

BM BL-2 HORIZONTAL RR SPIKE IN BASE OF 0.305m GUM TREE 90.109m RT. -BL- STA. 82+13.433 EL. 123.990m

### GRADE DATA

-3.500%    2.450%

PI = 92+35.000 -L-  
EL. = 76.002m  
VC = 320m

### HYDRAULIC DATA

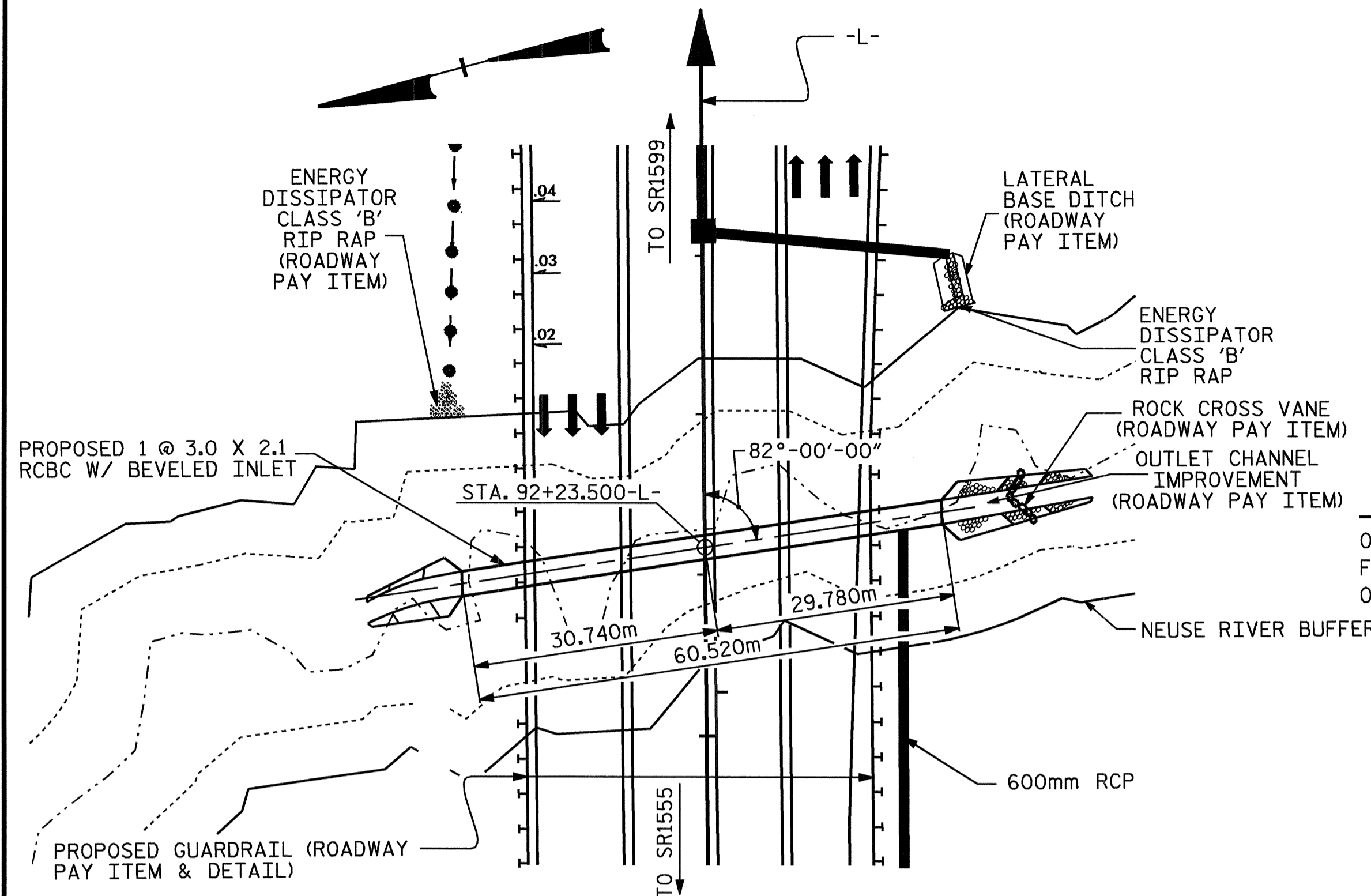
DESIGN DISCHARGE = 14.21 m<sup>3</sup>/s  
FREQUENCY OF DESIGN FLOOD = 50 YR  
DESIGN HIGH WATER ELEVATION = 75.530m  
DRAINAGE AREA = 0.75 SQ. KM.  
BASIC DISCHARGE (Q100) = 16.06 m<sup>3</sup>/s  
BASIC HIGH WATER ELEVATION = 75.730m

### OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 35.00 m<sup>3</sup>/s  
FREQUENCY OF OVERTOPPING FLOOD = > 500 YR(+)  
OVERTOPPING FLOOD ELEVATION = 78.310m

### ROADWAY DATA

GRADE POINT ELEV. @ STA. 92+23.500 -L- = 78.455m  
BED ELEV. @ STA. 92+23.500 -L- = 73.200m  
ROADWAY SLOPES = 2 : 1



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

### LOCATION SKETCH

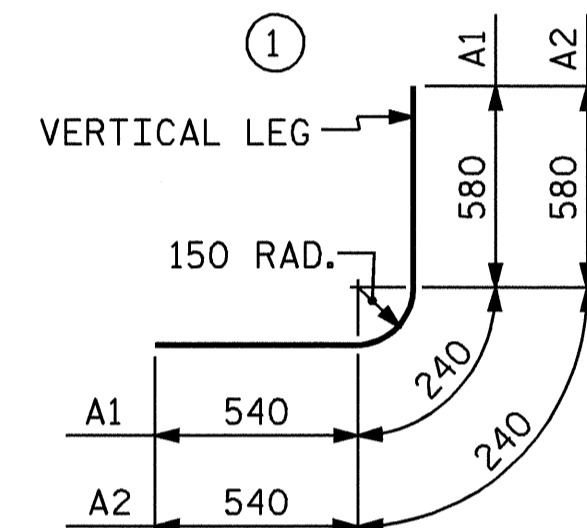
### BAR SCHEDULE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	638	#16	1	1360	1347
A2	638	#16	1	1360	1347
A100	376	#19	STR	3280	2756
A101	4	#19	STR	680	6
A200	401	#19	STR	3280	2940
A201	4	#19	STR	840	8
B1	484	#13	STR	2420	1164
B2	638	#16	STR	1880	1862
C1	320	#13	STR	8060	2564
G1	4	#13	STR	3320	13
S2	12	#25	STR	3320	158
T1	16	16	STR	1200	30

REINFORCING STEEL = 14195 kg

\*\*\* SPLICE LENGTHS CHART \*\*\*

BAR	SIZE	SPLICE LENGTH
B1	13	540
C1	13	590



### BAR TYPE

DIMENSIONS ARE OUT TO OUT

### NOTES

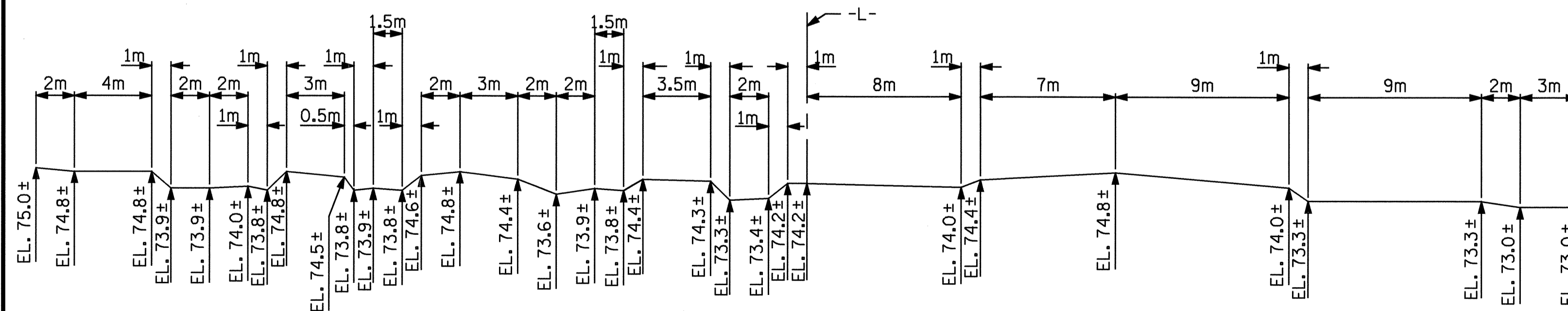
- ASSUMED LIVE LOAD = MS18 OR ALTERNATE LOADING.
- DESIGN FILL-----3.3m
- FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.
- 76mm Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:
  1. WING FOOTINGS AND FLOOR SLAB INCLUDING 100mm OF ALL VERTICAL WALLS.
  2. THE REMAINING PORTIONS OF THE 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.
- TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED IN THE BARREL, SPACED TO LIMIT THE POURS TO A MAXIMUM OF 21.0m. 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 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.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- NO PRECAST REINFORCED BOX CULVERT OPTION WILL BE ALLOWED.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
- ALL ELEVATIONS ARE IN METERS.
- THE 600mm DIA. PIPE THROUGH THE SIDEWALL OF THE CULVERT SHALL BE LOCATED BY THE ENGINEER. THE REINFORCING STEEL SHALL BE FIELD BENT AS NECESSARY TO CLEAR PIPE.
- FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

### TOTAL STRUCTURE QUANTITIES

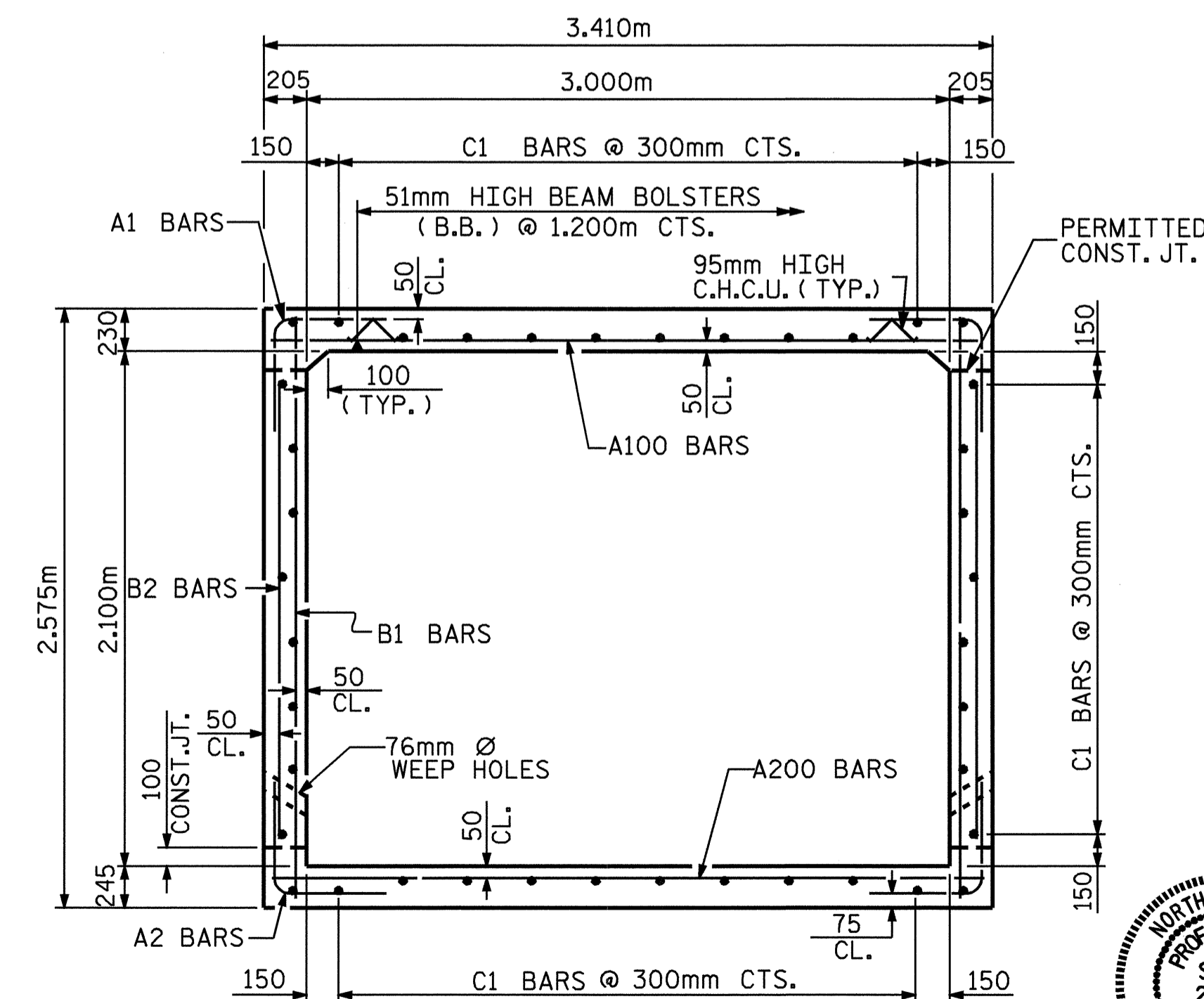
CLASS A CONCRETE			
BARREL @	2.46	m <sup>3</sup> /m	148.9 m <sup>3</sup>
WINGS, ETC.			14.5 m <sup>3</sup>
TOTAL			163.4 m <sup>3</sup>

REINFORCING STEEL			
BARREL			14195 kg
WINGS, ETC.			559 kg
TOTAL			14754 kg

CULVERT EXCAVATION ----- LUMP SUM  
FOUNDATION COND. MAT'L ---- 140 METRIC TONS



### PROFILE ALONG CULVERT



### RIGHT ANGLE SECTION OF BARREL

THERE ARE 40 "C" BARS IN SECTION OF BARREL

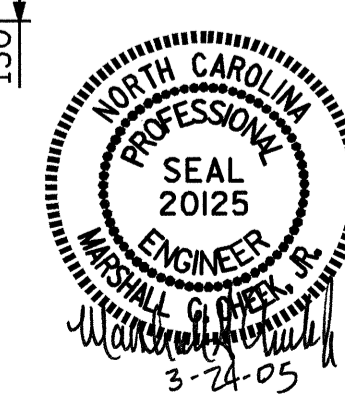


PROJECT NO. R-2552B  
JOHNSTON COUNTY  
STATION: 92+23.500-L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

BARREL STANDARD  
SINGLE 3.000m X 2.100m  
CONCRETE BOX CULVERT  
82° SKEW



ASSEMBLED BY : L.L.MURPHY DATE : 11-03  
CHECKED BY : M.G.CHEEK DATE : 04-04

DRAWN BY : EEM 6/97  
CHECKED BY : ARB 7/97

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-7
1			3			TOTAL SHEETS 42
2			4			