# ISLANDS HWY BOX CULVERT REPLACEMENT FOR LIBERTY COUNTY BOARD OF COMMISSIONERS

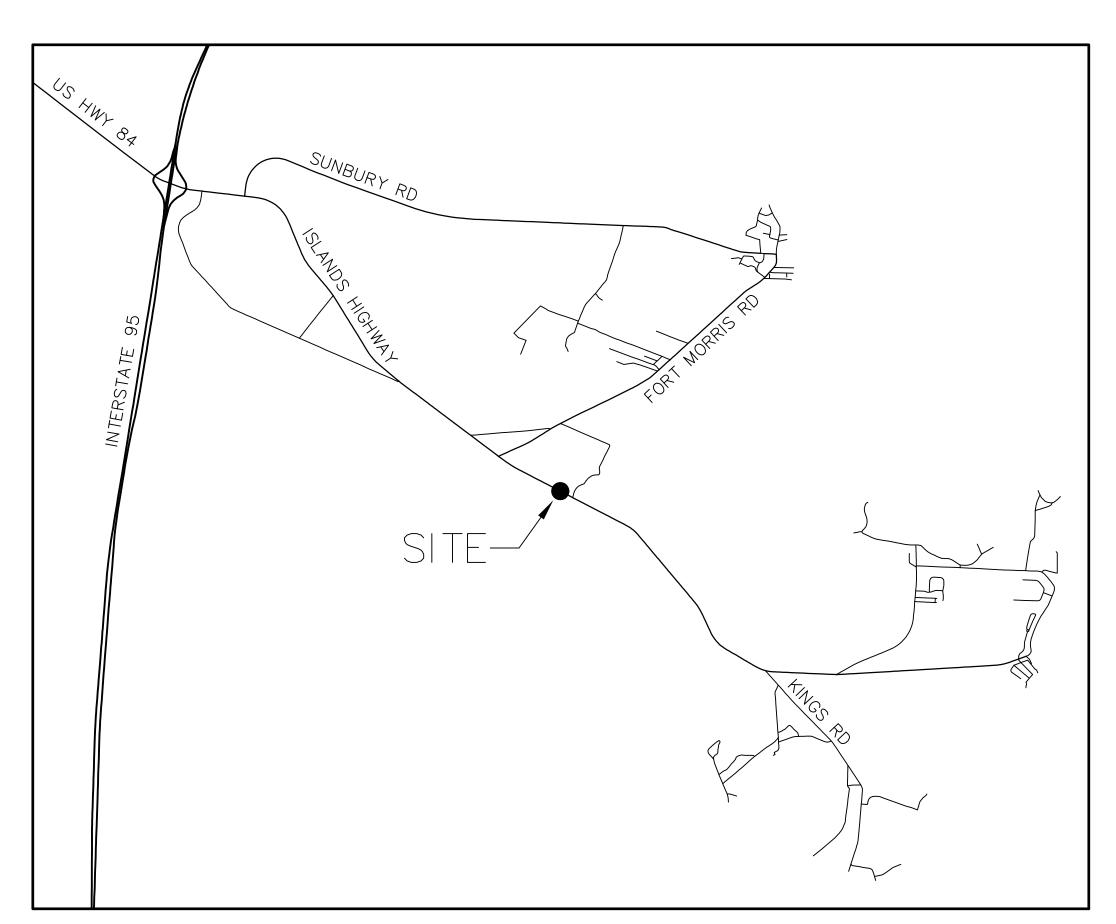
OWNER
LIBERTY COUNTY BOARD OF
COMMISSIONERS
112 N. MAIN STREET, SUITE 201
HINESVILLE, GEORGIA
(912) 368-5664

24-HOUR CONTACT
TRENT LONG
(912) 368-5664
TRLONG@TRLONGENG.COM

# CIVIL ENGINEERING PLANS

# GEORGIA DOT STANDARD DETAILS

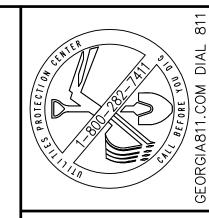
| D.O.T. STD | 2402, PAGE 1 |
|------------|--------------|
|            | 2402, PAGE 2 |
| D.O.T. STD | 2402, PAGE 3 |
| D.O.T. STD | 2404         |
| D.O.T. STD | 2406-1       |
| D.O.T. STD | 2406-2       |
| D.O.T. STD | 2530         |
| D.O.T. STD | 2535         |



VICINITY MAP N.T.S.

LOCATION: N31° 44' 07.69", W81° 18' 58.12" (31.735741, -81.316146)

| <u>DR</u>  | AWING LEGEND                        |                                       |
|--|-------------------------------------|---------------------------------------|
| DESCRIPTION  | PROPOSED                            | EXISTING                              |
| RIGHT OF WAY   | — — — R/W                           | R/W                                   |
| EDGE OF PAVEMENT   |                                     |                                       |
| DITCH CENTERLINE   |                                     |                                       |
| SANITARY SEWER   | 8"S                                 |                                       |
| WATER LINE   | 10"W                                |                                       |
| FORCE MAIN   | FM                                  | FM                                    |
| UNDERGROUND GAS LINE   | 8"G——                               | 8"G                                   |
| CONTOURS   | 81)                                 |                                       |
| STORM DRAINAGE PIPE  |                                     |                                       |
| ELEVATION  | - <del>♦</del> -FG: 78.15           | X 81.90                               |
| SILT FENCE NON-SENSITIVE   | Sd1-NS)                             |                                       |
| SILT FENCE SENSITIVE   | Sd1-S                               |                                       |
| CHECK DAM— HAY BALE CHECK DAM — RIP RAP CONSTRUCTION EXIT STORM OUTLET PROTECTION SILT FENCE MULCHING TEMPORARY GRASSING PERMANENT GRASSING FIRE HYDRANT SEWER MANHOLE | Cd-Hb  Cd-Rp  Co  St  Ds1  Ds2  Ds3 |                                       |
| WATER VALVE  | w                                   | w w                                   |
| DRAINAGE FLOW  | $\Rightarrow$                       | $  \stackrel{\bowtie}{\Rightarrow}  $ |
| WATER METER  | $\boxtimes$                         | $\bowtie$                             |
| BENCHMARK  | <b>•</b>                            | <b>◆</b>                              |
| WELL   | <b>W</b>                            | <b>(W)</b>                            |
| GUY POLE   |                                     | -•                                    |
| IRON PIN   | SET OI.P.S                          | FOUND OI.P.F                          |
| TELEPHONE PEDESTAL   |                                     | TEL                                   |
| POWER POLE   | <b>₽</b>                            | ₽<br>P                                |



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INESVILLE:

Commerce Street
ille, Georgia 31313
12) 368–5664

POOLER:
owne Center Blvd
Suite 304





DS HWY BOX CULVERT
REPLACEMENT
FOR
TY COUNTY BOARD OF

HEET NAME: TITLE SHEET

REVISIONS:

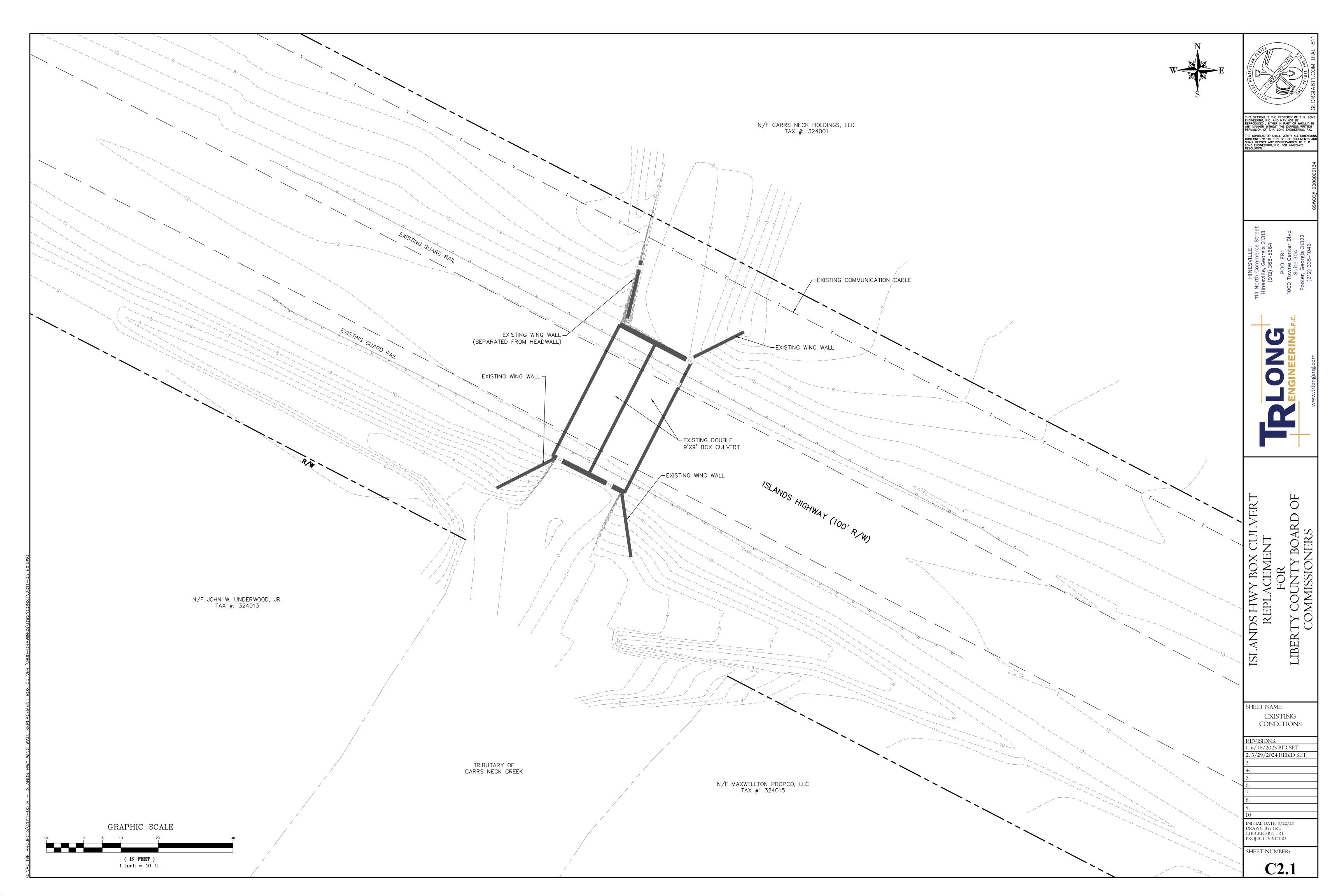
1. 6/16/2023 BID SET

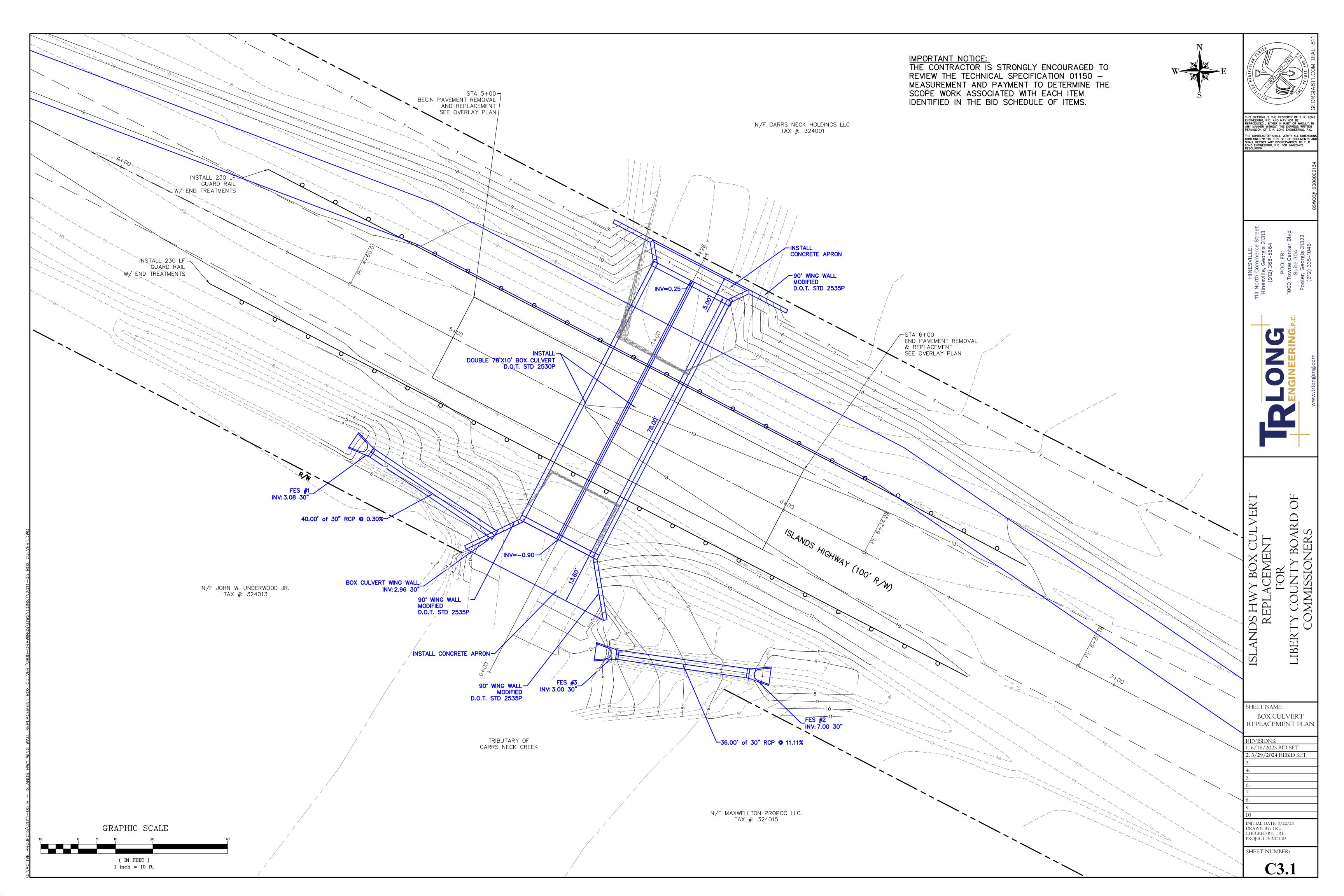
2. 3/29/2024 REBID SET

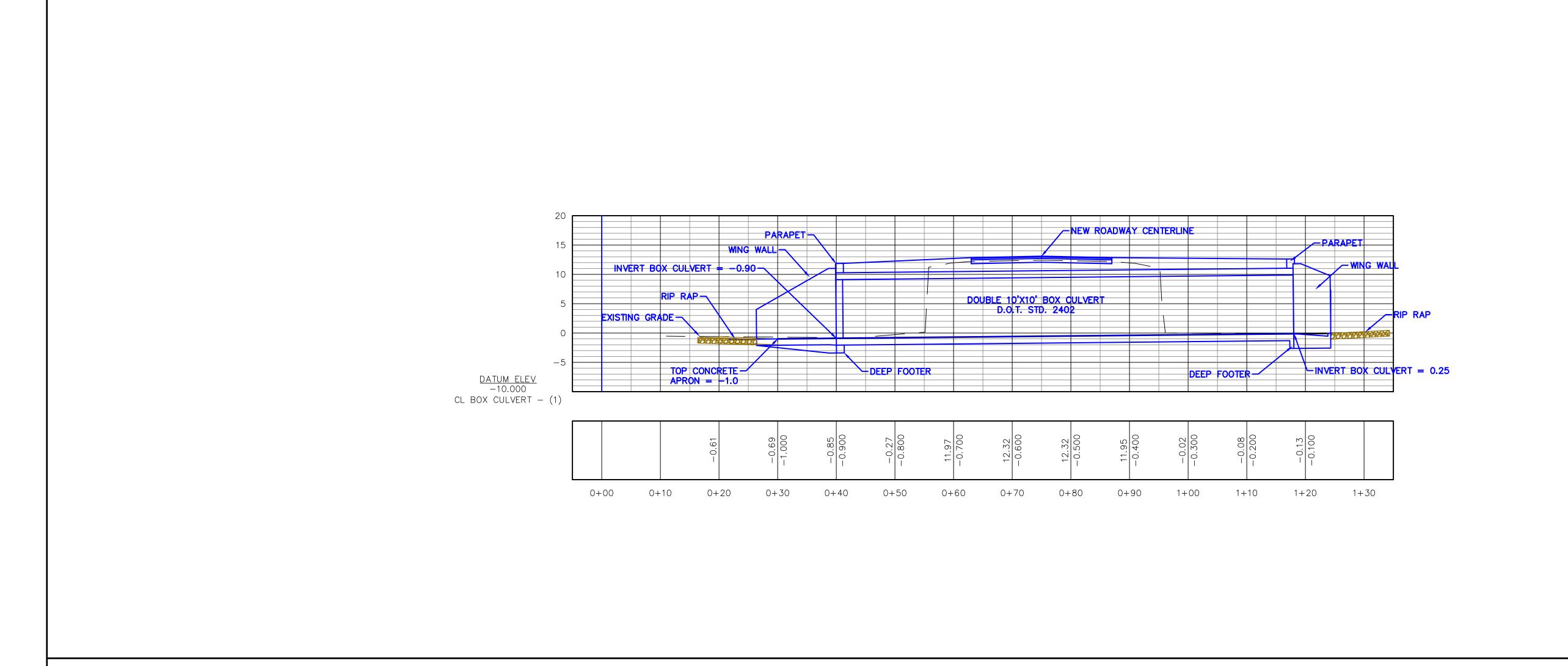
3. 4. 5. 6. 7. 8. 9. 10

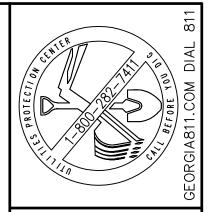
9.
IO
INITIAL DATE: 3/22/23
DRAWN BY: TRL
CHECKED BY: TRL
PROJECT #: 2011-05

**C1.1** 









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POOLER:
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Suite 304

Hinesville, G (912) 36 (912) 36 (912) 36 POO 1000 Towne Suite Pooler, Ge

ISLANDS HWY BOX CULVER I
REPLACEMENT
FOR
LIBERTY COUNTY BOARD OF

SHEET NAME:
BOX CULVERT PLAN
& PROFILE

REVISIONS:

1. 6/16/2023 BID SET

2. 3/29/2024 REBID SET

3.

4.

5.

6.

7.

9. IO INITIAL DATE: 3/22/23 DRAWN BY: TRL CHECKED BY: TRL PROJECT #: 2011-05

GRAPHIC SCALE

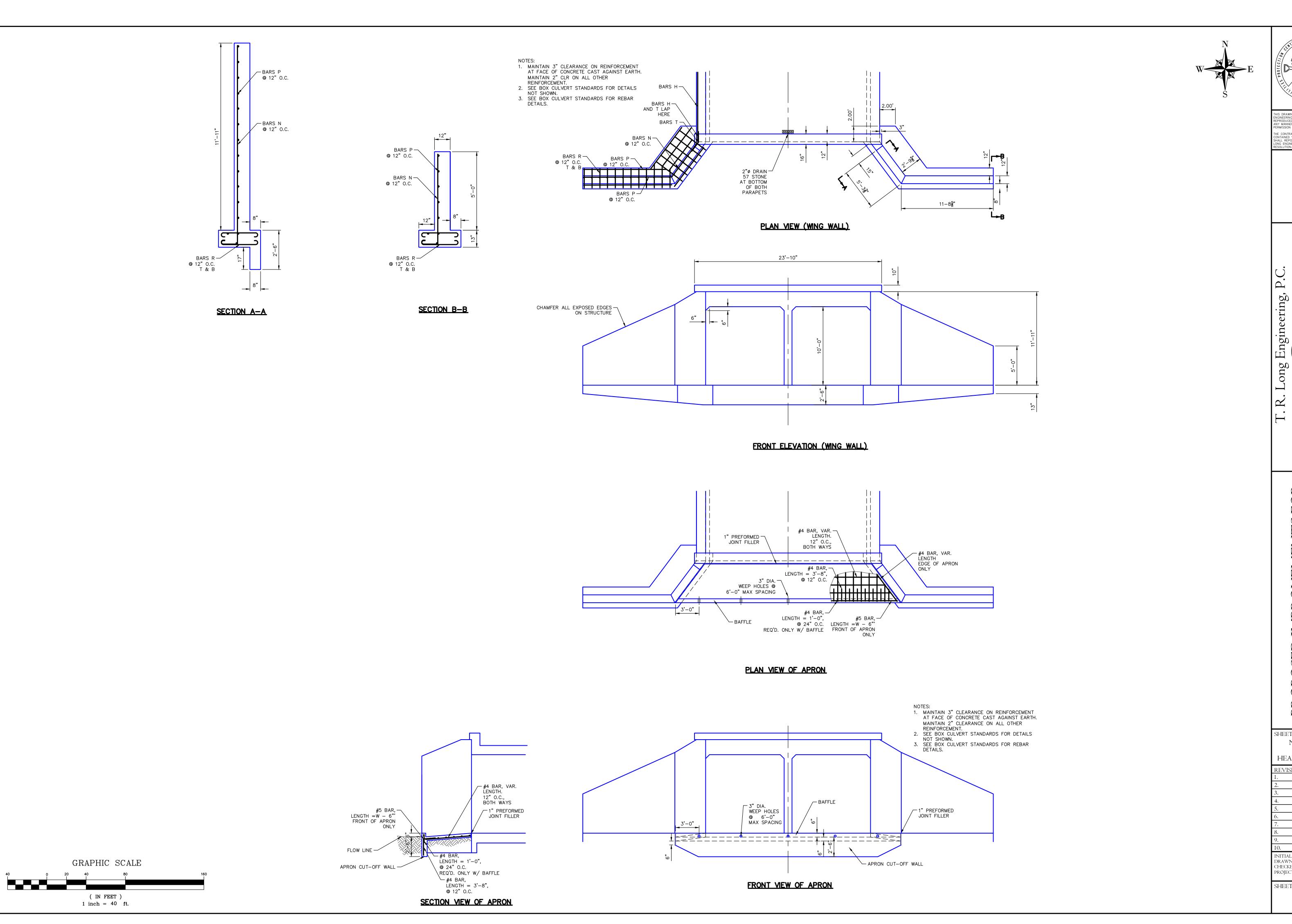
(IN FEET)1 inch = 10 ft.

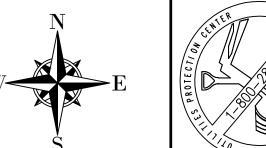
VERTICAL SCALE: 1 in = 10 ft.

PROJECT #: 2011-05

SHEET NUMBER:

C3.2





PROPOSED IMPROVEMENTS FOR ISLANDS HIGHWAY HEADWALL LIBERTY COUNTY, GEORGIA

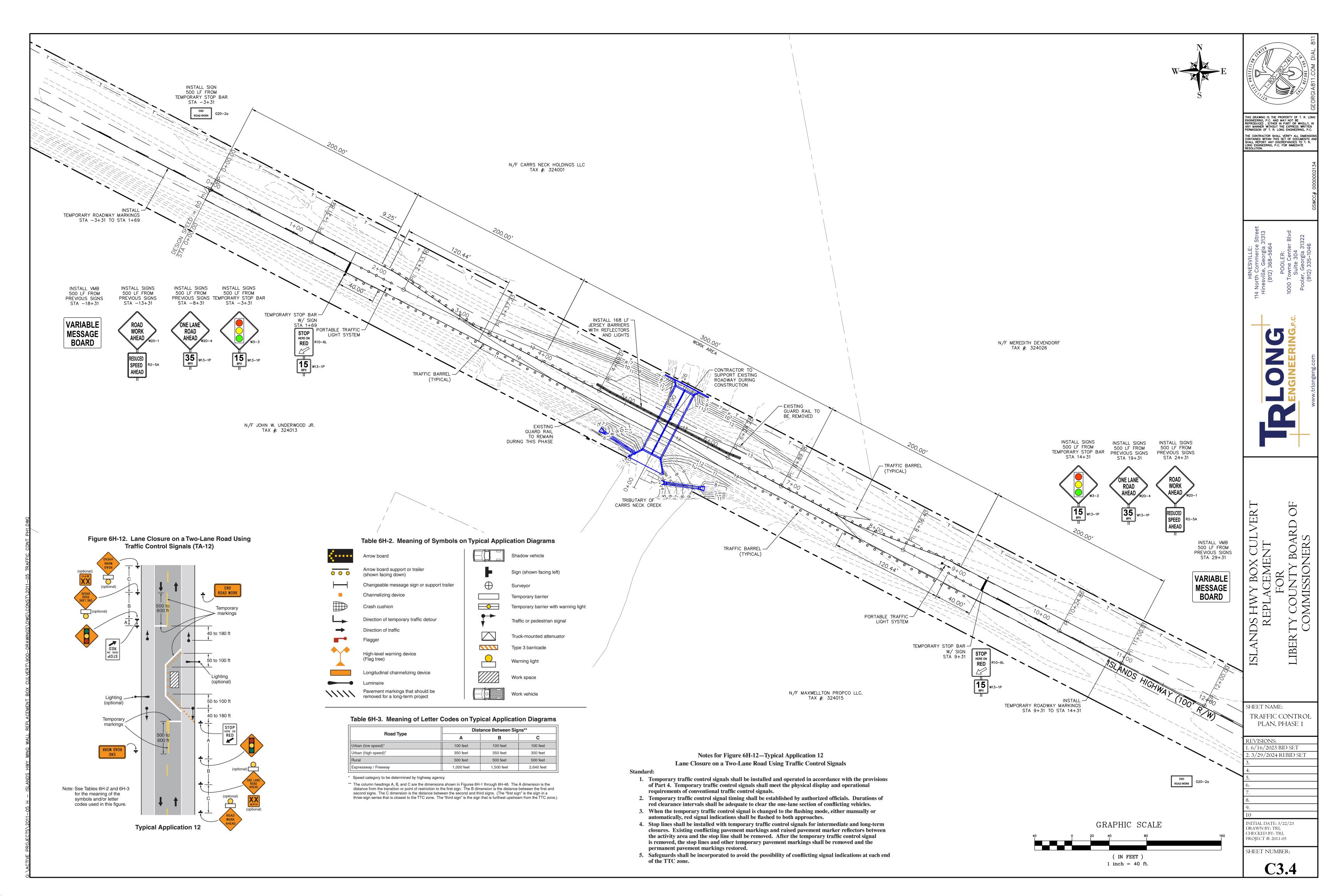
SHEET NAME: NORTH END MODIFIED HEADWALL DETAIL

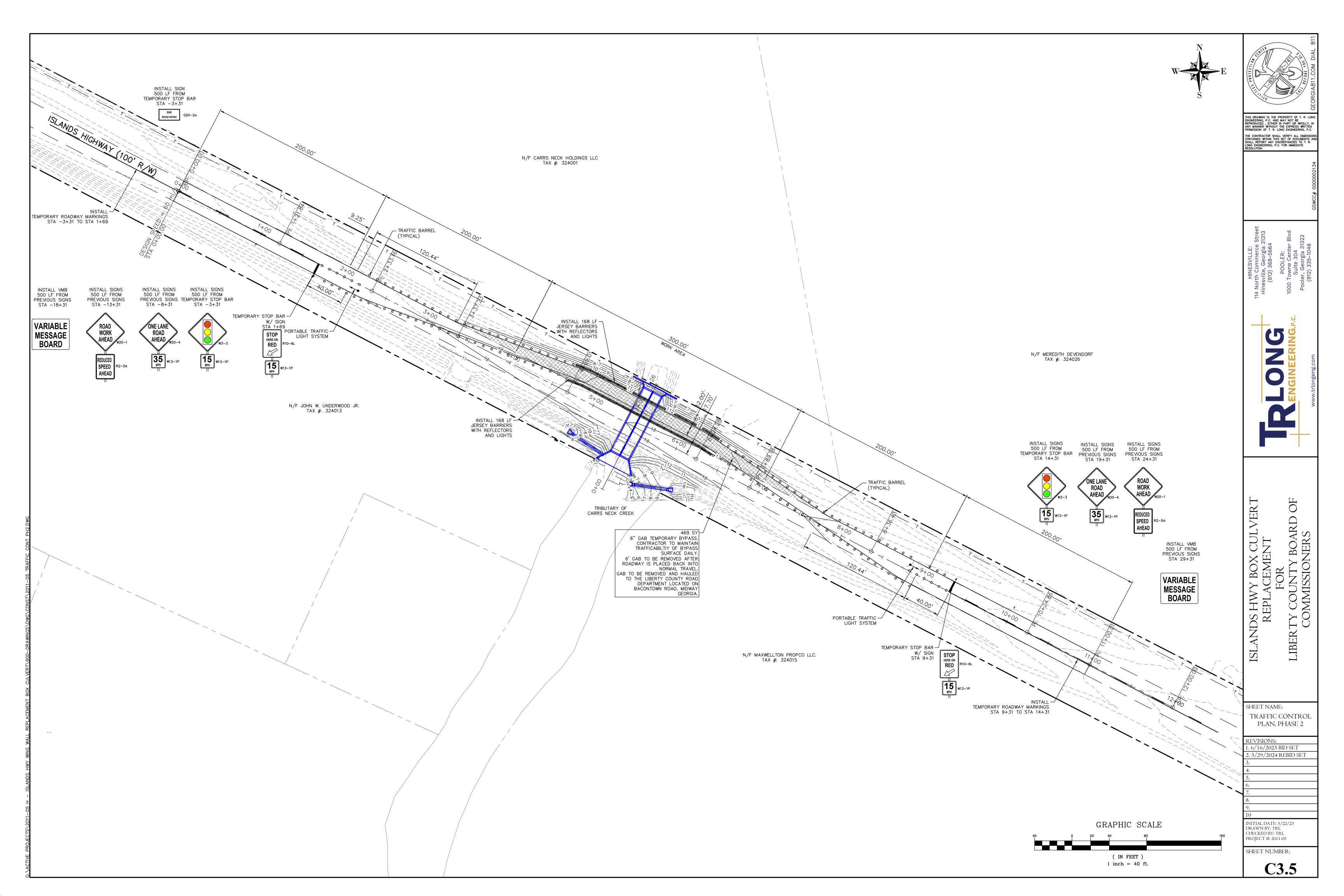
REVISIONS:

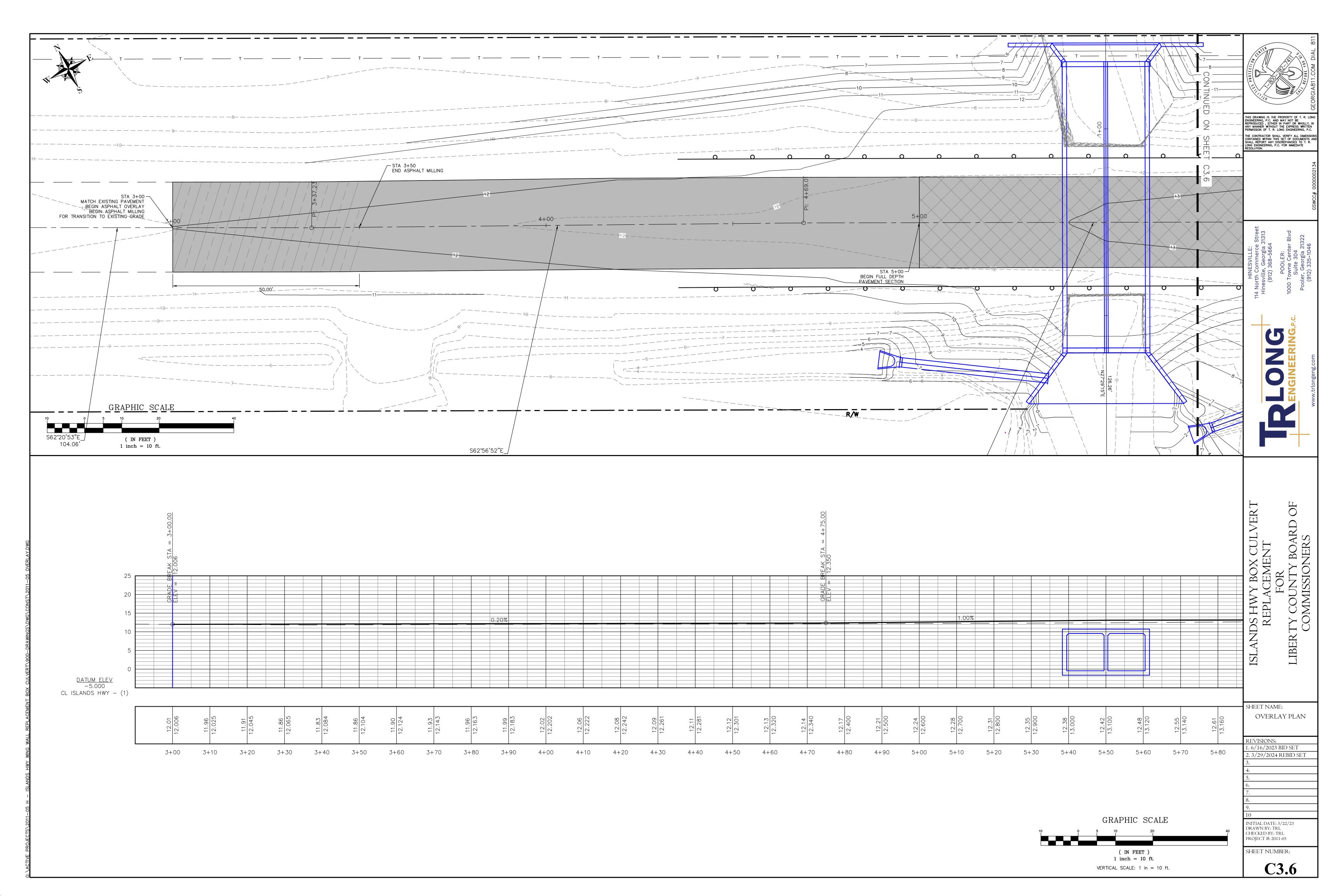
INITIAL DATE: JANUARY 2011 DRAWN BY: TRL

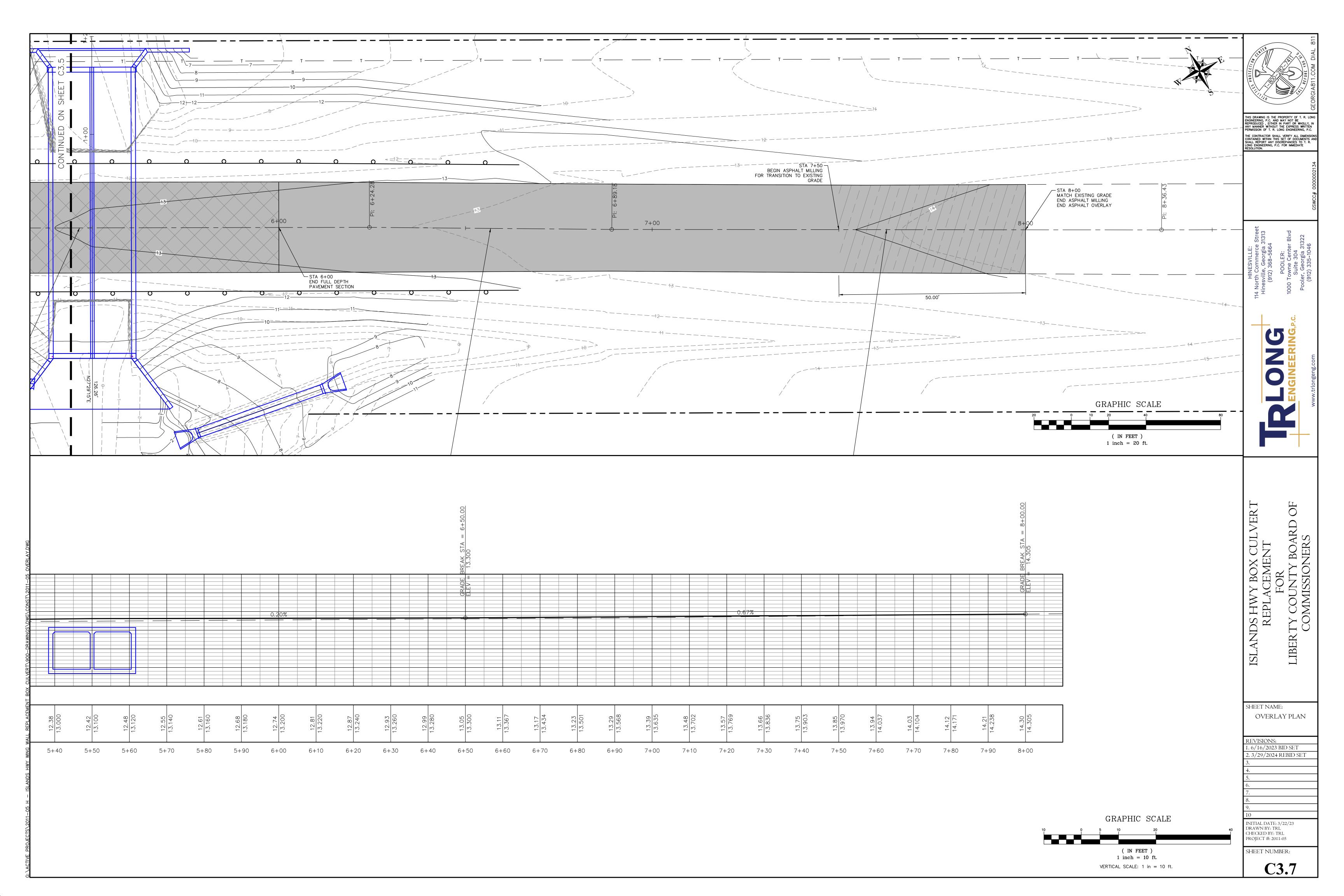
CHECKED BY: TRL PROJECT #: 2011-05 SHEET NUMBER:

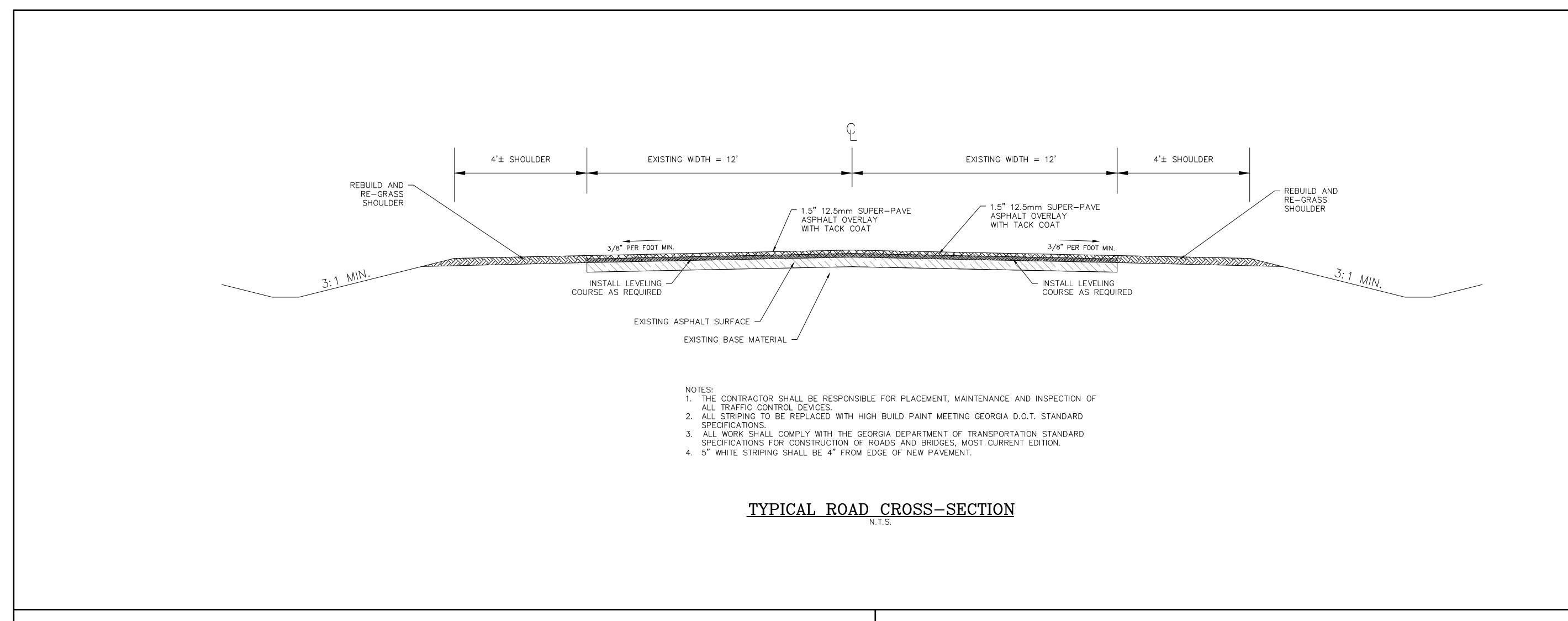
C3.3











INSTALL 2" 19 MM ASPHALT SUPERPAVE -

INSTALL 3" 25 MM ASPHALT SUPERPAVE -

COMPACT SUBGRADE AFTER EXCAVATION -

EXISTING ASPHALT -

EXISTIING GRADED —/ AGGREGATE BASE INCLUDE IN PRICE FOR

ASPHALT OVERLAY

INCLUDE IN PRICE FOR ASPHALT OVERLAY

\_\_1.5" 12.5 mm ASPHALT SUPERPAVE OVERLAY

- SAW CUT EXISTING ASPHALT
TYPICAL ALL SIDES

- EXCAVATE SUBGRADE TO A DEPTH OF 15" BELOW EXISTING ASPHALT SURFACE

(INCLUDE IN DEEP PATCH PRICE.)

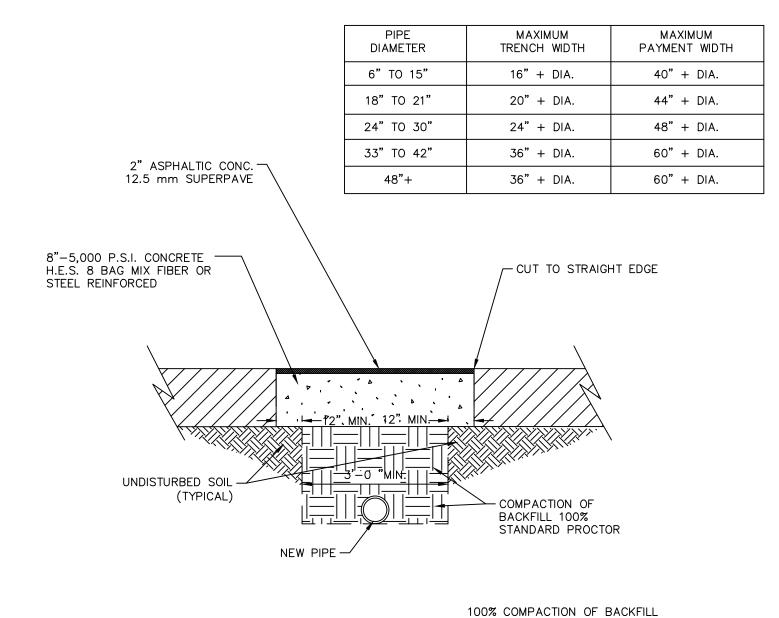
COMPACTED IN 5" LIFTS.

INCLUDE IN PRICE FOR DEEP PATCH

INSTALL 10" GRADED AGGREGATE BASE MATERIAL

PAYMENT COVERED IN PRICE OF

ASPHALT OVERLAY



PER COUNTY SPECIFICATIONS
ASTM D698

- NOTES:
  1. COMPACT BASE AND SUB-BASE TO 100% STANDARD PROCTOR.
- 2. CONCRETE IN THE RIGHT OF WAY TO BE 5000 PSI AND REINFORCED WITH FIBERMESH OR STEEL.
- 3. ALL LATERAL STREET CUTS MUST BE COVERED WITH STEEL PLATES OF SUFFICIENT THICKNESS TO SPAN THE CUT WITHOUT NOTICABLE DEFLECTION. PLATES TO REMAIN IN PLACE UNTIL THE CONCRETE BASE HAS GAINED SUFFICIENT STRENGTH TO WITHSTAND TRAFFIC LOADS (24 HOUR MINIMUM).
- 4. ALL LONGITUDINAL CUTS EXCEEDING 150' IN LENGTH WILL REQUIRE AN ASPHALT OVERLAY OF THE ENTIRE ROADWAY WIDTH. CONCRETE IN THE TRENCH WILL BE BROUGHT FLUSH WITH THE EXISTING PAVEMENT. PAVING WILL BE SAW CUT TO A STRAIGHT EDGE AND THE ENTIRE WIDTH OF THE ROADWAY WILL BE RESURFACED WITH A MINIMUM OF 1.5" OF 9.5mm ASPHALT SUPERPAVE.
- 5. ALL STREET PATCHES MUST BE SQUARE OR RECTANGULAR WITH STRAIGHT, SAW CUT EDGES.

# BITUMINOUS PAVEMENT REPLACEMENT

SEORGIA811.COM DIAL 811

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POOLER:

Hinesville, Georgian (12) 368-8 (12) 368-8 (100 Towne Ceorgian (10



REPLACEMENT
FOR
TY COUNTY BOARD OF

SHEET NAME:
PAVEMENT DETAILS

REVISIONS: 1. 6/16/2023 BID SET 2. 3/29/2024 REBID SET

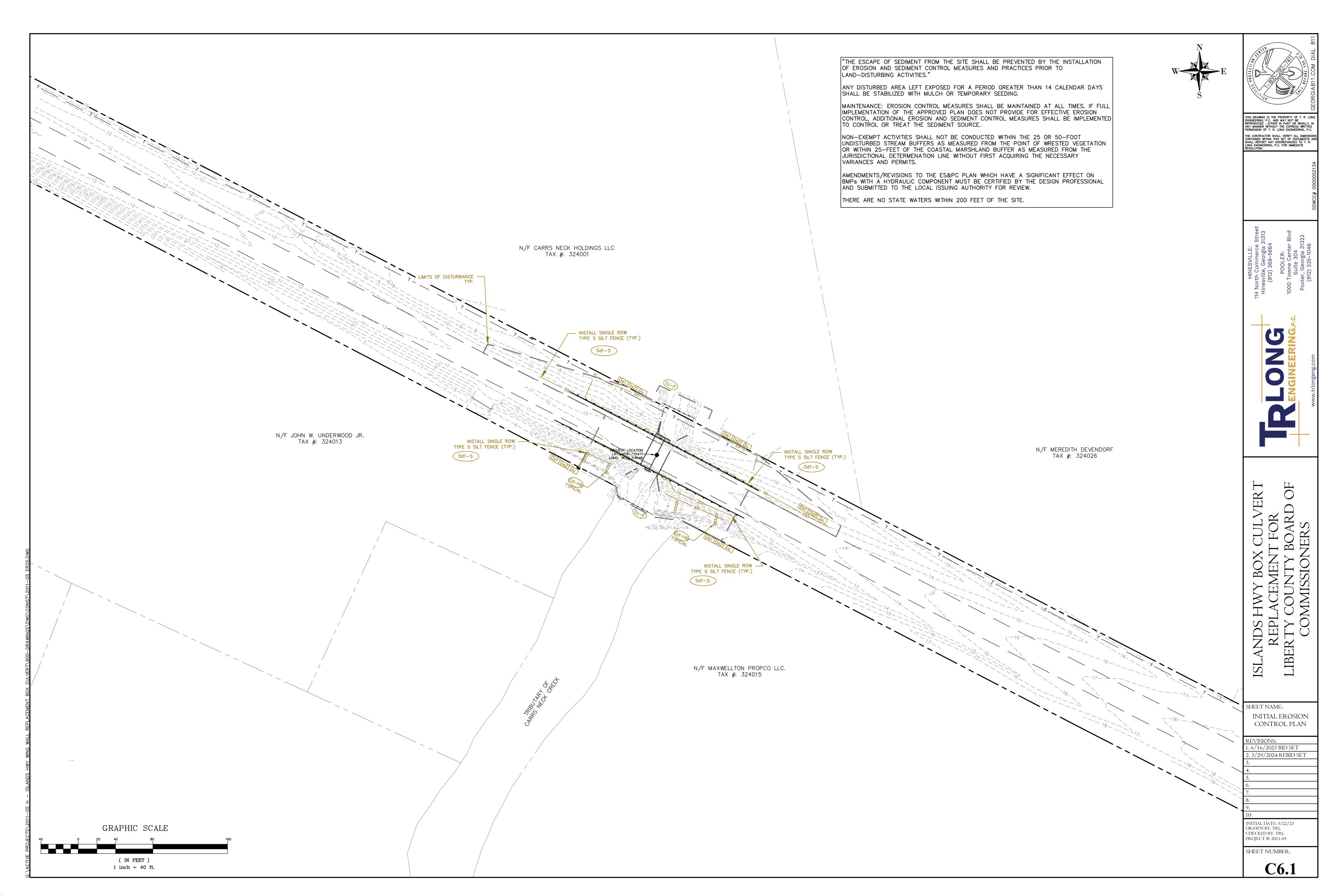
2. 3/29/2024 REBID SE<sup>2</sup>
3.
4.

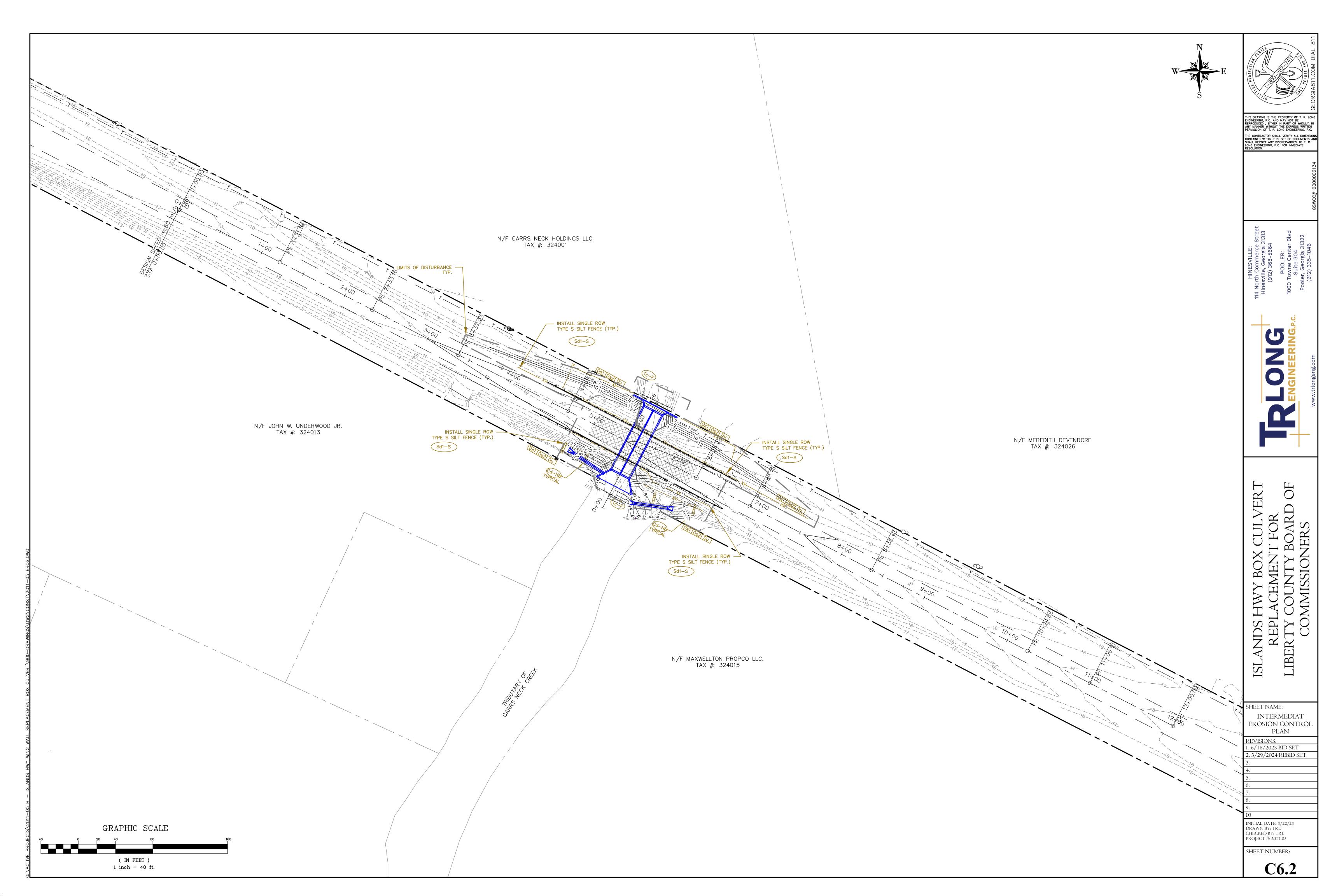
INITIAL DATE: 3/22/23 DRAWN BY: TRL CHECKED BY: TRL PROJECT #: 2011-05

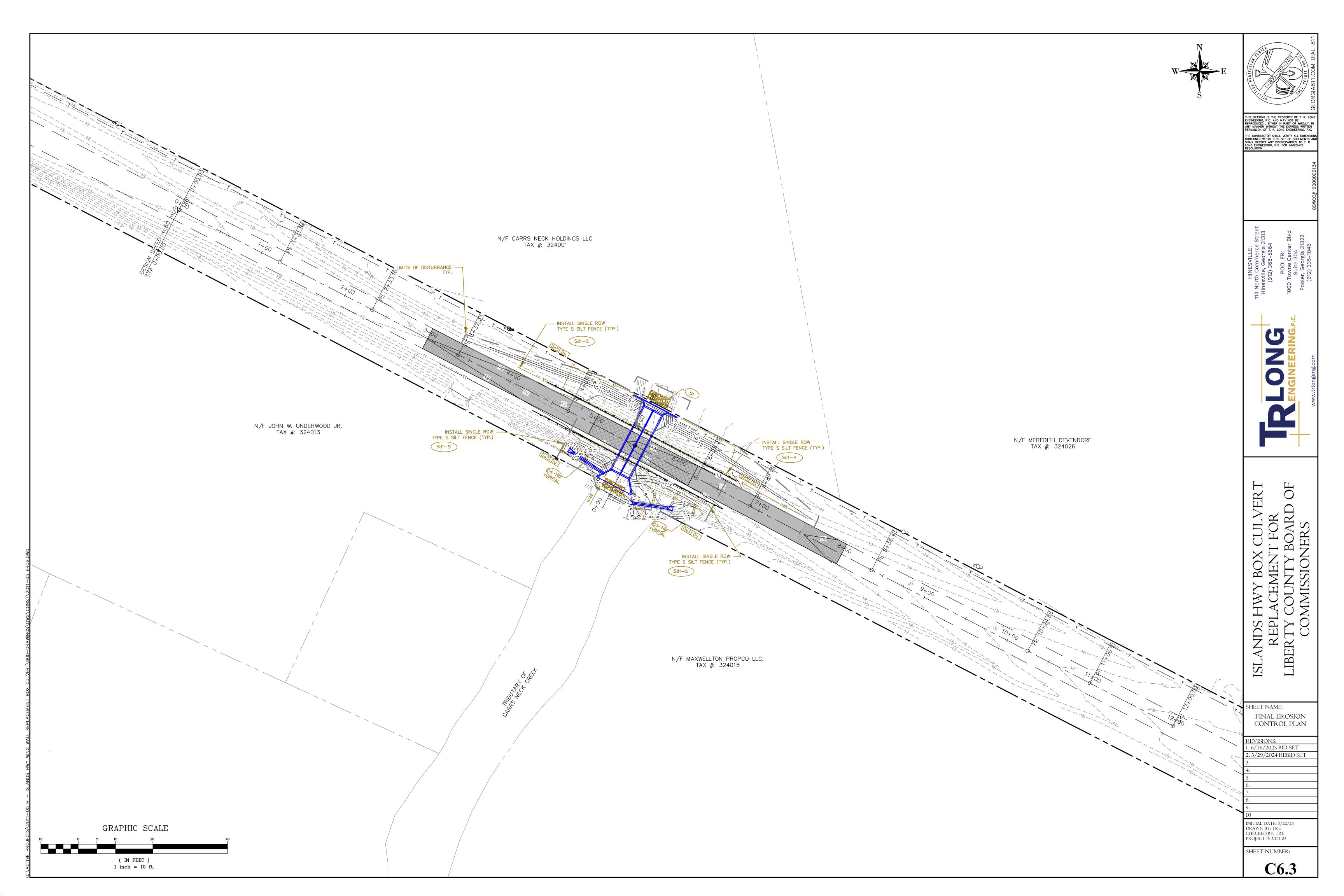
SHEET NUMBER:

C3.8









OWNER LIBERTY COUNTY BOARD OF COMMISSIONERS

112 N. MAIN STREET, SUITE 201

HINESVILLE, GEORGIA

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24 HOUR CONTACT: TRENT LONG

(912) 368-5664 TRLONG@TRLONGENG.COM

**ENGINEER** T.R. LONG ENGINEERING, P.C.

> 114 NORTH COMMERCE ST. HINESVILLE, GEORGIA 31313

(912) 368-5664

GOVERNING AUTHORITY: LIBERTY COUNTY

FOR THIS PROJECT.

112 N. MAIN STREET HINESVILLE, GA 31313 (912) 876-8454

# EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST INFRASTRUCTURE CONSTRUCTION PROJECTS

SWCD: COASTAL GEORGIA PROJECT NAME: ISLANDS HWY BOX CULVERT REPLACEMENT ADDRESS: HWY 84

DATE ON PLANS: 3/22/23 NAME & EMAIL OF PERSON FILLING OUT CHECKLIST: TRENT LONG, trlong@trlongeng.com

# EROSION, SEDIMENT, & POLLUTION CONTROL PLAN CHECKLIST

- REQUIREMENT: THE APPLICABLE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN CHECKLIST ESTABLISHED BY THE COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED. RESPONSE: THE 2024 EROSION, SEDIMENT AND POLLUTION CONTROL PLAN CHECKLIST FOR INFRASTRUCTURE WAS USED
- 2. REQUIREMENT: LEVEL II CERTIFICATION NUMBER ISSUED BY THE COMMISSION, SIGNATURE AND SEAL OF THE CERTIFIED DESIGN PROFESSIONAL

RESPONSE: THE LEVEL II CERTIFICATION NUMBER ISSUED BY THE COMMISSION, SIGNATURE AND SEAL OF THE CERTIFIED DESIGN PROFESSIONAL IS FOUND ON THE UPPER RIGHT HAND SIDE OF ALL SHEETS.

- REQUIREMENT: THE NAME AND PHONE NUMBER OF THE 24-HOUR LOCAL CONTACT RESPONSIBLE FOR EROSION, SEDIMENTATION AND POLLUTION CONTROLS. RESPONSE: THE NAME AND PHONE NUMBER OF THE 24-HOUR LOCAL CONTACT IS SHOWN IN THE ABOVE "PROJECT INFORMATION" SECTION.
- 4. REQUIREMENT: PROVIDE THE NAME, ADDRESS, EMAIL ADDRESS AND PHONE NUMBER OF THE PRIMARY PERMITTEE. RESPONSE: THE NAME, ADDRESS AND PHONE NUMBER OF THE PRIMARY PERMITTEE IS SHOWN ABOVE ON THE "PROJECT INFORMATION" SECTION.
- 5. REQUIREMENT: NOTE TOTAL AND DISTURBED ACREAGE OF THE PROJECT OR PHASE UNDER CONSTRUCTION. RESPONSE: THE TOTAL ACREAGE OF THE SITE IS 3.54 AND THE DISTURBED ACREAGE IS 0.58
- 6. REQUIREMENT: PROVIDE THE GPS LOCATIONS OF THE BEGINNING AND END OF THE INFRASTRUCTURE PROJECT. GIVE THE LATITUDE AND LONGITUDE IN DECIMAL DEGREES.

RESPONSE: THE GPS LOCATIONS OF THE BEGINNING OF THE PROJECT IS N31.735741°, W81.316146° AND END OF THE PROJECT IS N31.735471°, W81.316146°.

- REQUIREMENT: INITIAL DATE OF THE PLAN AND THE DATES OF ANY REVISIONS MADE TO THE PLAN INCLUDING THE ENTITY WHO REQUESTED THE REVISIONS.
- RESPONSE: THE INITIAL DATE AND ANY REVISIONS ARE ON THE BOTTOM RIGHT SIDE OF ALL SHEETS
- 8. REQUIREMENT: DESCRIPTION OF THE NATURE OF CONSTRUCTION ACTIVITY AND EXISTING SITE CONDITIONS.. RESPONSE: THE PROJECT CONSISTS OF THE REMOVING AND REPLACING A CONCRETE BOX CULVERT UNDERNEATH
- REQUIREMENT: PROVIDE VICINITY MAP SHOWING SITE'S RELATION TO SURROUNDING AREAS. INCLUDE DESIGNATION OF SPECIFIC PHASE, IF NECESSARY

RESPONSE: A VICINITY MAP IS SHOWN ON THE TITLE SHEET OF THESE PLANS.

REQUIREMENT: IDENTIFY THE PROJECT RECEIVING WATERS AND DESCRIBE ALL SENSITIVE ADJACENT AREAS INCLUDING STREAMS, LAKES, RESIDENTIAL AREAS, WETLANDS, ETC. WHICH MAY BE AFFECTED.

RESPONSE: THE SITE CURRENTLY DRAINS TO DRAINAGE DITCHES LOCATED IN THE RIGHT OF WAY OF ISLANDS HWY, AND

- DRAIN INTO CARRS NECK CREEK.
- 11. REQUIREMENT: DESIGN PROFESSIONAL'S CERTIFICATION STATEMENT AND SIGNATURE THAT THE SITE WAS VISITED PRIOR TO DEVELOPMENT OF THE ES&PC PLAN AS STATED ON PART IV PAGE 21 OF THE PERMIT.
- REQUIREMENT: DESIGN PROFESSIONAL'S CERTIFICATION STATEMENT AND SIGNATURE THAT THE PERMITTEE'S ES&PC PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BMPS AND SAMPLING TO MEET PERMIT REQUIREMENTS AS STATED ON PART IV PAGE 20 OF THE PERMIT.

RESPONSE: PLEASE SEE THE DESIGN PROFESSIONAL'S CERTIFICATION SECTION ON THIS SHEET.

- RESPONSE: PLEASE SEE THE DESIGN PROFESSIONAL'S 7 DAY VISIT CERTIFICATION ON SECTION ON THIS SHEET.
- 13. REQUIREMENT: DESIGN PROFESSIONAL'S CERTIFICATION STATEMENT AND SIGNATURE THAT THE PERMITTEE'S ES&PC PLAN PROVIDES REPRESENTATIVE SAMPLING AS STATED ON PART IV.D.6.c(3) PAGE 37 OF THE PERMIT AS APPLICABLE.
- RESPONSE: PLEASE SEE THE DESIGN PROFESSIONAL'S 7 DAY VISIT CERTIFICATION ON SECTION ON THIS SHEET.
- 14. REQUIREMENT: CLEARLY NOTE THE STATEMENT THAT "THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPS WITHIN 7 DAYS AFTER INSTALLATION." IN ACCORDANCE WITH PART IV.A.5 PAGE 26 OF THE PERMIT.
- RESPONSE: PLEASE SEE THE DESIGN PROFESSIONAL'S 7 DAY VISIT CERTIFICATION ON SECTION ON THIS SHEET.
- 15. REQUIREMENT: CLEARLY NOTE THE STATEMENT THAT "NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25-FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS."
- RESPONSE: NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITH 25-FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS.
- 16. REQUIREMENT: PROVIDE A DESCRIPTION OF ANY BUFFER ENCROACHMENTS AND INDICATE WHETHER A BUFFER VARIANCE IS REQUIRED.
- RESPONSE: THIS PROJECT SHOULD NOT ENCROACH ON ANY BUFFERS.
- 17. REQUIREMENT: CLEARLY NOTE THE STATEMENT THAT "AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMPS WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL."
- RESPONSE: AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMPS WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.
- 18. REQUIREMENT: CLEARLY NOTE THE STATEMENT THE "WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT."
- RESPONSE: WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A **SECTION 404 PERMIT**

- 19. REQUIREMENT: CLEARLY NOTE THE STATEMENT THAT "THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES."
- RESPONSE: THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES.
- 20. REQUIREMENT: CLEARLY NOTE STATEMENT THAT "EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND
- SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE." RESPONSE: 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. 21. REQUIREMENT: CLEARLY NOTE THE STATEMENT "ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS
- RESPONSE: ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR
- 22. REQUIREMENT: ANY CONSTRUCTION ACTIVITY WHICH DISCHARGES STORM WATER INTO AN IMPAIRED STREAM SEGMENT, OR WITHIN 1 LINEAR MILE UPSTREAM OF AND WITHIN THE SAME WATERSHED AS, ANY PORTION OF AN BIOTA IMPAIRED STREAM SEGMENT MUST COMPLY WITH PART III. C.. OF THE PERMIT. INCLUDE THE COMPLETED APPENDIX 1 LISTING ALL THE BMPS THAT WILL BE USED FOR THOSE AREAS OF THE SITE WHICH DISCHARGE TO THE IMPAIRED STREAM SEGMENT.

TEMPORARY SEEDING. SEE MULCHING AND VEGETATIVE PLAN REQUIREMENTS ON DETAIL SHEETS.

- RESPONSE: NO CONSTRUCTION ACTIVITY WILL DISCHARGE IN STORM WATER INTO AN IMPAIRED STREAM OR 1 LINEAR MILE UPSTREAM OF AND WITHIN THE SAME WATER SHED AS, ANY PORTION OF AN BIOTA IMPAIRED STREAM SEGMENT. THE SITE IS NOT LOCATED WITHIN ONE MILE OF AN IMPAIRED STREAM.
- 23. REQUIREMENT: IF A TMDL IMPLEMENTATION PLAN FOR SEDIMENT HAS BEEN FINALIZED FOR THE IMPAIRED STREAM SEGMENT (IDENTIFIED IN ITEM 22 ABOVE) AT LEAST SIX MONTHS PRIOR TO SUBMITTAL OF NOI, THE ES&PC PLAN MUST ADDRESS ANY SITE SPECIFIC CONDITIONS OR REQUIREMENTS INCLUDED IN THE TMDL IMPLEMENTATION PLAN.
- RESPONSE: NO TMDL IMPLEMENTATION PLAN IS NEEDED FOR THIS SITE.

SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING."

- 24. REQUIREMENT: BMPS FOR CONCRETE WASHDOWN OF TOOLS, CONCRETE MIXER CHUTES, HOPPERS AND THE REAR OF THE VEHICLES. WASHOUT OF THE DRUM AT THE CONSTRUCTION SITE IS PROHIBITED.
- RESPONSE: A CONCRETE WASHOUT AREA HAS BEEN ILLUSTRATED ON EACH EROSION CONTROL SHEET. NO CONCRETE TRUCKS WILL BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ON-SITE.
- 25. REQUIREMENT: PROVIDE BMPS FOR THE REMEDIATION OF ALL PETROLEUM SPILLS AND LEAKS.
- 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 INSPECTIONS AND REGULAR PREVENTATIVE MAINTENANCE OF SUCH EQUIPMENT. EQUIPMENT MAINTENANCE AREAS WILL BE LOCATED AWAY FROM STATE WATER, NATURAL DRAINS AND STORM WATER DRAINAGE INLETS. IN ADDITION, TEMPORARY FUELING TANKS SHALL HAVE A SECONDARY CONTAINMENT LINER TO PREVENT/MINIMIZE SITE CONTAMINATION. DISCHARGE OF OILS, FUELS AND LUBRICANTS IS PROHIBITED, PROPER DISPOSAL METHODS WILL INCLUDE COLLECTION IN A SUITABLE CONTAINER AND DISPOSAL AS REQUIRED BY LOCAL AND STATE REGULATIONS.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
- ALL SPILLS WILL BE CLEANED UP IMMEDIATELY UPON DISCOVERY. ALL SPILLS WILL BE REPORTED AS REQUIRED BY LOCAL,
- STATE AND FEDERAL REGULATIONS. • FOR SPILLS THAT IMPACT SURFACE WATER (LEAVE A SHEEN ON SURFACE WATER), THE NATIONAL RESPONSE CENTER (NRC) WILL
- BE CONTACTED WITHIN 24 HOURS AT 1-800-424-8802.
- FOR SPILLS OF AN UNKNOWN AMOUNT, THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT

• FOR SPILLS GREATER THAN 25 GALLONS AND NO SURFACE WATER IMPACTS, THE GEORGIA EPD WILL BE CONTACTED WITHIN 24

- FOR SPILLS LESS THAN 25 GALLONS AND NO SURFACE WATER IMPACTS, THE SPILL WILL BE CLEANED UP AND LOCAL AGENCIES
- WILL BE CONTACTED AS REQUIRED. • THE CONTRACTOR SHALL NOTIFY THE LICENSED PROFESSIONAL WHO PREPARED THIS PLAN IF MORE THAN 1320 GALLONS OF PETROLEUM IS STORED ON-SITE (THIS INCLUDES CAPACITIES OF EQUIPMENT) OR IF ANY ONE PIECE OF EQUIPMENT HAS A
- 26. REQUIREMENT: DESCRIPTION OF THE MEASURES THAT WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS TO CONTROL POLLUTANTS IN STORM WATER THAT WILL OCCUR AFTER CONSTRUCTION OPERATIONS HAVE BEEN COMPLETED.

CAPACITY GREATER THAN 660 GALLONS. THE CONTRACTOR WILL NEED A SPILL PREVENTION CONTAINMENT AND

• DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)

UNIFORMLY WITH HYDRAULIC SEEDING EQUIPMENT.

COUNTERMEASURES PLAN PREPARED BY THAT LICENSED PROFESSIONAL

- a. USED TO PROVIDE A PROTECTIVE COVER FOR EXPOSED AREAS INCLUDING CUTS, FILLS, DAMS, AND OTHER DENUDED AREAS. b. 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. c. 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
- d. USE CONVENTIONAL PLANTING METHODS WHEN POSSIBLE. e. WHEN MIXED PLANTINGS ARE DONE DURING MARGINAL PLANTING PERIODS, COMPANION CROPS SHALL BE USED.
- IRRIGATION SHOULD BE USED WHEN THE SOIL IS DRY OR WHEN SUMMER PLANTINGS ARE DONE. g. LOW MAINTENANCE PLANTS, AS WELL AS NATIVES, SHOULD BE USED TO ENSURE LONG-LASTING EROSION CONTROL.
- MOWING SHOULD NOT BE PERFORMED DURING QUAIL NESTING SEASON (MAY TO SEPTEMBER). WILDLIFE PLANTINGS SHOULD BE INCLUDED IN CRITICAL AREA PLANTINGS.
- VERTICAL BANKS SHALL BE SLOPED TO ENABLE PLANT ESTABLISHMENT. k. 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 ALLIED WITHIN SIX MONTHS OF PLANTING PERMANENT PERENNIAL **VEGETATION, ADDITIONAL LIME IS NOT REQUIRED.** I. AGRICULTURAL LIME SHALL BE WITHIN THE SPECIFICATIONS OF THE GEORGIA DEPARTMENT OF AGRICULTURE. LIME SPREAD
- BY CONVENTIONAL EQUIPMENT SHALL BE "GROUND LIMESTONE" AND LIME SPREAD BY HYDRAULIC SEEDING EQUIPMENT SHALL BE "FINELY GROUND LIMESTONE." m. WHEN HYDRAULIC SEEDING EQUIPMENT IS USED, THE INITIAL FERTILIZER SHALL BE MIXED WITH SEED, INNOCULANT (IF NEEDED). AND WOOD CELLULOSE OR WOOD PULP FIBER MULCH AND APPLIED IN A SLURRY. THE INNOCULANT. IF NEEDED.
- AGITATED DURING APPLICATION TO KEEP THE INGREDIENTS THOROUGHLY MIXED. THE MIXTURE WILL BE SPREAD UNIFORMLY OVER THE AREA WITHIN ONE HOUR AFTER BEING PLACED IN THE HYDROSEEDER n. WHEN CONVENTIONAL PLANTING IS TO BE DONE, LIME AND FERTILIZER SHALL BE APPLIED UNIFORMLY IN ONE OF THE FOLLOWING WAYS: 1. APPLY BEFORE LAND PREPARATION SO THAT IT WILL BE MIXED WITH THE SOIL DURING SEEDBED PREPARATION, 2. MIX WITH THE SOIL USED TO FILL THE HOLES, DISTRIBUTE IN FURROWS, 3, BROADCAST AFTER STEEP SURFACES ARE SCARIFIED, PITTED OR TRENCHED. 4. A FERTILIZER PELLET SHALL BE PLACED AT ROOT DEPTH IN THE

SHALL BE MIXED WITH THE SEED PRIOR TO BEING PLACED INTO THE HYDRAULIC SEEDER. THE SLURRY MIXTURE WILL BE

- CLOSING HOLE BESIDE EACH PINE TREE SEEDLING. o. MULCH IS REQUIRED FOR ALL PERMANENT VEGETATION APPLICATIONS. MULCH APPLIED TO SEEDED AREAS SHALL ACHIEVE 75% SOIL COVER. STRAW OR HAY MULCH WILL BE SPREAD UNIFORMLY WITHIN 24 HOURS AFTER SEEDING AND/OR PLANTING. THE MULCH MAY BE SPREAD BY BLOWER-TYPE SPREADING EQUIPMENT, OTHER SPREADING EQUIPMENT OR BY HAND. MULCH SHALL BE APPLIED TO COVER 75% OF THE SOIL SURFACE. WOOD CELLULOSE OR WOOD FIBER MULCH SHALL BE APPLIED
- p. MOW SERICEA LESPEDEZA ONLY AFTER FROST TO ENSURE THAT THE SEEDS ARE MATURE. MOW BETWEEN NOVEMBER AND MARCH, BERMUDAGRASS, BAHIAGRASS AND TALL FESCUE MAY BE MOWED AS DESIRED. MAINTAIN AT LEAST 6 INCHES OF TOP GROWTH UNDER ANY USE AND MANAGEMENT. MODERATE USE OF TOP GROWTH IS BENEFICIAL AFTER ESTABLISHMENT. EXCLUDE TRAFFIC UNTIL THE PLANTS ARE WELL ESTABLISHED. BECAUSE OF THE QUAIL NESTING SEASON, MOWING SHOULD NOT TAKE PLACE BETWEEN MAY AND SEPTEMBER.
- q. APPLY ONE TON OF AGRICULTURAL LIME EVERY 4 TO 6 YEARS OR AS INDICATED BY SOIL TESTS. SOIL TESTS CAN BE CONDUCTED TO DETERMINE MORE ACCURATE REQUIREMENTS IF DESIRED.
- VEGETATED WATERWAY OR STORMWATER CONVEYANCE a. A NATURAL OR CONSTRUCTED CHANNEL THAT IS SHAPED OR GRADED TO REQUIRED DIMENSIONS AND ESTABLISHED IN
- SUITABLE VEGETATION FOR THE STABLE CONVEYANCE OF RUNOFF WITHOUT CAUSING DAMAGE EITHER BY EROSION OR BY b. THIS STANDARD APPLIES TO ALL SITES WHERE ADDED CHANNEL CAPACITY AND/OR STABILIZATION IS REQUIRED TO CONTROL EROSION RESULTING FROM CONCENTRATED RUNOFF AND WHERE SUCH CONTROL CAN BE ACHIEVED BY THIS PRACTICE
- THE MINIMUM CAPACITY SHALL BE THAT REQUIRED TO CONVEY THE PEAK RUNOFF EXPECTED FROM A 25-YEAR, 24-HOUR STORM OR THE STORM SPECIFIED IN THE GSWCC EROSION AND SEDIMENT CONTROL MANUAL.
- d. CONSTRUCTION SPECIFICATIONS d.1. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND
- DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE WATERWAY d.2. THE WATERWAY OR OUTLET SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN, IT WILL BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW. IF THE CHANNEL MUST HAVE EROSION PROTECTION OTHER THAN VEGETATION, THE LINING SHALL NOT COMPROMISE THE CAPACITY OF THE EMERGENCY SPILLWAY, I.E. THE CHANNEL SHALL BE OVER-EXCAVATED SO THAT THE LINING WILL BE FLUSH WITH THE SLOPE SURFACE.
- d.3. FILLS SHALL BE COMPACTED AS NEEDED TO PREVENT UNEQUAL SETTLEMENT THAT WOULD CAUSE DAMAGE IN THE COMPLETED WATERWAY
- d.4. ALL EARTH REMOVED AND NOT NEEDED IN CONSTRUCTION SHALL BE SPREAD OR DISPOSED OF SO THAT IT WILL NOT INTERFERE WITH WATERWAY FUNCTIONING
- d.5. STABILIZATION: APPLICABLE VEGETATIVE STANDARDS SHALL BE FOLLOWED FOR TIME OF SEEDING, SPRIGGING OR SODDING, LIMING AND FERTILIZING, AND SITE AND SEEDBED PREPARATION. EROSION CONTROL BLANKETS OR MATTING OR SOD SHALL BE USED TO AID IN THE ESTABLISHMENT OF VEGETATION. INSTALLATION METHODS SHOULD FOLLOW MANUFACTURER RECOMMENDATIONS
- MULCHING SHALL BE A REQUIREMENT FOR ALL SEEDED OR SPRIGGED CHANNELS. TEMPORARY PROTECTION DURING ESTABLISHMENT SHOULD BE PROVIDED WHEN CONDITIONS PERMIT THROUGH TEMPORARY DIVERSIONS OR OTHER MEANS TO DISPOSE OF WATER

- 27. DESCRIPTION OF PRACTICES TO PROVIDE COVER FOR BUILDING MATERIALS AND BUILDING PRODUCTS ON SITE.
- RESPONSE: PLASTIC SHEETING OR TEMPORARY ROOFS TO BE UTILIZED TO COVER BUILDING MATERIALS, BUILDING PRODUCTS, CONSTRUCTION WASTE, TRASH, LANDSCAPE MATERIALS, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE AND OTHER MATERIALS IN ORDER TO MINIMIZE EXPOSURE TO PRECIPITATION AND TO STORMWATER
- 28. REQUIREMENT: DESCRIPTION OF THE PRACTICES THAT WILL BE USED TO REDUCE THE POLLUTANTS IN STORM WATER DISCHARGES.

- 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 INSPECTIONS AND REGULAR PREVENTATIVE MAINTENANCE OF SUCH EQUIPMENT. EQUIPMENT MAINTENANCE AREAS WILL BE LOCATED AWAY FROM STATE WATER, NATURAL DRAINS, AND STORM WATER DRAINAGE INLETS. IN ADDITION, TEMPORARY FUELING TANKS SHALL HAVE A SECONDARY CONTAINMENT LINER TO PREVENT/MINIMIZE SITE CONTAMINATION. DISCHARGE OF OILS, FUELS, AND LUBRICANTS IS PROHIBITED. PROPER DISPOSAL METHODS WILL INCLUDE COLLECTION IN A SUITABLE CONTAINER AND DISPOSAL AS REQUIRED BY LOCAL AND STATE REGULATIONS.
- POINTS/FINISHES/SOLVENTS ALL PRODUCTS WILL BE STORED IN TIGHTLY SEALED ORIGINAL CONTAINERS WHEN NOT IN USE. EXCESS PRODUCT WILL NOT BE DISCHARGED TO THE STORM WATER COLLECTION SYSTEM. EXCESS PRODUCT MATERIALS USED WITH THESE PRODUCTS AND PRODUCT CONTAINERS WILL BE DISPOSED OF ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND
- CONCRETE TRUCK WASHING A CONCRETE WASHOUT AREA HAS BEEN DETAILED FOR THIS SITE.
- FERTILIZER/HERBICIDES THESE PRODUCTS WILL BE APPLIED AT RATES THAT DO NOT EXCEED THE MANUFACTURER'S SPECIFICATIONS OR ABOVE THE GUIDELINES SET FORTH IN THE CROP ESTABLISHMENT OR IN THE GSWCC MANUAL FOR THE EROSION AND SEDIMENT CONTROL IN GEORGIA. ANY STORAGE OF THESE MATERIALS WILL BE UNDER ROOF IN SEALED
- BUILDING MATERIALS NO BUILDING OR CONSTRUCTION MATERIALS WILL BE BURIED OR DISPOSED OF ONSITE. ALL SUCH MATERIAL WILL BE DISPOSED OF IN PROPER WASTE DISPOSAL PROCEDURES
- PRIOR TO THE LAND DISTURBING CONSTRUCTION, THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE AREA SITE DEVELOPMENT INSPECTOR.
- THE CONTRACTOR SHALL OBSERVE THE PROJECT SEQUENCE SHOWN ON THE PLANS. THE CONTRACTOR SHALL MAINTAIN CAREFUL SCHEDULING AND PERFORMANCE TO INSURE THAT LAND STRIPPED OF IT'S NATURAL COVER IS EXPOSED ONLY IN SMALL

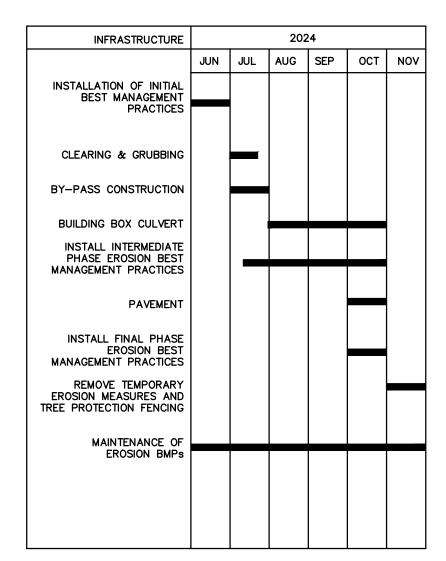
• A COPY OF THE APPROVED LAND DISTURBANCE PLAN AND PERMIT SHALL BE PRESENT ON THE SITE AT ALL TIMES.

- PRIOR TO COMMENCING LAND DISTURBANCE ACTIVITY, THE LIMITS OF LAND DISTURBANCE AND ALL STREAM BUFFERS 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.
- THE FOLLOWING INITIAL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED PRIOR TO ANY OTHER CONSTRUCTION ACTIVITY. a. THE CONSTRUCTION EXIT, CONSISTING OF A MINIMUM PAD SIZE OF 20 FEET BY 50 FEET 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. b. IMMEDIATELY AFTER THE ESTABLISHMENT OF CONSTRUCTION ENTRANCE/EXITS, ALL PERIMETER EROSION CONTROL AND STORM WATER MANAGEMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE INITIAL PHASE EROSION CONTROL PLAN.
- SILT FENCE SHOULD BE INSTALLED AT THE PERIMETER OF THE DISTURBED AREA AS SHOWN ON THE PLAN. THE SILT FENCE SHOULD BE PLACED IN ACCORDANCE WITH THE MANUAL FOR EROSION CONTROL IN GEORGIA. 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 CLEARING AND GRUBBING ACTIVITIES. AS CLEARING PERMITS, THE CONTRACTOR SHALL CONSTRUCT TEMPORARY SEDIMENT PONDS AND DIVERSION DIKES AS SHOWN ON THE INITAL PHASE PLAN TO CONTROL EROSION AND STORM WATER RUN OFF.
- NO BURN OR BURY PITS SHALL BE PERMITTED ON THE CONSTRUCTION SITE WITHOUT WRITTEN PERMISSION BY THE OWNER AND/OR THE ENGINEER OF RECORD
- ADDITIONAL SILT BARRIERS MUST BE PLACED AS SHOWN ON THE PLAN AS ACCESS IS OBTAINED DURING CLEARING. NO GRADING SHALL TAKE PLACE UNTIL SILT BARRIER INSTALLATION AND SEDIMENT PONDS ARE CONSTRUCTED AS SHOWN ON THE INITAL PHASE EROSION CONTROL PLAN.
- MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 7 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 THE CAPACITY OF THE DEVICE. ADDITIONAL DEVICES MUST BE INSTALLED IF NEW CHANNELS HAVE DEVELOPED.
- 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
- . CONTRACTOR SHALL INSPECT CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE MEASURES ARE FUNCTIONING
- EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE FROSION CONTROL ADDITIONAL FROSION 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 FOLLOWING EROSION CONTROL MEASURES SHALL BE IMPLEMENTED DURING THE PRELIMINARY GRADING PHASE OF
- INLET SEDIMENT TRAPS WILL BE INSTALLED AROUND ALL NEW INLETS.
- 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
- STORM DRAIN OUTLET PROTECTION SHALL BE PLACED AT ALL OUTLET HEADWALLS AS SOON AS THE HEADWALL IS CONSTRUCTED. SEE SEPARATE DETAILS FOR ADDITIONAL INFORMATION.
- ALL DRAINAGE SWALES 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 7 DAYS OF LAND DISTURBANCE.
- 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 NSTALLED IF NEW CHANNELS HAVE DEVELOPED.
- INSTALL TEMPORARY SEDIMENT TRAP.

**DESIGN PROFESSIONAL IMMEDIATELY.** 

29. REQUIREMENT: DESCRIPTION AND CHART OR TIMELINE OF THE INTENDED SEQUENCE OF MAJOR ACTIVITIES WHICH DISTURB SOILS FOR THE MAJOR PORTION OF THE SITE (I.E., INITIAL PERIMETER AND SEDIMENT STORAGE BMPS, CLEARING AND GRUBBING ACTIVITIES, EXCAVATION ACTIVITIES, UTILITY ACTIVITIES, TEMPORARY AND FINAL STABILIZATION).

RESPONSE: SEE CHART BELOW.





DESIGN PROFESSIONAL'S CERTIFICATION: "I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY SUPERVISION."

"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 GEORGIA SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED, PROVIDES FOR THE SAMPLING OF THE RECEIVING WATER(S) OR THE SAMPLING OF THE STORMWATER OUTFALLS AND THAT THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NO. GAR100002."

I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE



DESIGN PROFESSIONAL 7-DAY VISIT CERTIFICATION

THE DESIGN PROFESSIONAL WHO PREPARED THE EX&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 ES&PC PLAN ON THE DATE OF INSPECTION.

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION #

INSPECTION REVEALED THE FOLLOWING DISCREPANCIES FROM THE ES&PC 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

SHEET NAME: EROSION CONTROL NOTES

EVISIONS: . 6/16/2023 BID SET 2. 3/29/2024 REBID SET

INITIAL DATE: 3/22/23 DRAWN BY: TRL CHECKED BY: TRL PROJECT #: 2011-05

SHEET NUMBER:

# 0. REQUIREMENT: PROVIDE COMPLETE REQUIREMENTS OF INSPECTIONS AND RECORD KEEPING BY THE PRIMARY PERMITTEE."

• EACH DAY WHEN ANY TYPE OF CONSTRUCTION ACTIVITY HAS TAKEN PLACE AT A PRIMARY PERMITTEE'S SITE, CERTIFIED PERSONNEL PROVIDED BY THE PRIMARY PERMITTE 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 OR EXIT THE SITE FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING. THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED.

 MEASURE AND RECORD RAINFALL WITHIN DISTURBED AREAS OF THE SITE THAT HAVE NOT MET FINAL STABILIZATION ONCE EVERY 24 HOURS EXCEPT ANY NON-WORKING SATURDAY. NON-WORKING SUNDAY AND NON-WORKING FEDERAL HOLIDAY. THE DATA COLLECTED FOR THE PURPOSE OF COMPLIANCE WITH THIS PERMIT SHALL BE REPRESENTATIVE OF THE MONITORED ACTIVITY. MEASUREMENT OF RAINFALL MAY BE SUSPENDED IF ALL AREAS OF THE SITE HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION.

• CERTIFIED PERSONNEL (PROVIDED BY THE PRIMARY PERMITTEE) SHALL INSPECT THE FOLLOWING AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.5 INCHES RAINFALL OR GREATER (UNLESS SUCH STORM ENDS AFTER 5:00 PM ON ANY FRIDAY 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): (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.

• CERTIFIED PERSONNEL (PROVIDED BY THE PRIMARY PERMITTEE) SHALL INSPECTED AT LEAST ONCE PER MONTH DURING THE TERM OF THIS PERMIT (I.E., UNTIL A NOTICE OF TERMINATION HAS BEEN SUBMITTED) THE AREAS OF THE SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING 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).

• 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.

EACH INSPECTION, CONSTRUCTION PHASE (I.E., INITIAL, INTERMEDIATE OR FINAL), MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN AND ACTIONS TAKEN IN ACCORDANCE WITH PART IV.D.4.a.(5) OF THE PERMIT SHALL BE MADE AND RETAINED AT THE SITE OR BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION UNTIL THE ENTIRE SITE OR THAT PORTION OF A CONSTRUCTION PROJECT THAT HAS BEEN PHASED HAS UNDERGONE FINAL STABILIZATION AND A NOTICE OF TERMINATION IS SUBMITTED TO EPD. SUCH REPORTS SHALL BE READILY AVAILABLE BY END OF THE SECOND BUSINESS DAY AND/OR WORKING DAY AND SHALL IDENTIFY ALL INCIDENTS OF BEST MANAGEMENT PRACTICES THAT HAVE BEEN PROPERLY INSTALLED AND/OR MAINTAINED AS DESCRIBED IN THE PLAN. WHERE THE REPORT DOES NOT IDENTIFY ANY INCIDENTS, THE INSPECTION REPORT SHALL CONTAIN A CERTIFICATION THAT THE BEST MANAGEMENT PRACTICES ARE IN COMPLIANCE WITH THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN. THE REPORT SHALL BE SIGNED IN ACCORDANCE WITH PART V.G.2. OF THIS PERMIT

1. REQUIREMENT: PROVIDE COMPLETE REQUIREMENTS OF SAMPLING FREQUENCY AND REPORTING OF SAMPLING RESULTS.\*

• THE PRIMARY PERMITTEE MUST SAMPLE IN ACCORDANCE WITH THE PLAN AT LEAST ONCE FOR EACH RAINFALL EVENT DESCRIBED BELOW. FOR A QUALIFYING EVENT, THE PERMITTEE SHALL SAMPLE AT THE BEGINNING OF ANY STORMWATER DISCHARGE TO A MONITORED RECEIVING WATER AND/OR FROM A MONITORED OUTFALL LOCATION WITHIN IN FORTY-FIVE (45) MINUTES OR AS SOON AS

• HOWEVER, WHERE MANUAL AND AUTOMATIC SAMPLING ARE IMPOSSIBLE (AS DEFINED IN THIS PERMIT), OR ARE BEYOND THE PERMITTEE'S CONTROL, THE PERMITTEE SHALL TAKE SAMPLES AS SOON AS POSSIBLE, BUT IN NO CASE MORE THAN TWELVE (12) HOURS AFTER THE BEGINNING OF THE STORM WATER DISCHARGE.

# • SAMPLING BY THE PERMITTEE SHALL OCCUR FOR THE FOLLOWING QUALIFYING EVENTS:

a. FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORMWATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THIS PERMIT AFTER ALL CLEARING AND GRUBBING OPERATIONS HAVE BEEN COMPLETED. BUT PRIOR TO COMPLETION OF MASS GRADING OPERATIONS, IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION

b. IN ADDITION TO (A) ABOVE, FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL. THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORM WATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THIS PERMIT EITHER 90 DAYS AFTER THE FIRST SAMPLING EVENT OR AFTER ALL MASS GRADING OPERATIONS HAVE BEEN COMPLETED, BUT PRIOR TO SUBMITTAL OF A NOT, IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION WHICHEVER COMES FIRST.

C. AT THE TIME OF SAMPLING PERFORMED PURSUANT TO (A) AND (B) ABOVE, IF BMPs IN ANY AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL ARE NOT PROPERLY DESIGNED, INSTALLED AND MAINTAINED, CORRECTIVE ACTION SHALL BE DEFINED AND IMPLEMENTED WITHIN TWO (2) BUSINESS DAYS, AND TURBIDITY SAMPLES SHALL BE TAKEN FROM DISCHARGES FROM THAT AREA OF THE SITE FOR EACH SUBSEQUENT RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH DURING NORMAL BUSINESS HOURS\* UNTIL THE SELECTED TURBIDITY STANDARD IS ATTAINED, OR UNTIL POST-STORM EVENT INSPECTIONS DETERMINE THAT BMPS ARE PROPERLY DESIGNED. INSTALLED AND MAINTAINED:

d. WHERE SAMPLING PURSUANT TO (A), (B) OR (C) ABOVE IS REQUIRED BUT NOT POSSIBLE (OR NOT REQUIRED BECAUSE THERE WAS NO DISCHARGE), THE PERMITTEE, IN ACCORDANCE WITH PART IV.D.4.A.(6), MUST INCLUDE A WRITTEN JUSTIFICATION IN THE INSPECTION REPORT OF WHY SAMPLING WAS NOT PERFORMED. PROVIDING THIS JUSTIFICATION DOES NOT RELIEVE THE

PERMITTEE OF ANY SUBSEQUENT SAMPLING OBLIGATIONS UNDER (A), (B) OR (C) ABOVE; AND e. EXISTING CONSTRUCTION ACTIVITIES. I.E., THOSE THAT ARE OCCURRING ON OR BEFORE THE EFFECTIVE DATE OF THIS PERMIT. THAT HAVE MET THE SAMPLING REQUIRED BY (A) ABOVE SHALL SAMPLE IN ACCORDANCE WITH (B). THOSE EXISTING CONSTRUCTION ACTIVITIES THAT HAVE MET THE SAMPLING REQUIRED BY (B) ABOVE SHALL NOT BE REQUIRED TO CONDUCT ADDITIONAL SAMPLING OTHER THAN AS REQUIRED BY (C) ABOVE

\*NOTE THAT THE PERMITTEE MAY CHOOSE TO MEET THE REQUIREMENTS OF (A) AND (B) ABOVE BY COLLECTING TURBIDITY SAMPLES FROM ANY RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH AND ALLOWS FOR SAMPLING AT ANY TIME OF THE DAY OR WEEK.

• THE APPLICABLE PERMITTEES ARE REQUIRED TO SUBMIT THE SAMPLING RESULTS TO THE EPD AT THE ADDRESS SHOWN IN PART II.C. BY THE FIFTEENTH DAY OF THE MONTH FOLLOWING THE REPORTING PERIOD. REPORTING PERIODS ARE MONTHS DURING WHICH SAMPLES ARE TAKEN IN ACCORDANCE WITH THIS PERMIT. SAMPLING RESULTS SHALL BE IN A CLEARLY LEGIBLE FORMAT. UPON WRITTEN NOTIFICATION, EPD MAY REQUIRE THE APPLICABLE PERMITTEE TO SUBMIT THE SAMPLING RESULTS ON A MORE FREQUENT BASIS. SAMPLING AND ANALYSIS OF ANY STORM WATER DISCHARGE(S) OR THE RECEIVING WATER(S) BEYOND THE MINIMUM FREQUENCY STATED IN THIS PERMIT MUST BE REPORTED IN A SIMILAR MANNER TO THE EPD. THE SAMPLING REPORTS MUST BE SIGNED IN ACCORDANCE WITH PART V.G.2. SAMPLING REPORTS MUST BE SUBMITTED TO EPD USING THE ELECTRONIC SUBMITTAL SERVICE PROVIDED BY EPD. SAMPLING REPORTS MUST BE SUBMITTED TO EPD UNTIL SUCH TIME AS A NOT IS SUBMITTED IN **ACCORDANCE WITH PART VI.** 

• ALL SAMPLING REPORTS RESULTS SHALL INCLUDE THE FOLLOWING INFORMATION:

a. THE RAINFALL AMOUNT, DATE, EXACT PLACE AND TIME OF SAMPLING OR MEASUREMENTS; b. THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE SAMPLING AND MEASUREMENTS;

c. THE DATE(S) ANALYSES WERE PERFORMED;

d. THE TIME(S) ANALYSES WERE INITIATED;

NOT IS SUBMITTED IN ACCORDANCE WITH PART VI

e. THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE ANALYSES;

f. REFERENCES AND WRITTEN PROCEDURES, WHEN AVAILABLE, FOR THE ANALYTICAL TECHNIQUES OR METHODS USED; g. THE RESULTS OF SUCH ANALYSES, INCLUDING THE BENCH SHEETS, INSTRUMENT READOUTS, COMPUTER DISKS OR TAPES, ETC.,

**USED TO DETERMINE THESE RESULTS;** 

h. RESULTS WHICH EXCEED 1000 NTU SHALL BE REPORTED AS "EXCEEDS 1000 NTU;" AND i. CERTIFICATION STATEMENT THAT SAMPLING WAS CONDUCTED AS PER THE PLAN.

ALL WRITTEN CORRESPONDENCE REQUIRED BY THIS PERMIT SHALL BE SUBMITTED BY RETURN RECEIPT CERTIFIED MAIL (OR SIMILAR SERVICE) TO THE APPROPRIATE DISTRICT OFFICE OF THE EPD ACCORDING TO THE SCHEDULE IN APPENDIX A OF THIS PERMIT. THE PERMITTEE SHALL RETAIN A COPY OF THE PROOF OF SUBMITTAL AT THE CONSTRUCTION SITE OR THE PROOF OF SUBMITTAL SHALL BE

SUBMITTED IN ACCORDANCE WITH PART VI. 2. REQUIREMENT: PROVIDE COMPLETE DETAILS FOR RETENTION OF RECORDS AS PER PART IV.F. OF THE PERMIT.\*

RESPONSE: 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

READILY AVAILABLE AT A DESIGNATED LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOT IS

a. A COPY OF ALL NOTICES OF INTENT SUBMITTED TO EPD; b. A COPY OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN REQUIRED BY THIS PERMIT:

c. THE DESIGN PROFESSIONAL'S REPORT OF THE RESULTS OF THE INSPECTION CONDUCTED IN ACCORDANCE WITH PART IV.A.5. OF THIS PERMIT:

d. A COPY OF ALL SAMPLING INFORMATION, RESULTS, AND REPORTS REQUIRED BY THIS PERMIT;

e. A COPY OF ALL INSPECTION REPORTS GENERATED IN ACCORDANCE WITH PART IV.D.4.A. OF THIS PERMIT;

f. A COPY OF ALL VIOLATION SUMMARIES AND VIOLATION SUMMARY REPORTS GENERATED IN ACCORDANCE WITH PART III.D.2. OF

THIS PERMIT: AND g. DAILY RAINFALL INFORMATION COLLECTED IN ACCORDANCE WITH PART IV.D.4.A.(2) OF THIS PERMIT 2. COPIES OF ALL NOTICES OF INTENT, NOTICES OF TERMINATION, INSPECTION REPORTS, SAMPLING REPORTS (INCLUDING ALL CALIBRATION AND MAINTENANCE RECORDS AND ALL ORIGINAL STRIP CHART RECORDINGS FOR CONTINUOUS MONITORING INSTRUMENTATION) OR OTHER REPORTS REQUESTED BY THE EPD. EROSION. SEDIMENTATION AND POLLUTION CONTROL PLANS. RECORDS OF ALL DATA USED TO COMPLETE THE NOTICE OF INTENT TO BE COVERED BY THIS PERMIT AND ALL OTHER RECORDS REQUIRED BY THIS PERMIT SHALL BE RETAINED BY THE PERMITTEE WHO EITHER PRODUCED OR USED IT FOR A PERIOD OF AT LEAST THREE YEARS FROM THE DATE THAT THE NOT IS SUBMITTED IN ACCORDANCE WITH PART VI. OF THIS PERMIT. THESE RECORDS MUST BE MAINTAINED AT THE PERMITTEE'S PRIMARY PLACE OF BUSINESS OR AT A DESIGNATED ALTERNATIVE LOCATION ONCE THE CONSTRUCTION ACTIVITY HAS CEASED AT THE PERMITTED SITE. THIS PERIOD MAY BE EXTENDED BY REQUEST OF THE EPD AT ANY TIME UPON WRITTEN NOTIFICATION TO THE PERMITTEE

33. REQUIREMENT: DESCRIPTION OF ANALYTICAL METHODS TO BE USED TO COLLECT AND ANALYZE THE SAMPLES FROM EACH LOCATION.\*

RESPONSE: ALL SAMPLING SHALL BE COLLECTED BY "GRAB SAMPLES" AND THE ANALYSIS OF THESE SAMPLES MUST BE CONDUCTED IN ACCORDANCE WITH METHODOLOGY AND TEST PROCEDURES ESTABLISHED BY 40 CFR PART 136 (UNLESS OTHER TEST PROCEDURES HAVE BEEN APPROVED), THE GUIDANCE DOCUMENT TITLED "NPDES STORMWATER SAMPLING GUIDANCE DOCUMENT, EPA

a. SAMPLE CONTAINERS SHOULD BE LABELED PRIOR TO COLLECTING THE SAMPLES.

833-B-92-001" AND GUIDANCE DOCUMENTS THAT MAY BE PREPARED BY THE EPD.

b. SAMPLES SHOULD BE WELL MIXED BEFORE TRANSFERRING TO A SECONDARY CONTAINER. c. LARGE MOUTH, WELL CLEANED AND RINSED GLASS OR PLASTIC JARS SHOULD BE USED FOR COLLECTING SAMPLES. THE JARS SHOULD BE CLEANED THOROUGHLY TO AVOID CONTAMINATION.

d. MANUAL, AUTOMATIC, OR RISING STAGE SAMPLING MAY BE UTILIZED. SAMPLES REQUIRED BY THIS PERMIT SHOULD BE ANALYZED IMMEDIATELY, BUT IN NO CASE LATER THAN 48 HOURS AFTER COLLECTION. HOWEVER, SAMPLES FROM AUTOMATIC SAMPLERS MUST BE COLLECTED NO LATER THAN THE NEXT BUSINESS DAY AFTER THEIR ACCUMULATION, UNLESS FLOW THROUGH AUTOMATED ANALYSIS IS UTILIZED. IF AUTOMATIC SAMPLING IS UTILIZED AND THE AUTOMATIC SAMPLER IS NOT ACTIVATED DURING THE QUALIFYING EVENT, THE PERMITTEE MUST UTILIZE MANUAL SAMPLING OR RISING STAGE SAMPLING DURING THE NEXT QUALIFIED EVENT. DILUTION OF SAMPLES IS NOT REQUIRED. SAMPLES MAY BE ANALYZED DIRECTLY WITH A PROPERLY CALIBRATED TURBIDIMETER. SAMPLES ARE NOT REQUIRED TO BE COOLED.

e. SAMPLING AND ANALYSIS OF THE RECEIVING WATER(S) OR OUTFALLS BEYOND MINIMUM FREQUENCY STATED IN THIS PERMIT MUST BE REPORTED TO EPD AS SPECIFIED IN PART IV. E.

STORM WATER IS TO BE SAMPLED FOR NEPHELOMETRIC TURBIDITY UNITS (NTU) AT THE OUTFALL LOCATION. A DISCHARGE OF STORM WATER RUNOFF FROM DISTURBED AREAS WHERE BEST MANAGEMENT PRACTICES HAVE NOT BEEN PROPERLY DESIGNED, INSTALLED. AND MAINTAINED SHALL CONSTITUTE A SEPARATE VIOLATION FOR EACH DAY ON WHICH SUCH CONDITION RESULTS IN THE TURBIDITY OF THE DISCHARGE EXCEEDING 50, THE VALUE THAT WAS SELECTED FROM APPENDIX B IN PERMIT NO. GAR100002. THE NTU IS BASED UPON THE SITE ACERAGE OF 3.54 ACRES FOR THE PROJECT SITE, THE SURFACE WATER DRAINAGE AREA OF 0.003 SQUARE MILES, AND RECEIVING WATER WHICH SUPPORTS WARM WATER FISHERIES.

34. REQUIREMENT: APPENDIX B RATIONALE FOR NTU VALUES AT ALL OUTFALL SAMPLING POINTS WHERE APPLICABLE.\*

SURFACE WATER DRAINAGE AREA, SQUARE MILES

| בט |         |           |        |        |          |          |          |            |            |      |
|----|---------|-----------|--------|--------|----------|----------|----------|------------|------------|------|
|    |         |           | 0-4.99 | 5-9.99 | 10-24.99 | 25-49.99 | 50-99.99 | 100-249.99 | 250-499.99 | 500+ |
| 1  |         | 1.00-10   | 75     | (150)  | 200      | 400      | 750      | 750        | 750        | 750  |
| L  | SITE    | 10.01-25  | 50     | 100    | 100      | 200      | 300      | 500        | 750        | 750  |
|    | ACREAGE | 25.01-50  | 50     | 50     | 100      | 100      | 200      | 300        | 750        | 750  |
| D  |         | 50.01-100 | 50     | 50     | 50       | 100      | 100      | 150        | 300        | 600  |
|    |         | 100.01+   | 50     | 50     | 50       | 50       | 50       | 100        | 200        | 100  |
|    |         |           |        |        |          |          |          |            |            |      |

APPENDIX B NEPHELOMETRIC TURBIDITY UNIT (NTU) TABLE

• A REPORT OF EACH INSPECTION THAT INCLUDES THE NAME(S) OF CERTIFIED PERSONNEL MAKING EACH INSPECTION, THE DATE(S) OF BODIES INTO WHICH STORM WATER IS DISCHARGED. ALSO PROVIDE A SUMMARY CHART OF THE JUSTIFICATION AND ANALYSIS FOR THE REPRESENTATIVE SAMPLING AS APPLICABLE.\*

> RESPONSE: FOR CONSTRUCTION ACTIVITIES THE PRIMARY PERMITTEE MUST SAMPLE ALL RECEIVING WATER(S), OR ALL OUTFALL(S), OR A COMBINATION OF RECEIVING WATER(S) AND OUTFALL(S). SAMPLES TAKEN FOR THE PURPOSE OF COMPLIANCE WITH THIS PERMIT SHALL BE REPRESENTATIVE OF THE MONITORED ACTIVITY AND REPRESENTATIVE OF THE WATER QUALITY OF THE RECEIVING

> a. THE UPSTREAM SAMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN IMMEDIATELY UPSTREAM OF THE CONFLUENCE OF THE FIRST STORM WATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE DISCHARGE FARTHEST UPSTREAM AT THE SITE) BUT DOWNSTREAM OF ANY OTHER STORM WATER DISCHARGES NOT ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE. SEVERAL UPSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND THE ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE UPSTREAM TURBIDITY VALUE.

b. THE DOWNSTREAM SAMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN DOWNSTREAM OF THE CONFLUENCE OF THE LAST STORM WATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE DISCHARGE FARTHEST DOWNSTREAM AT THE SITE) BUT UPSTREAM OF ANY OTHER STORM WATER DISCHARGE NOT ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE, SEVERAL DOWNSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND THE ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE DOWNSTREAM TURBIDITY VALUE.

c. SAMPLES SHOULD BE TAKEN FROM THE HORIZONTAL AND VERTICAL CENTER OF THE RECEIVING WATER(S) OR THE STORMWATER

d. CARE SHOULD BE TAKEN TO AVOID STIRRING THE BOTTOM SEDIMENTS IN THE RECEIVING WATER(S) OR IN THE OUTFALL STORM

e. THE SAMPLING CONTAINER SHOULD BE HELD SO THAT THE OPENING FACES UPSTREAM.

WATER(S) AND/OR THE STORM WATER OUTFALLS USING THE FOLLOWING MINIMUM GUIDELINES:

f. THE SAMPLES SHOULD BE KEPT FREE FROM FLOATING DEBRIS.

g. PERMITTEES DO NOT HAVE TO SAMPLE SHEETFLOW THAT FLOWS ONTO UNDISTURBED NATURAL AREAS OR AREAS STABILIZED BY THE PROJECT. FOR PURPOSES OF THIS SECTION, STABILIZED SHALL MEAN, FOR UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES AND AREAS LOCATED OUTSIDE THE WASTE DISPOSAL LIMITS OF A LANDFILL CELL THAT HAS BEEN CERTIFIED BY EPD FOR WASTE DISPOSAL, 100% OF THE SOIL SURFACE IS UNIFORMLY COVERED IN PERMANENT VEGETATION WITH A DENSITY OF 70% OR GREATER, OR LANDSCAPED ACCORDING TO THE PLAN (UNIFORMLY COVERED WITH LANDSCAPING MATERIALS IN PLANNED LANDSCAPED AREAS). OR EQUIVALENT PERMANENT STABILIZATION MEASURES AS DEFINED IN THE MANUAL (EXCLUDING A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET CROP PERENNIALS APPROPRIATE FOR THE

h. ALL SAMPLING PURSUANT TO THIS PERMIT MUST BE DONE IN SUCH A WAY (INCLUDING GENERALLY ACCEPTED SAMPLING METHODS, LOCATIONS, TIMING, AND FREQUENCY) AS TO ACCURATELY REFLECT WHETHER STORM WATER RUNOFF FROM THE CONSTRUCTION SITE IS IN COMPLIANCE WITH THE STANDARD SET FORTH IN PARTS III D.3. OR III D.4. WHICHEVER IS APPLICABLE

36. REQUIREMENT:A DESCRIPTION OF APPROPRIATE CONTROLS AND MEASURES THAT WILL BE IMPLEMENTED AT THE CONSTRUCTION SITE INCLUDING: (1) INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPS, (2) INTERMEDIATE GRADING AND DRAINAGE BMPS, AND (3) FINAL BMPS. FOR CONSTRUCTION SITES WHERE THERE WILL BE NO MASS GRADING AND THE INITIAL PERIMETER CONTROL BMPS, INTERMEDIATE GRADING AND DRAINAGE BMPS, AND FINAL BMPS ARE THE SAME, THE PLAN MAY COMBINE ALL OF THE BMPS INTO A SINGLE PHASE.\*

RESPONSE: SEE ITEM 28 FOR A DESCRIPTION OF ALL INITIAL AND INTERMEDIATE BMPS AND ITEM 26 FOR A DESCRIPTION OF ALL FINAL BMPS. PLEASE SEE THE EROSION CONTROL PLAN TO SEE WHERE THESE BMPS ARE TO IMPLEMENTED.

37. REQUIREMENT: GRAPHIC SCALE AND NORTH ARROW.

RESPONSE: THE CORRECT GRAPHIC SCALE AND NORTH ARROW ARE SHOWN ON ALL SHEETS WHERE APPLICABLE.

38. REQUIREMENT: EXISTING AND PROPOSED CONTOUR LINES WITH CONTOUR LINES DRAWN AT AN INTERVAL IN ACCORDANCE WITH THE

EXISTING CONTOURS USGS 1": 2000' TOPOGRAPHICAL SHEETS PROPOSED CONTOURS 1": 400' CENTERLINE PROFILE

# RESPONSE: CONTOURS ARE SHOWN IN 1' INTERVALS.

39. REQUIREMENT: USE OF ALTERNATIVE BMPS WHOSE PERFORMANCE HAS BEEN DOCUMENTED TO BE EQUIVALENT TO OR SUPERIOR TO CONVENTIONAL BMPS AS CERTIFIED BY A DESIGN PROFESSIONAL (UNLESS DISAPPROVED BY GAEPD OR THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION). PLEASE REFER TO THE ALTERNATIVE BMP GUIDANCE DOCUMENT FOUND AT WWW.GASWCC.ORG.

40. REQUIREMENT: USE OF ALTERNATIVE BMP FOR APPLICATION TO THE EQUIVALENT BMP LIST. PLEASE REFER TO APPENDIX A-2 OF THE MANUAL FOR EROSION & SEDIMENT CONTROL IN GEORGIA 2016 EDITION.\*

# RESPONSE: **NO ALTERNATIVE BMPS WILL BE USED.**

RESPONSE: NO ALTERNATIVE BMPS WILL BE USED

41. REQUIREMENT: DELINEATION OF THE APPLICABLE 25-FOOT OR 50-FOOT UNDISTURBED BUFFERS ADJACENT TO STATE WATERS AND ANY ADDITIONAL BUFFERS REQUIRED BY THE LOCAL ISSUING AUTHORITY. CLEARLY NOTE AND DELINEATE ALL AREAS OF IMPACT.

RESPONSE: THERE ARE NO 25-FOOT OR 50-FOOT UNDISTURBED BUFFERS REQUIRED FOR THE SITE. THERE ARE NO STATE WATERS ADJACENT TO THE SITE AND NO ADDITIONAL BUFFERS ARE REQUIRED BY THE LOCAL ISSUING AUTHORITY.

42. REQUIREMENT: DELINEATION OF ON-SITE WETLANDS AND ALL STATE WATERS LOCATED ON AND WITHIN 200 FEET OF THE PROJECT SITE. RESPONSE: THERE ARE NO ON-SITE WETLANDS AND STATE WATERS LOCATED ON AND WITHIN 200' OF THE SITE.

43. REQUIREMENT: DELINEATION AND ACREAGE OF CONTRIBUTING DRAINAGE BASINS ON THE PROJECT SITE. RESPONSE: ALL DRAINAGE BASIN INFORMATION IS SHOWN IN THE HYDROLOGY STUDY PROVIDED WITH THESE PLANS.

44. REQUIREMENT: DELINEATE ON-SITE DRAINAGE AND OFF-SITE WATERSHEDS USING USGS 1"=2000' TOPOGRAPHICAL SHEETS.

RESPONSE: A HYDROLOGY REPORT INCLUDING A DRAINAGE NARRATIVE. DRAINAGE CALCULATIONS AND DELINEATION OF PRE AND

POST DEVELOPED CONDITIONS IS PROVIDED WITH THESE PLANS ALONG WITH THE USGS TOPOGRAPHICAL SHEET. 11. ROUGHENED AREAS SHALL BE SEEDED AND MULCHED AS SOON AS POSSIBLE TO OBTAIN OPTIMUM SEED GERMINATION AND SEEDING 45. REQUIREMENT: AN ESTIMATE OF THE RUNOFF COEFFICIENT OR PEAK DISCHARGE FLOW OF THE SITE PRIOR TO AND AFTER

CONSTRUCTION ACTIVITIES ARE COMPLETED. RESPONSE: THE PRE-DEVELOPMENT RUNOFF COEFFICIENT IS 73. THE POST-DEVELOPMENT RUNOFF COEFFICIENT IS 73.

WITHOUT EROSION. IDENTIFY/DELINEATE ALL STORM WATER DISCHARGE POINTS. RESPONSE: THE STORM-DRAIN PIPE AND WEIR VELOCITIES ARE SHOWN ON THE EROSION CONTROL PLAN AS WELL AS APPROPRIATE

46. REQUIREMENT: STORM-DRAIN PIPE AND WEIR VELOCITIES WITH APPROPRIATE OUTLET PROTECTION TO ACCOMMODATE DISCHARGES

OUTLET PROTECTION FOR EACH.

47. REQUIREMENT: SOIL SERIES FOR THE PROJECT SITE AND THEIR DELINEATION RESPONSE: THE SOIL SERIES IS SHOWN ON THE INITIAL EROSION CONTROL PLAN.

48. REQUIREMENT: THE LIMITS OF DISTURBANCE FOR EACH PHASE OF CONSTRUCTION.

RESPONSE: THE LIMITS OF DISTURBANCE ARE SHOWN ON EACH EROSIONS CONTROL SHEET.

49. REQUIREMENT: PROVIDE A MINIMUM OF 67 CUBIC YARDS OF SEDIMENT STORAGE PER ACRE DRAINED USING A TEMPORARY SEDIMENT BASIN. RETROFITTED DETENTION POND. AND/OR EXCAVATED INLET SEDIMENT TRAPS FOR EACH COMMON DRAINAGE LOCATION. SEDIMENT STORAGE VOLUME MUST BE IN PLACE PRIOR TO AND DURING ALL LAND DISTURBANCE ACTIVITIES UNTIL FINAL STABILIZATION OF THE SITE HAS BEEN ACHIEVED. A WRITTEN JUSTIFICATION EXPLAINING THE DECISION TO USE EQUIVALENT CONTROLS WHEN A SEDIMENT BASIN IS NOT ATTAINABLE MUST BE INCLUDED IN THE PLAN FOR EACH COMMON DRAINAGE LOCATIN IN WHICH A SEDIMENT BASIN IS NOT PROVIDED. A WRITTEN JUSTIFICATION AS TO WHY 67 CUBIC YARDS OF STORAGE IS NOT ATTAINABLE MUST ALSO BE GIVEN. WORKSHEETS FROM THE MANUAL INCLUDED FOR STRUCTURAL BMPs AND ALL CALCULATIONS USED BY THE STORAGE DESIGN PROFESSIONAL TO OBTAIN THE REQUIRED SEDIMENT WHEN USING EQUIVALENT CONTROLS. WHEN DISCHARGING FROM SEDIMENT BASINS AND IMPOUNDMENTS, PERMITEES ARE REQUIRED TO UTILIZE OUTLET STRUCTURES THAT WITHDRAW WATER FROM THE SURFACE, UNLESS INFEASIBLE. IF OUTLET STRUCTURES THAT WITHDRAW WATER FROM THE SURFACE ARE NOT FEASABLE, A WRITTEN JUSTIFICATION EXPLAINING THIS DECISION MUST BE INCLUDED IN THE PLAN.

RESPONSE: THE REQUIRED SEDIMENT STORAGE IS (0.58 ACRES)(67CY/ACRE) = 38.86CY, THE PROVIDED SEDIMENT STORAGE IS 178.4 CY. THE SEDIMENT WILL BE CAPTURED AND STORED IN THE ROADSIDE DITCHES USING TEMPORARY DITCH SEDIMENT TRAPS BECAUSE THE NARROW RIGHT OF WAY DOES NOT ALLOW FOR MORE CONVENTIONAL STORAGE. A TYPICAL DITCH SLOPE OF 0.25% WILL YIELD APPROXIMATELY 79.2 CY OF SEDIMENT STORAGE. {AREA OF TRAPEZOID = ((A+B)/2)\*H} & {AVERAGE END AREA METHOD V = L\*((A1+A2)/2).} A TYPICAL DITCH OVER-EXCAVATION (H \* W \* L ) WILL YIELD AN ADDITIONAL 10 CY OF SEDIMENT STORAGE. THEREFORE EACH TEMPORARY DITCH SEDIMENT TRAP WILL PRODUCE APPROXIMATELY 89.2 CY OF SEDIMENT STORAGE.

50. REQUIREMENT: LOCATION OF BEST MANAGEMENT PRACTICES THAT ARE CONSISTENT WITH AND NO LESS STRINGENT THAN THE MANUAL 15. EACH SECONDARY PERMITTEE WILL BE PROVIDED WITH A COPY OF THE EROSION CONTROL PLANS OR PORTIONS OF THE PLAN FOR EROSION AND SEDIMENT CONTROL IN GEORGIA. USE UNIFORM CODING SYMBOLS FROM THE MANUAL, CHAPTER 6, WITH LEGEND. RESPONSE: THE BMPS SHOWN AND DESCRIBED IN THIS PANS ARE CONSISTENT AND NO LESS STRINGENT THAN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA CALLS FOR.

1. REQUIREMENT: PROVIDE DETAILED DRAWINGS FOR ALL STRUCTURAL PRACTICES. SPECIFICATIONS MUST, AT A MINIMUM, MEET THE GUIDELINES SET FORTH IN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA.

RESPONSE: DETAILED DRAWINGS ARE PROVED ON THE SHEETS LABELED "DETAILS" IN THIS PLAN.

52. REQUIREMENT: PROVIDE VEGETATIVE PLAN. NOTING ALL TEMPORARY AND PERMANENT VEGETATIVE PRACTICES. INCLUDE SPECIES. PLANTING DATES AND SEEDING, FERTILIZER, LIME AND MULCHING RATES. VEGETATIVE PLAN SHALL BE SITE SPECIFIC FOR APPROPRIATE TIME OF YEAR THAT SEEDING WILL TAKE PLACE AND FOR THE APPROPRIATE GEOGRAPHIC REGION OF GEORGIA.

RESPONSE: PLEASE SEE THE DETAILS SHEET FOR THE VEGETATIVE PLAN.

# OTHER EROSION CONTROL NOTES

 SHADED AREAS SHOWN ON GRADING PHASE EROSION CONTROL PLANS REPRESENT CRITICAL WORK ZONES. AT THE END OF EACH WORK DAY ALL SLOPES 2:1 OR STEEPER AND HIGHER THAN 5 FEET SHALL RECEIVE SURFACE ROUGHENING, POLYMERS, AND EROSION CONTROL MATTING. ADDITIONALLY, ALL FILL SLOPES SHALL RECEIVE A DIVERSION DIKE AND TEMPORARY DOWN DRAINS ALONG THE TOP OF THE SLOPE PREVENTING DRAINAGE SPILLING OVER THE EDGE AND DOWN THE FACE OF THE SLOPE. THE TEMPORARY DOWN DRAINS SHALL BE CONSTRUCTED WITH PERFORATED STAND PIPES AT THE TOP OF THE SLOPE AND RECONSTRUCTED EACH DAY AS THE SLOPE INCREASES IN HEIGHT.

THIS PLAN HAS BEEN PREPARED TO MEET THE REQUIREMENTS UNDER THE STATE OF GEORGIA, DEPARTMENT OF NATURAL RESOURCES, ENVIRONMENTAL PROTECTION DIVISION (EPD), GENERAL PERMIT NO. GAR 100002-INFRASTRUCTURE DEVELOPMENT FOR AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES), STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY FOR INFRASTRUCTURE.

AUTHORIZED DISCHARGES: • ALL DISCHARGES OF STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY THAT WILL RESULT IN LAND DISTURBANCE EQUAL TO

• 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

• 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.

• 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 CONDENSATI

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:

• THE FOLLOWING STORMWATER DISCHARGES FROM CONSTRUCTION SITES ARE NOT AUTHORIZED BY THIS PERMIT

i. 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.

I 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.6 (NON-STORMWATER DISCHARGES) OF THIS PERMIT.

k.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 LIMITATIONS FOR SUCH DISCHARGES.

I. 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.

m. 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 CER 117 OR 40 CER 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

n. THIS PERMIT DOES NOT AUTHORIZE THE DISCHARGE OF HAZARDOUS SUBSTANCES OR OIL RESULTING FROM AN ON-SITE SPILL

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.

CONSTRUCTION EXITS 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, DROPPED, WASHED, OR TRACKED FROM VEHICLES OR SITE ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.

RETROFIT STRUCTURES SHALL BE KEPT CLEAR OF 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.

5. 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).

6. SEDIMENT SHALL BE REMOVED FROM SEDIMENT TRAPS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE HEIGHT OF THE TRAP. SEDIMENT SHALL BE REMOVED FROM CURB INLET PROTECTION IMMEDIATELY. FOR EXCAVATED INLET SEDIMENT TRAPS, SEDIMENT SHALL BE REMOVED WHEN ONE-HALF OF THE SEDIMENT STORAGE CAPACITY HAS BEEN LOST TO SEDIMENT ACCUMULATION.

7. 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.

8. 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 AREAS AROUND THE INLET.

9. 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 REACHES THE SPECIFIED DISTANCE BELOW THE TOP OF THE RISER. 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.

10. 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.

12. 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.

13. PERMANENT VEGETATION 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. AT LEAST 70% OF THE SOIL SURFACE IS UNIFORMLY COVERED IN PERMANENT VEGETATION OF EQUIVALENT PERMANENT STABILIZATION MEASURES (SUCH AS THE USE OR RIP RAP, GABIANS, 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.

14. THE CONTRACTOR WILL OBTAIN COPIES OF ANY AND ALL LOCAL AND STATE REGULATIONS THAT ARE APPLICABLE TO STORM WATER 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 ANY AND ALL LOCAL, STATE, AND FEDERAL AGENCIES THAT 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

APPLICABLE TO THEIR SITE AND EACH SECONDARY PERMITTEE SHALL SIGN THE PLAN OR PORTION OF THE PLAN APPLICABLE TO THEIR

16. AFTER CONSTRUCTION, EROSION AND SEDIMENTATION WILL BE MANAGED BY STABILIZED LOT CONSISTING OF PAVED DRIVEWAY,

17. 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

18. ALL NON-STORM WATER DISCHARGES WILL BE ROUTED THROUGH ON-SITE BMPS AND THE STORM WATER MANAGEMENT SYSTEM 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.

19. NO WASTE WILL BE DISPOSED OF INTO STORM WATER INLETS OR WATERS OF THE STATE.

20. 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.

21. 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.

22. ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL, STATE, AND/OR FEDERAL REGULATIONS AND BY THE MANUFACTURER OF SUCH PRODUCTS. THE JOB SITE SUPERINTENDENT, WHO WILL ALSO BE RESPONSIBLE FOR SEEING THAT THESE PRACTICES ARE FOLLOWED, WILL INSTRUCT SITE PERSONNEL IN THESE PRACTICES. MATERIAL SAFETY DATA SHEETS (MSDS'S) FOR EACH SUBSTANCE WITH HAZARDOUS PROPERTIES THAT IS USED ON THE JOB SITE WILL BE OBTAINED AND USED. FOR THE PROPER MANAGEMENT OF POTENTIAL WASTES THAT MAY RESULT FROM THESE PRODUCTS. AN MSDS WILL BE POSTED IN THE IMMEDIATE AREA WHERE SUCH PRODUCT IS STORED AND/OR USED AND ANOTHER COPY OF EACH MSDS WILL BE MAINTAINED IN THE ESPCP FILE AT THE JOB SITE CONSTRUCTION TRAILER OFFICE. EACH EMPLOYEE WHO MUST HANDLE A SUBSTANCE WITH HAZARDOUS PROPERTIES WILL BE INSTRUCTED ON THE USE OF MSDS SHEETS AND THE SPECIFIC INFORMATION IN THE APPLICABLE MSDS FOR THE PRODUCT HE/SHE IS USING, PARTICULARLY REGARDING SPILL CONTROL TECHNIQUES.

23. THE CONTRACTOR WILL IMPLEMENT THE SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN FOUND WITHIN THIS ESPCP AND WILL TRAIN ALL PERSONNEL IN THE PROPER CLEANUP AND HANDLING OF SPILLED MATERIALS. NO SPILLED HAZARDOUS MATERIALS OR HAZARDOUS WASTES WILL BE ALLOWED TO COME IN CONTACT WITH STORM WATER DISCHARGES. IF SUCH CONTACT OCCURS, THE STORM WATER DISCHARGE WILL BE CONTAINED ON-SITE UNTIL APPROPRIATE MEASURES IN COMPLIANCE WITH STATE AND FEDERAL REGULATIONS ARE TAKEN TO DISPOSE OF SUCH CONTAMINATED STORM WATER. IT SHALL BE THE RESPONSIBILITY OF THE JOB SITE SUPERINTENDENT TO PROPERLY TRAIN ALL PERSONNEL IN THE USE OF THE SPCC PLAN.

24. A MINIMUM OF ONE PORTABLE SANITARY UNIT WILL BE PROVIDED FOR EVERY TEN (10) WORKERS ON THE SITE. ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONE TIME PER WEEK BY A LICENSED PORTABLE FACILITY PROVIDER IN COMPLETE COMPLIANCE WITH LOCAL AND STATE REGULATIONS.

25. ALL SANITARY WASTE UNITS WILL BE LOCATED IN AN AREA WHERE THE LIKELIHOOD OF THE UNIT CONTRIBUTING TO STORM WATER DISCHARGE IS NEGLIGIBLE. ADDITIONAL CONTAINMENT BMP'S MUST BE IMPLEMENTED. SUCH AS GRAVEL BAGS OR SPECIALLY DESIGNED PLASTIC SKID CONTAINERS AROUND THE BASE, TO PREVENT WASTES FROM CONTRIBUTING TO STORM WATER DISCHARGES. THE LOCATION OF SANITARY WASTE UNITS MUST BE IDENTIFIED ON THE EROSION CONTROL PLAN, BY THE CONTRACTOR ONCE THE LOCATIONS HAVE BEEN DETERMINED.

26. SANITARY SEWER WILL BE PROVIDED BY MUNICIPAL AUTHORITY/SEPTIC SYSTEM AT THE COMPLETION OF THIS PROJECT.

27. A STABILIZED CONSTRUCTION EXIT HAS BEEN PROVIDED TO HELP REDUCE VEHICLE TRACKING OF SEDIMENT. 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 TARPAULIN.

28. THE FOLLOWING MATERIALS ARE EXPECTED ON-SITE DURING CONSTRUCTION: CONCRETE PRODUCTS, ASPHALT, PETROLEUM BASED FUELS AND LUBRICANTS FOR EQUIPMENT, TAR, METAL BUILDING MATERIALS, LUMBER, SHEET ROCK, FLOOR COVERINGS, ELECTRICAL WIRE AND FIXTURES. PAINTS/STAINS/FINISHING TREATMENTS, PAINTS, PAINT SOLVENTS, ADDITIVES FOR SOIL STABILIZATION, CLEANING SOLVENTS, PESTICIDES, FERTILIZERS, HERBICIDES, CRUSHED STONE, PLASTIC AND METAL PIPES.

29. 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 STORM WATER RUNOFF.

31. PRODUCTS AND MATERIALS WILL BE STORED IN A NEAT, ORDERLY MANNER IN APPROPRIATE CONTAINERS PROTECTED FROM RAINFALL. WHERE POSSIBLE. 32. PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH MANUFACTURER LABELS LEGIBLE AND VISIBLE.

33. PRODUCT MIXING, DISPOSAL AND DISPOSAL OF PRODUCT CONTAINERS WILL BE ACCORDING TO THE MANUFACTURER'S

RECOMMENDATIONS. 34. THE CONTRACTOR WILL INSPECT SUCH MATERIALS TO ENSURE PROPER USE, STORAGE AND DISPOSAL.

30. QUANTITIES OF PRODUCTS STORED ON-SITE WILL BE LIMITED TO THE AMOUNT NEEDED FOR THE JOB.

IS DRAWING IS THE PROPERTY OF T. R. LON ENGINEERING, P.C. AND MAY NOT BE REPRODUCED , EITHER IN PART OR WHOLLY, II ANY MANNER WITHOUT THE EXPRESS WRITTEN PERMISSION OF T. R. LONG ENGINEERING, P.C.

SHALL REPORT ANY DISCREPANCIES TO T. LONG ENGINEERING, P.C. FOR IMMEDIATE RESOLUTION.



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SHEET NAME: **EROSION CONTROL** NOTES

I. 6/16/2023 BID SET

2. 3/29/2024 REBID SET

DRAWN BY: TRL CHECKED BY: TRL PROJECT #: 2011-05

INITIAL DATE: 3/22/23

SHEET NUMBER:

APPLYING PLANT RESIDUES OR OTHER SUITABLE MATERIALS, PRODUCED ON THE SITE IF POSSIBLE, TO THE SOIL SURFACE.

1. TO REDUCE RUNOFF EROSION

2. TO CONSERVE MOISTURE . TO PREVENT SURFACE COMPACTION OR CRUSTING

4. TO CONTROL UNDESIRABLE VEGETATION 5. TO INCREASE BIOLOGICAL ACTIVITY IN THE SOIL.

REQUIREMENT FOR REGULATORY COMPLIANCE MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 14 DAYS OF DISTURBANCE. MULCH CAN BE USED AS A SINGULAR EROSION CONTROL DEVICE FOR UP TO 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.

MULCHING WITHOUT SEEDING THIS STANDARD APPLIES TO GRADES OR CLEARED AREAS WHERE SEEDINGS MAY NOT HAVE A SUITABLE GROWING SEASON TO PRODUCE AN EROSION RETARDANT COVER, BUT CAN BE STABILIZED WITH A MULCH COVER.

SITE PREPARATION 1. GRADE TO PERMIT THE USE OF EQUIPMENT FOR APPLYING AND ANCHORING MULCH.

MATERIAL CAN BE SALVAGED AND REUSED.

2. INSTALL NEEDED EROSION CONTROL MEASURES AS REQUIRED SUCH AS DIKES, DIVERSIONS, BERMS, TERRACES AND SEDIMENT 3. LOOSEN COMPACT SOIL TO A MINIMUM DEPTH OF 3 INCHES.

MULCHING MATERIALS

SELECT ONE OF THE FOLLOWING MATERIALS AND APPLY AT THE DEPTH INDICATED: 1. DRY STRAW OR HAY SHALL BE APPLIED AT A DEPTH OF 2 TO 4 INCHES PROVIDING COMPLETE SOIL COVERAGE. ONE ADVANTAGE OF THIS MATERIAL IS EASY APPLICATION.

2. WOOD WASTE (CHIPS, SAWDUST OR BARK) SHALL BE APPLIED AT A DEPTH OF 2 TO 3 INCHES. ORGANIC MATERIAL FROM THE CLEARING STAGE OF DEVELOPMENT SHOULD REMAIN ON SITE, BE CHIPPED, AND APPLIED AS MULCH. THIS METHOD OF MULCHING CAN GREATLY REDUCE EROSION CONTROL COSTS.

3. POLYETHYLENE FILM SHALL BE SECURED OVER BANKS OR STOCKPILED SOIL MATERIAL FOR TEMPORARY PROTECTION. THIS

WHEN MULCH IS USED WITHOUT SEEDING, MULCH SHALL BE APPLIED TO PROVIDE FULL COVERAGE OF THE EXPOSED AREA 1. DRY STRAW OR HAY MULCH AND WOOD CHIPS SHALL BE APPLIED UNIFORMLY BY HAND OR BY MECHANICAL EQUIPMENT. 2. IF THE AREA WILL EVENTUALLY BE COVERED WITH PERENNIAL VEGETATION, 20-30 POUNDS OF NITROGEN PER ACRE IN ADDITION TO THE NORMAL AMOUNT SHALL BE APPLIED TO OFFSET THE UPTAKE OF NITROGEN CAUSED BY THE DECOMPOSITION OF THE ORGANIC MULCHES.

HAY MULCH SPREAD WITH SPECIAL BLOWER-TYPE EQUIPMENT MAY BE ANCHORED. TACKIFIERS, BINDERS AND HYDRAULIC MULCH

WITH TACKIFIERS SPECIFICALLY DESIGNED FOR TACKING STRAW CAN BE SUBSTITUTED FOR EMULISFIED ASPHALT. PLEASE REFER TO

3. APPLY POLYETHYLENE FILM ON EXPOSED AREAS. 1. STRAW OR HAY MULCH CAN BE PRESSED INTO THE SOIL WITH A DISK HARROW WITH THE DISK SET STRAIGHT OR WITH A SPECIAL "PACKER DISK." DISKS MAY BE SMOOTH OR SERRATED AND SHOULD BE 20 INCHES OR MORE IN DIAMETER AND 8 TO 12 INCHES APART. THE EDGES OF THE DISK SHOULD BE DULL ENOUGH NOT TO CUT THE MULCH BUT TO PRESS IT INTO THE SOIL LEAVING MUCH OF IT IN AN ERECT POSITION. STRAW OR HAY MULCH SHALL BE ANCHORED IMMEDIATELY AFTER APPLICATION. STRAW OR

SPECIFICATION TACKIFIERS. PLASTIC MESH OR NETTING WITH MESH NO LARGER THAN ONE INCH BY ONE INCH SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS. 2. NETTING OF THE APPROPRIATE SIZE SHALL BE USED TO ANCHOR WOOD WASTE. OPENINGS OF THE NETTING SHALL NOT BE

LARGER THAN THE AVERAGE SIZE OF THE WOOD WASTE CHIPS. 3. POLYETHYLENE FILM SHALL BE ANCHOR TRENCHED AT THE TOP AS WELL AS INCREMENTALLY AS NECESSARY.

APPLICATION RATE FOR EACH TYPE OF SOIL ENCOUNTERED ON THE SITE.

MULCHING: MULCHING IS REQUIRED FOR ALL PERMANENT VEGETATION APPLICATIONS. MULCHING APPLIED TO SEEDED AREAS SHALL ACHIEVE 75% SOIL COVER. SELECT THE MULCHING MATERIAL FROM THE FOLLOWING AND APPLY AS INDICATED. 1. DRY STRAW OR DRY HAY OF GOOD QUALITY AND FREE OF WEED SEEDS CAN BE USED. DRY STRAW SHALL BE APPLIED AT THE RATE OF 2 TONS PER ACRE. DRY HAY SHALL BE APPLIED AT A RATE OF 2 1/2 TONS PER ACRE.

2. WOOD CELLULOSE MULCH OR WOOD PULP FIBER SHALL BE USED WITH HYDRAULIC SEEDING, IT SHALL BE APPLIED AT A RATE OF 500 LBS PER ACRE. DRY STRAW R DRY HAY SHALL BE APPLIED AFTER HYDRAULIC SEEDING.

3. ONE THOUSAND POUNDS OF WOOD CELLULOSE OF WOOD PULP FIBER, WHICH INCLUDES A TACKIFIER SHALL BE USED WITH HYDRAULIC SEEDING ON SLOPES GREATER THAN 3/4:1 OR STEEPER.

4. SERICEA LESPEDEZA HAY CONTAINING MATURE SEÉD SHALL BE APPLIED AT A RATE OF THREE TONS PER ACRE. 5. PINE STRAW OR PINE BARK SHALL BE APPLIED AT A THICKNESS OF 3" FOR BEDDING PURPOSES. OTHER SUITABLE MATERIALS IN

SUFFICIENT QUANTITIES MAY BE USED WHERE ORNAMENTALS OR OTHER GROUND COVERS ARE PLANTED. THIS IS NOT

APPROPRIATE FOR SEEDED AREAS. 6. WHEN USING TEMPORARY EROSION CONTROL BLANKETS OR BLOCK SOD, MULCHING IS NOT REQUIRED.

DS2

DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)

THE ESTABLISHMENT OF TEMPORARY VEGETATIVE COVER WITH FAST GROWING SEEDINGS FOR SEASONAL PROTECTION ON DISTURBED OR DENUDED AREAS.

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

APPROPRIATE DEPTH, ANCHORED, AND HAVE A CONTINUOUS 90% COVER OR GREATER OF THE SOIL

REQUIREMENT FOR REGULATORY COMPLIANCE MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 14 DAYS OF DISTUR- BANCE. 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

TEMPORARY GRASSING, INSTEAD OF MULCH, CAN BE APPLIED TO ROUGH GRADED AREAS THAT WILL BE EXPOSED FOR LESS THAN SIX MONTHS. 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.

GRADING AND SHAPING EXCESSIVE WATER RUN-OFF SHALL BE REDUCED BY PROPERLY DESIGNED AND INSTALLED EROSION CONTROL PRACTICES SUCH AS CLOSED DRAINS, DITCHES, DIKES, DIVERSIONS, SEDIMENT BARRIERS AND OTHERS. NO SHAPING OR GRADING IS REQUIRED IF SLOPES CAN BE STABILIZED BY HAND-SEEDED VEGETATION OR IF HYDRAULIC SEEDING EQUIPMENT IS TO BE USED.

WHEN A HYDRAULIC SEEDER IS USED, SEEDBED PREPARATION IS NOT REQUIRED. WHEN USING CONVENTIONAL OR HANDSEEDING, SEEDBED PREPARATION IS NOT REQUIRED IF THE SOIL MATERIAL IS LOOSE AND NOT SEALED BY RAINFALL. WHEN SOIL HAS BEEN SEALED BY RAINFALL OR CONSISTS OF SMOOTH CUT SLOPES, THE SOIL SHALL BE PITTED, TRENCHED OR OTHERWISE SCARIFIED TO PROVIDE A PLACE FOR SEED TO LODGE AND

AGRICULTURAL LIME IS REQUIRED UNLESS SOIL TESTS INDICATE OTHERWISE. APPLY AGRICULTURAL LIME AT A RATE OF ONE TON PER ACRE. GRADED AREAS REQUIRE LIME APPLICATION. SOILS CAN BE TESTED TO DETERMINE IF FERTILIZER IS NEEDED. ON REASONABLY FERTILE SOILS OR SOIL MATERIAL, FERTILIZER IS NOT REQUIRED. FOR SOILS WITH VERY LOW FERTILITY, 500 TO 700 POUNDS OF 10-10-10 FERTILIZER OR THE EQUIVALENT PER ACRE (12-16 LBS./1,000 SQ. FT.) SHALL BE APPLIED. FERTILIZER SHOULD BE APPLIED BEFORE LAND PREPARATION AND INCORPORATED WITH A DISK, RIPPER OR CHISEL

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, CULTIPACKER 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.

TEMPORARY VEGETATION CAN, IN MOST CASES, BE ESTABLISHED WITHOUT THE USE OF MULCH. 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 NEEDED.

GRASSING TEMPORARY

SEEDING RATES FOR TEMPORARY SEEDING

| <u> </u>             | 011/111                  |                    | 1110.               |
|----------------------|--------------------------|--------------------|---------------------|
| SPECIES              | RATE PER<br>1,000 SQ.FT. | RATE PER<br>ACRE.* | PLANTING<br>DATES** |
| RYE                  | 3.9 LBS.                 | 3 BU               | 9/1 – 3/1           |
| RYE GRASS            | 0.9 LBS.                 | 40 LBS.            | 8/15 – 4/1          |
| ANNUAL<br>LESPEDEZA  | 0.9 LBS.                 | 40 LBS.            | 1/15 -9/15          |
| WEEPING<br>LOVEGRASS | 0.1 LBS.                 | 4 LBS.             | 2/15 - 6/15         |
| SUNDANGRASS          | 1.4 LBS.                 | 60 LBS.            | 3/1 - 8/1           |
| BROWN MILLET         | 0.9 LBS.                 | 40 LBS.            | 4/1 - 7/15          |
| WHEAT                | 4.1 LBS.                 | 3 BU               | 9/15 – 2/1          |

\* UNUSUAL SITE CONDTIONS MAY REQUIRE HEAVIER SEEDING RATES. \*\* SEEDING DATES MAY NEED TO BE ALTERED TO FIT TMPERATURE VARIATIONS AND CONDITIONS.

DUST CONTROL ON DISTURBED AREAS

CONTROLLING SURFACE AND AIR MOVEMENT OF DUST ON CONSTRUCTION SITES, ROADS, AND DEMOLITION SITES.

THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO SURFACE AND AIR MOVEMENT OF DUST WHERE ON AND OFF-SITE DAMAGE MAY OCCUR WITHOUT TREATMENT. METHOD AND MATERIALS A. TEMPORARY METHODS

MULCHES. SEE STANDARD DS1-DISTURBED AREA STABILIZATION (WITH MULCHING ONLY). SYNTHETIC RESINS MAY BE USED INSTEAD OF ASPHALT TO BIND MULCH MATERIAL. REFER TO STANDARD TB-TACKIFIERS AND BINDERS. RESINS SUCH AS CURASOL OR TERRATACK SHOULD BE USED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

VEGETATIVE COVER. SEE STANDARD DS2- DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)

SPRAY-ON ADHESIVES. THESE ARE USED ON MINERAL SOILS (NOT EFFECTIVE ON MUCK SOILS) KEEP TRAFFIC OFF THESE AREAS. REFER TO STANDARD TB-TACKIFIERS AND BINDERS.

TILLAGE. THIS PRACTICE IS DESIGNED TO ROUGHEN AND BRING CLODS TO THE SURFACE. IT IS AN EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE WIND EROSION STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12 INCHES APART, SPRING-TOOTHED HARROWS, AND SIMILAR PLOWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE

IRRIGATION. THIS IS GENERALLY DONE AS AN EMERGENCY TREATMENT. SITE IS SPRINKLED WITH WATER UNTIL THE SURFACE IS WET.

BARRIERS. SOLID BOARD FENCES, SNOW FENCES, BURLAP FENCES, CRATE WALLS, BALES OF HAY AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING. BARRIERS PLACED AT RIGHT ANGLES TO PREVAILING CURRENTS AT INTERVALS OF ABOUT 15 TIMES THEIR HEIGHT ARE EFFECTIVE IN CONTROLLING WIND EROSION.

CALCIUM CHLORIDE. APPLY AT RATE THAT WILL KEEP SURFACE MOIST. MAY NEED RETREATMENT.

B. PERMANENT METHODS

PERMANENT VEGETATION. SEE STANDARD DS3-DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION). EXISTING TREES AND LARGE SHRUBS MAY AFFORD VALUABLE PROTECTION IF LEFT IN PLACE.

TOPSOILING. THIS ENTAILS COVERING THE SURFACE WITH LESS EROSIVE SOIL MATERIAL. SEE STANDARD TP-TOPSOILING.

STONE. COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL. SEE STANDARD CR-CONSTRUCTION ROAD STABILIZATION.

DUST CONTROL

DS3

DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)

TILLAGE SHOULD BE DONE ON THE CONTOUR WHERE FEASIBLE.

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.

PERMANENT PERENNIAL VEGETATION IS USED TO PROVIDE A PROTECTIVE COVER FOR EXPOSED AREAS INCLUDING CUTS, FILLS, DAMS, AND OTHER DENUDED AREAS.

GRADING AND SHAPING GRADING AND SHAPING MAY NOT BE REQUIRED WHERE HYDRAULIC SEEDING AND FERTILIZING EQUIPMENT IS TO BE USED. VERTICAL BANKS SHALL BE SLOPED TO ENABLE PLANT ESTABLISHMENT. WHEN CONVENTIONAL SEEDING AND FERTILIZING ARE TO BE DONE, GRADE AND SHAPE WHERE FEASIBLE AND PRACTICAL, SO THAT EQUIPMENT CAN BE USED SAFELY AND EFFICIENTLY DURING SEEDBED PREPARATION, SEEDING, MULCHING AND MAINTENANCE OF THE VEGETATION.

CONCENTRATIONS OF WATER THAT WILL CAUSE EXCESSIVE SOIL EROSION SHALL BE DIVERTED TO A SAFE OUTLET. DIVERSIONS AND OTHER TREATMENT PRACTICES SHALL CONFORM WITH THE APPROPRIATE STANDARDS AND SPECIFICATIONS.

SEEDBED PREPARATION MAY NOT BE REQUIRED WHERE HYDRAULIC SEEDING AND FERTILIZING EQUIPMENT IS TO BE USED. WHEN CONVENTIONAL SEEDING IS TO BE USED, SEEDBED PREPARATION WILL BE DONE AS

1. TILLAGE AT A MINIMUM, SHALL ADEQUATELY 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.

4. ON SLOPES TOO STEEP FOR THE SAFE OPERATION OF TILLAGE EQUIPMENT, THE SOIL SURFACE SHALL BE PITTED OR TRENCHED ACROSS THE SLOPE WITH APPROPRIATE HAND TOOLS TO PROVIDE TWO PLACES 6 TO 8 INCHES APART IN WHICH SEED MAY LODGE AND GERMINATE. HYDRAULIC SEEDING MAY ALSO BE USED.

1. WHERE INDIVIDUAL PLANTS ARE TO BE SET, THE SOIL SHALL BE PREPARED BY EXCAVATING HOLES, OPENING FURROWS, OR DIBBLE PLANTING. 2. FOR NURSERY STOCK PLANTS, HOLES SHALL BE LARGE ENOUGH TO ACCOMMODATE ROOTS WITHOUT CROWDING.

WHERE PINE SEEDLINGS ARE TO BE PLANTED, SUBSOIL UNDER THE ROW 36 INCHES DEEP ON THE CONTOUR FOUR TO SIX MONTHS PRIOR TO PLANTING. SUBSOILING SHOULD BE DONE WHEN THE SOIL IS DRY, PREFERABLY IN AUGUST OR SEPTEMBER.

HYDRAULIC SEEDING

MIX THE SEED (INOCULATED IF NEEDED), FERTILIZER, AND WOOD CELLULOSE OR WOOD PULP FIBER MULCH WITH WATER AND APPLY IN A SLURRY UNIFORMLY OVER THE AREA TO BE TREATED. APPLY WITHIN ONE HOUR AFTER THE MIXTURE IS MADE.

CONVENTIONAL SEEDING

SEEDING WILL BE DONE ON A FRESHLY PREPARED AND FIRMED SEEDBED. FOR BROADCAST PLANTING, USE A CULTIPACKER 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 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 ADEQUATE GROWTH OF THE PERMANENT (PERENNIAL) SPECIES. NO-TILL SEEDING SHALL BE DONE WITH APPROPRIATE NO-TILL SEEDING EQUIPMENT. THE SEÉD MUST BE UNIFORMLY DISTRIBUTED AND PLANTED AT THE PROPER DEPTH.

SHRUBS, VINES AND SPRIGS MAY BE PLANTED WITH APPROPRIATE PLANTERS OR HAND TOOLS. PINE TREES SHALL BE PLANTED MANUALLY IN THE SUBSOIL FURROW. EACH PLANT SHALL BE SET IN A MANNER THAT WILL AVOID CROWDING THE ROOTS. NURSERY STOCK PLANTS SHALL BE PLANTED AT THE SAME DEPTH OR SLIGHTLY DEEPER THAN THEY GREW AT THE NURSERY. THE TIPS OF VINES AND SPRIGS MUST BE AT OR SLIGHTLY ABOVE THE GROUND SURFACE. WHERE INDIVIDUAL HOLES ARE DUG, FERTILIZER SHALL BE PLACED IN THE BOTTOM OF THE HOLE, TWO INCHES OF SOIL SHALL BE ADDED AND THE PLANT SHALL BE SET IN

MULCH IS REQUIRED FOR ALL PERMANENT VEGETATION APPLICATIONS. MULCH APPLIED TO SEEDED AREAS SHALL ACHIEVE 75% SOIL COVER. SELECT THE MULCHING MATERIAL FROM THE FOLLOWING AND APPLY AS

1. DRY STRAW OR DRY HAY OF GOOD QUALITY AND FREE OF WEED SEEDS CAN BE USED. DRY STRAW SHALL BE APPLIED AT THE RATE OF 2 TONS PER ACRE. DRY HAY SHALL BE APPLIED AT A RATE OF 2

2. 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.

3. ONE THOUSAND POUNDS OF WOOD CELLULOSE OR WOOD PULP FIBER, WHICH INCLUDES A TACKIFIER, SHALL BE USED WITH HYDRAULIC SEEDING ON SLOPES 3/4:1 OR STEEPER. 4. SERICEA LESPEDEZA HAY CONTAINING MATURE SEED SHALL BE APPLIED AT A RATE OF THREE TONS

PER ACRE. 5. 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 BLANKETS OR BLOCK SOD, MULCH IS NOT REQUIRED. BITUMINOUS TREATED ROVING MAY BE APPLIED ON PLANTED AREAS ON SLOPES, IN DITCHES OR DRY WATERWAYS TO PREVENT EROSION. BITUMINOUS TREATED ROVING SHALL BE APPLIED WITHIN 24 HOURS AFTER AN AREA HAS BEEN PLANTED. APPLICATION RATES AND MATERIALS MUST MEET GEORGIA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.

WOOD CELLULOSE AND WOOD PULP FIBERS SHALL NOT CONTAIN GERMINATION OR GROWTH INHIBITING FACTORS. THEY SHALL BE EVENLY DISPERSED WHEN AGITATED IN WATER. THE FIBERS SHALL CONTAIN A DYE TO ALLOW VISUAL METERING AND AID IN UNIFORM APPLICATION DURING SEEDING.

STRAW OR HAY MULCH WILL BE SPREAD UNIFORMLY WITHIN 24 HOURS AFTER SEEDING AND/OR PLANTING THE MULCH MAY BE SPREAD BY BLOWER-TYPE SPREADING EQUIPMENT, OTHER SPREADING EQUIPMENT OR BY HAND. MULCH SHALL BE APPLIED TO COVER 75% OF THE SOIL SURFACE. WOOD CELLULOSE OR WOOD FIBER MULCH SHALL BE APPLIED UNIFORMLY WITH HYDRAULIC SEEDING EQUIPMENT.

ANCHOR STRAW OR HAY MULCH IMMEDIATELY AFTER APPLICATION BY ONE OF THE FOLLOWING METHODS 1. EMULSIFIED ASPHALT CAN BE (A) SPRAYED UNIFORMLY ONTO THE MULCH AS IT IS EJECTED FROM THE BLOWER MACHINE OR (B) SPRAYED ON THE MULCH IMMEDIATELY FOLLOWING MULCH APPLICATION WHEN STRAW OR HAY IS SPREAD BY METHODS OTHER THAN SPECIAL BLOWER EQUIPMENT.

THE COMBINATION F ASPHALT EMULSION AND WATER SHALL CONSIST OF A HOMOGENEOUS MIXTURE SATISFACTORY FOR SPRAYING. THE MIXTURE SHALL CONSIST OF 100 GALLONS OF GRADE SS-1H OR CSS-1H EMULSIFIED ASPHALT AND 100 GALLONS OF WATER PER TON OF MULCH. CARE SHALL BE TAKEN AT ALL TIMES TO PROTECT STATE WATERS, THE PUBLIC, ADJACENT PROPERTY, PAVEMENTS, CURBS, SIDEWALKS, AND ALL OTHER STRUCTURES FROM ASPHALT DISCOLORATION.

2. HAY AND STRAW MULCH SHALL BE PRESSED INTO THE SOIL IMMEDIATELY AFTER THE MULCH IS SPREAD. A SPECIAL "PACKER DISK" OR DISK HARROW WITH THE DISKS SET STRAIGHT MAY BE USED. THE DISKS MAY BE SMOOTH OR SERRATED AND SHOULD BE 20 INCHES OR MORE IN DIAMETER AND 8 TO 12 INCHES APART. THE EDGES OF THE DISKS SHALL BE DULL ENOUGH TO PRESS THE MULCH INTO THE GROUND WITHOUT CUTTING IT, LEAVING MUCH OF IT IN AN ERECT POSITION. MULCH SHALL NOT BE PLOWED INTO THE SOIL

3. SYNTHETIC TACKIFIERS OR BINDERS APPROVED BY GDOT SHALL BE APPLIED IN CONJUNCTION WITH OR IMMEDIATELY AFTER THE MULCH IS SPREAD. SYNTHETIC TACKIFIERS SHALL BE MIXED AND APPLIED ACCORDING TO MANUFACTURER'S SPECIFICATIONS. REFER TO TB-TACKIFIERS AND BINDERS.

4. 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. 5. 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.

IRRIGATION SHALL BE APPLIED AT A RATE THAT WILL NOT CAUSE RUNOFF.

TABLE 6-5.1 FERTILIZER REQUIREMENTS

|    | PE OF<br>ECIES                           | YEAR                           | ANALYSIS FOR EQUIVALENT N-P-K    | RATE  | N<br>TOP DRESSING<br>RATE                                 |
|----|--|--------------------------------|----------------------------------|---|---|
| 1. | COOL SEASON<br>GRASSES                   | FIRST<br>SECOND<br>MAINTENANCE | 6-12-12<br>6-12-12<br>10-10-10   | 1500 LBS./AC.<br>1000 LBS./AC.<br>400 LBS./AC.                  | 50-100 LBS./AC. 1/2/<br>-<br>30                           |
| 2. | COOL SEASON<br>GRASSES AND<br>LEGUMES    | FIRST<br>SECOND<br>MAINTENANCE | 6-12-12<br>0-10-10<br>0-10-10    | 1500 LBS./AC.<br>1000 LBS./AC.<br>400 LBS./AC.                  | 0-50 LBS./AC. 1/<br>-<br>-                                |
| 3. | GROUND<br>COVERS                         | FIRST<br>SECOND<br>MAINTENANCE | 10-10-10<br>10-10-10<br>10-10-10 | 1300 LBS./AC.<br>1300 LBS./AC.<br>1100 LBS./AC.                 | -<br>-<br>-   |
| 4. | PINE<br>SEEDLINGS                        | FIRST                          | 20-10-6                          | ONE 21-GRAM PELLET<br>PER SEEDING PLACED<br>IN THE CLOSING HOLE | _   |
| 5. | SHRUB<br>LESPEDEZA                       | FIRST<br>MAINTENANCE           | 0-10-10<br>0-10-10               | 700 LBS./AC.<br>700 LBS./AC.4/                                  |   |
| 6. | TEMPORARY<br>COVER CROPS<br>SEEDED ALONE | FIRST                          | 10/10/2010                       | 500 LBS./AC.  | 30 LB./ACRE/ 5/   |
| 7. | WARM SEASON<br>GRASSES                   | FIRST<br>SECOND<br>MAINTENANCE | 6-12-12<br>6-12-12<br>10-10-10   | 1500 LBS./AC.<br>1000 LBS./AC.<br>400 LBS./AC.                  | 50-100 LBS./AC. 2/6/<br>50-100 LBS./AC. 2/<br>30 LBS./AC. |
| 8. | WARM SEASON<br>GRASSES AND<br>LEGUMES    | FIRST<br>SECOND<br>MAINTENANCE | 6-12-12<br>0-10-10<br>0-10-10    | 1500 LBS./AC.<br>1000 LBS./AC.<br>400 LBS./AC.                  | 50 LBS./AC./6/  |

1/ APPLY IN SPRING FOLLOWING SEEDING. 2/ APPLY IN SPLIT APPLICATIONS WHEN HIGH RATES ARE USED.

3/ APPLY IN 3 SPLIT APPLICATIONS. 4/ APPLY WHEN PLANTS ARE PRUNED

6/ APPLY WHEN PLANTS GROW TO A HEIGHT OF 2 TO 4 INCHES.

5/ APPLY TO GRASS SPECIES ONLY.

Rate per Acre Temporary Cover Permanent Cover <u>To Mix</u> <u>To Mix</u> .5 bu. Sericea Lespedeza lO lbs. 10 lbs. 0 lbs. 6 lbs. 75 lbs. --Unhulled Bermuda -ebruary Annual Lespedeza Sericea Lespedeza ( .5 bu Weeping Lovegrass | 4 lbs. Pensacola Bahia 60 lbs. nnual Lespedeza Sericea Lespedeza 4 lbs. 2 lbs. Pensacola Bahia 60 lbs. 30 lbs. Weeping Lovegrass I Weeping Lovegrass 10 lbs. 40 lbs. Hulled Bermuda 6 lbs. Sericea Lespedeza ( Pensacola Bahia 4 lbs. 2 lbs. 60 lbs. 30 lbs. lbs. |Weepina Lovearass 40 lbs. 10 lbs. Hulled Bermuda Sericea Lespedeza 60 lbs. 30 lbs. 10 lbs. 6 lbs. Pensacola Bahia Hulled Bermuda lO lbs. 10 lbs. Pearl Millet 50 lbs. --Pensacola Bahia 60 lbs. 30 lbs. Sudan Grass lo lbs. 10 lbs. Pensacola Bahia 60 lbs. 30 lbs. .5 bu 75 lbs. Sericea Lespedeza (1 .5 bu. 75 lbs. October |Rye grass 40 lbs. Sericea Lespedeza (1) Sericea Lespedeza (1) 75 lbs. —— Unhulled Bermuda 10 lbs. 6 lbs. ovember Rye grass 1 bu. 75 lbs. 10 lbs. 40 lbs. December |Rye grass Sericea Lespedeza ( Unhulled Bermuda

FERTILIZER:

ANALYSIS N-P-K RATE N TOP DRESSING RATE 1500 LBS/AC 50-100 LBS.AC 800 LBS/AC 50-100 LBS/AC 6-12-12 SECOND MAINTENANCE 10-10-10 400 LBS/AC 30 LBS/AC

FOR BEST RESULTS TAKE AT LEAST ONE SAMPLE OF SOIL TO THE COUNTY EXTENSION AGENT FOR ANALYSIS TO DETERMINE THE BEST

1. DRY STRAW OR DRY HAY OF GOOD QUALITY AND FREE OF WEED SEEDS CAN BE USED. DRY STRAW SHALL BE APPLIED AT THE RATE OF 2 TONS PER ACRE. DRY HAY SHALL BE APPLIED AT A RATE OF 2 1/2 TONS PER ACRE. 2. WOOD CELLULOSE MULCH OR WOOD PULP FIBER SHALL BE USED WITH HYDRAULIC SEEDING. IT SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE. DRYSTRAW OR DRY HAY SHALL BE APPLIED (AT THE RATE INDICATED ABOVE) AFTER HYDRAULIC SEEDING. 3. ONE THOUSAND POUNDS OF WOOD CELLULOSE OR WOOD PULP FIBER, WHICH INCLUDES A TACKIFIER, SHALL BE USED WITH HYDRAULIC SEEDING ON SLOPES 3/4:1 OR STEEPER.

4. SERICEA LESPEDEZÁ HAY CONTAINING MATURE SEED SHALL BE APPLIED AT A RATE OF THREE TONS PER ACRE 5. 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. 6. WHEN USING TEMPORARY EROSION CONTROL BLANKETS OR BLOCK SOD, MULCH IS NOT REQUIRED

AGRICULTURAL LIME IS REQUIRED UNLESS SOIL TESTS INDICATE OTHERWISE. APPLY AGRICULTURAL LIME AT A RATE OF ONE TON PER ACRE GRADED AREAS REQUIRE LIME APPLICATION. SOILS CAN BE TESTED TO DETERMINE IF FERTILIZER IS NEEDED. ON REASONABLY FERTILE SOILS OR SOIL MATERIAL, FERTILIZER IS NOT REQUIRED. FOR SOILS WITH VERY LOW FERTILITY, 500 TO 700 POUNDS OF 10-10-10 FERTILIZER OR THE EQUIVALENT PER ACRE (12-16 LBS./1,000 SQ. FT.) SHALL BE APPLIED. FERTILIZER SHOULD BE APPLIED BEFORE LAND PREPARATION

THE CONTRACTOR SHALL VERIFY ALL DIMENSION CONTAINED WITHIN THIS SET OF DOCUMENTS AN SHALL REPORT ANY DISCREPANCIES TO T. R. LONG ENGINEERING, P.C. FOR IMMEDIATE RESOLUTION.

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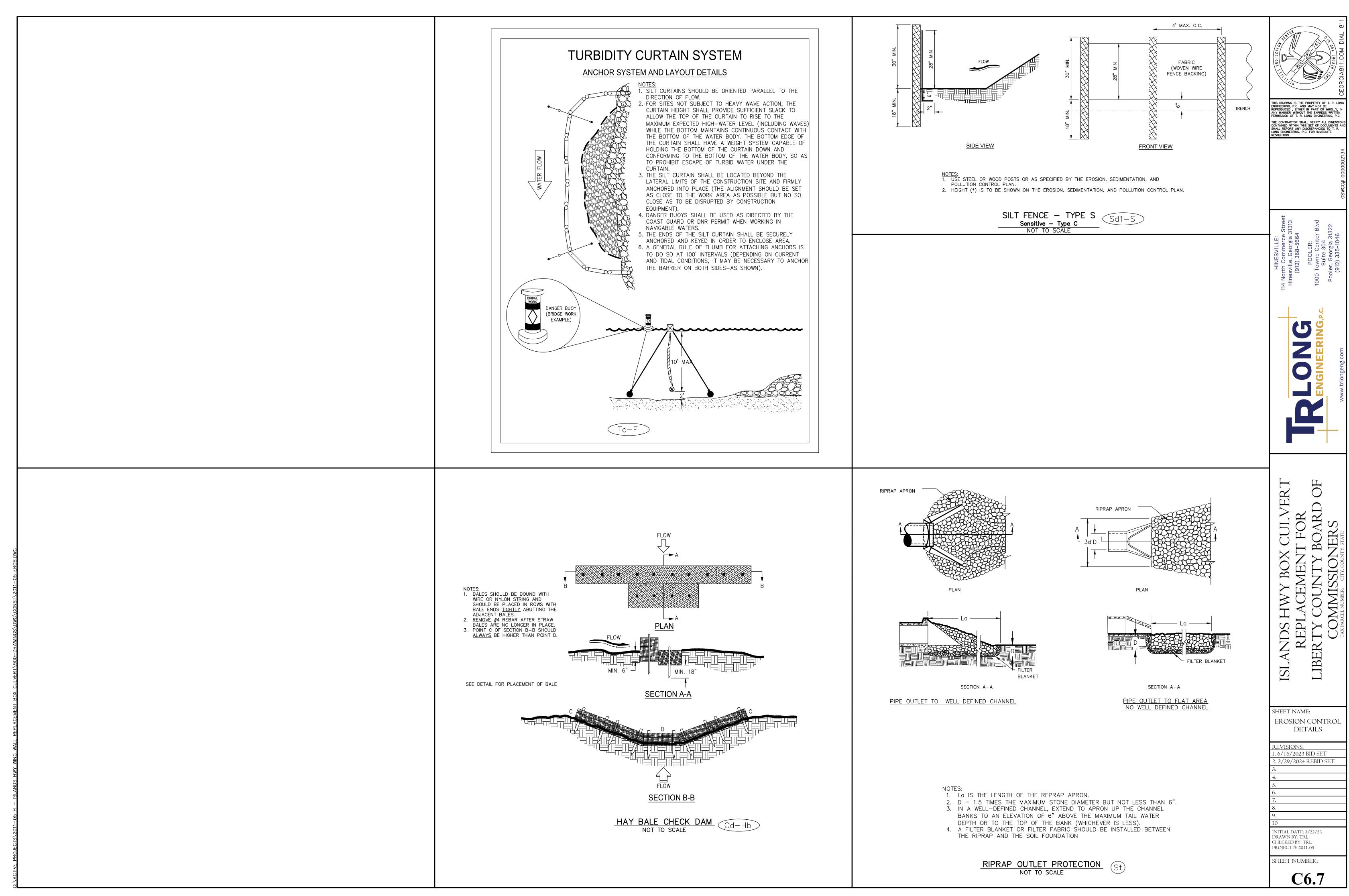
SHEET NAME: EROSION CONTROI DETAILS

EVISIONS: . 6/16/2023 BID SET . 3/29/2024 REBID SET

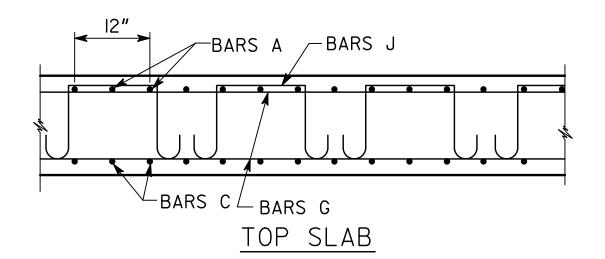
INITIAL DATE: 3/22/23 DRAWN BY: TRL CHECKED BY: TRL PROJECT #: 2011-05

SHEET NUMBER:

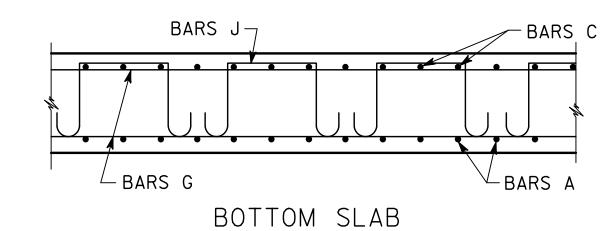
GRASSING PERMANENT



| STATE | PROJECT NUMBER | SHEET<br>NO. | TOTAL<br>SHEETS |
|-------|----------------|--------------|-----------------|
| GA.   |                |              |                 |



NOTE: SPACING OF BARS A AND C IS 6" OR 12". SEE BARREL REINFORCEMENT QUANTITIES AND DIMENSIONS.

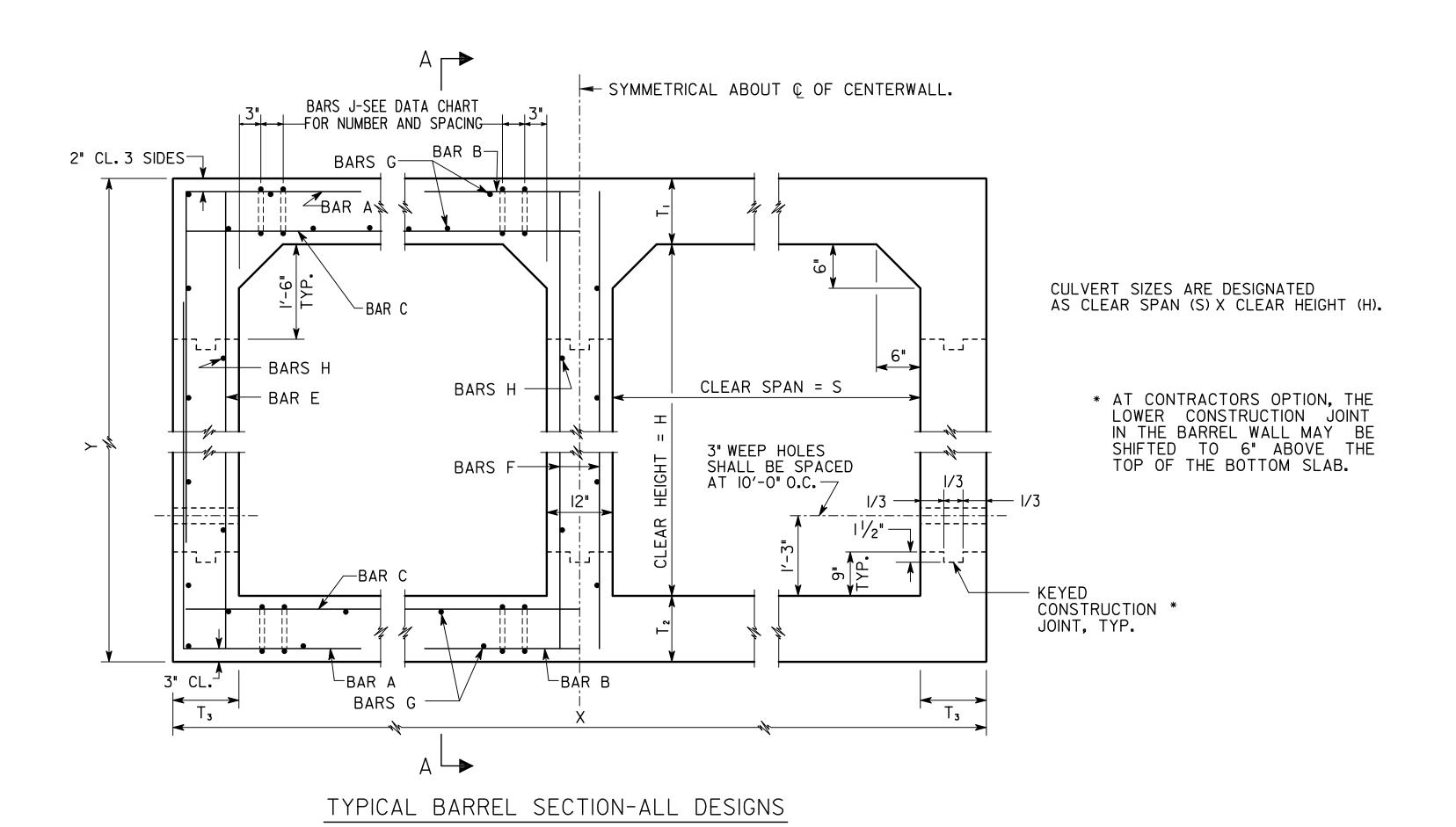


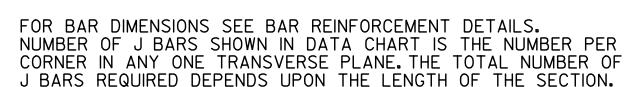
NOTE: LONGITUDINAL WINGWALL AND PARAPET BARS EXTEND INTO BARREL. SEE WINGWALL AND PARAPET STANDARDS.

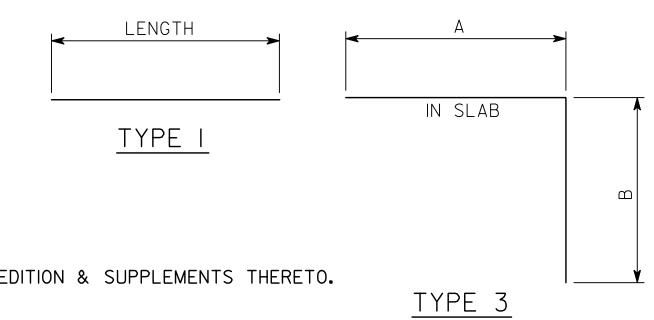
# SECTION A-A

| 1 | DESIGN                 |            | 2   | 3   | 4   | 5   | 6   | 7   | 8   |
|---|------------------------|------------|-----|-----|-----|-----|-----|-----|-----|
|   | MAXIMUM<br>FILL HEIGHT | <u></u> O' | 20′ | 30′ | 40′ | 50` | 60′ | 70′ | 80′ |

- I) MINIMUM HEIGHT FROM TOP OF CULVERT TO BOTTOM OF BASE WITHIN TRAVELWAY SHALL BE I'-O".
- 2) DESIGN OF THE CULVERT SHALL BE DETERMINED BY THE MAXIMUM HEIGHT OF FILL WITH ONLY A SINGLE DESIGN BEING USED FOR THE ENTIRE INSTALLATION.
- 3) TRANSVERSE CONSTRUCTION JOINTS SHALL BE PLACED NORMAL TO THE CENTERLINE OF THE CULVERT AT THE OUTSIDE SHOULDER BREAK POINTS. THE MAXIMUM POUR LENGTH ALONG THE LENGTH OF THE CULVERT SHALL NOT EXCEED 40'-0" FOR DESIGNS I TO 3 AND 30'-0" FOR DESIGNS 4 AND ABOVE.
- 4) LONGITUDINAL BARREL REINFORCEMENT STEEL IN THE TRANSVERSE CONSTRUCTION JOINTS SHALL EXTEND THROUGH JOINTS.
- 5) CONSTRUCTION JOINTS SHALL BE WATERPROOFED ON THE EXTERIOR TOP AND SIDES OF BARREL IN ACCORDANCE WITH SECTION 530 OF GEORGIA STANDARD SPECIFICATIONS. WATERFPROOFING SHALL BE APPLIED WHEN CONCRETE IS AT LEAST 7 DAYS OLD. ALL COSTS ASSOCIATED WITH WATERPROOFING SHALL BE INCLUDED IN OTHER ITEMS AND WILL NOT BE MEASURED SEPARATELY FOR PAYMENT.
- 6) MINIMUM LENGTH OF LAP SPLICE FOR LONGITUDINAL BARREL REINFORCING STEEL SHALL BE 2'-0".







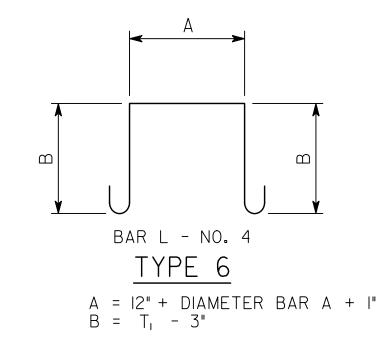
I) SPECIFICATIONS: GEORGIA STANDARD, CURRENT EDITION & SUPPLEMENTS THERETO.

GENERAL NOTES

- 2) ALL CONCRETE SHALL BE CLASS "AA".
- 3) CHAMFER ALL EXPOSED EDGES 3/4".
- 4) COST OF DRAIN PIPES, WEEP HOLES, COARSE AGGREGATE, AND ANY OTHER INCIDENTAL ITEMS SHALL BE INCLUDED IN THE PRICE BID FOR CONTRACT ITEMS.
- 5) CONSTRUCTION JOINTS IN BARREL WALLS ARE REQUIRED.
- 6) FOR DETAILS OF WINGWALLS AND PARAPETS SEE "REINFORCED CONCRETE WINGWALLS, TOEWALLS AND PARAPETS FOR CONCRETE BOX CULVERTS" SHEETS.

# DESIGN DATA

SPECIFICATIONS - AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH EDITION, 2014. TYPICAL HL-93 LOADING.



|  | DATE     | DEPARTMENT OF TRANSPORTATION<br>STATE OF GEORGIA   |
|--|----------|--|
|  |          | STANDARD   |
|  | REVISION | REINFORCED CONCRETE<br>DOUBLE BOX CULVERT  |
|  |          | NO SCALE SEPTEMBER 2017  |
|  | ВҮ       | DES. YSK (SUBMITTED)  STATE DESIGN POLICY ENGINEER  TRA (APPROVED)  CHIEF ENGINEER  NUMBER  2402  SHEET 1 OF 3 |

| STATE | PROJECT NUMBER | SHEET<br>NO. | TOTAL<br>SHEETS |
|-------|----------------|--------------|-----------------|
| GA.   |                |              |                 |

|                          |           | DOUBLE                                    | 10'-0" X       | 9'-0" BOX      | CULVERT      |       |   |   |
|--------------------------|-----------|---|----------------|----------------|--------------|-------|---|---|
|                          |           | BARREL F                                  | REINFORCEMENT  | QUANTITIES AND | DIMENSIONS   |       |   |   |
| DESIGN                   |           | 2   | 3              | 4              | 5            | 6     | 7 | 8 |
| BAR A                    | 480A @ 6" | 479A @ 6"                                 | 7I5A @ I2"     | 573A @ 6"      | 576A @ 6"    |       |   |   |
| BAR B                    | 558 @ 6"  | 632 @ 6"                                  | 723 @ 6"       | 728 @ 6"       | 807 @ 6"     |       |   |   |
| BAR C                    | 743 @ 12" | 571@ 6"                                   | 644 @ 6"       | 645 @ 6"       | 646 @ 6"     |       |   |   |
|                          |           |   |                |                |              |       |   |   |
| BAR E                    | 457 @ I2" | 459 @ I2"                                 | 461 @ 12"      | 553 @ I2"      | 555 @ 12"    |       |   |   |
| BAR F                    | 457 @ I2" | 459 @ I2"                                 | 461 @ 12"      | 463 @ 12"      | 465 @ I2"    |       |   |   |
| BAR G IN 2 SLABS         | 64 - 401  | 68 - 401                                  | 68 - 401       | 80 - 401       | 80 - 401     |       |   |   |
| BAR H IN 3 WALLS         | 38 - 402  | 38 - 402                                  | 38 - 402       | 50 - 402       | 50 - 402     |       |   |   |
| BAR J IN EXT. CORNER     | 0         | 0   | 0              | 0              | 0            |       |   |   |
| BAR J IN INT. CORNER     | 0         | 3-425B @ 10 <sup>1</sup> / <sub>4</sub> " | 3-428B @ II½"  | 4-433B @ I3"   | 4-436B @ I2" |       |   |   |
| T <sub>1</sub>           | l4"       | 16"                                       | 18"            | 20"            | 22"          |       |   |   |
| T <sub>2</sub>           | 15"       | 17"                                       | 19"            | 21"            | 23"          |       |   |   |
| T <sub>3</sub>           | l4"       | 16"                                       | 18"            | 20"            | 22"          |       |   |   |
| X                        | 23'-4"    | 23'-8"                                    | 24'-0"         | 24'-4"         | 24'-8"       |       |   |   |
| Y                        | 11'-5"    | 11'-9"                                    | 12'-1"         | 12'-5"         | 12'-9"       |       |   |   |
|                          |           |   |                |                |              |       |   |   |
| YD3 CLASS AA CONCRETE/FT | 3.218     | 3.651                                     | 4.093          | 4.542          | 5.000        |       |   |   |
| LB BAR REINF STEEL/FT    | 317.5     | 364.0                                     | 474.7          | 518.6          | 555.9        |       |   |   |
|                          | PAR       | APET, BARREL                              | END, AND TOEWA | ALL QUANTITIES | - 90° SKEW - | TOTAL |   |   |
| YD3 CLASS AA CONCRETE    | 11.0      | 11.4                                      | 11.9           | 12.4           | 12.8         |       |   |   |
| LB BAR REINF STEEL       | 1441      | 1477                                      | 1475           | 1674           | 1672         |       |   |   |
|                          | PAR       | APET, BARREL                              | END, AND TOEWA | ALL QUANTITIES | - 75° SKEW - | TOTAL |   |   |
| YD³ CLASS AA CONCRETE    | 11.4      | 11.9                                      | 12.4           | 12.8           | 13.3         |       |   |   |
| LB BAR REINF STEEL       | 1778      | 1818                                      | 1820           | 2027           | 2029         |       |   |   |
|                          | PAR       | APET, BARREL I                            | END, AND TOEWA | ALL QUANTITIES | - 60° SKEW - | TOTAL |   |   |
| YD³ CLASS AA CONCRETE    | 12.7      | 13.3                                      | 13.8           | 14.3           | 14.9         |       |   |   |
| LB BAR REINF STEEL       | 1881      | 1923                                      | 1926           | 2136           | 2140         |       |   |   |
|                          | PAR       | APET, BARREL                              | END, AND TOEWA | ALL QUANTITIES | - 45° SKEW - | TOTAL | _ | _ |
| YD³ CLASS AA CONCRETE    | 15.7      | 16.3                                      | 16.9           | 17.6           | 18.3         |       |   |   |
| LB BAR REINF STEEL       | 2128      | 2172                                      | 2178           | 2395           | 2402         |       |   |   |

| DOUBLE 10'-0" X 11'-0" BOX CULVERT     |             |   |   |                |   |            |   |              |  |  |
|--|-------------|---|---|----------------|---|------------|---|--------------|--|--|
|  |             | BARREL F                                  | REINFORCEMENT                             | QUANTITIES AND | DIMENSIONS                                |            |   |              |  |  |
| DESIGN                                 | l           | 2   | 3   | 4              | 5   | 6          | 7 | 8            |  |  |
| BAR A                                  | 486A @ 6"   | 716A @ 12"                                | 582A @ 6"                                 | 80IA @ I2"     | 611A @ 6"                                 |            |   |              |  |  |
| BAR B                                  | 551 @ 6"    | 624 @ 6"                                  | 723 @ 6"                                  | 714 @ 6"       | 804 @ 6"                                  |            |   |              |  |  |
| BAR C                                  | 743 @ 12"   | 571 @ 6"                                  | 644 @ 6"                                  | 645 @ 6"       | 646 @ 6"                                  |            |   |              |  |  |
|  |             |   |   |                |   |            |   |              |  |  |
| BAR E                                  | 558 @ I2"   | 469 @ 6"                                  | 470 @ 6"                                  | 635 @ 12"      | 735 @ 12"                                 |            |   |              |  |  |
| BAR F                                  | 468 @ 12"   | 469 @ 12"                                 | 470 @ 12"                                 | 471 @ 12"      | 473 @ 12"                                 |            |   |              |  |  |
| BAR G IN 2 SLABS                       | 64 - 401    | 68 - 401                                  | 68 - 401                                  | 80 - 401       | 80 - 401                                  |            |   |              |  |  |
| BAR H IN 3 WALLS                       | 44 - 402    | 44 - 402                                  | 44 - 402                                  | 56 - 402       | 56 - 402                                  |            |   |              |  |  |
| BAR J IN EXT. CORNER                   | 0           | 0   | 0   | 0              | 3-434B @ I4 <sup>1</sup> / <sub>2</sub> " |            |   |              |  |  |
| BAR J IN INT. CORNER                   | 0           | 3-425B @ 10 <sup>1</sup> / <sub>4</sub> " | 3-426B @ II <sup>1</sup> / <sub>2</sub> " | 4-433B @ I3"   | 5-436B @ II <sup>1</sup> / <sub>2</sub> " |            |   |              |  |  |
| T <sub>1</sub>                         | 14"         | 16"                                       | 18"                                       | 20"            | 22"                                       |            |   |              |  |  |
| T <sub>2</sub>                         | 15"         | 17"                                       | 19"                                       | 21"            | 23"                                       |            |   |              |  |  |
| T <sub>3</sub>                         | 4"          | 16"                                       | 18"                                       | 20"            | 22"                                       |            |   |              |  |  |
| X                                      | 23'-4"      | 23'-8"                                    | 24'-0"                                    | 24'-4"         | 24'-8"                                    |            |   |              |  |  |
| Y                                      | 13'-5"      | 13'-9"                                    | 4'- "                                     | 14'-5"         | 14'-9"                                    |            |   |              |  |  |
| ,                                      |             |   |   |                |   |            |   |              |  |  |
| YD3 CLASS AA CONCRETE/FT               | 3.465       | 3.923                                     | 4.389                                     | 4.863          | 5.346                                     |            |   |              |  |  |
| LB BAR REINF STEEL/FT                  | 356.0       | 441.3                                     | 521.3                                     | 588.5          | 697.6                                     |            |   |              |  |  |
| \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ |             | RAPET, BARREL I                           |   |                |   | TOTAL      |   | T            |  |  |
| YD3 CLASS AA CONCRETE                  | 11.5        | 12.0                                      | 12.5                                      | 13.0           | 13.5                                      |            |   |              |  |  |
| LB BAR REINF STEEL                     | 1491        | 1527                                      | I525                                      | 1724           | 1722                                      |            |   |              |  |  |
| VD3 OLACC AA COMODETE                  |             | RAPET, BARREL                             |   |                |   | TOTAL      |   |              |  |  |
| YD3 CLASS AA CONCRETE                  | 11.9        | 12.4                                      | 13.0                                      | 13.5           | 14.0                                      |            |   |              |  |  |
| LB BAR REINF STEEL                     | 1829        | 1869                                      | 1872                                      | 2078           | 2081                                      | TOTAL      |   |              |  |  |
| VD3 CLASC AA CONODETE                  |             | RAPET, BARREL I                           |   |                |   | TOTAL<br>T |   | 1            |  |  |
| YD3 CLASS AA CONCRETE                  | 13.3        | 13.9                                      | 14.5                                      | 15.1           | 15.7                                      |            |   |              |  |  |
| LB BAR REINF STEEL                     | 1934<br>BAE | 1975                                      | I979                                      | 2189           | 2193                                      | <u> </u>   |   |              |  |  |
| VD3 CLASS AA CONCDETE                  |             | RAPET, BARREL  <br>                       | l .                                       |                |   | TOTAL      |   | <del> </del> |  |  |
| YD3 CLASS AA CONCRETE                  | 16.4        | 17.1                                      | 17.8                                      | 18.5           | 19.2                                      |            |   |              |  |  |
| LB BAR REINF STEEL                     | 2182        | 2226                                      | 2233                                      | 2450           | 2457                                      |            |   |              |  |  |

|                          |            | DOUBLE                                    | 10'-0" X I       | 0'-0" BOX      | CULVERT                                 |       |   |   |
|--------------------------|------------|---|------------------|----------------|---|-------|---|---|
|                          |            | BARREL R                                  | REINFORCEMENT    | QUANTITIES AND | DIMENSIONS                              |       |   |   |
| DESIGN                   | I          | 2   | 3                | 4              | 5                                       | 6     | 7 | 8 |
| BAR A                    | 575A @ I2" | 484A @ 6"                                 | 578A @ 6"        | 580A @ 6"      | 610A @ 6"                               |       |   |   |
| BAR B                    | 555 @ 6"   | 631 @ 6"                                  | 727 @ 6"         | 724 @ 6"       | 806 @ 6"                                |       |   |   |
| BAR C                    | 743 @ 12"  | 571 @ 6"                                  | 644 @ 6"         | 645 @ 6"       | 646 @ 6"                                |       |   |   |
|                          |            |   |                  |                |   |       |   |   |
| BAR E                    | 463 @ 12"  | 555 @ I2"                                 | 557 @ I2"        | 468 @ 6"       | 469 @ 6"                                |       |   |   |
| BAR F                    | 463 @ 12"  | 465 @ 12"                                 | 467 @ 12"        | 468 @ I2"      | 469 @ I2"                               |       |   |   |
| BAR G IN 2 SLABS         | 64 - 401   | 68 - 401                                  | 68 - 401         | 80 - 401       | 80 - 401                                |       |   |   |
| BAR H IN 3 WALLS         | 42 - 402   | 42 - 402                                  | 42 - 402         | 50 - 402       | 50 - 402                                |       |   |   |
| BAR J IN EXT. CORNER     | 0          | 0   | 0                | 0              | 3-434B @ I4 <sup>1</sup> / <sub>2</sub> |       |   |   |
| BAR J IN INT. CORNER     | 0          | 3-425B @ 10 <sup>1</sup> / <sub>4</sub> " | 3-43IB @ II 1/2" | 4-433B @ I3"   | 4-436B @ II¾"                           |       |   |   |
| T,                       | 14"        | 16"                                       | 18"              | 20"            | 22"                                     |       |   |   |
| T <sub>2</sub>           | 15"        | 17"                                       | 19"              | 21"            | 23"                                     |       |   |   |
| Τ <sub>3</sub>           | 14"        | 16"                                       | 18"              | 20"            | 22"                                     |       |   |   |
| X                        | 23'-4"     | 23'-8"                                    | 24'-0"           | 24'-4"         | 24'-8"                                  |       |   |   |
| Y                        | 12'-5"     | 12'-9"                                    | 13'-1"           | 13'-5"         | 13'-9"                                  |       |   |   |
|                          |            |   |                  |                |   |       |   |   |
| YD3 CLASS AA CONCRETE/FT | 3.342      | 3.787                                     | 4.241            | 4.703          | 5.173                                   |       |   |   |
| LB BAR REINF STEEL/FT    | 308.1      | 382.8                                     | 502.2            | 536.0          | 652.2                                   |       |   |   |
|                          | PAR        | RAPET, BARREL E                           | END, AND TOEW    | ALL QUANTITIES | - 90° SKEW -                            | TOTAL |   |   |
| YD³ CLASS AA CONCRETE    | 11.2       | 11.7                                      | 12.2             | 12.7           | 13.2                                    |       |   |   |
| LB BAR REINF STEEL       | 1467       | 1503                                      | 1501             | 1674           | 1672                                    |       |   |   |
|                          | PAR        | RAPET, BARREL (                           | END, AND TOEW.   | ALL QUANTITIES | - 75° SKEW -                            | TOTAL |   |   |
| YD3 CLASS AA CONCRETE    | 11.7       | 12.2                                      | 12.7             | 13.2           | 13.7                                    |       |   |   |
| LB BAR REINF STEEL       | 1805       | 1845                                      | 1847             | 2027           | 2029                                    |       |   |   |
|                          | PAR        | APET, BARREL E                            | END, AND TOEW    | ALL QUANTITIES | - 60° SKEW -                            | TOTAL |   |   |
| YD3 CLASS AA CONCRETE    | 13.0       | 13.6                                      | 4.               | 14.7           | 15.3                                    |       |   |   |
| LB BAR REINF STEEL       | 1909       | 1950                                      | 1954             | 2136           | 2140                                    |       |   |   |
|                          | PAR        | RAPET, BARREL E                           | END, AND TOEW.   | ALL QUANTITIES | - 45° SKEW -                            | TOTAL |   |   |
| YD³ CLASS AA CONCRETE    | 16.0       | 16.7                                      | 17.4             | 18.0           | 18.8                                    |       |   |   |
| LB BAR REINF STEEL       | 2157       | 2201                                      | 2207             | 2395           | 2402                                    |       |   |   |
|                          |            |   |                  |                |   | •     |   | • |

|                          |           | DOUBLE                                    | 10'-0" X I      | 2'-0" BOX      | CULVERT                                   |       |   |   |
|--------------------------|-----------|---|-----------------|----------------|---|-------|---|---|
|                          |           | BARREL F                                  | REINFORCEMENT   | QUANTITIES AND | DIMENSIONS                                |       |   |   |
| DESIGN                   | I         | 2   | 3               | 4              | 5   | 6     | 7 | 8 |
| BAR A                    | 485A @ 6" | 717A @ 12"                                | 584A @ 6"       | 612A @ 6"      | 6l3A @ 6"                                 |       |   |   |
| BAR B                    | 547 @ 6"  | 619 @ 6"                                  | 719 @ 6"        | 719 @ 6"       | 802 @ 6"                                  |       |   |   |
| BAR C                    | 743 @ 12" | 571@ 6"                                   | 644 @ 6"        | 645 @ 6"       | 646 @ 6"                                  |       |   |   |
|                          |           |   |                 |                |   |       |   |   |
| BAR E                    | 561 @ 12" | 473 @ 6"                                  | 474 @ 6"        | 736 @ 12"      | 737 @ 12"                                 |       |   |   |
| BAR F                    | 471 @ 12" | 473 @ 12"                                 | 474 @ 12"       | 475 @ 12"      | 476 @ 12"                                 |       |   |   |
| BAR G IN 2 SLABS         | 64 - 401  | 68 - 401                                  | 68 - 401        | 80 - 401       | 80 - 401                                  |       |   |   |
| BAR H IN 3 WALLS         | 50 - 402  | 50 - 402                                  | 50 - 402        | 66 - 402       | 66 - 402                                  |       |   |   |
| BAR J IN EXT. CORNER     | 0         | 0   | 0               | 0              | 3-434B @ I4 <sup>1</sup> / <sub>2</sub> " |       |   |   |
| BAR J IN INT. CORNER     | 0         | 3-425B @ 10 <sup>1</sup> / <sub>4</sub> " | 3-43IB @ I11/2" | 4-433B @ I3"   | 5-436B @ II½"                             |       |   |   |
| T <sub>1</sub>           | 14"       | 16"                                       | 18"             | 20"            | 22"                                       |       |   |   |
| T <sub>2</sub>           | 15"       | 17"                                       | 19"             | 21"            | 23"                                       |       |   |   |
| T <sub>3</sub>           | 14"       | 16"                                       | 18"             | 20"            | 22"                                       |       |   |   |
| X                        | 23'-4"    | 23'-8"                                    | 24'-0"          | 24'-4"         | 24'-8"                                    |       |   |   |
| Y                        | 14'-5"    | 14'-9"                                    | 15'-1"          | 15'-5"         | 15'-9"                                    |       |   |   |
|                          |           |   |                 |                |   |       |   |   |
| YD3 CLASS AA CONCRETE/FT | 3.588     | 4.059                                     | 4.537           | 5.024          | 5.519                                     |       |   |   |
| LB BAR REINF STEEL/FT    | 353.0     | 455.1                                     | 535.0           | 653.6          | 719.4                                     |       |   |   |
| _                        |           |   | END, AND TOEWA  |                |   | TOTAL |   | T |
| YD3 CLASS AA CONCRETE    | 11.8      | 12.3                                      | 12.9            | 13.4           | 13.9                                      |       |   |   |
| LB BAR REINF STEEL       | 1543      | 1579                                      | 1577            | 1802           | 1800                                      |       |   |   |
| -                        | ı         | <u>'</u>                                  | END, AND TOEW,  |                | _   | TOTAL |   | T |
| YD3 CLASS AA CONCRETE    | 12.3      | 12.8                                      | 13.3            | 13.9           | 14.5                                      |       |   |   |
| LB BAR REINF STEEL       | 1883      | 1923                                      | 1925            | 2159           | 2162                                      |       |   |   |
| 7                        | ı         | <u> </u>                                  | END, AND TOEWA  |                | 1   | TOTAL |   |   |
| YD3 CLASS AA CONCRETE    | 13.7      | 14.3                                      | 14.9            | 15.5           | 16.1                                      |       |   |   |
| LB BAR REINF STEEL       | 1988      | 2029                                      | 2033            | 2271           | 2275                                      |       |   |   |
| 7                        | I         | <u>'</u>                                  | END, AND TOEW,  |                | _   | TOTAL |   |   |
| YD3 CLASS AA CONCRETE    | 16.8      | 17.6                                      | 18.3            | 19.1           | 19.8                                      |       |   |   |
| LB BAR REINF STEEL       | 2239      | 2283                                      | 2289            | 2536           | 2542                                      |       |   |   |

|  | DATE     | DEPA     | ARTMEN ST   | OF<br>ATE OF      |      |      | TATION                     |  |
|--|----------|----------|---|-------------------|------|------|----------------------------|--|
|  |          |          |   | STAN              | DARI |      |                            |  |
|  | REVISION | 10       | REINFORCED CONCRETE<br>DOUBLE BOX CULVERT<br>10'X9',10'X10',10'X11' AND 10'X12' |                   |      |      |                            |  |
|  |          | NO SCA   | 4LE   |                   |      | SEPT | EMBER 2017                 |  |
|  | ВУ       | DRW. FGS |   | TATE DESIGN CHIEF | _    | yele | NUMBER 2402 SHEET 2-N OF 3 |  |

| ATE | PROJECT NUMBER | SHEET<br>NO. | TOTAL<br>SHEETS |
|-----|----------------|--------------|-----------------|
| Δ.  |                |              |                 |

| MARK  | LENGTH  | TYPE | MARK   | LENGTH   | TYP          |
|---|---|------|--|--|--------------|
| )I  | L* - 4"   |      | 480  | 21'-0"   | 1            |
| 2   | L* + 20"  |      | 481  | 21'-2"   | 1            |
| )3<br>)4  | 3'-1"   |      | 482  | 23'-0"   | l            |
| )5  | 3'-11"  |      | 501  | 4'-0"  |              |
| )6  | 4'-0"   |      | 502  | 4'-2"  |              |
| 07  | 4'- "   |      | 503  | 4'-5"  |              |
| 408   | 4'-2"   |      | 504  | 4'-9"  |              |
| 109   | 4'-3"   |      | 505  | 4'-10"   |              |
| 410   | 4'-4"   |      | 506  | 5'-0"  | 1            |
| 411<br>412  | 4'-6"   |      | 507<br>508   | 5'-2"<br>5'-4"   | 1            |
| 413   | 4'-10"  |      | 509  | 5'-6"  | 1            |
| 414   | 5'-0"   |      | 510  | 5'-8"  | <u>'</u><br> |
| 415   | 5'-2"   |      | 511  | 5'-9"  |              |
| 416   | 5'-4"   |      | 512  | 5'-10"   |              |
| 417   | 5'-6"   |      | 513  | 6'-0"  | - 1          |
| 418   | 5'-8"   |      | 514  | 6'-2"  |              |
| 419<br>420  | 5'-10"<br>6'-0"   |      | 515  | 6'-4"  |              |
| 421   | 6'-2"   |      | 516<br>517   | 6'-5"<br>6'-7"   | 1            |
| 422   | 6'-4"   |      | 518  | 6'-11"   | <u>'</u><br> |
| 423   | 6'-5"   |      | 519  | 7'-0"  |              |
| 424   | 6'-6"   |      | 520  | 7'-1"  |              |
| 425   | 6'-8"   |      | 521  | 7'-2"  |              |
| 426   | 6'-10"  |      | 522  | 7'-3"  |              |
| 427<br>428  | 6'-II"<br>7'-0"   |      | 523  | 7'-4"  |              |
| 429   | 7'-2"   |      | 524<br>525   | 7'-5"<br>7'-6"   | 1            |
| 430   | 7'-3"   |      | 526  | 7'-7"  | 1            |
| 431   | 7'-4"   | l    | 527  | 7'-8"  | <u>'</u><br> |
| 432   | 7'-6"   |      | 528  | 7'-9"  |              |
| 433   | 7'-7"   |      | 529  | 7'-10"   |              |
| 434   | 7'-8"   | 1    | 530  | 7'-  "   | 1            |
| 435   | 7'-9"   |      | 531  | 8'-0"  |              |
| 436<br>437  | 7'-I0"<br>8'-0"   |      | 532  | 8'-2"  |              |
| 438   | 8'-2"   |      | 533<br>534   | 8'-4"<br>8'-6"   |              |
| 439   | 8'-3"   |      | 535  | 8'-8"  | 1            |
| 440   | 8'-4"   |      | 536  | 8'-10"   | i<br>I       |
| 441   | 8'-6"   |      | 537  | 9'-0"  |              |
| 442   | 8'-8"   |      | 538  | 9'-2"  | - 1          |
| 443   | 8'-10"  |      | 539  | 9'-4"  | 1            |
| 444<br>445  | 9'-0"<br>9'-2"  |      | 540  | 9'-6"  | -            |
| 446   | 9'-3"   |      | 54I<br>542   | 9'-10"   | 1            |
| 447   | 9'-4"   |      | 543  | 10'-2"   | <u>'</u>     |
| 448   | 9'-6"   |      | 544  | 10'-4"   |              |
| 449   | 9'-8"   |      | 545  | 10'-8"   |              |
| 450   | 9'-10"  |      | 546  | 10'-10"  |              |
| 451   | 10'-0"  |      | 547  | 11'-0"   | Ī            |
| 452   | 10'-2"  |      | 548  | 11'-2"   |              |
| 453<br>454  | 10'-4"  |      | 549  | 11'-4"   |              |
| 454   | 10'-8"  |      | 550<br>551   | 11'-6"   |              |
| 456   | 10'-10"   |      | 552  | 11'-10"  |              |
| 457   | 11'-0"  |      | 553  | 12'-0"   |              |
| 458   | 11'-2"  |      | 554  | 12'-2"   |              |
| 459   | '-4"  |      | 555  | 12'-4"   |              |
| 460   | 11'-6"  |      | 556  | 12'-6"   |              |
| 461   | 11'-8"  |      | 557  | 12'-8"   |              |
| 462<br>463  | 11'-10"   |      | 558<br>559   | 13'-0"<br>13'-6"   |              |
| ٠٠٠   |   |      | 559<br>560   | 13'-10"  |              |
| 464   | 12 -2   | -    |  |  | 1            |
| 464<br>465  | 12'-2"<br>12'-4"  |      | 561  | 14'-0"   |              |
|   |   |      | 56I<br>562   |  |              |
| 465   | 2'-4"<br> 2'-6"<br> 2'-8"   |      |  |  |              |
| 465<br>466<br>467<br>468                                      | 12'-4"<br>12'-6"<br>12'-8"<br>13'-0"  |      | 562<br>563<br>564  | 14'-2"<br>14'-4"<br>14'-6"   | 1            |
| 465<br>466<br>467<br>468<br>469                               | 12'-4"<br>12'-6"<br>12'-8"<br>13'-0"<br>13'-4"  |      | 562<br>563<br>564<br>565   | 14'-2"<br>14'-4"<br>14'-6"<br>14'-8"   | 1 1          |
| 465<br>466<br>467<br>468<br>469<br>470                        | 12'-4"<br>12'-6"<br>12'-8"<br>13'-0"<br>13'-4"<br>13'-8"  |      | 562<br>563<br>564<br>565<br>566                                    | 14'-2"<br>14'-4"<br>14'-6"<br>14'-8"<br>16'-2"                               |              |
| 465<br>466<br>467<br>468<br>469<br>470<br>471                 | 2'-4"<br> 2'-6"<br> 2'-8"<br> 3'-0"<br> 3'-4"<br> 3'-8"<br> 4'-0"   |      | 562<br>563<br>564<br>565<br>566<br>567                             | 14'-2"<br>14'-4"<br>14'-6"<br>14'-8"<br>16'-2"<br>16'-4"                     |              |
| 465<br>466<br>467<br>468<br>469<br>470<br>471<br>472          | 12'-4"<br>12'-6"<br>12'-8"<br>13'-0"<br>13'-4"<br>13'-8"  |      | 562<br>563<br>564<br>565<br>566<br>567<br>568                      | 14'-2"<br>14'-4"<br>14'-6"<br>14'-8"<br>16'-2"<br>16'-4"<br>16'-6"           |              |
| 465<br>466<br>467<br>468<br>469<br>470<br>471<br>472<br>473   | 2'-4"<br> 2'-6"<br> 2'-8"<br> 3'-0"<br> 3'-4"<br> 3'-8"<br> 4'-0"<br> 4'-2"                               |      | 562<br>563<br>564<br>565<br>566<br>567                             | 14'-2"<br>14'-4"<br>14'-6"<br>14'-8"<br>16'-2"<br>16'-4"                     |              |
| 65<br>66<br>67<br>68<br>69<br>70<br>71<br>72<br>73<br>74      | 12'-4" 12'-6" 12'-8" 13'-0" 13'-4" 13'-8" 14'-0" 14'-2" 14'-4"  |      | 562<br>563<br>564<br>565<br>566<br>567<br>568<br>569               | 14'-2"<br>14'-4"<br>14'-6"<br>14'-8"<br>16'-2"<br>16'-4"<br>16'-6"<br>19'-0" |              |
| 5<br>6<br>7<br>8<br>9<br>0<br>1<br>1<br>2<br>2<br>3<br>4<br>5 | 2'-4"<br> 2'-6"<br> 2'-8"<br> 3'-0"<br> 3'-4"<br> 3'-8"<br> 4'-0"<br> 4'-2"<br> 4'-4"<br> 4'-8"<br> 5'-0" |      | 562<br>563<br>564<br>565<br>566<br>567<br>568<br>569<br>570        | 14'-2" 14'-4" 14'-6" 14'-8" 16'-2" 16'-4" 16'-6" 19'-0" 21'-4"               |              |
| 5<br>7<br>8<br>9<br>0<br>1<br>2<br>3<br>4<br>5<br>6<br>7      | 12'-4" 12'-6" 12'-8" 13'-0" 13'-4" 13'-8" 14'-0" 14'-2" 14'-4" 14'-8" 15'-0" 15'-4"                       |      | 562<br>563<br>564<br>565<br>566<br>567<br>568<br>569<br>570<br>571 | 14'-2" 14'-4" 14'-6" 14'-8" 16'-2" 16'-4" 16'-6" 19'-0" 21'-4" 23'-4"        |              |
| 465<br>466<br>467<br>468<br>469<br>470                        | 2'-4"<br> 2'-6"<br> 2'-8"<br> 3'-0"<br> 3'-4"<br> 3'-8"<br> 4'-0"<br> 4'-2"<br> 4'-4"<br> 4'-8"<br> 5'-0" |      | 562<br>563<br>564<br>565<br>566<br>567<br>568<br>569<br>570<br>571 | 14'-2" 14'-4" 14'-6" 14'-8" 16'-2" 16'-4" 16'-6" 19'-0" 21'-4" 23'-4"        |              |

| 480 21'-0" I<br>481 21'-2" I<br>482 23'-0" I                          |  |
|---|--|
|   |  |
| 482 23'-0"  |  |
|   |  |
| 501 4'-0" 1   |  |
| 502 4'-2"   |  |
| 503 4'-5" I<br>504 4'-9" I  |  |
| 504 4'-9" I<br>505 4'-10" I   |  |
| 506 5'-0" I   |  |
| 507 5'-2" I<br>508 5'-4" I  |  |
| 509 5'-6"   |  |
| 510 5'-8"   |  |
| 511 5'-9" 1<br>512 5'-10" 1   |  |
| 513 6'-0"   |  |
| 514 6'-2"   |  |
| 515 6'-4" I<br>516 6'-5" I  |  |
| 517 6'-7" 1   |  |
| 518 6'-11"  |  |
| 519 7'-0" I<br>520 7'-1" I  |  |
| 521 7'-2" 1   |  |
| 522 7'-3" I   |  |
| 523 7'-4" I<br>524 7'-5" I  |  |
| 524 7'-5"  <br>525 7'-6"  <br>526 7'-7"  <br>527 7'-8"  <br>528 7'-9" |  |
| 526 7'-7"   |  |
| 527 7'-8"  <br>528 7'-9"  |  |
| 529 7'-10"  |  |
| 530 7'-11" 1  |  |
| 53I 8'-0" I<br>532 8'-2" I  |  |
| 533 8'-4"   |  |
| 534 8'-6"   |  |
| 535 8'-8"    <br>536 8'-10"   |  |
| 537 9'-0"   |  |
| 538 9'-2" I   |  |
| 539 9'-4"   |  |
| 540     9'-6"       541     9'-10"                                    |  |
| 542   10'-0"   1  |  |
| 543   10'-2"   1<br>544   10'-4"   1                                  |  |
| 544   10'-4"   1<br>545   10'-8"   1                                  |  |
| 546   10'-10"   1   |  |
| 547   II'-0"    <br>548   II'-2"                                      |  |
| 549   11'-4"   1  |  |
| 550   11'-6"   1  |  |
| 551   11'-8"   1<br>552   11'-10"                                     |  |
| 553   12'-0"   1  |  |
| 554   12'-2"   1  |  |
| 555   12'-4"   1<br>556   12'-6"   1                                  |  |
| 557   12'-8"   I  |  |
| 558   13'-0"  |  |
| 559   13'-6"   1<br>560   13'-10"   1                                 |  |
|   |  |
| 561 14'-0" 1  |  |
| 561   14'-0"   1<br>562   14'-2"   1                                  |  |
| 561   14'-0"   1<br>562   14'-2"   1<br>563   14'-4"   1              |  |
| 561   14'-0"   1<br>562   14'-2"   1                                  |  |

| MARK       | LENGTH           | TYPE     |
|------------|------------------|----------|
| 601        | 4'-9"            | I        |
| 602        | 5'-3"            | 1        |
| 603        | 5′-6″            |          |
| 604        | 5'-7"            | 1        |
| 605        | 5'-8"            | 1        |
| 606        | 6'-2"            | 1        |
| 607        | 6'-4"            | 1        |
| 608        | 6'-7"            |          |
| 609        | 6'-11"           |          |
| 610        | 7'-3"            |          |
| 611        | 7'-4"            | 1        |
| 612        | 8'-0"            | 1        |
| 613        | 8'-4"            | 1        |
| 614        | 8'-10"           | i        |
| 615        | 9'-2"            | i        |
| 616        | 9'-4"            | <u> </u> |
| 617        | 9'-6"            | '        |
| 618        | 10'-1"           | '        |
| 619        | 10'-2"           | '        |
| 620        | 10'-6"           | 1        |
| 62I        | 10'-8"           | '        |
| 622        | 10'-10"          |          |
| 623        | 11'-2"           |          |
| 624        | 11'-3"           |          |
| 625        | 11'-6"           |          |
| 626        | 11'-8"           |          |
| 627        | 11'-10"          |          |
|            | 12'-2"           | 1        |
| 628        |                  |          |
| 629        | 12'-3"<br>12'-5" |          |
| 630        | 12'-8"           |          |
| 631        | 13'-0"           |          |
| 632        | 13'-6"           |          |
| 633<br>634 | 13'-8"           |          |
| 635        | 14'-0"           |          |
|            | 14'-2"           |          |
| 636        |                  |          |
| 637        | 14'-8"           | 1        |
| 638        | 16'-8"           | 1        |
| 639        | 16'-10"          | 1        |
| 640        | 19'-2"           | 1        |
| 641        | 19'-4"           | - 1      |
| 642        | 21'-6"           | 1        |
| 643        | 21'-8"           | 1        |
| 644        | 23'-8"           | 1        |
| 645<br>646 | 24'-0"<br>24'-4" |          |
| 646        | 24'-4"           |          |

| MARK | LENGTH  | TYPE   |
|------|---------|--------|
| 701  | 7'-8"   |        |
| 702  | 7'-10"  |        |
| 703  | 8'-4"   |        |
| 704  | 8'-6"   |        |
| 705  | 8'-8"   |        |
| 706  | 8'-10"  |        |
| 707  | 9'-0"   | '      |
| 708  | 9'-2"   | '      |
| 709  | 9'-3"   | '      |
| 710  | 9'-4"   |        |
| 711  | 9'-6"   |        |
| 712  | 9'-8"   | l<br>I |
|      | 9'-10"  | ı      |
| 713  |         | 1      |
| 714  | 10'-0"  |        |
| 715  | 10'-2"  |        |
| 716  | 10'-4"  |        |
| 717  | 10'-8"  |        |
| 718  | 11'-0"  |        |
| 719  | '-4"    |        |
| 720  | 11'-6"  |        |
| 721  | 11'-8"  |        |
| 722  | 11'-10" |        |
| 723  | 12'-0"  |        |
| 724  | 12'-2"  |        |
| 725  | 12'-3"  |        |
| 726  | 12'-4"  |        |
| 727  | 12'-6"  |        |
| 728  | 12'-8"  |        |
| 729  | 13'-0"  |        |
| 730  | 13'-2"  |        |
| 731  | 13'-4"  |        |
| 732  | 13'-6"  |        |
| 733  | 13'-8"  |        |
| 734  | 14'-0"  |        |
| 735  | 14'-4"  |        |
| 736  | 15'-0"  |        |
| 737  | 15'-4"  |        |
| 738  | 16'-2"  |        |
| 739  | 18'-8"  |        |
| 740  | 18'-10" |        |
| 741  | 21'-0"  |        |
| 742  | 21'-2"  |        |
| 743  | 23'-0"  |        |
|      |         | '      |
| 801  | 10'-4"  |        |
| 802  | 11'-0"  | '      |
| 803  | 11'-3"  | '      |
| 804  | 11'-6"  |        |
| 805  | 11'-8"  |        |
|      | 12'-0"  | 1 1    |
| 806  |         | 1      |
| 807  | 12'-4"  |        |
| 808  | 12'-8"  |        |
| 809  | 13'-0"  |        |
| 810  | 13'-2"  | 1      |
| 811  | 13'-4"  |        |

| MARK         | LENGTH           | TYPE | А               | В              |
|--------------|------------------|------|-----------------|----------------|
| 40IA         | 4'-2"            | 3    | l'-7"           | 2'-7"          |
| 402A         | 4'-3"            | 3    | l'-8"           | 2'-7"          |
| 403A         | 4'-4"            | 3    | l'-8"           | 2'-8"          |
| 404A         | 4'-4"            | 3    | l'-9"           | 2'-7"          |
| 405A         | 4'-5"            | 3    | l'-9"           | 2'-8"          |
| 406A         | 4'-6"            | 3    | 1'-10"          | 2'-8"          |
| 407A         | 4'-7"            | 3    | 1'-10"          | 2'-9"          |
| 408A         | 4'-8"            | 3    | 2'-1"           | 2'-7"          |
| 409A         | 4'-9"            | 3    | 2'-0"           | 2'-9"          |
| 410A         | 5'-0"            | 3    | 2'-2"           | 2'-10"         |
| 411A         | 5'-4"<br>5'-5"   | 3    | l'-9"           | 3'-7"<br>3'-8" |
| 412A<br>413A | 5'-6"            | 3    | 1'-10"          | 3'-8"          |
| 414A         | 5'-8"            | 3    | 10              | 3'-9"          |
| 4I5A         | 5'-8"            | 3    | 2'-1"           | 3'-7"          |
| 416A         | 5'-9"            | 3    | 2'-0"           | 3'-9"          |
| 417A         | 6'-0"            | 3    | 2'-2"           | 3'-10"         |
| 418A         | 6'-0"            | 3    | 2'-4"           | 3'-8"          |
| 419A         | 6'-3"            | 3    | 2'-4"           | 3'-11"         |
| 420A         | 6'-6"            | 3    | '-  "           | 4'-7"          |
| 42IA         | 6'-6"            | 3    | 2'-6"           | 4'-0"          |
| 422A         | 6'-7"            | 3    | 2'-0"           | 4'-7"          |
| 423A         | 6-8"             | 3    | 2'-0"           | 4'-8"          |
| 424A         | 6'-9"            | 3    | 2'-0"           | 4'-9"          |
| 425A         | 6'-9"            | 3    | 2'- "           | 4'-8"          |
| 426A         | 6'-9"<br>6'-10"  | 3    | 2'-8"<br>2'-1"  | 4'- "          |
| 427A<br>428A | 6'-10"           | 3    | 2'-3"           | 4'-9"          |
| 429A         | 6'-11"           | 3    | 2'-2"           | 4'-9"          |
| 430A         | 6'-11"           | 3    | 2'-3"           | 4'-8"          |
| 43IA         | 7'-0"            | 3    | 2'-2"           | 4'-10"         |
| 432A         | 7'-1"            | 3    | 2'-3"           | 4'-10"         |
| 433A         | 7'-1"            | 3    | 2'-  "          | 4'-2"          |
| 434A         | 7'-5"            | 3    | 3'-2"           | 4'-3"          |
| 435A         | 7′-6″            | 3    | 3'-5"           | 4'- "          |
| 436A         | 7'-7"            | 3    | 2'-7"           | 5'-0"          |
| 437A         | 7'-9"            | 3    | 2'-2"           | 5'-7"          |
| 438A         | 7'-10"           | 3    | 2'-2"           | 5'-8"          |
| 439A         | 7'-10"           | 3    | 2'-3"           | 5'-7"          |
| 440A         | 7'-10"<br>7'-10" | 3    | 2'-9"<br>3'-3"  | 5'-l"<br>4'-7" |
| 44IA<br>442A | 8'-0"            | 3    | 2'-3"           | 5'-9"          |
| 443A         | 8'-1"            | 3    | 2'-4"           | 5'-9"          |
| 444A         | 8'-2"            | 3    | 3'-0"           | 5'-2"          |
| 445A         | 8'-3"            | 3    | 2'-5"           | 5'-10"         |
| 446A         | 8'-3"            | 3    | 2'-7"           | 5′-8″          |
| 447A         | 8'-3"            | 3    | 2'-8"           | 5'-7"          |
| 448A         | 8'-4"            | 3    | 3'-1"           | 5'-3"          |
| 449A         | 8'-5"            | 3    | 3'-4"           | 5'-1"          |
| 450A         | 8'-6"            | 3    | 3'-3"           | 5'-3"          |
| 45IA         | 8'-8"            | 3    | 2'-8"           | 6'-0"          |
| 452A         | 8'-10"           | 3    | 3'-3"           | 5'-7"          |
| 453A         | 8'-  "<br>9'- "  | 3    | 2'-10"          | 6'-1"          |
| 454A<br>455A | 9'-1"            | 3    | 2'-5"<br>2'-6"  | 6'-8"<br>6'-7" |
| 456A         | 9'-2"            | 3    | 2'-5"           | 6'-9"          |
| 457A         | 9'-3"            | 3    | 3'-I"           | 6'-2"          |
| 458A         | 9'-4"            | 3    | 2'-7"           | 6'-9"          |
| 459A         | 9'-5"            | 3    | 3'-2"           | 6'-3"          |
| 460A         | 9'-5"            | 3    | 3'-4"           | 6'-1"          |
| 46IA         | 9'-6"            | 3    | 3'-3"           | 6'-3"          |
| 462A         | 9'-10"           | 3    | 2'-10"          | 7'-0"          |
| 463A         | 9'-  "           | 3    | 3'-3"           | 6'-8"          |
| 464A         | 10'-1"           | 3    | 3'-0"           | 7'- "          |
| 465A         | 10'-4"           | 3    | 3'-2"           | 7'-2"<br>7'-7" |
| 466A<br>467A | 10'-5"           | 3    | 2'-2"<br>2'-10" | 7'-1"          |
| 468A         | 10'-6"           | 3    |                 | 7'-7"          |
| 469A         | 10'-6            | 3    | 2'-11"          | 7'-9"          |
| 470A         |                  | 3    |                 | 7'-3"          |
|              | 10'-7"           | 3    | 3'-4"<br>3'-5"  | 7'-3"          |
| 471A         | 10'-8"           | 3    |                 | 6'-7"          |
| 472A         | 10'-9"           |      | 4'-2"<br>3'-1"  | 8'-0"          |
| 473A         | '-  "            | 3    | 3'-1"           | 8'-0"          |
| 474A         | 11'-6"           | 3    | 3'-4"           |                |
| 475A         | 12'-4"           | 3    | 3'-6"           | 8'-3"<br>9'-0" |
| 476A<br>477A | 12'-4"           | 3    | 3'-4"<br>4'-9"  | 7'-8"          |
| 411A         | 12'-5"           | 3    | 4'-9"           | 9'-2"          |

478A | 12'-9" | 3 | 3'-7" | 9'-2"

| MARK         LENGTH         TYPE         A         B           479A         13'-0"         3'-9"         9'-3"           480A         13'-5"         3         4'-4"         9'-1"           481A         13'-5"         3         3'-7"         10'-0"           482A         13'-8"         3         3'-1"         10'-0"           483A         14'-2"         3         3'-1"         10'-3"           485A         16'-8"         3         4'-7"         12'-1"           501A         4'-4"         3         1'-9"         2'-7"           502A         4'-8"         3         2'-1"         2'-7"           503A         5'-3"         3         2'-1"         2'-7"           505A         5'-8"         3         2'-1"         3'-7"           50A         6'-6"         3         2'-1"         3'-7"           50A         6'-6"         3         2'-1"         3'-7"           50A         6'-6"         3         2'-1"         3'-1"           50A         6'-6"         3         2'-1"         4'-0"           50A         6'-6"         3         2'-1"         4'-1" <th></th> <th>I</th> <th></th> <th></th> <th>_</th>   |      | I       |      |         | _       |
|--|------|---------|------|---------|---------|
| ### ### ### ### ### ### ### ### ### ##   | MARK | LENGTH  | TYPE | A 7/ 0" | B 0/ 7" |
| A8IA   13'-7"   3   3'-7"   10'-0"   482A   13'-8"   3   3'-9"   9'-11"   483A   14'-0"   3   3'-10"   10'-2"   484A   14'-2"   3   3'-11"   10'-3"   485A   16'-8"   3   4'-7"   12'-1"   12'-1"   14'-2"   3   3'-11"   10'-3"   486A   16'-8"   3   4'-7"   12'-1"   15'-2"   14'-2"   3   3'-10"   12'-1"   15'-2"   15' |      |         |      |         |         |
| A82A   13'-8"   3   3'-9"   9'-11'     A83A   14'-0"   3   3'-10"   10'-2"     A84A   14'-2"   3   3'-11"   10'-3"     A85A   16'-8"   3   4'-7"   12'-1"     A86A   18'-1"   3   7'-0"   11'-1"     SOIA   4'-4"   3   1'-9"   2'-7"     SO2A   4'-8"   3   2'-1"   2'-7"     SO3A   5'-3"   3   2'-4"   2'-11"     SO4A   5'-6"   3   1'-11"   3'-7"     SO5A   5'-6"   3   2'-1"   3'-7"     SO5A   5'-6"   3   2'-1"   3'-7"     SO5A   5'-6"   3   2'-1"   3'-7"     SO5A   6'-6"   3   2'-1"   3'-7"     SO5A   6'-6"   3   2'-1"   3'-7"     SO8A   6'-8"   3   2'-1"   3'-1"     SO7A   6'-6"   3   2'-1"   4'-7"     SO8A   6'-8"   3   2'-1"   4'-7"     SO8A   6'-6"   3   2'-10"   4'-2"     SIAA   7'-0"   3   2'-10"   4'-2"     SIAA   7'-0"   3   2'-10"   4'-2"     SIAA   7'-5"   3   3'-2"   4'-3"     SIAA   7'-6"   3   3'-2"   4'-3"     SIAA   7'-6"   3   3'-2"   4'-3"     SIAA   7'-6"   3   3'-2"   4'-4"     SIAA   7'-6"   3   3'-2"   5'-7"     SIAA   7'-1"   3   3'-2"   5'-7"     SIAA   8'-1"   3   3'-2"   5'-8"     S2AA   8'-6"   3   3'-2"   5'-8"     S2AA   8'-6"   3   3'-2"   5'-8"     S2AA   8'-6"   3   3'-2"   5'-9"     S3AA   9'-6"   3   3'-2"   5'-1"     S2AA   8'-6"   3   3'-2"   5'-1"     S2AA   8'-6"   3   3'-2"   5'-3"     S2AA   8'-6"   3   3'-2"   5'-3"     S2AA   8'-6"   3   3'-2"   5'-3"     S3AA   9'-6"   3   3'-2"   5'-1"     S3AA   9'-6"   3   3'-2"   7'-1"     S4AA   10'-3"   3   3'-2"   7'-1"     S4AA   10'-0"   3   3'-2"   7'-1"     S5AA   10'-1"   3   3'-2"   7'-1"     S5AA   10'-1"   3   3'-2"  |      |         |      |         |         |
| 484A   |      |         |      |         |         |
| 485A   16'-8"   3   4'-7"   12'-1"   486A   18'-1"   3   7'-0"   11'-1"   | 483A | 14'-0"  | 3    | 3'-10"  | 10'-2"  |
| SOIA   4'-4"   3   1'-9"   2'-7"   502A   4'-8"   3   2'-1"   2'-7"   502A   4'-8"   3   2'-1"   2'-7"   504A   5'-6"   3   2'-1"   3'-7"   505A   5'-6"   3   2'-1"   3'-7"   505A   5'-6"   3   2'-1"   3'-7"   506A   6'-6"   3   2'-6"   4'-0"   506A   6'-6"   3   2'-6"   4'-0"   506A   6'-6"   3   2'-6"   4'-0"   506A   6'-6"   3   2'-6"   4'-7"   509A   6'-10"   3   2'-11"   3'-11"   507A   6'-6"   3   2'-10"   4'-7"   509A   6'-10"   3   2'-10"   4'-7"   509A   6'-10"   3   2'-10"   4'-2"   511A   7'-0"   3   2'-10"   4'-2"   512A   7'-3"   3   2'-4"   4'-11"   511A   7'-0"   3   2'-6"   5'-0"   512A   7'-5"   3   3'-2"   4'-3"   515A   7'-6"   3   3'-2"   4'-3"   515A   7'-6"   3   3'-2"   4'-3"   515A   7'-1"   3   3'-3"   4'-4"   517A   7'-9"   3   2'-10"   4'-11"   518A   7'-11"   3   2'-4"   5'-7"   519A   8'-0"   3   2'-6"   5'-0"   5'-8"   522A   8'-3"   3   2'-6"   5'-9"   522A   8'-5"   3   3'-2"   5'-11"   526A   8'-5"   3   3'-2"   5'-11"   526A   8'-5"   3   3'-2"   5'-11"   533A   9'-5"   3   3'-2"   5'-11"   533A   9'-5"   3   3'-2"   6'-11"   534A   0'-5"   3   3'-2"   6'-11"   544A   10'-0"   3   3'-7"   6'-5"   544A   10'-0"   3   3'-7"   6'-5"   544A   10'-5"   3   3'-2"   6'-11"   555A   10'-11"   3   3'-2"   6'-11"   555A   10'-5"   3   3'-2"   7'-0"   544A   10'-5"   3   3'-2"   7'-0"   544A   10'-5"   3   3'-2"   7'-1"   555A   10'-5"   3   3'-6"   7'-1"   555A   10'-11"   3   3'-2"   7'-1"   555A   10'-11"   3   3'-0"   7'-10"   555A   10'-11"   3   3'-0"   7'-10"   555A   10'-11"   3   3'-0"   7'-10"   555A   10'-11"   3   3'-5"   3'-2"   7'-11"   556A   10'-11"   | 484A | 14'-2"  | 3    | 3'-11"  | 10'-3"  |
| SOIA   4'-4"   3   1'-9"   2'-7"   502A   4'-8"   3   2'-1"   2'-7"   503A   5'-3"   3   2'-1"   2'-7"   503A   5'-3"   3   2'-1"   3'-7"   505A   5'-8"   3   2'-1"   3'-7"   505A   5'-8"   3   2'-1"   3'-7"   505A   6'-6"   3   2'-1"   4'-7"   506A   6'-6"   3   2'-6"   4'-0"   508A   6'-8"   3   2'-1"   4'-7"   509A   6'-10"   3   2'-1"   4'-7"   509A   6'-10"   3   2'-1"   4'-7"   510A   7'-0"   3   2'-5"   4'-7"   511A   7'-0"   3   2'-10"   4'-2"   512A   7'-3"   3   2'-10"   4'-2"   512A   7'-3"   3   2'-10"   4'-2"   512A   7'-3"   3   2'-6"   5'-0"   515A   7'-6"   3   2'-6"   5'-0"   516A   7'-7"   3   3'-3"   4'-4"   5'15A   7'-6"   3   2'-6"   5'-0"   516A   7'-1"   3   3'-3"   4'-4"   5'-7"   519A   8'-0"   3   2'-4"   5'-7"   519A   8'-0"   3   2'-4"   5'-8"   522A   8'-3"   3   2'-6"   5'-9"   5'24A   8'-4"   3   3'-2"   5'-9"   522A   8'-5"   3   3'-2"   5'-1"   532A   9'-5"   3   3'-2"   6'-1"   533A   9'-6"   3   2'-9"   6'-1"   533A   9'-6"   3   2'-9"   6'-9"   533A   9'-6"   3   2'-9"   6'-9"   533A   9'-6"   3   2'-9"   6'-9"   533A   9'-6"   3   2'-9"   6'-1"   534A   9'-5"   3   3'-2"   6'-1"   5'-9"   534A   9'-5"   3   3'-2"   6'-9"   534A   9'-5"   3   3'-2"   6'-9"   534A   9'-5"   3   3'-2"   6'-1"   5'-9"   534A   9'-5"   3   3'-2"   6'-1"   5'-9"   534A   9'-5"   3   3'-2"   6'-1"   5'-9"   544A   10'-5"   3   3'-2"   6'-9"   5'-9"   554A   10'-6"   3   3'-1"    | 485A | 16'-8"  | 3    | 4'-7"   | 12'-1"  |
| 502A         4'-8"         3         2'-1"         2'-7"           503A         5'-3"         3         2'-4"         2'-1"           504A         5'-6"         3         1'-11"         3'-7"           505A         5'-8"         3         2'-1"         3'-7"           506A         6'-6"         3         2'-6"         4'-0"           507A         6'-6"         3         2'-1"         4'-7"           508A         6'-8"         3         2'-1"         4'-7"           509A         6'-10"         3         2'-1"         4'-7"           510A         7'-0"         3         2'-10"         4'-2"           511A         7'-0"         3         2'-10"         4'-1"           512A         7'-4"         3         3'-3"         4'-1"           513A         7'-7"         3         3'-6"         5'-0"           514A         7'-5"         3         3'-6"         5'-0"           515A         7'-6"         3         2'-6"         5'-0"           514A         7'-1"         3         2'-4"         5'-8"           515A         7'-6"         3         2'-4"         <  | 486A | 8'- "   | 3    | 7'-0"   | ' -   " |
| 502A         4'-8"         3         2'-1"         2'-7"           503A         5'-3"         3         2'-4"         2'-1"           504A         5'-6"         3         1'-11"         3'-7"           505A         5'-8"         3         2'-1"         3'-7"           506A         6'-6"         3         2'-6"         4'-0"           507A         6'-6"         3         2'-1"         4'-7"           508A         6'-8"         3         2'-1"         4'-7"           509A         6'-10"         3         2'-1"         4'-7"           510A         7'-0"         3         2'-10"         4'-2"           511A         7'-0"         3         2'-10"         4'-1"           512A         7'-4"         3         3'-3"         4'-1"           513A         7'-7"         3         3'-6"         5'-0"           514A         7'-5"         3         3'-6"         5'-0"           515A         7'-6"         3         2'-6"         5'-0"           514A         7'-1"         3         2'-4"         5'-8"           515A         7'-6"         3         2'-4"         <  |      |         | _    |         |         |
| 503A         5'-3"         3         2'-4"         2'-1 1"           504A         5'-6"         3         1'-1 "         3'-7"           505A         5'-8"         3         2'-1"         3'-7"           505A         5'-8"         3         2'-1"         3'-1"           507A         6'-6"         3         2'-1"         4'-0"           508A         6'-8"         3         2'-1"         4'-7"           509A         6'-10"         3         2'-11"         3'-11"           509A         6'-10"         3         2'-11"         3'-1"           511A         7'-0"         3         2'-5"         4'-7"           511A         7'-0"         3         2'-6"         4'-1"           512A         7'-3"         3         2'-4"         4'-11"           513A         7'-6"         3         2'-6"         5'-0"           516A         7'-7"         3         3'-2"         4'-4"           518A         7'-11"         3         2'-4"         5'-8"           52A         8'-0"         3         2'-4"         5'-8"           52A         8'-6"         3         2'-4"  |      |         |      |         |         |
| 504A         5'-6"         3         I'-II"         3'-7"           505A         5'-8"         3         2'-I"         3'-7"           506A         6'-3"         3         2'-I"         3'-II"           507A         6'-6"         3         2'-II"         3'-II"           508A         6'-8"         3         2'-II"         3'-II"           509A         6'-10"         3         2'-II"         3'-II"           510A         7'-0"         3         2'-10"         4'-2"           511A         7'-0"         3         2'-10"         4'-2"           512A         7'-3"         3         2'-4"         4'-II"           513A         7'-4"         3         3'-3"         4'-11"           514A         7'-5"         3         3'-2"         4'-3"           515A         7'-6"         3         2'-6"         5'-0"           516A         7'-7"         3         3'-3"         4'-4"           517A         7'-9"         3         2'-10"         4'-11"           518A         7'-1"         3         2'-4"         5'-2"           518A         7'-1"         3         3'-3" <td></td> <td></td> <td></td> <td></td> <td></td>   |      |         |      |         |         |
| 506A         6'-3"         3         2'-4"         3'-1 "           507A         6'-6"         3         2'-6"         4'-0"           508A         6'-8"         3         2'-1"         4'-7"           509A         6'-10"         3         2'-11"         3'-11"           510A         7'-0"         3         2'-10"         4'-2"           512A         7'-3"         3         2'-10"         4'-2"           512A         7'-3"         3         2'-4"         4'-1"           513A         7'-4"         3         3'-3"         4'-1"           514A         7'-5"         3         3'-2"         4'-3"           515A         7'-6"         3         2'-6"         5'-0"           516A         7'-1"         3         3'-4"         5'-4"           517A         7'-1"         3         3'-4"         5'-8"           518A         7'-1"         3         2'-4"         5'-8"           51A         7'-1"         3         3'-4"         5'-8"           51A         8'-1"         3         2'-5"         5'-8"           52A         8'-3"         3         2'-5" <t< td=""><td>-</td><td></td><td></td><td></td><td></td></t<>   | -    |         |      |         |         |
| 507A         6'-6"         3         2'-1"         4'-0"           508A         6'-8"         3         2'-1"         4'-7"           509A         6'-10"         3         2'-1"         3'-11"           510A         7'-0"         3         2'-10"         4'-2"           511A         7'-0"         3         2'-10"         4'-2"           512A         7'-3"         3         2'-10"         4'-2"           513A         7'-4"         3         3'-3"         4'-1"           514A         7'-5"         3         3'-6"         5'-0"           516A         7'-7"         3         3'-3"         4'-4"           517A         7'-9"         3         2'-6"         5'-0"           518A         7'-11"         3         2'-4"         5'-8"           519A         8'-0"         3         3'-7"         5'-8"           521A         8'-1"         3         2'-6"         5'-9"           521A         8'-3"         3         2'-6"         5'-9"           521A         8'-5"         3         3'-2"         5'-1"           521A         8'-5"         3         3'-2"  | 505A |         | 3    | 2'-1"   | 3′-7″   |
| 508A         6'-8"         3         2'-1"         4'-7"           509A         6'-10"         3         2'-11"         3'-11"           510A         7'-0"         3         2'-10"         4'-2"           511A         7'-0"         3         2'-10"         4'-2"           512A         7'-3"         3         2'-4"         4'-11"           513A         7'-5"         3         3'-2"         4'-3"           514A         7'-5"         3         3'-2"         4'-3"           515A         7'-6"         3         2'-6"         5'-0"           516A         7'-7"         3         3'-2"         4'-3"           517A         7'-9"         3         2'-10"         4'-11"           518A         7'-11"         3         2'-4"         5'-8"           520A         8'-0"         3         3'-7"         4'-5"           510A         8'-1"         3         2'-6"         5'-9"           523A         8'-3"         3         2'-6"         5'-1"           524A         8'-5"         3         2'-6"         5'-1"           525A         8'-5"         3         2'-6"   |      |         |      |         |         |
| 509A         6'-10"         3         2'-11"         3'-11"           510A         7'-0"         3         2'-5"         4'-7"           511A         7'-0"         3         2'-10"         4'-2"           512A         7'-3"         3         2'-10"         4'-2"           513A         7'-4"         3         3'-2"         4'-3"           514A         7'-5"         3         3'-2"         4'-3"           515A         7'-6"         3         2'-6"         5'-0"           516A         7'-7"         3         3'-3"         4'-4"           517A         7'-9"         3         2'-10"         4'-11"           518A         7'-11"         3         2'-4"         5'-7"           519A         8'-0"         3         3'-7"         4'-5"           519A         8'-0"         3         3'-7"         4'-5"           521A         8'-1"         3         2'-6"         5'-9"           521A         8'-4"         3         3'-9"         4'-7"           524A         8'-4"         3         3'-9"         4'-7"           525A         8'-5"         3         3'-2"  |      |         |      |         |         |
| 510A         7'-0"         3         2'-5"         4'-7"           511A         7'-0"         3         2'-10"         4'-2"           512A         7'-3"         3         2'-10"         4'-2"           513A         7'-4"         3         3'-3"         4'-1"           514A         7'-5"         3         3'-2"         4'-3"           515A         7'-6"         3         2'-6"         5'-0"           516A         7'-7"         3         3'-3"         4'-4"           517A         7'-9"         3         2'-10"         4'-11"           518A         7'-11"         3         2'-4"         5'-7"           519A         8'-0"         3         2'-4"         5'-7"           519A         8'-0"         3         3'-7"         4'-5"           521A         8'-1"         3         2'-6"         5'-9"           522A         8'-3"         3         2'-6"         5'-11"           52A         8'-5"         3         2'-6"         5'-11"           52A         8'-5"         3         3'-2"         5'-3"           52A         8'-1"         3         3'-2"         <  |      |         |      |         |         |
| 512A         7'-3"         3         2'-4"         4'-1"           513A         7'-4"         3         3'-3"         4'-1"           514A         7'-5"         3         3'-2"         4'-3"           515A         7'-6"         3         2'-6"         5'-0"           516A         7'-7"         3         3'-10"         4'-11"           517A         7'-9"         3         2'-10"         4'-11"           518A         7'-11"         3         2'-4"         5'-7"           519A         8'-0"         3         2'-4"         5'-6"           520A         8'-0"         3         3'-7"         4'-5"           521A         8'-1"         3         2'-6"         5'-9"           52A         8'-3"         3         3'-2"         5'-1"           52A         8'-5"         3         3'-2"         5'-1"           52A         8'-5"         3         3'-2"         5'-3"           52A         8'-5"         3         3'-2"         6'-0"           52BA         8'-8"         3         2'-8"         6'-0"           52A         8'-1"         3         3'-2"         6  |      |         |      |         |         |
| 513A         7'-4"         3         3'-3"         4'-1"           514A         7'-5"         3         3'-2"         4'-3"           515A         7'-6"         3         2'-6"         5'-0"           516A         7'-7"         3         3'-3"         4'-4"           517A         7'-9"         3         2'-6"         5'-0"           518A         7'-11"         3         2'-4"         5'-8"           520A         8'-0"         3         2'-4"         5'-8"           520A         8'-0"         3         3'-7"         4'-5"           521A         8'-1"         3         2'-6"         5'-9"           522A         8'-3"         3         2'-6"         5'-9"           523A         8'-5"         3         3'-2"         5'-1"           525A         8'-5"         3         3'-2"         5'-3"           527A         8'-7"         3         3'-2"   |      |         |      |         |         |
| 514A         7'-5"         3         3'-2"         4'-3"           515A         7'-6"         3         2'-6"         5'-0"           516A         7'-7"         3         3'-3"         4'-4"           517A         7'-9"         3         2'-10"         4'-11"           518A         7'-11"         3         2'-4"         5'-7"           519A         8'-0"         3         2'-4"         5'-8"           520A         8'-0"         3         2'-5"         5'-8"           521A         8'-1"         3         2'-6"         5'-9"           521A         8'-3"         3         2'-6"         5'-9"           523A         8'-3"         3         2'-6"         5'-11"           524A         8'-4"         3         3'-9"         4'-7"           525A         8'-5"         3         3'-2"         5'-11"           526A         8'-5"         3         3'-2"         5'-3"           527A         8'-1"         3         3'-0"         5'-11"           528A         8'-8"         3         2'-8"         6'-0"           529A         8'-11"         3         3'-2"   |      |         |      |         |         |
| 515A         7'-6"         3         2'-6"         5'-0"           516A         7'-7"         3         3'-3"         4'-4"           517A         7'-9"         3         2'-10"         4'-11"           518A         7'-11"         3         2'-4"         5'-7"           519A         8'-0"         3         2'-4"         5'-8"           520A         8'-0"         3         3'-7"         4'-5"           521A         8'-1"         3         2'-6"         5'-9"           522A         8'-3"         3         2'-6"         5'-9"           523A         8'-3"         3         3'-2"         5'-11"           524A         8'-4"         3         3'-2"         5'-11"           525A         8'-5"         3         2'-6"         5'-11"           525A         8'-5"         3         3'-2"         6'-0"           529A         8'-11"         3         3'-0"         5'-11"           530A         9'-0"         3         3'-7"         5'-5"           531A         9'-3"         3         3'-2"         6'-10"           53AA         9'-5"         3         3'-0"   | -    |         |      |         |         |
| 516A         7'-7"         3         3'-3"         4'-4"           517A         7'-9"         3         2'-10"         4'-11"           518A         7'-11"         3         2'-4"         5'-7"           519A         8'-0"         3         2'-4"         5'-8"           520A         8'-0"         3         3'-7"         4'-5"           521A         8'-1"         3         2'-5"         5'-8"           522A         8'-3"         3         2'-6"         5'-9"           523A         8'-3"         3         3'-2"         5'-11"           524A         8'-4"         3         3'-9"         4'-7"           525A         8'-5"         3         2'-6"         5'-11"           526A         8'-5"         3         3'-2"         5'-3"           527A         8'-1"         3         3'-3"         5'-4"           528A         8'-8"         3         2'-8"         6'-0"           529A         8'-11"         3         3'-0"         5'-11"           530A         9'-0"         3         3'-7"         5'-5"           531A         9'-5"         3         3'-0"   |      |         |      |         |         |
| 518A         7'-11"         3         2'-4"         5'-7"           519A         8'-0"         3         2'-4"         5'-8"           520A         8'-0"         3         3'-7"         4'-5"           521A         8'-1"         3         2'-5"         5'-8"           522A         8'-3"         3         2'-6"         5'-9"           523A         8'-3"         3         3'-2"         5'-1"           524A         8'-4"         3         3'-9"         4'-7"           525A         8'-5"         3         3'-2"         5'-3"           526A         8'-5"         3         3'-2"         5'-3"           526A         8'-5"         3         3'-2"         5'-3"           526A         8'-5"         3         3'-2"         6'-0"           528A         8'-8"         3         2'-8"         6'-0"           529A         8'-11"         3         3'-0"         5'-11"           530A         9'-0"         3         3'-7"         5'-5"           531A         9'-3"         3         3'-2"         6'-11"           532A         9'-4"         3         2'-8"         <  |      | 7'-7"   | 3    | 3'-3"   | 4'-4"   |
| 519A         8'-0"         3         2'-4"         5'-8"           520A         8'-0"         3         3'-7"         4'-5"           521A         8'-1"         3         2'-5"         5'-8"           522A         8'-3"         3         2'-6"         5'-9"           523A         8'-3"         3         3'-2"         5'-1"           524A         8'-4"         3         3'-9"         4'-7"           525A         8'-5"         3         2'-6"         5'-11"           526A         8'-5"         3         3'-2"         5'-3"           526A         8'-7"         3         3'-3"         5'-4"           528A         8'-8"         3         2'-8"         6'-0"           529A         8'-11"         3         3'-0"         5'-11"           530A         9'-0"         3         3'-7"         5'-5"           531A         9'-3"         3         3'-2"         6'-11"           53AA         9'-5"         3         3'-2"         6'-8"           53AA         9'-5"         3         3'-10"         6'-11"           53AA         9'-6"         3         2'-8"  |      |         |      |         |         |
| 520A         8'-0"         3         3'-7"         4'-5"           521A         8'-1"         3         2'-5"         5'-8"           522A         8'-3"         3         2'-6"         5'-9"           523A         8'-3"         3         3'-2"         5'-1"           524A         8'-4"         3         3'-9"         4'-7"           525A         8'-5"         3         2'-6"         5'-11"           526A         8'-5"         3         3'-2"         5'-3"           527A         8'-7"         3         3'-3"         5'-4"           528A         8'-8"         3         2'-8"         6'-0"           529A         8'-11"         3         3'-0"         5'-11"           530A         9'-0"         3         3'-7"         5'-5"           531A         9'-3"         3         3'-2"         6'-1"           53AA         9'-5"         3         3'-2"         6'-1"           535A         9'-6"         3         2'-9"         6'-10"           53AA         9'-5"         3         3'-0"         6'-11"           53BA         9'-6"         3         2'-9"   |      |         |      |         |         |
| 521A         8'-1"         3         2'-5"         5'-8"           522A         8'-3"         3         2'-6"         5'-9"           523A         8'-3"         3         3'-2"         5'-1"           524A         8'-4"         3         3'-9"         4'-7"           525A         8'-5"         3         2'-6"         5'-11"           526A         8'-5"         3         3'-2"         5'-3"           527A         8'-7"         3         3'-3"         5'-4"           528A         8'-8"         3         2'-8"         6'-0"           529A         8'-11"         3         3'-0"         5'-11"           530A         9'-0"         3         3'-7"         5'-5"           531A         9'-3"         3         3'-2"         6'-1"           532A         9'-4"         3         2'-8"         6'-1"           534A         9'-5"         3         3'-2"         6'-3"           534A         9'-5"         3         3'-9"         6'-10"           535A         9'-6"         3         2'-9"         6'-10"           534A         9'-5"         3         3'-0"   |      |         |      |         |         |
| 523A         8'-3"         3         3'-2"         5'-1"           524A         8'-4"         3         3'-9"         4'-7"           525A         8'-5"         3         2'-6"         5'-11"           526A         8'-5"         3         3'-2"         5'-3"           527A         8'-7"         3         3'-3"         5'-4"           528A         8'-8"         3         2'-8"         6'-0"           529A         8'-11"         3         3'-0"         5'-11"           530A         9'-0"         3         3'-7"         5'-5"           53IA         9'-3"         3         3'-2"         6'-1"           53AA         9'-5"         3         3'-2"         6'-1"           53AA         9'-5"         3         3'-0"         5'-7"           535A         9'-6"         3         2'-9"         6'-9"           537A         9'-7"         3         2'-8"         6'-11"           538A         9'-8"         3         3'-4"         6'-4"           54OA         9'-10"         3         4'-1"         5'-9"           54AA         10'-2"         3         3'-2"  | -    |         |      |         |         |
| 524A         8'-4"         3         3'-9"         4'-7"           525A         8'-5"         3         2'-6"         5'-1 "           526A         8'-5"         3         2'-6"         5'-1 "           526A         8'-7"         3         3'-2"         5'-4"           528A         8'-8"         3         2'-8"         6'-0"           529A         8'-11"         3         3'-0"         5'-11"           530A         9'-0"         3         3'-7"         5'-5"           531A         9'-3"         3         3'-2"         6'-1"           532A         9'-4"         3         2'-8"         6'-8"           533A         9'-5"         3         3'-10"         5'-7"           535A         9'-6"         3         2'-8"         6'-10"           535A         9'-6"         3         2'-9"         6'-10"           535A         9'-6"         3         2'-9"         6'-10"           535A         9'-6"         3         2'-9"         6'-11"           536A         9'-6"         3         2'-9"         6'-11"           53A         9'-8"         3         3'-0"   | 522A |         |      |         |         |
| 525A         8'-5"         3         2'-6"         5'-1"           526A         8'-5"         3         3'-2"         5'-3"           527A         8'-7"         3         3'-3"         5'-4"           528A         8'-8"         3         2'-8"         6'-0"           529A         8'-11"         3         3'-0"         5'-11"           530A         9'-0"         3         3'-7"         5'-5"           531A         9'-3"         3         3'-2"         6'-1"           532A         9'-4"         3         2'-8"         6'-8"           533A         9'-5"         3         3'-2"         6'-3"           534A         9'-6"         3         2'-8"         6'-10"           535A         9'-6"         3         2'-9"         6'-9"           535A         9'-6"         3         2'-9"         6'-10"           535A         9'-6"         3         2'-9"         6'-10"           535A         9'-6"         3         2'-9"         6'-11"           535A         9'-6"         3         2'-9"         6'-11"           53AA         9'-8"         3         3'-4"   | -    |         |      |         |         |
| 526A         8'-5"         3         3'-2"         5'-3"           527A         8'-7"         3         3'-3"         5'-4"           528A         8'-8"         3         2'-8"         6'-0"           529A         8'-11"         3         3'-0"         5'-11"           530A         9'-0"         3         3'-7"         5'-5"           531A         9'-3"         3         3'-2"         6'-1"           532A         9'-4"         3         2'-8"         6'-8"           533A         9'-5"         3         3'-2"         6'-3"           534A         9'-5"         3         3'-0"         5'-7"           535A         9'-6"         3         2'-8"         6'-10"           536A         9'-6"         3         2'-9"         6'-10"           538A         9'-8"         3         2'-9"         6'-11"           538A         9'-8"         3         2'-9"         6'-11"           539A         9'-8"         3         2'-9"         6'-11"           540A         9'-10"         3         3'-2"         7'-0"           541A         10'-0"         3         3'-2"   |      |         |      |         |         |
| 527A         8'-7"         3         3'-3"         5'-4"           528A         8'-8"         3         2'-8"         6'-0"           529A         8'-II"         3         3'-0"         5'-II"           530A         9'-0"         3         3'-7"         5'-5"           53IA         9'-3"         3         3'-2"         6'-II"           53AA         9'-5"         3         3'-2"         6'-3"           53AA         9'-5"         3         3'-10"         5'-7"           535A         9'-6"         3         2'-8"         6'-10"           536A         9'-6"         3         2'-9"         6'-11"           538A         9'-8"         3         2'-9"         6'-11"           539A         9'-8"         3         2'-9"         6'-11"           539A         9'-8"         3         3'-4"         6'-4"           540A         9'-10"         3         4'-1"         5'-9"           541A         10'-0"         3         3'-2"         7'-1"           542A         10'-2"         3         3'-2"         7'-1"           543A         10'-3"         3         3'-2"  |      |         |      |         |         |
| 529A         8'-II"         3         3'-0"         5'-II"           530A         9'-0"         3         3'-7"         5'-5"           53IA         9'-3"         3         3'-2"         6'-I"           532A         9'-4"         3         2'-8"         6'-8"           533A         9'-5"         3         3'-2"         6'-3"           534A         9'-5"         3         3'-10"         5'-7"           535A         9'-6"         3         2'-9"         6'-10"           536A         9'-6"         3         2'-9"         6'-10"           537A         9'-7"         3         2'-8"         6'-II"           538A         9'-8"         3         3'-9"         6'-II"           539A         9'-8"         3         3'-9"         6'-II"           539A         9'-8"         3         3'-9"         6'-II"           540A         9'-10"         3         4'-I"         5'-9"           541A         10'-0"         3         3'-2"         7'-0"           542A         10'-2"         3         3'-2"         7'-1"           543A         10'-3"         3         3'-2"   |      | 8'-7"   |      |         | 5'-4"   |
| 530A         9'-0"         3         3'-7"         5'-5"           531A         9'-3"         3         3'-2"         6'-1"           532A         9'-4"         3         2'-8"         6'-8"           533A         9'-5"         3         3'-10"         5'-7"           535A         9'-6"         3         2'-8"         6'-10"           536A         9'-6"         3         2'-9"         6'-11"           536A         9'-6"         3         2'-9"         6'-11"           536A         9'-6"         3         2'-9"         6'-11"           538A         9'-8"         3         2'-9"         6'-11"           539A         9'-8"         3         3'-4"         6'-4"           540A         9'-10"         3         4'-1"         5'-9"           541A         10'-0"         3         3'-2"         7'-0"           542A         10'-2"         3         3'-2"         7'-0"           543A         10'-3"         3         3'-2"         7'-1"           544A         10'-5"         3         3'-10"         6'-7"           54AA         10'-6"         3         2'-11"  |      |         |      |         |         |
| 53IA         9'-3"         3         3'-2"         6'-1"           532A         9'-4"         3         2'-8"         6'-8"           533A         9'-5"         3         3'-2"         6'-3"           534A         9'-5"         3         3'-10"         5'-7"           535A         9'-6"         3         2'-8"         6'-10"           536A         9'-6"         3         2'-9"         6'-9"           537A         9'-7"         3         2'-8"         6'-11"           538A         9'-8"         3         2'-9"         6'-11"           539A         9'-8"         3         3'-4"         6'-4"           540A         9'-10"         3         4'-1"         5'-9"           541A         10'-0"         3         3'-2"         7'-0"           542A         10'-2"         3         3'-2"         7'-1"           543A         10'-3"         3         3'-2"         7'-1"           544A         10'-3"         3         3'-2"         7'-1"           545A         10'-4"         3         3'-2"         7'-1"           548A         10'-7"         3         3'-1"   |      |         |      |         |         |
| 532A         9'-4"         3         2'-8"         6'-8"           533A         9'-5"         3         3'-2"         6'-3"           534A         9'-5"         3         3'-10"         5'-7"           535A         9'-6"         3         2'-8"         6'-10"           536A         9'-6"         3         2'-9"         6'-9"           537A         9'-7"         3         2'-8"         6'-11"           538A         9'-8"         3         2'-9"         6'-11"           539A         9'-8"         3         3'-4"         6'-4"           540A         9'-10"         3         4'-1"         5'-9"           541A         10'-0"         3         3'-7"         6'-5"           542A         10'-2"         3         3'-2"         7'-0"           543A         10'-3"         3         3'-2"         7'-1"           544A         10'-3"         3         3'-2"         7'-2"           546A         10'-5"         3         3'-10"         6'-7"           548A         10'-7"         3         2'-11"         7'-8"           549A         10'-7"         3         3'-6"  |      |         |      |         |         |
| 534A         9'-5"         3         3'-10"         5'-7"           535A         9'-6"         3         2'-8"         6'-10"           536A         9'-6"         3         2'-9"         6'-9"           537A         9'-7"         3         2'-8"         6'-11"           538A         9'-8"         3         2'-9"         6'-11"           539A         9'-8"         3         3'-4"         6'-4"           540A         9'-10"         3         4'-1"         5'-9"           541A         10'-0"         3         3'-7"         6'-5"           542A         10'-2"         3         3'-2"         7'-0"           543A         10'-3"         3         3'-2"         7'-1"           543A         10'-3"         3         3'-2"         7'-1"           543A         10'-3"         3         3'-4"         6'-11"           544A         10'-5"         3         3'-10"         6'-7"           545A         10'-6"         3         2'-11"         7'-7"           548A         10'-7"         3         3'-6"         7'-1"           549A         10'-7"         3         3'-6" </td <td>-</td> <td></td> <td></td> <td></td> <td></td>   | -    |         |      |         |         |
| 535A         9'-6"         3         2'-8"         6'-10"           536A         9'-6"         3         2'-9"         6'-9"           537A         9'-7"         3         2'-8"         6'-11"           538A         9'-8"         3         2'-9"         6'-11"           539A         9'-8"         3         3'-4"         6'-4"           540A         9'-10"         3         4'-1"         5'-9"           541A         10'-0"         3         3'-2"         7'-0"           542A         10'-2"         3         3'-2"         7'-1"           543A         10'-3"         3         3'-2"         7'-1"           544A         10'-3"         3         3'-2"         7'-2"           545A         10'-4"         3         3'-2"         7'-2"           546A         10'-5"         3         3'-10"         6'-7"           548A         10'-7"         3         3'-4"         7'-3"           549A         10'-7"         3         3'-6"         7'-1"           551A         10'-8"         3         2'-10"         7'-10"           552A         10'-8"         3         2'-11"<   |      |         |      |         |         |
| 536A         9'-6"         3         2'-9"         6'-9"           537A         9'-7"         3         2'-8"         6'-II"           538A         9'-8"         3         2'-9"         6'-II"           539A         9'-8"         3         3'-4"         6'-4"           540A         9'-I0"         3         4'-I"         5'-9"           54IA         10'-0"         3         3'-7"         6'-5"           542A         10'-2"         3         3'-2"         7'-0"           543A         10'-3"         3         3'-2"         7'-1"           544A         10'-3"         3         3'-2"         7'-2"           545A         10'-4"         3         3'-2"         7'-2"           546A         10'-5"         3         3'-10"         6'-7"           547A         10'-6"         3         2'-11"         7'-8"           548A         10'-7"         3         3'-6"         7'-1"           548A         10'-7"         3         3'-6"         7'-1"           551A         10'-8"         3         2'-11"         7'-9"           553A         10'-9"         3         3'-5" </td <td></td> <td></td> <td></td> <td></td> <td></td>  |      |         |      |         |         |
| 537A         9'-7"         3         2'-8"         6'-II"           538A         9'-8"         3         2'-9"         6'-II"           539A         9'-8"         3         3'-4"         6'-4"           540A         9'-I0"         3         4'-I"         5'-9"           54IA         10'-0"         3         3'-7"         6'-5"           542A         10'-2"         3         3'-2"         7'-0"           543A         10'-3"         3         3'-2"         7'-1"           544A         10'-3"         3         3'-2"         7'-2"           545A         10'-4"         3         3'-2"         7'-2"           546A         10'-5"         3         3'-10"         6'-7"           547A         10'-6"         3         2'-11"         7'-7"           548A         10'-7"         3         3'-4"         7'-3"           549A         10'-7"         3         3'-6"         7'-I"           551A         10'-8"         3         2'-11"         7'-9"           553A         10'-9"         3         3'-5"         7'-4"           554A         10'-10"         3         3'-0"   | -    |         |      |         |         |
| 539A         9'-8"         3         3'-4"         6'-4"           540A         9'-10"         3         4'-1"         5'-9"           541A         10'-0"         3         3'-7"         6'-5"           542A         10'-2"         3         3'-2"         7'-0"           543A         10'-3"         3         3'-2"         7'-1"           544A         10'-3"         3         3'-2"         7'-2"           545A         10'-4"         3         3'-2"         7'-2"           546A         10'-5"         3         3'-10"         6'-7"           547A         10'-6"         3         2'-11"         7'-8"           548A         10'-7"         3         3'-4"         7'-3"           548A         10'-7"         3         3'-4"         7'-1"           549A         10'-7"         3         3'-6"         7'-1"           551A         10'-8"         3         2'-11"         7'-9"           552A         10'-8"         3         2'-11"         7'-9"           554A         10'-10"         3         3'-0"         7'-10"           555A         10'-11"         3         3'   |      |         |      |         |         |
| 540A         9'-10"         3         4'-1"         5'-9"           541A         10'-0"         3         3'-7"         6'-5"           542A         10'-2"         3         3'-2"         7'-0"           543A         10'-3"         3         3'-2"         7'-1"           544A         10'-3"         3         3'-4"         6'-11"           545A         10'-4"         3         3'-2"         7'-2"           546A         10'-5"         3         3'-10"         6'-7"           547A         10'-6"         3         2'-11"         7'-7"           548A         10'-7"         3         3'-4"         7'-3"           549A         10'-7"         3         3'-6"         7'-1"           551A         10'-8"         3         2'-10"         7'-10"           552A         10'-8"         3         2'-11"         7'-9"           553A         10'-9"         3         3'-0"         7'-10"           554A         10'-10"         3         3'-0"         7'-11"           55A         10'-11"         3         3'-0"         7'-11"           55A         10'-11"         3 <t< td=""><td>538A</td><td></td><td></td><td></td><td>6'-11"</td></t<>   | 538A |         |      |         | 6'-11"  |
| 54IA         IO'-O"         3         3'-7"         6'-5"           542A         IO'-2"         3         3'-2"         7'-O"           543A         IO'-3"         3         3'-2"         7'-I"           544A         IO'-3"         3         3'-4"         6'-II"           545A         IO'-4"         3         3'-2"         7'-2"           546A         IO'-5"         3         3'-IO"         6'-7"           547A         IO'-6"         3         2'-II"         7'-8"           548A         IO'-7"         3         3'-4"         7'-3"           549A         IO'-7"         3         3'-6"         7'-II"           551A         IO'-8"         3         2'-II"         7'-9"           551A         IO'-8"         3         2'-II"         7'-9"           553A         IO'-9"         3         3'-5"         7'-4"           554A         IO'-II"         3         3'-0"         7'-II"           555A         IO'-II"         3         3'-0"         7'-II"           55AA         IO'-II"         3         3'-0"         7'-II"           55AA         II'-0"         3  |      |         |      |         |         |
| 542A       10'-2"       3       3'-2"       7'-0"         543A       10'-3"       3       3'-2"       7'-1"         544A       10'-3"       3       3'-4"       6'-11"         545A       10'-4"       3       3'-2"       7'-2"         546A       10'-5"       3       2'-11"       7'-7"         547A       10'-6"       3       2'-11"       7'-8"         549A       10'-7"       3       3'-4"       7'-3"         550A       10'-7"       3       3'-6"       7'-1"         551A       10'-8"       3       2'-10"       7'-10"         552A       10'-8"       3       2'-11"       7'-9"         553A       10'-9"       3       3'-5"       7'-4"         554A       10'-10"       3       3'-0"       7'-11"         555A       10'-11"       3       3'-0"       7'-11"         555A       10'-11"       3       3'-0"       7'-11"         558A       11'-0"       3       3'-2"       7'-11"         559A       11'-5"       3       3'-4"       8'-1"         560A       11'-7"       3       3'-5"       8'  |      |         |      |         |         |
| 543A         10'-3"         3         3'-2"         7'-1"           544A         10'-3"         3         3'-4"         6'-11"           545A         10'-4"         3         3'-2"         7'-2"           546A         10'-5"         3         3'-10"         6'-7"           547A         10'-6"         3         2'-11"         7'-8"           549A         10'-7"         3         3'-4"         7'-3"           550A         10'-7"         3         3'-6"         7'-1"           551A         10'-8"         3         2'-10"         7'-10"           552A         10'-8"         3         2'-11"         7'-9"           553A         10'-9"         3         3'-5"         7'-10"           554A         10'-10"         3         3'-0"         7'-10"           55A         10'-11"         3         3'-0"         7'-11"           55A         10'-11"         3         3'-0"         7'-11"           55A         10'-11"         3         3'-0"         7'-11"           55A         11'-0"         3         3'-2"         7'-11"           55A         11'-1"         3         <   |      |         |      |         |         |
| 545A         10'-4"         3         3'-2"         7'-2"           546A         10'-5"         3         3'-10"         6'-7"           547A         10'-6"         3         2'-11"         7'-7"           548A         10'-7"         3         2'-11"         7'-8"           549A         10'-7"         3         3'-6"         7'-1"           550A         10'-7"         3         3'-6"         7'-1"           551A         10'-8"         3         2'-10"         7'-10"           552A         10'-8"         3         2'-11"         7'-9"           553A         10'-9"         3         3'-5"         7'-4"           554A         10'-10"         3         3'-0"         7'-11"           55A         10'-11"         3         3'-0"         7'-11"           55A         10'-11"         3         3'-0"         7'-11"           55A         10'-11"         3         3'-7"         7'-5"           55A         11'-0"         3         3'-7"         7'-11"           55A         11'-1"         3         3'-2"         7'-11"           56A         11'-7"         3 <td< td=""><td>-</td><td></td><td></td><td></td><td></td></td<>   | -    |         |      |         |         |
| 546A       10'-5"       3       3'-10"       6'-7"         547A       10'-6"       3       2'-11"       7'-7"         548A       10'-7"       3       2'-11"       7'-8"         549A       10'-7"       3       3'-6"       7'-1"         550A       10'-8"       3       2'-10"       7'-10"         551A       10'-8"       3       2'-11"       7'-9"         553A       10'-9"       3       3'-5"       7'-4"         554A       10'-10"       3       3'-0"       7'-10"         555A       10'-11"       3       3'-0"       7'-11"         556A       10'-11"       3       3'-2"       7'-11"         559A       11'-0"       3       3'-2"       7'-11"         559A       11'-5"       3       3'-4"       8'-1"         560A       11'-7"       3       3'-5"       8'-2"         561A       11'-7"       3       3'-7"       8'-4"         563A       11'-11"       3       3'-8"       8'-3"         564A       12'-0"       3       3'-11"       8'-1"         565A       12'-0"       3       3'-10" <td< td=""><td></td><td></td><td></td><td></td><td></td></td<>   |      |         |      |         |         |
| 547A       10'-6"       3       2'-11"       7'-7"         548A       10'-7"       3       2'-11"       7'-8"         549A       10'-7"       3       3'-4"       7'-3"         550A       10'-7"       3       3'-6"       7'-1"         551A       10'-8"       3       2'-10"       7'-10"         552A       10'-8"       3       2'-11"       7'-9"         553A       10'-9"       3       3'-5"       7'-4"         554A       10'-10"       3       3'-0"       7'-10"         555A       10'-11"       3       3'-0"       7'-11"         556A       10'-11"       3       3'-0"       7'-11"         557A       11'-0"       3       3'-7"       7'-5"         558A       11'-1"       3       3'-2"       7'-11"         559A       11'-5"       3       3'-4"       8'-1"         560A       11'-7"       3       3'-5"       8'-2"         561A       11'-7"       3       3'-7"       8'-4"         563A       11'-11"       3       3'-8"       8'-3"         564A       12'-0"       3       3'-10"       8  | -    |         |      |         |         |
| 548A       10'-7"       3       2'-11"       7'-8"         549A       10'-7"       3       3'-4"       7'-3"         550A       10'-7"       3       3'-6"       7'-1"         551A       10'-8"       3       2'-10"       7'-10"         552A       10'-8"       3       2'-11"       7'-9"         553A       10'-9"       3       3'-5"       7'-4"         554A       10'-10"       3       3'-0"       7'-10"         555A       10'-11"       3       3'-0"       7'-11"         556A       10'-11"       3       3'-2"       7'-11"         557A       11'-0"       3       3'-2"       7'-11"         559A       11'-1"       3       3'-2"       7'-11"         560A       11'-7"       3       3'-5"       8'-1"         560A       11'-7"       3       3'-5"       8'-2"         563A       11'-11"       3       3'-7"       8'-4"         564A       12'-0"       3       3'-11"       8'-1"         565A       12'-0"       3       4'-3"       7'-9"         566A       12'-3"       3       3'-10"   |      |         |      |         |         |
| 550A       10'-7"       3       3'-6"       7'-1"         551A       10'-8"       3       2'-10"       7'-9"         552A       10'-8"       3       2'-11"       7'-9"         553A       10'-9"       3       3'-5"       7'-4"         554A       10'-10"       3       3'-0"       7'-11"         555A       10'-11"       3       3'-0"       7'-11"         556A       10'-11"       3       3'-7"       7'-5"         558A       11'-1"       3       3'-2"       7'-11"         559A       11'-5"       3       3'-4"       8'-1"         560A       11'-7"       3       3'-5"       8'-2"         561A       11'-7"       3       3'-5"       8'-2"         563A       11'-11"       3       3'-8"       8'-4"         563A       11'-11"       3       3'-8"       8'-3"         564A       12'-0"       3       3'-11"       8'-1"         565A       12'-0"       3       3'-10"       8'-5"  | -    |         |      |         |         |
| 55IA         IO'-8"         3         2'-IO"         7'-IO"           552A         IO'-8"         3         2'-II"         7'-9"           553A         IO'-9"         3         3'-5"         7'-4"           554A         IO'-IO"         3         3'-0"         7'-IO"           555A         IO'-II"         3         3'-0"         7'-II"           556A         IO'-II"         3         4'-2"         6'-9"           557A         II'-0"         3         3'-7"         7'-5"           558A         II'-I"         3         3'-2"         7'-II"           559A         II'-5"         3         3'-4"         8'-I"           560A         II'-7"         3         3'-5"         8'-2"           561A         II'-7"         3         4'-0"         7'-7"           563A         II'-II"         3         3'-8"         8'-4"           564A         I2'-0"         3         3'-II"         8'-I"           565A         I2'-0"         3         4'-3"         7'-9"           566A         I2'-3"         3'-IO"         8'-5"  |      | 10'-7"  |      |         |         |
| 552A       10'-8"       3       2'-11"       7'-9"         553A       10'-9"       3       3'-5"       7'-4"         554A       10'-10"       3       3'-0"       7'-10"         555A       10'-11"       3       3'-0"       7'-11"         556A       10'-11"       3       4'-2"       6'-9"         557A       11'-0"       3       3'-7"       7'-5"         558A       11'-1"       3       3'-2"       7'-11"         559A       11'-5"       3       3'-4"       8'-1"         560A       11'-7"       3       3'-5"       8'-2"         561A       11'-7"       3       4'-0"       7'-7"         562A       11'-11"       3       3'-8"       8'-4"         563A       11'-11"       3       3'-8"       8'-3"         564A       12'-0"       3       3'-11"       8'-1"         565A       12'-0"       3       3'-10"       8'-5"   | -    |         |      |         |         |
| 553A       10'-9"       3       3'-5"       7'-4"         554A       10'-10"       3       3'-0"       7'-10"         555A       10'-11"       3       3'-0"       7'-11"         556A       10'-11"       3       4'-2"       6'-9"         557A       11'-0"       3       3'-7"       7'-5"         558A       11'-1"       3       3'-2"       7'-11"         559A       11'-5"       3       3'-4"       8'-1"         560A       11'-7"       3       3'-5"       8'-2"         561A       11'-7"       3       4'-0"       7'-7"         562A       11'-11"       3       3'-8"       8'-4"         563A       11'-11"       3       3'-8"       8'-3"         564A       12'-0"       3       3'-11"       8'-1"         565A       12'-0"       3       4'-3"       7'-9"         566A       12'-3"       3       3'-10"       8'-5"  |      |         |      |         |         |
| 554A       10'-10"       3       3'-0"       7'-10"         555A       10'-11"       3       3'-0"       7'-11"         556A       10'-11"       3       4'-2"       6'-9"         557A       11'-0"       3       3'-7"       7'-5"         558A       11'-1"       3       3'-2"       7'-11"         559A       11'-5"       3       3'-4"       8'-1"         560A       11'-7"       3       3'-5"       8'-2"         561A       11'-7"       3       4'-0"       7'-7"         562A       11'-11"       3       3'-7"       8'-4"         563A       11'-11"       3       3'-8"       8'-3"         564A       12'-0"       3       3'-11"       8'-1"         565A       12'-0"       3       4'-3"       7'-9"         566A       12'-3"       3       3'-10"       8'-5"  |      |         |      |         |         |
| 556A       10'-11"       3       4'-2"       6'-9"         557A       11'-0"       3       3'-7"       7'-5"         558A       11'-1"       3       3'-2"       7'-11"         559A       11'-5"       3       3'-4"       8'-1"         560A       11'-7"       3       3'-5"       8'-2"         561A       11'-7"       3       4'-0"       7'-7"         562A       11'-11"       3       3'-7"       8'-4"         563A       11'-11"       3       3'-8"       8'-3"         564A       12'-0"       3       3'-11"       8'-1"         565A       12'-0"       3       4'-3"       7'-9"         566A       12'-3"       3       3'-10"       8'-5"  | 554A | 10'-10" | 3    | 3'-0"   | 7'-10"  |
| 557A       II'-0"       3       3'-7"       7'-5"         558A       II'-I"       3       3'-2"       7'-II"         559A       II'-5"       3       3'-4"       8'-I"         560A       II'-7"       3       3'-5"       8'-2"         56IA       II'-7"       3       4'-0"       7'-7"         562A       II'-II"       3       3'-7"       8'-4"         563A       II'-II"       3       3'-8"       8'-3"         564A       I2'-0"       3       3'-II"       8'-I"         565A       I2'-0"       3       4'-3"       7'-9"         566A       I2'-3"       3       3'-IO"       8'-5"   |      |         |      |         |         |
| 558A       II'-I"       3       3'-2"       7'-II"         559A       II'-5"       3       3'-4"       8'-I"         560A       II'-7"       3       3'-5"       8'-2"         56IA       II'-7"       3       4'-0"       7'-7"         562A       II'-II"       3       3'-7"       8'-4"         563A       II'-II"       3       3'-8"       8'-3"         564A       I2'-0"       3       3'-II"       8'-I"         565A       I2'-0"       3       4'-3"       7'-9"         566A       I2'-3"       3       3'-IO"       8'-5"   |      |         |      |         |         |
| 559A       II'-5"       3       3'-4"       8'-1"         560A       II'-7"       3       3'-5"       8'-2"         56IA       II'-7"       3       4'-0"       7'-7"         562A       II'-II"       3       3'-7"       8'-4"         563A       II'-II"       3       3'-8"       8'-3"         564A       I2'-0"       3       3'-II"       8'-I"         565A       I2'-0"       3       4'-3"       7'-9"         566A       I2'-3"       3       3'-I0"       8'-5"  | -    |         |      |         |         |
| 56IA       II'-7"       3       4'-0"       7'-7"         562A       II'-II"       3       3'-7"       8'-4"         563A       II'-II"       3       3'-8"       8'-3"         564A       I2'-0"       3       3'-II"       8'-I"         565A       I2'-0"       3       4'-3"       7'-9"         566A       I2'-3"       3       3'-I0"       8'-5"  |      |         |      |         |         |
| 562A       11'-11"       3       3'-7"       8'-4"         563A       11'-11"       3       3'-8"       8'-3"         564A       12'-0"       3       3'-11"       8'-1"         565A       12'-0"       3       4'-3"       7'-9"         566A       12'-3"       3       3'-10"       8'-5"  |      |         |      |         |         |
| 563A       11'-11"       3       3'-8"       8'-3"         564A       12'-0"       3       3'-11"       8'-1"         565A       12'-0"       3       4'-3"       7'-9"         566A       12'-3"       3       3'-10"       8'-5"   |      |         |      |         |         |
| 564A       12'-0"       3       3'-11"       8'-1"         565A       12'-0"       3       4'-3"       7'-9"         566A       12'-3"       3       3'-10"       8'-5"  |      |         |      |         |         |
| 565A     12'-0"     3     4'-3"     7'-9"       566A     12'-3"     3     3'-10"     8'-5"   |      |         |      |         |         |
|  |      |         | 3    | 4'-3"   |         |
| 56 (A   12'-8"   3   4'-1"   8'-7"   |      |         |      |         |         |
|  | 56/A | 12'-8"  | 5    | 4'- "   | 8'-/"   |

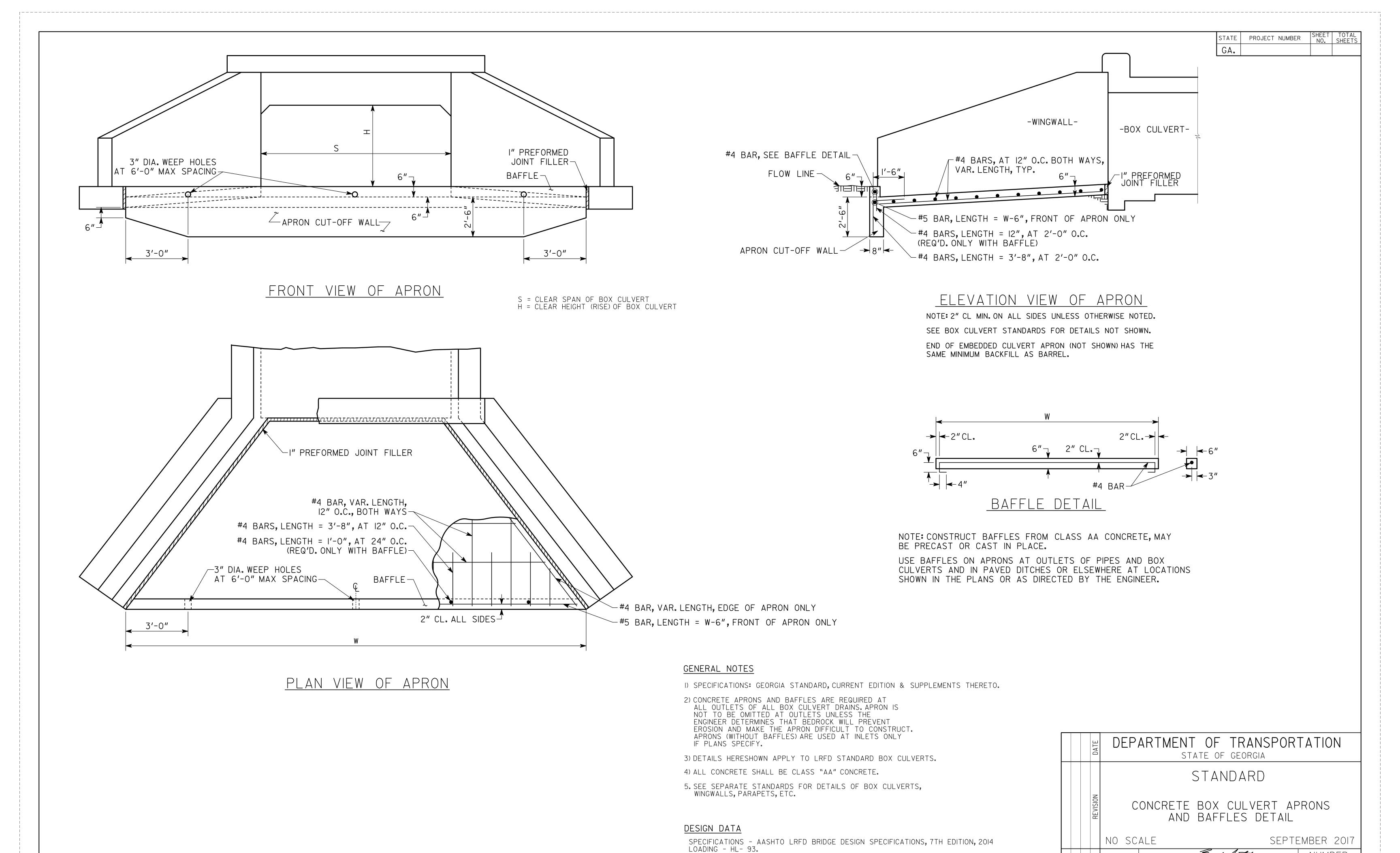
| 11150  |         |      |            |        |
|--------|---------|------|------------|--------|
| MARK   | LENGTH  | TYPE | Α          | В      |
| 568A   | 2'-  "  | 3    | 3'-9"      | 9'-2"  |
| 569A   | 13'-2"  | 3    | 3'-10"     | 9'-4"  |
| 570A   | 13'-2"  | 3    | 4'-5"      | 8'-9"  |
| 57IA   | 13'-8"  | 3    | 5'-9"      | 7'-11" |
| 572A   | 13'-9"  | 3    | 3'-8"      | 10'-1" |
| 573A   | 13'-10" | 3    | 4'-3"      | 9'-7"  |
| 574A   | 14'-2"  | 3    | 3'-11"     | 10'-3" |
| 575A   | 14'-4"  | 3    | 4'-3"      | 10'-1" |
| 576A   | 14'-4"  | 3    | 4'-7"      | 9'-9"  |
| 577A   | 14'-6"  | 3    | 4'-2"      | 10'-4" |
| 578A   | 14'-7"  | 3    | 4'-2"      | 10'-5" |
| 579A   | 14'-8"  | 3    | 5'-9"      | 8'-11" |
| 580A   | 15'-1"  | 3    | 4'-6"      | 10'-7" |
| 58IA   | 15'-7"  | 3    | 6'-6"      | 9'-1"  |
| 582A   | 15'-10" | 3    | 4'-5"      | 11'-5" |
| 563A   | 16'-7"  | 3    | 6'-6"      | 10'-1" |
| 584A   | 17'-2"  | 3    | 4'-9"      | 12'-5" |
|        | 1 '' -  |      | , ,        | '_     |
| CO14   | 0/ 10// | 7    | Λ I - I II | A1 0#  |
| 60IA   | 8'-10"  | 3    | 4'- "      | 4'-9"  |
| 602A   | 10'-9"  | 3    | 3'- "      | 7'-8"  |
| 603A   | 10'-11" | 3    | 3'-2"      | 7'-9"  |
| 604A   | 11'-2"  | 3    | 3'-2"      | 8'-0"  |
| 605A   | 13'-0"  | 3    | 3'-9"      | 9'-3"  |
| 606A   | 13'-4"  | 3    | 3'-11"     | 9'-5"  |
| 607A   | 14'-2"  | 3    | 4'-0"      | 10'-2" |
| 608A   | 14'-5"  | 3    | 4'-2"      | 10'-3" |
| 609A   | 14'-8"  | 3    | 4'-3"      | 10'-5  |
| 610A   | 15'-6"  | 3    | 4'-9"      | 10'-9" |
| 61 I A | 16'-9"  | 3    | 5'-0"      | 11'-9" |
| 612A   | 17'-6"  | 3    | 4'-  "     | 12'-7" |
| 613A   | 18'-0"  | 3    | 5'-3"      | 12'-9" |
|        |         |      |            |        |
| 70IA   | 7'-7"   | 3    | 2'-8"      | 4'-  " |
| 702A   | 7'-9"   | 3    | 3'-6"      | 4'-3"  |
| 703A   | 8'-4"   | 3    | 3'-11"     | 4'-5"  |
| 704A   | 8'-7"   | 3    | 2'-9"      | 5'-10" |
| 705A   | 8'-8"   | 3    | 3'-6"      | 5'-2"  |
| 706A   | 9'-3"   | 3    | 3'-10"     | 5'-5"  |
| 707A   | 9'-9    | 3    | 3′-7″      | 6'-2"  |
| 708A   | 10'-3"  | 3    | 3'-10"     | 6'-5"  |
| 709A   | '-4"    | 3    | 3'-11"     | 7'-5"  |
| 710A   | 11'-5"  | 3    | 3'-4"      | 8'-1"  |
| 71 IA  | 12'-2"  | 3    | 3'-11"     | 8'-3"  |
| 7I2A   | 12'-7"  | 3    | 4'-2"      | 8'-5"  |
| 713A   | 12'-9"  | 3    | 3'-8"      | 9'-1"  |
| 714A   | 13'-6"  | 3    | 4'-3"      | 9'-3"  |
| 7I5A   | 13'-10" | 3    | 4'-5"      | 9'-5"  |
| 716A   | 15'-11" | 3    | 4'-8"      | 11'-3" |
| 717A   | 17'-5"  | 3    | 5'-2"      | 12'-3" |
|        |         |      | <u> </u>   |        |
|        |         |      |            |        |
| 80IA   | 17'-2"  | 3    | 5′-7″      | 11'-7" |

| MARK  | LENGTH                | TYPE | А                                 | В      |
|-------|-----------------------|------|-----------------------------------|--------|
| 40IB  | 3'-l <sup>1</sup> /2" | 6    | '-  <sup> </sup> /2"              | 0'-6"  |
| 402B  | 3'-15/8"              | 6    | '-  <sup>5</sup> / <sub>8</sub> " | 0'-6"  |
| 403B  | 3'-31/2"              | 6    | '-  /2"                           | 0'-7"  |
| 404B  | 3'-35/8"              | 6    | 1'-15/8"                          | 0'-7"  |
| 405B  | 3'-3¾"                | 6    | '-  <sup>3</sup> / <sub>4</sub> " | 0'-7"  |
| 406B  | 3'-51/2"              | 6    | '-  /2"                           | 0'-8"  |
| 407B  | 3′-55/8″              | 6    | 1'-15/8"                          | 0'-8"  |
| 408B  | 3′-5¾"                | 6    | 1'-13/4"                          | 0'-8"  |
| 409B  | 3'-71/2"              | 6    | '-  <sup> </sup> /2"              | 0'-9"  |
| 410B  | 3′-75/8″              | 6    | 1'-15/8"                          | 0'-9"  |
| 41 IB | 3'-7¾"                | 6    | '-  <sup>3</sup> / <sub>4</sub> " | 0'-9"  |
| 412B  | 3'-71/8"              | 6    | '-  <sup>7</sup> / <sub>8</sub> " | 0'-9"  |
| 413B  | 3'-91/2"              | 6    | '-  <sup> </sup> /2"              | 0'-10" |
| 414B  | 3'-95/8"              | 6    | 1'-15/8"                          | 0'-10" |
| 415B  | 3'-93/4"              | 6    | '-  <sup>3</sup> / <sub>4</sub> " | 0'-10" |
| 416B  | 3'-97/8"              | 6    | '-  <sup>7</sup> / <sub>8</sub> " | 0'-10" |
| 417B  | 3'-115/8"             | 6    | '-  <sup>5</sup> / <sub>8</sub> " | 0'-11" |
| 418B  | 3'-113/4"             | 6    | '-  <sup>3</sup> / <sub>4</sub> " | 0'-  " |
| 419B  | 3'-11 1/8"            | 6    | '-  <sup>7</sup> / <sub>8</sub> " | 0'-  " |
| 420B  | 4'-13/4"              | 6    | '-  <sup>3</sup> / <sub>4</sub> " | l'-0"  |
| 42IB  | 4'-35/8"              | 6    | '-  <sup>5</sup> / <sub>8</sub> " | '- "   |
| 422B  | 4'-3¾"                | 6    | '-  <sup>3</sup> / <sub>4</sub> " | '- "   |
| 423B  | 4'-31/8"              | 6    | '-  <sup>7</sup> / <sub>8</sub> " | '- "   |
| 424B  | 4'-55/8"              | 6    | '-  <sup>5</sup> / <sub>8</sub> " | l'-2"  |
| 425B  | 4'-5¾"                | 6    | 1'-13/4"                          | l'-2"  |
| 426B  | 4'-5 1/8"             | 6    | '-  <sup>7</sup> / <sub>8</sub> " | l'-2"  |
| 427B  | 4'-75/8"              | 6    | 1'-15/8"                          | 1'-3"  |
| 428B  | 4'-71/8"              | 6    | '-  <sup>7</sup> / <sub>8</sub> " | 1'-3"  |
| 429B  | 4'-95/8"              | 6    | 1'-15/8"                          | 1'-4"  |
| 430B  | 4'-9¾"                | 6    | '-  <sup>3</sup> / <sub>4</sub> " | 1'-4"  |
| 43IB  | 4'-97/8"              | 6    | l'-l <sup>7</sup> /8"             | 1'-4"  |
| 432B  | 4'-10"                | 6    | l'-2"                             | 1'-4"  |
| 433B  | 5'-17/8"              | 6    | 1'-17/8"                          | 1'-6"  |
| 434B  | 5'-5¾"                | 6    | '-  <sup>3</sup> / <sub>4</sub> " | l'-8"  |
| 435B  | 5′-5¾″                | 6    | 1'-17/8"                          | l'-8"  |
| 436B  | 5′-6″                 | 6    | l'-2"                             | l'-8"  |

| DATE     | DEPARTMENT OF TRANSPORTATION<br>STATE OF GEORGIA  |
|----------|---|
|          | STANDARD  |
| REVISION | REINFORCED CONCRETE<br>DOUBLE BOX CULVERT   |
|          | NO SCALE SEPTEMBER 2017   |
| ВҮ       | DES. YSK DRW. FGS TRA CHK. JWB (SUBMITTED)  OES. YSK (SUBMITTED)  STATE DESIGN POLICY ENGINEER  CHEF ENGINEER  SHEET 3 OF 3 |

\* L = LENGTH OF CULVERT

| WINICWALLS TOEWALLS AND DADADETS  | GENERAL NOTES  STATE PROJECT NUMBER NO. SHEETS  GA.   |
|---|---|
| WINGWALLS, TOEWALLS AND PARAPETS  N BARS AT 1'-0" C. TO C. P BARS AT 1'-0" C. TO C. R BARS AT 1'-0" C. TO C. M BARS   |   |
|   | I) SPECIFICATIONS: GEORGIA STANDARD, CURRENT EDITION & SUPPLEMENTS THERETO.   |
| C R S S S S S S S S S S S S S S S S S S   | 으 2) MAINTAIN 3"CLEARANCE ON REINFORCEMENT AT FACE OF CONCRETE CAST<br>보 AGAINST EARTH. MAINTAIN 2" CLEARANCE ON ALL OTHER REINFORCEMENT.   |
|   | 3) CHAMFER ALL EXPOSED EDGES 3/4".  |
| 2'     #4     4     5'-4"     12     4'-4"     5'-2"     #4     20     3'-5"     4     1'-2"     1'-2"     #6     32     3'-6"     3'-6"     3'-6"     #6     14     X+2"     2       3'     #4     4     6'-7"     24     4'-4"     6'-5"     #4     20     6'-4"     8     1'-9"     4'-2"     #6     56     3'-6"     3'-6"     #6     14     X+2"     3   |   |
| 4'     #5     4     8'-2"     40     4'-5"     8'-2"     #4     20     9'-10"     12     2'-11"     7'-9"     #6     88     3'-6"     3'-6"     3'-6"     #6     14     X+2"     4       5'     #5     4     9'-1"     44     4'-11"     9'-0"     #4     20     11'-3"     16     2'-11"     10'-4"     #6     96     3'-6"     3'-6"     #6     14     X+2"     5   | OUTLETS. THE ENGINEER MAY ALLOW AN EXCEPTION FOR BED ROCK CONDITIONS. TOEWALLS UNDER PARAPETS MAY BE MODIFIED AT OUTLETS AS SHOWN ON STANDARDS FOR CONCRETE APRONS.   |
| 6'     #5     4     10'-2"     48     5'-5"     9'-11"     #4     24     12'-7"     16     2'-11"     10'-5"     #6     104     3'-6"     3'-6"     #6     14     X+2"     6       7'     #5     4     11'-2"     56     5'-11"     11'-2"     #4     24     13'-11"     20     3'-0"     13'-0"     #6     120     3'-6"     3'-6"     #6     14     X+2"     7  | 5) PARAPETS AT INLETS SHALL BE CONSTRUCTED WITH A 4"/45° BEVEL.  6) CULVERT TO HAVE MINIMUM OF I'-O" BELOW BOTTOM OF BASE OR  |
| 8'     #6     4     12'-4"     60     6'-6"     12'-3"     #4     28     15'-2"     24     3'-2"     13'-0"     #6     128     3'-8"     4'-0"     #6     14     X+2"     8       9'     #6     4     13'-5"     64     7'-0"     13'-2"     #4     28     16'-6"     24     3'-4"     15'-7"     #6     136     3'-8"     4'-6"     #6     14     X+2"     9   | CONCRETE PAVEMENT.  |
| 10'   #7   4   14'-7"   72   7'-8"   14'-7"   #4   32   17'-9"   24   3'-4"   15'-7"   #6   152   3'-8"   5'-0"   #6   14   X+2"   10'   11'   #7   4   15'-7"   76   8'-2"   15'-6"   #4   32   19'-1"   28   3'-4"   18'-2"   #6   160   3'-8"   5'-6"   #6   14   X+2"   11  | DESIGN DATA   |
| 12'   | SPECIFICATIONS - AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH EDITION, 2014 LOADING - HL-93  |
| * LENGTH INCLUDES VERTICAL LEG, HORIZONTAL LEG AND 180° STANDARD HOOK.  ** LENGTH INCLUDES 2 STANDARD 180° HOOKS.  Y = TOTAL BARREL HEIGHT OUT TO OUT (DIMENSION "Y" FROM CULVERT SHEET)  Y = TOTAL BARREL HEIGHT OUT TO OUT (DIMENSION "Y" FROM CULVERT SHEET)   | 5" M<br>  <del>&lt; &gt; &lt;</del>   |
| DIMENSIONS AND QUANTITIES   |   |
| LINE OF CO  | DNSTRUCTION BEVELING  PARAPET  BARS P AT 12"C. TO C. —  |
| 2' 3'-1" 1'-1" 2'-0" 1'-1" 2'-8" 10" - 3.3 270 2'  NORMAL LINE OF CONSTR. (FOR OUTL   | ETS)  |
| 3'   4'-3 /2"   2'-3 /2"   2'-0"   2'-1 /2"   5'-7"   10"   -     6.0     499   3'     4'     5'-9"   3'-9"   2'-0"   2'-7"   9'-2"   10"   -     9.2     795     4'  | BARS N AT 12"C. TO C. ≥   |
| 6' 7'-9" 4'-9" 3'-0" 2'-7" 10'-6" 10" - 12.4 1083 5'<br>6' 7'-9" 4'-9" 3'-0" 2'-7" 11'-10" 10" - 15.0 1246 6'   |   |
| 7' 8'-9½" 5'-3½" 3'-6" 2'-7½" 13'-2" 10" - 17.9 1507 7'  8' 9'-10½" 5'-10½" 4'-0" 2'-8½" 14'-5" 12" 1'-0" 25.3 2070 8'  INLET BEVELING IS REQUIRED AT THE INLET OF ALL BOX CULVERTS EXTENDING FROM WINGWALL, AT TOP OF CULVERT AS SHOWN.  | -WINGWALL- BOX CULVERT-   |
| 9'   10'-11"   6'-5"   4'-6"   2'-9"   15'-9"   12"   1'-6"   29.9   2345   9'  |   |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  | INLET BEVELING DETAIL  ELEVATION OF WING  |
| QUANTITIES GIVEN INCLUDE WINGWALL, WINGWALL FOOTING, AND WINGWALL TOEWALL FOR BOTH ENDS.  | T = TOP SLAB THICKNESS  |
| SYMMETRICAL ABOUT © CULVERT   | T <sub>2</sub> = BOTTOM SLAB THICKNESS  |
| BARS M 57 STONE  BARS S  BARS S   | NOTE: SEE BOX CULVERT STANDARDS -IO"  FOR DIMENSIONS.  , 12",  5'-0"  |
|   |   |
| TRANSVERSE SLAB   | S-5"FOR BARS IN BOTTOM OF SLAB. S-T <sub>1</sub> + 1½"FOR BARS IN TOP OF SLAB. IN TOP OF SLAB.  S-5"FOR BARS IN TOP OF SLAB.  S-5"FOR BARS IN TOP OF SLAB. IN BOTTOM OF SLAB.  M BARS AND P BARS IN BOTTOM OF SLAB. |
| TRANSVERSE SLAB REINFORCEMENT NOT SHOWN.  BARS G  BARS S  | S BARS IN BOTTOM OF SLAB. IN BOTTOM OF SLAB.  |
| CHAMFER ALL  BARS S  BARS S   | (#4)  |
|   | IN BARREL NABAREL   |
| BARS M  | 5'-0" 2'-8" VARIABLE VARIABLE   |
| BAR S AT EACH BAR G  BEND BAR M IN BARREL TOEWALL INTO  | T BARS N BARS R BARS WING (#4)  |
| BAR S AT EACH BAR G HALF END ELEVATION  3"DIA DRAIN AT CENTER OF FACH  BEND BAR M IN BARREL TOEWALL INTO IN TOP AND BOTTOM OF SLAB.  CLEARANCE AT EACH END.   |   |
| 2"DIA. DRAIN AT CENTER OF EACH OPENING AT EACH END OF CULVERT. 7 I CU. FT. 57 STONE DRAIN AT BOTTOM PART SECTION CURE NULL WITH   | <u>ATION</u>  |
| BARS H AND TARRETS  SIDE VIEW  TARRETS  TARRETS   |   |
| TLAP HERE    Solution   Solution |   |
|   |   |
| BARS N — WINGWALL FOR CLEAR HEIGHTS  WINGWALL FOR CLEAR HEIGHTS  BARS N — PARS N — PROPERTY — PARS N — PROPERTY — PARS N — PROPERTY |   |
| BARS P— A" FIGHT TANK STORES THAN 8-0.  | DEPARTMENT OF TRANSPORTATION  |
| BARS R  | STATE OF GEORGIA  |
|   | STANDARD  |
|   | REINFORCED CONCRETE WINGWALLS,  |
|   | TOEWALLS AND PARAPETS FOR CONCRETE BOX CULVERTS   |
| SECTION A-A SECTION B-B   | NO SCALE  SEPTEMBER 2017  |
| BARS S AND T ARE LAPPED WITH BARS G AND H, RESPECTIVELY.  | DES. WEI (SUBMITTED) BASSA NUMBER   |
|   | DRW. WEI TRA (APPROVED) Warring & Purelo SHEET I OF I   |
|   | CHK. YSK CHIEF ENGINEER SHEET I OF I  |



NUMBER

SHEET 10F 2

STATE DESIGN POLICY ENGINEER

- (APPROVED) Margoret B Priele

DES. <u>WEI</u> (SUBMITTED)

☐ DRW. <u>EJC</u> TRA. \_\_\_\_

CHK. EJC

| STATE | PROJECT NUMBER | SHEET<br>NO. | TOTAL<br>SHEETS |
|-------|----------------|--------------|-----------------|
| GA.   |                |              |                 |

|          |                            |                                       |              |                                    |                  |               |                                    |              |            |                  |                  |            | APRO                               | N QUA         | ANTITI        | ES FOR                             | R CON        | CRETE         | вох с                              | CULVER        | TS           |                                    |               |             |                                    |                  |             |                                    |                |  |                                  |   |                    |                               |                             |
|----------|----------------------------|---------------------------------------|--------------|------------------------------------|------------------|---------------|------------------------------------|--------------|------------|------------------|------------------|------------|------------------------------------|---------------|---------------|------------------------------------|--------------|---------------|------------------------------------|---------------|--------------|------------------------------------|---------------|-------------|------------------------------------|------------------|-------------|------------------------------------|----------------|--|----------------------------------|---|--------------------|-------------------------------|-----------------------------|
|          |                            | SINGLE                                | 90°          |                                    | SINGLE           | 75°           | S                                  | INGLE        | 60°        | SI               | NGLE 4           | 45°        | DO                                 | UBLE          | 90°           | DO                                 | DUBLE        | 75°           | DC                                 | )UBLE (       | 60°          | DO                                 | UBLE          | 45°         | TR                                 | RIPLE 90         | )°          | TRI                                | PLE 75         | 0  | TRIPL                            | _E 60°                                  |                    | TRIPLE                        | 45°                         |
| 5        | H (                        | W CU.YDS<br>(FT.) CONC.               |              | _                                  | CU.YDS.<br>CONC. | LBS.<br>STEEL | +                                  |              |            |                  | CU.YDS.<br>CONC. |            |                                    |               | LBS.<br>STEEL |                                    |              | LBS.<br>STEEL |                                    |               |              |                                    |               | _           |                                    | CU.YDS.<br>CONC. |             |                                    |                | BS. V<br>TEEL (FT.   |                                  |   | S. W<br>EL (FT.)   |                               | LBS. H S                    |
| 4'       | 3'   1<br>4'   1           | 11.133     1.27       15.433     2.23 | 108<br>178   | 12.83 <br>  17.279                 | 1.55<br>2.58     | 127<br>204    | 12.831<br>17.279                   | 1.55<br>2.58 | 127<br>204 | 16.7I5<br>23.I74 | 1.95<br>3.35     | 157<br>262 | 16.133<br>20.433                   | 2.11<br>3.33  | 170<br>259    | 17.825<br>22.275                   | 2.45<br>3.75 | 193<br>290    | 17.825<br>22.275                   | 2.45<br>3.75  | 193<br>290   | 21.7I5<br>28.I74                   | 2.83<br>4.49  | 222<br>345  | 21.133<br>25.433                   | 2.95<br>4.43     |             |                                    |                | 260 22.8<br>375 27.3   | 273 4                            | 35     260       .91     375            |                    | '4 5 <b>.</b> 63              | 287 3'<br>429 4' <b>4'</b>  |
| 5        |                            | 17.033     2.65       18.633     3.09 | 209          | 20.324                             | 3.44<br>3.99     | 267<br>307    | 20.324                             | 3.44<br>4.45 | 267<br>340 | 26.244<br>29.386 | 4.I6<br>5.06     | 320<br>385 | 22 <b>.</b> 033<br>23 <b>.</b> 633 | 3.85<br>4.39  | 297<br>335    | 25.322<br>27.107                   | 4.78<br>5.44 | 365<br>4I3    | 25.322<br>28.55I                   | 4.78<br>5.98  | 365<br>452   | 31.243<br>34.386                   | 5.42<br>6.45  | 413         | 27 <b>.</b> 033<br>28 <b>.</b> 633 | 5.05<br>5.69     |             |                                    |                | 463 30.<br>519 33.   |                                  | .12 463<br>.52 563                      |                    |                               | 506 5'<br>589 6'            |
| 3        |                            | 12.133     1.44       16.433     2.45 | 121<br>  194 | 13.830<br>18.278                   | 1.73<br>2.82     | 140<br>222    | 13.830<br>18.278                   | 1.73<br>2.82 | 140<br>222 | 17.715<br>24.174 | 2.I3<br>3.58     | 170<br>279 | 18.133                             | 2.44<br>3.77  | 195<br>291    | 19.823<br>24.274                   | 2.8I<br>4.2I | 2l9<br>324    | 19.823                             | 2.8I<br>4.2I  | 219<br>324   | 23.7I4<br>30.I74                   | 3.18<br>4.95  | 248<br>379  | 24.I33<br>28.433                   | 3.45<br>5.10     |             | 25 <b>.</b> 820<br>30 <b>.</b> 272 |                |  | 820 3 <b>.</b><br>272 5 <b>.</b> | <ul><li>89 299</li><li>61 426</li></ul> |                    | 14     4.24       74     6.32 | 326 3'<br>479 4'            |
| 5′ 5     |                            | 18.083     2.89       19.633     3.35 | 227<br>259   | 21.324                             | 3.7I<br>4.28     | 286<br>328    | 2I.324<br>24.553                   | 3.7I<br>4.76 | 286<br>362 | 27.244           | 4.4I<br>5.33     | 339<br>406 | 24 <b>.</b> 033<br>25 <b>.</b> 633 | 4.33<br>4.9I  | 333<br>373    | 27 <b>.</b> 322<br>29 <b>.</b> 107 | 5.32<br>6.0I | 404<br>455    | 27.322<br>30.55I                   | 5.32<br>6.60  | 404<br>497   | 33.243<br>36.386                   | 5.93<br>7.01  | 450<br>528  | 30.033<br>31.633                   | 5.77<br>6.47     |             | 33.320<br>35.105                   |                | 33.  |                                  | 93 522<br>43 63I                        |                    |                               | 56I 5' 5'                   |
| - T      | 7' 2                       | 21.233     3.85       22.833     4.38 | 297<br>334   | 24 <b>.</b> 553<br>26 <b>.</b> 398 | 4.76<br>5.4I     | 362<br>411    | 27.742 29.988                      | 5.9I<br>6.80 | 445<br>510 | 33.653<br>36.753 | 6.3I<br>7.37     | 476<br>553 | 27.233                             | 5.53<br>6.17  | 419<br>465    | 30.55I<br>32.396                   | 6.60<br>7.38 | 497<br>554    | 33.740<br>35.986                   | 7.97<br>9.02  | 596<br>67l   | 39 <b>.</b> 652<br>42 <b>.</b> 753 | 8.I3<br>9.34  | 609<br>697  | 33.233<br>34.833                   | 7.20<br>7.97     | 542         | 36.549                             | 3.43           |  | 738 10                           | .03 746<br>.24 833                      | 45.6               | 52 9.95                       | 742 7'<br>84I 8'            |
| 3        | 3′ I                       |                                       | 133<br>210   | 14.828<br>19.278                   | 1.91<br>3.05     | 153<br>238    | 14.828<br>19.278                   | 1.91<br>3.05 | 153<br>238 | 18.715<br>25.174 | 2.30<br>3.8I     | 183<br>295 |                                    | 2.78<br>4.2I  | 220<br>324    | 2l.822<br>26.273                   | 3.I7<br>4.68 | 246<br>358    | 2l.822<br>26.273                   | 3.17<br>4.68  | 246<br>358   | 25.7I4<br>32.I74                   | 3.53<br>5.41  | 274<br>4I2  | 27.I33<br>3I.433                   | 3.95<br>5.76     | 306         | 28.818                             | 4.43           | 39 28.8<br>77 33.2   | 818 4.                           | 43 339<br>.30 477                       | 32.7               | 14 4.77                       | 365 3'<br>529 4'            |
| 6' 6     | 5' I                       | 9.033 3.l3<br>20.633 3.6l             | 244<br>278   | 22.323                             | 3.98<br>4.57     | 306<br>350    | 22 <b>.</b> 323<br>25 <b>.</b> 552 | 3.98<br>5.06 | 306<br>384 | 28.244<br>31.386 | 4.66<br>5.61     | 358<br>426 | 26.033<br>27.633                   | 4.8I<br>5.43  | 368<br>4H     | 29.32I<br>3I.I06                   | 5.86<br>6.59 | 443           | 29 <b>.</b> 32l<br>32 <b>.</b> 550 | 5.86<br>7.2I  | 443<br>54l   | 35.243<br>38.386                   | 6.44<br>7.57  | 487<br>569  | 33.033<br>34.633                   | 6.49<br>7.25     | 491         | 36.320<br>38.105                   | 7.74           | 81 36.3  | 320 7.                           | 74 58I<br>35 698                        | 42.24              | 43 8.21                       | 617 5'<br>712 6' 6'         |
| - 1      | 7' 2                       | 22.233 4.I3<br>23.833 4.68            | 317<br>355   | 25 <b>.</b> 552<br>27 <b>.</b> 397 | 5.06<br>5.74     | 384<br>434    | 28.742                             | 6.25<br>7.17 | 47I<br>537 | 34.653<br>37.753 | 6.6I<br>7.70     | 499<br>577 | 29.233<br>30.833                   | 6.09<br>6.77  | 460<br>509    | 32 <b>.</b> 550<br>34 <b>.</b> 396 | 7.21         | 54I<br>602    | 35.379<br>37.986                   | 8.66<br>9.76  | 646<br>725   | 4I.652<br>44.753                   | 8.74<br>10.00 | 653<br>745  | 36.233<br>37.833                   | 8.04             | 603         | 39.549                             | 9.35           | 698 42. 69 44. 6 | 738 11.                          | 06 822<br>.35 914                       | 48.6               | 52 10.86                      | 809 7'<br>913 8'            |
| 71 5     | 4′   1                     | 18.433     2.89       20.033     3.37 | 227<br>262   | 20.277                             | 3.28<br>4.24     | 256<br>325    | 20.277                             | 3.28<br>4.24 | 256<br>325 | 26.174<br>29.243 | 4.04<br>4.92     | 312<br>376 | 26.433<br>28.033                   | 4.65<br>5.29  | 356<br>403    | 28.272<br>31.321                   | 5.I4<br>6.39 | 392<br>483    | 28.272<br>31.321                   | 5.I4<br>6.39  | 392<br>483   | 34.I74<br>37.243                   | 5.86<br>6.94  | 446<br>524  | 34.433<br>36.033                   | 6.42<br>7.21     | 485         | 36.270                             | 7.00 !         |  | 270 7.                           | 00 528<br>54 640                        | 3 42.17            | 74 7.68                       | 579 4'<br>672 5'            |
| ( )      |                            | 2I.633 3.87<br>23.233 4.4I            | 297          | 25.I08<br>26.552                   | 4.86             | 371           | 26.552                             | 5.37         | 407        | 32.386           | 5.89             | 447        | 29.633                             |               | 449           | 33.I06<br>34.550                   | 7.17         | 540           | 34.550<br>37.739                   | 7.82          | 586<br>696   | 40.386                             |               |             | 37.633<br>39.233                   |                  |             |                                    | 9.49<br>0.27   |  | 549 IO                           |   |                    | 86 IO.36                      | 773 6' 7'                   |
| 8        | 8' 2                       | 24.833 4.98<br>19.433 3.11            | 378          | 28.397                             | 6.07<br>3.5I     | 458           | 31.987                             | 7.54<br>3.5I | 564        | 38.753           | 8.03             | 601        | 32.833                             | 7.37<br>5.10  | 552<br>388    | 36.395<br>30.272                   | 8.69         | 650<br>426    | 39.985<br>30.272                   | 10.50         | 779<br>426   | 46.753<br>36.174                   | 10.65         | 793         | 40.833                             | 9.77             | 727         | 44.394                             | 1.32 8         | 34I 47.9<br>379 39.3   | 984 I3<br>269 7.                 | .46 995<br>70 579                       | 5 54.7!            | 53   13.28<br>74   8.37       | 985 8'                      |
| 8' 6     | 5' 2                       | 2I.033 3.6I<br>22.633 4.I3            | 280<br>3l6   | 24 <b>.</b> 323<br>26 <b>.</b> l07 | 4.5I<br>5.I5     | 345<br>392    | 24.323                             | 4.5I<br>5.68 | 345<br>429 | 30.243           | 5.17             | 395<br>467 | 30 <b>.</b> 033                    | 5.77<br>6.47  | 438<br>487    | 33 <b>.</b> 320<br>35 <b>.</b> l05 | 6.93<br>7.75 | 522<br>582    | 33.320<br>36.549                   | 6.93<br>8.43  | 522<br>63I   | 39.243<br>42.386                   | 7.45<br>8.68  | 56I<br>65I  | 39.033<br>40.633                   | 7.93<br>8.8I     | 596<br>659  | 42 <b>.</b> 319<br>44 <b>.</b> 104 | 9.35 (         | 399 42.3<br>73 45.5  | 319 9 <b>.</b>                   | 35 699<br>19 832                        | 48.2               | 43 9.73<br>36                 | 728 5'<br>834 6' <b>8'</b>  |
| - 1      | 7' <i>2</i><br>8' <i>2</i> | 24.233 4.69<br>25.833 5.28            | 358<br>399   | 27 <b>.</b> 552<br>29 <b>.</b> 397 | 5.68<br>6.40     | 429<br>482    | 30.741                             | 6.94<br>7.91 | 52I<br>59I | 36.653<br>39.753 | 7.22<br>8.35     | 543<br>625 | 33.233<br>34.833                   | 7 <b>.</b> 20 | 542<br>596    | 36 <b>.</b> 549<br>38 <b>.</b> 395 | 8.43<br>9.35 | 63I<br>698    | 39.738<br>41.985                   | 10.03         | 746<br>833   | 45.652<br>48.753                   | 9 <b>.</b> 95 | 742<br>84I  | 42.233<br>43.833                   | 9.72             | 726<br>793  | 45 <b>.</b> 548<br>47 <b>.</b> 393 | 1.19           | 32 48.<br>33 50.   | 737   13<br>984   14             | .12 972<br>.57 1076                     | 54.6<br>6 57.7     | 52   12.68<br>53   14.27      | 942 7'                      |
|          | 9' 2                       | 27.333 5.86<br>28.833 6.46            | 443          | 31.142                             | 7.11             | 535<br>582    | 35 <b>.</b> 233                    | 8.94<br>9.98 | 668        | 43.040           | 9.64             | 720<br>8I5 | 36.333<br>37.833                   | 8.72<br>9.49  | 652<br>706    | 40.140                             | 10.25        | 764<br>822    | 44.232<br>46.378                   | 12.51         | 928<br>1019  | 52.040<br>55.141                   | 12.83         | 954<br>1064 | 45.333<br>46.833                   | 11.58            | 860<br>928  | 49.138                             | 3.38 S         | 92 53.2<br>063 55.3  | 23I I6<br>377 I7                 | .08   1187                              | 7 61.04<br>5 64.14 | 40   16.03<br>40   17.77      | 1186 9'                     |
| 2        | 4' 2                       | 20.433 3.33<br>22.033 3.85            | 259          | 22.275                             | 3.75<br>4.78     | 290<br>365    | 22.275                             | 3.75<br>4.78 | 290        | 28.174           | 4.49             | 345        | 30.433                             | 5.54<br>6.25  | 421           | 32 <b>.</b> 27l                    | 6.07         | 460           | 32.271                             | 6.07<br>7.47  | 460<br>56I   | 38.174                             | 6.77          | 513         | 40.433                             | 7.74<br>8.65     | 582<br>649  | 42 <b>.</b> 269<br>45 <b>.</b> 318 | 0.15           | 30 42<br>38 45   | 269 8 <b>.</b><br>318 10         | 40 63C                                  | ) 48.17            | 73 9.05                       | 680 4'<br>783 5'            |
| 9' 7     | 6' 2                       | 23.633 4.39<br>25.233 4.97            | 335<br>378   | 27 <b>.</b> 107<br>28 <b>.</b> 551 | 5.44<br>5.98     | 4I3<br>452    | 28.551                             | 5.98<br>7.28 | 452<br>546 | 34.386<br>37.653 | 6.45<br>7.52     | 488<br>565 | 33.633<br>35.233                   | 6.99<br>7.76  | 525<br>583    | 37 <b>.</b> l05<br>38 <b>.</b> 549 | 8.33<br>9.05 | 625<br>676    | 38.549<br>4l.738                   | 9.05          | 676<br>796   | 44.386<br>47.652                   | 9.24          | 692<br>786  | 43.633<br>45.233                   | 9.59             | 7I5<br>787  | 47.I04<br>48.548                   | 1.23           | 36 48.5<br>399 51.7  | 548 I2<br>37 I4                  | .II 899<br>.I5 IO4 <sup>-</sup>         | 54.3<br>7 57.6     | 86   12.03<br>52   13.59      | 895 6'<br>1008 7' <b>9'</b> |
| 8        | 8′ <i>a</i>                | 26.833 5.58<br>28.333 6.17            | 42I<br>466   | 30 <b>.</b> 396                    | 6.72<br>7.46     | 506<br>56I    | 33.987<br>36.233                   | 8.28<br>9.34 | 617<br>697 | 40.753           | 8.68<br>9.99     | 649<br>747 | 36.833<br>38.333                   | 8.57<br>9.35  | 640<br>698    | 40.394<br>42.l39                   | 10.00        | 746<br>8I5    | 43.985<br>46.23I                   | II.98         | 887<br>985   | 50.753<br>54.040                   | 11.97         | 889<br>1005 | 46.833<br>48.333                   | 11.56            | 858<br>930  | 50.393<br>52.l38                   | 3.29 9<br>4.43 | 985 53.<br>969 56.   | 983   15<br>230   17             | .68   1157<br>.27   1274                | 7 60.7<br>4 64.0   | 753   15.25<br>140   17.09    | 1129 8'                     |
|          | 0' 2                       | 29.833 6.80<br>21.433 3.55            | 5I0<br>275   | 33.666<br>23.275                   | 8.14             | 608<br>306    | 38.379                             | 10.40        | 774<br>306 | 47.141           | 11.31            | 842<br>362 | 39.833<br>32.433                   | 10.16         | 755<br>453    | 43.664<br>34.27l                   | 11.81        | 875<br>494    | 48.378<br>34.27I                   | 14.62         | 1081<br>494  | 57.I40<br>40.I74                   | 15.11<br>7.23 | 1119        | 49.833<br>43.433                   | 13.53            | 100I<br>630 | 53 <b>.</b> 663<br>45 <b>.</b> 268 | 5.47 I         | 143 58.<br>581 45.   | 377 I8<br>268 9.                 | .83   1387<br>09   681                  | 7 67.14            | 10   18.91<br>3   9.74        | 1396 10'<br>729 4'          |
| 5        |                            | 23.033 4.09<br>24.633 4.65            | 3I5<br>355   | 26.322<br>28.107                   | 5.05<br>5.72     | 385<br>434    | 26.322<br>29.55I                   | 5.05<br>6.29 | 385<br>474 | 32.243<br>35.386 | 5.68<br>6.73     | 432        | 34.033<br>35.633                   | 6.73<br>7.5I  | 508<br>563    | 37 <b>.</b> 319<br>39 <b>.</b> 105 | 8.00         | 600           | 37.3I9<br>40.549                   | 8.00<br>9.66  | 600<br>720   | 43.243<br>46.386                   | 8.46<br>9.80  | 635<br>732  | 45.033<br>46.633                   | 9.37             | 702<br>773  | 48.318                             | 0.96           | 48.<br>900 51.5  | 318 IO<br>548 I3                 | .96 817                                 | 54.2<br>5 57.3     | 43   11.25<br>86   12.87      | 839 5'<br>956 6'            |
| 10' 8    | 7' <i>2</i><br>8' <i>2</i> | 26.233 5.25<br>27.833 5.87            | 399<br>443   | 29.551                             | 6.29<br>7.05     | 474<br>530    | 32.740<br>34 <b>.</b> 986          | 7.63<br>8.65 | 57I<br>645 | 38.652<br>4l.753 | 7.83<br>9.0I     | 587<br>673 | 37.233<br>38.833                   | 8.32<br>9.17  | 624<br>684    | 40.549                             | 9.66         | 720<br>793    | 43.738<br>45.984                   | 11.41         | 846<br>94l   | 49.652<br>52.753                   | 11.17         | 83I<br>937  | 48.233<br>49.833                   | 11.40            | 849<br>924  | 51.548                             | 3.03 9<br>4.27 | )66 54 <b>.</b>  | .736   15<br>.983   16           | .19   1122<br>.79   1238                | 60.6               | 552   14.50<br>53   16.24     | 1075 7'                     |
|          | 9' 2                       | 29.333 6.49<br>30.833 7.14            | 489          | 33.141                             | 7.81             | 586<br>635    | 37.233<br>39.379                   | 9.73         | 725        | 45.040           | 10.35            | 772        | 40.333                             | 9.99          | 745           | 44.139                             | 12.54        | 865           | 48.23                              | 14.09         | 1043         | 56.040<br>59.140                   | 14.25         | 1057        | 51 <b>.</b> 333<br>52 <b>.</b> 833 | 13.49            | 999         | 55.138                             | 5.48 I         | 145 59.<br>223 61.3  | .230 I8<br>377 20                | .46   1360                              | 0 67.0             | 39   18.16<br>40   20.05      | 1342 9'<br>1479 10'         |
|          | -<br> '   ;<br> 2'   -     | 32.433 7.86                           | 588          | 36.55I<br>37.995                   | 9.41             | 701           | 41.626                             | 12.02        | 890        | 51.572           | 13.25            | 982        | 43.433                             | 12.74         | 874<br>945    | 47.550<br>48.994                   | 13.69        | 1012          | 52.625<br>54.872                   | 16.95         | 1249<br>1361 | 62.572                             | 17.73         | 1308        | 54.433                             | 15.69            | 1159        | 58.549                             | 7.96 I         | 324 63<br>400 65   | .624 2I                          | .88   1608<br>3.72   1740               | 8 73.5<br>0 76.6   | 72 22.2I<br>42 24.29          | 1634   11'   1785   12'     |
| <u> </u> | <u>-   `</u>               |                                       |              | 1 2 . 10 0 0                       | 1 . 5            | 1 . 5,        | 1                                  | 1            | 1 5 5 1    | 1                | 1                | 1          | 1                                  |               |               | 1                                  | 1            | 1 . 5 . 5     | 1                                  | 1 . 5 . 5 . 5 |              |                                    | 1             | 1           |                                    | 1                |             |                                    |                |  | <u> </u>                         |   | 1 , 3 , 3          |                               |                             |

NOTE: THE QUANTITIES SHOWN ABOVE ARE FOR OUTLET END APRONS WITH BAFFLES. IF APRONS ARE NEEDED AT INLETS (NOT USUAL), REDUCE THE ABOVE QUANTITIES FOR NO. BAFFLES AS FOLLOWS: CONCRETE: REDUCE QUANTITY BY W × 0.0092 CU.YDS/FT. STEEL: REDUCE QUANTITY BY W × 0.334 LBS/LIN.FT.

S = CLEAR SPAN OF BOX CULVERT H = CLEAR HEIGHT (RISE) OF BOX CULVERT

| DATE     | DEPARTMENT OF TRANSPORTATION<br>State of Georgia   |  |  |  |  |  |  |  |  |
|----------|--|--|--|--|--|--|--|--|--|
|          | STANDARD   |  |  |  |  |  |  |  |  |
| REVISION | CONCRETE BOX CULVERT APRONS<br>AND BAFFLES DETAIL  |  |  |  |  |  |  |  |  |
|          | NO SCALE SEPTEMBER 2017  |  |  |  |  |  |  |  |  |
| ВҮ       | DES. WEI (SUBMITTED)  STATE DESIGN POLICY ENGINEER  TRA (APPROVED)  CHK. EJC  CHK. EJC  TRA CHIEF ENGINEER  SHEET 2 OF 2 |  |  |  |  |  |  |  |  |

