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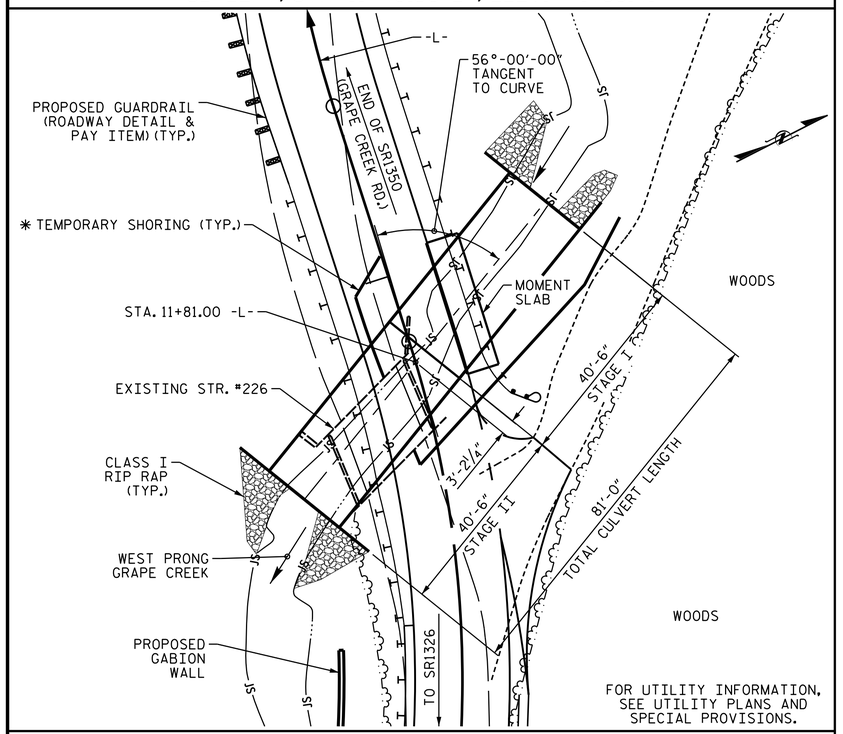
BM#2: 8" SPIKE SET IN BASE OF TRIPLE MAPLE TREE, 32' LEFT, STA 11+40.36-L-, ELEV. = 1788.41



LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD.....HL-93 OR ALTERNATE LOADING.

MAXIMUM DESIGN FILL..... 3.3'

MINIMUM DESIGN FILL..... 2.5'

FOR OTHER DESIGN DATA AND NOTES, SEE STANDARD NOTE SHEET.

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

AFTER SERVING AS A TEMPORARY STRUCTURE THE EXISTING STRUCTURE CONSISTING OF A SINGLE SPAN: 16'-6" WITH AN ASPHALT WEARING SURFACE ON A TIMBER DECK ON TIMBER JOISTS, HAVING A CLEAR ROADWAY WIDTH OF 20'-1½" SUPPORTED ON A SUBSTRUCTURE OF TIMBER CAPS, AND TIMBER POSTS AND SILLS SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. 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.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE
✱ OF TRAFFIC, SEE ROADWAY PLANS.

FOR TRAFFIC PHASING, SEE TRAFFIC CONTROL PLANS.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF THE CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.

FOR ALUMINUM BOX CULVERT AND FOUNDATIONS, SEE SPECIAL PROVISIONS FOR ALUMINUM BOX CULVERT.

THE DETAILS SHOWN HERE ARE FOR GENERAL LAYOUT ONLY. THE SUPPLIER SHALL SUPPLY DESIGNS AND DETAILS FOR REVIEW AND APPROVAL THAT MEET THE REQUIREMENTS OF AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12, AND ARE SEALED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER.

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

THE CONTRACTOR SHALL SUBMIT SEALED SHOP DRAWING PLANS FOR THE ALUMINUM BOX CULVERT, ALUMINUM HEADWALL AND ANY REQUIRED FOUNDATIONS TO NCDOT FOR APPROVAL PRIOR TO CONSTRUCTION.

UNLESS OTHERWISE INDICATED, THE SUPPLIER SHALL DESIGN, DETAIL, AND FURNISH ALL STRUCTURAL ELEMENTS AND HARDWARE.

THE MANUFACTURER OF THE 19'-0" X 6'-1" ALUMINUM BOX CULVERT SHALL PROVIDE LOAD RESISTANCE FACTOR RATINGS (LRFR) SUMMARY PER NCDOT REQUIREMENTS.

THE CORRUGATED ALUMINUM BOX CULVERT AT STATION 11+81.00 -L- IS DESIGNED FOR A FACTORED RESISTANCE OF 2 TSF. CHECK FIELD CONDITIONS FOR THE REQUIRED RESISTANCE OF 4.5 TSF JUST BEFORE PLACING CULVERT.

EXCAVATE 1 FOOT BELOW CULVERT AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL IN ACCORDANCE WITH SECTION 414 OF THE STANDARD SPECIFICATIONS.

FOR BLASTING ADJACENT TO HIGHWAY STRUCTURES, SEE ARTICLE 410-9 OF THE STANDARD SPECIFICATIONS.

GUARDRAIL POST LOCATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER TO ENSURE ADEQUATE COVER FOR INSTALLATION. AT LOCATIONS OF INADEQUATE COVER GUARDRAIL POSTS MAY BE BOLTED TO THE ALUMINUM BOX CULVERT.

AT THE CONTRACTOR'S OPTION HE MAY SUBMIT TO THE ENGINEER FOR APPROVAL DESIGN AND DETAIL DRAWINGS FOR PRECAST REINFORCED CONCRETE HEADWALL IN LIEU OF THE ALUMINUM HEADWALLS SHOWN ON THE PLANS. THE DESIGN SHALL PROVIDE THE SAME SIZE AND LAYOUT AS USED ON THE ALUMINUM HEADWALL DESIGN. FOR OPTIONAL PRECAST REINFORCED CONCRETE HEADWALLS, SEE SPECIAL PROVISIONS.

HYDRAULIC DATA

DESIGN DISCHARGE	= 310 CFS
FREQUENCY OF DESIGN FLOOD	= 10 YEARS
DESIGN HIGH WATER ELEVATION	= 1790.0
DRAINAGE AREA	= 1.08 SQ.MI.
BASE DISCHARGE (Q100)	= 600 CFS
BASE HIGH WATER ELEVATION	= 1791.15

OVERTOPPING DATA

OVERTOPPING DISCHARGE	= 420+ CFS
FREQUENCY OF OVERTOPPING FLOOD	= 25+ YEARS
OVERTOPPING FLOOD ELEVATION	= 1790.8

HORIZONTAL CURVE DATA

P.I. STA. = 11+39.42 -L-
Δ = 22°-55'-57.5"(LT)
D = 24°-30'-00.0"
L = 93.60'
T = 47.44'
R = 233.86'

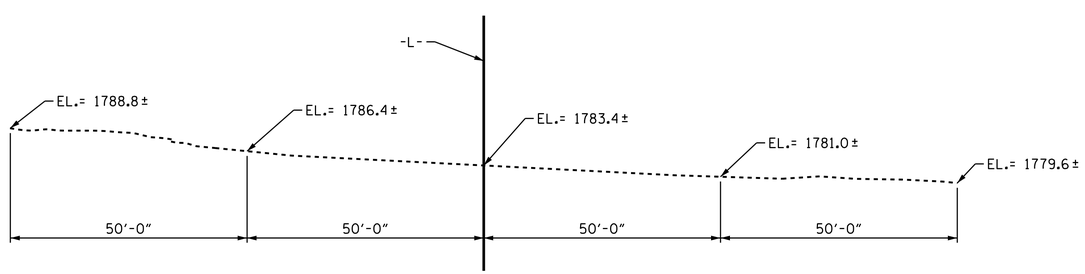
GRADE DATA

GRADE POINT ELEV. @ STA. 11+81.00-L-	= 1791.70
INVERT ELEV. @ STA. 11+81.00-L-	= 1782.21
ROADWAY SIDE SLOPES	= 2:1 MAX

TOTAL STRUCTURE QUANTITIES

ALUMINUM BOX CULVERT	LUMP SUM
CULVERT EXCAVATION	LUMP SUM
FOUNDATION COND. MAT'L	143 TONS
REMOVAL OF EXISTING STRUCTURE	LUMP SUM
CLASS I RIP RAP	32 TONS
✱ EPOXY COATED REINFORCING STEEL	1,147 LBS.
✱ CLASS AA CONCRETE	11.4 C.Y.
✱ FOUNDATION COND. MAT'L, MINOR STRUCTURES	5 TONS

✱ PAYMENT FOR MOMENT SLAB



PROFILE ALONG ℄ CULVERT

PROJECT NO. 17BP.14.R.86
CHEROKEE COUNTY
STATION: 11+81.00-L-

SHEET 1 OF 4 REPLACES BRIDGE #226

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SINGLE 19'-0" X 6'-1" ALUMINUM BOX CULVERT 56° SKEW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSigned by: Thomas M. Harris
NORTH CAROLINA PROFESSIONAL SEAL 19299 ENGINEER THOMAS M. HARRIS
9/28/2018 7:17:50 AM PDT

WSP USA Inc.
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
LICENSE NO. F-0165

DESIGN ENGINEER OF RECORD	DATE
T.M. HARRIS	09/28/2018

DRAWN BY : N. PIERCE DATE : 08/2014
CHECKED BY : M. HOBBS DATE : 09/2014

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

9/27/2018
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