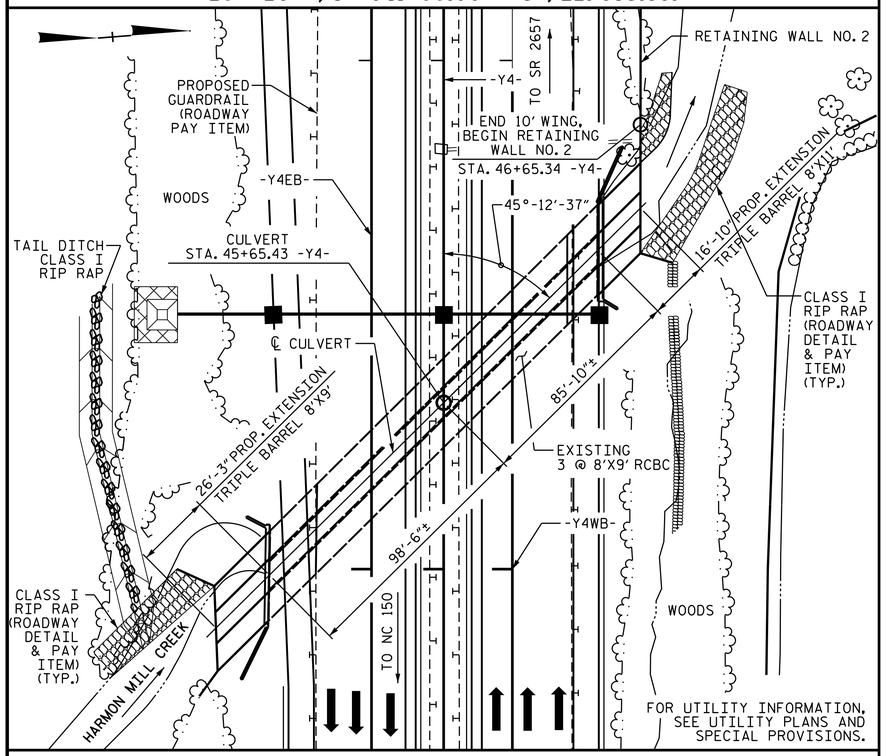
BM: #10 RR SPIKE IN ROOT OF 30" WILLOW OAK, 26' RIGHT, STA. 11+66.00 -Y5-, EL. 935.89.




LOCATION SKETCH

F.A. PROJECT NO. NHF-0918(93)

## ROADWAY DATA

| | |
|---|---|
| GRADE POINT EL. @ STA. 45+65.43 -Y4- EBL | = 863.67 |
| BED EL. @ STA. 45+65.43 -Y4- EBL | = 845.75 |
| ROADWAY SLOPES @ STA. 45+65.43 -Y4- | = 2:1 |

## HYDRAULIC DATA

| | |
|---|---|
| DESIGN DISCHARGE | = 2,000 C.F.S. |
| FREQUENCY OF DESIGN FLOOD | = 50 YRS. |
| DESIGN HIGH WATER ELEVATION | = 857.10 |
| DRAINAGE AREA | = 2.90 SQ. MI. |
| BASE DISCHARGE (Q100) | = 2,200 C.F.S. |
| BASE HIGH WATER ELEVATION | = 858.0 |

## OVERTOPPING FLOOD DATA

| | |
|---|---|
| OVERTOPPING DISCHARGE | = <3600 C.F.S. |
| FREQUENCY OF OVERTOPPING FLOOD | = <500 YRS. |
| OVERTOPPING FLOOD ELEVATION | = 859.0 |

## TOTAL STRUCTURE QUANTITIES

| TOTAL LEFT EXTENSION | | TOTAL RIGHT EXTENSION | |
|---|---|---|---|
| CULVERT EXCAVATION | LUMP SUM | CULVERT EXCAVATION | LUMP SUM |
| FOUNDATION CONDITIONING MATERIAL | 87 TONS | FOUNDATION CONDITIONING MATERIAL | 32 TONS |
| CLASS A CONCRETE | | CLASS A CONCRETE | |
| STAGE I | 59.3 C.Y. | STAGE I | 33.2 C.Y. |
| STAGE II | 40.3 C.Y. | STAGE II | 42.4 C.Y. |
| TOTAL | 99.6 C.Y. | TOTAL | 75.6 C.Y. |
| REINFORCING STEEL | | REINFORCING STEEL | |
| STAGE I | 8,698 LBS. | STAGE I | 6,134 LBS. |
| STAGE II | 7,156 LBS. | STAGE II | 7,248 LBS. |
| TOTAL | 15,854 LBS. | TOTAL | 13,382 LBS. |

## NOTES

ASSUMED LIVE LOAD ---------- HS20-44 OR ALTERNATE LOADING.

DESIGN FILL---------- LEFT EXTENSION 9.98 FT.; RIGHT EXTENSION 6.34 FT.

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 IN STAGE I.
2. THE REMAINING PORTIONS OF STAGE I WALLS FULL HEIGHT.
3. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF VERTICAL WALLS IN STAGE II.
4. THE REMAINING PORTION OF STAGE II WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.

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.

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

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.

DOWELS SHALL BE USED TO CONNECT THE CULVERT EXTENSION TO THE EXISTING CULVERT AS SHOWN. FOR NOTE REGARDING SETTING OF DOWELS, SEE SHEET SN.

IF APPROVED BY THE ENGINEER, THE CONTRACTOR MAY USE THE EXISTING WINGS AS TEMPORARY SHORING FOR THE CONSTRUCTION OF THE CULVERT EXTENSIONS. IN THIS CASE, THE BOTTOM SLAB OF THE EXTENSION SHALL BE POURED AT LEAST 72 HOURS PRIOR TO CUTTING THE WINGS. THE WINGS MAY BE CUT EARLIER PROVIDED THE SLAB CONCRETE STRENGTH HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

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

NO PRECAST REINFORCED BOX CULVERT OPTION WILL BE ALLOWED.

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. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

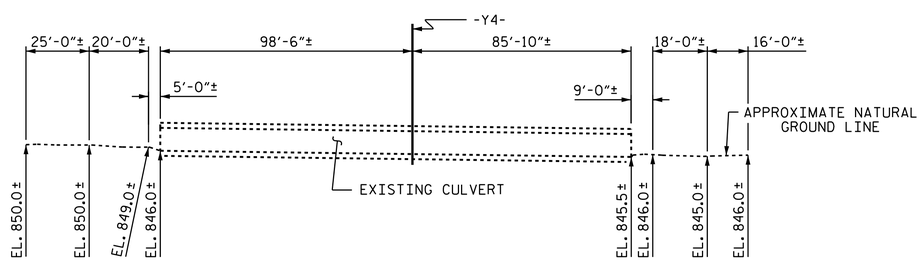
FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

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.




PROFILE ALONG ℄ CULVERT

PROJECT NO. U-2579B
FORSYTH COUNTY
STATION: 45+65.43 -Y4-

SHEET 1 OF 7 BRIDGE NO. 367

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON
DocuSigned by: Laura E. Sutton AE35E3E6727640E...
8/8/2014

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL
DocuSigned by: Vipul A. Patel 339B086CBE1C486...
8/8/2014

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

# CONCRETE BOX CULVERT TRIPLE 8 FT.X 9 FT. LEFT EXTENSION TRIPLE 8 FT.X 11 FT. RIGHT EXTENSION

| REVISIONS | | | | | | SHEET NO. |
|---|---|---|---|---|---|---|
| NO. | BY: | DATE: | NO. | BY: | DATE: | C-24 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 30 |

STR. #23

DRAWN BY : M.E.GILES DATE : 2/20/14
CHECKED BY : T.H.CARROLL DATE : 4/23/14
DESIGN ENGINEER OF RECORD: H. T. DIEU DATE : 6/10/14

08-AUG-2014 11:19
R:\Structures\Plans\Culverts\U2579B_SD_CU_23.dgn
lsutton