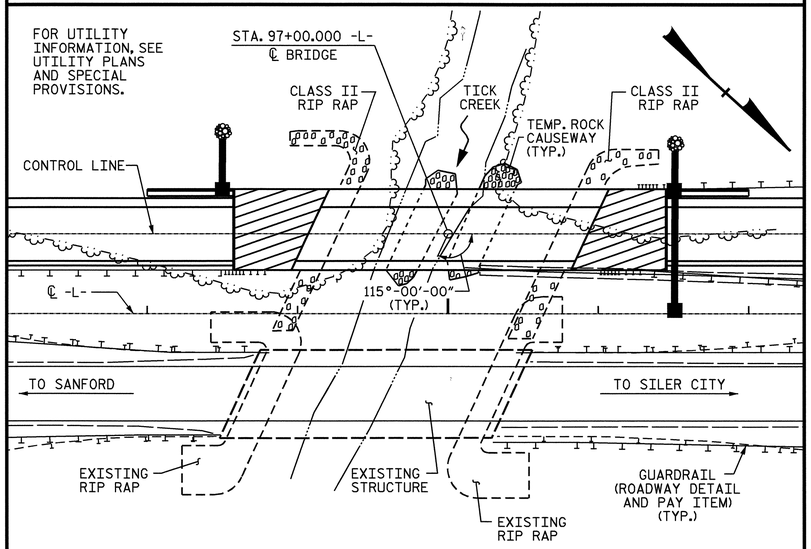
BENCHMARK #16: RAILROAD SPIKE IN BASE OF POWER POLE WITH LIGHT, 43.340m RIGHT OF 98+20.000-L-; EL. 143.036m



LOCATION SKETCH

HYDRAULIC DATA DATA

DESIGN DISCHARGE _____ 98 CU. METERS/SEC.

FREQUENCY OF DESIGN FLOOD_____ 50 YEARS

DESIGN HIGH WATER ELEVATION_____ 139.34

DRAINAGE AREA_____ 40 SQ. km.

BASIC DISCHARGE(Q100)_____ 118 CU. METERS/SEC.

BASIC HIGH WATER ELEVATION_____ 139.70

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE_____ 183 CU. METERS/SEC.

FREQUENCY OF OVERTOPPING FLOOD_____ > 500 YEARS

OVERTOPPING FLOOD ELEVATION_____ 140.50

---NOTES---

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

ALL ELEVATIONS ARE IN METERS.

ASSUMED LIVE LOAD = MS 18 OR ALTERNATE LOADING.

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.

PRESTRESSED CONCRTETE DECK PANELS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 300mm BELOW THE GROUND LINE.

THE CONTRACTOR SHALL OBSERVE A ONE MONTH WAITING PERIOD BEFORE BEGINNING WORK FOR END BENT CONSTRUCTION AFTER COMPLETION OF THE EMBANKMENT AT END BENT #1.

PILES AT END BENTS #1 AND #2 SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 445 kN EACH.

WHEN DRIVING PILES, THE MAXIMUM BLOW COUNT SHALL NOT BE EXCEEDED.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18,"EVALUATING SCOUR AT BRIDGES", NOVEMBER, 1995.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BOY THE ENGINEER.

STEEL PILE POINTS WITH TEETH ARE REQUIRED FOR PILES AT END BENT #1 AND #2. SEE SPECIAL PROVISIONS FOR STEEL PILE POINTS.

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 97+00.000-L-.

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

DRILLED PIERS HAVE BEEN DESIGNED FOR AND APPLIED LOAD OF 1100kN EACH AT THE TOP OF THE COLUMN.

DRILLED PIERS HAVE BEEN DESIGNED FOR BOTH SKIN FRICTION AND TIP BEARING. THE REQUIRED TIP BEARING CAPACITY IS 1150 kPa.

DRILLED PIERS AT BENTS #1 AND #2 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN ELEVATION 132.0 METERS, SATISFY THE REQUIRED TIP BEARING CAPACITY, AND HAVE A MINIMUM PENETRATION OF 2.6 METERS INTO ROCK AS DEFINED BY THE DRILLED PIERS SPECIAL PROVISION.

THE SCOUR CRITICAL ELEVATION (SCE) FOR BENTS #1 AND #2 IS ELEVATION 134.3 METERS. THE SCOUR CRITICAL ELEVATIONS ARE FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT #1 AND #2. IF REQUIRED, THE CASING SHALL NOT EXTEND BELOW ELEVATION 134.6 METERS WITHOUT THE ENGINEER'S PERMISSION. THE NEED FOR PERMANENT STEEL CASING WILL BE DETERMINED BY THE ENGINEER.

SPT TESTING IS NOT REQUIRED TO DETERMINE THE TIP BEARING CAPACITY OF THE DRILLED PIERS.

CSL TUBES ARE REQUIRED AND CSL TESTING IS REQUIRED FOR DRILLED PIERS. SEE SPECIAL PROVISIONS FOR CROSSHOLE SONIC LOGGING.

SLURRY CONSTRUCTION SHALL NOT BE USED FOR THIS PROJECT.

SID INSPECTIONS ARE NOT REQUIRED TO DETERMINE THE BOTTOM CLEANLINESS OF THE DRILLED PIERS.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	CONST. MAINT. & REMOVAL OF TEMP. ACCESS	1.220m DIA. DRILLED PIER IN SOIL	1.220m DIA. DRILLED PIER NOT IN SOIL	PERMANENT STEEL CASING FOR 1.220m DIA. DRILLED PIER	CROSSHOLE SONIC LOGGING	CSL TUBES	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	914mm PRESTRESSED CONCRETE GIRDERS		HP 310 X 79 STEEL PILES		STEEL PILE POINTS	CONCRETE BARRIER RAIL	PLAIN RIP RAP CLASS II (600mm)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS
	LUMP SUM	METERS	METERS	METERS	EACH	METERS	SQ. METERS	SQ. METERS	CU. METERS	LUMP SUM	KG.	KG.	NO.	METERS	NO.	METERS	EACH	METERS	METRIC TONS	SQ. METERS	LUMP SUM	LUMP SUM
SUPERSTRUCTURE	LUMP SUM						432	362		LUMP SUM			12	143.400				73.52			LUMP SUM	LUMP SUM
END BENT 1									19.1		1823				7	35.0	7		167	170		
BENT 1		7.5	7.8	7.5	1	71.5			20.4		4323	902										
BENT 2		5.0	8.3	5.5	1	63.5			22.5		4351	918										
END BENT 2									19.3		1825				7	28.0	7		171	174		
TOTAL	LUMP SUM	12.5	16.1	13.0	2	135.0	432	362	81.3	LUMP SUM	12322	1820	12	143.400	14	63.0	14	73.52	338	344	LUMP SUM	LUMP SUM

DRAWN BY : D. G. ELY/DAD DATE : 1-03
CHECKED BY : H.T. BARBOUR DATE : 10-03

NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDREW DAVENPORT, JR.

PROJECT NO. R-2610B
CHATHAM COUNTY
STATION: 97+00.000 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING FOR BRIDGE OVER TICK CREEK ON US 421 BETWEEN SR 2119 AND SR 2120

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-33
1			3			TOTAL SHEETS
2			4			60

STR. #2