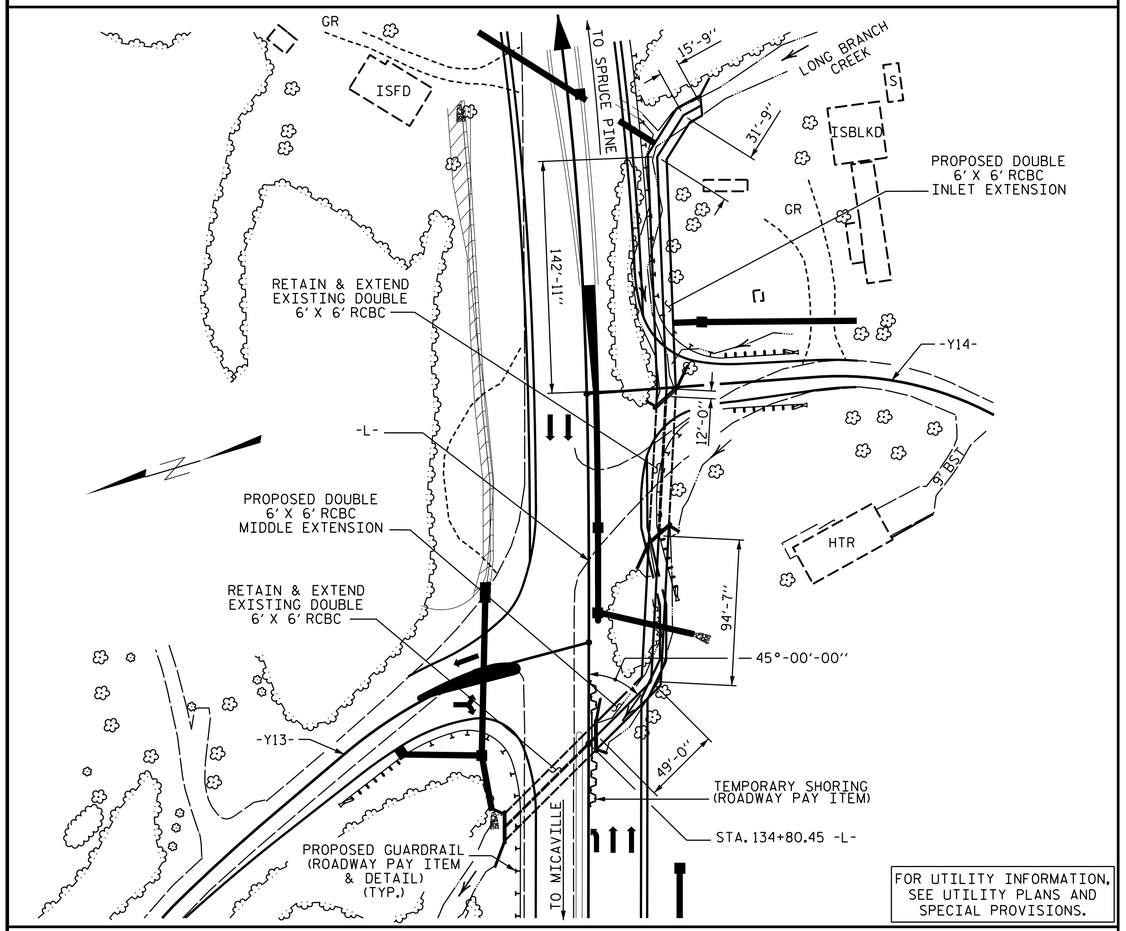
BENCHMARK #10: RAILROAD SPIKE IN 38" FORKED POPLAR 39.06' RT. OF -BL- STA. 137+80.04, ELEV. 2517.17



LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE	= 680 CFS
FREQUENCY OF DESIGN FLOOD	= 50 YRS.
DESIGN HIGH WATER ELEVATION	= 2516.70
DRAINAGE AREA	= 1.2 SQ. MI.
BASE DISCHARGE (Q100)	= 840 CFS
BASE HIGH WATER ELEVATION	= 2518.00

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 1300+ CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YRS.
OVERTOPPING FLOOD ELEVATION	= 2523.49

GRADE DATA

GRADE POINT ELEVATION @ STA. 134+80.45 -L-	= 2514.99
BED ELEVATION @ STA. 134+80.45 -L-	= 2501.24
ROADWAY FILL SLOPES	= 2:1

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE	
INLET EXTENSION	290.0 C.Y.
MIDDLE EXTENSION	170.3 C.Y.
TOTAL	460.3 C.Y.
REINFORCING STEEL	
INLET EXTENSION	36,381 LBS.
MIDDLE EXTENSION	24,620 LBS.
TOTAL	61,001 LBS.
FOUNDATION CONDITIONING MATERIAL	
INLET EXTENSION	200 TONS
MIDDLE EXTENSION	142 TONS
TOTAL	342 TONS
CULVERT EXCAVATION	LUMP SUM

NOTES

ASSUMED LIVE LOAD = HS-93 OR ALTERNATE LOADING.

DESIGN FILL---------- 21.5 FT. INLET EXT.
DESIGN FILL---------- 11.8 FT. MIDDLE EXT.

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

3"Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:

1. PHASE I WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF PHASE I VERTICAL WALLS.
2. THE REMAINING PORTIONS OF PHASE I WALLS AND PHASE I WINGS FULL HEIGHT.
3. PHASE II WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF PHASE II VERTICAL WALLS.
4. THE REMAINING PORTIONS OF PHASE II WALLS AND PHASE II WINGS FULL HEIGHT.
5. ROOF SLAB AND HEADWALLS.

IF APPROVED BY THE ENGINEER, THE CONTRACTOR MAY USE THE EXISTING WINGS AS TEMPORARY SHORING FOR THE CONSTRUCTION OF THE CULVERT EXTENSIONS. IN THIS CASE, THE BOTTOM SLAB OF THE EXTENSION SHALL BE POURED AT LEAST 72 HOURS PRIOR TO CUTTING THE WINGS. THE WINGS MAY BE CUT EARLIER PROVIDED THE SLAB CONCRETE STRENGTH HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

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.

DOWELS SHALL BE USED TO CONNECT THE CULVERT EXTENSION TO THE EXISTING CULVERT AS SHOWN. FOR NOTE REGARDING SETTING OF DOWELS, SEE SHEET SN.

THE VARIOUS DIA. PIPES THROUGH THE SIDEWALLS OF THE CULVERT SHALL BE LOCATED BY THE ENGINEER. THE REINFORCING STEEL SHALL BE FIELD BENT AS NECESSARY TO CLEAR PIPES.

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

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

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.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

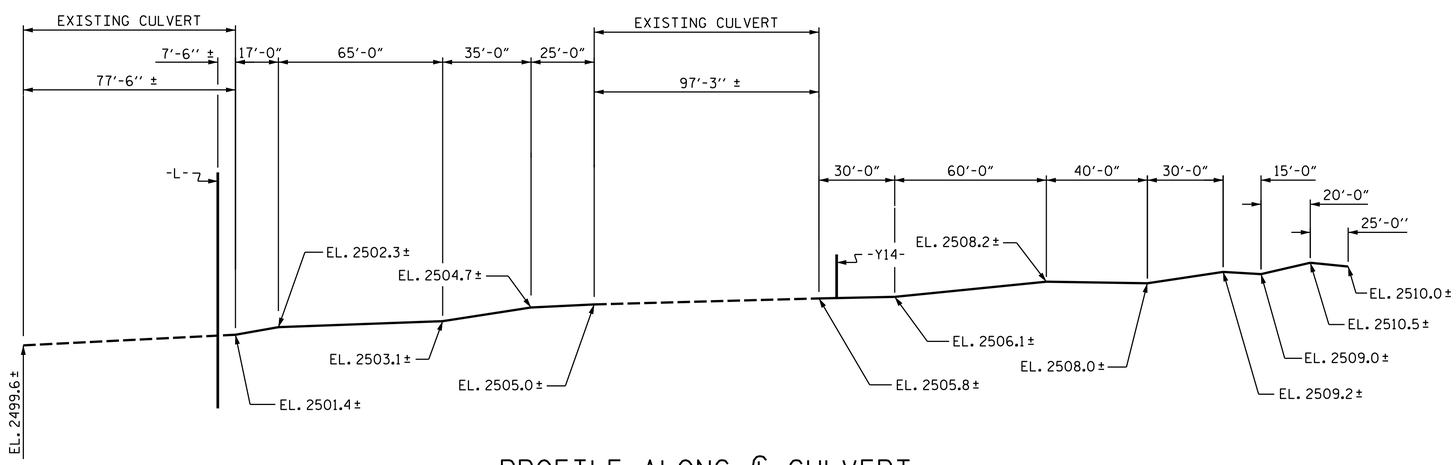
FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CULVERT DIVERSION DETAILS, SEE EROSION CONTROL PLANS.

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

AT THE CONTRACTOR'S OPTION HE MAY SUBMIT, TO THE ENGINEER FOR APPROVAL, DESIGN AND DETAILED 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.



PROFILE ALONG ℄ CULVERT

PROJECT NO. R-2519B
YANCEY COUNTY
STATION: 134+80.45 -L-

SHEET 1 OF 12

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 6 FT. X 6 FT. CONCRETE BOX CULVERT

NORTH CAROLINA PROFESSIONAL SEAL 13014 ENGINEER QUANG H. NGUYEN
9/2/2014
DocuSigned by: Quang H. Nguyen
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NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.
8/27/2014
DocuSigned by: Marshall G. Cheek, Jr.
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REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		C-18
1			3				TOTAL SHEETS
2			4				87

DRAWN BY : A. SORSENGINH/MEP DATE : 9/2013
CHECKED BY : D. HODGE DATE : 10/13

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STR #8