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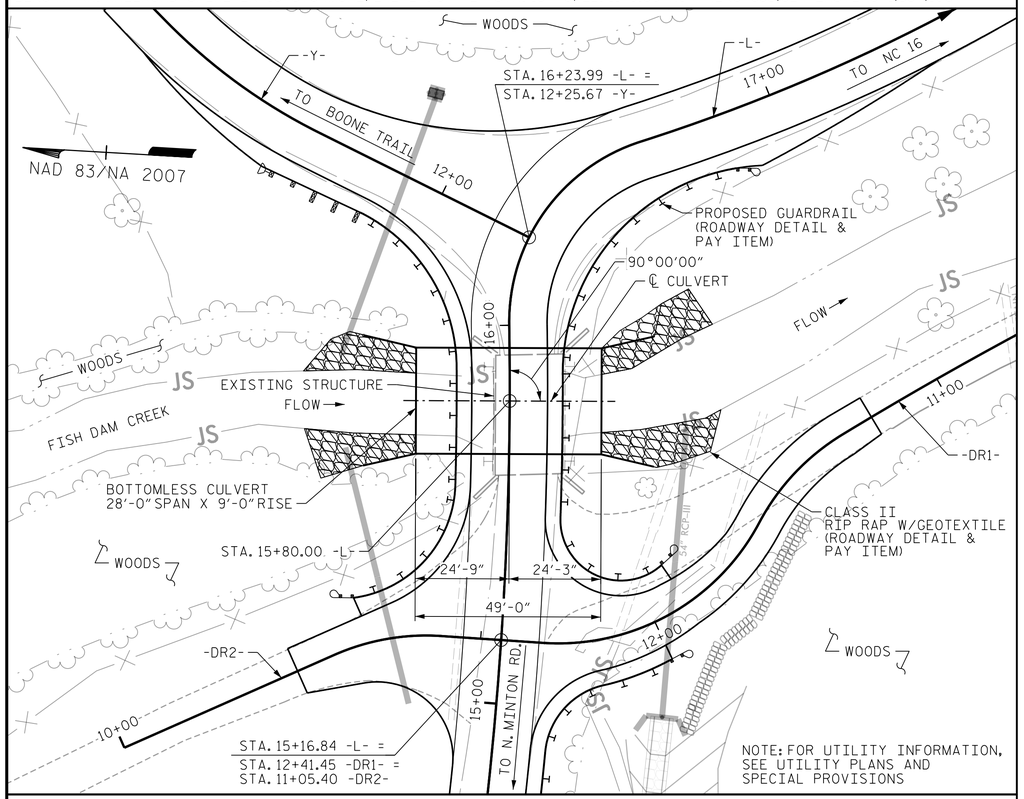
BENCHMARK: RAILROAD SPIKE IN 18" SYCAMORE, 242' LT. OF -L- STA. 15+40, EL. 1179.09 NORTHING 883,624 EASTING 1,337,100



LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE ..... = 1,200 CFS
FREQUENCY OF DESIGN FLOOD ..... = 25 YR.
DESIGN HIGH WATER ELEVATION ..... = 1178.2
DRAINAGE AREA ..... = 3.95 SQ. MI.
BASE DISCHARGE (Q100) ..... = 1,800 CFS
BASE HIGH WATER ELEVATION ..... = 1180.5

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE ..... = 3,200 CFS
FREQUENCY OF OVERTOPPING FLOOD ..... = > 500 YR.
OVERTOPPING FLOOD ELEVATION ..... = 1186.1

GRADE DATA

GRADE POINT ELEV. @ STA. 15+80.00 -L- = 1186.54
TOP OF FOOTING ELEV. @ STA. 15+80.00 -L- = 1173.50
ROADWAY SLOPES 2:1

TOTAL STRUCTURE QUANTITIES	
REMOVAL OF EXISTING STRUCTURE	LUMP SUM
PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT @ STA. 15+80.00 -L-	LUMP SUM
ASBESTOS ASSESMENT	LUMP SUM
CLASS A CONCRETE	* 61.9 CU. YDS.
FOUNDATION EXCAVATION	* 35.0 CU. YDS.

* THE LISTED QUANTITIES ARE FOR ESTIMATING PURPOSES ONLY. THE COMPUTATION OF THE FINAL QUANTITIES ARE THE RESPONSIBILITY OF THE CONTRACTOR. FOR BASIS OF PAYMENT, SEE THE SPECIAL PROVISION FOR "PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT".

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

DESIGN EARTH COVER AT CULVERT CENTERLINE = MAX = 4.27 FT., MIN = 3.82 FT.

THE DESIGN EARTH COVER IS TAKEN AS THE ELEVATION DIFFERENCE BETWEEN THE POINT OF MAXIMUM OR MINIMUM FILL (ALONG THE CULVERT CENTERLINE) AND THE BOTTOM OF THE TOP SLAB.

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

THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 32'-0" WITH A TIMBER DECK ON I-BEAMS AND A CLEAR ROADWAY OF 17'-7" ON CONCRETE ABUTMENTS AND LOCATED AT THE PROPOSED SITE SHALL BE REMOVED. THE EXISTING IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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

A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

FOR PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT, SEE SPECIAL PROVISIONS.

THE PRECAST CULVERT SECTIONS AND WINGS SHALL BE DESIGNED TO HANDLE FULL DEPTH HYDROSTATIC PRESSURE IF WEEP HOLES ARE NOT UTILIZED. IF PROVIDED, WEEP HOLES IN ACCORDANCE WITH THE SPECIFICATIONS SHALL BE LOCATED A MINIMUM HEIGHT OF 6 INCHES ABOVE THE NORMAL FLOW LINE AND HAVE A MAXIMUM SPACING OF 10 FEET.

IN AS MUCH 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 15+80.00 -L-."

BACKFILL WITH SELECT MATERIAL, CLASS I OR CLASS II MEETING THE REQUIREMENTS OF SECTION 1016 OF THE STANDARD SPECIFICATIONS.

KEY-IN FOOTINGS FOR THE BOTTOMLESS REINFORCED CULVERT AT STATION 15+80.00 -L- AT LEAST 1-0" INTO WEATHERED ROCK WITH A MINIMUM THICKNESS AS SHOWN ON THE PLANS.

THE SPREAD FOOTINGS ARE DESIGNED FOR A FACTORED RESISTANCE OF 3.5 TSF. CHECK FIELD CONDITIONS FOR THE REQUIRED RESISTANCE OF 8 TSF JUST BEFORE PLACING CONCRETE.

THE SCOUR CRITICAL ELEVATION IS THE AS-BUILT BOTTOM OF FOOTING ELEVATION. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

EXISTING UTILITY TRENCH LOCATED WITHIN THE CULVERT FOOTPRINT SHALL BE EXCAVATED TO WEATHERED ROCK, IF NEEDED, AND BACKFILLED WITH EITHER FLOWABLE FILL OR CONCRETE, AS DIRECTED BY THE ENGINEER, TO THE BOTTOM OF CULVERT FOOTING ELEVATION.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

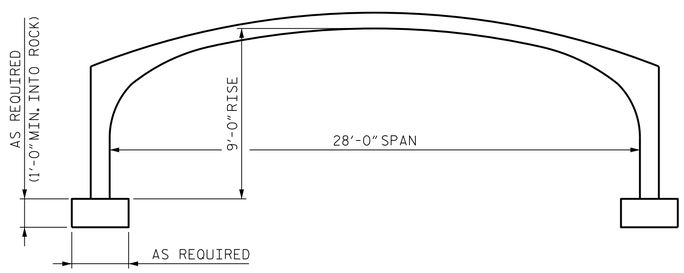
FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

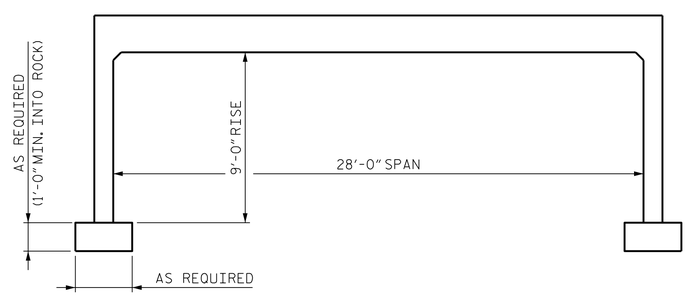
FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

WHEN THE CAST-IN-PLACE OPTION IS CHOSEN, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER, FOR APPROVAL, DESIGN AND DETAIL DRAWINGS FOR CAST-IN-PLACE HEADWALLS AND WINGWALLS. PLANS AND DESIGN CALCULATIONS SHALL BE CHECKED AND SEALED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER. SEE SPECIAL PROVISIONS.



RIGHT ANGLE SECTION OF PRECAST CONCRETE THREE-SIDED CULVERT

MIN. REQ'D INLET OPENING = 223 SQ. FT.
MAX. SOFFIT ELEV. = 1181.3



OPTIONAL
RIGHT ANGLE SECTION OF PRECAST CONCRETE THREE-SIDED CULVERT

MIN. REQ'D INLET OPENING = 223 SQ. FT.
MAX. SOFFIT ELEV. = 1181.3

PROJECT NO. B-4977
WILKES COUNTY
STATION: 15+80.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE No. 960075

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT 90° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 12960 ENGINEER PAUL STEPHEN ERVIN
4/23/2020

DES BY: P. ERVIN	DATE: 12/19	DWG BY: D. CARTER	DATE: 12/19
DES CHK: S. HILTON	DATE: 01/20	CHK BY: P. ERVIN	DATE: 01/20

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS								SHEET NO. C1-01
NO.	BY:	DATE:	NO.	BY:	DATE:			TOTAL SHEETS 3
1	--	--	3	--	--			
2	--	--	4	--	--			

PLOT DRIVER: NCDOT STRUCTURES DEFAULT PLOTTER.plt PENTABLE: NCDOT STRUCTURES DEFAULT PEN.tbl
USER: DCARTER DATE: 4/23/2020 TIME: 12:19:12 PM
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