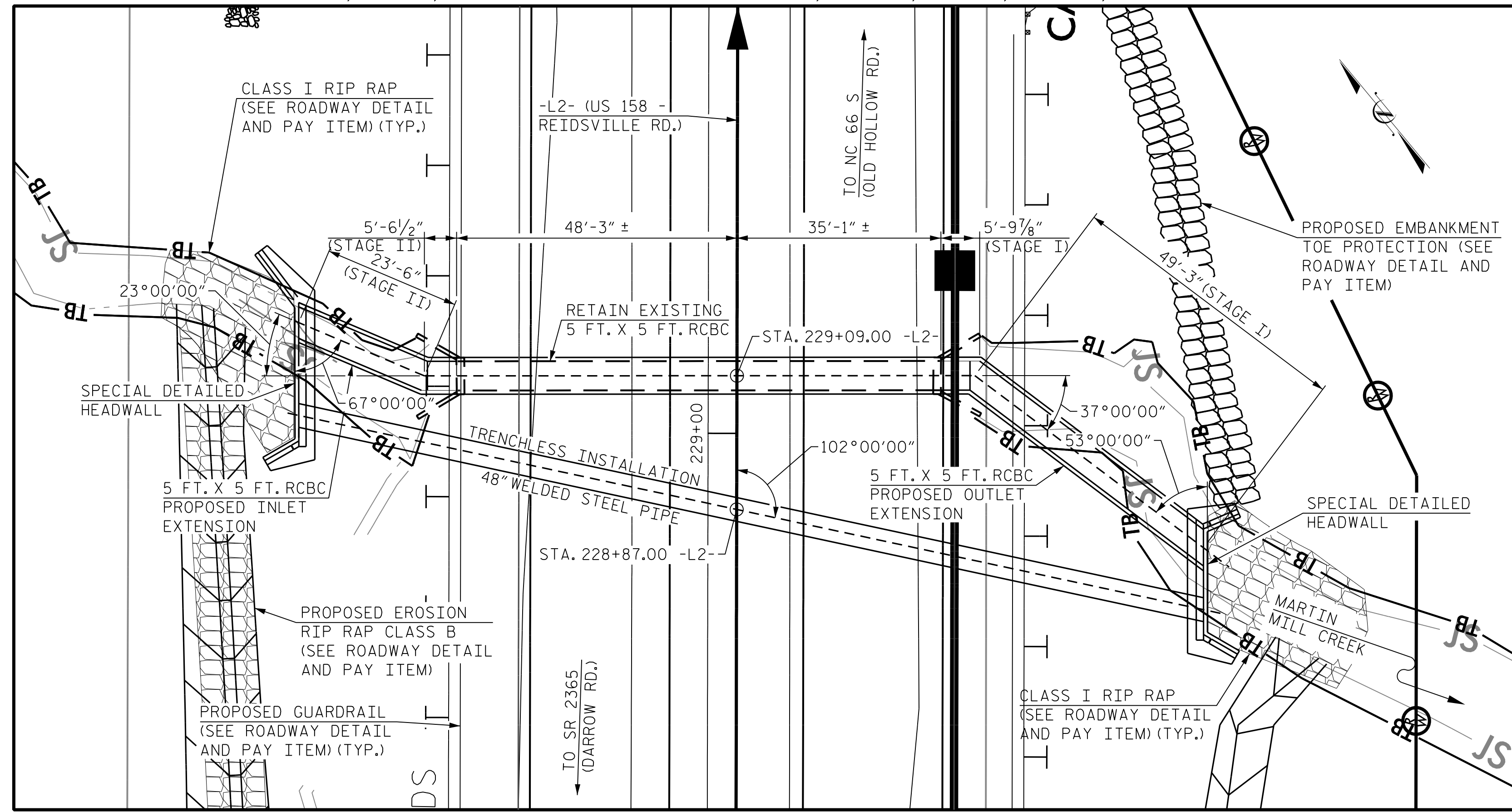
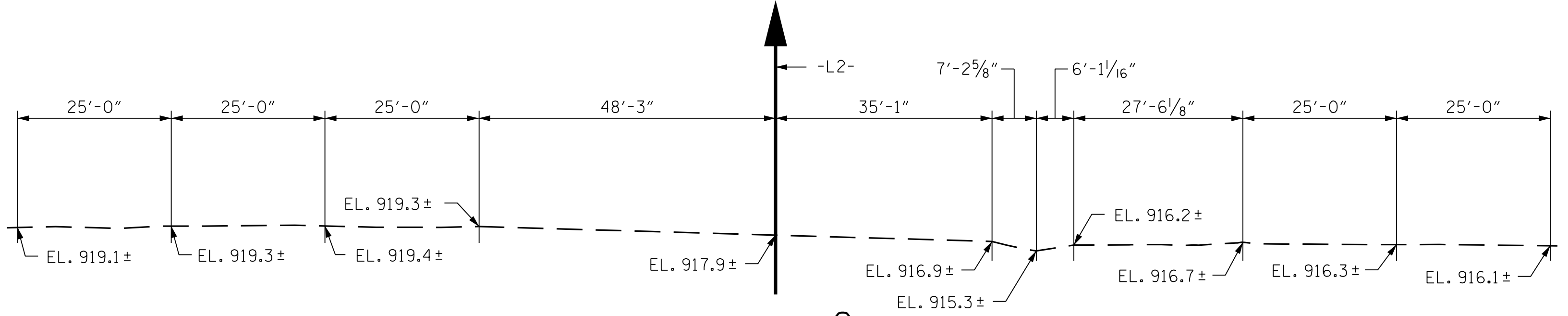


BENCH MARK: BM #12 AT STA. 228+76.4, 278.6 LT, RAILROAD SPIKE SET IN 24" POPLAR TREE, EL. 935.26, N 879406, E 1662693; NAVD 88



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS
 GRADE POINT ELEVATION AT STA. 229+09.00 -L2- = 936.3
 EXISTING INLET INVERT ELEVATION = 918.5, EXISTING OUTLET INVERT ELEVATION = 917.4
 ROADWAY SLOPES = 2:1



PROFILE ALONG CULVERT

NOTES:

- ASSUMED LIVE LOAD ----- HL-93 OR ALTERNATE LOADING.
- DESIGN FILL----- 14.6 FT. (MAX.), 12.0 FT. (MIN.)
- 3" Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- FOR OTHER DESIGN DATA AND NOTES, SEE STANDARD NOTE SHEET-SN.
- CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:
 1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF EXTERIOR WALLS.
 2. THE REMAINING PORTION OF THE WALLS TO THE CONSTRUCTION JOINT AND NORTH WINGS FULL HEIGHT.
 3. ROOF SLAB, HEADWALL AND SOUTH WINGS FULL HEIGHT.
- THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN 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.
- AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF THE EXTERIOR WALL ABOVE THE 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.
- A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WINGS COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- NO PRECAST BOX CULVERT OPTION WILL BE ALLOWED.
- FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.
- EXCAVATE 1 FOOT BELOW CULVERT BEARING ELEVATION AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL (SELECT MATERIAL, CLASS VI). UNDERCUT AN ADDITIONAL 2 FEET AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL.
- THE ENTIRE COST OF WORK REQUIRED TO PLACE EXCAVATE OR SUPPLEMENT MATERIAL AS SHOWN ON THE PLANS SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR CULVERT EXCAVATION.
- THE 48" DIAMETER PIPE THROUGH THE HEADWALL OF THE CULVERT SHALL BE LOCATED BY THE ENGINEER. THE REINFORCING STEEL SHALL BE FIELD BENT AS NECESSARY TO CLEAR PIPE.
- DOWELS SHALL BE USED TO CONNECT THE CULVERT EXTENSION TO THE EXISTING CULVERT AS SHOWN. FOR NOTE REGARDING SETTING OF DOWELS, SEE STANDARD NOTE SHEET.
- IF APPROVED BY THE ENGINEER, THE CONTRACTOR MAY USE THE EXISTING CULVERT 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 WINGS, THE WINGS MAY BE CUT EARLIER PROVIDED THE SLAB CONCRETE STRENGTH HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

HYDRAULIC DATA

DESIGN DISCHARGE-----270 C.F.S.
 FREQUENCY OF DESIGN FLOOD-----50 YR.
 DESIGN HIGH WATER ELEVATION-----924.0
 DRAINAGE AREA-----0.27 SQ. MI.
 BASE DISCHARGE (Q100)-----290 C.F.S.
 BASE HIGH WATER ELEVATION-----924.3

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE-----770 C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD-----500 YR. +
 OVERTOPPING FLOOD ELEVATION-----935.9
 OVERTOPPING OCCURS AT STA. 228+22.50 -L2-

STAGE I STRUCTURE QUANTITIES

CLASS A CONCRETE		
BARREL @ 0.72	CY/FT	39.7 C.Y.
WING ETC.	10.4	C.Y.
PIPE HEADWALL	6.0	C.Y.
TOTAL	56.1	C.Y.

REINFORCING STEEL		
BARREL	4,985	LBS.
WINGS ETC.	306	LBS.
PIPE HEADWALL	697	LBS.
TOTAL	5,988	LBS.

CULVERT EXCAVATION ----- LUMP SUM
 FOUNDATION CONDITIONING MATERIAL --- 163 TONS

STAGE II STRUCTURE QUANTITIES

CLASS A CONCRETE		
BARREL @ 0.72	CY/FT	21.0 C.Y.
WING ETC.	14.2	C.Y.
PIPE HEADWALL	3.9	C.Y.
TOTAL	39.1	C.Y.

REINFORCING STEEL		
BARREL	2,743	LBS.
WINGS ETC.	406	LBS.
PIPE HEADWALL	941	LBS.
TOTAL	4,090	LBS.

CULVERT EXCAVATION ----- LUMP SUM
 FOUNDATION CONDITIONING MATERIAL --- 121 TONS

PROJECT NO. R-2577A
 FORSYTH COUNTY
 STATION: 229+09.00 -L2-

SHEET 1 OF 14

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SINGLE 5 FT. X 5 FT. CONCRETE BOX CULVERT INLET AND OUTLET EXTENSIONS AND HEADWALLS FOR 48" WSP

CULVERT NO. 2

SEAL 48850
 Registered Professional Engineer
 O. J. PAITEL
 12/19/2023

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REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					14

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

opditel 12/19/2023 R:\Structures\Culvert\Martin Mill Creek Culvert\Drawings\2577A_SMJ_CU_2-1_330000.dgn

DRAWN BY : T. K. BOYD DATE : NOV 2023
 CHECKED BY : B. D. KLAPPENBACH DATE : NOV 2023
 DESIGN ENGINEER OF RECORD : O. J. PAITEL DATE : NOV 2023