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- 13. COMPRESSION SEAL DETAILS
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- 15-21. EXISTING PLANS - FOR INFORMATION ONLY



South Carolina Department of Transportation

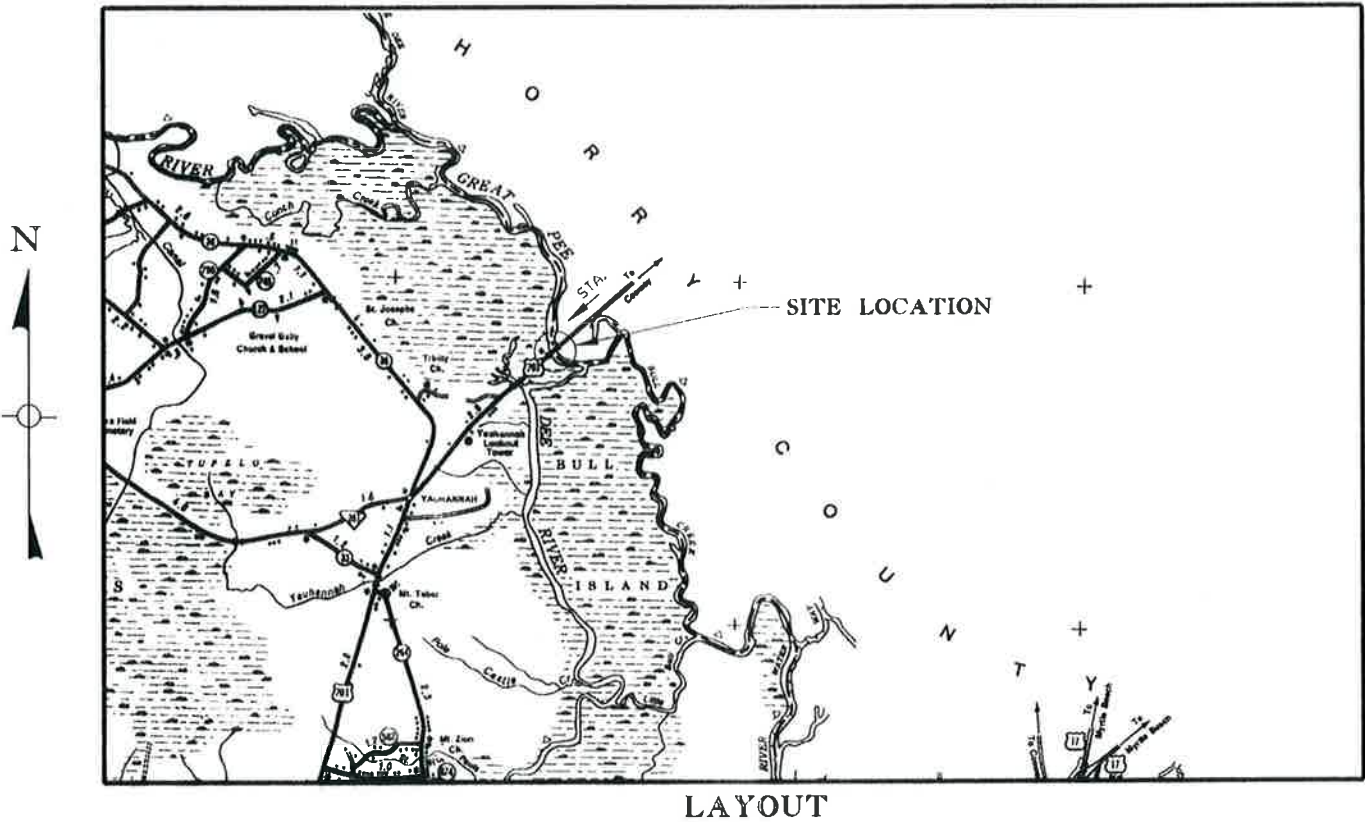
S. C. FILE NO. 22.56961  
GEORGETOWN COUNTY  
U.S. RTE. 701

REPAIR BRIDGE OVER GREAT PEE DEE RIVER

SUMMARY OF ESTIMATED QUANTITIES

ITEM NO.	B I D I T E M	UNIT	QUANTITY
1031000	MOBILIZATION	LS	NEC.
2028200	REMOVAL & DISPOSAL OF DESIGNATED PORTIONS OF EXISTING BRIDGE	LS	NEC.
7010201	DRILLED SHAFT WITH WET & DRY EXCAVATION - 72" DIAMETER	LF	348.000
7010205	PERMANENT CASING - 72" DIAMETER	LS	NEC.
7011400	CONC. FOR STRUCTURES - CLASS D	CY	470.200
7013120	REHABILITATE EXISTING EXPANSION JOINT	EA	2.000
7031200	REINF. STEEL FOR STRUCTURES (BRIDGE)	LBS	176,919.000
7054000	CONCRETE BRIDGE RAILING WALL	LF	356.400
7091100	STRUCTURAL STEEL	LS	*NEC.
7092305	COMPRESSION SEAL JOINT	LF	51.500
7093100	ELASTOMERIC BEARING	EA	8.000
	REPLACE EXISTING DAMAGED RAIL SECTIONS	LF	80.000
	U. S. 701 OVERFLOW BRIDGE REPAIRS	LS	NEC.

\*Approximately 112,500 Lbs.



Approximate Location of Roadway is:

Longitude 79° -09.3'  
Latitude 33° -39.6'

NOTE: ALL WORKMANSHIP AND MATERIAL ON THIS PROJECT TO CONFORM WITH SOUTH CAROLINA DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 1986.



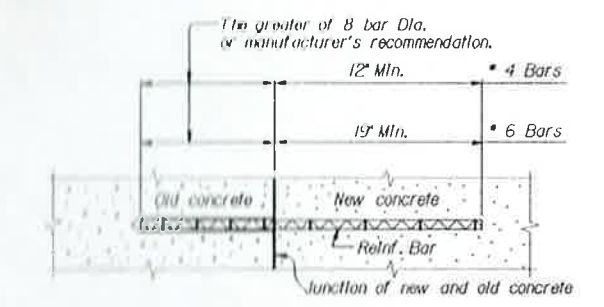
RECOMMENDED BY:  
*R. Hutson* 4-17-96  
BRIDGE MAINTENANCE ENGINEER DATE

APPROVED FOR CONSTRUCTION:  
*[Signature]* 4/17/96  
DIRECTOR OF MAINTENANCE DATE

## REHAB. OF EXISTING CONCRETE STRUCTURE

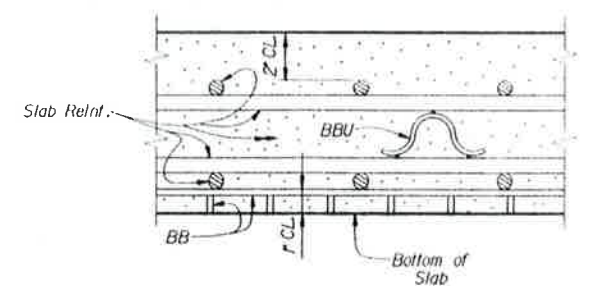
REV.	GLP	REL	1 - 94	SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN                      COLUMBIA, S.C.			
	CHAPPY/GROUT						
REV.	WGP	JLC	9 - 93				
	COUPLERS						
REV.	GLP	JLC	10 - 92				
	LOAD FACTOR			STANDARD NOTES			
REVIEWED							
QUAN.							
DR.	GLP	BWB	9 - 89				
DES.							
	BY	CHK.	DATE	FILE NO.	ROUTE	COUNTY	DRAWING NO.
				22. 56961	US 701	GEORGETOWN	700-1





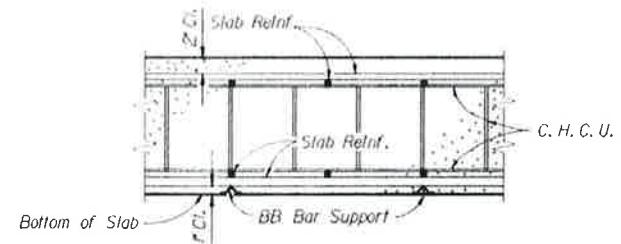
RESIN ANCHOR ROD DETAIL

**Note:**  
Contact surface of old concrete to be clean, free of laitance, and intentionally roughened to an amplitude of 1/4\"/>  
Resin anchors to be installed in accordance with manufacturer's instructions and will be paid for at the unit price bid for reinforcing steel.  
Resin anchors shall be two component chemical anchors consisting of an epoxy polyester or vinyl ester resin and a hardening agent. Resin and hardening agent shall be supplied pre-measured from the manufacturer and may be contained in glass capsules or bulk cartridges or cartridges. The minimum embedment of the reinforcing steel into the existing concrete shall be the greater of 8 times the nominal bar diameter or the depth recommended by the manufacturer. Resin anchors shall meet the following minimum requirements for ultimate tensile load capacity tested in concrete having a compressive strength of 4,000 psi or less and an embedment depth as described above: Reinforcing bar 1 1/2\"/>



BAR SUPPORT DETAIL  
(FOR PLATE GIRDER SPAN)  
SECTION PARALLEL TO <math>\bar{C}</math> ROADWAY

**Note:**  
Terms and symbols used below refer to standard type Bar Supports and classes of protection as specified in C.R.S.I. Manual of Standard Practice, Dated 1990.  
Bar Supports shall be spaced to provide adequate support for slab reinforcing steel. Beam Bolsters (BB) shall be spaced approximately 3'-0\"/>

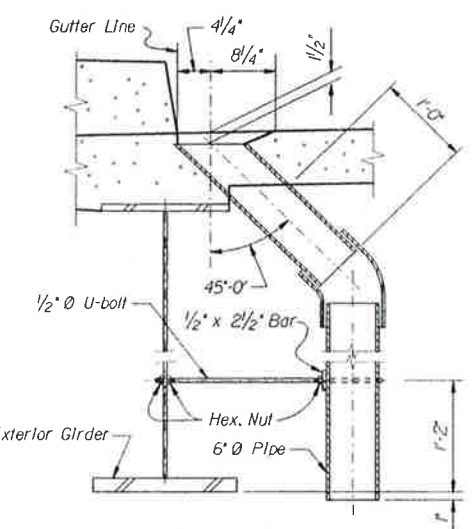
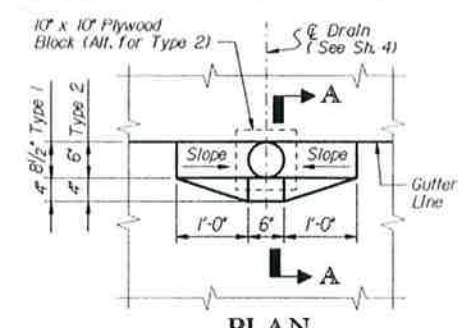


BAR SUPPORT DETAIL  
(FOR FLAT SLAB SPAN)  
SECTION PARALLEL TO <math>\bar{C}</math> ROADWAY

**Note:**  
Terms and symbols used below refer to standard type bar supports and classes of protection as specified in C.R.S.I. Manual of Standard Practice, dated 1990.  
Bar supports shall be spaced to provide adequate support for slab reinforcing steel. The lower layer of slab steel shall be supported by beam bolsters (BB) bar supports with one row near each end of span and interior rows spaced approximately 2'-0\"/>

**PLASTIC BAR SUPPORTS:**  
Plastic bar supports may be used in lieu of BB or BBU wire supports.

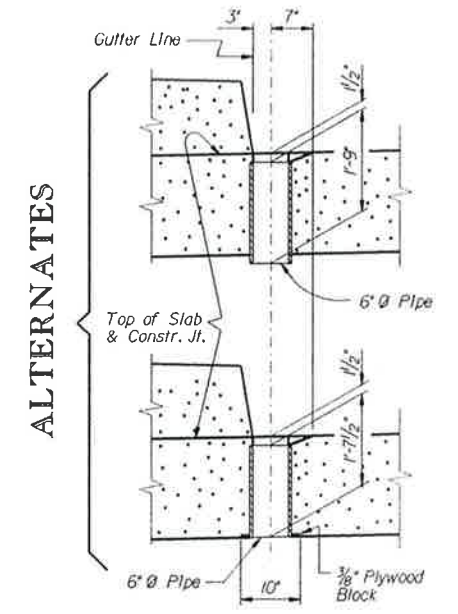
- Plastic bar supports shall meet the following requirements:
1. Chairs and bolsters must be of adequate strength to resist a 300 pound concentrated load without permanent deformation or breakage.
  2. The material used to manufacture plastic bar supports shall be either virgin resin or first generation recycled thermoplastic resin, be colored white, gray, or black, and be chemically inert in concrete.
  3. Plastic bar supports shall be molded in a configuration which does not restrict concrete flow and consolidation around and under the rebar support.



SECTION A-A  
TYPE 1  
(PLATE GIRDER)

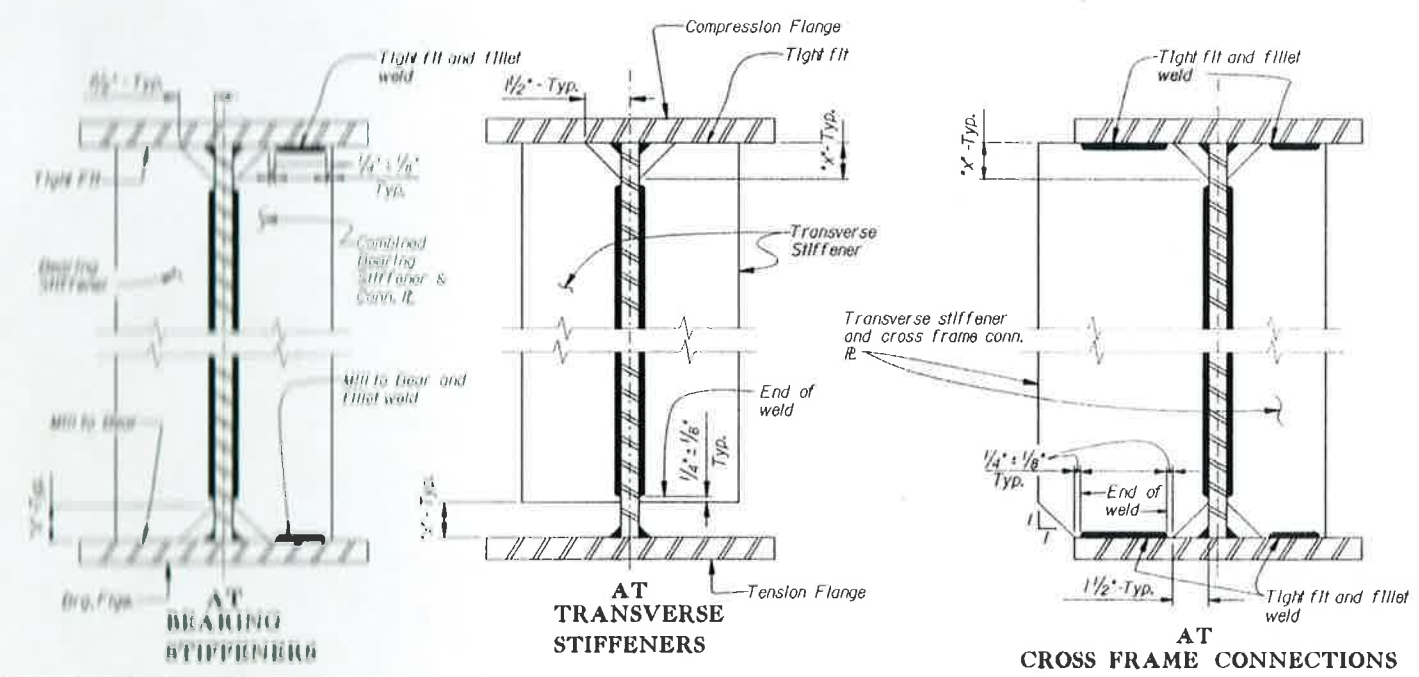
**DRAIN DETAILS**

**Note:**  
6\"/>

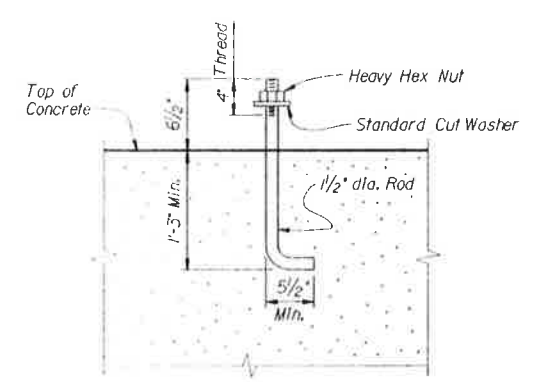


ALTERNATES

SECTION A-A  
TYPE 2  
(FLAT SLAB)

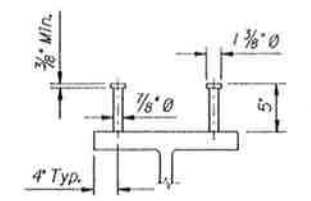


WELDING DETAILS



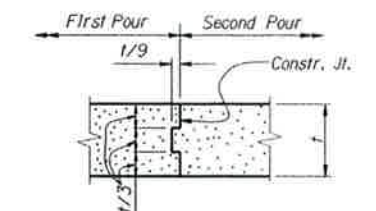
ANCHOR BOLT DETAILS

**Note:**  
For length and number of anchor bolt assemblies required see reinforcing steel schedule on Bent sheets.  
1 1/2\"/>



WELDED STUDS DETAIL

**Note:**  
Studs shall penetrate at least 2\"/>



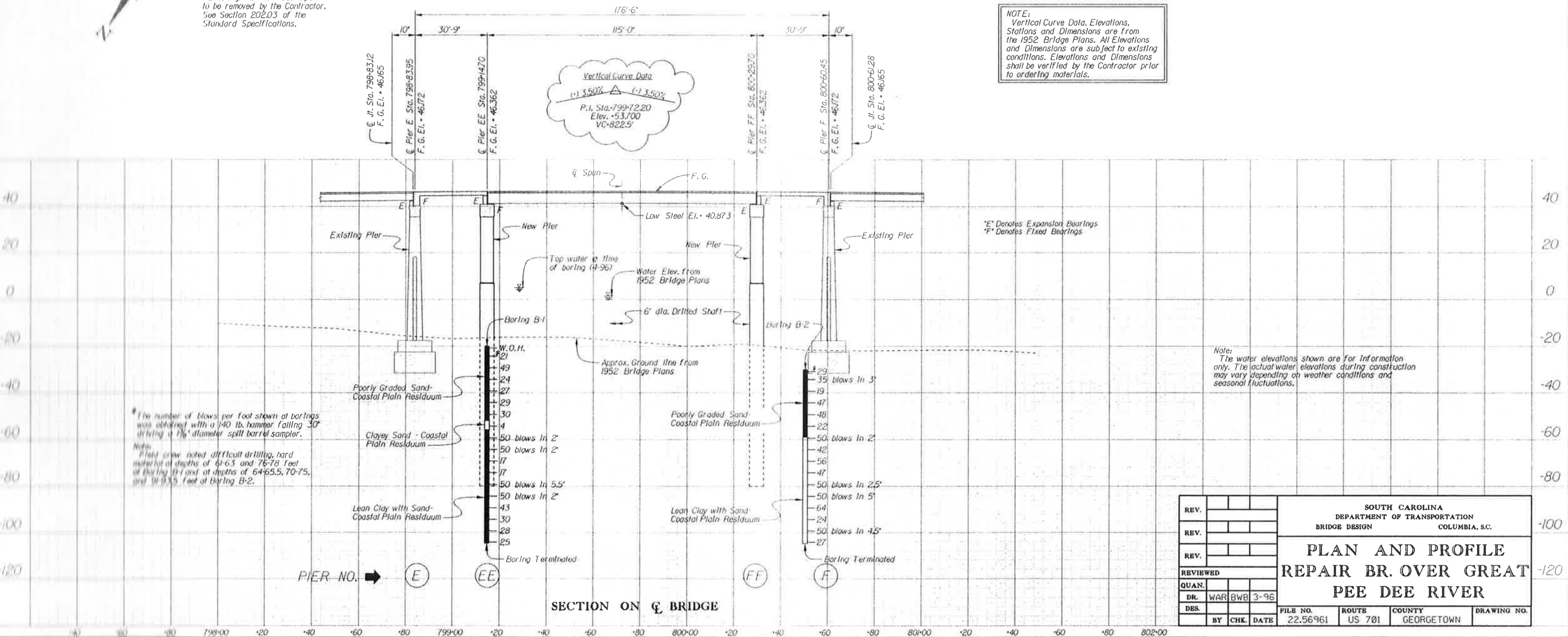
CONSTR. JT. DETAIL

**Note:**  
The contractor shall allow a 4-day interval between the First Pour and the Second Pour.

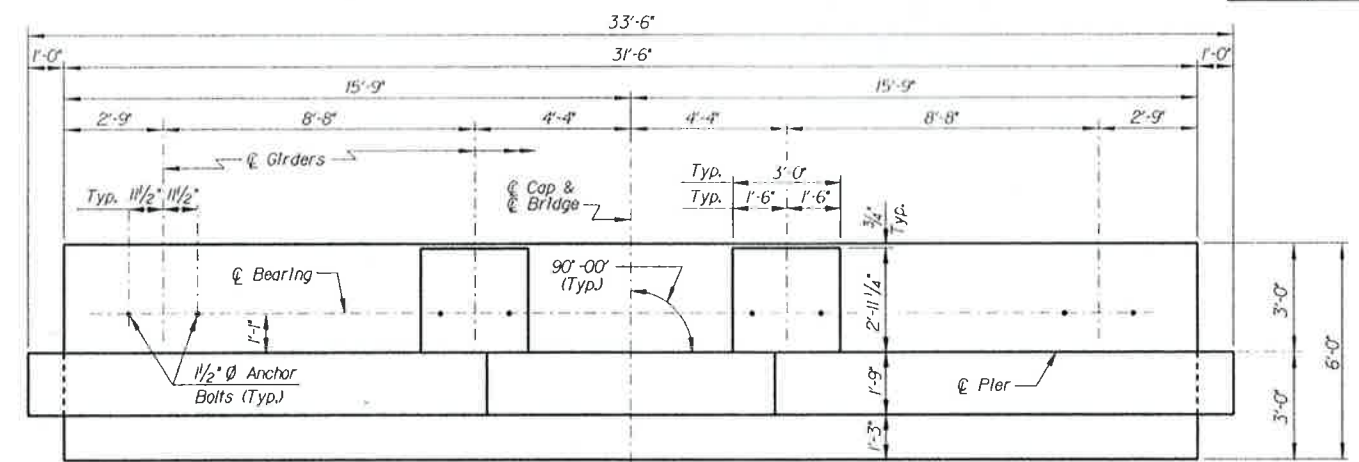
No Scale				a 4-day Interval between the First Pour and the Second Pour.			
REV.	VND	BWB	3-96	SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN COLUMBIA, S.C.			
	FOR 22.56961						
REV.	JAR	WGP	1-95				
	ANCHOR BOLT						
REV.	JAR	WGP	11-94				
	DRAIN NOTES			STANDARD DETAILS			
REV.	JAR	YIA	2-93				
	STANDARD WASHER						
REVIEWED							
QUAN.							
DR.	JAR	DMC	2-89	FILE NO. 22.56961 ROUTE US 701 COUNTY GEORGETOWN DRAWING NO. 709 1			
DES.							
BY CHK. DATE							



**NOTE:**  
Vertical Curve Data, Elevations,  
Stations and Dimensions are from  
the 1952 Bridge Plans. All Elevations  
and Dimensions are subject to existing  
conditions. Elevations and Dimensions  
shall be verified by the Contractor prior  
to ordering materials.

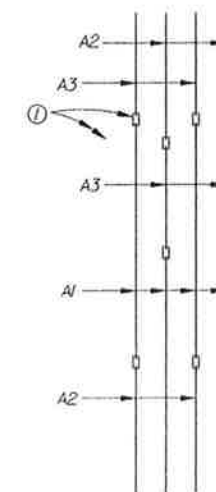






Notes:  
Build-ups to be cast monolithically with cap.  
Build-up reinforcement not required.

Bottom of shaft shall be cleaned of loose debris prior to placing concrete.



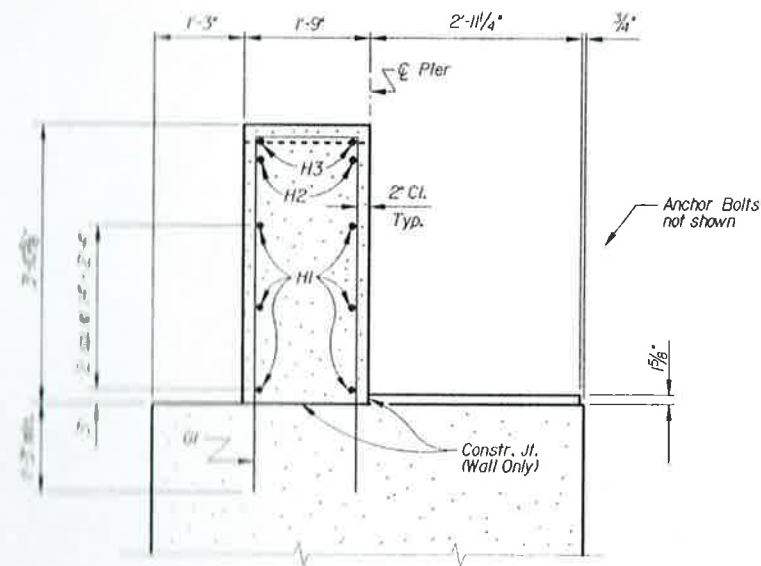
(B-bars not shown)

Looking In Direction of Stationing - Pier EE  
Looking Opposite Direction of Stationing - Pier FF

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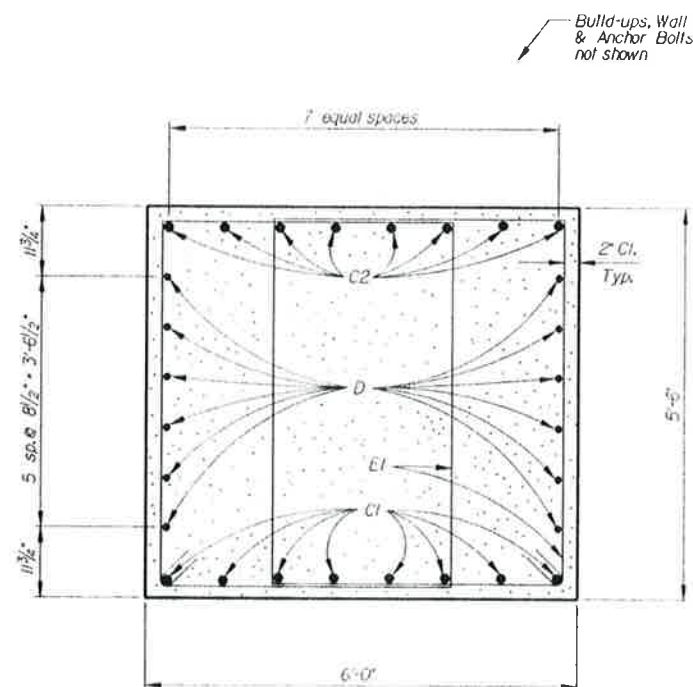
27.

No Scale									
REV.				SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION BRIDGE DESIGNCOLUMBIA, S.C.					
REV.									
REV.									
REVIEWED				PIERS EE & FF 1 OF 2					
QUAN.									
DR.	VND	BWB	3-96						
DES.	BWB	YIA	3-96						
	BY	CHK	DATE						
FILE NO.		22.56961		ROUTE		COUNTY		DRAWING NO.	
				US 701		GEORGETOWN			

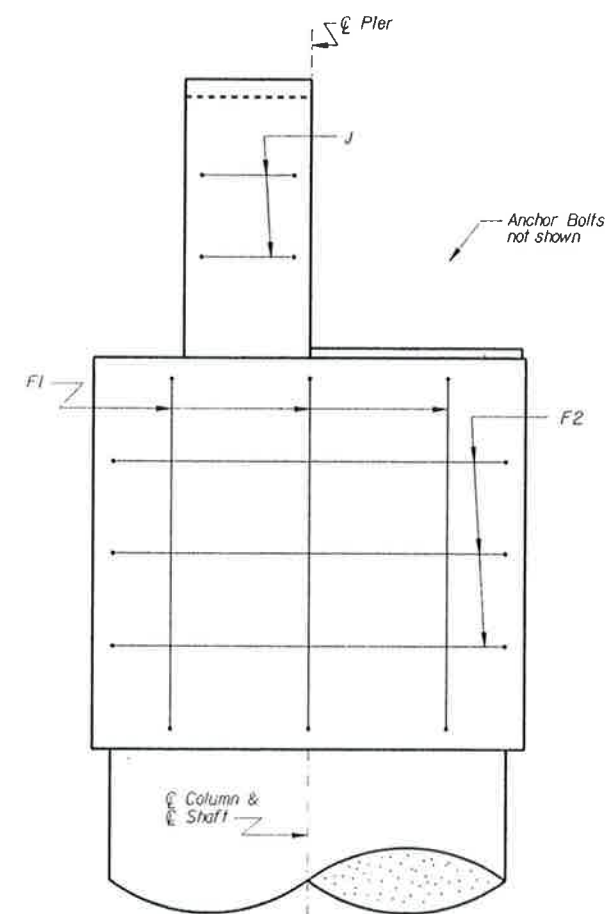


SECTION  
THRU WALL

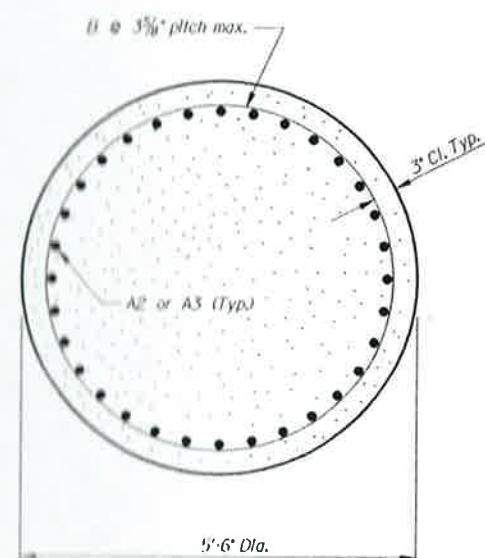
OF SIGN AXIAL LOAD (KIPS)	COMPUTED FACTOR OF SAFETY
1.10	3.0



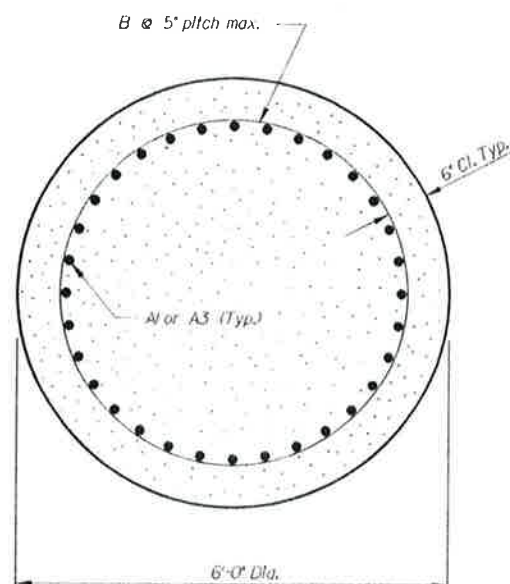
SECTION THRU CAP



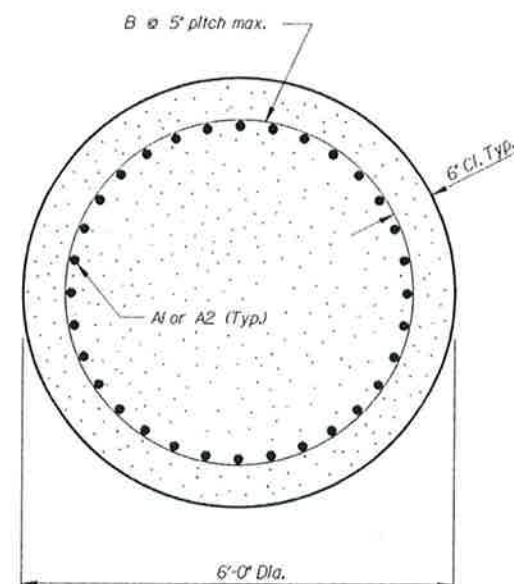
PART END ELEVATION



SECTION A-A



SECTION B-B

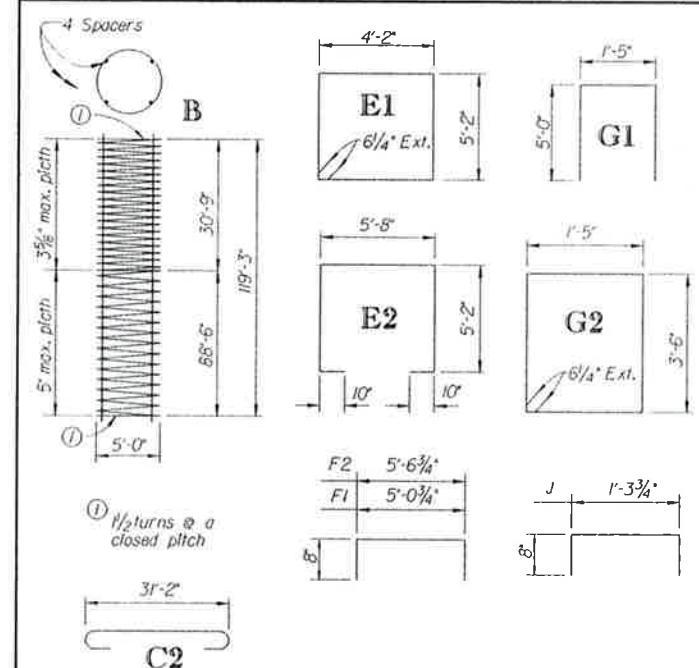


SECTION C-C

## REINFORCING STEEL SCHED.

MARK	SIZE	D	PIER EE OR FF		
			NO. REQ'D	LENGTH	
A1	11	S	64	60'-0"	
A2	11	S	64	32'-2"	
A3	11	S	64	29'-6"	
B	W31	B	2	4984'-0"	
C1	10	S	8	31'-2"	
C2	10	B	8	34'-0"	
D	5	S	12	31'-2"	
E1	5	B	40	20'-0"	
E2	5	B	6	17'-8"	
F1	4	B	6	6'-5"	
F2	4	B	6	6'-11"	
G1	5	B	34	11'-5"	
G2	5	B	2	11'-2"	
H1	5	S	6	33'-2"	
H2	5	S	2	12'-10"	
H3	5	S	4	12'-5"	
J	4	B	4	2'-8"	
Anch. Bolts	1/2" dia.	—	8	2'-3"	

## BENDING DETAILS



## QUANTITIES

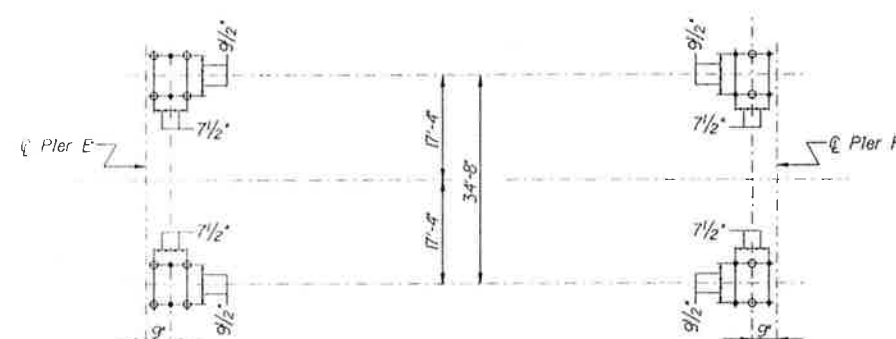
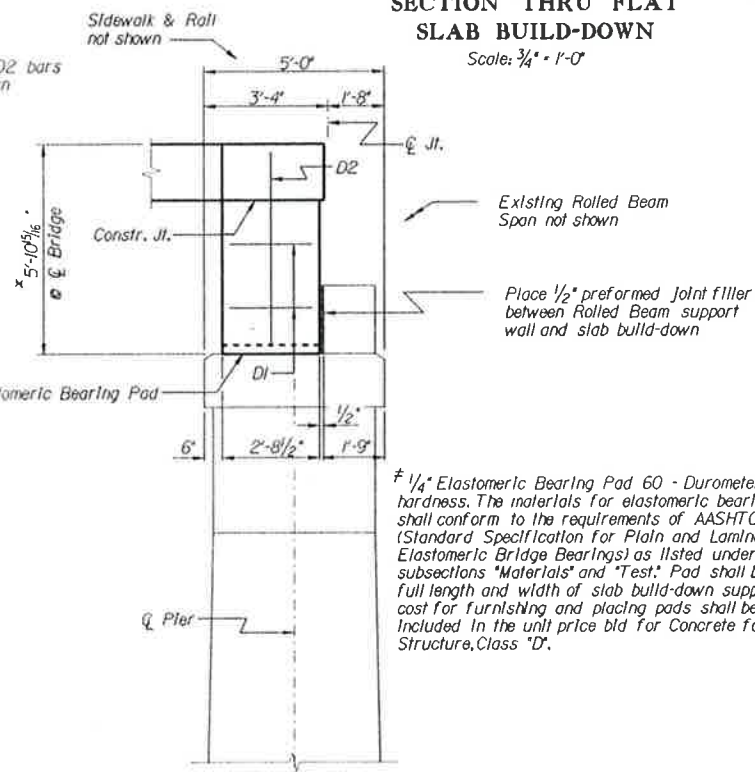
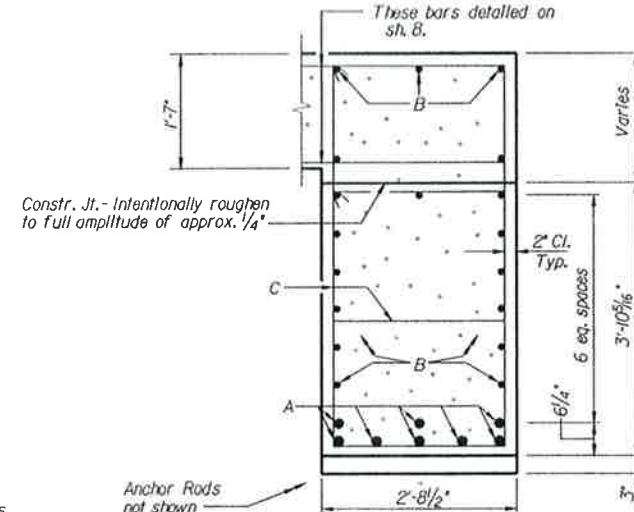
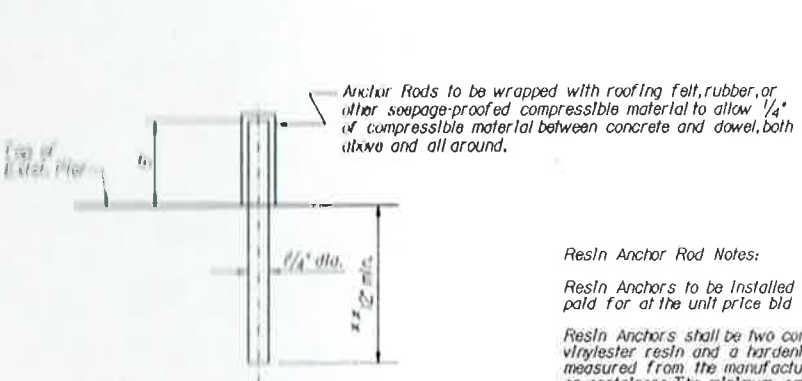
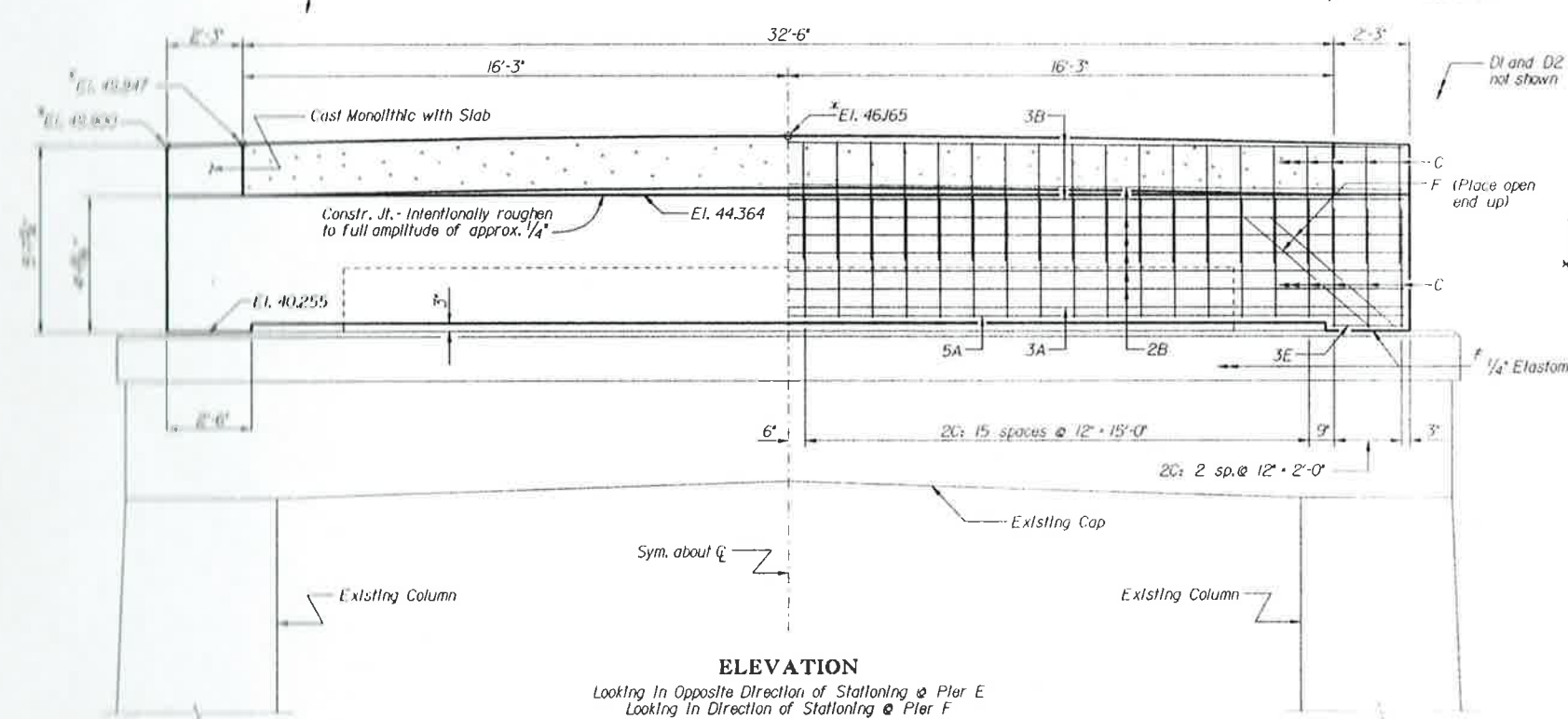
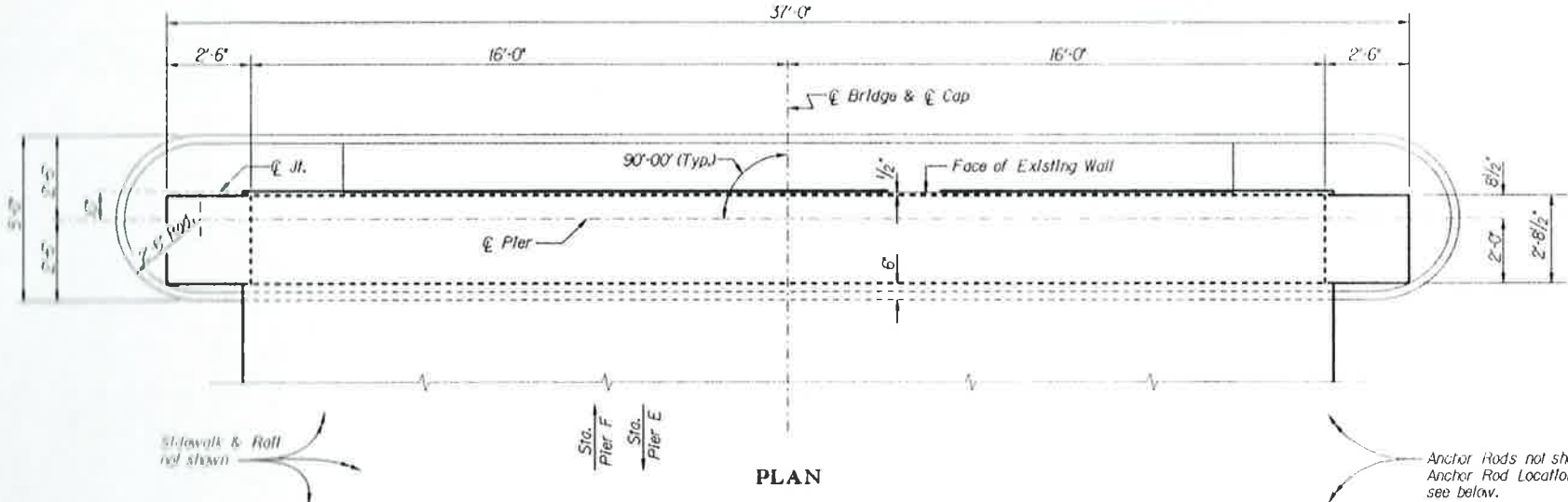
ITEM	UNIT	PIER EE OR FF
Concrete, Class 'C'	C.Y.	96.2
Reinforcing Steel	Lbs.	* 56,240
Drilled Shaft with Wet & Dry Excavation - 72\" Dia.	LF.	174
Permanent Casings - 72\" Dia.	L.S.	Nec.

\* Includes 120 Lbs. for Anchor Bolts.

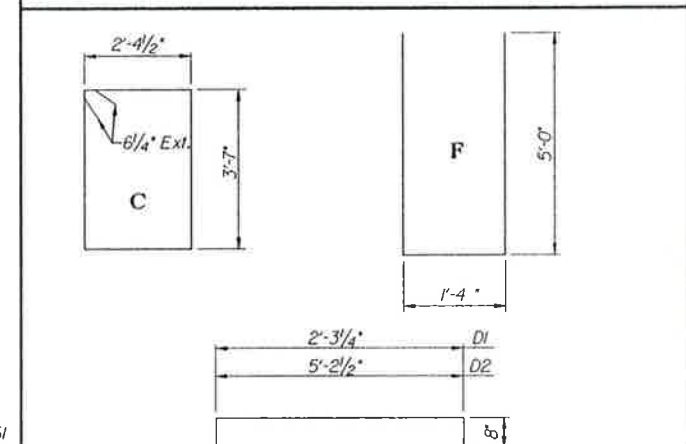
No Scale

REV.		SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN COLUMBIA, S.C.			
REV.					
REV.					
REVIEWED		PIERS EE & FF 2 OF 2			
QUAN.	BWB WAR 4-96				
DR.	VND BWB 3-96				
DES.	BWB YIA 3-96				
BY	CHK. DATE	FILE NO.	ROUTE	COUNTY	DRAWING NO.
		22.56961	US 701	GEORGETOWN	





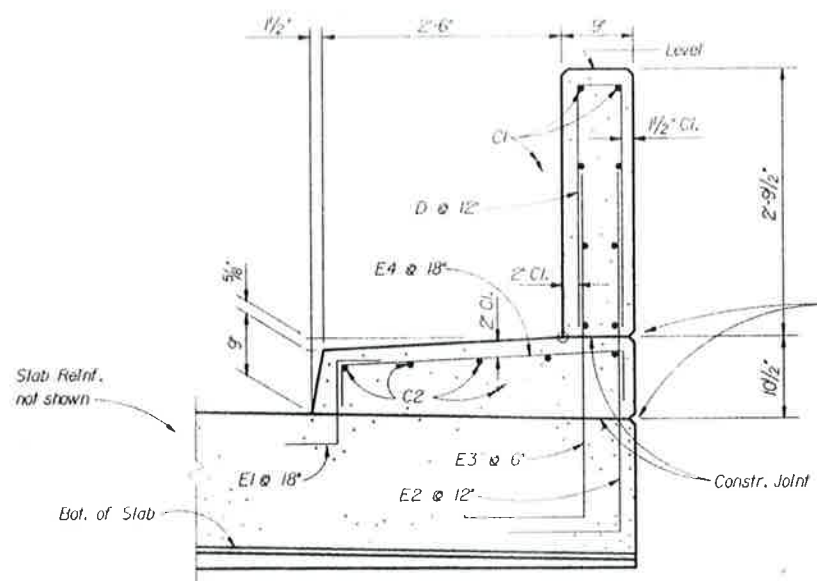
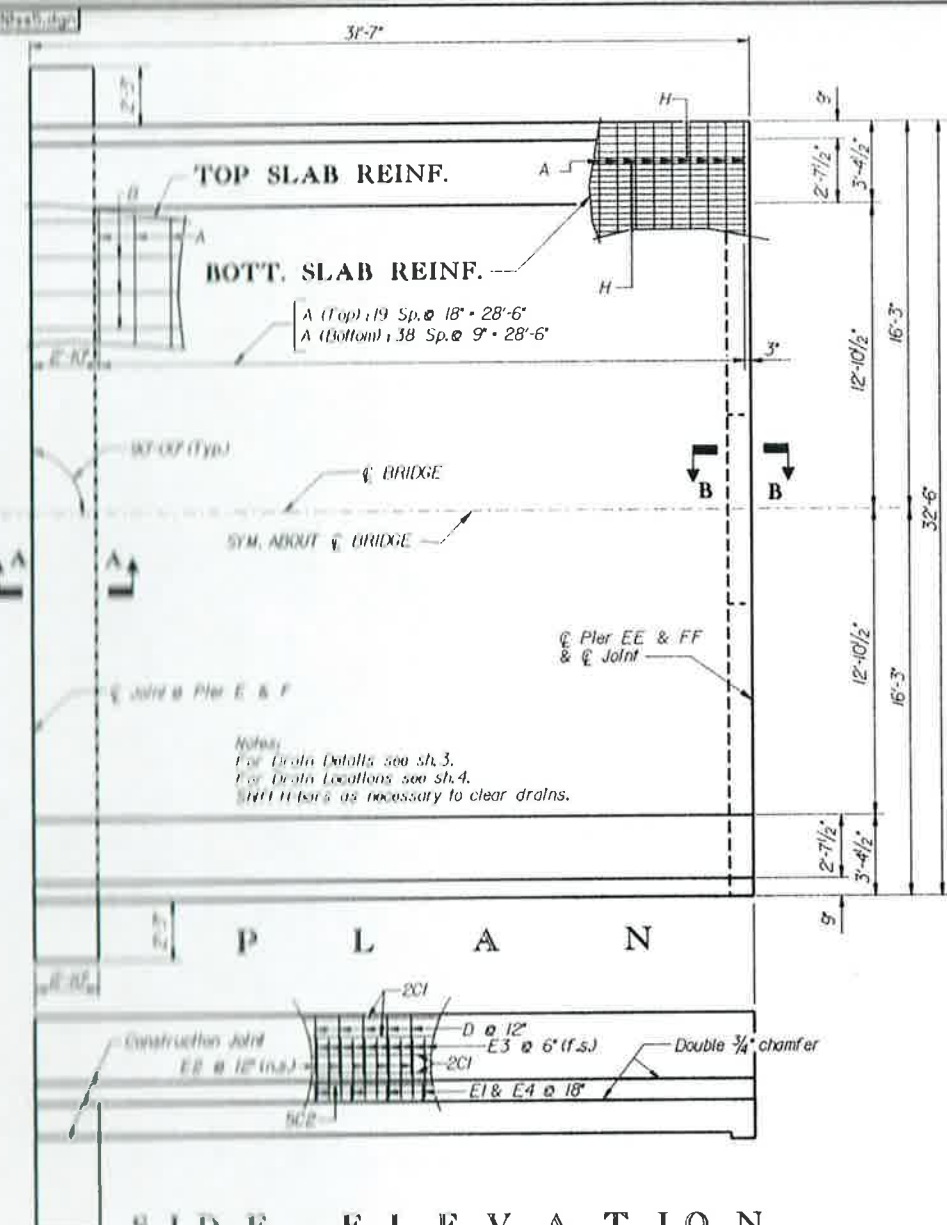
<b>MARK</b>	<b>SIZE</b>	<b>D</b>	<b>PIER E</b>		<b>PIER F</b>	
			<b>NO. REQ'D</b>	<b>LENGTH</b>	<b>NO. REQ'D</b>	<b>LENGTH</b>
A	II	S	8	36'-8"	8	36'-8"
B	5	S	18	36'-8"	18	36'-8"
C	5	B	76	13'-3"	76	13'-3"
D1	4	B	4	3'-8"	4	3'-8"
D2	4	B	2	6'-7"	2	6'-7"
E	4	S	6	2'-2"	6	2'-2"
F	5	B	4	11'-4"	4	11'-4"
Anchor Rod	1/4" Dia.	—	4	1'-9"	8	1'-9"



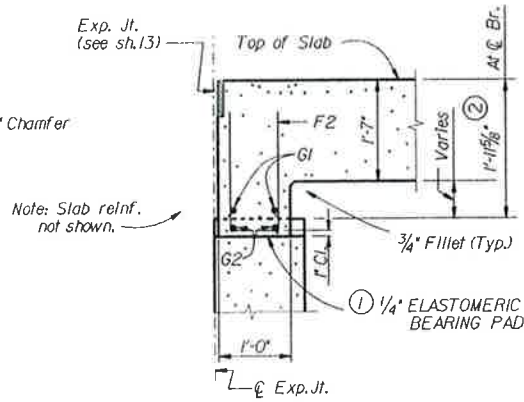
I T E M	UNIT	PIER E	PIER F
Concrete, Class "D"	C.Y.	14.4	14.4
Reinforcing Steel	Lbs.	3401	3430

REV.				SOUTH CAROLINA DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION BRIDGE DESIGN COLUMBIA, S.C.
REV.				
REV.				
REV.				
REVIEWED				SLAB BUILD-DOWN AT PIERS E & F
QUAN.	BWB	WAR	4-96	
DR.	WAR	BWB	3-96	
DES.	BY	CHK.	DATE	FILE NO. 22.56961 ROUTE US 701 COUNTY GEORGETOWN DRAWING NO.

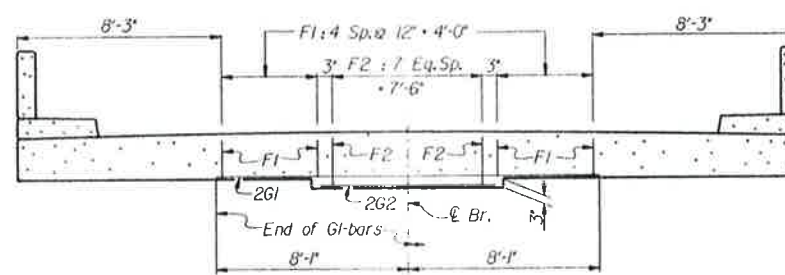




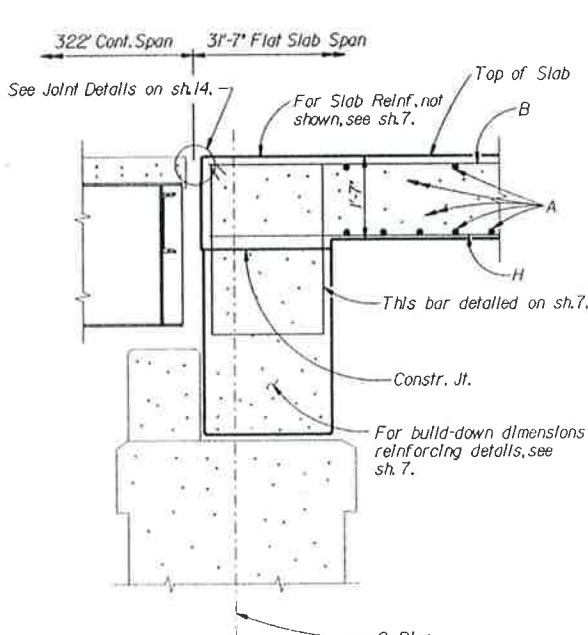
SIDEWALK & CONCRETE BRIDGE RAILING WALL DETAILS



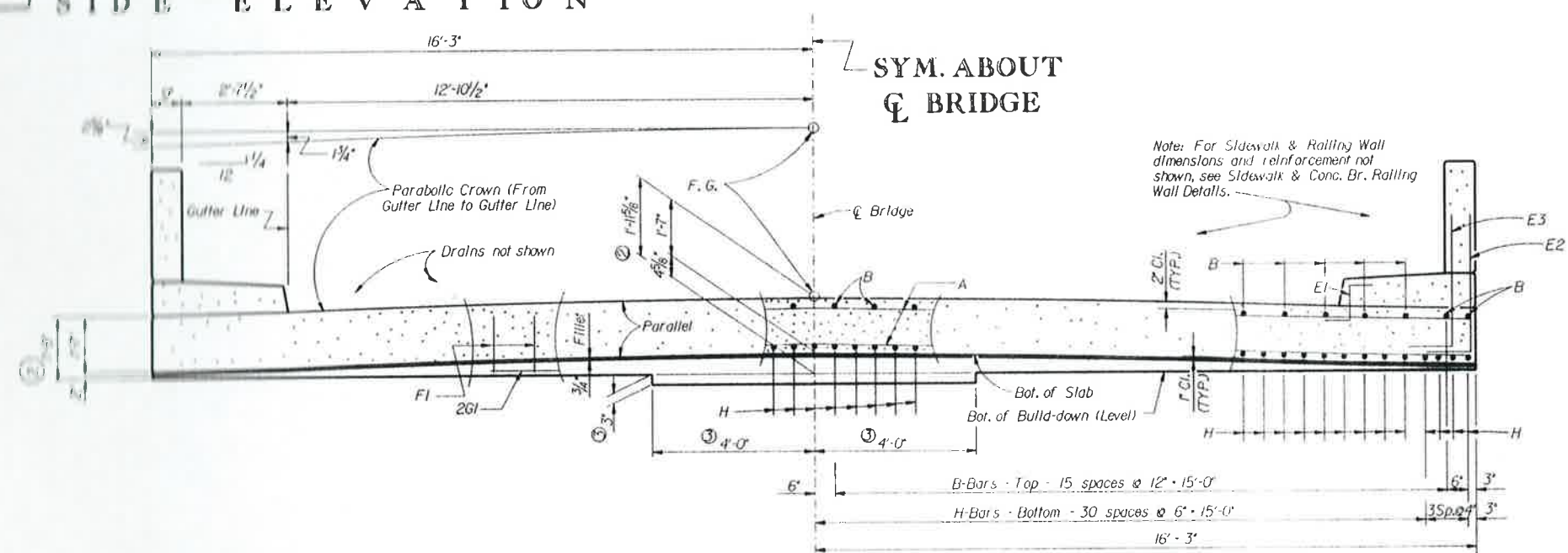
SECT. B-B  
(Showing Build-Down Details At Piers EE & FF)



SECTION SHOWING BUILD-DOWN REINFORCEMENT AT PIER EE OR PIER FF



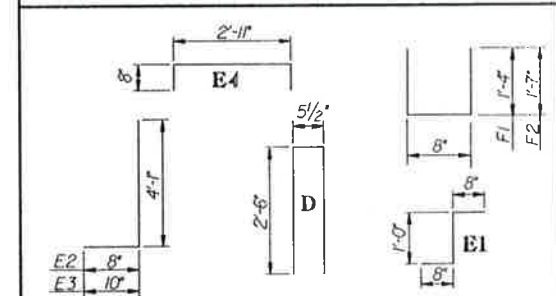
SECT. A-A  
(At Piers E & F)



SECTION THRU SLAB  
(Looking at Pier EE or FF)

REINF. STEEL SCHEDULE				
MARK	SIZE	D	31'-7" SPAN	
			NO. REQ'D	LENGTH
A	5	S	59	32'-2"
B	5	S	34	31'-1"
C1	6	S	16	31'-1"
C2	4	S	10	31'-1"
D	5	B	64	5'-6"
E1	4	B	44	2'-4"
E2	4	B	64	4'-9"
E3	5	B	126	4'-11"
E4	4	B	44	4'-3"
F1	4	B	10	3'-4"
F2	4	B	8	3'-10"
G1	4	S	2	16'-2"
G2	4	S	2	7'-8"
H	9	S	67	31'-1"
BB	1" Ht.	—	As Necessary	
C.H.C.U.	13" Ht.	—	As Necessary	

BENDING DETAILS



QUANTITIES

ITEM	UNIT	31'-7" SPAN
Concrete - Class 'D'	C.Y.	68.5
Reinforcing Steel	Lbs.	12602
Conc. Bridge Railing Wall	L.F.	63.2

\* Includes 6.3 C.Y. for Sidewalks.  
NOTES:  
No sidewalk concrete shall be cast until slab falsework has been struck.

- 1/4" Elastomeric Bearing Pad 60 - Durometer hardness. The materials for elastomeric bearings shall conform to the requirements of AASHTO M251 (Standard Specification for Plain and Laminated Elastomeric Bridge Bearings) as listed under subsections "Materials" and "Test". Pad shall be full length and width of slab build-down. Transverse length of Pads may be achieved by placing stock length pieces end to end provided that no individual piece is less than 6'-0" in length. All cost for furnishing and placing the pads shall be included in the unit price bid for Concrete for Structure, Class "D".
- At Interior Piers EE & FF only.
- At Pier EE & Pier FF only.

If the Contractor elects to support the slab falsework on the build-down at Piers E or F, special consideration shall be given to the overturning effects it may have on the build-down. The Contractor shall design his falsework to prevent the build-down from overturning during construction.

No Scale				SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN COLUMBIA, S.C.			
REV.				31'-7" SPAN SUPERSTRUCTURE			
REV.							
REV.				FILE NO. 22,56961 ROUTE US 701 COUNTY GEORGETOWN DRAWING NO.			
QUAN.	GDR	BWB	3-96				
DR.	GDR	BWB	3-96				
DES.	HEB	HDJ	3-93				
BY	CHK.	DATE					

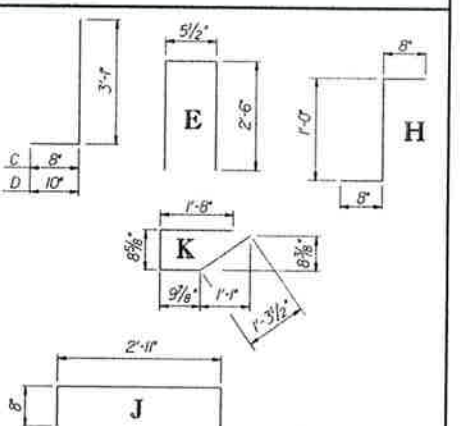


				115' of Soap
--	--	--	--	--------------

MARK	SIZE	D	112-0 SPAN	
			NO. REQ'D	LENGTH
A	5	S	480	32'-2"
B1	5	S	66	60'-0"
B2	5	S	66	56'-4"
C	4	B	240	3'-9"
D	5	B	470	3'-11"
E	5	B	240	5'-6"
F	6	S	80	22'-7"
G1	4	S	10	60'-0"
G2	4	S	10	56'-0"
H	4	B	156	2'-4"
J	4	B	156	4'-3"
K	4	B	54	4'-6"
L	4	S	12	7'-2"

BB	1" Ht.	—	—	As Nec.
BBU	1 1/2" Ht.	—	—	As Nec.

### BENDING DETAILS

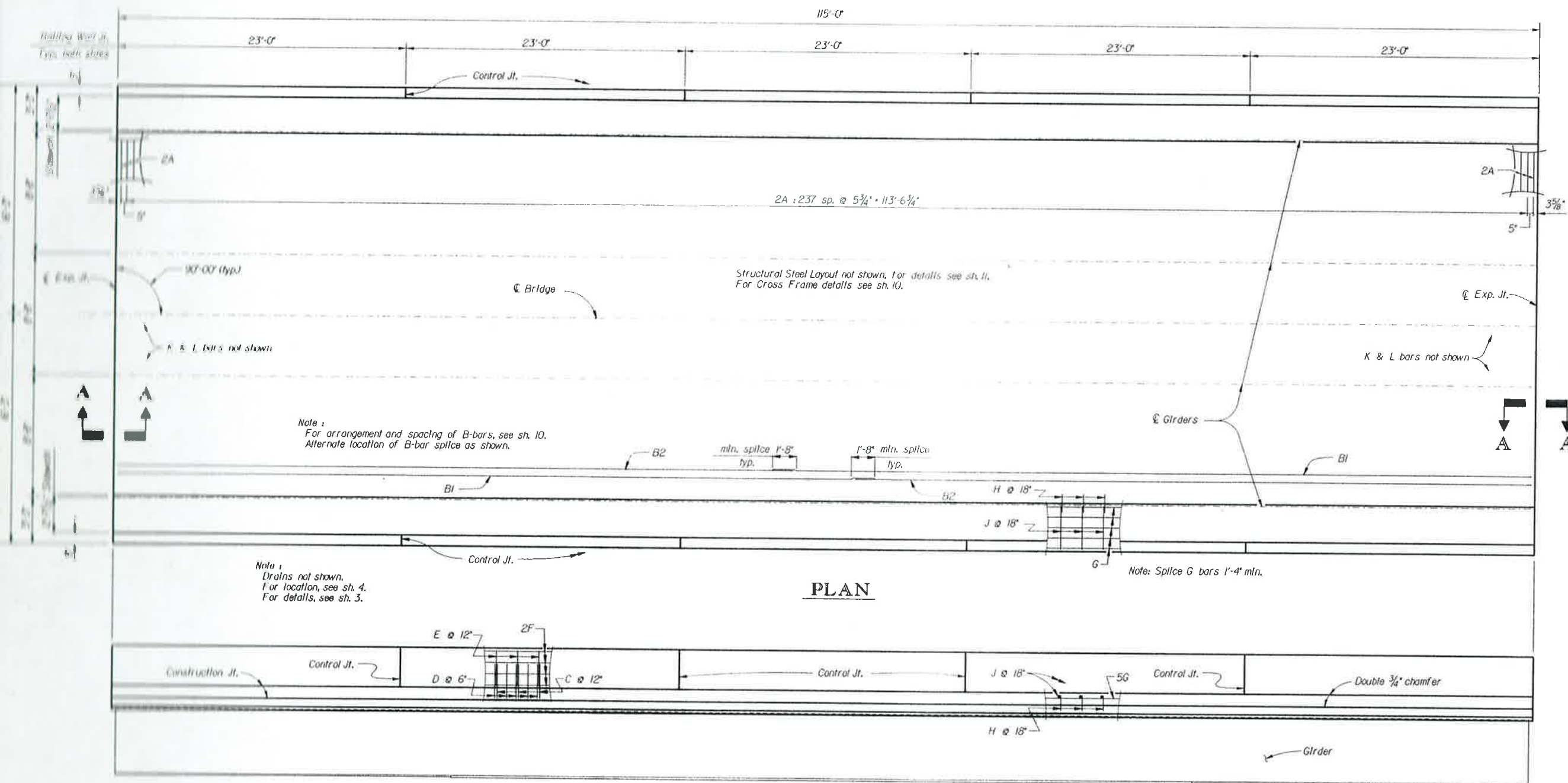


## QUANTITIES

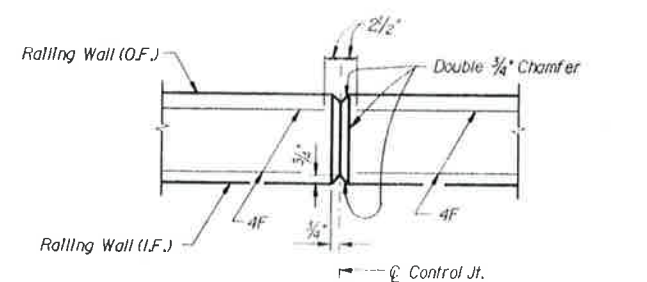
I T E M	UNIT	115' Span
Class "D" Concrete	C.Y.	* 112.0
Reinforcing Steel	Lbs.	32,404
Structural Steel	Lbs.	112,500
Concrete Bridge Railing Wall	L.F.	230
Elastomeric Bearings	Ea.	8

\* Includes 23J C.Y. for Sidewalks.

Note:  
For Bearing Details, see sh. 12.  
For Standard Details, see sh. 3.

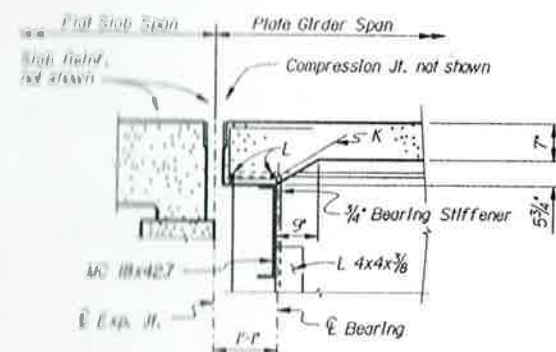


### SIDE ELEVATION



Note:  
Place Double  $\frac{3}{4}$ " Chamfer on each face of Railing Wall at  $\phi$  Control Jt.

## CONTROL JOINT DETAILS



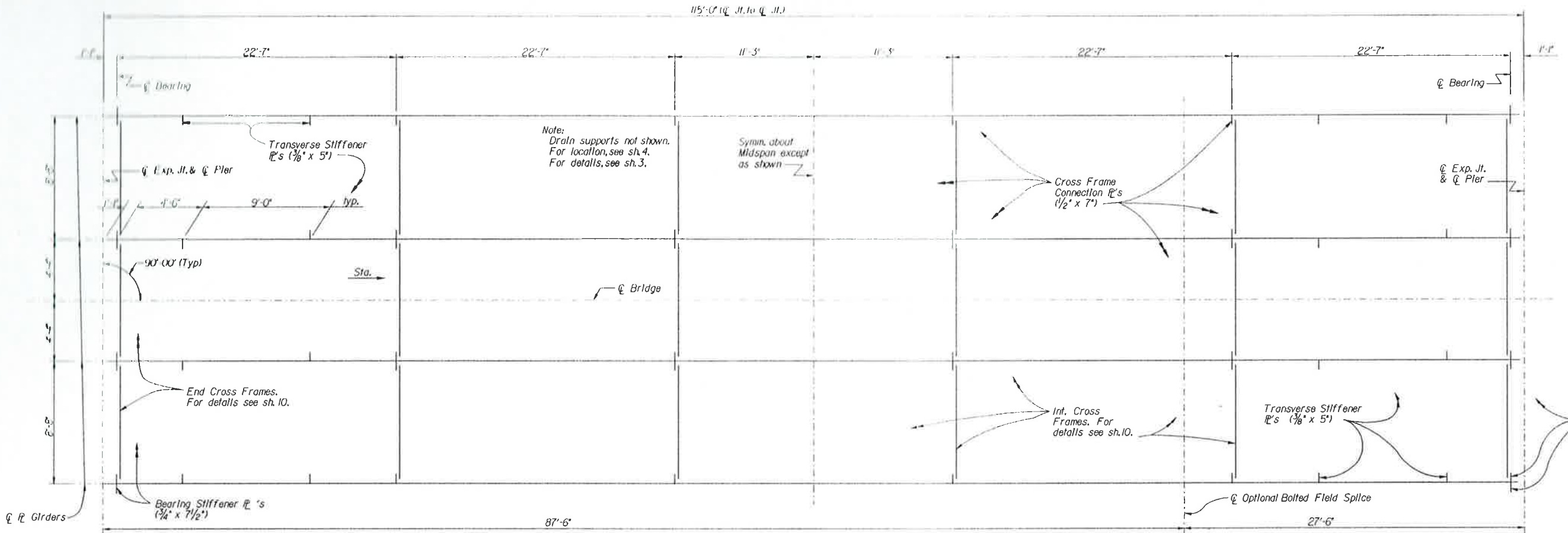
SECTION A-A

NO SCALE

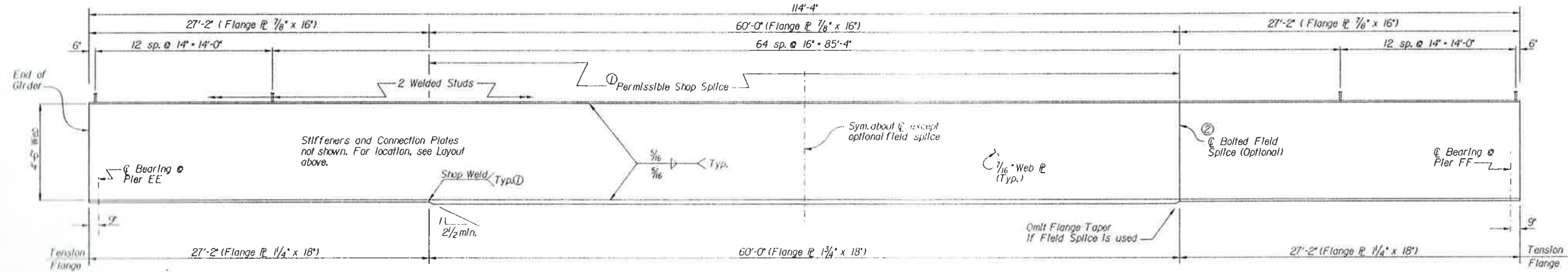
REV.				SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN COLUMBIA, S.C.			
REV.							
REV.							
REVIEWED							
QUAN.	GDR	VND	3-96	115' SPAN			
DR.	VND	BWB	3-96				
DES.	BWB	YIA	3-96				
	BY	CHK.	DATE				
FILE NO.		22.56961		ROUTE		COUNTY	
		US 701		GEORGETOWN		DRAWING NO.	







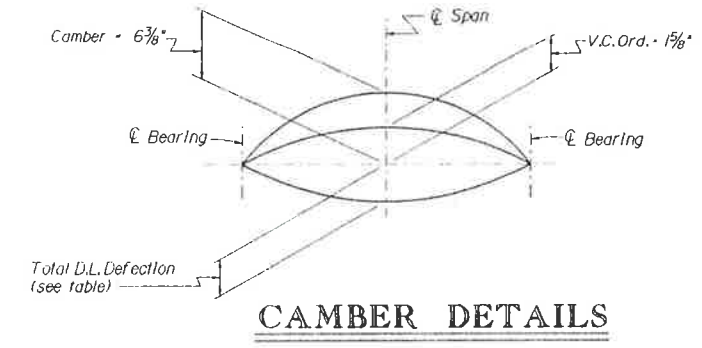
### STRUCTURAL STEEL LAYOUT



### GIRDER DETAILS

DEAD LOAD DEFLECTIONS		
	Dead Load (k/ft)	D.L. Defl.
Structural Steel	0.241	7/8"
Slab	0.794	2 3/4"
Stay-In-Place Forms	0.112	3/8"
Superimposed D.L.	0.363	3/4"
Total	1.510	4 3/4"

Note:  
All Flange Plates and Web Plates shall conform to the latest AASHTO Specification for M270 Grade 50 Steel.  
Bearing Stiffeners, Transverse Stiffeners, and Connection Plates shall conform to the latest AASHTO Specification for M270 Grade 36 Steel.



Note:  
Flange and web shop splices are permitted subject to the following conditions:  
One web shop splice will be allowed. The web splice shall not be located within 15 feet of maximum dead load deflection nor within 15 feet of a support.  
Maintain a minimum of 2 feet between web and flange shop splices.  
Maintain a minimum of 6 inches between shop splices and connection plates or stiffener plates.  
Splices in flanges shall be made only at locations shown below.  
The location and details of the web and flange shop splices shall be shown on the shop plans. See note ①.

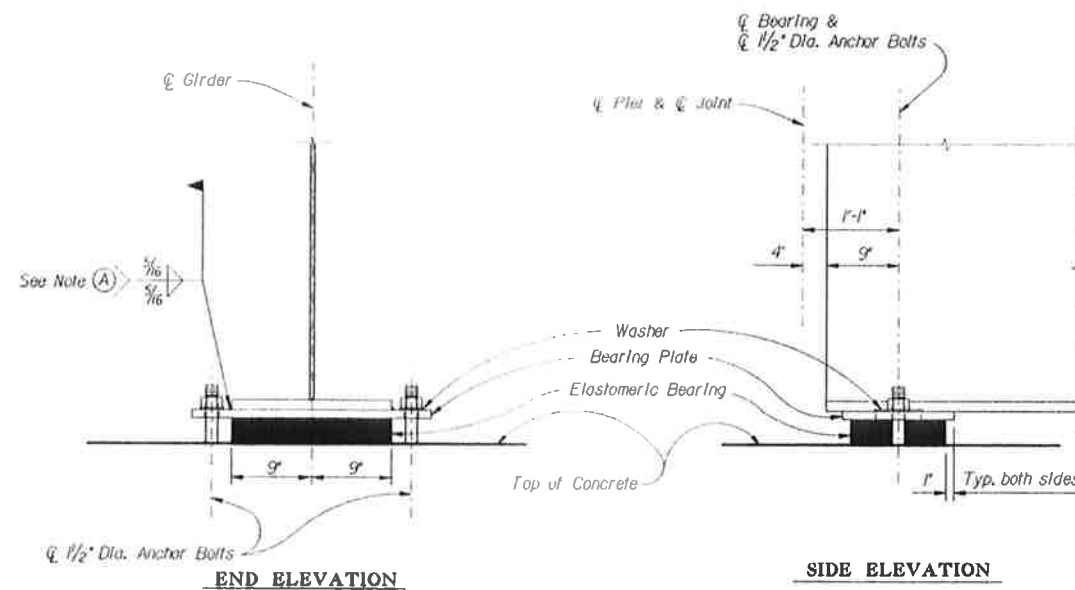
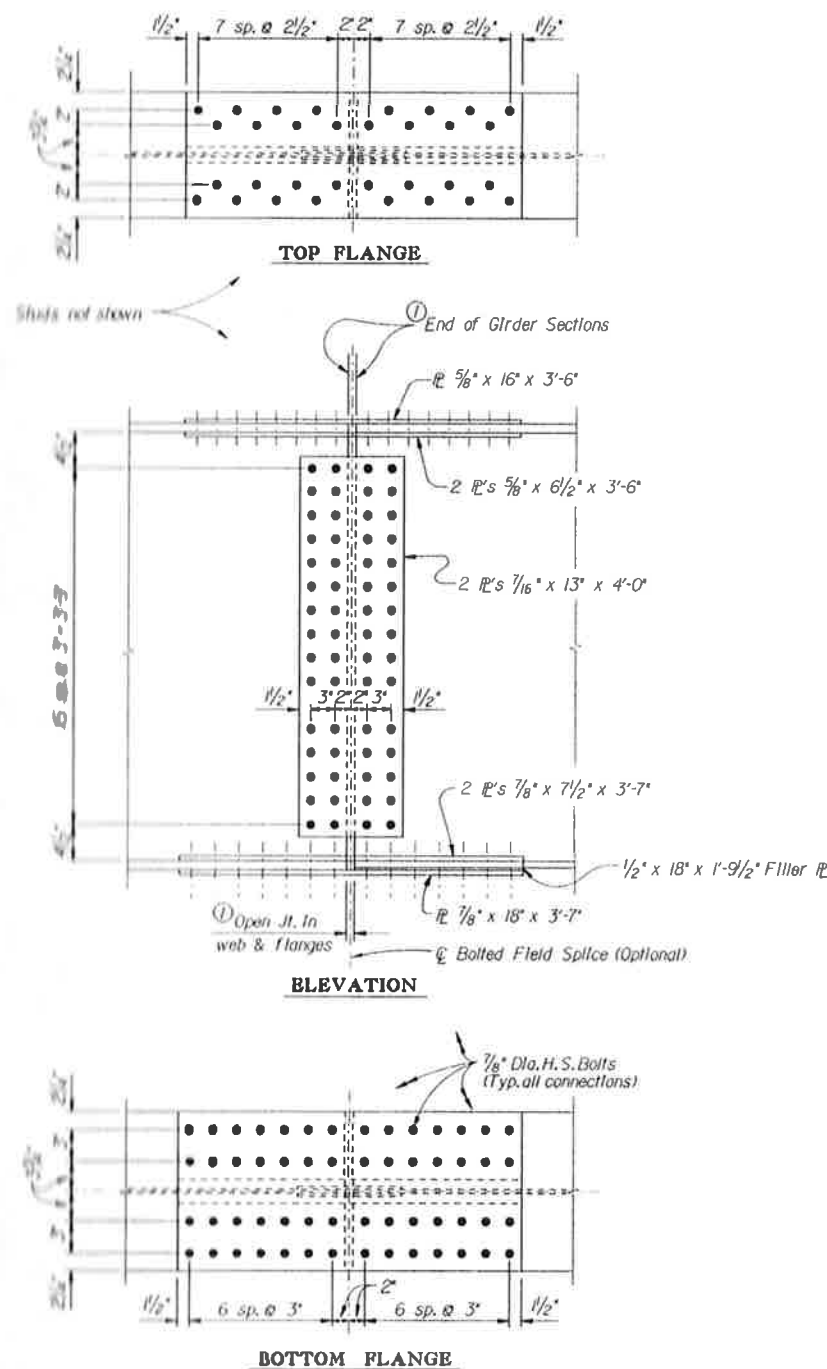
① All flange or web splice welds shall be prequalified complete joint penetration groove welds in accordance with the latest ANSI/AASHTO/AWS D1.5. Both sides of all butt welded splices are to be ground smooth after welding. The grinding of welds shall be made in the direction of stress; longitudinally for girder flanges. Radiographic inspection is required in accordance with the Special Provisions.

② Studs may be shifted slightly at field splices to give clearance for bolts.

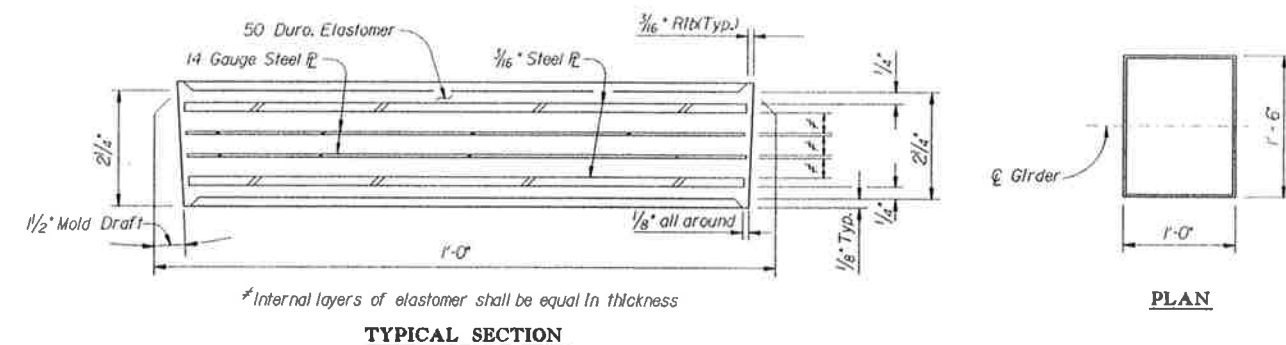
Note:  
For Stud Details see sh. 3.  
For Bearing Details see sh. 12.  
For Optional Field Splice Details see sh. 12.  
The following welding sequence is to be followed in fabricating girder section in the shop:  
a) Butt weld flange and web splices.  
b) Weld flange to web.  
c) Weld stiffeners & connection plates to girder.

Bearing Stiffeners shall be vertical; all other Stiffeners shall be normal to grade.

REV.					SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN COLUMBIA, S.C.			
REV.								
REV.								
REV.								
REVIEWED					STRUCTURAL STEEL LAYOUT AND GIRDER DETAILS 115' SPAN			
QUAN.								
DR.	COB	BWB	3-96		FILE NO.	ROUTE	COUNTY	DRAWING NO.
DES.	BWB	YIA	3-96		22.56961	US 701	GEORGETOWN	
BY	CHK.	DATE						



Note (A):  
Caution shall be exercised where a field weld will be made while elastomeric bearing pad is in contact with metal. In no case shall the elastomer or elastomer bond be exposed to instantaneous temperatures greater than 400°F. Any damage to elastomeric bearing due to welding will be cause for rejection. Temperature shall be controlled by use of heat crayons furnished by the Contractor.



ELASTOMERIC BEARING (H-50 LAMINATED)

$$\text{Max. (D.L. + L.L.) Reaction} = 157 \text{ kips}$$

Note:  
For Elastomeric Bearing Specifications, see Special Provisions. All structural steel for  
Bearing Plates shall conform to the latest AASHTO Specification M270 Gr.50 (ASTM A709 Gr.50).  
Pads were designed using AASHTO Method A.  
Pad material shall be Elastomer Grade 2.

REV.				SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN COLUMBIA, S.C.			
REV.				<div style="text-align: center;"> <h1>OPTIONAL FIELD SPLICE &amp; BEARING DETAILS</h1> <h2>115' SPAN</h2> </div>			
REV.							
REVIEWED							
QUAN.							
DR.	GOR	BWB	3-96				
DES.	BWB	YIA	3-96	FILE NO.	ROUTE	COUNTY	DRAWING NO.
	BY	CHK.	DATE	22.56961	US 701	GEORGETOWN	



# COMPRESSION SEALS

The nominal joint width, "W", shall be equal to  $1\frac{1}{4}$ " @ 60°F. At the time of construction, decrease the joint opening by .011" for each 10°F that the temperature exceeds 60°F or increase the joint opening by .011" for each 10°F that the temperature is below 60°F. The temperature shall be the dry air temperature measured in the shade.

Elastomeric seals shall comply with the requirements of AASHTO M297. The lubricant/adhesive shall comply with the requirements of ASTM D4070. Prior to installation of seals, the Contractor shall furnish the Engineer 3 copies of certifications of conformance with the specifications for seals and lubricant/adhesive. These certifications shall consist of a copy of the manufacturer's test reports, or a statement by the supplier accompanied by the test results, certifying that the materials have been sampled, tested and inspected in accordance with AASHTO M297 for seals and ASTM D4070 for lubricant/adhesives. Certifications shall be signed by an authorized agent of the manufacturer or supplier. Failure to provide the above certification for seals and lubricant/adhesives may be considered grounds for rejection of the seals.

Each lot of seal shall be marked to show the lot number and shall be identifiable as to the manufacturer by die markings. Each container of lubricant/adhesive shall be clearly marked with the manufacturer, the lot number and the shelf life expiration date.

Preform seals shall be one of the following shapes:

1. WA-300, as manufactured by Watson-Bowman-Acme Corp.
2. X-3000, as manufactured by Escoseal Company

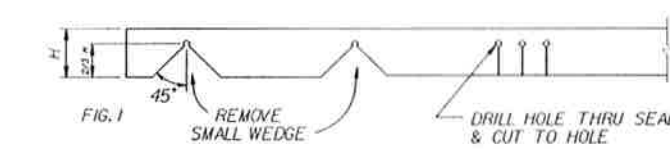


FIG. 1  
UPTURN/DOWNTURN DETAIL

## SEAL UPTURN PROCEDURE

1. Locate 1/2" dia. hole and drill thru seal as shown in FIG. 1 using a standard twist drill.
2. Using a sharp long blade knife or hacksaw, cut lower section of seal to 1/2" dia. hole as shown in FIG. 1.
3. Bend seal in desired position and install as shown in FIG. 2.
4. Complete seal installation following manufacturer's instructions.

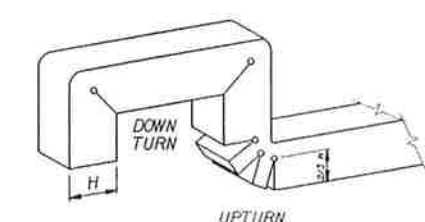


FIG. 2

## SEAL DOWNTURN PROCEDURE

1. Locate 1/2" dia. hole and drill thru seal as shown in FIG. 1 using a standard twist drill.
2. Construct two lines to form a triangle below the 1/2" dia. hole as shown.
3. Using a sharp long blade knife, cut along 45° sloped lines and remove triangular shaped piece of seal as shown in FIG. 1.
4. Bend seal down and install into joint as shown in FIG. 2. Continue normal seal installation.

## DETAIL FOR SEAL TURNS

## NOTES FOR EXPANSION JOINTS

All Plates shall conform to the requirements of the latest AASHTO M270 Grade 50W (ASTM A709 Gr. 50W) and shall be of weldable quality.  $\frac{3}{8}$ " x  $\frac{3}{8}$ " Stop Bars may be AASHTO M270 Grade 36 Steel (ASTM A709 Gr. 36).

Top surface of 3/8" Plates shall conform to crown of finished roadway and shall have smooth edges. 3/8" Plates may be fabricated in reasonable lengths and connected at job site with full penetration butt welds. Top and inside surfaces of welds shall be ground flush after welding. Splices shall be welded before bonding seals. If desired by the contractor, 9/16" Ø holes at approximately 2 ft. on center may be provided in lower portions of 3/8" Plates to bolt plates to forms.

All Studs shall be Electrically Welded.

Exposed areas of armor plates, including stop bars, shall be painted with one shop coat of Inorganic Zinc Silicate paint. A minimum of 3.5 mils dry film thickness will be required. Field painting will not be required. Anchor studs need not be painted.

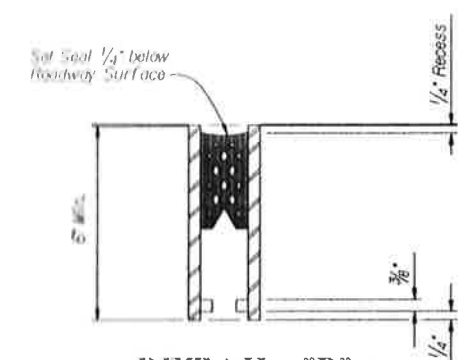
Field bend top slab reinforcing as required to prevent fouling Anchor Studs.

Expansion Joint dimensions shown on this sheet to be adjusted for the temperature at time of casting slabs.

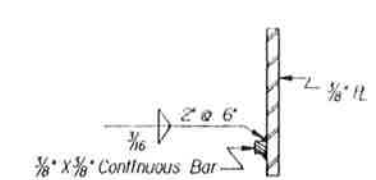
Installation of Seals shall be in accordance with manufacturer's instructions unless otherwise stipulated in these plans or the Special Provisions for this project. Elastomeric Seals shall be continuous without splices.

All costs for furnishing materials, fabricating and installing armor plates and elastomeric seals complete and in place shall be included in the unit price bid per linear foot for "Compression Seal Joint".

Measurement of expansion joint length will be taken along the centerline of joint from gutter line to gutter line. Payment for the measured length will be full compensation for any additional detailed extension required to terminate the joint at the face of parapet, curb or sidewalk parapet.

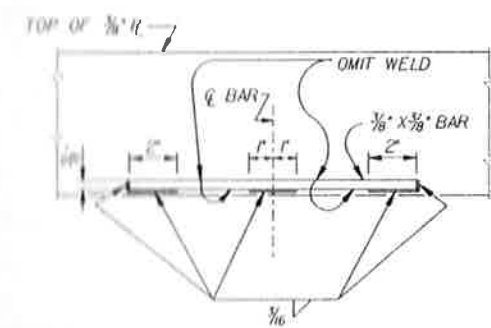


DETAIL "B"  
NO SCALE

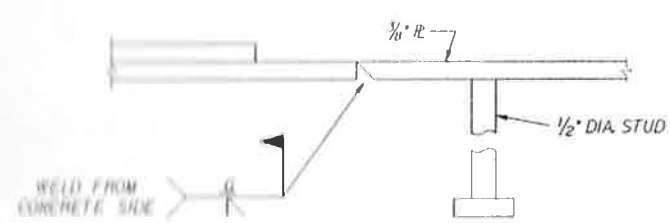


DETAIL "Z"  
NO SCALE

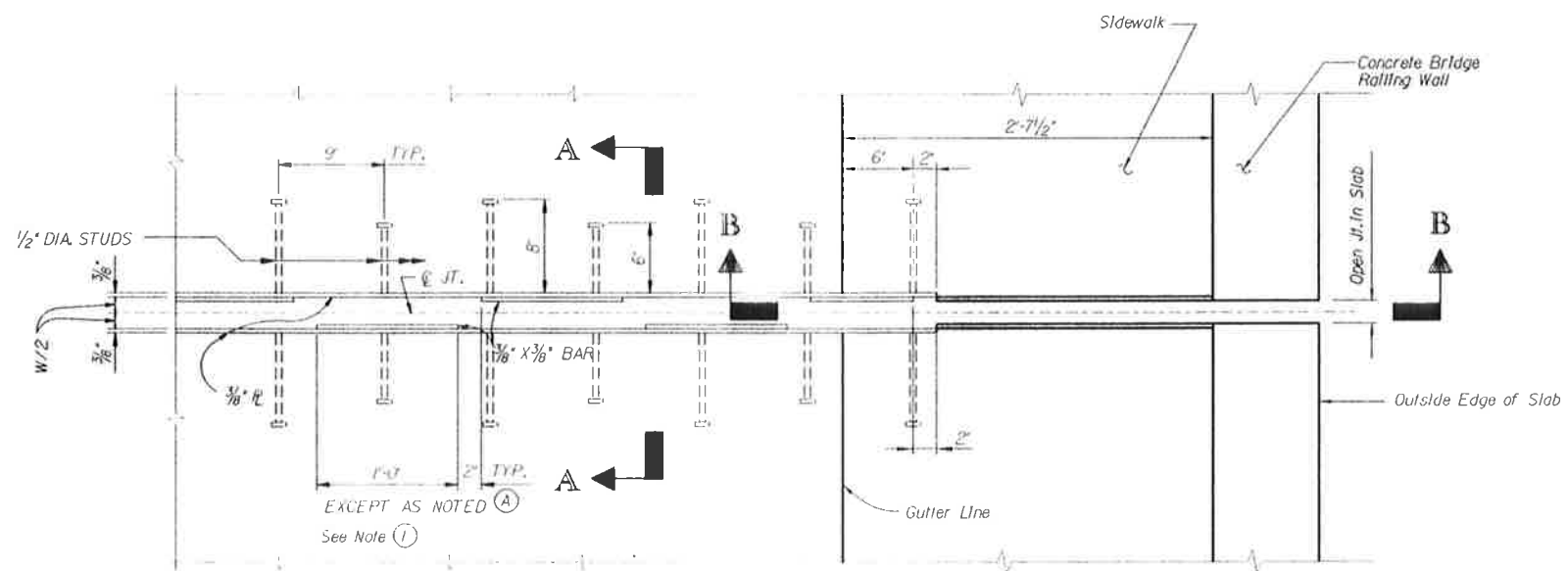
- ① As an alternate to the  $\frac{3}{8}$ " x  $\frac{3}{8}$ " x 1'-0" Stop Bars shown, the contractor may elect to use a continuous  $\frac{3}{8}$ " x  $\frac{3}{8}$ " Bar attached to one side of the joint only. The continuous  $\frac{3}{8}$ " x  $\frac{3}{8}$ " Bar shall be attached by  $\frac{3}{16}$ " Fillet Weld top and bottom (See Detail "Z").



WELDING DETAILS  
FOR  $\frac{3}{8}$ " x  $\frac{3}{8}$ " BAR  
SCALE: 3'-1'-0"

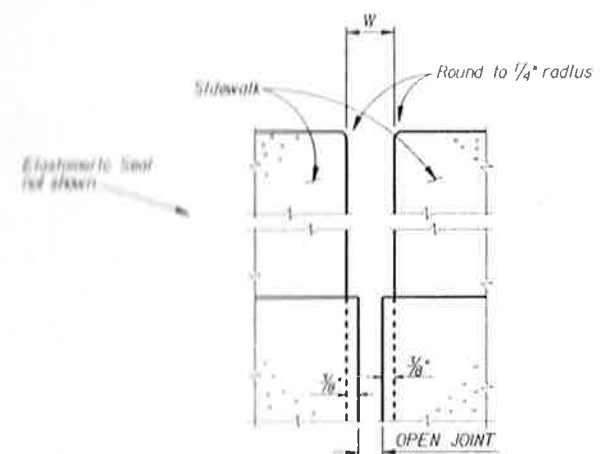


FIELD BUTT WELD DETAIL  
NO SCALE

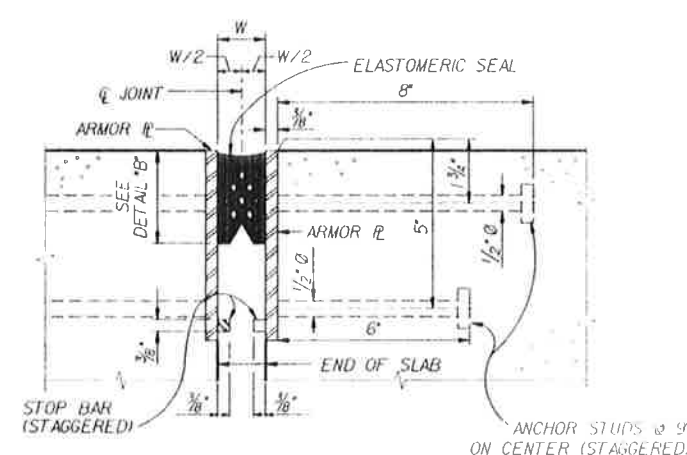


PART PLAN - EXPANSION JOINT  
ELASTOMERIC SEAL NOT SHOWN  
SCALE: 1 1/2" = 1'-0"

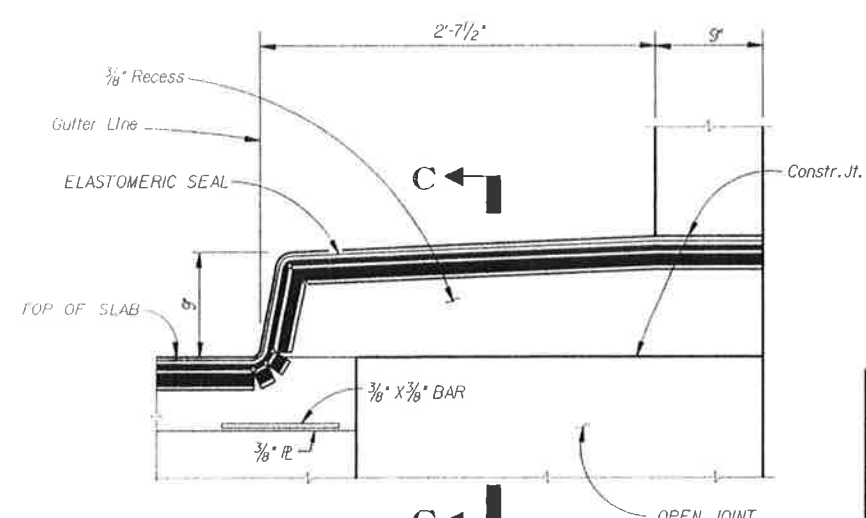
- (A) VARY LENGTH OF  $\frac{3}{8}$ " x  $\frac{3}{8}$ " BAR AS NECESSARY AT ENDS OF ARMOR PL.



SECTION C-C  
SCALE: 4'-1'-0"

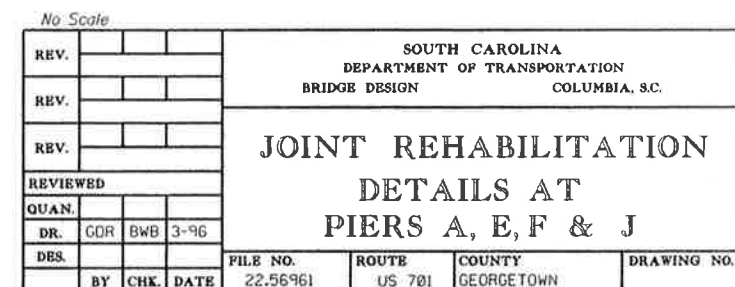


SECTION A-A  
SCALE: 4'-1'-0"



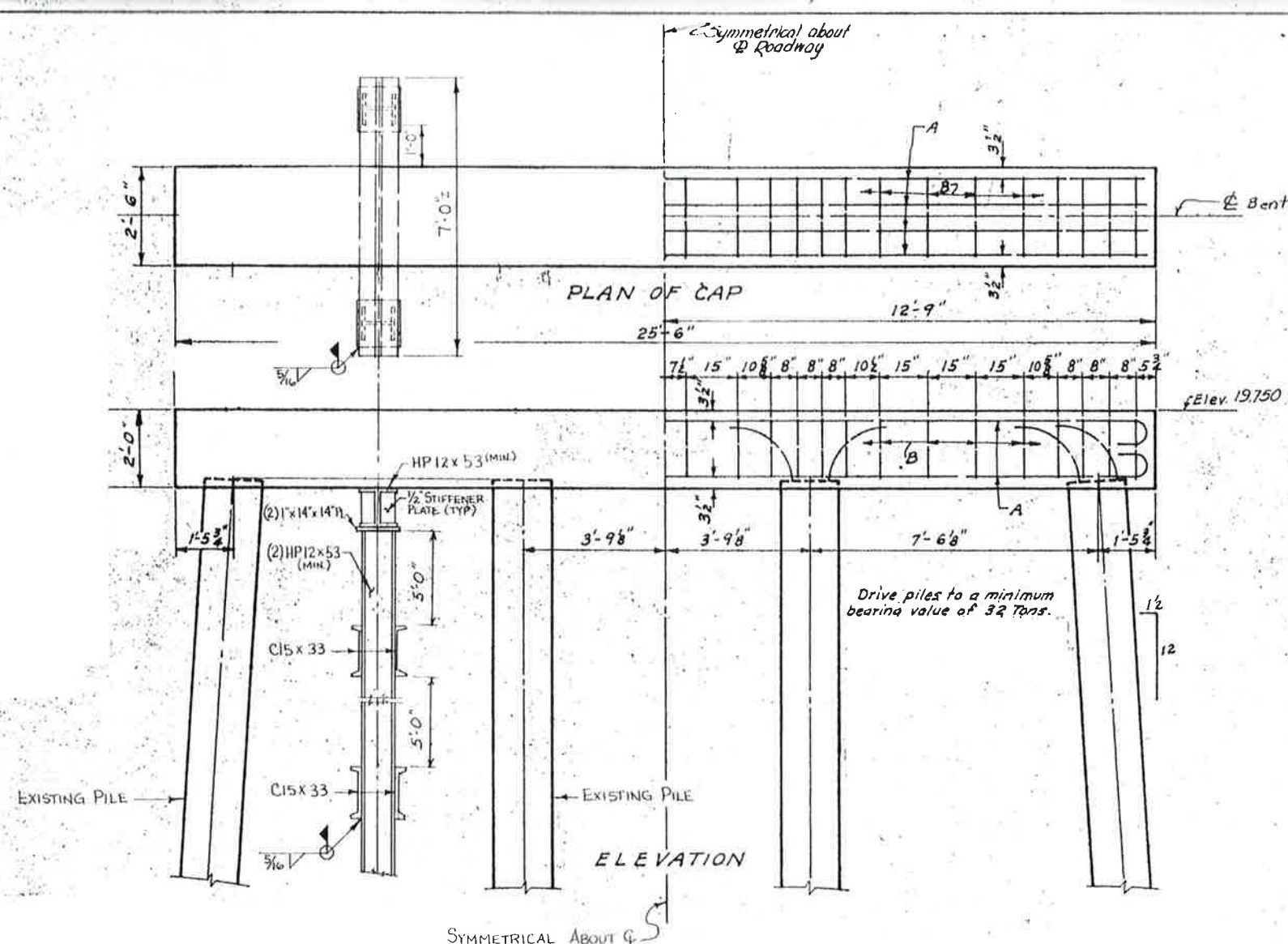
SECTION B-B  
SCALE: 1 1/2" = 1'-0"

REV.	GDR	BWB	3-96	SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN COLUMBIA, S.C.			
			FOR 22.56961				
REV.	JP	REL	4-94				
			LUBRICANT/ADHESIVE				
REV.	JP	VND	1-92	COMPRESSION SEALS			
REV.	REL	MSA	10-90				
			PYMNT. METHOD				
REVIEWED				COMPRESSION JOINT DETAIL AT PIER EE OR PIER FF			
QUAN.							
DR.	JP	JLC	10-88				
DES.							
BY	CHK.	DATE		FILE NO.	ROUTE	COUNTY	DRAWING NO.
				22.56961	US 701	GEORGETOWN	702-1

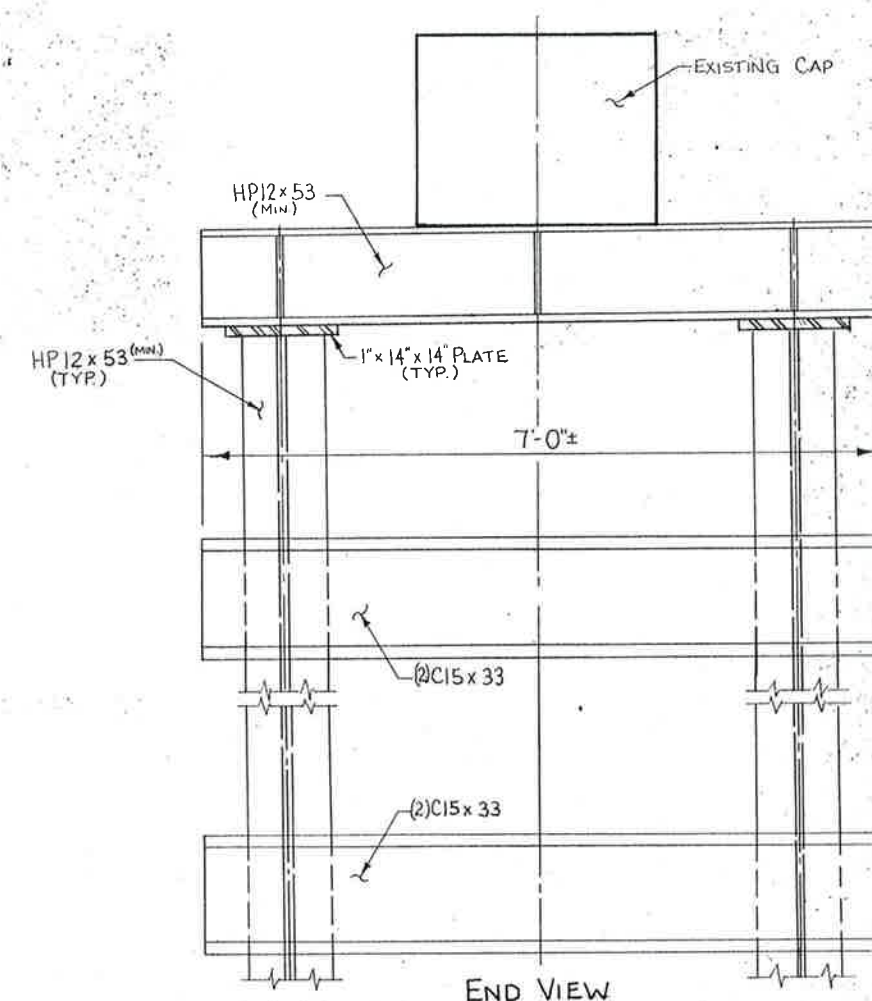




FED. AID	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	GEORGETOWN-HORRY	2226.226	701	14A	



MATERIAL	LENGTH/SIZE
4 EA 12 x 53 (MIN) STEEL HP	75' 0" (APPROX)
8 EA C15 x 33	7' 0" (APPROX)
2 EA 12 x 53 (MIN) STEEL HP DROP CAPS	7' 0" (APPROX)
4 EA CAP PLATES	1" x 14" x 14"



BRIDGE NO. 1  
BENTS NO. 28, 23, 35, 8, 38, 51  
BRIDGE NO. 3  
BENTS NO. 8, 23, 26, 39, 42, 8, 43

S. C. STATE HIGHWAY DEPARTMENT  
COLUMBIA

BENT FOR 30' SPAN

OVERFLOW BRIDGES

GREAT PEE DEE RIVER  
AT YAUHANNAH

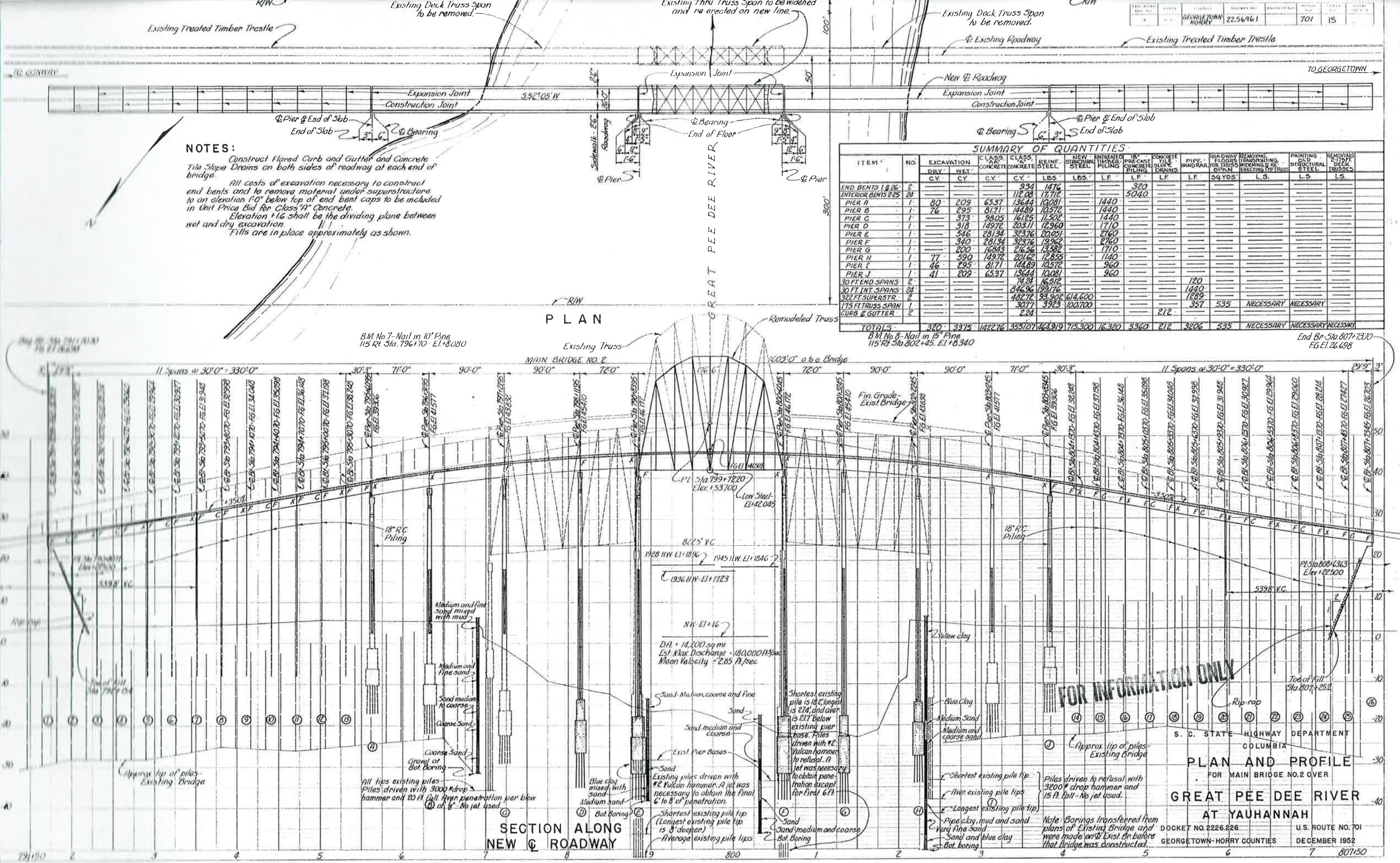
DOCKET NO. 2226.226 ROUTE NO. 701  
COUNTY: GEORGETOWN-HORRY DATE: FEB. 1952

SCALE 1/2" = 1'-0"

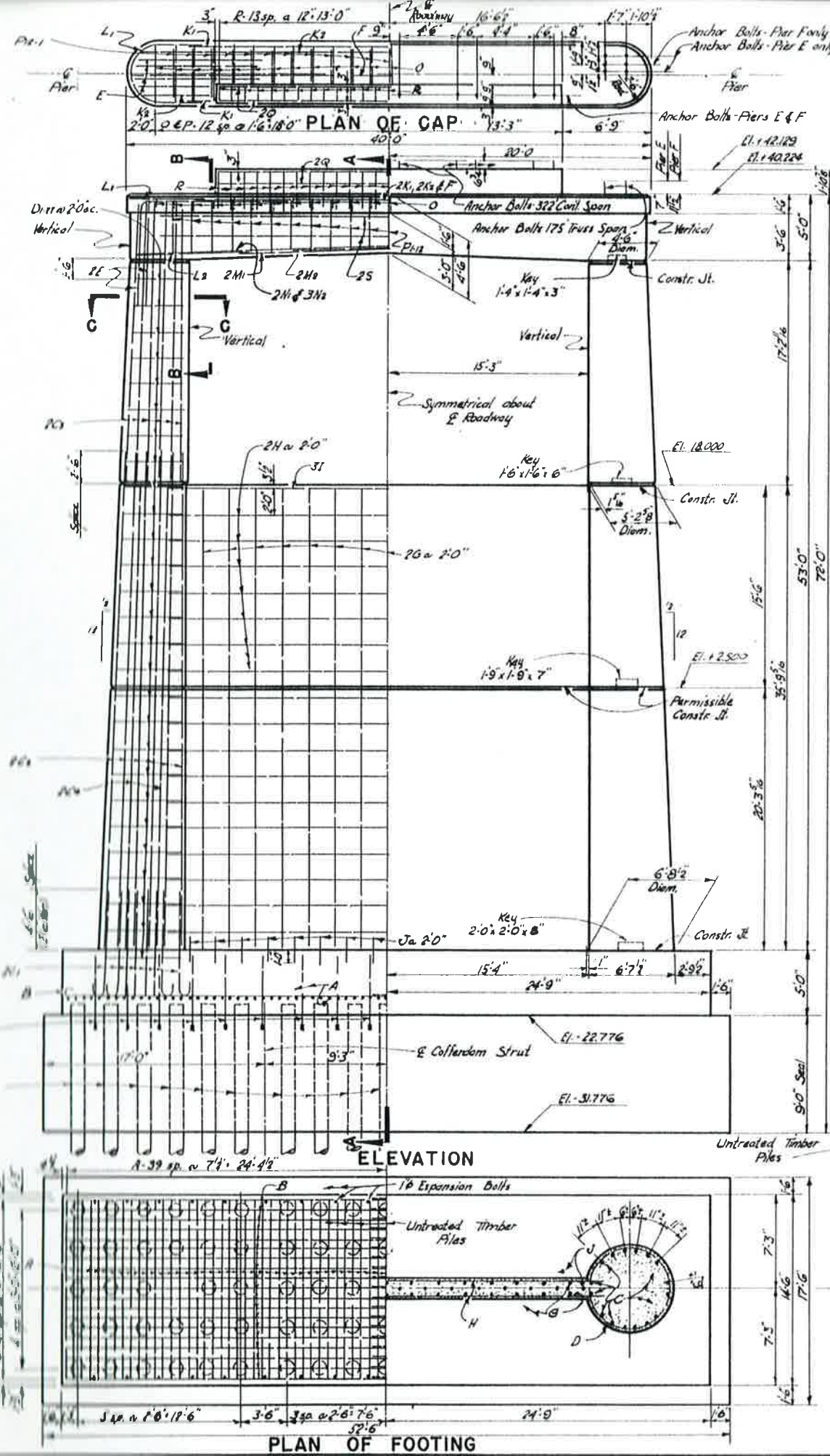
OVERFLOW  
BRIDGE  
REPAIRS

Rev	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Rev	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

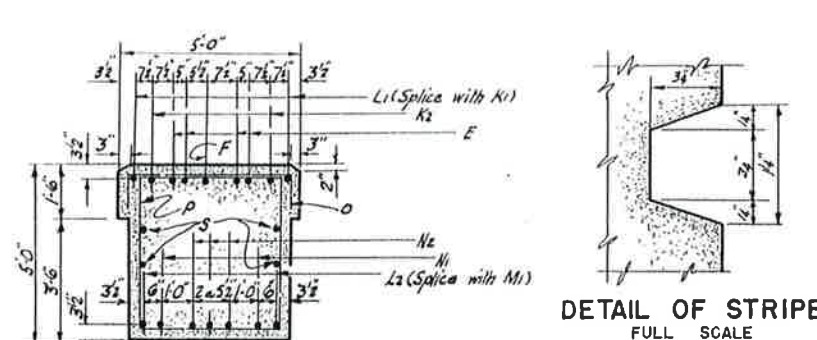








Notes:  
For details of Anchor Bolts see Sheets No. 14 & 15  
For Anchor Bolt Layout see Sheet No. 15



PIER	NO. REQD.	SIZE	LENGTH	WT. EA. BOLT	TOTAL WT. EA. PIER
E	10	1 1/2"	1'-6 3/4"	8.90 lbs.	89.0 lbs.
F	8	1 1/2"	2'-10"	24.54 lbs.	196.3 lbs.
F	10	1 1/2"	1'-6 3/4"	8.90 lbs.	89.0 lbs.
F	4	1 1/2"	3'-2 1/2"	26.80 lbs.	107.2 lbs.

	PIER E	PIER F
Cap and Build-up	34.73 C.Y.	34.73 C.Y.
Columns and Wall	158.68 C.Y.	158.68 C.Y.
Dry Footing	130.35 C.Y.	130.35 C.Y.
Total (Class "A" Conc.)	323.76 C.Y.	323.76 C.Y.
Seal (Class "AA" Conc.)	281.34 C.Y.	281.34 C.Y.

Dead Load Superstructure	369 <sup>k</sup>
Live Load Superstructure	157 <sup>k</sup>
Dead Load Pier	2383 <sup>k</sup>
Buoyancy on Pier (Water Elev. O.O.)	-787 <sup>k</sup>
Backfill (7 ft. Net Wt.)	147 <sup>k</sup>
Total of Above	2269 <sup>k</sup>
Average Bearing	= 123 TONS/PILE

MAXIMUM PILE BEARING DUE TO WIND  
Long Wind Comp. on Superstr. (For 45° Wind + 25% of 50° Trans. Wind on Cont. Sp. & 50% on Truss Sp.) = 4.9 T/PILE  
Trans. Wind Comp. on Superstr. (For 45° Wind + 50% of 50° Trans. Wind) = 2.0 T/PILE  
Long Wind Comp. on Pier (For 45° Wind + 50% of 50° W.L. Pier) = 1.9 T/PILE

Notes:  
For General Notes see Sheet No. 15  
All seal concrete to be class "AA". All other concrete to be class "A".  
Buildup to be cast monolithic with cap.  
Anchor Bolts to be paid for as reinforcing steel and are included in Pier Quantities. See Sheets No. 14 & 15 for details.  
No cable clips required.  
Footings may be lowered a maximum of 2'-0" without providing additional vertical column steel by decreasing length of splice.  
Drive Piles to a minimum bearing value of 15 tons per Pile.  
For special requirements and payment of pier quantities see special Provisions.

MARK	SIZE NO.	NO. REQD.	LENGTH	D	BENDING DETAILS
A	7	79	15'-10"	B	13'-10"
B	6	38	25'-10"	B	
C	10	32	9'-2"	B	
C	10	24	38'-3"	S	
C	10	24	21'-8"	S	25'-2"
C	10	8	35'-6"	S	
D	10	24	11'-5" to 20'-3"	B	
D	10	24	17'-1"	B	
E	11	8	39'-3"	S	6" Rad. 5"
F	6	1	39'-3"	S	
G	5	30	35'-6"	S	
H	5	34	33'-3"	S	
I	9	3	35'-3"	S	5'-11 1/2" to 6'-7 1/2" 0-27
J	8	16	2'-0"	S	
K	8	2	27'-6"	S	
K	8	2	38'-0"	S	
L	8	2	20'-6"	B	11'-6"
L	8	2	19'-11"	B	
M	10	2	23'-0"	B	
M	10	2	15'-0"	B	
N	11	2	37'-6"	B	5'-10"
N	11	3	38'-8"	B	
O	3	25	6'-6"	B	
P	1	1	16'-9"	B	
P	4	20	16'-4" to 17'-10"	B	7'-2" R-L 1:10 52-42
P	4	4	26'-0"	S	
R	4	27	7'-7"	B	
S	6	4	35'-0"	S	
EYP BOLT	-	36	5'-6"	-	4'-0"

FOR NO. 4 & SMALLER BARS:	FOR NO. 5 & NO. 6 BARS:	FOR NO. 7 & LARGER BARS:
Add 6" per hook.	Add 8" per hook.	Add 12" per hook.

	PIER E	PIER F
Dry Excavation	- C.Y.	- C.Y.
Wet Excavation	546 C.Y.	340 C.Y.
Class "A" Concrete	323.76 C.Y.	323.76 C.Y.
Class "AA" Concrete	281.34 C.Y.	281.34 C.Y.
Reinforcing Steel	22051 lbs.	19962 lbs.
Untreated Timber Piling	2760 LF.	2760 LF.

① Wt. of one 1" Exp. Bolt = 15.94 lbs. (Incl. wt. of bolt)  
② Includes 36 Expansion Bolt Assemblies (Wt. 574 Lbs.) and 18 Anchor Bolt Assemblies (Wt. 285 Lbs.)  
③ Includes 36 Expansion Bolt Assemblies (Wt. 574 Lbs.) and 14 Anchor Bolt Assemblies (Wt. 196 Lbs.)

S. C. STATE HIGHWAY DEPARTMENT  
COLUMBIA  
**PIERS E & F**  
FOR MAIN BRIDGE NO. 2 OVER  
GREAT PEE DEE RIVER  
AT YAUHANNAH  
DOCKET NO. 2226.226 U.S. ROUTE NO. 701  
GEORGETOWN-HORRY COUNTIES NOV. 1952  
SCALE: 3/16" = 1'-0" OR AS NOTED

FOR INFORMATION ONLY



[illegible]

Diagram showing hook details for reinforcement bars:

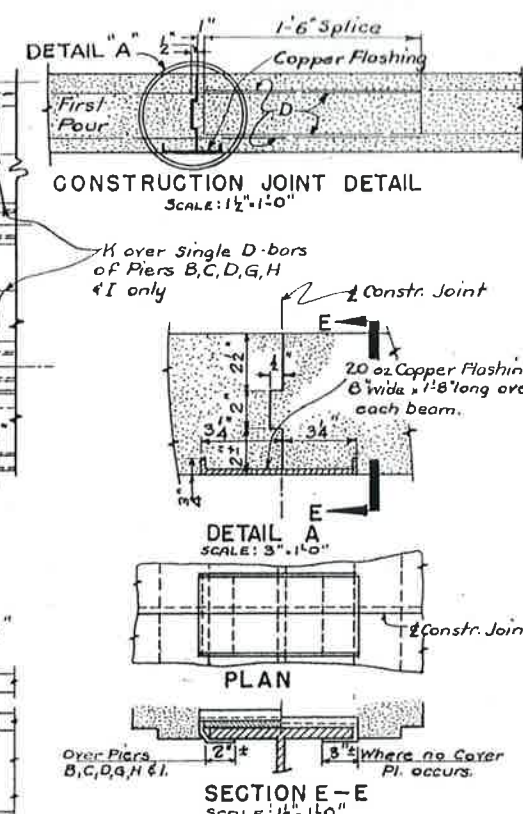
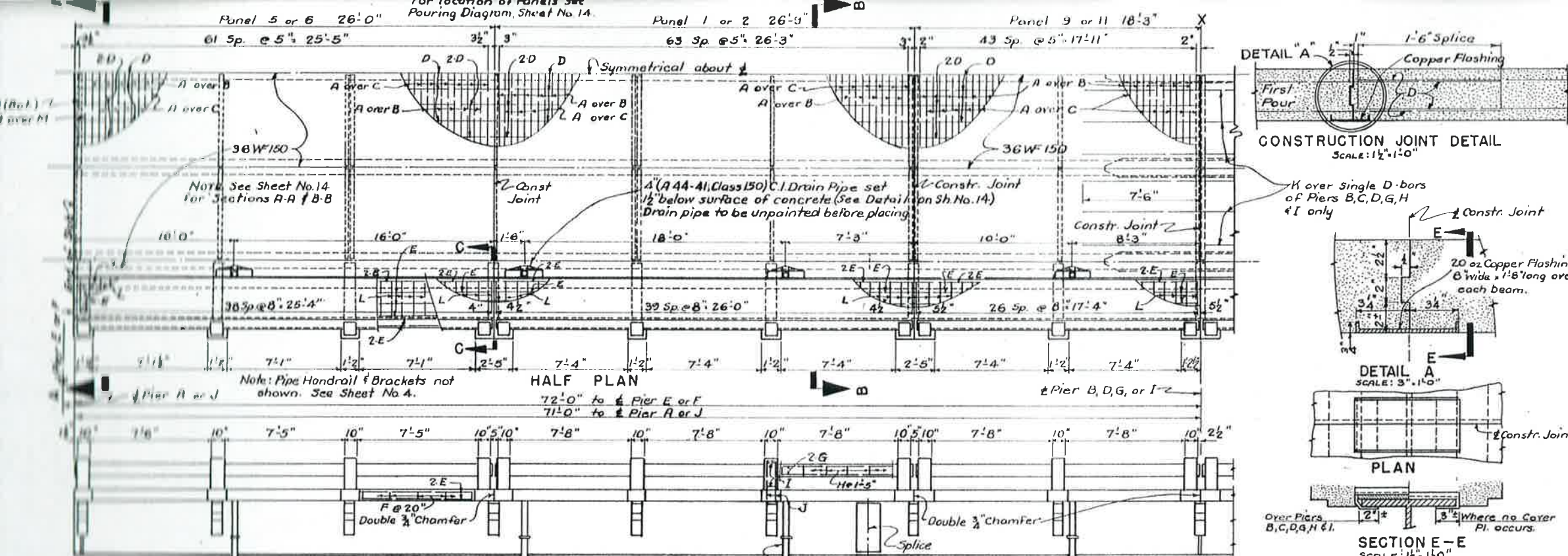
- Hook for F Bars: Add 6" per hook.
- Hook for No. 4 and smaller bars: Add 6" per hook.
- Hook for No. 7 and larger bars: Add 12" per hook.

HOOK DETAILS

	1 INT. SPAN	1 END SPAN
Beams, Skabs, Brackets	29.81 c.y.	31.49 c.y.
Sidewalks	3.96 c.y.	4.05 c.y.
Posts & Railing	1.52 c.y.	1.58 c.y.
Totals	35.29 c.y.	37.12 c.y.

C 26 30 2.5 1944





**BREAK-DOWN OF CONC. QUANTITIES**

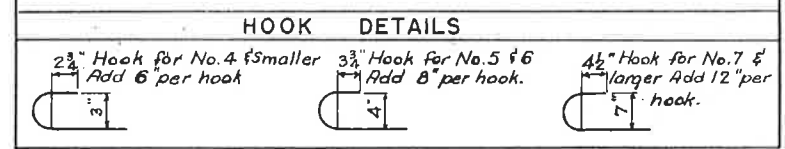
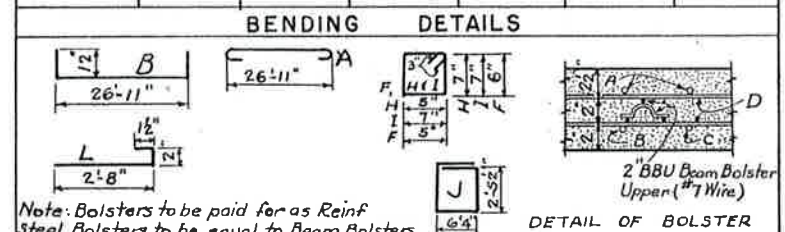
	18'-3" PANEL	26'-0" PANEL	26'-9" PANEL
SLAB C.Y.	10.27	14.17	13.10
SIDEWALK C.Y.	2.43	3.45	3.55
POSTS & HANDRAIL C.Y.	.96	1.36	1.39
TOTAL C.Y.	13.66	19.38	20.04

**REINFORCING STEEL SCHEDULE**

Panel	1, 2, 3, or 4	5 or 6	7 or 8	9, 11 or 13	10, 12 or 14
Mark	No. Length	No. Length	No. Length	No. Length	No. Length
A	4 64 27'-11"	8 61 27'-11"	64 27'-11"	44 27'-11"	44 27'-11"
B	4 32 28'-11"	8 30 28'-11"	32 28'-11"	22 28'-11"	22 28'-11"
C	4 32 26'-11"	8 30 26'-11"	32 26'-11"	22 26'-11"	22 26'-11"
D	4 39 29'-11"	8 39 29'-11"	39 29'-11"	22 29'-11"	22 29'-11"
E	4 18 26'-5"	8 18 26'-5"	18 26'-5"	18 17'-11"	18 17'-11"
F	2 30 2'-4"	8 30 2'-4"	30 2'-4"	20 2'-4"	20 2'-4"
G	4 8 26'-4"	8 8 26'-4"	8 26'-4"	8 17'-10"	8 17'-10"
H	2 36 2'-6"	8 36 2'-6"	36 2'-6"	24 2'-6"	24 2'-6"
I	2 16 2'-10"	8 16 2'-10"	16 2'-10"	12 2'-10"	12 2'-10"
J	4 16 6'-6"	8 16 6'-6"	16 6'-6"	12 6'-6"	12 6'-6"
K	4	8	8	12	15'-0"
L	3 80 3'-0"	8 80 3'-0"	80 3'-0"	54 3'-0"	54 3'-0"
M	4	8	8	12	15'-0"
BOLSTERS	77 2'-6"	77 2'-6"	77 2'-6"	50 2'-6"	50 2'-6"

**QUANTITIES**

PANELS	1, 2, 3, or 4	5 or 6	7 or 8	9, 11 or 13	10, 12 or 14
CONC. CL. A. CY	20.04	19.38	20.04	13.68	13.66
REINF. STEEL LB	3910	3687	3867	2782	2619



**QUANTITIES (ONE 322 FT. SPAN)**

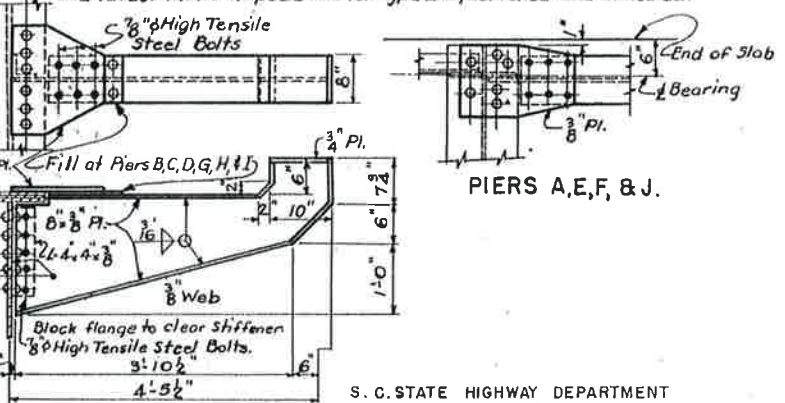
Class "A" Concrete	241.36	C.Y.
Reinforcing Steel	46,951	Lbs.
Structural Steel	307,300	Lbs.

\*Includes 1088 lbs for Bolsters

**NOTES:**

For General Notes, see Sheet No. 15.

Copper shall be 0.025" in thickness (approx. 20 oz) and shall comply with the latest A.S.T.M. Spec. B152 for Type ETP, hot rolled and annealed.



S. C. STATE HIGHWAY DEPARTMENT  
COLUMBIA

322 FT. SUPERSTRUCTURE  
FOR MAIN BRIDGE NO. 2 OVER  
GREAT PEE DEE RIVER  
AT YAUHANNAH

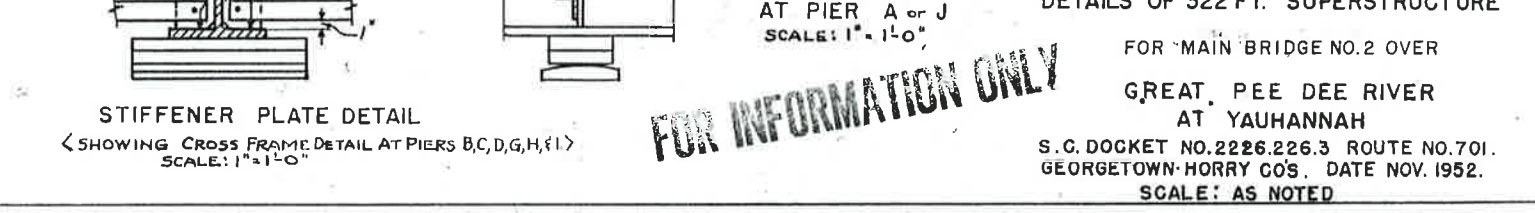
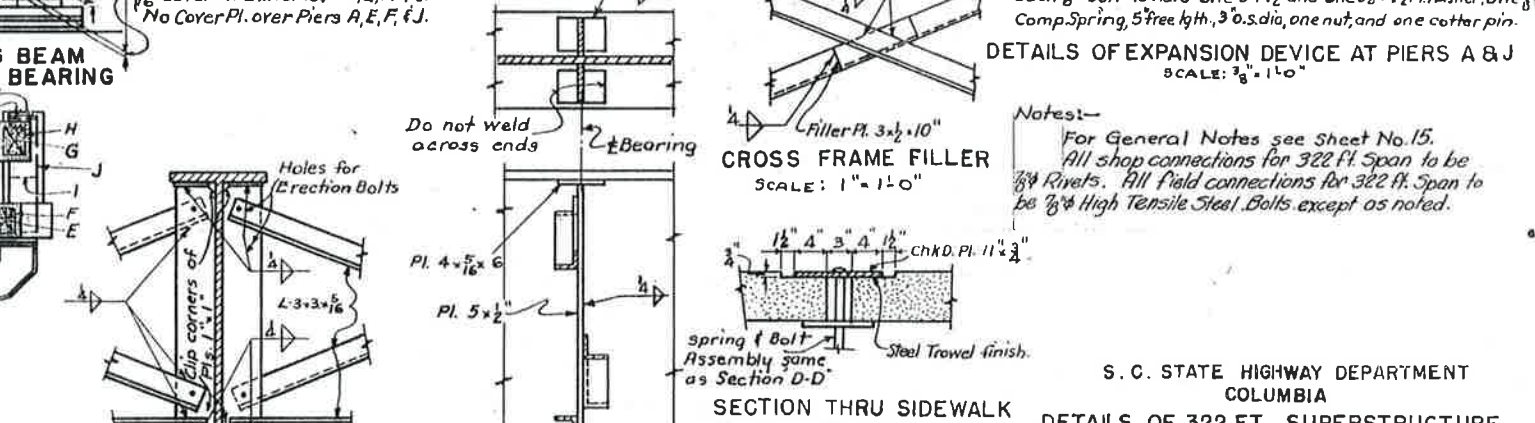
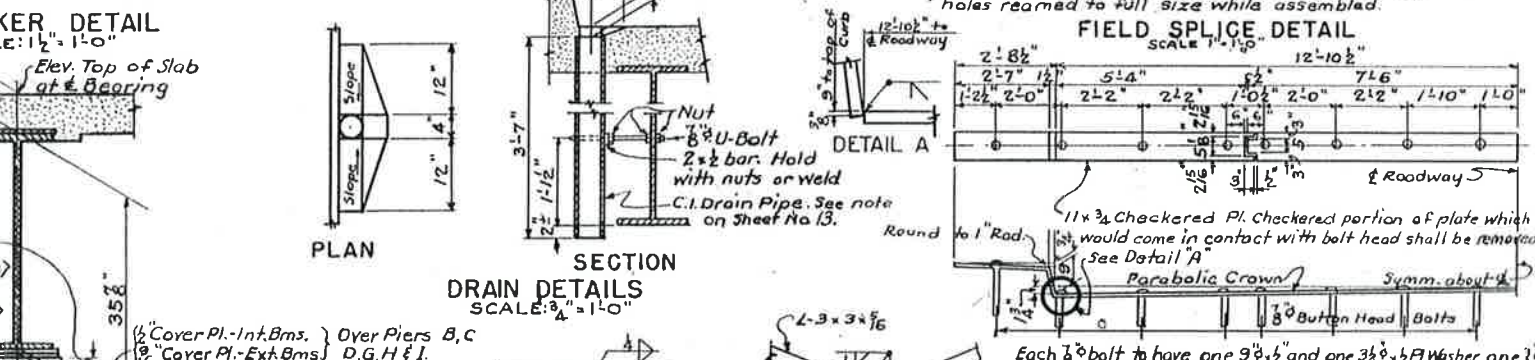
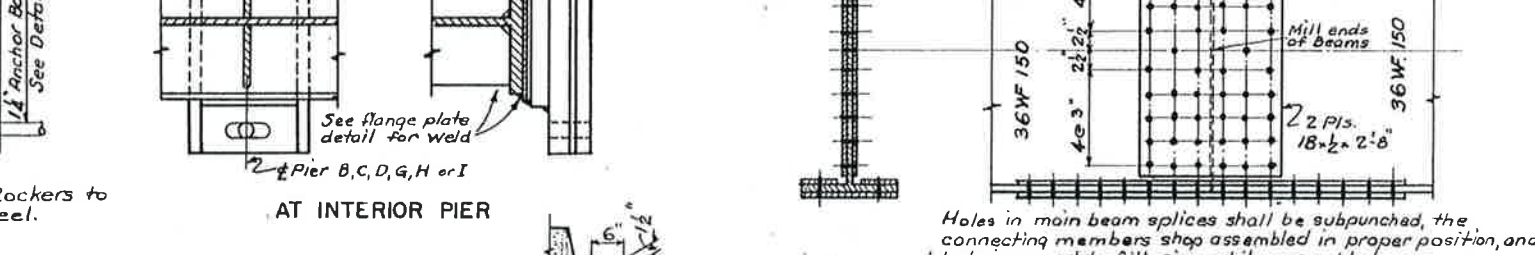
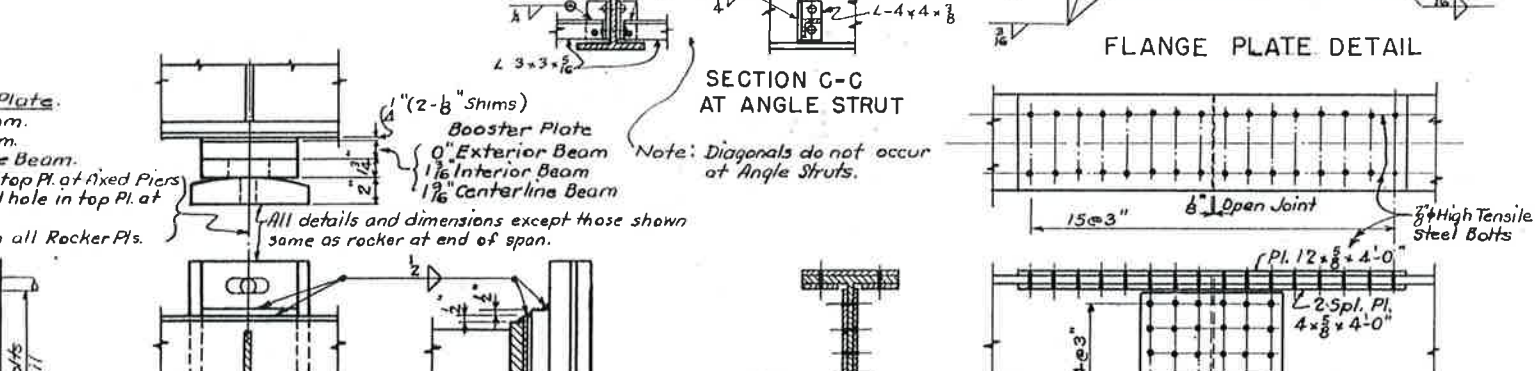
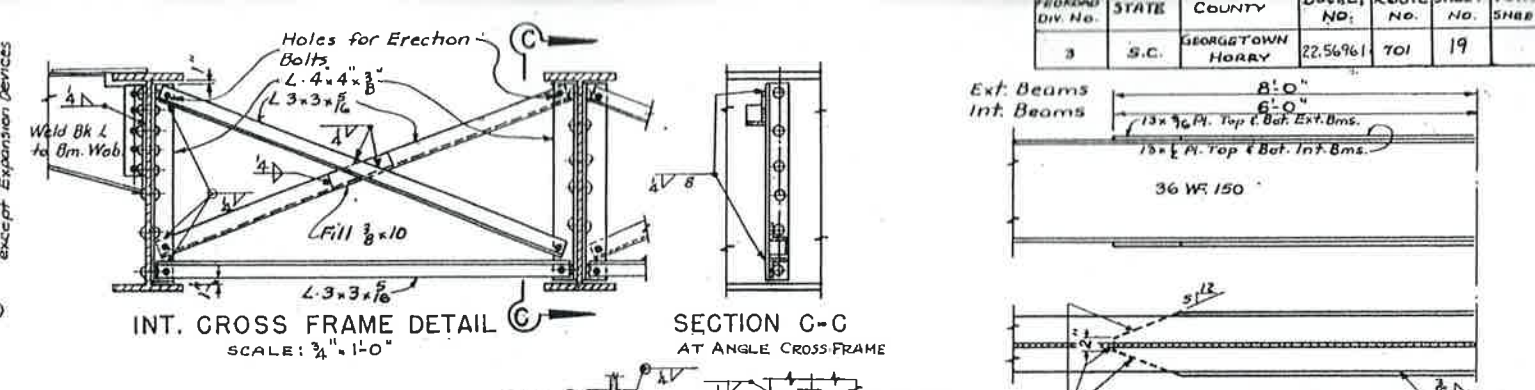
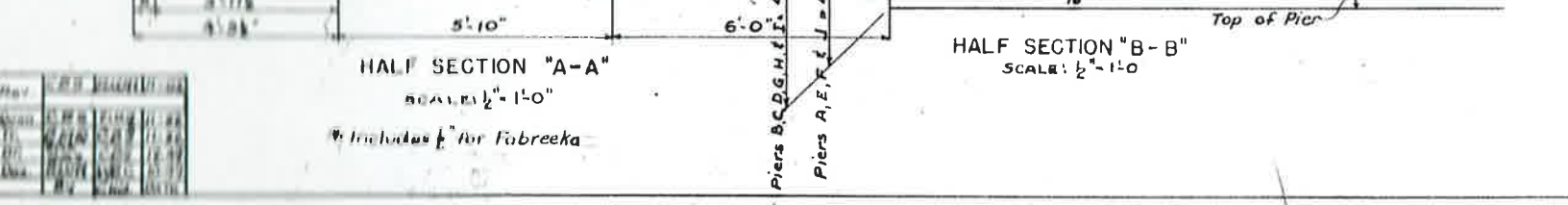
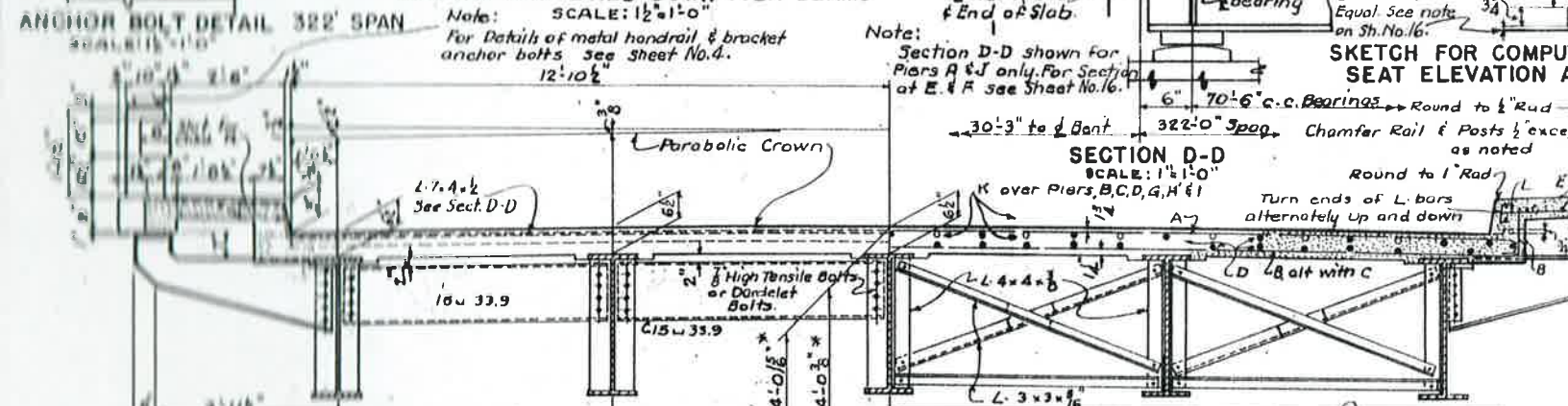
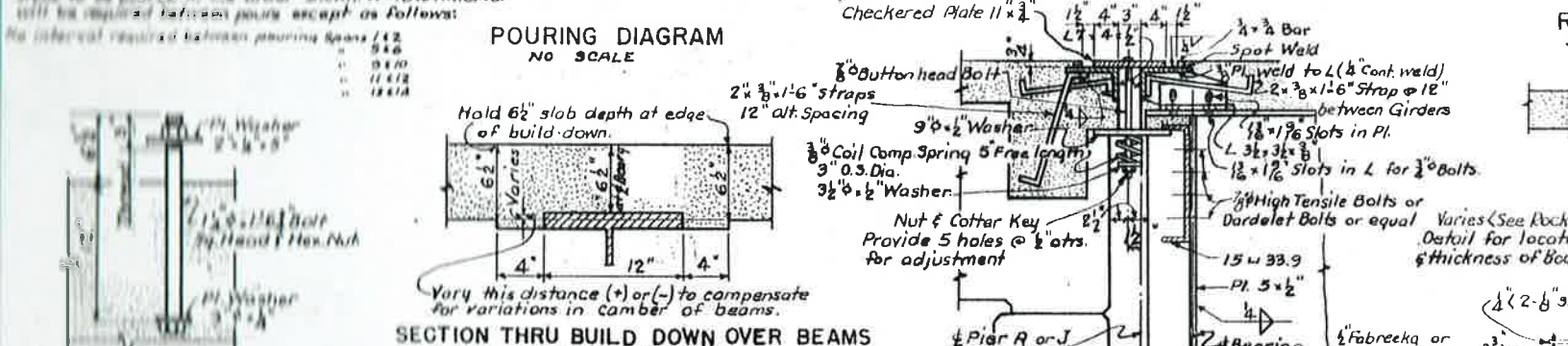
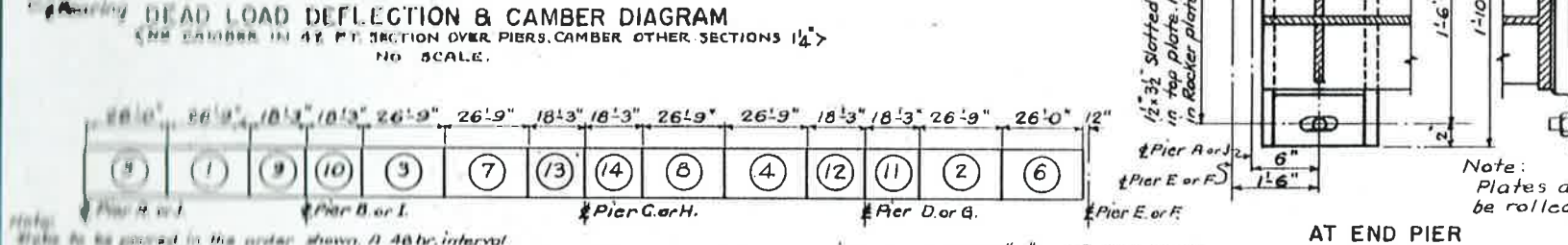
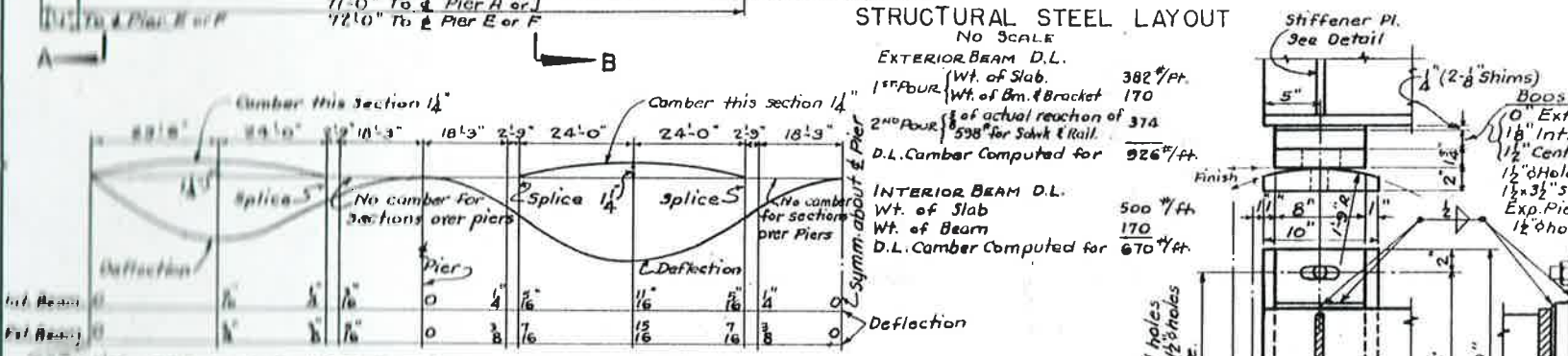
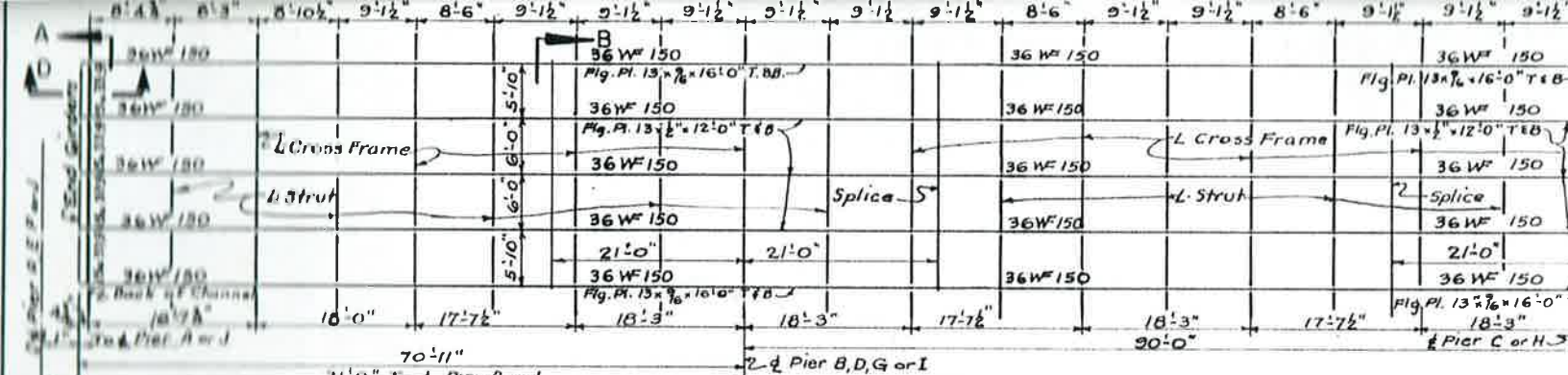
S. C. DOCKET NO. 2226.226.3 ROUTE NO. 701.

GEORGETOWN-HORRY COS. DATE OCTOBER 1952.

SCALE: 1/4" = 1'-0" UNLESS NOTED

FOR INFORMATION ONLY



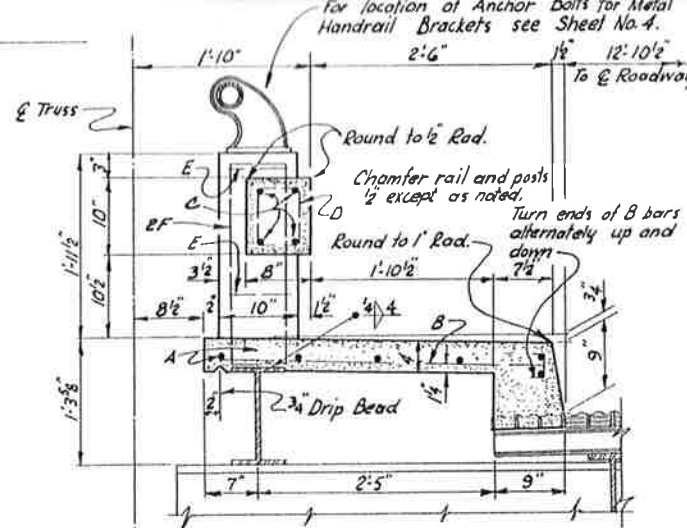


**FOR INFORMATION ONLY**

S. C. STATE HIGHWAY DEPARTMENT  
COLUMBIA  
DETAILS OF 322 FT. SUPERSTRUCTURE  
FOR MAIN BRIDGE NO. 2 OVER  
GREAT PEE DEE RIVER  
AT YAUHANNAH  
S. C. DOCKET NO. 2226.226.3 ROUTE NO. 701.  
GEORGETOWN-HORRY COS. DATE NOV. 1952.  
SCALE: AS NOTED



Symmetrical about & Roadway



SIDEWALK DETAIL

SCALE: 1" = 1'-0"

BREAK-DOWN OF CONCRETE QUANTITIES	
Sidewalk	21.16 C.Y.
Posts & Rail	96.1 C.Y.
Total	30.77 C.Y.

REINFORCING STEEL SCHEDULE					
MARK	SIZE NO.	NO. REQD	LENGTH	D	BENDING DETAILS
A <sub>1</sub>	4	24	23'-0"	S	
A <sub>2</sub>	4	72	21'-6"	S	
B	3	712	3'-6"	B	
C <sub>1</sub>	4	16	22'-10"	S	
C <sub>2</sub>	4	48	21'-5"	S	
D	2	240	2'-6"	B	
E	2	128	2'-10"	B	
F	4	128	5'-9"	B	

QUANTITIES (ONE 175 FT. TRUSS SPAN)	
Class "A" Concrete	30.77 C.Y.
Reinforcing Steel	3923 Lbs.
New Structural Steel	100,700 lbs.
Removing, Transporting, Widening and Re-erecting 175 Ft. Truss	1 Each
Roadway Floors	535 Sq. Yds.
Pipe Handrail	357 L.F.
Painting Old Steel	Necessary L.S.

Includes all new structural steel except Pipe Handrail & Brackets.

NOTES:

The existing 175' truss shall be removed, widened, moved to the new location and re-erected. The existing floor, stringers, floor beams, handrail, portals and sway frames shall be removed. The existing stringers and connections shall be salvaged and reused. The sway frames shall be widened and remodeled. Some of the existing top laterals shall be remodeled and used for bottom laterals, and in addition some new bottom laterals shall be installed. New floor, sidewalk, posts, rail, floor beams, portals, top laterals, expansion devices and brackets, shoes, rockers and bearing plates, and some new stringers shall be installed. No deck concrete to be poured until superstructure framework has been struck. No construction joints other than those shown will be permitted. Handrail posts shall be vertical. Roadway flooring for truss span to be installed in accordance with Manufacturer's recommendations and as directed by the Engineer. Stringers for truss span are designed for 5" T-Beam Lok (open floor), approx. wt. 18.8 lbs./sq. ft. See Special Provisions regarding alternate types. Floor beam and stringer connections, both shop and field shall be reamed to a metal template. See Special Provisions for method of payment of items.

Design Data: A.A.S.H.O. Specifications 1949, with revisions thru 1950. Live Load: H 15-S12-44.  $f_s(\text{Reinf.}) = 20,000 \text{ psi}$ ;  $f_s(\text{Struct. New Steel}) = 18,000 \text{ psi}$ ;  $f_s(\text{Struct. Old Steel}) = 16,360 \text{ psi}$ ;  $f_c = 1200 \text{ psi}$ ;  $n = 10$ ;  $u = 300 \text{ psi}$ ;  $v = 225 \text{ psi}$ . All seal concrete to be Class "A". All other concrete to be Class "A". All exposed edges of concrete to be chamfered  $\frac{1}{4}$ " unless otherwise noted. Structural grade reinforcing steel not permitted. All dimensions relative to reinf. steel are to centers of bars. All shop connections for truss span to be  $\frac{3}{4}$ " Rivets unless noted. All field connections for truss span to be  $\frac{3}{4}$ " High Tensile Steel Bolts unless noted. All holes  $\frac{1}{16}$ " unless noted. The materials and installation for High Tensile Steel Bolts, nuts, and washers shall meet all the requirements of Specifications for Assembly of Structural Joints Using High Tensile Steel Bolts as approved Jan. 31, 1951 by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation. All costs of furnishing and placing shoes, rockers, expansion assemblies, roadway drain pipes, and U-bolts and of painting drain pipes and of field welding connections to be included in Lump Sum bid for New Structural Steel. Anchor Bolts to be paid for as Reinforcing Steel and are included with Pier Quantities.

S. C. STATE HIGHWAY DEPARTMENT  
COLUMBIA  
175 FT. TRUSS SPAN  
WIDENING DETAILS  
FOR MAIN BRIDGE NO. 2 OVER  
GREAT PEE DEE RIVER  
AT YAUHANNAH

DOCKET NO. 2226.2263 ROUTE NO. 701  
GEORGETOWN-HORRY COUNTIES OCT 1952  
SCALE:  $\frac{1}{8}$ " = 1'-0", OR AS NOTED

QUARTER PLAN

HALF ELEVATION

ANCHOR BOLT LAYOUT

NO SCALE

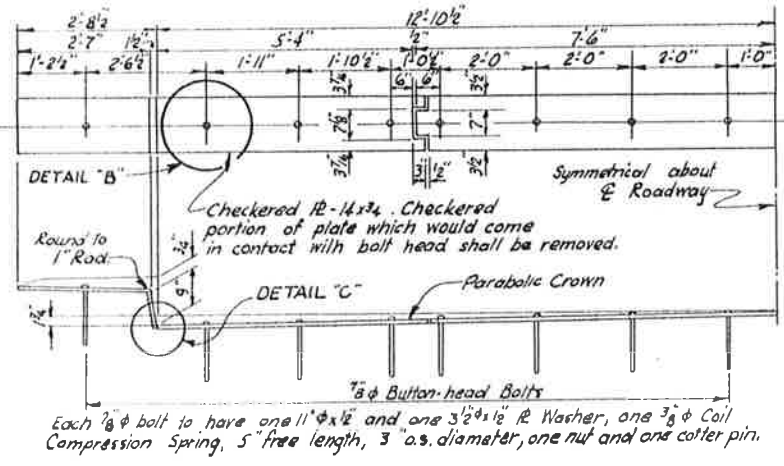
DETAIL "B"

SCALE: 1" = 1'-0"

DETAIL "C"

SCALE: 3" = 1'-0"

STRESS DIAGRAM



DETAILS OF EXPANSION DEVICE AT PIERS E & F

FOR INFORMATION ONLY



