	Sd2-P	Inlet Sediment Trap (Curb Inlet Protection)	
Cd-S	Stone Check Dams	Cd-S	Sd2-S	Inlet Sediment Trap (Sod Inlet Protection)	⊡ Indicate type
Ch-1	Channel Stabilization - Category 1 (Vegetated/Sod)	Ch-1	Sd3	Temporary Sediment Basin	Sd3
Ch-2	Channel Stabilization - Category 2 (Rip-Rap, TRM)	Rip-Rap* TRM* Ch-2 *type	Sd4	Temporary Sediment Trap	Sd4
Ch-3	Channel Stabilization - Category 3 (Concrete)	Ch-3	Sk	Floating Filter Surface Skimmer	Sk
Co	Construction Exit	Co	SpB	Seep Berm	SpB
Cr	Construction Road Stabilization	Cr	Sr-B	Temporary Stream Crossing (Bridge)	Sr-B
Dc-A	Stream Diversion Channel (Geotextile, Sod, or Polyethylene film)	Dc-A or	Sr-C	Temporary Stream Crossing (Culvert)	Sr-C
Dc-B	Stream Diversion Channel (Geotextile alone)	Dc-B or	St	Storm Drain Outlet Protection	St
Dc-C	Stream Diversion Channel (Class I Rip-Rap and Geotextile)	Dc-C	Su	Surface Roughening	Su
Di	Diversion	Di	Tc-F	Turbidity Curtain (Floating)	Tc-⊡
Dn1	Temporary Downdrain Structure	Dn1	Tc-S	Turbidity Curtain (Staked)	⊡ Indicate type
Dn2	Permanent Downdrain Structure	Dn2	Tp	Topsoiling	Tp
Fr	Filter Ring	Fr	Wt	Vegetated Waterway or Stormwater Conveyance Channel	Wt
Ga	Gabion	Ga	**VEGETATIVE MEASURES**		
Gr	Grade Stabilization Structure	Gr	Bf	Buffer Zone	Bf
Lv	Level Spreader	Lv	Cs	Coastal Dune Stabilization (w/ Vegetation)	Cs
Rd	Rock Filter Dam	Rd	Ds1	Disturbed Area Stabilization (w/ Mulching Only)	Ds1
Re	Retaining Wall	Re	Ds2	Disturbed Area Stabilization (w/ Temporary Seeding)	Ds2
Rt-B	Retrofit (Slotted Board Dam w/ Stone or Filter Fabric)	Rt-B	Ds3	Disturbed Area Stabilization (w/ Permanent Vegetation)	Ds3
Rt-P	Retrofit (Perforated Half- Round Pipe w/ Stone Filter)	Rt-P	Ds4	Disturbed Area Stabilization (w/ Sodding)	Ds4
Rt-Sg	Retrofit (Silt Control Gate)	Rt-Sg	Du	Dust Control on Disturbed Areas	Du
Sd1-BB	Sediment Barrier (Type = Brush Barrier)	Sd1-BB	Fl-Co	Flocculants Coagulants	Fl-Co
Sd1-NS	Sediment Barrier (Type = Non-Sensitive Areas)	Sd1-NS 28"	Sb	Streambank Stabilization (Using Permanent Vegetation)	Sb
Sd1-S	Sediment Barrier (Type = Sensitive Areas)	Sd1-S 28"	Ss	Slope Stabilization (Rolled Erosion Control Products (RECPs))	Ss
Sd1-Cf	Sediment Barrier (Type = Compost Filter Media Sock)	Sd1-Cf 12" dia	Tac-1	Tackifiers: Type I (Synthetic Polymers)	Tac-1
Sd2-B	Inlet Sediment Trap (Baffle Box)	Sd2-⊡	Tac-2	Tackifiers: Type II (Organic Polymers)	Tac-2
Sd2-Bg	Inlet Sediment Trap (Block & Gravel Drop Inlet Protection)		Tac-3	Tackifiers: Type III (Synthetic/ Organic Blends)	Tac-3
Sd2-E	Inlet Sediment Trap (Excavated Inlet Sediment Trap)		Tac-4	Tackifiers: Type IV (Organic Tackifiers w/ Synthetic Fibers)	Tac-4
Sd2-F	Inlet Sediment Trap (Filter Fabric w/ Supporting Frame)	⊡ Indicate type	Tac-5	Tackifiers: Type V (Synthetic/Organic Blends w/ Synthetic Fibers)	Tac-5

PHASE 3 DISTURBANCE:
27.6 AC ACRES

Maintenance of all soil erosion and sedimentation control measures and practices, whether temporary or permanent, shall be at all times the responsibility of the property owner.

REFER TO SHEET C-1.1 AND C-3.1 FOR EROSION, SEDIMENTATION, AND POLLUTION CONTROL NOTES

GSWCC EROSION CONTROL NOTES:

The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to land disturbing activities.

Erosion control measures will be maintained at all times. If full implementation of the approved plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source.

Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding.

Any amendments/revisions to the ES&PC Plan which have a significant effect on BMPs with a hydraulic component must be certified by the design professional.

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Project Information

150 VINE ST EROSION CONTROL PLAN

PARCEL NO. : M0210001A00
150 VINE ST
MONROE GA, 30655
ZONING-M1

DRAWING DATE:	7.9.2020
DRAWN BY:	MKS
CHECKED BY:	JPB

REVISIONS

DATE:	DESCRIPTION:
09.10.20	CITY COMMENTS
10.13.20	GSWCC COMMENTS
10.26.20	GSWCC COMMENTS
10.21.22	ALL TO BE GRASSED

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Sheet Title

PHASE III EROSION, SEDIMENTATION, AND POLLITION CONTROL PLAN

Sheet Number

C-3.4

Ds1

GSWCC 2016 Edition

REQUIREMENT FOR REGULATORY COMPLIANCE

Mulch or temporary grassing shall be applied to all exposed areas within 14 days of disturbance. Mulch can be used as a singular erosion control device for up to 6 months, but it shall be applied at the appropriate depth, depending on the material used, anchored and have a continuous 90% cover or greater of the soil surface.

Maintenance shall be required to maintain appropriate depth and 90% cover. Temporary vegetation may be employed instead of mulch if the area will remain undisturbed for less than 6 months.

If any area will remain undisturbed for greater than 6 months, permanent vegetative techniques shall be employed. Refer to **Ds2 -Disturbed Area Stabilization (With Temporary Seeding)**, **Ds3 - Disturbed Area Stabilization (With Permanent Seeding)**, and **Ds4 - Disturbed Area Stabilization (With Sodding)**.

SPECIFICATIONS (Mulching Without Seeding)

This standard applies to graded or cleared areas where seedlings may not have a suitable growing season to produce an erosion retardant cover, but can be stabilized with a mulch cover.

Site Preparation
1. Grade to permit the use of equipment for applying and anchoring mulch.
2. Install needed erosion control measures as required such as dikes, diversions, berms, terraces and sediment barriers.
3. Loosen compact soil to a minimum depth of 3".

Mulching Materials (select one of the following materials and apply at the depth indicated):
1. Dry straw or hay shall be applied at a depth of 2" to 4" providing complete soil coverage. One advantage of this material is easy application.
2. Wood waste (chips, sawdust or bark) shall be applied at a depth of 2" to 3". Organic material from the clearing stage of development should remain on site, be chipped, and applied as mulch. This method of mulching can greatly reduce erosion control costs.
3. Polyethylene film shall be secured over banks or stockpiled soil material for temporary protection. This material can be salvaged and re-used.

Applying Mulch (when mulch is used without seeding, mulch shall be applied to provide full coverage of the exposed area.)
1. Dry straw or hay mulch and wood chips shall be applied uniformly by hand or by mechanical equipment.
2. If the area will eventually be covered with perennial vegetation, 20-30 pounds of nitrogen per acre in addition to the normal amount shall be applied to offset the uptake of nitrogen caused by the decomposition of the organic mulches.
3. Apply polyethylene film on exposed areas.

Anchoring Mulch
1. Straw or hay mulch can be pressed into the soil with a disk harrow with the disk set straight or with a special "packer disk." Disks may be smooth or serrated and should be 20" or more in diameter and 8" to 12" apart. The edges of the disk should be dull enough not to cut the mulch but to press it into the soil leaving much of it in an erect position. Straw or hay mulch shall be anchored immediately after application.

   Straw or hay mulch spread with special blower-type equipment may be anchored. Tackifiers, binders and hydraulic mulch with tackifier specifically designed for tacking straw can be substituted for emulsified asphalt. Please refer to specification **Tac - Tackifiers.** Plastic mesh or netting with mesh no larger than 1" by 1" shall be installed according to manufacturer's specifications.
2. Netting of the appropriate size shall be used to anchor wood waste. Openings of the netting shall not be larger than the average size of the wood waste chips.
3. Polyethylene film shall be anchor trenched at the top as well as incrementally as necessary.

DISTURBED AREA STABILIZATION (WITH MULCHING ONLY) - (Ds1)

Ds2

GSWCC 2016 Edition

Table 6-4.1 - Temporary Cover or Companion Cover Crops
PLANT, PLANTING RATE, AND PLANTING DATE FOR TEMPORARY COVER OR COMPANION CROPS [1]

SPECIES	BROADCAST RATES		RESOURCE AREA[3]	PLANTING DATES BY RESOURCE AREA (SOLID lines indicate optimum dates, DOTTED lines indicate permissible, but marginal dates)	REMARKS
BARLEY *Hordeum vulagre*	Rate Per Acre[2]	Pure Live Seed Per 1000 sq.ft.		J F M A M J J A S O N D	
alone	3 bu. (144 lbs)	3.3 lbs	M - L		14,000 seed per pound. Winter hardy. Use on productive soils.
			P		
in mixture	½ bu. (24 lbs)	0.6 lb	C		
LESPEDEZA, ANNUAL *Lespedeza striata*	Rate Per Acre[2]	Pure Live Seed Per 1000 sq.ft.		J F M A M J J A S O N D	
alone	40 lbs	0.9 lb	M - L		200,000 seed per pound. May volunteer for several years. Use inoculant EL.
			P		
in mixture	10 lbs	0.2 lb	C		
LOVEGRASS, WEEPING *Eragrostis curvula*	Rate Per Acre[2]	Pure Live Seed Per 1000 sq.ft.		J F M A M J J A S O N D	
alone	4 lbs	0.1 lb	M - L		1,500,000 seed per pound. May last for several years. Mix with Sericea lespedeza.
			P		
in mixture	2 lbs	0.05 lb	C		
MILLET, BROWNTOP *Panicum fasciculatum*	Rate Per Acre[2]	Pure Live Seed Per 1000 sq.ft.		J F M A M J J A S O N D	
alone	40 lbs	0.9 lb	M - L		137,000 seed per pound. Quick dense cover. Will provide excessive competition in mixtures if seeded at high rate.
			P		
in mixture	10 lbs	0.2 lb	C		
MILLET, PEARL *Pennesetum glaucum*	Rate Per Acre[2]	Pure Live Seed Per 1000 sq.ft.		J F M A M J J A S O N D	
alone	50 lbs	1.1 lbs	M - L, P, C		88,000 seed per pound. Quick dense cover. May reach 5' in height. Not recommended for mixtures.
OATS *Avena sativa*	Rate Per Acre[2]	Pure Live Seed Per 1000 sq.ft.		J F M A M J J A S O N D	
alone	4 bu. (128 lbs)	2.9 lbs	M - L		13,000 seed per pound. Use on productive soils. Not as a winter hardy as rye or barley.
			P		
in mixture	1 bu. (32 lbs)	0.7 lb	C		
RYE *Secale cereale*	Rate Per Acre[2]	Pure Live Seed Per 1000 sq.ft.		J F M A M J J A S O N D	
alone	3 bu. (168 lbs)	3.9 lbs	M - L		18,000 seed per pound. Quick cover. Drought tolerant and winter hardy.
			P		
in mixture	½ bu. (28 lbs)	0.6 lb	C		
RYEGRASS, ANNUAL *Lolium temulentum*	Rate Per Acre[2]	Pure Live Seed Per 1000 sq.ft.		J F M A M J J A S O N D	
alone	40 lbs	0.9 lb	M - L, P, C		227,000 seed per pound. Dense cover. Very competitive and is not to be used in mixtures.
SUDANGRASS *Sorghum sudanese*	Rate Per Acre[2]	Pure Live Seed Per 1000 sq.ft.		J F M A M J J A S O N D	
alone	60 lbs	1.4 lbs	M - L, P, C		55,000 seed per pound. Good on droughty sites. Not recommended for mixtures.
TRITICALE *X-Triticosecale*	Rate Per Acre[2]	Pure Live Seed Per 1000 sq.ft.		J F M A M J J A S O N D	
alone	3 bu. (144 lbs)	3.3 lbs	C		Use on lower part of Southern Coastal Plain and in Atlantic Coastal Flatwoods only.
in mixture	½ bu. (24 lbs)	0.6 lb			
WHEAT *Triticum aestivum*	Rate Per Acre[2]	Pure Live Seed Per 1000 sq.ft.		J F M A M J J A S O N D	
alone	3 bu. (180 lbs)	4.1 lbs	M - L		15,000 seed per pound. Winter hardy.
			P		
in mixture	½ bu. (30 lbs)	0.7 lb	C		

[1] Temporary cover crops are very competitive and will crowd out perennials if seeded too heavily

[2] Reduce seeding rates by 50% when drilled.

[3] **M-L** represents the Mountain; Blue Ridge; and Ridges and Valleys MLRAs*; **P** represents the Southern Piedmont MLRA* **C** represents Southern Coastal Plan; Sand Hills; Black Lands; and Atlantic Coast Flatwoods MLRAs*

* Refer to Georgia Major Land Resource Areas Map

REQUIREMENT FOR REGULATORY COMPLIANCE

Mulch or temporary grassing shall be applied to all exposed areas within 14 days of disturbance. Temporary grassing, instead of mulch, can be applied to rough graded areas that will be exposed for less than 6 months. If an area is expected to be undisturbed for longer than 6 months, permanent perennial vegetation shall be used. If optimum planting conditions for temporary grassing is lacking, mulch can be used as a singular erosion control device for up to 6 months but it shall be applied at the appropriate depth, anchored, and have a continuous 90% cover or greater of the soil surface. Refer to specification **Ds1-Disturbed Area Stabilization (With Temporary Seeding)**.

CONDITIONS

Temporary vegetative measures should be coordinated with permanent measures to assure economical and effective stabilization. Most types of temporary vegetation are ideal to use as companion crops until the permanent vegetation is established. Note: Some species of temporary vegetation are not appropriate for companion crop plantings because of their potential to out-compete the desired species (e.g. annual ryegrass).

Contact NRCS or the local SWCD for more information.

SPECIFICATIONS

Grading and Shaping
Excessive water run-off shall be reduced by properly designed and installed erosion control practices such as closed drains, ditches, dikes, diversions, sediment barriers and others. No shaping or grading is required if slopes can be stabilized by hand-seeded vegetation or if hydraulic seeding equipment is to be used.

Seedbed Preparation
When a hydraulic seeder is used, seedbed preparation is not required. When using conventional or hand-seeding, seedbed preparation is not required if the soil material is loose and not sealed by rainfall. When soil has been sealed by rainfall or consists of smooth cut slopes, the soil shall be pitted, trenched or otherwise scarified to provide a place for seed to lodge and germinate.

Lime and Fertilizer
Agricultural lime is required unless soil tests indicate otherwise. Apply agricultural lime at a rate determined by soil test for pH. Quick acting lime should be incorporated to modify pH during the germination period. Bio stimulants should also be considered when there is less than 3% organic matter in the soil. Graded areas require lime application. Soils must be tested to determine required amounts of fertilizer and amendments. Fertilizer should be applied before land preparation and incorporated with a disk, ripper, or chisel. On slopes too steep for, or inaccessible to equipment, fertilizer shall be hydraulically applied, preferably in the first pass with seed and some hydraulic mulch, then topped with the remaining required application rate.

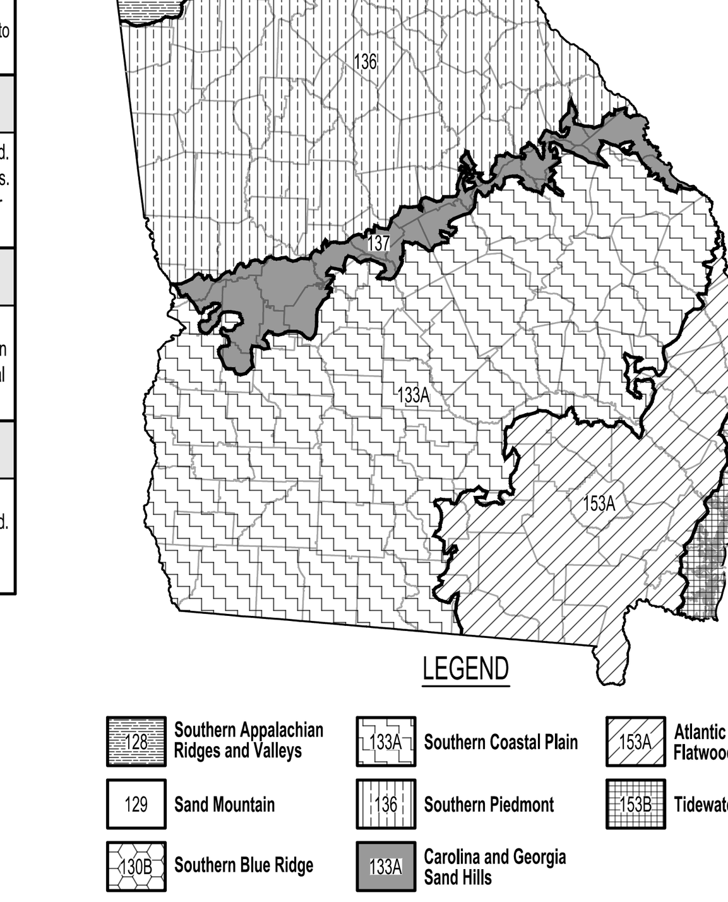
Seeding
Select a grass or grass-legume mixture suitable to the area and season of the year. Seed shall be applied uniformly by hand, cyclone seeder, drill, culti-packer-seeder, or hydraulic seeder (slurry including seed and fertilizer). Drill or cultipacker seeders should normally place seed ¼" to ½" deep. Appropriate depth of planting is ten times the seed diameter. Soil should be "raked" lightly to cover seed with soil if seeded by hand. See **Table 6-4.1 - Temporary Cover or Companion Cover Crops.**

Mulching
Temporary vegetation can, in most cases, be established without the use of mulch, provided there is little to no erosion potential. However, the use of mulch can often accelerate and enhance germination and vegetation establishment. Mulch without seeding should be considered for short term protection. Refer to **Ds1 - Disturbed Area Stabilization (With Mulching Only)**.

Irrigation
During times of drought, water shall be applied at a rate not causing runoff and erosion. The soil shall be thoroughly wetted to a depth that will insure germination of the seed. Subsequent applications should be made when needed.

GEORGIA MAJOR LAND RESOURCE AREAS

Figure 6-4.1



LEGEND

128	Southern Appalachian Ridges and Valleys	133A	Southern Coastal Plain	153A	Atlantic Coast Flatwoods
129	Sand Mountain	136	Southern Piedmont	153B	Tidewater Area
130B	Southern Blue Ridge	133A	Carolina and Georgia Sand Hills		

DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING) - (Ds2)

N.T.S.

Ds3

GSWCC 2016 Edition

Table 6-5.2- Permanent Cover Crops
PLANT, PLANTING RATE, AND PLANTING DATE FOR PERMANENT COVER [1]

SPECIES	BROADCAST RATES		RESOURCE AREA[3]	PLANTING DATES BY RESOURCE AREA (SOLID lines indicate optimum dates, DOTTED lines indicate permissible, but marginal dates)	REMARKS
BAHIA, PENSACOLA *Paspalum notatum*	Rate Per Acre[1]	Pure Live Seed[2] Per 1000 sq.ft.		J F M A M J J A S O N D	
alone or with temporary cover	60 lbs	1.4 lbs	P		166,000 seed per pound. Low growing. Sod forming. Slow to establish. Plant with a companion crop. Will spread into Bermuda pastures and lawns. Mix with Sericea lespedeza or weeping lovegrass.
with other perennials	30 lbs	0.7 lb	C		
BAHIA, WILMINGTON *Paspalum notatum*	Rate Per Acre[1]	Pure Live Seed[2] Per 1000 sq.ft.		J F M A M J J A S O N D	
alone or with temporary cover	60 lbs	1.4 lbs	M - L		166,000 seed per pound. Low growing. Sod forming. Slow to establish. Plant with a companion crop. Will spread into Bermuda pastures and lawns. Mix with Sericea lespedeza or weeping lovegrass.
with other perennials	30 lbs	0.7 lb	P		
BERMUDA, COMMON *Cynodon dactylon*	Rate Per Acre[1]	Pure Live Seed[2] Per 1000 sq.ft.		J F M A M J J A S O N D	
Hulled seed alone	10 lbs	0.2 lb	P		1,787,000 seed per pound. Quick cover. Low growing and sod forming. Full sun. Good for athletic fields.
with other perennials	6 lbs	0.7 lb	C		
BERMUDA, COMMON *Cynodon dactylon*	Rate Per Acre[1]	Pure Live Seed[2] Per 1000 sq.ft.		J F M A M J J A S O N D	
Unhulled seed with temporary cover	10 lbs	0.2 lb	P		Plant with winter annuals.
with other perennials	6 lbs	0.1 lb	C		Plant with Tall Fescue
BERMUDA SPRIGS *Cynodon dactylon*	Rate Per Acre[1]	Pure Live Seed[2] Per 1000 sq.ft.		J F M A M J J A S O N D	
Coastal, Common, Midland, or Tift 44	40 cu. ft.	0.9 cu. ft.	M - L		Cubic foot = approx. 650 sprigs. A bushel contains 1.25 cubic feet or approx. 800 sprigs.
Coastal, Common, or Tift 44	or		P, C		
Tift 78	sod plugs 3' x3'		C		Southern Coastal Plain only
CENTIPEDE *Eremochloa ophuiroides*	Rate Per Acre[1]	Pure Live Seed[2] Per 1000 sq.ft.		J F M A M J J A S O N D	
	Block sod only		P, C		Drought tolerant. Full sun or partial shade. Effective adjacent to concrete and in concentrated flow areas. Irrigation is needed until fully established. Do not plant near pastures. Winter hardy as far as north Athens and Atlanta
CROWNVETCH *Coronilla varia*	Rate Per Acre[1]	Pure Live Seed[2] Per 1000 sq.ft.		J F M A M J J A S O N D	
with winter annuals or cool season grasses	15 lbs	0.3 lb	M - L, P		100,000 seed per pound. Dense growth. Drought tolerant and fire resistant. Attractive rose, pink and white blossoms spring to late fall. Mix with 30 lbs of Tall fescue or 15 lbs of rye. Inoculate seed with M inoculant. Use from North Atlanta and Northward.
FESCUE, TALL *Festuca arundinacea*	Rate Per Acre[1]	Pure Live Seed[2] Per 1000 sq.ft.		J F M A M J J A S O N D	
alone	50 lbs	1.1 lbs	M - L		227,000 seed per pound. Use alone only on better sites. Mix with perennial lespedeza or Crownvetch. Apply topdressing in spring following fall plantings. Not for heavy use areas or athletic fields.
with other perennials	30 lbs	0.7 lb	P		
LESPEDEZA SERICEA *Lespedeza cuneata*	Rate Per Acre[1]	Pure Live Seed[2] Per 1000 sq.ft.		J F M A M J J A S O N D	
scarified	60 lbs	1.4 lbs	M - L, P, C		350,000 seed per pound. Widely adapted. Low maintenance. Mix with Weeping lovegrass, Common bermuda, bahia, or tall fescue. Takes 2-3 years to become fully established. Excellent on road banks. Inoculate seed with EL inoculant.
unscarified	75 lbs	1.7 lbs	M - L, P, C		Mix with Tall fescue or winter annuals.
seed-bearing hay	3 tons	1338 lbs	M - L, P, C		Cut when seed mixture is mature, but before, it shatters. Add Tall fescue or winter annuals.
LESPEDEZA *Ambro virgata Lespedeza virgata DC or Appalow Lespedeza cuneata (Dumont) G. Don))*	Rate Per Acre[1]	Pure Live Seed[2] Per 1000 sq.ft.		J F M A M J J A S O N D	
scarified	60 lbs	1.4 lbs	M - L, P, C		300,000 seed per pound. Height of growth is 18"-24". Advantageous in urban areas. Spreading-type growth. New growth has bronze coloration. Mix with weeping lovegrass, common bermuda, bahia, tall fescue or winter annuals. Do not mix with Sericea lespedeza. Slow to develop solid stands. Inoculate seed with EL inoculant.
unscarified	75 lbs	1.7 lbs	M - L, P, C		
LESPEDEZA, SHRUB *Lespedeza bicolor Lespedeza thumbergii*	Rate Per Acre[1]	Pure Live Seed[2] Per 1000 sq.ft.		J F M A M J J A S O N D	
plants	3'x3'		M - L, P, C		Provide wildlife food and cover.
LOVEGRASS, WEEPING *Eragrostis curvula*	Rate Per Acre[1]	Pure Live Seed[2] Per 1000 sq.ft.		J F M A M J J A S O N D	
alone	4 lbs	0.1 lb	M - L, P		1,500,000 seed per pound. Quick cover. Drought tolerant. Grows well with Sericea lespedeza on roadbanks.
with other perennials	2 lbs	0.05 lb	C		
MAIDENCANE *Panicum hemitomon*	Rate Per Acre[1]	Pure Live Seed[2] Per 1000 sq.ft.		J F M A M J J A S O N D	
sprigs	2'x3' spacing		ALL		For very wet sites. May clog channels. Dig sprigs from local sources. Use along river banks and shorelines.
PANICGRASS, ATLANTIC COASTAL *Panicum amarum var amarukum*	Rate Per Acre[1]	Pure Live Seed[2] Per 1000 sq.ft.		J F M A M J J A S O N D	
	20 lbs	0.5 lb	P, C		Grows well on coastal sand dunes, borrow areas, and gravel pits. Provides winter cover for wildlife. Mix with Sericea lespedeza except on sand dunes.
REED CANARY GRASS *Phalaris arundinacea*	Rate Per Acre[1]	Pure Live Seed[2] Per 1000 sq.ft.		J F M A M J J A S O N D	
alone	50 lbs	1.1 lbs	M - L		Grows similar to Tall fescue
with other perennials	30 lbs	0.7 lb	P		
SUNFLOWER, 'AZTEC' MAXIMILLIAN *Helianthus maximiliani*	Rate Per Acre[1]	Pure Live Seed[2] Per 1000 sq.ft.		J F M A M J J A S O N D	
alone	10 lbs	0.2 lb	M - L, P		227,000 seed per pound. Mix with Weeping lovegrass or other low-growing grasses or legumes.
with other perennials			C		

[1] Reduce seeding rates by 50% when drilled

[2] PLS is an abbreviation for Pure Live Seed. Refer to Section V.E. of these specifications.

[3] **M-L** represents the Mountain; Blue Ridge; and Ridges and Valleys MLRAs*; **P** represents the Southern Piedmont MLRA* **C** represents Southern Coastal Plan; Sand Hills; Black Lands; and Atlantic Coast Flatwoods MLRAs*

* Refer to Georgia Major Land Resource Areas Map

Table 6-5.1. Fertilizer Requirements

TYPE OF SPECIES	YEAR	ANALYSIS OR EQUIVALENT N-P-K	RATE	N TOP DRESSING RATE
1. Cool Season Grasses	First	6-12-12	1500 lbs./ac.	50-100 lbs./ac. 1/2/
	Second	6-12-12	1000 lbs./ac.	---
	Maintenance	10-10-10	400 lbs./ac.	30 lbs./ac.
2. Cool Season Grasses and Legumes	First	6-12-12	1500 lbs./ac.	0-50 lbs./ac. 1/
	Second	0-10-10	1000 lbs./ac.	---
	Maintenance	0-10-10	400 lbs./ac.	---
3. Ground Covers	First	10-10-10	1300 lbs./ac. 3/	---
	Second	10-10-10	1300 lbs./ac. 3/	---
	Maintenance	10-10-10	1100 lbs./ac.	---
4. Pine Seedlings	First	20-10-5	one 21-gram pellet per seedling placed in the closing hole	---
5. Shrub Lespedeza	First	0-10-10	700 lbs./ac.	---
	Maintenance	0-10-10	700 lbs./ac. 4/	---
6. Temporary cover crops seeded alone	First	10-10-10	500 lbs./ac.	30 lbs./ac. 5/
7. Warm Season Grasses	First	6-12-12	1500 lbs./ac.	50-100 lbs./ac. 2/6/
	Second	6-12-12	800 lbs./ac.	50-100 lbs./ac. 2/
	Maintenance	10-10-10	400 lbs./ac.	30 lbs./ac.
8. Warm Season Grasses & Legumes	First	6-12-12	1500 lbs./ac.	50 lbs./ac./6/
	Second	0-10-10	1000 lbs./ac.	---
	Maintenance	0-10-10	400 lbs./ac.	---

1/ Apply in spring following seeding.
2/ Apply in split applications when high rates are used.
3/ Apply in 3 split applications.
4/ Apply when plants are pruned.
5/ Apply to grass species only.
6/ Apply when plants grow to a height of 2" to 4".

Table 6-5.3. Durable Shrubs and Ground Covers for Permanent Cover
Ground covers include a wide range of low-growing plants planted together in considerable numbers to cover large areas of the landscape. Ground covers grow slower than grasses. Weeds are likely to compete, especially the first year. Maintenance is needed to insure survival. These ground covers will not be used unless proper maintenance is planned. Maintain mulch at 3" thickness until plants provide adequate cover. Fall planting is encouraged because the need for constant watering is reduced and plants have time to establish new roots before hot weather.

COMMON NAME	SCIENTIFIC NAME	MATURE HEIGHT	PLANT SPACING	COMMENT
Abelia	*Abelia grandiflora*	3'-4'	5'	Also a prostrate form 2' high. Sun, semi-shade. Semi evergreen.
Carolina Yellow Jessamine	*Gelsemium sempervirens*	low	3'	Vine. Yellow, trumpet-like flowers. Hardy, one of best vines. Evergreen. Native to GA.
Carpet Blue	*Ajuga reptans*	2"-4"	3'	Needs good drainage, partial shade. Blue or white flowers. Evergreen.
Bearberry Cotoneaster	*Cotoneaster dammeri*	2'-4'	5'	White flowers, red fruit. Sun. Evergreen.
Ground Cover Cotoneaster	*Cotoneaster salicifolius* 'Repens'	1'-2'	5'	White flowers, red fruit. Sun. Evergreen.
Rock Cotoneaster	*Cotoneaster horizontalis*	1'-2'	5'	Semi-Evergreen. Sun.
Virginia Creeper	*Parthenocissue quinquefolia*	low	3'	Red in fall. Vine. Deciduous. Native to GA.
Daylily	*Hemerocallis* spp.	2'-3'	2'	Many flower colors. Full sun. Very hardy.
Compacta Holly	*Ilex crenata* 'Compacta'	3'-4'	5'	Sun. Semi-shade.
Chinese Holly	*Ilex cornuta* 'Rotunda'	3'-4'	5'	Very durable. Sun, Semi-shade.
Dwarf Burford Holly	*Ilex burfordii* 'Nana'	5'-8'	8'	- -
Dwarf Yaupon Holly	*Ilex vomitoria* 'Nana'	3'-4'	5'	Very durable. Sun, Semi-shade.
Repandens Holly	*Ilex crenata* 'Repandens'	2'-3'	5'	Sun. Semi-shade.
Andorra Juniper	*Juniperus horizontalis* 'Plumosa'	2'-3'	5'	Excellent for slopes. Sun.
Andorra Compacta Juniper	*Juniperus horizontalis* 'Plumosa compacta'	1'-2'	5'	More compact than Andorra.
Andorra Compacta Juniper	*Juniperus horizontalis* 'Plumosa Compacta'	1'-2'	5'	More compact than Andorra.
Blue Chip Juniper	*Juniperus horizontalis* 'Blue Chip'	8"-10"	4'	- -
Blue Rug Juniper	*Juniperus horizontalis* 'Wiltonii'	4"-6"	3'	Very low. Sun.
Parsons Juniper	*Juniperus davurica* 'Expansa' (Squamata parsoni)	18"-24"	5'	One of the best, good winter cover.
Pfitzer Juniper	*Juniperus chinensis* 'Pfitzerana'	6'-8'	6'	Needs room.
Prince of Wales Juniper	*Juniperus horizontalis* 'Prince of Wales'	8"-10"	4'	Feathery appearance.
Sargent Juniper	*Juniperus chinensis* 'Sargentii'	1'-2'	5'	Full sun. Needs good drainage. Good winter color.
Shore Juniper	*Juniperus conferta*	2'-3'	5'	Emerald Sea or Blue Pacific cultivars are good.
Liriope	*Liriope muscari*	8"-10"	3'	- -
Creeping Liriope	*Liriope spicata*	10"-12"	1'	Spreads by runners.
Big Leaf Periwinkle	*Vinca major*	12"-15"	4'	Lilac flowers in spring. Semi-shade.
Common Periwinkle	*Vinca minor*	5"-6"	4'	Lavender-blue flowers in spring. Semi-shade.
Cherokee Rose	*Rosa laevigata*	2'	5'	Rampant grower. Not for restricted spaces. State flower.
Memoria Rose	*Rosa weuchuriana*	2'	5'	Rampant grower.
St. Johnswort	*Hypericum calycenum*	8"-12"	3'	Semi-shade.
Anthony Waterer Spirea	*Spirea bumalda*	3'-4'	5'	Sun.
Thunberg Spirea	*Spirea thunbergii*	3'-4'	5'	Sun.

Table 6-5.4. Trees for Erosion Control

SITE	SOIL MATERIAL	COMMON SOILS	PLANTING TREE SPECIES[1]	SPACING	PLANTING DATES[3]
Borrow areas, graded areas, and spoil material	Sandy	Lakeland, Troup	Loblolly Pine (*Pinus taeda*) / Longleaf Pine (*Pinus palustris*)	2	M - L, P = 12/1 - 3/15 C = 12/1 - 3/1
	Loamy	Orangeburg, Tifton	Loblolly Pine (*Pinus taeda*) / Slash Pine (*Pinus elliottii*)	2	M - L, P = 12/1 - 3/15 C = 12/1 - 3/1
	Clay	Cecil, Faceville	Slash Pine (*Pinus elliottii*) / Virginia Pine (*Pinus virginiana*)	2	M - L, P = 12/1 - 3/15 C = 12/1 - 3/1
Streambanks	--	--	Willows[4] (*Salix spp.*)	2' x 2'	ALL

[1] Other trees and shrubs listed on Table 6-25.3 may be interplanted with the pines for improved wildlife benefits.

[2]

Type of Planting	Tree Spacing	No. of Trees per Acre
Trees Alone	4' x 4'	2,722
Trees in Combination w/ grasses and/or other plants	6' x 6'	1,210

[3] **M-L** represents the Mountain; Blue Ridge; and Ridges and Valleys MLRAs*; **P** represents the Southern Piedmont MLRA*; **C** represents Southern Coastal Plan; Sand Hills; Black Lands; and Atlantic Coast Flatwoods MLRAs*

* Refer to Georgia Major Land Resource Areas Map

[4] Fertilization of companion crop is ample for this species.

REQUIREMENT FOR REGULATORY COMPLIANCE

This practice shall be applied immediately to rough graded areas that will be undisturbed for longer than 6 months. This practice or sodding shall be applied immediately to all areas at final grade. Final Stabilization means that all soil disturbing activities at the site have been completed, and that for unpaved areas and areas not covered by permanent structures and areas located outside the waste disposal limits of a landfill cell that has been certified by the GA EPD for waste disposal, 100% of the soil surface is uniformly covered in permanent vegetation with a density of 70% or greater, or landscaped according to the Plan (uniformly covered with landscaping materials in planned landscaped areas), or equivalent permanent stabilization measures.

Permanent vegetation shall consist of, planted trees, shrubs, perennial vines; or a crop of perennial vegetation appropriate for the region, such that within the growing season a 70% coverage by perennial vegetation shall be achieved. Final stabilization applies to each phase of construction. For linear construction projects on land used for agricultural or silvicultural purposes, final stabilization may be accomplished by stabilizing the disturbed land for its agricultural or silvicultural use. Until this standard is satisfied and permanent control measures and facilities are operational, interim stabilization measures and temporary erosion and sedimentation control measures shall not be removed.

CONDITIONS

Permanent perennial vegetation is used to provide a protective cover for exposed areas including cuts, fills, dams, and other denuded areas.

PLANNING CONSIDERATIONS

1. Use conventional planting methods where possible.
2. When mixed plantings are done during marginal planting periods, companion crops shall be used.
3. No-till planting is effective when planting is done following a summer or winter annual cover crop. Sericea lespedeza planted no-till into stands of rye is an excellent procedure.
4. Block sod provides immediate cover. It is especially effective in controlling erosion adjacent to concrete flumes and other structures. Refer to Specification **Ds4-Disturbed Area Stabilization (With Sodding).**
5. Irrigation should be used when the soil is dry or when summer plantings are done.
6. Low maintenance plants, as well as natives, should be used to ensure long-lasting erosion control.
7. Mowing should not be performed during the quail nesting season (May to September).
8. Wildlife plantings should be included in critical area plantings.

Wildlife Plantings
Commercially available plants beneficial to wildlife species include the following:

Mast Bearing Trees
Beech, Black Cherry, Blackgum, Chestnut, Chinkapin, Hackberry, Hickory, Honey Locust, Native Oak, Persimmon, Sawtooth Oak and Sweetgum.
- All trees that produce nuts or fruits are favored by many game species. Hickory provides nuts used mainly by squirrels and bear.

Shrubs and Small Trees
Bayberry, Bicolor Lespedeza, Crabapple, Dogwood, Huckleberry or Native Blueberry, Mountain Laurel, Native Holly, Red Cedar, Red Mulberry, Sumac, Wax Myrtle, Wild Plum and Blackberry.
- Plant in patches without tall trees to develop stable shrub communities. All produce fruits used by many kinds of wildlife, except for lespedeza that produces seeds used by quail and songbirds.

Grasses, Legumes, Vines and Temporary Cover
Bahiagrass, Bermudagrass, Grass-Legume mixtures, Partridge Pea, Annual Lespedeza, Orchardgrass (for mountains), Browntop Millet (for temporary cover), and Native grapes.
- Provides herbaceous cover in clearings for a game bird brood-rearing habitat. Appropriate legumes such as vetches, clovers, and lespedezas may be mixed with grass, but they may die out after a few years.

CONSTRUCTION SPECIFICATIONS

Grading and Shaping
Grading and shaping may not be required where hydraulic seeding and fertilizing equipment is to be used. Vertical banks shall be sloped to enable plant establishment. When conventional seeding and fertilizing are to be done, grade and shape where feasible and practical, so that equipment can be used safely and efficiently during seedbed preparation, seeding, mulching and maintenance of the vegetation. Concentrations of water that will cause excessive soil erosion shall be diverted to a safe outlet. Diversions and other treatment practices shall conform with the appropriate standards and specifications.

Lime and Fertilizer Rates and Analysis
Agricultural lime is required at the rate of 1-2 tons per acre unless soil tests indicate otherwise. Graded areas require lime application. If lime is applied within 6 months of planting permanent perennial vegetation, additional lime is not required. Agricultural lime shall be within the specifications of the GA Department of Agriculture. Lime spread by conventional equipment shall be "ground limestone." Ground limestone is calcitic or dolomitic limestone ground so that 90% of the material will pass through a 10-mesh sieve, not less than 50% will pass through a 50-mesh sieve and not less than 25% will pass through a 100-mesh sieve. Fast-acting lime spread by hydraulic seeding equipment should be "finely ground limestone" spanning from the 180 micron size to the 5 micron size. Finely ground limestone is calcitic or dolomitic limestone ground so that 95% of the material will pass through a 100-mesh sieve. It is desirable to use dolomitic limestone in the Sand Hills, Southern Coastal Plain and Atlantic Coast Flatwoods MLRAs. (See **Figure 6-4.1**) Agricultural lime is generally not required where only trees are planted. Initial fertilization, nitrogen, topdressing, and maintenance fertilizer requirements for each species or combination of species are listed in **Table 6-5.1.**

Lime and Fertilizer Application
When hydraulic seeding equipment is used, the initial fertilizer shall be mixed with seed, innoculant (if needed), and wood cellulose or wood pulp fiber mulch and applied in a slurry. The innoculant, if needed, shall be mixed with the seed prior to being placed into the hydraulic seeder. The slurry mixture will be agitated during application to keep the ingredients thoroughly mixed. The mixture will be spread uniformly over the area within one hour after being placed in the hydroseeder. Finely ground limestone can be applied in the mulch slurry or in combination with the top dressing. When conventional planting is to be done, lime and fertilizer shall be applied uniformly in one of the following ways: 1. Apply before land preparation so that it will be mixed with the soil during seedbed preparation. 2. Mix with the soil used to fill the holes, distribute in furrows. 3. Broadcast after steep surfaces are scarified, pitted or trenched. 4. A fertilizer pellet shall be placed at root depth in the closing hole beside each pine tree seedling.

Seeding
Select a grass or grass-legume mixture suitable to the area and season of the year. Seed shall be applied uniformly by hand, cyclone seeder, drill, culti-packer-seeder, or hydraulic seeder (slurry including seed and fertilizer). Drill or cultipacker seeders should normally place seed ¼" to ½" deep. Appropriate depth of planting is ten times the seed diameter. Soil should be "raked" lightly to cover seed with soil if seeded by hand. See **Table 6-4.1 - Temporary Cover or Companion Cover Crops.**

Mulching
Temporary vegetation can, in most cases, be established without the use of mulch, provided there is little to no erosion potential. However, the use of mulch can often accelerate and enhance germination and vegetation establishment. Mulch without seeding should be considered for short term protection. Refer to **Ds1 - Disturbed Area Stabilization (With Mulching Only).**

Irrigation
During times of drought, water shall be applied at a rate not causing runoff and erosion. The soil shall be thoroughly wetted to a depth that will insure germination of the seed. Subsequent applications should be made when needed.

Plant Selection
Refer to **Tables 6-4.1**, **6-5.2**, **6-5.3** and **6-5.4** for approved species. Species not listed shall be approved by the State Resource Conservationist of the NRCS before they are used. Plants shall be selected on the basis of species characteristics, site and soil conditions, planned use and maintenance of the area; time of year of planting, method of planting; and needs and desires of the land user. Some perennial species are easily established and can be planted alone. Examples of these are Common Bermuda, Tall Fescue, and Weeping Lovegrass. Other perennials, such as Bahia Grass and Sericea Lespedeza, are slow to become established and should be planted with another perennial species. The additional species will provide quick cover and ample soil protection until the target perennial species become established. For example, common seeding combinations are 1) Weeping Lovegrass with Sericea Lespedeza (scarified) and 2) Tall Fescue with Sericea Lespedeza (unscarified). Plant selection may also include annual companion crops. Annual companion crops should be used only when perennial species are not planted during their optimum planting period. A common mixture is Brown Top Millet with Common Bermuda in mid-summer. Care should be taken in selecting companion crop species and seeding rates because annual crops will compete with perennial species for water, nutrients, and growing space. A high seeding rate of the companion crop may prevent the establishment of perennial species. **Ryegrass shall not be used in any seeding mixtures containing perennial species due to its ability to out-compete desired species chosen for permanent perennial cover.**

Seed Quality
The term "pure live seed" is used to express the quality of seed and is not shown on the label. Pure live seed, PLS, is expressed as a percentage of seeds that are pure and will germinate. Information on percent germination and purity can be found on seed tags. PLS is determined by multiplying the percent of pure seed with the percent of germination; i.e., (PLS = % germination x % purity). The percent of PLS helps you determine the amount of seed you need. For example, if the seeding rate is 10 pounds PLS and the bulk seed is 56% PLS (i.e. 70% germination, 80% purity), the bulk seeding rate is: 10 lbs. PLS/acre / 56% PLS = 17.9 lbs/acre. You would need to plant 17.9 lbs/acre to provide 10 lbs/acre of pure live seed.

Seedbed Preparation
Seedbed preparation may not be required where hydraulic seeding and fertilizing equipment is to be used (but is strongly recommended for any seeding process, when possible). When conventional seeding is to be used, seedbed preparation will be done as follows:

Broadcast plantings
1. Tillage, at a min., shall adequately loosen soil to a depth of 4" to 6"; alleviate compaction; incorporate lime and fertilizer; smooth and firm the soil; allow for proper placement of seed, sprigs, or plants; and allow for anchoring of straw or hay mulch if a disk is to be used.
2. Tillage may be done with any suitable equipment.
3. Tillage should be done on the contour where feasible.
4. On slopes too steep for the safe operation of tillage equipment, the soil surface shall be pitted or trenched across the slope with appropriate hand tools to provide two places 6" to 8" apart in which seed may lodge and germinate. Hydraulic seeding may also be used.

Individual Plants
1. Where individual plants are to be set, the soil shall be prepared by excavating holes, opening furrows, or dibble planting.
2. For nursery stock plants, holes shall be large enough to accommodate roots without crowding.
3. Where pine seedlings are to be planted, subsoil under the row 36" deep on the contour 4 to 6 months prior to planting. Subsoiling should be done when the soil is dry, preferably in August or September.

Inoculants
All legume seed shall be inoculated with appropriate nitrogen-fixing bacteria. The inoculant shall be a pure culture prepared specifically for the seed species and used within the dates on the container. A mixing medium recommended by the manufacturer shall be used to bond the inoculant to the seed. For conventional seeding, use twice the amount of inoculant recommended by the manufacturer. For hydraulic seeding, four times the amount of inoculant recommended by the manufacturer shall be used. All inoculated seed shall be protected from the sun and high temperatures and shall be planted the same day inoculated. No inoculated seed shall remain in the hydroseeder longer than one hour.

Planting

Hydraulic Seeding
Mix the seed (inoculated if needed), fertilizer, and wood cellulose or wood pulp fiber mulch with water and apply in a slurry uniformly over the area to be treated. Apply within one hour after the mixture is made.

Conventional Seeding
Seeding will be done on a freshly prepared and firmed seedbed. For broadcast planting, use a culti-packer-seeder, drill, rotary seeder, other mechanical seeder, or hand seeding to distribute the seed uniformly over the area to be treated. Cover the seed lightly with ⅛" to ¼" of soil for small seed and ½" to 1" for large seed when using a cultipacker or other suitable equipment.

No-Till Seeding
No-till seeding is permissible into annual cover crops when planting is done following maturity of the cover crop or if the temporary cover stand is sparse enough to allow adequate growth of the permanent (perennial) species. No-till seeding shall be done with appropriate no-till seeding equipment. The seed must be uniformly distributed and planted at the proper depth.

Individual Plants
Shrubs, vines and sprigs may be planted with appropriate planters or hand tools. Pine trees shall be planted manually in the subsoil furrow. Each plant shall be set in a manner that will avoid crowding the roots. Nursery stock plants shall be planted at the same depth or slightly deeper than they grew at the nursery. The tips of vines and sprigs must be at or slightly above the ground surface. Where individual holes are dug, fertilizer shall be placed in the bottom of the hole, 2" of soil shall be added and the plant shall be set in the hole.

Mulching
Mulch is required for all permanent vegetation applications. Mulch applied to seeded areas shall achieve 75% to 100% soil cover. When selecting a mulch, consider the mulch's functional longevity, vegetation establishment enhancement, and erosion control effectiveness. Select the mulching material from the following and apply as indicated:

1. *Dry straw or dry hay* of good quality and free of weed seeds can be used. Dry straw shall be applied at the rate of 2 tons per acre. Dry hay shall be applied at a rate of 2½ tons per acre.
2. *Wood cellulose mulch or wood pulp fiber* shall be used with hydraulic seeding. It shall be applied at the rate of 500 lbs per acre. Dry straw or dry hay shall be applied (at the rate indicated above) after hydraulic seeding.
3. 1,000 lbs of *wood cellulose* or *wood pulp fiber*, which includes a tackifier, shall be used with hydraulic seeding on slopes 3/4:1 or steeper.
4. *Sericea lespedeza* hay containing mature seed shall be applied at a rate of 3 tons per acre.
5. *Pine straw or pine bark* shall be applied at a thickness of 3" for bedding purposes. Other suitable materials in sufficient quantity may be used where ornamentals or other ground covers are planted. This is not appropriate for seeded areas.
6. When using temporary erosion control blankets or block sod, mulch is not required.
7. *Bituminous treated roving* may be applied on planted areas, slopes, in ditches or dry waterways to prevent erosion. Bituminous treated roving shall be applied within 24 hours after an area has been planted. Application rates and materials must meet GA Department of Transportation specifications.

Wood cellulose and wood pulp fibers shall not contain germination or growth inhibiting factors. They shall be evenly dispersed when agitated in water. The fibers shall contain a dye to allow visual metering and aid in uniform application during seeding.

Applying Mulch
Straw or hay mulch will be spread uniformly within 24 hours after seeding and/or planting. The mulch may be spread by blower-type spreading equipment, other spreading equipment or by hand. Mulch shall be applied to cover 75% of the soil surface. Wood cellulose or wood fiber mulch shall be applied uniformly with hydraulic seeding equipment.

Anchoring Mulch
Anchor straw or hay mulch immediately after application by one of the following methods:
1. *Hay and straw mulch* shall be pressed into the soil immediately after the mulch is spread. A special "packer disk" or disk harrow with the disks set straight may be used. The disks may be smooth or serrated and should be 20" or more in diameter and 8" to 12" apart. The edges of the disks shall be dull enough to press the mulch into the ground without cutting it, leaving much of it in an erect position. Mulch shall not be plowed into the soil.
2. *Synthetic tackifiers, binders or hydraulic mulch specifically designed to tack straw*, shall be applied in conjunction with or immediately after the mulch is spread. Synthetic tackifiers shall be mixed and applied according to manufacturer's specifications. All tackifiers, binders or hydraulic mulch specifically designed to tack straw should be verified nontoxic through EPA 2021.0 testing. Refer to **Tackifiers-Tac.**
3. Rye or wheat can be included with Fall and Winter plantings to stabilize the mulch. They shall be applied at a rate of ¼ to ½ bushel per acre.
4. Plastic mesh or netting with mesh no larger than 1" by 1" may be needed to anchor straw or hay mulch on unstable soils and concentrated flow areas. These materials shall be installed and anchored according to manufacturer's specifications.

Bedding Material
Mulch is used as bedding material to conserve moisture and control weeds in nurseries, ornamental beds, around shrubs, and on bare areas on lawns.

Material	Depth
Grain straw	4" to 6"
Grass Hay	4" to 6"
Pine needles	3" to 5"
Wood waste	4" to 6"

Irrigation
Irrigation will be applied at a rate that will not cause runoff.

Topdressing
Topdressing will be applied on all temporary and permanent (perennial) species planted alone or in mixtures with other species. Recommended rates of application are listed in **Table 6-5.1.**

Second Year and Maintenance Fertilization
Second year fertilizer rates and maintenance fertilizer rates are listed in **Table 6-5.1.**

Lime Maintenance Application
Apply one ton of agricultural lime every 4 to 6 years or as indicated by soil tests. Soil tests can be conducted to determine more accurate requirements, if desired.

Use and Management
Mow Sericea Lespedeza only after frost to ensure that the seeds are mature. Mow between November and March. Bermudagrass, Bahiagrass and Tall Fescue may be mowed as desired. Maintain at least 6" of top growth under any use and management. Moderate use of top growth is beneficial after establishment. Exclude traffic until plants are well established. Because of quail nesting season, mowing should not take place between May and September.

DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION) - (Ds3)

N.T.S.

1. **CLASS 1 RIP-RAP**
   A. NO MORE THAN 10% OF THE STONE SHALL HAVE A DIAMETER GREATER THAN 12"; NO MORE THAN 50% OF THE STONE SHALL HAVE A DIAMETER LESS THAN 10"; AND NO MORE THAN 10% OF THE STONE SHALL HAVE A DIAMETER OF LESS THAN 6". THE THICKNESS OF THE RIP-RAP LINER SHALL BE NO LESS THAN 12".
2. **CLASS 2 RIP-RAP**
   A. NO MORE THAN 10% OF THE STONE SHALL HAVE A DIAMETER GREATER THAN 16"; NO MORE THAN 50% OF THE STONE SHALL HAVE A DIAMETER LESS THAN 12"; AND NO MORE THAN 10% OF THE STONE SHALL HAVE A DIAMETER OF LESS THAN 6". THE THICKNESS OF THE RIP-RAP LINER SHALL BE NO LESS THAN 16".
3. **CLASS 3 RIP-RAP**
   A. NO MORE THAN 10% OF THE STONE SHALL HAVE A DIAMETER GREATER THAN 22"; NO MORE THAN 50% OF THE STONE SHALL HAVE A DIAMETER LESS THAN 16"; AND NO MORE THAN 10% OF THE STONE SHALL HAVE A DIAMETER OF LESS THAN 8". THE THICKNESS OF THE RIP-RAP LINER SHALL BE NO LESS THAN 22".
4. **CLASS 4 RIP-RAP**
   A. NO MORE THAN 10% OF THE STONE SHALL HAVE A DIAMETER GREATER THAN 27"; NO MORE THAN 50% OF THE STONE SHALL HAVE A DIAMETER LESS THAN 22"; AND NO MORE THAN 10% OF THE STONE SHALL HAVE A DIAMETER OF LESS THAN 10". THE THICKNESS OF THE RIP-RAP LINER SHALL BE NO LESS THAN 27".
5. **CLASS 5 RIP-RAP**
   A. NO MORE THAN 10% OF THE STONE SHALL HAVE A DIAMETER GREATER THAN 34"; NO MORE THAN 50% OF THE STONE SHALL HAVE A DIAMETER LESS THAN 27"; AND NO MORE THAN 10% OF THE STONE SHALL HAVE A DIAMETER OF LESS THAN 16". THE THICKNESS OF THE RIP-RAP LINER SHALL BE NO LESS THAN 34".

RIP-RAP CLASSIFICATION SPECIFICATIONS

Du

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CONDITIONS

This practice is applicable to areas subject to surface and air movement of dust where on and off-site damage may occur without treatment.

METHOD AND MATERIALS

A. **Temporary Methods**
- **Mulches**. See standard **Ds1 - Disturbed Area Stabilization (With Mulching Only)**. Synthetic resins may be used instead of asphalt to bind mulch material. Refer to specification **Tac - Tackifiers**. Resins should be used according to manufacturer's recommendations.
- **Vegetative Cover**. See specification **Ds2 - Disturbed Area Stabilization (With Temporary Seeding).**
- **Spray-on Adhesives**. These are used on mineral soils (not effective on muck soils). Keep traffic off these areas. Refer to specification **Tac - Tackifiers.**
- **Tillage**. This practice is designed to roughen and bring clods to the surface. It is an emergency measure that should be used before wind erosion starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12" apart, spring-toothed harrows, and similar plows are examples of equipment that may produce the desired effect.

Irrigation.
This is generally done as an emergency treatment. Site is sprinkled with water until the surface is wet. Repeat as needed.

Barriers.
Solid board fences, snowfences, burlap fences, crate walls, bales of hay and similar material can be used to control air currents and soil blowing. Barriers placed at right angles to prevailing currents at intervals of about 15 times their height are effective in controlling wind erosion.

Calcium Chloride.
Apply at rate that will keep surface moist. May need retreatment.

B. **Permanent Methods**

Permanent Vegetation. See specification **Ds3 - Disturbed Area Stabilization (With Permanent Vegetation)**. Existing trees and large shrubs may afford valuable protection if left in place.

Topsoiling. This entails covering the surface with less erosive soil material. See specification **Tp - Topsoiling.**

Stone. Cover surface with crushed stone or coarse gravel. See specification **Cr - Construction Road Stabilization.**

DUST CONTROL ON DISTURBED AREAS - (Du)

Sd1-NS

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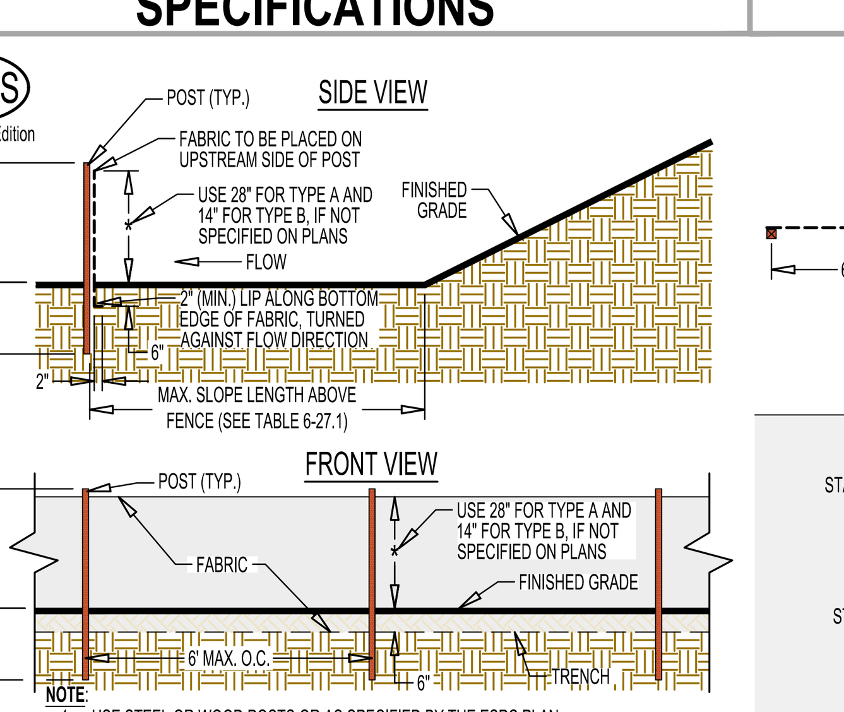
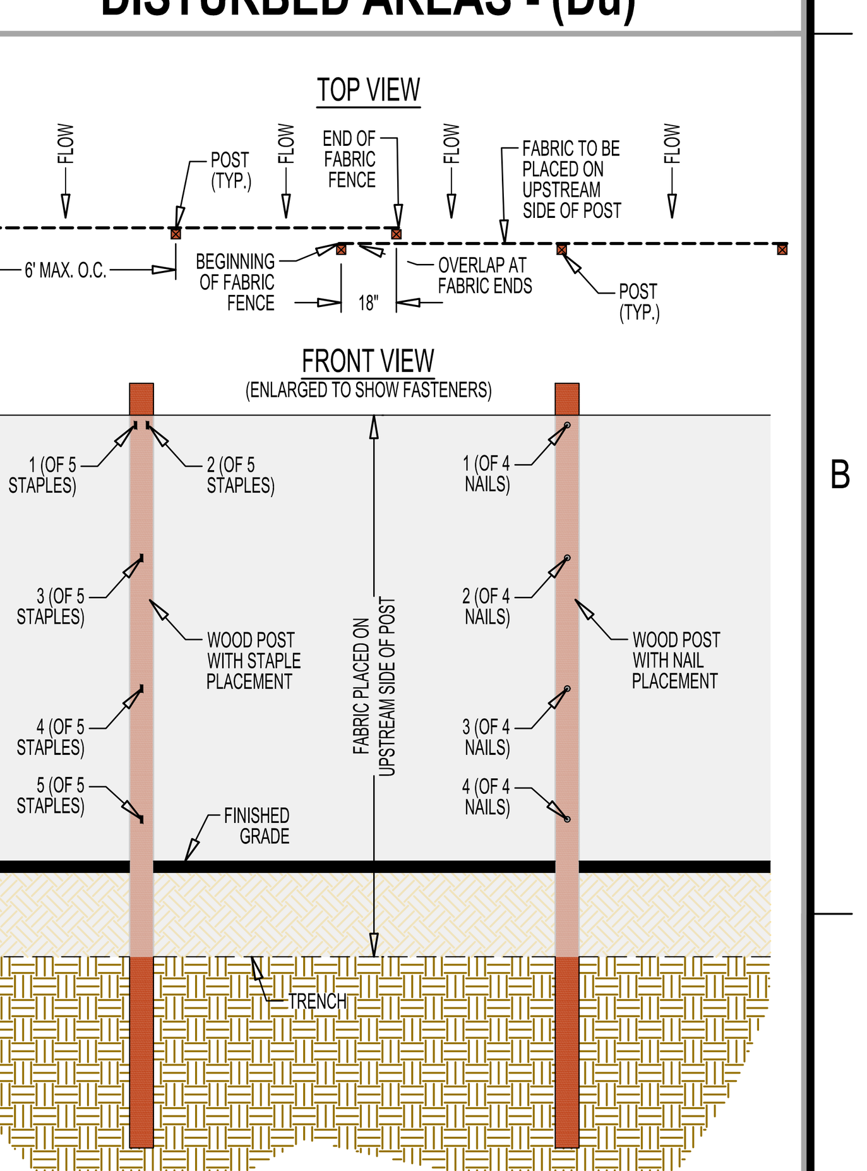


NOTE:
1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE ESPC PLAN.
2. HEIGHT (*) IS TO BE SHOWN ON THE ESPC PLAN. (USE 28", IF NOT SPECIFIED ON PLANS)

Figure 6-27.1



NOTE:
1. THE FABRIC AND WIRE SHALL BE SECURELY FASTENED TO POSTS AND FABRIC ENDS.
2. MUST BE OVERLAPPED A MINIMUM OF 18" OR WRAPPED TOGETHER AROUND A POST TO PROVIDE CONTINUOUS FABRIC BARRIER.

Figure 6-27.5

PURPOSE

To minimize and prevent sediment carried by sheet flow from leaving the site and entering natural drainage ways or storm drainage systems by slowing storm water runoff and causing the deposition and/or filtration of sediment at the structure. The barriers retain the soil on the disturbed land until the activities disturbing the land are completed and vegetation is established.

CONDITIONS

Barriers should be installed where runoff can be stored behind the barrier without damaging the submerged area behind the barrier or the structure itself. Sediment barriers shall not be installed across streams, ditches, waterways, or other concentrated flow areas.

DESIGN CRITERIA

Sediment barriers are designed to retain sediment transported by sheet flow from disturbed areas. It is important for the design professional to take into account the profile of the product for use on the site.

Sediment Barriers should also provide a rip-rap splash pad or other outlet protection device for any point where flow may overtop the sediment barrier. Ensure that the maximum height of the barrier at a protected, reinforced outlet does not exceed 1' and that the support spacing does not exceed 4'.

Where all runoff is to be stored behind the sediment barrier (where no storm water disposal system is present), maximum continuous slope length behind a sediment barrier shall not exceed those shown in Table 6-27.1. For longer slope lengths, slope interrupters must be used. The drainage area shall not exceed ¼ acre for every 100' of sediment barrier.

Table 6-27.1 Criteria for Sediment Barrier

Land Slope	Maximum Slope Length Above Fence
Percent	Feet
< 2	100
2 to 5	75
5 to 10	50
10 to 20	25
>20 *	15

*In areas where the slope is greater than 20%, a flat area length of 10' between the toe of slope to the barrier should be provided.

Placement
The type of sediment barrier depends on whether the area is sensitive or non-sensitive. Sensitive areas can be defined as any area that needs additional protection. These areas include, but are not limited to, state waters, wetlands, or any area the design professional designates as sensitive. When using multiple types of sediment barriers on a site in a single run, the barriers must be overlapped 18" or as specified by the design professional. See Figure 6-27.5.

CONSTRUCTION SPECIFICATIONS

Sediment barriers being used as Type NS (Non-sensitive Areas *) shall have a support spacing of no greater than 6' on center, with each being driven into the ground a minimum of 18".

*As of January 1, 2016, in the existing Georgia Department of Transportation Qualified Products List #36 (QPL- 36), Type A or Type B will fall under non-sensitive applications and be classified as non-sensitive. Refer to Appendix A-2 and the Equivalent BMP List.

PRACTICE CLASSIFICATIONS

For silt fence Type A and Type B, refer to Table 6-27.4.

Type A Silt Fence
This 36" wide filter fabric shall be used on developments where the life of the project is greater than or equal to 6 months. **Type A is classified as non-sensitive application.**

Type B Silt Fence
Though only 22" wide, this filter fabric allows the same flow rate as Type A silt fence. Type B silt fence shall be limited to use on minor projects, such as residential home sites or small commercial developments where permanent stabilization will be achieved in less than 6 months. **Type B is classified as non-sensitive application.**

Installation
Sediment barriers should be installed along the contour. Temporary sediment barriers shall be installed according to the following specifications as shown on the plans or as directed by the design professional. For installation of non-sensitive barriers, see Figure 6-27.1 and 6-27.5.

Post installation shall start at the center of a low point (if applicable) with the remaining posts spaced no greater than 6' apart for Type NS sediment barriers. For post size requirements, see Table 6-27.2. Fasteners for wood posts are listed in Table 6-27.3.

Static Slicing Method
The static slicing machine pulls a narrow blade through the ground to create a slit 12" deep, and simultaneously inserts the silt fence fabric into this slit behind the blade. The blade is designed to slightly disrupt soil upward next to the slit and to minimize horizontal compaction, thereby creating an optimum condition for compacting the soil vertically on both sides of the fabric. Compaction is achieved by rolling a tractor wheel along both sides of the slit in the ground 2 to 4 times to achieve nearly the same or greater compaction as the original undisturbed soil. This vertical compaction reduces the air spaces between soil particles, which minimizes infiltration. Without this compaction, infiltration can saturate the soil, and water may find a pathway under the fence. When a silt fence is holding back several tons of accumulated water and sediment, it needs to be supported by posts that are driven 18" into the soil. Driving in the posts and attaching the fabric to them completes the installation.

Trenching Method
Trenching machines have been used for over 25 years to dig a trench for burying part of the filter fabric underground. Usually the trench is about 2"-6" wide with a 6" excavation. Post setting and fabric installation often precede compaction, which make effective compaction more difficult to achieve. EPA supported an independent technology evaluation (ASCE 2001), which compared 3 progressively better variations of the trenching method with static slicing The static slicing method performed better than 2 lower performance levels of the trenching method, and was as good as or better than the trenching method's highest performance level. The best trenching method typically required nearly triple the time and effort to achieve results comparable to the static slicing method.

Along all State Waters and other sensitive areas, 2 rows of Sensitive Area(s) Sediment Barrier (Type C Silt Fence) shall be used. The 2 rows of Sensitive Area(s) Sediment Barrier (Type C Silt Fence) shall be placed a minimum of 36" apart.

MAINTENANCE

Sediment shall be removed once it has accumulated to ½ the original height of the barrier. Sediment barriers shall be replaced whenever they have deteriorated to such an extent that the effectiveness of the product is reduced (approximately 6 months) or the height of the product is not maintaining 80% of its properly installed level. Temporary sediment barriers shall remain in place until disturbed areas have been permanently stabilized. All sediment accumulated at the barrier shall be removed and properly disposed of before the barrier is removed.

Table 6-27.2 Post Size

Type	Min. Length	Type of Post	Size of Post
NS	4'	Soft Wood	3" dia. or 2x4
		Oak	1.5" x 1.5"
		Steel	1.15lb./ft. min.

Table 6-27.3 Fasteners for Wood Posts

Type	Gauge	Crown	Legs	Staples per Post
Wire Staples	17 min.	¾" wide	½" long	5 min.
Type	Gauge	Length	Button Heads	Nails per Post
Nails	14 min.	1"	¾"	4 min.

Note: Filter Fabric may also be attached to the post by wire, cords, and pockets.

Table 6-27.4

	Type A Fabric Fence	Type B Fabric Fence
Tensile Strength (Lbs. Min.) [1] (ASTM D-4632)	Warp - 120 Fill - 100	Warp - 120 Fill - 100
Elongation (% Max.) (ASTM D-4632)	40	40
AOS (Apparent Opening Size) (Max. Sieve Size) (ASTM D-4751)	#30	#30
Flow Rate (Gal/Min/Sq. Ft.) (GDT-87)	25	25
Ultraviolet Stability [2] (ASTM D-4632 after 300 hours weathering in accordance with ASTM D-4355)	80	80
Bursting Strength (PSI Min.) (ASTM D-3786 Diaphragm Bursting Strength Tester)	175	175
Minimum Fabric Width (Inches)	36	22

[1] Minimum roll average of five specimens.
[2] Percent of required initial minimum tensile strength.

NON-SENSITIVE AREA(S) SEDIMENT BARRIER (TYPE A AND TYPE B SILT FENCE) - (Sd1-NS)

N.T.S.

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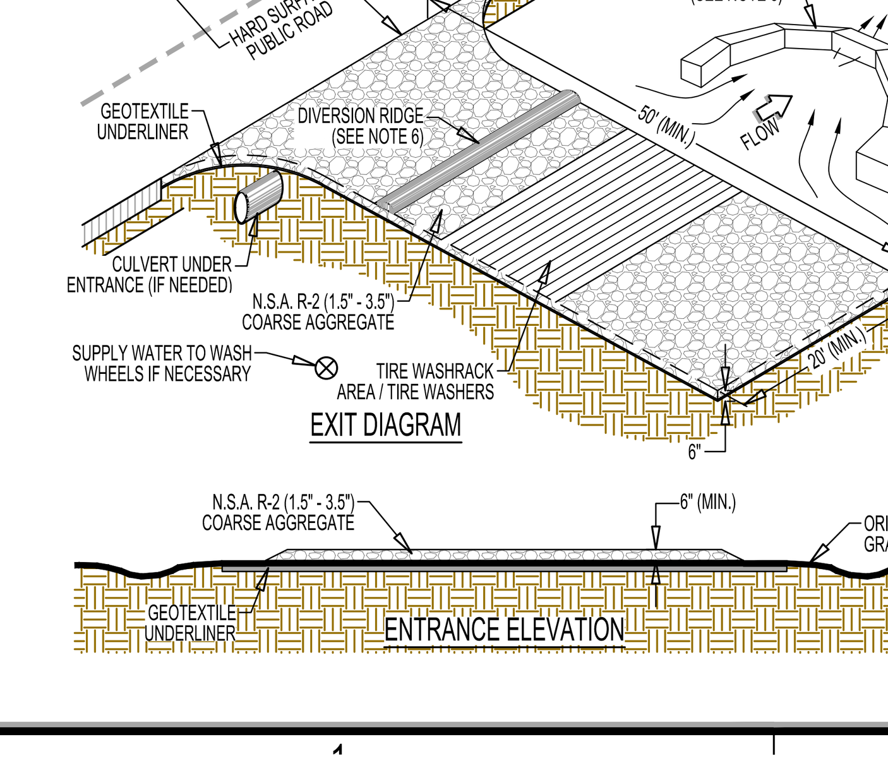
Figure 6-14.1



NOTES:
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE AND CROWN FOR POSITIVE DRAINAGE.
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).
4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%.
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES. PIPE SHALL BE SIZED APPROPRIATELY TO HANDLE EXISTING AND/OR PROPOSED FLOWS.
8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVES MUD AND DIRT.
10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

CONDITIONS
This practice is applied at appropriate points of construction egress. Geotextile underliners are required to stabilize and support the pad aggregates.

DESIGN CRITERIA
Formal design is not required. The following standards shall be used:

Aggregate Size / Pad Thickness / Pad Width - As noted above

Pad Length
The gravel pad shall have a minimum length of 50'. When the construction is less than 50' from the paved access, the length shall be from the edge of existing pavement to the permitted building being constructed.

Washing
If the action of the vehicle traveling over the gravel pad does not sufficiently remove the mud, the tires should be washed prior to entrance onto public rights-of-way. When washing is required, it shall be done as noted above.

Location
The exit shall be located or protected to prevent sediment from leaving the site.

CONSTRUCTION SPECIFICATIONS
It is recommended that the egress area be excavated to a depth of 3" and be cleared of all vegetation and roots.

Diversion Ridge
On sites where the grade toward the paved area is greater than 2%, a diversion ridge 6" to 8" high with 3:1 side slopes shall be constructed across the foundation approximately 15' above the road.

Geotextile
Geotextile underliner must be placed the full length and width of the entrance. Geotextile selection shall be based on AASHTO M288-06 specification:
1. For subgrades with a CBR greater than or equal to 3 or shear strength greater than 90 kPa, geotextile must meet requirements of section AASHTO M288-06 Section 7.3, Separation Requirements.
2. For subgrades with a CBR between 1 and 3 or sheer strength between 30 and 90 kPa, geotextile must meet requirements of section AASHTO M288-06 Section 8, Geotextile Property Requirements for Subsurface Drainage, Separation, Stabilization, and Permanent Erosion Control (Geotextile Property Requirements).

MAINTENANCE
The exit shall be maintained in a condition that will prevent tracking or flow of mud onto public rights-of-way. This may require periodic top dressing with 1.5"-3.5" stone, as conditions demand, and repair and/or cleanout of any structures to trap sediment. All materials spilled, dropped, washed, or tracked from vehicles or site onto roadways or into storm drains must be removed immediately.

CONSTRUCTION EXIT - (Co)

N.T.S.

THE TOTAL ACREAGE OF THE SITE IS 87.02 ACRES WITH A SURFACE WATER DRAINAGE AREA LESS THAN 4.99 SQUARE MILES. THUS AN NTU VALUE OF 50 SHALL BE APPLIED. 2 SAMPLING POINTS IS / ARE SHOWN ON THE SITE. REFER TO SHEET C-3.1 FOR SAMPLING FREQUENCY AND METHODOLOGY. REFER TO SHEETS C-3.2 TO C-3.4 FOR SAMPLING POINT LOCATIONS.

Nephelometric Turbidity Unit (NTU) TABLE
Warm Water (Supporting Warm Water Fisheries)

Surface Water Drainage Area, square miles

SITE SIZE, ACRES	0 - 4.99	5 - 9.99	10 - 24.99	25 - 49.99	50 - 99.99	100 - 249.99	250 - 499.99	500+
1.00 - 10	75	150	200	400	750	750	750	750
10.01 - 25	50	100	100	200	300	500	750	750
25.01 - 50	50	50	100	100	200	300	750	750
50.01 - 100	50	50	50	100	100	150	300	600
100.01 +	50	50	50	50	50	100	200	100

NPDES GENERAL PERMIT NO. GAR100001 APPENDIX B RATIONALE

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Project Information

150 VINE ST EROSION CONTROL PLAN

PARCEL NO. : M0210001A00
150 VINE ST
MONROE GA, 30655
ZONING-M1

DRAWING DATE:	7.9.2020
DRAWN BY:	MKS
CHECKED BY:	JPB

REVISIONS

DATE:	DESCRIPTION:
09.10.20	CITY COMMENTS
10.13.20	GSWCC COMMENTS
10.26.20	GSWCC COMMENTS

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Sheet Title

EROSION, SEDIMENTATION, AND POLLITION CONTROL DETAILS

Sheet Number

C-3.5

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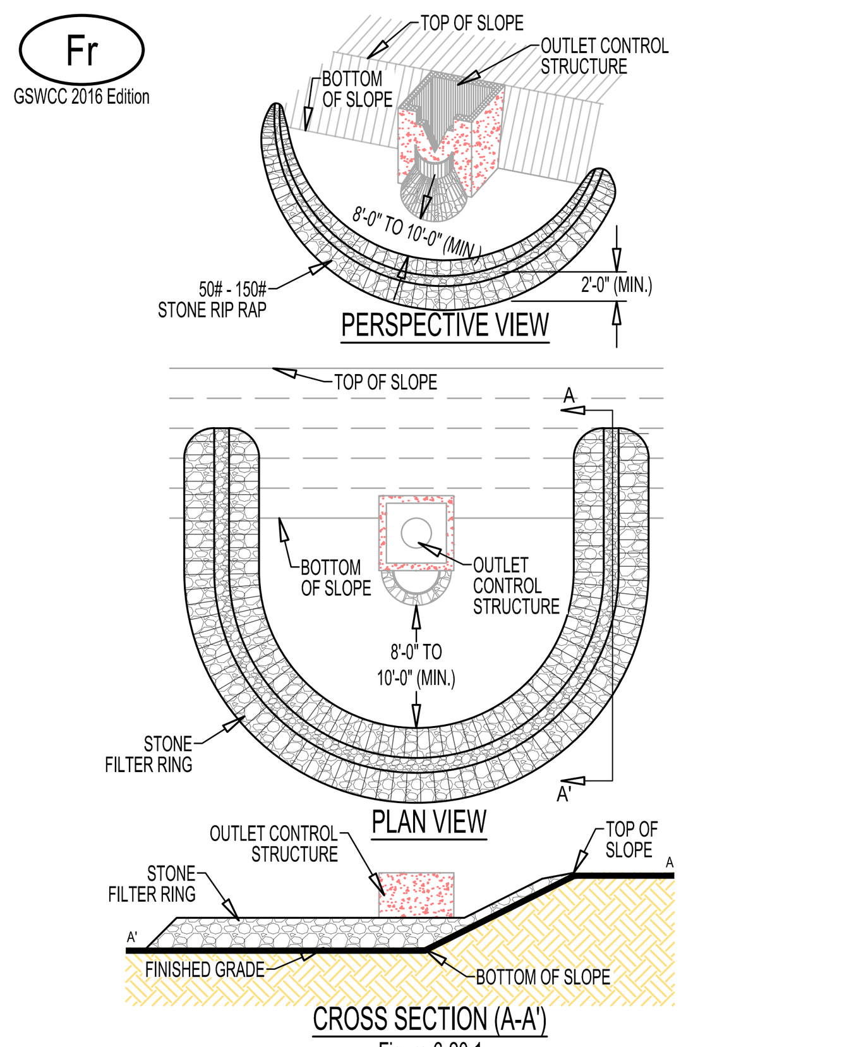

Figure 6-20.1

PURPOSE

This structure reduces flow velocities, preventing the failure of other sediment control devices. It also helps prevent sediment from leaving the site or entering drainage systems, prior to permanent stabilization of the disturbed area.

CONDITIONS

Filter rings shall be used in conjunction with other sediment control measures, except where other practices defined in this Manual are not appropriate (such as inlets to concrete fumes). They can be installed at or around devices such as inlet sediment traps, temporary downdrain inlets, and detention pond retrofits to provide additional sediment filtering capacity.

DESIGN CRITERIA

Formal design is not required. The following standards shall be used:

Location

The filter ring shall surround all sides of the structure receiving runoff from disturbed areas. It should be placed a minimum of 4' from the structure. The ring is not intended to substantially impound water, causing flooding or damage to adjacent areas. The filter ring may also be placed below storm drains discharging into detention ponds, creating a centralized area, or "forebay", for sediment accumulation. This provides for easier, more localized clean-out of the pond. If utilized above a retrofit structure, it should be a min. of 8' to 10' from the retrofit.

Stone Size

When utilized at inlets with diameters less than 12", the filter ring shall be constructed of stone no smaller than 3"-5" (15 - 30 lbs.). When utilized at pipes with diameters greater than 12", the filter ring shall be constructed of stone no smaller than 10"-15" (50 - 100 lbs.). The larger stone can be faced with smaller filter stone on the upstream side for added sediment filtering capabilities. However, the smaller filter stone is more prone to clogging, requiring higher maintenance.

Height

The filter ring shall be constructed at a height no less than 2' from grade.

CONSTRUCTION SPECIFICATIONS

Mechanical or hand placement of stone shall be required to uniformly surround the structure to be supplemented. Refer to Appendix C for rock riprap specifications. The filter ring may be constructed on natural ground surface, on an excavated surface, or on machine compacted fill. A common failure of a filter ring is caused by placing it too close to or too high above the structure it is enhancing. When utilized below a storm drain outlet, it shall be placed such that it does not create a condition causing water to back-up into the storm drain and inhibit the function of the storm drain system.

MAINTENANCE

The filter ring must be kept clear of trash and this will require continuous monitoring and maintenance, which includes sediment removal when one-half full. Structures are temporary and should be removed when the land disturbing project has been stabilized.

N.T.S.

FILTER RING - (Fr)

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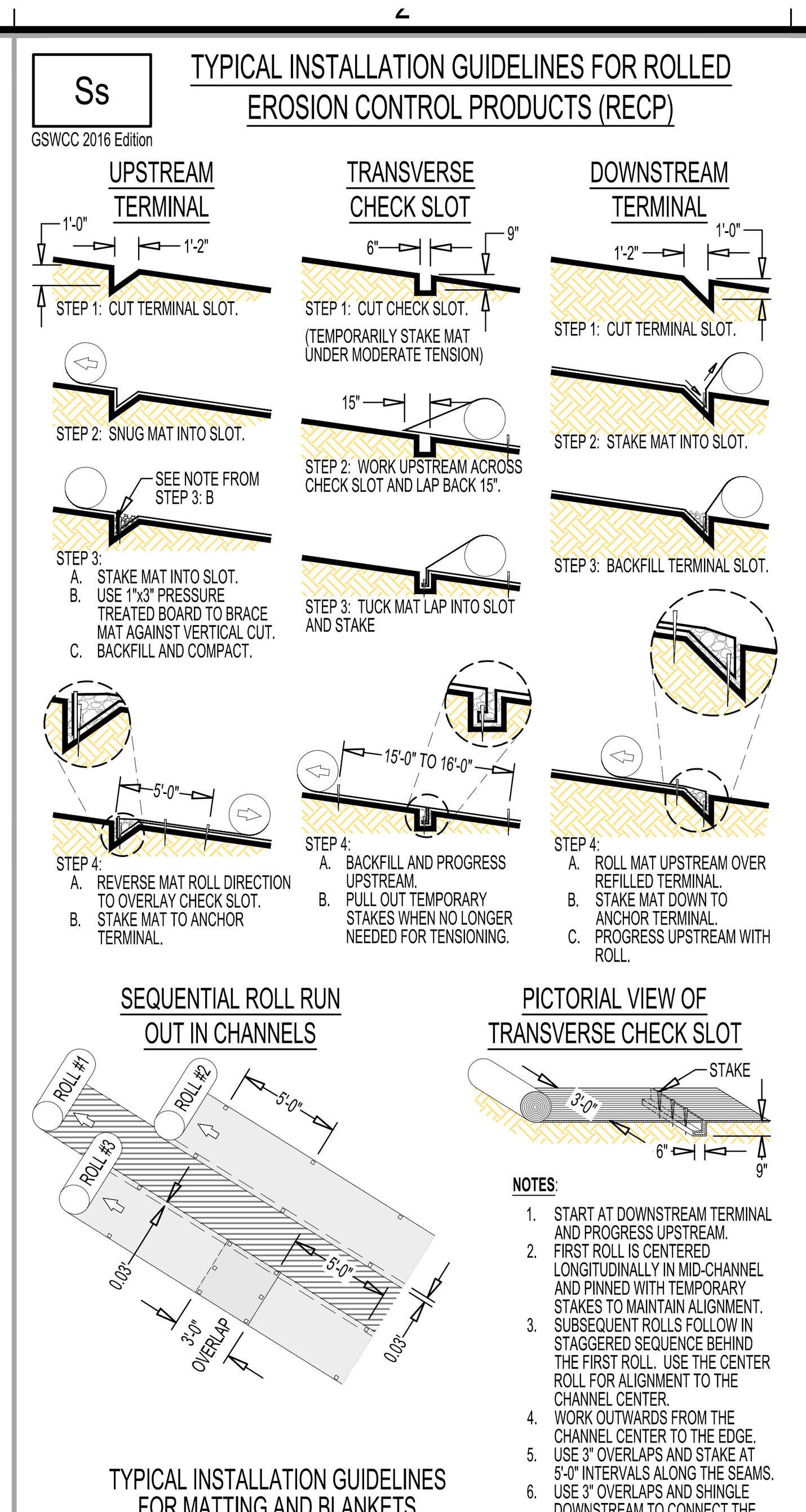
TYPICAL INSTALLATION GUIDELINES FOR ROLLED EROSION CONTROL PRODUCTS (RECP)



TYPICAL INSTALLATION GUIDELINES FOR MATTING AND BLANKETS

(Figure 6-10.1)

CONDITIONS

Slope stabilization can be applied to flat areas or slopes where the erosion hazard is high and slope protection is needed during the establishment of vegetation.

PLANNING CONSIDERATIONS

Care must be taken to choose the type of slope stabilization product that is most appropriate for the specific needs of a project. Two general types of slope stabilization products are discussed within this specification.

Rolled Erosion Control Products (RECP)

A natural fiber blanket with single or double photodegradable or biodegradable nets.

Hydraulic Erosion Control Products (HECP)

HECP shall utilize straw, cotton, wood or other natural based fibers held together by a soil binding agent that works to stabilize soil particles. Paper mulch should not be used for erosion control.

CRITERIA

Rolled Erosion Control Products (RECPs) and Hydraulic Erosion Control Products (HECPs):

- Installation and stapling of RECPs and application rates for HECPs shall conform to manufacturer's guidelines for application.
- Short-Term RECPs as a minimum shall be used to stabilize concentrated flow areas with a velocity less than 5ft/sec on slopes 3:1 or greater with a height of 10' or greater.

MATERIALS

HECP

Hydraulic erosion control products shall be prepackaged from the manufacturer. Field mixing of performance enhancing additives will not be allowed. Fibrous components should be all natural or biodegradable. Products shall be determined to be non-toxic in accordance with EPA-821-R-02-012.

RECP

Blankets shall be non-toxic to vegetation, seed, or wildlife. Products shall be determined to be non-toxic in accordance with EPA821-R-02-012. At minimum, the plastic or biodegradable netting shall be stitched to the fibrous matrix to maximize strength and provide for ease of handling.

RECPs are categorized as follows:

a. **Short-Term** (functional longevity 12 mo.)

i. Photodegradable

Straw blankets with a top and bottom side photodegradable net. The maximum size of the mesh should be openings of ½" x ½". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.35" and minimum density should be 0.5 lbs per square yard.

ii. Biodegradable

Straw blanket with a top and bottom side biodegradable jute net. The top side net should consist of machine direction strands that are twisted together and then interwoven with cross direction strands (leno weave). The bottom net may be leno weave or otherwise to meet requirements. The approximate size of the mesh should be openings of 0.5" X 1.0". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.25" and minimum density should be 0.5 lbs per square yard.

b. **Extended-Term** (functional longevity 24 mo.)

i. Photodegradable

Blankets that consist of 70% straw and 30% coconut with a top and bottom side photodegradable net. The top net should have ultraviolet additives to delay breakdown. The maximum size of the mesh should be openings of 0.65" x 0.65". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.35" and minimum density should be 0.6 lbs per square yard.

ii. Biodegradable

Blankets that consist of 70% straw and 30% coconut with a top and bottom side biodegradable jute net. The top side net should consist of machine direction strands that are twisted together and then interwoven with cross direction strands (leno weave). The bottom net may be leno weave or otherwise to meet requirements. The approximate size of the mesh should be openings of 0.5" X 1.0". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.25" and minimum density should be 0.65 lbs per square yard.

c. **Long-Term** (functional longevity 36 mo.)

i. Photodegradable

Blankets that consist of 100% coconut with a top and bottom side photodegradable net. Each net should have ultraviolet additives to delay breakdown. The maximum size of the mesh should be openings of 0.65" X 0.65". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.3" and minimum density should be 0.5 lbs per square yard.

ii. Biodegradable

Blankets that consist of 100% coconut with a top and bottom side biodegradable jute net. The top side net should consist of machine direction strands that are twisted together and then interwoven with cross direction strands (leno weave). The bottom net may be leno weave or otherwise to meet requirements. The approximate size of the mesh should be openings of 0.5" X 1.0". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.25" and minimum density should be 0.5 lbs per square yard.

NOTES

It is the intention of this section to allow interchangeable use of RECPs and HECPs for erosion protection on slopes. The project engineer should select the type of erosion control product that best fits the need of the particular site.

SITE PREPARATION

After the site has been shaped and graded to the approved design, prepare a friable seedbed relatively free from clods and rocks more than 1" in diameter, and any foreign material that will prevent contact of the soil stabilization mat with the soil surface. Surface must be smooth to ensure proper contact of blankets or matting to the soil surface. If necessary, redirect any runoff from the ditch or slope during installation.

MAINTENANCE

All erosion control blankets and matting should be inspected periodically following installation, particularly after rainstorms to check for erosion and undermining. Any dislocation or failure should be repaired immediately. If washouts or breakage occurs, reinstall the material after repairing damage to the slope or ditch. Continue to monitor these areas until they become permanently stabilized.

N.T.S.

SLOPE STABILIZATION - (Ss)

St

STORM DRAIN OUTLET PROTECTION (USING RIP-RAP)

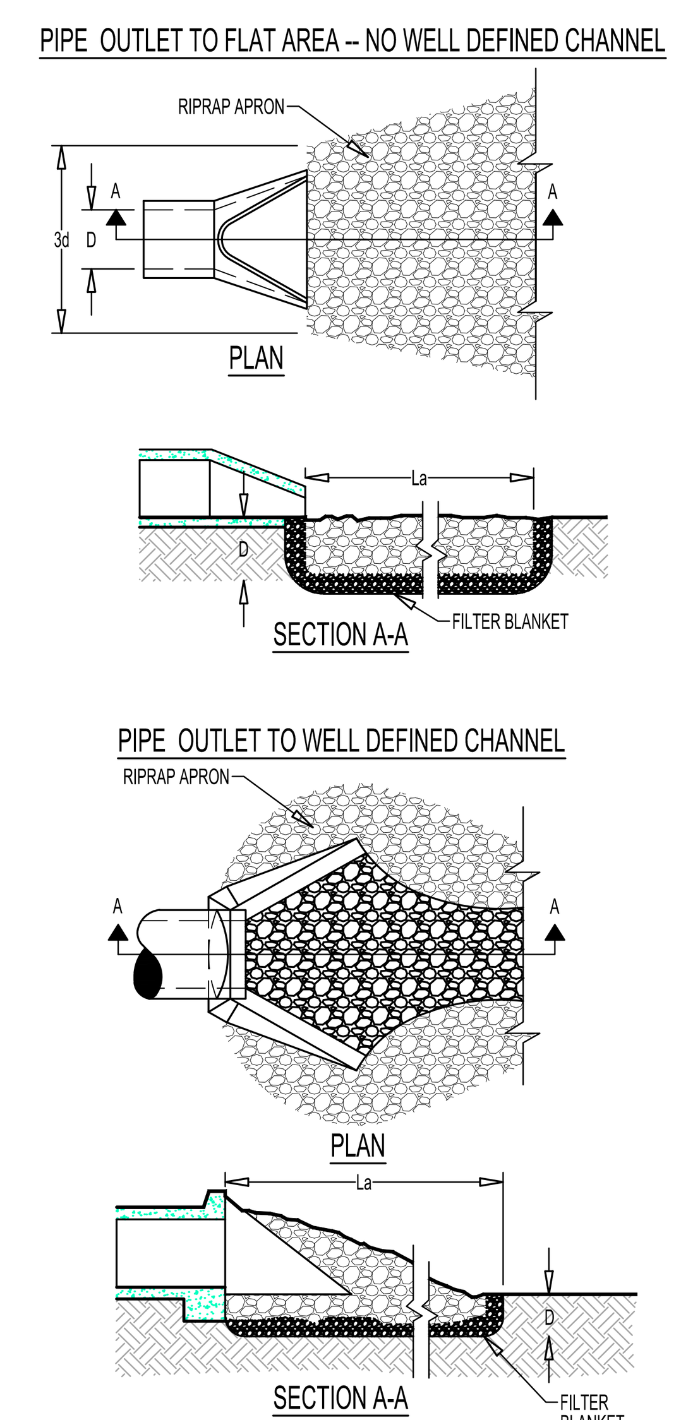


Figure 6-34.3 - Riprap Outlet Protection

NOTES:

1. La IS THE LENGTH OF THE RIP-RAP APRON.
2. D = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6".
3. IN A WELL-DEFINED CHANNEL, EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK (WHICHEVER IS LESS).
4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.

CONSTRUCTION SPECIFICATIONS

1. Ensure that the subgrade for the filter and rip-rap follows the required lines and grades shown in the plan. Compact any fill required in the subgrade to the density of the surrounding undisturbed material. Low areas in the subgrade on undisturbed soil may also be filled by increasing the rip-rap thickness.
2. The rip-rap and gravel filter must conform to the specified grading limits shown on the plans.
3. Geotextile must meet design requirements and be properly protected from punching or tearing during installation. Repair any damage by removing the rip-rap and placing another piece of filter fabric over the damaged area. All connecting joints should overlap a minimum of 1 ft. If the damage is extensive, replace the entire filter fabric.
4. Rip-rap may be placed by equipment, but take care to avoid damaging the filter.
5. The minimum thickness of the rip-rap should be 1.5 times the maximum stones diameter.
6. Construct the apron on zero grade with no overfall at the end. Make the top of the rip-rap at the downstream end level with the receiving area or slightly below it.
7. Ensure that the apron is properly aligned with the receiving stream and preferably straight throughout its length. If a curve is needed to fit site conditions, place it in the upper section of the apron.
8. Immediately after construction, stabilize all disturbed areas with vegetation.
9. Stone quality - Select stone for rip-rap from field stone or quarry stone. The stone should be hard, angular, and highly weather-resistant. The specific Gravity of the individual stones should be at least 2.5.
10. Filter - Install a filter to prevent soil movement through the openings in the rip-rap. The filter should consist of a graded gravel layer or a synthetic filter cloth.

MAINTENANCE

Inspect rip-rap outlet structures after heavy rains to see if any erosion around or below the rip-rap has taken place or if stones have been dislodged. Immediately make all needed repairs to prevent further damage.

Sk

GSWCC 2016 Edition

NOTE:
SKIMMER CONFIGURATION SHOWN IS TYPICAL. THE DESIGNER/ENGINEER MAY SUBMIT AN ALTERNATE SKIMMER DETAIL FOR REVIEW.

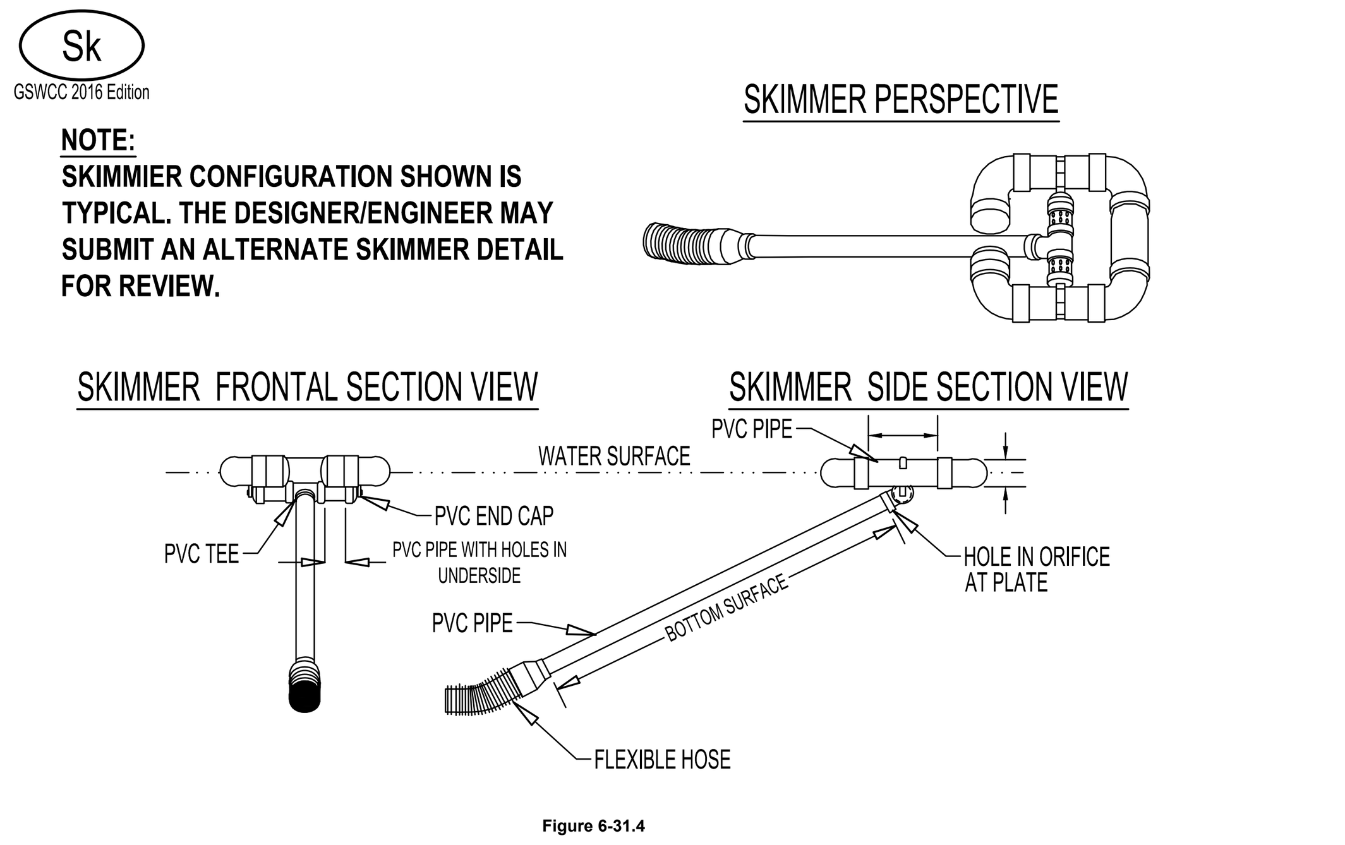


Figure 6-31.4

POND 1

TO BE SHOWN ON THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN WHEN A FLOATING SURFACE SKIMMER IS USED, SHOW THE FOLLOWING INFORMATION ALONG WITH EACH SEDIMENT POND, TRAP OR BASIN BEING USED ON SITE

1. POND TRAP OR BASIN SIZE, LENGTH* (TOP AND BOTTOM), WIDTH* (TOP AND BOTTOM) AND DEPTH =

BASIN VOLUME (UP TO WEIR INVERT) = 32,676 CU. FT.

2. TIME TO DRAIN (HRS)= 72 HOURS

3. SKIMMER DIMENSIONS (ORIFICE AND HEAD SIZE)** SKIMMER SIZE = 4"; ORIFICE RADIUS = 1.5" ; ORIFICE DIAMETER = 2.9"

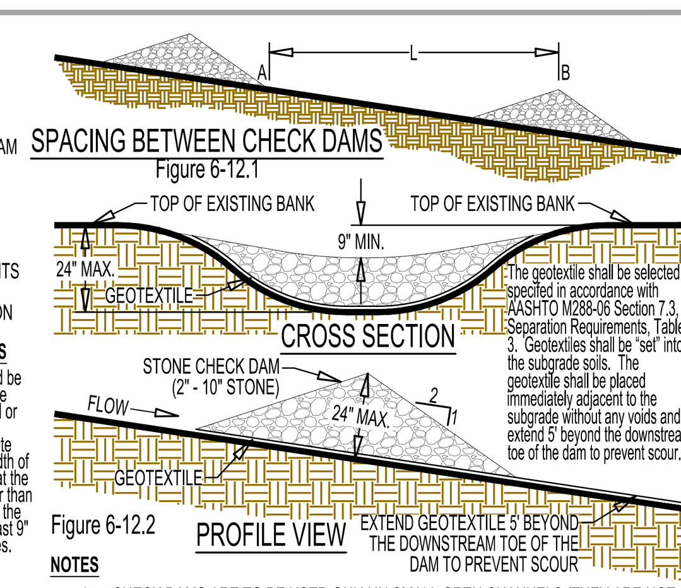
4. MANUFACTURER'S NAME FAIRCLOTH SKIMMER

***FEET,**INCHES**

Cd-S

GSWCC 2016 Edition

A = TOE OF UPSTREAM CHECK DAM
B = TOP OF THE DOWNSTREAM CHECK DAM
L = THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION



CONSTRUCTION SPECS

Stone check dams should be constructed of graded size 2"-10" stone. Mechanical or hand placement shall be required to insure complete coverage of the entire width of the ditch or swale and that the center of the dam is lower than the edges. The center of the check dam must be at least 9" lower than the outer edges.

MAINTENANCE

Periodic inspection and required maintenance must be provided. Sediment shall be removed when it reaches a depth of ½ original dam height or before. If area is to be mowed, check dams shall be removed once final stabilization has occurred. Otherwise check dams may remain in place permanently. After removal, the area beneath the dam shall be seeded and mulched immediately.

NOTES

1. CHECK DAMS ARE TO BE USED ONLY IN SMALL OPEN CHANNELS (THEY ARE NOT TO BE USED IN LIVE STREAMS).
2. THE DRAINAGE AREA FOR STONE CHECK DAMS SHALL NOT EXCEED TWO ACRES.
3. THE CENTER OF THE CHECK DAM MUST BE AT LEAST 9" LOWER THAN THE OUTER EDGES.
4. THE DAM HEIGHT SHOULD BE A MAXIMUM OF 2' FROM CENTER TO RIM EDGE.
5. THE SIDE SLOPES OF THE CHECK DAM SHALL NOT EXCEED A 2:1 SLOPE.
6. GEOTEXTILE SHALL BE USED TO PREVENT THE MITIGATION OF SUBGRADE SOIL PARTICLES INTO THE STONES (REFER TO AASHTO M288-96, SECTION 7.3, TABLE 3)

N.T.S.

STONE CHECK DAMS - (Cd-S)

Sk

GSWCC 2016 Edition

NOTE:
SKIMMER CONFIGURATION SHOWN IS TYPICAL. THE DESIGNER/ENGINEER MAY SUBMIT AN ALTERNATE SKIMMER DETAIL FOR REVIEW.

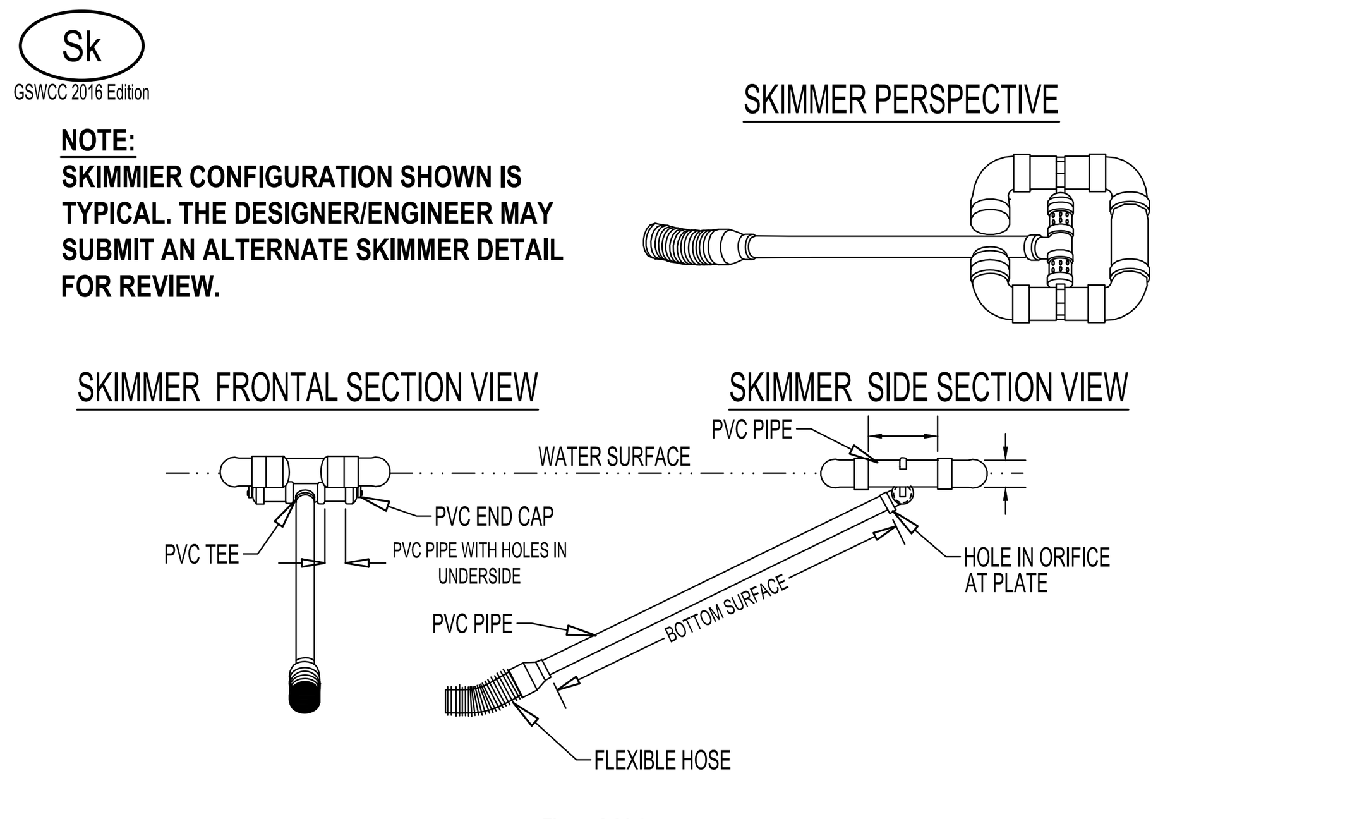


Figure 6-31.4

POND 2

TO BE SHOWN ON THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN WHEN A FLOATING SURFACE SKIMMER IS USED, SHOW THE FOLLOWING INFORMATION ALONG WITH EACH SEDIMENT POND, TRAP OR BASIN BEING USED ON SITE

1. POND TRAP OR BASIN SIZE, LENGTH* (TOP AND BOTTOM), WIDTH* (TOP AND BOTTOM) AND DEPTH =

BASIN VOLUME (UP TO WEIR INVERT) = 18,658 CU. FT.

2. TIME TO DRAIN (HRS)= 72 HOURS

3. SKIMMER DIMENSIONS (ORIFICE AND HEAD SIZE)** SKIMMER SIZE = 2.5"; ORIFICE RADIUS = 1.2"; ORIFICE DIAMETER = 2.5"

4. MANUFACTURER'S NAME FAIRCLOTH SKIMMER

***FEET,**INCHES**

NOTE: CONTRACTOR SHALL PROVIDE PHYSICAL BARRIER SUCH AS PLASTIC SHEETING OR TEMPORARY ROOFS ON ALL BUILDING MATERIALS, BUILDING PRODUCTS, CONSTRUCTION WASTES, LANDSCAPE MATERIALS, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE AND OTHER SUCH MATERIALS IN ORDER TO MINIMIZE EXPOSURE TO PRECIPITATION AND STORMWATER.

EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST

STA **STAND ALONE CONSTRUCTION PROJECTS**

SWCD: Walton County Region 4

Project Name: 150 Vine St Erosion Control Plan **Address:** 150 Vine Street

City/County: Monroe/Walton **Date on Plans:** 8.12.20

Name & email of person filling out checklist: Miriah Sanders miriah@georgiacivil.com

TO BE SHOWN ON ES&PC PLAN

Plan Page #	Included Y/N		
C-3.6	Y	1	The applicable Erosion, Sedimentation and Pollution Control Plan Checklist established by the Commission as of January 1 of the year in which the land-disturbing activity was permitted. (The completed Checklist must be submitted with the ES&PC Plan or the Plan will not be reviewed)
C-3.1 thru C-3.4	Y	2	Level II certification number issued by the Commission, signature and seal of the certified design professional. (Signature, seal and Level II number must be on each sheet pertaining to ES&PC plan or the Plan will not be reviewed)
C-3.2 thru C-3.4	Y	3	Limits of disturbance shall be no greater than 50 acres at any one time without prior written authorization from the EPD District Office. If EPD approves the request to disturb 50 acres or more at any one time, the Plan must include at least 4 of the BMPs listed in Appendix 1 of this checklist. * (A copy of the written approval by EPD must be attached to the plan for the Plan to be reviewed.)
C-3.1	Y	4	The name and phone number of the 24-hour local contact responsible for erosion, sedimentation and pollution controls.
C-3.1	Y	5	Provide the name, address, **email address**, and phone number of primary permittee.
C-3.2 thru C-3.4	Y	6	Note total and disturbed acreage of the project or phase under construction.
CV-1.1 & C-3.1	Y	7	Provide the GPS location of the construction exit for the site. Give the Latitude and Longitude in decimal degrees.
ALL	Y	8	Initial date of the Plan and the dates of any revisions made to the Plan including the entity who requested the revisions.
CV-1.1 & C-3.1	Y	9	Description of the nature of construction activity.
CV-1.1 & C-3.1	Y	10	Provide vicinity map showing site's relation to surrounding areas. Include designation of specific phase, if necessary.
C-3.1	Y	11	Identify the project receiving waters and describe all sensitive adjacent areas including streams, lakes, residential areas, wetlands, marshlands, etc. which may be affected.
C-3.1	Y	12	Design professional's certification statement and signature that the site was visited prior to development of the ES&PC Plan as stated on **Part IV page 19** of the permit.
C-3.1	Y	13	Design professional's certification statement and signature that the permittee's ES&PC Plan provides for an appropriate and comprehensive system of BMPs and sampling to meet permit requirements as stated on **Part IV page 19** of the permit. *
C-3.1	Y	14	Clearly note the statement that "The design professional who prepared the ES&PC Plan is to inspect the installation of the initial sediment storage requirements and perimeter control BMPs within 7 days after installation." in accordance with **Part IV.A.5 page 25** of the permit. *
C-3.1	Y	15	Clearly note the statement that "Non-exempt activities shall not be conducted within the 25 or 50-foot undisturbed stream buffers as measured from the point of wrested vegetation or within 25-feet of the coastal marshland buffer as measured from the Jurisdictional Determination Line without first acquiring the necessary variances and permits."
N/A	N/A	16	Provide a description of any buffer encroachments and indicate whether a buffer variance is required.
C-3.1 thru C-3.4	Y	17	Clearly note the statement that "Amendments/revisions to the ES&PC Plan which have a significant effect on BMPs with a hydraulic component must be certified by the design professional." *
C-3.1	Y	18	Clearly note the statement that "Waste materials shall not be discharged to waters of the State, except as authorized by a Section 404 permit." *
C-3.1 thru C-3.4	Y	19	Clearly note statement that "The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to land disturbing activities."
C-3.1 thru C-3.4	Y	20	Clearly note statement that "Erosion control measures will be maintained at all times. If full implementation of the approved Plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source."
C-3.1 thru C-3.4	Y	21	Clearly note the statement "Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding."
N/A	N/A	22	Any construction activity which discharges storm water into an Impaired Stream Segment, or within 1 linear mile upstream of and within the same watershed as, any portion of an Biota Impaired Stream Segment must comply with Part III. C. of the permit. Include the completed Appendix 1 listing all the BMPs that will be used for those areas of the site which discharge to the Impaired Stream Segment. *
N/A	N/A	23	If a TMDL Implementation Plan for sediment has been finalized for the Impaired Stream Segment (identified in Item 22 above) at least six months prior to submittal of NOI, the ES&PC Plan must address any site-specific conditions or requirements included in the TMDL Implementation Plan. *
C-3.1	Y	24	BMPs for concrete washdown of tools, concrete mixer chutes, hoppers and the rear of the vehicles. Washout of the drum at the construction site is prohibited. *
C-3.1	Y	25	Provide BMPs for the remediation of all petroleum spills and leaks.
C-3.1	Y	26	Description of the measures that will be installed during the construction process to control pollutants in storm water that will occur after construction operations have been completed. *
C-3.6	Y	27	Description of practices to provide cover for building materials and building products on site. *
C-3.1	Y	28	Description of the practices that will be used to reduce the pollutants in storm water discharges. *
CV-1.1 & C-3.1	Y	29	Description and chart or timeline of the intended sequence of major activities which disturb soils for the major portions of the site (i.e., initial perimeter and sediment storage BMPs, clearing and grubbing activities, excavation activities, utility activities, temporary and final stabilization).
C-3.1	Y	30	Provide complete requirements of inspections and record keeping by the primary permittee. *
C-3.1	Y	31	Provide complete requirements of sampling frequency and reporting of sampling results. *
C-3.1	Y	32	Provide complete details for retention of records as per Part IV.F. of the permit. *
C-3.1	Y	33	Description of analytical methods to be used to collect and analyze the samples from each location. *
C-3.1	Y	34	Appendix B rationale for NTU values at all outfall sampling points where applicable. *
C-3.2 thru C-3.4	Y	35	Delineate all sampling locations, perennial and intermittent streams and other water bodies into which storm water is discharged. *
C-3.1	Y	36	A description of appropriate controls and measures that will be implemented at the construction site including: (1) initial sediment storage requirements and perimeter control BMPs, (2) intermediate grading and drainage BMPs, and (3) final BMPs. For construction sites where there will be no mass grading and the initial perimeter control BMPs, intermediate grading and drainage BMPs, and final BMPs are the same, the Plan may combine all of the BMPs into a single phase. *
C-3.2 thru C-3.4	Y	37	Graphic scale and North arrow.
C-3.2 thru C-3.4	Y	38	Existing and proposed contour lines with contour lines drawn at an interval in accordance with the following:

Map Scale	Ground Slope	Contour Intervals, ft.
1 inch = 100ft or larger scale	Flat 0 - 2%	0.5 or 1
	Rolling 2 - 8%	1 or 2
	Steep 8% +	2,5 or 10

Plan Page #	Included Y/N		
N/A	N/A	39	Use of alternative BMPs whose performance has been documented to be equivalent to or superior to conventional BMPs as certified by a Design Professional (unless disapproved by EPD or the Georgia Soil and Water Conservation Commission). Please refer to the Alternative BMP Guidance Document found at www.gaswcc.org.
N/A	N/A	40	Use of alternative BMP for application to the Equivalent BMP List. Please refer to Appendix A-2 of the Manual for Erosion & Sediment Control in Georgia 2016 Edition. *
N/A	N/A	41	Delineation of the applicable 25-foot or 50-foot undisturbed buffers adjacent to state waters and any additional buffers required by the Local Issuing Authority. Clearly note and delineate all areas of impact.
N/A	N/A	42	Delineation of on-site wetlands and all state waters located on and within 200 feet of the project site.
C-3.1; HYDRO	Y	43	Delineation and acreage of contributing drainage basins on the project site.
HYDRO	Y	44	Provide hydrology study and maps of drainage basins for both the pre- and post-developed conditions. *
C-3.1	Y	45	An estimate of the runoff coefficient or peak discharge flow of the site prior to and after construction activities are completed.
C-3.3	Y	46	Storm-drain pipe and weir velocities with appropriate outlet protection to accommodate discharges without erosion. Identify/Delineate all storm water discharge points.
C-3.2	Y	47	Soil series for the project site and their delineation.
C-3.2 thru C-3.4	Y	48	The limits of disturbance for each phase of construction.
C-3.3	Y	49	Provide a minimum of 67 cubic yards of sediment storage per acre drained using a temporary sediment basin, retrofitted detention pond, and/or excavated inlet sediment traps for each common drainage location. Sediment storage volume must be in place prior to and during all land disturbance activities until final stabilization of the site has been achieved. A written justification explaining the decision to use equivalent controls when a sediment basin is not attainable must be included in the Plan for each common drainage location in which a sediment basin is not provided. A written justification as to why 67 cubic yards of storage is not attainable must also be given. Worksheets from the Manual included for structural BMPs and all calculations used by the storage design professional to obtain the required sediment when using equivalent controls. When discharging from sediment basins and impoundments, permittees are required to utilize outlet structures that withdraw water from the surface, unless infeasible. If outlet structures that withdraw water from the surface are not feasible, a written justification explaining this decision must be included in the Plan.
C-3.2 thru C-3.4	Y	50	Location of Best Management Practices that are consistent with and no less stringent than the Manual for Erosion and Sediment Control in Georgia. Use uniform coding symbols from the Manual, Chapter 6, with legend.
C-3.5 thru C-3.6	Y	51	Provide detailed drawings for all structural practices. Specifications must, at a minimum, meet the guidelines set forth in the Manual for Erosion and Sediment Control in Georgia.
N/A	N/A	52	Provide vegetative plan, noting all temporary and permanent vegetative practices. Include species, planting dates and seeding, fertilizer, lime and mulching rates. Vegetative plan shall be site specific for appropriate time of the year that seeding will take place and for the appropriate geographic region of Georgia.

* If using this checklist for a project that is less than 1 acre and not part of a common development but within 200 ft of a perennial stream, the * checklist items would be N/A.

Effective January 1, 2020

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GEORGIA REGISTERED PROFESSIONAL ENGINEER NO. PE031654 JASON P. BROWN

Project Information

150 VINE ST EROSION CONTROL PLAN

PARCEL NO.: M0210001A00
150 VINE ST
MONROE GA, 30655
ZONING-M1

DRAWING DATE:	7.9.2020
DRAWN BY:	MKS
CHECKED BY:	JPB

REVISIONS

DATE:	DESCRIPTION:
09.10.20	CITY COMMENTS
10.13.20	GSWCC COMMENTS
10.26.20	GSWCC COMMENTS

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Sheet Title

EROSION, SEDIMENTATION, AND POLLITION CONTROL DETAILS

Sheet Number

C-3.6