

EXISTING DIMENSIONS

Unless otherwise noted, dimensions shown for the existing structure are taken from the original contract plans. The Contractor is responsible for verifying the accuracy of this information and shall notify the department of all deviation, if any, before work begins.

FOR APPROVAL

HELMARK STEEL, INC.
JAN 03 1986
DRAWING ROOM

REVIEWED FOR GENERAL
CONFORMITY WITH PLANS
AND SPECIFICATIONS
CONTRACTOR IS RESPONSIBLE
FOR ACCURACY OF
CONTENT
FEB 10 1986
For Design Engineer

REHABILITATION OF BRIDGE NO. 1
NEWPORT DELAWARE
CONTRACT NO. 85-074-01
FEDERAL AID PROGRAM NO. BHOS-32

OFFICE COPY

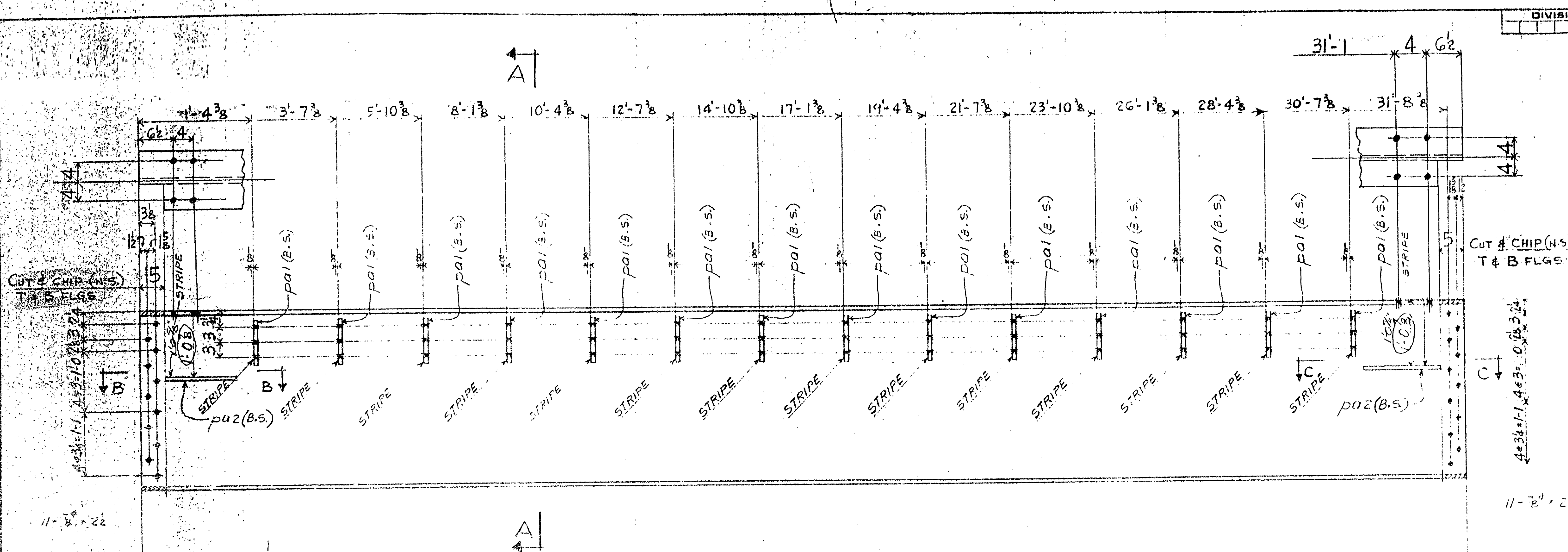
ASTM A572-GR 50
ET0XX (LOW HYDROGEN)
ONE SHOP COAT PER SPEC (3 MILLS DRY)
E10

HELMARK STEEL, INC.
DIVISION OF FALCON STEEL
BOX 1567, WILMINGTON, DELAWARE
(302) 652-3341

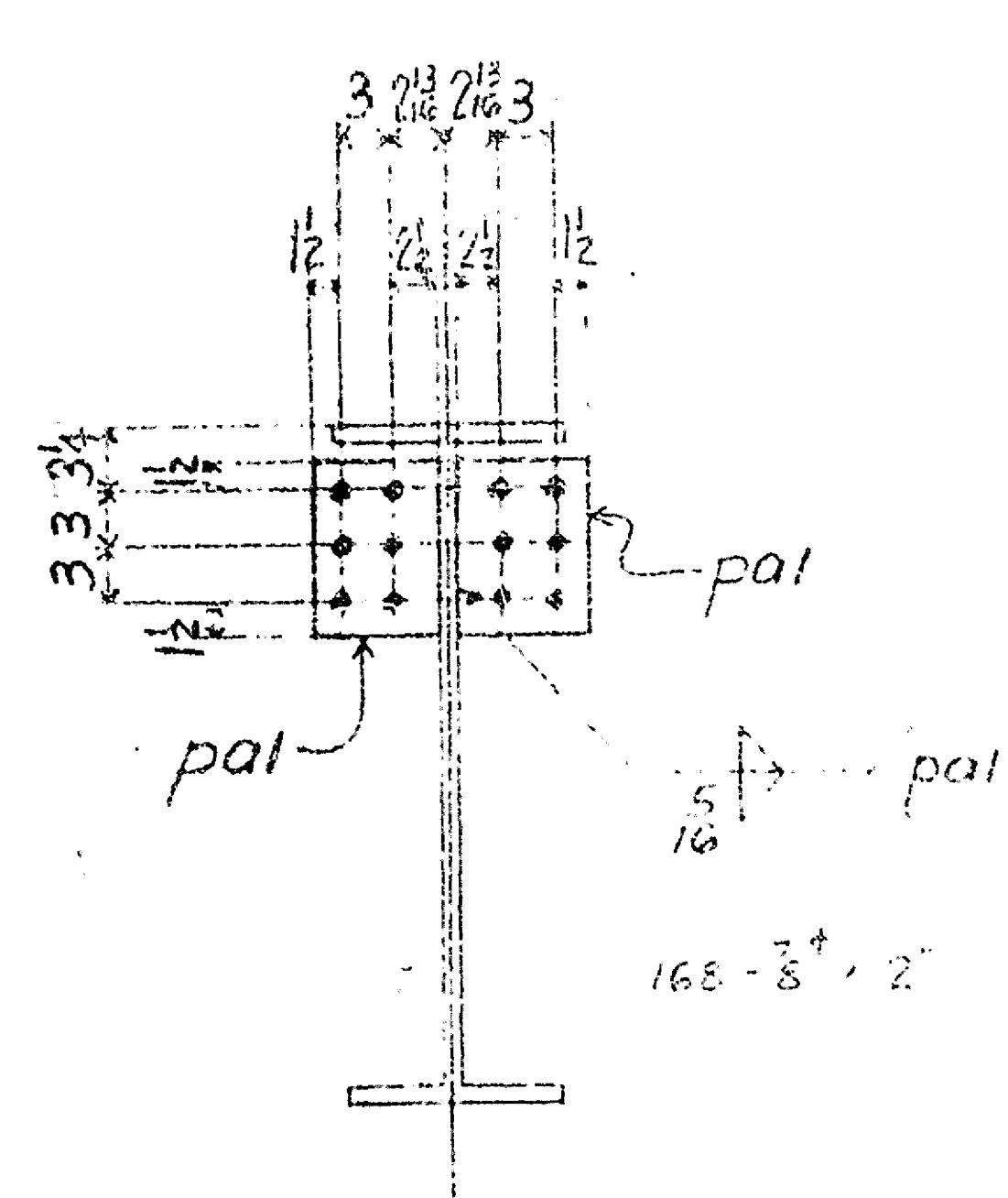
FILE: 85-074-01
W.M.

DATE: 12/23/85
DATE: 12/23/85
SHEET NO. 1

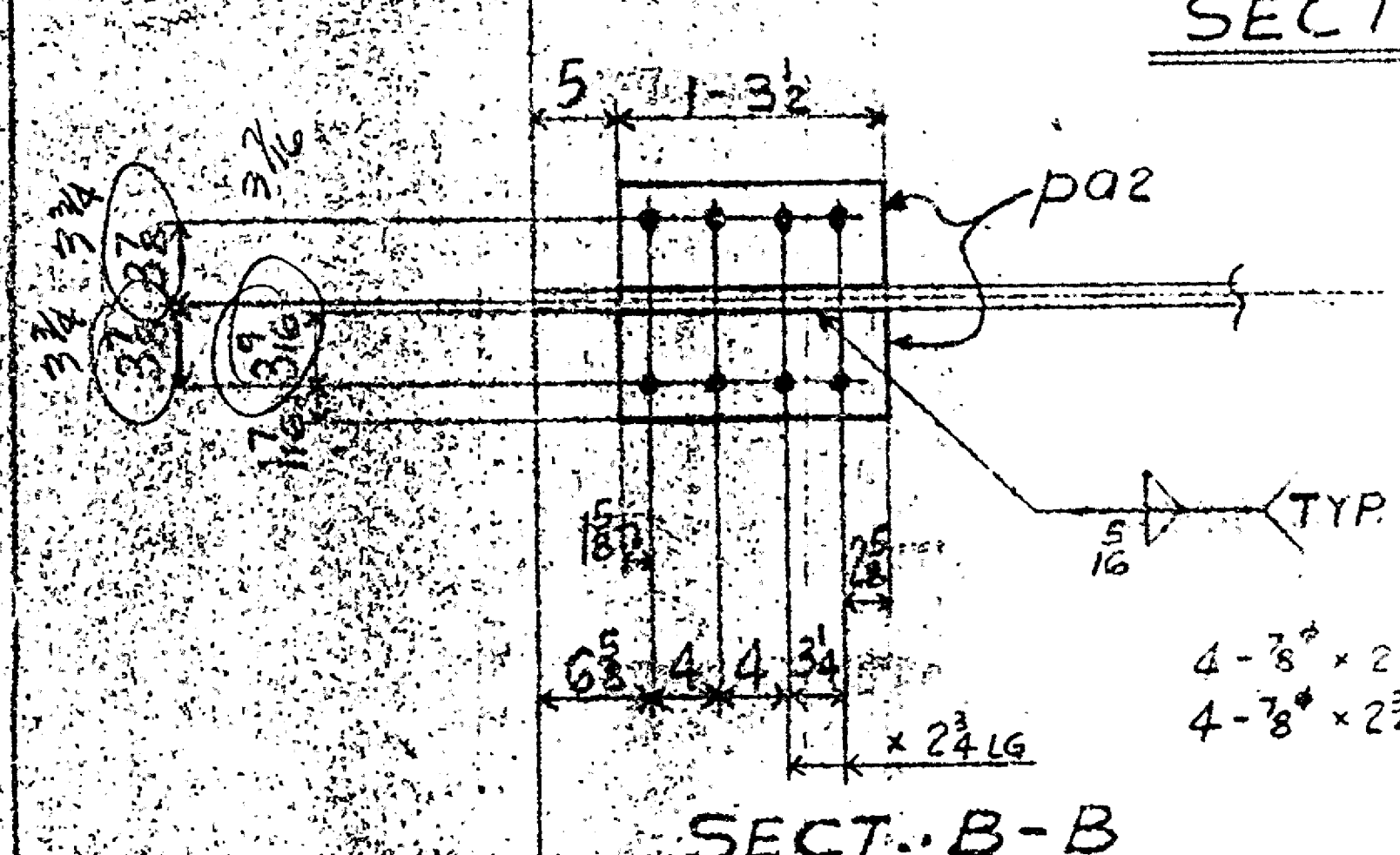
For Informational Purposes Only



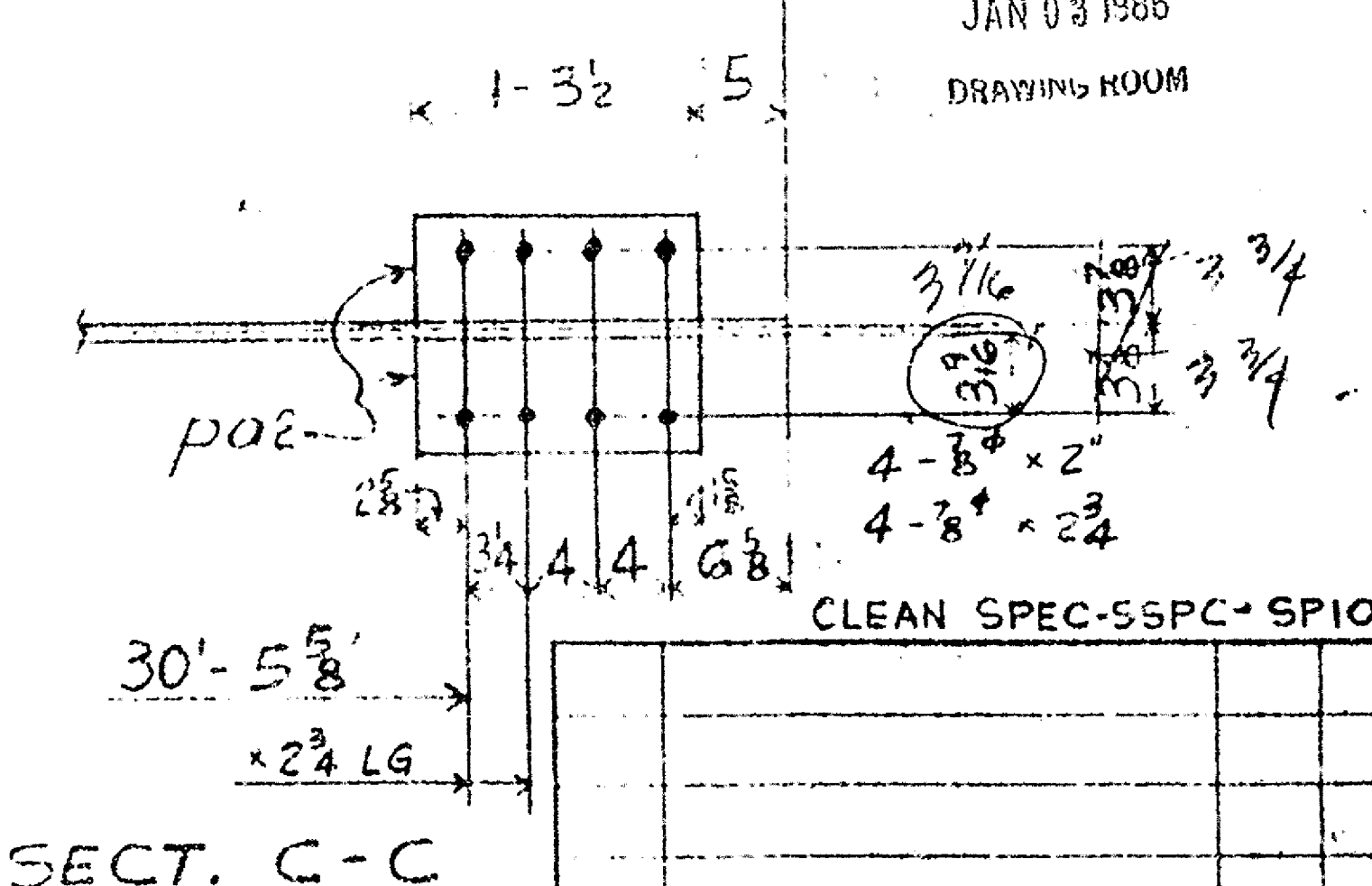
ONE - W 36 x 135 x 31'-11 1/2"



SECT. A-A



SECT. B-B



SECT. C-C

7/8" A325 F.B.
176 x 2
22 x 22
8 x 24

FOR APPROVAL

HELMARK STEEL, INC.
JAN 03 1986
DRAWING ROOM

REVIEWED FOR GENERAL
CONFORMITY WITH PLANS
AND SPECIFICATIONS
CONTRACTOR IS RESPONSIBLE
FOR ACCURACY OF
CONTENT
DATE FEB 10 1986
For Bridge Engineer

PROJECT REHABILITATION OF BRIDGE No. 154
LOCATION NEWPORT DELAWARE
CONTRACT No. 85-074-1
FEDERAL AID PROGRAM No. BNDG-321

ARCHITECT
ENGINEER

MATERIAL ASTM A572-GR50
HOLES 1/2"
WELD E70XX (LOW HYDROGEN)
PAINT ONE SHOT COAT PER SPEC (3 MILS DBY)
REF DWG NO E10

HELMARK STEEL, INC.
DIVISION OF FALCON STEEL
BOX 1567, WILMINGTON, DELAWARE
(302) 452-3341

DRAWN BY W.M.
CHECKED BY M.N.
APPROVED BY
JOB NO. HF-1586
SHEET NO. 2

DIVISIONS

BILL OF MATERIAL

4' 4"

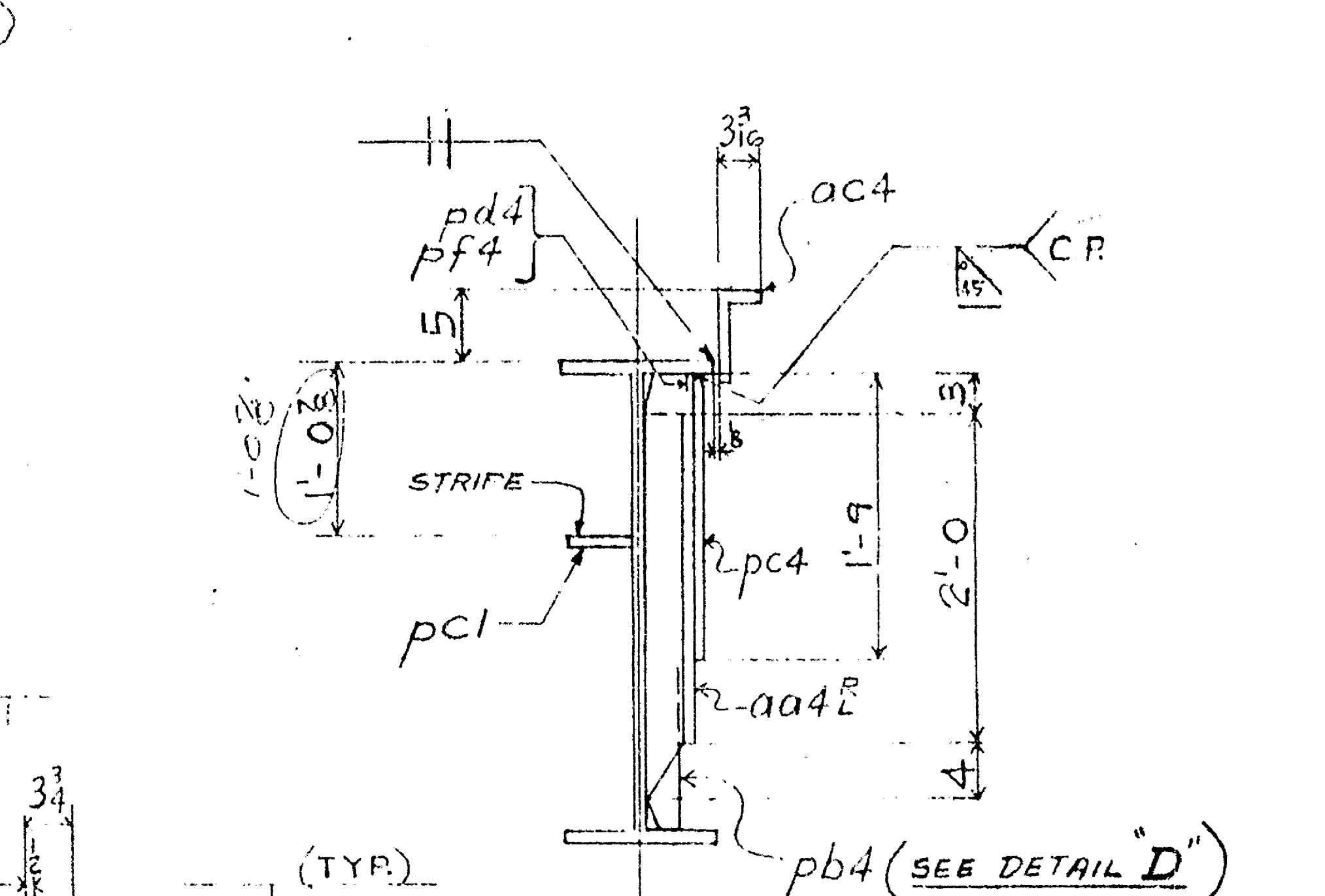
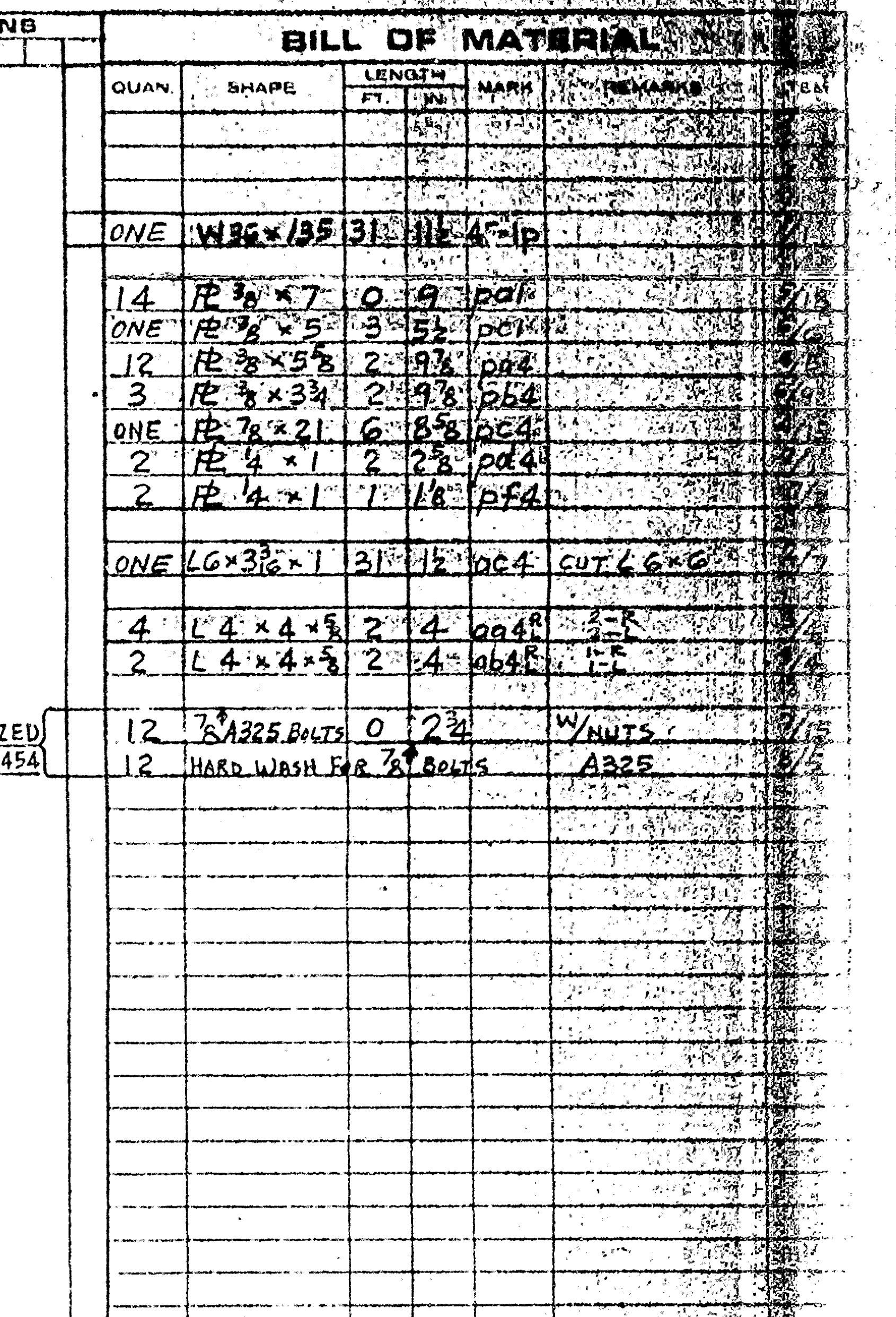
CUT # CHIP (N.S.)
T # B FLGS

4' 3 1/2" x 1 1/4" x 0.04524
C

11 - 3/4" x 2"

1 (-2 1/4")

QUAN	SHAPE	LENGTH FT. IN.	MARK	REMARKS	UNIT
ONE	W36 x 135	31'-11 1/2"	2F-2P		
28	1/2" x 7"	0'-9"	pa1		1/8"
4	1/2" x 5"	1'-3"	pa2		9/8"

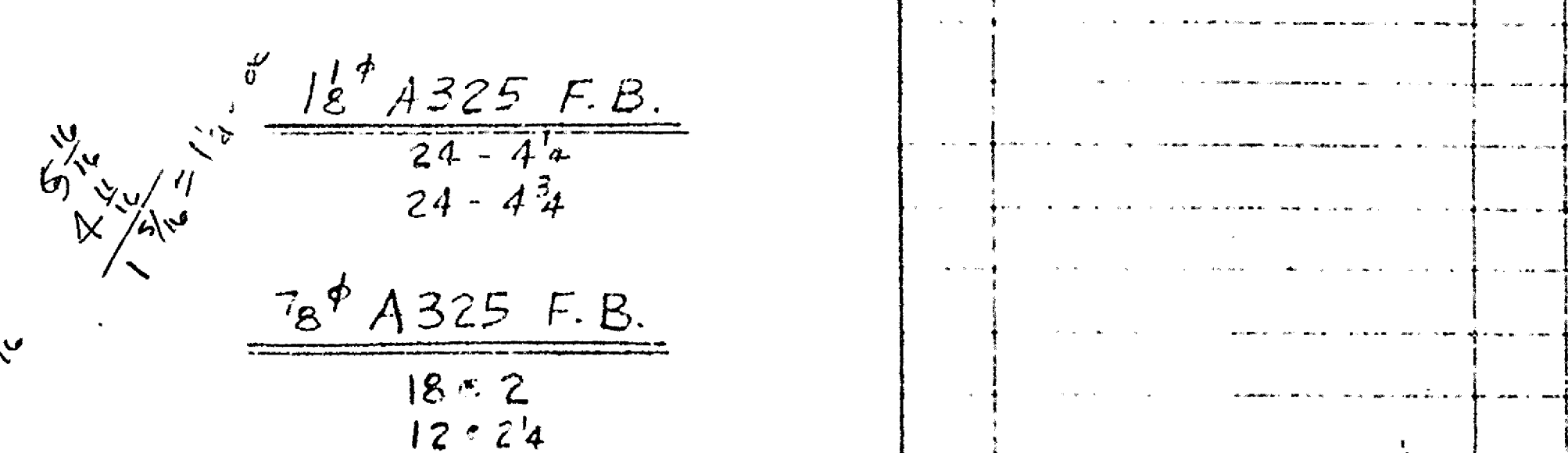
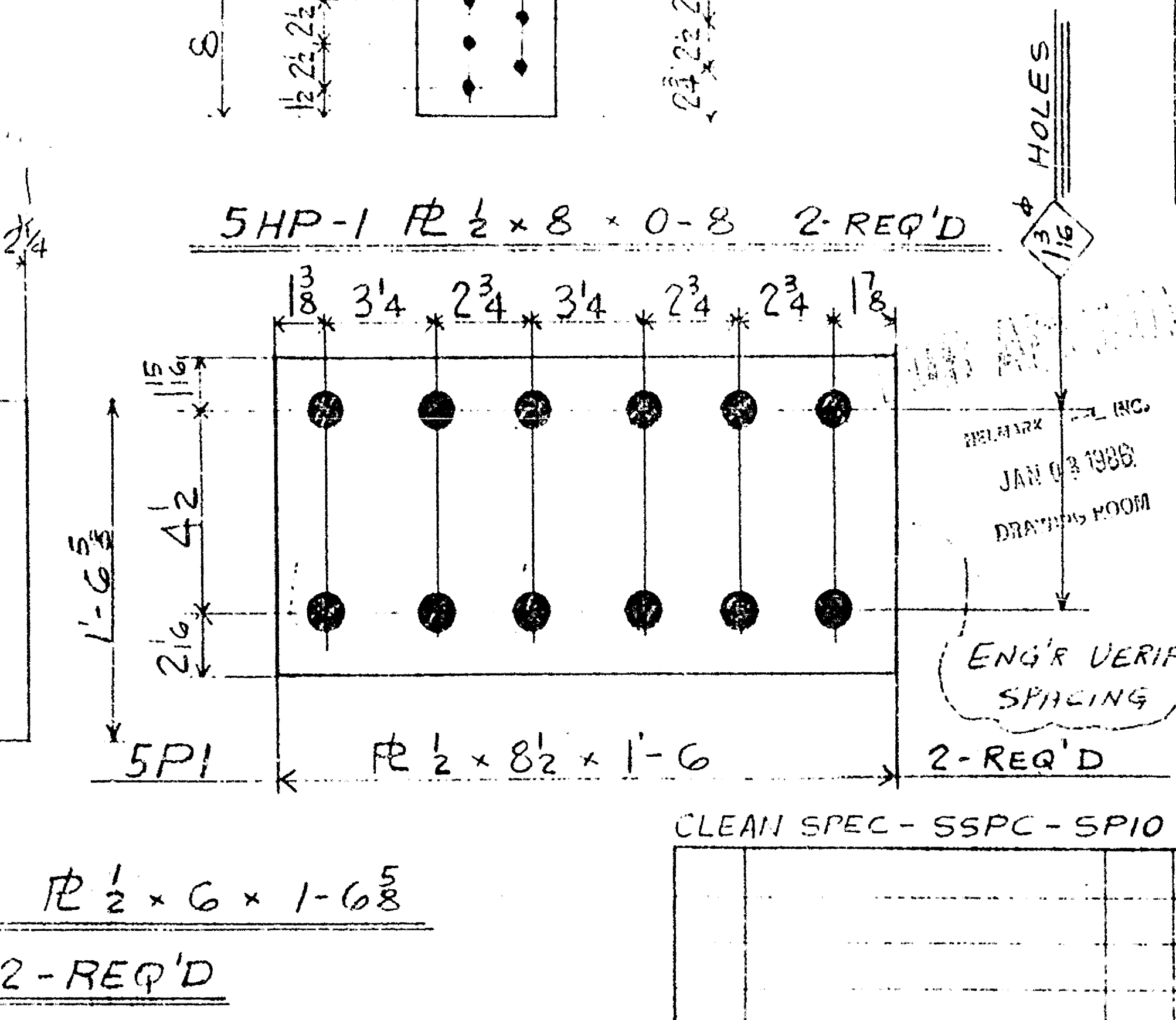
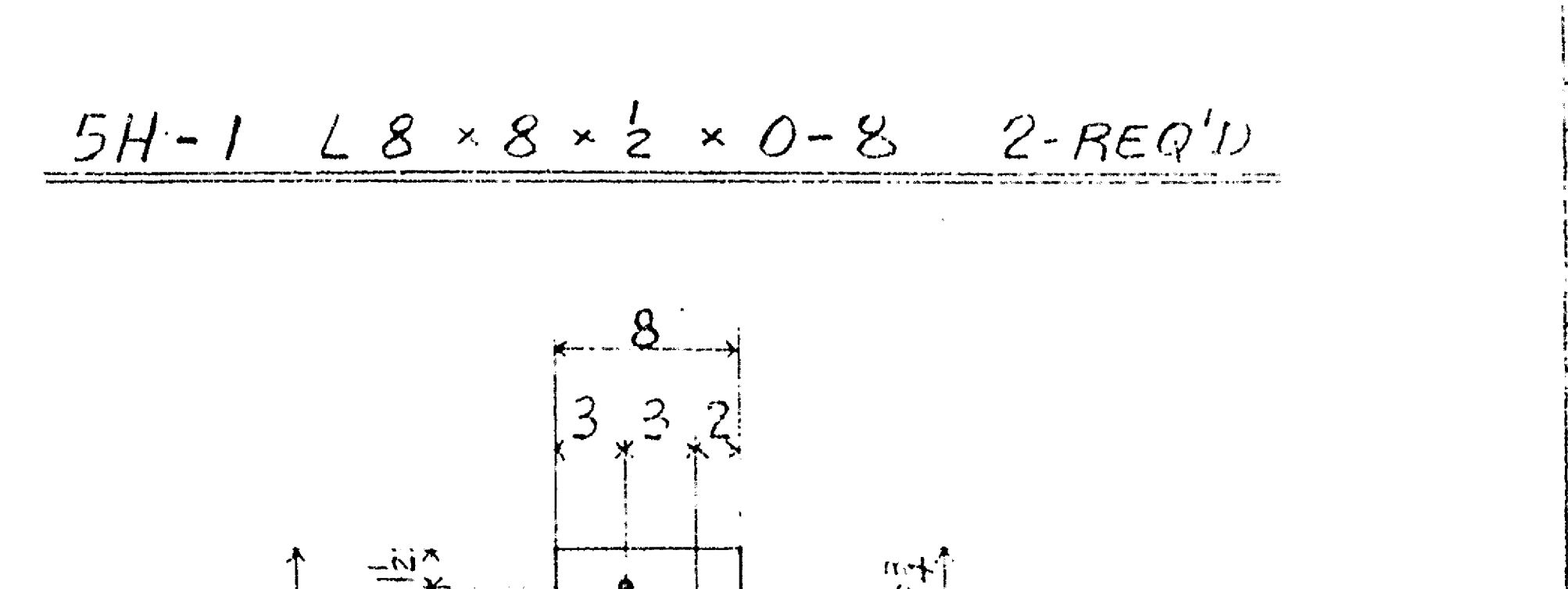
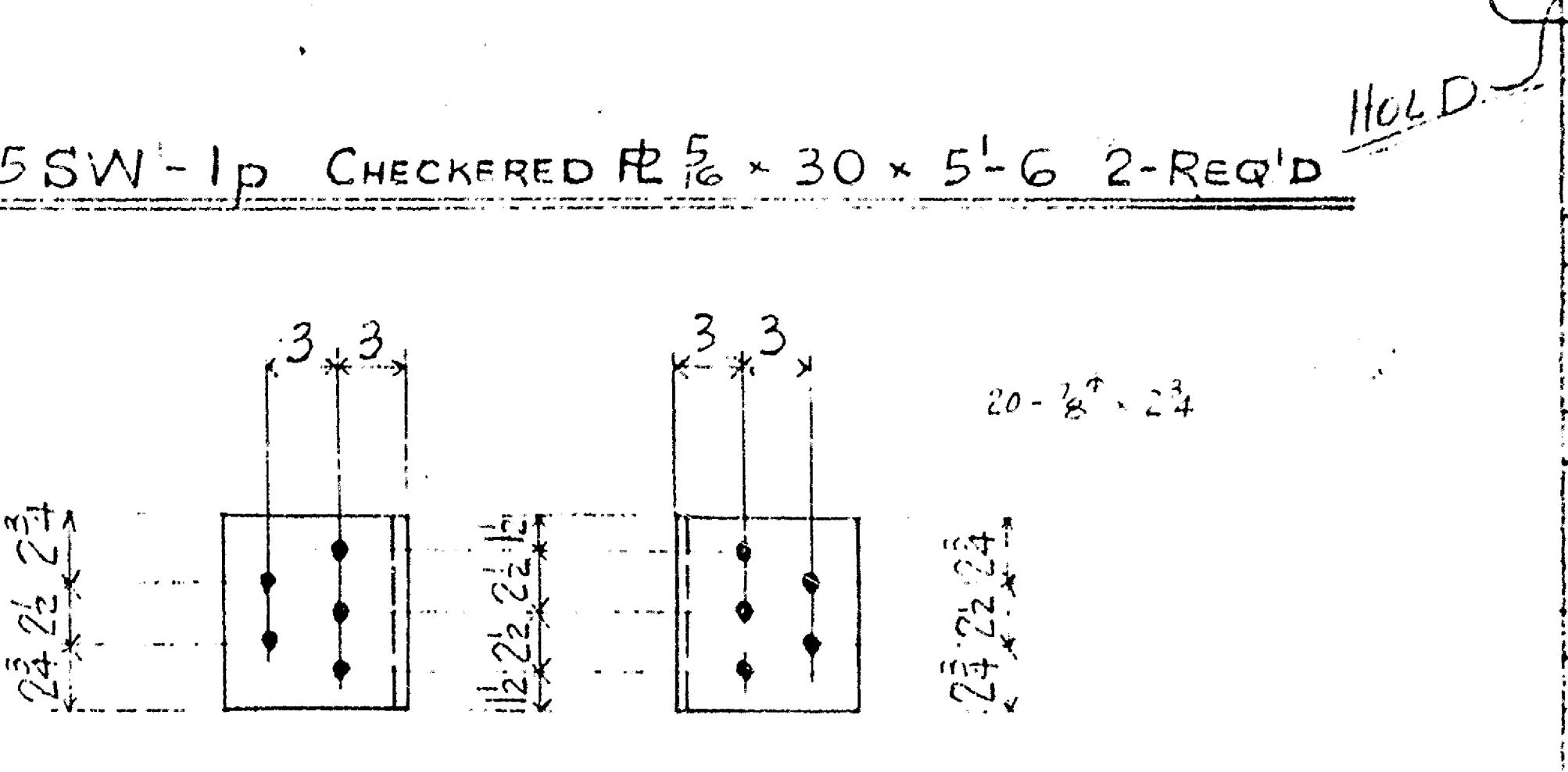
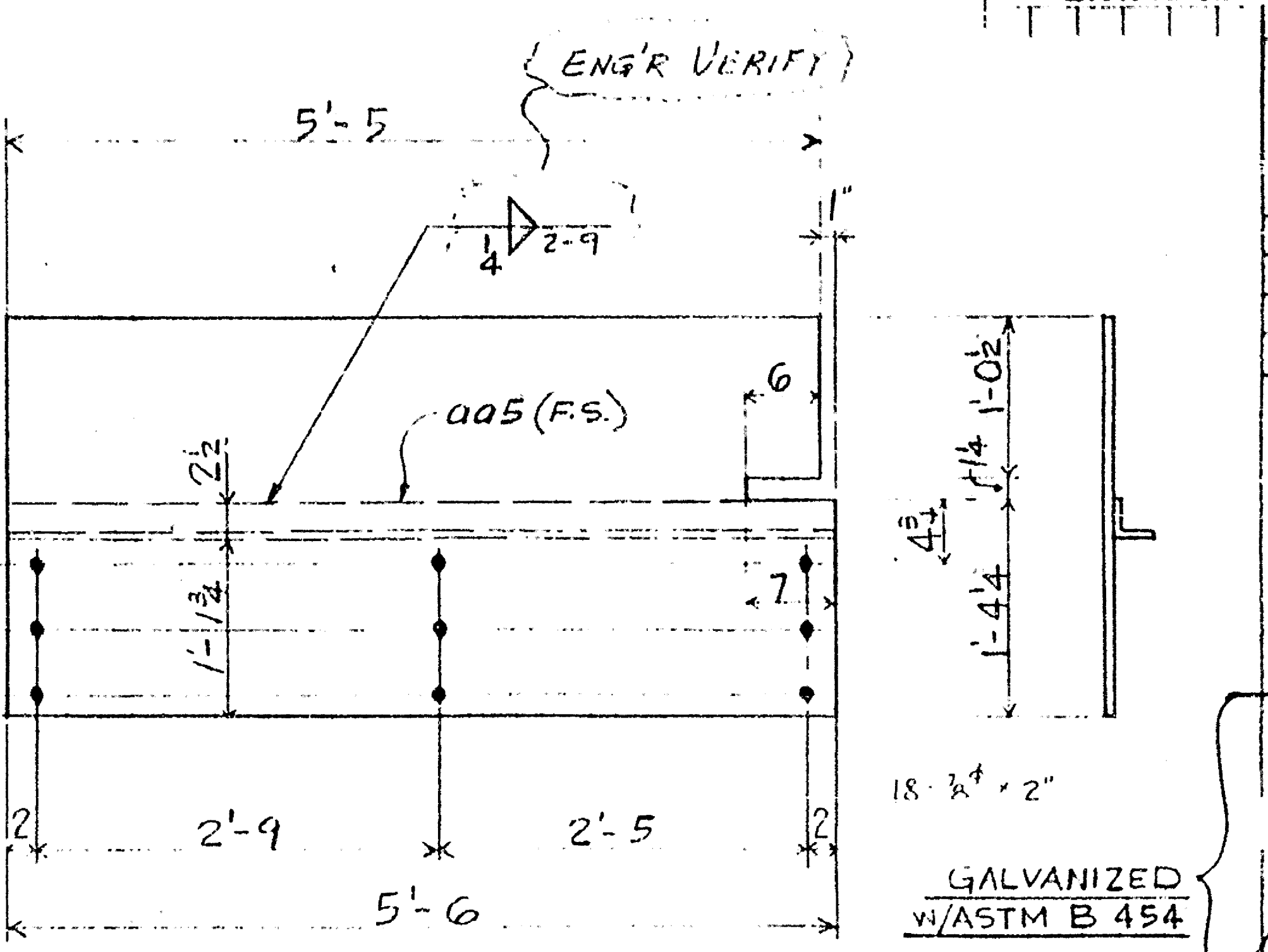
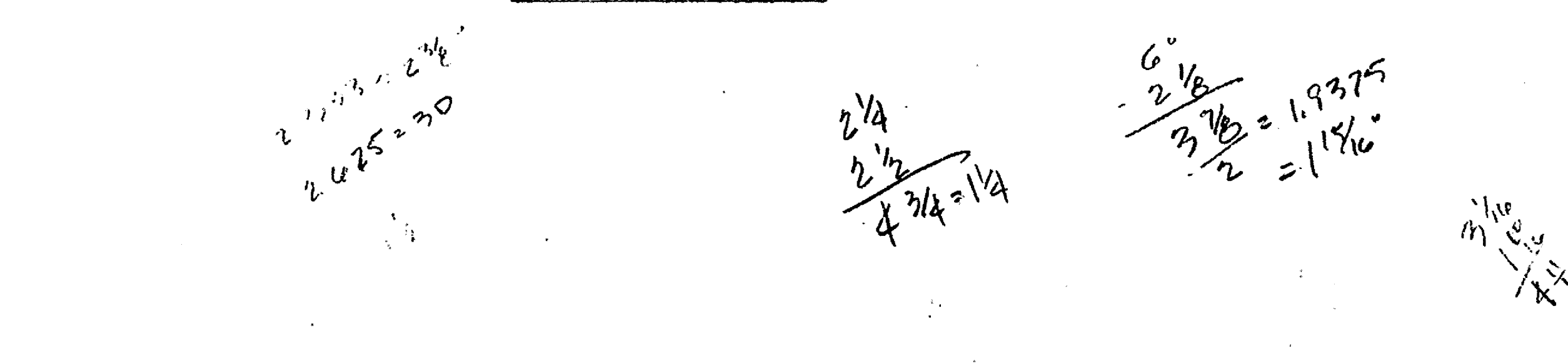
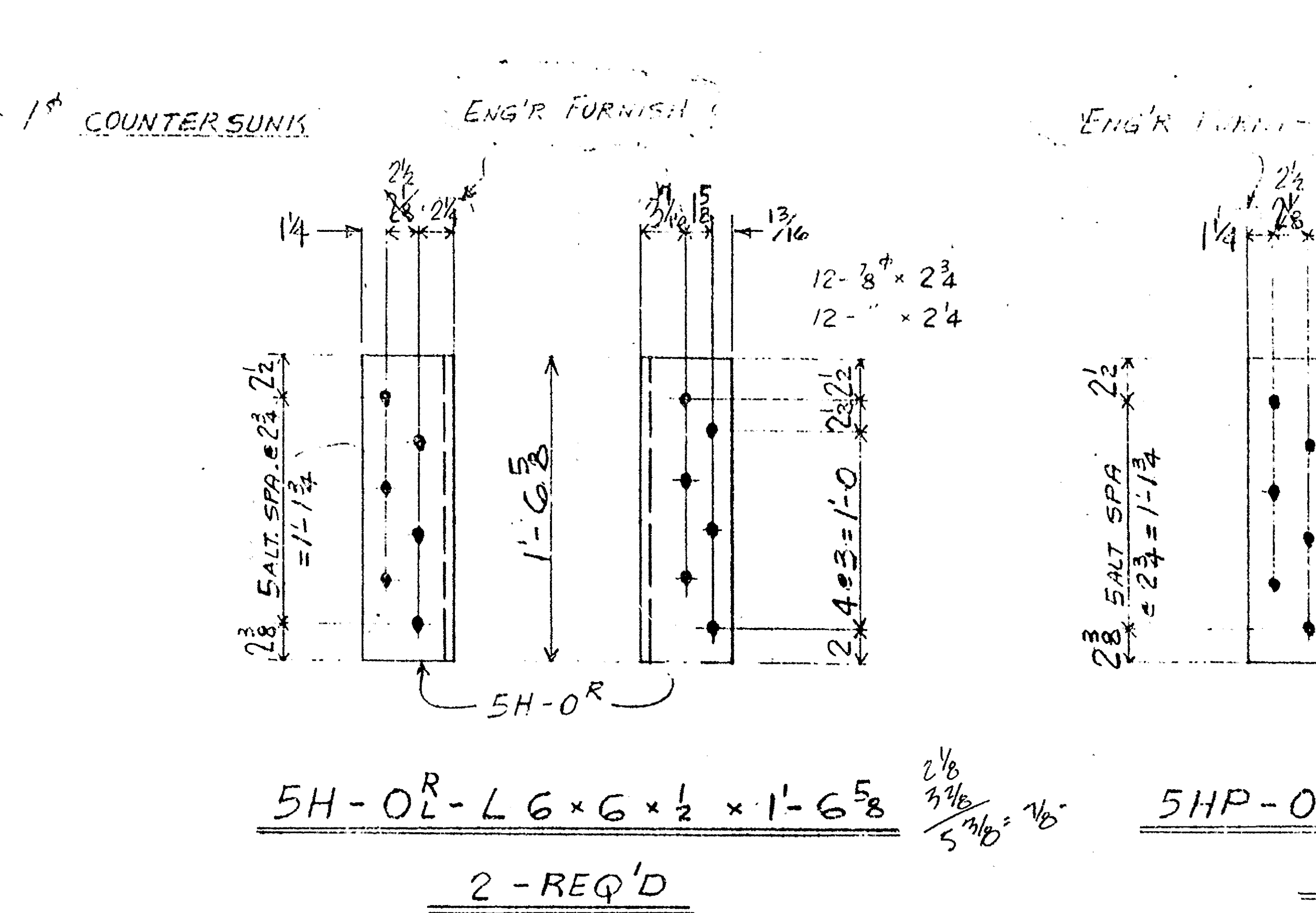
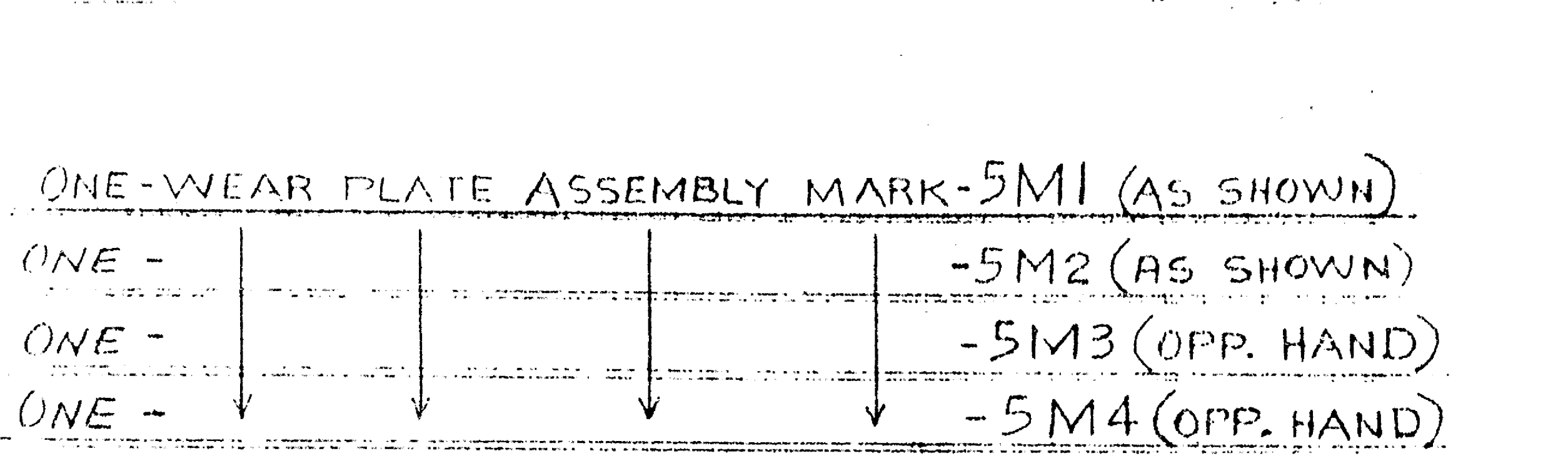
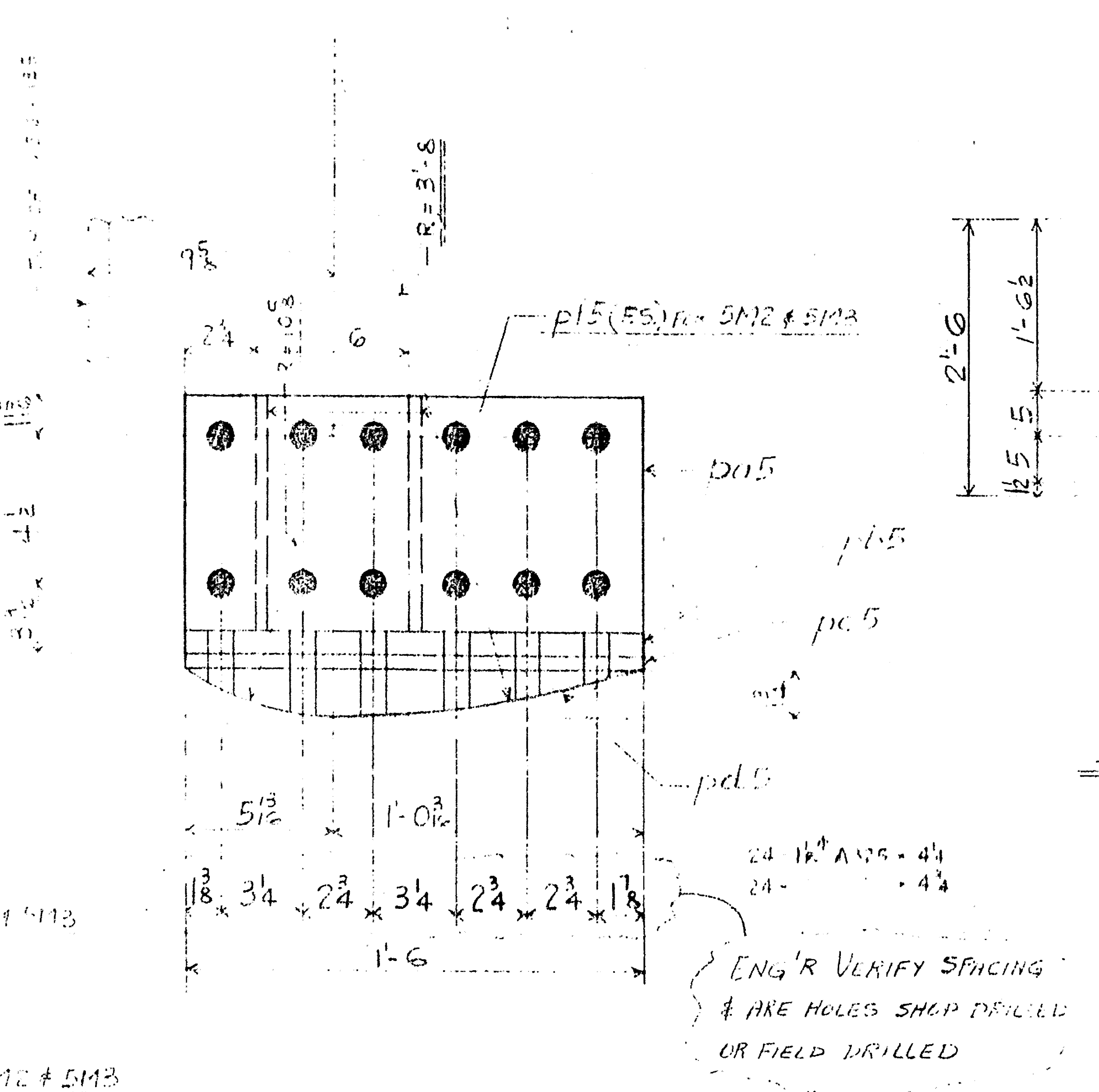
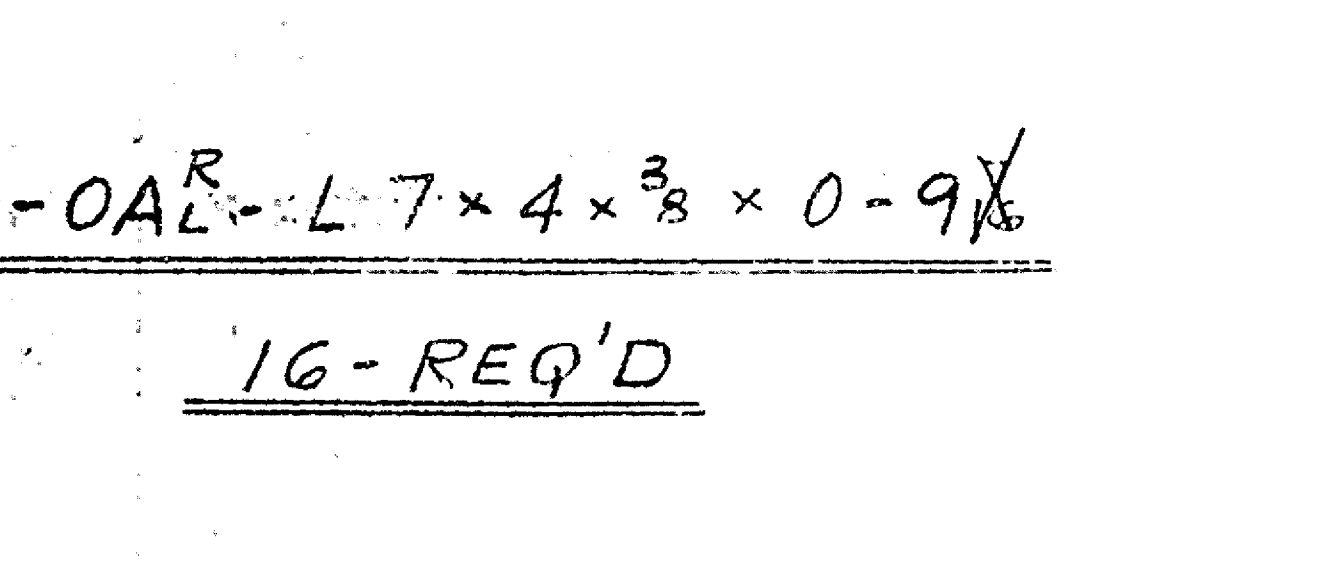
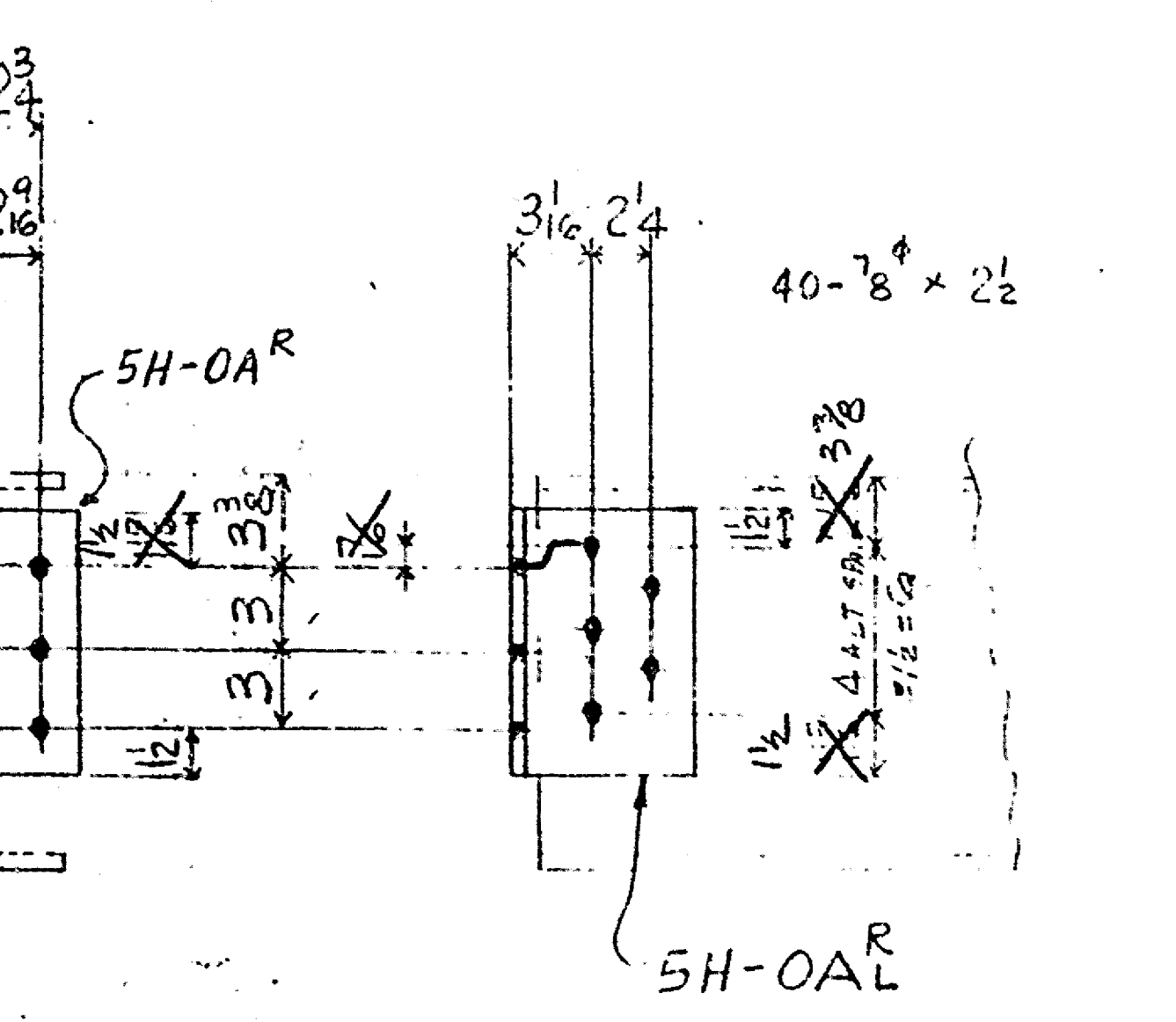
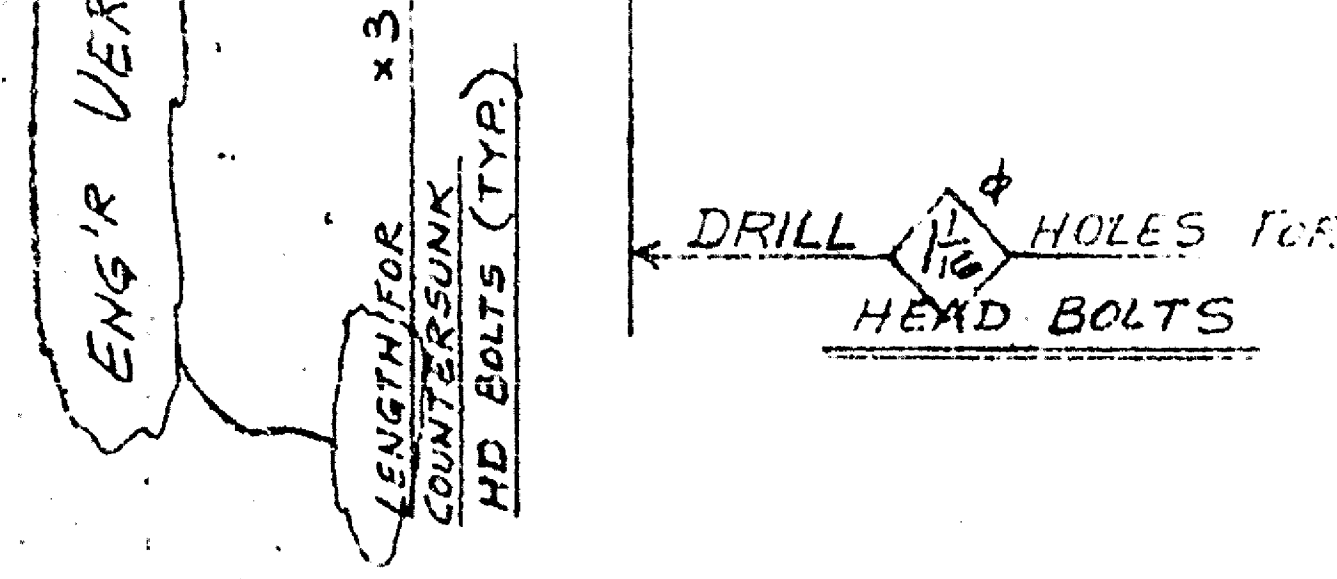
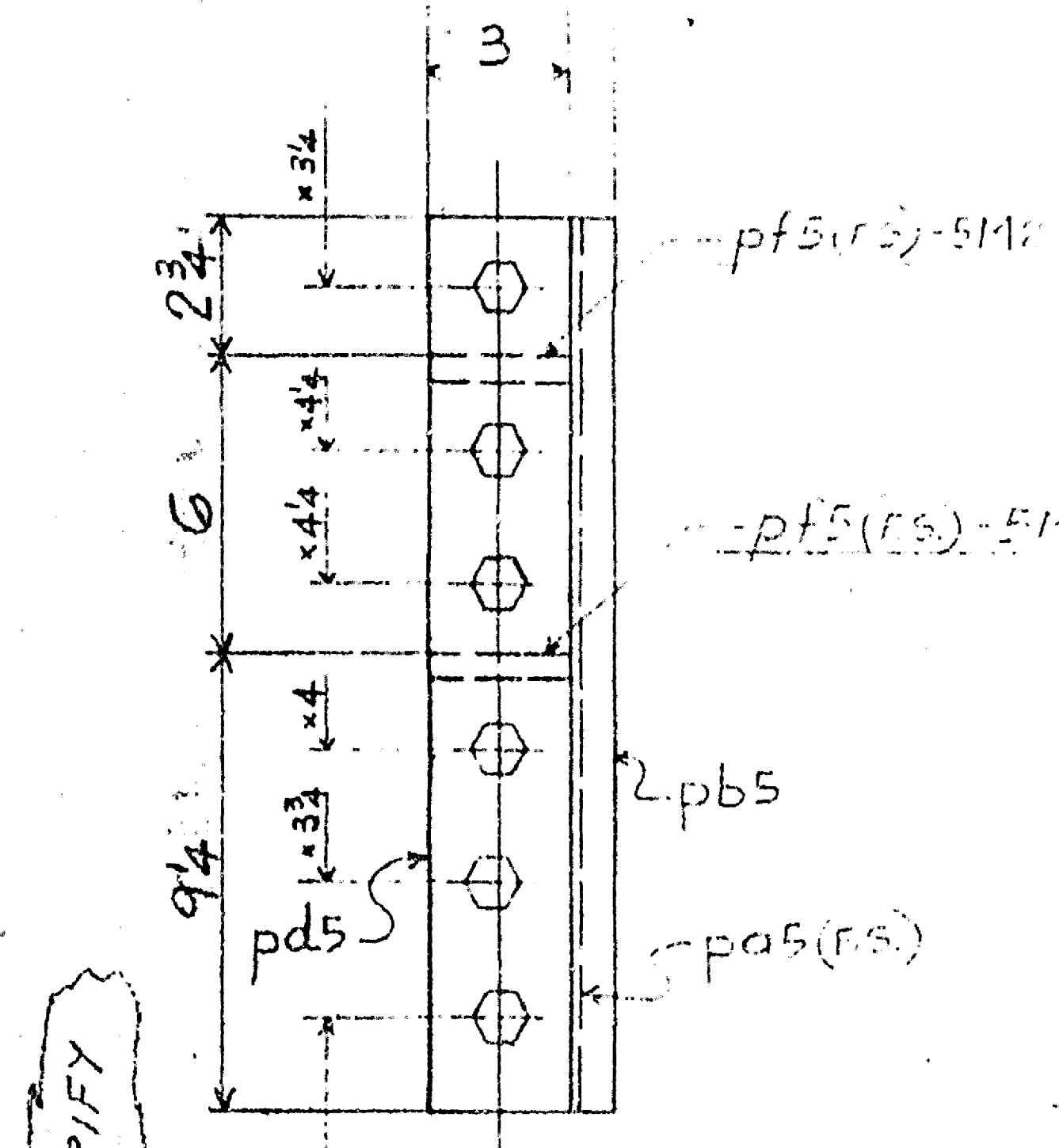
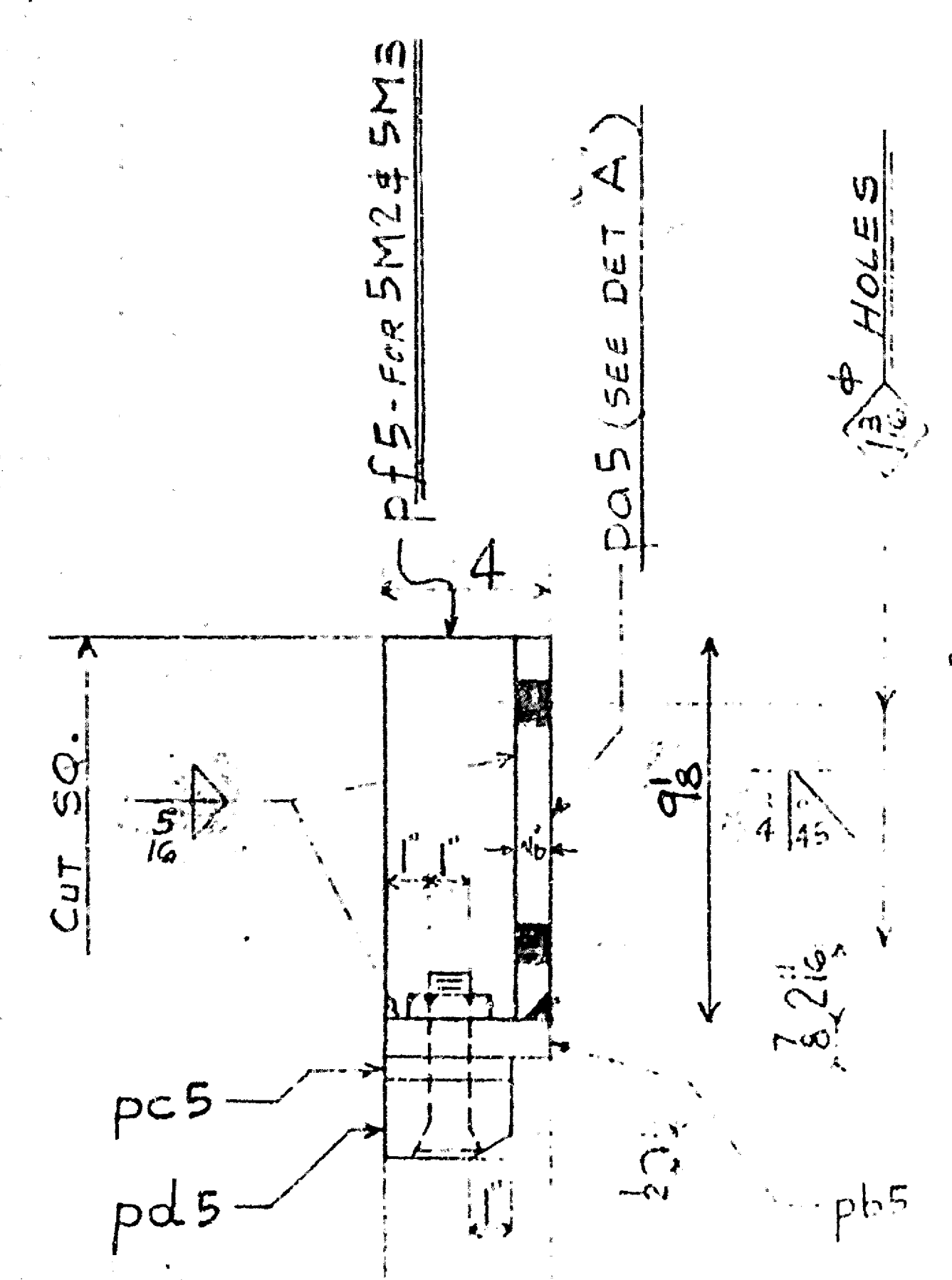
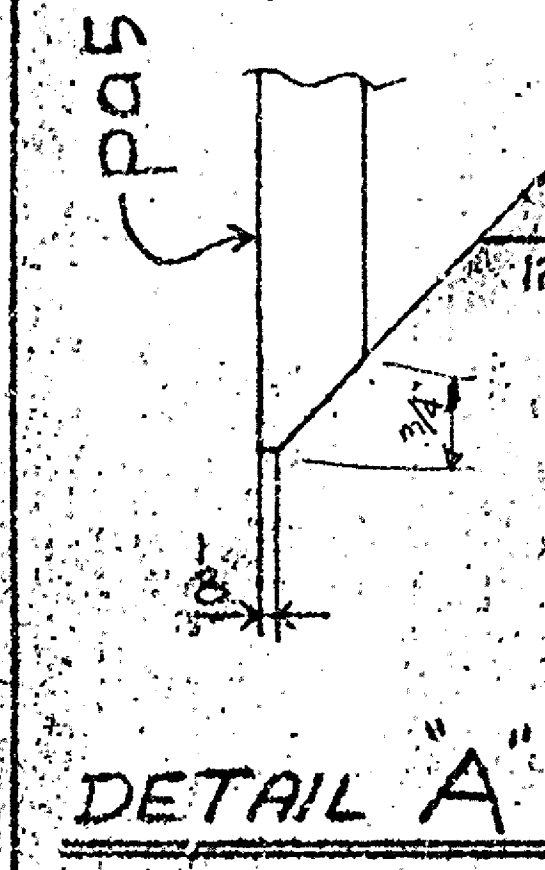


DETAIL "D"

SECT. C-C
FOR INFO. NOT SHOWN SEE SECT. B-B

<p> REVIEWED FOR GENERAL CONFORMITY WITH PLANS AND SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR ACCURACY OF CONTENT. </p> <p> W.A.K. FEB 10 1966 For Bridge Engineer </p>	
PROJECT	REHABILITATION OF BRIDGE
LOCATION	NEWPORT DELAWARE
ARCHITECT	CONTRACT NO. SE 076
ENGINEER	FEDERAL AID PROGRAM W. ENDS
MATERIAL	ASTM A572-GR 50
HOLES	1 1/2" U.N.
WFLD	E70XX (LOW HYDROGEN)
PAINT	ONE SHOP COAT PER SPEC. G.A.I.
REF DWG NO.	E2, E10, E11
<p align="center"> HELMARK STEEL DIVISION OF FALCON STEEL BOX 1067, WILMINGTON, DELAWARE (301) 556-3241 </p>	
DRAWN BY	W. M.
CHECKED BY	NW
DATE BY	HE-1586

SECTION 100000



BILL OF MATERIAL					
QTY	SIZE	UNIT	MARK	REMARKS	PRICE
ONE ASSEMBLY	5M1				
ONE ASSEMBLY	5M2				
ONE ASSEMBLY	5M3				
ONE ASSEMBLY	5M4				
4	PL 3/8 x 4	1	Q	pa5 C.S.I.E	4/10
4	PL 7/8 x 4	1	Q	pb5	4/10
4	FILL 3/8 x 3	1	Q	pc5	5/10
4	WEAR PL 3/8 x 3	1	Q	pd5 FORGED ALLOY STEEL TO BE MACHINED	5/10
4	PL 1/2 x 3	0	9	pf5 FOR SPACERS ONLY	5/10
4	1" COUNTERSUNK HD BOLT	0	3	A307	7/10
4		0	34		7/10
4		0	34		7/10
4		0	4		7/10
8		0	44		7/10
24	NUTS FOR 1" COUNTERSUNK HD BOLTS			A307	8/10
16	L7 x 4 x 3/8	0	9	5H-0A	2/5
2	L6 x 6 x 1/2	1	Q	5H-0R	2/10
2	PL 1/2 x 6	1	Q	5H-0	5/10
2	PL 1/2 x 30	5	Q	5SW-1P CHECKERED PL 1/2 x 30 x 5'-6	2/15
2	L3 x 2 1/2 x 3/8	5	Q	aa5	4/10
2	L8 x 8 x 1/2	0	8	5H-1	2/1
2	PL 1/2 x 8	0	8	5HP-1	5/10
2	PL 1/2 x 8 1/2	1	Q	5PI	5/10

REVIEWED FOR GENERAL CONFORMITY WITH PLANS AND SPECIFICATIONS CONTRACTOR IS RESPONSIBLE FOR ACCURACY OF CONTENT

DATE: FEB 10 1988

For Bridge Engineer

REHABILITATION OF BRIDGE No 159

NEWPORT DELAWARE

CONTRACT NO. 85-014-01

FEDERAL AID PROGRAM No BH03-327(1)

MATERIAL: ASTM A572-GR50 (U.N.)

WELD: E70XX (LOW HYDROGEN)

PAINT: ONE SHOP COAT PER SPEC (3 MILLS DR)

COAT: EG, E8, E14

HELMARK STEEL, INC.

DIVISION OF FALCON STEEL

BOX 1557, WILMINGTON, DELAWARE

13021 652-3341

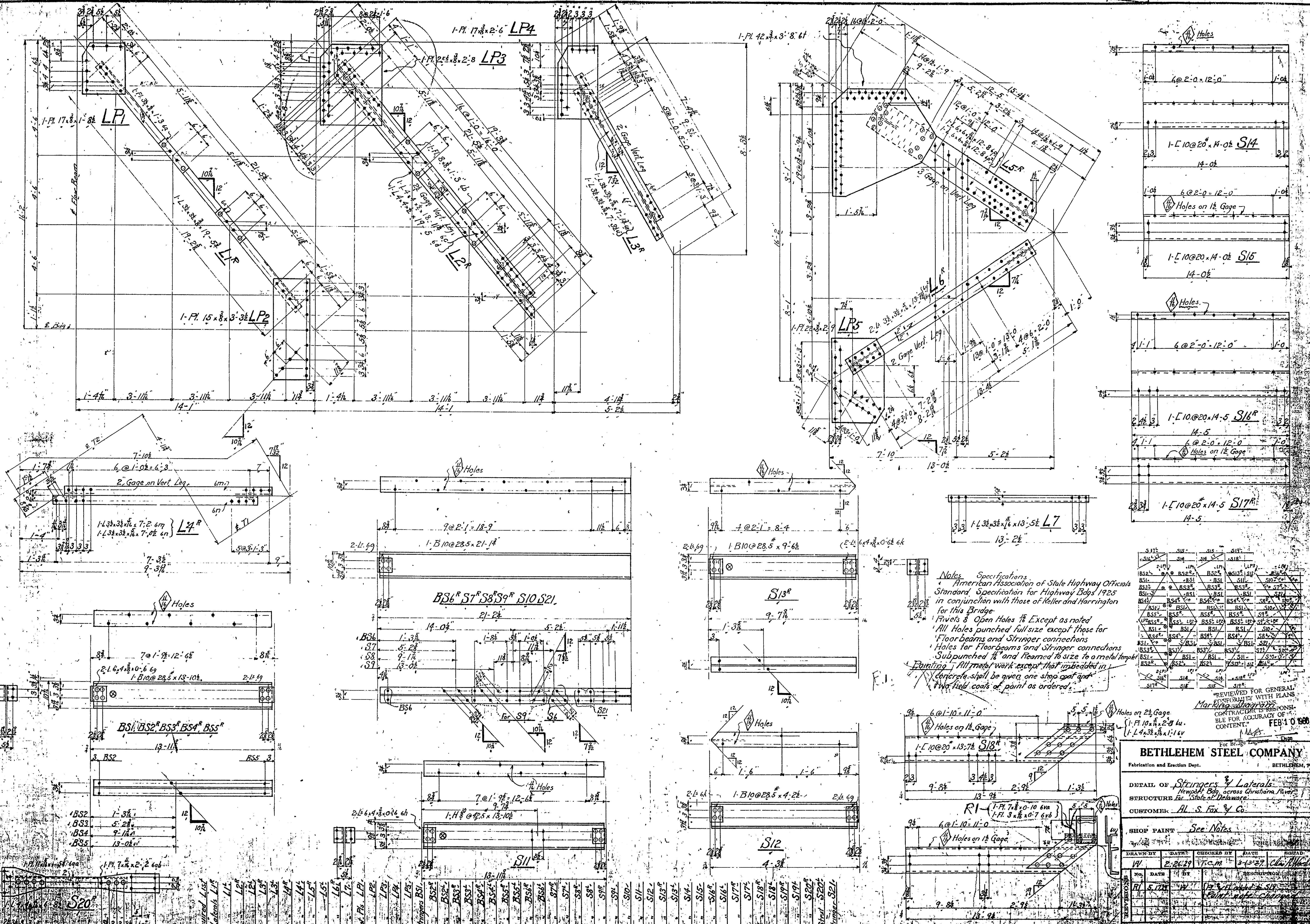
DRAWN BY: W.M.

DATE: 12/86

HE - 1586

7*
B A 325 F B
36 c 2
60 c 6
8 c 2⁴
120 c 3
32 c 4
72 c 4

$$\frac{2^{10} \cdot 10^6}{2^{20} \cdot 10^6} = \frac{2^{10}}{2^{20}} = \frac{1}{2^{10}} = \frac{1}{1024}$$



Notes Specifications
American Association of State Highway Officials
Standard Specification for Highway Bldgs 1925
in conjunction with those of Keller and Harrington
for this Bridge
Five's & Open Holes $\frac{1}{8}$ Except as noted
All Holes punched full size except those for
Floor beams and Stringer connections
Holes for Floorbeams and Stringer connections
Subpunched $\frac{1}{8}$ and Reamed to size to a metal template
in $\frac{1}{8}$ All metal work except that imbedded in
concrete shall be given one shop coat and
two field coats of paint as ordered.

[illegible]

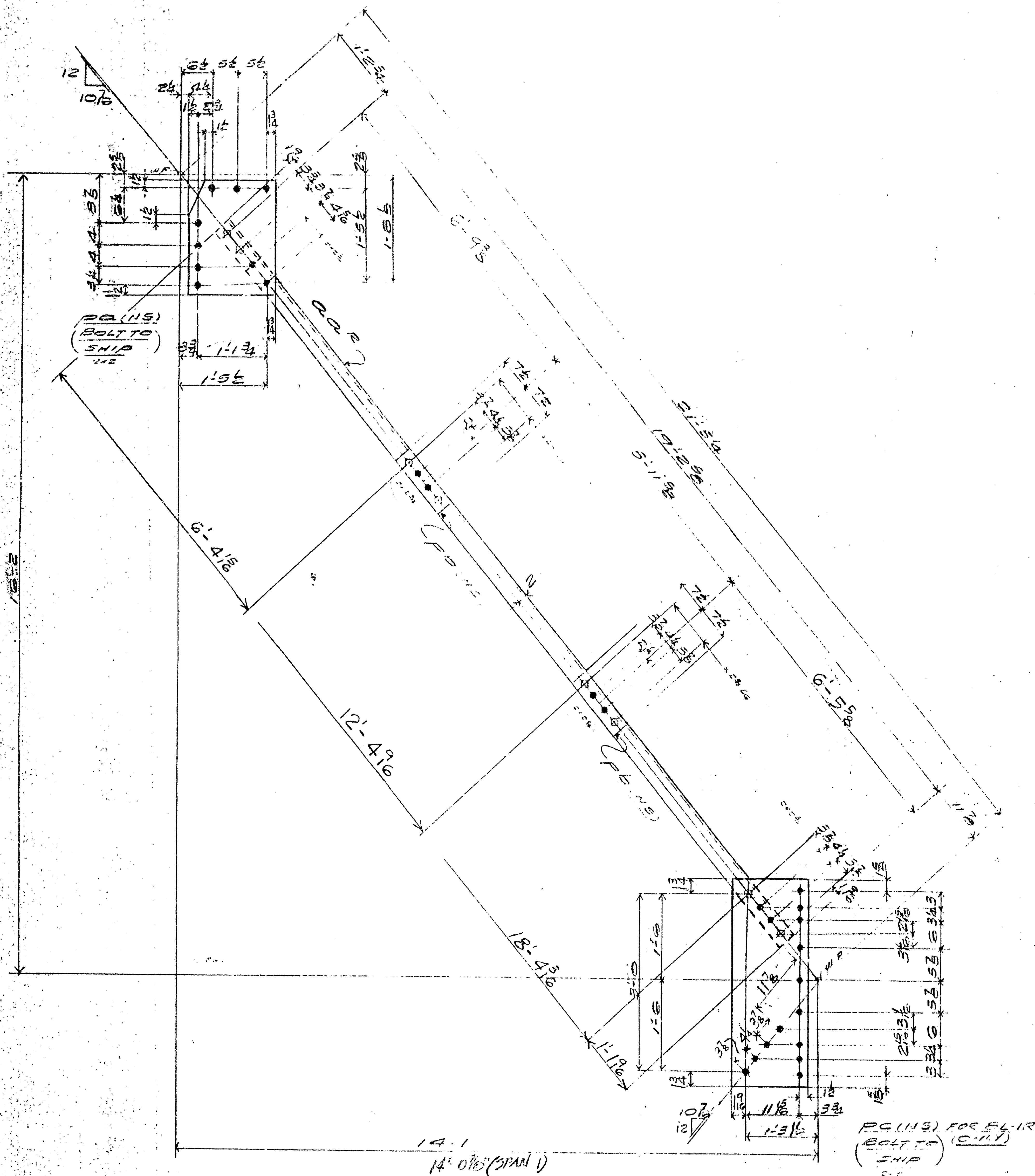
on 2 1/2 Gage.
Pl. 10 x 1/2 x 2-8 bu.
L 4 x 3/4 x 1-1/2 bu

BETHLEHEM STEEL COMPANY
Fabrication and Erection Dept. BETHLEHEM, PA.

DETAIL OF Stringers & Laterals
Newport Bdg. across Christina River
STRUCTURE for State of Delaware
CUSTOMER AL. S. Fox & Co.

SHOP PAINT See Notes

DRAWN BY		DATE	CHECKED BY	DATE	SQUAD
191		2-26-29	T.C.M.	3-13-29	Chas. H. Wain
NO.	DATE	BY	DESCRIPTION		
R1	5-1-29	191	13-3-29 added to S18 Paint note changed		



4 BR-LES BEAD MARK BL-IR AS SHOWN
4 BR-LES BEAD MARK BL-IL OFF HAND

$$\frac{5 \frac{7}{8}}{6 \frac{3}{8}} = 1 \frac{1}{2} = 1' - 6"$$

2" A325 (F.B.)
X = 2

GALVANIZED WITH
ASTM B 454

$$\frac{10 \frac{7}{16} \times X}{12} = \frac{X}{3/4}$$

$$X = (2.626522917^2 + 3.25^2)^{1/2}$$

$$X = 4.307369"$$

$$X = 4 \frac{1}{4}"$$

$$\frac{4.307369}{3.25} = \frac{X}{8.65}$$

$$X = 8.64" OK$$

$$\frac{1' - 0 \frac{3}{16}}{1' - 0 \frac{1}{16}} = \frac{3/16}{1/16}$$

REVIEWED FOR GENERAL
CONFORMITY WITH PLANS
AND SPECIFICATIONS.
CONTRACTOR IS RESPONSIBLE
FOR ACCURACY OF
CONTENT.
JAN 11 1996
For Bridge Engineer

FOR APPROVAL

HELMARK STEEL, INC.
JAN 11 1996
DRAWING ROOM

CLEAN SPEC-SSPC-SP10

BILL OF MATERIAL				
QTY	SHAPE	LENGTH FT IN	MARK	REMARKS
4	BRACES		BL-IR AS SHOWN	
4	BRACES		BL-IL OFF HAND	
8	3/8" x 3/8" x 1/2"	15' 3/4"	PC	
8	3/8" x 1/2" x 1/2"	15' 3/4"	PC	
16	3/8" x 3/8" x 1/2"	15' 3/4"	PC	
4	3/8" x 1/2" x 1/2"	15' 3/4"	PC	

32	3/8" A325 BOLT	0.25	W/ WASH	1/2"
32	DO	0.25		1/2"
64	2" A325 BOLT	0.25	W/ WASH	1/2"

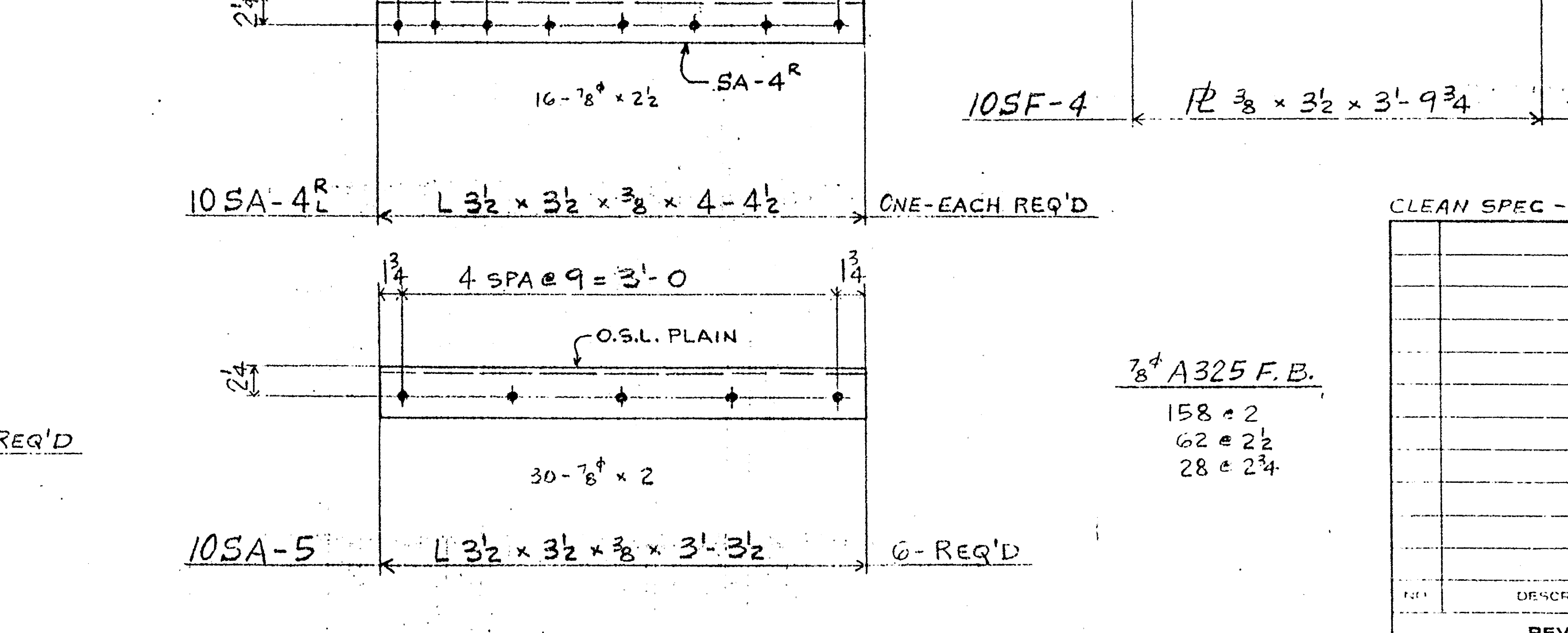
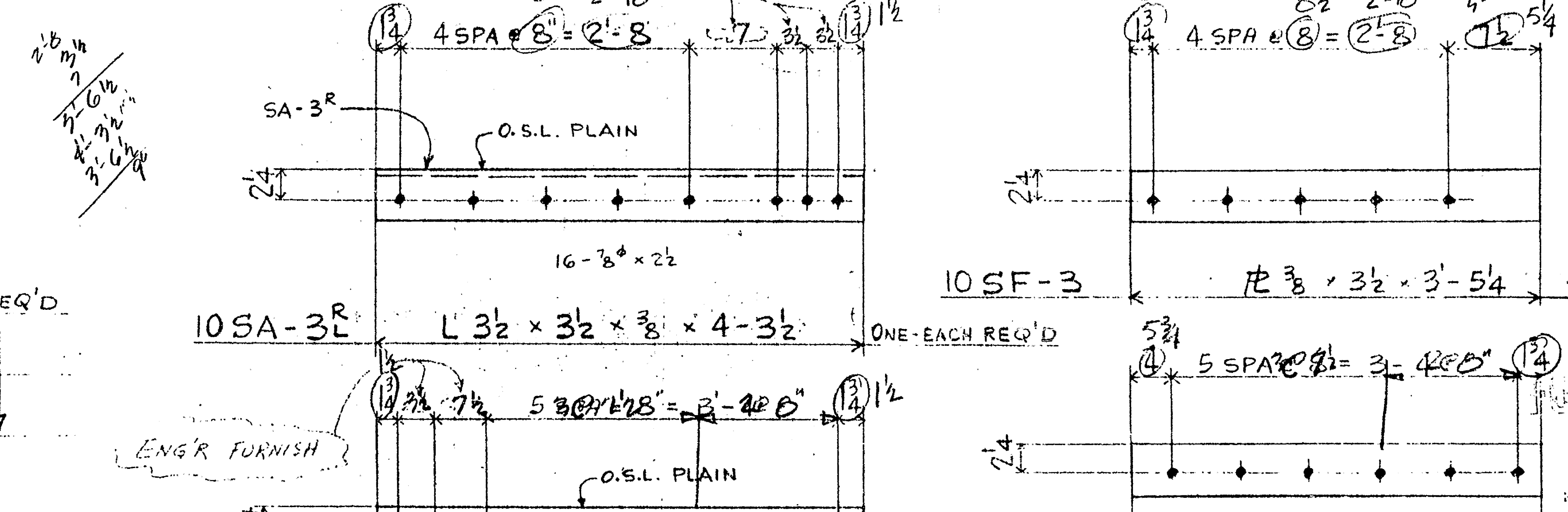
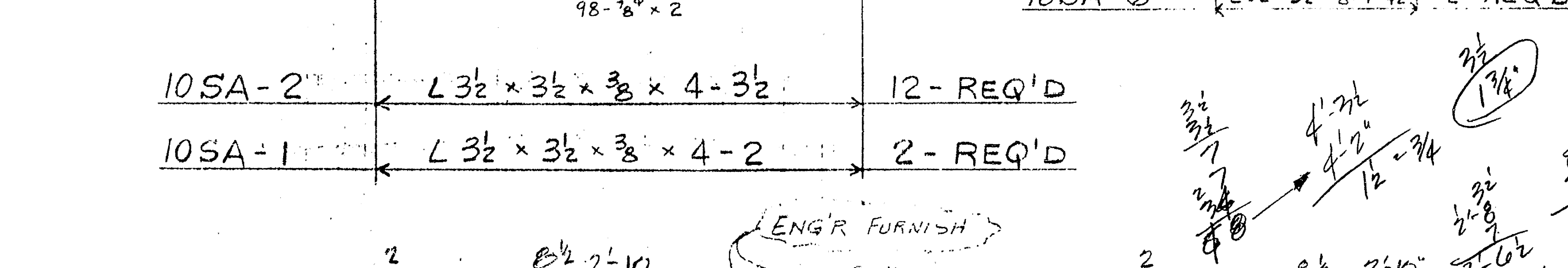
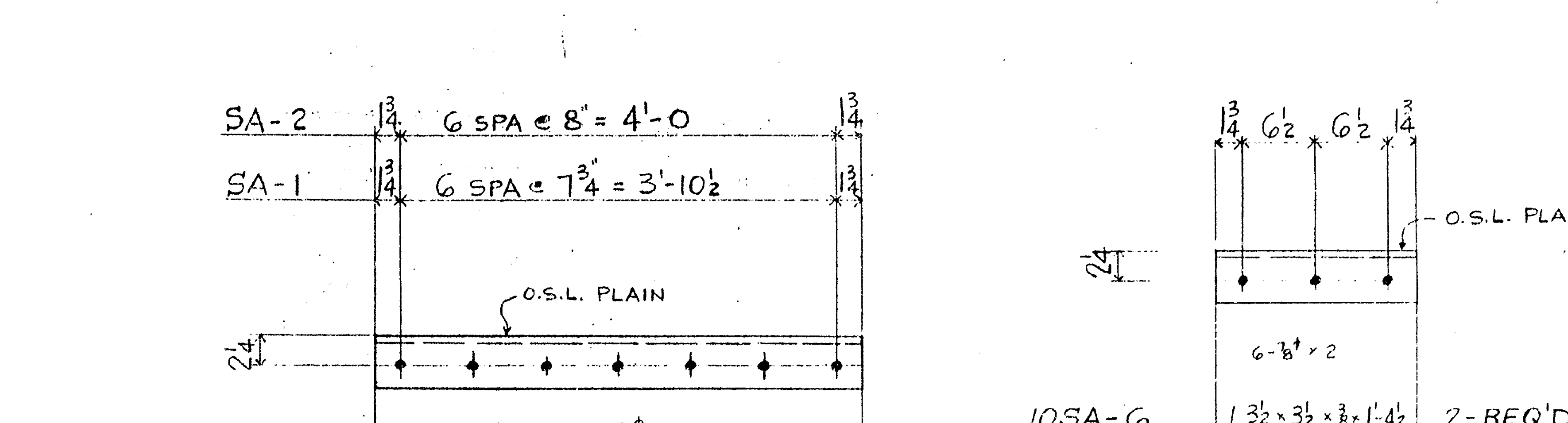
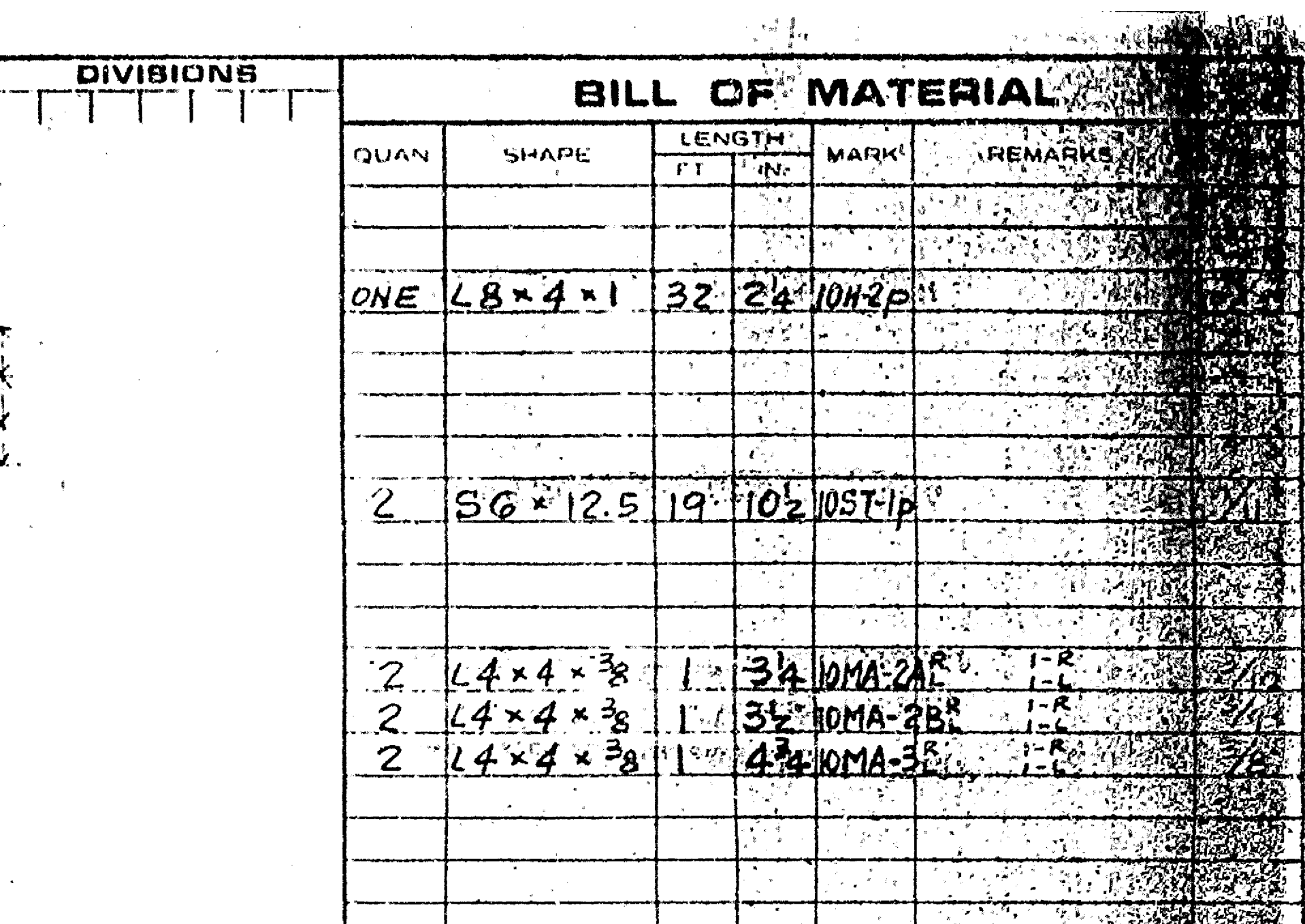
FIELD BOLTS				
24	1/2" A325 BOLTS	4 3/4"	GALVANIZED WITH	1/2"
24	1/2" A325 BOLTS	4 3/4"	ASTM B 454	1/2"
36	3/8" A325 BOLTS	4		1/2"
100		3 3/4"		1/2"
200		3		1/2"
180		2 3/4"		1/2"
240		2 1/2"		1/2"
250		2 1/4"		1/2"
1000	3/8" A325 BOLTS	2		1/2"
48	HARD WASH FOR 1/2" BOLTS	A325		1/2"
2006	HARD WASH FOR 3/8" BOLTS	A325		1/2"

REHABILITATION OF BRIDGE
NEWPORT DELAWARE
CONTRACT NO. B9-074-01
FEDERAL AID PROGRAM NO. BHC652(1)

ASTM - A572 - GR50
1/2"
11015
ONE SHOP COAT PER SPEC (3 MILLS DRY)
E9

HELMARK STEEL, INC.
DIVISION OF FALCON STEEL
BOX 1567, WILMINGTON, DELAWARE
(302) 652-3341

DATE
W.M.
DATE
DATE
SHEET NO. 8



DIVISIONS		BILL OF MATERIAL			
QUAN	SHAPE	LENGTH		MARK	REMARKS
		FT	IN		
ONE	L8x4x1	32	24	10H2P	
2	SGx12.5	19	10 1/2	10ST-1P	
2	L4x4x3/8	1	34	10MA-2A	1-2
2	L4x4x3/8	1	35	10MA-2B	1-2
2	L4x4x3/8	1	44	10MA-3E	1-2
2	L4x4x3/8	1	24	10MA-4	1-2
2	P3/8x6	1	34	10MP-2A	
2	P3/8x6	1	35	10MP-2B	
2	P3/8x6	1	44	10MP-3	
2	P3/8x6	1	24	10MP-4	
12	L3 1/2x3 1/2x3/8	4	32	10SA-2	
2	L3 1/2x3 1/2x3/8	4	2	10SA-1	
2	L3 1/2x3 1/2x3/8	4	32	10SA-3E	
2	P3/8x3 1/2	3	5 1/4	10SE-3	
2	L3 1/2x3 1/2x3/8	4	42	10SA-4	
2	P3/8x3 1/2	3	9 3/4	10SE-4	
6	L3 1/2x3 1/2x3/8	3	32	10SA-5	
2	L3 1/2x3 1/2x3/8	4	42	10SA-6	

2-REQ'D

1/2

APPROVED FOR GENERAL
SECURITY WITH PLANS
AND SPECIFICATIONS
CONTRACTOR IS RESPONSIBLE
FOR ACCURACY OF
CONTENT.

UAA FEB 10 1988

FOR BRIDGE ENGINEER

PROJECT		REHABILITATION OF BRIDGE No. 152
LOCATION		NEWPORT DELAWARE
		CONTRACT No. 85-074-01
		FEDERAL AID PROGRAM No. BH05-327(1)
ARCHITECT		
ENGINEER		
MATERIAL		ASTM A572-GR50
HOLES		1 1/4"
WELD		E70XX (LOW HYDROGEN)
PAINT		ONE SHOP COAT PER SPEC (3 MILLS DRY)
REF DWG NO.		E6, E7, E8

HELMARK STEEL, INC.

DIVISION OF FALCON STEEL

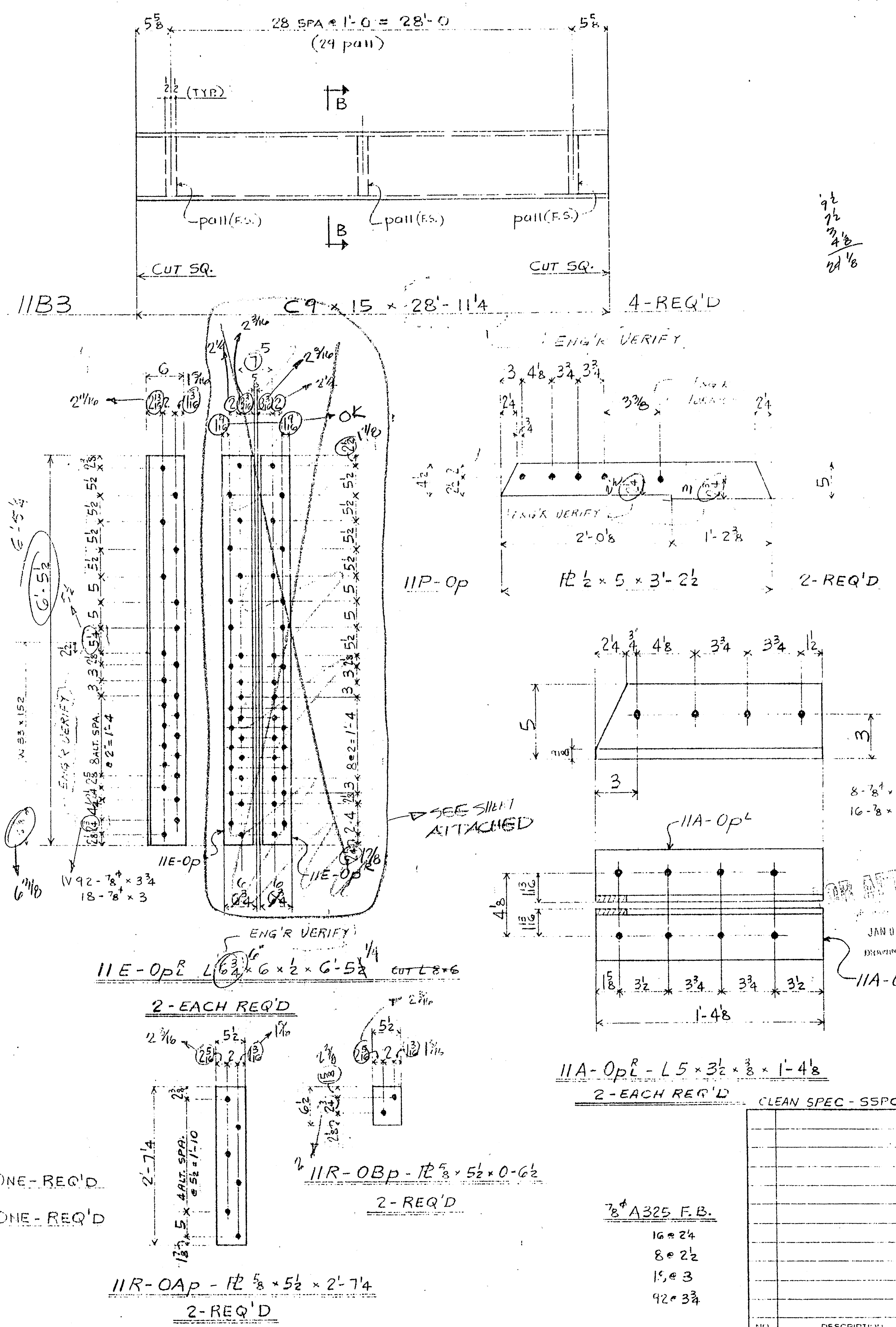
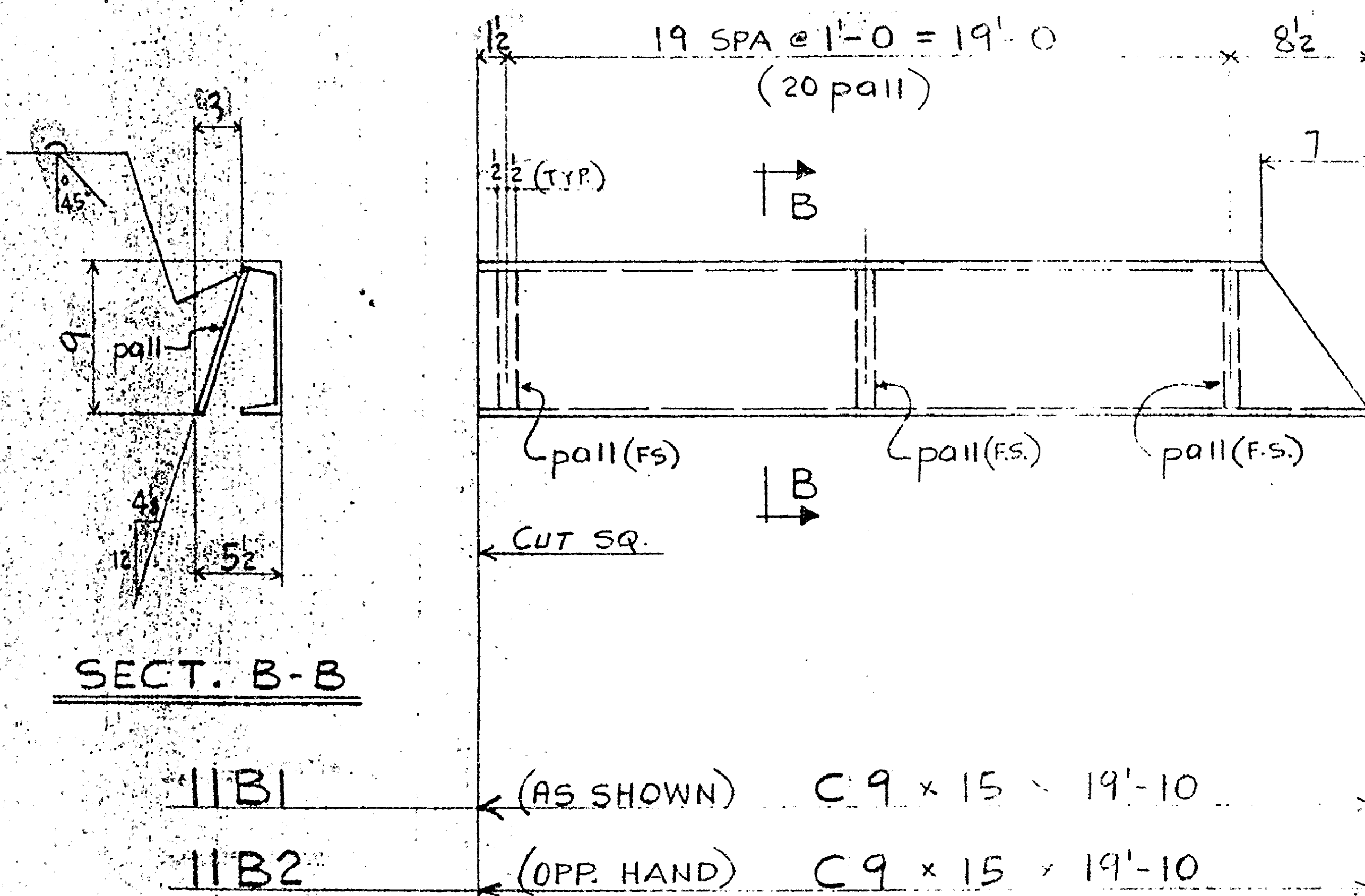
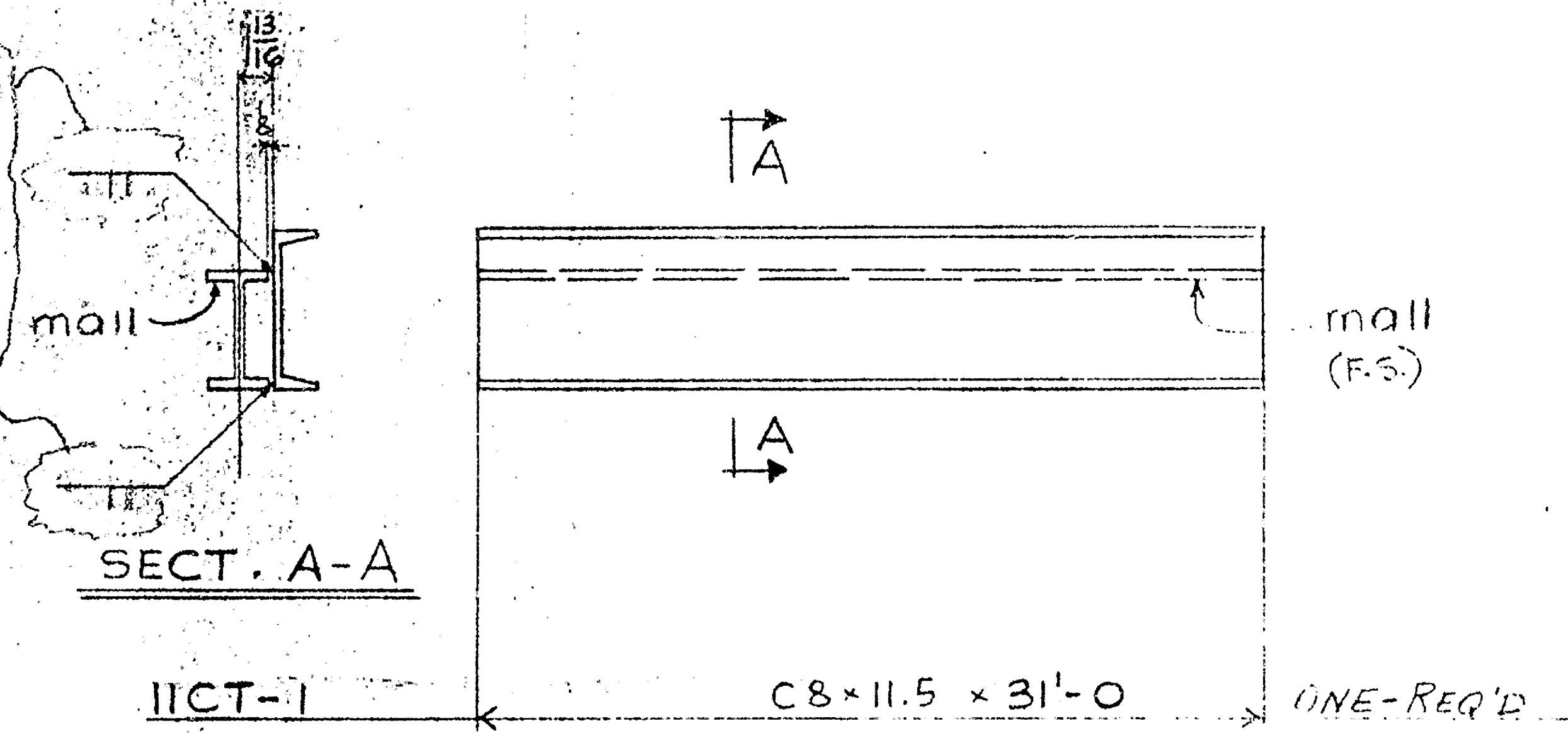
BOX 1587, WILMINGTON, DELAWARE

(302) 652-3341

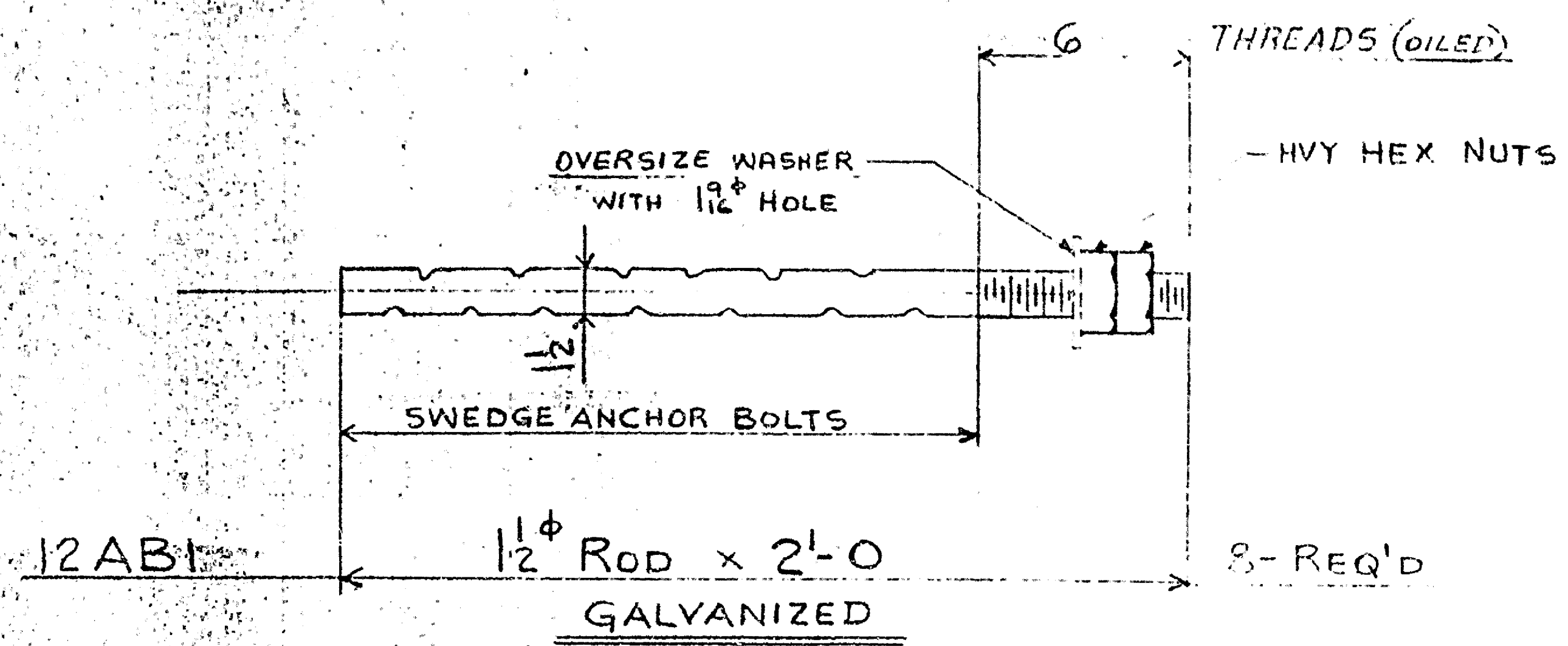
DRAWN BY	W. M.	DATE	
CHECKED BY	NW	DATE	12-31-85
APPROVED BY	HE - 1/2	DATE	10

NO PAINT

11SB-1	←	LG × 3½ × 5/16 × 6'-5¾	12-REQ'D
11SB-2	←	× 4'-3½	4 -
11SB-3	←	× 2'-7½	2 -
11SB-4	←	× 0'-5½	2 -
11SC-1	←	× 14'-10½	2 -
11SC-2	←	× 14'-1	4 -
11SC-3	←	× 9'-8½	2 -
11SC-4	←	LG × 3½ × 5/16 × 4'-1	2-REQ'D



BILL OF MATERIAL				
QUAN	SHAPE	LENGTH FT. IN.	MARK	REMARKS
12	LG x 3½ x 5/16	6'-5¾	11SB-1	
4	LG x 3½ x 5/16	4'-3½	11SB-2	
2	LG x 3½ x 5/16	2'-7½	11SB-3	
2	LG x 3½ x 5/16	0'-5½	11SB-4	
2	LG x 3½ x 5/16	14'-10½	11SC-1	
4	LG x 3½ x 5/16	14'-1	11SC-2	
2	LG x 3½ x 5/16	9'-8½	11SC-3	
2	LG x 3½ x 5/16	4'-1	11SC-4	
ONE C8 x 11.5 31' 0" 11CT-1				
ONE 56 x 12.5 31' 0" mail				
ONE C9 x 15 19' 10" 11B1 C.S.1.E.				
ONE C9 x 15 19' 10" 11B2 C.S.1.E.				
40 R 3/8 x 2 0' 9 1/4 pall				
4 C9 x 15 28' 11 1/4 11B3 C.S.2.E.				
116 R pall				
4 LG 6 x 1/2 6' 5 1/2 11E-Op 3'-2" CUT 1/8" x 6"				
2 R 5/8 x 5 1/2 2' 7 1/4 11R-OAp				
2 R 5/8 x 5 1/2 0' 6 1/2 11R-OBp				
2 R 1/2 x 5 3' 2 1/2 11P-Op				
4 L5 x 3 1/2 x 3/8 1' 4' 8" 11A-Op 3'-2"				
PROJECT REHABILITATION OF BRIDGE No. 159				
LOCATION NEWPORT DELAWARE				
CONTRACT No. 85-074-01				
FEDERAL AID PROGRAM No. BH05-271				
ARCHITECT				
ENGINEER				
MATERIAL ASTM A572-GR50				
WELDS E70XX (Low Hydrogen)				
PAINT ONE SHOP COAT PER SPEC (3 MILS DRY)				
REF DWG No E13, E15				
HELMARK STEEL, INC.				
DIVISION OF FALCON STEEL				
BOX 1567, WILMINGTON, DELAWARE				
(302) 652-3341				
DRAWN BY W.M.				
CHECKED BY W.W.				
APPROVED BY W.W.				
DATE 1/15/86				



DIVISIONS		BILL OF MATERIAL			
QUAN	SHAPE	LENGTH FT IN	MARK	REMARKS	
8	1/2" ROD	2'-0"		SWEDGE	
16	HVY HEX NUTS FOR 1/2" ANCHOR BOLTS				
8	OVERSIZE WASH FOR 1/2" ANCHOR BOLTS	1 1/2" HOLES			

GALVANIZED
W/ASTM A 153

FOR APPROVAL

JAN 03 1986
DRAWING ROOM

REVIEWED FOR GENERAL
CONFORMITY WITH PLANS
AND SPECIFICATIONS
CONTRACTOR IS RESPONS-
IBLE FOR ACCURACY OF
CONTENT
FEB 10 1986
For Bridge Engineer

PROJECT: REHABILITATION OF BRIDGE No. 15
NEWPORT DELAWARE
LOCATION: CONTRACT No. 85-074-01
FEDERAL AID PROGRAM No. BHOS-327

ARCHITECT
ENGINEER

MATERIAL: ASTM A307 4 HOT DIPPED GALVANIZED ASTM A153
HOLES
WELD
PAINT: NONE
REF: WG NO. E16

HELMARK STEEL, INC.
DIVISION OF FALCON STEEL
BOX 1587, WILMINGTON, DELAWARE
(302) 652-3341

DRAWN BY: W.M. DATE
CHECKED BY: M.M. DATE
APPROVED BY: DATE
JOB NO. HF-1586 SHEET NO. 12

NO	DESCRIPTION	DATE BY
	REVISIONS	

ARRANGEMENT OF BASCULE SPAN
AND SCHEDULE OF REPAIRS

CONTRACT	COUNTY	FEDERAL AID PROJECT #	TOTAL SHEETS
65-074-01	N.C.	BR08-522(11)	4

REHABILITATION OF BRIDGE 159, NEWPORT

LEGEND

(F)	FLOORBEAM	F/
(B)	SIDEWALK BRACKET	B/
(C)	CONNECTING PLATE	C/
(S)	STRINGER	S/
(L)	BRACING	L/
(FB)	BRACKET	FB/

BASCULE SPAN REPAIRS

SPANS 1 THRU 4

- STEP 1 REMOVE 5" OPEN BRIDGE FLOOR.
STEP 2 REMOVE ALL STRINGERS WITH 4" FILLS (14 TOTAL).
STEP 3 REMOVE THE TWO BRACINGS AND THE THREE CONNECTING PLATES.
STEP 4 REMOVE WOOD SIDEWALK FLOOR.
STEP 5 FOLLOW STEPS INDICATED ON FLOORBEAM PLANS TO REMOVE AND REPLACE THE SOUTH MOST FLOORBEAM OF THE SPAN.
STEP 5A THIS STEP APPLIES ONLY TO SPAN 4. FOLLOW STEPS INDICATED ON THE BRACKET B/5 PLANS TO REMOVE AND REPLACE THIS BRACKET.
FOLLOW STEPS BELOW AFTER 2 ADJACENT FLOORBEAMS ARE PLACED.
- STEP 6 PLACE CONNECTING PLATES ON MAIN GIRDER AND PLACE BRACINGS.
STEP 7 PLACE STRINGERS.
STEP 8 PLACE NEW 5" OPEN BRIDGE FLOOR.

SPAN 5

FOLLOW STEPS INDICATED ON FLOORBEAM F/5.

- 32 CLEANING AND APPLICATION OF A PRIMER ON EXISTING STRUCTURE SHALL BE DONE BEFORE ANY NEW CONNECTION IS MADE.

6-7A325 x 2
EACH END

1-TYP. CONNECTION STRINGER TO
FLOOR BEAM TOTAL No. of Bolts

718-7A325 x 2

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CONTENT."
FEB 10 1986
For Bridge Engineer

FOR APPROVAL

JAN 03 1986

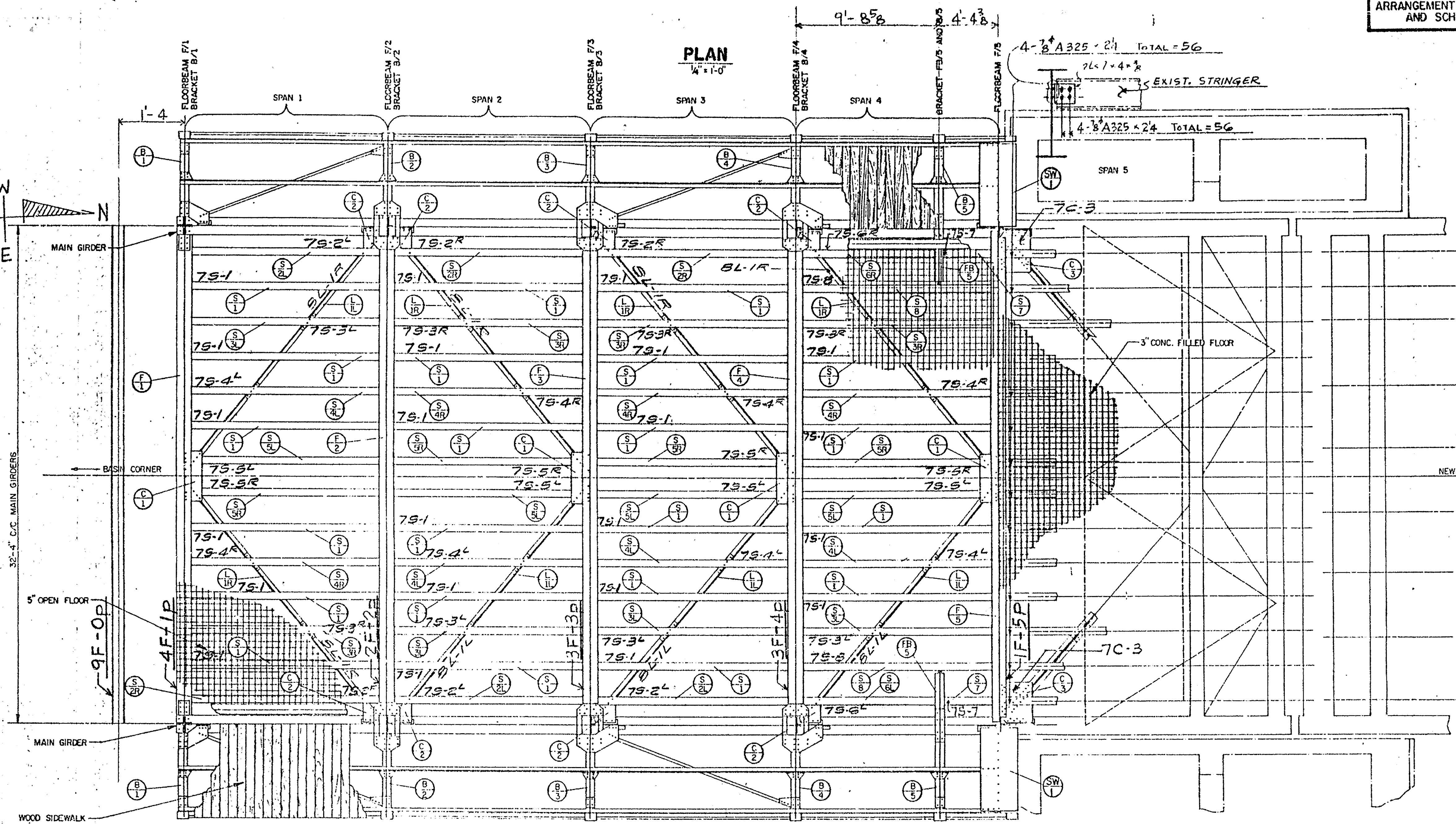
HELMARK STEEL INC.

Job No. HF-1586

Sht. No. 5

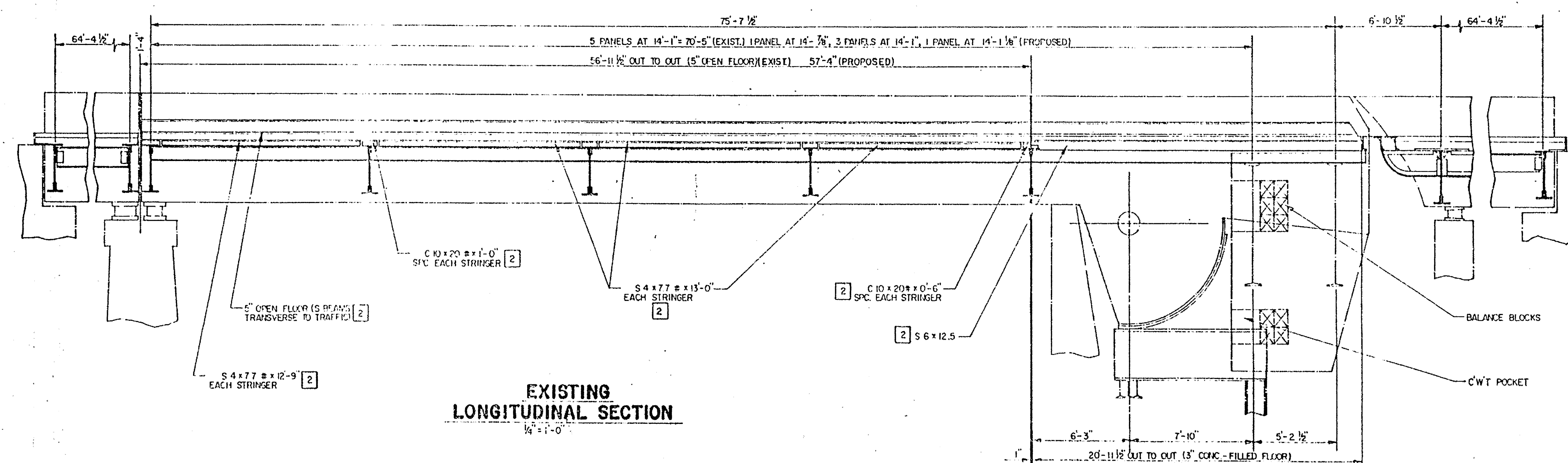
PLAN

1/4" = 1'-0"



EXISTING LONGITUDINAL SECTION

1/4" = 1'-0"



REVISIONS

PREL. TRACING
DESIGN
CHKD.

REHABILITATION OF
BRIDGE 159, NEWPORT

LEGEND

FLOORBEAM-SIDEWALK BRACKET CONNECTION

EXISTING MEMBER TO BE REMOVED

DESIGNATION	NO.	DESCRIPTION
P/1a	2x1	R 4 1/2" x 3/8" x 3'-2 1/2"
A/1a	2x4	L 5" x 3 1/2" x 3/8" x 1'-1/4"
R/1Aa	2x1	R 5 1/2" x 3/8" x 2'-7 1/4"
R/1Ba	2x1	R 5 1/2" x 3/8" x 5 1/4"
E/1a	2x2	L 6" x 6" x 1/2" x 6'-5 1/2"
F/1a	1	FLOORBEAM

PROPOSED MEMBER TO BE PLACED

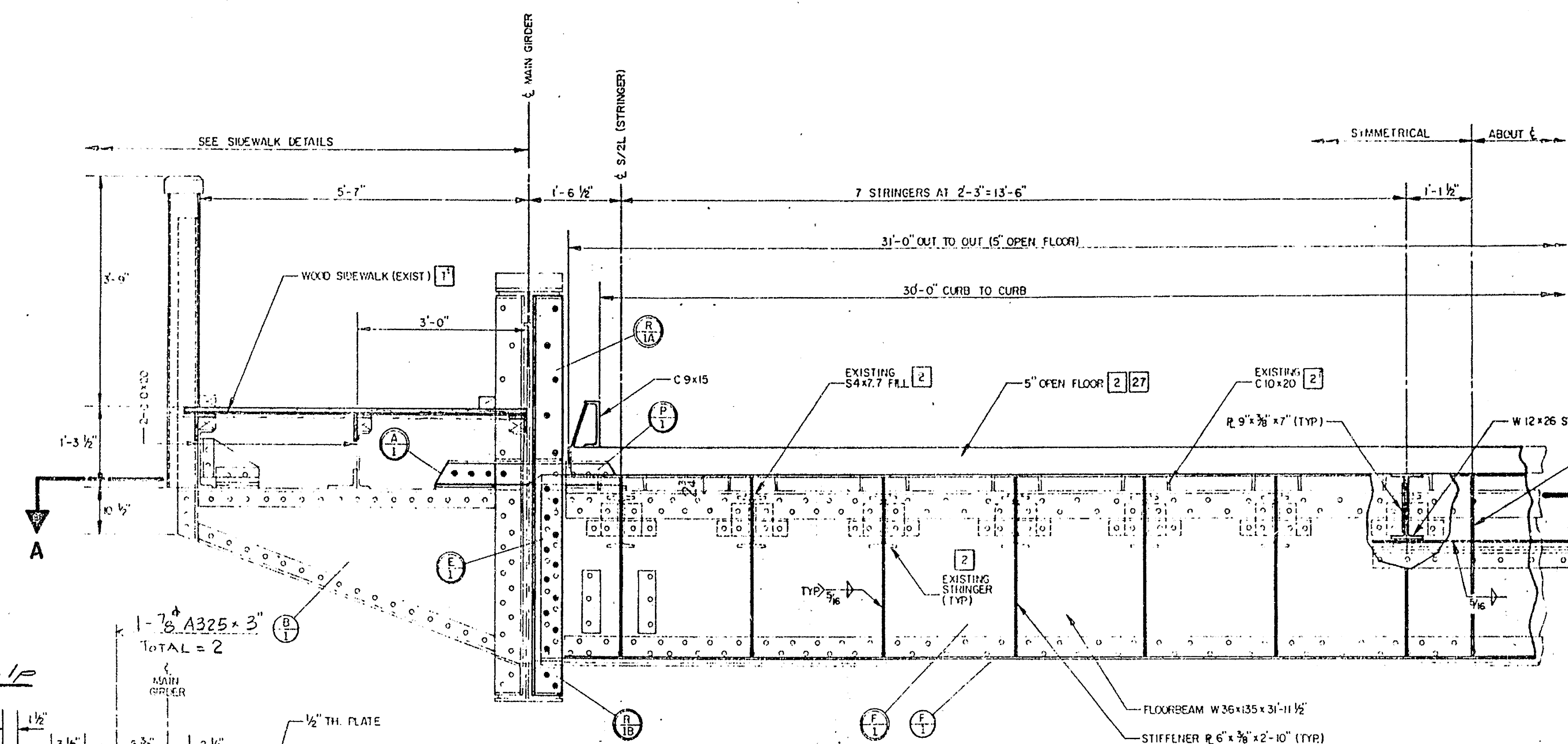
DESIGNATION	NO.	DESCRIPTION
P/1p	2x1	R 4 1/2" x 1/2" x 3'-2 1/2"
A/1p	2x2	L 5" x 3 1/2" x 3/8" x 1'-1/4"
R/1Ap	2x1	R 5 1/2" x 3/8" x 2'-7 1/4"
R/1Bp	2x1	R 5 1/2" x 3/8" x 7"
E/1p	2x2	L 6" x 6" x 1/2" x 6'-5 1/2"
F/1p	1	FLOORBEAM W 36 x 135 x 31'-11 1/2"

REPAIRS

FLOORBEAM-SIDEWALK BRACKET CONNECTION

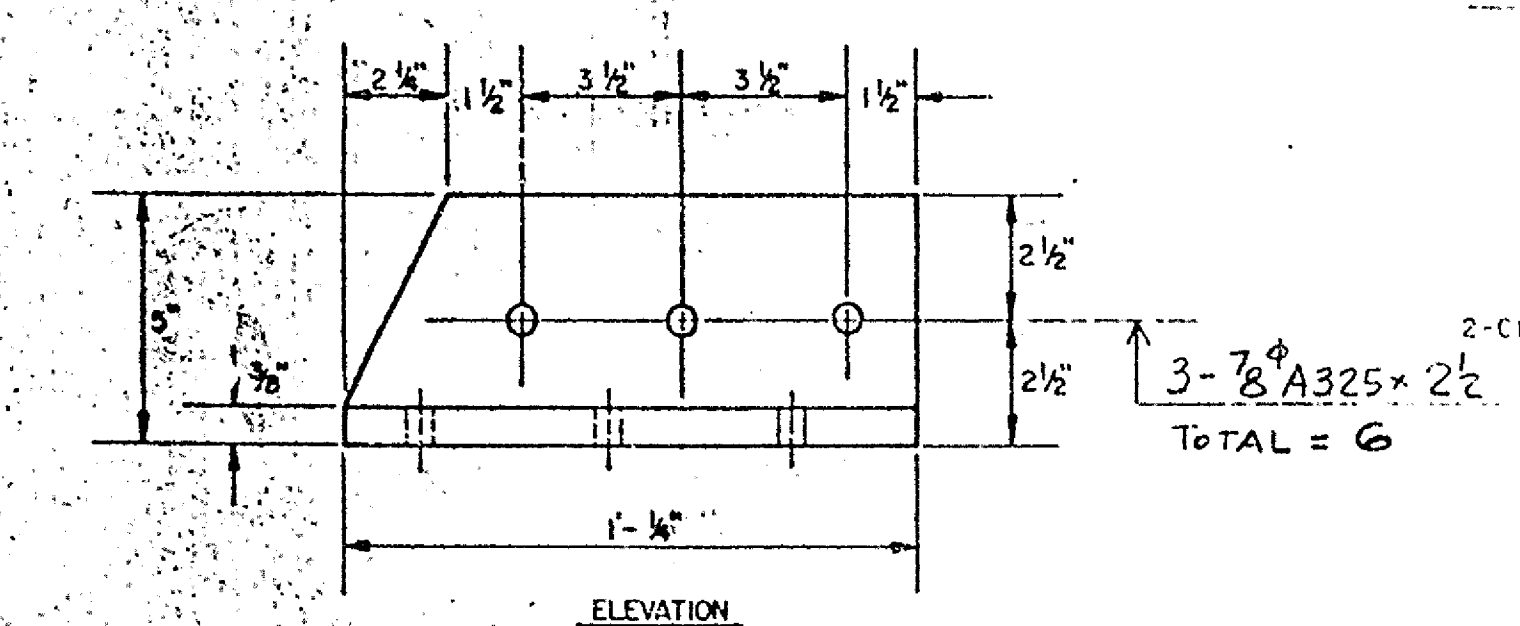
- STEP 1 REMOVE MEMBERS A/1a TO RELEASE P/1a.
- STEP 2 REMOVE P/1a THROUGH SLOT IN GIRDER.
- STEP 3 REMOVE ONE E/1a FROM EACH MAIN GIRDER. REMOVE FILLS R/1Aa AND R/1Ba. REMOVE FLOORBEAM F/1a.
- STEP 4 REPLACE EACH E/1a REMOVED WITH E/1p IN EACH MAIN GIRDER.
- STEP 5 REMOVE REMAINING E/1a IN EACH MAIN GIRDER.
- STEP 6 PLACE FILLS R/1Ap AND R/1Bp. PLACE FLOORBEAM F/1p AND PLACE E/1p.
- STEP 7 PLACE MEMBERS P/1a AND A/1a.

CLEANING AND APPLICATION OF A PRIMER ON EXISTING STRUCTURE SHALL BE DONE BEFORE ANY CONNECTION IS MADE.

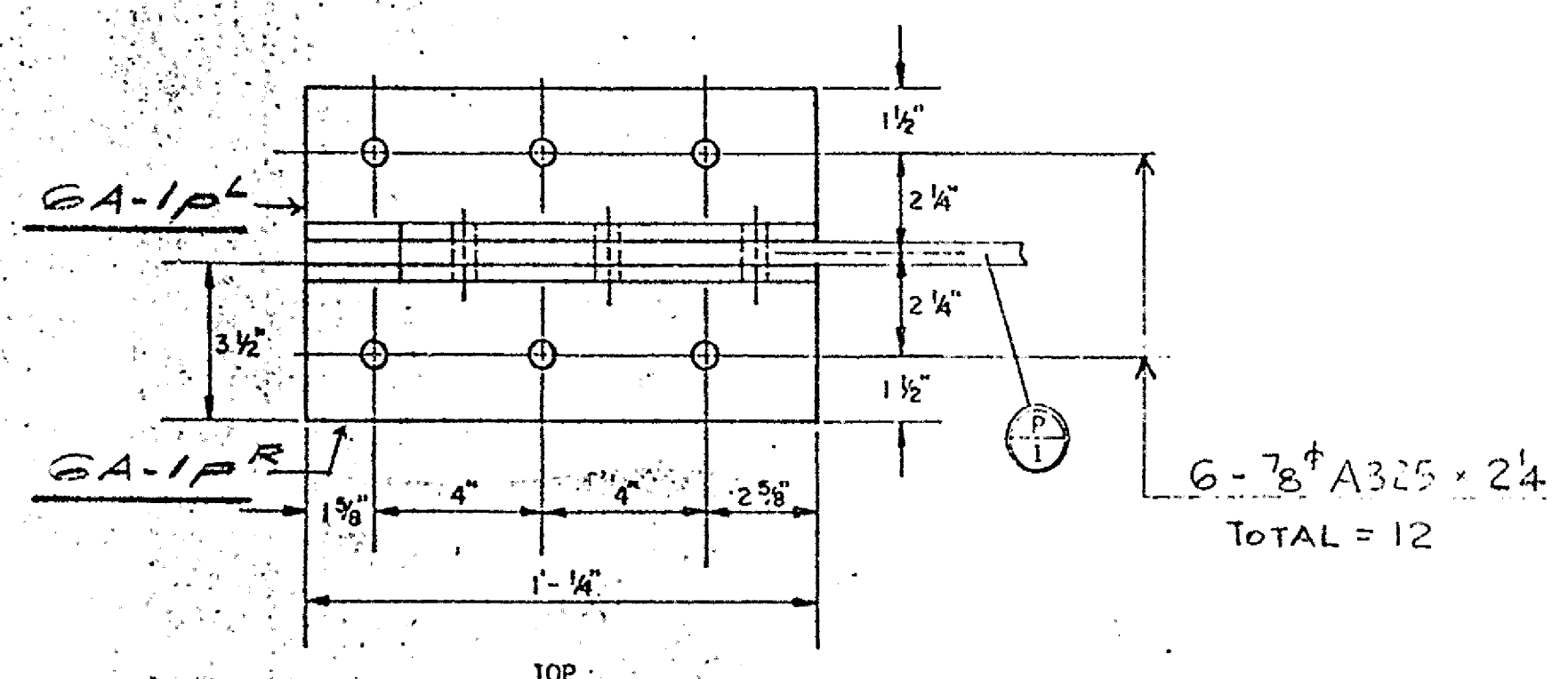


ELEVATION
NTS

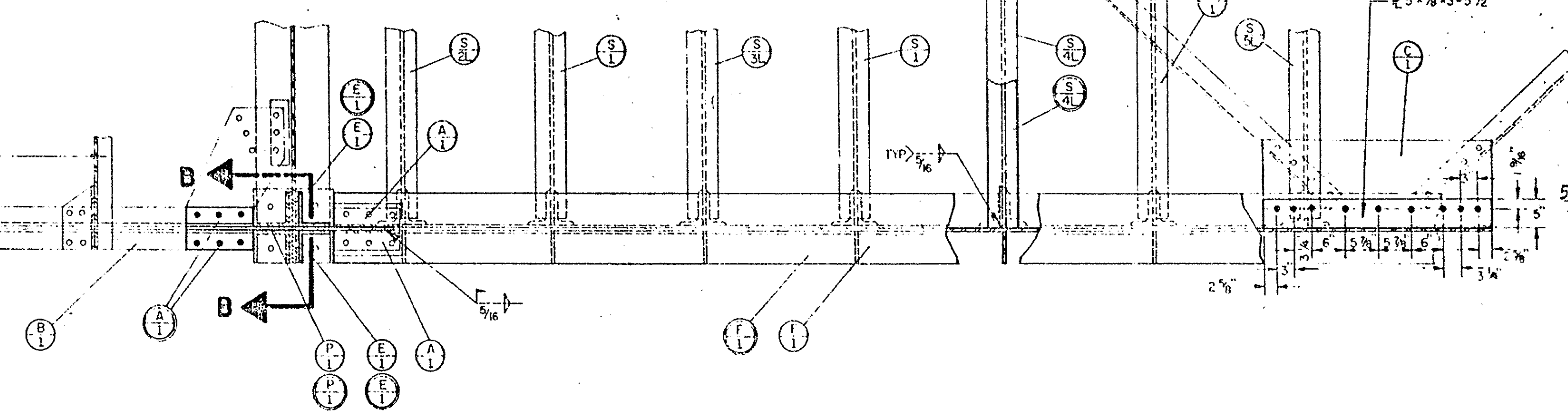
F/1p DETAIL III
1 1/2" = 1'-0"



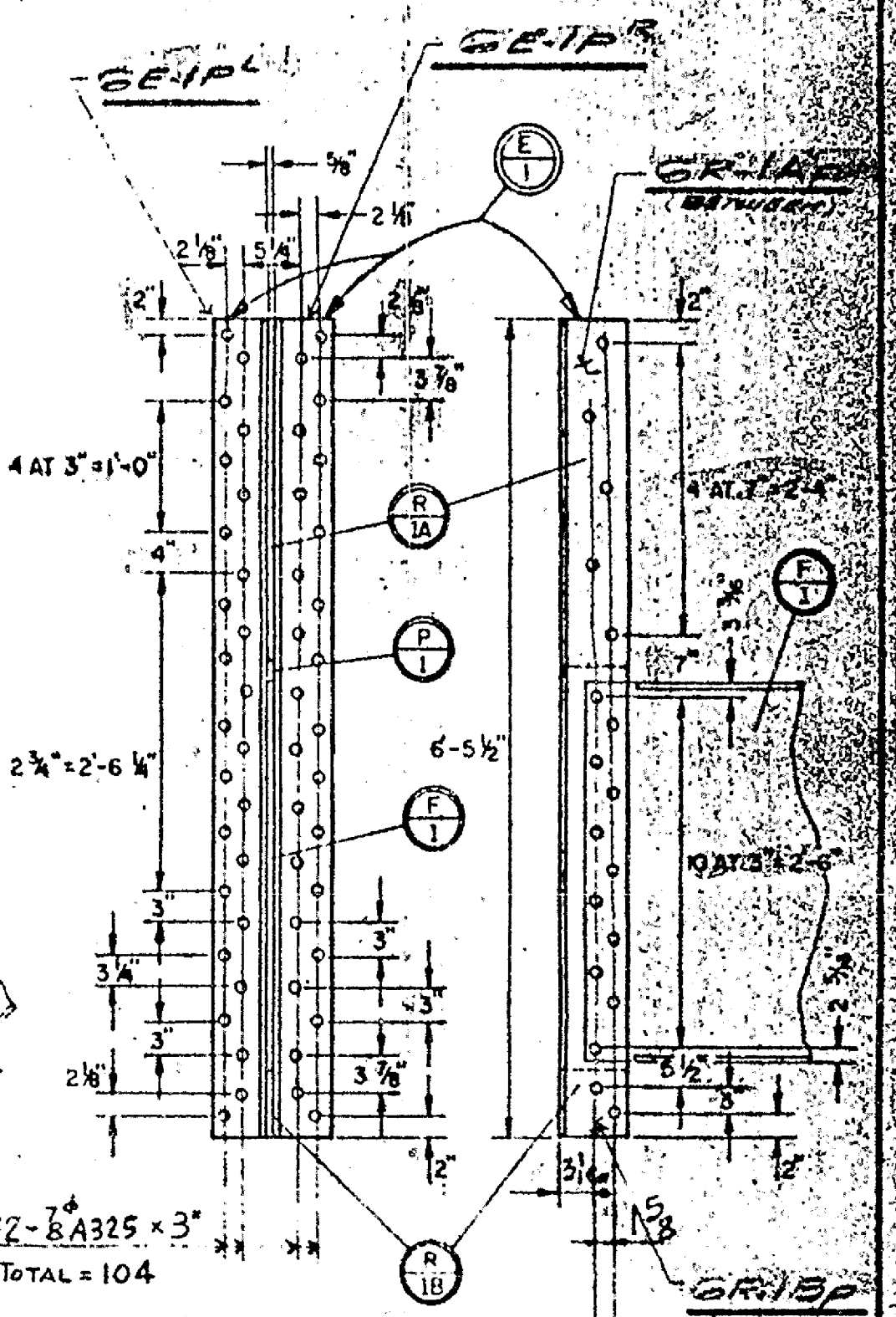
ELEVATION



A/1p DETAIL III
3" = 1'-0"



SECTION A-A
NTS



SECTION B-B
NTS

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FEB 1 1986
For Bridge Engineer

FLOORBEAM F/2 AND BRACKET B/2 DETAILS AND REPAIRS

CONTRACT	COUNTY	FEDERAL AID PROJECT NO.	SHEET	TOTAL SHEETS
85-074-01	M.C.	BHOS-327(1)	6	20

REHABILITATION OF BRIDGE 159, NEWPORT

LEGEND

FLOORBEAM-SIDEWALK BRACKET CONNECTION

2 EXISTING MEMBER TO BE REMOVED

DESIGNATION	NO.	DESCRIPTION
P/2Ae	2x2	R 4" x 5/8" x 2'-5"
P/2Be	2x1	R 11" x 5/8" x 1'-9"
F/2e	1	FLOORBEAM

11 PROPOSED MEMBER TO BE PLACED

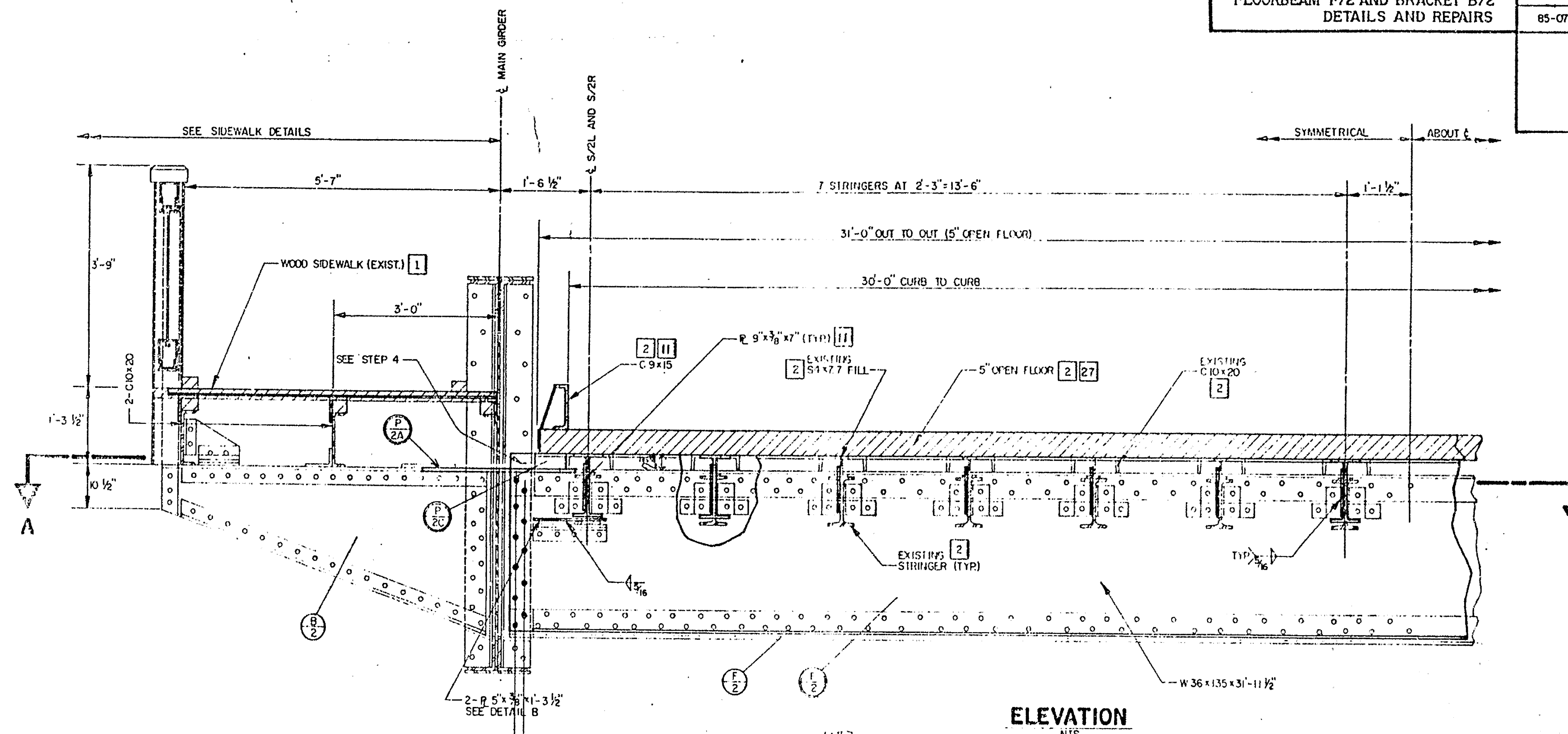
DESIGNATION	NO.	DESCRIPTION
P/2Ap	2x2	R 4" x 1/2" x 2'-5 1/2"
P/2Cp	2x2	R 7" x 1 1/8" x 8"
F/2p	1	FLOORBEAM W 36 x 135 x 31'-11 1/2"

REPAIRS

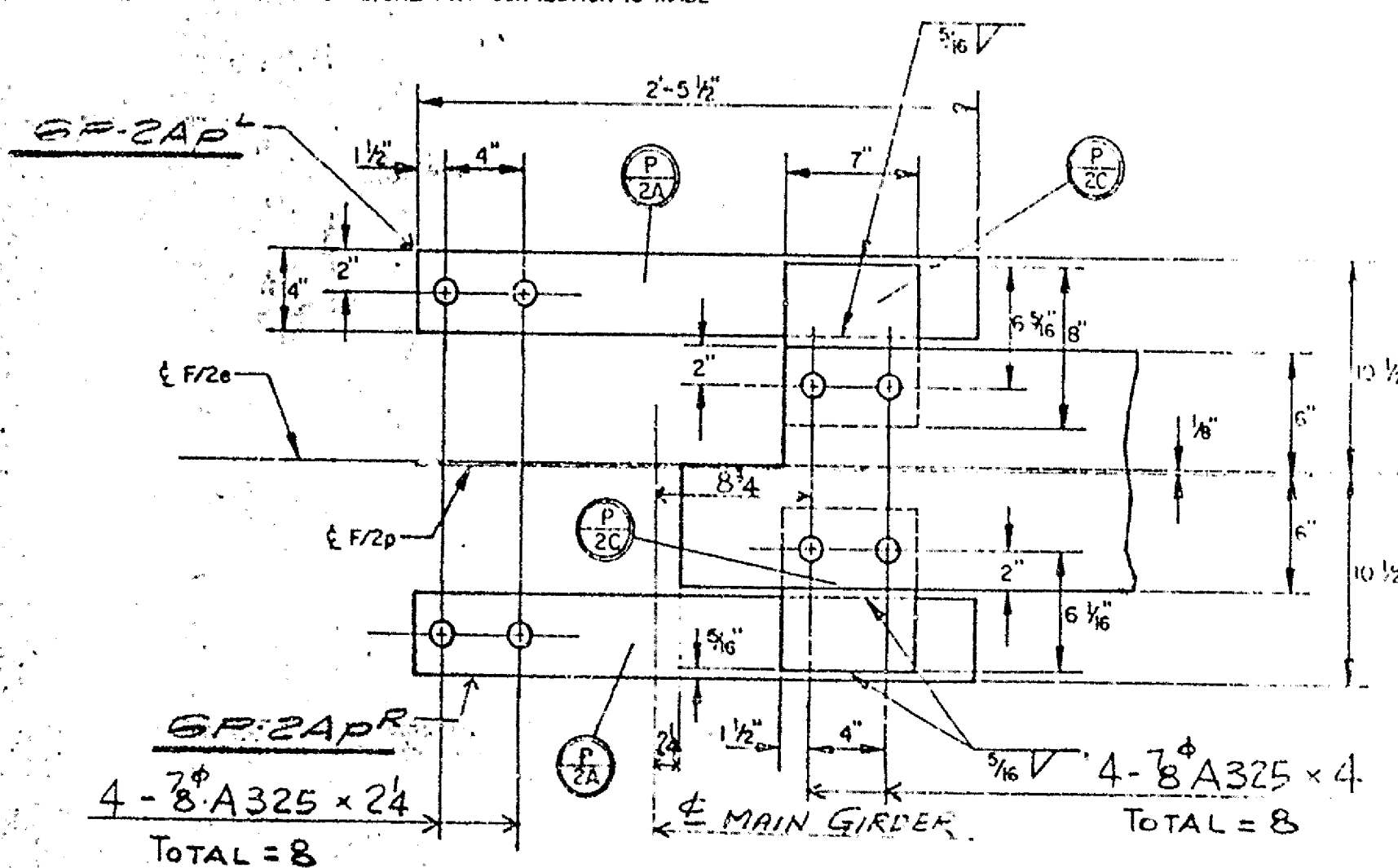
FLOORBEAM-SIDEWALK BRACKET CONNECTION

- *STEP 1 REMOVE MEMBER P/2Be TO RELEASE P/2Ae.
- *STEP 2 REMOVE MEMBERS P/2Ae THROUGH SLOTS IN MAIN GIRDER.
- *STEP 3 REMOVE FLOORBEAM F/2e.
- STEP 4 DRILL 5/8" HOLE IN E/2e AS SHOWN.
- STEP 5 PLACE FLOORBEAM F/2p.
- STEP 6 PLACE P/2Ap THROUGH SLOT IN MAIN GIRDER AND CONNECT TO SIDEWALK BRACKET AND FLOORBEAM.

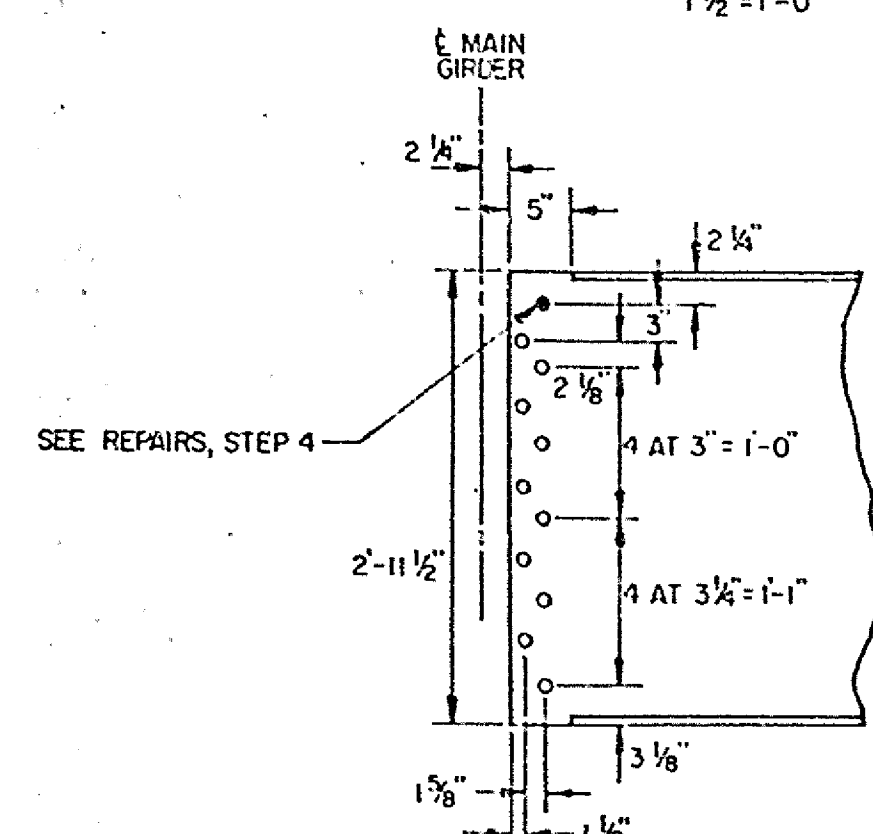
- *STEP 7 CLEANING AND APPLICATION OF A PRIMER ON EXISTING STRUCTURE SHALL BE DONE BEFORE ANY CONNECTION IS MADE.



ELEVATION
NTS

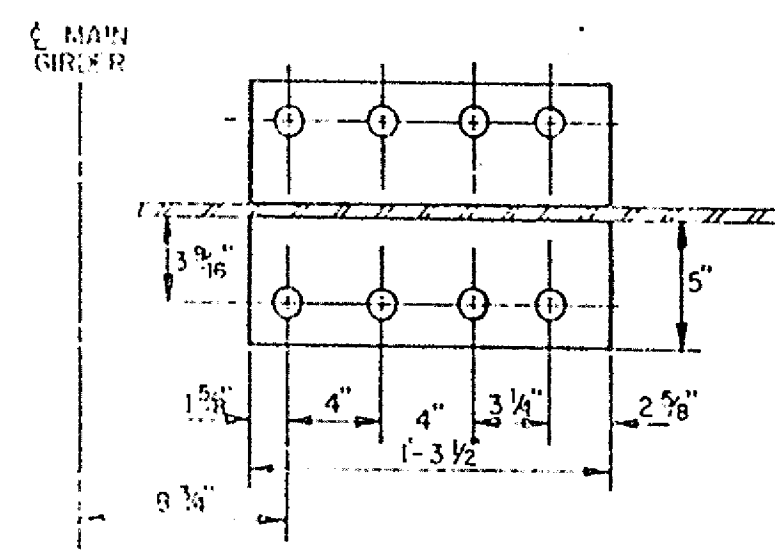


FLOORBEAM-SIDEWALK BRACKET II
CONNECTION DETAIL
1 1/2" = 1'-0"

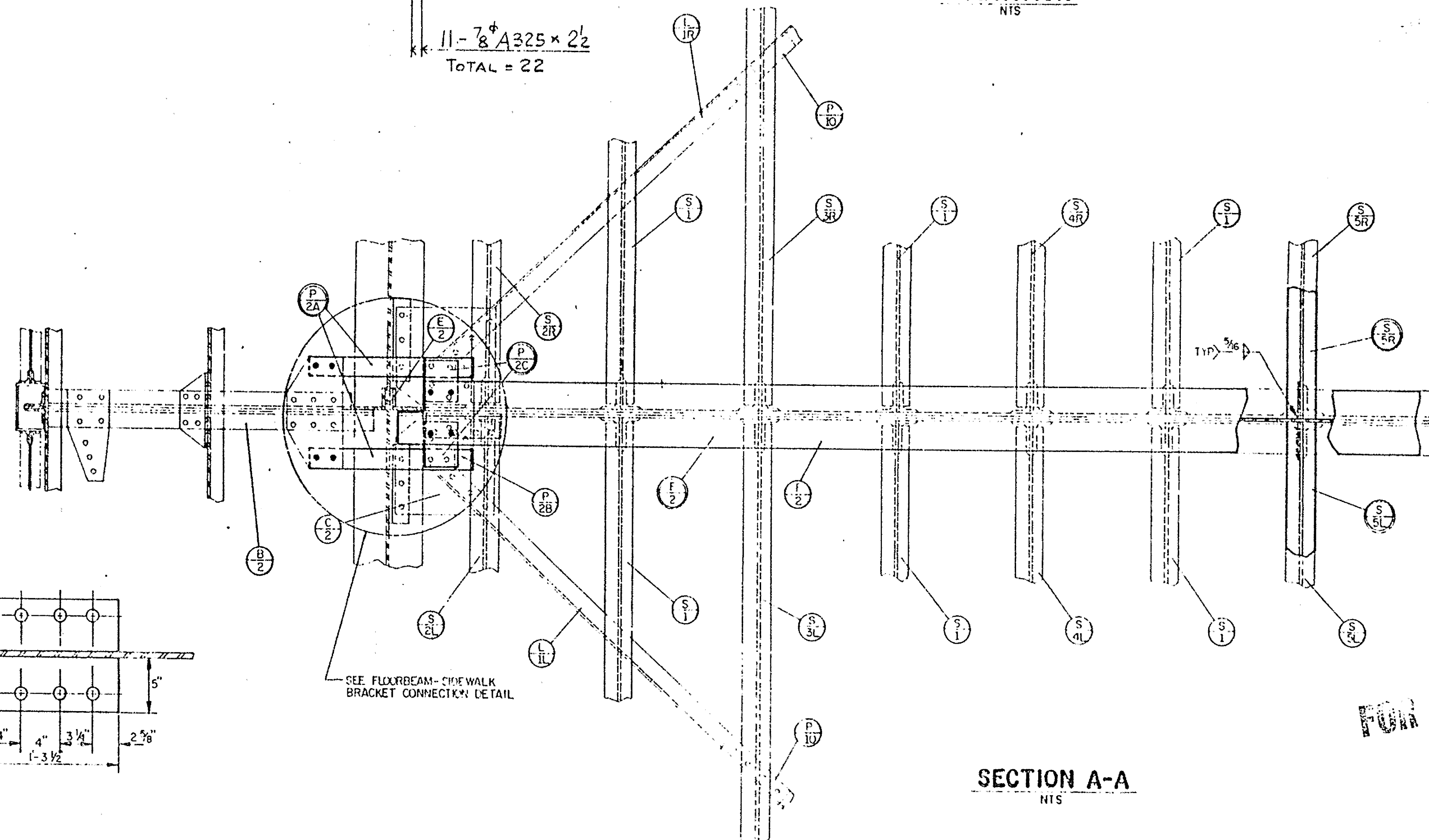


** FLOORBEAM END DETAIL III
NTS

** TYPICAL DETAIL FOR ALL PROPOSED FLOORBEAMS EXCEPT F/1p.



DETAIL B
NTS



SECTION A-A
NTS

FOR APPROVAL

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For Bridge Engineer

FLOORBEAMS F/3 AND F/4
BRACKETS B/3 AND B/4
DETAILS AND REPAIRS

CONTRACT	COUNTY	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
85-074-01	N C	BHOS-327 (1)	7	7

REHABILITATION OF BRIDGE 159, NEWPORT

**LEGEND

FLOORBEAM-SIDEWALK BRACKET CONNECTION

EXISTING MEMBER TO BE REMOVED

DESIGNATION	NO.	DESCRIPTION
P/3a	2x2	R 4" x 5/8" x 2'-5"
P/3b	2x1	R 11" x 5/8" x 1'-9"
F/3a	1	FLOORBEAM

PROPOSED MEMBER TO BE PLACED

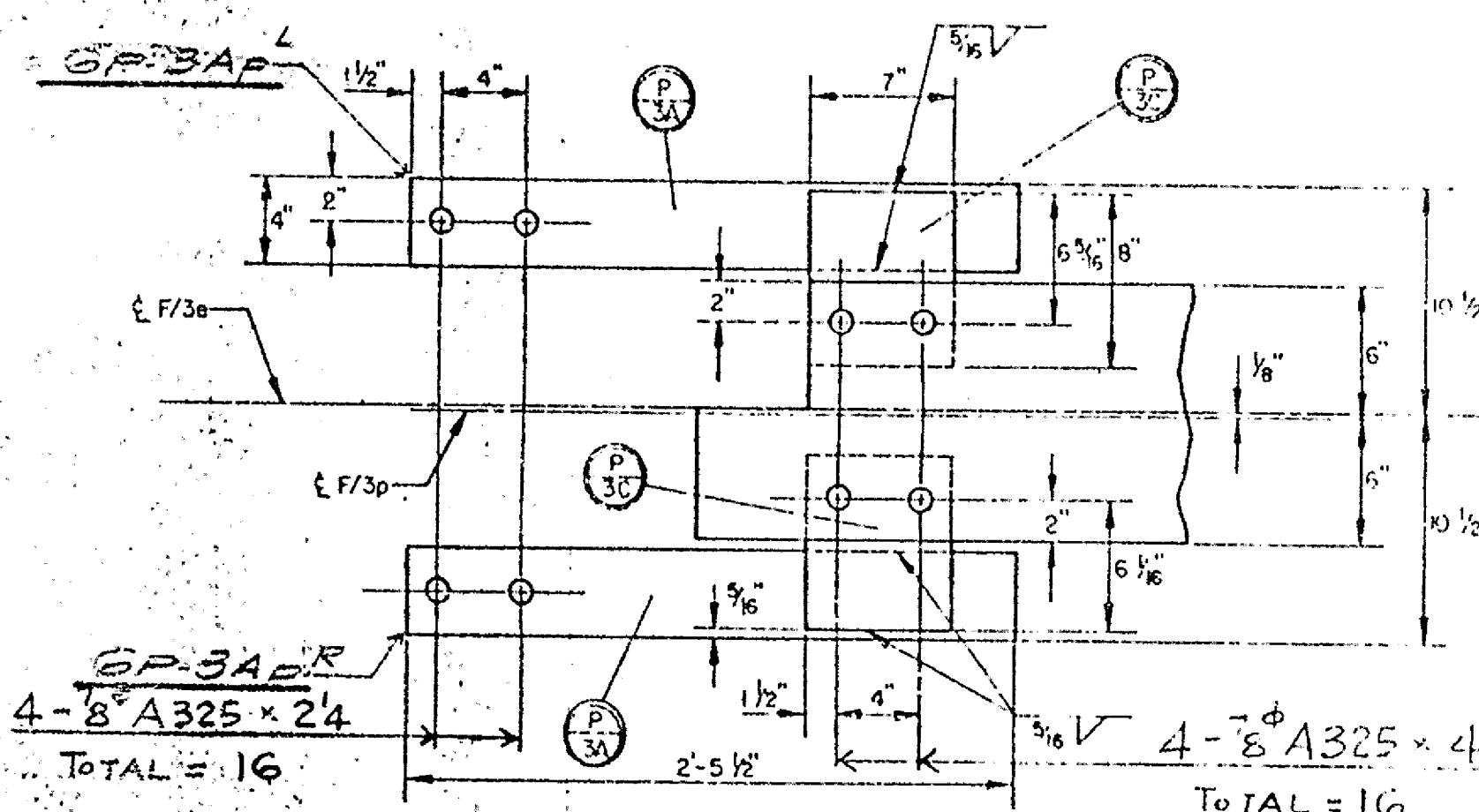
DESIGNATION	NO.	DESCRIPTION
P/3a	2x2	R 4" x 1/2" x 2'-5 1/2"
P/3b	2x2	R 7" x 1 1/8" x 8"
F/3a	1	FLOORBEAM W 36 x 135 x 31'-11 1/2"

**REPAIRS

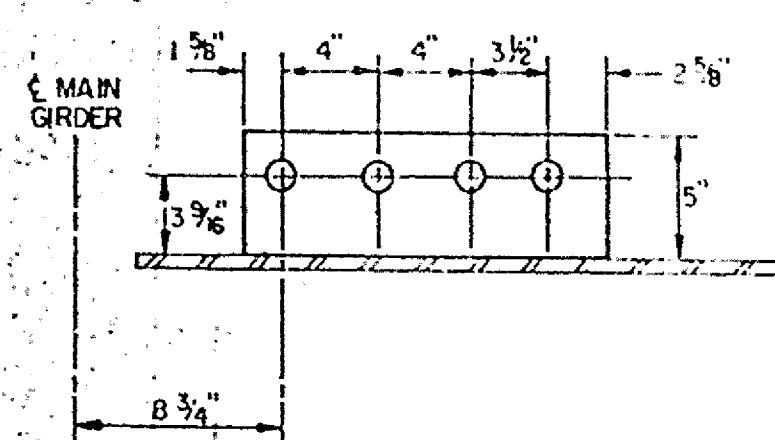
FLOORBEAM-SIDEWALK BRACKET CONNECTION

- STEP 1 REMOVE MEMBER P/3a TO RELEASE P/3a.
- STEP 2 REMOVE MEMBERS P/3a THROUGH SLOTS IN MAIN GIRDER.
- STEP 3 REMOVE FLOORBEAM F/3a.
- STEP 4 DRILL 5/8" HOLE IN E/3a AS SHOWN.
- STEP 5 PLACE FLOORBEAM F/3a.
- STEP 6 PLACE P/3a THROUGH SLOT IN MAIN GIRDER AND CONNECT TO SIDEWALK BRACKET AND FLOORBEAM.

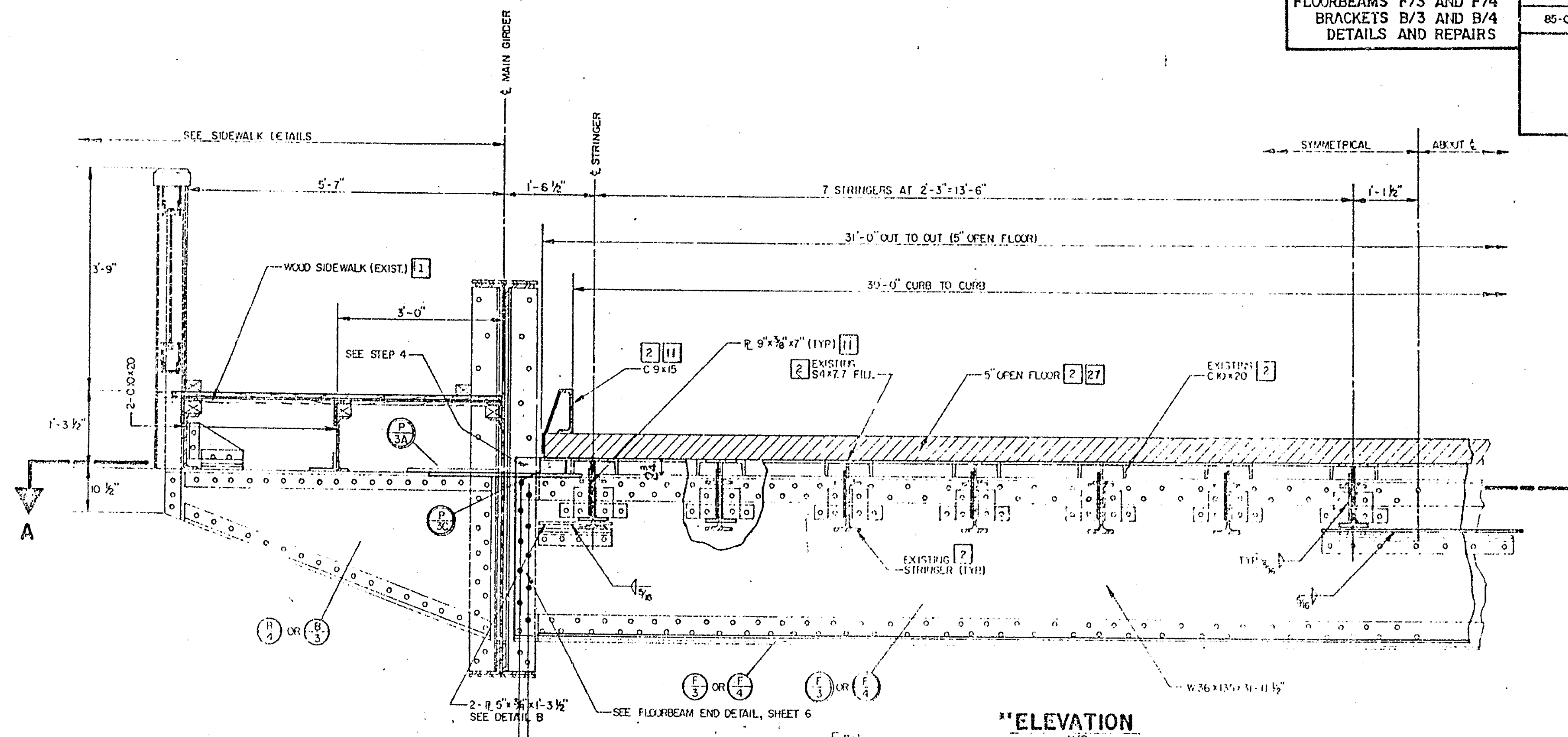
- 32 CLEANING AND APPLICATION OF A PRIMER ON EXISTING STRUCTURE SHALL BE DONE BEFORE ANY CONNECTION IS MADE.
- **APPLIES ALSO TO FLOORBEAM F/4 AND BRACKET B/4.



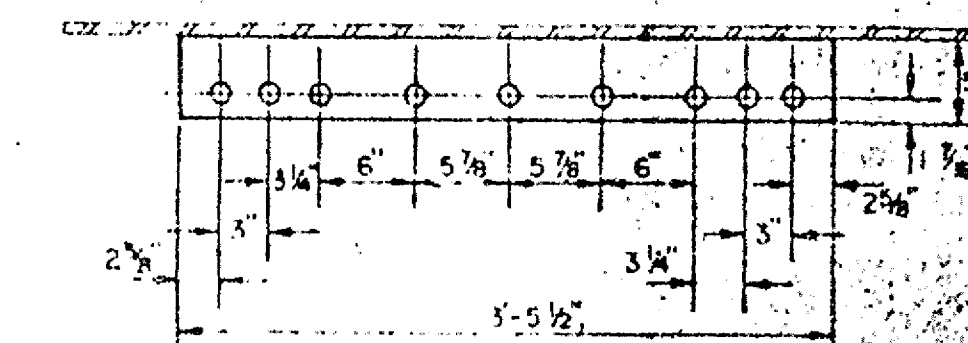
**FLOORBEAM-SIDEWALK BRACKET CONNECTION DETAIL



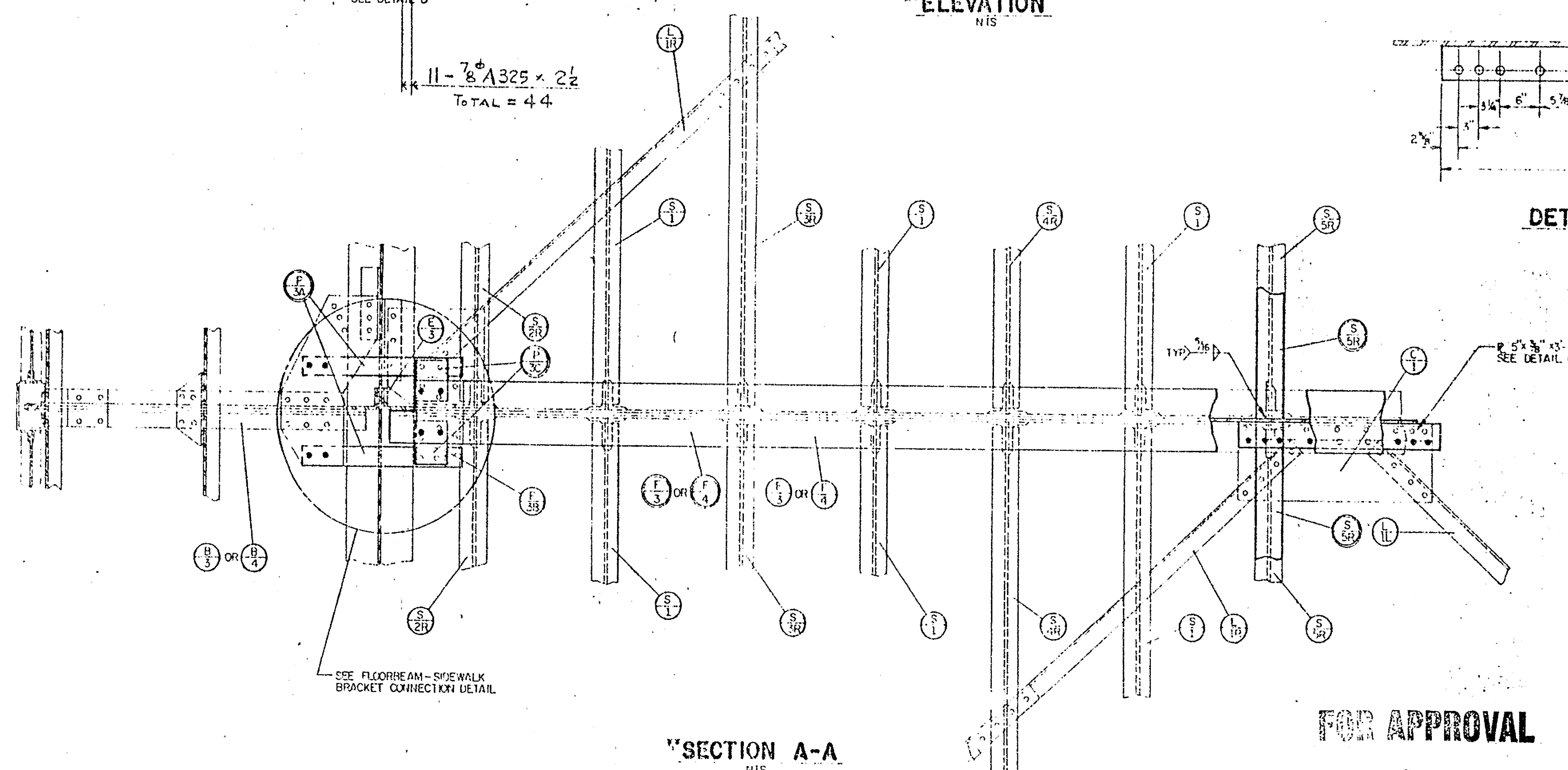
**DETAIL B



**ELEVATION



DETAIL C



**SECTION A-A

FOR APPROVAL

JAN 03 1986

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For Bridge Engineer

LEGEND

BRACKET-SIDEWALK BRACKET CONNECTION

EXISTING MEMBER TO BE REMOVED [2]

DESIGNATION	NO.	DESCRIPTION
PB/5a	2x1	R 7 1/2" x 1" x 2-1/2"
EB/5a	2x2	L 4" x 3 1/2" x 2-9 1/2"
FB/5a	2x1	BRACKET

PROPOSED MEMBER TO BE PLACED [11]

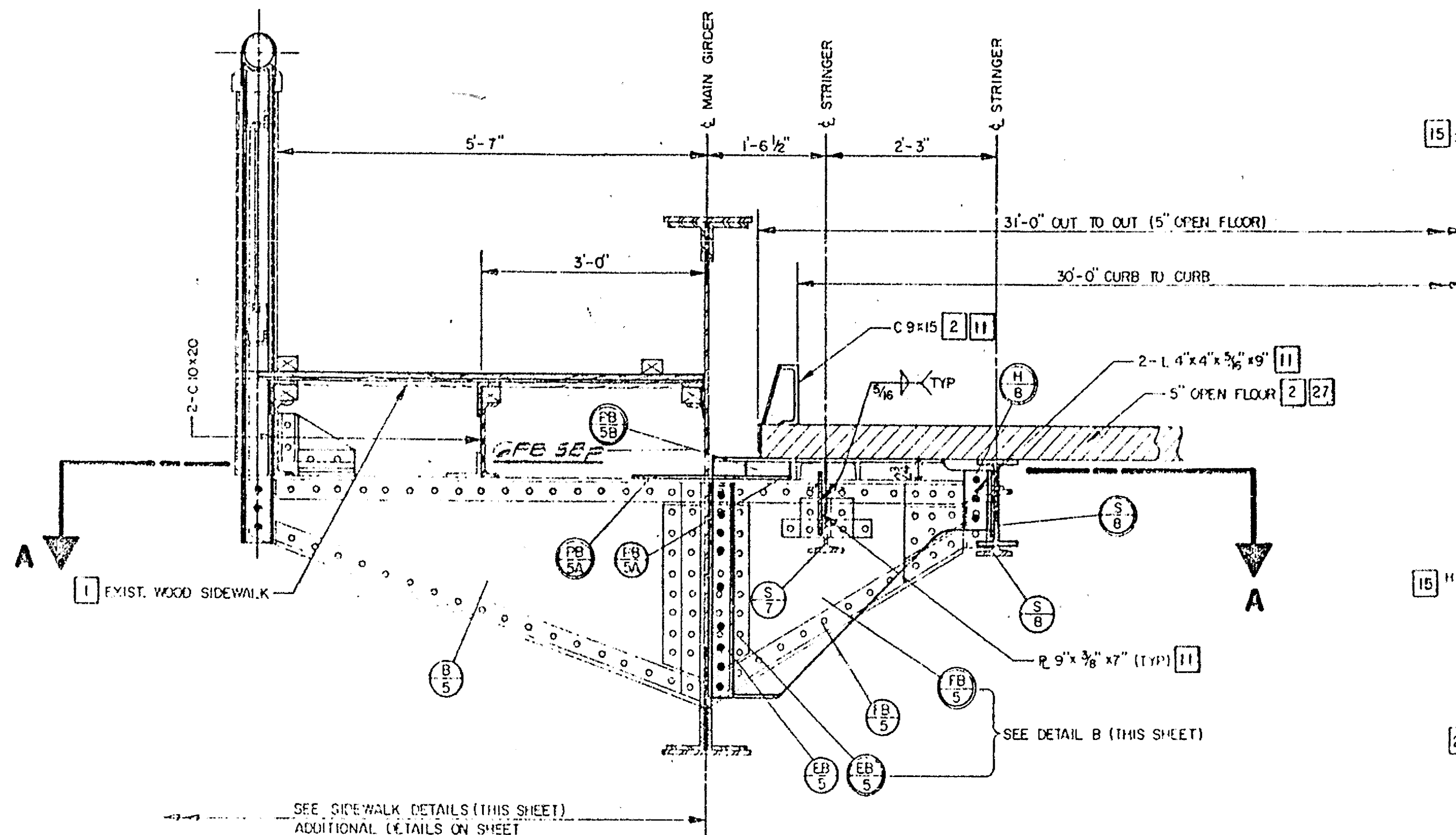
DESIGNATION	NO.	DESCRIPTION
PB/5Ap	2x1	R 7 1/2" x 1" x 2-1/2"
EB/5Ap	2x2	L 4" x 4" x 2-8"
FB/5Ap	2x1	BRACKET W36x135
PB/5Bp	2x2	R 3 1/4" x 1" x 7"
EB/5Bp	2x2	L 4" x 4" x 9"

REPAIRS

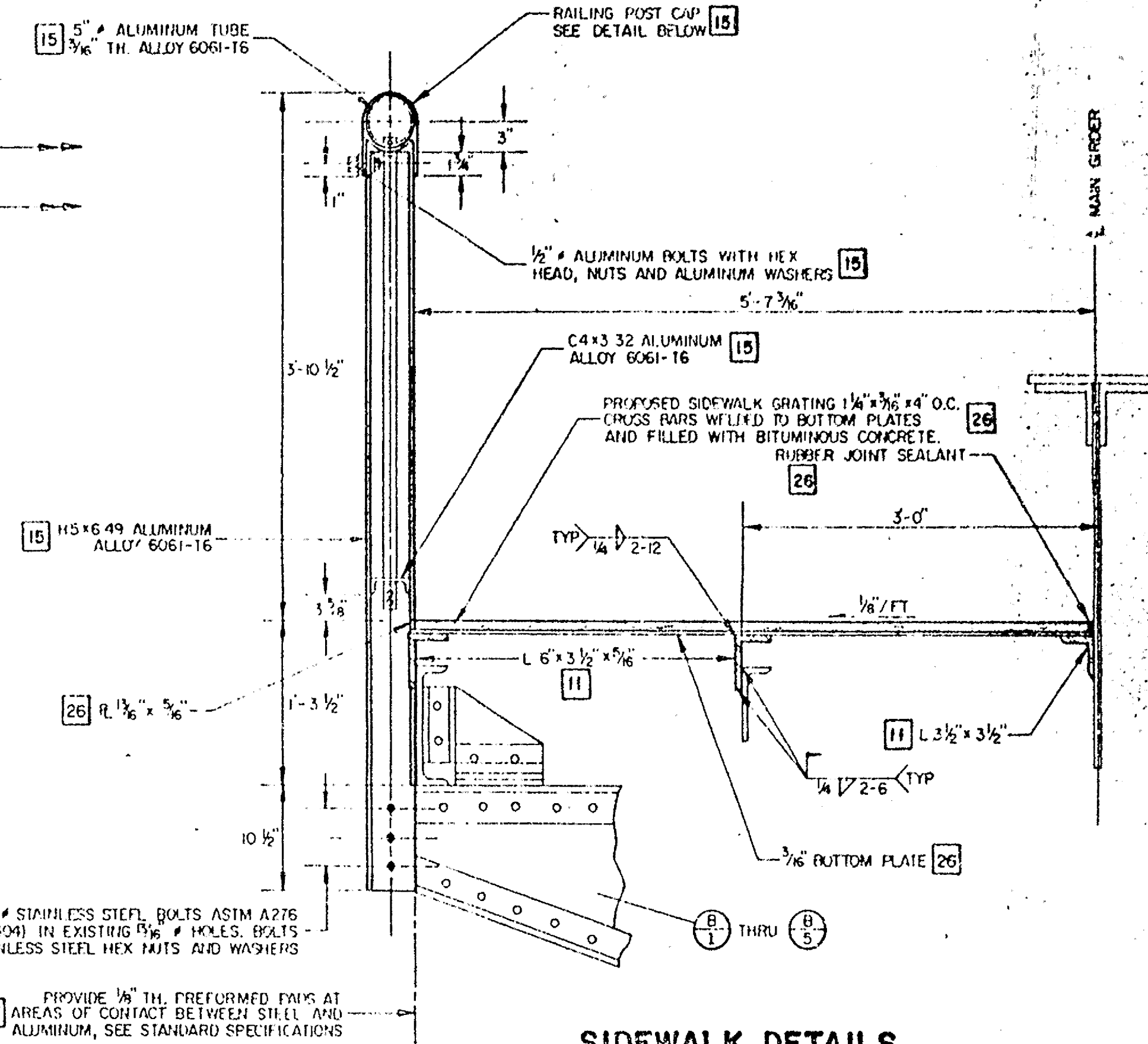
BRACKET-SIDEWALK BRACKET CONNECTION

- STEP 1 REMOVE MEMBER PB/5a THROUGH SLOT IN GIRDER.
- STEP 2 REMOVE ONE EB/5a FROM EACH MAIN GIRDER.
- STEP 3 REPLACE EACH EB/5a REMOVED WITH EB/5Ap IN EACH MAIN GIRDER.
- STEP 4 REMOVE REMAINING EB/5a IN EACH MAIN GIRDER.
- STEP 5 PLACE BRACKET FB/5Ap.
- STEP 6 PLACE MEMBERS PB/5Ap AND PB/5Bp.

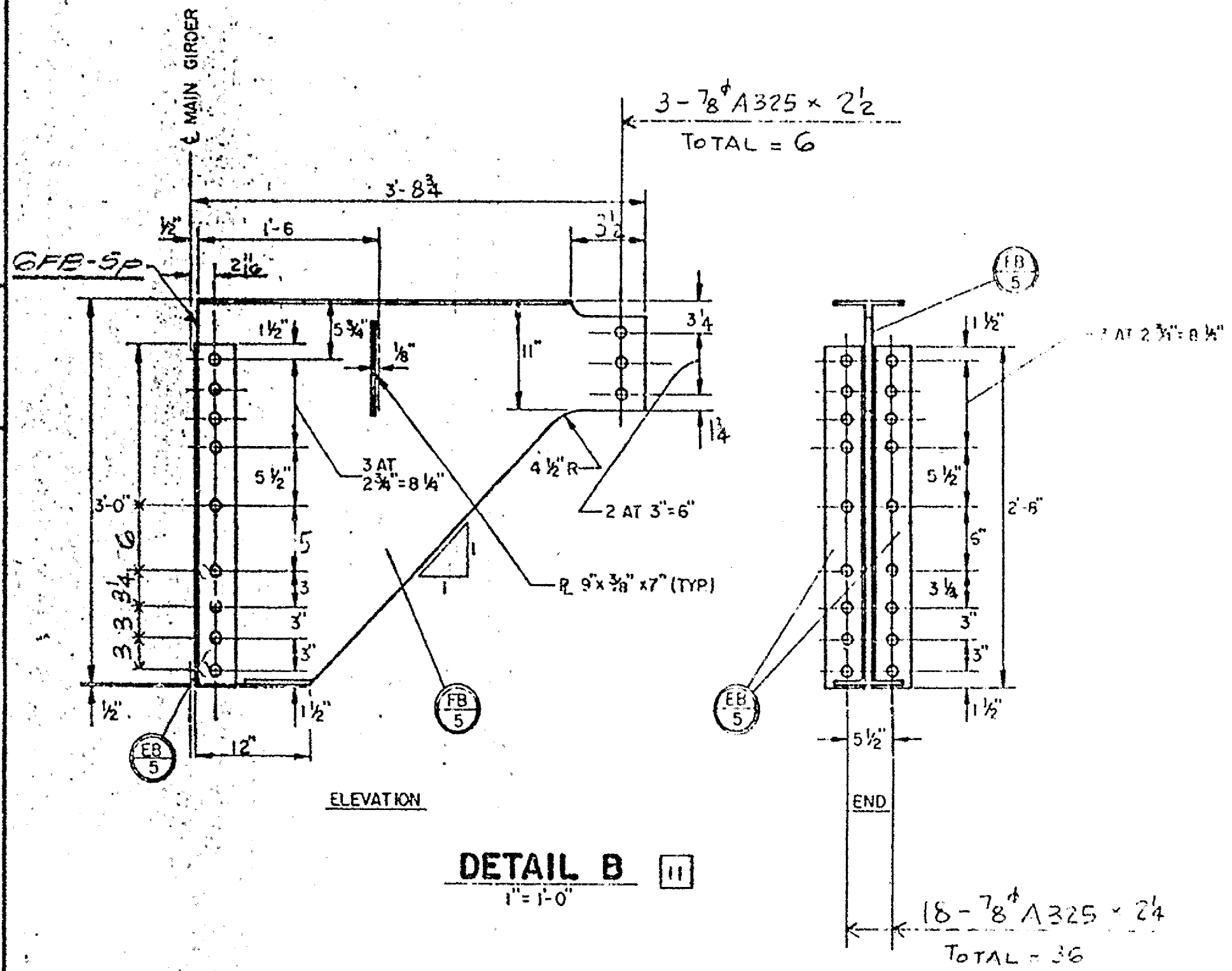
*CLEANING AND APPLICATION OF A PRIMER ON EXISTING STRUCTURE SHALL BE DONE BEFORE ANY CONNECTION IS MADE.



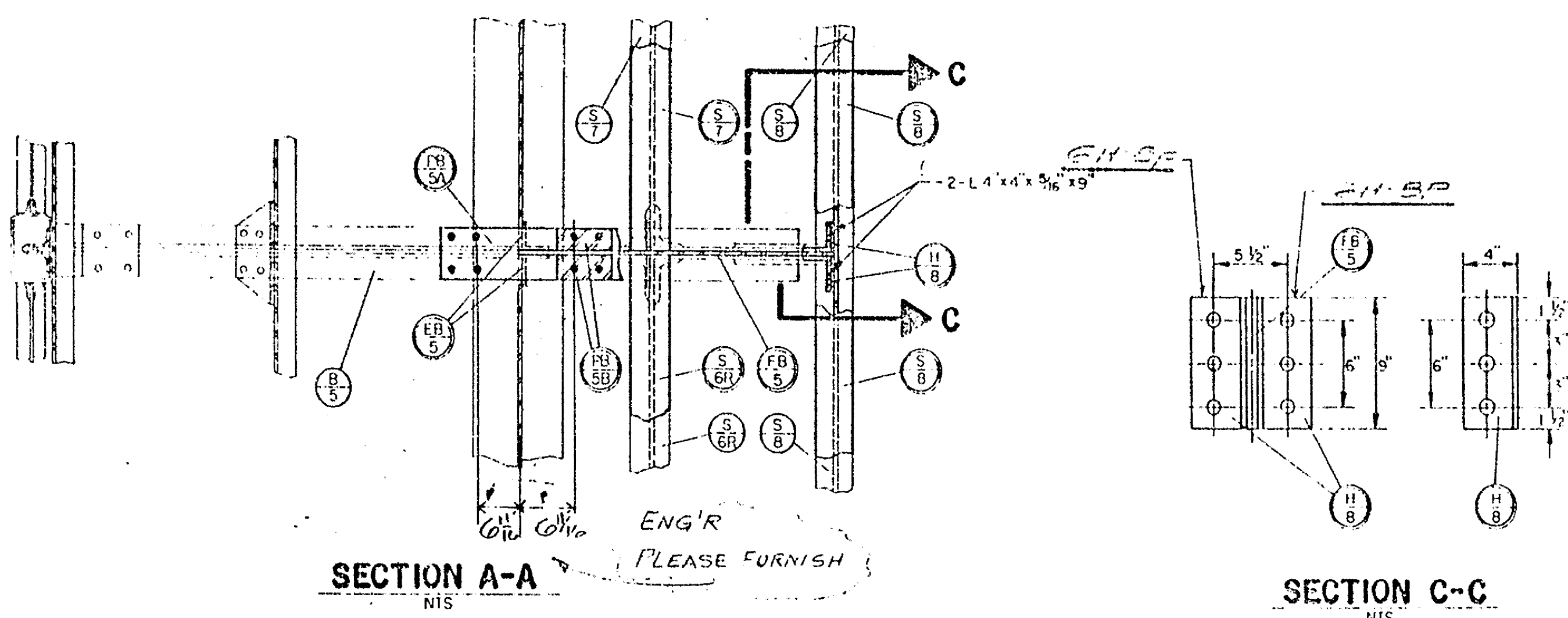
ELEVATION
NTS



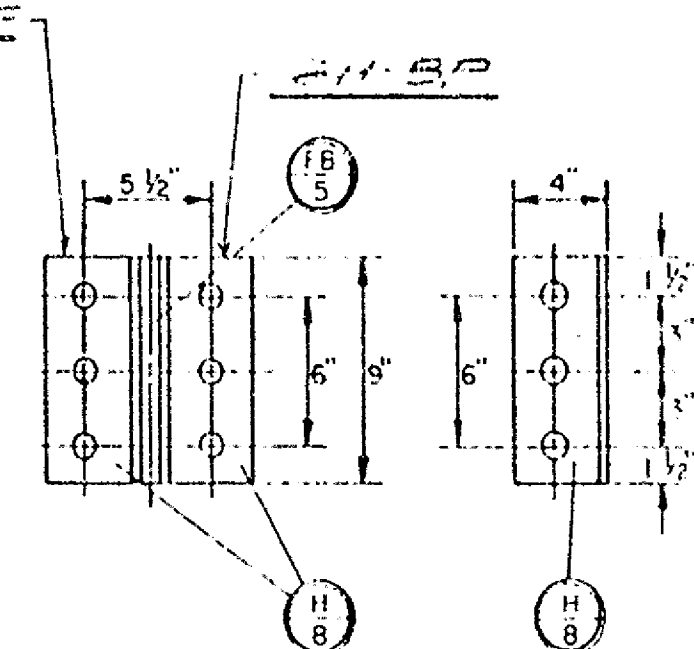
SIDEWALK DETAILS
NTS



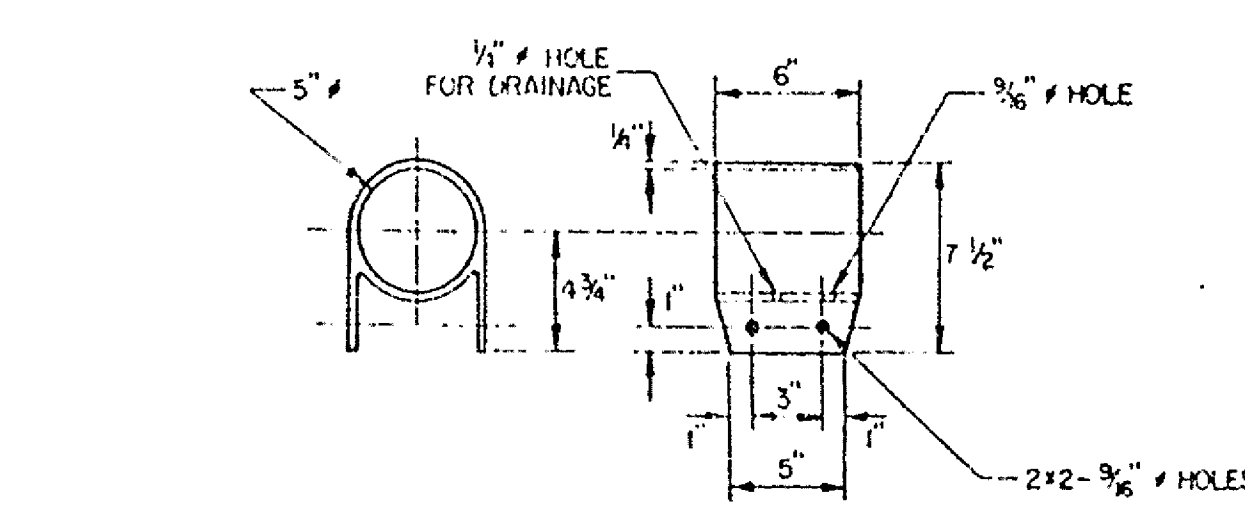
DETAIL B
1"=1'-0"



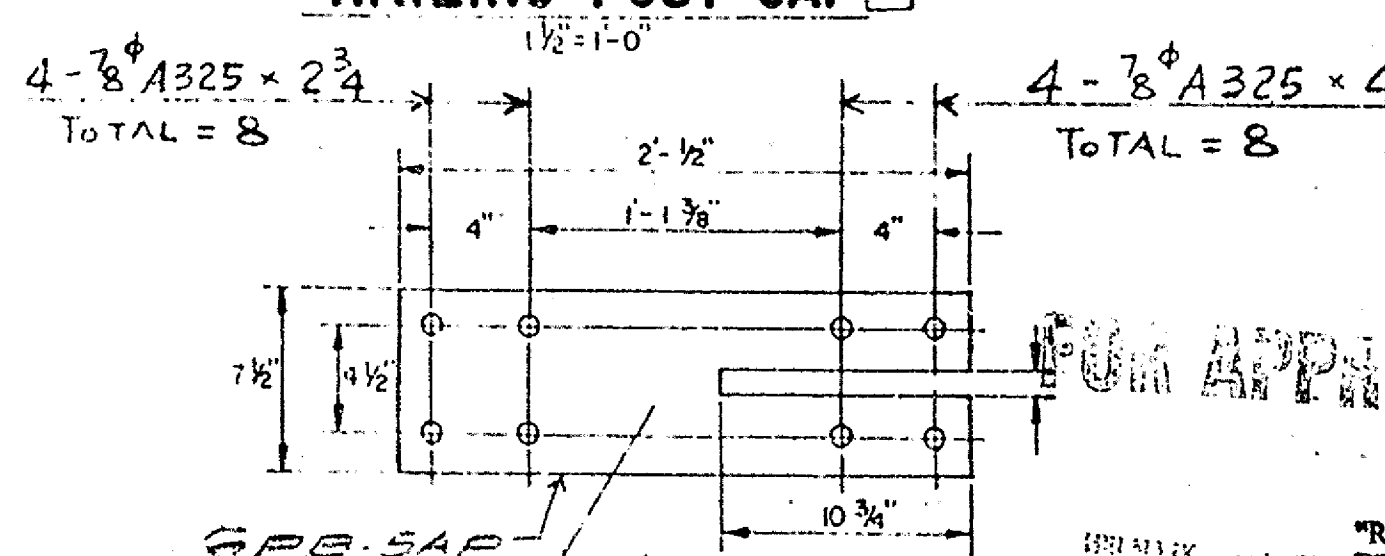
SECTION A-A
NTS



SECTION C-C
NTS



RAILING POST CAP
NTS



PB/5Ap DETAIL
NTS

FOR APPROVAL

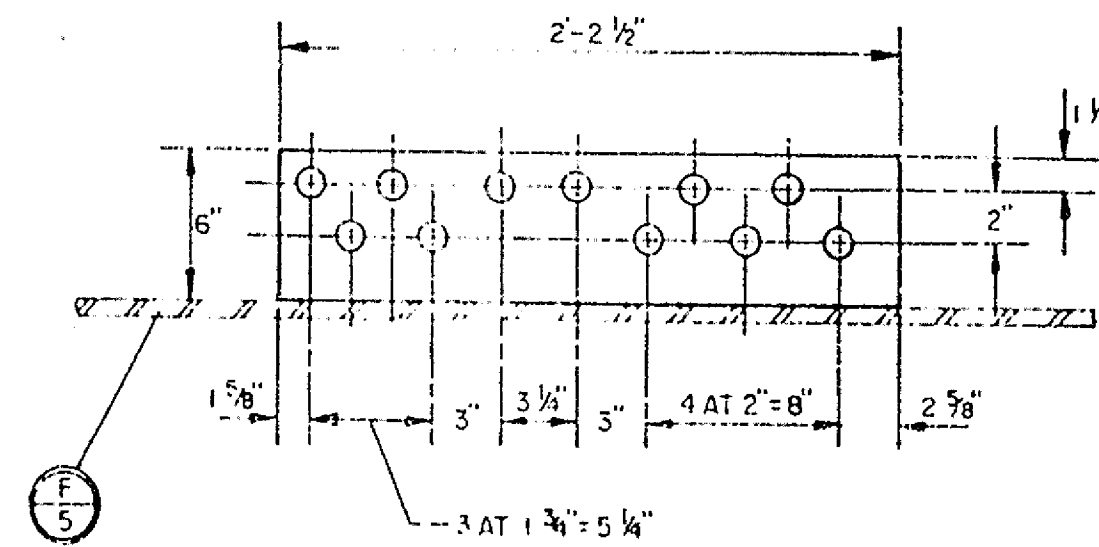
REVIEWED FOR GENERAL CONFORMANCE WITH PLANS AND SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR ACCURACY OF CONTENT.
N/A
For Bridge Engineer

SPAN 5

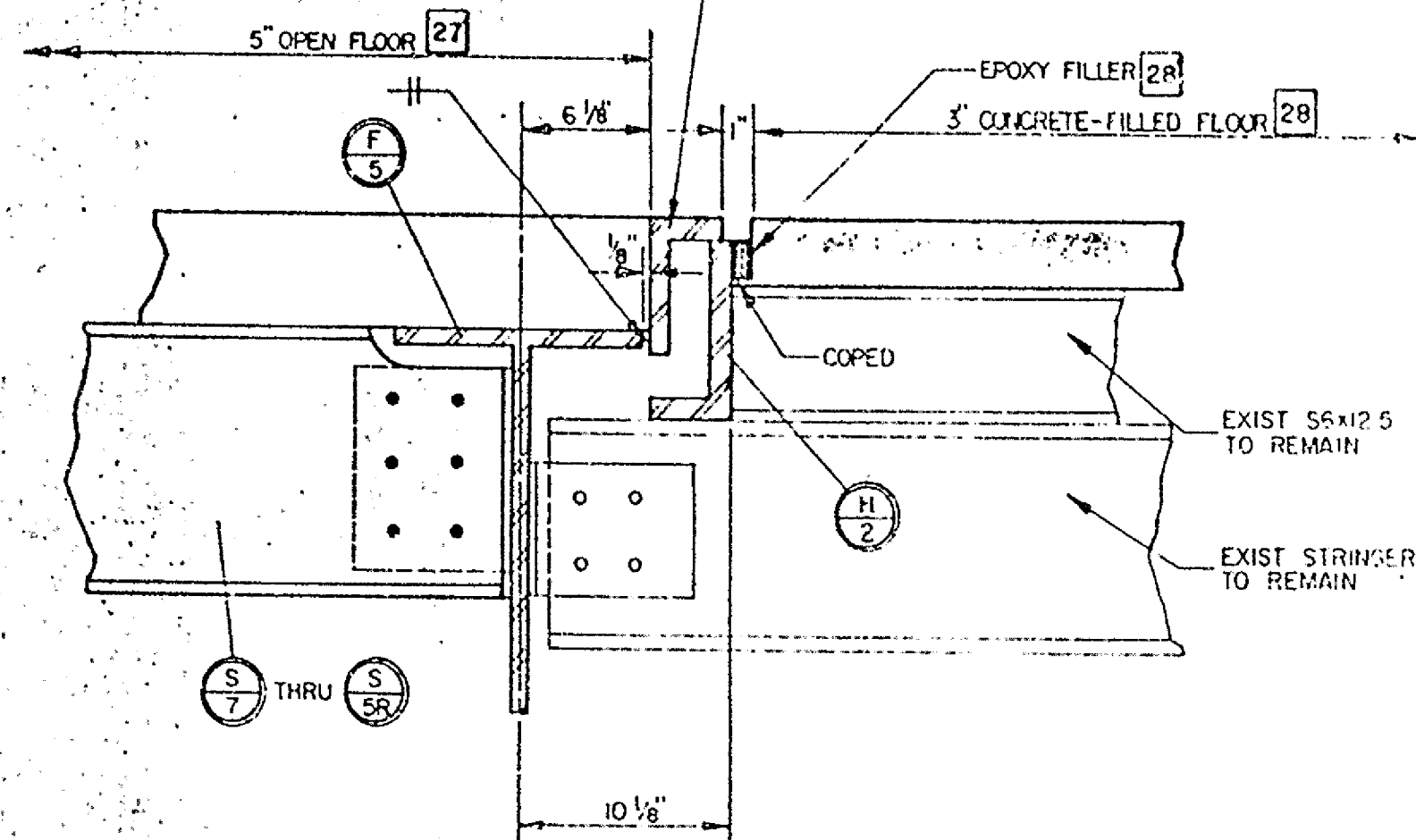
DESIGNATION	NO.	DESCRIPTION
F/3p	1	W 36 x 135
SW/1p	2 X 1	CHK R 30 x $\frac{5}{16}$ x 5'-6"
H/2p	1	L 8 x 4 x 1 x $3\frac{1}{2}$ - 2 $\frac{1}{4}$ "
ST/1p	2	S6 X 12.5 X 19'-10 $\frac{1}{2}$ "

SPAN 5

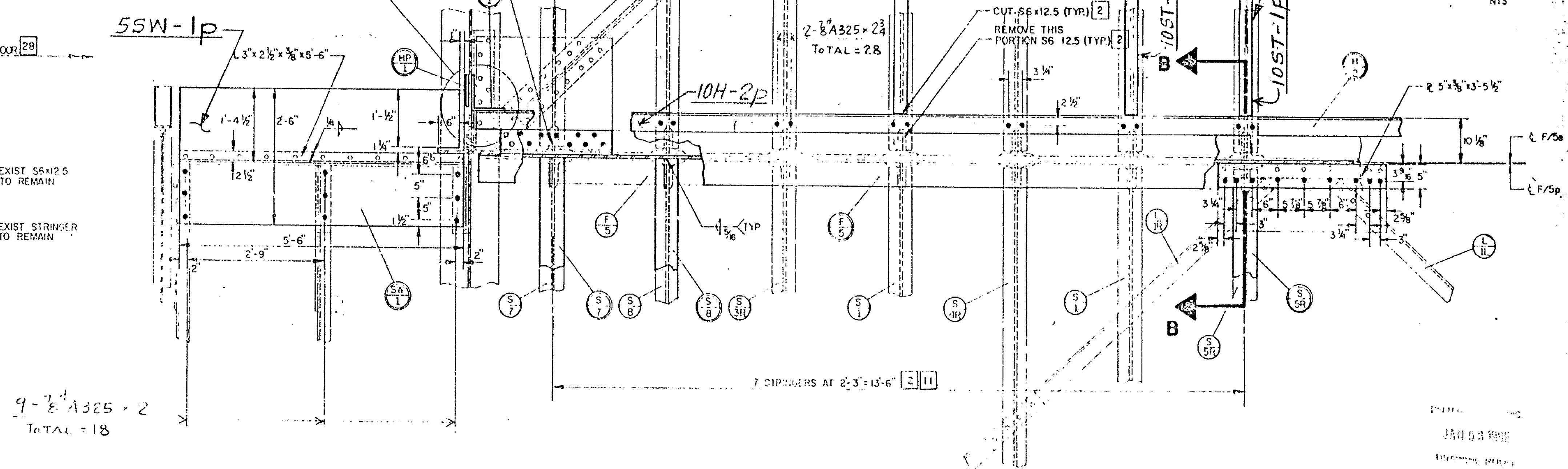
- 32 *CLEANING AND APPLICATION OF A PRIMER ON EXISTING STRUCTURE SHALL BE DONE BEFORE ANY CONNECTION IS MADE.



MLC



SECTION
 $1\frac{1}{2}" = 1'-0"$



SECTION
NIS

REHABILITATION OF BRIDGE 159, NEWPORT

FLOORBEAM F/5 DETAILS AND REPAIRS	CONTRACT	COUNTY	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
	85-074-01	NC	WYOS-327(1)	9	28

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IBLE FOR ACCURACY OF
CONTENT."

UAA
For Bridge Engineer

FEB 10 1968

TOP APPROVAL

HELMARK STEEL INC	Job No. HF-1536	SHT. No. E6
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BASCULE SPAN MAIN GIRDER DETAILS AND REPAIRS AND SIDEWALK SUPPORT (I)

CONTRACT	COUNTY	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
65-Q74-01	N.C.	BH03-327 (1)	10	28

REHABILITATION OF BR. 159, NEWPORT

NOTE: Cleaning and application of a primer shall be done before any connection is made. [32]

Sidewalk Support

No.	Members to be placed [1]
2 X 1	SA 1 L 3 1/2 x 3 1/2 x 3/8 x 4'-2"
2 X 6	SA 2 L 3 1/2 x 3 1/2 x 3/8 x 4'-3 1/2"
2 X 1	SA 3 L 3 1/2 x 3 1/2 x 3/8 x 4'-3 1/2"
2 X 1	SF 5 L 3 1/2 x 3/8 x 3'-5 1/4"
2 X 1	SA 4 L 3 1/2 x 3 1/2 x 3/8 x 4'-4 1/2"
2 X 1	SF 4 L 3 1/2 x 3/8 x 3'-9 3/4"
2 X 3	SA 5 L 3 1/2 x 3 1/2 x 3/8 x 3'-3 1/2"
2 X 1	SA 6 L 3 1/2 x 3 1/2 x 3/8 x 1'-4 1/2"

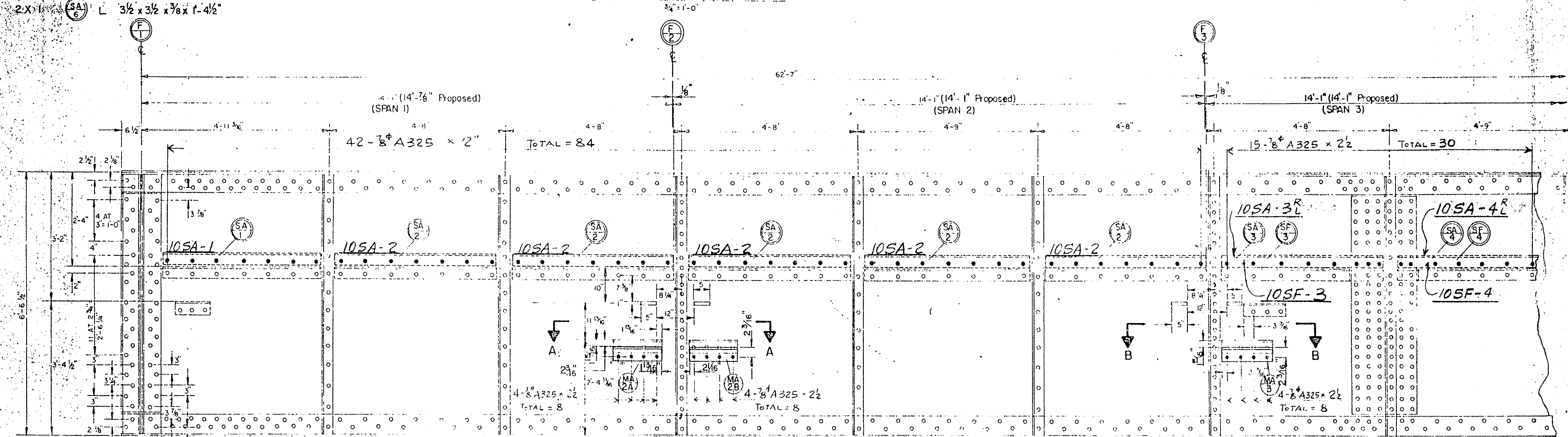
Connection Plate Support By Floorbeam (F2) Location

No.	Members to be placed [1]
2 X 1	MA 2A L 4 x 4 x 3/8 x 1'-3 1/4"
2 X 1	MA 2B L 4 x 4 x 3/8 x 1'-3 1/2"
2 X 1	MP 2A L 6 x 3/8 x 1'-3 1/4"
2 X 1	MP 2B L 6 x 3/8 x 1'-3 1/2"
No.	Members to be removed [2]
2 X 1	MA 2A L 4 x 4 x 3/8 x 1'-3 1/4"
2 X 1	MA 2B L 4 x 4 x 3/8 x 1'-3 1/2"

Connection Plate Support By Floorbeam (F3) Location

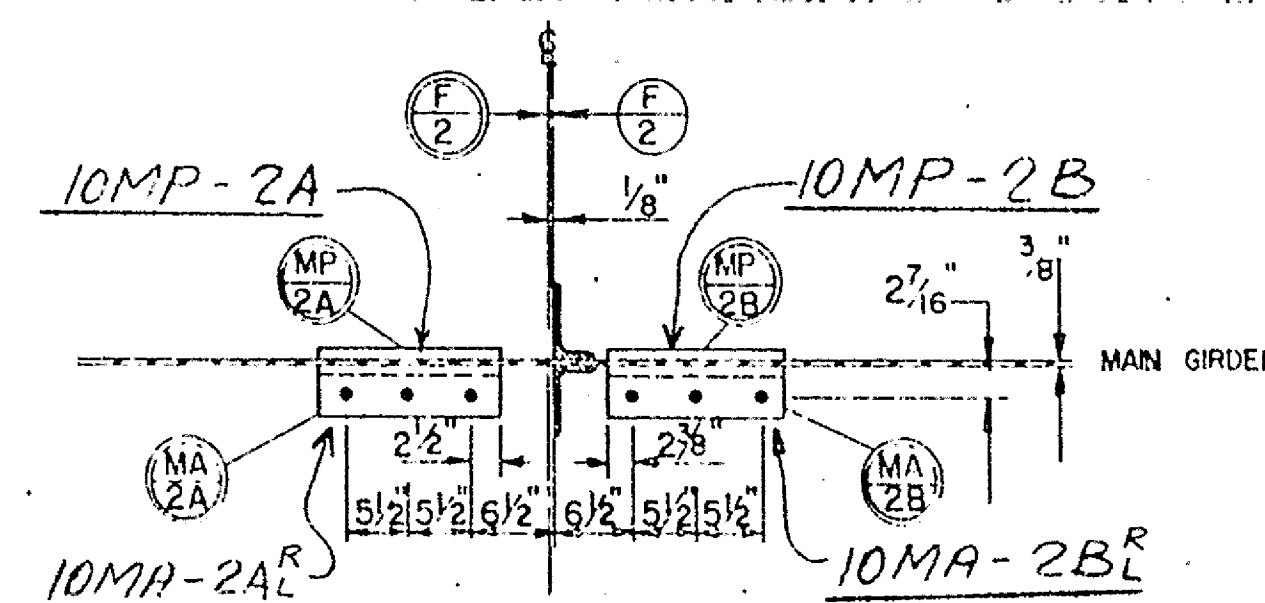
No.	Members to be placed [1]
2 X 1	MA 3 L 4 x 4 x 3/8 x 1'-4 3/4"
2 X 1	MP 3 L 6 x 3/8 x 1'-4 3/4"
No.	Members to be removed [2]
2 X 1	MA 3 L 4 x 4 x 3/8 x 1'-4 3/4"

BASCULE GIRDER DETAIL

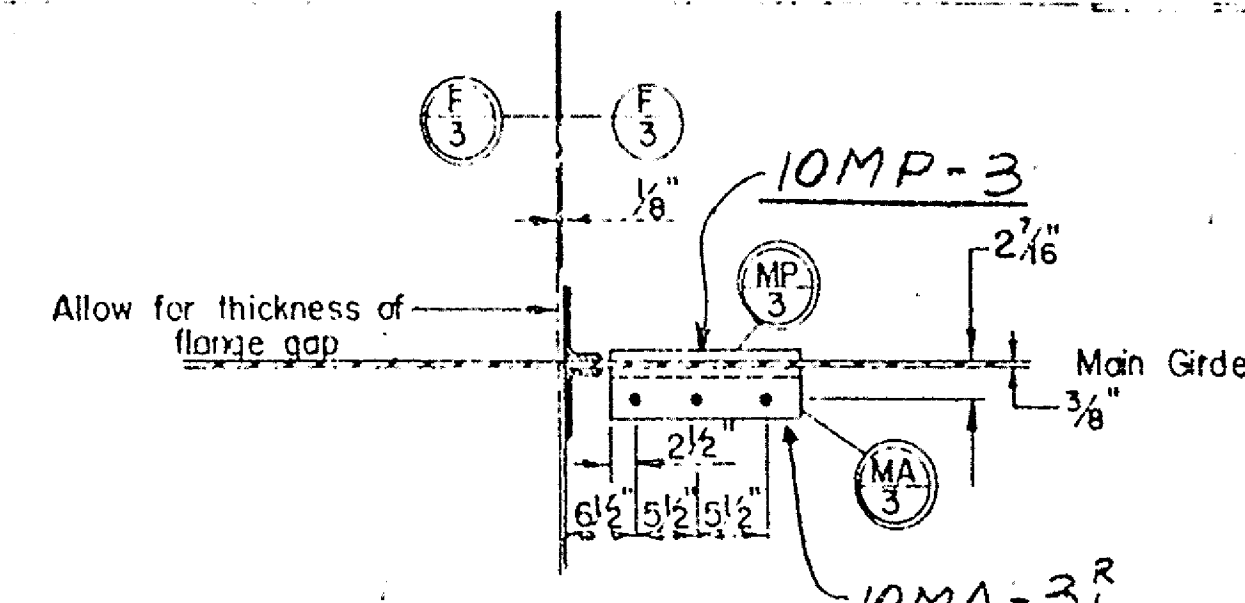


BEARING

No.	Members To Be Removed [2]
2 x 1	sole plate 13\" x 3/4\" x 1'-2"
No.	Members To Be Placed (see bearing details)



SECTION A-A



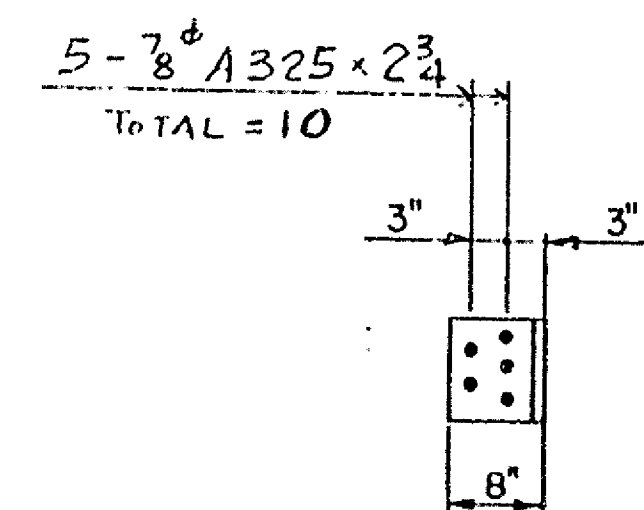
SECTION B-B

REVIEWED FOR GENERAL CONFORMITY WITH PLANS AND SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR ACCURACY OF CONTENT. FEB 10 1996
UAA
For Bridge Engineer

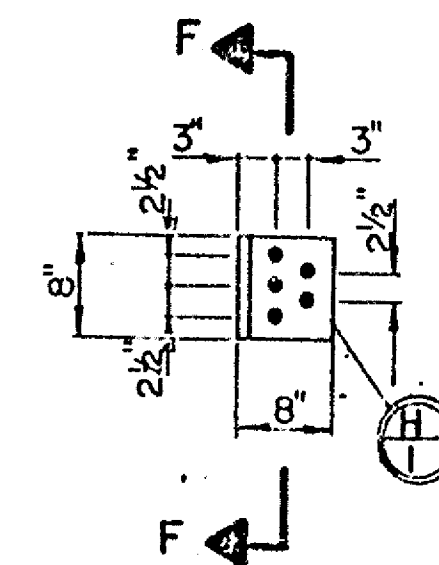
BASCULE SPAN MAIN GIRDER DETAILS AND REPAIRS AND SIDEWALK SUPPORT (2)

CONTRACT	COUNTY	FEDERAL AID PROJECT NO.	SHEET
85-074-01	N.C.	BHOS-327 0	11

REHAB. OF BR. 159
NEWPORT

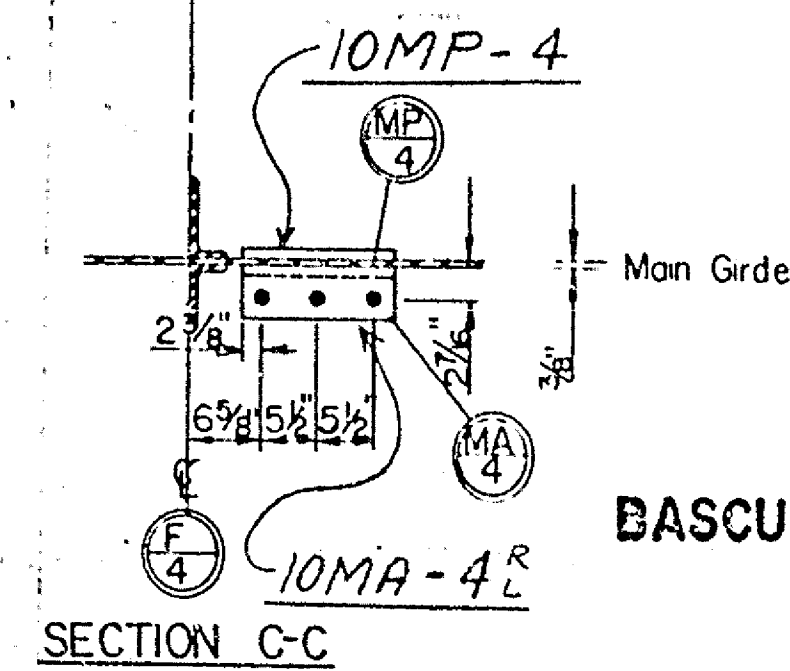
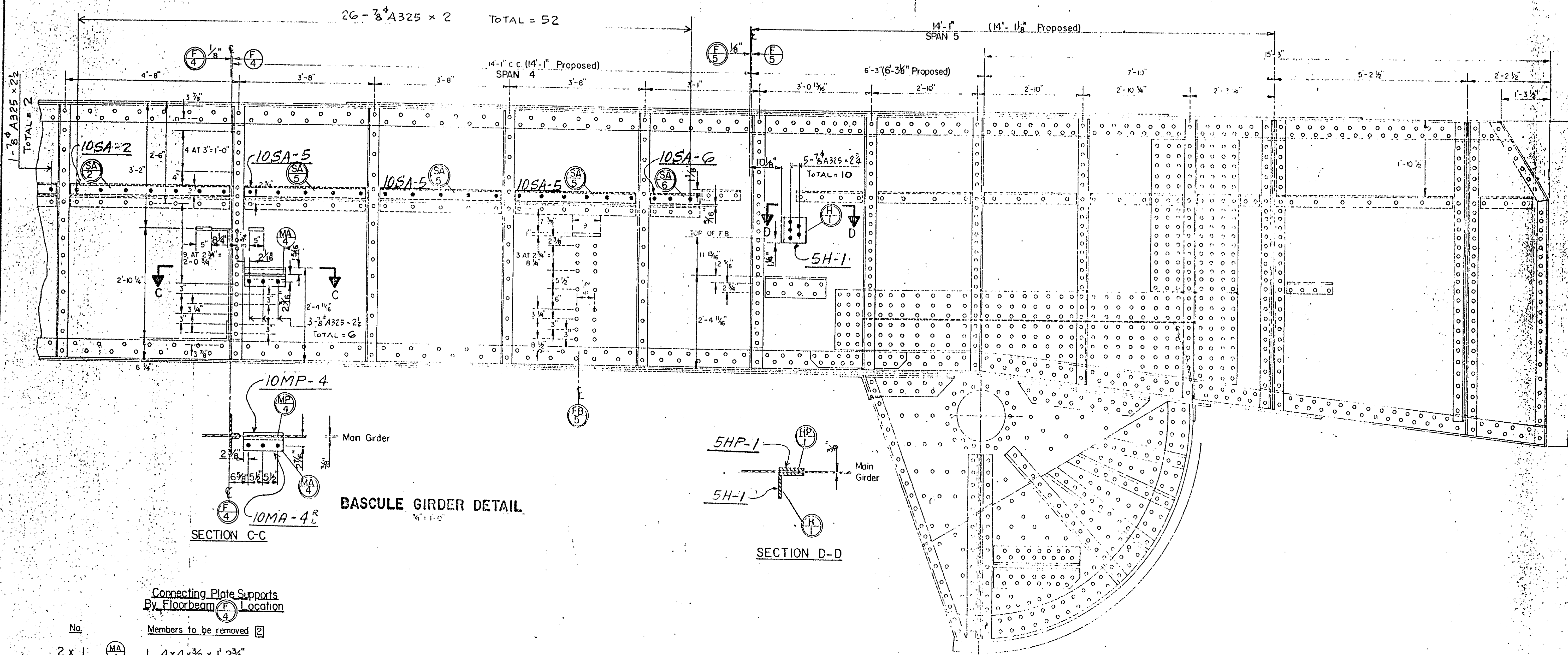


SECTION F-F

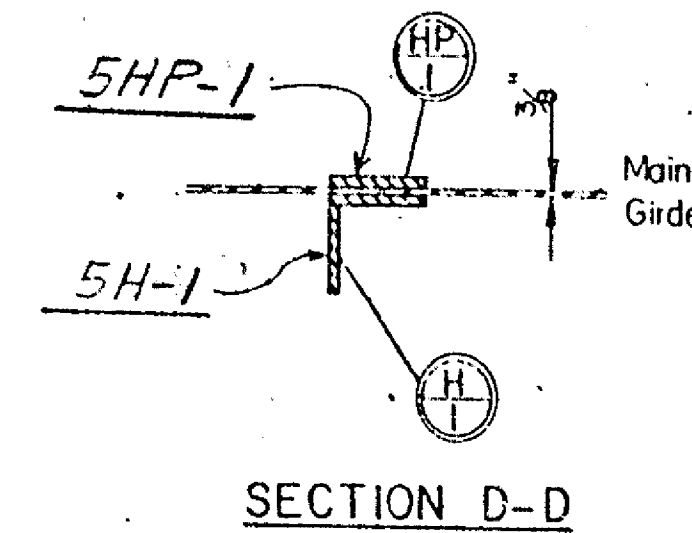


Stringers Supporting L At Span 5

No.	Members to be placed
2 x 1	Ⓜ L 8 x 8 x 1/2 x 8
2 x 1	Ⓜ L 8 x 1/2 x 8



BASCULE GIRDER DETAIL



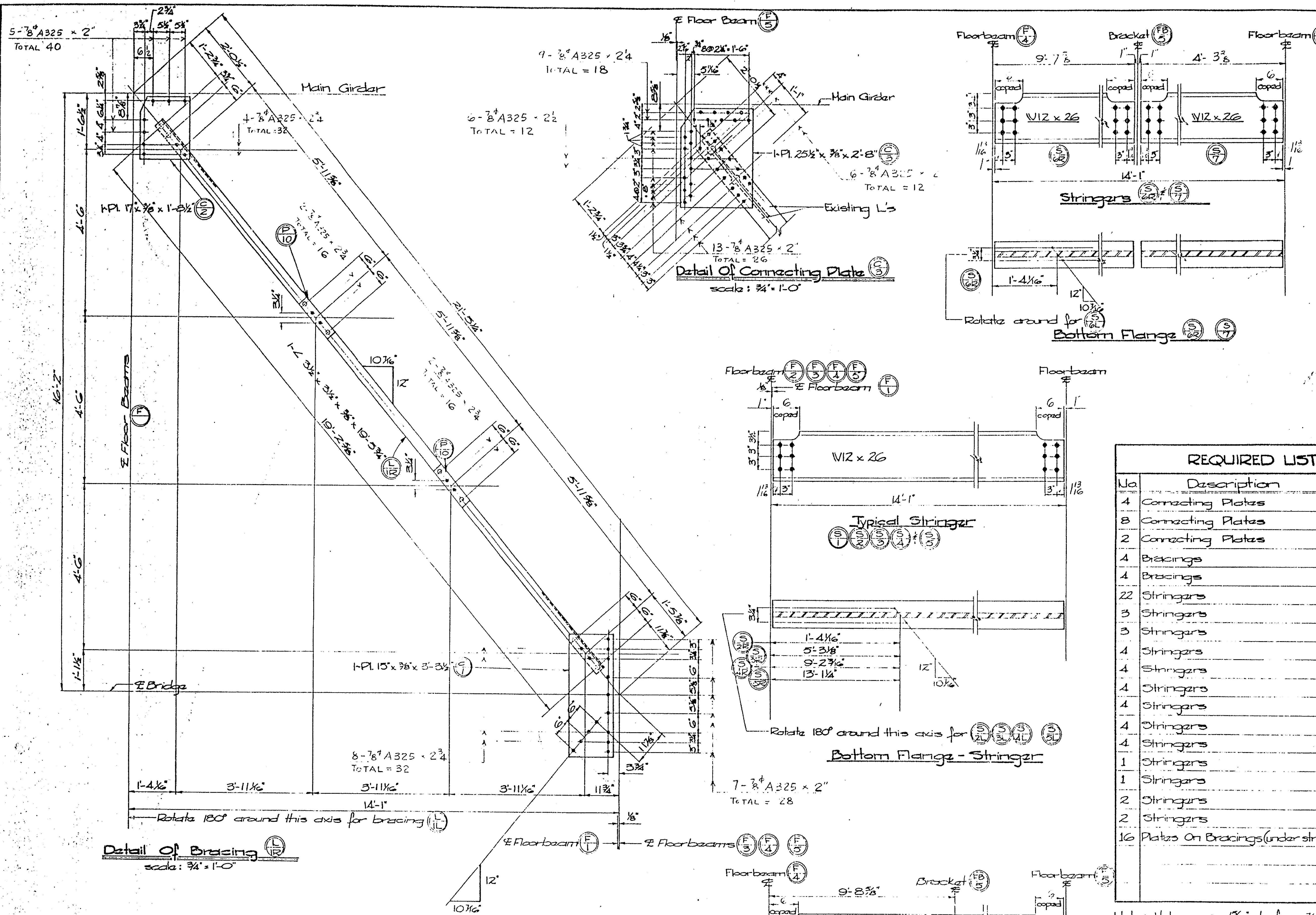
SECTION D-D

Connecting Plate Supports
By Floorbeam Location

No.	Members to be removed	Members to be placed
2 x 1	Ⓜ L 4 x 4 x 3/8 x 1'-2 3/4"	Ⓜ L 4 x 4 x 3/8 x 1'-2 3/4"
2 x 1	Ⓜ L 4 x 4 x 3/8 x 1'-2 3/4"	Ⓜ L 4 x 4 x 3/8 x 1'-2 3/4"
2 x 1	Ⓜ L 6 x 8 x 1'-2 3/4"	

FOR APPROVAL

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CONTENT."
FEB 10 1986
For Bridge Engineer



CONTRACT	COUNTY	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
85-074-01	N.C.	BHOS-327 (I)	12	28

REHAB. OF BR. 159
NEWPORT

**BASCULE SPAN STRINGERS
AND CONNECTING PLATES**

REQUIRED LIST (NEW MEMBERS) II			
No	Description	Designation	Size
4	Connecting Plates	(C-1)	2-15" x 3/8" x 3'-3"
8	Connecting Plates	(C-2)	2-17" x 3/8" x 1'-2"
2	Connecting Plates	(C-3)	2-25 1/2" x 3/8" x 2'-3"
4	Bracings	(L-1/2)	4-3 1/2" x 3 1/2" x 3/8" x 19'
4	Bracings	(L-1)	4-3 1/2" x 3 1/2" x 3/8" x 19'
22	Stringers	(S-1)	W12 x 26 x 13'-11"
3	Stringers	(S-2)	W12 x 26 x 13'-11"
3	Stringers	(S-3)	W12 x 26 x 13'-11"
4	Stringers	(S-4)	W12 x 26 x 13'-11"
4	Stringers	(S-5)	W12 x 26 x 13'-11"
4	Stringers	(S-6)	W12 x 26 x 13'-11"
4	Stringers	(S-7)	W12 x 26 x 13'-11"
4	Stringers	(S-8)	W12 x 26 x 13'-11"
4	Stringers	(S-9)	W12 x 26 x 13'-11"
1	Stringers	(S-10)	W12 x 26 x 9'-6"
1	Stringers	(S-11)	W12 x 26 x 9'-6"
2	Stringers	(S-12)	W12 x 26 x 4'-2"
2	Stringers	(S-13)	W12 x 26 x 13'-11"
16	Plates On Bracings (under stringer)	(P-10)	2-3 1/2" x 3/4" x 1'-3"

Note: Holes are $3/16"$ ϕ for $7/8"$ ϕ ASTM, A325 bolts.

REVIEWED FOR GENERAL
CONFORMITY WITH PLANS
AND SPECIFICATIONS.
CONTRACTOR IS RESPONS-
IBLE FOR ACCURACY OF
CONTENT."

W. H. HARRIS FEB 10 1966
For Bridge Engineer Date

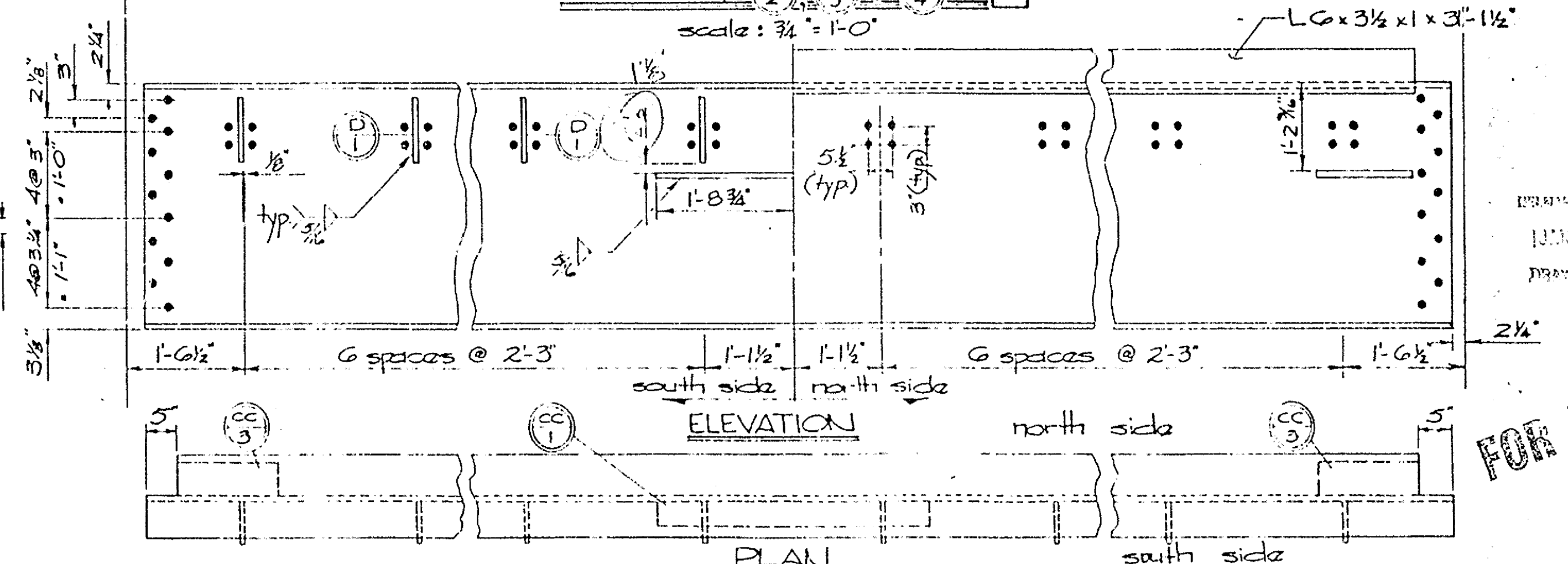
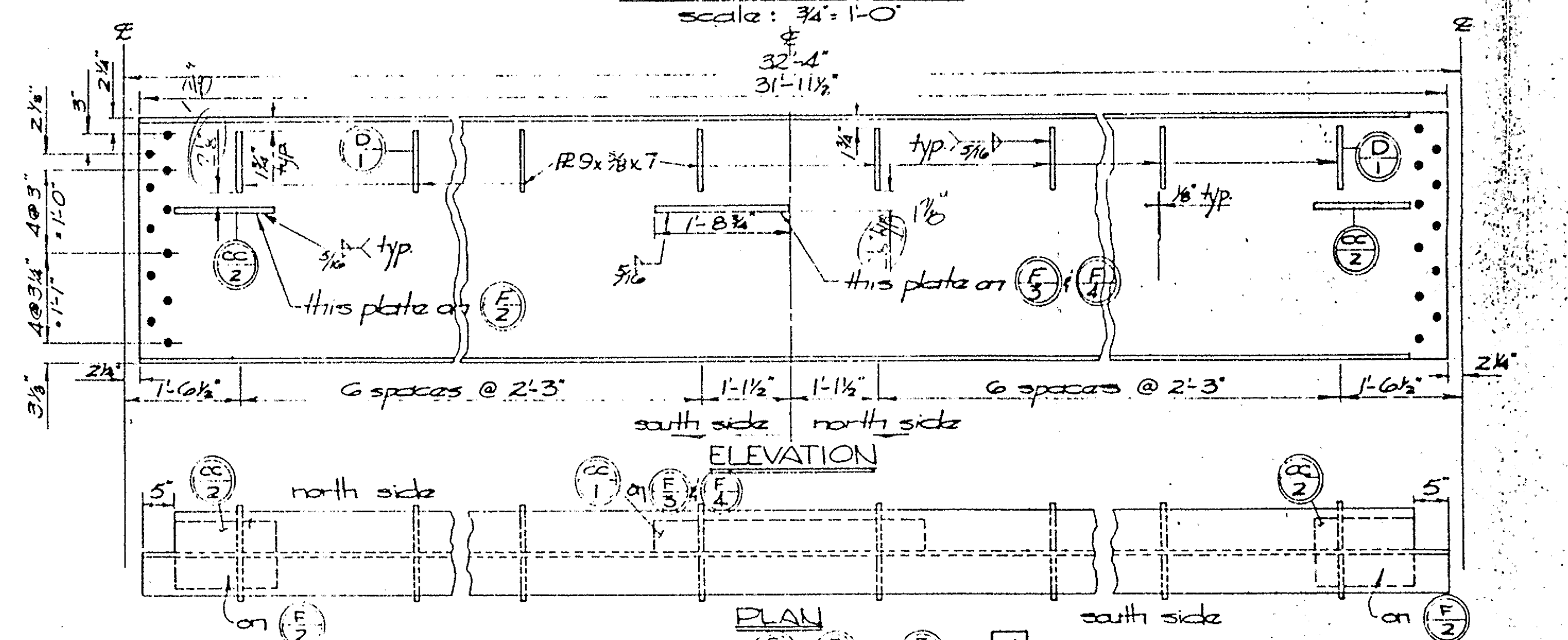
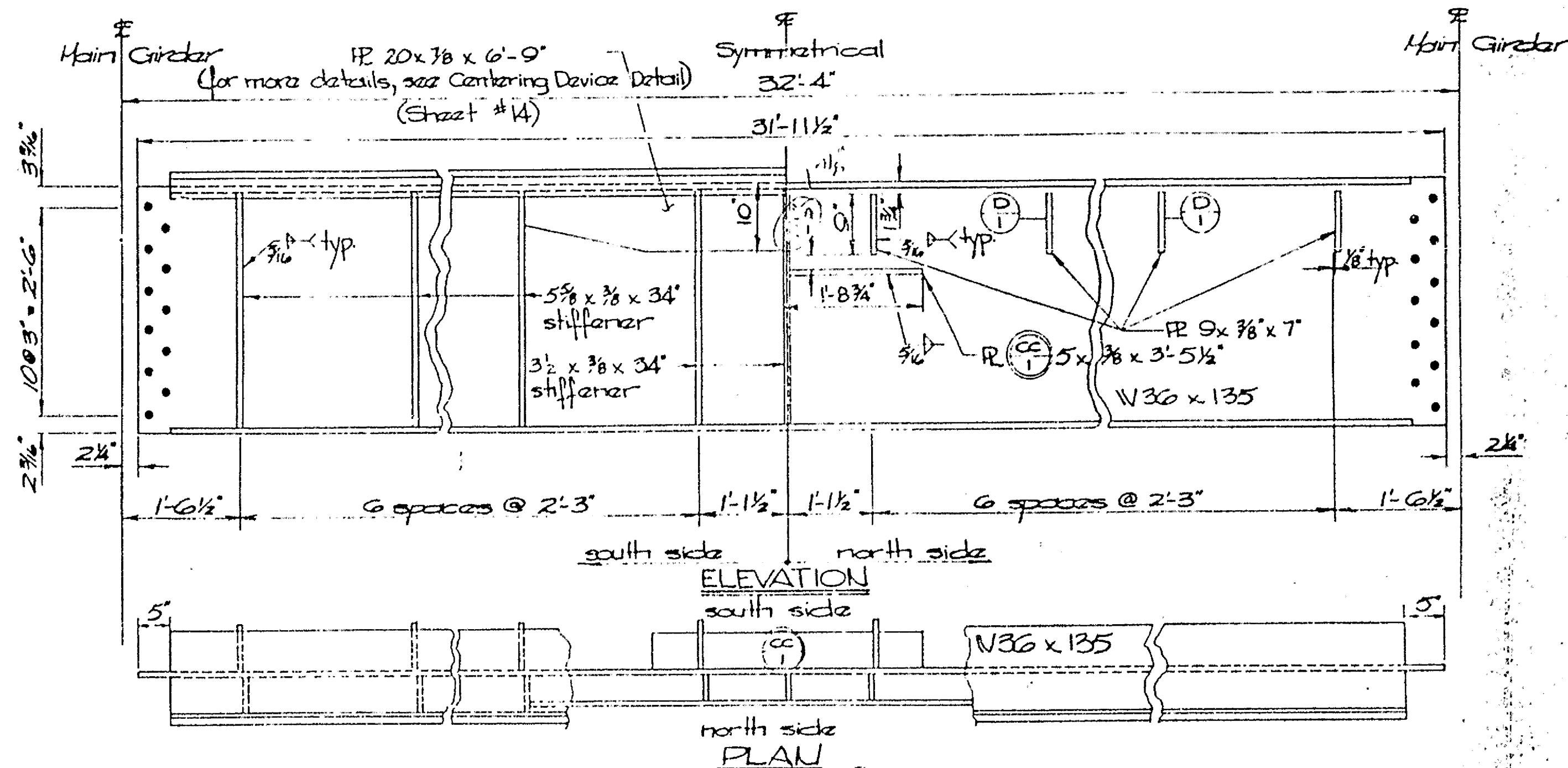
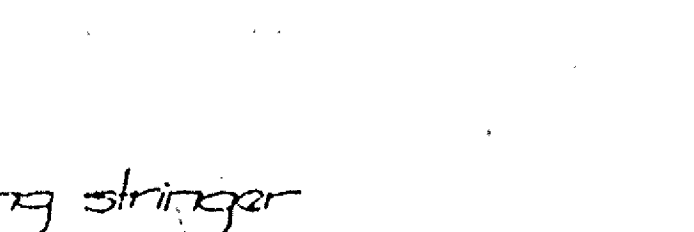
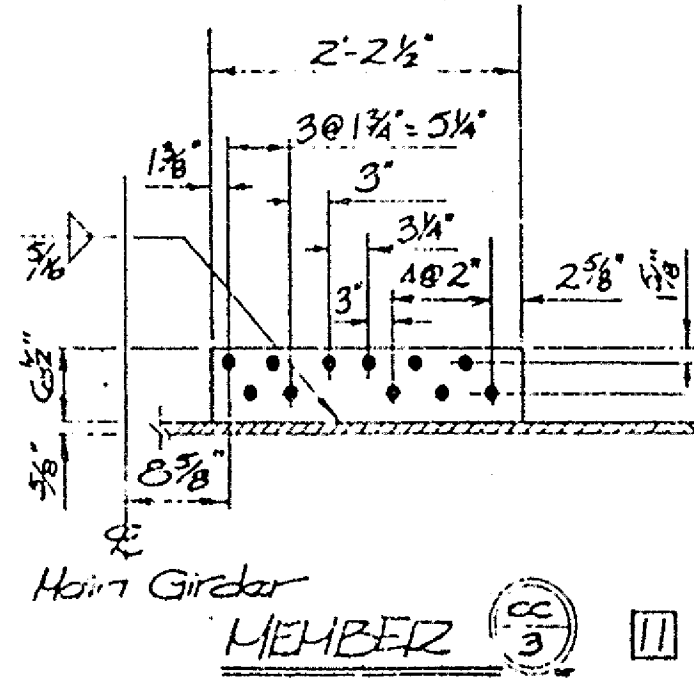
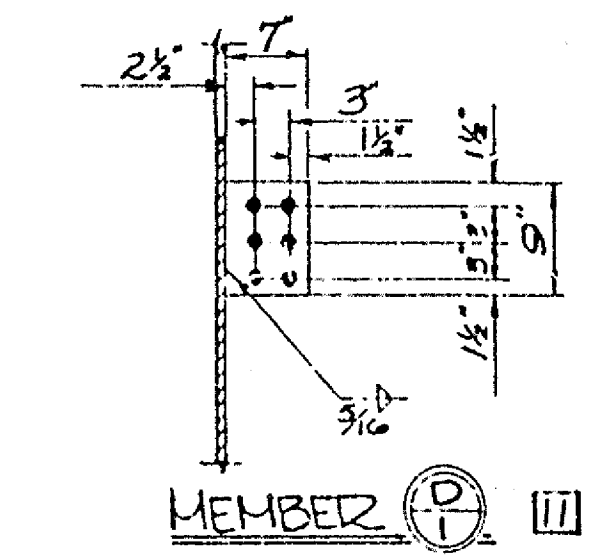
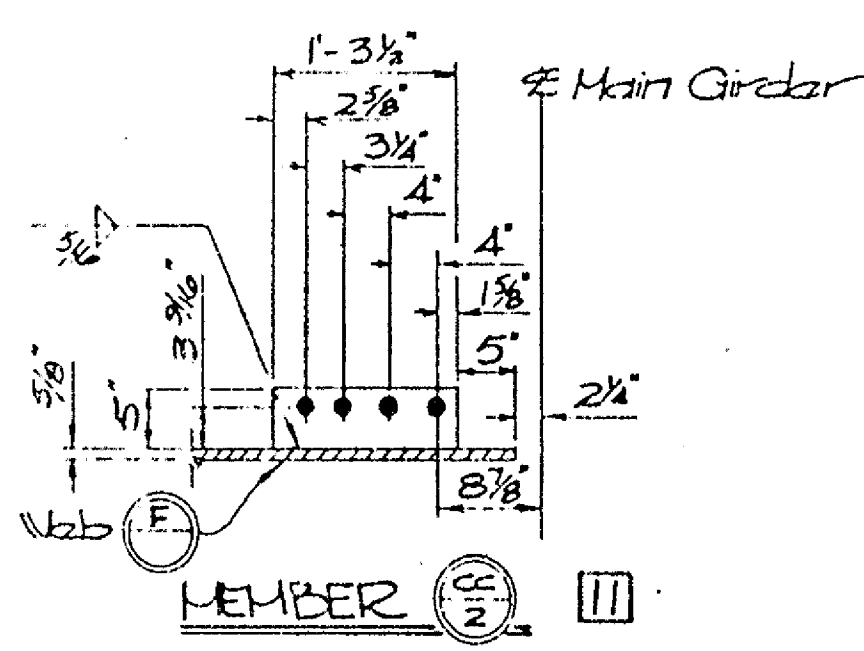
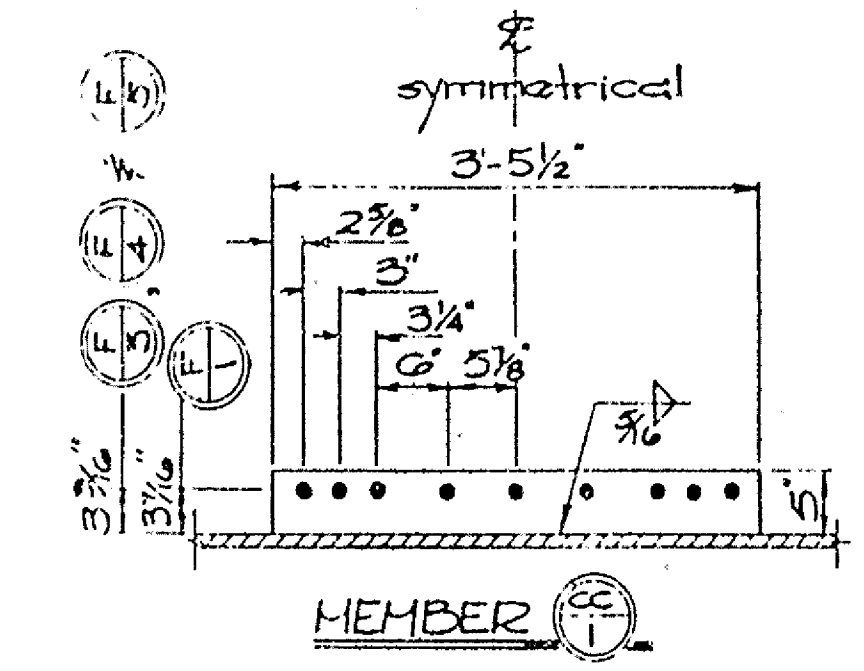
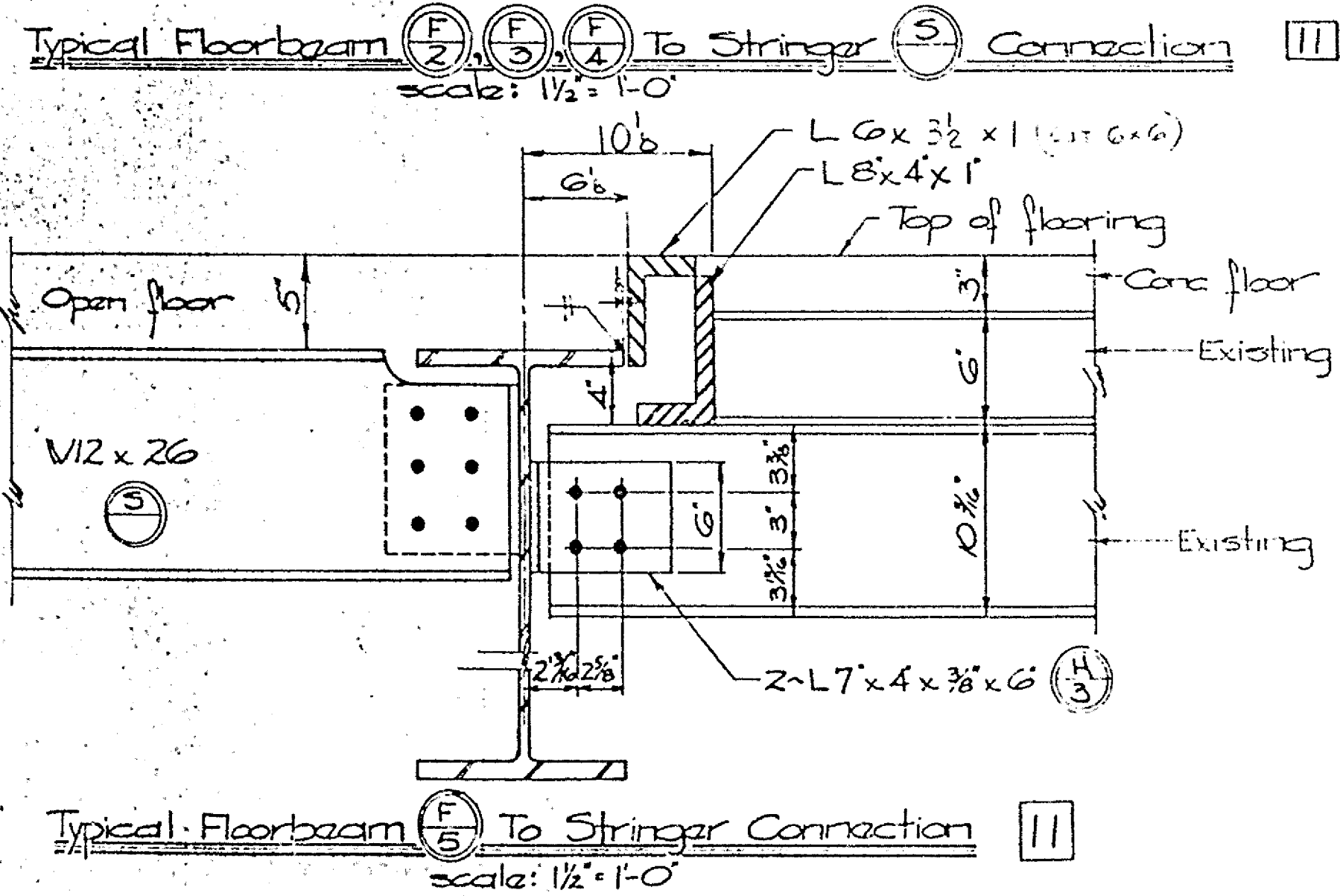
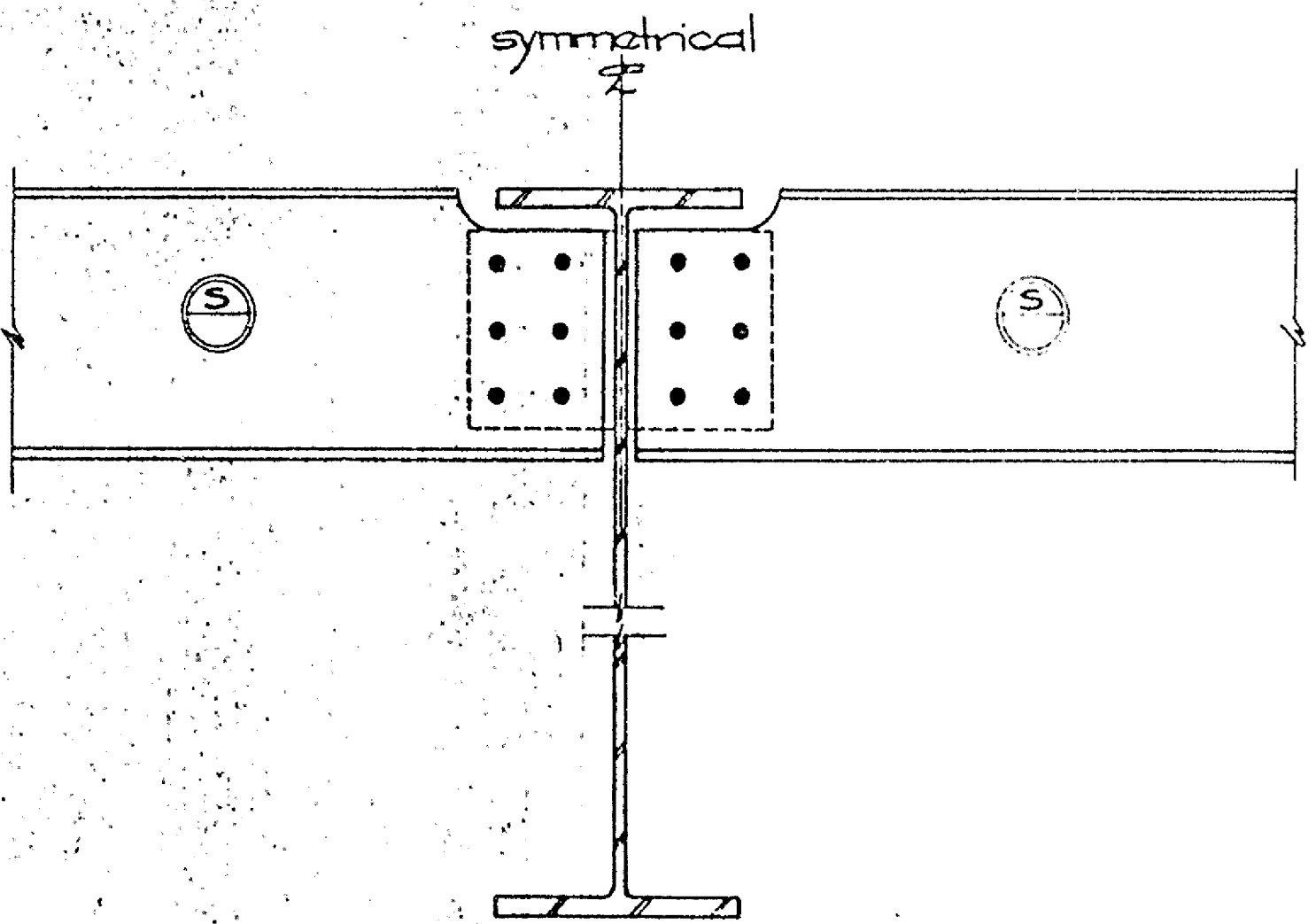
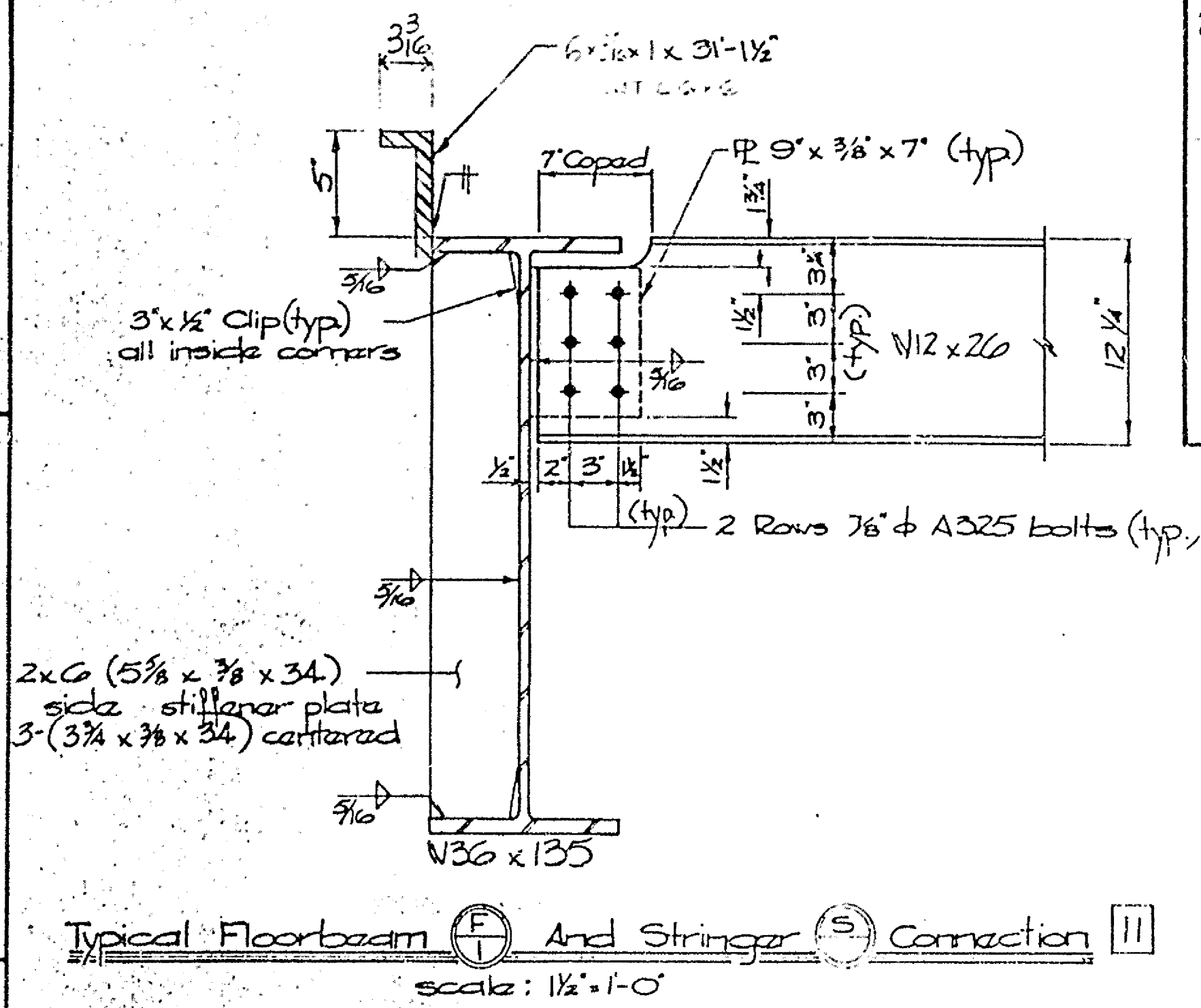
FOR APPROVAL

REQUIRED LIST (NEW MEMBERS) III			
No.	Description	Designation	Size
24	connecting angles	(H/3)	7 x 4 x 3/8 x 6"
1	floorbeam	(F/1)	36 x 135 x 31'-11 1/2"
1	floorbeam	(F/2)	36 x 135 x 31'-11 1/2"
1	floorbeam	(F/3)	36 x 135 x 31'-11 1/2"
1	floorbeam	(F/4)	36 x 135 x 31'-11 1/2"
1	floorbeam	(F/5)	36 x 135 x 31'-11 1/2"

BASCULE SPAN FLOORBEAM AND STRINGER CONNECTION FLOORBEAMS F/1, F/2, F/3, F/4, AND F/5 DETAILS

CONTRACT	COUNTY	FEDERAL AID PROJECT #	SHEET	TOTAL
85-074-01	N.C.	BHOS-327 (I)	13	22

REHAB. OF BR. 159 NEWPORT



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CONTENT.
MAY 1986
For Use Only

FOR APPROVAL

5" OPEN FLOOR [27]

3" CONCRETE FLOOR [28]

14'-4" 2 GRIDS @ 7'-2"

14'-4" 2 GRIDS @ 7'-2"

14'-4" 2 GRIDS @ 7'-2"

14'-4" 2 GRIDS @ 7'-2"

11B3 C₂ x 15" CURB

11B1 (AS SHOWN) 11B2 (OPP HAND)

6'-6 3/4" 1 GRID

6'-10 1/4" 1 GRID

6'-6 3/4" 1 GRID

DETAIL A

DETAIL B

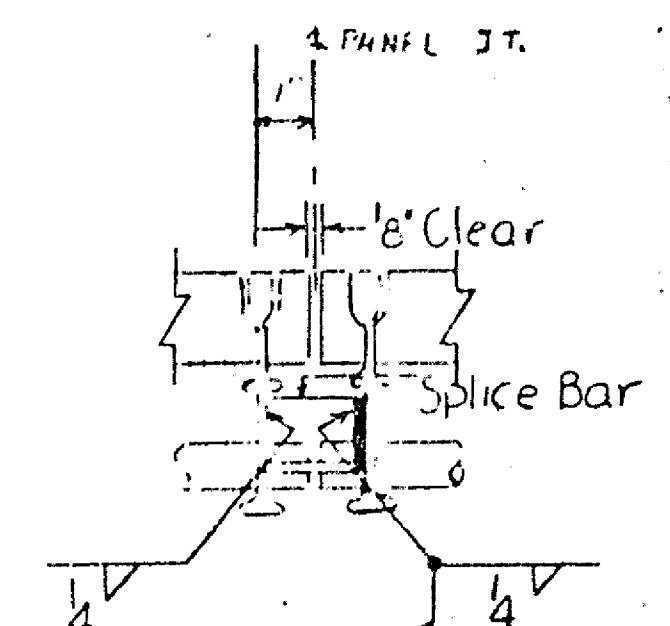
DETAIL C

1 PANEL JT.

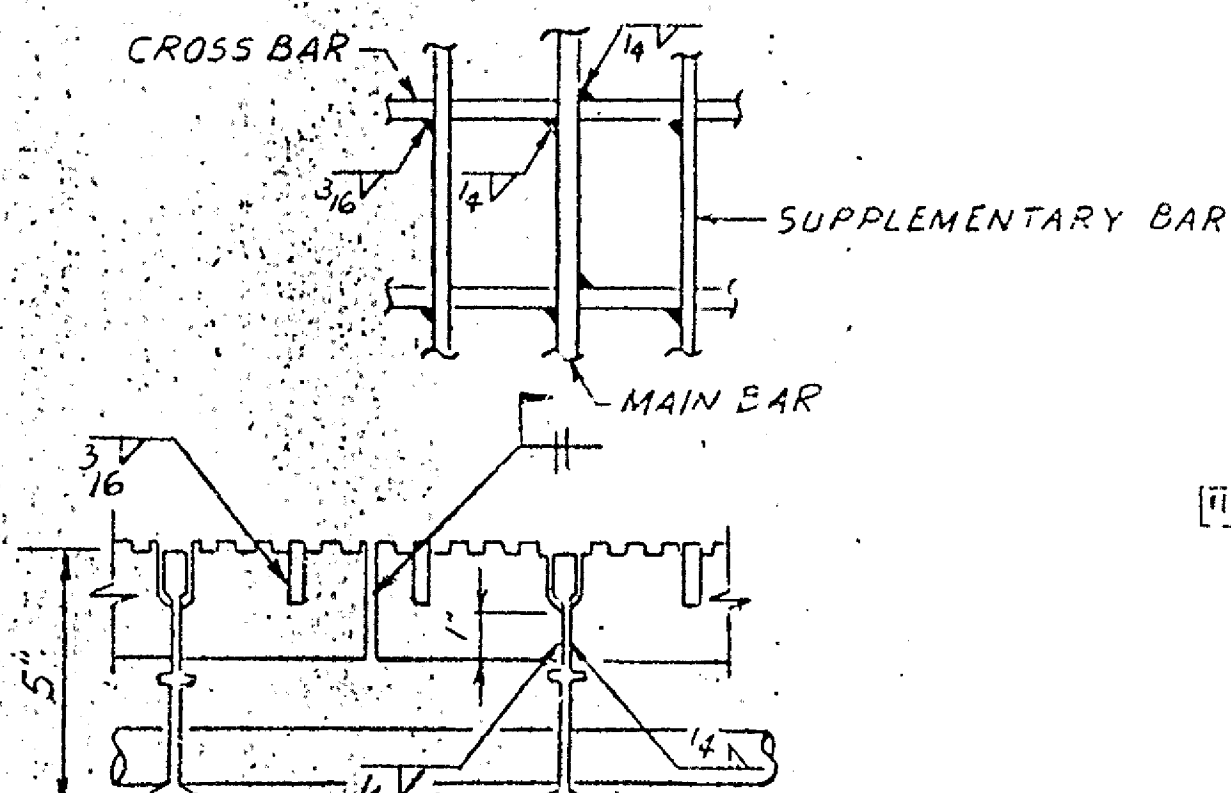
8' Clear

LONGITUDINAL SECTION

3/4" = 1'-0"



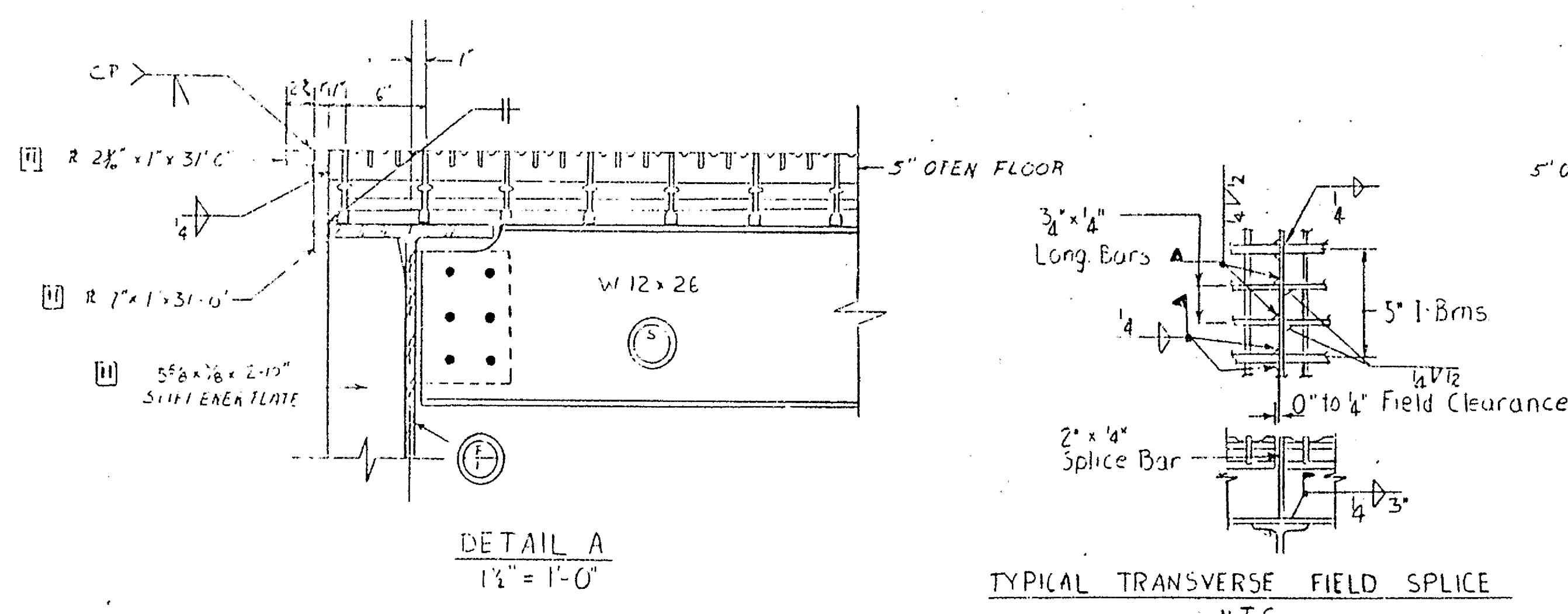
DETAIL OF 5" OPEN FLOOR 27



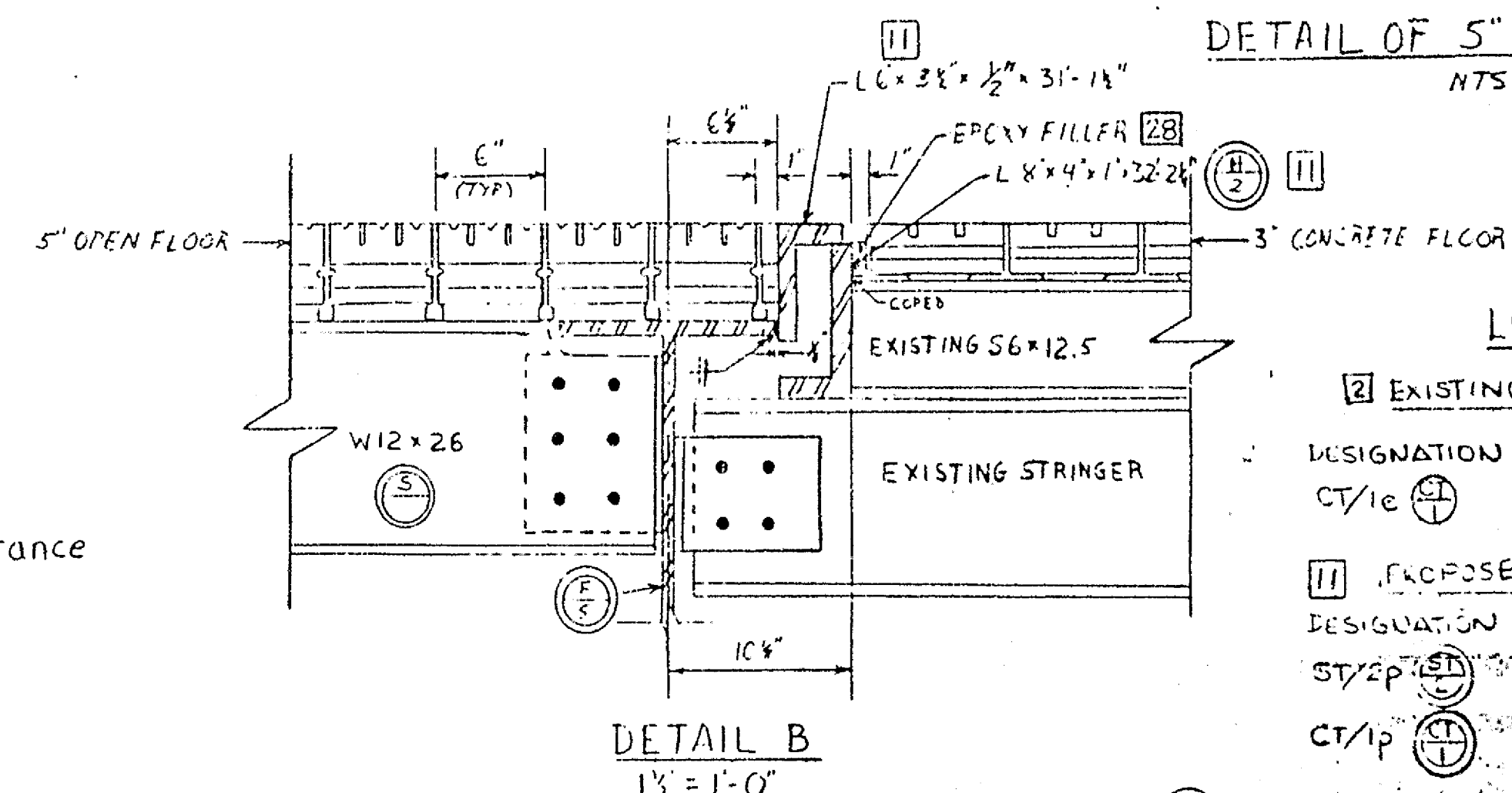
TYPICAL SUPPLEMENTARY WELD
FOR ROADWAY GRATING 77

NOTE: NOT TO SCALE

WELDING SHOWN ABOVE IS IN ADDITION TO MANUFACTURER'S STANDARD WELDING INCLUDING PUDDLE WELDS.






TYPICAL TRANSVERSE FIELD SPLICE



DETAIL B
1'3" = 1'-0"

LEGEND

<u>[2] EXISTING MEMBER TO BE REMOVED</u>		
DESIGNATION	NO.	DESCRIPTION
CT/1e 	1	CBX11.5X30-0

<u>[III] PROPOSED MEMBER TO BE PLACED</u>		
DESIGNATION	NO.	DESCRIPTION
ST/2P 	1	56X12.5X30-0
CT/1p 	1	CBX11.5X30-0

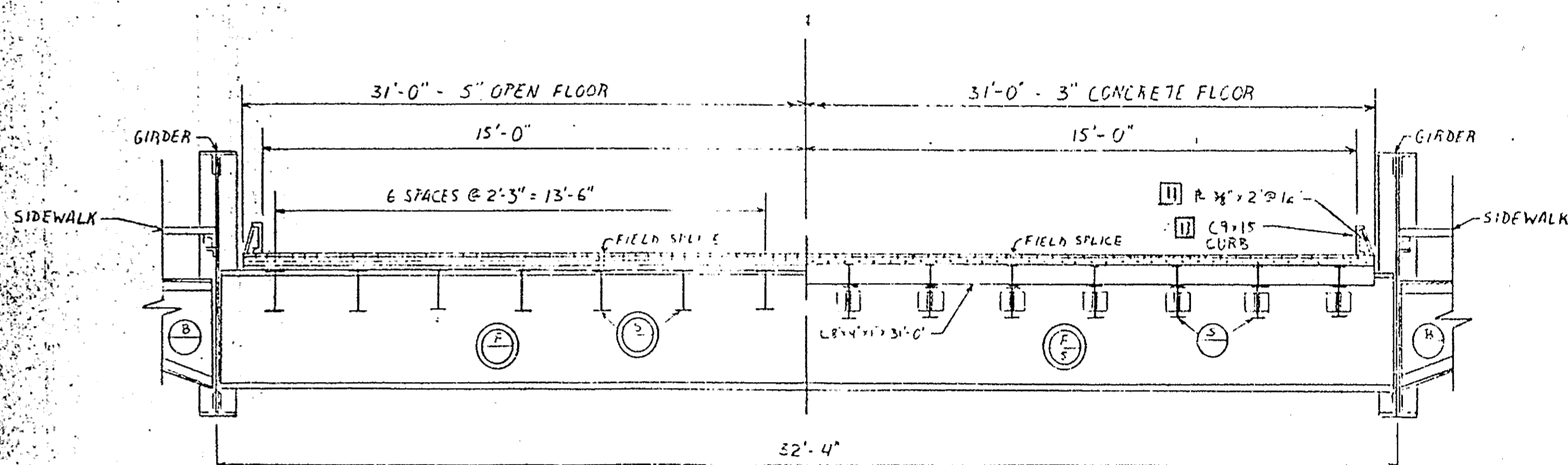
NO. APPROVAL

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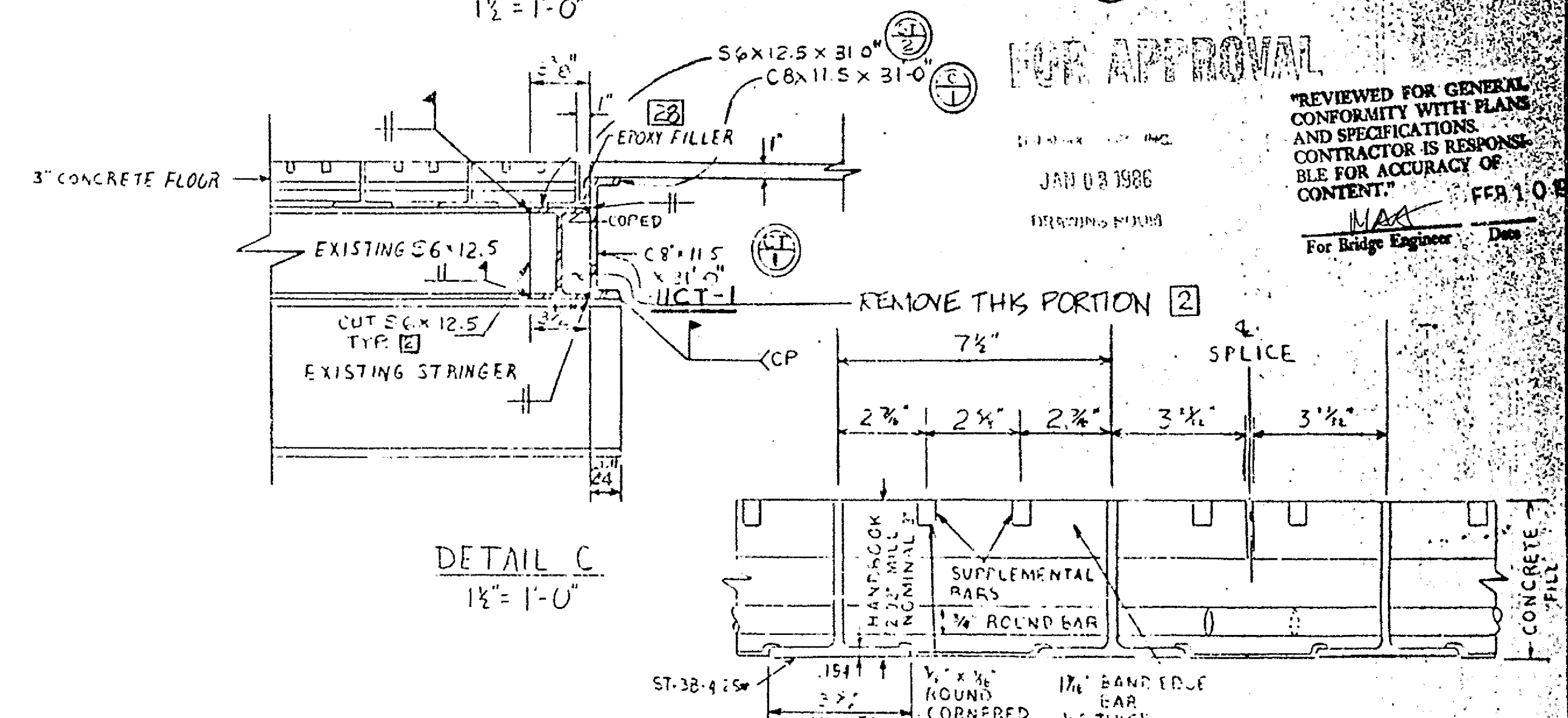
MAA FFA 10 E

Resident Engineer

Date



EXPERIMENTAL SECTION

$$36'' = 1' - 0''$$


CONCRETE FLOOR DETAIL

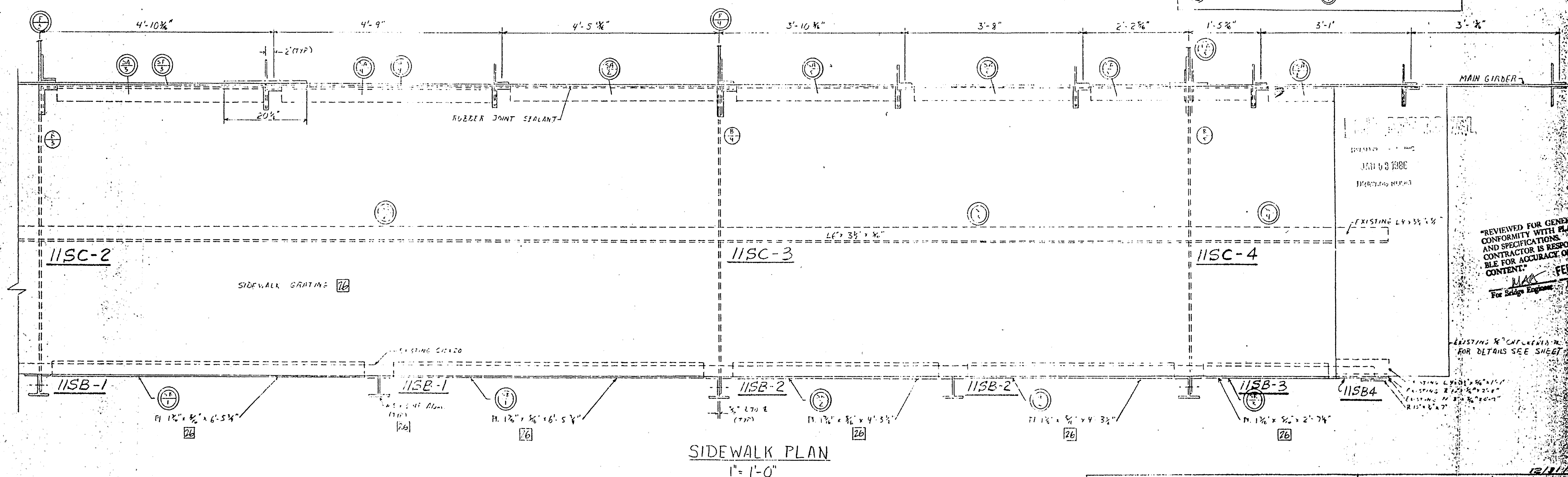
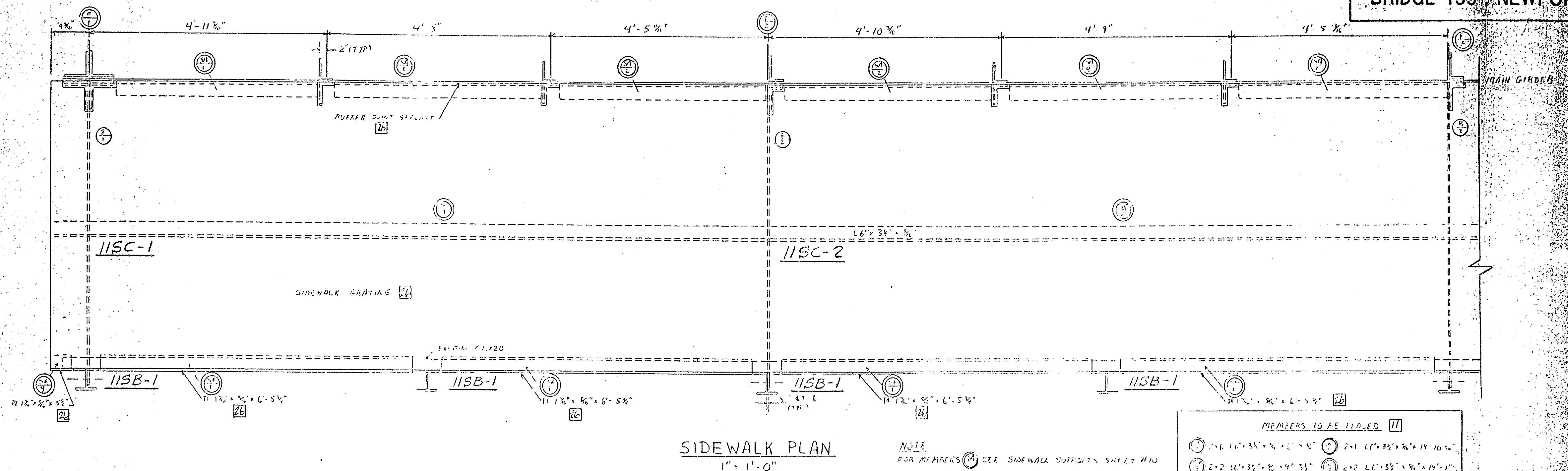
155

100

SIDEWALK AND RAILING DETAILS
BASCULE SPAN

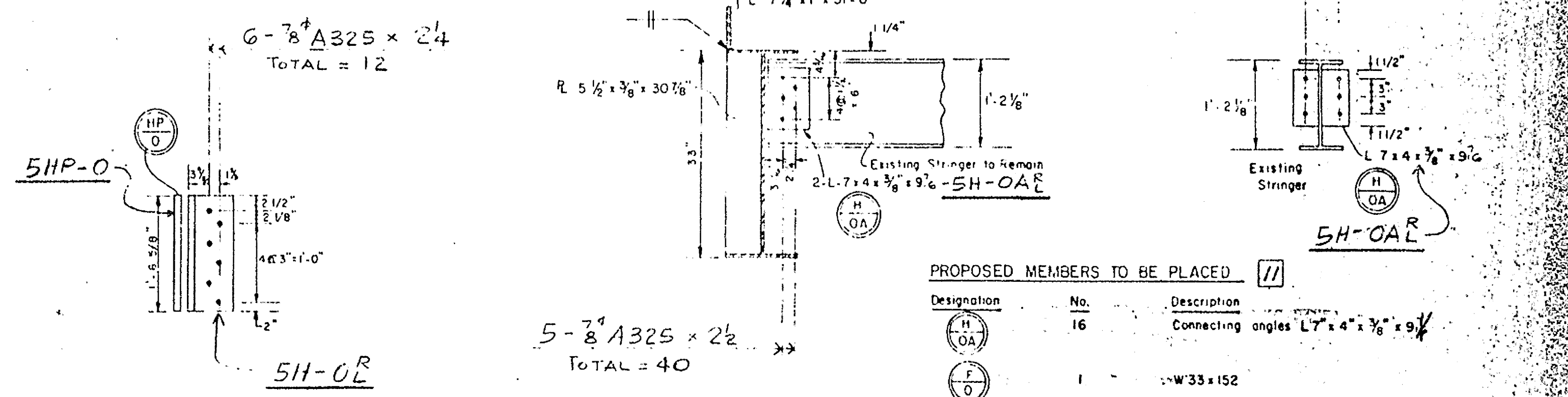
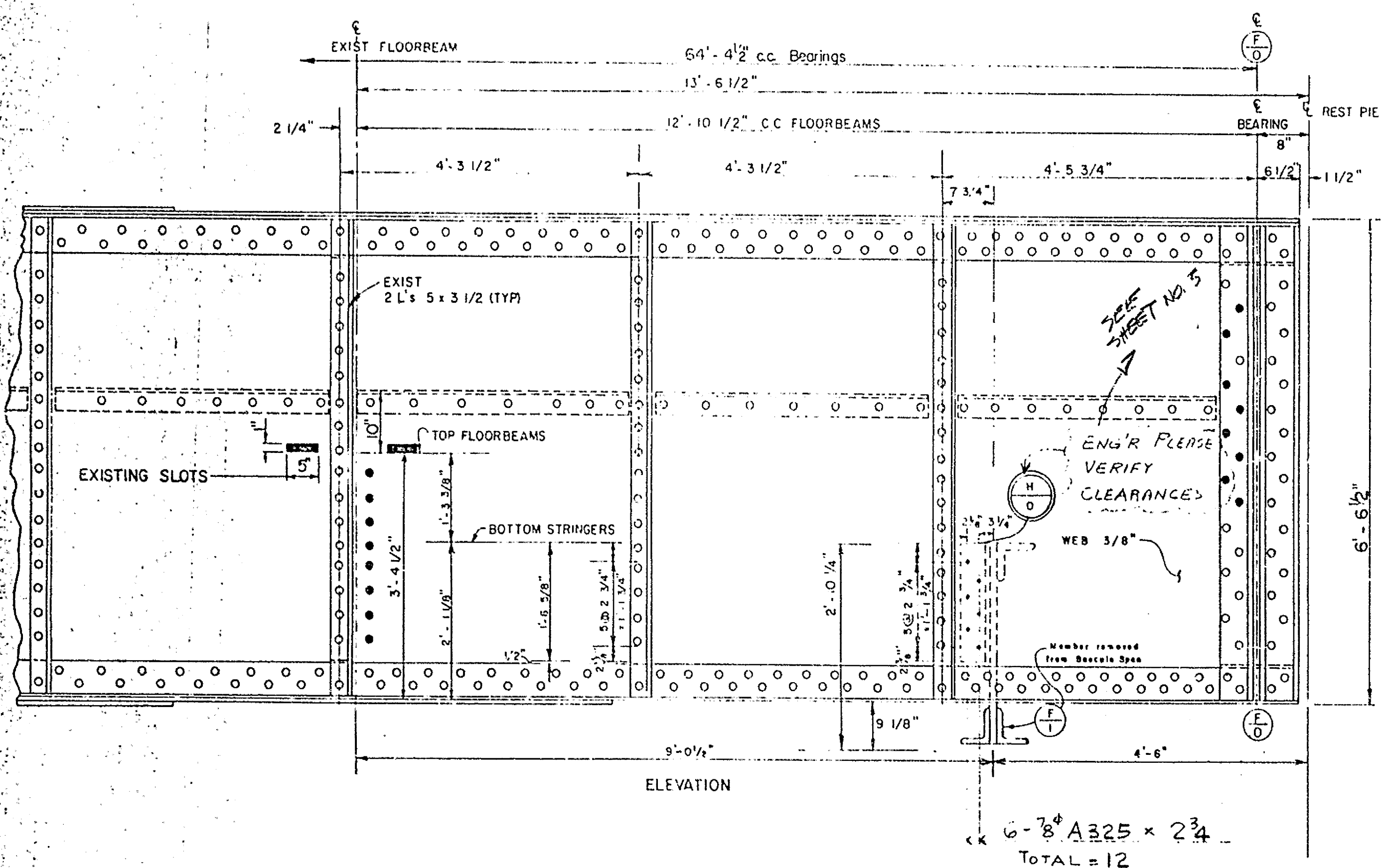
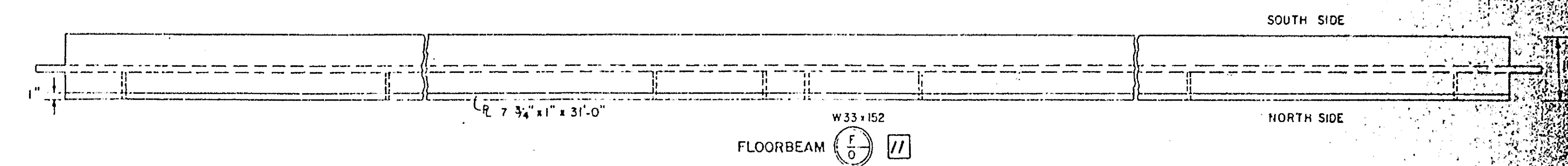
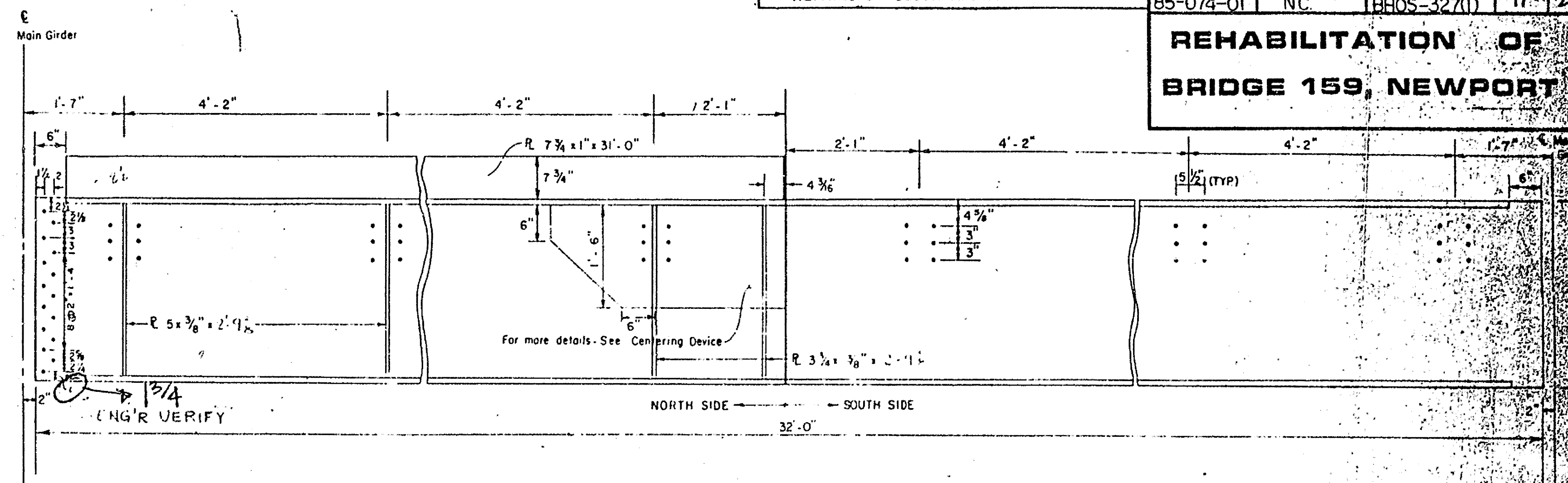
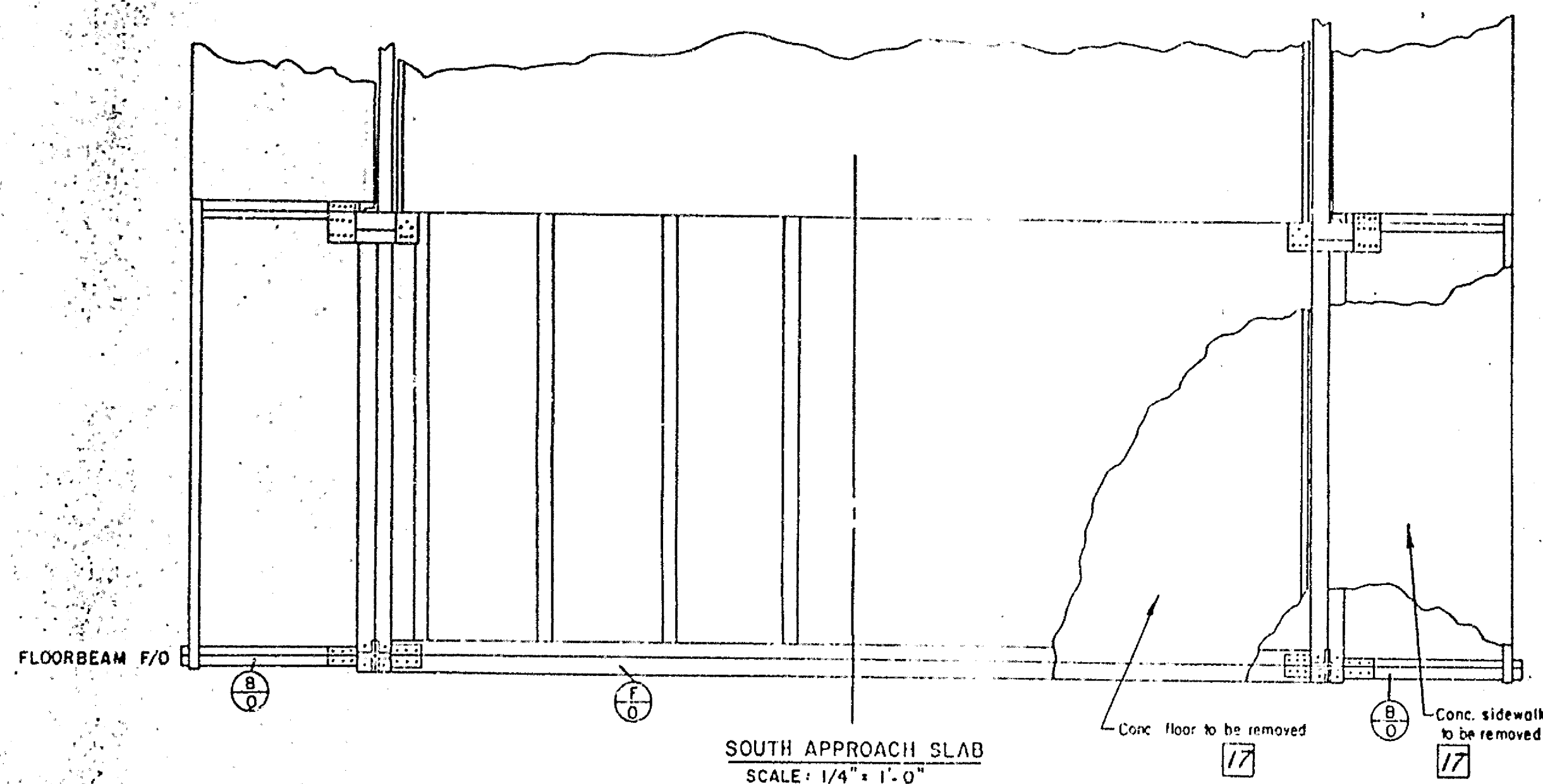
CONTRACT	COUNTY	FEDERAL AID PROJECT #	SHEET	DATE
85-074-01	NC	BHOS-327 (1)	16	2/85

REHABILITATION OF
BRIDGE 159 NEWPORT



"REVIEWED FOR GENERAL
CONFORMITY WITH PLANS
AND SPECIFICATIONS
CONTRACTOR IS RESPONSIBLE
FOR ACCURACY OF
CONTENT."
For Bridge Engineer: [Signature] FEB 1985

EXISTING RAILING
FOR DETAILS SEE SHEET



Stringers Supporting Members

NO.	Members to be Placed
2x1	L 6" x 6" x 1/2" x 1'-6 3/8"
2x1	R 6 x 1/2" x 1'-6 3/8"
1	Floorbeam removed from Bascule Span

NOTE: PLACEMENT OF TEMPORARY SUPPORT WILL BE INCIDENTAL TO STEEL STRUCTURES

FOR APPROVAL

"REVIEWED FOR GENERAL CONFORMITY WITH PLANS AND SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR ACCURACY OF CONTENT."

JAN 03 1996

FEB 10 1996

CONTRACT	COUNTY	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
B5-074-04	N.C.	BHOS-327(1)	18	28

REHABILITATION OF BRIDGE 159, NEWPORT

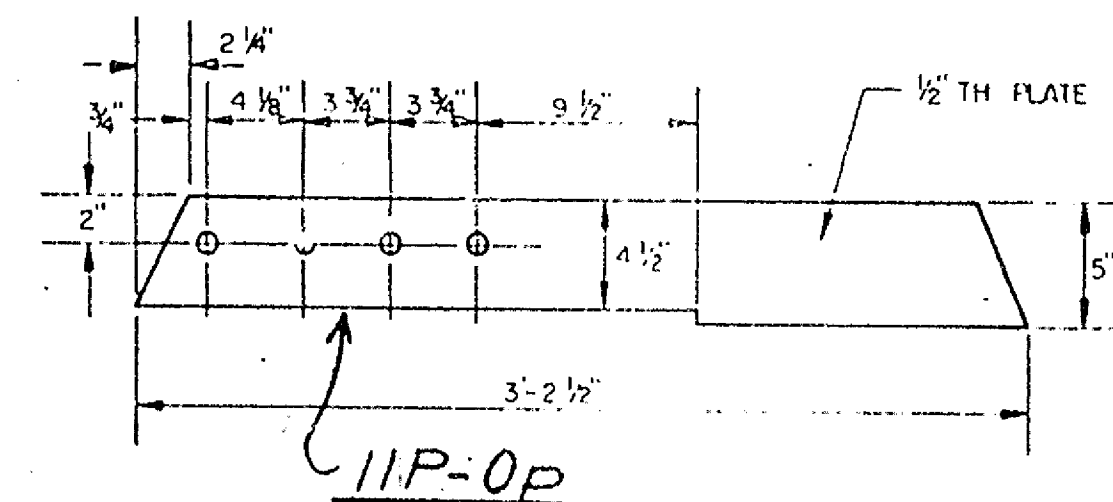
FLOORBEAM - SIDEWALK BRACKET CONNECTION

EXISTING MEMBER TO BE REMOVED 2

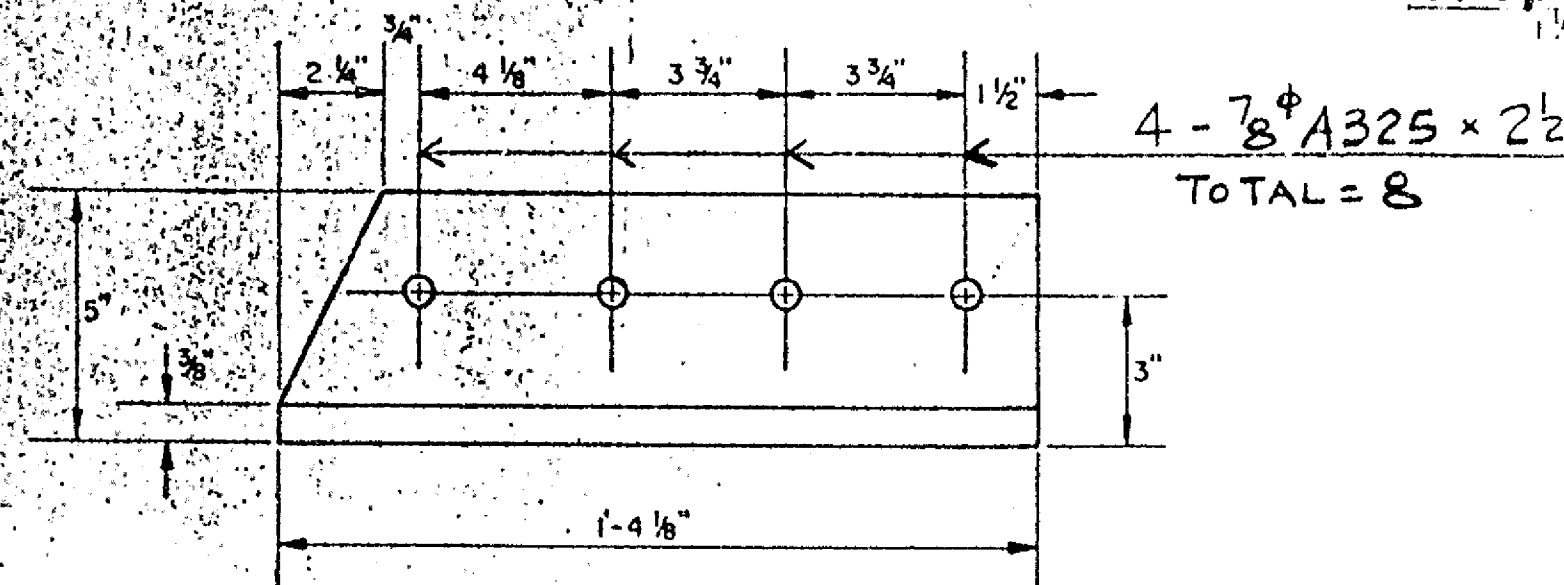
PROPOSED MEMBER TO BE PLACED			II
DESIGNATION	NO.	DESCRIPTION	
P/Op	(P) O	2x12 R 4 1/2" x 1/2" S-2"	
A/Op	(A) O	2x2 L 5" x 3 1/8" x 1'-4 1/2"	
R/OAp	(R) OA	2x12 R 5 1/2" x 7/8" L-7 1/4"	
R/Dep	(R) OB	2x12 R 5 1/2" x 7/8" L-6 1/2"	
E/Op	(E) O	2x2 L 6" x 6" x 6" - (5/8)" ^u 1x	
F/Op	(F) O	2x12 R 5 1/2" x 7/8" FLOOR BEAM W 36 x 135 S-3 1/2"	

FLOORBEAM-SIDEWALK-BRACKET CONNECTION

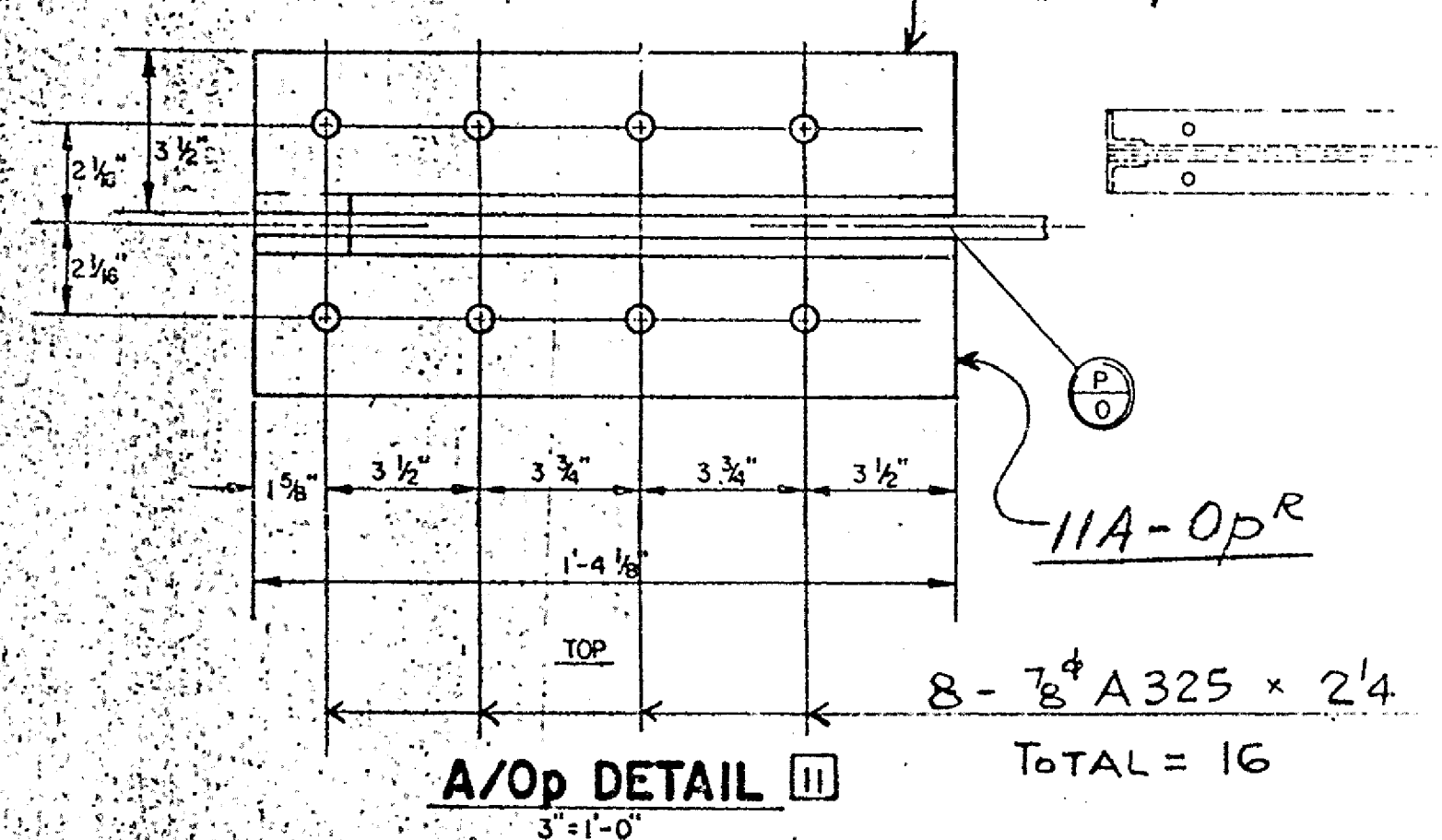
- 32** *CLEANING AND APPLICATION OF A PRIMER ON EXISTING STRUCTURE SHALL BE DONE BEFORE ANY CONNECTION IS MADE.



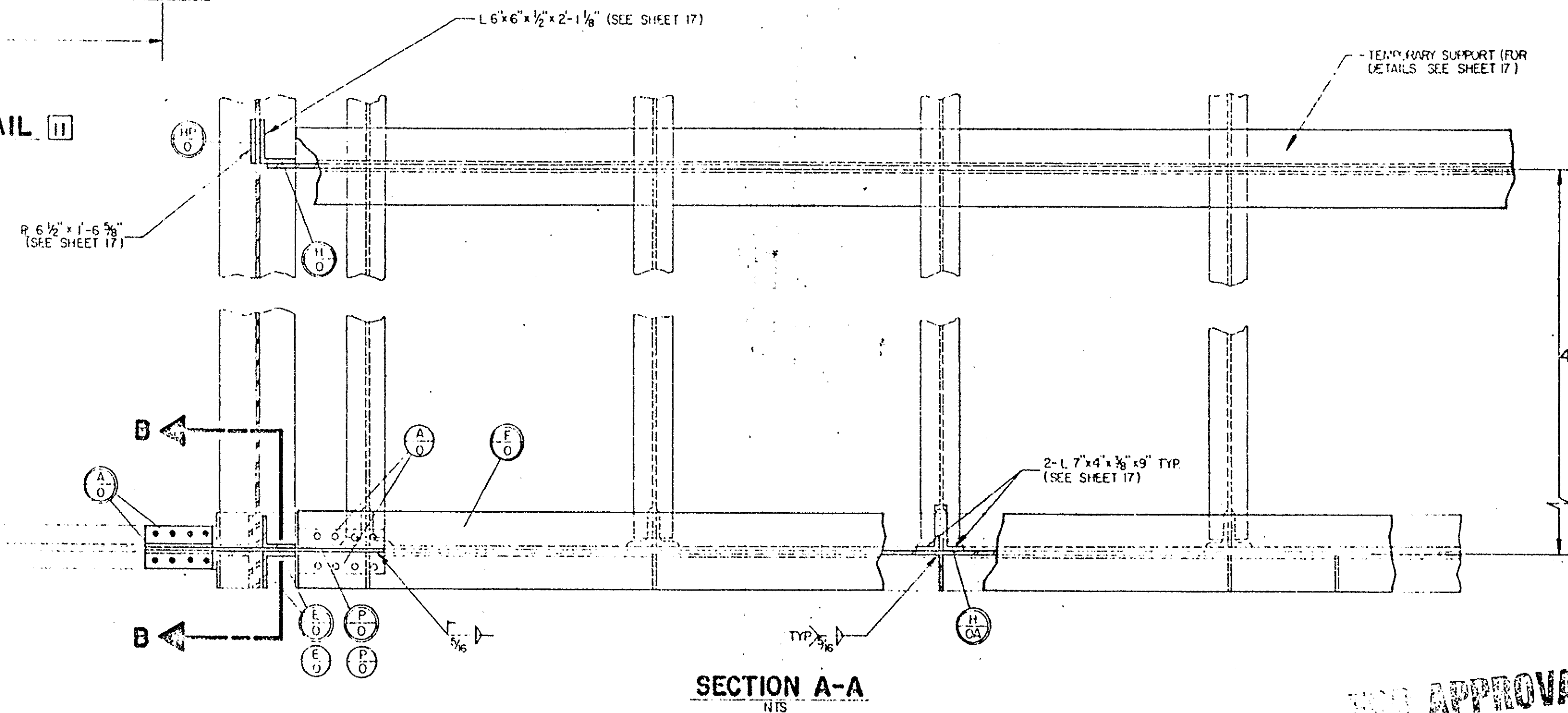
4 - 7⁸ A325 x 2¹
TOTAL = 8



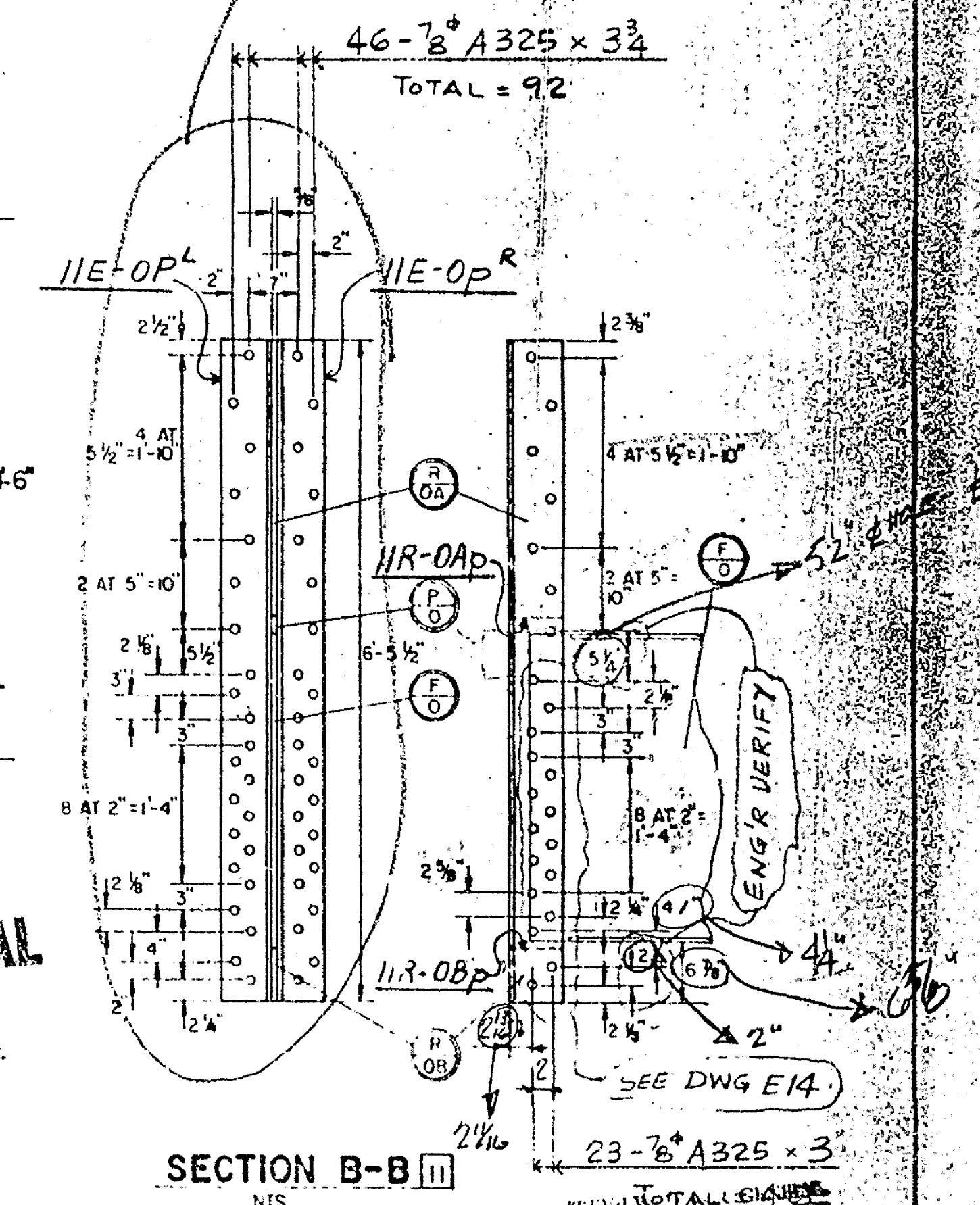
-11A-Op⁴



ELLEVÅN
 NIP



SECTION



SECTION 1

"REVIEW TOTAL SHARED
CONFORMITY WITH PLANS
AND SPECIFICATIONS.
CONTRACTOR IS RESPONSIBLE FOR ACCURACY OF
CONTENT."

NAA FEB 10 1968

For Bridge Engineer *Idan*

FOR APPROVAL

RECEIVED - FBI
JAN 6 3 1986
DIRECTOR, FBI

JOB No. HF-1586

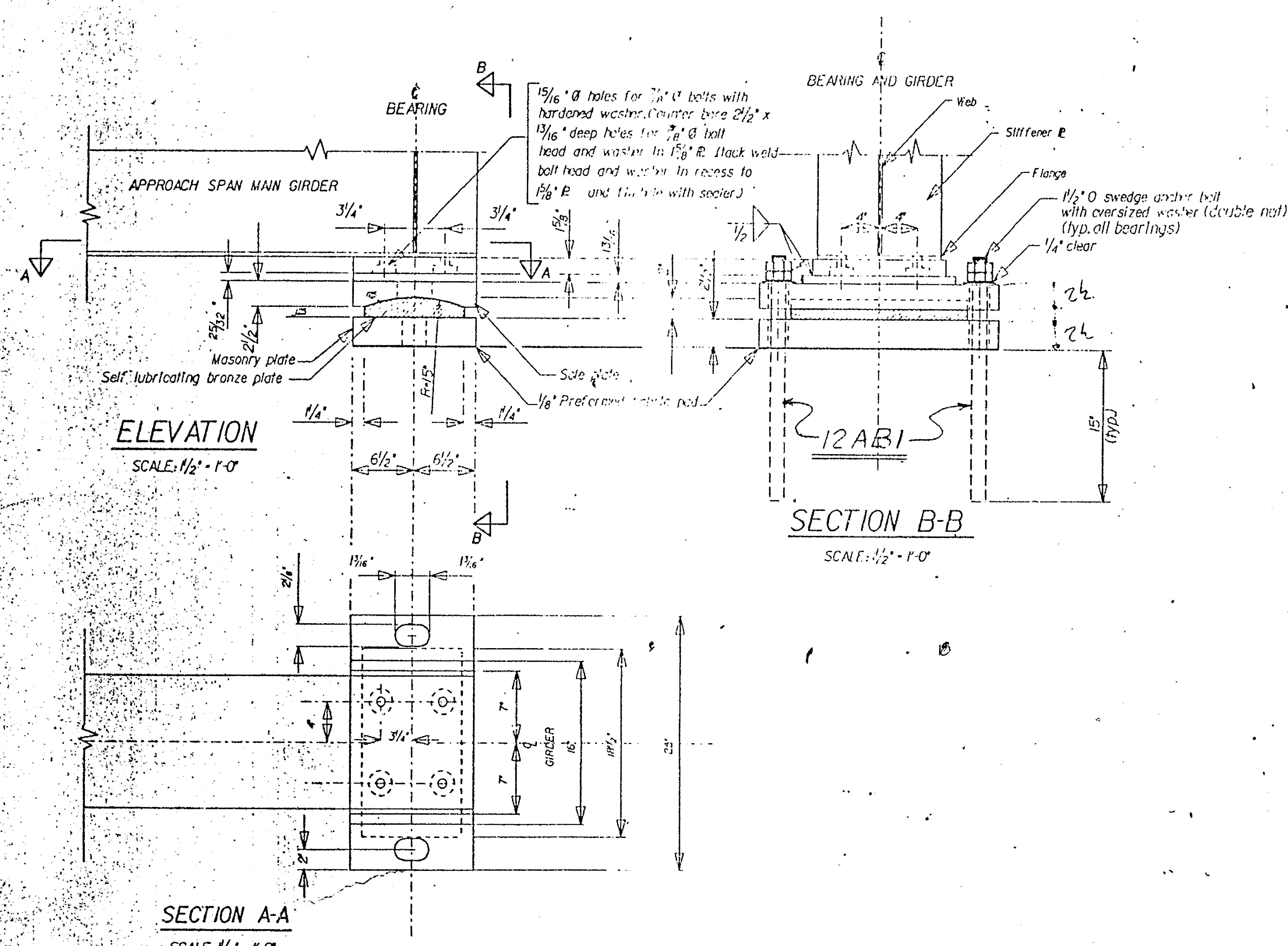
SHT. No. E15

~~SECRET~~

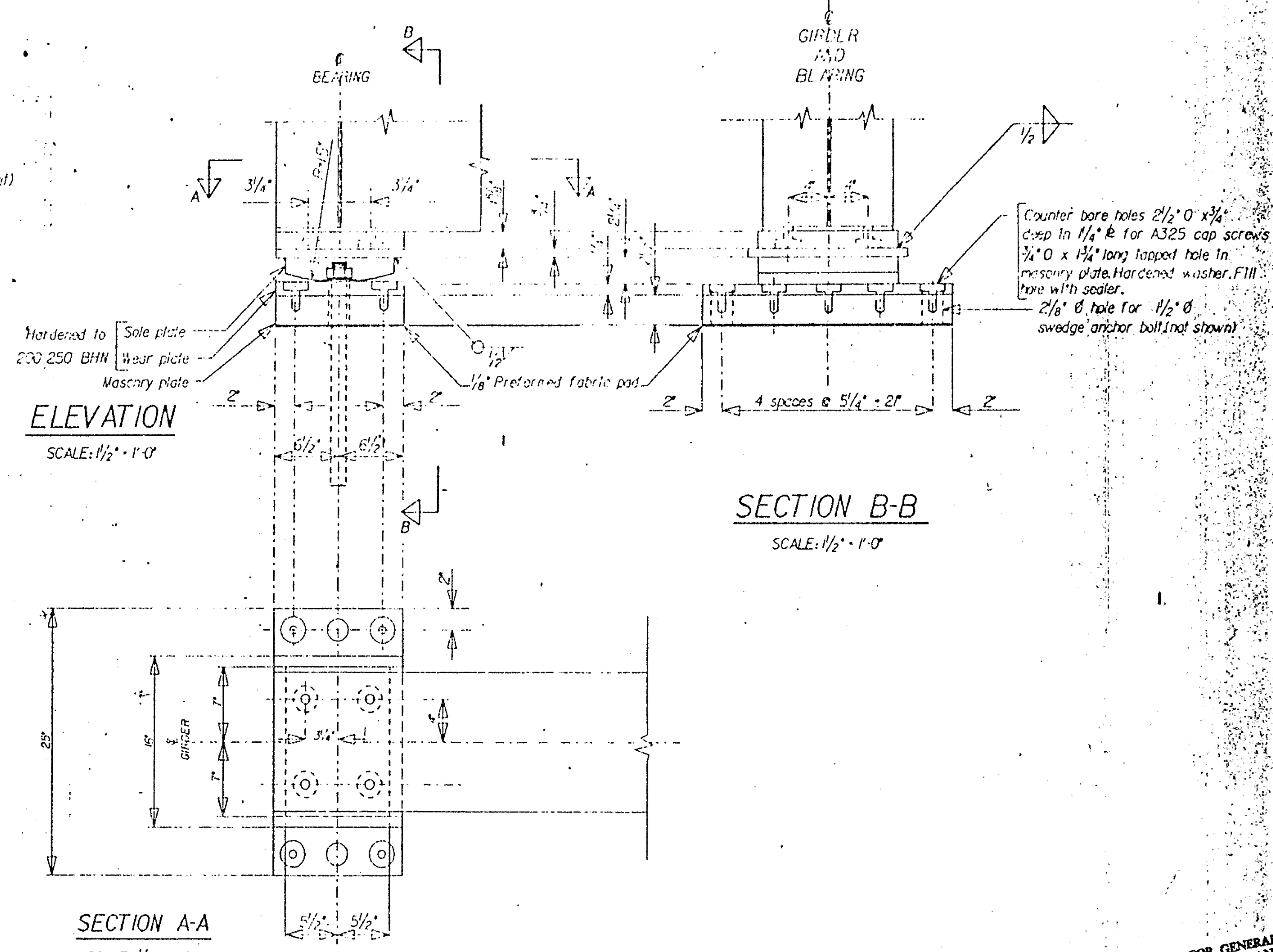
REHAB. OF BR. 159 NEWPORT

NOTES

1. All components of the bearings, excluding hardware, shall be made using steel conforming to ASTM A588.
2. Self lubricating bronze plates shall conform to the requirements of ASTM B-22, cast bronze, alloy no. 911. Both the top and bottom contact surfaces shall be lubricated and machine finished to a smoothness of 125 micro-inch root mean square.
3. All contact surfaces of steel components shown thus \checkmark shall also be machine finished to a smoothness of 125 micro-inch root mean square.
4. All swedge anchor bolts, hex nuts, and oversize washers shall conform to ASTM A307 and shall be hot-dipped galvanized conforming to ASTM A153.
5. All $\frac{1}{8}$ " Ø ASTM A325 type 3 bolts (including the compatible nuts and washers) used to connect the $\frac{1}{8}$ " plate with the bottom flange of the existing main girders shall be mechanically galvanized. Use two washers per bolt, one each under bolt and nut heads.
6. In the double nut system, the first nut shall be appropriately tightened and the second nut shall be used to lock the first nut.
7. All exposed surfaces of the bearings shall be painted with Inorganic zinc.
8. Existing sole plates and $\frac{1}{8}$ " Ø rivets used in connecting the sole plate to the bottom flange of the main girder, shall be removed, with payment to be included under section 210, Removal Of Structures And Obstructions. (Steel Structures)



EXPANSION BEARING AT APPROACH GIRDER



EXPANSION BEARING AT BASCULE GIRDER

REVIEWED FOR GENERAL
CONFORMITY WITH PLANS
AND SPECIFICATIONS.
CONTRACTOR IS RESPONSIBLE
FOR ACCURACY OF
CONTENT.
FEB 10 1986
For Bridge Engineer

FOR APPROVAL

DESIGNED BY
JAN 28 1986
DRAWING ROOM