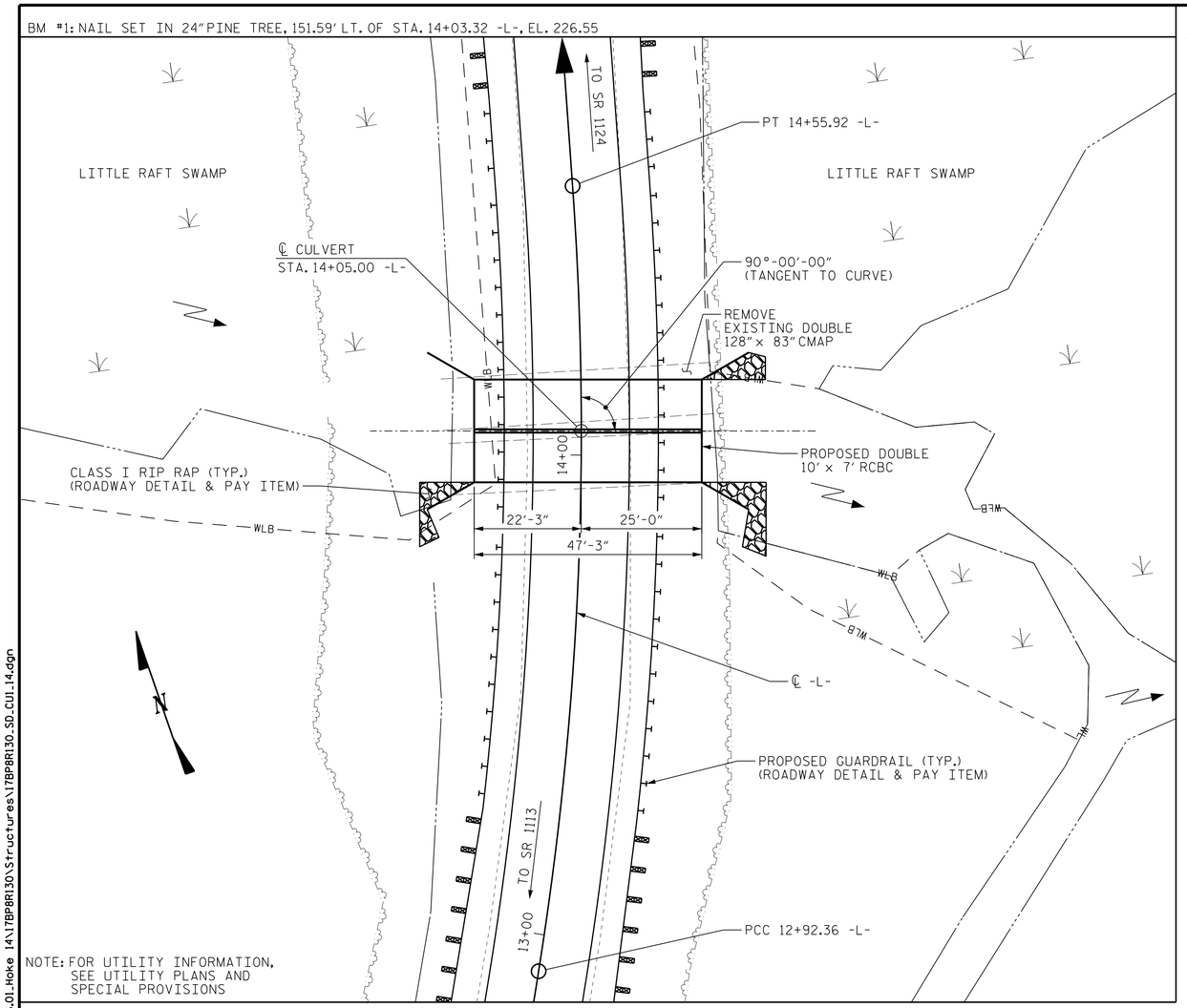
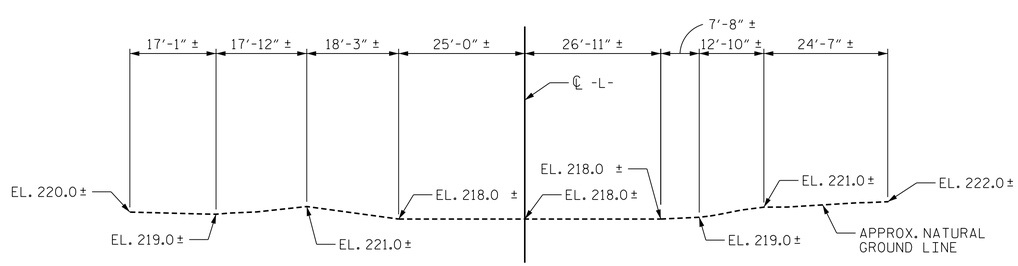


LOCATION SKETCH

GRADE POINT ELEVATION @ 14+05.00 -L- = 229.25
BED ELEVATION @ 14+05.00 -L- = 218.65
ROADWAY SLOPES = 2:1



PROFILE ALONG ℄ CULVERT

NOTES

ASSUMED LIVE LOAD ----------HL-93 OR ALTERNATE LOADING.

DESIGN FILL----------1.40 FT.

FOR OTHER DESIGN DATA AND NOTES, SEE STANDARD NOTE SHEET.

CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:

1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.

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

DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.

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

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.

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 EXISTING STRUCTURE CONSISTING OF 2 LINES OF 128" x 83" CM PIPE ARCH LOCATED AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED.

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.

EXCAVATE 1 FT. BELOW CULVERT AND FOOTINGS AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL IN ACCORDANCE WITH SECTION 414 OF THE STANDARD SPECIFICATIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

NO WORK SHALL BE DONE ON THE CULVERT AT STA. 14+05.00 -L- UNTIL THE AREA OF THE BOX CULVERT HAS BEEN UNDERCUT UP TO 2 FEET AND UNSUITABLE MATERIAL REPLACED WITH SUITABLE MATERIAL, PROPERLY COMPACTED TO THE ELEVATION OF THE BOTTOM OF THE PROPOSED FLOOR SLAB. THE LIMITS OF THIS UNDERCUT EXCAVATION SHALL BE AT LEAST THE LIMITS OF THE BOX CULVERT INCLUDING THE WINGS. NO SEPARATE PAYMENT WILL BE MADE FOR ANY TEMPORARY SHEETING, UNDERCUT, OR UNSUITABLE MATERIAL REPLACEMENT AS REQUIRED TO CONSTRUCT THE PROPOSED CULVERT. PAYMENT IS INCLUDED IN THE LUMP SUM PRICE FOR CULVERT EXCAVATION AND THE FOUNDATION CONDITIONING MATERIAL PAY ITEM.

HYDROGRAPHIC DATA

DESIGN DISCHARGE ..... = 450 CFS
FREQUENCY OF DESIGN FLOOD ..... = 5 YRS.
DESIGN HIGH WATER ELEVATION ..... = 226.2 FT.
DRAINAGE AREA ..... = 8.03 SQ. MI.
BASE DISCHARGE (Q100) ..... = 1300 CFS
BASE HIGH WATER ELEVATION ..... = 227.7 FT.

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE ..... = 630 CFS
FREQUENCY OF OVERTOPPING FLOOD ..... = 10 YRS.
OVERTOPPING FLOOD ELEVATION ..... = 226.8 FT.

-L- PROFILE DATA

PVI STA. 14+10.00 -L-
PVI EL. = 229.25
VC = 110.00
g1 = -1.1346%
g2 = -1.6389%

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE				
BARREL @	2.43	CY/FT	114.8	C.Y.
WING ETC.			21.6	C.Y.
TOTAL			136.4	C.Y.
REINFORCING STEEL				
BARREL			20,034	LBS.
WINGS ETC.			1,151	LBS.
TOTAL			21,185	LBS.
CULVERT EXCAVATION ---------- LUMP SUM				
FOUNDATION CONDITIONING MATERIAL 74 TONS				
REMOVAL OF EXISTING STRUCTURE --- LUMP SUM				

PROJECT NO. 17BP.8.R.130
HOKE COUNTY
STATION: 14+05.00 -L-

SHEET 1 OF 5 REPLACES CULVERT NO. 14

NORTH CAROLINA PROFESSIONAL SEAL 46029 ENGINEER JULIA I. BREWER
4/17/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BARREL STANDARD
DOUBLE 10 FT. W X 7 FT. H
CONCRETE BOX CULVERT
90° SKEW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-1
1			3			TOTAL SHEETS
2			4			5

DRAWN BY : J.I. BREWER DATE : 12/17
CHECKED BY : B.E. ATKINSON DATE : 01/18
DESIGN ENGINEER OF RECORD : J.I. BREWER DATE : 01/18

4/17/2018
2:01:59 PM
User: blanning
Filename: P:\NC Bridges\MI6006_CH Eng_Div_8 Br. Repl_I5 Bridges\MI6006_01_Hoke 14\17BP8R130\Structures\17BP8R130_SD_CUI_14.dgn