

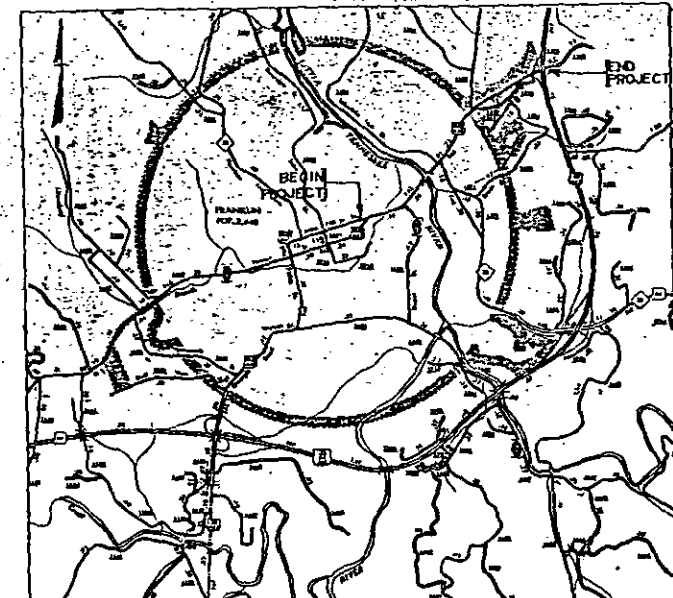
U-0621

PROJECT: 8.1970202

STATE	STATE PROJECT NUMBER	PROJECT NO.	DATE
N.C.	8.1970202		
SCALE PROJECT	F.A. PROJECT	DESCRIPTION	
8.1970201	SR-5954(1)	P.E. R/W	
8.1970202	RS-5954(2)	CONST.	

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY
MACON COUNTY



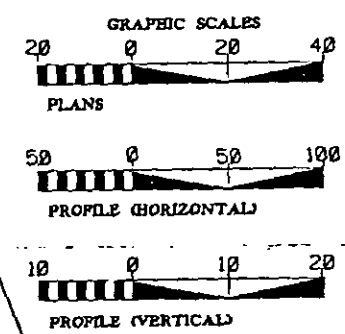
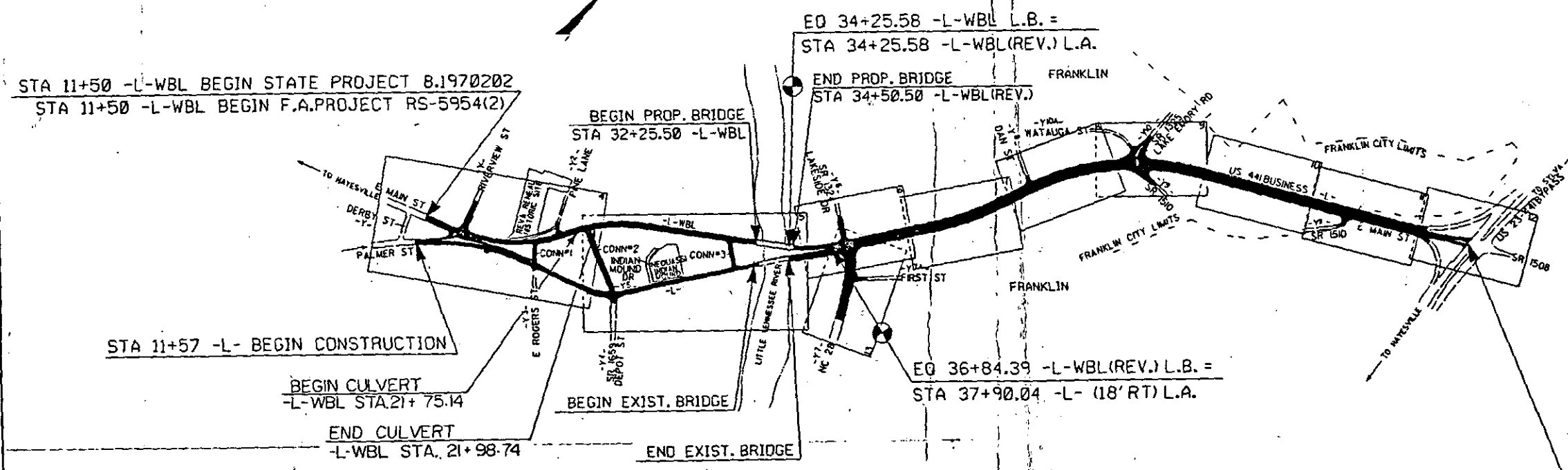
SKETCH MAP SHOWING VICINITY OF STATE PROJECT : 8.1970202

STRUCTURES

LOCATION : FRANKLIN - US 441 BUSINESS FROM PALMER AND MAIN STREETS TO US 23-441 BYPASS

TYPE OF WORK : GRADING, WIDENING, RESURFACING, DRAINAGE, #349
STRUCTURE, AND SIGNING

County Line	---
City or Town Line	---
Exist. Right of Way Line Marker	---△---
Prop. Right of Way Line Marker (By Other)	---△---
Prop. Right of Way Line Marker (By Contract)	---△---
Exist. Control of Access Line	---⊕---
Prop. Control of Access Line	---⊕---
Property Line	--- ---
Easement Line	--- ---
Slope Stake Line	--- ---
Exist. Fence	--- ---
Prop. Woven Wire Fence	--- ---
Prop. Chain Link Fence	--- ---
Exist. Road	--- ---
Prop. Road	--- ---
Guardrail	--- ---
Survey Line	--- ---
Denotes Line Equality	--- ---
Bridge	--- ---
Culvert	--- ---
Railroad	--- ---
Woods	--- ---
Exist. Telephone Pole	--- ---
Prop. Telephone Pole	--- ---
Power Pole and Line	--- ---
Exist. Power Pole	--- ---
Prop. Power Pole	--- ---
Sanitary Sewer Line	--- ---
Water Line	--- ---
Gas Line	--- ---
Prop. Wheelchair Ramp	--- ---



DESIGN DATA

1987 ADT 6,600 TO 16,000
2007 ADT 12,000 TO 29,200
DHV = 10%
D = 60%
T = 4%
V = 30 TO 50 MPH

DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, NC

LENGTH ROADWAY F.A.PROJECT RS-5954(2) = 1.188 MILES
LENGTH STRUCTURE F.A.PROJECT RS-5954(2) = 0.043 MILES
TOTAL LENGTH STATE PROJECT 8.1970202 = 1.231 MILES

PLANS PREPARED BY: HNTB
E.W. Armistead - Proj. Engr.
R.R. Gusler - Proj. Des. Engr.



THIS WORK WAS PERFORMED UNDER THE RESPONSIBLE CHARGE OF
Michael D. Caulfield 1-12-89
MICHAEL D. CAULFIELD PE No. 13080 DATE



John L. Smith
9-29-89

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

APPROVED: *J. J. Powell*
MANAGER - HIGHWAY DESIGN BRANCH

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: _____ DATE: _____

LETTING DATE: MAR 20, 1990

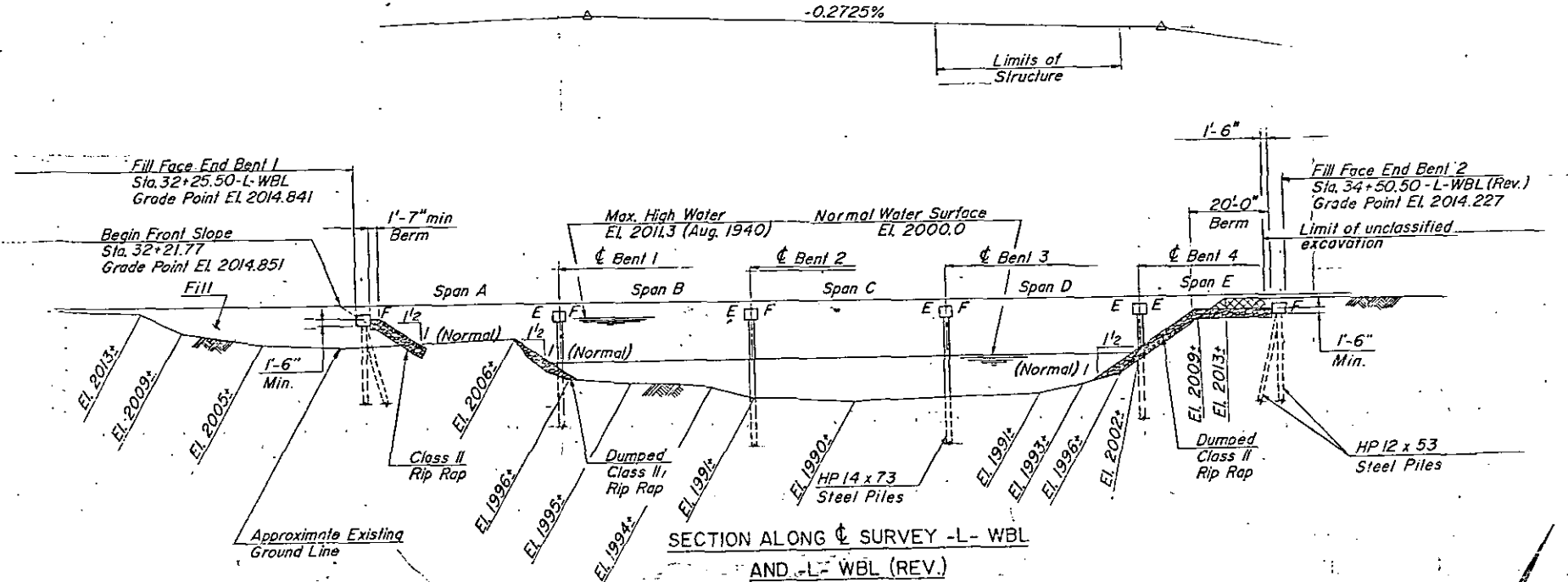
1984 STANDARD SPECIFICATIONS

PI = 28+00
EL. = 2016.00
V.C. = 100'

PI = 35+00
EL. = 2014.09
V.C. = 50'

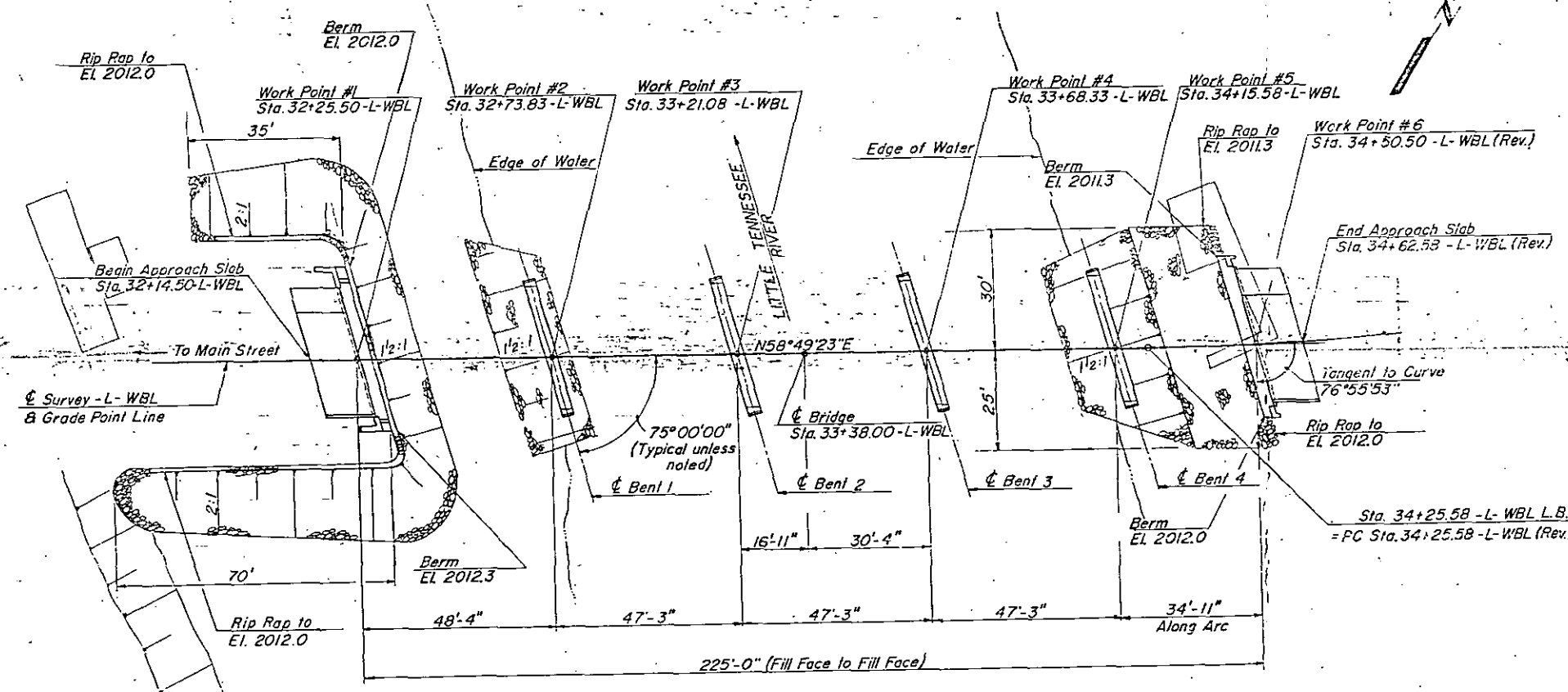
-0.2725%

Limits of Structure



NOTES:

1. Assumed Live Load = HS20-44 or Alternate Loading.
2. For other design data and general notes, see Sheet S-M.
3. Piles for End Bents 1 & 2 and Bents 1 thru 4 shall be driven to a minimum bearing capacity of 45 tons each.
4. Bituminous wearing surface is included in roadway quantity on roadway plans.
5. Piles for Bents 1 & 2 shall be installed to a minimum tip elevation of 1965.0
6. Piles for Bent 3 shall be installed to a minimum tip elevation of 1960.0
7. Piles for Bent 4 shall be installed to a minimum tip elevation of 1950.0
8. Steel Pile Points are required for all Piles. For Steel Pile Points see Special Provisions.
9. The wave equation will be used to determine the bearing capacity of the piles. See Special Provisions for Bearing Piles.
10. The material shown in the cross-hatched area shall be excavated for a distance of 30 ft. each side of centerline roadway as directed by the Engineer. This work will be measured and paid for as Unclassified Structure Excavation.
11. All reinforcing steel shall be Grade 60.
12. For Epoxy Coated Reinforcing Steel, see Special Provisions.
13. Piles for interior bents shall be painted. For painting of piles, see Special Provisions.



HORIZONTAL CURVE DATA

PI = 35+56.32
 Δ = 20° 03' 28" LT
 D = 7° 45' 00"
 R = 739.3004'
 T = 130.74'
 L = 258.81'
 S.E. = .04

HYDROGRAPHIC DATA

Design Discharge = 17,600 CFS
 Frequency of Design Flood = 25 Yrs
 Design High Water Elevation = 2011.3
 Drainage Area = 295 Sq. Mi.
 Basic Discharge (Q100) = 24,900 CFS
 Basic High Water Elevation = 2013.8

OVERTOPPING FLOOD DATA

Overtopping Discharge = 17,600(-) CFS
 Frequency of Overtopping Flood = 25(-) Yrs
 Overtopping Flood Elevation = 2011.1

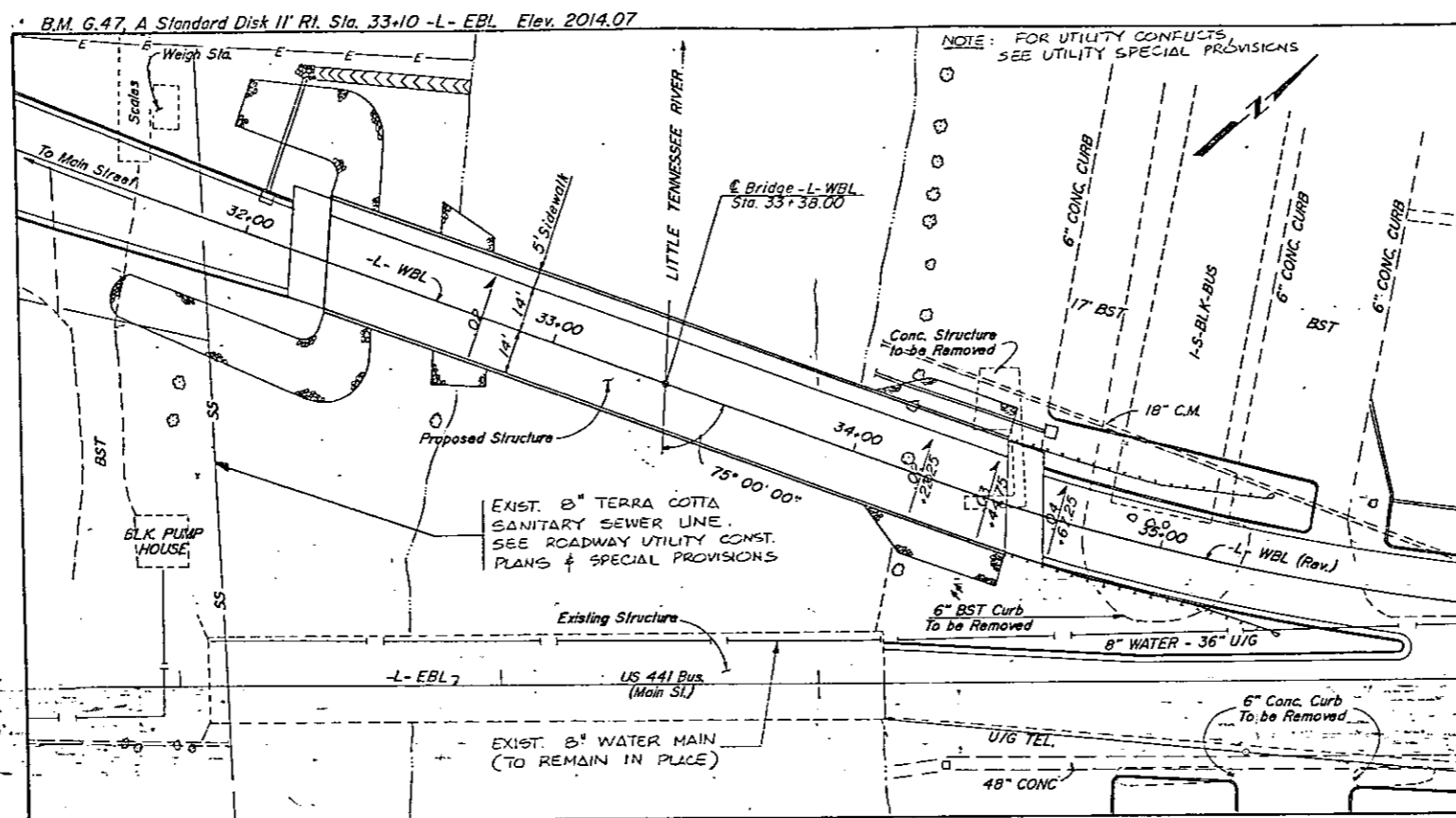
PROJECT No. 8.1970202(U-621)
 MACON COUNTY
 STATION: 33+38.00 -L- WBL

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING FOR
 BRIDGE OVER LITTLE TENNESSEE RIVER
 ON U.S. 441 BUS. BETWEEN
 U.S. 23-441 AND MAIN STREET
 JANUARY 1989

REVISIONS						SHEET NO. 66	TOTAL SHEETS
NO.	BY	DATE	NO.	BY	DATE		
1			3				
2			4				



THIS WORK WAS PERFORMED UNDER THE RESPONSIBLE CHARGE OF
 Michael D. Caulfield 1-13-89
 MICHAEL D. CAULFIELD PE No. 13080 DATE



NOTE:
 The proposed bridge site is located on the site of a former bridge. A conflict with the proposed interior bent at Station 34+15.58 is anticipated. Other conflicts may occur with proposed bents and existing piles.

LOCATION SKETCH

TOTAL BILL OF MATERIAL

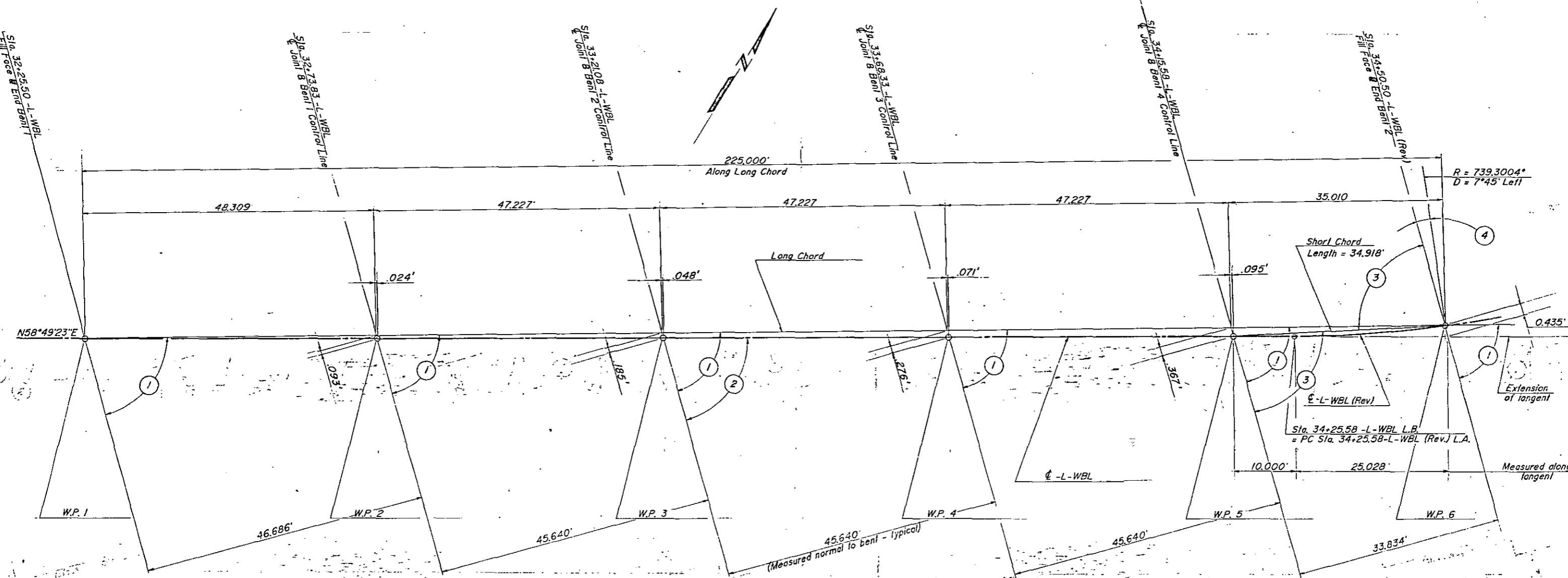
	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS 'AA' CONCRETE	CLASS 'A' CONCRETE	REINFORCING STEEL	HP 12 x 53 STEEL PILES	HP 14 x 73 STEEL PILES	THREE BAR METAL RAIL	CONCRETE BARRIER RAIL	BRIDGE APPROACH SLAB	ELASTOMERIC BEARINGS	PLAIN RIP RAP CLASS II	3'-0" x 1'-9" PRESTRESSED CONC. CORED SLAB	EPOXY COATED REINFORCING STEEL	PREFORMED COMPRESSION JOINT SEAL	STEEL PILE POINTS	PAINTING STEEL PILES	STRUCTURAL STEEL			
	Cu. Yd.	Cu. Yd.	Cu. Yd.	Lb.	No.	Lin. Ft.	No.	Lin. Ft.	Lin. Ft.	Lump Sum	Lump Sum	TONS	No.	Lin. Ft.	Lb.	Lump Sum	Each	Lump Sum	Approx. Lbs.	
SUPERSTRUCTURE		136.9		15520				216.1	223.5	Lump Sum	Lump Sum	48	2264.0	5008	Lump Sum					
END BENT 1			13.6	2082	7	259				Lump Sum							7			
BENT 1			11.4	1810													8	Lump Sum		
BENT 2			11.4	1810													8	Lump Sum	1,127	
BENT 3			11.4	1810													8	Lump Sum	1,127	
BENT 4			11.4	1756													8	Lump Sum		
END BENT 2	104		12.3	1670	7	357				Lump Sum							7			
TOTAL	104	136.9	71.5	26458	14	616	32	1664	216.1	223.5	Lump Sum	Lump Sum	635	48	2264.0	5008	Lump Sum	46	Lump Sum	2,254

PROJECT No. 81970202(U-621)
 MACON COUNTY
 STATION: 33+38.00 -L- WBL

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING FOR
 BRIDGE OVER LITTLE TENNESSEE RIVER
 ON U.S. 441 BUS. BETWEEN
 U.S. 23-441 AND MAIN STREET
 JANUARY 1989

REVISIONS					SHEET NO. 47
NO.	BY	DATE	NO.	BY	
1			3		TOTAL SHEETS 25
2			4		

DRAWN BY: J. Boyne DATE: 10-7-88
 CHECKED BY: B. Mozdys DATE: 12-7-88



- ANGLES**
- ① 75° 06' 25"
 - ② 75° 00' 00"
 - ③ 75° 41' 17"
 - ④ 13° 04' 07"

NOTE :
All Bents are parallel.

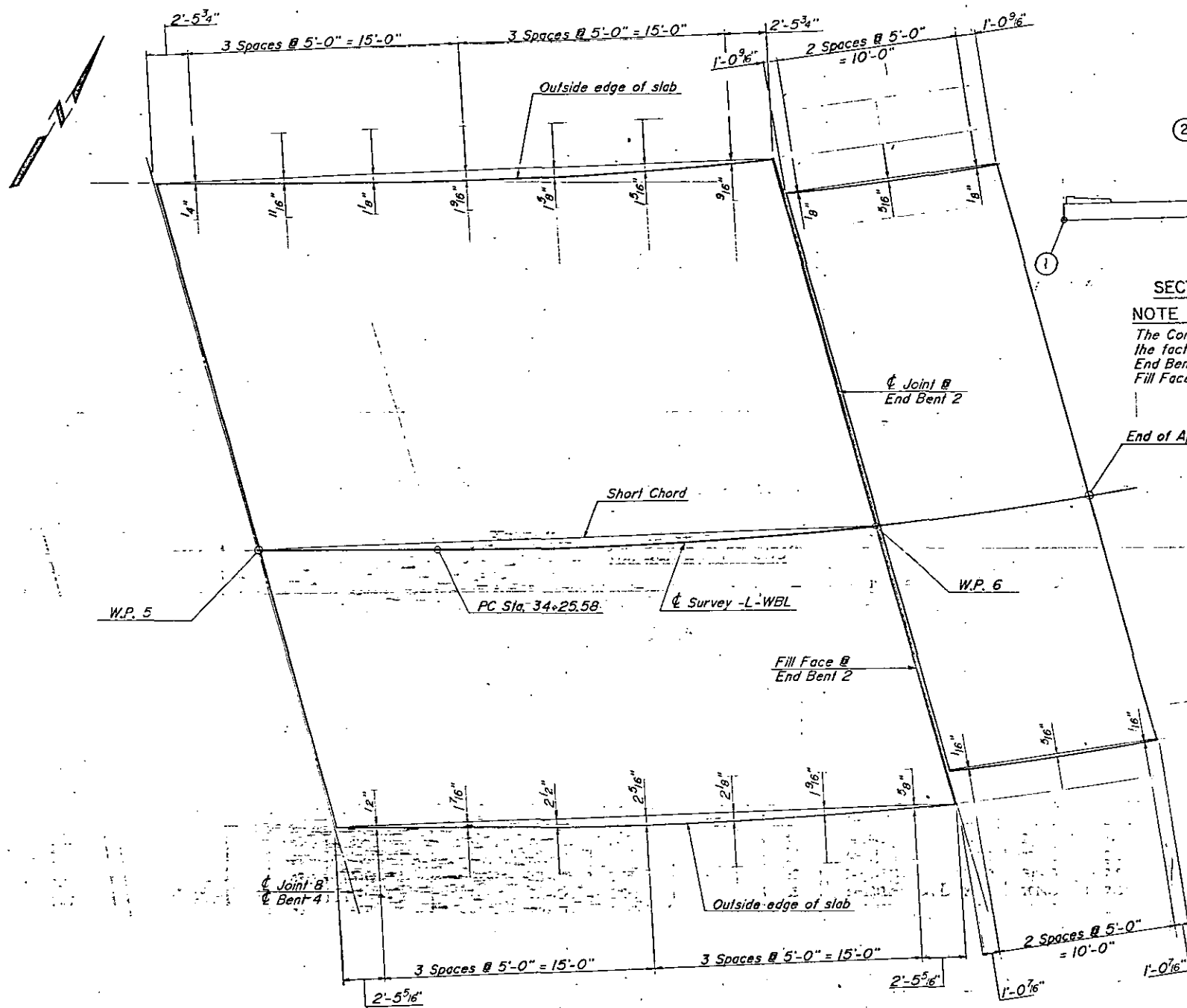
PROJECT No. 8.1970202(U-621)
MACON COUNTY
STATION: 33+38.00 -L- WBL

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
LONG CHORD LAYOUT

REVISIONS						1989	
NO.	BY	DATE	NO.	BY	DATE	SHEET NO.	TOTAL SHEETS
1			3			38	25
2			4				

DRAWN BY: J. Byrns DATE: 10-9-88
CHECKED BY: B. Moulds DATE: 12-7-88

Dwg. No. 3



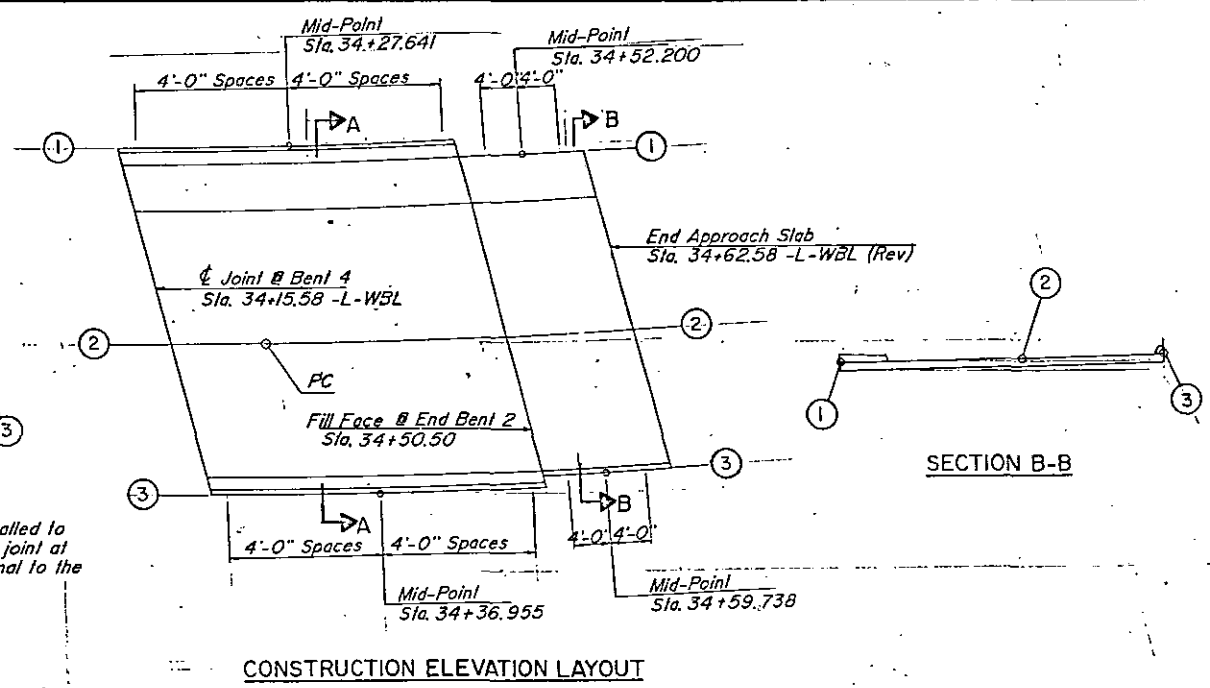
CHORD OFFSETS

SLAB ELEVATIONS

SPAN E					
LEFT EDGE a 4 FT. ①		C.I. SURVEY a 4 FT. ②		RIGHT EDGE a 4 FT. ③	
STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION
34+10.104	2012.009	34+15.580	2014.320	34+19.750	2012.703
34+11.584	2012.005	34+17.040	2014.316	34+21.195	2012.699
34+15.584	2011.994	34+21.040	2014.305	34+25.195	2012.708
34+19.584	2011.983	34+25.040	2014.294	34+29.120	2012.725
34+23.584	2011.960	34+29.040	2014.283	34+33.037	2012.741
34+27.641	2011.912	34+33.040	2014.272	34+36.955	2012.758
34+31.755	2011.864	34+37.040	2014.252	34+40.872	2012.774
34+35.868	2011.815	34+41.040	2014.251	34+44.789	2012.791
34+39.982	2011.767	34+45.040	2014.240	34+48.706	2012.807
34+44.096	2011.718	34+49.040	2014.229	34+52.624	2012.823
34+48.210	2011.700	34+53.040	2014.225	34+56.541	2012.829

APPROACH SLAB @ END BENT 2					
LEFT EDGE a 4 FT. ①		C.I. SURVEY a 4 FT. ②		RIGHT EDGE a 4 FT. ③	
STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION
34+46.014	2013.656	34+50.500	2014.225	34+53.841	2014.692
34+48.095	2013.633	34+52.540	2014.219	34+55.815	2014.699
34+52.200	2013.587	34+56.540	2014.208	34+59.738	2014.713
34+56.305	2013.541	34+60.540	2014.198	34+63.661	2014.727
34+58.385	2013.518	34+62.580	2014.192	34+65.635	2014.734

NOTE:
Slab elevations are recorded from centerline joint @ Bent 4 to the Fill Face @ End Bent 2 for Span E and from the Fill Face @ End Bent 2 to the end of Approach Slab for the Approach Slab.



CONSTRUCTION ELEVATION LAYOUT

HEADER ELEVATIONS

CENTERLINE JOINT-END BENT 2				
LINE	STATION	OFFSET	ELEVATION	ALONG EDGE
1	34+45.661	-20.439	2013.617	0.000
2	34+45.769	-20.000	2013.629	0.451
3	34+46.258	-18.000	2013.684	2.056
4	34+46.745	-16.000	2013.741	2.055
5	34+47.229	-14.000	2013.798	2.056
6	34+47.711	-12.000	2013.857	2.055
7	34+48.189	-10.000	2013.916	2.055
8	34+48.665	-8.000	2013.976	2.055
9	34+49.139	-6.000	2014.037	2.054
10	34+49.609	-4.000	2014.099	2.054
11	34+50.077	-2.000	2014.161	2.054
12	34+50.543	0.000	2014.225	2.053
13	34+51.006	2.000	2014.289	2.053
14	34+51.466	4.000	2014.354	2.053
15	34+51.924	6.000	2014.420	2.052
16	34+52.379	8.000	2014.487	2.052
17	34+52.832	10.000	2014.554	2.052
18	34+53.282	12.000	2014.623	2.052
19	34+53.730	14.000	2014.692	2.051
20	34+54.078	15.563	2014.692	1.603

CENTERLINE JOINT-BENT 4				
LINE	STATION	OFFSET	ELEVATION	ALONG EDGE
1	34+10.104	-20.438	2013.925	0.000
2	34+10.221	-20.000	2013.935	0.455
3	34+10.257	-18.000	2013.974	2.071
4	34+11.293	-16.000	2014.012	2.071
5	34+11.829	-14.000	2014.051	2.071
6	34+12.365	-12.000	2014.089	2.071
7	34+12.900	-10.000	2014.128	2.071
8	34+13.436	-8.000	2014.165	2.071
9	34+13.973	-6.000	2014.205	2.071
10	34+14.508	-4.000	2014.244	2.071
11	34+15.044	-2.000	2014.282	2.071
12	34+15.580	0.000	2014.321	2.071
13	34+16.116	2.000	2014.359	2.071
14	34+16.652	4.000	2014.397	2.071
15	34+17.188	6.000	2014.436	2.071
16	34+17.724	8.000	2014.475	2.071
17	34+18.259	10.000	2014.514	2.071
18	34+18.795	12.000	2014.552	2.071
19	34+19.331	14.000	2014.591	2.071
20	34+19.750	15.563	2014.591	1.618

END OF EAST APPROACH SLAB				
LINE	STATION	OFFSET	ELEVATION	ALONG EDGE
1	34+58.385	-19.000	2013.518	0.000
2	34+58.612	-18.000	2013.552	1.024
3	34+59.063	-16.000	2013.620	2.048
4	34+59.511	-14.000	2013.688	2.043
5	34+59.957	-12.000	2013.758	2.047
6	34+60.400	-10.000	2013.828	2.047
7	34+60.841	-8.000	2013.899	2.047
8	34+61.279	-6.000	2013.971	2.047
9	34+61.715	-4.000	2014.044	2.046
10	34+62.149	-2.000	2014.118	2.046
11	34+62.580	0.000	2014.192	2.045
12	34+63.009	2.000	2014.267	2.045
13	34+63.435	4.000	2014.343	2.045
14	34+63.859	6.000	2014.419	2.045
15	34+64.281	8.000	2014.497	2.045
16	34+64.700	10.000	2014.575	2.044
17	34+65.118	12.000	2014.654	2.044
18	34+65.533	14.000	2014.733	2.044
19	34+65.636	14.500	2014.733	0.205

PROJECT No. 8.1970202(U-621)
 MACON COUNTY
 STATION: 33+38.00 -L-WBL

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

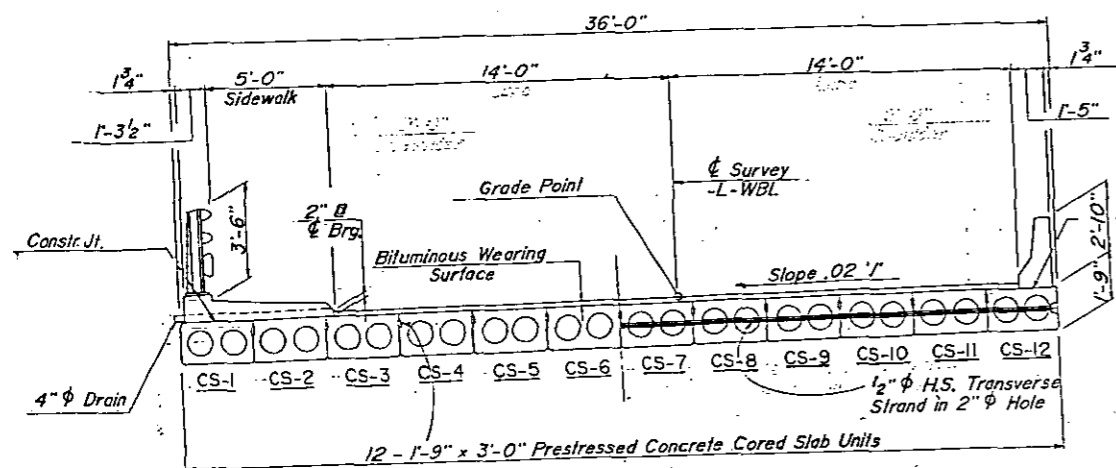
CHORD OFFSETS AND
 CONSTRUCTION ELEVATIONS

JANUARY 1989

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

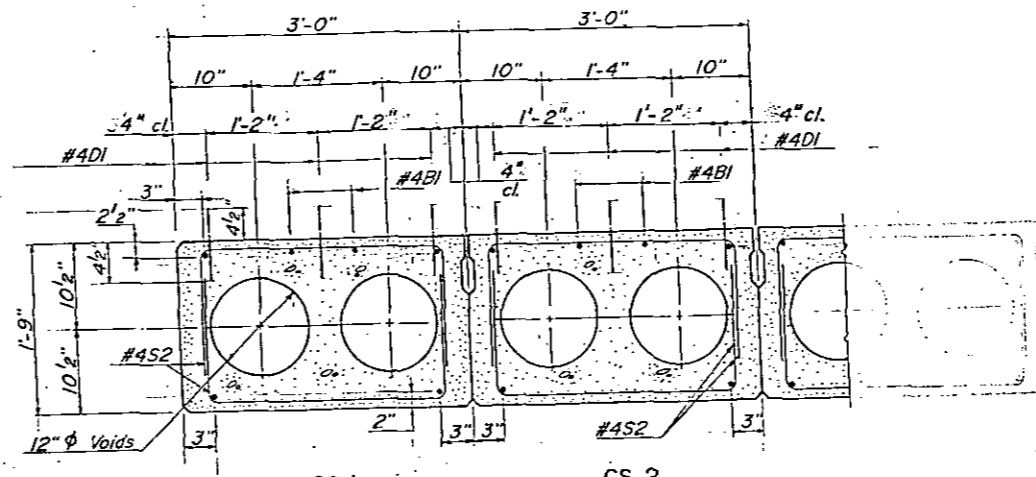
SHEET NO. 49
 TOTAL SHEETS 55

FILL THE RECESS WITH A NON-SHRINK NON-METALLIC GROUT APPROVED BY THE ENGINEER. SEE SPECIAL PROVISIONS.



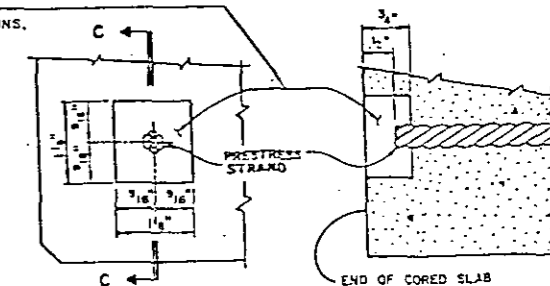
Shear Keys to be filled with grout after all erection work has been completed and after final tensioning of transverse strands. See Special Provisions for Grout.

TYPICAL SECTION SPANS A, B, C, & D

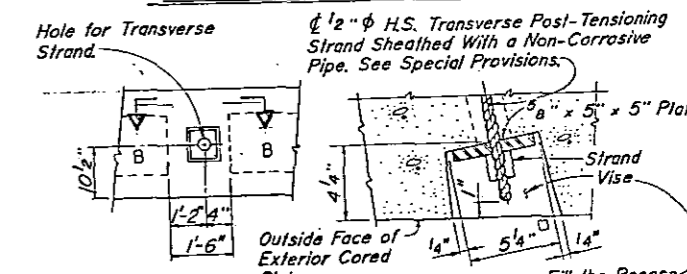


EXTERIOR SLAB SECTION INTERIOR SLAB SECTION

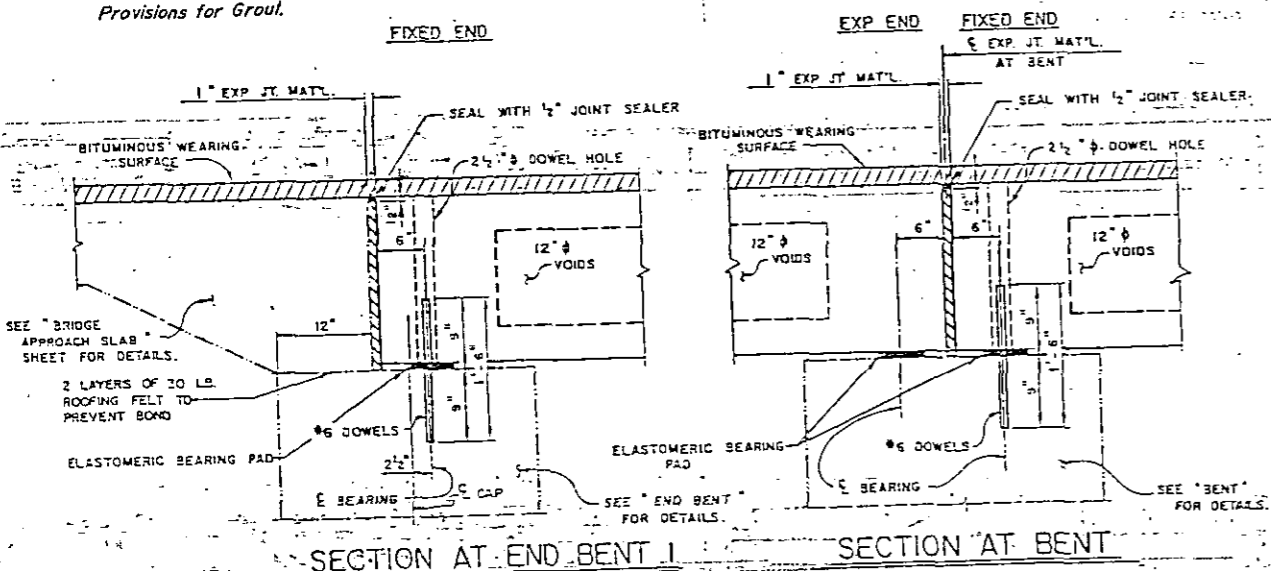
For Prestressed Strand Layout, See CS-3 THRU CS-11 INTERIOR SLAB SECTION.



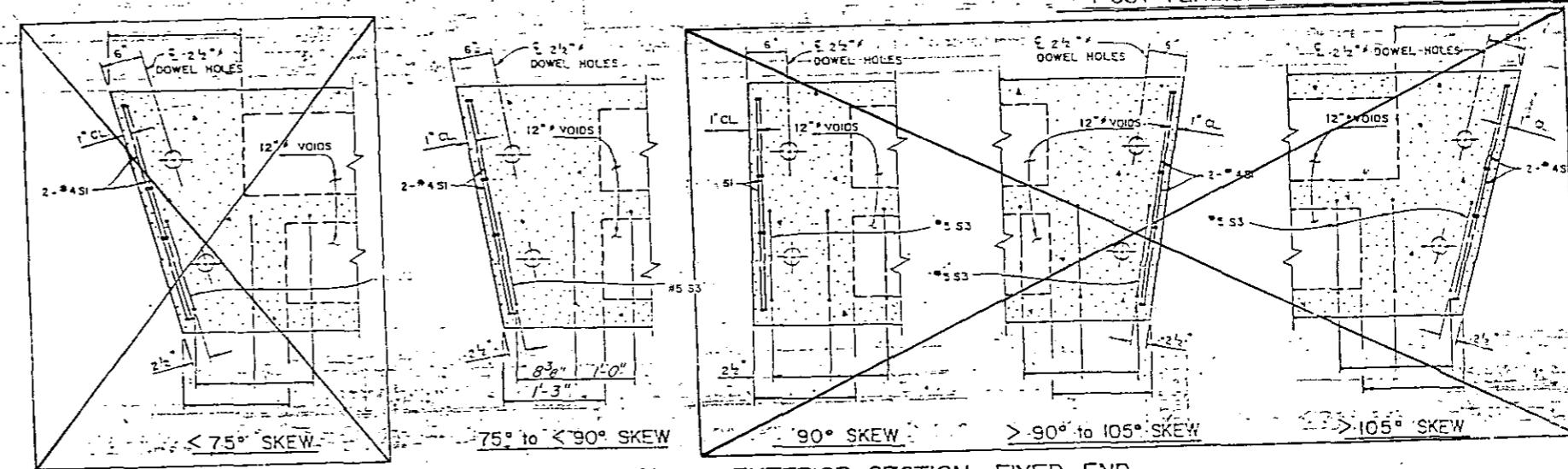
PART ELEVATION AT END OF CORED SLAB SECTION C-C
GROUTED RECESS AT END OF PRETENSIONED STRAND-CORED SLABS



ELEVATION SECTION B-B
GROUTED RECESS AT END OF POST-TENSIONED STRAND-CORED SLABS

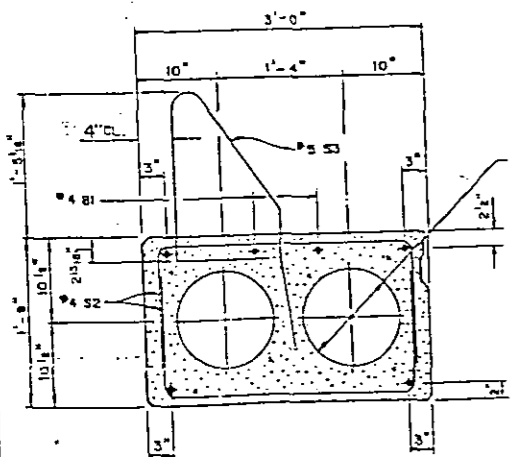


SECTION AT END BENT I SECTION AT BENT

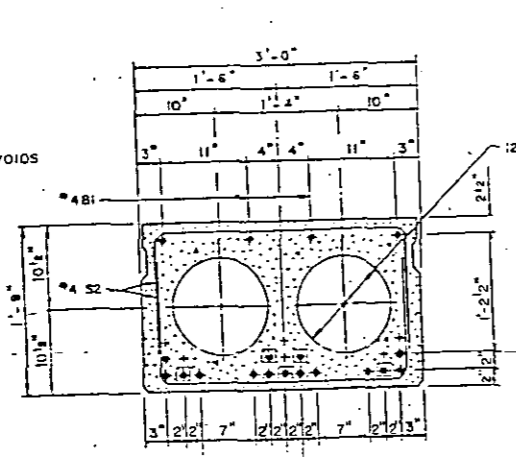


PART PLAN - EXTERIOR SECTION - FIXED END

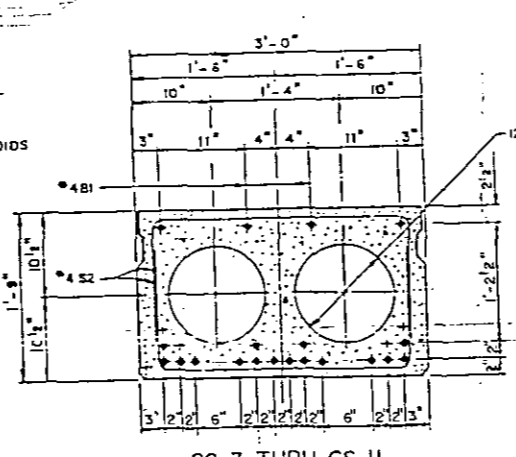
NOTE: -FIXED END SHOWN - EXPANSION END SIMILAR EXCEPT OMIT DOWEL HOLES. EXTERIOR SECTION SHOWN - INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.



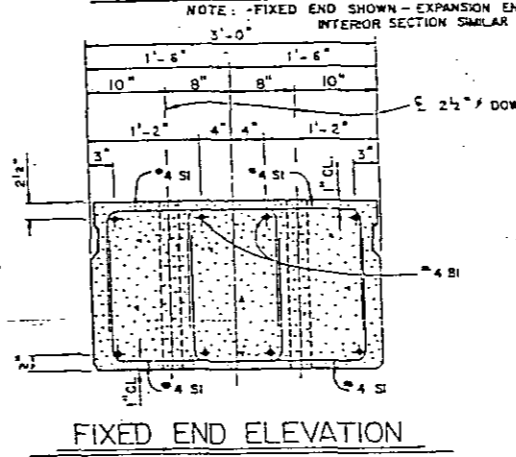
CS-12 EXTERIOR SLAB SECTION (FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



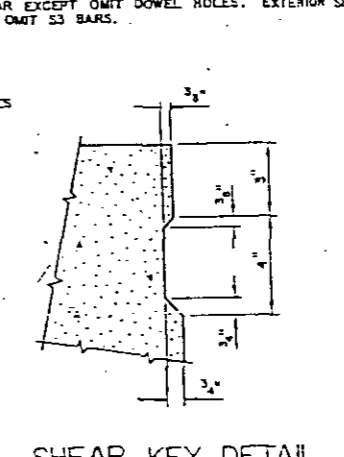
CS-3 THRU CS-11 INTERIOR SLAB SECTION 17-1/2" LOW RELAXATION STRAND LAYOUT



CS-3 THRU CS-11 INTERIOR SLAB SECTION 18-1/2" STRESS RELIEVED STRAND LAYOUT



FIXED END ELEVATION SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB SECTION SHOWN - EXTERIOR SLAB SECTION SIMILAR EXCEPT SHEAR KEY LOCATION. FIXED END SHOWN - EXPANSION END SIMILAR EXCEPT OMIT DOWEL HOLES.



SHEAR KEY DETAIL NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS

PROJECT No. 81970202 (U-621)
MACON COUNTY
STATION: 33+38.00 -L- WBL

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" x 1'-9" PRESTRESSED
CONCRETE CORED SLAB UNIT
OCTOBER 1981

REVISIONS						SHEET NO. 70
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 25
2			4			

Dwg. No. 5

STD. NO. PCS2

REVISED 8-20-84 BY JST
REVISED 8-11-82 BY JHB
REVISED 9-16-83 BY TOS
REVISED 3-25-82 BY ERL
REVISED 10-11-88
DATE 12-7-88
DATE OCT 1981
DATE OCT 1981

DESIGNED BY	J. Boyne	DATE	10-11-88	SPECIAL
CHECKED BY	J. Boyne	DATE	12-7-88	
DRAWN BY	ROSS EDWARD KURENT	DATE	OCT 1981	STANDARD
CHECKED BY	ALVIN S. COE	DATE	OCT 1981	

NOTES

THE CONTRACTOR MAY USE EITHER 1/2" ϕ STRESS RELIEVED OR 1/2" ϕ LOW RELAXATION STRANDS ACCORDING TO LAYOUTS SHOWN ON THIS SHEET. THE CONTRACTOR, AT HIS OPTION MAY USE 7/16" ϕ STRESS RELIEVED STRANDS IN LIEU OF THE 1/2" ϕ STRANDS SHOWN. DESIGN AND DETAIL PLANS USING 7/16" ϕ STRESS RELIEVED STRANDS MUST BE SUBMITTED TO THE HEAD OF STRUCTURE DESIGN UNIT FOR APPROVAL. ANY ADDITIONAL COST DUE TO THE USE OF 7/16" ϕ STRESS RELIEVED STRANDS WILL BE PAID FOR BY THE CONTRACTOR.

THE SAME TYPE AND SAME SIZE STRANDS SHALL BE USED FOR ALL CORED SLAB UNITS IN THE STRUCTURE.

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE STRESS RELIEVED OR LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO ASTM A-416 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" ϕ DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH GROUT. SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CORED SLABS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR PRESTRESSED CORED SLABS, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

FOR CONCRETE BARRIER RAILS, SEE SPECIAL PROVISIONS.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE THICK EXPANSION JOINT MATERIAL IN THE JOINTS BETWEEN THE ENDS OF THE CORED SLAB AND IN THE JOINTS BETWEEN THE APPROACH SLABS AND THE ENDS OF THE CORED SLAB SPANS IS 1" NOMINAL AND CAN BE EXPECTED TO VARY. THE CONTRACTOR MAY USE MORE THAN ONE LAYER OF EXPANSION JOINT MATERIAL WITH MINIMUM LAYER THICKNESS OF 3/8" TO PROVIDE THE THICKNESS REQUIRED.

WHEN CORED SLABS ARE CAST, A POSITIVE HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. THIS SYSTEM SHALL BE DESIGNED TO BE LEFT IN PLACE UNTIL THE CONCRETE HAS REACHED RELEASE STRENGTH. AT LEAST THREE WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED "HOLD-DOWN SYSTEM" IN ADDITION TO STRUCTURAL DETAILS. LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI.

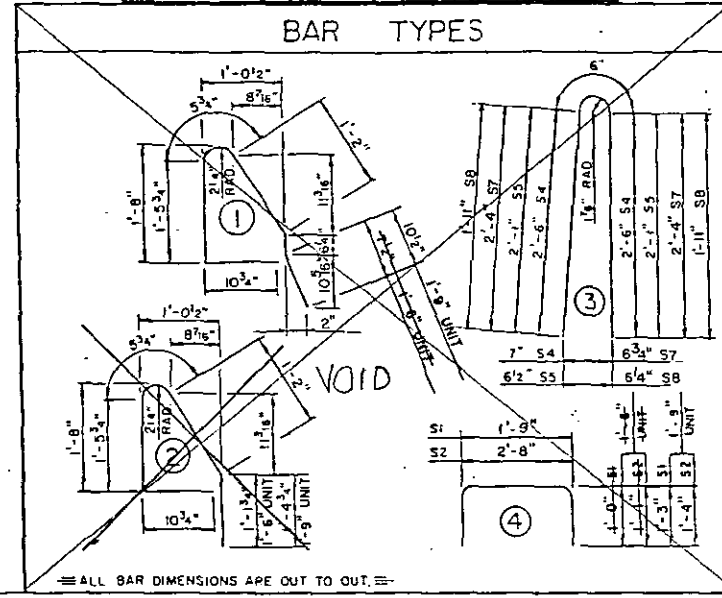
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

FOR EPOXY COATED REINFORCING STEEL, SEE SPECIAL PROVISIONS.

* EPOXY COATED REINFORCING STEEL

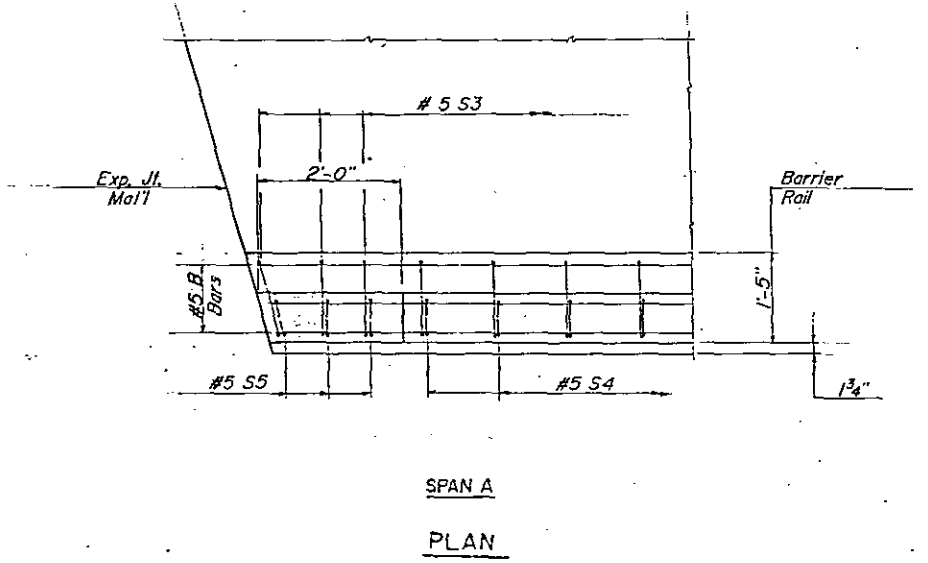
FOR DETAILS OF BARRIER RAIL ON SPAN E AND LOCATION OF BARS S7, S8 & S5, SEE DWG. NO. 9.

GRADE 270 STRANDS		
	1/2" ϕ S.R.	1/2" ϕ L.R.
AREA (SQUARE INCHES)	0.153	0.153
ULTIMATE STRENGTH (LBS. PER STRAND)	41,300	41,300
APPLIED PRESTRESS (LBS. PER STRAND)	28,900	30,980

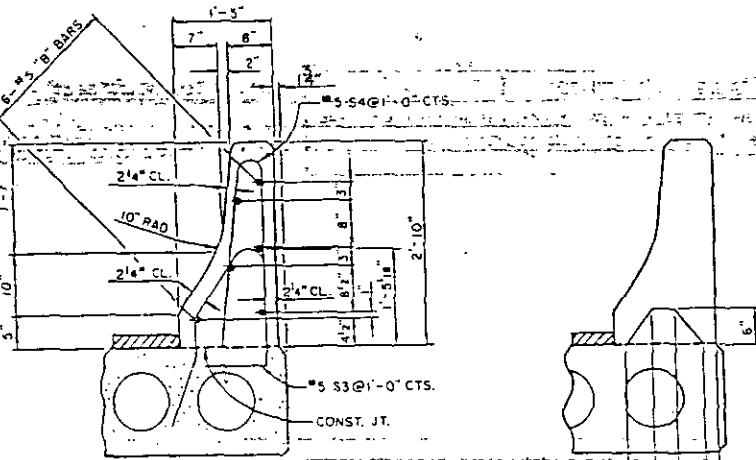


BILL OF MATERIAL FOR ONE CORED SLAB SECTION

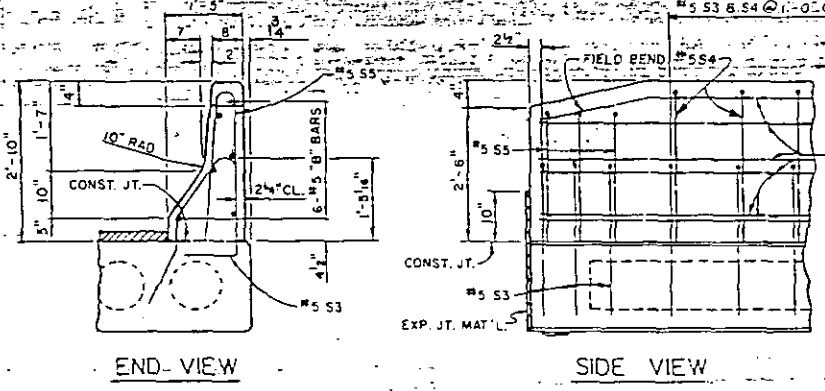
BAR NO.	SIZE	TYPE	CS-1		CS-2		CS-3 thru 11		CS-12	
			LENGTH	WEIGHT	LENGTH	WEIGHT	LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4"	#4	24'-3"	65	24'-3"	65	24'-3"	65	24'-3"	65
D1	1/3"	#4	9'	69	9'	69				
S1	8"	#4	4'-3"	23	4'-3"	23	4'-3"	23	4'-3"	23
S2	8"	#4	5'-4"	328	5'-4"	328	5'-4"	328	5'-4"	328
S3	4"	#5	1'	416	1'	416	1'	416	1'	416
REINFORCING STEEL			LBS.		LBS.		LBS.		LBS.	
EPOXY COATED REINFORCING STEEL			LBS.		LBS.		LBS.		LBS.	
5,000 P.S.I. CONCRETE			CU. YDS.		CU. YDS.		CU. YDS.		CU. YDS.	
12" ϕ S.R. STRANDS			NO.		NO.		NO.		NO.	
12" ϕ L.R. STRANDS			NO.		NO.		NO.		NO.	



SPAN A PLAN



SECTION THRU RAIL



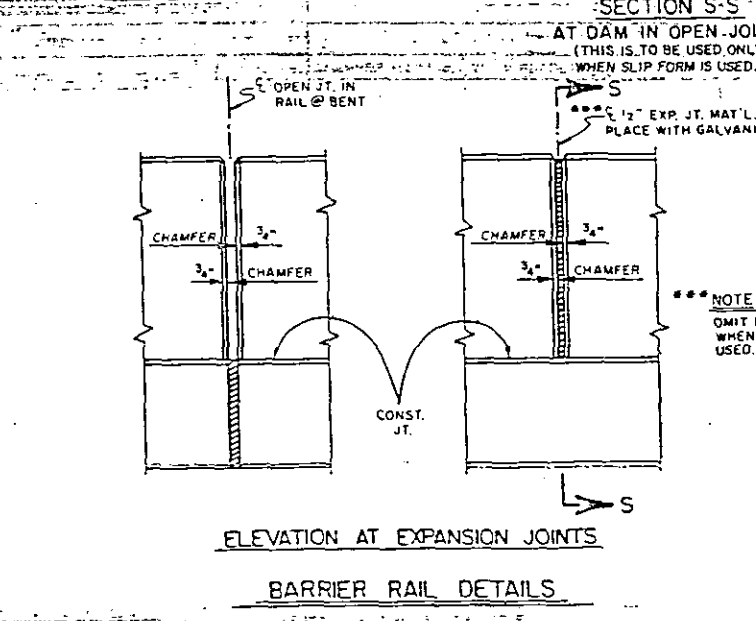
BARRIER RAIL END OF RAIL DETAILS

DEAD LOAD DEFLECTION AND CAMBER			
	3'-0" x 1'-6"	3'-0" x 1'-9"	3'-0" x 1'-9"
	2" ϕ STRANDS / 2" ϕ L.R. STRANDS	2" ϕ STRANDS / 2" ϕ L.R. STRANDS	2" ϕ STRANDS / 2" ϕ L.R. STRANDS
CAMBER (SLAB ALONE IN PLACE)	1/16" \pm	1/16" \pm	1/16" \pm
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	3/16" \pm	3/16" \pm	3/16" \pm
FINAL CAMBER	5/8" \pm	3/4" \pm	3/4" \pm

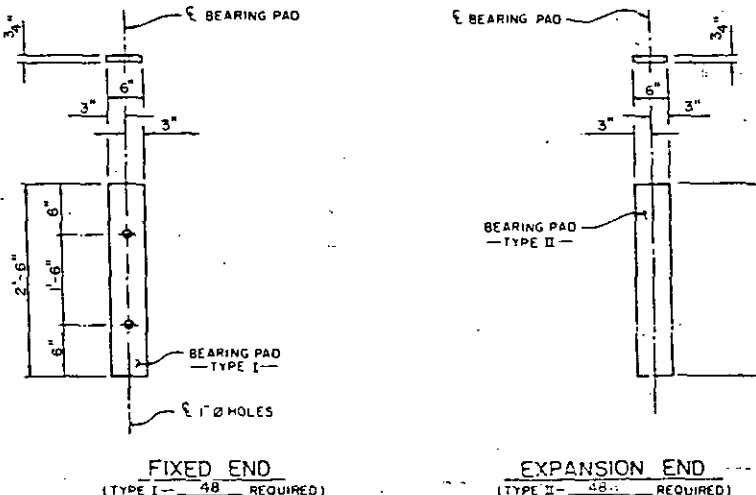
**INCLUDES FUTURE WEARING SURFACE.

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
CS-1	4	47'-2"	188'-8"
CS-2	4	47'-2"	188'-8"
CS-3 thru 11	36	47'-2"	1698'-0"
CS-12	4	47'-2"	188'-8"
TOTAL	48	47'-2"	2264'-0"

BILL OF MATERIAL FOR CONCRETE BARRIER RAIL										
BAR	BARS PER SPAN					TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	SPAN A	SPAN B	SPAN C	SPAN D	SPAN E					
S4	45	48	48	48	45	189	#5	S	5'-6"	1084
S5	3					3	#5	S	4'-8"	115
S7					33	33	#5	S	5'-2"	178
S8					3	3	#5	S	4'-4"	114
B4	24	24	24	24		96	#5	STR	12'-9"	1277
S5					24	24	#5	STR	9'-9"	244
EPOXY COATED REINFORCING STEEL			LBS.		LBS.		LBS.		LBS.	
CLASS AA CONCRETE			CU. YDS.		CU. YDS.		CU. YDS.		CU. YDS.	
TOTAL LIN. FT. OF CONCRETE BARRIER RAIL			223.5		223.5		223.5		223.5	



ELEVATION AT EXPANSION JOINTS BARRIER RAIL DETAILS



ELASTOMERIC BEARING DETAILS

ASSEMBLED BY	J. GUNDB	DATE	10-13-88	SPECIAL
CHECKED BY	B. STUBBS	DATE	12-7-88	
DRAWN BY	ROSS E. KUBERT	DATE	OCT. 1981	STANDARD
CHECKED BY	BETSY S. COX	DATE	OCT. 1981	

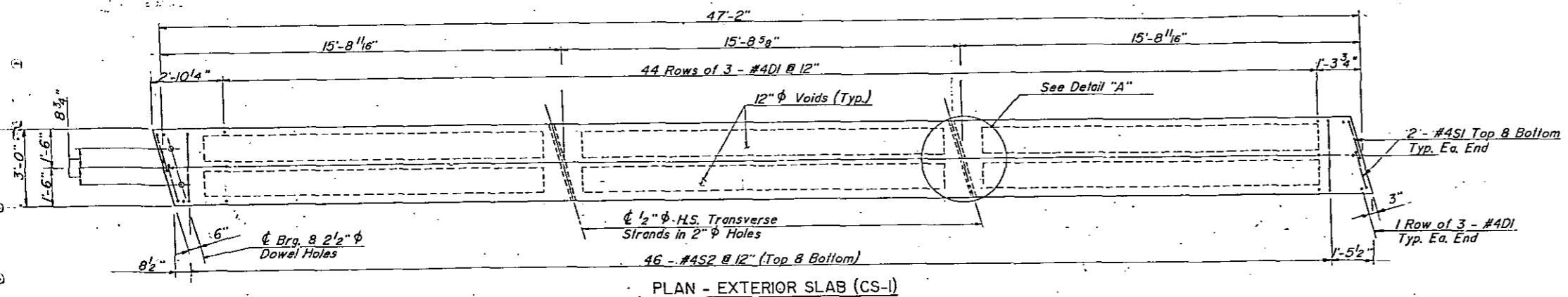
PROJECT No. 81970202(U-621)
 MACON COUNTY
 STATION: 33+38.00 -L- WBL
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" x 1'-9" PRESTRESSED
 CONCRETE CORED SLAB UNIT
 OCTOBER 1981

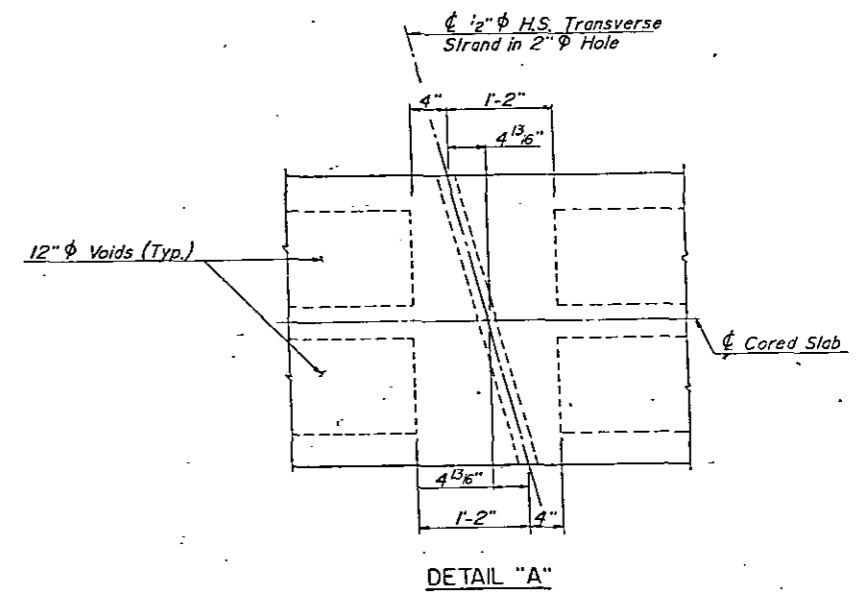
REVISIONS					SHEET NO. 71
NO.	BY	DATE	NO.	BY	
1			3		TOTAL SHEETS 88
2			4		

Dwg. No. 6

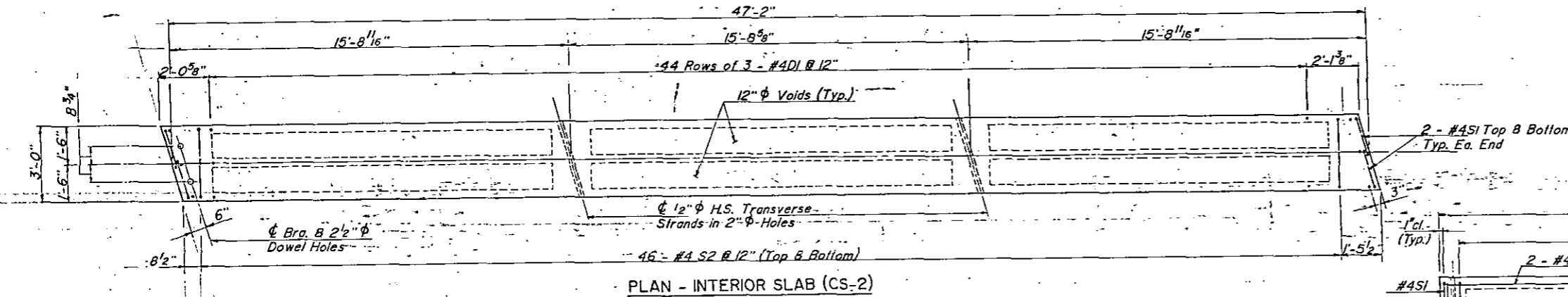
STD. NO. PCS3



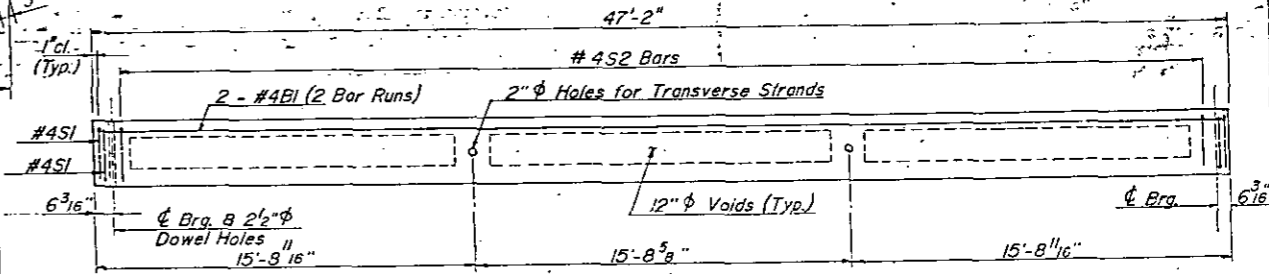
PLAN - EXTERIOR SLAB (CS-1)



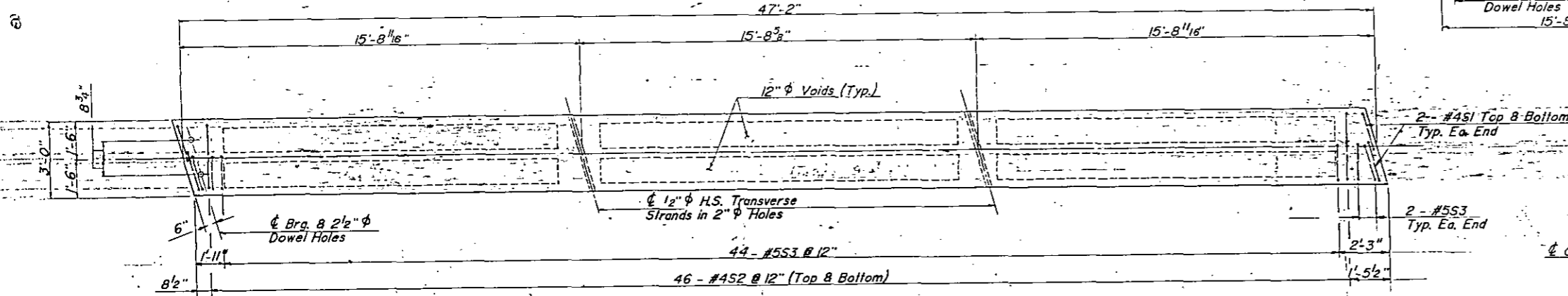
DETAIL "A"



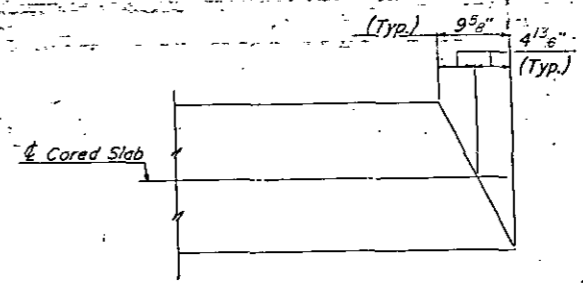
PLAN - INTERIOR SLAB (CS-2)



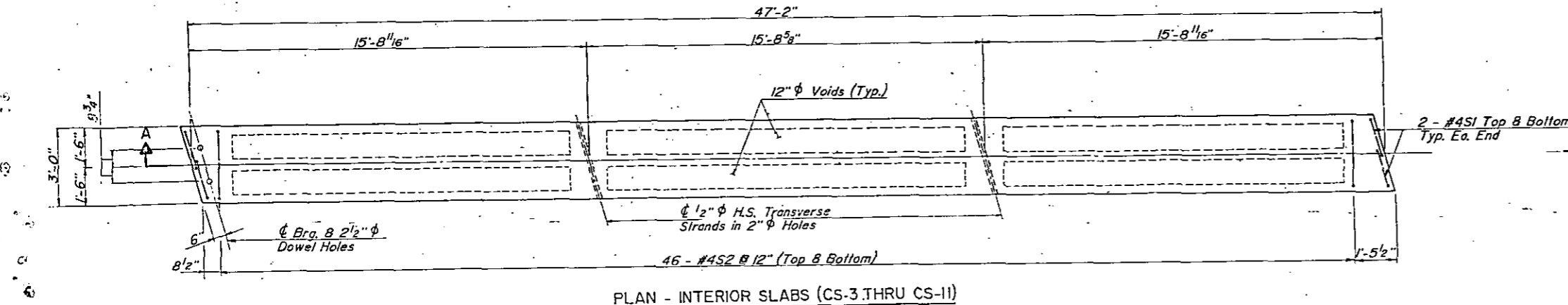
SECTION A-A
(CS-3 thru 11 Shown, CS-1, CS-2 & CS-12 Similar)



PLAN - EXTERIOR SLAB (CS-12)



PLAN VIEW AT END



PLAN - INTERIOR SLABS (CS-3 THRU CS-11)

PROJECT No. 8.1970202 (U-621)
 MACON COUNTY
 STATION: 33+38.00 -L- WBL

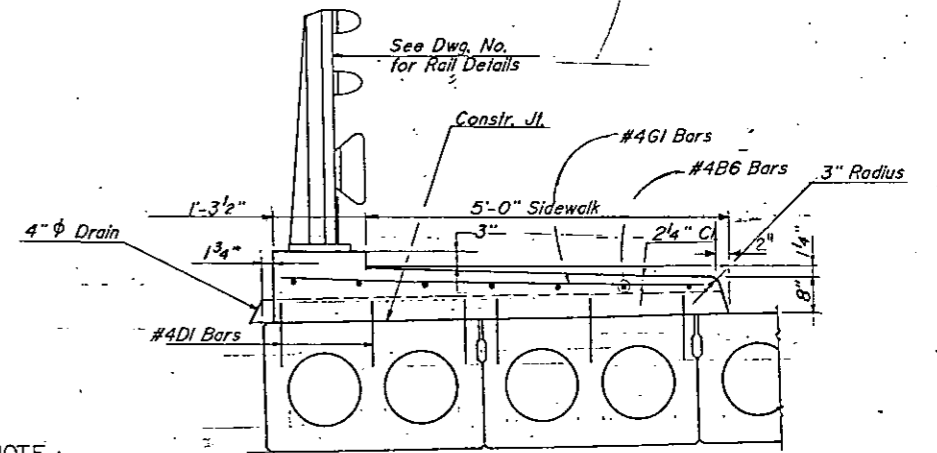
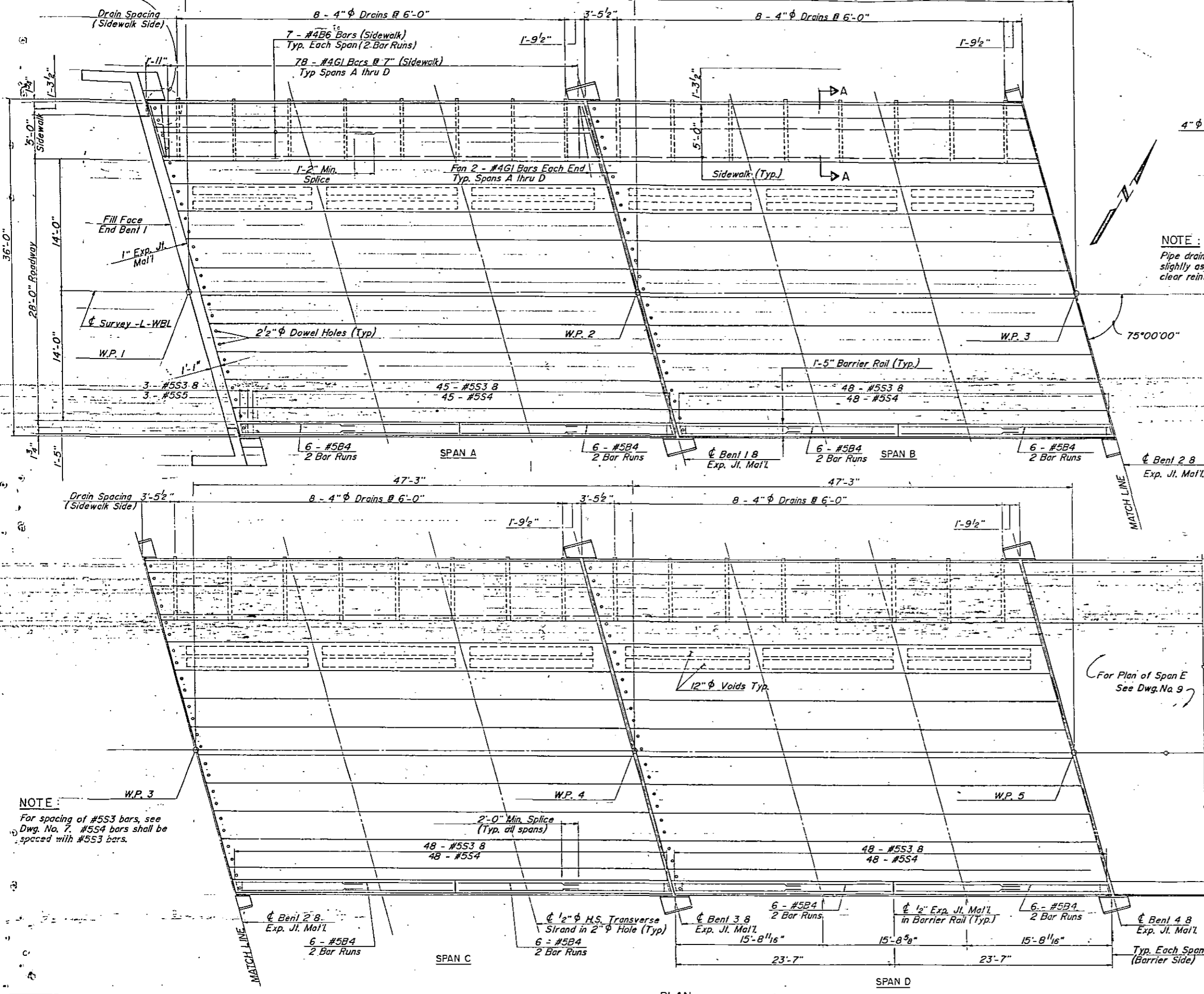
STATE OF NORTH CAROLINA				1989
DEPARTMENT OF TRANSPORTATION				SHEET NO. 72
RALEIGH				57
SUPERSTRUCTURE				TOTAL SHEETS
CORED SLAB DETAILS				20
JANUARY		REVISIONS		
NO.	BY	DATE	NO.	BY
1			3	
2			4	

DRAWN BY: J. Bayne DATE: 11-10-88
 CHECKED BY: B. Maulds DATE: 12-9-88

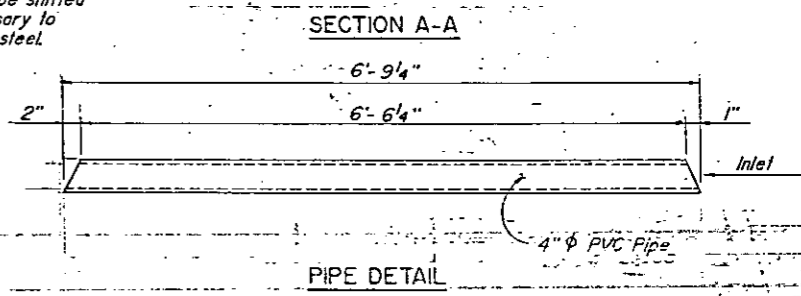


Dwg. No. 7

See Dwg. No. 14 for End Post Details and Placement of "E" Bars.



NOTE:
Pipe drains may be shifted slightly as necessary to clear reinforcing steel.



BAR TYPES										
BILL OF MATERIAL FOR SIDEWALK										
BAR	- BARS PER SPAN					TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	SPAN A	SPAN B	SPAN C	SPAN D	SPAN E					
B6	14	14	14	14		56	#4	Sir.	24'-11"	901
B7					14	14	#4	Sir.	17'-10"	167
E1	2				2	4	#7	I	2'-11"	24
E2	2				2	4	#7	I	3'-6"	29
E3	2				2	4	#7	I	4'-1"	33
E4	2				2	4	#7	I	4'-7"	37
G1	82	82	82	82	60	388	#4	Sir.	6'-0"	1555
Epoxy Coated Reinforcing Steel						2746	Lbs.			
Class 'AA' Concrete						42.0	Cu. Yds.			

NOTE:
For spacing of #5S3 bars, see Dwg. No. 7. #5S4 bars shall be spaced with #5S3 bars.

For Plan of Span E See Dwg. No. 9

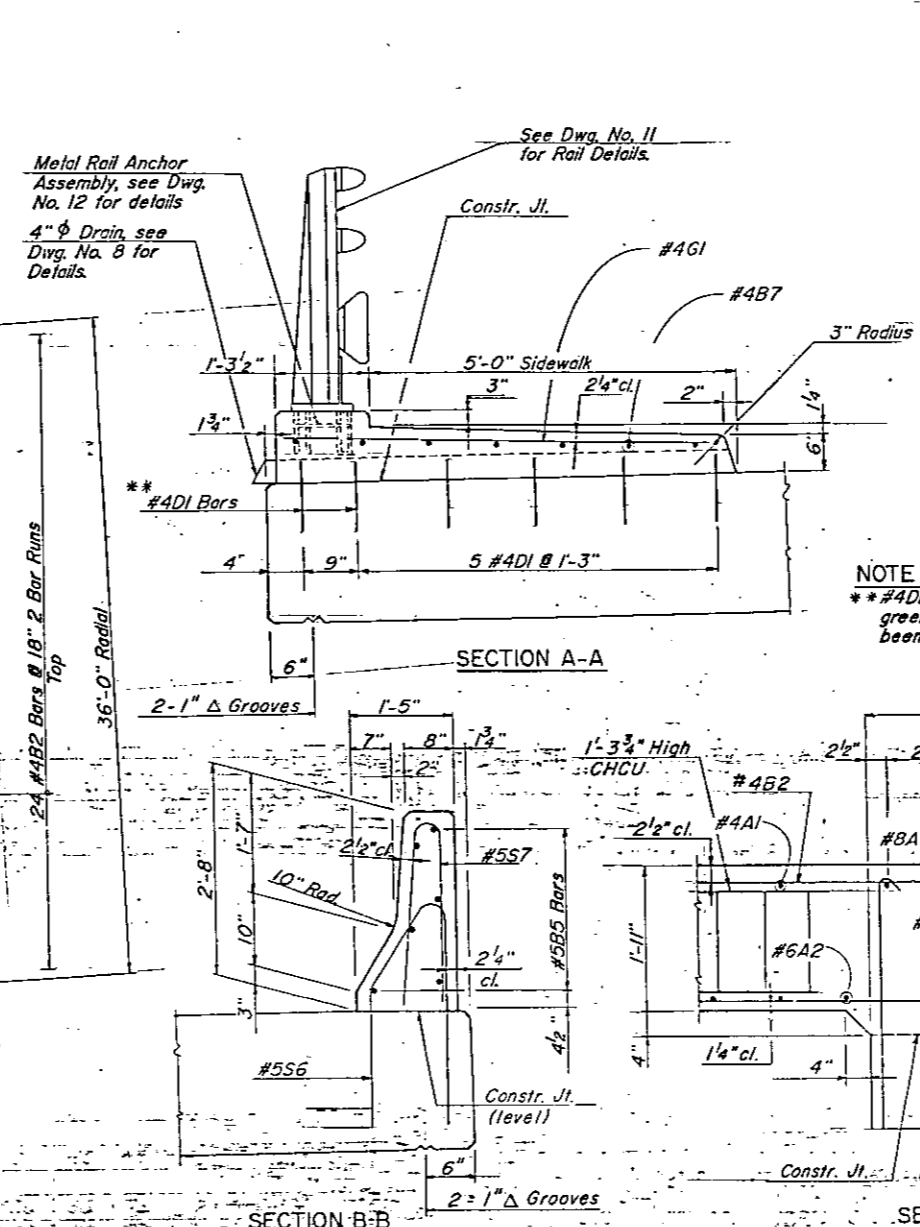
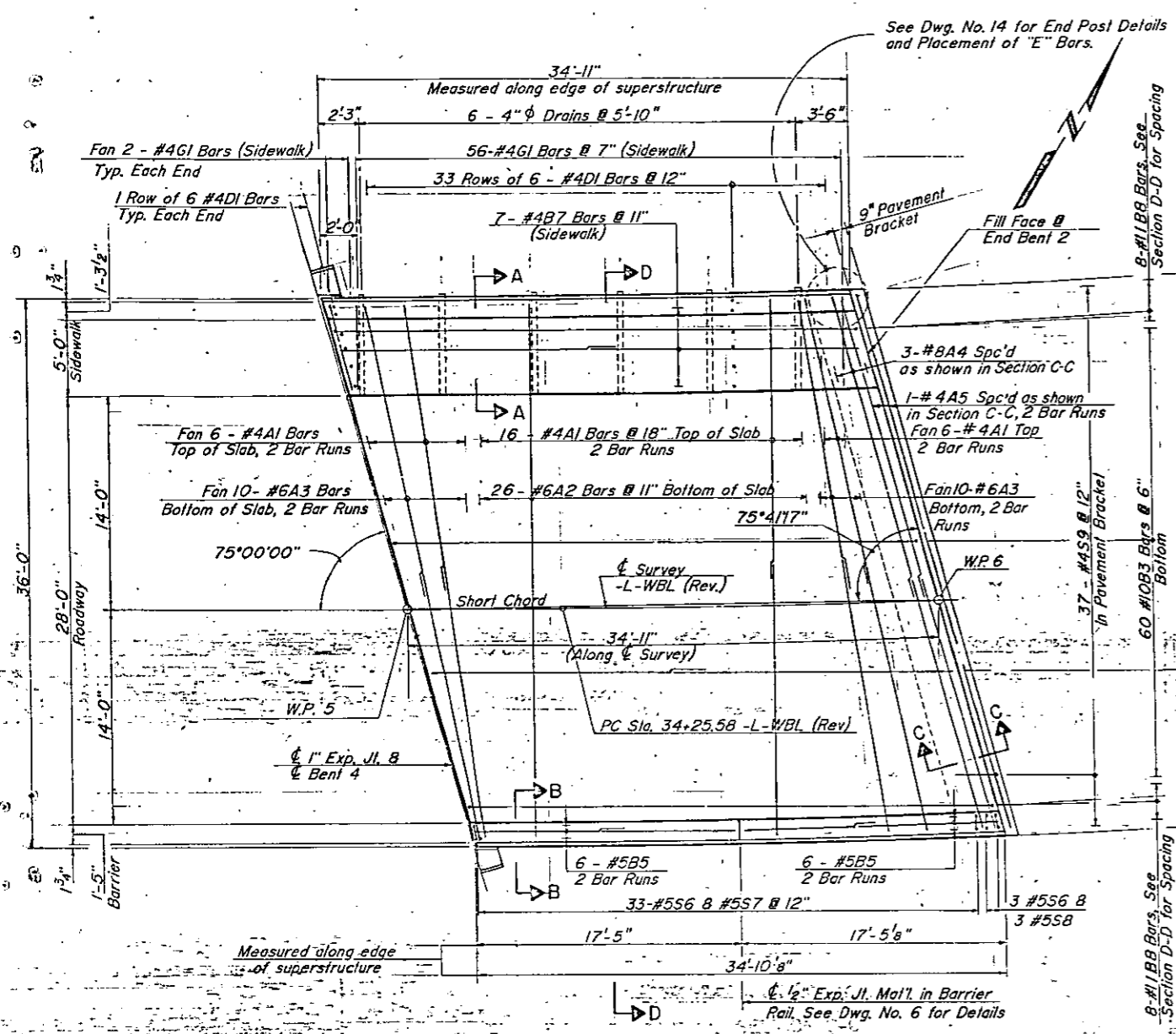
PROJECT No. 81970202 (U-621)
MACON COUNTY
STATION: 33+38.00 -L- WBL

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPANS A, B, C, & D					
JANUARY 1989					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
SHEET NO. 73					TOTAL SHEETS 28

DRAWN BY: J. Boyd
CHECKED BY: B. Moulds
DATE: 10-12-88
DATE: 12-9-88

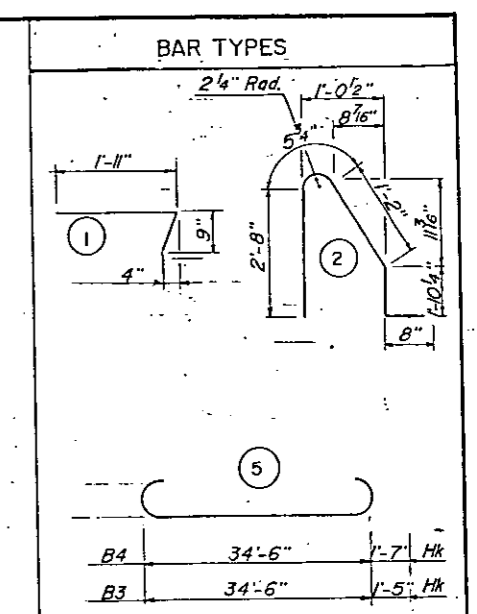


PLAN SPAN D



SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

BAR SIZE	SUPERSTRUCTURE AND APPROACH SLABS EXCEPT PARAPET AND BARRIER RAIL	PARAPET AND BARRIER RAIL
#4	1'-2"	1'-7"
#5	1'-5"	2'-0"
#6	1'-10"	2'-7"
#8	3'-4"	4'-7"



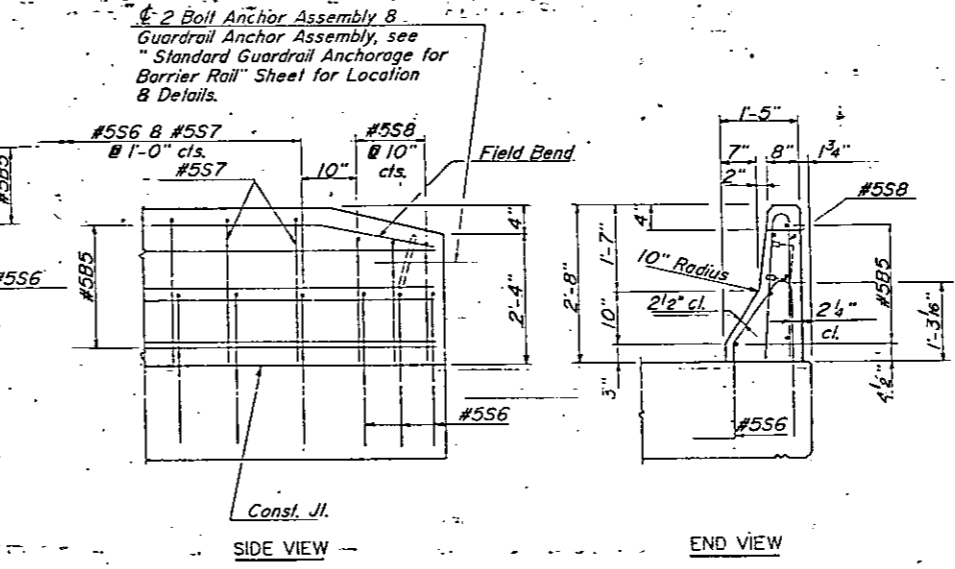
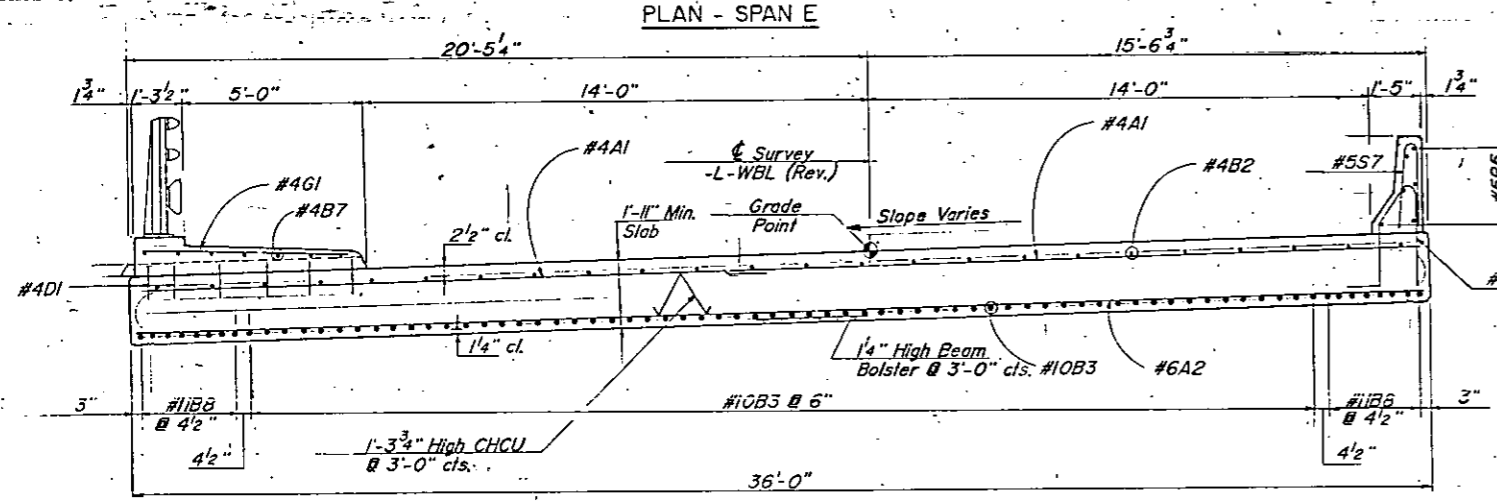
NOTE:
**#4DI bars may be pushed into green concrete after span has been screeded off.

NOTES:
All dimensions are out-to-out.
* Epoxy Coated Reinforcing Steel

BILL OF MATERIAL

C.I.P. FLAT SLAB				
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	56	#4	Str. 19'-1"	714
A2	26	#6	Str. 35'-8"	1393
A3	40	#6	Str. 19'-5"	1167
*A4	3	#8	Str. 36'-9"	294
A5	4	#4	Str. 18'-11"	51
*B2	48	#4	Str. 17'-10"	572
B3	60	#10	5 37'-4"	9639
B8	16	#11	5 37'-8"	3202
*D1	210	#4	Str. 0'-9"	105
*G1	60	#4	Str. 5'-10"	234
*S6	36	#5	2 -6'-10"	257
S9	37	#4	1 -2'-9"	68

Epoxy Coated Reinforcing Steel Lbs. 2,176
Reinforcing Steel Lbs. 15,920
Class "AA" Concrete Cu. Yds. 93.9



PROJECT No. 81970202(U-621)
MACON COUNTY
STATION: 33+38.00 -L- WBL

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPAN E

JANUARY 1989

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

SHEET NO. 74
TOTAL SHEETS 20

AWN BY: J. Boyne
CHECKED BY: B. Moulds
DATE: 10-14-88
DATE: 12-9-88



Dwg. No. 9

NOTES

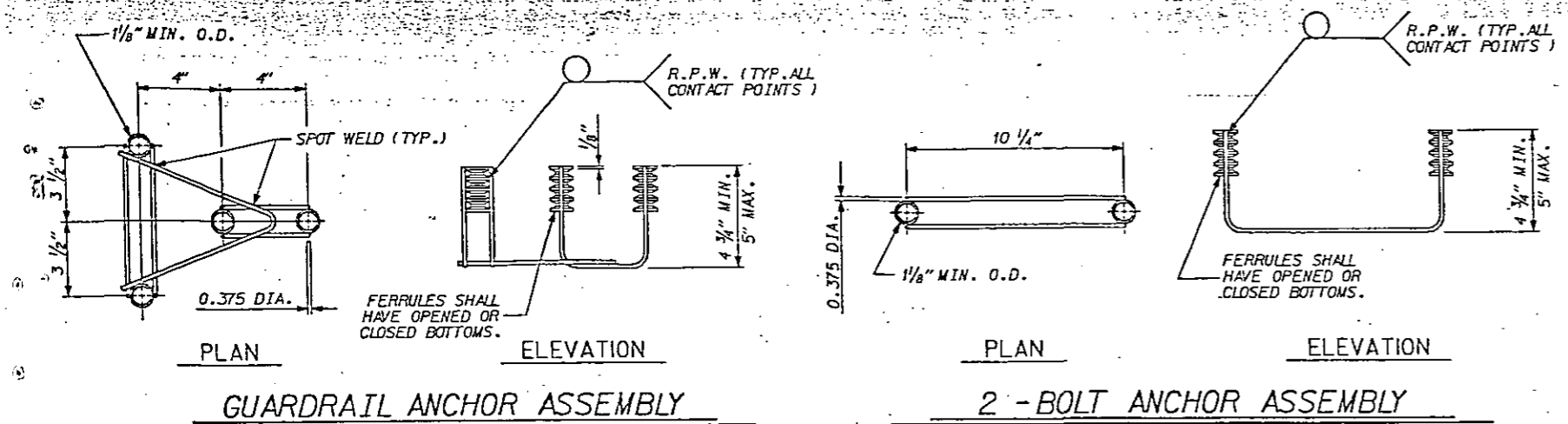
THE GUARDRAIL ANCHOR ASSEMBLY AND THE 2-BOLT ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF ASTM A108, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
- B. 4 - 7/8" Ø X 2 3/4" BOLTS WITH WASHERS FOR GUARDRAIL ANCHOR ASSEMBLY AND 2 - 7/8" Ø X 2 3/4" BOLTS WITH WASHERS FOR 2-BOLT ANCHOR ASSEMBLY SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS WITH WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø X 2 3/4" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- C. WIRE STRUTS SHOWN IN THE ANCHOR ASSEMBLY ARE THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI.

THE GUARDRAIL ANCHOR ASSEMBLIES AND THE 2-BOLT ANCHOR ASSEMBLIES WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RE CUT AS NECESSARY.

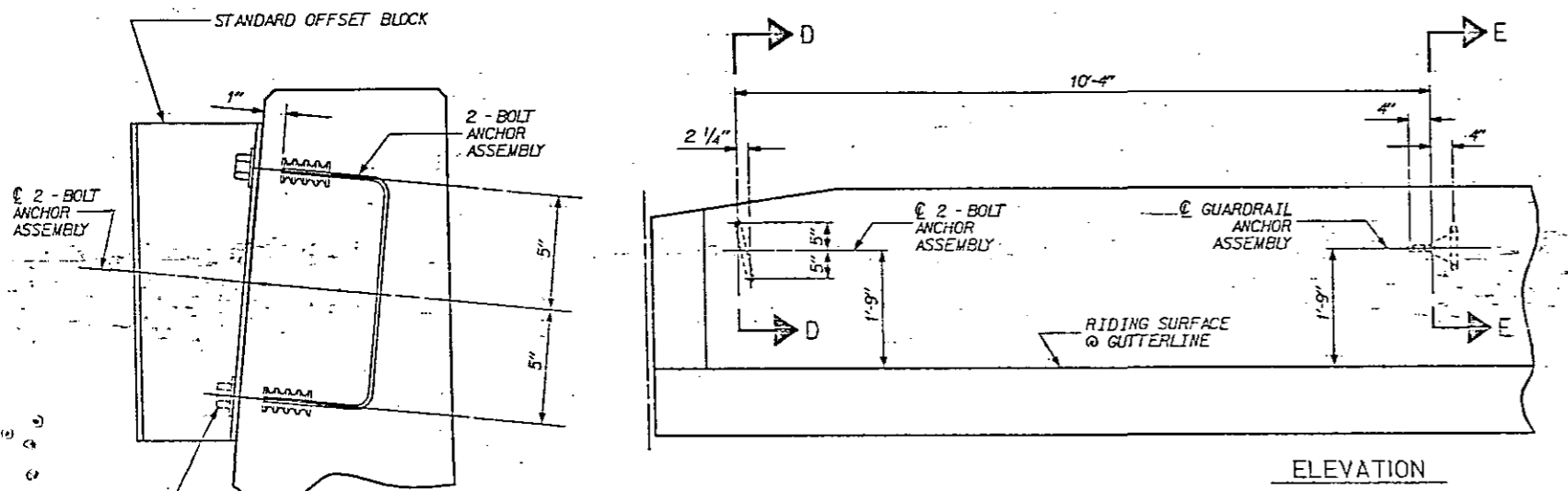
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES AND THE 2-BOLT ANCHOR ASSEMBLIES WITH BOLTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

THE GUARDRAIL ANCHOR ASSEMBLY AND THE 2-BOLT ANCHOR ASSEMBLY ARE REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.



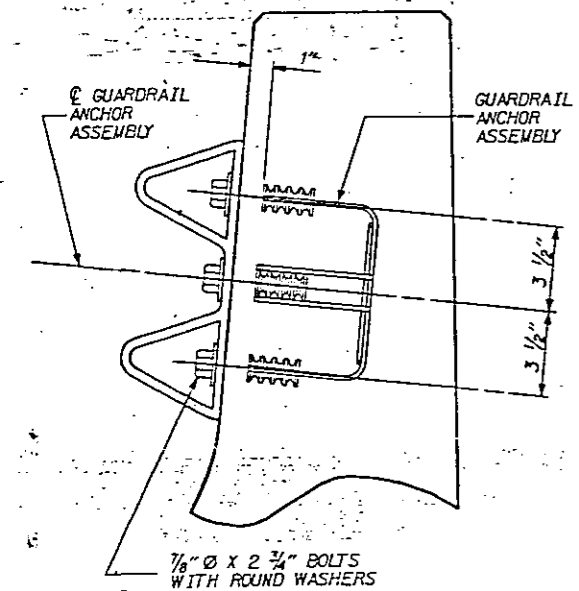
GUARDRAIL ANCHOR ASSEMBLY

2 - BOLT ANCHOR ASSEMBLY

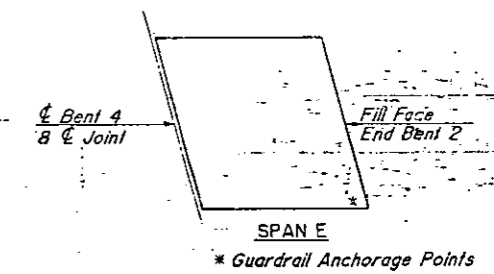


SECTION D-D

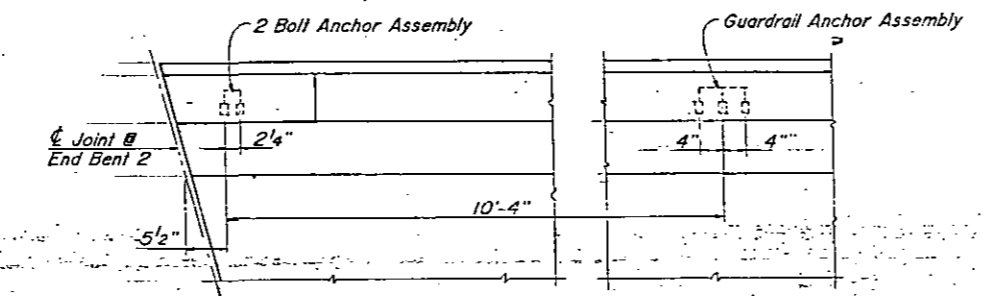
ELEVATION



SECTION E-E



SKETCH SHOWING POINTS OF ATTACHMENTS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL AND OFFSET BLOCK

PROJECT NO. 81970202(U-621)
 MACON COUNTY
 STATION: 33+38.00 -L- WBL

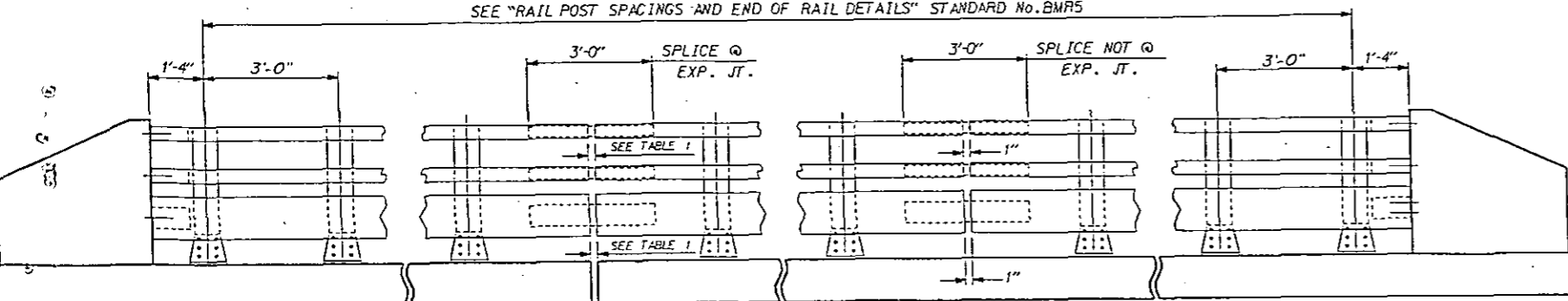
STATE OF NORTH CAROLINA		SHEET NO.	
DEPARTMENT OF TRANSPORTATION		25	
RALEIGH		TOTAL SHEETS	
STANDARD		25	
GUARDRAIL ANCHORAGE		25	
FOR BARRIER RAIL		25	
FEBRUARY 1988		25	
REVISIONS		SHEET NO.	
NO.	BY	DATE	NO.
1			25
2			25

ASSEMBLED BY: J. Boyne	DATE: 10-17-88	SPECIAL
CHECKED BY: B. Moulds	DATE: 12-9-88	
DRAWN BY: MIKE BRITT	DATE: DEC. 1987	STANDARD
CHECKED BY: RALPH BISSETTE	DATE: DEC. 1987	

Dwg. No. 10

STD. No. GRA1

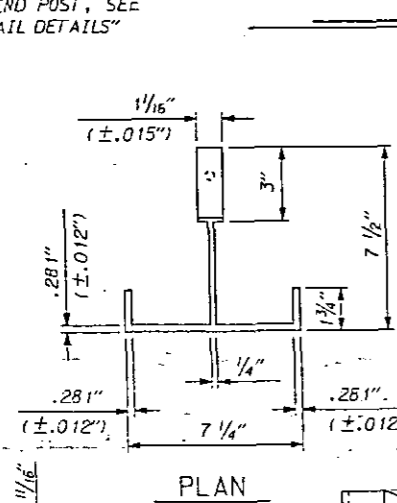
SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" STANDARD No. BMR5



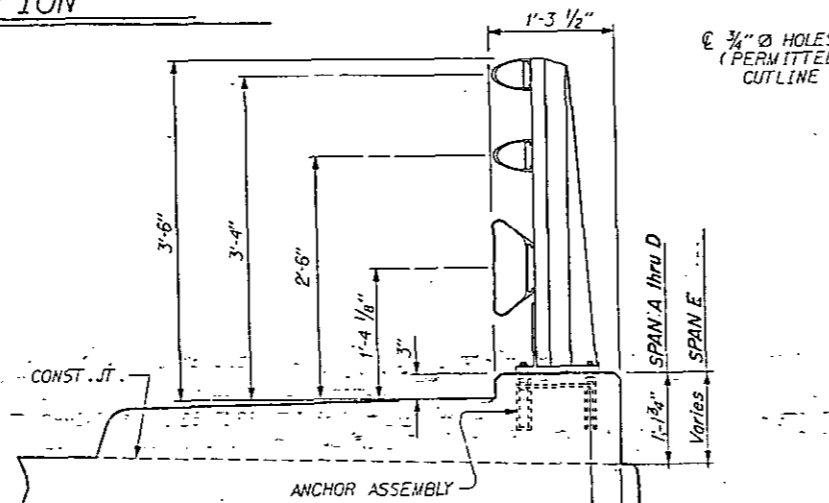
ELEVATION

NOTE:
FOR ATTACHMENT OF METAL RAIL TO END POST, SEE
"RAIL POST SPACINGS AND END OF RAIL DETAILS"
STD. No. BMR4

EXP. JT. BENT	RAIL OPENING
BENT No. 1	1"
BENT No. 2	1"
BENT No. 3	1"
BENT No. 4	1"



PLAN

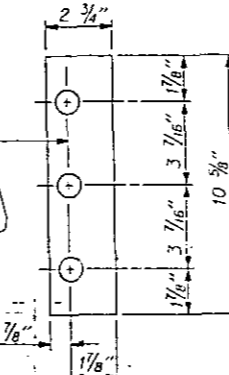


SECTION THRU RAIL

FOR ANCHOR ASSEMBLY, SEE "3 BAR METAL RAIL"
STD. No. BMR3

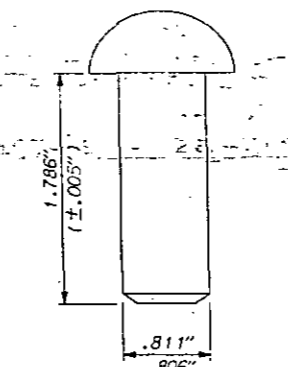
3/4" Ø HOLES
(PERMITTED
CUTLINE)

REAR PLATE

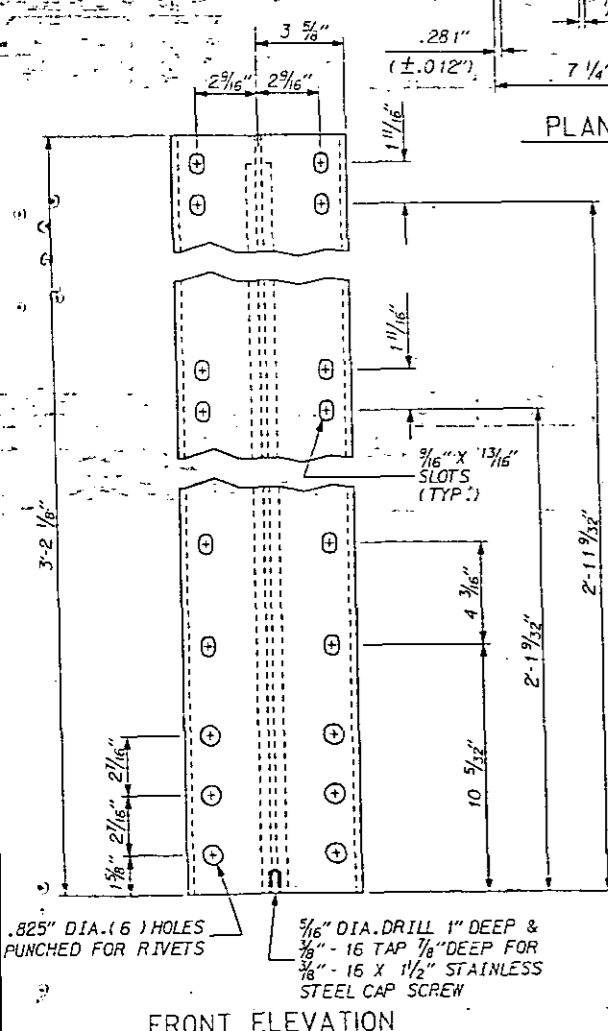


FRONT PLATE
SHIM DETAILS

NOTE:
SHIMS MAY BE CUT ALONG PERMITTED CUTLINE OR
SLOTTED TO EDGE OF PLATE TO FACILITATE PLACEMENT.



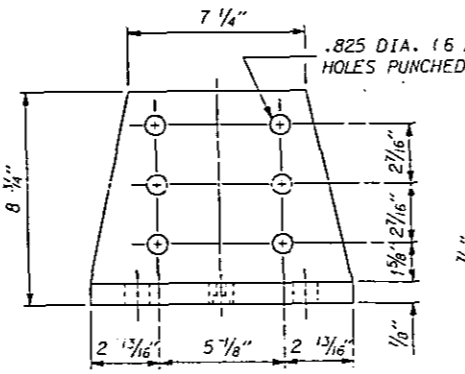
RIVET DETAIL



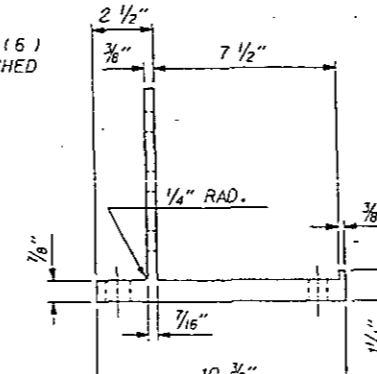
FRONT ELEVATION

SIDE ELEVATION

DETAILS OF POST

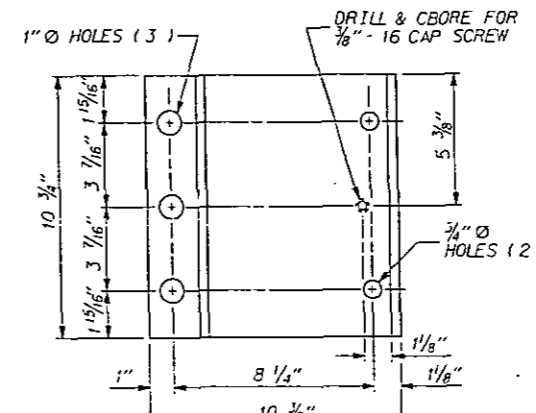


FRONT ELEVATION



SIDE ELEVATION

POST BASE DETAILS



PLAN

NOTES

AT THE CONTRACTOR'S OPTION, METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS; HOWEVER, THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B-221 ALLOY 6061-T6.
MATERIAL FOR ALUMINUM WASHER SHALL BE ASTM B-209 ALLOY 2024-T4.
MATERIAL FOR RIVETS SHALL BE ASTM B-316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.
THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.
MATERIAL FOR SHIMS TO BE ASTM B-209 ALLOY 6061-T6.

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:
POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: ASTM A-36 GRADE STRUCTURAL STEEL - GALVANIZED TO ASTM A-123.
RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A-502 FOR GRADE 1 RIVETS.
THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.
SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A-570 FOR GRADE C OR A-611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A-123.
RAIL CAPS: RAIL CAPS SHALL MEET THE REQUIREMENTS OF ASTM A-245 GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A-123.

GENERAL NOTES

1. RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS. PLACE ONE JOINT SPLICE JUST BEYOND THE 3RD RAIL POST FROM EACH END, GENERALLY APPROXIMATELY 14' FROM THE END. PLACE OTHER JOINTS AS NEEDED.
2. END OF RAIL TO CLEAR FACE OF CONCRETE END POST. SEE STANDARD No. BMR2.
3. CAP SCREWS FOR RAIL ATTACHMENT SHALL BE TYPE 305 STAINLESS STEEL.
4. CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.
5. METAL RAIL POSTS TO BE SET NORMAL TO CURB GRADE.
6. METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR, SEE THE STANDARD SPECIFICATIONS.
7. CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.
8. TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAIN VISIBLE AFTER RAIL PLACEMENT.
9. SHIMS TO BE USED AS NECESSARY FOR POST ALIGNMENT.
10. ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.
11. MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

PAY LENGTH = 2161'-LIN. FT.

PROJECT NO. 81970202(U-621)
MACON COUNTY
STATION: 33+38.00 -L- WBL
SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3 BAR METAL RAIL

REVISIONS				SHEET NO.
NO.	BY	DATE	DESCRIPTION	76 S-H
1				TOTAL SHEETS
2				23

ASSEMBLED BY: J. Bayne	DATE: 10-19-88	SPECIAL
CHECKED BY: B. Moulds	DATE: 12-9-88	
DRAWN BY: MIKE BRITT	DATE: JAN. 1988	STANDARD
CHECKED BY: G. G. HARPER	DATE: JAN. 1988	

Dwg. No. 11

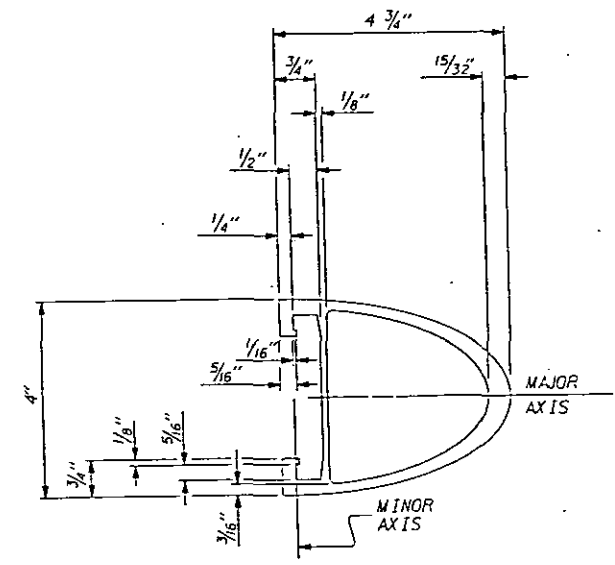
STD. No. BMR2

NOTES

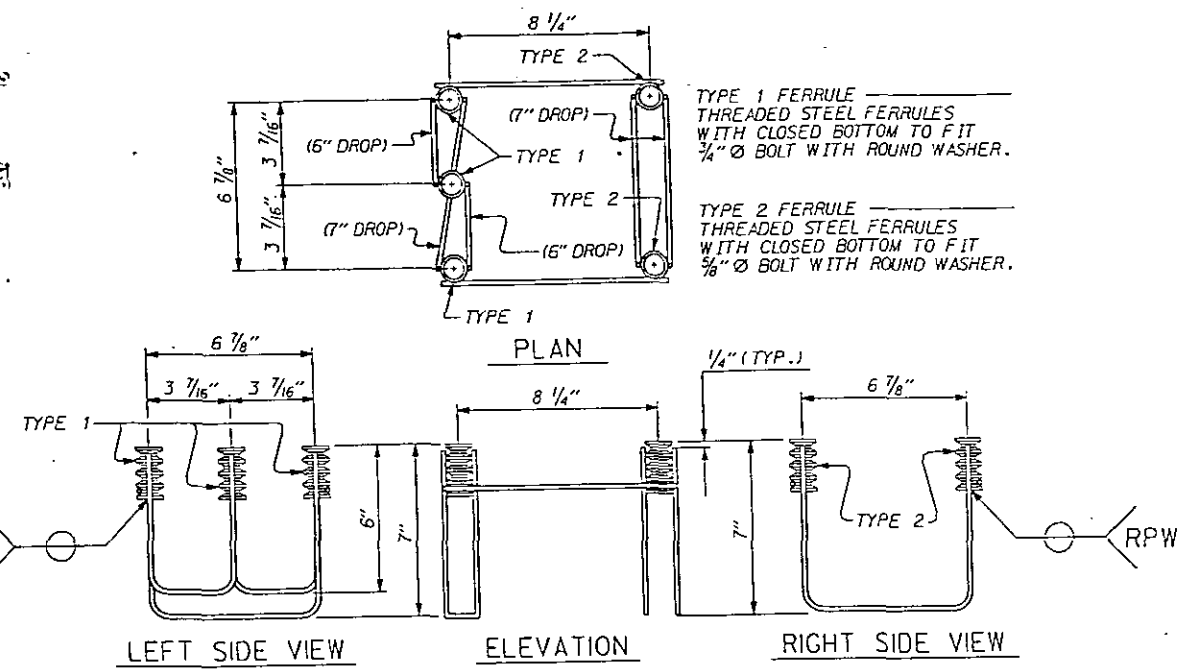
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF ASTM A108, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
- B. 3 - 3/4" Ø X 1 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTORS OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 1/2" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- C. 2 - 5/8" Ø X 1 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTORS OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 5/8" Ø X 1 1/2" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- D. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI.
- E. THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF ASTM A-123.
- F. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
- G. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

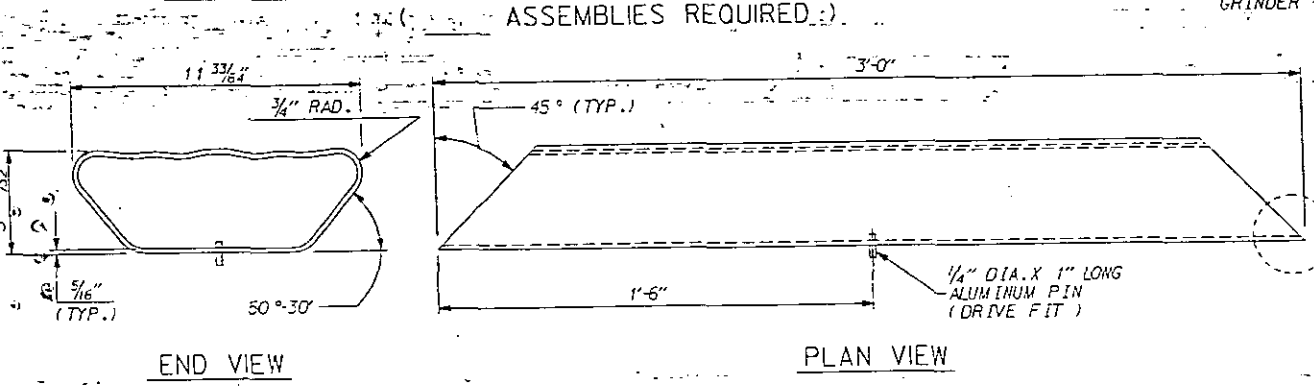


TOP & MIDDLE RAIL SECTION

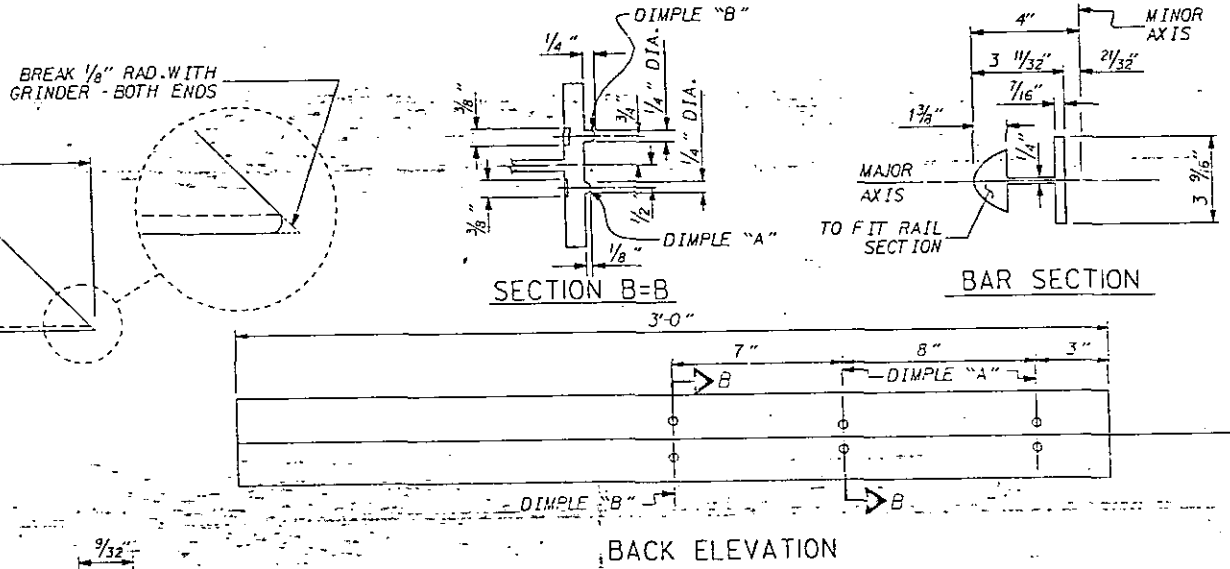


5-BOLT METAL RAIL ANCHOR ASSEMBLY

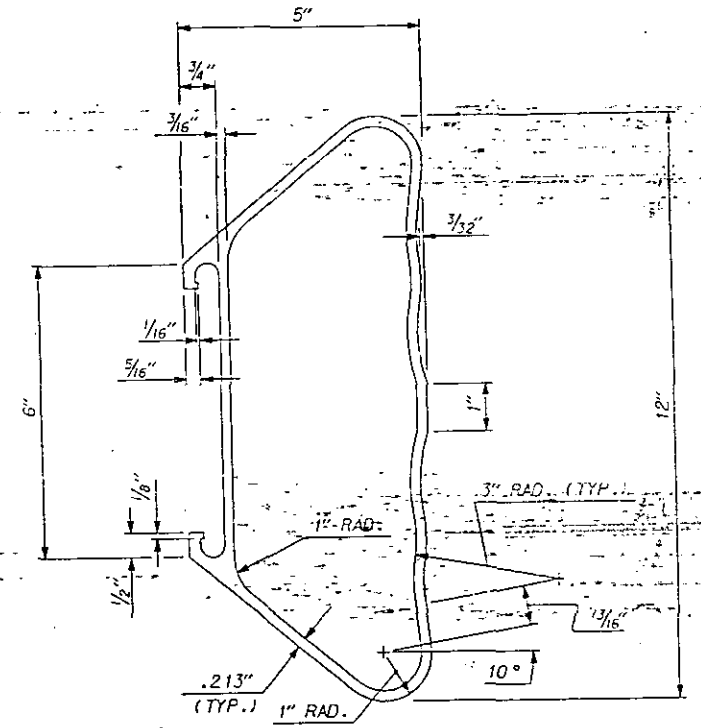
ASSEMBLIES REQUIRED: .)



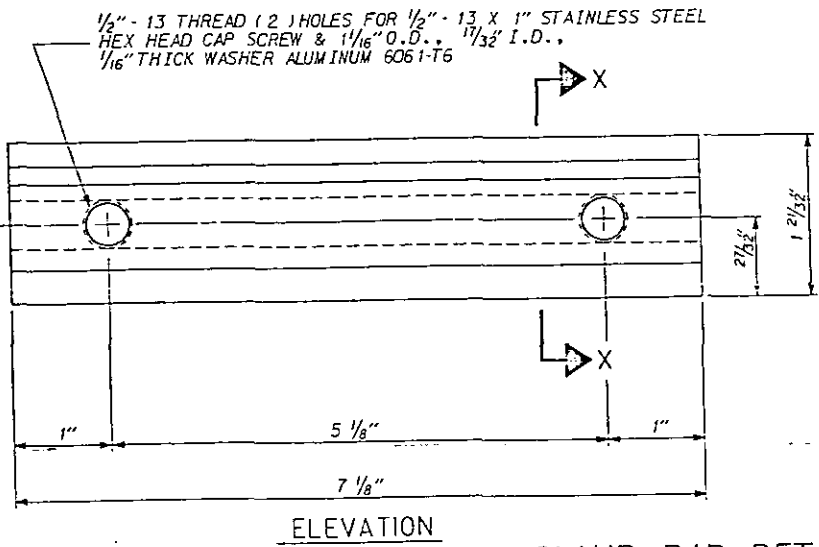
BOTTOM RAIL EXPANSION BAR



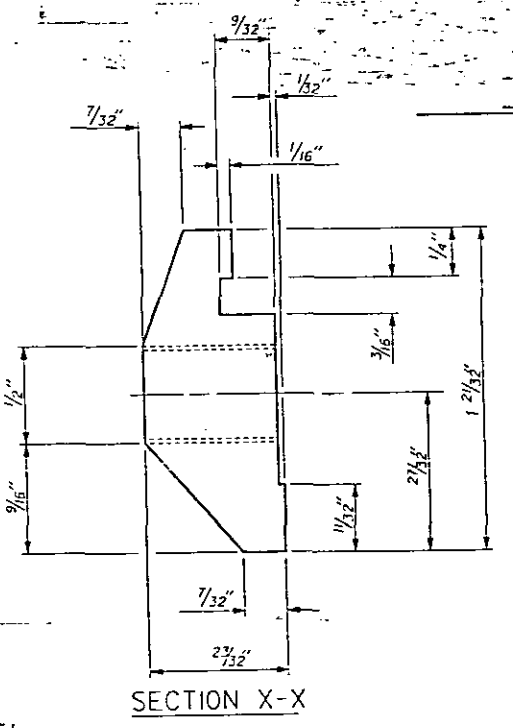
TOP & MIDDLE RAIL EXPANSION BAR



BOTTOM RAIL SECTION

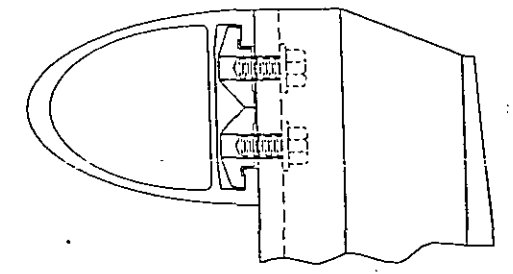


CLAMP BAR DETAIL
(6 REQUIRED PER POST)



TOP & MIDDLE RAIL CAP

BOTTOM RAIL CAP



CLAMP ASSEMBLY

TOP RAIL SHOWN
(MIDDLE & BOTTOM RAIL ARE SIMILAR)

PROJECT NO. 81970202(U-621)
 MACON COUNTY
 STATION: 33+38.00 -L- WBL
 SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD					
3 BAR METAL RAIL					
FEBRUARY 1988					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. 775-12					TOTAL SHEETS 23

ASSEMBLED BY: J. Bayne	DATE: 10-21-88	SPECIAL
CHECKED BY: B. Moulds	DATE: 12-9-88	
DRAWN BY: MIKE BRITT	DATE: JAN. 1988	STANDARD
CHECKED BY: G. G. HARPER	DATE: JAN. 1988	

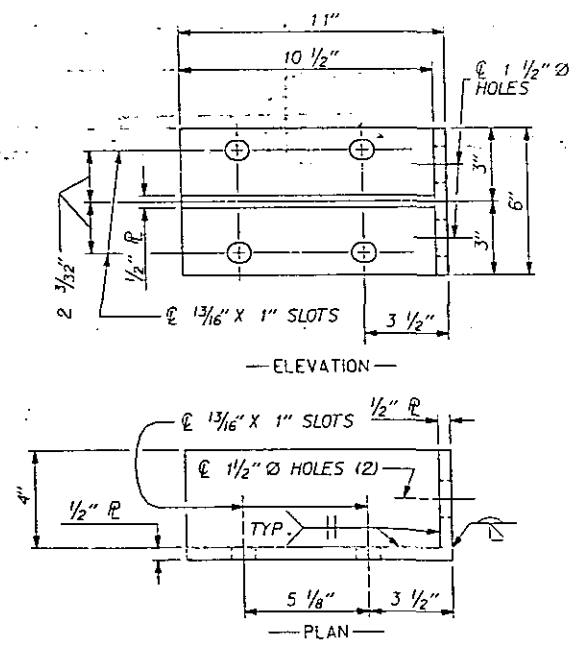
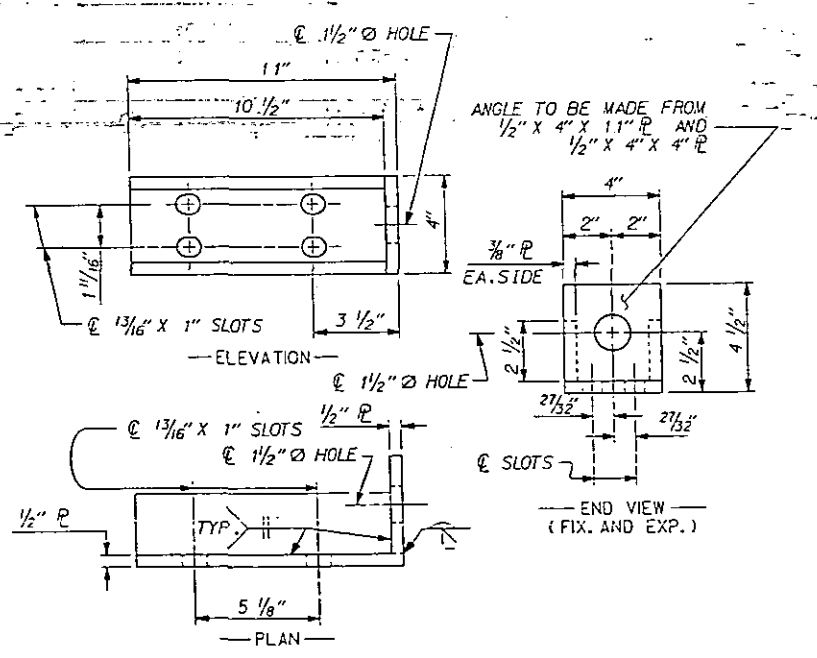
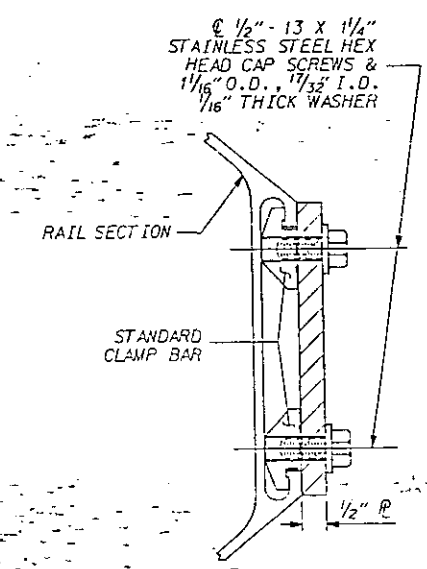
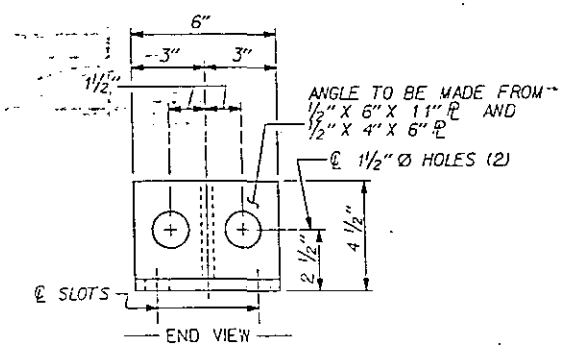
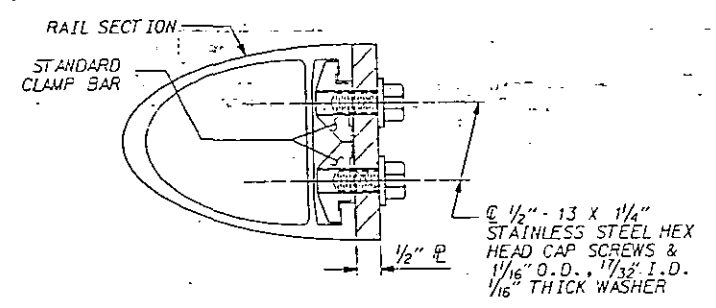
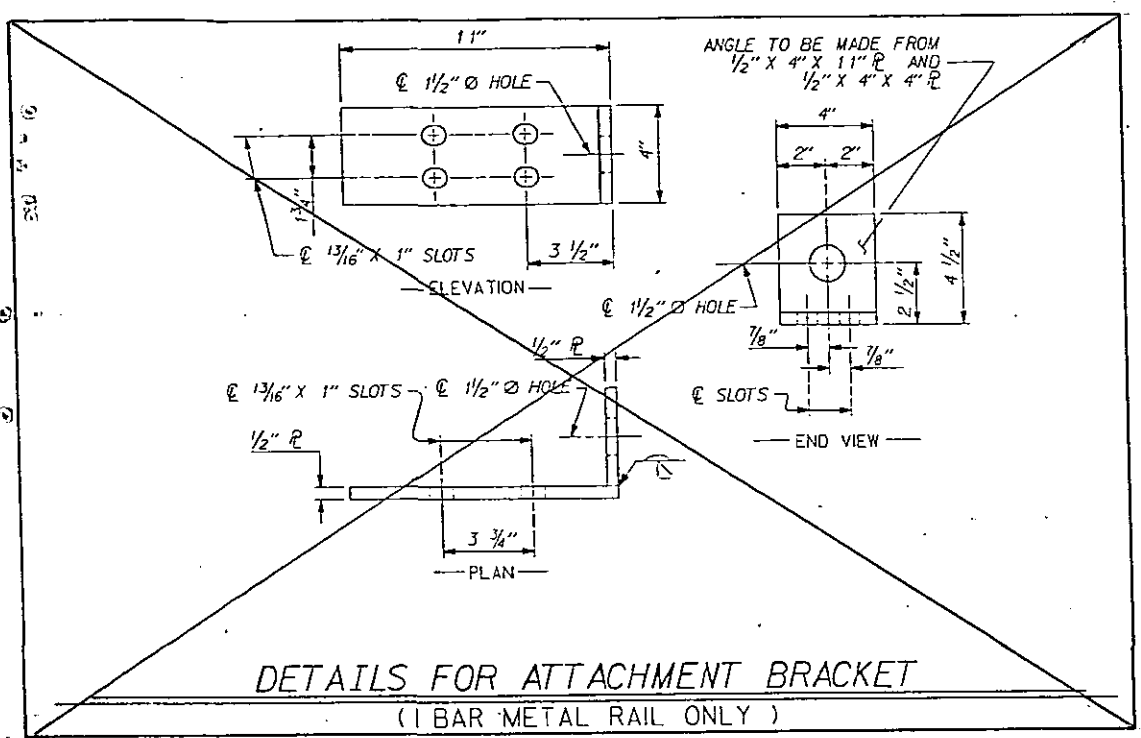
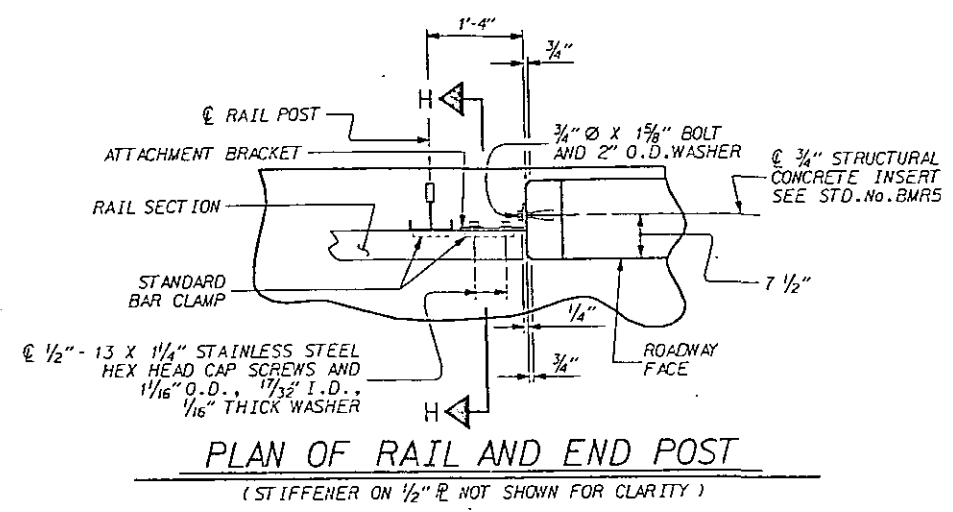
Dwg. No. 12

STD. No. BMR3

NOTES

METAL RAIL TO END POST CONNECTION

- THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS :
- 1/2" PLATES SHALL CONFORM TO ASTM A36 AND SHALL BE GALVANIZED AFTER FABRICATION.
 - 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" X 1 1/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" X 1 1/8" BOLT SHALL HAVE N. C. THREADS.
 - CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF TYPE 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60° F.
 - STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
- THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 AND 3 BAR METAL RAILS.
- THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.
- THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.
- THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" X 1 1/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS WHICH APPLY TO THE 3/4" X 1 1/8" BOLT SHALL APPLY TO THE 3/4" X 6 1/2" BOLT SEE SPECIAL PROVISIONS FOR "ADHESIVELY ANCHORED ANCHOR BOLTS AND DOWELS".



DETAILS FOR ATTACHMENT BRACKET
(BOTTOM RAIL OF 3 BAR METAL RAIL ONLY)

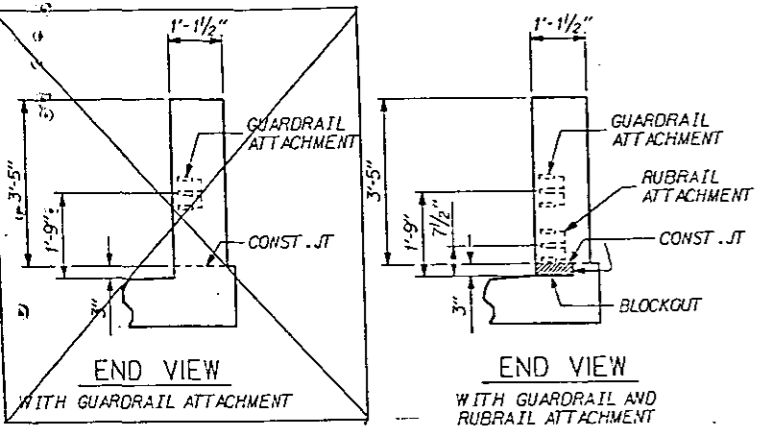
PROJECT NO. 81970202(U-621)
 MACON COUNTY
 STATION: 33+38.00 -L- WBL
 SHEET 1 OF 2

STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
STANDARD					
RAIL POST SPACINGS					
AND					
END OF RAIL DETAILS					
FOR ONE & THREE BAR METAL RAILS					
FEBRUARY 1988					
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					TOTAL SHEETS
					78

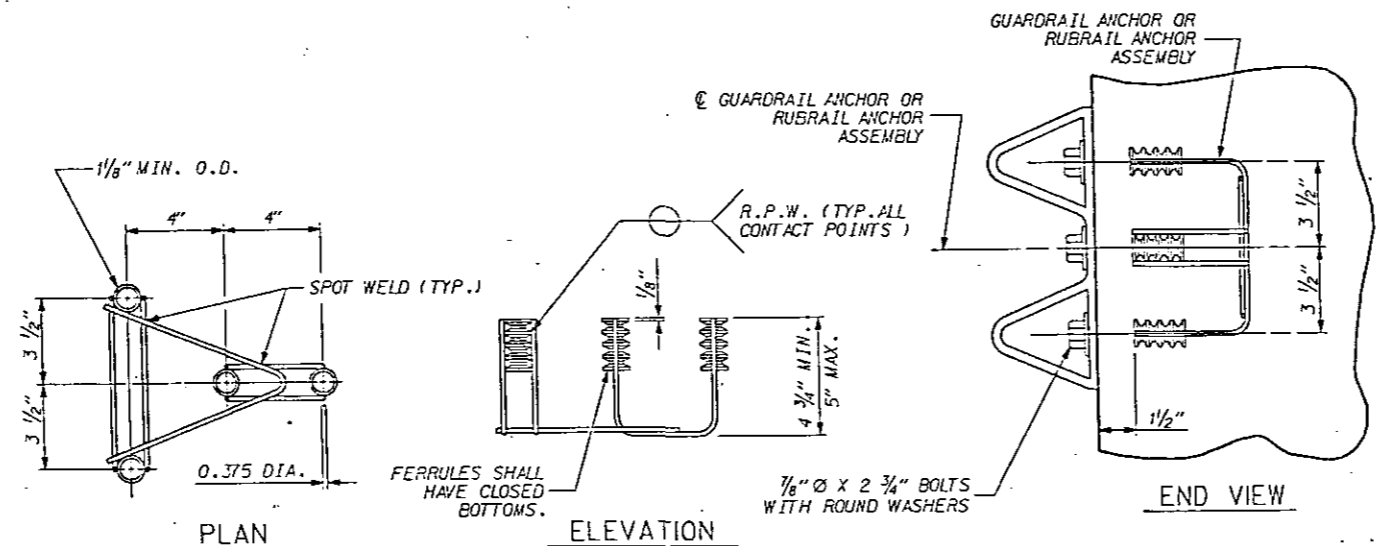
ASSEMBLED BY: J. Boyne	DATE: 10-24-88	SPECIAL
CHECKED BY: B. Moulds	DATE: 12-9-88	
DRAWN BY: MIKE BRITT	DATE: JAN. 1988	STANDARD
CHECKED BY: G. G. HARPER	DATE: JAN. 1988	

Dwg. No. 13

STD. No. BMR4



LOCATION OF GUARDRAIL AND RUBRAIL ANCHOR AT END POST
(TO BE USED WITH THREE-BAR METAL RAIL)



GUARDRAIL ANCHOR ASSEMBLY DETAILS AND RUBRAIL ANCHOR ASSEMBLY DETAILS, IF REQUIRED

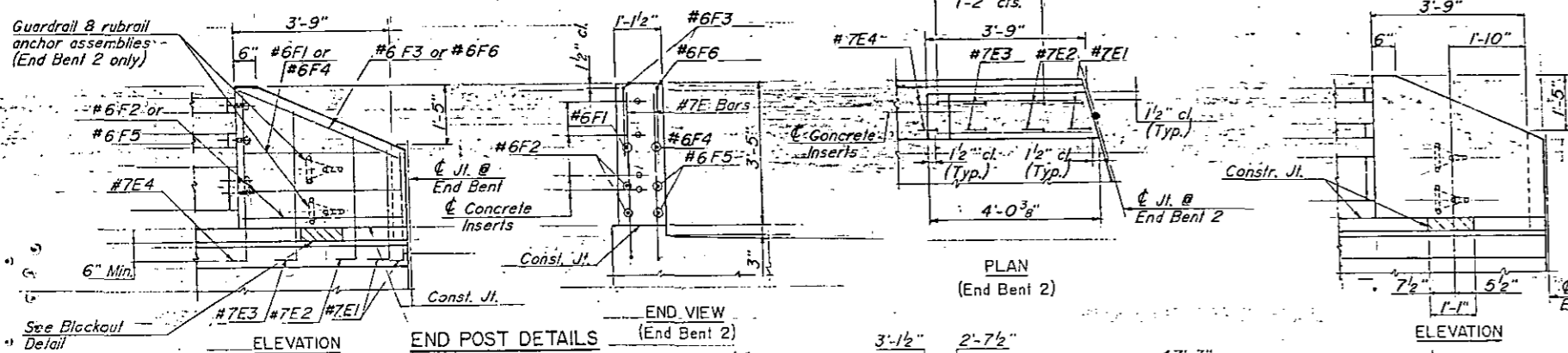
NOTES
GUARDRAIL ANCHOR ASSEMBLY AND RUBRAIL ANCHOR ASSEMBLY (IF REQUIRED) SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF ASTM A108, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
- 4 - 7/8" x 2 3/4" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" x 2 3/4" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- WIRE STRUTS SHOWN IN THE ANCHOR ASSEMBLY DETAIL ARE THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI.

THE GUARDRAIL ANCHOR ASSEMBLY AND RUBRAIL ANCHOR ASSEMBLY (IF REQUIRED) WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY TO INSURE FIT.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY AND RUBRAIL ANCHOR ASSEMBLY (IF REQUIRED) WITH BOLTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE GUARDRAIL IS TO BE ATTACHED TO THE END POST, AND THE RUBRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE RUBRAIL IS TO BE ATTACHED TO THE END POST. FOR POINTS OF ATTACHMENT, SEE SKETCH.

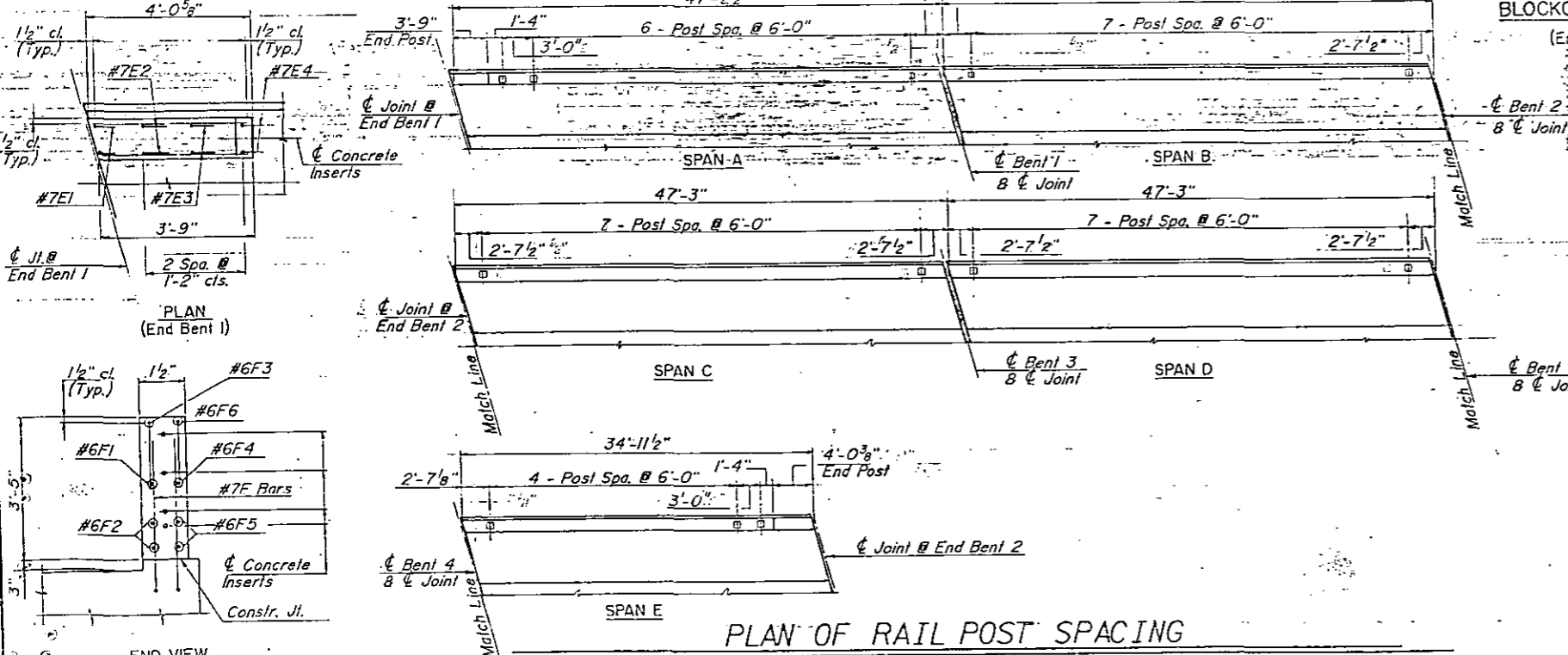


NOTE:
The concrete in the shaded area of the sidewalk parapet shall be poured with the end post.

NOTES
STRUCTURAL CONCRETE INSERT

THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

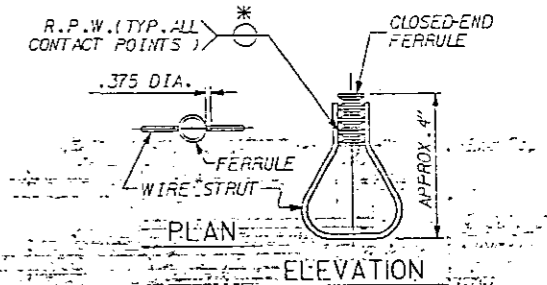
- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF ASTM A108, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
- 3/4" x 1/2" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" x 1/2" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI.



BLOCKOUT FOR RUBRAIL
(End Bent 2 only)

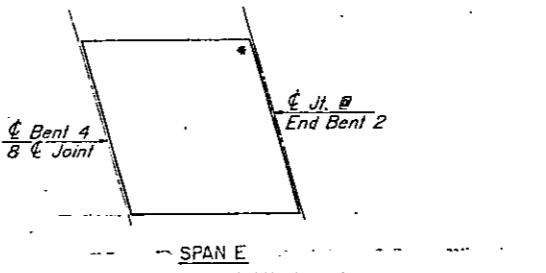
BILL OF MATERIAL FOR ONE END POST

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
F1	#6	Slr	2'-10"	4
F2	#6	Slr	3'-6"	11
F3	#6	Slr	3'-9"	6
F4	#6	Slr	3'-1"	5
F5	#6	Slr	3'-9"	11
F6	#6	Slr	4'-0"	6
Epoxy Coated Reinforcing Steel lbs.				43
Class "AA" Concrete				Cu. Yds. 0.5



STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.



SKETCH SHOWING LOCATION OF GUARDRAIL ATTACHMENTS AND RUBRAIL ATTACHMENTS, IF REQUIRED

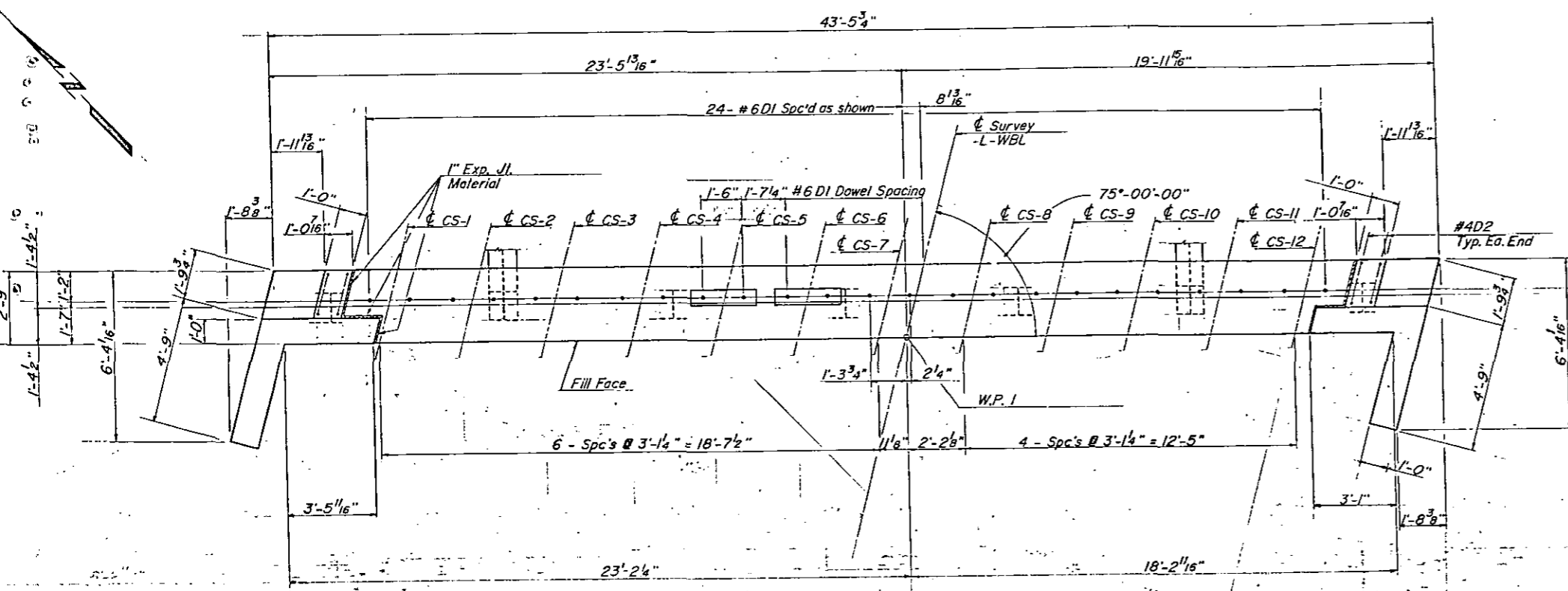
PROJECT NO. 81970202(U-621)
MACON COUNTY
STATION: 33+38.00 -L- WBL
SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RAILROAD
STANDARD RAIL POST SPACINGS AND END OF RAIL DETAILS FOR ONE & THREE BAR METAL RAILS
FEBRUARY 1988

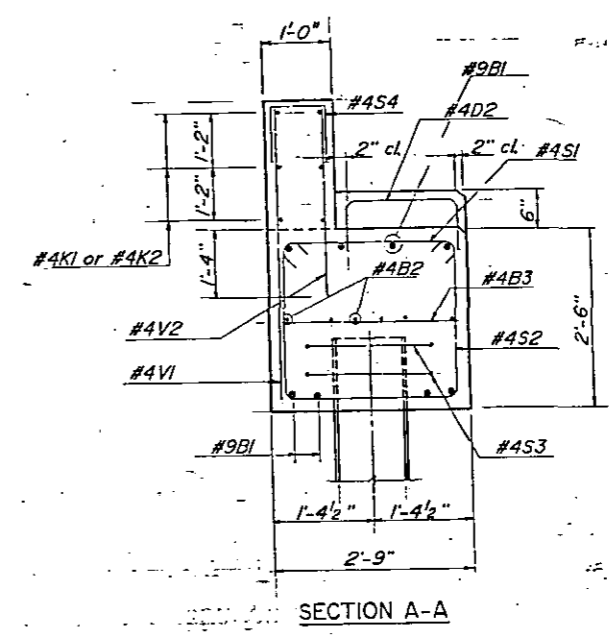
REVISIONS			SHEET NO.		
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

TOTAL SHEETS: 4

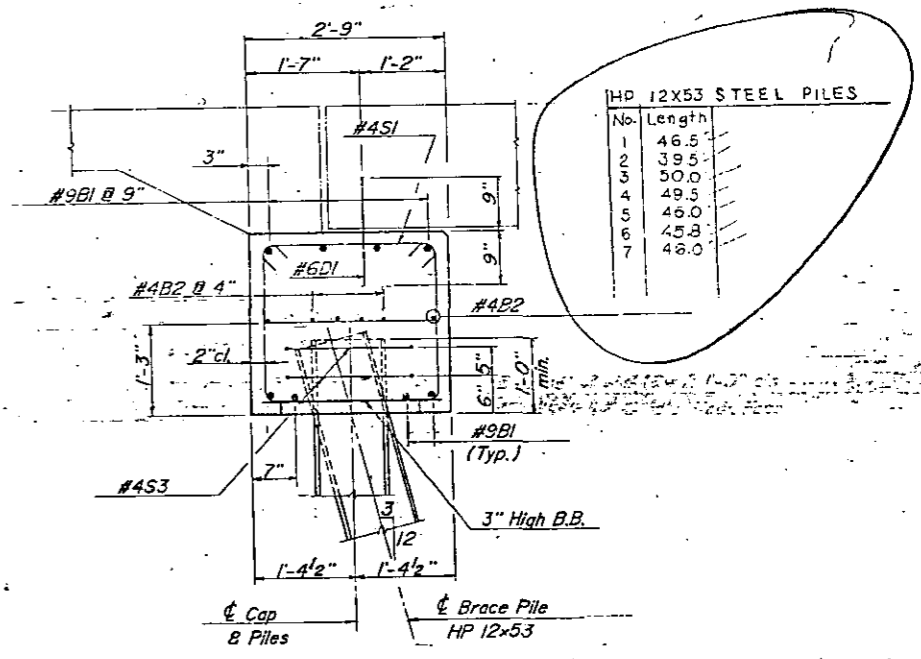
ASSEMBLED BY: J. Boyne DATE: 10-26-88 SPECIAL
CHECKED BY: B. Moulds DATE: 12-9-88
DRAWN BY: MIKE BRITT DATE: JAN. 1988 STANDARD
CHECKED BY: G.C. HARPER DATE: JAN. 1988



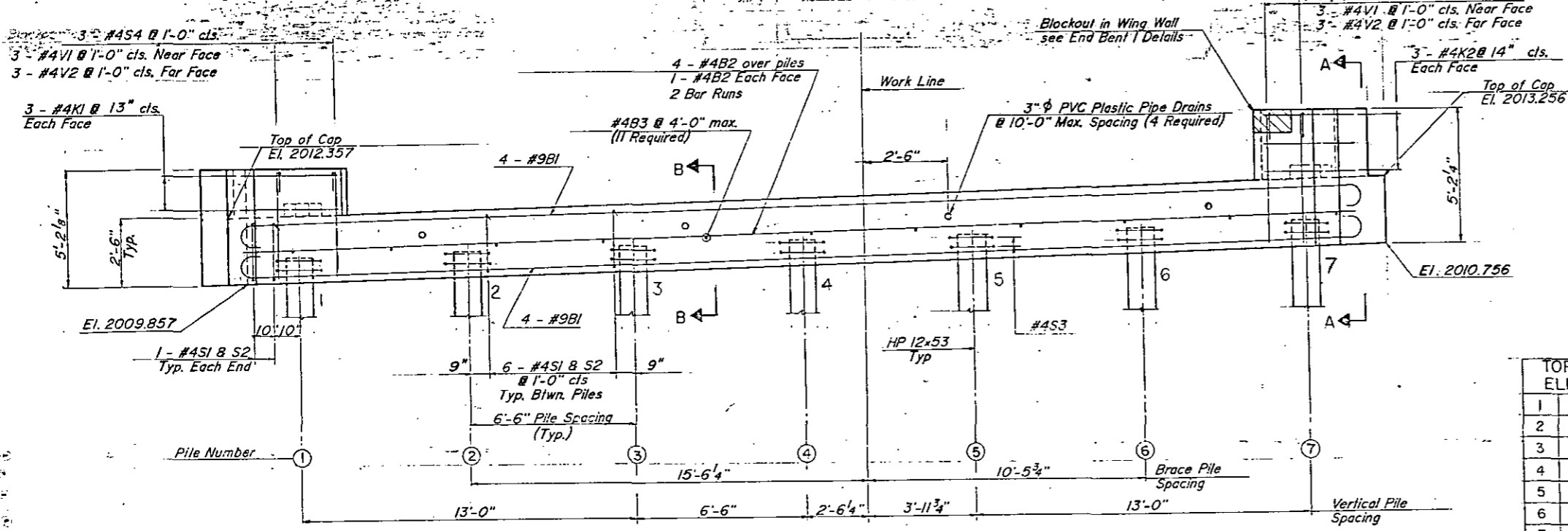
PLAN



SECTION A-A



SECTION B-B



ELEVATION

- NOTES:
1. Pipe Drains may be shifted slightly as necessary to clear reinforcing steel.
 2. For Pile Splice Detail See Dwg. No. 16
 3. For Temporary Drainage, See Dwg. No. 16
 4. For Pipe Drain Details, See Dwg. No. 24
 5. For Blockout Details, See Dwg. No. 16

TOP OF PILE ELEVATIONS	
1	2010.904
2	2011.038
3	2011.172
4	2011.307
5	2011.441
6	2011.576
7	2011.709

PROJECT No. 81970202 (U-621)
 MACON COUNTY
 STATION: 33+38.00 -L- WBL

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

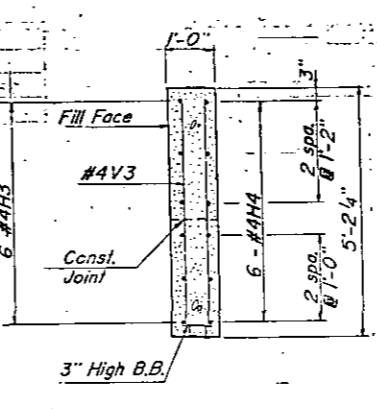
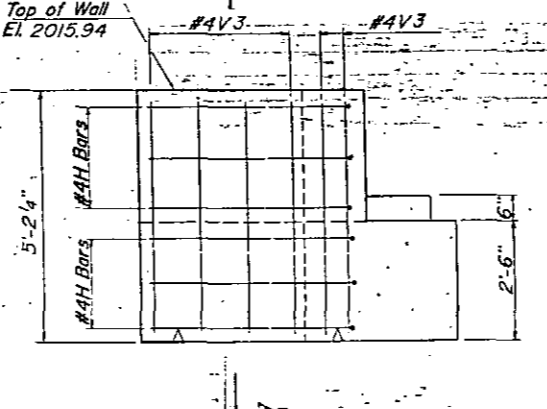
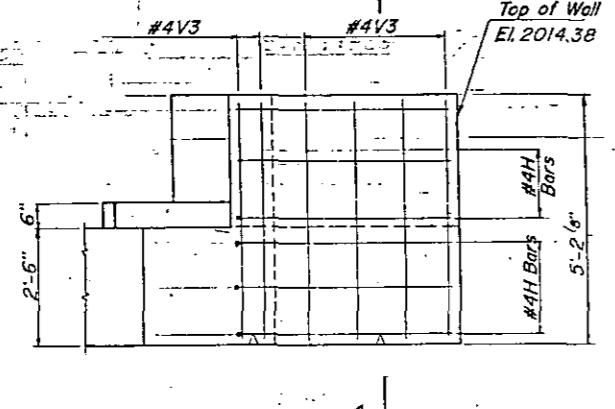
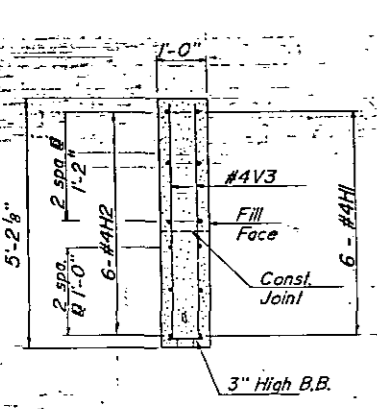
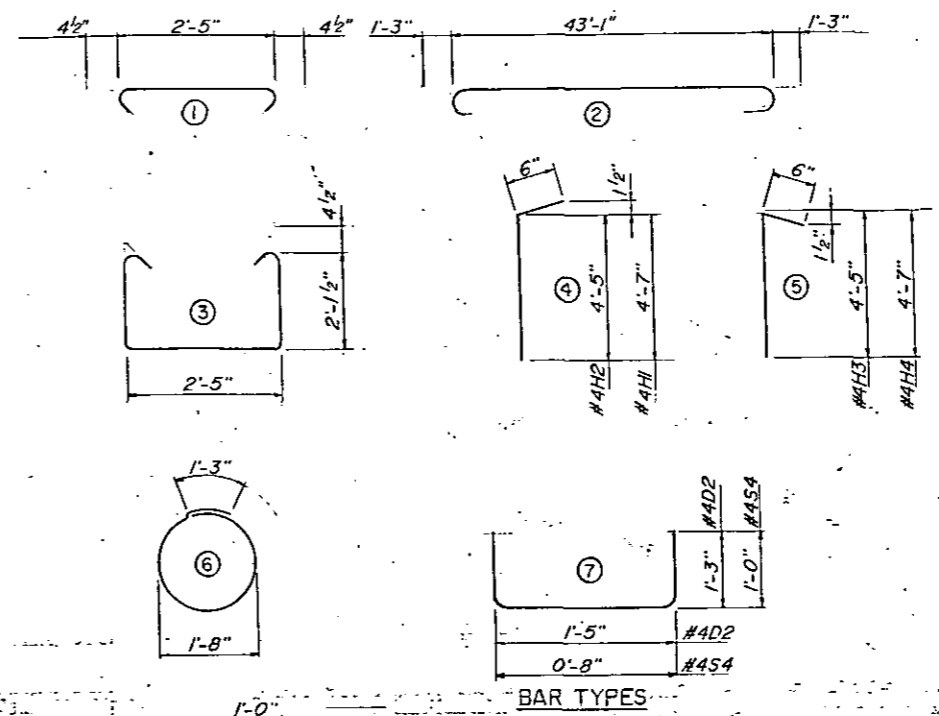
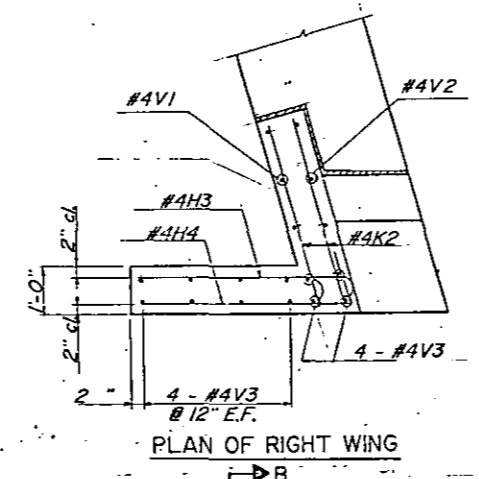
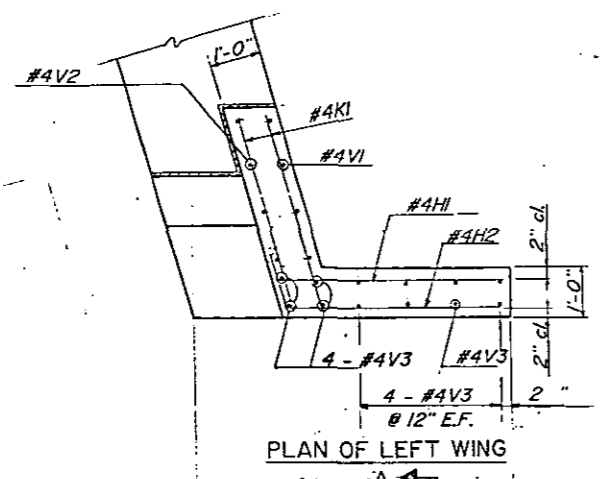
SUBSTRUCTURE
 END BENT I

JANUARY 1989

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

SHEET NO. 80515
 TOTAL SHEETS 26



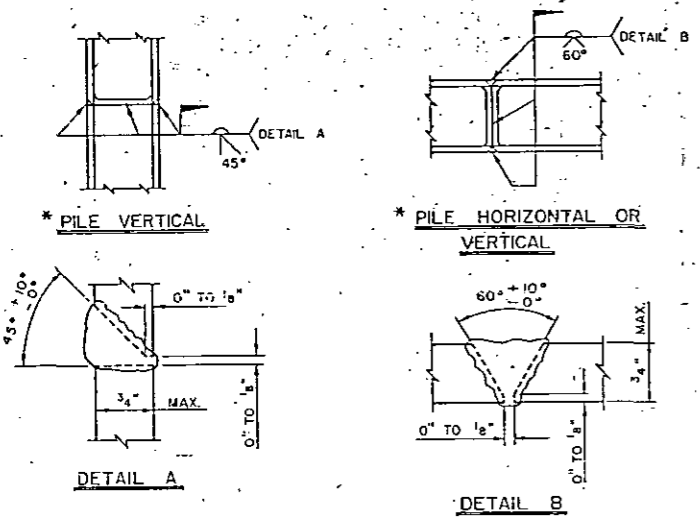


SECTION A-A

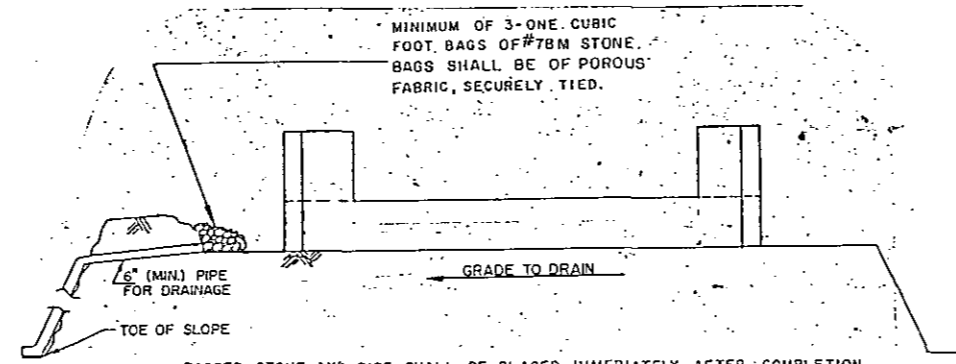
ELEVATION OF LEFT WING

ELEVATION OF RIGHT WING

SECTION B-B



PILE SPLICE DETAILS



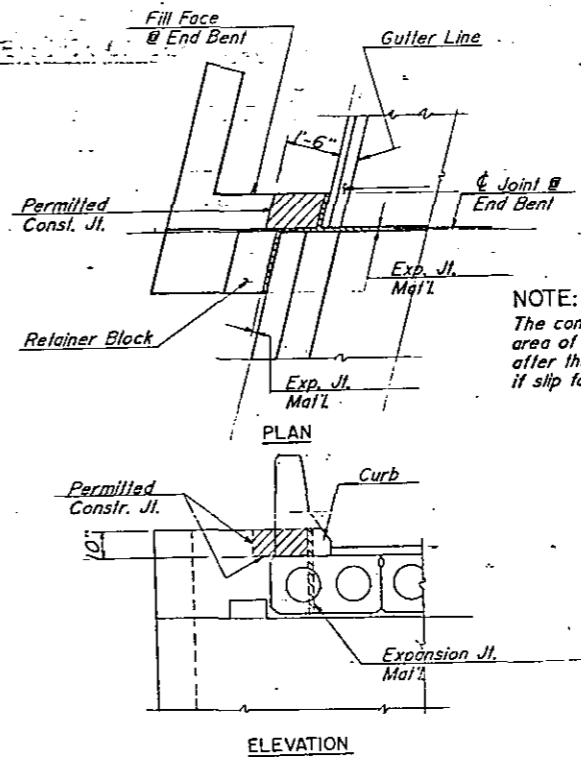
MINIMUM OF 3-ONE CUBIC FOOT BAGS OF #7BM STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



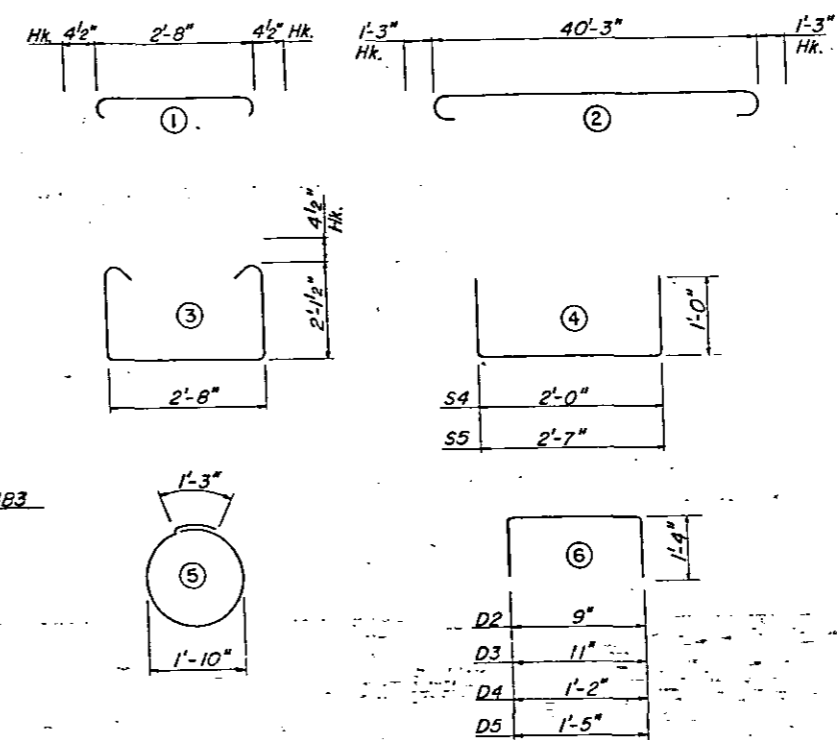
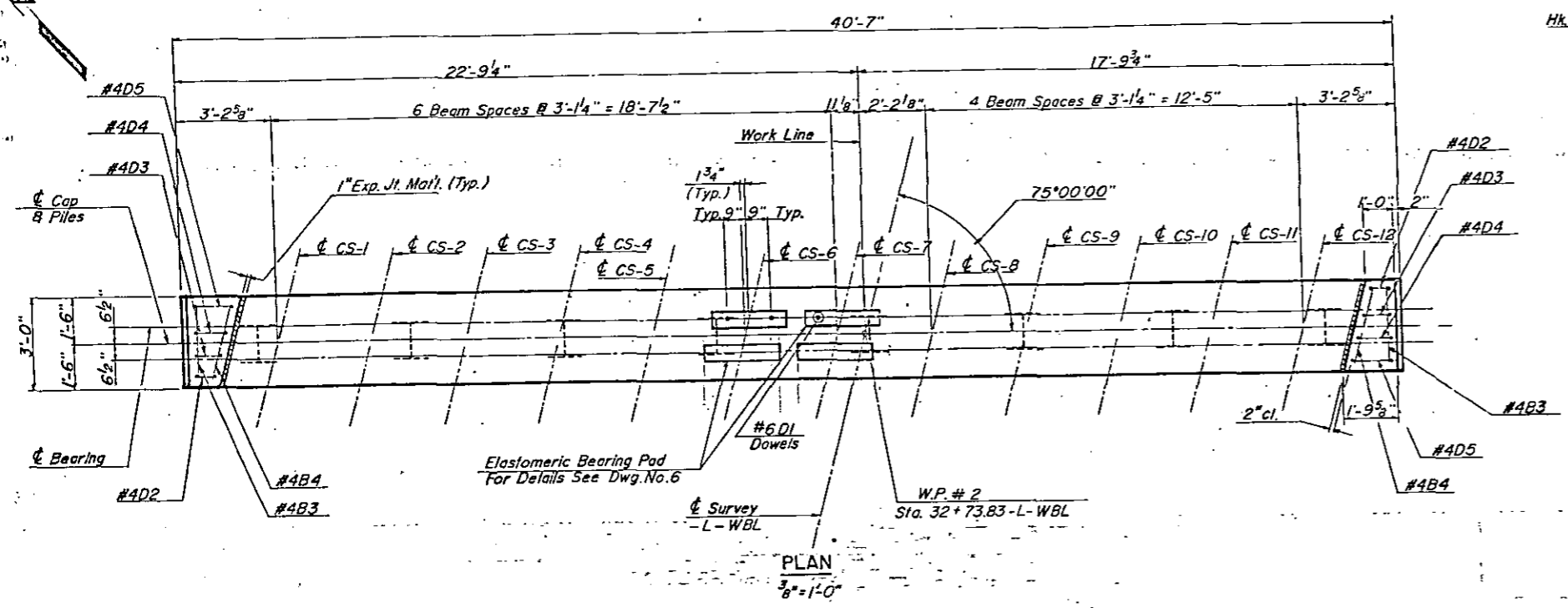
BLOCKOUT IN WING WALL

NOTE:
The concrete in the shaded area of the wing shall be poured after the barrier rail is cast if slip forming is used.

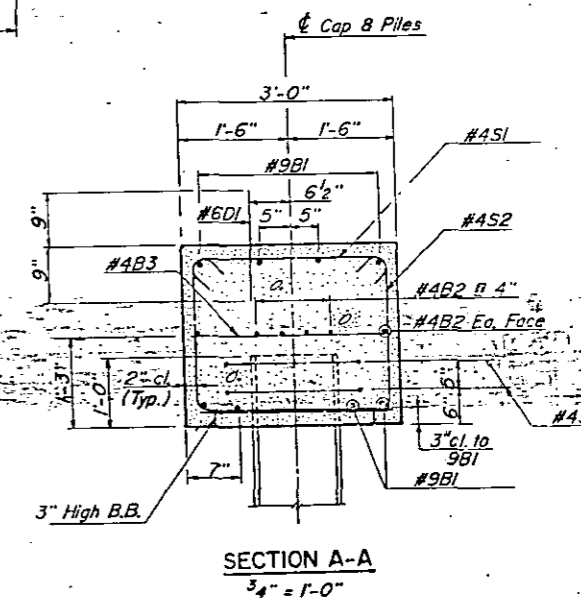
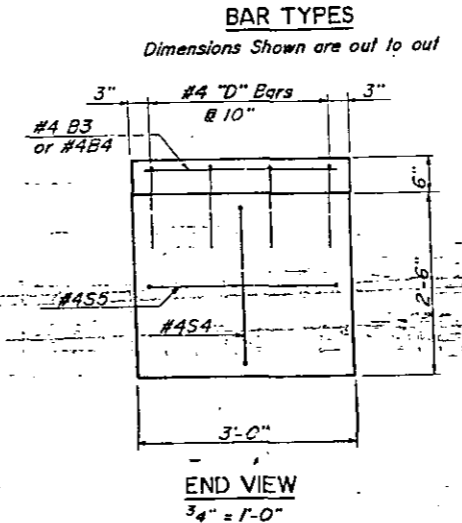
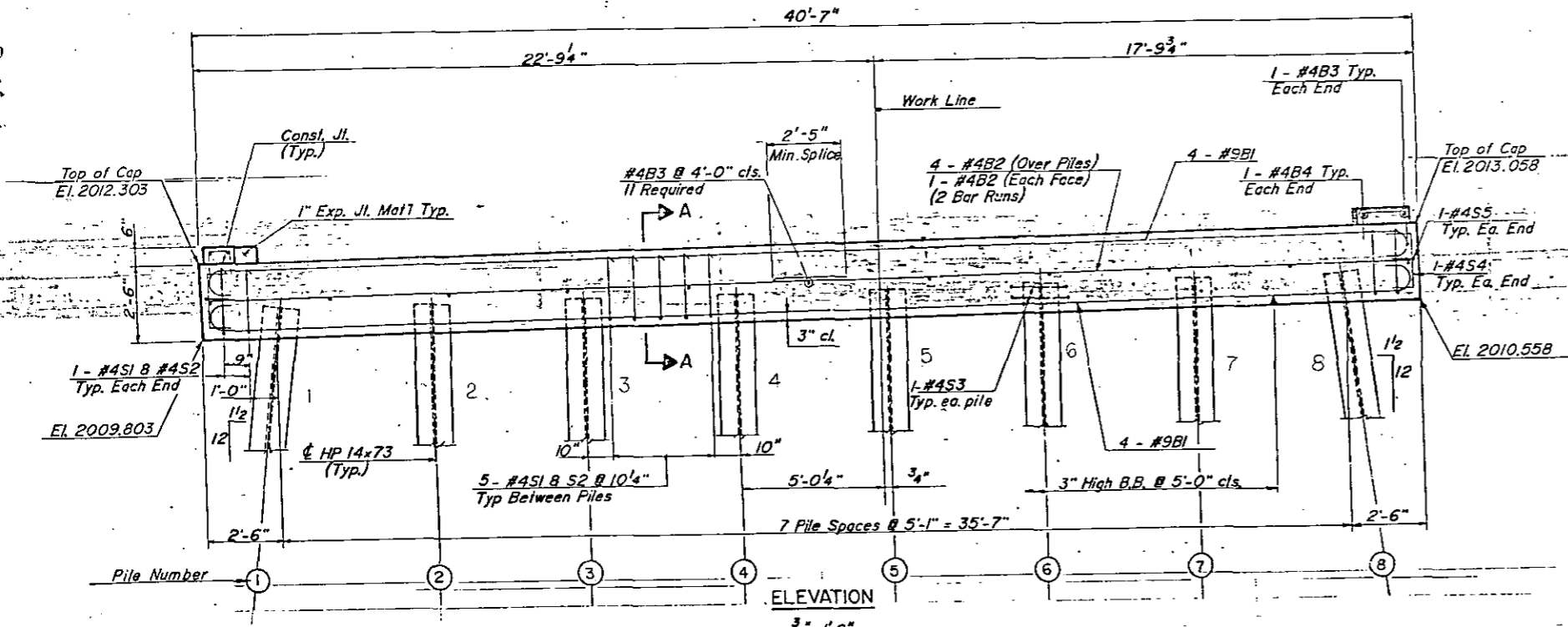
BILL OF MATERIAL						
END BENT I						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	8	#9	2	45'-7"	11240	
B2	12	#4	Slr.	22'-6"	180	
B3	11	#4	Slr.	2'-5"	18	
D1	24	#6	Slr.	1'-6"	54	
D2	4	#4	7	3'-11"	10	
H1	6	#4	4	5'-1"	20	
H2	6	#4	4	4'-11"	20	
H3	6	#4	5	4'-11"	20	
H4	6	#4	5	5'-1"	20	
K1	6	#4	Slr.	4'-2"	17	
K2	6	#4	Slr.	3'-9"	15	
S1	40	#4	1	3'-2"	85	
S2	40	#4	3	7'-5"	198	
S3	14	#4	6	6'-6"	61	
S4	6	#4	7	2'-8"	11	
V1	6	#4	Slr.	4'-9"	19	
V2	6	#4	Slr.	3'-9"	17	
V3	24	#4	Slr.	4'-10"	77	
VOID						
Reinforcing Steel					Lbs.	2082
Class 'A' Concrete					Cu. Yds.	13.6
HP 12x53 Piles					No.	7
					Lin. Ft.	259

PROJECT No. 81970202 (U-62)
MACON COUNTY
STATION: 33+38.00 -L- WBL

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT I DETAILS					
JANUARY 1989					
REVISIONS			SHEET NO.		
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					TOTAL SHEETS
					23



BILL OF MATERIAL					
BENT I					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	2	42'-9"	1163
B2	12	#4	Str.	21'-4"	171
B3	13	#4	Str.	2'-8"	23
B4	2	#4	Str.	2'-9"	4
D1	24	#6	Str.	1'-6"	54
D2	2	#4	6	3'-5"	5
D3	2	#4	6	3'-7"	5
D4	2	#4	6	3'-10"	5
D5	2	#4	6	4'-1"	5
S1	39	#4	1	3'-5"	89
S2	39	#4	3	7'-8"	200
S3	16	#4	5	7'-0"	75
S4	2	#4	4	4'-0"	5
S5	2	#4	4	4'-7"	6
VOID					
Reinforcing Steel				Lbs.	1810
Class "A" Concrete				Cu. Yds.	11.4
HP 14x73 Steel Piles				No. 8	Lin. Ft.
					376



TOP OF PILE ELEVATIONS	
1	2010.850
2	2010.944
3	2011.039
4	2011.133
5	2011.228
6	2011.322
7	2011.417
8	2011.512

- NOTES:
- HP 14x73 Steel Piles to be painted in accordance with special provision for painting steel piles.
 - For Pile Splice Details, see End Bent I Details, Dwg. No. 16

HP 14X73 STEEL PILES	
No.	Length
1	48.1
2	50.1
3	49.9
4	48.0
5	48.5
6	49.6
7	49.1
8	48.5

PROJECT No. 81970202(U-621)
 MACON COUNTY
 STATION: 33+38.00 -L- WBL

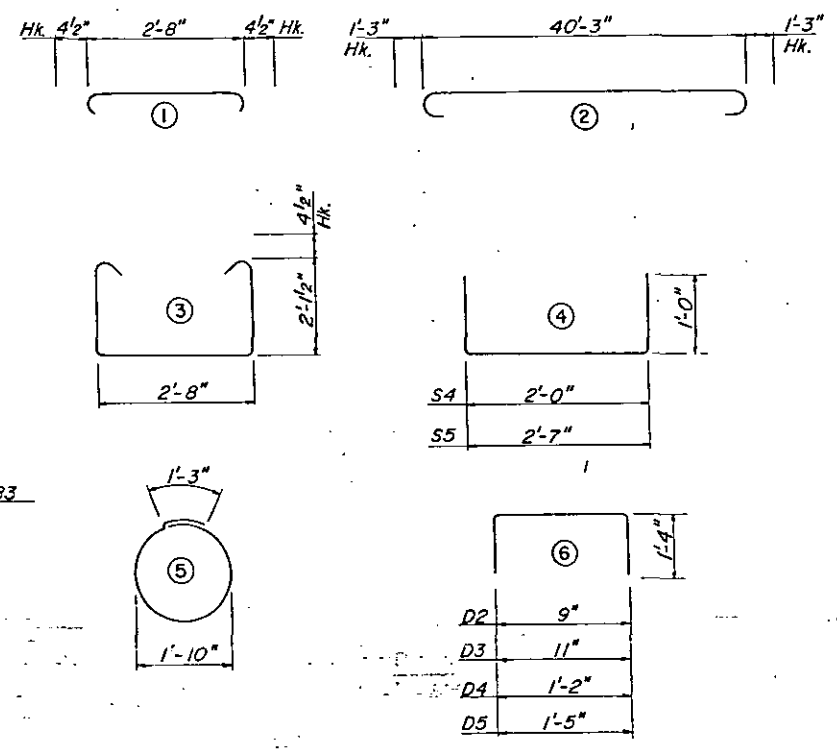
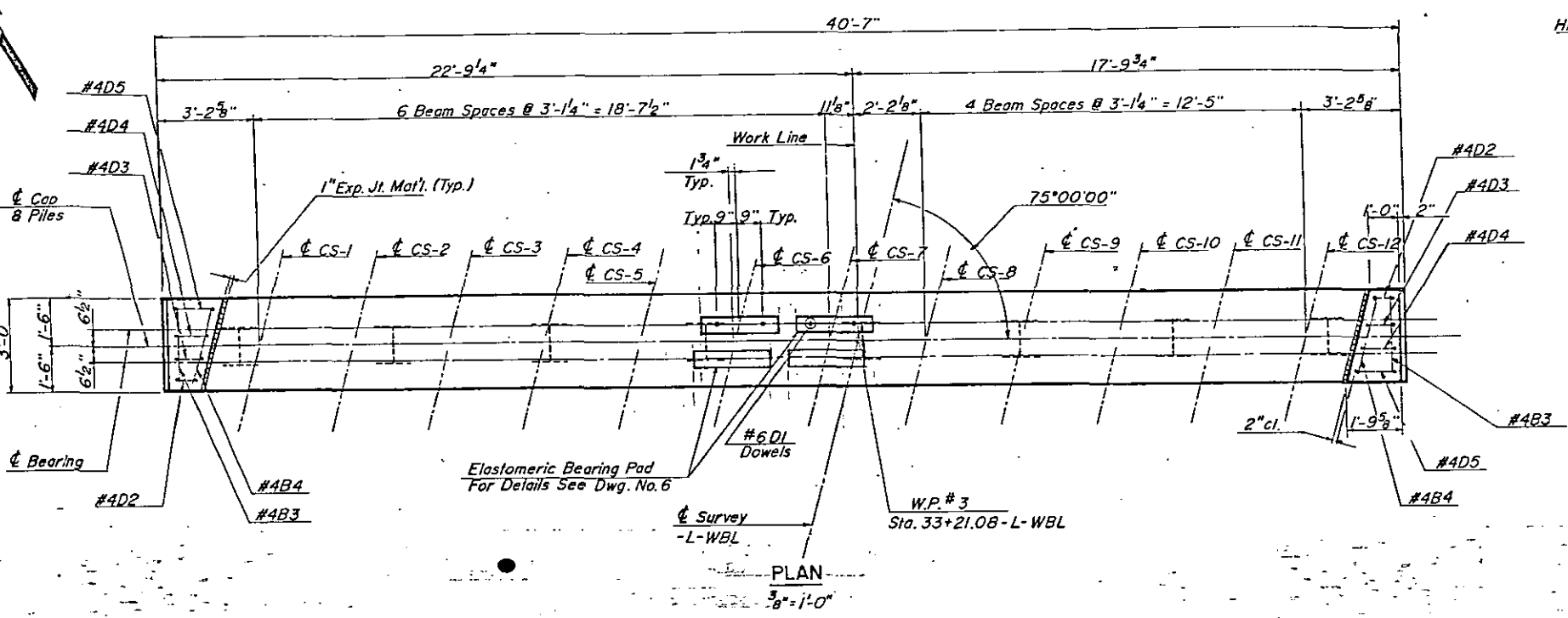
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT I					
REVISIONS					1989
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

JANUARY 1989
 SHEET NO. 17
 TOTAL SHEETS 26

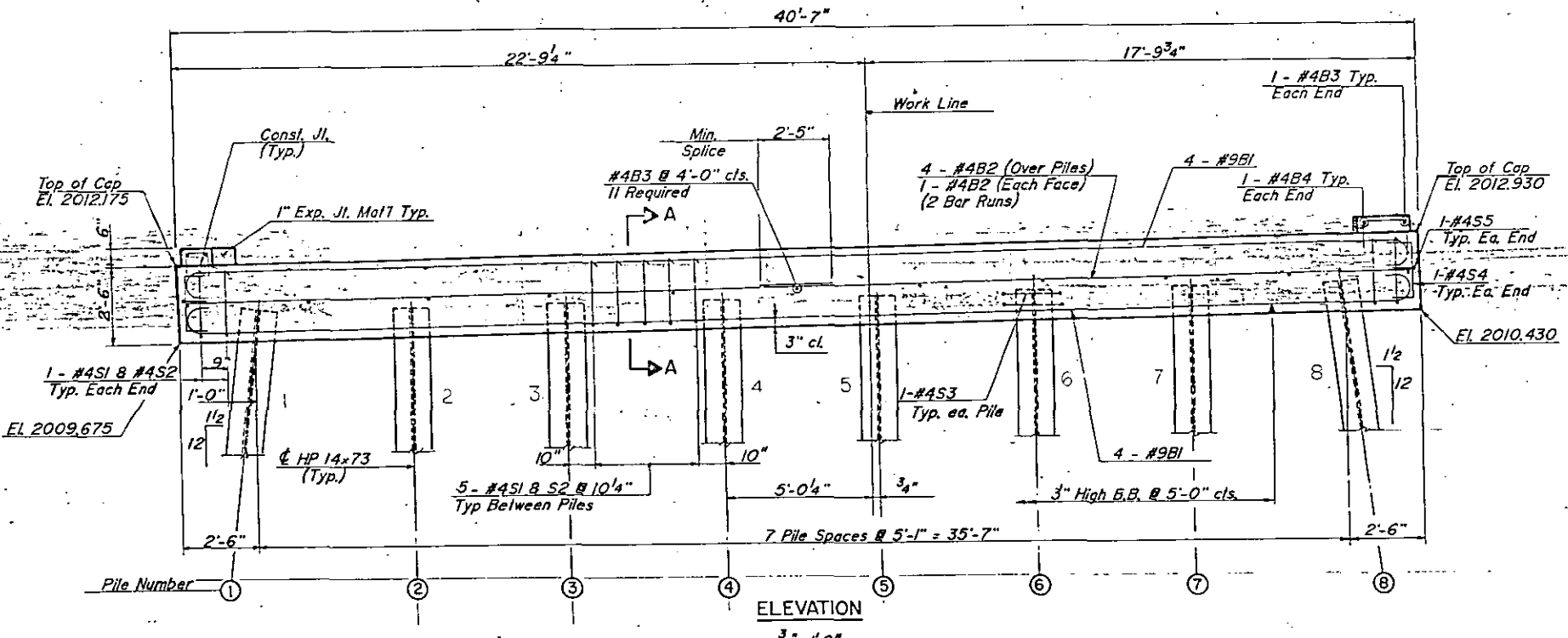
DRAWN BY: J. Bayne DATE: 11-14-88
 CHECKED BY: B. Moulds DATE: 12-10-88

HNTE

Dwg. No. 17



BILL OF MATERIAL					
BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	2	42'-9"	1163
B2	12	#4	Str.	21'-4"	171
B3	13	#4	Str.	2'-8"	23
B4	2	#4	Str.	2'-9"	4
D1	24	#6	Str.	1'-6"	54
D2	2	#4	6	3'-5"	5
D3	2	#4	6	3'-7"	5
D4	2	#4	6	3'-10"	5
D5	2	#4	6	4'-1"	5
S1	39	#4	1	3'-5"	89
S2	39	#4	3	7'-8"	200
S3	16	#4	5	7'-0"	75
S4	2	#4	4	4'-0"	5
S5	2	#4	4	4'-7"	6
VOID					
Reinforcing Steel				Lbs.	1810
Class "A" Concrete				Cu. Yds.	11.4
HP 14x73 Steel Piles				No. 8 Lin. Ft.	376



TOP OF PILE ELEVATIONS	
1	2010.722
2	2010.816
3	2010.911
4	2011.005
5	2011.100
6	2011.194
7	2011.289
8	2011.384

- NOTES:
- HP 14x73 Steel Piles to be painted in accordance with special provision for painting steel piles.
 - For Pile Splice Details, see End Bent 1 Details, Dwg. No. 16.
 - For pile bracing, see Dwg. No. 19.

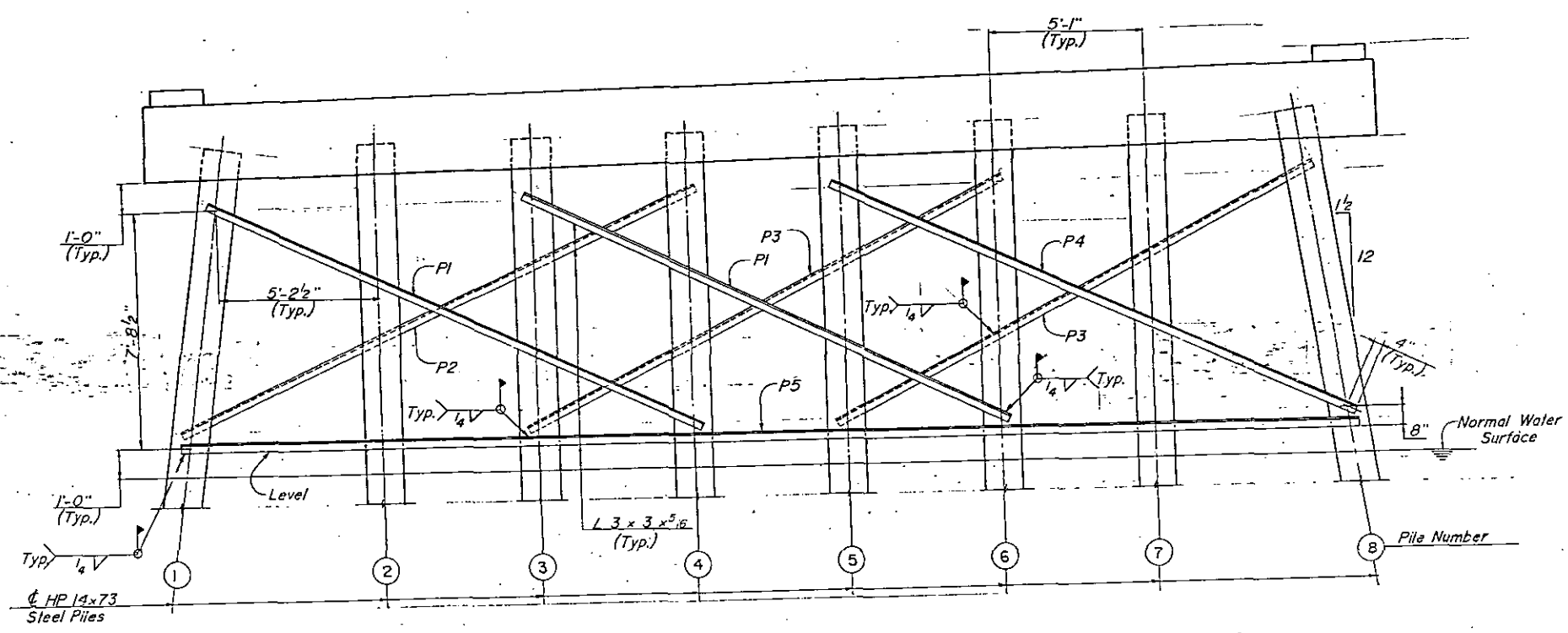
HP 14x73 STEEL PILES	
No.	Length
1	54.8
2	50.5
3	51.8
4	51.4
5	52.6
6	52.5
7	53.3
8	55.2

PROJECT No. 81970202(U-621)
 MACON COUNTY
 STATION: 33+38.00 -L- WBL

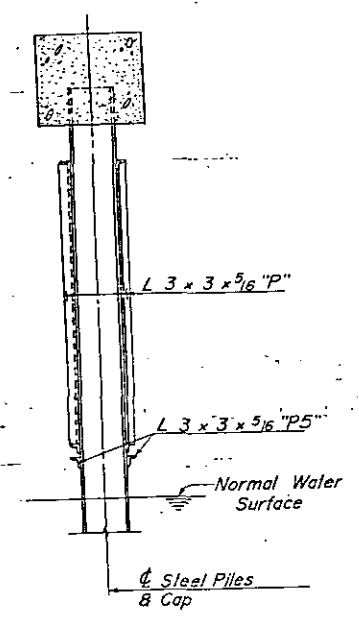
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 2					
JANUARY 1989					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. 25
TOTAL SHEETS 25

BILL OF MATERIAL OF SWAY BRACES		
BENT 2		
MARK	NUMBER	LENGTH
P1	2	17'-6"
P2	2	18'-6"
P3	2	17'-9"
P4	1	18'-9"
P5	2	38'-6"
VOID		
Total Structural Steel		Approx. Lbs. 1127



ELEVATION OF SWAY BRACING
3/8" = 1'-0"



SECTION THRU BENT CAP
3/8" = 1'-0"

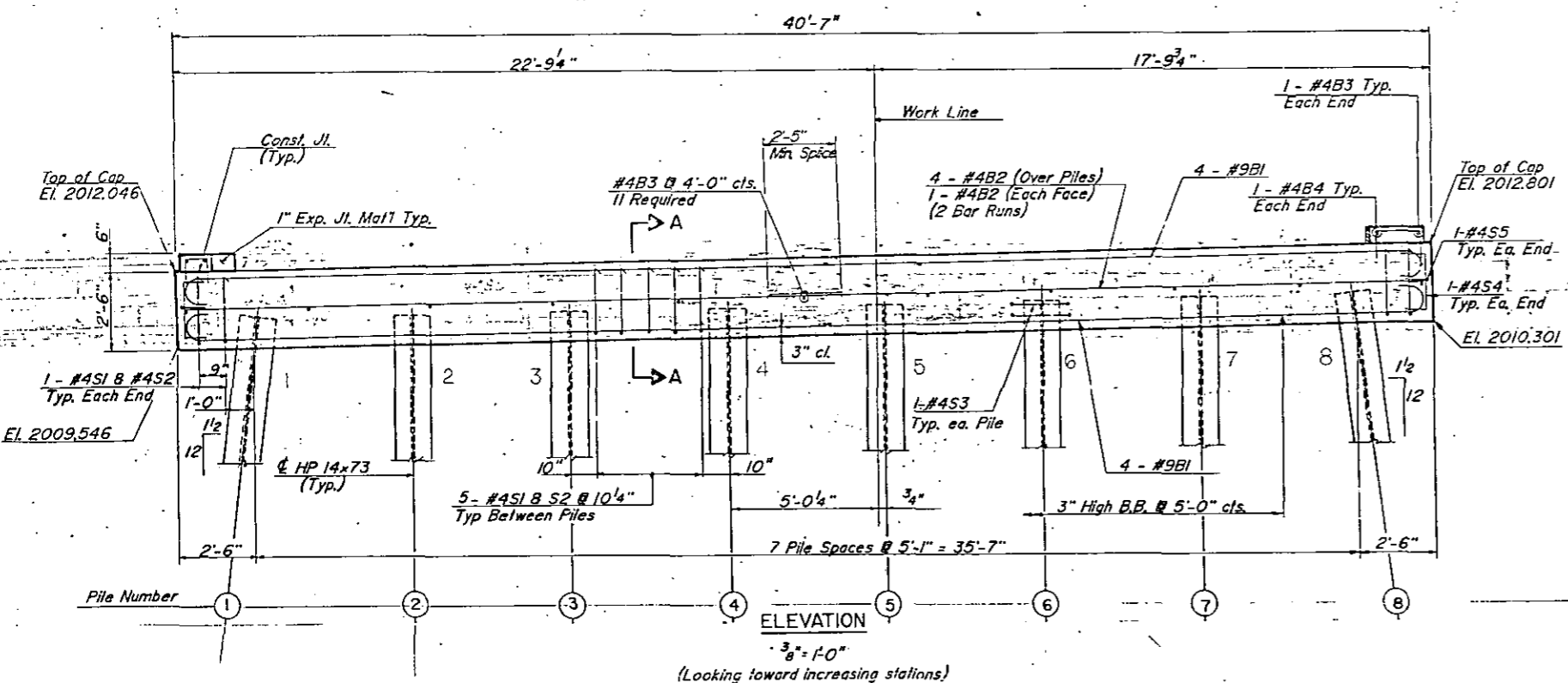
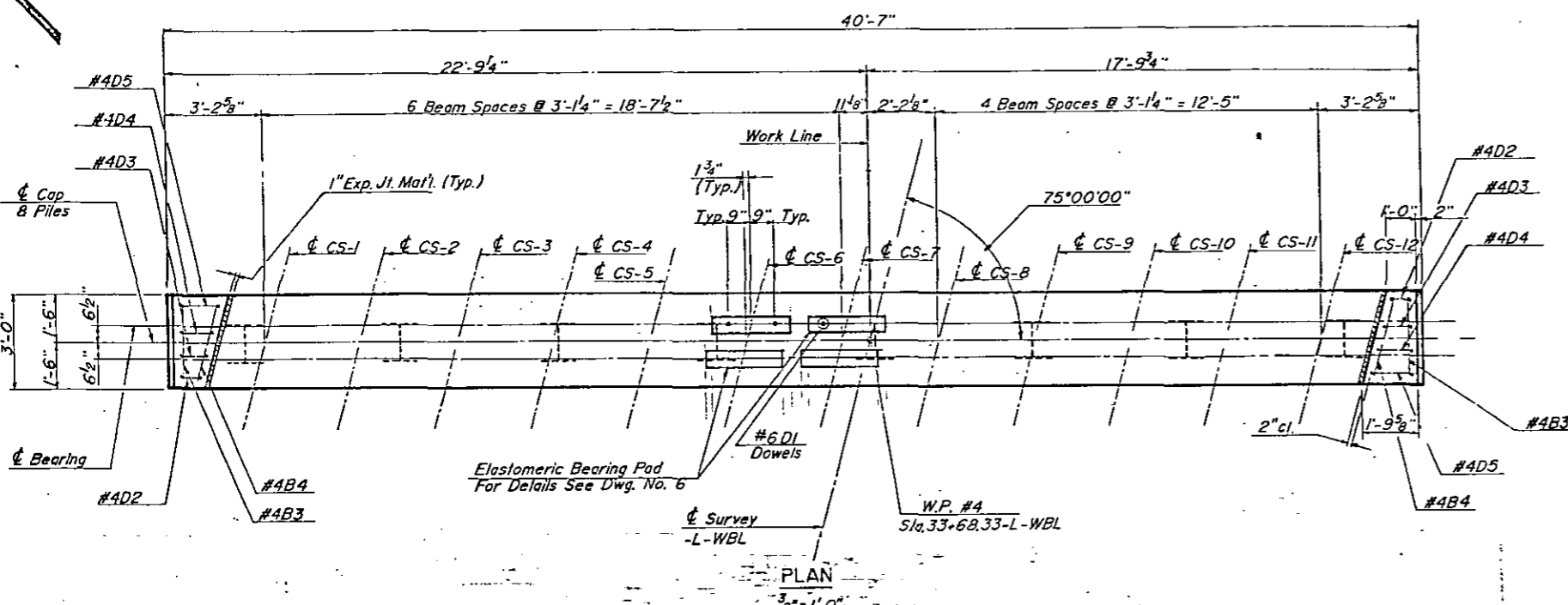
NOTE:
All steel angle braces used as pile bracing shall be ASTM-36. Except for painting, the entire payment for furnishing and installing the length of bracing required shall be at the lump sum bid for structural steel. For painting of steel angle braces see special provisions "Painting Steel Piles".

PROJECT No. 81970202(U-621)
MACON COUNTY
STATION: 33+38.00 -L- WBL

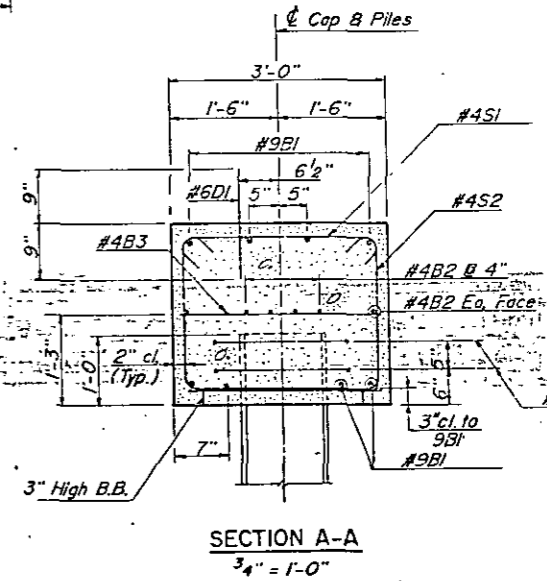
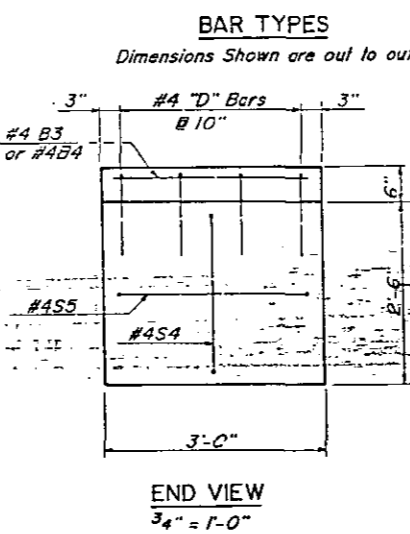
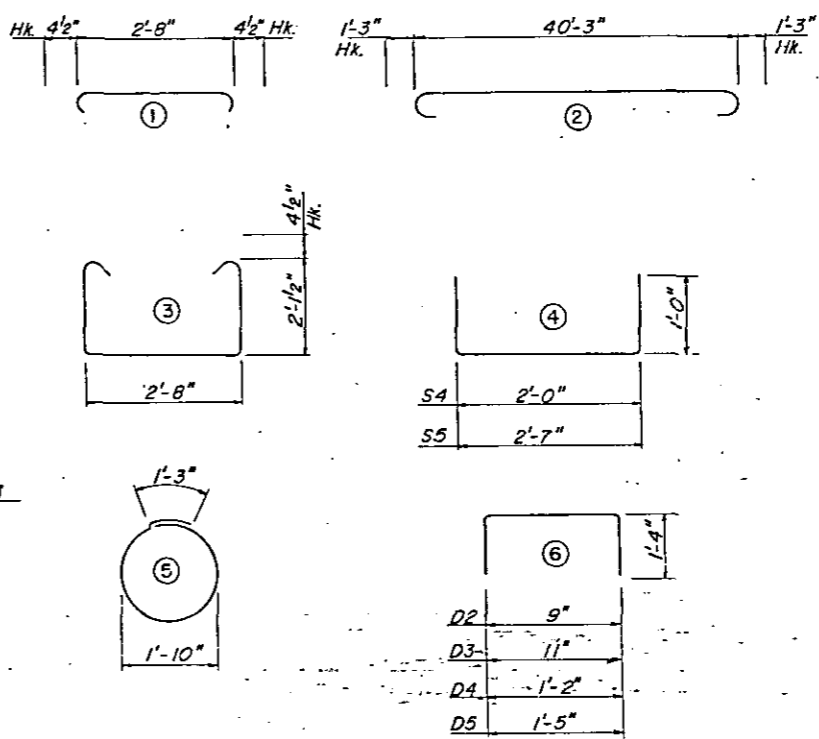
STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
SUBSTRUCTURE					
BENT 2 DETAILS					
JANUARY					1989
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
SHEET NO. 5-17					TOTAL SHEETS 23

DRAWN BY: S. Perez, Jr. DATE: 1-11-89
CHECKED BY: B. Moulds DATE: 1-11-89

Dwg. No. 19



TOP OF PILE ELEVATIONS	
1	2010.593
2	2010.687
3	2010.782
4	2010.876
5	2010.971
6	2011.065
7	2011.160
8	2011.255



- NOTES:**
- HP 14x73 Steel Piles to be painted in accordance with special provision for painting steel piles.
 - For Pile Splice Details, see End Bent 1 Details, Dwg. No. 16
 - For pile bracing, see Dwg. No. 21.

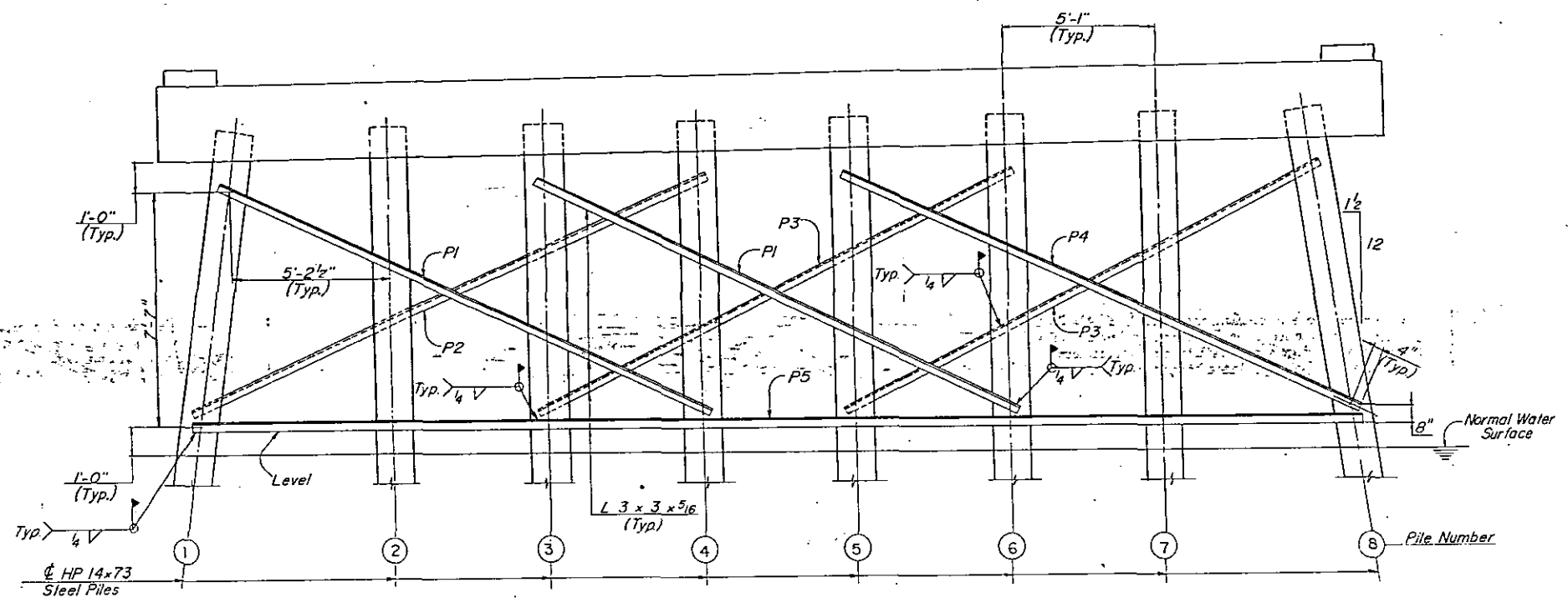
HP 14X73 STEEL PILES	
No.	Length
1	58.2
2	66.7
3	52.5
4	61.3
5	54.8
6	54.5
7	58.7
8	54.4

BILL OF MATERIAL					
BENT 3					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		42'-9"	1163
B2	12	#4	Str.	21'-4"	171
B3	13	#4	Str.	2'-8"	23
B4	2	#4	Str.	2'-9"	4
D1	24	#6	Str.	1'-6"	54
D2	2	#4	6	3'-5"	5
D3	2	#4	6	3'-7"	5
D4	2	#4	6	3'-10"	5
D5	2	#4	6	4'-1"	5
S1	39	#4	1	3'-5"	89
S2	39	#4	3	7'-8"	200
S3	16	#4	5	7'-0"	75
S4	2	#4	4	4'-0"	5
S5	2	#4	4	4'-7"	6
Reinforcing Steel				Lbs.	1810
Class "A" Concrete				Cu. Yds.	11.4
HP 14x73 Steel Piles				No. 8 Lin. Ft.	416

PROJECT NO. 81970202(U-621)
 MACON COUNTY
 STATION: 33+38.00 -L- WBL

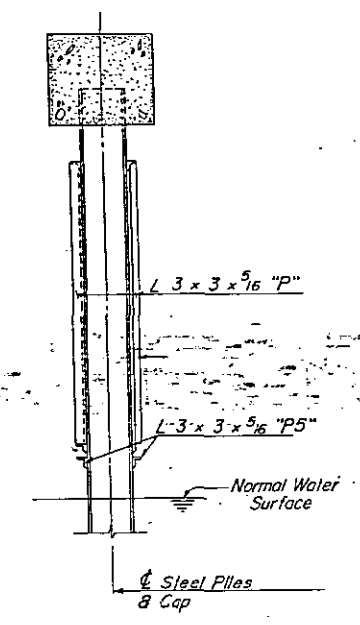
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 3					
JANUARY 1989					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

BILL OF MATERIAL OF SWAY BRACES		
BENT 3		
MARK	NUMBER	LENGTH
P1	2	17'-6"
P2	1	18'-6"
P3	2	17'-9"
P4	1	18'-9"
P5	2	38'-6"
		VOID
Total Structural Steel		Approx. Lbs. 1127



ELEVATION OF SWAY BRACING

3/8" = 1'-0"



SECTION THRU BENT CAP

3/8" = 1'-0"

NOTE:

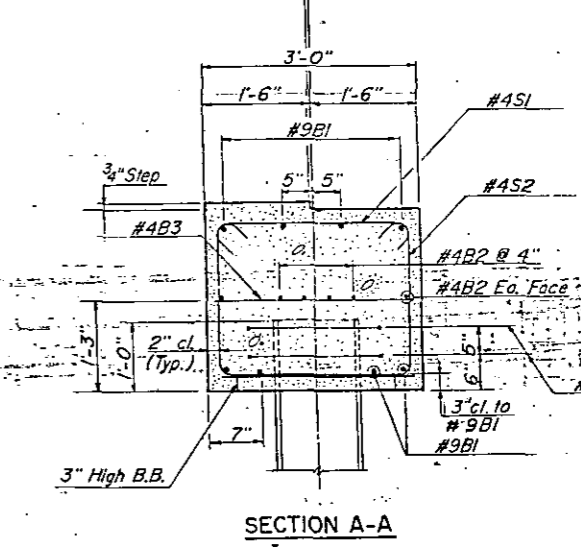
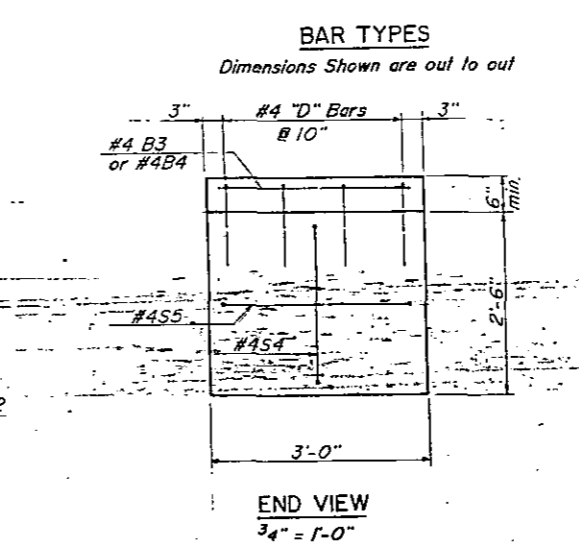
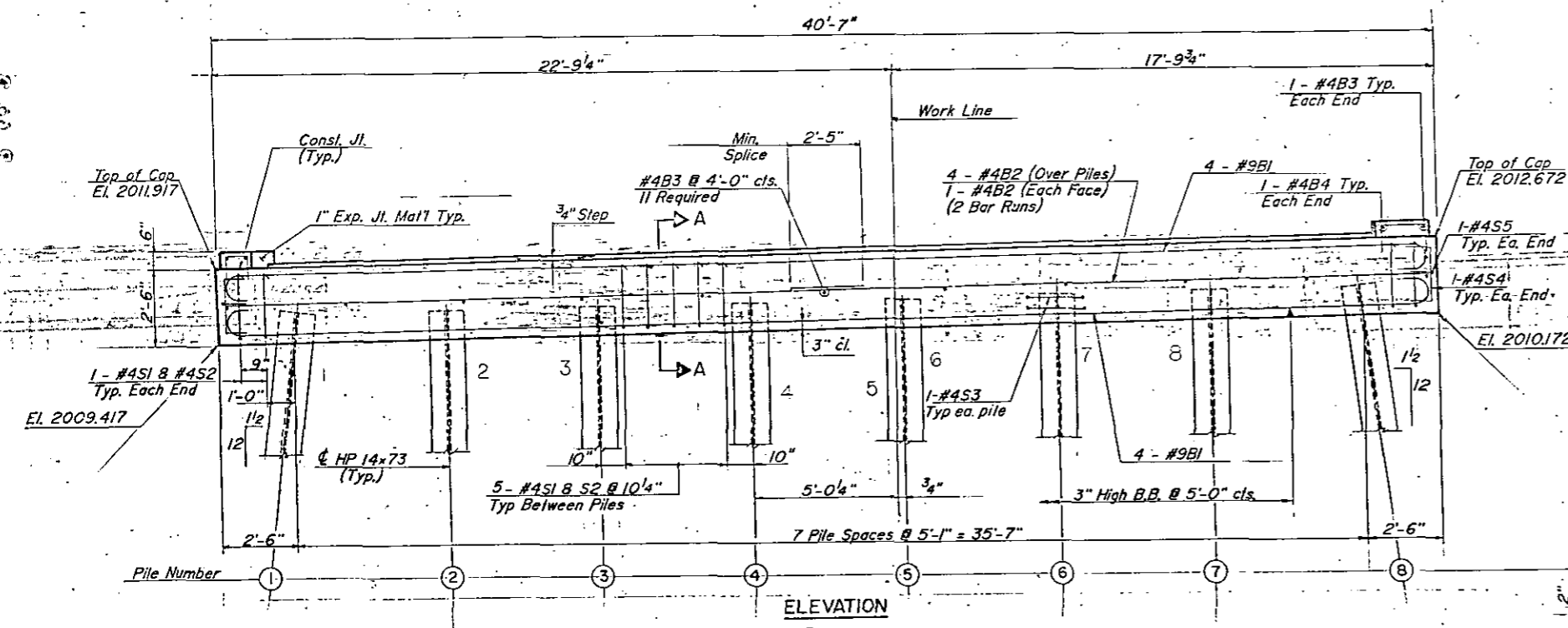
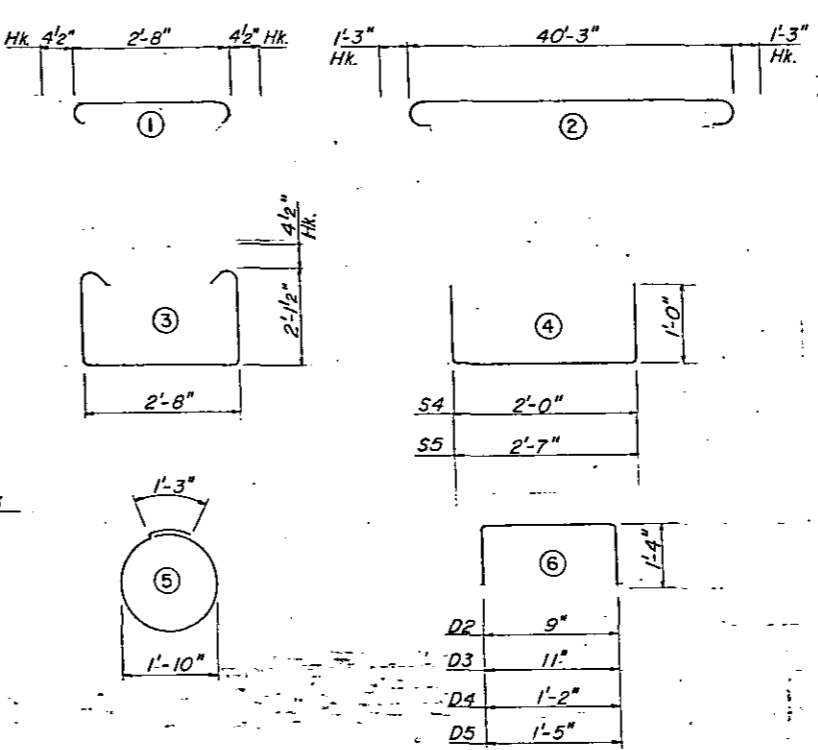
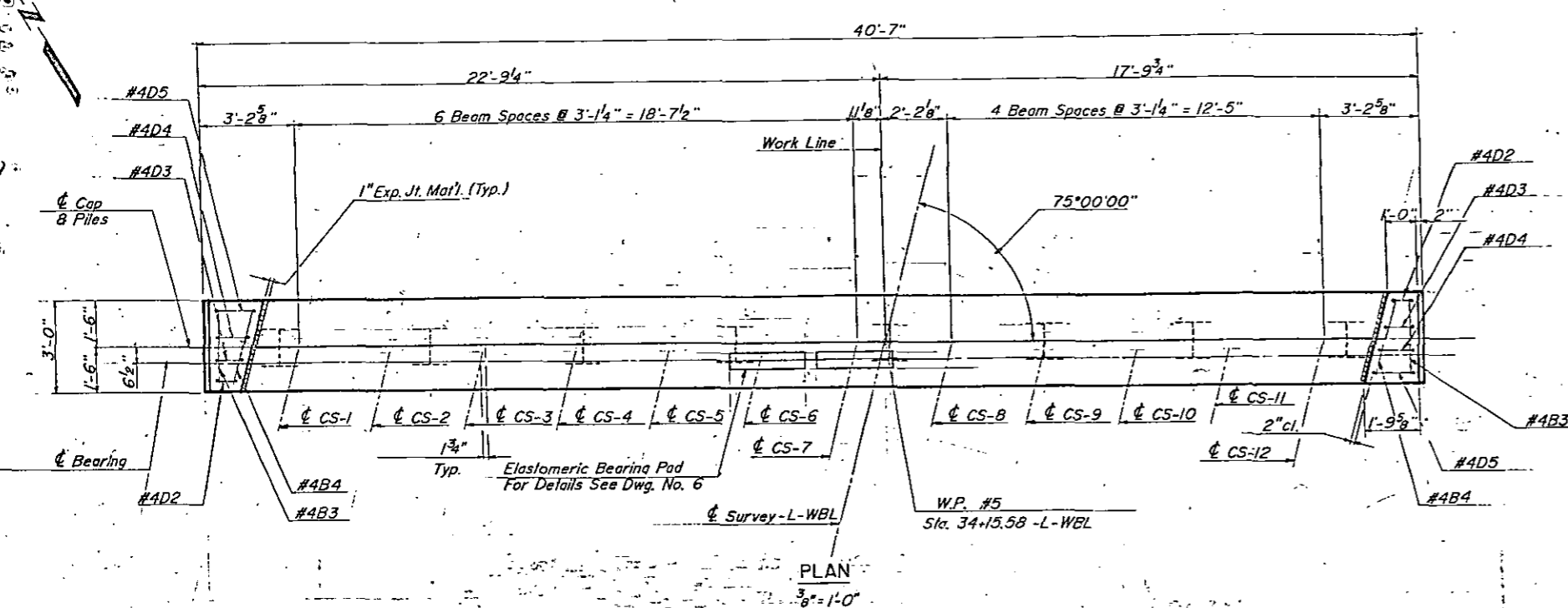
All steel angle braces used as pile bracing shall be ASTM-36. Except for painting, the entire payment for furnishing and installing the length of bracing required shall be at the lump sum bid for structural steel. For painting of steel angle braces see special provisions "Painting Steel Piles".

PROJECT No. 8.1970202 (U-621)
 MACON COUNTY
 STATION: 33+38.00 -L- WBL

STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
SUBSTRUCTURE					
BENT 3 DETAILS					
JANUARY					1989
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					SHEET NO. 56-21
					TOTAL SHEETS 28

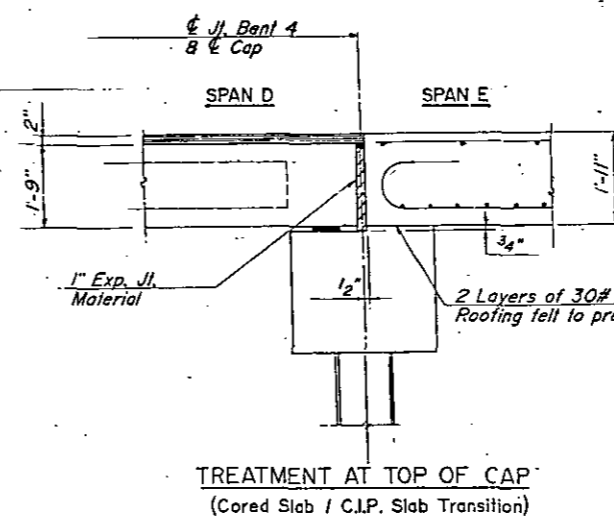
DRAWN BY: S. Perez, Jr. DATE: 1-11-89
 CHECKED BY: B. Moulds DATE: 1-11-89

BILL OF MATERIAL					
BENT 4					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	2	42'-9"	1163
B2	12	#4	Slr.	21'-4"	171
B3	13	#4	Slr.	2'-8"	23
B4	2	#4	Slr.	2'-9"	4
D2	2	#4	6	3'-5"	5
D3	2	#4	6	3'-7"	5
D4	2	#4	6	3'-10"	5
D5	2	#4	6	4'-1"	5
S1	39	#4	1	3'-5"	89
S2	39	#4	3	7'-8"	200
S3	16	#4	5	7'-0"	75
S4	2	#4	4	4'-0"	5
S5	2	#4	4	4'-7"	6
Reinforcing Steel				Lbs.	1756
Class "A" Concrete				Cu. Yds.	11.4
VOID					
HP 14x73 Steel Piles				No. 8	Lin. Ft.
					496



TOP OF PILE ELEVATIONS	
1	2010.464
2	2010.558
3	2010.653
4	2010.747
5	2010.842
6	2010.936
7	2011.031
8	2011.126

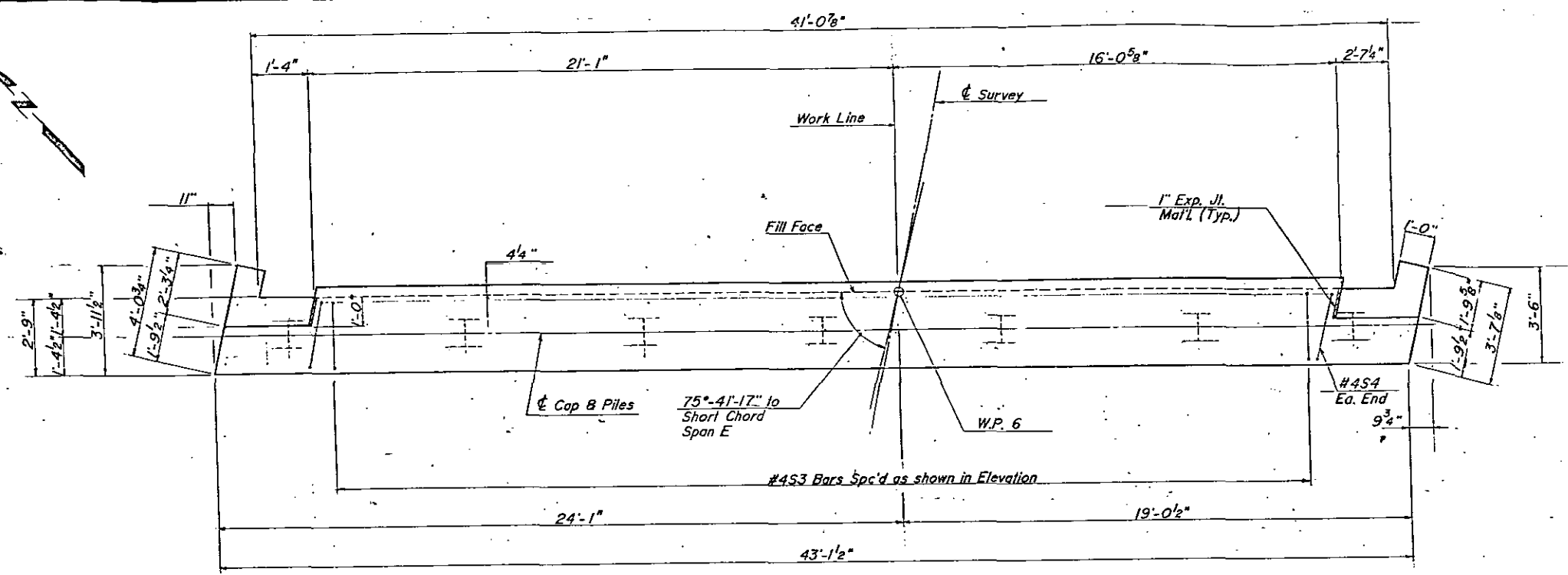
- NOTES:
- HP 14x73 Steel Piles to be painted in accordance with special provision for painting steel piles.
 - For Pile Splice Details, see End Bent 1 Details, Dwg. No. 16.



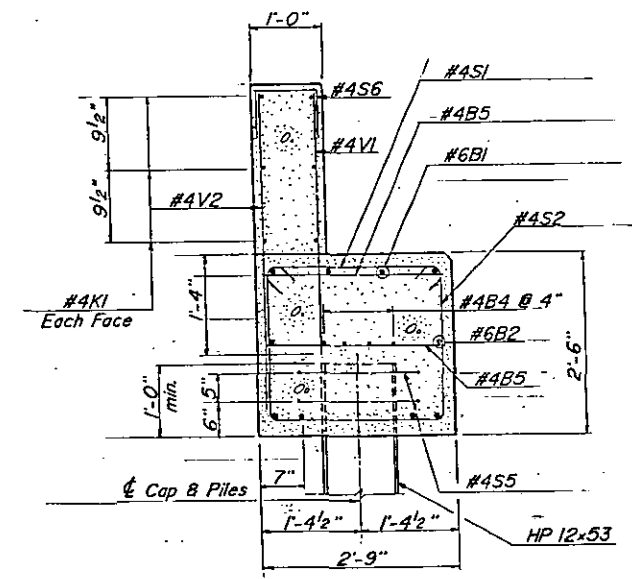
HP 14x73 STEEL PILES	
No.	Length
1	61.8
2	64.4
3	61.3
4	61.4
5	61.5
6	62.7
7	61.4
8	61.3

PROJECT NO. 81970202(U-621)
 MACON COUNTY
 STATION: 33+38.00 -L- WBL

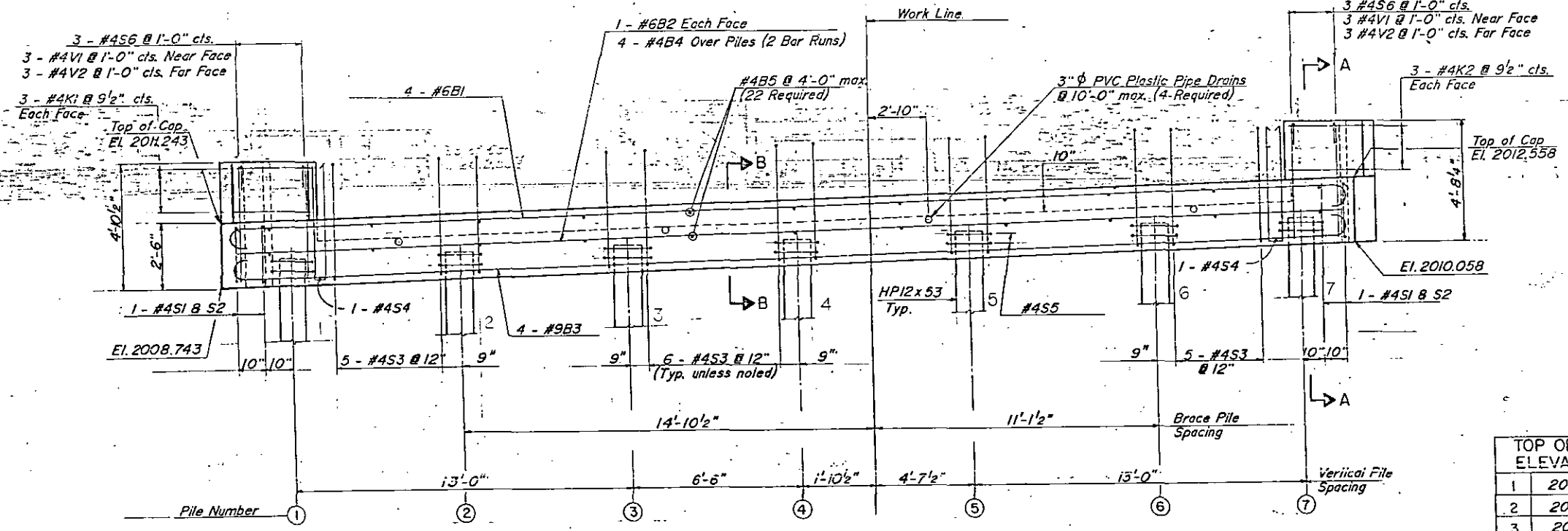
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 4					
JANUARY 1989					
REVISIONS				SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					TOTAL SHEETS
					28



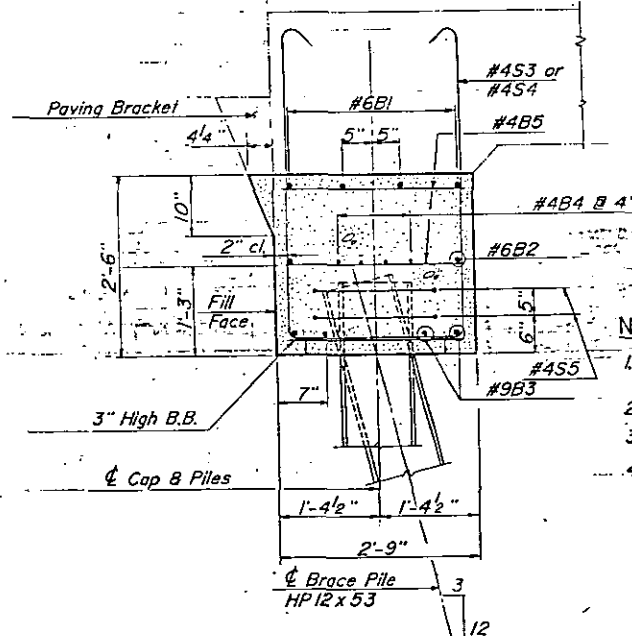
PLAN
3/8" = 1'-0"



SECTION A-A
3/4" = 1'-0"



ELEVATION
3/8" = 1'-0"
(Looking Toward Increasing Stations)



SECTION B-B
3/4" = 1'-0"

HP 12x53 STEEL PILES	
No.	Length
1	62.3
2	61.5
3	57.2
4	58.7
5	54.1
6	64.0
7	58.5

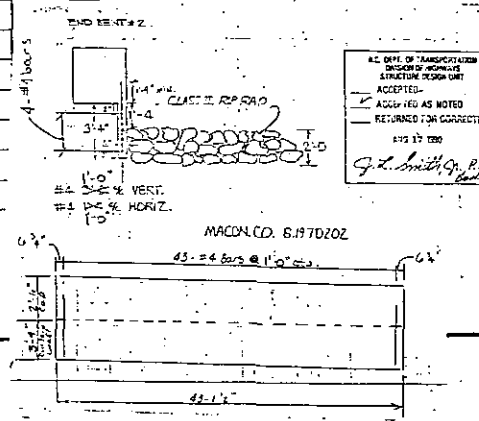
- NOTES:
1. Pipe Drains may be shifted slightly as necessary to clear reinforcing steel.
 2. For Pile Splice Detail, see Dwg. No. 16.
 3. For Temporary Drainage, see Dwg. No. 16.
 4. For Pipe Drain Details, see Dwg. No. 24.

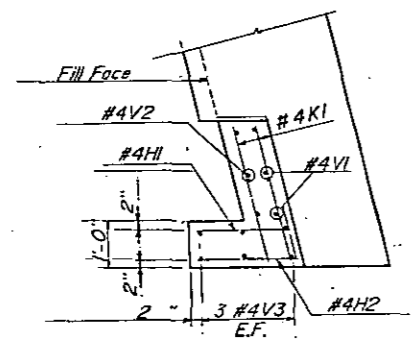
TOP OF PILE ELEVATIONS	
1	2009.826
2	2010.024
3	2010.222
4	2010.420
5	2010.619
6	2010.817
7	2011.015

PROJECT No. 8.1970202(U-621)
 MACON COUNTY
 STATION: 33+38.00 -L- WBL

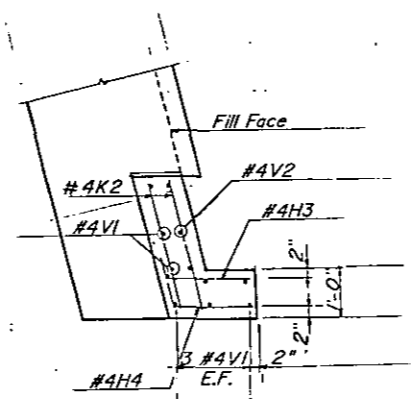
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2

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

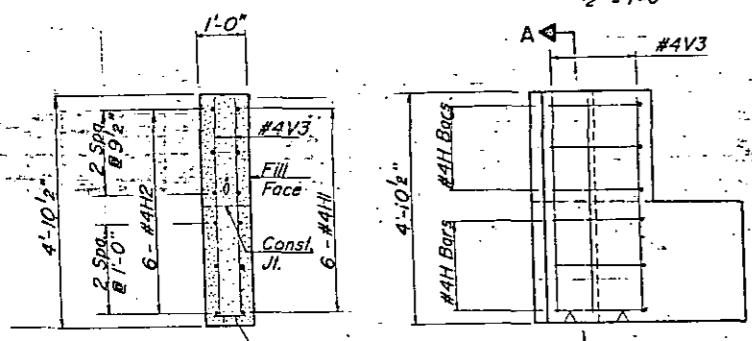




PLAN OF LEFT WING
1/2" = 1'-0"

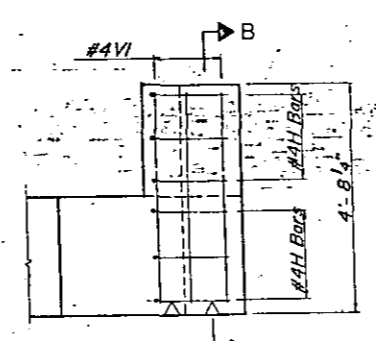


PLAN OF RIGHT WING
1/2" = 1'-0"

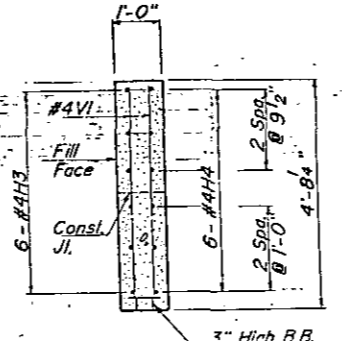


SECTION A-A
1/2" = 1'-0"

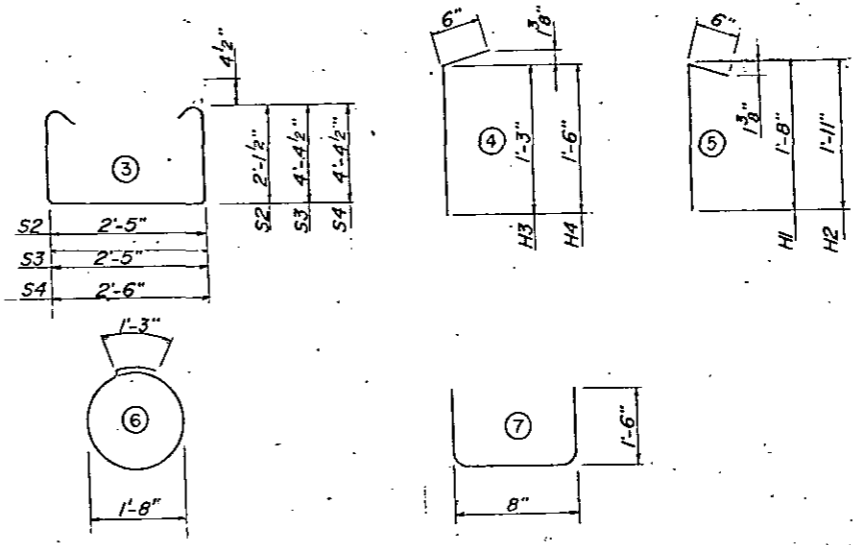
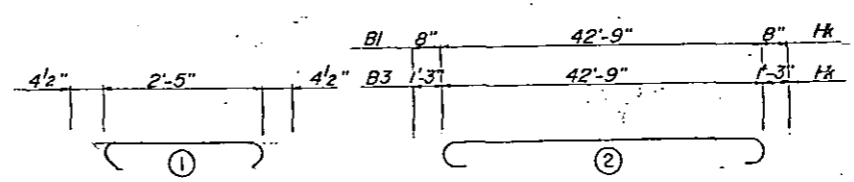
ELEVATION
1/2" = 1'-0"



ELEVATION
1/2" = 1'-0"

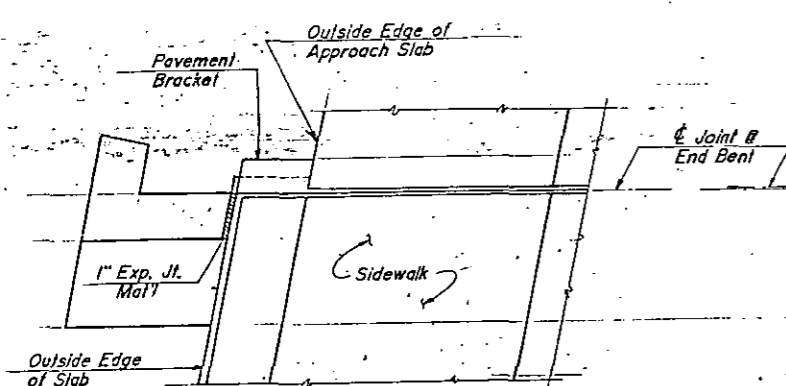


SECTION B-B
1/2" = 1'-0"

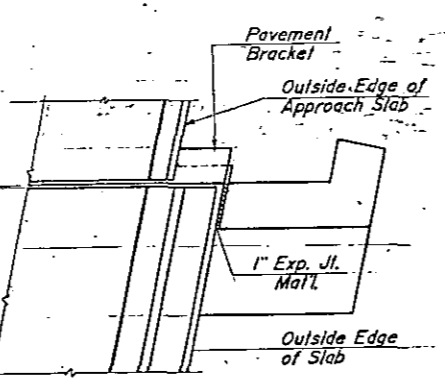


BAR TYPES

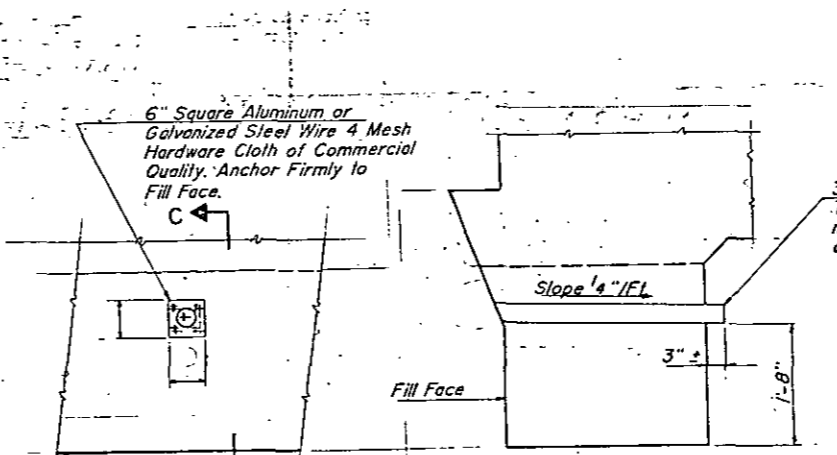
BILL OF MATERIAL						
END BENT 2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	4	#6	2	44'-1"	265	
B2	2	#6	Str.	42'-9"	128	
B3	4	#9	2	45'-3"	615	
B4	8	#4	Str.	22'-1"	118	
B5	22	#4	Str.	2'-5"	36	
H1	6	#4	5	2'-2"	9	
H2	6	#4	5	2'-5"	10	
H3	6	#4	4	1'-9"	7	
H4	6	#4	4	2'-0"	8	
K1	6	#4	Str.	2'-1"	8	
K2	6	#4	Str.	3'-3"	13	
VOID						
S1	4	#4	1	3'-2"	8	
S2	4	#4	3	7'-5"	20	
S3	34	#4	3	11'-11"	271	
S4	2	#4	3	12'-0"	16	
S5	14	#4	6	6'-6"	61	
S6	6	#4	7	3'-8"	15	
V1	12	#4	Str.	3'-4"	27	
V2	6	#4	Str.	4'-4"	17	
V3	6	#4	Str.	4'-6"	18	
Reinforcing Steel				Lbs.	1670	
Class "A" Concrete				Cu. Yds.	123	
HP 12 x 53 Piles				No. 7	Lin. Ft.	357



PLAN - LEFT WING



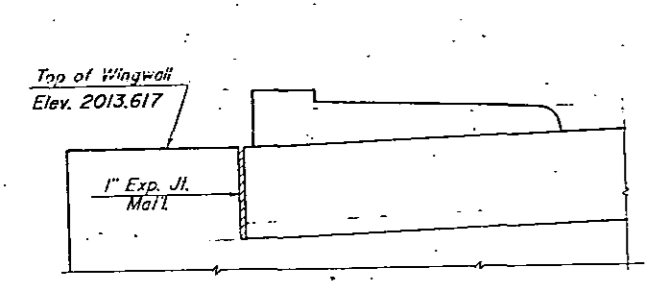
PLAN - RIGHT WING



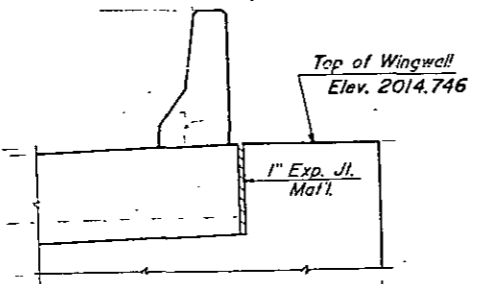
ELEVATION

SECTION C-C

NOTE: No separate payment will be made for furnishing and installing the PVC Plastic pipe Drains, Hardware Cloth and Fasteners. The entire cost of this work shall be included in the unit contract price bid for the several items.



ELEVATION



ELEVATION

WINGWALL DETAILS
1/2" = 1'-0"

PROJECT No. 81970202(U-62)
MACON COUNTY
STATION: 33+38.00 -L- WBL

STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
SUBSTRUCTURE					
END BENT 2 DETAILS					
JANUARY 1989					
NO.		BY		DATE	
1		3			
2		4			
SHEET NO. 24					TOTAL SHEETS 28

NOTES

FOR BRIDGE APPROACH SLABS, SEE SPECIAL PROVISIONS.

THE 6" COMP. A.B.C. IS TO EXTEND 10'-0" BEYOND THE SLAB AS SHOWN AND 1'-0" OUTSIDE OF EACH EDGE OF SLAB. IF SPECIAL DRAINAGE IS USED, THE 6" COMP. A.B.C. SHALL ALSO EXTEND UNDER THE CONCRETE FLUME AND 1'-0" OUTSIDE OF EACH EDGE OF CURB.

SUBDRAIN FINE AGGREGATE IS TO BE CONTINUOUS ALONG FILL FACE OF THE END BENT FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

THE CONTRACTOR, AT HIS OPTION, MAY USE 4" BITUMINOUS CONCRETE BASE COURSE, TYPE HB IN LIEU OF 6" A.B.C. ANY ADDITIONAL COST DUE TO THE USE OF THIS OPTION WILL BE PAID FOR BY THE CONTRACTOR.

THE 1" EXPANSION JOINT MATERIAL IS TO BE HELD IN PLACE WITH GALVANIZED NAILS.

DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER THE SLAB HAS BEEN SCREEDED AND FLOAT FINISHED EXCEPT AS NOTED ON THE PLANS.

NO DIRECT PAYMENT WILL BE MADE FOR THE TEMPORARY DRAINAGE AS SUCH WORK WILL BE CONSIDERED INCIDENTAL TO OTHER WORK BEING PAID FOR BY THE VARIOUS ITEMS IN THE CONTRACT.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE.

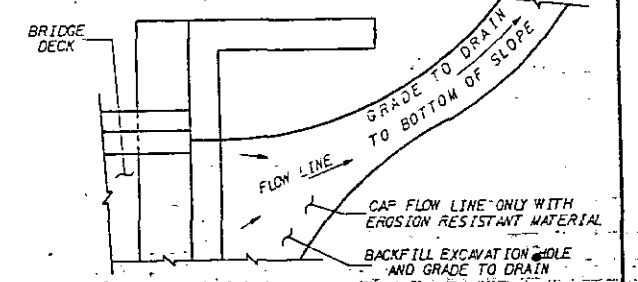
BILL OF MATERIAL

APPROACH SLAB @ END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	16	#4	Str.	17'-9"	190
B1	67	#6	Str.	11'-2"	424
B2	67	#6	Str.	11'-8"	474
*B3	5	#4	Str.	11'-8"	39
D1	40	#4	Str.	0'-9"	20
*G1	21	#4	Str.	4'-10"	68

Reinforcing Steel	Lbs.	2,508
Class 'AA' Concrete	Cu. Yd.	14.2
Epoxy Coated Reinf. Steel	Lbs.	107

*Epoxy Coated Reinforcing Steel



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

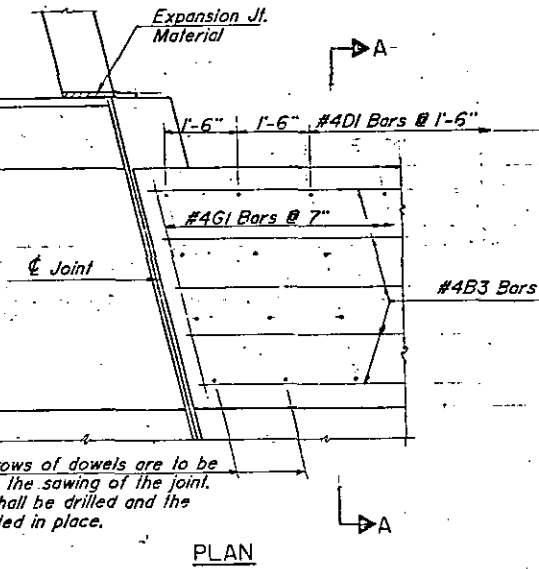
TEMPORARY DRAINAGE DETAIL

PROJECT NO. 81970202(U-621)
 MACON COUNTY
 STATION: 33+38.00 -L- WBL

SHEET 1 OF 2

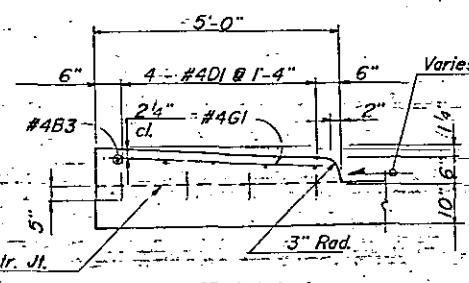
REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS	
1			3			23	
2			4			23	

STO. NO. BAS4



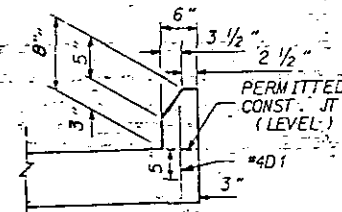
These two rows of dowels are to be placed after the sawing of the joint. The holes shall be drilled and the dowels grouted in place.

PLAN

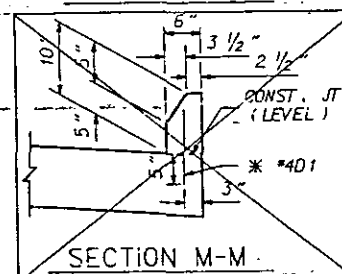


SECTION A-A

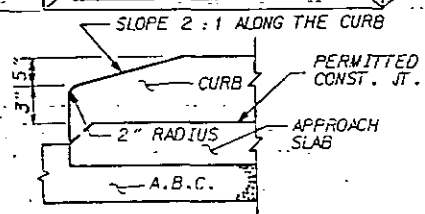
SIDEWALK DETAILS



SECTION L-L

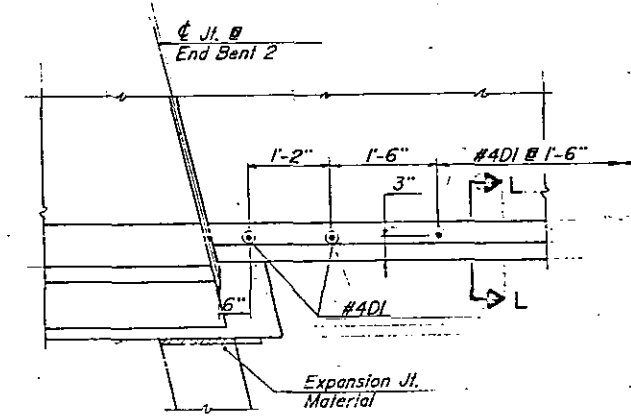


SECTION M-M

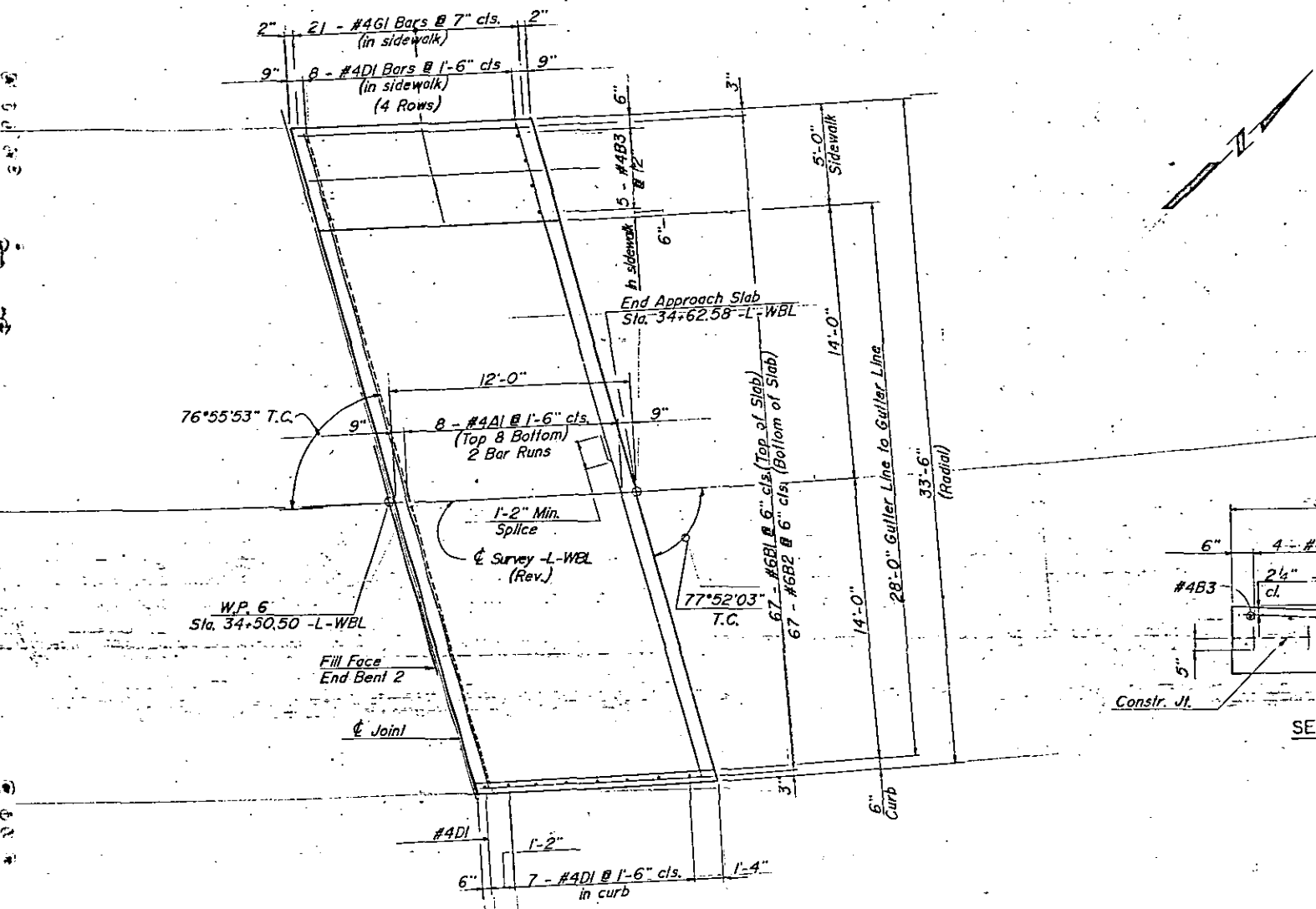


DETAIL AT END OF CURB

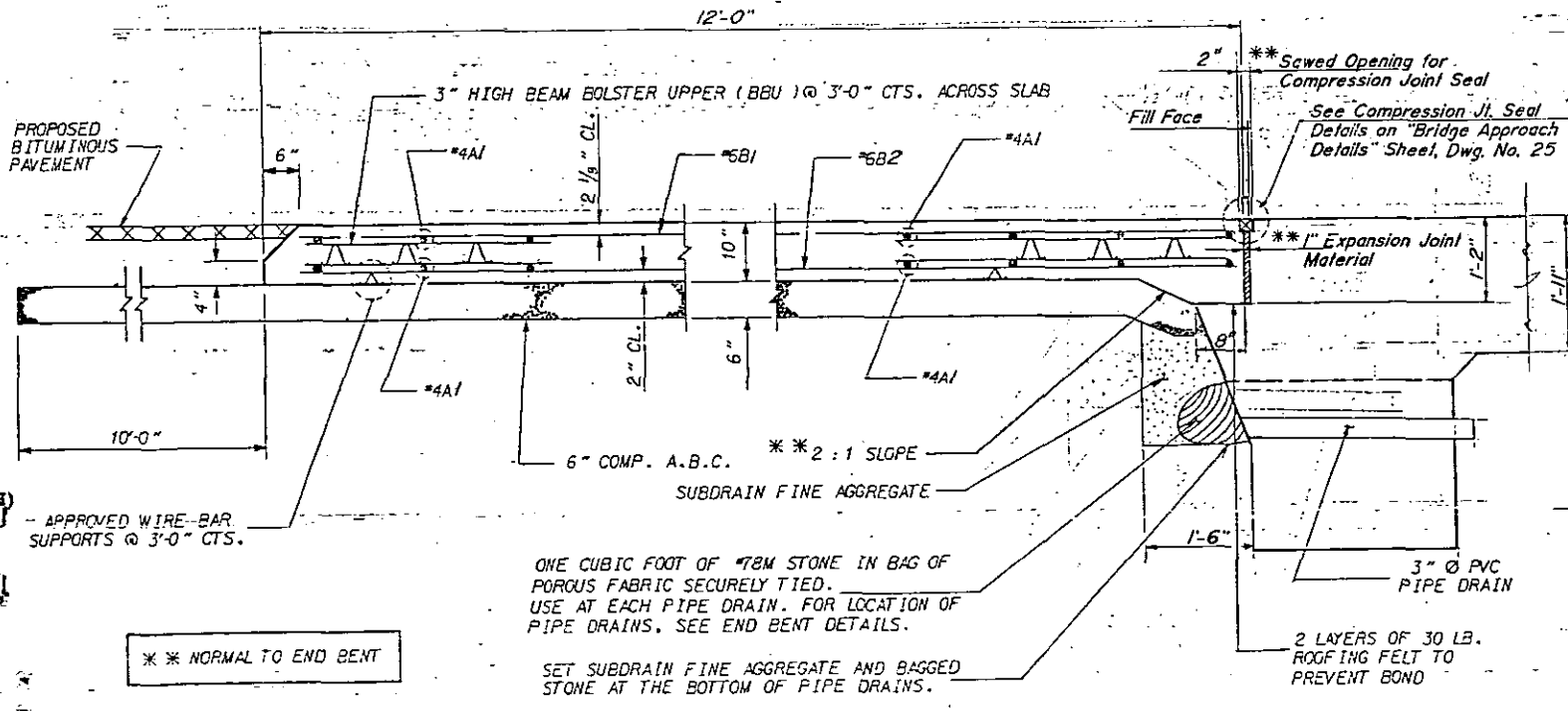
CURB DETAILS



PLAN

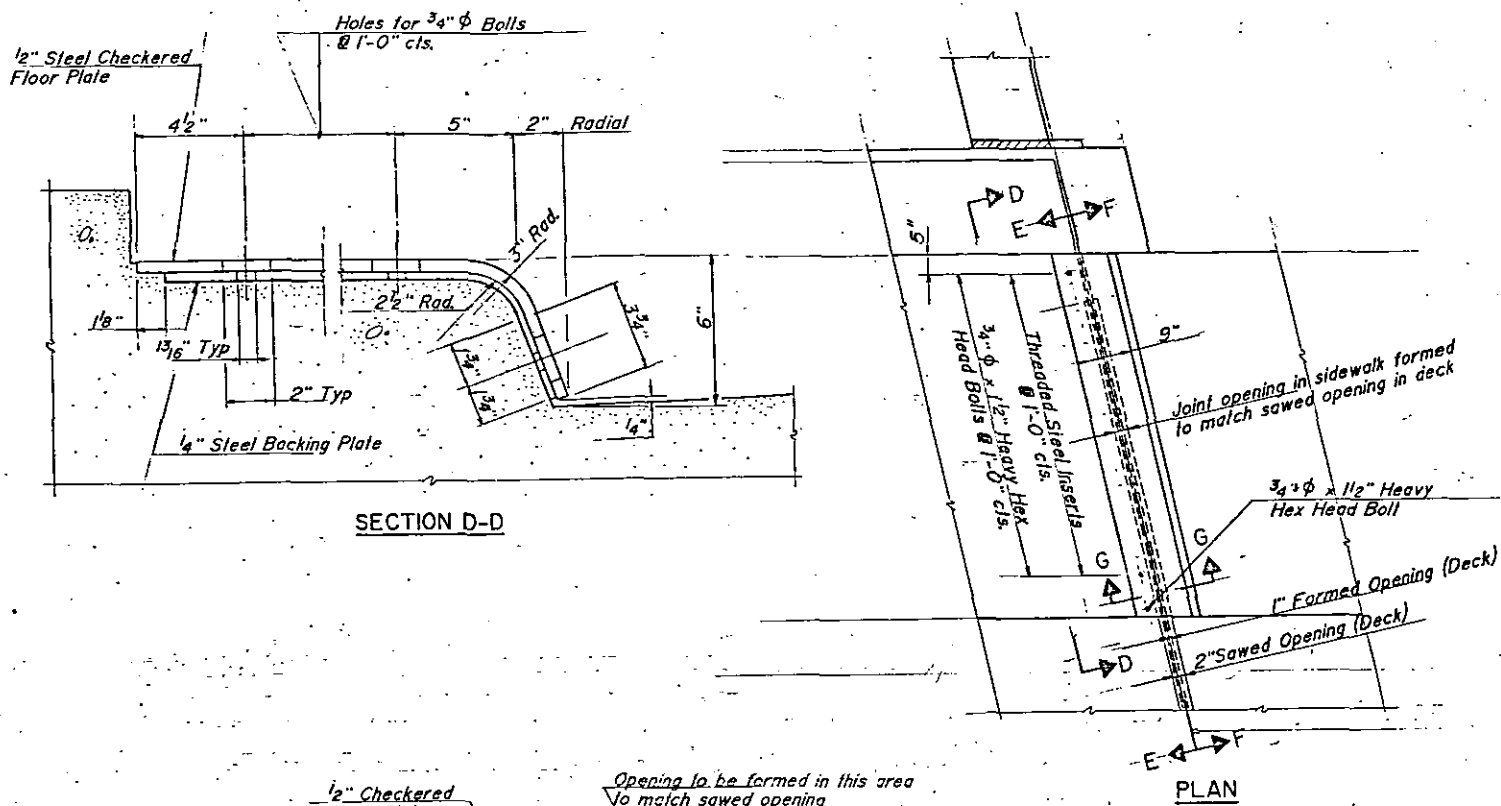
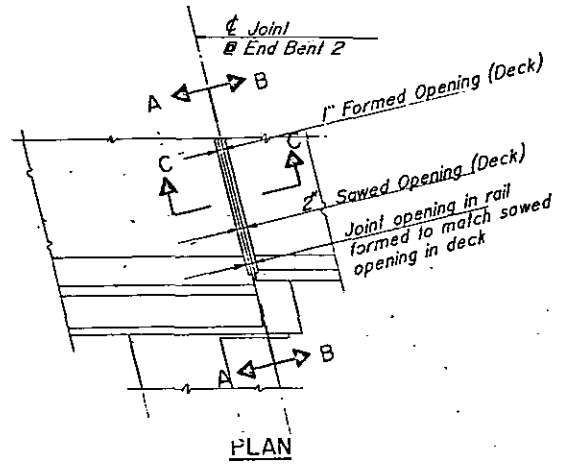


SECTION THRU SLAB

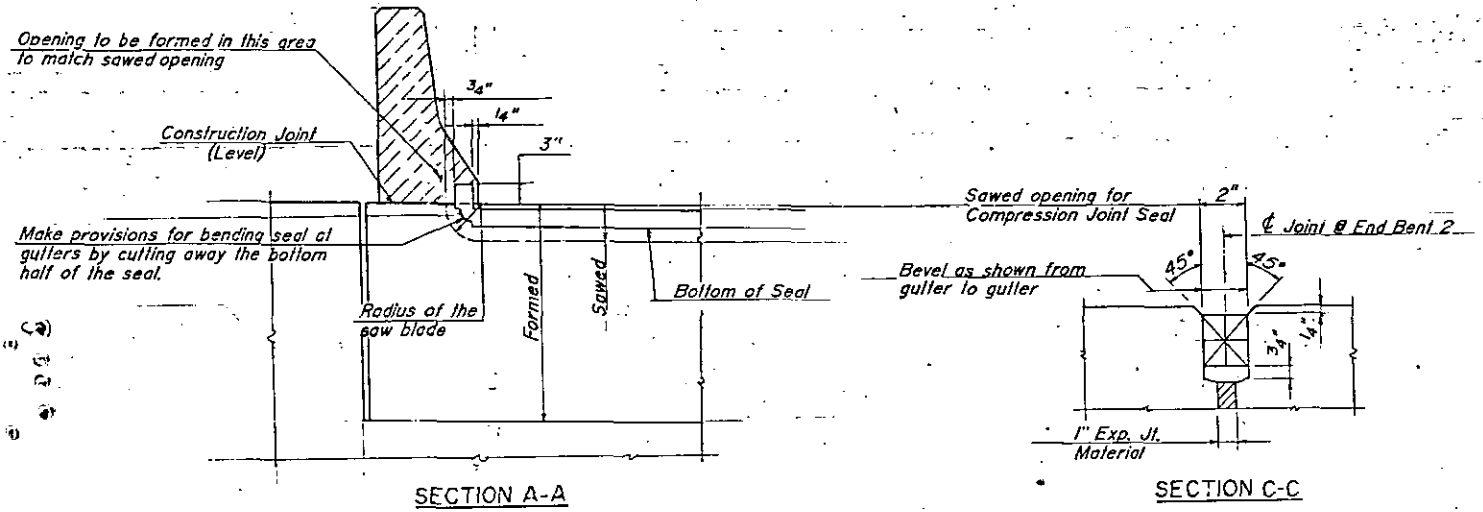


ASSEMBLED BY: J. Bayne DATE: 11-16-88
 CHECKED BY: B. Neulds DATE: 12-9-88
 STD. DRAWN BY: F. C. JONES DATE: 6/10/87
 STD. CHECKED BY: E. G. ALLEN DATE: 6/25/87

Dwg. No. 26

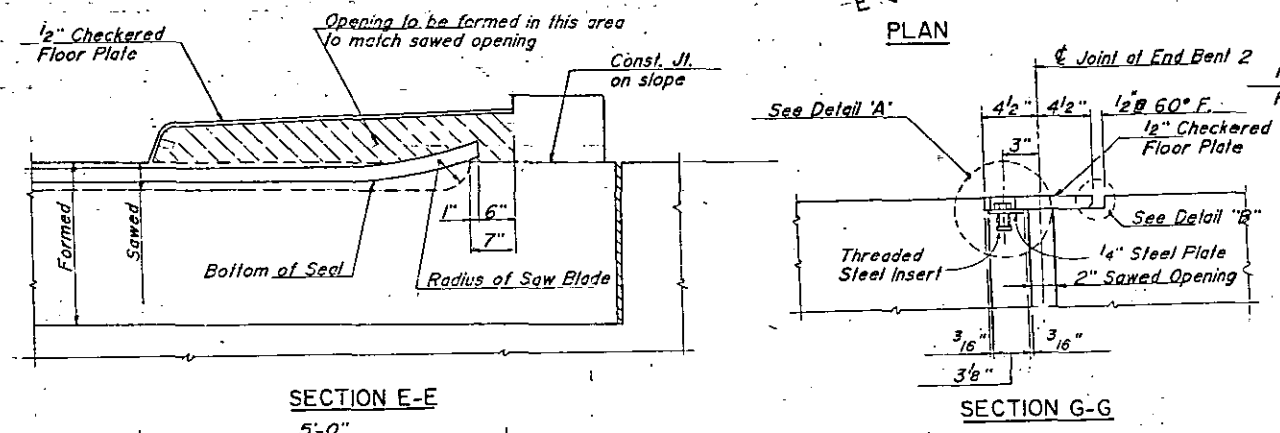


NOTES:
 The steel plates shall conform to ASTM A36 or approved equal. After fabrication the plates shall be coated with two (2) coats of zinc rich paint in accordance with the specifications. Each coat shall have a minimum thickness of 3 mils.
 The 3/4" Heavy Hex Head Bolts shall conform to Type 304 Stainless Steel.
 The 3/4" concrete inserts shall be closed-end ferrules with lapped wire struts attached to them. The inserts shall conform to ASTM A108, Grade 12L14 and shall have a tensile working load capacity of 3000 lbs.
 No separate payment will be made for furnishing and installing the cover plate. The entire cost of this work shall be included in the price paid for Preformed Compression Joint Seal.
 For Preformed Compression Joint Seal, See Special Provisions.
 The Preformed Compression Joint Seal shall be paid for at the contract lump sum price bid.
 The opening shown is based on an uncompressed seal width of 3".
 The joint shall be sawed prior to the casting of the concrete curb and sidewalk to the construction joint and the barrier rail. For location of construction joint, see curb and sidewalk details.



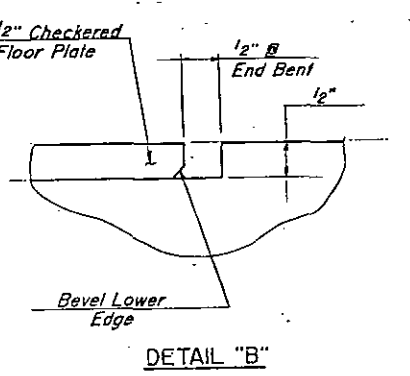
SECTION A-A

SECTION C-C

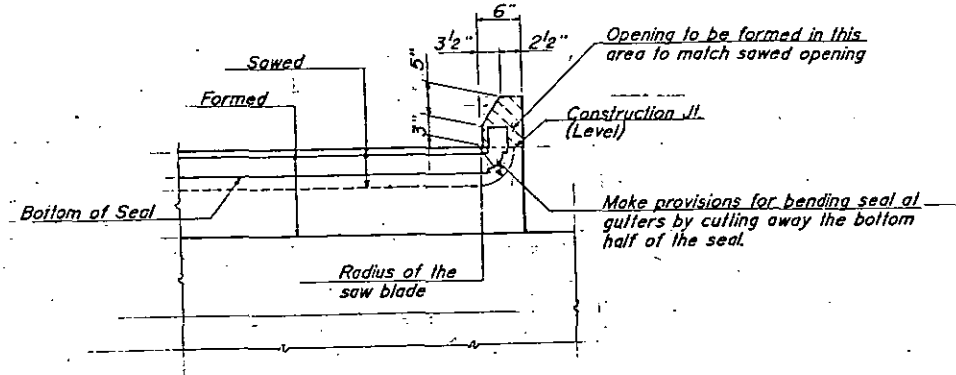


SECTION E-E

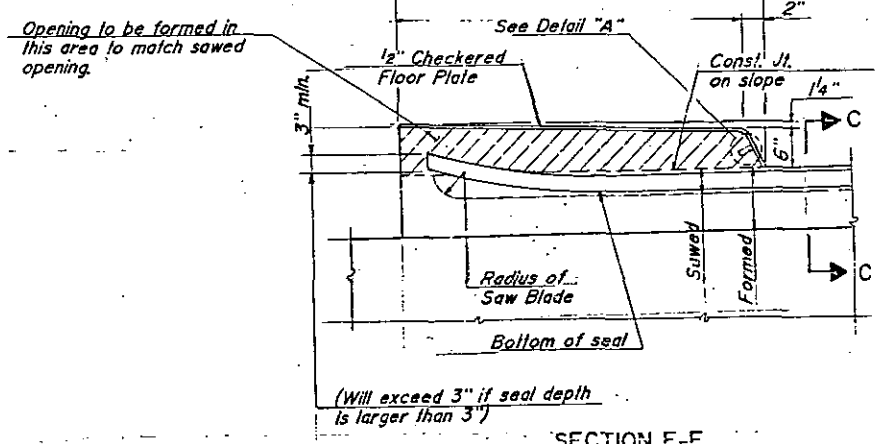
SECTION G-G



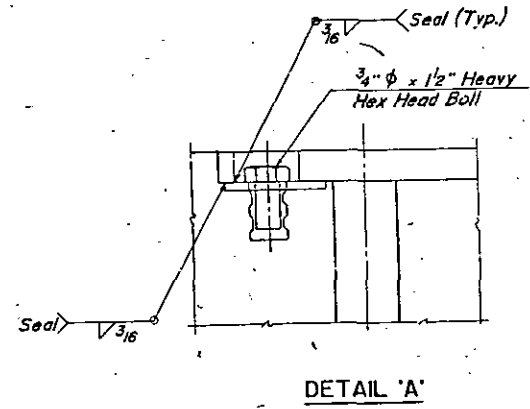
DETAIL "B"



SECTION B-B



SECTION F-F



DETAIL "A"

COMPRESSION JOINT SEAL DETAILS AT BARRIER RAIL

COMPRESSION JOINT SEAL DETAILS AT SIDEWALK

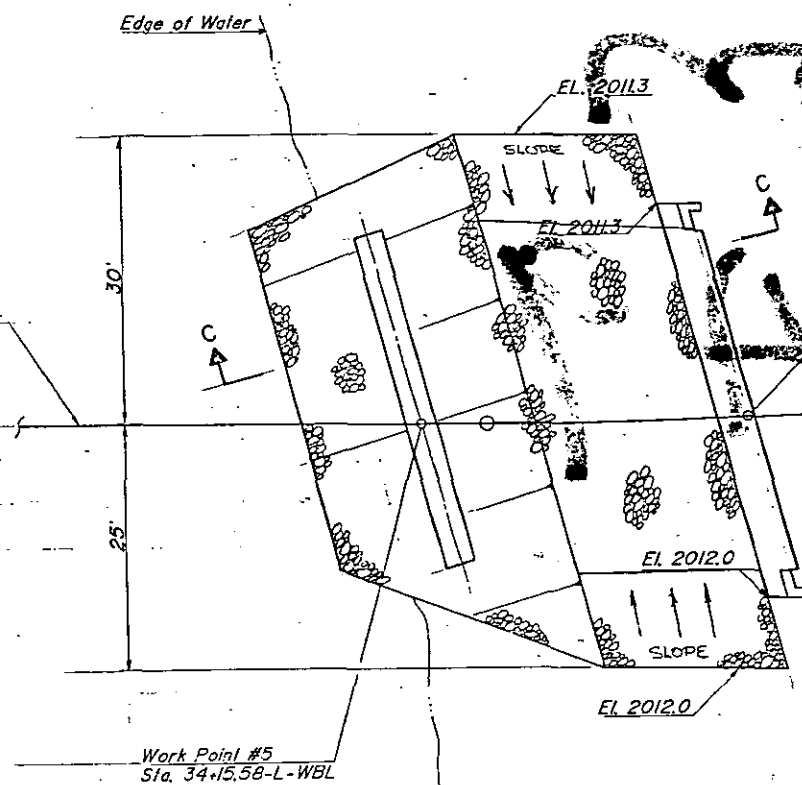
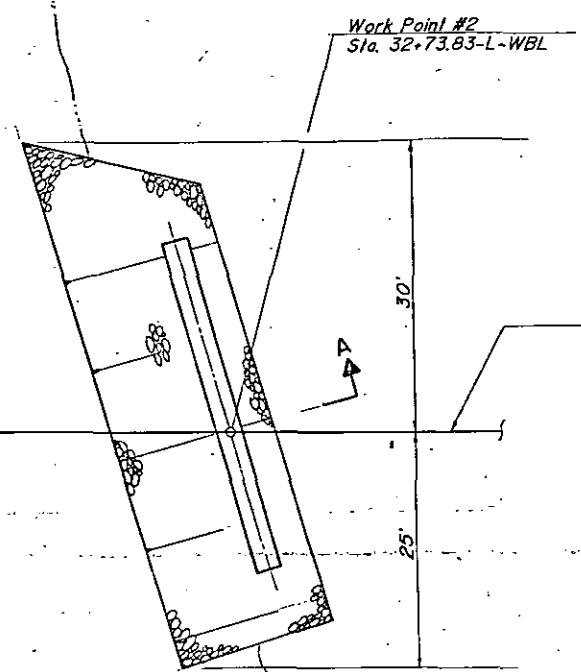
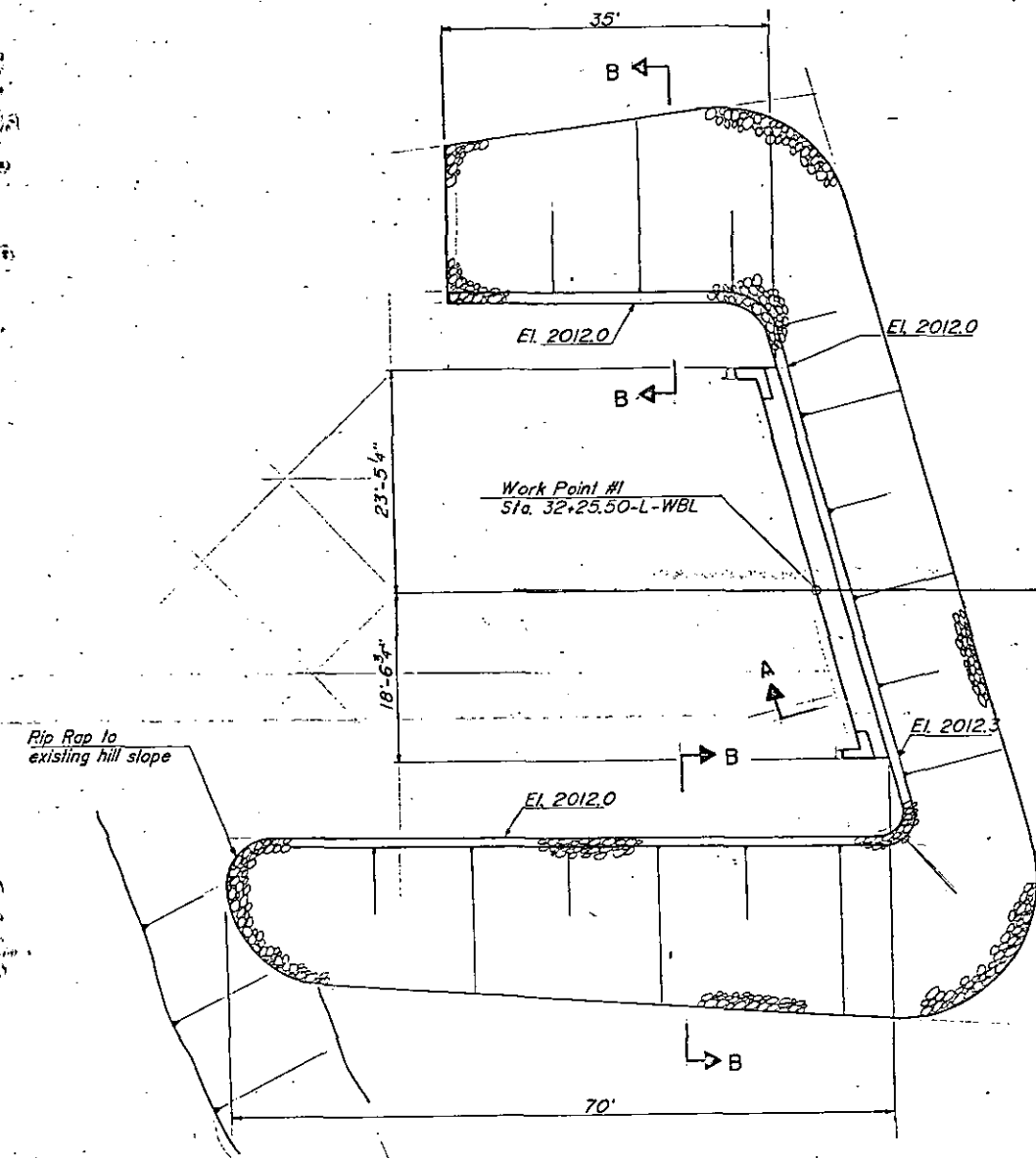
PROJECT No. 8.1970202(U-621)
 MACON COUNTY
 STATION: 33+38.00 -L- WBL

STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
DETAILS FOR APPROACH SLAB AT END BENT 2					
JANUARY 1989					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					SHEET 52 NO. 3-27
					TOTAL SHEETS 25

DRAWN BY J. Rovns DATE 11-19-88
 CHECKED BY B. Moulds DATE 12-10-88

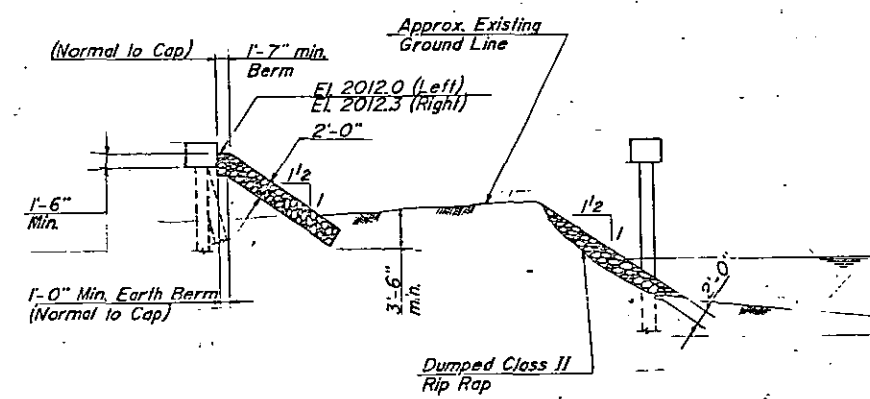
Dwg. No. 27

Waco
 C
 *

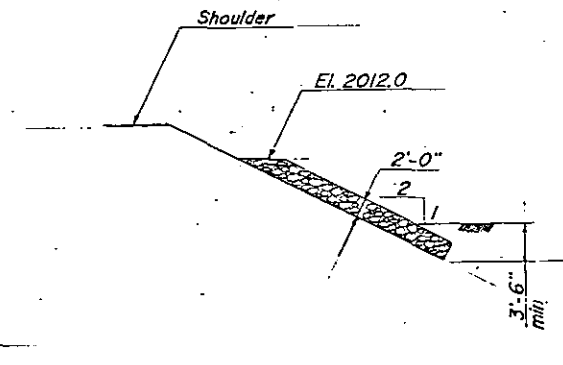


ESTIMATED QUANTITIES			
PLAIN RIP RAP-CLASS II			
TONS			
BRIDGE AT	E. Bl. No. 1	E. Bl. No. 2	E. Bl. No. 2
Sta 33+38.00-L-WBL	306	90	239
	VOID		

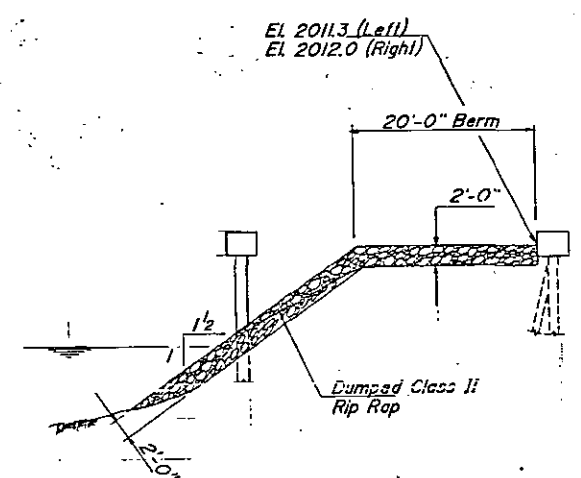
PLAN



SECTION A-A



SECTION B-B



SECTION C-C

PROJECT No. 8.1970202(U-62)
 MACON COUNTY
 STATION: 33+38.00 -L- WBL

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

RIP RAP DETAILS

REVISIONS						SHEET	
NO.	BY	DATE	NO.	BY	DATE	NO.	NO.
1			3			5	28
2			4				28

Dwa. No. 28

DRAWN BY: J. Payne DATE: 11-18-88
 CHECKED BY: B. Meulds DATE: 12-10-88



Macon

349