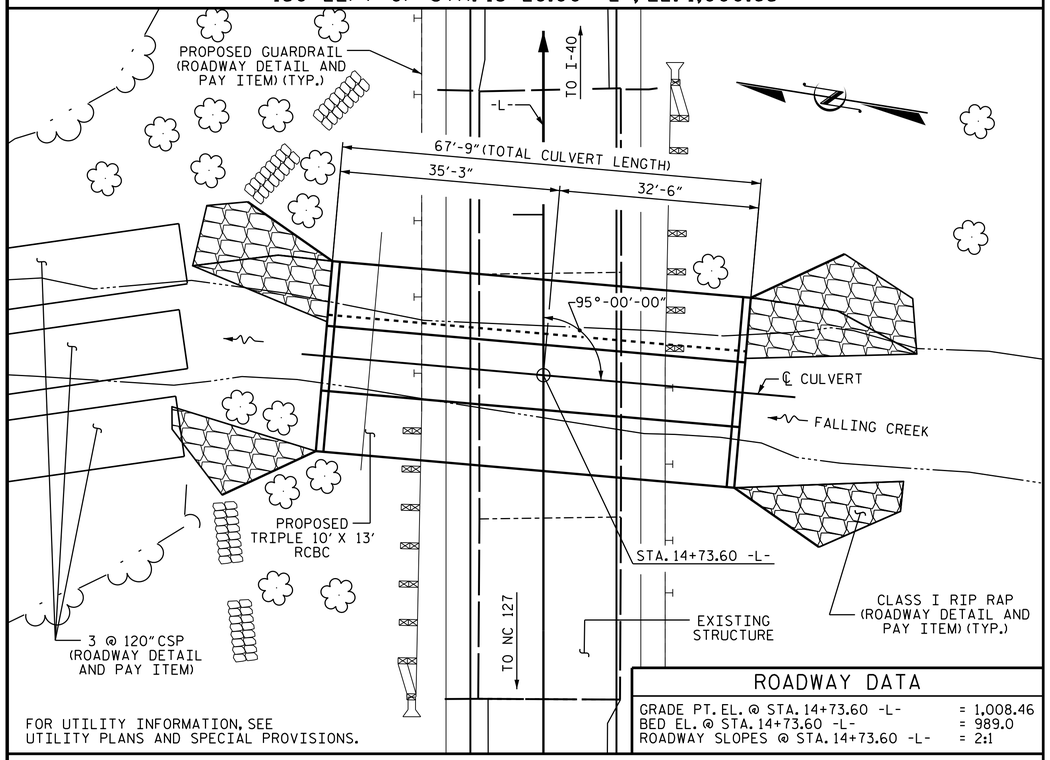
F. A. PROJECT NO. : BRZ-1404(13)

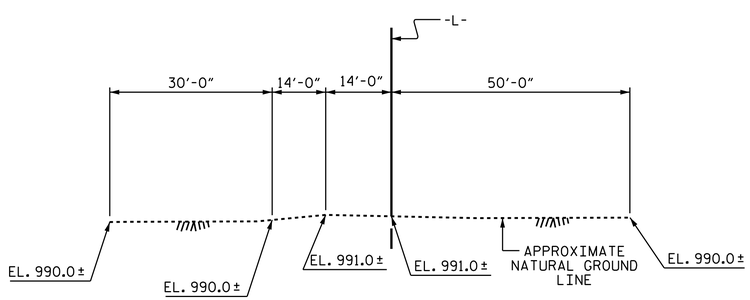
BM #2: RR SPIKE IN BASE OF 28" FORKED SYCAMORE TREE, 150' LEFT OF STA. 13+29.00 -L-, EL. 1,000.65



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

ROADWAY DATA	
GRADE PT. EL. @ STA. 14+73.60 -L-	= 1,008.46
BED EL. @ STA. 14+73.60 -L-	= 989.0
ROADWAY SLOPES @ STA. 14+73.60 -L-	= 2:1

LOCATION SKETCH



PROFILE ALONG ℄ CULVERT

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

DESIGN FILL = 5.66 FT. (MIN.), 6.76 FT. (MAX.)

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

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

CONCRETE IN CULVERT TO BE POURED IN THE FOLLOWING ORDER:

1. WING FOOTINGS, FLOOR SLAB AND 4" OF THE VERTICAL WALLS IN STAGE I.
2. THE REMAINING PORTIONS OF THE WALLS AND WING WALLS IN STAGE I.
3. WING FOOTINGS, FLOOR SLAB AND 4" OF THE VERTICAL WALL IN STAGE II.
4. THE REMAINING PORTIONS OF THE WALL, SILLS, AND WING WALLS IN STAGE II FOLLOWED BY THE 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.

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.

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 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.

NO PRECAST REINFORCED BOX CULVERT OPTION WILL BE ALLOWED.

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 EXISTING STRUCTURE CONSISTS OF 5 SPANS (2 @ 15'-3", 2 @ 20'-0" AND 1 @ 30'-4") WITH 23.3' CLEAR ROADWAY WIDTH AND TIMBER DECK ON STEEL I-BEAMS ON END BENTS OF TIMBER CAPS AND TIMBER PILES AND INTERIOR BENTS OF TIMBER CAPS WITH TIMBER PILES OR POST AND SILL CRUTCHES AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED CULVERT, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 14+73.60 -L-."

THE SUBSTRUCTURE OF THE EXISTING BRIDGE SHOWN ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MATTER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

NATURAL STREAM BED MATERIAL SHALL BE USED TO BACKFILL THE CULVERT BETWEEN SILLS. SEE SPECIAL PROVISIONS FOR "PLACEMENT OF NATURAL STREAM BED MATERIAL."

HYDRAULIC DATA	
DESIGN DISCHARGE	= 3,020 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 50 YR.
DESIGN HIGH WATER ELEVATION	= 1,002.9
DRAINAGE AREA	= 3.64 SQ. MI.
BASE DISCHARGE (Q100)	= 3,309 C.F.S.
BASE HIGH WATER ELEVATION	= 1,003.62
OVERTOPPING FLOOD DATA	
OVERTOPPING DISCHARGE	= 4,600 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= >500 YR.
OVERTOPPING FLOOD ELEVATION	= 1,007.1

TOTAL STRUCTURE QUANTITIES		
REMOVAL OF EXISTING STRUCTURE	LUMP SUM	
CULVERT EXCAVATION	LUMP SUM	
FOUNDATION CONDITIONING MATERIAL	158	TONS
CLASS A CONCRETE		
BARREL	233.6	C.Y.
WINGS ETC.	80.7	C.Y.
SILLS ETC.	3.0	C.Y.
TOTAL	317.3	C.Y.
REINFORCING STEEL		
BARREL	32,577	LBS.
WINGS ETC.	4,422	LBS.
TOTAL	36,999	LBS.
PLACEMENT OF NATURAL STREAM BED MATERIAL	LUMP SUM	

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. B-5150

CATAWBA COUNTY

STATION: 14+73.60 -L-

SHEET 1 OF 4 REPLACES BRIDGE NO. 34

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BARREL STANDARD
TRIPLE 10 FT. X 13 FT.
CONCRETE BOX CULVERT
95° SKEW
(90° HEADWALLS)

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON
DocuSigned by: Laura E. Sutton AE35E3E6727640E...
11/18/2014

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL
DocuSigned by: Vipul A. Patel 1C157DE15D464AA...
11/18/2014

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

DRAWN BY : J. P. MCCARTHA DATE : 7-18-13
CHECKED BY : R. P. PATEL DATE : 7-18-13
DESIGN ENGINEER OF RECORD: H. A. LOCKLEAR DATE : 10-22-14

18-NOV-2014 09:19
R:\Structures\Plans\B5150_SD_CU_01.dgn
vpatel