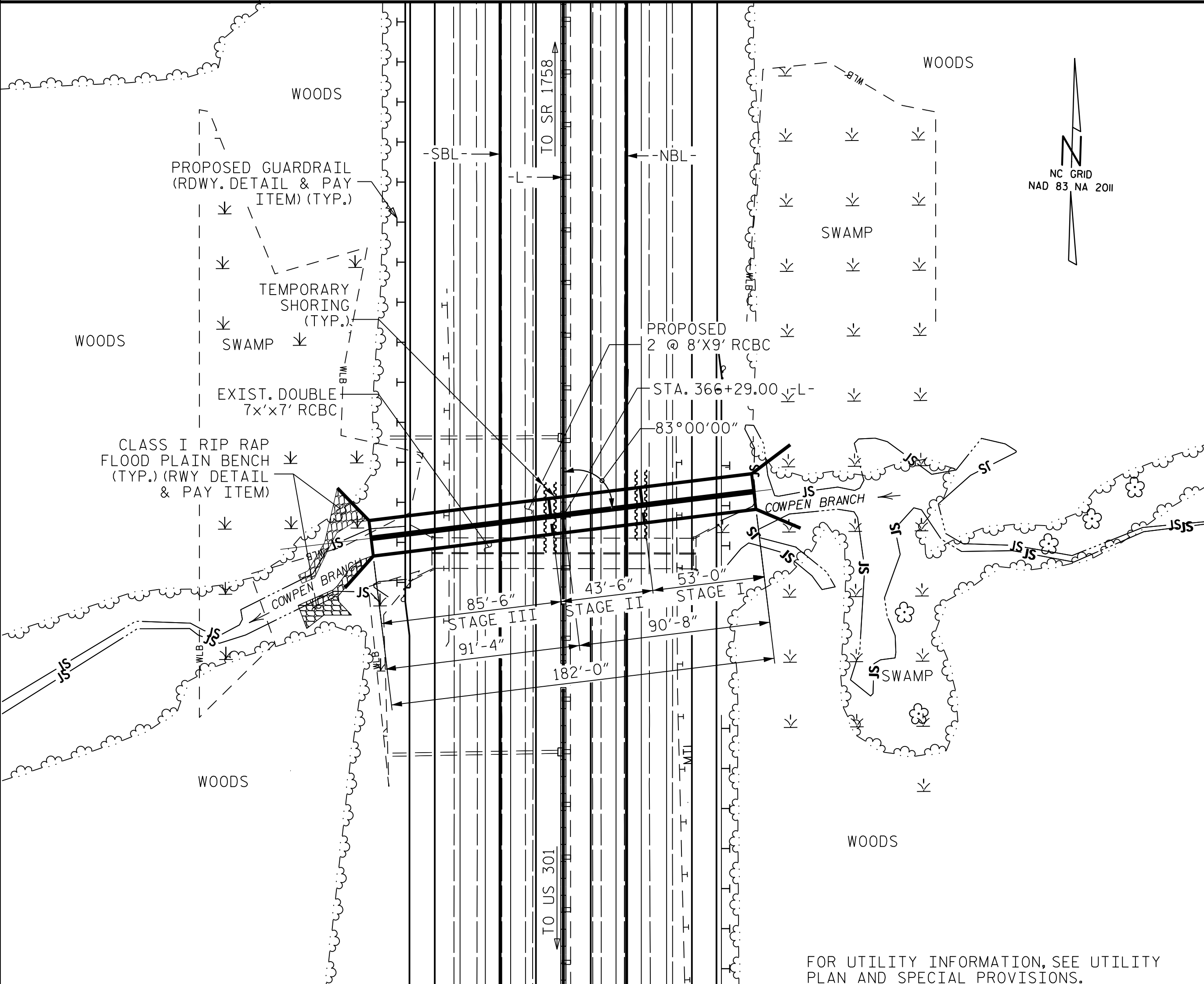


BM 18 : RRS IN 14" OAK, STA. 369+21.00, -BL-, 604' RT. EL. 149.74



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

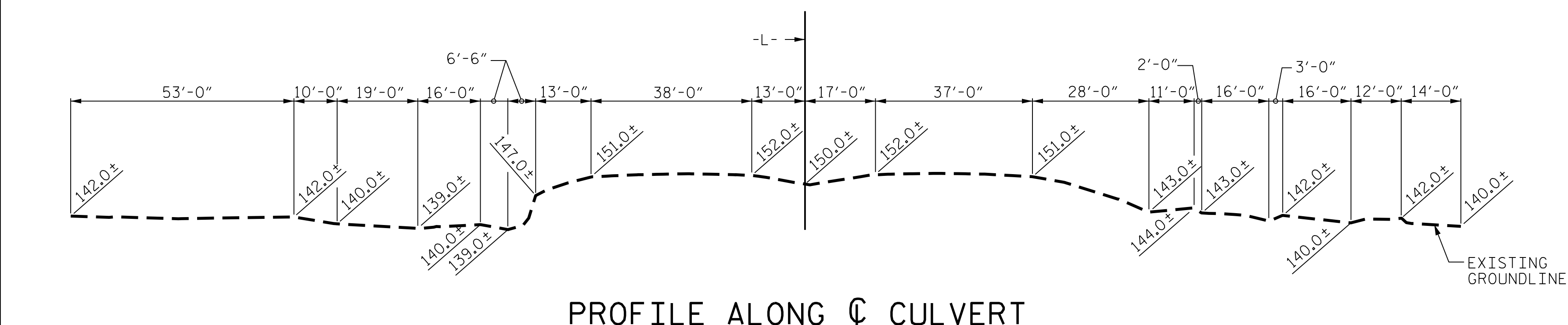
FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.



PROFILE ALONG Q CULVERT

FOUNDATION NOTES

BACKFILL WITH SELECT MATERIAL, CLASS VI MEETING THE REQUIREMENTS OF SECTION 1016 OF THE STANDARD SPECIFICATIONS.

SEE SECTION 414 OF THE STANDARD SPECIFICATIONS FOR CULVERT EXCAVATION AND BACKFILLING. EXCAVATE 1 FOOT BELOW CULVERT AND FOOTING AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL IN ACCORDANCE WITH ARTICLE 414-4 OF THE STANDARD SPECIFICATIONS.

ROADWAY DATA

GRADE PT. EL. @ STA. 366+29.00 -L-	= 152.6'
BED ELEV. @ STA. 366+29.00 -L-	= 137.4'
ROADWAY SLOPE	= 3 : 1

HYDRAULIC DATA

DESIGN DISCHARGE	= 750 CFS
FREQUENCY OF DESIGN FLOOD	= 100 YRS.
DESIGN HIGH WATER ELEVATION	= 147.4'
DRAINAGE AREA	= 2.70 SQ. MI.
BASE DISCHARGE (Q100)	= 750 CFS
BASE HIGH WATER ELEVATION	= 147.4'

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 550 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 10+ YRS.
OVERTOPPING FLOOD ELEVATION	= 146.5' *

* OT AT DRAINAGE DIVIDE @ STA. 351+50.00 -L- RT. ELEV. = 146.5'

TOTAL STRUCTURE QUANTITIES

CULVERT EXCAVATION	LUMP SUM
FOUNDATION COND. MATERIAL	
STAGE I	82 TONS
STAGE II	68 TONS
STAGE III	133 TONS
TOTAL	283 TONS
CLASS A CONCRETE	
STAGE I	125.3 C.Y.
STAGE II	85.6 C.Y.
STAGE III	188.8 C.Y.
TOTAL	399.7 C.Y.
REINFORCING STEEL	
STAGE I	16,748 LBS.
STAGE II	12,783 LBS.
STAGE III	25,565 LBS.
TOTAL	55,096 LBS.

NOTES

- ASSUMED LIVE LOAD ----- HL-93 OR ALTERNATE LOADING.
- FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.
- FOR CONSTRUCTION SEQUENCE, EROSION CONTROL AND MEASURES, SEE EROSION CONTROL PLANS.
- DESIGN FILL----- 5.26'
- 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:
 - STAGES I - CONSTRUCT RCBC SECTION AT INLET END.
 - STAGES III - CONSTRUCT RCBC SECTION AT OUTLET END.
- STAGE II - CONSTRUCT RCBC INTERMEDIATE SECTION.
 - 1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
 - 2. SILLS WITH NATIVE MATERIAL BACKFILL IN BOTH BARRELS.
 - 3. FOLLOWED BY THE WING WALLS FULL HEIGHT, ROOF SLAB AND HEADWALL.
- STAGE I - CONSTRUCT RCBC INTERMEDIATE SECTION.
 - 1. FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
 - 2. FOLLOWED BY NATIVE MATERIAL BACKFILL AND ROOF SLAB.
- THE CONTRACTOR 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 BARRELS ARE SHOWN ON WING SHEET.
- TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED IN THE BARRELS, SPACED TO LIMIT THE POURS TO A MAXIMUM OF 70 FEET. LOCATION OF JOINTS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.
- 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 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.
- 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.
- NO PRECAST REINFORCED BOX CULVERT OPTION WILL BE ALLOWED.
- 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.
- FOR TRAFFIC PHASING, LIMITS OF TEMPORARY SHORING, SEE TRAFFIC CONTROL PLANS.
- FOR PAY ITEM FOR TEMPORARY SHORING, SEE ROADWAY PLANS.

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. I-5987A
ROBESON COUNTY
 STATION: 366+29.00 -L-
 SHEET 1 OF 8 STRUCTURE NO. 504

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 BARREL STANDARD
DOUBLE 8 FT. X 9 FT. CONCRETE BOX CULVERT
83° SKEW

REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

C12-1
 TOTAL SHEETS 8

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CDM Smith
 CDM SMITH
 5400 Glenwood Avenue, Suite 400
 Raleigh, NC 27612-3228
 NC COA No. F-1255

DRAWN BY: JJR DATE: 9/21
 CHECKED BY: THF DATE: 12/21
 DESIGN ENGINEER: VDK DATE: 12/21

DWG. No.

NORTH CAROLINA PROFESSIONAL SEAL 16301
 ENGINEER
 TING FANG
 3/18/2022