

# BWC TERMINALS DESIGN SUPPORT PROJECT NUMBER: 23-1023





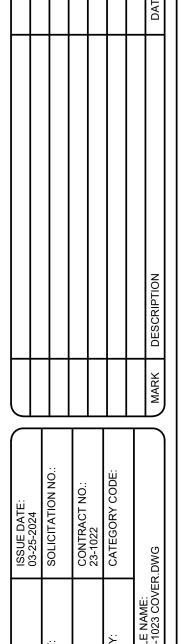
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CONTRACT NO.: 23-1023

ISSUE DATE: MARCH 25, 2024

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

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BALL MARTTIME GROUP

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#### **GENERAL NOTES**

- ALL WORK SHALL CONFORM WITH THESE DRAWINGS, PROJECT SPECIFICATIONS AND WITH ALL CURRENT APPLICABLE CODES AND THE LATEST REVISIONS OF THE FOLLOWING REFERENCE DOCUMENTS:
- A. AMERICAN RAILWAY ENGINEERING AND MAINTENANCE OF WAY ASSOCIATION'S 2020 MANUAL FOR
- RAILWAY ENGINEERING, AND B. CSX'S STANDARD SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF PRIVATE SIDETRACKS.
- 2. THE CONTRACTOR SHALL OBTAIN ALL APPLICABLE PERMITS AND LICENSES AND KEEP COPIES OF THE SAME ON SITE DURING CONSTRUCTION.
- 3. THE CONTRACTOR SHALL CHECK ALL DIMENSIONS. ANY DISCREPANCIES FOUND SHALL BE CALLED TO THE

ATTENTION OF THE OWNER AND BE RESOLVED BEFORE PROCEEDING WITH THE WORK.

- 4. ALL INFORMATION SHOWN ON THESE DRAWINGS RELATIVE TO EXISTING CONDITIONS IS GIVEN AS THE BEST PRESENT KNOWLEDGE, BUT WITHOUT GUARANTEE OF ACCURACY. THE CONTRACTOR SHALL REPORT IMMEDIATELY TO THE OWNER ANY CONDITIONS CONFLICTING WITH THE DRAWINGS. FIELD MODIFICATIONS TO THE DRAWINGS SHALL NOT BE MADE WITHOUT THE CONSENT OF THE OWNER.
- 5. THE CONTRACTOR SHALL, ON A DAILY BASIS, REMOVE DEBRIS FROM THE SITE. DISPOSAL OF ALL MATERIALS IS THE CONTRACTOR'S RESPONSIBILITY, EXCEPT AS OTHERWISE NOTED.
- 6. THE CONTRACTOR SHALL ABIDE BY ALL APPLICABLE LOCAL AND STATE ENVIRONMENTAL PROTECTION STANDARDS, LAWS AND REGULATIONS.
- 7. ITEMS INDICATED TO BE REMOVED AND REINSTALLED SHALL BE REMOVED BY THE CONTRACTOR. STORED AND REINSTALLED WITHOUT DAMAGE. DAMAGED ITEMS SHALL BE REPLACED AT NO COST TO THE OWNER.
- 8. ALL APPLICABLE SAFETY REGULATIONS SHALL BE STRICTLY FOLLOWED. METHODS OF DEMOLITION, CONSTRUCTION, AND ERECTION OF STRUCTURAL MATERIAL IS THE CONTRACTOR'S RESPONSIBILITY.
- CONTRACTOR SHALL SUBMIT A WRITTEN CONSTRUCTION PHASING PLAN TO THE OWNER FOR THEIR APPROVAL PRIOR TO ANY ON SITE CONSTRUCTION ACTIVITY. DO NOT BLOCK ACCESS TO THE OFFICE PARK DURING CONSTRUCTION. CONTRACTOR SHALL COORDINATE DEMOLITION AND INSTALLATION OF ALL WORK WITH THE OWNER.
- 10. CONTRACTOR SHALL VERIFY ALL DIMENSIONS SHOWN ON THE PLANS WITH THE EXISTING CONDITIONS IN THE FIELD PRIOR TO COMMENCING DEMOLITION, FABRICATION, AND CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER OF DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THE CONTRACT DOCUMENTS.
- 11. ALL ELEVATIONS SHOWN ON THE DRAWINGS ARE REFERENCED TO NAVD 88.
- 12. THE CONTRACTOR SHALL KEEP AND MAINTAIN A SET OF PROJECT PLANS AND SPECIFICATIONS ON THE SITE AT ALL TIMES.
- 13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING WITH MATCHING MATERIALS ANY PAVEMENT, DRIVEWAYS, WALKS, CURBS, PAVEMENT MARKINGS, ETC. THAT MUST BE CUT OR REMOVED, OR THAT ARE DAMAGED DURING CONSTRUCTION.
- 14. CONTRACTOR SHALL STOP WORK AND NOTIFY ENGINEER IF ANYTHING OF HISTORIC OR ARCHEOLOGICAL SIGNIFICANCE IS ENCOUNTERED.

# UTILITIES

- 1. PRIOR TO CONSTRUCTION OR EXCAVATION, THE CONTRACTOR SHALL ASSUME THE RESPONSIBILITY OF LOCATING ANY AND ALL UNDERGROUND UTILITIES (PUBLIC OR PRIVATE) THAT MAY EXIST OR CROSS THROUGH THE AREA OF CONSTRUCTION WHETHER OR NOT THEY ARE SHOWN ON THESE PLANS. BEFORE DIGGING, TO AVOID THE UTILITIES, THE CONTRACTOR SHALL CALL THE "UTILITIES PROTECTION CENTER" AT 1-800-282-7411. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING, AT HIS SOLE EXPENSE, ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.
- 2. THIS PLAN DOES NOT GUARANTEE THE EXISTENCE, NONEXISTENCE, SIZE, TYPE, LOCATION, ALIGNMENT OR DEPTH OF ANY OR ALL UNDERGROUND UTILITIES OR OTHER FACILITIES. WHERE SURFACE FEATURES (MANHOLES, CATCH BASINS, VALVES, ETC.) ARE UNAVAILABLE OR INCONCLUSIVE, INFORMATION SHOWN MAY BE FROM UTILITY OWNER'S RECORDS AND/OR ELECTRONIC LINE TRACING, THE RELIABILITY OF WHICH IS UNCERTAIN. THE CONTRACTOR SHALL PERFORM WHATEVER TEST EXCAVATION OR OTHER REINVESTIGATION AS NECESSARY TO VERIFY LOCATIONS AND CLEARANCES.
- 3. UNLESS OTHERWISE NOTED, UTILITIES ARE TO BE ADJUSTED BY THE RESPECTIVE OWNER.
- 4. STATE LAW MANDATES THE NOTIFICATION OF UTILITY OWNERS 48 HOURS IN ADVANCE OF EXCAVATION. FOR LOCATION OF UTILITIES CALL THE "UTILITY PROTECTION CENTER" AT 1-800-282-7411, 48 HOURS PRIOR TO LAND DISTURBANCE ACTIVITY.
- 5. CONTRACTOR SHALL CONFORM TO THE "GEORGIA HIGH VOLTAGE SAFETY ACT" AND SHALL CONTACT THE NECESSARY AUTHORITIES PRIOR TO START OF CONSTRUCTION.

# COORDINATION

- 1. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH OWNER
- 2. THE CONTRACTOR SHALL SUBMIT A SCHEDULE FOR CONSTRUCTION TO OWNER, IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
- 3. IMMEDIATELY PRIOR TO THE BEGINNING OF CONSTRUCTION, THE CONTRACTOR SHALL ARRANGE A MEETING WITH OWNER TO DISCUSS COORDINATION OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL BE SUBJECT TO AND COMPLY WITH COORDINATION REQUIREMENTS OF OWNER.

# **DEMOLITION**

- 1. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES TO REMAIN IN PLACE.
- 2. ALL MATERIALS REMOVED UNDER DEMOLITION, NOT TO BE RELOCATED OR TO BE TURNED OVER TO THE OWNER, SHALL BE REMOVED FROM THE SITE.

# CONSTRUCTION

1. SUBMITTALS ON MATERIALS FOR THIS PROJECT SHALL BE PROVIDED TO THE OWNER FOR APPROVAL PRIOR

TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION.

- ALL CONSTRUCTION ACTIVITIES SHALL ONLY TAKE PLACE WITH IN CLEARING LIMITS, UNLESS OTHERWISE
- 3. ALL CLEARING, GRUBBING, AND GRADING SHALL BE PERFORMED IN ACCORDANCE WITH SPECIFICATIONS AND STANDARDS.
- 4. EXISTING VEGETATION SURROUNDING THE CONSTRUCTION AREA SHALL REMAIN IN A NATURAL STATE.
- 5. THE CONTRACTOR SHALL STRIP TOPSOIL AND ANY ORGANIC LADEN SOIL AND STORE FOR USE IN BACKFILLING AND LANDSCAPING FOR SITE RESTORATION. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ANY EXCESS SOIL AFTER RESTORATION OF THE SITE.
- WHEN MATERIALS WHICH ARE UNSUITABLE FOR FOUNDATIONS. SUBGRADES. OR PURPOSE OCCUR WITHIN THE LIMITS OF CONSTRUCTION, THE CONTRACTOR SHALL BE REQUIRED TO EXCAVATE SUCH MATERIAL BELOW THE GRADE SHOWN ON THE PLANS. THE AREAS TO BE EXCAVATED SHALL BE BACKFILLED WITH APPROVED SUITABLE OR SELECT FILL MATERIAL.
- 7. ANY NECESSARY FILL SHALL BE PLACED IN 6" LIFTS. ALL FILL SHALL BE COMPACTED TO 95% MODIFIED STANDARD PROCTOR. SUBGRADE SHALL BE PROOF-ROLLED PER THE DIRECTION OF THE OWNER. AREAS WHICH RUT EXCESSIVELY SHALL BE UNDERCUT AND REPLACED WITH CONTROLLED FILL.
- 8. FINISHED SLOPES SHALL BE GRADED TO ENSURE POSITIVE DRAINAGE AWAY FROM ALL WORK AND TO EXISTING DITCHES.
- 9. CONTRACTOR SHALL REMAIN WITHIN PROJECT LIMITS DURING ALL CONSTRUCTION ACTIVITIES.

## **SURVEY NOTES**

- 1. VERTICAL DATUM ELEVATIONS SHOWN ARE IN FEET AND ARE BASED ON NAVD 88 DATUM.
- 2. HORIZONTAL DATUM GEORGIA STATE PLANE COORDINATE SYSTEM, NAD 83.
- 3. THESE DRAWINGS ARE BASED ON A FIELD SURVEY PREPARED BY SHUPE SURVEYING, DATED JUNE 2023.
- 4. FOR EXISTING CONDITIONS, SEE SHEET C101.
- FOR PROPOSED PLAN & PROFILE, SEE SHEET C102.

# **LEGEND**

WETLAND

LEGEND		
	EXISTING	PROPOSED
PROPERTY LINE		
ADJACENT PROPERTY LINE	<del></del>	
CHANNEL/DITCH TOP OF BANK		
CHANNEL/DITCH TOE OF BANK	· · · ·	
CHANNEL/DITCH CENTER		<b></b>
TREE LINE	·	
CONTOURS	8	8 ———
UNDERGROUND POWER	UP	UP
OVERHEAD POWER	OHP	——————————————————————————————————————
POWER POLE	$\mathcal{O}$	
UNDERGROUND COMMUNICATION	UC	UC
WATER PIPE	UW	UW
WATER MANHOLE	W	
WATER LATERAL STUBOUT	<b>⊘</b> w	
WATER VALVE		
FIRE HYDRANT	-6-	
SEWER PIPE	ss	ss
SEWER MANHOLE	$\overline{\mathcal{S}}$	
STORM PIPE	SD	SD
STORM MANHOLE	D	
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#### **ABBREVIATIONS:**

No. = NUMBER

PG = PAGE

NTS = NOT TO SCALE

PKF = P.K. NAIL FOUND

PP = POWER POLE

R/W = RIGHT OF WAY

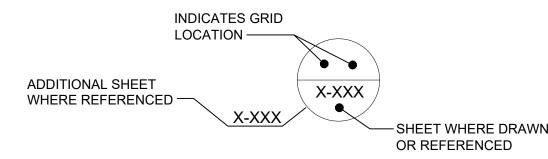
OHPL = OVERHEAD POWER LINE

OC = ON CENTER

APPROX = APPROXIMATE ASTM = AMERICAN SOCIETY FOR TESTING AND MATERIALS BLDG = BUILDING CLR = CLEAR CMF = CONCRETE MONUMENT FOUND CMP = CORRUGATED METAL PIPE CONC = CONCRETE DB = DEED BOOK DEMO = DEMOLITION DIM = DIMENSION DWG = DRAWING E = EASTEA = EACH EL = ELEVATION ELEV = ELEVATION EPD = ENVIRONMENTAL PROTECTION DIVISION ETC = ET CETERA EXIST = EXISTING FG = FINISHED GRADE FPS = FEET PER SECOND FT = FEET GDOT = GEORGIA DEPARTMENT OF TRANSPORTATION HWY = HIGHWAY IAW = IN ACCORDANCE WITH IN = INCHES INC = INCORPORATED INV = INVERT IRF = IRON ROD FOUND IRS = IRON ROD SET LB = POUND LF = LINEAR FEET LH = LEFT HAND MAX = MAXIMUMMDD = MAXIMUM DRY DENSITY MIN = MINIMUM MISC = MISCELLANEOUS N = NORTHN/F = NOW OR FORMERLY NAD = NORTH AMERICAN DATUM NAVD = NORTH AMERICAN VERTICAL DATUM NIC = NOT IN CONTRACT

RCP = REINFORCED CONCRETE PIPE REQ'D = REQUIRED RH = RIGHT HAND S = SOUTH SCH = SCHEDULE SF = SQUARE FEET SR = STATE ROAD ST = STREET STA = STATION STD = STANDARD SY = SQUARE YARD TP = TOP OF PAVEMENT T/R = TOP OF RAIL TW = TOP OF WALK (SIDEWALK) TYP = TYPICAL UON = UNLESS OTHERWISE NOTED W = WESTW/ = WITHWP = WORK POINT # = NUMBER OR POUNDS & = AND@ = ATE = CENTERLINE Ø = DIAMETERช = PLATE " = SECONDS OR INCH ' = MINUTES OR FEET ± = PLUS OR MINUS ° = DEGREES % = PERCENT

# SECTION AND DETAIL SYMBOL

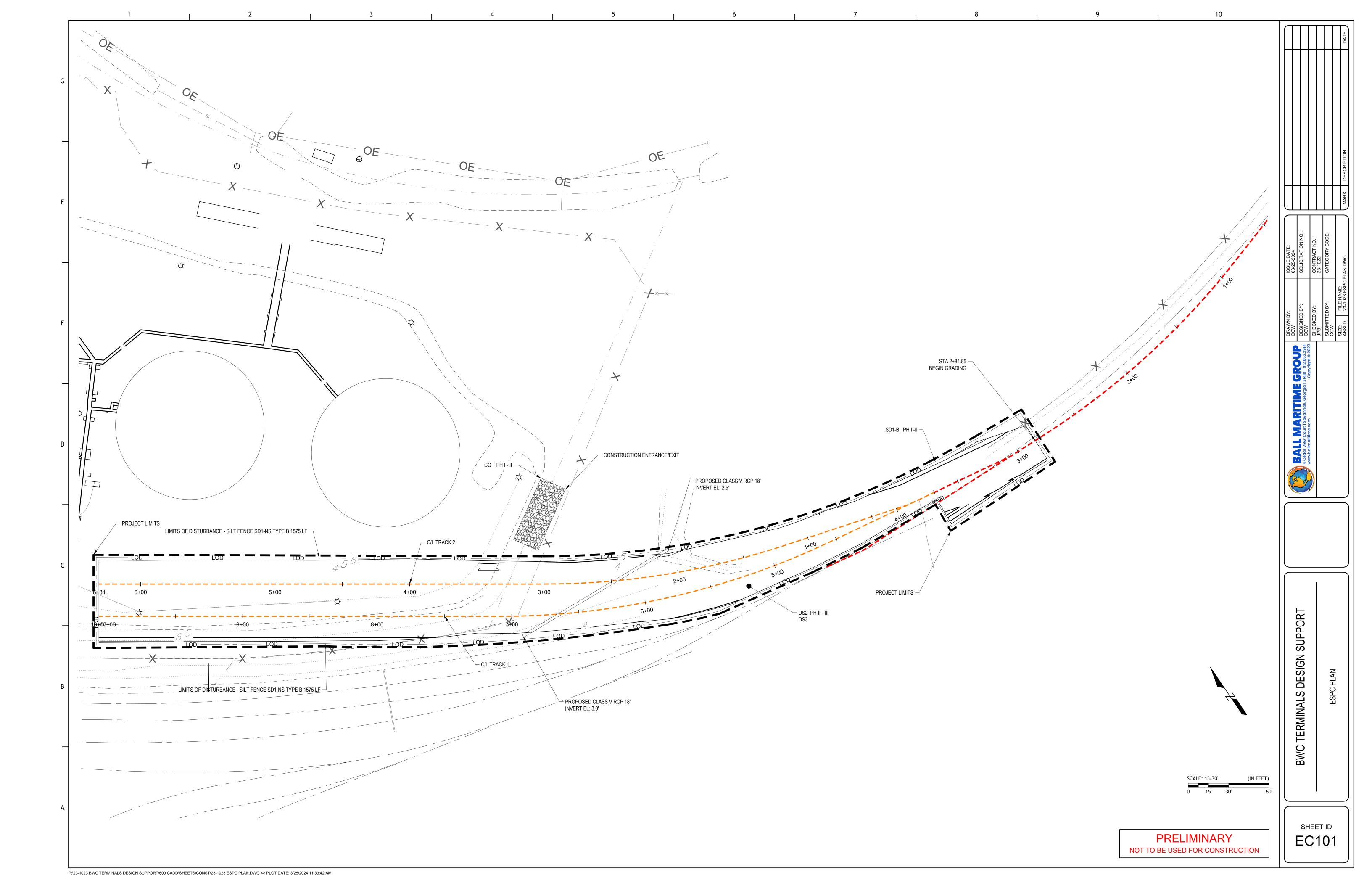


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#### **EROSION AND SEDIMENT CONTROL NOTES**

## DESIGN PROFESSIONAL'S CERTIFICATION

(1) I CERTIFY THAT THE PERMITEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY CONTROL ACT AND THE DOCUMENT "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" (MANUAL) PUBLISHED BY THE STATE SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH LAND DISTURBING ACTIVITY WAS PERMITTED. THE PLAN PROVIDES FOR THE SAMPLING OF THE STORM WATER OUTFALLS. 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.

(2) "I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OF MY AUTHORIZED AGENT. UNDER MY DIRECT SUPERVISION.

(3) "I CERTIFY UNDER THE PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS."

GSWCC LEVEL II DESIGN PROFESSIONAL: JASON P. BALL, PE GSWCC CERTIFICATION NO. 0000044937

# GENERAL EROSION CONTROL NOTES

- 1. ANY AMENDMENT TO THE EROSION CONTROL PLANS WHICH HAVE A SIGNIFICANT EFFECT ON BMPs WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.
- 2. AFTER CONSTRUCTION, EROSION AND SEDIMENTATION WILL BE MANAGED BY PAVEMENT AND GRASSING.
- 3. MINIMIZING WIND EROSION AND CONTROLLING DUST WILL BE ACCOMPLISHED BY ONE OR MORE OF THE FOLLOWING METHODS:
- A. COVERING 30% OR MORE OF THE SOIL SURFACE WITH NON-ERODIBLE MATERIAL.
- B. ROUGHENING THE SOIL TO PRODUCE RIDGES PERPENDICULAR TO THE PREVAILING WIND.
- C. FREQUENT WATERING OF EXCAVATION AND FILL AREAS.
- D. PROVIDING GRAVEL OR PAVING AT ENTRANCE / EXIT DRIVES.
- 4. THIS PROJECT CONSISTS OF GRASSED AND WOODED AREAS. THE TOTAL SITE AREA: 0.95 ACRES THE TOTAL DISTURBED AREA: 0.88 ACRES

THE DISTURBED AREA IS LESS THAN 1-ACRE AND THEREFORE THERE IS NO REQUIREMENT TO SUBMIT A NOI AND NOT FOR THE GAR 100001. THE PROJECT WILL IMPLEMENT TEMPORARY BMPS UNTIL THE SITE IS STABILIZED TO PREVENT SEDIMENTATION FROM LEAVING THE SITE.

THE CONSTRUCTION EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACK OR FLOW OF MUD ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 1-3" OF STONE, AS CONDITIONS DEMAND. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLE ONTO PUBLIC ROADWAY OR INTO STORM DRAIN MUST BE REMOVED IMMEDIATELY.

CONTRACTOR SHALL INSPECT CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.

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 AS DIRECTED BY THE ON SITE INSPECTOR OR THE CIVIL ENGINEER.

FAILURE TO INSTALL, OPERATE, OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB UNTIL SUCH MEASURES ARE CORRECTED BACK TO THE APPROVED EROSION CONTROL PLANS.

THE SITE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTENANCE OF ALL EROSION CONTROL MEASURES INCLUDING REPLACING OR REPAIRING ANY DAMAGED DEVICES DUE TO ANY CONSTRUCTION ACTIVITY BY OTHERS.

EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY OTHER CONSTRUCTION ACTIVITY AND MAINTAINED UNTIL PERMANENT GROUND COVER IS ESTABLISHED.

THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, 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.

NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS.

AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON FMPS WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.

# INITIAL PHASE EROSION CONTROL NOTES

PRIOR TO THE LAND DISTURBING CONSTRUCTION, THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE OWNER.

THE CONTRACTOR SHALL OBSERVE THE PROJECT SEQUENCE SHOWN ON THE PLANS. THE CONTRACTOR SHALL MAINTAIN CAREFUL SCHEDULING AND PERFORMANCE TO ENSURE THAT LAND STRIPPED OF ITS NATURAL COVER IS EXPOSED ONLY IN SMALL QUANTITIES.

A COPY OF THE APPROVED LAND DISTURBANCE PLAN AND PERMIT SHALL BE PRESENT ON THE SITE AT ALL TIMES.

THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND-DISTURBING ACTIVITIES.

PRIOR TO COMMENCING LAND DISTURBANCE ACTIVITY, THE LIMITS OF LAND DISTURBANCE SHALL BE CLEARLY AND ACCURATELY DEMARCATED WITH STAKES, RIBBONS, OR OTHER APPROPRIATE MEANS. THE LOCATION AND EXTENT OF ALL

AUTHORIZED LAND DISTURBANCE ACTIVITY SHALL BE DEMARCATED FOR THE DURATION OF THE CONSTRUCTION ACTIVITY. NO LAND DISTURBANCE SHALL OCCUR OUTSIDE THE APPROVED LIMITS INDICATED ON THE APPROVED PLANS.

PRIOR TO ANY OTHER CONSTRUCTION, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED AT EACH POINT OF ENTRY TO OR EXIT FROM THE SITE OR ONTO ANY PUBLIC ROADWAY.

THE FOLLOWING INITIAL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED PRIOR TO ANY OTHER CONSTRUCTION ACTIVITY.

- 1. THE CONSTRUCTION EXIT, CONSISTING OF A MINIMUM PAD SIZE OF 20 FT BY 50 FT WITH A MINIMUM OF 6" THICK STONE, SHALL BE PLACED AS SHOWN ON THE PLAN. THE STONE SIZE SHOULD CONSIST OF COURSE AGGREGATE BETWEEN 1-1/2" & 3-1/2" IN DIAMETER AND OVERLAID ON A GEOTEXTILE UNDERLINER. THE GEOTEXTILE UNDERLINER SHALL MEET THE REQUIREMENTS OF AASHTO M288-96, SECTION 7.3 SEPARATION REQUIREMENTS. (ROCK INSTALLATION TO COINCIDE WITH DEMOLITION)
- 2. IMMEDIATELY AFTER THE ESTABLISHMENT OF CONSTRUCTION ENTRANCE/EXITS, ALL PERIMETER EROSION CONTROL AND STORMWATER MANAGEMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE INITIAL EROSION CONTROL PLAN.
- 3. TYPE "S" SILT FENCE SHOULD BE INSTALLED AT THE PERIMETER OF THE DISTURBED AREA IF CONDITIONS WARRANT INSTALLATION. THE SILT FENCE SHOULD BE PLACED IN ACCORDANCE WITH THE MANUAL FOR EROSION CONTROL IN GEORGIA, TABLE 6-20.2. THE SILT FENCE SHOULD BE KEPT ERECT AT ALL TIMES AND REPAIRED WHEN REQUESTED BY THE SITE INSPECTOR OR THE PROJECT DESIGN PROFESSIONAL OF RECORD. SILT SHOULD BE REMOVED WHEN ACCUMULATION REACHES 1/2 HEIGHT OF THE BARRIER. THE PERIMETER SILT FENCE SHOULD BE INSPECTED DAILY FOR ANY FAILURES. ANY FAILURES OF SAID FENCING SHOULD BE REPAIRED IMMEDIATELY.

AFTER INSTALLATION OF INITIAL EROSION CONTROL MEASURES THE SITE CONTRACTOR SHALL SCHEDULE AN INSPECTION BY THE PROJECT DESIGN PROFESSIONAL. NO OTHER CONSTRUCTION ACTIVITIES SHALL OCCUR UNTIL THE PROJECT DESIGN PROFESSIONAL APPROVES THE INSTALLATION OF SAID EROSION CONTROL MEASURES. IF UNFORESEEN CONDITIONS EXIST IN THE FIELD THAT WARRANT ADDITIONAL EROSION CONTROL MEASURES, THE CONTRACTOR MUST CONSTRUCT ANY ADDITIONAL EROSION CONTROL DEVICES DEEMED NECESSARY BY THE SITE INSPECTION.

AFTER APPROVAL OF THE INITIAL EROSION CONTROL INSTALLATION, THE CONTRACTOR MAY PROCEED WITH CONSTRUCTION, CLEARING AND GRUBBING ACTIVITIES.

THE DESIGN PROFESSIONAL WHO PREPARED THE EROSION CONTROL PLANS WILL INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPs WITHIN SEVEN DAYS AFTER INITIAL CONSTRUCTION ACTIVITY BEGINS.

NO BURN OR BURY PITS SHALL BE PERMITTED ON THE CONSTRUCTION SITE.

ALL SILT FENCE MUST MEET THE REQUIREMENTS OF SECTION 171-TEMPORARY SILT FENCE FOR THE DEPARTMENT OF TRANSPORTATION, STATE OF GEORGIA, STANDARD SPECIFICATIONS, 1983 EDITION.

ALL ITEMS IN THIS SECTION OF THE SPECIFICATIONS SHALL MEET THE REQUIREMENTS AS SET FORTH IN SECTION 161, 162, 163, AND 164 OF THE GDOT STANDARD SPECIFICATIONS, FOR ROADS AND BRIDGES.

MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 14 DAYS OF LAND DISTURBANCE

ALL DISTURBED AREAS LEFT MULCHED AFTER 30 DAYS SHALL BE STABILIZED WITH TEMPORARY VEGETATION.

SEDIMENT AND EROSION CONTROL MEASURES SHOULD BE CHECKED AFTER EACH RAIN EVENT. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED ONE HALF OF THE CAPACITY OF THE DEVICE. ADDITIONAL DEVICES MUST BE INSTALLED IF NEW CHANNELS HAVE DEVELOPED.

# GRADING/INTERMEDIATE PHASE EROSION CONTROL NOTES

DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN CAREFUL SCHEDULING AND PERFORMANCE TO ENSURE THAT LAND STRIPPED OF ITS NATURAL GROUND COVER IS EXPOSED ONLY IN SMALL QUANTITIES AND THEREFORE LIMITED DURATIONS, BEFORE PERMANENT EROSION PROTECTION IS ESTABLISHED.

SEDIMENT SHALL NOT BE WASHED INTO INLETS. IT SHALL BE REMOVED FROM THE SEDIMENT TRAPS AND DISPOSED OF AND STABILIZED SO THAT IT WILL NOT ENTER THE INLETS AGAIN.

EROSION CONTROL DEVICES SHALL BE INSTALLED IMMEDIATELY AFTER GROUND DISTURBANCE OCCURS. THE LOCATION OF SOME OF THE EROSION CONTROL DEVICES MAY HAVE TO BE ALTERED FROM THAT SHOWN ON THE APPROVED PLANS IF DRAINAGE PATTERNS DURING CONSTRUCTION ARE DIFFERENT FROM THE PROPOSED DRAINAGE PATTERNS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES DURING CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE DESIGN PROFESSIONAL IMMEDIATELY.

THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY BARRICADES WHILE ROADWAY IMPROVEMENTS ARE BEING

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING BARRIERS AT THE TOE OF SLOPES UNDER CONSTRUCTION.
THESE BARRIERS SHALL BE AS SHOWN IN THE PLANS. THESE BARRIERS MAY BE RELOCATED AND REUSED AFTER PERMANENT SLOPE STABILIZATION BECOMES FULLY ESTABLISHED. AS THEY ARE RELOCATE, ANY DEFECTIVE MATERIALS IN THE BARRIER SHALL BE REPLACED. IN ADDITION. ALL DEBRIS AND SILT AT THE PREVIOUS LOCATION SHALL BE REMOVED.

# CUT AND FILL SLOPES ARE NOT TO EXCEED "2H:1V"

THE FOLLOWING EROSION CONTROL MEASURES SHALL BE IMPLEMENTED DURING THE PRELIMINARY GRADING PHASE OF CONSTRUCTION.

- 1. TYPE "S" SILT FENCE SHALL BE PLACED AT THE TOE OF ALL DIRT STOCK PILE AREAS. SEE SEPARATE DETAILS FOR ADDITIONAL INFORMATION.
- INLET SEDIMENT PROTECTION MEASURES SHALL BE INSTALLED ON ALL STORM STRUCTURES AS THEY ARE
  CONSTRUCTED/MODIFIED. SEE PLAN VIEW FOR SPECIFIC TYPE AND SEPARATE DETAILS FOR ADDITIONAL INFORMATION ON
  TYPE OF INLET PROTECTION SPECIFIED.
- 3. ALL DRAINAGE SWALES SHALL BE APPLIED WITH VEGETATIVE COVER AS SOON AS FINAL GRADE IS ACHIEVED.
- 4. ALL GRADED AREAS SHALL BE APPLIED WITH VEGETATIVE COVER AS SOON AS FINAL GRADE IS ACHIEVED.
- MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 14 DAYS OF LAND DISTURBANCE.
- ALL DISTURBED AREAS LEFT MULCHED AFTER 30 DAYS SHALL BE STABILIZED WITH TEMPORARY GRASSING.

# FINAL PHASE EROSION CONTROL NOTES

THE FOLLOWING EROSION CONTROL MEASURES SHALL BE IMPLEMENTED DURING THE FINAL EROSION CONTROL PHASE OF CONSTRUCTION.

SEDIMENT SHALL NOT BE WASHED INTO INLETS. IT SHALL BE REMOVED FROM THE SEDIMENT TRAPS AND DISPOSED OF AND STABILIZED SO THAT IT WILL NOT ENTER THE INLETS AGAIN.

MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS LEFT MULCHED AFTER 30 DAYS SHALL BE STABILIZED WITH TEMPORARY GRASSING.

ALL ROADWAY SHOULDERS SHOULD BE APPLIED WITH VEGETATIVE COVER, OR GRAVEL COVER, AS SOON AS FINAL GRADE IS ACHIEVED BEYOND THE EDGE OF PAVEMENT.

SEDIMENT AND EROSION CONTROL MEASURES SHOULD BE CHECKED AFTER EACH RAIN EVENT. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED ONE HALF THE CAPACITY OF THE DEVICE. ADDITIONAL DEVICES MUST BE INSTALLED IF NEW CHANNELS HAVE DEVELOPED.

UPON COMPLETION OF THE PROJECT AND RECEIPT OF CERTIFICATE OF OCCUPANCY, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AND DISPOSE OF THEM UNLESS NOTED ON PLANS.

GSWCC CERTIFICATION
NO. 0000044937

GSWCC LEVEL II DESIGNER:

JASON P. BALL

PRELIMINARY

NOT TO BE USED FOR CONSTRUCTION

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SHEET ID

EC001

## PERMIT COVERAGE

THIS PLAN HAS BEEN PREPARED TO MEET THE REQUIREMENTS UNDER THE STATE OF GEORGIA, DEPARTMENT OF NATURAL RESOURCES, ENVIRONMENTAL PROTECTION DIVISION (EPD), GENERAL NPDES PERMIT NO. GAR 100001 FOR AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES), STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY FOR STAND ALONE CONSTRUCTION PROJECT.

## AUTHORIZED DISCHARGES:

- 1. ALL DISCHARGES OF STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY THAT WILL RESULT IN LAND DISTURBANCE EQUAL TO OR GREATER THAN ONE ACRE PART I.C.1.4.c
- 2. ALL DISCHARGES COVERED BY THIS PERMIT SHALL BE COMPOSED ENTIRELY OF STORMWATER EXCEPT AS PROVIDED IN PART I.C.2 AND PART III.A.2 OF THE PERMIT. PART III.A.1
- 3. AUTHORIZED MIXED STORMWATER DISCHARGES: PART I.C.2
- A. THE INDUSTRIAL SOURCE OR ACTIVITY OTHER THAN CONSTRUCTION IS LOCATED ON THE SAME SITE AS THE CONSTRUCTION ACTIVITY AND IS AN INTEGRAL PART OF THE CONSTRUCTION ACTIVITY.
- B. THE STORMWATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY FROM THE AREAS OF THE SITE WHERE CONSTRUCTION ACTIVITIES ARE OCCURRING ARE IN COMPLIANCE WITH THE TERMS OF THIS PERMIT.
- C. STORMWATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY FROM THE AREAS OF THE SITE WHERE INDUSTRIAL ACTIVITY OTHER THAN CONSTRUCTION ARE OCCURRING ARE COVERED BY A DIFFERENT NPDES GENERAL PERMIT OR INDIVIDUAL PERMIT AUTHORIZING SUCH DISCHARGES AND THE DISCHARGES ARE IN COMPLIANCE WITH A DIFFERENT NPDES PERMIT.
- 4. AUTHORIZED NON-STORMWATER DISCHARGES: PART III.A.2
- A. FIRE FIGHTING ACTIVITIES
- B. FIRE HYDRANT FLUSHING
- C. POTABLE WATER SOURCES INCLUDING WATER LINE FLUSHING
- D. IRRIGATION DRAINAGE E. AIR CONDITIONING CONDENSATE
- F. SPRINGS G. UNCONTAMINATED GROUND WATER
- H. FOUNDATION OR FOOTING DRAINS WHERE FLOWS ARE NOT CONTAMINATED WITH PROCESS MATERIALS OR POLLUTANTS

# LIMITATIONS ON COVERAGE: PART I.C.3

- 1. THE FOLLOWING STORMWATER DISCHARGES FROM CONSTRUCTION SITES ARE NOT AUTHORIZED BY THIS PERMIT:
- A. STORMWATER DISCHARGES ASSOCIATED WITH AN INDUSTRIAL ACTIVITY THAT ORIGINATES FROM THE SITE AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED AND THE SITE HAS UNDERGONE FINAL STABILIZATION.
- B. DISCHARGES THAT ARE MIXED WITH SOURCES OF NON-STORMWATER OTHER THAN DISCHARGES WHICH ARE IDENTIFIED IN PART III.A.2 OF THIS PERMIT AND WHICH ARE IN COMPLIANCE WITH PART IV.D.T (NON-STORMWATER DISCHARGES) OF
- C. STORMWATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY THAT ARE SUBJECT TO AN EXISTING NPDES INDIVIDUAL OR GENERAL PERMIT. SUCH DISCHARGES MAY BE AUTHORIZED UNDER THIS PERMIT AFTER AN EXISTING PERMIT EXPIRES PROVIDED THE EXISTING PERMIT DID NOT ESTABLISH NUMERIC LIMITATION FOR SUCH DISCHARGES.
- D. STORMWATER DISCHARGES FROM CONSTRUCTION SITES THAT THE DIRECTOR (EPD) HAS DETERMINED TO BE OR MAY REASONABLY BE EXPECTED TO BE CONTRIBUTING TO A VIOLATION OF A WATER QUALITY STANDARD.
- 2. WHERE A RELEASE CONTAINING A HAZARDOUS SUBSTANCE IN AN AMOUNT EQUAL TO OR IN EXCESS OF A REPORTING QUANTITY ESTABLISHED UNDER EITHER GEORGIA'S OIL OR HAZARDOUS MATERIAL SPILLS OR RELEASES ACT (O.C.G.A. §§12-14-2, ET SEQ.) 40 CFR 117 OR 40 CFR 302 OCCURS DURING A 24-HOUR PERIOD, THE PERMITTEE IS REQUIRED TO NOTIFY THE FOLLOWING AGENCIES IN ACCORDANCE WITH THE ABOVE-MENTIONED REGULATIONS AS SOON AS HE HAS KNOWLEDGE OF THE DISCHARGE: EPD AT (404) 656-4863 OR (800) 241-4113, OR THE NATIONAL RESPONSE CENTER (NRC) AT (800) 424-8802. PART III.B.1
- 3. THIS PERMIT DOES NOT AUTHORIZE THE DISCHARGE OF HAZARDOUS SUBSTANCES OR OIL RESULTING FROM AN ONSITE

# WATER QUALITY COMPLIANCE: PART I.C.4

ALL DISCHARGES AUTHORIZED BY THIS PERMIT SHALL NOT CAUSE VIOLATIONS OF GEORGIA'S IN-STREAM WATER QUALITY STANDARDS AS PROVIDED BY THE RULES AND REGULATIONS FOR WATER QUALITY CONTROL. CHAPTER 391-3-6-03. NO SAMPLING IS REQUIRED AS PART OF THIS PROJECT.

# PROJECT REFERENCE:

DEVELOPER/OWNER **DESIGN PROFESSIONAL** 24 HOUR CONTACT BALL MARITIME GROUP **BWC TERMINALS LLC BALL MARITIME GROUP** 1200 SMITH STREET 4 CEDAR VIEW CT. JASON P. BALL, PE SUITE 2100 HOUSTON, TX (912) 662-2914 SAVANNAH, GA 31410 77002 PHONE: (912) 662-2914

# CONSTRUCTION ACTIVITIES SCHEDULE:

INFRASTRUCTURE			20	21		
	APR	MAY	JUNE	JULY	AUG	
ESTABLISH CONSTRUCTION EXIT - INSTALL PERIMETER SILT FENCE	 					 
PRELIMINARY GRADING/BEGIN CLEARING						
INSTALL GRADING PHASE EROSION CONTROL MEASURES AS CLEARING PROGRESSES						
MAINTAIN CONSTRUCTION ENTRANCE/EXIT AS CLEARING AND GRADING WARRANTS						
FINAL GRASSING						
REMOVE TEMPORARY EROSION CONTROL MEASURES						

GSWCC CERTIFICATION NO. 0000044937 GSWCC LEVEL II DESIGNER: JASON P. BALL

PRELIMINARY

NOT TO BE USED FOR CONSTRUCTION

SUPPORT

SIGN

H

EC002

SHEET ID

## **EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN (ESPC)**

THIS PLAN WAS PREPARED AS REQUIRED BY NPDES GENERAL PERMIT NO. GAR 100001. THESE PLAN SHEETS AND ALL REQUIREMENTS OF THE GENERAL PERMIT AS WELL AS LOCAL, STATE, AND FEDERAL REGULATIONS OR LAWS APPLY REGARDLESS OF SPECIFIC INCLUSION IN THIS PLAN.

#### SITE DESCRIPTION

OWNER/DEVELOPER, AS PRIMARY PERMITTEE, WILL OVERSEE SITE CONSTRUCTION LOCATED IN SAVANNAH, GEORGIA. THE PROJECT LIMITS CONTAIN APPROXIMATELY 0.95 ACRES.

THE SITE DRAINS FROM NORTHWEST TO THE SOUTHEAST THROUGH A SERIES OF DOWNSPOUT DISCONNECTS AND PIPES WITHIN THE PROPERTY, EVENTUALLY DISCHARGING TO THE SOUTHSIDE OF THE PROPERTY INTO AN EXISTING DETENTION POND.

ALL RUNOFF FROM THE SITE SHEET FLOWS ACROSS THE SITE FROM THE NORTHWEST TO THE SOUTHEAST, COLLECTING EVENTUALLY IN CONCENTRATION IN THE EXISTING DETENTION POND.

# THE PROPOSED DRAINAGE SYSTEM FOR THE PROJECT CONSISTS OF GRADING, PIPES, AND DITCHES.

CONSTRUCTION WILL BEGIN WITH INSTALLATION OF A CONSTRUCTION EXIT AND PLACEMENT OF PERIMETER SILT FENCE ALONG APPLICABLE PORTIONS OF THE PROJECT LIMITS TO LIMIT THE AMOUNT OF SILT RUNOFF. AFTER THESE EROSION CONTROL BMPS HAVE BEEN INSTALLED, CLEARING WILL BEGIN. CONSTRUCTION OF DRAINAGE PROVISIONS WILL START. THE SITE WILL THEN BE GRADED AND STABILIZED WITH VEGETATION OR MULCHED.

- FOR EXISTING CONDITIONS SEE SHEETS C101
- 2. FOR PROJECT GRADING & DRAINAGE PLAN SEE SHEETS C102.
- 3. FOR ESPC PLAN SEE SHEETS EC001 EC503.

**ZONING:** INDUSTRIAL

#### NAME OF RECEIVING WATERS: EAST RIVERL

BUFFER VARIANCE: A STREAM BUFFER VARIANCE IS NOT REQUIRED FOR CONSTRUCTION ACTIVITIES FOR THIS PROJECT.

STATE WATERS: NO STATE WATERS ARE LOCATED WITHIN 200 FEET OF THE PROJECT SITE.

# SURVEY INFORMATION

ADJACENT PROPERTIES:

CSX & NORFOLK SOUTHERN

LOGISTEC USA INC.

# GEORGIA PORTS AUTHORITY

VERTICAL DATUM - ELEVATIONS SHOWN ARE IN FEET AND ARE BASED ON NAVD88.

HORIZONTAL DATUM - COORDINATES ARE IN U.S. SURVEY FEET REFERRED TO THE GEORGIA STATE PLANE ZONE 1001 EAST, NAD83.

THE SITE IS LOCATED IN GLYNN COUNTY, GA. GROSS ACREAGE OF THE DRAINAGE BASIN: 3.5 ACRES. ACREAGE OF THE PROJECT SITE: 0.98 ACRES. THE WEIGHTED CURVE NUMBER FOR THE TOTAL PROJECT SITE IS 91.

# RUNOFF COEFFICIENT (PROJECT SITE):

- WEIGHTED PRE CONSTRUCTION CURVE NUMBER (CN): 77
- WEIGHTED POST CONSTRUCTION CURVE NUMBER (CN): 86

PROJECT SITE CONTAINS THE FOLLOWING SOIL SERIES BASED ON THE USDA-NRCS NATIONAL COOPERATIVE SOIL SURVEY:

Mb......MANDARIN-URBAN LAND COMPLEX

SOIL DISTURBING ACTIVITIES INCLUDE:

- INSTALLING PERIMETER AND OTHER SEDIMENT CONTROLS.
- INSTALLING A STABILIZED CONSTRUCTION EXIT
   GRADING AND EXCAVATION.
- PREPARATION FOR FINAL SEEDING.
   COMPLETION OF ON-SITE STABILIZATION.

# CONTROLS

# EROSION AND SEDIMENT CONTROLS

ALL PERIMETER SILT FENCES AND CONSTRUCTION EXITS SHALL BE IN PLACE PRIOR TO ANY LAND DISTURBING ACTIVITIES. (CONSTRUCTION EXIT SHOULD BE DEFINED - INSTALLATION MAY WAIT UNTIL DEMOLITION HAS OCCURRED)

WHEN CONSTRUCTION ACTIVITIES HAVE CEASED IN AN AREA, THAT AREA SHALL BE STABILIZED WITHIN 14 DAYS. IF THE AREA IS NOT YET TO FINAL GRADE, IT SHALL BE MULCHED. IF THE AREA IS TO FINAL GRADE AND WILL EVENTUALLY CONTAIN SITE IMPROVEMENTS, IT SHALL BE TEMPORARY SEEDED. AREAS BROUGHT TO FINAL GRADE THAT WILL REMAIN PERVIOUS ARE TO BE PERMANENTLY SEEDED. ALLOWABLE EXCEPTIONS FROM THE NPDES GENERAL NPDES PERMIT NO. GAR 100001, ARE NOTED BELOW.

"WHERE THE INITIAL OF STABILIZATION MEASURE BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARY OR PERMANENTLY CEASE IS PRECLUDED BY SNOW COVER OR OTHER ADVERSE WEATHER CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE."

"WHERE CONSTRUCTION ACTIVITY WILL RESUME ON A PORTION OF THE SITE WITHIN 21 DAYS FROM WHEN ACTIVITIES CEASED, (E.G. THE TOTAL TIME PERIOD THAT CONSTRUCTION ACTIVITY IS TEMPORARILY CEASED IS LESS THAT 21 DAYS) THEN STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY CEASED."

PLEASE REFER TO DETAIL SHEETS FOR THE LAND DISTURBANCE CONSTRUCTION SCHEDULE AND TEMPORARY AND PERMANENT GRASSING SCHEDULES.

STORMWATER FROM THIS SITE WILL BE ROUTED THROUGH THE EXISTING STORMWATER SYSTEM AND SWALES TO THE EXISTING CANAL. THE CANAL DISCHARGES INTO THE SAVANNAH RIVER.

# NON-STORMWATER DISCHARGES

ALL NON-STORMWATER DISCHARGES WILL BE ROUTED THROUGH ON-SITE BMPs WHERE POSSIBLE. THESE DISCHARGES INCLUDE FLUSHING OF WATER AND FIRE LINES, IRRIGATION WATER, GROUND WATER, DEWATERING OF PITS OR DEPRESSIONS WITHIN THE CONSTRUCTION SITE AND RINSE OFF WATER OF NON-TOXIC MATERIALS.

#### OTHER CONTROLS

NO WASTE WILL BE DISPOSED OF INTO STORMWATER INLETS OR WATERS OF THE STATE EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.

# WASTE MATERIALS

ALL WASTE MATERIALS WILL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER. THE DUMPSTER WILL MEET ALL SOLID WASTE MANAGEMENT REGULATIONS. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE WILL BE DEPOSITED IN THE DUMPSTER. THE DUMPSTER WILL BE EMPTIED A MINIMUM OF ONCE PER WEEK OR MORE OFTEN IF NECESSARY AND TRASH WILL BE HAULED AS REQUIRED BY LOCAL REGULATIONS. NO CONSTRUCTION WASTE WILL BE BURIED ON-SITE.

ALL PERSONNEL WILL BE INSTRUCTED ON PROPER PROCEDURES FOR WASTE DISPOSAL. A NOTICE STATING THESE PRACTICES WILL BE POSTED AT THE JOBSITE AND THE CONTRACTOR WILL BE RESPONSIBLE FOR SEEING THAT THESE PROCEDURES ARE FOLLOWED.

## **HAZARDOUS WASTE**

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 DATE 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 AND COUNTERMEASURES (SPCC) PLAN FOUND WITHIN IN THE ESPCP AND WILL TRAIN ALL PERSONNEL IN THE PROPER CLEANUP AND HANDLING OF SPILLED MATERIALS. NO SPILLED HAZARDOUS MATERIALS OR HAZARDOUS WASTES WILL BE ALLOWED TO COME IN CONTACT WITH 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 SANITARY 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 AN AREA WHERE THE LIKELIHOOD OF THE UNIT CONTRIBUTING TO STORMWATER DISCHARGE IS NEGLIGIBLE. ADDITIONAL CONTAINMENT BMPs MUST BE IMPLEMENTED, SUCH AS GRAVEL BAGS OR SPECIALLY DESIGNED PLASTIC SKID CONTAINERS AROUND THE BASE, TO PREVENT WASTES FROM CONTRIBUTING TO STORMWATER DISCHARGES. THE LOCATION OF THE SANITARY WASTES UNITS MUST BE IDENTIFIED ON THE EROSION CONTROL PLAN

GRADING PHASE BY THE CONTRACTOR ONCE THE LOCATIONS HAVE BEEN DETERMINED.

## OFFSITE VEHICLE TRACKING

A STABILIZED CONSTRUCTION EXIT HAS BEEN PROVIDED TO HELP REDUCE VEHICLE TRACKING OF SEDIMENT. SEE SHEET EC101 FOR CONSTRUCTION EXIT LOCATION AND DETAILS. THE PAVED STREET ADJACENT TO THE SITE EXIT WILL BE INSPECTED DAILY FOR TRACKING OF MUD, DIRT OR ROCK. DUMP TRUCKS HAULING MATERIAL FROM THE CONSTRUCTION SITE WILL BE COVERED WITH A TARPAULIN.

# INVENTORY FOR POLLUTION PREVENTION PLAN

THE FOLLOWING MATERIALS ARE EXPECTED ON-SITE DURING CONSTRUCTION: CONCRETE PRODUCTS, ASPHALT, PETROLEUM BASED FUELS AND LUBRICANTS FOR EQUIPMENT, TAR, METAL REINFORCING, PAINTS/FINISHES, PAINT SOLVENTS, LUMBER, PESTICIDES, FERTILIZERS, HERBICIDES, CRUSHED STONE, PLASTIC, METAL, AND CONCRETE PIPES.

# SPILL PREVENTION

PRACTICES SUCH AS GOOD HOUSEKEEPING, PROPER HANDLING OF HAZARDOUS PRODUCTS AND PROPER SPILL CONTROL PRACTICES WILL BE FOLLOWED TO REDUCE THE RISK OF SPILLS AND SPILLS FROM DISCHARGING INTO STORMWATER RUNOFF.

# GOOD HOUSEKEEPING

- 1. QUANTITIES OF PRODUCTS STORED ON-SITE WILL BE LIMITED TO THE AMOUNT NEEDED FOR THE JOB.
- 2. PRODUCTS AND MATERIALS WILL BE STORED IN A NEAT, ORDERLY MANNER IN APPROPRIATE CONTAINERS PROTECTED FROM RAINFALL, WHERE POSSIBLE.
- PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH MANUFACTURER LABELS LEGIBLE AND VISIBLE.
   PRODUCTS MIXING, DISPOSAL AND DISPOSAL OF PRODUCT CONTAINERS WILL BE ACCORDING TO THE MANUFACTURER'S
- 5. THE CONTRACTOR WILL INSPECT SUCH MATERIALS TO ENSURE PROPER USE, STORAGE AND DISPOSAL

# PRODUCT SPECIFIC PRACTICES

PETROLEUM BASED PRODUCTS - CONTAINERS FOR PRODUCTS SUCH AS FUELS, LUBRICANTS AND TARS WILL BE INSPECTED DAILY FOR LEAKS AND SPILLS. THIS INCLUDES ON-SITE VEHICLE AND MACHINERY DAILY INSPECTION AND REGULAR PREVENTATIVE MAINTENANCE OF SUCH EQUIPMENT. EQUIPMENT MAINTENANCE AREAS WILL BE LOCATED AWAY FROM STATE WATER, NATURAL DRAINS AND STORMWATER 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 WILL INCLUDE COLLECTION IN A SUITABLE CONTAINER AND DISPOSAL AS REQUIRED BY LOCAL AND STATE REGULATIONS.

PAINTS/FINISHES/SOLVENTS - ALL PRODUCTS WILL BE STORED IN TIGHTLY SEALED ORIGINAL CONTAINERS WHEN NOT IN USE. EXCESS PRODUCT WILL NOT BE DISCHARGED TO THE STORMWATER COLLECTION SYSTEM. EXCESS PRODUCT, MATERIALS USED WITH THESE PRODUCTS AND PRODUCT CONTAINERS WILL BE DISPOSED OF ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

CONCRETE TRUCK WASHING - NO CONCRETE TRUCKS WILL BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ONSITE.

FERTILIZER/HERBICIDES - THESE PRODUCTS WILL BE APPLIED AT RATES THAT DO NOT EXCEED THAT 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/FORMWORK - NO BUILDING OR CONSTRUCTION MATERIALS WILL BE BURIED OR DISPOSED OF ON-SITE. ALL SUCH MATERIAL WILL BE DISPOSED OF IN PROPER WASTE DISPOSAL PROCEDURES.

SPILL CLEANUP AND CONTROL PRACTICES

- LOCAL, STATE AND MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP 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 REPORTS AS REQUIRED BY LOCAL,

- STAT, 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 1-800-426-2675.
- FOR SPILLS OF UNKNOWN AMOUNT, THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT 1-800-426-2675.
- FOR SPILLS GREATER 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 A CAPACITY GREATER THAN 660 GALLONS. THE CONTRACTOR WILL NEED A SPILL PREVENTION CONTAINMENT AND COUNTERMEASURES PLAN PREPARED BY THAT LICENSED PROFESSIONAL.

GSWCC CERTIFICATION NO. 0000044937 GSWCC LEVEL II DESIGNER: JASON P. BALL

PRELIMINARY

NOT TO BE USED FOR CONSTRUCTION

MARK DESCRIPTION DA

 GEROUP
 DESIGNED BY:
 ISSUE DATE:

 orgid | 31410 | 912.662.2914
 SOLICITATION NO.:

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 CONTRACT NO.:

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SIGN SUPPORT

SHEET ID EC003

# <u>INSPECTIONS</u>

(1) EACH DAY WHEN ANY TYPE OF CONSTRUCTION ACTIVITY HAS TAKEN PLACE AT A PRIMARY PERMITTEE'S SITE, QUALIFIED PERSONNEL PROVIDED BY THE PRIMARY PERMITTEE SHALL INSPECT: (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; AND (B) ALL LOCATIONS AT THE PRIMARY PERMITTEE'S SITE WHERE VEHICLES ENTER OF EXIT THE SITE FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING. THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED.

(2) MEASURE RAINFALL ONCE EVERY 24 HOURS EXCEPT NON-WORKING SATURDAY, NON-WORKING SUNDAY AND NON-WORKING FEDERAL HOLIDAY UNTIL A NOTICE OF TERMINATION IS SUBMITTED. 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.

CERTIFIED PERSONNEL (PROVIDED BY THE PRIMARY PERMITTEE) SHALL INSPECT AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.5 INCHES OR GREATER (UNLESS SUCH STORM ENDS AFTER 5:00 PM ON ANY FRIDAY OR ON ANY NON-WORKING SATURDAY, NON-WORKING SUNDAY OR ANY NON-WORKING FEDERAL HOLIDAY IN WHICH CASE THE INSPECTION SHALL BE COMPLETED BY THE END OF THE NEXT BUSINESS DAY AND/OR WORKING DAY, WHICHEVER OCCURS FIRST) THE FOLLOWING: (A) DISTURBED AREAS OF THE PRIMARY PERMITTEE'S CONSTRUCTION SITE; (B) AREAS USED BY THE PRIMARY PERMITTEE FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION; 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 SUMMARIZING THE SCOPE OF EACH INSPECTION AND THE NAME(S) OF CERTIFIED PERSONNEL MAKING EACH INSPECTION, THE DATE(S) OF EACH INSPECTION, 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 ANY INCIDENTS OF NON-COMPLIANCE. WHERE THE REPORT DOES NOT IDENTIFY ANY INCIDENTS OF NON-COMPLIANCE, THE REPORT SHALL CONTAIN A CERTIFICATION THAT THE BEST MANAGEMENT PRACTICES ARE IN COMPLIANCE WITH THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN AND THIS PERMIT. THE REPORT SHALL BE SIGNED IN ACCORDANCE WITH PART V.G. OF THIS PERMIT.

# MAINTENANCE & INSPECTION OF EROSION & SEDIMENT CONTROLS

# MAINTENANC

THE FOLLOWING BEST MANAGEMENT PRACTICE MAINTENANCE CRITERIA ARE TAKEN FROM THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA", FIFTH EDITION.

CONSTRUCTION EXITS SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 1.5 -3.5 INCH 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.

RETROFIT STRUCTURES SHALL BE KEPT CLEAR OR TRASH AND DEBRIS. THIS WILL REQUIRE CONTINUOUS MONITORING AND MAINTENANCE, WHICH INCLUDES SEDIMENT REMOVAL WHEN ONE-THIRD OF THE SEDIMENT STORAGE CAPACITY HAS BEEN LOST.

SEDIMENT SHALL BE REMOVED FROM SILT FENCES ONCE IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE BARRIER. FILTER FABRIC SHALL BE REPLACED WHENEVER IT HAS DETERIORATED TO SUCH AN EXTENT THAT THE EFFECTIVENESS OF THE FABRIC IS REDUCED (APPROXIMATELY SIX MONTHS).

SEDIMENT SHALL BE REMOVED FROM SEDIMENT TRAPS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE HEIGHT OF

SEDIMENT SHALL NOT BE WASHED INTO THE INLET. IT SHALL BE REMOVED FROM THE SEDIMENT TRAP AND DISPOSED OF AND STABILIZED SO THAT IT WILL NOT ENTER THE INLET. AGAIN.

WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED, ALL MATERIALS AND ANY SEDIMENT SHALL BE REMOVED, AND EITHER SALVAGED OR DISPOSED OF PROPERLY. THE DISTURBED AREA SHALL BE BROUGHT TO PROPER GRADE, THEN SMOOTHED AND COMPACTED. APPROPRIATELY STABILIZE ALL DISTURBED AREA AROUND THE INLET.

REPAIR ALL DAMAGES CAUSED TO TEMPORARY SEDIMENT BASINS BY SOIL EROSION OR CONSTRUCTION EQUIPMENT AT OR BEFORE THE END OF EACH WORKING DAY. SEDIMENT SHALL BE REMOVED FROM THE BASIN WHEN IT REACHED THE SPECIFIED DISTANCE BELOW THE TOP OF THE RISE. SEDIMENT SHALL NOT ENTER ADJACENT STREAMS OR DRAINAGE WAYS DURING SEDIMENT REMOVAL OR DISPOSAL. THE SEDIMENT SHALL NOT BE DEPOSITED DOWNSTREAM FROM THE EMBANKMENT, ADJACENT TO A STREAM OR FLOODPLAIN.

ROUGHENED AREAS SHALL BE SEEDED AND MULCHED AS SOON AS POSSIBLE TO OBTAIN OPTIMUM SEED GERMINATION AND SEEDING GROWTH.

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 SIX 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 SIX MONTHS. IF AN AREA WILL REMAIN UNDISTURBED FOR GREATER THAN SIX MONTHS, PERMANENT VEGETATIVE TECHNIQUES SHALL BE EMPLOYED.

PERMANENT VEGETATION SHALL BE APPLIED IMMEDIATELY TO ROUGH GRADED AREA THAT WILL BE UNDISTURBED FOR LONGER THAN SIX MONTHS. THIS PRACTICE OF 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, AT LEAST 70% OF THE SOIL SURFACE IS UNIFORMLY COVERED IN PERMANENT VEGETATION OR EQUIVALENT PERMANENT STABILIZATION MEASURES (SUCH AS THE USE OF RIP-RAP, GABIONS, PERMANENT MULCHES OR GEOTEXTILES) HAVE BEEN EMPLOYED. PERMANENT VEGETATION SHALL CONSIST OF: PLANTED

TREES, SHRUBS, PERENNIAL VINES, 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. 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.

## RETENTION OF RECORDS

- 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. COPY OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN;
- B. THE DESIGN PROFESSIONAL'S REPORT OF THE RESULTS OF THE INSPECTION CONDUCTED IN ACCORDANCE WITH PART IV.A.5. OF THIS PERMIT;
- C. A COPY OF ALL INSPECTION REPORTS GENERATED IN ACCORDANCE WITH PART IV.D.4.A. OF THIS PERMIT;D. A COPY OF ALL VIOLATION SUMMARIES AND VIOLATION SUMMARY REPORTS GENERATED IN ACCORDANCE WITH PART OF
- E. DAILY RAINFALL INFORMATION COLLECTED IN ACCORDANCE WITH PART IV.D.4.A.(2). OF THIS PERMIT.

THE CONTRACTOR WILL OBTAIN COPIES OF ANY AND ALL LOCAL AND STATE REGULATIONS THAT ARE APPLICABLE TO STORMWATER MANAGEMENT, EROSION CONTROL, AND POLLUTION MINIMIZATION AT THIS JOB SITE AND WILL COMPLY FULLY WITH SUCH REGULATIONS. THE CONTRACTOR WILL SUBMIT WRITTEN EVIDENCE OF SUCH COMPLIANCE IF REQUESTED BY THE OWNER OR ANY AGENT OF A REGULATORY BODY. THE CONTRACTOR WILL COMPLY WITH ALL CONDITIONS OF A NY AND ALL LOCAL, STATE AND FEDERAL AGENCIES HAVE GOVERNING AUTHORITY, INCLUDING THE CONDITIONS RELATED TO MAINTAINING THE ESPCP AND EVIDENCE OF COMPLIANCE WITH THE ESPCP AT THE JOB SITE AND ALLOWING REGULATORY PERSONNEL ACCESS TO THE JOB SITE AND TO RECORDS IN ORDER TO DETERMINE COMPLIANCE.

#### CERTIFICATION

"I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY CONTROL ACT AND THE DOCUMENT "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA," (MANUAL) PUBLISHED BY THE STATE SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTRUBING ACTIVITY WAS PERMITTED, PROVIDES FOR THE SAMPLING OF THE RECEIVING WATER(S) OR THE SAMPLING OF THE STORMWATER OUTFALLS THAT THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES MEETS THE DESIGN REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NO. GAR 100001."

#### **CERTIFIED BY**

# **DESIGN PROFESSIONAL 7-DAY VISIT CERTIFICATION**

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.

DATE OF INSPECTION \_\_\_\_\_

"I CERTIFY THE SITE WAS IN COMPLIANCE WITH THE ESPC PLAN ON THE DATE OF INSPECTION."

GSWCC LEVEL II DESIGN PROFESSIONAL: JASON P. BALL, PE GSWCC CERTIFICATION NO. 0000044937

INSPECTION REVEALED THE FOLLOWING DISCREPANCIES FROM THE ESPC PLAN.

THESE DEFICIENCIES MUST BE ADDRESSED IMMEDIATELY AND A RE-INSPECTION SCHEDULED. WORK SHALL NOT PROCEED ON THE SITE UNTIL DESIGN PROFESSIONAL CERTIFICATION IS OBTAINED.

GSWCC CERTIFICATION NO. 0000044937 GSWCC LEVEL II DESIGNER:

JASON P. BALL

PRELIMINARY

NOT TO BE USED FOR CONSTRUCTION

MARK DESCRIPTION DATE

CCW	DESIGNED BY:	DESIGNED BY:	SOLICITATION NO.:
Copyright © 2023	CCW	CCW	
COPYRIGH © 2023	CCW	CCW	CCW
SUBMITTED BY:	CATEGORY CODE:		
CCW	SIZE:	FILE NAME:	ANSI D

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SIGN SUPPORT

BW

SHEET ID EC004



Sediment Barriers are temporary structures made up of a porous material typically supported by steel or wood posts. Types of sediment barriers may include silt fence. brush piles, mulch berms, compost filter socks or other filtering material.

#### 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 area. 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 riprap 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 foot and that the support spacing does

not exceed 4 feet. 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 1/4 acre for every 100 feet of sediment barrier.

#### The type of sediment barrier depends on whether the area is sensitive or nonsensitive. 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 inches or as specified by design professional. See Figure 6-27.5

# **CONSTRUCTION SPECIFICATIONS**

Non-sensitive Areas \* Sd1-NS

each being driven into the ground a minimum of 18 inches. material and should have 1/8 in. to 3/8 in., openings.

# Sensitive Areas\* Sd1-S

support spacing of no greater than 4 feet on center, with each being driven into the ground a minimum of 18 inches. row along the perimeter of disturbance at the time of \*As of January 1 2016, in the existing Georgia Department of Transportation Qualified Products list #36 (QPL- 36), Type A, B, or C will fall under sensitive and non-sensitive applications. Type C will be classified as sensitive and Type A and **B as non-sensitive**. Refer to Appendix A-2 and the Equivalent BMP List.

#### PRACTICE CLASSIFICATIONS For silt fence Type A, B or C refer to Table 6-27.4.

## Type A Silt Fence This 36-inch wide filter fabric shall be used on

developments where the life of the project is great than or equal to six months. Type A is classified as non-sensitive

# Type B Silt Fence

Though only 22-inches 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 Installation six Type B is classified as non-sensitive application.

Type C fence is 36-inches wide with wire reinforcement or equivalent. The wire reinforcement is necessary because this fabric allows almost three times the flow rate as Type A silt fence. Type C silt fence shall be used where runoff flows or velocities are particularly high or where slopes exceed a vertical height of 10 feet. **Type** C is classified as sensitive application.

#### Filter Media Sock Specifications Compost filter media used for sediment barrier filler material shall be weed free and derived from a well-decomposed source of organic matter. Filter Media Sock is classified as a Type B, non-sensitive

application. The compost shall be produced using an aerobic composting process meeting CFR 503 regulations Static Slicing Method including time and temperature data. The compost shall be free of any refuse, contaminants or other materials toxic to plant growth. Non-composted products will not be methods for the items below should follow US Composting Council Test Methods for the Examination of Composting and Compost guidelines for laboratory procedures:

"Electrometric pH Determinations for Compost"

Particle size – 99% passing a 2 inch (50mm) sieve and a maximum of 40% passing a 3/8 inche (9.5mm) sieve, in accordance with TMECC 02.02-B, "Sample Sieving for Aggregate Size Classification". (Note: In the field, product commonly is between ½ in./12.5mm and 2

Moisture content of less than 60% in accordance with standardized test methods for moisture determination.

#### Material shall be relatively free (<1% by dry weight) of inert or foreign manmade materials.

Sediment barriers being used as Type NS shall have E. Sock containment system for compost filter media filter fabric underground. Usually the trench is about 2-"6" support spacing of no greater than 6 feet on center, with shall be a photodegradable or biodegradable knitted mesh wide with a 6" excavation. Post setting and fabric

# Brush Barrier (Sd1-BB)

Sediment barriers being used as Type S shall have a (Only during timber clearing operations) Brush obtained from clearing and grubbing operations may be piled in a clearing and grubbing. Brush barriers should not be used in developed areas or locations where aesthetics are a concern. Brush should be wind-rowed on the contour as nearly as possible and may require compaction. Construction equipment may be utilized to satisfy this requirement. The minimum base width of the brush barrier shall be 5 feet and should be no wider 10 feet. The height of the brush barrier should be between 3 and 5 feet tall.

> A brush barrier is a good tool to use in developing pasture in an agricultural situation to prevent sediment from leaving the site until the pasture is stabilized. If greater filtering capacity is required, a commercially available sediment barrier may be placed on the side of the brush barrier receiving the sediment-laden runoff. The lower edge of the fabric must be buried in a 6-inch deep trench immediately uphill from the barrier. The upper edge must be stapled, tied or otherwise fastened to the brush barrier. Edges of adjacent fabric pieces must overlap each

# Sediment barriers should be installed along the

other. See Figure 6-27.5.

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 the barriers, See Figures 6-27.1 6-27.2, 6-27.3 and 6-27.4, respectively. It is important to

remember that not all sediment barriers need to be

Post installation shall start at the center of a low point (if applicable) with the remaining posts spaced no greater than 6 feet apart for Type NS sediment barriers and no greater than 4 feet apart for Type C sediment barriers. For post size requirements, see Table 6-27.2. Fasteners for wood posts are listed in Table 6-27.3.

trenched into the ground but most taller sediment barriers

# 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 accepted without applicable water quality test results. Test 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 pH – 5.0-8.0 in accordance with TMECC 04.11-A, both sides of the slit in the ground 2 to 4 times to achieve nearly the same or greater compaction as the original undisturbed areas. 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 inches into the soil. Driving in the posts and attaching the fabric to them completes the

# Trenching Method

Trenching machines have been used for over twenty-five years to dig a trench for burying part of the installation often precede compaction, which make effective compaction more difficult to achieve. EPA supported an independent technology evaluation (ASCE 2001), which compared three progressively better variations of the trenching method with static slicing

areas. The static slicing method performed better than two lower performance levels of the trenching method, and was as good as or better than the trenching method's highest performance. 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, two

## rows of Type S sediment barriers shall be used. The two rows of Type S should be placed a minimum of 36 inches

#### Sediment shall be removed once it has accumulated to one-half 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 six months) or the height of the product is not maintaining 80% of its properly installed

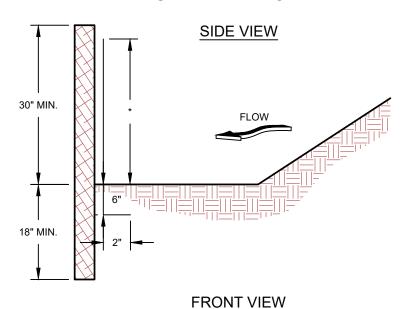
MAINTENANCE

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 6-27.4

Table 6-27.	•		
TYPE FENCE	Α	В	С
Tensile Strength (Lbs. Min.) (1)	Warp - 120	Warp - 120	Warp - 260
(ASTM D-4632)	Fill - 100	Fill - 100	Fill - 180
Elongation (% Max.)			
ASTM D-4632)	40	40	40
AOS (Apparent Opening Size)			
Max. Sieve Size) (ASTM D-4751)	#30	#30	#30
Flow Rate (Gal/Min/Sq. Ft.)			
GDT-87)	25	25	70
Ultraviolet Stability (2)			
ASTM D-4632 after 300 hours	80	80	80
weathering in accordance with ASTM			
D-4355)			
Bursting Strength (PSI Min.)			
ASTM D-3786 Diaphram Bursting	175	175	175
Strength Tester)			
Minimum Fabric Width (Inches)	36	22	36
(1) Minimum roll average of five spec (2) Percent of required initial minimum		strength.	

# SILT FENCE - TYPE NON-SENSITIVE



# ← 6' MAX. O.C. ← ► **FABRIC**

USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION,

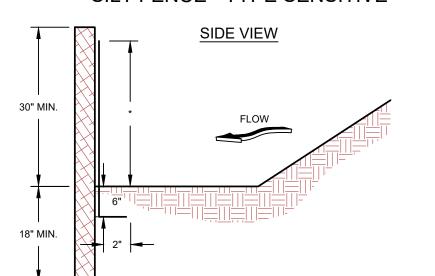
SEDIMENTATION AND POLITITION CONTROL PLAN 2. HEIGHT (\*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLITION CONTROL PLAN

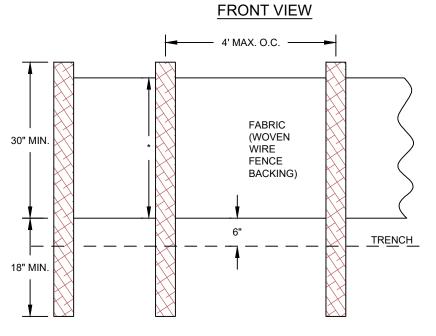
# Figure 6-27.1

# 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 area length of 10 feet betwee the fence should be provided	een the toe of the slope to

# SILT FENCE - TYPE SENSITIVE





USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN. 2. HEIGHT (\*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND

POLITION CONTROL PLAN.

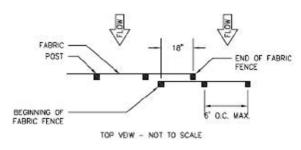
Figure 6-27.2

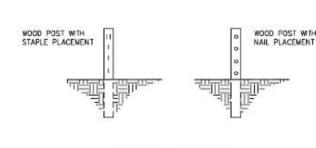
#### Table 6-27.2 Post Size Size of Post 3"dia or 2x4 Soft wood 1.5" x1.5" Oak 1.15lb./ft. min Steel 1.15-1.25 lb./ Steel Oak

Gauge	Crown	Legs	Staples Post
17 min.	3/4" wide	1/2" long	5 min.
Gauge	Length	Button Heads	Nail/ Pos
14 min.	1"	3/4"	4 min.
	Gauge	Gauge Length 14 min. 1"	Gauge Length Button Heads

# FASTENERS FOR SILT FENCES

# OVERLAP AT FABRIC ENDS





FRONT VIEWS - NOT TO SCALE

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

Figure 6-27.5

# Construction Exit Co



DEFINITION A stone stabilized pad located at any point where traffic will be leaving a construction site to a public right-of-way, street, alley, sidewalk or parking area or any other area where there is a transition from bare soil to a paved area.

#### construction area onto public rights-ofway by motor vehicles or by runoff.

PURPOSE

CONDITIONS This practice is applied at appropriate points of

To reduce or eliminate the transport of mud from the

# construction egress. Geotextile underliners are required to

shall be used:

stabilize and support the pad aggregates. **DESIGN CRITERIA** Formal design is not required. The following standards

Stone will be in accordance with National Stone Association R-2 (1.5 to 3.5 inch stone). Pad Thickness

# The gravel pad shall have a minimum thickness of 6

At a minimum, the width should equal full width of all or site onto roadways or into storm drains must be points of vehicular egress, but not less than 20 feet wide.

# Pad Length

The gravel pad shall have a minimum length of 50 feet. 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.

in./50 mm in particle size.)

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 if shall be done on an area stabilized with crushed stone and provisions that intercept the sedimentladen runoff and direct it into an approved sediment trap or

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

CONSTRUCTION SPECIFICATIONS

# etation and roots.

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

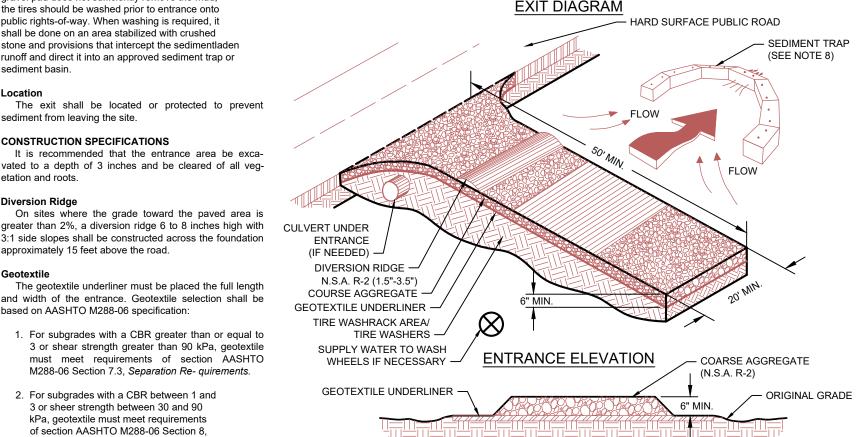
The geotextile underliner must be placed the full length and width of the entrance. Geotextile selection shall be based on AASHTO M288-06 specification: 1. For subgrades with a CBR greater than or equal to

#### 3 or shear strength greater than 90 kPa, geotextile must meet requirements of section AASHTO M288-06 Section 7.3, Separation Re- quirements. 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).

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 inch stone, as conditions demand, and repair and/or cleanout of any structures to trap sediment. All materials spilled, Figure 6-14.1 dropped, washed, or tracked from vehicles removed immediately.

# CRUSHED STONE CONSTRUCTION EXIT



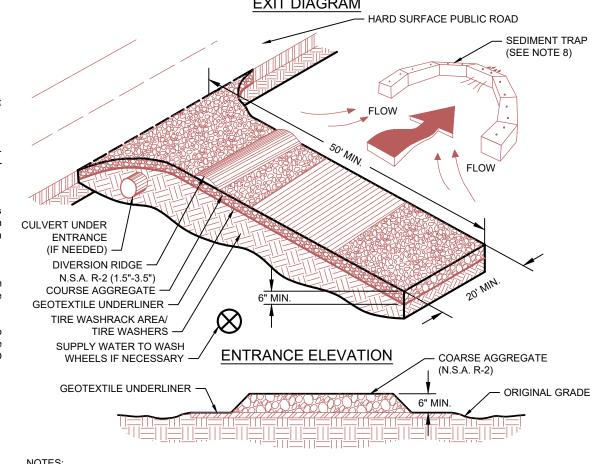
NOTES:

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.

eta. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%..

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

RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.



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'. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.

NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL <u>SUITABLE</u> FOR TRUCK TRAFFIC THAT 10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC

> **PRELIMINARY** NOT TO BE USED FOR CONSTRUCTION

SHEET ID EC501

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DEFINITION

The establishment of temporary vegetative cover with fast growing seedings for seasonal protection on disturbed or

 To reduce runoff and sediment damage of down stream resources

- To protect the soil surface from erosion
- To improve wildlife habitat
- To improve aesthetics
- To improve tilth, infiltration and aeration as well as organic matter for permanent plantings

#### 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 six months. If an area is expected to be undisturbed for longer than six 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 six 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

#### 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

and others.

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

No shaping or grading is required if slopes can be tabilized 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

## Lime and Fertilizer

and germinate.

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

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 one-quarter to one-half inch 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 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).

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

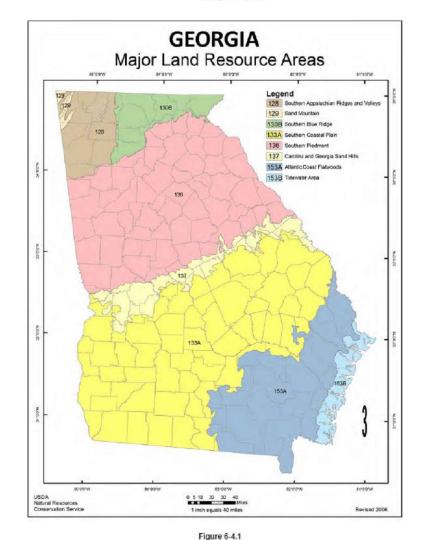
Table 6-4.1 - Temporary Cover or Companion Cover Crops PLANT, PLANTING RATE, AND PLANTING DATE FOR TEMPORARY COVER OR COMPANION CROPS 1

Species	Broadcas	t Rates	Resource Area <sup>3</sup>		F	Plan	ting	Date	es b	y R	eso	urce	Are	а		Remarks	
				Sol	id lin	es in	dicat	e opt	imum e but	date man	es, di ginal	otted	l lines	indi	cate		
	Rate Per Acre <sup>2</sup>	Pure Live Seed (PLS) Per 1000 sqft		J	F	М	А	м	J	J	A	S	0	N	D		
BARLEY Hordeum vulagre																	
alone	3 bu. (144 lbs)	3.3 lbs	M-L									┝	-			14,000 seed per pound. Winter hardy. Use	
in mixture	1/2 bu (24lbs)	0.6 lb	Р								950			740	77	on productive soils.	
			С														
LESPEDEZA, ANNUAL Lespedeza striata																	
alone	40 lbs	0.9 lb	M-L	. 3	-0.											200,000 seed per pound. May volunteer for sev-	
in mixture	10 lbs	0.2 lb	Р													eral years. Use inoculant EL.	
			С			=											
LOVEGRASS, WEEPING Eragrostis curvula																	
alone	4 lbs	0.1 lb	M-L			98		- 10								1,500,000 seed per pound. May last for several	
in mixture	2 lbs	0.05 lb	P C													years. Mix with Sericea lespedeza.	
MILLET, BROWNTOP Panicum fasciculatum																	
alone	40 lbs	0.9 lb	M-L			- 5	-		-	£ .							
in mixture	10 lbs	0.2 lb	C			5	100			-						137,000 seed per pound. Quick dense cover. Will provide excessive competion in mixtures if seeded at high rate.	
											_						
Species	Broadcas	t Rates	Resource Area <sup>3</sup>			Plan	nting	Da	tes	by F	Res	ourc	e Ar	ea		Remarks	
				So	lid lir			ate op					ed line	s in	dicat	9	

MILLET, BROWNTOP Panicum fasciculatum																
alone	40 lbs	0.9 lb	M-L				-									
in mixture	10 lbs	0.2 lb	P C						+	-					V	37,000 seed per pound. Quick dense cover. Vill provide excessive competion in mixtures if eeded at high rate.
			Resource				4			-0.0						
Species	Broadcas	t Rates	Area <sup>3</sup>				-			*			Are			Remarks
				Sol	lid lin				e but				lines s.	indi	cate	
	Rate Per Acre²	Pure Live Seed (PLS) Per 1 000 sqft		J	F	М	A	М	J	J	А	s	0	N	D	
MILLET, PEARL Pennesetum glaucum																
alone	50 lbs	1.1 lbs	M-L P C		1							38 39				88,000 seed per pound. Quick dense cover. May reach 5 feet in height. Not recommended for mixtures.
OATS Avena sativa						4								2510		
alone	4 bu. (128 lbs)	2.9 lbs	M-L											-		
in mixture	1 bu. (32 lbs)	0.7 lb	C													13,000 seed per pound. Use on productive soils. Not as a winter hardy as rye or barley.
RYE Secale cereale																
alone	3 bu. (168 lbs)	3.9 lbs	M-L		Г						-					
in mixture	1/2 bu. (28 lbs)	0.6 lb	P C	->-	(5/V	125					-	19.5				18,000 seed per pound. Quick cover. Drought tolerant and winter hardy.
RYEGRASS, ANNUAL Lolium temulentum	1.001													AST/A		X.
alone	40 lbs	0.9 lb	M-L P							3					-	227,000 seed per pound. Dense cover, Very com-
			С			~					7					petitive and is <u>not</u> to be used in mixtures.
SUDANGRASS Sorghum sudanese																
alone	60 lbs	1.4 lbs	M-L P C													55,000 seed per pound. Good on droughty sites. Not recommended for mixtures.

Broadcast Rat	es	Resource Area <sup>3</sup>		F	Plant	ting	Date	es b	y R	esol	urce	Are	a		Remarks
			Soli	id lin									indi	cate	
Rate Per Acre <sup>2</sup>			J	F	М	А	М	J	J	А	S	0	N	D	
			8 - 8					8 . 10							
3 bu. (144 lbs) 1/2 bu. (24 lbs)	3.3 lbs 0.6 lb	С									101	34.0			Use on lower part of Southern Coastal Plain and in Atlantic Coastal Flatwoods only.
											3=3				
3 bu. (180 lbs)	4.1 lbs	M-L										⊢			
1/2 bu. (30 lbs)	0.7 lb	P C									9	(H-4			15,000 seed per pound. Winter hardy.
	3 bu. (144 lbs) 1/2 bu. (24 lbs) 3 bu. (180 lbs)	(PLS) Per 1000 sqft 3 bu. (144 lbs) 3.3 lbs 1/2 bu. (24 lbs) 0.6 lb 3 bu. (180 lbs) 4.1 lbs	### Pure Live Seed   Pure Live Seed   Pure 1000	Broadcast Rates	Broadcast Rates	Broadcast Rates	Broadcast Rates	Pure Live Seed   Planting Date   Solid lines in dicate option   Pure Live Seed   Pure Liv	Broadcast Rates						

<sup>1</sup>Temporary cover crops are very competitive and will crowd out perennials if seeded too heavily <sup>2</sup>Reduce seeding rates by 50% when drilled. <sup>3</sup>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 MLRA: (see Figure 6-4.1, p. 6-40)



### STORM DRAIN OUTLET PROTECTION





Paved and/or riprapped channel sections, placed below storm drain outlets.

## To reduce velocity of flow before entering receiving channels below storm drain outlets.

CONDITIONS This standard applies to all storm drain outlets, road culverts, paved channel outlets, etc., discharging into natural or constructed channels. Analysis and/or treatment will extend from the end of the conduit, channel or structure to the point of entry into an existing stream or publicly maintained drainage system.

#### **DESIGN CRITERIA** Structurally lined aprons at the outlets of pipes and paved channel sections shall be designed

# Peak stormflow from the 25-year, 24-hour frequency storm or the storm specified in Title

according to the following criteria:

# 12-7-1 of the Official Code of Georgia Annotated or the design discharge of the water conveyance structure, whichever is greater.

**Tailwater Depth** The depth of tailwater immediately below the pipe outlet must be determined for the design capacity of the pipe. Manning's Equation may be used to determine tailwater depth. If the tailwater depth is less than half the diameter of the outlet pipe, it shall be classified as a Minimum Tailwater Condition. If the tailwater depth is greater than half the pipe diameter, it shall be classified as a Maximum Tailwater Condition. Pipes that outlet onto flat areas with no defined channel may be assumed to have a Minimum Tailwater Condition.

#### Apron Length and Thickness The apron length and d50, stone median size. shall be determined from the curves according to tailwater conditions: Minimum Tailwater- Use Figure 6-34.1 Maximum Tailwater- Use Figure 6-34.2 Maximum Stone Size = 1.5 x d50 Apron Thickness = 1.5 x dmax

#### Apron Width If the pipe discharges directly into a well-defined channel, the apron shall extend across the channel bottom and up the channel banks to an elevation one foot above the maximum tailwater depth or to the top of the bank (whichever is less). If the pipe discharges onto a flat area with

#### no defined channel, the width of the apron shall be determined as follows:

The upstream end of the apron, adjacent to the pipe, shall have a width three times the diameter of the outlet pipe.

For a Minimum Tailwater Condition, the downstream end of the apron shall have a width equal to the pipe diameter plus the length of the apron. Refer to Figure 6-34.1. For a Maximum Tailwater Condition, the down stream end shall have a width equal to the pipe diameter plus 0.4 times the length of the apron. Refer to Figure 6-34.2.

# The apron shall be constructed with no slope

along its length (0.0% grade). The invert elevation of the downstream end of the apron shall be equal to the elevation of the invert of the receiving channel. There shall be no overfall at the end of the apron.

# Side Slope

If the pipe discharges into a well-defined channel, the side slopes of the channel shall not be steeper than 2:1.

## The apron shall be located so that there are no bends in the horizontal alignment.

Geotextiles should be used as a separator between the graded stone, the soil base, and the abutments. The geotextile will prevent the migration of soil particles from the subgrade into the graded stone. The geotextile shall be specified in accordance with AASHTO M288-96 Section 7.5, Permanent Erosion Control Recommendations. The geotextile should be placed immediately adjacent to the subgrade without any voids.

The apron may be lined with riprap, grouted riprap, or concrete. The median sized stone for riprap. d50, shall be determined from the curves, Figures 6-24.1 and 6-24.2, according to the tailwater condition. The gradation, quality and placement of riprap shall conform to Appendix C.

## Refer to Figure 6-24.4, for alternative structures achieving energy dissipation at an outlet. For information regarding the selection and design of

FHWA Standard (REF. Hydraulic Design of Energy Dissipators for Culverts and Channels; HEC No. 14, FHWA, Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

these alternative energy dissipators, refer to:

# **CONSTRUCTION SPECIFICATIONS**

- Ensure that the subgrade for the filter and riprap 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 riprap thickness.
- 2. The riprap and gravel filter must conform to the specified grading limits shown on the

# 3. Geotextile must meet design requirements

and be properly protected from punching or tearing during installation. Repair any damage by removing the riprap 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

- 4. Riprap may be placed by equipment, but take
- 5. The minimum thickness of the riprap should be 1.5 times the maximum stone diameter.

care to avoid damaging the filter.

6. Construct the apron on zero grade with no overfall at the end. Make the top of the riprap at the downstream end level with the

# 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 riprap 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

- through the openings in the riprap. The should consist of a graded gravel layer
- synthetic filter cloth. See Appendix C; p.

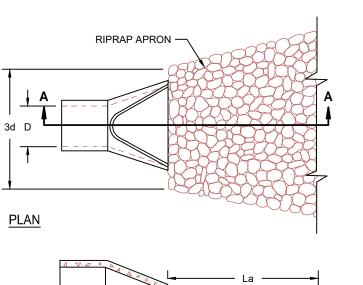
#### MAINTENANCE Inspect riprap outlet structures after heavy

rains to see if any erosion around or below the riprap has taken place or if stones have been dislodged. Immediately make all needed repairs to prevent further damage.

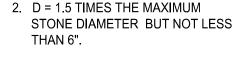
## OUTLET PROTECTION DESIGN CRITERIA **OUTLET OPENING:** FLOW RATE (CFS): 13.1 CFS/EA TAILWATER CONDITION: >0.50 Ø (MIN. or MAX.) d50 RIPRAP SIZE dmax RIPRAP SIZE: MIN. RIPRAP THICKNESS(D): 1.2'

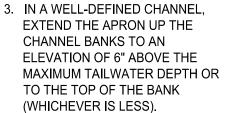
# RIPRAP OUTLET PROTECTION

# PIPE OUTLET TO FLAT AREA -- NO WELL DEFINED CHANNEL



1. La IS THE LENGTH OF THE RIPRAP APRON.

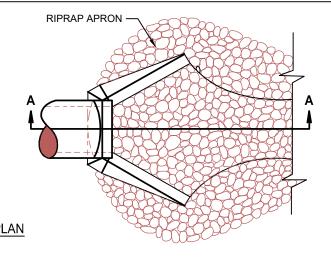




4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND THE SOIL FOUNDATION.

# PIPE OUTLET TO WELL DEFINED CHANNEL

SECTION A-A



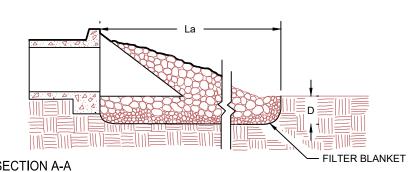
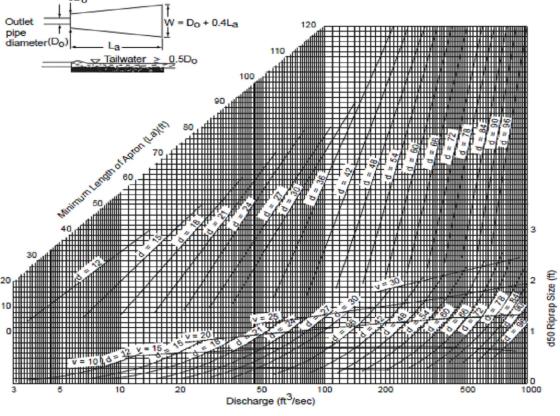
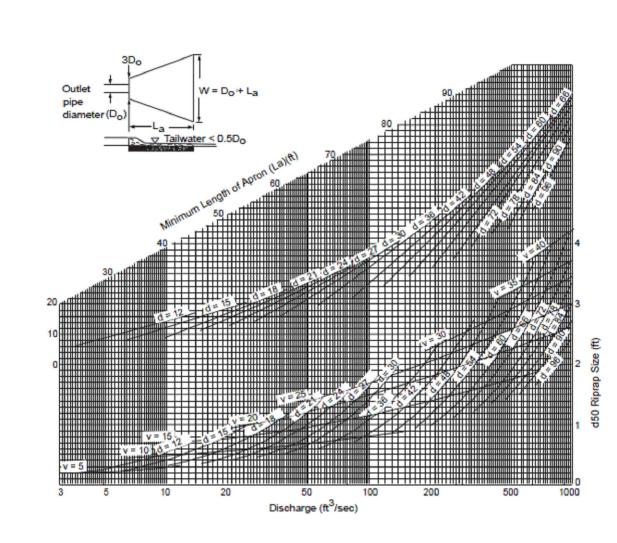


FIGURE 6-34.3 - RIPRAP OUTLET PROTECTION (MODIFIED FROM VA SWCC)





Curves may not be extrapolated.

Figure 6-34.1 - Design of Outlet Protection From a Round Pipe Flowing Full, Minimum Tailwater Condition (Tw < 0.5 Diameter)

Curves may not be extrapolated.

Figure 6-34.2 - Design of Outlet Protection From a Round Pipe Flowing Full, Maximum Tailwater Condition (Tw > 0.5 Diameter

> **PRELIMINARY** NOT TO BE USED FOR CONSTRUCTION

SHEET ID

SUPP

SIGN

DE

**BWC** 



#### DEFINITION

The planting of perennial vegetation such as trees, shrubs, vines, grasses, or legumes on exposed areas for final permanent stabilization. Permanent perennial vegetation shall be used to achieve final stabilization.

•To protect the soil surface from erosion

 To reduce damage from sediment and runoff to down-stream areas

•To improve wildlife habitat and visual resources

To improve aesthetics

TYPE OF SPECIES

. Cool season grasses

Cool season

. Ground covers

. Pine seedlings

. Shrub Lespedeza

Temporary cover crops

. Warm season

. Warm season

grasses and legumes

Apply in 3 split applications.

Apply to grass species only

Apply when plants are pruned.

grasses

# REQUIREMENT FOR REGULATORY

COMPLIANCE This practice shall be applied immediately to rough graded areas that will be undisturbed for longer than six 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

YEAR

Maintenance

Second Maintenance

// Apply in spring following seeding. 2/ Apply in split applications when high rates are used.

6/ Apply when plants grow to a height of 2 to 4 inch

PLS is an abbreviation for Pure Live Seed. Refer to Section V.E. of these specifications M-L represents to Mountain; Blue Ridge; and Ridges and Valleys MLRAs

represents the Southern Piedmont MLRA
represents the Souther Coastal Plain; Sand Hills; Black Lands; and Atlantic Coast Flatwoods MLRAs. See Figure 6-4.1

Table 6-5.1. Fertilizer Requirement

N-P-K

6-12-12 6-12-12 10-10-10

10-10-10

10-10-10 10-10-10

20-10-5

0-10-10 0-10-10

10-10-10

6-12-12 6-12-12 10-10-10

6-12-12 0-10-10 0-10-10

stabilization applies to each phase of construction. For 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

# CONDITIONS

shall not be removed.

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

# PLANNING CONSIDERATIONS

Use conventional planting methods where When mixed plantings are done during marginal planting periods, companion crops

No-till planting is effective when planting is done following a summer or winter annual cover crop. Sericea lespedeza planted no-till grass, but they may die out after a few years. 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

or when summer plantings are done.

Low maintenance plants, as well as natives, of the vegetation. should be used to ensure long-lasting erosion

quail nesting season (May to September).

HA PENSACOLA

one or with tempora

th other perennials

alone or with temporary

RMUDA, COMMON

temporary cover

Inhulled seed

area plantings.

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

50-100 lbs./ac. 1/2

0-50 lbs/ac. 1/

30 lbs./ac. 5/

50-100 lbs./ac. 2/6/

50 lbs./ac./6/

RATE

1500 lbs./ac.

1000 lbs./ac. 400 lbs./ac.

1500 lbs./ac.

1300 lbs./ac. 3/

1300 lbs./ac. 3

1100 lbs Jac.

700 lbs./ac. 4/

500 lbs./ac.

1500 lbs./ac.

800 lbs./ac. 400 lbs./ac.

1500 lbs./ac.

1000 lbs./ac.

one 21-gram pellet

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 less than 50 percent will pass through a 50-mesh linear construction projects on land used for agricultural or many game species. Hickory provides nuts used mainly by sieve and not less than 25 percent will pass through squirrels and bear a 100-mesh sieve.

Bayberry, Bicolor Lespedeza, Crabapple, Dogwood, Huckleberry or Native Blueberry, Mountain Laurel, Native Holly, Red Cedar, Red Mulberry, Sumac, Wax Myrtle, Wild limestone ground so that 95 percent of the material will pass through a 100-mesh sieve.

Plant in patches without tall trees to develop stable shrub communities. All produce fruits used by many kinds Sand Hills, Southern Coastal Plain and Atlantic of wildlife, except for lespedeza that produces seeds used Coast Flatwoods MLRAs. (See Figure 6-4.1) by quail and songbirds.

Grasses, Legumes, Vines and Temporary Cover only trees are planted.

placed in the hydroseeder.

preparation

Bahiagrass, Bermudagrass, Grass-Legume (for mountains). Browntop Millet (for temporary cover), and Native grapes.

bird brood-rearing habitat. Appropriate legumes such as vetches, clovers, and lespedezas may be mixed with

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

CONSTRUCTION SPECIFICATIONS

Provides herbaceous cover in clearings for a game

When conventional seeding and fertilizing are to be mulch slurry or in combination with the top dressing 5. Irrigation should be used when the soil is dry done, grade and shape where feasible and practical, so that equipment can be used safely and efficiently during seedbed preparation, seeding, mulching and maintenance and fertilizer shall be applied uniformly in one of the following ways

Concentrations of water that will cause excessive soil erosion shall be diverted to a safe outlet. Diversions 7. Mowing should not be performed during the and other treatment practices shall conform with the appropriate standards and specifications.

Wildlife plantings should be included in critical Lime and Fertilizer Rates and Analysis Agricultural lime is required at the rate of one to two tons per acre unless soil tests indicate otherwise. Graded areas require lime application. If lime is applied within six

> within the specifications of the Georgia Department of Lime spread by conventional equipment shall be "around limestone." Ground limestone is calcitic or

dolomitic limestone ground so that 90 percent of

Broadcast Rates Area Planting Dates by Resource Area

NT, PLANTING RATE, AND PLANTING DATE FOR PERMANENT COVER

Seed (PLS)

60 lbs 1.4 lb M-L

10 lbs 0.2 lb C

10 lbs 0.2 lb

0.7 lb P

the material will pass through a 10-mesh sieve, not

months of planting permanent perennial vegetation,

additional lime is not required. Agricultural lime shall be

Resources Conservation Service before they are used.

characteristics, site and soil conditions, planned use and Fast-acting lime spread by hydraulic seeding maintenance of the area; time of year of planting, method equipment should be "finely ground limestone" spanning from the 180 micron size to the 5 micron Finely ground limestone is calcitic or dolomitic

It is desirable to use dolomitic limestone in the

Agricultural lime is generally not required where

Initial fertilization, nitrogen, topdressing, and mixtures, Partridge Pea, Annual Lespedeza, Orchardgrass maintenance fertilizer requirements for each species or combination of species are listed in Table

Finely ground limestone can be applied in the

When conventional planting is to be done, lime

mixed with the soil during seedbed

2. Mix with the soil used to fill the holes,

Refer to Tables 6-4.1, 6-5.2, 6-5.3 and 6-5.4 for

the State Resource Conservationist of the Natural

Remarks

166,000 seed per pound. Low growing.

Sod forming. Slow to establish. Plant with companion crop. Will spread nto bermuda pastures and awns. Mix with Sericea lespe

1,787,000 seed per pound. Quick cove

Low growing and sod forming. Full sun. Good for athletic fileds.

deza or weeping lovegrass.

---Same as above

in the closing hole beside each pine tree

ERMUDA SPRIGS

CENTIPEDE

ronilla varia

th winter annuals or cool

oastal, Common, Midland, Tift 44

mochlo a ophuiroides

distribute in furrows.

pitted or trenched.

Lime and Fertilizer Application planting period. A common mixture is Brown Top Millet When hydraulic seeding equipment is used, the initial with Common Bermuda in mid-summer. Care should be fertilizer shall be mixed with seed, innoculant (if needed). taken in selecting companion crop species and seeding and wood cellulose or wood pulp fiber mulch and applied rates because annual crops will compete with perennial in a slurry. The innoculant, if needed, shall be mixed with species for water, nutrients, and growing space. A high the seed prior to being placed into the hydraulic size. The seeding rate of the companion crop may prevent the slurry mixture will be agitated during application to keep establishment of perennial species.

the ingredients thoroughly mixed. The mixture will be Ryegrass shall not be used in any seeding mixtures spread uniformly over the area within one hour after being containing perennial species due to its ability to out-compete desired species chosen for permanent

perennial cover.

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 the seeds that Individual Plants are pure and will germinate. Information on percent 1. Apply before land preparation so that it will be 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.,

Plants shall be selected on the basis of species

species will provide quick cover and ample soil protection

example, Common seeding combinations are 1) Weeping

Lovegrass with Sericea Lespedeza (scarified) and 2) Tall

Plant selection may also include annual companion

crops. Annual companion crops should be used only when

the perennial species are not planted during their optimum

Fescue with Sericea Lespedeza (unscarified).

until the target perennial species become established. For Broadcast plantings

Tall Fescue, and Weeping Lovegrass.

(PLS = % germination x % purity)

PLS = 70% germination x 80% purity

EXAMPLE:

Broadcast after steep surfaces are scarified Common Bermuda seed 70% germination, 80% purity 4. A fertilizer pellet shall be placed at root depth

NT. PLANTING RATE, AND PLANTING DATE FOR PERMANENT COVER

40 cu ft 0.9 cu ft

sod plugs 3' x3'

Block sod only

15 lbs 0.3 lb P

PLS = 56%

and the bulk seed is 56 % PLS, the bulk seeding rate is: culture prepared specifically for the seed species and used

Broadcast Rates Area<sup>3</sup> Planting Dates by Resource Area

) lbs. PLS/acre = 17.9 lbs/acre

You would need to plant 17.9 lbs/acre to provide

of planting; and the needs and desires of the land user. 10 lbs/acre of pure live seed. Some perennial species are easily established and can be Seedbed Preparation planted alone. Examples of these are Common Bermuda, Seedbed preparation may not be required

where hydraulic seeding and fertilizing equipment

is to be used (but is strongly recommended

planted with another perennial species. The additional preparation will be done as follows:

Other perennials, such as Bahia Grass and Sericea for any seeding process, when possible). When

Lespedeza, are slow to become established and should be conventional seeding is to be used, seedbed

Tillage, at a minimum, shall adequatel loosen the soil to a depth of 4 to 6 inches; alleviate compaction: incorporate lime and fertilizer; smooth and firm the soil; allow for the proper placement of seed, sprigs, or plants; and allow for the anchoring of straw or hay mulch if a disk is to be used.

Tillage may be done with any suitable equipment.

On slopes too steep for the safe operation of tillage equipment, the soil surface shall be pitted or trenched across the slope with

opening furrows, or dibble planting.

crowding

A cubic foot contains approximately 650

ought tolerant. Full sun or partial shade.

Effective adjacent to concrete and in con-

centrated flow areas. Irrigation is needed

until fully established. Do not plant near pastures. Winterhardy as far as north

0,000 seed per pound. Dense growth.

rose, pink and white blossoms spring to la

fall. Mix with 30 pounds of Tall fescue or

pounds of rye. Inoculate see with M inoculant. Use from North Atlanta and Northwa

thens and Atlanta

Same as above

enough to accommodate roots without

Where pine seedlings are to be planted

dry, preferably in August or September.

ESCUE, TALL

vith other perennials

Pueraria thumbergiana

.espedeza cuneata

Shrubs, vines and sprigs may be planted with appropriate planters or hand tools. Pine trees shall be

2. For nursery stock plants, holes shall be large 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.

Subsoiling should be done when the soil is shall be added and the plant shall be set in the hole

Mulch is required for all permanent vegetation

within the dates on the container.

shall be used to bond the innoculant to the seed. For conventional seeding, use twice the amount of innoculant recommended by the manufacturer. For hydraulic seeding, four times the amount of innoculant 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.

No-Till Seeding

and germinate. Hydraulic seeding may also seeding equipment. The seed must be uniformly

Hvdraulic Seedina Mix the seed (innoculated 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 1/8 to 1/4 inch of soil for small seed and 1/2 to 1 inch for large Tillage should be done on the contour where seed when using a cultipacker or other suitable equipment

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 appropriate hand tools to provide two places adequate growth of the permanent (perennial) species. 6 to 8 inches apart in which seed may lodge No-till seeding shall be done with appropriate no-till

> distributed and planted at the proper depth. Individual Plants

Where individual plants are to be set, the soil shall be prepared by excavating holes, planted manually in the subsoil furrow. Each plant shall be set in a manner that will avoid crowding the roots

subsoil under the row 36 inches deep on the Where individual holes are dug, fertilizer shall be contour four to six months prior to planting. placed in the bottom of the hole, two inches of soil

ANT, PLANTING RATE, AND PLANTING DATE FOR PERMANENT COVER 1

Broadcast Rates

50 lbs 1.1 lb

3' - 7' apart

60 lbs 1.4 lb

1.7 lb

75 lbs

The percent of PLS helps you determine the amount All legume seed shall be inoculated with appropriate applications. Mulch applied to seeded areas shall achieve cover 75% of the soil surface. approved species. Species not listed shall be approved by of seed you need. If the seeding rate is 10 pounds PLS nitrogen-fixing bacteria. The innoculant shall be a pure 75% to 100% soil cover. When selecting a mulch, design

Planting Dates by Resource Area

professionals should consider the mulch's functional longevity, vegetation establishment enhancement, and

A mixing medium recommended by the manufacturer erosion control effectiveness. Select the mulching material from the following and apply as indicated:

> 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 2 1/2 tons per acre.

Wood cellulose mulch or wood pulp fiber shall be used with hydraulic seeding. It shall be applied at the rate of 500 pounds per acre. Dry straw or dry hay shall be applied (at the rate indicated above) after hydraulic seeding.

wood pulp fiber, which includes a tackifier, shall be used with hydraulic seeding on 3/4:1 or steeper.

Sericea Lespedeza hay containing mature seed shall be applied at a rate of three tons per acre

One thousand pounds of wood cellulose or

Pine straw or pine bark shall be applied at a thickness of 3 inches 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.

When using temporary erosion control

or block sod, mulch is not required. 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

Wood cellulose and wood pulp fibers shall not contain germination or growth inhibiting factors. They shall be evenly dispersed when agitated in size. The fibers shall contain a dye to allow visual

metering and aid in uniform application during seeding.

rates and materials must meet Georgia

Applying Mulch

227,000 seed per pound. Use alone only of

or Crownvetch. Apply topdressing in spring following fall plantings. Not for heavy use

better sites. Mix with perennial lespededa

Rapid and vigorous growth, Excellent in

gully erosion control. Will climb. Good livestock forage.

350,000 seed per pound. Widely adapted.

Low maintenace. Mix with Weeping loveg

ass, Common bermuda, bahia, or tall

fescue. Takes 2 to 3 years to become ful

established, Excellent on roadbanks, Inoc

Mix with Tall fesue or winter annuals.

Cut when seed mixture is mature, but be

fore, it shatters. Add Tall fescue or winte

late seed with EL inoculant.

areas or athletic fields

Straw or hay mulch will be spread uniformly within 24 hours after seeding and/or planting. The mulch may be Irrigation spread by blower-type spreading equipment, other spreading equipment or by hand. Mulch shall be applied to runoff.

Wood cellulose or wood fiber mulch shall be applied uniformly with hydraulic seeding equipment.

Anchor straw or hay mulch immediately after

Dry straw or dry hay of good quality and free application by one of the following methods: Hay and straw mulch shall be pressed into the soil immediately after the mulch is spread. fertilizer rates are listed in Table 6-5.1. A special "packer disk" or disk harrow with the disks set straight may be used. The disks Lime Maintenance Application

> enough to press the mulch into the ground without cutting it, leaving much of it in an Use and Management erect position. Mulch shall not be plowed into November and March. Synthetic tackifiers, binders or hydraulic mulch specifically designed to tack straw shall be applied in conjunction with or

> > establishment.

Exclude traffic until the plants are well established.

Because of the quail nesting season,

300,000 seed per pound. Height of growth in 18 to 24 inches. Advantageous in urban ar

eas. Spreading-type growth. New growth

lespedeza. Slow to develop solid stands

Provide wildlife food and cover.

1.500,000 seed per pound. Quick cover

Drought tolerant. Grows well with Sericea lespedeza on roadbanks.

, common bermuda, bahia, tall fescue

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. mowing should not take place between May and

Rye or wheat can be included with Fall and Winter plantings to stabilize the mulch. They shall be applied at a rate of one-quarter to one-half bushel per acre.

4. Plastic mesh or netting with mesh no larger than one inch by one inch 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** Department of Transportation specifications. Mulch is used as a bedding material to conserve moisture and control weeds in nurseries, ornamental beds, around shrubs, and on bare areas on lawns.

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

IT, PLANTING RATE, AND PLANTING DATE FOR PERMANENT COVER

60 lbs 1.4 lb

4 lbs 0.1 lb

ESPEDEZA, SHRUB

LOVEGRASS, WEEPING

Irrigation will be applied at a rate that will not cause

Planting Dates by Resource Area

es indicate optimum dates, dotted lines ind

Topdressing will be applied on all temporary and permanent (perennial) species planted alone or in mixtures with other species. Recommended rates of application are Second Year and Maintenance Fertilization Second year fertilizer rates and maintenance may be smooth or serrated and should be 20 Apply one ton of agricultural lime every 4 to 6 years or inches or more in diameter and 8 to 12 inches as indicated by soil tests. Soil tests can be conducted to apart. The edges of the disks shall be dull determine more accurate requirements, if desired. Mow Sericea Lespedeza only after frost to ensure that the seeds are mature. Mow between Bermudagrass, Bahiagrass and Tall Fescue mav be mowed as desired. Maintain at least 6 inches of top growth under any use and management. Moderate use of top growth is beneficial after

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SPECIES1 M-L,P 12/1-3/15 Pinus taeda) Longleaf pine M-L,P 12/1-3/1 Loblolly pine Loblolly pine M-L,P 12/1-3/1 Clay Slash pine (Pinus virginiana streambank ALL (Salix speciecs) 2ftx2ft

Table 6-5.4. Trees for Erosion Control

Other trees and shrubs listed on Table 6-25.3 may be interplanted with the pines for improved

Type of Planting Tree Spacing No. of Trees Per Acre Trees alone 4 ft. x 4 ft. 2722 Trees in combination with grasses and/or other plants 6 ft. x 6 ft.

Fertilization of companion crop is ample for this species.

M-L represents the Mountains; Blue Ridge; and Ridges and Vallevs MLRAs P represents the Southern Piedmont MLRA C represents the Southern Coastal Plain; Sand Hills; Black Lands; and Atlantic Coast Flatwoods ML

Species	Broadcast	t Rates	Resource Area <sup>3</sup>		P	lant	ing I	Date	es b	y Re	esou	urce	Are	а		Remarks
				Sollie	d line		dicate ermis							indi	cate	
	Rate Per Acre²	Pure Live Seed (PLS) Per 1000 sqf		J	F	м	A	M	J	J	A	s	0	N	D	
MAIDENCANE Panicum hemitomon										-						
sprigs	2' x 3' spacing	ALL		u Dija					9 8							For very wet sites. May dog channels. Dig sprigs from local sources. Use along river banks and shorelines.
PANICGRASS, ATLANTIC COASTAL Panicum amarum var amarukum																
	20 lbs	0.5 lb	PC													Grows well on coastal sand dunes, borrow areas, and gravel pits. Provides winter cover for wildlife. Mix with Sericea lespedeza excep on sand dunes.
REED CANARY GRASS Phalaris arundinacea																
alone	50 lbs	1.1 lb	M-L								-	H	-			
with other perrenials	30 lbs	0.7 lb	Р						-							Grows similar to Tall fescue
SUNFLOWER, 'AZTEC' MAXIMILLIAN Helianthus maximiliani																
1 Reduce seeding rates I	10 lbs	0.2 lb	M-L P C						W 48 W 58							227,000 seed per pound. Mix with Weeping lovegrass or other low-grwoing grasses or legumes.

-200 Halles	Dural	ole Shrubs and	Ground Cov	ers for Perr	manent Cover
Remarks	cover large areas of the especially the first year proper maintenance is	ne landscape. Grour r. Maintenance is ne s planned. Maintain ouraged because th	nd covers grow slo eded to insure surv mulch at three-ind	ower than grasse vival. These grou ch thickness unti	ther in considerable numbers to es. Weeds are likely to compete, not covers will not be used unless il plants provide adequate cover, educed and plants have time to
	Common Name	Scientific Name	Mature Height	Plant Spacing	Comments
es. May dog channels. Dig I sources. Use along river elines.	Albelia	Abelia grandiflora	3-4 ft.	5 ft.	Also a prostrate form 2 feet high. Sun, semi-shade. Semi- evergreen.
oastal sand dunes, borrow	Carolina Yellow Jessamine	Gelsemium sempervirens	low	3 ft.	Vine: Yellow, trumpet- like flowers, Hardy, one of best vines. Evergreen. Native to Georgia.

Common Name	Scientific Name	Mature Height	Plant Spacing	Comments
Albelia	Abelia grandiflora	3-4 ft.	5 ft.	Also a prostrate form 2 feet high. Sun, semi-shade. Semi- evergreen.
Carolina Yellow Jessamine	Gelsemium sempervirens	low	3 ft.	Vine. Yellow, trumpet- like flowers. Hardy, one of best vines. Evergreen. Native to Georgia.
Carpet Blue	Ajuga reptans	2-4 in.	3 ft.	Needs good drainage, partial shade. Blue or white flowers. Evergreen.
Bearberry Cotoneaster	Cotoneaster dammeri	2-4 ft.	5 ft.	White flowers, red fruit. Sun. Evergreen.
Ground Cover Cotoneaster	Cotoneaster salicifoluis 'Repens'	1-2 ft.	5 ft.	White flowers, red fruit. Sun. Evergreen.
Rock Cotoneaster	Cotoneaster horizontalis	1-2 ft.	5 ft.	Semi-evergreen. Sun.
Virginia Creeper	Parthenocissue quinquefolia	low	3 ft.	Red in fall. Vine. Deciduous. Native to Georgia.
Daylily	Hemerocallis spp.	2-3 ft.	2 ft.	Many flower colors. Full sun. Very hardy.
English Ivy	Hedera helix	low	3 ft.	Shade only, Climbs,
Compacta Holly	llex crenata 'Compacia'	3-4 ft.	5 <b>n</b> .	Sun, semi-shade.
Chinese Holly	llex cornuta 'Rotunda	3-4 ft.	5 ft.	Very durable. Sun, semi-shade.
Dwarf Burford Holly	llex burfordii 'Nana'	5-8 ft.	В П.	
Dwarf Yaupon Holly	llex vomiloria 'Nana'	3-4 ft.	5 ft.	Very durable, sun, semi-shade.

Common Name	Scientific Name	Mature Height	Plant Spacing	Comments
Repandens Holly	llex crenata 'Repandens'	2-3 ft.	5 ft.	Sun, semi-shade.
Andorra Juniper	Juniperus horizontalis 'Plumosa'	2-3 ft.	5 ft.	Excellent for slopes. Sun.
Andorra Compacta Juniper	Juniperus horizontalis 'Plumosa com- pacta'	1-2 ft.	5 ft.	More compact than andora.
Blue Chip Juniper	Juniperus horizontalis 'Blue Chip'	8-10 in.	4 ft.	
Blue Rug Juniper	Juniperus horizontalis 'Wiltonii'	4-6 in.	3 ft.	Very low. Sun.
Parsons Juniper	Juniperus davurica 'Expansa' (Squamata Parsoni)	18-24 in.	5 ft.	One of the best, good winter cover.
Pfitzer Juniper	Juniperus chinensis 'Pfitzerana'	6-8 ft.	6 ft.	Needs room.
Prince of Wales Juniper	Juniperus horizontalis 'Prince of Wales'	8-10 in.	4 ft.	Feathery appearance.
Sargent Juniper	Juniperus chinensis 'Sargentii'	1-2 ft.	5 ft.	Full sun. Needs good drainage. Good winter color.
Shore Juniper	Juniperus conferta	2-3 ft.	5 ft.	Emerald Sea or Blue Pacific cultivars are good.
Liriope	Liriope muscari	8-10 in.	3 ft.	

Table 6-5.3. Durable Shrubs and Ground Covers for Permanent Cover

Common Name	Scientific Name	Mature Height	Plant Spacing	Comme
Creeping Liriope	Liriope spicata	10-12 in.	1 ft.	Spreads
Big Leaf Periwinkle	Vinca major	12-15 in.	4 ft.	Lilac flor Semi-sh
Common Periwinkle	Vinca minor	5-6 in.	4 ft.	Lavende flowers
Cherokee Rose	Rosa laevigata	2 ft.	5 ft.	Rampan for restri
Memoria Rose	Rosa weuchuriana	2 ft.	5 ft.	Rampar
St. Johnswort	Hypericum calycenum	8-12 in.	3 ft.	Semi-sh
Anthony Waterer Spirea	Spirea bumalda	3-4 ft.	5 ft.	Sun.
Thunberg Spirea	Spirea thinbergii	3-4 ft.	.5 ft.	Sun.

**PRELIMINARY** NOT TO BE USED FOR CONSTRUCTION

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