

NOTES

- ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.  
 DESIGN FILL = 11.29 (MIN.), 11.68 (MAX.)  
 FOR OTHER DESIGN DATA AND NOTES, SEE STANDARD NOTES SHEET.
- AFTER SERVING AS A TEMPORARY STRUCTURE THE EXISTING DOUBLE BARREL 8 FT. X 8 FT. REINFORCED CONCRETE BOX CULVERT LOCATED AT THE SAME LOCATION AS THE PROPOSED CULVERT SHALL BE REMOVED.
- 3" Ø WEEP HOLES INDICATED ARE TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- CONCRETE IN THE CULVERT TO BE POURED IN THE FOLLOWING ORDER:
- STAGE I
1. WING FOOTINGS FOR WING 1 AND WING 2, FLOOR SLAB AND EDGE BEAM INCLUDING 4" VERTICAL WALLS TO THE CONSTRUCTION JOINT FOR STAGE I.
  2. REMAINING PORTIONS OF WALLS FULL HEIGHT, WING 1 AND WING 2 FULL HEIGHT FOLLOWED BY CONCRETE SILLS AND ROOF SLAB WITH EDGE BEAM TO THE STAGE I CONSTRUCTION JOINT.
- STAGE II
1. REMOVE EXISTING CULVERT.
  2. WING 3 FOOTING AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS, EDGE BEAM AND CURTAIN WALL TO STAGE II CONSTRUCTION JOINTS.
  3. REMAINING PORTIONS OF WALLS FULL HEIGHT AND WING 3 FULL HEIGHT, CONCRETE SILLS.
- STAGE III
1. WING 4 FOOTING AND REMAINING FLOOR SLAB WITH EDGE BEAM INCLUDING 4" OF EXTERIOR VERTICAL WALL AND REMAINING CURTAIN WALL.
  2. REMAINING PORTIONS OF WALLS FULL HEIGHT, WING 4 FULL HEIGHT AND CONCRETE SILLS.
  3. ROOF SLAB FOR STAGES II & III, HEADWALL AND EDGE BEAM.

FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.

A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

AT THE CONTRACTOR'S OPTION HE MAY SUBMIT, TO THE ENGINEER FOR APPROVAL, DESIGN AND DETAIL DRAWINGS FOR A PRECAST REINFORCED CONCRETE BOX CULVERT IN LIEU OF THE CAST-IN-PLACE CULVERT SHOWN ON THE PLANS. THE DESIGN SHALL PROVIDE THE SAME SIZE AND NUMBER OF BARRELS AS USED ON THE CAST-IN-PLACE DESIGN. FOR OPTIONAL PRECAST REINFORCED CONCRETE BOX CULVERT, SEE SPECIAL PROVISIONS. THE CONTRACTOR ATTENTION NEEDS TO BE DRAWN TO THE FACT THAT THE OUTLET END OF THE CULVERT WILL HAVE TO BE SKEWED TO KEEP FROM INTERFERING WITH THE STREAM FLOW.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE REINFORCED CONCRETE BOX CULVERT SHALL BE PLACED ON THE STANDARD 1.0 FOOT BLANKET OF FOUNDATION CONDITIONING MATERIAL. SEE SECTION 414 OF THE STANDARD SPECIFICATIONS.

THE REQUIRED BEARING CAPACITY AT THE BASE OF THE CULVERT IS 1 TSF. THE REQUIRED BEARING CAPACITY SHALL BE VERIFIED.

FOR CONSTRUCTION SEQUENCE, SEE EROSION CONTROL PLANS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR TRAFFIC PHASING, SEE TRAFFIC CONTROL PLANS.

AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

TEMPORARY SHORING WILL BE REQUIRED IN THE AREA INDICATED IN THE LOCATION SKETCH.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS, FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF THE CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.

STEEL IN THE BOTTOM SLAB OF STAGE I ONLY MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES WILL BE PAID FOR BY THE CONTRACTOR.

TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED IN THE BARREL, SPACED TO LIMIT THE POURS TO A MAXIMUM OF 70 FEET. LOCATION OF JOINTS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

ROADWAY DATA

GRADE POINT ELEV. @ STA 161+48.90-L = 2905.10  
 BED ELEV. @ STA. 161+48.90-L = 2885.70  
 ROADWAY SLOPES = 2:1

HYDRAULIC DATA

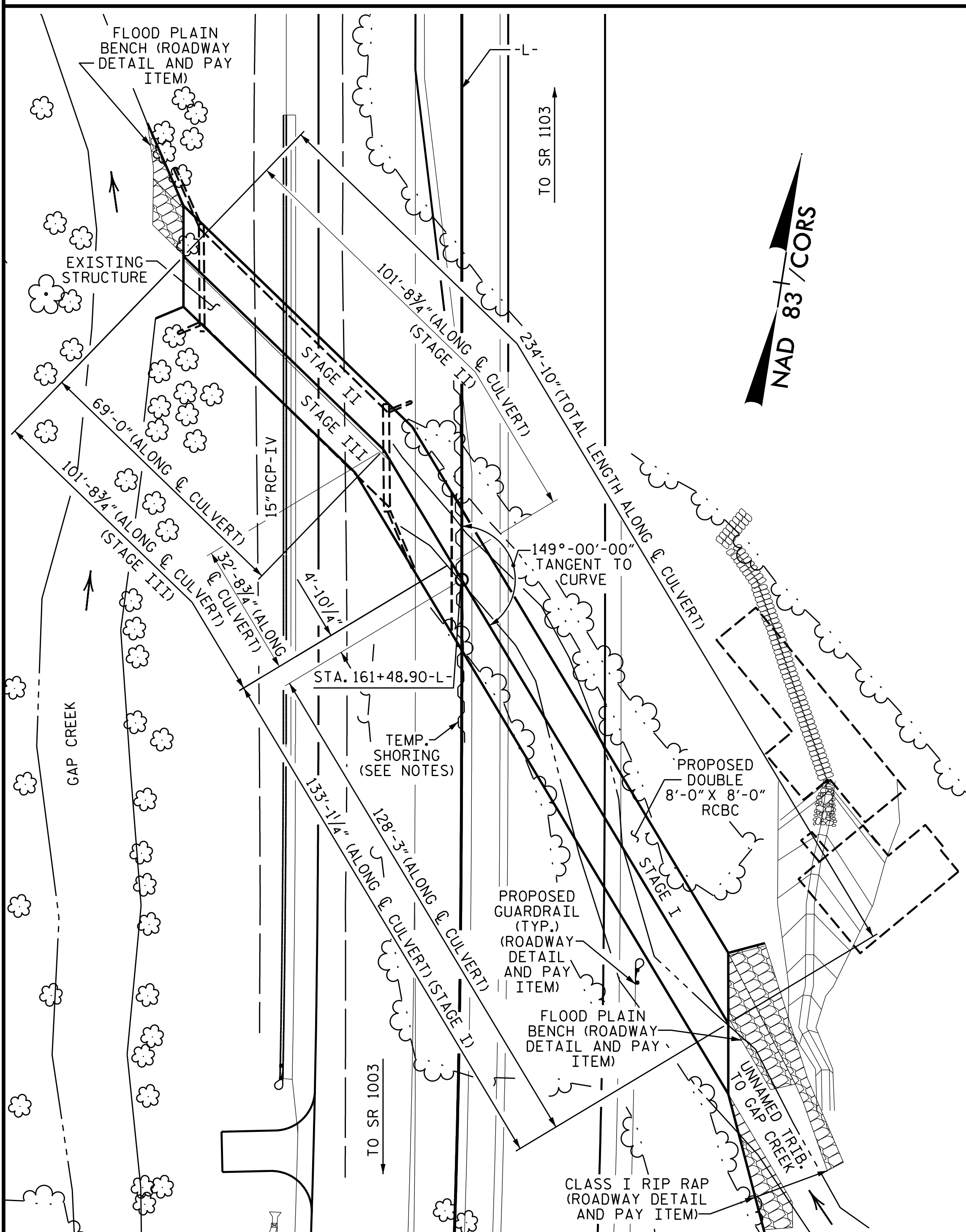
DESIGN DISCHARGE = 550 CFS  
 FREQUENCY OF DESIGN FLOOD = 50 YR.  
 DESIGN HIGH WATER ELEV. = 2893.00  
 DRAINAGE AREA = 1.2 SQ MI.  
 BASE DISCHARGE (Q100) = 650 CFS  
 BASE HIGH WATER ELEV. = 2893.43

OVERTOPPING FLOOD DATA

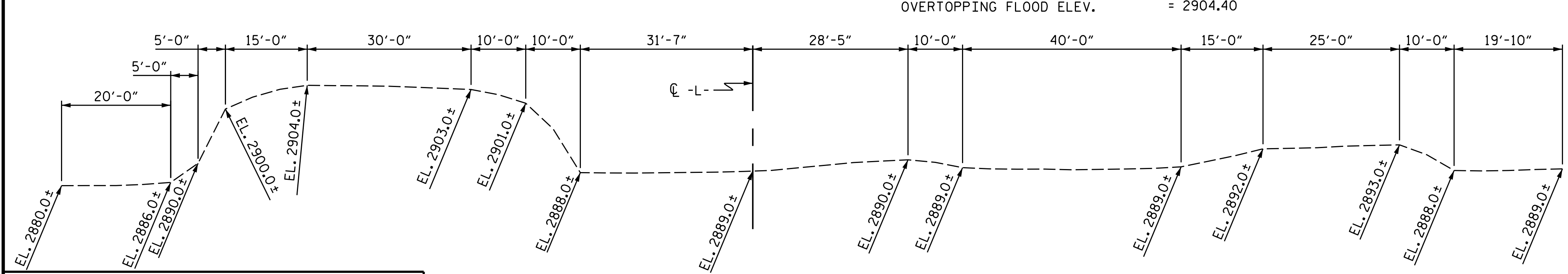
OVERTOPPING DISCHARGE = > 900 CFS  
 FREQUENCY OF OVERTOPPING FLOOD = > 500 YR.  
 OVERTOPPING FLOOD ELEV. = 2904.40

CULVERT EXCAVATION	LUMP SUM
REMOVAL OF EXISTING STRUCTURE	LUMP SUM
FOUNDATION CONDITIONING MATERIAL	
STAGE I	207 TONS
STAGE II & III	158 TONS
TOTAL	365 TONS

TOTAL STRUCTURE QUANTITIES	
STAGE I	STAGE I
CLASS A CONCRETE	REINFORCING STEEL
BARREL @ 1.823 C.Y./FT. 242.6 C.Y.	BARREL 32681 LBS.
WINGS, ETC. 27.7 C.Y.	WINGS, ETC. 2662 LBS.
TOTAL 270.3 C.Y.	TOTAL 35343 LBS.
STAGE II & III	STAGE II & III
CLASS A CONCRETE	REINFORCING STEEL
BARREL @ 1.823 C.Y./FT. 185.5 C.Y.	BARREL 26626 LBS.
WINGS, ETC. 19.7 C.Y.	WINGS, ETC. 941 LBS.
TOTAL 205.2 C.Y.	TOTAL 27567 LBS.
TOTAL CLASS A CONCRETE 475.5 C.Y.	TOTAL REINFORCING STEEL 62910 LBS.

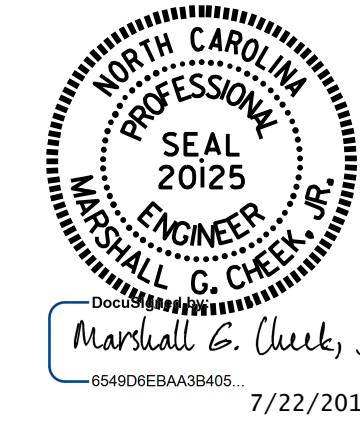
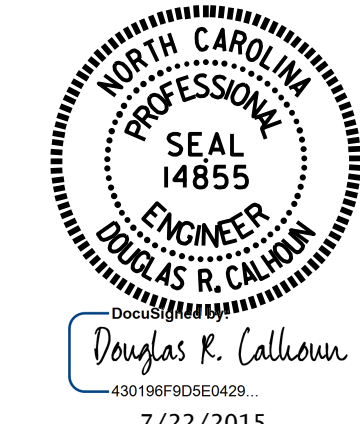


LOCATION SKETCH



PROFILE ALONG CULVERT

DRAWN BY: H. T. BARBOUR DATE: 4-11-14  
 CHECKED BY: S. B. WILLIAMS DATE: 5-14  
 DESIGN ENGINEER OF RECORD: B. A. DUKE DATE: 4-15



PROJECT NO. R-2915B  
 ASHE COUNTY  
 STATION: 161+48.90 -L-

SHEET 1 OF 13 CULVERT No. 542

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
DOUBLE 8 FT. X 8 FT. CONCRETE BOX CULVERT					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					C06-1
					TOTAL SHEETS 13