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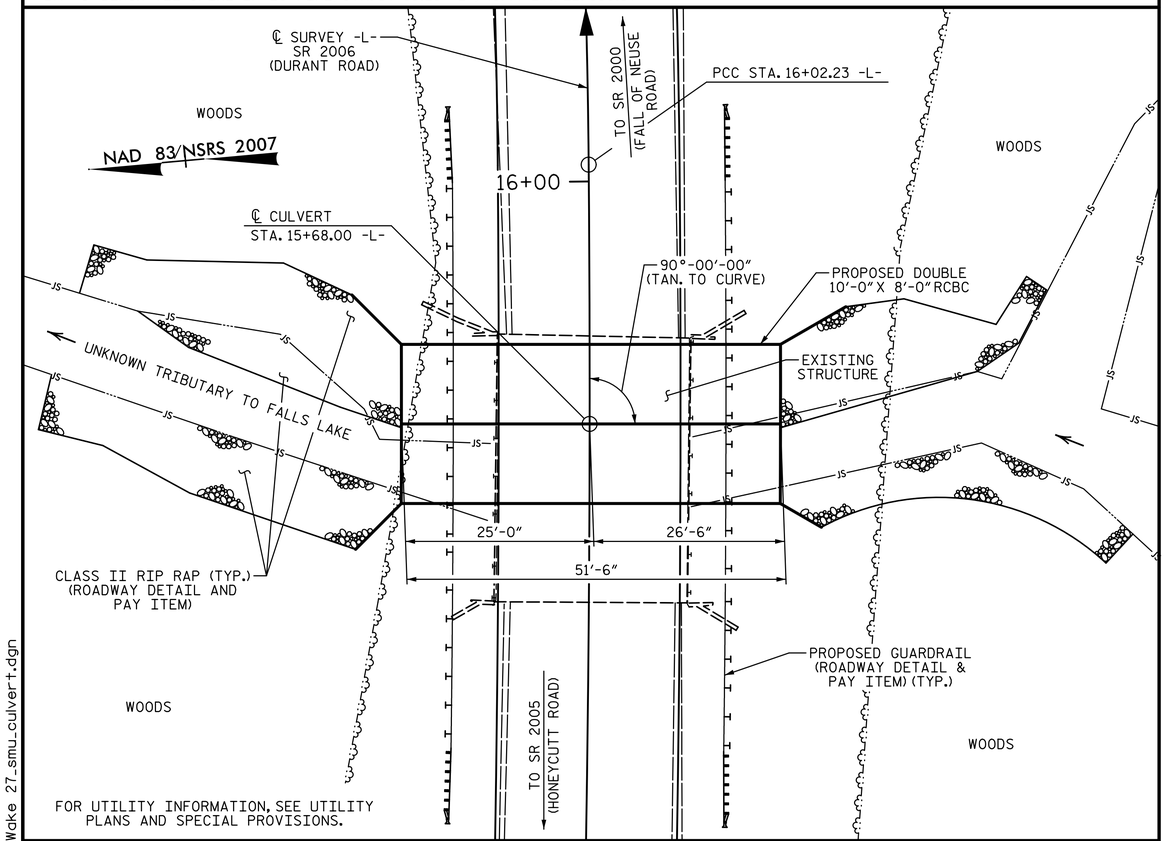
BM #1 BENCH TIE SPIKE IN 20"PINE, STA. 14+85.29 -L-, 48.44' LT., EL. 336.57



LOCATION SKETCH

HYDRAULIC DATA:

DESIGN DISCHARGE	= 1000 CFS
FREQUENCY OF DESIGN FLOOD	= 50 YEAR
DESIGN HIGH WATER ELEVATION	= 334.10
DRAINAGE AREA	= 0.9 SQ. MI.
BASE DISCHARGE (Q 100)	= 1100 CFS
BASE HIGH WATER ELEVATION	= 334.71

OVERTOPPING FLOOD DATA:

OVERTOPPING DISCHARGE	= 1826 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YEAR
OVERTOPPING FLOOD ELEVATION	= 338.40

✳✳ OVERTOPPING OCCURS AT ROADWAY SAG AT STA. 15+77.47 -L- AT RIGHT ROADWAY SHOULDER

HORIZONTAL CURVE DATA

PI STA. 14+83.03 -L-
Δ = 3°-46'-28.1" (LT.)
D = 1°-34'-57.9"
L = 238.47'
T = 119.28'
R = 3620.00'

PI STA. 17+53.84 -L-
Δ = 15°-17'-03.0" (LT.)
D = 5°-04'-13.5"
L = 301.44'
T = 151.62'
R = 1130.00'

GRADE DATA:

GRADE POINT EL. @ STA. 15+68.00 -L- = EL. 336.92
BED EL. @ STA. 15+68.00 -L- = 325.29
ROADWAY SLOPE 2:1

NOTES:

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

DESIGN FILL---------- 2'-9" (MIN.) AND 4'-3" (MAX.)

FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.

3" Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:
1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.

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

DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.

STEEL IN THE BOTTOM SLAB MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

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 WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTS OF 1 SPAN @ 35'-7" WITH A CLEAR ROADWAY WIDTH OF 23.9'. THE SUPERSTRUCTURE CONSISTS OF A STEEL PLANK FLOOR ON STEEL I BEAMS. THE ABUTMENTS ARE TIMBER CAPS ON TIMBER PILES. THE EXISTING STRUCTURE, WHICH IS LOCATED AT THE SITE OF THE PROPOSED STRUCTURE, 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, THE LOAD LIMIT MAY BE REDUCED AS NECESSARY DURING THE LIFE OF THE PROJECT.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

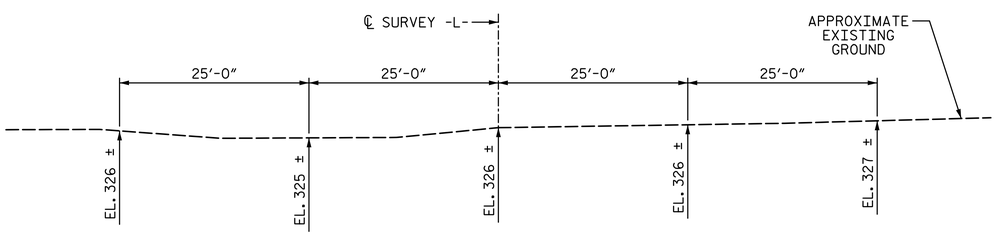
FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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.

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 15+68.00 -L-"

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



PROFILE ALONG ℄ CULVERT

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE		
BARREL @	2.366 CY/FT	121.9 C.Y.
HEADWALLS		2.0 C.Y.
SILLS		2.2 C.Y.
WING ETC.		23.8 C.Y.
TOTAL		149.9 C.Y.
REINFORCING STEEL		
BARREL		19,185 LBS.
WINGS ETC.		1,453 LBS.
TOTAL		20,638 LBS.
CULVERT EXCAVATION		LUMP SUM
FOUNDATION CONDITIONING MATERIAL		95 TONS
REMOVAL OF EXISTING STRUCTURE		LUMP SUM
ASBESTOS ASSESSMENT		LUMP SUM

PROJECT NO. 17BP.5.R.51
WAKE COUNTY
STATION: 15+68.00 -L-

SHEET 1 OF 6 REPLACES BRIDGE #27

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 10 FT. X 8 FT.
CONCRETE BOX CULVERT
90° SKEW

PLANS PREPARED BY:
SIMPSON ENGINEERS & ASSOCIATES
5640 Dillard Drive
Suite 200
Cary, NC 27518
(919) 852-0468
(919) 852-0598 (Fax)
www.simpsonengr.com
LICENSURE NO. C-2521

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18056 JOHN A. BATTS
2/5/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		C-1
1			3				TOTAL SHEETS
2			4				6

DRAWN BY: T. BANKOVICH DATE: 2-18
CHECKED BY: B.S. COX DATE: 2-18
DESIGN ENGINEER OF RECORD: J.A. BATTS DATE: 2-18

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