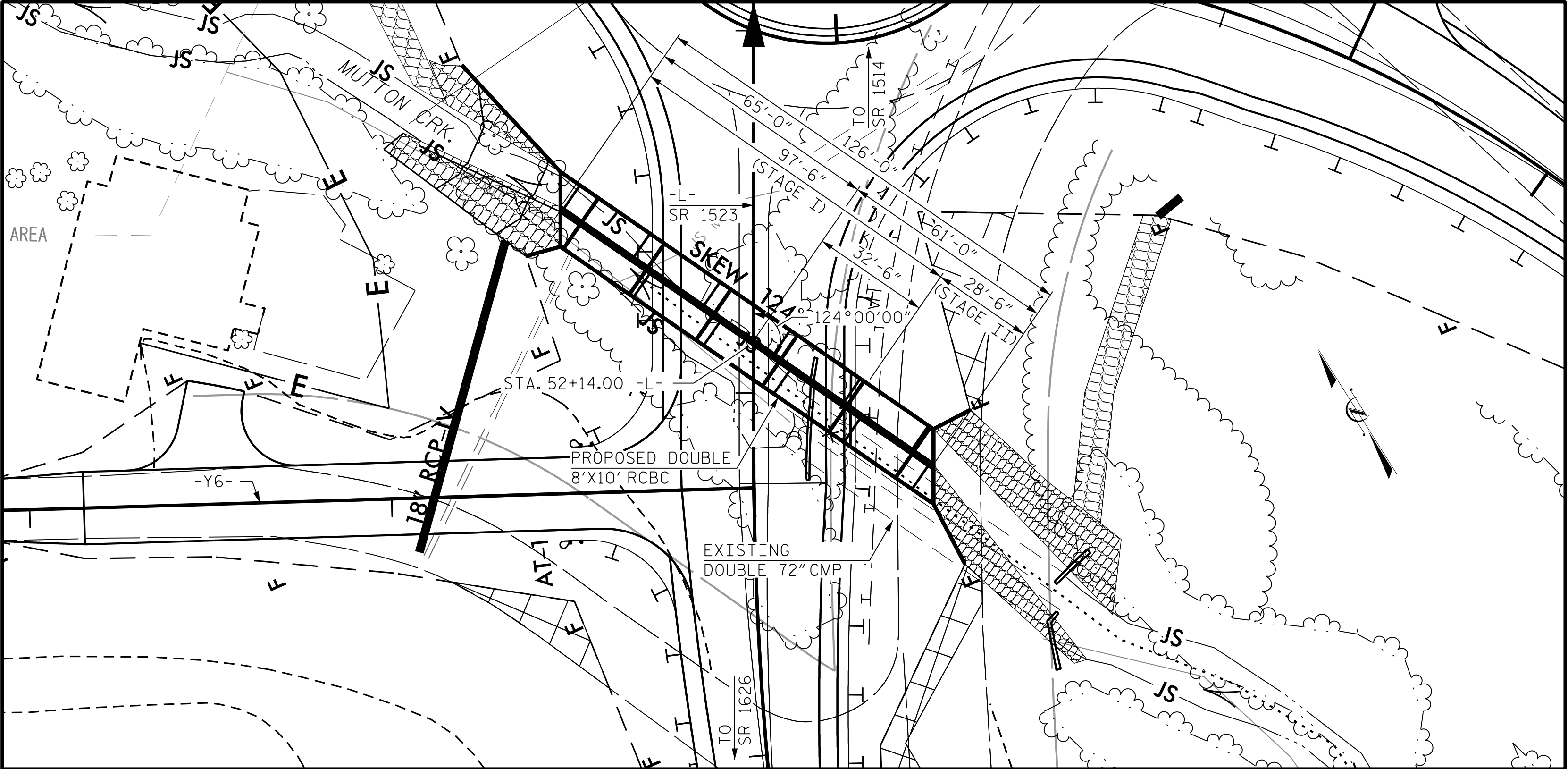


BENCH MARK: BM #2 -Y8A- STA. 11+28.9, 40.9' RT, RR SPIKE IN BASE OF 36" MAPLE, N 905550, E 11224459; EL. 3145.12, NAVD 88



LOCATION SKETCH

FOR UTILITY INFORMATION,SEE UTILITY PLANS AND SPECIAL PROVISIONS
GRADE POINT ELEVATION AT STA. 52+14.0 = 3138.4
INVERT ELEVATION AT STA. 52+14.0 = 3117.18
ROADWAY SLOPES = 2:1

STAGE I STRUCTURE QUANTITIES			
CLASS A CONCRETE			
BARREL @	2.19	CY/FT	213.5 C.Y.
WING ETC.	29.4		C.Y.
SILLS/BAFFLES	3.6		C.Y.
TOTAL	246.5		C.Y.
REINFORCING STEEL			
BARREL	40,801		LBS.
WINGS ETC.	2,852		LBS.
TOTAL	43,653		LBS.
CULVERT EXCAVATION ----- LUMP SUM			
FOUNDATION CONDITIONING MATERIAL---- 151 TONS			

STAGE II STRUCTURE QUANTITIES			
CLASS A CONCRETE			
BARREL @	2.19	CY/FT	62.4 C.Y.
WING ETC.	19.6		C.Y.
SILLS/BAFFLES	1.8		C.Y.
TOTAL	83.8		C.Y.
REINFORCING STEEL			
BARREL	12,248		LBS.
WINGS ETC.	1,392		LBS.
TOTAL	13,640		LBS.
CULVERT EXCAVATION ----- LUMP SUM			
FOUNDATION CONDITIONING MATERIAL---- 44 TONS			

NOTES:

- ASSUMED LIVE LOAD ----- HL-93 OR ALTERNATE LOADING.
- DESIGN FILL----- 10.4 FT. (MAX.), 8.2 FT. (MIN.)
- 3"Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- FOR OTHER DESIGN DATA AND NOTES,SEE STANDARD NOTE SHEET.
- CONCRETE IN BOTH STAGE I AND STAGE II OF THE CULVERT TO BE POURED IN THE FOLLOWING ORDER:
1. WING FOOTINGS, CURTAIN WALL, AND FLOOR SLAB INCLUDING 4"OF VERTICAL WALLS.
 2. THE REMAINING PORTIONS OF THE WALLS TO THE PERMITTED CONSTRUCTION JOINT AND WINGS FULL HEIGHT.
 3. ROOF SLAB, HEADWALL, AND SILL/BAFFLE.

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.

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.

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

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 WILL BE PAID FOR BY THE CONTRACTOR.

EXCAVATE 1 FT.BELOW CULVERT BEARING ELEVATION AND BACKFILL WITH SELECT MATERIAL,CLASS VI MEETING THE REQUIREMENTS OF SECTION 1016 OF THE STANDARD SPECIFICATIONS.

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.

HYDRAULIC DATA

DESIGN DISCHARGE-----900 C.F.S.

FREQUENCY OF DESIGN FLOOD-----25 YR.

DESIGN HIGH WATER ELEVATION-----3127.1

DRAINAGE AREA-----1.40 SQ.MI

BASE DISCHARGE (Q100)-----1695 C.F.S

BASE HIGH WATER ELEVATION-----3131.0

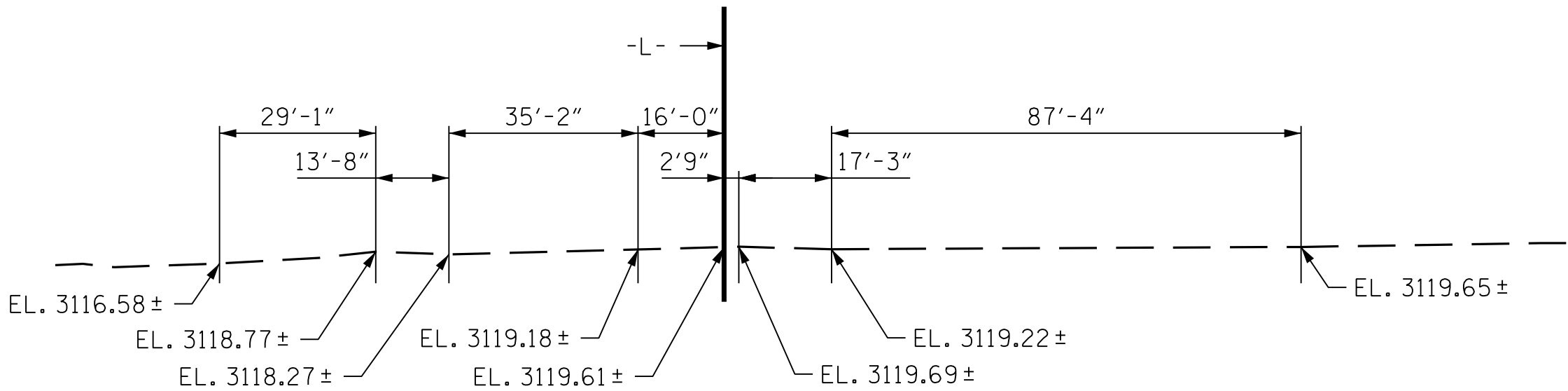
OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE-----2700 C.F.S.

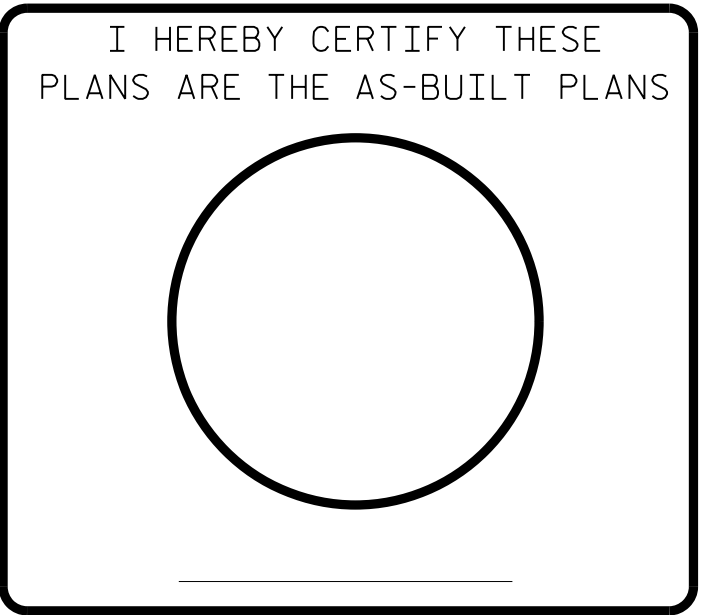
FREQUENCY OF OVERTOPPING FLOOD-----500 YR. +

OVERTOPPING FLOOD ELEVATION-----3138.6

@ STA. 51+94.4 -L-



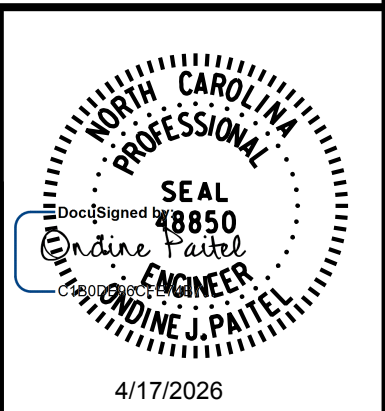
PROFILE ALONG CULVERT



RKK
P: (919) 878-9560
8601 Six Forks Road, Forum 1 Suite 700
Raleigh, North Carolina 27615 | NC License No. F-0112
www.rkk.com

Engineers | Construction Managers | Planners | Scientists
Responsive People | Creative Solutions

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



PROJECT NO. U-5810
WATAUGA COUNTY
STATION: 52+14.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 8 FT. X 10 FT.
CONCRETE BOX CULVERT
124° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			C-1
2			4			TOTAL SHEETS 13