

## TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	3'-6" DIA. DRILLED PIERS IN SOIL	3'-6" DIA. DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-6" DIA. DRILLED PIERS	SPT TESTING	CROSSHOLE SONIC LOGGING	CSL TUBES	UNCLASSIFIED STRUCTURE EXCAVATION	HP 12 X 53 STEEL PILES	PLAIN RIP RAP CLASS II (2'-0" THICK)	CONSTRUCTION OF SUBSTRUCTURE	CONSTRUCTION OF SUPERSTRUCTURE	
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EA.	EA.	LIN. FT.	CU. YDS.	NO.	LIN. FT.	TONS	LUMP SUM	LUMP SUM
SUPERSTRUCTURE														
END BENT 1									730	7	140	325		
BENT 1			60.5	16.0		3	1	336.0						
BENT 2			63.4	14.0	47.4	3		339.6						
BENT 3			69.4	14.0	47.4	3		363.6						
BENT 4			72.5	16.0		3		384.0						
END BENT 2									1120	7	175	285		
TOTAL	LUMP SUM	LUMP SUM	265.8	60.0	94.8	12	1	1423.2	1850	14	315	610	LUMP SUM	LUMP SUM

### NOTES

ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING.  
FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.  
FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

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

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS AT BENTS 1 & 4 IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FT. BELOW THE GROUND LINE, EXCEPT IN WATER, WHERE IT WILL PLACE 1 FT. ABOVE THE NORMAL WATER SURFACE ELEVATION.

THE EXISTING STRUCTURE CONSISTING OF 8 SPANS (1 @ 17'-5", 1 @ 17'-4", 1 @ 16'-6", 1 @ 17'-2", 1 @ 16'-7", 1 @ 17'-0", 1 @ 17'-3", 1 @ 17'-10") WITH TIMBER FLOORS ON TIMBER JOISTS WITH A CLEAR ROADWAY OF 19.2 FEET ON TIMBER CAPS ON TIMBER PILES LOCATED AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT, SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.  
FOR REMOVAL OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

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

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 30 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE MEASURED AND PAID FOR AS UNCLASSIFIED STRUCTURE EXCAVATION.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED 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.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 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 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.

ALL PAVEMENT MARKING WILL BE IN ACCORDANCE WITH THE PAVEMENT MARKING PLANS AND SHALL PROVIDE FOR BICYCLES.

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 24+92.50-L."

THE DRILLED PIERS FOR THE BENTS HAVE BEEN DESIGNED FOR BOTH SKIN FRICTION AND TIP BEARING. THE REQUIRED TIP BEARING CAPACITY IS 20 TONS/FT<sup>2</sup>.

THE REQUIRED TIP BEARING CAPACITY AT THE BENTS SHALL BE VERIFIED.

DRILLED PIERS FOR BENTS 1 THRU 4 HAVE BEEN DESIGNED FOR AN APPLIED LOAD OF 198 TONS EACH AT THE TOP OF THE COLUMN.

PERMANENT STEEL CASING IS REQUIRED FOR DRILLED PIERS AT BENT 2 & 3 AND THE CASING SHALL NOT EXTEND BELOW ELEVATION 204 FT. WITHOUT THE ENGINEER'S PERMISSION.

PERMANENT STEEL CASING IS NOT REQUIRED FOR DRILLED PIERS AT BENT 1 & 4.

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

DRILLED PIERS AT BENT 1 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN EL. 196.000 AND SATISFY THE REQUIRED TIP BEARING CAPACITY.

DRILLED PIERS AT BENT 2 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN EL. 194.000 AND SATISFY THE REQUIRED TIP BEARING CAPACITY.

DRILLED PIERS AT BENTS 3 & 4 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN EL. 192.000 AND SATISFY THE REQUIRED TIP BEARING CAPACITY.

THE SCOUR CRITICAL ELEVATION FOR BENT 1 IS EL. 207.000. THE SCOUR CRITICAL ELEVATION FOR BENT 2 IS EL. 199.000. THE SCOUR CRITICAL ELEVATION FOR BENT 3 IS EL. 197.000. THE SCOUR CRITICAL ELEVATION FOR BENT 4 IS EL. 207.000. 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.

DRILLED PIERS WILL BE CONSTRUCTED IN TRIASSIC ROCK, WHICH HAS A HIGH POTENTIAL TO DEGRADE WHEN EXPOSED TO AIR AND WATER. THEREFORE, THE CONTRACTOR IS CAUTIONED NOT TO EXCAVATE THE BOTTOM FEET OF THE DRILLED PIERS UNTIL JUST PRIOR TO CONCRETING. INSPECTION OF THE BOTTOM SHALL BE MADE NO MORE THAN ONE HOUR PRIOR TO PLACING CONCRETE AND ANY SOFT OR LOOSE MATERIAL REMOVED.

SPT TESTING IS REQUIRED TO DETERMINE THE TIP BEARING CAPACITY OF THE DRILLED PIERS AT BENTS 1 - 4. SEE DRILLED PIERS SPECIAL PROVISION.

SLURRY CONSTRUCTION SHALL NOT BE USED FOR THIS PROJECT.

SID INSPECTIONS ARE NOT REQUIRED TO DETERMINE THE BOTTOM CLEANLINESS OF THE DRILLED PIERS AT BENTS 1 - 4.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS AT BENTS 1 - 4. SEE SPECIAL PROVISION FOR CROSSHOLE SONIC LOGGING.

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

PILES FOR THE END BENTS SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 60 TONS EACH.

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

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

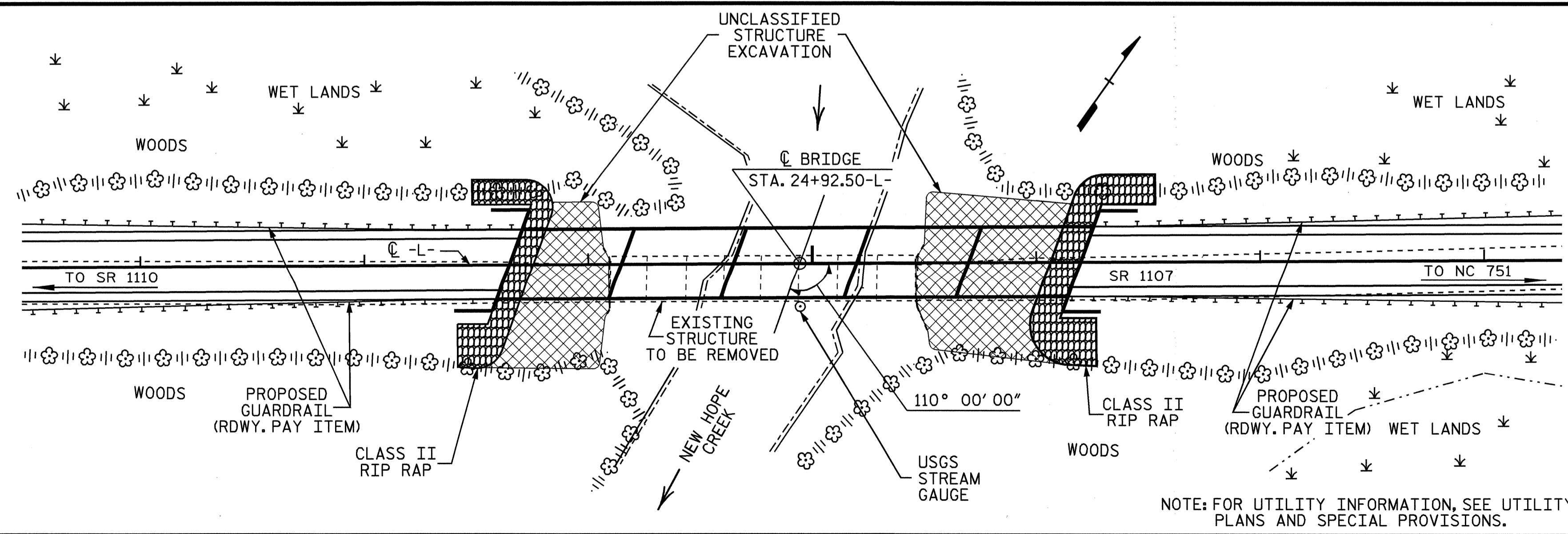
FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIPRAP USED IN THE CAUSEWAY MAY BE PLACED AS RIPRAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 24+92.50-L.

FOR CONSTRUCTION OF SUPERSTRUCTURE, SEE SPECIAL PROVISIONS.

FOR CONSTRUCTION OF SUBSTRUCTURE, SEE SPECIAL PROVISIONS.

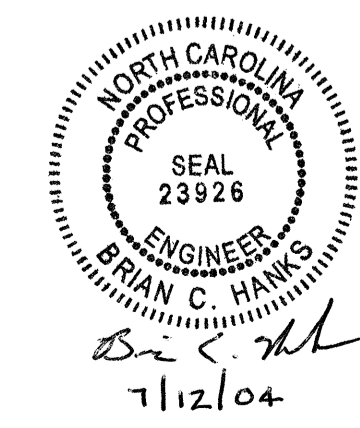
BENCH MARK IS -BL-4 NCDOT DISK B-2963-1 STA. 10+54.02-BL- EL. 232.080



LOCATION SKETCH

### HYDRAULIC DATA

DESIGN DISCHARGE = 7300 C.F.S.  
 FREQUENCY OF DESIGN FLOOD = 25 YRS.  
 DESIGN HIGH WATER ELEVATION = 228.520  
 DRAINAGE AREA = 75.9 SQ. MI.  
 BASIC DISCHARGE (Q100) = 10400 C.F.S.  
 BASIC HIGH WATER ELEVATION = 230.540  
 ----- OVERTOPPING FLOOD DATA -----  
 OVERTOPPING DISCHARGE = 11500 C.F.S.  
 FREQUENCY OF OVERTOPPING FLOOD = 100 YRS. +  
 OVERTOPPING FLOOD ELEVATION = 230.640



PROJECT NO. B-2963  
DURHAM COUNTY  
 STATION: 24+92.50-L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING  
 FOR BRIDGE OVER  
 NEW HOPE CREEK  
 ON SR 1107 BETWEEN  
 SR 110 AND NC 751**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS 32
2			4			

DRAWN BY: William J. Parker DATE: 04/10/02  
 CHECKED BY: J. KHARVA DATE: 9/19/02