BENCHMARK 17: 317.03' RT., STA. 146+28.72 -L-, N=198704.150 E=2355984.737, EL. 45.01
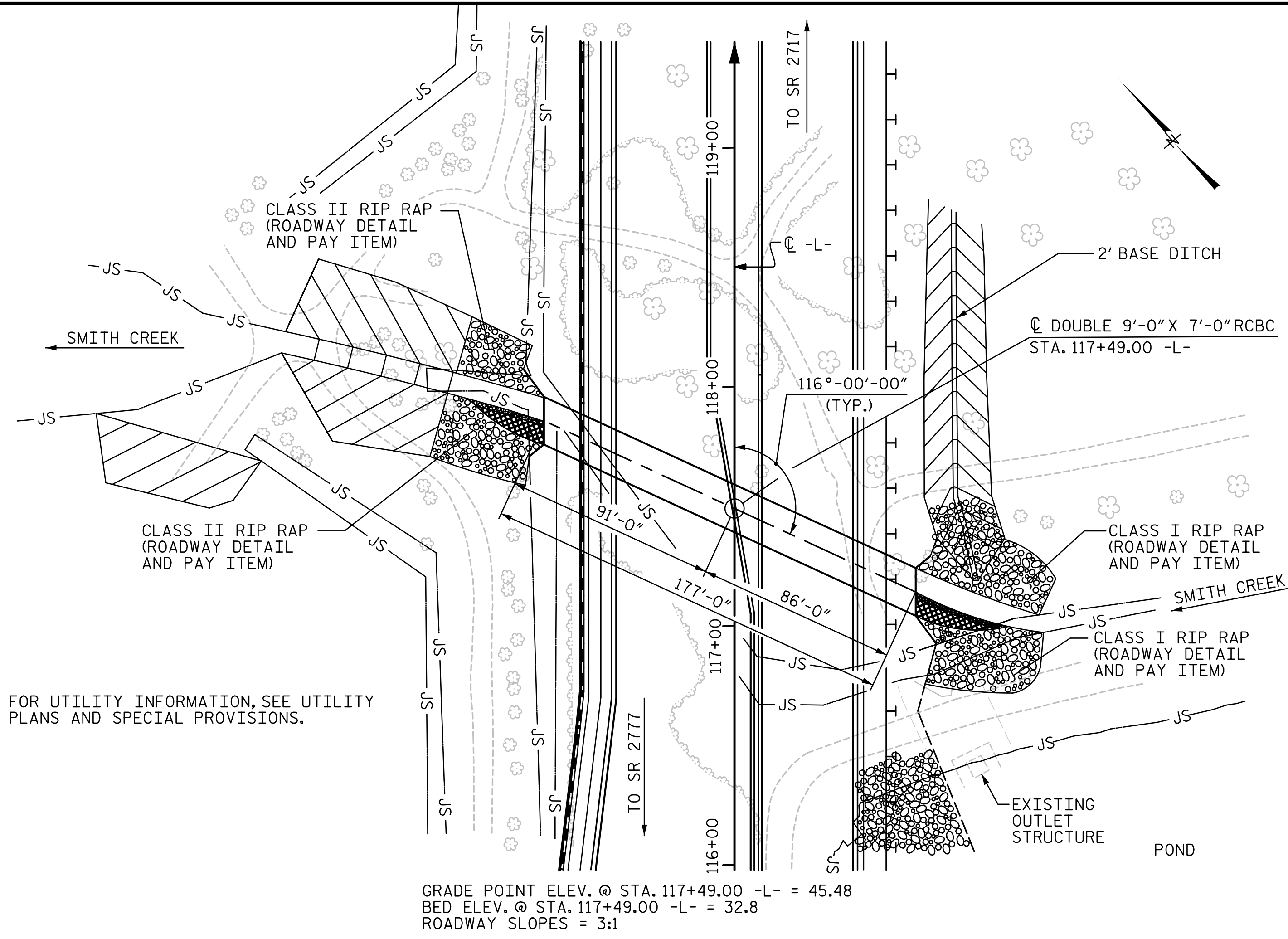
LOCATION SKETCH
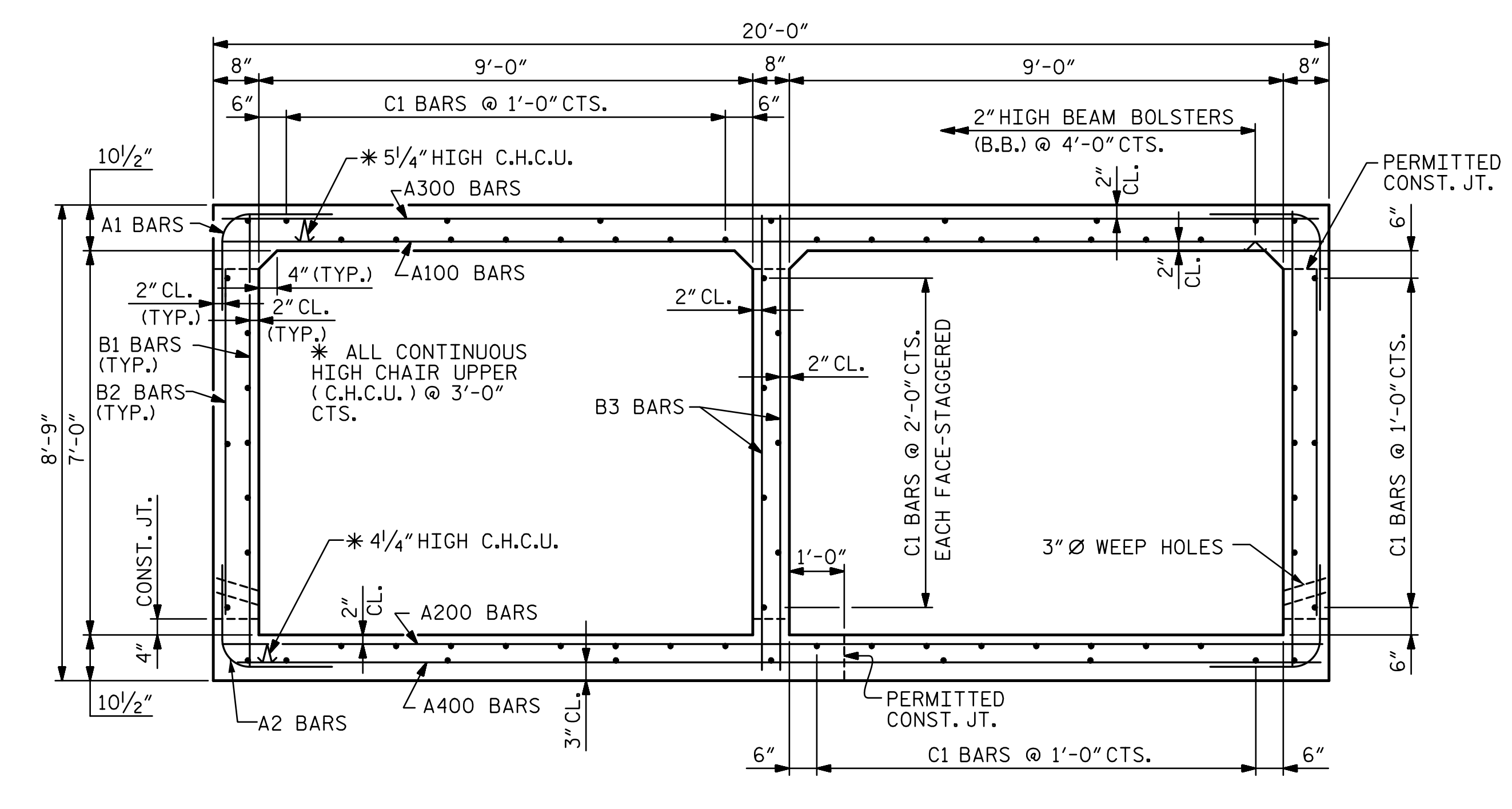
- CLASS II RIP RAP (ROADWAY DETAIL AND PAY ITEM)
- 2' BASE DITCH
- ℄ DOUBLE 9'-0" X 7'-0" RCBC STA. 117+49.00 -L-
- CLASS II RIP RAP (ROADWAY DETAIL AND PAY ITEM)
- CLASS I RIP RAP (ROADWAY DETAIL AND PAY ITEM)
- SMITH CREEK
- CLASS I RIP RAP (ROADWAY DETAIL AND PAY ITEM)
- 116°-00'-00" (TYP.)
- 91'-0"
- 177'-0"
- 86'-0"
- TO SR 2717
- TO SR 2777
- SMITH CREEK
- POND
- EXISTING OUTLET STRUCTURE
- FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

GRADE POINT ELEV. @ STA. 117+49.00 -L- = 45.48
BED ELEV. @ STA. 117+49.00 -L- = 32.8
ROADWAY SLOPES = 3:1

HYDRAULIC DATA

DESIGN DISCHARGE	=	800 CFS
FREQUENCY OF DESIGN FLOOD	=	50 YRS.
DESIGN HIGH WATER ELEVATION	=	41.1 FT.
DRAINAGE AREA	=	267 ACRES
BASIC DISCHARGE (Q100)	=	900 CFS
BASIC HIGH WATER ELEVATION	=	41.6 FT.

OVERTOPPING FLOOD DATA
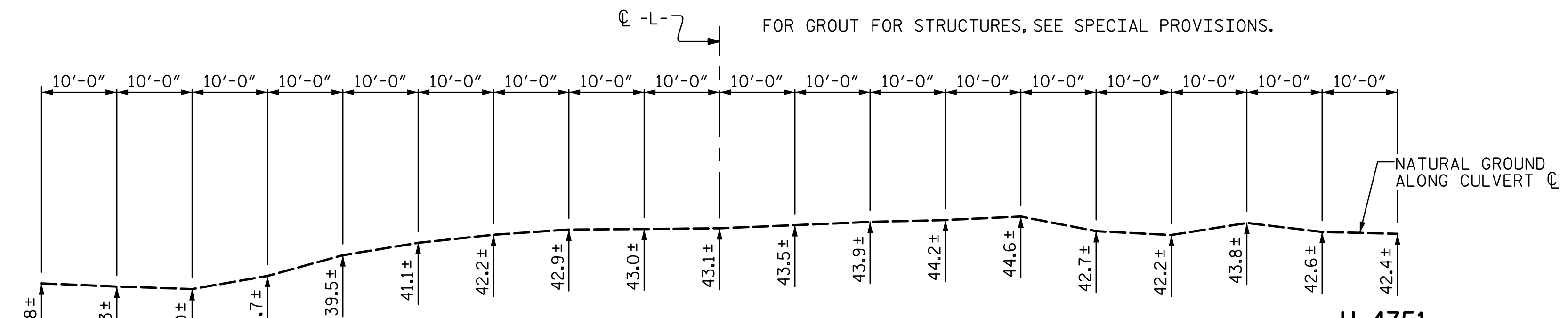
OVERTOPPING DISCHARGE	=	1,475 CFS
FREQUENCY OF OVERTOPPING FLOOD	=	100+ YRS.
OVERTOPPING FLOOD ELEVATION (@ STA. 117+42.00 -L-)	=	45.8 FT.

TOTAL STRUCTURE QUANTITIES

CULVERT EXCAVATION @ STA. 117+49.00 -L-	LUMP SUM

FOUNDATION CONDITIONING MATERIAL	
TOTAL:	300 TONS

CLASS A CONCRETE	
BARREL @ 1.823 CU.YDS./FT.	322.7 CU.YDS.
WINGS, ETC.	33.7 CU.YDS.
TOTAL	356.4 CU.YDS.

REINFORCING STEEL	
BARREL	47,714 LBS.
WINGS, ETC.	1,798 LBS.
TOTAL	49,512 LBS.

PLACEMENT OF NATURAL STREAM BED MATERIAL	
TOTAL:	LUMP SUM

NOTES:

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

DESIGN FILL----------6.04' MAX. AND 3.85' MIN.

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 THE SILLS, ROOF SLAB AND HEADWALLS.

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.

DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON THE WING SHEET (SHEET 6 OF 6).

TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED IN THE BARREL, SPACED TO LIMIT POURS TO A MAXIMUM OF 70 FT. LOCATION OF JOINTS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.

AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF THE 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 SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

AT THE CONTRACTOR'S OPTION HE MAY SUBMIT, TO THE ENGINEER FOR APPROVAL, DESIGN AND DETAIL DRAWINGS FOR A PRECAST REINFORCED CONCRETE BOX CULVERT IN LIEU OF THE CAST-IN-PLACE CULVERT SHOWN ON THE PLANS. THE DESIGN SHALL PROVIDE THE SAME SIZE AND NUMBER OF BARRELS AS USED ON THE CAST-IN-PLACE DESIGN. FOR OPTIONAL PRECAST REINFORCED CONCRETE BOX CULVERT, SEE SPECIAL PROVISIONS.

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.

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

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.

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL. NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

FOR PLACEMENT OF NATURAL STREAM BED MATERIAL, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

RIGHT ANGLE SECTION OF BARREL

THERE ARE 73 "C" BARS IN SECTION OF BARREL.

- 20'-0"
- 8" / 9'-0" / 8" / 9'-0" / 8"
- 6" / C1 BARS @ 1'-0" CTS. / 6"
- 2" HIGH BEAM BOLSTERS (B.B.) @ 4'-0" CTS.
- 5¼" HIGH C.H.C.U.
- A300 BARS
- A1 BARS
- A100 BARS
- 4" (TYP.)
- 2" CL. (TYP.)
- PERMITTED CONST. JT.
- B1 BARS (TYP.)
- * ALL CONTINUOUS HIGH CHAIR UPPER (C.H.C.U.) @ 3'-0" CTS.
- B2 BARS (TYP.)
- B3 BARS
- 2" CL.
- C1 BARS @ 2'-0" CTS. EACH FACE-STAGGERED
- C1 BARS @ 1'-0" CTS.
- 8'-9" / 7'-0"
- 4¼" HIGH C.H.C.U.
- 3"Ø WEEP HOLES
- 1'-0"
- CONST. JT.
- A200 BARS
- A400 BARS
- A2 BARS
- PERMITTED CONST. JT.
- C1 BARS @ 1'-0" CTS.
- 6" / C1 BARS @ 1'-0" CTS. / 6"
- 10½" / 4" / 2" CL. / 3" CL. / 10½"
- NATURAL GROUND ALONG CULVERT ℄

PROFILE ALONG ℄ CULVERT

℄ -L-

10'-0" (×19)

Elevations: 35.8± / 35.3± / 35.0± / 36.7± / 39.5± / 41.1± / 42.2± / 42.9± / 43.0± / 43.1± / 43.5± / 43.9± / 44.2± / 44.6± / 42.7± / 42.2± / 43.8± / 42.6± / 42.4±

PROJECT NO. U-4751

NEW HANOVER COUNTY

STATION: 117+49.00 -L-

SHEET 1 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 9'-0" X 7'-0" CONCRETE BOX CULVERT 116°-00'-00" SKEW

NORTH CAROLINA
SEAL
036940
ENGINEER
BRIAN M. CURRY
7/12/2017

STV ENGINEERS, INC.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

			DRAWN BY:	BMC	DATE:	4-17
CHECKED BY:	MLO	DATE:	4-17
DESIGN ENGINEER OF RECORD:	B. CURRY	DATE:	4-17

	REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C1-1
1			3			
2			4			TOTAL SHEETS 6

CULV. #1