



DEPARTMENT OF PUBLIC WORKS, CANADA

DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

BURLINGTON CANAL LIFT BRIDGE

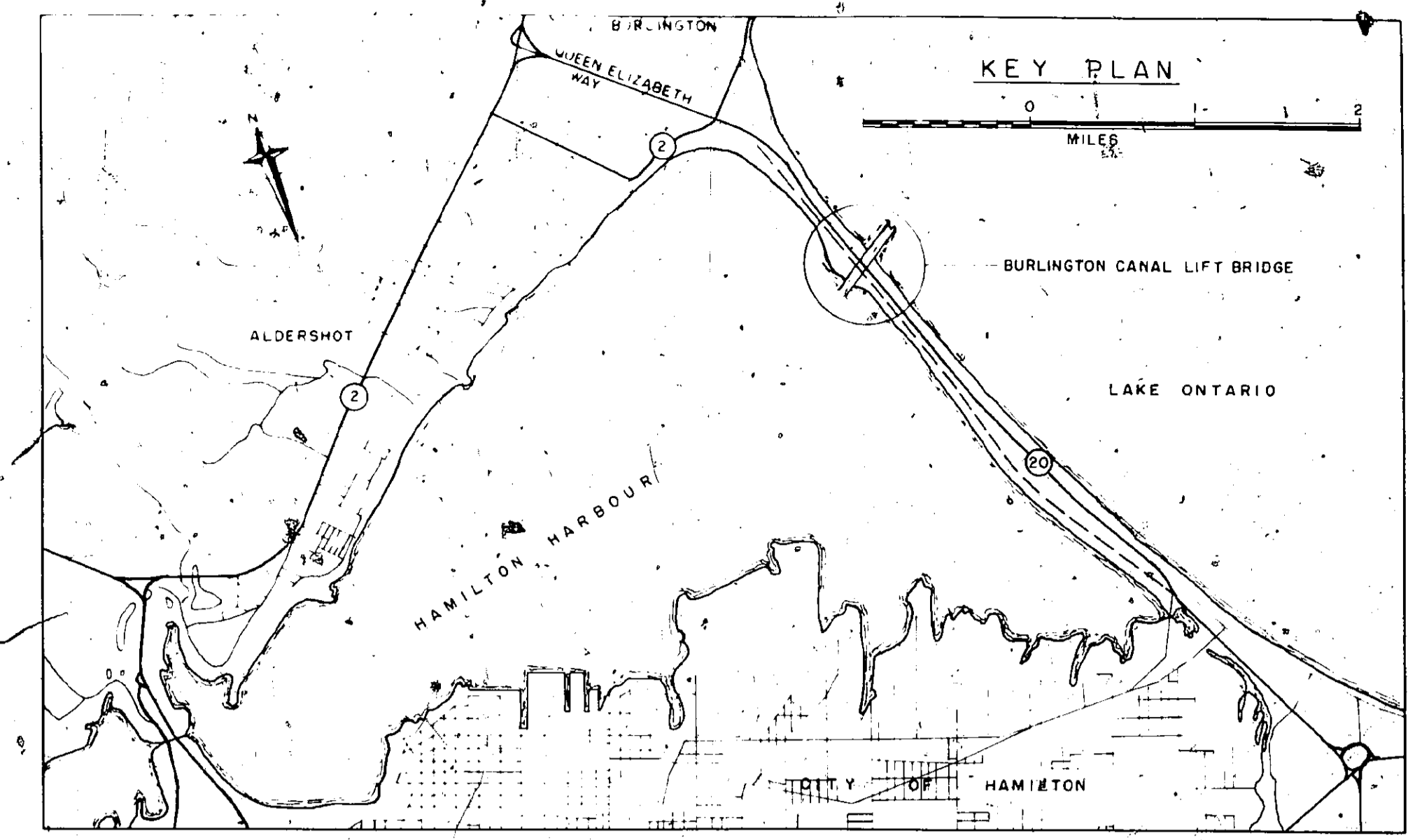
HAMILTON, ONTARIO

CONTRACT NO. 1

LIST OF CONTRACT DRAWINGS

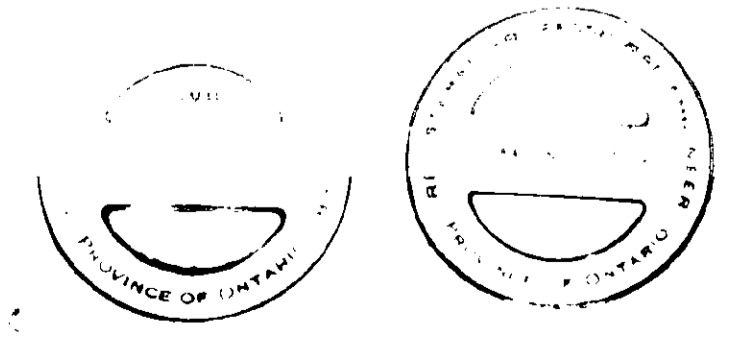
SHEET NO.	TITLE
1.	SITE PLAN
2.	SUBSURFACE EXPLORATION
3.	PROPOSED & EXISTING SUBSTRUCTURES
4.	RECONSTRUCTION OF CANAL BULKHEAD WALLS
5.	MAIN PIERS - PILING PLAN & CONCRETE DETAILS
6.	MAIN PIERS - REINFORCING DETAILS
7.	MAIN PIERS - ANCHOR BOLTS & DETAILS
8.	MAIN PIERS - GRILLAGES & DETAILS
9.	APPROACH SPAN ABUTMENTS - CONCRETE DETAILS
10.	APPROACH SPAN ABUTMENTS - REINFORCING DETAILS
11.	APPROACH SPAN ABUTMENTS - REINFORCING DETAILS
12.	REINFORCING STEEL DETAILS SCHEDULE

C. C. PARKER & ASSOCIATES LTD.
CONSULTING ENGINEERS
HAMILTON, ONTARIO



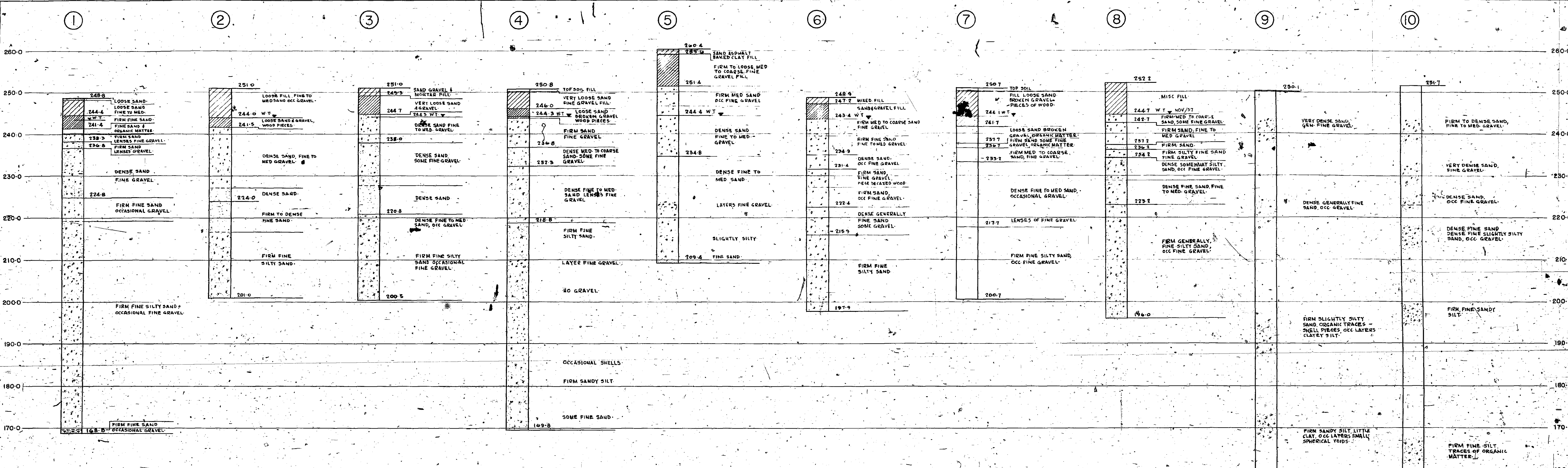
DEPARTMENT OF PUBLIC WORKS
 CANADA
 DEVELOPMENT ENGINEERING BRANCH
 STRUCTURES DIVISION
C. C. PARKER & ASSOCIATES LTD.
 CONSULTING ENGINEERS
 WILSON, ONTARIO
BURLINGTON CANAL LIFT BRIDGE

SITE PLAN

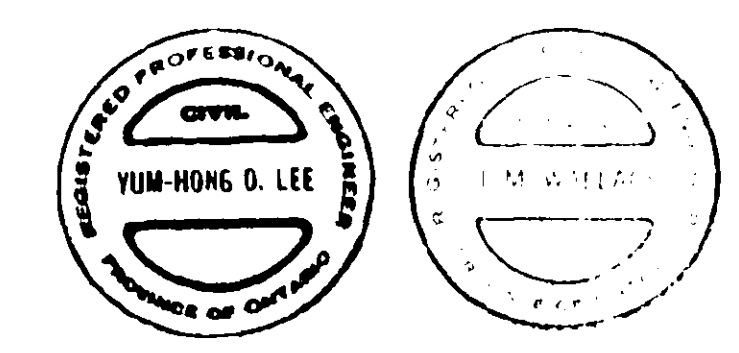


RECOMMENDED BY: *C.C. Parker*
 DATE: 13/8/58
 DEPARTMENT PROJECT NO. SD6-4-7,7
 CONTRACT NO. 1
 SHEET 1 OF 12

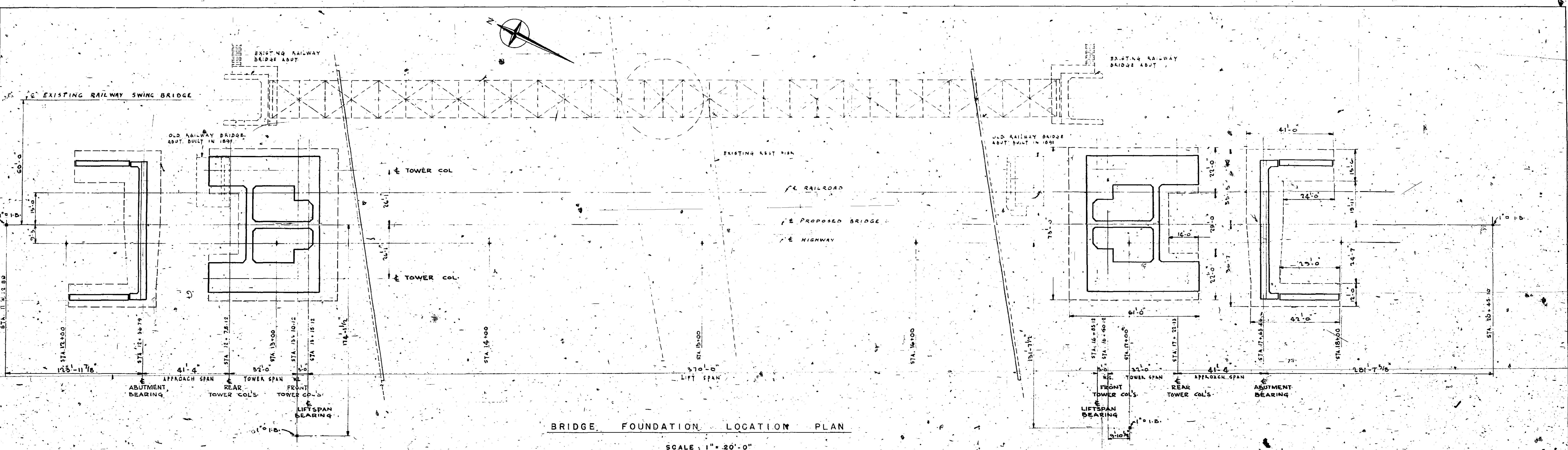
RECOMMENDED BY: *C.C. Parker*
 DATE: 13/8/58
 DEPARTMENT PROJECT NO. SD6-4-7,7
 CONTRACT NO. 1
 SHEET 1 OF 12



NO.	REV. NO.	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C C PARKER & ASSOCIATES LTD CONSULTING ENGINEERS HAMILTON ONTARIO			
BURLINGTON CANAL LIFT BRIDGE			
SUBSURFACE EXPLORATION			
13/8/58		DEPARTMENT PROJECT NO SD6-4-77	
13/8/58		CONTRACT NO 1	
SHEET 2 OF 12			

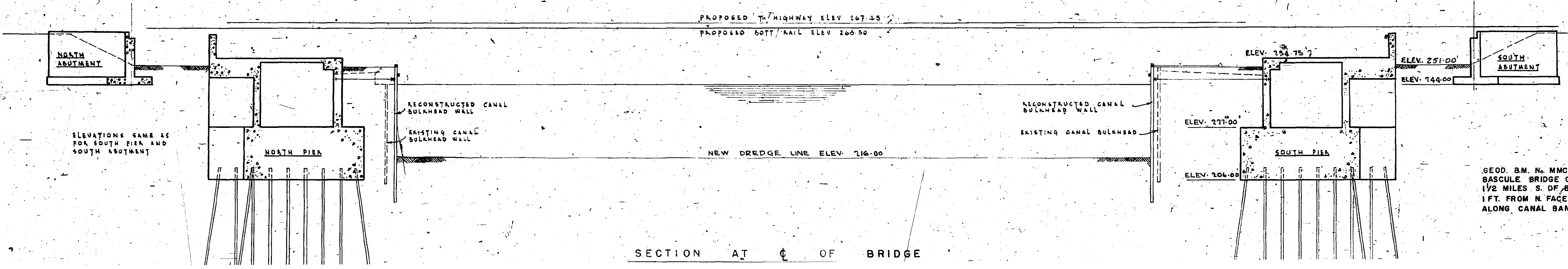


RECOMMENDED BY: [Signature]
 DATE: 13/8/58
 JOB NO: H-538



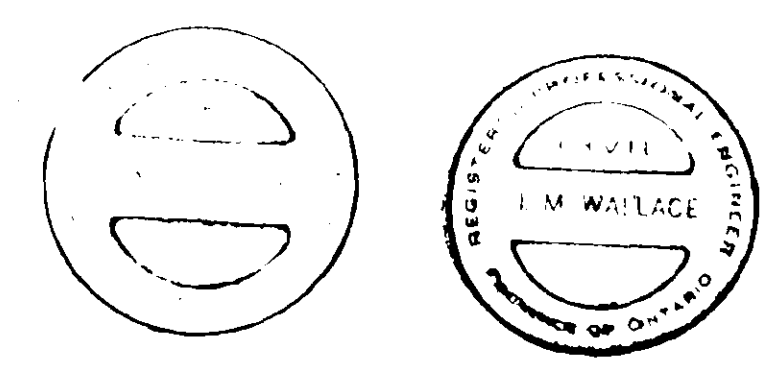
BRIDGE FOUNDATION LOCATION PLAN

SCALE: 1" = 20'-0"

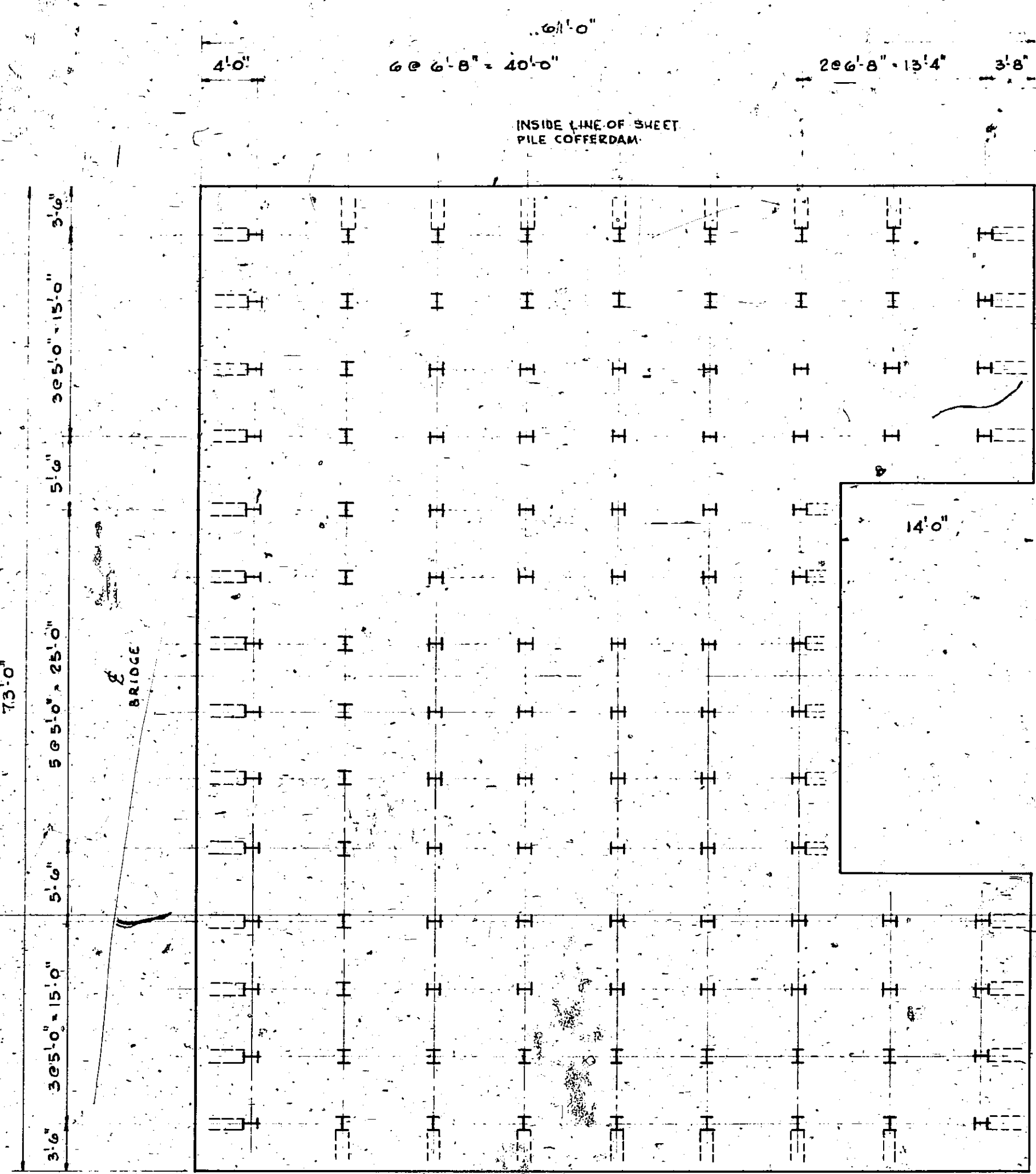


SECTION AT C OF BRIDGE

SECTION
 HORIZ. SCALE: 1" = 20'-0"
 VERT. SCALE: 1" = 10'-0"



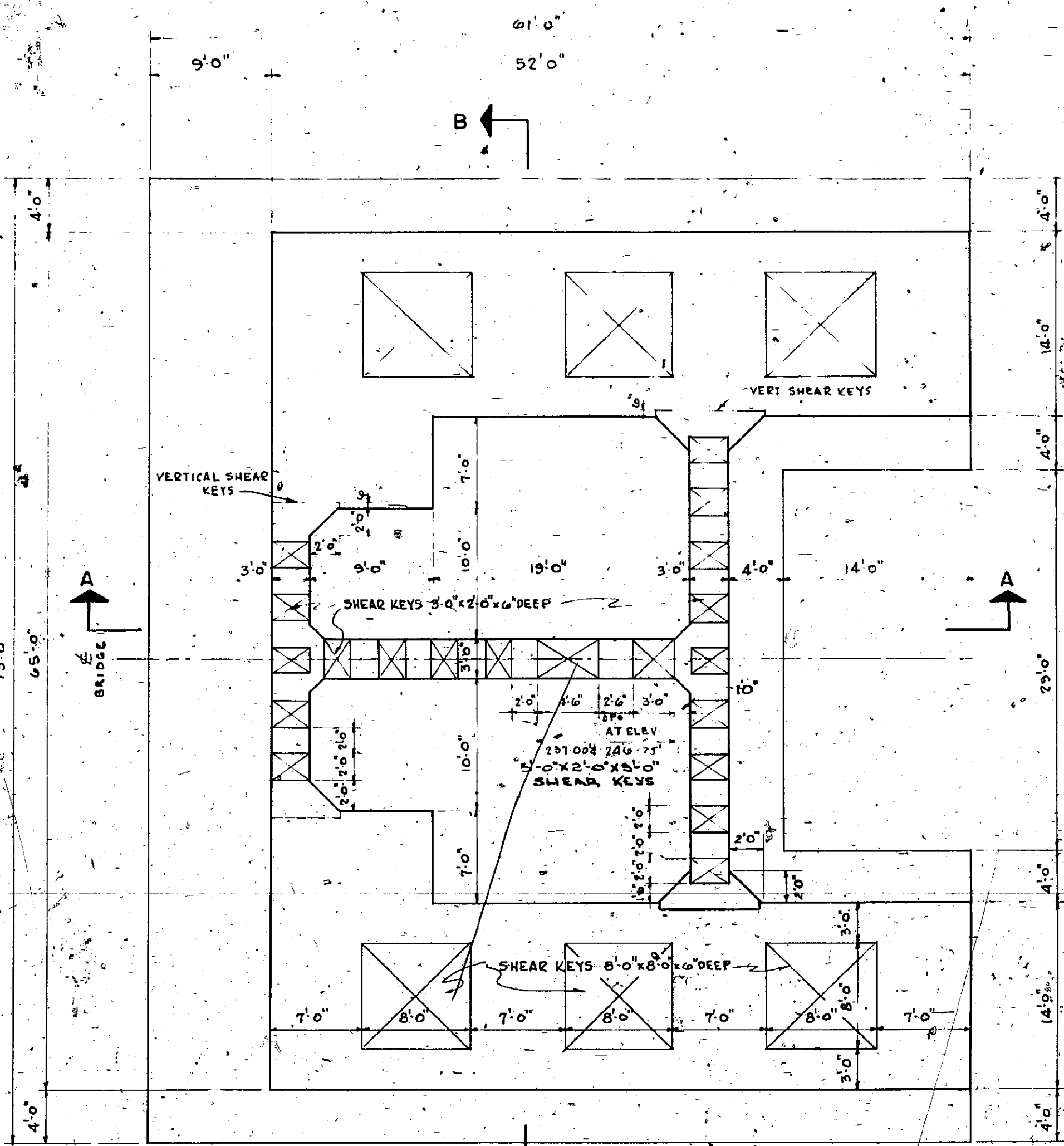
NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS			
CANADA			
DEVELOPMENT ENGINEERING BRANCH			
STRUCTURES DIVISION			
C. C. PARKER & ASSOCIATES LTD			
CONSULTING ENGINEERS			
HAMILTON		ONTARIO	
BURLINGTON CANAL LIFT BRIDGE			
PROPOSED & EXISTING SUBSTRUCTURES			
PLAN & SECTIONS			
DATE	13/8/58	DEPARTMENT	PROJECT NO
			SD6-4-77
		CONTRACT NO	1
<i>J.M. Wallace</i>			SHEET 3 OF 12



PILING PLAN

ALL PILES TO BE 12" x 12" x 55' x 45'-0" LONG.
 H - INDICATES VERTICAL PILES.
 H--- INDICATES 10:1 BATTERED PILES.

NOTE
 FOR LOCATIONS OF BULKHEAD
 THE RODS TO BE EMPLOYED
 IN PIERS, SEE SHEET No. 4

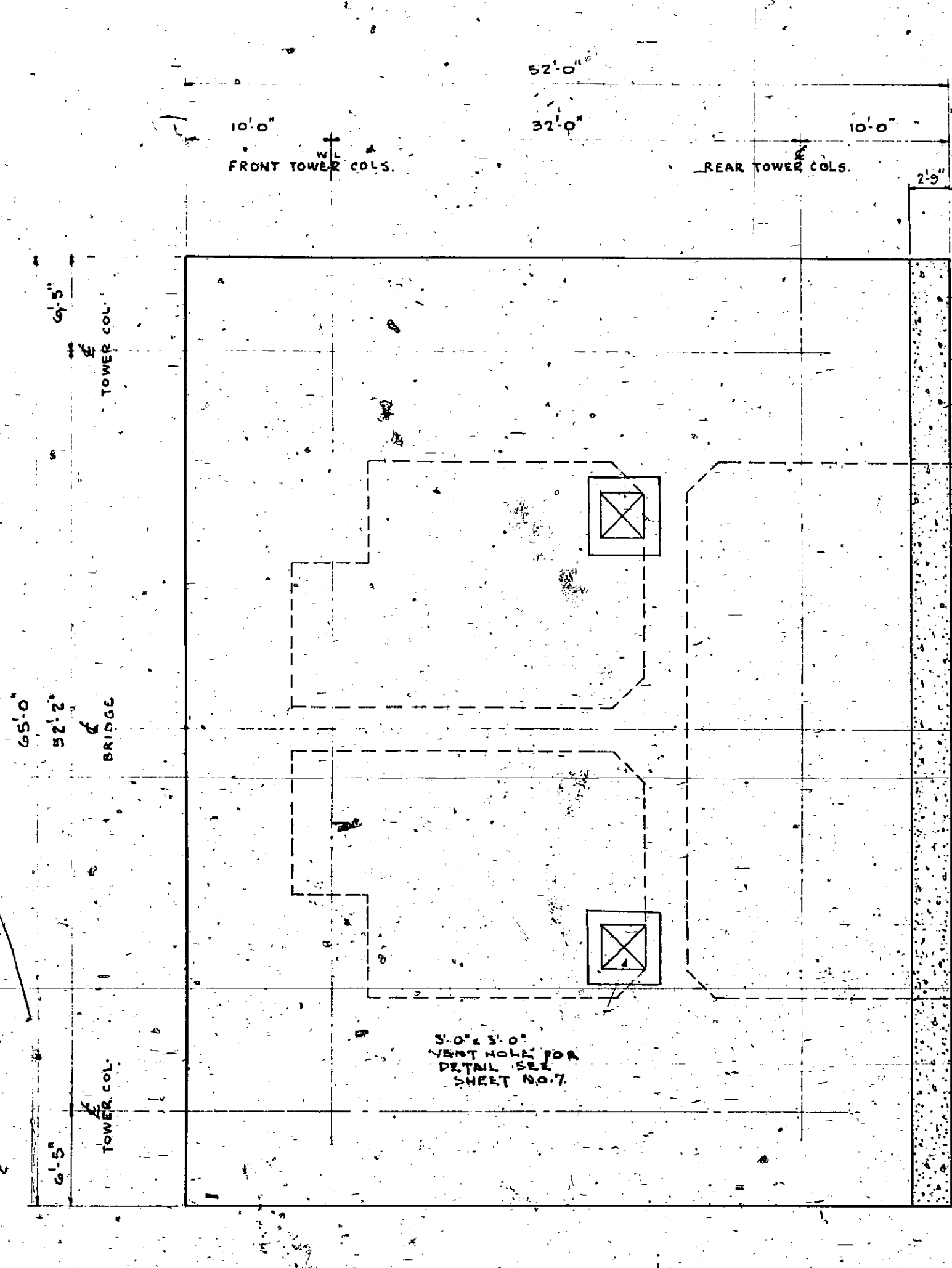


PLAN AT ELEVATION 227'-00"

PROVIDE SHEAR KEYS AT HORIZ. CONST JOINTS AS SHOWN.

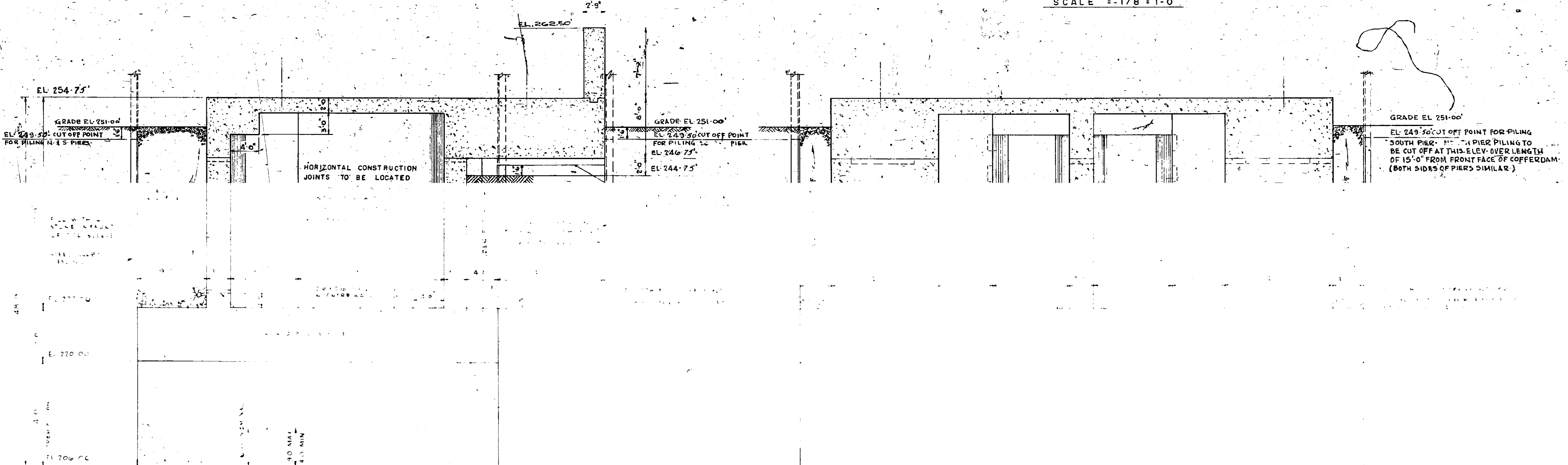
DETAILS SHOWN ARE FOR SOUTH PIER. NORTH PIER SAME BUT OPP. HAND.

SCALE = 1/8" = 1'-0"



PLAN AT ELEVATION 254'-75"

FOR LOCATION & DETAILS OF CONC BASES, GRILLAGES & ANCHORAGES
 SEE SHEETS Nos. 7 & 8



SECTION A-A

- GENERAL NOTES FOR MAIN PIERS:**
- 1- CONCRETE STRENGTH SHALL BE 3000 P.S.I. AT 28 DAYS.
 - 2- REINFORCING STEEL TO BE INTERMEDIATE GRADE DEFORMED BARS 7-C.S.A. #30-1 #30-2 #30-6
 - 3- LAP ALL REINF. BARS 40 DIA. UNLESS NOTED.
 - 4- MIN. COVER FOR REINF. BARS TO BE 4" UNLESS NOTED.
 - 5- ALL EXPOSED CONC. EDGES TO HAVE 1 1/2" x 1 1/2" CHAMFER UNLESS NOTED.
 - 6- ALL EXPOSED CONC. FACES TO HAVE SMOOTH, DENSE & HARD FINISH.
 - 7- REINF. BARS TO BE SPACED TO CLEAR ALL ANCHOR BOLTS.
 - 8- SLOPE TOP OF PIERS TO DRAIN TO SIDES AND FRONT.
 - 9- ALL SHEET PILING FOR COFFERDAMS TO HAVE A MIN. SECTION MODULUS OF 38.3 IN³. CONTRACTOR SHALL SUBMIT DRAWINGS SHOWING LOCATION AND SIZE OF WALLS AND PILES FOR APPROVAL.
 - 10- PERFORM ALL WORK WITHIN THE SCOPE OF THE DESIGN OF THE ENGINEER.

NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION C. C. PARKER & ASSOCIATES LTD. CONSULTING ENGINEERS HAMILTON, ONTARIO BURLINGTON CANAL LIFT BRIDGE			
MAIN PIERS PILING PLAN & CONCRETE DETAILS			
APPROVED	DATE 13/8/58	DEPARTMENT PROJECT NO. SD6-4-77	
<i>[Signature]</i> CHIEF ENGINEER		CONTRACT NO. SHEET 5 OF 12	

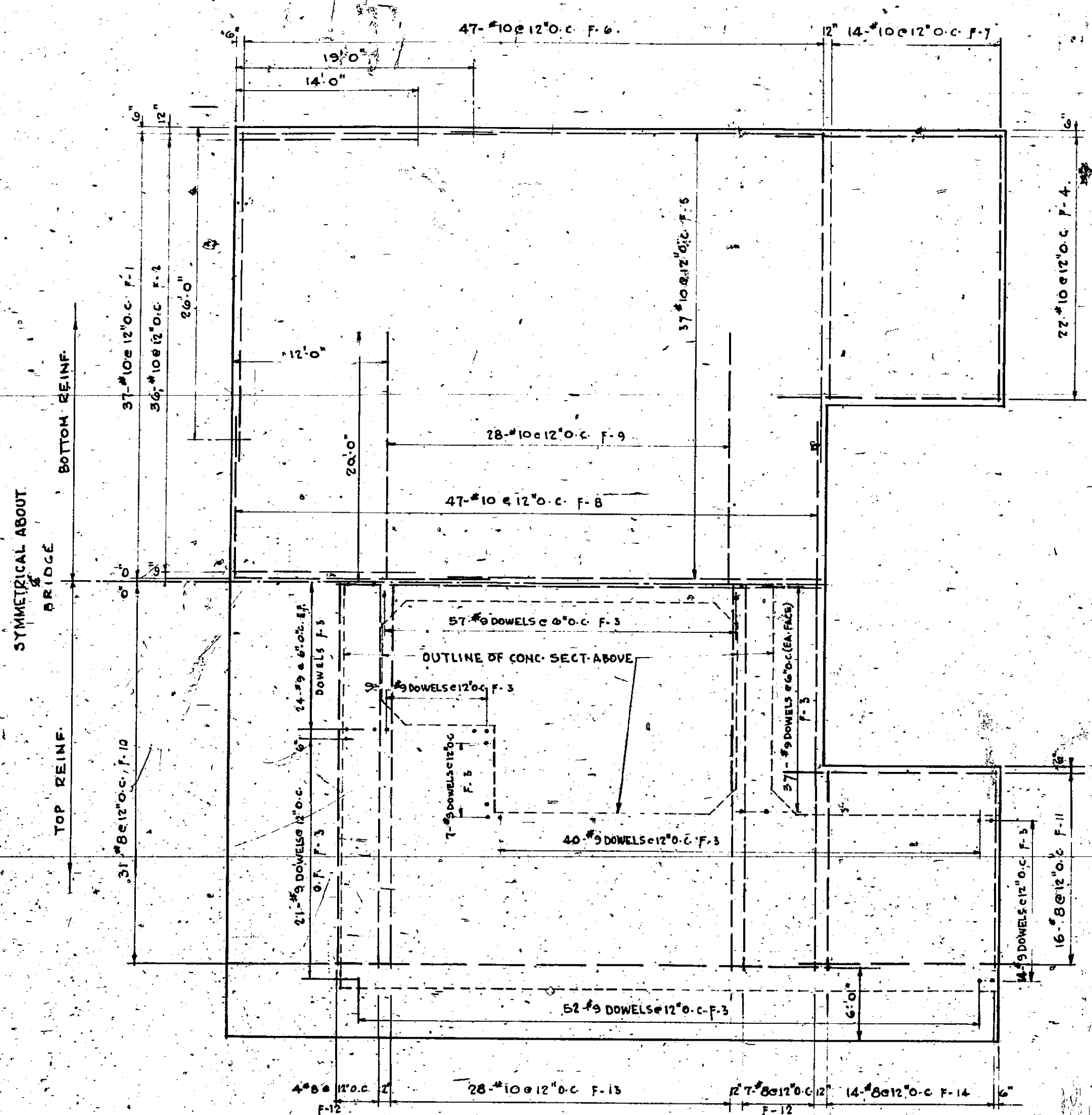
RECOMMENDED DATE AUG 8 '58 DESIGN I.L. CHECKED J.T.

DRAWN W.W.T. CHECKED J.T.

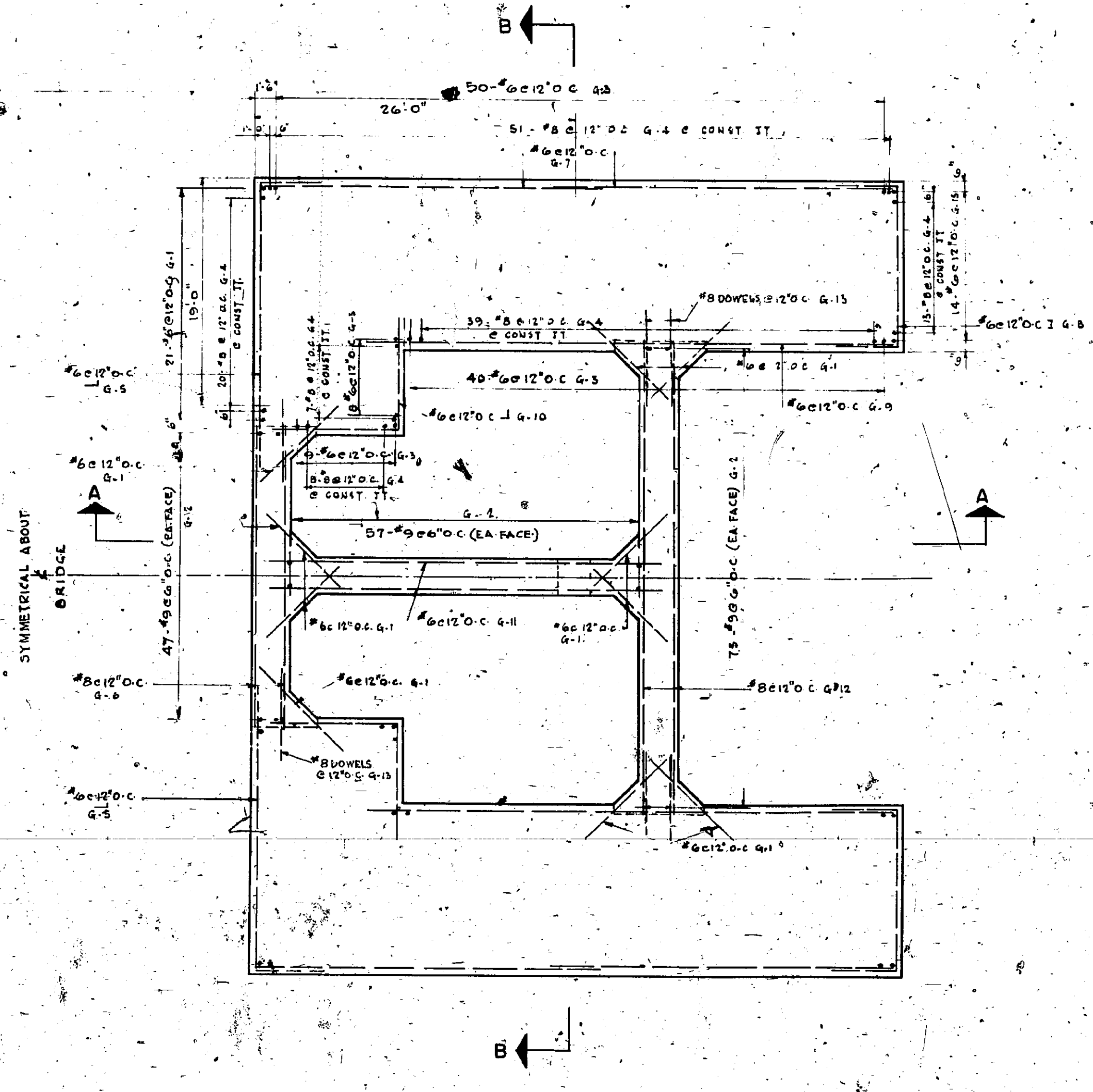
TRAINED CHECKED J.T.

JOB NO. H 538

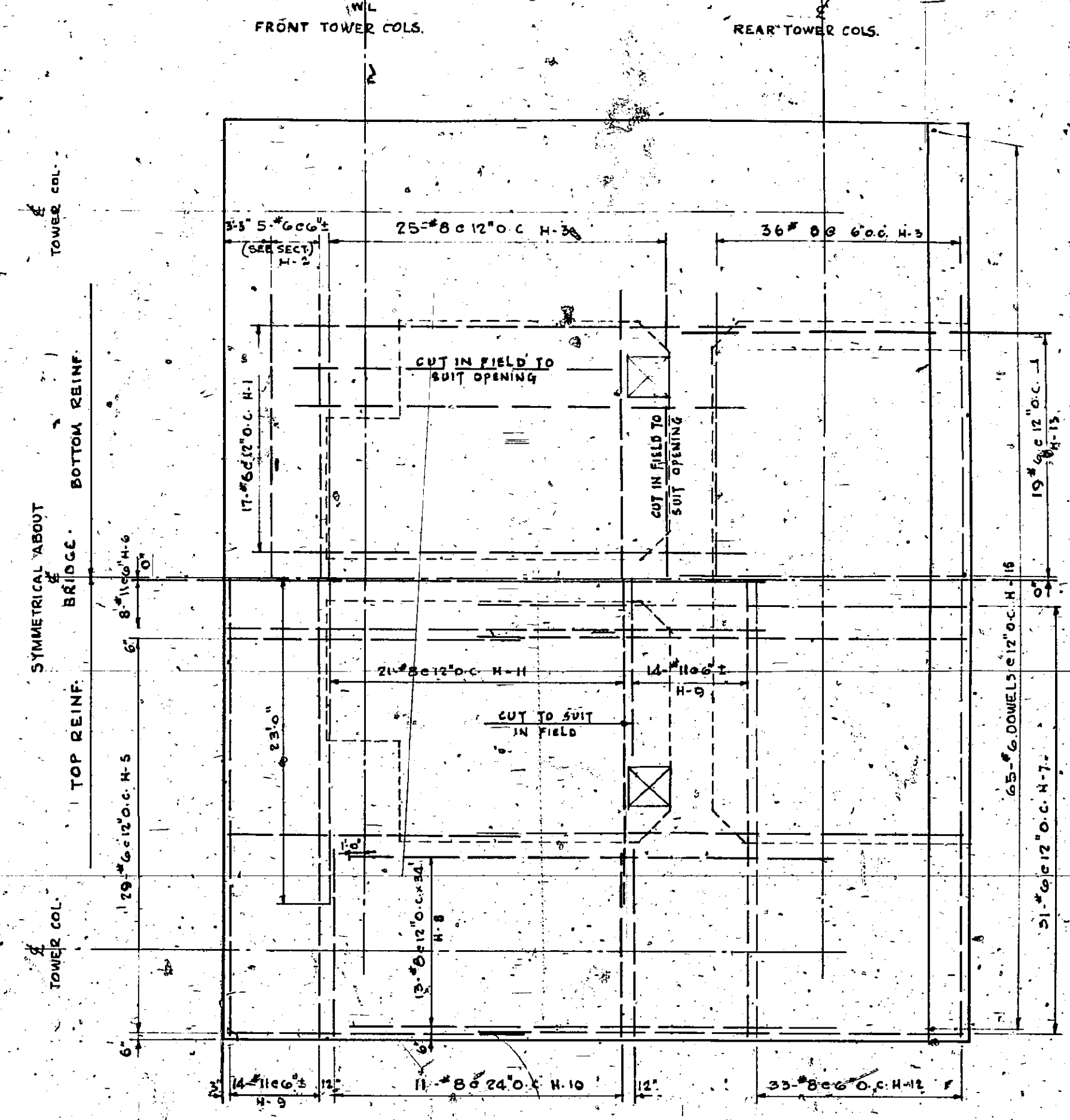
[Signature]
 CHIEF ENGINEER



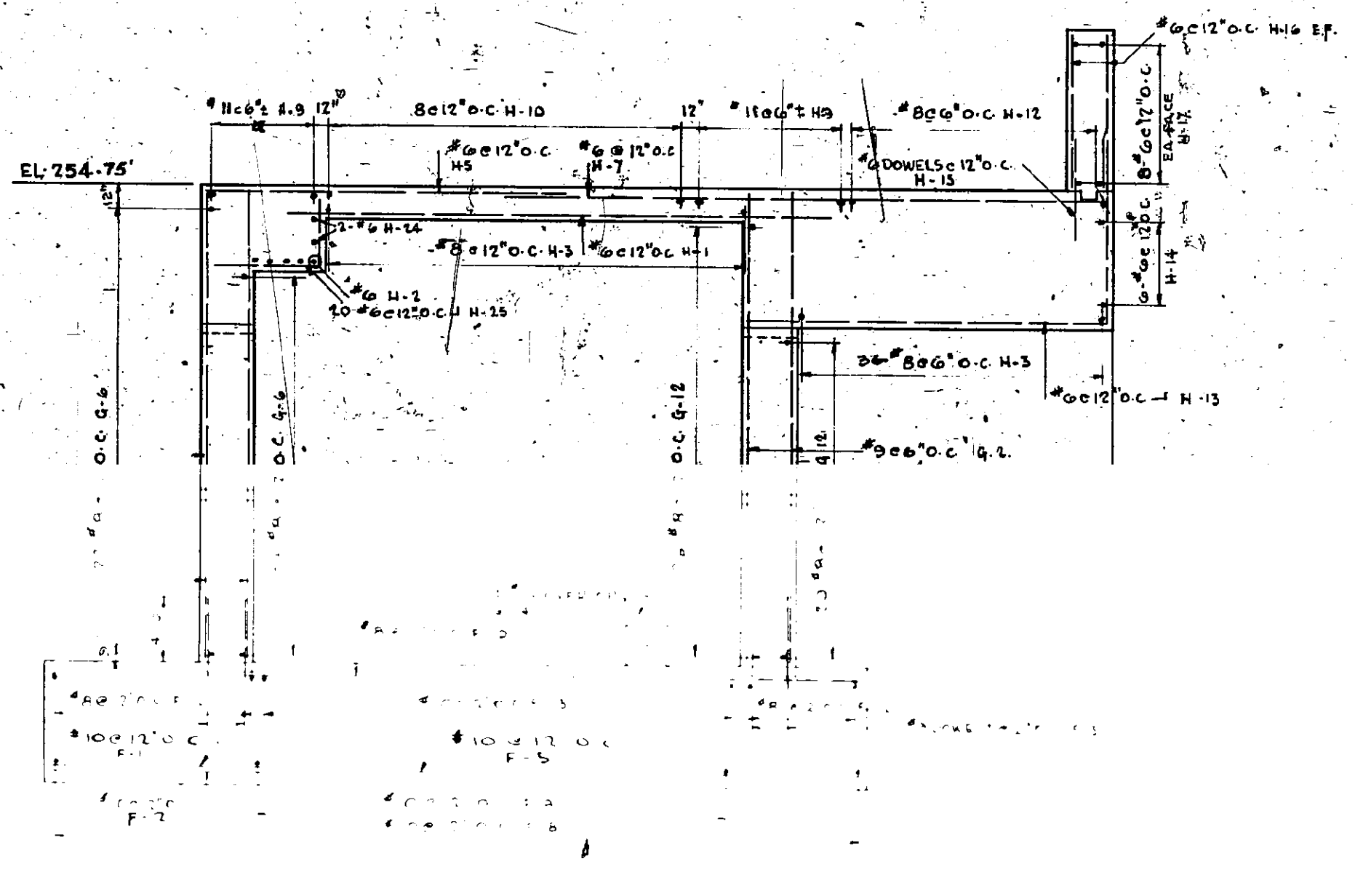
FOUNDATION SLAB REINFORCING



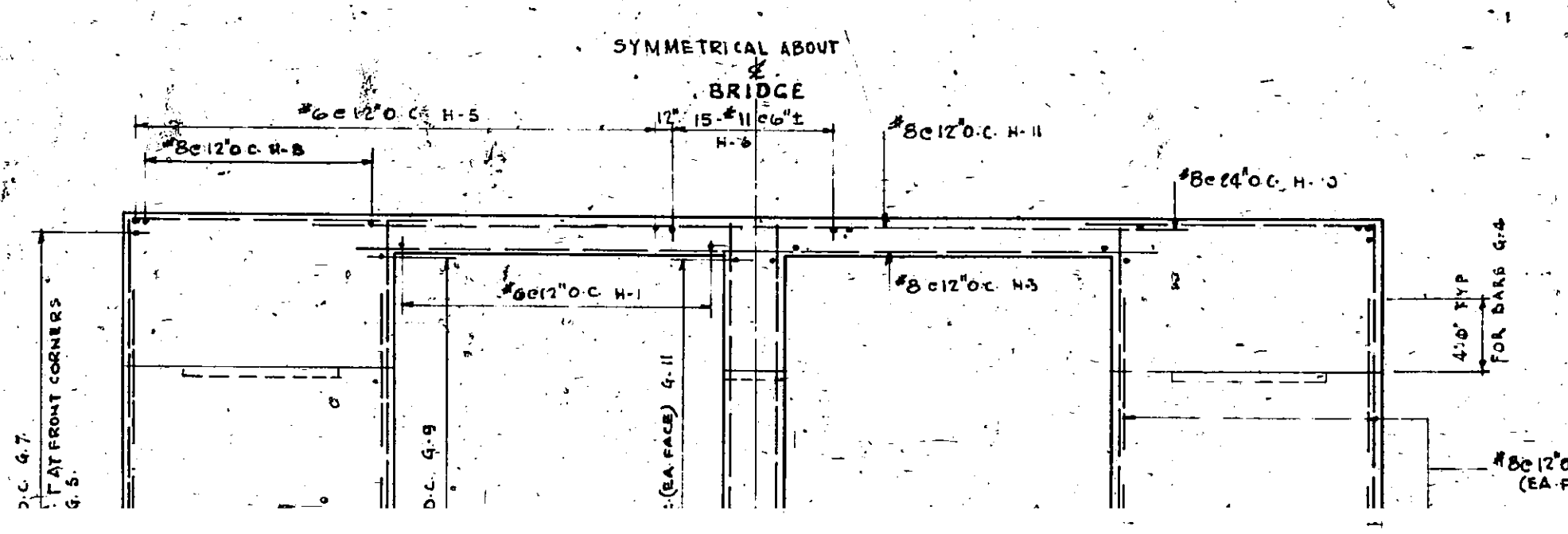
PLAN OF REINFORCING ELEV. 227.00' TO 246.75'



PLAN OF REINFORCING ELEV. 254.75'



SECTION A-A

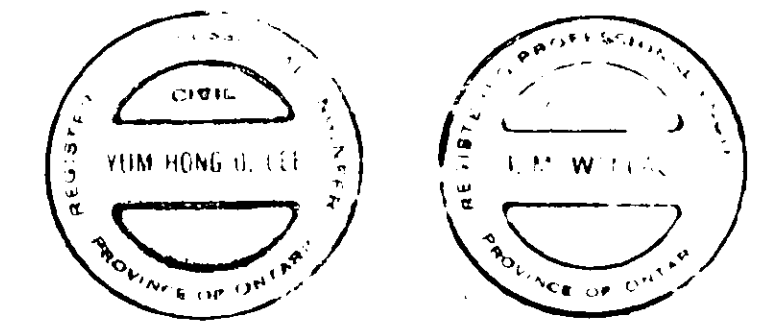


SECTION B-B

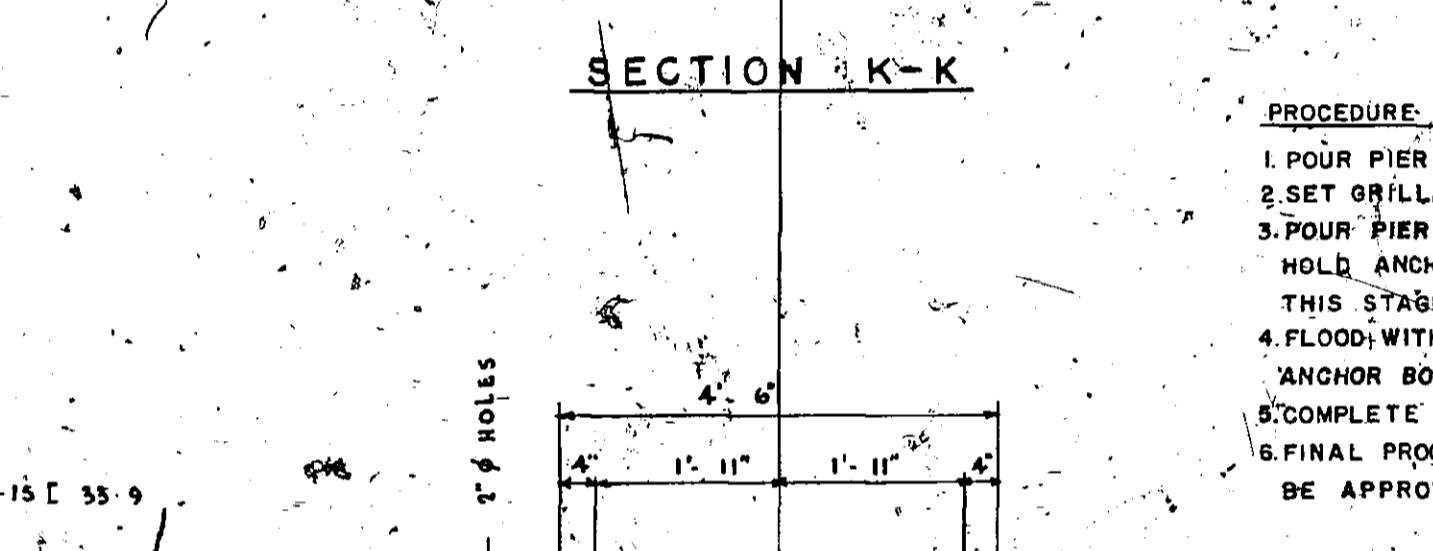
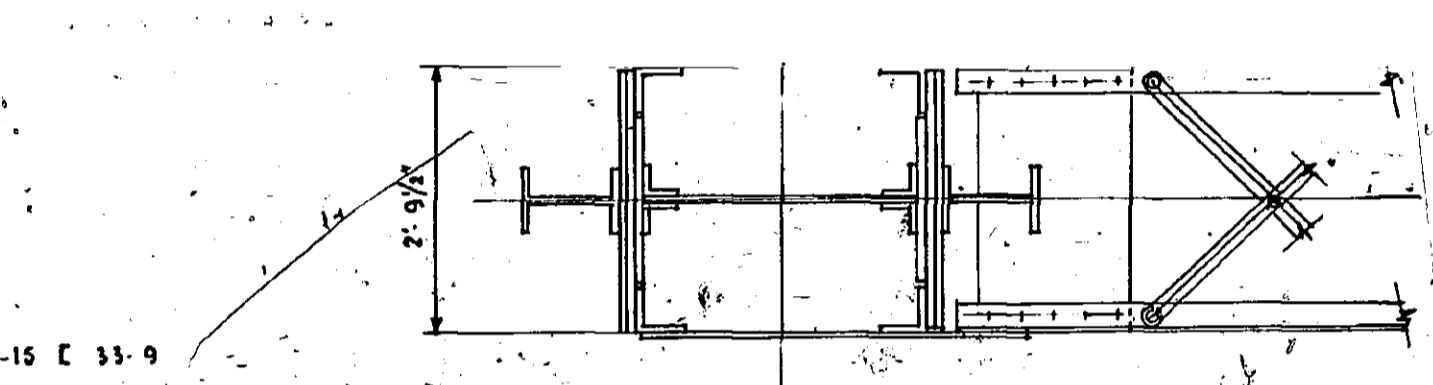
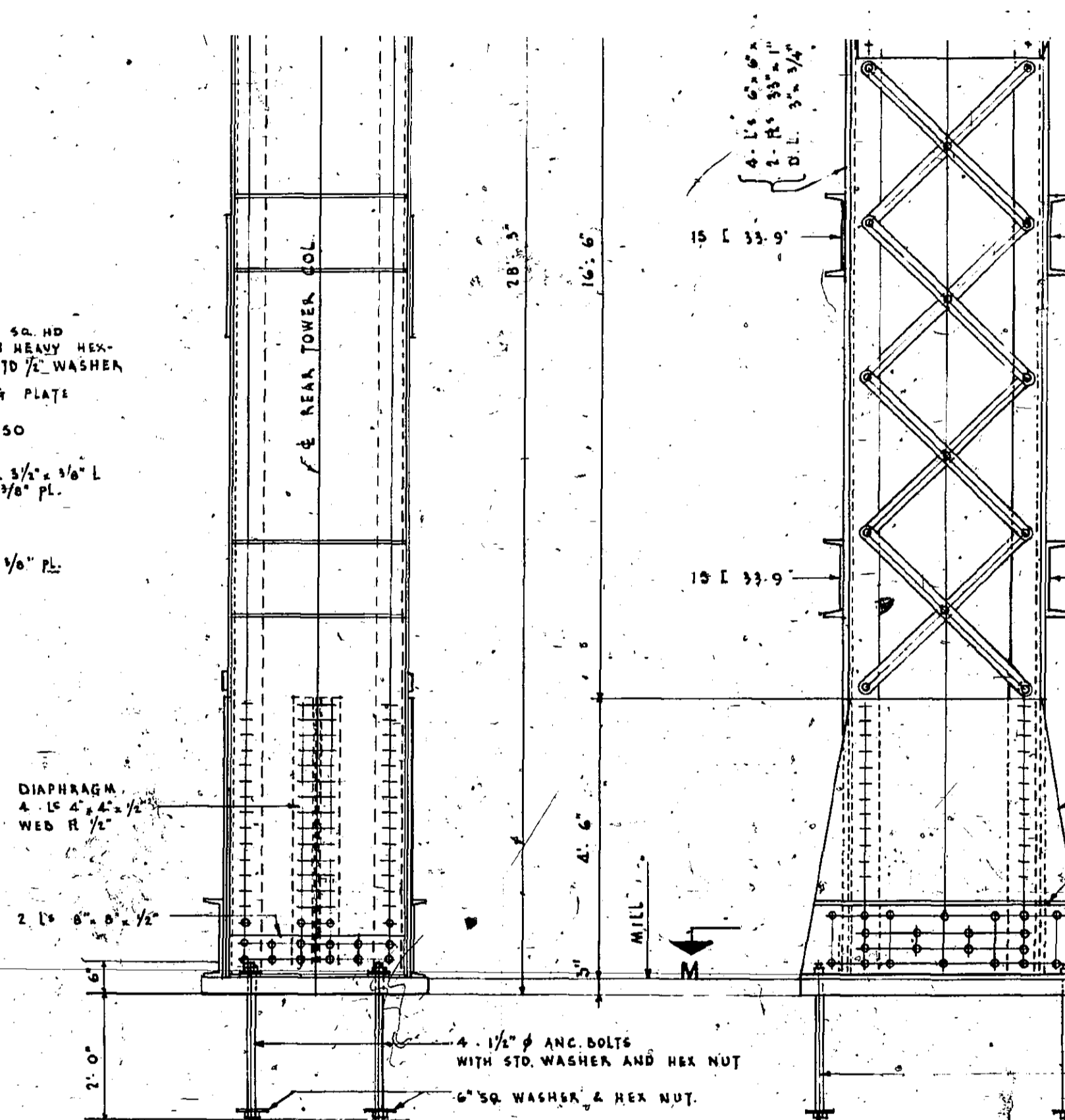
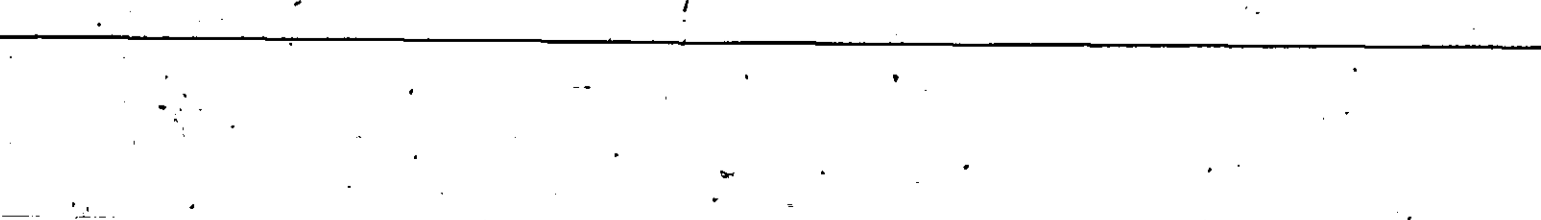
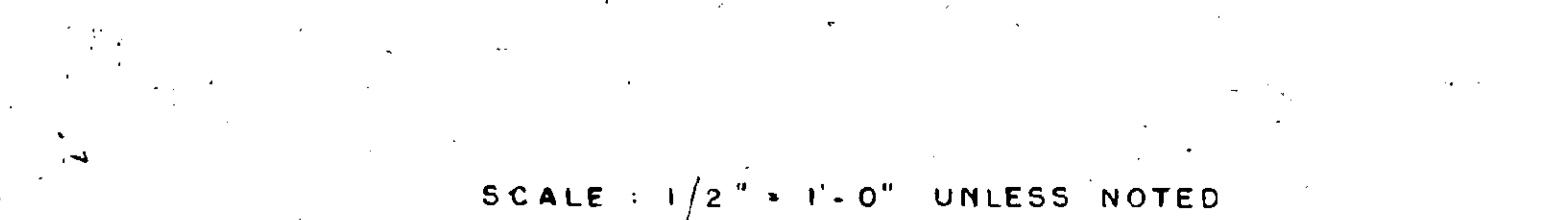
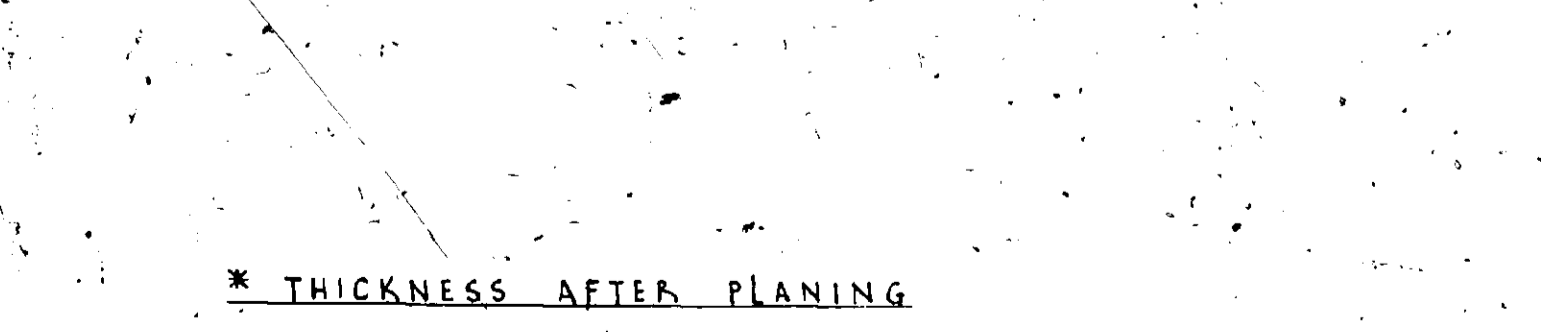
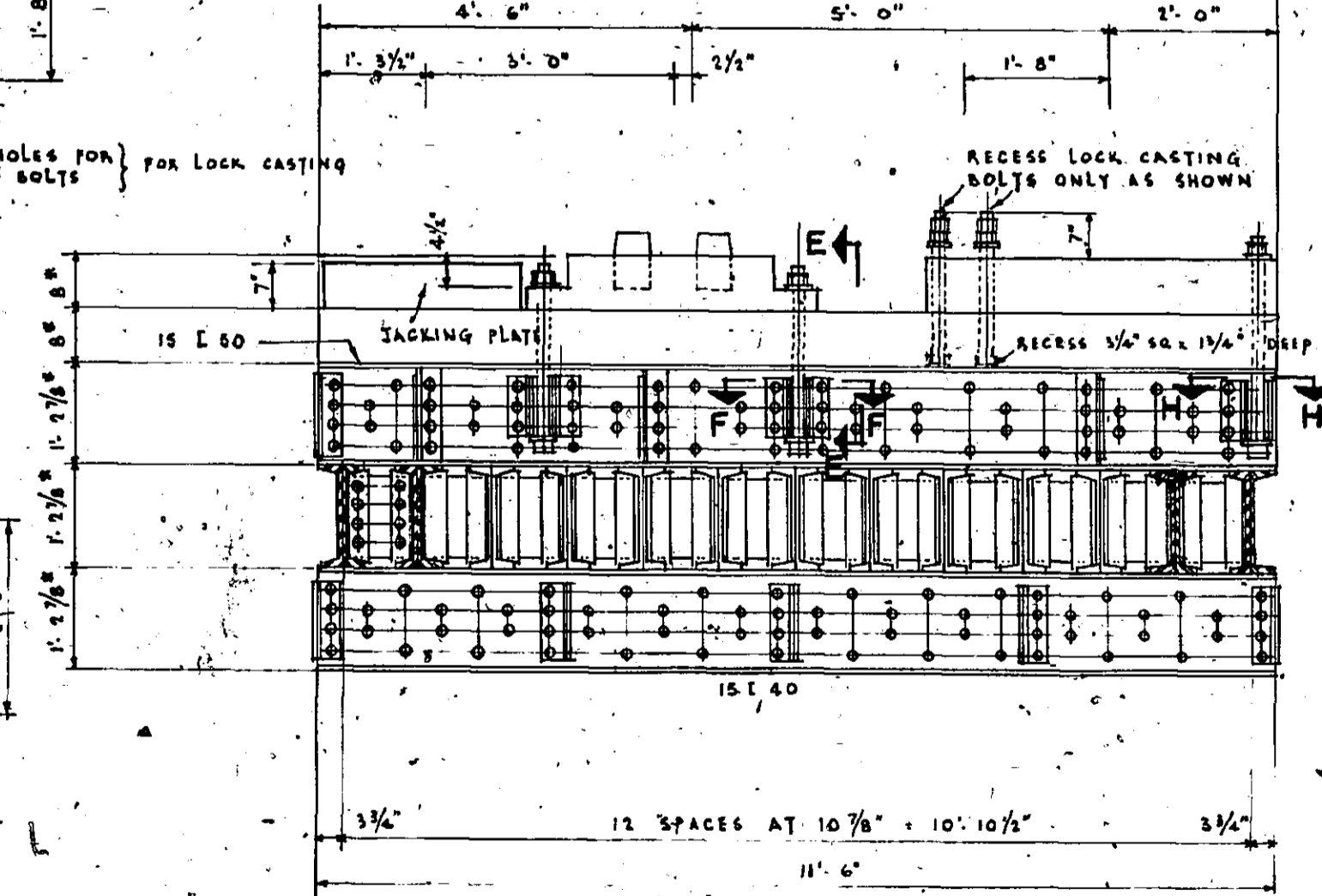
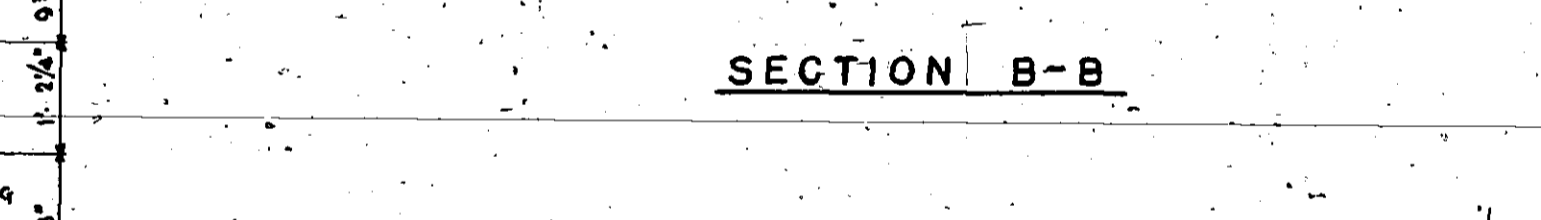
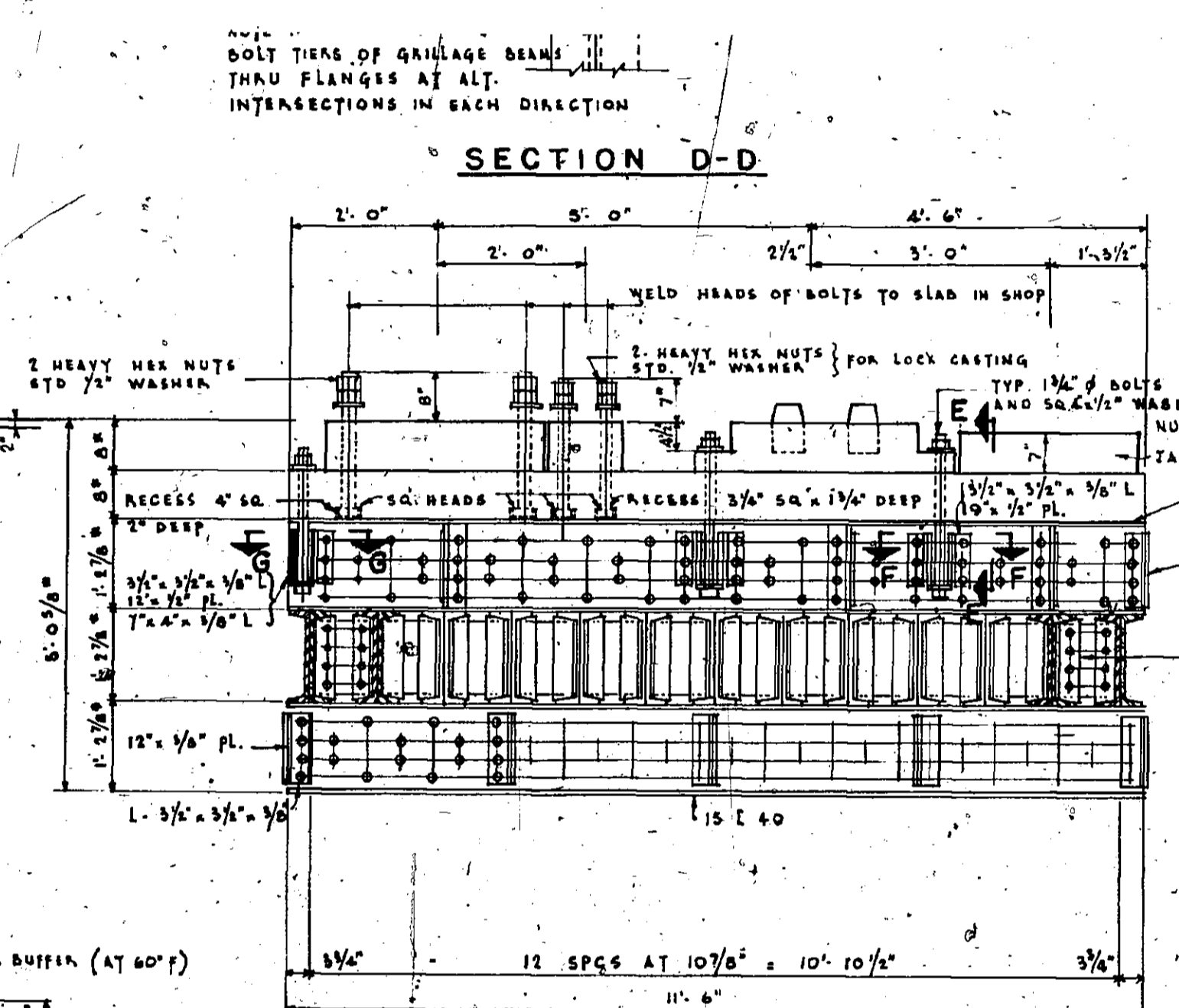
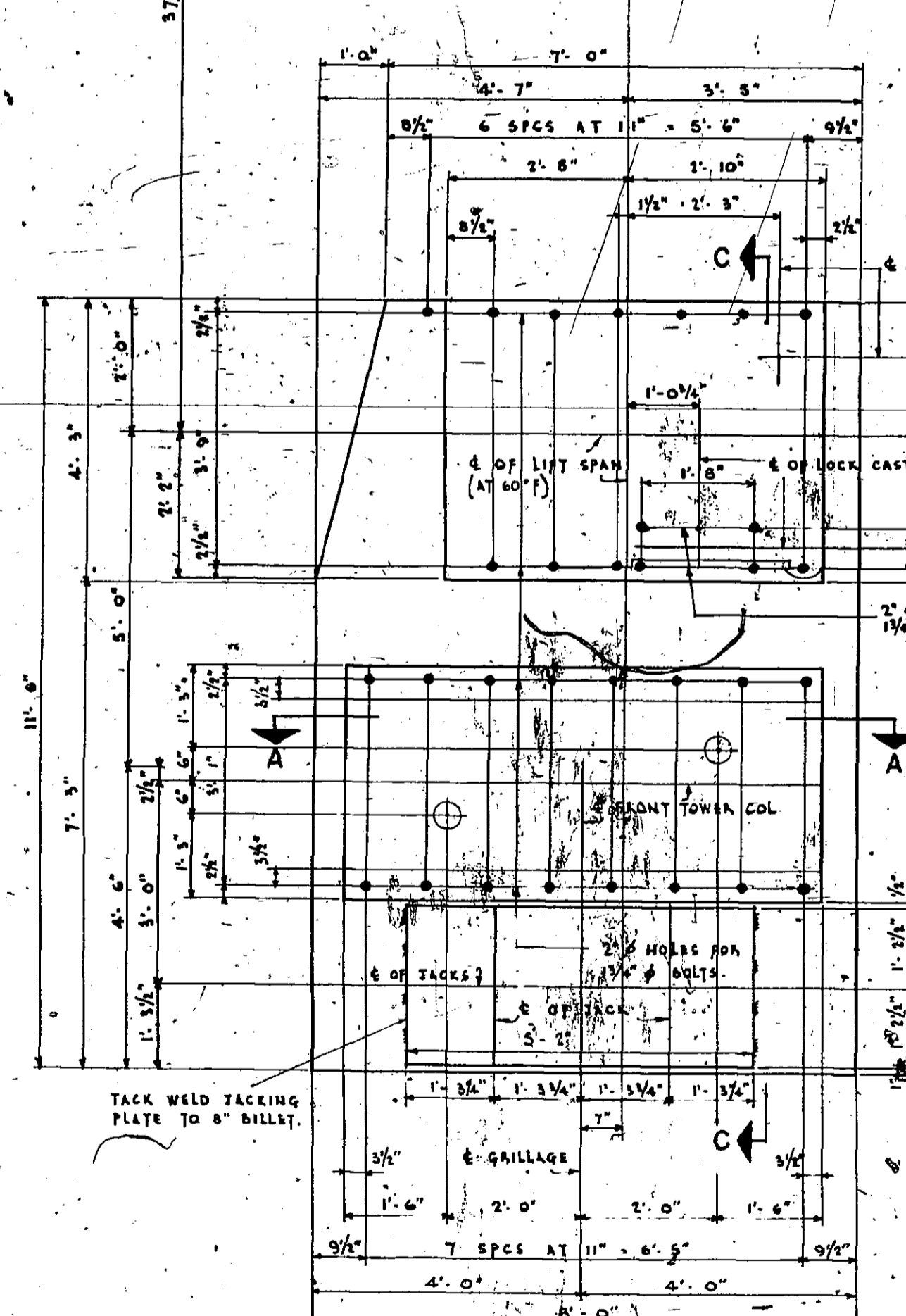
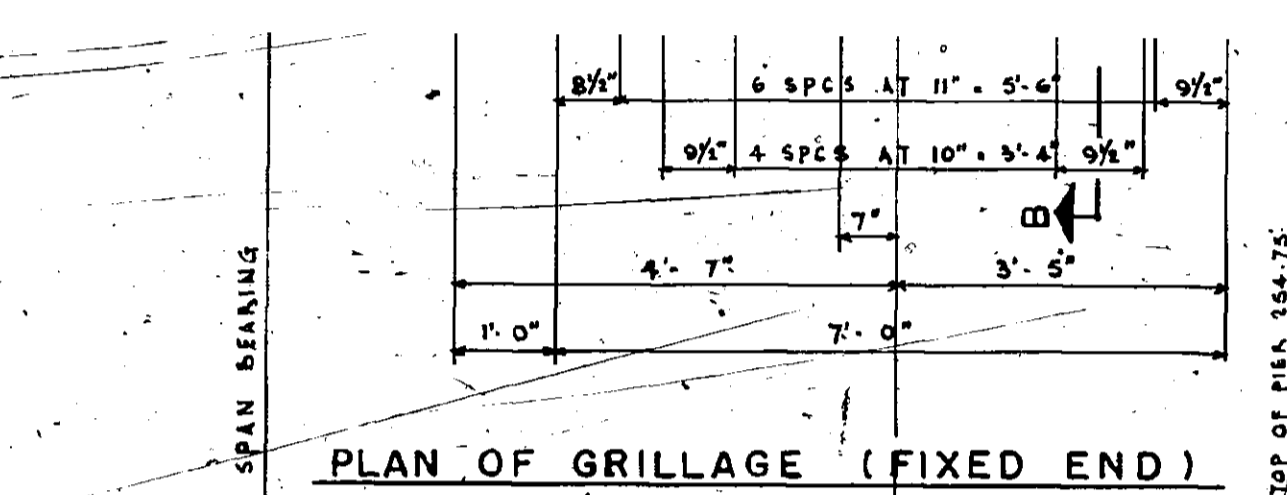
NOTE
FOR GENERAL NOTES SEE SHEET #5

SCALE 1/8" = 1'-0"

RECOMMENDED DATE AUG 8/58
DESIGN O L
DRAWN W A N
TRACED
JOB NO H 538



NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C C PARKER & ASSOCIATES LTD CONSULTING ENGINEERS HAMILTON ONTARIO			
BURLINGTON CANAL LIFT BRIDGE			
MAIN PIERS REINFORCING DETAILS			
APPROVED	DATE 3/9/58	DEPARTMENT PROJECT NO. SD6-4-77	
APPROVED		DATE 3/9/58	CONTRACT NO. 1
SHEET ENGINEER			SHEET 6 OF 12



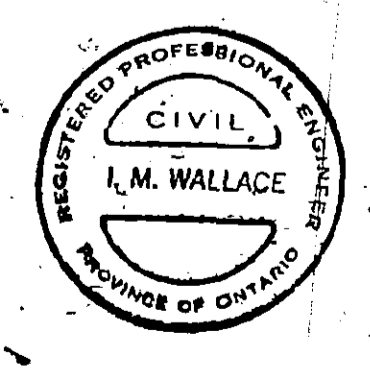
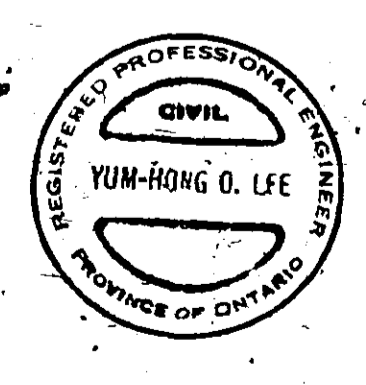
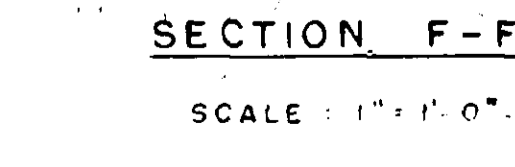
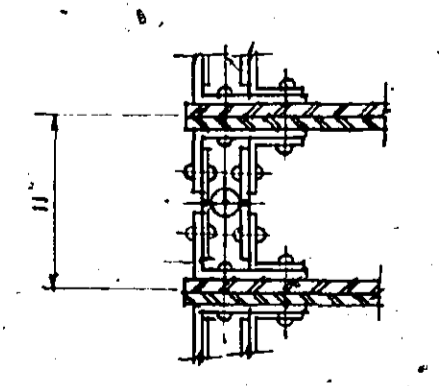
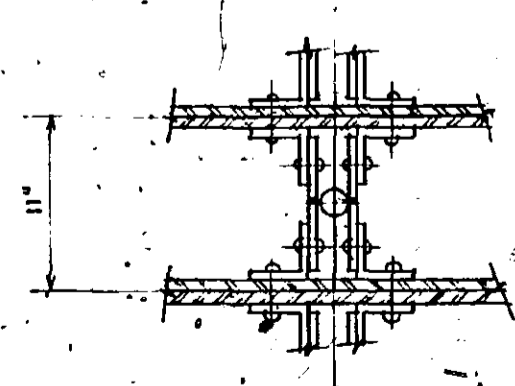
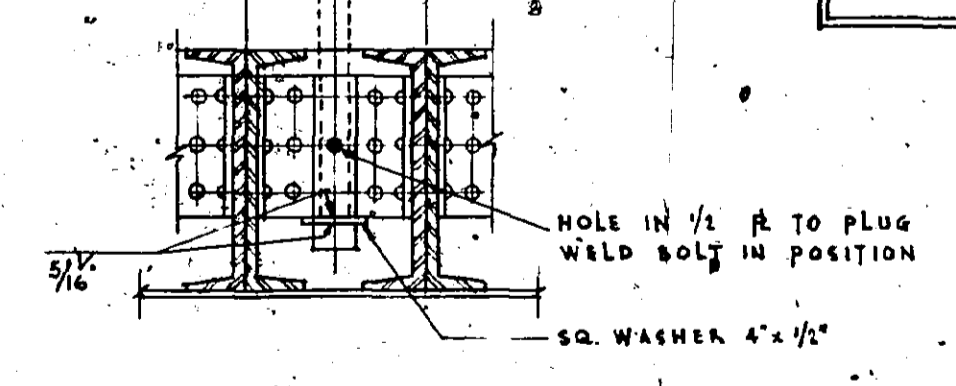
PROCEDURE FOR SETTING GRILLAGE

- POUR PIER SHAFT TO ELEV. 248.83.
- SET GRILLAGE BEAM IN GROUT.
- POUR PIER SHAFT TO ELEV. 253.33 WITH TWO 8" SLABS REMOVED. HOLD ANCHOR BOLTS RIGIDLY IN PLACE WITH A TEMPLATE DURING THIS STAGE.
- FLOOD WITH GROUT AND SET THE TWO 8" SLABS, TIGHTENING THE ANCHOR BOLTS BEFORE GROUT SETS.
- COMPLETE THE PIER.
- FINAL PROCEDURE AND DETAILS FOR SETTING GRILLAGE SHALL BE APPROVED BY THE ENGINEER.

NOTE:
FOR GENERAL NOTES SEE SHEET NO. 5.

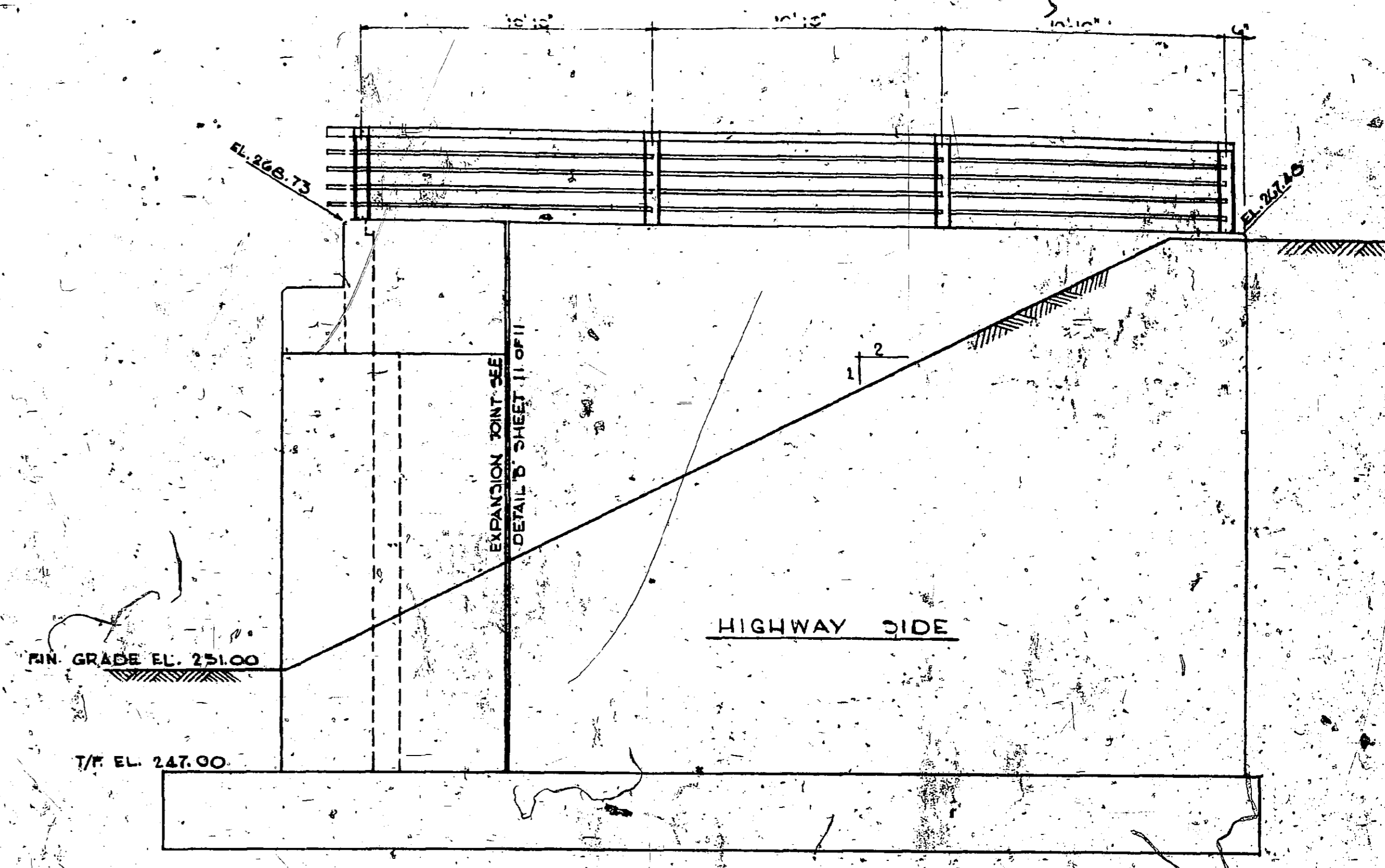
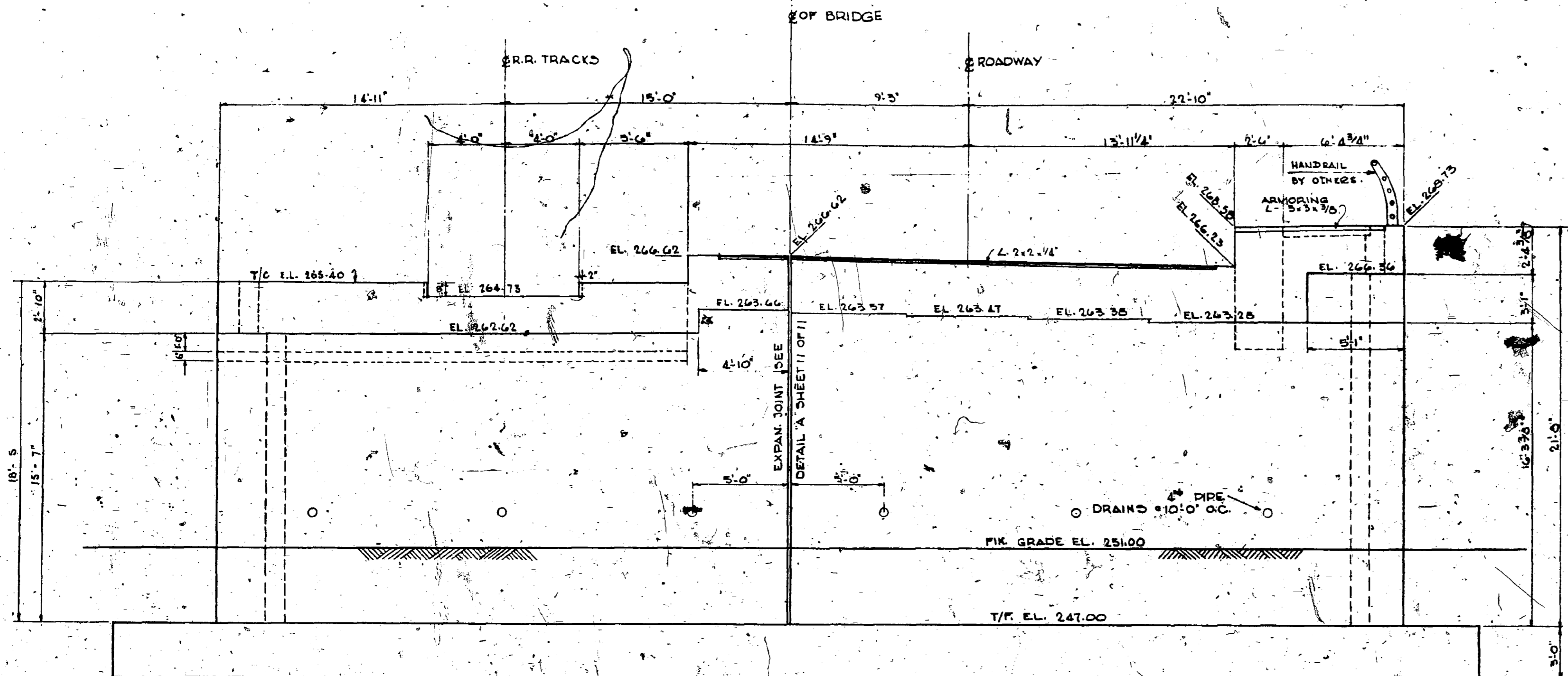
ALL RIVETS 7/8" WITH 1/8" HOLES UNLESS NOTED

NOTE:
ALL STEELWORK TO BE FURNISHED AND SUPERVISED FOR SETTING BY THE SUPERSTRUCTURE CONTRACTOR AND SET BY THE SUBSTRUCTURE CONTRACTOR.



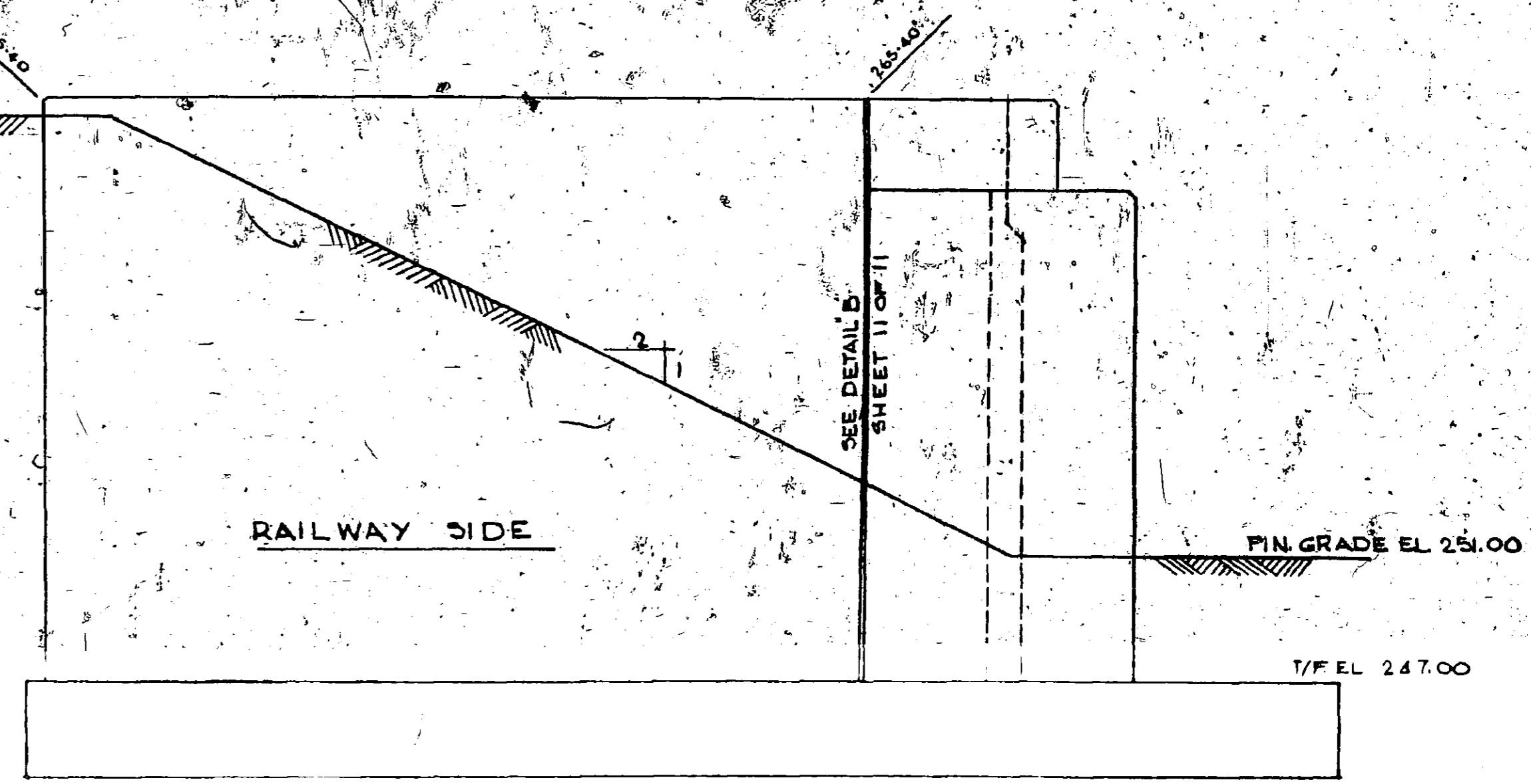
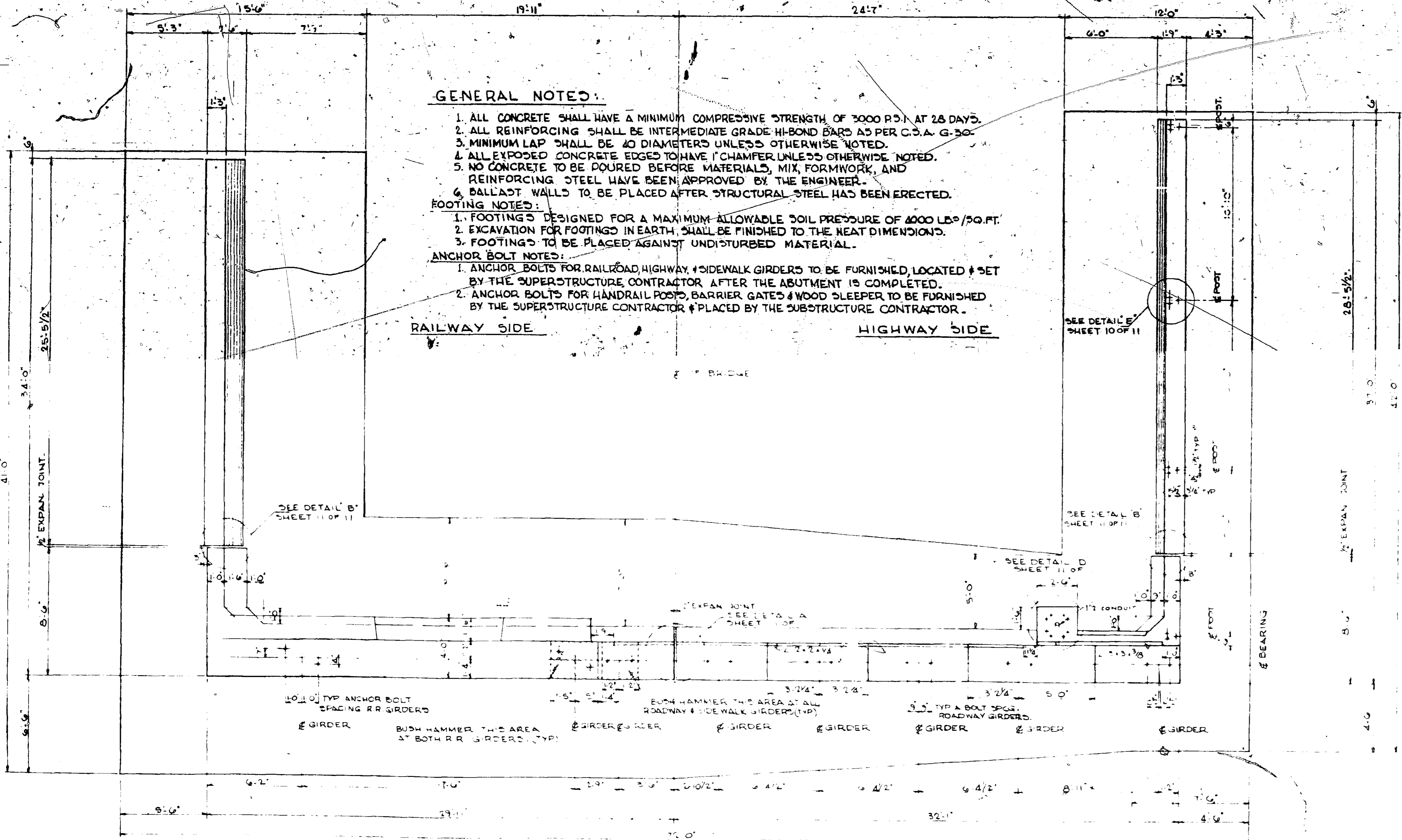
NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C. C. PARKER & ASSOCIATES LTD CONSULTING ENGINEERS HAMILTON ONTARIO			
BURLINGTON CANAL LIFT BRIDGE MAIN PIERS ANCHORAGES & GRILLAGES			
APPROVED	DATE 13/8/58	DEPARTMENT PROJECT NO	SD6-4-77
Approved by: <i>G. H. ...</i> CHIEF ENGINEER		Approved by: <i>W. Thompson</i> CHIEF ENGINEER	
RECOMMENDED	DATE AUG 8/58	DESIGN	CHKD
		DRAWN	CHKD
		TRACED	CHKD
JOB NO H 538		CONTRACT NO. 1 SHEET B OF 12	

SCALE: 1/2" = 1'-0" UNLESS NOTED



ELEVATION OF SOUTH ABUTMENT
NORTH ABUTMENT SIMILAR BUT OPPOSITE EXCEPT WHERE NOTED
SCALE 1/4" = 1'-0"

ELEVATION OF SOUTH WEST RET. WALL
NORTH WEST RETAINING WALL SIMILAR BUT OPPOSITE
SCALE 1/4" = 1'-0"



ELEVATION OF SOUTH EAST RET. WALL
NORTH EAST RETAINING WALL SIMILAR BUT OPPOSITE
SCALE 1/4" = 1'-0"

GENERAL NOTES:

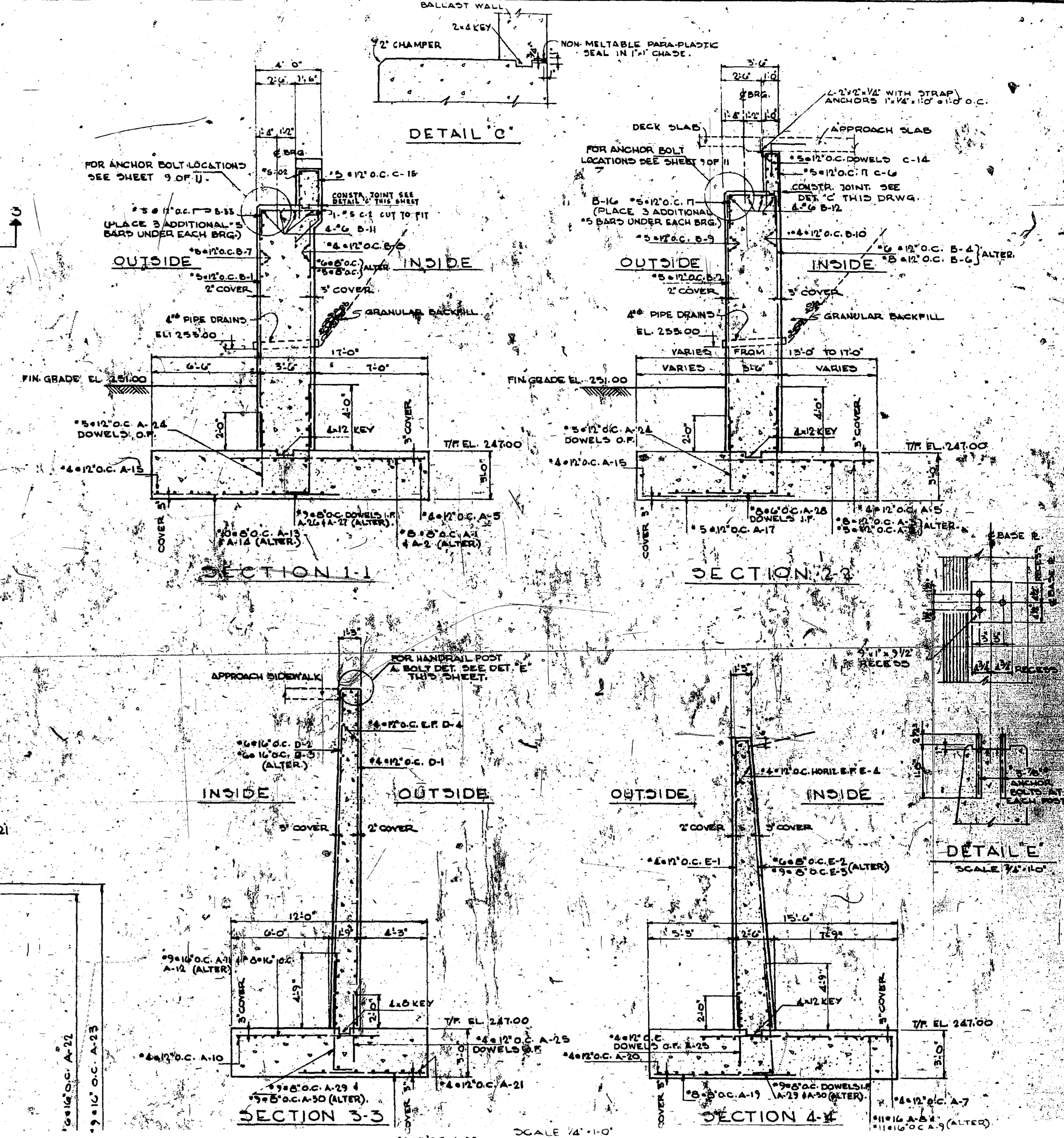
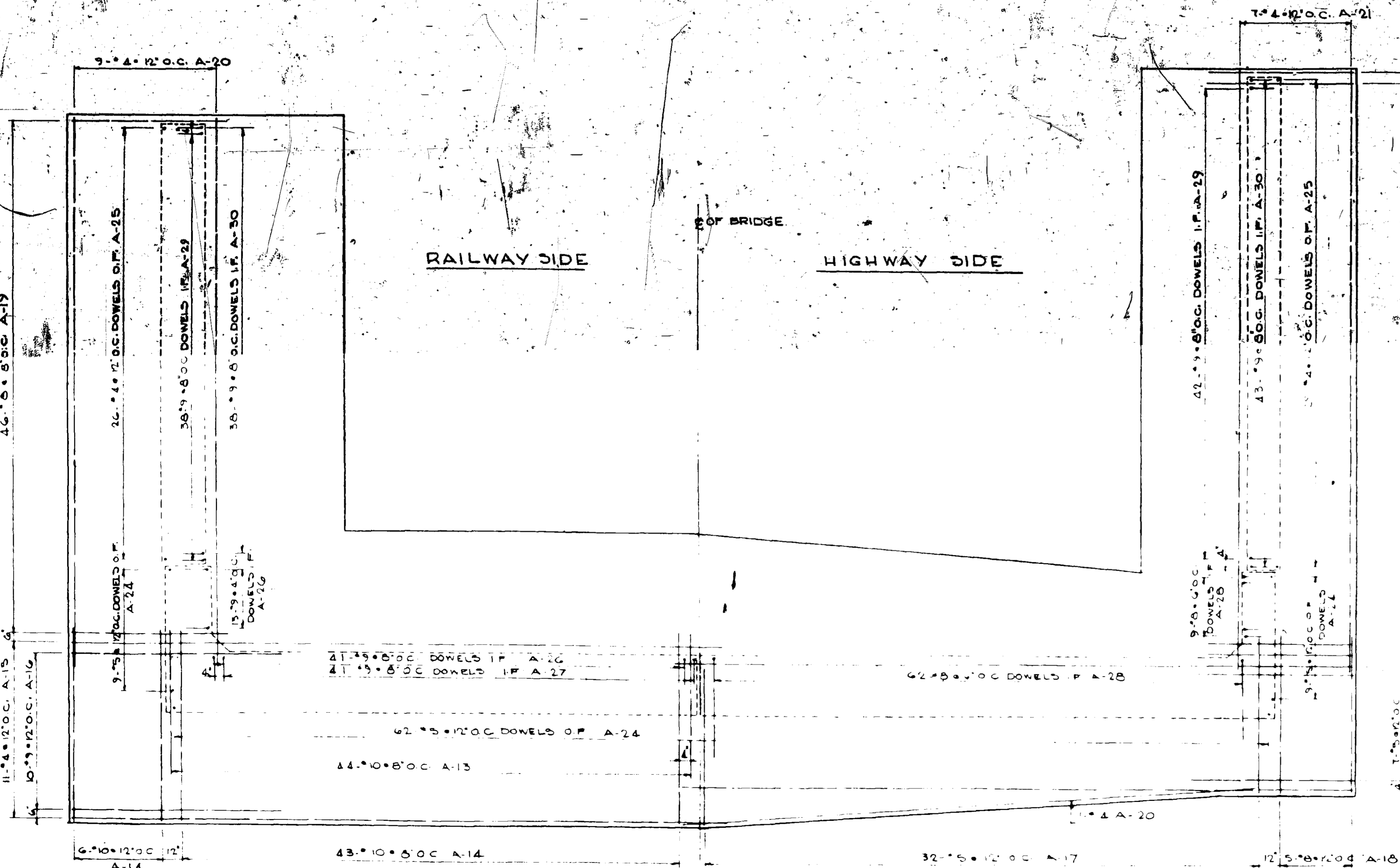
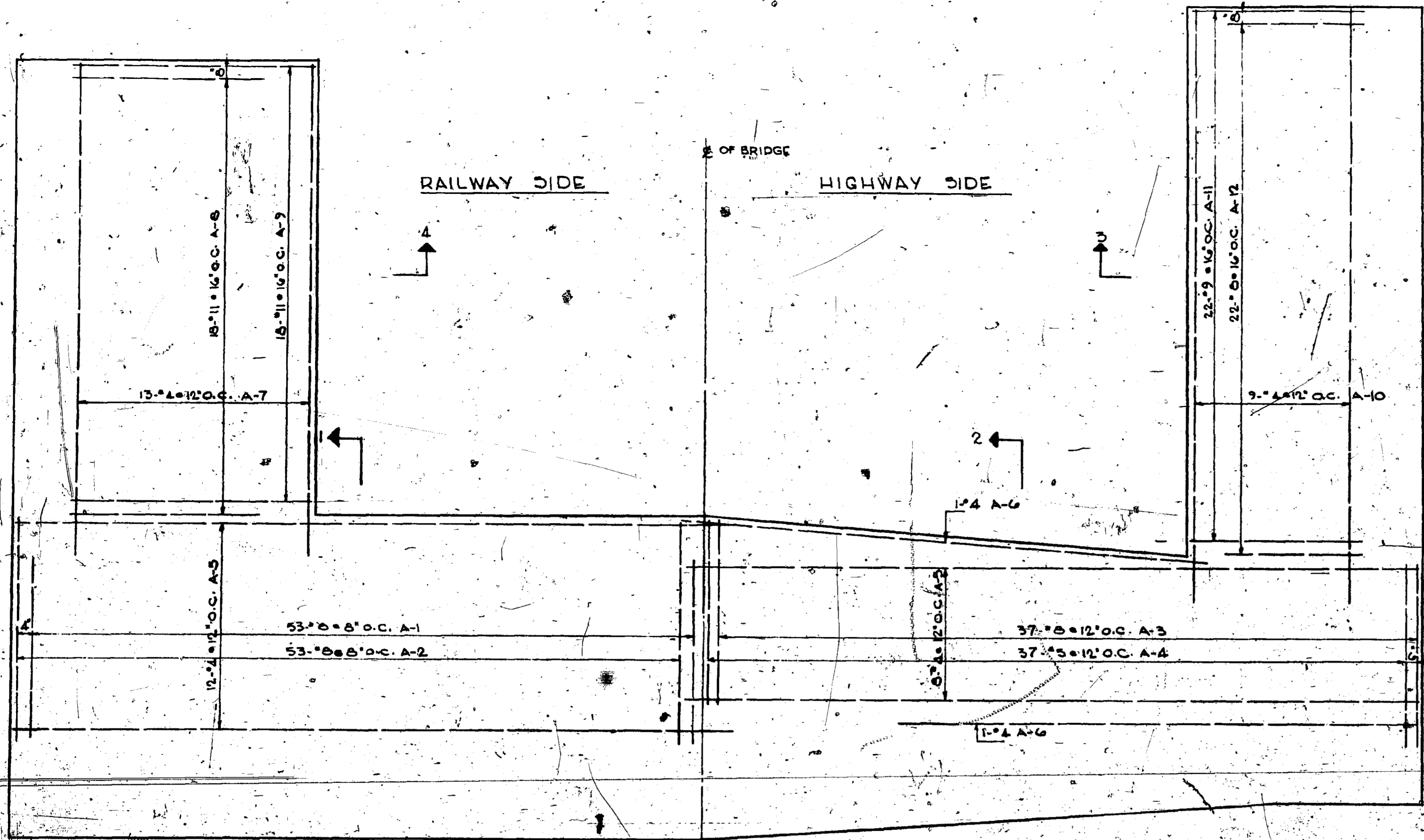
1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 P.S.I. AT 28 DAYS.
 2. ALL REINFORCING SHALL BE INTERMEDIATE GRADE HI-BOND BARS AS PER C.O.A. G-30.
 3. MINIMUM LAP SHALL BE 40 DIAMETERS UNLESS OTHERWISE NOTED.
 4. ALL EXPOSED CONCRETE EDGES TO HAVE 1" CHAMFER UNLESS OTHERWISE NOTED.
 5. NO CONCRETE TO BE POURED BEFORE MATERIALS, MIX, FORMWORK, AND REINFORCING STEEL HAVE BEEN APPROVED BY THE ENGINEER.
 6. BALLAST WALLS TO BE PLACED AFTER STRUCTURAL STEEL HAS BEEN ERECTED.
- FOOTING NOTES:**
1. FOOTINGS DESIGNED FOR A MAXIMUM ALLOWABLE SOIL PRESSURE OF 4000 LB./SQ. FT.
 2. EXCAVATION FOR FOOTINGS IN EARTH SHALL BE FINISHED TO THE NEAT DIMENSIONS.
 3. FOOTINGS TO BE PLACED AGAINST UNDISTURBED MATERIAL.
- ANCHOR BOLT NOTES:**
1. ANCHOR BOLTS FOR RAILROAD, HIGHWAY, & SIDEWALK GIRDERS TO BE FURNISHED, LOCATED & SET BY THE SUPERSTRUCTURE CONTRACTOR AFTER THE ABUTMENT IS COMPLETED.
 2. ANCHOR BOLTS FOR HANDRAIL POSTS, BARRIER GATES & WOOD SLEEPER TO BE FURNISHED BY THE SUPERSTRUCTURE CONTRACTOR & PLACED BY THE SUBSTRUCTURE CONTRACTOR.

RAILWAY SIDE

HIGHWAY SIDE

PLAN ABOVE BRIDGE SEAT
SCALE 1/4" = 1'-0"

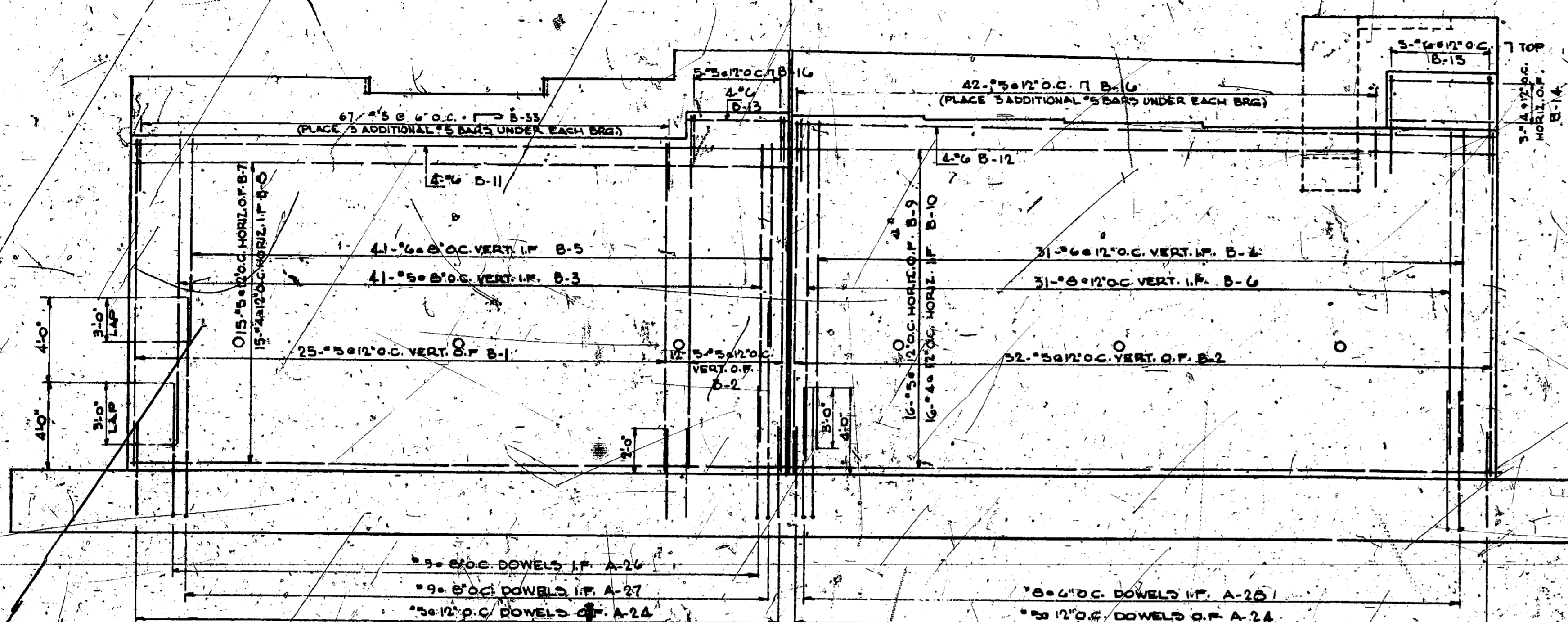
NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C. C. PARKER & ASSOCIATES LTD. CONSULTING ENGINEERS HAMILTON ONTARIO			
BURLINGTON CANAL LIFT BRIDGE			
APPROACH SPAN ABUTMENTS CONCRETE DETAILS			
APPROVED	DATE 13/8/58	DEPARTMENT PROJECT NO. SD6-4-77	
		CONTRACT NO. 1	
RECOMMENDED	DATE AUG 8 1958	DESIGN	CHKD.
		DRAWN	CHKD.
C.C. PARKER & ASSOC. LTD.		TRACED	CHKD.
JOB NO. H-538		SHEET 9 OF 12	



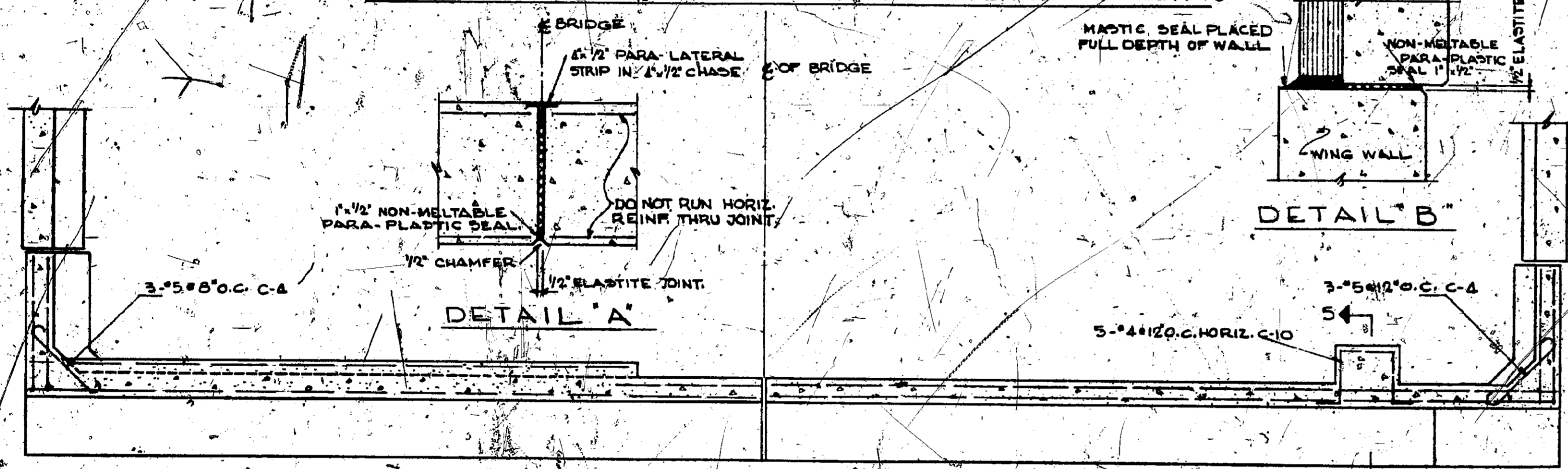
NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C. C. PARKER & ASSOCIATES LTD. CONSULTING ENGINEERS HAMILTON ONTARIO			
BURLINGTON CANAL LIFT BRIDGE APPROACH SPAN ABUTMENTS REINFORCING DETAILS			
APPROVED	DATE 13/6/77	DEPARTMENT PROJECT NO.	SD6-4-77
RECOMMENDED	DATE AUG 8/77	DESIGN	CHKD.
		FRACED	CHKD.
G.C. PARKER & ASSOC. LTD. JOB NO. H-538		APPROVED DATE 13/6/77 CHIEF ENGINEER	
SHEET 10		OF 12	

RAILWAY SIDE

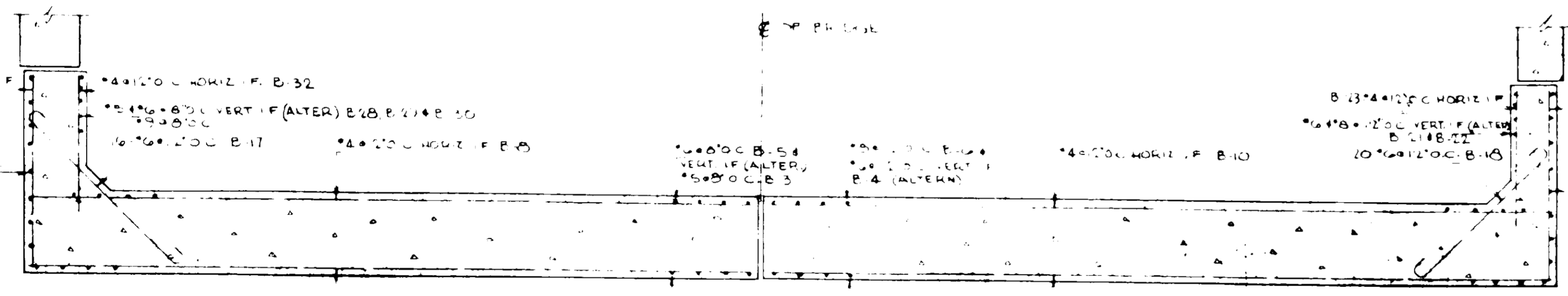
HIGHWAY SIDE



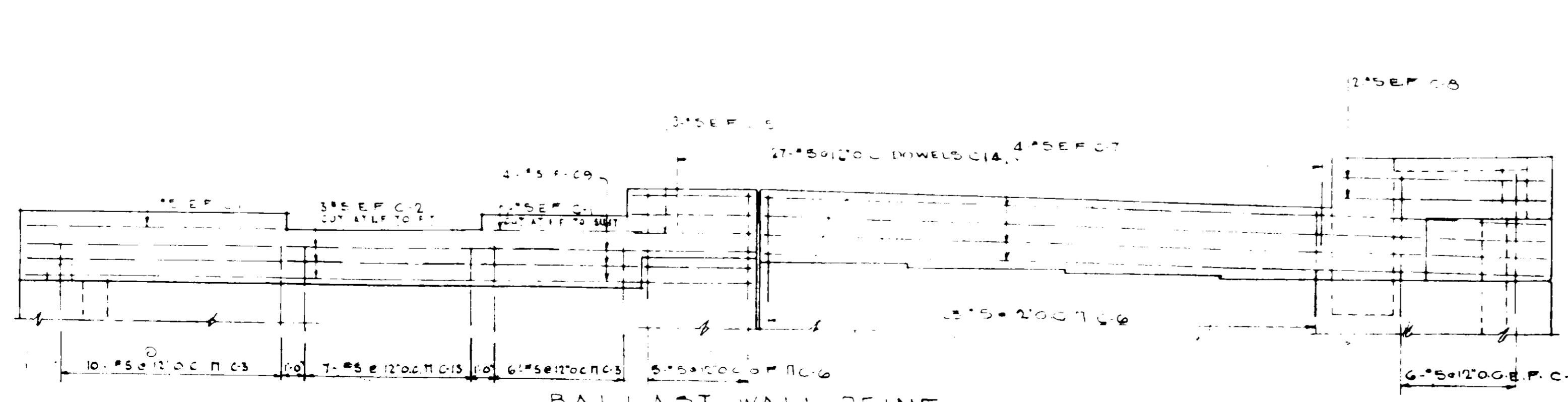
REINFORCING FOR SOUTH ABUTMENT
REINFORCING FOR NORTH ABUTMENT SIMILAR
SCALE 1/2"=1'-0"



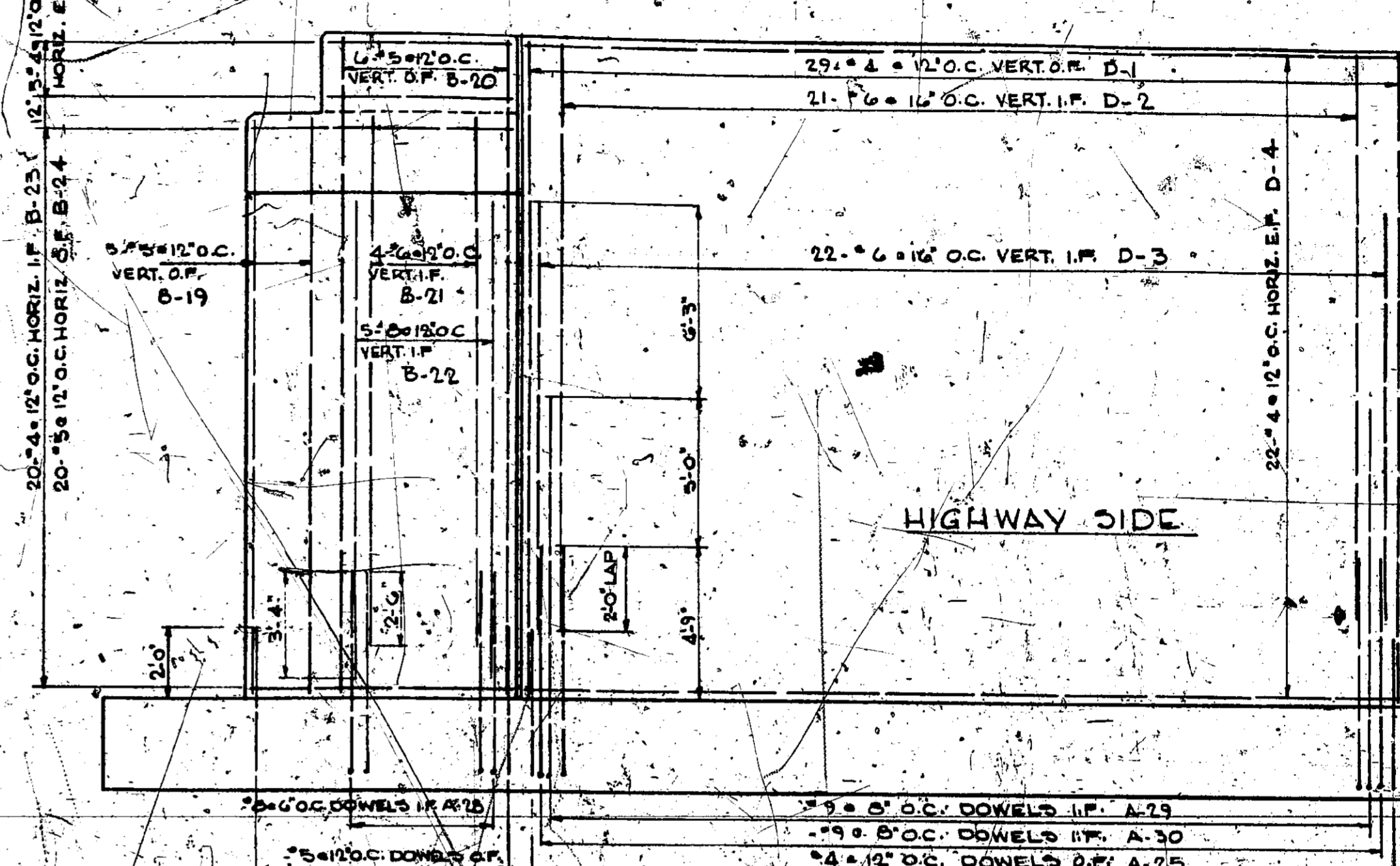
PLAN ABOVE BRG SEAT
SCALE 1/2"=1'-0"



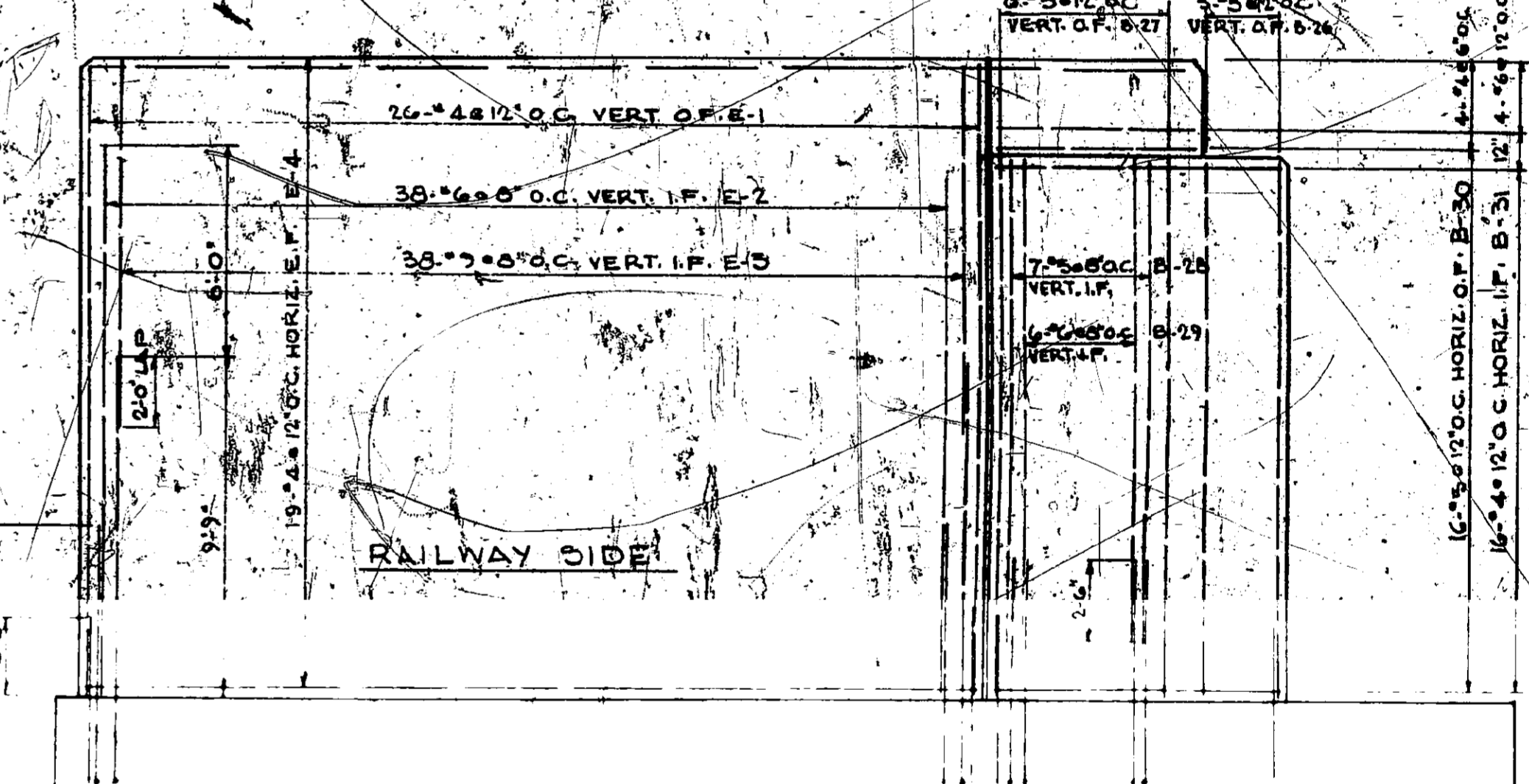
PLAN BELOW BRG SEAT
SCALE 1/2"=1'-0"



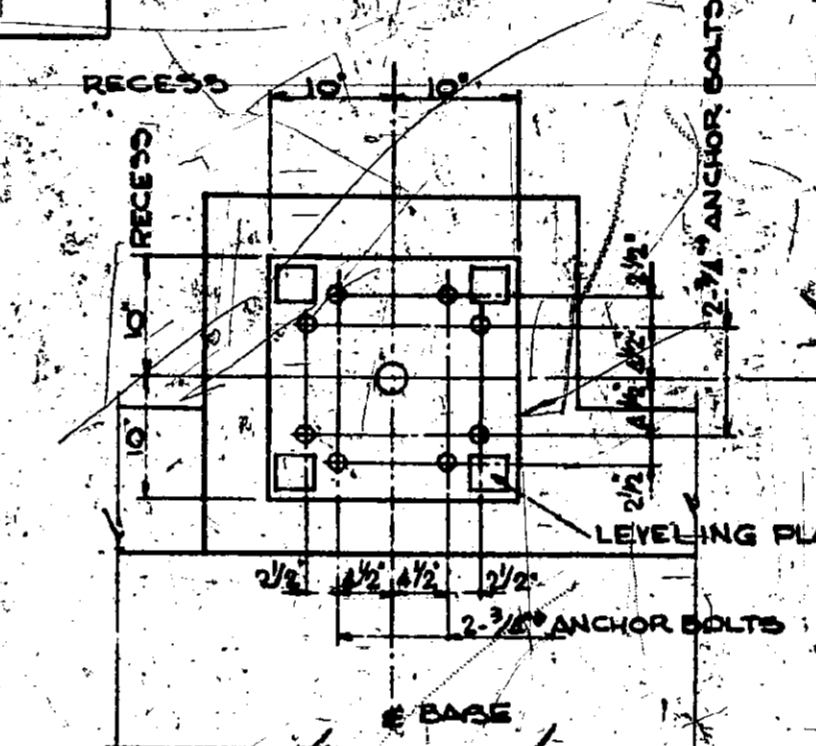
BALLAST WALL REINF.
SCALE 1/2"=1'-0"



OUTSIDE ELEV OF RETAINING WALL
REINFORCING FOR SOUTH WEST & NORTH WEST RET. WALLS SHOWN.
SCALE 1/2"=1'-0"

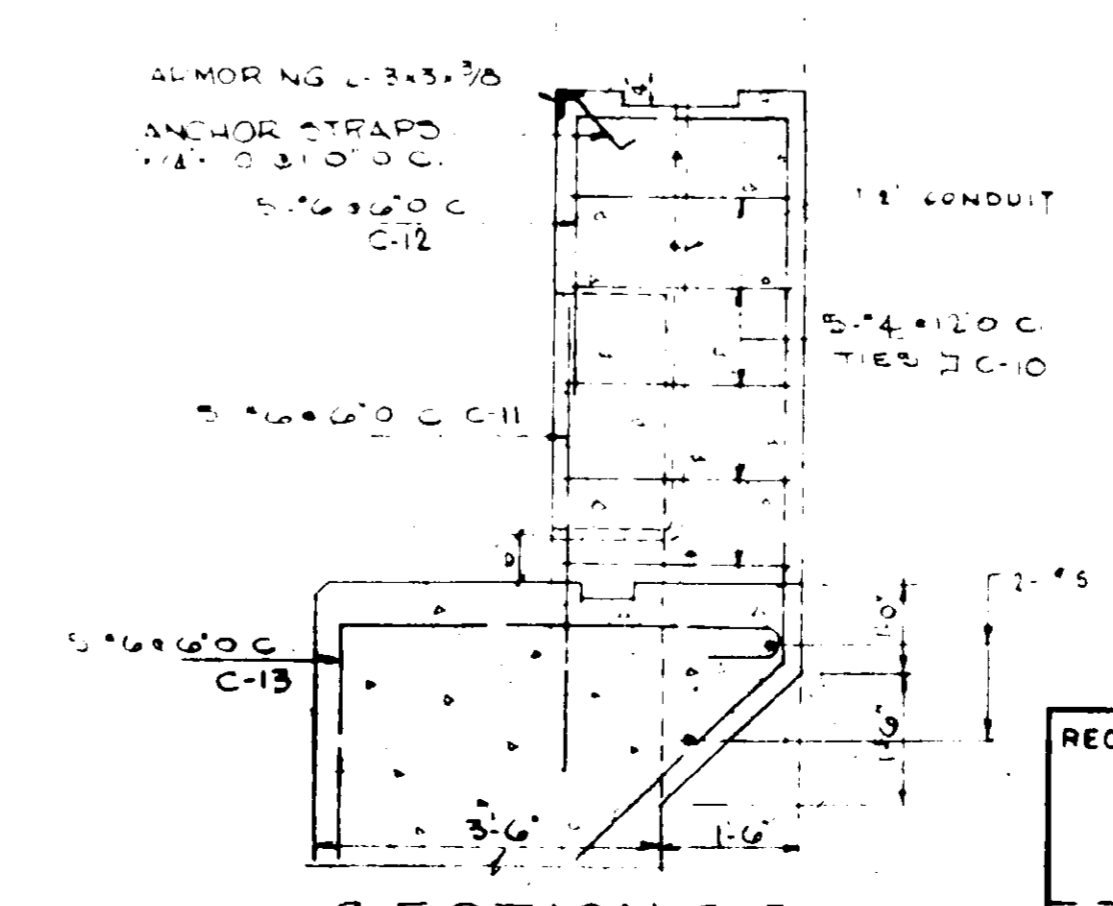


OUTSIDE ELEV OF RET. WALL
REINF. FOR SOUTH EAST & NORTH EAST RET. WALL SHOWN.
SCALE 1/2"=1'-0"



DETAIL D
SCALE 3/4"=1'-0"

FOR GENERAL NOTES REFER
TO SHEET NO. 3



SECTION 5-5
SCALE 1/2"=1'-0"

NO	REVISIONS	BY	DATE

DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

C. C. PARKER & ASSOCIATES LTD.
CONSULTING ENGINEERS
HAMILTON ONTARIO

BURLINGTON CANAL LIFT BRIDGE

APPROACH SPAN ABUTMENTS
REINFORCING DETAILS

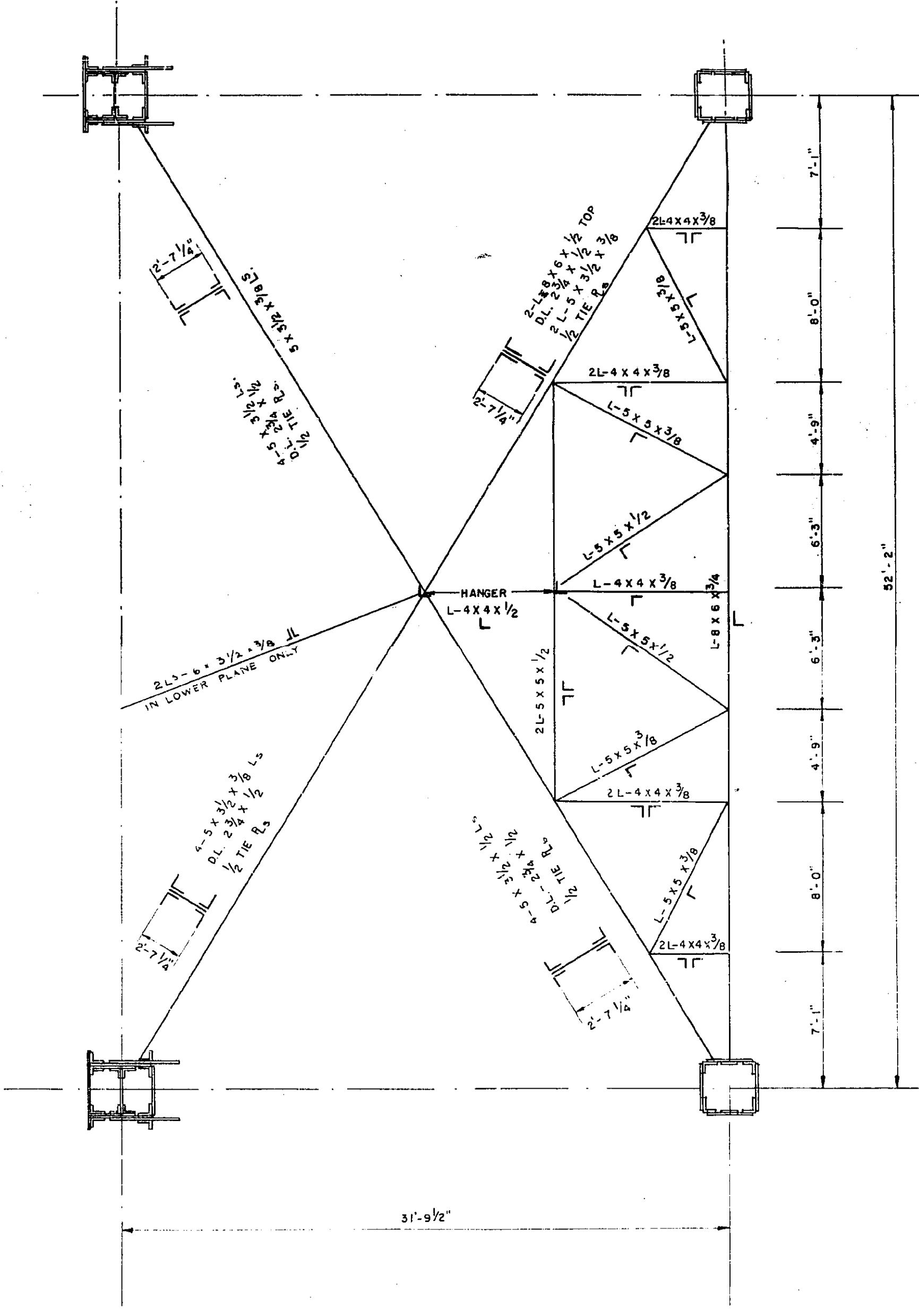
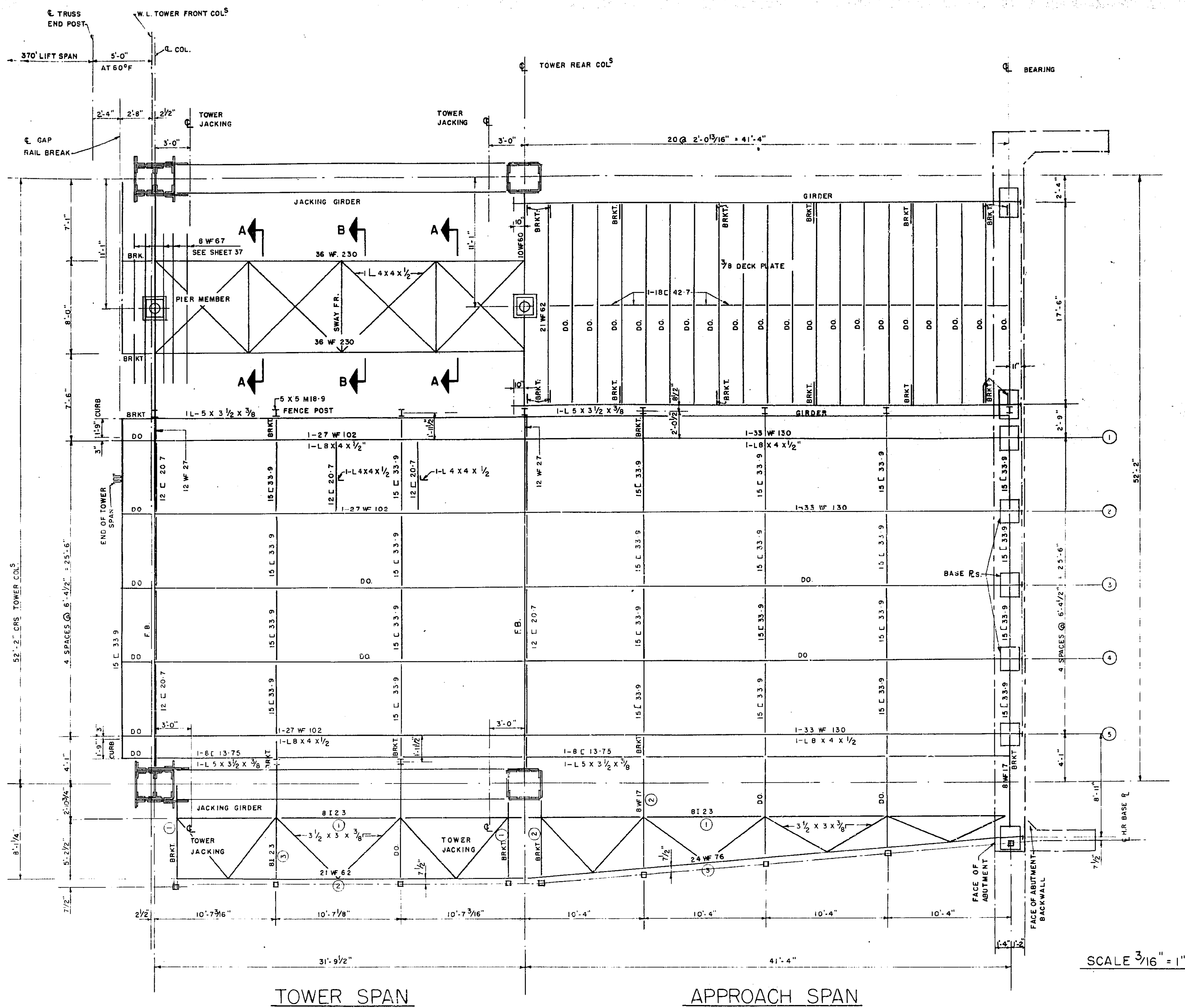
APPROVED DATE 13/9/58
CHIEF STRUCTURES DIVISION
PROJECT NO. SD6-4-77

APPROVED DATE 13/6/58
CHIEF ENGINEER
CONTRACT NO. 1
SHEET 11 OF 12



RECOMMENDED
DATE AUG 58
DESIGN
CHKD
DRAWN
TRACED
JOB NO H-538
CC PARKER & ASSOC LTD.

APPROVED DATE 13/6/58
CHIEF ENGINEER



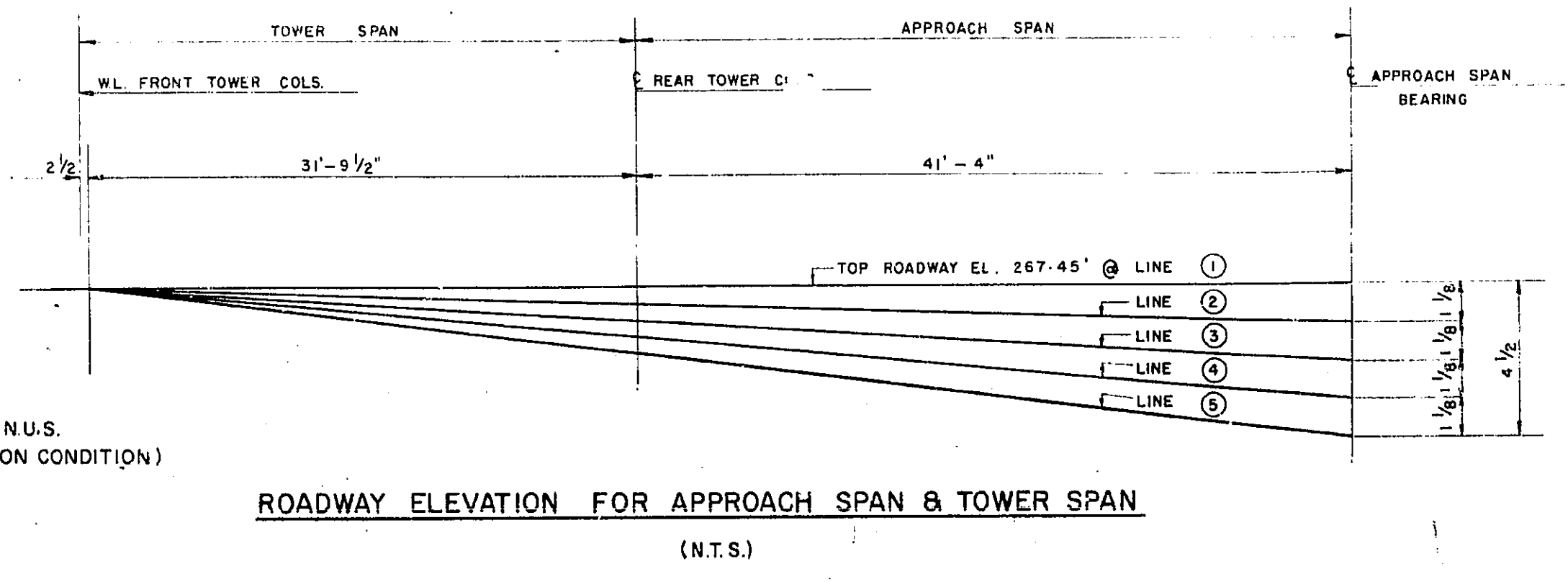
SCALE 3/16" = 1"

LATERAL & TRACTION BRACING

	RAILWAY - STRINGERS - GIRDERS & CROSS BEAMS				HIGHWAY STRINGERS				TOWER SPAN SIDEWALK STRINGERS & BEAMS				APPROACH SPAN SIDEWALK STRINGERS & BEAMS				CANTILEVER BRACKETS														
	TOWER SPAN		APPROACH SPAN		APPROACH SPAN		TOWER SPAN		TOWER SPAN		APPROACH SPAN		APPROACH SPAN		TOWER SPAN		TOWER SPAN														
	STRINGER	CROSS BEAM	STRINGER	CROSS BEAM	EXTERIOR	INTERIOR	EXTERIOR	INTERIOR	EXTERIOR	INTERIOR	EXTERIOR	INTERIOR	EXTERIOR	INTERIOR	EXTERIOR	INTERIOR	EXTERIOR	INTERIOR													
DEAD LOAD	9.0	1.1	1.73	1.7	5	1.3	1.73	1.6	1.9	1.7	1.4	1.13	1.3	1.14	1.5	2.9	1.0	3.5	4.6	5.0	1.0	2.3	0.9	3.7	0.8	7.0	6.1	32.8	6.5	54.7	7.7
LIVE LOAD	6.82	9.9	10.30	1.15	8.5	1.3	2.67	2.7	2.9	3.5	4	2.03	2.7	2.9	3.6	7.3	2.7	9.8	7.6	12.4	2.8	6.8	2.6	11.8	2.6	9.0	7.9	51.0	10.8	56.7	10.2
IMPACT DIRECT	3.95	5.8	5.83	6.5	5.0	8	5.1	6.1	6.9	10.6	3.4	6	6.6	11																	
IMPACT ROLLING	8.5	12	5.9	7	5	1																									
TOTAL	12.52	1.80	18.45	2.04	14.5	2.3	4.91	5.0	7.5	5.65	6.3	4.6	3.99	6.2	9.9	3.7	9.3	12.2	17.4	3.5	9.1	3.5	15.5	3.4	16.0	14.0	83.8	17.3	117.4	17.9	
S.M. REQUIRED - IN ³	7.52		11.02		8.7		20.4		33.9		21.0		23.9		5.9		55.8		10.4		5.5		9.3		9.6						
WEB AREA REQUIRED - IN ²	16.4		18.5		2.1		4.6		5.7		4.2		5.6		0.5		1.1		0.3		0.3		0.3		1.3						
SECTION	36 W 230	60 x 3/8 WEB R	21 W 62		33 W 130	33 W 130	27 W 102	27 W 102	8123	21 W 62	8123	8123	8123	24 W 76	48 x 5/16 WEB R	48 x 5/16 WEB R	4-3 1/2 x 3 1/2 x 3/8 Ls	4-3 1/2 x 3 1/2 x 3/8 Ls													
NET S.M. IN ³	835.5	1510	126.4		404.8	404.8	256.3	256.3	16.0	126.4	16.0	16.0	16.0	175.4																	
WEB AREA PROVIDED - IN ²	27.4	22.5	8.4		19.2	19.2	14.0	14.0	1.8	8.4	1.8	1.8	1.8	10.5																	

- NOTES
- GENERAL NOTES SEE SHEET NOS. 2 & 3.
 - SECTIONS A-A, B-B, SEE SHEET NO. 4.
 - ALL LOADS IN KIPS, ALL MOMENTS IN FT. KIPS.
 - STRINGERS AND GIRDERS SHALL BE CAMBERED FOR FULL DEAD LOAD PLUS HALF LIVE LOAD.

	FLOORBEAMS				JACKING GIRDER			
	TOWER FRONT FACE		TOWER BACK FACE		FRONT END	REAR END	TOTAL	TOTAL
DEAD LOAD	+ 406.1	+ 63.7	+ 777.8	+ 111.1	WT. OF C/W. WEIGHT & ROPES	+ 819	+ 261	
LIVE LOAD	+ 1071.5	+ 220.8	+ 1156.0	+ 199.0	WT. OF C/W. WEIGHT (AUX)	+ 36		
IMPACT DIRECT	+ 335.5	+ 80.2	+ 554.6	+ 97.0	D.L. TOWER SPAN	+ 64	+ 14.1	
IMPACT ROLLING	+ 31.9	+ 13.4	+ 32	+ 10.0	MESSENGER CABLE	+ 170	+ 19.04	- 15.9
WIND	± 88.0	± 17.1	± 48	± 17.1	WIND LOAD 5 LBS/SQ. FT.	+ 123	+ 2033	± 129
TOTAL 1-25 N.U.S.	+ 1933.0	+ 395.2	+ 2566.4	+ 434.2	MAX SHEAR KIPS	+ 1904	+ 1032	
DESIGN FOR N.U.S.	+ 1845.0	+ 378.1	+ 2520.4	+ 417.1	MAX MOMENT FT. KIPS	- 6525	- 3096	
S.M. REQUIRED IN ³	1107	1510			S.M. REQUIRED IN ³	2450		
WEB AREA REQUIRED IN ²	34.3	37.9			WEB AREA REQUIRED IN ²	102		
SECTION	71 x 1/2 WEB R	71 x 1/2 WEB R			SECTION	2 - WEB R, 71 x 3/4		
	4-8 x 8 x 1/2 Ls	4-8 x 8 x 1/2 Ls				4-8 x 6 x 1 Ls		
	2-20 x 1/2 FLG. R	2-20 x 1/2 FLG. R				2-2 x 30 x 3/4		
NET SECTION MODULUS - IN ³	1840	1920			NET S.M. - IN ³	3510		
WEB AREA PROVIDED - IN ²	35.5	44.4			WEB AREA PROVIDED - IN ²	106		



RECOMMENDED DATE 12-1-58
 DESIGN AT. B. P.O.L. CHKD. D.D.
 DRAWN J.B. CHKD. G.W.A.
 TRACED J.W. B.D.H. CHKD. G.W.A.
 JOB NO. H-538
 CHIEF ENGINEER

NO. REVISIONS BY DATE

DEPARTMENT OF PUBLIC WORKS
 CANADA
 DEVELOPMENT ENGINEERING BRANCH
 STRUCTURES DIVISION

C.C. PARKER & ASSOCIATES LTD.
 CONSULTING ENGINEERS
 HAMILTON ONTARIO

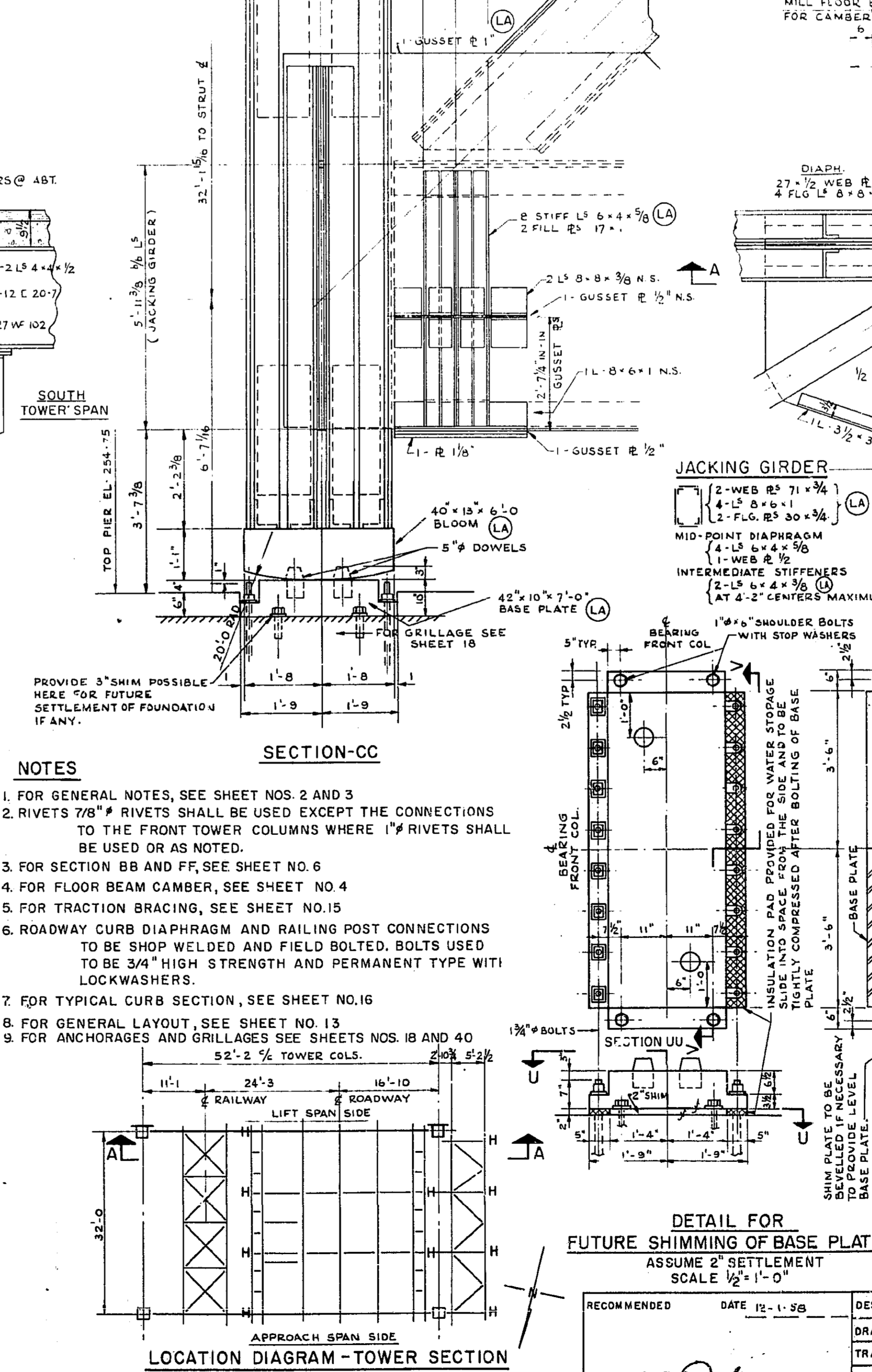
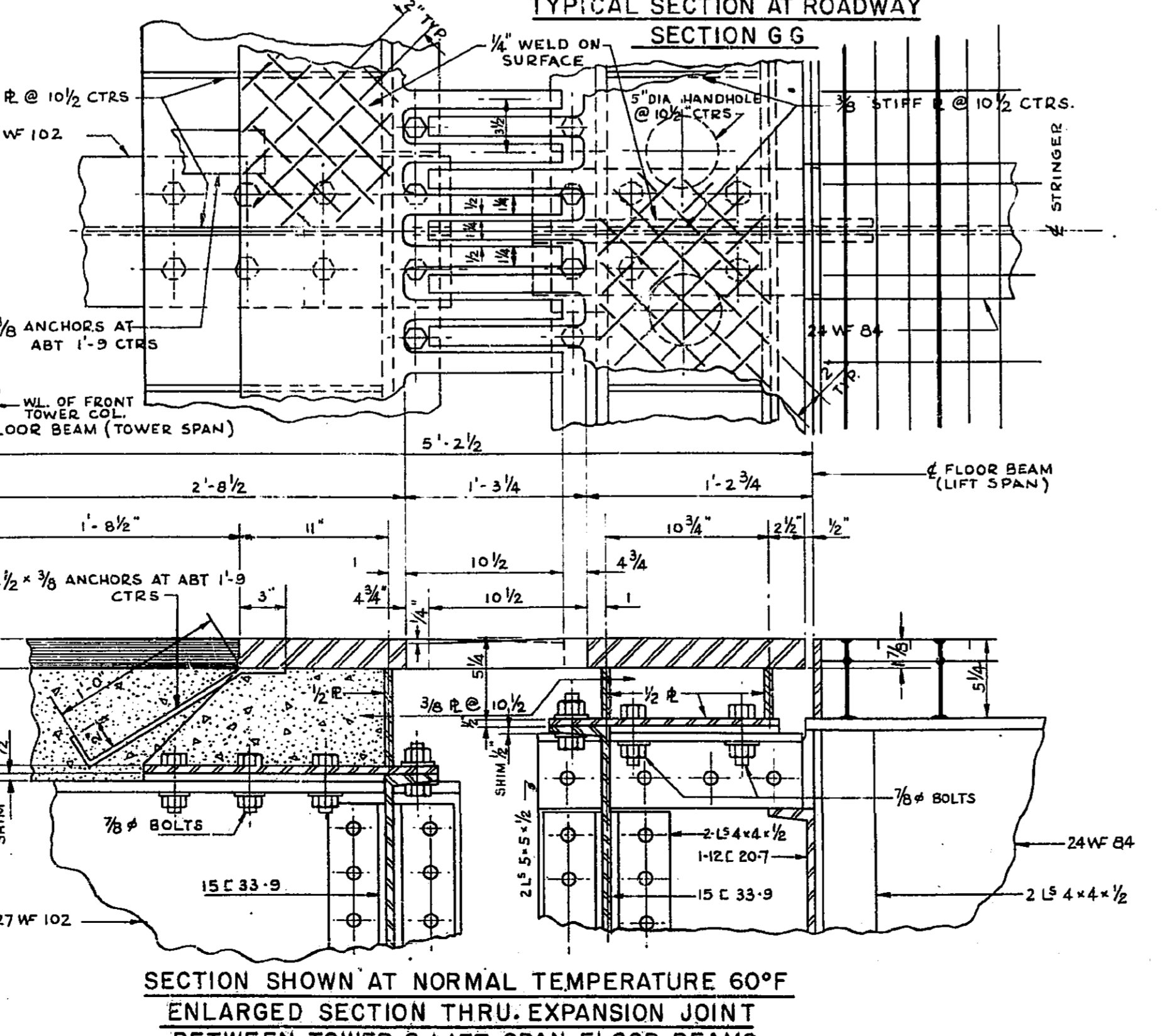
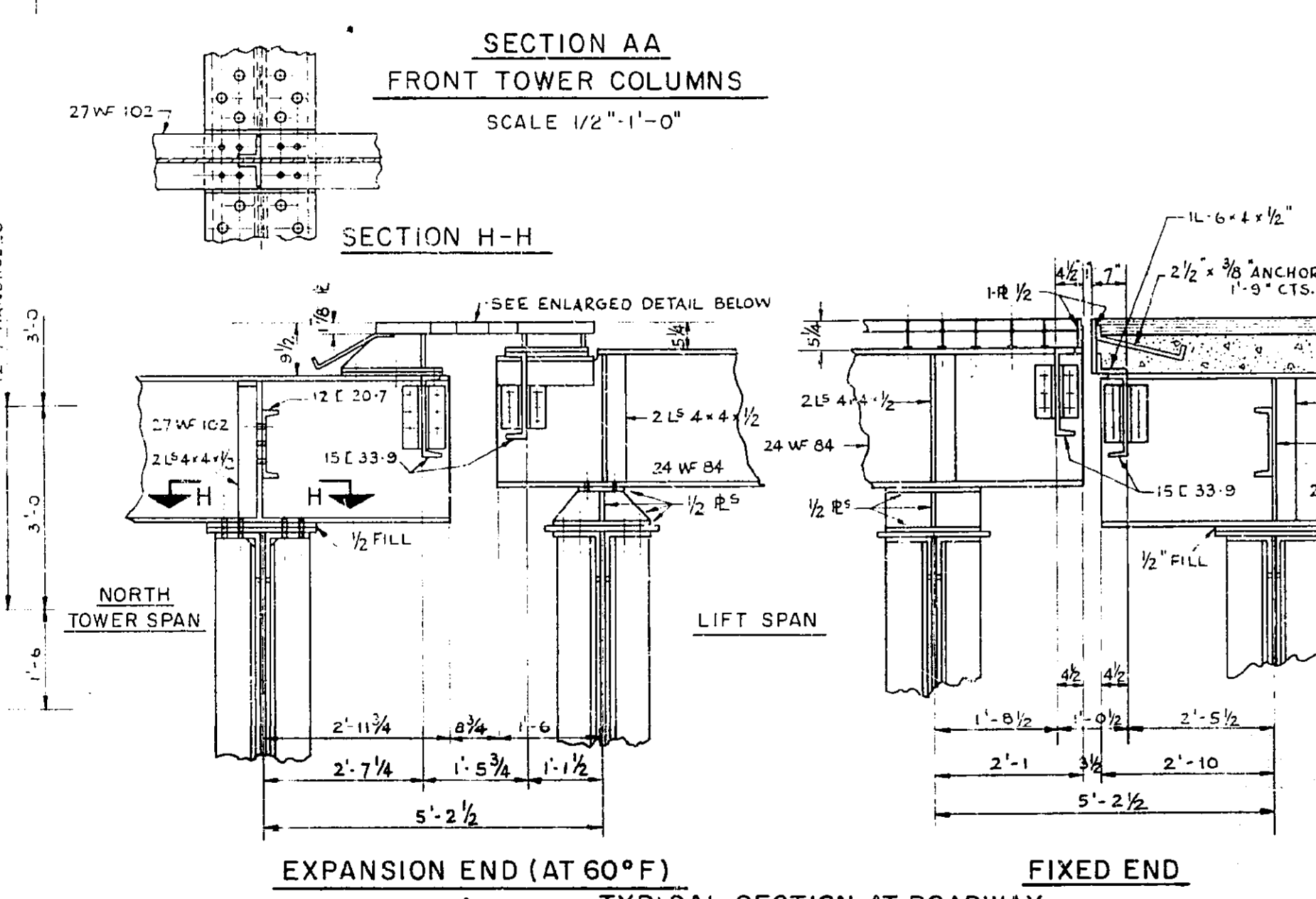
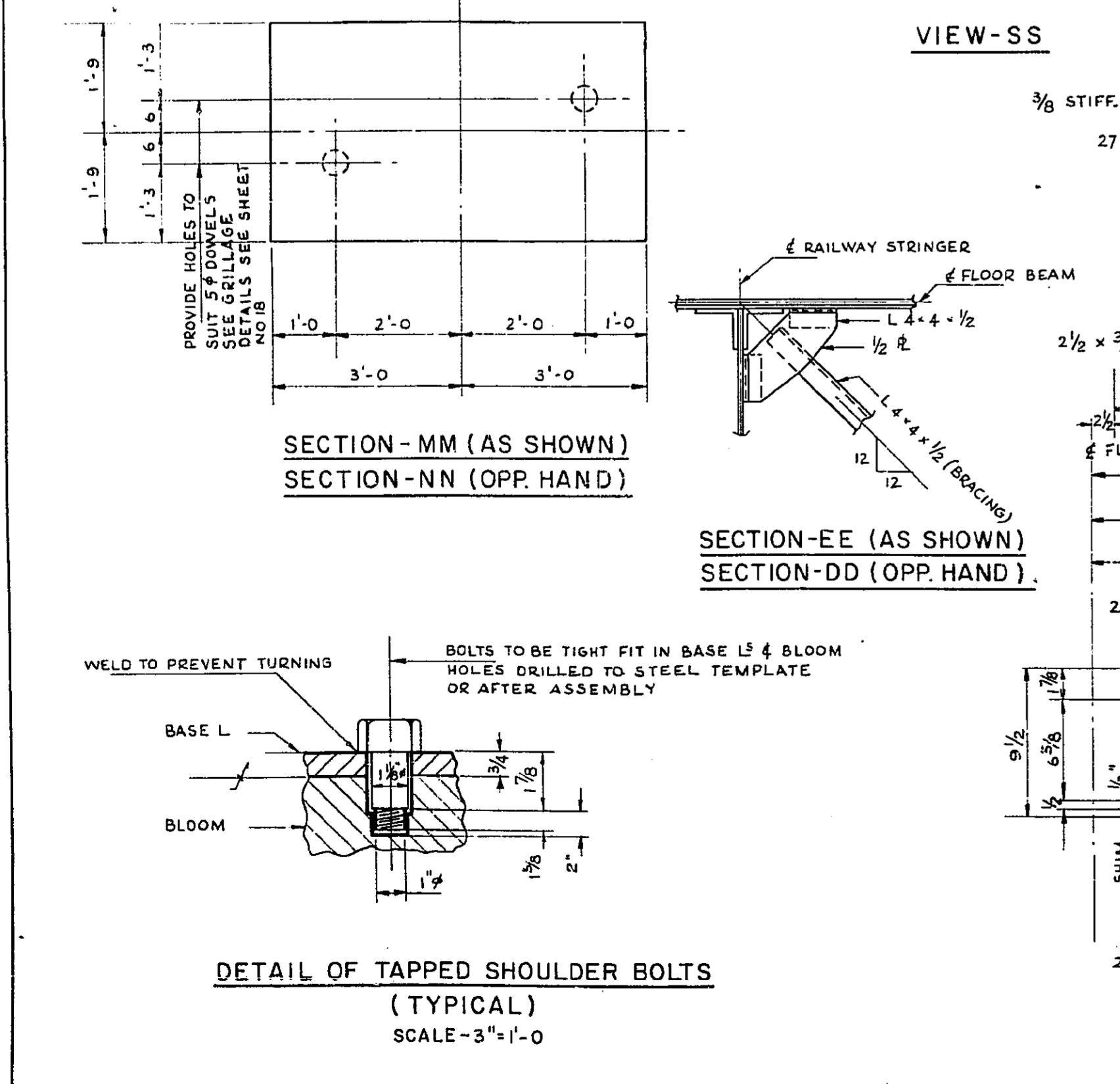
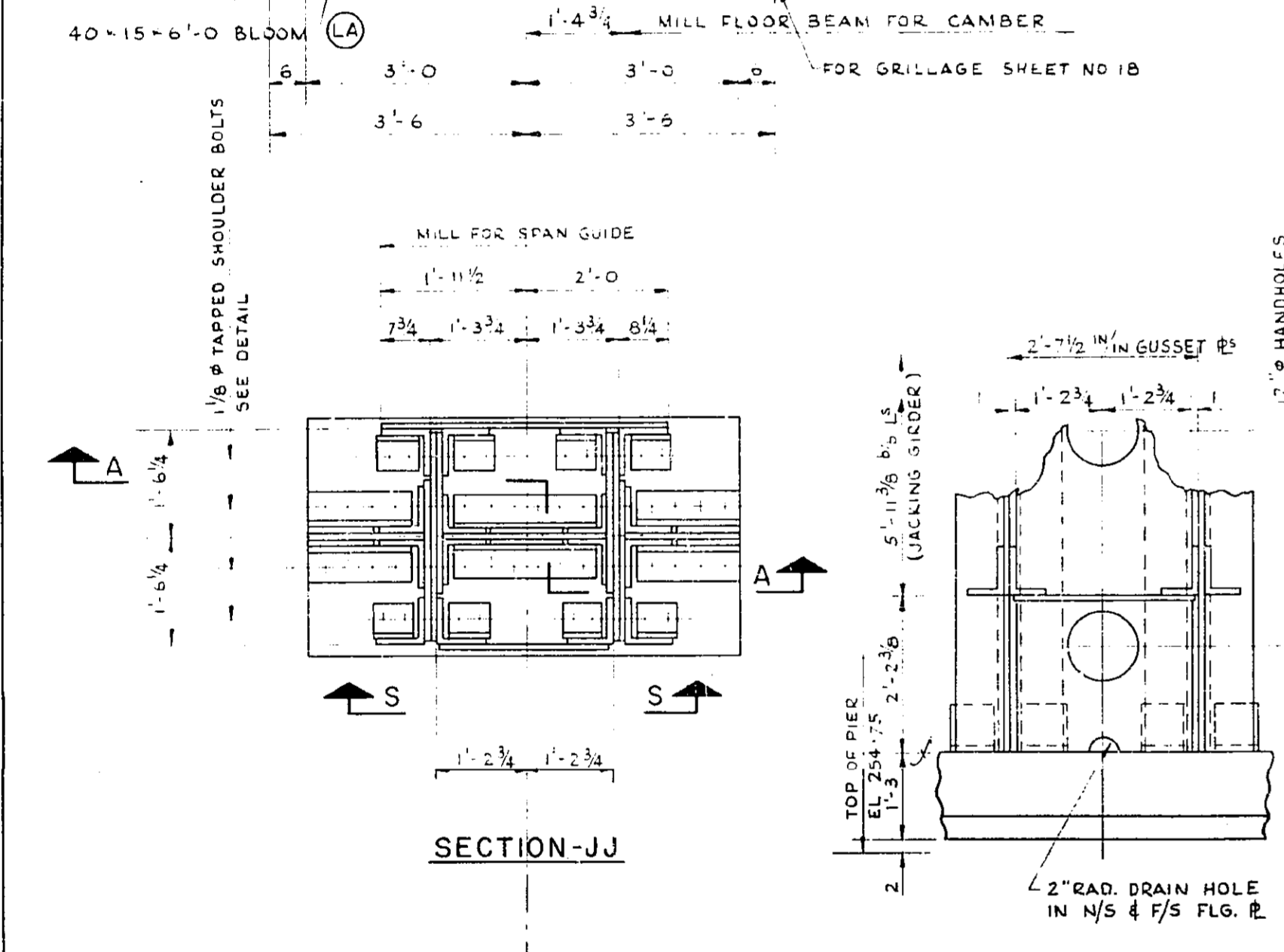
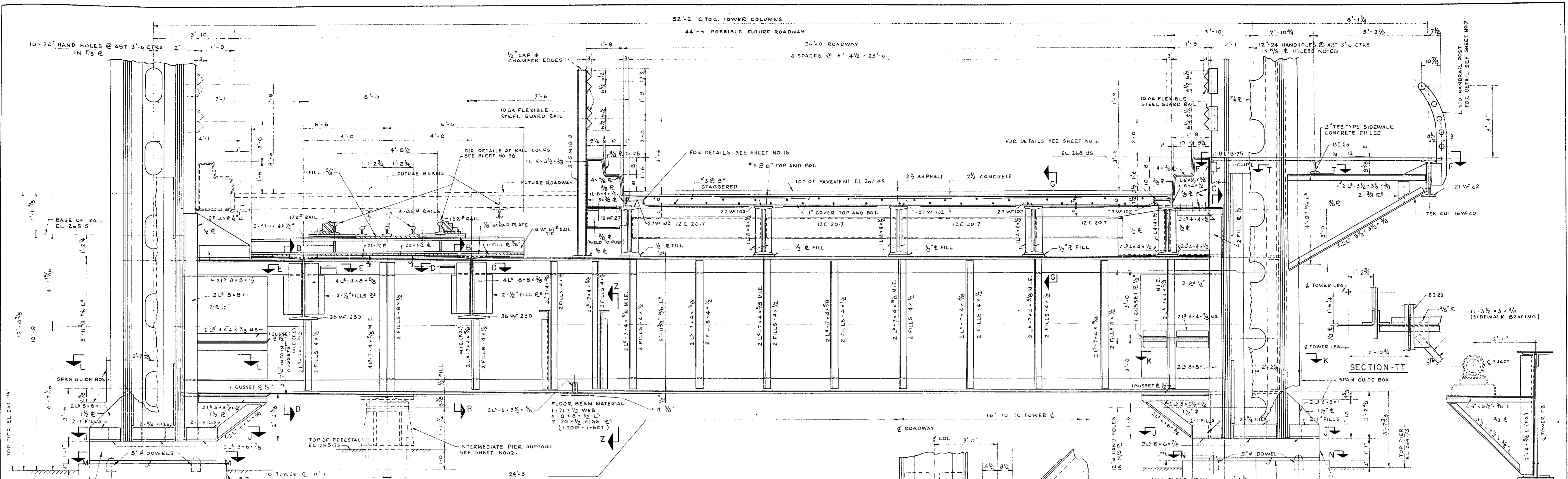
BURLINGTON CANAL LIFT BRIDGE
 TOWER SPAN AND APPROACH SPAN
 FLOOR SYSTEM AND STRESS SHEET

APPROVED DATE 13/11/58
 CHIEF STRUCTURES DIVISION

DEPARTMENT PROJECT NO. SD6-4-77

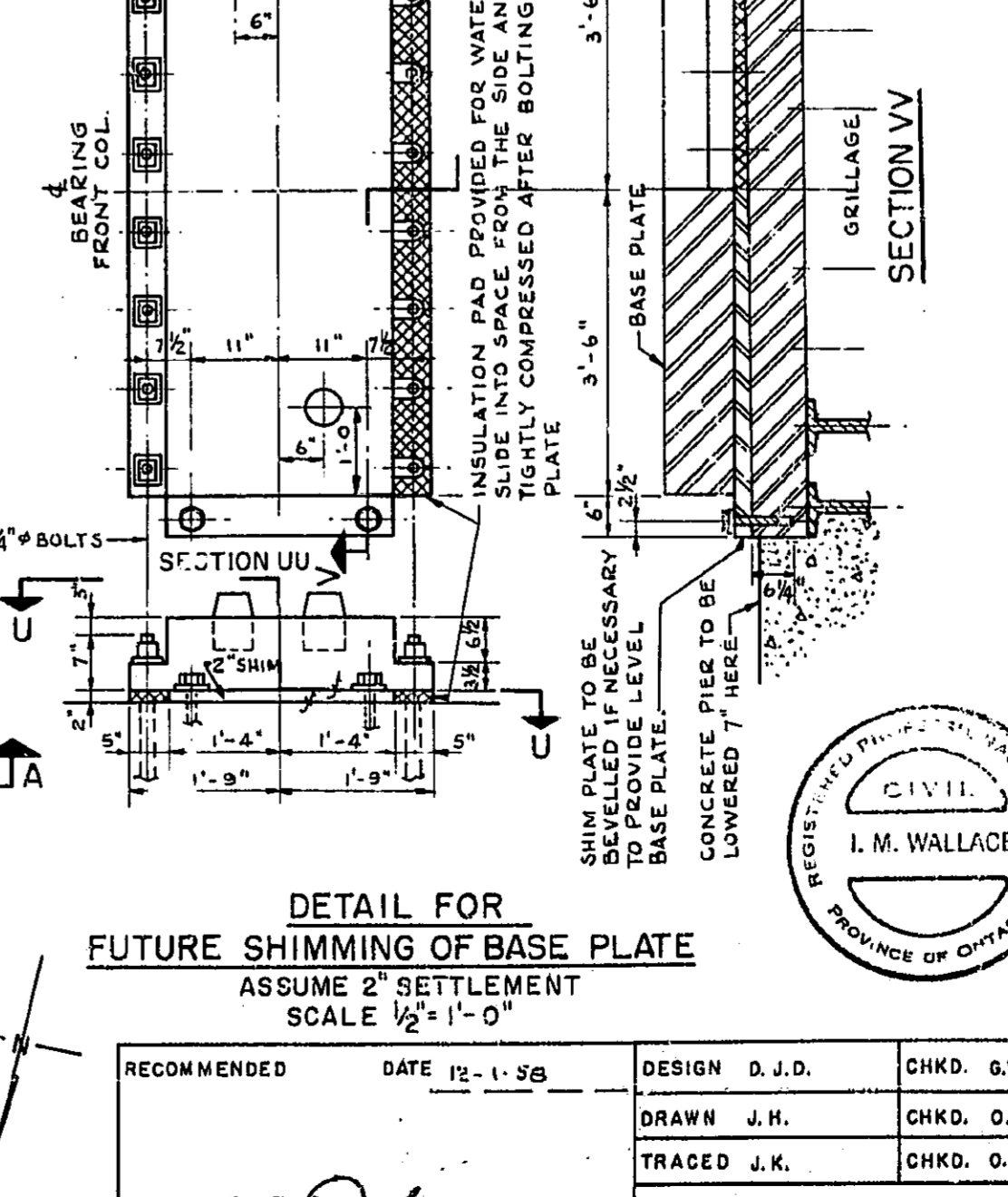
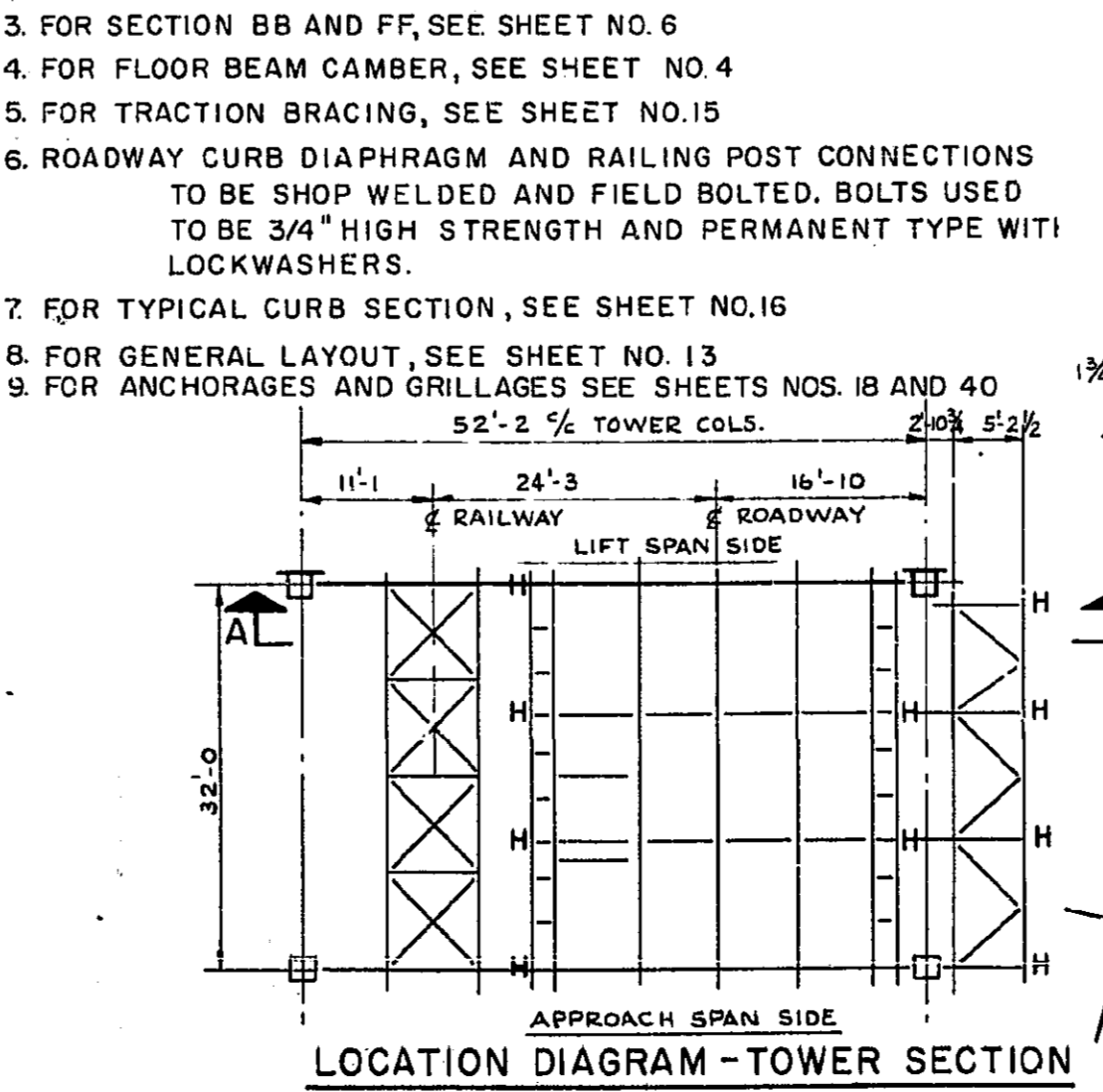
APPROVED DATE 14/11/58
 CHIEF ENGINEER

CONTRACT NO. 2
 SHEET 13 OF 62

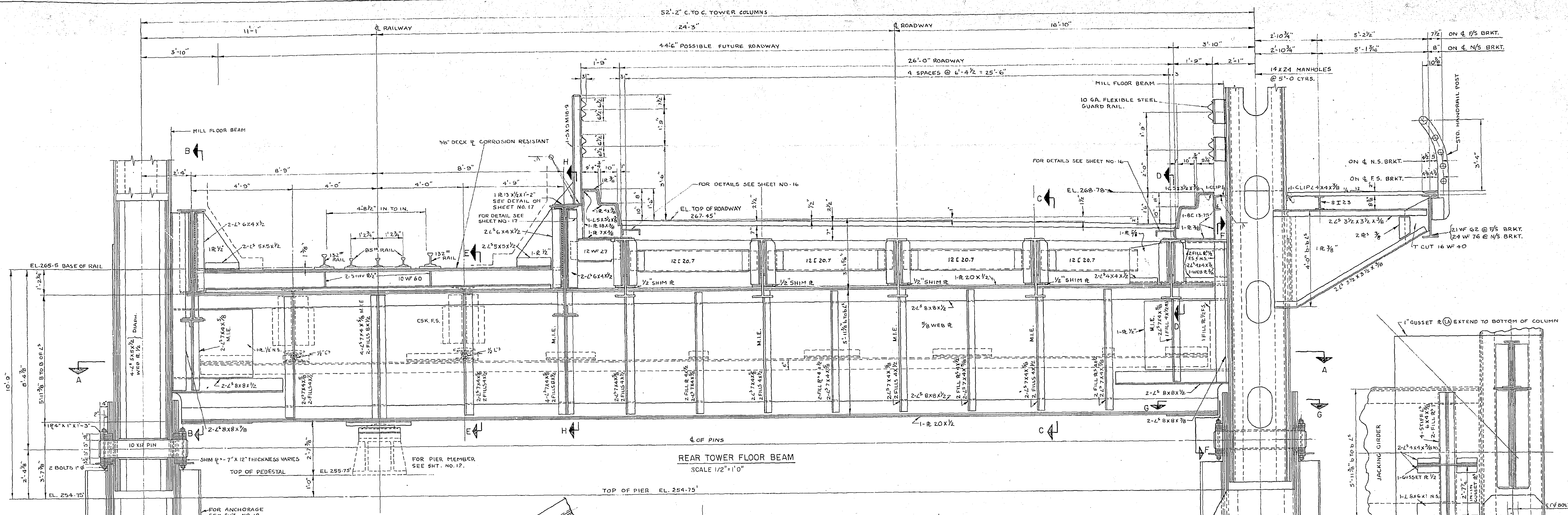


NOTES

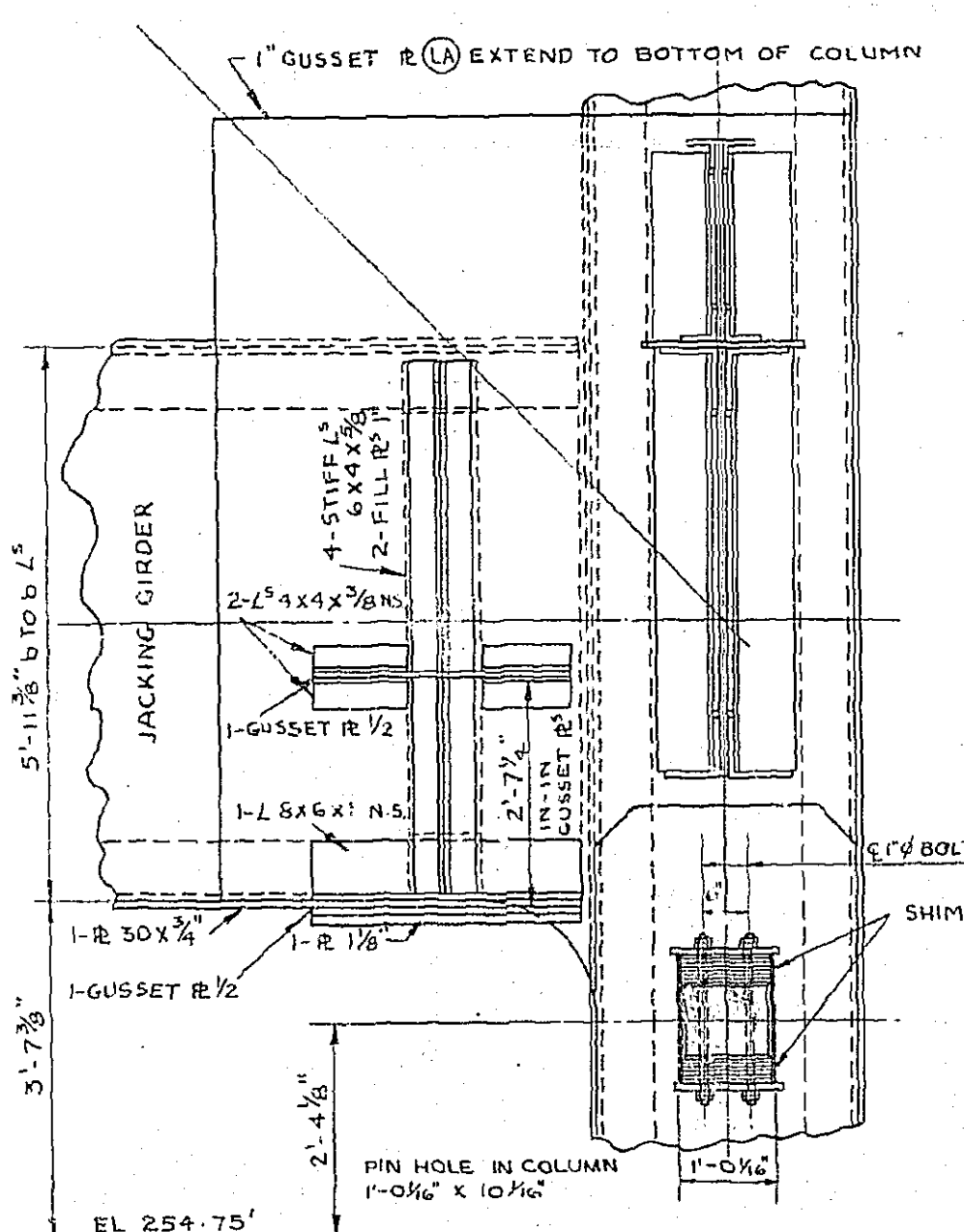
- FOR GENERAL NOTES, SEE SHEET NOS. 2 AND 3
- RIVETS 7/8" SHALL BE USED EXCEPT THE CONNECTIONS TO THE FRONT TOWER COLUMNS WHERE 1" RIVETS SHALL BE USED OR AS NOTED.
- FOR SECTION BB AND FF, SEE SHEET NO. 6
- FOR FLOOR BEAM CAMBER, SEE SHEET NO. 4
- FOR TRACTION BRACING, SEE SHEET NO. 15
- ROADWAY CURB DIAPHRAGM AND RAILING POST CONNECTIONS TO BE SHOP WELDED AND FIELD BOLTED. BOLTS USED TO BE 3/4" HIGH STRENGTH AND PERMANENT TYPE WITH LOCKWASHERS
- FOR TYPICAL CURB SECTION, SEE SHEET NO. 16
- FOR GENERAL LAYOUT, SEE SHEET NO. 13
- FOR ANCHORAGES AND GRILLAGES SEE SHEETS NOS. 18 AND 40



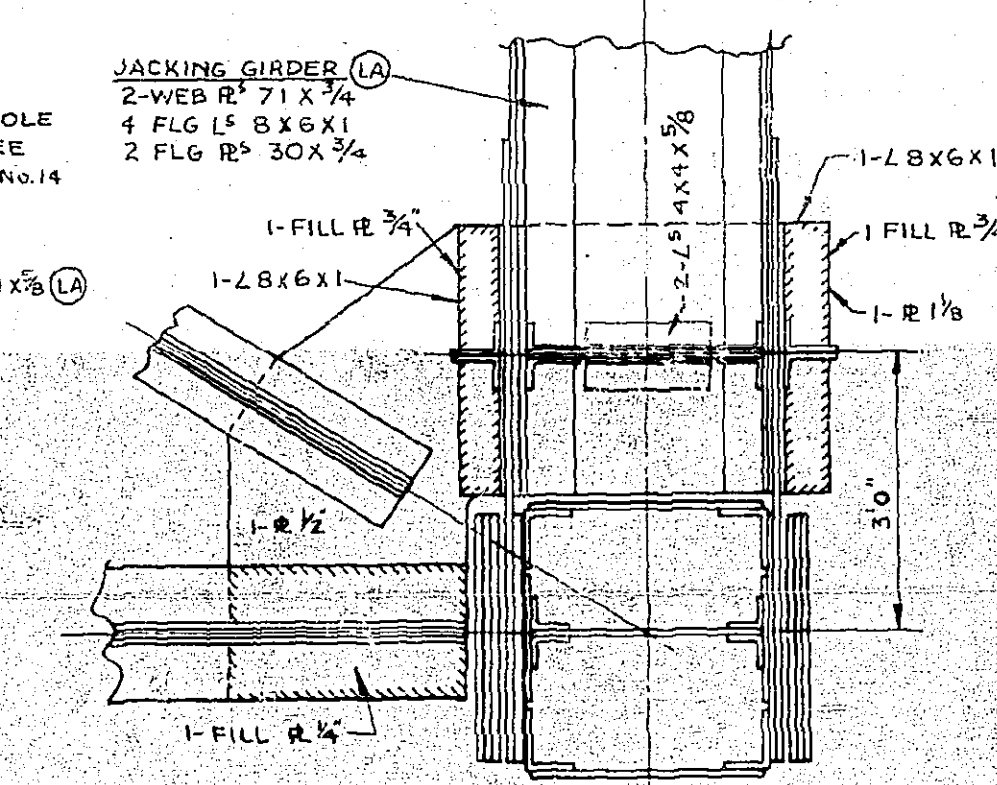
NO	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA			
DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C.C. PARKER & ASSOCIATES LTD.			
CONSULTING ENGINEERS			
HAMILTON		ONTARIO	
BURLINGTON CANAL LIFT BRIDGE			
TOWER SPAN FRONT FLOOR BEAM AND TOWER FRONT COLUMN BASES			
APPROVED	DATE 12/11/57	DEPARTMENT PROJECT NO.	SD6-4-77
<i>I.M. Wallace</i>		CHIEF STRUCTURES DIVISION	
APPROVED	DATE 11/11/58	CONTRACT NO. 2	
<i>G. G. Parker</i>		CHIEF ENGINEER	
RECOMMENDED	DATE 12-1-58	DESIGN D.J.D.	CHKD. G.W.A.
<i>C.C. Parker & Assoc. Ltd.</i>		TRACED J.K.	CHKD. O.L.
JOB NO H-538		SHEET 14 OF 62	



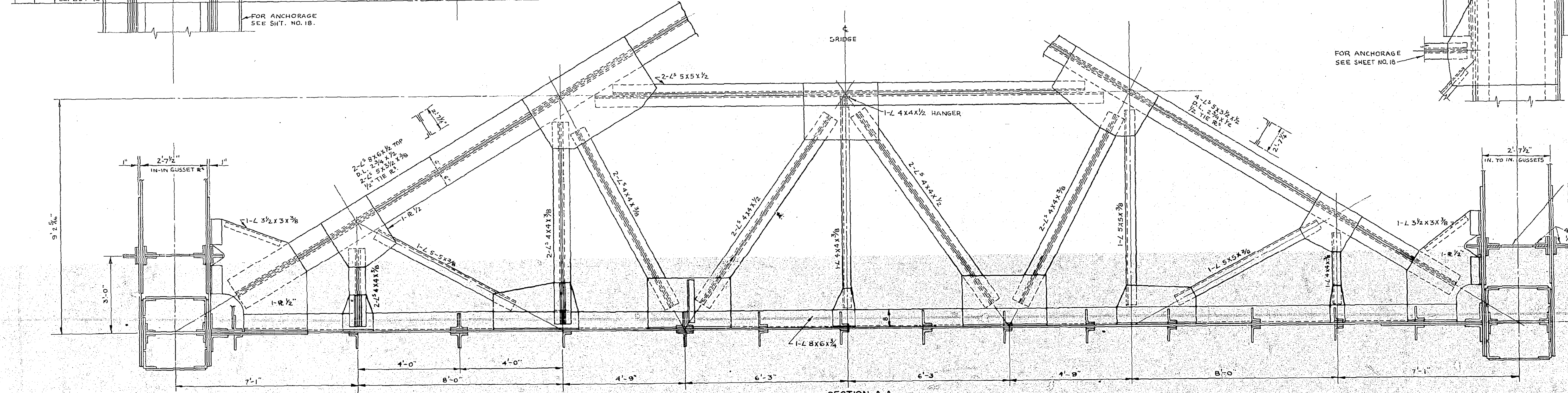
REAR TOWER FLOOR BEAM
SCALE 1/2" = 1'0"



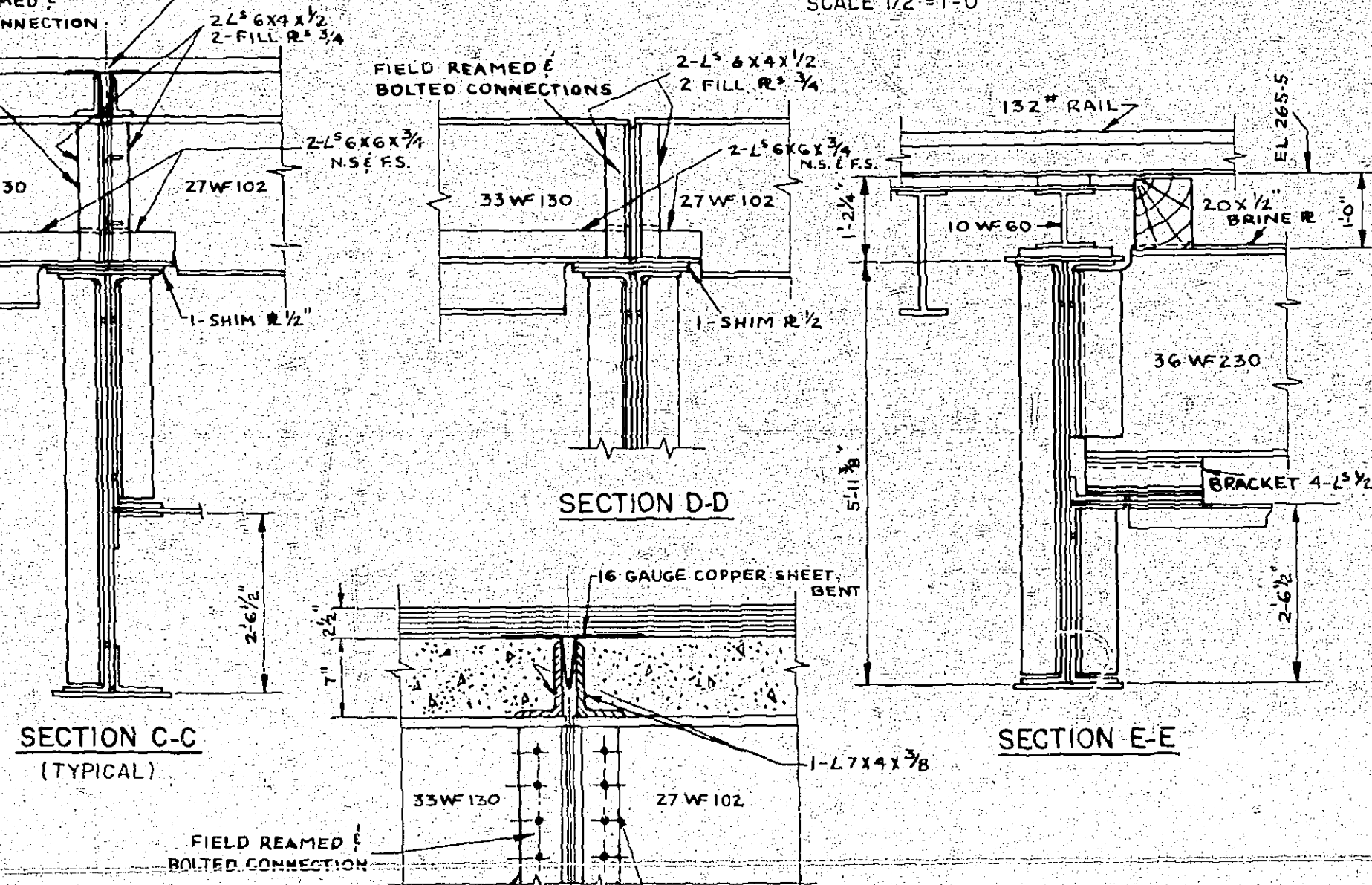
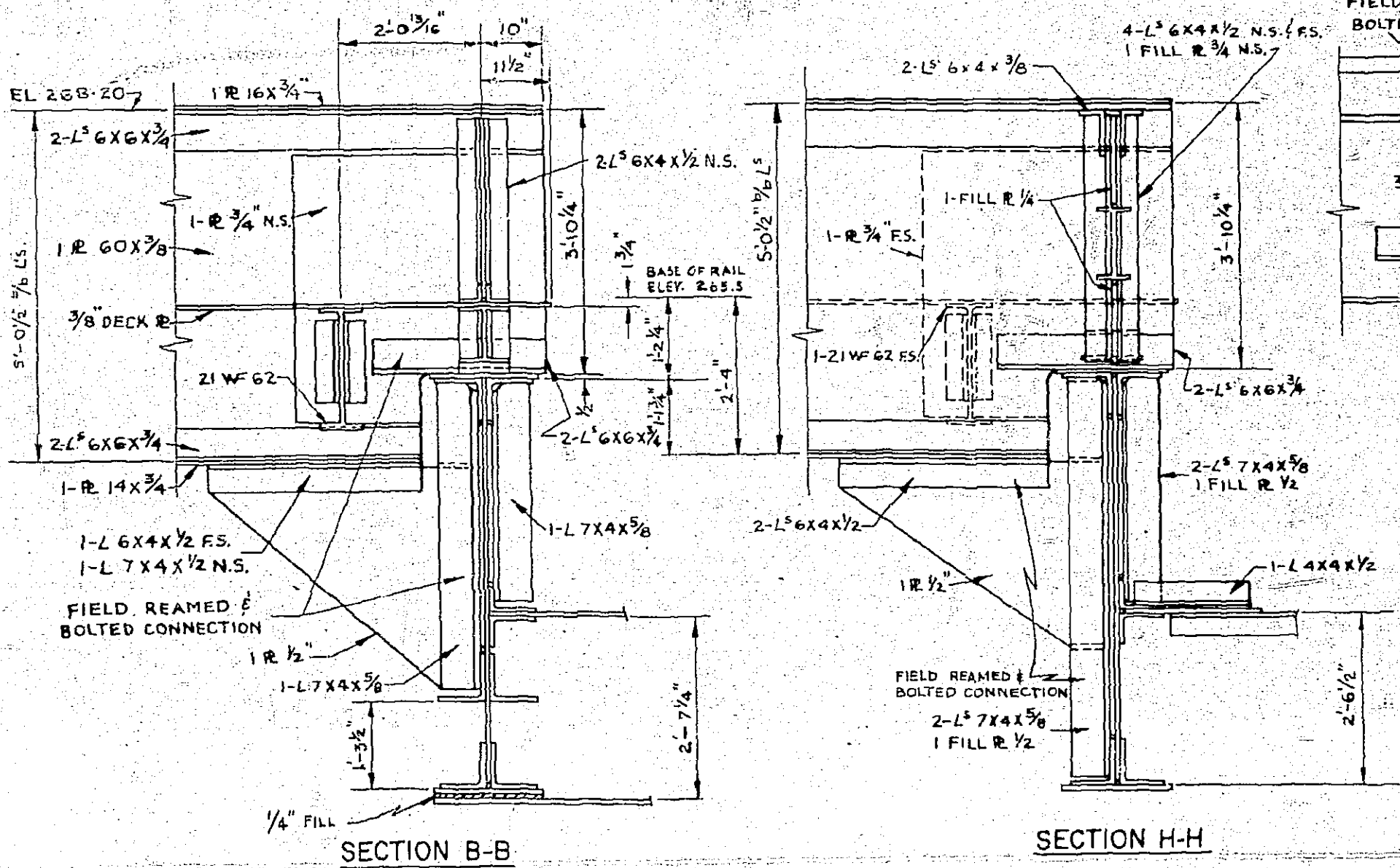
SECTION F-F



SECTION G-G



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



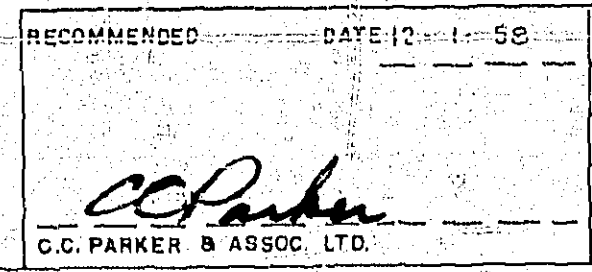
DETAIL K-K

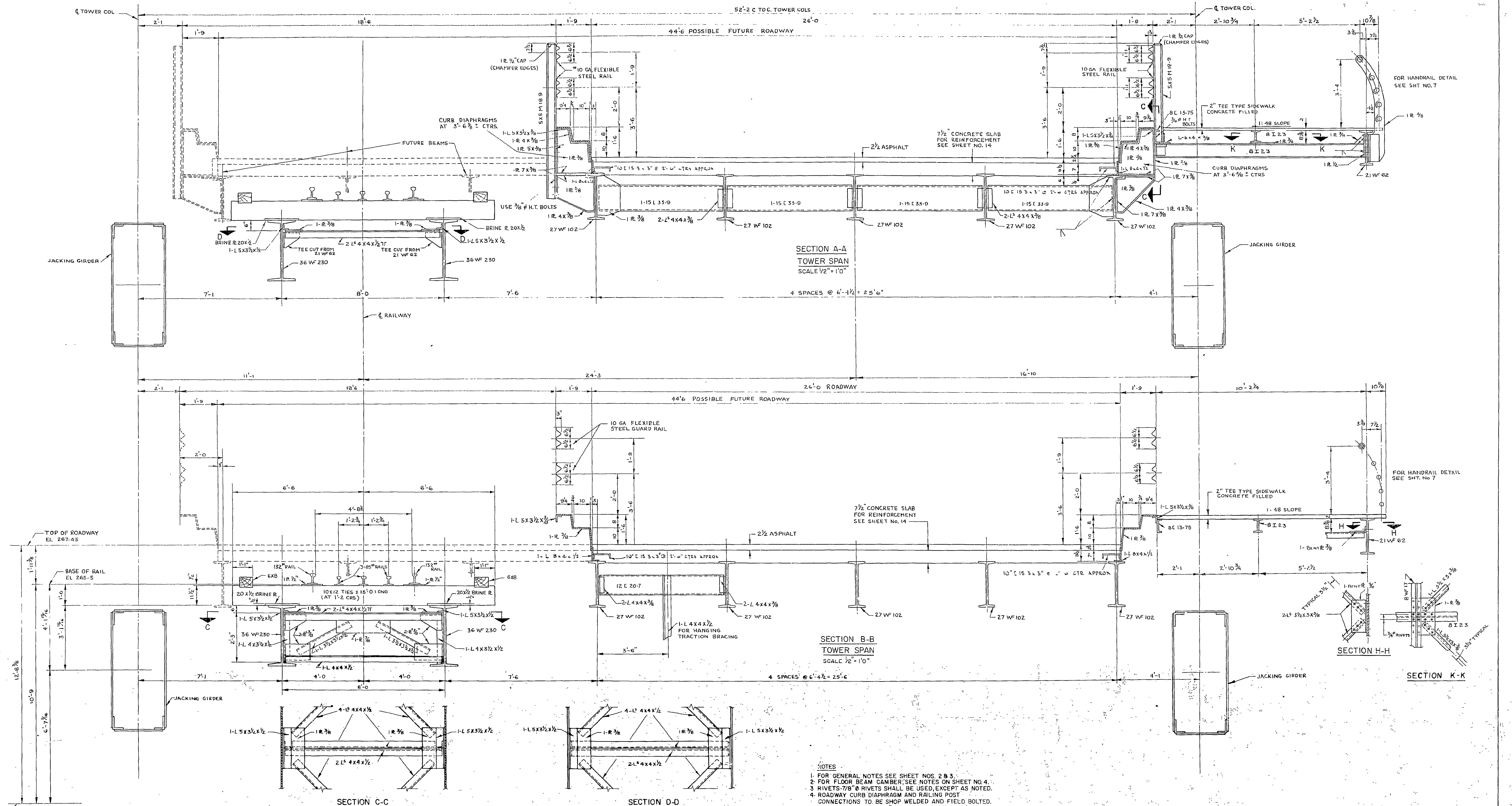
NOTES
 1. FOR GENERAL NOTES, SEE SHEET NOS. 2 & 3.
 2. FOR FLOOR BEAM CAMBER, SEE NOTES ON SHEET NO. 4.
 3. RIVETS: 7/8" Ø RIVETS SHALL BE USED, EXCEPT AS NOTED.
 4. REAR TOWER ADJUSTMENT: PROVISION IS TO BE MADE FOR A VERTICAL ADJUSTMENT OF 3 INCHES UP OR DOWN FROM THE NORMAL OPERATING POSITION OF THE REAR TOWER LEGS.

5. ROADWAY CURB DIAPHRAGM AND RAILING POST CONNECTIONS TO BE SHOP WELDED AND FIELD BOLTED. BOLTS USED TO BE 3/4" Ø HIGH STRENGTH AND PERMANENT TYPE WITH LOCKWASHERS.
 6. FOR TYPICAL CURB SECTIONS, SEE SHEET NO. 16.
 7. FOR GENERAL LAYOUT, SEE SHEET NO. 13.
 8. FOR SIDEWALK JOINT AT REAR TOWER FLOOR BEAM TO BE SIMILAR TO THE TYPICAL DETAIL OF CURB AT EXPANSION JOINT, SEE SHEET NO. 5.
 9. CORROSION RESISTANT PLATE TO CONFORM TO ASTM SPECIFICATION: A 242.
 10. CONTRACTOR SHALL MAKE PROVISION FOR ADJUSTMENT AND ALIGNMENT OF ALL RAILINGS.

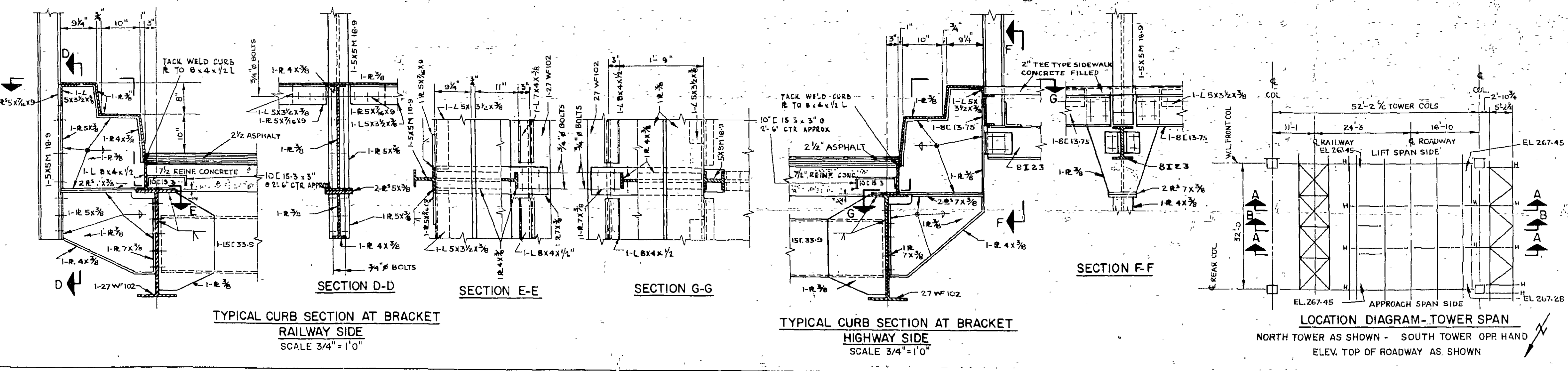


NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION C-C PARKER & ASSOCIATES LTD. CONSULTING ENGINEERS HAMILTON ONTARIO BURLINGTON CANAL LIFT BRIDGE TOWER SPAN REAR FLOOR BEAM AND TOWER COLUMNS			
APPROVED	DATE: 13/11/58	DESIGN: D. J. D.	CHKD: G. W. A.
<i>M. Thompson</i>		DRAWN: J. M.	CHKD: G. W. A.
CHIEF STRUCTURES DIVISION		TRACED: A. G.	CHKD: R. K. C. C.
	DATE: 14/11/58	JOB NO: H-538	CONTRACT NO. 2
		<i>M. Wallace</i>	SHEET 15 OF 62
		CHIEF ENGINEER	





- NOTES
1. FOR GENERAL NOTES SEE SHEET NOS. 2 & 3.
 2. FOR FLOOR BEAM GANBER; SEE NOTES ON SHEET NO. 4.
 3. RIVETS-7/8" RIVETS SHALL BE USED, EXCEPT AS NOTED.
 4. ROADWAY CURB DIAPHRAGM AND RAILING POST CONNECTIONS TO BE SHOP WELDED AND FIELD BOLTED. BOLTS USED TO BE 3/4" HIGH STRENGTH AND PERMANENT TYPE WITH LOCKWASHERS.
 5. FOR TRACTION BRACING, SEE SHEET NO. 15.
 6. FOR GENERAL LAYOUT, SEE SHEET NO. 13.
 7. CONTRACTOR SHALL MAKE PROVISION FOR ADJUSTMENT AND ALIGNMENT OF ALL RAILINGS.



NO.	REVISIONS	BY	DATE

DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

C.C. PARKER & ASSOCIATES LTD.
CONSULTING ENGINEERS
HAMILTON ONTARIO

BURLINGTON CANAL LIFT BRIDGE

TOWER SPAN
STRINGERS AND DIAPHRAGMS

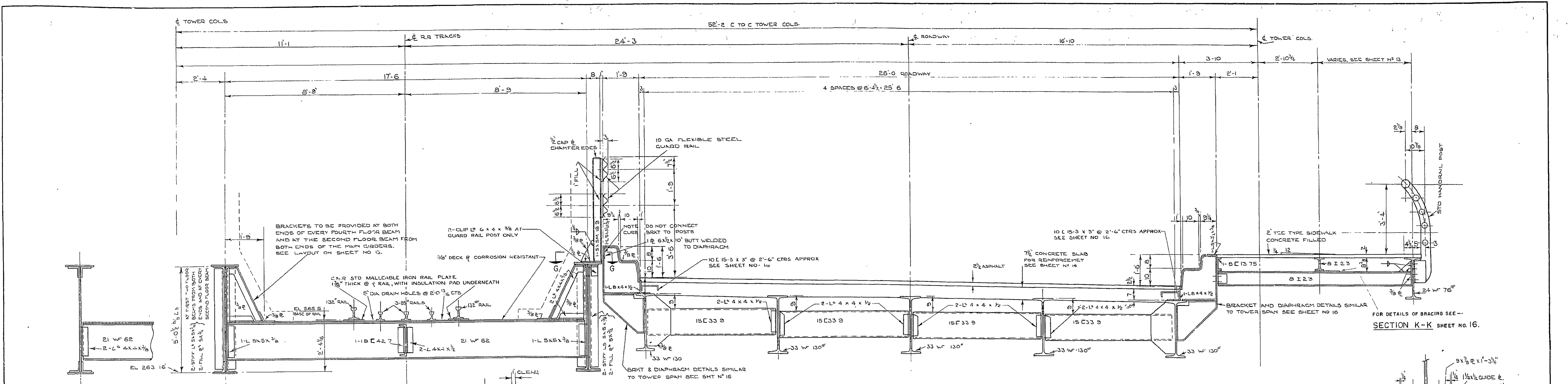
APPROVED	DATE 12/11/58	DEPARTMENT PROJECT NO. SD6-4-77
<i>M. J. Wallace</i>		
CHIEF STRUCTURES DIVISION		
APPROVED	DATE 12/11/58	CONTRACT NO. 2
<i>M. J. Wallace</i>		
CHIEF ENGINEER		SHEET 16 OF 62

RECOMMENDED DATE 12-1-58

DESIGN D.J.D. CHKD. G.W.A.
DRAWN J.M. CHKD. R.K.C.C.
TRACED A.G. CHKD. G.W.A.

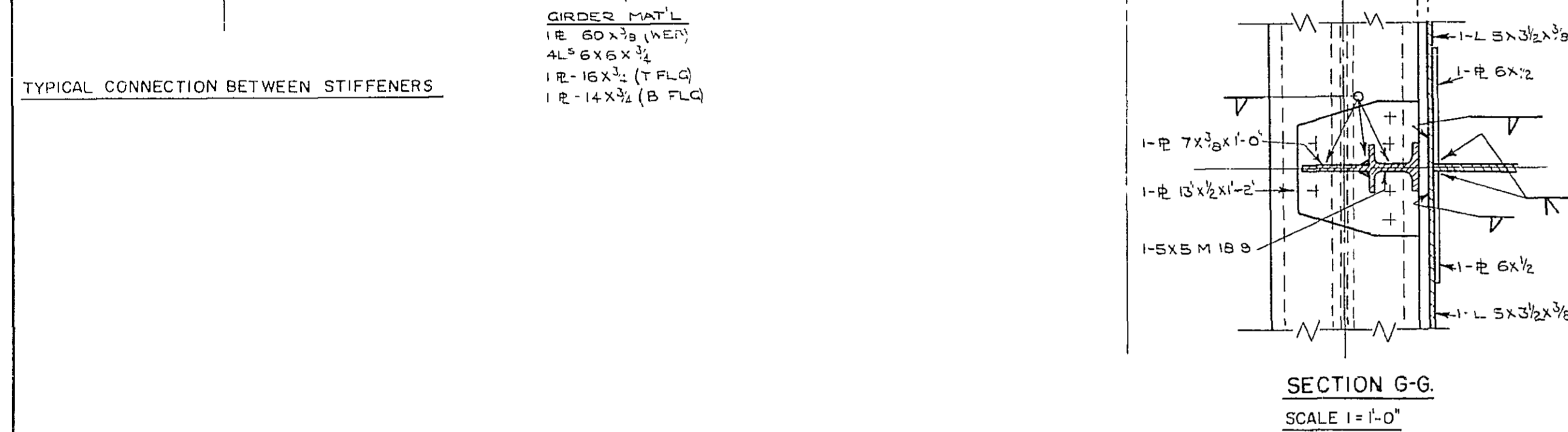
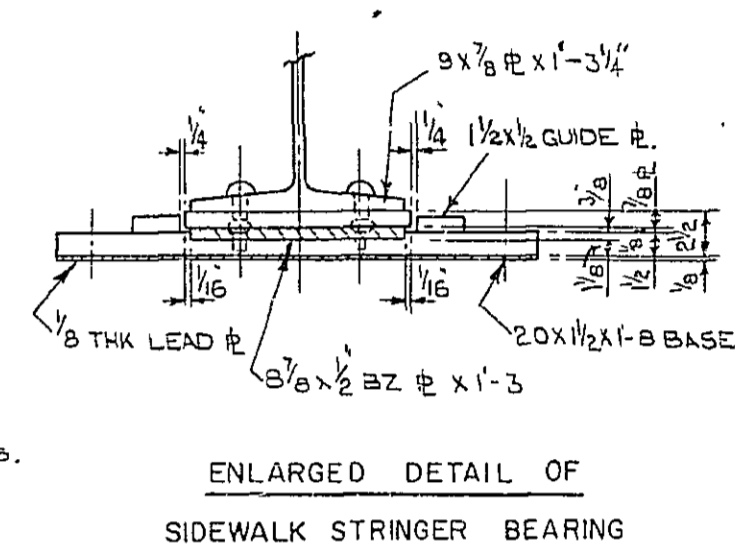
JOB NO. H-538

LOCATION DIAGRAM-TOWER SPAN
NORTH TOWER AS SHOWN - SOUTH TOWER OPPOSITE HAND
ELEV. TOP OF ROADWAY AS SHOWN

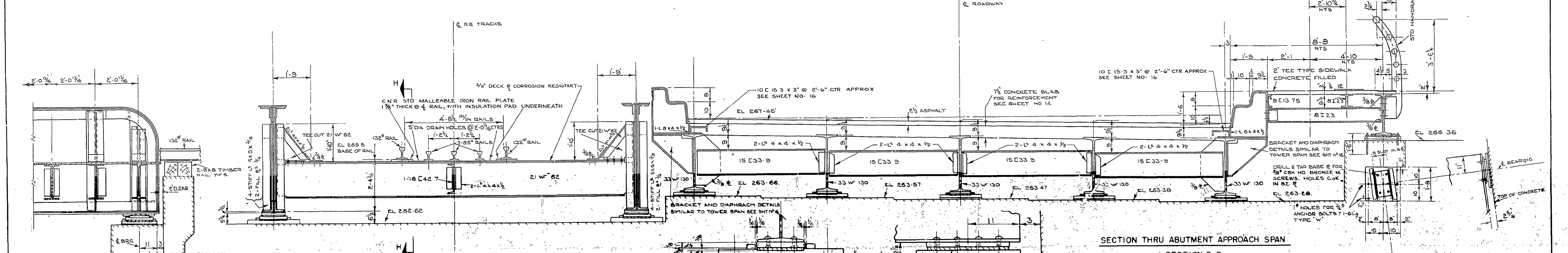


TYPICAL CONNECTION BETWEEN STIFFENERS

TYPICAL SECTIONS THRU APPROACH SPAN
SECTION A-A, B-B, C-C.
SCALE 1/2" = 1'-0"



SECTION G-G
SCALE 1" = 1'-0"



SECTION H-H

SECTION D-D
SCALE 1/2" = 1'-0"

SECTION E-E
(ENLARGED)

- NOTES**
- 1 FOR GENERAL NOTES, SEE SHEET NOS. 2 & 3.
 - 2 FOR BEAM AND GIRDER CAMBERS, SEE NOTES ON SHT NO. 13.
 - 3 RIVETS: 3/8" RIVETS SHALL BE USED, EXCEPT AS NOTED.
 - 4 ROADWAY CURB DIAPHRAGM AND RAILING POST CONNECTIONS TO BE SHOP WELDED AND FIELD BOLTED. BOLTS USED TO BE 1/2" HIGH STRENGTH AND PERMANENT TYPE WITH LOCK WASHERS.
 - 5 FOR GENERAL LAYOUT, SEE SHEET NO. 13.
 - 6 FOR TYPICAL CURB SECTIONS, SEE SHEET NO. 16.
 - 7 CORROSION RESISTANT PLATE TO CONFORM TO A.S.T.M. SPECIFICATION A.242.
 - 8 CONTRACTOR SHALL MAKE PROVISION FOR ADJUSTMENT AND ALIGNMENT OF ALL RAILINGS.

BEARING UNDER HIGHWAY GIRDER AT ABUTMENT.
SCALE 1/2" = 1'-0"

BEARING UNDER RAILWAY GIRDER AT ABUTMENT.
SCALE 1/2" = 1'-0"

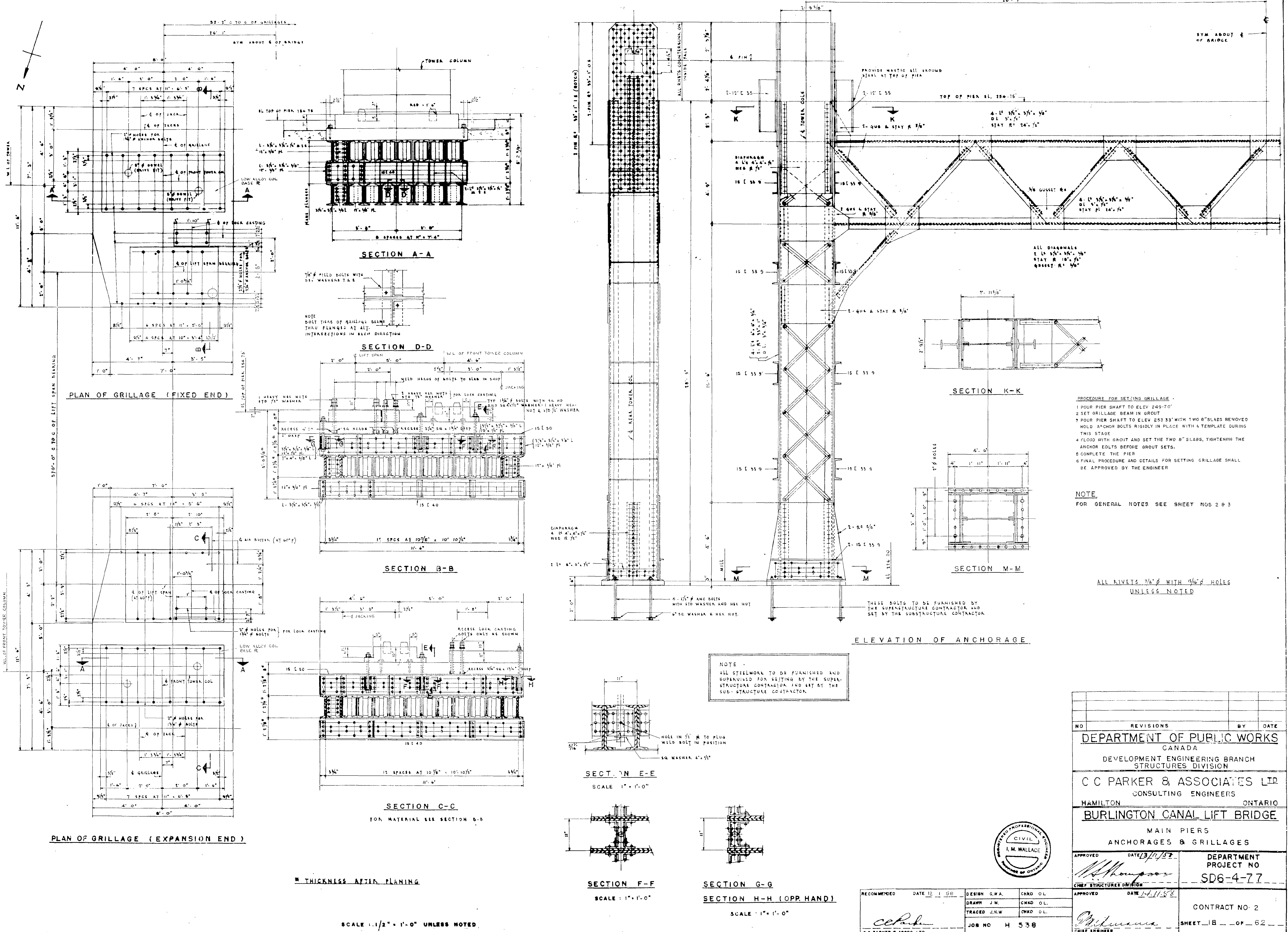
ABUTMENT ANCHOR BOLT DETAILS.
NOTE - ANCHOR BOLTS TO BE SUPPLIED AND SET WITH SUPERSTRUCTURE.

LOCATION DIAGRAM FOR APPROACH SPAN
SOUTH APPROACH (AS SHOWN)
NORTH APPROACH (OPR. HAND)

NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS. CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION.			
C. C. PARKER & ASSOCIATES LTD. CONSULTING ENGINEERS HAMILTON ONTARIO			
BURLINGTON CANAL LIFT BRIDGE. APPROACH SPAN. SECTION AND DETAILS.			
APPROVED	DATE 13/11/58	DEPARTMENT PROJECT NO. SD6-4-77	
 W. Thompson CHIEF STRUCTURE DIVISION		APPROVED DATE 14/11/58 J. McNamee CHIEF ENGINEER	
RECOMMENDED	DATE 12/11/58	DESIGN D.J.D.	CHKD. G.W.A.
		DRAWN L.K.	CHKD. A.T.
		TRACED T.L.	CHKD. A.T.
		JOB NO. H-538.	
		SHEET 17 OF 62	



RECOMMENDED DATE 12/11/58
 DESIGN D.J.D. CHKD. G.W.A.
 DRAWN L.K. CHKD. A.T.
 TRACED T.L. CHKD. A.T.
 JOB NO. H-538.



- PROCEDURE FOR SETTING GRILLAGE -**
- 1 POUR PIER SHAFT TO ELEV. 249.70'
 - 2 SET GRILLAGE BEAM IN GROUT
 - 3 POUR PIER SHAFT TO ELEV. 253.33' WITH TWO 8" SLABS REMOVED. HOLD ANCHOR BOLTS RIGIDLY IN PLACE WITH A TEMPLATE DURING THIS STAGE.
 - 4 FLOOD WITH GROUT AND SET THE TWO 8" SLABS, TIGHTENING THE ANCHOR BOLTS BEFORE GROUT SETS.
 - 5 COMPLETE THE PIER.
 - 6 FINAL PROCEDURE AND DETAILS FOR SETTING GRILLAGE SHALL BE APPROVED BY THE ENGINEER.

NOTE
FOR GENERAL NOTES SEE SHEET NOS 2 & 3

ALL RIVETS 7/8" Ø WITH 15/16" Ø HOLES UNLESS NOTED

NOTE
ALL STEELWORK TO BE FURNISHED AND SUPERVISED FOR SETTING BY THE SUPERSTRUCTURE CONTRACTOR AND SET BY THE SUBSTRUCTURE CONTRACTOR.

ELEVATION OF ANCHORAGE

NO	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA			
DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C C PARKER & ASSOCIATES LTD CONSULTING ENGINEERS			
HAMILTON		ONTARIO	
BURLINGTON CANAL LIFT BRIDGE			
MAIN PIERS ANCHORAGES & GRILLAGES			
APPROVED	DATE 13/11/58	DEPARTMENT PROJECT NO	SD6-4-77
<i>[Signature]</i>			
CHIEF STRUCTURES DIVISION			
APPROVED	DATE 14-11-58	CONTRACT NO	2
<i>[Signature]</i>			
CHIEF ENGINEER			
RECOMMENDED	DATE 12-1-58	DESIGN G.W.A.	CHKD O.L.
<i>[Signature]</i>		DRAWN J.M.	CHKD O.L.
C C PARKER & ASSOC. LTD		TRACED J.N.W.	CHKD O.L.
		JOB NO H 538	
		SHEET 18 OF 62	

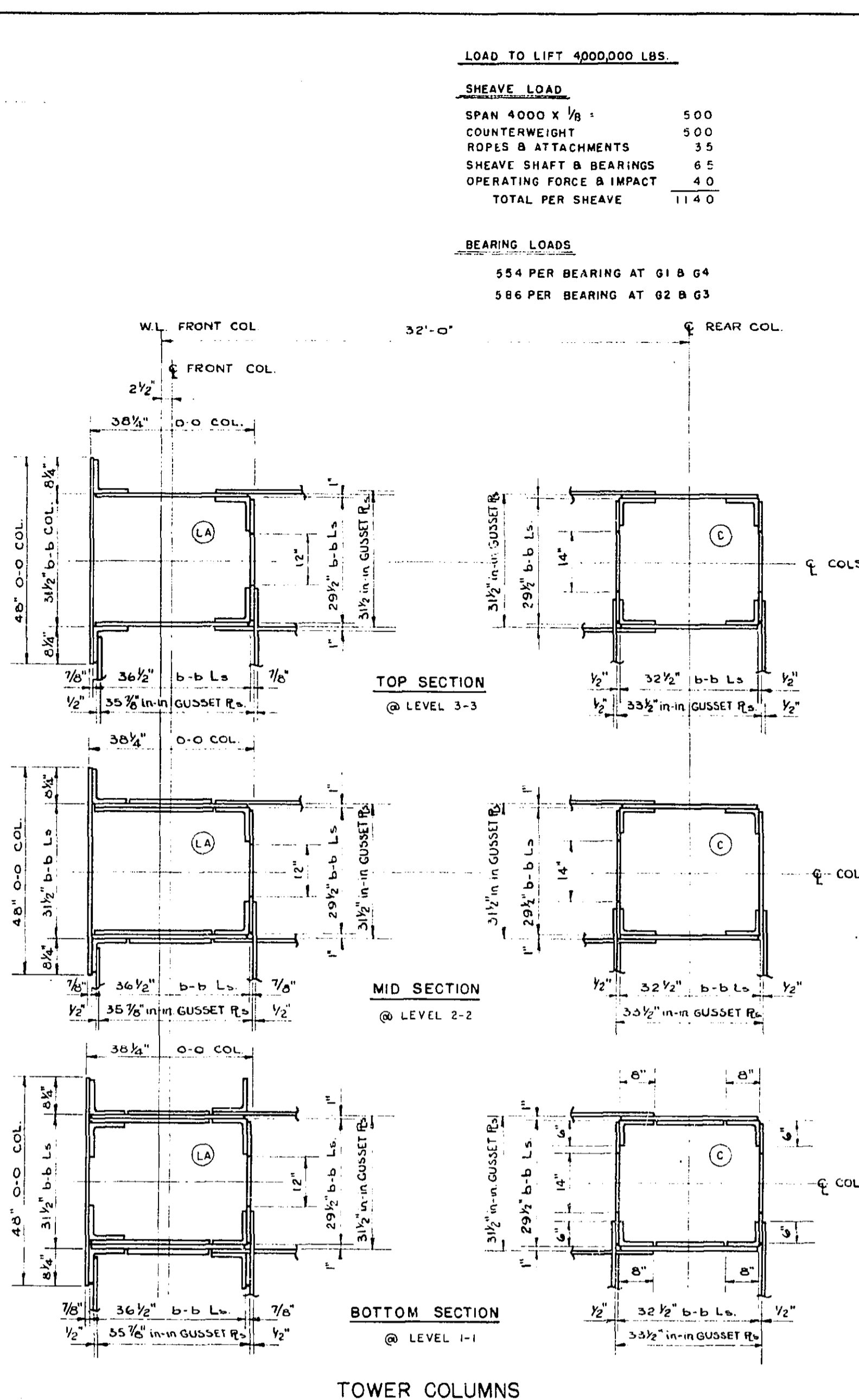
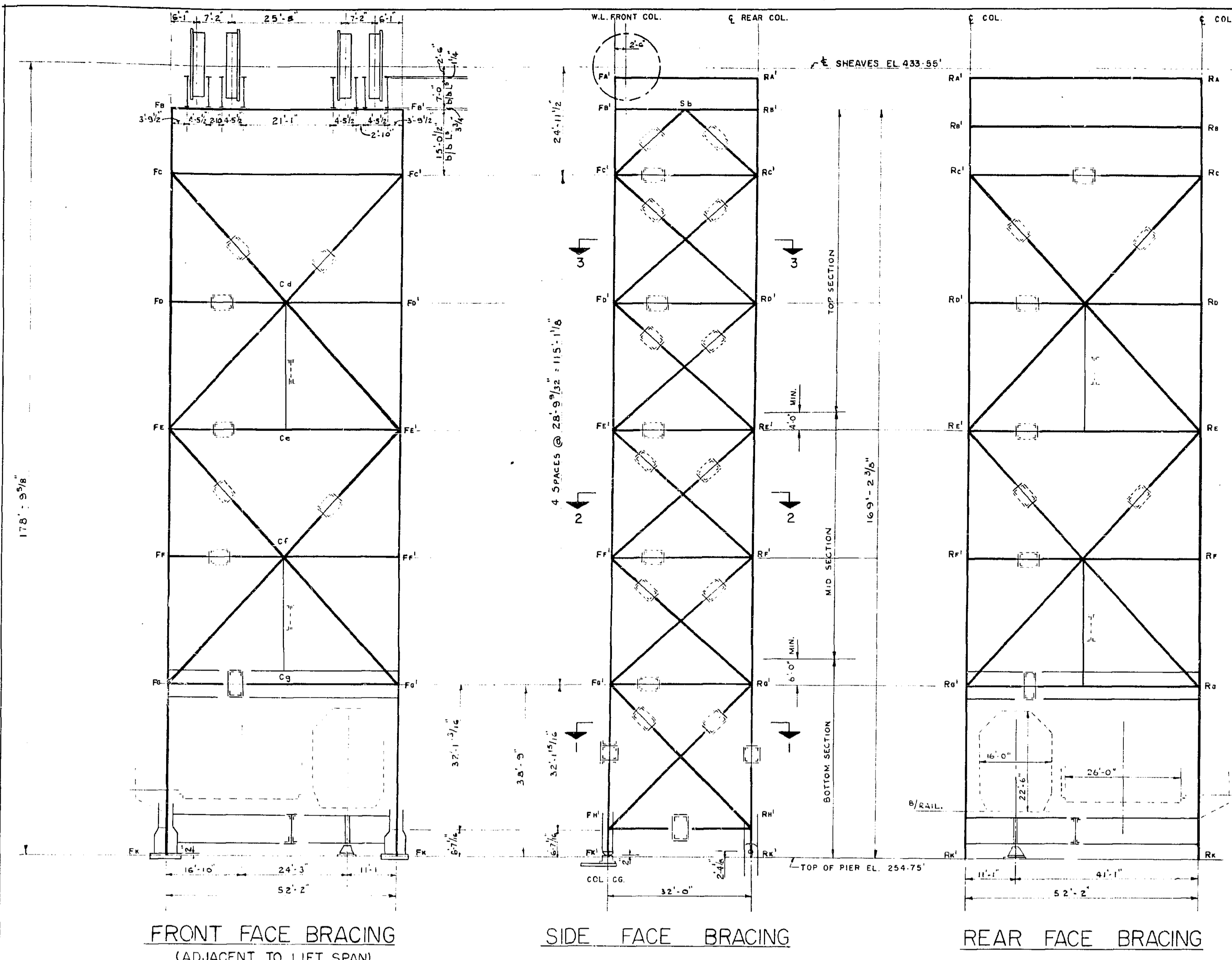
* THICKNESS AFTER PLANING

SCALE: 1/2" = 1'-0" UNLESS NOTED

SECTION E-E
SCALE: 1" = 1'-0"

SECTION F-F
SCALE: 1" = 1'-0"

SECTION G-G
SECTION H-H (OPP. HAND)
SCALE: 1" = 1'-0"



LOAD TO LIFT 4000,000 LBS.

SHEAVE LOAD

SPAN 4000 X 1/8	500
COUNTERWEIGHT	500
ROPS & ATTACHMENTS	3.5
SHEAVE SHAFT & BEARINGS	6.5
IMPACT, SHEAVE IMPACT	4.0
TOTAL PER SHEAVE	1140

BEARING LOADS

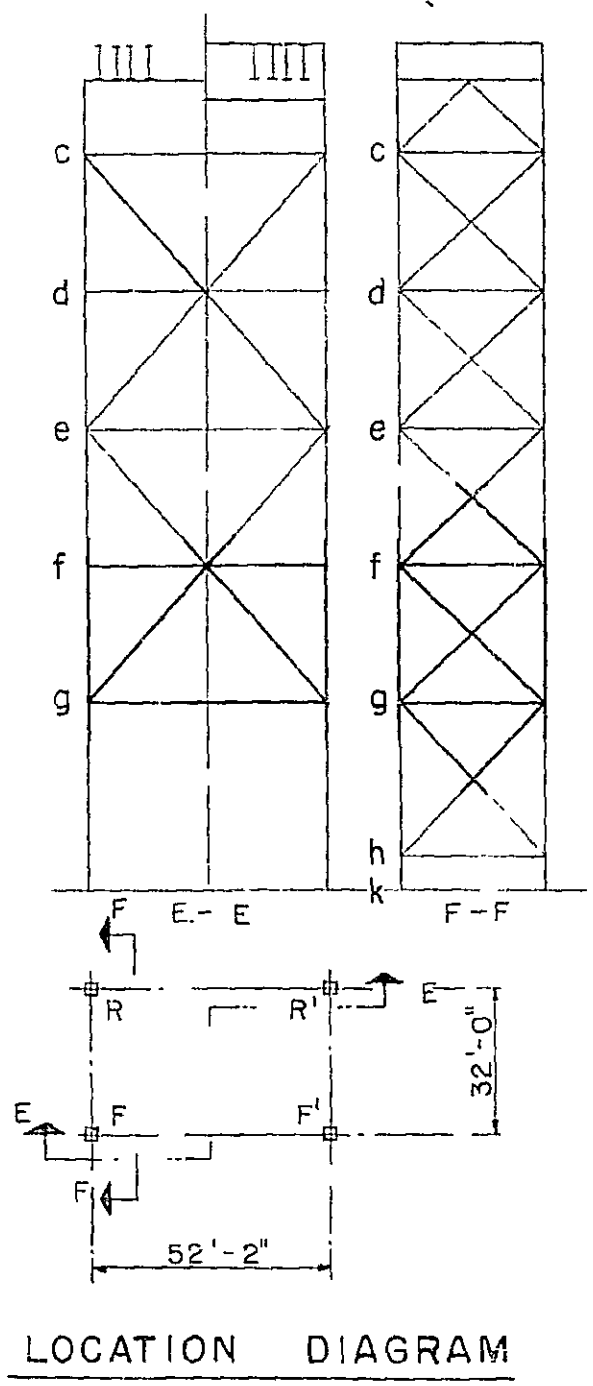
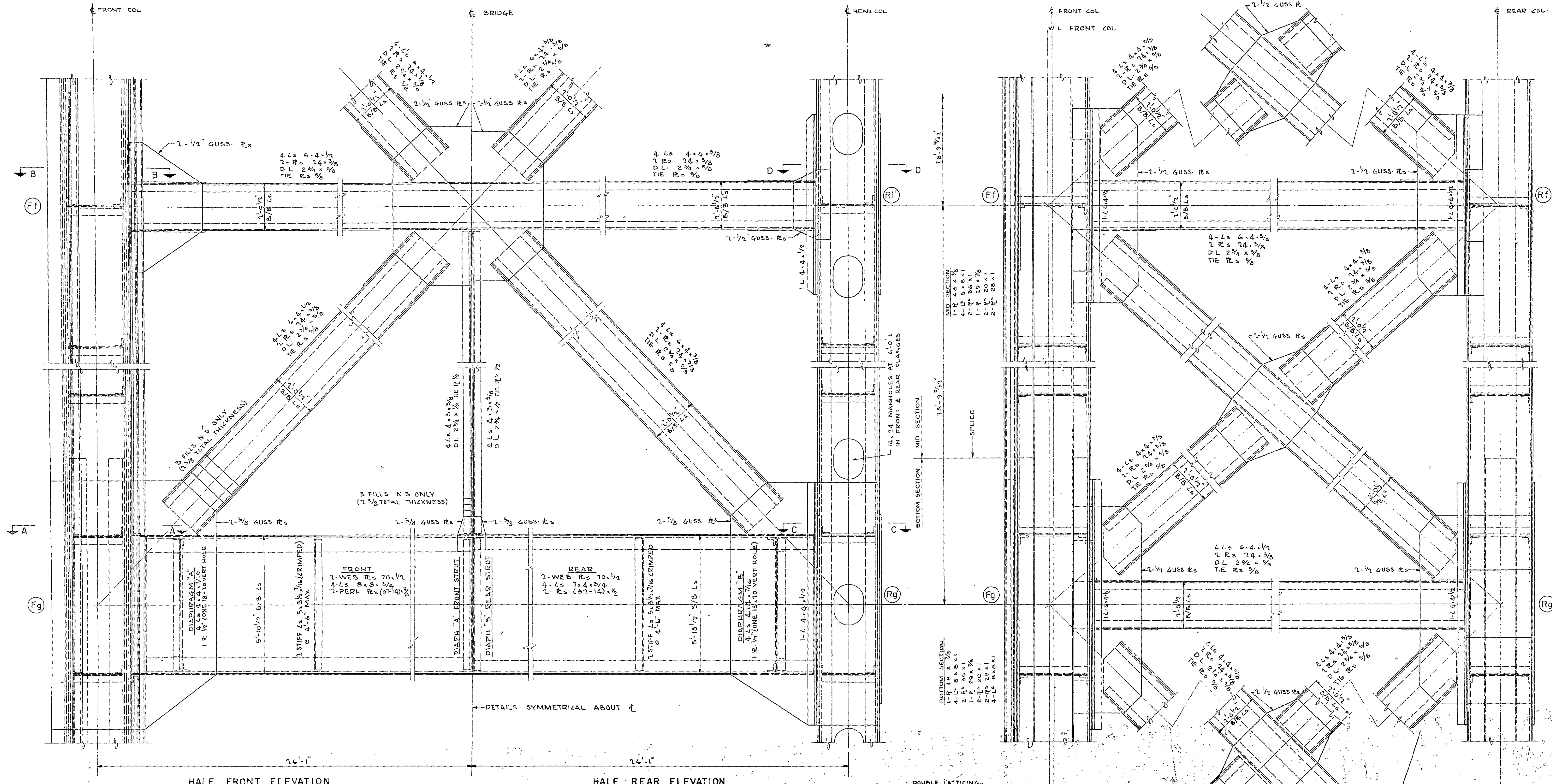
554 PER BEARING AT G1 & G4
586 PER BEARING AT G2 & G3

SHEAVE GIRDERS	LONGITUDINAL				TRANSVERSE			
	G1 & G1A	G2, G2A, G3, G3A	G4 & G4A	G6 & G6A	G7	G8	G8	G8
DEAD LOAD	371K	25K	31K	900K	79K	2.94	2.66	2.26
SHEAVE LOAD	1282	513	1,355	542	850	210.9	172	172
IMPACT, SHEAVE LOAD	258	103	270	108	170	4.22	3.4	3.4
DL + SL + IMPACT	1577	641	1,661	581	1,920	281.87	282.5	476.8
COUNTERWEIGHT ON GIRDERS				3500	350			
DL + CTWT ON GIRDERS				3802	429			
NET SECT	18-0 3/4"	1052		1280	208			
MODULUS REQ'D	22.5 3/4"	20.25		14100		3180		
GROSS AREA OF WEB REQ'D	11-0 3/4"	58.5	62	63.2	3	2.02	59.3	
SECTION	WEB FLANGE	84 X 3/4	84 X 3/4	84 X 3/4	84 X 1/2	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8
	FLANGE R _s	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8
	COVER R _s							
GROSS AREA OF WEB PROVIDED	53.0	63.0	63.0	42.0	247	66	66	66
NET SECTION MODULUS PROVIDED	18.00	22.60	18.00	14.300	3640			
MATERIAL	CARBON	CARBON	CARBON	CARBON	LOW ALLOY	CARBON STEEL		
STIFFENERS @ SUPPORT	8 L ₈ X 6 X 3/8	8 L ₈ X 6 X 3/8	8 L ₈ X 6 X 3/8	8 L ₈ X 6 X 3/8	8 L ₈ X 6 X 3/8	8 L ₈ X 6 X 3/8	8 L ₈ X 6 X 3/8	8 L ₈ X 6 X 3/8
STIFFENERS UNDER CONC. L.	8 L ₈ X 6 X 3/8	8 L ₈ X 6 X 3/8	8 L ₈ X 6 X 3/8	8 L ₈ X 6 X 3/8	8 L ₈ X 6 X 3/8	8 L ₈ X 6 X 3/8	8 L ₈ X 6 X 3/8	8 L ₈ X 6 X 3/8
INTERMEDIATE STIFFENERS	2 L ₈ X 3 X 3/8	2 L ₈ X 3 X 3/8	2 L ₈ X 3 X 3/8	2 L ₈ X 3 X 3/8	2 L ₈ X 3 X 3/8	2 L ₈ X 3 X 3/8	2 L ₈ X 3 X 3/8	2 L ₈ X 3 X 3/8

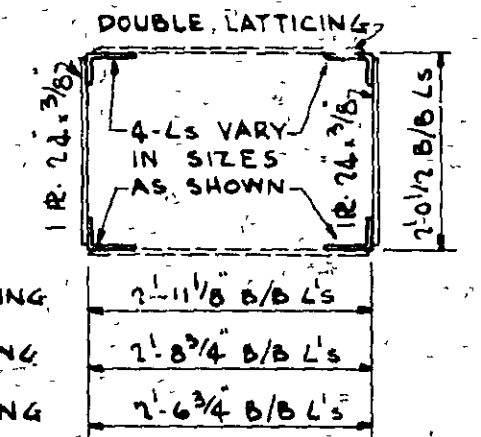
REACTION IN KIPS PER COLUMN	FRONT COLUMN				REAR COLUMN			
	SPAN UP	SPAN DOWN	CTWT JACKED	SPAN UP	SPAN DOWN	CTWT JACKED	SPAN UP	SPAN DOWN
DEAD LOAD	881	1002	831	1002	735	822	410	588
SHEAVE LOAD	1920	1920	1920	1920	1920	1920	1920	1920
MESSENGER CABLE	170	170	170	170	170	170	159	159
TOTAL STATIC LOAD	2971	3092	2971	3092	1724	1811	411	589
1/2 DL + LOAD	1981	2061	1981	2061	1149	1207	274	393
ROOF LIVE LOAD	66	66	66	66	66	66	72	72
SHEAVE LOAD IMPACT	384	384	384	384	384	384	32	32
TOTAL DL + LL + IMPACT	3421	3542	3421	3542	1790	1273	515	693
TRANS WIND	± 156 ± 156	± 198 ± 198	± 156 ± 156	± 198 ± 198	± 156 ± 156	± 198 ± 198	± 156 ± 156	± 198 ± 198
LONG WIND	± 973 ± 973	± 602 ± 649	± 973 ± 973	± 602 ± 649	± 973 ± 973	± 602 ± 649	± 973 ± 973	± 602 ± 649
45° WIND	± 798 ± 798	± 642 ± 635	± 798 ± 798	± 642 ± 635	± 798 ± 798	± 642 ± 635	± 798 ± 798	± 642 ± 635
MAX DL + LL + IMPACT + 30 PSF WIND	± 4394 ± 4515	± 4073 ± 4191	± 4394 ± 4515	± 4073 ± 4191	± 4394 ± 4515	± 4073 ± 4191	± 4394 ± 4515	± 4073 ± 4191
TRANS WIND	± 326 ± 326	± 326 ± 326	± 326 ± 326	± 326 ± 326	± 326 ± 326	± 326 ± 326	± 326 ± 326	± 326 ± 326
LONG WIND	± 1080 ± 1080	± 1070 ± 1080	± 1080 ± 1080	± 1070 ± 1080	± 1080 ± 1080	± 1070 ± 1080	± 1080 ± 1080	± 1070 ± 1080
45° WIND	± 954 ± 994	± 994 ± 994	± 954 ± 994	± 994 ± 994	± 954 ± 994	± 994 ± 994	± 954 ± 994	± 994 ± 994
MAX DL + 50 PSF WIND	± 4051 ± 4172	± 2804 ± 2891	± 4051 ± 4172	± 2804 ± 2891	± 4051 ± 4172	± 2804 ± 2891	± 4051 ± 4172	± 2804 ± 2891
TRANS WIND	± 901 ± 981	± 69 ± 127	± 901 ± 981	± 69 ± 127	± 901 ± 981	± 69 ± 127	± 901 ± 981	± 69 ± 127
LONG WIND	± 15 ± 15	± 15 ± 15	± 15 ± 15	± 15 ± 15	± 15 ± 15	± 15 ± 15	± 15 ± 15	± 15 ± 15
MESSENGER CABLE	± 164 ± 12	± 131 ± 11	± 164 ± 12	± 131 ± 11	± 164 ± 12	± 131 ± 11	± 164 ± 12	± 131 ± 11
TRANS WIND	± 130 ± 138	± 137 ± 137	± 130 ± 138	± 137 ± 137	± 130 ± 138	± 137 ± 137	± 130 ± 138	± 137 ± 137
LONG WIND	± 130 ± 138	± 137 ± 137	± 130 ± 138	± 137 ± 137	± 130 ± 138	± 137 ± 137	± 130 ± 138	± 137 ± 137
NOSE								

FRONT BRACING	F _c F _e		F _d F _f		F _g F _h		F _i F _j		F _k F _l		F _m F _n		F _o F _p		F _q F _r		F _s F _t		F _u F _v		F _w F _x		F _y F _z			
	Fe	Fc	Fd	Ff	Fg	Fh	Fi	Fj	Fk	Fl	Fm	Fn	Fo	Fp	Fq	Fr	Fs	Ft	Fu	Fv	Fw	Fx	Fy	Fz		
2 1/2% COLUMNS KIPS	± 112	± 117	± 75	± 63	± 77	± 65	± 78	± 66	± 80	± 80	± 80	± 80	± 80	± 80	± 80	± 80	± 80	± 80	± 80	± 80	± 80	± 80	± 80	± 80	± 80	
TRANSVERSE WIND KIPS	± 184	± 200	± 104	± 88	± 104	± 88	± 104	± 88	± 104	± 88	± 104	± 88	± 104	± 88	± 104	± 88	± 104	± 88	± 104	± 88	± 104	± 88	± 104	± 88	± 104	
MOMENT FROM TRAN WIND - FT-KIPS																										
DESIGN STRESS KIPS	± 296	± 397	± 179	± 89	± 210	± 80	± 276	± 108	± 210	± 80	± 276	± 108	± 210	± 80	± 276	± 108	± 210	± 80	± 276	± 108	± 210	± 80	± 276	± 108	± 210	
L/T	61.0	61.3	39.7	41.0	41.2	39.4	41.2	39.4	41.2	39.4	41.2	39.4	41.2	39.4	41.2	39.4	41.2	39.4	41.2	39.4	41.2	39.4	41.2	39.4	41.2	
ALLOW. UNIT STRESS K/IN ²	15.5	15.5	16.0	16.4	16.0	16.4	16.0	16.4	16.0	16.4	16.0	16.4	16.0	16.4	16.0	16.4	16.0	16.4	16.0	16.4	16.0	16.4	16.0	16.4	16.0	
AREA REQ'D	21.9	28.6	20.1	25.5	25.5	30.2	25.5	30.2	25.5	30.2	25.5	30.2	25.5	30.2	25.5	30.2	25.5	30.2	25.5	30.2	25.5	30.2	25.5	30.2	25.5	
SECTION	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	
AREA OF SECTION - IN ²	25.7	30.3	25.7	25.7	30.3	144.5	144.5	144.5	144.5	144.5	144.5	144.5	144.5	144.5	144.5	144.5	144.5	144.5	144.5	144.5	144.5	144.5	144.5	144.5	144.5	144.5
SECTION MODULUS - IN ³ (GROSS)	21.2	31.5	21.2	21.2	31.5	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200
MATERIAL	CARBON STEEL												CARBON STEEL													

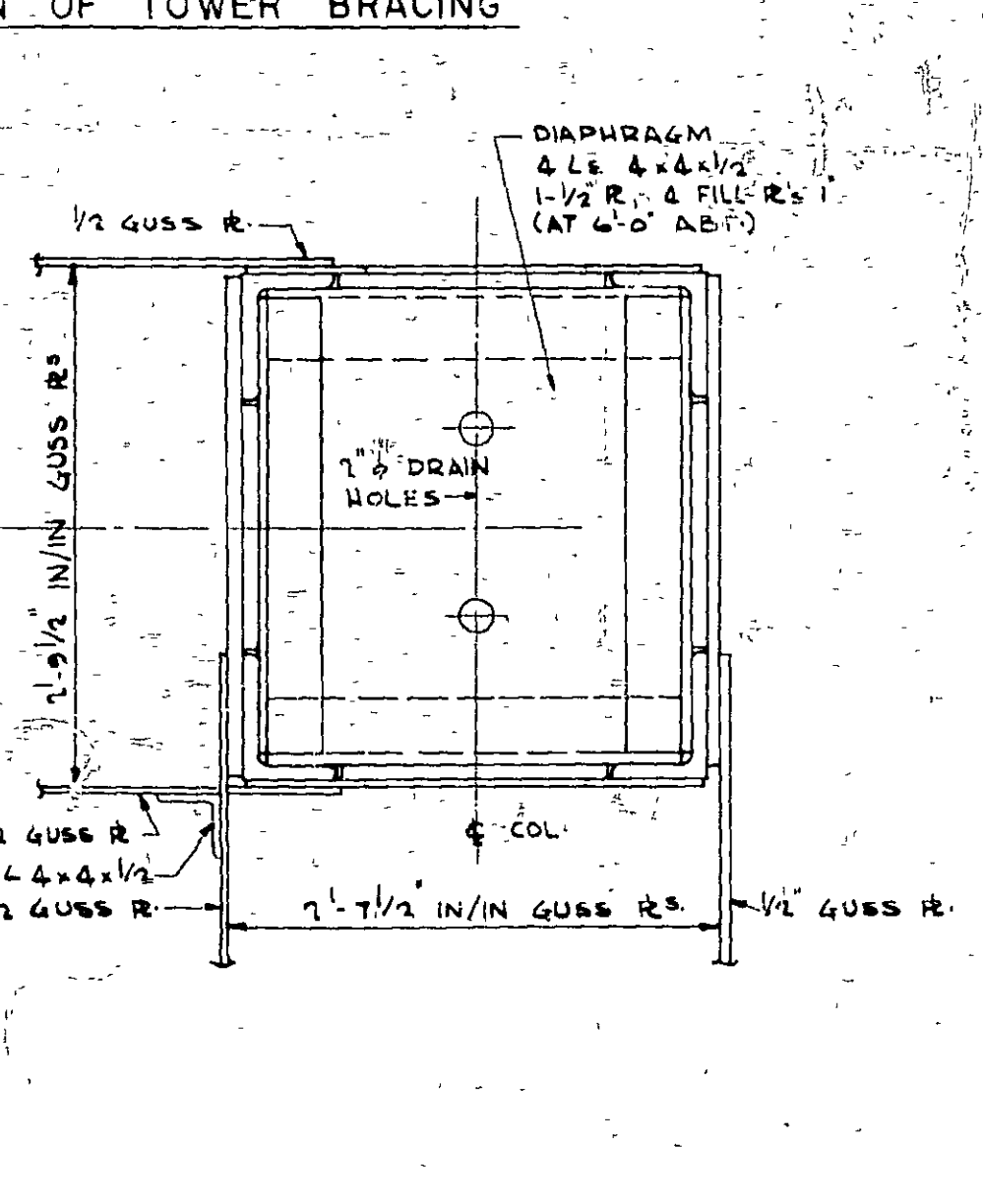
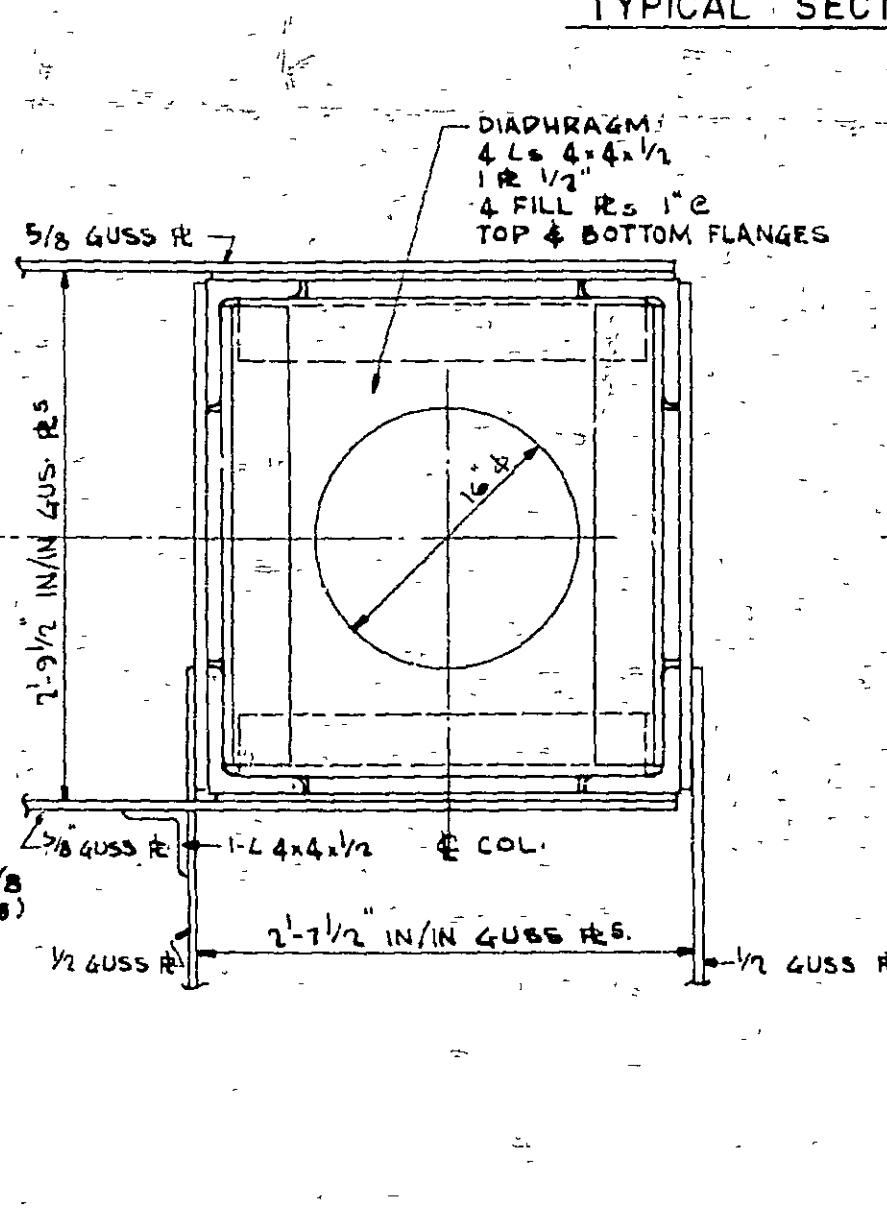
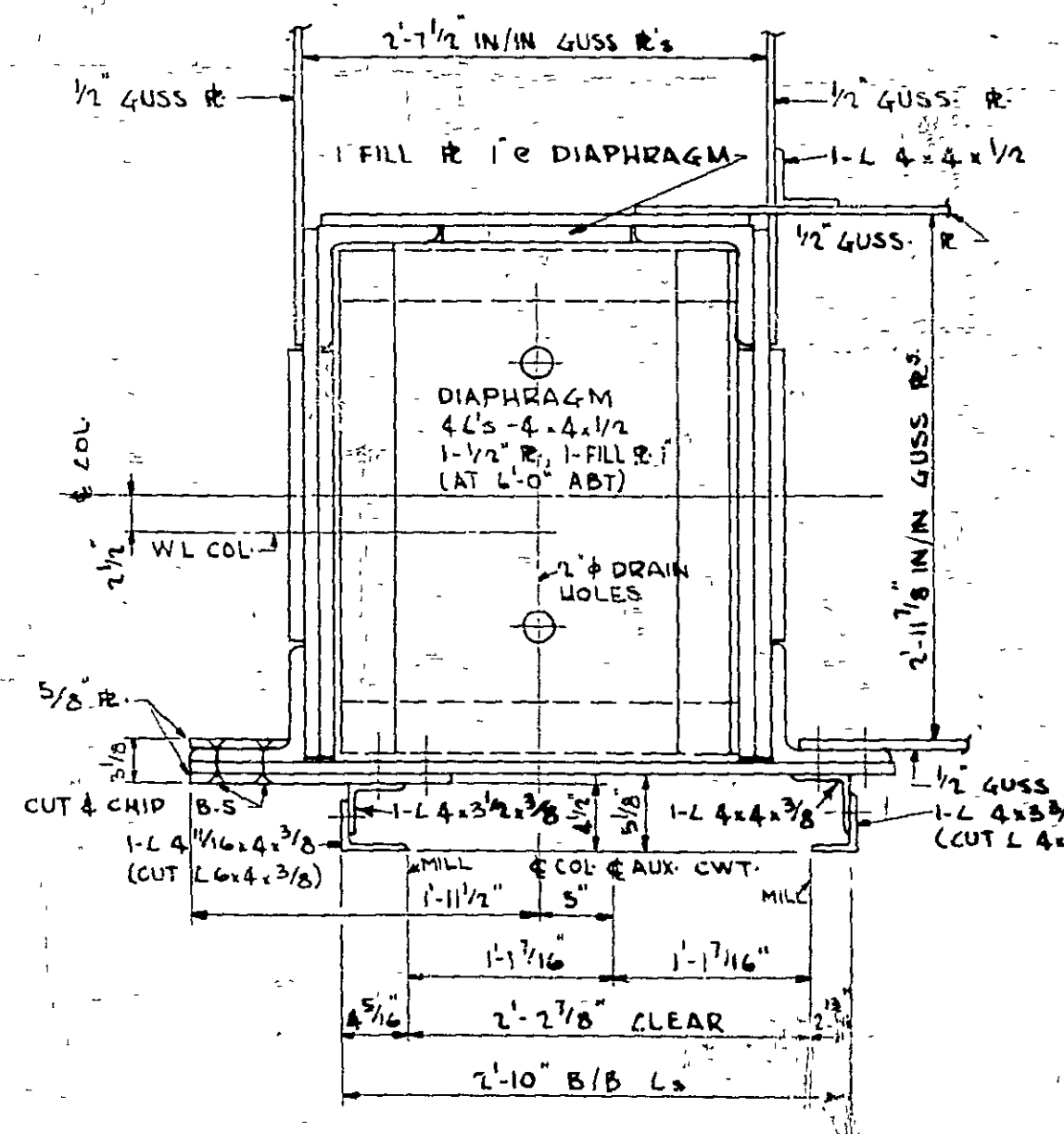
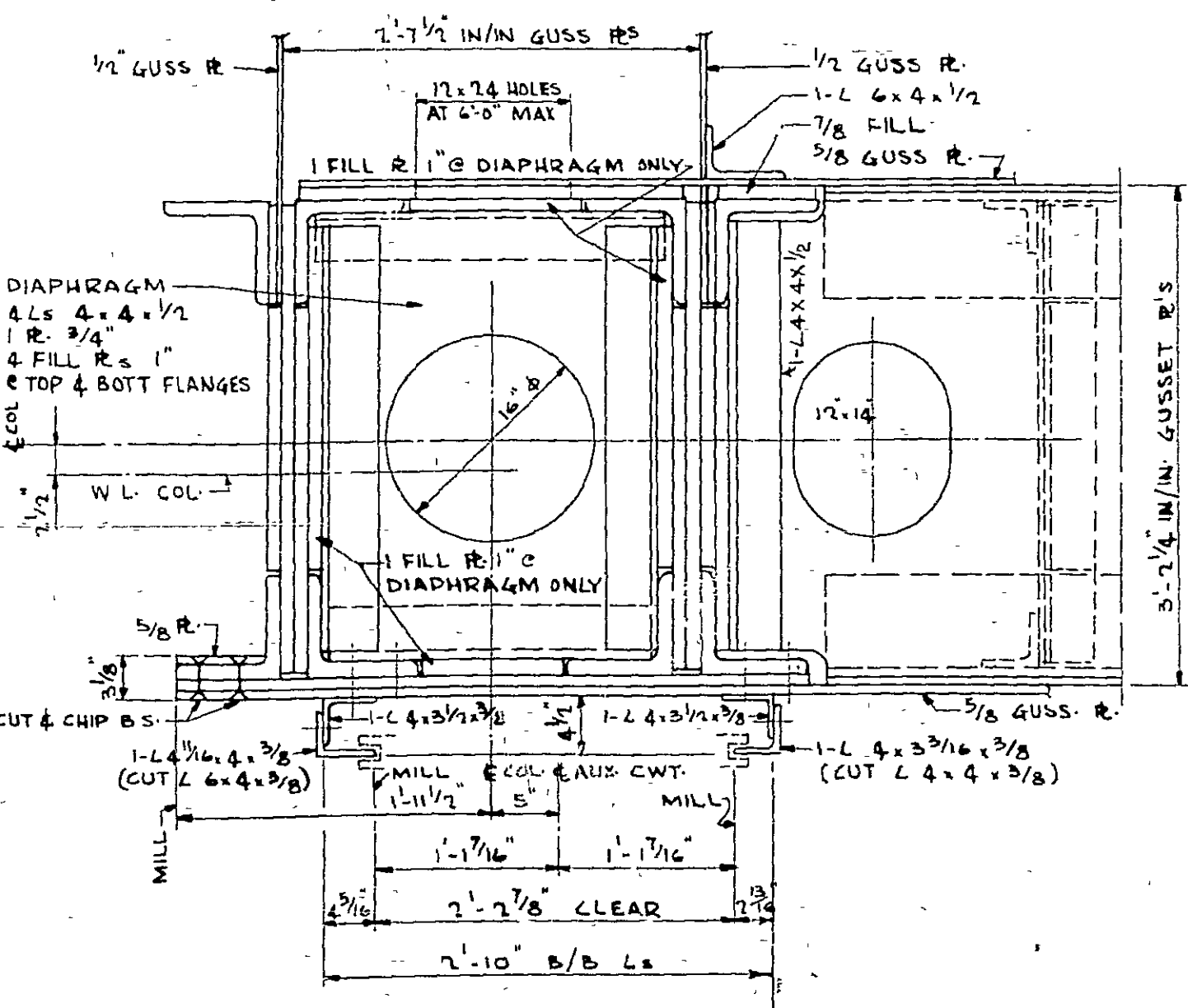
REAR BRACING	R _c R _e		R _d R _f		R _g R _h		R _i R _j		R _k R _l		R _m R _n		R _o R _p		R _q R _r		R _s R _t		R _u R _v		R _w R _x		R _y R _z	
	Re	Rc	Rd	Rf	Rg	Rh	Ri	Rj	Rk	Fl	Rm	Rn	Ro	Rp	Rq	Rr	Rs	Rt	Ru	Rv	Rw	Rx	Ry	Rz
2 1/2% COLUMNS KIPS	± 22	± 25	± 25	± 17	± 19	± 21	± 18	± 3	± 3	± 3	± 3	± 3	± 3	± 3	± 3	± 3	± 3	± 3	± 3	± 3	± 3	± 3	± 3	± 3
MESSENGER CABLE	± 20	± 20	± 20	± 20	± 22	± 22	± 22	± 22	± 22	± 22	± 22	± 22	± 22	± 22	± 22	± 22	± 22	± 22	± 22	± 22	± 22	± 22	± 22	± 22
WIND	± 108	± 136	± 146	± 161	± 191	± 191	± 191	± 191	± 191	± 191	± 191	± 191	± 191	± 191	± 191	± 191	± 191	± 191	± 191	± 191	± 191	± 191	± 191	± 191
DESIGN STRESS	± 212	± 259	± 272	± 289	± 322	± 322	± 322	± 322	± 322	± 322	± 322	± 322	± 322	± 322	± 322	± 322	± 322	± 322	± 322	± 322	± 322	± 322	± 322	± 322
DESIGN MOMENT	34.7	24.7	34.7	34.7	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2
ALLOWABLE UNIT STRESS K/IN ²	16.2	16.2	16.2	16.2	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1
AREA REQ'D	14.3	16.9	21.0	21.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
SECTION	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8	4 L ₈ X 6 X 3/8
AREA OF SECTION - IN ²	22.7	22.7	22.7	22.7	22.7	25.7																		



- NOTES**
- 1 FOR GENERAL NOTES SEE SHEET NOS 2 & 3
 - 2 RIVETS - 7/8" Ø RIVETS SHALL BE USED EXCEPT FRONT TOWER COLUMNS WHERE 1" Ø RIVETS SHALL BE USED OR AS NOTED
 - 3 FOR LADDER & PLATFORM DETAILS SEE SHEET NOS 29, 30 & 31
 - 4 FOR TYPICAL COLUMN SECTIONS SEE SHEET NO 19
 - 5 SIDE BRACING DIAGONALS Fg Rh & Rg Ph OF WEST FACE OF NORTH TOWER TO BE CHANGED TO PROVIDED FOR STAIR CASE TO ELEVATOR, SHEET NO 31 FOR MATERIALS AND SECTIONS.



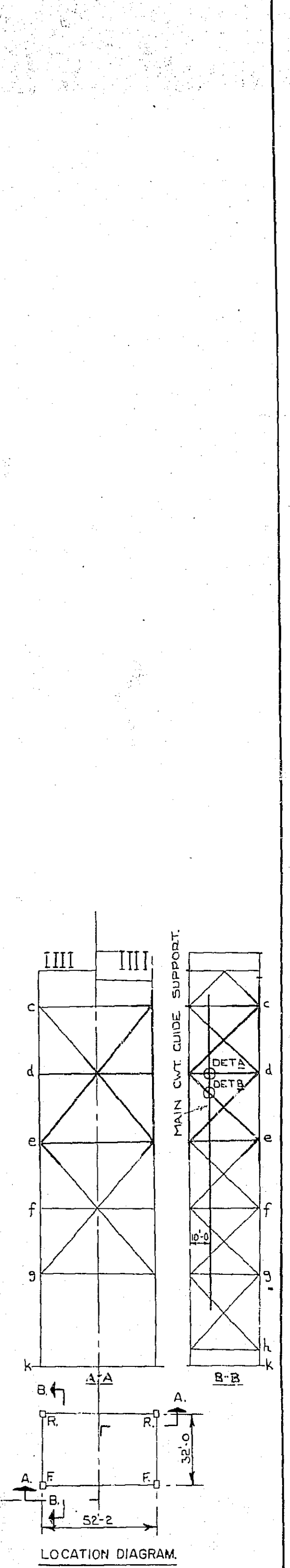
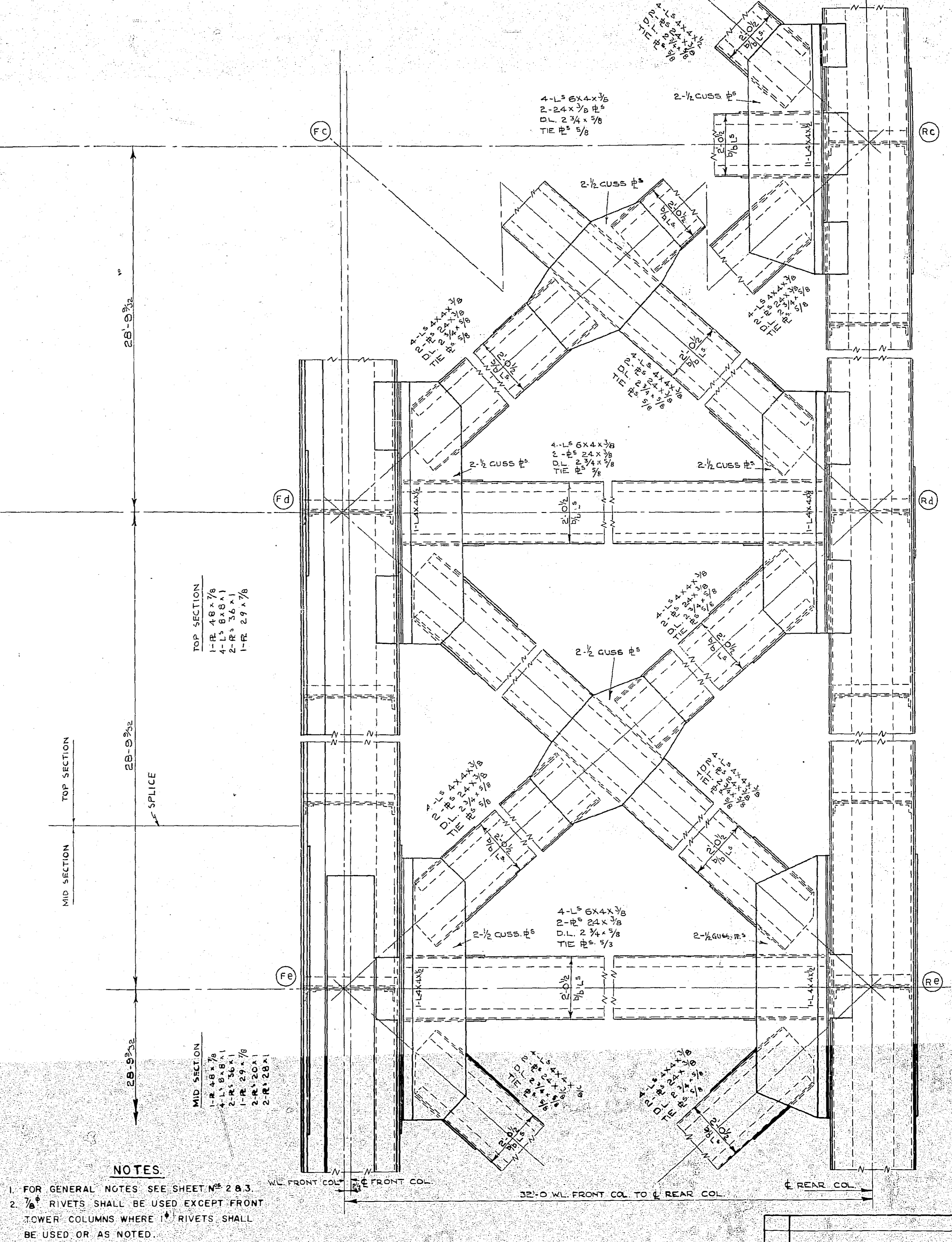
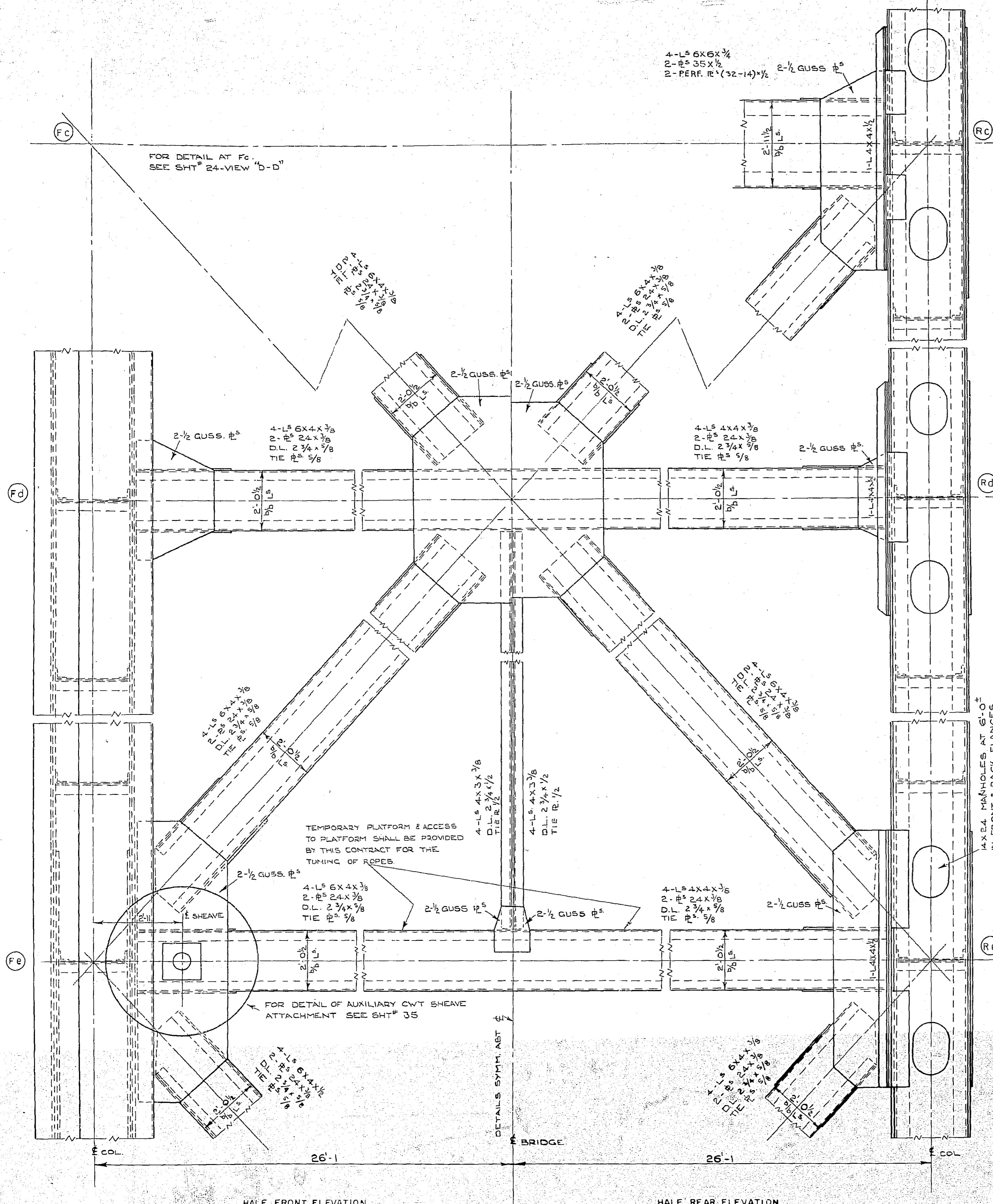
SECTION F - F'
SCALE: 1/2" = 1'-0"



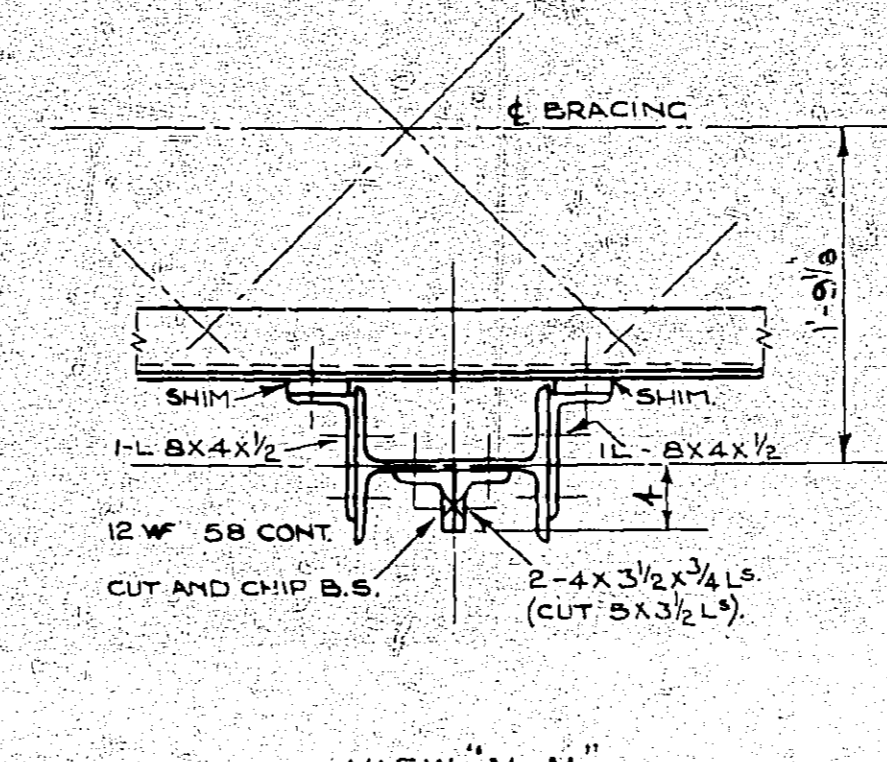
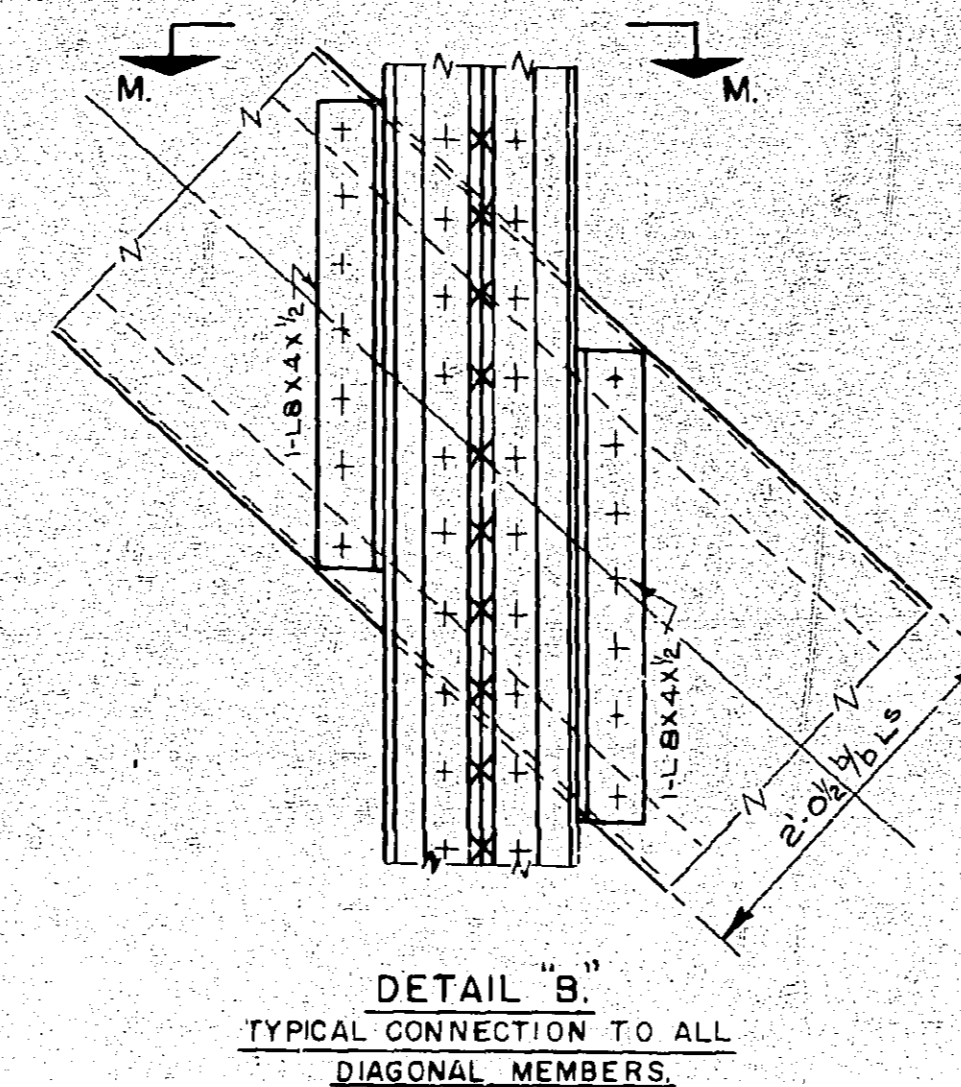
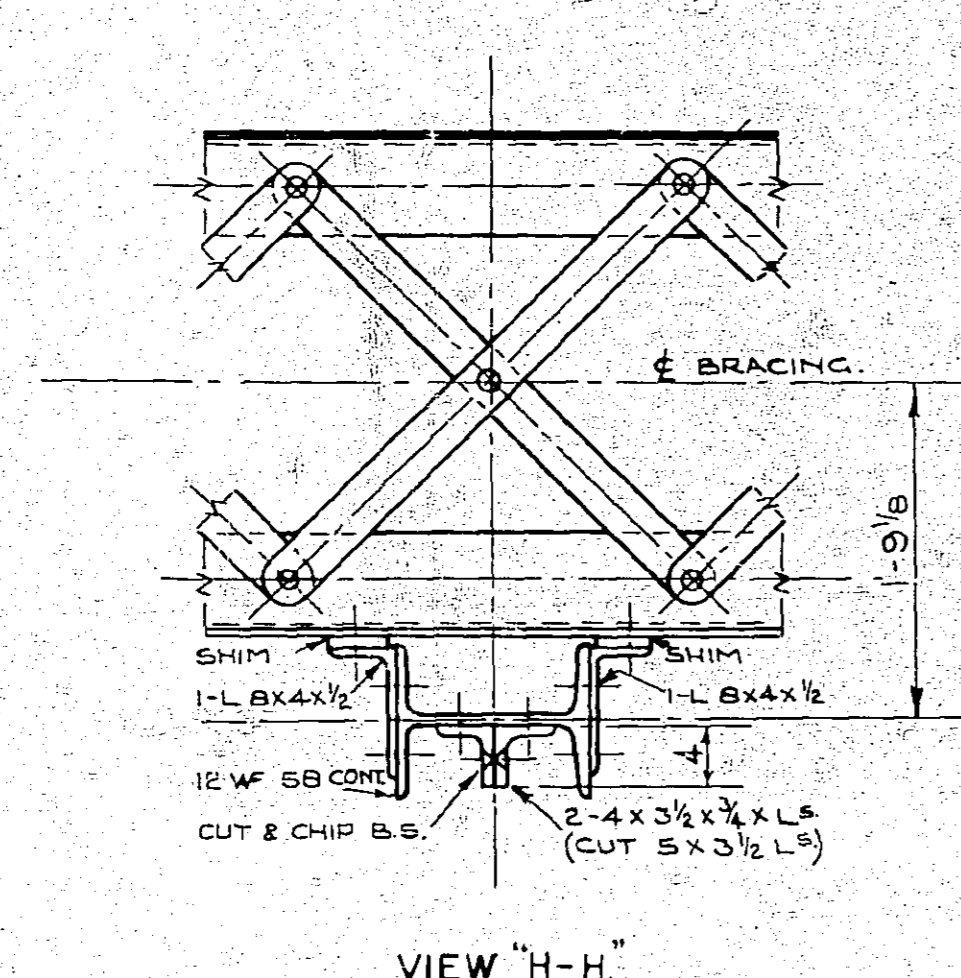
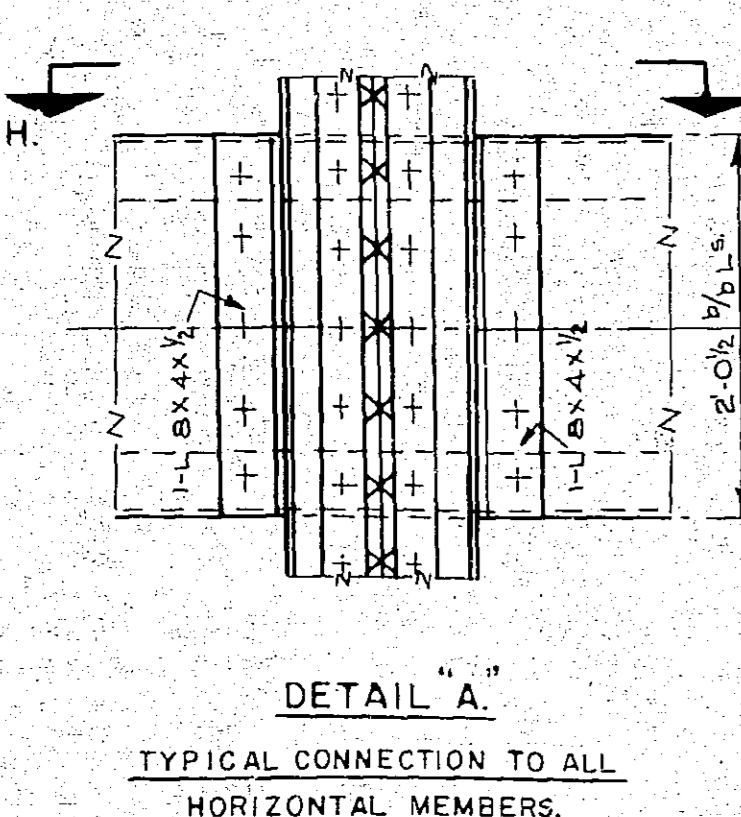
NO.	REVISIONS	DATE
DEPARTMENT OF PUBLIC WORKS		
CANADA		
DEVELOPMENT ENGINEERING BRANCH		
STRUCTURES DIVISION		
C. C. PARKER & ASSOCIATES LTD.		
CONSULTING ENGINEERS		
HAMILTON		ONTARIO
BURLINGTON CANAL LIFT BRIDGE		
TOWER LOWER TOWER BRACING AND COLUMNS		
APPROVED	DATE 12/11/58	DEPARTMENT PROJECT NO. SD6-4-77
<i>M. Thompson</i>		
CHIEF STRUCTURES DIVISION		
APPROVED	DATE 11/11/58	CONTRACT NO. 2
<i>J. M. Wallace</i>		
CHIEF ENGINEER		

RECOMMENDED DATE 12-1-58. DESIGN R.K.C. CHKD: G.W.A. DRAWN J.H. CHKD: R.K.C. TRACED J.G.B. CHKD: R.K.C. JOB NO: H-538

C. C. Parker & Associates Ltd.



- NOTES**
- FOR GENERAL NOTES SEE SHEET NO. 2 & 3.
 - 3/8" RIVETS SHALL BE USED EXCEPT FRONT TOWER COLUMNS WHERE 1" RIVETS SHALL BE USED OR AS NOTED.
 - FOR LADDER AND PLATFORM DETAILS SEE SHEET NOS. 29, 30 & 31.
 - SCALE: 1/2" = 1'-0" EXCEPT FOR DETAIL A & B. VIEW H-H & M WITH SCALE OF 1" = 1'-0".



NO.	REVISIONS	BY	DATE

DEPARTMENT OF PUBLIC WORKS.
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

C. C. PARKER & ASSOCIATES LTD.
CONSULTING ENGINEERS
HAMILTON ONTARIO

BURLINGTON CANAL LIFT BRIDGE.
TOWER.
UPPER TOWER BRACINGS & COLUMNS.

APPROVED DATE 12/11/58
[Signature]
CHIEF STRUCTURES DIVISION

DEPARTMENT PROJECT NO. SD6-4-77

RECOMMENDED DATE 1-12-59
[Signature]
C.C. PARKER & ASSOC. LTD.

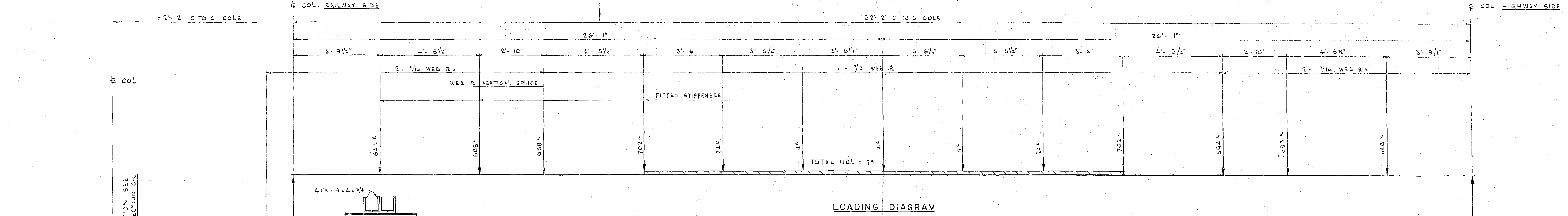
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DRAWN, J.H. CHKD. R.N.C.C.
TRACED, T.L. CHKD. G.W.A.

JOB NO. H-538.

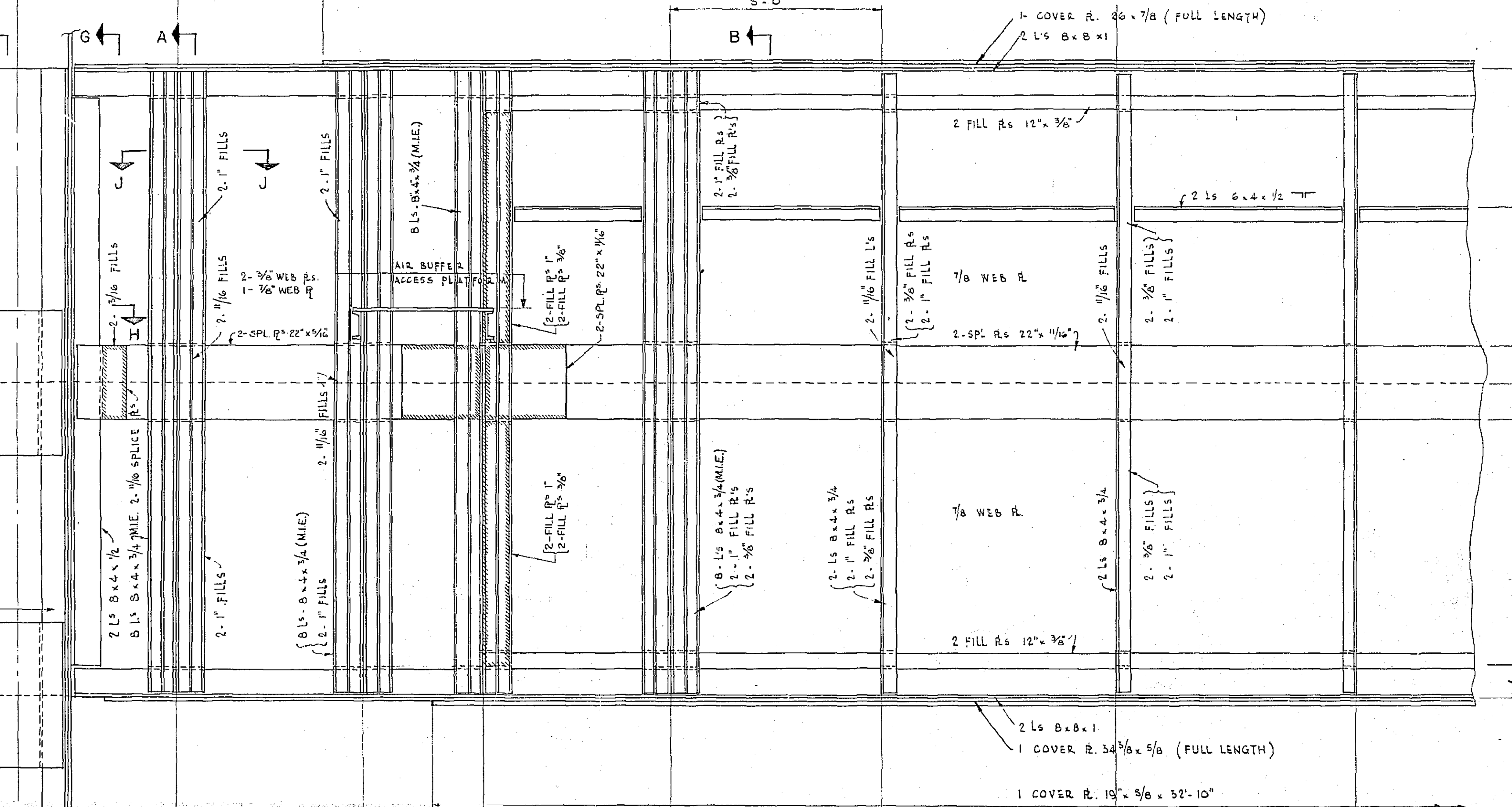
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CHIEF ENGINEER

CONTRACT NO. 2.
SHEET 21 OF 62



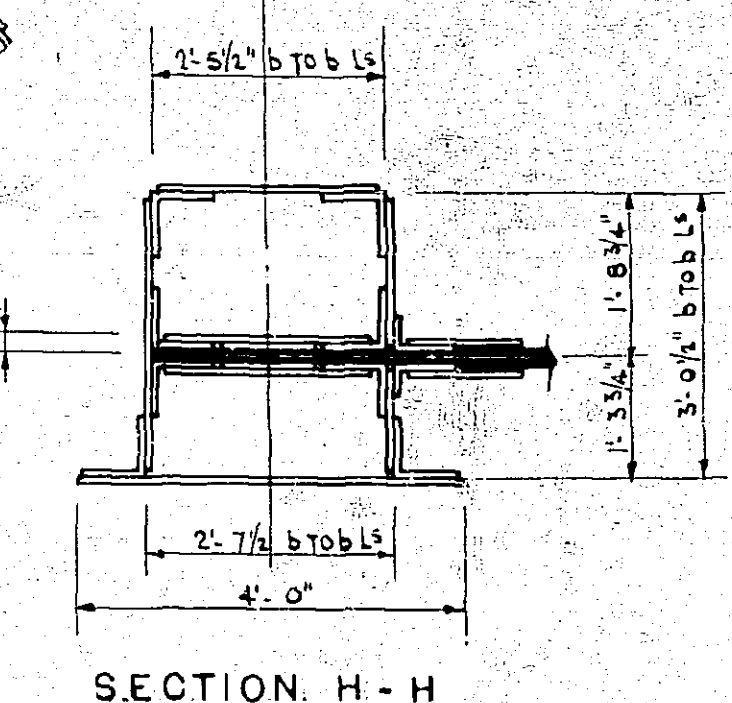
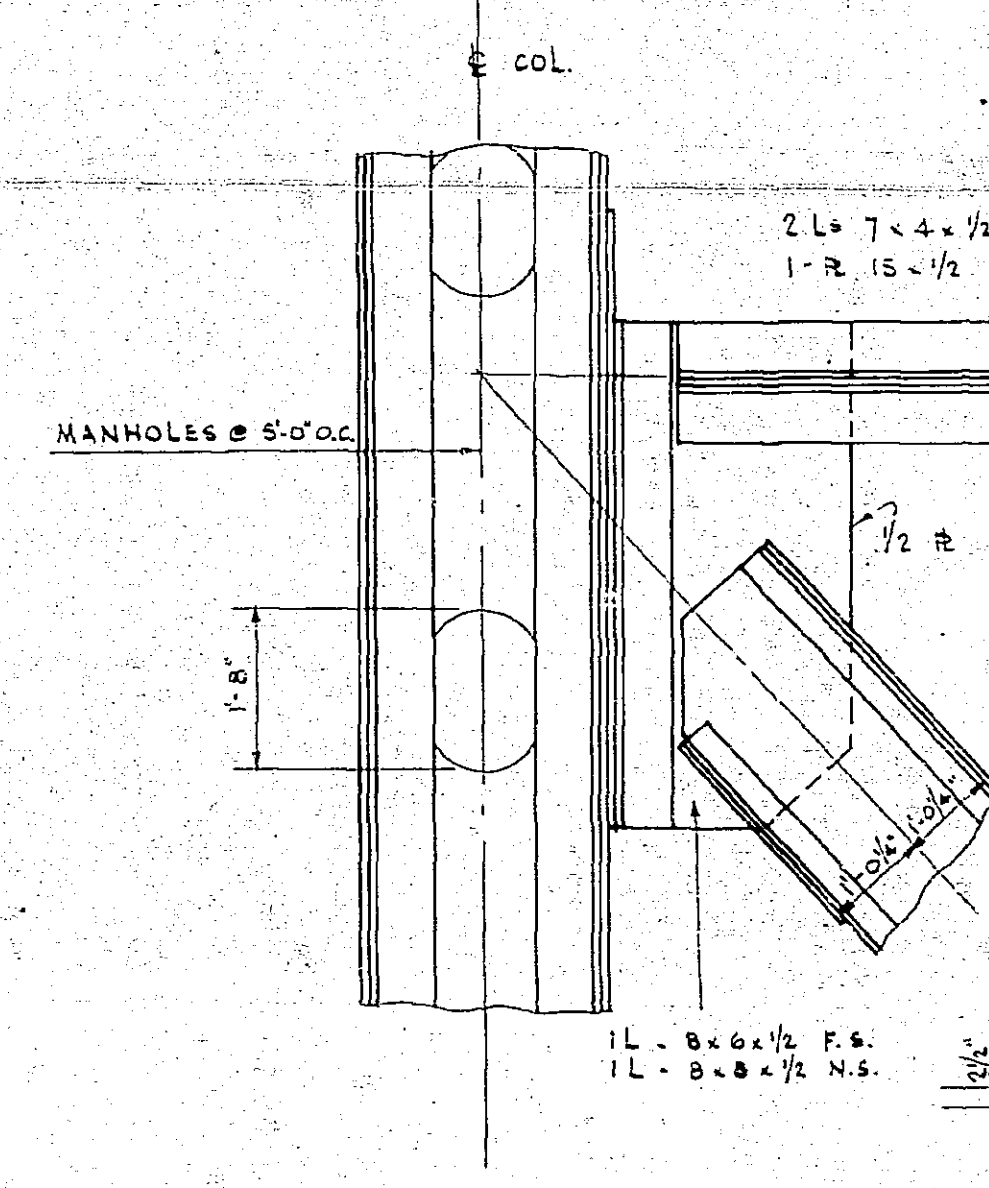
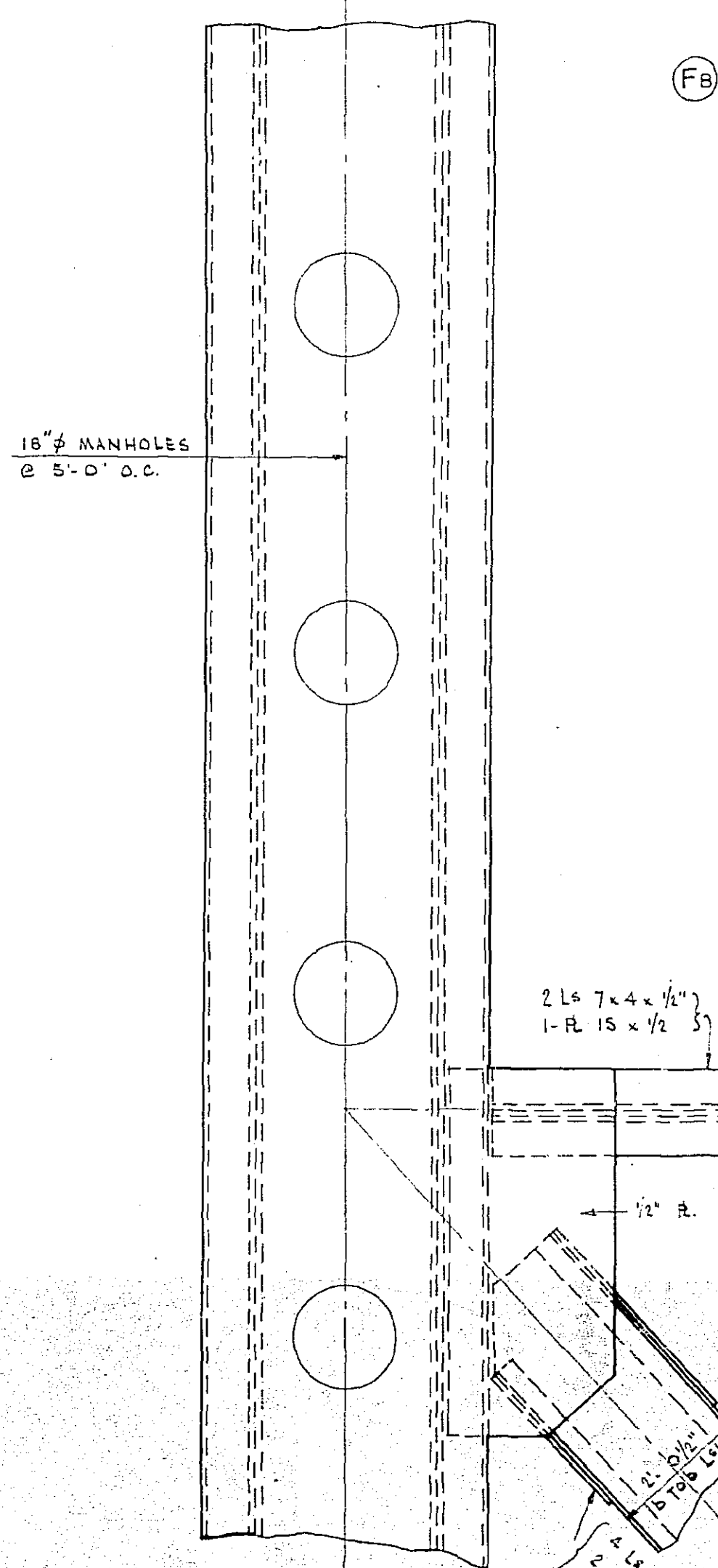
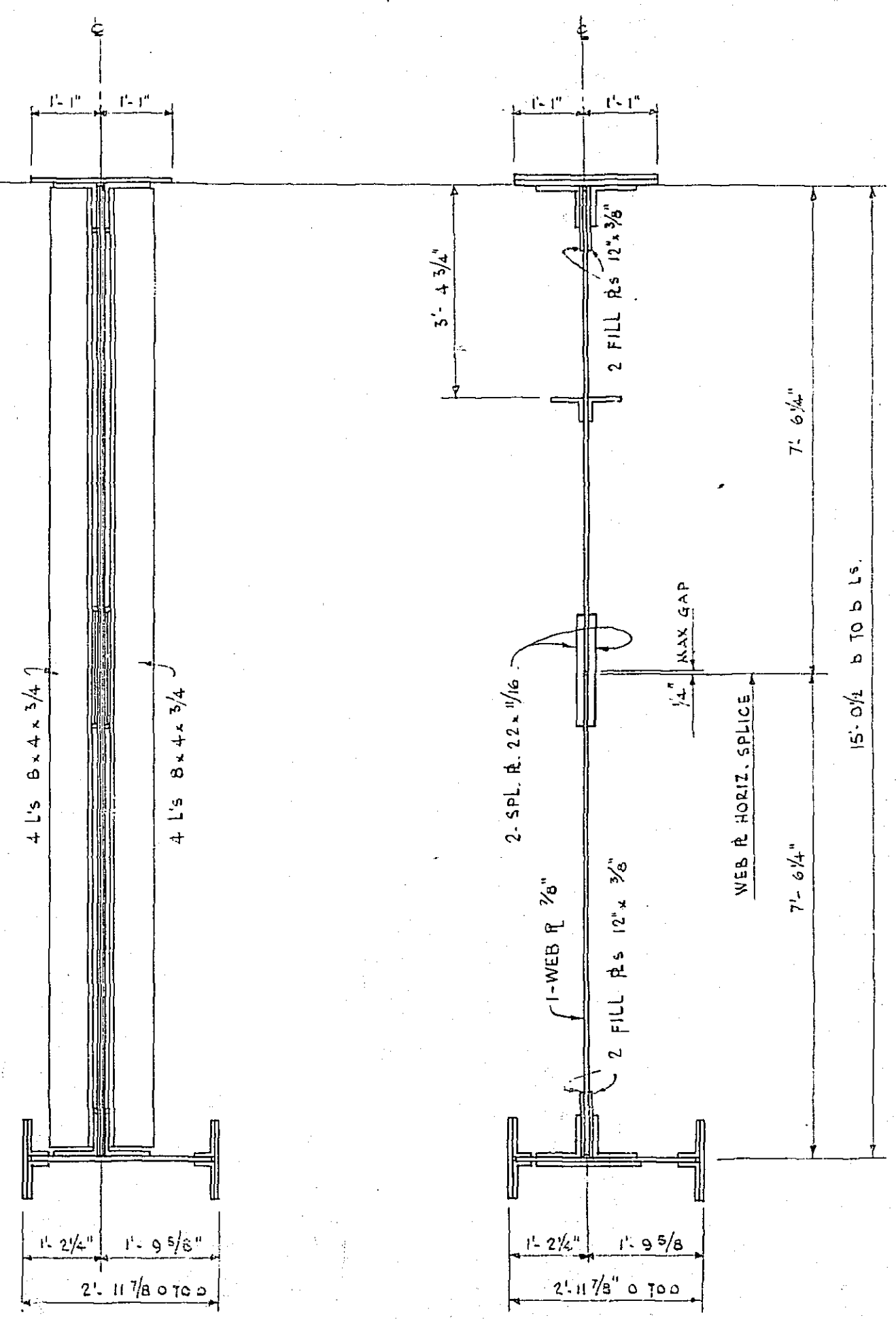


SECTION J-J

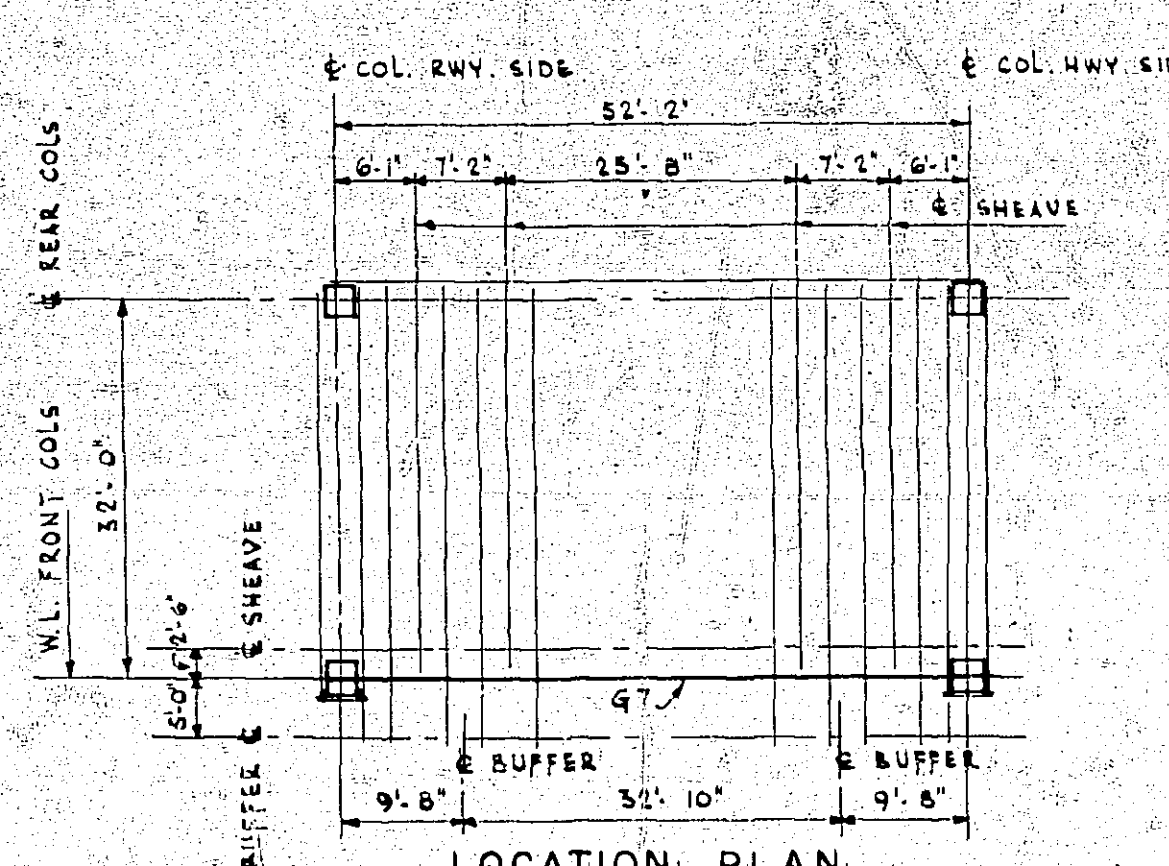


SECTION A-A

SECTION B-B



- NOTES
1. FOR GENERAL NOTES SEE SHEETS 2 & 3.
 2. MATERIALS - ALL MATERIALS FOR TRANSVERSE SHEAVE GIRDER G7 AND ITS CONNECTIONS TO THE FRONT TOWER COLUMN ARE TO BE LOW-ALLOY STEEL - A.S.T.M. - A 242 SEE SPECIFICATION.
 3. RIVETS - 1" Ø RIVETS SHALL BE USED FOR GIRDER G7 AND ITS CONNECTIONS TO THE COLUMNS, AND 7/8" Ø RIVETS FOR ALL OTHER CONNECTIONS.
 4. FOR DETAILS OF LONGITUDINAL SHEAVE GIRDERS SEE SHEET 25.
 5. FOR DETAILS OF LADDERS & PLATFORMS SEE SHEETS 30 & 31.



NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C. C. PARKER & ASSOCIATES LTD CONSULTING ENGINEERS HAMILTON ONTARIO			
BURLINGTON CANAL LIFT BRIDGE TOWER FRONT TRANSVERSE SHEAVE GIRDER			
APPROVED	DATE 13/11/57	DEPARTMENT PROJECT NO.	
<i>W. Thompson</i>		SD6-4-77	
CHIEF STRUCTURES DIVISION			
APPROVED	DATE 14/11/57	CONTRACT NO. 2	
<i>Goodman</i>		SHEET 24 OF 62	
CHIEF ENGINEER			

RECOMMENDED DATE 1-12-59

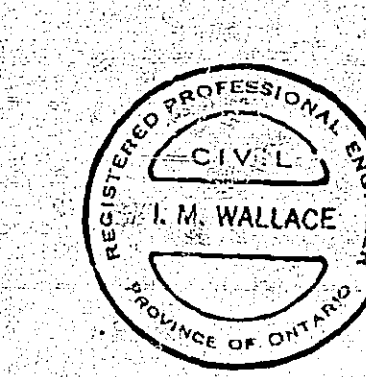
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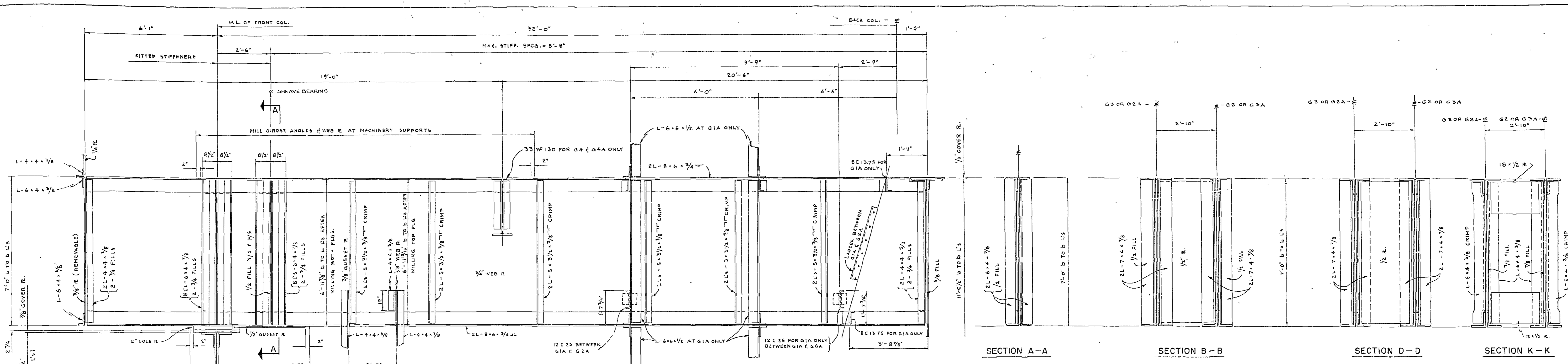
DRAWN: A.W. CHKD: R.K.C.C.

TRACED: J.N.W. CHKD: G.L.

JOB NO. H-538

C.C. PARKER & ASSOC. LTD.

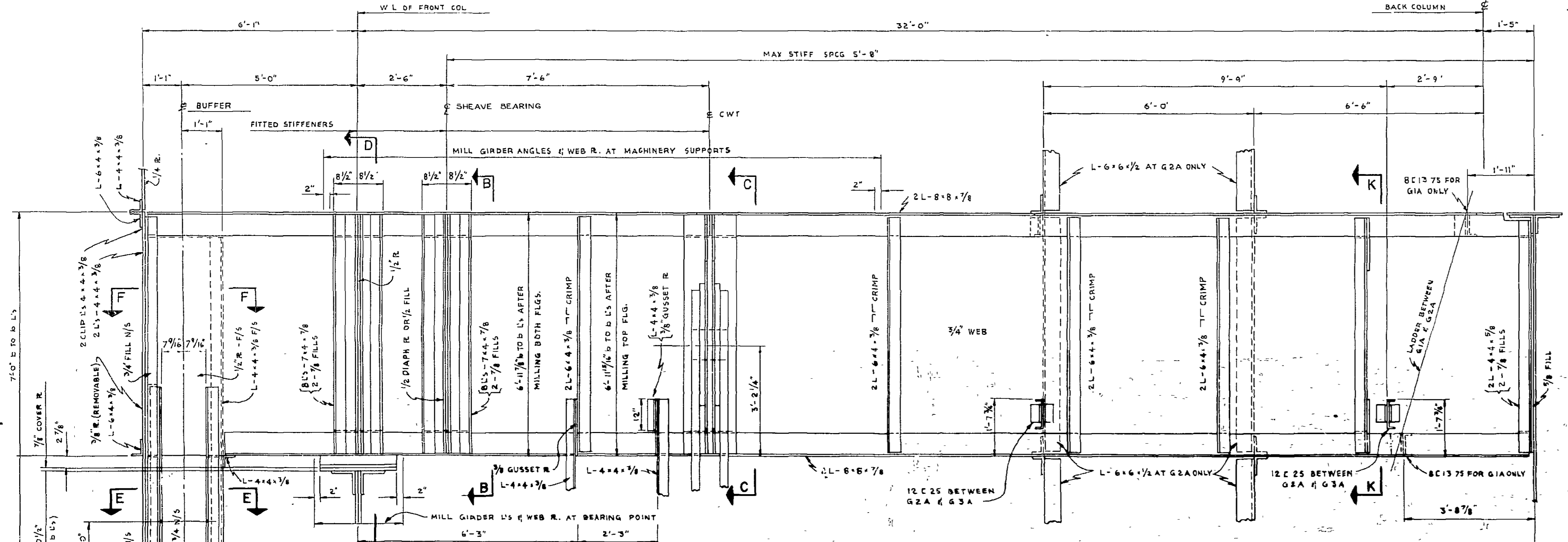
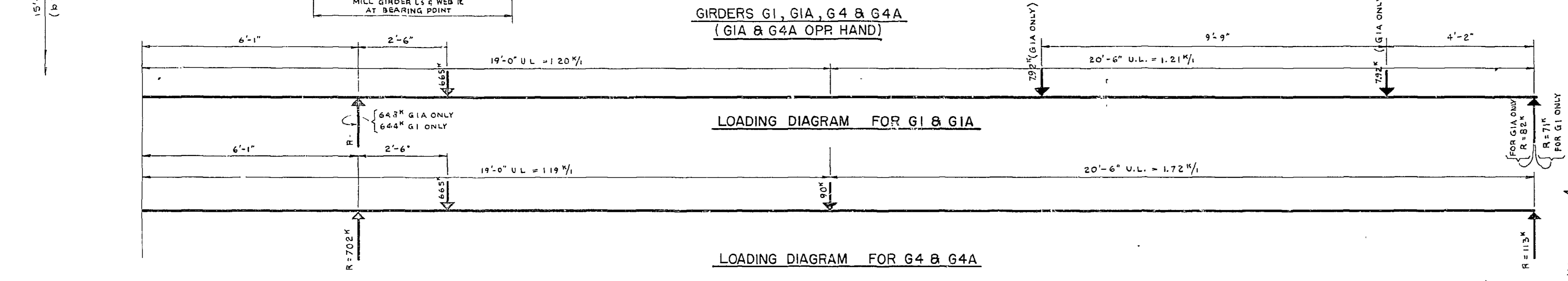




GIRDERS G1, G4, G2A & G3A
(G1 & G4 OPP. HAND)

LOADING DIAGRAM FOR G1 & G4

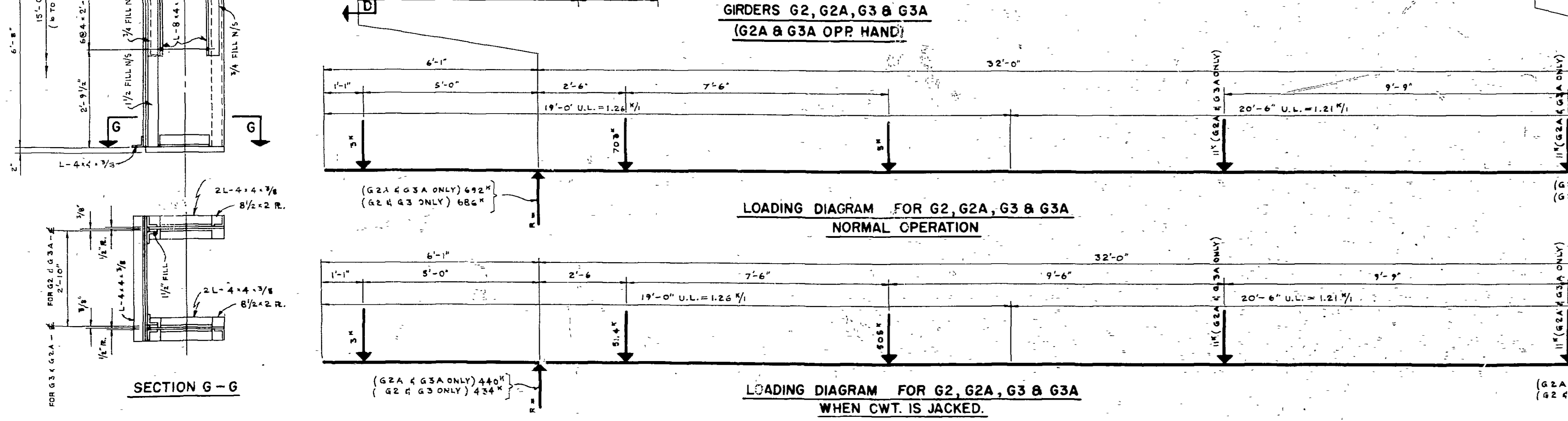
LOADING DIAGRAM FOR G2 & G3A



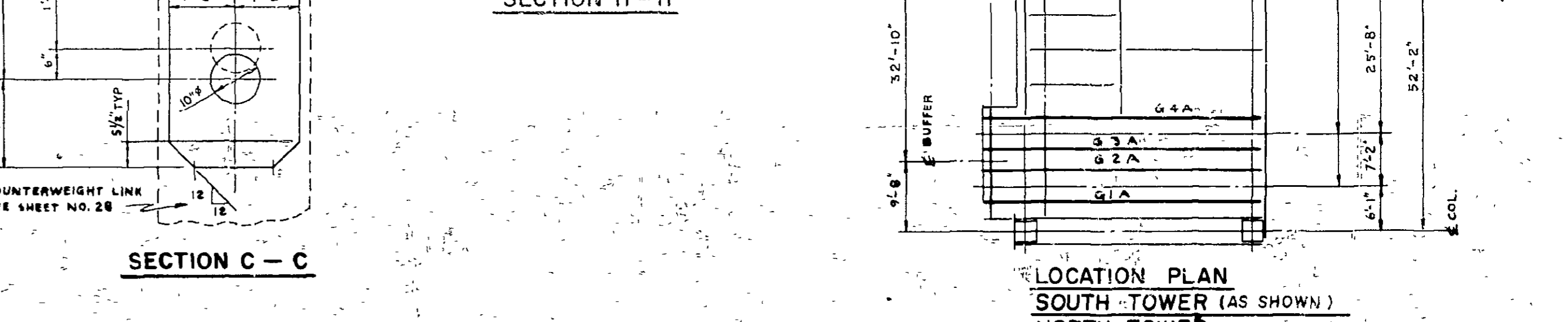
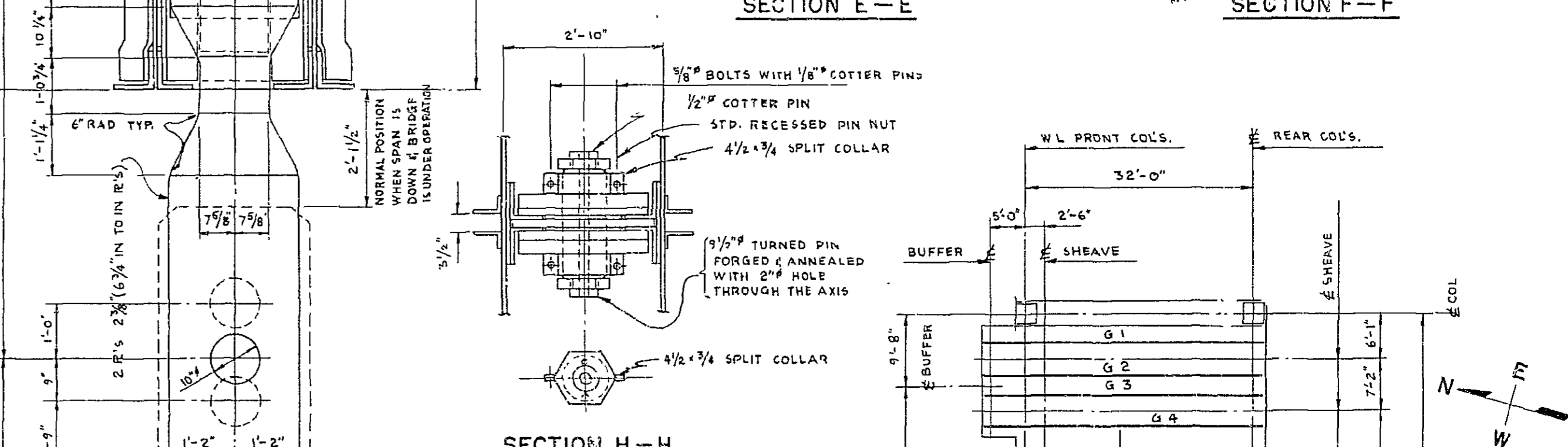
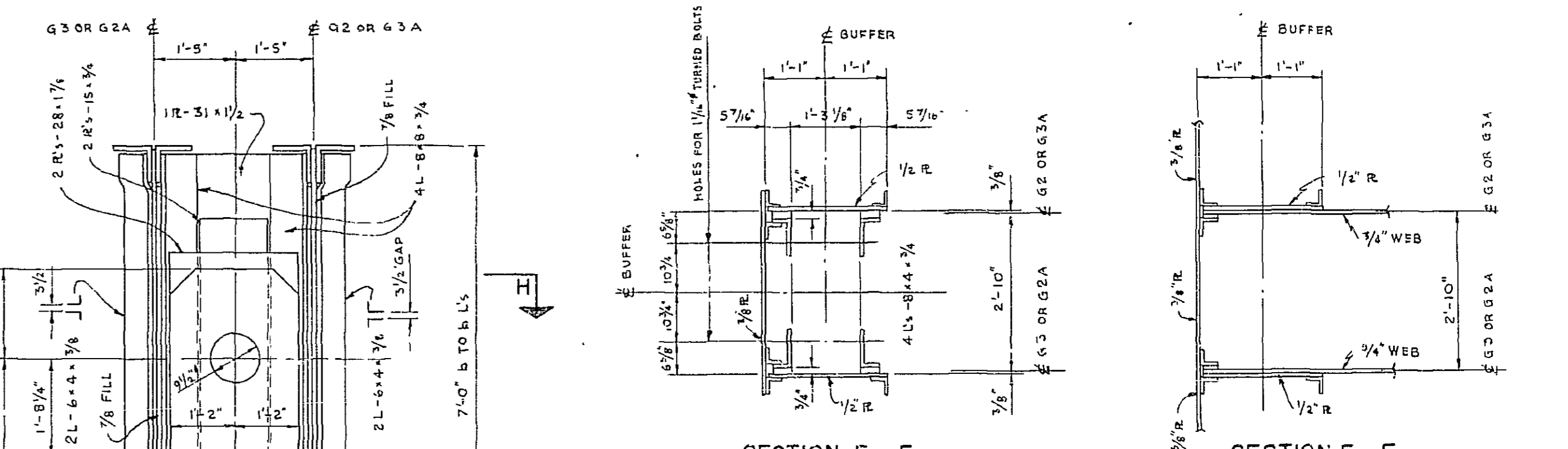
GIRDERS G2, G2A, G3 & G3A
(G2A & G3A OPP. HAND)

LOADING DIAGRAM FOR G2, G2A, G3 & G3A
NORMAL OPERATION

LOADING DIAGRAM FOR G2, G2A, G3 & G3A
WHEN CWT. IS JACKED.



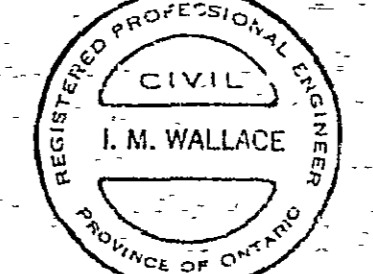
SECTION A-A SECTION B-B SECTION D-D SECTION K-K

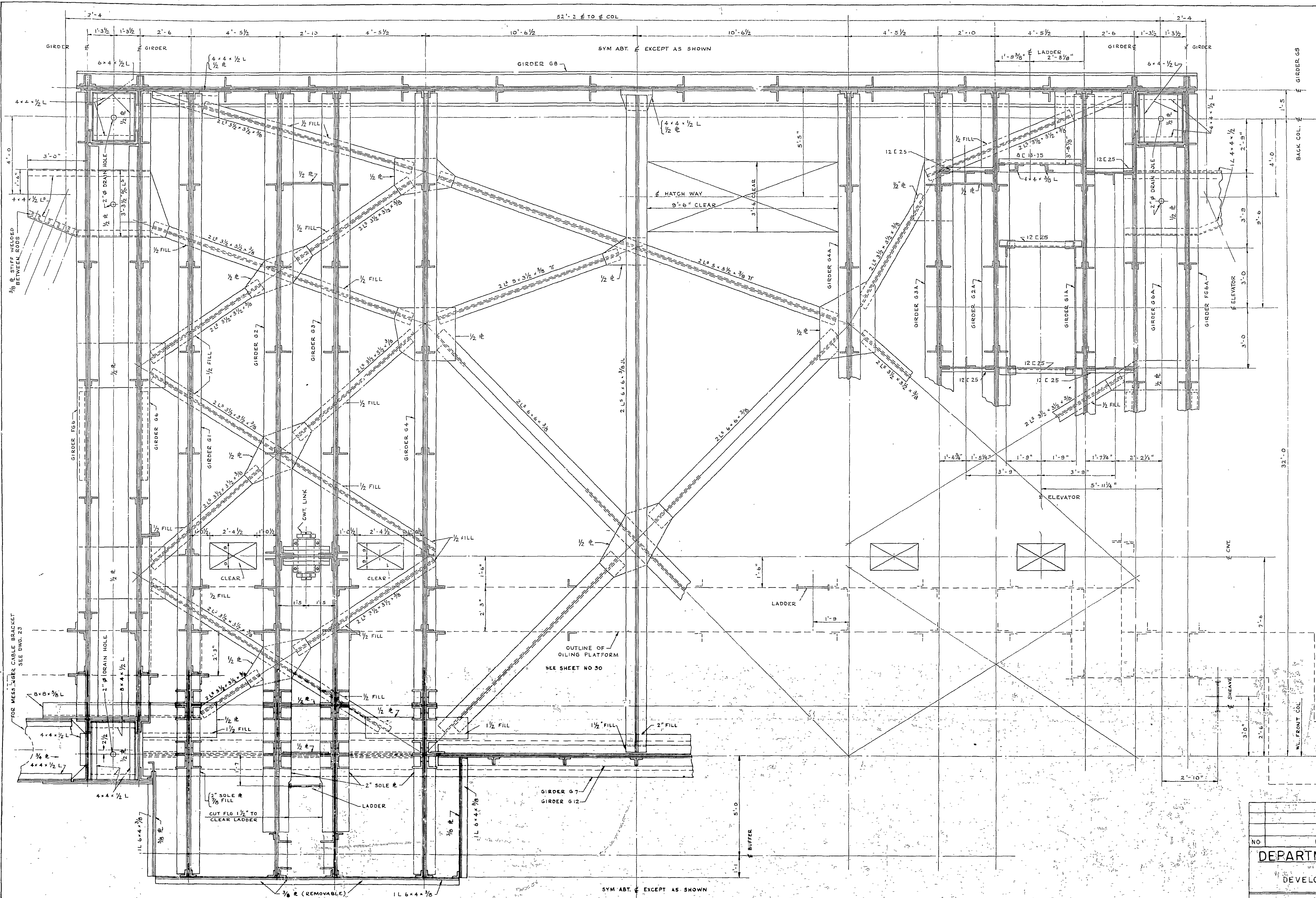


LOCATION PLAN
SOUTH TOWER (AS SHOWN)
NORTH TOWER (OPR. HAND)

- NOTES:
- FOR GENERAL NOTES SEE SHEET NO. 2 AND 3.
 - RIVETS: 3/8\"/>

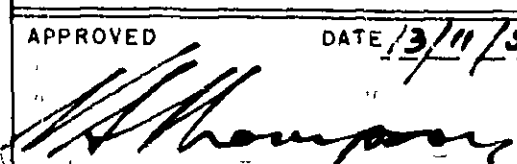


NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA			
DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
G.C. PARKER & ASSOCIATES LTD. CONSULTING ENGINEERS			
HAMILTON		ONTARIO	
BURLINGTON CANAL LIFT BRIDGE			
TOWER LONGITUDINAL SHEAVE GIRDER.			
APPROVED	DATE 12/11/58	DEPARTMENT PROJECT NO. SD6-4-77	
M. Thompson		CHIEF STRUCTURES DIVISION	
APPROVED	DATE 12/11/58	DEPARTMENT PROJECT NO. SD6-4-77	
I.M. Wallace		CHIEF ENGINEER	
RECOMMENDED DATE 12-1-58		DESIGN P.O.L.	CHKD. R.K.C.C.
C.C. Parker		DRAWN J.A.W.	CHKD. R.K.C.C.
G.C. PARKER & ASSOC. LTD.		TRACED M.R.	CHKD. G.W.A.
		JOB NO. H-538	CONTRACT NO. 2
			SHEET 25 OF 62

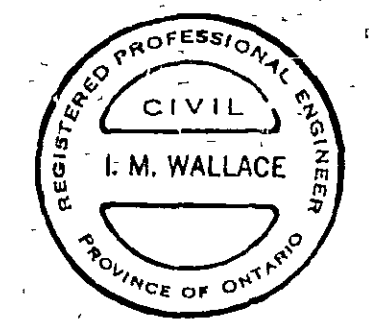


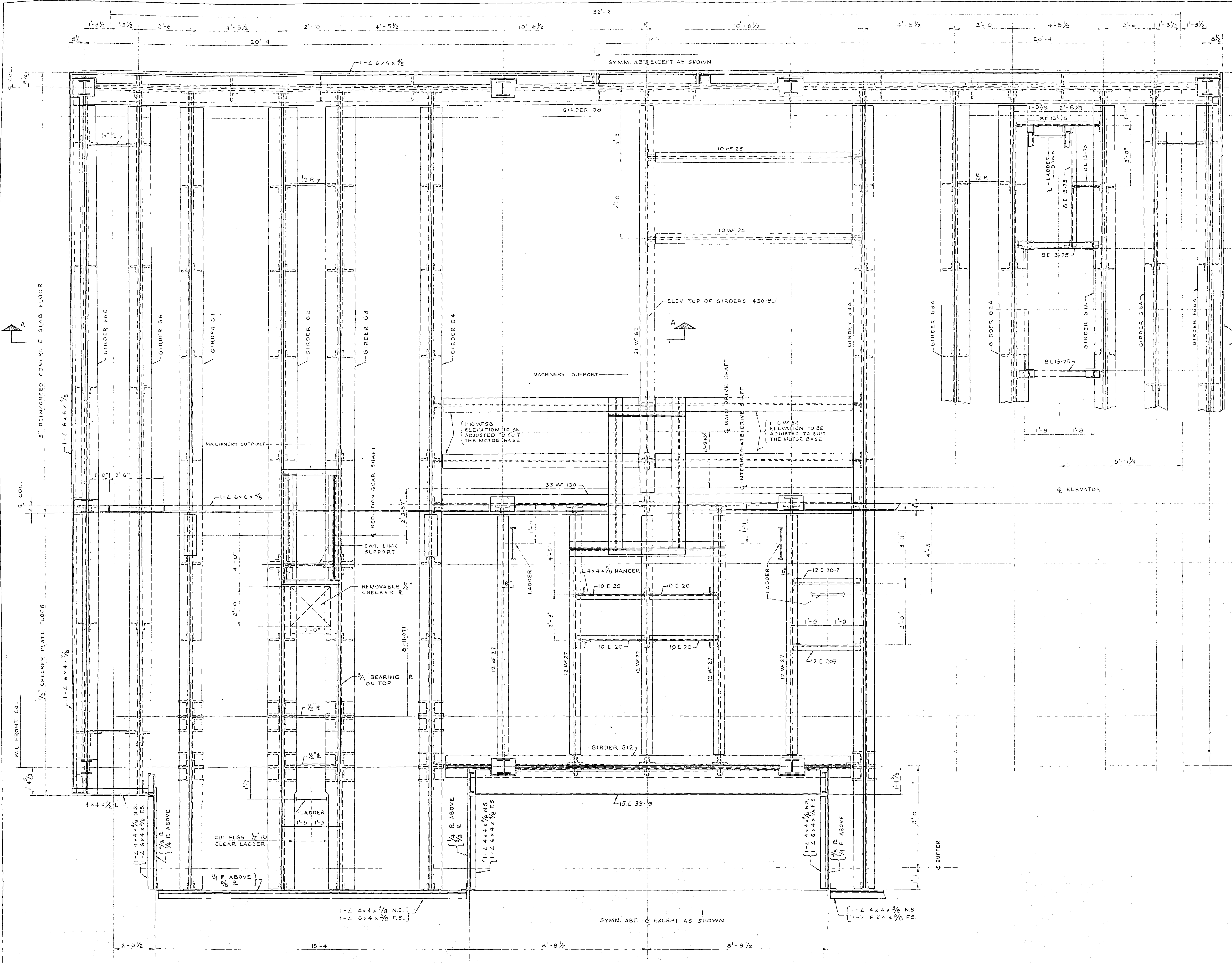


PLAN AT BOTTOM CHORD OF LONGITUDINAL SHEAVE GIRDERS
 SOUTH TOWER (AS SHOWN)
 NORTH TOWER (OPPOSITE HAND)
 SCALE: 1/2" = 1'-0"

- NOTES**
- FOR GENERAL NOTES SEE SHEET NOS. 2 AND 3
 - RIVETS 7/8" RIVETS SHALL BE USED EXCEPT AT CONNECTIONS TO FRONT TOWER COLUMNS FRONT TRANSVERSE SHEAVE GIRDERS AND AS NOTED WHERE 1" RIVETS SHALL BE USED.
 - FOR DETAILS OF LADDER AND PLATFORMS, SEE SHEET NOS. 29, 30 AND 31
 - FOR DETAILS OF MESSENGER CABLE BRACKETS, SEE SHEET NO. 23
 - FOR DETAILS OF LONGITUDINAL GIRDERS SEE SHEET NOS. 22 AND 25
 - FOR DETAILS OF TRANSVERSE GIRDERS SEE SHEET NOS. 23 AND 24
 - FOR BUFFER AND CONNECTION DETAILS, SEE SHEET NOS. 25 AND 36

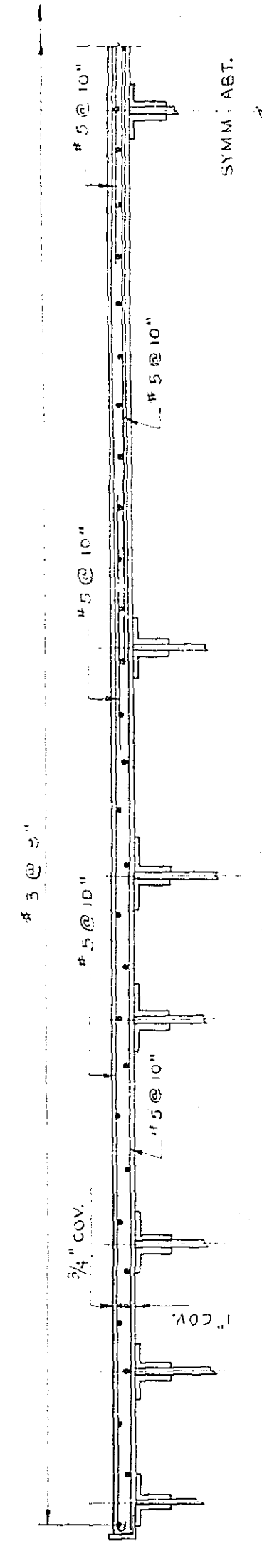
NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C-C PARKER & ASSOCIATES LTD. CONSULTING ENGINEERS HAMILTON ONTARIO			
BURLINGTON CANAL LIFT BRIDGE TOWER SHEAVE GIRDER BRACING			
APPROVED	DATE 3/11/58	DEPARTMENT PROJECT NO. SD6-4-77	
 CHIEF STRUCTURES DIVISION		APPROVED DATE 11/17/58  CHIEF ENGINEER	
RECOMMENDED	DATE 1-12-58	DESIGN R.K.C.C.	CHKD P.O.L.
 C-C PARKER & ASSOC. LTD.		DRAWN A.W. TRACED J.M.	CHKD R.K.C.C. CHKD G.W.A.
JOB NO. H-538		CONTRACT NO. 2	
SHEET 26 OF 62			





PLAN AT TOP CHORD OF LONGITUDINAL SHEAVE GIRDERS
 SOUTH TOWER (AS SHOWN)
 NORTH TOWER (OPPOSITE HAND)
 SCALE 1/2" = 1'-0"

- NOTES**
1. FOR GENERAL NOTES SEE SHEET NOS. 2 AND 3
 2. 3/8" RIVETS SHALL BE USED, EXCEPT AS NOTED
 3. FOR DETAILS OF LADDERS AND PLATFORMS SEE SHEET NOS. 29, 30, 31
 4. FOR LOCATION OF ROOF COLUMNS, SEE SHEET NO. 41
 5. FOR LAYOUT OF MESSENGER CABLES, SEE SHEET NOS. 25 AND 26
 6. FOR DETAILS OF LONGITUDINAL SHEAVE GIRDERS, SEE SHEET NO. 25
 7. FOR LOCATIONS AND SIZES OF MACHINERY SUPPORTS REFER TO SHEET NO. 32



SECTION A-A
 REINFORCING STEEL FOR 5" SLAB

NO.	REVISIONS	BY	DATE

DEPARTMENT OF PUBLIC WORKS
 CANADA
 DEVELOPMENT ENGINEERING BRANCH
 STRUCTURES DIVISION

C. C. PARKER & ASSOCIATES LTD.
 CONSULTING ENGINEERS
 HAMILTON ONTARIO

BURLINGTON CANAL LIFT BRIDGE

TOWER
 SHEAVE GIRDER FRAMING

APPROVED DATE 13/11/57
[Signature]
 CHIEF STRUCTURES DIVISION

DEPARTMENT PROJECT NO.
 SD6-4-77

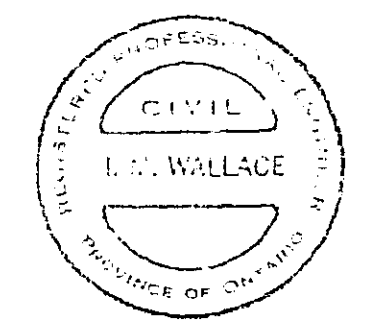
RECOMMENDED DATE 12-1-58
[Signature]
 C.C. PARKER & ASSOC. LTD.

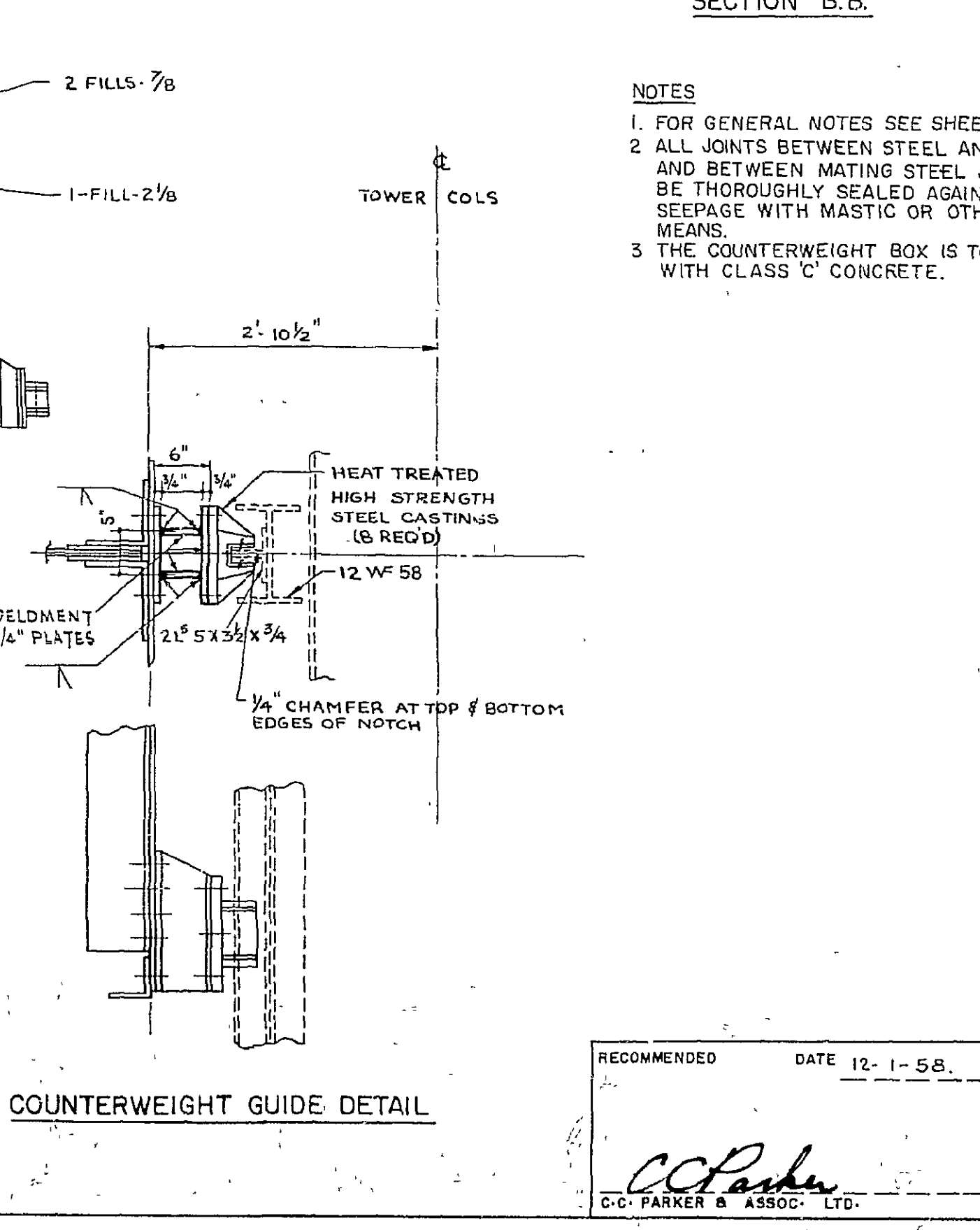
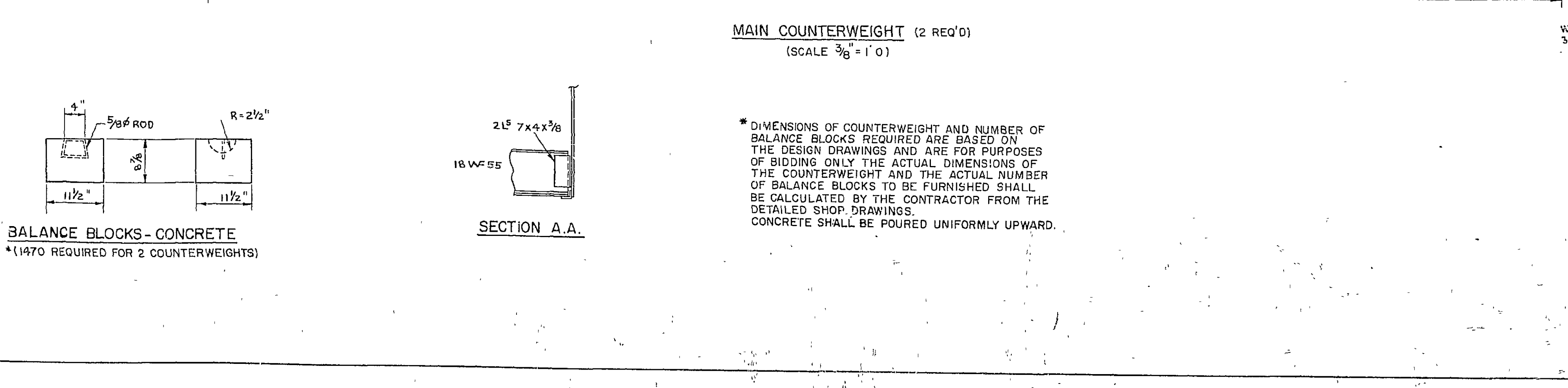
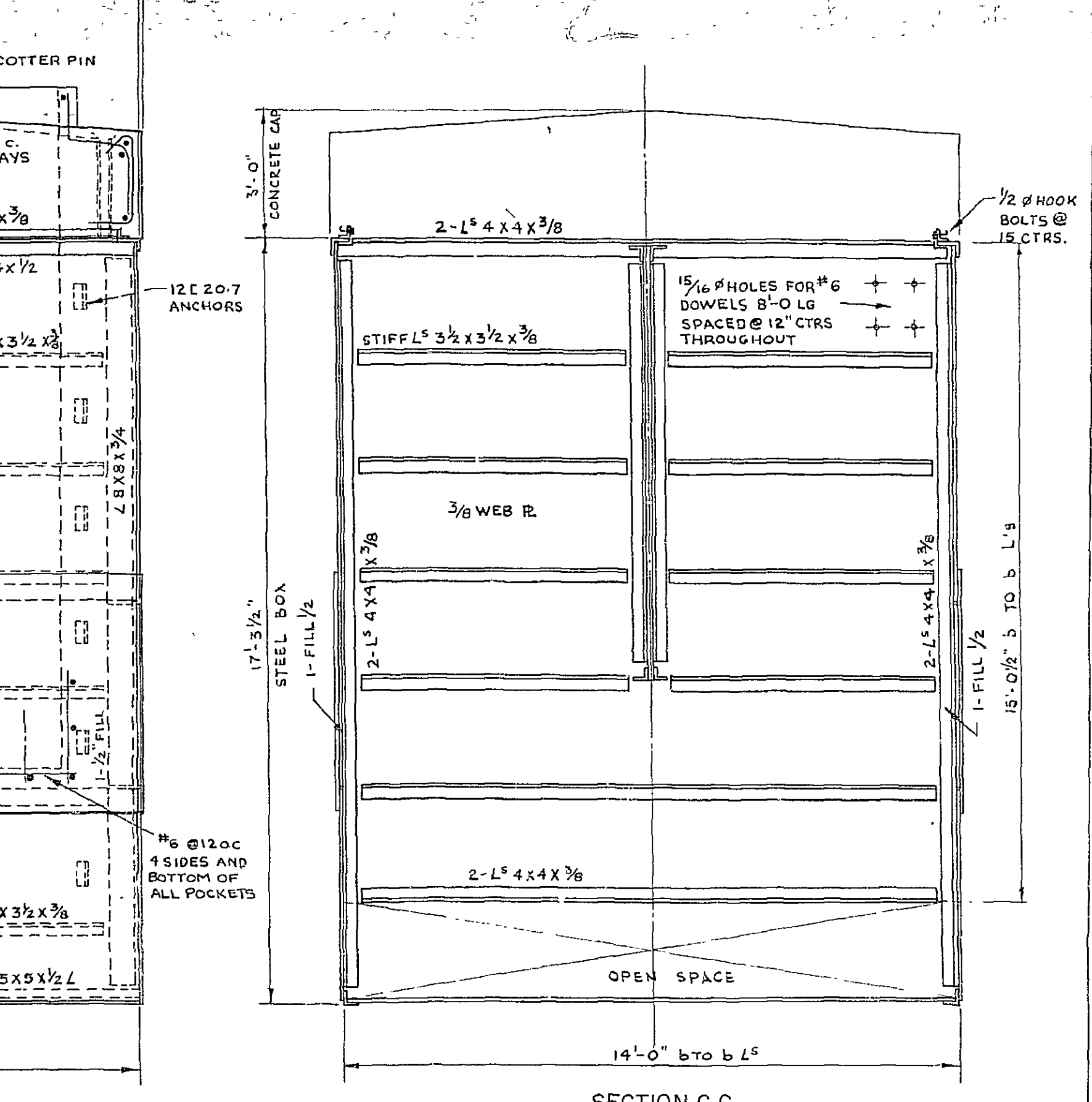
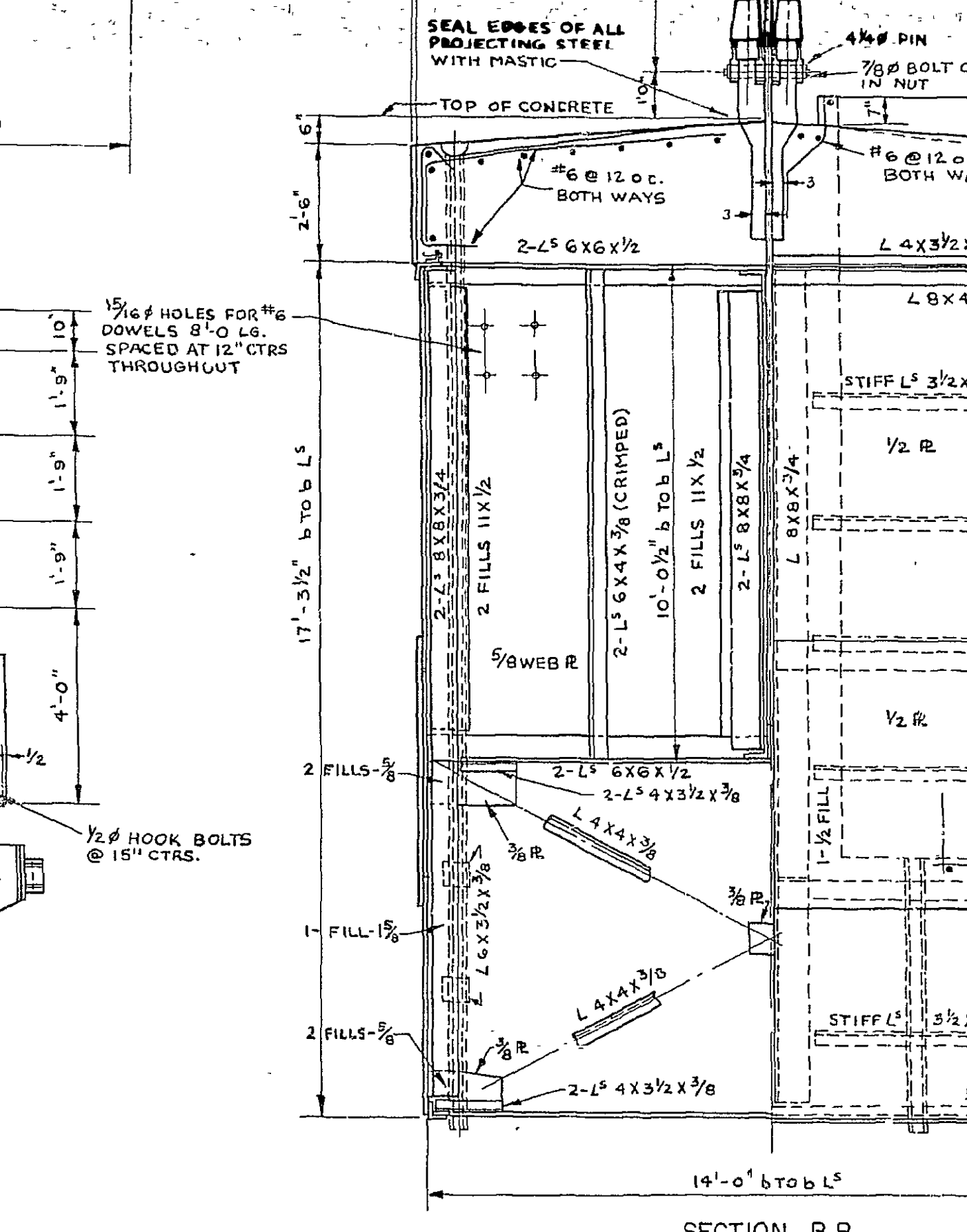
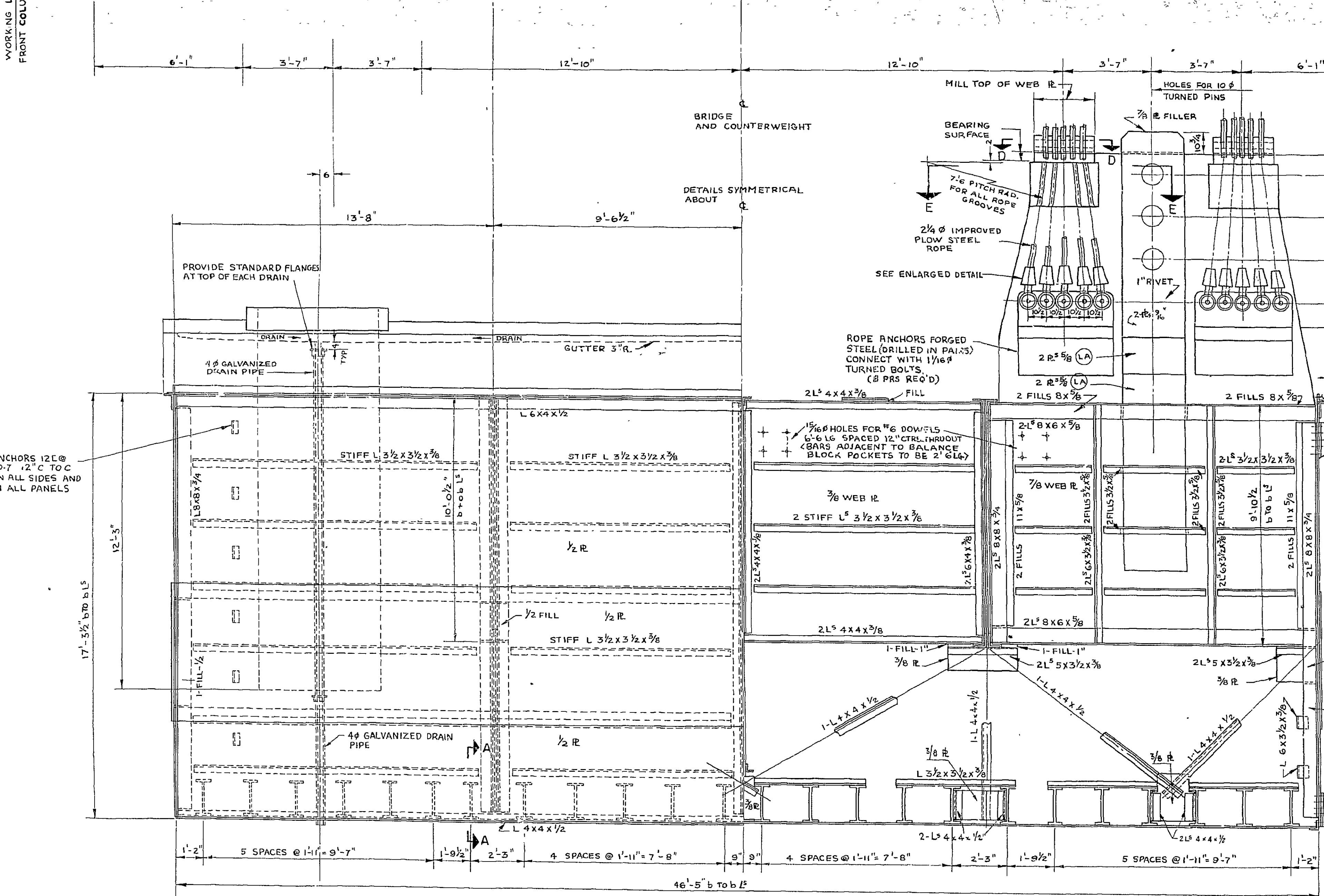
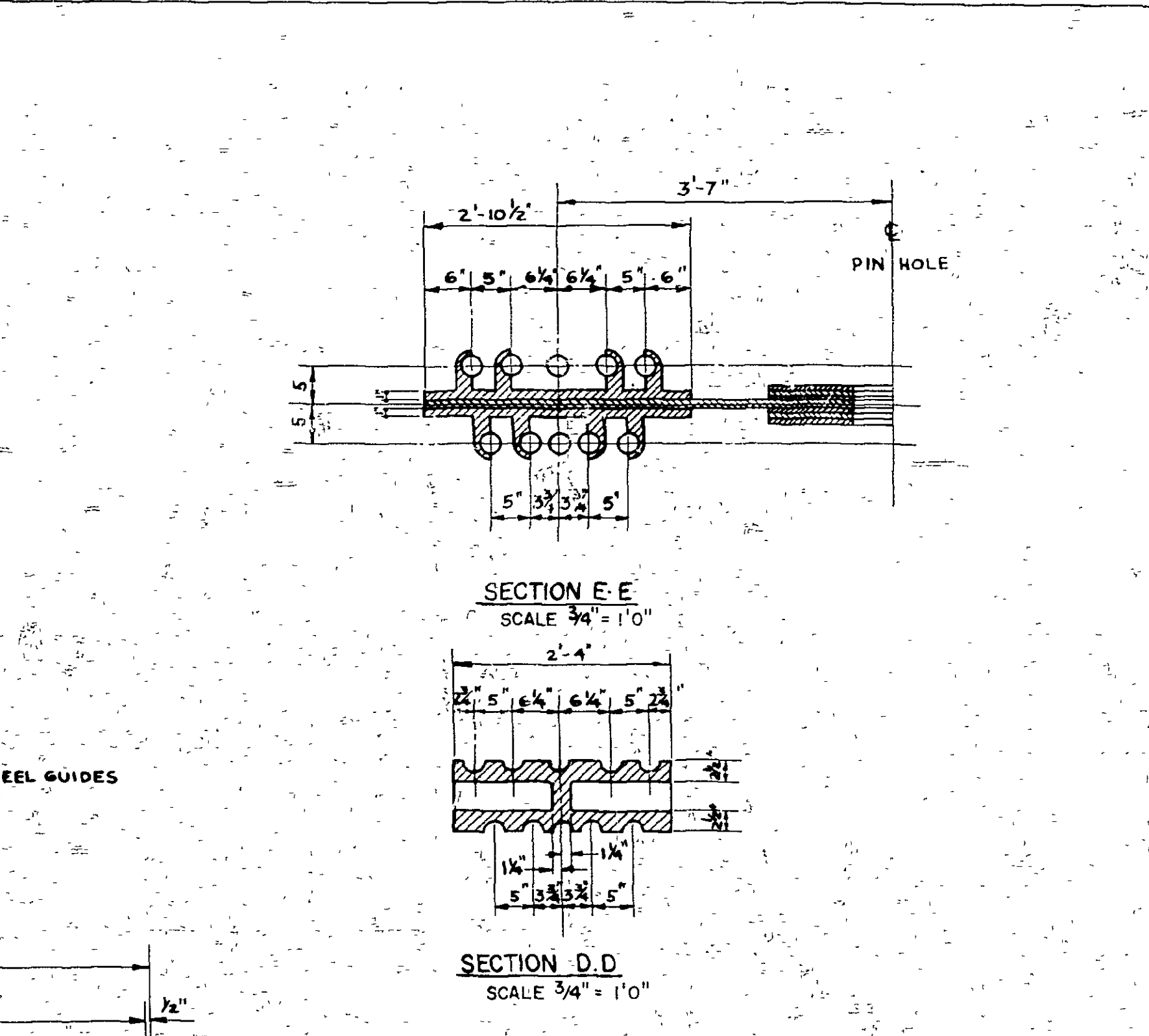
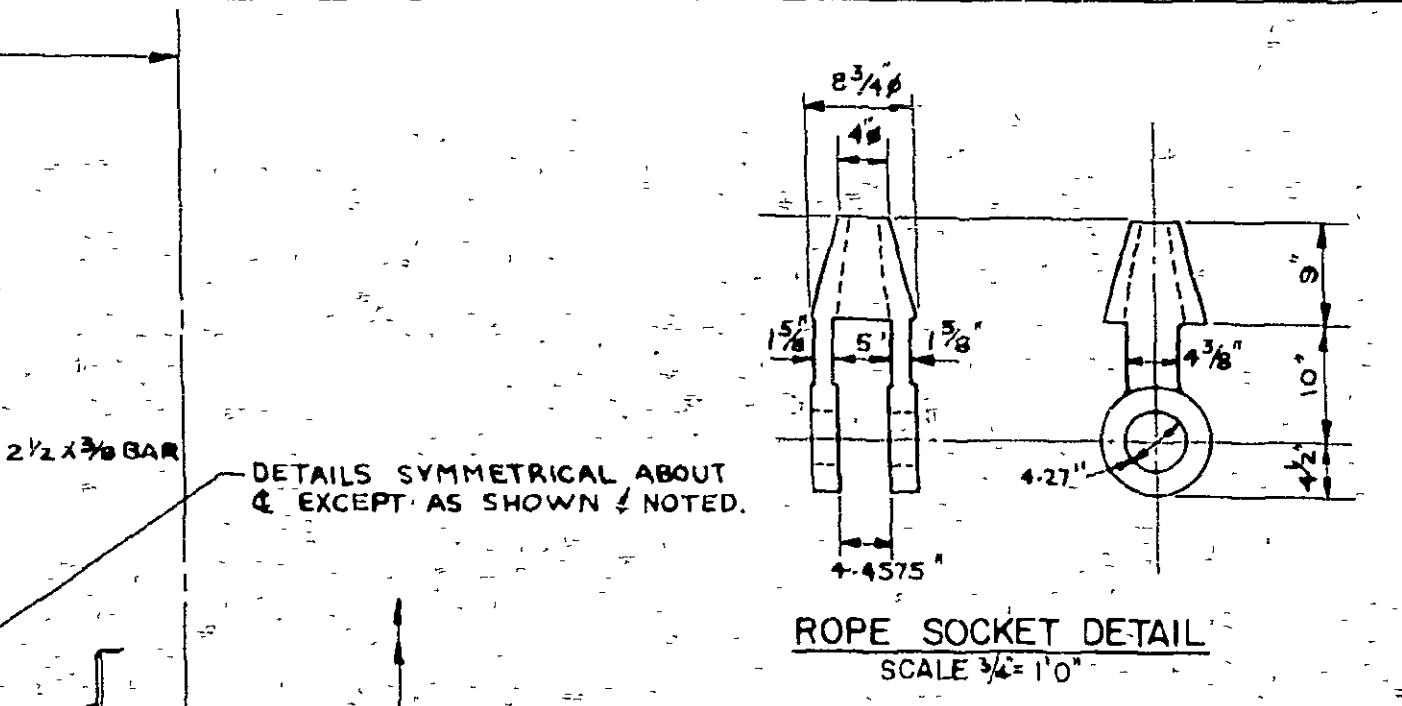
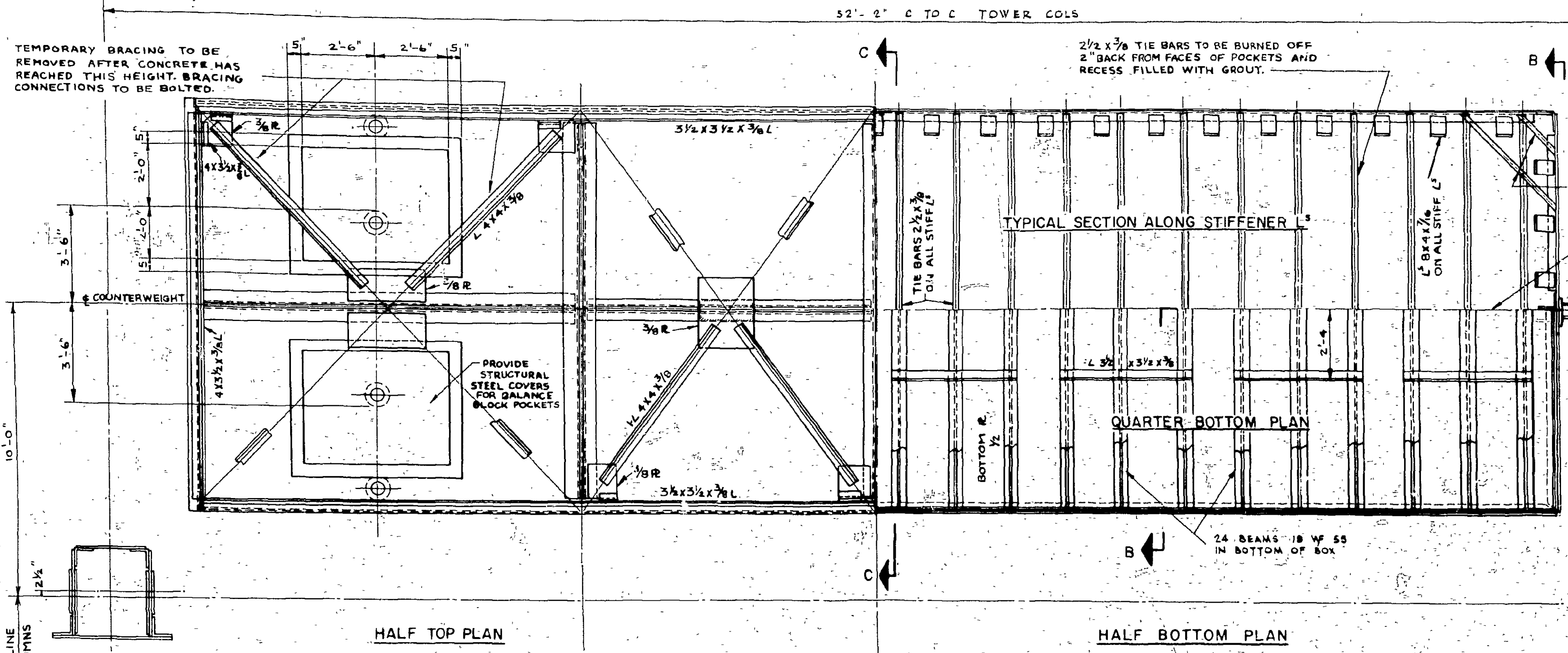
DESIGN P.O.L. CHKD. R.K.C.C.
 DRAWN J.A.W. CHKD. R.K.C.C.
 TRACED J.K. CHKD. D.L.

APPROVED DATE 14/11/58
[Signature]
 CHIEF ENGINEER

JOB NO. H-538

CONTRACT NO. 2
 SHEET 27 OF 62



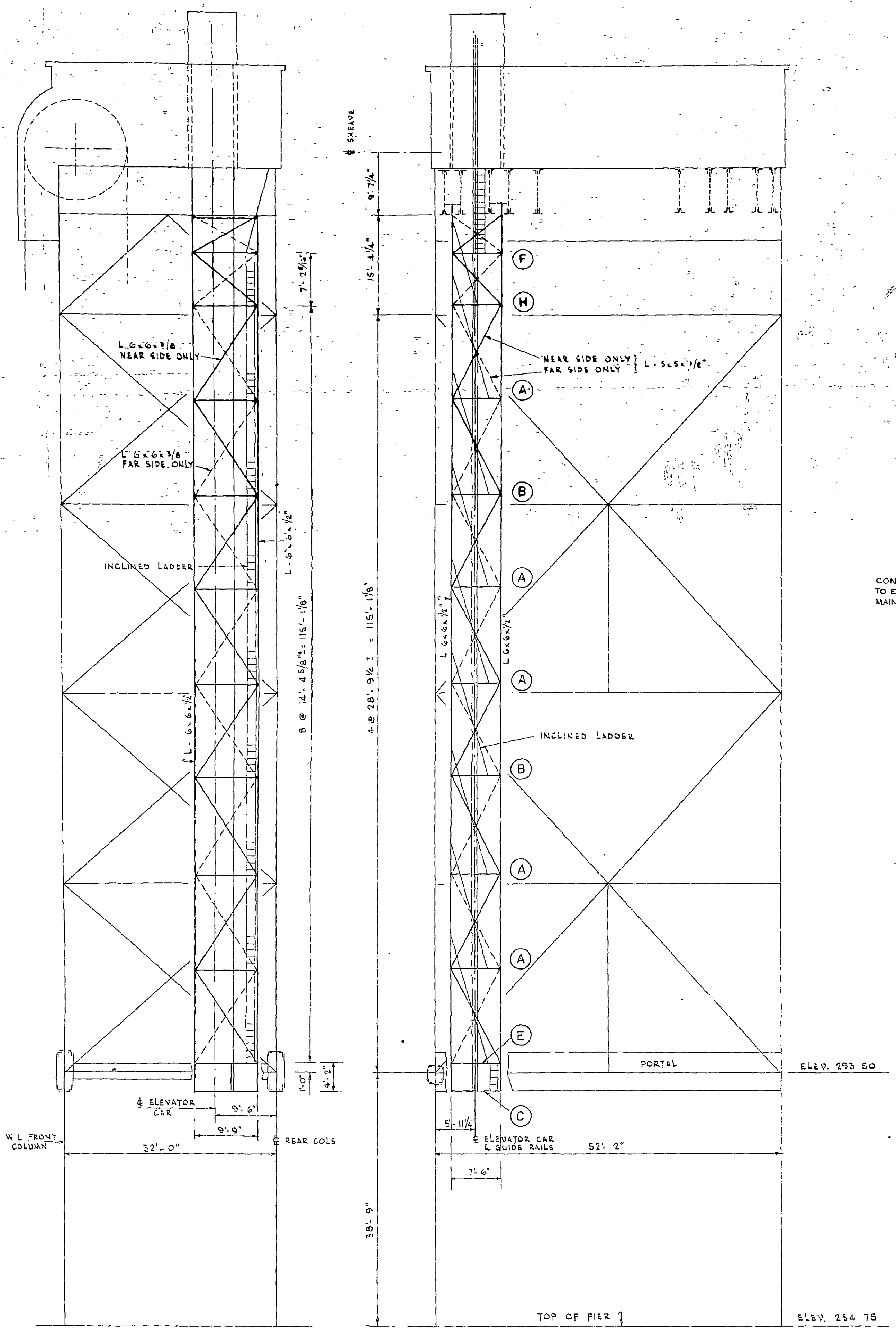


NOTES
 1. FOR GENERAL NOTES SEE SHEET NOS 2 AND 3
 2. ALL JOINTS BETWEEN STEEL AND CONCRETE AND BETWEEN MATING STEEL JOINTS, SHALL BE THOROUGHLY SEALED AGAINST WATER SEEPAGE WITH MASTIC OR OTHER SUITABLE MEANS.
 3. THE COUNTERWEIGHT BOX IS TO BE FILLED WITH CLASS 'C' CONCRETE.

4 RIVETS 7/8" EXCEPT AS NOTED
 5 PROVIDE 1/8" DIA DRAIN HOLES IN ALL SIDES AND BOTTOM OF COUNTERWEIGHT BOX FOR EACH 10 SQ FT OF SURFACE
 6 MINIMUM COVERING FOR ALL REINFORCING STEEL SHALL BE 2"

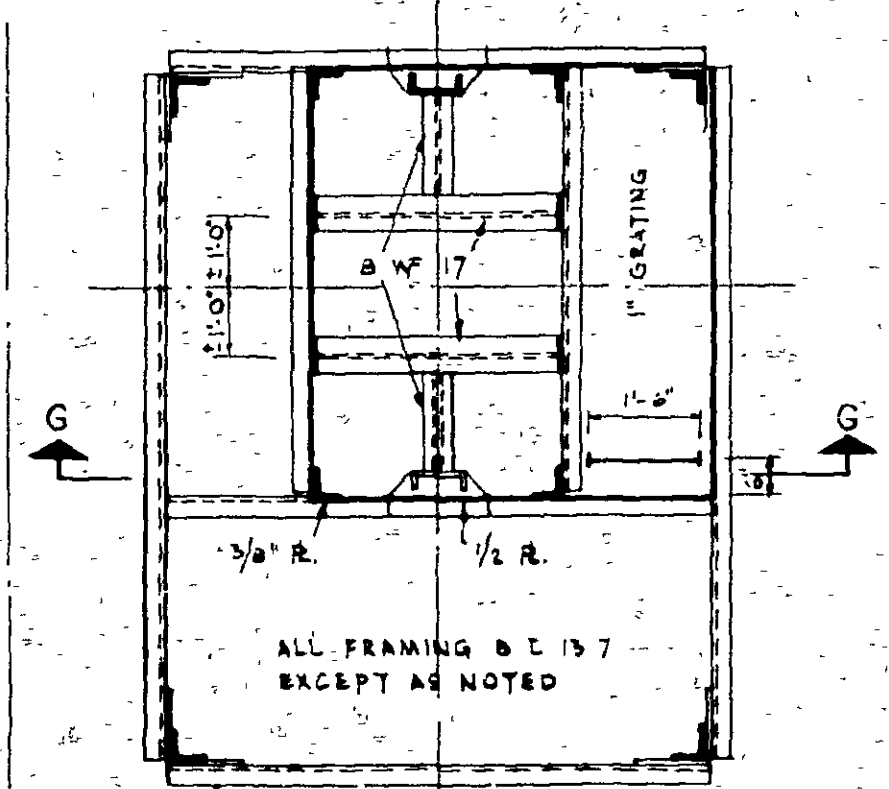
NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C. C. PARKER & ASSOCIATES LTD. CONSULTING ENGINEERS HAMILTON ONTARIO			
BURLINGTON CANAL LIFT BRIDGE			
TOWER MAIN COUNTERWEIGHT			
APPROVED	DATE 12/11/58	DEPARTMENT PROJECT NO.	SD6-4-77
I. M. WALLACE CHIEF STRUCTURES DIVISION		CONTRACT NO. 2	
APPROVED	DATE 12/11/58	CHIEF ENGINEER	SHEET 28 OF 62

RECOMMENDED	DATE 12-1-58	DESIGN A.T.	CHKD. O.L.
DRAWN J.S.		CHKD. O.L.	
TRACED A.G.		CHKD. G.W.A.	
JOB NO. H-538			

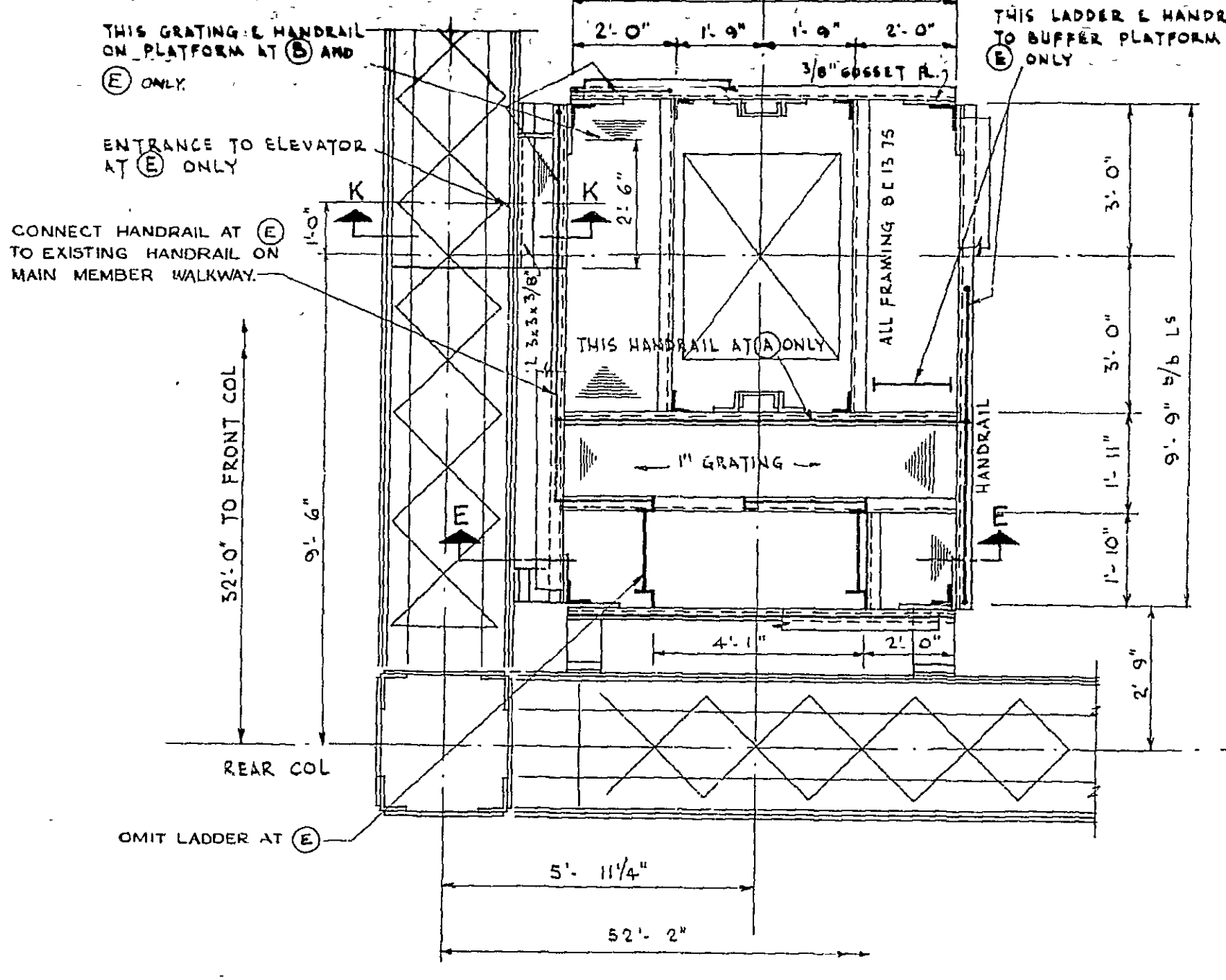


WEST ELEVATION
SCALE - 1" = 10'-0"
SOUTH TOWER AS SHOWN
NORTH TOWER OPPOSITE HAND.

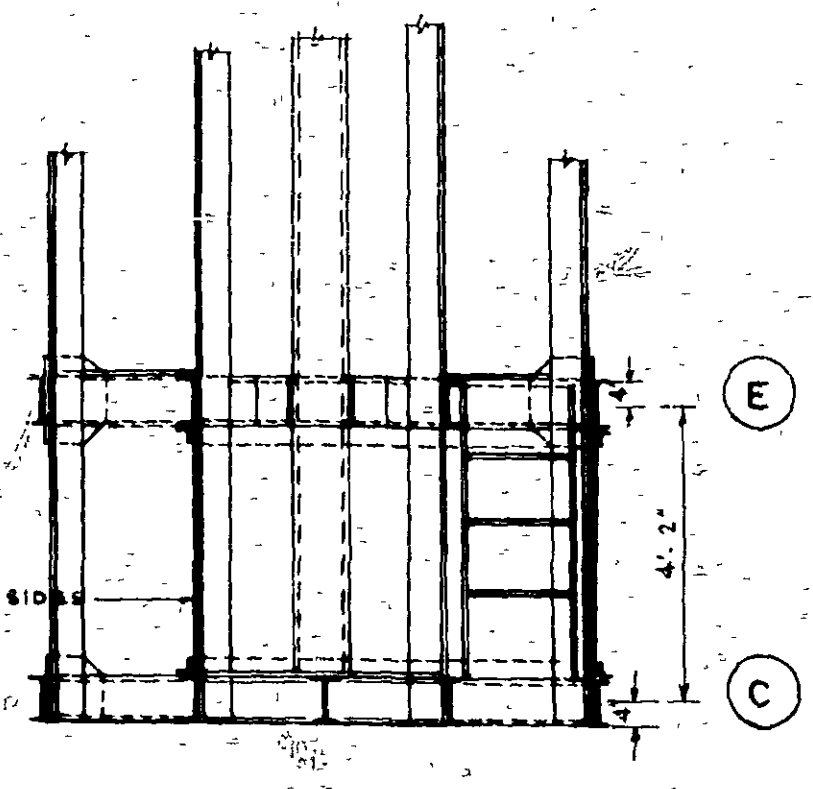
REAR ELEVATION



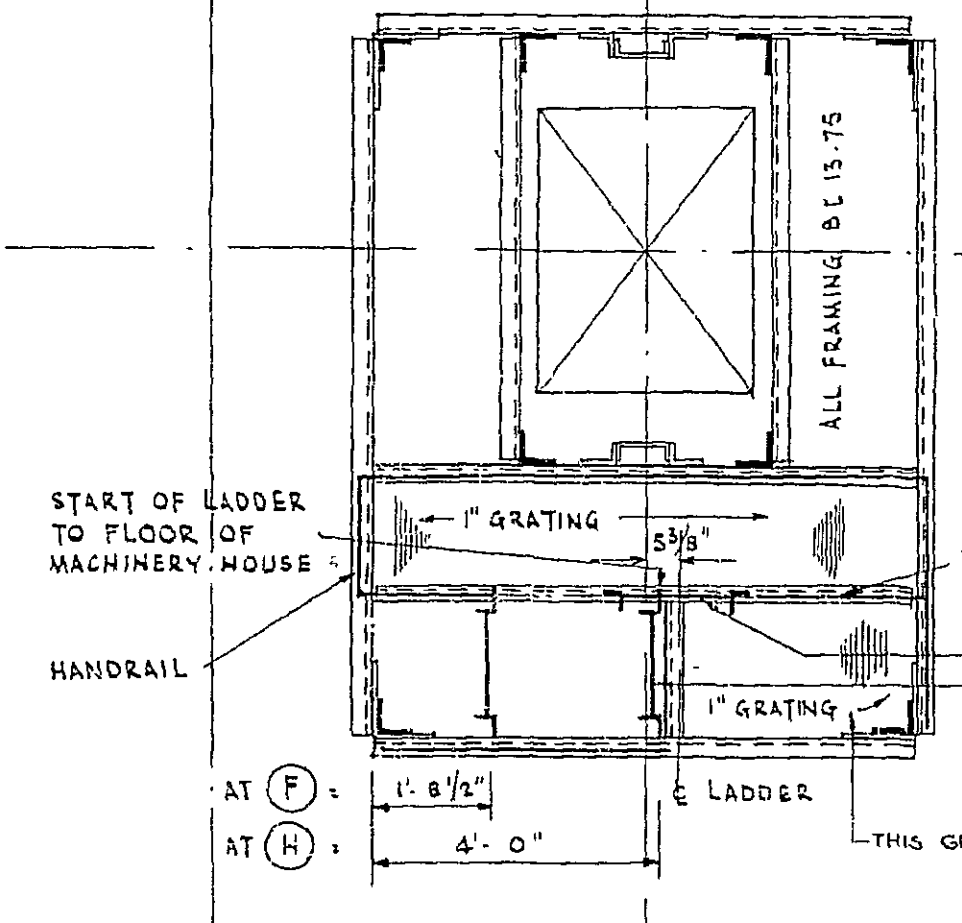
PLAN ON PORTAL PLATFORM AT (C)
SCALE - 3/8" = 1'-0"



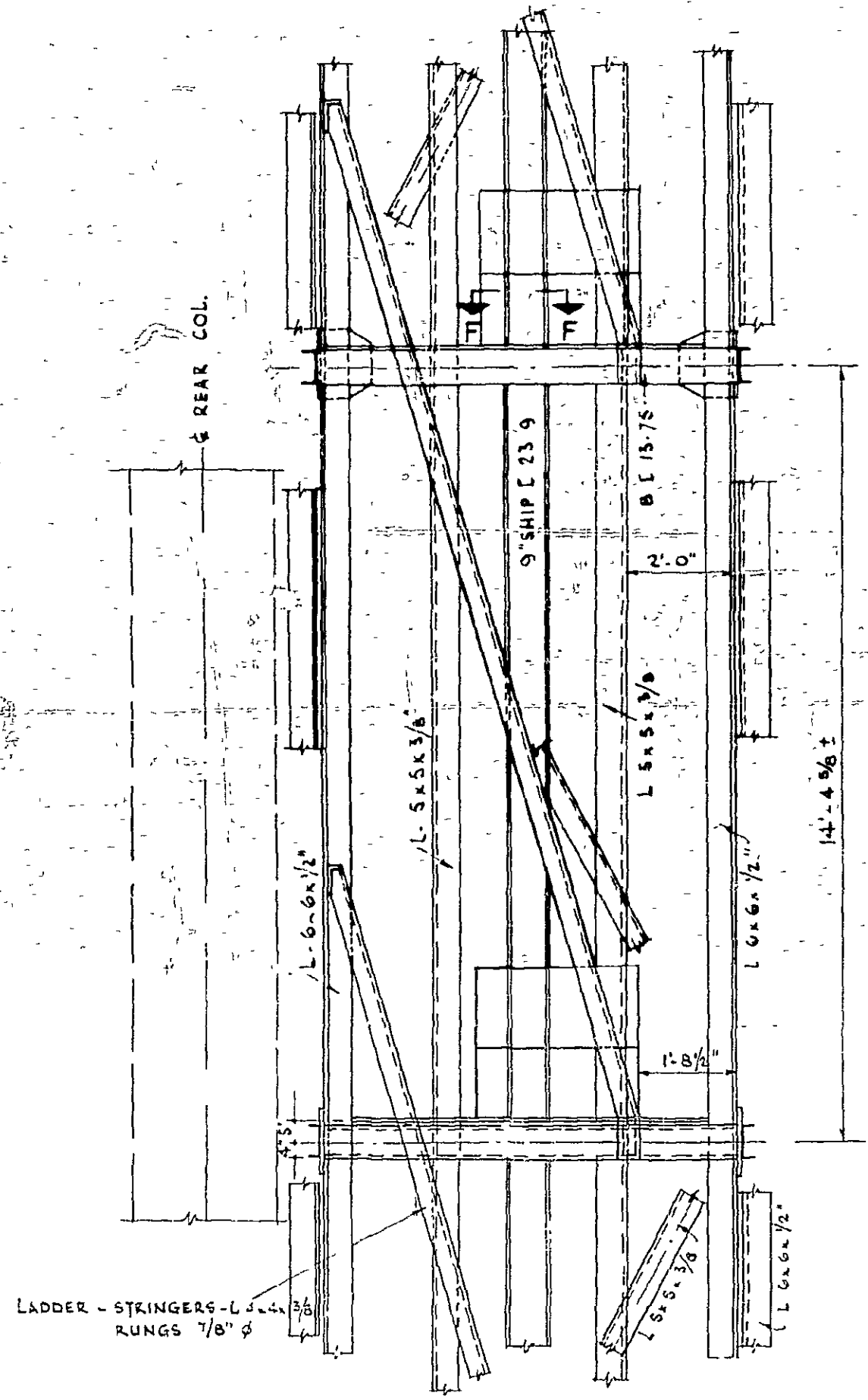
TYPICAL PLAN ON PLATFORMS AT (A), (B), (E)
SCALE 3/8" = 1'-0"



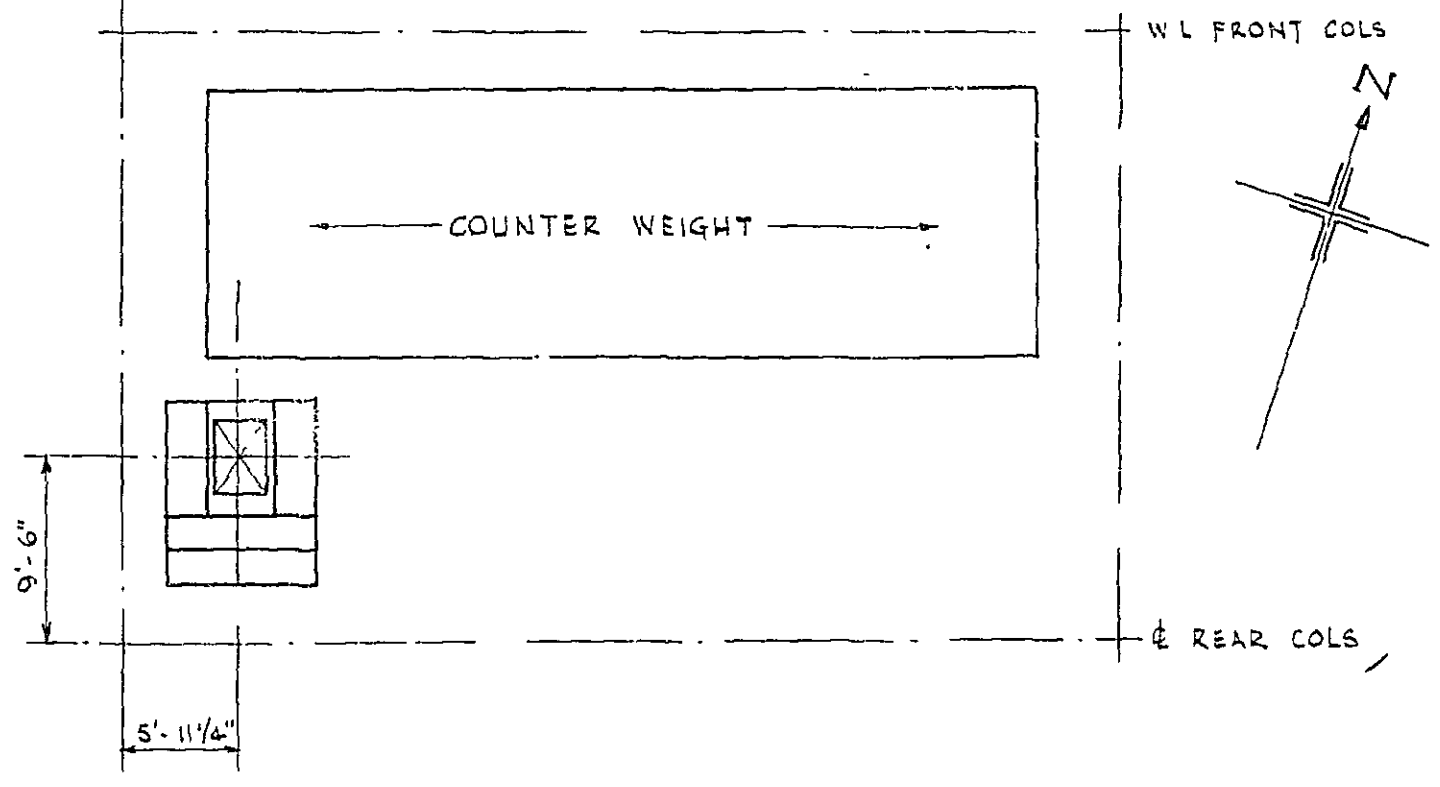
SECTION G-G
SCALE 3/8" = 1'-0"



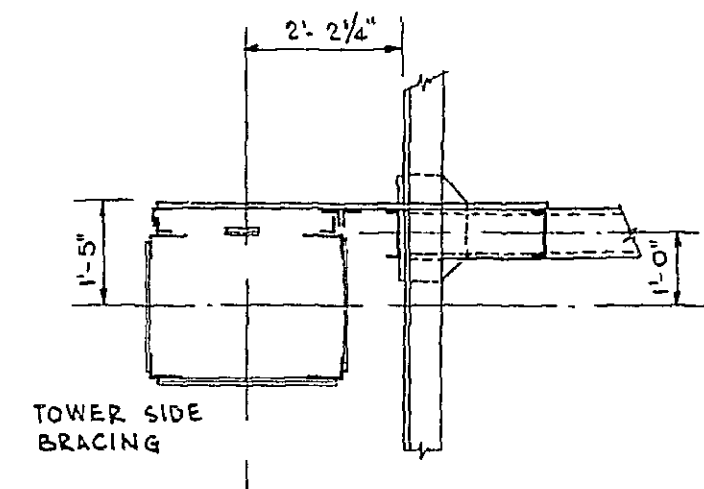
PLAN ON PLATFORM (F) & (H)
SCALE 3/8" = 1'-0"



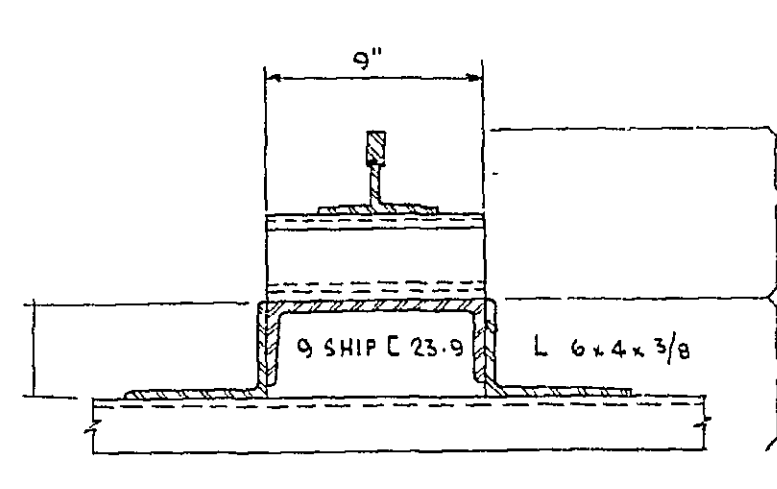
ELEVATION E-E
TYPICAL ELEVATION OF EACH BAY WITH INCLINED LADDER.
SCALE 3/8" = 1'-0"



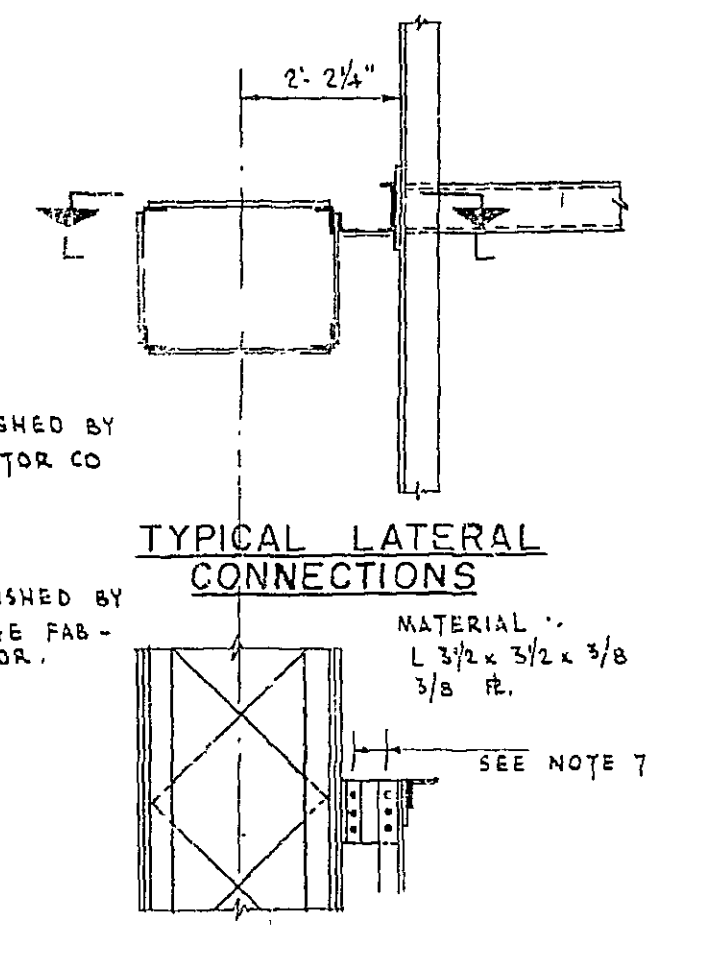
LOCATION PLAN
SCALE 1" = 10'-0"



SECTION K-K
SCALE 3/8" = 1'-0"



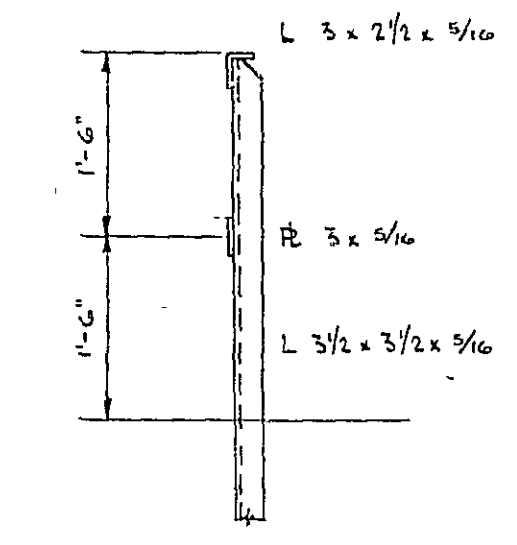
SECTION F-F
SCALE 3/8" = 1'-0"



SECTION L-L
SCALE 3/8" = 1'-0"

NOTES

- 1 FOR DETAILS OF CONNECTIONS TO SHEAVE GIRDERS SEE SHT NOS. 24 & 25.
- 2 FOR ACCESS TO ELEVATOR SEE SHEET NO. 30. SOUTH TOWER ONLY.
- 3 FOR DETAILS OF PENTHOUSE & DRIVE MACHINERY SEE SHEET NO. 40.
- 4 FOR DETAILS OF EXIT AT TOP SEE SHEET NO. 27.
- 5 ELEVATOR CAGE (6'-0" x 3'-6") TO BE ENCLOSED WITH WIRE-MESH FOR WHOLE LENGTH. WIRE MESH SHALL REJECT A 1" BALL, AND WIRE TO BE 3/32" OR MORE DIA.
- 6 HANDRAILS - POSTS, Ls 3 1/2 x 3 1/2 x 5/16. TOP RAIL, Ls 3 x 2 1/2 x 5/16. MID-RAIL, R 3 x 5/16.
- 7 LATERAL CONNECTION OF ELEVATOR TOWER BRACING TO MAIN TOWER MEMBERS TO BE MADE AFTER FULL SHEAVE LOAD IS IN PLACE.
- 8 FOR GENERAL NOTES SEE SHEET NOS 2 & 3.
- 9 3/4" φ RIVETS SHALL BE USED EXCEPT WHERE ELEVATOR FRAME COLUMNS CONNECT TO SHEAVE GIRDERS. 7/8" φ RIVETS SHALL THEN BE USED.
- 10 SAFETY CHAINS REQUIRED AT ALL OPENINGS IN THE HANDRAIL.
- 11 MAXIMUM HANDRAIL POST SPACING SHALL BE 6'-0".



TYPICAL HANDRAIL
SCALE - 1/2" = 1'-0"

RECOMMENDED	DATE 12-1-58	DESIGN P.O.L.	CHKD O.L.	APPROVED	DATE 12/1/58	DEPARTMENT PROJECT NO. SD6-4-77
		DRAWN G.P.B.	CHKD O.L.			
		TRACED J.N.W.	CHKD G.W.A.			
		JOB NO. H-538				CONTRACT NO-2
						SHEET 29 OF 62

NO REVISIONS BY DATE

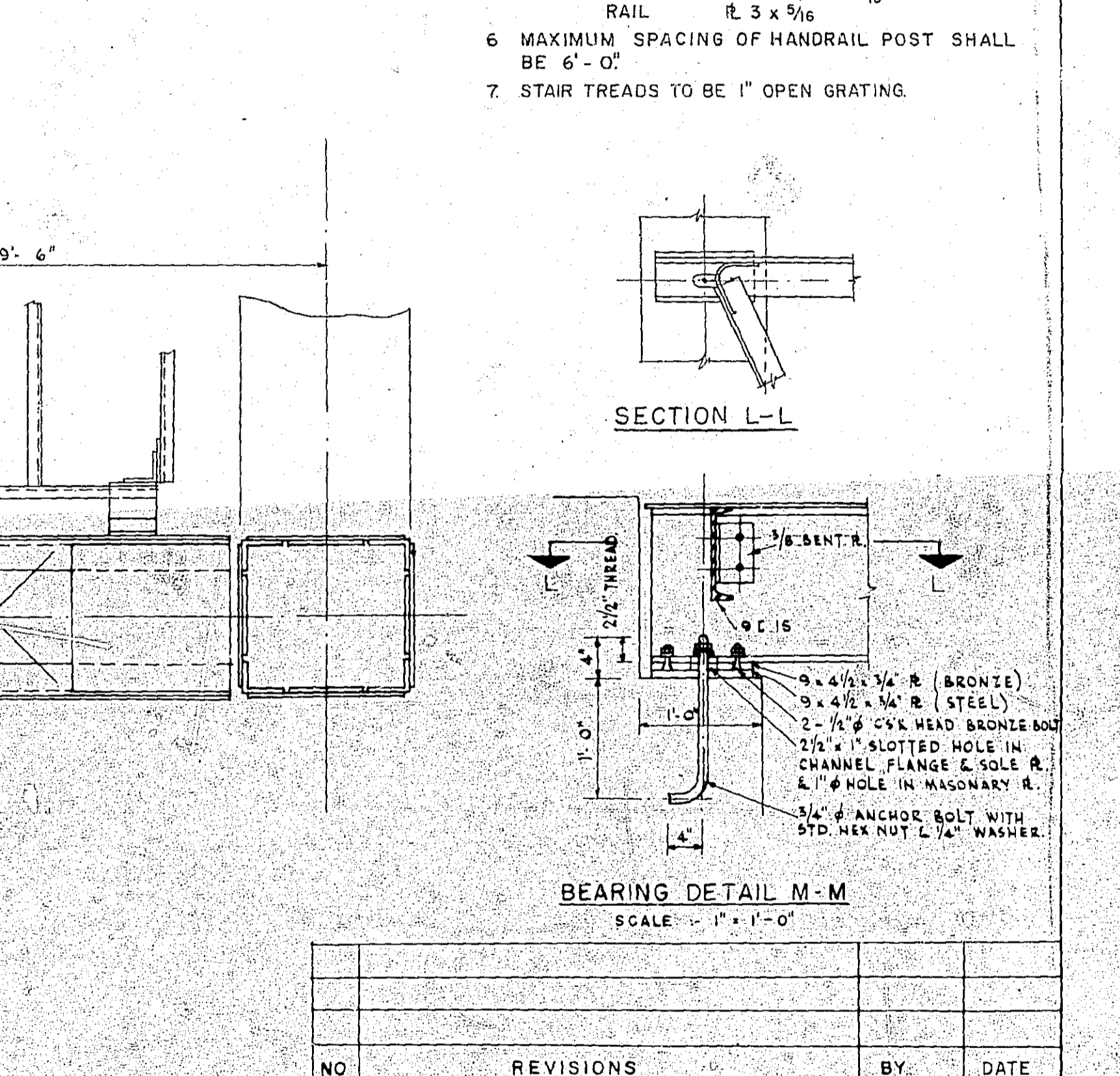
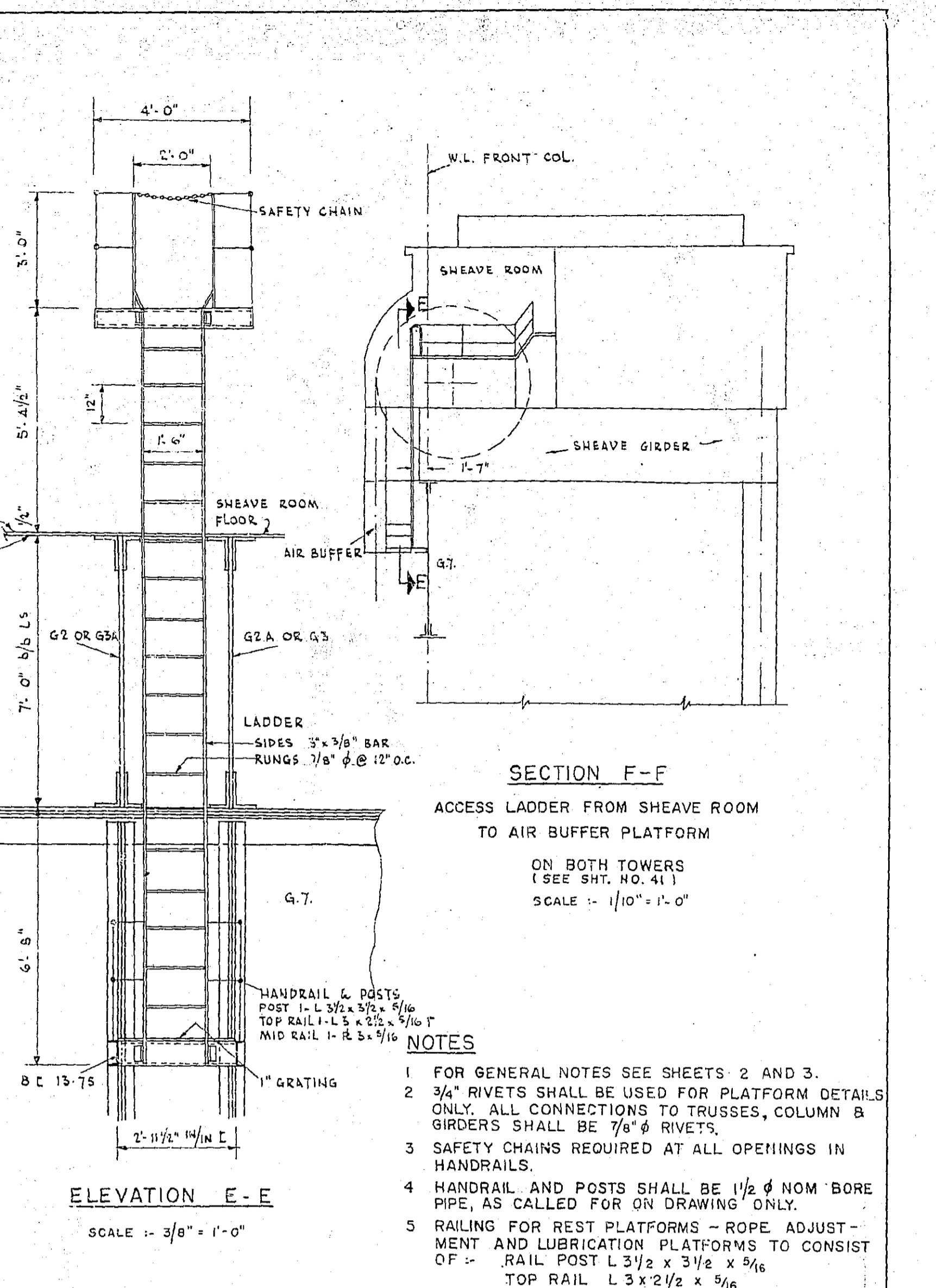
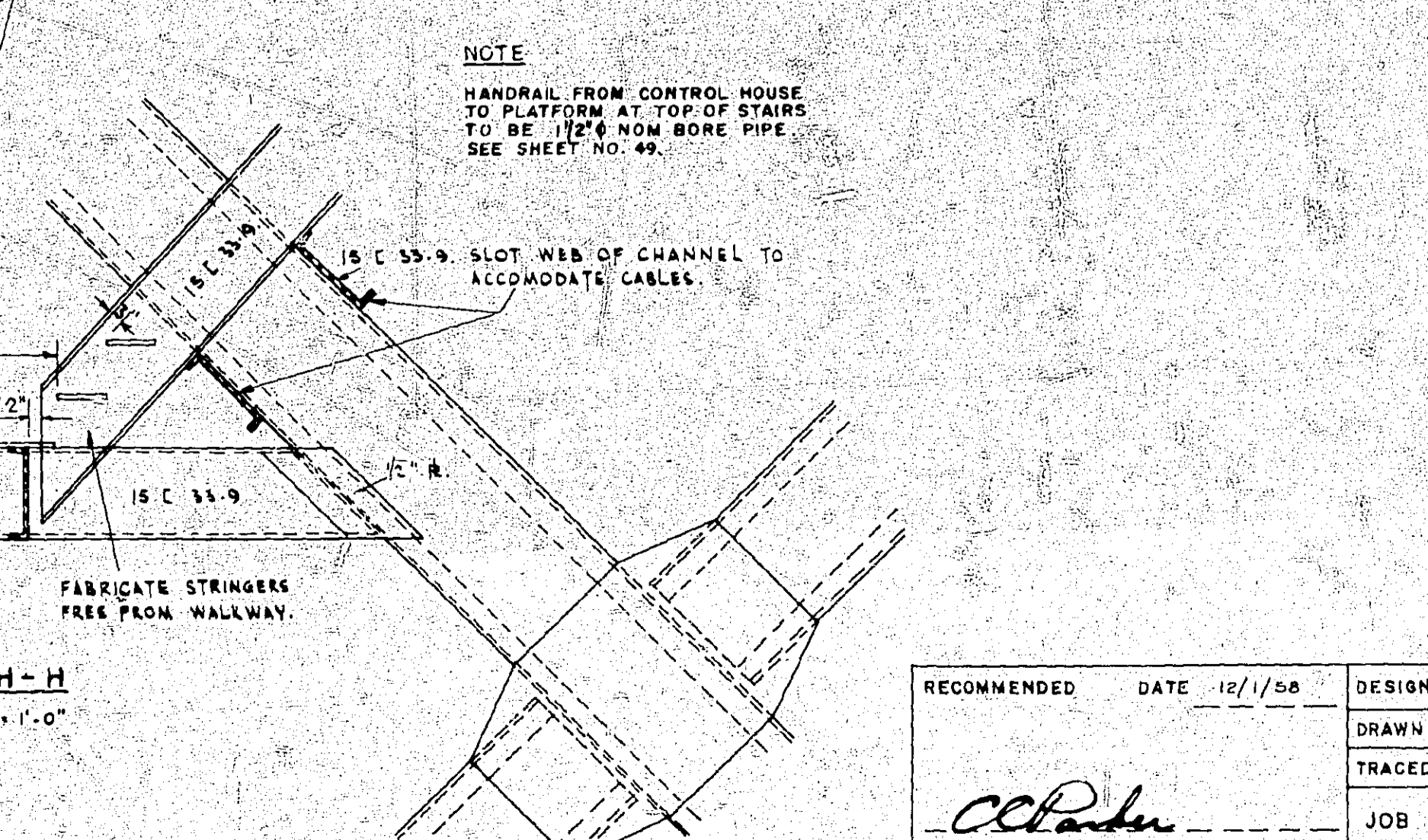
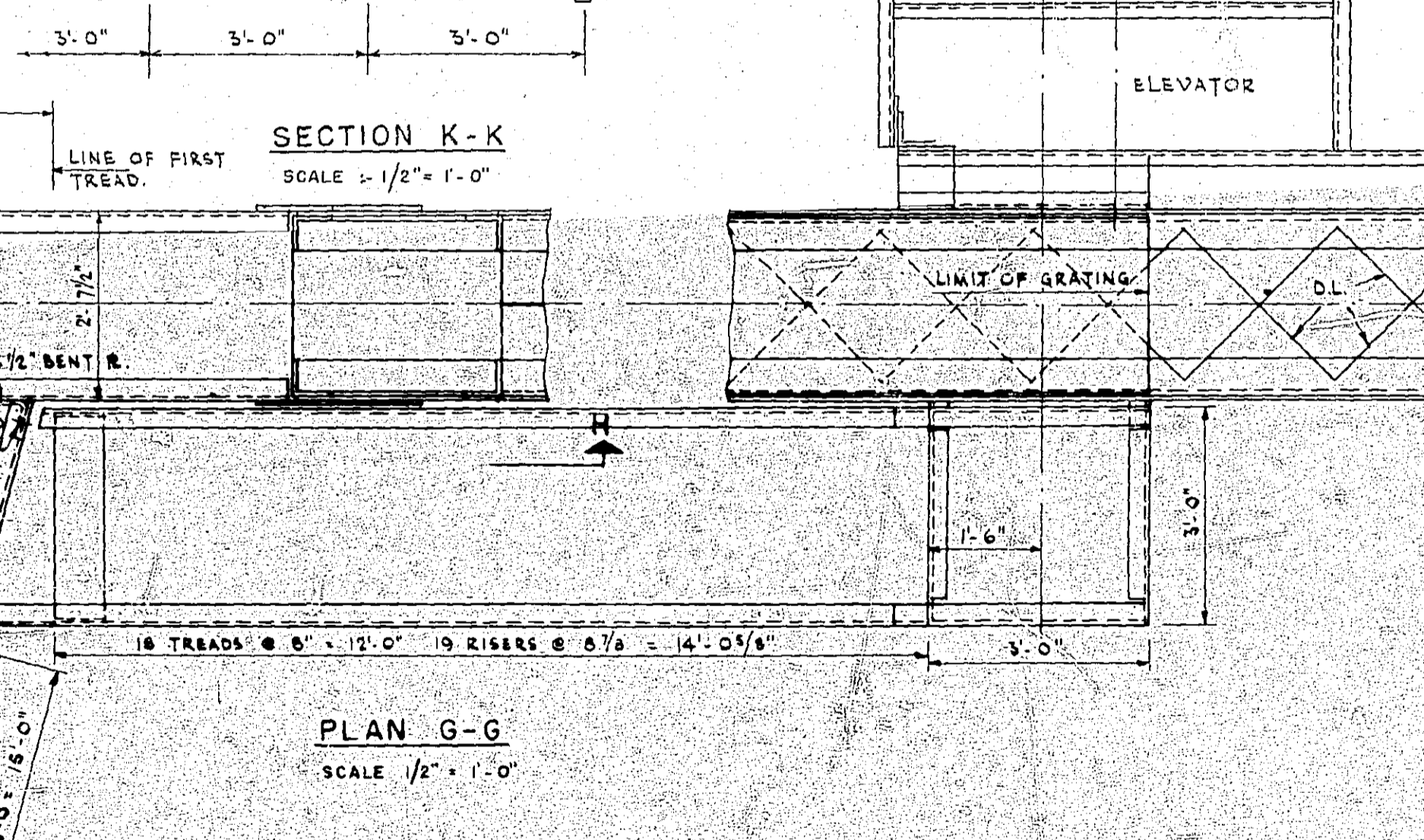
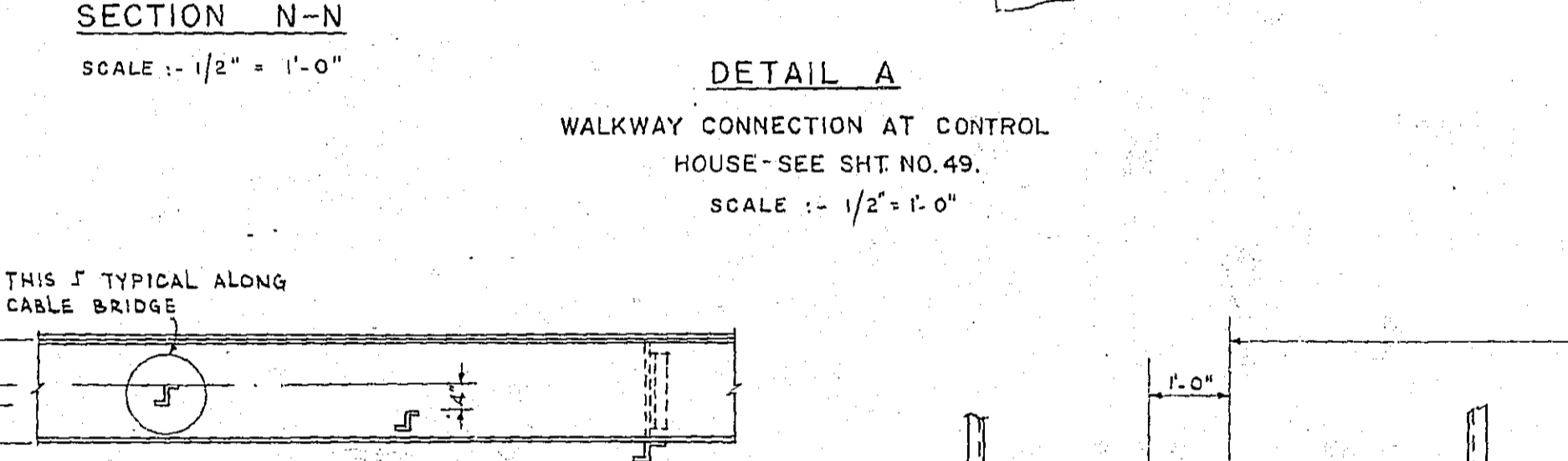
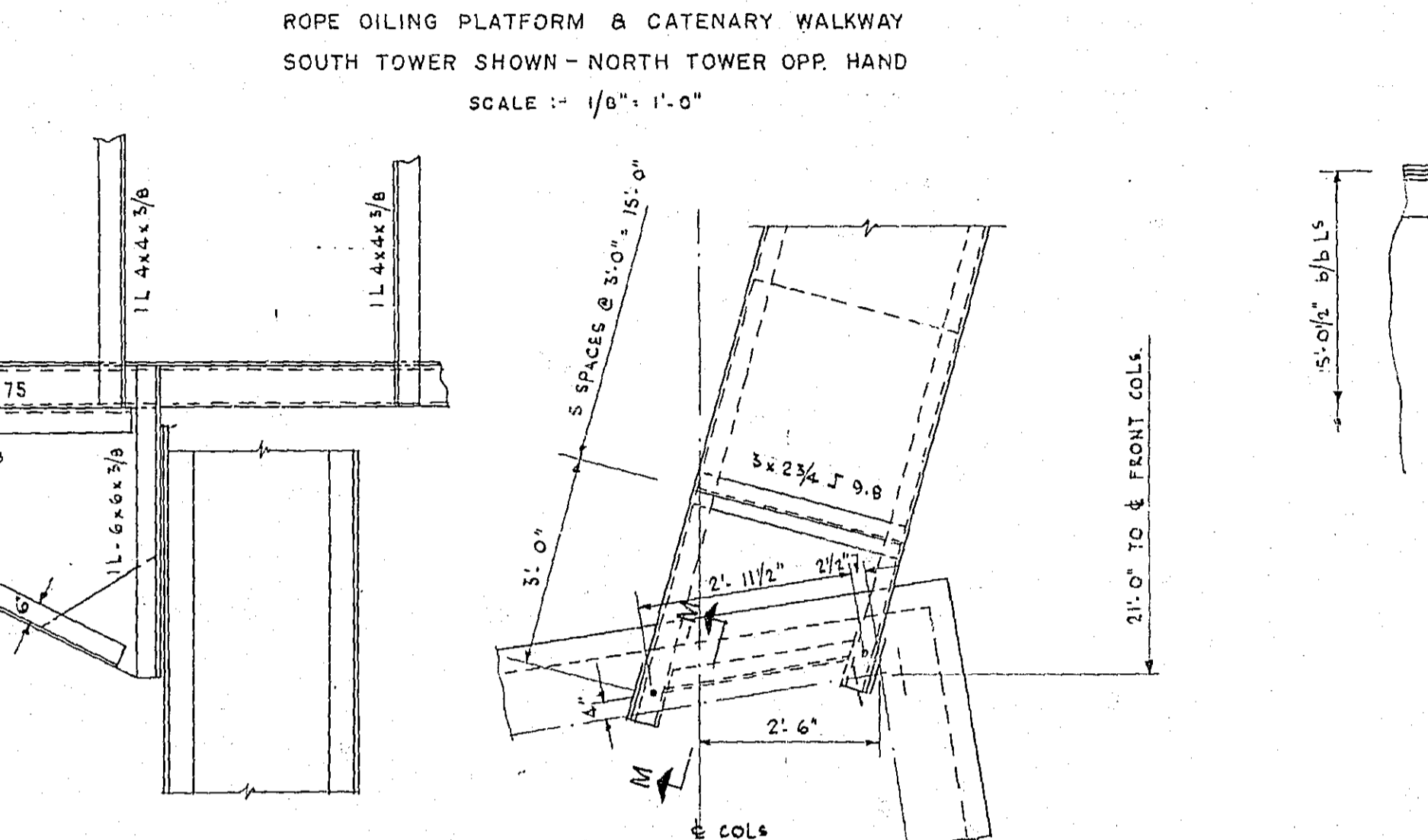
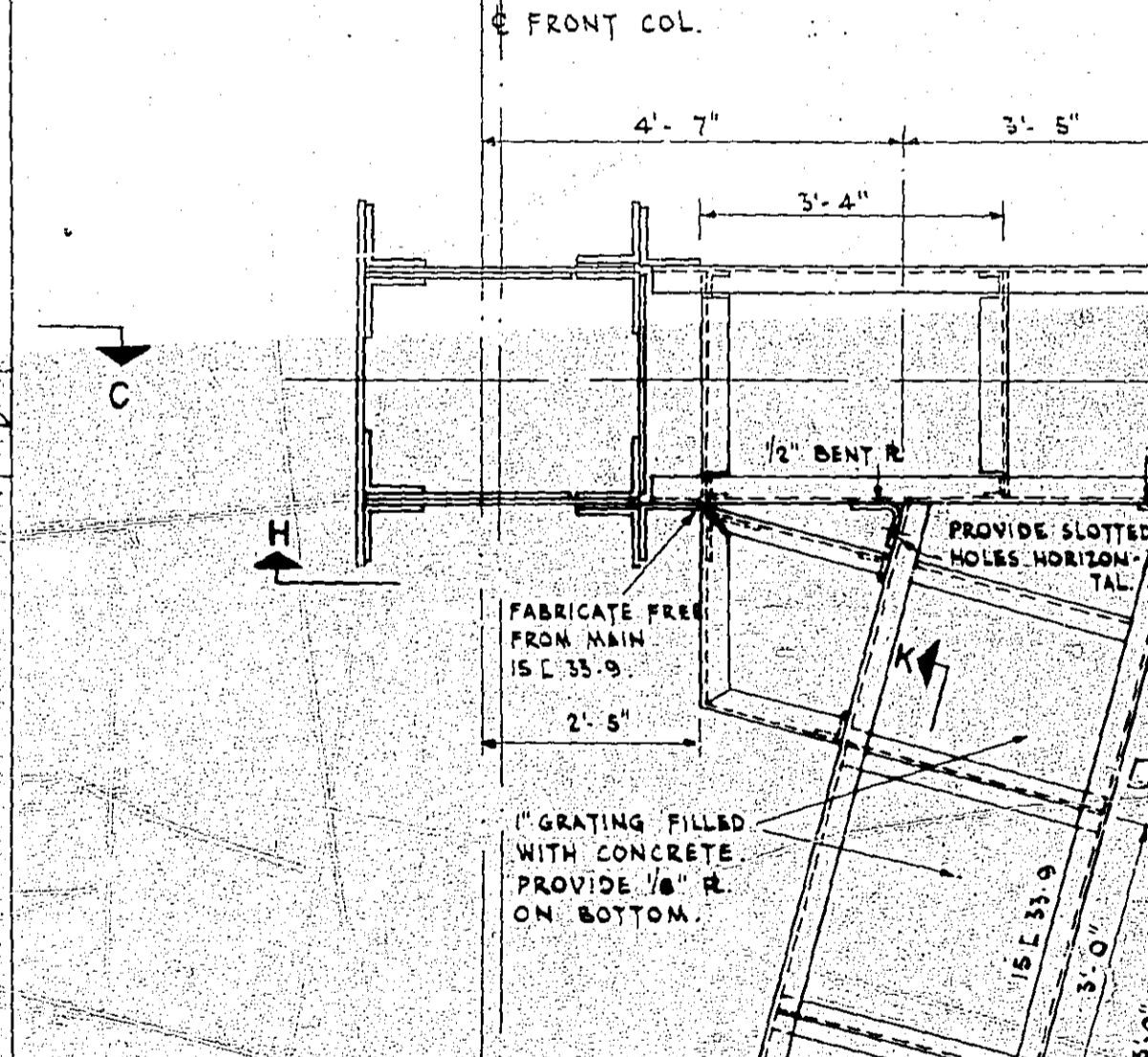
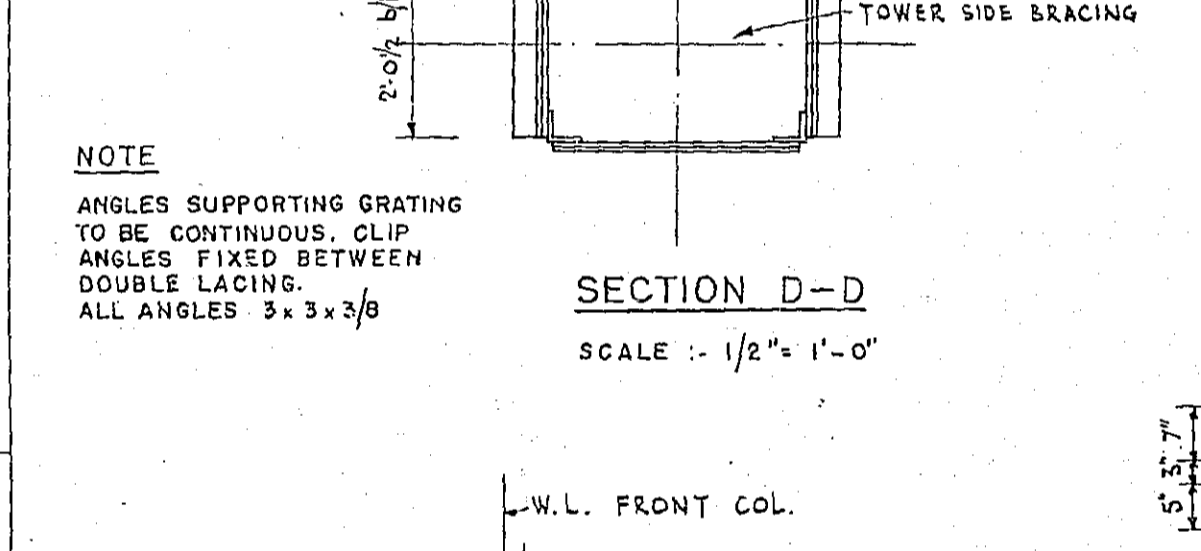
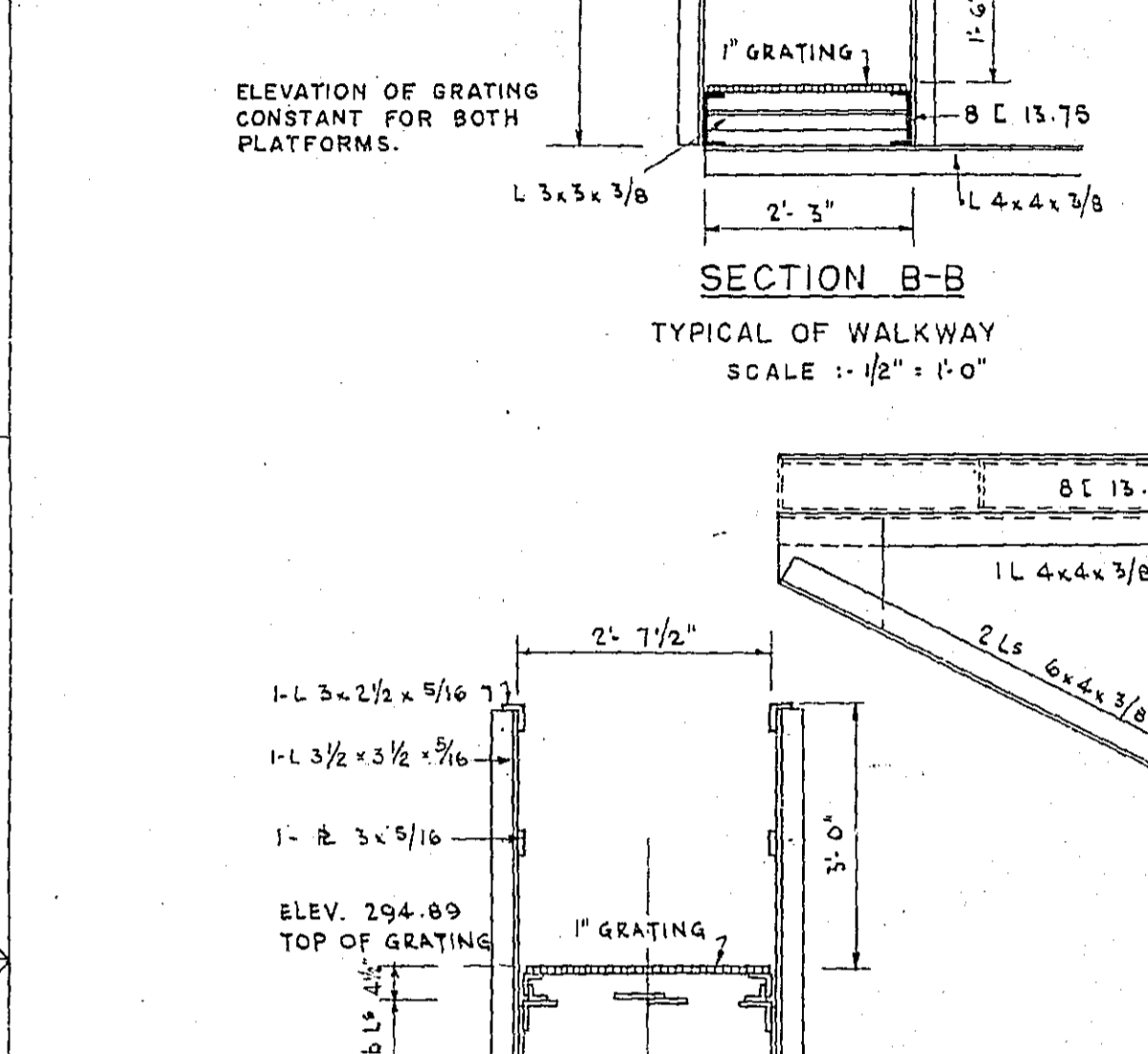
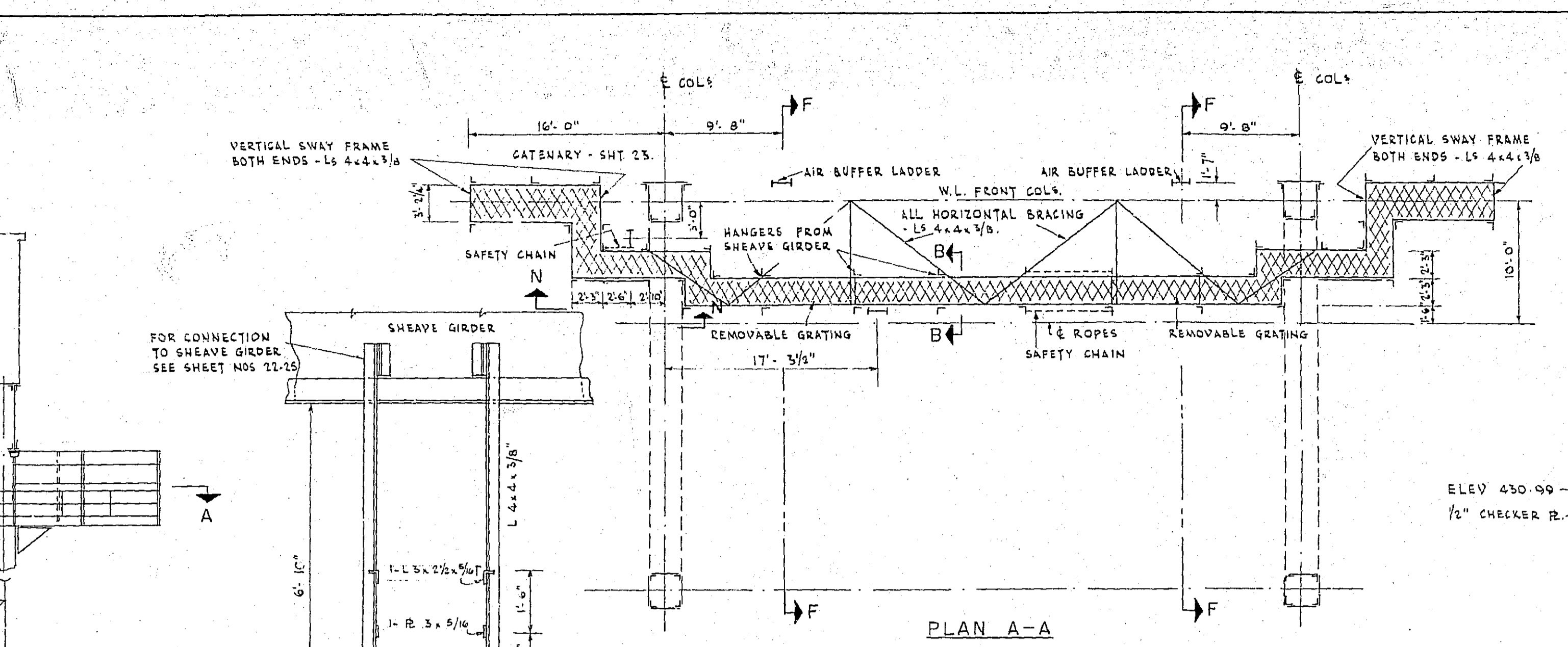
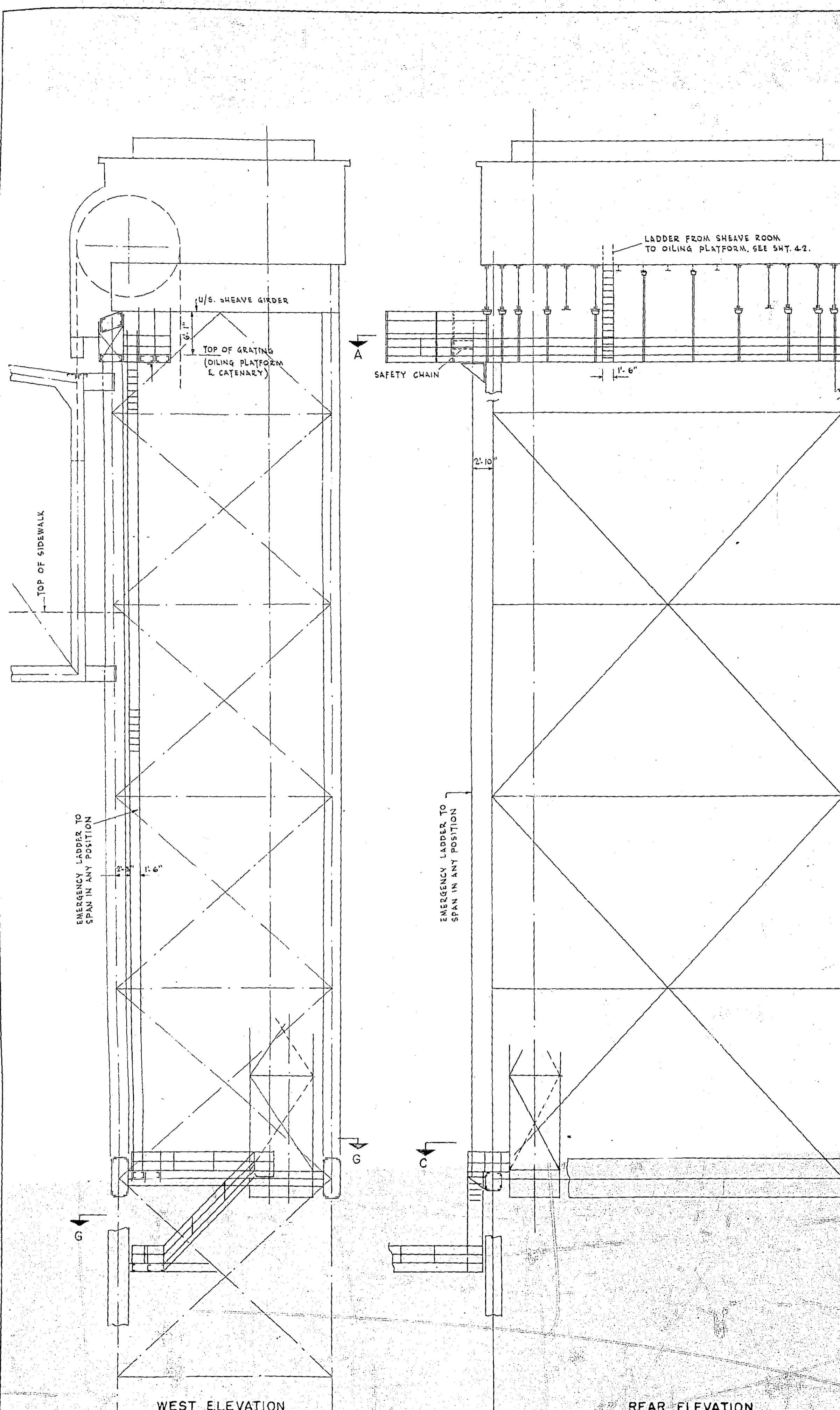
DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

C.C. PARKER & ASSOCIATES LTD
CONSULTING ENGINEERS
HAMILTON ONTARIO

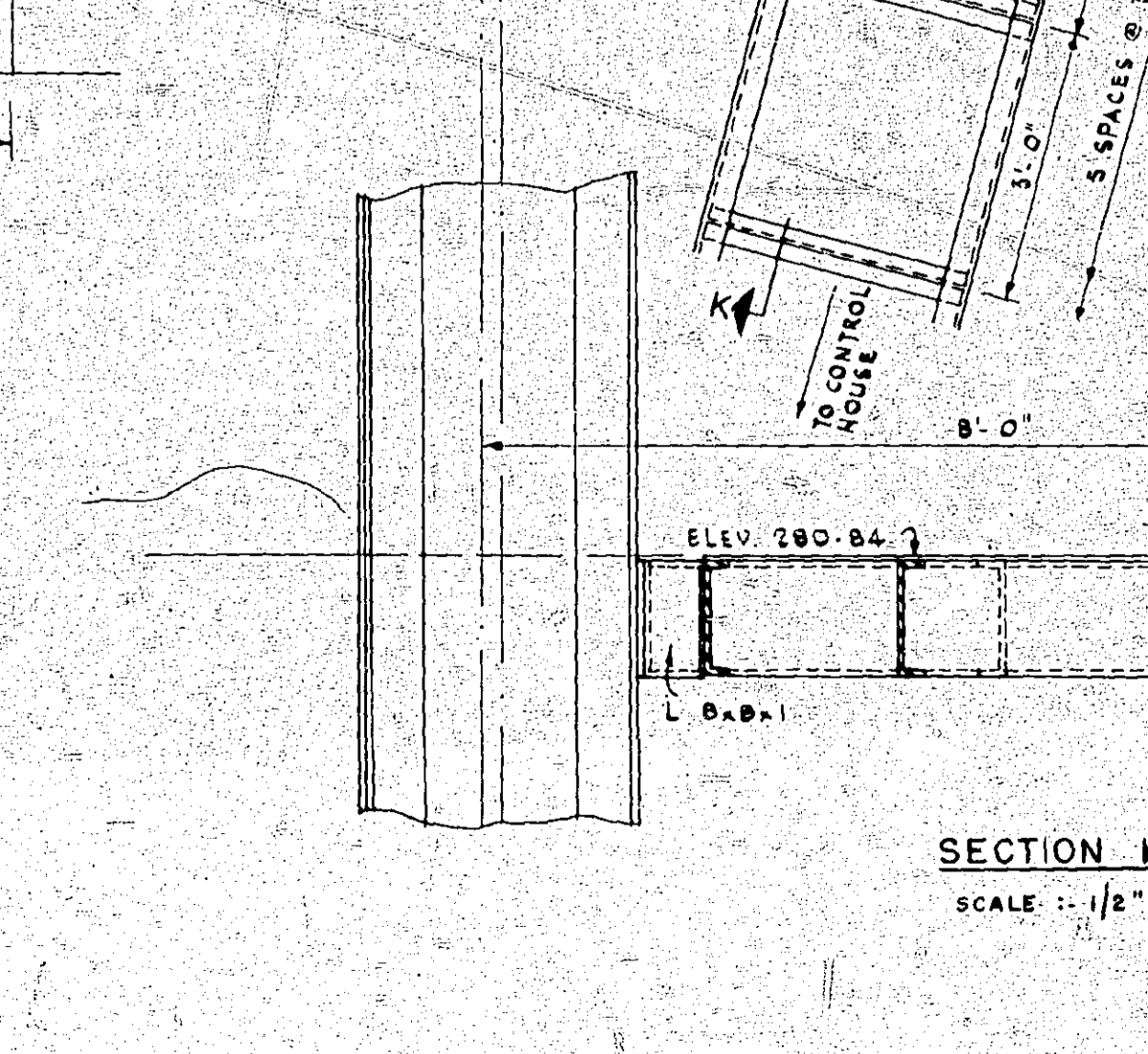
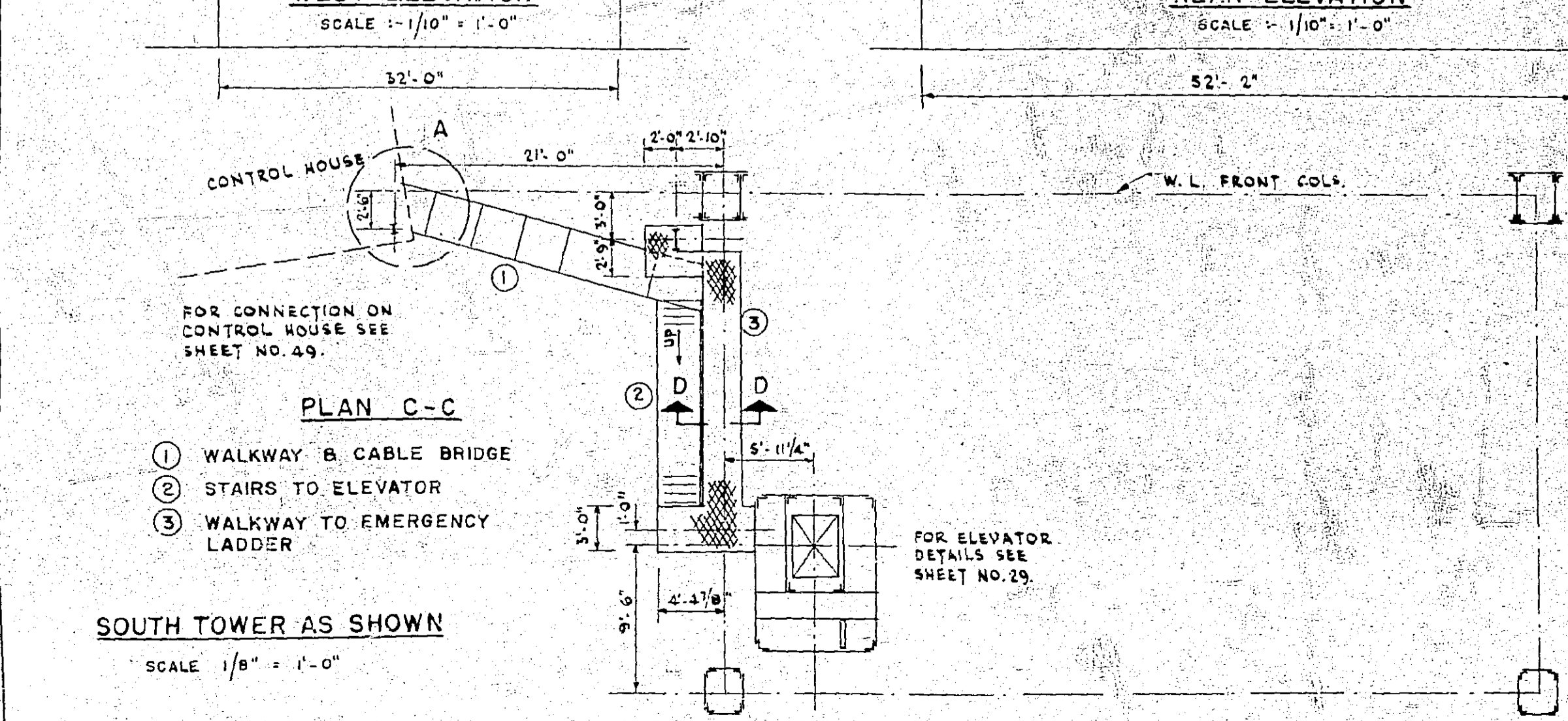
BURLINGTON CANAL LIFT BRIDGE
TOWER
ELEVATOR AND LADDER SHAFT.

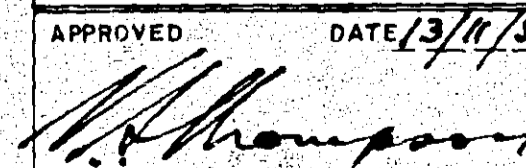

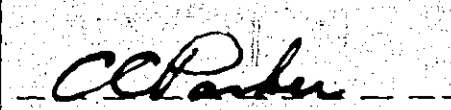
APPROVED DATE 12/1/58
L.M. WALLACE
CHIEF STRUCTURES DIVISION

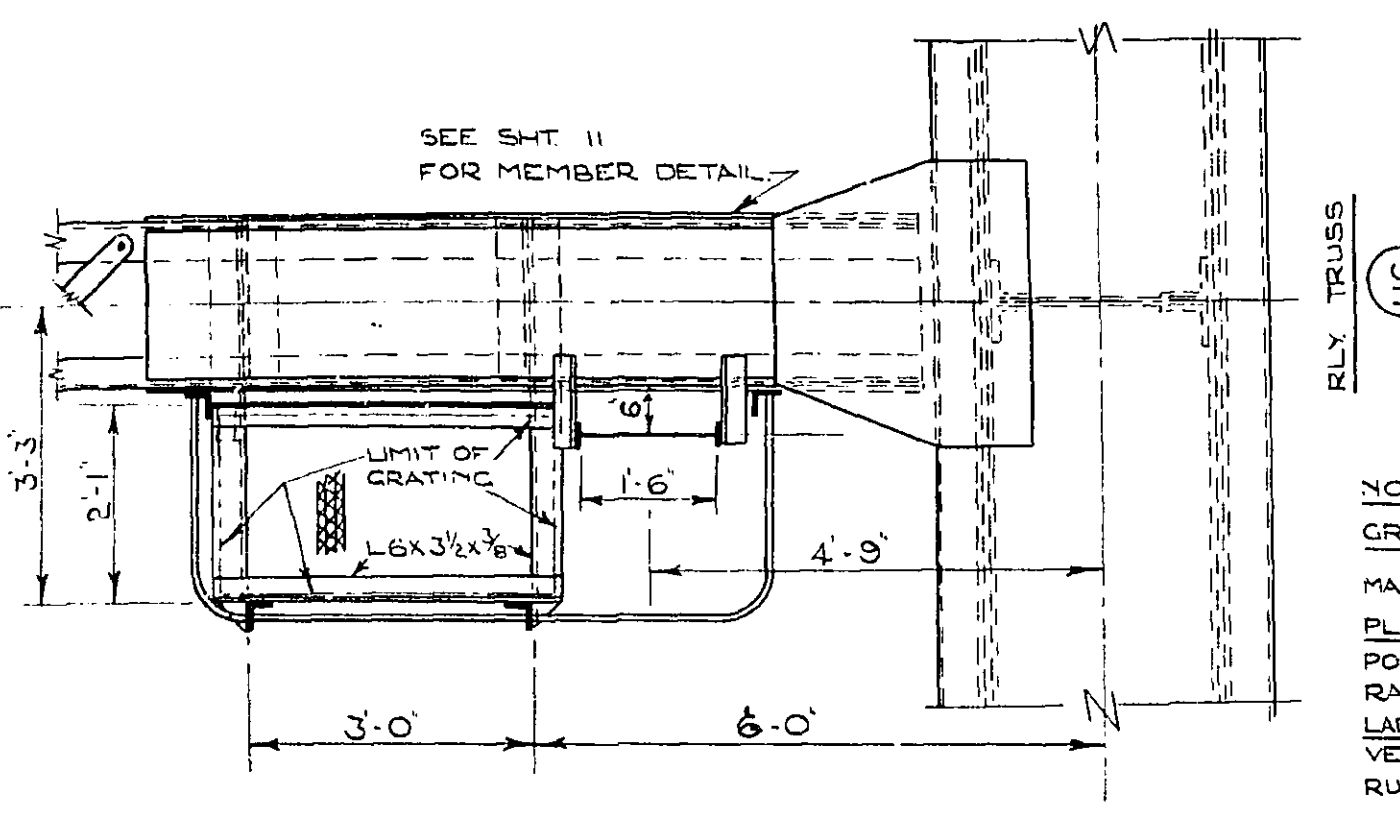
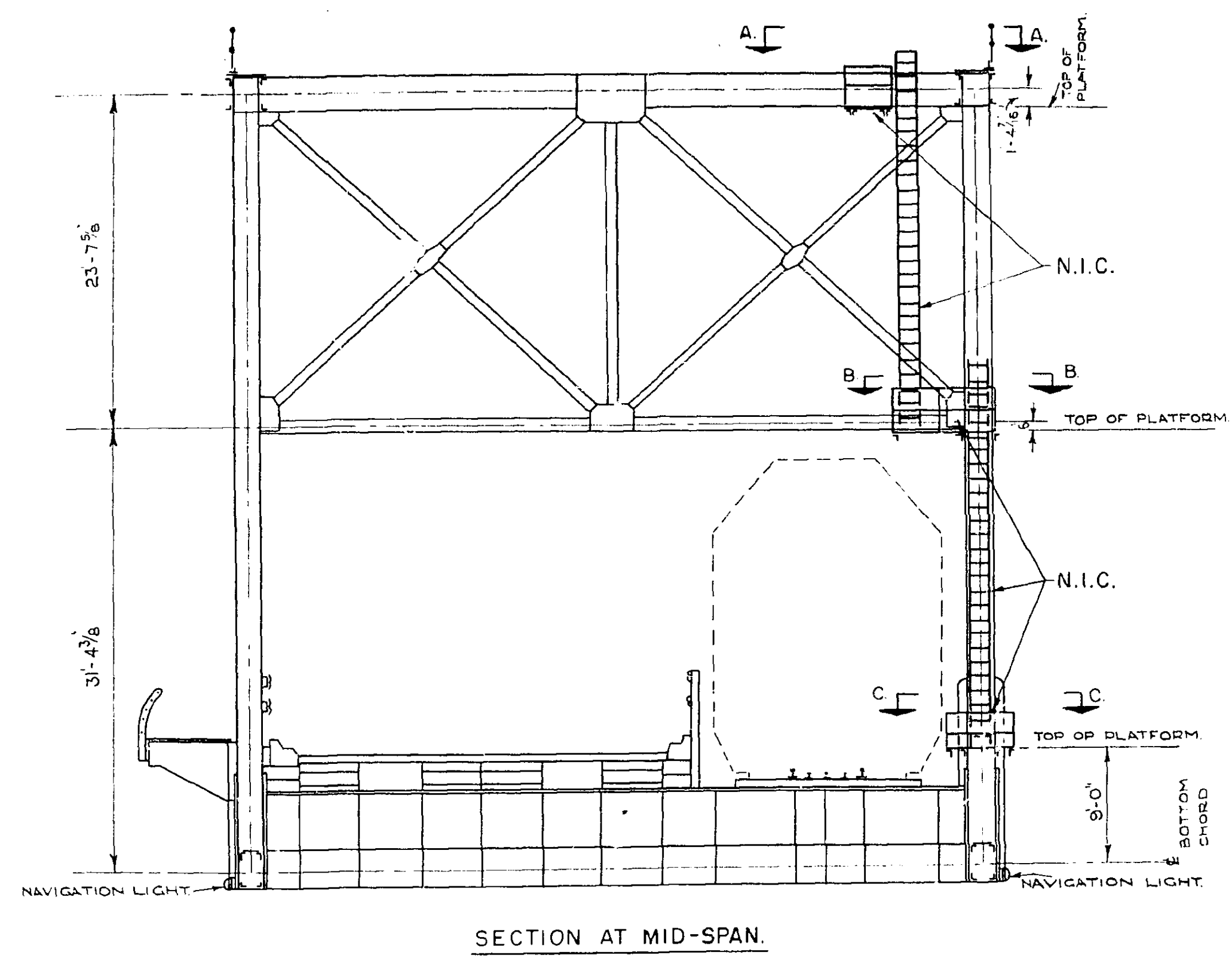
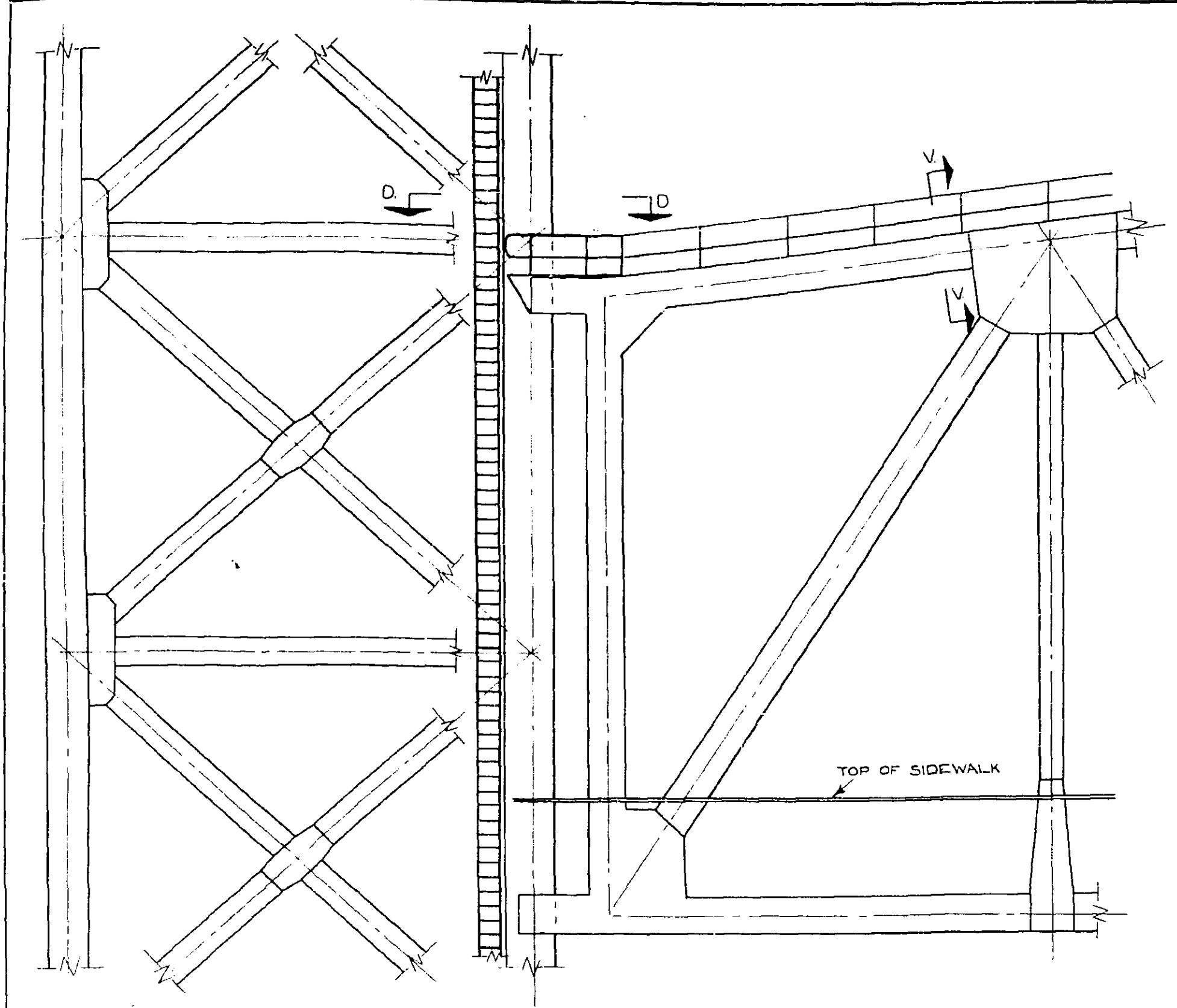
APPROVED DATE 12/1/58
G.W.A.
CHIEF ENGINEER



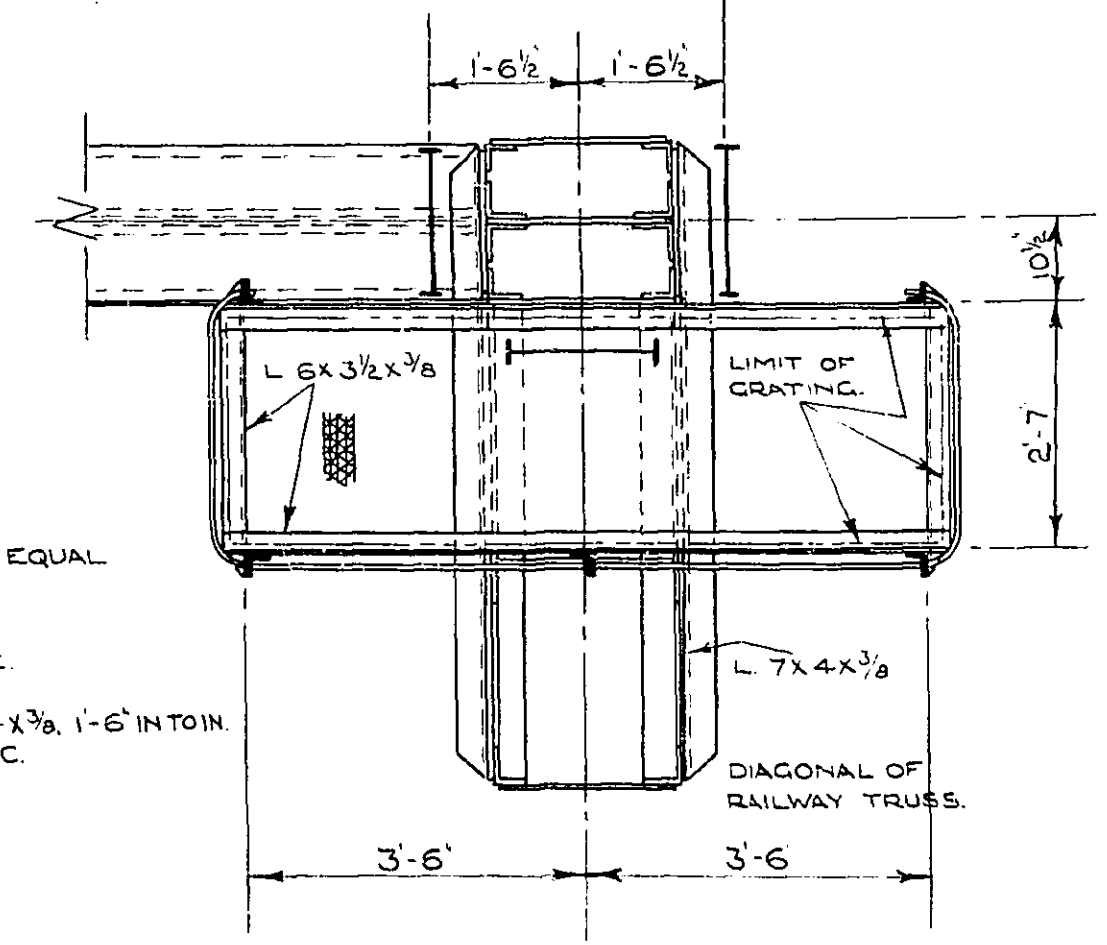
- NOTES**
- FOR GENERAL NOTES SEE SHEETS 2 AND 3.
 - 3/4" RIVETS SHALL BE USED FOR PLATFORM DETAILS ONLY. ALL CONNECTIONS TO TRUSSES, COLUMN & GIRDERS SHALL BE 7/8" RIVETS.
 - SAFETY CHAINS REQUIRED AT ALL OPENINGS IN HANDRAILS.
 - HANDRAIL AND POSTS SHALL BE 1/2" NOM BORE PIPE, AS CALLED FOR ON DRAWING ONLY.
 - RAILING FOR REST PLATFORMS - ROPE ADJUSTMENT AND LUBRICATION PLATFORMS TO CONSIST OF:
 - RAIL POST L 3 1/2 x 3/2 x 5/16
 - TOP RAIL L 3 x 2 1/2 x 5/16
 - RAIL R 3 x 3/16
 - MAXIMUM SPACING OF HANDRAIL POST SHALL BE 6'-0".
 - STAIR TREADS TO BE 1" OPEN GRATING.



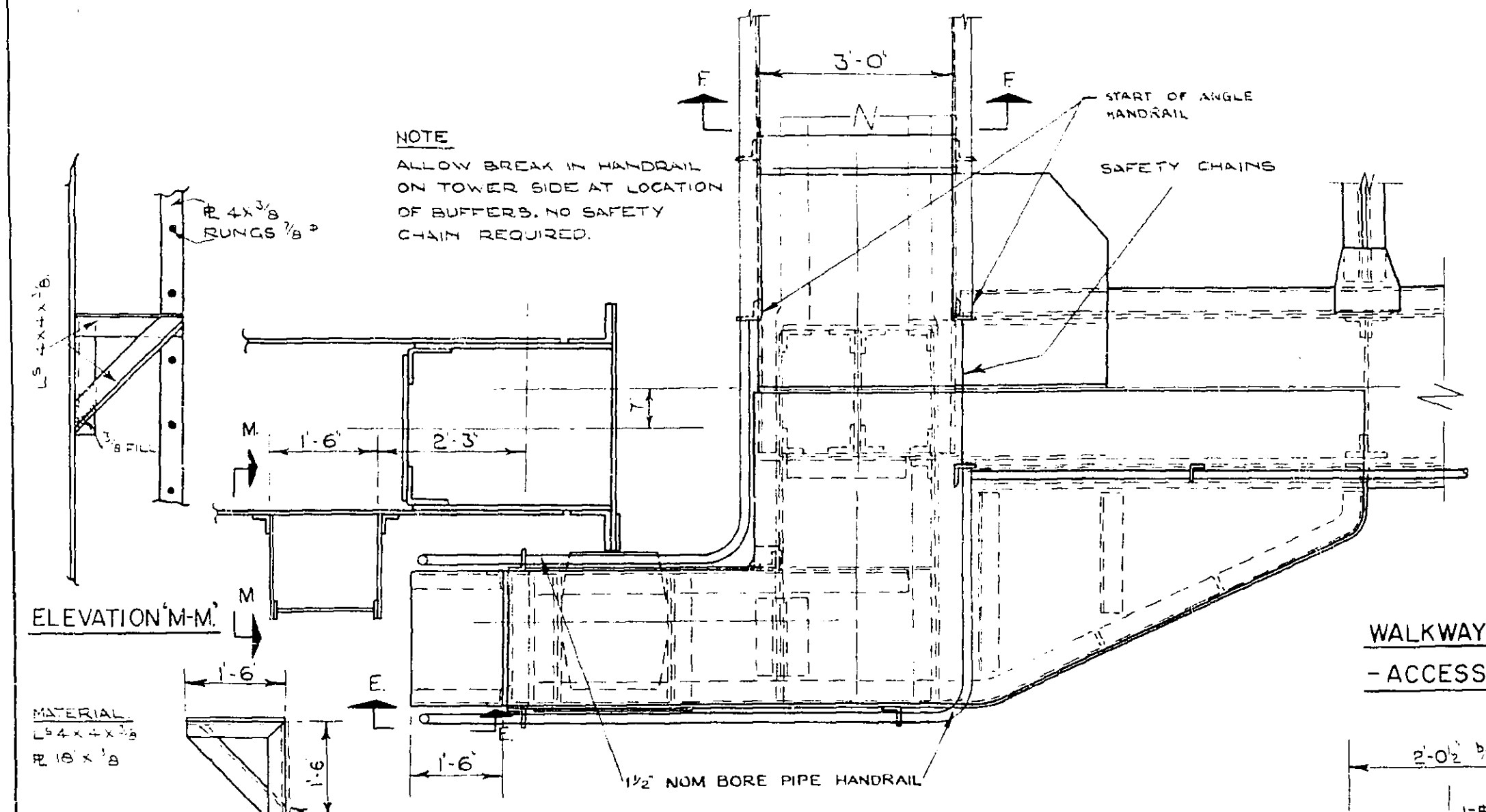
NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C. C. PARKER & ASSOCIATES LTD CONSULTING ENGINEERS HAMILTON ONTARIO			
BURLINGTON CANAL LIFT BRIDGE TOWER LADDERS AND PLATFORMS			
APPROVED	DATE 3/11/57	DEPARTMENT PROJECT NO. SD6-4-77	
 I. M. WALLACE CHIEF STRUCTURES DIVISION		 J. M. WALLACE CHIEF ENGINEER	
RECOMMENDED	DATE 12/1/56	DESIGN G.W.A. CHKD R.K.C.C.	APPROVED DATE 12/11/56
 J. M. WALLACE C.C. PARKER & ASSOC. LTD.		DRAWN C.P.B. CHKD G.W.A. TRACED J.N.W. CHKD A.T.	JOB NO. H-538 CONTRACT NO. 2 SHEET 30 OF 62



NOTES GRATINGS:
 MAIN BARS 3/4" x 3/16" OR EQUAL
 PLATFORM HANDRAILS
 POSTS L 4x4 x 3/8"
 RAILS 1 1/2" NOM PIPE
 LADDERS
 VERTICALS 2 BARS 4x3/8" 1'-6" IN TON
 RUNGS 7/8" @ 1'-0" C.C.



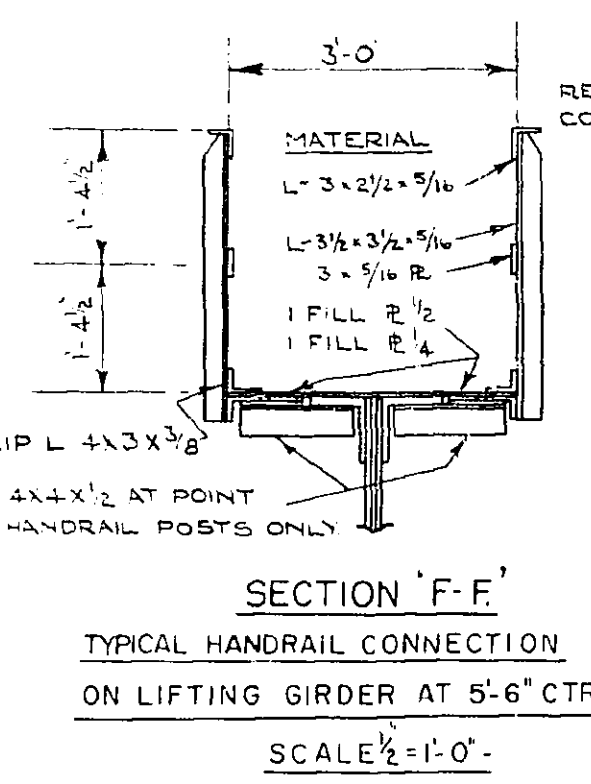
ACCESS TO AERIAL BEACON AT MID-SPAN - N.I.C.



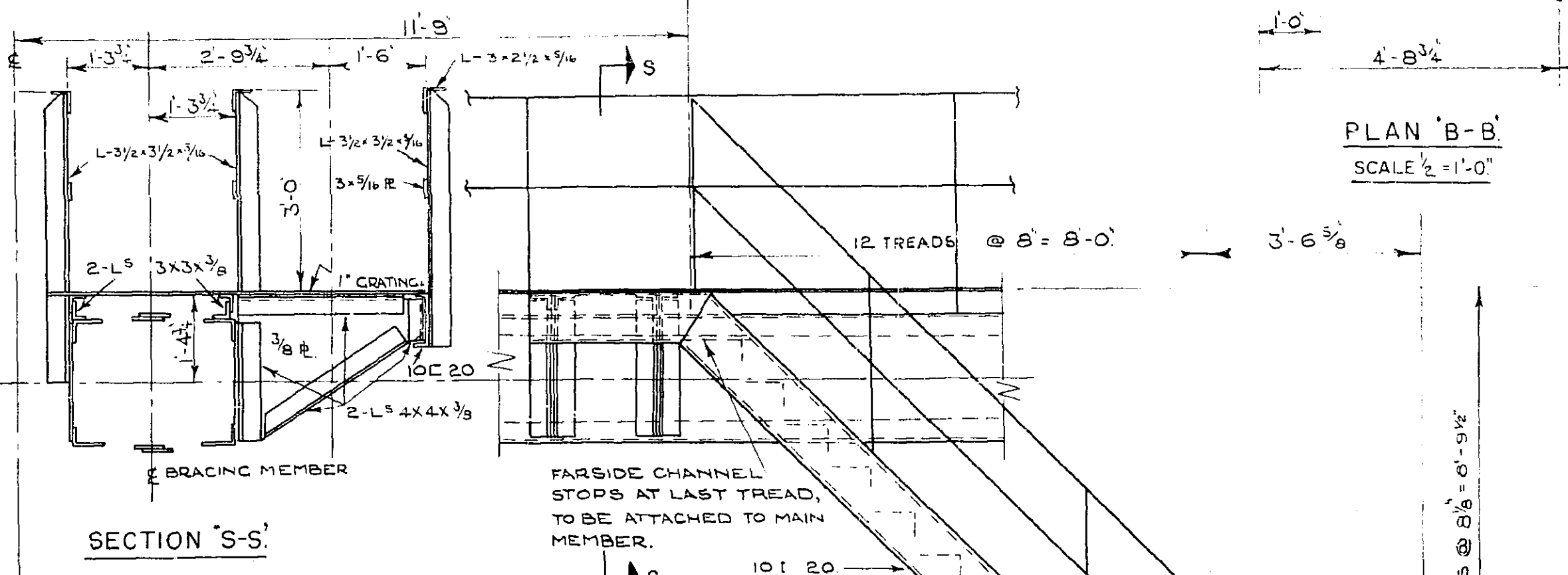
NOTE: ALLOW BREAK IN HANDRAIL ON TOWER SIDE AT LOCATION OF BUFFERS, NO SAFETY CHAIN REQUIRED.

NOTE: BOLT BRACKETS TO END OF SPAN GUIDE.

PLAN 'D-D' SCALE 1/2" = 1'-0"



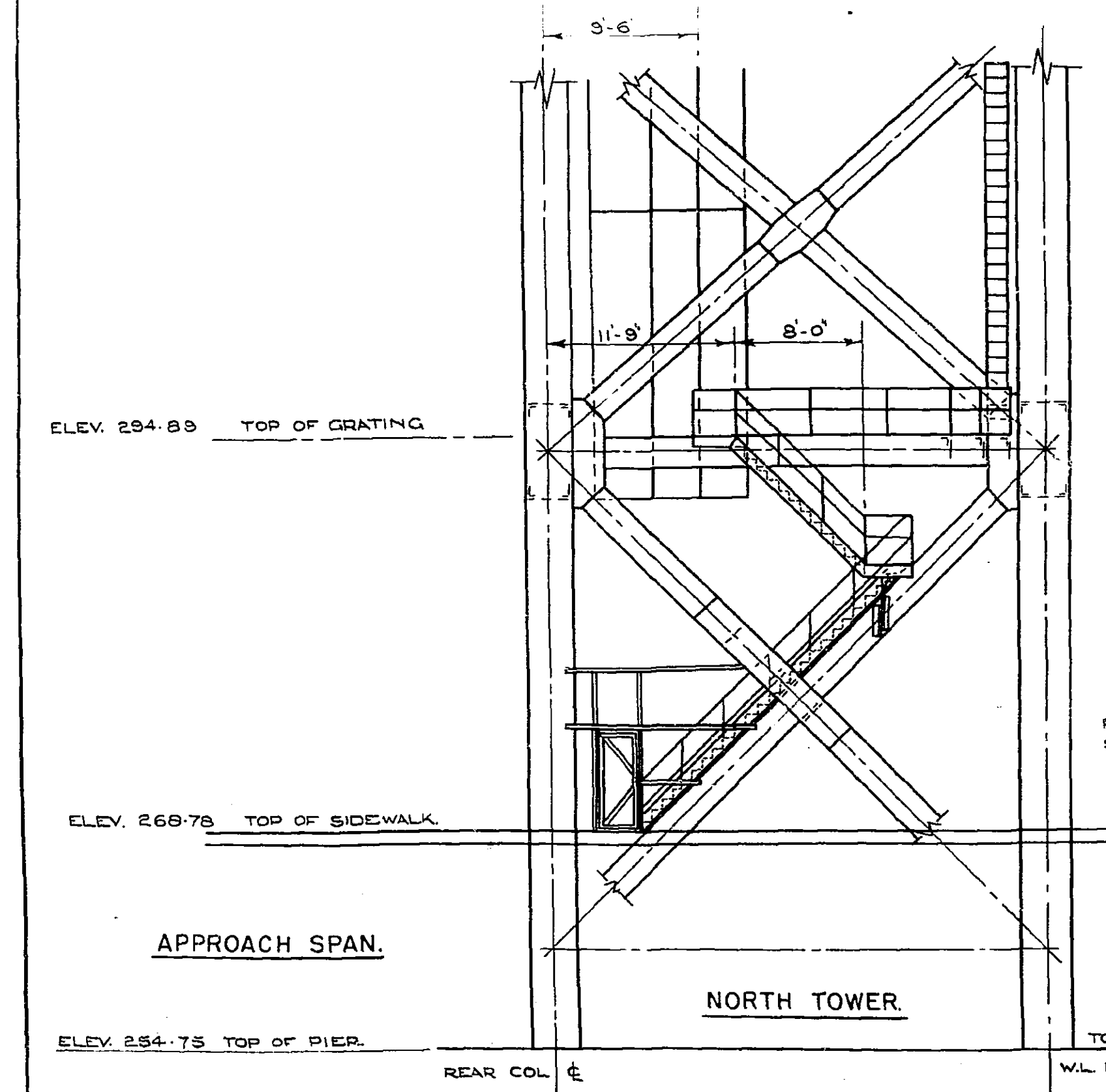
SECTION 'F-F' TYPICAL HANDRAIL CONNECTION ON LIFTING GIRDER AT 5'-6" CTRS. SCALE 1/2" = 1'-0"



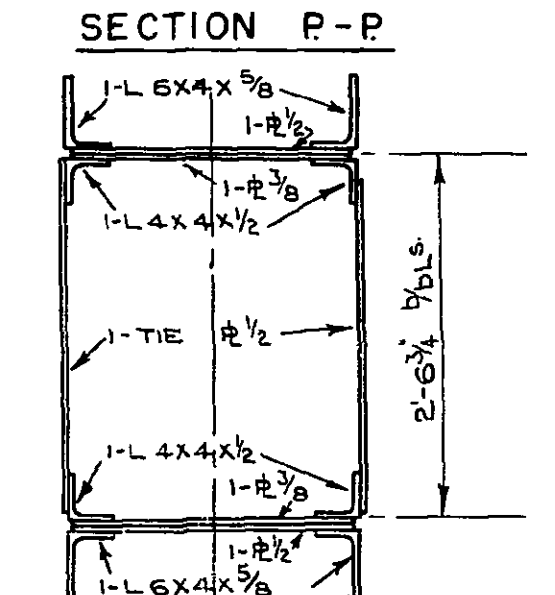
WALKWAY ON TOP OF LIFTING GIRDER - ACCESS TO AUX-C/W SHEAVES & ROPES.

TYPICAL HANDRAIL CONNECTION ALONG TOP OF SPAN ON BOTH TRUSSES, AT 6'-2" CTRS. SCALE 1/2" = 1'-0"

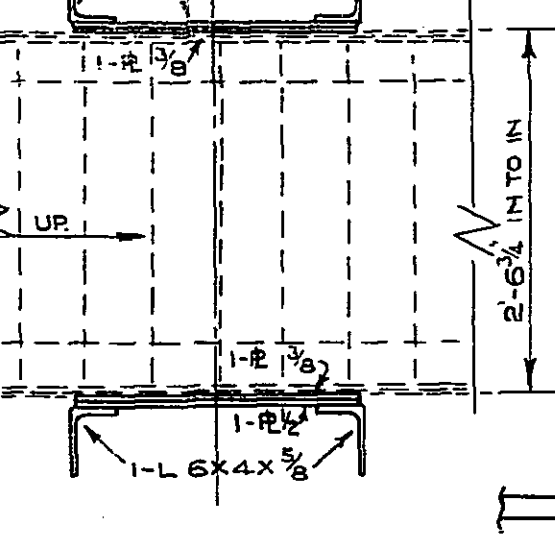
- NOTES:**
- FOR GENERAL NOTES SEE SHEET NO. 2 AND 3.
 - USE 3/4" RIVETS FOR SHOP CONNECTIONS & 3/8" BOLTS FOR FIELD CONNECTIONS OF ALL STAIR CASES, LADDERS, PLATFORMS BRACKETS & RAILING POST, EXCEPT AT CONNECTIONS TO MAIN TRUSS, COLUMN, GIRDER & BRACING MEMBERS, WHERE 1/2" RIVETS ARE TO BE USED.
 - SAFETY CHAINS TO BE PROVIDED AT ALL OPENINGS IN HANDRAILS.
 - ENCLOSE BOTH SIDES OF STAIRWAY ENTRANCE WITH WIRE MESH, WIRE TO REJECT 1" BALL. DOOR TO BE LOCKED FROM BOTH SIDES.
 - STAIR TREADS TO BE 1" OPEN GRATING.



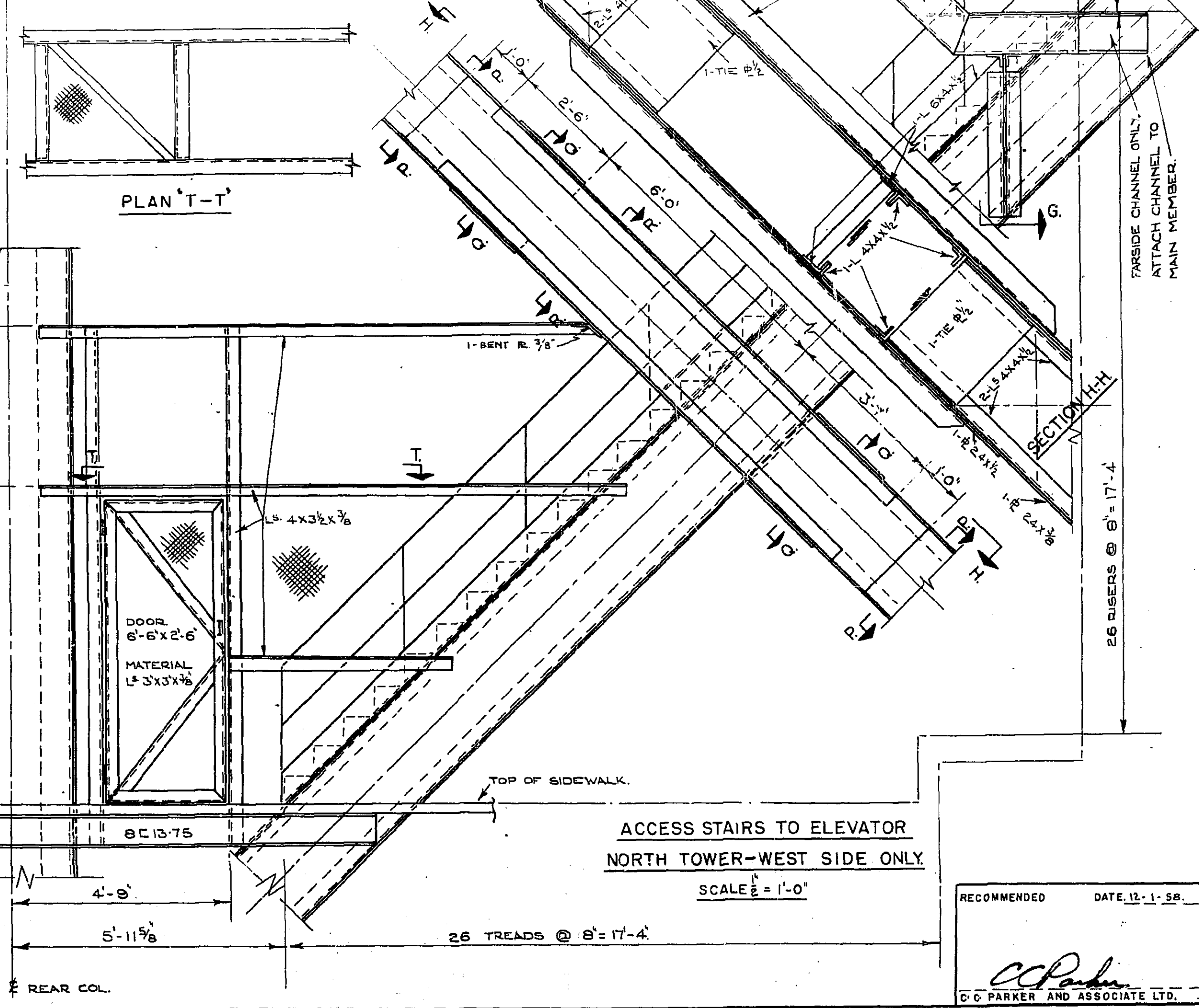
ACCESS TO ELEVATOR SCALE 1/2" = 1'-0"



SECTION 'Q-Q' SCALE 1/2" = 1'-0"



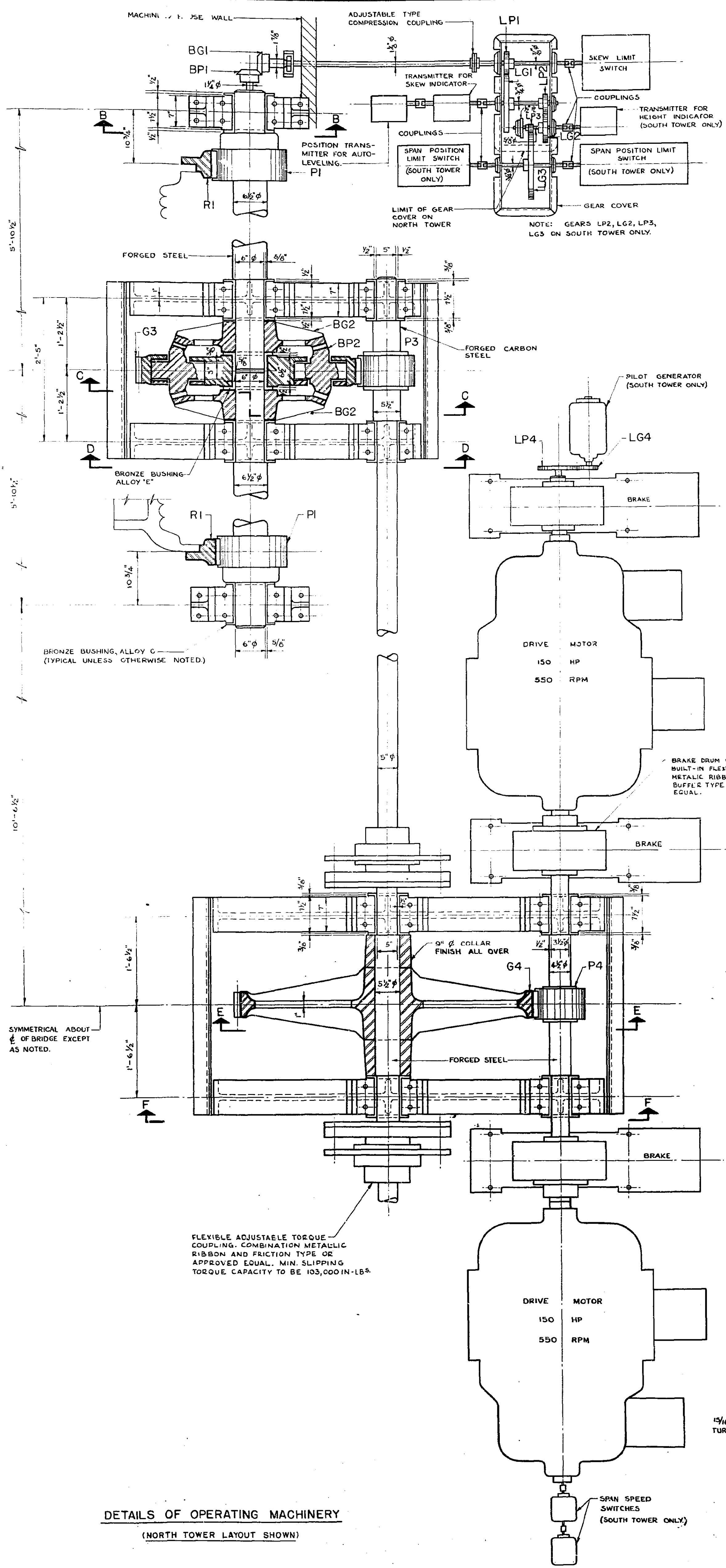
SECTION 'R-R' SCALE 1/2" = 1'-0"



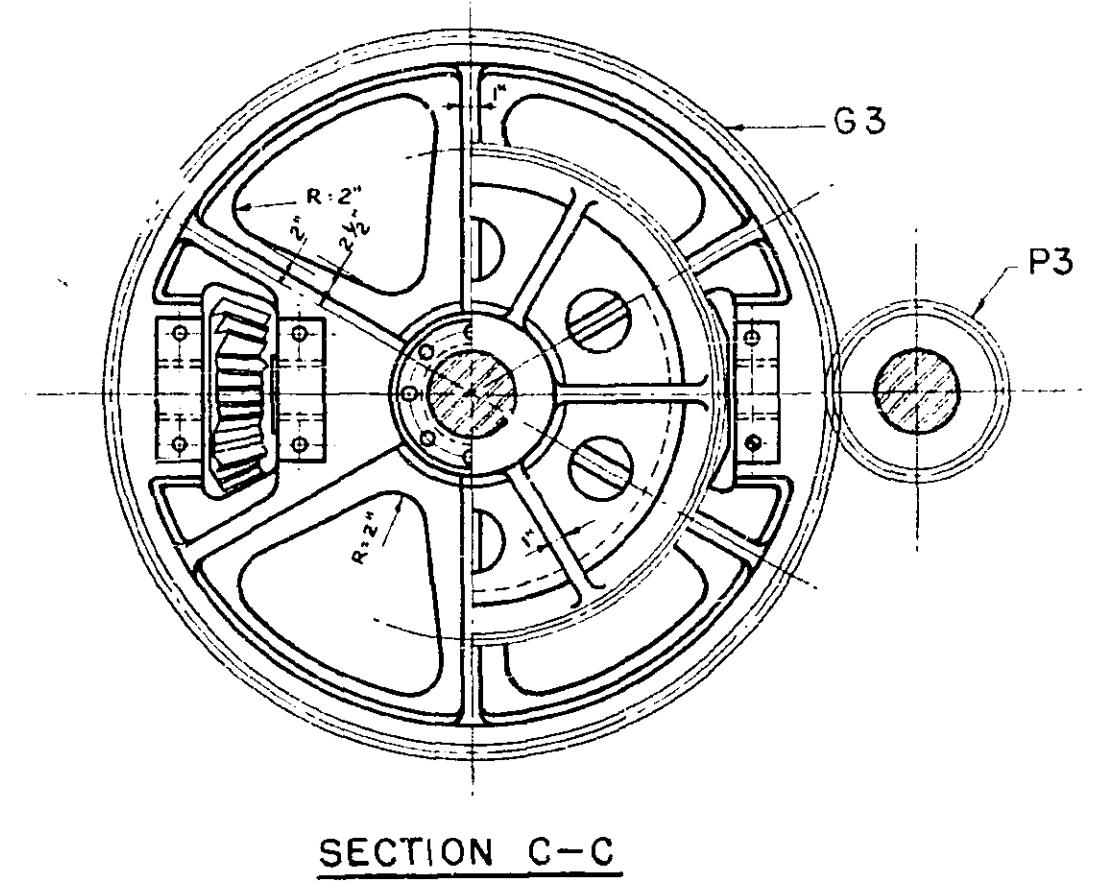
ACCESS STAIRS TO ELEVATOR NORTH TOWER - WEST SIDE ONLY SCALE 1/2" = 1'-0"

RECOMMENDED DATE 12-1-58
 DESIGN: R.K.C.C. CHKD: G.W.A.
 DRAWN: J.B. CHKD: R.K.C.C.
 TRACED: T.L. CHKD: A.T.
 JOB NO. H-538

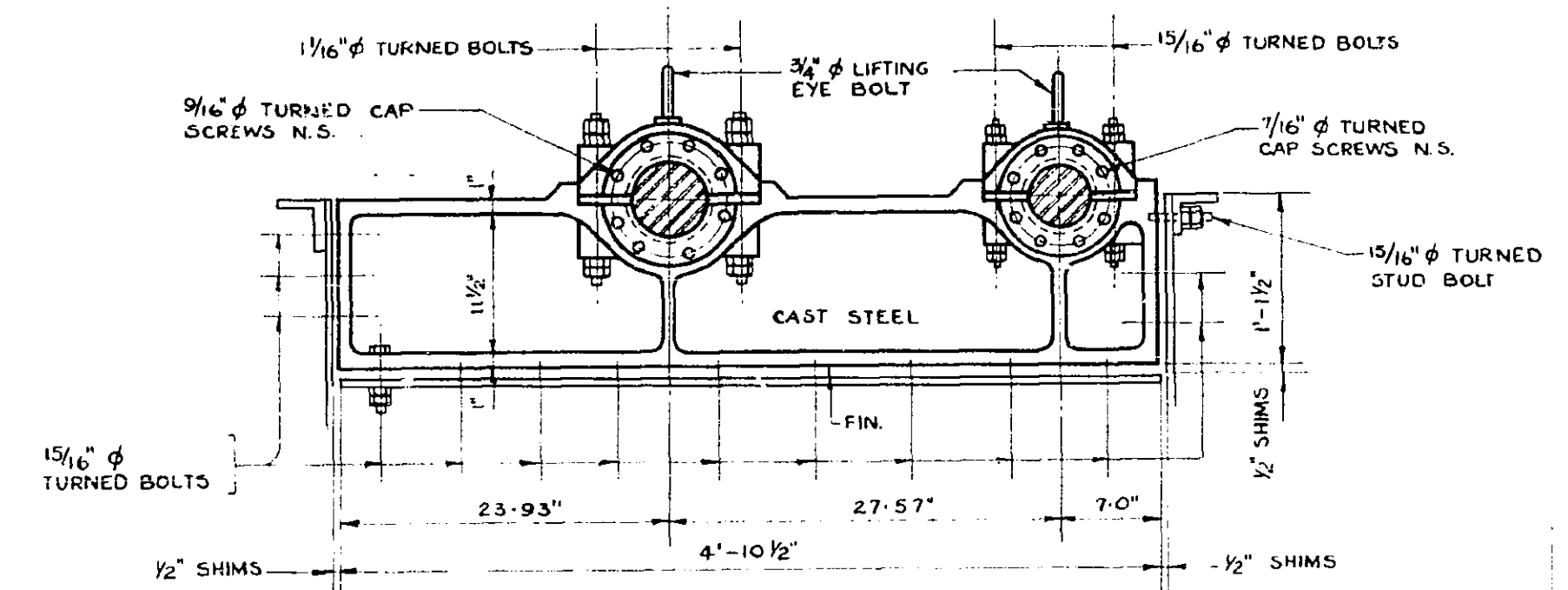
NO.	REVISIONS.	BY.	DATE.
DEPARTMENT OF PUBLIC WORKS. CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION.			
C.C. PARKER & ASSOCIATES LTD. CONSULTING ENGINEERS. HAMILTON ONTARIO.			
BURLINGTON CANAL LIFT BRIDGE. TOWER AND LIFT SPAN LADDERS AND PLATFORMS.			
APPROVED	DATE 12/11/58	DEPARTMENT PROJECT NO. SD6-4-77	
 C.C. PARKER CHIEF STRUCTURES DIVISION		 G.W.A. CHIEF ENGINEER	
APPROVED	DATE 12/11/58	CONTRACT NO. 2.	
		SHEET 31 OF 62	



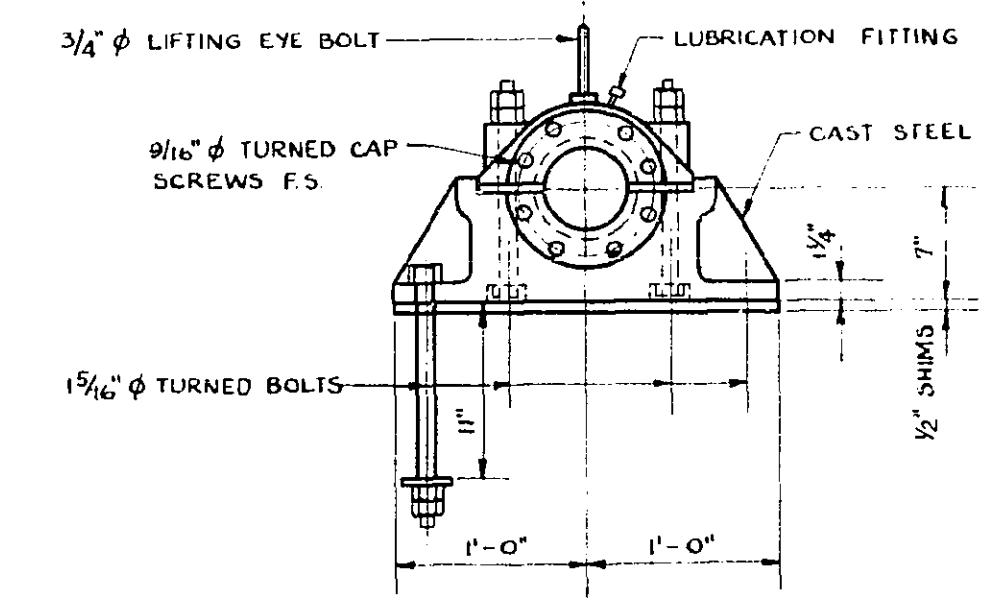
DETAILS OF OPERATING MACHINERY
(NORTH TOWER LAYOUT SHOWN)



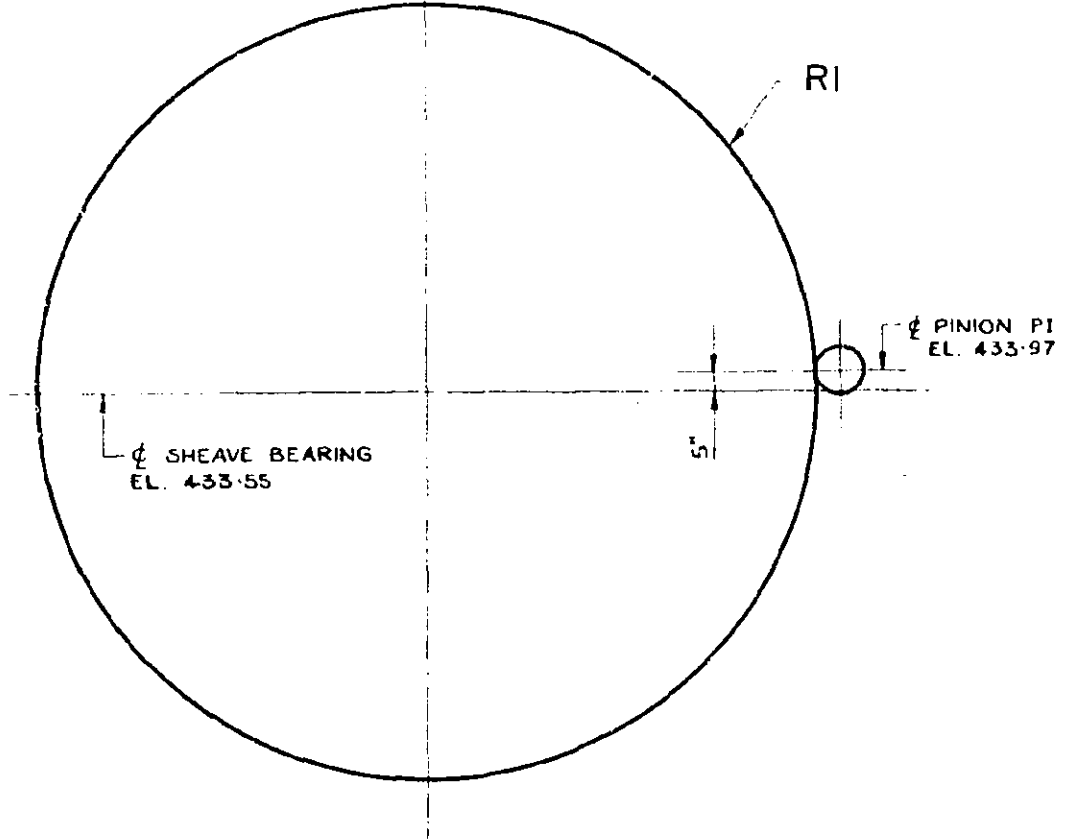
SECTION C-C



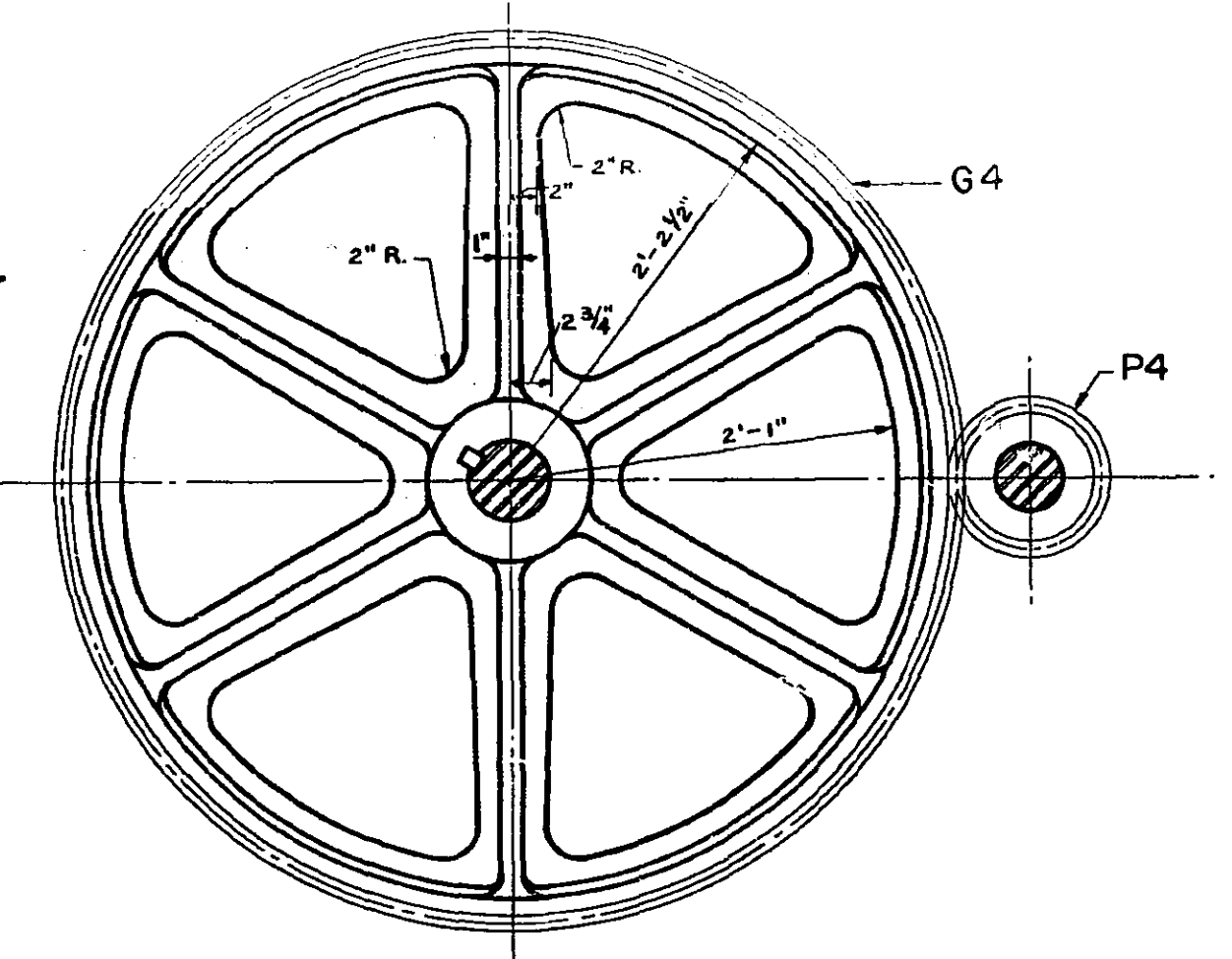
SECTION D-D



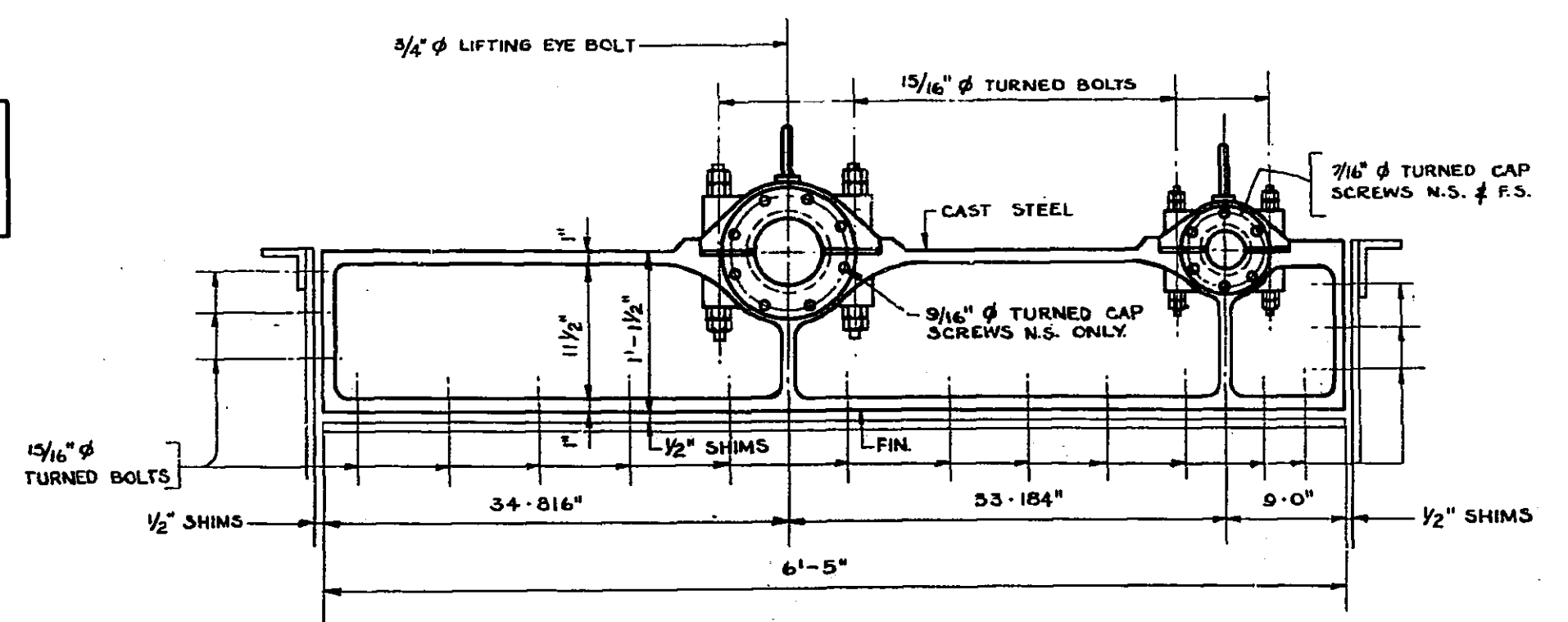
SECTION B-B



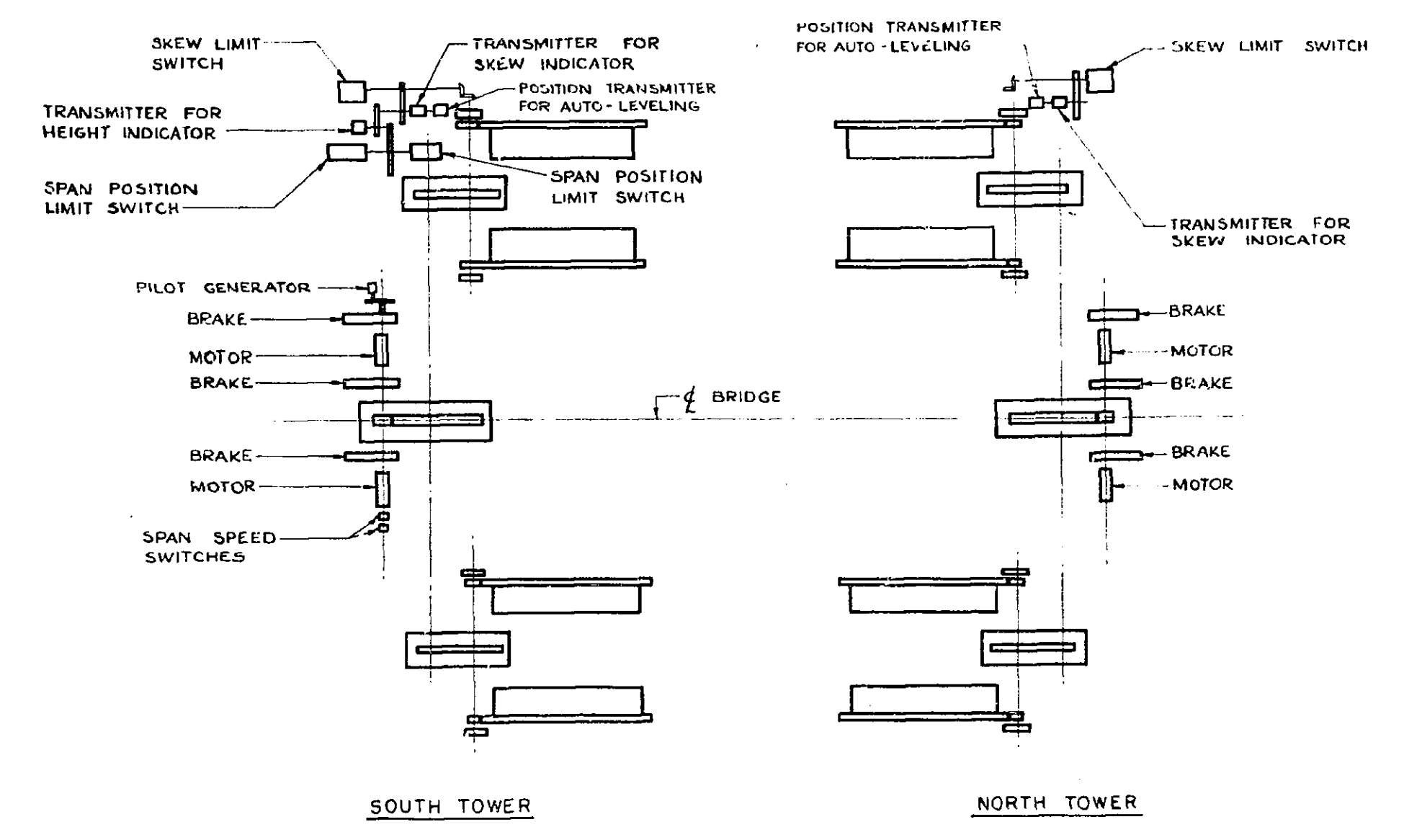
ELEVATION OF SHAFTS
(NO SCALE)



SECTION E-E



SECTION F-F



SCHEMATIC LAYOUT OF MACHINERY AT TOWER TOPS
--NO SCALE--

TABLE OF GEARS										
ALL TEETH TO BE 20° INVOLUTE CUT TEETH										
GEAR	N° REQD	MATERIAL	N° TEETH	CIR PITCH	PITCH DIAMETER	FACE BORE	HUB DIAM	LGTH	N° KEYS	REMARKS
R1	6	CAST CARBON STEEL	280	2 1/2	200.535	6	11 1/2	9 3/8		6 SEGMENTS OF 35 TEETH EACH
P1	6	FORGED CARBON STEEL	19	2 1/2	13.608	4 1/2				INTEGRAL WITH SHAFT
BG2	8	CAST CARBON STEEL	56	1 3/4	31.194	3	6	11	7	1 3/8 x 1 3/8
BP2	8	FORGED CARBON STEEL	20	1 1/2	11.141	3		5 1/2		INTEGRAL WITH SHAFT
G3	4	CAST CARBON STEEL	80	1 1/2	44.563	5 1/2	7 1/4	1-1"	6 1/2	BUSHED ON 6" Ø SHAFT
P3	4	FORGED CARBON STEEL	19	1 1/2	10.584	6		9	7 1/2	INTEGRAL WITH SHAFT
G4	2	CAST CARBON STEEL	120	1 1/2	57.296	5	5 1/2	10	1-1 1/2"	1 1/2 x 1 1/2
P4	2	FORGED CARBON STEEL	19	1 1/2	9.012	5 1/2		7	6 1/2	INTEGRAL WITH SHAFT
BP1	2	CAST CARBON STEEL	30	6	5.000	1 1/2	3 3/4	1 1/2		3/8 x 3/8
BG1	2	DO	29	6	4.833	1 1/2	3 3/4	1 1/2		3/8 x 3/8
LPI	2	DO	54	12	4.500	1	7/8	2 1/8	1 1/8	1/2 x 1/2
LGI	2	DO	144	12	12.000	1	3/4	2 1/2	2	1/2 x 1/2
LP2	1	DO	48	12	4.000	1	3/4	2 1/8	1 3/8	1/2 x 1/2
LG2	1	DO	72	12	6.000	1	5/8	2 1/8	1 3/8	1/2 x 1/2
LP3	1	DO	16	12	1.333	1	5/8	1 5/8	1	1/2 x 1/2
LG3	1	DO	168	12	14.000	1	3/4	2 1/2	2	1/2 x 1/2
LP4	1	DO	48	6	8.000	2	1 1/2	3	3 1/2	1 3/8 x 3/8
LG4	1	DO	24	6	4.000	2	3/4	3	3 1/2	1 1/2 x 1/2

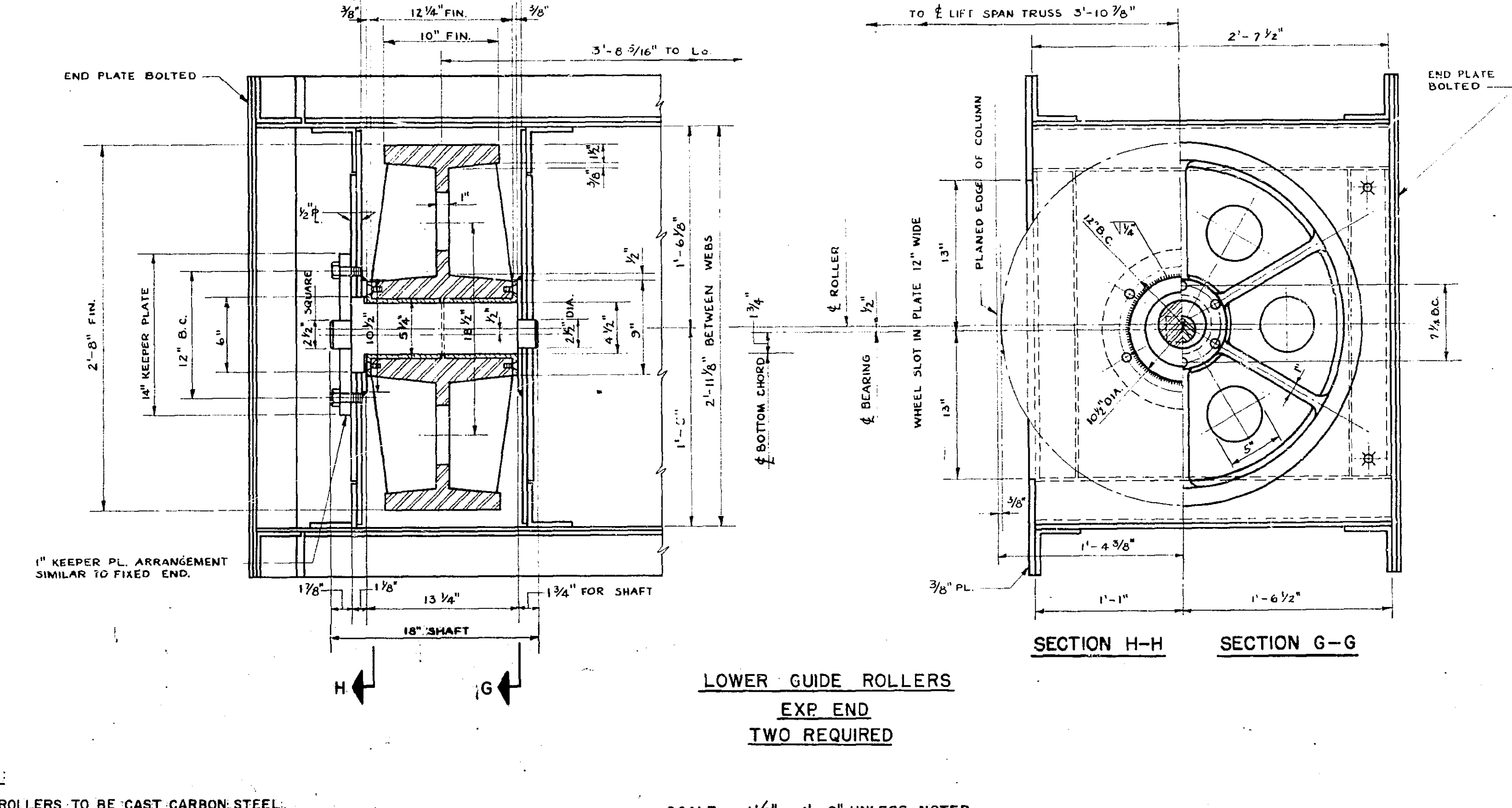
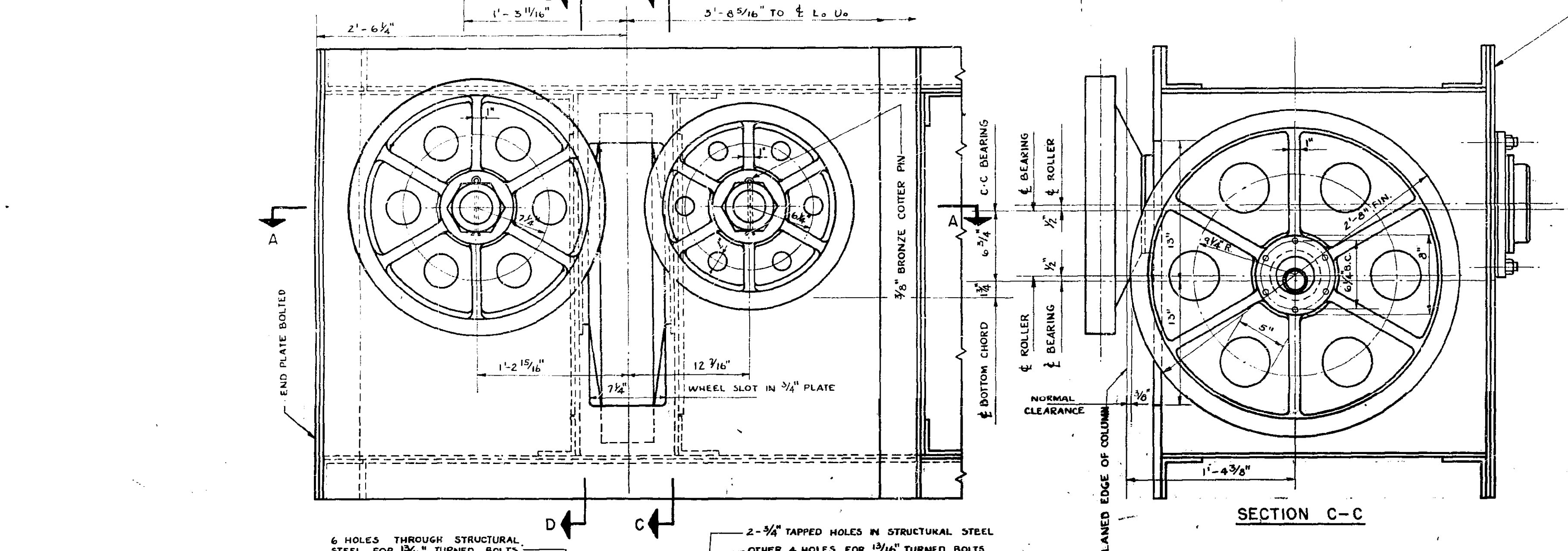
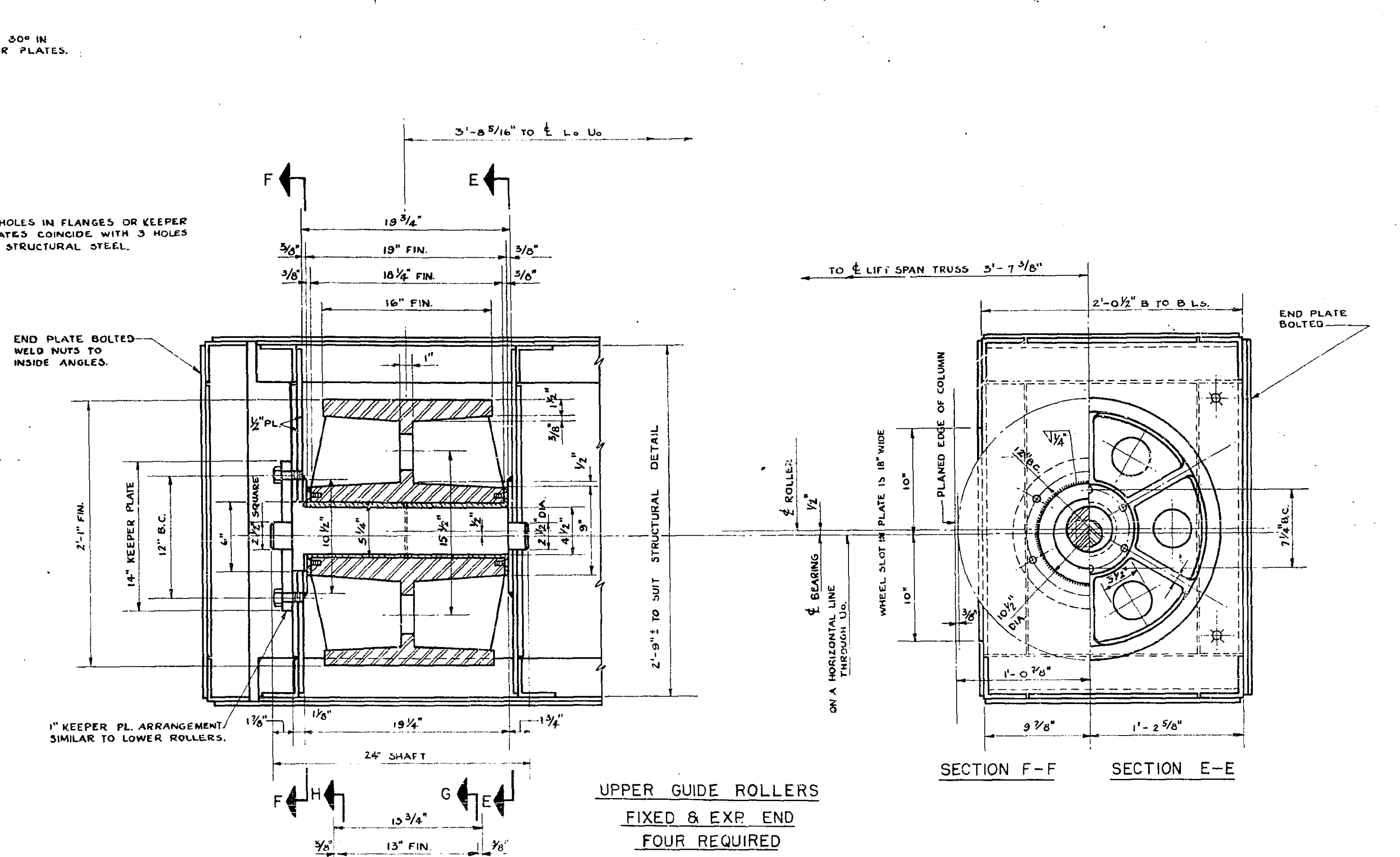
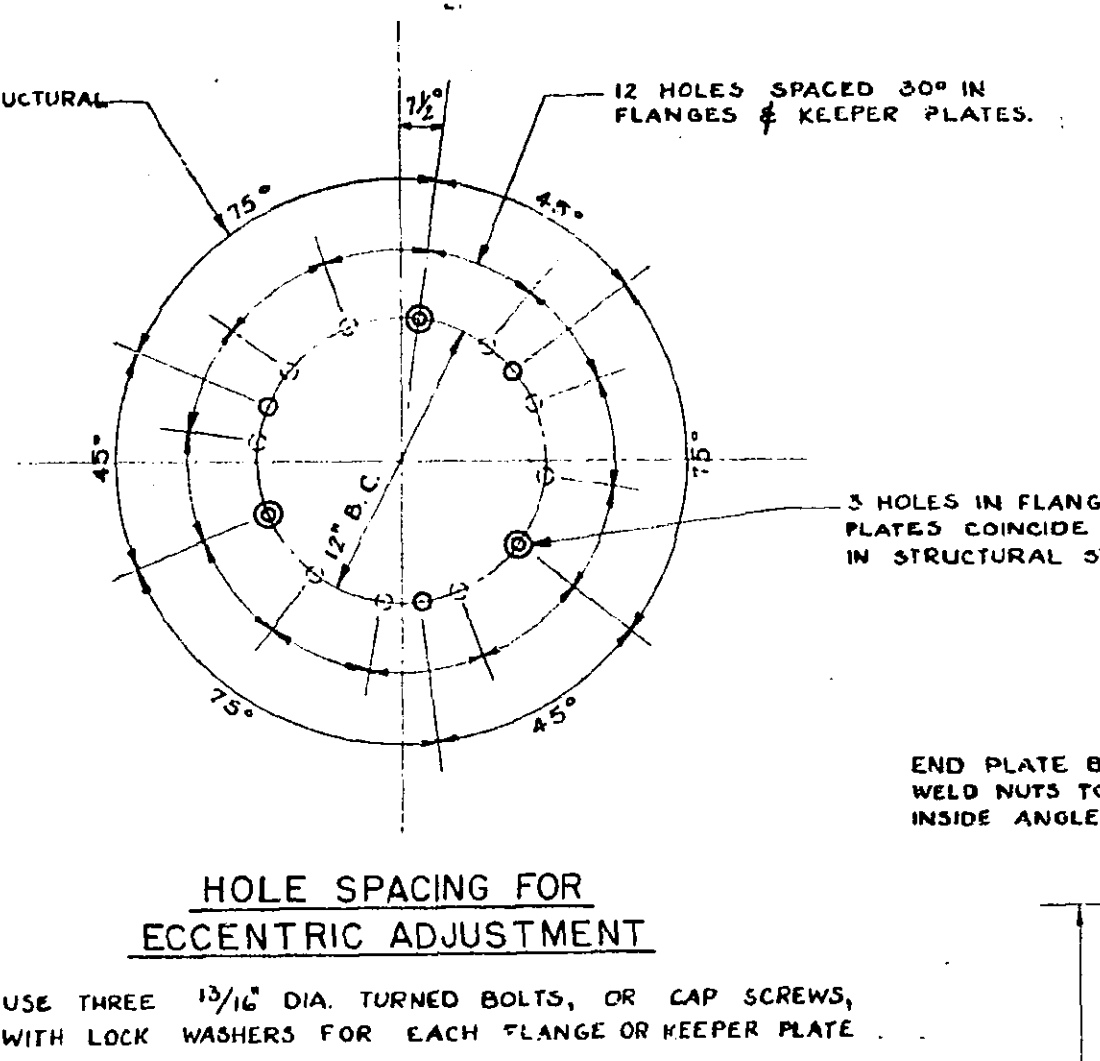
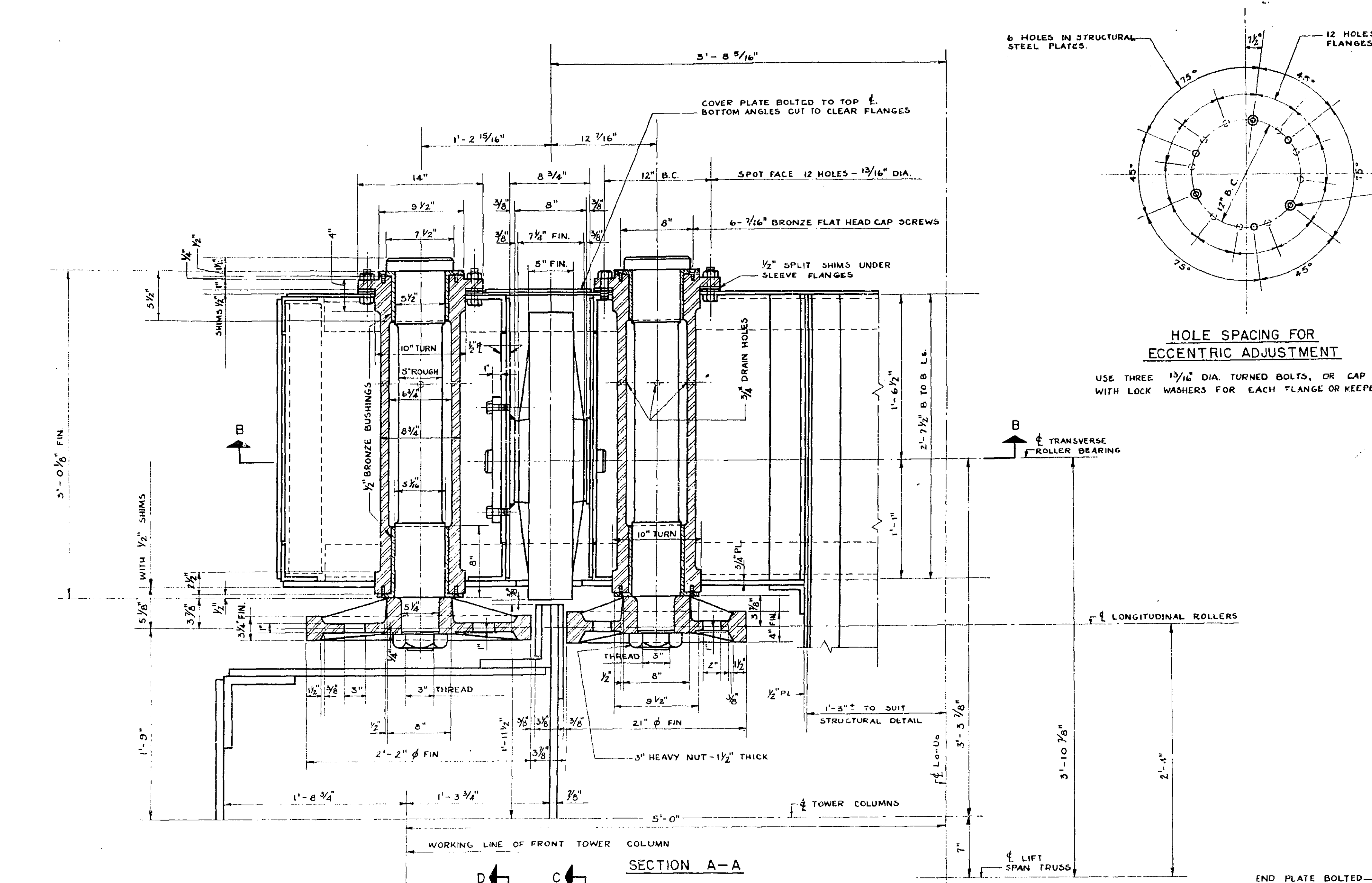
- NOTES:
- MACHINERY AS SHOWN ON NORTH TOWER. MACHINERY ON SOUTH TOWER OPR HAND EXCEPT AS NOTED.
 - ALL GEARING SHALL BE PROVIDED WITH EASILY REMOVABLE PROTECTIVE HOUSINGS TO BE MADE OF 3/16" STEEL PLATE AND ANGLES WELDED TOGETHER. ACCESS HOLES SHALL BE PROVIDED WHERE REQUIRED FOR EASE OF LUBRICATION AND INSPECTION.
 - LUBRICATION FITTINGS SHALL BE PROVIDED WITH EXTENSIONS WHERE REQUIRED AND SHALL BE LOCATED SO AS TO BE EASILY ACCESSIBLE FOR LUBRICATION.
 - FOR MACHINERY MATERIALS NOT SHOWN ON DRAWINGS SEE SPECIFICATIONS.
 - FOR ADDITIONAL DETAILS OF GEAR RIM R1, SEE SHEET N° 36

NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION C. C. PARKER & ASSOCIATES LIMITED PARSONS, BRINCKERHOFF, HALL & MACDONALD CONSULTING ENGINEERS HAMILTON ONTARIO BURLINGTON CANAL LIFT BRIDGE OPERATING MACHINERY			
APPROVED	DATE 12/11/58	DEPARTMENT PROJECT NO.	SD6-4-77
<i>W. Thompson</i>			
CHIEF STRUCTURES DIVISION			
RECOMMENDED	DATE 12-1-58	DESIGN M.C.S.	CHKD. H.M.H.
<i>CC Parker</i>		DRAWN A.H.R.	CHKD. M.G.S.
		TRACED D.H.	CHKD. R.W.H.
		JOB NO. H-538	
			APPROVED DATE 12/11/58
		<i>W. Wallace</i>	
		CHIEF ENGINEER	
			CONTRACT NO. 2
			SHEET 32 OF 62

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

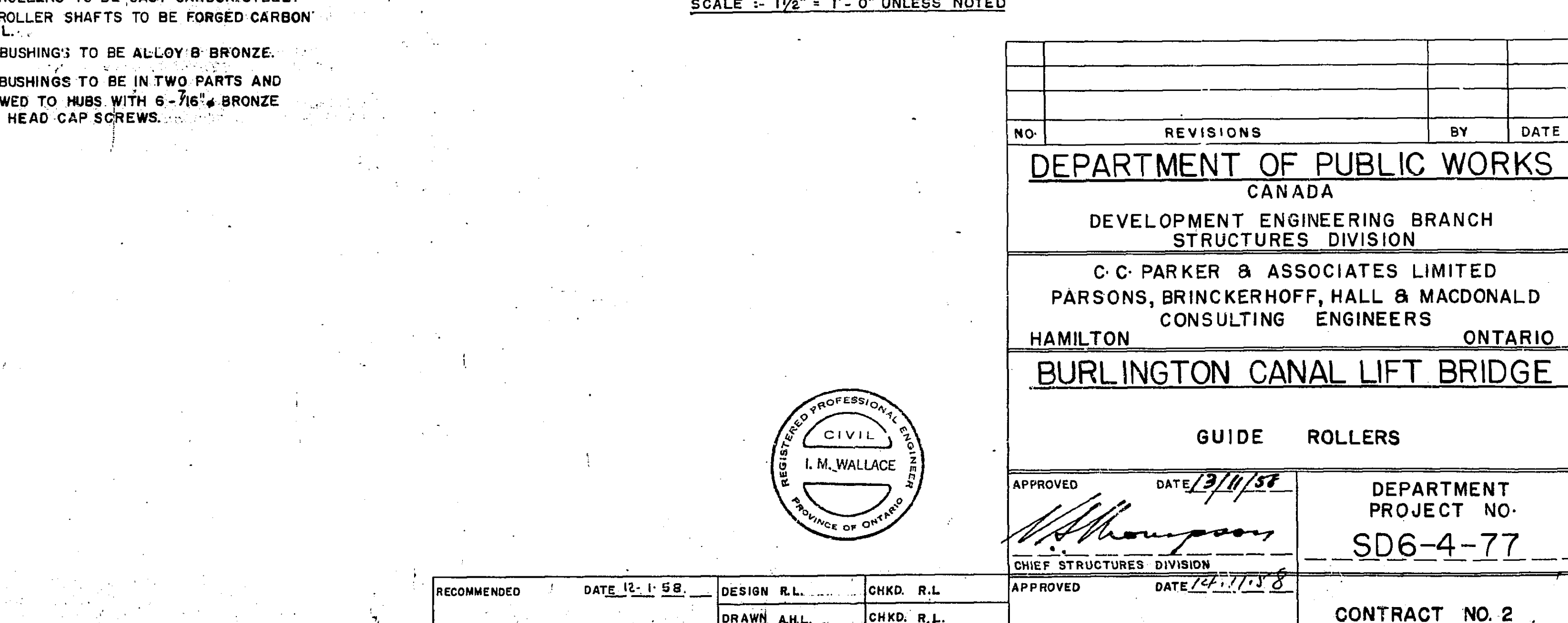
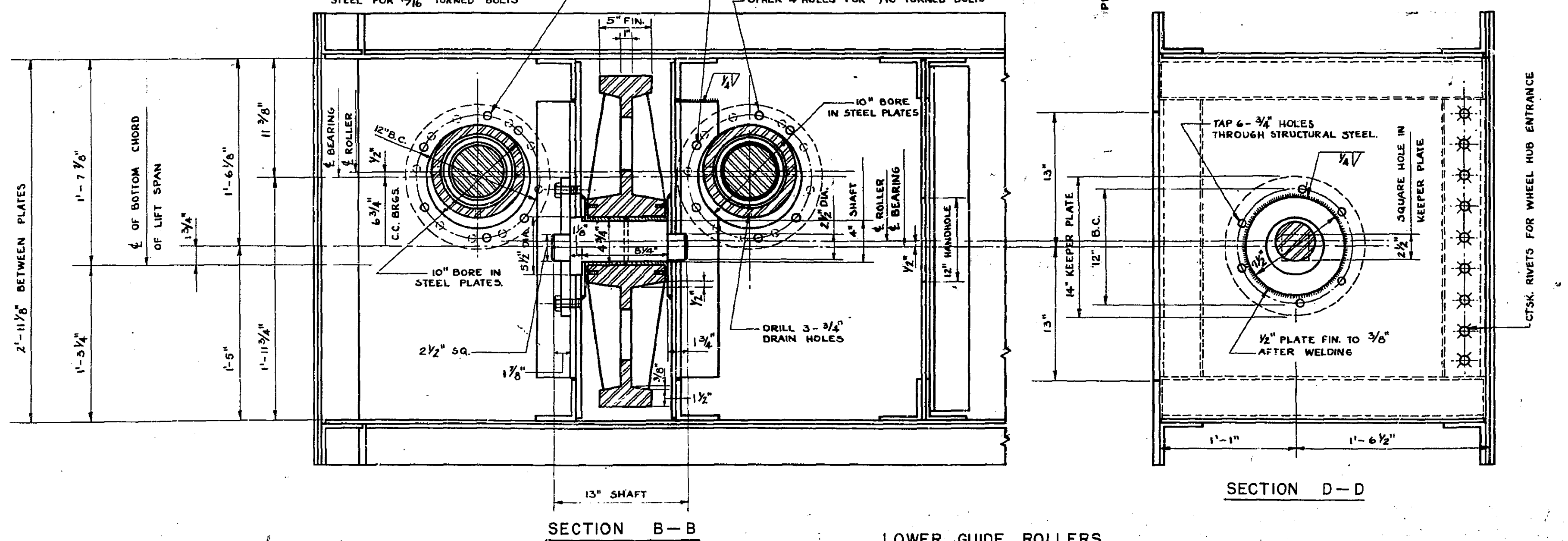


RECOMMENDED DATE 12-1-58
 DESIGN M.C.S. CHKD. H.M.H.
 DRAWN A.H.R. CHKD. M.G.S.
 TRACED D.H. CHKD. R.W.H.
 JOB NO. H-538



- NOTE:**
1. ALL ROLLERS TO BE CAST CARBON-STEEL.
 2. ALL ROLLER SHAFTS TO BE FORGED CARBON STEEL.
 3. ALL BUSHINGS TO BE ALLOY B BRONZE.
 4. ALL BUSHINGS TO BE IN TWO PARTS AND SCREWED TO HUBS WITH 5-7/16\"/>

SCALE: 1 1/2\"/>



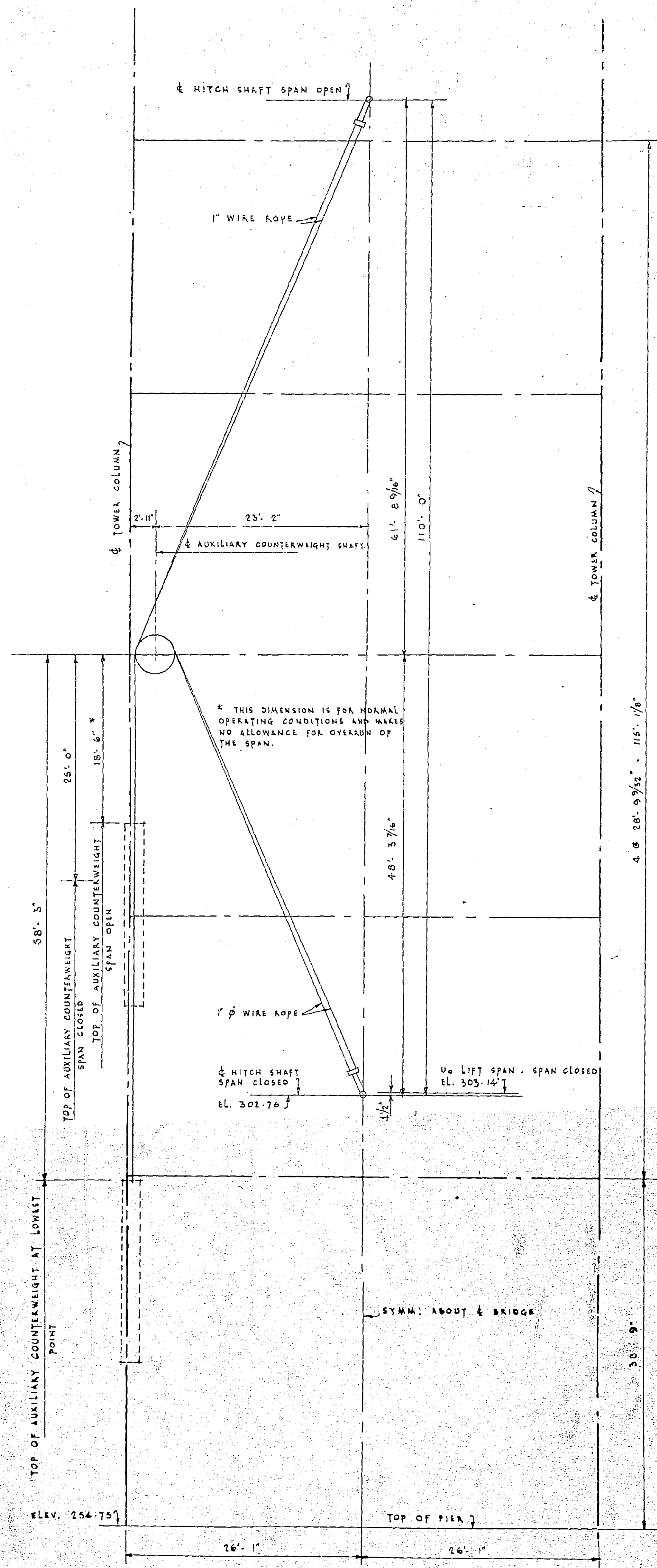
SECTION B-B
LOWER GUIDE ROLLERS
FIXED END
TWO SETS REQUIRED

SECTION H-H
LOWER GUIDE ROLLERS
EXP. END
TWO REQUIRED

RECOMMENDED	DATE 12-1-58	DESIGN R.L.	CHKD. R.L.
<i>C.P.</i>		DRAWN A.H.L.	CHKD. R.L.
		TRACED D.H.	CHKD. R.L.
		JOB NO: H-538	

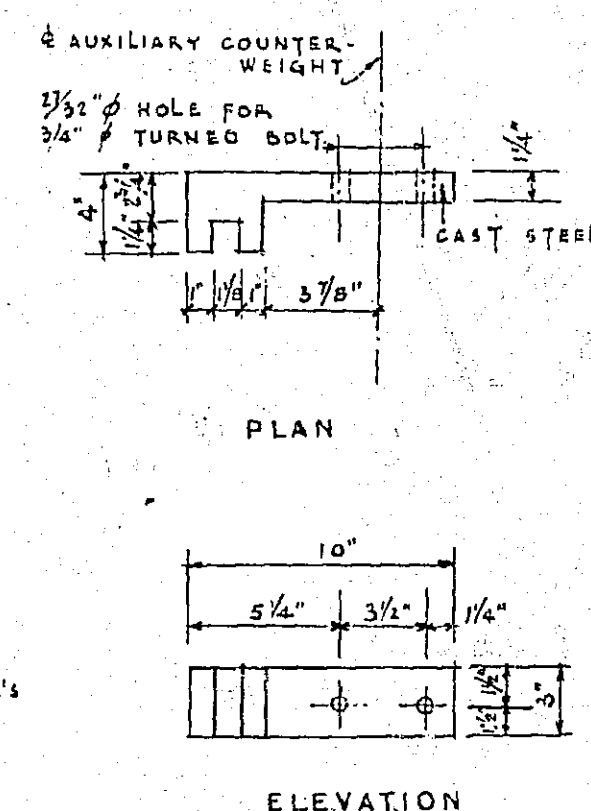
NO. _____				REVISIONS _____				BY _____				DATE _____			
DEPARTMENT OF PUBLIC WORKS															
CANADA															
DEVELOPMENT ENGINEERING BRANCH															
STRUCTURES DIVISION															
C. C. PARKER & ASSOCIATES LIMITED															
PARSONS, BRINCKERHOFF, HALL & MACDONALD															
CONSULTING ENGINEERS ONTARIO															
HAMILTON															
BURLINGTON CANAL LIFT BRIDGE															
GUIDE ROLLERS															
APPROVED _____				DATE 12/11/58				DEPARTMENT PROJECT NO. SD6-4-77							
CHIEF STRUCTURES DIVISION				APPROVED _____				DATE 12/11/58				CONTRACT NO. 2			
												SHEET 33 OF 62			





SPAN FACE OF TOWER SHOWING
AUXILIARY COUNTERWEIGHT

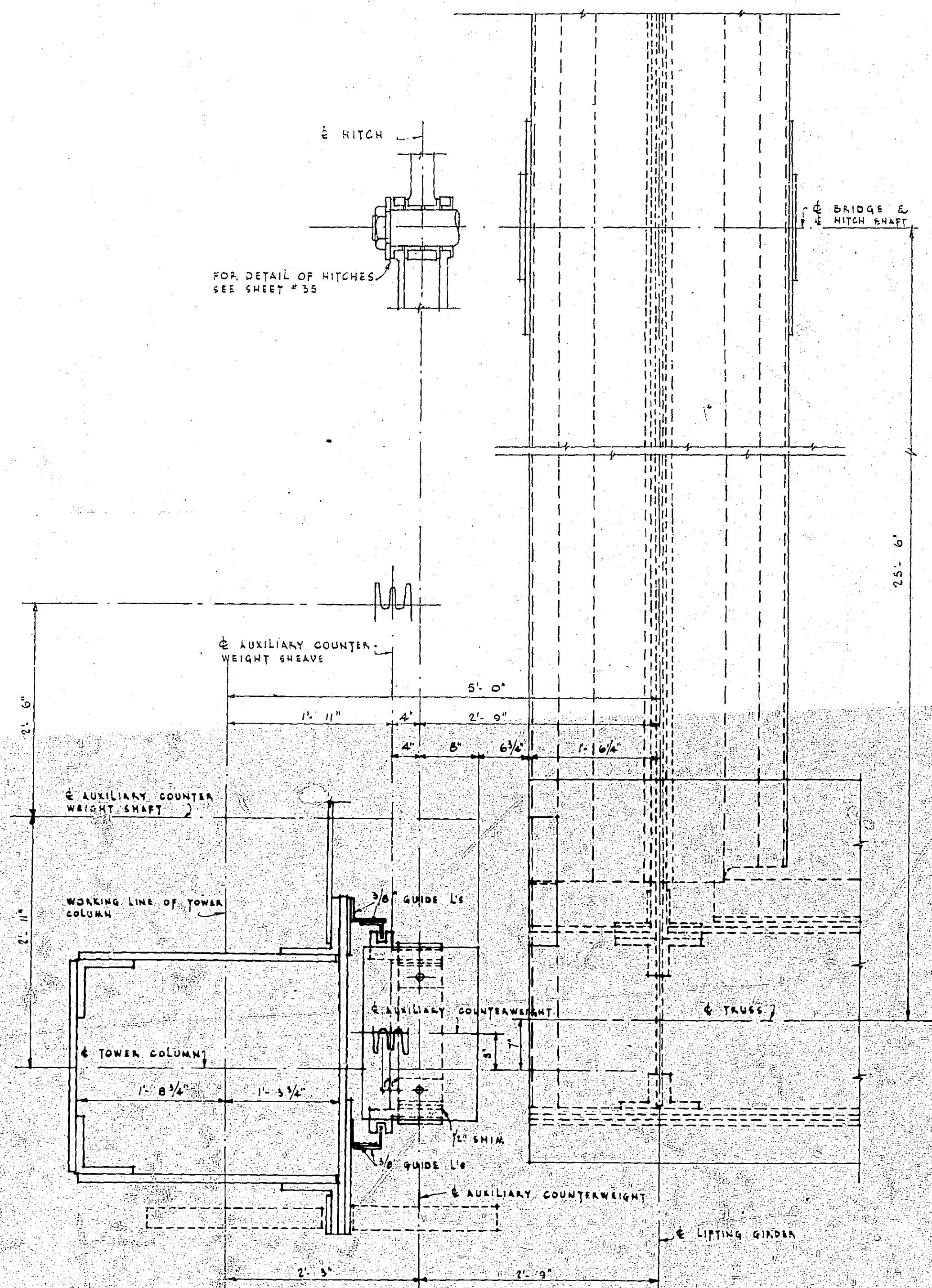
SCALE - 1/8" = 1'-0"



DETAIL OF GUIDES

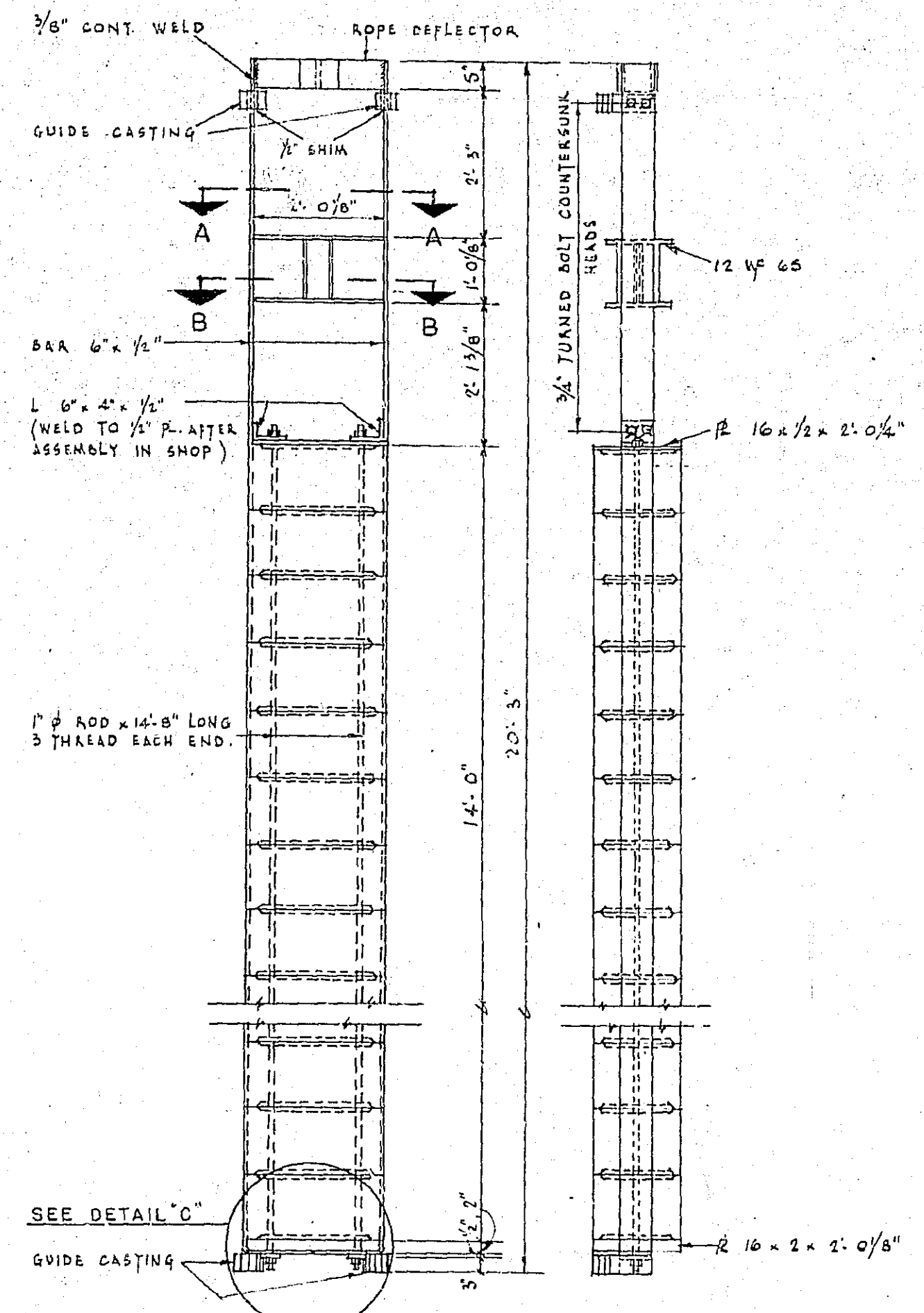
SCALE - 1/2" = 1'-0"

4 GUIDES REQUIRED FOR EACH
AUXILIARY COUNTERWEIGHT



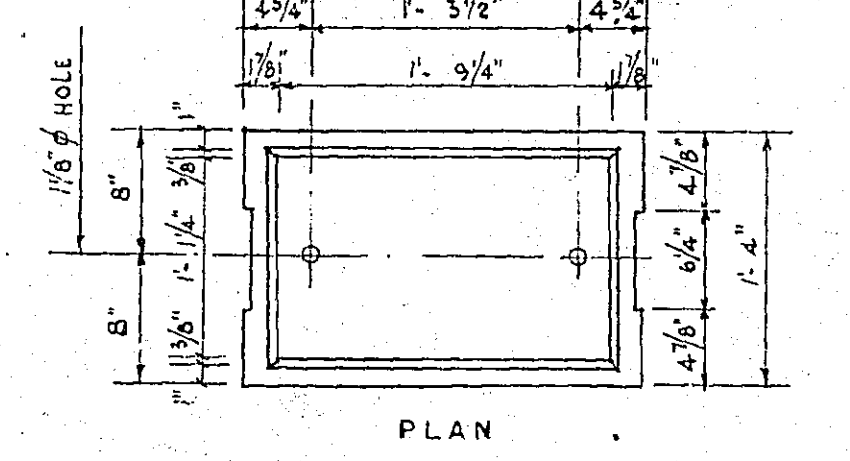
SECTION THROUGH TOWER COLUMN AND
TOP PLAN OF LIFTING GIRDER

SCALE - 1" = 1'-0"

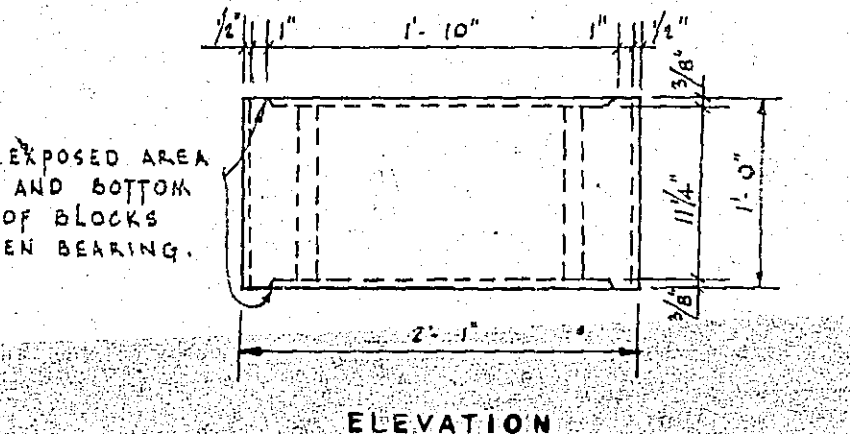


FRONT ELEVATION SIDE VIEW

SCALE - 1/2" = 1'-0"



PLAN



ELEVATION

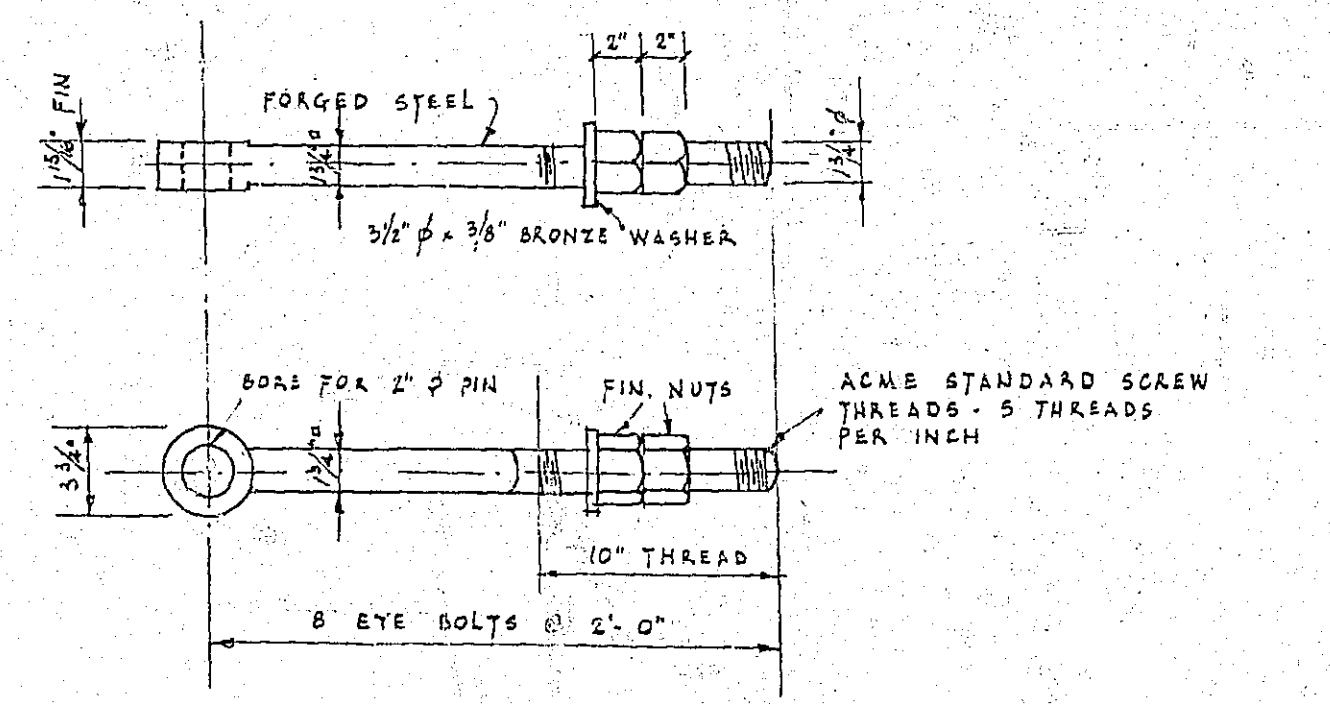
CAST IRON BLOCKS

SCALE - 1" = 1'-0"

14 BLOCKS REQUIRED FOR EACH AUXILIARY
COUNTERWEIGHT. WEIGHT OF EACH BLOCK - 1170 LBS.

DETAILS OF AUXILIARY COUNTERWEIGHT

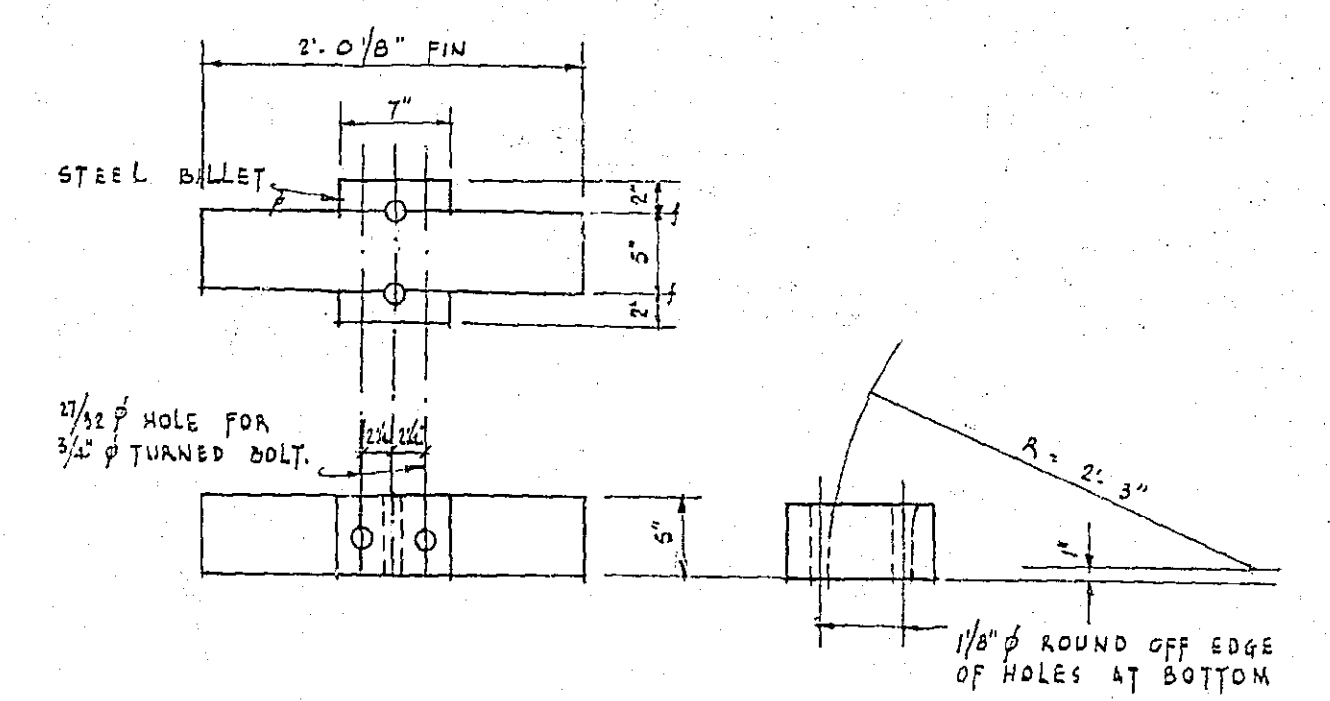
4 REQUIRED AT 18,000 LBS EACH



TAKE-UPS FOR AUXILIARY COUNTERWEIGHT ROPES

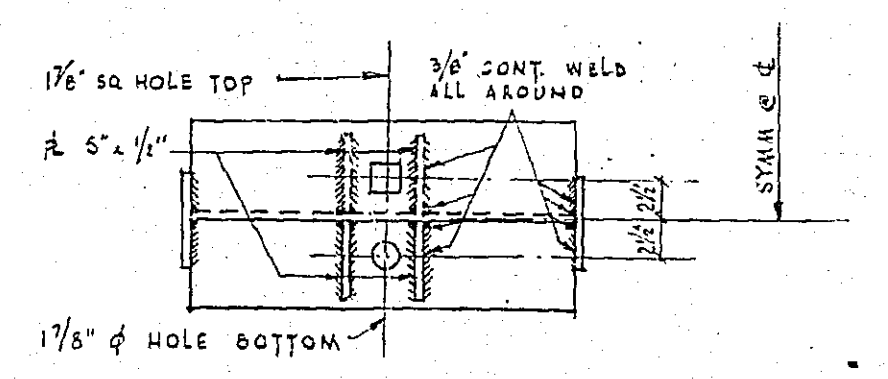
SCALE - 1/2" = 1'-0"

2 REQUIRED FOR EACH AUX. COUNTERWEIGHT



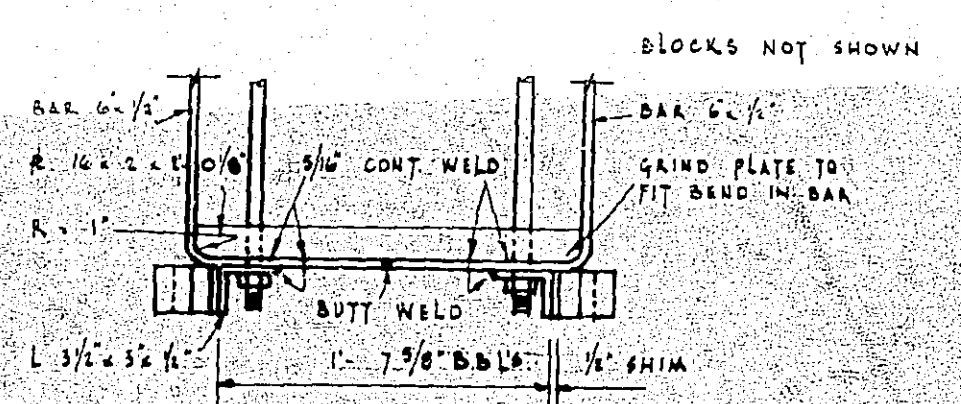
DETAIL OF ROPE DEFLECTOR

SCALE - 1" = 1'-0"



HALF SECTION A-A (UPPER)
HALF SECTION B-B (LOWER)

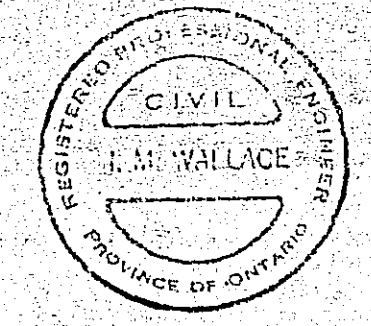
SCALE - 1" = 1'-0"



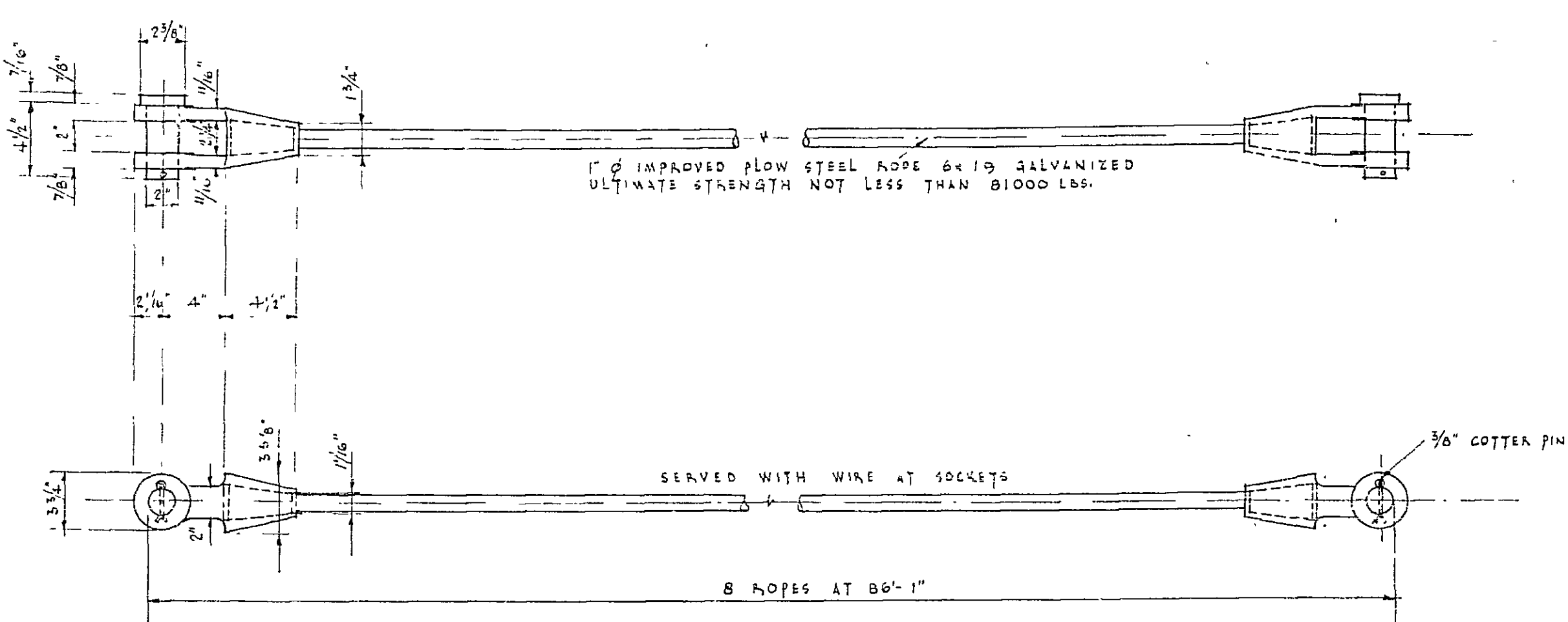
DETAIL C

SCALE - 1" = 1'-0"

NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C.C. PARKER & ASSOCIATES LIMITED PARSONS, BRINCKERHOFF, HALL & MACDONALD CONSULTING ENGINEERS HAMILTON ONTARIO			
BURLINGTON CANAL LIFT BRIDGE			
AUXILIARY COUNTERWEIGHTS			
APPROVED	DATE 12/1/58	DESIGN H.W.	CHKD R.L.
 J. M. THOMPSON CHIEF STRUCTURES DIVISION		DRAWN H.W.	CHKD R.L.
		TRACED J.N.W.	CHKD H.W.
APPROVED	DATE 10/11/58	DESIGN H.W.	CHKD R.L.
 G. W. MACDONALD CHIEF ENGINEER		JOB NO. H-538	DEPARTMENT PROJECT NO. SD6-4-77
		RECOMMENDED DATE 12-1-58	CONTRACT NO. 2
 C.C. PARKER & ASSOC. LTD.		 G. W. MACDONALD CHIEF ENGINEER	SHEET 34 OF 62

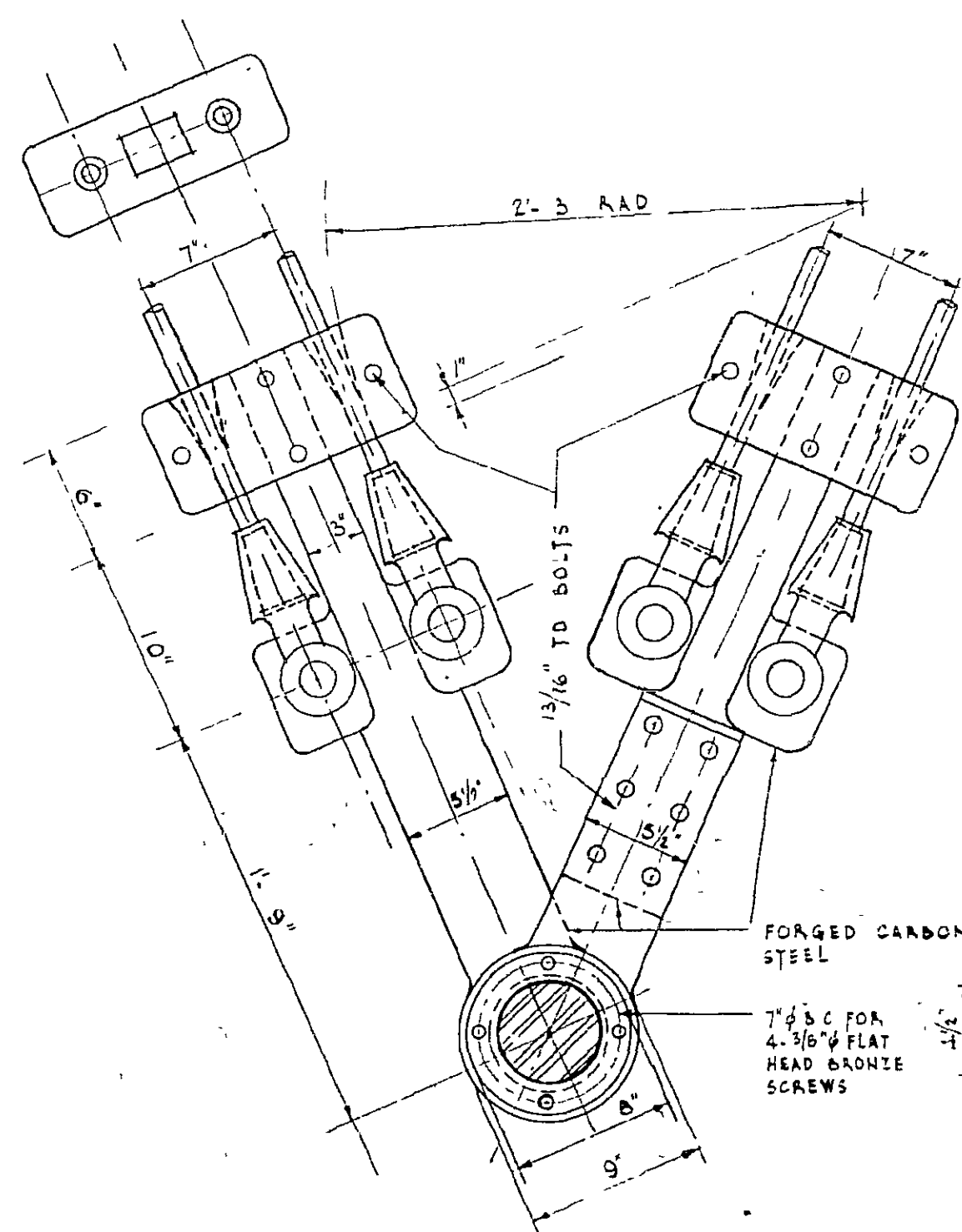


OPEN SOCKETS - DROP FORGED WELDLESS STEEL.

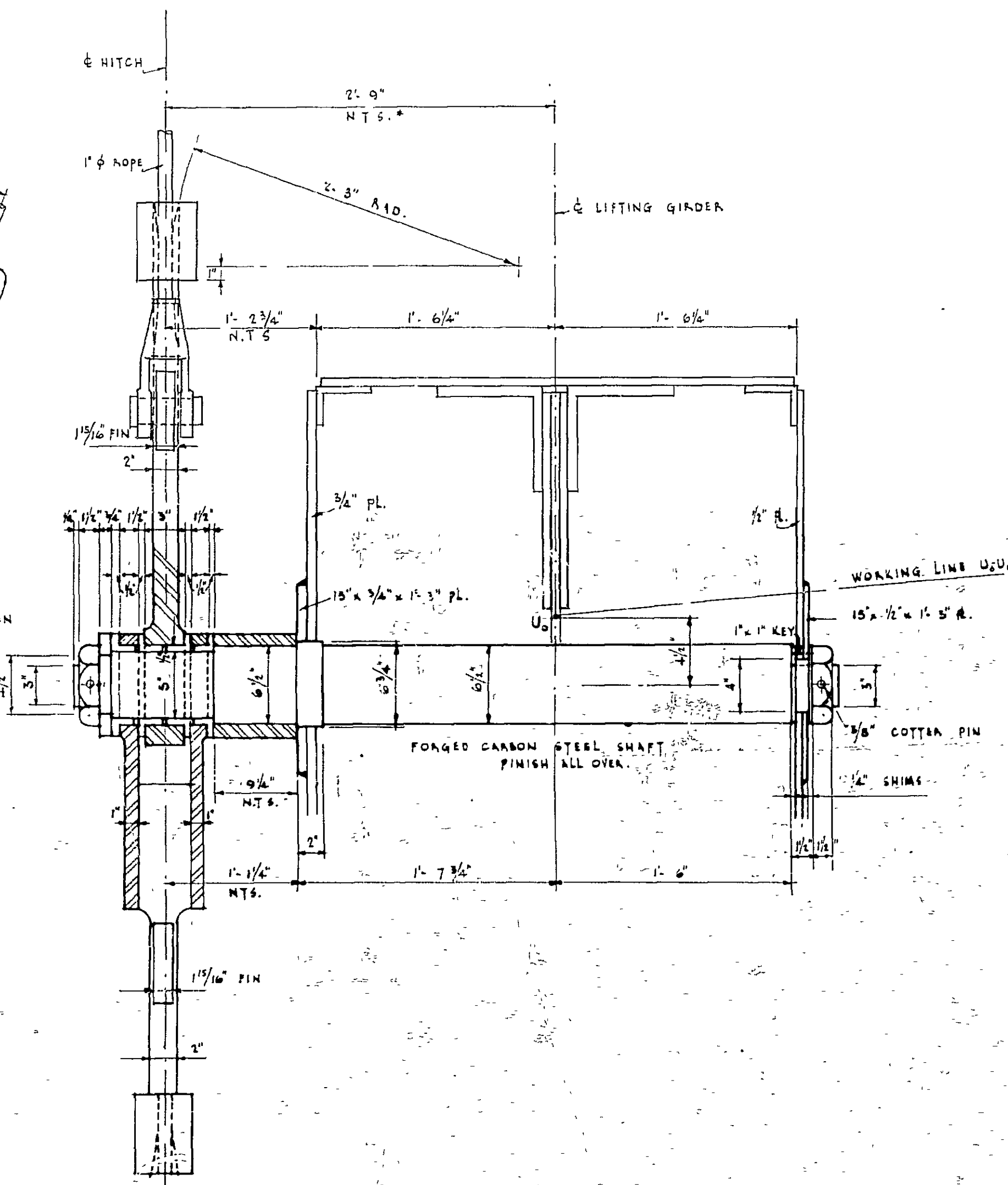


ROPES FOR AUXILIARY COUNTERWEIGHT

SCALE - 1 1/2" = 1'-0"



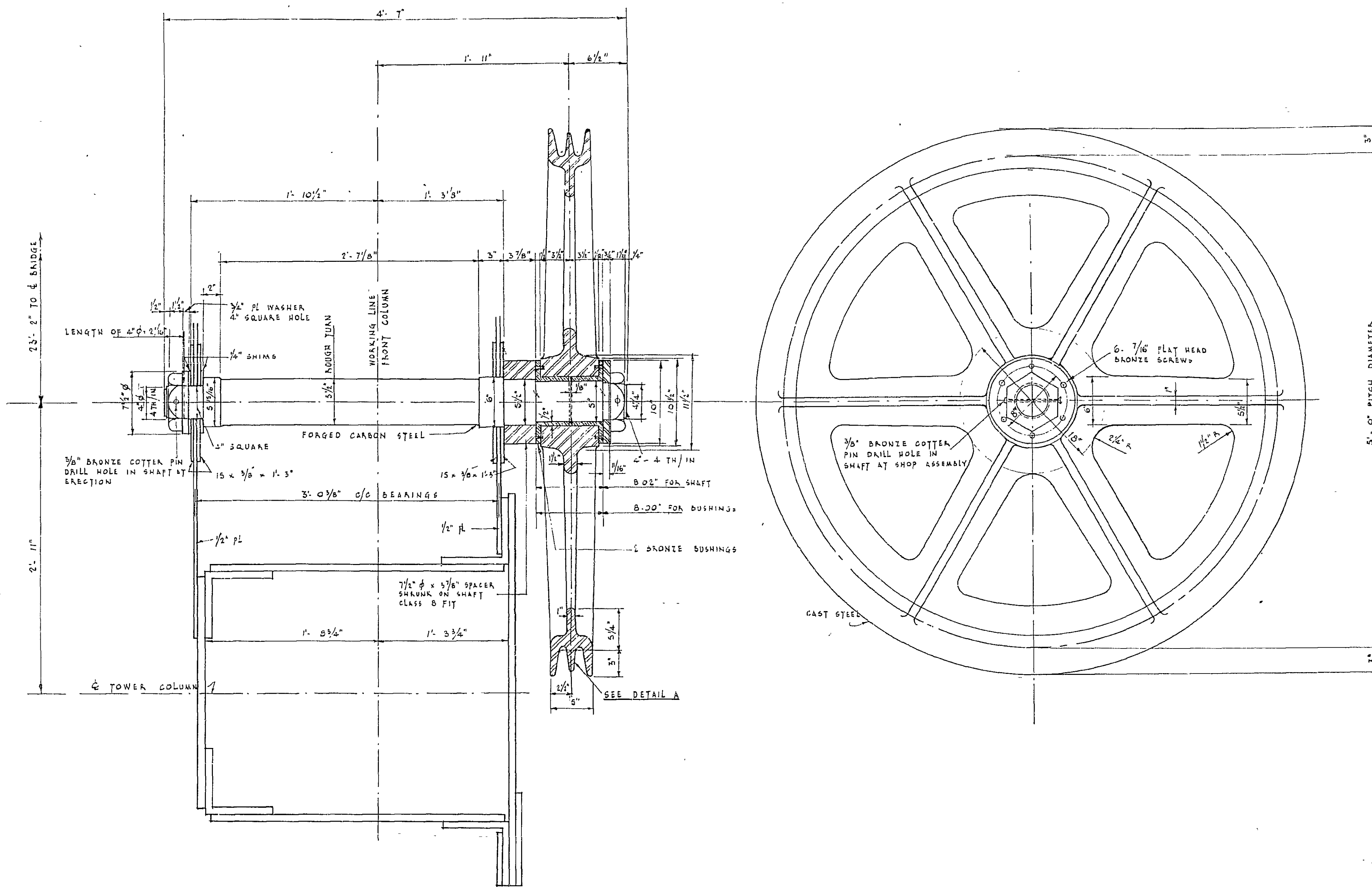
* NOT TO SCALE.



ROPE HITCHES FOR AUXILIARY COUNTERWEIGHT ROPES

2 SETS REQUIRED

SCALE - 1 1/2" = 1'-0"

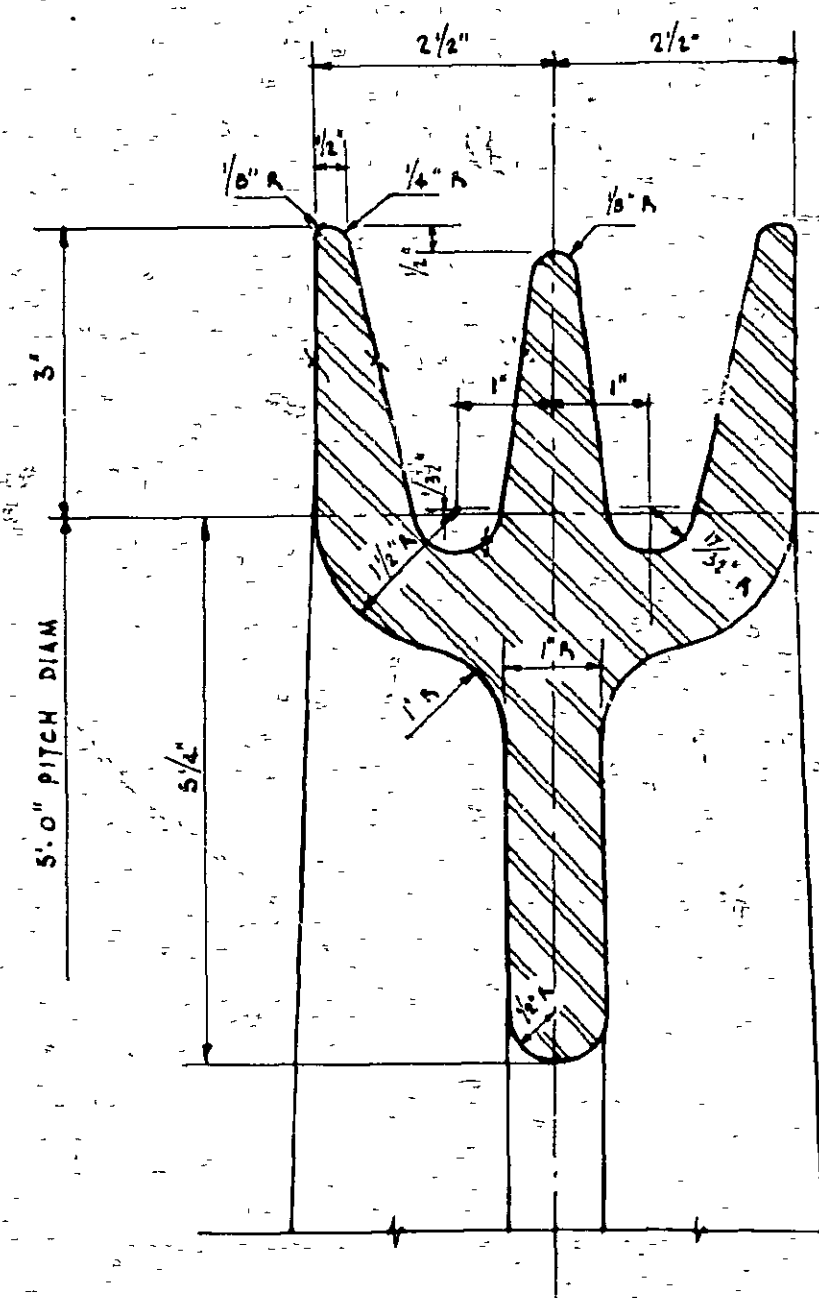


AUXILIARY COUNTERWEIGHT SHEAVES

4 REQUIRED COMPLETE WITH SHAFTS

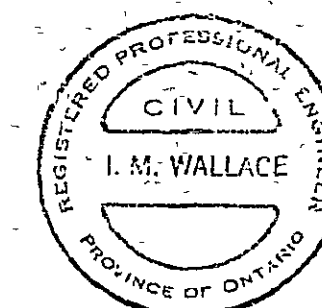
SCALE - 1 1/2" = 1'-0"

NOTE: ALL BUSHINGS IN AUXILIARY COUNTERWEIGHT SHAFTS TO BE ALLOY 'C' BRONZE.



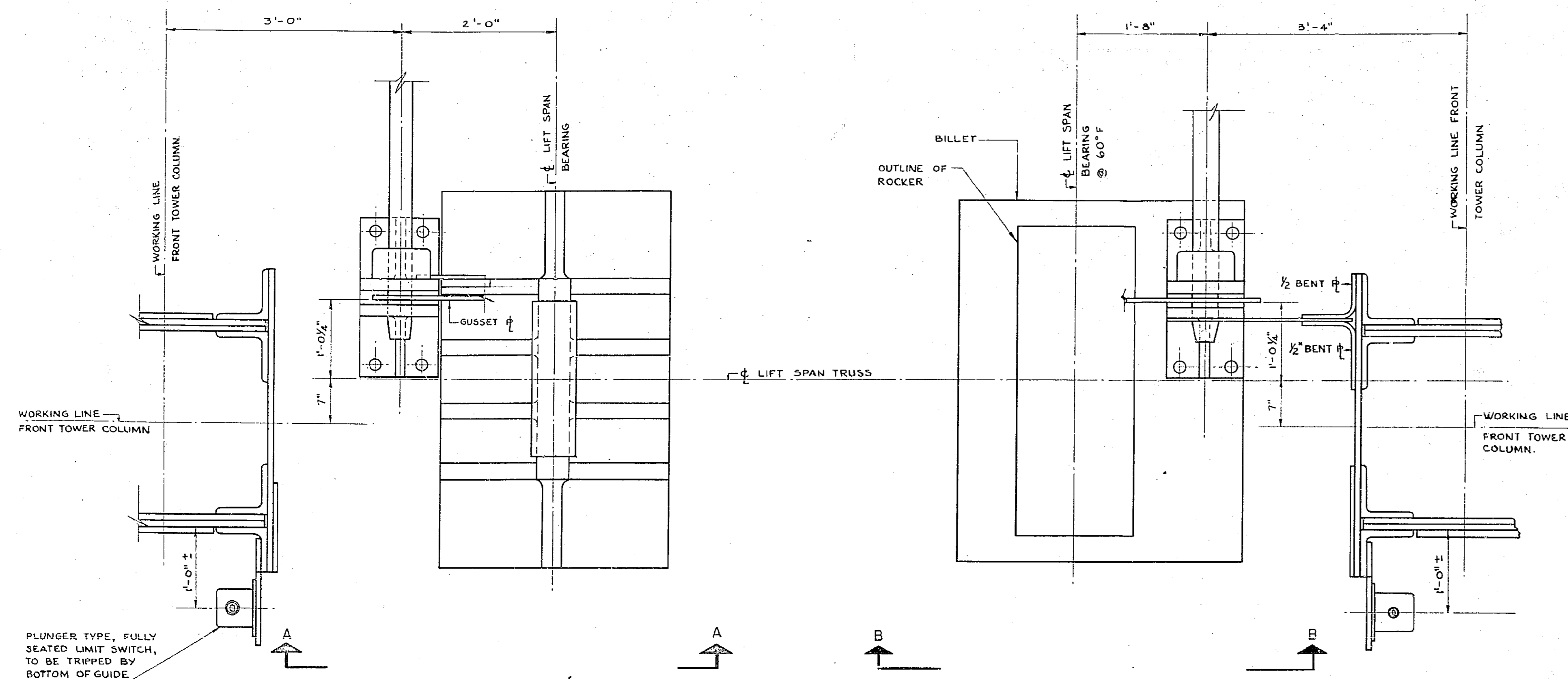
DETAIL A

SCALE: HALF FULL SIZE



NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA			
DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C. C. PARKER & ASSOCIATES LIMITED PARSONS, BRINCKERHOFF, HALL & MACDONALD CONSULTING ENGINEERS			
HAMILTON		ONTARIO	
BURLINGTON CANAL LIFT BRIDGE			
AUXILIARY COUNTERWEIGHT SHEAVES AND ROPE HITCHES			
APPROVED	DATE 13/11/34	DEPARTMENT PROJECT NO. SD6-4-77	
<i>W. Thompson</i>			
CHIEF STRUCTURES DIVISION	DATE 14/11/34	CONTRACT NO. 2	
APPROVED		SHEET 35 OF 62	
<i>G. G. G. G.</i>			
C. C. PARKER & ASSOC. LTD.		CHIEF ENGINEER	

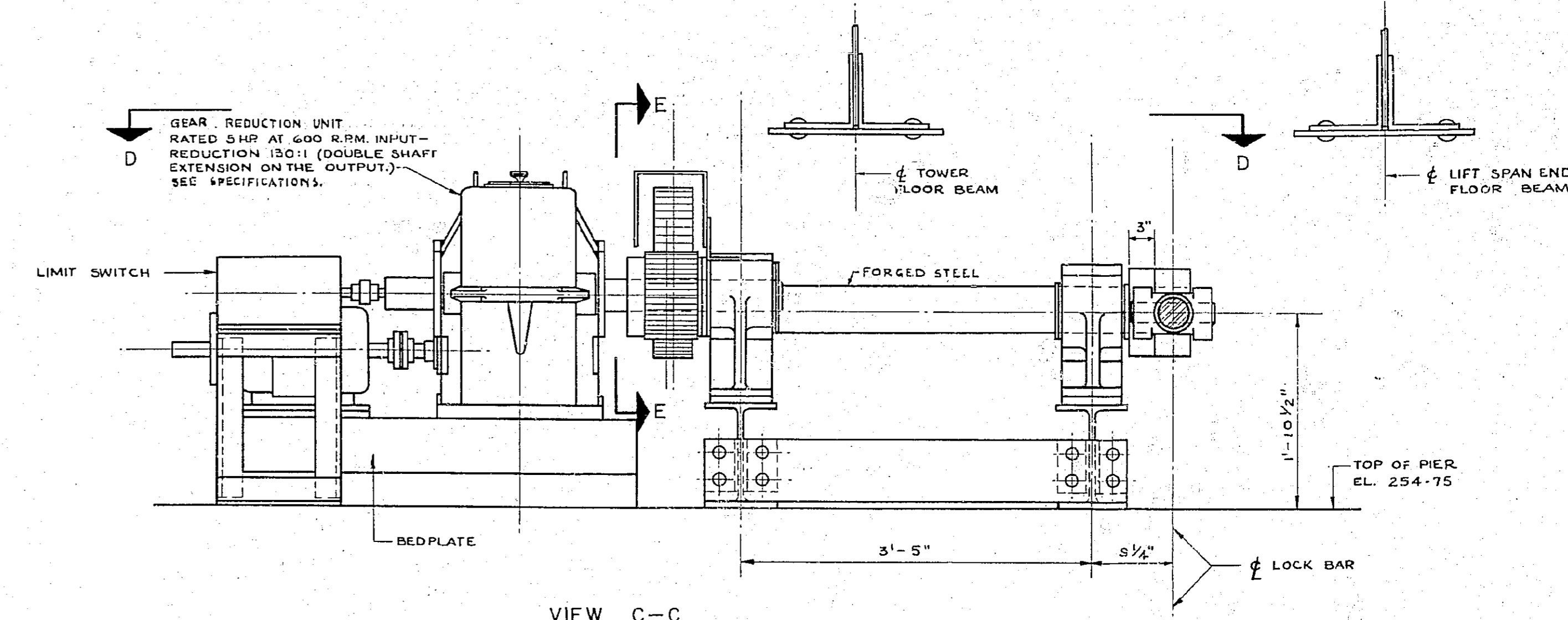
RECOMMENDED	DATE 12-1-34	DESIGN H. W.	CHKD. R. L.
		DRAWN H. W.	CHKD. R. L.
		TRACED J. H. W.	CHKD. H. W.
		JOB NO. H-538	



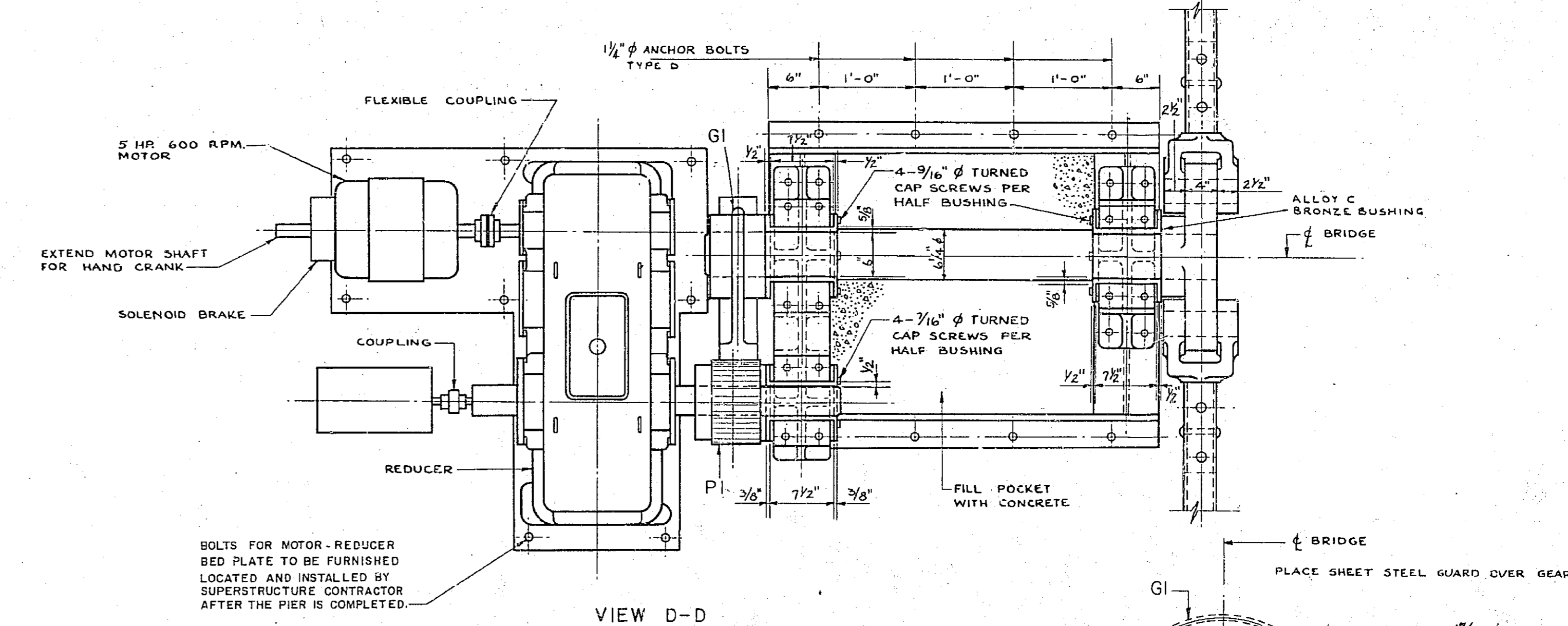
PLAN OF SPAN LOCK AT FIXED SHOE

PLAN OF SPAN LOCK AT EXPANSION SHOE

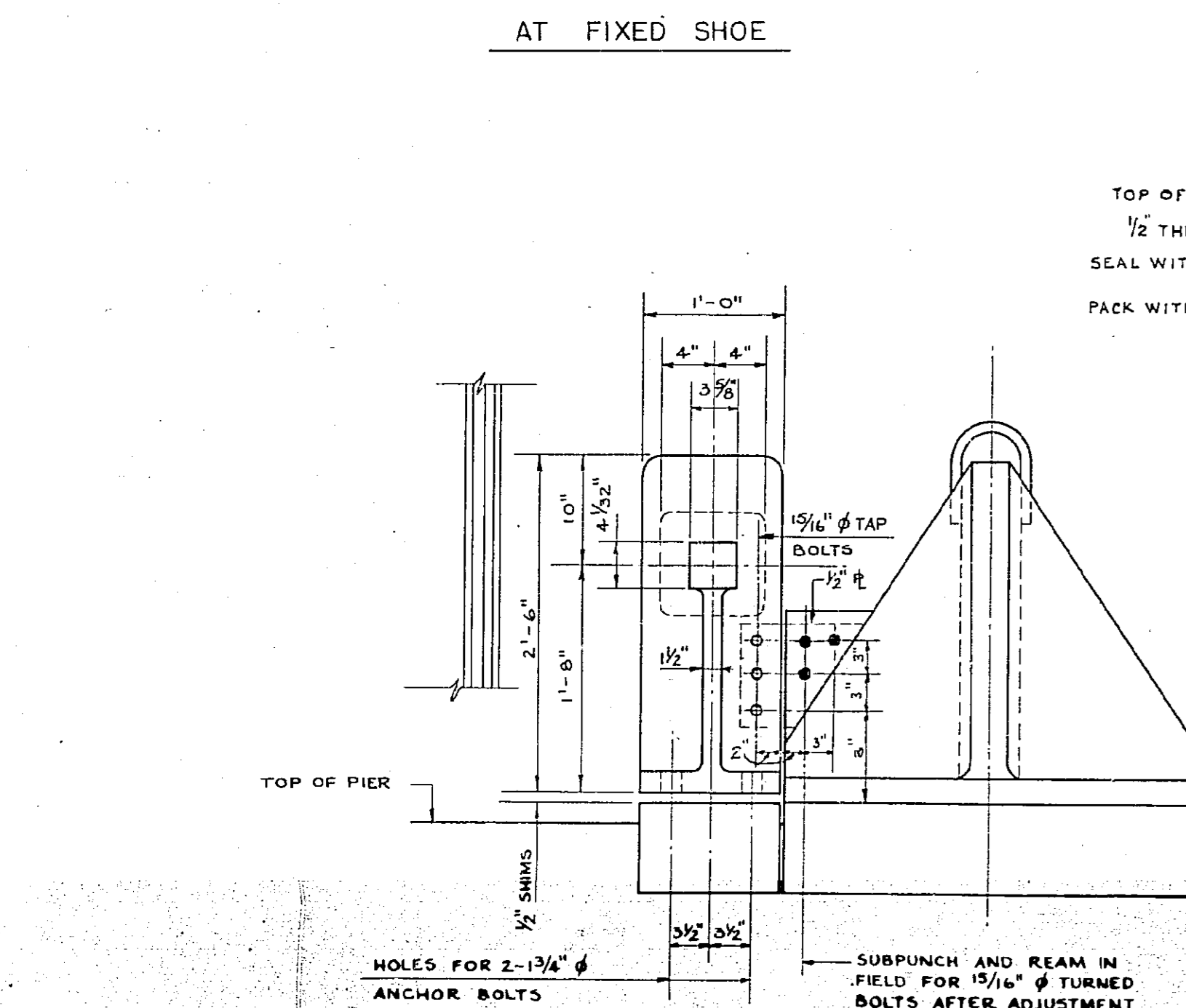
PLUNGER TYPE, FULLY SEATED LIMIT SWITCH, TO BE TRIPPED BY BOTTOM OF GUIDE ROLLER BOX



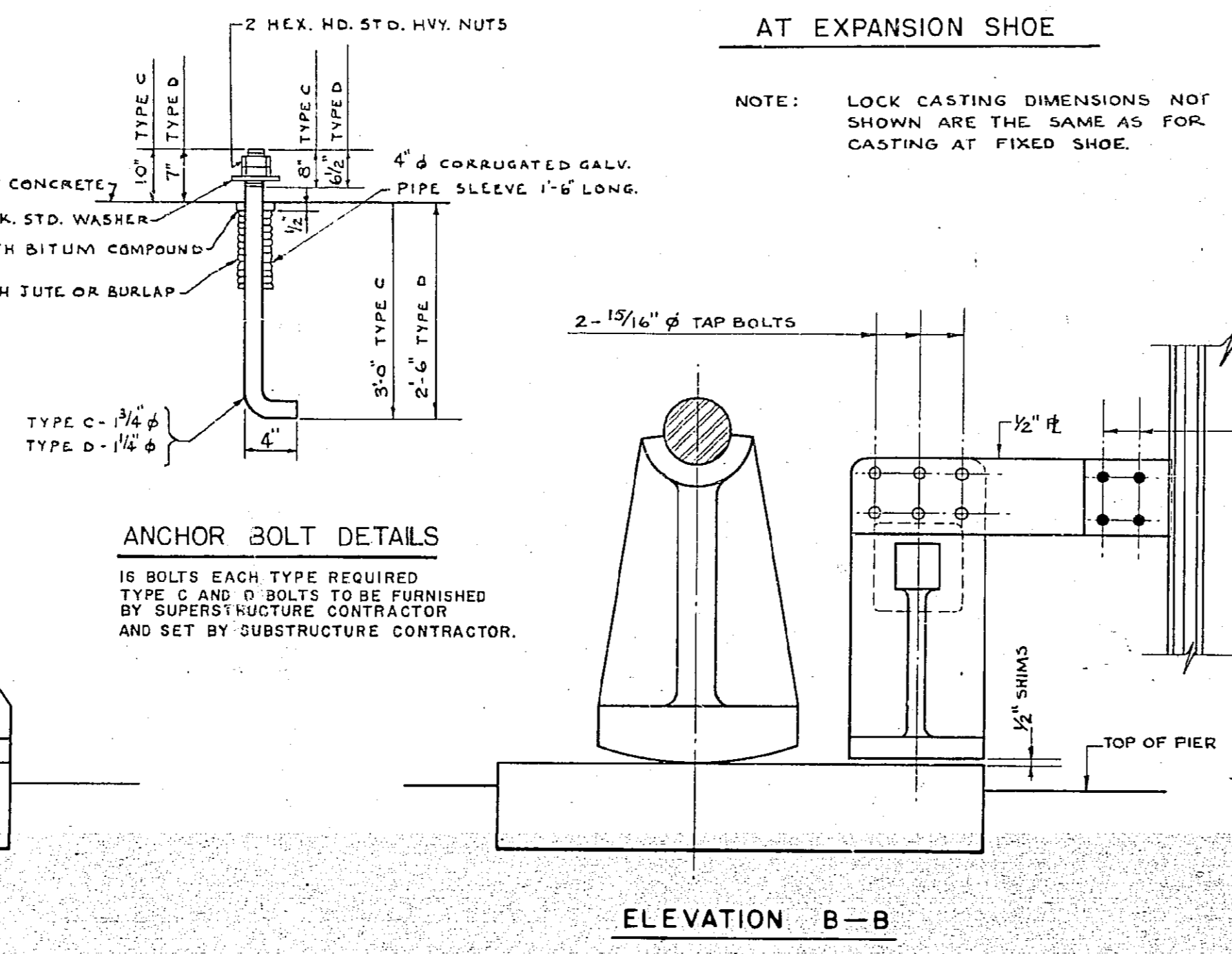
VIEW C-C



VIEW D-D



ELEVATION A-A



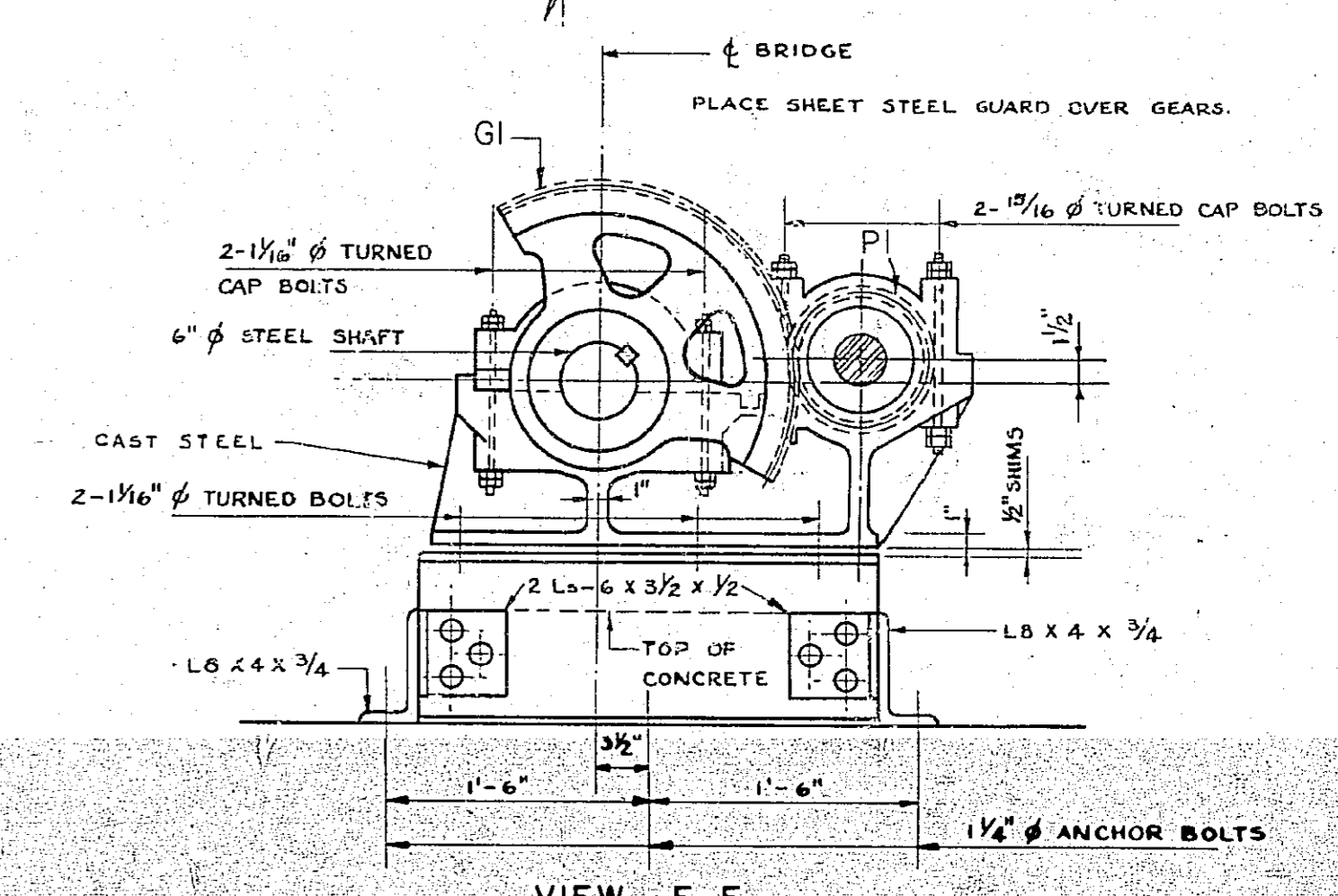
ANCHOR BOLT DETAILS

ELEVATION B-B

NOTE: LOCK CASTING DIMENSIONS NOT SHOWN ARE THE SAME AS FOR CASTING AT FIXED SHOE.

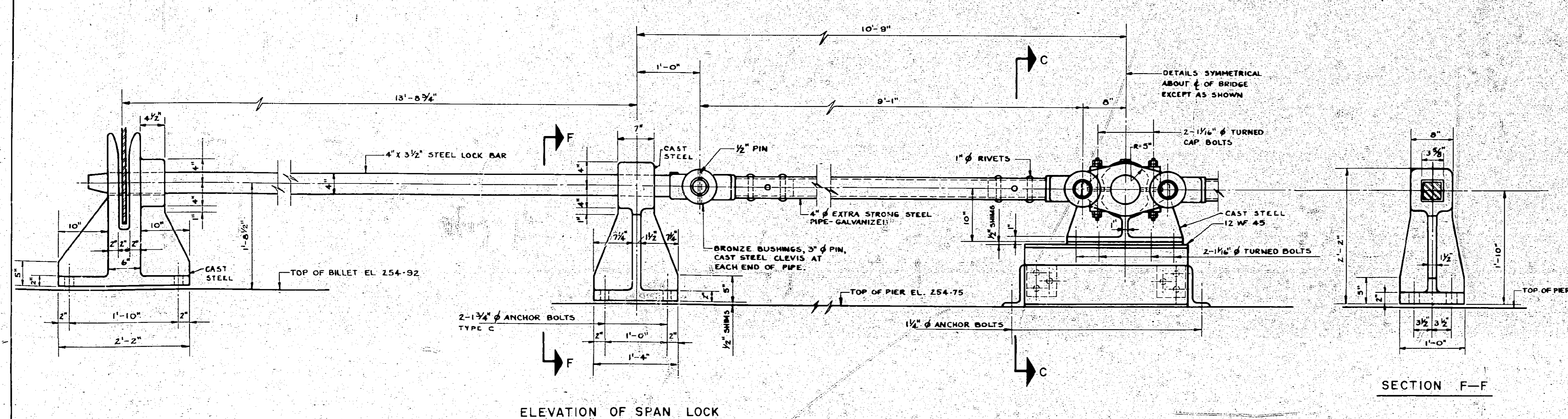
TABLE OF GEARS
ALL TEETH TO BE 20° INVOLUTE CUT TEETH

GEAR	N ^o REQD.	MATERIAL	N ^o TEETH	CIR. PITCH	PITCH DIA.	FACE	BORE DIAM.	HUB LGTH.	KEY
G1	2	CAST CARBON STEEL	57 TO FULL CIRCLE	1 1/2	27.215	3/2	6	11 1/2	7
P1	2	FORGED CARBON STEEL	19	1 1/2	9.072	6	-	8	MOUNTED ON REDUCER SHAFT

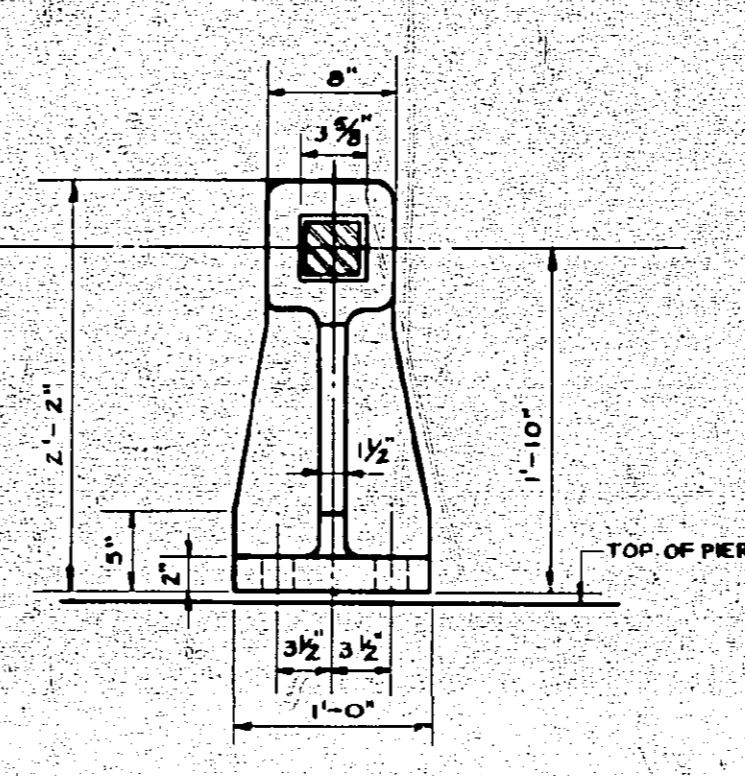


VIEW E-E

NOTES:
1. LUBRICATION FITTINGS SHALL BE PROVIDED WITH EXTENSIONS WHERE REQUIRED AND SHALL BE LOCATED SO AS TO BE EASILY ACCESSIBLE FOR LUBRICATION.
2. FOR MACHINERY MATERIALS NOT SHOWN ON DRAWING SEE SPECIFICATIONS.
3. ADDITIONAL LENGTH OF ANCHOR BOLTS PROVIDED TO ALLOW FOR FUTURE ADJUSTMENT OF THE ELEVATION OF THE BASES OF ALL THE UNITS, IF ANY.

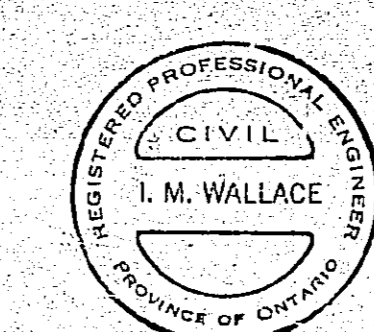


ELEVATION OF SPAN LOCK

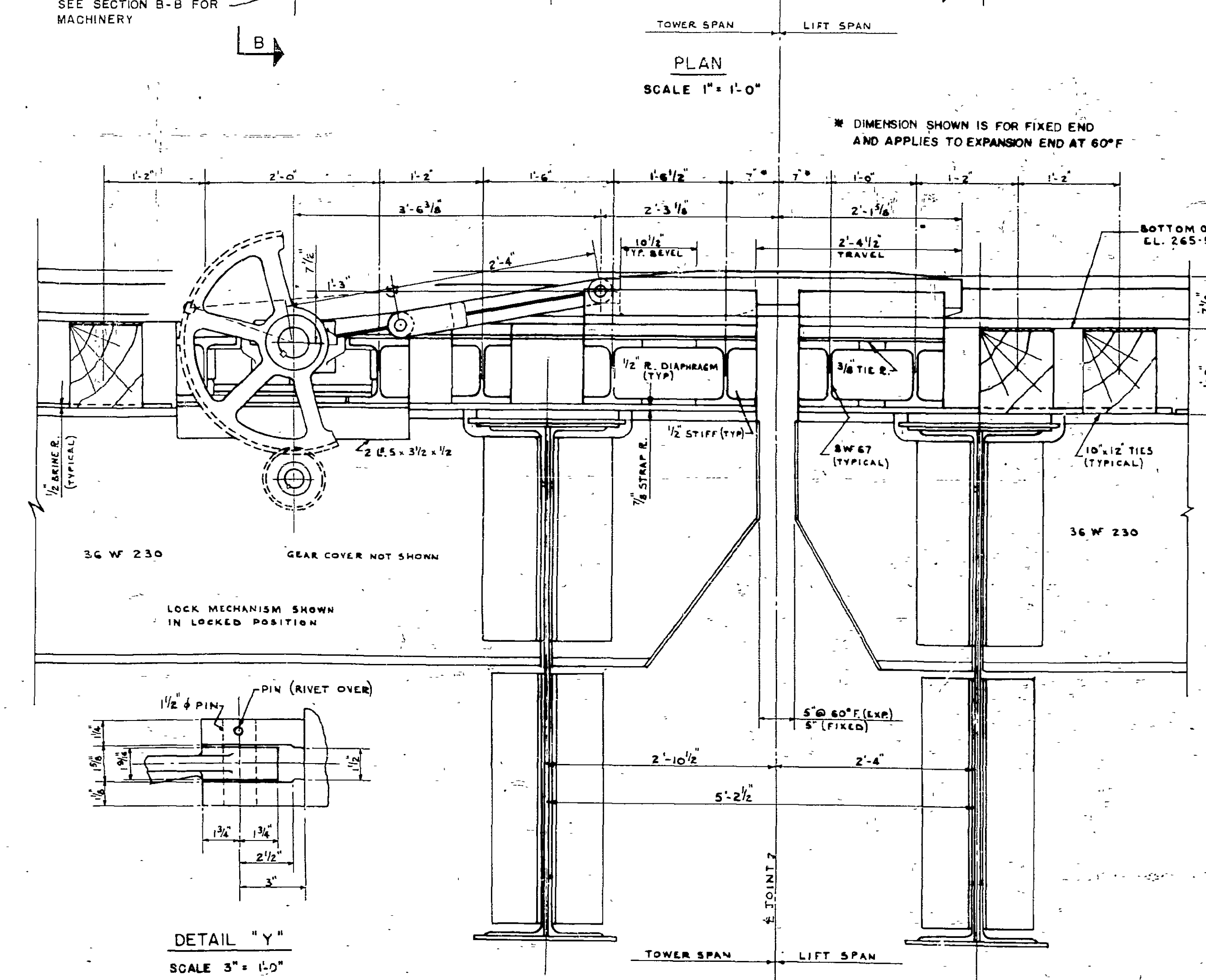
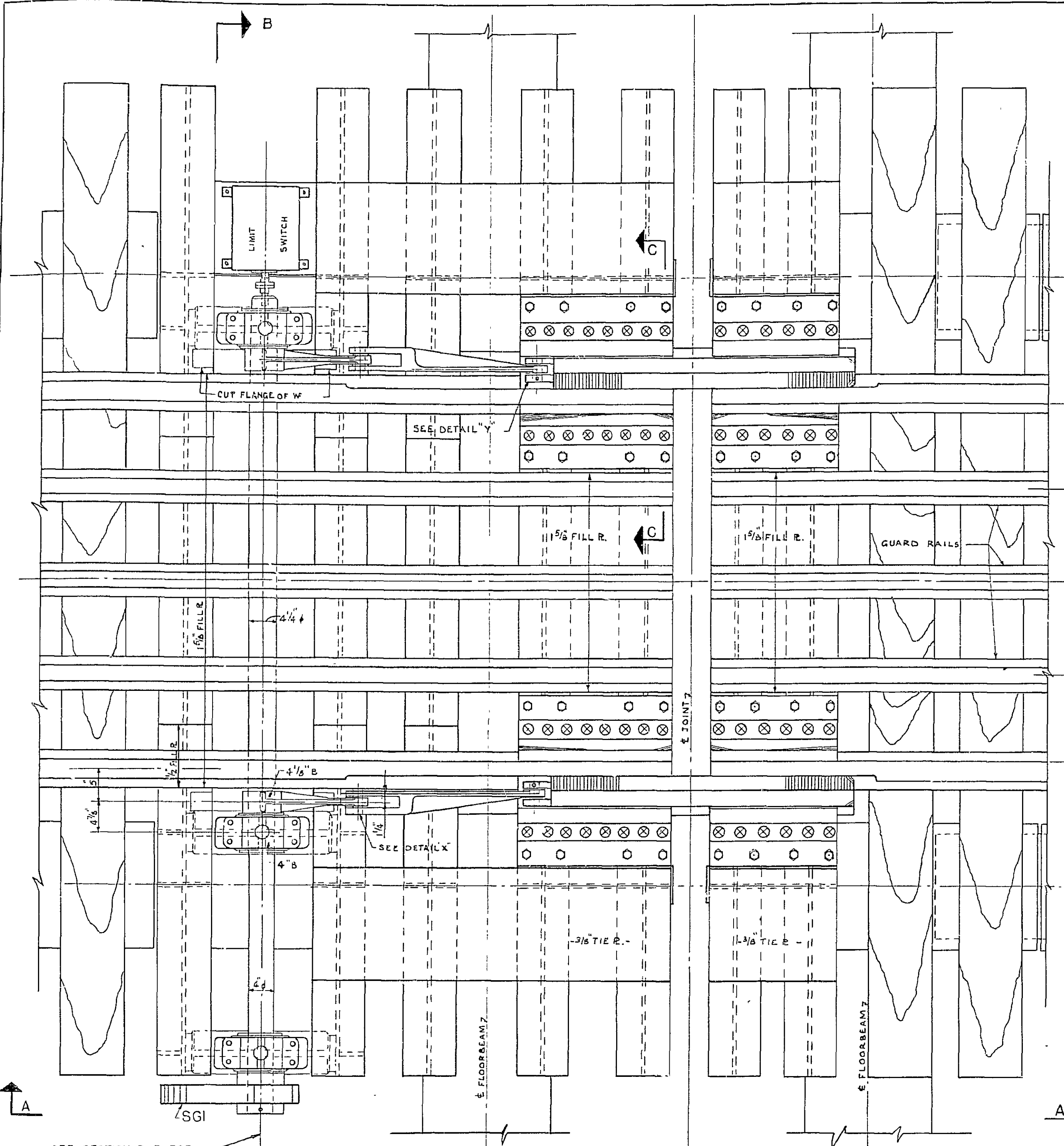


SECTION F-F

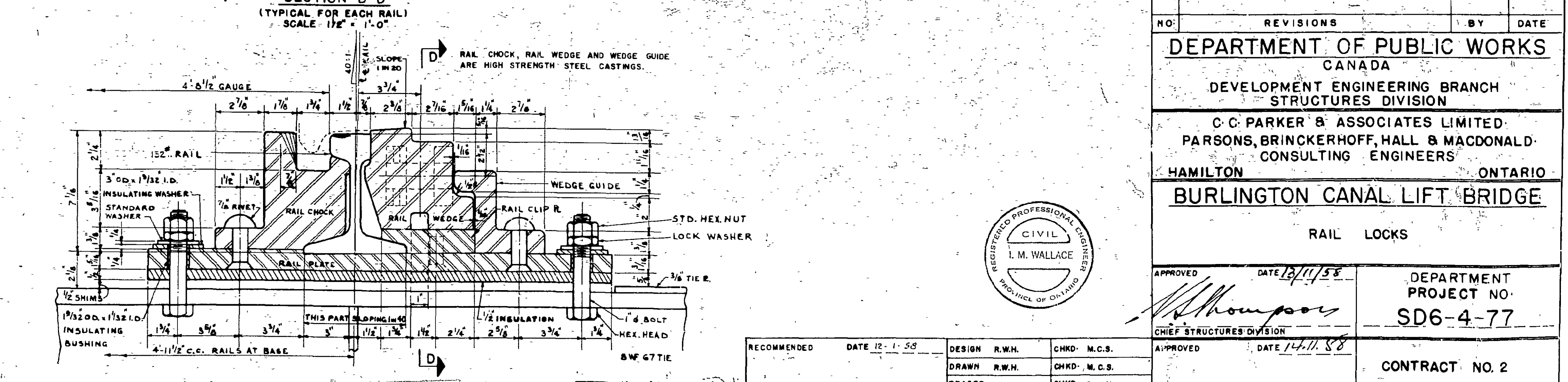
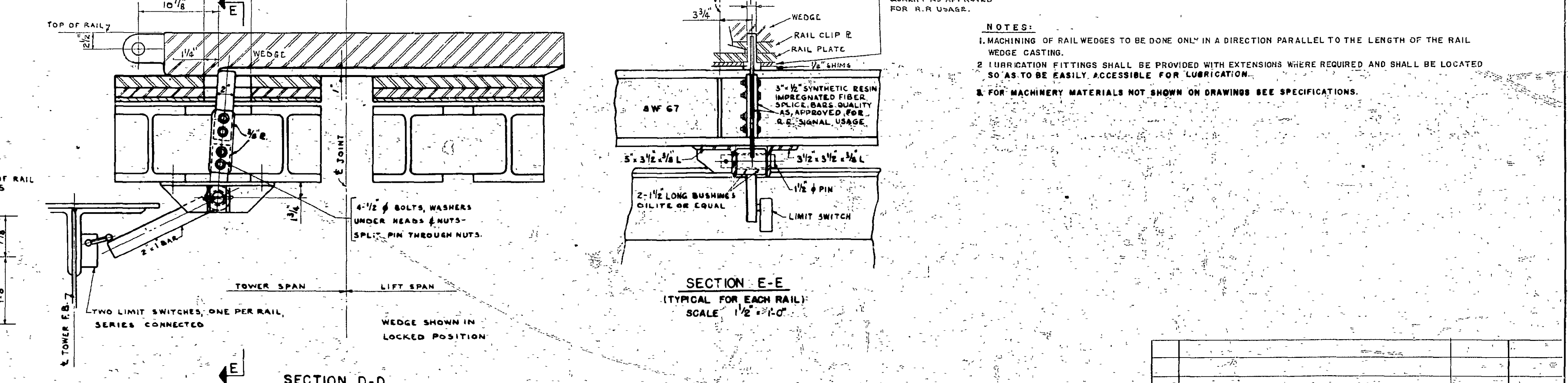
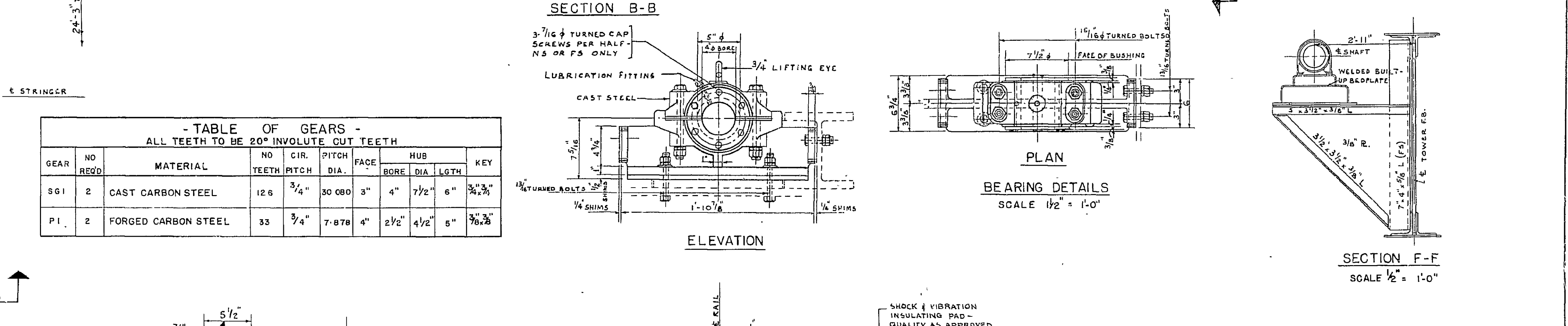
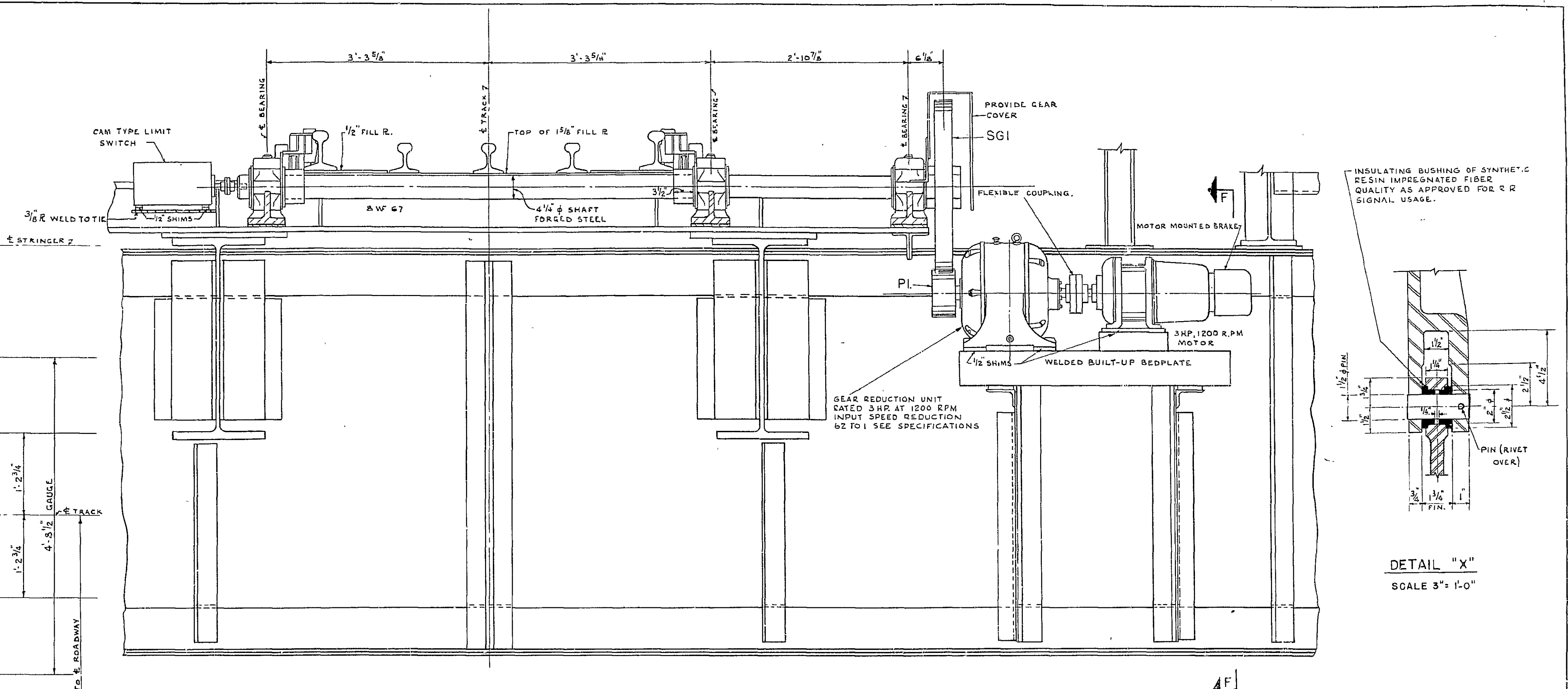
SCALE: 1" = 1'-0"



NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION C.C. PARKER & ASSOCIATES LIMITED PARSONS, BRINCKERHOFF, HALL & MACDONALD CONSULTING ENGINEERS HAMILTON ONTARIO BURLINGTON CANAL LIFT BRIDGE SPAN LOCKS			
APPROVED	DATE 12/11/58	DEPARTMENT PROJECT NO.	
<i>L.M. Wallace</i>		SD6-4-77	
RECOMMENDED	DATE 12-11-58	DESIGN M.C.S.	CHKD. P.R.C.
<i>C.C. Parker</i>		DRAWN P.R.C.	CHKD. M.C.S.
		TRACED D.H.	CHKD. P.R.C.
		JOB NO. H-538	
		APPROVED DATE 12/11/58	
		<i>G. McIlwain</i>	
		CONTRACT NO. 2	
		SHEET 37 OF 62	



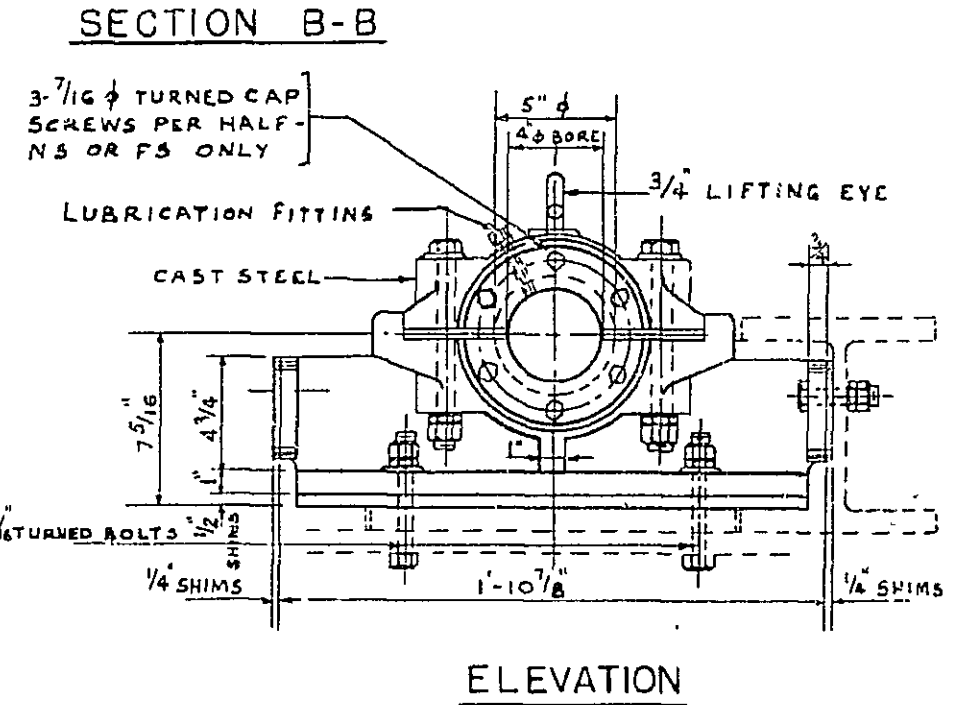
SECTION A-A
SCALE 3" = 1'-0"



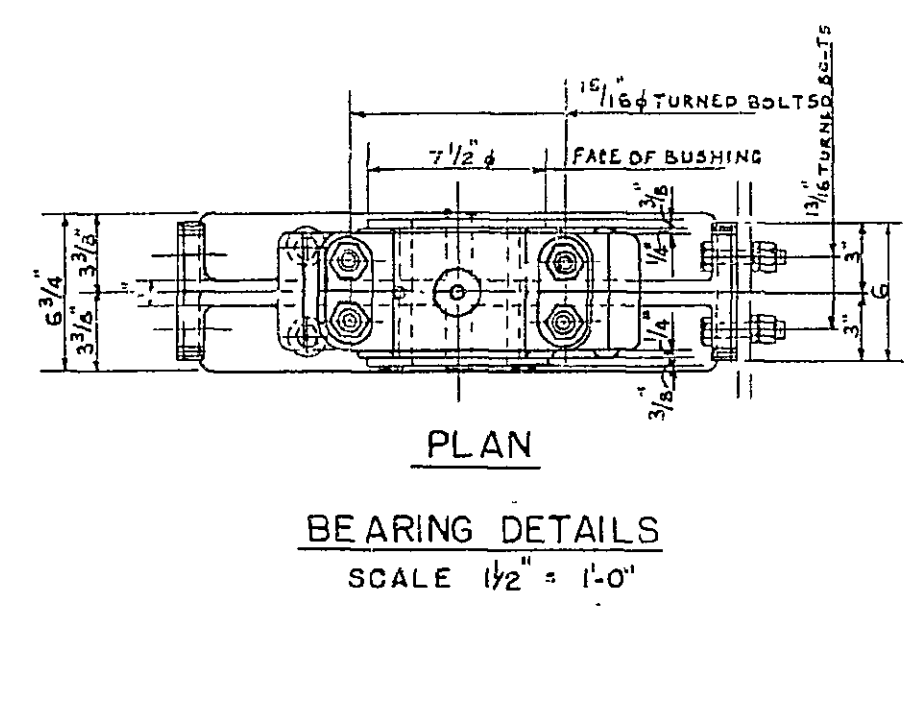
SECTION C-C THRU RAIL LOCK ASSEMBLY
SCALE 3" = 1'-0"

- TABLE OF GEARS -
ALL TEETH TO BE 20° INVOLUTE CUT TEETH

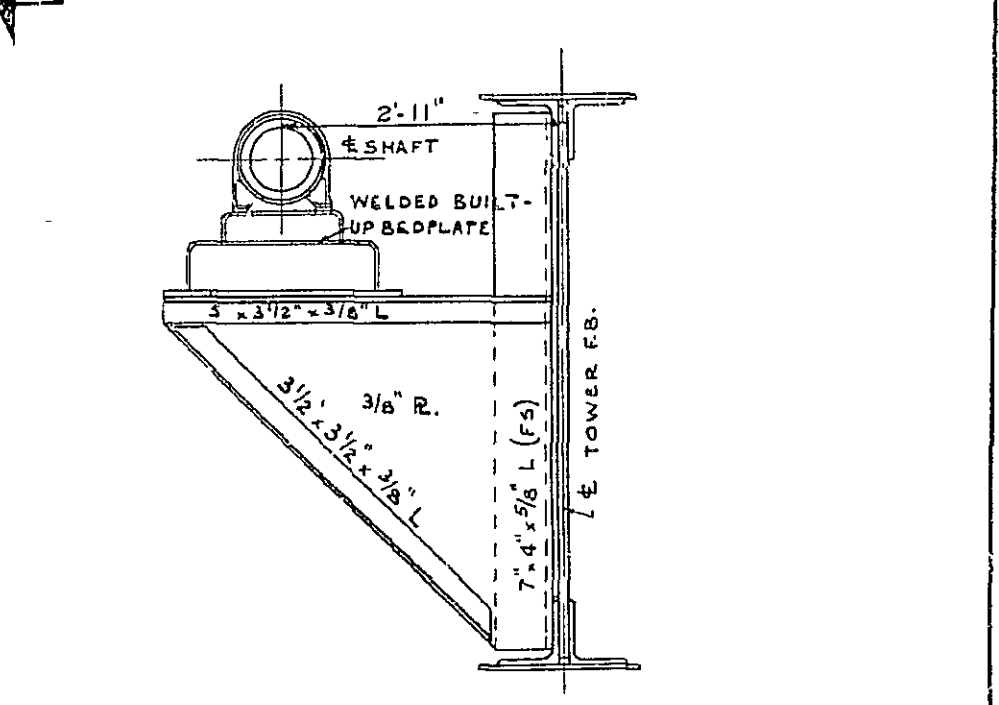
GEAR	NO	MATERIAL	NO TEETH	CIR. PITCH	FACE DIA.	HUB BORE DIA.	LOTH	KEY
SG1	2	CAST CARBON STEEL	126	3/4"	30 OBD	3"	4"	7/2" 6"
PI	2	FORGED CARBON STEEL	33	3/4"	7-878	4"	2 1/2"	4 1/2" 5"



ELEVATION



BEARING DETAILS
SCALE 1/2" = 1'-0"



SECTION F-F
SCALE 1/2" = 1'-0"

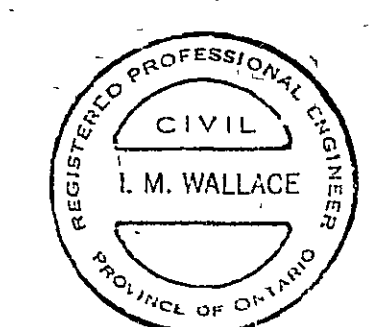
- NOTES:
1. MACHINING OF RAIL WEDGES TO BE DONE ONLY IN A DIRECTION PARALLEL TO THE LENGTH OF THE RAIL WEDGE CASTING.
 2. LUBRICATION FITTINGS SHALL BE PROVIDED WITH EXTENSIONS WHERE REQUIRED AND SHALL BE LOCATED SO AS TO BE EASILY ACCESSIBLE FOR LUBRICATION.
 3. FOR MACHINERY MATERIALS NOT SHOWN ON DRAWINGS SEE SPECIFICATIONS.

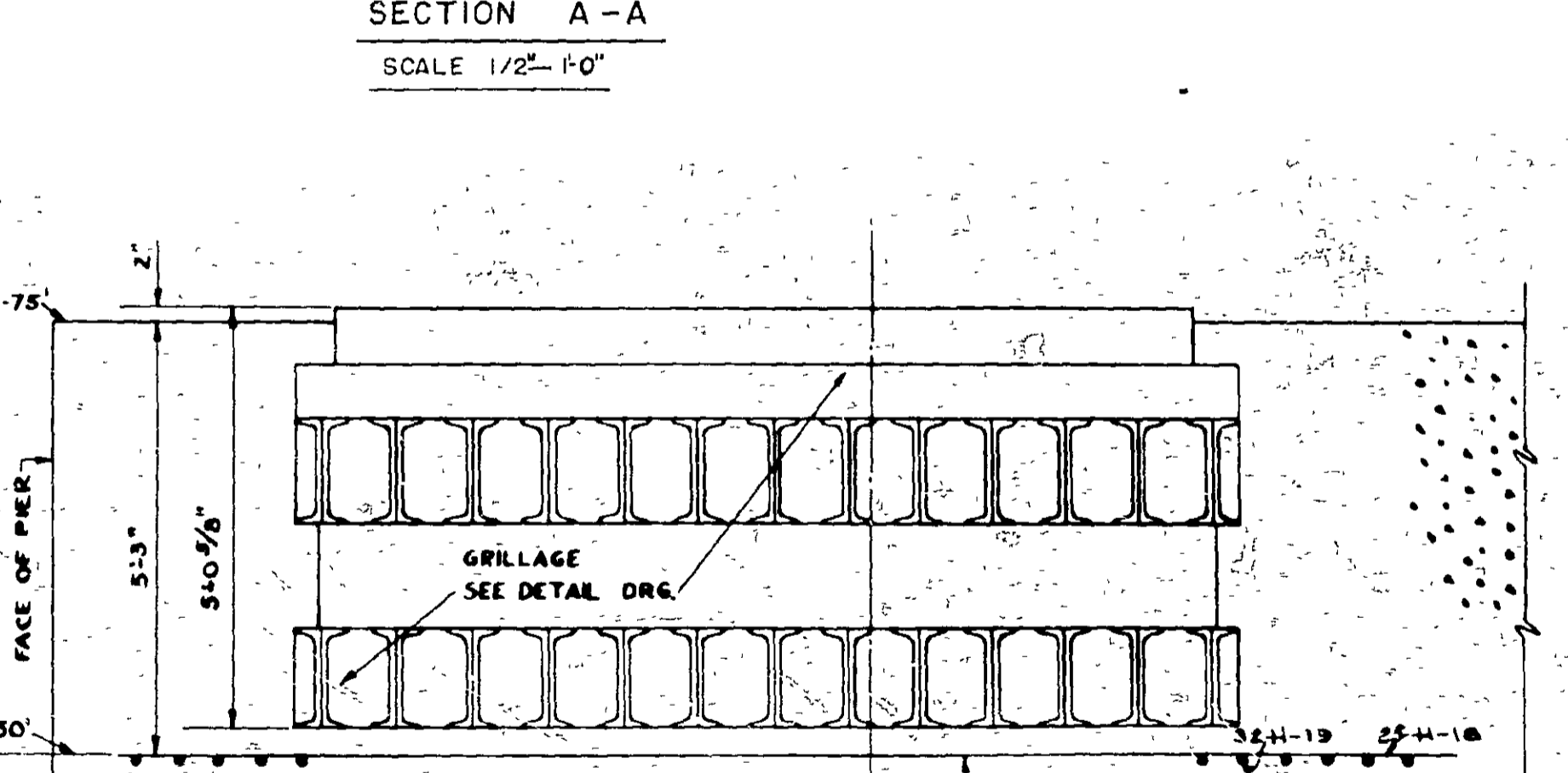
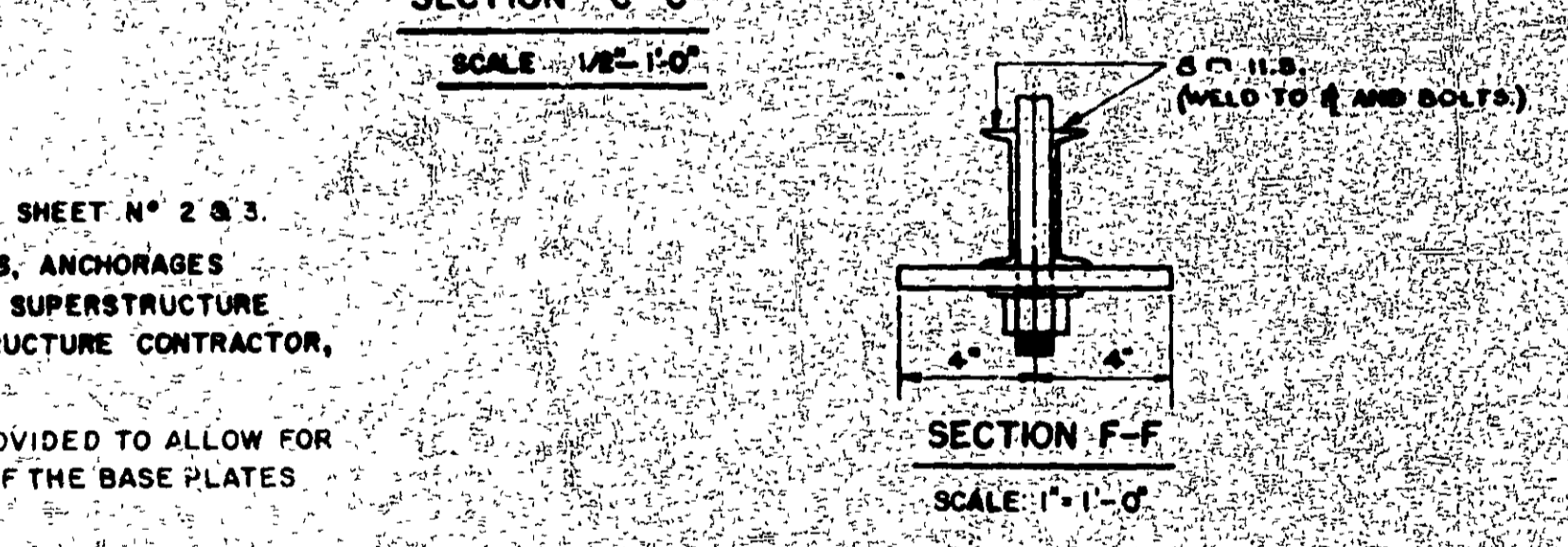
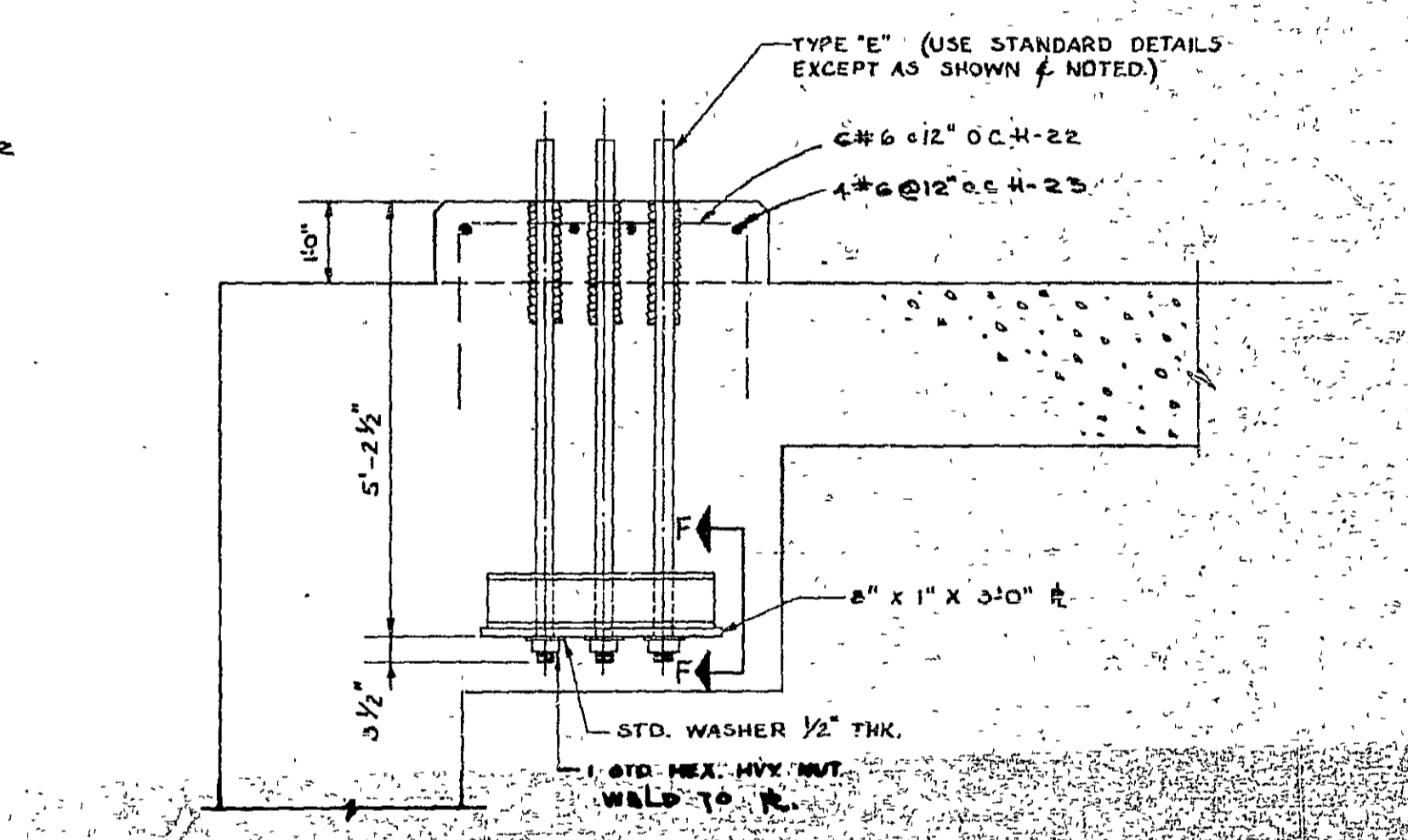
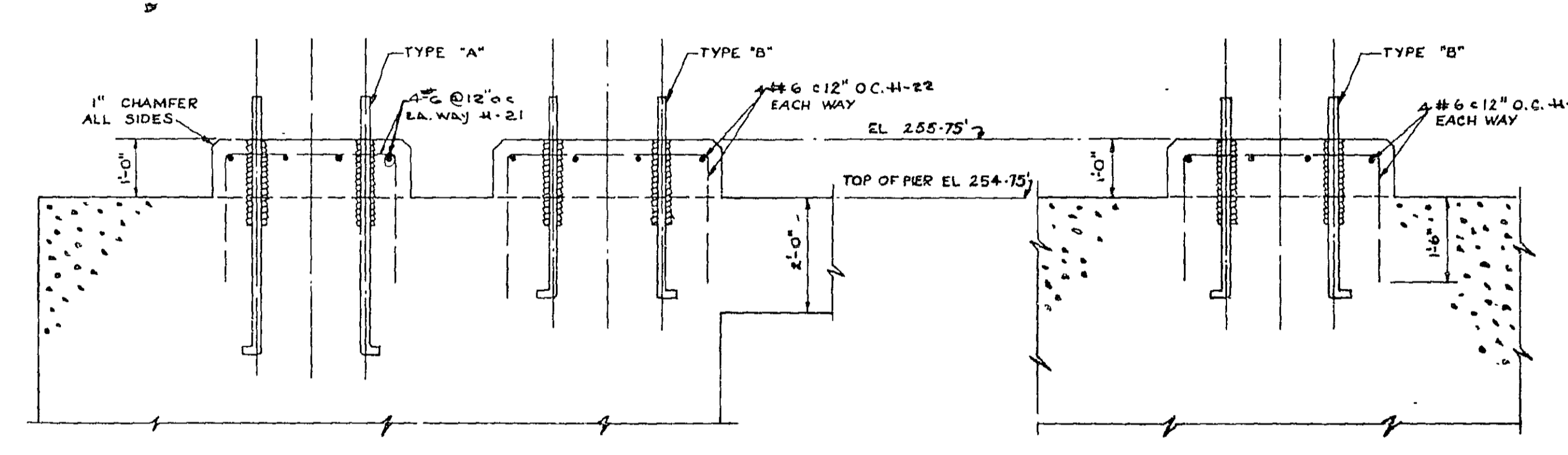
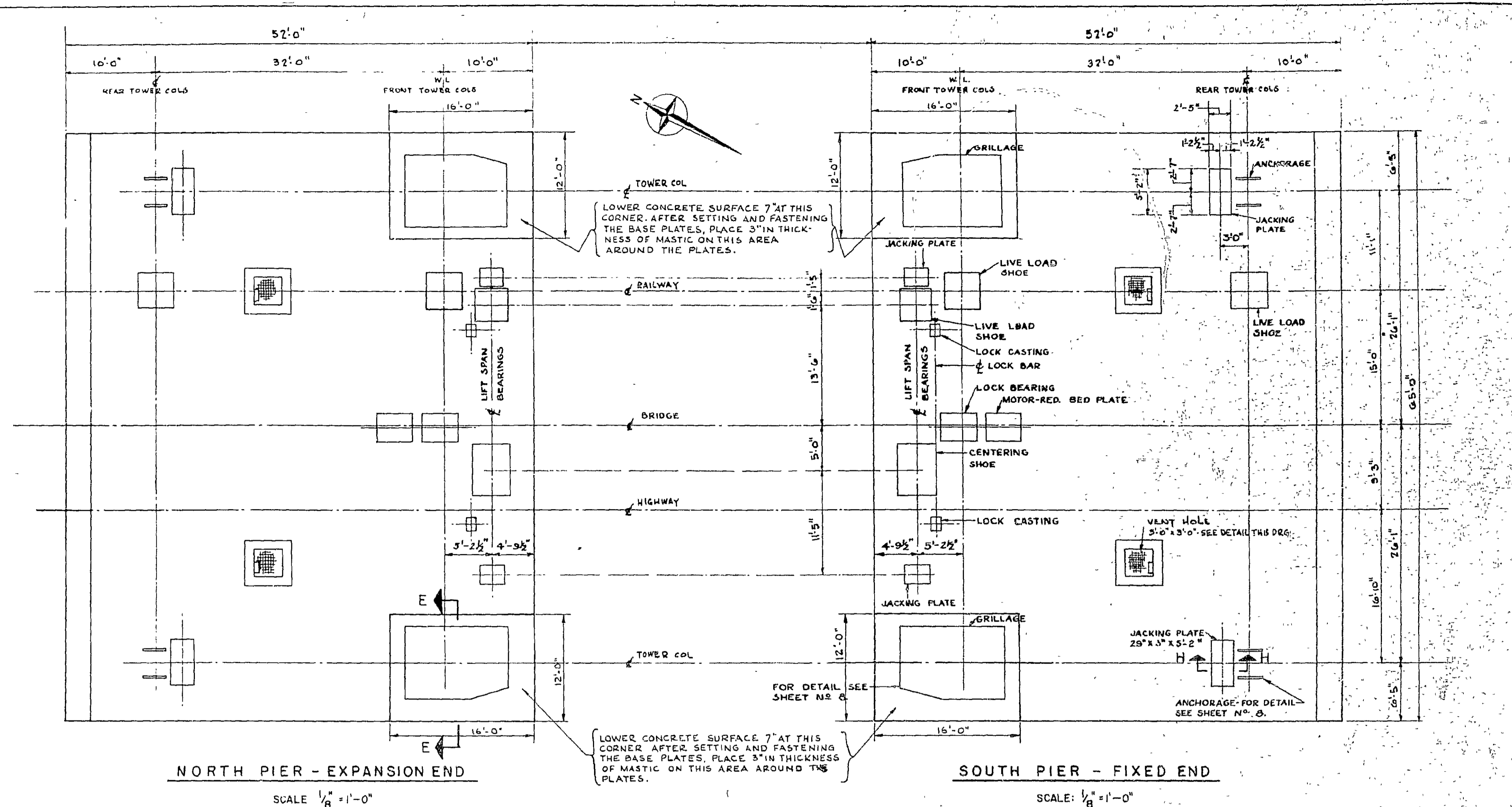
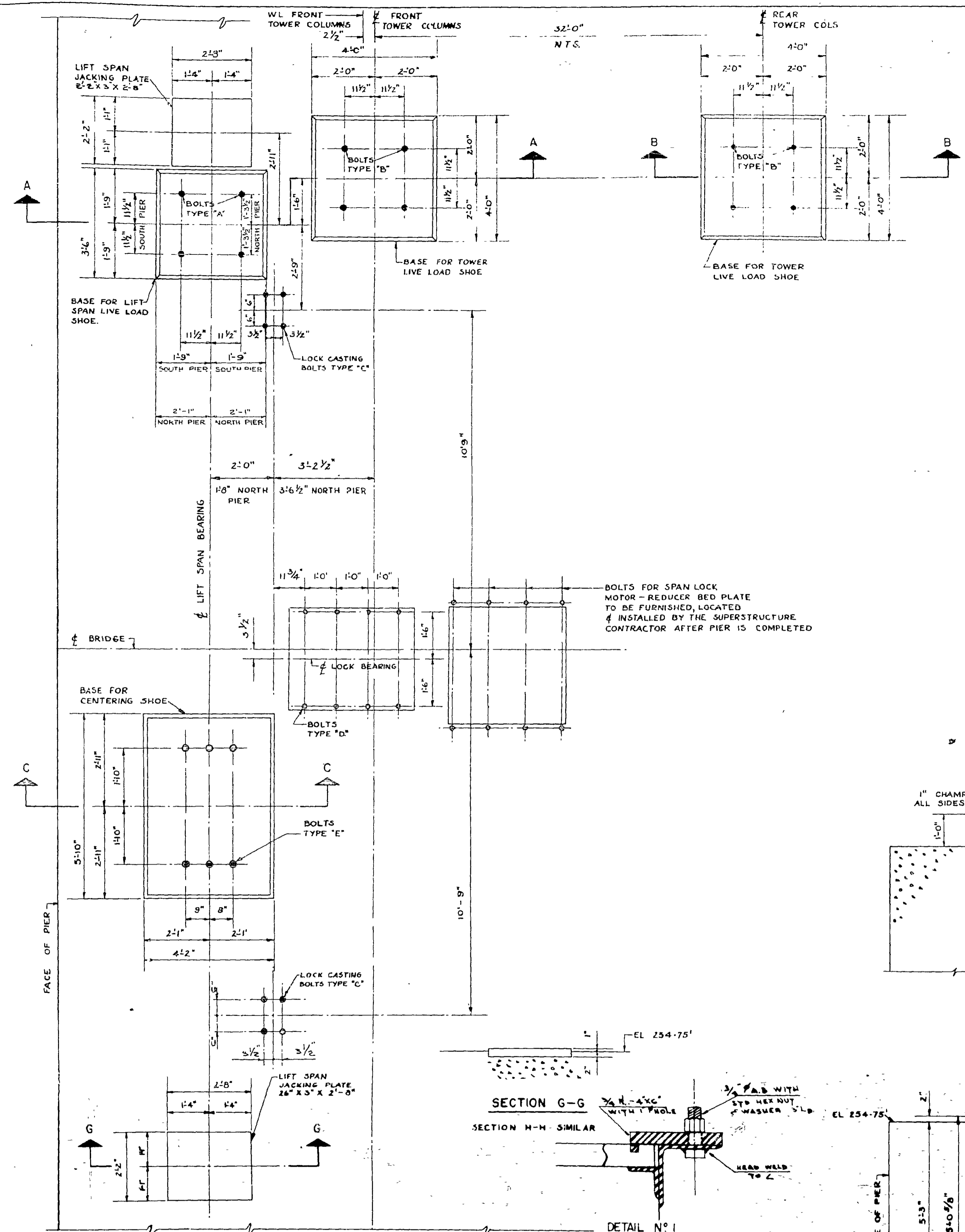
NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION C. C. PARKER & ASSOCIATES LIMITED PARSONS, BRINCKERHOFF, HALL & MACDONALD CONSULTING ENGINEERS HAMILTON ONTARIO BURLINGTON CANAL LIFT BRIDGE RAIL LOCKS			
APPROVED	DATE 12/11/58	DEPARTMENT PROJECT NO.	SD6-4-77
CHIEF STRUCTURES DIVISION		CONTRACT NO. 2	
APPROVED	DATE 1/4/58	SHEET 38	OF 62

RECOMMENDED DATE 12-1-58

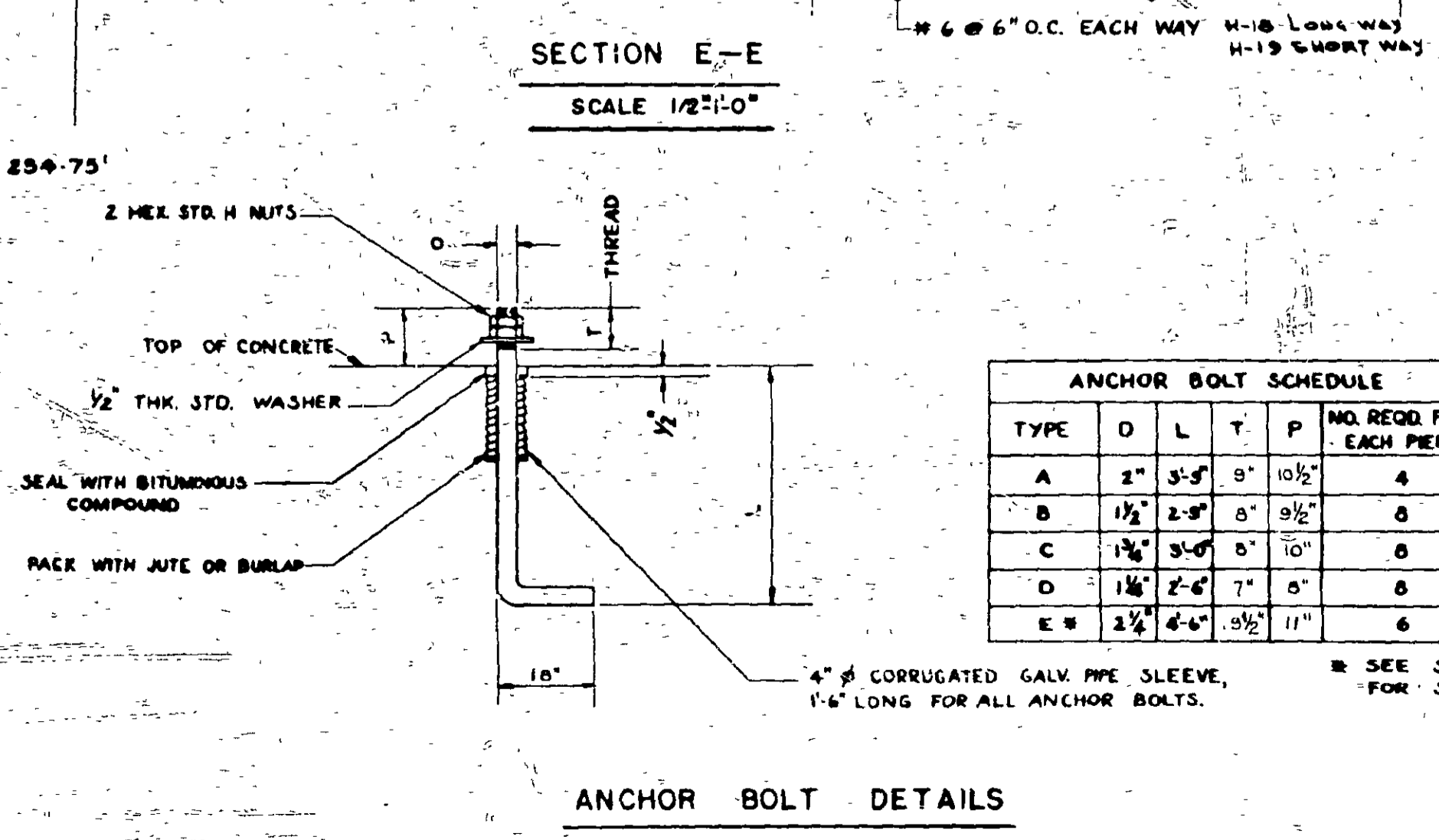
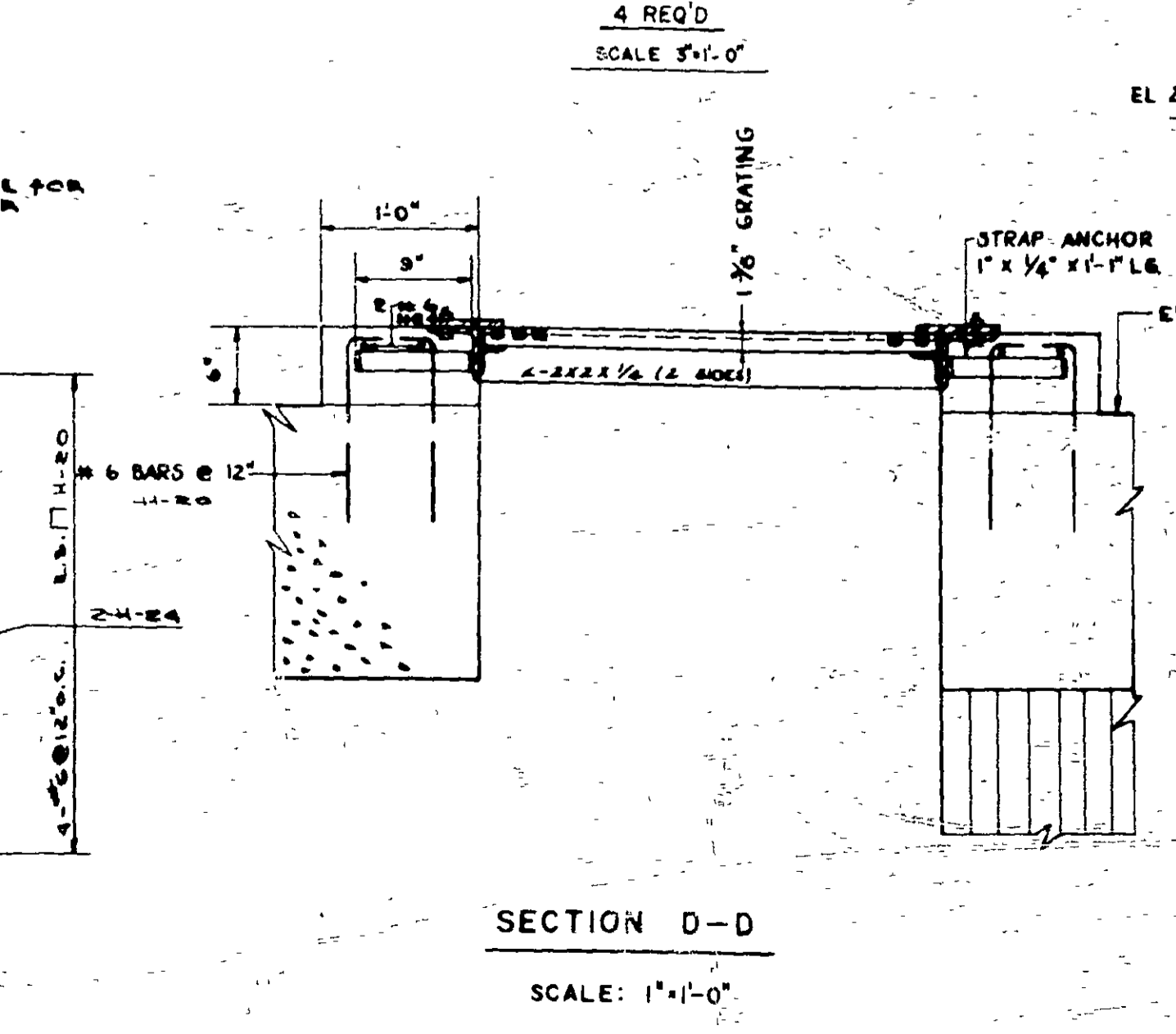
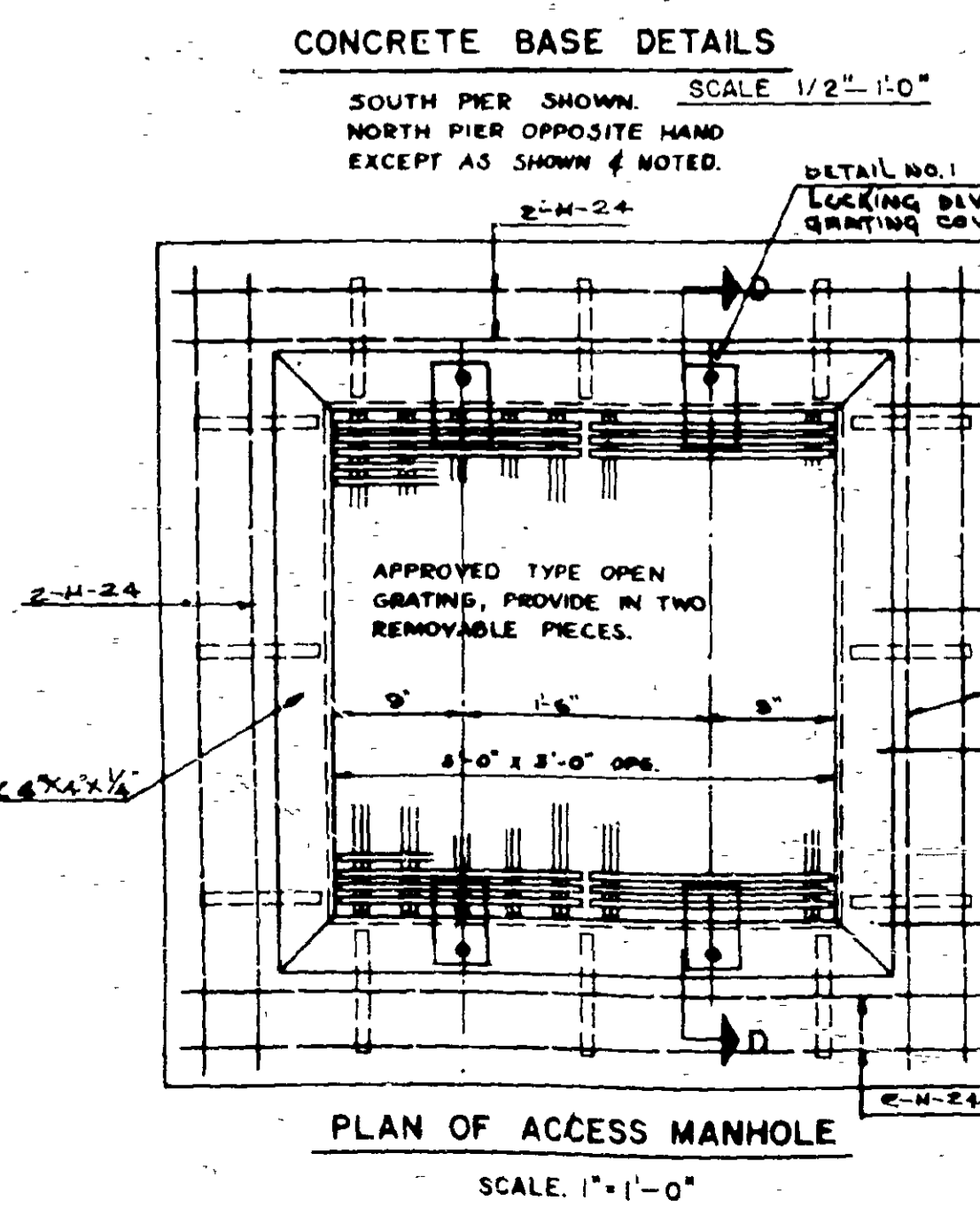
DESIGN R.W.H.	CHKD. M.C.S.
DRAWN R.W.H.	CHKD. M.C.S.
TRACED M.C.	CHKD. R.W.H.
JOB NO. H-538	

CC-PARKER & ASSOC. LTD.





- NOTES:**
- FOR GENERAL NOTES FOR MAIN PIERS, SEE SHEET NO. 2 & 3.
 - ANCHOR BOLT ASSEMBLIES, JACKING PLATES, ANCHORAGES AND GRILLAGES TO BE FURNISHED BY THE SUPERSTRUCTURE CONTRACTOR AND PLACED BY THE SUBSTRUCTURE CONTRACTOR, EXCEPT AS SHOWN AND NOTED.
 - ADDITIONAL LENGTH OF ANCHOR BOLTS PROVIDED TO ALLOW FOR FUTURE ADJUSTMENT OF THE ELEVATION OF THE BASE PLATES IF ANY.



ANCHOR BOLT SCHEDULE					
TYPE	D	L	T	P	NO. REQ'D FOR EACH PIER
A	2"	3'-0"	0"	10 1/2"	4
B	1 1/2"	2'-0"	0"	9 1/2"	8
C	1 1/2"	3'-0"	0"	10"	8
D	1 1/2"	2'-6"	7"	11"	8
E	1 1/2"	4'-0"	0 1/2"	11"	6

RECOMMENDED DATE 12/1/59

DESIGN G.L. CHD G.W.A.

DRAWN J.B. CHD G.W.A.

TRACE D.H. CHD R.K.C.C.

JOB NO. H-538

C.C. PARKER & ASSOC. LTD.

DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

C.C. PARKER & ASSOCIATES LTD.
CONSULTING ENGINEERS

HAMILTON ONTARIO

BURLINGTON CANAL LIFT BRIDGE

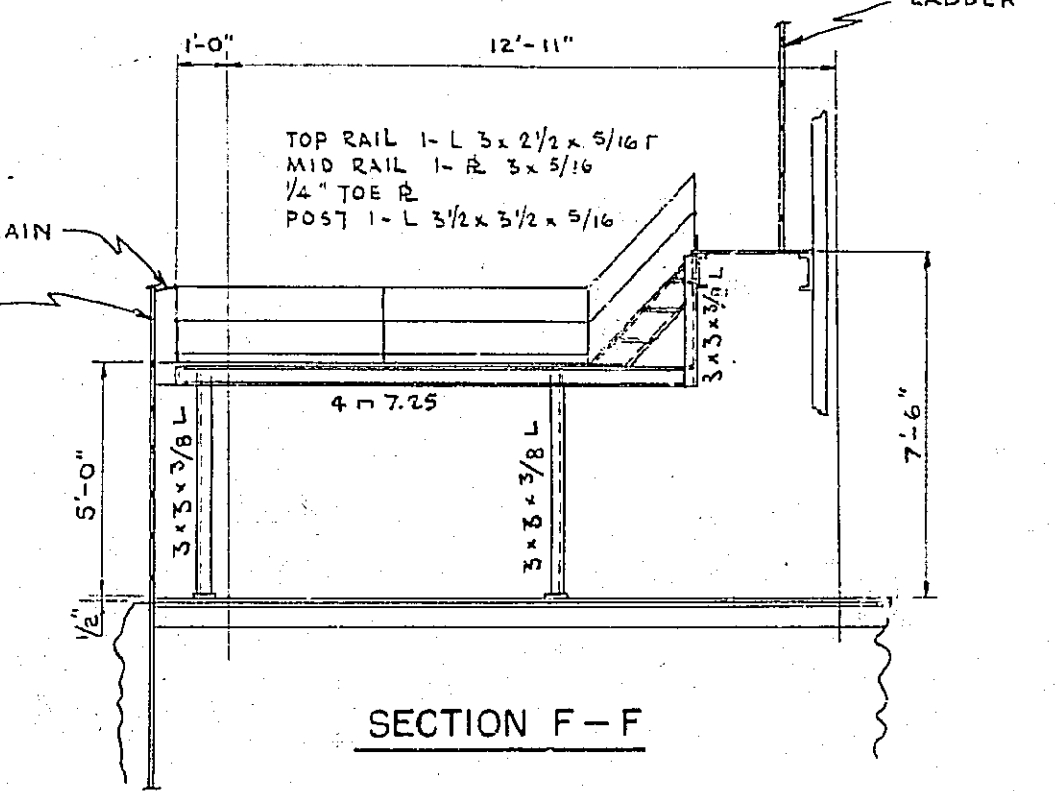
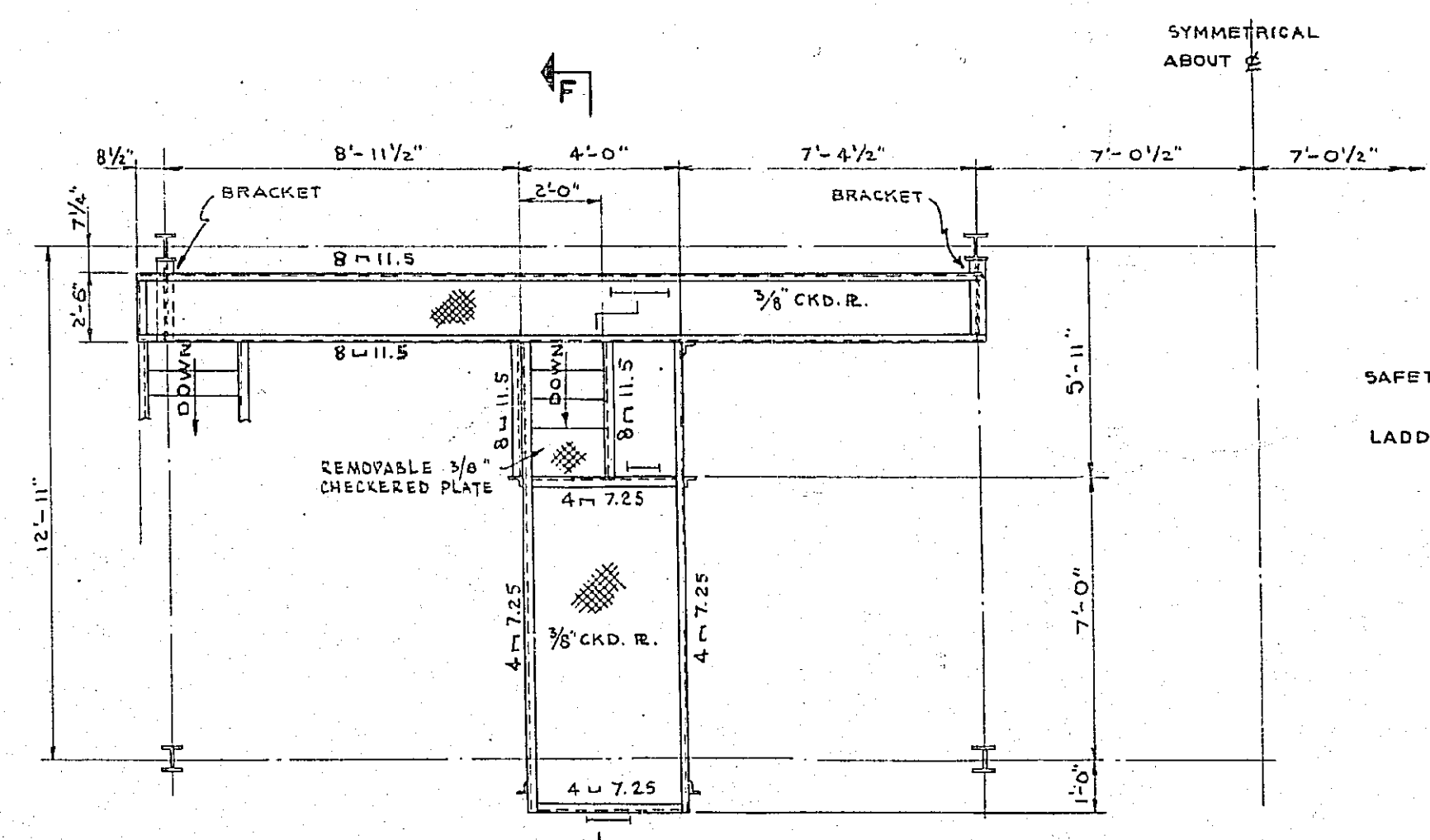
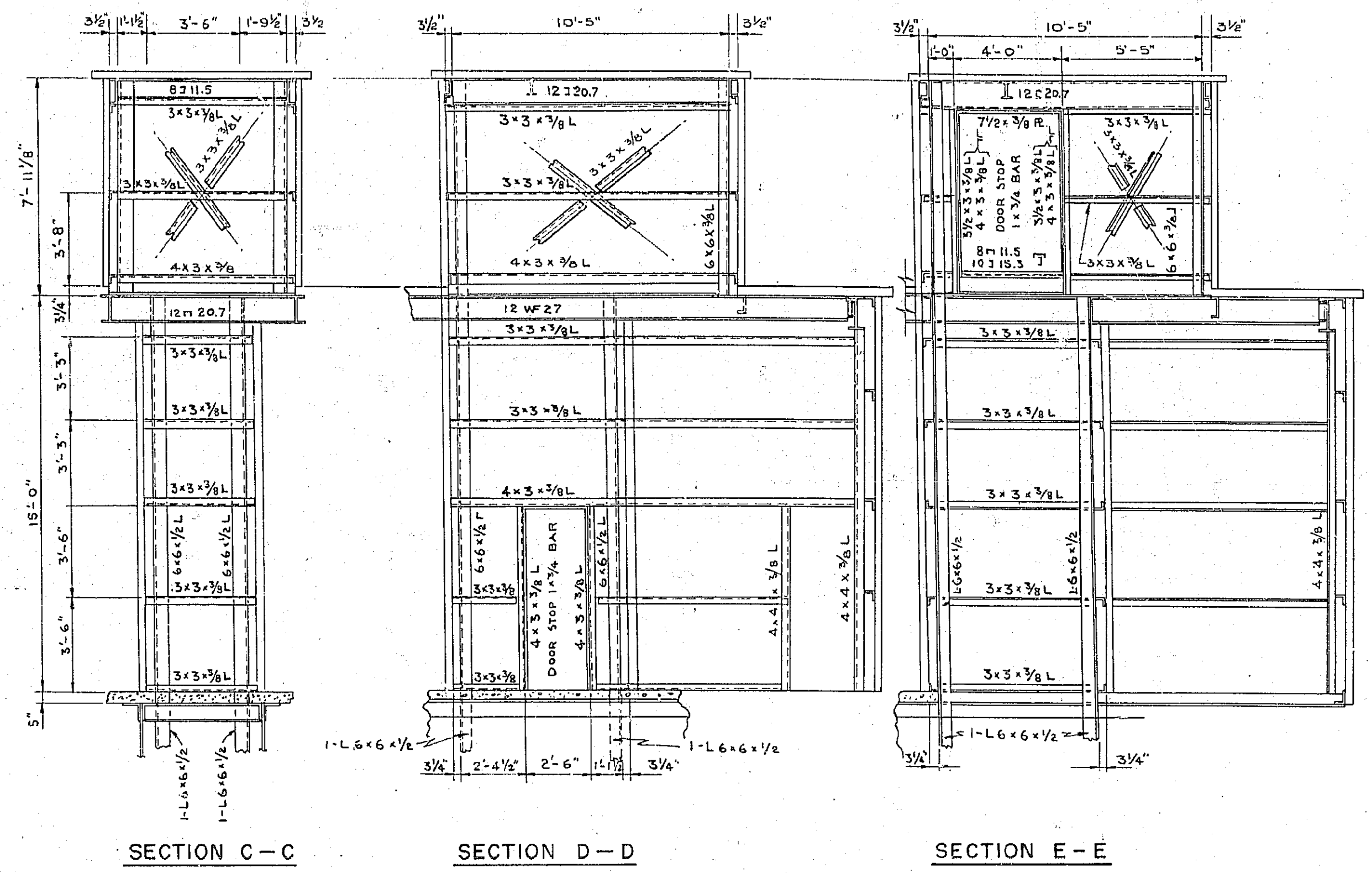
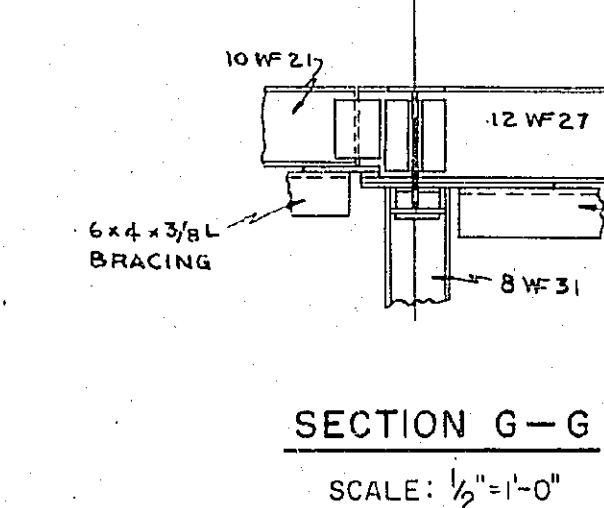
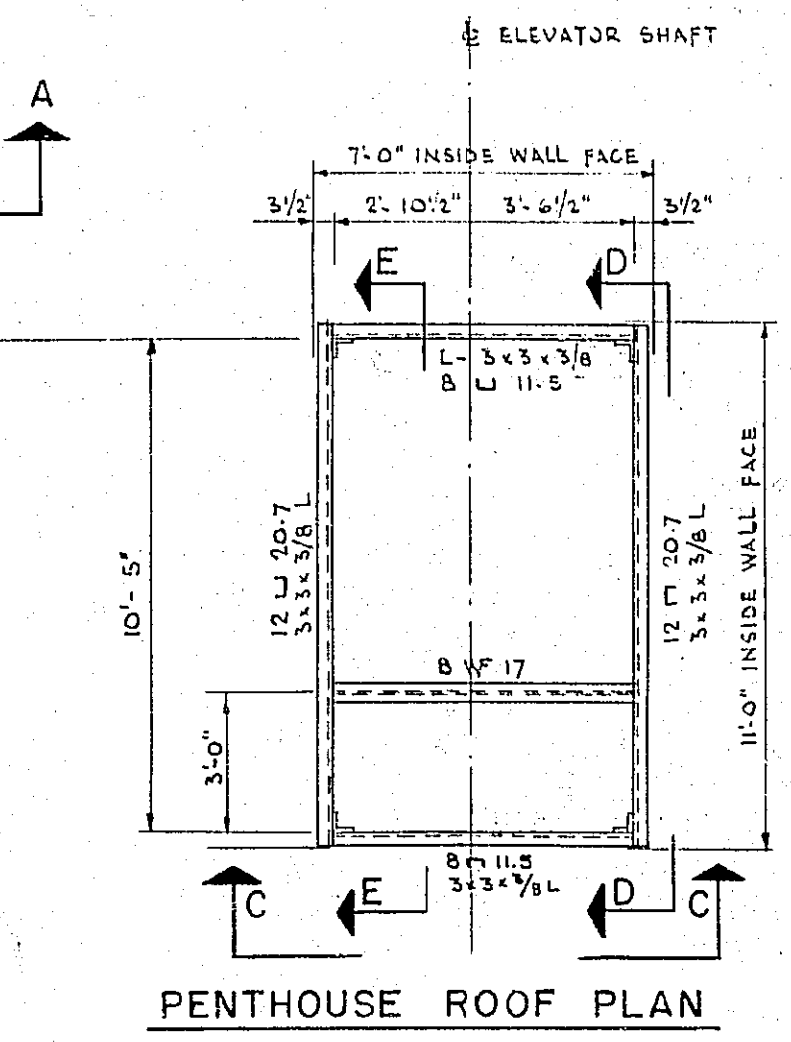
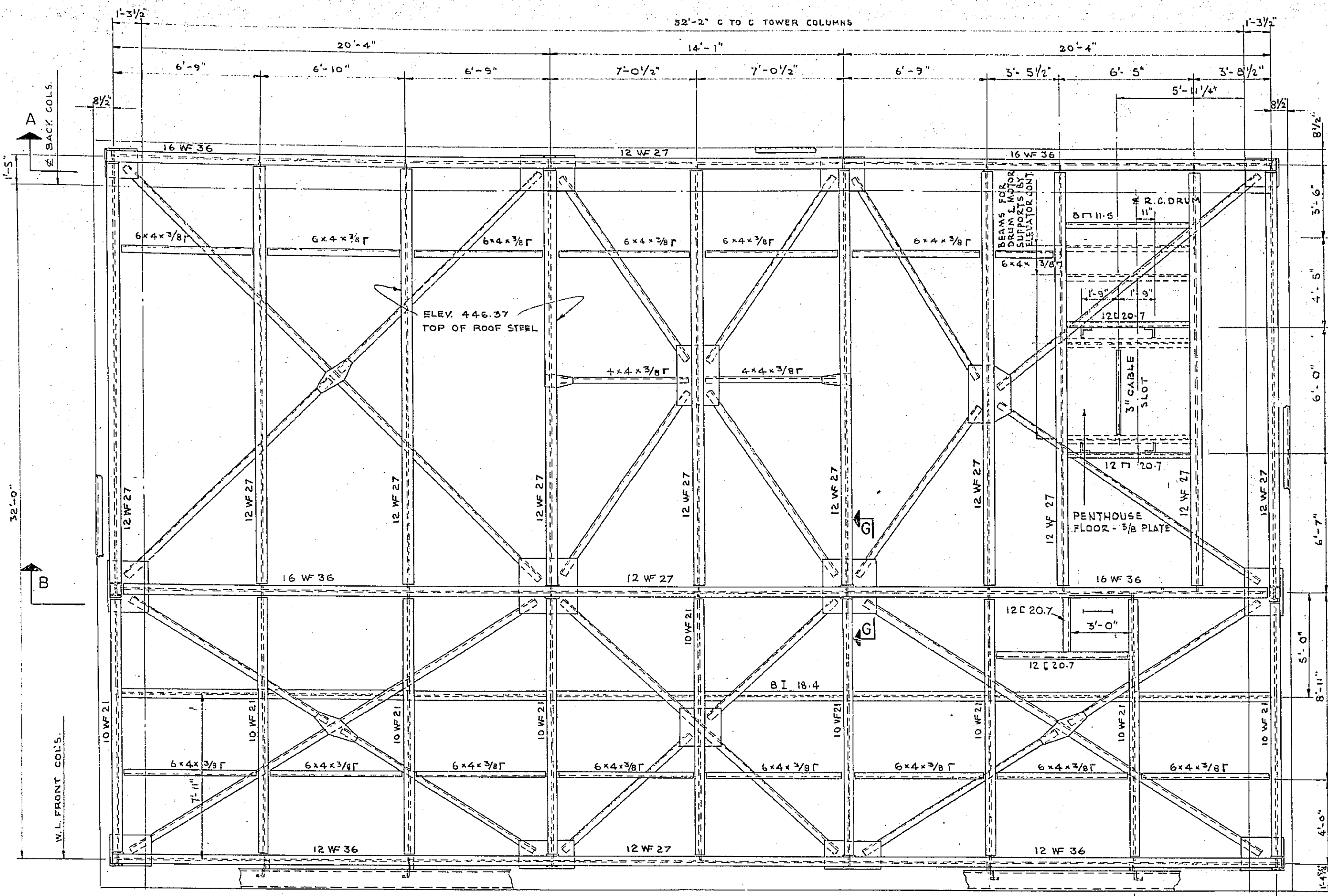
MAIN PIERS
ANCHOR BOLTS & DETAILS

APPROVED DATE 12/1/59

DEPARTMENT PROJECT NO. SD6-4-77

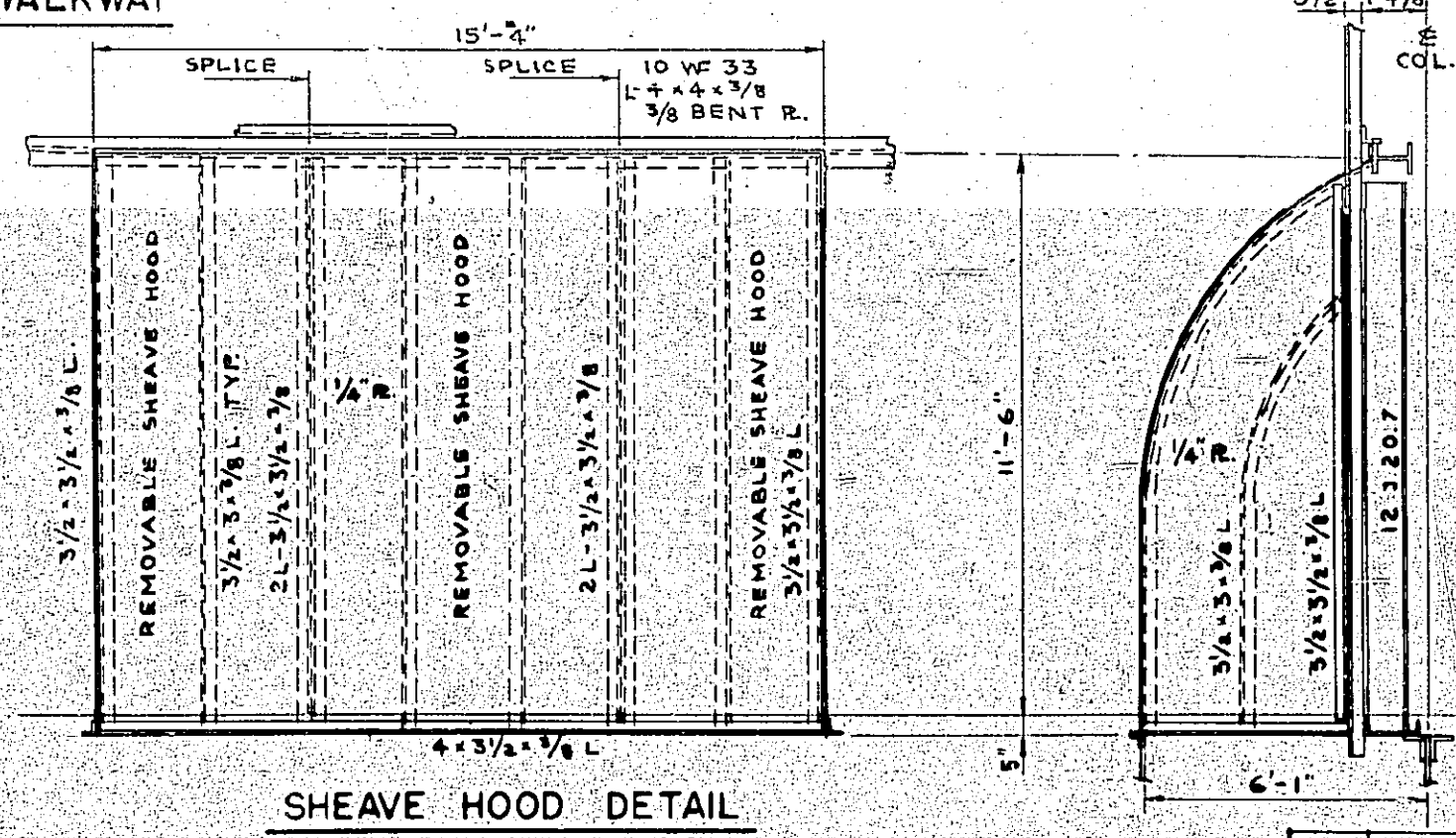
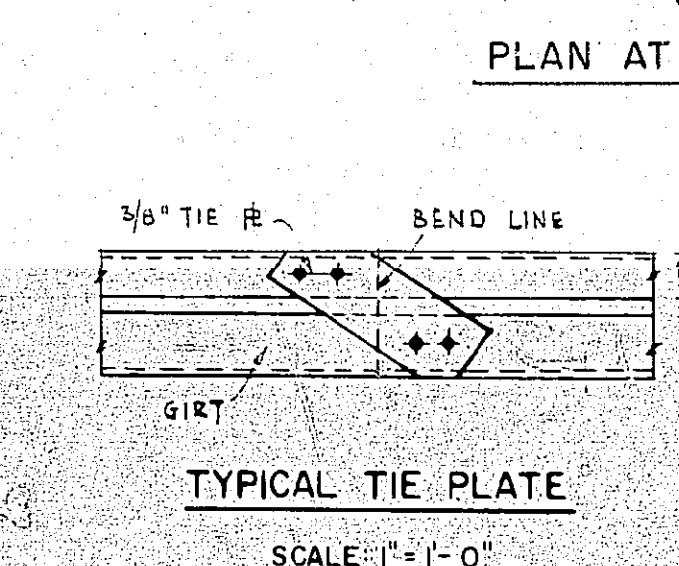
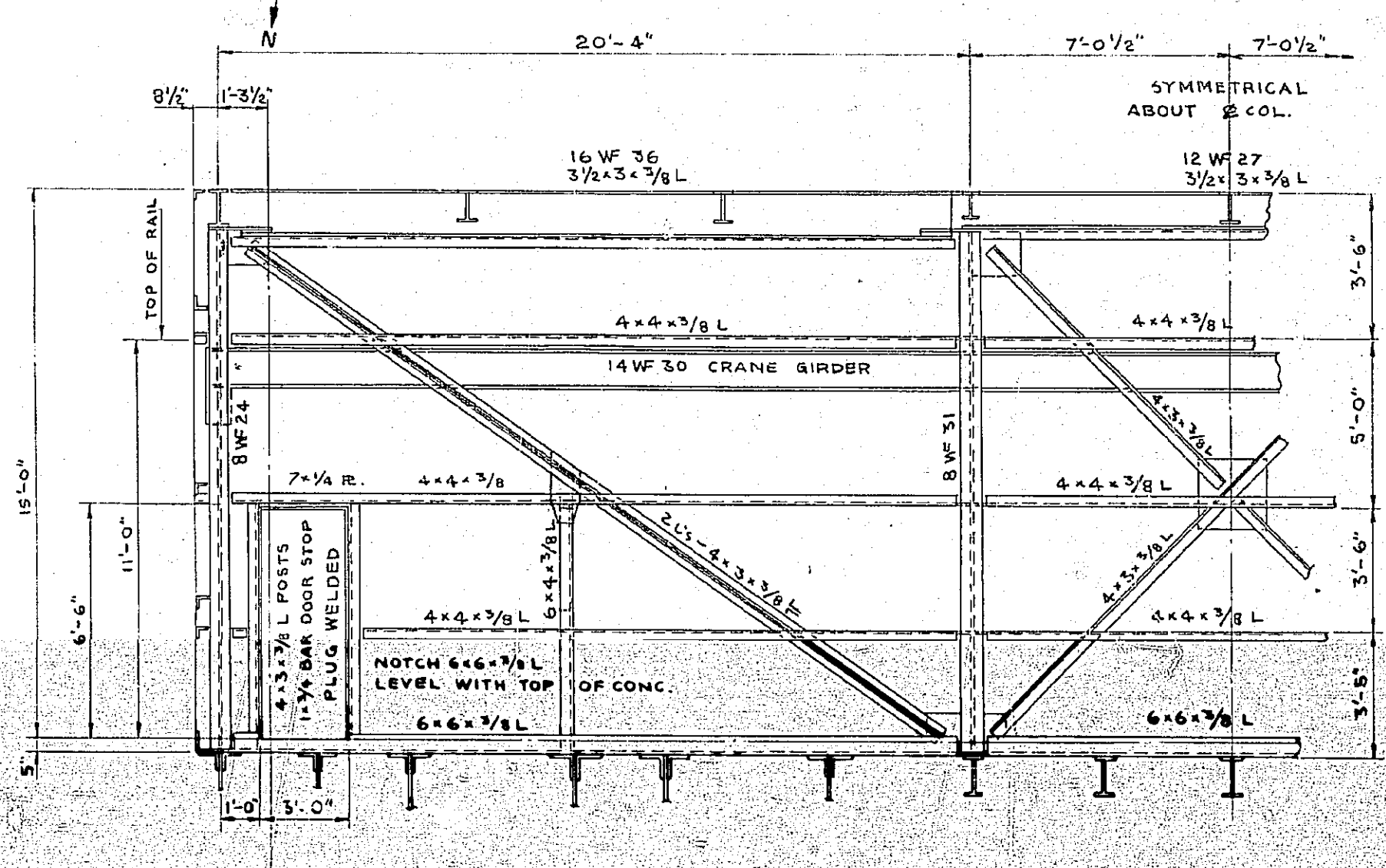
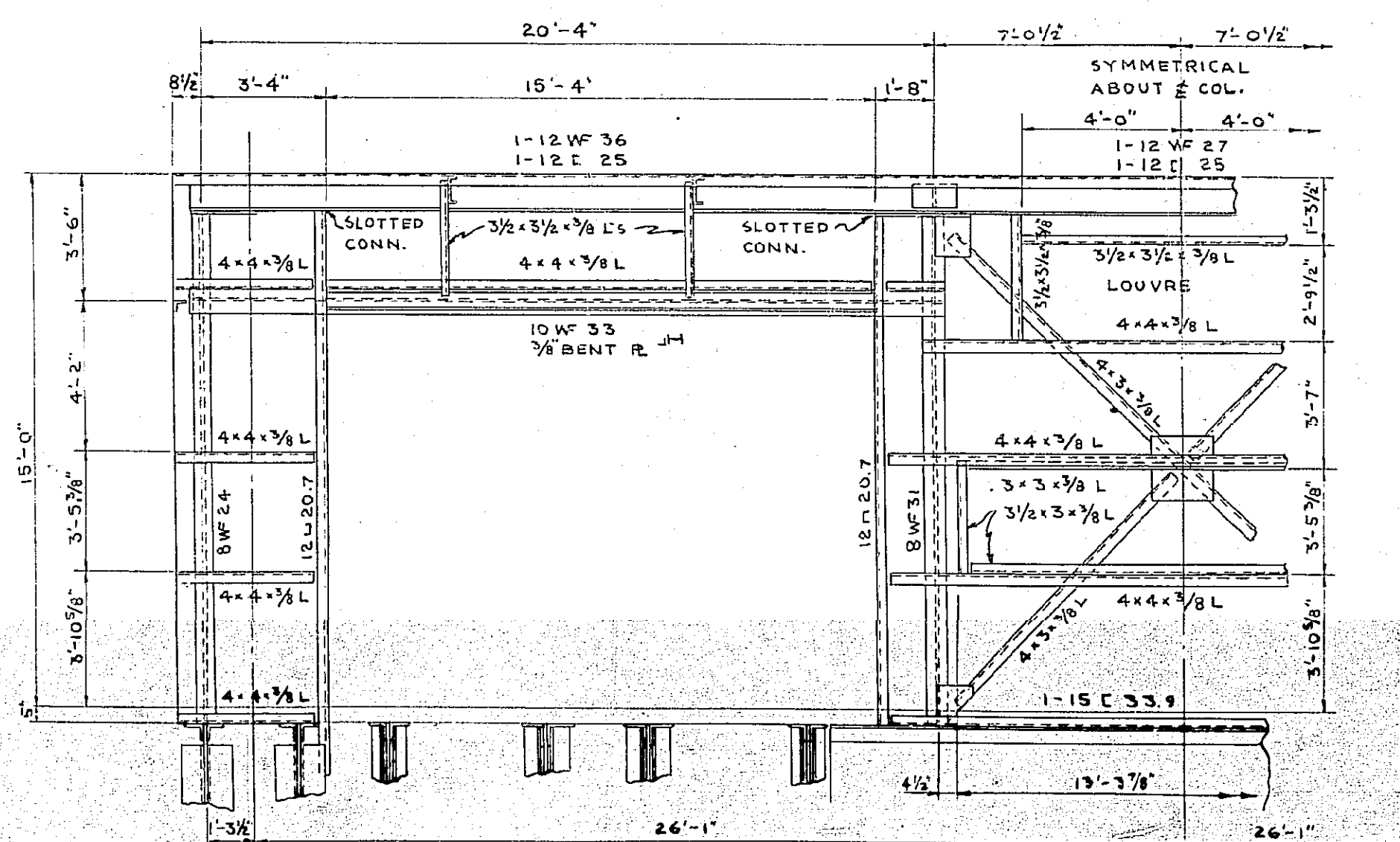
CONTRACT NO. 2

SHEET 40 OF 62

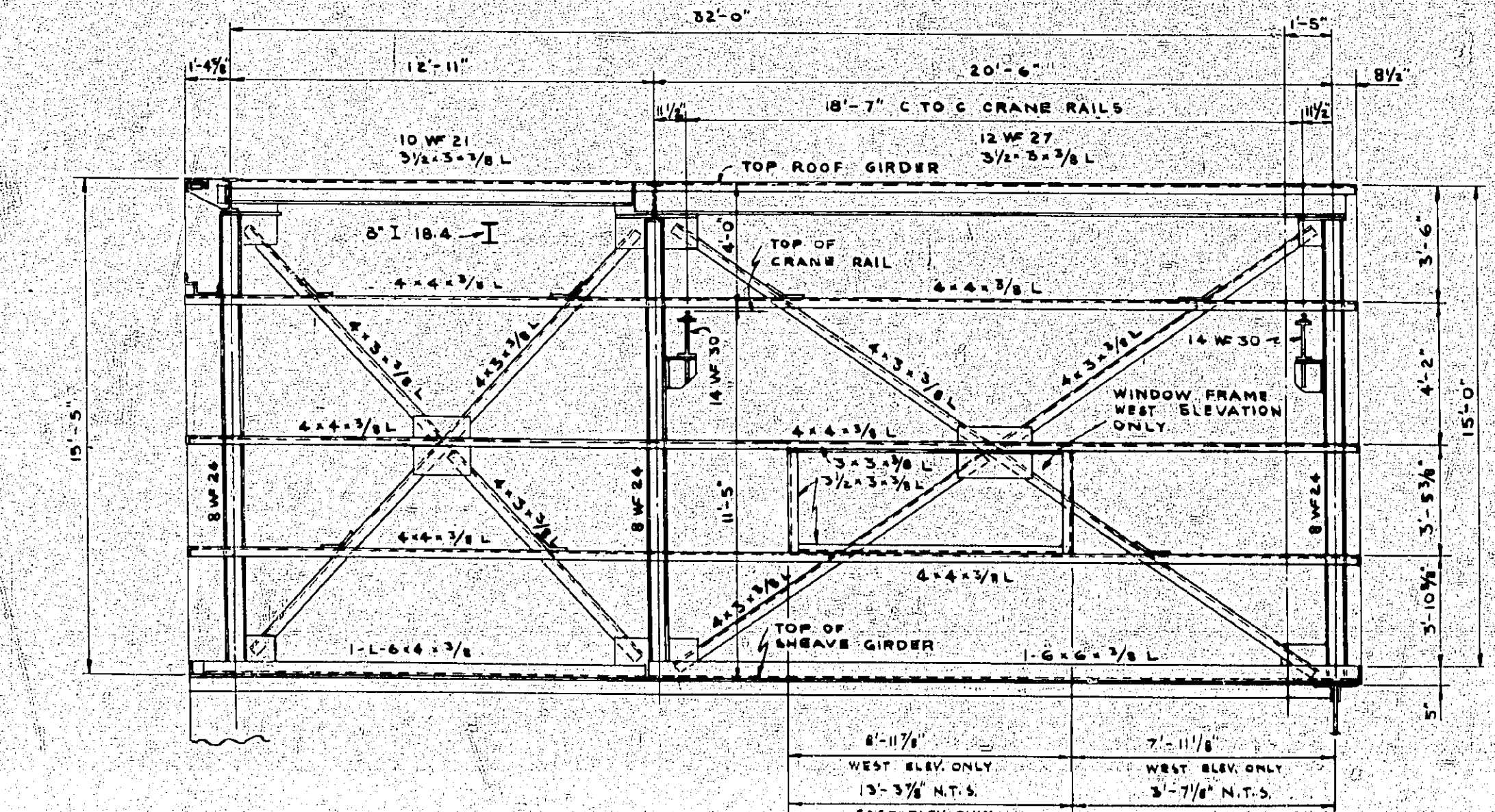
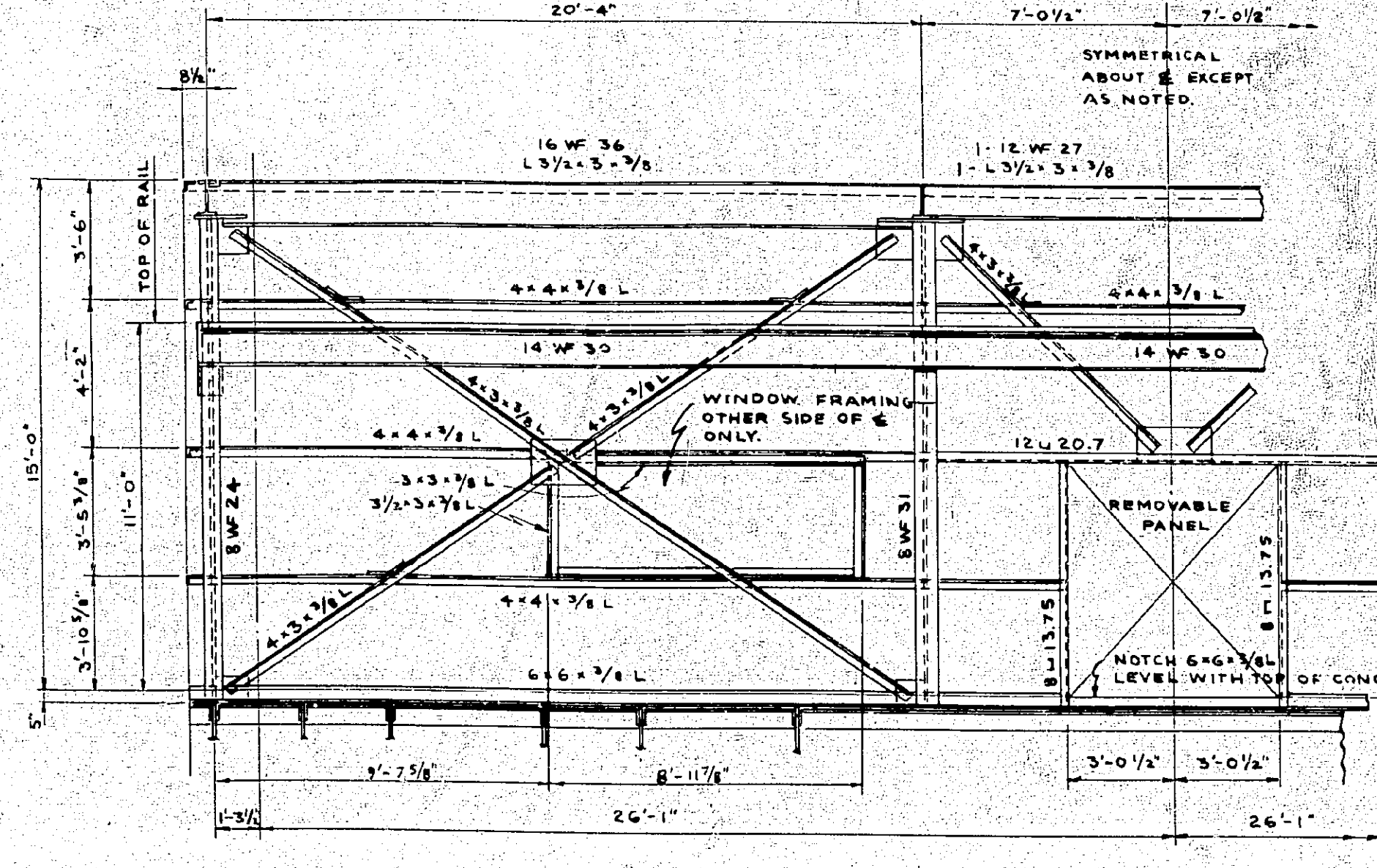


NOTE:
UNLESS STATED ROOF BRACING 1-L 6 x 4 x 3/8

MACHINE HOUSE ROOF PLAN
SOUTH TOWER AS SHOWN
NORTH TOWER OPP HAND



- NOTES**
- FOR GENERAL NOTES SEE SHEET NO 2 AND 3
 - 3/4" RIVETS SHALL BE USED FOR ALL STRUCTURAL FRAMING EXCEPT FOR CONNECTIONS TO MAIN TOWER STRUCTURE WHERE 7/8" RIVETS SHALL BE USED.
 - FOR DETAILS OF LADDERS AND PLATFORMS SEE SHEET NO 29, 30 AND 31.
 - MILL THE TOP OF ALL COLUMNS TO BEAR ON ADJACENT GUSSET PLATES.
 - PROVIDE SAFETY CHAINS FOR THE OPENINGS IN HANDRAILS AT ALL LADDERS.
 - ALL GIRTS, PLATFORMS AND SHEAVE HOOD CONNECTIONS TO BE BOLTED WITH 3/4" PERMANENT BOLTS AND LOCK WASHERS.
 - IN THE PARTITION SHOWN IN SECTION B-B, OPENINGS ARE TO BE PROVIDED FOR GEAR REDUCERS WHICH PASS THROUGH. FOR LOCATIONS OF THESE SEE SHEET NO 32 AND 42. THE SIZES ARE TO SUIT THE UNITS PROVIDED AND ALL OPENINGS ARE TO BE MADE NEAT AND TIGHT.



WEST ELEVATION
EAST ELEVATION OPP. HAND
SIMILAR EXCEPT AS NOTED.

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

NO. REVISIONS BY DATE

DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

C C PARKER & ASSOCIATES LTD
CONSULTING ENGINEERS
HAMILTON ONTARIO

BURLINGTON CANAL LIFT BRIDGE

TOWER
MACHINE HOUSE STRUCTURAL FRAMING

APPROVED DATE 12/1/50
M. Thompson
CHIEF STRUCTURES DIVISION

DEPARTMENT PROJECT NO
SD6-4-77

RECOMMENDED DATE 12/1/50
DESIGN R.K.G.C. CHKD. G.W.A.
DRAWN J.A.W. CHKD. G.W.A.
TRACED H.R. CHKD. O.L.

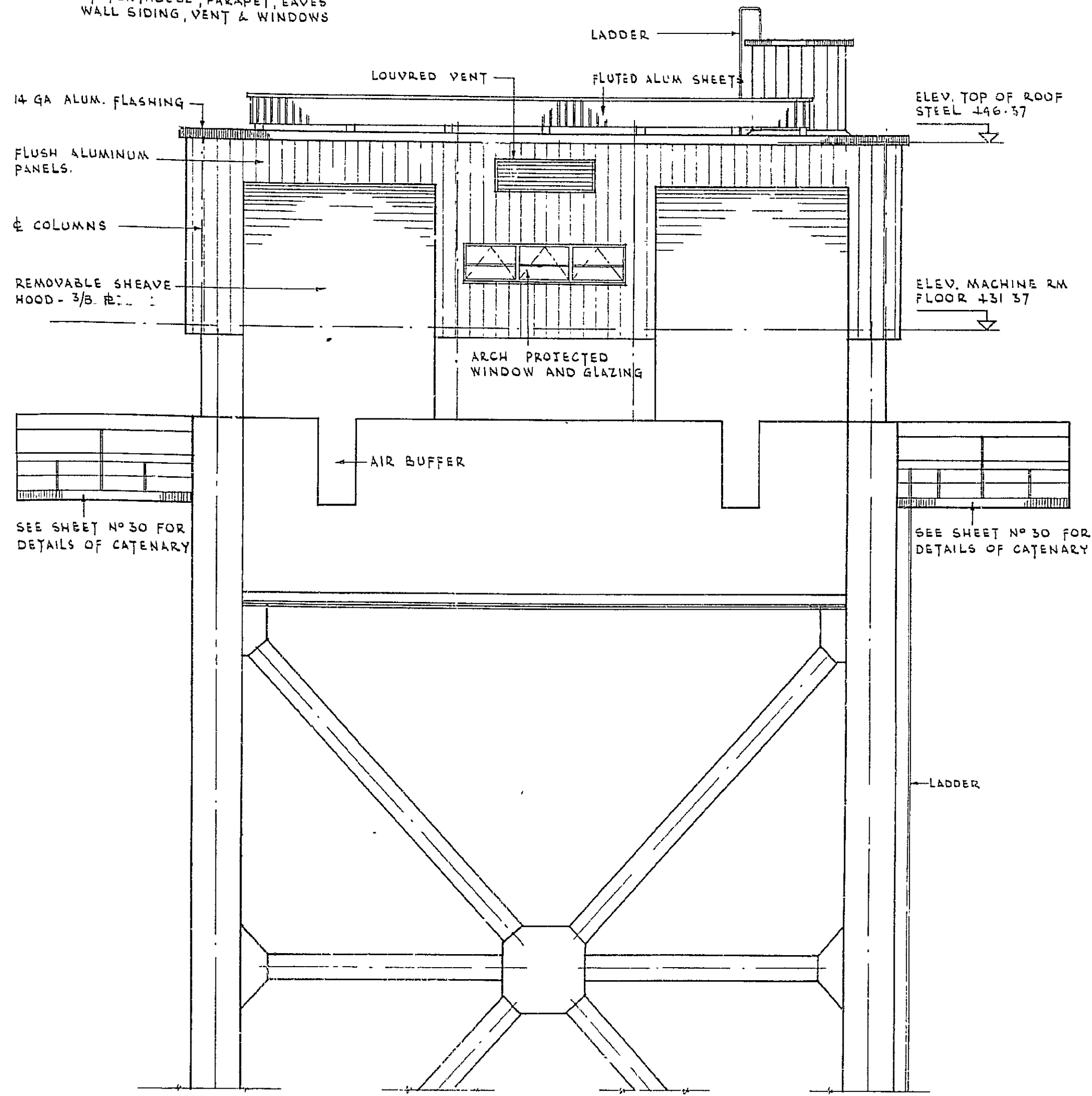
cdp
C.C. PARKER & ASSOC. LTD.

APPROVED DATE 14.11.58
G. Williams
CHIEF ENGINEER

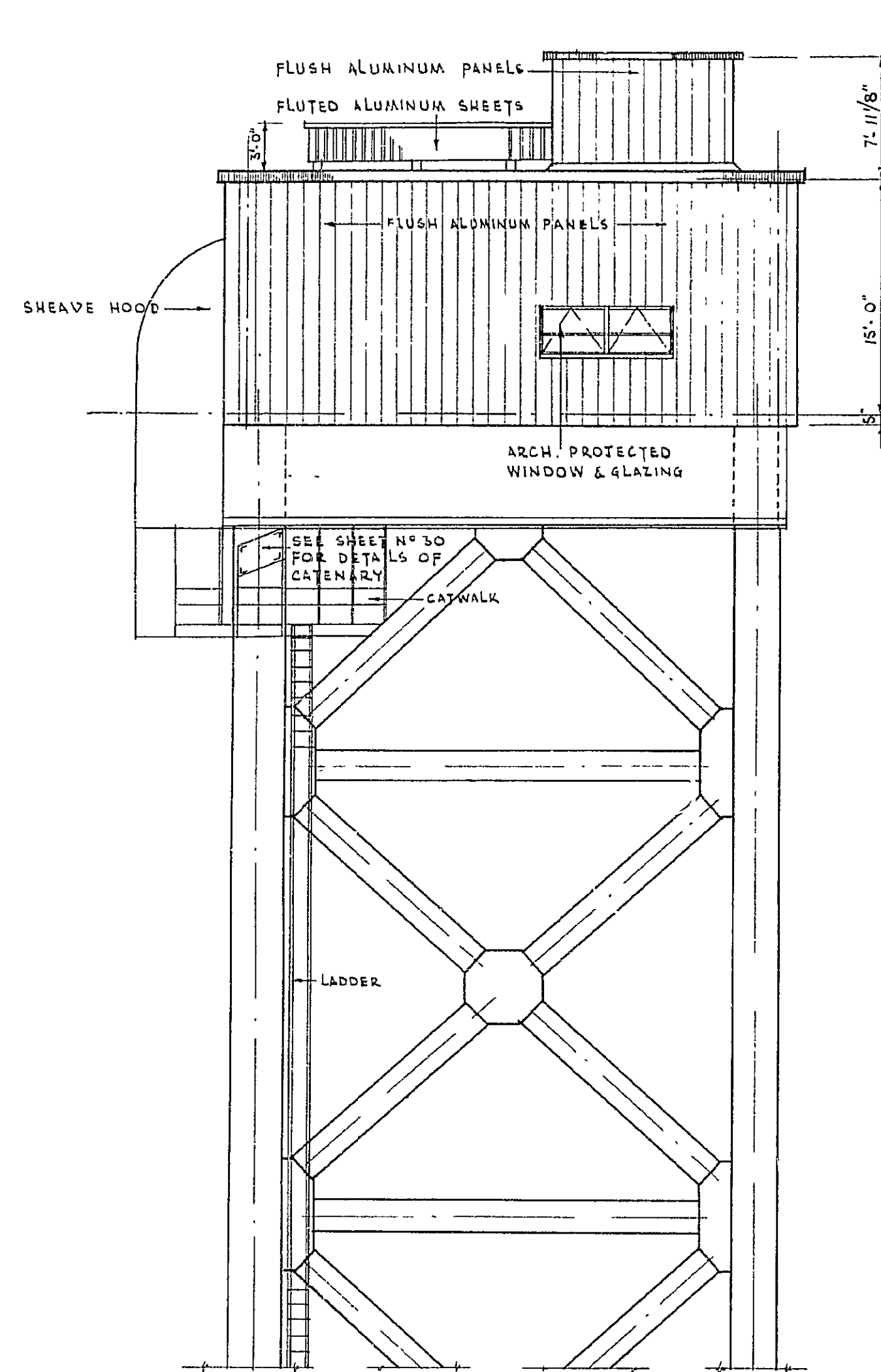
CONTRACT NO. 2

SHEET 41 OF 62

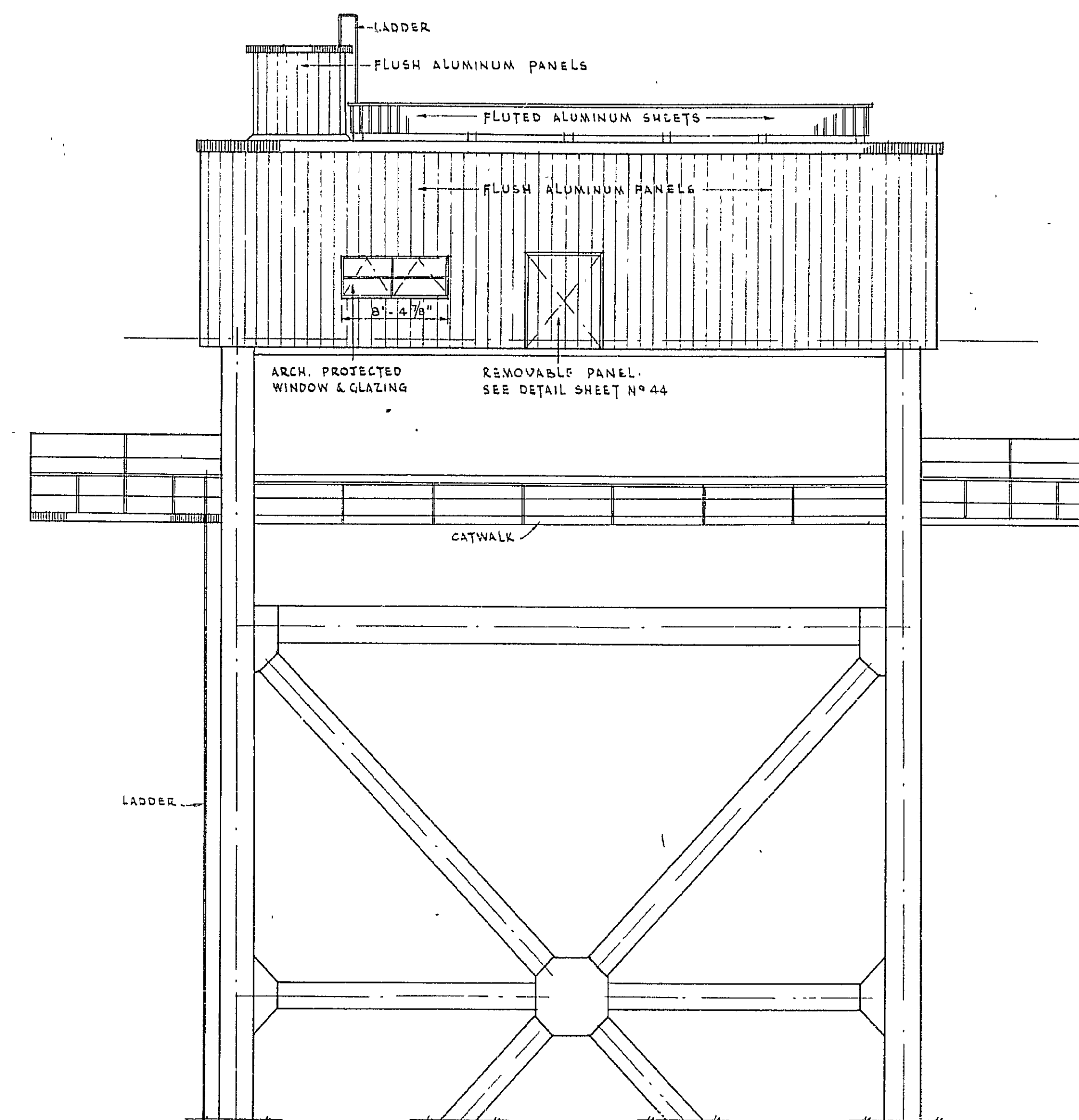
NOTE - SEE SHEET NO 44 FOR DETAILS OF PENTHOUSE, PARAPET, EAVES WALL SIDING, VENT & WINDOWS



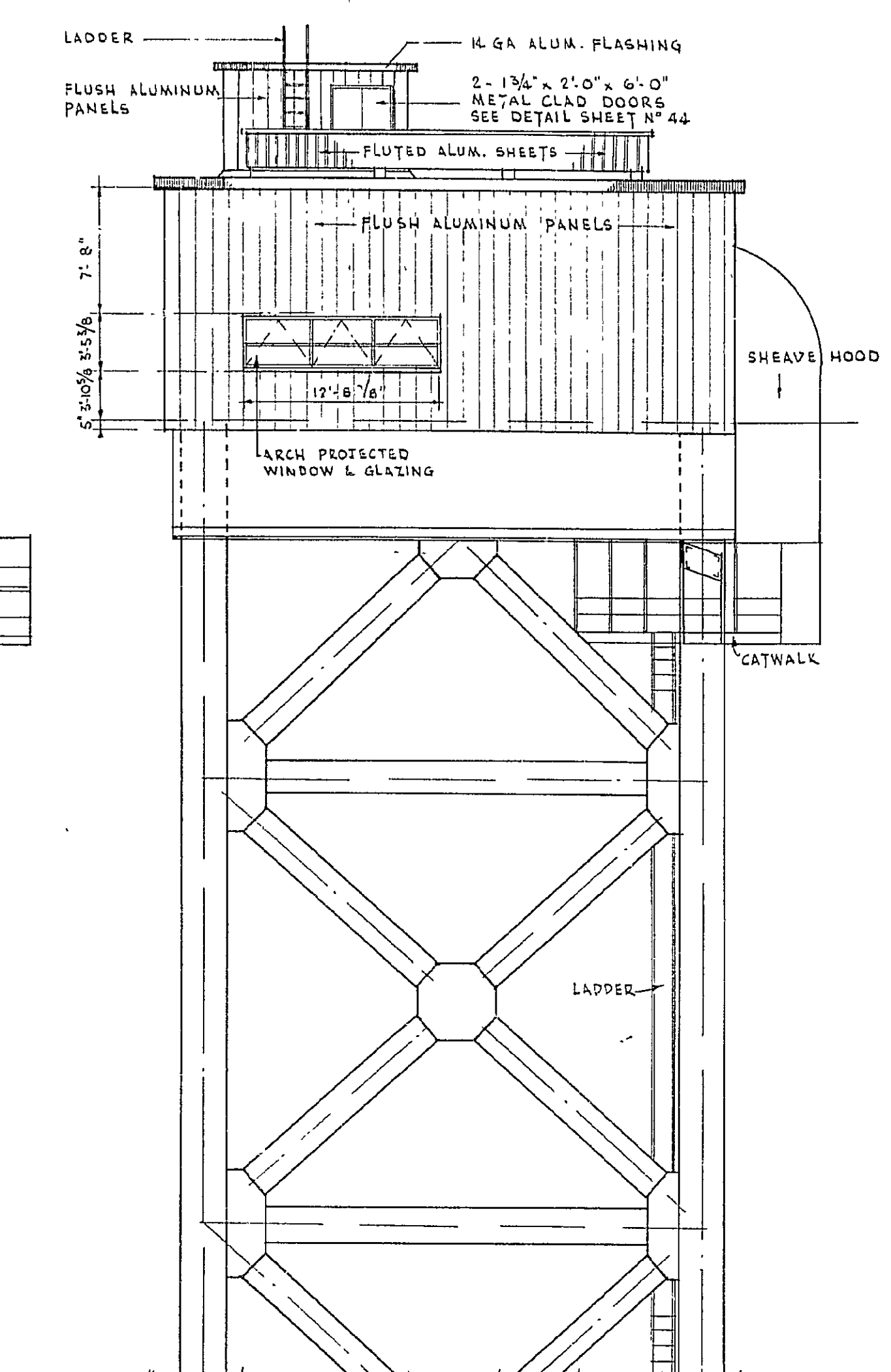
SPAN FACE ELEVATION



WEST ELEVATION

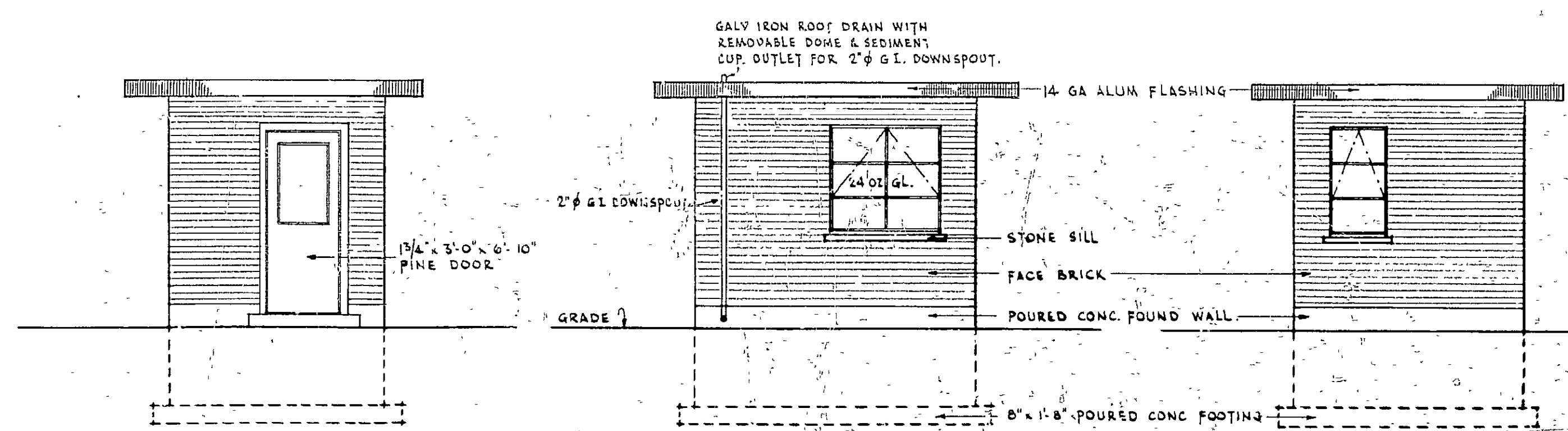


SOUTH ELEVATION



EAST ELEVATION

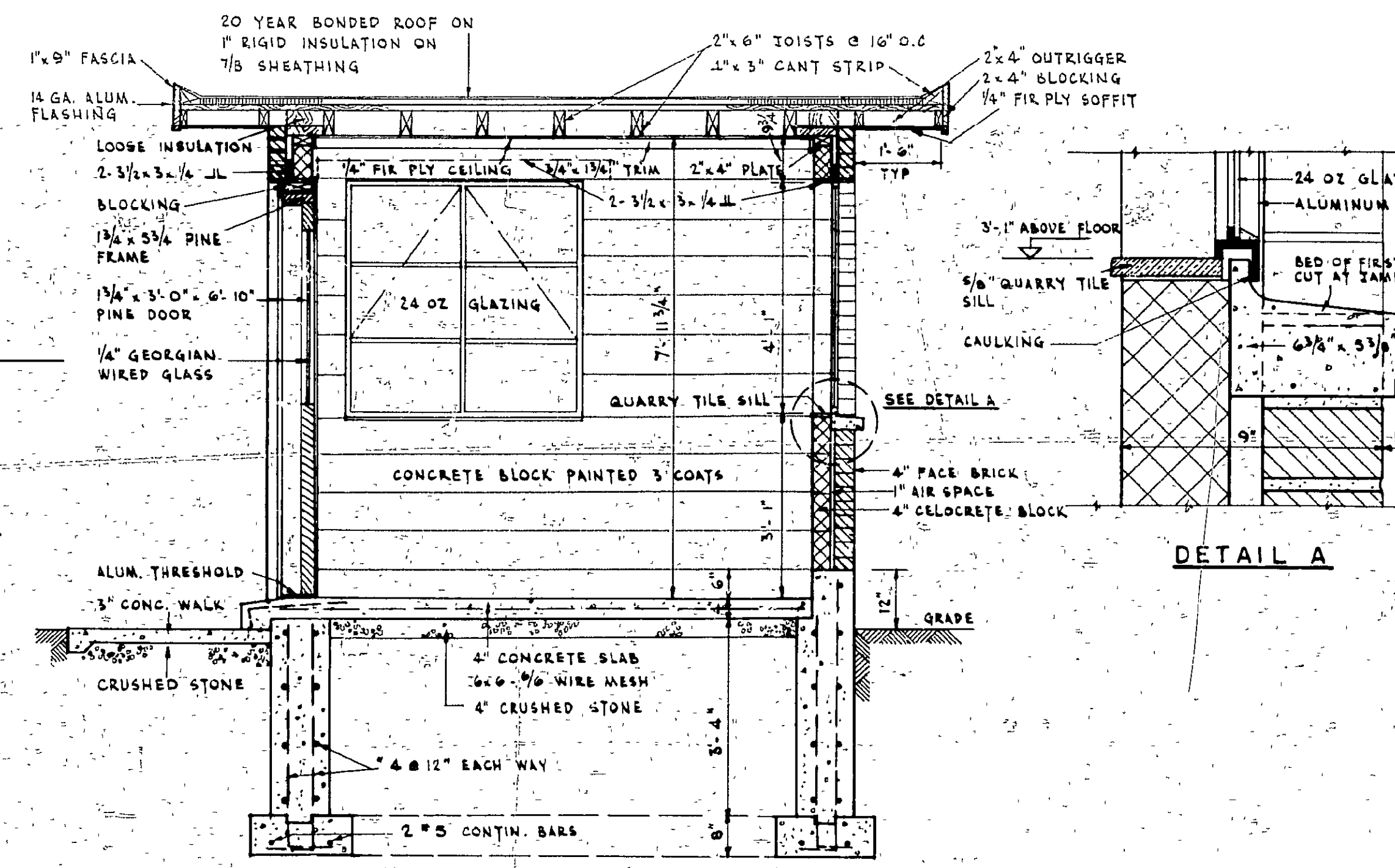
MACHINE HOUSE ELEVATIONS - SOUTH TOWER - SCALE - 1/8" = 1'-0"



SOUTH EAST ELEVATION

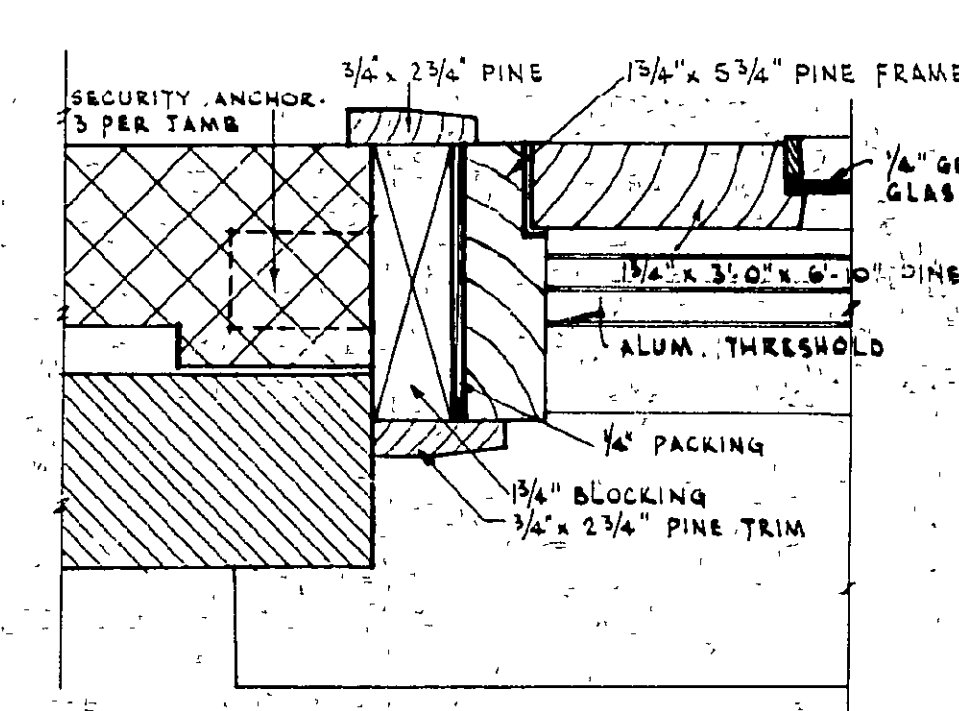
SOUTH WEST ELEVATION

NORTH WEST ELEVATION



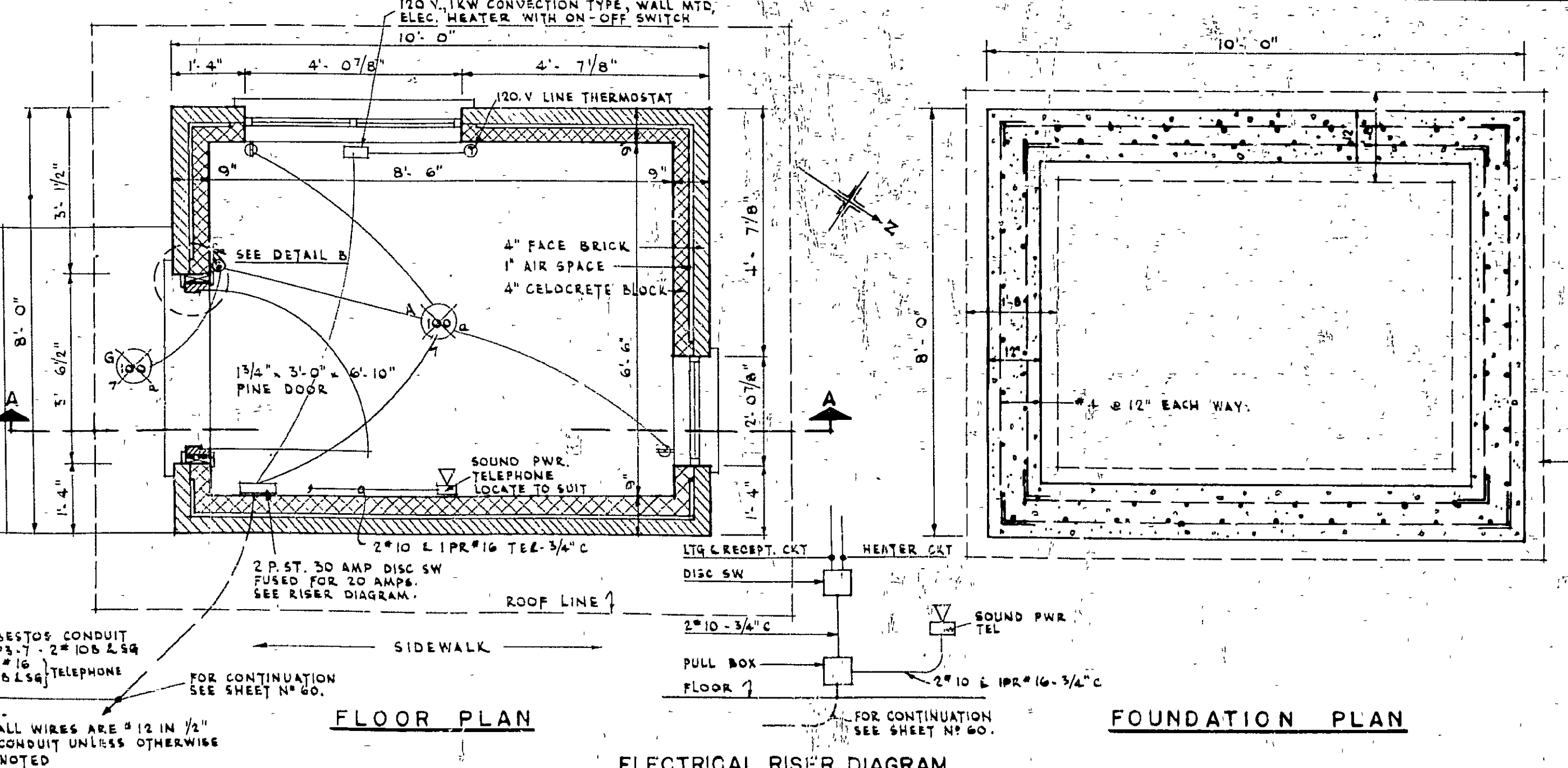
SECTION A-A

DETAIL A



DETAIL B

SCALE - 3/8" = 1'-0"



FLOOR PLAN

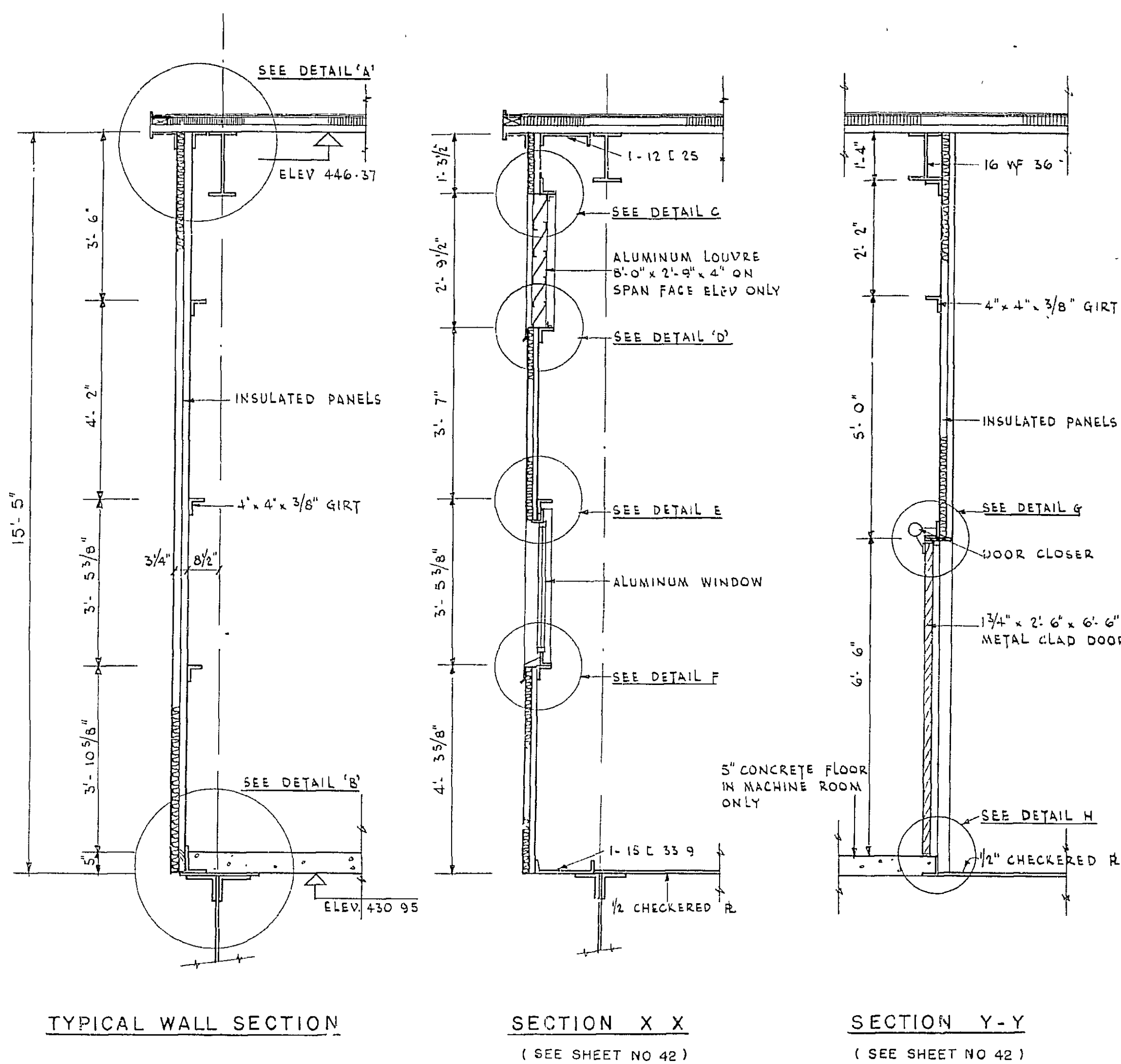
FOUNDATION PLAN

ELECTRICAL RISER DIAGRAM

GATE TENDER'S HOUSE DETAILS

SCALE - PLANS & SECTION - 1/2" = 1'-0"
ELEVATIONS - 1/4" = 1'-0"

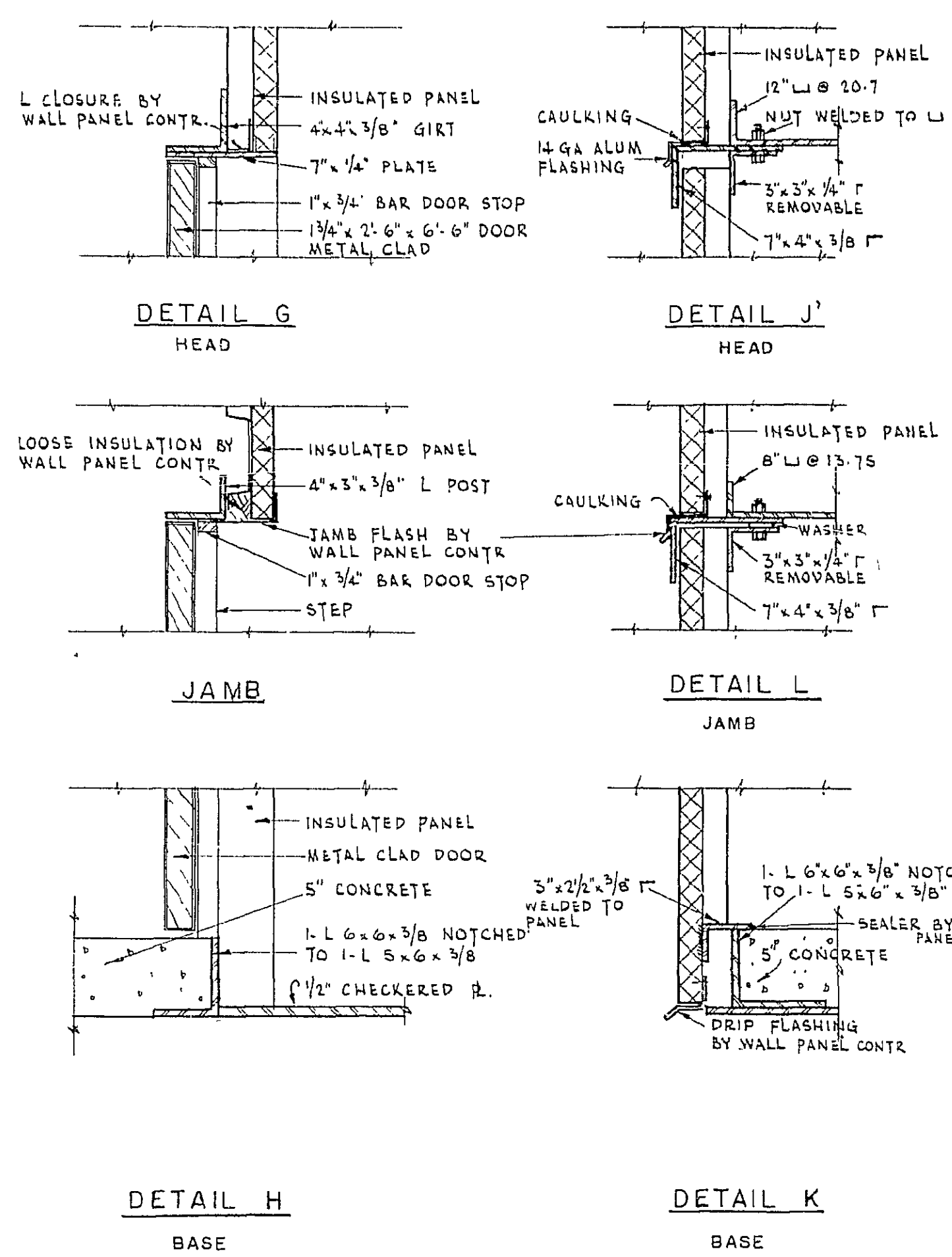
NO	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA			
DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C C PARKER & ASSOCIATES LTD CONSULTING ENGINEERS			
HAMILTON		ONTARIO	
BURLINGTON CANAL LIFT BRIDGE			
TOWER MACHINE HOUSE ELEVATIONS GATE TENDERS HOUSE AND MISCELLANEOUS DETAILS			
APPROVED	DATE 12/11/58	DEPARTMENT PROJECT NO	SD6-4-77
<i>J. Thompson</i> CHIEF STRUCTURES DIVISION			
APPROVED	DATE 12/11/58		
<i>G. Melancon</i> CHIEF ENGINEER			
RECOMMENDED	DATE 12-1-58	DESIGN I.M.W.	CHKD. O.L.
<i>C.C. Parker</i> CC PARKER & ASSOC. LTD		DRAWN J.N.W.	CHKD. G.W.A.
		TRACED J.N.W.	CHKD. O.L.
		JOB NO H-538	
			CONTRACT NO. 2
			SHEET 43 OF 62



TYPICAL WALL SECTION

SECTION X-X
(SEE SHEET NO 42)

SECTION Y-Y
(SEE SHEET NO 42)



DETAIL G
HEAD

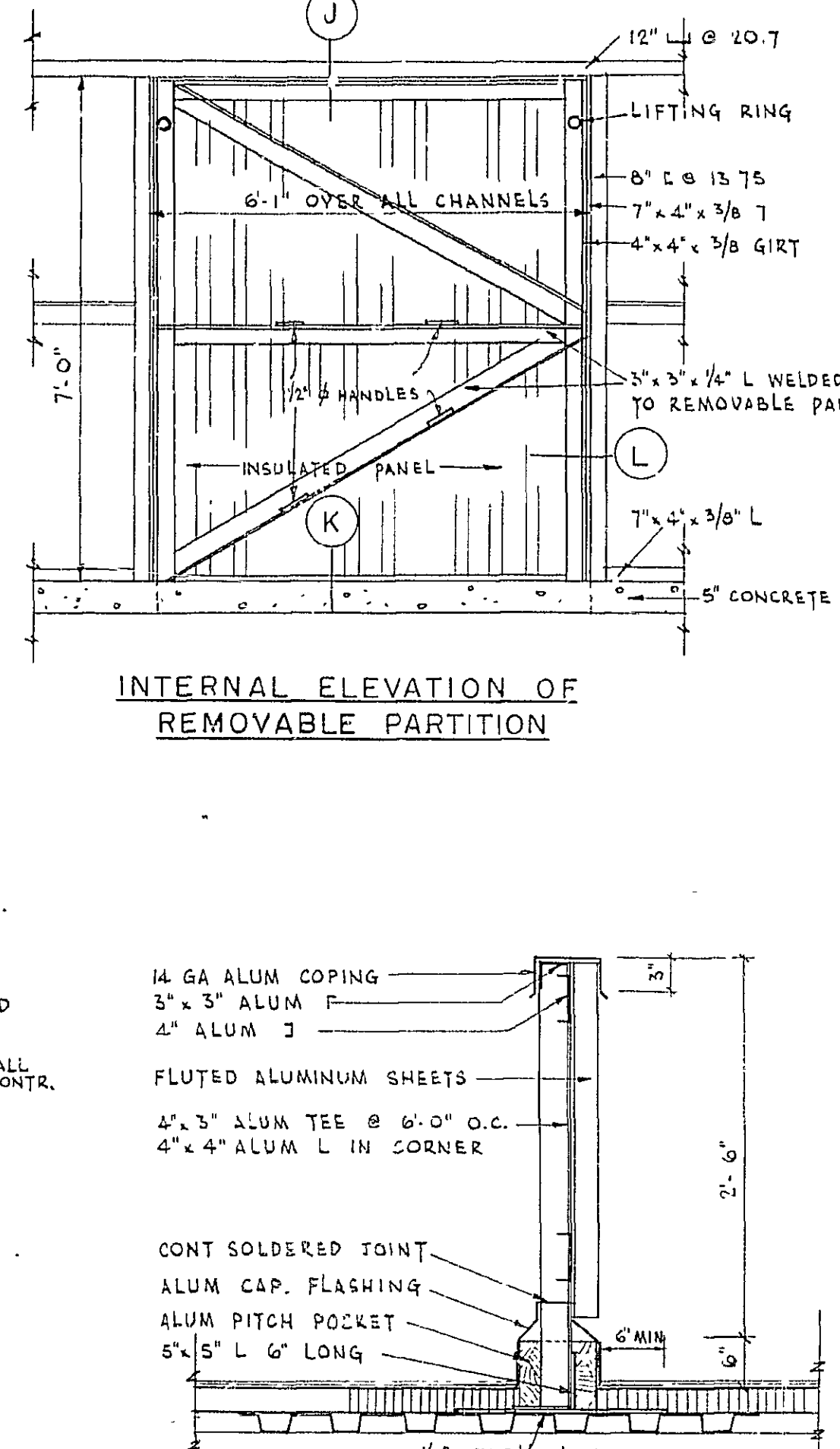
DETAIL J
HEAD

JAMB

DETAIL L
JAMB

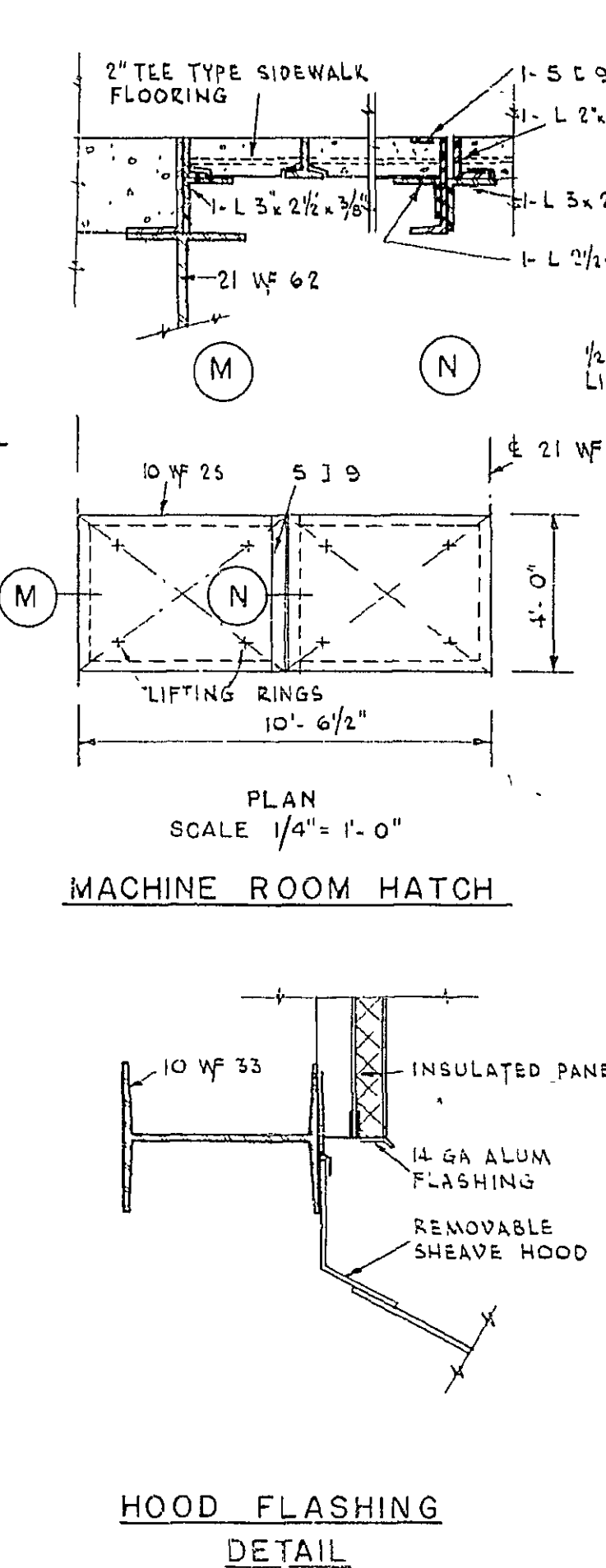
DETAIL H
BASE

DETAIL K
BASE

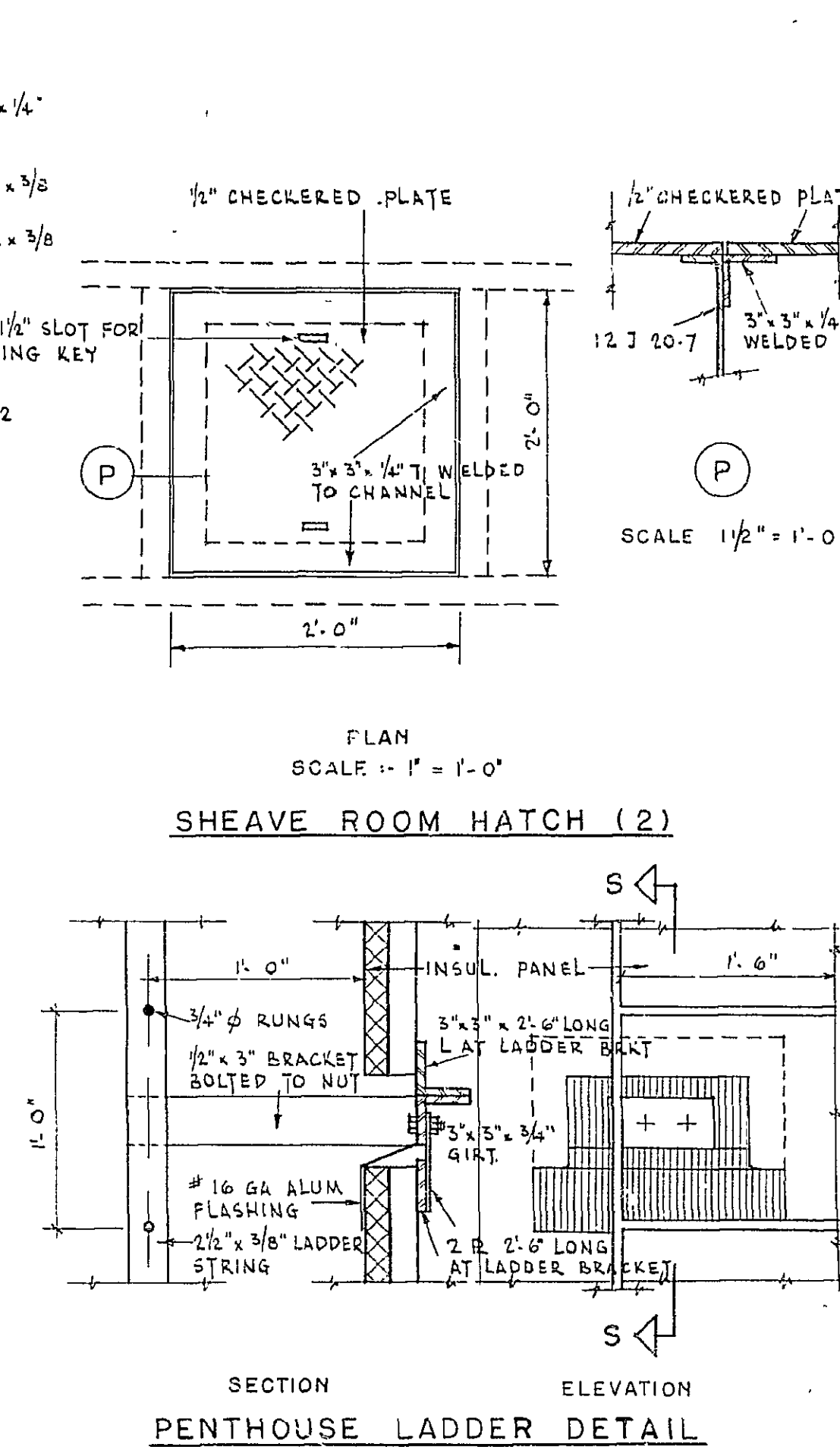


INTERNAL ELEVATION OF
REMOVABLE PARTITION

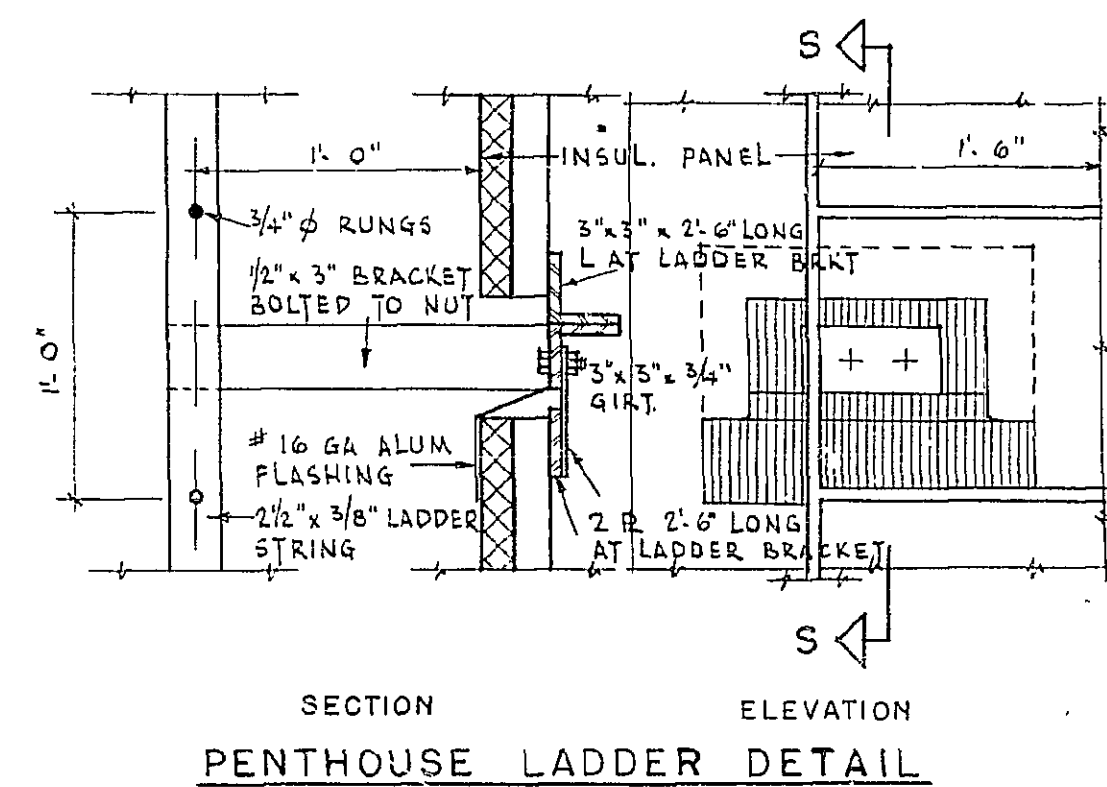
PARAPET DETAIL
SCALE 1" = 1'-0"



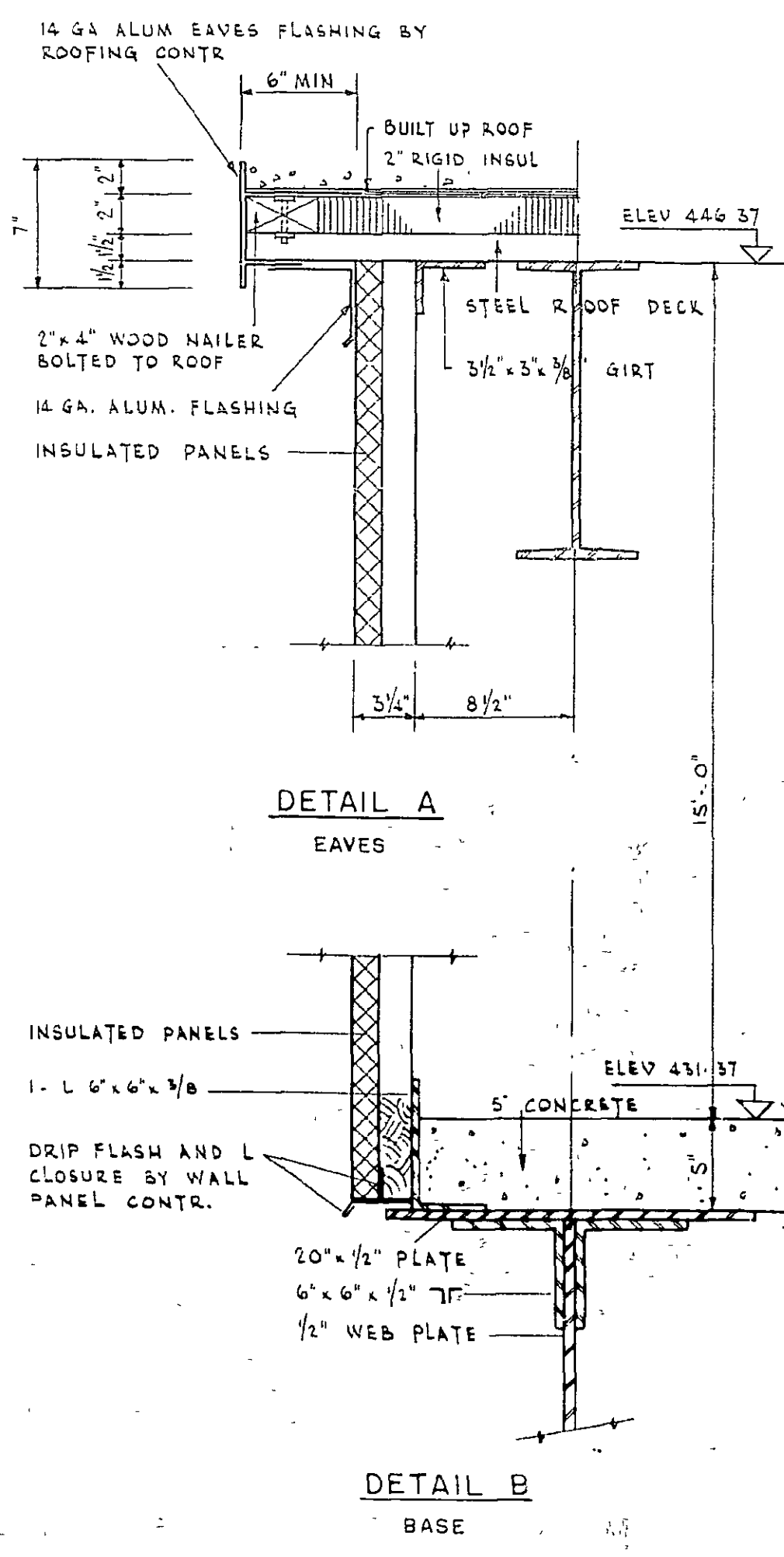
PLAN
SCALE 1/4" = 1'-0"
MACHINE ROOM HATCH



PLAN
SCALE 1" = 1'-0"
SHEAVE ROOM HATCH (2)

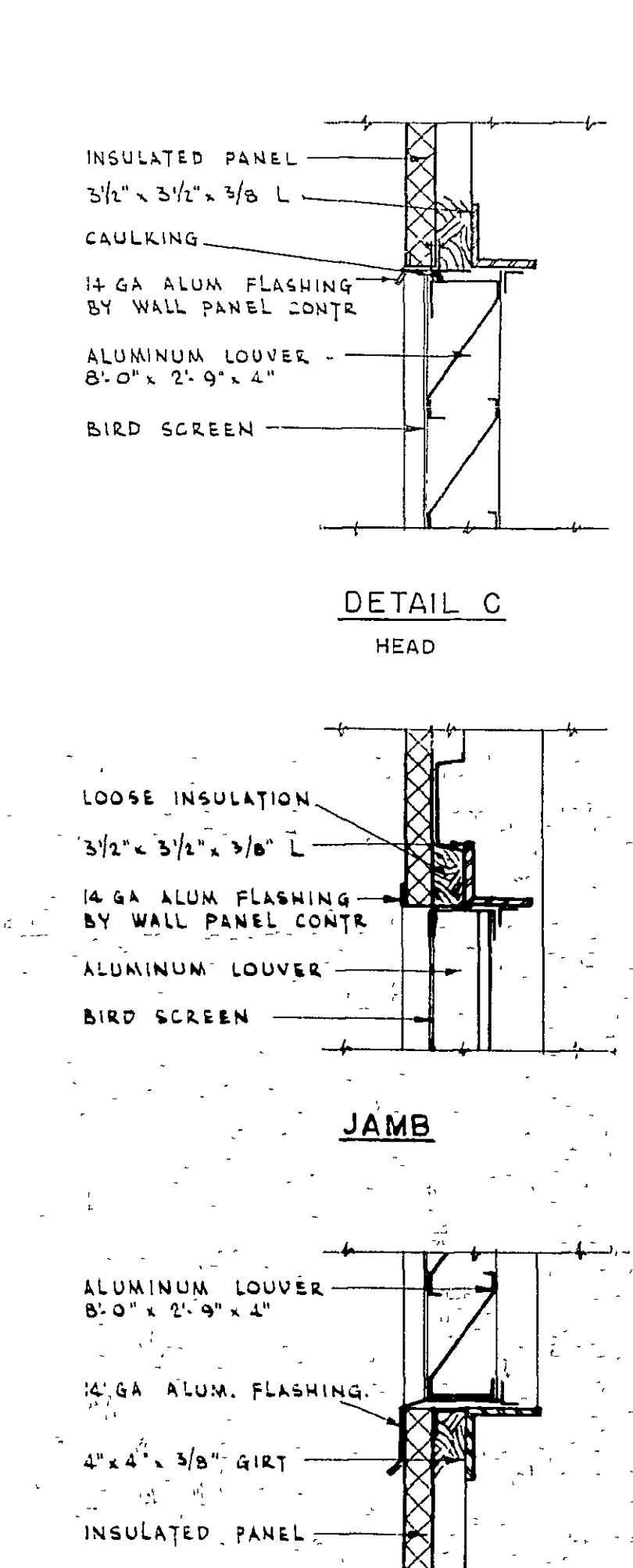


SECTION
ELEVATION
PENTHOUSE LADDER DETAIL



DETAIL A
EAVES

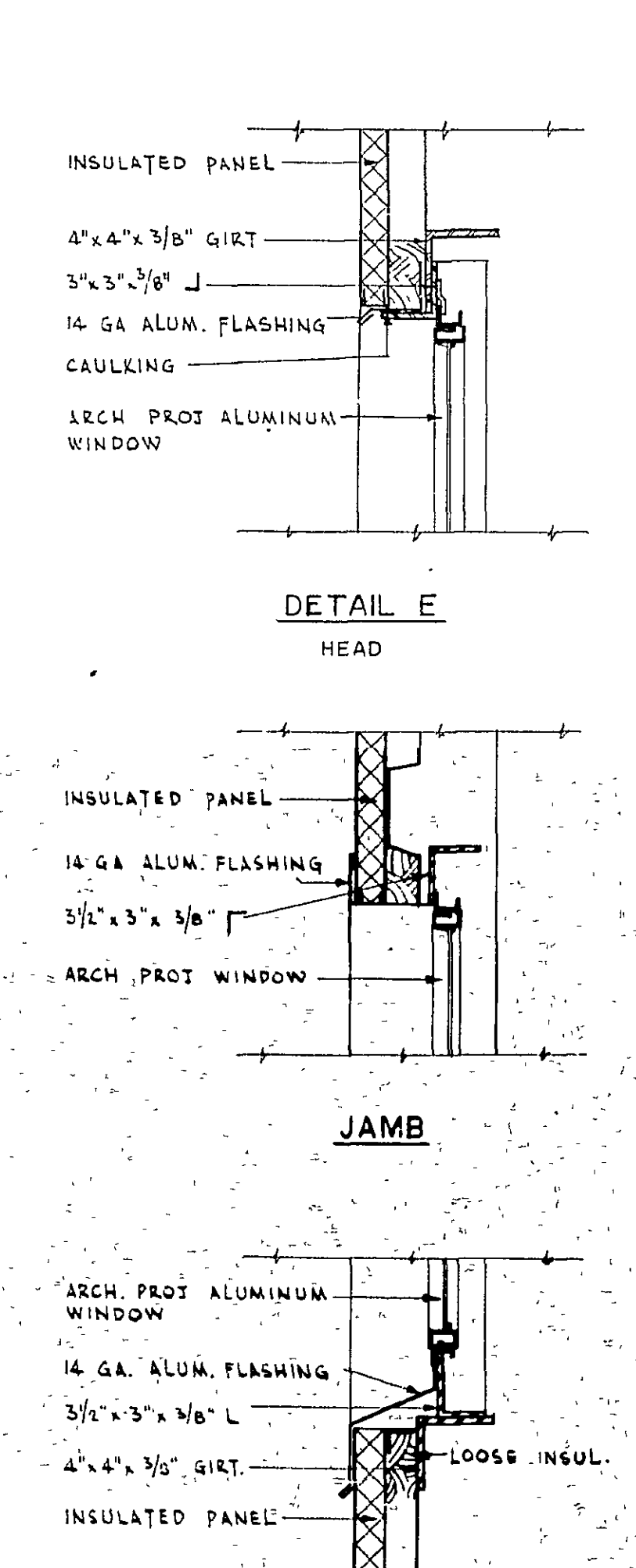
DETAIL B
BASE



DETAIL C
HEAD

JAMB

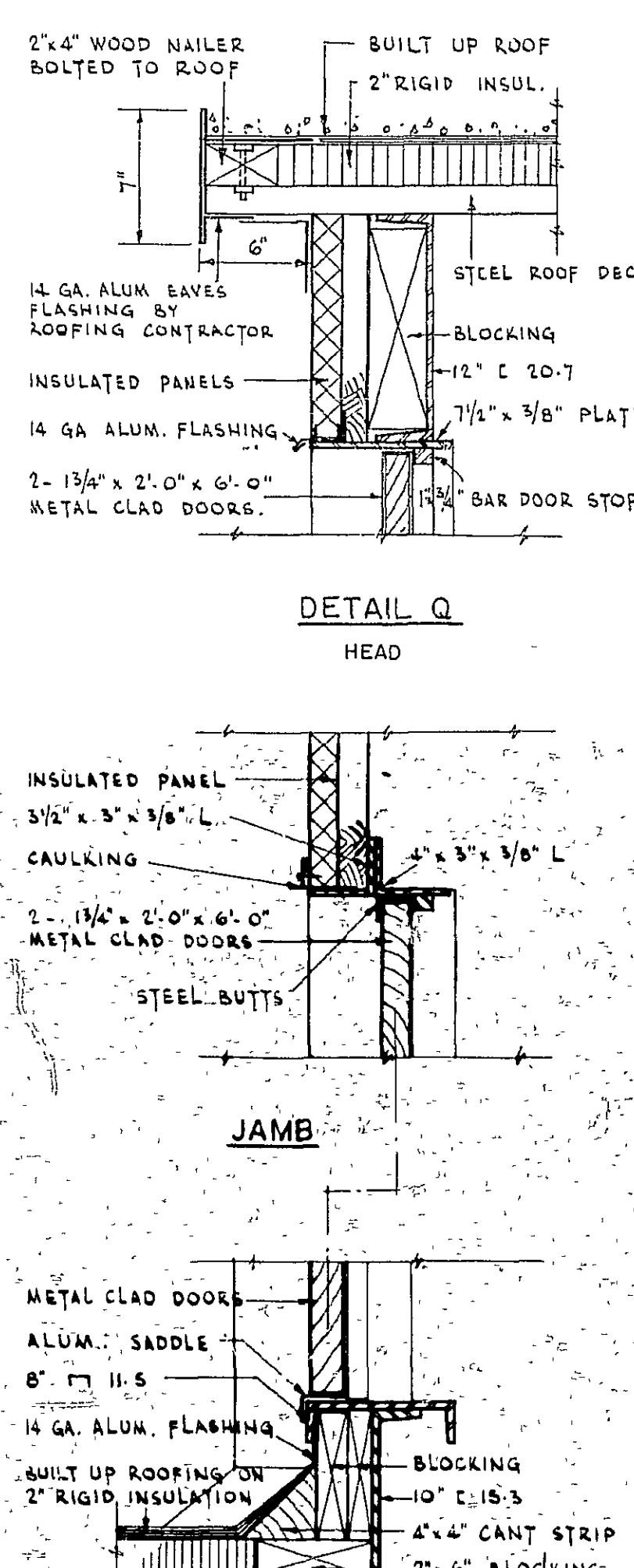
DETAIL D
SILL



DETAIL E
HEAD

JAMB

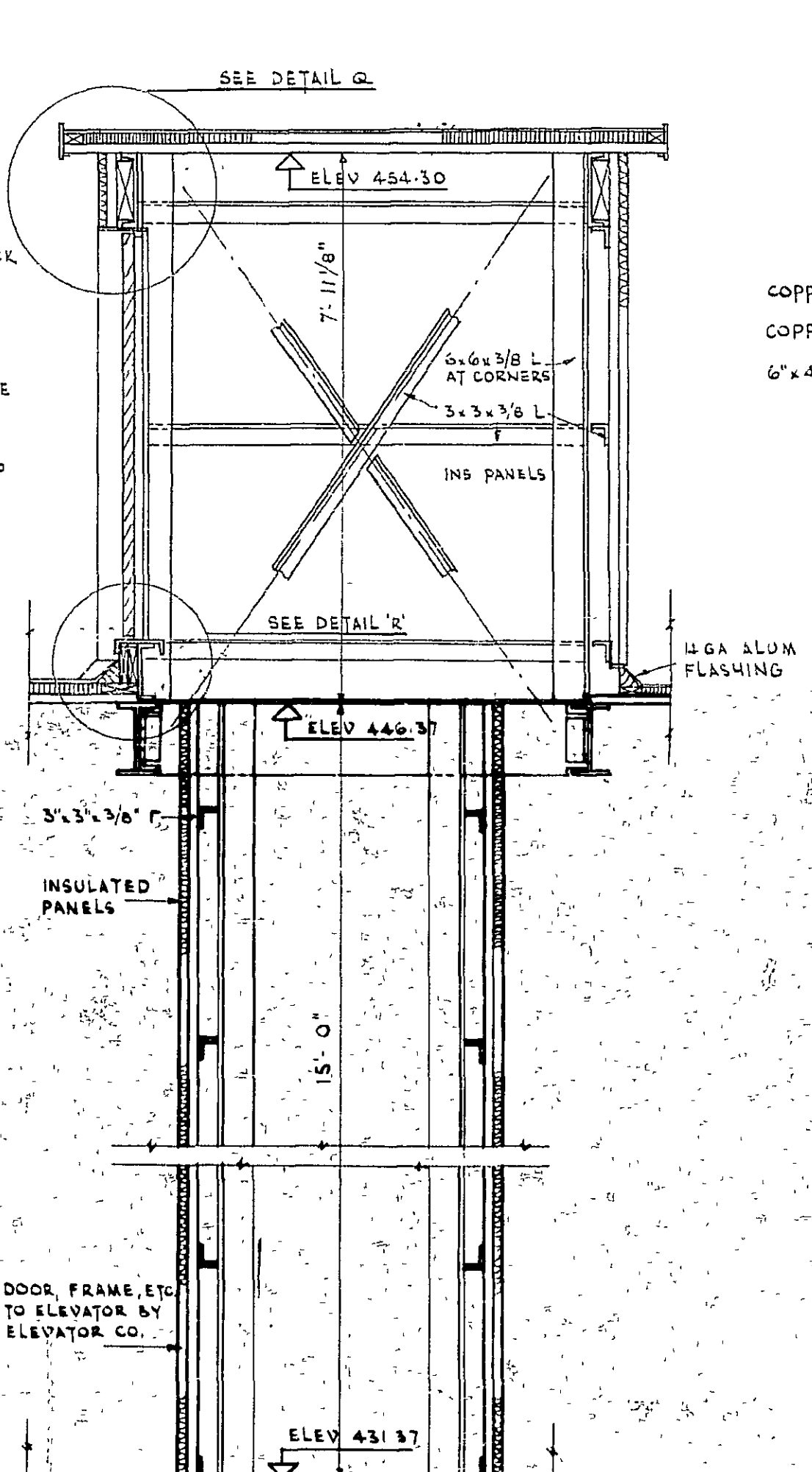
DETAIL F
SILL



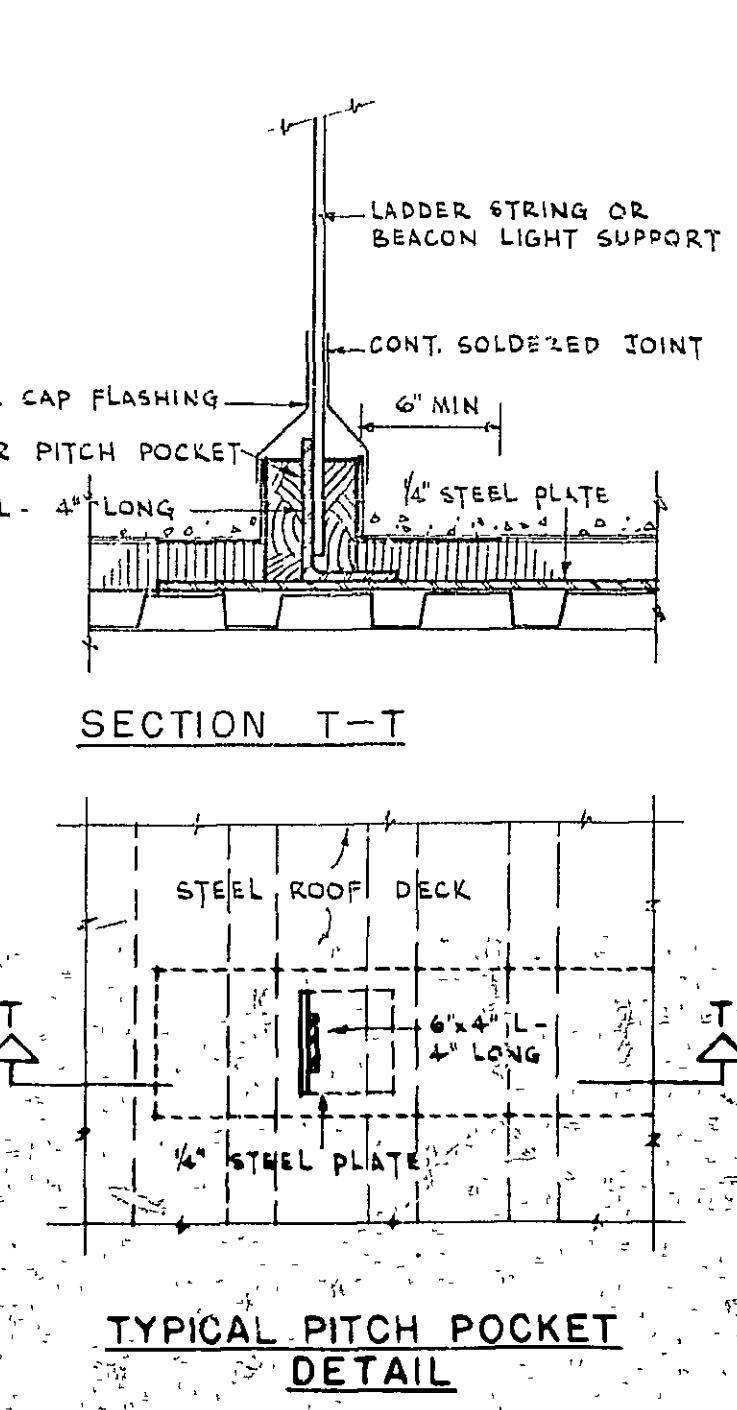
DETAIL Q
HEAD

JAMB

DETAIL R
BASE

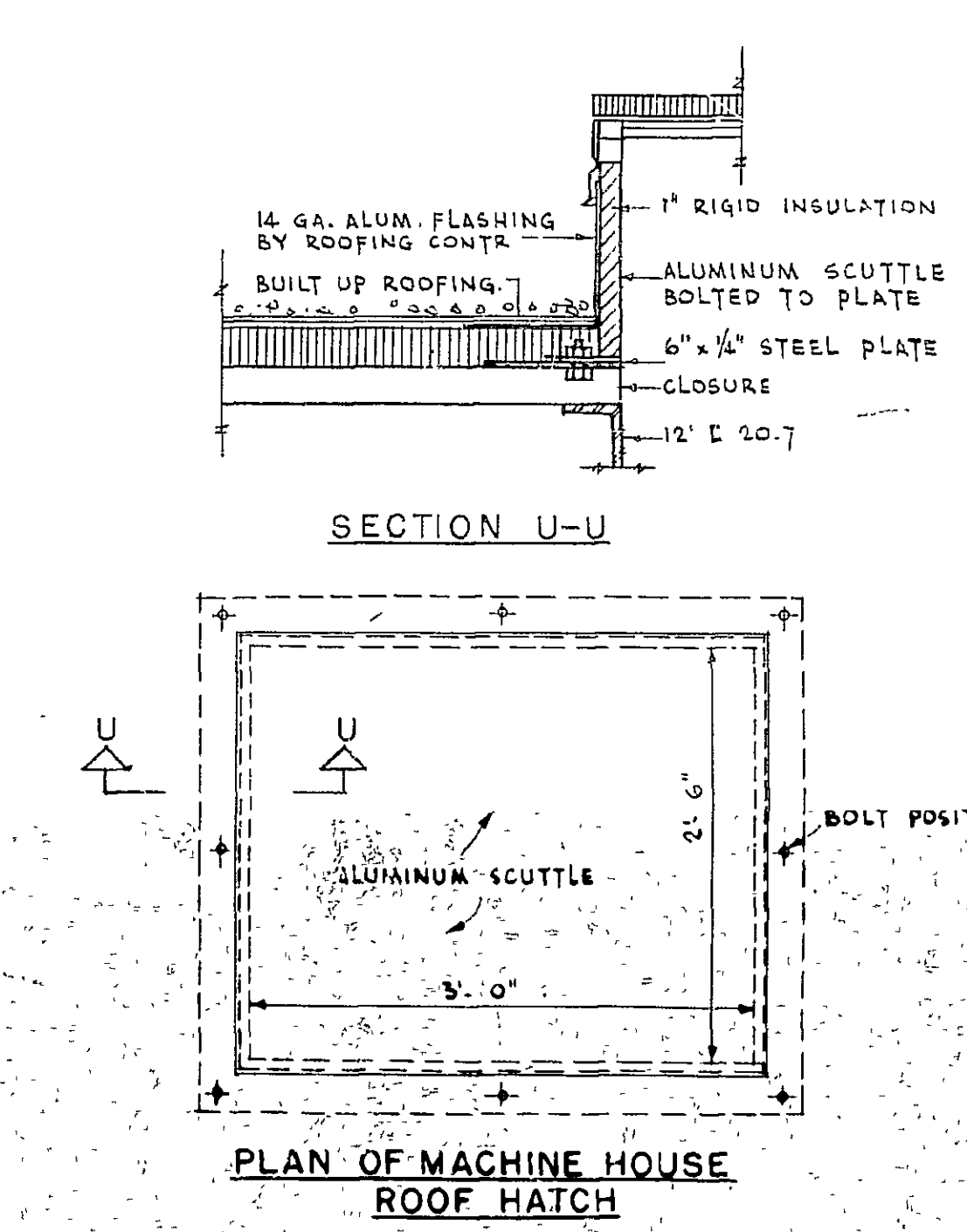


SECTION THRU PENTHOUSE
ELEVATOR SHAFT



SECTION T-T

TYPICAL PITCH POCKET
DETAIL



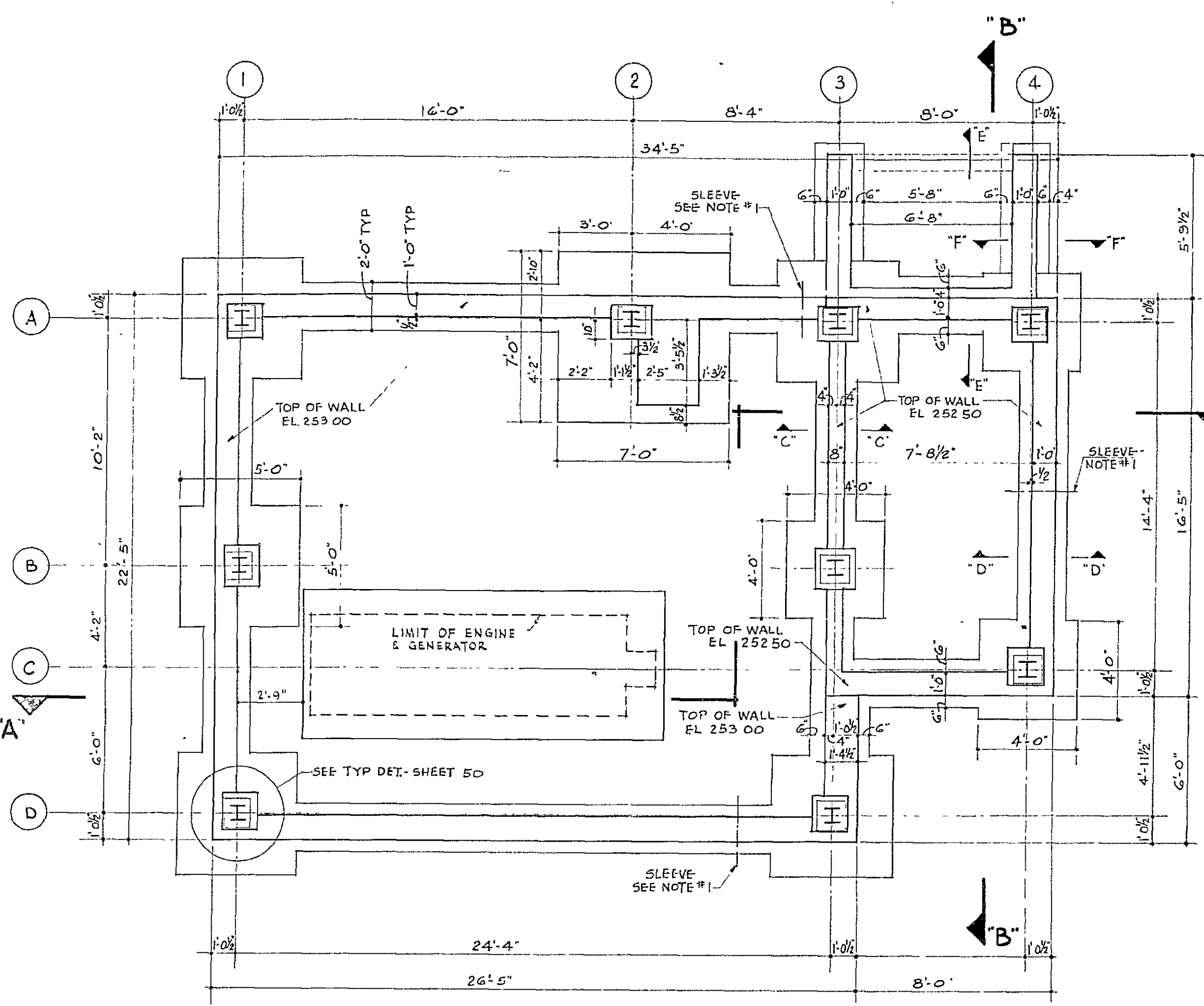
PLAN OF MACHINE HOUSE
ROOF HATCH
SCALE 1" = 1'-0"

- NOTES
- 1 FOR GENERAL NOTES, SEE SHEET NOS. 2 AND 3.
 - 2 FOR STRUCTURAL FRAMING, SEE SHEET NO. 41.
 - 3 FOR GENERAL ARRANGEMENT, SEE SHEET NO. 42.
 - 4 FOR SIDE ELEVATIONS, SEE SHEET NO. 43.
 - 5 ZINC CHROMATE PAINT TO BE USED AT ALL METALIC JUNCTIONS IN WHICH ALUMINUM IS ONE OF THE METALS.
 - 6 ALL ENDS OF WALL PANELS SHALL HAVE CLOSERS.

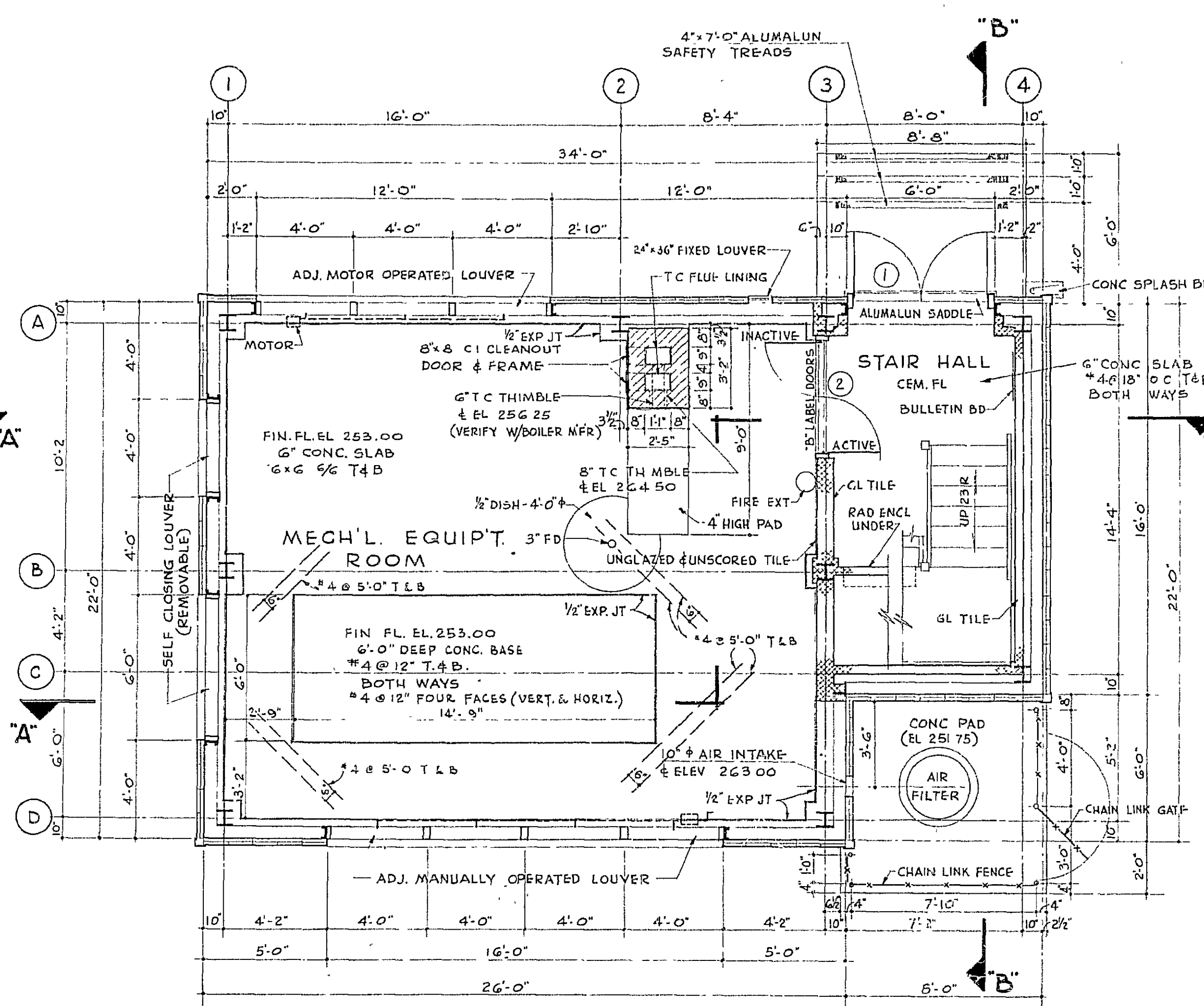
SCALES :- SECTIONS - 1/2" = 1'-0"
DETAILS - 1/2" = 1'-0"

NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C. C. PARKER & ASSOCIATES LTD CONSULTING ENGINEERS			
HAMILTON		ONTARIO	
BURLINGTON CANAL LIFT BRIDGE			
TOWER			
MACHINE HOUSE ARCHITECTURAL DETAILS			
APPROVED	DATE 12/11/58	DEPARTMENT PROJECT NO. SD6-4-77	
<i>W. Thompson</i> CHIEF STRUCTURES DIVISION		APPROVED DATE 12/11/58	
<i>W. Thompson</i> CHIEF ENGINEER		CONTRACT NO. 2	
RECOMMENDED	DATE 12-1-58	DESIGN R.C.C.	CHKD O.L.
<i>W. Thompson</i> C. C. PARKER & ASSOC. LTD		DRAWN J.M.W.	CHKD G.W.A.
		TRACED J.M.W.	CHKD O.L.
		JOB NO. H-538	
		<i>W. Thompson</i> CHIEF ENGINEER	
		SHEET 44 OF 62	

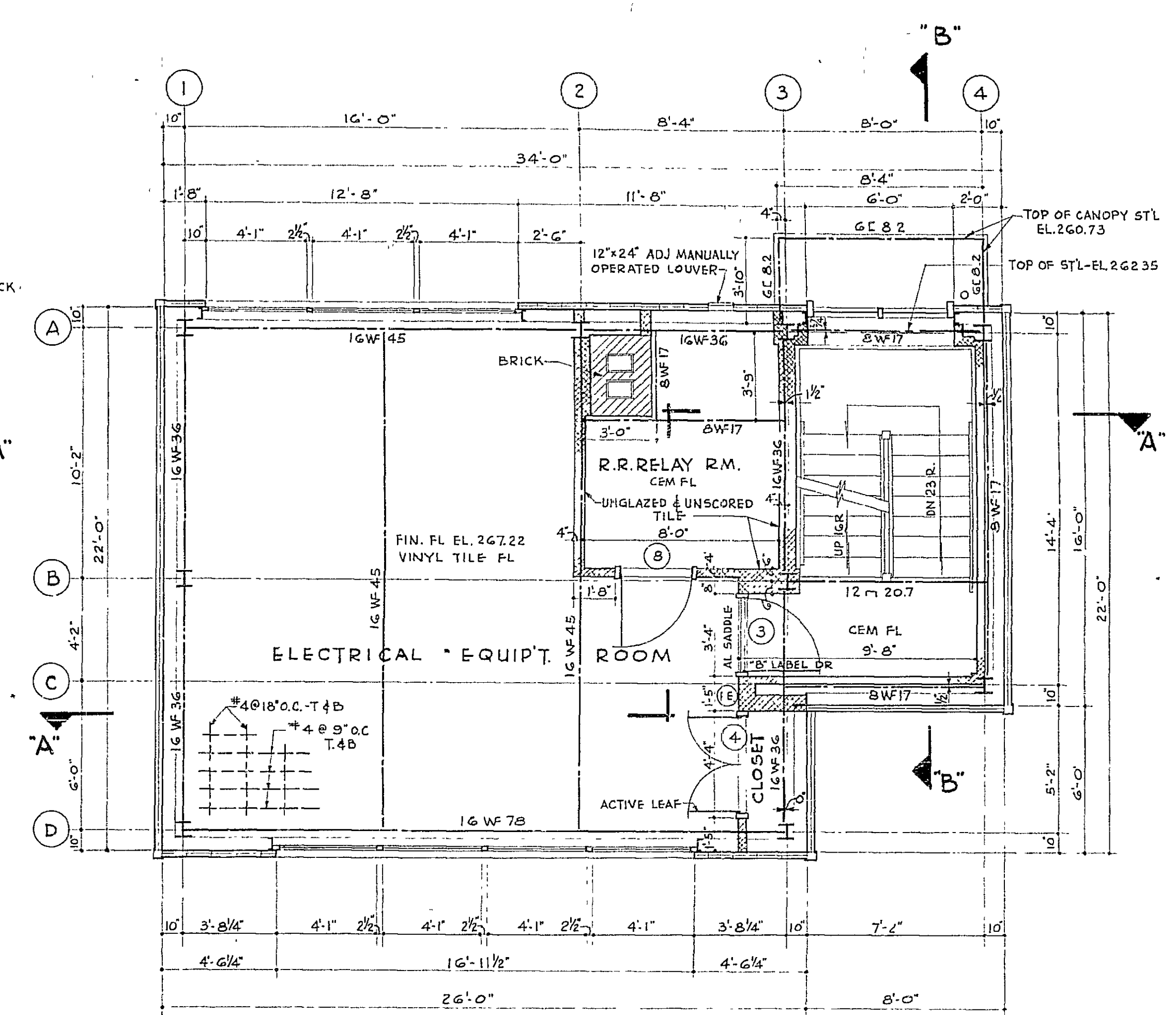




FOUNDATION PLAN

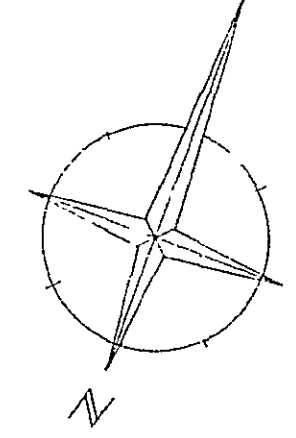


GROUND FLOOR PLAN



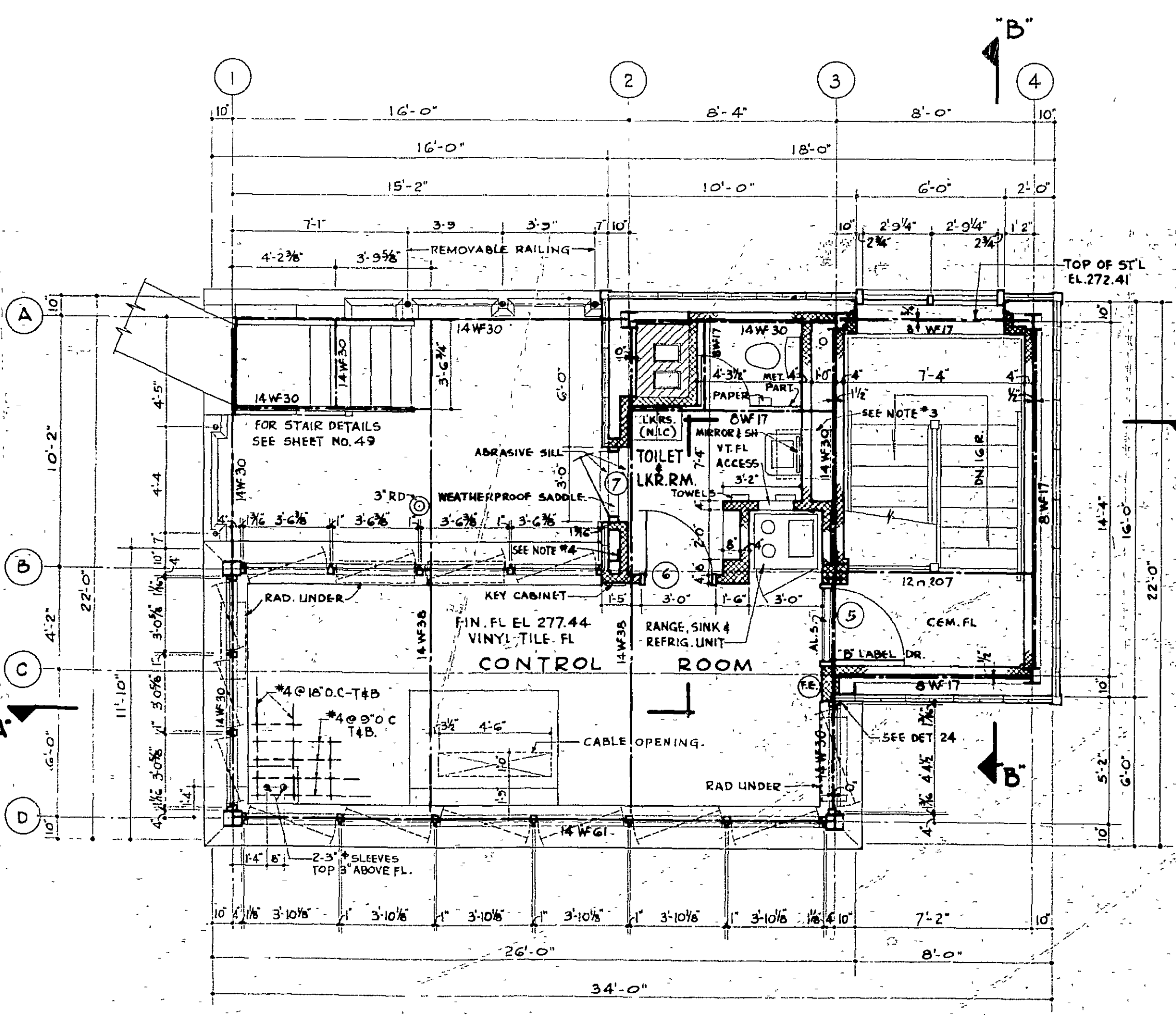
SECOND FLOOR PLAN

TOP OF STEEL IS AT EL. 266.85 UNLESS OTHERWISE NOTED



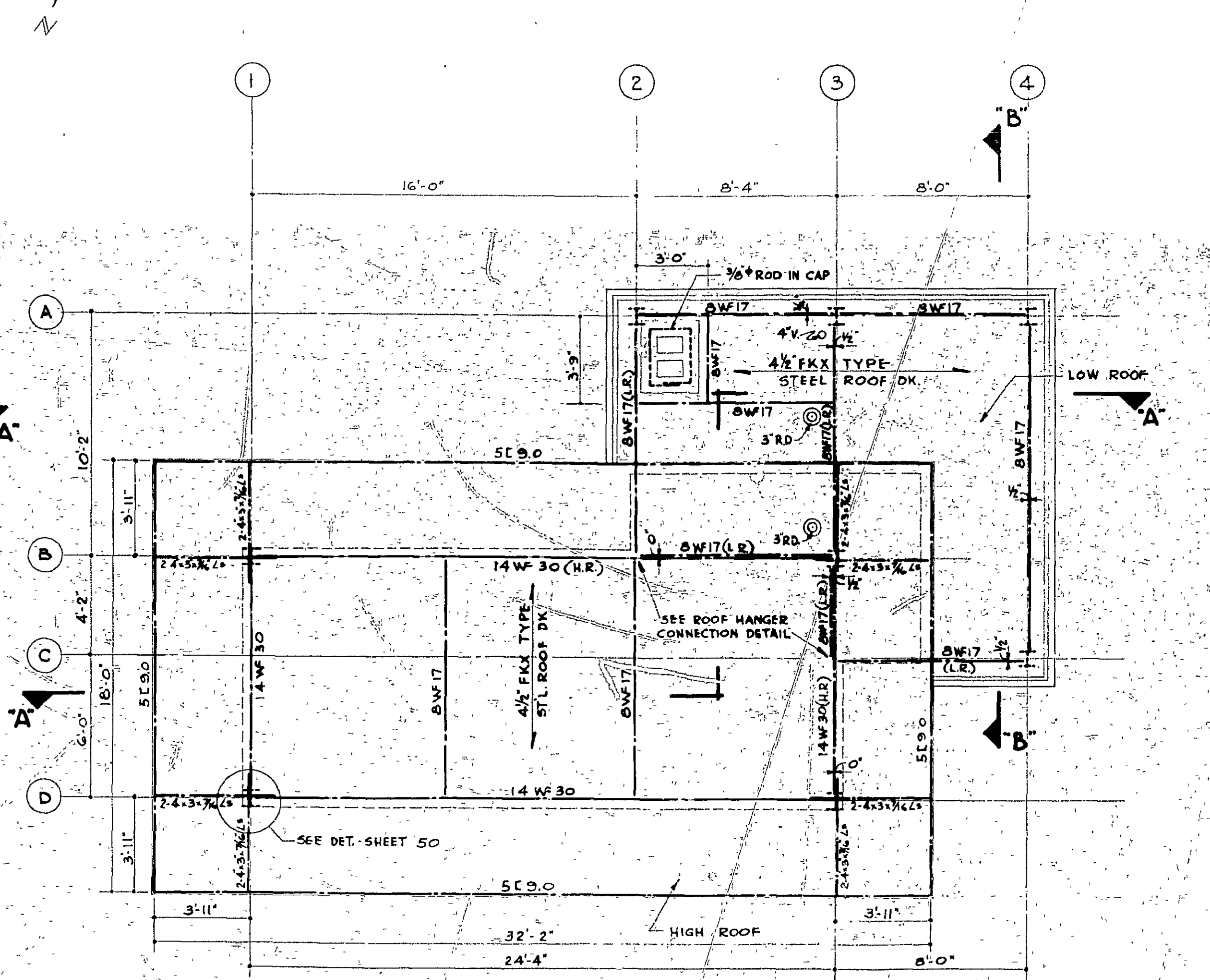
NOTES:

- 1 - VERIFY IN THE FIELD, SIZE, LOCATION & INVERT ELEVATIONS OF ALL SLEEVES FOR UTILITY LINES
- 2 - PROVIDE SLEEVES IN FOUNDATION WALLS FOR EXISTING BULKHEAD TIE RODS (2" TIE RODS - 7" O.C.)
- 3 - PROVIDE 24" x 24" x 1/2" DEPRESSION IN TOILET ROOM FLOOR SLAB FOR CHAIR CARRIER.
- 4 - 6" x 6" x 1/2" GIRT SUPPORT TO BE BRACKETED TO B.W.F. AT TOP & 4" x 3" x 3/8" L AT BOTTOM
- 5 - SECTION 'A-A' IS ON SHEET NO. 46, SECT. 'B-B' IS ON SHEET NO. 47, SECTIONS 'C-C', 'D-D' & 'E-E' ARE ON SHEET NO. 50
- 6 - VERIFY SIZE OF GENERATOR AND BOILER FOUNDATIONS WITH MANUFACTURERS' SHOP DRAWINGS



THIRD FLOOR PLAN

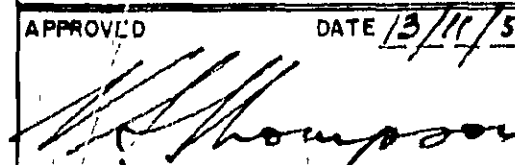
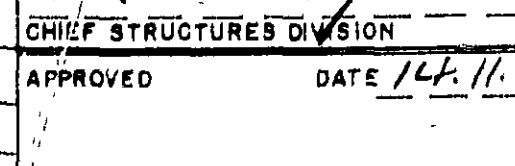

TOP OF STEEL IS AT EL. 277.07 UNLESS OTHERWISE NOTED.

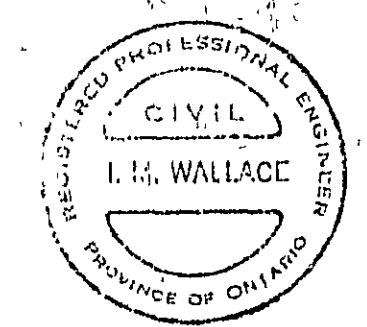


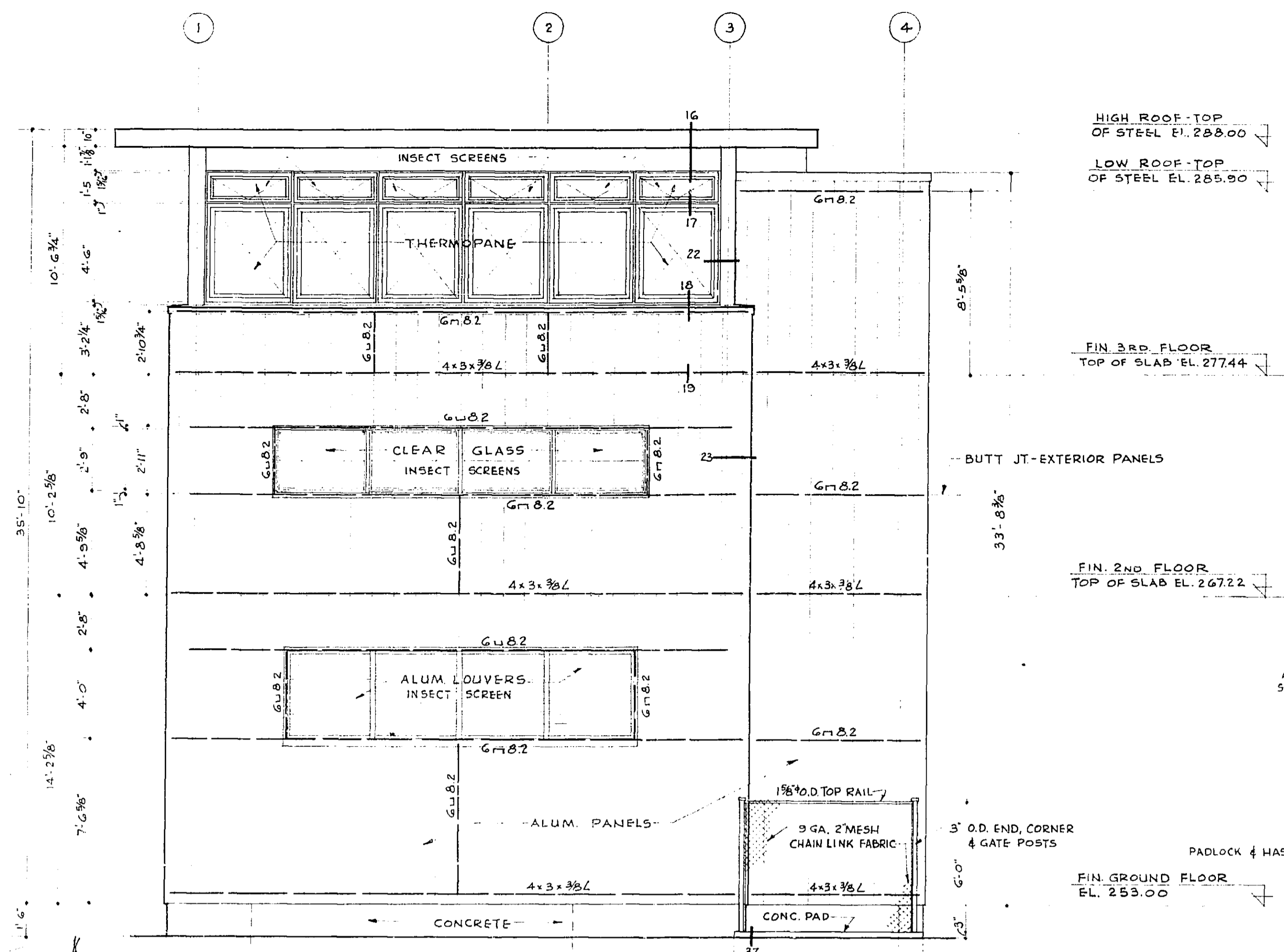
ROOF PLAN

HIGH ROOF TOP OF STEEL EL. 288.00
LOW ROOF TOP OF STEEL EL. 285.90

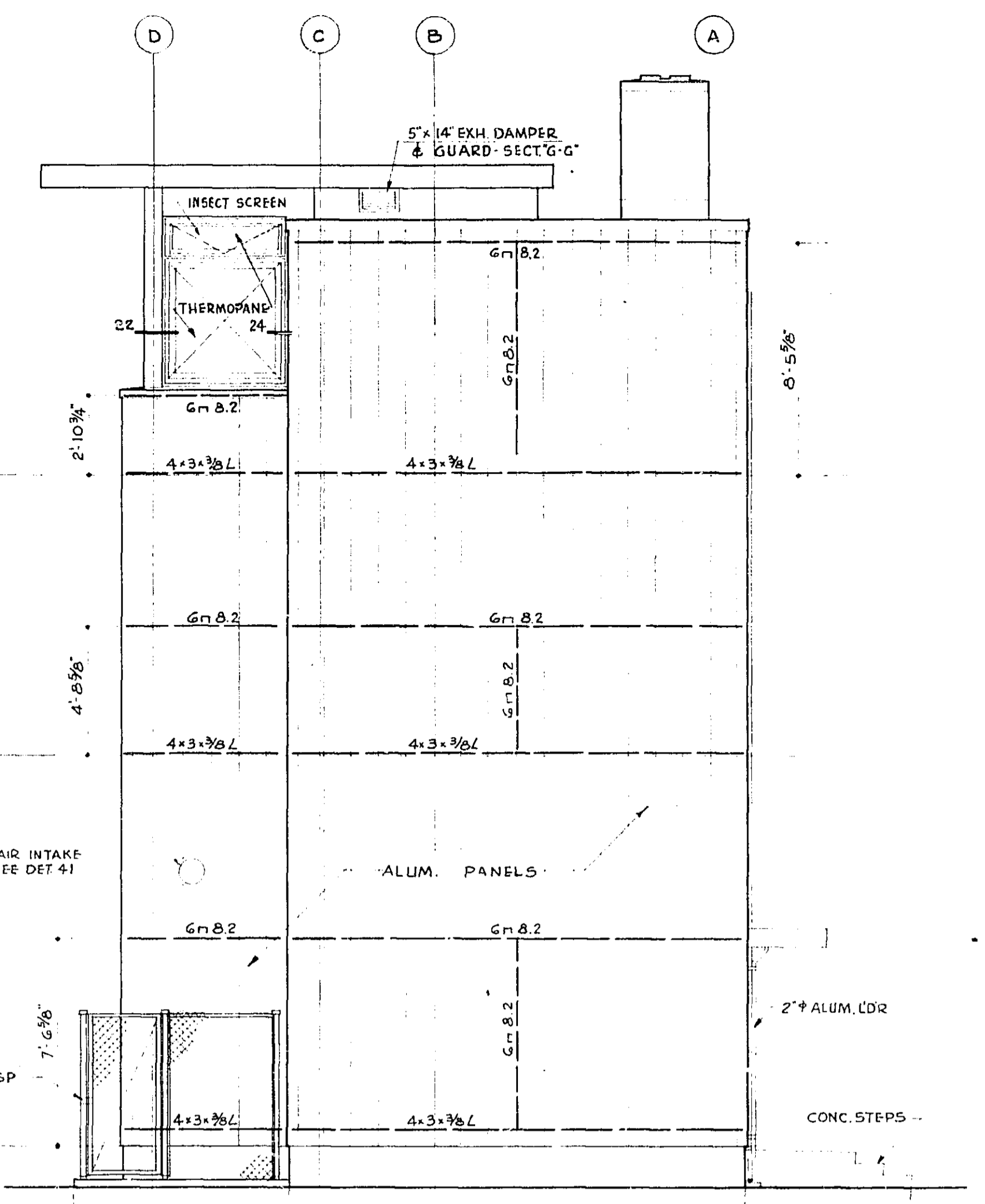
SCALE: 1/4" = 1'-0"

NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C.C. PARKER & ASSOCIATES LIMITED PARSONS, BRINCKERHOFF, HALL & MACDONALD CONSULTING ENGINEERS			
HAMILTON		ONTARIO	
BURLINGTON CANAL LIFT BRIDGE CONTROL HOUSE PLANS			
APPROVED	DATE 12/11/58	DEPARTMENT PROJECT NO.	SD6-4-77
 CHIEF STRUCTURES DIVISION		 CHIEF ENGINEER	
RECOMMENDED	DATE 12.1.58	DESIGN C.O.	CHKD. C.C.G. & R.W.N.
 C.C. PARKER & ASSOC. LTD.		DRAWN C.E.W. TRACED C.E.W.	CHKD. R.W.N. & L.J.H. CHKD. L.J.H.
		JOB NO. H-538	APPROVED DATE 12.11.58
			SHEET 45 OF 62

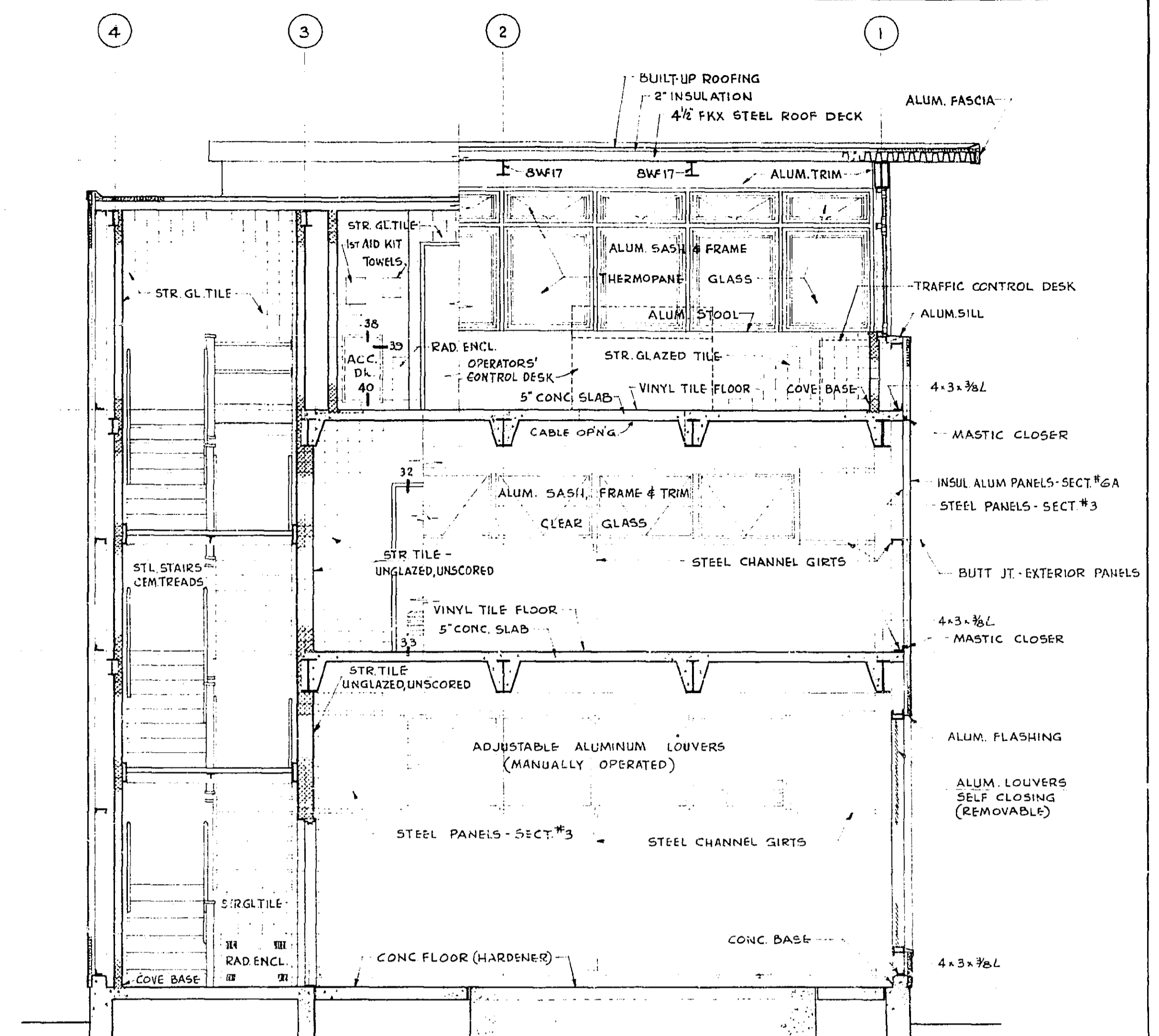




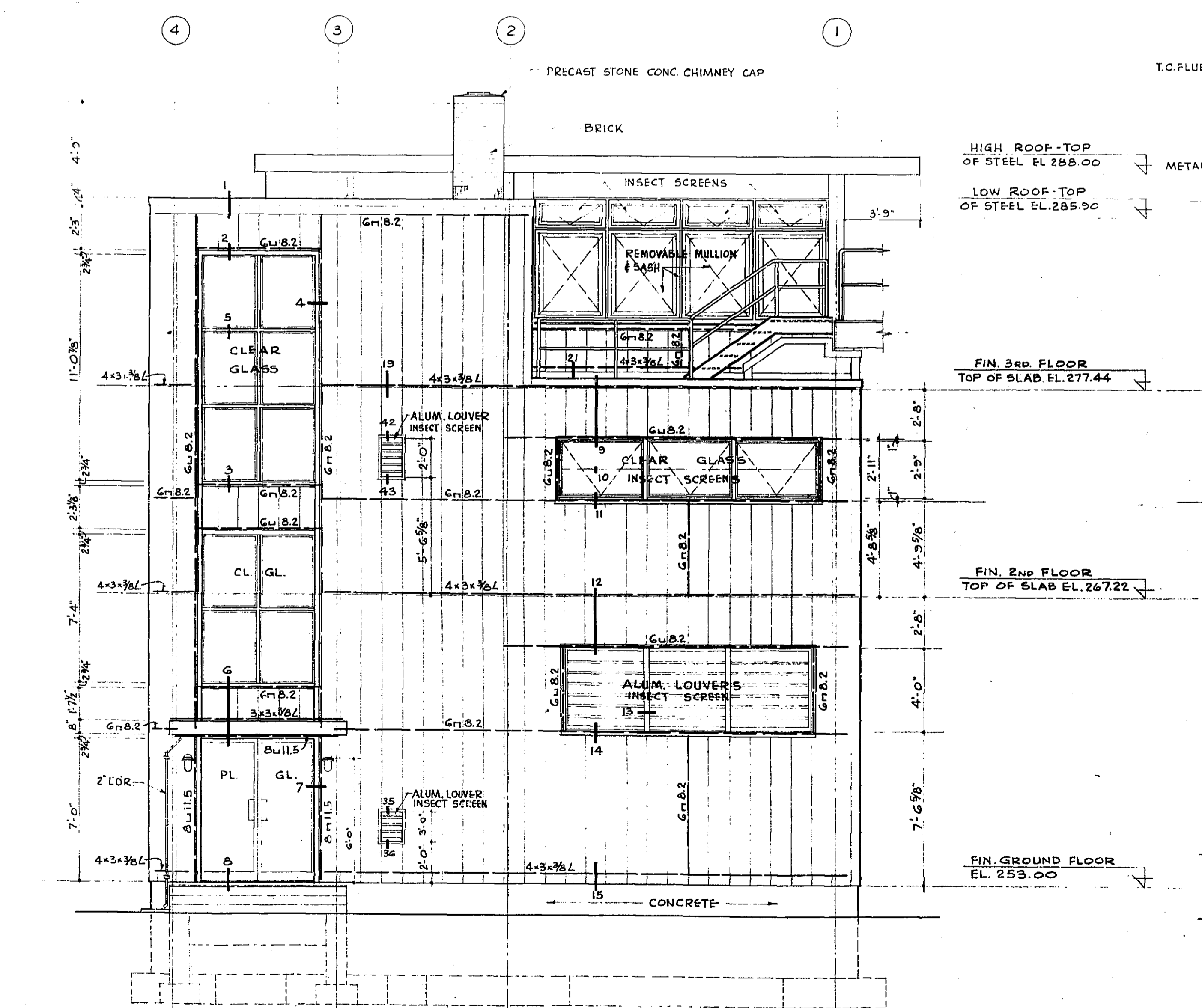
NORTH ELEVATION



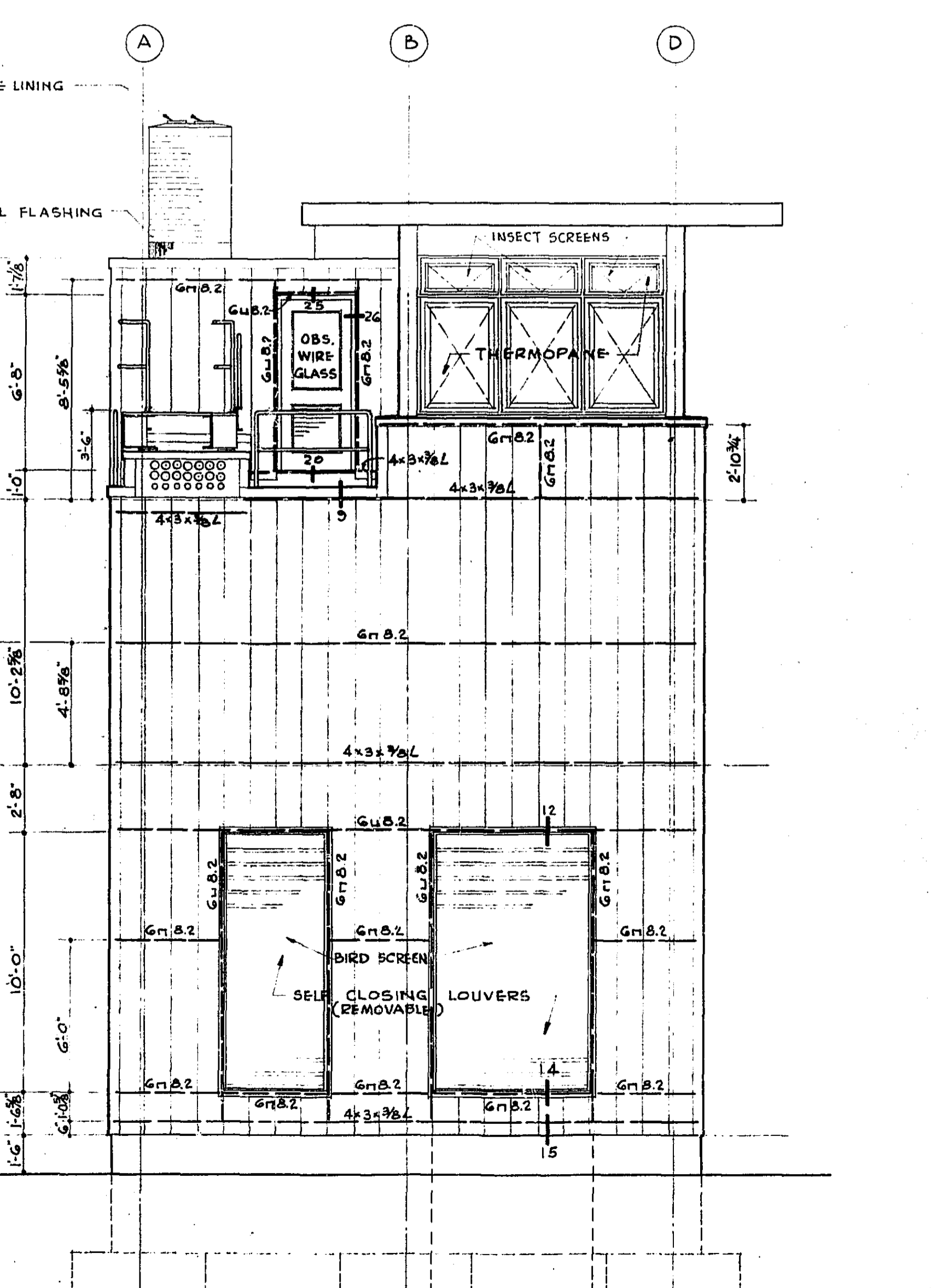
WEST ELEVATION



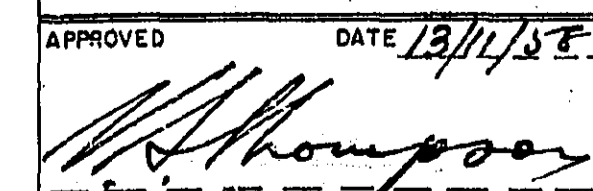

SECTION "A-A"

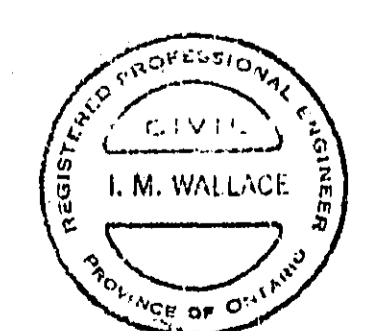


SOUTH ELEVATION

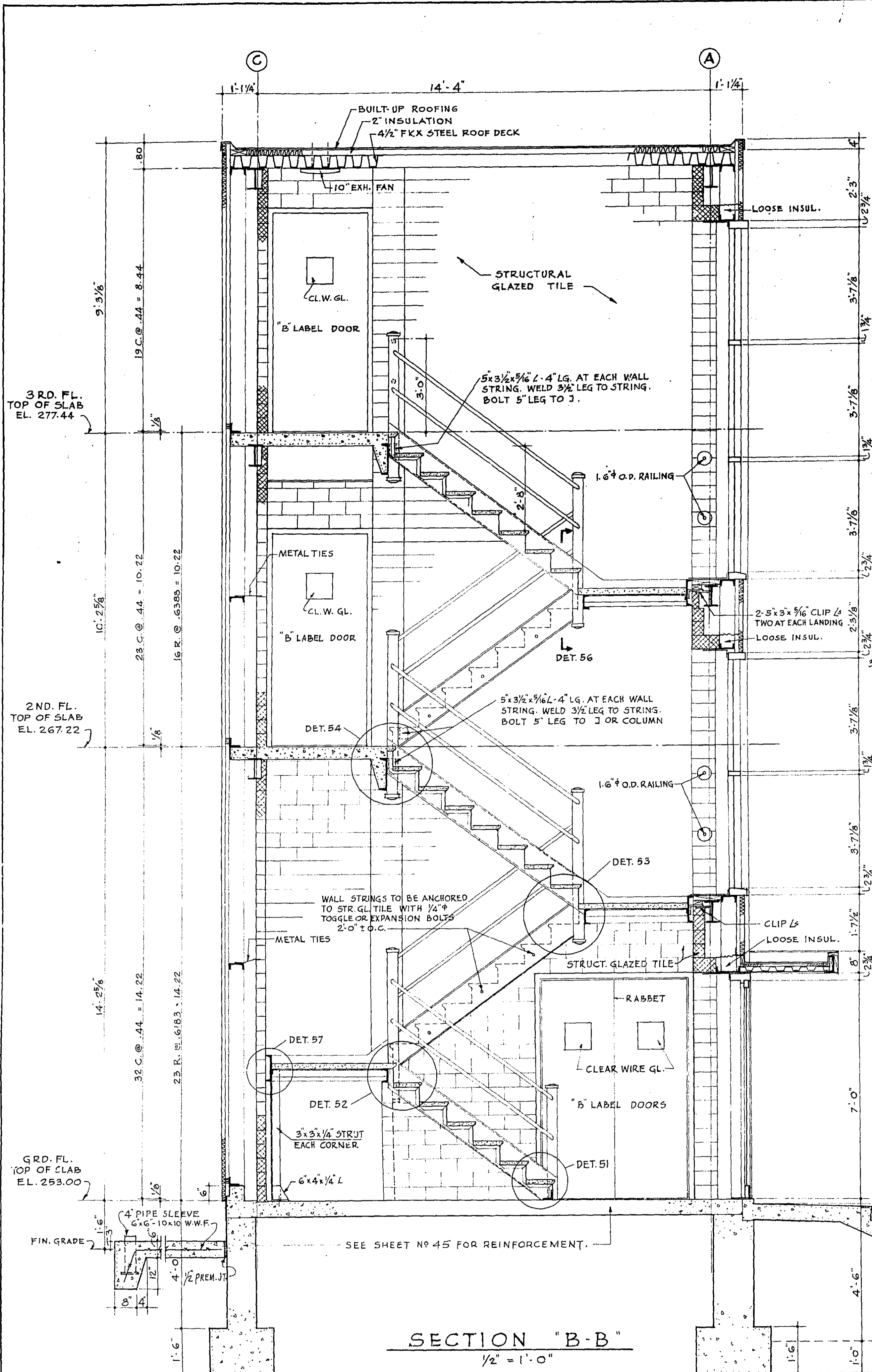


EAST ELEVATION

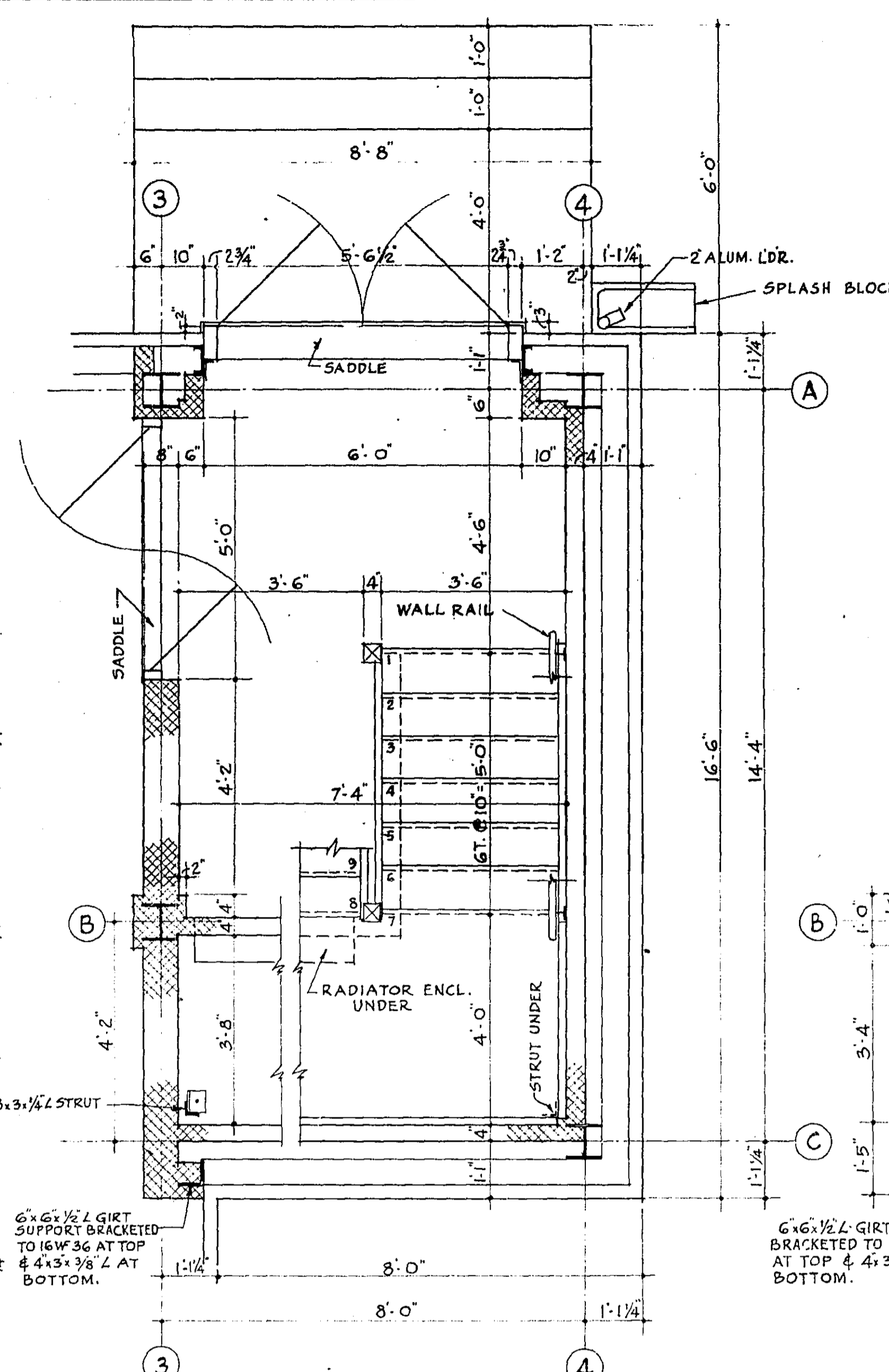
NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C. C. PARKER & ASSOCIATES LIMITED PARSONS, BRINCKERHOFF, HALL & MACDONALD CONSULTING ENGINEERS HAMILTON ONTARIO			
BURLINGTON CANAL LIFT BRIDGE CONTROL HOUSE ELEVATIONS AND SECTIONS			
APPROVED	DATE 12/1/57	DEPARTMENT PROJECT NO. SD6-4-77	
 I. M. WALLACE CHIEF STRUCTURES DIVISION		APPROVED DATE 12/1/57  G. WILLIAMS CHIEF ENGINEER	
RECOMMENDED	DATE 12-1-58	DESIGN CO	CHKD-CCC & RWN
		DRAWN CEW	CHKD-RWN & L.J.H.
		TRACED CEW	CHKD- L.J.H.
		JOB NO. H-538	



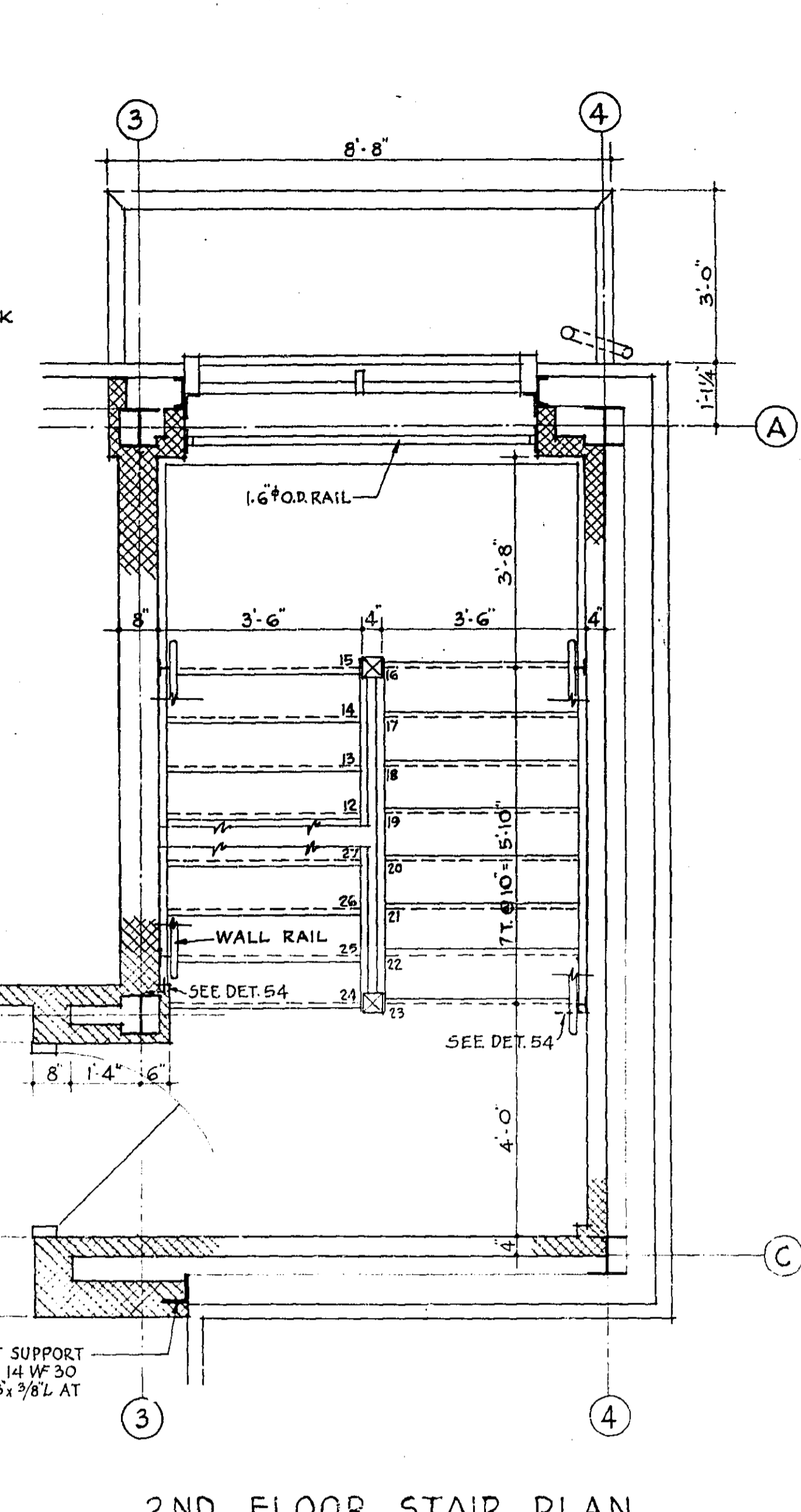
RECOMMENDED DATE 12-1-58
 DESIGN CO
 DRAWN CEW
 TRACED CEW
 JOB NO. H-538



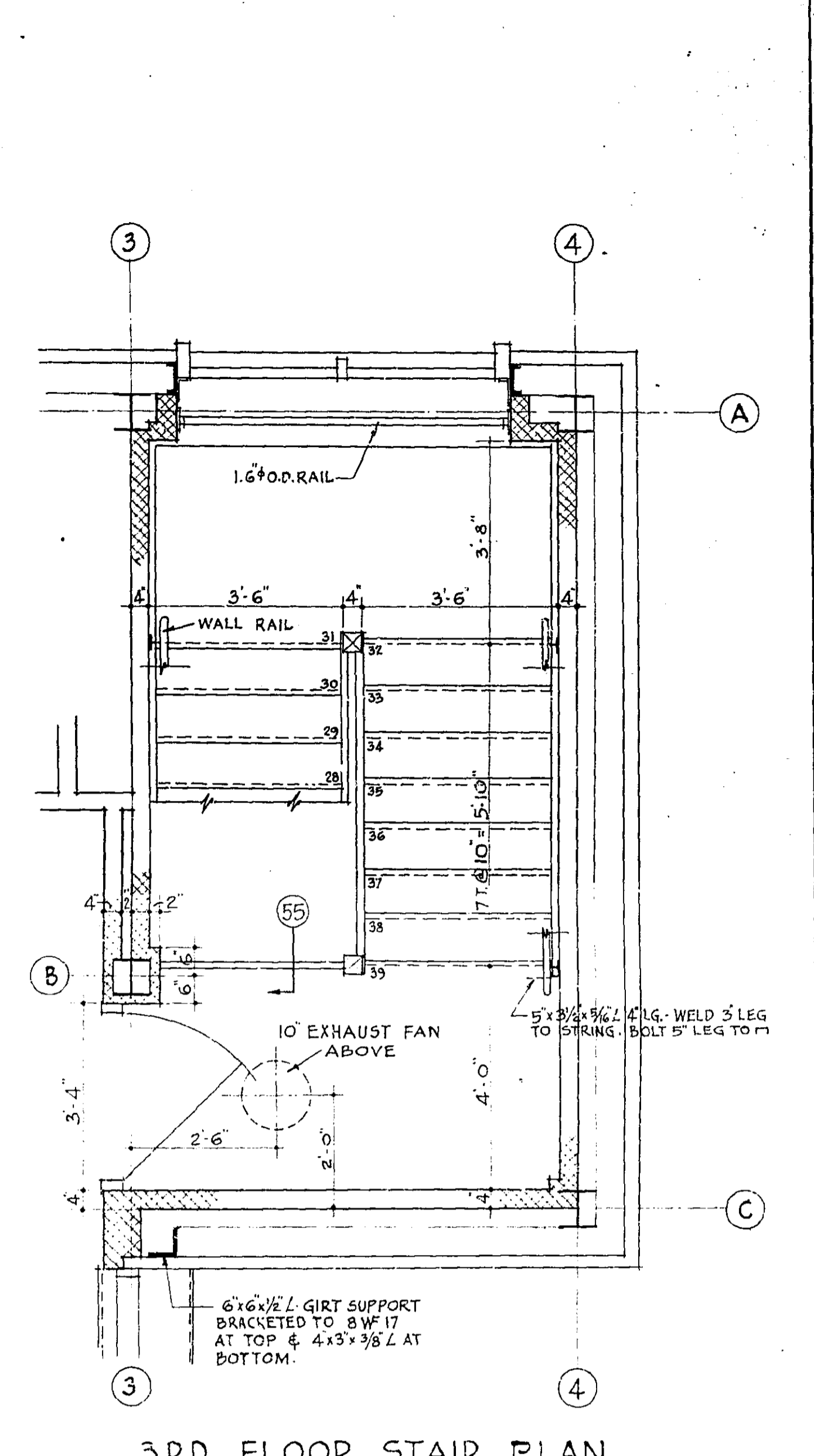
SECTION "B-B"
1/2" = 1'-0"



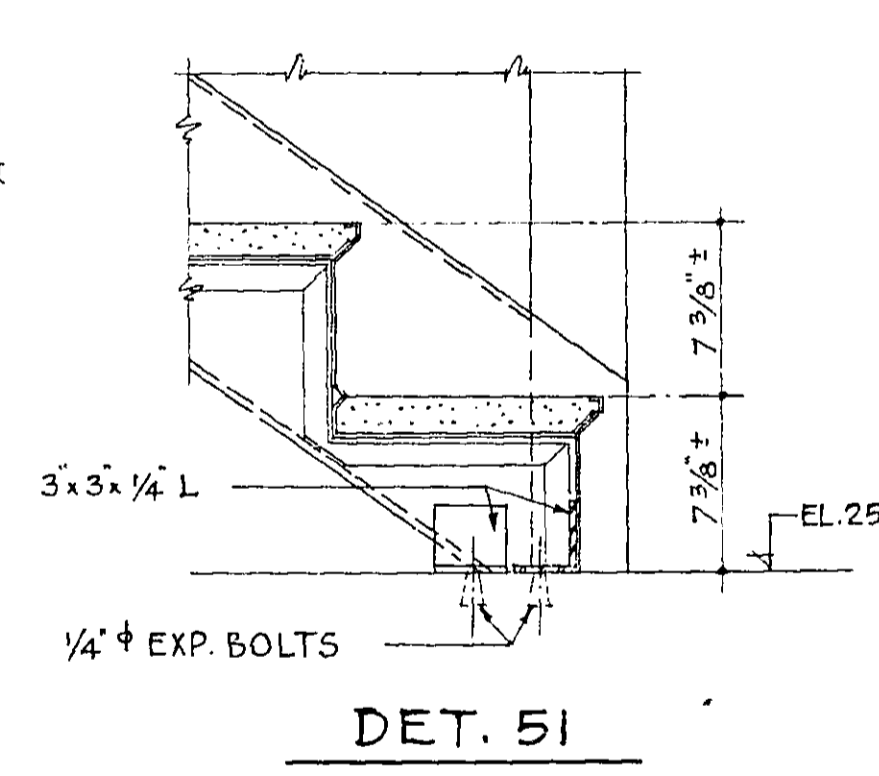
GROUND FLOOR STAIR PLAN
1/2" = 1'-0"



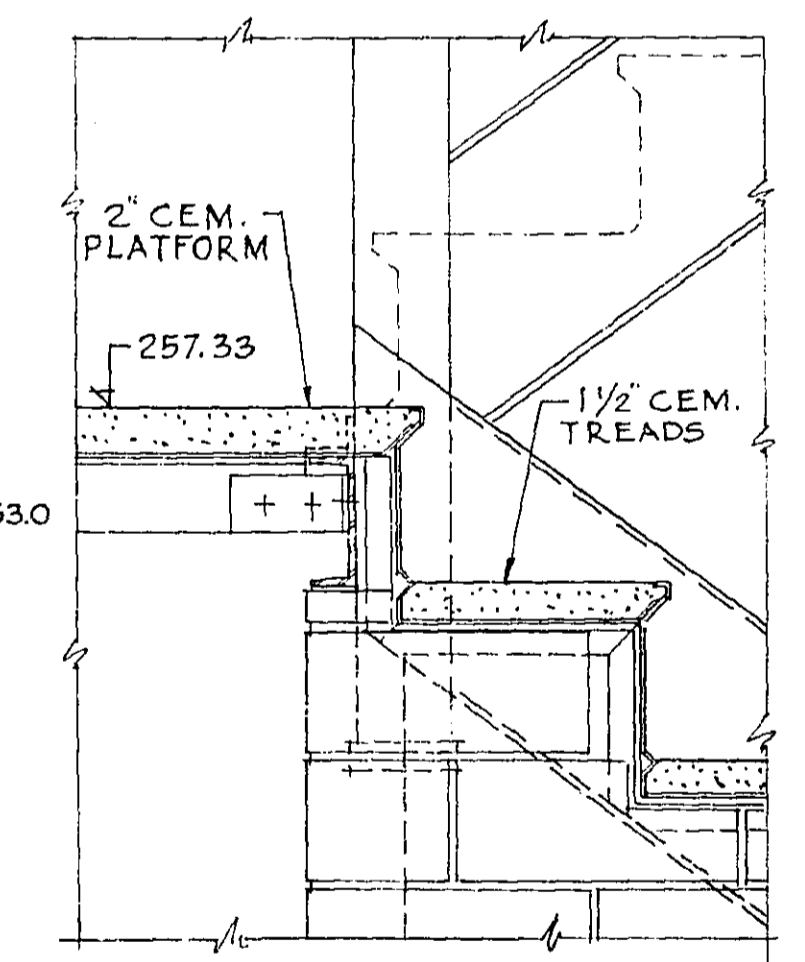
2ND. FLOOR STAIR PLAN
1/2" = 1'-0"



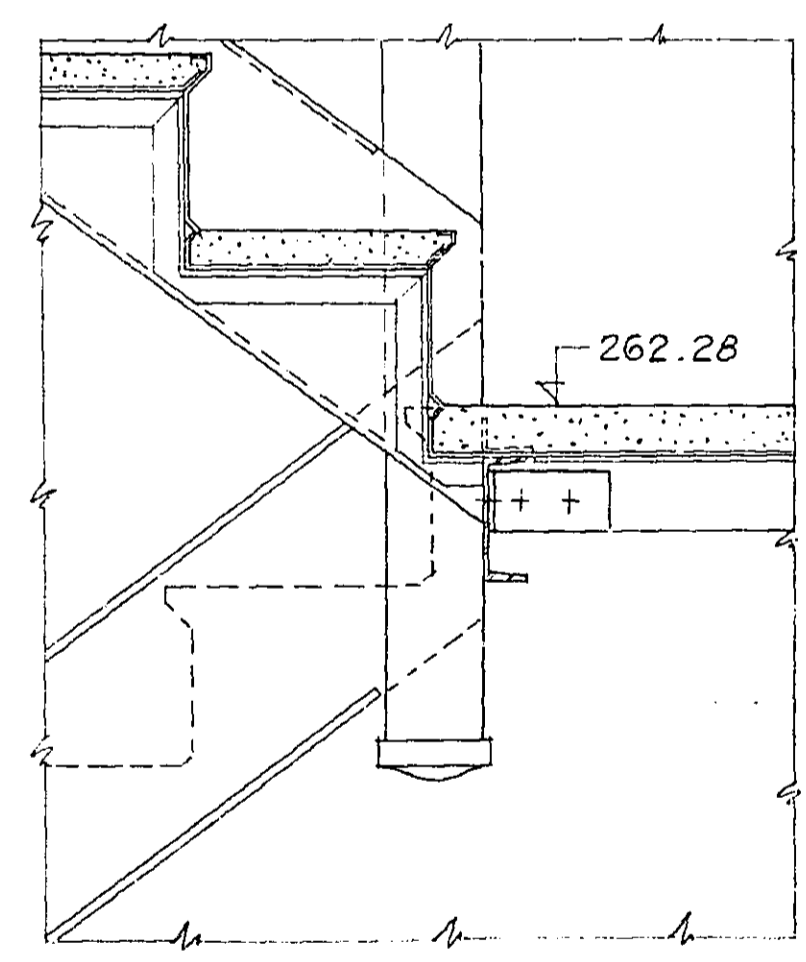
3RD. FLOOR STAIR PLAN
1/2" = 1'-0"



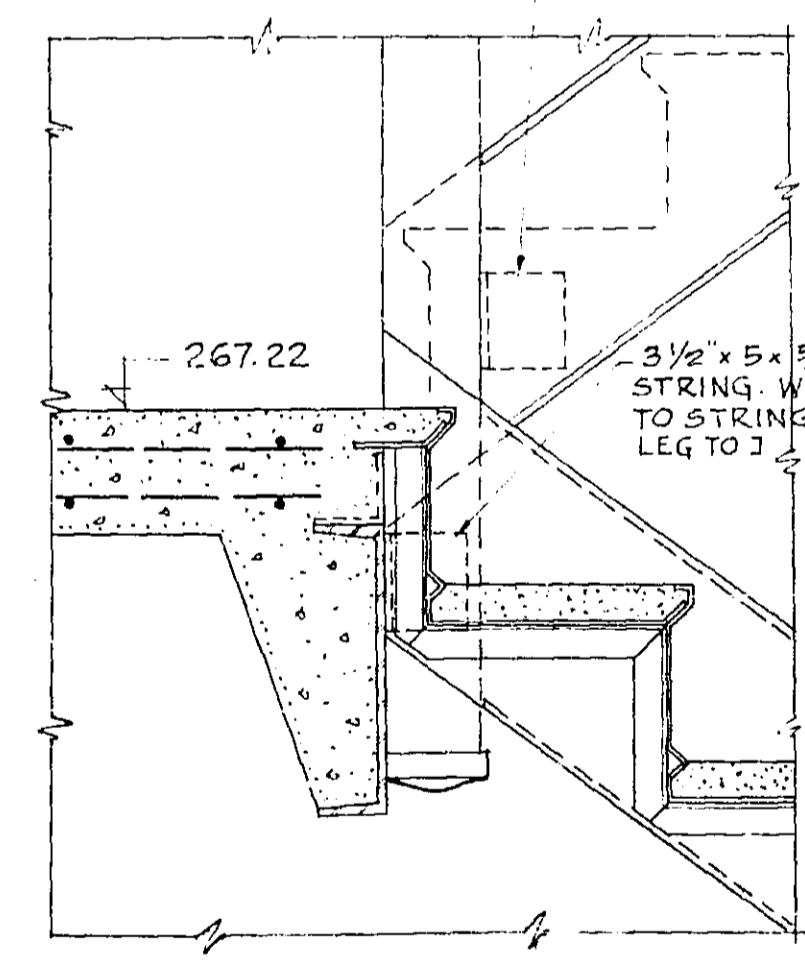
DET. 51



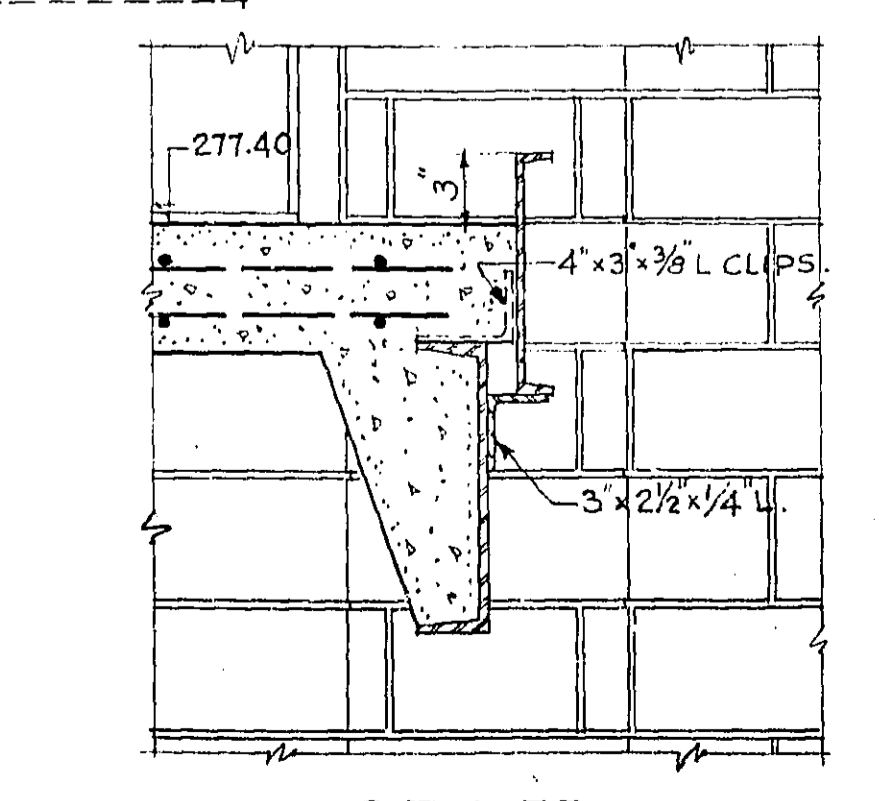
DET. 52



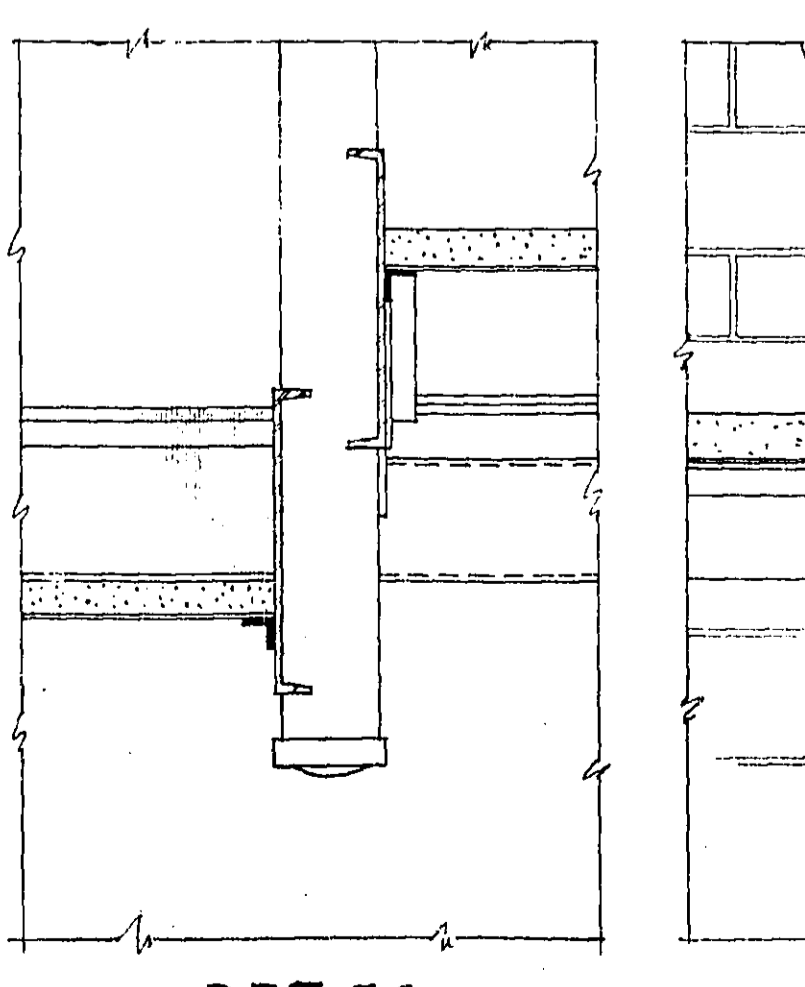
DET. 53



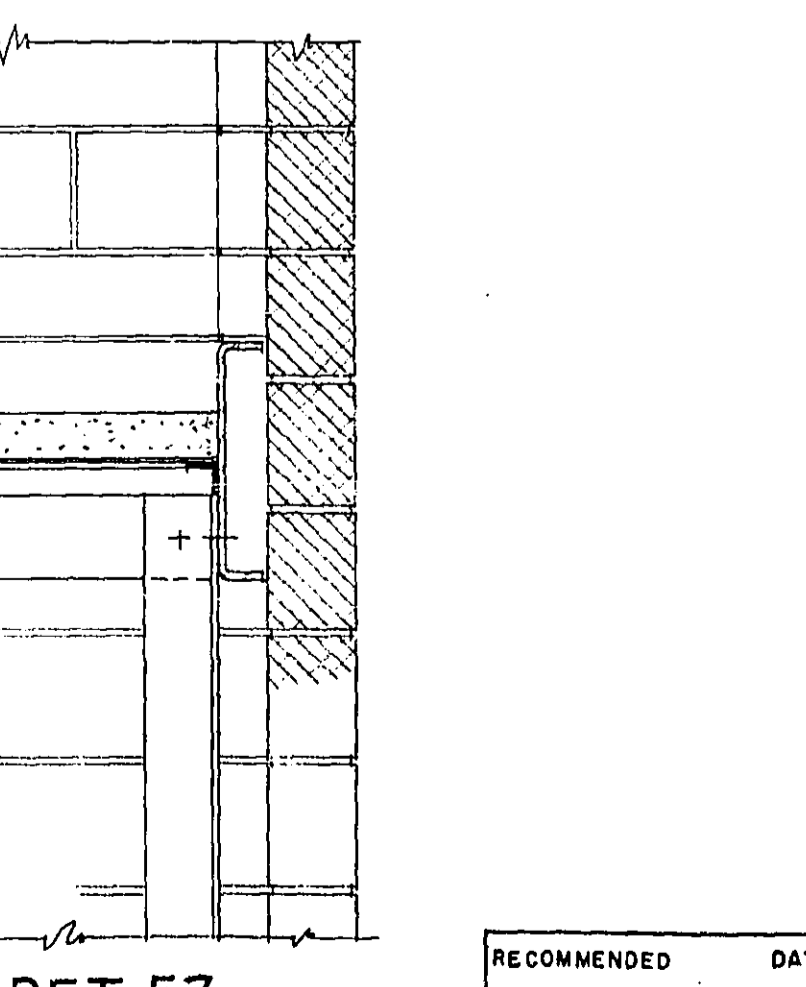
DET. 54



DET. 55



DET. 56



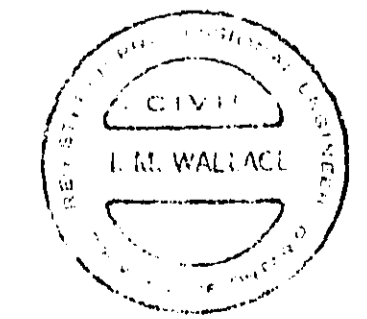
DET. 57

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

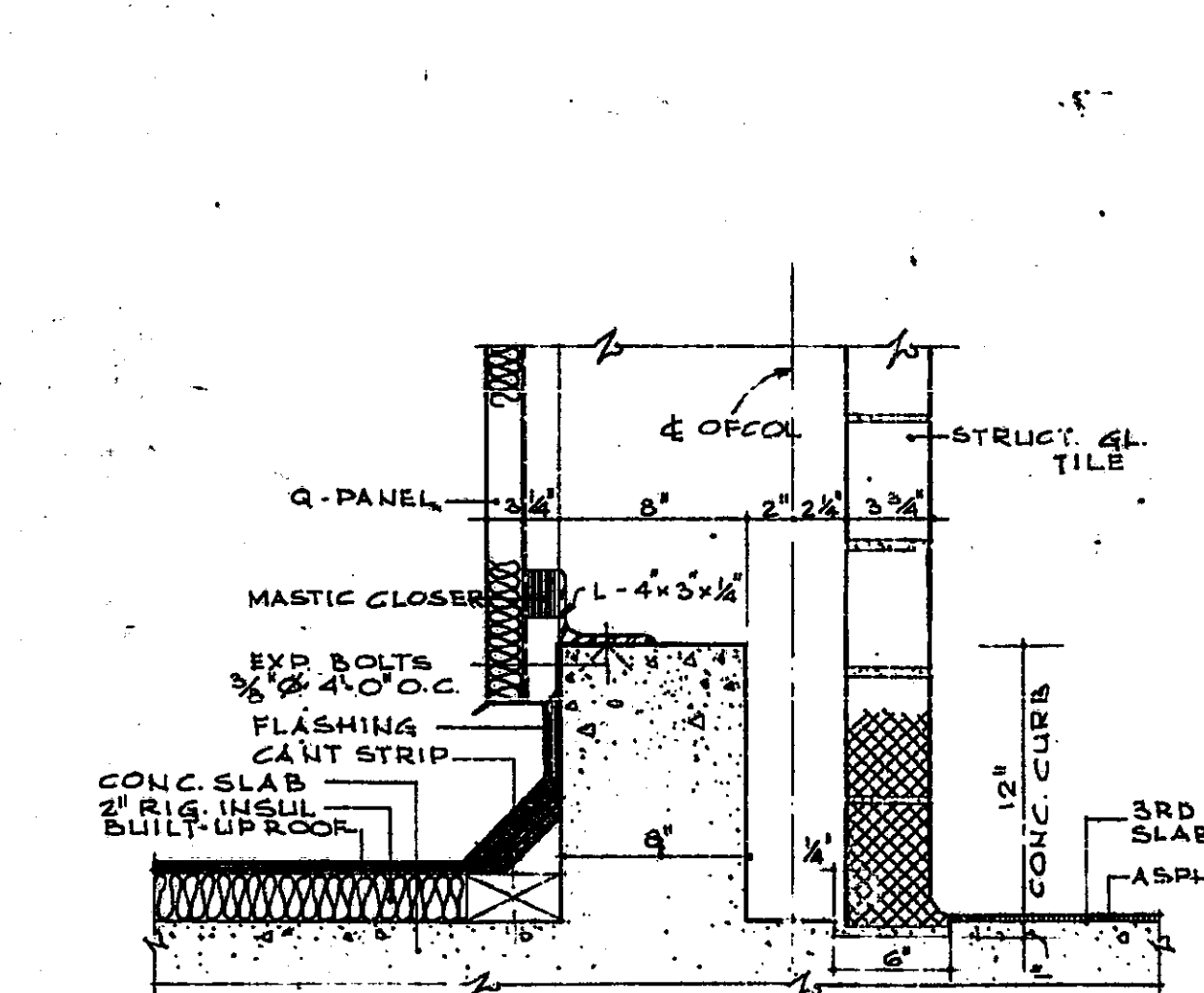
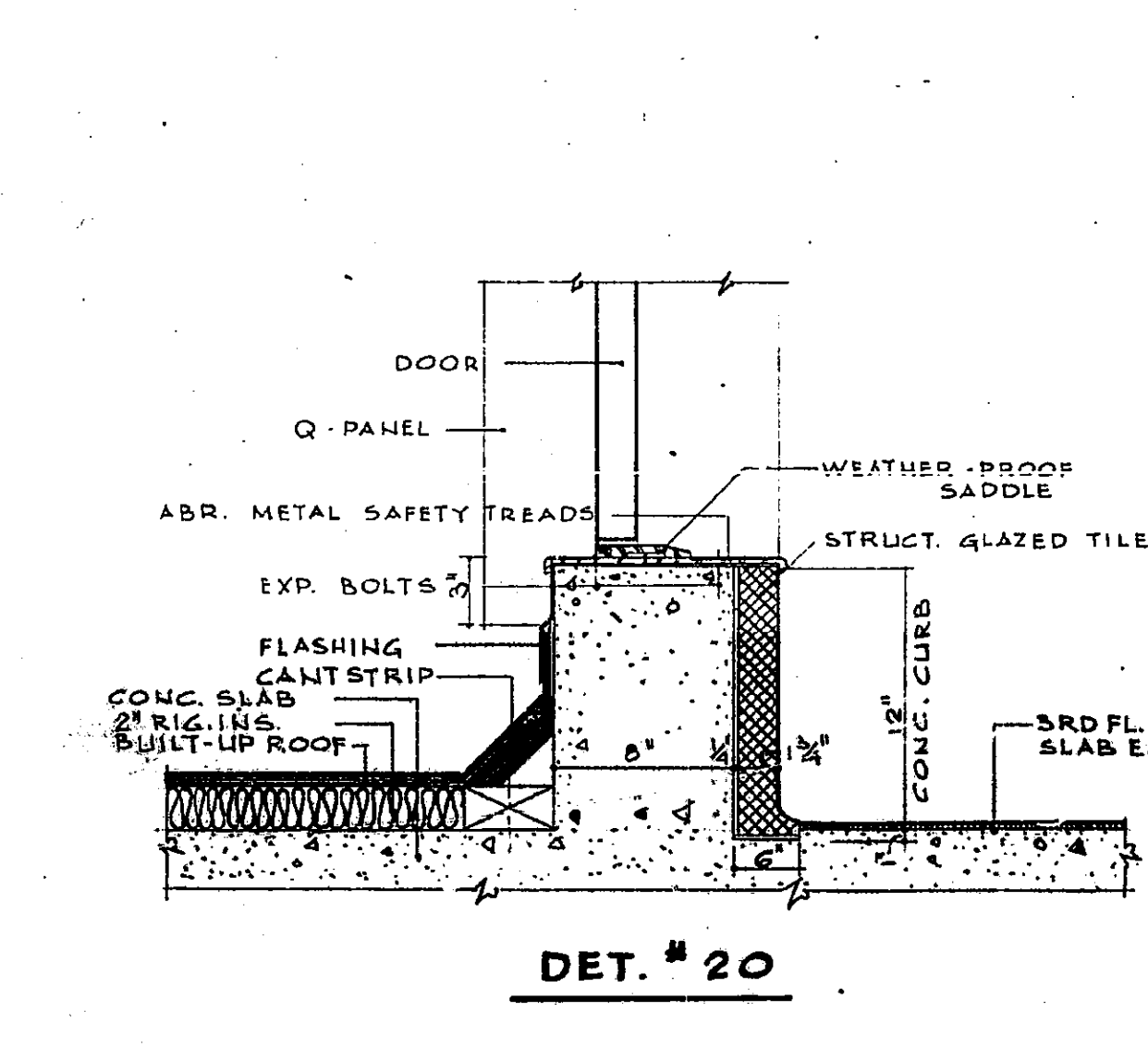
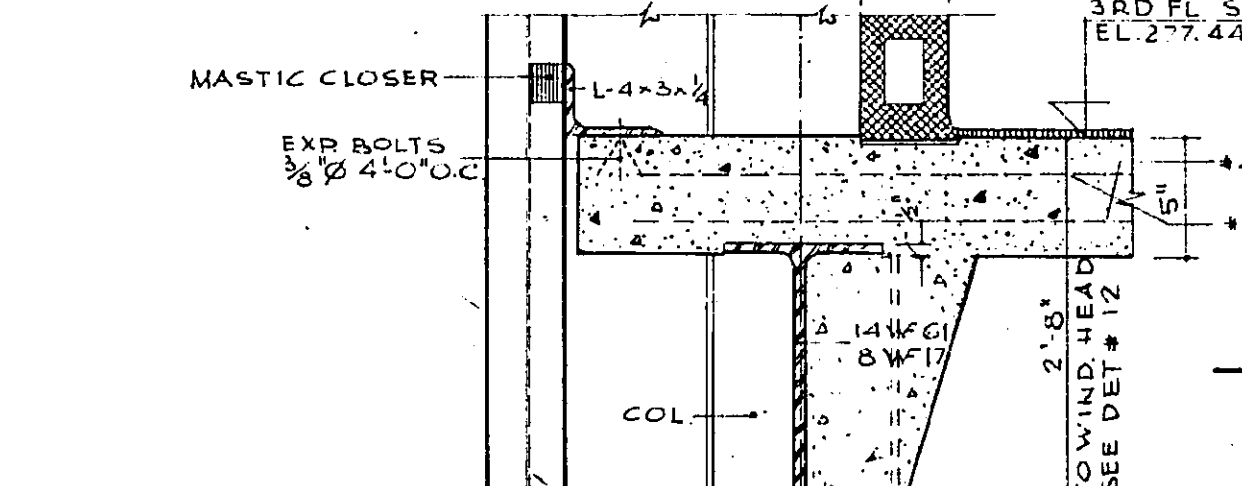
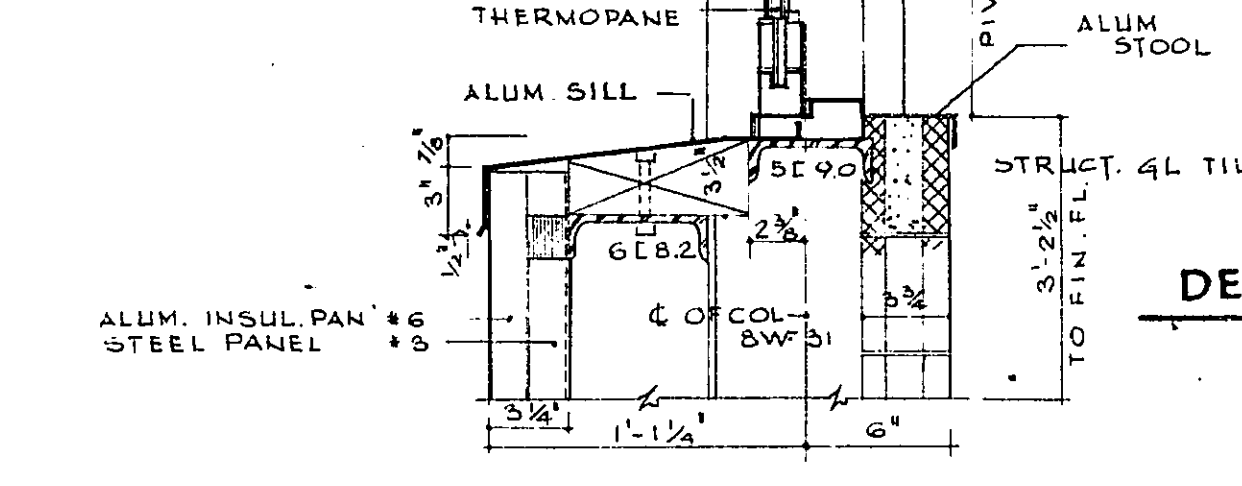
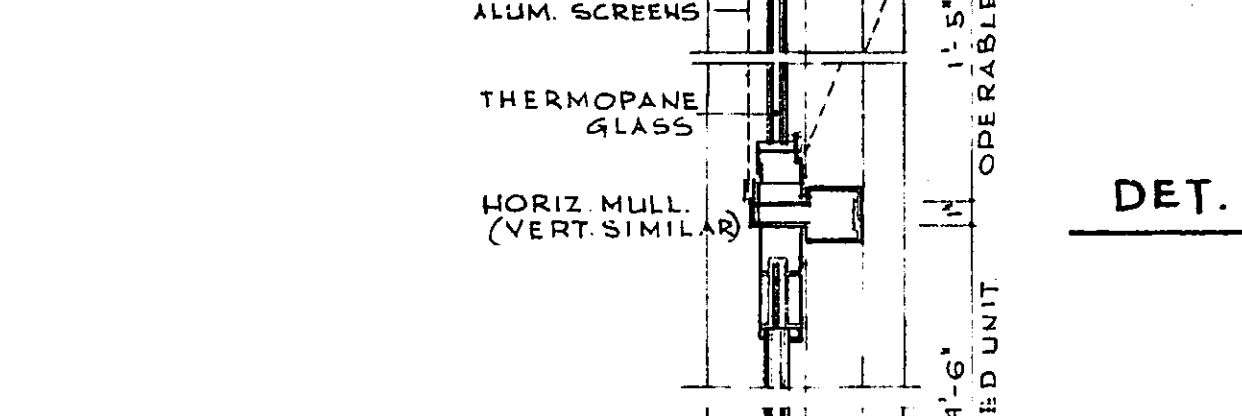
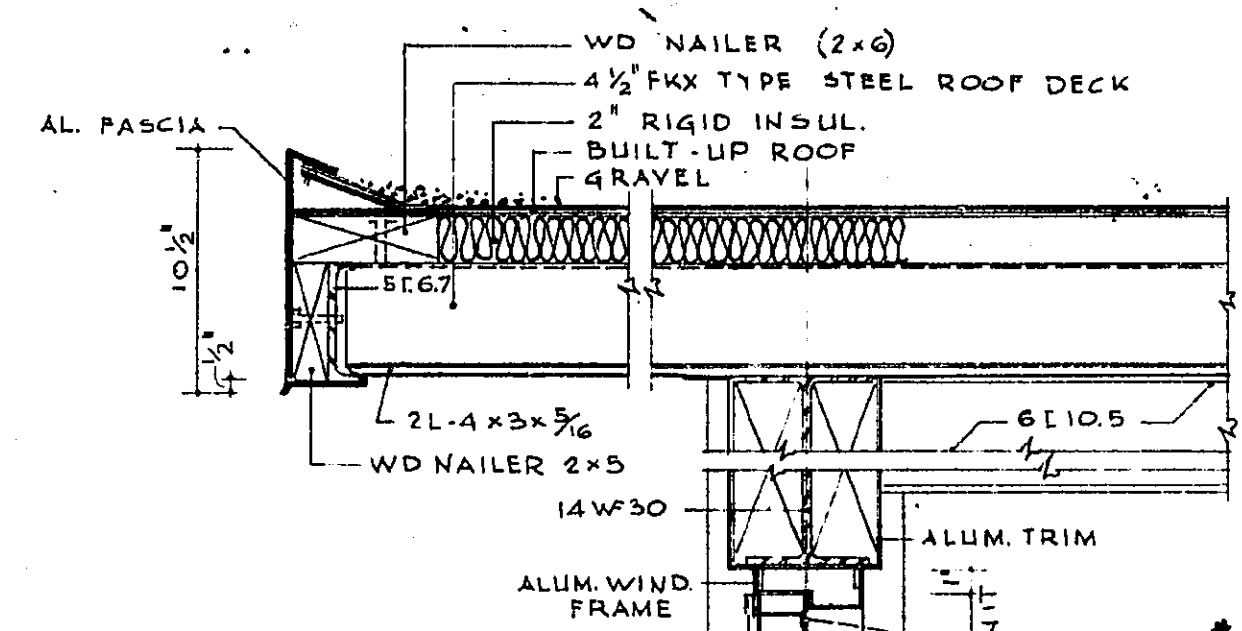
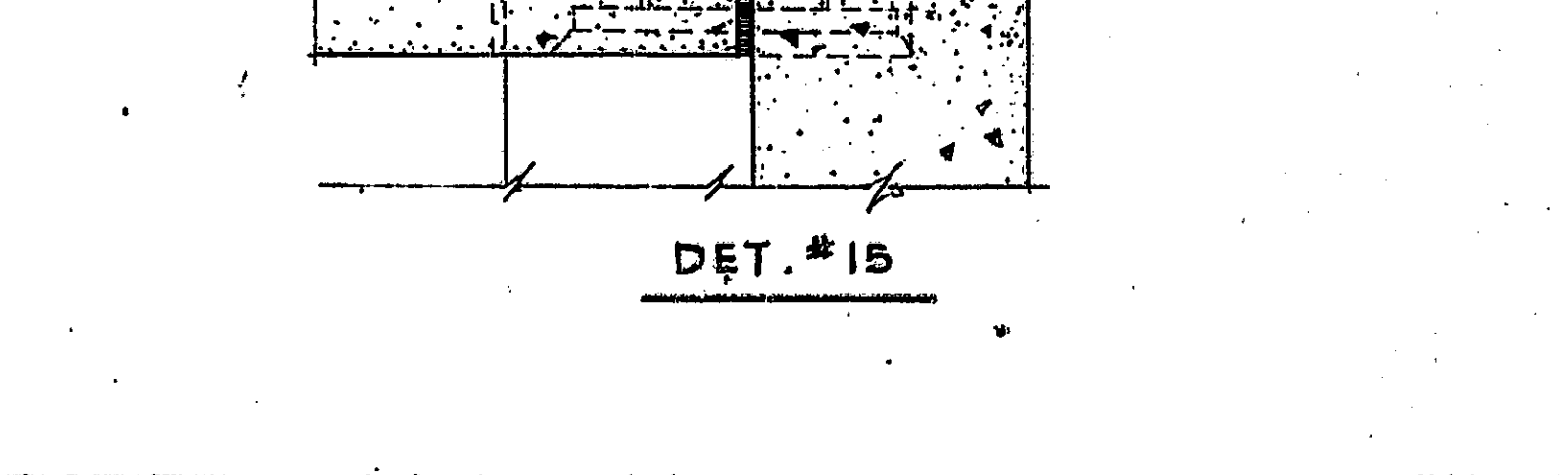
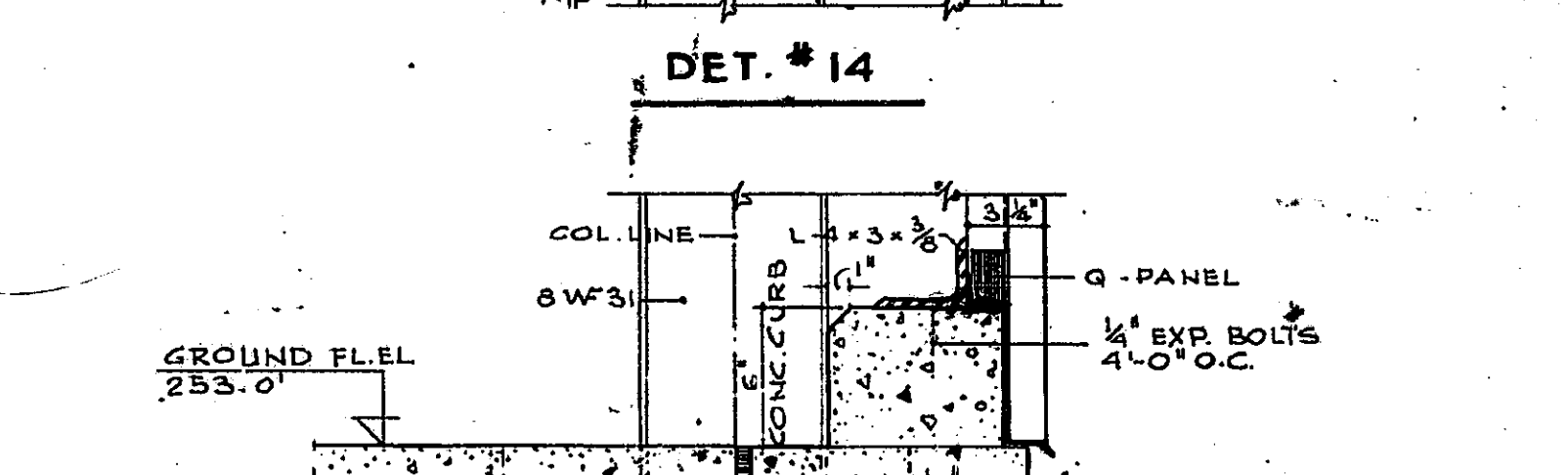
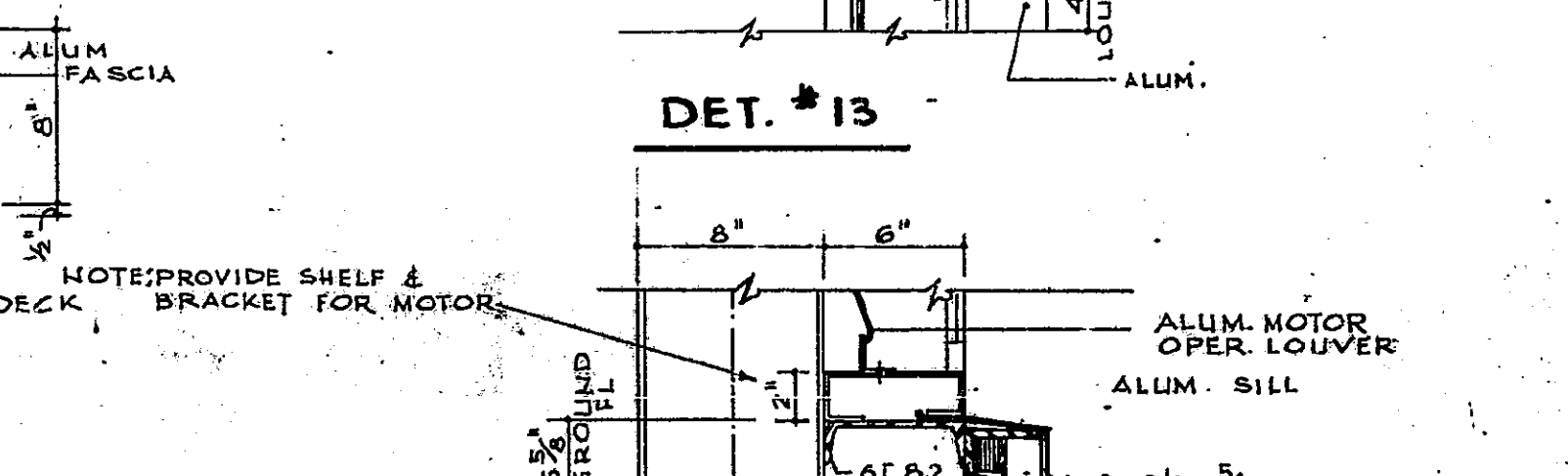
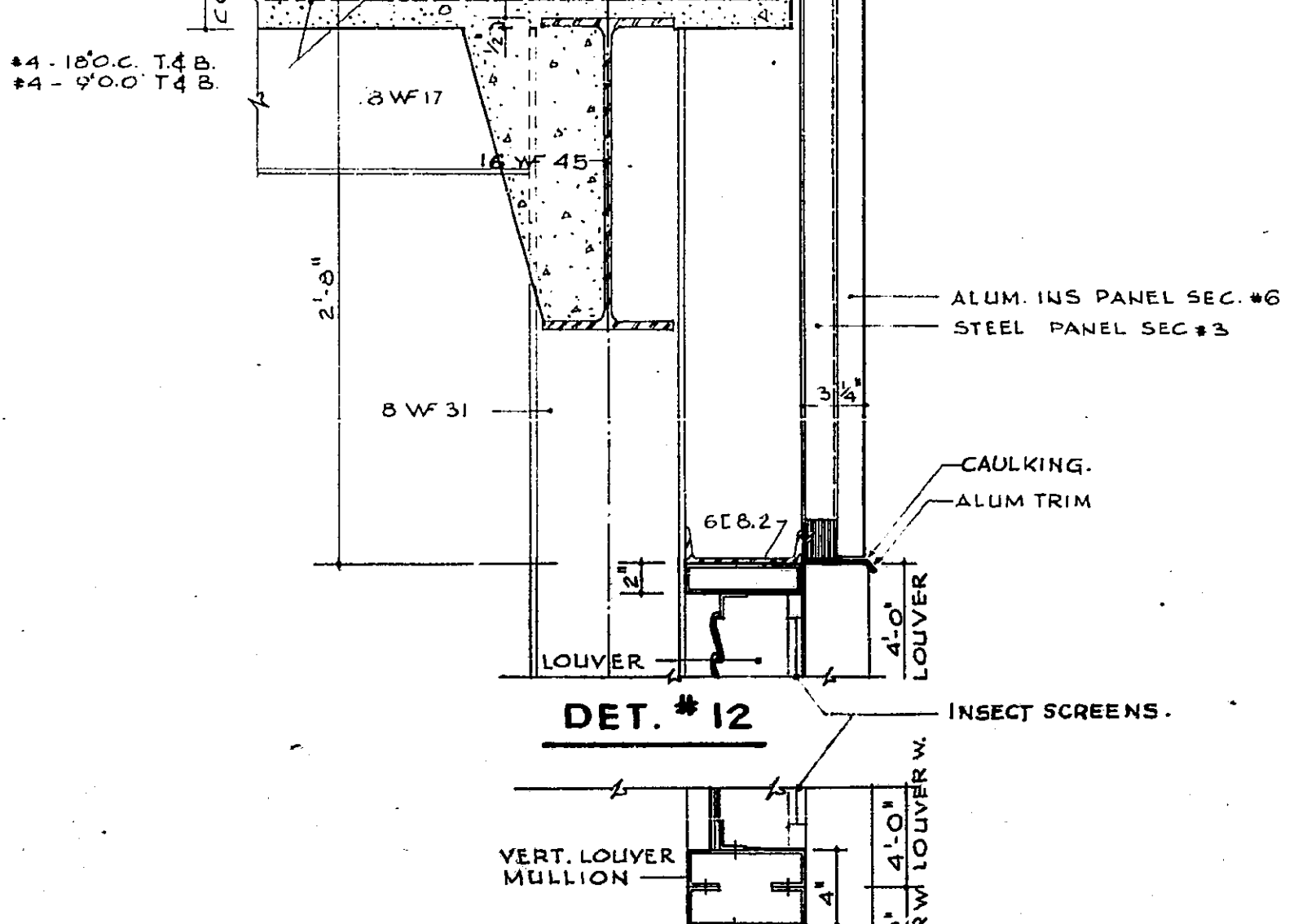
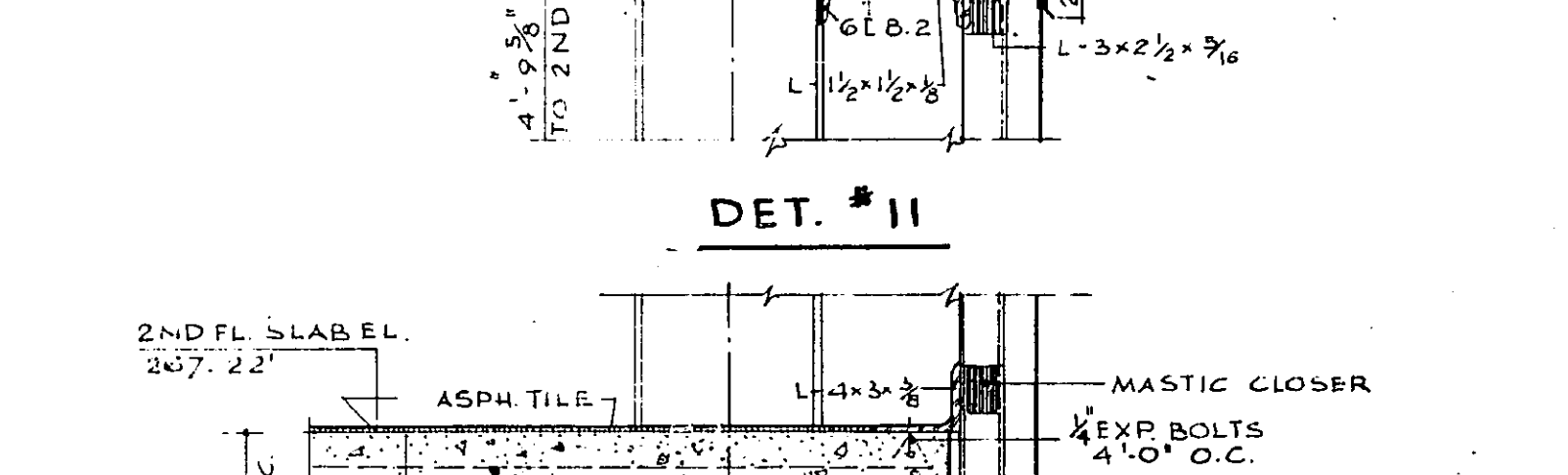
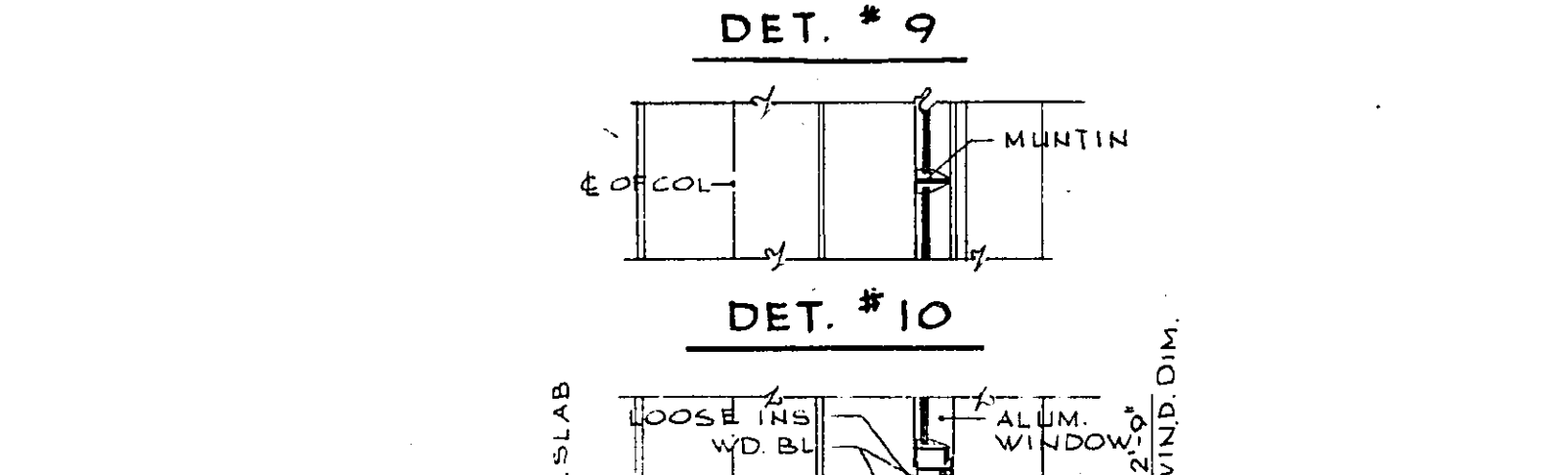
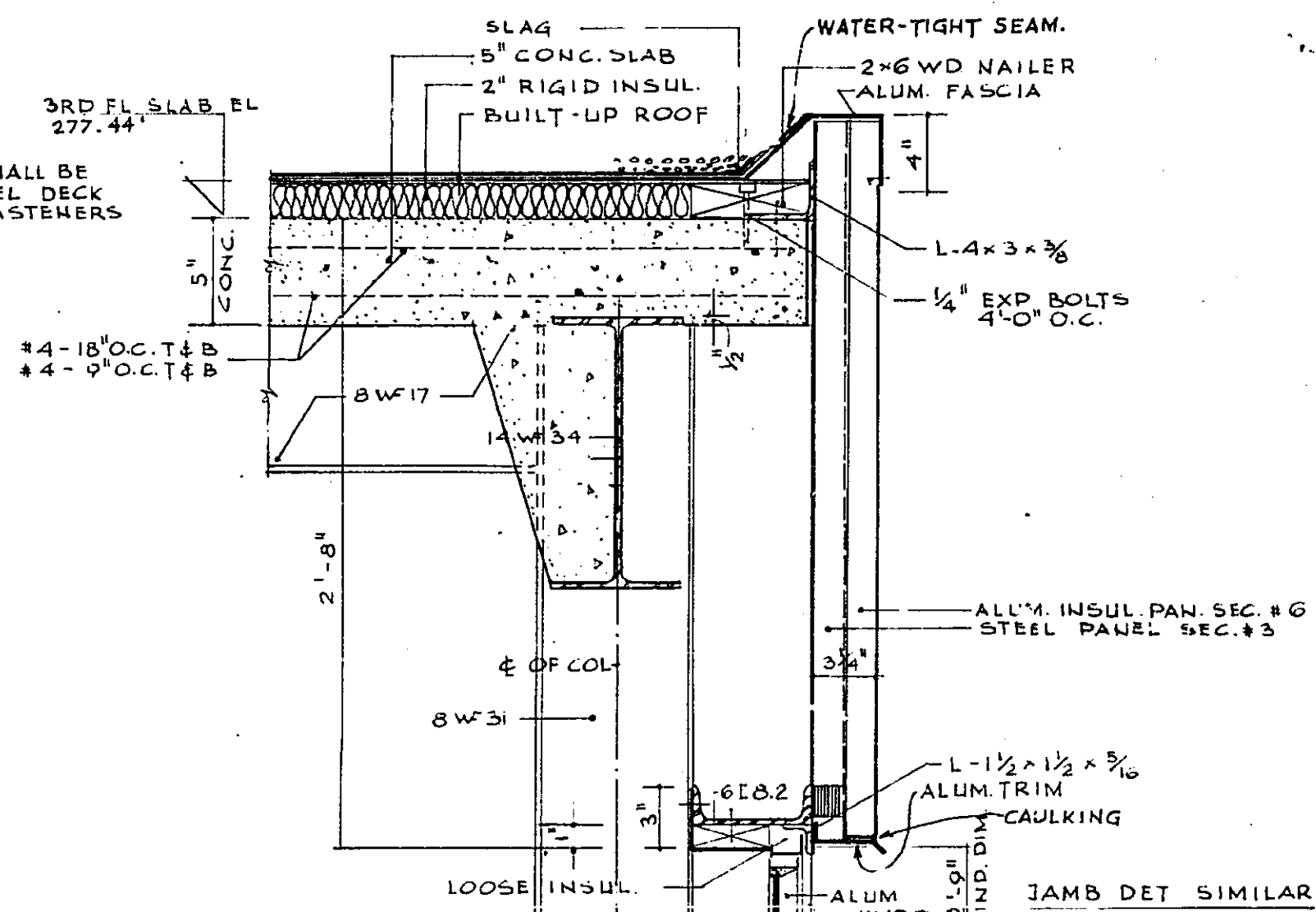
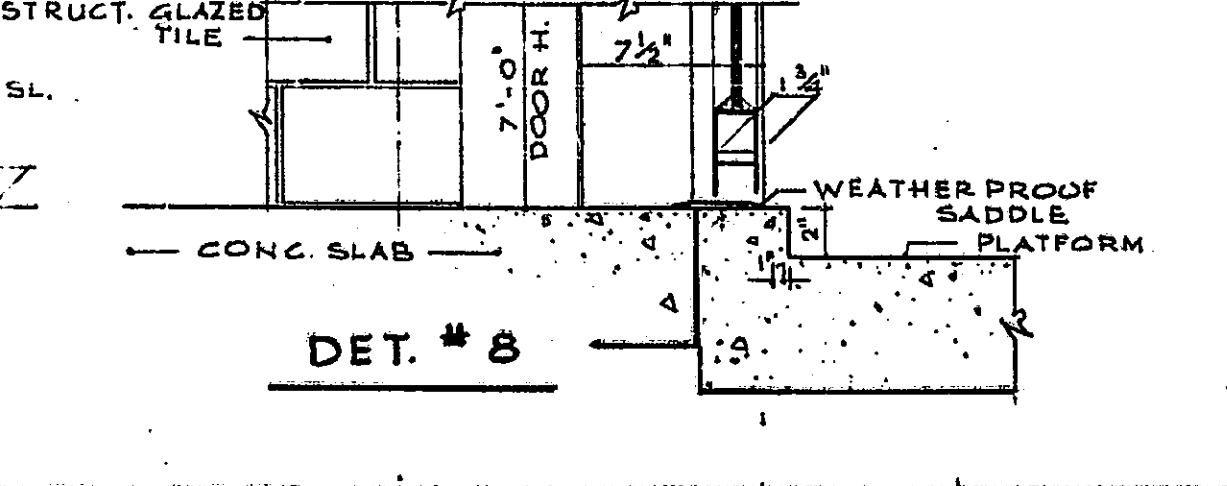
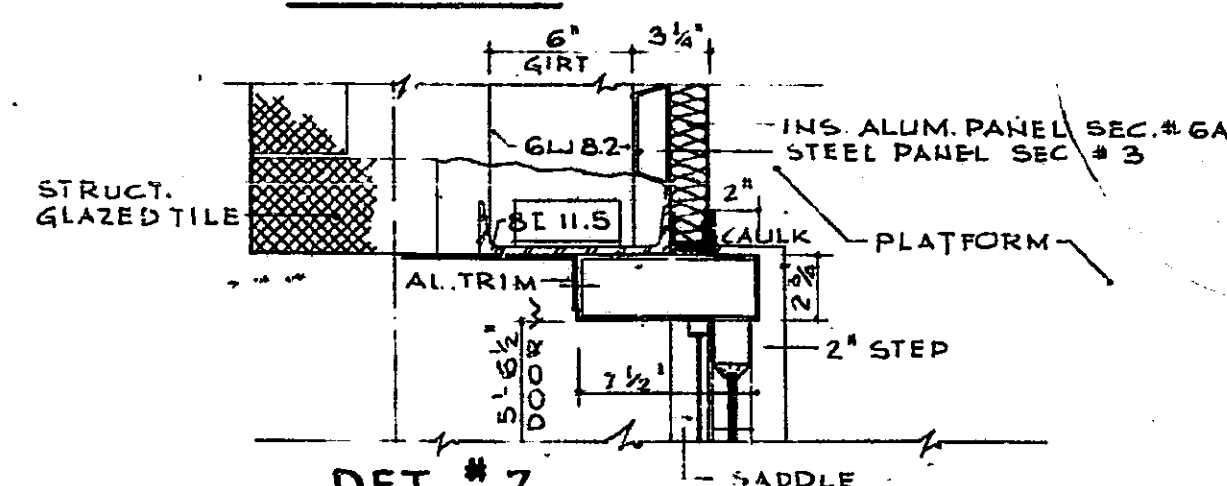
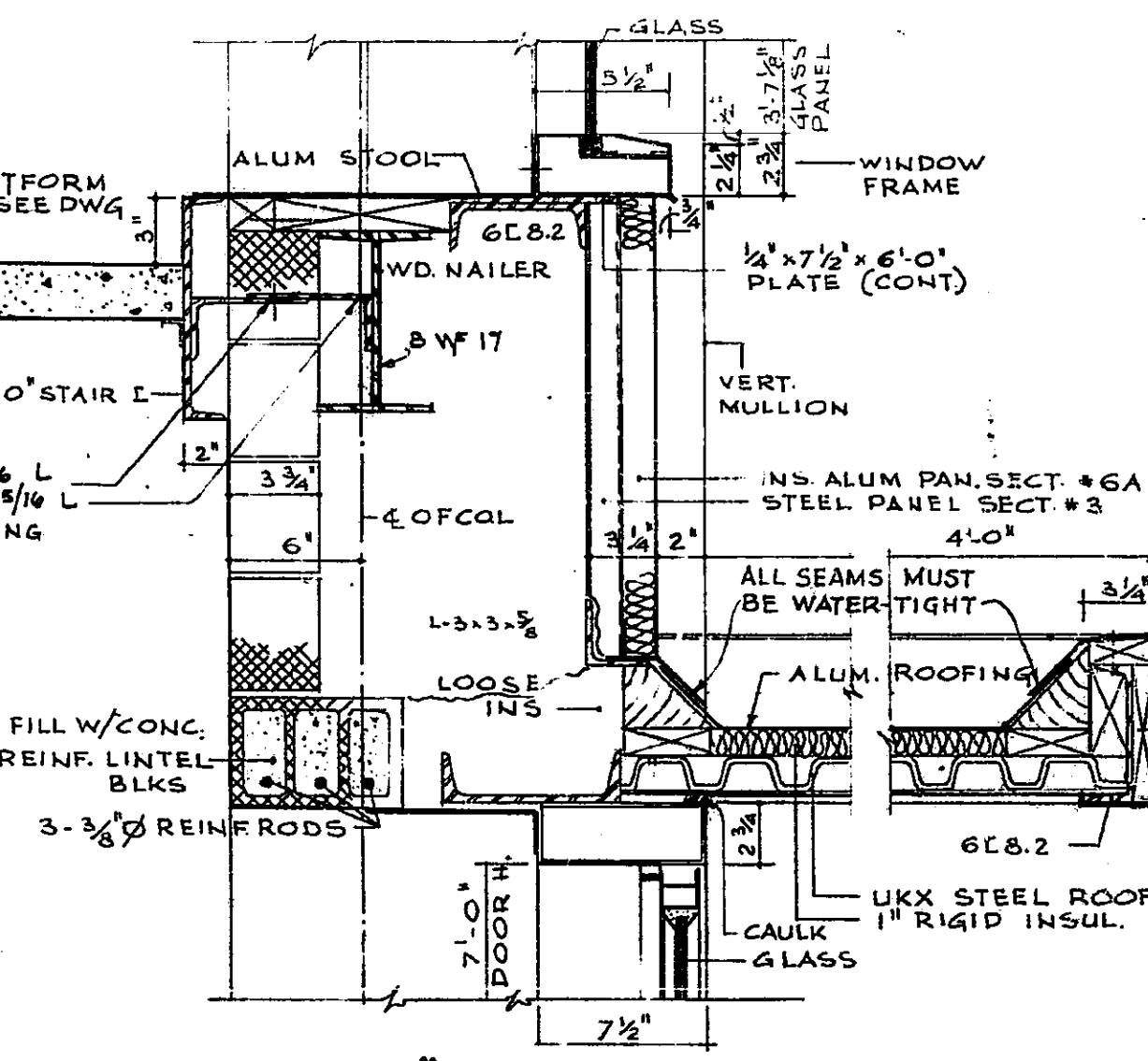
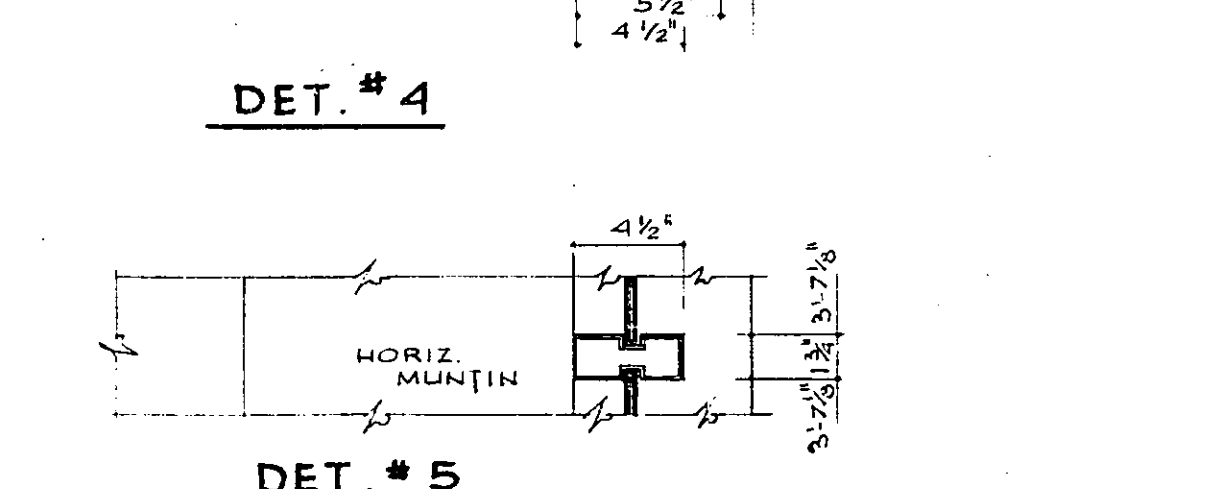
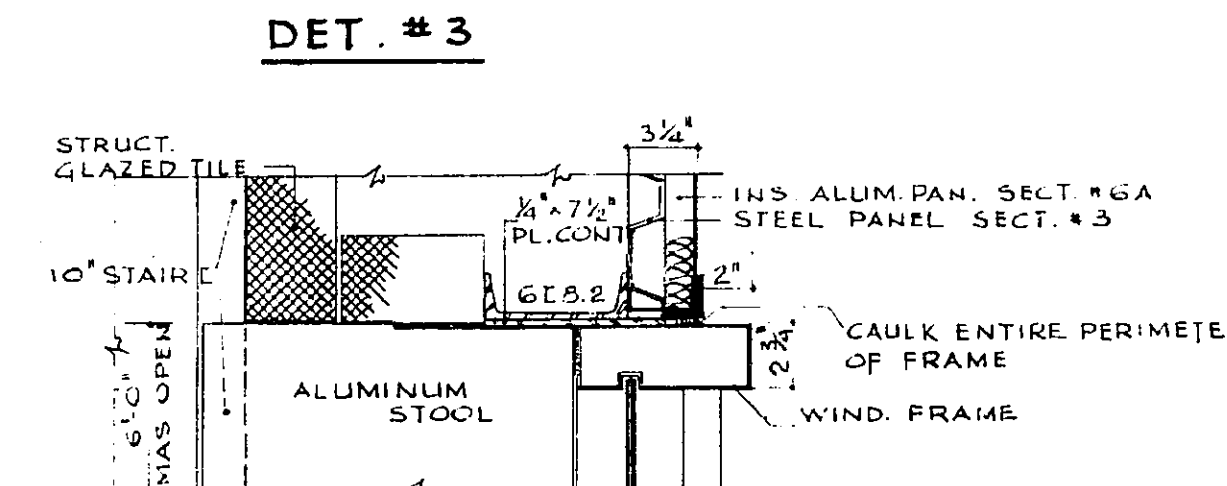
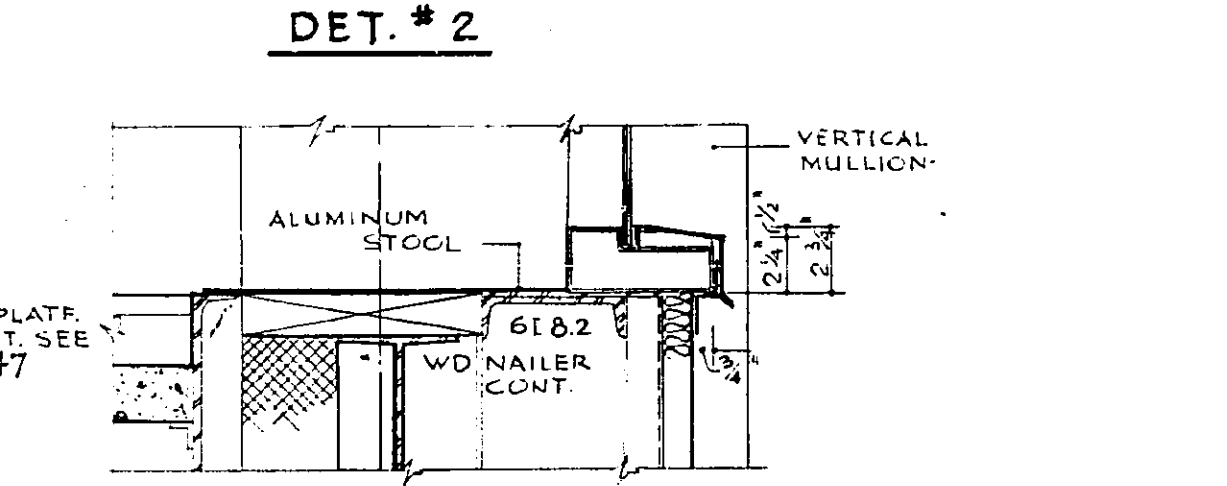
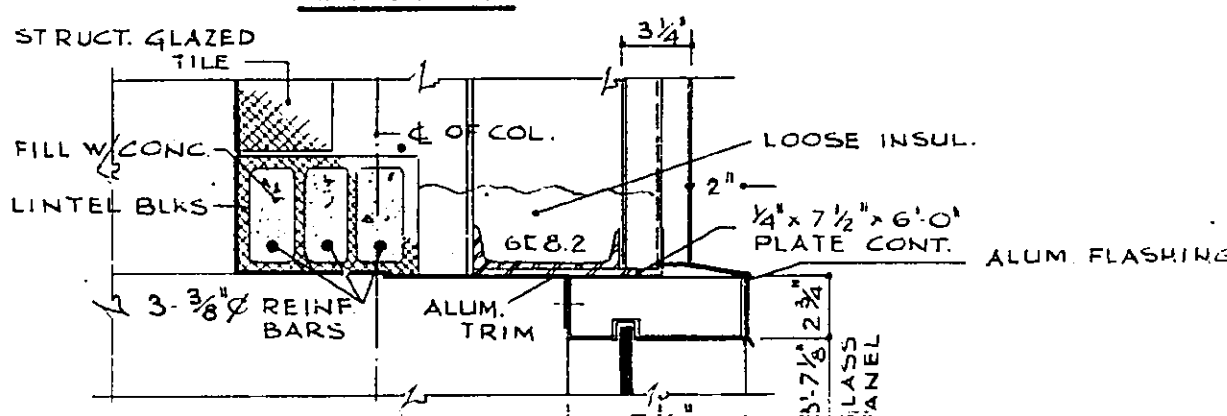
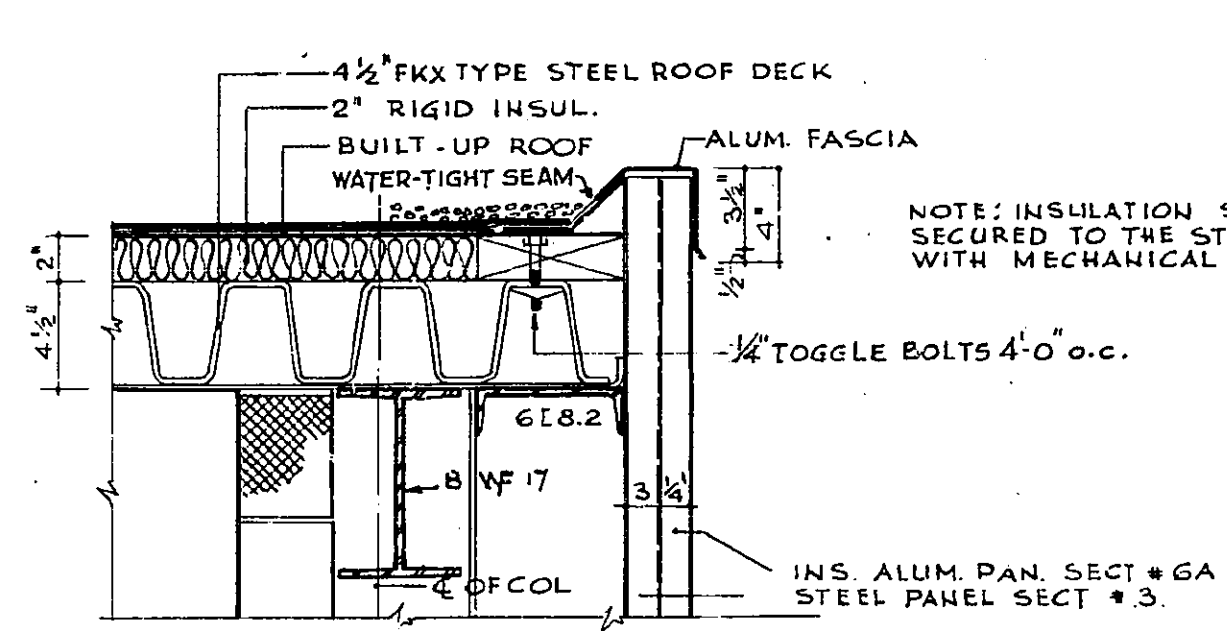
NOTE: STAIR CONTRACTOR SHALL FURNISH ALL NECESSARY CONNECTIONS REQD. FOR STAIR ERECTION.

- WELL STRING 10" x 1 1/2" x 8.4" C OR BENT PLATE
- WALL STRING 10" x 2" x 8.4" C OR BENT PLATE
- RISERS & SUB-TREADS 14 GA. STEEL
- PLATFORMS 12 GA. STEEL
- ANGLE BRACKETS 1 1/2" x 1 1/2" x 1/8"
- ANGLES & TEE STIFFENERS 3" x 3" x 1/4"
- STRUTS 3" x 3" x 1/4"
- CEMENT TREADS 1/2" THICK
- CEMENT PLATFORMS 2" THICK
- NEWELS 4" x 4"
- HANDRAILS 1.6" O.D.
- PLATFORM CHANNEL 5" C 9#

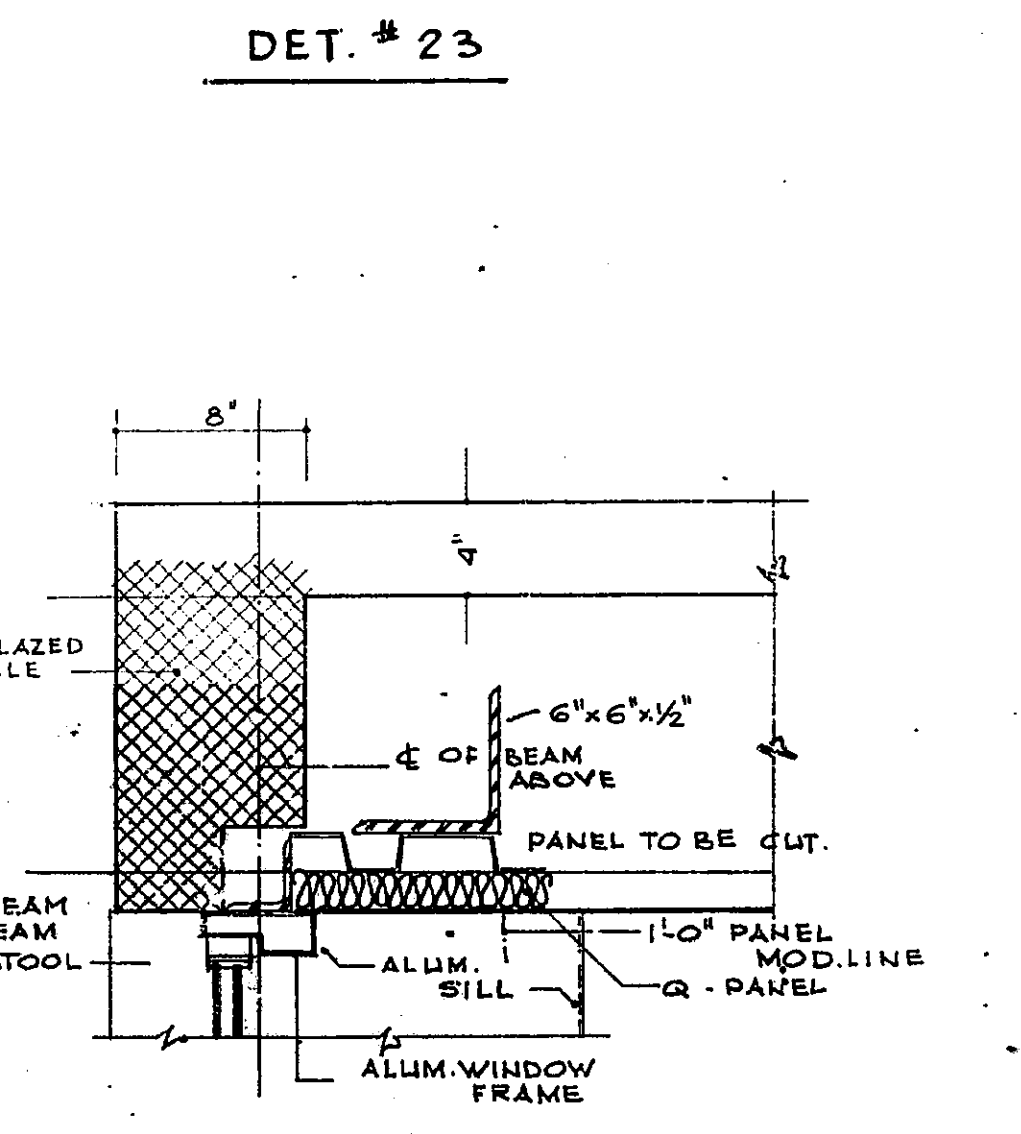
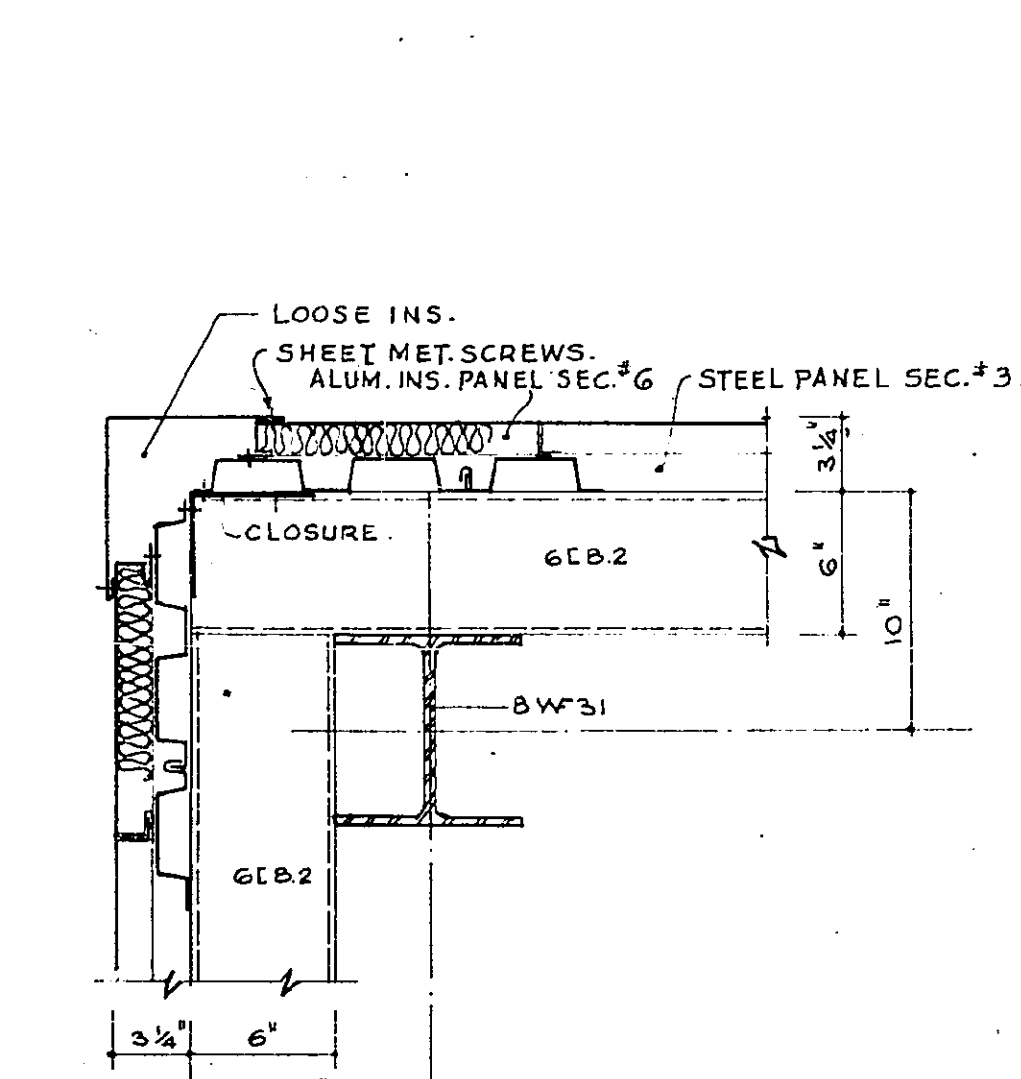
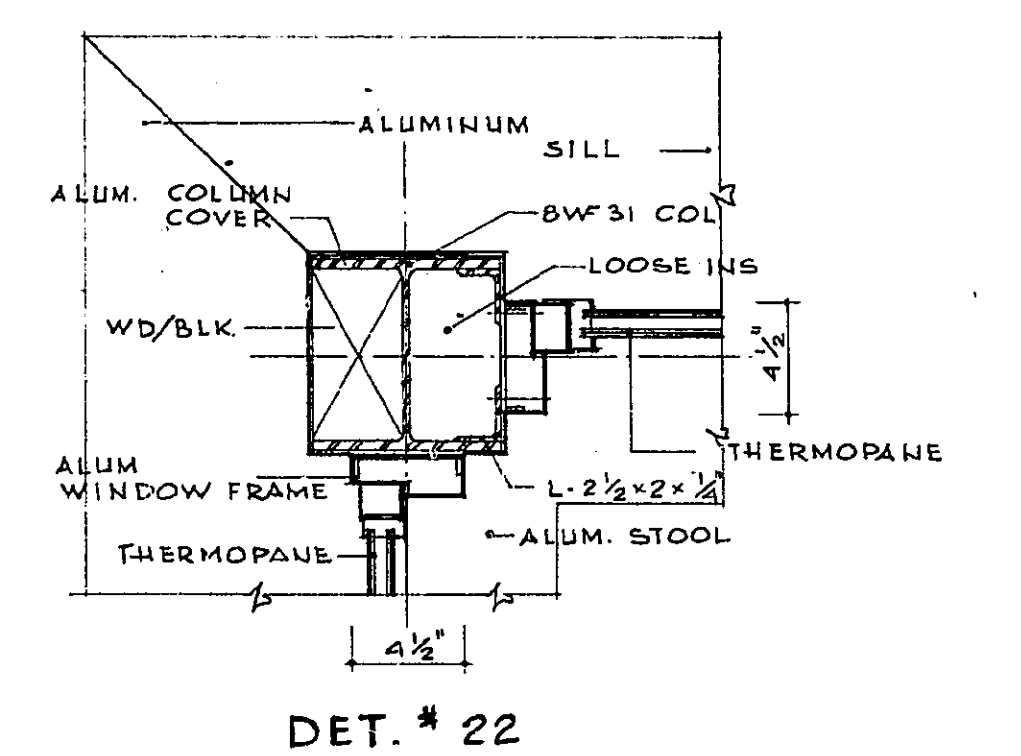
NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION C.C. PARKER & ASSOCIATES LIMITED PARSONS, BRINCKERHOFF, HALL & MACDONALD CONSULTING ENGINEERS HAMILTON ONTARIO BURLINGTON CANAL LIFT BRIDGE CONTROL HOUSE STAIR DETAILS			
APPROVED	DATE 12/11/58	DESIGN C.O.	CHKD. CCC & R.W.N.
<i>W. Thompson</i>		DRAWN L.J.H.	CHKD. R.W.N. & L.J.H.
CHIEF STRUCTURES DIVISION		TRACED J.E.H.	CHKD. L.J.H.
APPROVED	DATE 12/11/58	JOB NO. H-538	CHIEF ENGINEER
<i>G. Milne</i>			
PROJECT NO. SD6-4-77		SHEET 47 OF 62	



RECOMMENDED DATE 12-1-58
 CC Parker & Assoc.
 DESIGN C.O.
 DRAWN L.J.H.
 TRACED J.E.H.
 JOB NO. H-538



NOTE: ALL INSULATION SHALL BE SECURED TO THE STEEL DECK WITH MECHANICAL FASTENERS



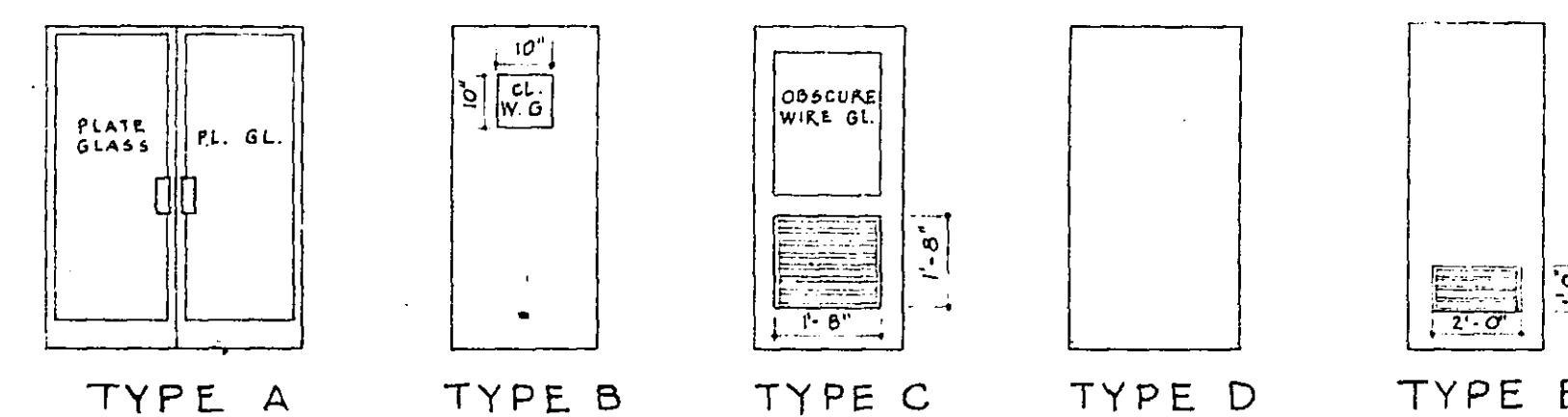
NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION C-C PARKER & ASSOCIATES LIMITED PARSONS, BRINCKERHOFF, HALL & MACDONALD CONSULTING ENGINEERS HAMILTON ONTARIO BURLINGTON CANAL LIFT BRIDGE CONTROL HOUSE MISCELLANEOUS DETAILS			
APPROVED	DATE 12/1/58	DEPARTMENT PROJECT NO. SD6-4-77	
CHIEF STRUCTURES DIVISION		CHIEF ENGINEER	
RECOMMENDED	DATE 12-1-58	DESIGN C.O.	CHKD. G.G.C. & R.W.R.
		DRAWN A.V.P.	CHKD. R.W.N. & L.J.H.
C.C. PARKER & ASSOCIATES LTD.		TRACED A.V.P.	CHKD. L.J.H.
JOB NO. H-538		APPROVED DATE 12/1/58	
		SHEET 48 OF 62	

SCHEDULE OF ROOM FINISHES

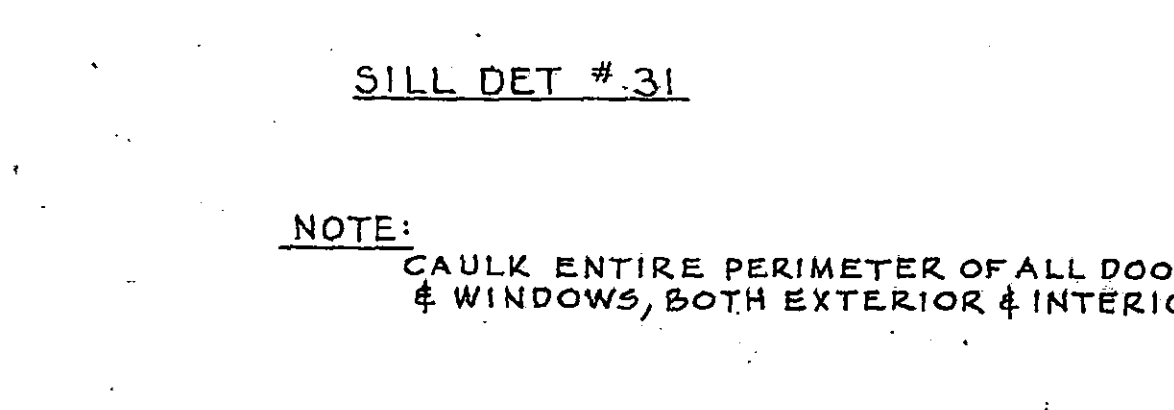
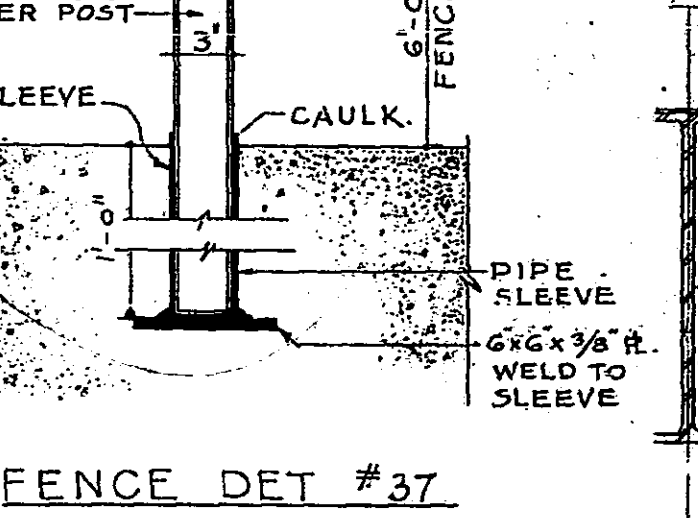
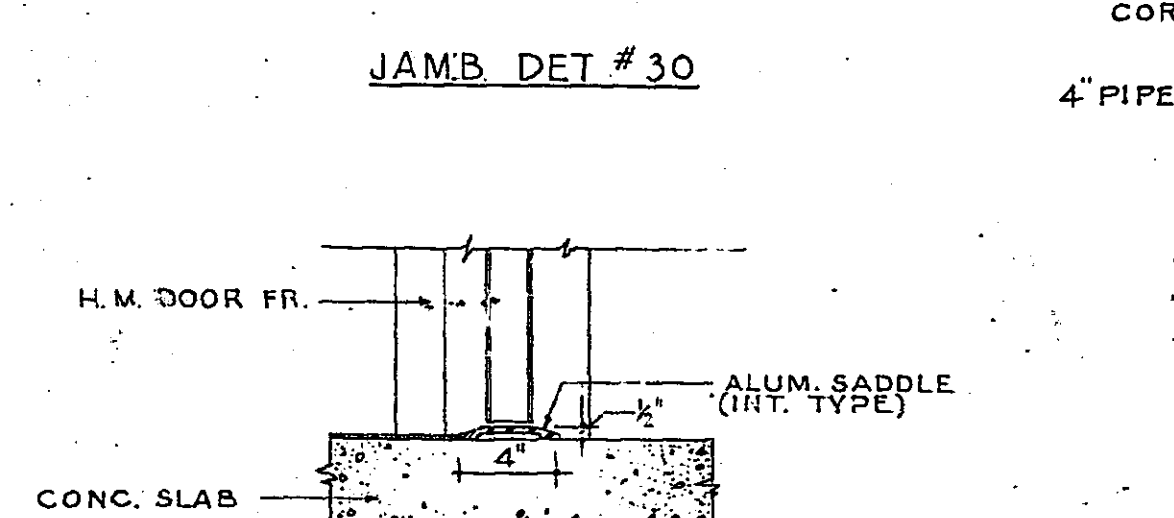
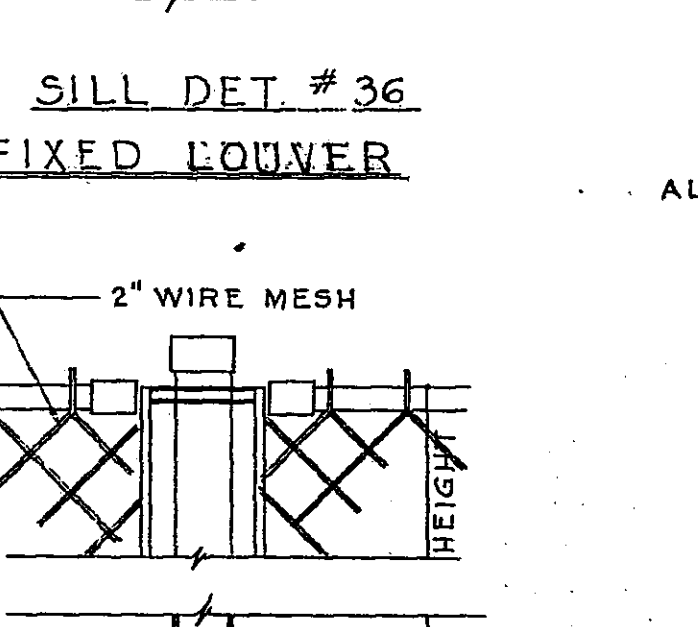
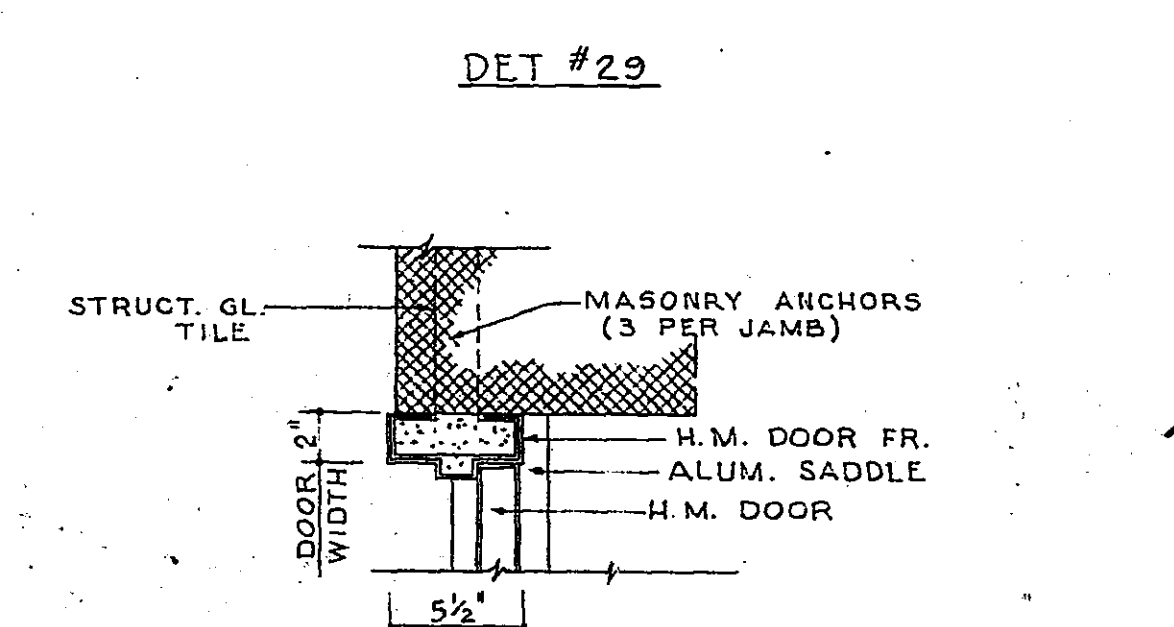
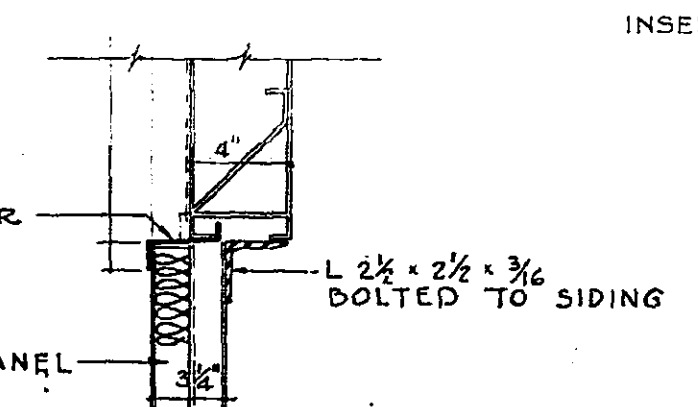
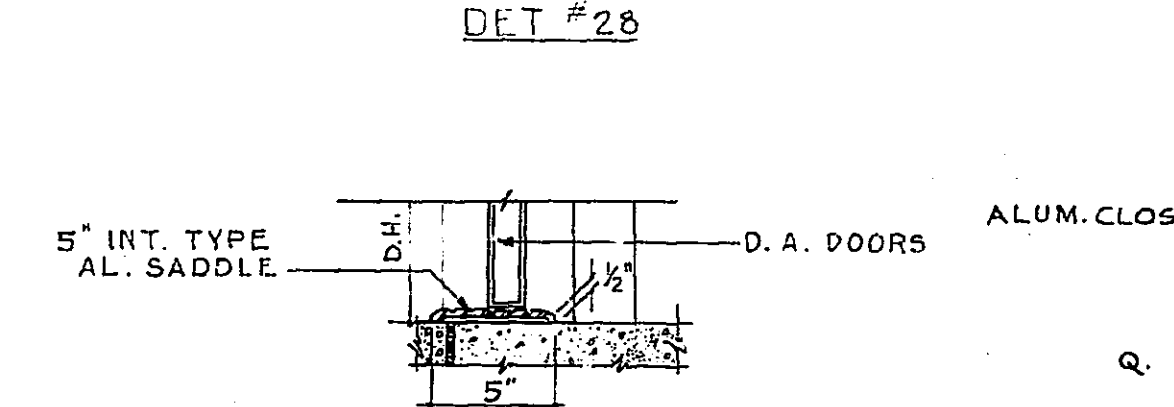
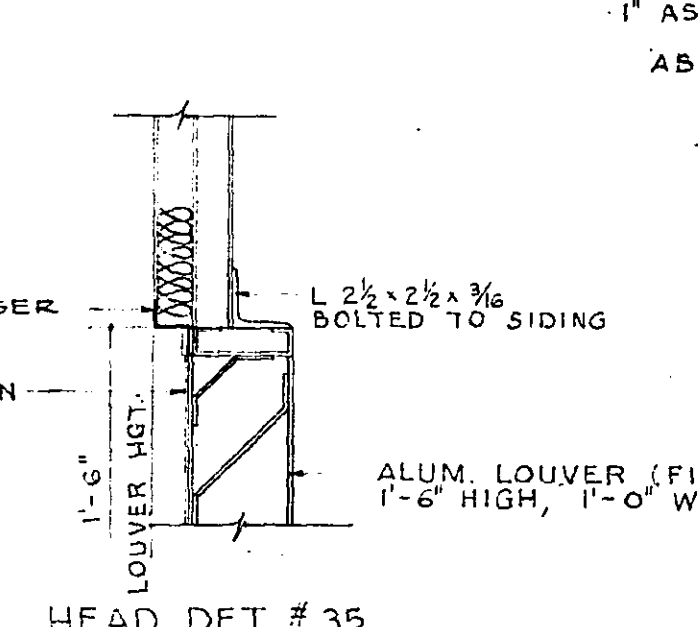
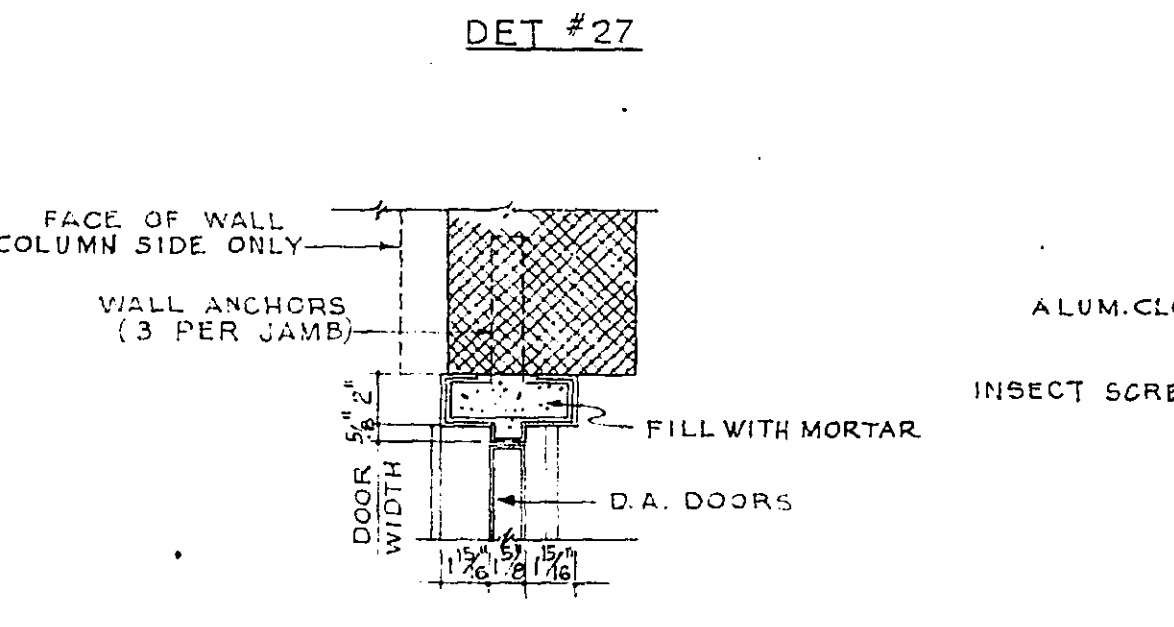
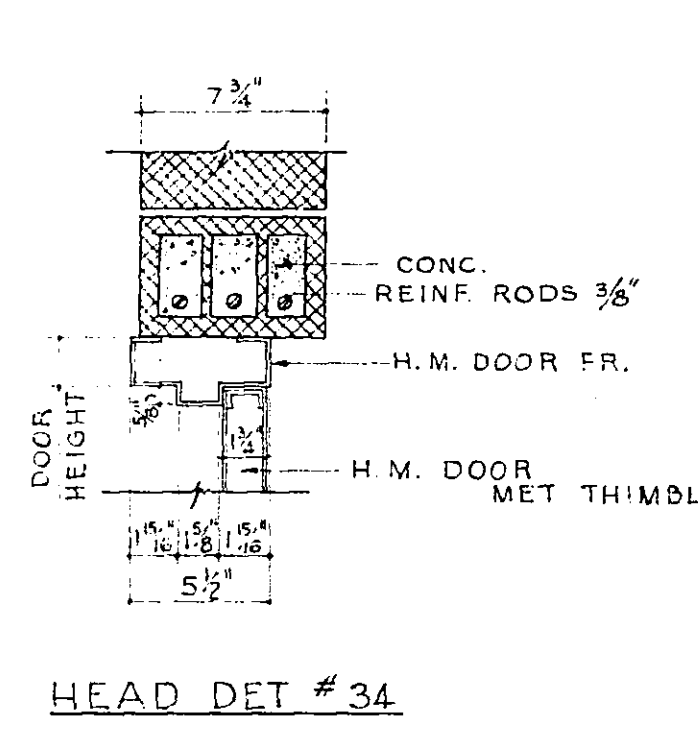
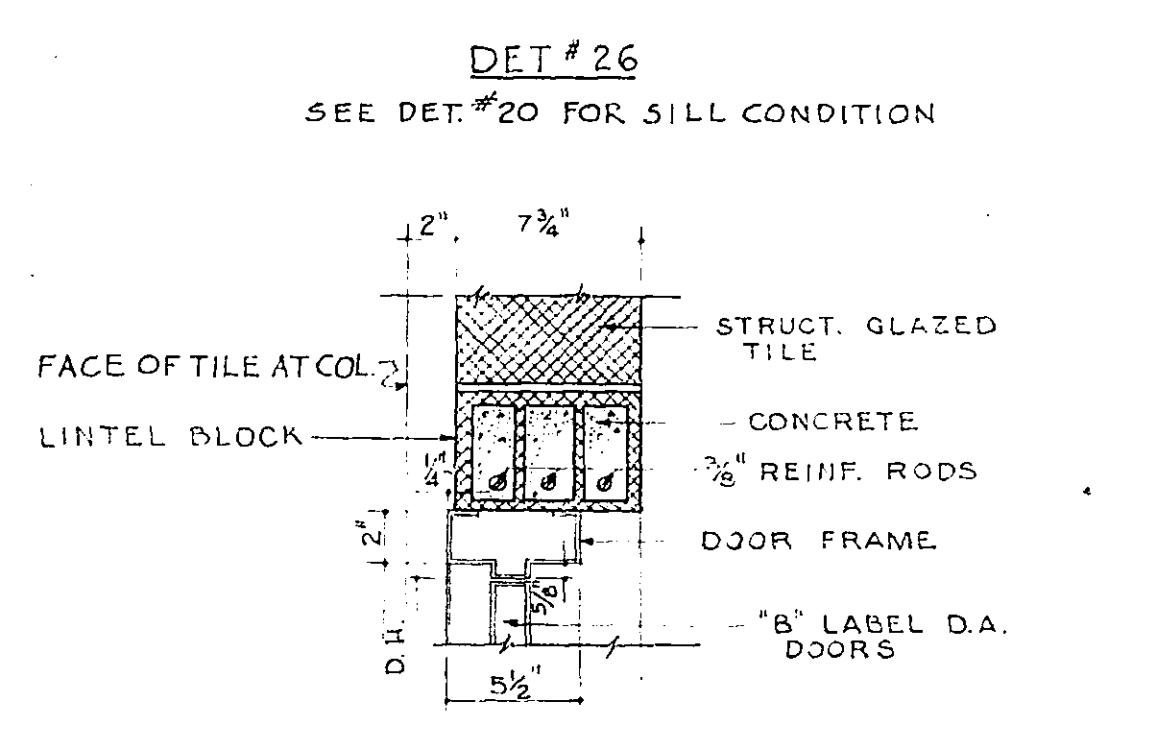
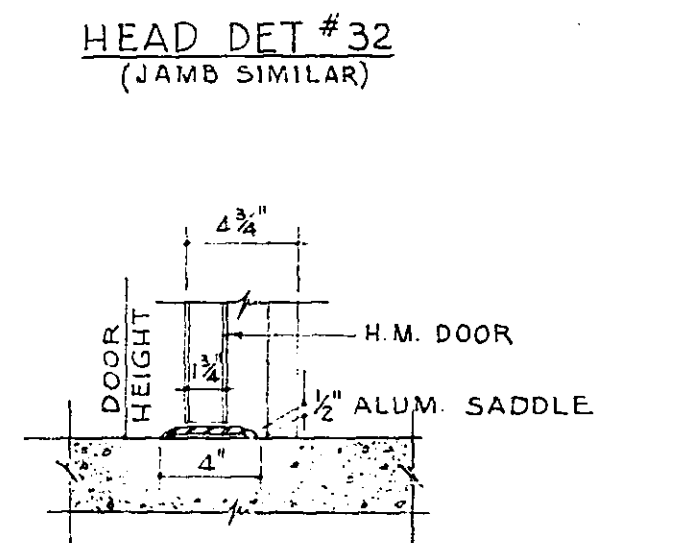
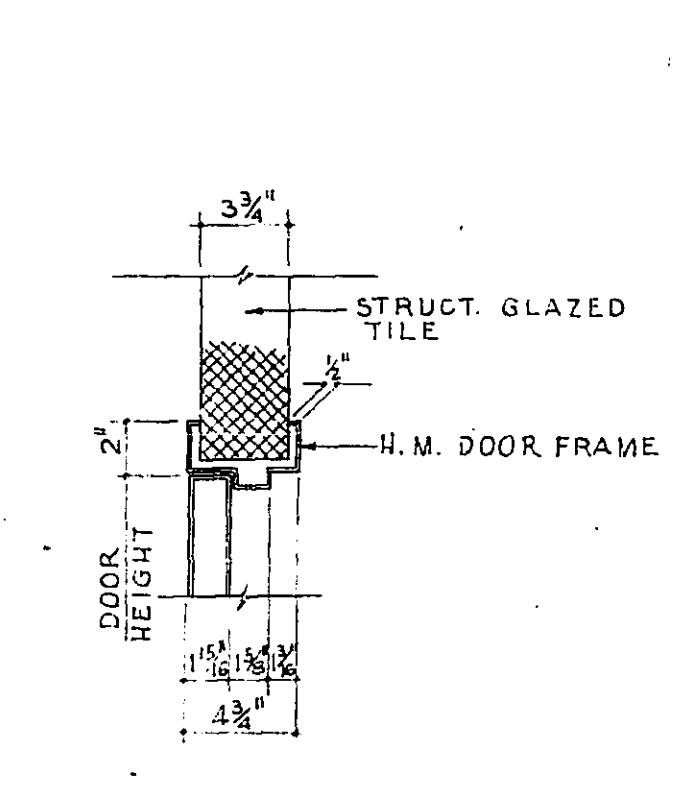
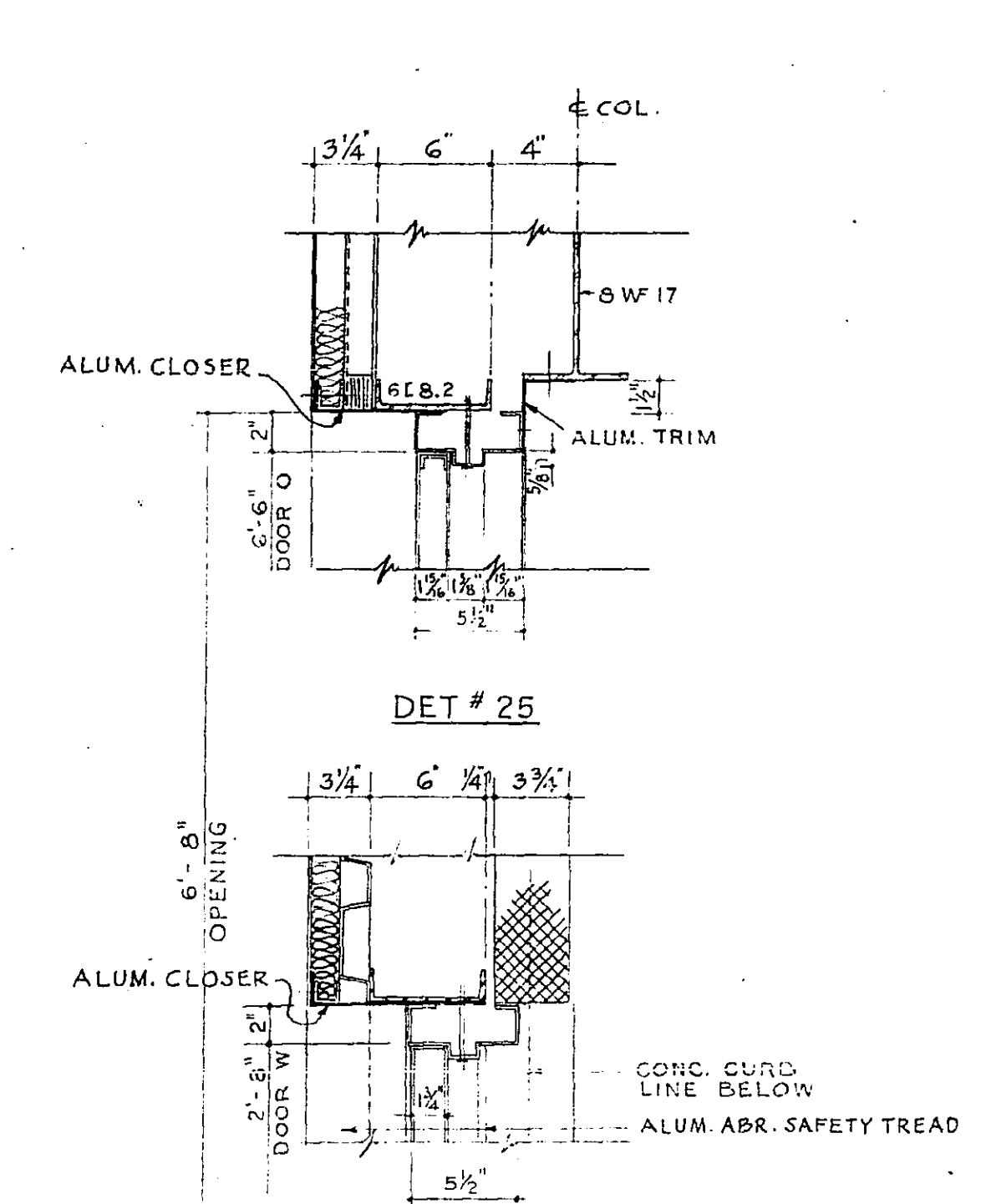
AREA	FLOOR		BASE		WALLS		CEILING		REMARKS
	MAT'L.	FIN.	MAT'L.	FIN.	MAT'L.	FIN.	MAT'L.	FIN.	
STAIR HALL	CONC.	HARDENER	STRUCT. TILE COVERED	GLAZED	STRUCT. TILE	GLAZED	STEEL & CONC.	PAINTED	STAIRS AND STAIR SOFFIT TO BE PAINTED
MECH'L EQUIP ROOM		HARDENER	STRUCT. TILE & CONC.	GLAZED	STRUCT. TILE & STEEL	PAINTED	STRUCT. ST'L & CONC.		STRUCT. TILE TO BE UNSCORED AND UNGLAZED BRICK CHIMNEY PAINTED
ELECT'L EQUIP ROOM		VINYL TILE	STRUCT. TILE & CONC.						
CLOSET		PAINTED	STRUCT. TILE & STEEL						
CONTROL ROOM		VINYL TILE	STRUCT. TILE COVERED	GLAZED	STRUCT. TILE	GLAZED	STEEL		ALUM. WINDOWS & TRJM
TOILET & LOCKER RM.		VINYL TILE	STRUCT. TILE COVERED	GLAZED	STRUCT. TILE	GLAZED	STEEL		
R.R. RELAY ROOM		PAINTED	STRUCT. TILE & STEEL	GLAZED	STRUCT. TILE & STEEL	PAINTED	STRUCT. ST'L & CONC.		

DOOR SCHEDULE

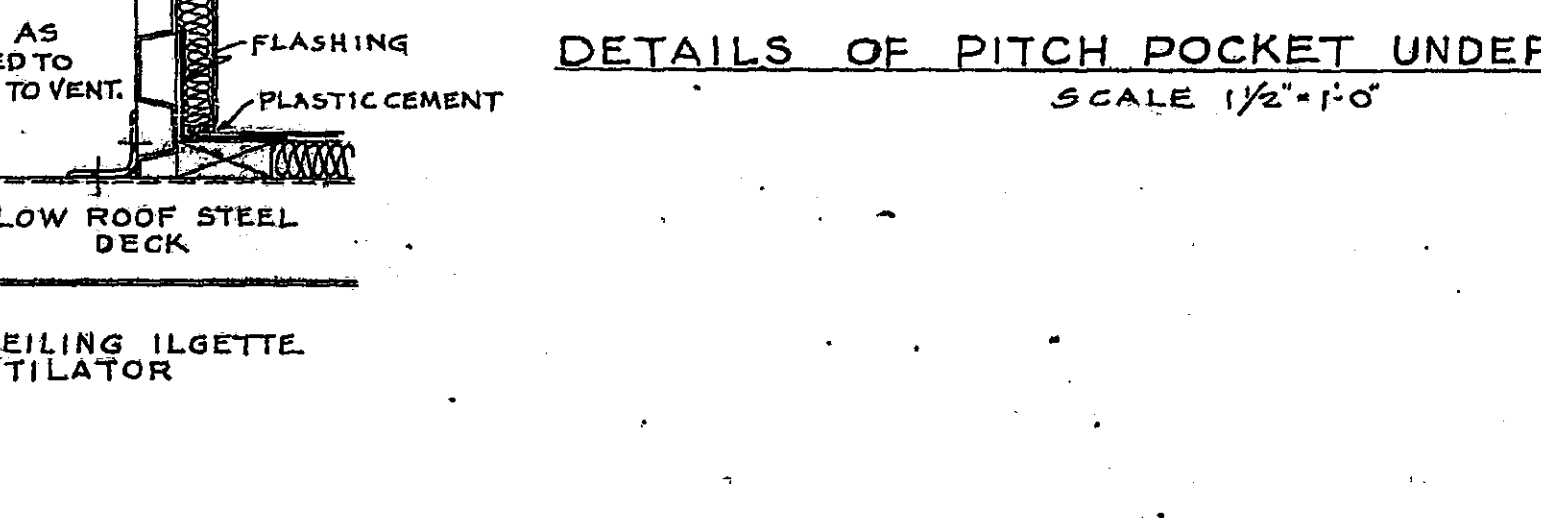
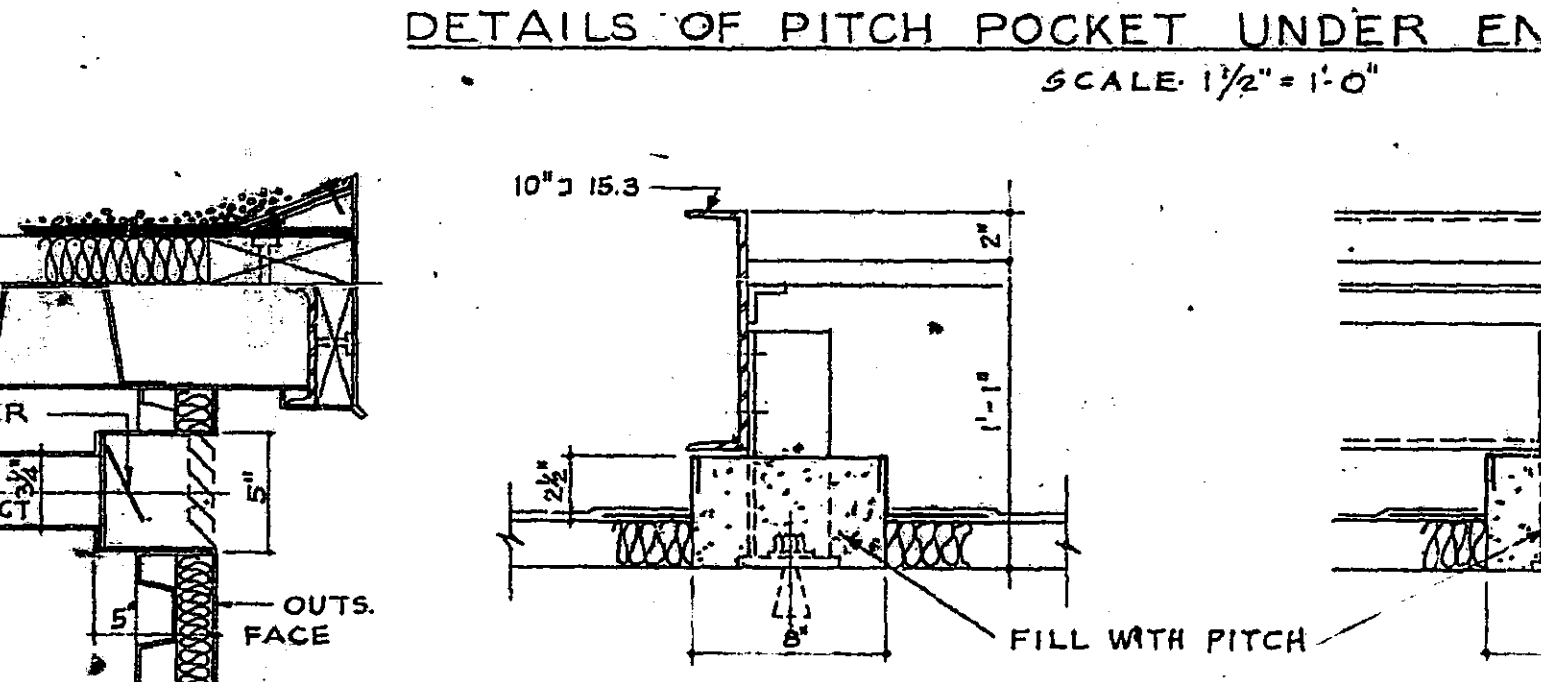
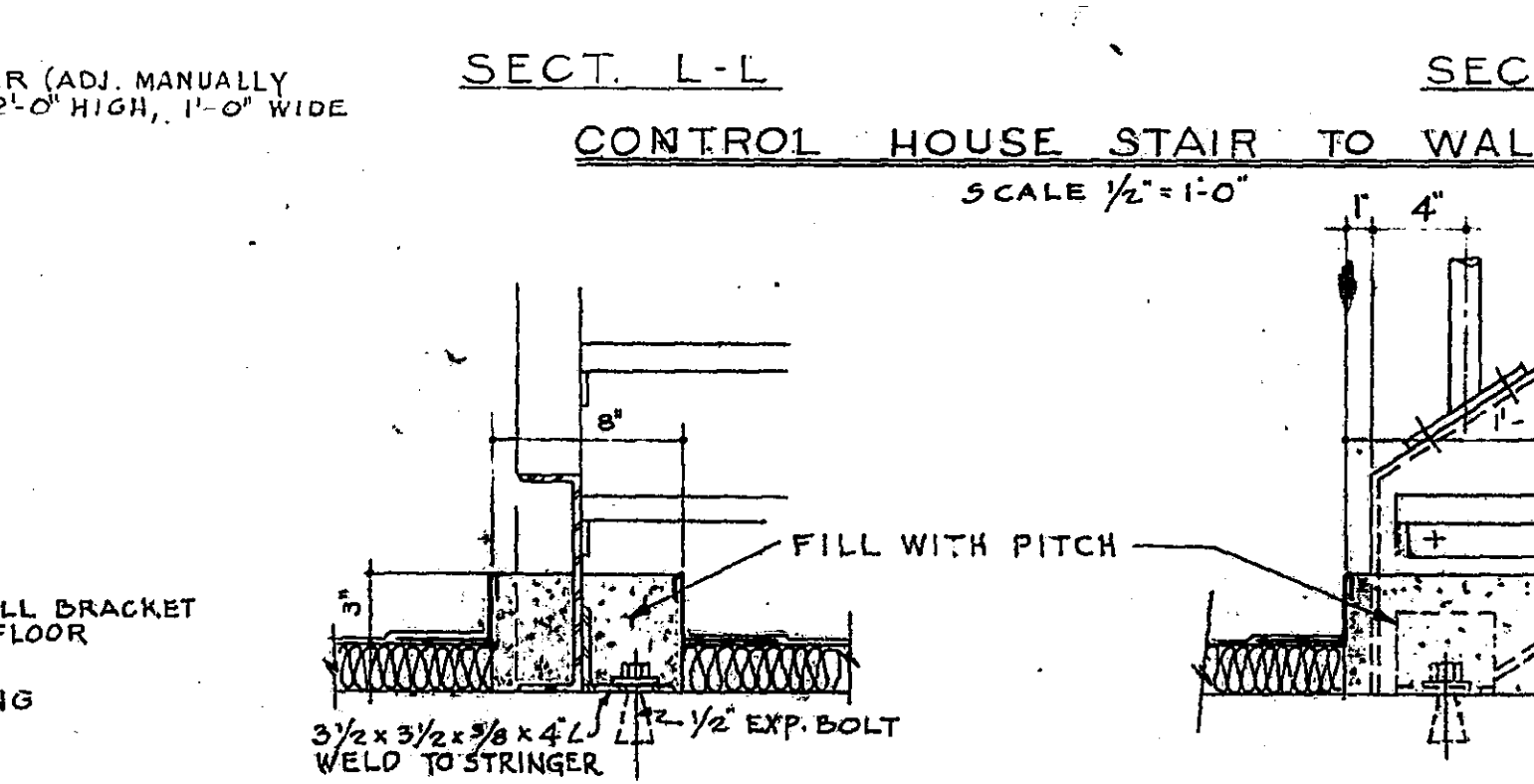
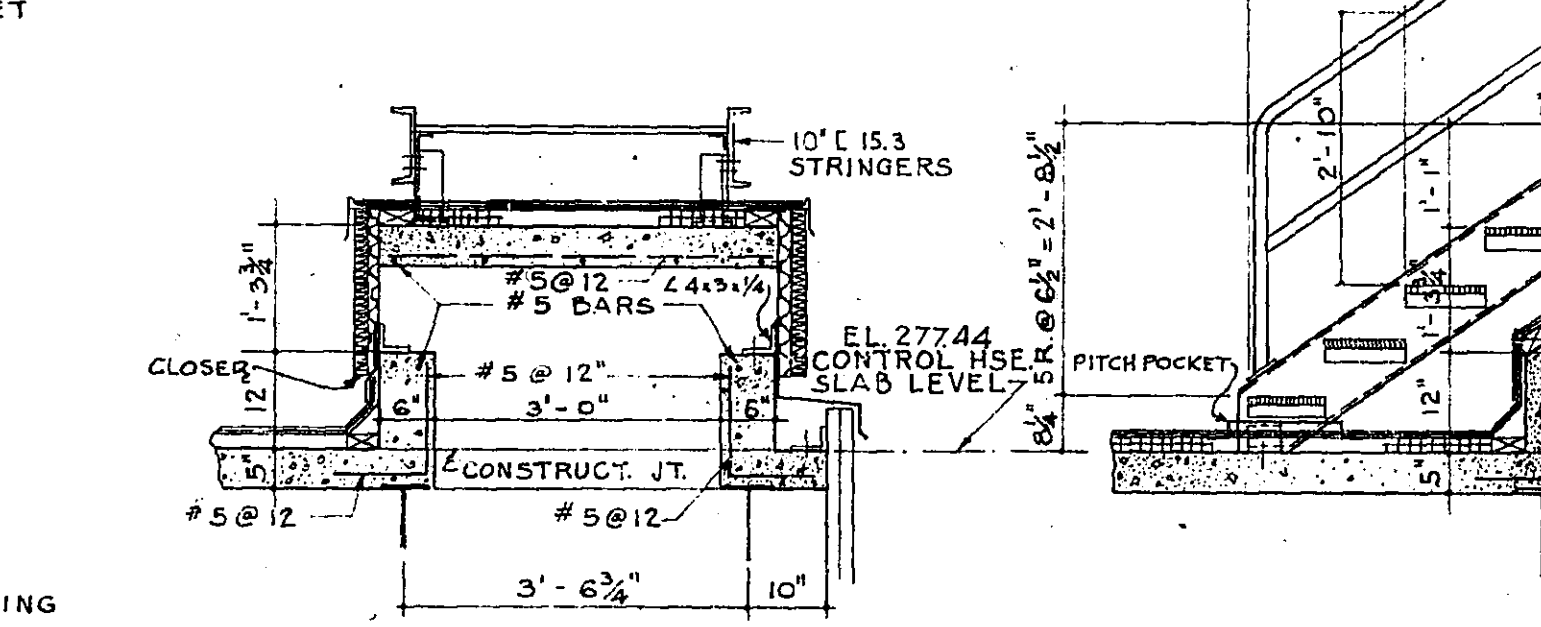
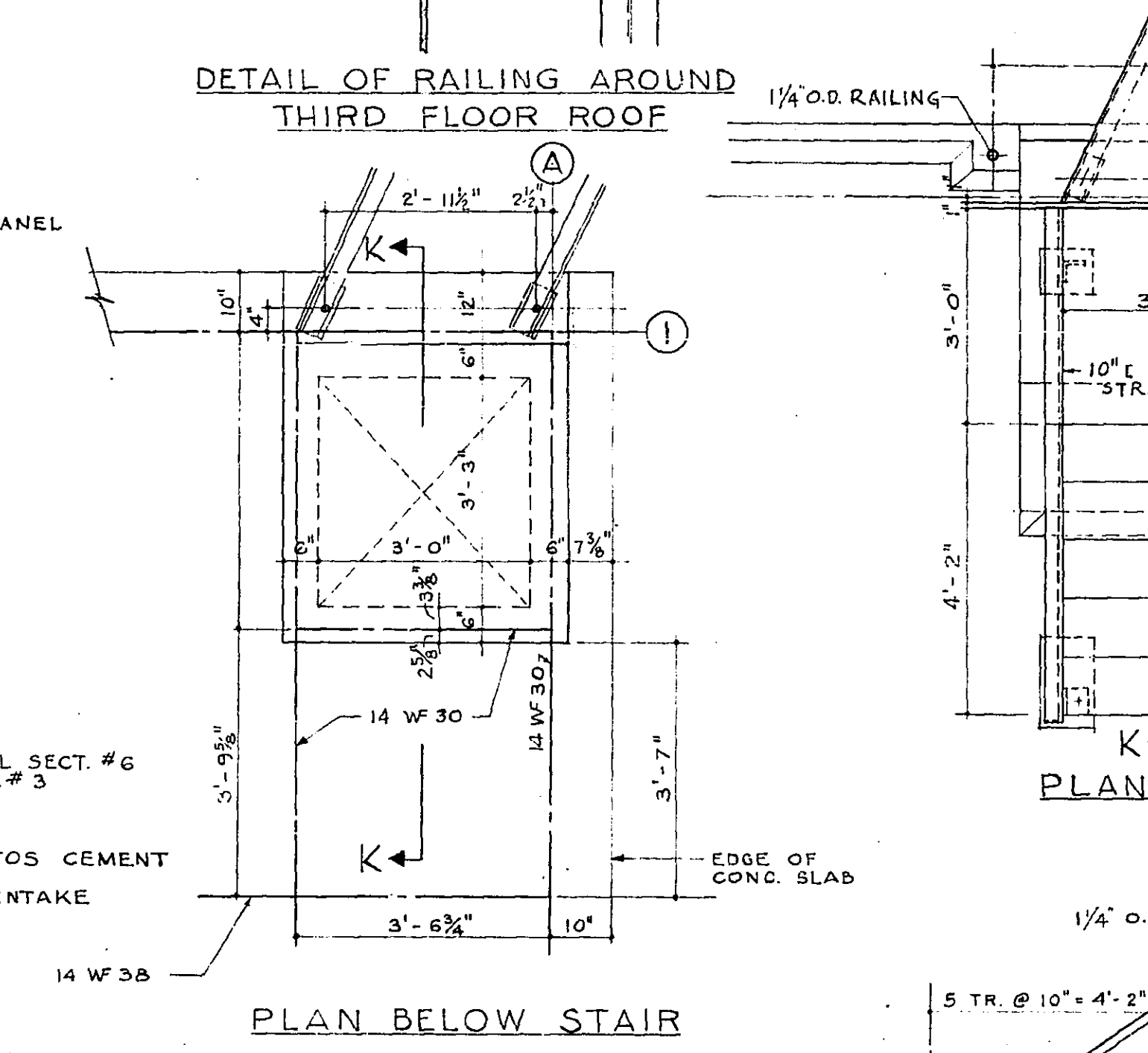
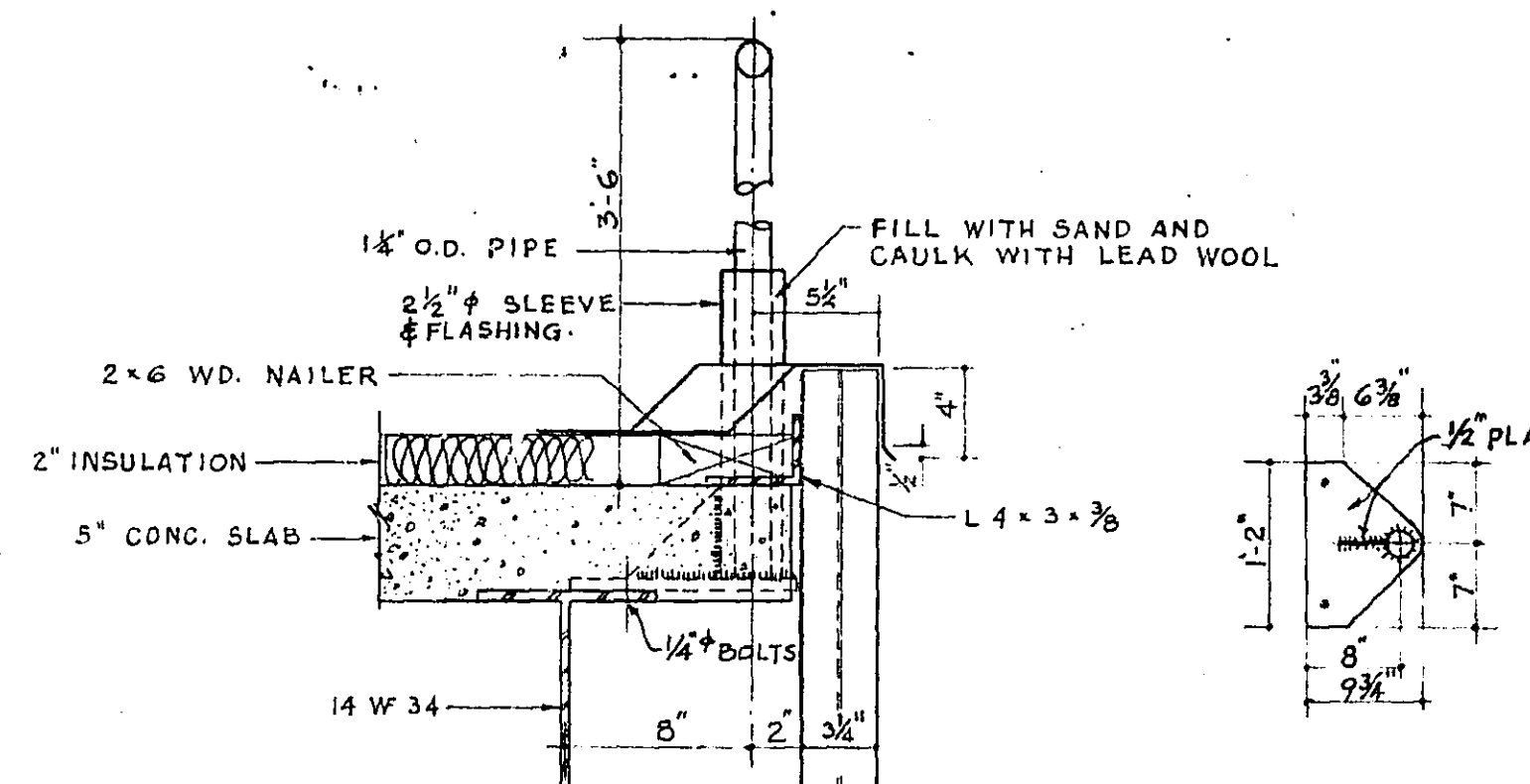
DOOR NO.	SIZE	TYPE	MAT'L	FRAME	SADDLE	REMARKS	DETAIL NUMBER		
							HEAD	JAMB	SILL
1	5'-6 1/2" x 7'-0" x 1 1/2"	A	ALUM.	ALUM.	ALUM. WEATHERPROOF	PAIR OF DOORS	6	7	8
2	5'-6 1/2" x 6'-11 1/2" x 1 1/2"	B	H.M.	H.M.	ALUM.	PAIR OF DOORS	27	28	29
3	3'-0" x 6'-11 1/2" x 1 1/2"	B				"B" LABEL - 10" x 10" BULLSEYE	34	30	31
4	4'-0" x 6'-11 1/2" x 1 1/2"	D				PAIR OF DOORS	32	32	33
5	3'-0" x 6'-11 1/2" x 1 1/2"	D				PAIR OF DOORS	34	30	31
6	2'-8" x 6'-11 1/2" x 1 1/2"	C				"C" LABEL - 10" x 10" BULLSEYE	32	32	
7	2'-8" x 6'-11 1/2" x 1 1/2"	C	ALUM.	ALUM.	ALUM. WEATHERPROOF	ADJUSTABLE LOUVER INSECT SCREEN OUTS.	25	26	20
8	3'-0" x 6'-11 1/2" x 1 1/2"	E	H.M.	H.M.	ALUM.	2'-0" x 1'-0" FIXED LOUVER	32	32	33



DOOR TYPES

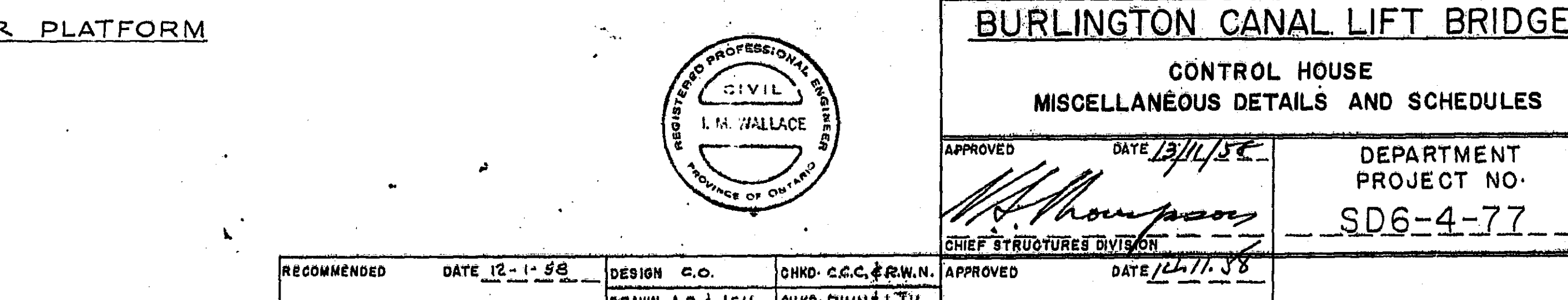
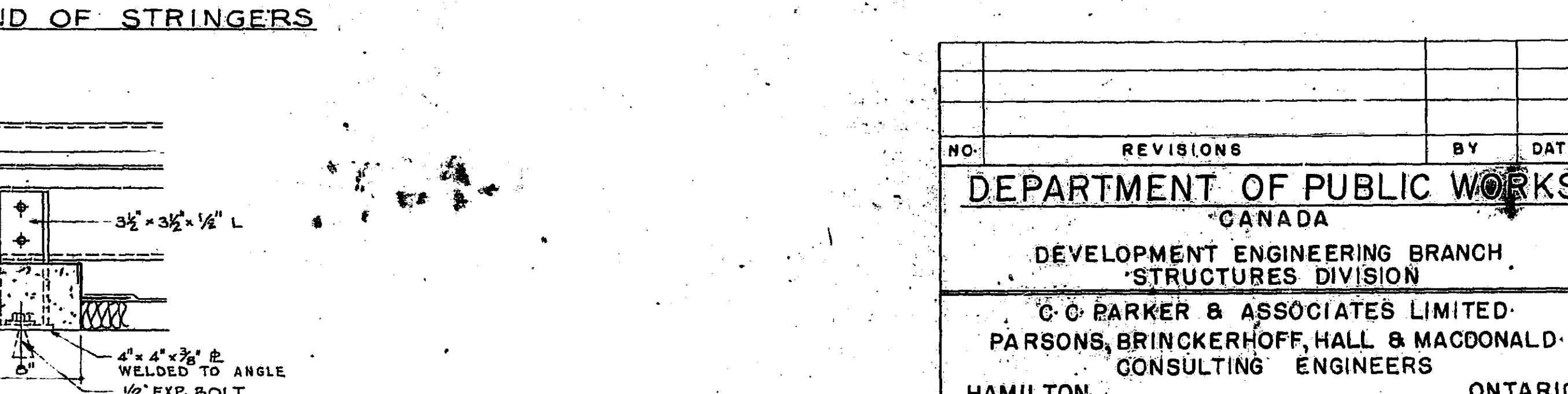
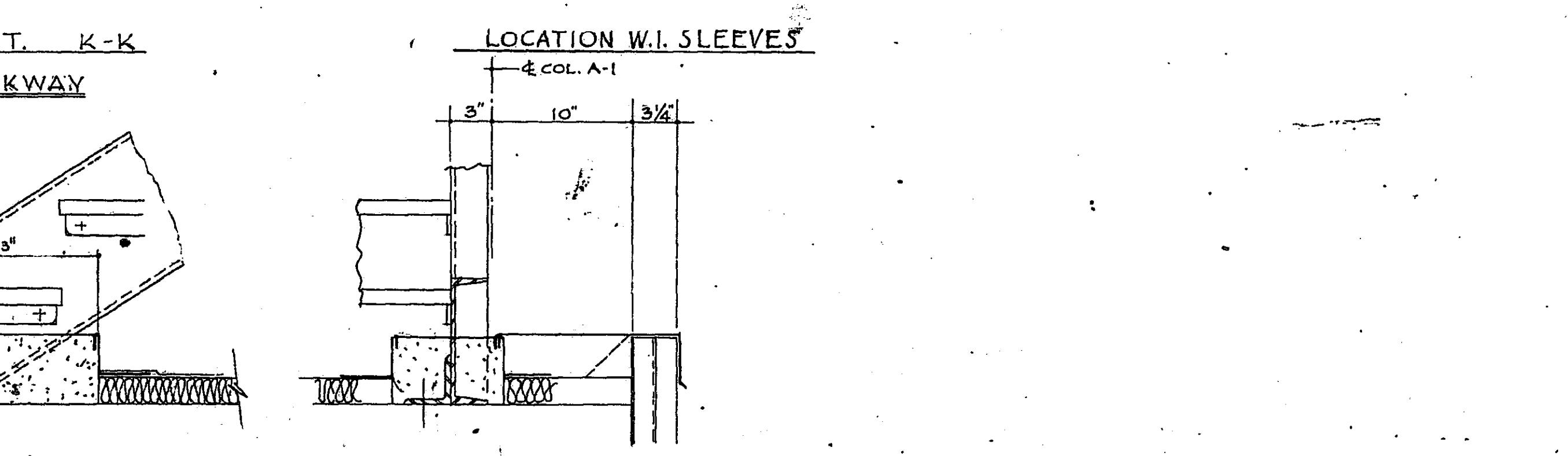
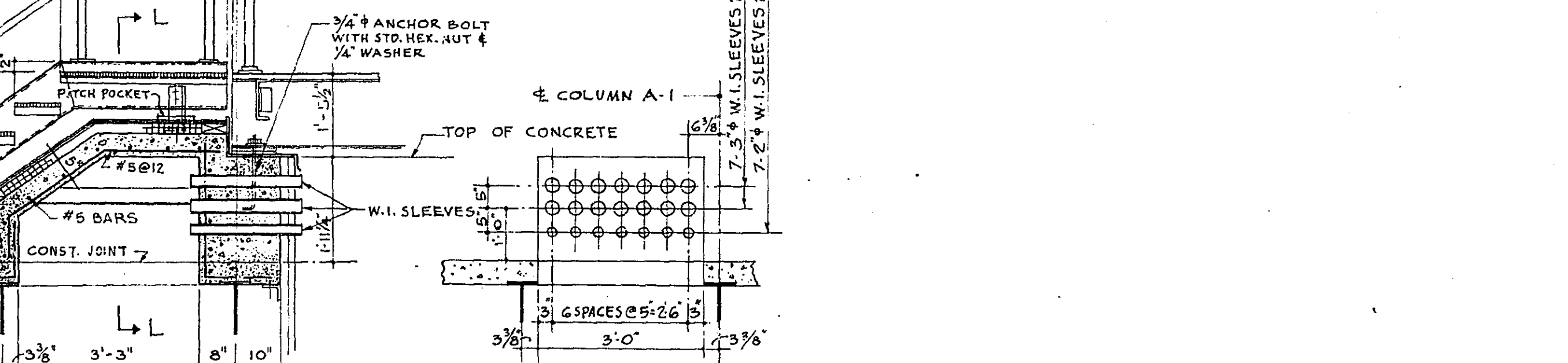
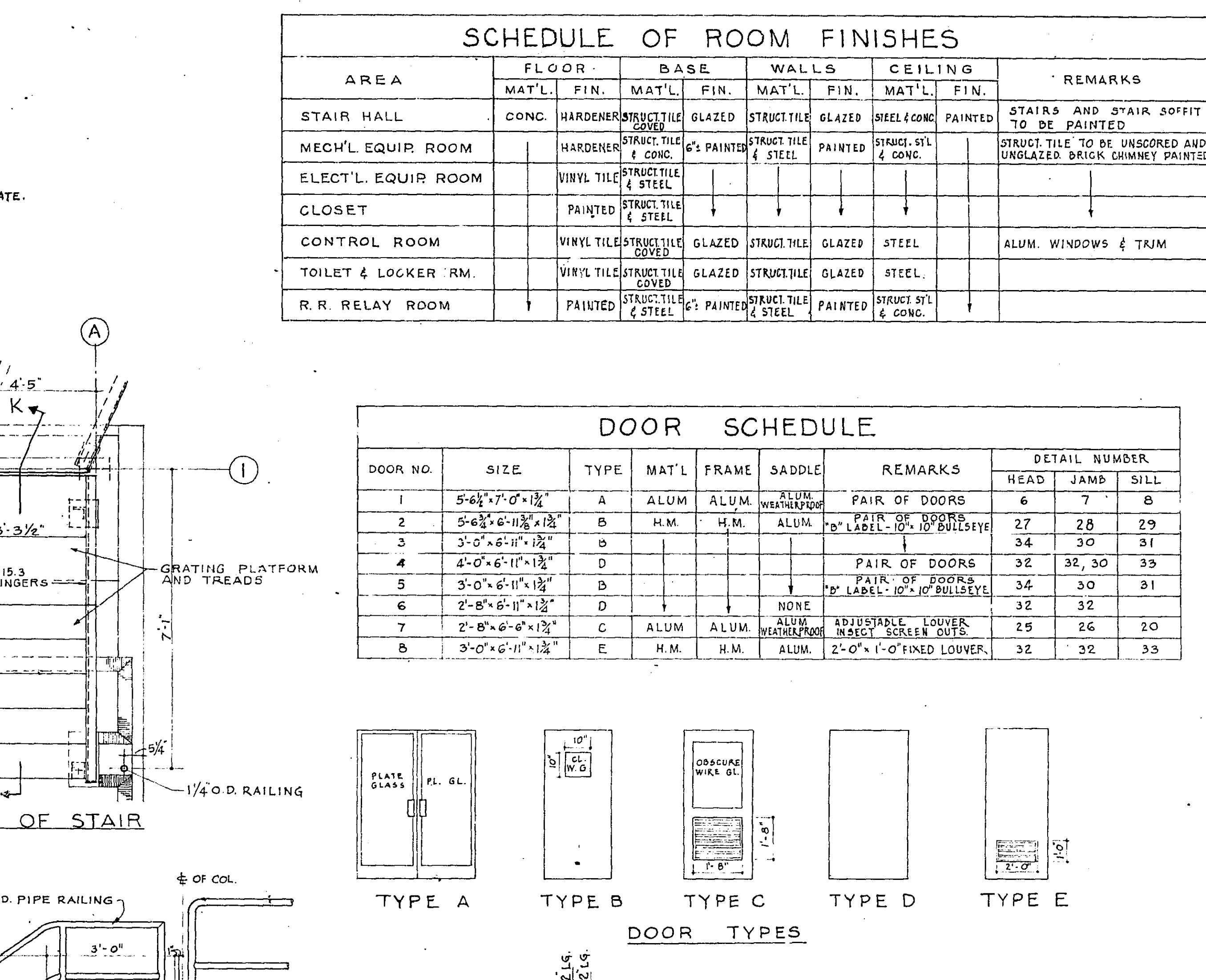


NOTE: CAULK ENTIRE PERIMETER OF ALL DOOR FRAMES & WINDOWS, BOTH EXTERIOR & INTERIOR.



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

SECTION G-G VENTILATOR DETAIL



SECTION G-G VENTILATOR DETAIL

NO. _____ REVISIONS _____ BY _____ DATE _____

DEPARTMENT OF PUBLIC WORKS
CANADA

DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

G. G. BARKER & ASSOCIATES LIMITED
PARSONS, BRINCKERHOFF, HALL & MACDONALD
CONSULTING ENGINEERS

HAMILTON ONTARIO

BURLINGTON CANAL LIFT BRIDGE

CONTROL HOUSE
MISCELLANEOUS DETAILS AND SCHEDULES

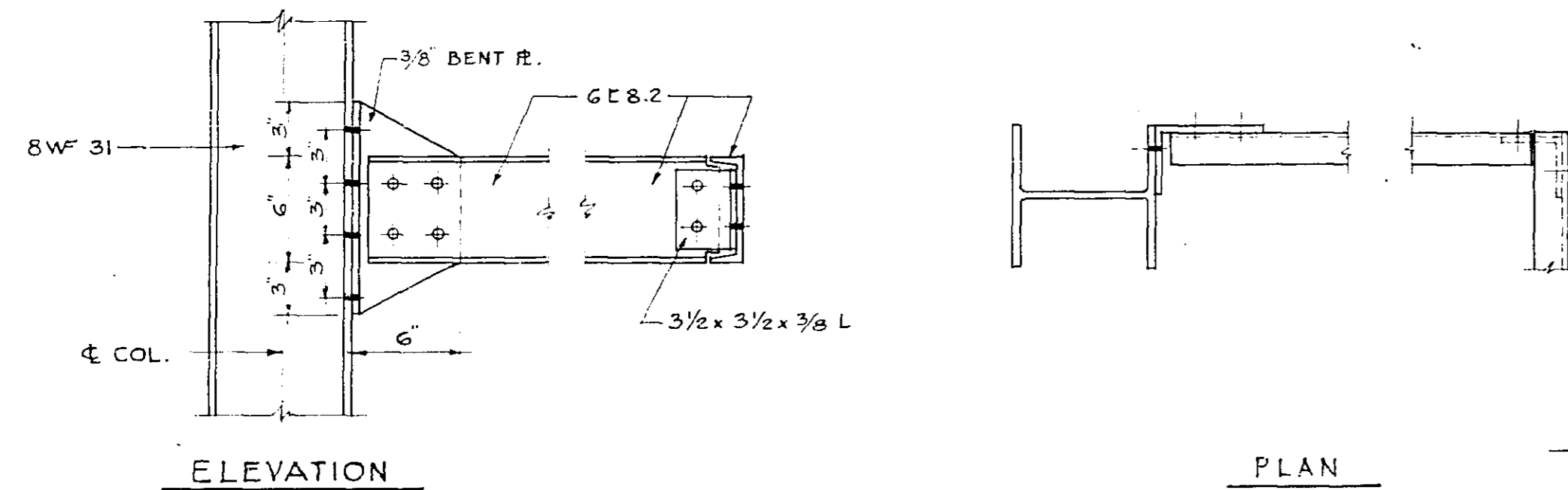
APPROVED DATE 12/11/58
M. H. Wallace
CHIEF STRUCTURES DIVISION

DEPARTMENT PROJECT NO. SD6-4-77

RECOMMENDED DATE 12-1-58 DESIGN C.O. CHND. C.C.C. & R.W.N. APPROVED DATE 12/11/58
DRAWN A.P. & J.E.H. CHND. R.W.N. & L.J.H.
TRACED K.V. & J.E.H. CHND. L.J.H.
JOB NO. H-538

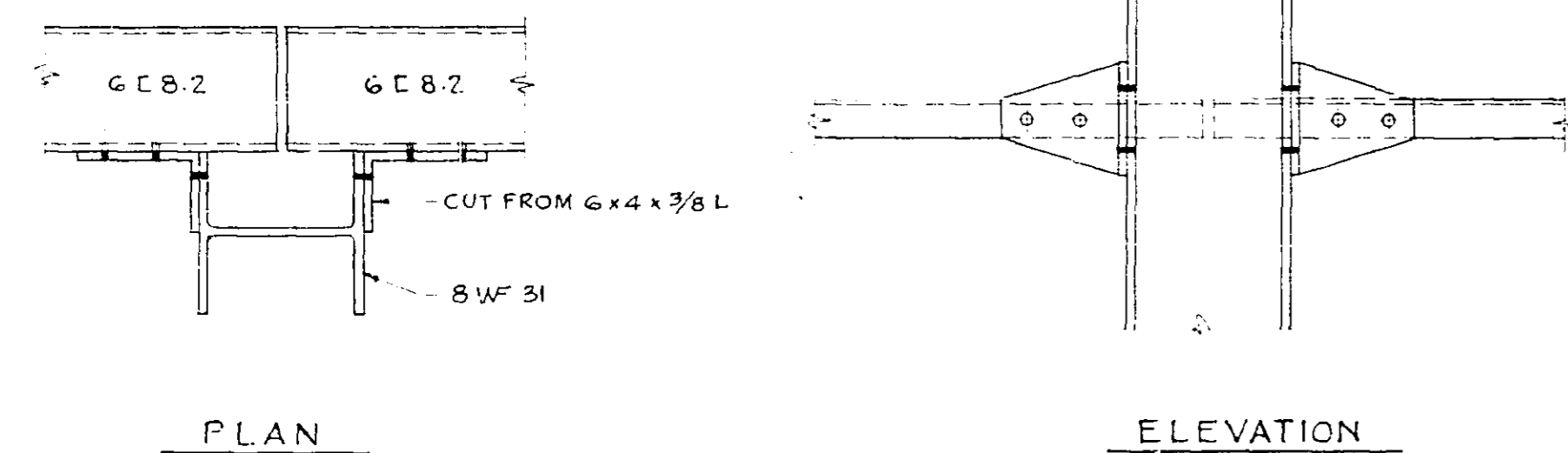
M. H. Wallace
CHIEF ENGINEER

SHEET 49 OF 62

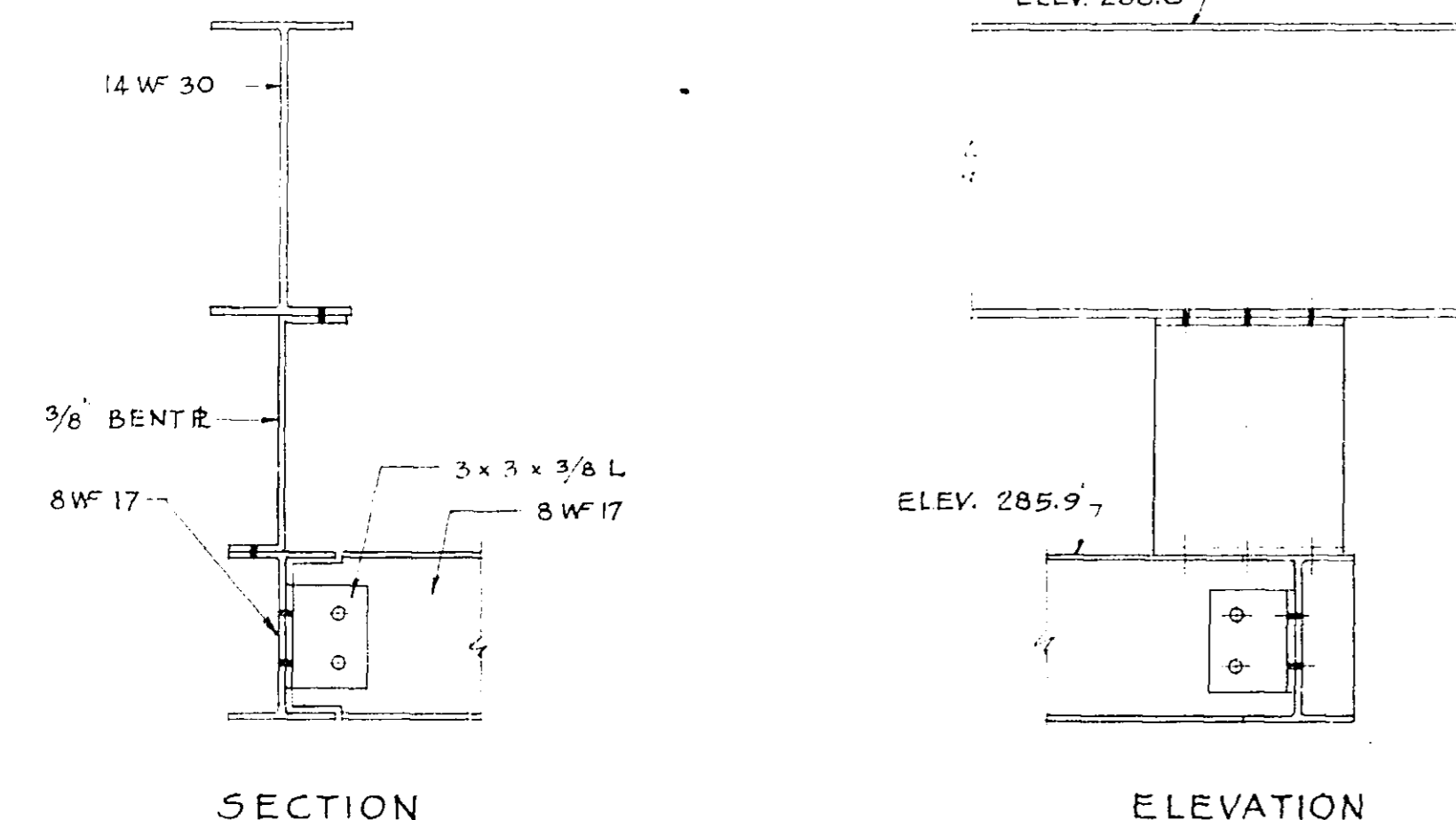


CANOPY CONNECTION COL. A-3

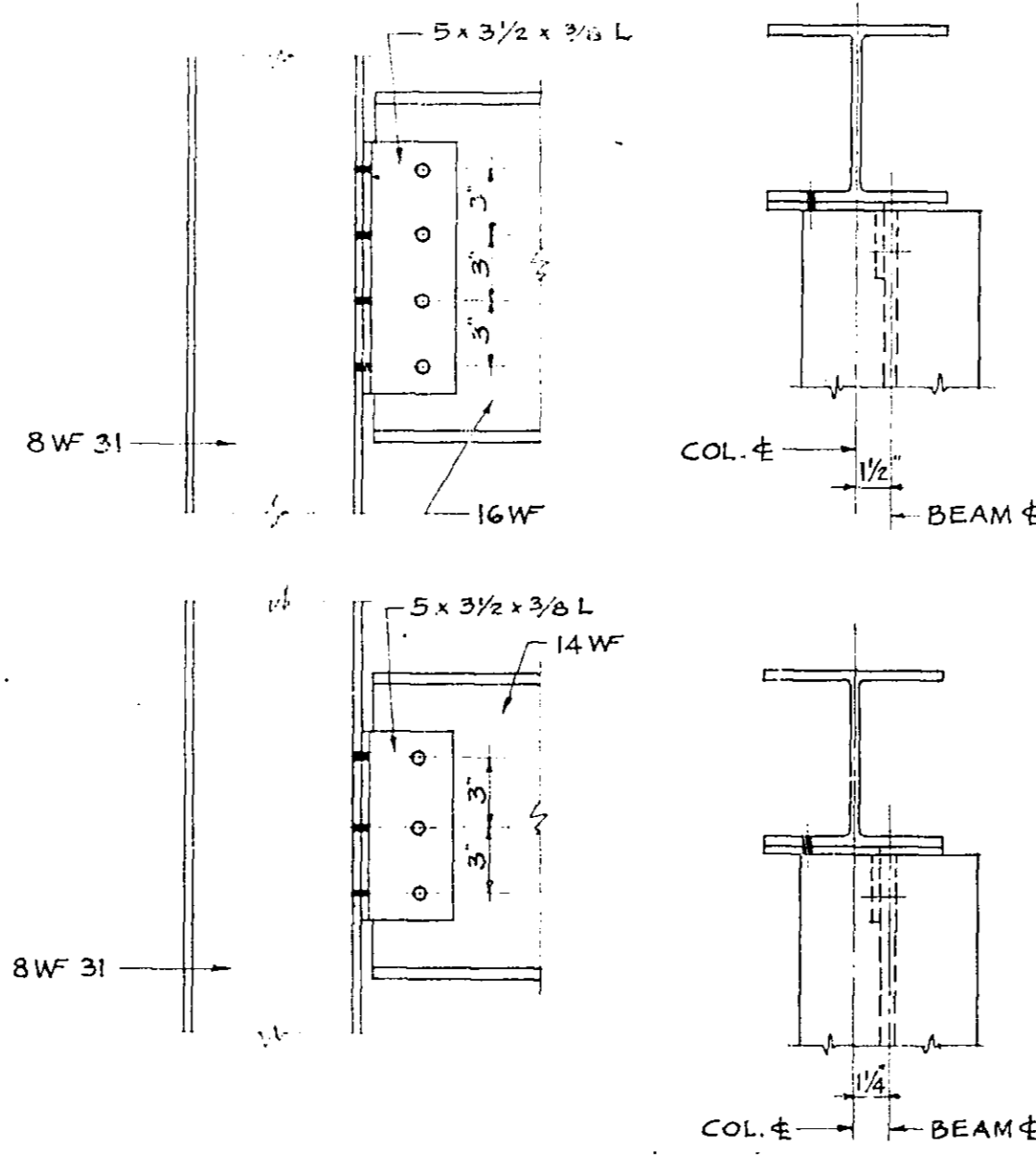
NOTE:
 1. ALL CONNECTION WITH 3/4" RIVETS UNLESS OTHERWISE SHOWN.
 2. ANY CONNECTION NOT SHOWN WILL BE AISC STD. BEAM CONN. 'B' SERIES.



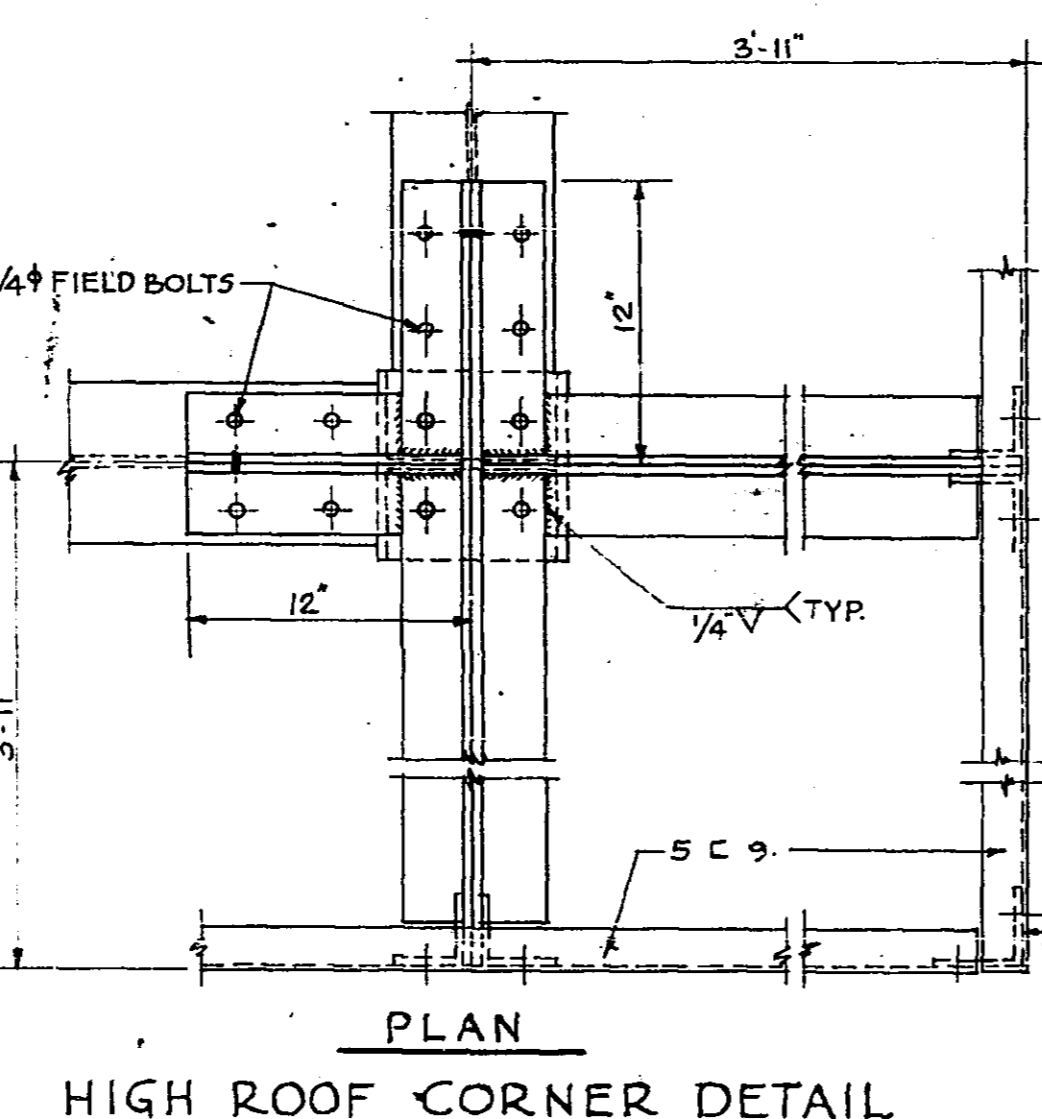
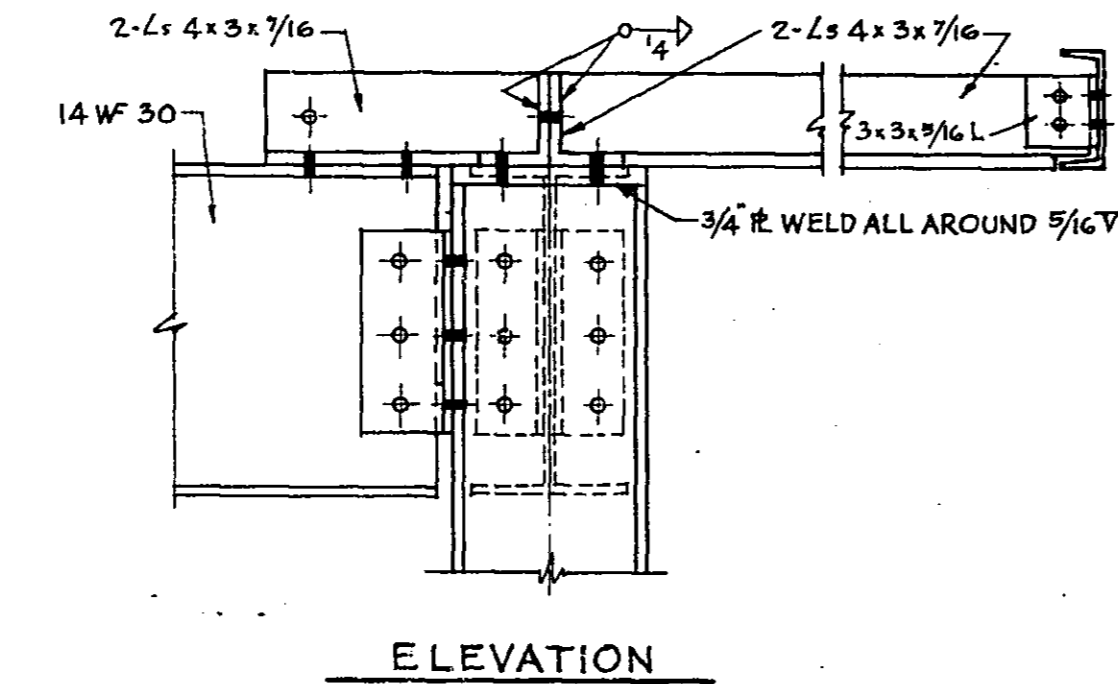
TYPICAL CONNECTION HORIZONTAL GIRTS TO COL.



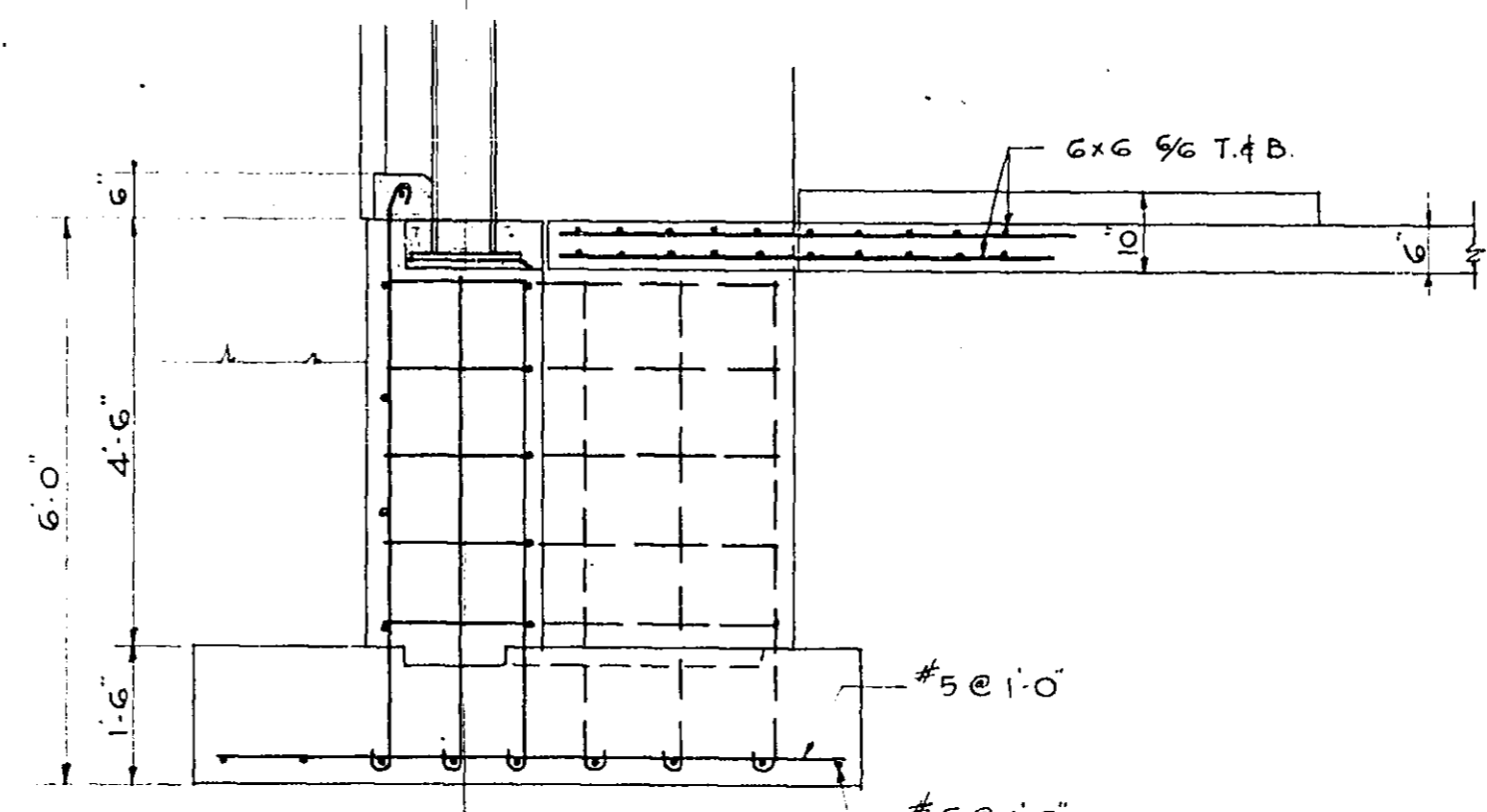
ROOF HANGER CONNECTION B-2, C-3



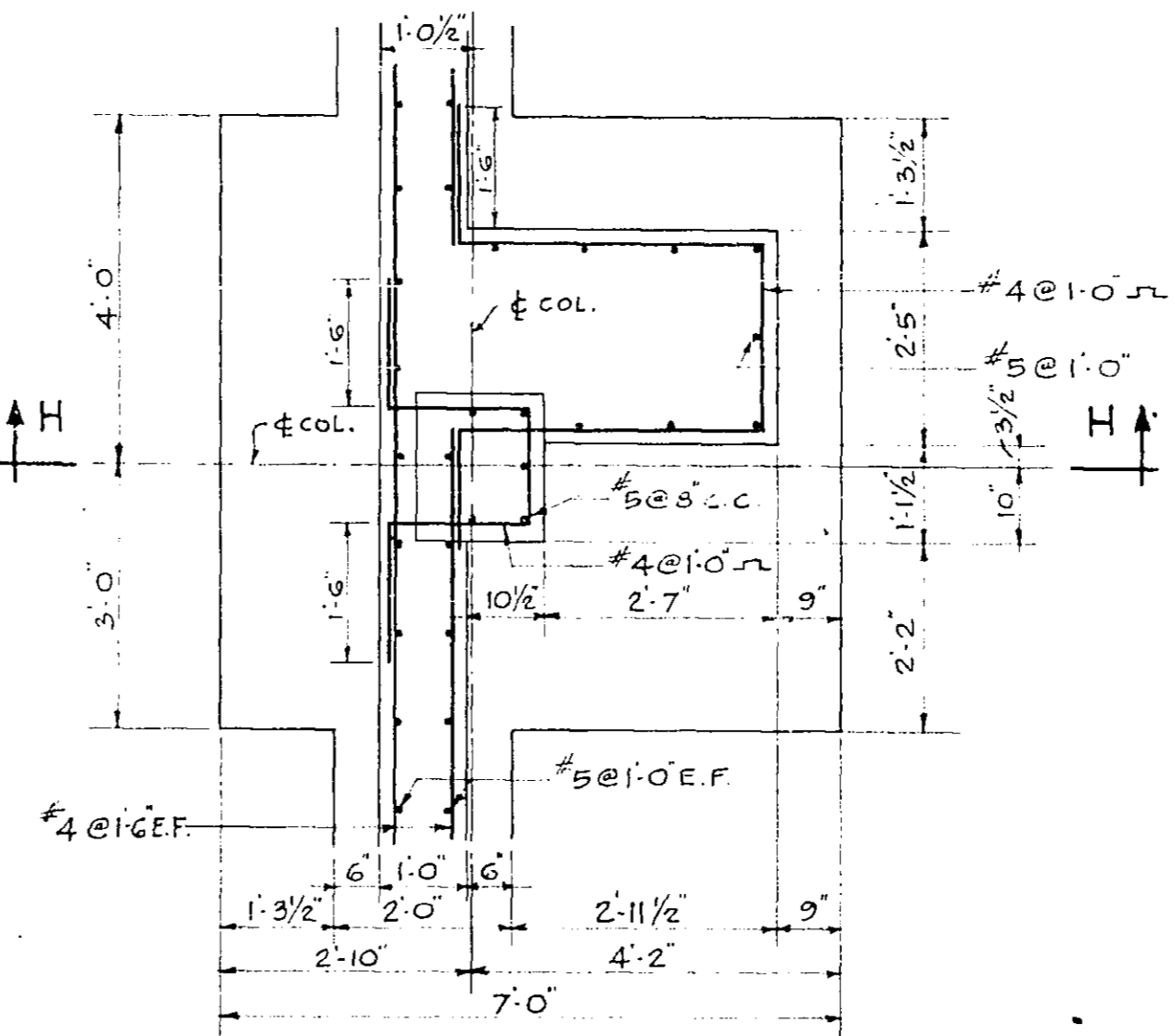
TYPICAL BEAM CONNECTIONS



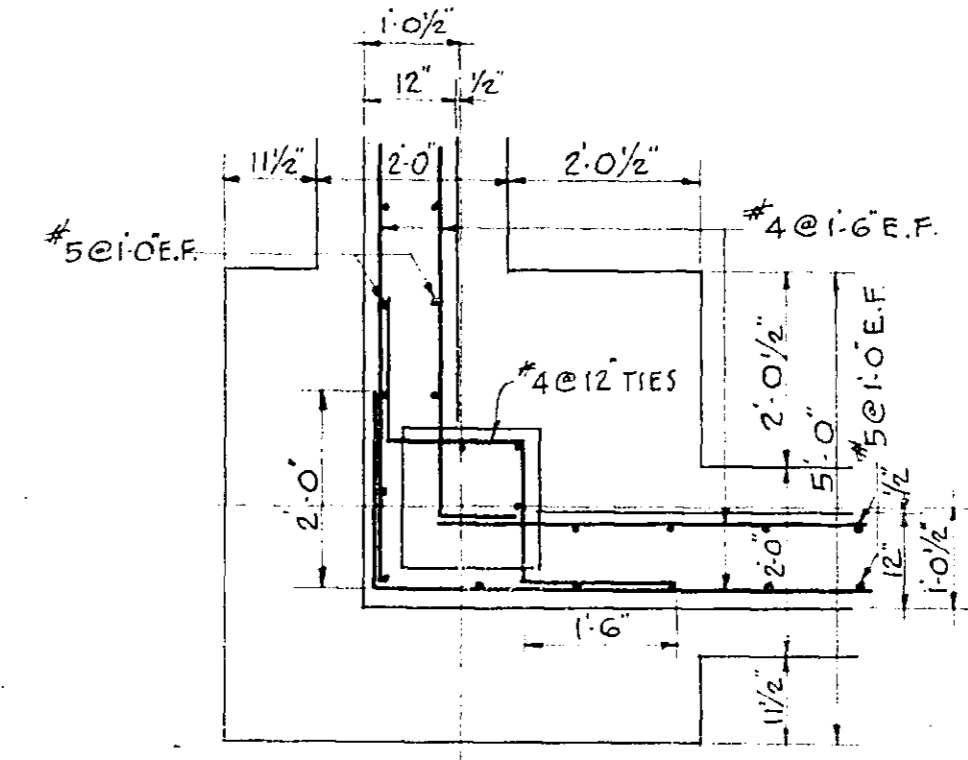
HIGH ROOF CORNER DETAIL



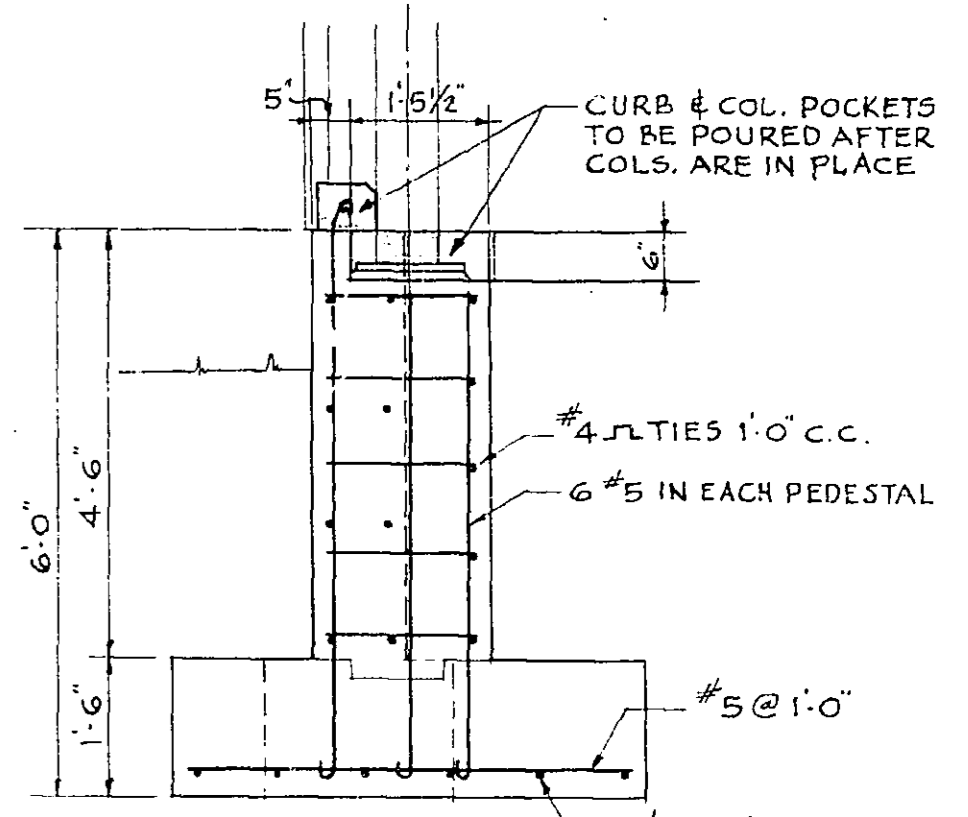
SECTION H-H



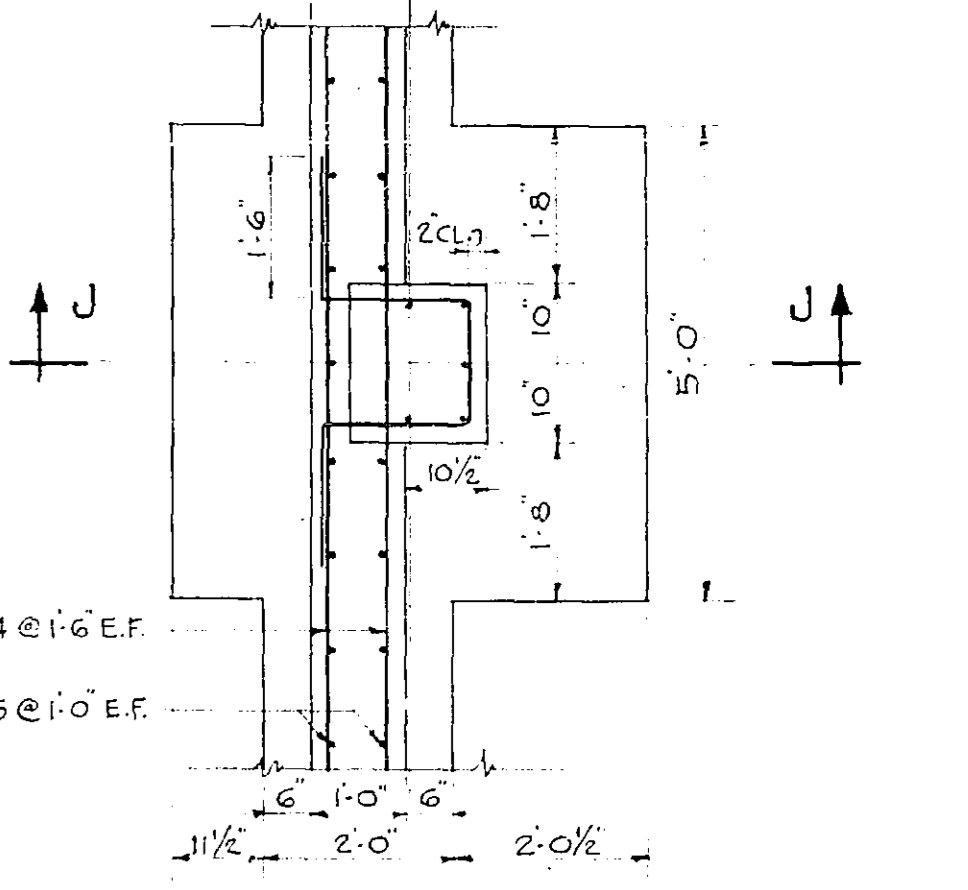
DETAIL AT COL. A-2



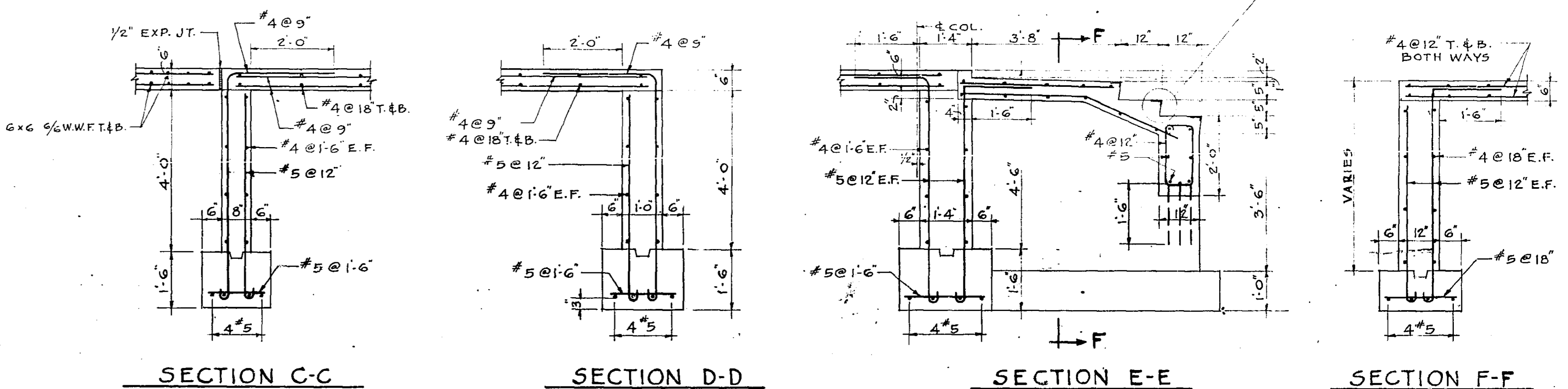
DETAIL AT COL. D-1



SECTION J-J

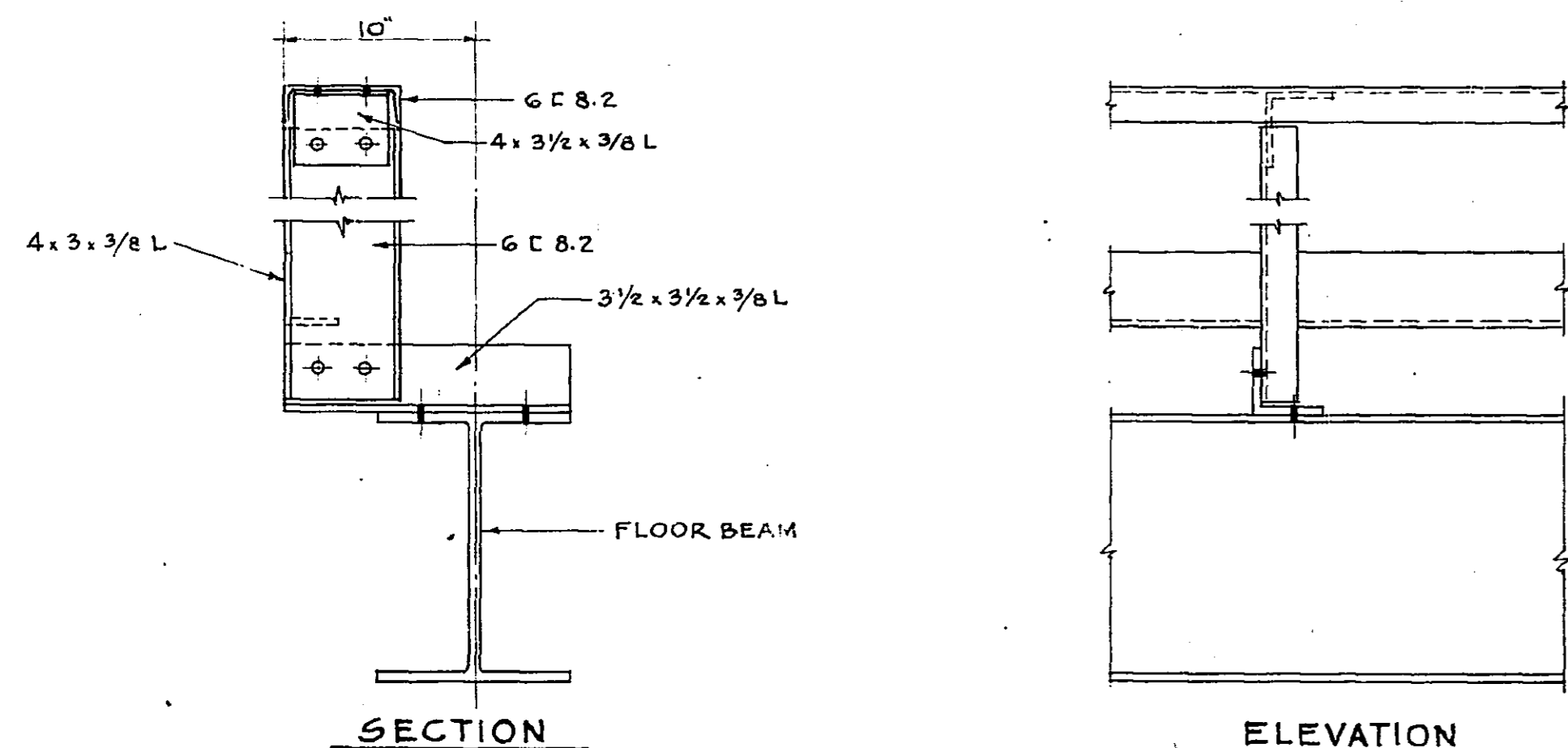


DETAIL AT COL. B-1

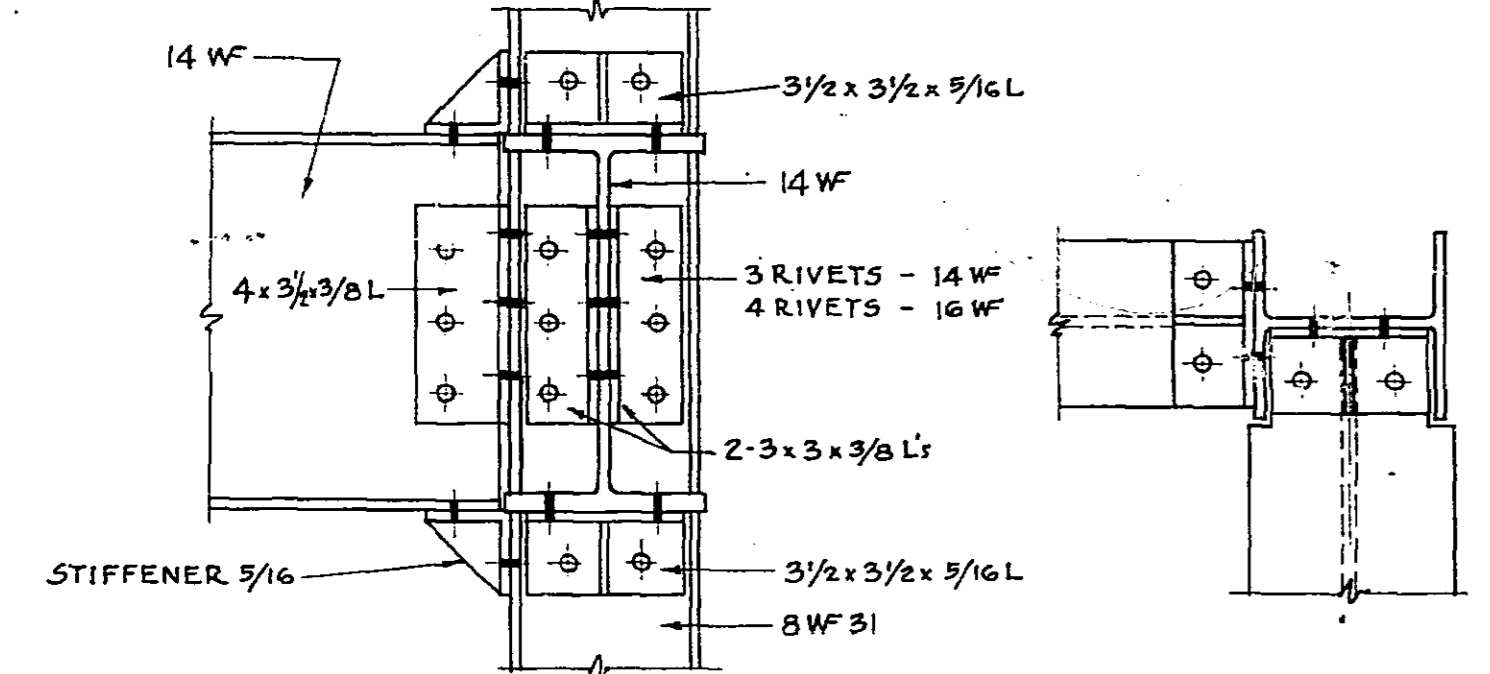


FOUNDATION DETAILS

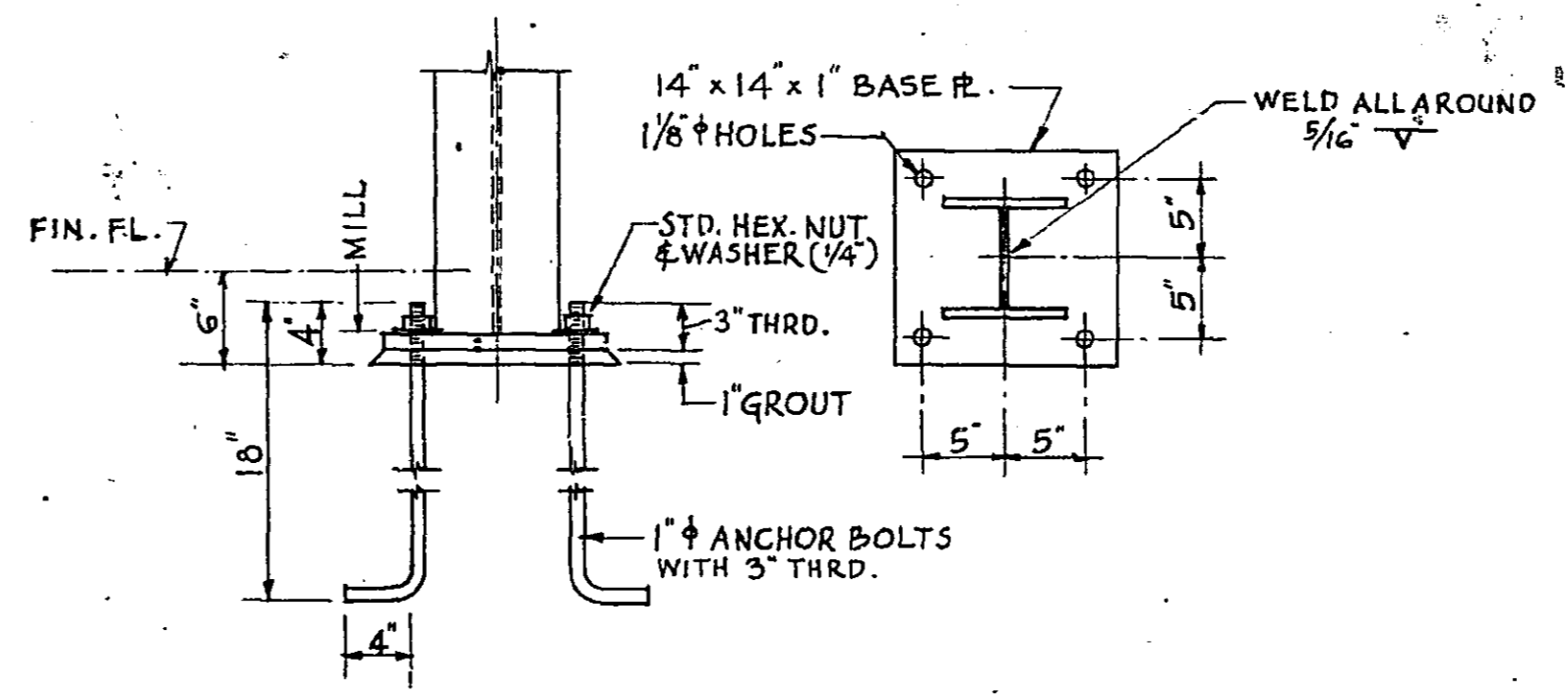
SCALE 1/2" = 1'-0"



CENTER SUPPORT FOR HORIZONTAL GIRTS



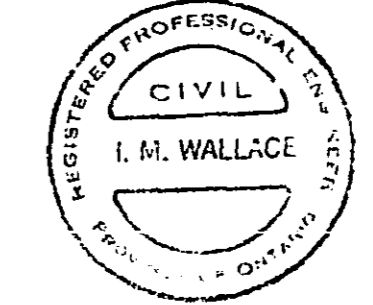
OUTSIDE FLOORBEAM TO COL. CONNECTION - D-1, D-3-A1



TYPICAL ANCHOR BOLT DETAILS

SCALE 1/2" = 1'-0"

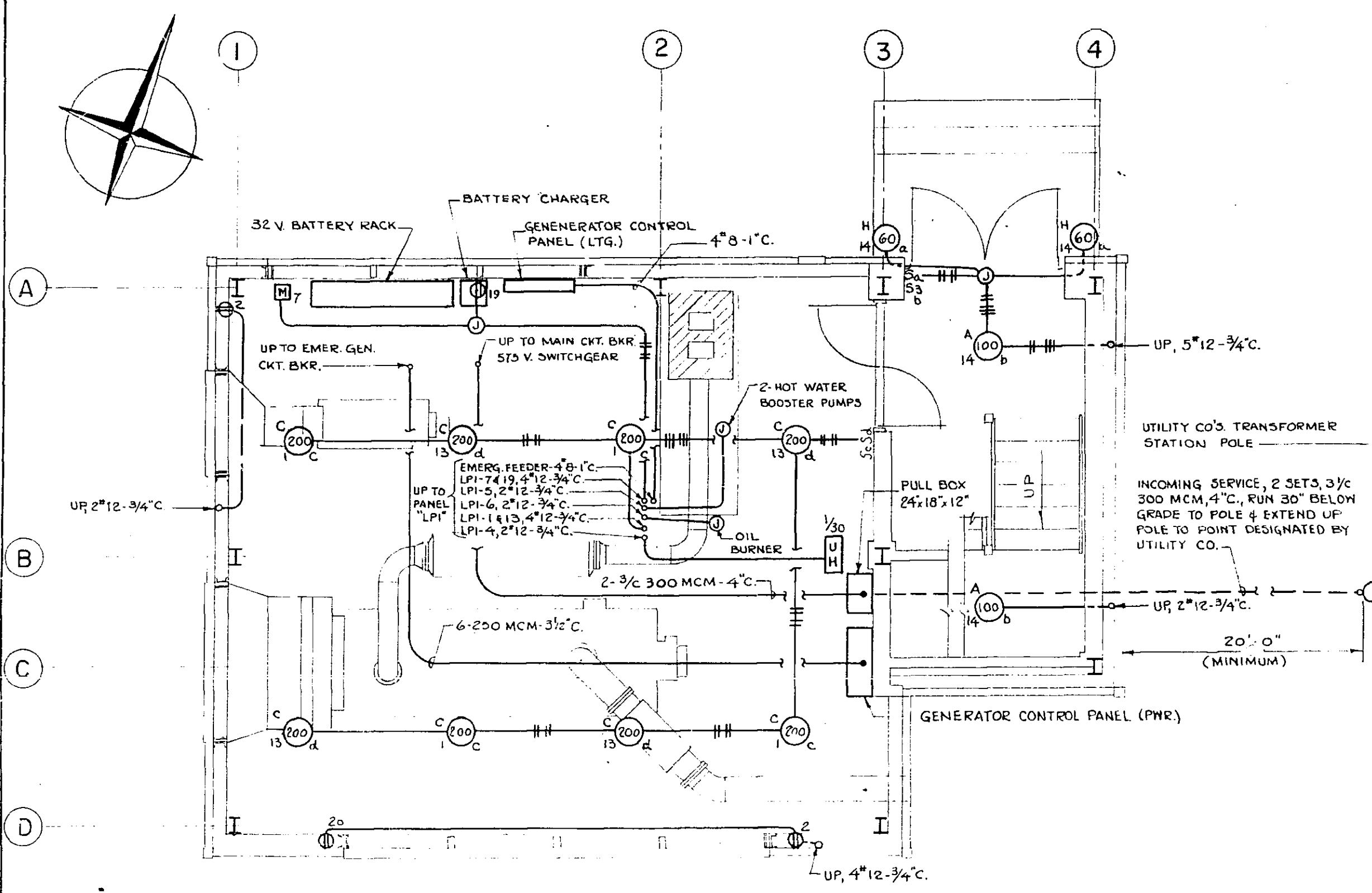
NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C.C. PARKER & ASSOCIATES LIMITED- PARSONS, BRINCKERHOFF, HALL & MACDONALD- CONSULTING ENGINEERS			
HAMILTON		ONTARIO	
BURLINGTON CANAL LIFT BRIDGE			
CONTROL HOUSE STEEL AND FOUNDATION DETAILS			
APPROVED	DATE 12/11/58	DEPARTMENT PROJECT NO.	SD6-4-77
<i>M. Thompson</i> CHIEF STRUCTURES DIVISION		<i>M. Thompson</i> CHIEF ENGINEER	
APPROVED	DATE 1/4/59		
RECOMMENDED DATE 12-1-58			
DESIGN P.R.C.	CHND. G. P. S.		
DRAWN MAF & IEH.	CHND. P. R. C.		
TRACED J.E.H.	CHND. P. R. C.		
JOB NO.	H-538		
<i>C.C. Parker & Assoc. Ltd.</i> C.C. PARKER & ASSOC. LTD.			
		SHEET 50 OF 62	



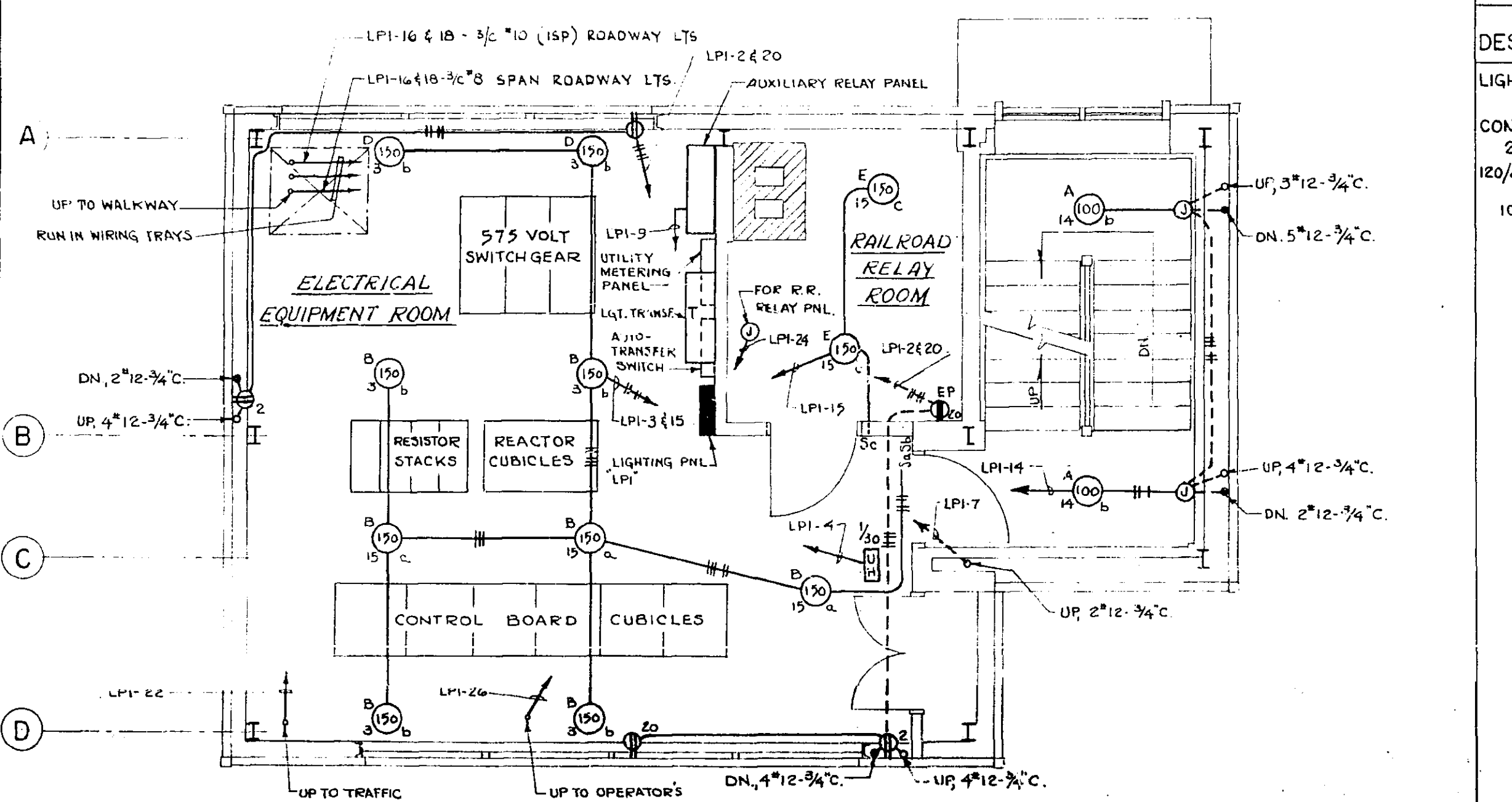
LIGHTING SYMBOL LIST

- A (100) CEILING OUTLET, SIZE AS INDICATED. "A" DENOTES FIXTURE TYPE, "14" DENOTES CIRCUIT NUMBER, "b" DENOTES TUMBLER SWITCH CONTROLLING OUTLET.
- W (60) WALL OUTLET - WATERTIGHT
- F (60) FLUORESCENT OUTLET
- DP DUPLX CONVENIENCE OUTLET, 125 V, 15 AMP
- EP SINGLE CONVENIENCE OUTLET, 125 V, 10 AMP, EXPLOSION PROOF
- Sa SINGLE POLE SWITCH, 15A, 125V - LETTER DENOTES BRANCH CONTROLLED.
- LP LIGHTING PANEL
- UH UNIT HEATER (HOT WATER WITH FAN)
- T THERMOSTAT - 110 V. (SPACE HEATING)
- CONDUIT RUN EXPOSED - CROSS MARKS INDICATE NUMBER OF 1/2 B.C.G. WIRES.
- Sb THREE-WAY SWITCH - 15A, 125V - LETTER DENOTES BRANCH CONTROLLED.
- AD AUTOMATIC LOUVER DAMPER
- o CONDUIT TURNING UP
- o CONDUIT TURNING DOWN
- SR SINGLE RECEPTACLE - 20 AMP, 220VOLT, 4 WIRE (FOR 120/208V. SERVICE)
- EF EXHAUST FAN - SIZE AS INDICATED.
- T DRY TYPE LIGHTING TRANSFORMER - 30KVA, 575-208V/120V-3P-60~
- CONDUIT RUN CONCEALED IN FLOOR, WALL OR UNDERGROUND
- EH ELECTRIC CONVECTION HEATER, SIZE AS INDICATED, 1 PHASE, 550 VOLT
- LPI HOMERUN TO PANEL. PANEL AND CIRCUIT NUMBERS INDICATED.
- MS MANUAL STARTER
- PC PHOTO SENSITIVE CELL (BEACON CONTROL)
- J JUNCTION BOX

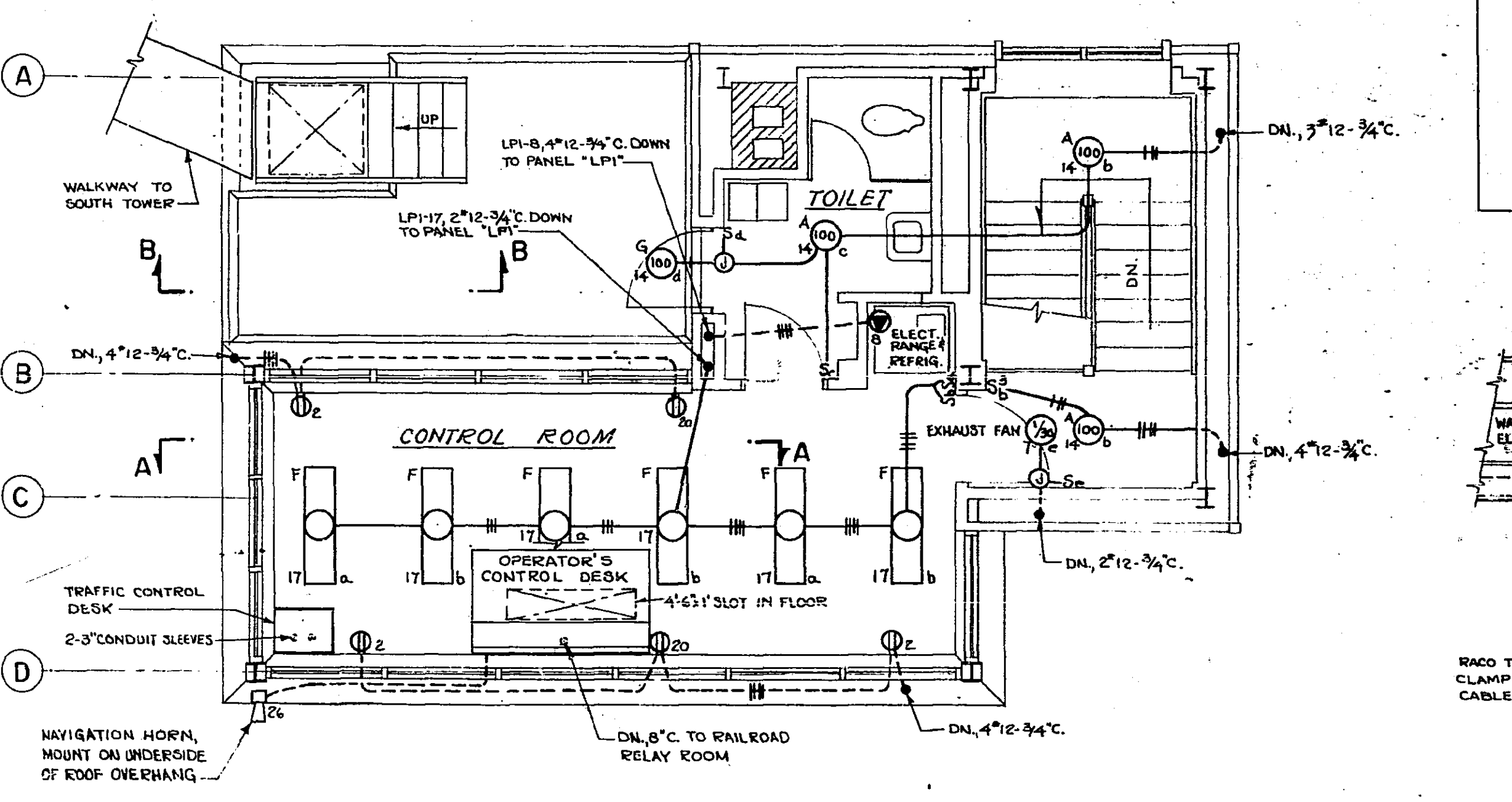
PANEL SCHEDULE						
PANEL DESIGNATION	CIRCUIT NO.	CIRCUIT BREAKER POLES/FRAME TRIP	KVA	SERVICE		
LIGHTING PANEL "LPI"	1	1	50	20	0.80	1ST FLOOR LIGHTING
	2	1	50	20	0.60	RECEPTACLES
	3	1	50	20	1.00	2ND FLOOR LIGHTING
	4	1	50	20	0.76	UNIT HEATERS - 1ST & 2ND FLS. - 1/30 HP
	5	1	50	20	0.86	H.W. BOOSTER PUMPS - 1/2 HP
	6	1	50	20	0.70	OIL BURNER - 1/8 HP
NORMAL SECTION	7	1	50	20	0.19	EXHAUST FAN - 3RD FLOOR, 1/30 HP
	8	3	30	3.50	RANGE & REFRIGERATOR	
	9	1	20	0.10	MACH. RM. HEATING CONTROL RELAY	
	10	1			SPARE	
	11	1			SPARE	
	12	1			SPARE	
	13	1	50	20	0.80	1ST FLOOR LIGHTING
	14	1			0.72	STAIR LIGHTING
	15	1			0.75	2ND FLOOR LIGHTING
	16	1			1.18	ROAD LIGHTING
	17	1			0.70	3RD FLOOR LIGHTING
	18	1			1.18	ROAD LIGHTING
19	1			0.10	BATTERY CHARGER	
20	1			0.60	RECEPTACLES	
21	1				SPARE	
NORMAL EMERGENCY SECTION	22	1			1.50	TRAFFIC CONTROL DESK
	23	1				SPARE
	24	1			1.00	RAILROAD RELAY PANEL
	25	1			0.40	NAVIGATION LIGHTING
	26	1			0.70	NAVIGATION SIGNAL HORN
	27	1				SPARE
	28	1				SPARE
	29	1				SPARE
	30	1				SPARE
				TOTAL	17.14	



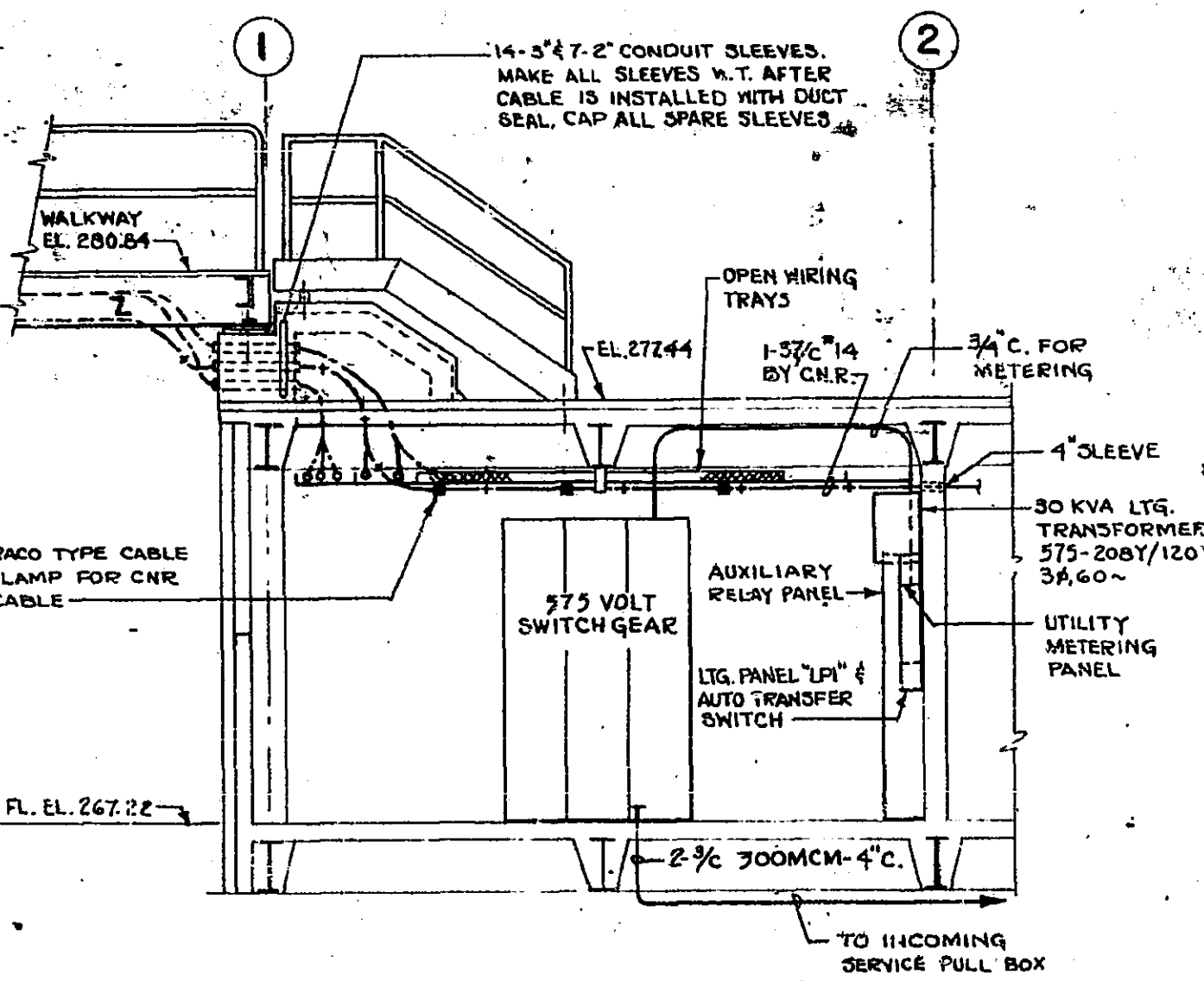
GROUND FLOOR PLAN



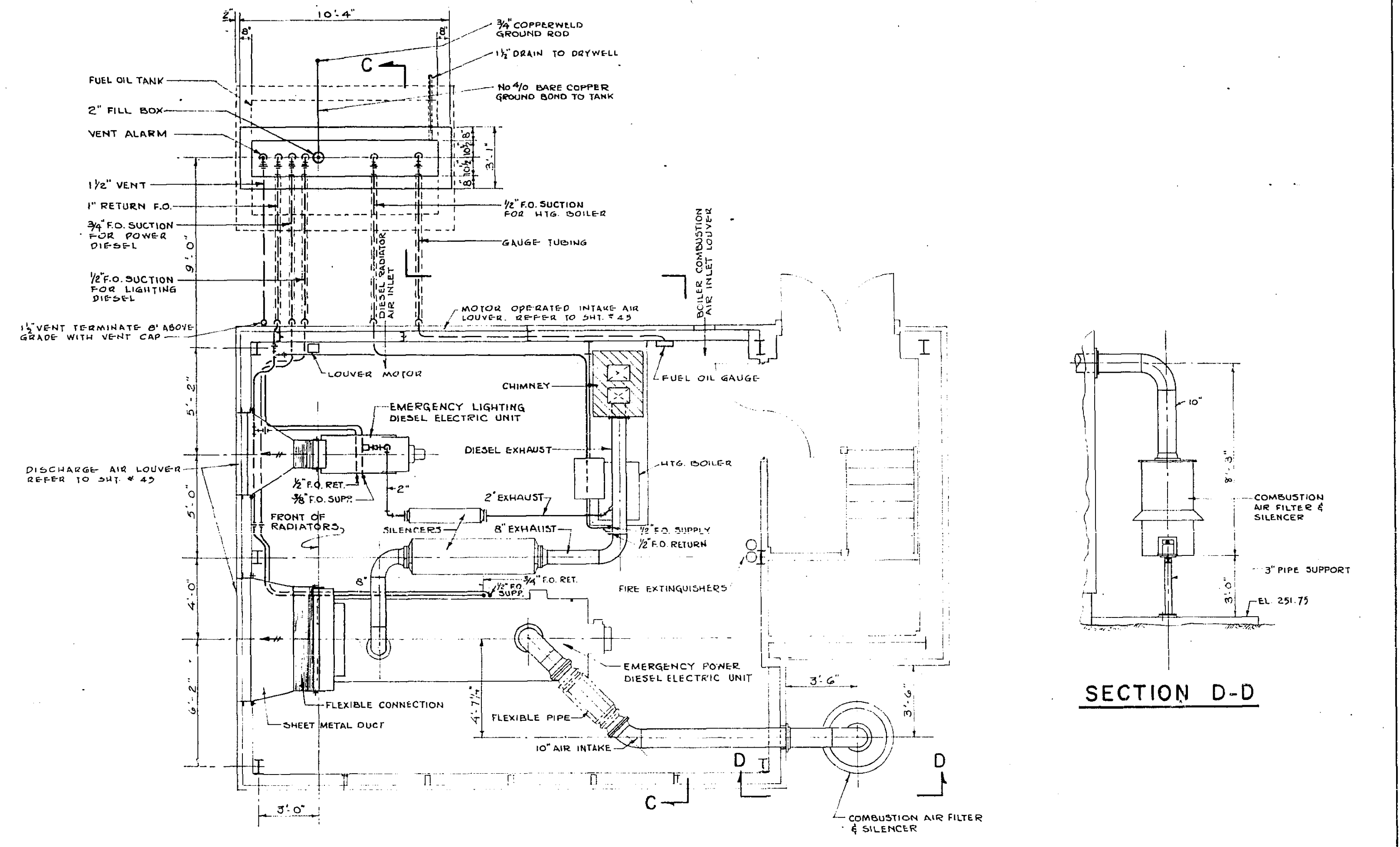
SECOND FLOOR PLAN



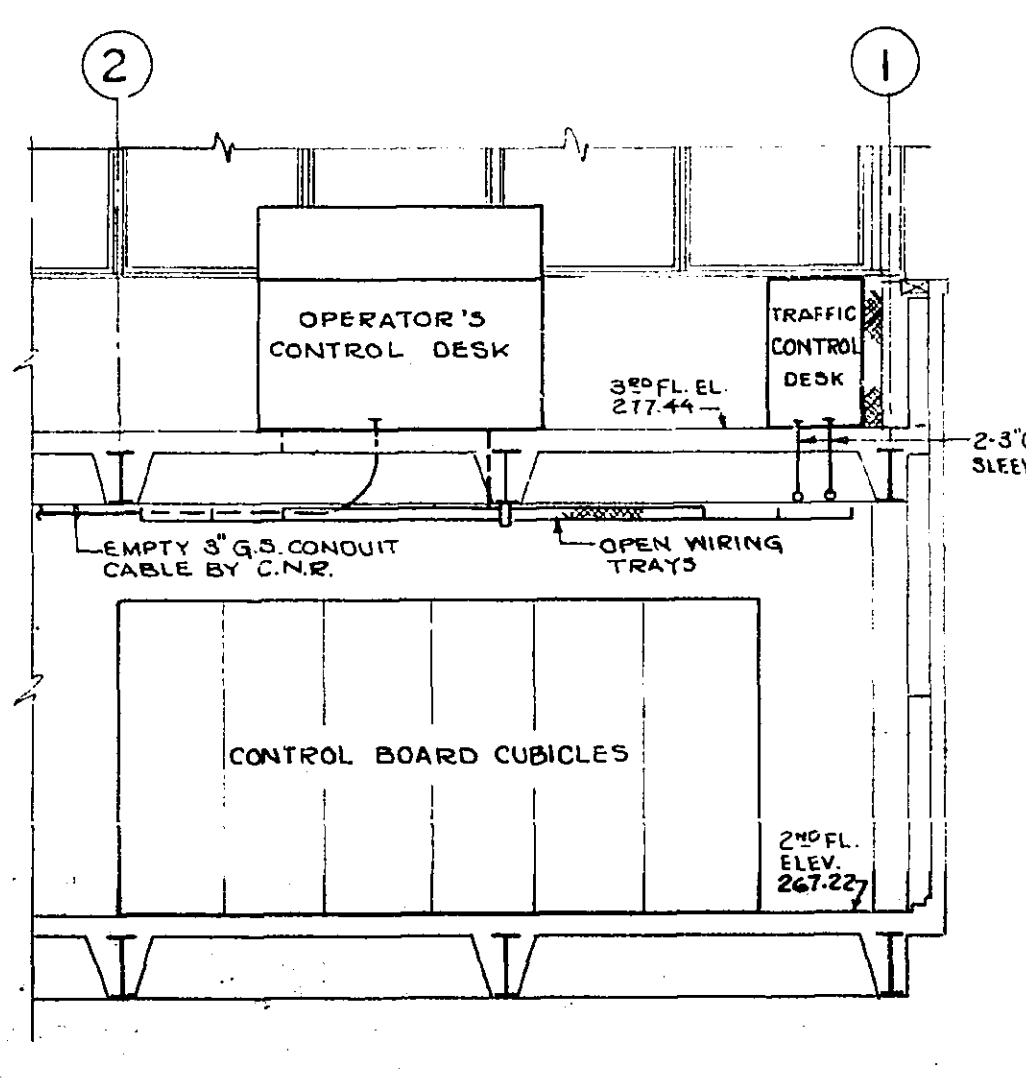
THIRD FLOOR PLAN



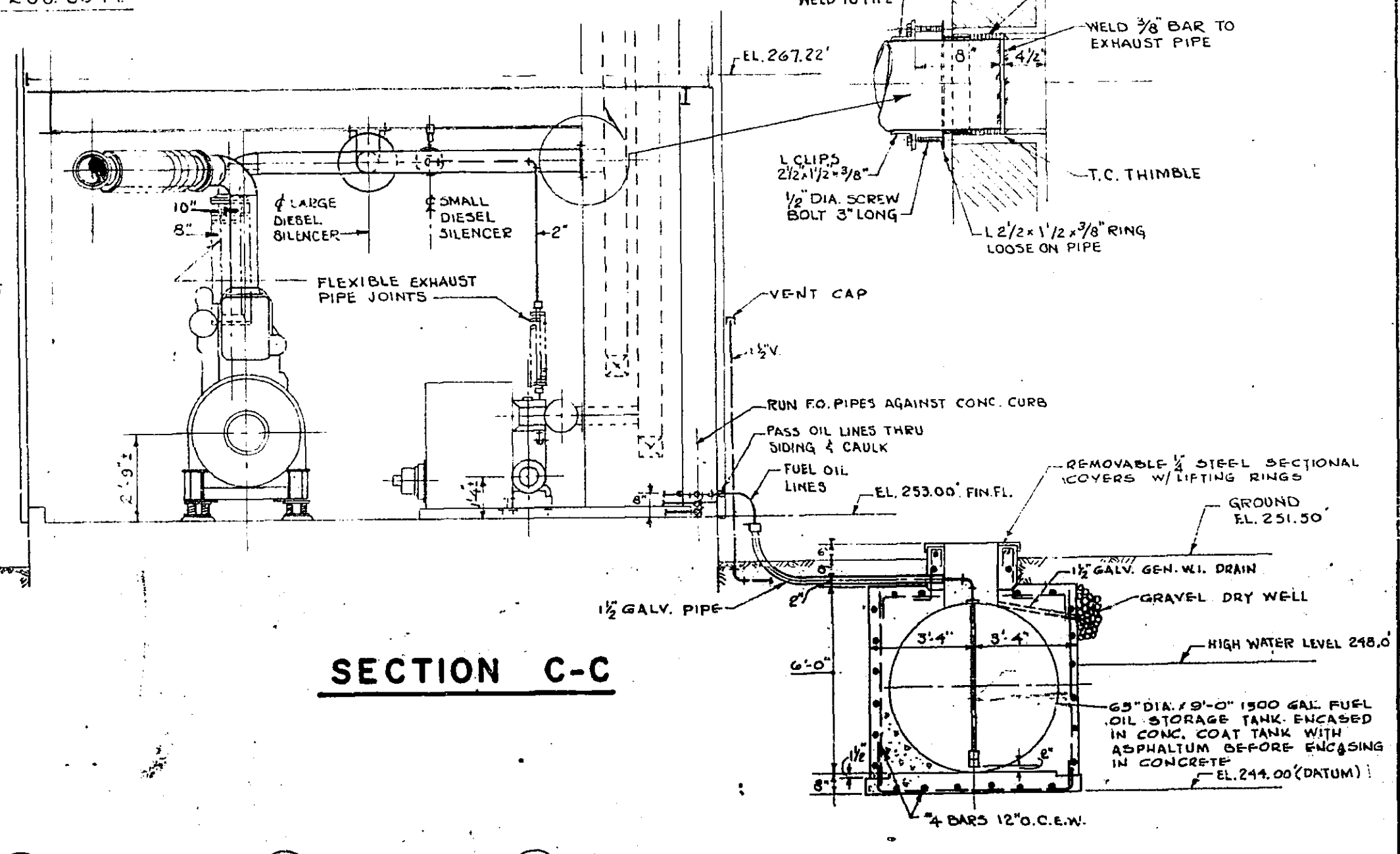
SECTION B-B



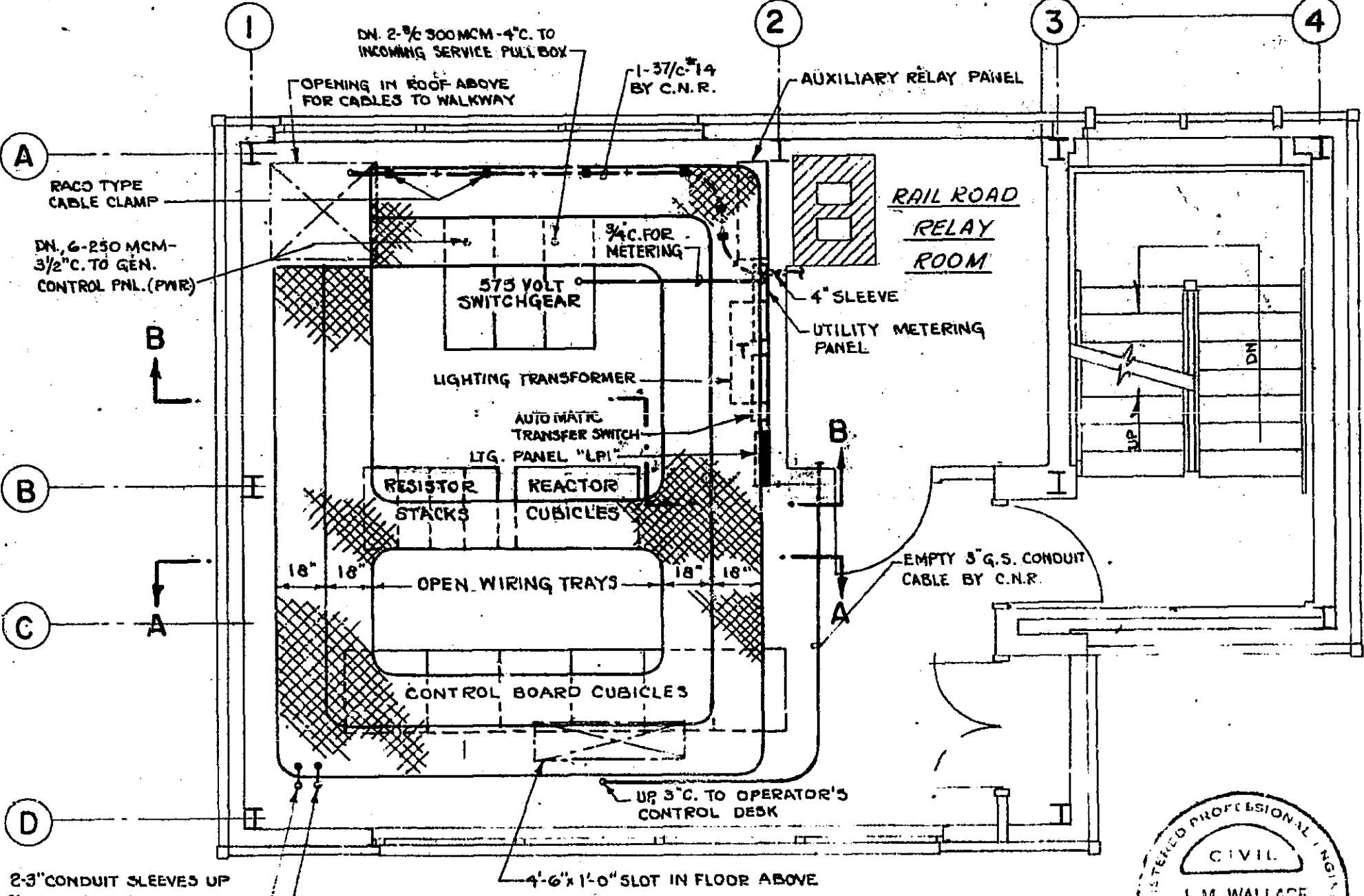
ARRANGEMENT OF DIESELS & AUXILIARIES



SECTION A-A



SECTION C-C

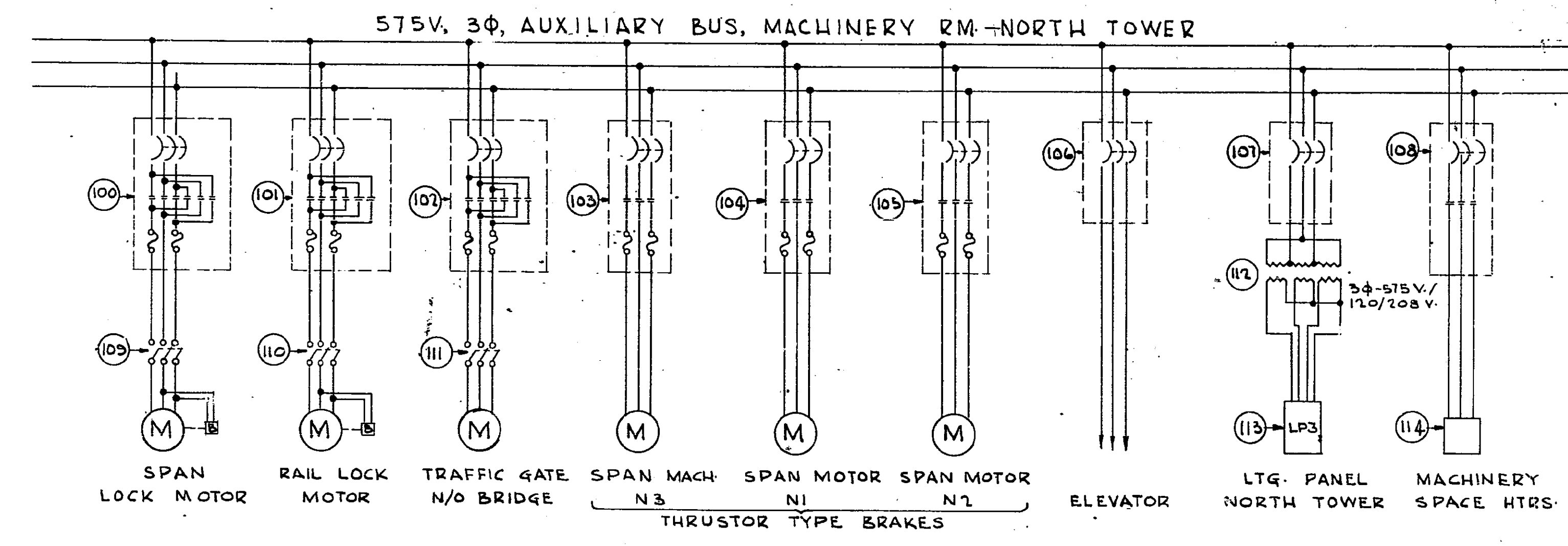
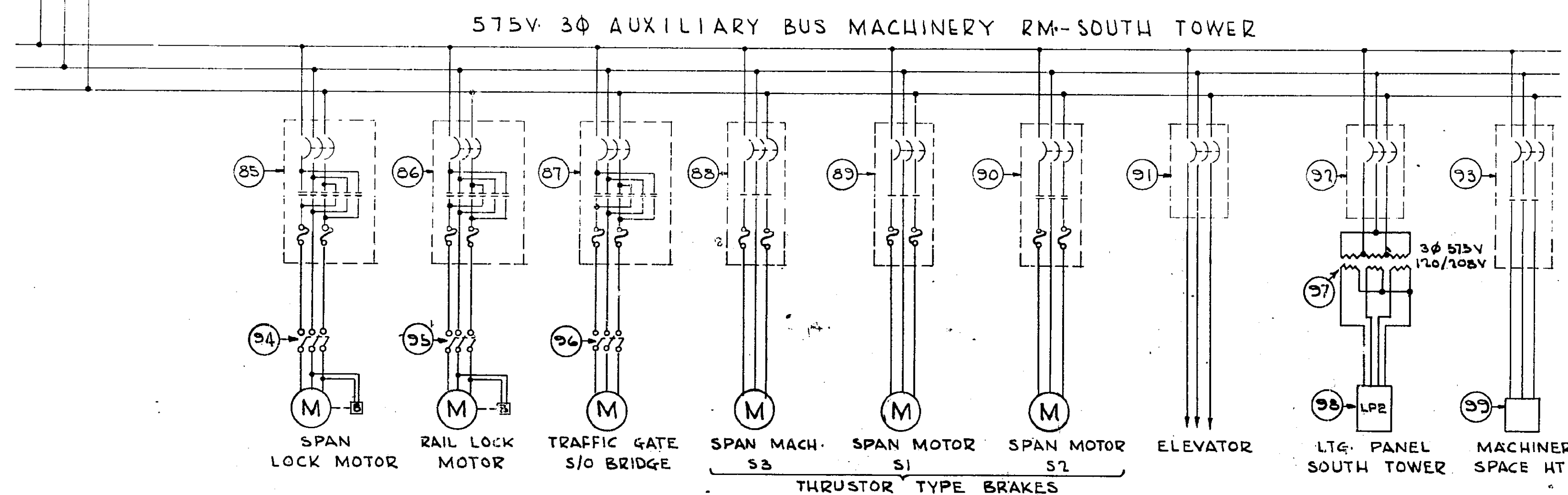
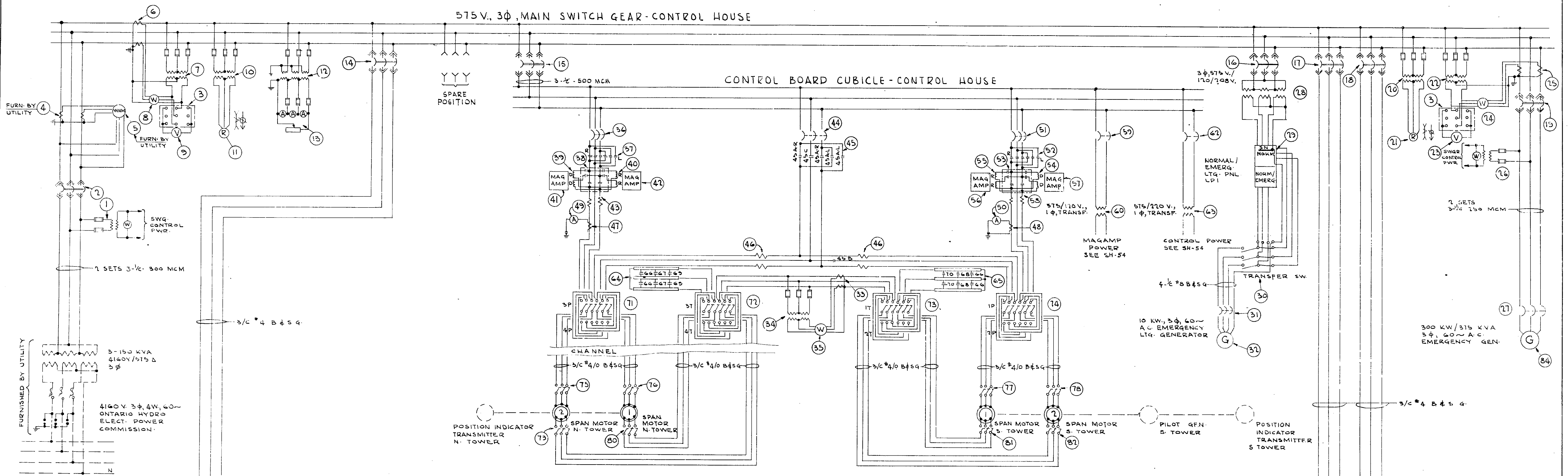


ARRANGEMENT OF CABLE TRAYS SECOND FLOOR PLAN

GENERAL NOTE
SEE SHEET 59 FOR NOTES PERTAINING TO ELECTRICAL INSTALLATION IN CONTROL HOUSE

NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA			
DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C.C. PARKER & ASSOCIATES LIMITED PARSONS, BARKERHOFF, HALL & MACDONALD CONSULTING ENGINEERS			
HAMILTON		ONTARIO	
BURLINGTON CANAL LIFT BRIDGE			
CONTROL HOUSE PLANS AND SECTIONS - LIGHTING AND EQUIPMENT			
APPROVED	DATE	DESIGN	DATE
<i>[Signature]</i>	12/1/58	G.D.H., M.G., CHND. E.J.W., W.G.	12/1/58
CHIEF STRUCTURES DIVISION		DRAWN	DATE
		L.M., CHND. E.J.W., W.G.	12/1/58
		TRACED	DATE
		M.L.D., CHND. E.J.W., W.G.	12/1/58
		CHIEF ENGINEER	
		PROJECT NO.	
		SD6-4-77	
		SHEET	52 OF 62

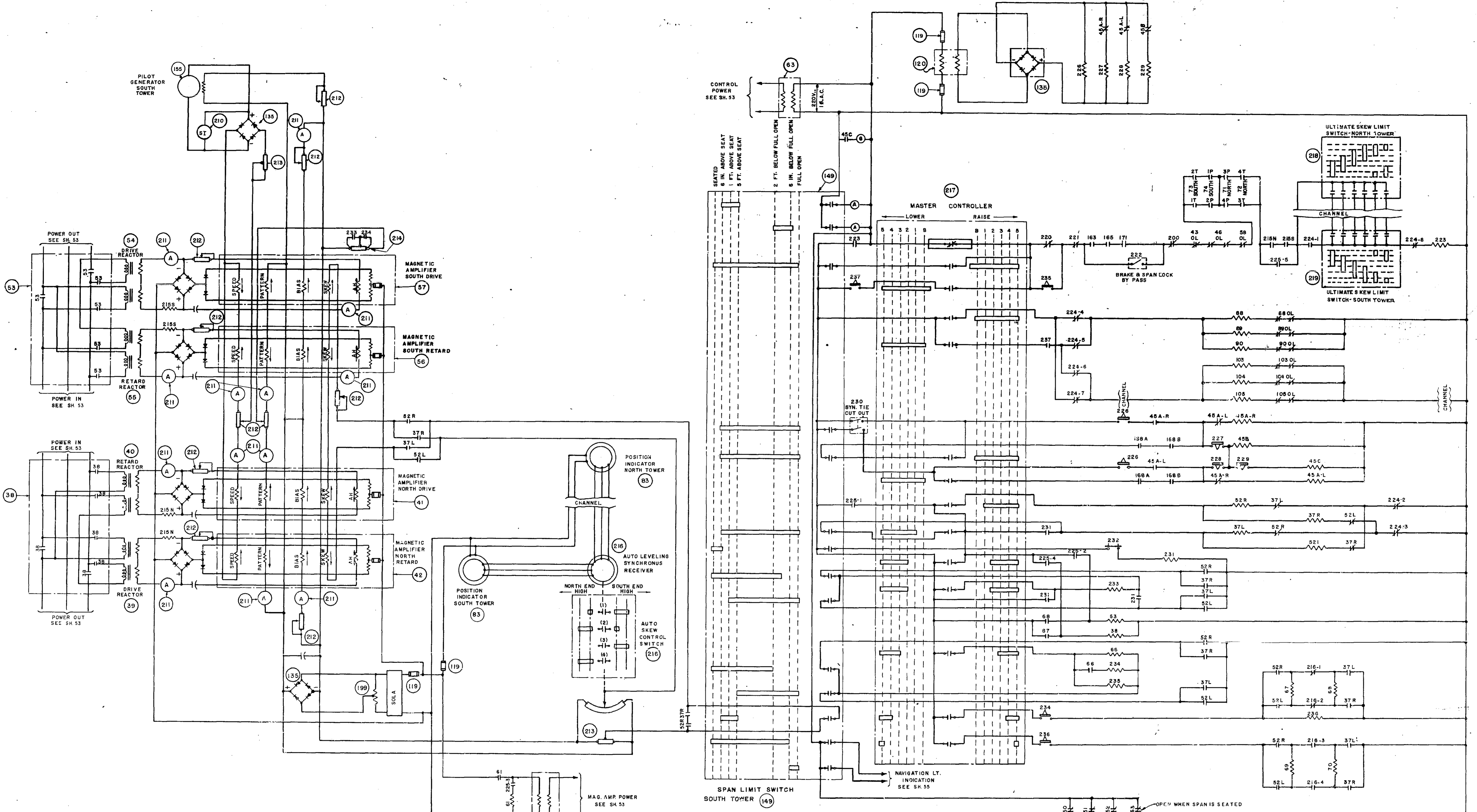
RECOMMENDED DATE 12-1-58
JOB NO. H-538
C.C. PARKER & ASSOC. LTD.



NOTE:
FOR LIST OF SYMBOLS SEE SH-57.

NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA			
DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C. C. PARKER & ASSOCIATES LIMITED PARSONS, BRINCKERHOFF, HALL & MACDONALD CONSULTING ENGINEERS			
HAMILTON		ONTARIO	
BURLINGTON CANAL LIFT BRIDGE			
ELECTRICAL POWER DISTRIBUTION			
APPROVED	DATE 13/11/58	DEPARTMENT PROJECT NO.	SD6-4-77
<i>[Signature]</i>			
CHIEF STRUCTURES DIVISION			
RECOMMENDED	DATE 12-1-58	DESIGN E. J. W.	CHKD. E. J. W.
<i>[Signature]</i>		DRAWN L. N. M.	CHKD. E. J. W.
		TRACED T. B.	CHKD. G. D. H.
JOB NO. H-538		APPROVED DATE 16/11/58	
C. C. PARKER & ASSOC. LTD.		<i>[Signature]</i>	
CHIEF ENGINEER		CONTRACT NO. 2.	
		SHEET 53 OF 62	





SKREW BY PASS SWITCH (220)
PULL TO TURN

CONTACT	POSITIONS
HANDLE END	ON OFF
1	X
2	X
3	X
4	X
5	X
6	X
7	X
8	X

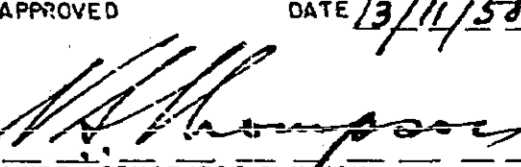
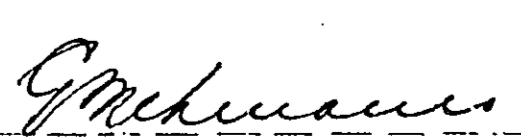

DRAWS WHEN HANDLE PULLED

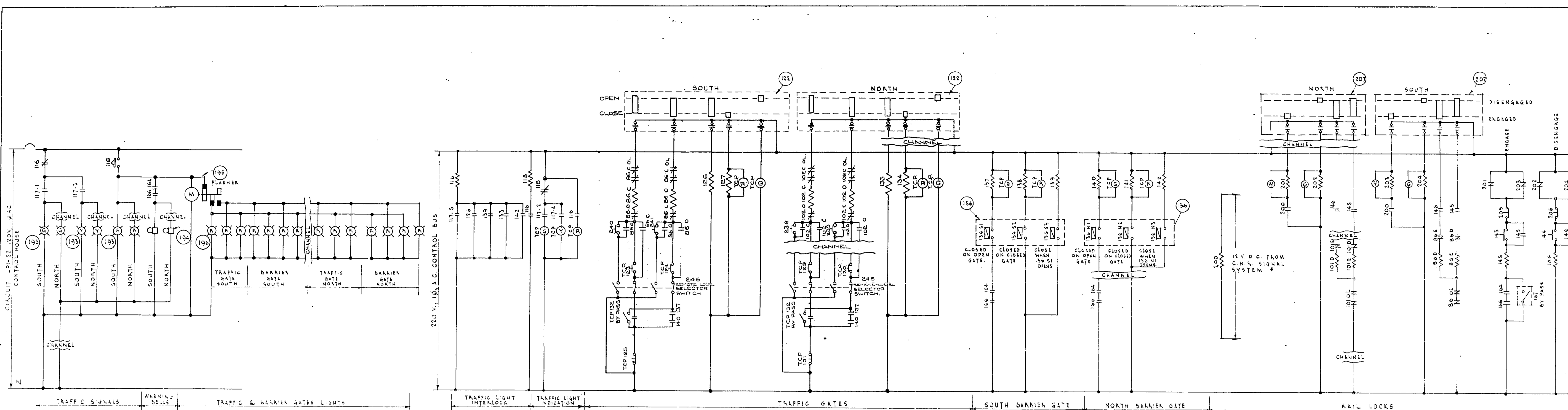
REACTOR SWITCH (229)

CONTACT	POSITIONS
HANDLE END	ON OFF
1	X
2	X
3	X
4	X
5	X

NOTES:
1. ALL CIRCUITS SHOWN DE-ENERGIZED, POSITION OF ALL SWITCHES AND RELAYS CORRESPOND TO SPAN FULLY SEATED, READY FOR ROADWAY TRAFFIC.
2. FOR LIST OF SYMBOLS SEE SH. 57



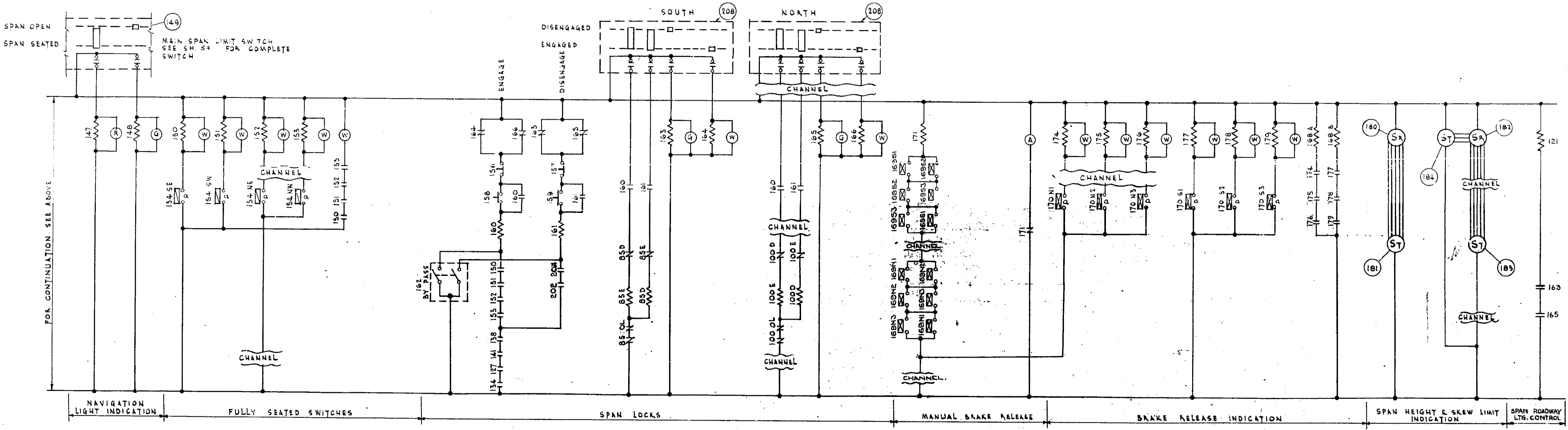
NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C. C. PARKER & ASSOCIATES LIMITED PARSONS, BRINCKERHOFF, HALL & MACDONALD-CONSULTING ENGINEERS			
HAMILTON		ONTARIO	
BURLINGTON CANAL LIFT BRIDGE			
VERTICAL LIFT SPAN DRIVE CONTROLS			
APPROVED	DATE 13/11/58	DEPARTMENT PROJECT NO.	SD6-4-77
 CHIEF STRUCTURES DIVISION		 CHIEF ENGINEER	
RECOMMENDED	DATE 10-1-58	DESIGN E.J.W.	CHKD. E.J.W.
 C.C. PARKER & ASSOC. LTD.		DRAWN L.N.M.	CHKD. E.J.W.
		TRACED M.C.	CHKD. C.D.H.
		JOB NO. H-538	
		CONTRACT NO. 2 SHEET 54 OF 62	



TRAFFIC SIGNAL SWITCH (17)

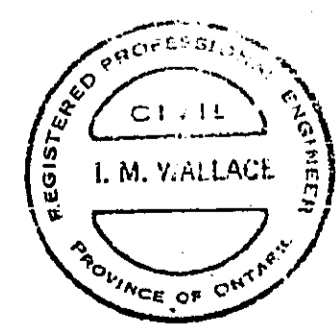
CONTACT	POSITIONS
MANUAL END	GREEN YELLOW RED
1	X
2	X
3	X
4	X
5	X

* ENERGIZED FROM LEVER TYPE LIMIT SWITCHES AT RAIL LOCKS WHEN RAIL LOCK WEDGES DRIVEN IN PLACE



NOTES :-
 1. ALL CIRCUITS SHOWN DE-ENERGIZED. POSITION OF ALL SWITCHES & RELAYS CORRESPOND TO SPAN FULLY SEATED READY FOR ADJAWAY TRAFFIC.
 2. FOR LIST OF SYMBOLS SEE SH.87.

NO. _____			
REVISIONS			
BY	DATE		
DEPARTMENT OF PUBLIC WORKS CANADA			
DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C. C. PARKER & ASSOCIATES LIMITED PARSONS, BRINCKERHOFF, HALL & MACDONALD CONSULTING ENGINEERS			
HAMILTON		ONTARIO	
BURLINGTON CANAL LIFT BRIDGE			
LIFT SPAN AUXILIARY CONTROL			
APPROVED	DATE 12/1/56	DEPARTMENT PROJECT NO. SD6-4-77	
<i>M. Thompson</i>			
CHIEF STRUCTURES DIVISION		APPROVED DATE 14/1/58	
		<i>Melman</i>	
		CHIEF ENGINEER	
RECOMMENDED	DATE 12-1-56	DESIGN E.J.W.	CHKD. W.F.H.
		DRAWN L.N.M.	CHKD. E.J.W.
		TRACED J.N.W.	CHKD. G.D.H.
		JOB NO. H-538	
<i>C.P. Parker</i>			
C.C. PARKER & ASSOC. LTD.			
		CONTRACT NO. 2.	
		SHEET 55 OF 62	



LIST OF ELECTRICAL APPARATUS			
NO.	RQ'D	DESCRIPTION	REMARKS
1/20	2	CONTROL TRANSFORMER, DRY TYPE, SINGLE PHASE, 575/240 V. WITH FUSES	INCLUDE IN SWITCHGEAR FOR CIRCUIT BREAKER OPERATION
2/19	2	AIR CIRCUIT BREAKER, 600 V, 600 AMP, ELECTRICALLY OPERATED - 230 VOLT A.C. CLOSING AND TRIPPING, WITH DUAL MAGNETIC TRIPS, 400 AMP TRIP RATING, TIME DELAY UNDERVOLTAGE DEVICE, 25,000 AMP INTERRUPTING CAPACITY.	AT CONTROL DESK.
3	2	VOLTMETER TRANSFER SWITCH-FIXED OVAL HANDLE.	AT CONTROL DESK.
4	2	CURRENT TRANSFORMER, 600 VOLT, 400 AMP, CONTINUOUS RATING	FURNISHED BY UTILITY CO. (M.T.D. IN SEPARATE PANEL)
5	1	WATT HOUR METER	FURNISHED BY UTILITY CO. (M.T.D. IN SEPARATE PANEL)
6/25	4	CURRENT TRANSFORMER, 600 VOLT, 600 AMP, CONTINUOUS RATING	INSTRUMENTATION - AT SWGA.
7/22	4	POTENTIAL TRANSFORMER, 575/120 VOLTS, 200 VOLT-AMP, DRY TYPE WITH FUSES	INSTRUMENTATION - AT SWGA.
8/24	2	WATTMETER, FOR USE WITH INSTRUMENT TRANSFORMERS, 0-1000 KW SCALE	AT CONTROL DESK
9/23	2	VOLTMETER FOR USE WITH POTENTIAL TRANSFORMERS, 0-150 VOLT SCALE	AT CONTROL DESK
10/20	4	POTENTIAL TRANSFORMER, 575/120 VOLTS, 200 VOLT-AMP, DRY TYPE WITH FUSES	RELAYING-AT SWITCHGEAR
11/21	3	PHASE SEQUENCE - OPEN PHASE - UNDERVOLTAGE RELAY	AT SWITCHGEAR.
12	2	POTENTIAL TRANSFORMER, 575/120 VOLTS, 200 VOLT AMP, DRY TYPE WITH FUSES	GROUND DETECTOR - AT SWITCHGEAR
13	1	SET OF THREE (3) AMBER INDICATING LAMPS, WITH RESISTOR	GROUND DETECTOR-LOCATED AT CONTROL DESK
14	1	AIR CIRCUIT BREAKER, 600 VOLT, 225 AMP, ELECTRICALLY OPERATED 230 VOLT A.C. CLOSING AND TRIPPING, 15000 AMP INTERRUPTING RATING, 70 AMP TRIP RATING	AUXILIARY BUS-MACHINERY ROOM SOUTH TWR
15	1	AIR CIRCUIT BREAKER, 600 VOLT, 600 AMP, ELECTRICALLY OPERATED 230 VOLT A.C. CLOSING AND TRIPPING, 15000 AMP INTERRUPTING RATING, 300 AMP TRIP RATING	CONTROL CUBICLE - CONTROL HOUSE
16	1	AIR CIRCUIT BREAKER, 600 VOLT, 225 AMP, MANUALLY OPERATED 15000 AMP INTERRUPTING RATING - DUAL MAGNETIC TRIPS, 40 AMP TRIP RATING.	LIGHTING TRANSFORMER
17	1	AIR CIRCUIT BREAKER, 600 VOLT, 225 AMP, ELECTRICALLY OPERATED 230 VOLT A.C. CLOSING AND TRIPPING 15000 AMP INTERRUPTING RATING, 70 AMP TRIP RATING	TRANSFER SWITCH - AUXILIARY BUS MACHINERY ROOM-NORTH TOWER
18	1	AIR CIRCUIT BREAKER, 600 VOLT, 225 AMP, ELECTRICALLY OPERATED 230 VOLT A.C. CLOSING AND TRIPPING 15000 AMP INTERRUPTING RATING, 70 AMP TRIP RATING	TRANSFER SWITCH - AUXILIARY BUS MACHINERY ROOM-NORTH TOWER
27	1	AIR CIRCUIT BREAKER, 3P, 600 VOLT, 600 AMP, FRAME MANUALLY OPERATED	AT GENERATOR CONTROL BOARD
28	1	LIGHTING TRANSFORMER, DRY TYPE - 575 V. 120-208 V. 3 PHASE, 50 KVA	NORM/EMERG. LTG. PNL.
29	1	NORM/EMERG. LIGHTING PANEL - LPI, 3P, 4W, 5W, WITH MAIN LUGS & SPLIT BUS.	
30	1	AUTOMATIC TRANSFER SWITCH, 30 A. ELECTRICALLY OPERATED, MECHANICALLY HELD, 3 POLE DOUBLE THROW TO TRANSFER TO EMERGENCY SOURCE ON FAILURE OF VOLTAGE OF NORMAL SOURCE AND TO RESTORE TO NORMAL SOURCE UPON RECOVERY OF NORMAL VOLTAGE	SUPPLY SELECTION LTG. PNL.
31	1	AIR CIRCUIT BREAKER, 3P, 5N, 250 VOLT, 100 AMP, FRAME, MANUALLY OPERATED	AT EMERG. LTG. GEN.
32	1	EMERGENCY GENERATOR-10 KW, 3P, 60~ A.C. ENGINE DRIVEN	EMERG. LTG. SUPPLY
33	2	CURRENT TRANSFORMER, 600 VOLT, 400/S AMP	INSTRUMENTATION-POWER SELSYN TIE (*)
34	2	POTENTIAL TRANSFORMER 575/120 VOLTS, 200 VOLT AMP DRY TYPE WITH FUSES.	INSTRUMENTATION-POWER SELSYN DRIVE(*)
35	1	WATTMETER, 600 VOLT, 0-150 KW SCALE	AT CONTROL DESK
36/51	2	AIR CIRCUIT BREAKER, 3 POLE, 600 VOLT, 225 AMP, FRAME, MANUALLY OPERATED.	SPAN MOTORS (*)
37/52	2	REVERSING MAGNETIC CONTACTOR - 4 POLE, 600 VOLT ELECTRICALLY & MECHANICALLY INTERLOCKED IN PAIRS FOR 150 HP SPAN MOTORS.	RAISE & LOWER CIRCUITS (*)
38/53	2	MAGNETIC CONTACTOR-4 POLE FOR REACTOR BY PASS ON HIGH SPEED POINT & FOR EMERGENCY OPERATION	(*)
39/54	2	DRIVE REACTORS	REACTOR OPERATION (*)
40/55	2	RETARD REACTORS	REACTOR OPERATION (*)
41/56/57	4	MAGNETIC AMPLIFIERS COMPLETE WITH RECTIFIERS FOR EXCITING REACTORS	SPEED REGULATING & SKEW CONTROL(*)
43/58	2	DUAL COIL OVERLOAD RELAYS	SPAN MOTORS (*)
44	1	AIR CIRCUIT BREAKER-3 POLE, 600 VOLT, 225 AMP, FRAME, MANUALLY OPERATED	POWER SELSYN TIE MOTORS (*)
45A	2	MAGNETIC CONTACTOR-2 POLE, 600 VOLT FOR 150 HP MOTOR	RAISE & LOWER POWER SELSYN TIE(*)
45B	1	MAGNETIC CONTACTOR-1 POLE, 600 VOLT FOR 150 HP MOTOR	POWER SELSYN TIE - 3RD PHASE TIE (*)
45C	1	MAGNETIC CONTACTOR-1 POLE, 600 VOLT FOR 150 HP MOTOR	POWER SELSYN TIE - 3RD PHASE (*)
46	2	DUAL COIL OVERLOAD RELAYS	POWER SELSYN TIE MOTORS (*)
47/48	2	CURRENT TRANSFORMER, 600 VOLT, 400/S AMP.	INSTRUMENTATION (*)
49/50	2	AMMETER FOR USE WITH CURRENT TRANSFORMER 0-400 AMP SCALE	AT CONTROL DESK
59	1	AIR CIRCUIT BREAKER, 2 POLE, 600 VOLT, 100 AMP, FRAME, MANUALLY OPERATED	MAG. AMP. POWER (*)
60	1	CONTROL CIRCUIT TRANSFORMER-DRY TYPE, 575/120 - 1P A.C.	MAG. AMP. POWER (*)
61	1	MAGNETIC CONTACTOR, 2 POLE	MAG. AMP. POWER (*)
62	1	AIR CIRCUIT BREAKER, 2 POLE, 600 VOLT, 100 AMP, FRAME, MANUALLY OPERATED	CONTROL POWER (*)
63	1	CONTROL CIRCUIT TRANSFORMER-DRY TYPE, 575/120 V, 1P A.C.	CONTROL POWER (*)
64/65	2	SET GRID RESISTORS FOR 150 HP WOUND ROTOR MOTORS	SPAN MOTOR SECONDARY RESIST.
66	1	MAGNETIC CONTACTOR-4 POLE, 600 VOLT, 1 N.O. AUXILIARY CONTACT	SPAN MOTOR ACCELERATION (*)
67/68/69/70	4	MAGNETIC CONTACTOR-2 POLE, 600 VOLT	SPAN MOTOR ACCELERATION (*)
71/72/73/74	4	TRANSFER SWITCH-6P, D.T., 600 VOLT, 400 AMP, WITH AUXILIARY CONTACTS	SPAN & SYN TIE MOTOR TRANSFER(*)
75/76/77/78	4	DISCONNECT SWITCH-3P, 600 VOLT, 200 AMP.	"IN SIGHT" DISC SWITCH
79/80/81/82	4	DISCONNECT SWITCH-3P, 600 VOLT, 400 AMP.	"IN SIGHT" DISC SWITCH

LIST OF ELECTRICAL APPARATUS			
NO.	RQ'D	DESCRIPTION	REMARKS
83	2	SELSYN TRANSMITTERS, 110 VOLT, 1P, 60 CYCLE A.C.	AUTOMATIC LEVELING
84	1	EMERGENCY GENERATOR, 300 KW (575 KVA) 3P, 60~ A.C. ENGINE DRIVEN	EMERGENCY POWER SUPPLY
85/100	2	SITE 1, 600 VOLT COMBINATION REVERSING STARTER - 240 VOLT A.C. OPERATING COIL - MANUALLY OPERATED AIR CIRCUIT BREAKER - 15000 AMP INTERRUPTING CAPACITY AND BIMETALLIC THERMAL OVERLOAD RELAYS; FOR 5 HP MOTOR	SPAN LOCK MOTORS
86/101	2	SAME AS ITEMS 85/100	RAIL LOCK MOTORS
87/102	2	SAME AS ITEMS 85/100 EXCEPT FOR 1/4 HP MOTORS	TRAFFIC GATE MOTOR
88/103	2	SITE 1 600 VOLT COMBINATION MAGNETIC NON-REVERSING STARTER - 240 VOLT COIL MANUALLY OPERATED AIR CIRCUIT BREAKER, 15000 AMP INTERRUPTING CAPACITY AND BIMETALLIC THERMAL OVERLOAD RELAYS	SPAN MACHINE BRAKES
89,90/104,105	4	SAME AS ITEMS 88/103	SPAN MOTOR BRAKES
91/106	2	AIR CIRCUIT BREAKER, 100 AMP, FRAME, 50 AMP, TRIP, 3 POLE, 600 VOLT, 15,000 AMP INTERRUPTING CAPACITY.	ELEVATORS
92/107	2	SAME AS ITEMS 91/106	LTG. TRANSFORMER
93/108	2	SITE 2, 600 VOLT COMBINATION MAGNETIC NON-REVERSING STARTER - MANUALLY OPERATED AIR CIRCUIT BREAKER, 15,000 AMP INTERRUPTING CAPACITY	MACHINERY SPACE HEATERS
94,95/109,110	4	DISCONNECT SWITCH-TPST - 600 V. - 30 AMP, W.T. ENCLOSURE	"IN SIGHT" DISC. SW.
96/111	2	DISCONNECT SWITCH-TPST - 600 V. - 30 AMP, W.T. ENCLOSURE	"IN SIGHT" DISC. SW.
97/112	2	LIGHTING TRANSFORMER, DRY TYPE, 575/100-208 V., 3P, 4 WIRE, 9KVA	FOR LIGHTING PANELS LP2 & LP3.
98/113	2	LIGHTING PANEL, 12 CIRCUIT, 120-208 VOLT, 3P, 4 WIRE, 5N, 100 AMP, MAINS	LP2 & LP3
99/114	2	HEATER PANELS, 6 CIRCUIT, 575 V, 3P, 225 AMR MAINS	HRI & HPS
115	1	AUTOMATIC TRANSFER SWITCH, 60 AMP, 3 P.D.T., 3P, 3 WIRE ELECTRICALLY OPERATED, MECHANICALLY HELD ON FAILURE OF NORMAL SOURCE & RESTORE TO NORMAL SOURCE UPON RECOVERY OF NORMAL VOLTAGE	NORTH TOWER FEEDER TRANSFER
116	1	MAGNETIC RELAY - 5 N.O. CONTACTS, 2 N.C. CONTACTS	TRAFFIC LIGHT INTERLOCK
117	1	3 POSITION MULTICONTACT ROTARY SELECTOR SWITCH WITH FIXED OVAL HANDLE	TRAFFIC CONTROL DESK
118	1	SITE 1, 600 VOLT A.C. MAGNETIC CONTACTOR, 2P, 5 SEC. TIME DELAY TO CLOSE	TRAFFIC LIGHT, BELL & GATE LTG. CONTROL
119	1	ENCLOSED CARTRIDGE FUSE 600V.	TRANSFORMERS (*)
120	1	CONTROL CIRCUIT TRANSFORMER-DRY TYPE, 240/120 VOLT 1P, A.C.	CONTROL POWER (*)
121	1	MAGNETIC RELAY - 2 N.C. CONTACTS	SPAN, ROADWAY LIGHTING
122	2	CAM TYPE LIMIT SWITCH - W.T. ENCLOSURE	TRAFFIC GATES
123/124	2	PUSH BUTTON - NORMALLY OPEN - MOMENTARY CONTACT	GROUP CONTROL - TRAFFIC GATES-SOUTH
125	1	PUSH BUTTON - NORMALLY CLOSED - MOMENTARY CONTACT	GROUP CONTROL - TRAFFIC GATES-SOUTH
126	1	MAGNETIC RELAY - 1 N.O. CONTACT	TRAFFIC LIGHT INTERLOCK - SOUTH
127	1	MAGNETIC RELAY - 1 N.O. CONTACT	TRAFFIC LIGHT INTERLOCK - SOUTH
128	1	MAGNETIC RELAY - 2 N.O. CONTACTS, 120 VOLT COIL	MACHINE ROOM - HEATING CONTROL
129/130	2	PUSH BUTTON - NORMALLY OPEN - MOMENTARY CONTACT	GROUP CONTROL - TRAFFIC GATES-NORTH
131	1	PUSH BUTTON - NORMALLY CLOSED - MOMENTARY CONTACT	GROUP CONTROL - TRAFFIC GATES-NORTH
132	1	SEALED TUMBLER SWITCH, DPST, 250 VOLT, 30 AMP	BY-PASS FOR INTERLOCKS
133	1	MAGNETIC RELAY - 1 N.O. CONTACT	TRAFFIC LIGHT INTERLOCK - NORTH
134	1	MAGNETIC RELAY - 1 N.O. CONTACT	TRAFFIC LIGHT INTERLOCK - NORTH
135	2	BRIDGE RECTIFIER, FULL WAVE	D.C. RELAY SUPPLY, PILOT GEN. OUTPUT, MAG. AMP. EXCITATION (2)
136	2	LEVER TYPE LIMIT SWITCH - 2 N.O. & 1 N.C. CONTACTS	BARRIER GATES
137	1	MAGNETIC RELAY - 2 N.O. CONTACTS	BARRIER INTERLOCK - SOUTH
138	1	MAGNETIC RELAY - 1 N.O. CONTACT	BARRIER INTERLOCK - SOUTH
139	1	MAGNETIC RELAY - 1 N.O. CONTACT	BARRIER INTERLOCK - SOUTH
140	1	MAGNETIC RELAY - 2 N.O. CONTACTS	BARRIER INTERLOCK - NORTH
141	1	MAGNETIC RELAY - 1 N.O. CONTACT	BARRIER INTERLOCK - NORTH
142	1	MAGNETIC RELAY - 2 N.O. CONTACTS	BARRIER INTERLOCK - NORTH
143/144	2	PUSH BUTTON - NORMALLY OPEN - MOMENTARY CONTACT	GROUP CONTROL - RAIL LOCKS
145	1	MAGNETIC RELAY - 3 N.O. CONTACTS	RAIL LOCK INTERLOCK - ENGAGE
146	1	MAGNETIC RELAY - 3 N.O. CONTACTS	RAIL LOCK INTERLOCK - DISENGAGE
147	1	MAGNETIC RELAY - 1 N.O. CONTACT	NAVIGATION LIGHT CONTROL
148	1	MAGNETIC RELAY - 1 N.O. CONTACT	NAVIGATION LIGHT CONTROL
149	1	SPAN TRAVEL LIMIT SWITCH, CAM TYPE	SPAN CONTROL
150	1	MAGNETIC RELAY - 2 N.O. CONTACTS	PERMISSIVE SPAN FULLY SEATED SWITCHES
151	1	MAGNETIC RELAY - 2 N.O. CONTACTS	PERMISSIVE SPAN FULLY SEATED SWITCHES
152	1	MAGNETIC RELAY - 2 N.O. CONTACTS	PERMISSIVE SPAN FULLY SEATED SWITCHES
153	1	MAGNETIC RELAY - 2 N.O. CONTACTS	PERMISSIVE SPAN FULLY SEATED SWITCHES
154	4	PLUNGER TYPE LIMIT SWITCH - W.T. ENCLOSURE	PERMISSIVE SPAN FULLY SEATED SWITCHES
155	1	PILOT GENERATOR, 115 VOLT D.C. SHUNT WOUND	SPEED INDICATION - REACTOR CONTROL
156/157	2	PUSHBUTTON-NORMALLY CLOSED-MOMENTARY CONTACT	GROUP CONTROL - SPAN LOCKS
158/159	2	PUSHBUTTON-NORMALLY OPEN-MOMENTARY CONTACT	GROUP CONTROL - SPAN LOCKS
160	1	MAGNETIC RELAY - 3 N.O. CONTACTS	GROUP CONTROL - SPAN LOCKS
161	1	MAGNETIC RELAY - 3 N.O. CONTACTS	GROUP CONTROL - SPAN LOCKS
162	1	SEALED TUMBLER SWITCH - DPST, 250V, 30 AMP.	BY-PASS FOR INTERLOCKS
163	1	MAGNETIC RELAY - 1 N.C. CONTACT, 1 N.O. CONTACT	SPAN LOCK CONTROLS
164	1	MAGNETIC RELAY - 1 N.C. & 5 N.O. CONTACTS	SPAN LOCK CONTROLS
165	1	MAGNETIC RELAY - 1 N.C. CONTACT, 1 N.O. CONTACT	SPAN LOCK CONTROLS
166	1	MAGNETIC RELAY - 1 N.C. & 5 N.O. CONTACTS	SPAN LOCK CONTROLS
167	1	SEALED TUMBLER SWITCH - 6PST, 250 V, 30 AMP.	BY-PASS FOR INTERLOCKS
168 A&B	2	MAGNETIC RELAY - 2 N.O. CONTACTS	BRAKE RELEASE
169	12	AUXILIARY SWITCH-NORMALLY CLOSED-OPEN ONLY ON MANUAL RELEASE OF BRAKE	FURNISHED WITH BRAKES
170	6	AUXILIARY SWITCH-NORMALLY OPEN-CLOSED ONLY ON NORMAL RELEASE OF BRAKE	FURNISHED WITH BRAKES
171	1	MAGNETIC RELAY - 1 N.C. & 5 N.O. CONTACTS	MANUAL BRAKE RELEASE
174/175/176	6	MAGNETIC RELAY - 2 N.O. CONTACTS	BRAKE RELEASE
177/178/179			

LIST OF ELECTRICAL APPARATUS			
NO.	RQ'D	DESCRIPTION	REMARKS
180	1	SELSYN RECEIVER	SPAN HEIGHT INDICATION-AT CONTROL DESK
181	1	SELSYN TRANSMITTER	SPAN HEIGHT INDICATION-AT CONTROL DESK
182	1	DIFFERENTIAL SELSYN RECEIVER WITH SKEW INDICATION	SKEW INDICATION - AT CONTROL DESK
183	1	SELSYN TRANSMITTER	SPAN SKEW INDICATION - NORTH
184	1	SELSYN TRANSMITTER	SPAN SKEW INDICATION - SOUTH
185	2	NAVIGATION LIGHT - WHITE LENS - 100 W LAMP 120 V, A.C.	PASSAGE
186	2	NAVIGATION LIGHT - RED LENS - 100 W LAMP 120 V, A.C.	BRIDGE LIGHT - SPAN CLOSED
187	2	NAVIGATION LIGHT - GREEN LENS - 100 W LAMP 120 V, A.C.	BRIDGE LIGHT - SPAN OPEN
188	1	RETRACTABLE CABLE REEL WITH B COND. N.9.10 6 & 5G WIRES	SPAN ROADWAY, NAVIGATION & AVIATION LIGHTS
189	1	NAVIGATION HORN, 120 V. A.C.	RIVER TRAFFIC SIGNAL
190			
191	1	PUSHBUTTON-MOMENTARY CONTACT-NORMALLY OPEN	NAVIGATION HORN
192			
193	2	TRAFFIC SIGNAL LIGHTS RED-YELLOW-GREEN - 60 W. LAMP, 120 V. A.C.	TRAFFIC SIGNALS.
194	2	TRAFFIC WARNING BELLS, W.T. 120 V. A.C.	FURNISHED WITH TRAFFIC SIGNALS.
195	1	WARNING LIGHT FLASHER, MOTOR OPERATED, 120 V. A.C.	TRAFFIC & BARRIER GATES
196	14	WARNING LIGHTS - RED GLOBE, 60 W, 120 V, LAMPS	TRAFFIC & BARRIER GATES
197	1	TIME SWITCH, ASTRONOMICAL DIAL, 3SA, DPST, 120 V. A.C.	ROADWAY LIGHTING CONTROL
198	1	SEALED TUMBLER SWITCH - 2 POLE	TIME SWITCH BY-PASS
199	1	SOLA TYPE VOLTAGE REGULATOR	MAG AMP POWER (*)
200	1	MAGNETIC RELAY - 12 VOLT D.C. OPERATING COIL - 2 N.O. CONTACTS	RAIL LOCK CONTROLS - SUPPLIED FROM RAIL SIGNAL BOARD
201	1	MAGNETIC RELAY - 1 N.C. CONTACT	RAIL LOCK CONTROLS - NORTH
202	1	MAGNETIC RELAY - 2 N.C. CONTACTS	RAIL LOCK CONTROLS - NORTH
203	1	MAGNETIC RELAY - 1 N.C. CONTACT	RAIL LOCK CONTROLS - SOUTH
204	1	MAGNETIC RELAY - 2 N.C. CONTACTS	RAIL LOCK CONTROLS - SOUTH
205/206	1	PUSH BUTTON-NORMALLY CLOSED-MOMENTARY CONTACT	RAIL LOCK CONTROLS
207	2	CAM TYPE LIMIT SWITCH W.T. ENCLOSURE	RAIL LOCK CONTROLS
208	2	CAM TYPE LIMIT SWITCH, W.T. ENCLOSURE	SPAN LOCK CONTROLS
209	1	FILTER CAPACITOR	MAG AMP EXCITATION
210	1	SPAN SPEED INDICATION	AT CONTROL DESK
211	15	AMMETER	AT CONTROL BOARD CUBICLE (*)
212	10	WIRE WOUND RESISTOR WITH SLIDING TAP	CURRENT LIMIT (*)
213	2	WIRE WOUND RESISTOR WITH FIXED TAP	CURRENT LIMIT (*)
214	1	WIRE WOUND RESISTOR WITH FIXED TAPS	MAG AMP, PATTERN CURRENT LIMIT (*)
215	2	DUAL COIL CURRENT RELAYS WITH 1 N.C. CONTACT	REACTOR EXCITATION INTERLOCKING(*)
216	1	AUTOMATIC LEVELER CONSISTING OF THE FOLLOWING: 1-SELSYN RECEIVER DRIVING 1-POTENTIOMETER RHEOSTAT 1-2 CIRCUIT CAM LIMIT SWITCH	AUTOMATIC LEVELING (*)
217	1	MASTER CONTROLLER, DRUM TYPE	SPAN CONTROL
218/219	2	CAM TYPE LIMIT SWITCH	ULTIMATE SKEW LIMIT
220	1	SPAN SPEED LIMITING SWITCH - OPERATE AT 25% RATED SPEED	SPAN SPEED CONTROL
221	1	OVERSPEED SWITCH - OPERATE AT 115% RATED SPEED	SPAN SPEED CONTROL
222	1	SEALED TUMBLER SWITCH-6PST, 250 VOLT, 30 AMP	SPAN LOCK & BRAKE RELEASE BY-PASS
223	1	UNDERVOLTAGE RELAY - 1 N.O. CONTACT	SPAN CONTROL (*)
224	1	SKEW BY-PASS SWITCH, 6 CIRCUIT, 3 POSITION, HANDLE PULL TO TURN	
225	1	REACTOR SWITCH, 5 CIRCUIT, 2 POSITION	NORMAL OR EMERG. SPAN CONTROL
226	1	MAGNETIC RELAY - 2 N.O. CONTACTS - ADJUSTABLE TIME DELAY	SYNCHRO TIE INTERLOCK (*)
227/228/229	3	MAGNETIC RELAY - 1 N.C. CONTACT - ADJUSTABLE TIME DELAY	SYNCHRO TIE INTERLOCK (*)
230	1	SEALED TUMBLER SWITCH-DPST, 250 VOLTS, 30 AMP.	SYNCHRO TIE CUT OUT
231	1	MAGNETIC RELAY, 3 N.O. CONTACTS	FINAL SPAN PLACING (*)
232	1	FOOT SWITCH	FINAL SPAN PLACING
233	1	MAGNETIC RELAY, 1 N.O. CONTACT	PATTERN FIELD SHORT OUT (*)
234	1	MAGNETIC RELAY, 1 N.O. CONTACT, TIME DELAY TO CLOSE, 1 N.O. CONTACT INSTANTANEOUS	SPAN ACCELERATION (*)
235	1	MAGNETIC RELAY, 1 N.O. CONTACT, TIME DELAY TO OPEN	UNDESPEED BY-PASS (*)
236	1	MAGNETIC RELAY, 1 N.O. CONTACT, TIME DELAY TO OPEN	SPAN ACCELERATION (*)
237	1	MAGNETIC RELAY, 1 N.O. CONTACT, TIME DELAY TO OPEN, 1 N.O. CONTACT INSTANTANEOUS	FINAL SPAN SEATING (*)
238/239	2	PUSH BUTTON-NORMALLY OPEN - MOMENTARY CONTACT	LOCAL CONTROL - TRAFFIC GATES, NORTH
240/241	2	PUSH BUTTON-NORMALLY OPEN - MOMENTARY CONTACT	LOCAL CONTROL - TRAFFIC GATES, SOUTH
242	2	SET OF ONE OR MORE 3 POSITION MULTI CONTACT GANG OPERATED ROTARY TYPE SWITCHES	AERIAL CONTROL CABLE SELECTION
243	1	2 POSITION MULTICONTACT ROTARY TYPE TRANSFER SWITCH	CONTROL BUS TRANSFER AT CONTROL DESK

NOTE - EQUIPMENT MARKED WITH (*) IN REMARKS COLUMN IS LOCATED IN THE CONTROL BOARD CUBICLE

NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C. C. PARKER & ASSOCIATES LIMITED- PARSONS, BRINCKERHOFF, HALL & MACDONALD- CONSULTING ENGINEERS			
HAMILTON		ONTARIO	
BURLINGTON CANAL LIFT BRIDGE			
ELECTRICAL EQUIPMENT LIST			
APPROVED	DATE 13/1/58	DEPARTMENT PROJECT NO. SD6-4-77	
<i>M. Thompson</i> CHIEF STRUCTURES DIVISION			
APPROVED	DATE 14/1/58	CONTRACT NO 2	
<i>G. Wallace</i> CHIEF ENGINEER			
RECOMMENDED	DATE 12-1-58	DESIGN W.F.M.	CHKD E.T.W.
		DRAWN L.N.M.	CHKD E.T.W.
		TRACED T.N.W.	CHKD G.D.H.
<i>C. Parker</i> C.C. PARKER & ASSOC. LTD.		JOB NO. H-5	

LIST OF ELECTRICAL APPARATUS

NO.	RQD.	DESCRIPTION	REMARKS
1/26	2	CONTROL TRANSFORMER, DRY TYPE, SINGLE PHASE, 575/240V. WITH FUSES	INCLUDE IN SWITCHGEAR FOR CIRCUIT BREAKER OPERATION
2/19	2	AIR CIRCUIT BREAKER, 600 V, 600 AMP, ELECTRICALLY OPERATED - 230 VOLT A.C. CLOSING AND TRIPPING, WITH DUAL MAGNETIC TRIPS, 400 AMP TRIP RATING, TIME DELAY UNDERVOLTAGE DEVICE, 25000 AMP INTERRUPTING CAPACITY.	AT CONTROL DESK
3	2	VOLTMETER TRANSFER SWITCH-FIXED OVAL HANDLE.	AT CONTROL DESK
4	2	CURRENT TRANSFORMER, 600 VOLT, 600 AMP, CONTINUOUS RATING	FURNISHED BY UTILITY CO. (MFD. IN SWGA.)
5	1	WATT HOUR METER	FURNISHED BY UTILITY CO. (MFD. ON SEPARATE PANEL)
6/25	4	CURRENT TRANSFORMER, 600 VOLT, 600 AMP, CONTINUOUS RATING	INSTRUMENTATION - AT SWGA.
7/22	4	POTENTIAL TRANSFORMER, 575/120 VOLTS, 200 VOLT-AMP, DRY TYPE WITH FUSES	INSTRUMENTATION - AT SWGA.
8/24	2	WATTMETER, FOR USE WITH INSTRUMENT TRANSFORMERS, 0-1000 KW SCALE	AT CONTROL DESK
9/23	2	VOLTMETER, FOR USE WITH POTENTIAL TRANSFORMERS, 0-750 VOLT SCALE	AT CONTROL DESK
10/20	4	POTENTIAL TRANSFORMER, 575/120 VOLTS, 200 VOLT-AMP, DRY TYPE WITH FUSES	RELAYING-AT SWITCHGEAR
11/21	2	PHASE SEQUENCE - OPEN PHASE - UNDERVOLTAGE RELAY	AT SWITCHGEAR
12	3	POTENTIAL TRANSFORMER, 575/120 VOLTS, 200 VOLT AMP, DRY TYPE, WITH FUSES	GROUND DETECTOR - AT SWITCHGEAR
13	1	SET OF THREE (3) AMBER INDICATING LAMPS, WITH RESISTOR	GROUND DETECTION - LOCATED AT CONTROL DESK
14	1	AIR CIRCUIT BREAKER, 600 VOLT, 225 AMP, ELECTRICALLY OPERATED 230 VOLT A.C. CLOSING AND TRIPPING, 15000 AMP INTERRUPTING RATING, 70 AMP TRIP RATING	AUXILIARY BUS-MACHINERY ROOM-SOUTH TOWER
15	1	AIR CIRCUIT BREAKER, 600 VOLT, 600 AMP, ELECTRICALLY OPERATED 230 VOLT A.C. CLOSING AND TRIPPING, 25000 AMP INTERRUPTING RATING, 300 AMP TRIP RATING.	CONTROL CUBICLE - CONTROL HOUSE
16	1	AIR CIRCUIT BREAKER, 600 VOLT, 225 AMP, MANUALLY OPERATED, 15000 AMP INTERRUPTING RATING - DUAL MAGNETIC TRIPS, 40 AMP TRIP RATING.	LIGHTING TRANSFORMER
17	1	AIR CIRCUIT BREAKER, 600 VOLT, 225 AMP, ELECTRICALLY OPERATED 230 VOLT A.C. CLOSING AND TRIPPING 15000 AMP INTERRUPTING RATING, 70 AMP TRIP RATING.	TRANSFER SWITCH - AUXILIARY BUS MACHINERY ROOM-NORTH TOWER
18	1	AIR CIRCUIT BREAKER, 600 VOLT, 225 AMP, ELECTRICALLY OPERATED 230 VOLT A.C. CLOSING AND TRIPPING 15000 AMP INTERRUPTING RATING, 70 AMP TRIP RATING.	TRANSFER SWITCH - AUXILIARY BUS MACHINERY ROOM-NORTH TOWER
27	1	AIR CIRCUIT BREAKER, 3P, 600 VOLT, 600 AMP, FRAME MANUALLY OPERATED	AT GENERATOR CONTROL BOARD
28	1	LIGHTING TRANSFORMER - DRY TYPE - 575 V/120-208 V, 3 PHASE, 30 KVA	NORM./EMERG. LTG. PNL.
29	1	NORM./EMERG. LIGHTING PANEL - LPI, 3P, 4W. SW. WITH MAIN LUGS & SPLIT BUS.	
30	1	AUTOMATIC TRANSFER SWITCH, 30 A, ELECTRICALLY OPERATED, MECHANICALLY HELD, 3 POLE DOUBLE THROW TO TRANSFER TO EMERGENCY SOURCE ON FAILURE OF VOLTAGE OF NORMAL SOURCE AND TO RESTORE TO NORMAL SOURCE UPON RECOVERY OF NORMAL VOLTAGE	SUPPLY SELECTION LTG. PNL.
31	1	AIR CIRCUIT BREAKER, 3P, 500 VOLT, 250 VOLT, 100 AMP, FRAME, MANUALLY OPERATED	AT EMERG. LTG. GEN.
32	1	EMERGENCY GENERATOR-10 KW, 3P, 600 V A.C. ENGINE DRIVEN	EMERG. LTG. SUPPLY
33	2	CURRENT TRANSFORMER, 600 VOLT, 400/5 AMP.	INSTRUMENTATION-POWER SELSYN TIE (*)
34	2	POTENTIAL TRANSFORMER 575/120 VOLTS, 200 VOLT AMP, DRY TYPE WITH FUSES.	INSTRUMENTATION-POWER SELSYN DRIVE (*)
35	1	WATTMETER, 600 VOLT, 0-150 KW SCALE	AT CONTROL DESK
36/51	2	AIR CIRCUIT BREAKER, 3 POLE, 600 VOLT, 225 AMP, FRAME, MANUALLY OPERATED.	SPAN MOTORS. (*)
37/52	2	REVERSING MAGNETIC CONTACTOR - 6 POLE, 600 VOLT ELECTRICALLY & MECHANICALLY INTERLOCKED IN PAIRS FOR 150 HP SPAN MOTORS.	RAISE & LOWER CIRCUITS (*)
38/53	2	MAGNETIC CONTACTOR-6 POLE FOR REACTOR BY PASS ON HIGH SPEED POINT & FOR EMERGENCY OPERATION.	(*)
39/54	2	DRIVE REACTORS	REACTOR OPERATION (*)
40/55	2	RETRARD REACTORS	REACTOR OPERATION (*)
41/42/56/57	4	MAGNETIC AMPLIFIERS COMPLETE WITH RECTIFIERS. FOR EXCITING REACTORS	SPEED REGULATING & SKEW CONTROL (*)
43/58	2	DUAL COIL OVERLOAD RELAYS	SPAN MOTORS (*)
44	1	AIR CIRCUIT BREAKER-3 POLE, 600 VOLT, 225 AMP, FRAME, MANUALLY OPERATED	POWER SELSYN TIE MOTORS (*)
45A	2	MAGNETIC CONTACTOR-2 POLE, 600 VOLT FOR 150 HP MOTOR	RAISE & LOWER POWER SELSYN TIE (*)
45B	1	MAGNETIC CONTACTOR-1 POLE, 600 VOLT FOR 150 HP MOTOR	POWER SELSYN TIE - 3RD PHASE TIE (*)
45C	1	MAGNETIC CONTACTOR-1 POLE, 600 VOLT FOR 150 HP MOTOR	POWER SELSYN TIE - 3RD PHASE TIE (*)
46	2	DUAL COIL OVERLOAD RELAYS	POWER SELSYN TIE MOTORS (*)
47/48	2	CURRENT TRANSFORMER, 600 VOLT, 400/5 AMP.	INSTRUMENTATION (*)
49/50	2	AMMETER FOR USE WITH CURRENT TRANSFORMER 0-400 AMP SCALE	AT CONTROL DESK
59	1	AIR CIRCUIT BREAKER, 2 POLE, 600 VOLT, 100 AMP, FRAME, MANUALLY OPERATED	MAG. AMP. POWER (*)
60	1	CONTROL CIRCUIT TRANSFORMER-DRY TYPE, 575/120 V, 1P A.C.	MAG. AMP. POWER (*)
61	1	MAGNETIC CONTACTOR, 2 POLE	MAG. AMP. POWER (*)
62	1	AIR CIRCUIT BREAKER, 2 POLE, 600 VOLT, 100 AMP, FRAME MANUALLY OPERATED	CONTROL POWER (*)
63	1	CONTROL CIRCUIT TRANSFORMER-DRY TYPE, 575/240 V, 1P A.C.	CONTROL POWER (*)
64/65	2	SET GRID RESISTORS FOR 150 HP WOUND MOTOR MOTORS	SPAN MOTOR SECONDARY RESIST.
66	1	MAGNETIC CONTACTOR-4 POLE, 600 VOLT, I.N.O. AUXILIARY CONTACT	SPAN MOTOR ACCELERATION (*)
67/68/69/70	4	MAGNETIC CONTACTOR-2 POLE, 600 VOLT	SPAN MOTOR ACCELERATION (*)
71/72/73/74	4	TRANSFER SWITCH-6P. D.T., 600 VOLT, 400 AMP, WITH AUXILIARY CONTACTS	SPAN & SYN. TIE MOTOR TRANSFER (*)
75/76/77/78	4	DISCONNECT SWITCH-3P. 6T., 600 VOLT, 200 AMP.	"IN SIGHT" DISC. SWITCH
79/80/81/82	4	DISCONNECT SWITCH-3P. 6T., 600 VOLT, 400 AMP.	"IN SIGHT" DISC. SWITCH

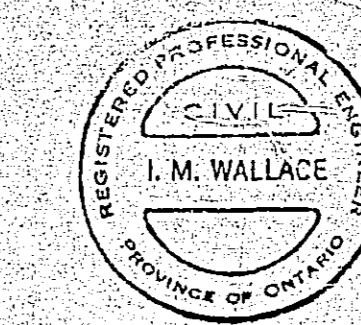
LIST OF ELECTRICAL APPARATUS

NO.	RQD.	DESCRIPTION	REMARKS
83	2	SELSYN TRANSMITTERS, 110 VOLT, 1P, 60 CYCLE A.C.	AUTOMATIC LEVELING
84	1	EMERGENCY GENERATOR, 300 KW (575 KVA) 3P, 600 V A.C. ENGINE DRIVEN	EMERGENCY POWER SUPPLY
85/100	2	SIZE 1, 600 VOLT COMBINATION REVERSING STARTER - 240 VOLT A.C. OPERATING COIL - MANUALLY OPERATED AIR CIRCUIT BREAKER - 15000 AMP INTERRUPTING CAPACITY AND BIMETALLIC THERMAL OVERLOAD RELAYS, 3 FOR 5 HP MOTOR	SPAN LOCK MOTORS
86/101	2	SAME AS ITEMS 85/100	RAIL LOCK MOTORS
87/102	2	SAME AS ITEMS 85/100 EXCEPT FOR 1/4 HP MOTORS	TRAFFIC GATE MOTOR
88/103	2	SIZE 1, 600 VOLT COMBINATION MAGNETIC NON-REVERSING STARTER - 240 VOLT COIL MANUALLY OPERATED AIR CIRCUIT BREAKER, 15000 AMP INTERRUPTING CAPACITY AND BIMETALLIC THERMAL OVERLOAD RELAYS	SPAN MACHINE BRAKES
89/90/94/95	4	SAME AS ITEMS 88/103	SPAN MOTOR BRAKES
91/106	2	AIR CIRCUIT BREAKER, 100 AMP, FRAME, 50 AMP TRIP, 3 POLE, 600 VOLT, 15,000 AMP INTERRUPTING CAPACITY.	ELEVATORS
92/107	2	SAME AS ITEMS 91/106	LTG. TRANSFORMER
93/108	2	SIZE 2, 600 VOLT COMBINATION MAGNETIC NON-REVERSING STARTER - MANUALLY OPERATED AIR CIRCUIT BREAKER, 15,000 AMP INTERRUPTING CAPACITY	MACHINERY SPACE HEATERS
94/95/109/110	4	DISCONNECT SWITCH-TPST - 600 V. 30 AMP, W.T. ENCLOSURE	"IN-SIGHT" DISC. SW.
96/111	2	DISCONNECT SWITCH-TPST - 600 V. 30 AMP, W.T. ENCLOSURE	"IN-SIGHT" DISC. SW.
97/112	2	LIGHTING TRANSFORMER, DRY TYPE, 575/120-208 V, 3P, 4 WIRE, 9KVA	FOR LIGHTING PANELS, LP2 & LP3.
98/113	2	LIGHTING PANEL, 12 CIRCUIT, 120-208 VOLT, 3P, 4 WIRE, 5N, 100 AMP. MAINS	LP2 & LP3
99/114	2	HEATER PANELS, 6 CIRCUIT, 575 V, 3P, 225 AMP MAINS	HBI & HP2
115	1	AUTOMATIC TRANSFER SWITCH, 60 AMP, 3 P.D.T., 3P, 3 WIRE ELECTRICALLY OPERATED, MECHANICALLY HELD ON FAILURE OF NORMAL SOURCE & RESTORE TO NORMAL SOURCE UPON RECOVERY OF NORMAL VOLTAGE	NORTH TOWER FEEDER TRANSFER
116	1	MAGNETIC RELAY - 5 N.O. CONTACTS	TRAFFIC LIGHT INTERLOCK
117	1	3 POSITION MULTICONTACT ROTARY SELECTOR SWITCH WITH FIXED OVAL HANDLE	TRAFFIC CONTROL DESK
118	1	SIZE 1, 600 VOLT A.C. MAGNETIC CONTACTOR, 2P, 5 SEC. TIME DELAY TO CLOSE	TRAFFIC LIGHT, BELL & GATE LTG. CONTROL
119	1	ENCLOSED CARTRIDGE FUSE 600 V.	TRANSFORMERS (*)
120	1	CONTROL CIRCUIT TRANSFORMER-DRY TYPE, 240/120 VOLT, 1P, A.C.	CONTROL POWER (*)
121	1	MAGNETIC RELAY - 2 N.O. CONTACTS	SPAN, ROADWAY LIGHTING
122	2	CAM TYPE LIMIT SWITCH - W.T. ENCLOSURE	TRAFFIC GATES
123/124	2	PUSH BUTTON - NORMALLY OPEN - MOMENTARY CONTACT	GROUP CONTROL - TRAFFIC GATES-SOUTH
125	1	PUSH BUTTON - NORMALLY CLOSED - MOMENTARY CONTACT	GROUP CONTROL - TRAFFIC GATES-SOUTH
126	1	MAGNETIC RELAY - 1 N.O. CONTACT	TRAFFIC LIGHT INTERLOCK - SOUTH
127	1	MAGNETIC RELAY - 1 N.O. CONTACT	TRAFFIC LIGHT INTERLOCK - SOUTH
128	1	MAGNETIC RELAY - 2 N.O. CONTACTS, 120 VOLT COIL	MACHINE ROOM - HEATING CONTROL
129/130	2	PUSH BUTTON - NORMALLY OPEN - MOMENTARY CONTACT	GROUP CONTROL - TRAFFIC GATES-NORTH
131	1	PUSH BUTTON - NORMALLY CLOSED - MOMENTARY CONTACT	GROUP CONTROL - TRAFFIC GATES-NORTH
132	1	SEALED TUMBLER SWITCH - DPST, 250 VOLTS, 30 AMP.	BY-PASS FOR INTERLOCKS
133	1	MAGNETIC RELAY - 1 N.O. CONTACT	TRAFFIC LIGHT INTERLOCK - NORTH
134	1	MAGNETIC RELAY - 1 N.O. CONTACT	TRAFFIC LIGHT INTERLOCK - NORTH
135	2	BRIDGE RECTIFIER, FULL WAVE	D.C. RELAY SUPPLY, PILOT GEN. OUTPUT, MAG. AMP. EXCITATION (*)
136	2	LEVEL TYPE LIMIT SWITCH - 2 N.O. & 1 N.O. CONTACTS	BARRIER GATES
137	1	MAGNETIC RELAY - 2 N.O. CONTACTS	BARRIER INTERLOCK - SOUTH
138	1	MAGNETIC RELAY - 1 N.O. CONTACT	BARRIER INTERLOCK - SOUTH
139	1	MAGNETIC RELAY - 1 N.O. CONTACT	BARRIER INTERLOCK - SOUTH
140	1	MAGNETIC RELAY - 2 N.O. CONTACTS	BARRIER INTERLOCK - NORTH
141	1	MAGNETIC RELAY - 1 N.O. CONTACT	BARRIER INTERLOCK - NORTH
142	1	MAGNETIC RELAY - 2 N.O. CONTACTS	BARRIER INTERLOCK - NORTH
143/144	2	PUSH BUTTON - NORMALLY OPEN - MOMENTARY CONTACT	GROUP CONTROL - RAIL LOCKS
145	1	MAGNETIC RELAY - 3 N.O. CONTACTS	RAIL LOCK INTERLOCK - ENGAGE
146	1	MAGNETIC RELAY - 3 N.O. CONTACTS	RAIL LOCK INTERLOCK - DISENGAGE
147	1	MAGNETIC RELAY - 1 N.O. CONTACT	NAVIGATION LIGHT CONTROL
148	1	MAGNETIC RELAY - 1 N.O. CONTACT	NAVIGATION LIGHT CONTROL
149	1	SPAN TRAVEL LIMIT SWITCH, CAM TYPE	SPAN CONTROL
150	1	MAGNETIC RELAY - 2 N.O. CONTACTS	PERMISSIVE SPAN FULLY SEATED SWITCHES
151	1	MAGNETIC RELAY - 2 N.O. CONTACTS	PERMISSIVE SPAN FULLY SEATED SWITCHES
152	1	MAGNETIC RELAY - 2 N.O. CONTACTS	PERMISSIVE SPAN FULLY SEATED SWITCHES
153	1	MAGNETIC RELAY - 2 N.O. CONTACTS	PERMISSIVE SPAN FULLY SEATED SWITCHES
154	4	PLUNGER TYPE LIMIT SWITCH - W.T. ENCLOSURE	PERMISSIVE SPAN FULLY SEATED SWITCHES
155	1	PILOT GENERATOR, 115 VOLT D.C. SHUNT WOUND	SPEED INDICATION - REACTOR CONTROL
156/157	2	PUSHBUTTON - NORMALLY CLOSED - MOMENTARY CONTACT	GROUP CONTROL - SPAN LOCKS
158/159	2	PUSHBUTTON - NORMALLY OPEN - MOMENTARY CONTACT	GROUP CONTROL - SPAN LOCKS
160	1	MAGNETIC RELAY - 3 N.O. CONTACTS	GROUP CONTROL - SPAN LOCKS
161	1	MAGNETIC RELAY - 3 N.O. CONTACTS	GROUP CONTROL - SPAN LOCKS
162	1	SEALED TUMBLER SWITCH - DPST, 250V, 30 AMP.	BY-PASS FOR INTERLOCKS
163	1	MAGNETIC RELAY - 1 N.O. CONTACT, 1 N.O. CONTACT	SPAN LOCK CONTROLS
164	1	MAGNETIC RELAY - 1 N.O. & 5 N.O. CONTACTS	SPAN LOCK CONTROLS
165	1	MAGNETIC RELAY - 1 N.O. CONTACT, 1 N.O. CONTACT	SPAN LOCK CONTROLS
166	1	MAGNETIC RELAY - 1 N.O. & 5 N.O. CONTACTS	SPAN LOCK CONTROLS
167	1	SEALED TUMBLER SWITCH - SPST, 250 V, 30 AMP.	BY-PASS FOR INTERLOCKS
168/118	2	MAGNETIC RELAY - 2 N.O. CONTACTS	BRAKE RELEASE
169	12	AUXILIARY SWITCH - NORMALLY CLOSED - OPEN ONLY ON MANUAL RELEASE OF BRAKE	FURNISHED WITH BRAKES
170	6	AUXILIARY SWITCH - NORMALLY OPEN - CLOSED ONLY ON NORMAL RELEASE OF BRAKE	FURNISHED WITH BRAKES
171	1	MAGNETIC RELAY - 1 N.O. & 3 N.O. CONTACTS	MANUAL BRAKE RELEASE
174/175/176	6	MAGNETIC RELAY - 2 N.O. CONTACTS	BRAKE RELEASE
177/178/179			

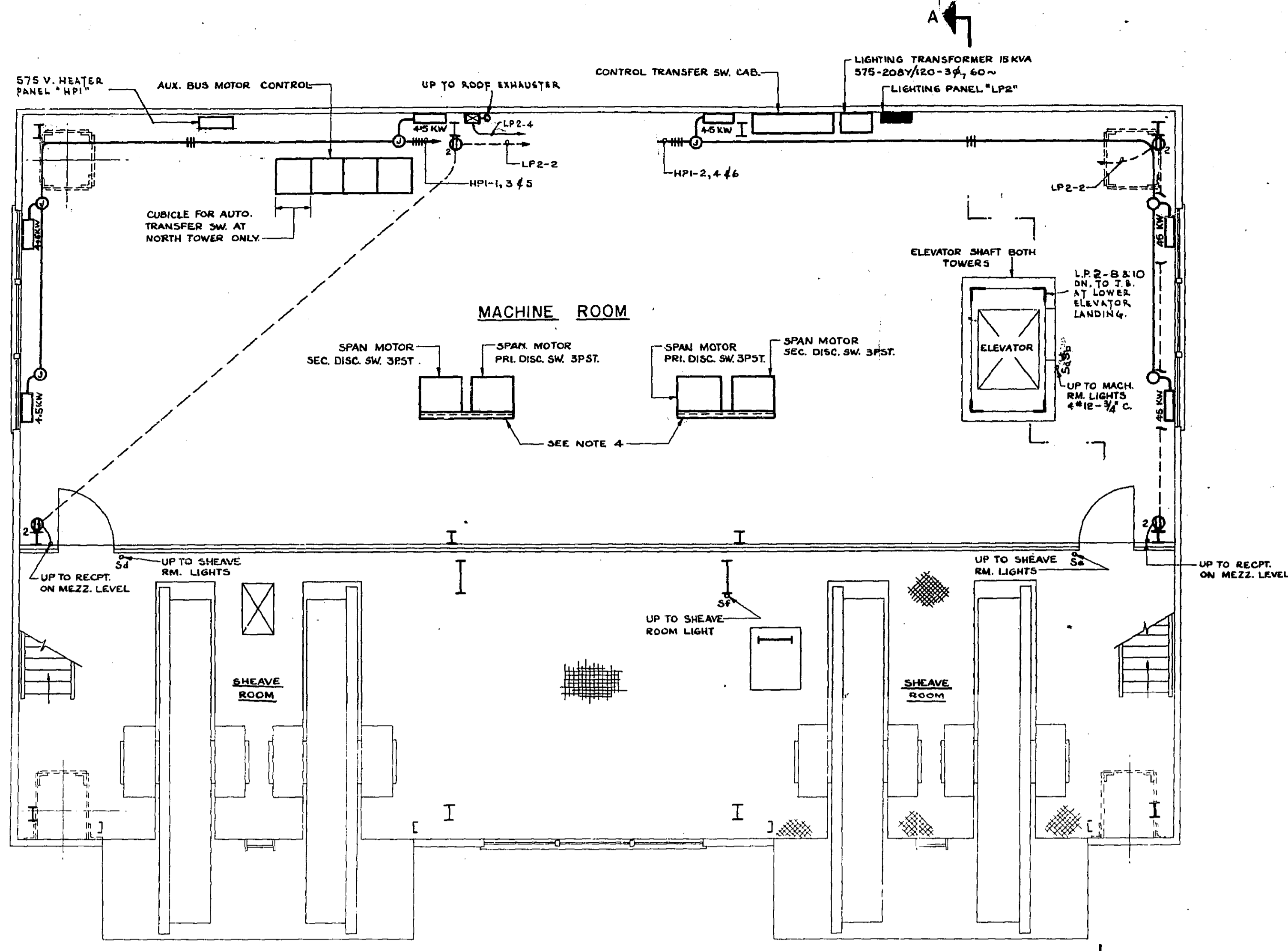
LIST OF ELECTRICAL APPARATUS

NO.	RQD.	DESCRIPTION	REMARKS
180	1	SELSYN RECEIVER	SPAN HEIGHT INDICATION-AT CONTROL DESK
181	1	SELSYN TRANSMITTER	SPAN HEIGHT INDICATION-AT CONTROL DESK
182	1	DIFFERENTIAL SELSYN RECEIVER WITH SKEW INDICATION	SKEW INDICATION - AT CONTROL DESK
183	1	SELSYN TRANSMITTER	SPAN SKEW INDICATION - NORTH
184	1	SELSYN TRANSMITTER	SPAN SKEW INDICATION - SOUTH
185	2	NAVIGATION LIGHT - WHITE LENS - 100 W. LAMP 120 V, A.C.	PASSAGE
186	2	NAVIGATION LIGHT - RED LENS - 100 W. LAMP 120 V, A.C.	BRIDGE LIGHT - SPAN CLOSED
187	2	NAVIGATION LIGHT - GREEN LENS - 100 W. LAMP 120 V, A.C.	BRIDGE LIGHT - SPAN OPEN
188	1	RETRACTABLE CABLE REEL WITH 8 COND. NO. 10 & 8 SG WIRES	SPAN, ROADWAY, NAVIGATION & AVIATION LIGHTS
189	1	NAVIGATION HORN, 120 V. A.C.	RIVER TRAFFIC SIGNAL.
190			
191	1	PUSHBUTTON - MOMENTARY CONTACT - NORMALLY OPEN	NAVIGATION HORN
192			
193	2	TRAFFIC SIGNAL LIGHTS RED-YELLOW-GREEN - 60 W. LAMP, 120 V. A.C.	TRAFFIC SIGNALS.
194	2	TRAFFIC WARNING BELLS, W.T., 120 V. A.C.	FURNISHED WITH TRAFFIC SIGNALS.
195	1	WARNING LIGHT FLASHER, MOTOR OPERATED, 120 V. A.C.	TRAFFIC & BARRIER GATES
196	14	WARNING LIGHTS - RED GLOBE, 60W., 120V. LAMPS	TRAFFIC & BARRIER GATES
197	1	TIME SWITCH, ASTRONOMICAL DIAL, 35A, DPST, 120 V. A.C.	ROADWAY LIGHTING CONTROL
198	1	SEALED TUMBLER SWITCH - 2 POLE	TIME SWITCH BY-PASS
199	1	SOLA TYPE VOLTAGE REGULATOR	MAG. AMP. POWER (*)
200	1	MAGNETIC RELAY - 12 VOLT D.C. OPERATING COIL - 2 N.O. CONTACTS	RAIL LOCK CONTROLS - SUPPLIED FROM RAIL SIGNAL BOARD
201	1	MAGNETIC RELAY - 1 N.O. CONTACT	RAIL LOCK CONTROLS - NORTH
202	1	MAGNETIC RELAY - 2 N.O. CONTACTS	RAIL LOCK CONTROLS - NORTH
203	1	MAGNETIC RELAY - 1 N.O. CONTACT	RAIL LOCK CONTROLS - SOUTH
204	1	MAGNETIC RELAY - 2 N.O. CONTACTS	RAIL LOCK CONTROLS - SOUTH
205/206	1	PUSH BUTTON - NORMALLY CLOSED - MOMENTARY CONTACT	RAIL LOCK CONTROLS
207	2	CAM TYPE LIMIT SWITCH, W.T. ENCLOSURE	RAIL LOCK CONTROLS
208	2	CAM TYPE LIMIT SWITCH, W.T. ENCLOSURE	SPAN LOCK CONTROLS
209	1	FILTER CAPACITOR	MAG. AMP. EXCITATION
210	1	SPAN SPEED INDICATION	AT CONTROL DESK
211	13	AMMETER	AT CONTROL BOARD CUBICLE (*)
212	10	WIRE WOUND RESISTOR WITH SLIDING TAP	CURRENT LIMIT. (*)
213	2	WIRE WOUND RESISTOR WITH FIXED TAP	CURRENT LIMIT. (*)
214	1	WIRE WOUND RESISTOR WITH FIXED TAPS.	MAG. AMP. PATTERN CURRENT LIMIT (*)
215	2	DUAL COIL CURRENT RELAYS WITH 1 N.O. CONTACT	REACTOR EXCITATION INTERLOCKING (*)
216	1	AUTOMATIC LEVELER CONSISTING OF THE FOLLOWING: 1- SELSYN RECEIVER DRIVING 1- POTENTIOMETER RESISTAT 1-4 CIRCUIT CAM LIMIT SWITCH	AUTOMATIC LEVELING (*)
217	1	MASTER CONTROLLER - DRUM TYPE	SPAN CONTROL
218/219	2	CAM TYPE LIMIT SWITCH	ULTIMATE SKEW LIMIT
220	1	SPAN SPEED LIMITING SWITCH - OPERATE AT 25% RATED SPEED	SPAN SPEED CONTROL
221	1	OVERSPEED SWITCH - OPERATE AT 115% RATED SPEED	SPAN SPEED CONTROL
222	1	SEALED TUMBLER SWITCH - SPST, 250 VOLT, 30 AMP.	SPAN LOCK & BRAKE RELEASE BY-PASS
223	1	UNDERVOLTAGE RELAY - 1 N.O. CONTACT	SPAN CONTROL (*)
224	1	SKEW BY-PASS SWITCH, 8 CIRCUIT, 3 POSITION, HANDLE PULL TO TURN	
225	1	REACTOR SWITCH, 5 CIRCUIT, 2 POSITION	NORMAL OR EMERG. SPAN CONTROL
226	1	MAGNETIC RELAY, 2 N.O. CONTACTS - ADJUSTABLE TIME DELAY	SYNCHRO TIE INTERLOCK (*)
227/228/229	3	MAGNETIC RELAY, 1 N.O. CONTACT - ADJUSTABLE TIME DELAY	SYNCHRO TIE INTERLOCK (*)
230	1	SEALED TUMBLER SWITCH - DPST, 250 VOLTS, 30 AMP.	SYNCHRO TIE CUT OUT
231	1	MAGNETIC RELAY, 3 N.O. CONTACTS	FINAL SPAN PLACING (*)
232	1	FOOT SWITCH	FINAL SPAN PLACING
233	1	MAGNETIC RELAY, 1 N.O. CONTACT	PATTERN FIELD SHORT OUT (*)
234	1	MAGNETIC RELAY, 1 N.O. CONTACT, TIME DELAY TO CLOSE, 1 N.O. CONTACT INSTANTANEOUS.	SPAN ACCELERATION (*)
235	1	MAGNETIC RELAY, 1 N.O. CONTACT TIME DELAY TO OPEN	UNDERSPEED BY-PASS (*)
236	1	MAGNETIC RELAY, 1 N.O. CONTACT TIME DELAY TO OPEN	SPAN ACCELERATION (*)
237	1	MAGNETIC RELAY, 1 N.O. CONTACT, TIME DELAY TO OPEN, 1 N.O. CONTACT INSTANTANEOUS	FINAL SPAN SEATING (*)
238/239	2	PUSH BUTTON - NORMALLY OPEN - MOMENTARY CONTACT	LOCAL CONTROL - TRAFFIC GATES, NORTH
240/241	2	PUSH BUTTON - NORMALLY OPEN - MOMENTARY CONTACT	LOCAL CONTROL - TRAFFIC GATES, SOUTH
242	2	SET OF ONE OR MORE 3 POSITION MULTICONTACT GANG OPERATED ROTARY TYPE SWITCHES	AERIAL CONTROL CABLE SELECTION
243	1	2 POSITION MULTICONTACT ROTARY TYPE TRANSFER SWITCH.	CONTROL BUS TRANSFER-AT CONTROL DESK

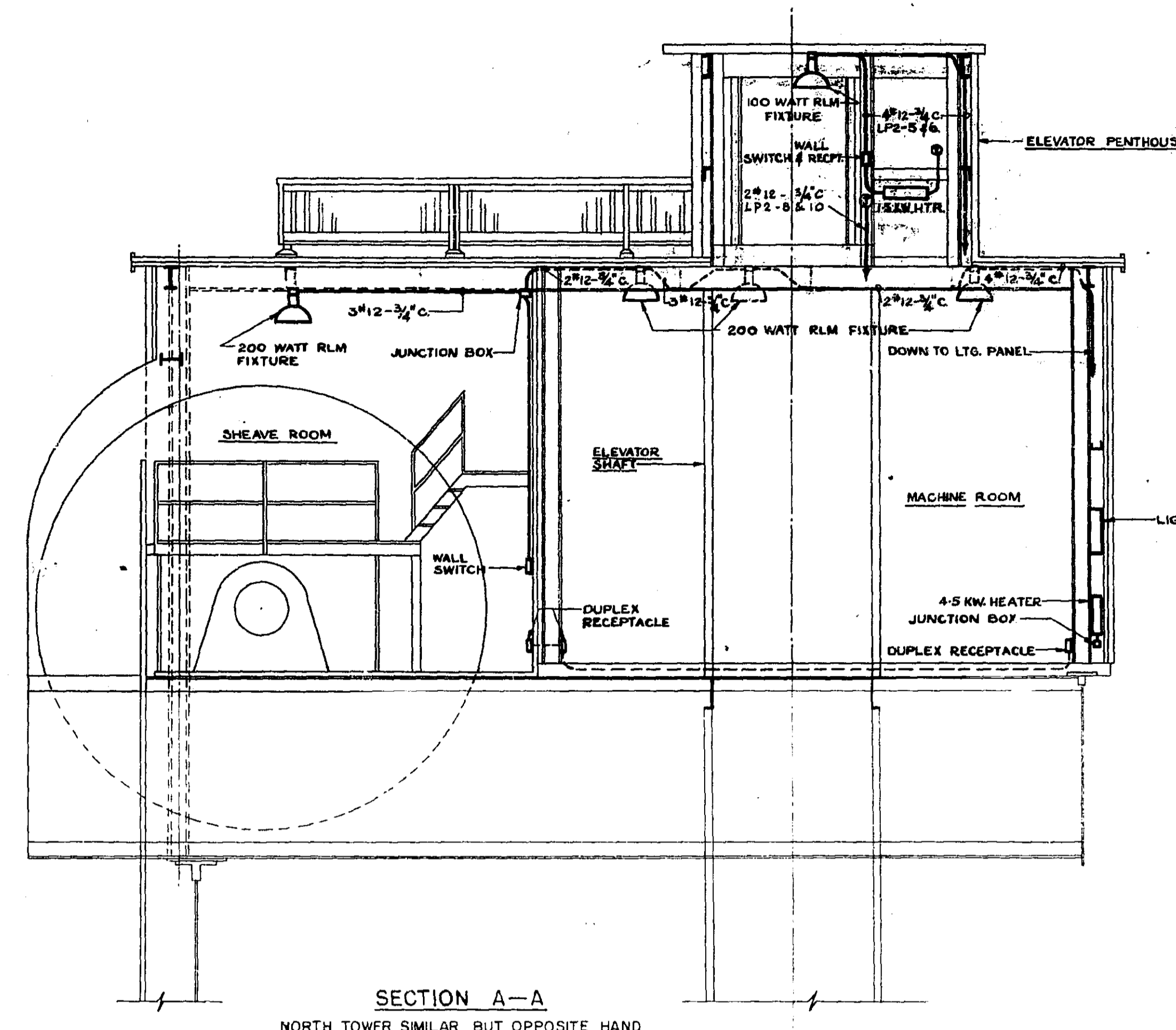
NOTE - EQUIPMENT MARKED THUS (*) IN REMARKS COLUMN IS LOCATED IN THE CONTROL BOARD CUBICLE



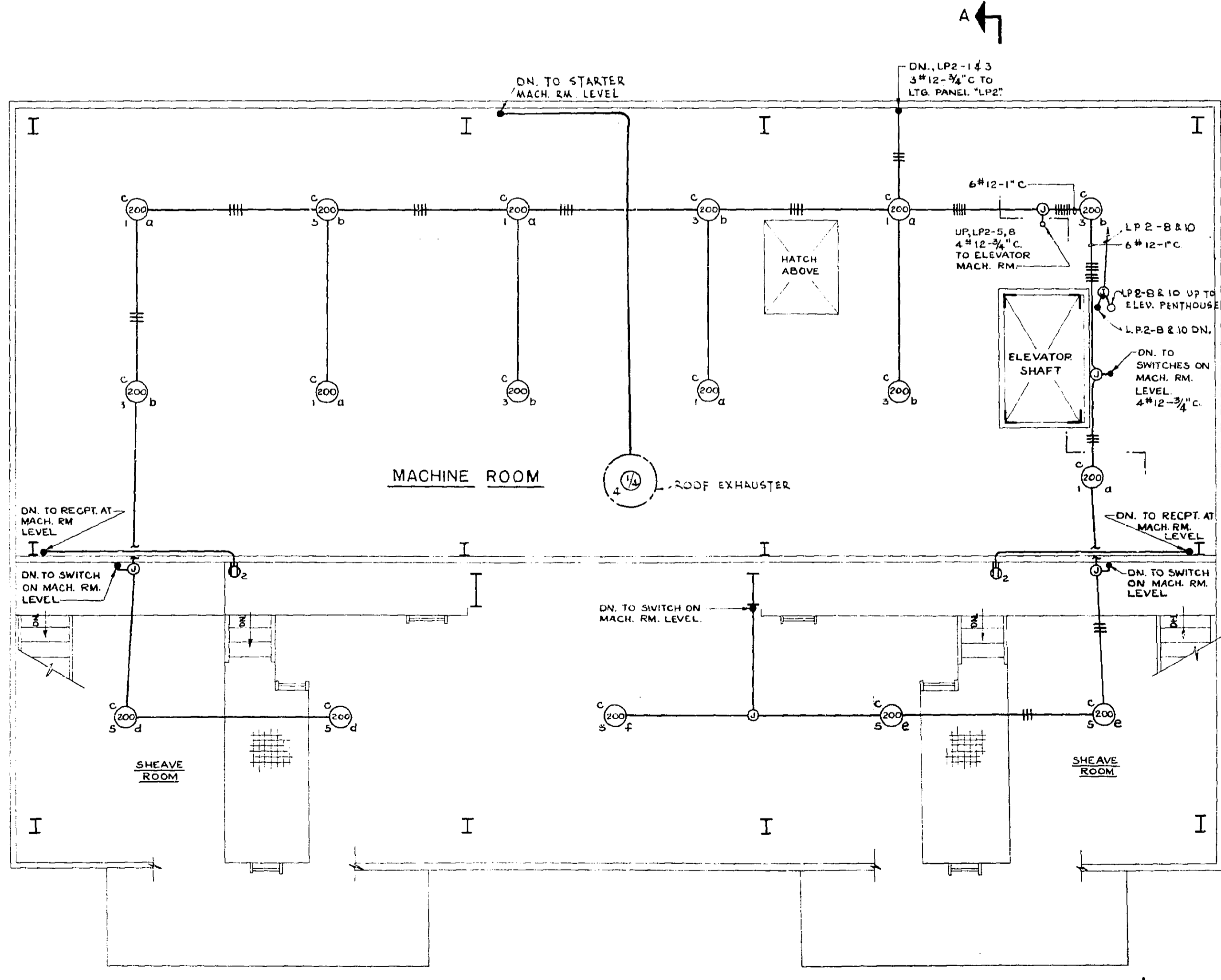
NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA			
DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C.C. PARKER & ASSOCIATES LIMITED PARSONS, BRINCKERHOFF, HALL & MACDONALD CONSULTING ENGINEERS			
HAMILTON		ONTARIO	
BURLINGTON CANAL LIFT BRIDGE			
ELECTRICAL EQUIPMENT LIST			
APPROVED	DATE 13/11/58	PROJECT NO. SD6-4-77	
<i>M. Thompson</i>			
CHIEF STRUCTURES DIVISION			
APPROVED	DATE 11/11/58	CONTRACT NO 2	
<i>C. McEwan</i>			
CHIEF ENGINEER			



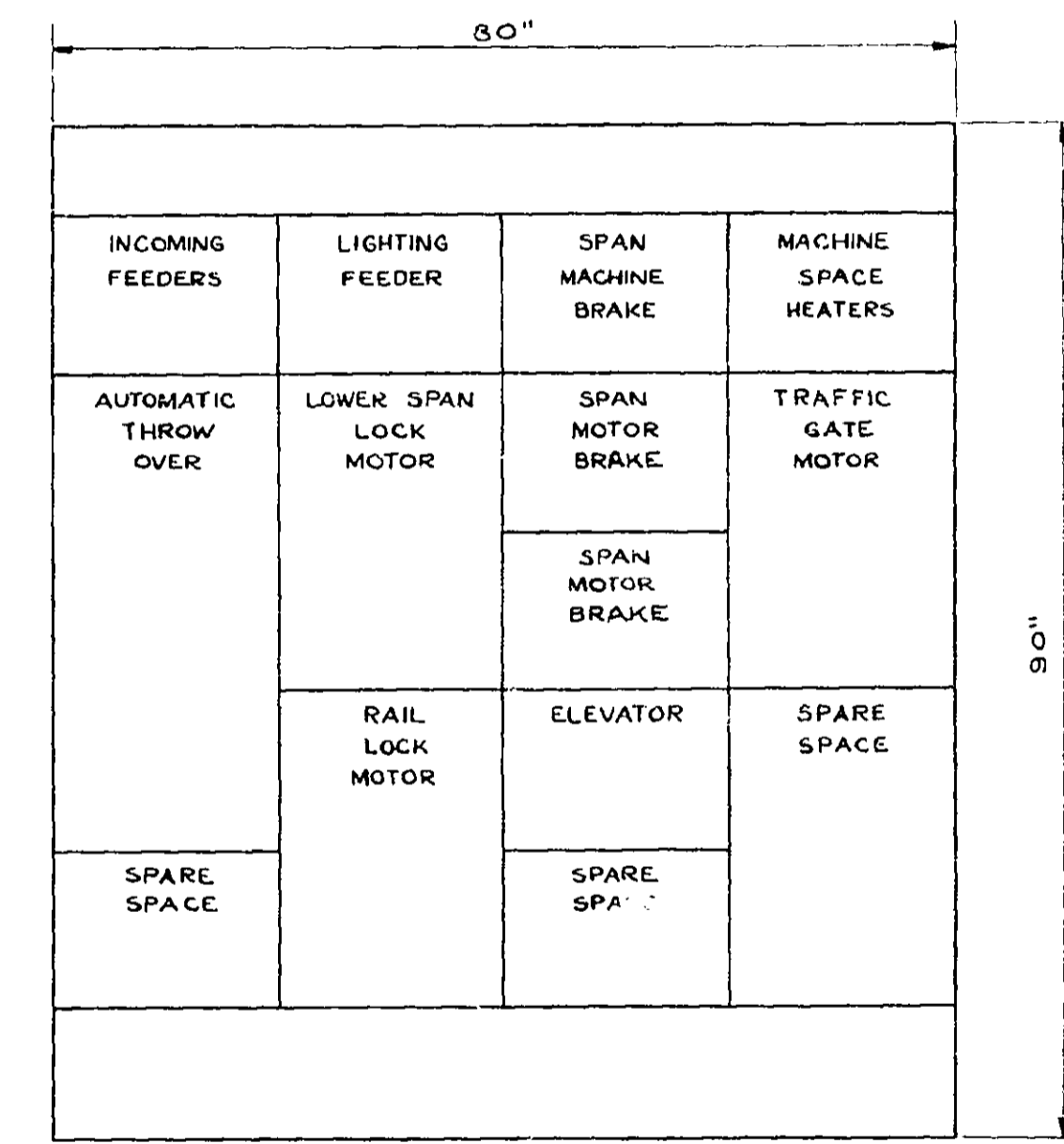
MACHINERY FLOOR LEVEL—SOUTH TOWER
NORTH TOWER SIMILAR BUT OPPOSITE HAND



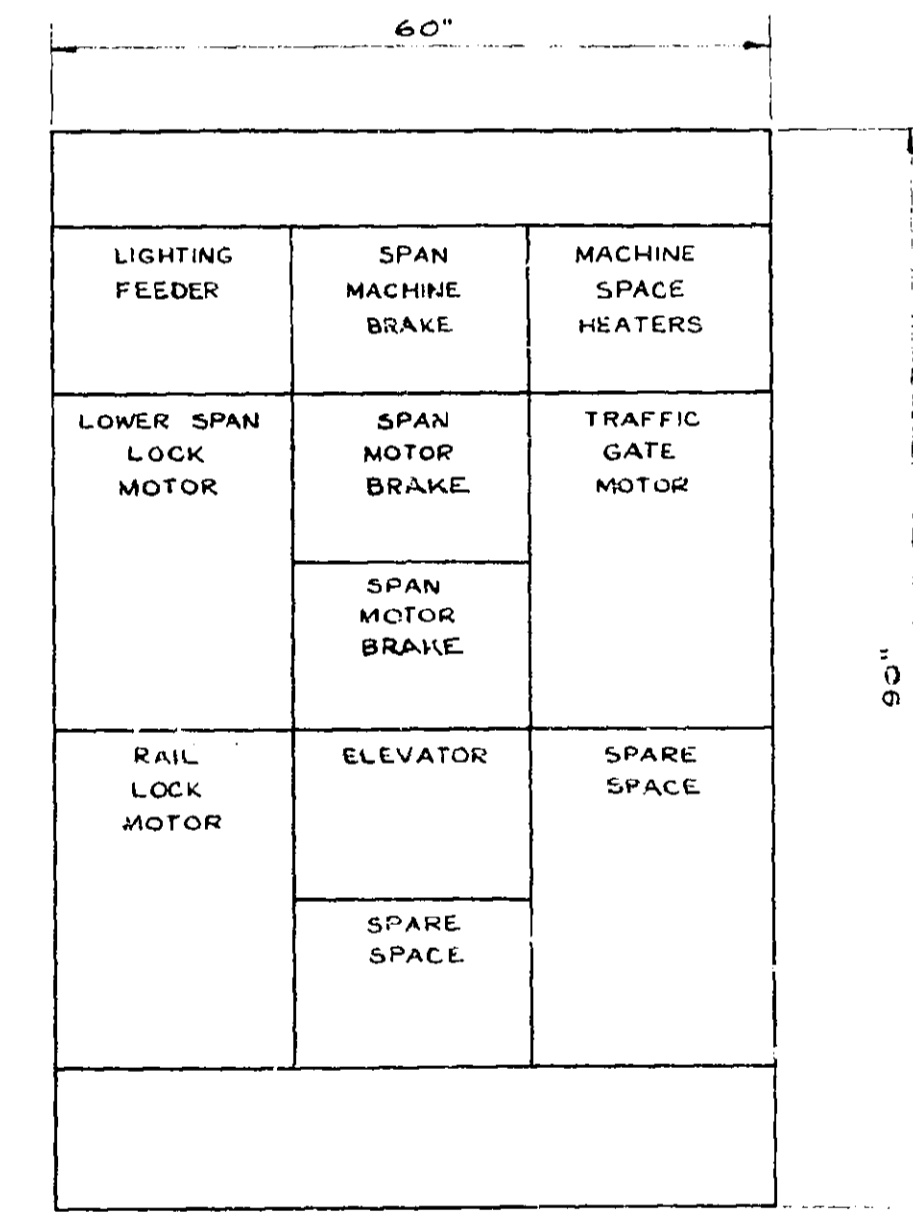
SECTION A-A
NORTH TOWER SIMILAR BUT OPPOSITE HAND



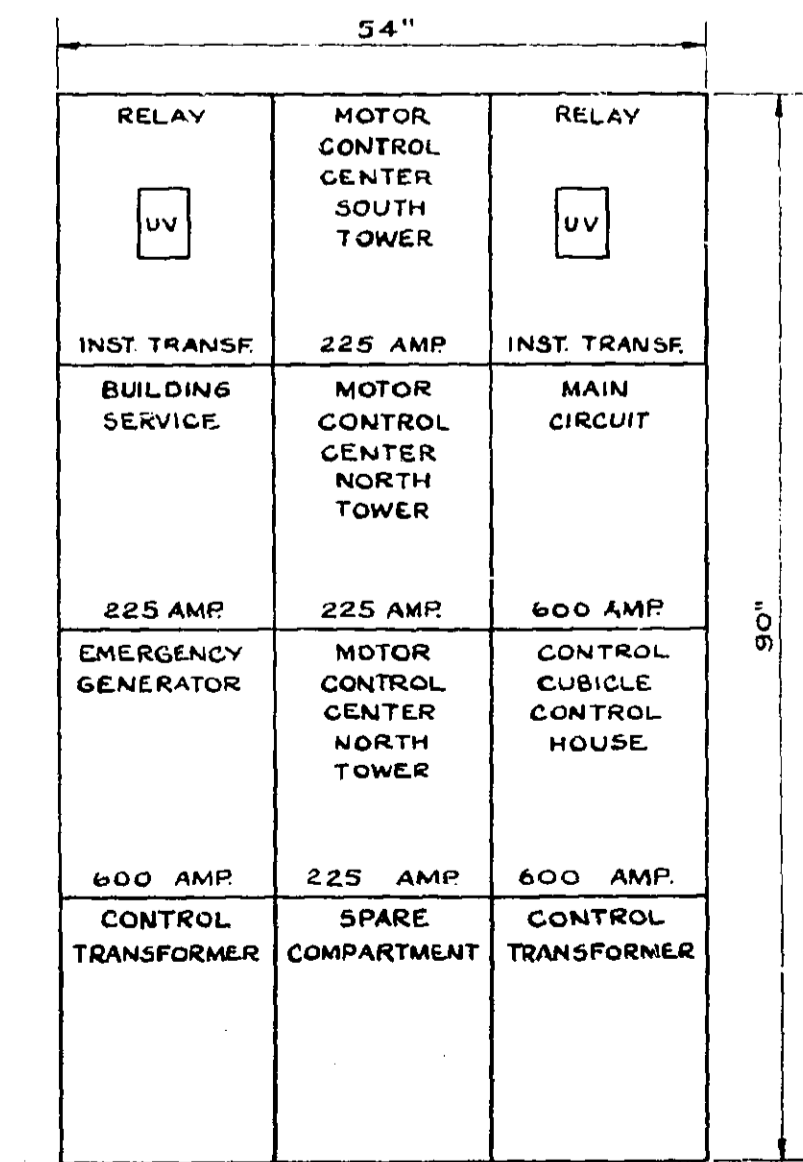
MEZZANINE FLOOR LEVEL—SOUTH TOWER
NORTH TOWER SIMILAR BUT OPPOSITE HAND



MACHINERY ROOM NORTH TOWER
MOTOR CONTROL CENTER



MACHINERY ROOM SOUTH TOWER
MOTOR CONTROL CENTER

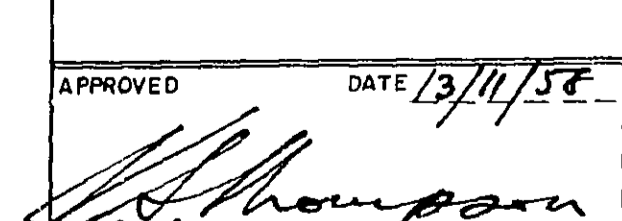

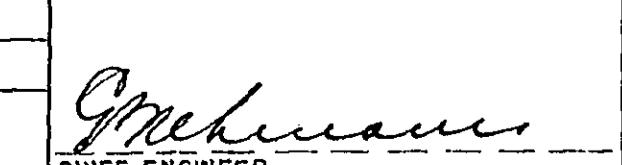


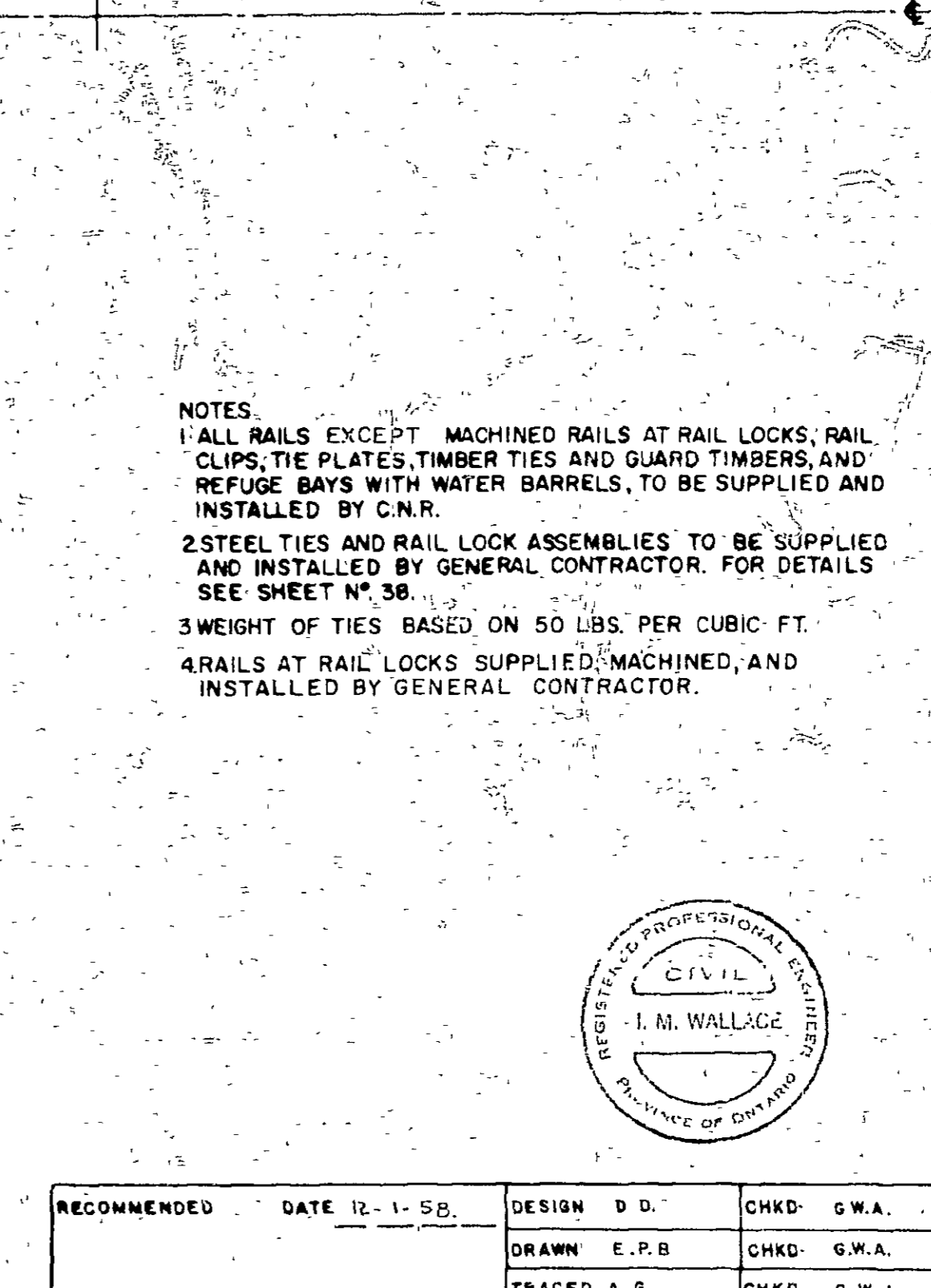
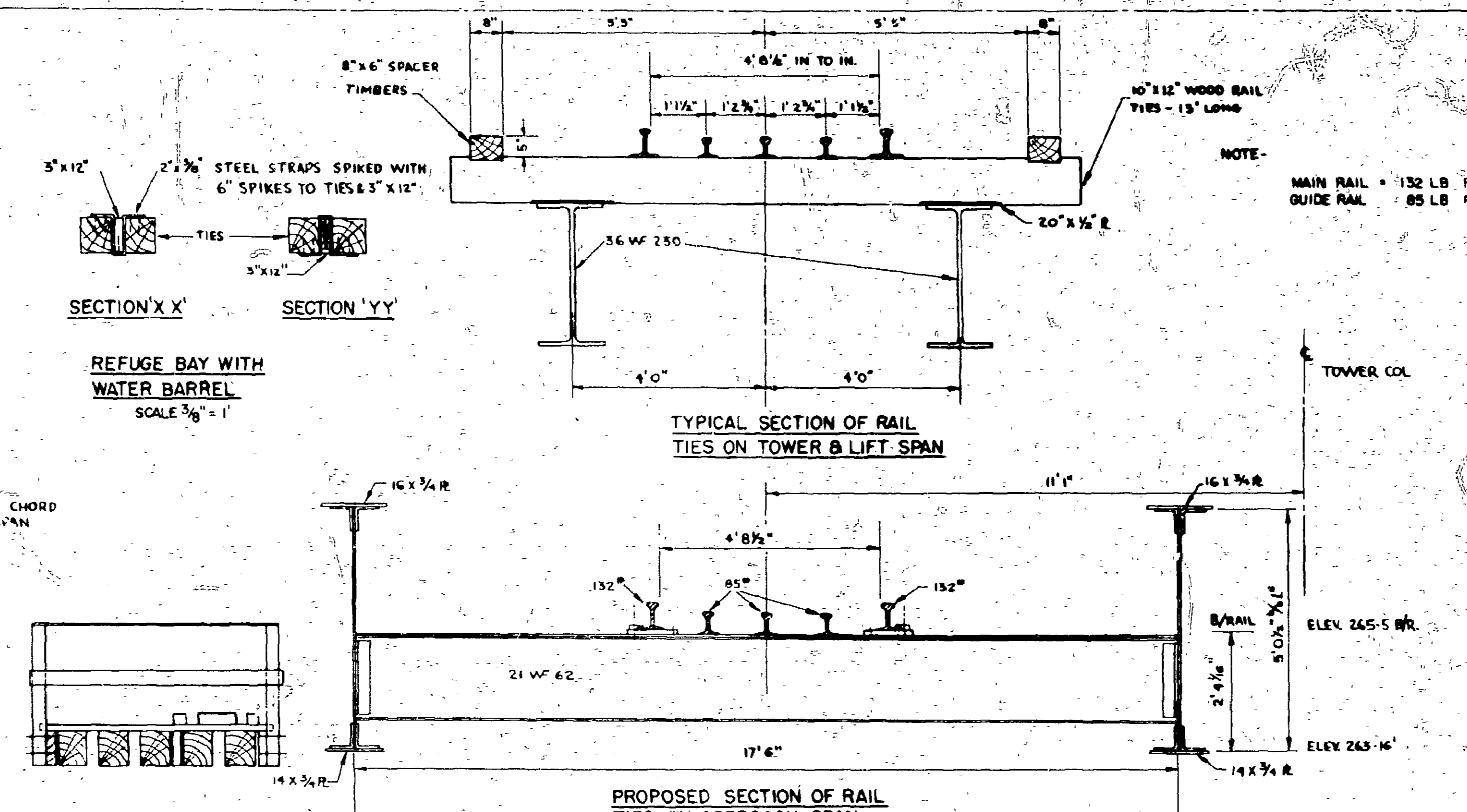
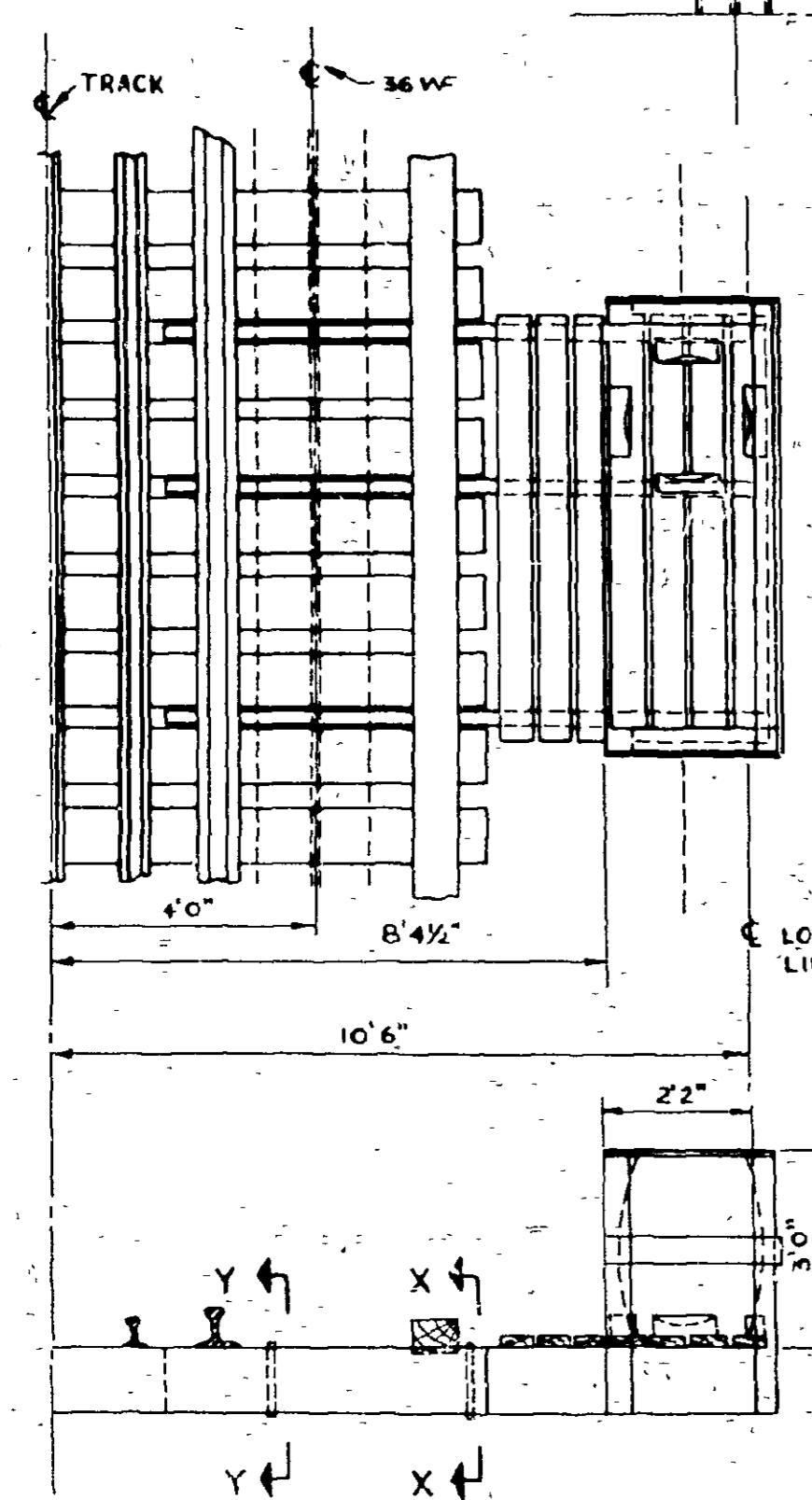
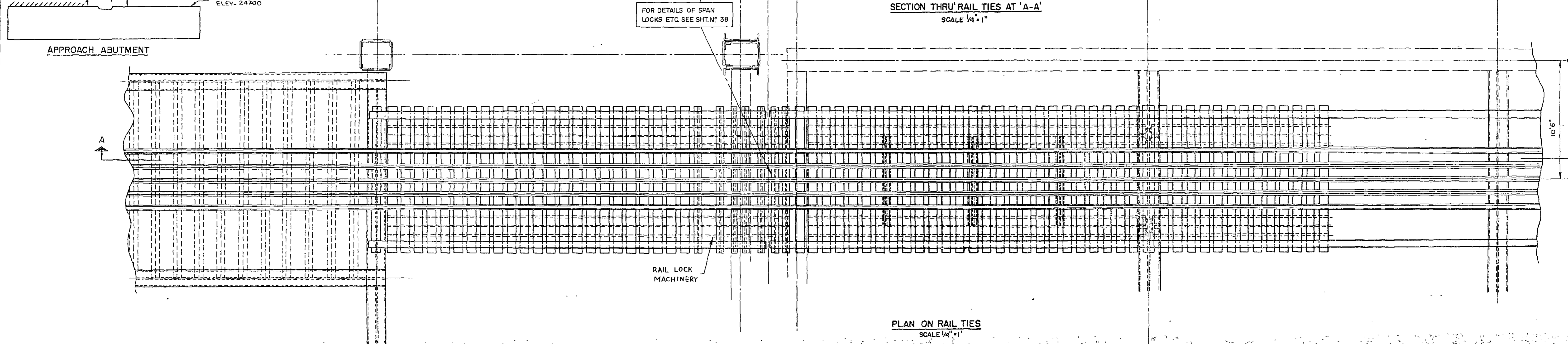
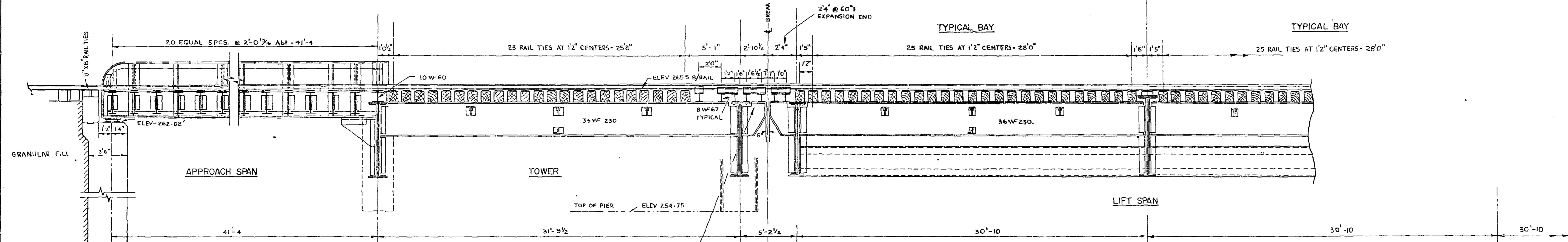
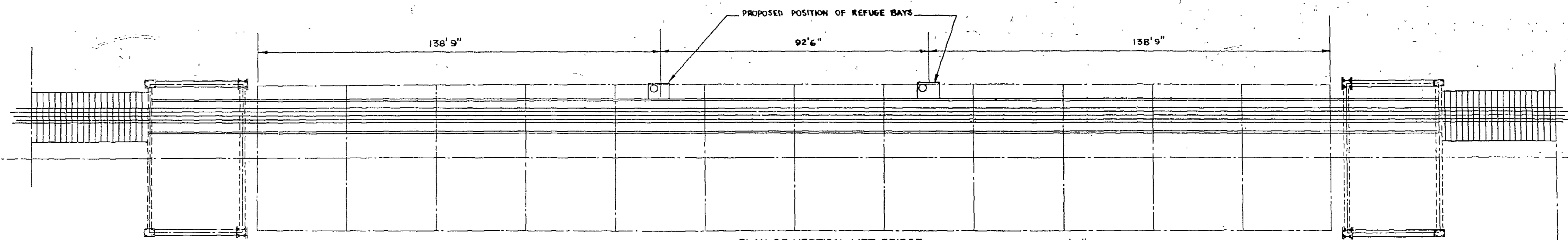
575 VOLT SWITCHGEAR ASSEMBLY
CONTROL HOUSE—2ND. FL.

PANEL SCHEDULE						
PANEL DESIGNATION	CIRCUIT NO.	CIRCUIT BREAKER	POLES	FRAME TRIP	KVA	SERVICE
HEATER PANEL "HPI" SOUTH TOWER 550V, 3Ø, 3 WIRE 100A MAINS LUGS ONLY	HPI-1	2	50	20	4-50	HEATER-MACHINE ROOM
	2					
	3					
	4					
	5					
	6					
TOTAL						27-00
HEATER PANEL "HP2" NORTH TOWER 550V, 3Ø, 3 WIRE 100A MAINS LUGS ONLY	HP2-1	2	50	20	4-50	HEATER-MACHINE ROOM
	2					
	3					
	4					
	5					
	6					
TOTAL						27-00
LIGHTING PANEL "LP2" SOUTH TOWER MACHINE ROOM 120/208V, 3Ø, 4 WIRE 100A MAINS LUGS ONLY	LP2-1	1	50	20	1-20	LIGHTING-MACHINE ROOM
	2	1			.60	RECEPTACLES-MACHINE & SHEAVE ROOMS
	3	1			1-20	LIGHTING-MACHINE ROOM & DOORWAY
	4	1			.67	ROOF EXHAUSTER
	5	1			1-22	LIGHTING-ELEVATOR PENTHOUSE SHEAVE ROOMS
	6	1			1-50	HEATER-ELEVATOR PENTHOUSE
	7	1			-	SPARE
	8	*			.80	ELEVATOR CONTROL
	9	1			-	SPARE
	10	*			.50	ELEVATOR CONTROL
TOTAL						7-39
LIGHTING PANEL "LP3" NORTH TOWER MACHINE ROOM 120/208V, 3Ø, 4 WIRE 100A MAINS LUGS ONLY	LP3-1	1	50	20	1-20	LIGHTING-MACHINE ROOM
	2	1			.60	RECEPTACLES-MACHINE & SHEAVE ROOMS
	3	1			1-20	LIGHTING-MACHINE ROOM
	4	1			.67	ROOF EXHAUSTER
	5	1			1-22	LIGHTING-ELEVATOR PENTHOUSE SHEAVE ROOMS
	6	1			1-50	HEATER-ELEVATOR PENTHOUSE
	7	1			1-20	LIT. RECEPT. & HEATER-GATE TENDERS HSE.
	8	*			.50	ELEVATOR CONTROL
	9	1			-	SPARE
	10	*			.50	ELEVATOR CONTROL
TOTAL						9-59

* CLTS NO 8 & 10 SHALL BE FED FROM A SINGLE 2 POLE CIRCUIT BREAKER

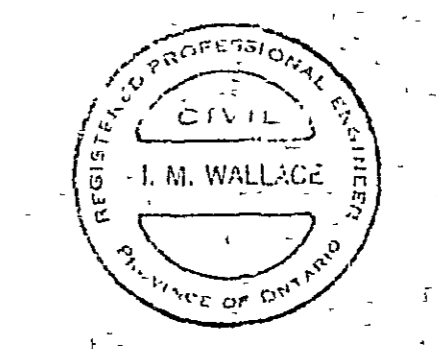
- NOTES:
- ALL CONDUIT RUNS ARE SHOWN GRAMMATICALLY. EXACT RUNS SHALL BE DETERMINED BY CONTRACTOR TO CLEAR OBSTACLES.
 - CENTER LINES OF HEATING & LIGHTING PANELS SHALL BE APPROXIMATELY 5'-0" ABOVE FLOOR, CONVENIENCE OUTLETS-8" AND SWITCHES 4'-0"
 - ELECTRIC HEATERS SHALL BE MOUNTED ON WALLS APPROXIMATELY 9" ABOVE FLOOR UNLESS OTHERWISE SHOWN WHERE STRUCTURAL BRACING INTERFERES, HEATERS SHALL BE MOUNTED ON ANGLE FRAMING TO CLEAR BRACING.
 - SPAN MOTOR PRIMARY AND SECONDARY DISCONNECT SWITCHES SHALL BE MOUNTED ON ANGLE FRAMING.
 - FOR LIGHTING FIXTURE SCHEDULE SEE SPECIFICATIONS.
 - ALL CONDUIT SHALL BE 3/4" GALV STEEL WITH 2#12 B & S6. RHW Wires UNLESS OTHERWISE NOTED.

NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION C.C. PARKER & ASSOCIATES LIMITED PARSONS, BRINCKERHOFF, HALL & MACDONALD CONSULTING ENGINEERS HAMILTON ONTARIO BURLINGTON CANAL LIFT BRIDGE LIGHTING & EQUIPMENT PLAN - MACHINERY ROOMS			
APPROVED	DATE 12/1/58	DEPARTMENT PROJECT NO.	SD6-4-77
 I.M. WALLACE CHIEF STRUCTURES DIVISION		APPROVED	DATE 12/1/58
RECOMMENDED	DATE 12-1-58	DESIGN	G.D.H.
 C.C. PARKER & ASSOC. LTD.		CHKD.	E.J.W.
TRACED	D.H.	CHKD.	G.D.H.
JOB NO.	H-538	CHKD.	G.D.H.
APPROVED		DATE 12/1/58	
 G.D.H.		CONTRACT NO. 2	
CHIEF ENGINEER		SHEET 59 OF 62	



NOTES:
 1. ALL RAILS EXCEPT MACHINED RAILS AT RAIL LOCKS, RAIL CLIPS, TIE PLATES, TIMBER TIES AND GUARD TIMBERS, AND REFUGE BAYS WITH WATER BARRELS, TO BE SUPPLIED AND INSTALLED BY GENERAL CONTRACTOR. FOR DETAILS SEE SHEET NO. 38.
 2. STEEL TIES AND RAIL LOCK ASSEMBLIES TO BE SUPPLIED AND INSTALLED BY GENERAL CONTRACTOR. FOR DETAILS SEE SHEET NO. 38.
 3. WEIGHT OF TIES BASED ON 50 LBS. PER CUBIC FT.
 4. RAILS AT RAIL LOCKS SUPPLIED, MACHINED, AND INSTALLED BY GENERAL CONTRACTOR.

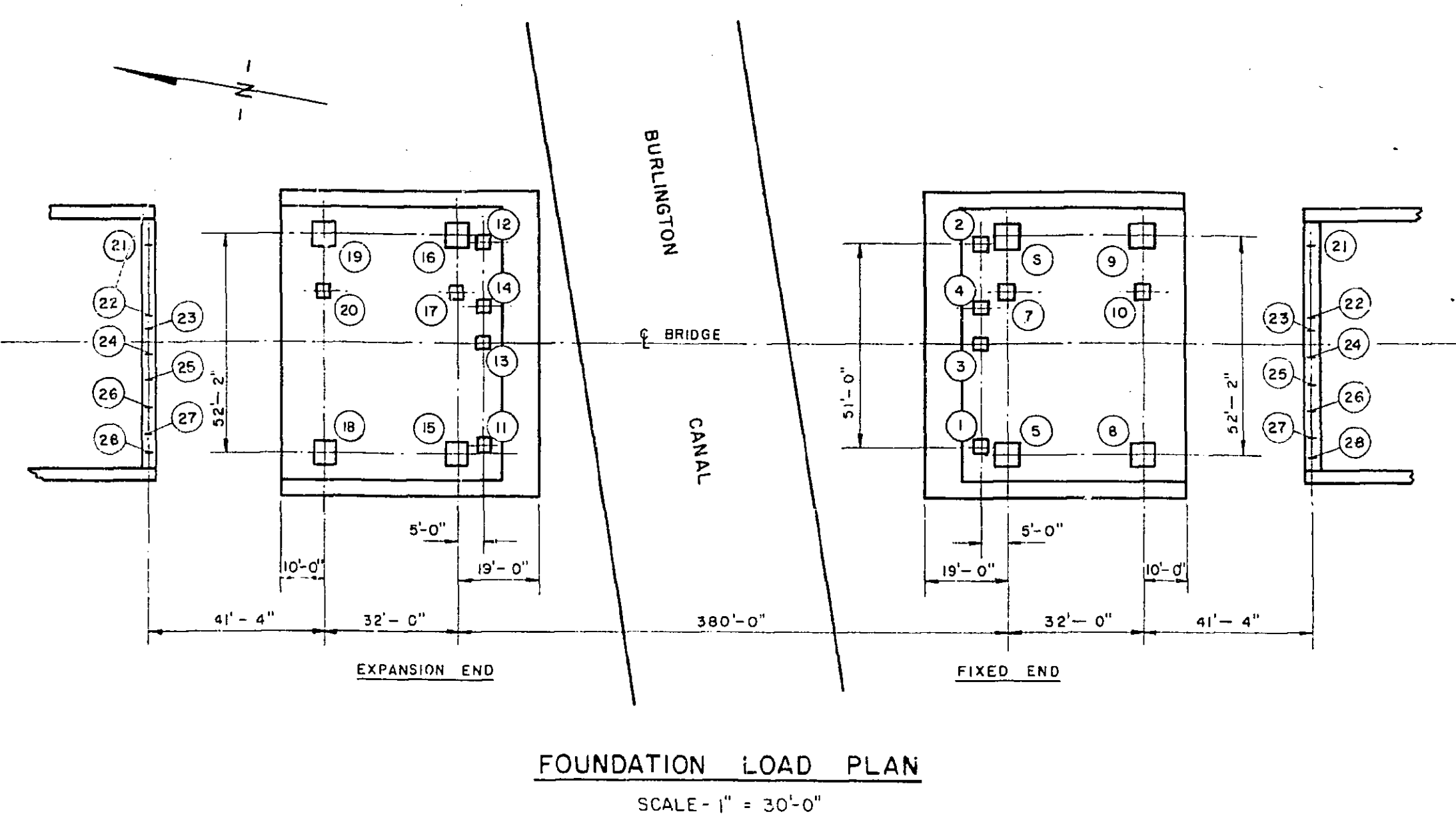
NO.	REVISIONS	BY	DATE
DEPARTMENT OF PUBLIC WORKS CANADA DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION			
C. C. PARKER & ASSOCIATES LTD. CONSULTING ENGINEERS HAMILTON ONTARIO			
BURLINGTON CANAL LIFT BRIDGE			
TIE PLAN			
APPROVED	DATE 12/1/57	DEPARTMENT PROJECT NO. SD6-4-77	
I. M. WALLACE CHIEF STRUCTURES DIVISION		CONTRACT NO. 2	
APPROVED	DATE 12/1/57	SHEET 61 OF 62	
G. McNamee CHIEF ENGINEER		JOB NO. H-538	



RECOMMENDED DATE 12-1-58
 DESIGN D.D.
 DRAWN E.P.B.
 TRACED A.S.
 C.C. PARKER & ASSOC. LTD.
 JOB NO. H-538

- SPAN UP -

LIFT SPAN				TOWER SPAN				SOUTH TOWER					
LOCATION	1	2	3	4	5	6	7	8	9	10	11	12	13
LOAD DIRECTION	VERT	LONG	TRAN	VERT	LONG	TRAN	VERT	LONG	TRAN	VERT	LONG	TRAN	VERT
DEAD LOAD	+32	+21.3	+32	+21.3	+70	+47	-20	-22	-15	+70	+109	+73	+184
2/3 D. LOAD													
LIVE LOAD													
IMPACT													
TOTAL AT N.U.S.	+32	+21.3	+32	+21.3	+70	+47	-20	-22	-15	+70	+109	+73	+184
30 P.S.F. TRAN.													
WIND ON LONG.													
D.L. + L.L. 45°													
TOTAL AT 125 N.U.S.	+194	-80	+129	-166	+242	0.0	+282	+25	+119	+91	+81	-136	+4515



- SPAN DOWN -

LIFT SPAN				TOWER SPAN				SOUTH TOWER					
LOCATION	1	2	3	4	5	6	7	8	9	10	11	12	13
LOAD DIRECTION	VERT	LONG	TRAN	VERT	LONG	TRAN	VERT	LONG	TRAN	VERT	LONG	TRAN	VERT
DEAD LOAD	+37	+24.7	+37	+24.7	+70	+47	-20	-22	-15	+70	+109	+73	+184
2/3 D. LOAD													
LIVE LOAD													
IMPACT													
TOTAL AT N.U.S.	+37	+24.7	+37	+24.7	+70	+47	-20	-22	-15	+70	+109	+73	+184
30 P.S.F. TRAN.													
WIND ON LONG.													
D.L. + L.L. 45°													
TOTAL AT 125 N.U.S.	+182	-120	+160	-182	-120	+160	+2	+1.3	+31.9	+2	+1.3	+31.9	+70

- APPROACH SPAN -

AT ABUTMENT								
LOCATION	21	22	23	24	25	26	27	28
LOAD DIRECTION	VERT	LONG	TRAN	VERT	LONG	TRAN	VERT	LONG
DEAD LOAD	+17.5	+18	+12.4	+17.4	+16.7	+16.7	+5.9	
2/3 D. LOAD								
LIVE LOAD	+115.2	+15.2	+20.2	+35.4	+35.4	+27.9	+9.0	
IMPACT	+65	+65	+6.1	+10.6	+10.6	+6.7	+14.9	
TOTAL AT N.U.S.	+197.7	+139.2	+38.7	+69.4	+69.4	+40.7	+14.9	
30 P.S.F. TRAN.								
WIND ON LONG.	+0.4	+0.4	+0.4	+0.4	+0.4	+0.4	+0.4	
D.L. + L.L. 45°								
TOTAL AT 125 N.U.S.	+198	+139	+39	+64	+63	+41	+15	

- SPAN DOWN WITH COUNTERWEIGHT JACKED -

LIFT SPAN				TOWER SPAN				SOUTH TOWER					
LOCATION	1	2	3	4	5	6	7	8	9	10	11	12	13
LOAD DIRECTION	VERT	LONG	TRAN	VERT	LONG	TRAN	VERT	LONG	TRAN	VERT	LONG	TRAN	VERT
DEAD LOAD	+1017	+960	+2	+1.3	+70	+47	-20	-22	-15	+70	+109	+73	+184
2/3 D. LOAD													
LIVE LOAD													
IMPACT													
TOTAL AT N.U.S.	+1017	+960	+2	+1.3	+70	+47	-20	-22	-15	+70	+109	+73	+184
30 P.S.F. TRAN.													
WIND ON LONG.													
D.L. + L.L. 45°													
TOTAL AT 125 N.U.S.	+1162	+532	+160	+1103	-99	+160	+2	+1.3	+31.9	+2	+1.3	+31.9	+70

- TOWER BASES -

SLAB AND GRILL ANCHORAGE				
LOCATION	5	6	8	9
LOAD DIRECTION	VERT	VERT	VERT	VERT
DEAD LOAD	+78.7	+78.7	+54.3	+54.3
2/3 D. LOAD				
LIVE LOAD				
IMPACT				
TOTAL AT N.U.S.	+78.7	+78.7	+54.3	+54.3
30 P.S.F. TRAN.				
WIND ON LONG.				
D.L. + L.L. 45°				
TOTAL AT 125 N.U.S.	+78.7	+78.7	+54.3	+54.3

NOTES:
 1. FOR GENERAL NOTES SEE SHEET NO. 2 AND 3.
 2. ALL REACTIONS IN KIPS
 - FOR COMPRESSION.
 - FOR TENSION.
 3. ALLOWABLE BEARING STRESS = 900 POUNDS PER SQUARE INCH.
 4. TEMPERATURE FORCES NOT INCLUDED.

NOTE: ** LOAD OFF SUPPORT
 * LONG. LOAD AT LOCATION 1 & 2 ONLY

DEPARTMENT OF PUBLIC WORKS
 CANADA
 DEVELOPMENT ENGINEERING BRANCH
 STRUCTURES DIVISION

C.C. PARKER & ASSOCIATES LTD.
 CONSULTING ENGINEERS
 HAMILTON ONTARIO

BURLINGTON CANAL LIFT BRIDGE
 PIER LOADS

I.M. WALLACE
 CIVIL ENGINEER
 PROFESSIONAL ENGINEER
 PROVINCE OF ONTARIO

APPROVED DATE 13/4/58 DEPARTMENT PROJECT NO. SD6-4-77
 DATE 14/11/58

RECOMMENDED DATE 1-12-58 DESIGN G.W.A. CHKD. A.T.
 DRAWN A.W. CHKD. D.L.
 TRACED D.H. CHKD. A.T.
 JOB NO. H-538

CONTRACT NO. 2
 SHEET 62 OF 62