



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE = 24.3 m<sup>3</sup>/S  
 FREQUENCY OF DESIGN FLOOD = 50 yrs.  
 DESIGN HIGH WATER ELEVATION = 253.43  
 DRAINAGE AREA = 2.55 sq. km.  
 BASIC DISCHARGE (Q100) = 27.6 m<sup>3</sup>/S  
 BASIC HIGH WATER ELEVATION = 253.52

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = \*\*\*  
 FREQ. OF OVERTOPPING FLOOD = +500 yrs.  
 OVERTOPPING FLOOD ELEVATION = 259.915

\*\*\* - OVERTOPPING DISCHARGE IS GREATER THAN 500+ YEAR EVENT

THE CONTRACTOR MAY CHOOSE TO UTILIZE THE STANDARD OVERHANG FALSEWORK BRACING SYSTEM. SEE "STANDARD OVERHANG FALSEWORK" SHEETS.

FOR FABRICATED METAL STAY-IN-PLACE FORMS, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	1220mm Ø DRILLED PIERS IN SOIL	1220mm Ø DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 1220mm Ø DRILLED PIERS	CROSSHOLE SONIC LOGGING	CSL TUBES	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	1143mm PRESTRESSED CONCRETE GIRDERS	HP 310 X 79 STEEL PILES	CONCRETE BARRIER RAIL	PLAIN RIP RAP CLASS II (600mm THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS		
	METERS	METERS	METERS	EACH	METERS	SQ. METERS	SQ. METERS	CU. METERS	LUMP SUM	kg	kg	NO.	METERS	NO.	METERS	METERS	METRIC TONS	SQ. METERS	LUMP SUM	LUMP SUM
SUPERSTRUCTURE						566.7	623.2		LUMP SUM				12	189.120			96.128		LUMP SUM	LUMP SUM
END BENT 1								19.8		1769			7	52.5			294	300		
BENT 1	9.8	4.6	5.8	1	64.4			22.6		4997	938									
BENT 2	9.1	7.3	8.4		72.4			25.0		5442	1120									
END BENT 2								19.8		1769			7	91.0			430	439		
TOTAL	18.9	11.9	14.2	1	136.8	566.7	623.2	87.2	LUMP SUM	13977	2058	12	189.120	143.5		96.128	724	739	LUMP SUM	LUMP SUM

DRAWN BY: W.D. CRUTCHER DATE: 05-04  
 CHECKED BY: J.L. AVERETTE DATE: 05-04

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.

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

PRESTRESSED CONCRETE DECK PANELS 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 CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

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

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.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 360,000 kg OF REINFORCING STEEL, ONE 760mm SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 360,000 kg OF REINFORCING STEEL, TWO 760mm 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.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR METRIC STRUCTURAL STEEL, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

THE DRILLED PIERS AT BENT NO. 1 AND BENT NO. 2 HAVE BEEN DESIGNED FOR BOTH SKIN FRICTION AND TIP BEARING. THE REQUIRED TIP BEARING CAPACITY IS 1900 kPa.

THE REQUIRED TIP BEARING CAPACITY AT BENT NO. 1 AND BENT NO. 2 SHALL BE VERIFIED.

DRILLED PIERS FOR BENT NO. 1 HAVE BEEN DESIGNED FOR AN APPLIED LOAD OF 1948.3 kN EACH AT THE TOP OF THE COLUMN.

DRILLED PIERS FOR BENT NO. 2 HAVE BEEN DESIGNED FOR AN APPLIED LOAD OF 1950.4 kN EACH AT THE TOP OF THE COLUMN.

PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT NO. 1. IF REQUIRED, THE CASING SHALL NOT EXTEND BELOW ELEVATION 250.0 WITHOUT THE ENGINEER'S PERMISSION. THE NEED FOR PERMANENT STEEL CASING WILL BE DETERMINED BY THE ENGINEER.

PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT NO. 2. IF REQUIRED, THE CASING SHALL NOT EXTEND BELOW ELEVATION 247.5 WITHOUT THE ENGINEER'S PERMISSION. THE NEED FOR PERMANENT STEEL CASING WILL BE DETERMINED BY THE ENGINEER.

FOR PERMANENT STEEL CASING, SEE SPECIAL PROVISION FOR DRILLED PIERS.

DRILLED PIERS AT BENT NO. 1 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 245.7, SATISFY THE REQUIRED TIP BEARING CAPACITY, AND HAVE A MINIMUM PENETRATION OF 2.3m INTO ROCK AS DEFINED BY THE DRILLED PIERS SPECIAL PROVISION.

DRILLED PIERS AT BENT NO. 2 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 243.5 LEFT OF THE BRIDGE CENTERLINE, SATISFY THE REQUIRED TIP BEARING CAPACITY, AND HAVE A MINIMUM PENETRATION OF 3.6m INTO ROCK AS DEFINED BY THE DRILLED PIERS SPECIAL PROVISION.

DRILLED PIERS AT BENT NO. 2 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 243.5 RIGHT OF THE BRIDGE CENTERLINE, SATISFY THE REQUIRED TIP BEARING CAPACITY, AND HAVE A MINIMUM PENETRATION OF 3.7m INTO ROCK AS DEFINED BY THE DRILLED PIERS SPECIAL PROVISION.

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS ELEVATION 248.0. THE SCOUR CRITICAL ELEVATIONS ARE FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 2 IS ELEVATION 246.0. THE SCOUR CRITICAL ELEVATIONS ARE FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

SPT TESTING IS NOT REQUIRED TO DETERMINE THE TIP BEARING CAPACITY OF THE DRILLED PIERS AT BENT NO. 1 AND BENT NO. 2.

SID INSPECTIONS ARE NOT REQUIRED TO DETERMINE THE BOTTOM CLEANLINESS OF THE DRILLED PIERS AT BENT NO. 1 AND BENT NO. 2.

SLURRY CONSTRUCTION SHALL NOT BE USED FOR THIS PROJECT.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS AT BENT NO. 1 AND BENT NO. 2. SEE SPECIAL PROVISION FOR CROSSHOLE SONIC LOGGING.

WAITING PERIOD FOR APPROACH SLAB CONSTRUCTION SHALL BE 2 MONTHS AFTER COMPLETION OF THE EMBANKMENT AT EACH END BENT.

PILES FOR END BENT NO. 1 AND END BENT NO. 2 SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 530 kN EACH.

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

FOR ROCK EMBANKMENT IN AREA OF END BENT #2, SEE ROADWAY PLANS.



Emily E. Murray  
11/2/04

PROJECT NO. R-2206C

LINCOLN/CATAWBA COUNTY

STATION: 223+03.850 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING

FOR BRIDGE ON NC 16 OVER  
 KILLIAN CREEK BETWEEN SR 1349  
 AND NC 150

LEFT LANE

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			5-134
2			4			TOTAL SHEETS 374