

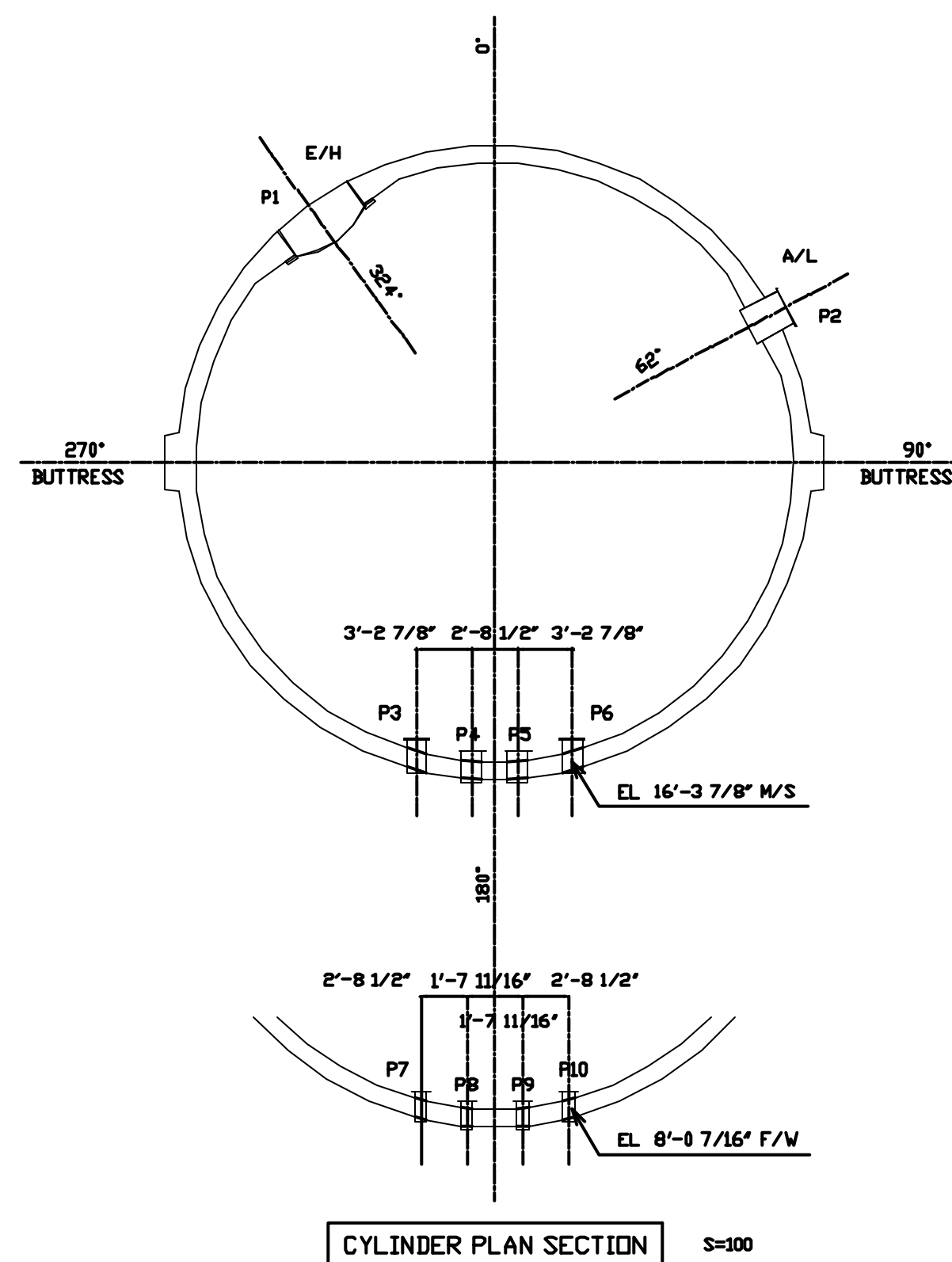
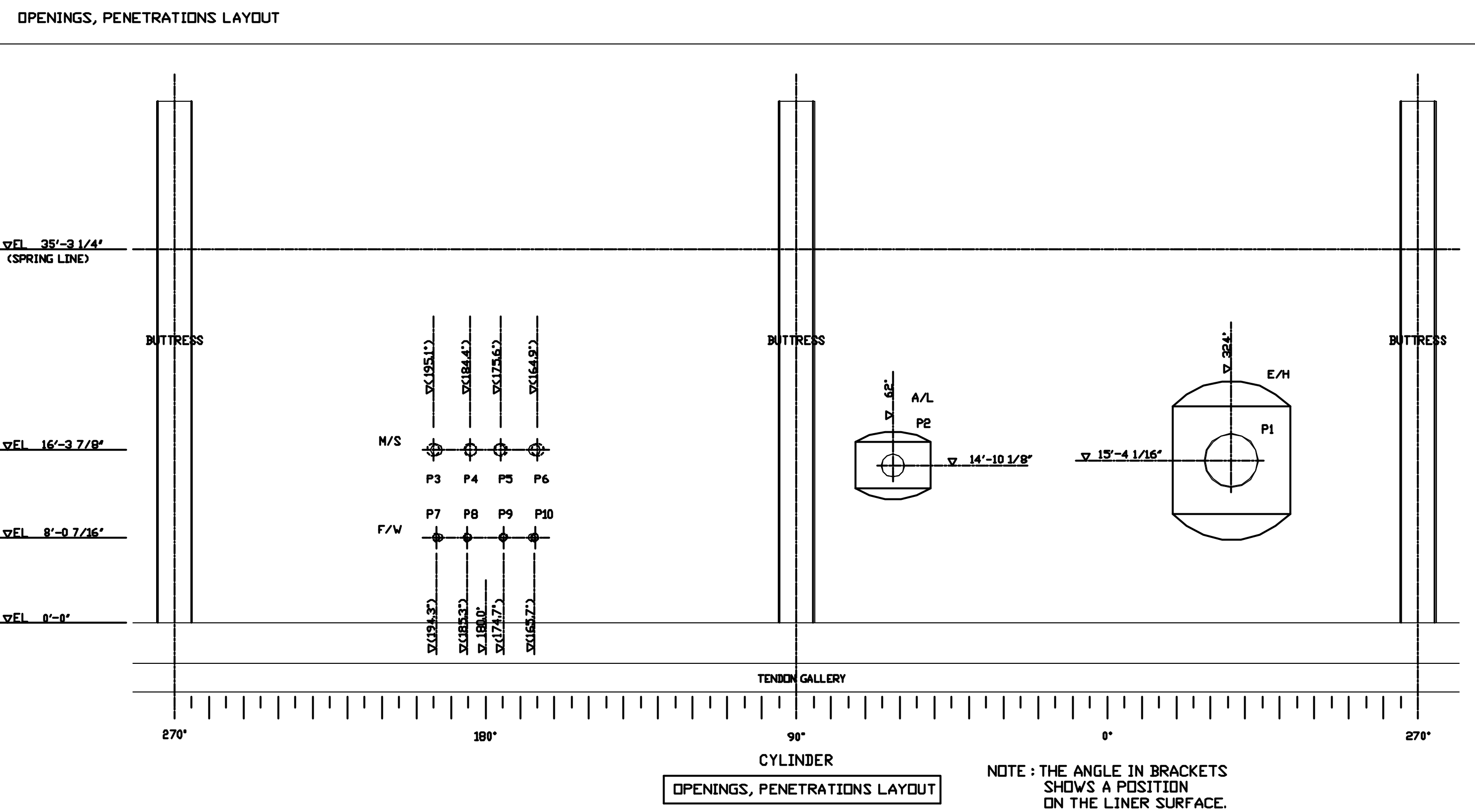
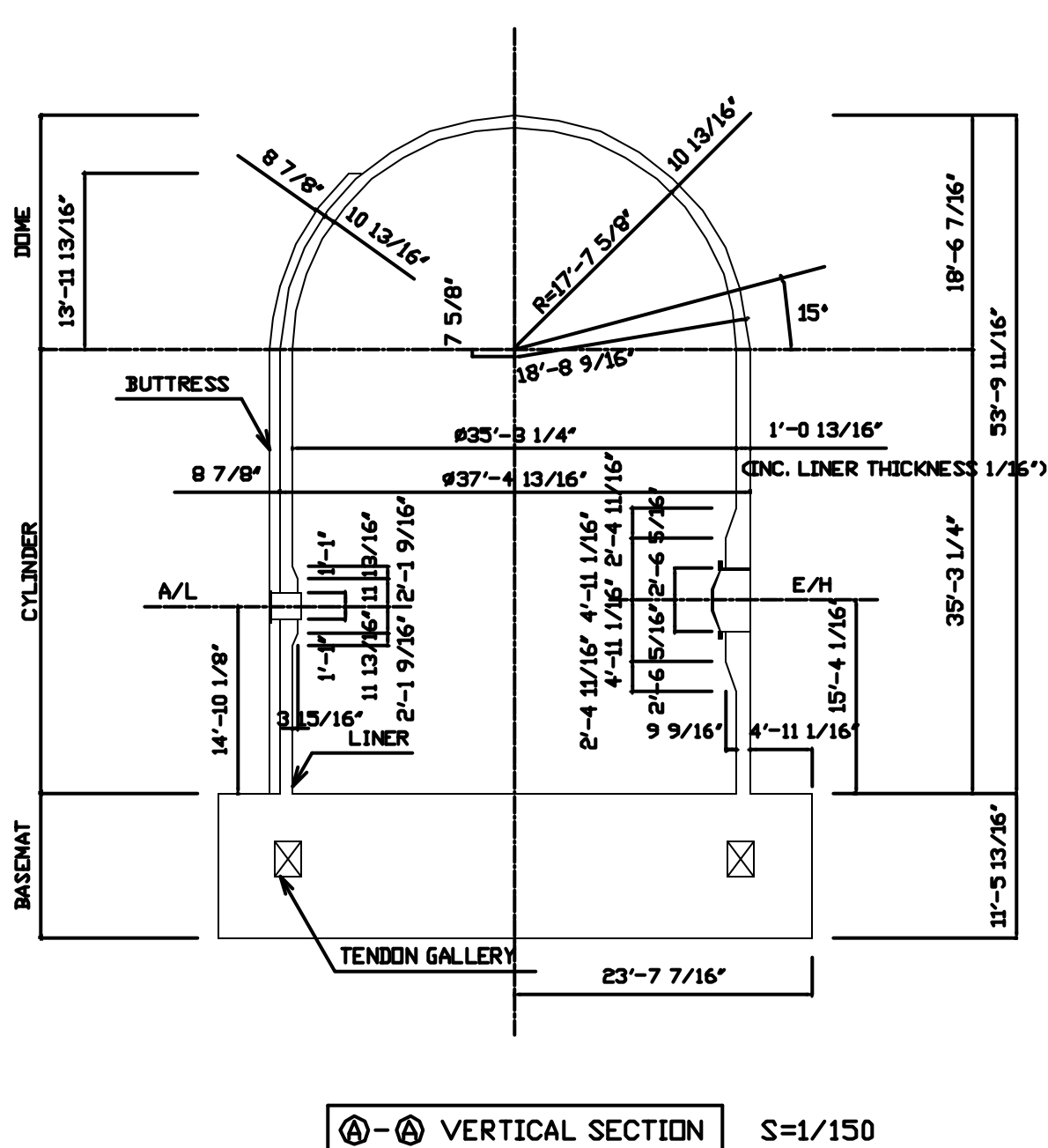
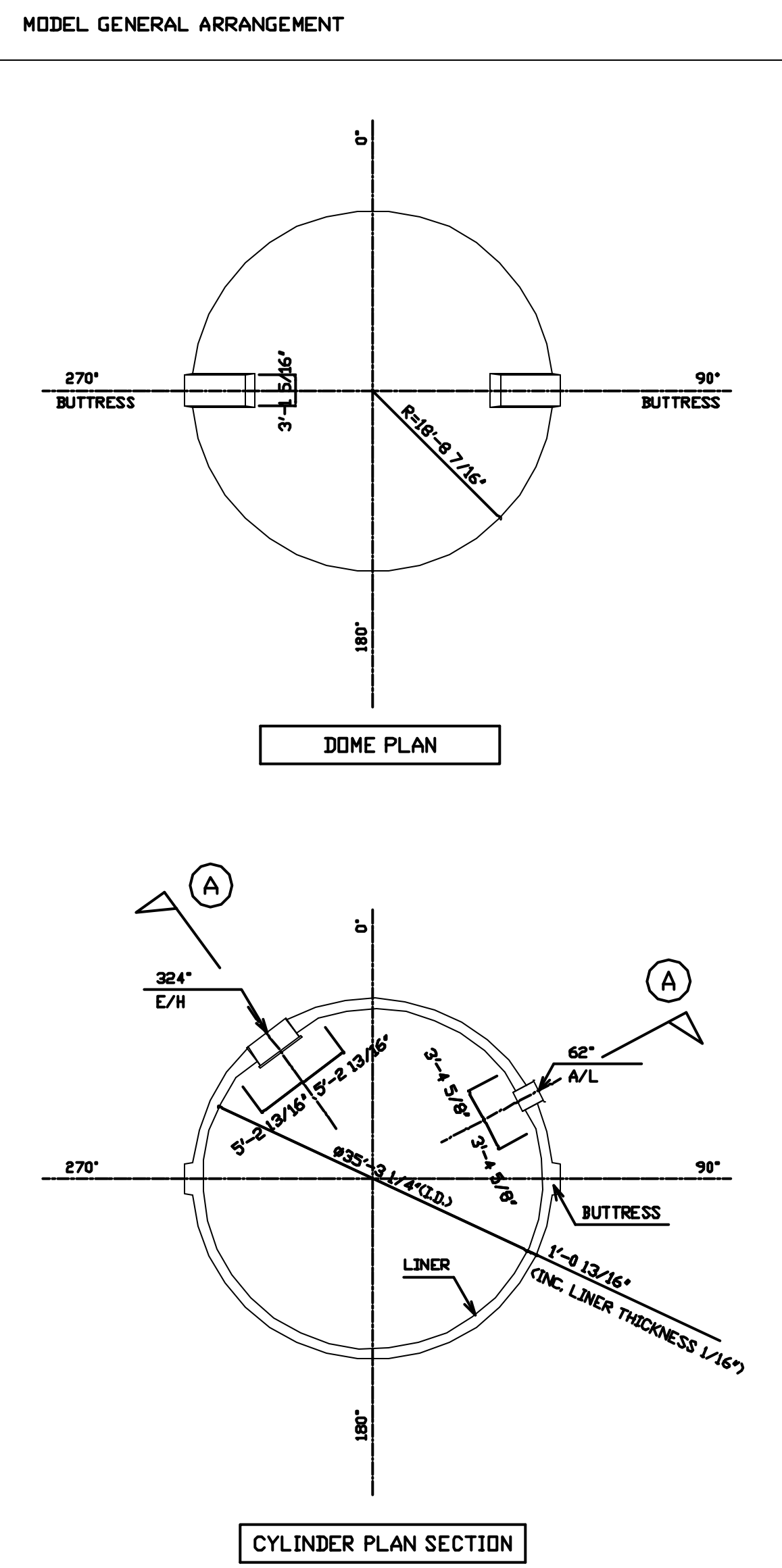
## **Appendix A: PCCV Model Design Drawings**



### List of PCCV Design Drawings

Number	Date	Rev	Description
PCCV-QCON-01	12/20/96	2	Model-General Arrangement Basemat Rebar Arrangement
PCCV-QCON-02	12/20/96	1	Basemat Tendon Gallery Access Tunnel Rebar Arrangement
PCCV-QCON-03	12/20/96	1	Prestressing Tendon General Arrangement
PCCV-QCON-04	12/20/96	1	Cylinder Prestressing Tendon Arrangement
PCCV-QCON-05	12/20/96	1	Cylinder Prestressing Tendon Arrangement
PCCV-QCON-06	12/20/96	1	Cylinder Prestressing Tendon Arrangement
PCCV-QCON-07	12/20/96	1	Prestressing Tendon Details (Equipment Hatch [E/H]) (Vertical Dome)
PCCV-QCON-08	12/20/96	1	Prestressing Tendon Details (E/H) (HOOP)
PCCV-QCON-09	12/20/96	1	Prestressing Tendon Details (Airlock [A/L])
PCCV-QCON-10	12/20/96	1	Prestressing Tendon Details (Main Steam [M/S] Feedwater [ F/W])
PCCV-QCON-11	12/20/96	1	Dome Prestressing Tendon Arrangement-Prestressing System Hardware
PCCV-QCON-12	12/20/96	1	Cylinder & Dome Rebar General Arrangement (1)
PCCV-QCON-13	12/20/96	1	Cylinder & Dome Rebar General Arrangement (2)
PCCV-QCON-14	12/20/96	1	Cylinder & Dome Rebar Details
PCCV-QCON-15	12/20/96	2	Buttress Rebar Details
PCCV-QCON-16	12/20/96	1	Opening Rebar Details (E/H)
PCCV-QCON-17	12/20/96	2	Opening Rebar Details (A/L)
PCCV-QCON-18	12/20/96	3	Penetration Rebar Details (M/S F/W)
PCCV-QCON-19	12/20/96	2	Crane Bracket Rebar Details Rebar Arrangement Standards
M1-ZCD1001A		3	Liner General Arrangement
M1-ZCD1002A		0	Cylinder Liner Anchor Details
M1-ZCD1006A		0	Liner Plate Block Layout of Cylinder Portion
M1-ZCD1007A		2	Cylinder Liner Anchor Details #2-5 Blocks (0-90 Degrees)
M1-ZCD1008A		2	Cylinder Liner Anchor Details #2-5 Blocks (90-270 Degrees)
M1-ZCD1009A		2	Cylinder Liner Anchor Details #2-5 Blocks (270-360 Degrees)
M1-ZCD1010A		0	Cylinder Liner Anchor Details #2-5 Blocks (E/H)
M1-ZCD1011A		0	Cylinder Liner Anchor Details #2-5 Blocks (A/L)
M1-ZCD1012A		0	Cylinder Liner Anchor Details #2-5 Blocks (M/S)
M1-ZCD1013A		0	Cylinder Liner Anchor Details #2-5 Blocks (F/W)
M1-ZCD1014A		0	Cylinder Liner Anchor Details Polar Crane Bracket Details
M1-ZCD1015A		0	Liner Plate Block Layout of Dome
M1-ZCD1016A		0	Stud Layout of Dome
M1-ZCD1018A		0	Liner Plate Block and Stud Details of Dome Portion #6 Tiers
M1-ZCD1019A		0	Liner Plate Block and Stud Details of Dome Portion #7-8 Tiers
M1-ZCD1020A		0	Liner Plate Block and Stud Details of Dome Portion #9-10 Tiers
M1-ZCD1025A	03/26/97	1	Base Liner Plate Detail

DESIGN SPECIFICATIONS			
STRUCTURE TYPE	REINFORCED CONCRETE PRESTRESSED CONCRETE		
TOP HEIGHT	EL. 53'-9 11/16"		
FOUNDATION SPEC.	TYPE	BASEMAT	
	BOTTOM LEVEL	EL. -11'-5 13/16"	
	BEARING CAPACITY	LONG TERM 0.34MPa (SHORT TERM 0.34MPa)	
	GROUND LINE PREPARATION	CONCRETE WITHOUT REINFORCING	
CONCRETE SPEC.			
PORTION	TYPE	F <sub>c</sub>	
BASEMAT	GENERAL PORTION	NORMAL CONCRETE	F <sub>c</sub> = 29.42MPa
	AROUND TENDON GALLERY	NORMAL CONCRETE HIGH STRENGTH	F <sub>c</sub> = 44.13MPa
PCCV	NORMAL CONCRETE HIGH STRENGTH	F <sub>c</sub> = 44.13MPa	
REBAR SPEC.			
PORTION	GRADE	JOINT TYPE	
	S490 S390 S345	SPLICE	LAP
BASEMAT	MAIN BAR	○	○
	SHEAR BAR	○	○
	BAR AROUND OPENING	○	○
PCCV	MAIN BAR	○	○
	BAR AROUND OPENING	○	○
TENDON SPEC.			
PCCV	PORTION	SPEC.	
	VERTICAL DOME TENDONS	43x2=90 (Ø2")	•POST TENSIONING SYSTEM(VSL)
	HOOP CYLINDER TENDONS	45x2=90 (Ø4 7/16")	•13.7mm Øx3 (ORDERED STRAND)
HOOP DOME TENDONS	9x2=18 (Ø2.5")		
PS LOAD (KIPS)			
PCCV	TYPE	BEFORE ANCHORING	AFTER ANCHORING
	VERT. DOME TENDON	113.1	109.8
	HOOP TENDON	101.9	78.7



OPENINGS, PENETRATIONS SCHEDULE

No.	SLEEVE O.D.		REMARKS
	NOMINAL DIAMETER	SIZE Ø	
P1	4'-11 1/16"	3'-0 5/8"	E/H
P2	2'-1 9/16"	2'-2"	A/L
P3	-	1'-1"	M/S
P4	-	1'-1"	M/S
P5	-	1'-1"	M/S
P6	-	1'-1"	M/S
P7	-	7 1/2"	F/W
P8	-	7 1/2"	F/W
P9	-	7 1/2"	F/W
P10	-	7 1/2"	F/W

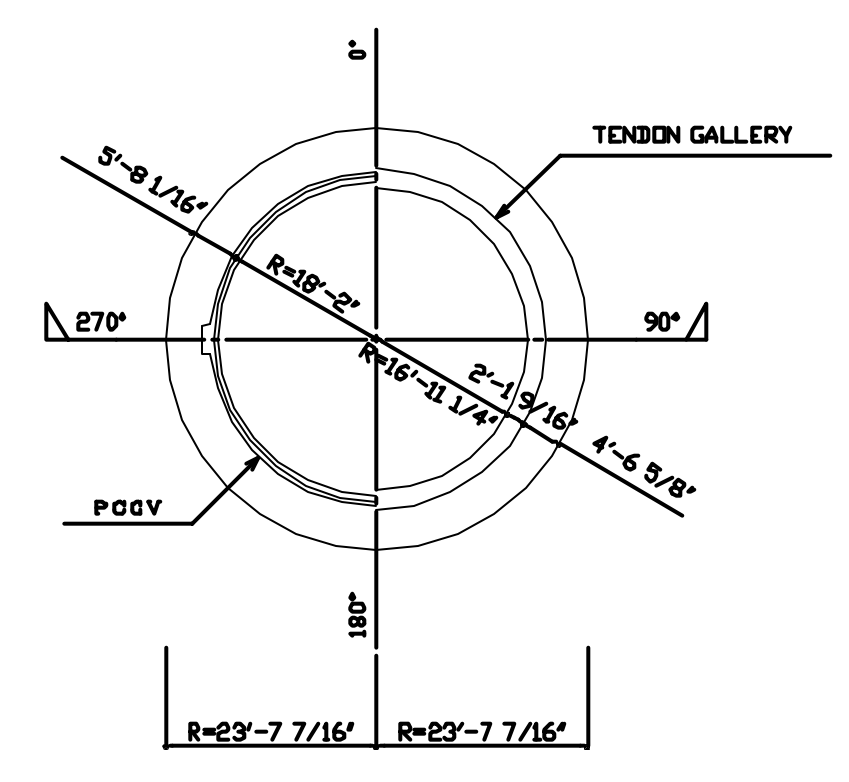
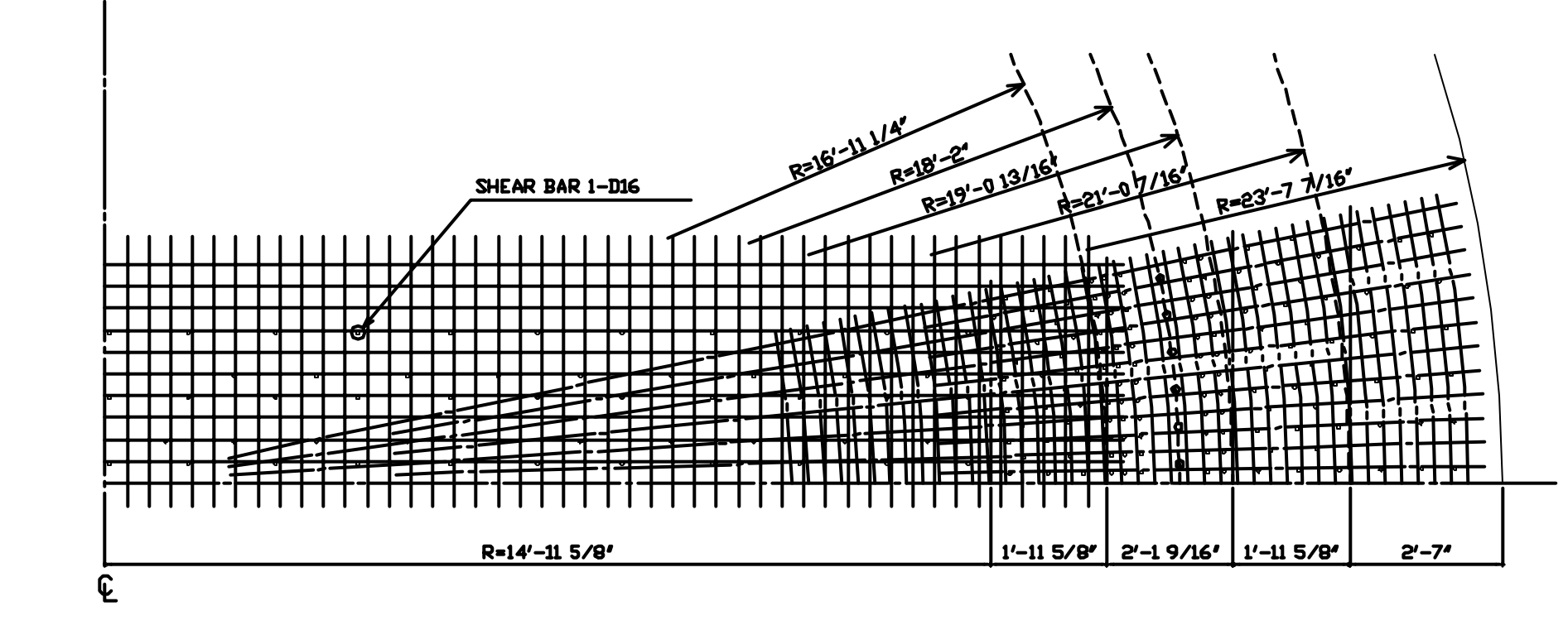
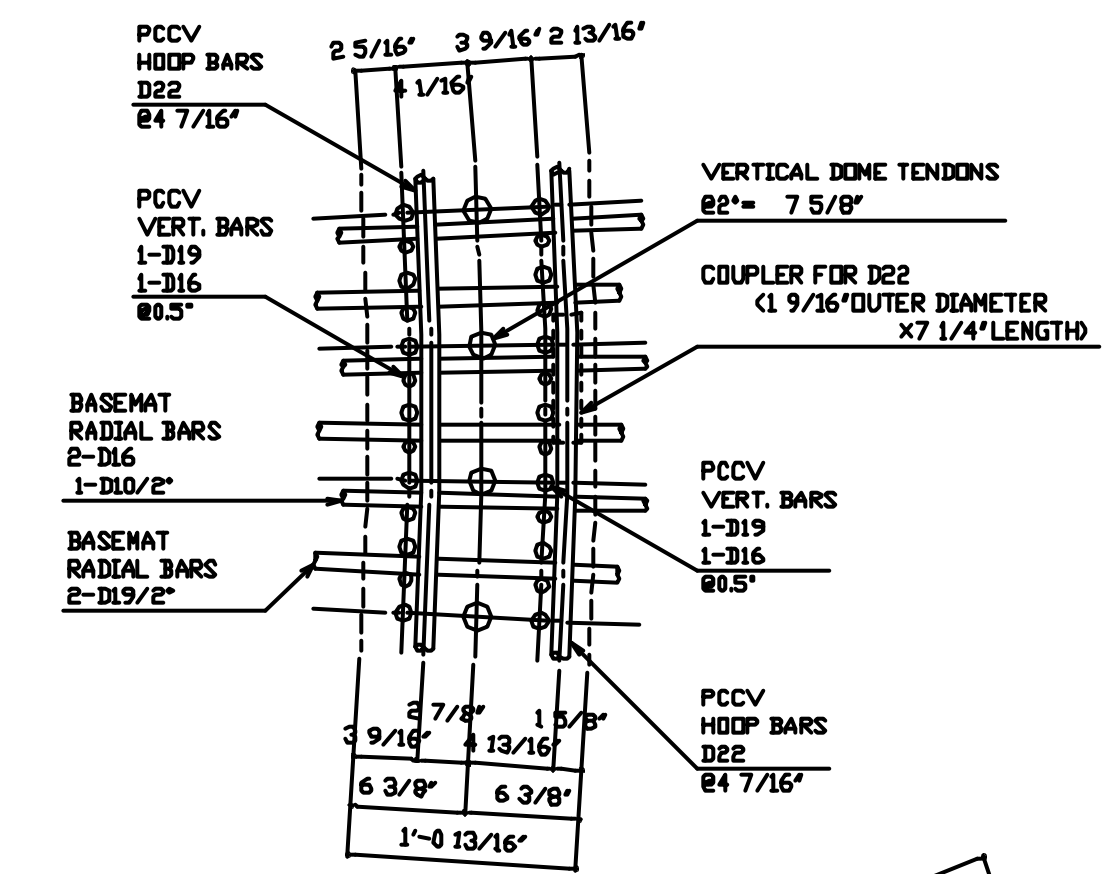
NUMBER OF OPENINGS, PENETRATIONS	
OPENINGS, PENETRATIONS	NUMBER
E/H	1
A/L	1
M/S, F/W	8

NO.	DATE	REVISION	BY
R2	'95 8.1	PS LOAD UPDATED M/S/F/W O.D. UPDATED	

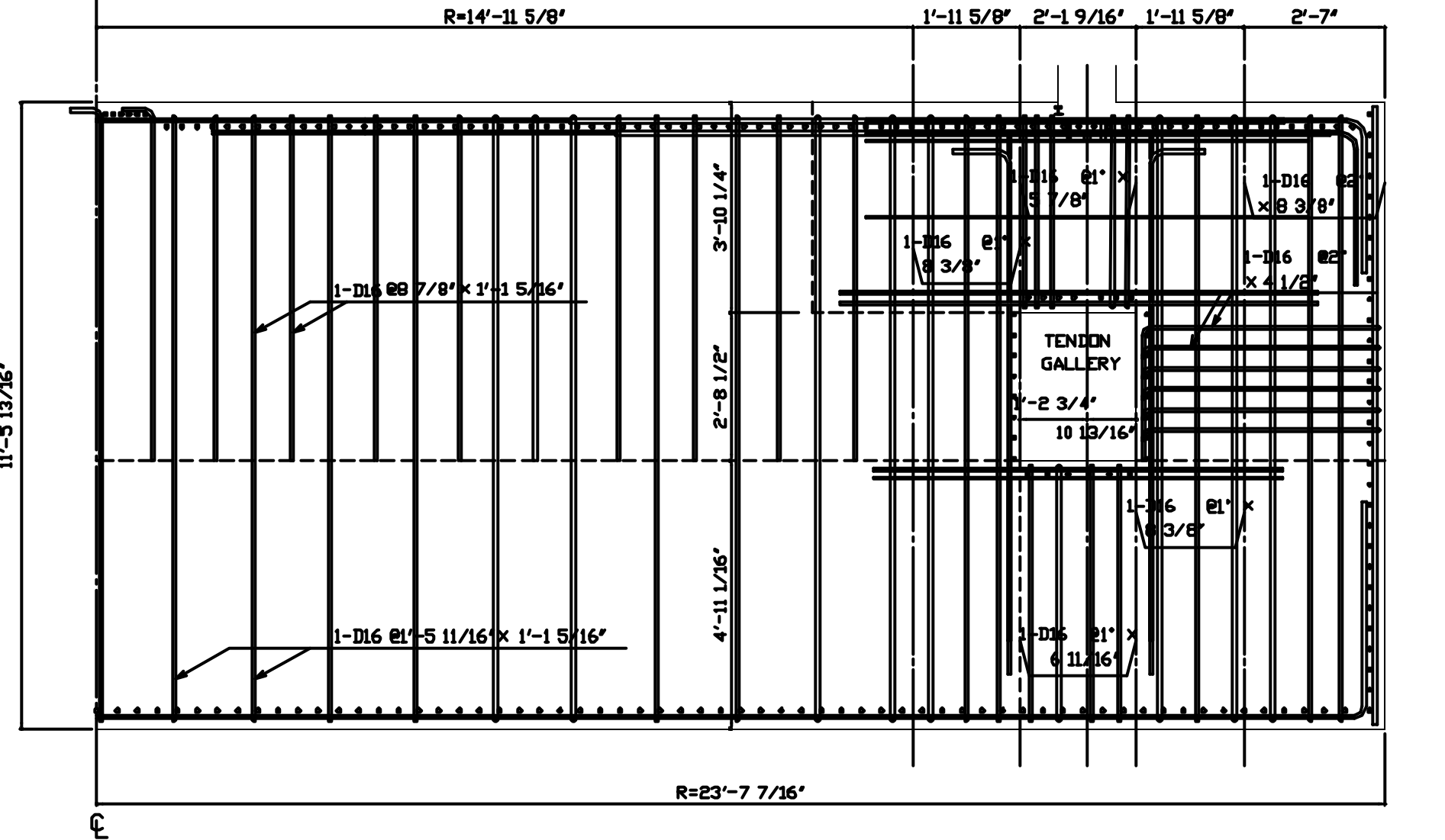
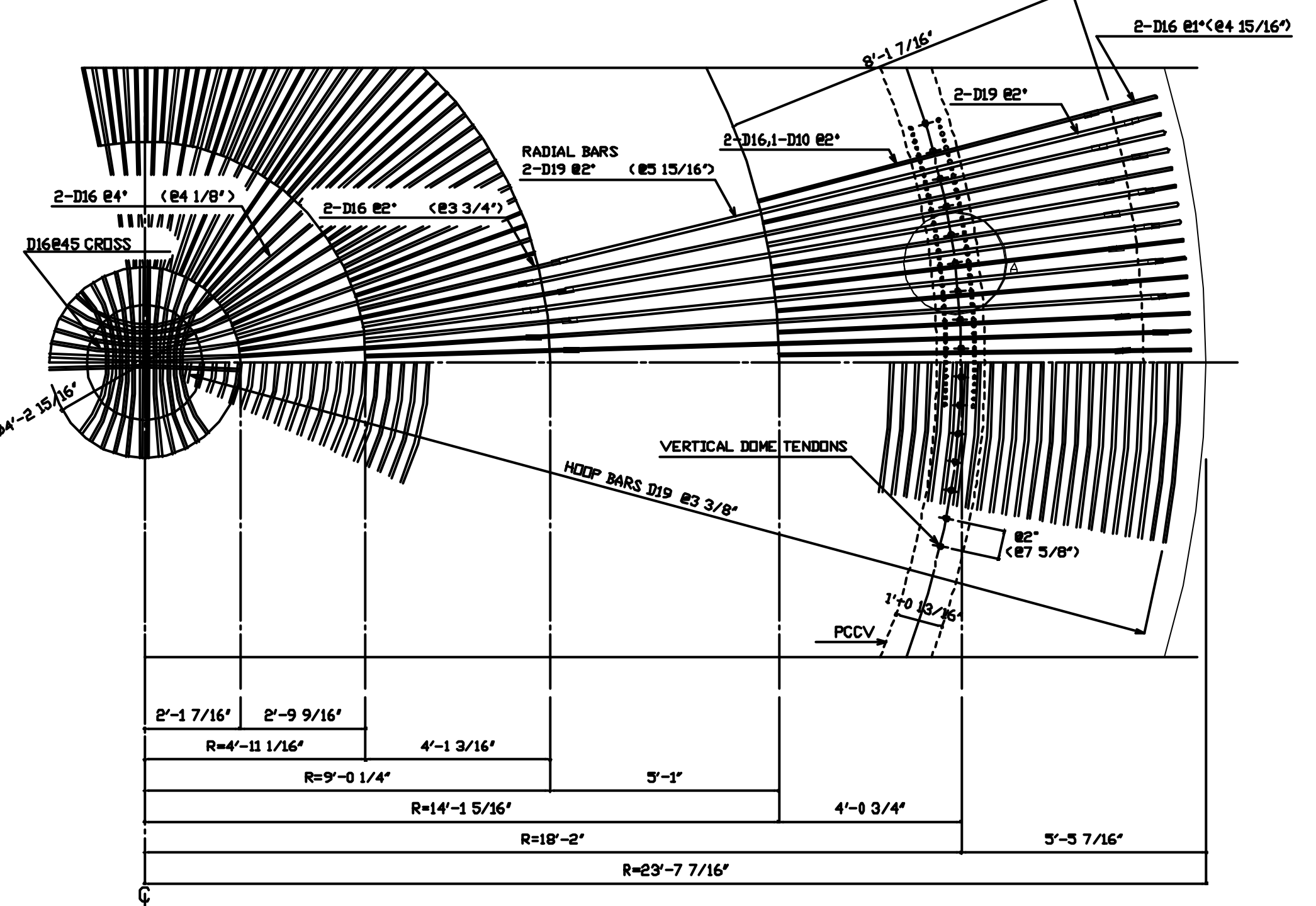
DATE	STATUS	REMARKS
'95. 2.24	○	FINAL
'95. 1.25		PRELIMINARY
'94. 11.17		APPLICATION EXAMINATION REFERENCE

NAME	SHEET	NUPEC PCCV STRUCTURAL BEHAVIOR TEST MODEL	SCALE
NUPEC SYSTEMS SAFETY DEPT.		MODEL-GENERAL ARRANGEMENT	1/100 1/150
S N L	COPY 1		REVISION NO.
NUCLEAR SYSTEMS ENGINEERING DEPT.		MITSUBISHI HEAVY INDUSTRIES, L.T.D.	R2
STEEL STRUCTURE DESIGNING SECT.	COPY 1	OBAYASHI CORPORATION	
EQUIP DESIGN SECT.	COPY 1		
TAKASAGO R&D CENTER	COPY 1	M H I	OBAYASHI
T A I S E I	COPY 1		T. Ito, K. Umada, H. Murano
OBAYASHI	ORIG.		DRAWING NO. PCCV-QCON-01

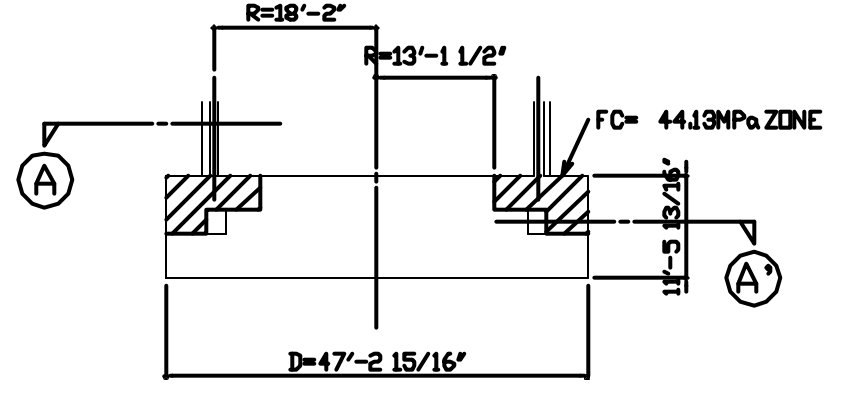
DETAIL 'A' S=1/10



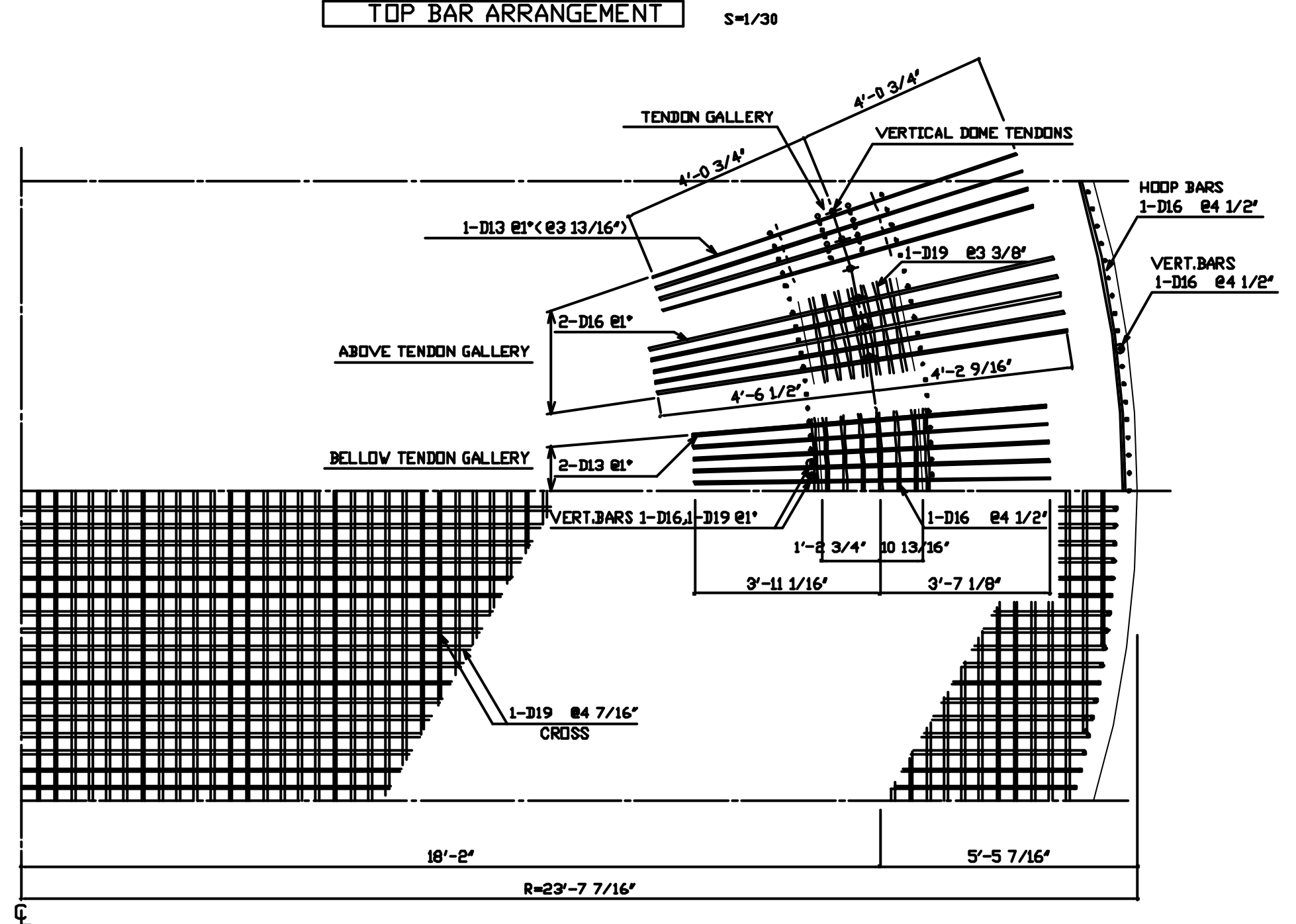
KEY PLAN (A-A SECTION)



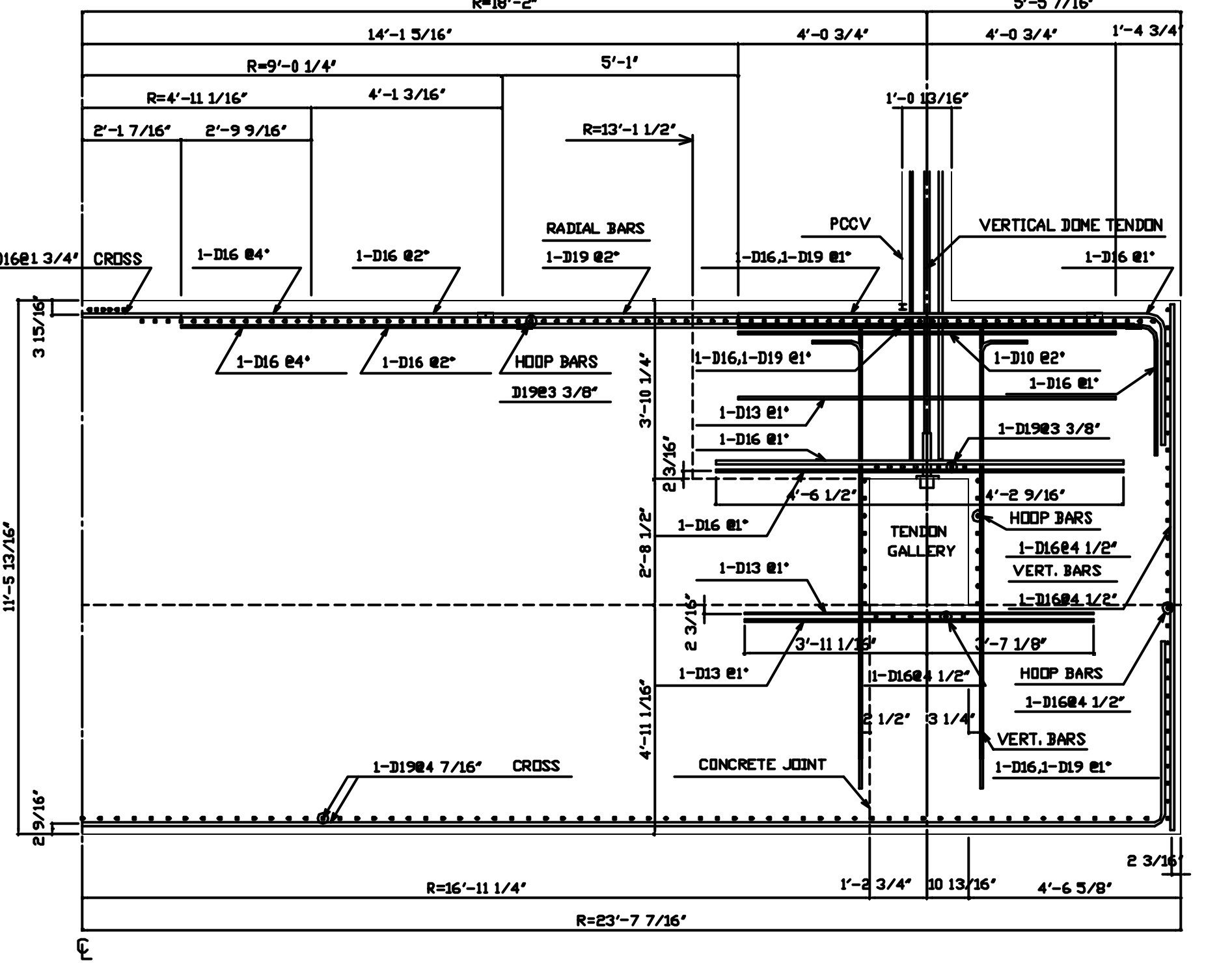
SHEAR REBAR VERTICAL SECTION S=1/30



KEY SECTION (270°-90° SEC.)



BOTTOM BAR ARRANGEMENT S=1/30



VERTICAL SECTION S=1/30

DRAWINGS FOR REFERENCE		DATE	STATUS	REMARKS
		'95. 2.24	O FINAL	
		'95. 1.25	PRELIMINARY	
		'94. 11.17	APPLICATION	
			EXAMINATION	
			REFERENCE	

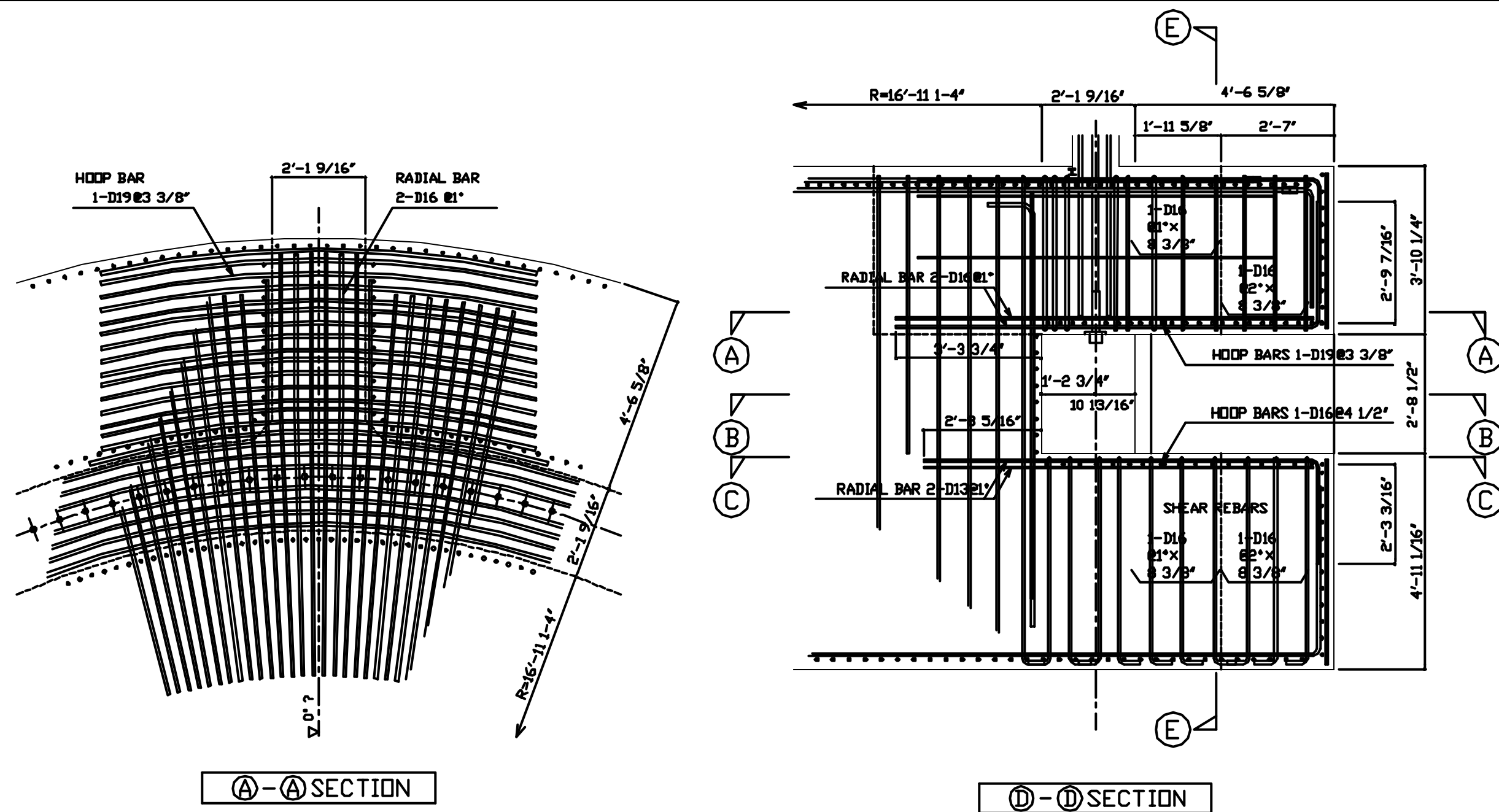
  

NO.	DATE	REVISION	BY

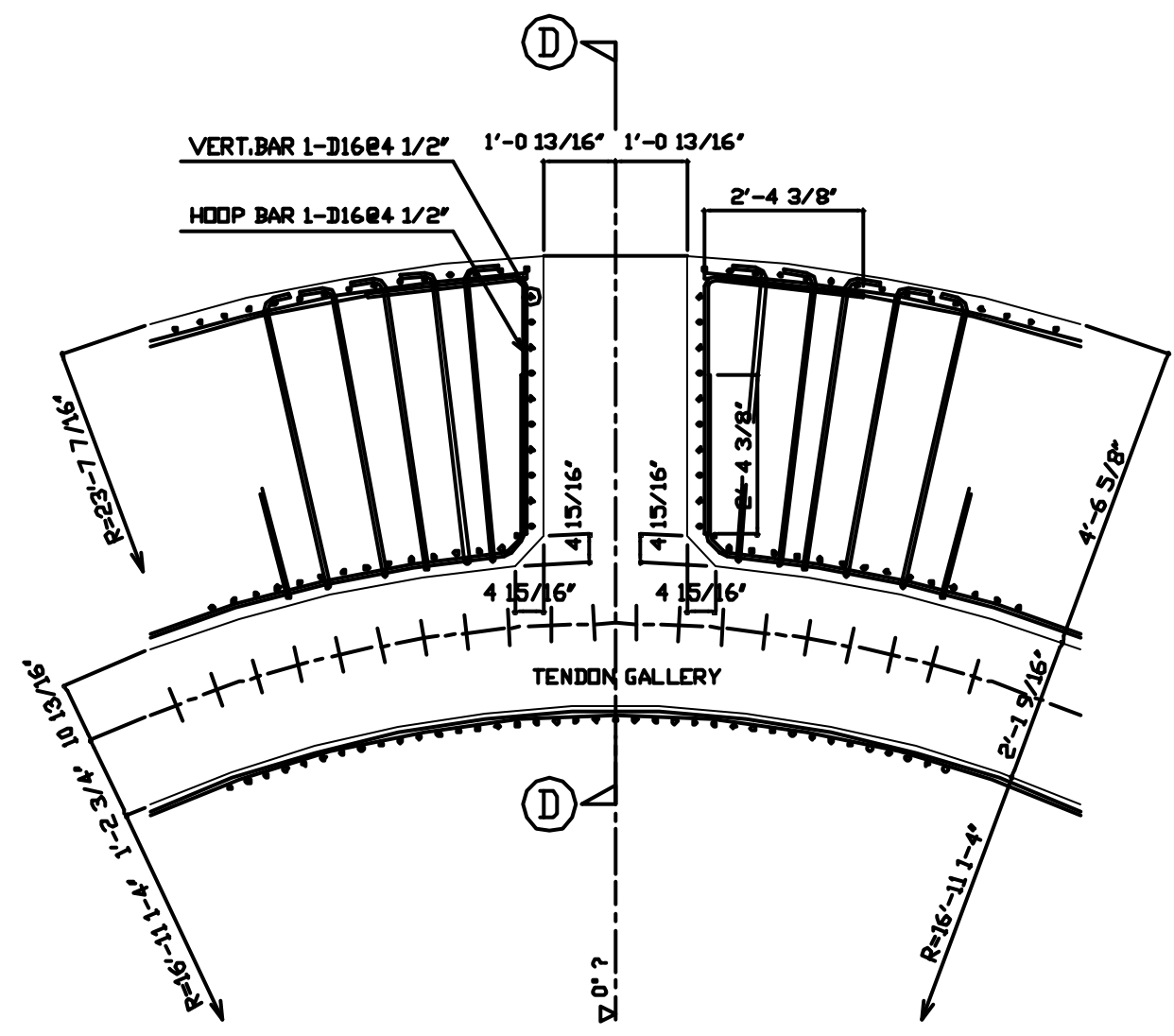
NAME	SHEET	NUPEC PCCV STRUCTURAL BEHAVIOR TEST MODEL	
NUPEC SYSTEMS SAFETY DEPT.		BASEMAT REBAR ARRANGEMENT	
S N L	COPY 1	SCALE 1/10 1/30	
		REVISION NO.	
M H I		R1	
NUCLEAR SYSTEMS ENGINEERING DEPT.		MITSUBISHI HEAVY INDUSTRIES, L.T.D.	
STEEL STRUCTURE DESIGNING SECT.	COPY 1	OBAYASHI CORPORATION	
EQUIP DESIGN SECT.	COPY 1	DRAWING NO.	
TAKASAGO R&D CENTER	COPY 1	M H I	OBAYASHI
T A I S E I	COPY 1	H. Okano, K. Umeha, H. Murano	
OBAYASHI	ORIG.	PCCV-QCON-02	

0°, 180° TENDON GALLERY ACCESS TUNNEL REBAR ARRANGEMENT

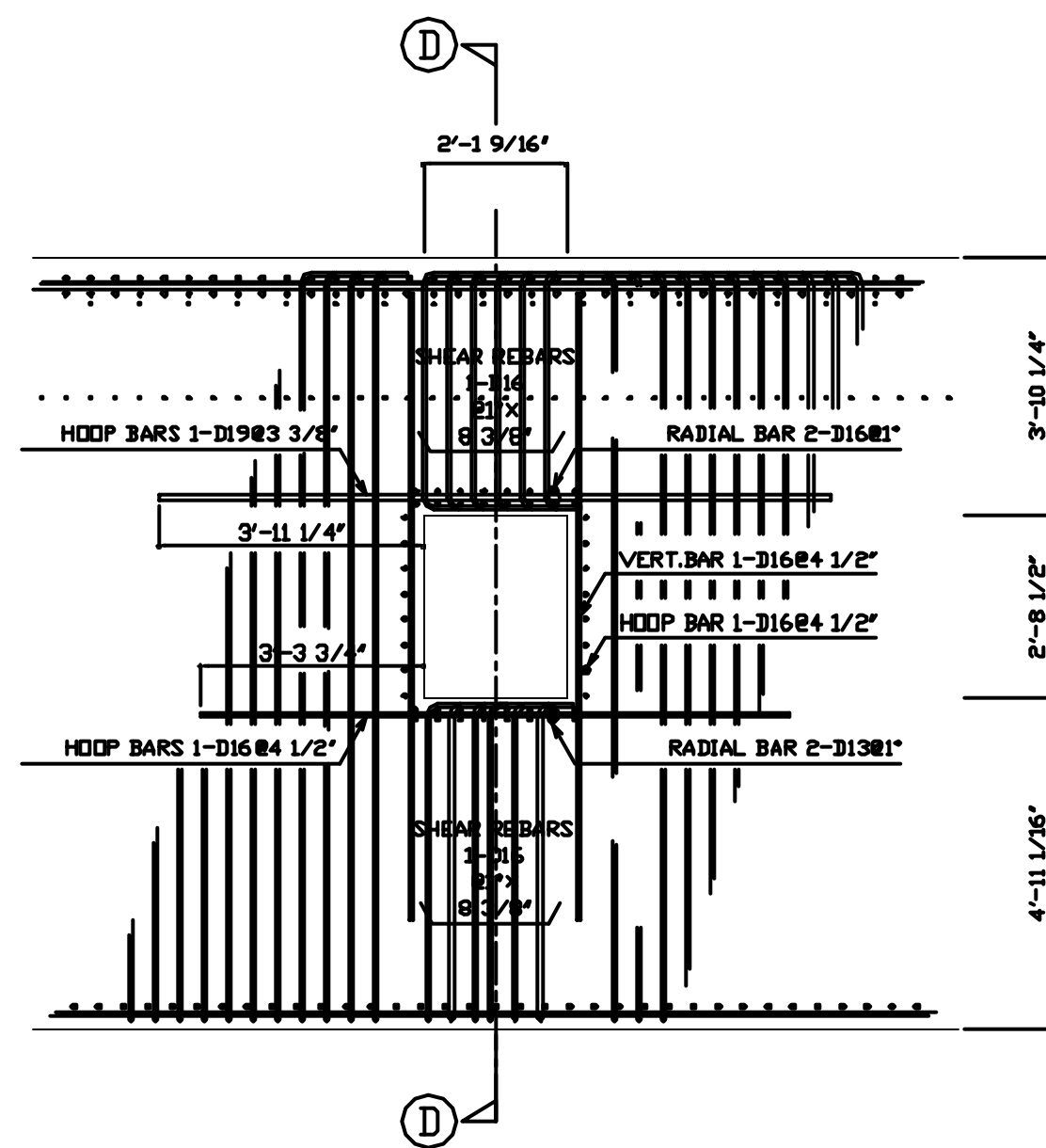


A-A SECTION

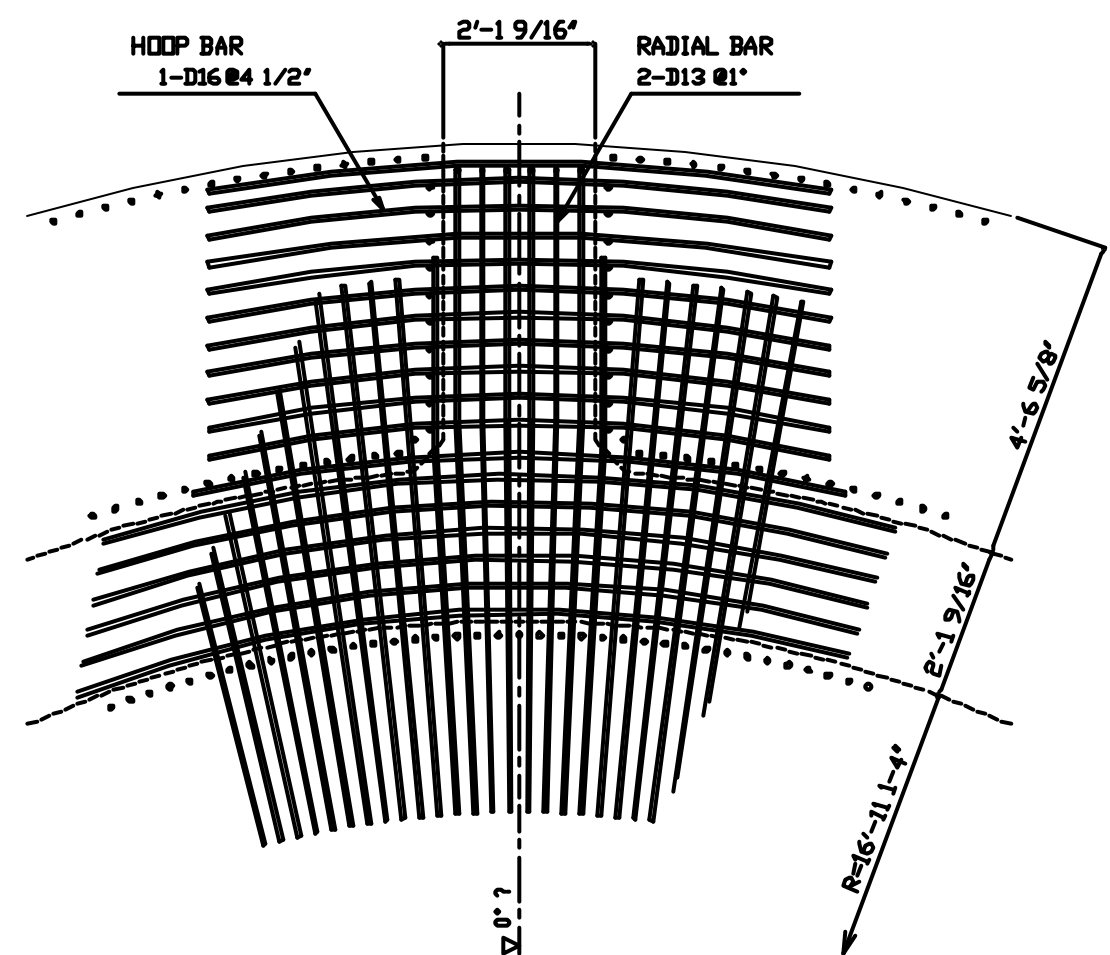
D-D SECTION



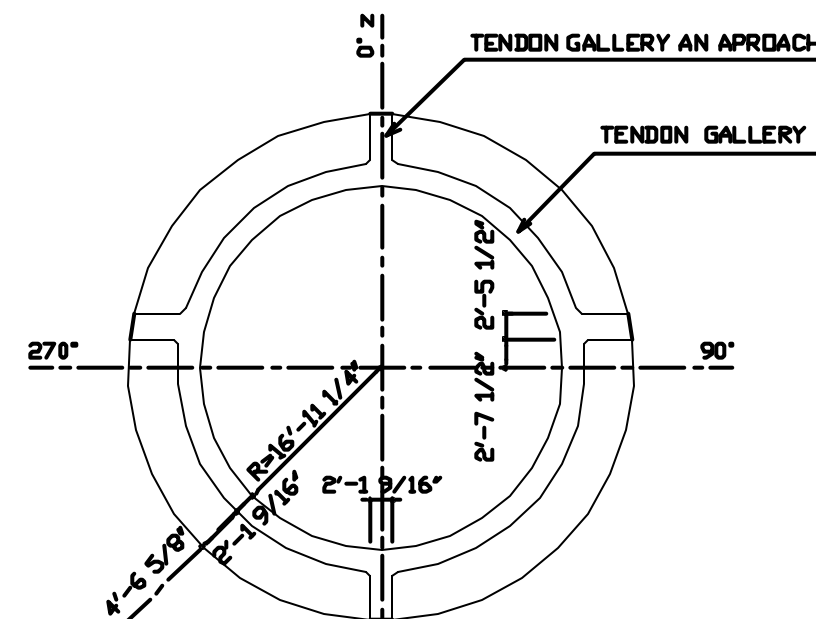
B-B SECTION



E-E SECTION



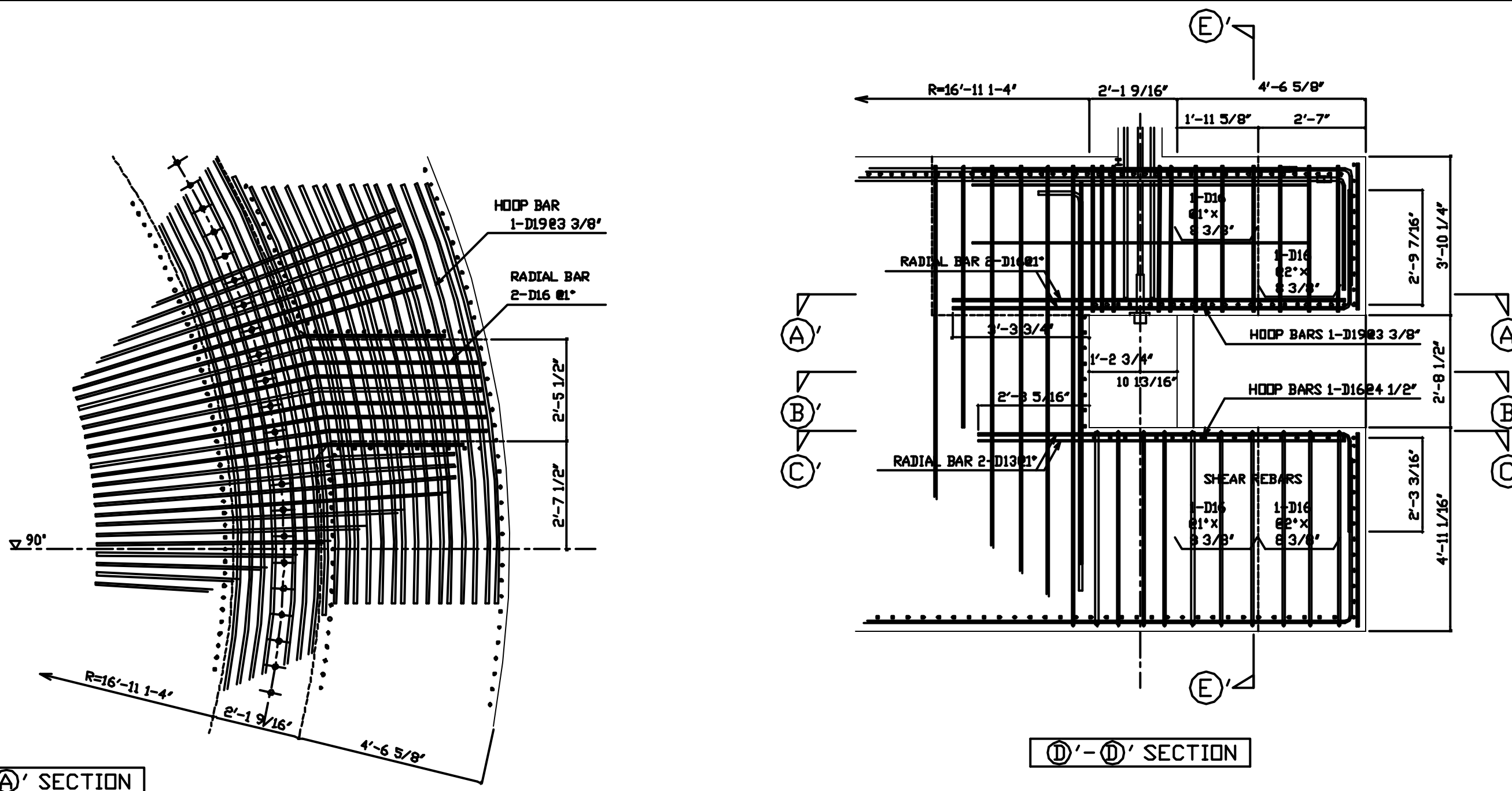
C-C SECTION



KEY PLAN

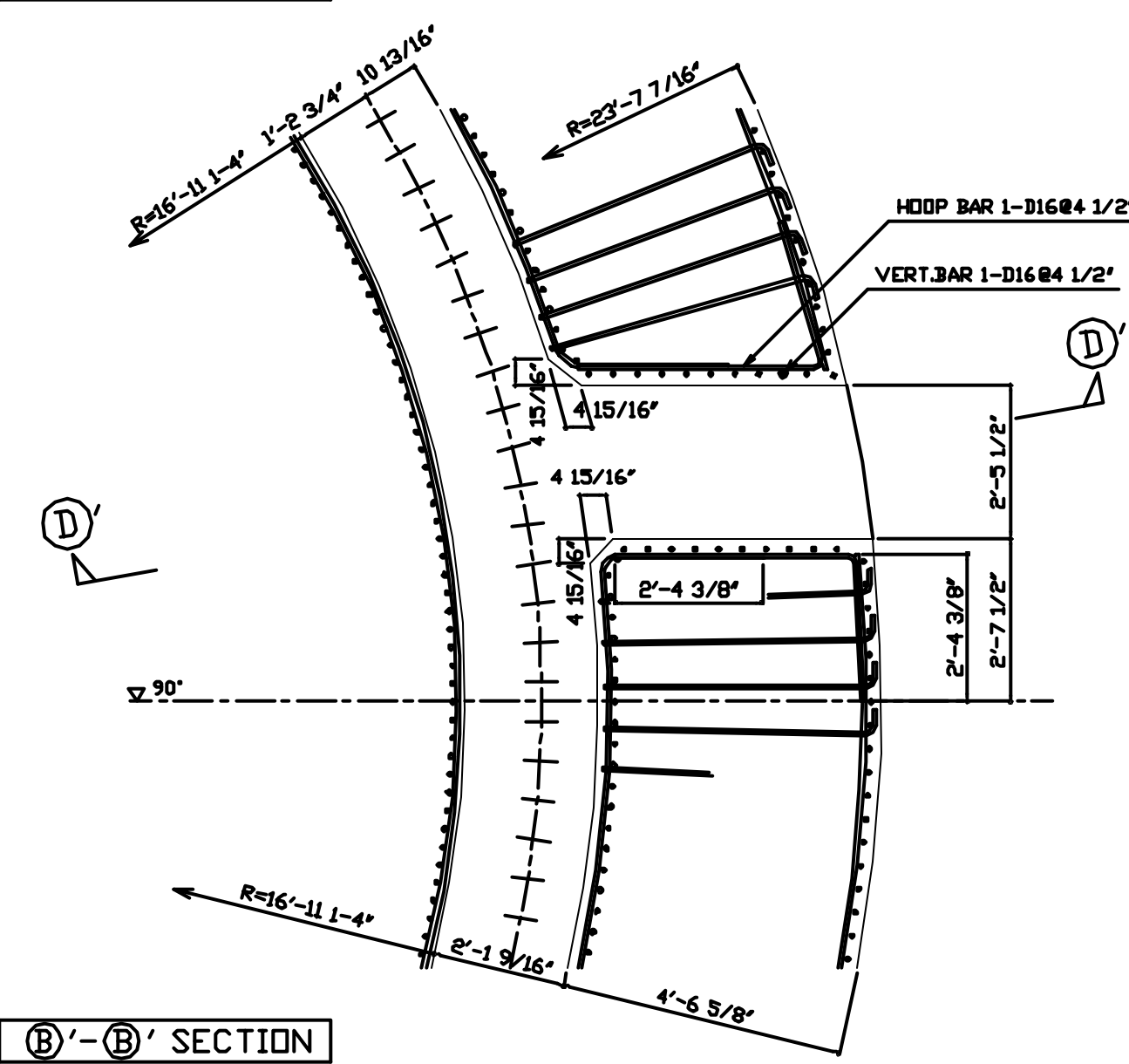
COMMON ITEMS: BASEMAT REBAR GENERAL ARRANGEMENT SHOULD REFER TO PCCV-QCON-02

90°, 270° TENDON GALLERY ACCESS TUNNEL REBAR ARRANGEMENT

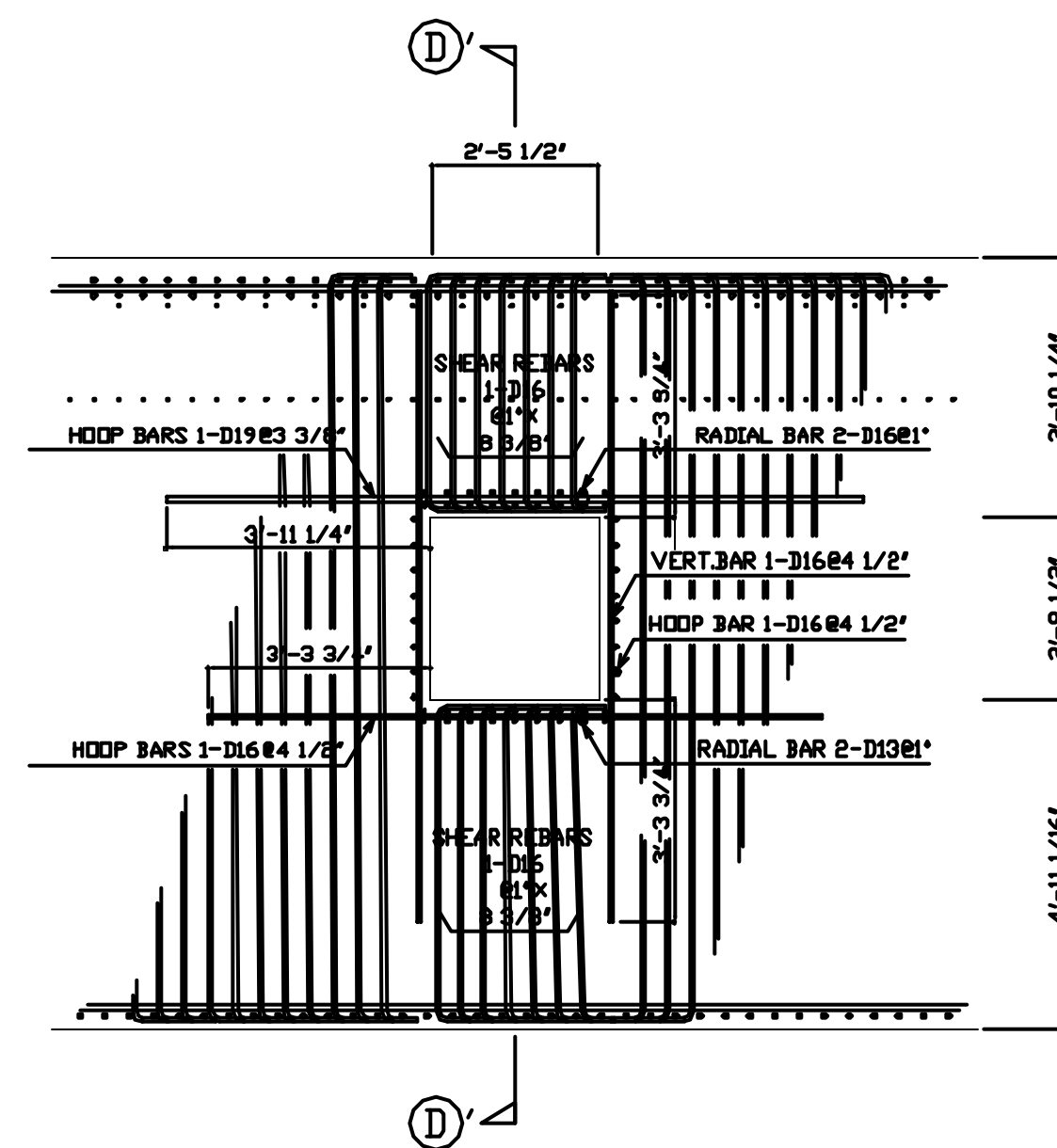


A'-A' SECTION

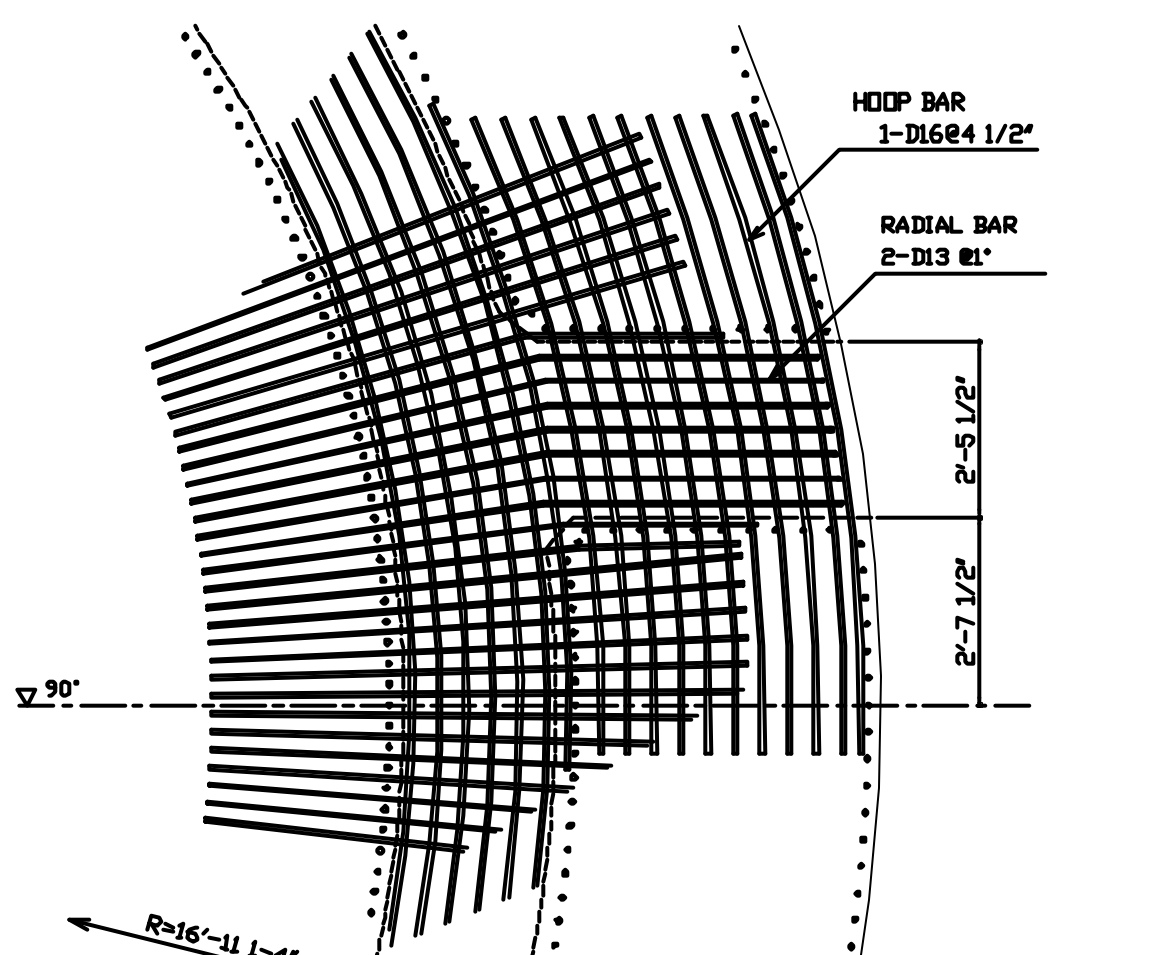
D'-D' SECTION



B'-B' SECTION



E'-E' SECTION



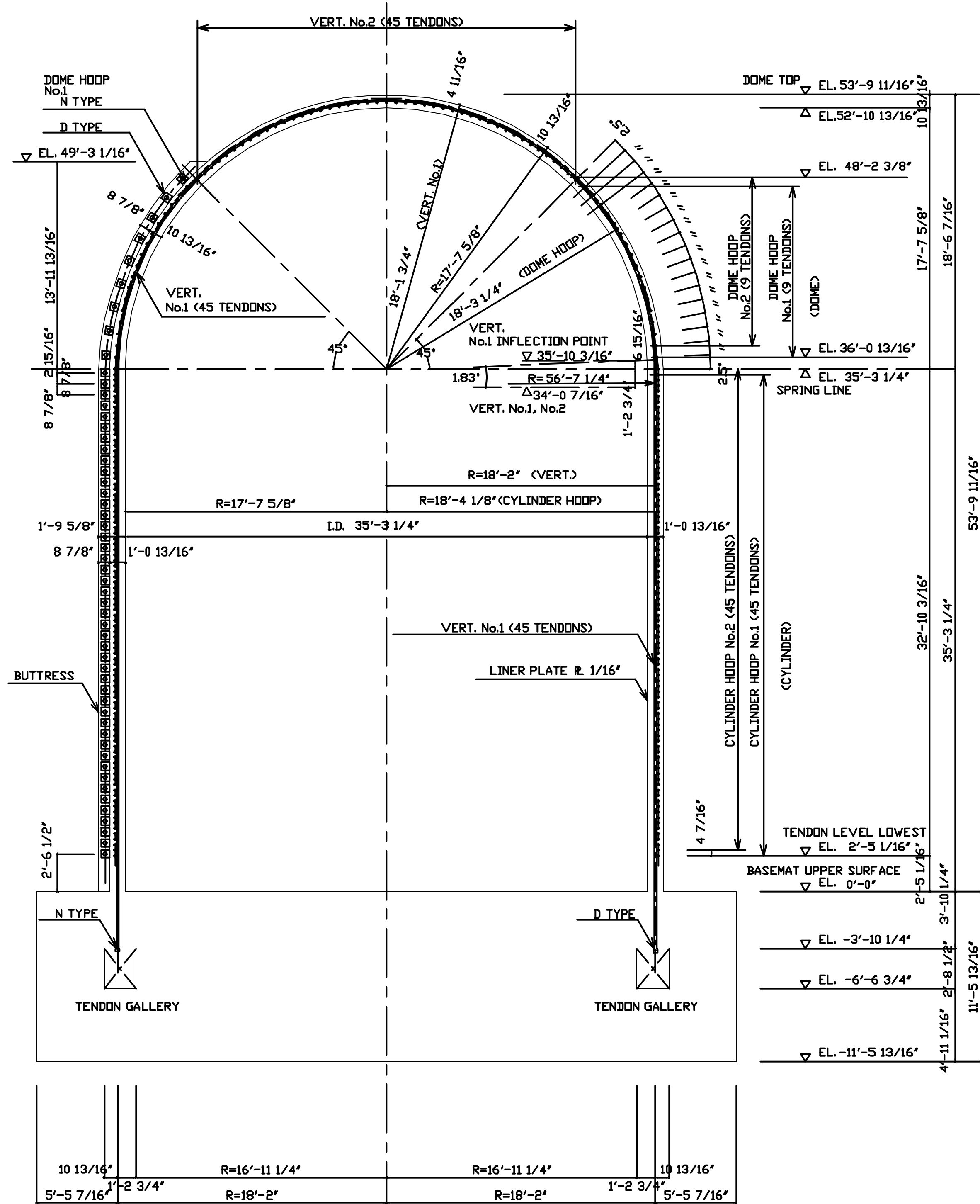
C'-C' SECTION

NO.	DATE	REVISION	BY
REVISION			

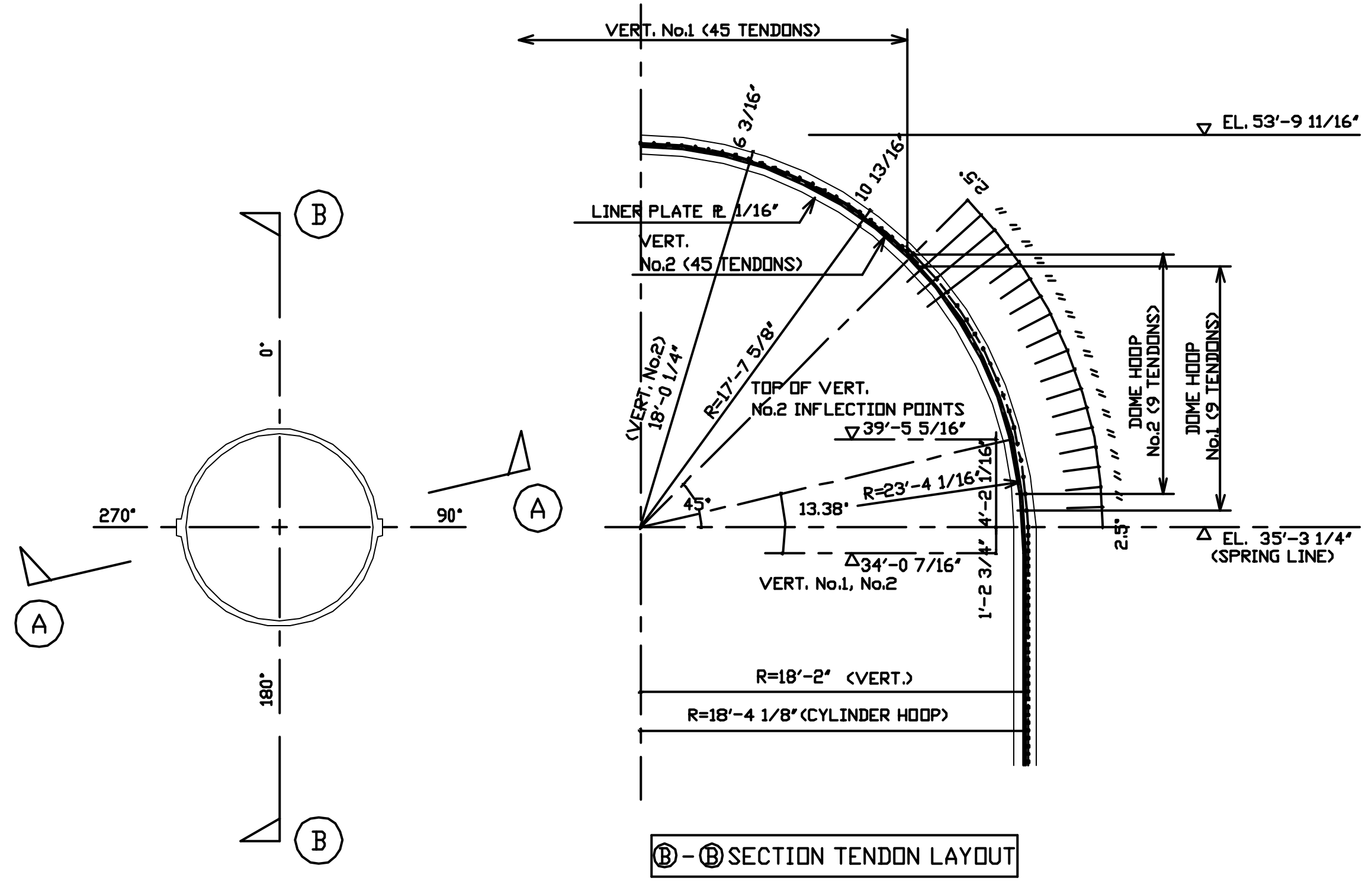
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		'95. 1.25	PRELIMINARY APPLICATION EXAMINATION REFERENCE	

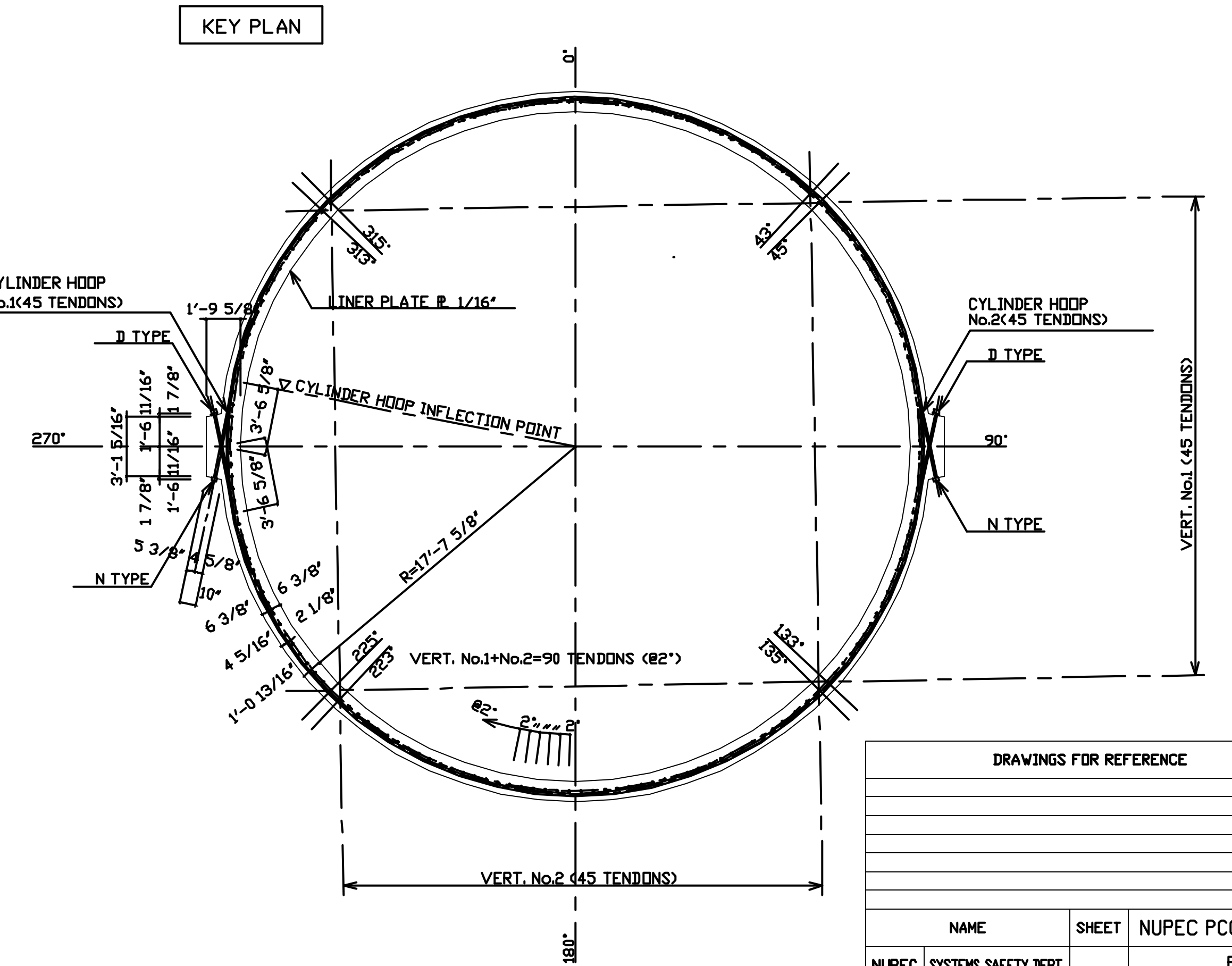
NAME	SHEET	NUPEC PCCV STRUCTURAL BEHAVIOR TEST MODEL	SCALE
NUPEC SYSTEMS SAFETY DEPT.	COPY 1	BASEMAT TENDON GALLERY ACCESS TUNNEL REBAR ARRANGEMENT	1/30
NUCLEAR SYSTEMS ENGINEERING DEPT.	COPY 1	MITSUBISHI HEAVY INDUSTRIES, L.T.D.	REVISION NO.
STEEL STRUCTURE DESIGNING SECT.	COPY 1	OBAYASHI CORPORATION	R1
EQUIP DESIGN SECT.	COPY 1		
TAKASAGO R&D CENTER	COPY 1		
T A I S E I	COPY 1		
OBAYASHI	ORIG.		



A-A SECTION TENDON LAYOUT



B-B SECTION TENDON LAYOUT



TENDON LAYOUT IN CYLINDER

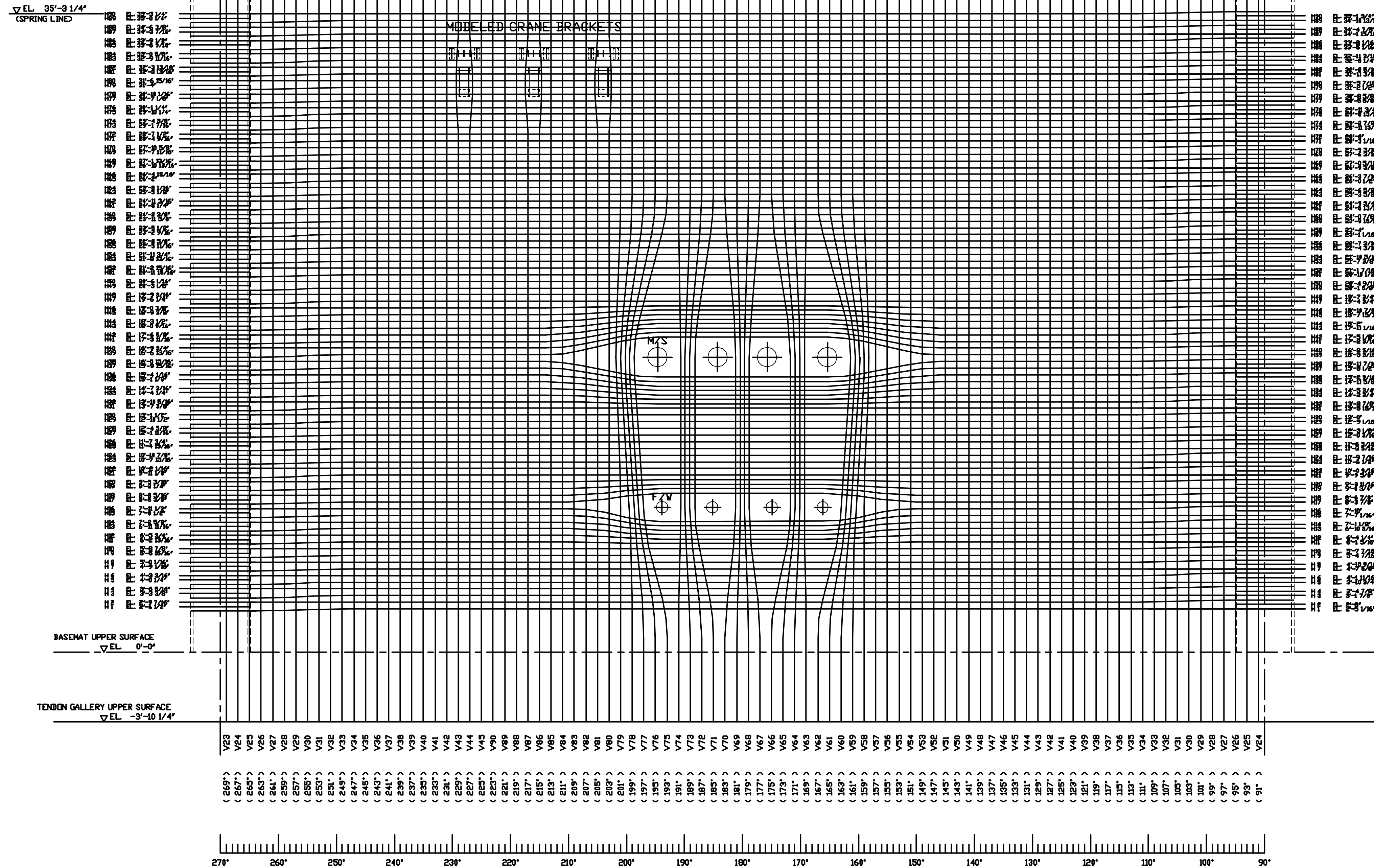
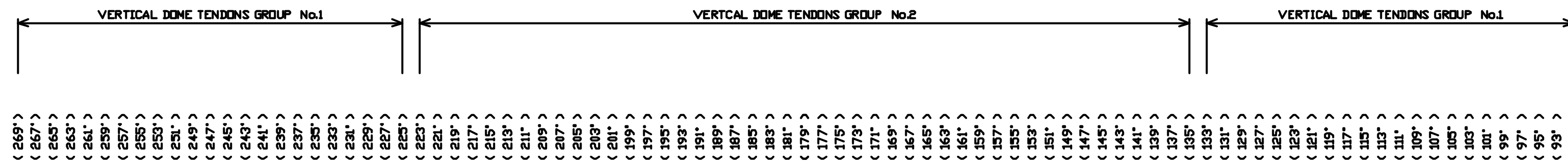
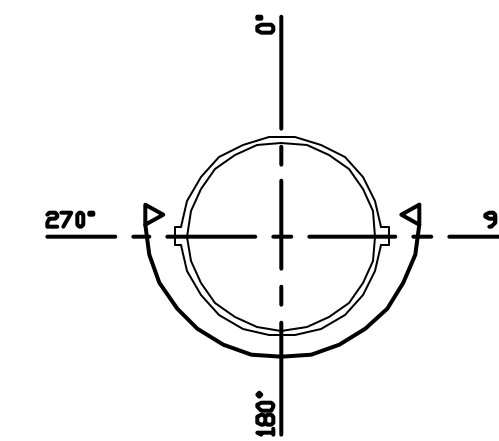
NO.	DATE	REVISION	BY
REVISION			

DRAWINGS FOR REFERENCE	DATE	STATUS	REMARKS
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	'95. 1.25		PRELIMINARY APPLICATION
	'94. 11.17		EXAMINATION REFERENCE

NAME	SHEET	NUPEC PCCV STRUCTURAL BEHAVIOR TEST MODEL		SCALE
NUPEC SYSTEMS SAFETY DEPT.		PRESTRESSING TENDON GENERAL ARRANGEMENT		1/60
S N L	COPY 1	MITSUBISHI HEAVY INDUSTRIES, L.T.D.		REVISION NO.
M H I		OBAYASHI CORPORATION		R1
NUCLEAR SYSTEMS ENGINEERING DEPT.		M H I		
STEEL STRUCTURE DESIGNING SECT.	COPY 1	OBAYASHI		DRAWING NO.
EQUIP DESIGN SECT.	COPY 1	T. Ito, K. Umada, H. Murano		PCCV-QCON-04
TAKASAGO R&D CENTER	COPY 1			
T A I S E I	COPY 1			
OBAYASHI	ORIG.			

PRESTRESSING SYSTEM ARRANGMENT RULE

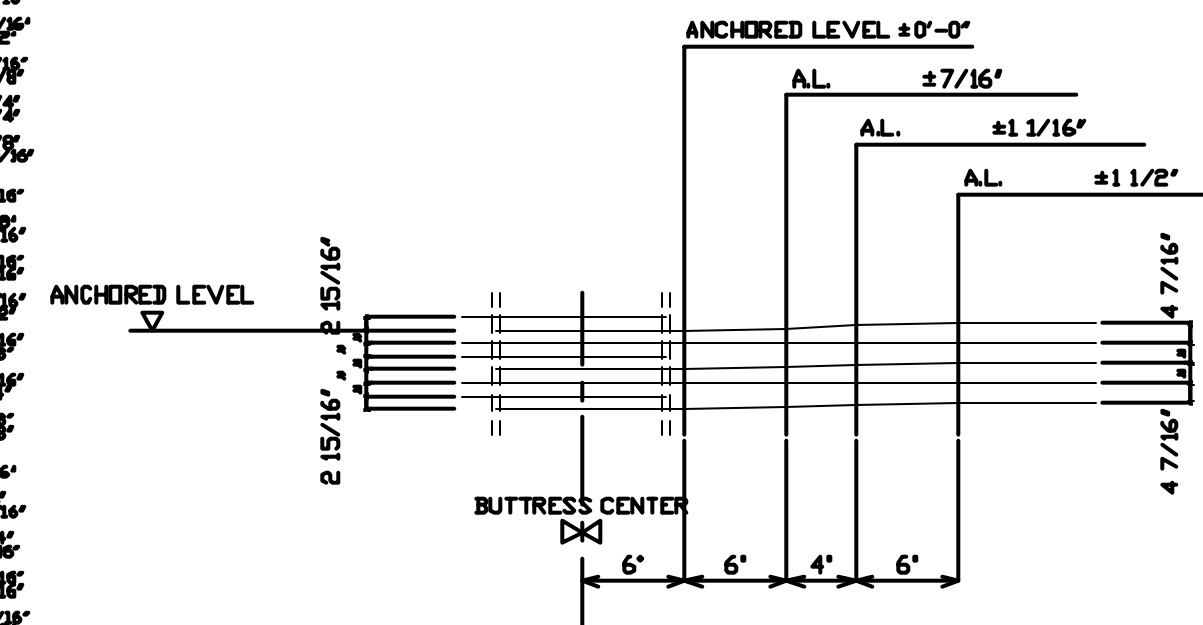
1. PARALLEL SHEATH PITCH IS NOT LESS THAN 2 15/16".
2. THE DISTANCE BETWEEN SHEATH CENTER AND PENETRATION SLEEVE OUTER PORTION IS NOT LESS THAN
  - ① E/H : 5 7/8"
  - ② A/L : 4 15/16"
  - ③ N/S/F/W : 2 7/16"
3. THE CLEARANCE BETWEEN SHEATH OUTER PORTION AND SLEEVE STIFFENER IS NOT LESS THAN 9/16".
4. THE CLEARANCE BETWEEN SHEATH OUTER PORTION AND CRANE BRACKET IS NOT LESS THAN 1".
5. THE CLEARANCE BETWEEN BEARING PLATES IS NOT LESS THAN 3/16".



V81	V80	
V87	V86	
V43	V44	
(+1.0")	(-1.0")	EL. 34'-0 7/16"
(+1.2")	(-1.2")	EL. 33'-0 3/16"
(+1.4")	(-1.4")	EL. 31'-11 7/8"
(+1.4")	(-1.4")	EL. 30'-10 1/16"
(+1.2")	(-1.2")	EL. 29'-9 3/4"
(+1.0")	(-1.0")	EL. 28'-9 1/2"

(+1.2") : SHOWS A DEVIATION FROM CL

VERTICAL DOME TENDON LAYOUT NEAR CRANE BRACKET  
(COMMON IN 3 BRACKETS)



CYLINDER HOOP TENDON LAYOUT NEAR BUTTRESS



CYLINDER TENDON LAYOUT (270°~90°)

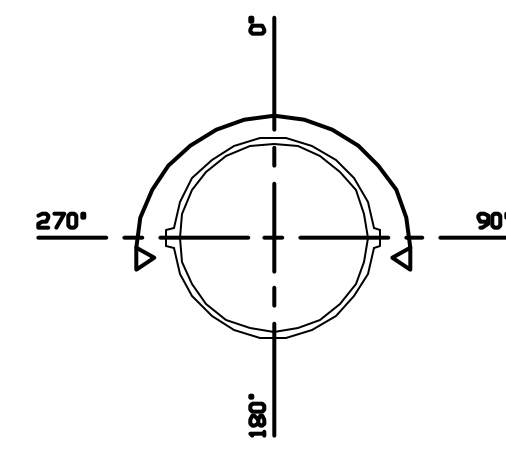
NO.	DATE	REVISION	BY
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REVISION

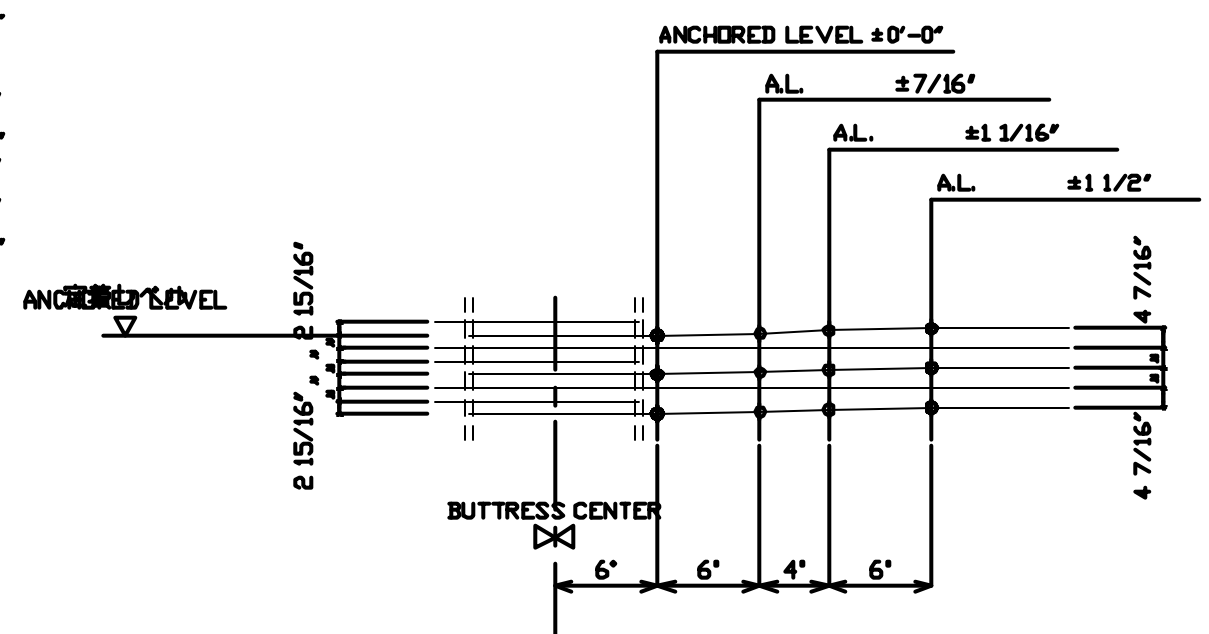
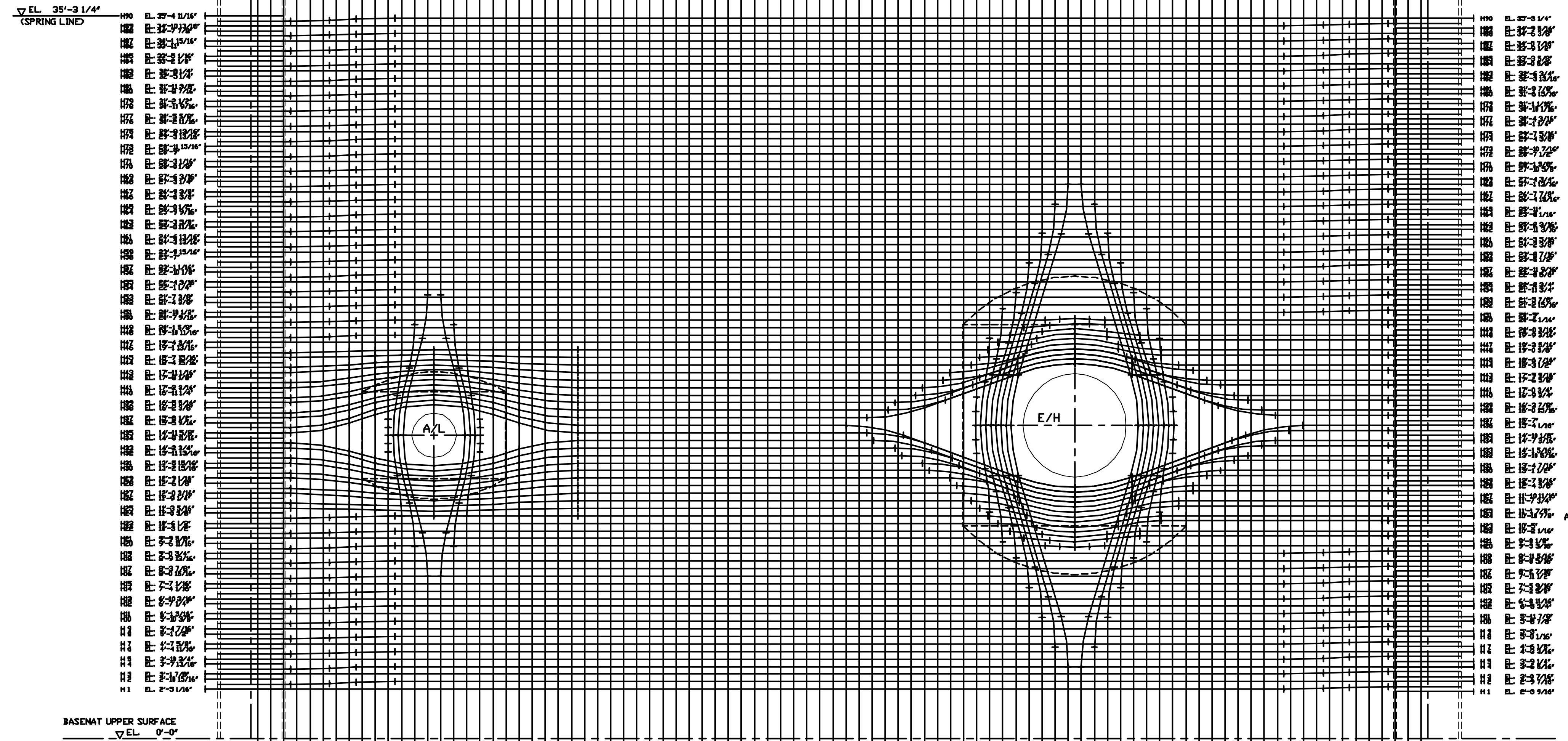
DATE	STATUS	REMARKS
'95.2.24	O	FINAL
'95.1.25		PRELIMINARY APPLICATION
'94.11.17		EXAMINATION REFERENCE

DRAWINGS FOR REFERENCE		DATE	STATUS	REMARKS
NUPEC SYSTEMS SAFETY DEPT.				
S N L				
NUCLEAR SYSTEMS ENGINEERING DEPT.				
STEEL STRUCTURE DESIGNING SECT.				
EQUIP DESIGN SECT.				
TAKASAGO R&D CENTER				
T A I S E I				
OBAYASHI				
SHEET		NUPEC PCCV STRUCTURAL BEHAVIOR TEST MODEL		SCALE
COPY 1		CYLINDER PRESTRESSING TENDON ARRANGEMENT (270°~90°)		1/40
MITSUBISHI HEAVY INDUSTRIES, L.T.D.		OBAYASHI CORPORATION		REVISION NO.
R1		M H I		
DRAWING NO.		PCCV-QCON-05		

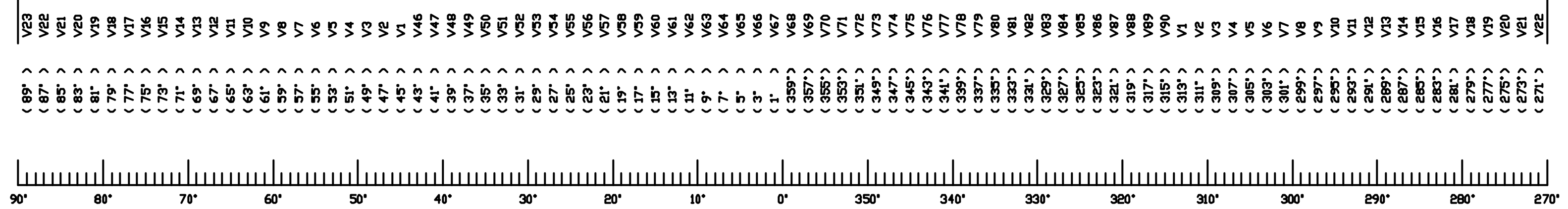




VERTICAL DOME TENDONS GROUP No.1      VERTICAL DOME TENDONS GROUP No.2      VERTICAL DOME TENDONS GROUP No.1



CYLINDER HOOP TENDON LAYOUT NEAR BUTTRESS



CYLINDER TENDON LAYOUT (90°~270°)

NO.	DATE	REVISION	BY
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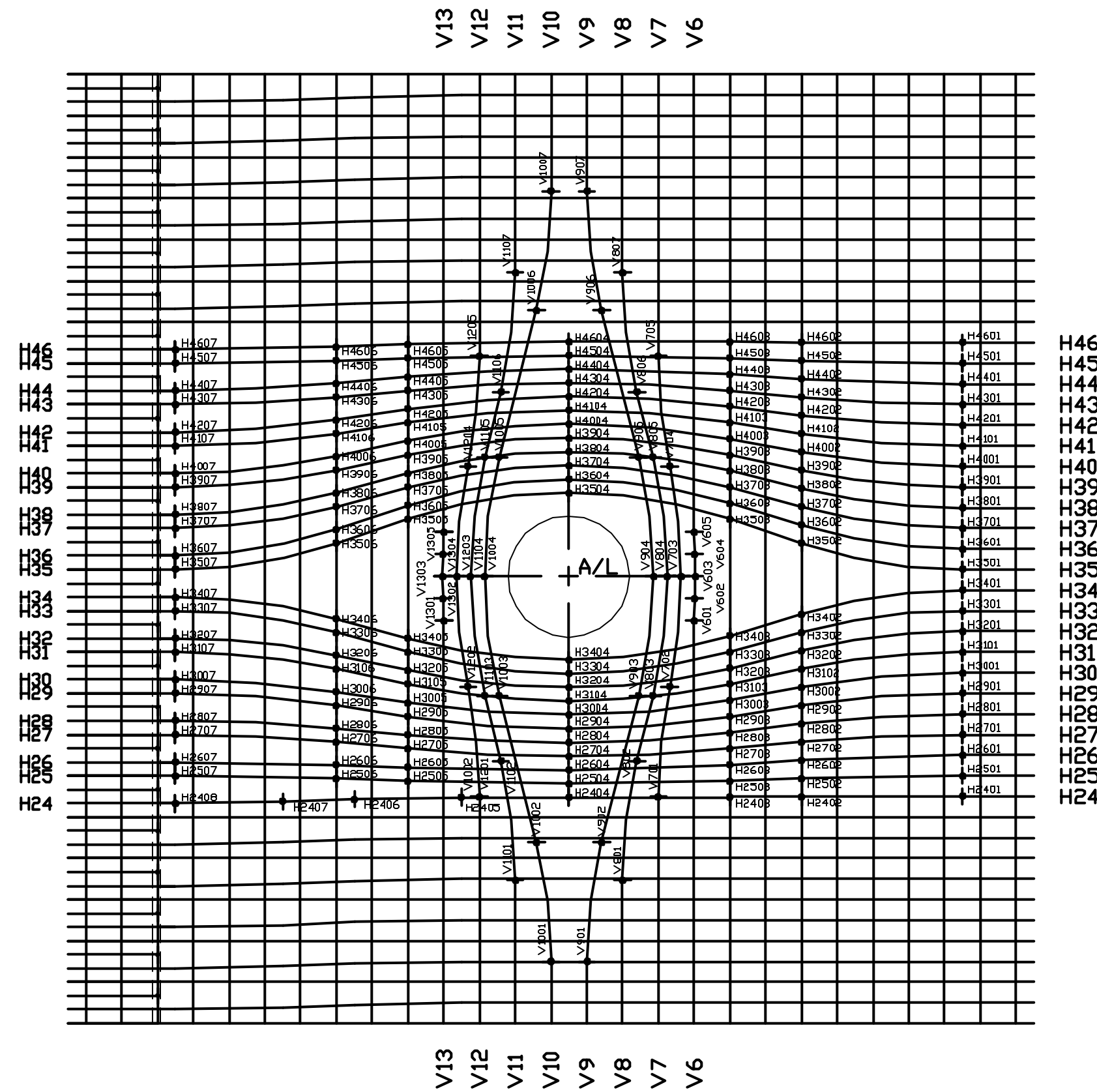
REVISION

DRAWINGS FOR REFERENCE		DATE	STATUS	REMARKS
		'95.2.24	FINAL	
		'95.1.25	PRELIMINARY	
		'94.11.17	APPLICATION EXAMINATION	
			REFERENCE	

NAME	SHEET	NUPEC PCCV STRUCTURAL BEHAVIOR TEST MODEL		SCALE
NUPEC SYSTEMS SAFETY DEPT.		CYLINDER PRESTRESSING TENDON ARRANGEMENT (90°~270°)		1/40
S N L	COPY 1	MITSUBISHI HEAVY INDUSTRIES, L.T.D.		REVISION NO.
M H I	COPY 1	OBAYASHI CORPORATION		R1
NUCLEAR SYSTEMS ENGINEERING DEPT.		TAKASAGO R&D CENTER		
STEEL STRUCTURE DESIGNING SECT.	COPY 1	M H I	OBAYASHI	DRAWING NO.
EQUIP DESIGN SECT.	COPY 1		T. Ito, K. Umada, H. Murano	PCCV-QCON-06
T A I S E I	COPY 1			
OBAYASHI	ORIG.			







PRESTRESSING TENDON DETAILS (A/L) S=1/25

THE INFLECTION POINTS IN CYLINDRICAL COORDINATES (VERTICAL DOME TENDONS)

TENDON NO.	01		02		03		04		05		06		07	
	EL	θ	EL	θ	EL	θ	EL	θ	EL	θ	EL	θ	EL	θ
V6	14'-0 5/8"	55°	14'-3 3/8"	54.97°	14'-10 1/8"	54.94°	15'-2 15/16"	54.97°	15'-7 11/16"	55°				
V7	10'-10 7/8"	57°	12'-10 1/2"	56.36°	14'-10 1/8"	55.72°	16'-9 3/4"	56.36°	18'-9 7/16"	57°				
V8	9'-4 15/16"	59°	11'-6 1/2"	58.20°	12'-8 9/16"	57.30°	14'-10 1/8"	56.50°	16'-11 3/4"	57.30°	18'-1 13/16"	58.20°	20'-3 3/8"	59°
V9	7'-11 1/2"	61°	10'-1 1/16"	60.17°	12'-8 9/16"	58.11°	14'-10 1/8"	57.28°	16'-11 3/4"	58.11°	19'-7 1/4"	60.17°	21'-8 13/16"	61°
V10	7'-11 1/2"	63°	10'-1 1/16"	63.83°	12'-8 9/16"	65.89°	14'-10 1/8"	66.72°	16'-11 3/4"	65.89°	19'-7 1/4"	63.83°	21'-8 13/16"	63°
V11	9'-4 15/16"	65°	11'-6 1/2"	65.80°	12'-8 9/16"	66.70°	14'-10 1/8"	67.50°	16'-11 3/4"	66.70°	18'-1 13/16"	65.80°	20'-3 3/8"	65°
V12	10'-10 7/8"	67°	12'-10 1/2"	67.64°	14'-10 1/8"	68.28°	16'-9 3/4"	67.64°	18'-9 7/16"	67°				
V13	14'-0 5/8"	69°	14'-3 3/8"	69.03°	14'-10 1/8"	69.06°	15'-2 15/16"	69.03°	15'-7 11/16"	69°				

EL : LEVEL  
θ : AZIMUTH ANGLE  
R : 18'-2"

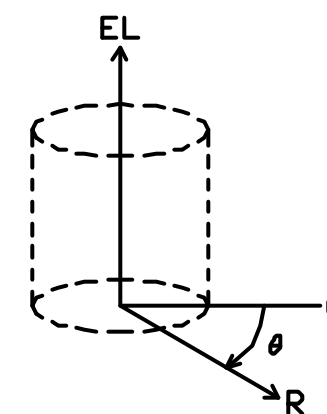
THE INFLECTION POINTS IN CYLINDRICAL COORDINATES (HOOP TENDONS)

TENDON NO.	01		02		03		04		05		06		07		08	
	EL	θ	EL	θ	EL	θ	EL	θ	EL	θ	EL	θ	EL	θ	EL	θ
H24	10'-10 7/8"	40°	10'-10 13/16"	49°	10'-10 3/4"	53°	10'-10 11/16"	62°	10'-10 11/16"	68°	10'-10 5/16"	74°	10'-9 13/16"	78°	10'-9 7/16"	84°
H25	11'-3 5/16"	40°	11'-2 3/4"	49°	11'-2 3/16"	53°	11'-1 5/8"	62°	11'-2 3/16"	71°	11'-2 3/4"	75°	11'-2 3/16"	84°		
H26	11'-7 3/4"	40°	11'-6 11/16"	49°	11'-5 11/16"	53°	11'-4 5/8"	62°	11'-5 3/16"	71°	11'-5 11/16"	75°	11'-5 5/16"	84°		
H27	12'-0 3/16"	40°	11'-10 5/8"	49°	11'-9 1/8"	53°	11'-7 9/16"	62°	11'-9 1/8"	71°	11'-10 5/8"	75°	12'-0 3/16"	84°		
H28	12'-4 5/8"	40°	12'-2 1/2"	49°	12'-0 5/8"	53°	11'-10 1/2"	62°	12'-0 1/8"	71°	12'-1 9/16"	75°	12'-3 1/8"	84°		
H29	12'-9 1/16"	40°	12'-6 7/16"	49°	12'-4 1/16"	53°	12'-1 7/16"	62°	12'-4 1/16"	71°	12'-6 7/16"	75°	12'-9 1/16"	84°		
H30	13'-1 1/2"	40°	12'-10 5/16"	49°	12'-7 9/16"	53°	12'-4 3/8"	62°	12'-7"	71°	12'-9 3/8"	75°	13'	84°		
H31	13'-5 15/16"	40°	13'-2 1/4"	49°	12'-11"	53°	12'-7 3/8"	62°	12'-11"	71°	13'-2 1/4"	75°	13'-5 15/16"	84°		
H32	13'-10 5/16"	40°	13'-6 3/16"	49°	13'-2 7/16"	53°	12'-10 5/16"	62°	13'-1 15/16"	71°	13'-5 1/4"	75°	13'-8 7/8"	84°		
H33	14'-2 3/4"	40°	13'-10 1/8"	49°	13'-5 15/16"	53°	13'-1 1/4"	62°	13'-5 15/16"	71°	13'-10 1/8"	75°	14'-2 3/4"	84°		
H34	14'-7 3/16"	40°	14'-2 1/16"	49°	13'-9 3/8"	53°	13'-4 3/16"	62°	13'-8 7/8"	71°	14'-1 1/16"	75°	14'-5 3/4"	84°		
H35	14'-11 5/8"	40°	15'-3 1/4"	49°	15'-10 7/16"	53°	16'-4 1/16"	62°	15'-10 7/16"	71°	15'-5 1/4"	75°	14'-11 5/8"	84°		
H36	15'-4 1/16"	40°	15'-9 3/16"	49°	16'-1 7/8"	53°	16'-7 1/16"	62°	16'-1 3/8"	71°	15'-8 1/4"	75°	15'-2 9/16"	84°		
H37	15'-8 1/2"	40°	16'-1 1/8"	49°	16'-5 5/16"	53°	16'-10"	62°	16'-5 5/16"	71°	16'-1 1/8"	75°	15'-8 1/2"	84°		
H38	16'-0 15/16"	40°	16'-5 1/16"	49°	16'-8 13/16"	53°	17'-0 15/16"	62°	16'-8 1/4"	71°	16'-4 1/8"	75°	15'-11 7/16"	84°		
H39	16'-5 5/16"	40°	16'-9"	49°	17'-0 1/4"	53°	17'-3 7/8"	62°	17'-0 1/4"	71°	16'-9"	75°	16'-5 5/16"	84°		
H40	16'-9 3/4"	40°	17'-0 15/16"	49°	17'-3 11/16"	53°	17'-6 7/8"	62°	17'-3 3/16"	71°	16'-11 15/16"	75°	16'-8 5/16"	84°		
H41	17'-2 3/16"	40°	17'-4 13/16"	49°	17'-7 3/16"	53°	17'-9 13/16"	62°	17'-7 3/16"	71°	17'-4 13/16"	75°	17'-2 3/16"	84°		
H42	17'-6 5/8"	40°	17'-8 3/4"	49°	17'-10 5/8"	53°	18'-0 3/4"	62°	17'-10 1/8"	71°	17'-7 3/4"	75°	17'-5 1/8"	84°		
H43	17'-11 1/16"	40°	18'-0 5/8"	49°	18'-2 1/8"	53°	18'-3 11/16"	62°	18'-2 1/8"	71°	18'-0 5/8"	75°	17'-11 1/16"	84°		
H44	18'-3 1/2"	40°	18'-4 9/16"	49°	18'-5 9/16"	53°	18'-6 11/16"	62°	18'-5 1/16"	71°	18'-3 5/8"	75°	18'-2"	84°		
H45	18'-7 15/16"	40°	18'-8 1/2"	49°	18'-9 1/16"	53°	18'-9 5/8"	62°	18'-9 1/16"	71°	18'-8 1/2"	75°	18'-7 15/16"	84°		
H46	19'-0 3/8"	40°	19'-0 7/16"	49°	19'-0 1/2"	53°	19'-0 9/16"	62°	19'	71°	18'-11 7/16"	75°	18'-10 7/8"	84°		

EL : LEVEL  
θ : AZIMUTH ANGLE  
R : 18'-4 1/8"

NOTE :

- 1)  $\phi$  : INFLECTION POINT (IN-PLANE)
- 2)  $\frac{H00 00}{\text{POINT NO.}} \frac{\text{TENDON NO.}}$
- 3)  $\frac{V00 00}{\text{POINT NO.}} \frac{\text{TENDON NO.}}$
- 4) CYLINDRICAL COORDINATES



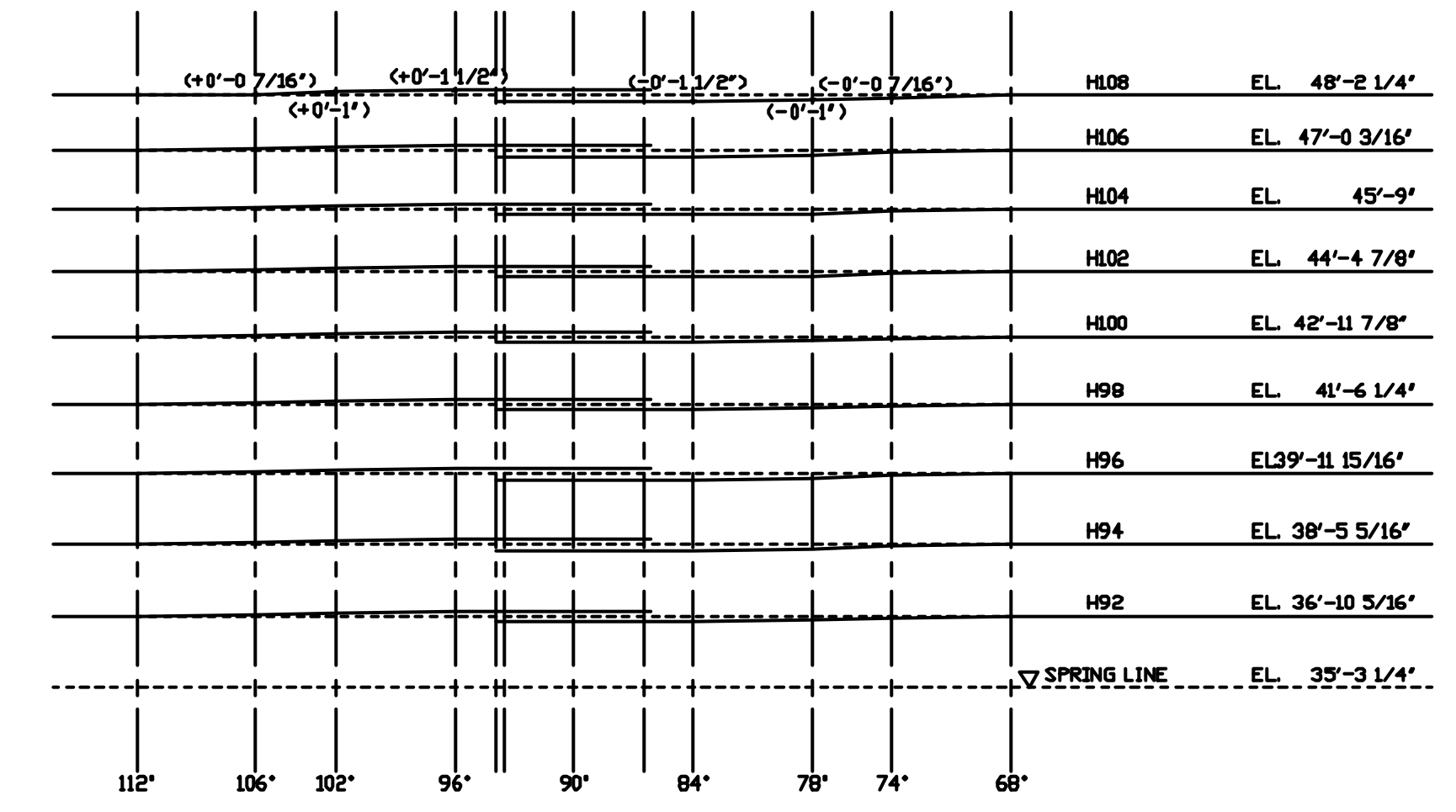
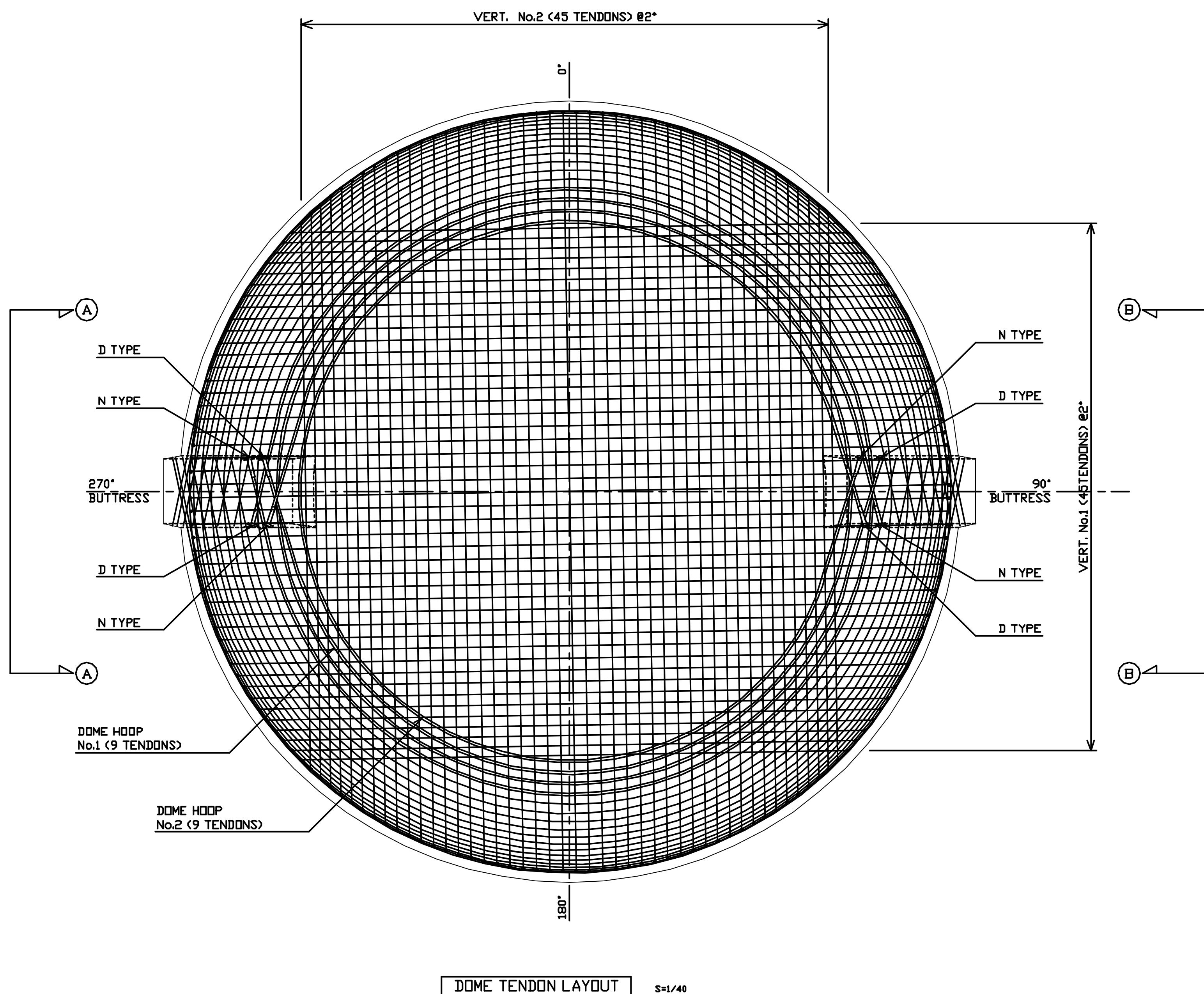
NO.	DATE	REVISION	BY

REVISION

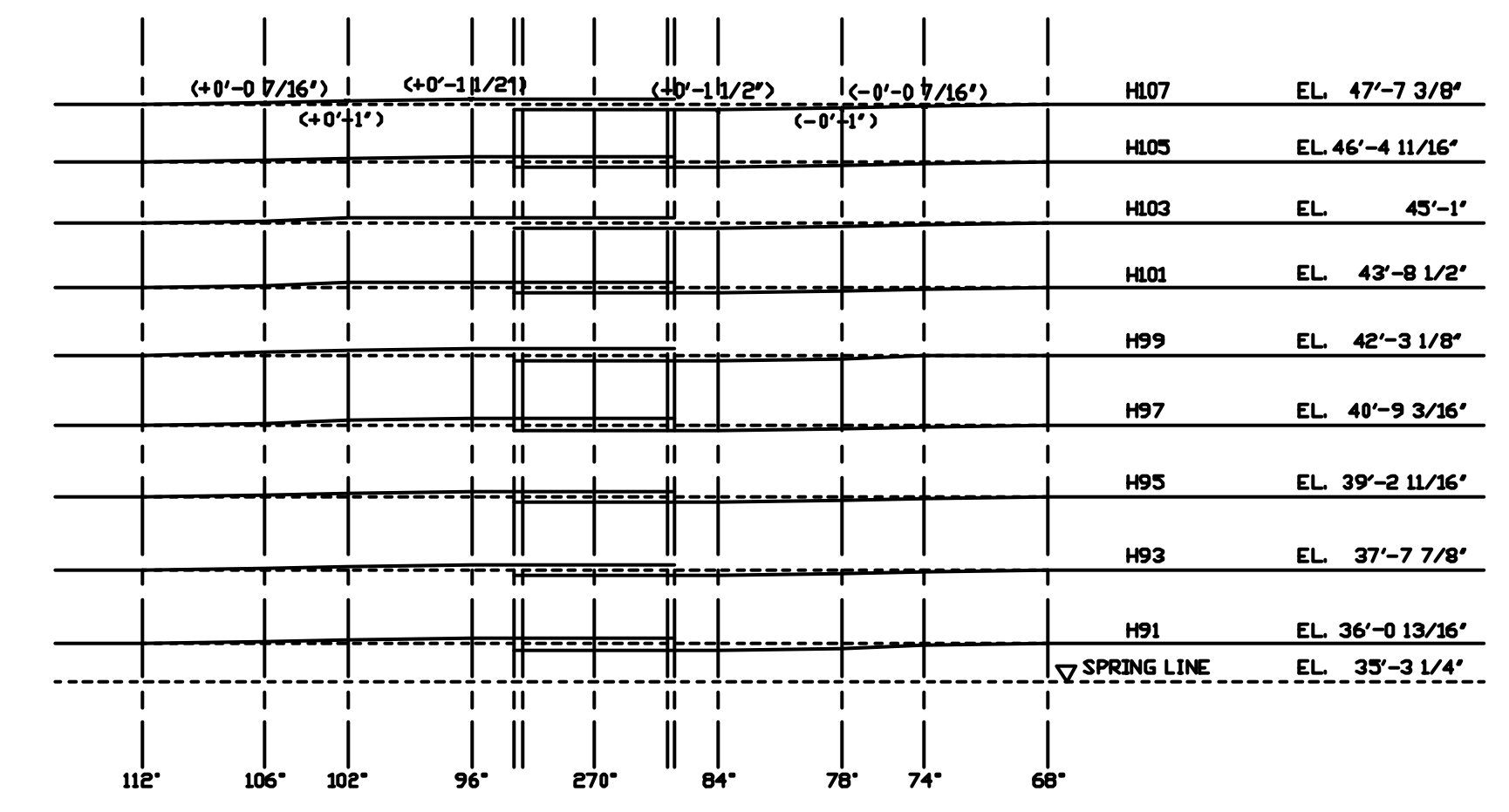
DRAWINGS FOR REFERENCE	DATE	STATUS	REMARKS
	'95. 2.24	○ FINAL	
	'95. 1.25	PRELIMINARY APPLICATION	
	'94. 11.17	EXAMINATION REFERENCE	

NAME	SHEET	NUPEC PCCV STRUCTURAL BEHAVIOR TEST MODEL	SCALE
NUPEC SYSTEMS SAFETY DEPT.		PRESTRESSING TENDON DETAILS (A/L)	1/25
S N L	COPY 1		REVISION NO.
NUCLEAR SYSTEMS ENGINEERING DEPT.		MITSUBISHI HEAVY INDUSTRIES, L.T.D.	R1
STEEL STRUCTURE DESIGNING SECT.	COPY 1	OBAYASHI CORPORATION	
EQUIP DESIGN SECT.	COPY 1		
TAKASAGO R&D CENTER	COPY 1	M H I	OBAYASHI
T A I S E I	COPY 1		T. Ito, K. Umada, H. Murano
OBAYASHI	ORIG.		DRAWING NO. PCCV-QCON-09





(B)-(B) S=1/15  
DOME HOOP No.2

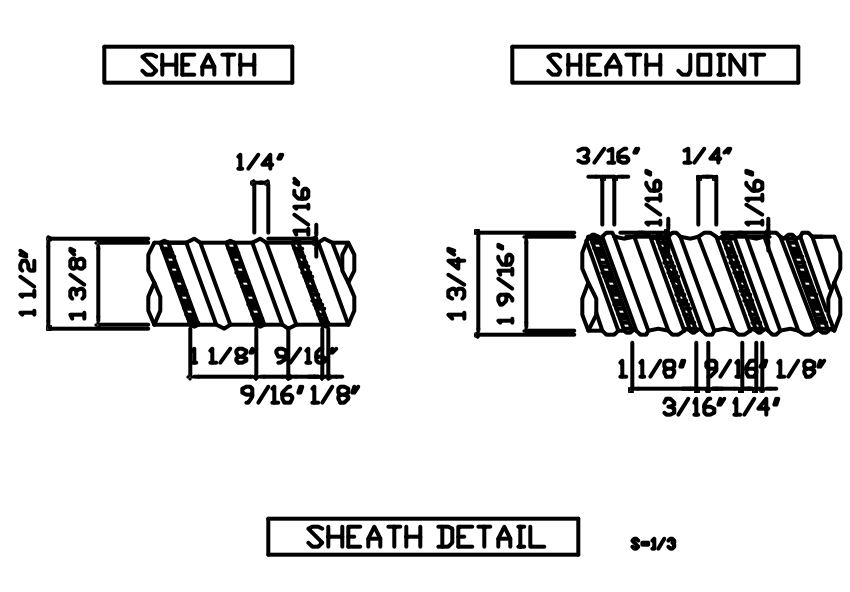


(A)-(A) S=1/15  
DOME HOOP No.1

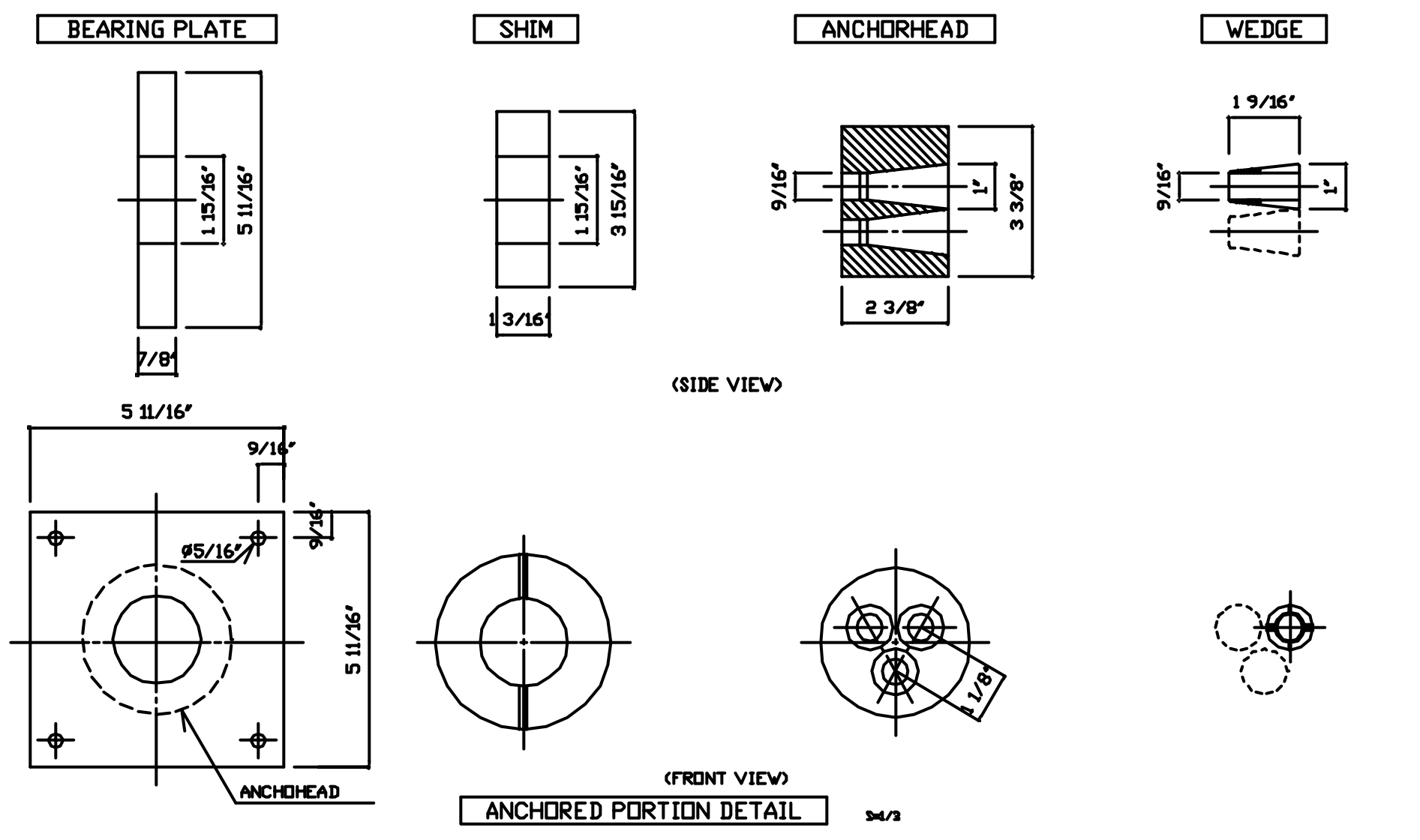
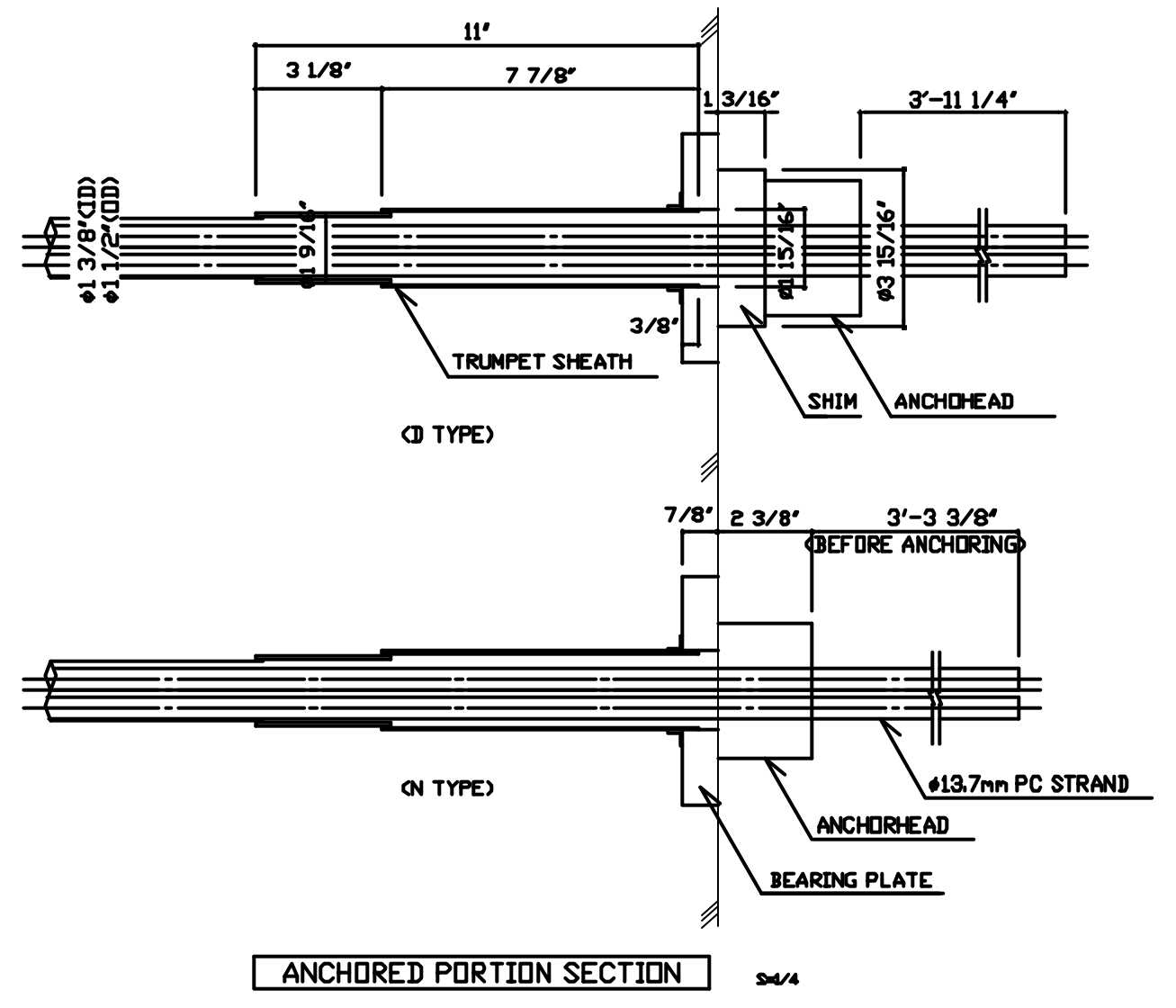
NOTE:  
1) SHEATH CENTERS ARE SHOWN  
2) ( ) , OFFSET VALUE FROM NOMAL POSITION AT HOOP TENDON ANCHORED PORTIONS

DOME TENDON LAYOUT S=1/40

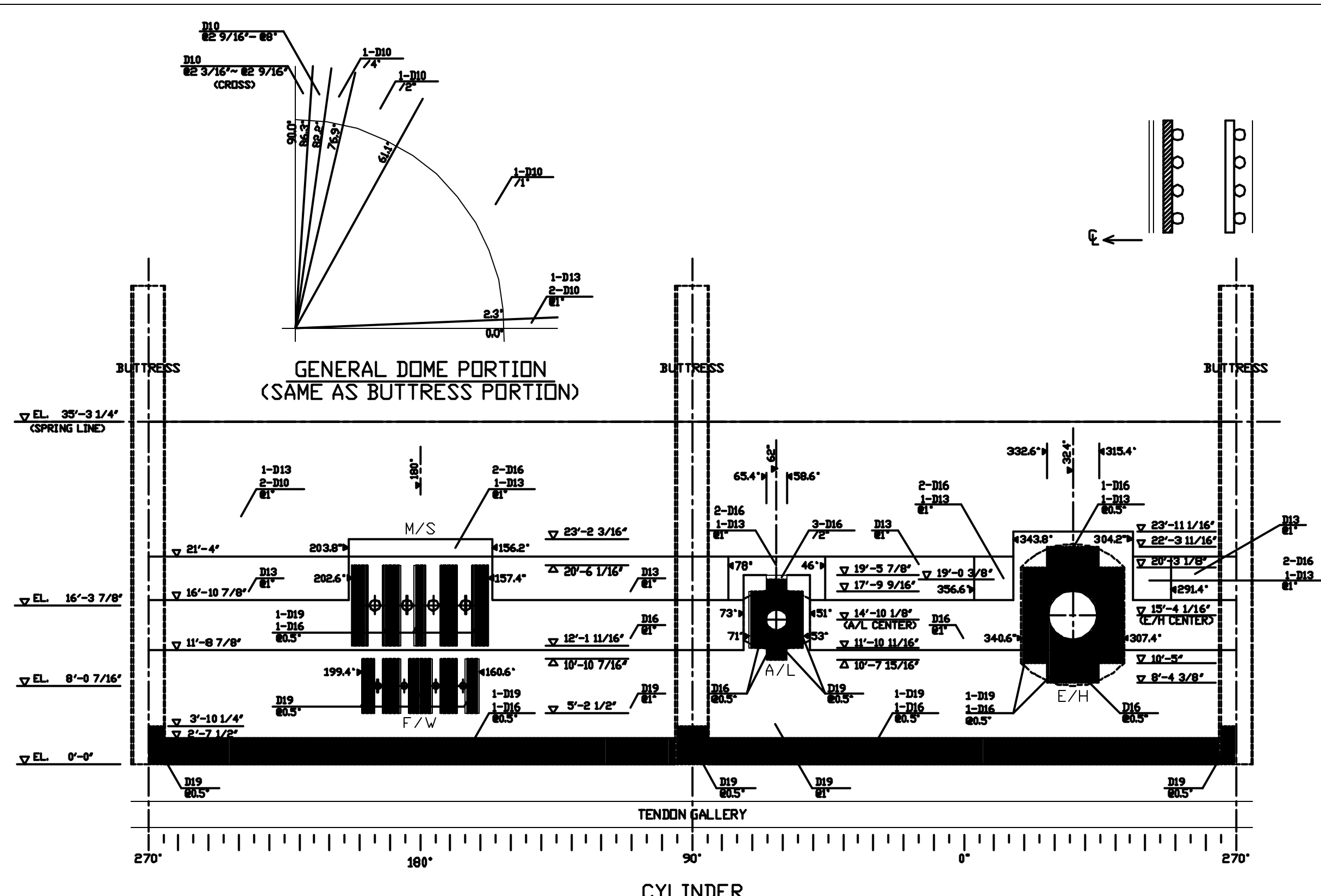
PS SYSTEM HARDWARE



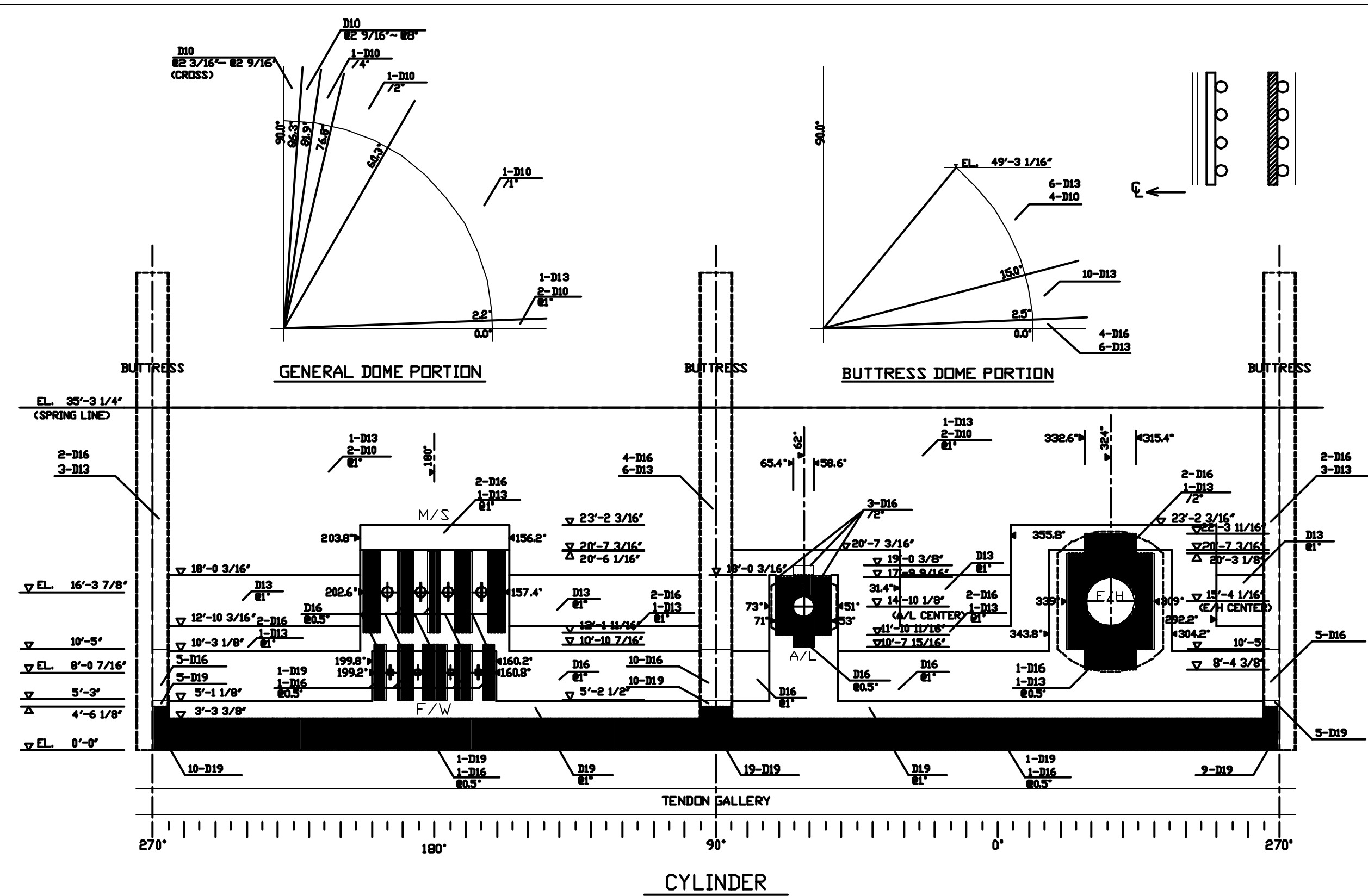
- MATERIAL SPECIFICATIONS
- |                |         |            |
|----------------|---------|------------|
| ANCHORHEAD     | :SS5C   | JIS G 4051 |
| BEARING PLATE  | :SS400  | JIS G 3101 |
| WEDGE          | :SCH415 | JIS G 4105 |
| SHEATH         | :SGCC   | JIS G 3302 |
| TRUMPET SHEATH | :SGCV   | JIS G 3442 |
| SHIM           | :SS400  | JIS G 3101 |



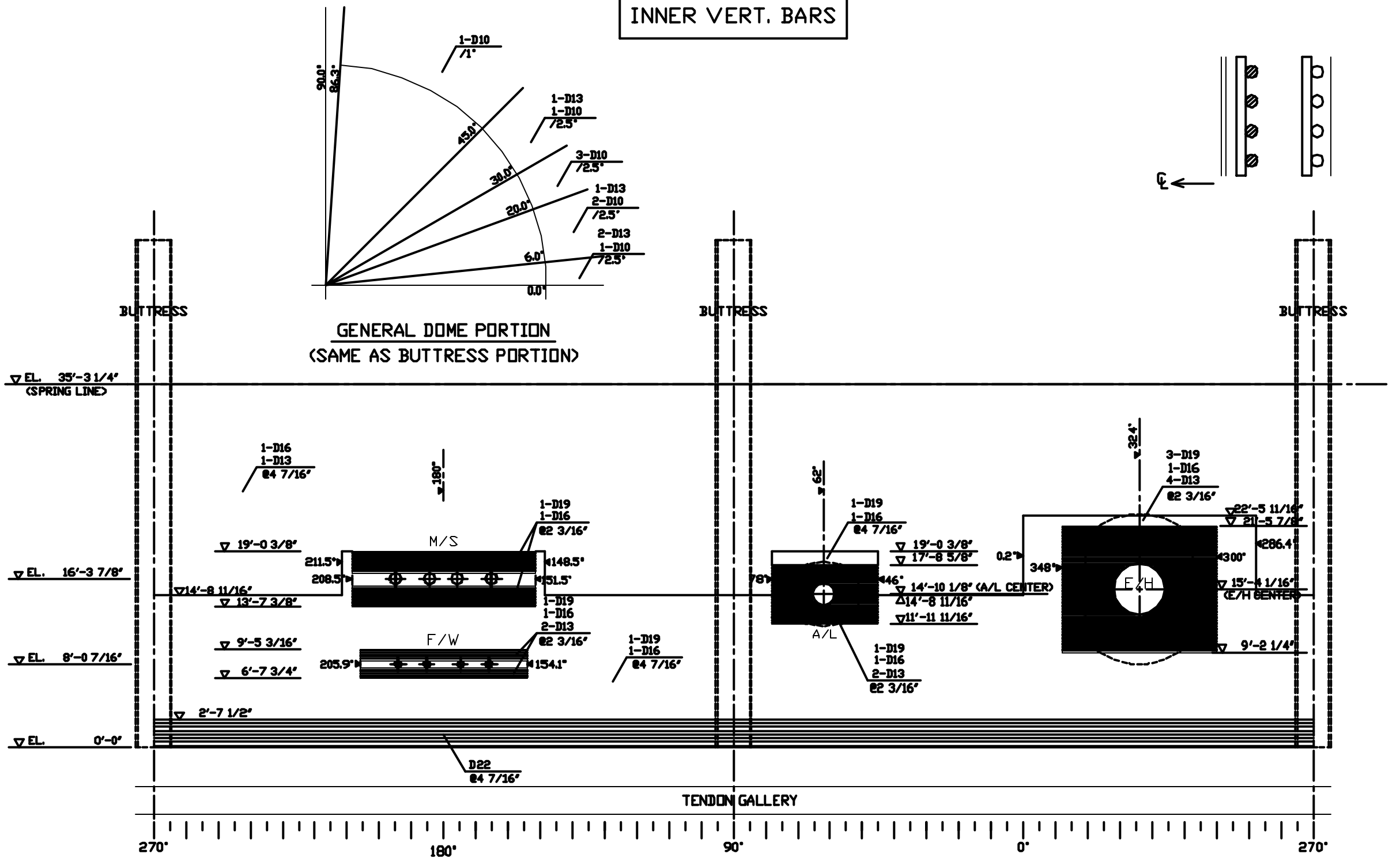
NO.	DATE	REVISION	BY	
REVISION				
DRAWINGS FOR REFERENCE		DATE	STATUS	REMARKS
		'95.2.24	O	FINAL
		'95.1.25		PRELIMINARY
		'94.11.17		APPLICATION
				EXAMINATION
				REFERENCE
NAME	SHEET	NUPEC PCCV STRUCTURAL BEHAVIOR TEST MODEL		
NUPEC SYSTEMS SAFETY DEPT.	COPY 1	DOME PRESTRESSING TENDON ARRANGEMENT - PRESTRESSING SYSTEM HARDWARE		
S N L	COPY 1	MITSUBISHI HEAVY INDUSTRIES,LTD.		
M H I	COPY 1	OBAYASHI CORPORATION		
M H I	COPY 1	M H I	OBAYASHI	DRAWING NO.
TAKASAGO R&D CENTER	COPY 1	T. Sato, K. Umada, H. Okumura		PCCV-QCON-11
T A I S E I	COPY 1			
OBAYASHI	ORIG.			



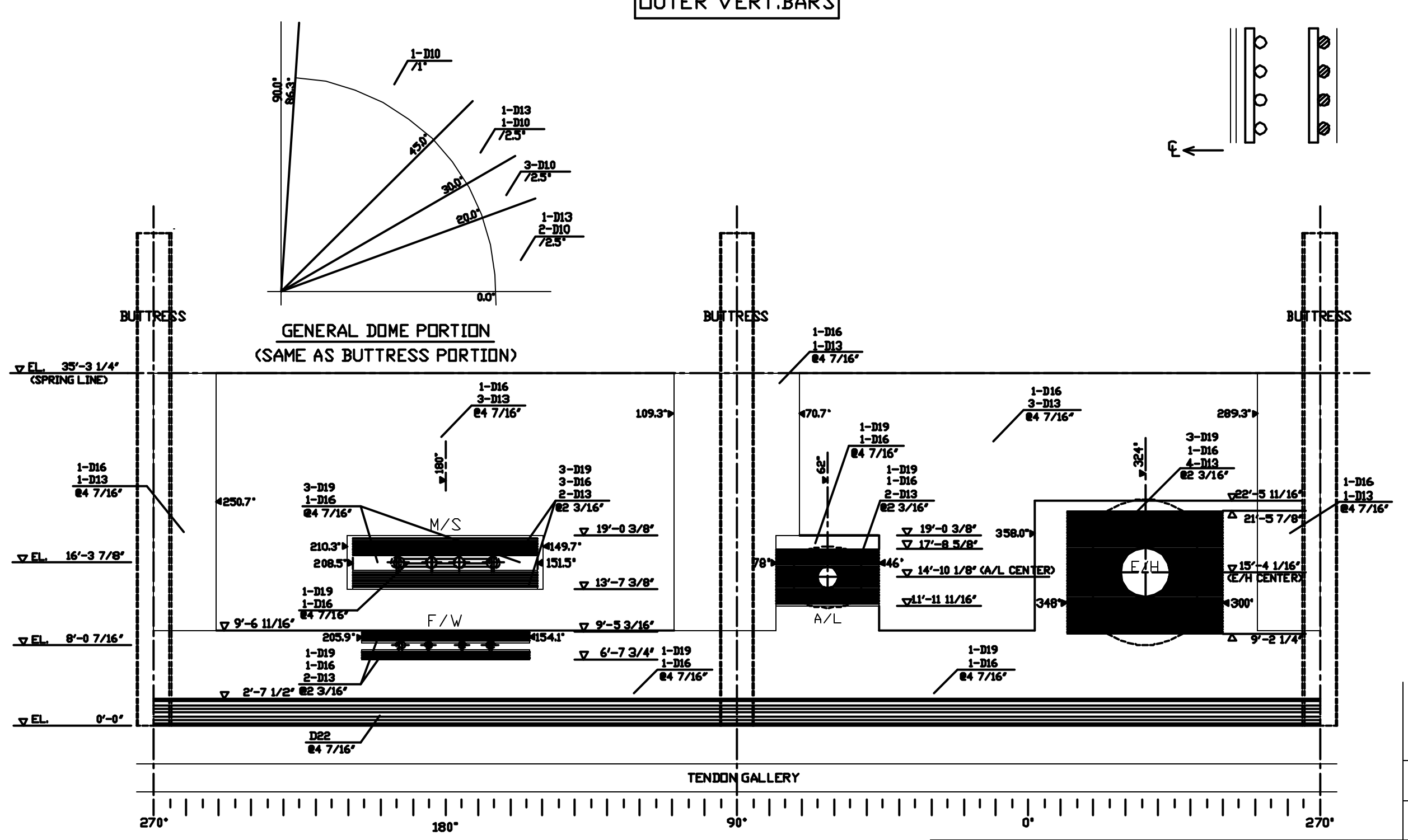
CYLINDER  
INNER VERT. BARS



CYLINDER  
OUTER VERT. BARS



CYLINDER  
INNER HOOP BARS



CYLINDER  
OUTER HOOP BARS

NO.	DATE	REVISION	BY
REVISION			

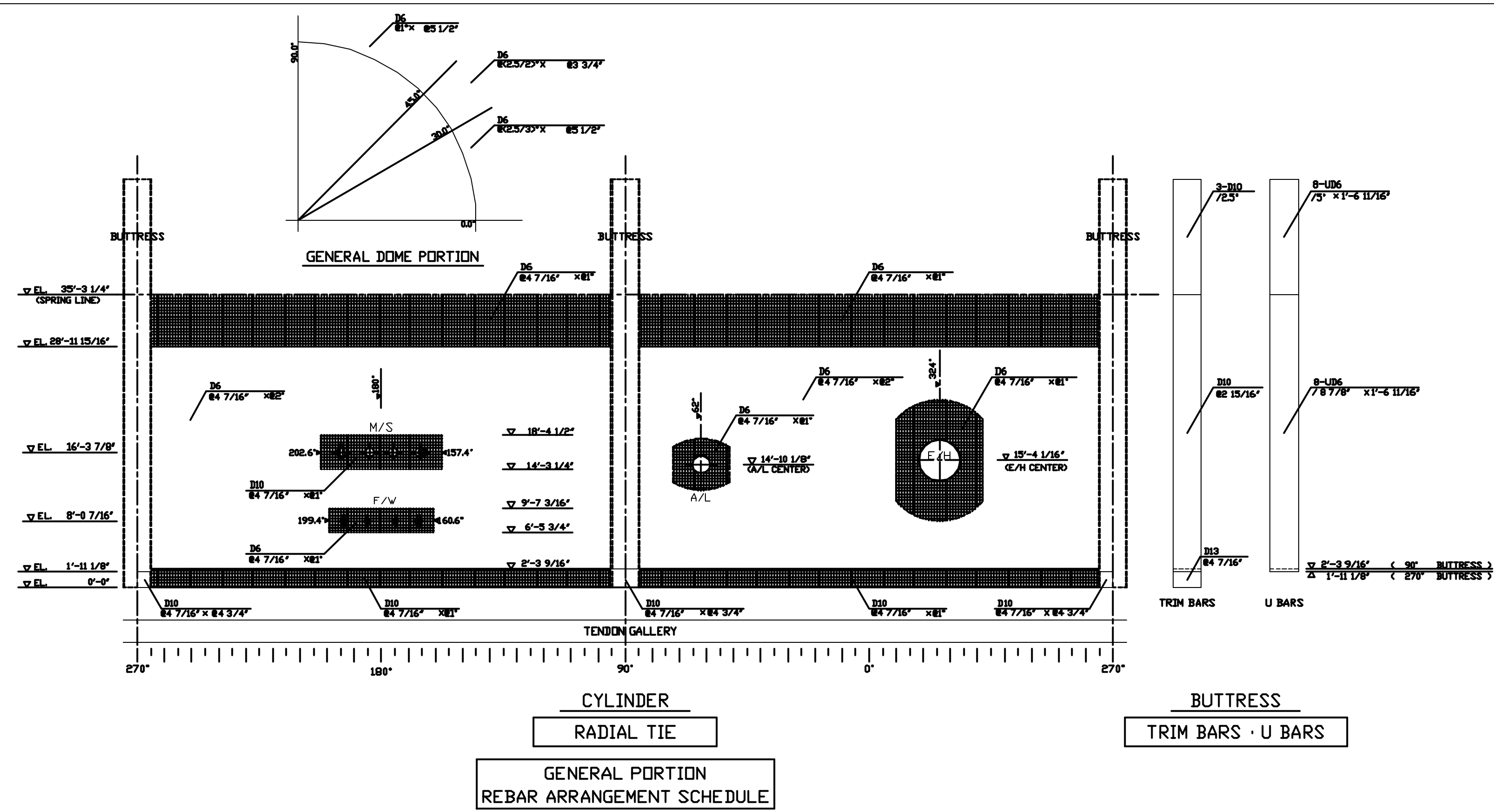
REBAR ARRANGEMENT GENERAL DESCRIPTION

- (TYPICALS)
- |                             |                                  |                                      |  |
|-----------------------------|----------------------------------|--------------------------------------|--|
| 1. 1-D13<br>2-D10<br>E1     | EACH D13, D10, D10 PITCH 1" EACH | 3. 1-D19<br>1-D16<br>2-D13<br>E2/16" | EACH D19, D16, D13, D13 PITCH 56.25 EACH |
| 2. 1-D13<br>2-D10<br>E2/25" | D13, D10, D10 PER 2.5"           | 4. 1-D10<br>E1/4"                    |  |

DRAWINGS FOR REFERENCE		DATE	STATUS	REMARKS
		'95. 2.24	FINAL	
		'95. 1.25	PRELIMINARY APPLICATION	
		'94. 11.17	EXAMINATION REFERENCE	

NAME	SHEET	NUPEC PCCV STRUCTURAL BEHAVIOR TEST MODEL	
NUPEC SYSTEMS SAFETY DEPT.		CYLINDER & DOME REBAR GENERAL ARRANGEMENT (C)	
S N L	COPY 1		
NUCLEAR SYSTEMS ENGINEERING DEPT.		MITSUBISHI HEAVY INDUSTRIES, L.T.D.	
STEEL STRUCTURE DESIGNING SECT.	COPY 1		
EQUIP DESIGN SECT.	COPY 1		
TAKASAGO R&D CENTER	COPY 1		
T A I S E I	COPY 1		
OBAYASHI	ORIG.	M H I	OBAYASHI T. Ito, K. Umehi, H. Murano



CYLINDER  
RADIAL TIE  
GENERAL PORTION  
REBAR ARRANGEMENT SCHEDULE

BUTTRESS PORTION  
REBAR ARRANGEMENT SCHEDULE

PORTIONS	VERT.BARS		HOOP BARS	
	INNER	OUTER	INNER	OUTER
DOME	▽ EL. 35'-3 1/4" D10 #2 3/16" ~ #2 9/16" CROSS D10 #2 9/16" ~ #8"	D10 #2 3/16" ~ #2 9/16" CROSS D10 #2 9/16" ~ #8"		
	▽ EL. 28'-11 15/16"	1-D10/4"		
	▽ EL. 16'-3 7/8"	1-D10/2"	1-D10/1"	1-D10/1"
	▽ EL. 8'-0 7/16"			
	▽ EL. 1'-11 1/8"	1-D10/1"	1-D10/1"	
	▽ EL. 0'-0"			
CYLINDER				
	▽ EL. 35'-3 1/4"		2-D13 1-D10 #4 7/16"	
	▽ EL. 28'-11 15/16"			
	▽ EL. 16'-3 7/8"		1-D16 1-D13 #4 7/16"	1-D16 3-D13 #4 7/16"
	▽ EL. 8'-0 7/16"			(1-D16 1-D13 #4 7/16")
	▽ EL. 1'-11 1/8"			
	▽ EL. 0'-0"			

PORTIONS	VERT.BARS		HOOP BARS		TRIM BARS
	INNER	OUTER	INNER	OUTER	
DOME					
	▽ EL. 35'-3 1/4"		1-D10/1"	1-D10/1"	
	▽ EL. 28'-11 15/16"		1-D10/1" 1-D10 #4 7/16"	1-D10/1" 1-D10 #4 7/16"	3-D10 #4 7/16"
	▽ EL. 16'-3 7/8"		1-D10/1" 2-D10 #4 7/16"	1-D10/1" 2-D10 #4 7/16"	
CYLINDER					
	▽ EL. 35'-3 1/4"		1-D16 1-D13 #4 7/16"	1-D16 1-D13 #4 7/16"	
	▽ EL. 28'-11 15/16"				
	▽ EL. 16'-3 7/8"		1-D16 1-D13 #4 7/16"	1-D16 1-D13 #4 7/16"	
	▽ EL. 8'-0 7/16"				
	▽ EL. 1'-11 1/8"				
	▽ EL. 0'-0"				

NO.	DATE	REVISION	BY

REVISION

DRAWINGS FOR REFERENCE	DATE	STATUS	REMARKS
	'95. 2.24	O	FINAL
	'95. 1.25		PRELIMINARY
	'94. 11.17		APPLICATION
			EXAMINATION
			REFERENCE

REBAR ARRANGEMENT GENERAL DESCRIPTION

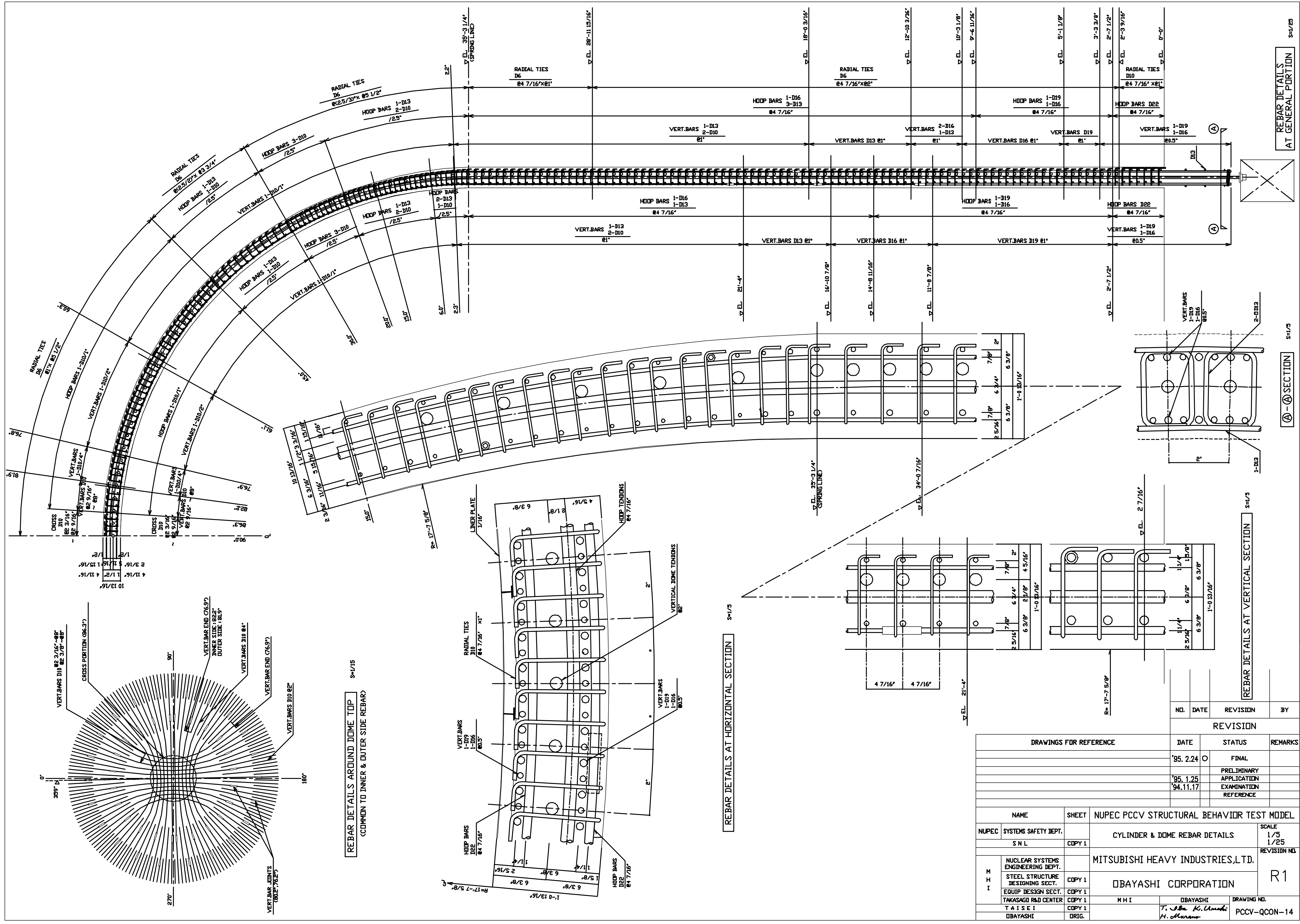
(TYPICALS)

5. RADIAL TIE IN DOME PORTION	#6 #6 25/30' x #5 1/2"	:D6	LONGITUDINAL DIRECTION HOOP DIRECTION	PITCH (2.5/3') PITCH 5 1/2'
6. RADIAL TIE IN BUTTRESS PORTION	D10 #4 7/16' x #4 3/4"	:D10	LONGITUDINAL DIRECTION HOOP DIRECTION	PITCH 4 7/16' PITCH 4 3/4'
7. U BAR	8-U#6 #8 7/8' x #1'-6 11/16"	:U-#6	LONGITUDINAL DIRECTION HOOP DIRECTION	8 7/8' 1'-6 11/16"

NAME	SHEET	NUPEC PCCV STRUCTURAL BEHAVIOR TEST MODEL	SCALE
NUPEC SYSTEMS SAFETY DEPT.			1/120
S N L	COPY 1		
NUCLEAR SYSTEMS ENGINEERING DEPT.		MITSUBISHI HEAVY INDUSTRIES,LTD.	
STEEL STRUCTURE DESIGNING SECT.	COPY 1		R1
EQUIP DESIGN SECT.	COPY 1		
TAKASAGO R&D CENTER	COPY 1		
T A I S E I	COPY 1		
OBAYASHI	ORIG.		

NO.	DATE	REVISION	BY





REBAR DETAILS AT GENERAL PORTION S-4/5

SECTION A-A S-1/5

REBAR DETAILS AT VERTICAL SECTION S-4/3

REBAR DETAILS AROUND DOME TOP  
(COMMON TO INNER & OUTER SIDE REBAR) S-1/15

REBAR DETAILS AT HORIZONTAL SECTION S-1/5

NO.	DATE	REVISION	BY
REVISION			

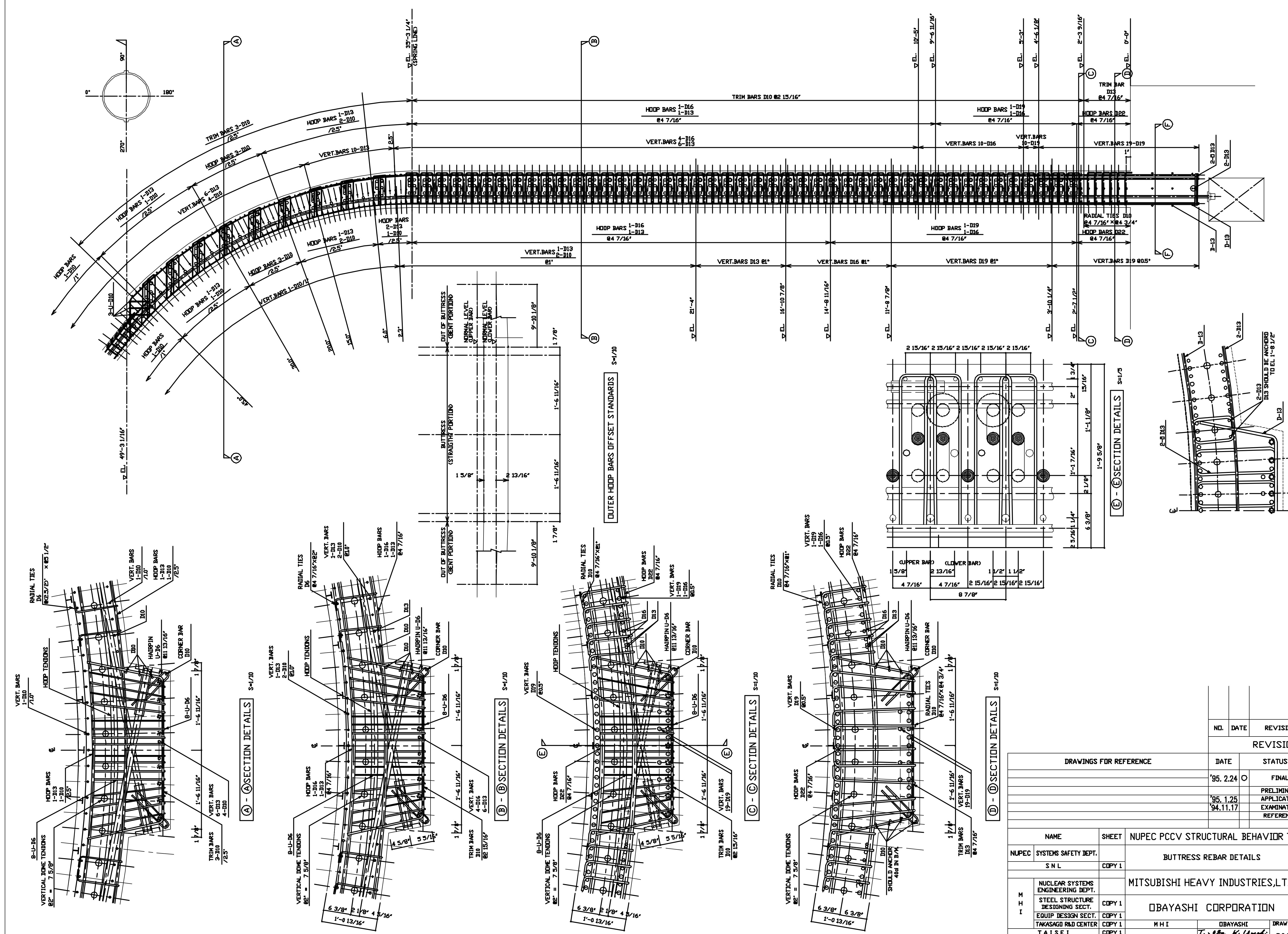
DRAWINGS FOR REFERENCE		DATE	STATUS	REMARKS
		'95.2.24	FINAL	
		'95.1.25	PRELIMINARY	
		'94.11.17	APPLICATION	
			EXAMINATION	
			REFERENCE	

NAME	SHEET	NUPEC PCCV STRUCTURAL BEHAVIOR TEST MODEL	
NUPEC SYSTEMS SAFETY DEPT.		CYLINDER & DOME REBAR DETAILS	
S N L	COPY 1	SCALE 1/5 1/25	
NUCLEAR SYSTEMS ENGINEERING DEPT.		REVISION NO.	
STEEL STRUCTURE DESIGNING SECT.	COPY 1	R1	
EQUIP DESIGN SECT.	COPY 1		
TAKASAGO R&D CENTER	COPY 1		
T A I S E I	COPY 1		
OBAYASHI	ORIG.		

M H I	OBAYASHI	DRAWING NO.
	T. Ito, K. Umehi, H. Murano	PCCV-QCON-14



S-1/25

S-1/10

REBAR DETAILS AT 90° BUTTRESS

SECTION DETAILS S-1/3

SECTION DETAILS S-1/20

SECTION DETAILS S-1/20

SECTION DETAILS S-1/20

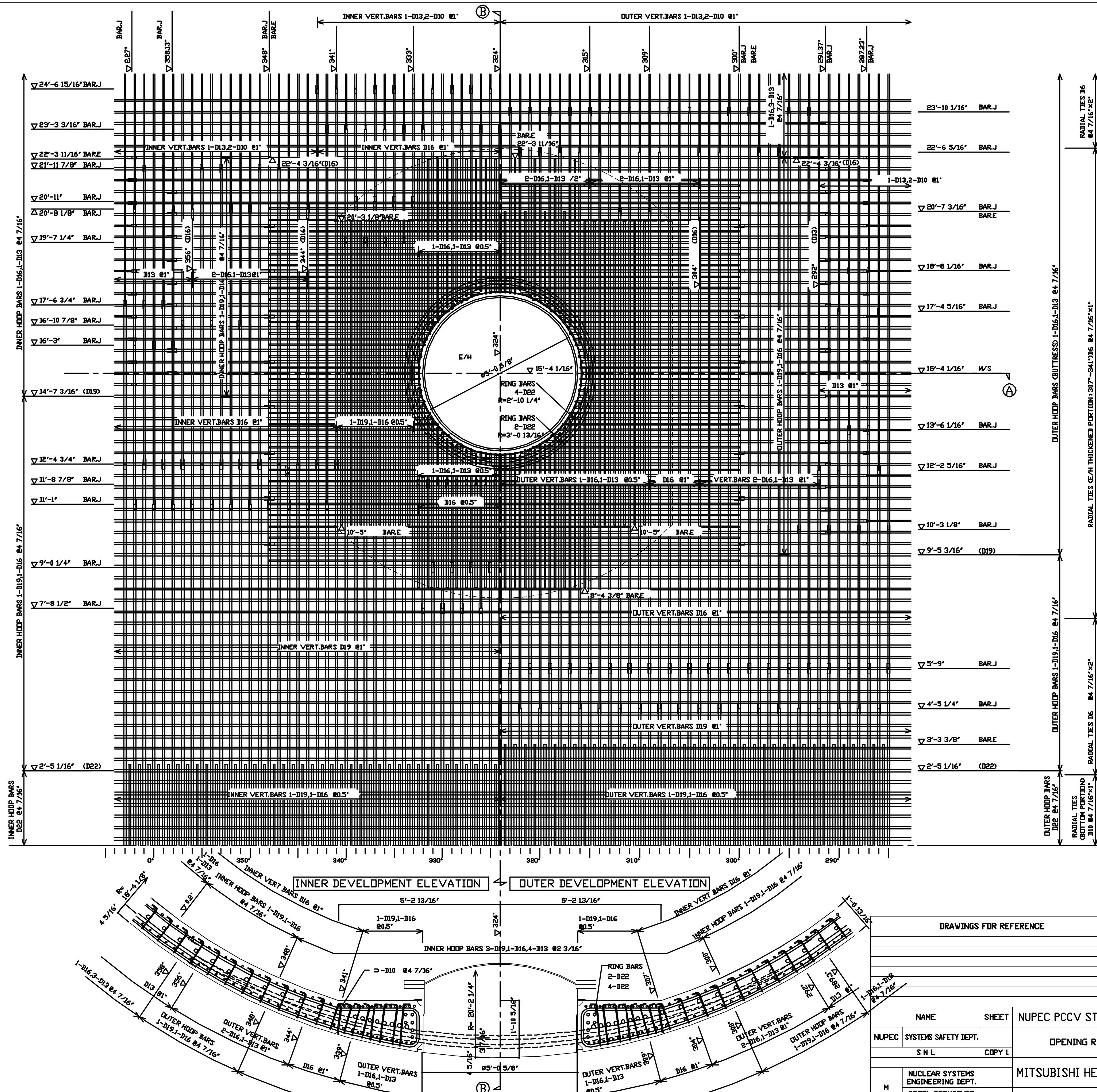
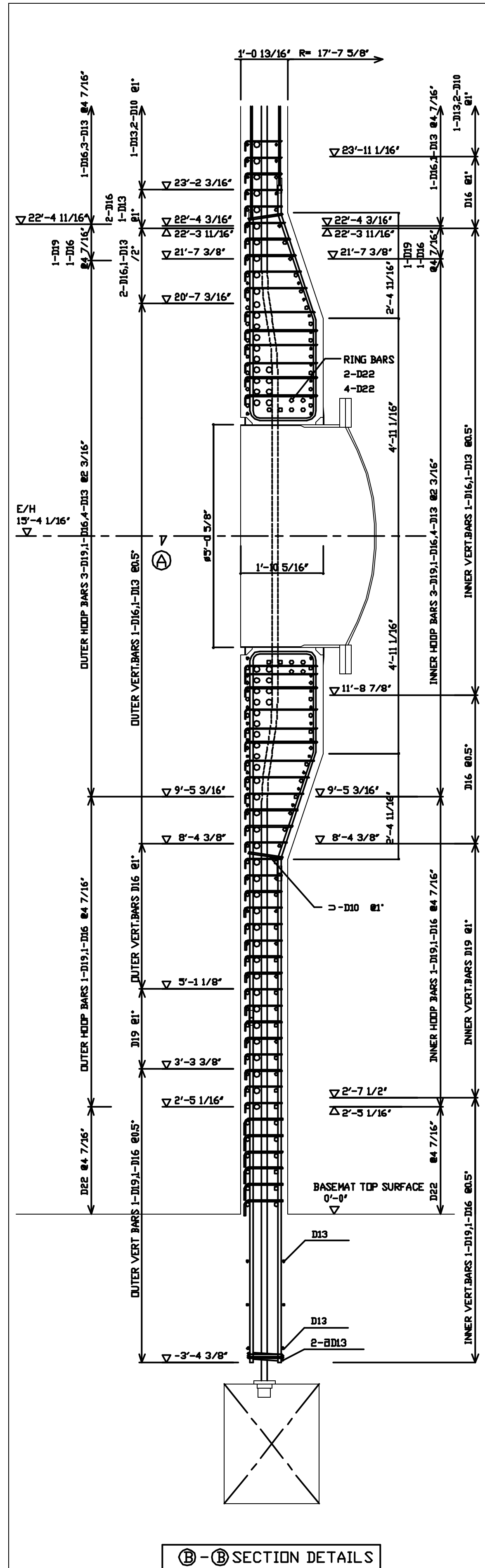
SECTION DETAILS S-1/20

NO.	DATE	REVISION	BY
REVISION			

DRAWINGS FOR REFERENCE		DATE	STATUS	REMARKS
		95.2.24	FINAL	
		95.1.25	PRELIMINARY APPLICATION	
		94.11.17	EXAMINATION REFERENCE	

NAME	SHEET	NUPEC PCCV STRUCTURAL BEHAVIOR TEST MODEL	SCALE	1/25
NUPEC SYSTEMS SAFETY DEPT.	COPY 1	BUTTRESS REBAR DETAILS	REVISION NO.	R1
S N L	COPY 1	MITSUBISHI HEAVY INDUSTRIES, L.T.D.		
NUCLEAR SYSTEMS ENGINEERING DEPT.	COPY 1	OBAYASHI CORPORATION		
STEEL STRUCTURE DESIGNING SECT.	COPY 1			
EQUIP DESIGN SECT.	COPY 1			
TAKASAGO R&D CENTER	COPY 1			
T A I S E I	COPY 1			
OBAYASHI	ORIG.			

DRAWING NO.	PCCV-QCON-15
OBAYASHI	T. Obayashi, K. Umehashi, H. Muramatsu



NO.	DATE	REVISION	BY
REVISION			
		DATE	STATUS
		'95.2.24	FINAL
		'95.1.25	PRELIMINARY APPLICATION
		'94.11.17	EXAMINATION REFERENCE

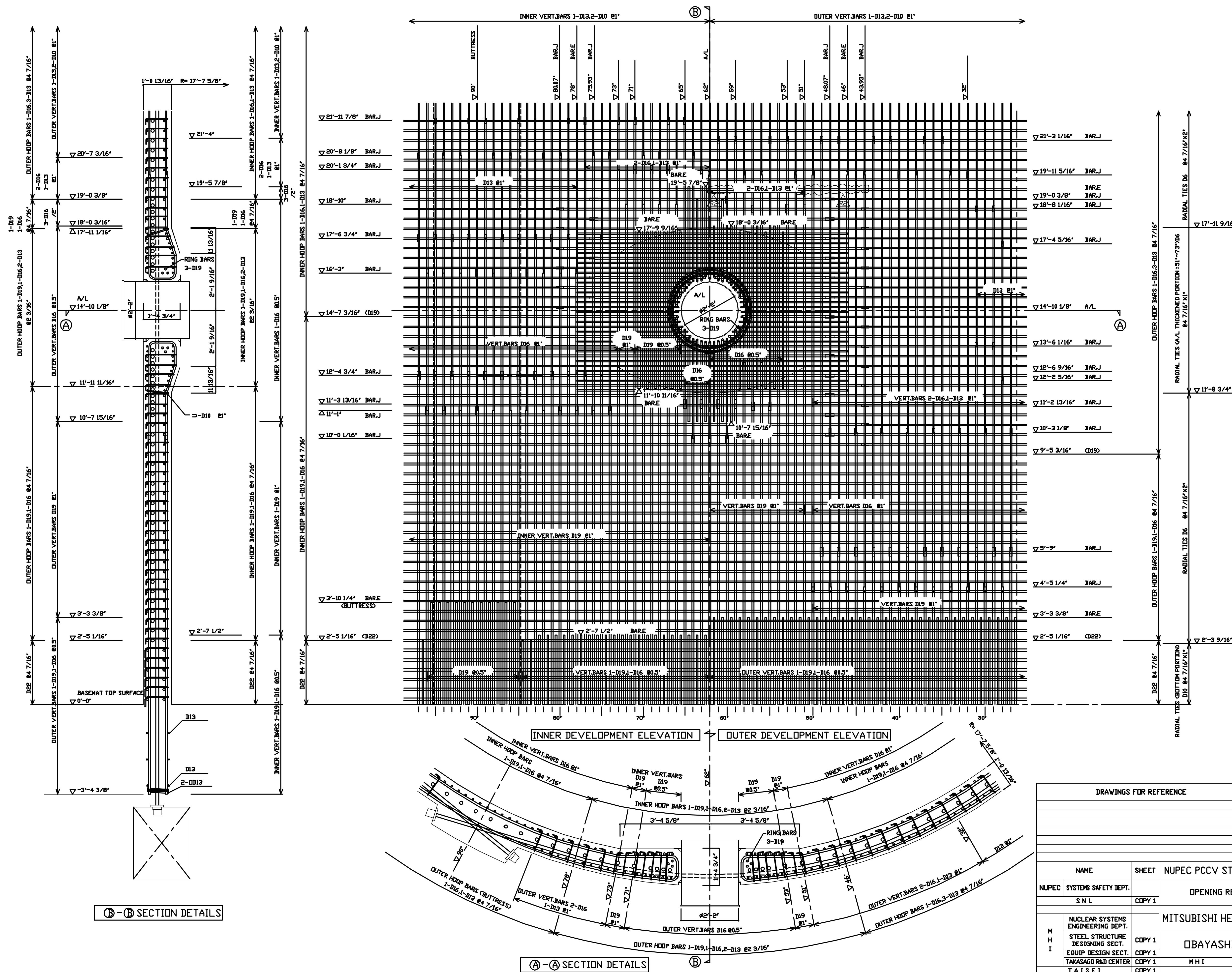
DRAWINGS FOR REFERENCE		DATE	STATUS	REMARKS
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		'95.1.25	PRELIMINARY APPLICATION	
		'94.11.17	EXAMINATION REFERENCE	

NAME	SHEET	NUPEC PCCV STRUCTURAL BEHAVIOR TEST MODEL		SCALE
NUPEC SYSTEMS SAFETY DEPT.		OPENING REBAR DETAILS(E/H)		1/20
S N L	COPY 1	MITSUBISHI HEAVY INDUSTRIES, L.T.D.		REVISION NO.
NUCLEAR SYSTEMS ENGINEERING DEPT.		OBAYASHI CORPORATION		R1
STEEL STRUCTURE DESIGNING SECT.	COPY 1			
EQUIP DESIGN SECT.	COPY 1			
TAKASAGO R&D CENTER	COPY 1			
T A I S E I	COPY 1			
OBAYASHI	ORIG.			

DRAWING NO.	
M H I	OBAYASHI
T. S. K. Umada	PCCV-QCON-16
H. Murano	



NO.	DATE	REVISION	BY
R2	'95.12.1	REBAR JOINT POSITION UPDATED	

DATE	STATUS	REMARKS
'95.2.24	FINAL	
'95.1.25	PRELIMINARY APPLICATION	
'94.11.17	EXAMINATION REFERENCE	

DRAWINGS FOR REFERENCE		DATE	STATUS	REMARKS
		'95.2.24	FINAL	
		'95.1.25	PRELIMINARY APPLICATION	
		'94.11.17	EXAMINATION REFERENCE	

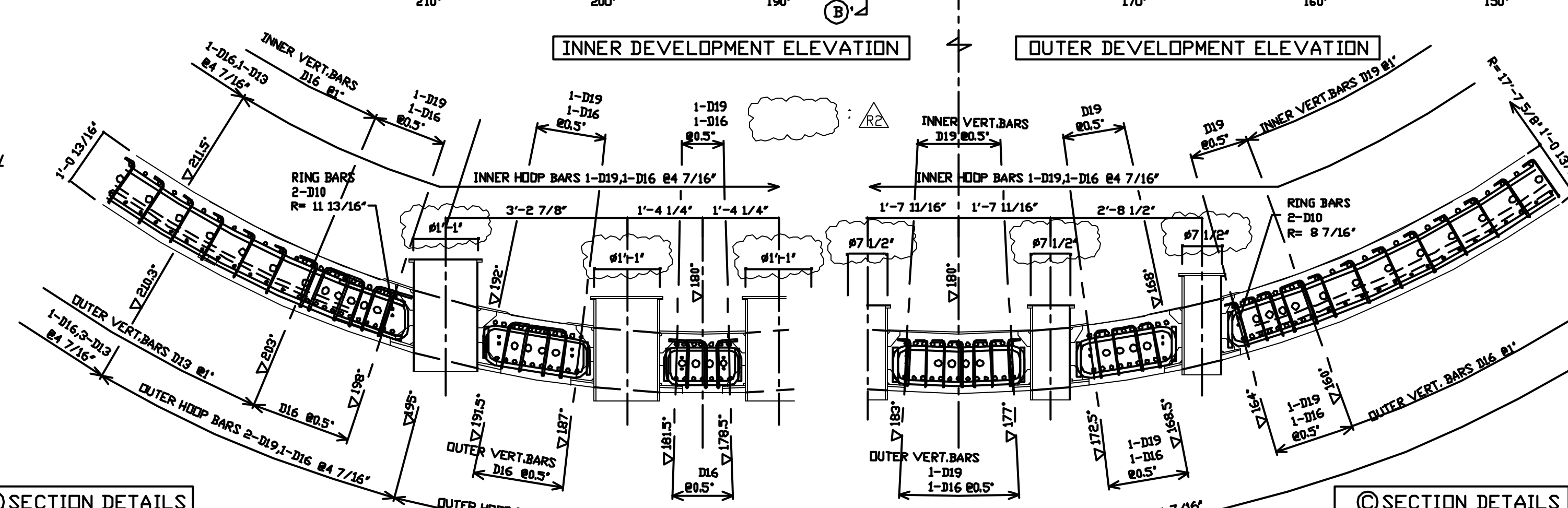
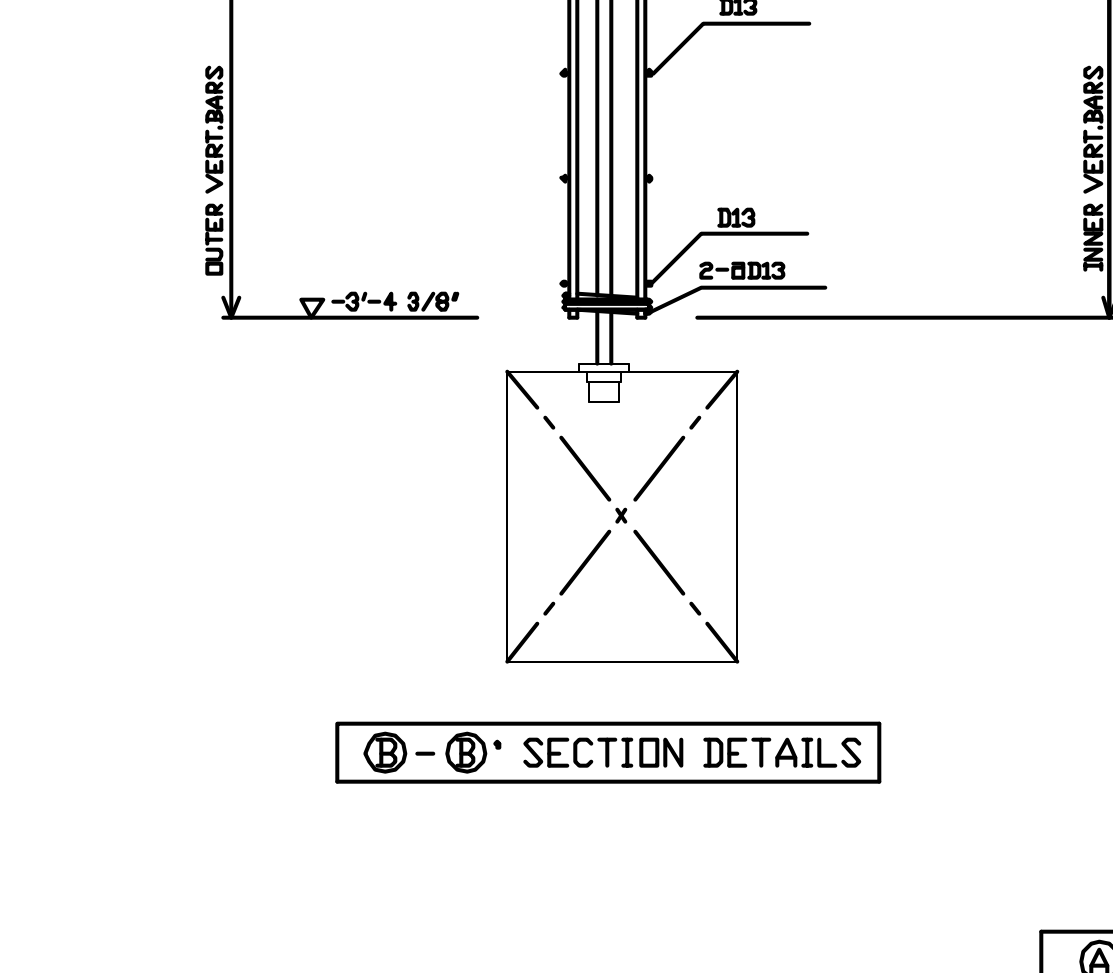
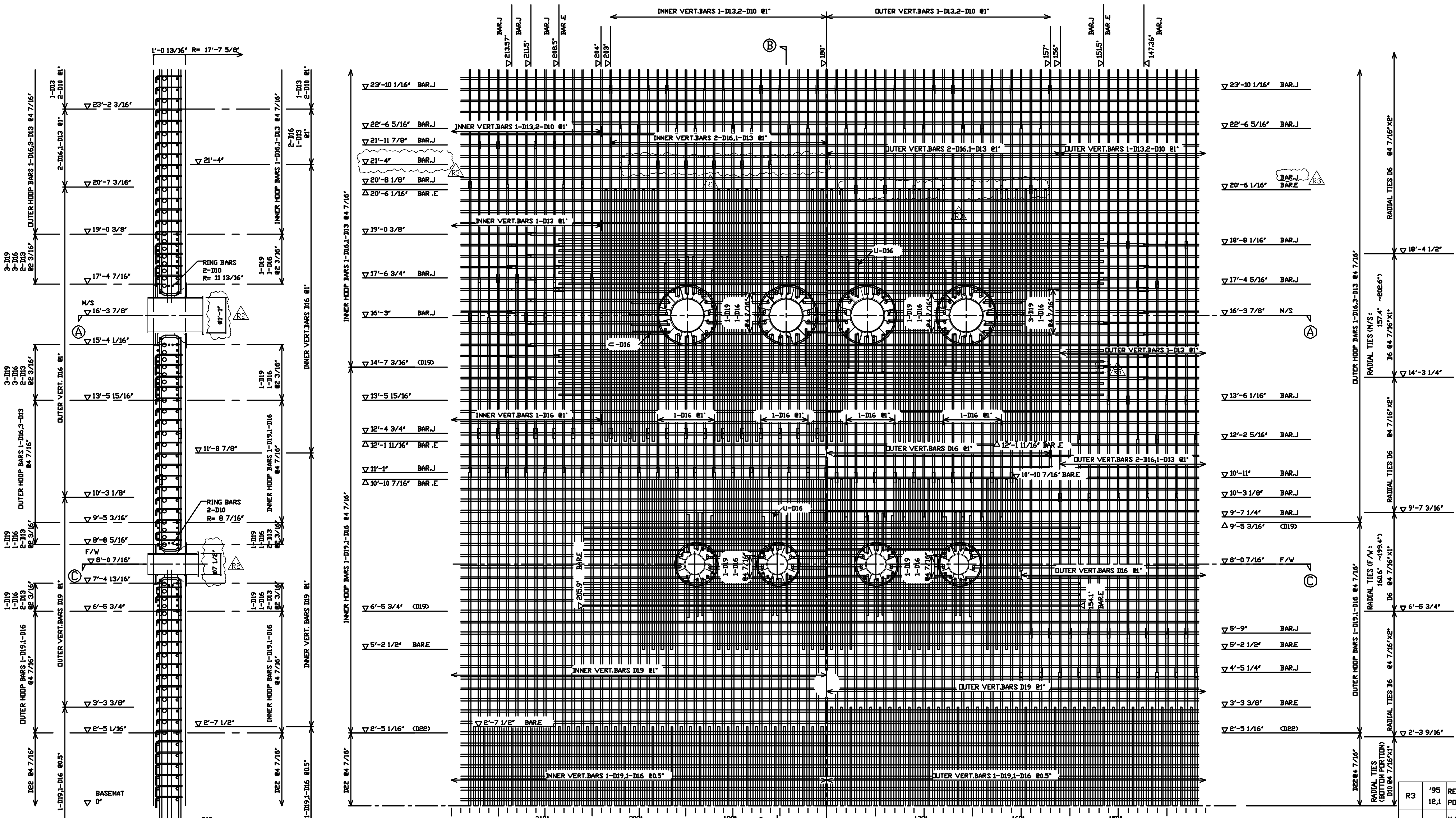
NAME	SHEET	SCALE
NUPEC SYSTEMS SAFETY DEPT.	COPY 1	1/20
S N L		

NAME	REVISION NO.
MITSUBISHI HEAVY INDUSTRIES, L.T.D.	R2
OBAYASHI CORPORATION	

NAME	DRAWING NO.
OBAYASHI	PCCV-QCON-17



DRAWINGS FOR REFERENCE		DATE	STATUS	REMARKS
		'95.2.24	O	FINAL
		'95.1.25		PRELIMINARY APPLICATION
		'94.11.17		EXAMINATION REFERENCE

NO.	DATE	REVISION	BY
R3	'95.12.1	REBAR JOINT POSITION UPDATED	
R2	'95.8.1	M/S/F/W O.D. UPDATED	

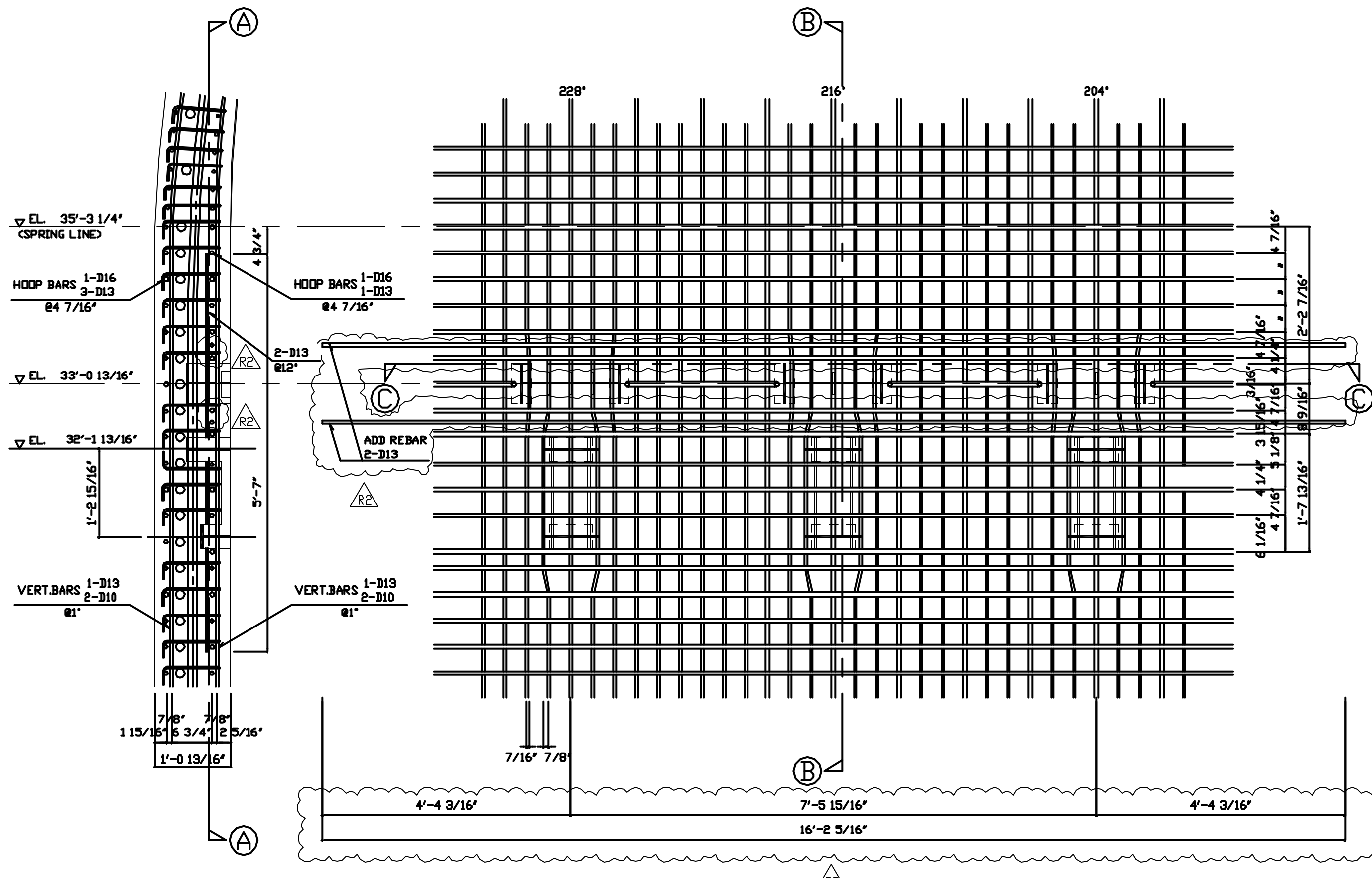
NAME	SHEET	NUPEC PCCV STRUCTURAL BEHAVIOR TEST MODEL	SCALE
NUPEC SYSTEMS SAFETY DEPT.	COPY 1	PENETRATION REBAR DETAILS (M/S·F/W)	1/20
NUCLEAR SYSTEMS ENGINEERING DEPT.	COPY 1	MITSUBISHI HEAVY INDUSTRIES, L.T.D.	REVISION NO.
STEEL STRUCTURE DESIGNING SECT.	COPY 1	OBAYASHI CORPORATION	R3
EQUIP DESIGN SECT.	COPY 1		
TAKASAGO R&D CENTER	COPY 1		
T A I S E I	COPY 1		
OBAYASHI	ORIG.		

NO.	DATE	REVISION	BY
R3	'95.12.1	REBAR JOINT POSITION UPDATED	
R2	'95.8.1	M/S/F/W O.D. UPDATED	

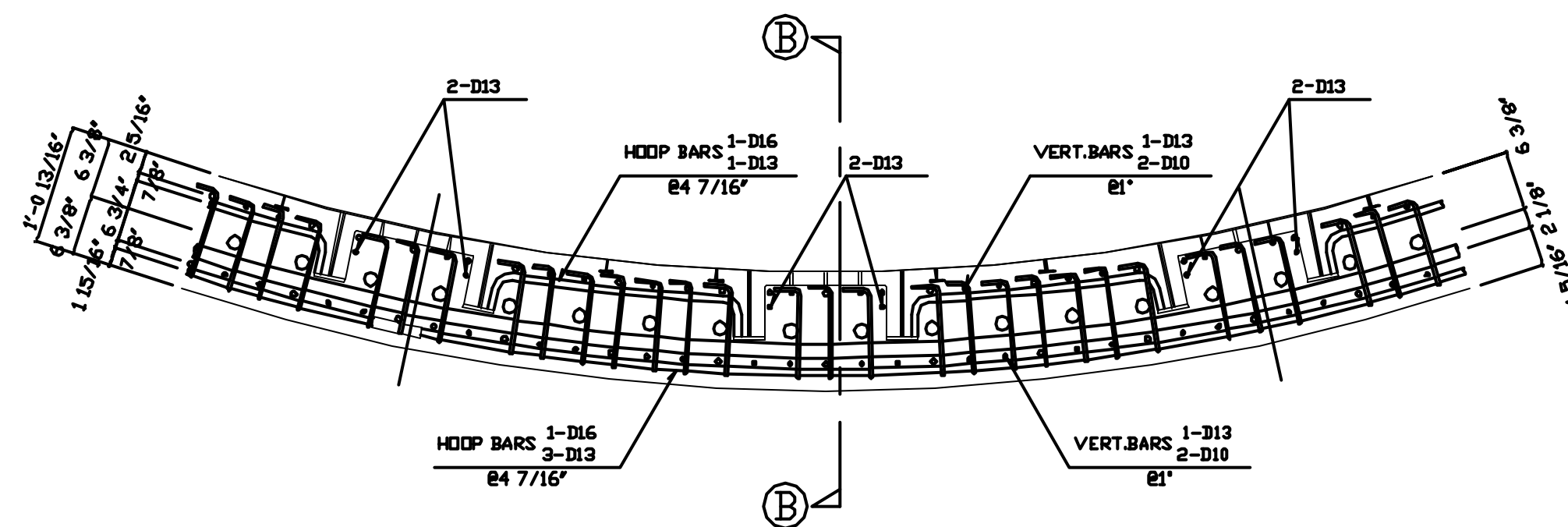
NAME	SHEET	NUPEC PCCV STRUCTURAL BEHAVIOR TEST MODEL	SCALE
NUPEC SYSTEMS SAFETY DEPT.	COPY 1	PENETRATION REBAR DETAILS (M/S·F/W)	1/20
NUCLEAR SYSTEMS ENGINEERING DEPT.	COPY 1	MITSUBISHI HEAVY INDUSTRIES, L.T.D.	REVISION NO.
STEEL STRUCTURE DESIGNING SECT.	COPY 1	OBAYASHI CORPORATION	R3
EQUIP DESIGN SECT.	COPY 1		
TAKASAGO R&D CENTER	COPY 1		
T A I S E I	COPY 1		
OBAYASHI	ORIG.		

CRANE BRACKET REBAR DETAILS



B-B SECTION DETAILS

A-A SECTION DETAILS



C-C SECTION DETAILS

CRANE BRACKET REBAR DETAILS

S=1/15

REBAR ARRANGEMENT STANDARDS

1. GENERAL DESCRIPTION

1.1 MATERIALS

- REBARS: SD345, SD390, SD490, DEFORMED BARS (JIS G3112)
- CONCRETE:  $F_c = 29.42MPa$ ,  $F_c = 44.13MPa$
- PORTIONS: REFER TO DESIGN SPEC. AT "PCCV-QCON-01 MODEL-GENERAL ARRANGEMENT"

2. REBAR PREPARATIONS

2.1 BENDING STANDARDS & EXTRA LENGTH

- BENDING SHAPES & DIMENSIONS AT END PORTIONS
  - RADIAL TIE END PORTION: L.E. D10
  - BASEMAT SHEAR BAR END PORTION: L.E. D16

TABLE 2-1 HOOK BENDING SHAPES & DIMENSIONS

ANGLES	SHAPE	GRADE	PIN DIAMETER (D)	EXTRA LENGTH	PORTIONS
180°		SD345	4d	G.E. 4d	
		SD390	5d	G.E. 4d	
135°		SD345	4d	G.E. 6d	
		SD390	5d	G.E. 6d	
90°		SD345	4d	G.E. 6d	RADIAL TIES
		SD390	5d	G.E. 6d	VERTICAL TENDON ANCHORED PORTION BASEMAT SHEAR BAR END PORTION

NOTE: d=NOMINAL DIAMETER

2.2 BENDING SHAPES & DIMENSIONS AT INTERMEDIATE PORTION

TABLE 2-2 BENDING SHAPES & DIMENSIONS AT INTERMEDIATE PORTION

ANGLES	SHAPE	PORTION	REBAR DIAMETER	GRADE	PIN DIAMETER (D)
L.E. 90°		U BAR TRIM BAR REBAR (AT CORNERS)	D6-D16	SD390 SD490	G.E. 4d
		WALL REBAR BASEMAT RADIAL BAR REBAR ANCHORED PORTION AT THE UPPER PART OF TENDON GALLERY	D19-D22		

3. REBAR ANCHORING & JOINT

3.1 REBAR ANCHORING

IN CASE OF BENT ANCHORING, REBAR SHOULD BE BENT BEYOND THE MEMBER CENTER LINE.

TABLE 3-1 MINIMUM ANCHORED LENGTH

PORTION	GRADE	CONCRETE STRENGTH $F_c$ (MPa)	REBAR DIAMETER	ANCHORED LENGTH
BASEMAT	SD390	29.42MPa	D16	50d
		44.13MPa		45d
	SD490	29.42MPa	D10-D19	63d
		44.13MPa		52d

NOTE: REBAR ANCHORED LENGTH SHOULD REFER TO DETAIL DRAWINGS

3.2 REBAR JOINT

- EXTRA PROBLEMS SHOULD BE SOLVED WITH NUPEC.
- TABLE 3-2 ; JOINT PROPER USE
- TABLE 3-3 ; LAP LENGTH
- REBAR SPLICE SPACING DISTANCES

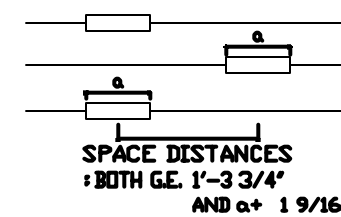


TABLE 3-2 PORTIONS

PORTIONS	REBAR DIA.	L.E. D22
PCCV		SPLICE
BASEMAT		BASICALLY SPLICE BUT LAP ACCEPTABLE

TABLE 3-3 MINIMUM LAP LENGTH

PORTION	GRADE	CONCRETE STRENGTH $F_c$ (MPa)	REBAR DIAMETER	LAP LENGTH
BASEMAT	SD390	29.42MPa	D10-D19	45d
		44.13MPa		

4. REBAR COVER DEPTH

4.1 MINIMUM COVER DEPTH

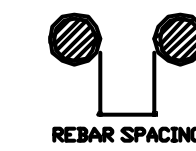
MINIMUM COVER DEPTH SHOULD BE THE MAXIMUM VALUE AMONG THOSE VALUES DESCRIBED BELOW.  
1) REQUIRED DEPTH DEPENDS ON REBAR DIAMETER

TABLE 4-1 MINIMUM REBAR COVER DEPTH (UNIT: INCH)

REBAR DIAMETER	D6	D10	D13	D16	D19	D22
COVER DEPTH	3/8"	9/16"	13/16"	1"	1 3/16"	1 3/8"

2) REQUIRED DEPTH DEPENDS ON THE MAXIMUM AGGREGATE DIAMETER  
3/8"

5. REBAR SPACING



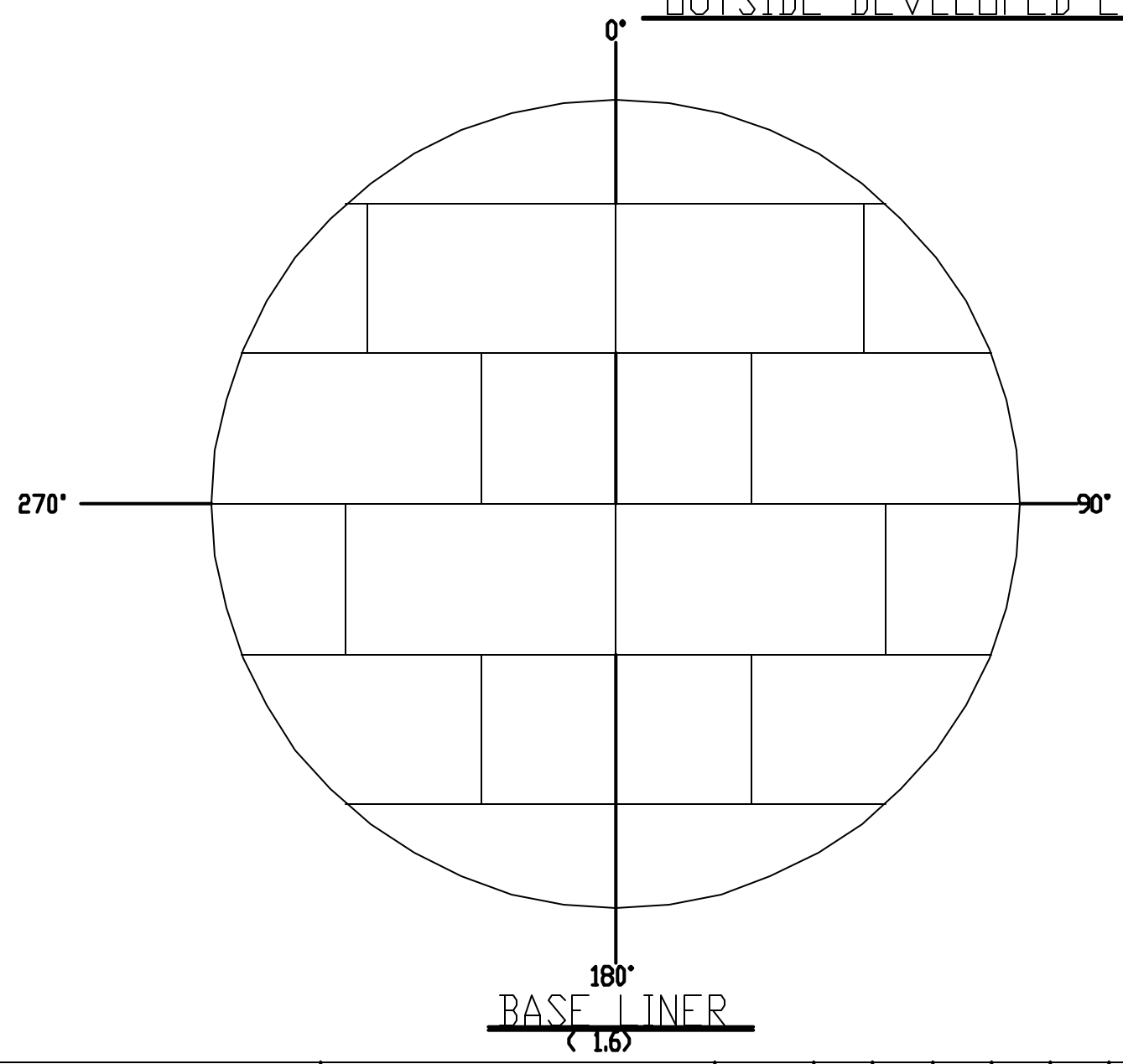
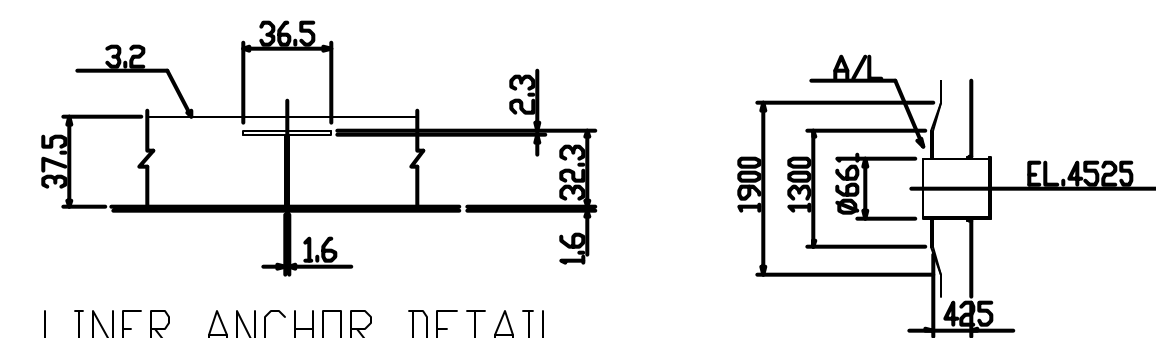
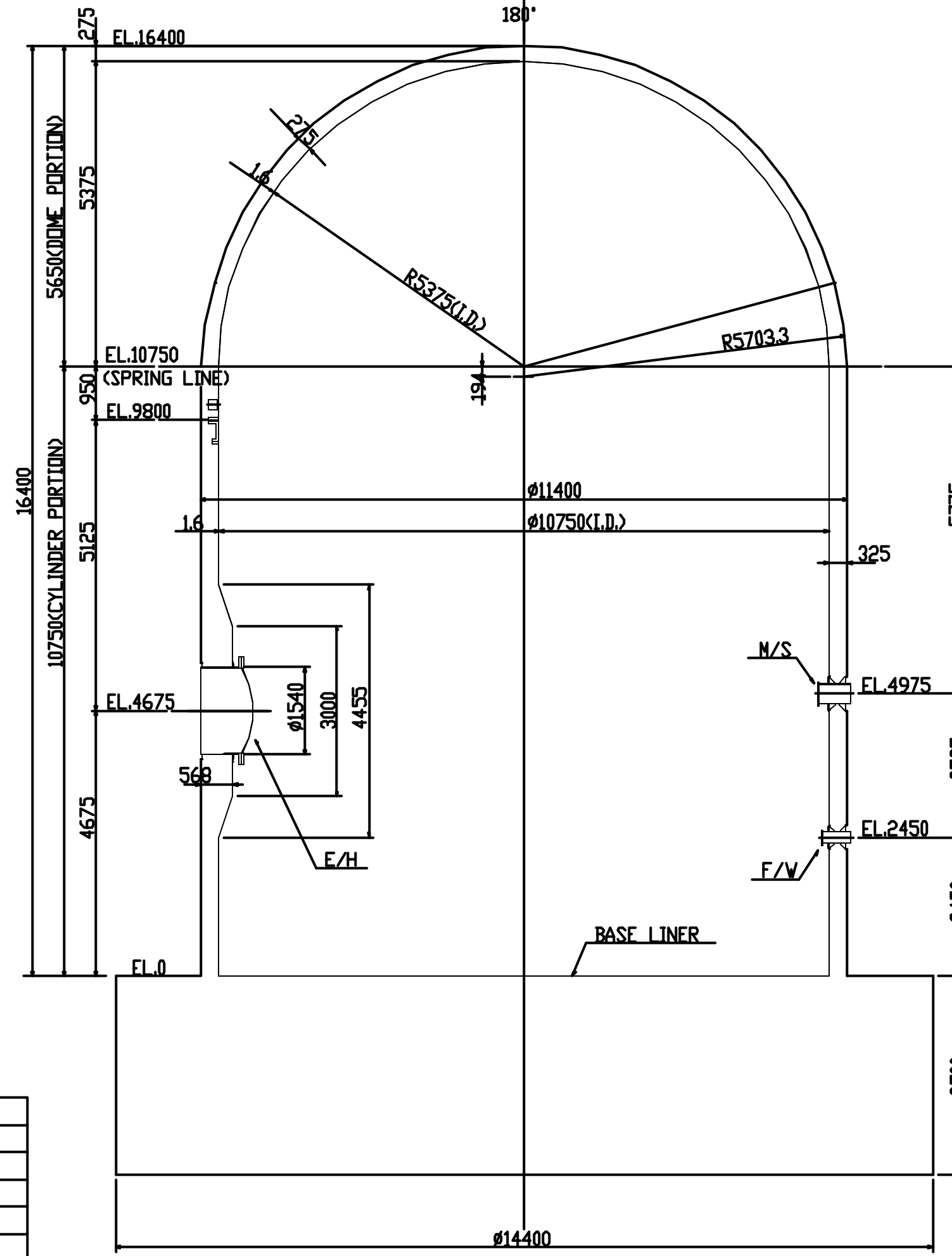
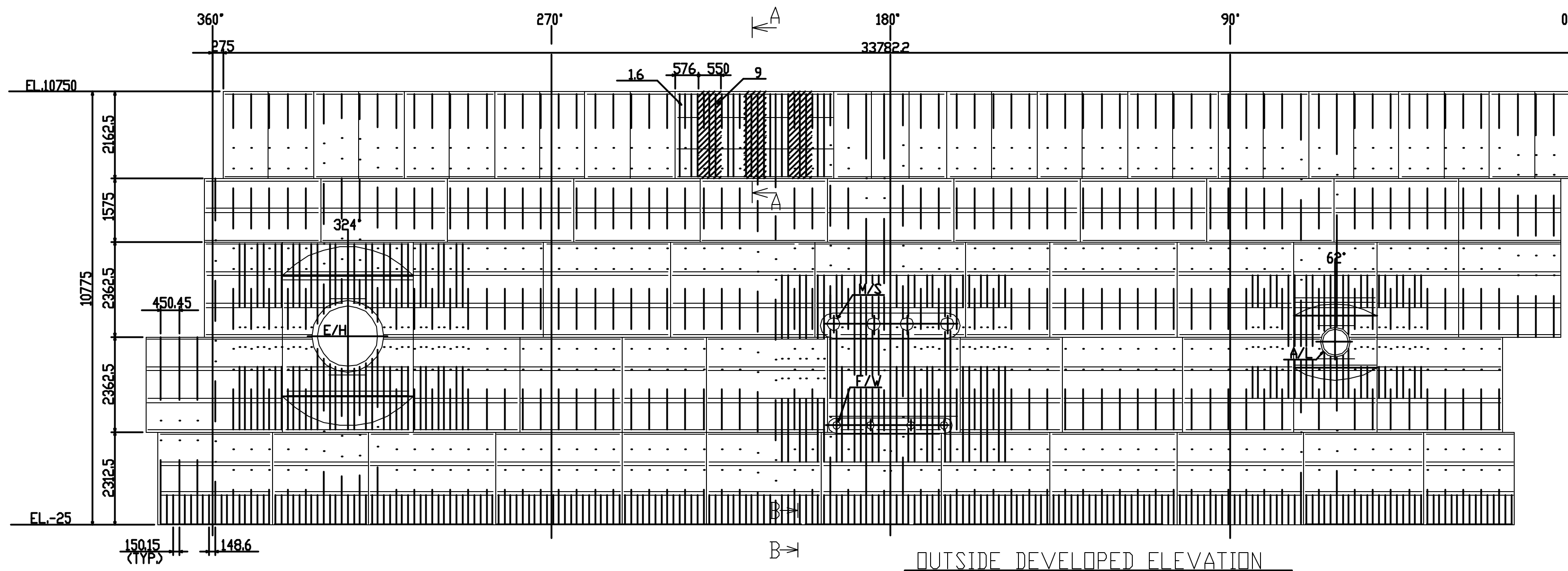
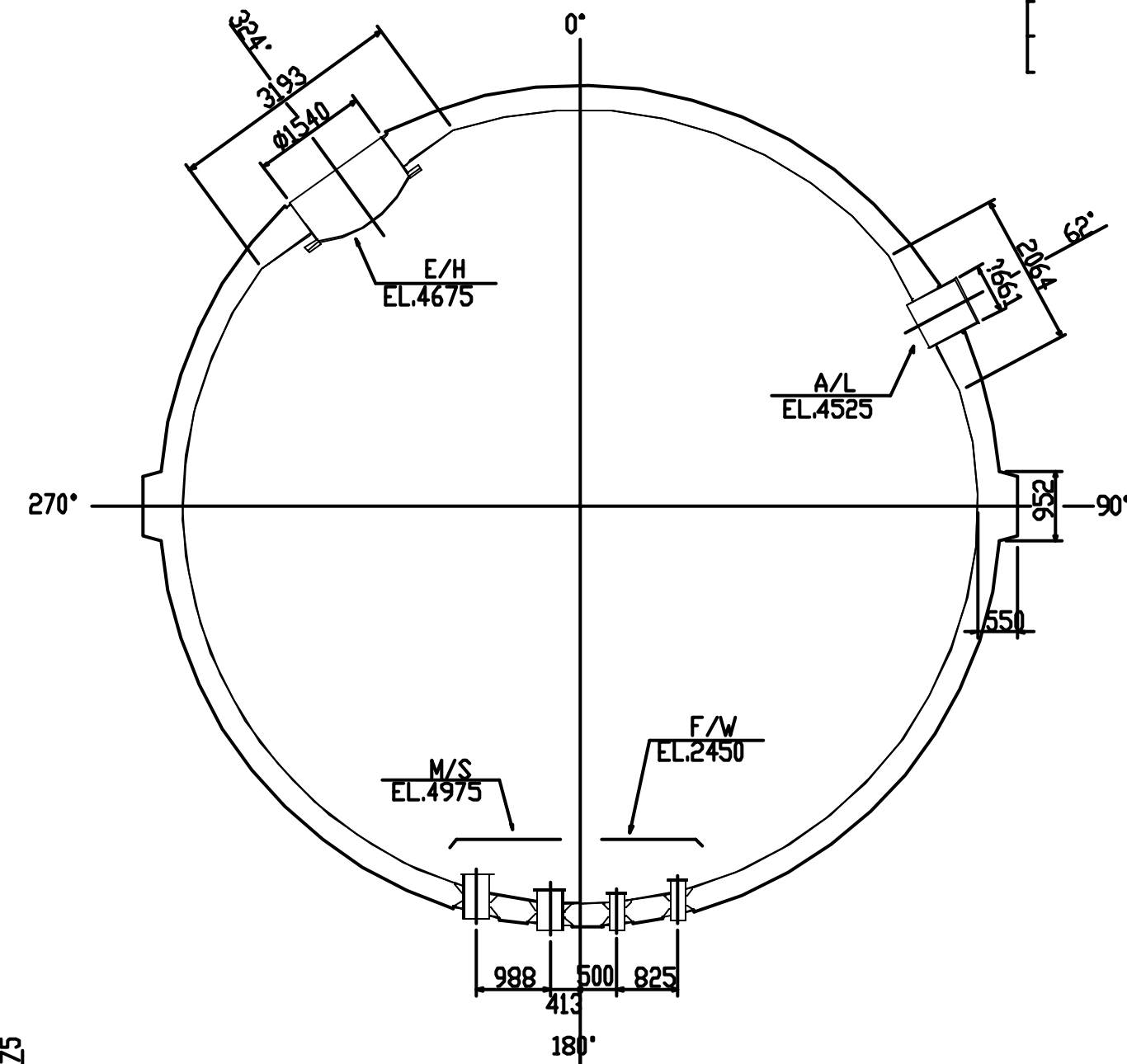
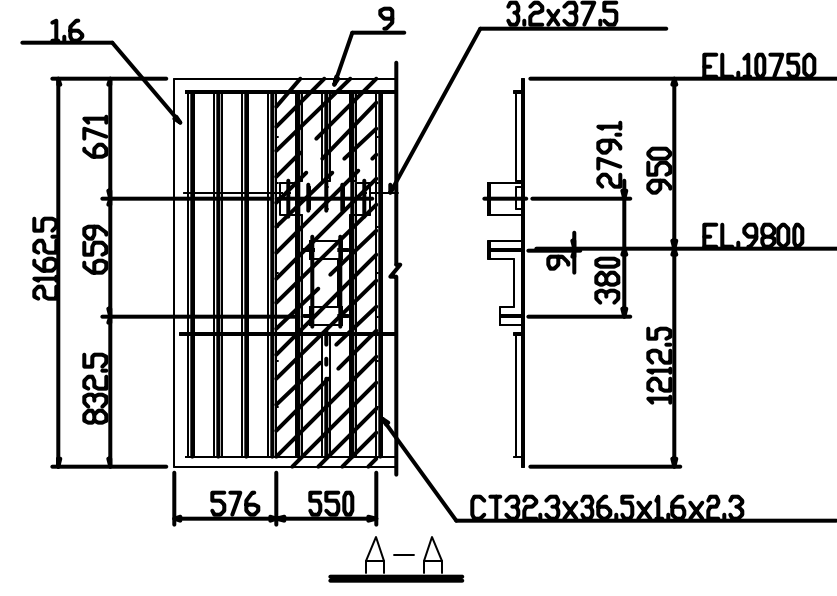
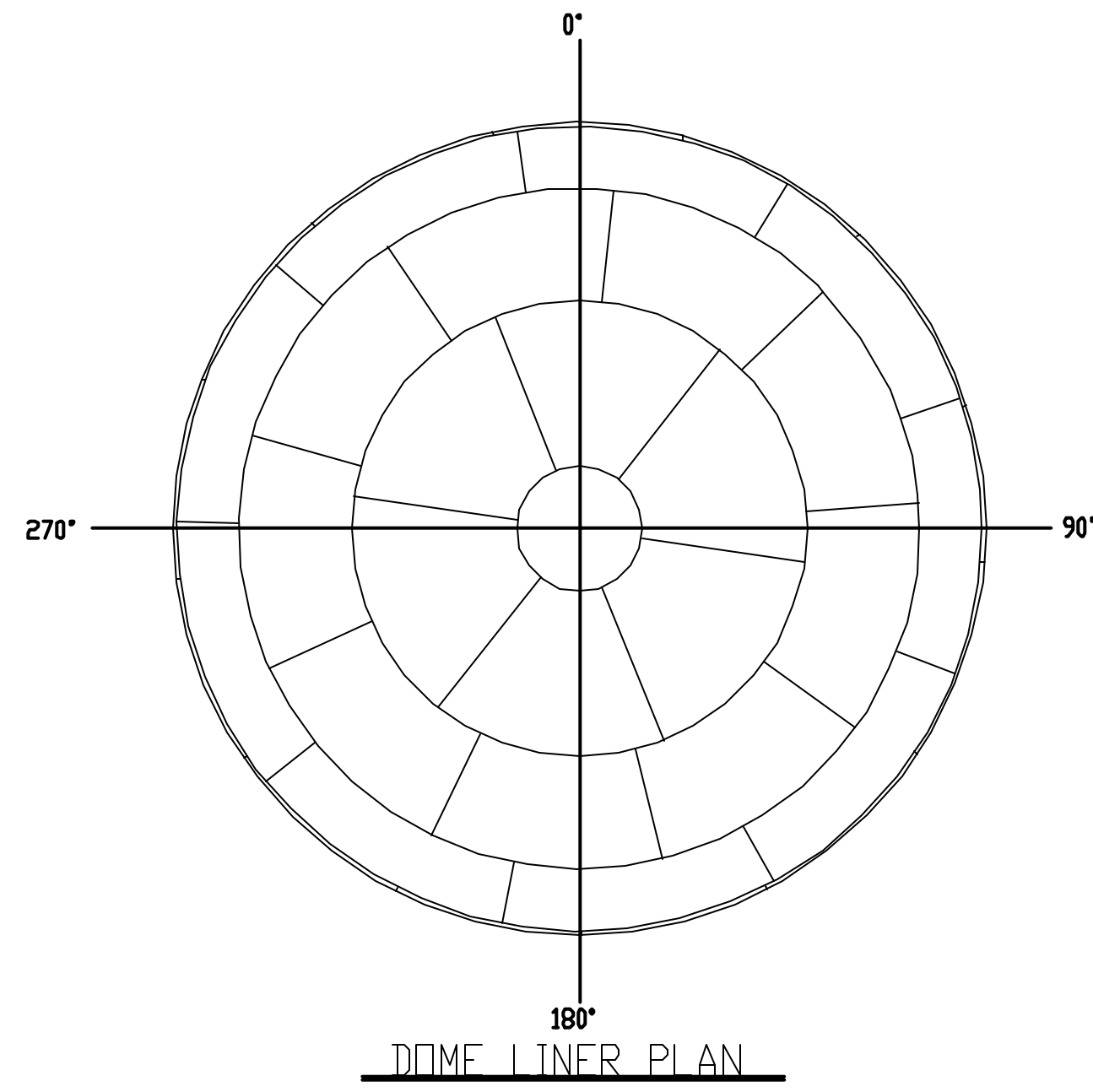
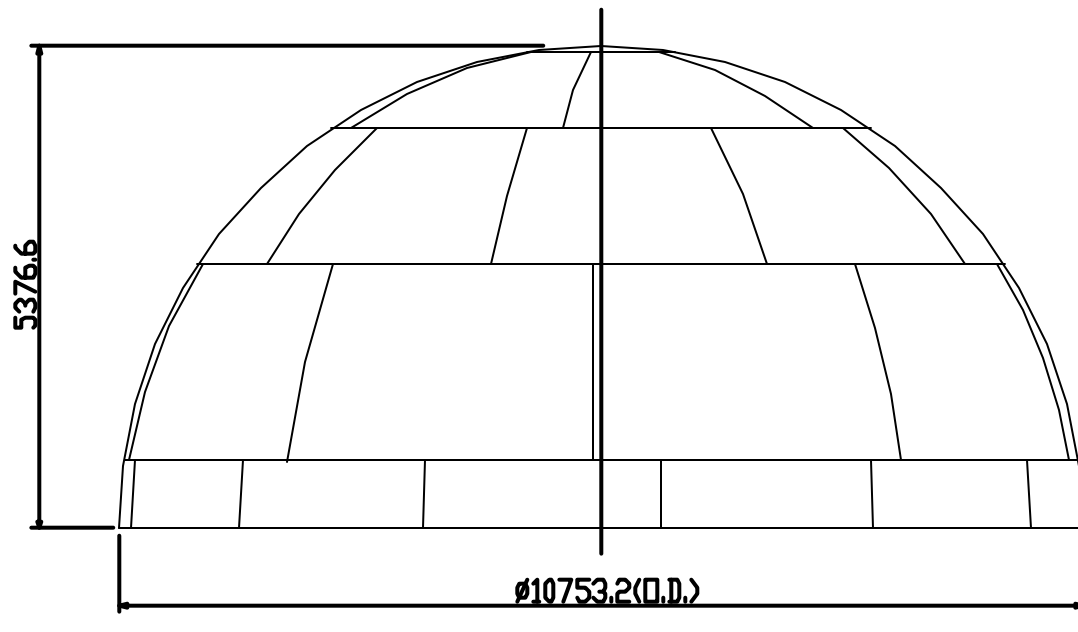
REBAR SPACING : G.E. 1.5 TIMES THE MAX COARSE AGGREGATE DIAMETER  
: G.E. 9/16"  
: G.E. 1.5 TIMES THE NOMINAL REBAR DIAMETER

R2	'95	8.1	CRANE BRACKET ANCHOR - HOOP REBAR WELDING TERMINATED 2-REBARS ADDED 2-REBARS DIA. CHANGED	
NO.	DATE		REVISION	BY

REVISION

DRAWINGS FOR REFERENCE	DATE	STATUS	REMARKS
	'95. 2.24	O	FINAL
	'95. 1.25		PRELIMINARY APPLICATION
	'94. 11.17		EXAMINATION REFERENCE

NAME	SHEET	NUPEC PCCV STRUCTURAL BEHAVIOR TEST MODEL	SCALE
NUPEC SYSTEMS SAFETY DEPT. S N L	COPY 1	CRANE BRACKET REBAR DETAILS REBAR ARRANGEMENT STANDARDS	1/15
NUCLEAR SYSTEMS ENGINEERING DEPT. STEEL STRUCTURE DESIGNING SECT. EQUIP DESIGN SECT. TAKASAGO R&D CENTER T A I S E I OBAYASHI	COPY 1 COPY 1 COPY 1 COPY 1 ORIG.	MITSUBISHI HEAVY INDUSTRIES, L.T.D. OBAYASHI CORPORATION	REVISION NO. R2
		M H I OBAYASHI T. Ito, K. Umeha, H. Murano	DRAWING NO. PCCV-QCON-19



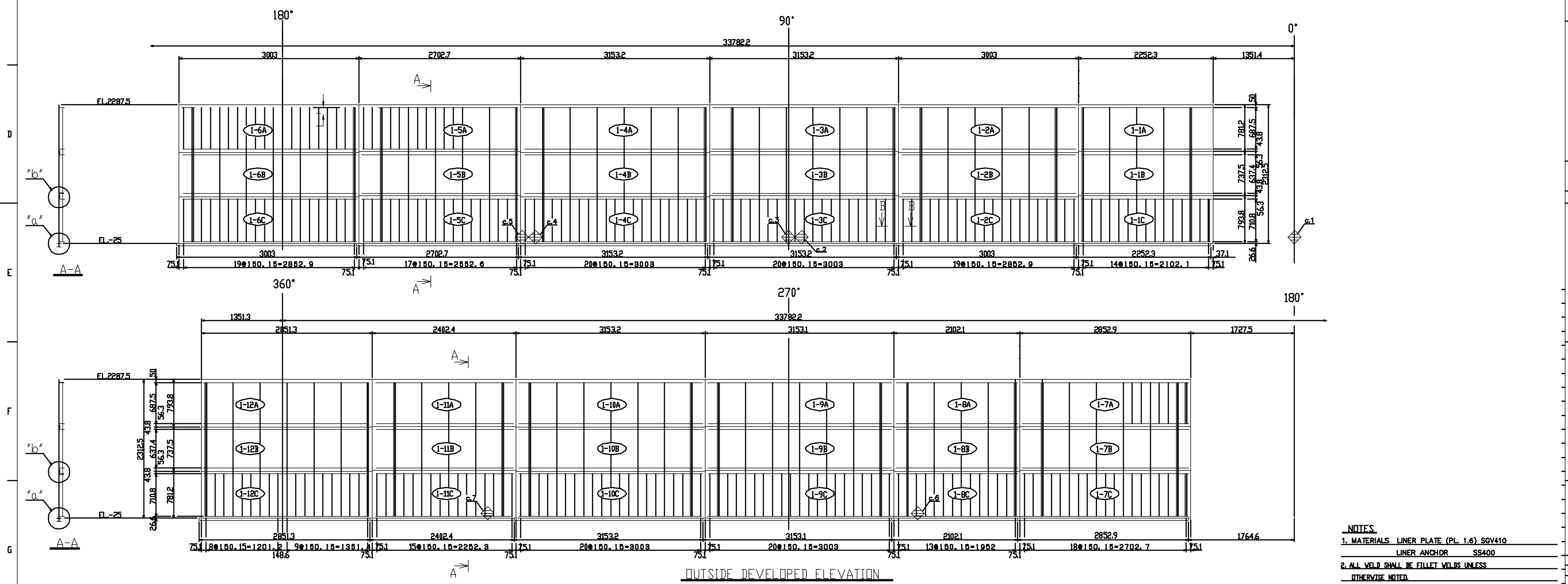
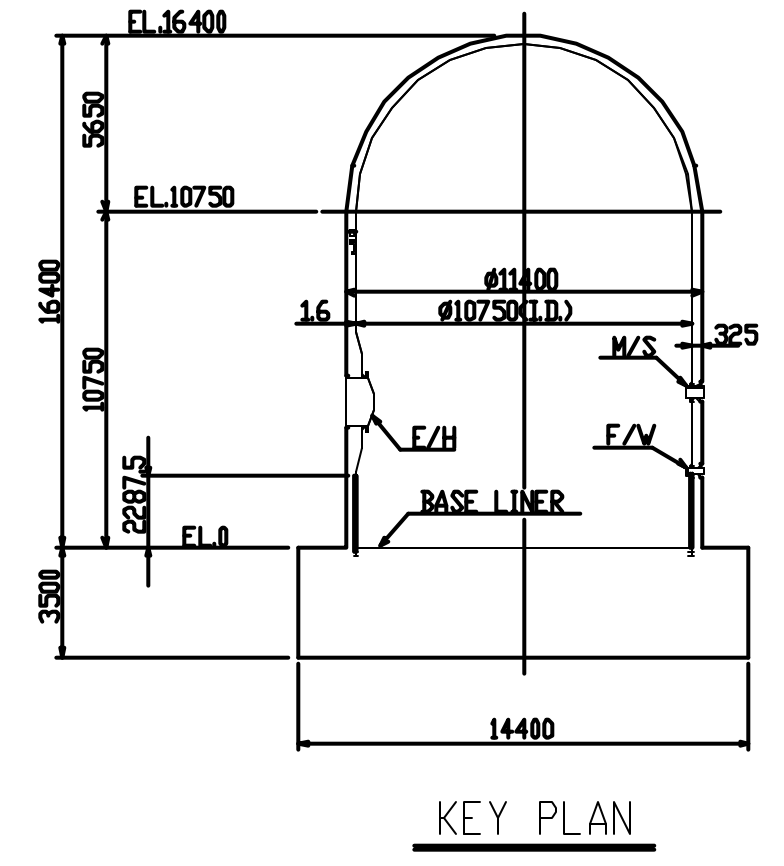
NUMBER	SLEEVE SIZE	DIRECTION
P501	7190.5x6	165° 43' 44"
P502	7190.5x6	174° 39' 45"
P503	7190.5x6	185° 20' 15"
P504	7190.5x6	194° 16' 16"
P511	7330.2x8	164° 54' 08"
P512	7330.2x8	175° 35' 55"
P513	7330.2x8	184° 24' 05"
P514	7330.2x8	195° 05' 52"

NOTE:  
 1. MATERIALS LINER PLATE (1.6) SGV410  
 LINER ANCHOR SS400

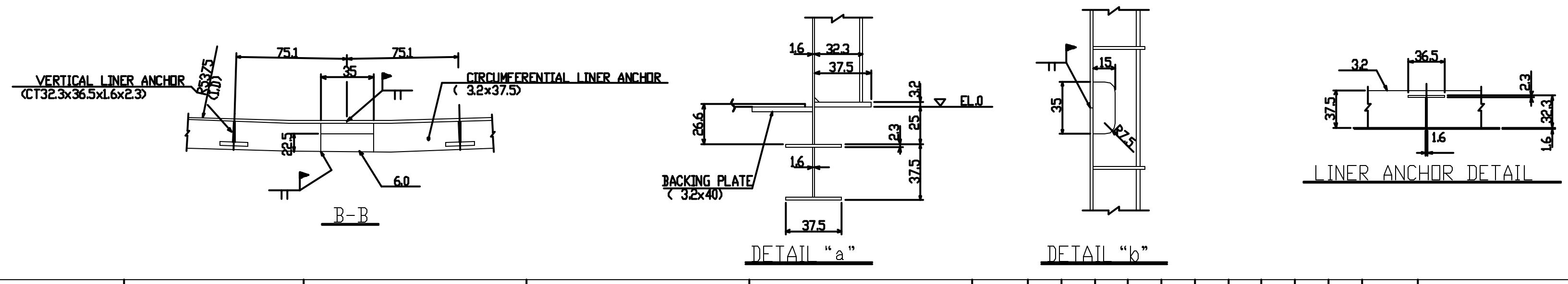
7-223072

SPARE	MARK	DESCRIPTION	MATERIAL	TEST	WORKING	SPARE	PER PRICE	TOTAL	REMARKS
SET	SET			PREZ	QUANTITY PER SET	MASS	(kg)		
		STEEL STRUCTURE DEPARTMENT PRODUCTION SHOP							NUPEC PCCV STRUCTURAL BEHAVIOR PROVING TEST
	APPROVED _____	LINER GENERAL ARRANGEMENT							
	CHECKED _____								
	DRAWN _____								
		SCALE 1/80, 1/3							
DRAWING NO. M1-ZCD1001A		DRAWING NO. M1-ZCD1001A		2		COPY FOR _____			
MHI PRODUCTION SHOP & MACHINERY WORKS		DRAWN		ISSUED					

NOTES  
 ◇ - DETAIL MEASURING POINTS (INSIDE AND CONCRETE SIDE)



NOTES  
 1. MATERIALS LINER PLATE (PL. 1.6) SGV410  
 LINER ANCHOR SS400  
 2. ALL WELD SHALL BE FILLET WELDS UNLESS OTHERWISE NOTED.



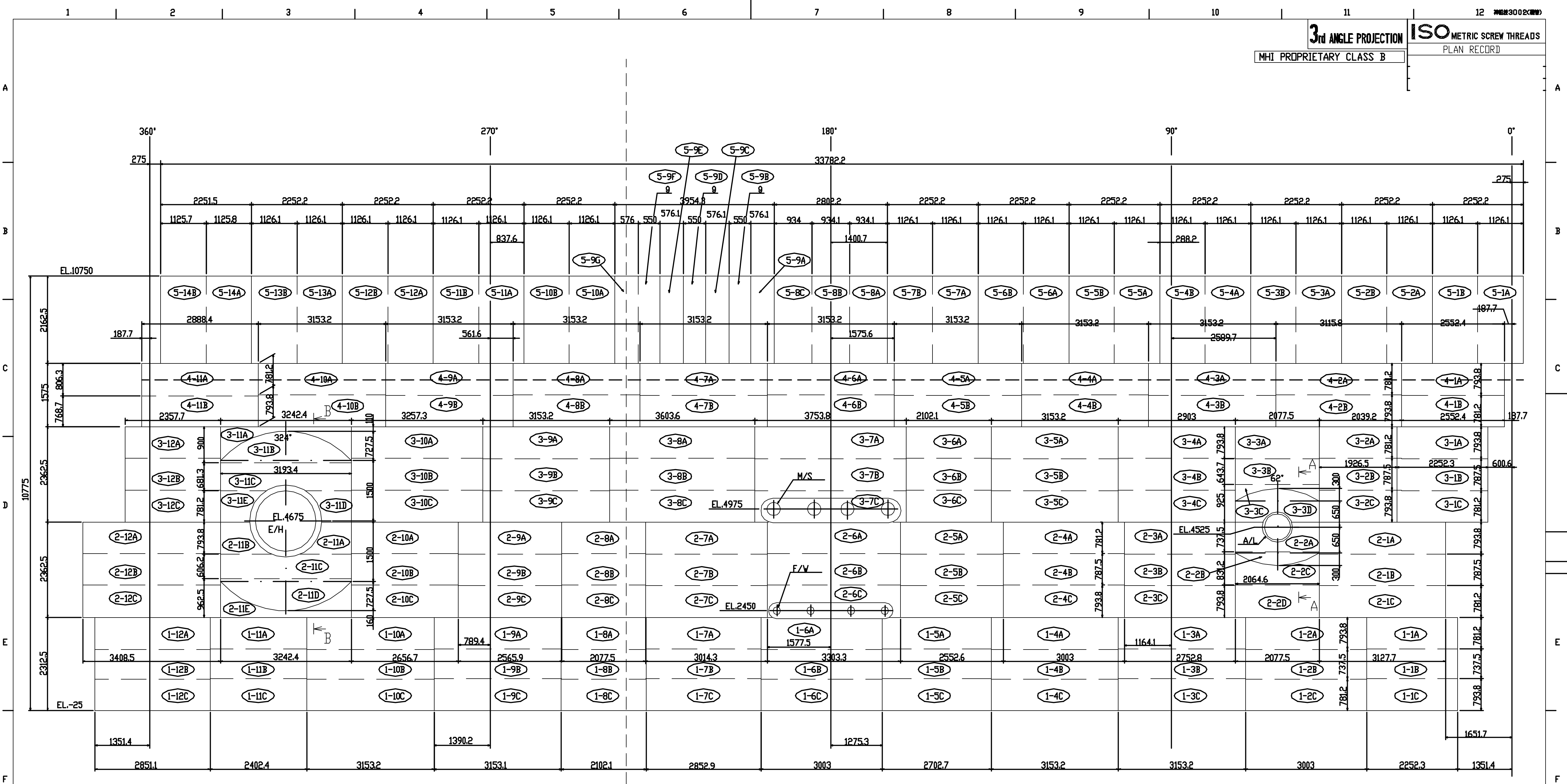
7-223072

SET	MARK	DESCRIPTION	MATERIAL	TEST	MARKING	SPRUE	PER PIECE	TOTAL	REMARKS
NO.				PER SET	QUANTITY	PER SET	MASS	G(φ)	
		STEEL STRUCTURE DEPARTMENT STRUCTURE DESIGNING SECTION							
		APPROVED							
		CHECKED							
		DRAWN							
		SCALE 1/30, 1/2							
		OWNER							
		DRAWING NO.							
		M1-ZCD1002A							
		COPY FOR							
		0							

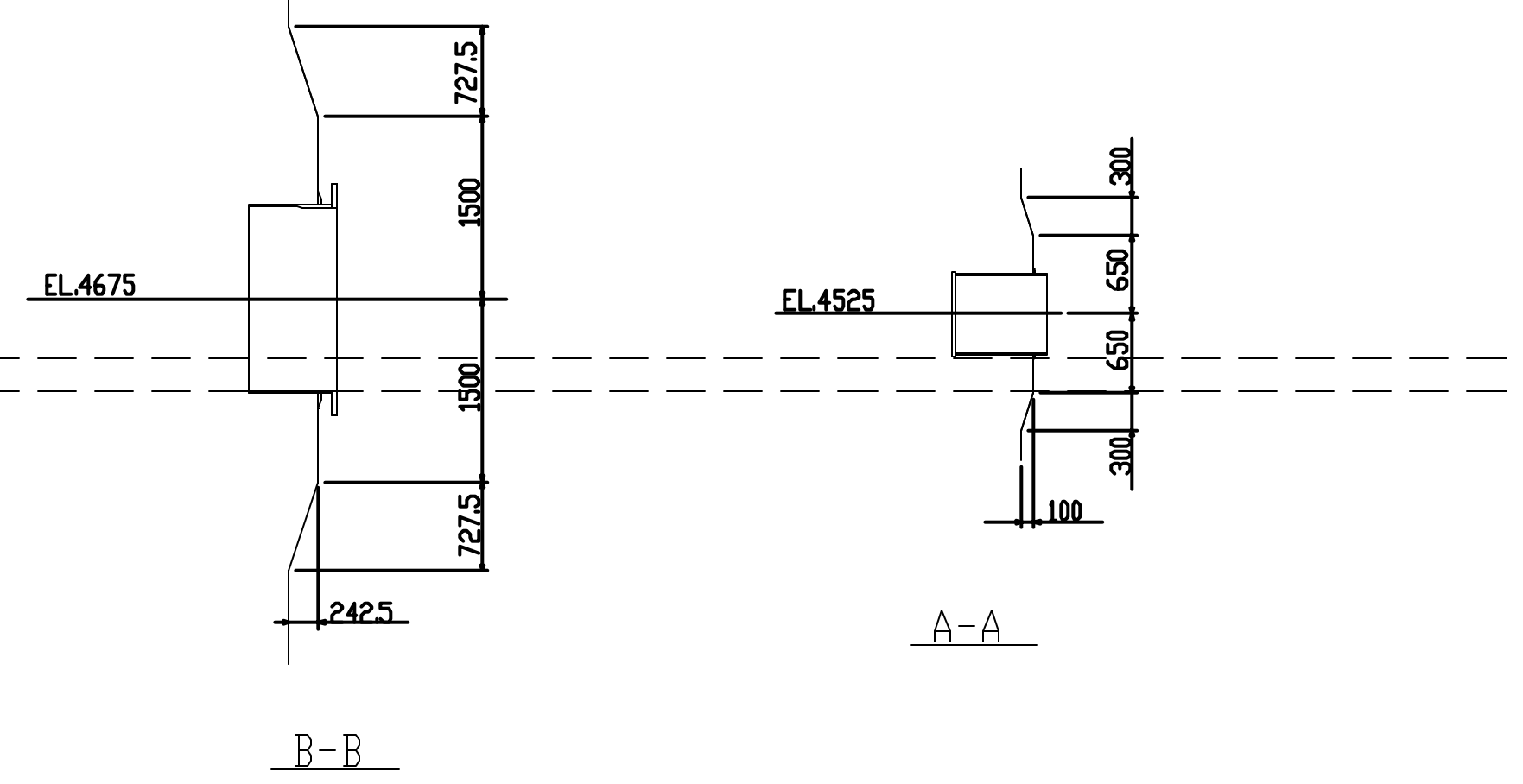
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3





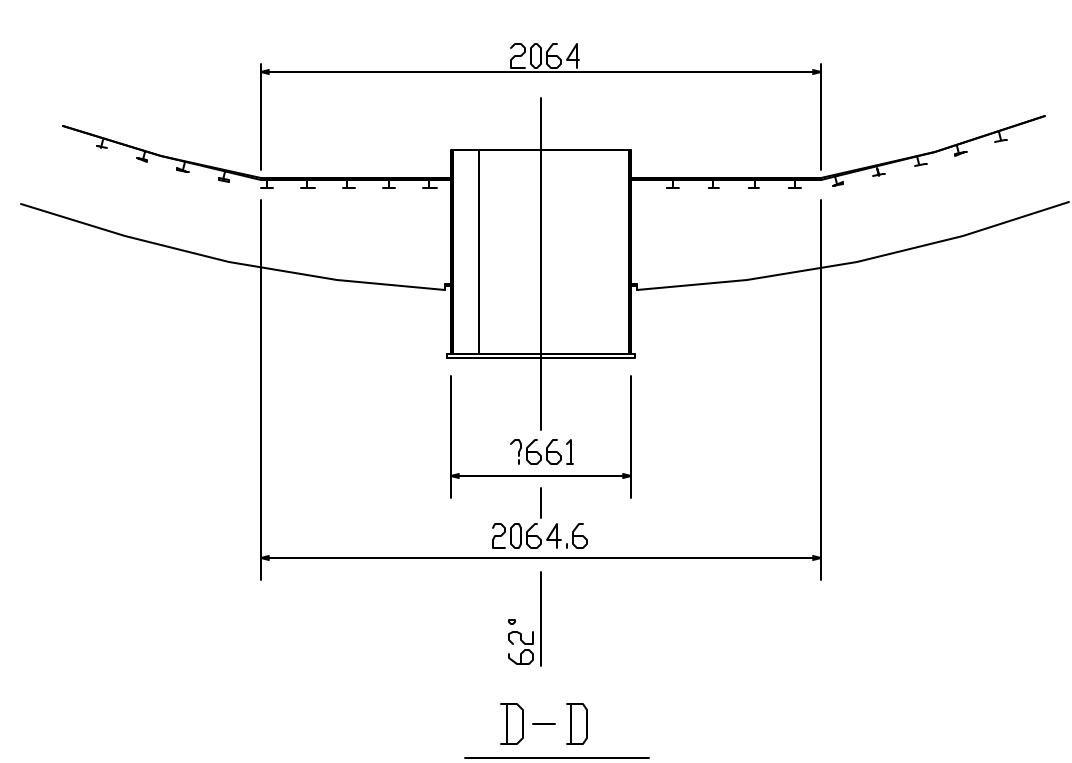
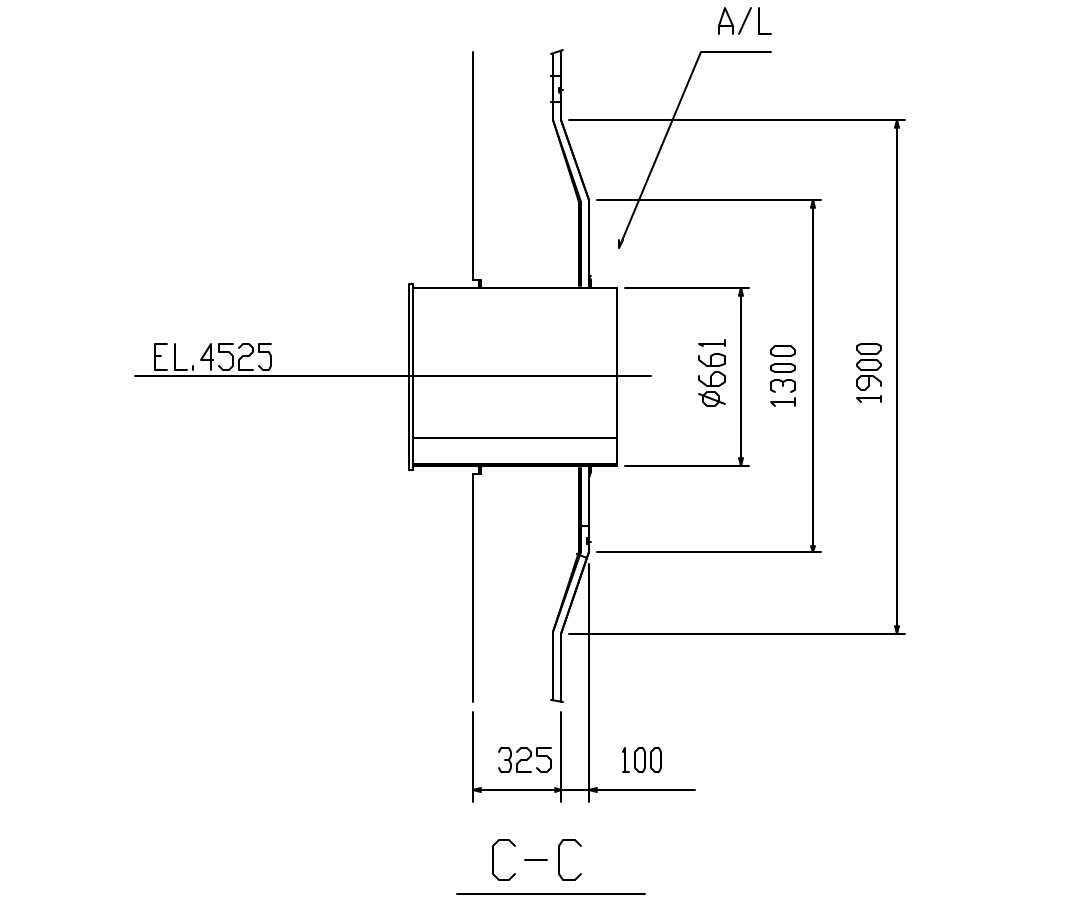
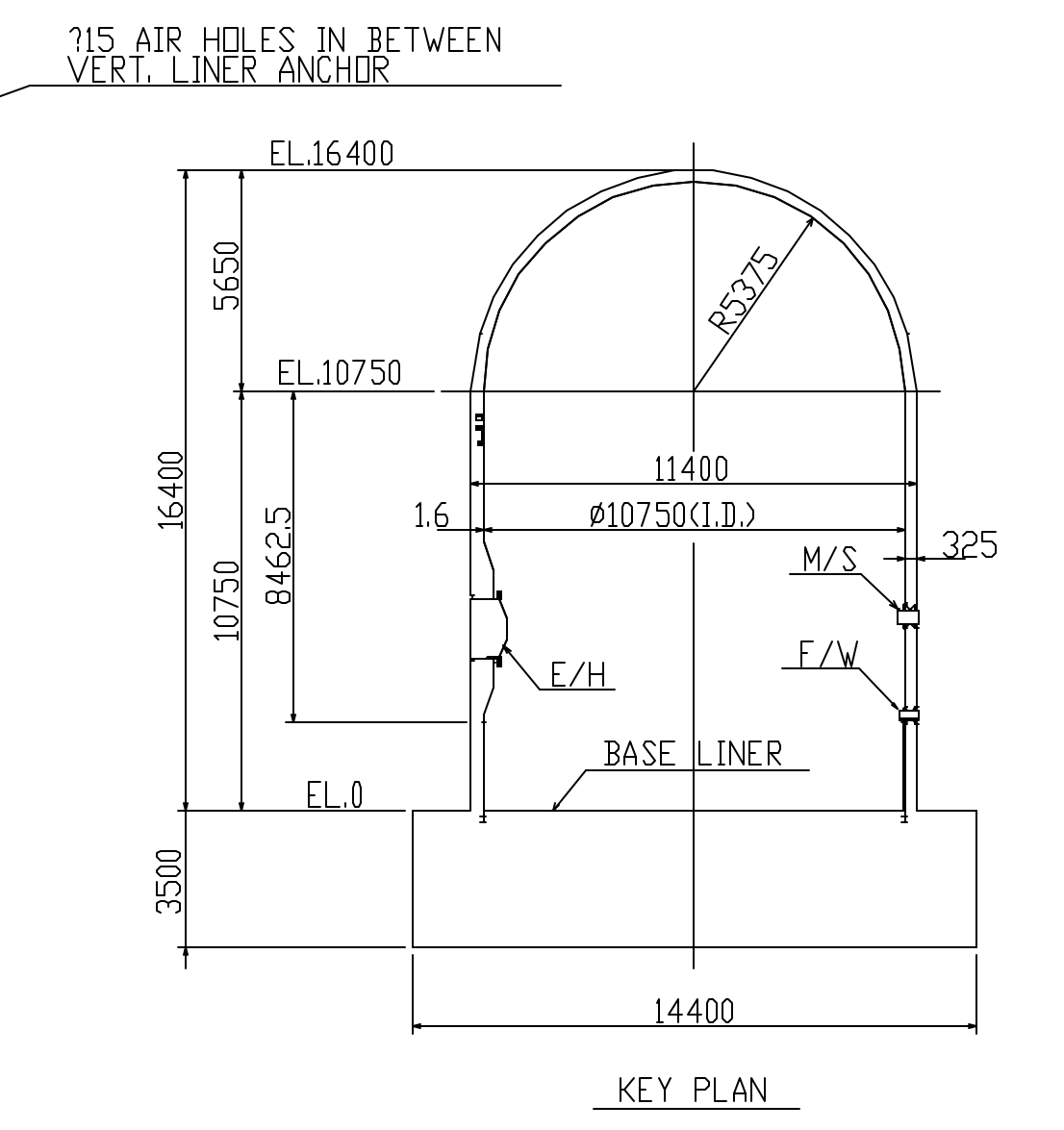
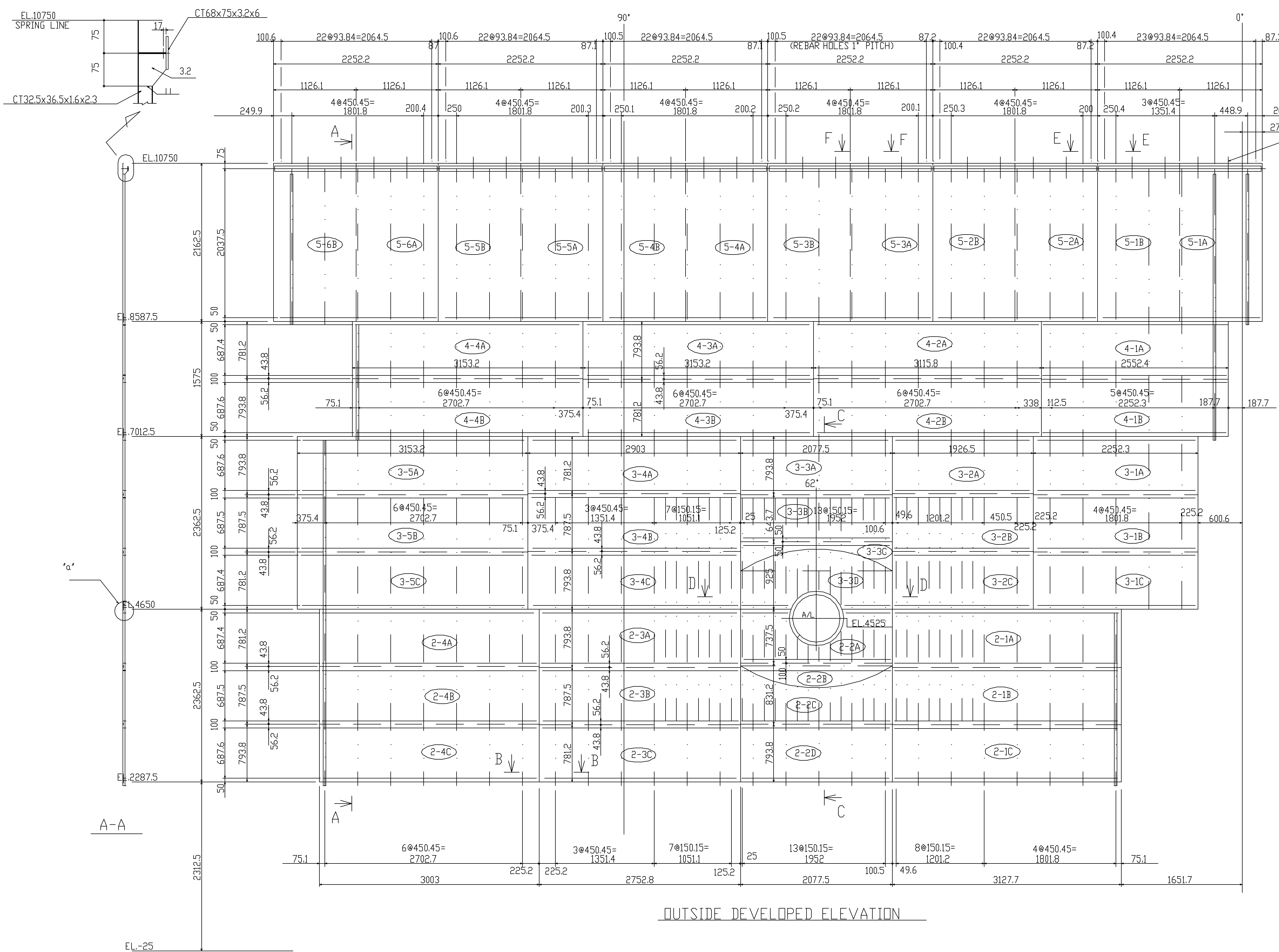
OUTSIDE DEVELOPED ELEVATION



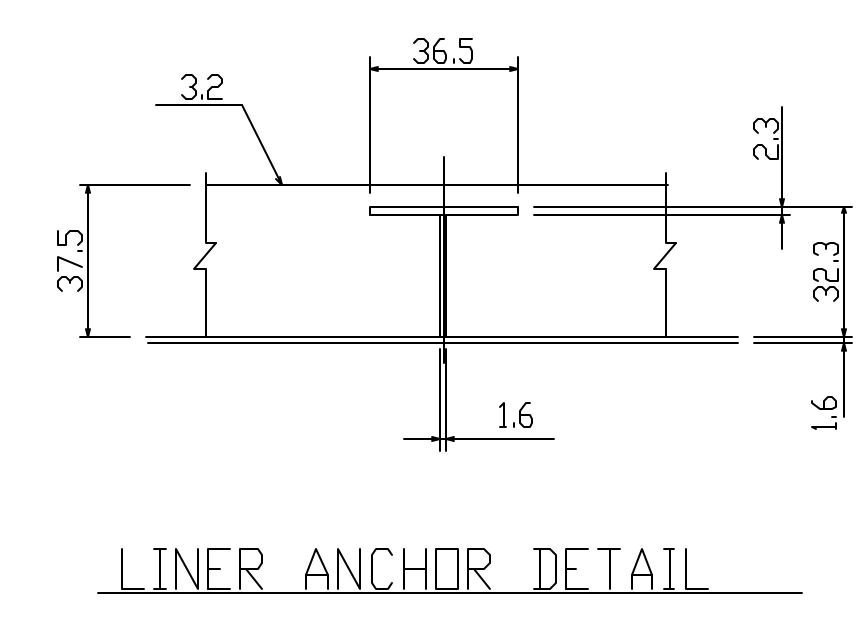
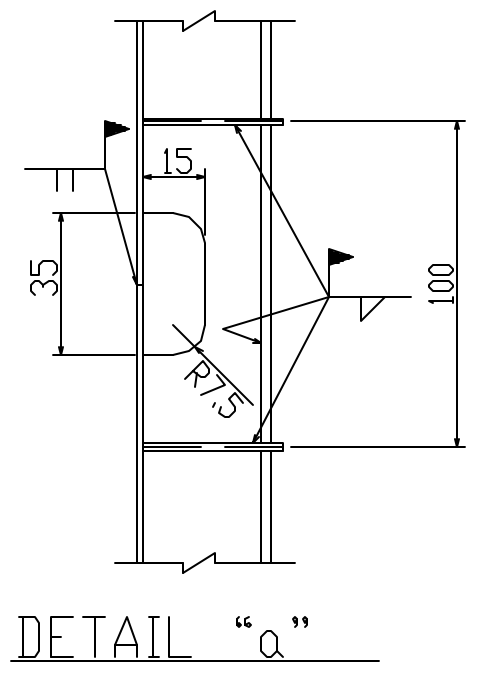
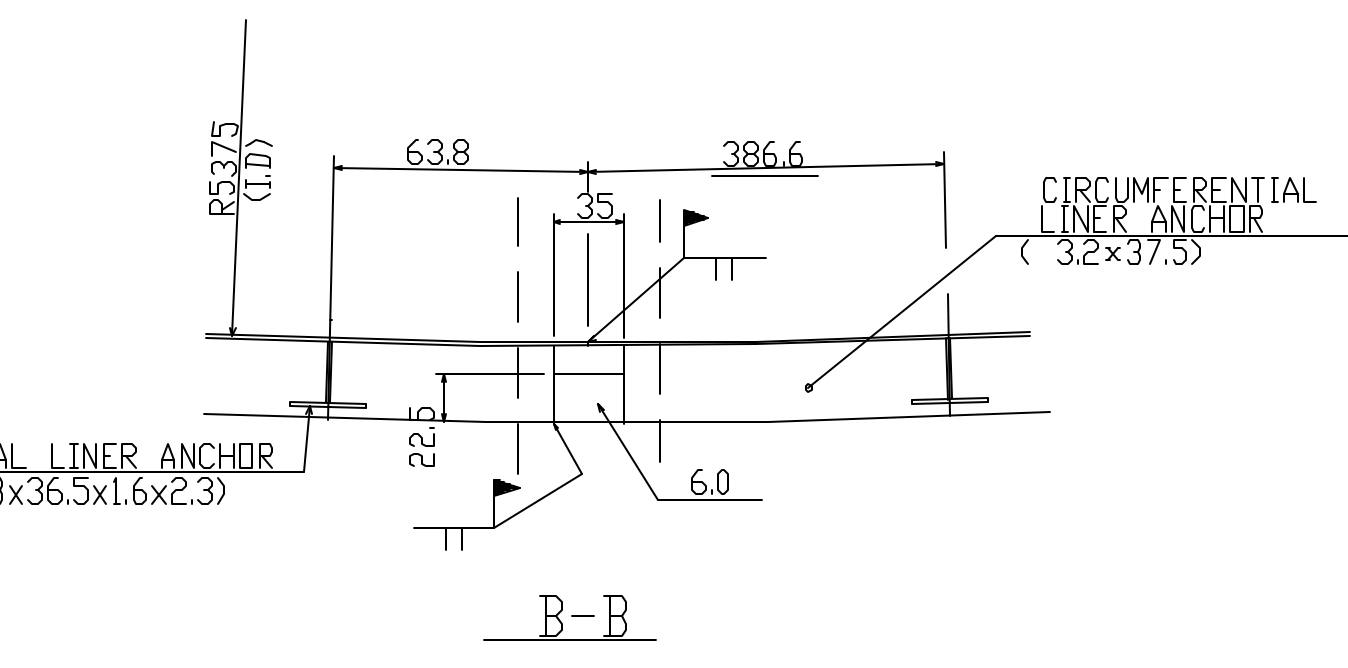
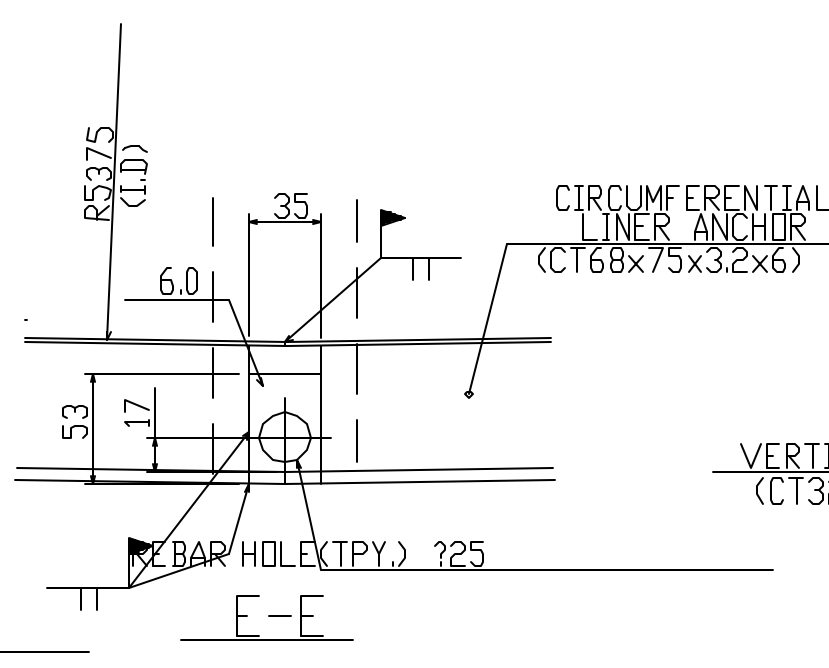
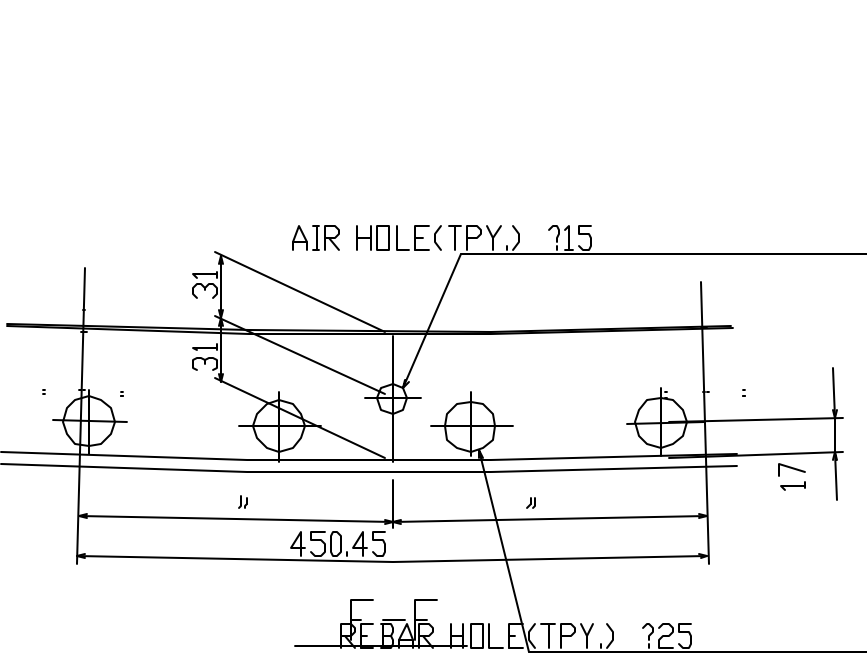
- NOTES
1. THIS DWG. INDICATES LINER PLATE BLOCK LAYOUT OF CYLINDER PORTION.
  2. MARKS IN INDICATE LINER PLATE BLOCK MARKS.
  3. CIRCUMFERENTIAL DIMENSIONS SHOWN ON THIS DWG. ARE ARC LENGTHS OF OUTSIDE SURFACE OF LINER PLATE.
  4. CLASSIFICATION OF WELD SEAMS ARE AS FOLLOWS:  
 FIELD WELD  
 SHOP WELD

7-223072

SET	SET	MARK	DESCRIPTION	MATERIAL	TEXT PER SET	WELDS PER SET	SPARE PER SET	TOTAL PER SET	REMARKS
			STEEL STRUCTURE DEPARTMENT PRODUCTION SHOP	NUPEC PCCV STRUCTURAL BEHAVIOR PROVING TEST					
			APPROVED						
			CHECKED						
			DRAWN						
			SCALE 1/50						
			DRAWER						
			DRAWING NO. M1-ZCD1006A						
			DRAWN						
			ISSUED						

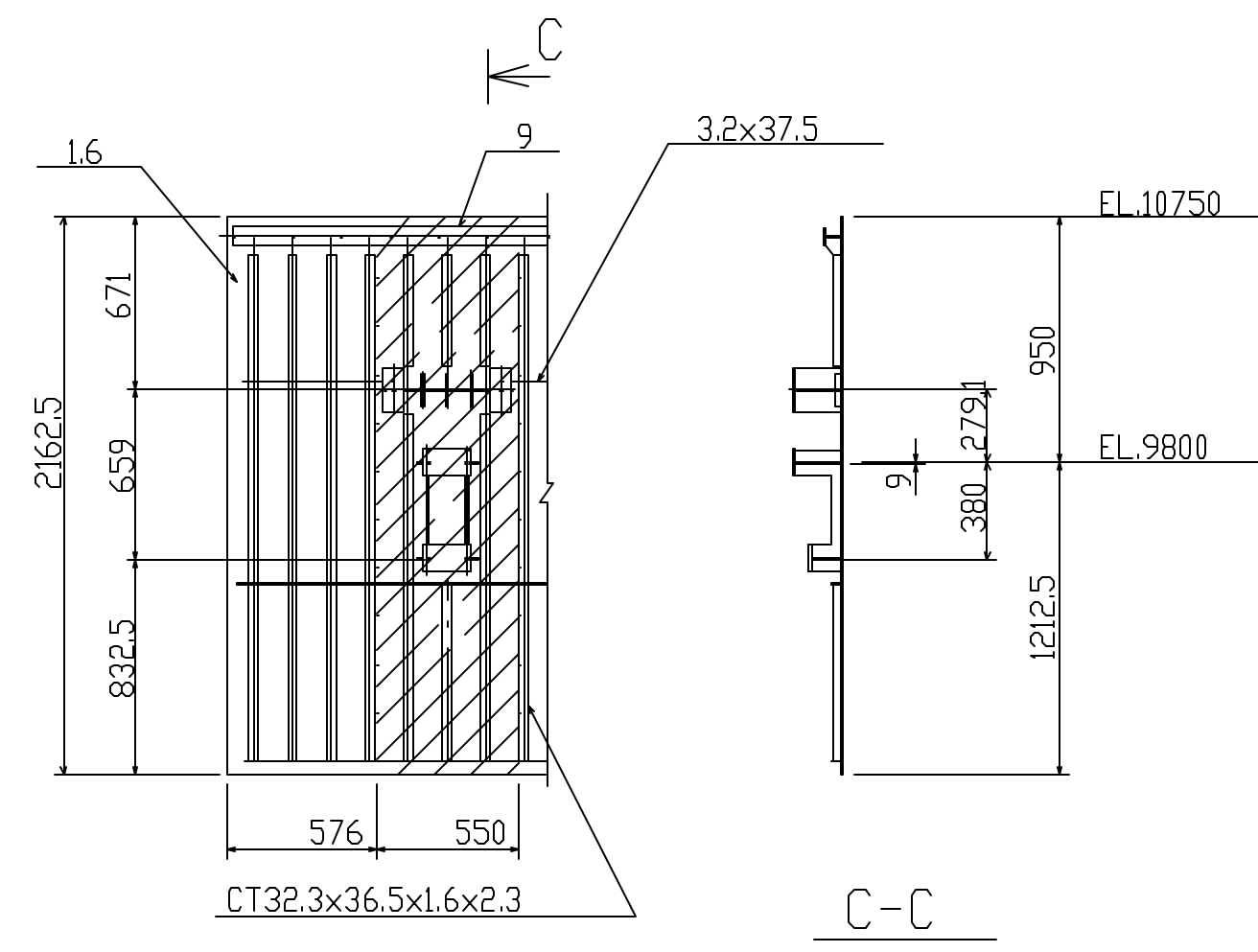
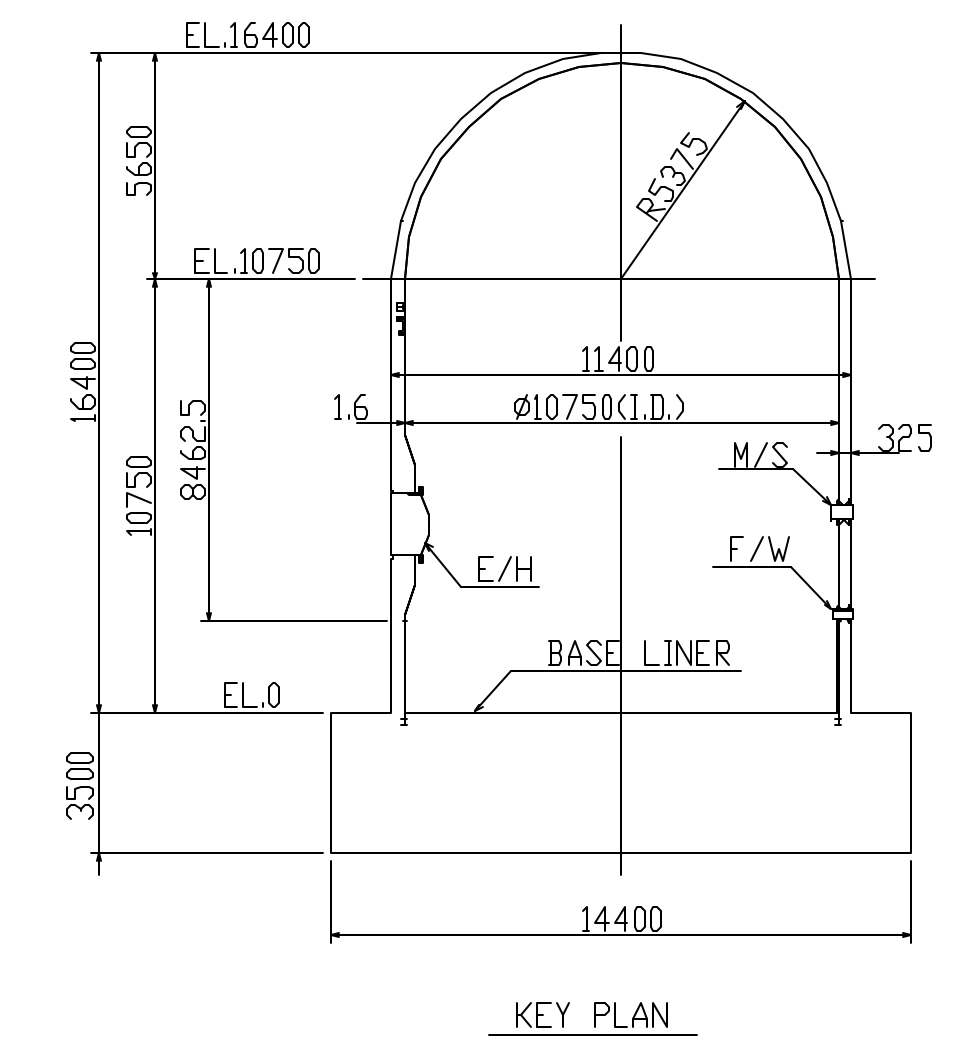
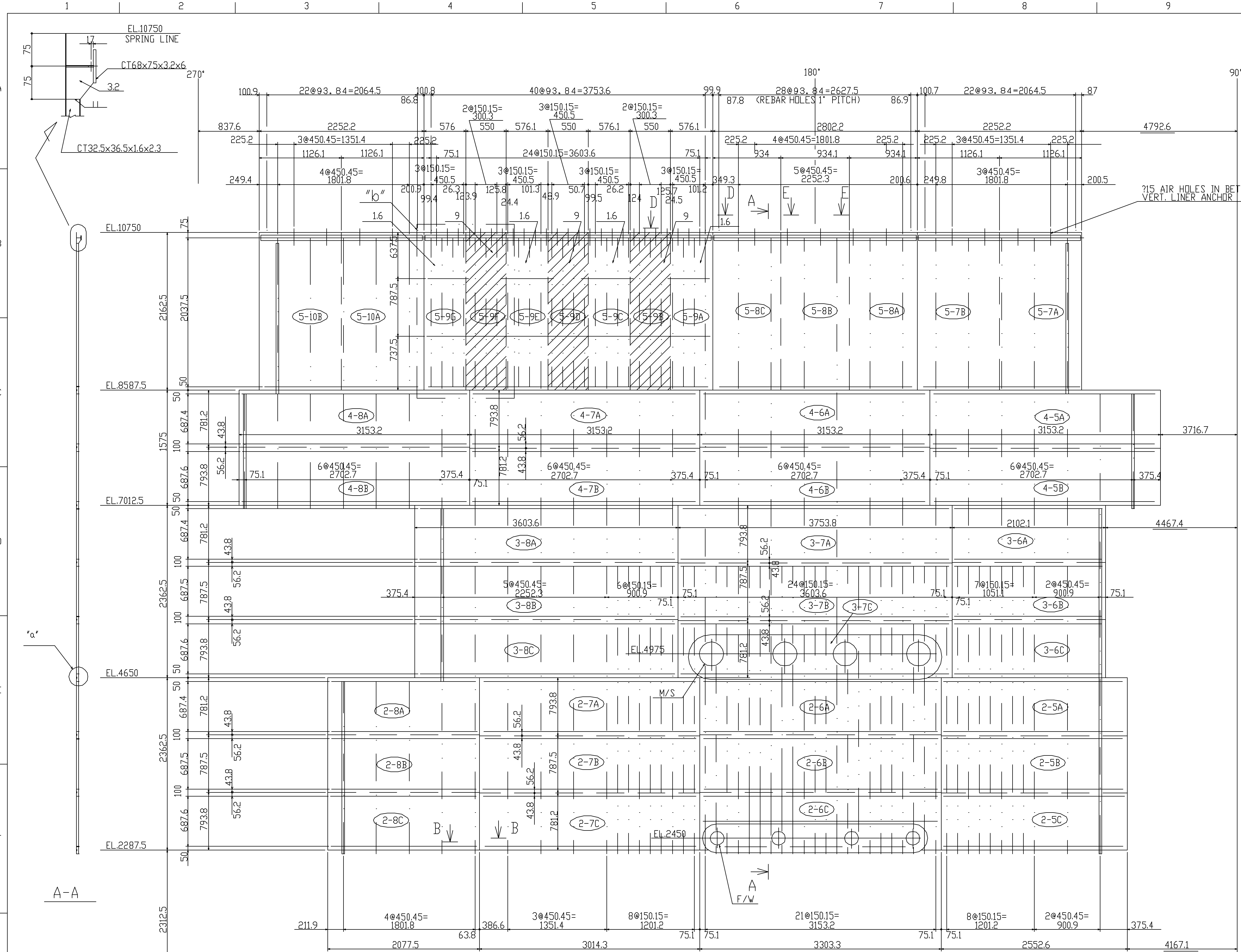


- NOTES**
- MATERIALS LINER PLATE ( 1.6 ) SGV410  
LINER ANCHOR SS400
  - ALL WELD SHALL BE FILLET WELDS  
UNLESS OTHERWISE NOTED.
  - CLASSIFICATION OF WELD SEAMS ARE AS FOLLOWS:  
 FIELD WELD  
 SHOP WELD



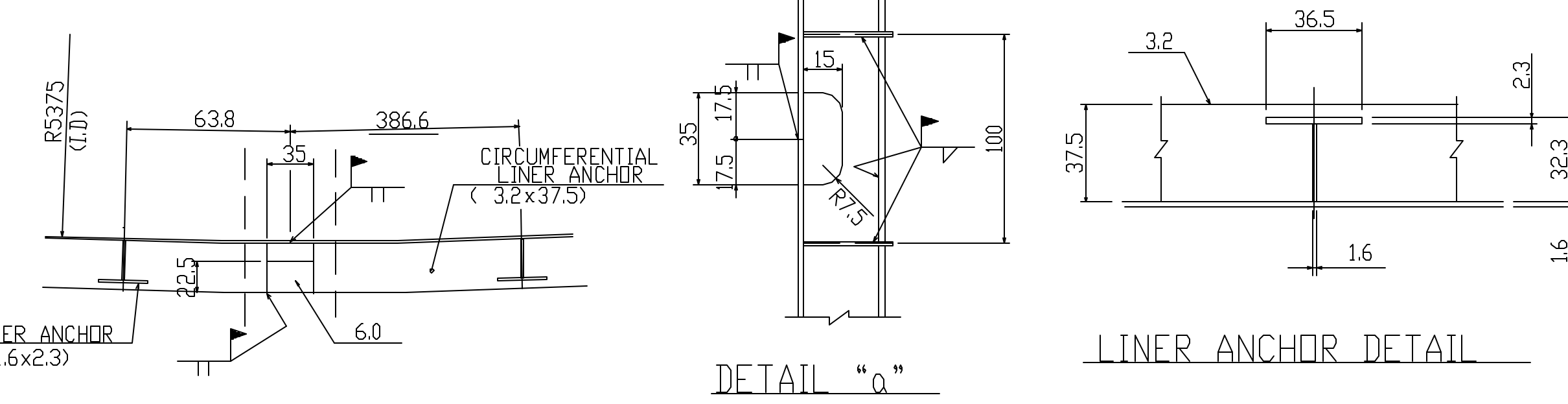
7-223072

SPARE WORKING	SPARE WORKING	MARK	DESCRIPTION	MATERIAL	TEST WORKING	SPARE	PER PIECE	TOTAL	REMARKS
SET	SET	DATE			PIECE	QUANTITY PER SET	MASS (kg)		
		DATE	STEEL STRUCTURE DEPARTMENT STRUCTURE DESIGNING SECTION						NUPEC PCV STRUCTURAL BEHAVIOR PROVING TEST
		APPROVED							CYLINDER LINER ANCHOR DETAILS
		CHECKED							#2~5 BLOCKS
		DRAWN							(0°~90°)
		SCALE	1/30,1/4						
		OWNER							DRAWING NO.
									M1-ZCD1007A
									2
									COPY FOR



DETAIL "b"

OUTSIDE DEVELOPED ELEVATION



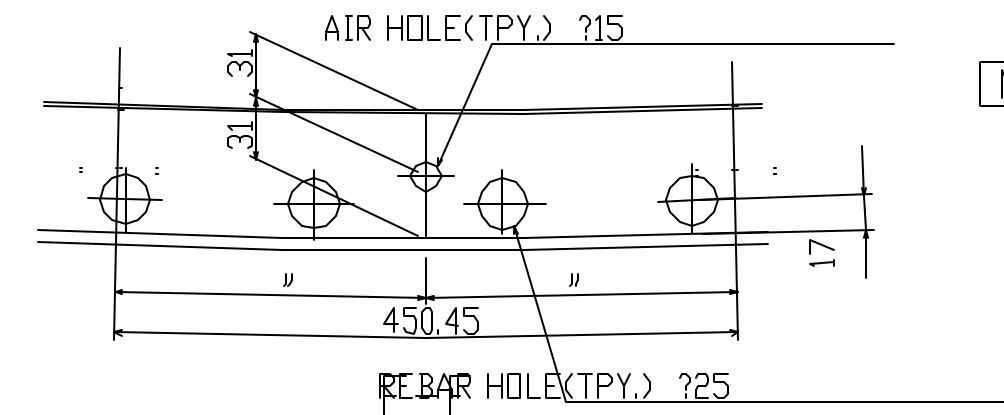
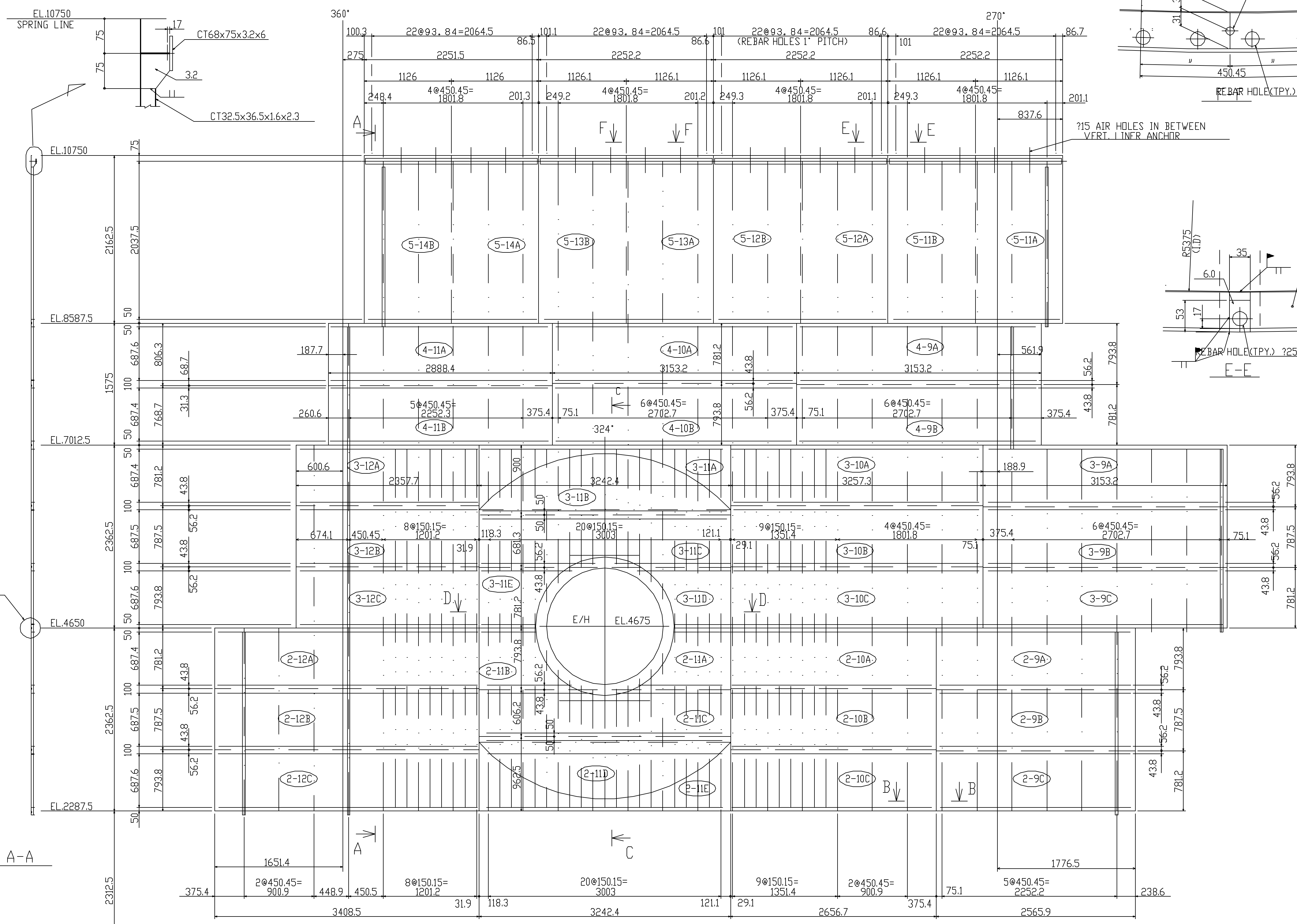
DETAIL "a"

LINER ANCHOR DETAIL

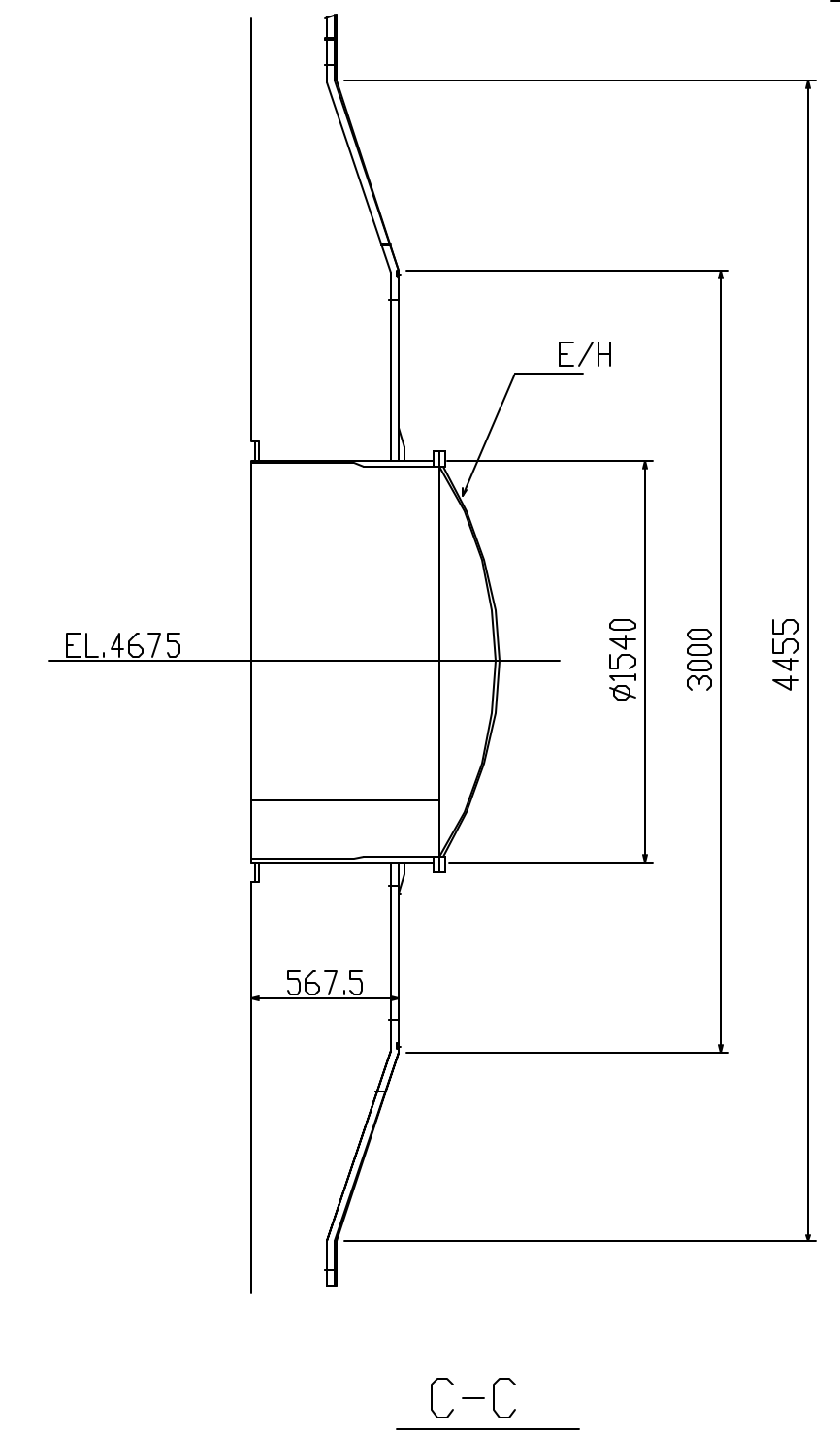
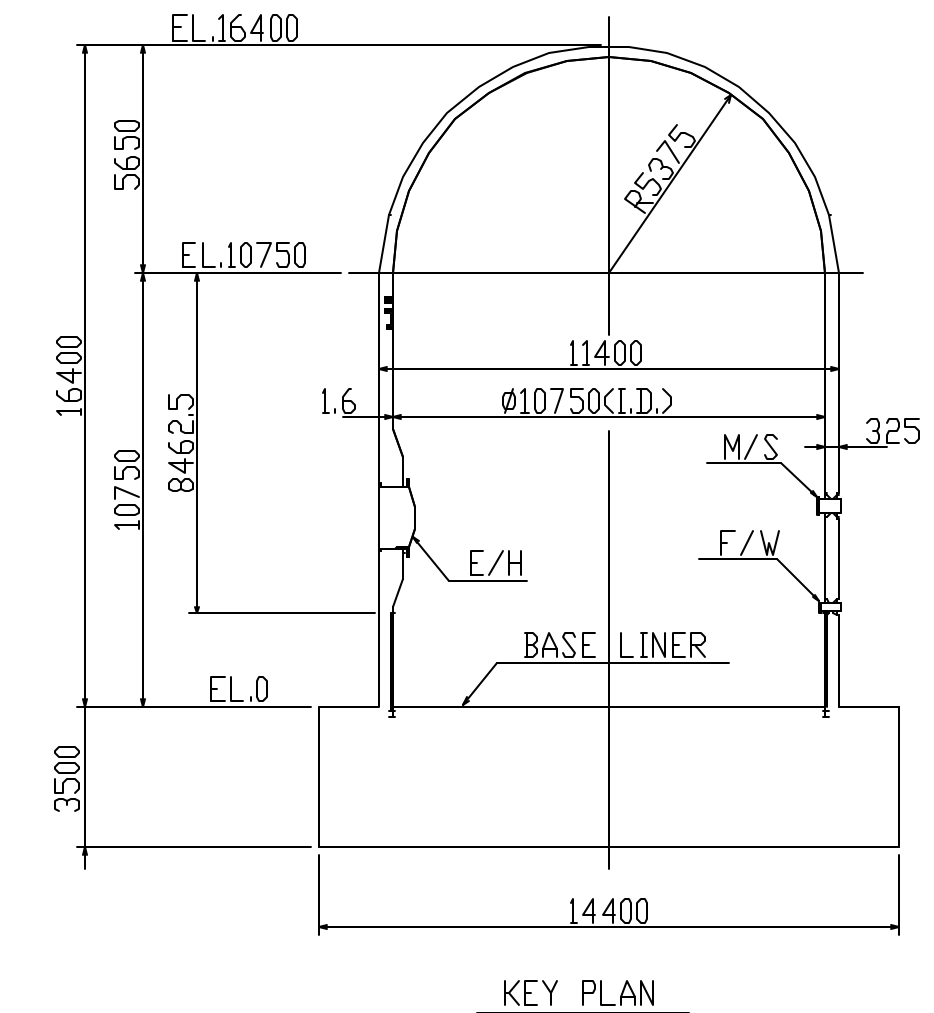
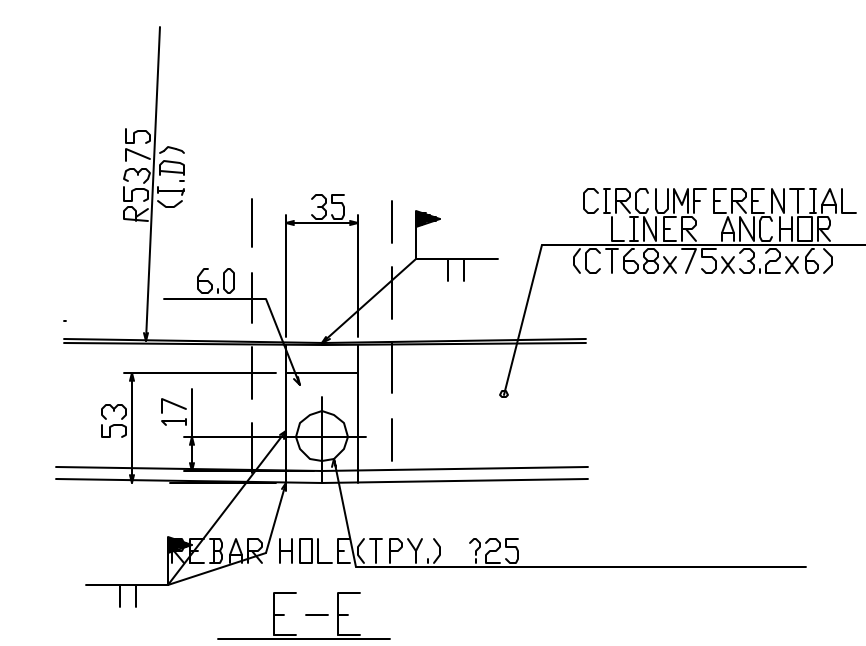
- NOTES**
1. MATERIALS LINER PLATE (1.6) SGV410  
LINER ANCHOR SS400
  2. ALL WELD SHALL BE FILLET WELDS  
UNLESS OTHERWISE NOTED.
  3. CLASSIFICATION OF WELD SEAMS ARE AS FOLLOWS:  
— FIELD WELD  
— SHOP WELD

7-223072

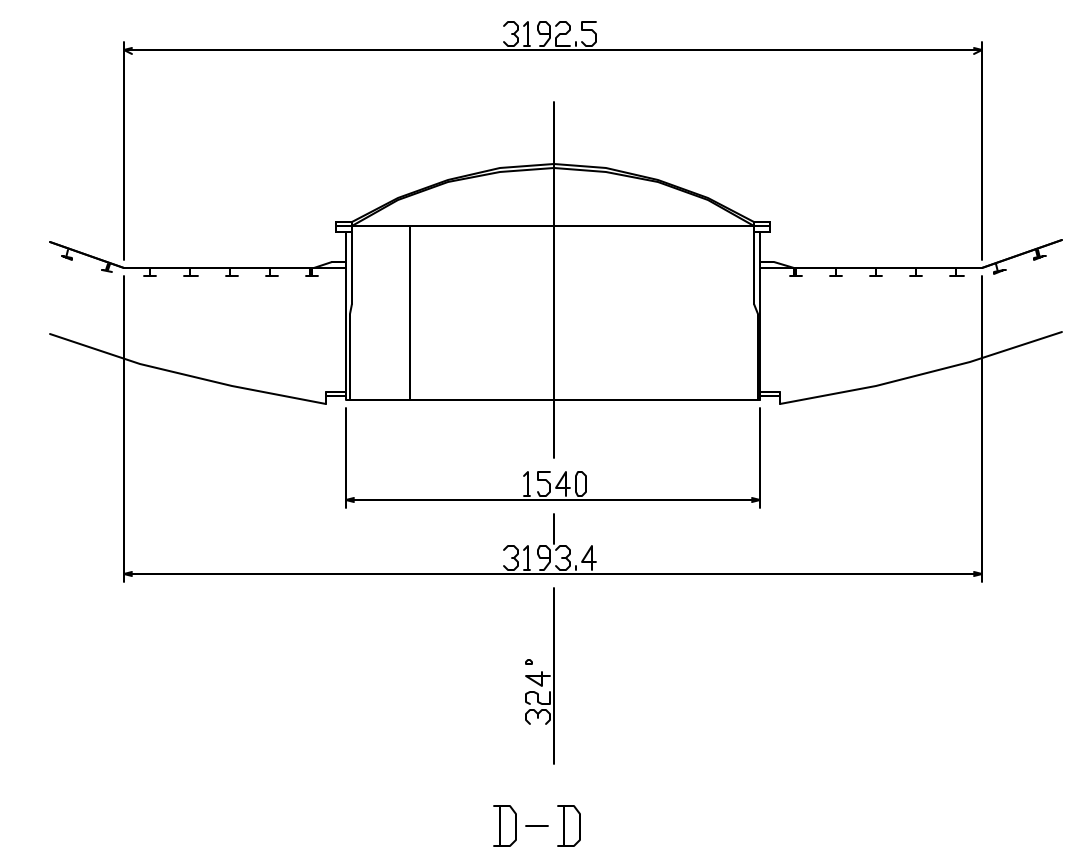
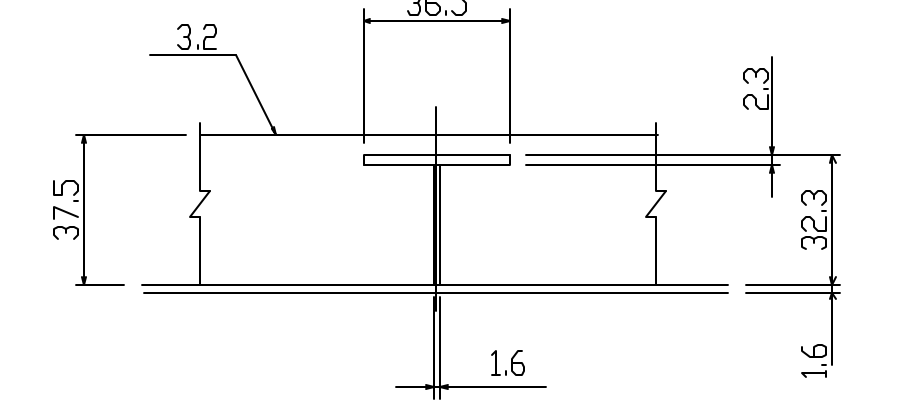
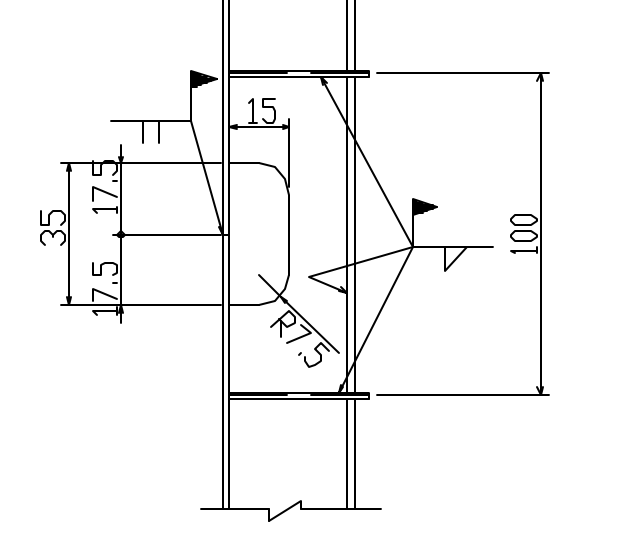
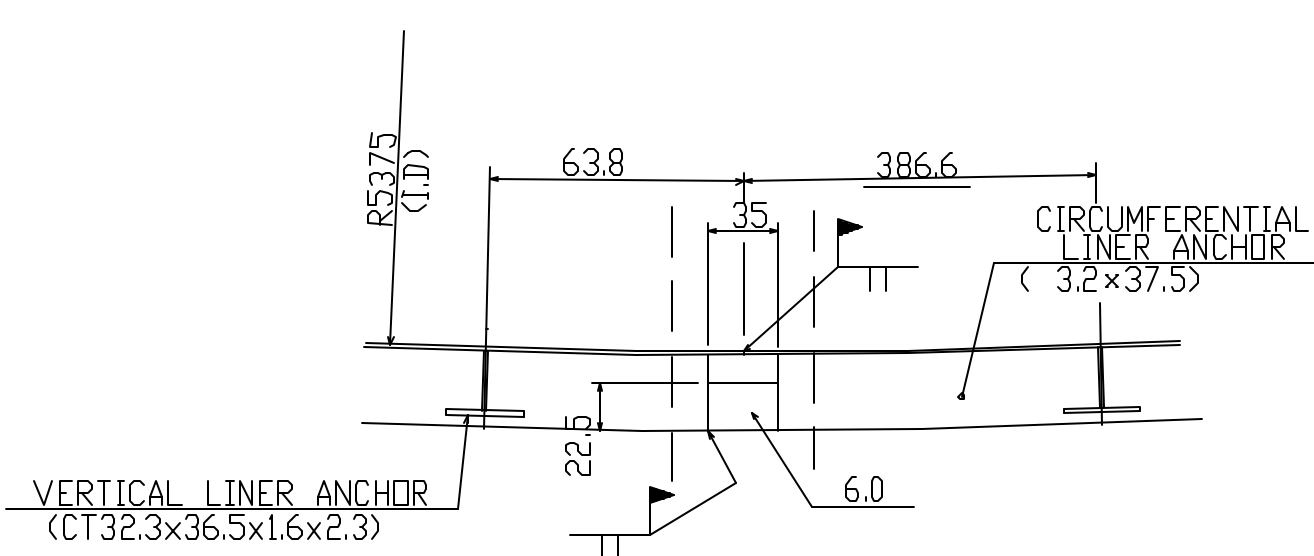
MARK	DESCRIPTION	MATERIAL	TEST WORKING	SPARE	PER PIECE	TOTAL	REMARKS
SET	SET		PIECE	QUANTITY PER SET	MASS (kg)		
	STEEL STRUCTURE DEPARTMENT STRUCTURE DESIGNING SECTION	NIUEC PCCV STRUCTURAL BEHAVIOR PROVING TEST					
	APPROVED	CYLINDER LINER ANCHOR DETAILS					
	CHECKED	#2~5 BLOCKS					
	DRAWN	(90°~270°)					
	SCALE	1/30,1/4					
	OWNER	DRAWING NO.					
		M1-ZCD1008A					
		2					



215 AIR HOLES IN BETWEEN VERT. LINER ANCHOR

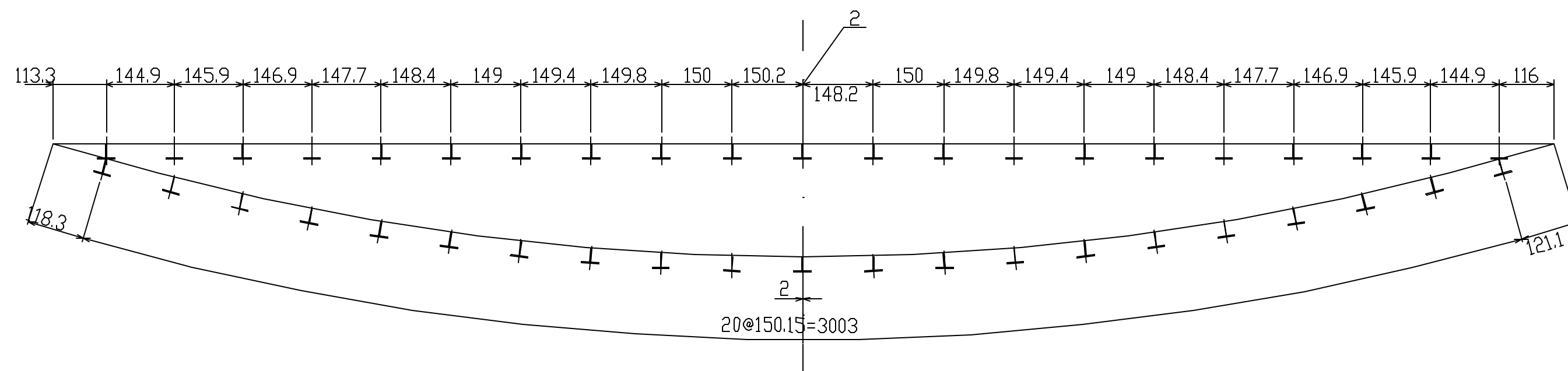
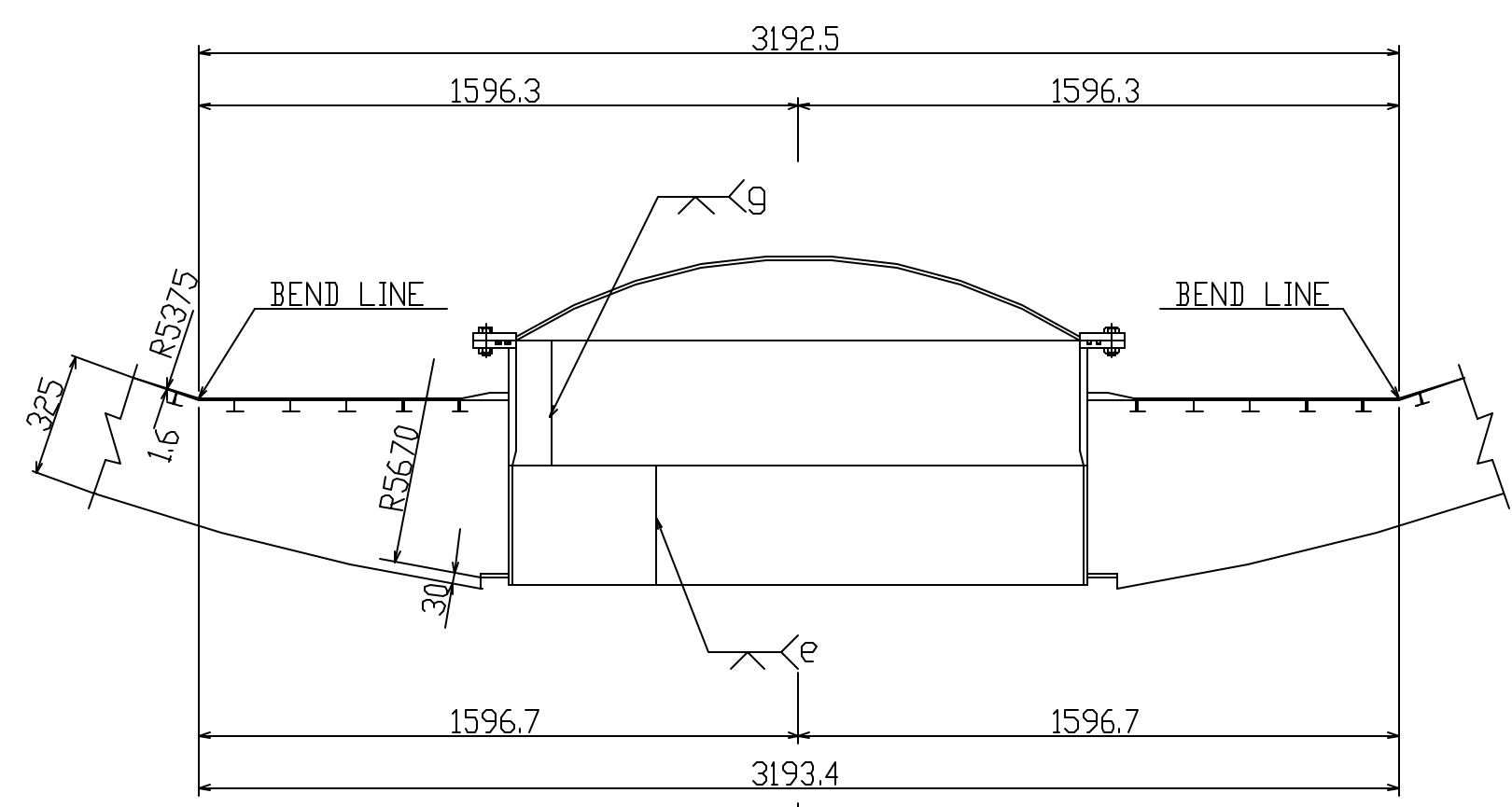


OUTSIDE DEVELOPED ELEVATION

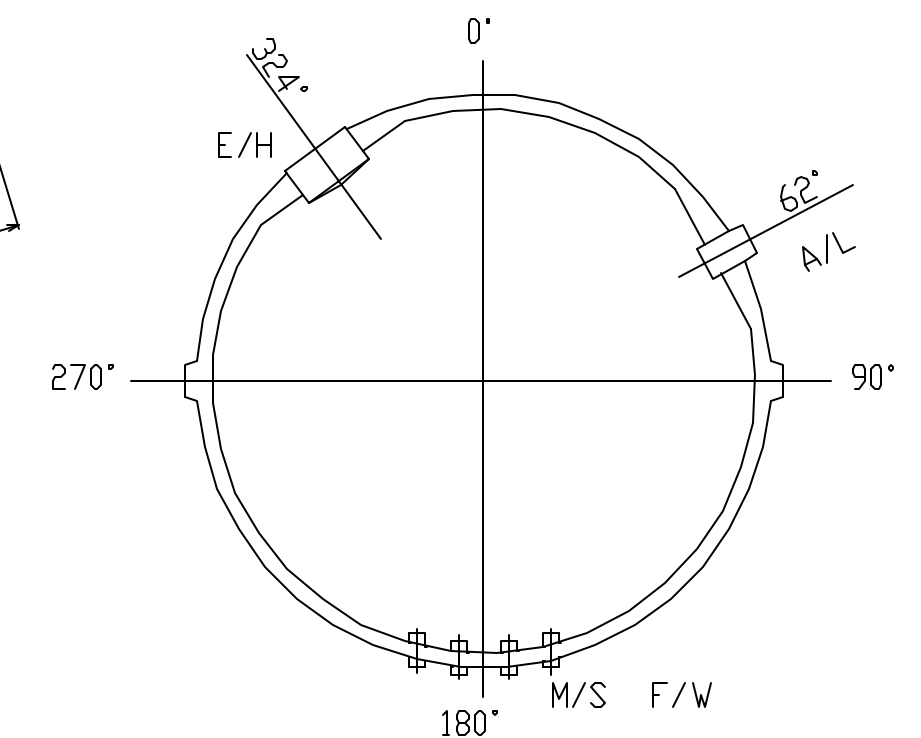


- NOTES**
- MATERIALS LINER PLATE( 1.6 ) S6V410  
LINER ANCHOR SS400
  - ALL WELD SHALL BE FILLET WELDS  
UNLESS OTHERWISE NOTED.
  - CLASSIFICATION OF WELD SEAMS ARE AS FOLLOWS:  
— FIELD WELD  
— SHOP WELD

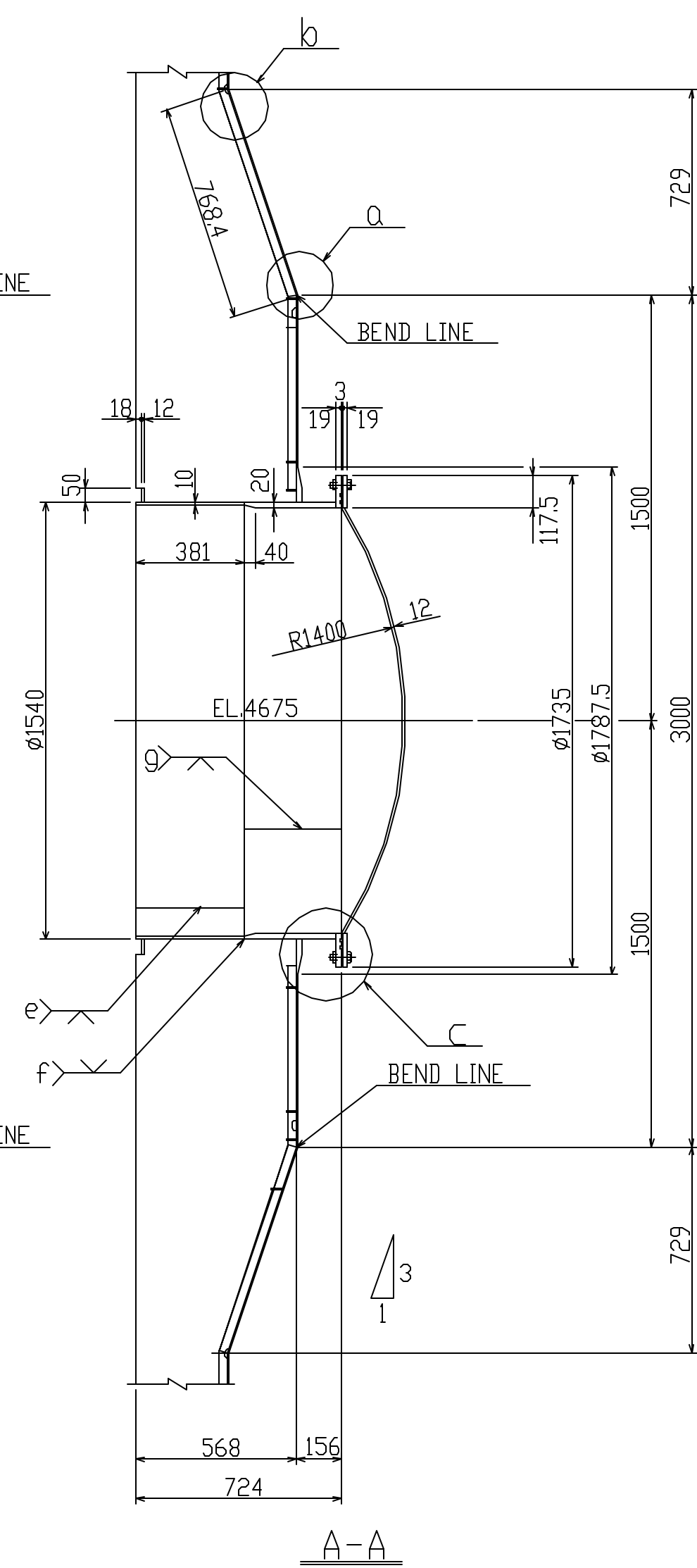
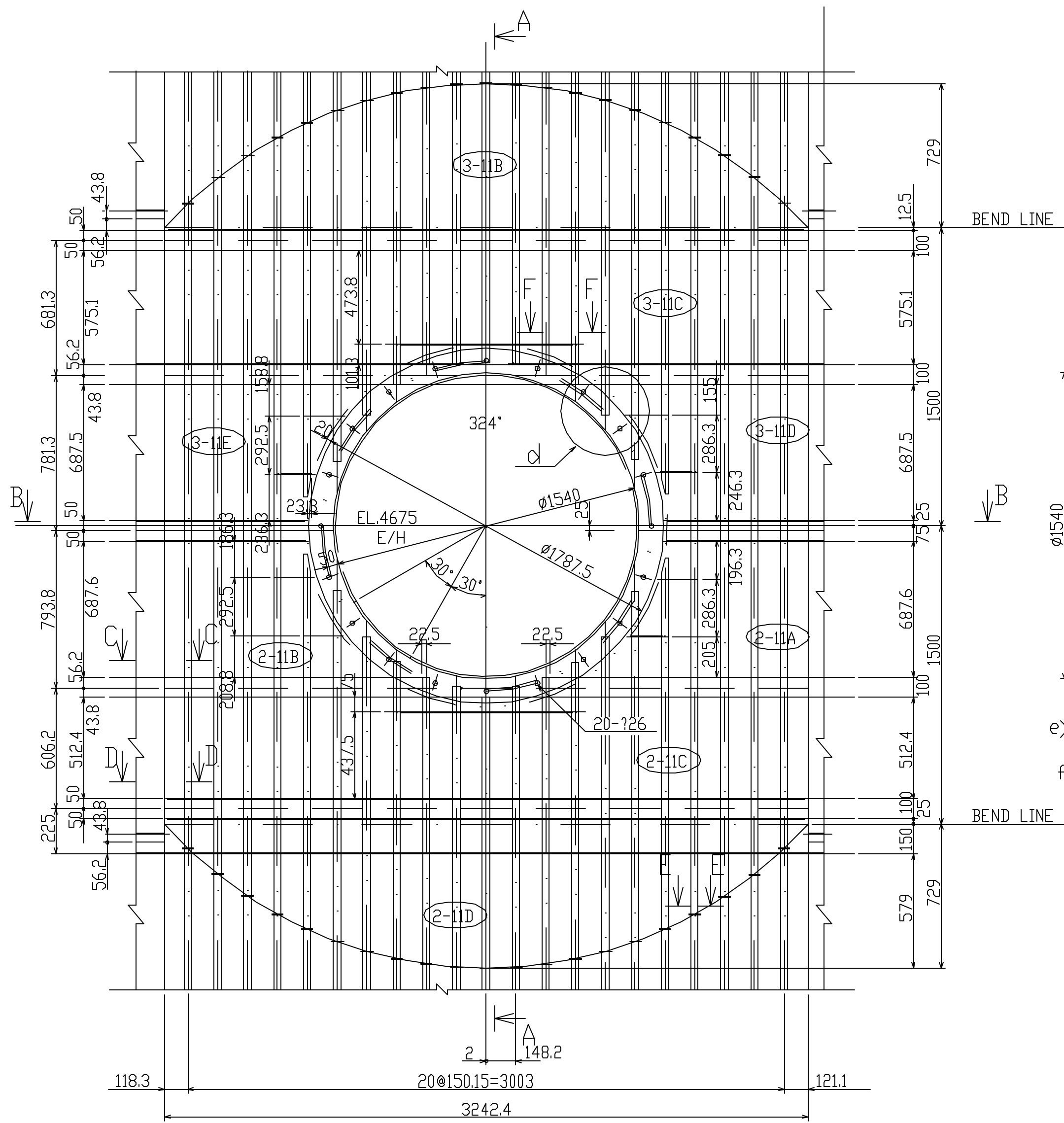
SPARE	WORKING	MARK	DESCRIPTION	MATERIAL	TEST	WORKING	SPARE	PER PIECE	TOTAL	REMARKS
SET	SET	REVISION			PIECE	QUANTITY PER SET	MASS (kg)			
		DATE	STEEL STRUCTURE DEPARTMENT STRUCTURE DESIGNING SECTION	NIUPEC PCCV STRUCTURAL BEHAVIOR PROVING TEST						
		ORDER NO.	APPROVED	CYLINDER LINER ANCHOR DETAILS						
		ITEM NO.	CHECKED	#2~5 BLOCKS						
			DRAWN	(270°~360°)						
			SCALE	1/30,1/4						
		OWNER		DRAWING NO.						
				M1-ZCD1009A						
				2						



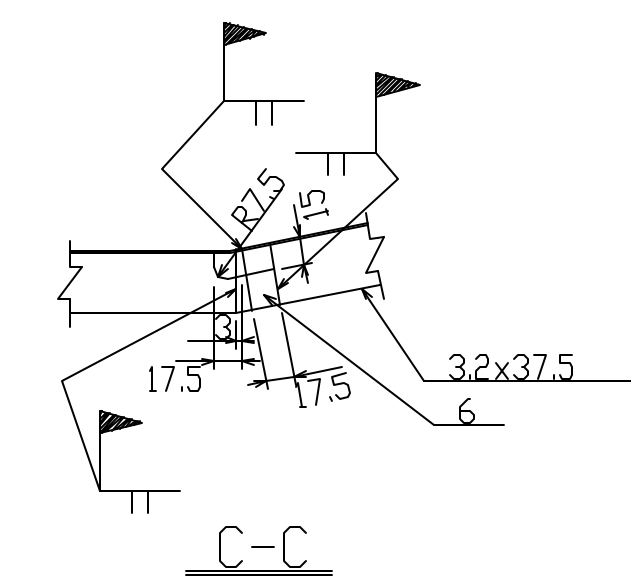
ARRANGEMENT OF LINER ANCHORS ON FLAT LINER PLATE



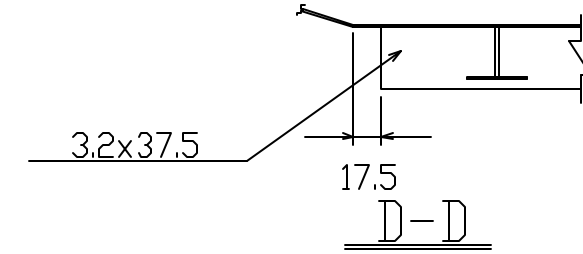
KEY PLAN



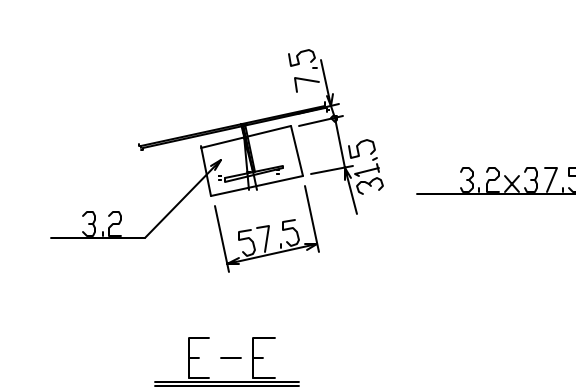
A-A



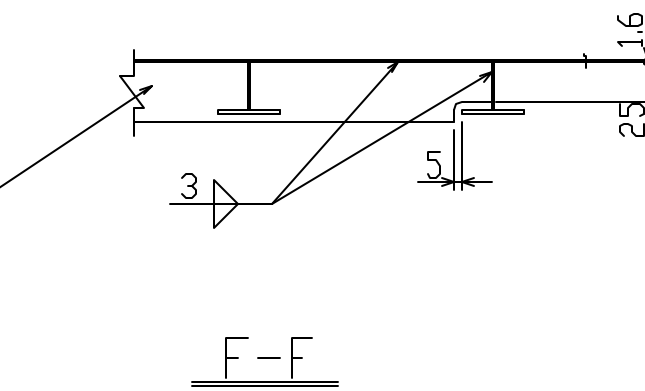
C-C



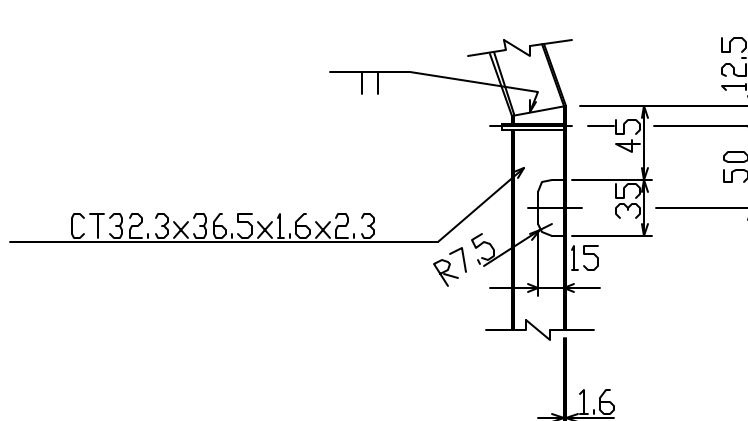
D-D



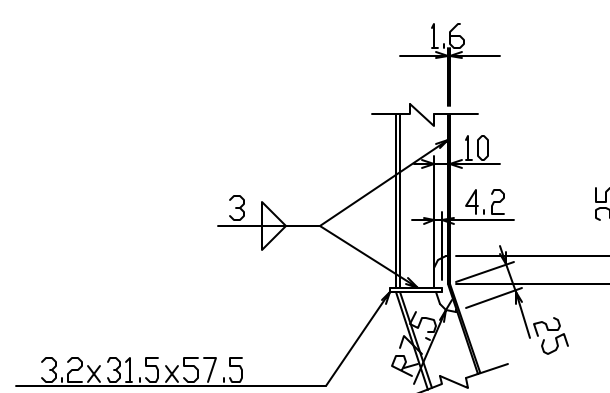
E-E



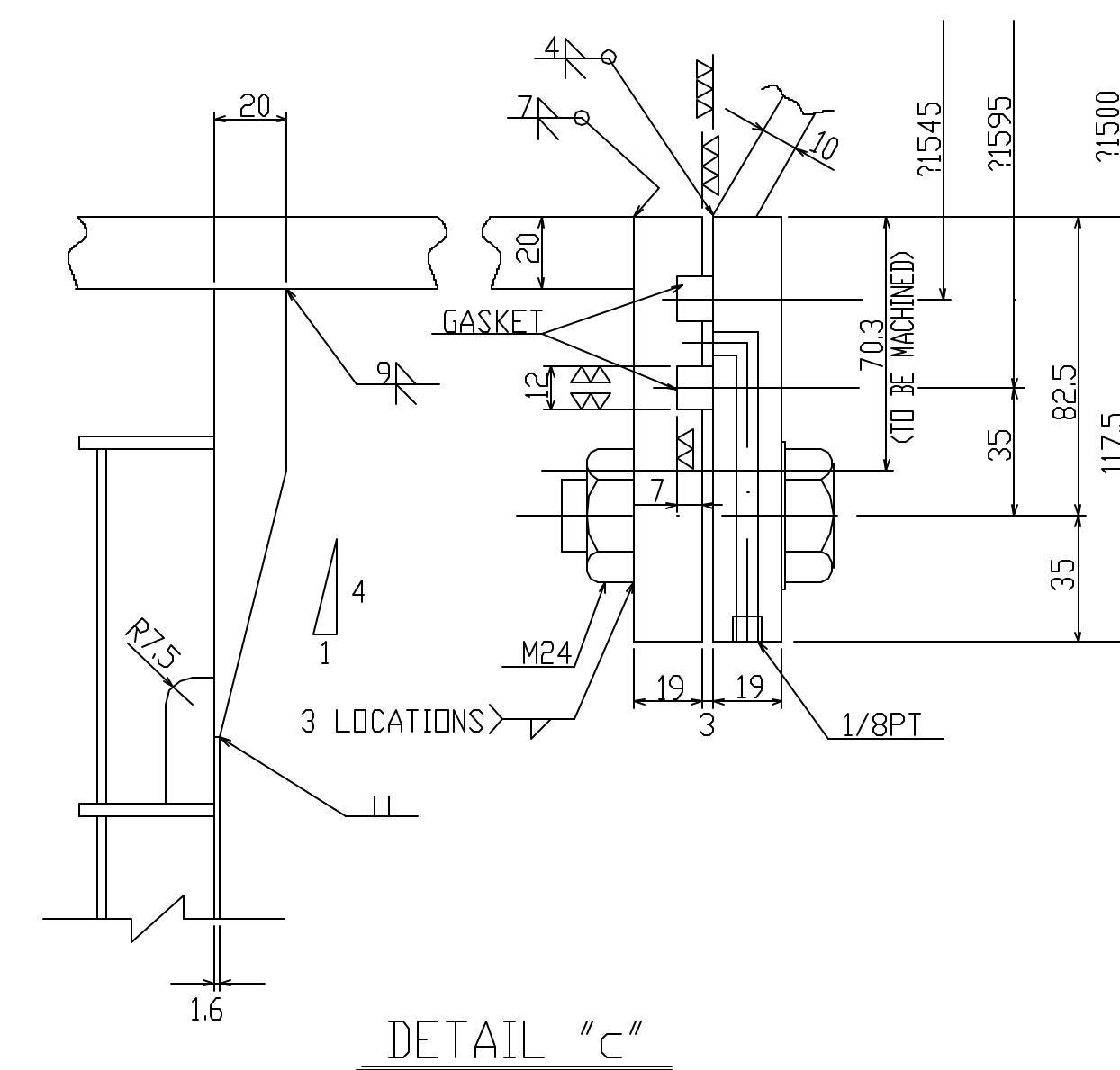
F-F



DETAIL "a"

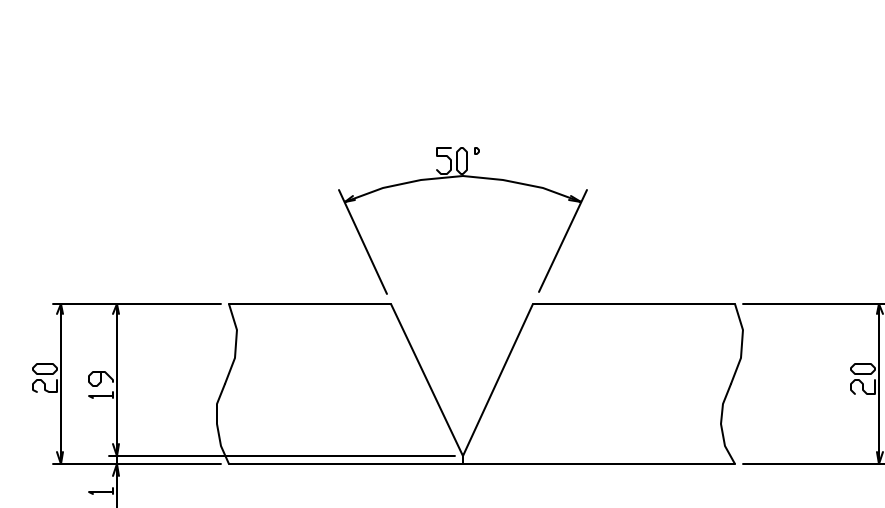


DETAIL "b"

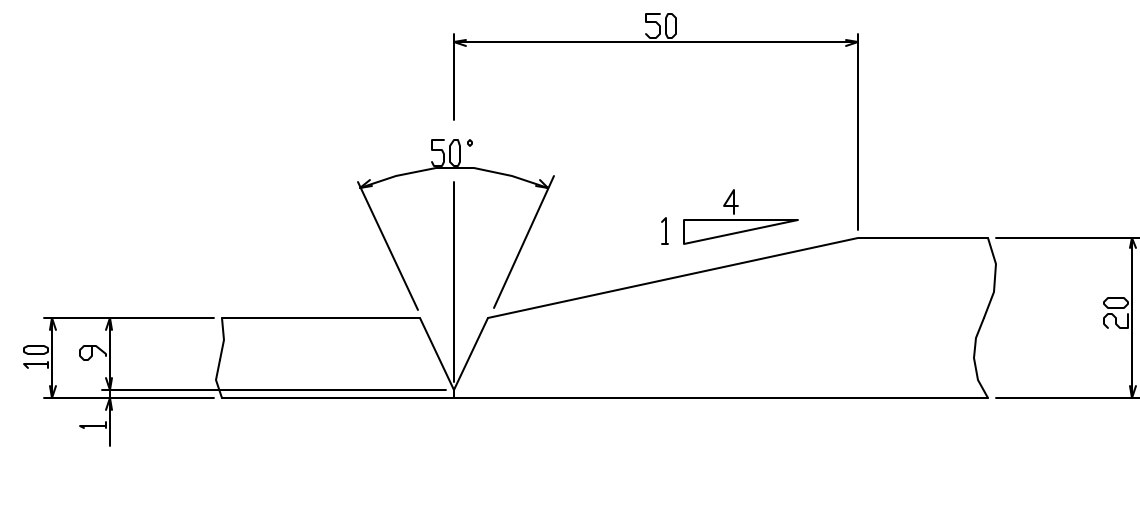


DETAIL "c"

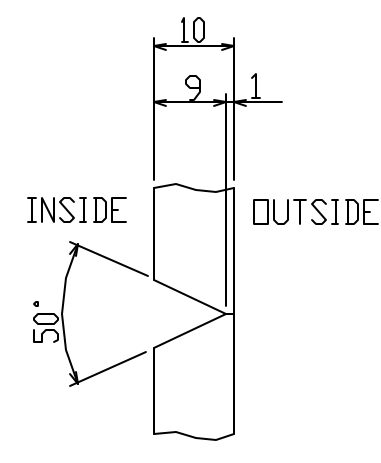
- NOTES**
- MATERIALS LINER PLATE (1.0) SGV410  
LINER ANCHOR SS400
  - ALL WELD SHALL BE FILLET WELDS  
UNLESS OTHERWISE NOTED.
  - CLASSIFICATION OF WELD SEAMS ARE AS FOLLOWS:  
— FIELD WELD  
— SHOP WELD



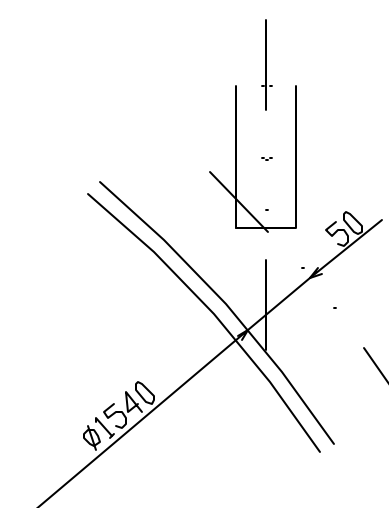
DETAIL "q"



DETAIL "f"



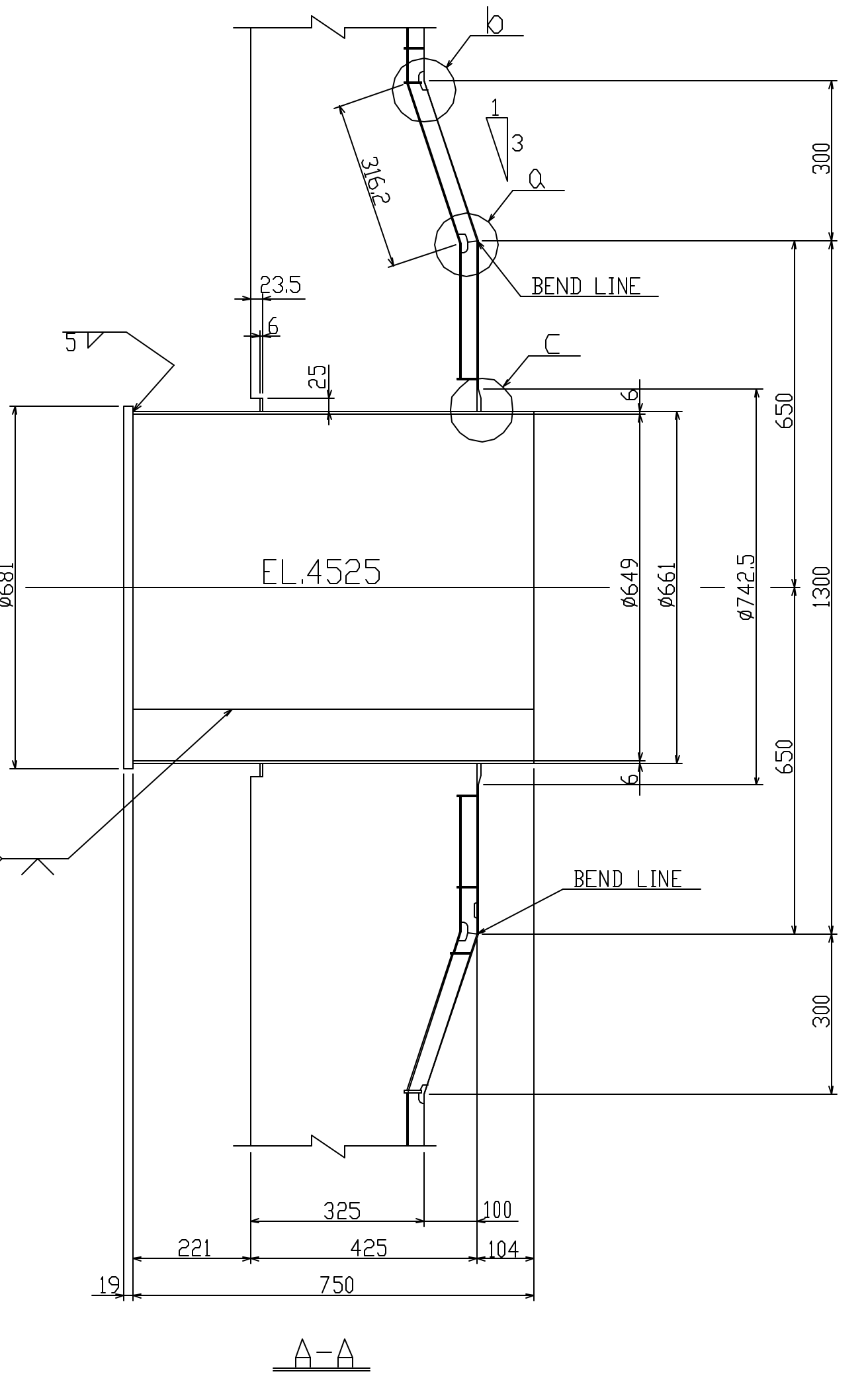
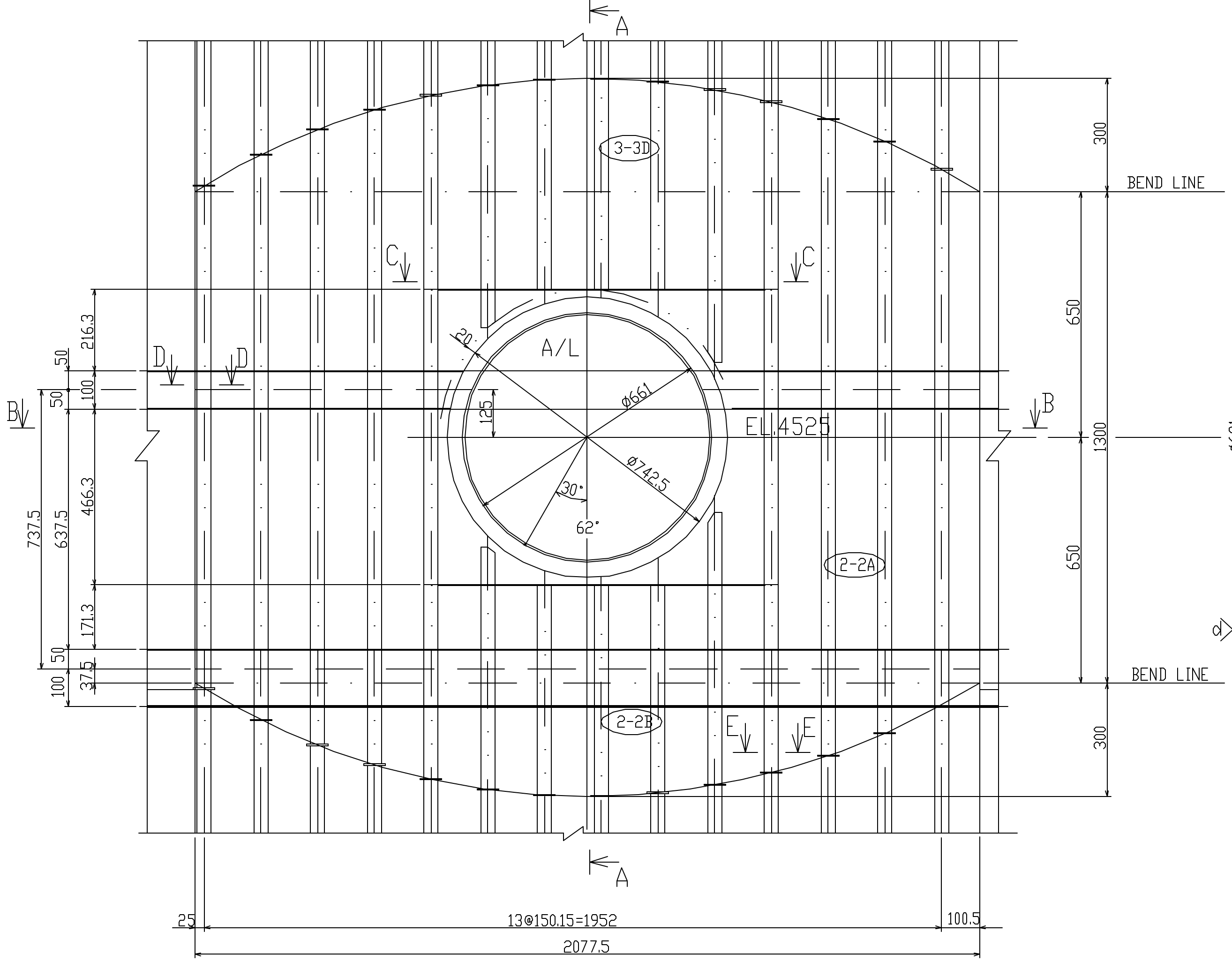
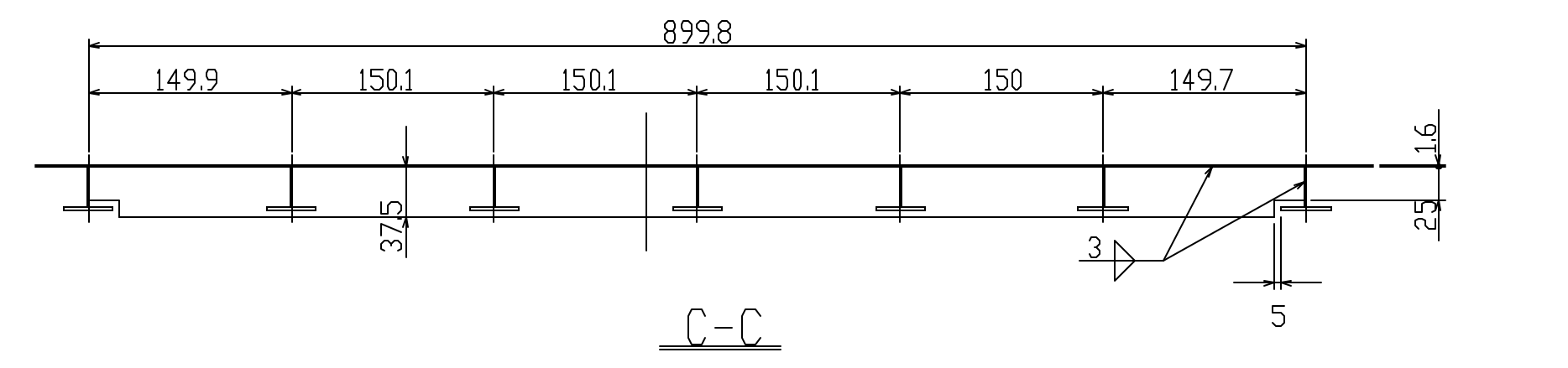
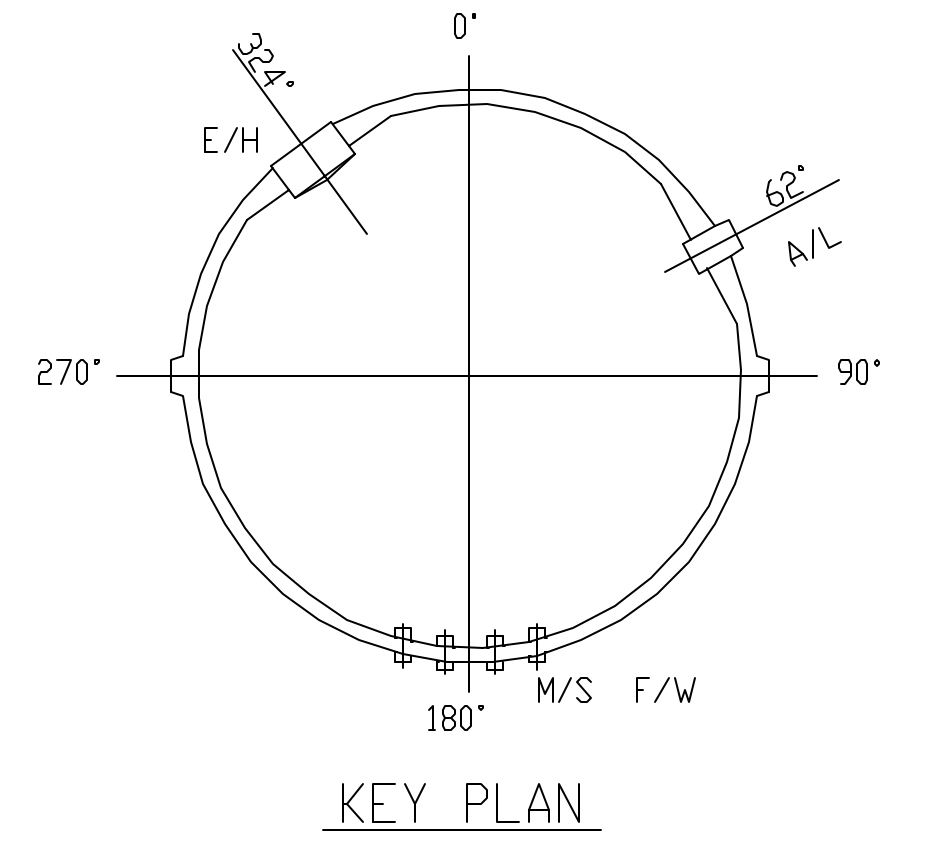
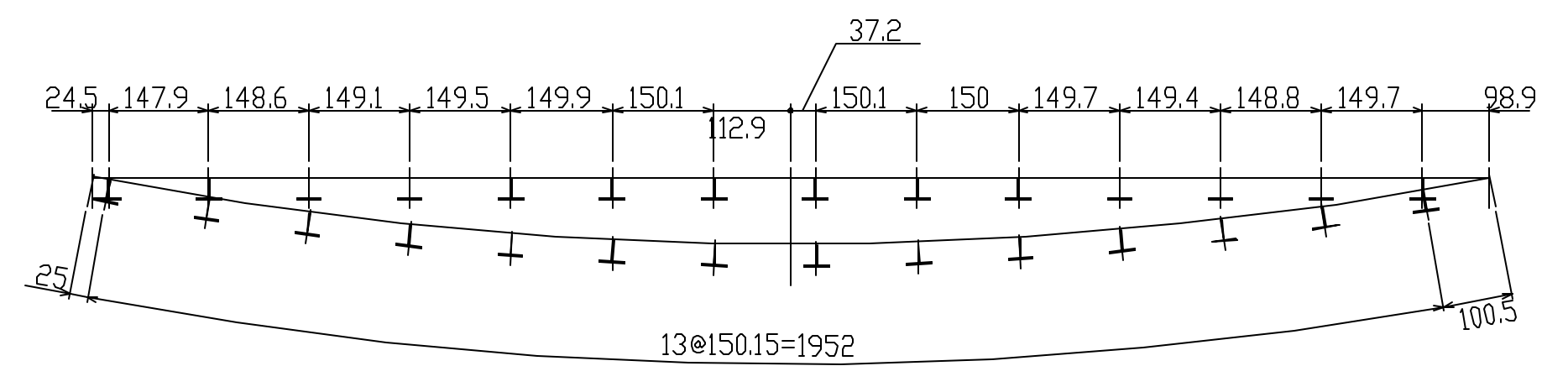
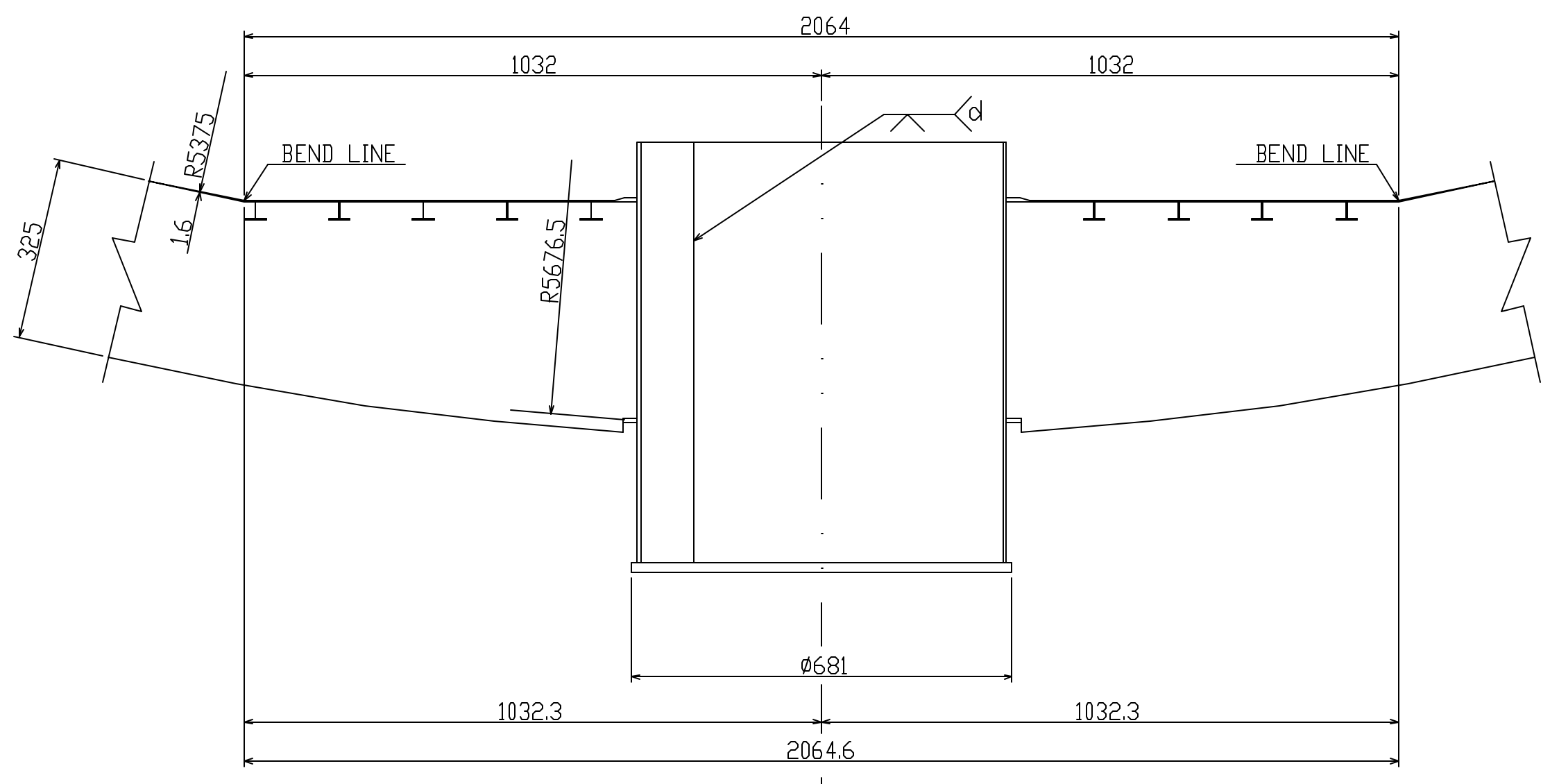
DETAIL "e"



DETAIL "d"

7-223072

MARK	DESCRIPTION	MATERIAL	TEST WORKING	SPARE	PER PIECE	TOTAL	REMARKS
SET	SET		PIECE	QUANTITY PER SET	MASS (kg)		
	STEEL STRUCTURE DEPARTMENT PRODUCTION SHOP	NIUEC PCCV STRUCTURAL BEHAVIOR PROVING TEST					
	APPROVED	CYLINDER LINER ANCHOR DETAILS					
	CHECKED	(E/H)					
	DRAWN	SCALE 1/20, 1/5, 1/2					
	OWNER	DRAWING NO. M1-ZCD1010A				0	COPY FOR

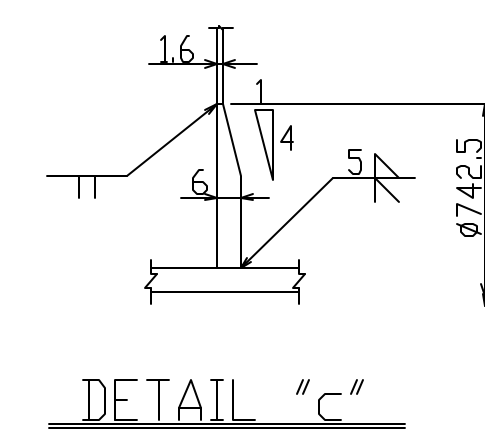
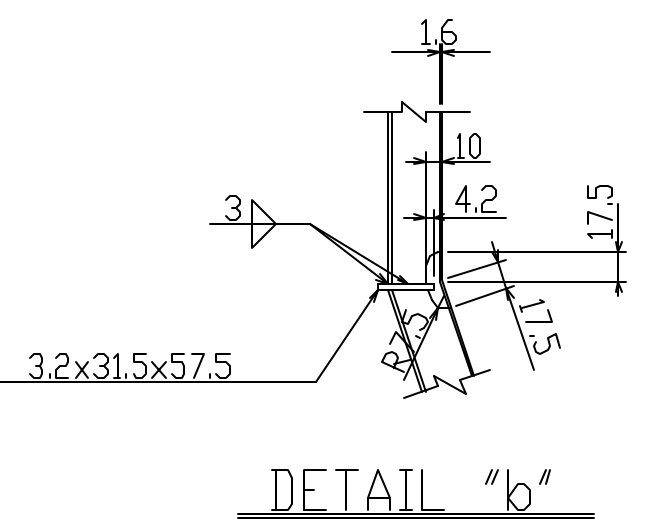
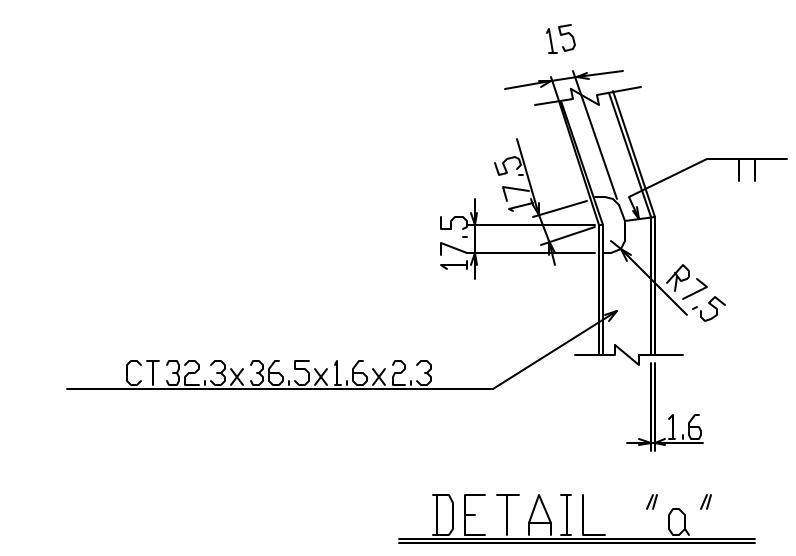
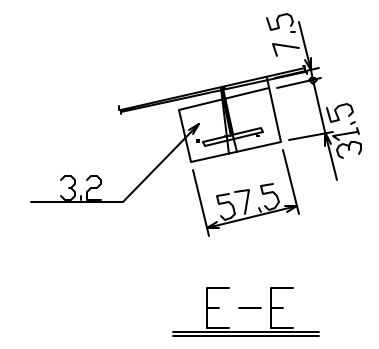
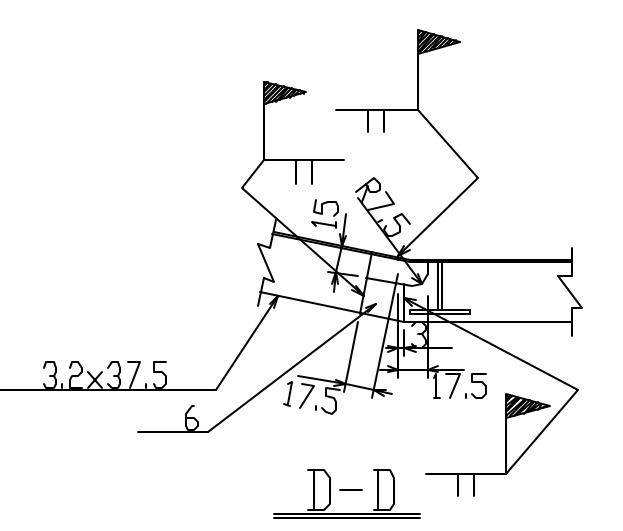


NOTES

1. MATERIALS LINER PLATE( 1. 0 ) SGV410  
 LINER ANCHOR SS400

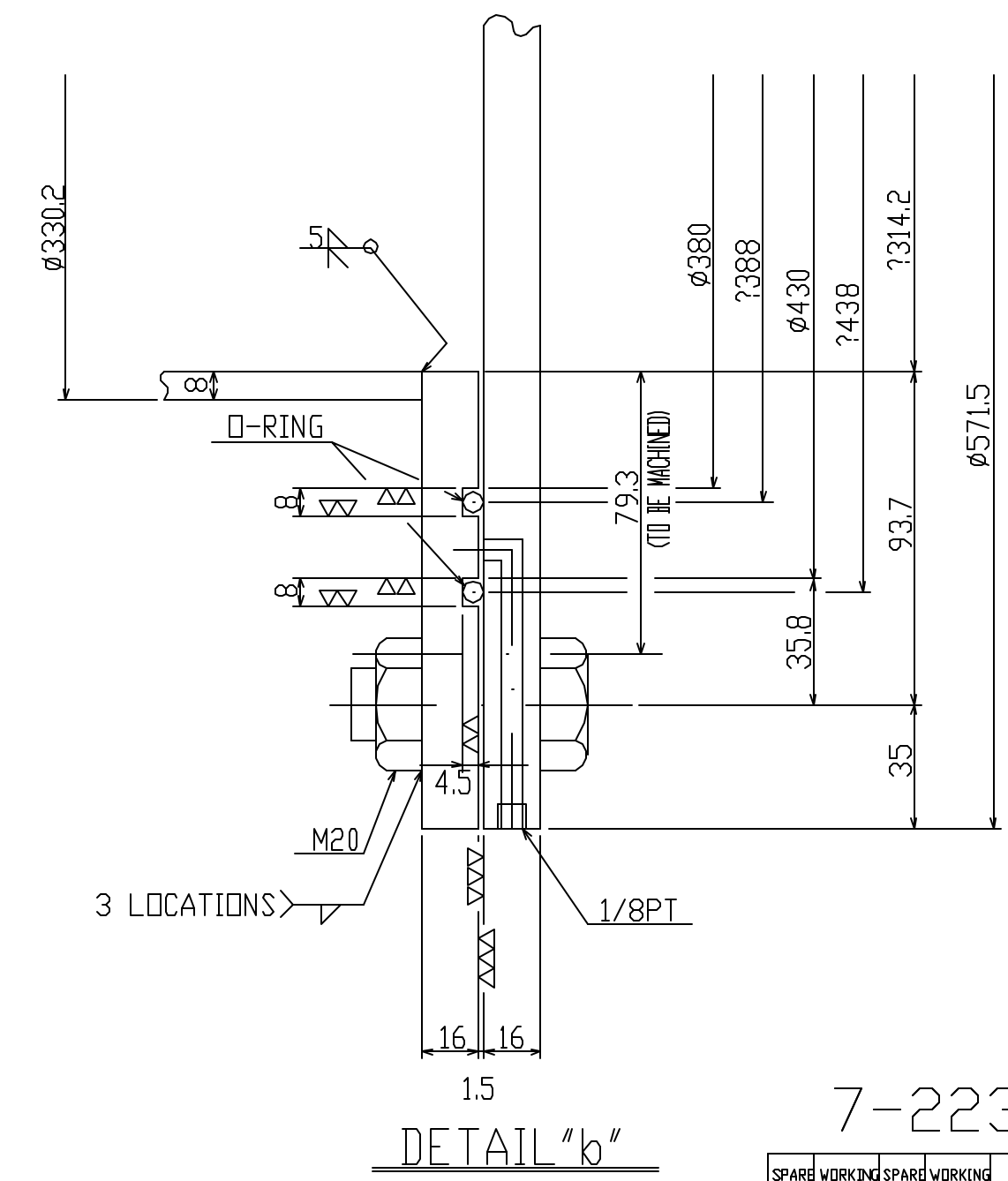
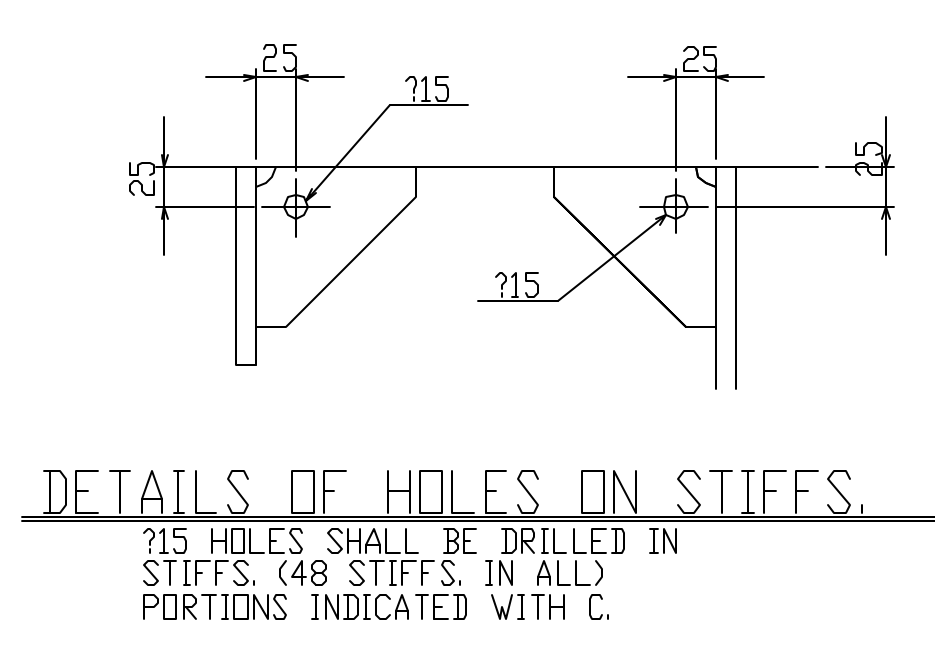
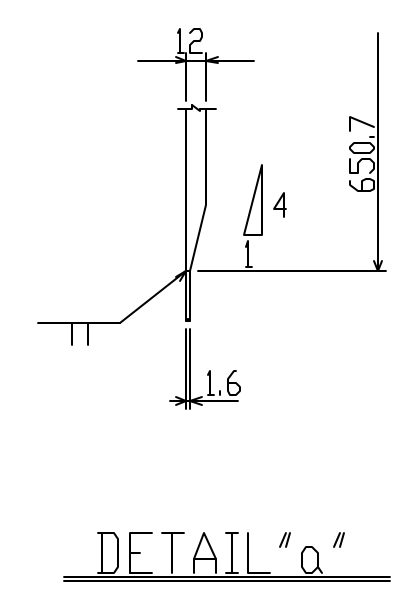
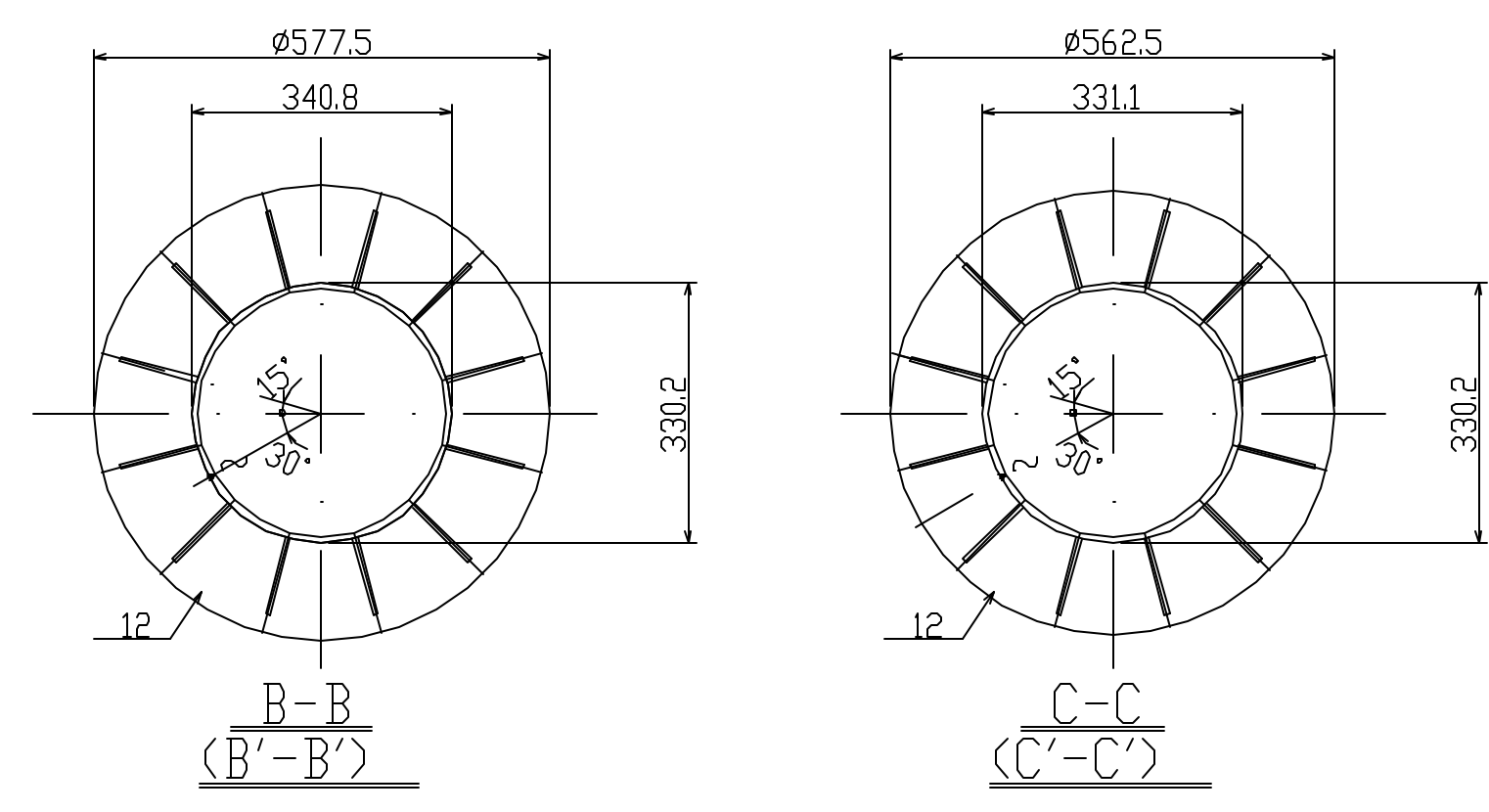
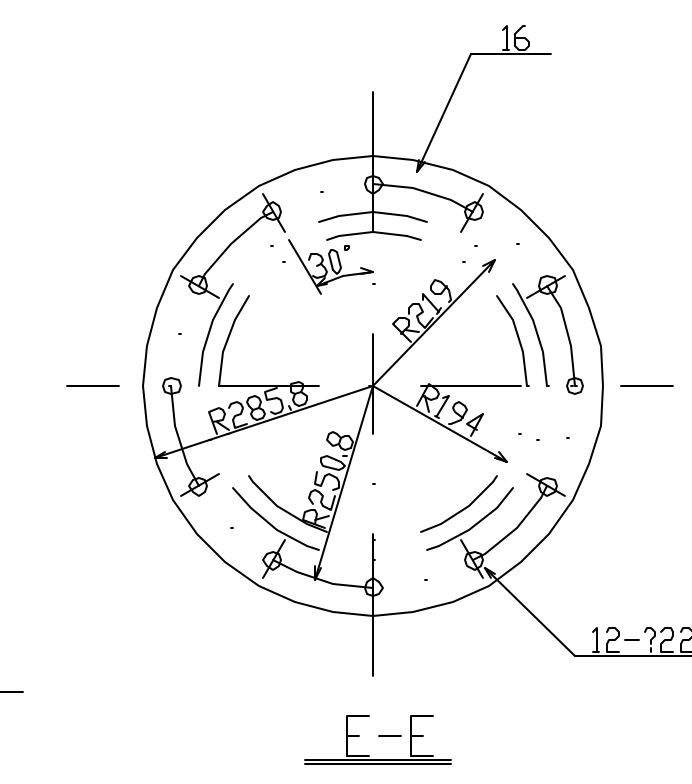
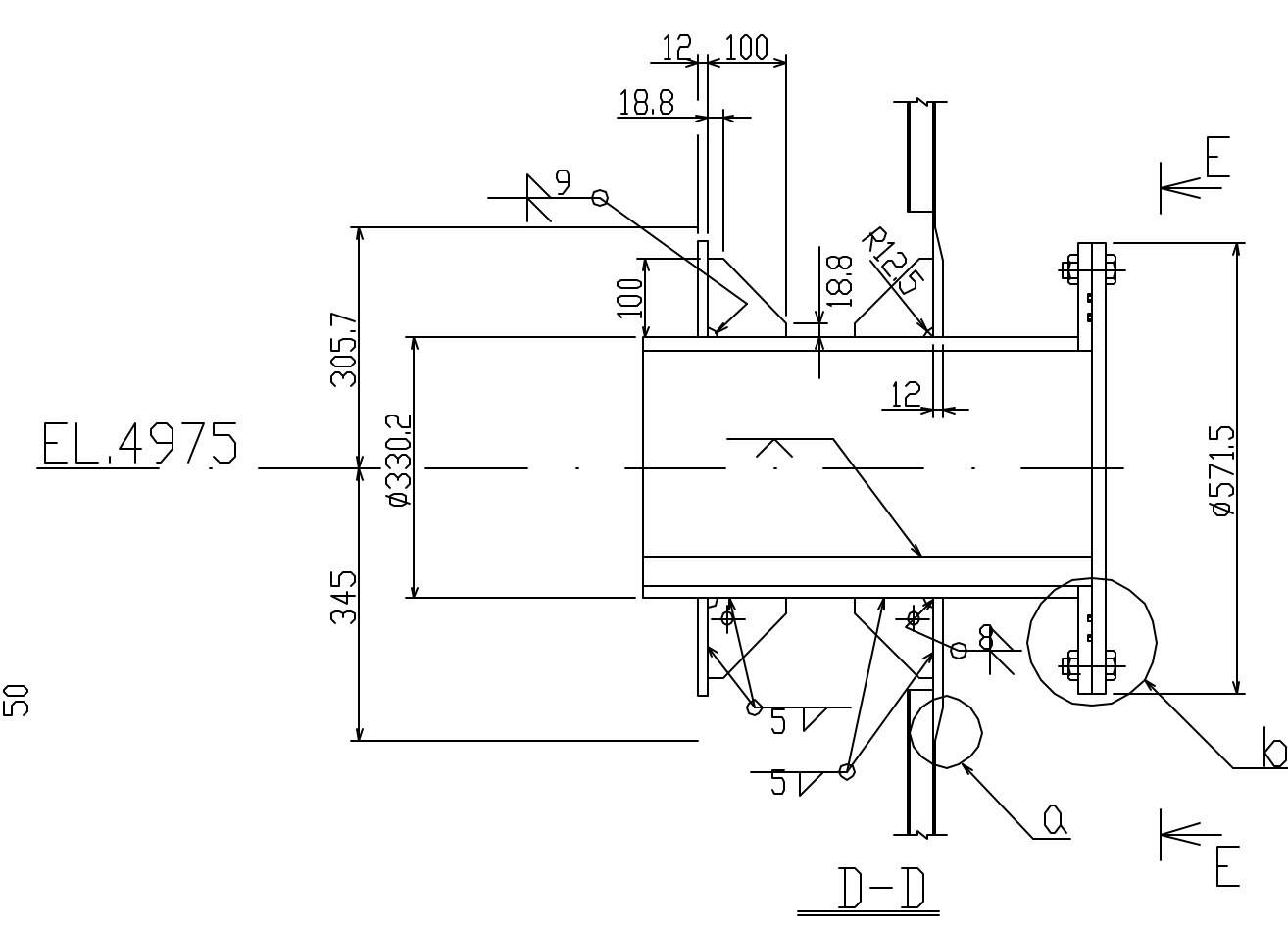
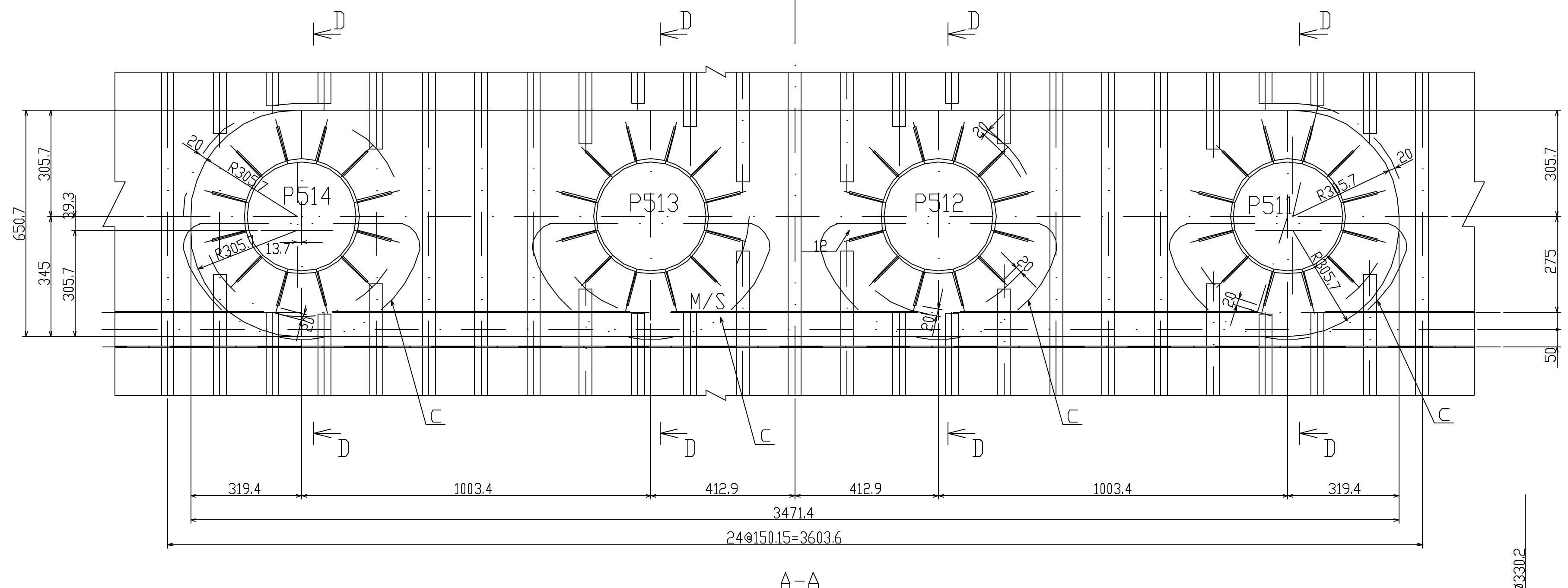
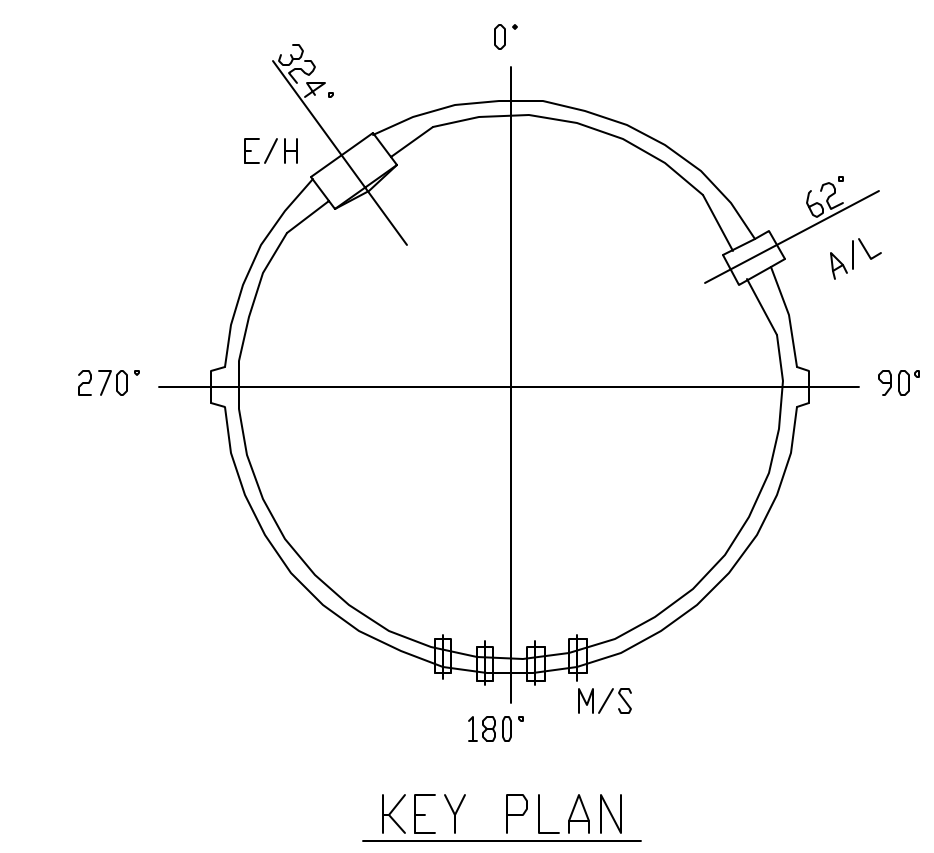
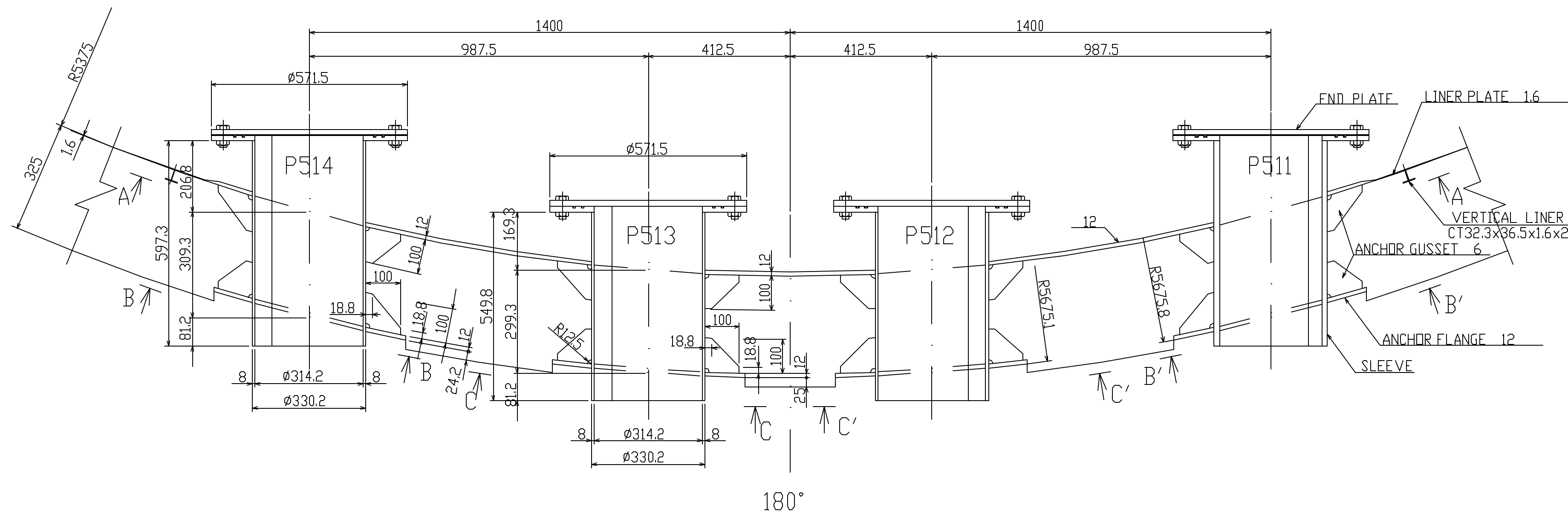
2. ALL WELD SHALL BE FILLET WELDS  
 UNLESS OTHERWISE NOTED.

3. CLASSIFICATION OF WELD SEAMS ARE AS FOLLOWS:  
 — FIELD WELD  
 — SHOP WELD



7-223072

SPARE	WORKING	SPARE	WORKING	MARK	DATE	DESCRIPTION	MATERIAL		TEST		PER PIECE	TOTAL	REMARKS
							SET	SET	PIECE	QUANTITY PER SET			
						STEEL STRUCTURE DEPARTMENT							
						APPROVED	NIPEC PCV STRUCTURAL BEHAVIOR PROVING TEST						
						CHECKED	CYLINDER LINER ANCHOR DETAILS (A/L)						
						DRAWN							
						SCALE	1/10, 1/5, 1/2						
OWNER						DRAWING NO.	M1-ZCD1011A		0		COPY FOR		

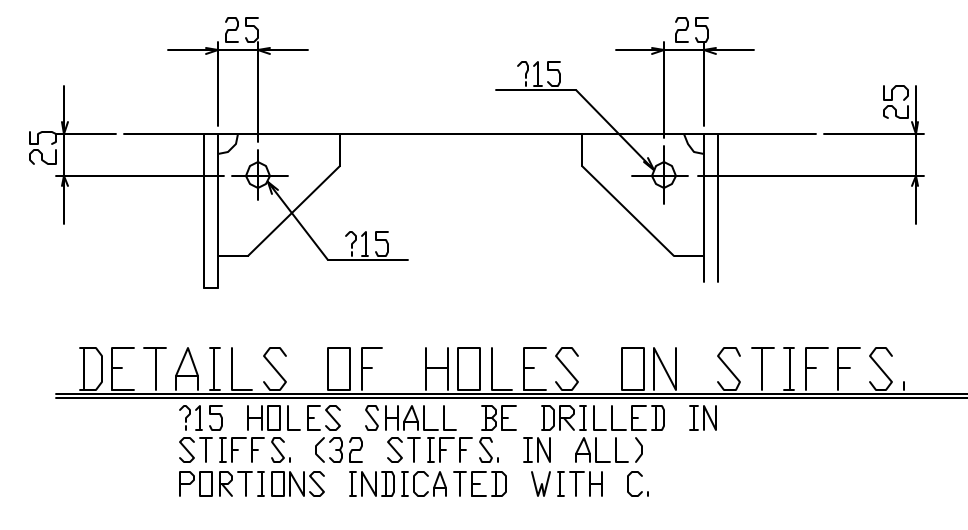
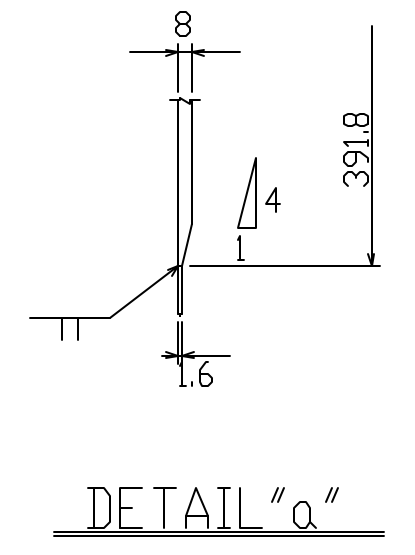
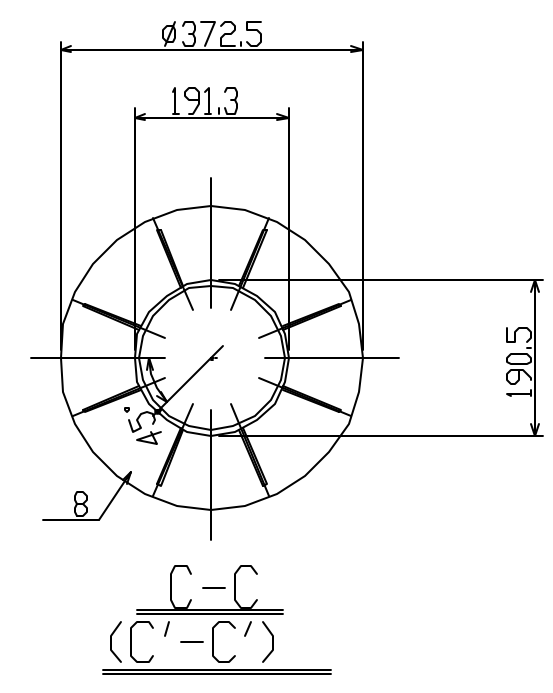
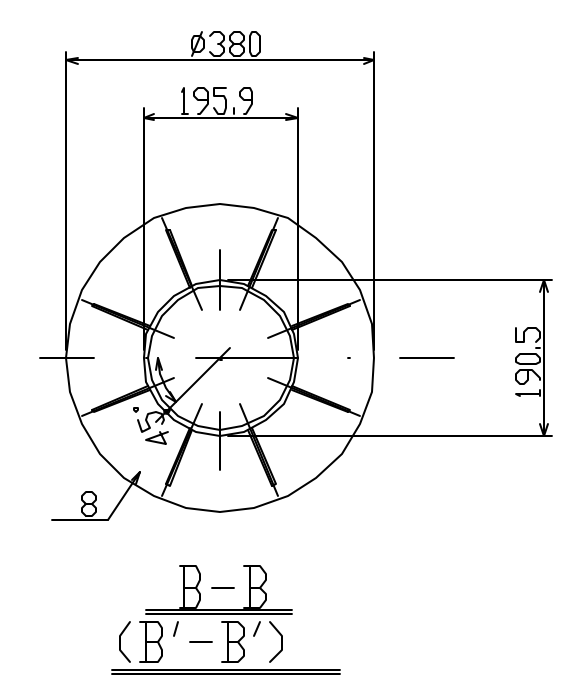
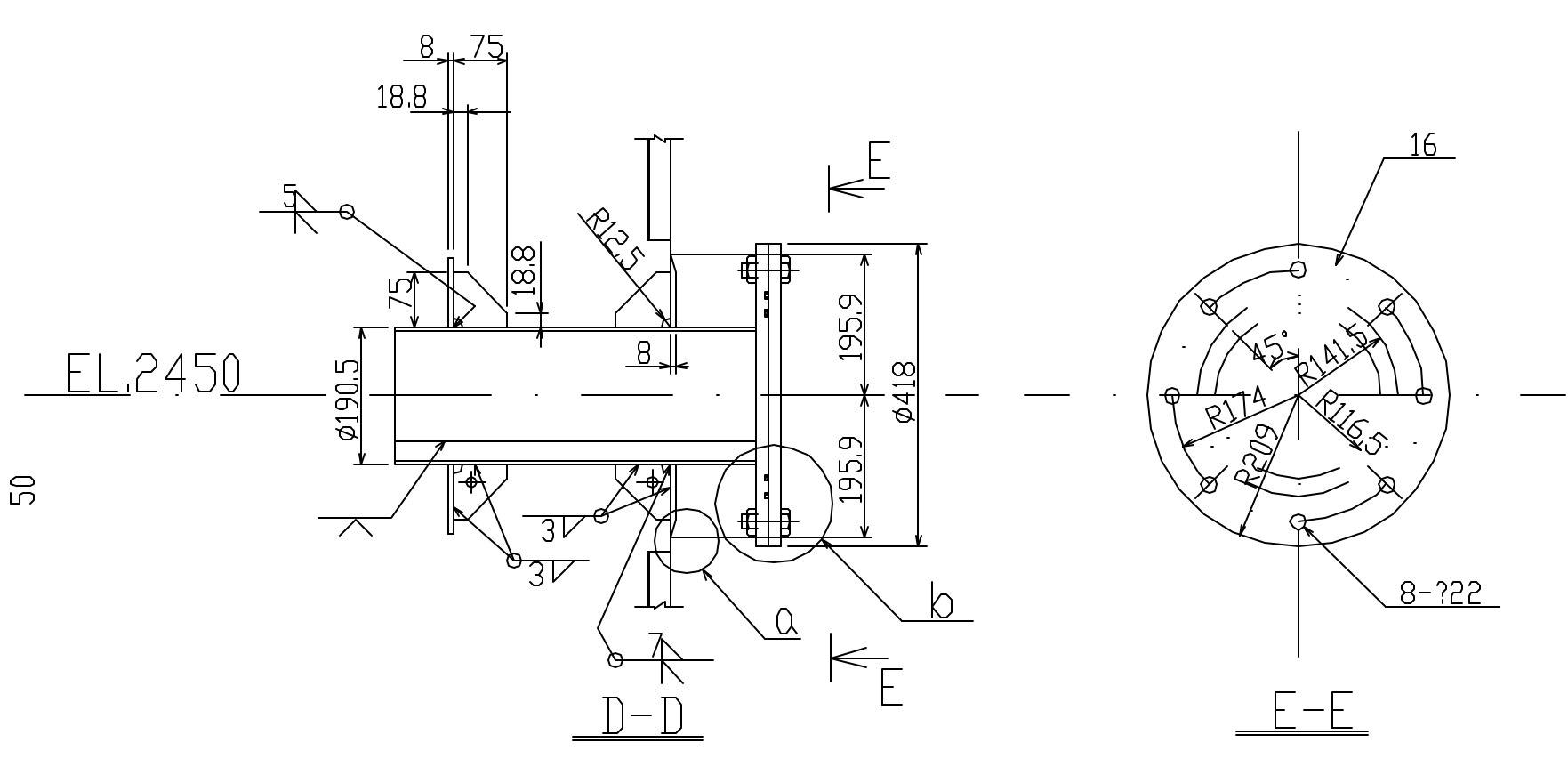
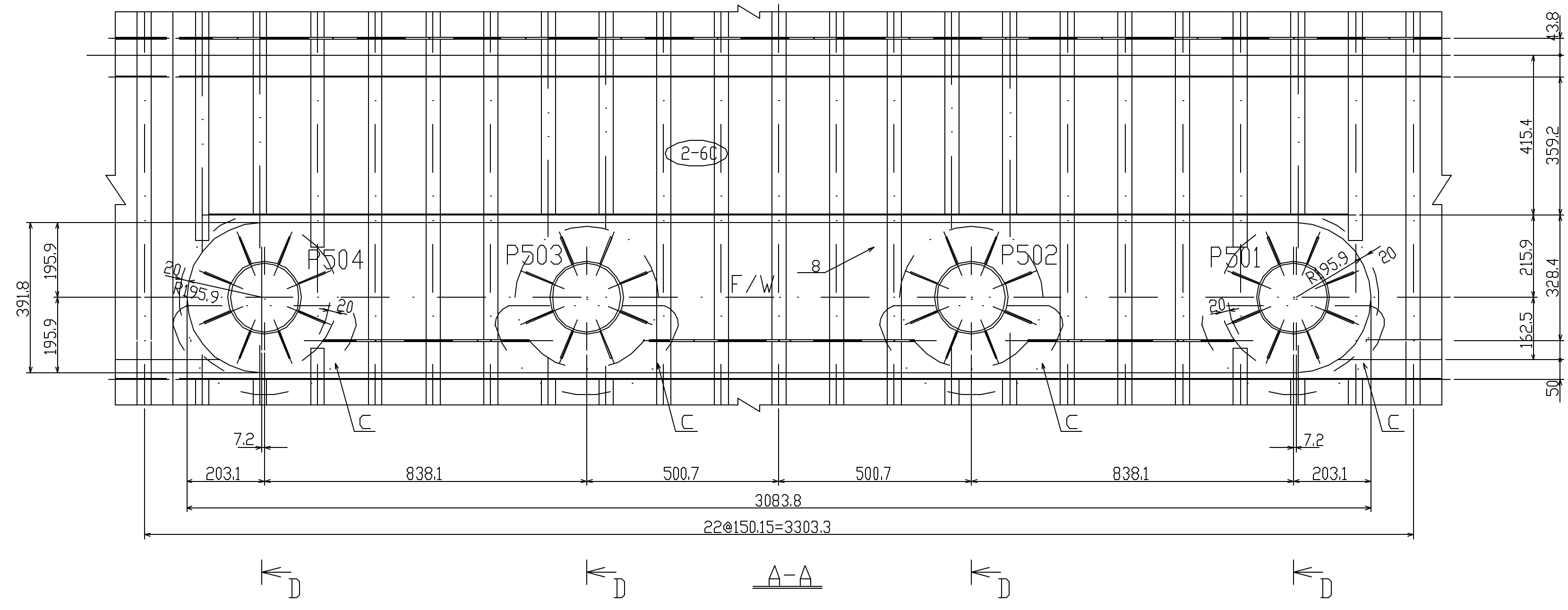
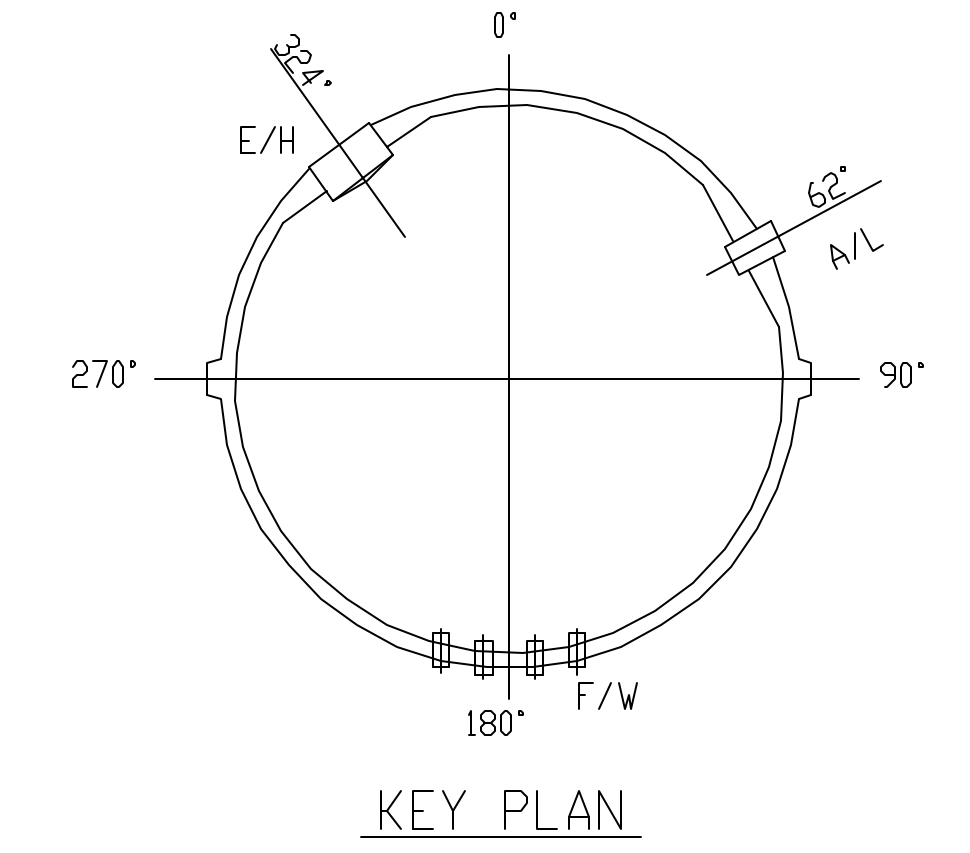
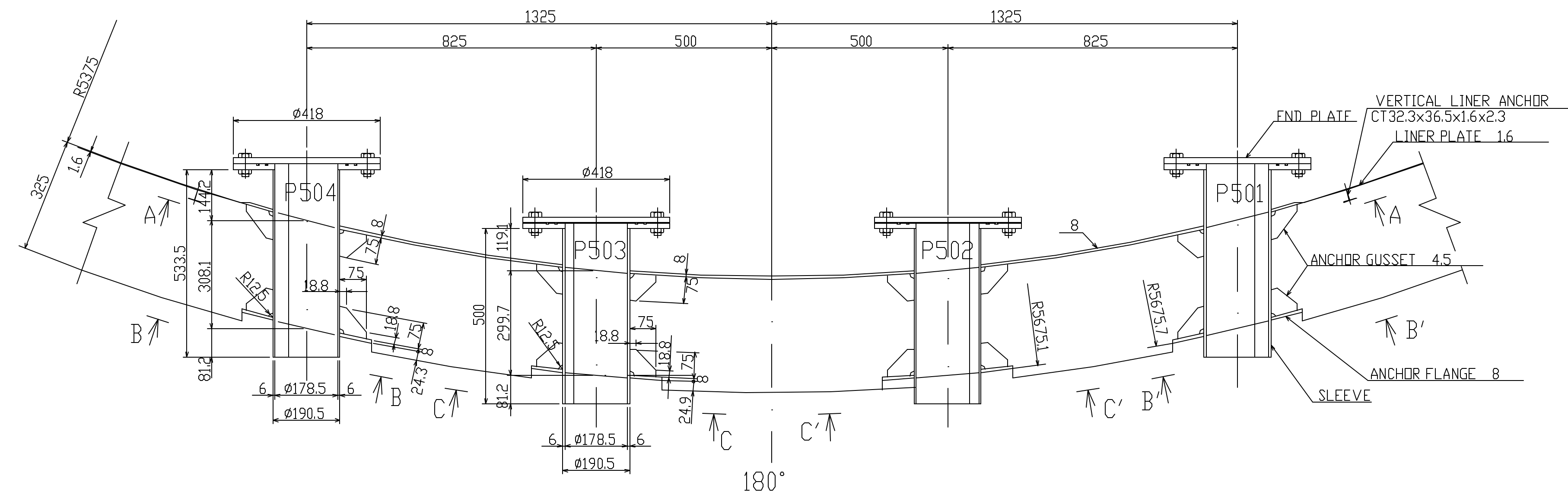


NOTES  
 1. MATERIALS: LINER PLATE (L. 6) SGV410  
 LINER ANCHOR SS400  
 2. ALL WELD SHALL BE FILLET WELDS UNLESS OTHERWISE NOTED.

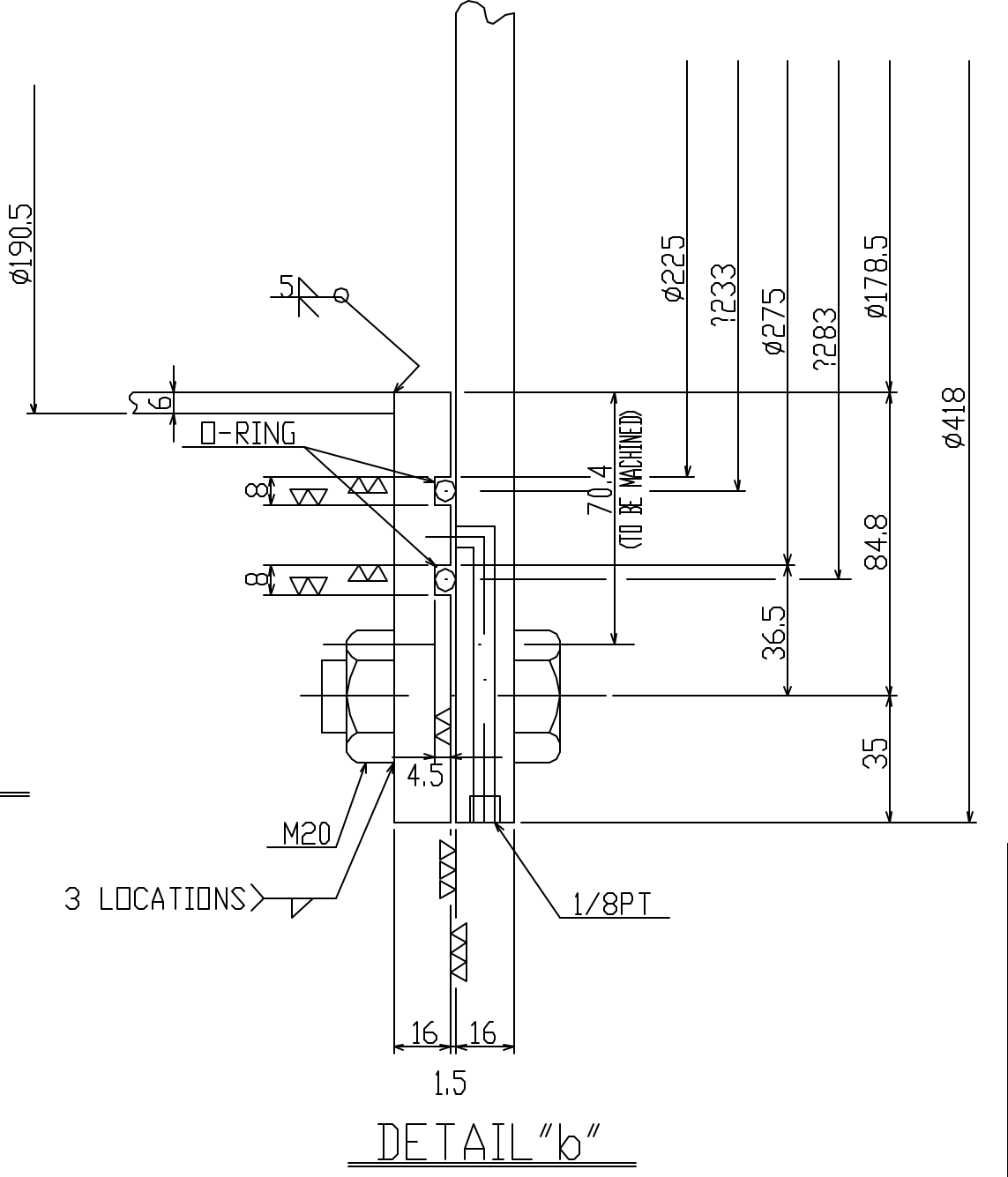
7-223072

MARK	DESCRIPTION	MATERIAL	TEST WORKING	SPARE	PER PIECE	TOTAL	REMARKS
SET	SET		PIECE	QUANTITY PER SET	MASS (kg)		
	STEEL STRUCTURE DEPARTMENT PRODUCTION SHOP	NUPEC PCCV STRUCTURAL BEHAVIOR PROVING TEST					
	APPROVED	CYLINDER LINER ANCHOR DETAILS (M/S)					
	CHECKED						
	DRAWN						
	SCALE	1/10,1/5					
	OWNER						
	DRAWING NO.	M1-ZCD1012A					
	COPY FOR	A1					

MHI PROPRIETARY CLASS B



DETAILS OF HOLES ON STIFFS.  
 ø15 HOLES SHALL BE DRILLED IN STIFFS. (32 STIFFS. IN ALL) PORTIONS INDICATED WITH C.

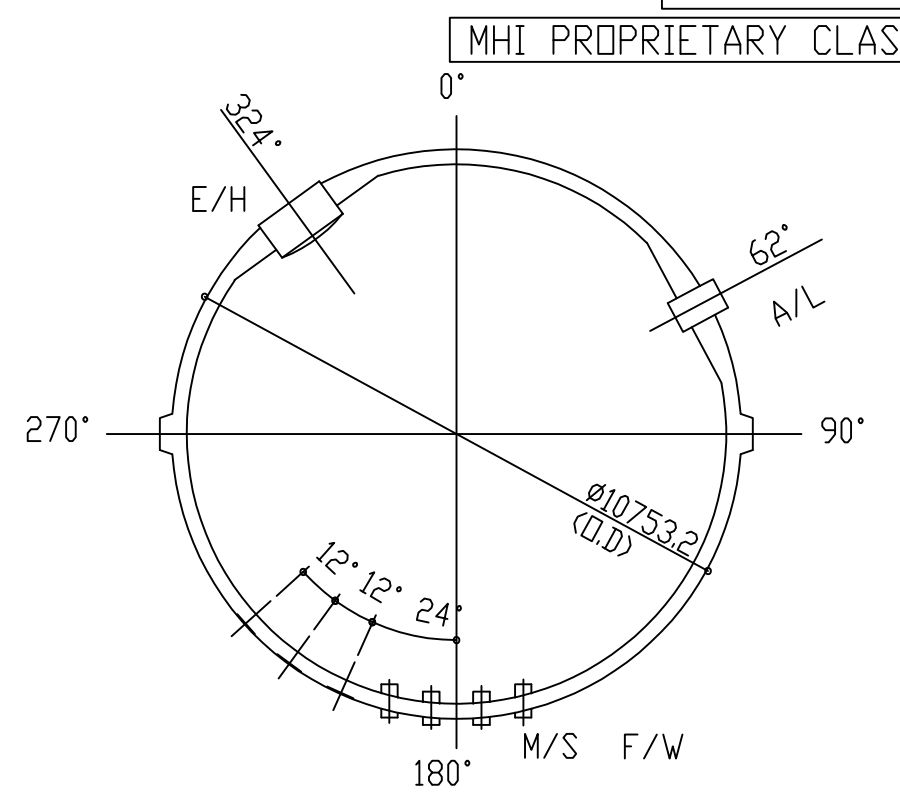
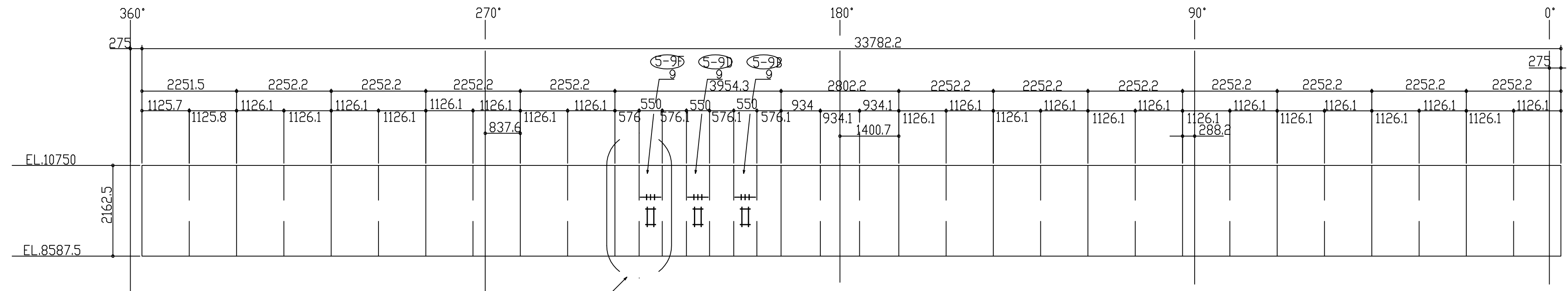


NOTES  
 1. MATERIALS LINER PLATE (1.6) SGV410  
 LINER ANCHOR SS400  
 2. ALL WELD SHALL BE FILLET WELDS UNLESS OTHERWISE NOTED.

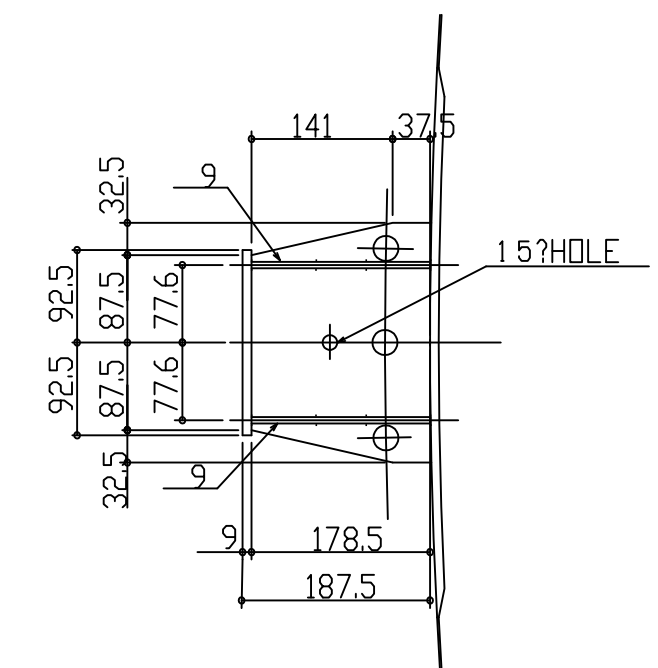
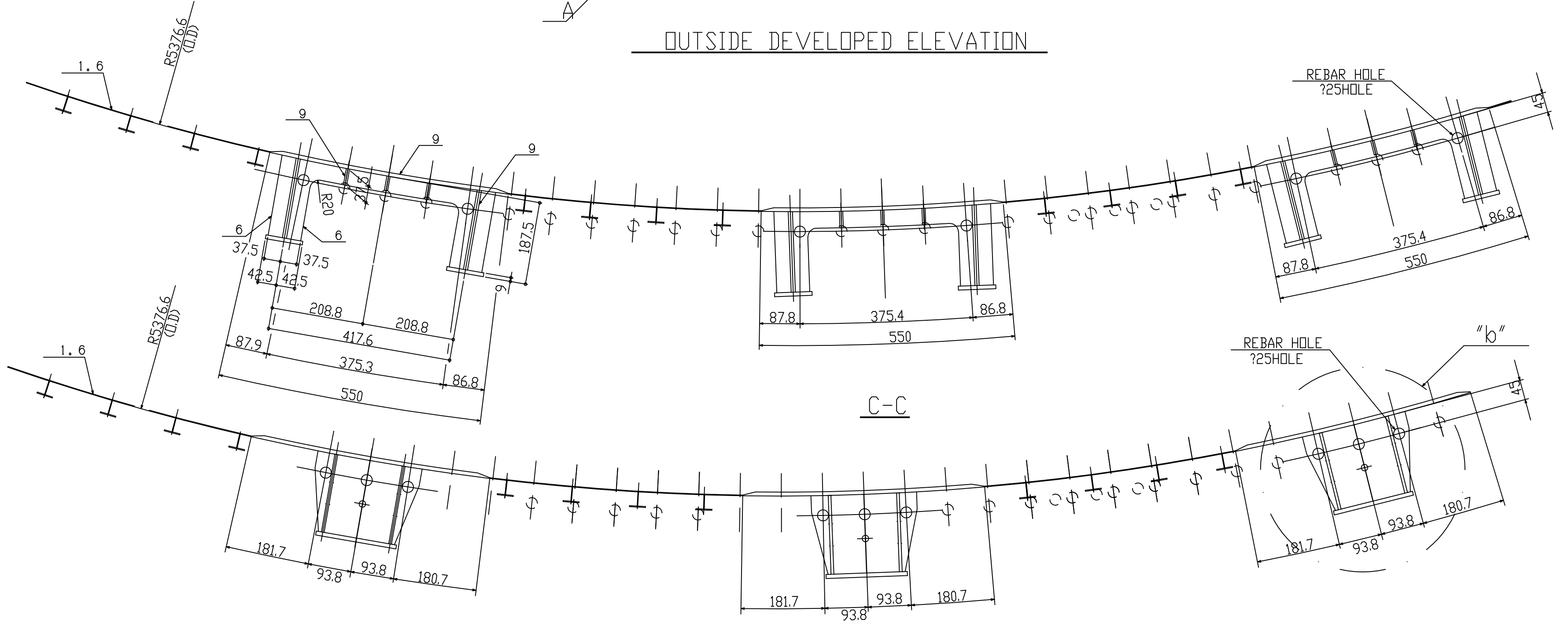
7-223072

SPARE	WORKING	SPARE	WORKING	MARK	DESCRIPTION	MATERIAL	TEST	WORKING	SPARE	PER	TOTAL	REMARKS
SET	SET	SET	SET	SET	SET	SET	PIECE	QUANTITY	PER	MASS	(kg)	
					STEEL STRUCTURE DEPARTMENT PRODUCTION SHOP							NUPEC PCCV STRUCTURAL BEHAVIOR PROVING TEST
					APPROVED							CYLINDER LINER ANCHOR DETAILS (F/W)
					CHECKED							
					DRAWN							
					SCALE	1/10,1/5						
					OWNER							DRAWING NO. M1-ZCD1013A
												0
												COPY FOR

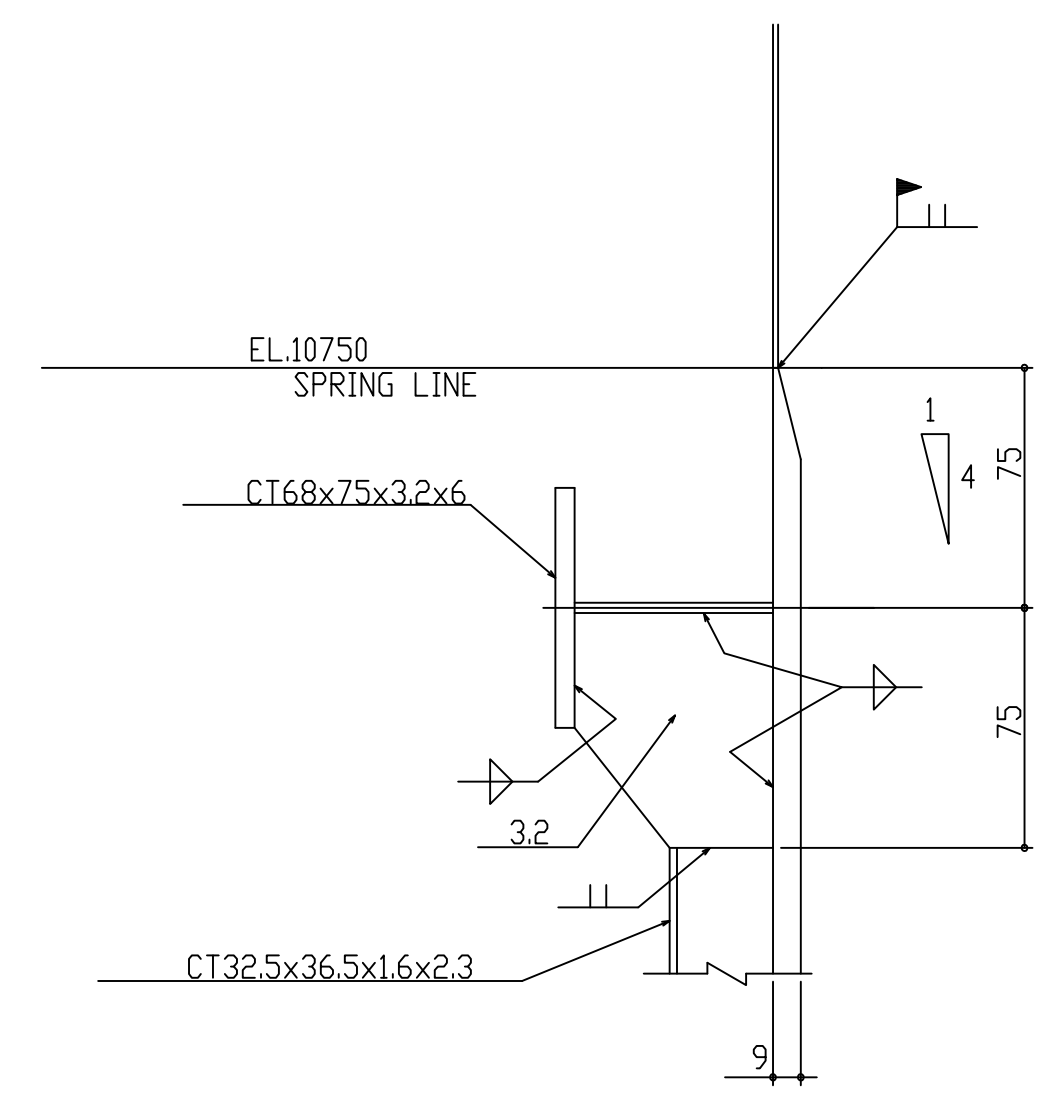




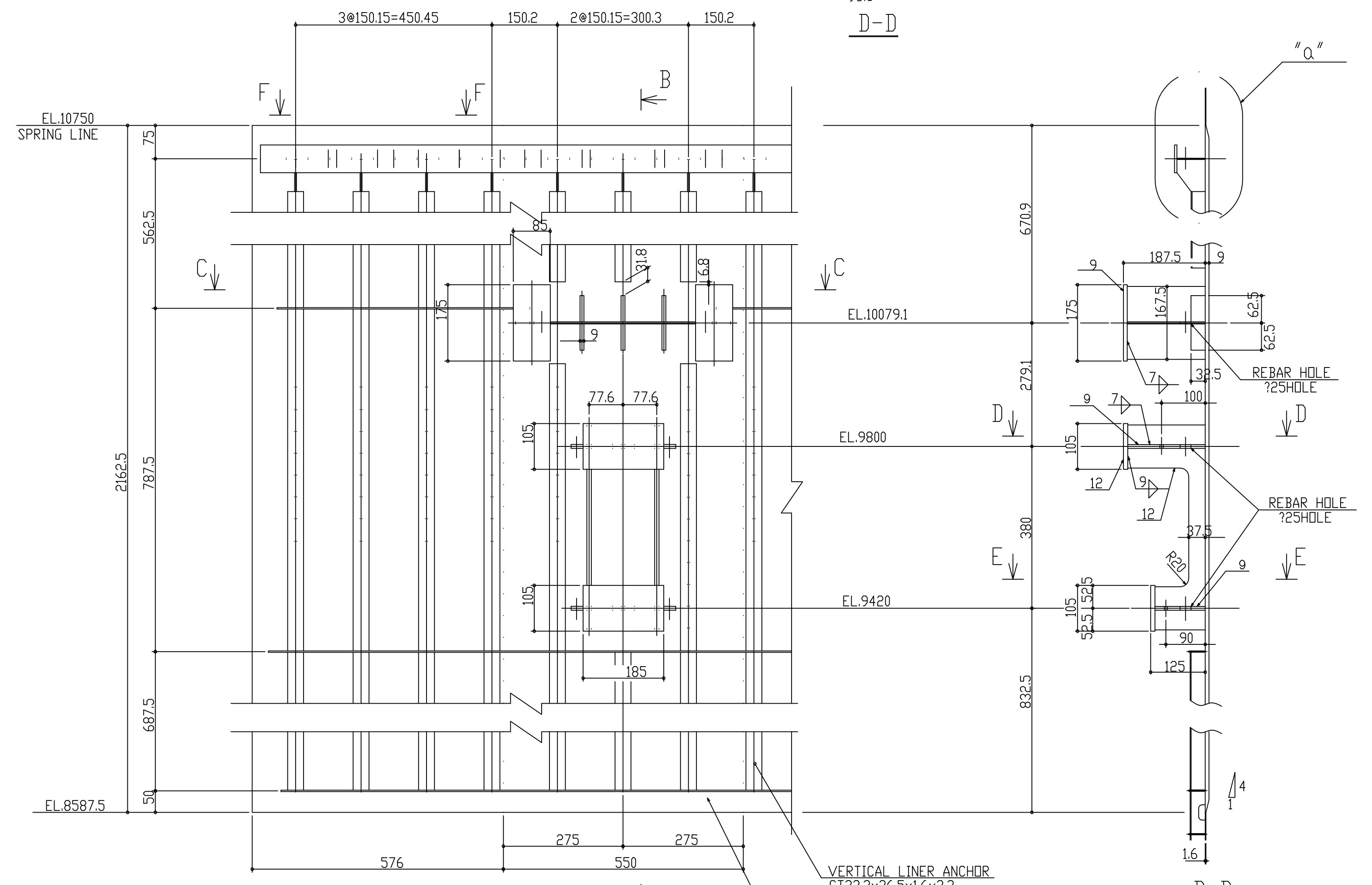
KEY PLAN



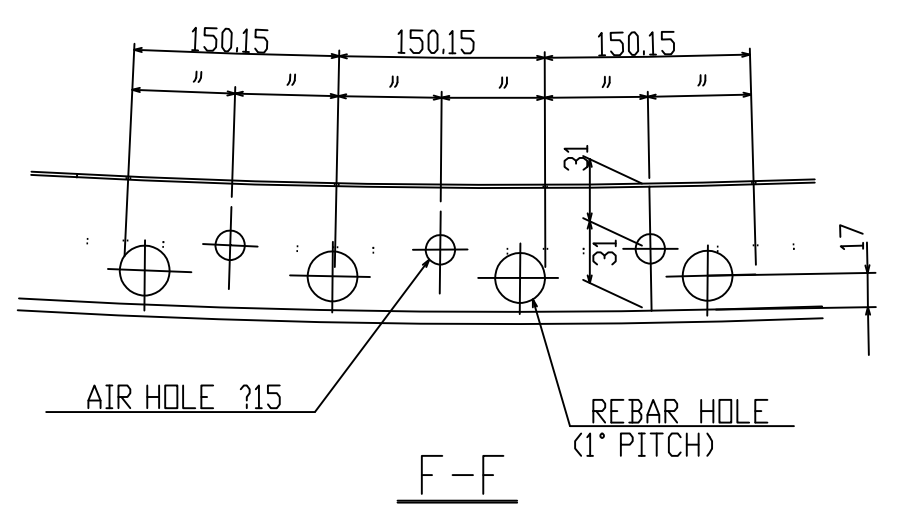
DETAIL "b"



DETAIL "a"



DETAIL "A"



F-F

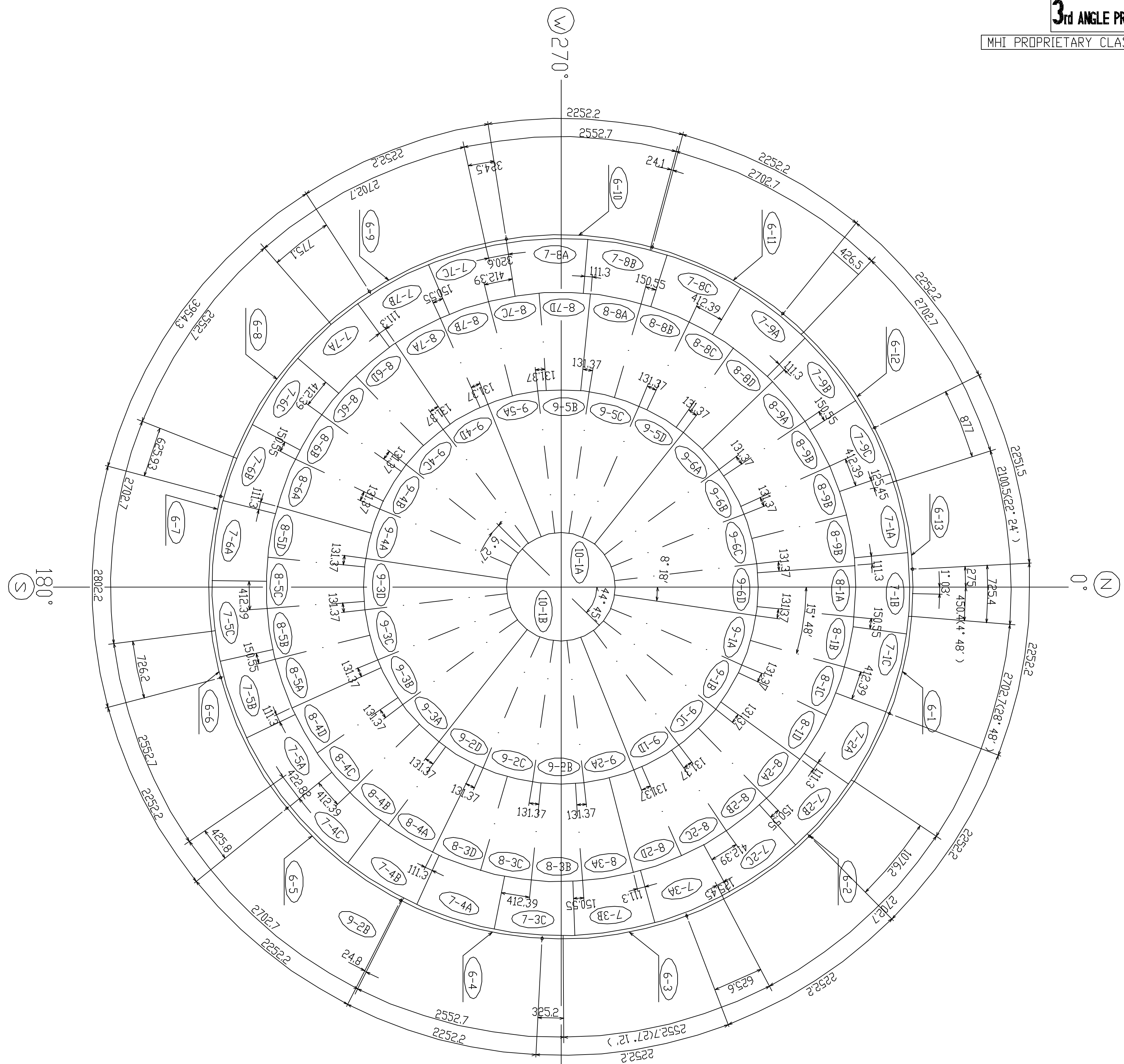
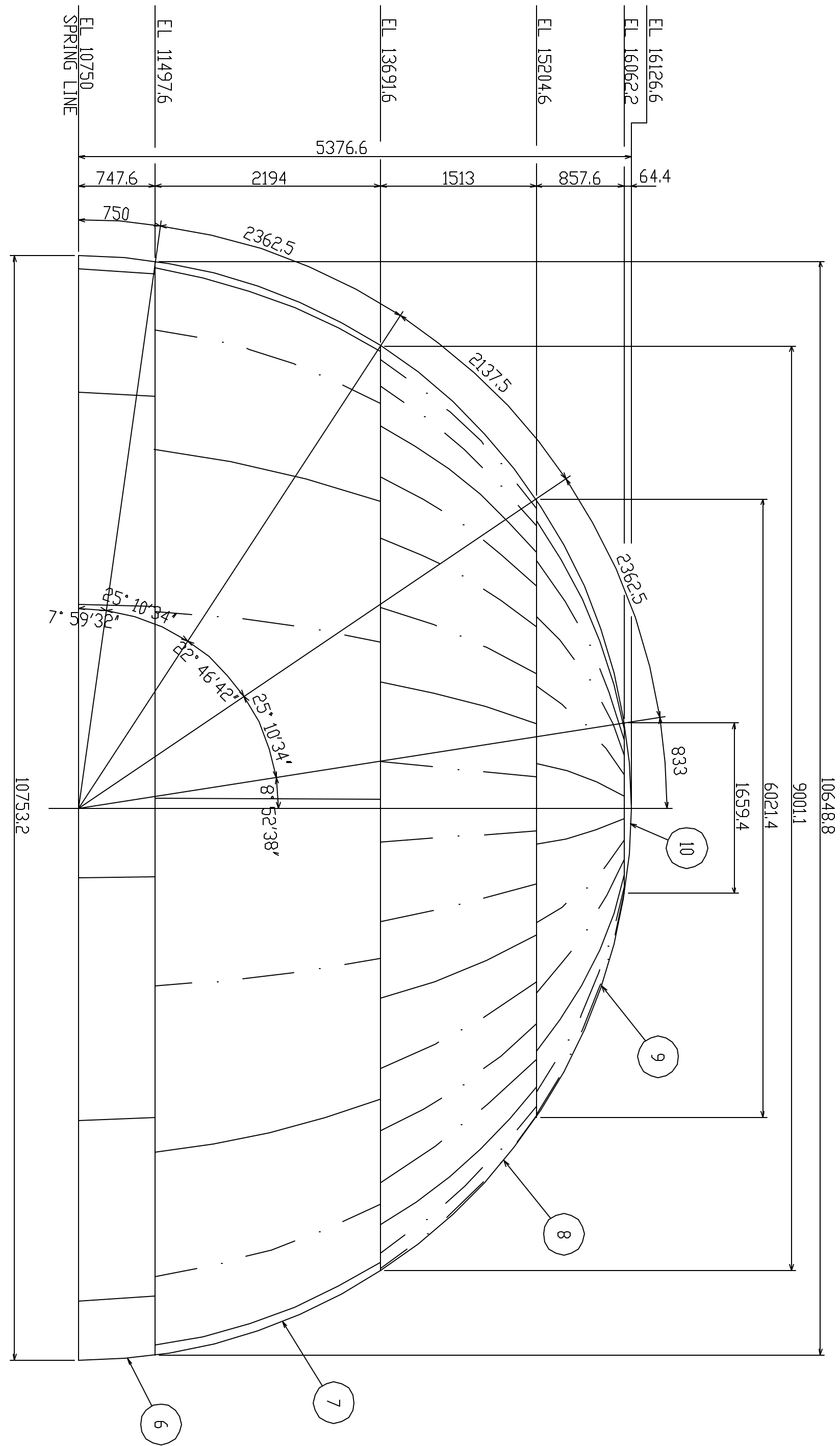
NOTES

1. THIS DRAWING INDICATES ARRANGMENT AND DETAILS OF POLAR CRANE BRACKET.
2. MATERIALS SHALL BE SS400.
3. WELDS SHALL BE FILLET WELDS AS SHOWN BELLOW UNLESS OTHERWISE NOTED.
4. CLASSIFICATION OF WELD SEAMS ARE AS FOLLOWS;

PLATE THICKNESS	12mm	9mm	6mm
LEG SIZE	9mm	7mm	5mm

- FIELD WELD
- SHIP WELD

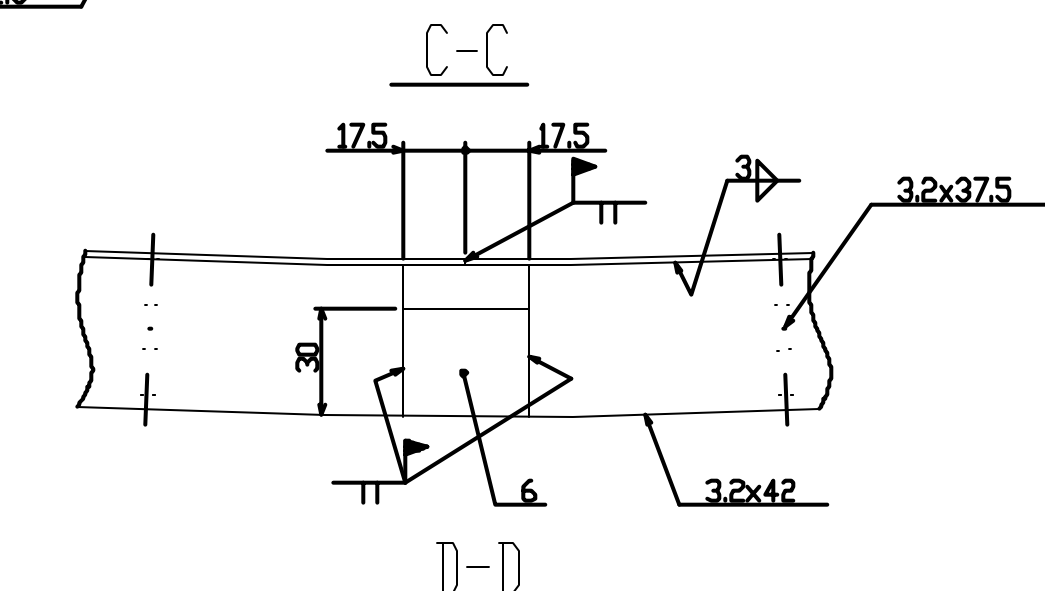
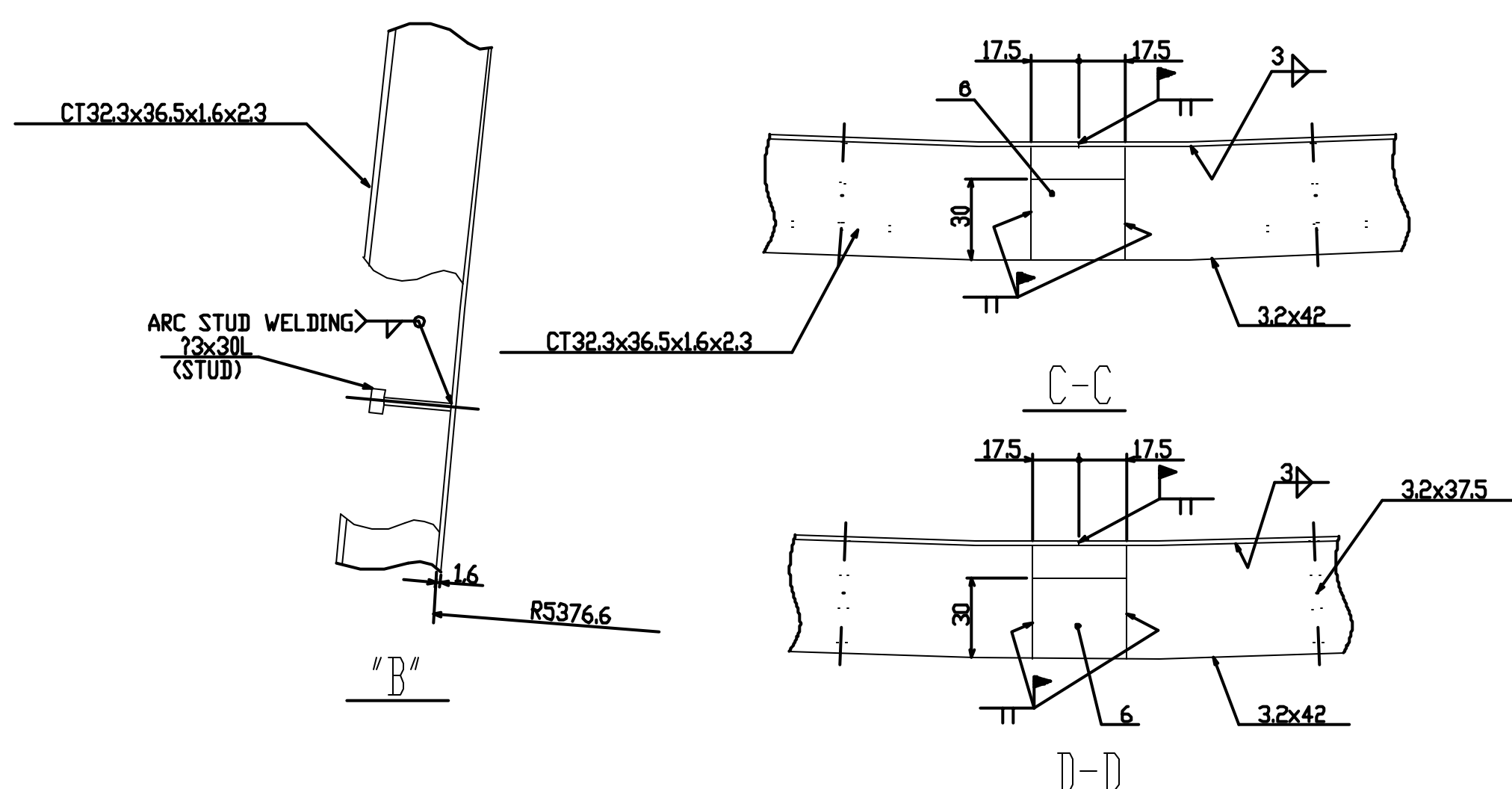
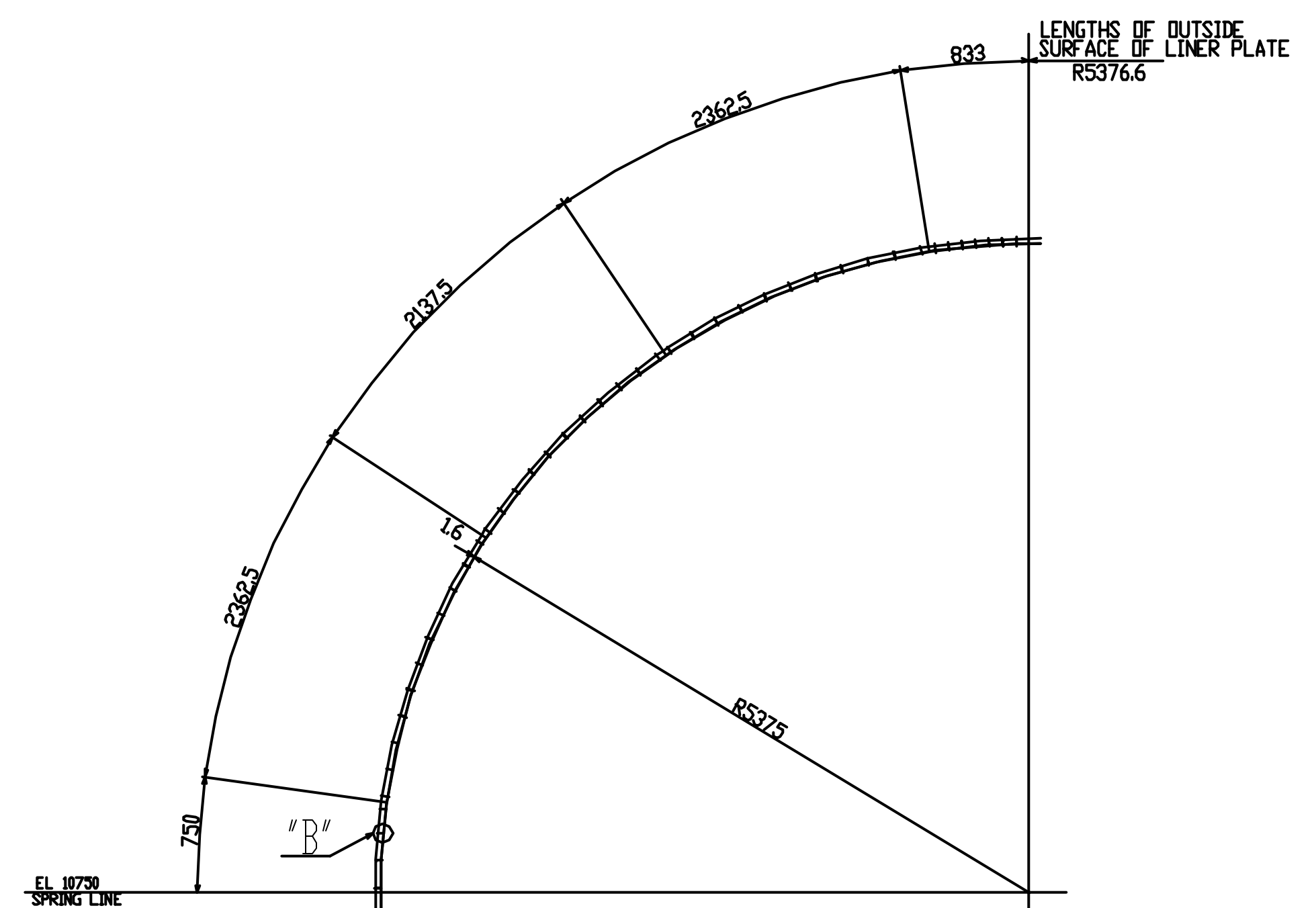
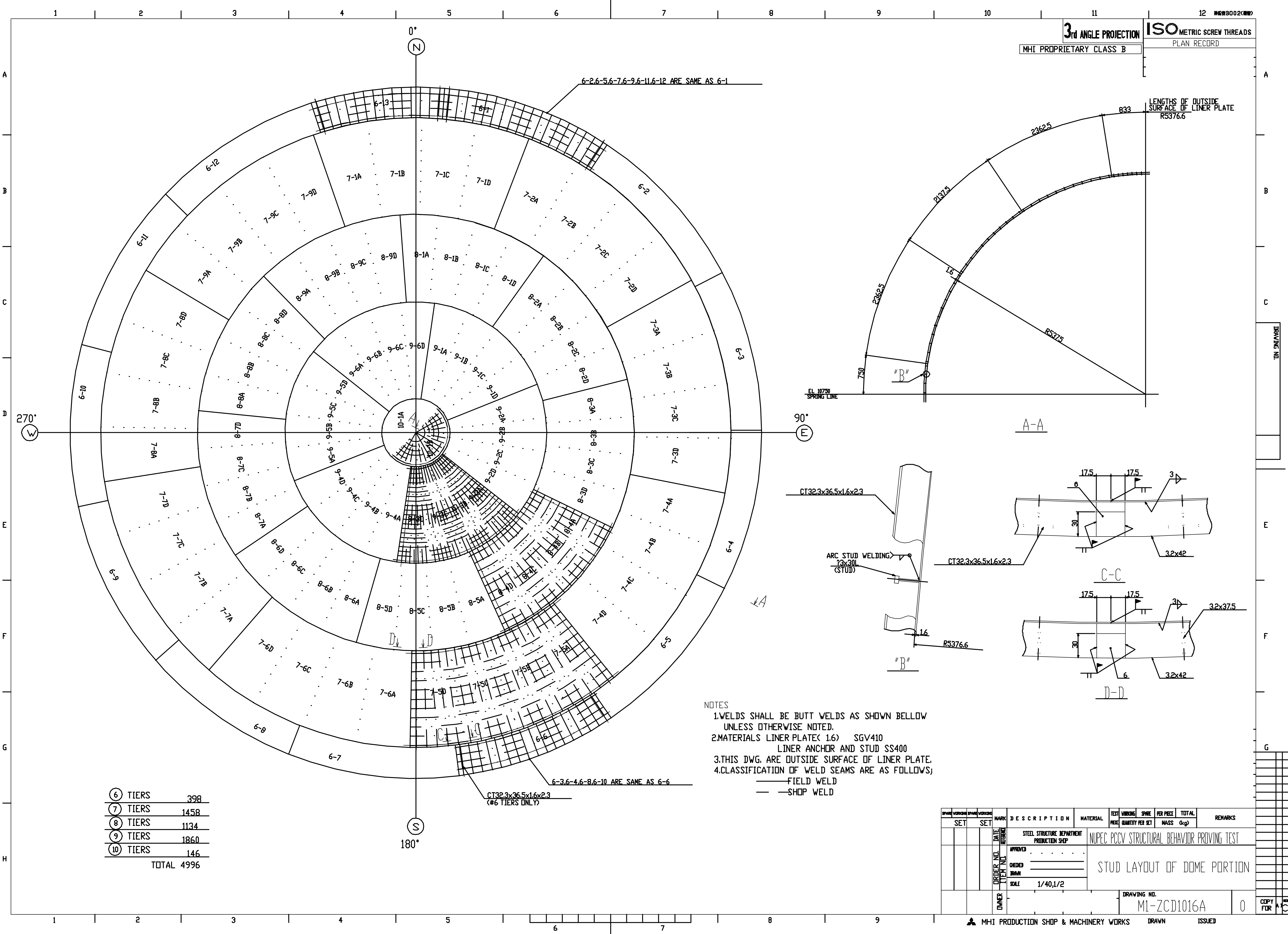
SPARE SET	WORKING SET	MARK	DESCRIPTION	MATERIAL	TEST	WORKING QUANTITY	SPARE QUANTITY	PER PIECE MASS (kg)	TOTAL MASS (kg)	REMARKS
		DATE	STEEL STRUCTURE DEPARTMENT							NUPEC PCCV STRUCTURAL BEHAVIOR PROVING TEST
		ORDER NO.	APPROVED							CYLINDER LINER ANCHOR DETAILS
		ITEM NO.	CHECKED							POLA CRANE BRACKET DETAILS
			DRAWN							
			SCALE	1/8						
		DRAWING NO.								M1-ZCD1014A
		COPY FOR								0



- NOTES**
- THIS DWG. INDICATES LINER PLATE BLOCK LAYOUT OF DOME PORTION.
  - CIRCUMFERENTIAL DIMENSIONS SHOWN ON THIS DWG. ARE ARC LENGTHS OF OUTSIDE SURFACE OF LINER PLATE.
  - MARKS IN  $\text{\textcircled{A}}$  AND  $\text{\textcircled{B}}$  INDICATE TIER NUMBERS AND LINER PLATE BLOCK MARKS.
  - WELDS SHALL BE BUTT WELDS AS SHOWN BELLOW UNLESS OTHERWISE NOTED.
  - MATERIALS LINER PLATE (< 1.6) SGV410
  - CLASSIFICATION OF WELD SEAMS ARE AS FOLLOWS;
    - FIELD WELD
    - SHOP WELD

TIER NO.	LINER PLATE BLOCK MARKS	CIRCUMFERENTIAL DIMENSION		MERIDIONAL DIMENSION	QUANTITY	
		UPPER	LOWER			
⑥	6-1.6-2.6-5.6-7, 6-9.6-11.6-12	2676.45	2702.7	750	7	13
	6-3.6-4.6-6.6-8, 6-10	2527.76	2552.7		5	
	6-13	2080.12	2100.53		1	
⑦	7-1A-7-9C	1047.4	1239.04	2362.5	27	
⑧	8-1A~8-9B	525.47	785.5	2137.5	36	
⑨	9-1A-9-6B	217.22	788.2	2362.5	24	
⑩	10-1A,10-1B	—	2606.58	833	2	

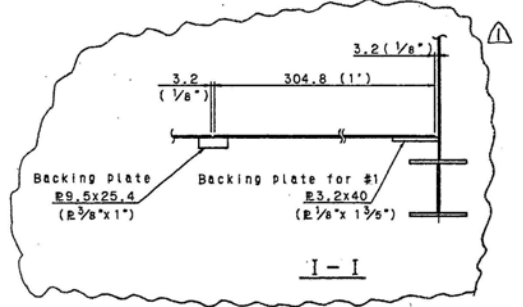
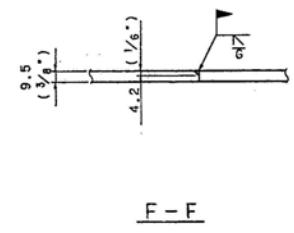
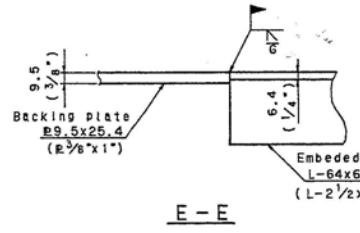
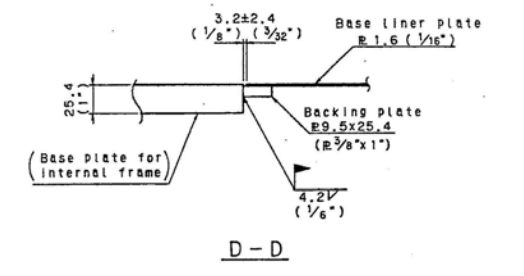
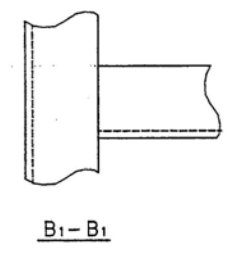
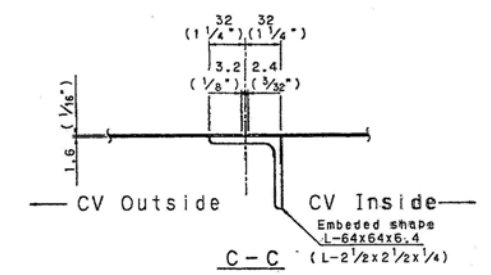
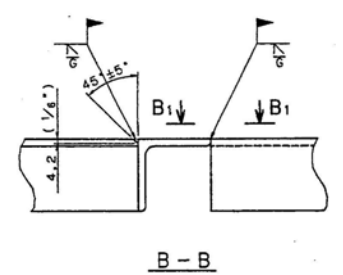
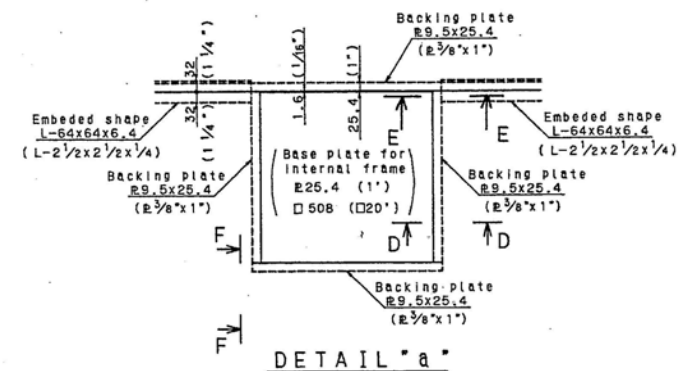
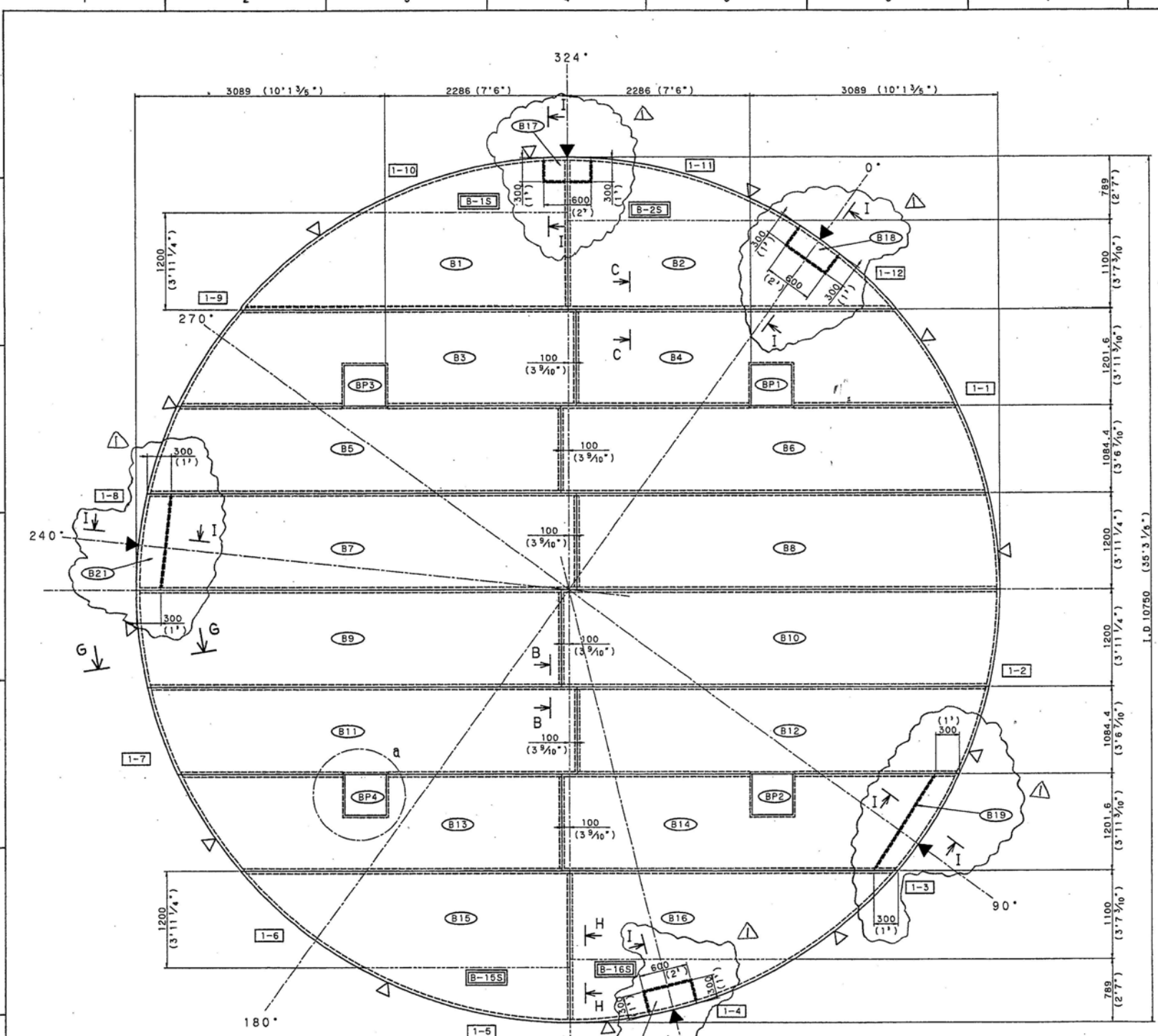
SPARE SET	WORKING SET	MARKS RETURNED	DATE	DESCRIPTION	MATERIAL	TEST PIECE	WORKING QUANTITY	SPARE QUANTITY	PER PIECE MASS (kg)	TOTAL MASS (kg)	REMARKS
APPROVED			DRAWN		LINER PLATE BLOCK LAYOUT OF DOME PORTION						
CHECKED			SCALE 1/40		DRAWING NO. M1-ZCD1015A						
OWNER			ISSUED		0						



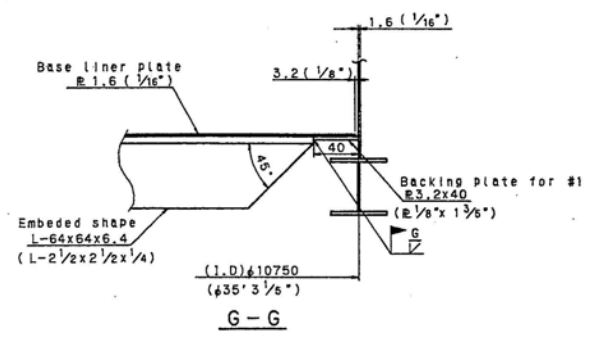
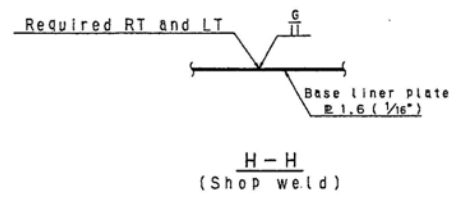
⑥ TIERS	398
⑦ TIERS	1458
⑧ TIERS	1134
⑨ TIERS	1860
⑩ TIERS	146
TOTAL 4996	

- NOTES
1. WELDS SHALL BE BUTT WELDS AS SHOWN BELLOW UNLESS OTHERWISE NOTED.
  2. MATERIALS LINER PLATE (16) SGV410 LINER ANCHOR AND STUD SS400
  3. THIS DWG. ARE OUTSIDE SURFACE OF LINER PLATE.
  4. CLASSIFICATION OF WELD SEAMS ARE AS FOLLOWS;
    - FIELD WELD
    - SHOP WELD

SET	MARK	DESCRIPTION	MATERIAL	TEST	WELDING	SPR	PER PEZ	TOTAL	REMARKS
SET	DATE			PER	QUANTITY PER SET	MASS	(kg)		
		STEEL STRUCTURE DEPARTMENT PRODUCTION SHEET							NUPEC PCCV STRUCTURAL BEHAVIOR PROVING TEST
		APPROVED							STUD LAYOUT OF DOME PORTION
		CHECKED							
		DRAWN							
		OWNER							
		ORDER NO.							
		ITEM NO.							
		DATE							
		SCALE	1/40, 1/2						
		DRAWING NO.	M1-ZCD1016A						
		COPY FOR							



Base liner plate



- NOTES
- The symbols show:
    - Welding
    - Base liner plate number
    - Joint of #1
    - Shop weld
    - Gauge position
  - Materials Base liner plate SGV410  
Other ASTM A6
  - Base liner should be made in Japan  
Other numbers should be made in America
  - The welding of Liner inside should be required MT & LT

SP. NO.	REV.	DATE	DESCRIPTION	MATERIAL	TEST	MARK	QUANTITY PER SET	REMARKS
7221610	0100		STEEL STRUCTURE DEPARTMENT PRODUCTION SHOP	NUPEC PCCV STRUCTURAL BEHAVIOR PROVING TEST				
			APPROVED <i>K. Hayashi</i> <i>H. Moritani</i> CHECKED <i>Y. Someya</i>					
			SCALE 1/30, 1/10					
BASE LINER PLATE DETAIL								
M1-ZCD-1025A								