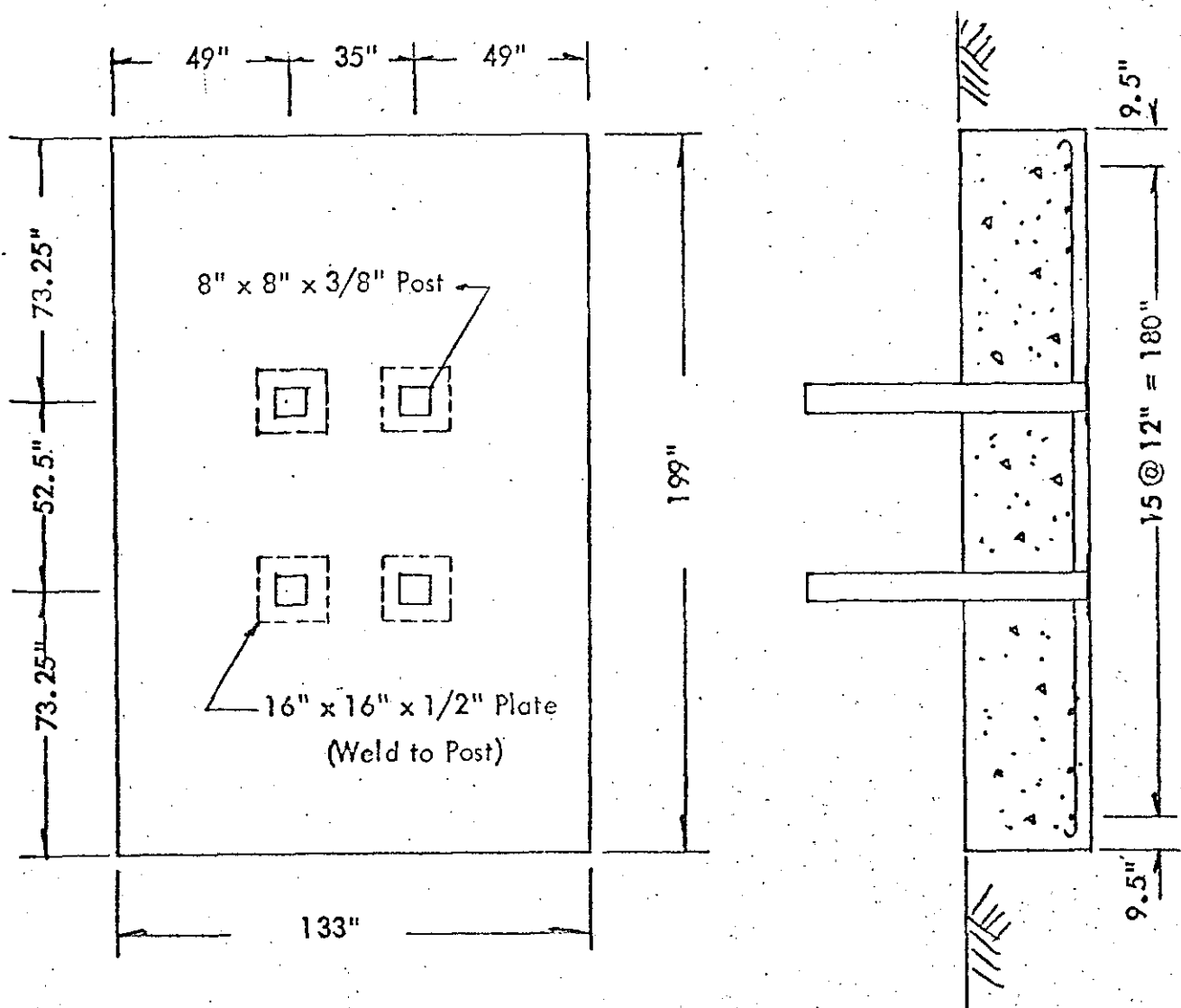
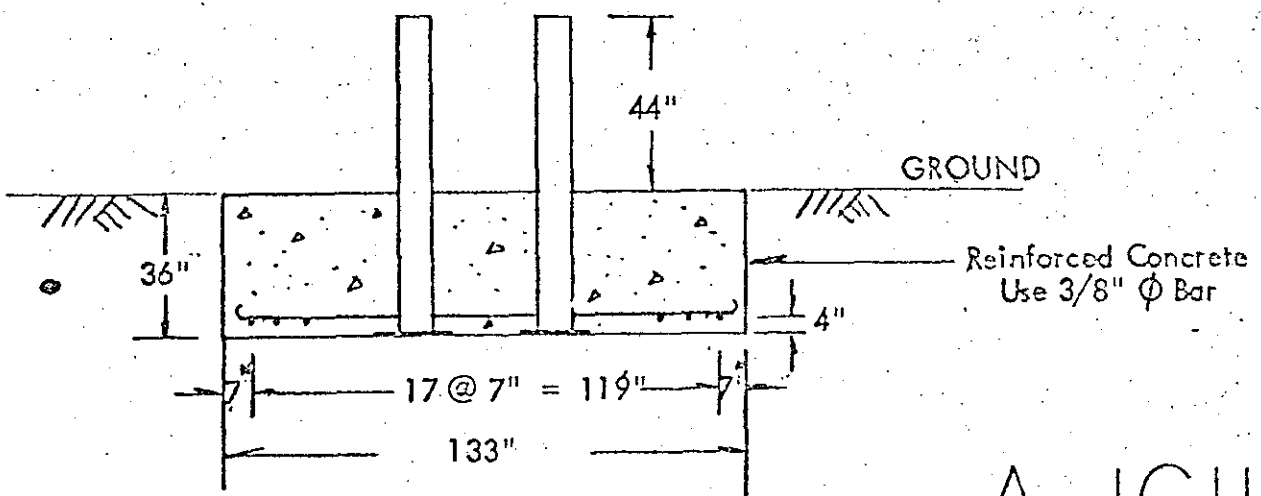


Ground Installation of Posts for TOR-SHOK Barrier  
(36" Depth)



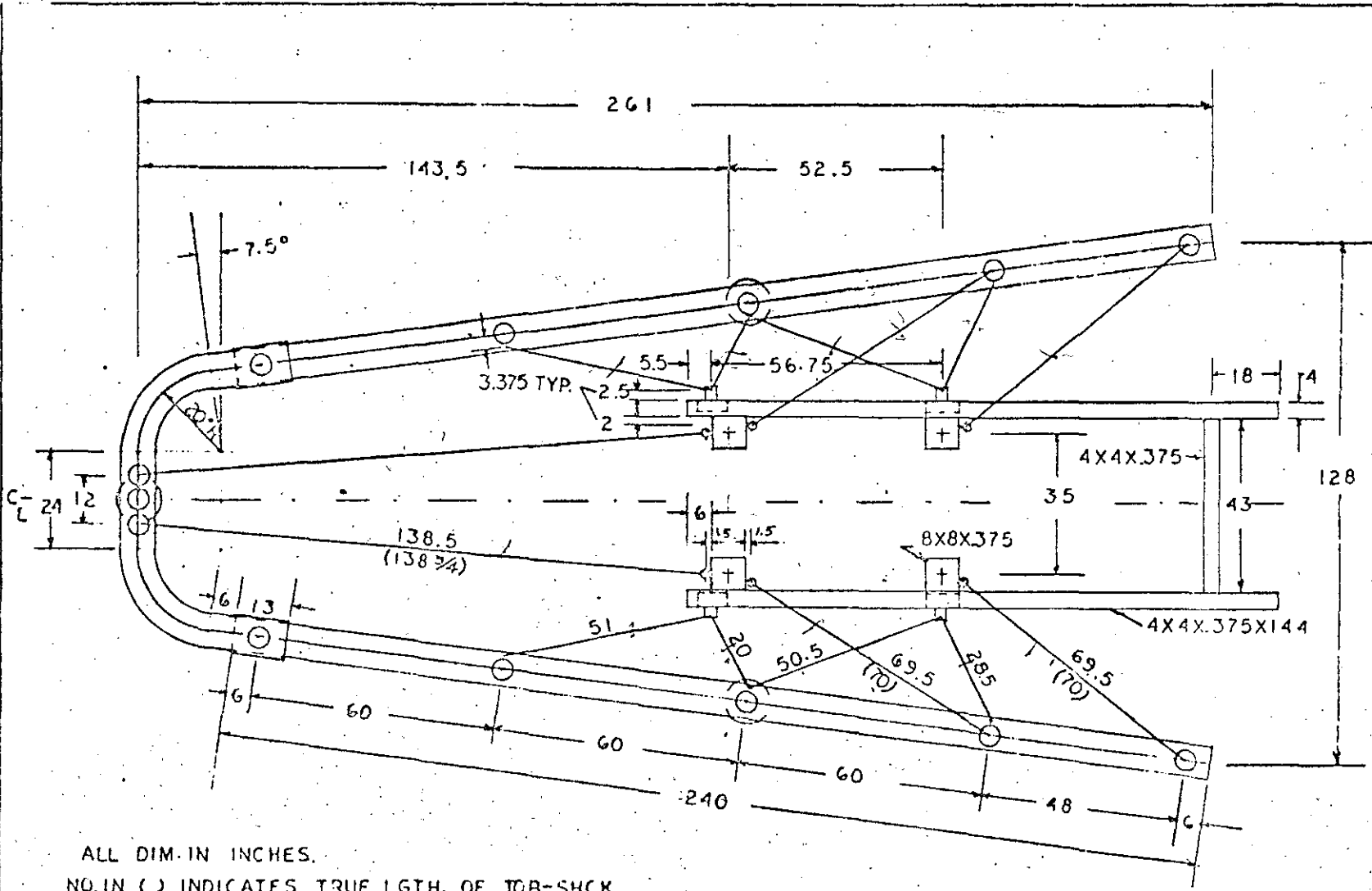
Note: Post layout is typical - shown for 15° nose angle



A-1611

New Measure

- 6 -



DO NOT SCALE DRAWING	
Scale	1/4" = 1' - 0"
Drawn	KULLICK
Check	P. L. LIND
App'd	J. J. JOHNSON
Plan No.	J. J. JOHNSON
Revised	

West Central  
**A T R A, inc.**  
 California

**15' 20" R. BLUNT NOSE  
 BARRIER PLAN VIEW**

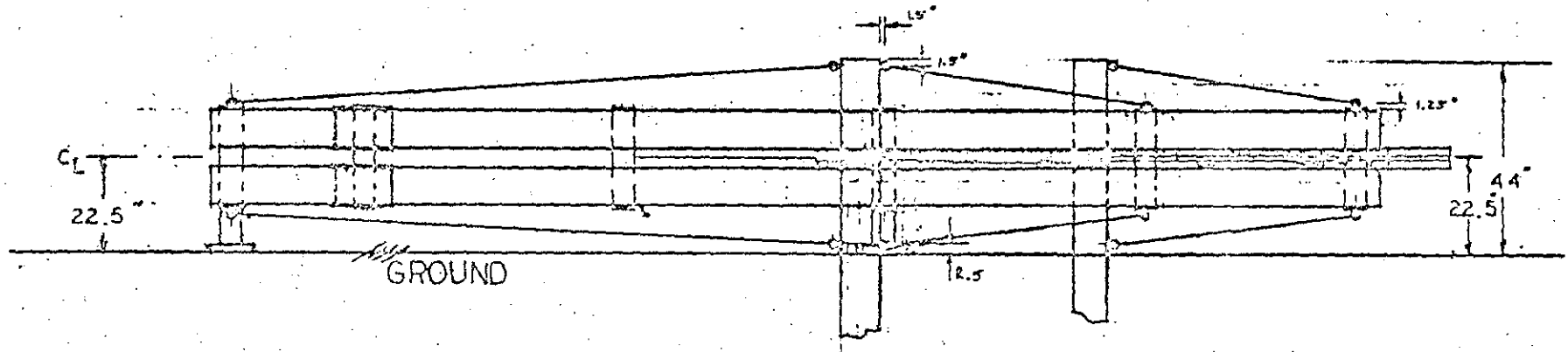
**B-1589**


ALL DIM. IN INCHES.  
 NO. IN ( ) INDICATES TRUE LGTH. OF TOP-CHCK.

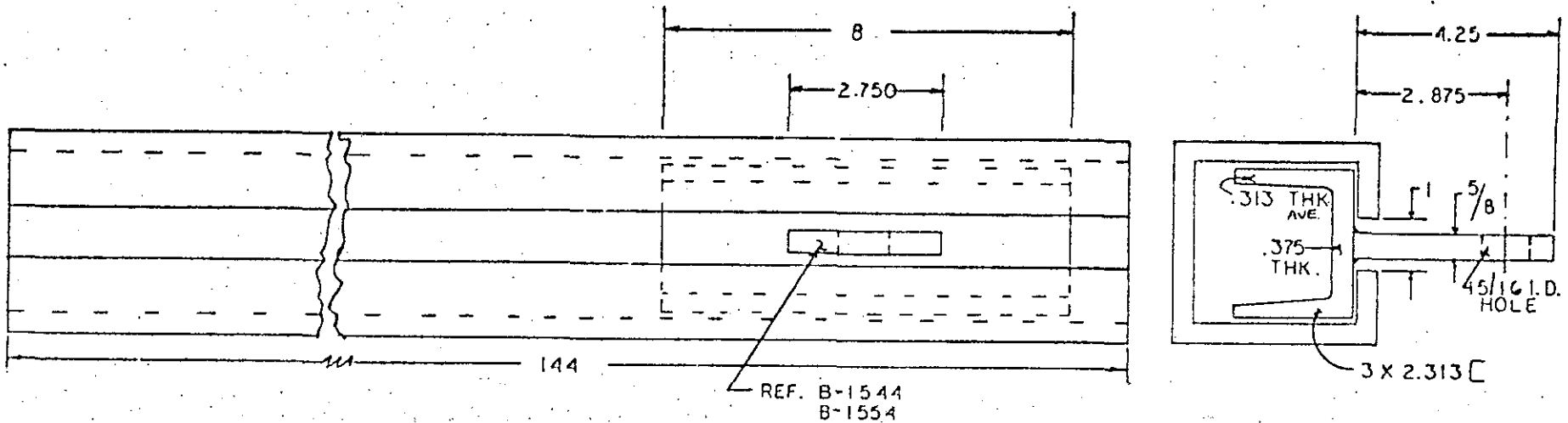
Performance Characteristics of 20" Radius Blunt Nose TOR-SHOK Barrier

Nose Angle	Covered Area		Distance From Nose to Front Posts	Post Intervals		Lateral Distance Between Two Skid Channels	TOR-SHOK Force in Horizontal Skid	TOR-SHOK Force in Vertical Skid
	Length	Width		Lateral	Longitudinal			
Degree	In.	In.	In.	In.	In.	In.	Lb.	Lb.
0°	266	64	141	0	47.5	12	4,000	1,000
5°	265	85.5	143.5	15	49	23	4,000	1,000
10°	263	106.5	143.5	25	50.5	33	4,000	1,000
15°	261	128	143.5	35	52.5	43	4,000	1,000
20°	258.5	148.5	143	45.5	54.5	53.5	4,000	1,000

- 14 -



		DO NOT SCALE DRAWING	
		Scale 1/2" = 1'	Date
West Covina		California	
15° 20" R, BLUNT NOSE BARRIER SIDE VIEW		B-1590	

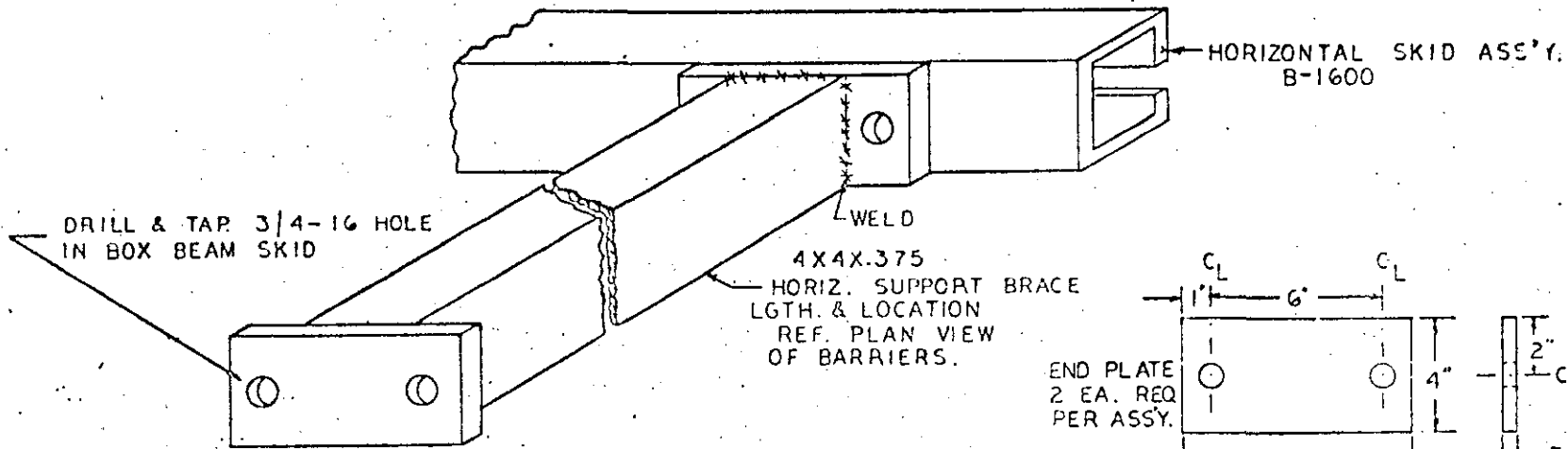


MAT: 4 X 4 X .375 H.R. STRUCTURAL STL.  
SQUARE TUBING.

2 EA. REQ.

NOTE: ALL DIM. IN INCHES.

		DO NOT SCALE DRAWING	
		Scale 1/2" = 1' Date	
		Drawn	WILKIN, J. 11/16/67
		Eng.	ISK, J. IN 12-8-67
		Appd.	
		File No.	11-3109 1 Inward
BOX BEAM SKID		B-1600	



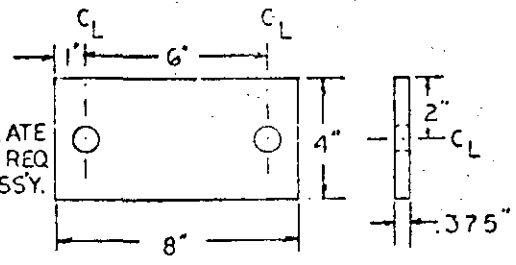
HORIZONTAL SKID ASS'Y.  
B-1600

DRILL & TAP 3/4-16 HOLE  
IN BOX BEAM SKID


WELD

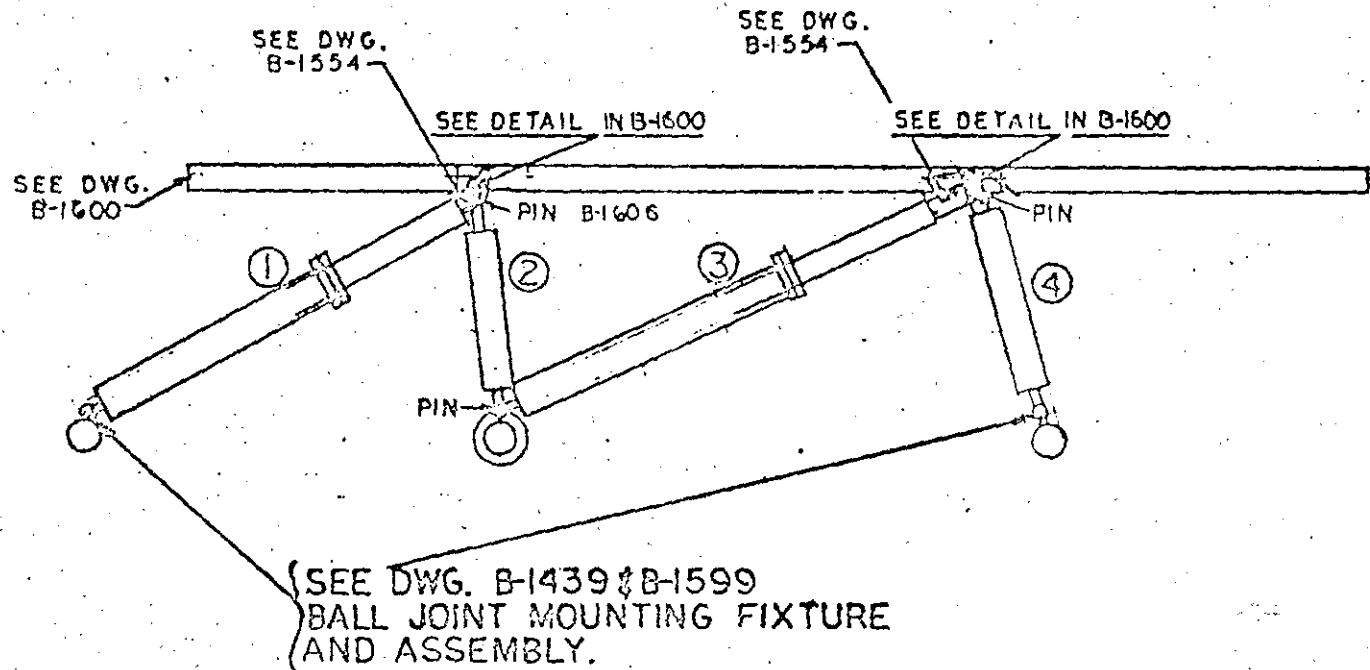
4X4X.375  
HORIZ. SUPPORT BRACE  
LGTH. & LOCATION  
REF. PLAN VIEW  
OF BARRIERS.

END PLATE  
2 EA. REQ.  
PER ASSY.



BOLTS REQ: 4 EA. PER ASS'Y.  
3/4-16 HEX HD. C.R.S. X 1" LG.

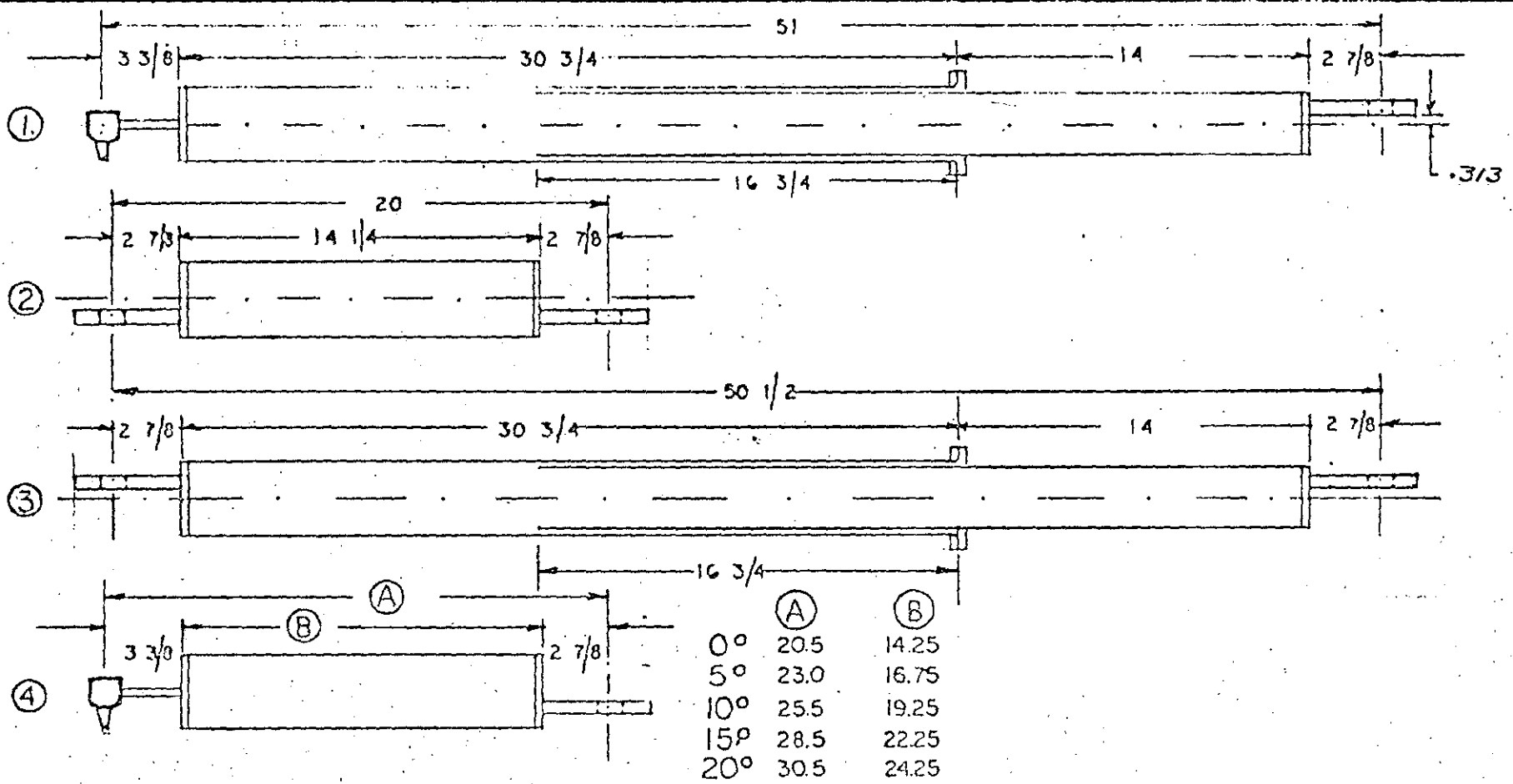
 West Covina California		DO NOT SCALE DRAWING	
		Scale 1/2" = 1'	Date
HORIZ. SKID BRACE ASSEMBLY		Drawn <i>W. J. ...</i>	11-1-58
		Eng. <i>W. J. ...</i>	11-1-58
		Asst. <i>W. J. ...</i>	
		File No. 11-2-10-9	Insp.
		B-1607	



REF. B-1552 FOR TOR-SHOK & RIGID TUBE (①②③④) DETAIL

		DO NOT SCALE DRAWING	
		Scale	1/8" = 1" Over
HORIZONTAL TOR-SHOK ASSEMBLY		Drawn	MUSICK 11-19
		Eng'g	IS. H. HAN 11-19
		App'd	ATA
		File No.	17-24107-1 Inward
		B-1561	

- 19 -



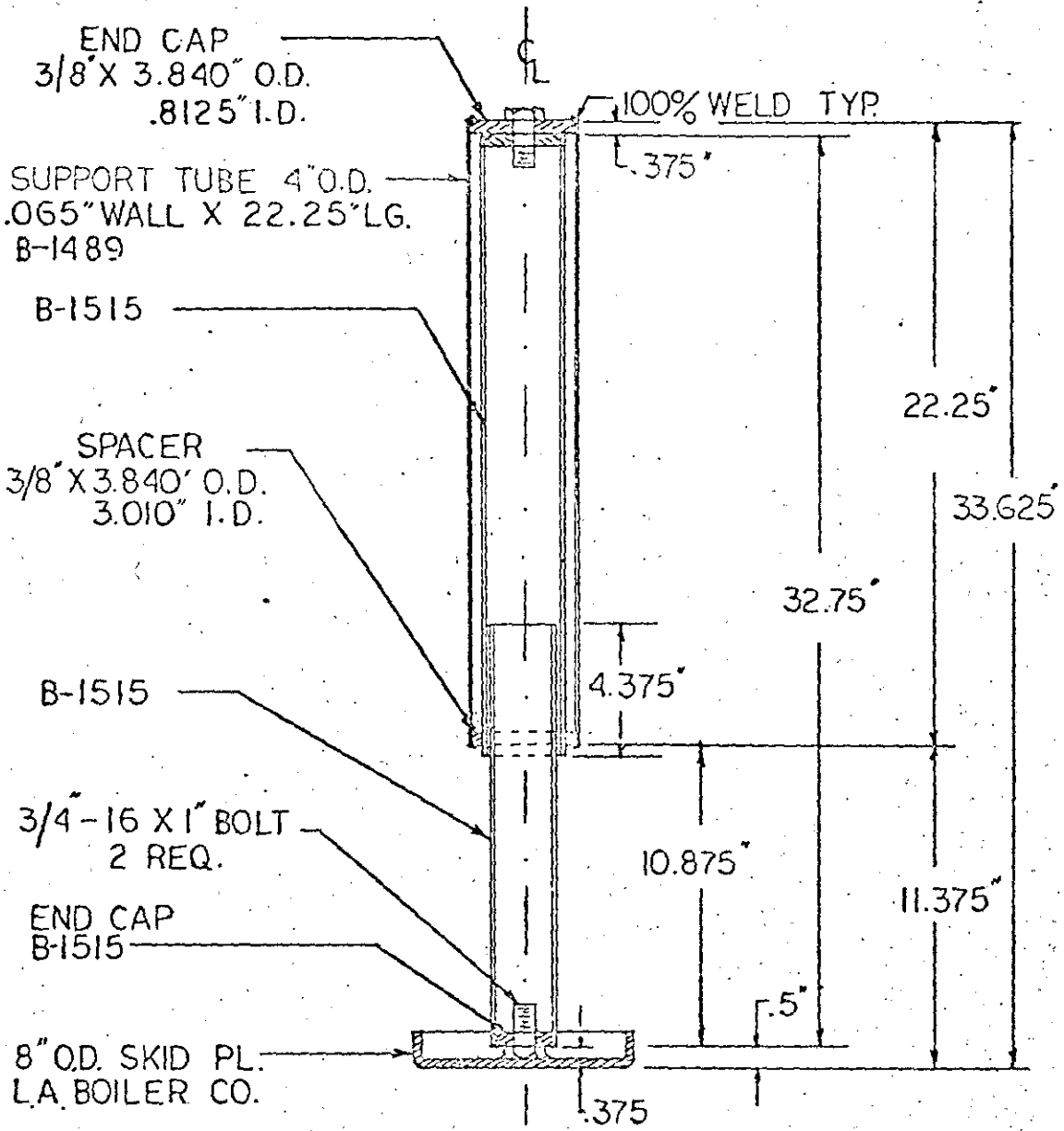
NOTE: 2 EA. REQ.

ALL DIM. IN INCHES.


REF. B-1561 FOR ASSEMBLY.

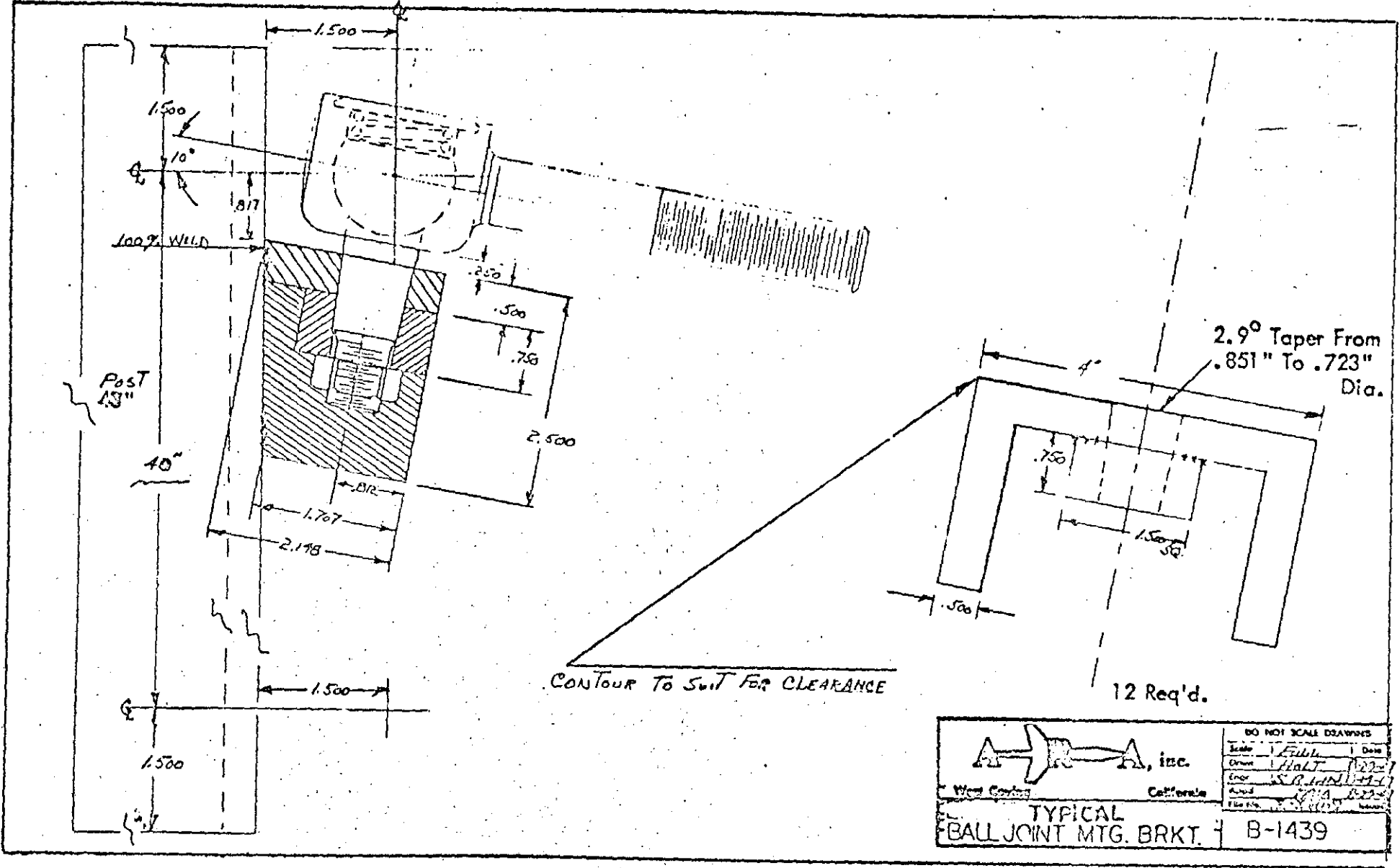
		DO NOT SCALE DRAWING	
		Scale 1/2" = 1"	Date
West Covina, California		Drawn	RODOLFO VERA
FOR-SHOK DIM. FOR HORIZONTAL SKID		Engd	K. R. ...
		Appd	...
		Title	...
		B-1552	



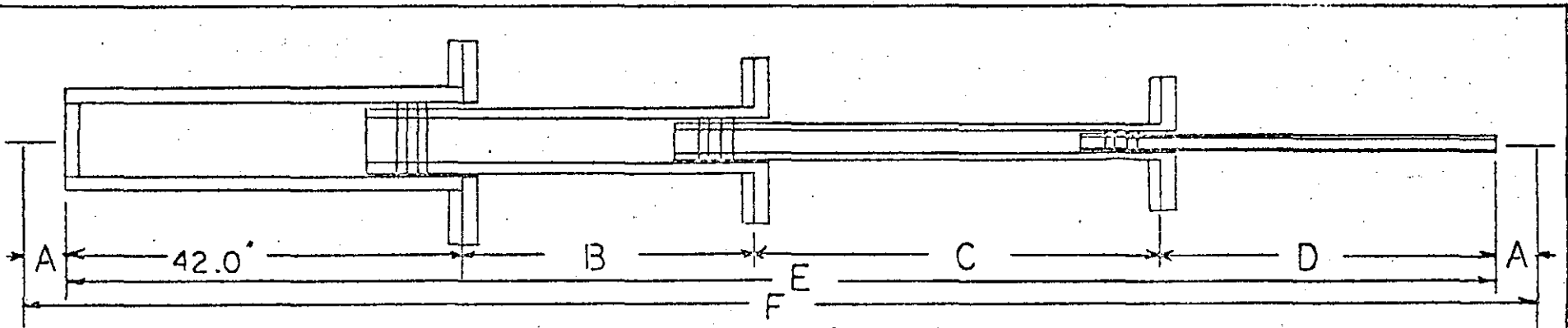


3 SKIDS REQ.  
PER ASSEMBLY

 A-R-A, Inc. West Covina California	DO NOT SCALE DRAWING
	Scale 1/2" = 1' 0" Date 10/24/58 Draw 10/24/58 J. J. [unclear] Insp. [unclear] App'd. [unclear] Material [unclear]
VERTICAL SKID ASSEMBLY	B-1518 A



			A-R-A, inc.	
Wood County		California		
<b>TYPICAL BALL JOINT MTG. BRKT.</b>				
B-1439				DO NOT SCALE DRAWING
Scale	Full	Date		
Drawn	HALT	12-27-51		
Eng.	S. R. LIND	1-1-52		
Check	J. A. BERRY	1-1-52		
File No.	111	1-1-52		



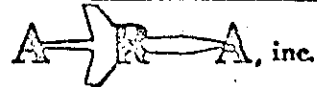
Attenuator Schedule

Barrier Nose Angle	Attenuator Location	Dimensions					
		A	B	C	D	E	F
0° - 20" Radius	Front	3.25	30	30	25.25	127.25	133.75
	Middle	3.25	2	8	11.50	63.50	70
	Rear	3.25	2	8	11.50	63.50	70
5° - 20" Radius	Front	3.25	30	30	29.75	131.75	138.25
	Middle	3.25	2	8	11.50	63.50	70
	Rear	3.25	2	8	11.50	63.50	70
10° - 20" Radius	Front	3.25	30	30	29.75	131.75	138.25
	Middle	3.25	2	8	11.50	63.50	70
	Rear	3.25	2	8	11.50	63.50	70
15° - 20" Radius	Front	3.50	30	30	29.75	131.75	138.75
	Middle	3.25	2	8	11.50	63.50	70
	Rear	3.25	2	8	11.50	63.50	70
20° - 20" Radius	Front	3.56	30	30	29.75	131.75	138.88
	Middle	3.25	2	8	11.50	63.50	70
	Rear	3.25	2	8	11.50	63.50	70

Attenuator Force Measured in Pounds

	1st Stage	2nd Stage	3rd Stage
Front	2400	4000	6400
Middle	2400	4000	6400
Rear	2400	4000	6400

Note: All dimensions indicated are after loading.  
All dimensions are in inches.  
Tube length 42"



DO NOT SCALE DRAWING

Scale 1" = 10"

Drawn H. DICK 3/19/48

Eng. L. S. H. 3/19/48

App'd [Signature] 3/19/48

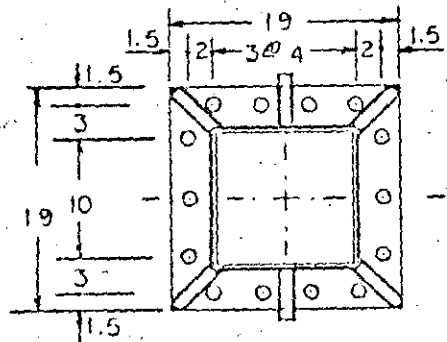
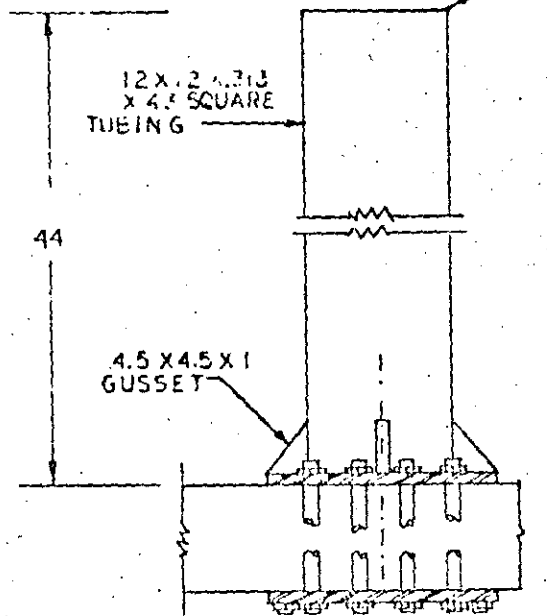
150 No. 1st St. West Covina, California

**ATTENUATORS**

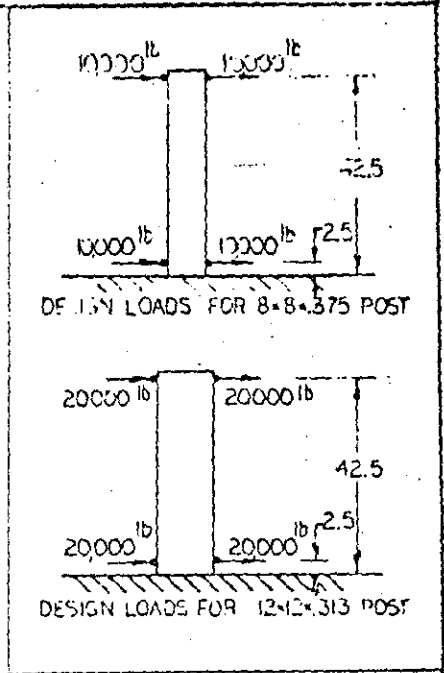
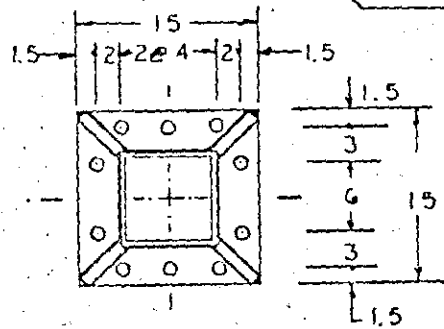
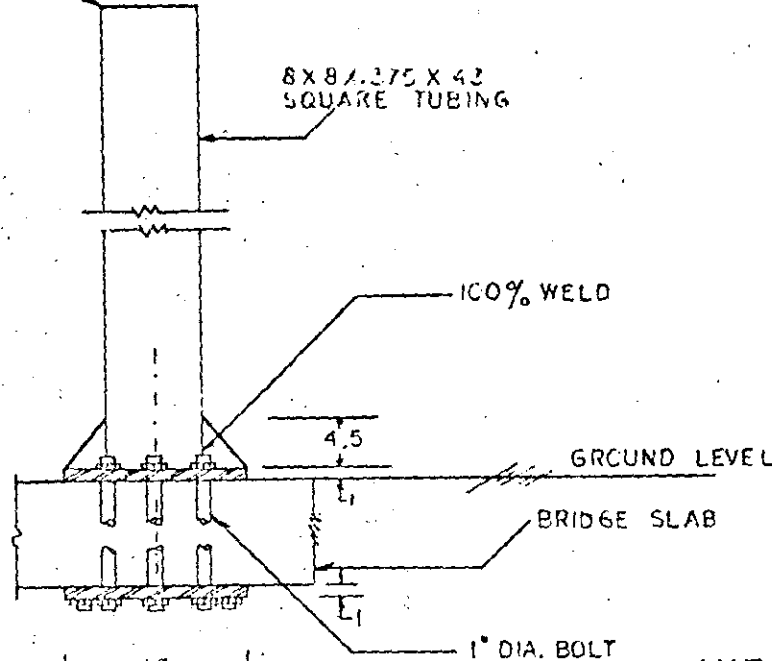
0.5° 10° 15° 20°

B-1541B

2 POSTS REQ'D FOR 0° NOSE ANGLE



4 POSTS REQ'D FOR 5°, 10°, 15°, 20° NOSE ANGLE

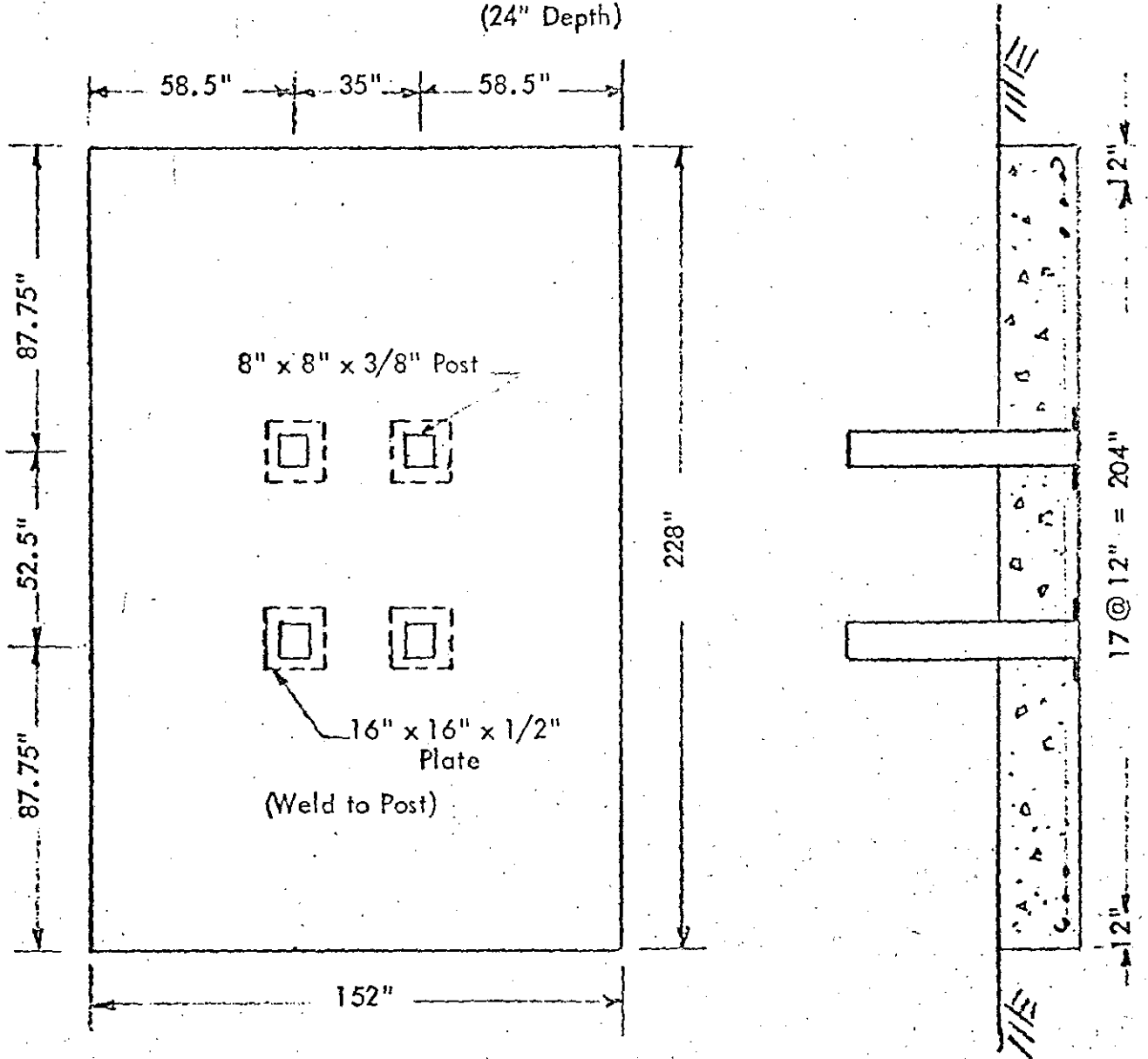


MAT: STRUCTURAL STL.  
ASTM-A3

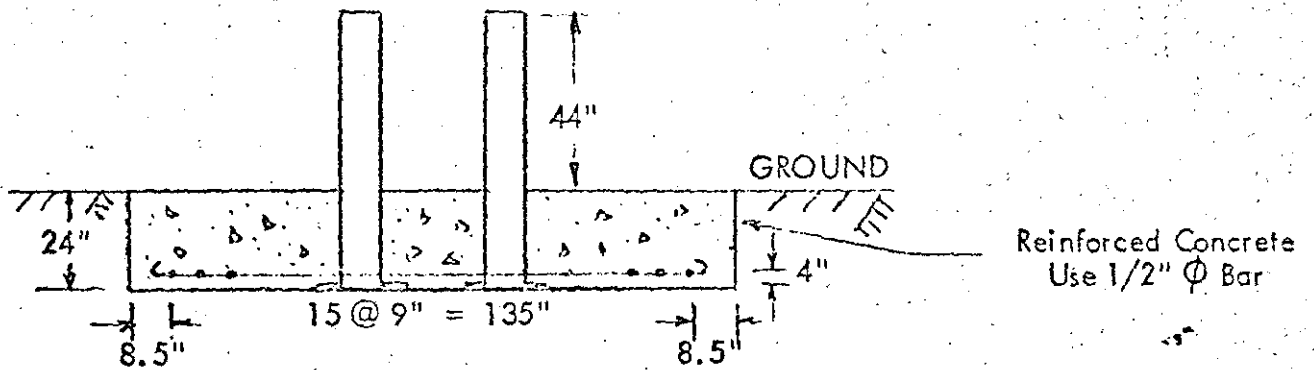
ALL DIM. IN INCHES.

		DO NOT SCALE DRAWING	
		Scale 1/2" = 1'-0"	Date
DESIGN LOADS AND TYP. POST INSTALLATION		Drawn	11/11/64
BRIDGE		Eng.	J. J. J.
		Appr.	J. J. J.
		File No.	11-3009
		B-1608	

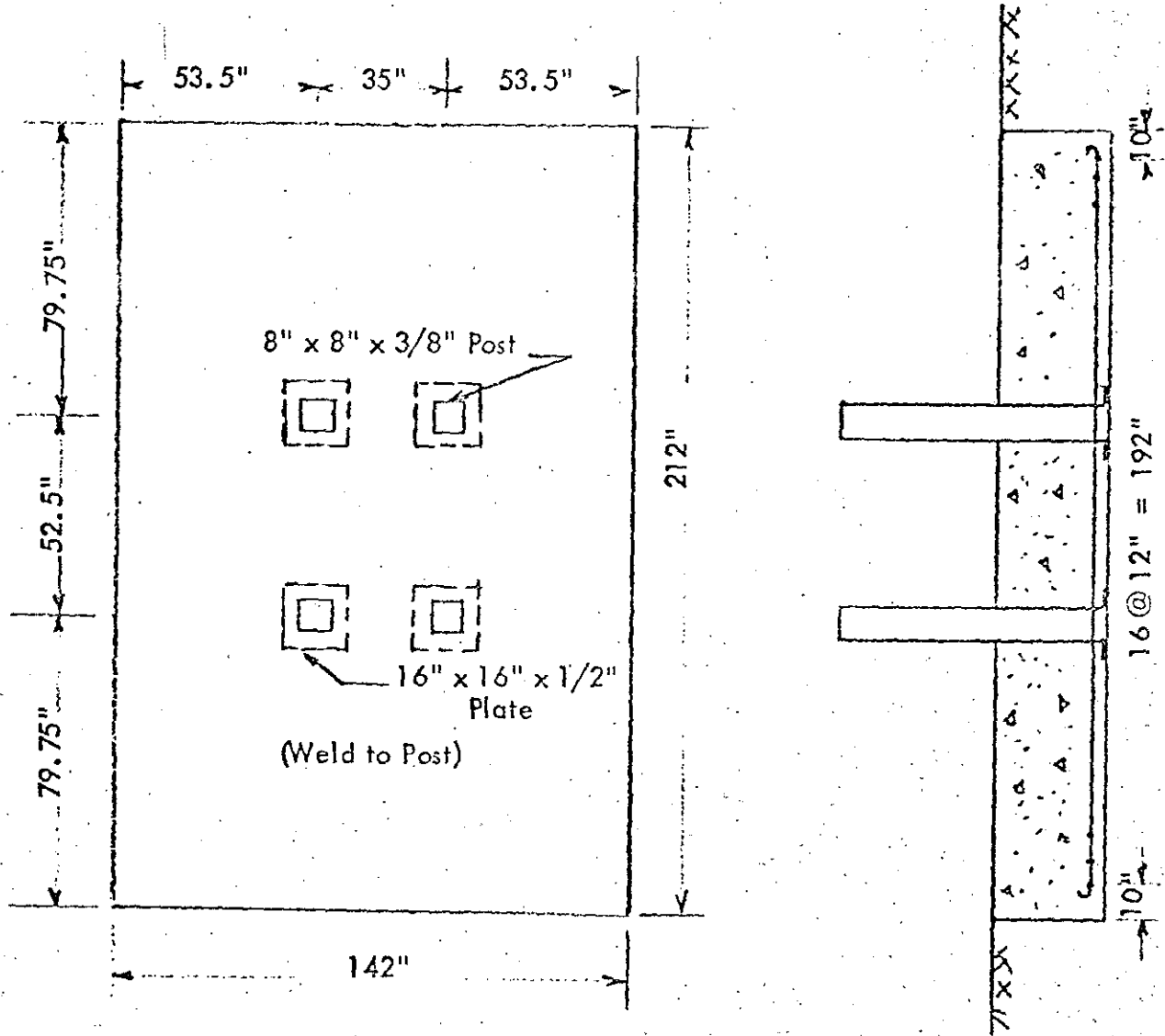
Ground Installation of Posts for TOR-SHOK Barrier  
(24" Depth)



Note: Post layout is typical - shown for 15° nose angle



Ground Installation of Posts for TOR-SHOK Barrier  
(30" Depth)



Note: Post layout is typical - shown for 15° nose angle

