



elf aquitaine norge a/s

CDP 1

**SUBSEA
AS BUILT FILE**

VOLUME 7

8. CATHODIC PROTECTION

DRAWING TITLE

E.A.N DRAWING No

8.1.

CONDUCTOR GUIDE FRAMES

- LEVELS REFERENCE AND ELEVATION	FF 91 36 35 - 1580
- LOCATION OF ZINC ANODES IN CELLS C AND D LEVELS D AND E	FF 91 36 35 - 1581
- LOCATION OF REFERENCE ELECTRODES IN CELLS C AND D LEVELS D AND E	FF 91 36 35 - 1582
- CABLE RUN ON GUIDE FRAME LEVEL D	FF 91 36 35 - 1583
- CABLE RUN ON GUIDE FRAME LEVEL E	FF 91 36 35 - 1584
- CABLE RUN ON GUIDE FRAME LEVEL G	FF 91 36 35 - 1585
- ZINC ANODE FIXATION ON GUIDE FRAME	FF 91 36 35 - 1586
- ZINC ANODE FIXATION ON SECONDARY FRAME	FF 91 36 35 - 1587
- ZINC REFERENCE ELECTRODE - FIXATION ON GUIDE FRAME	FF 91 36 35 - 1588

8.2.

RADIAL BEAMS

CABLE RUN ON FILE 1 CELL A SIDE	FF 91 36 35 - 1589
CABLE RUN ON FILE 1 CELL F SIDE	FF 91 36 35 - 1590
CABLE RUN ON FILE 2 CELL B SIDE	FF 91 36 15 - 1591
CABLE RUN ON FILE 3 CELL C SIDE	FF 91 36 35 - 1592
CABLE RUN ON FILE 6 CELL E SIDE	FF 91 36 35 - 1593
CABLE RUN ON FILE 6 CELL F SIDE	FF 91 36 35 - 1594

8. CATHODIC PROTECTION

DRAWING TITLE

E.A.N DRAWING No

8.3.

UTILITY RISERS

- SEA WATER RISERS 146-147-148 LOCATION OF ANODES
- FIRE WATER RISER 144 LOCATION OF ANODES
- FIRE WATER RISER 145 LOCATION OF ANODES
- SYMINEX RISER CELL E LOCATION OF ANODES
- TYPICAL ZINC BRACELET ANODE FOR UTILITY RISER
- PECHINEY TEST ANODE FIXATION ON RISERS 144-145

FF 91 36 35 - 1595
 FF 91 36 35 - 1596
 FF 91 36 35 - 1597
 FF 91 36 35 - 1598
 FF 91 36 35 - 1599
 FF 91 36 35 - 1600

8.4.

UTILITY RISERS SUPPORTS

SEA WATER PUMP RISER 146-147-148
 LOWER PIPE SUPPORT BASE PLATE
 LOWER PIPE SUPPORT BACKING PLATE

FF 91 36 35 - 1601
 FF 91 36 35 - 1602

SLOPS RISER 143
 LOWER PIPE SUPPORT BASE PLATE
 LOWER PIPE SUPPORT BACKING PLATE

FF 91 36 35 - 1603
 FF 91 36 35 - 1604

FIRE WATER RISERS 144-145
 LOWER PIPE SUPPORT BASE PLATE
 LOWER PIPE SUPPORT BACKING PLATE

FF 91 36 35 - 1605
 FF 91 36 35 - 1606

MUD OUTFALL RISERS 149-150
 UPPER PIPE SUPPORT BASE PLATE
 UPPER PIPE SUPPORT BASE PLATE
 LOWER PIPE SUPPORT BACKING PLATE

FF 91 36 35 - 1607
 FF 91 36 35 - 1608
 FF 91 36 35 - 1609

TYPICAL ANODE ON LOWER PIPE SUPPORT

FF 91 36 35 - 1610

8. CATHODIC PROTECTION

DRAWING TITLE

E.A.N DRAWING No

8.5. CATHODIC PROTECTION ON BREAKWATER WALL

CELL A DEVELOPED	FF 91 36 35 - 1611
CELL B DEVELOPED	FF 91 36 35 - 1612
CELL C DEVELOPED	FF 91 36 35 - 1613
CELL D DEVELOPED	FF 91 36 35 - 1614
CELL E DEVELOPED	FF 91 36 35 - 1615
CELL F DEVELOPED	FF 91 36 35 - 1616
ANODE TYPICAL FIXATION DETAIL 1	FF 91 36 35 - 1617
ANODE TYPICAL FIXATION DETAIL 2	FF 91 36 35 - 1618

8.6. PERMANENT BONDING

- CONNECTION CONDUCTOR PIPE/GUIDE FRAME	FF 91 36 35 - 1619
- CONNECTION CONDUCTOR GUIDE FRAME SUPPORT	FF 91 36 35 - 1620
- CONNECTION PIPE RISER/RISER SUPPORT	FF 91 36 35 - 1621

8.7. RISERS OUTSIDE SEAL CAISSON

26" O.D GAS LINE R 6 IN TUNNEL A	FF 91 36 35 - 1622
26" O.D GAS LINE R 5 IN TUNNEL F	FF 91 36 35 - 1623
8" O.D KILL LINE J 4 IN TUNNEL E	FF 91 36 35 - 1624
4" O.D CONDENSATE LINE J 5 IN TUNNEL B	FF 91 36 35 - 1625
TYPICAL ANODE DETAIL FOR 26" O.D	FF 91 36 35 - 1626
TYPICAL ANODE DETAIL FOR 8" O.D	FF 91 36 35 - 1627
TYPICAL ANODE DETAIL FOR 4" O.D	FF 91 36 35 - 1628

8. CATHODIC PROTECTION

DRAWING TITLE

E.A.N DRAWING No

8.8.

SEAL CAISSONS

- TYPICAL LOCATION OF ANODE OUTSIDE
SEAL CAISSON TUNNELS A AND F
- TYPICAL LOCATION OF ANODE OUTSIDE
SEAL CAISSON TUNNEL E
- TYPICAL LOCATION OF ANODE OUTSIDE
SEAL CAISSON TUNNEL B
- TYPICAL LOCATION OF ANODE OUTSIDE
SEAL CAISSON TUNNELS C AND D

FF 91 36 35 - 1629

FF 91 36 35 - 1630

FF 91 36 35 - 1631

FF 91 36 35 - 1632

8.9.

MISCELLANEOUS

- NEOPRENE SEAL FLANGE PROTECTOR
FOR 8"DIA.
- NEOPRENE SEAL FLANGE PROTECTOR
FOR 4"DIA.

FF 91 36 35 - 1633

FF 91 36 35 - 1634

RESERVED

FF 91 36 35 - 1635

RESERVED

FF 91 36 35 - 1636

RESERVED

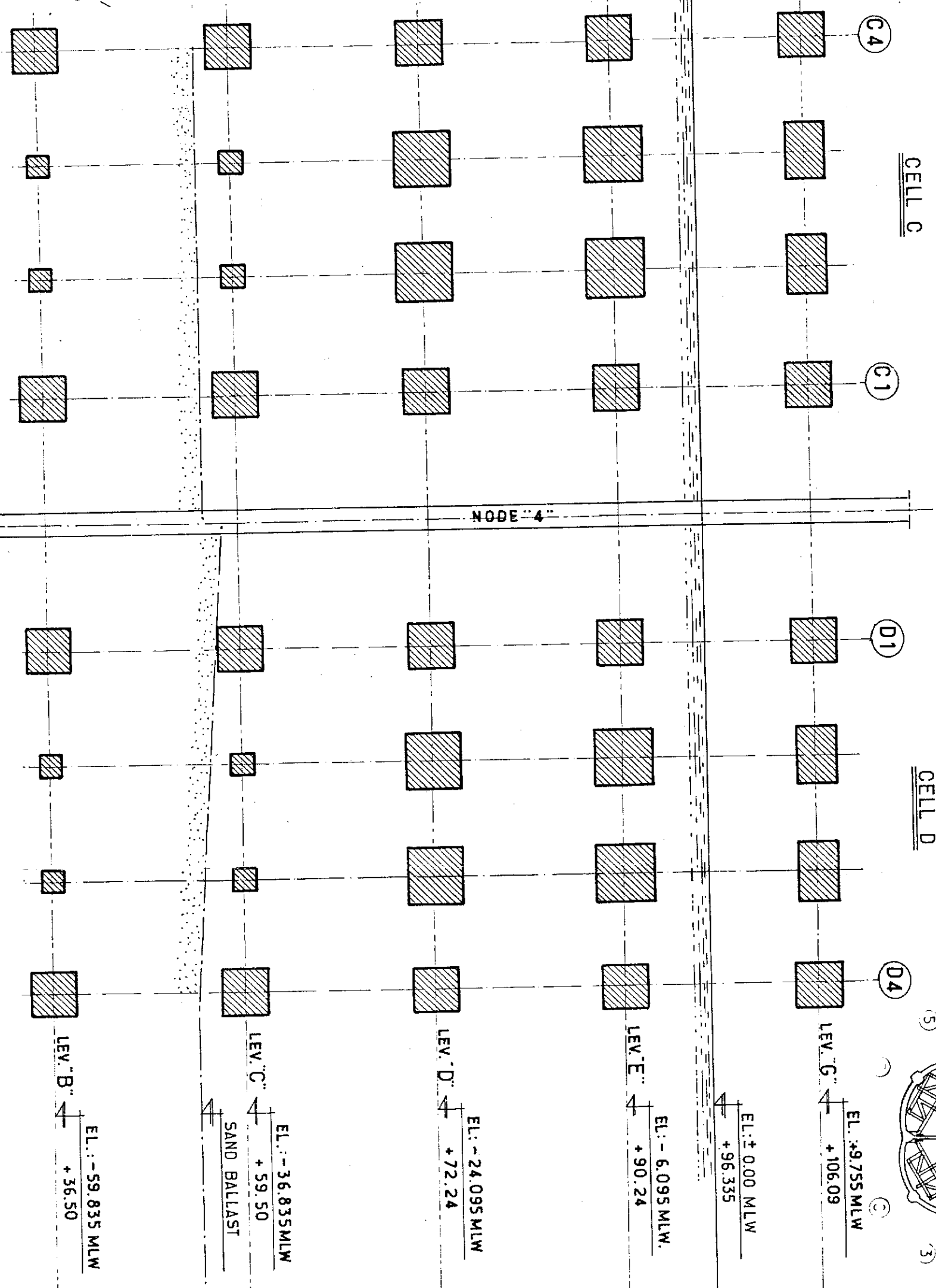
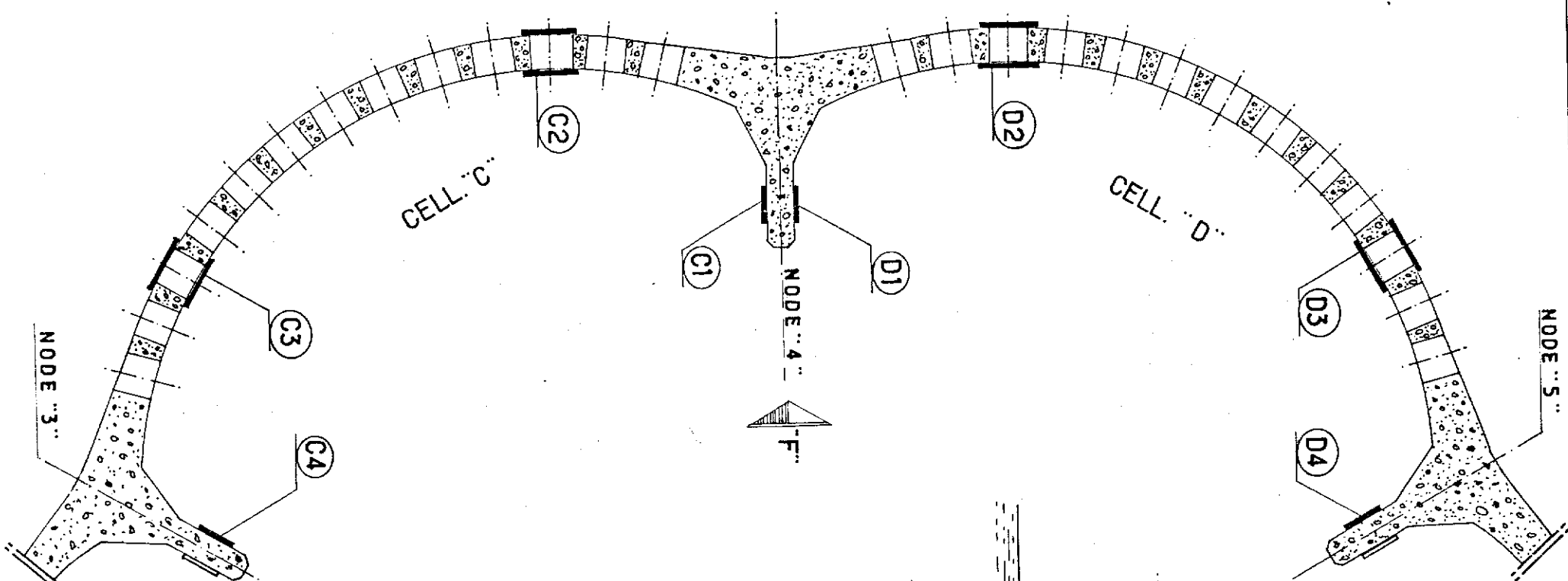
FF 91 36 35 - 1637

RESERVED

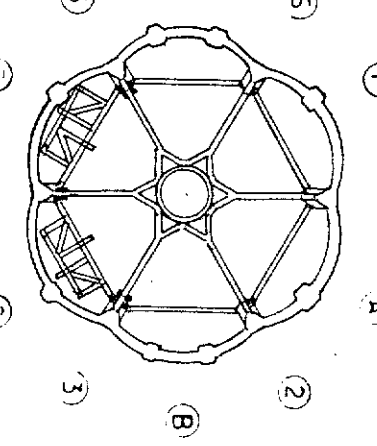
FF 91 36 35 - 1638

RESERVED

FF 91 36 35 - 1639



GRID NORTH
19° 37'
PLAT NORTH



LEV. "A"
EL: -81.335 MLW
+15.00
AT THIS LEVEL NO PLATE ARE
EMBEDDED IN CONCRETE.

1	0104	UPDATED	D.P. JLC	elf	aquitaine	Job no.	Installation	System
Rev.	Date	DESCRIPTION	by	app	norge a s	CDP 1	UNDERWATER	
Contractor	JVD 1029.80.00	4001 Stawamp	elf	FF 91-36-35-1580	1			

LEV. "B"
EL: -59.835 MLW
+36.50

LEV. "C"
EL: -36.835 MLW
+59.50
SAND BALLAST

LEV. "D"
EL: -24.095 MLW
+72.24

LEV. "E"
EL: -6.095 MLW
+90.24

LEV. "F"
EL: ± 0.00 MLW
+96.335

LEV. "G"
EL: -9.755 MLW
+106.09

5

CELL D

TYPICAL ANODE ARRANGEMENT ON TOP OF PIPE

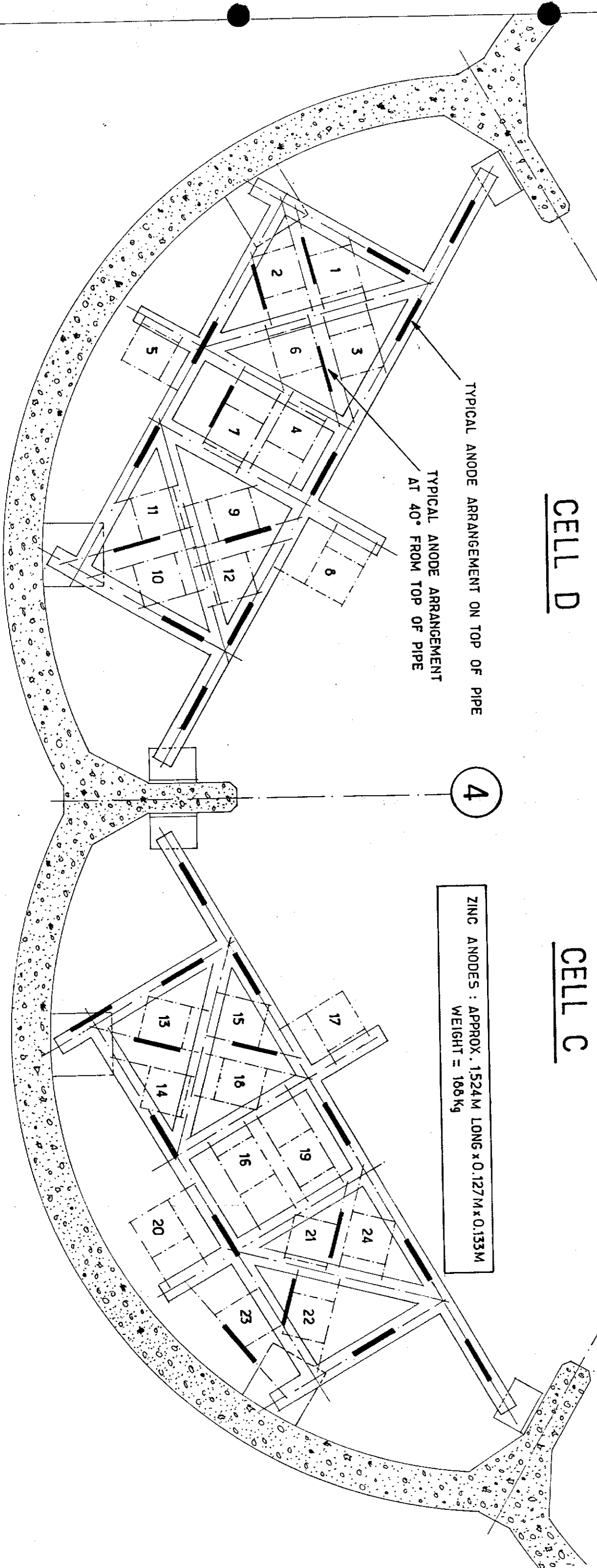
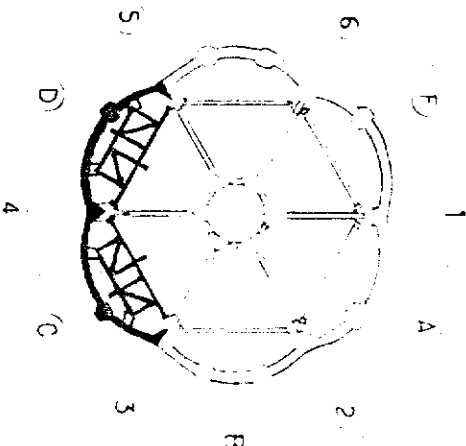
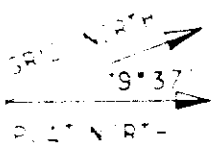
TYPICAL ANODE ARRANGEMENT
AT 40° FROM TOP OF PIPE

4

CELL C

ZINC ANODES : APPROX. 1.524M LONG x 0.127M x 0.133M
WEIGHT = 168 kg

3



THIS SKETCH IS VALID FOR BOTH LEVELS OF GUIDE FRAME :
- 6.095 MLW (+90.240) (LEVEL E)
- 24.095 MLW (+72.240) (LEVEL D)
FOR FIXATION DETAIL OF ZINC ANODE SEE: SK. FF. 91 36 35 1586 AND 1587.

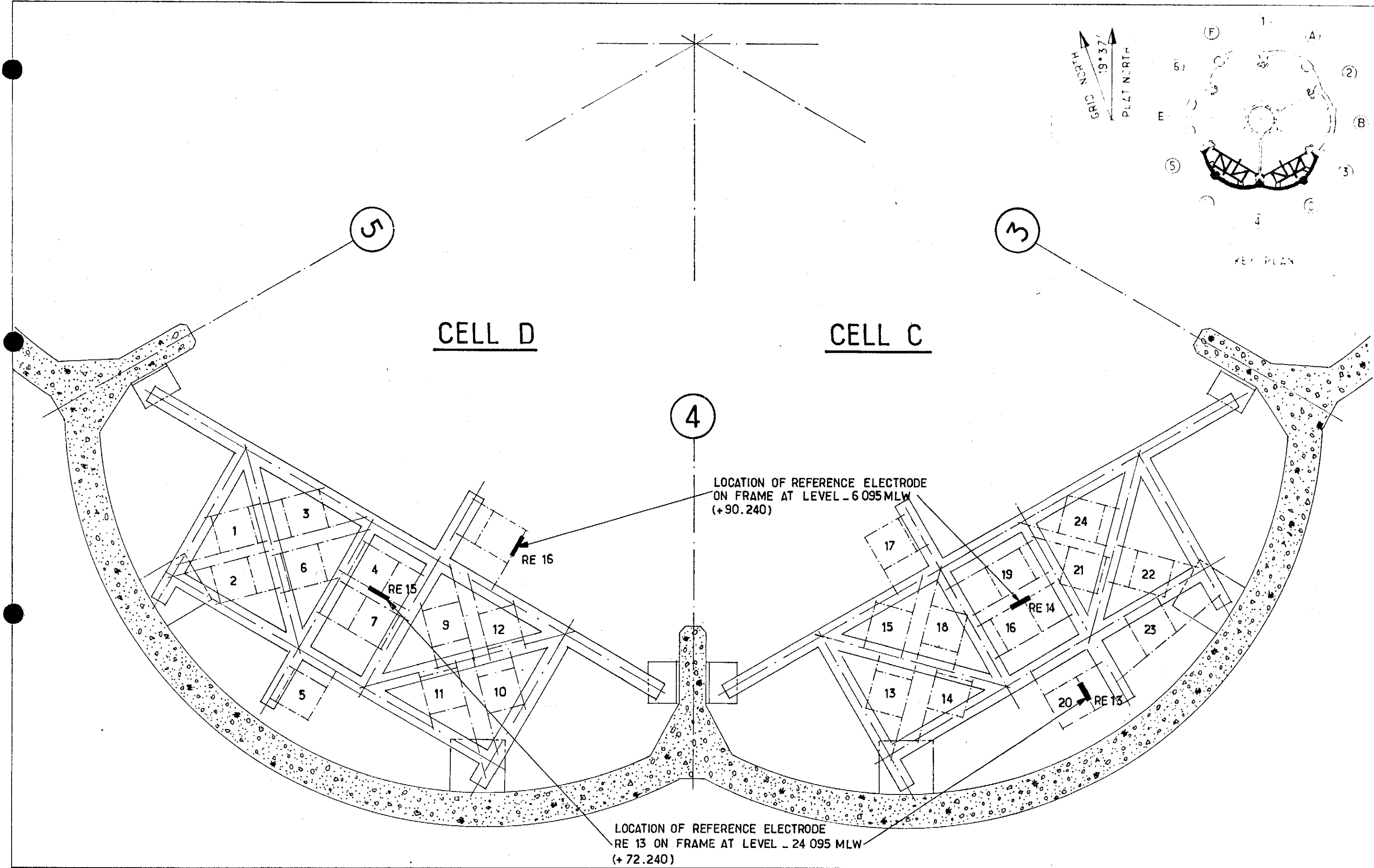
Contract for JVD 1029.80.01		elf aquitaine norge a s		elf		LOCATION OF ZINC ANODES IN CELLS C AND D LEVELS D AND E	
1	01.84	UPDATED	D.P. 4.4	1/125	FF 91-36-35-1581	1	1
Rev	Date	By	App	Scale	Drawn by	Checked by	Drawn by
Contract for JVD 1029.80.01		elf aquitaine norge a s		elf		LOCATION OF ZINC ANODES IN CELLS C AND D LEVELS D AND E	

CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: CATHODIC PROTECTION

[illegible][illegible]

					 elf	Job no.	Installation CDP 1		System UNDERWATER	
						Scale				
Rev.	Date	DESCRIPTION	by	app.	p.o.box 168	Dwgr. no.	FF <u>1589</u>		Rev.	Sheet
Contractor					4001 Stavanger	FRIGG FIELD				



NOTES:
 FOR LAY OUT OF ELECTRIC CABLES OF REFERENCE ELECTRODES SEE FF 91-36-35-1583_1584.
 FOR FIXATION DETAIL OF REFERENCE ELECTRODE SEE SK. FF 91-36-35-1588.

1	0184	UPDATED	D.P.	JVC	
Rev	Date	DESCRIPTION	by	app	
Contractor JVD 1029_80.02.			elf aquitaine norge a s p o box 168 4001 Stavanger		



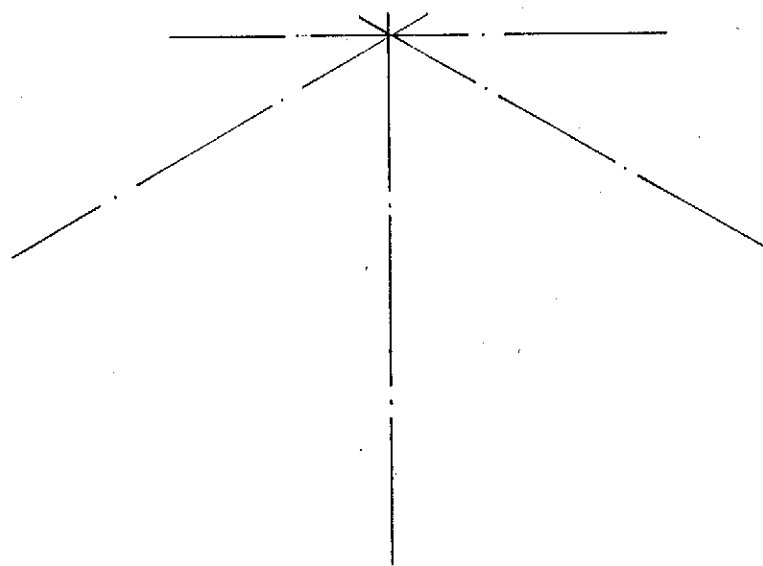
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Scale 1/125	LOCATION OF REFERENCE ELECTRODE IN CELLS C&D LEVELS D&E	
Dwg no.	FF 91-36-35-1582	1

CDP 1 AS BUILT DRAWINGS

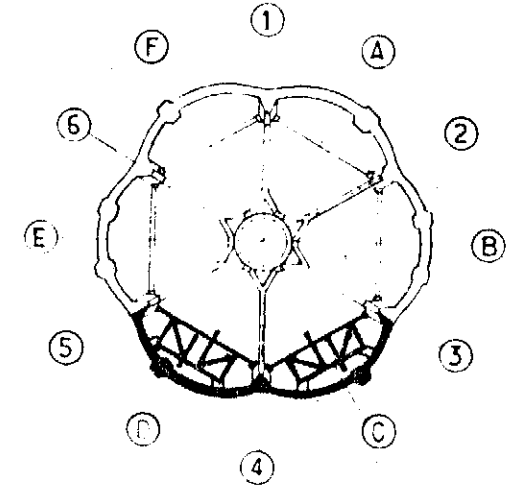
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Rev. Date DESCRIPTION by app.							Scale			
Contractor					FRIGG FIELD	Dwgr. no.	FF <u>1582</u>	Rev.	Sheet /	



GRID NORTH
19°37'
PLAT NORTH



KEY PLAN

5

3

CELL D

CELL C

4

REFERENCE ELECTRODE RE 15

PIPE CONDUIT 3" DIA (TYP)

PIPE CONDUIT RISER TO
TOP OF LOBATE WALL

20

REFERENCE ELECTRODE RE 13

LEVEL D = - 24,095 MLW (+ 72.240)

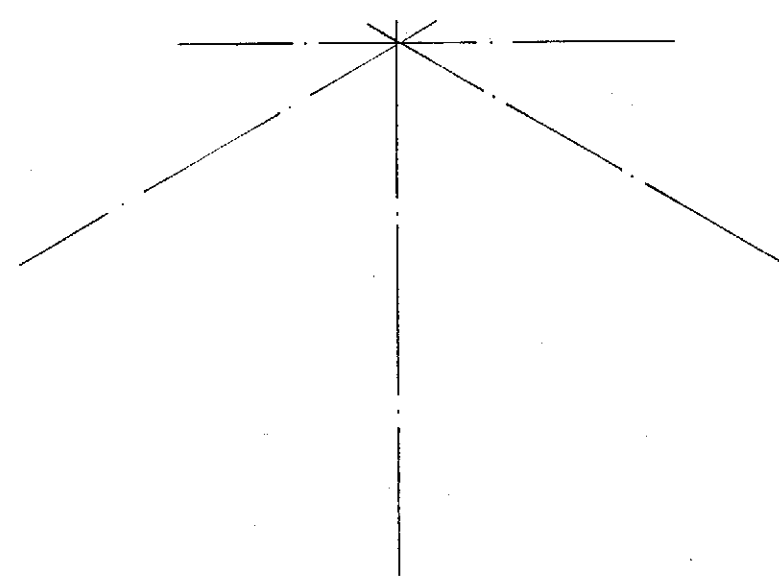
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1	01.84	UPDATED	D.P.	J.L.C.					Scale 1/125	CABLE RUN ON GUIDE FRAME LEVEL D	
Rev.	Date	DESCRIPTION	by	app.	Contractor JVD 1029_80_03		FRIGG FIELD		Dwgr. no	FF 91-36-35-1583.	1

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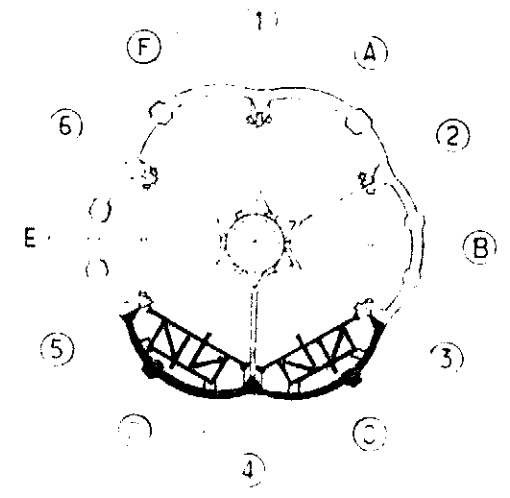
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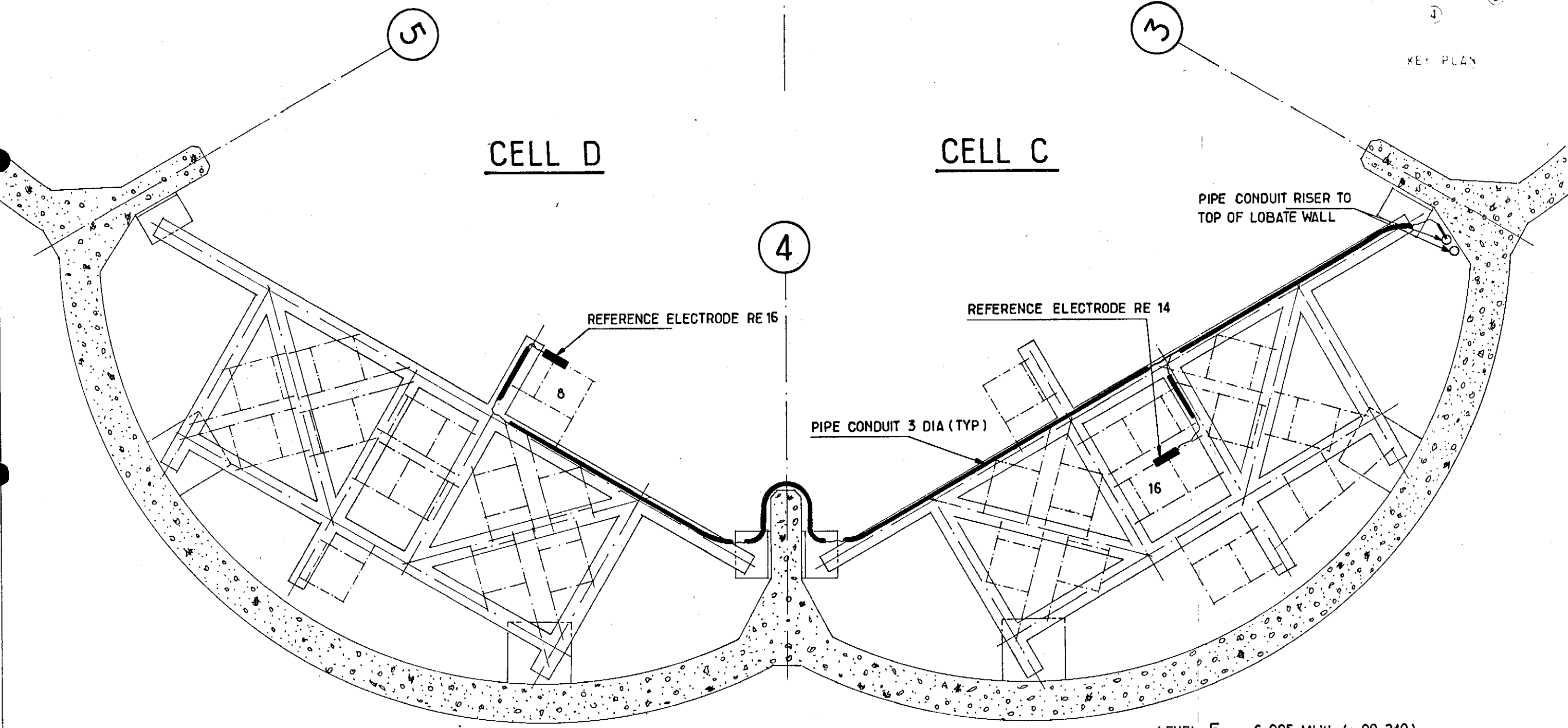
						Job no.	Installation CDP 1		System UNDERWATER	
						Scale				
Rev.	Date	DESCRIPTION	by	app.	elf aquitaine norge a/s p.o.box 168 4001 Stavanger	Dwgr. no.	FF — <u>1583</u>		Rev.	Sheet /
Contractor					FRIGG FIELD					



GRID NORTH
19° 37'
PLAT NORTH



KEY PLAN



CELL D

CELL C

PIPE CONDUIT RISER TO
TOP OF LOBATE WALL

REFERENCE ELECTRODE RE 15

REFERENCE ELECTRODE RE 14

PIPE CONDUIT 3 DIA (TYP)

LEVEL E = - 6 095 MLW (+ 90.240)

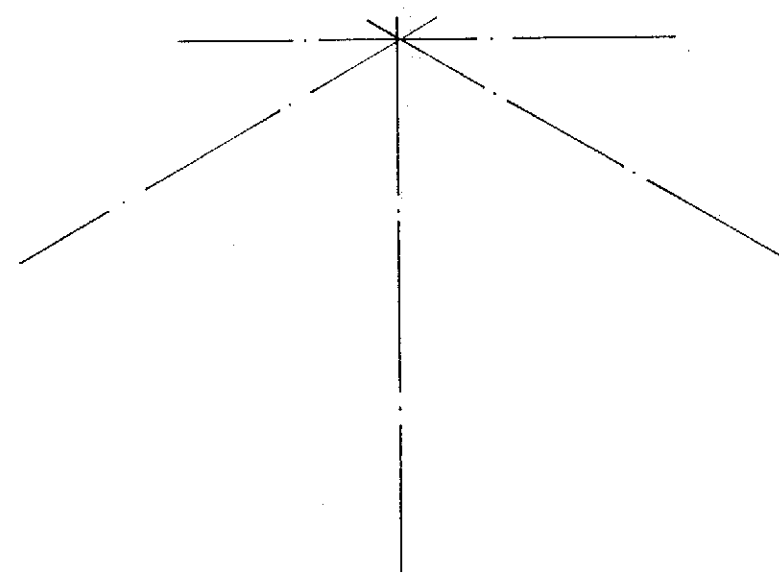
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1	01.84	UPDATED	D.P.	JLC			Scale 1/125	CABLE RUN OF GUIDE FRAME LEVEL E		
Rev.	Date	DESCRIPTION	by	app.			Dwgr no.	FF 91-36-35-1584.		1
Contractor JVD 1029_80_04.					4001 Stavanger	FRIGG FIELD				

CDP 1 AS BUILT DRAWINGS

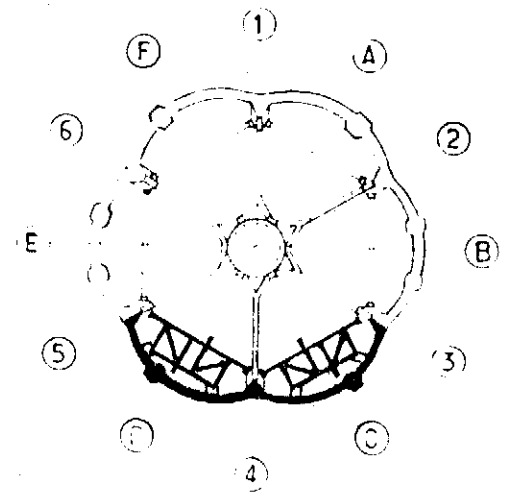
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							Scale				
Rev.	Date	DESCRIPTION	by	app.	FRIGG FIELD		Dwgr. no.	FF — <u>1584</u>		Rev.	Sheet /
Contractor											



GRID NORTH
19°37'
PLAT NORTH



KEY PLAN

5

3

4

CELL D

CELL C

PIPE CONDUIT TO
JUNCTION BOXES

PIPE CONDUIT 3"DIA (TYP)

PIPE CUT

PIPE CUT

PIPE CLAMP

LEVEL G = + 9.755 MLW (+ 106.09)

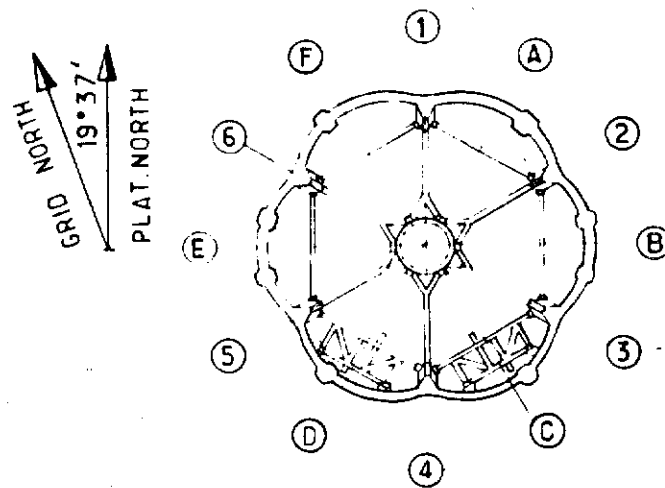
						 elf	Job no.	Installation CDP 1	System UNDERWATER
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Rev.	Date	DESCRIPTION	by	app			Dwgr. no.		
Contractor JVD 1029.80.05					4001 Stavanger	FRIGG FIELD	FF 91-36-35-1585		1

CDP 1 AS BUILT DRAWINGS

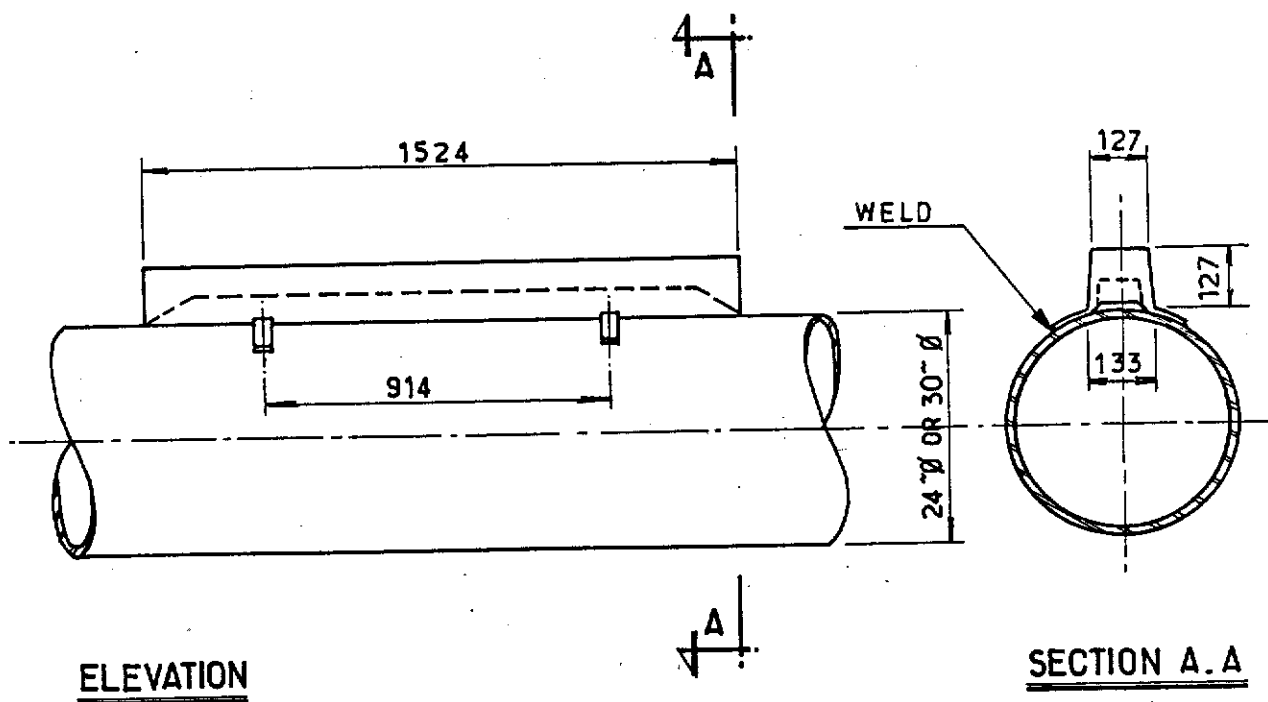
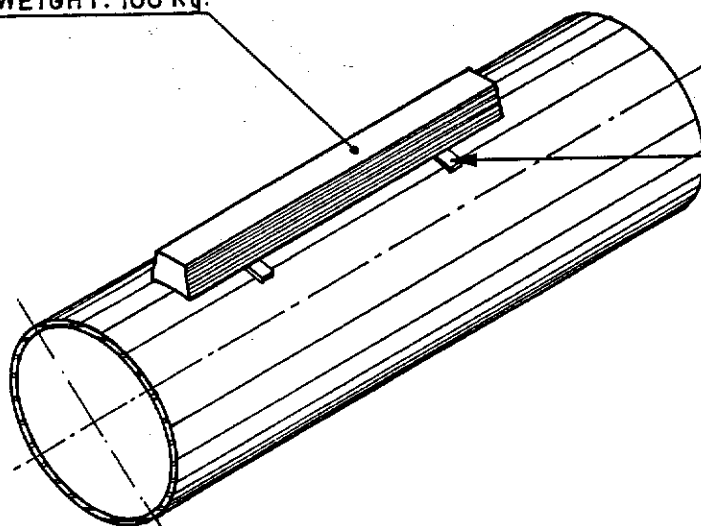
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							Scale				
Rev.	Date	DESCRIPTION	by	app.	Contractor	FRIGG FIELD	Dwgr. no.	FF — <u>1585</u>		Rev.	Sheet /



WEIGHT: 188 Kg.



FOR LOCATION SEE SK. FF 91.36.35.1581

					elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER		
1	01.84	UPDATED	D.P.	J.L.C.			Scale 1:20	ZINC ANODES TYPICAL FIXATION ON GUIDE FRAME			
Rev.	Date	DESCRIPTION	by	app.					Dwgr. no.	FF 91-36-35-1586	1
Contractor JVD 1029.80.06							FRIGG FIELD				

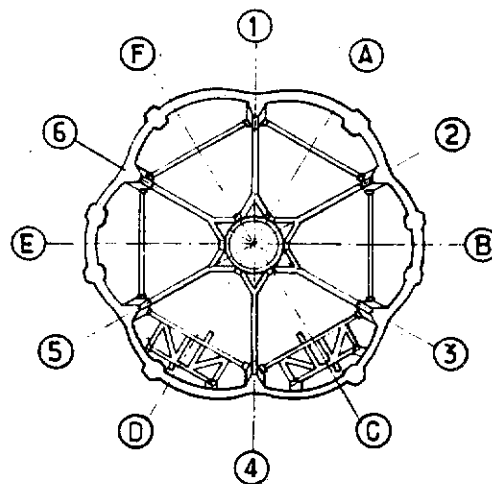
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REFERENCE DRAWING LIST FOR CATHODIC PROTECTION

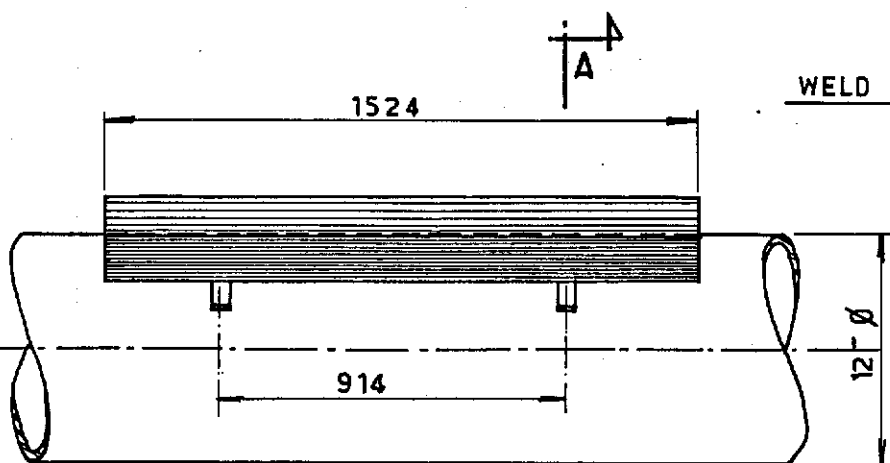
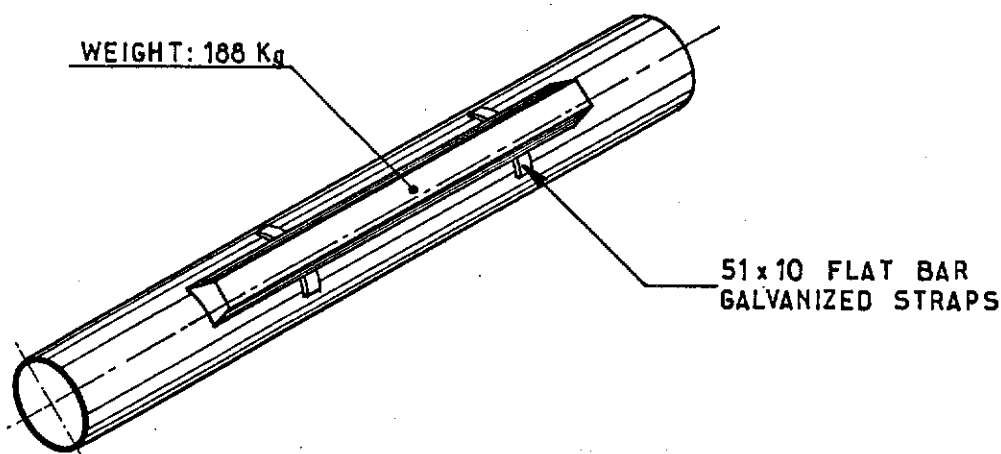
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Rev. Date DESCRIPTION by app.					Contractor		FRIGG FIELD		FF — <u>1586</u>		Rev.		Sheet /	

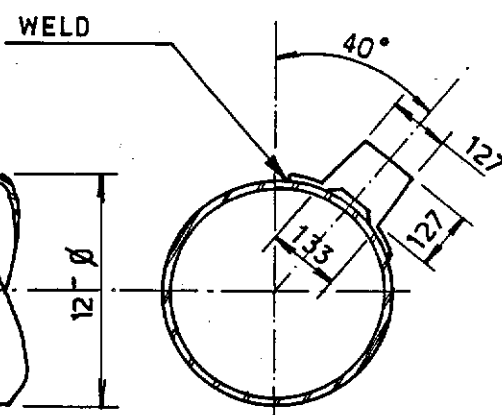
GRID NORTH
19° 37'
PLAT. NORTH



KEY PLAN



ELEVATION



SECTION A.A

FOR LOCATION SEE SK. FF 91.36.35.1581

							Job no.	Installation CDP 1	System UNDERWATER
1	01.84	UPDATED	D.P.	J.L.C.	norge a/s		Scale 1:20	ZINC ANODES. TYPICAL FIXATION ON SECONDARY GUIDE FRAME	
Rev.	Date	DESCRIPTION	by	app.	p.o.box 168		Dwgr. no.	Rev	Sheet
Contractor JVD 1029.80.07					4001 Stavanger		FF 91-36-35-1587	1	/

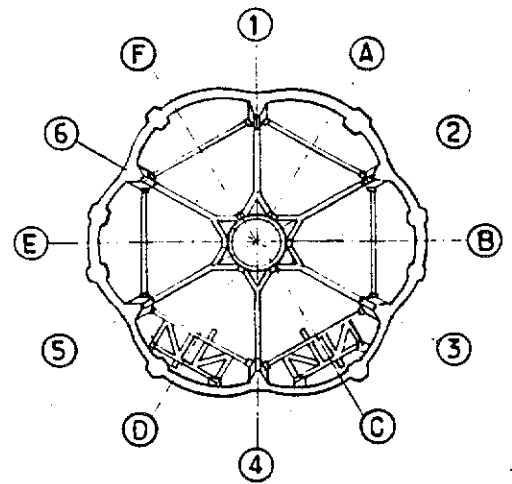
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REFERENCE DRAWING LIST FOR: CATHODIC PROTECTION

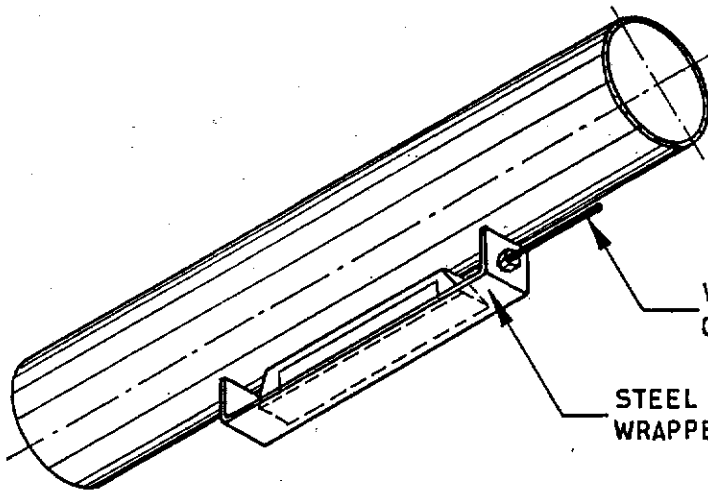
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					 elf	Job no.	Installation CDP 1	System UNDERWATER		
						Scale				
Rev.	Date	DESCRIPTION	by	app.	 elf	Dwgr. no.	1587		Re.	Sheet
Contractor						FRIGG FIELD	FF			

GRID NORTH
19°37'
PLAT. NORTH

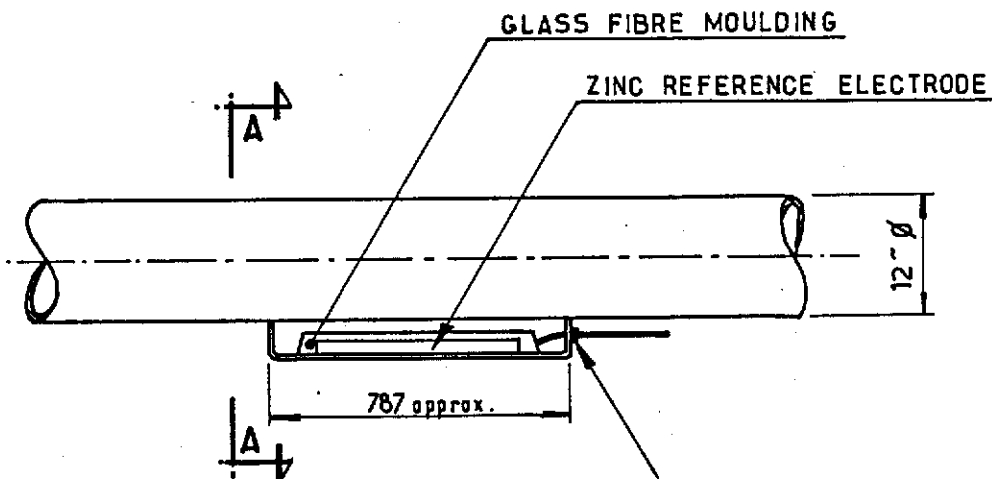


KEY PLAN

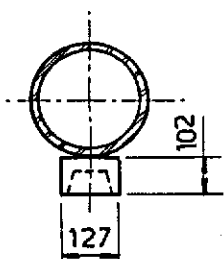


WIRE ARMoured ELECTRODE CABLE
OR APPROVED ALTERNATIVE

STEEL SUPPORT BRACKET
WRAPPED IN GLASS FIBRE RESIN



ELEVATION



SECTION A.A

CABLE SUPPORT GLAND

FOR LOCATION SEE SK. FF 91-36-35-1582

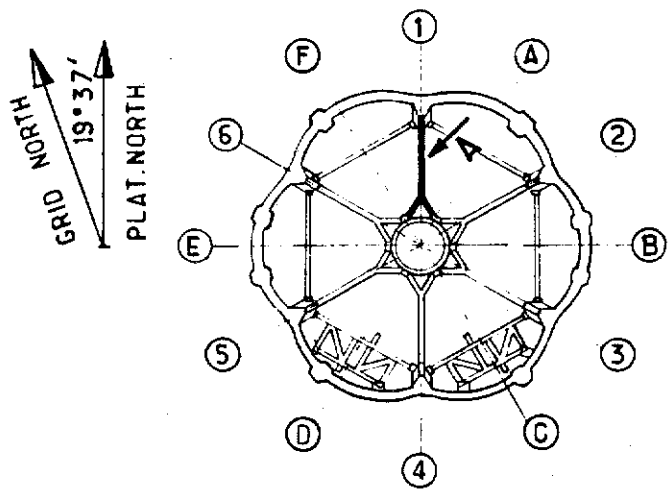
				elf aquitaine horge a/s p.o.box 168 4001 Stavanger		 elf	Job no.	Installation CDP 1	System UNDERWATER
1	01.84	UPDATED	D.P./LL	Scale 1:20	ZINC REFERENCE ELECTRODE TYPICAL FIXATION ON GUIDE FRAME				
Rev.	Date	DESCRIPTION	by	app.	Dwgr. no.		FF 91-36-35-1588	Rev 1	Sheet /
Contractor JVD 1029-80.08				FRIGG FIELD					

CDP 1 AS BUILT DRAWINGS

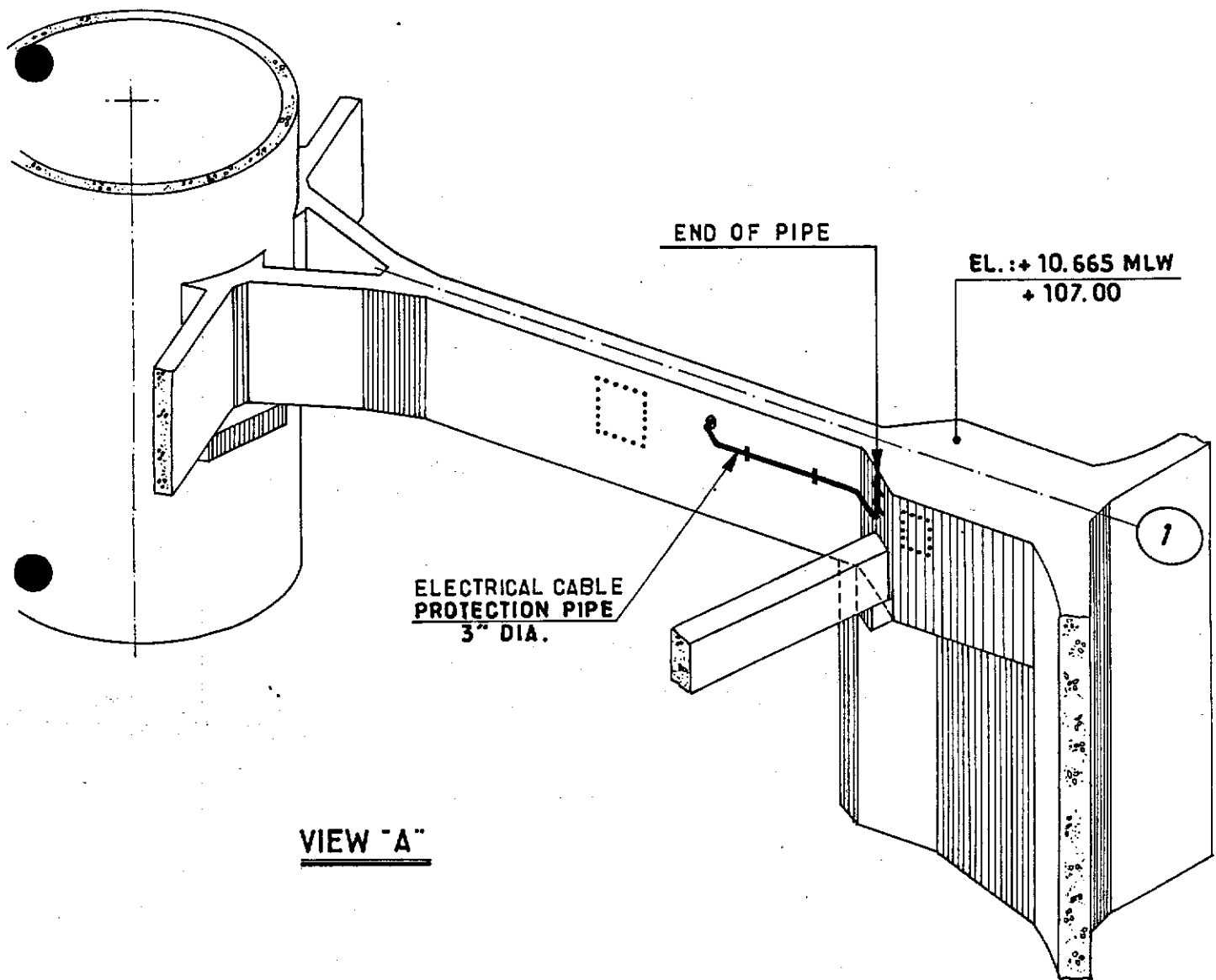
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					elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER		
							Scale				
Rev.	Date	DESCRIPTION	by	app.	Contractor	FRIGG FIELD	Dwgr. no.	FF	1588	Rev.	Sheet



KEY PLAN



VIEW "A"

SEE ALSO SK. FF. 91.36.35.1063 TO 1072

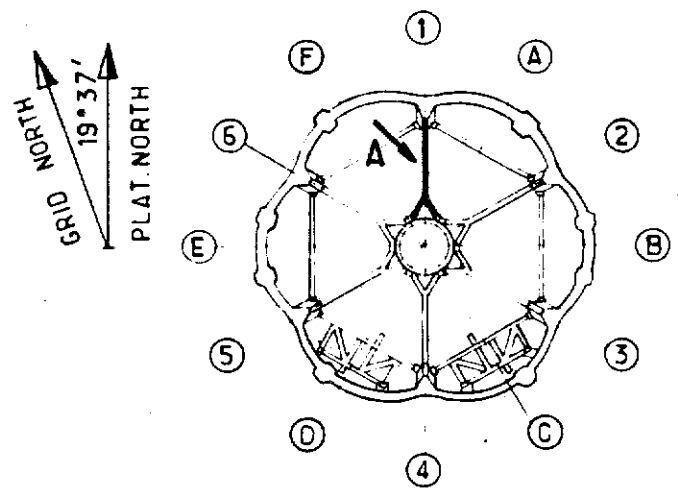
				elf		Job no.	Installation	System	
				aquitaine			CDP 1	UNDERWATER	
1		01.84	UPDATED	D.P.	JLC	Scale		CABLE RUN ON FILE 1	
Rev. Date		DESCRIPTION		by	app.	Dwgr. no.		CELL. "A" SIDE	
Contractor JVD 1029.80.09		4001 Stavanger		FRIGG FIELD		FF 91-36-35-1589		Rev.	Sheet
								1	

CDP 1 AS BUILT DRAWINGS

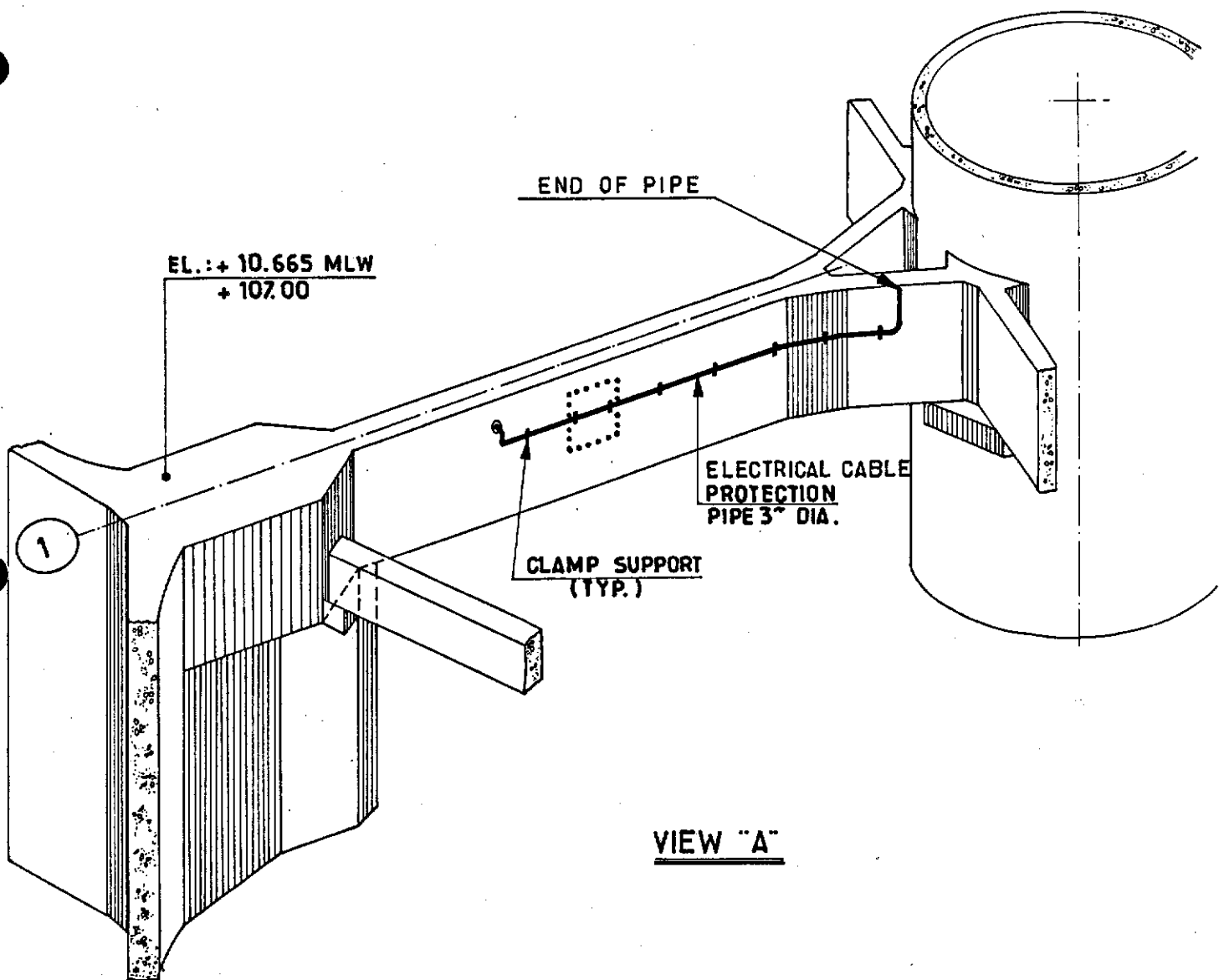
REFERENCE DRAWING LIST FOR: CATHODIC PROTECTION

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						Job no.	Installation CDP 1	System UNDERWATER
						Scale		
Rev.	Date	DESCRIPTION	by	app.		Dwgr. no.		Rev.
Contractor						FRIGG FIELD	FF	<u>1589</u>
					elf aquitaine norge a/s p.o.box 168 4001 Stavanger			



KEY PLAN



VIEW "A"

SEE ALSO SK. FF 91-36-35-1063 TO 1072

				elf aquitaine norge a/s		Job no.	Installation CDP 1	System UNDERWATER
1	01.84	UPDATED	D.P. J.L.C.	p.o. box 168		Scale	CABLE RUN ON FILE 1	
Rev.	Date	DESCRIPTION	by	app.		Dwgr. no.	CELL. "F" SIDE	
Contractor JVD 1029.80.10				4001 Stavanger		FF 91-36-35-1590		1
				FRIGG FIELD				

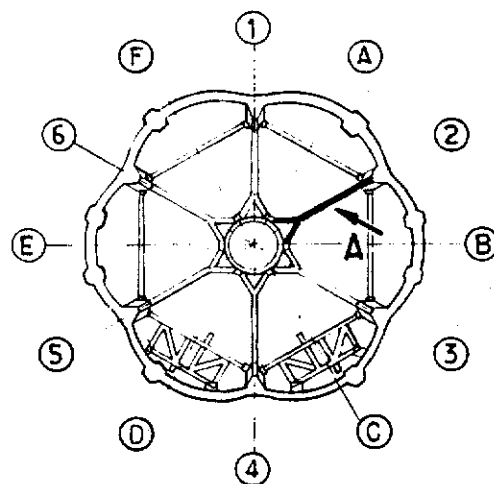
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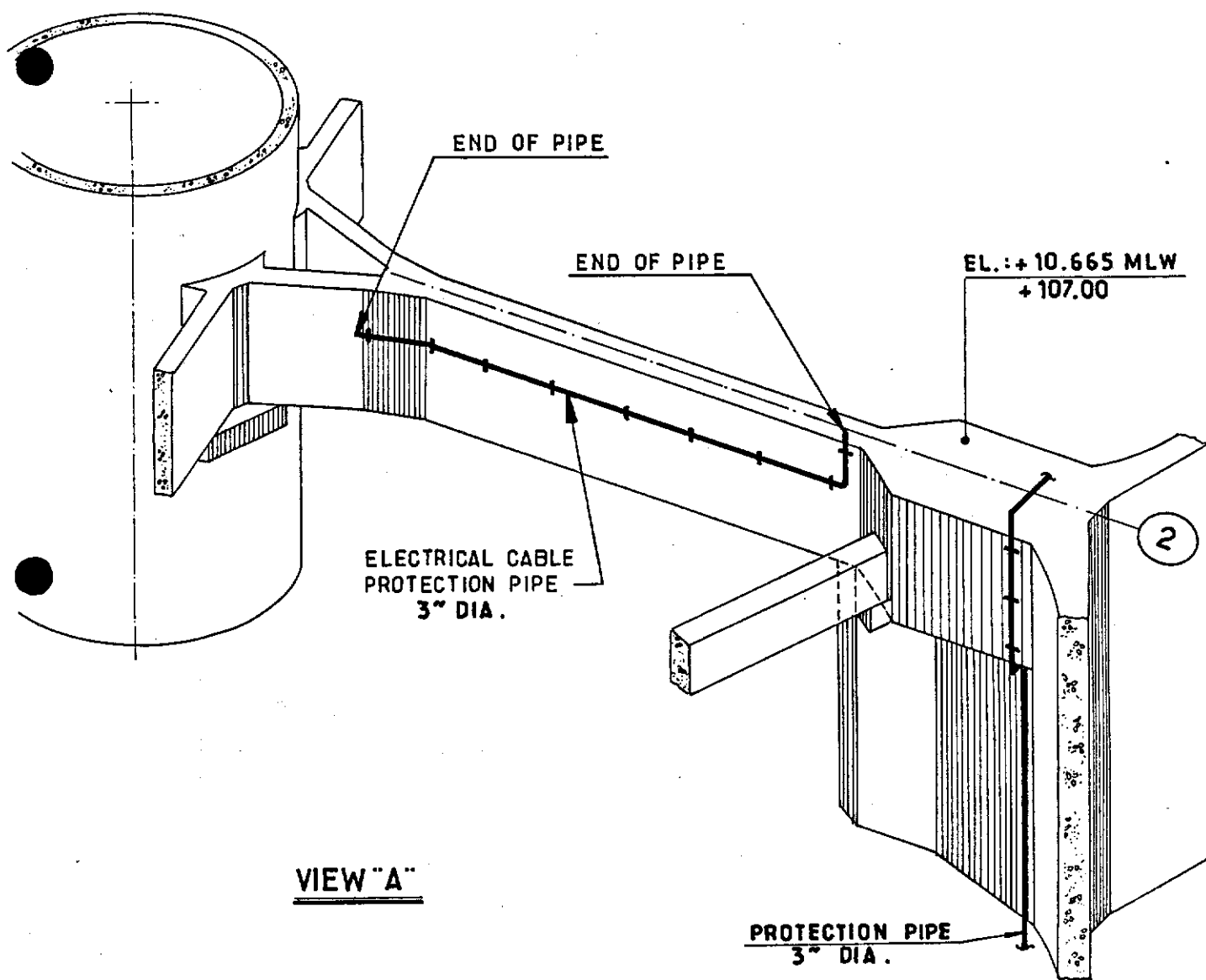
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					elf		 elf	Job no.	Installation		System	
					aquitaine				CDP 1		UNDERWATER	
					norge a/s			Scale				
Rev.	Date	DESCRIPTION	by	app.	p.o.box 168			Dwgr. no.		Rev.		Sheet
Contractor					4001 Stavanger		FRIGG FIELD	FF		1590		/

GRID NORTH
19°37'
PLAT. NORTH



KEY PLAN



VIEW "A"

SEE ALSO SK. FF.91.36.35.1063 TO 1072

				elf aquitaine norge a/s p.o.box 168 4001 Stavanger		Job no.		Installation CDP 1	System UNDERWATER
1	01.84	UPDATED	D.P.	JLC	elf	Scale	CABLE RUN ON FILE 2 CELL. "B" SIDE		
Rev.	Date	DESCRIPTION	by	app.		Dwgr. no.	FF 91-36-35-1591		
Contractor JVD 1029.80.11					FRIGG FIELD	FF 91-36-35-1591			1

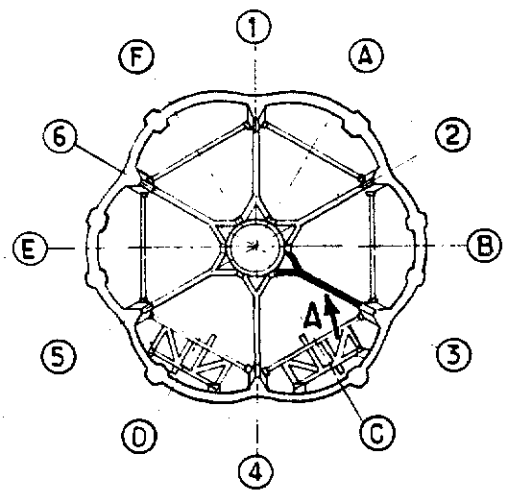
CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: CATHODIC PROTECTION

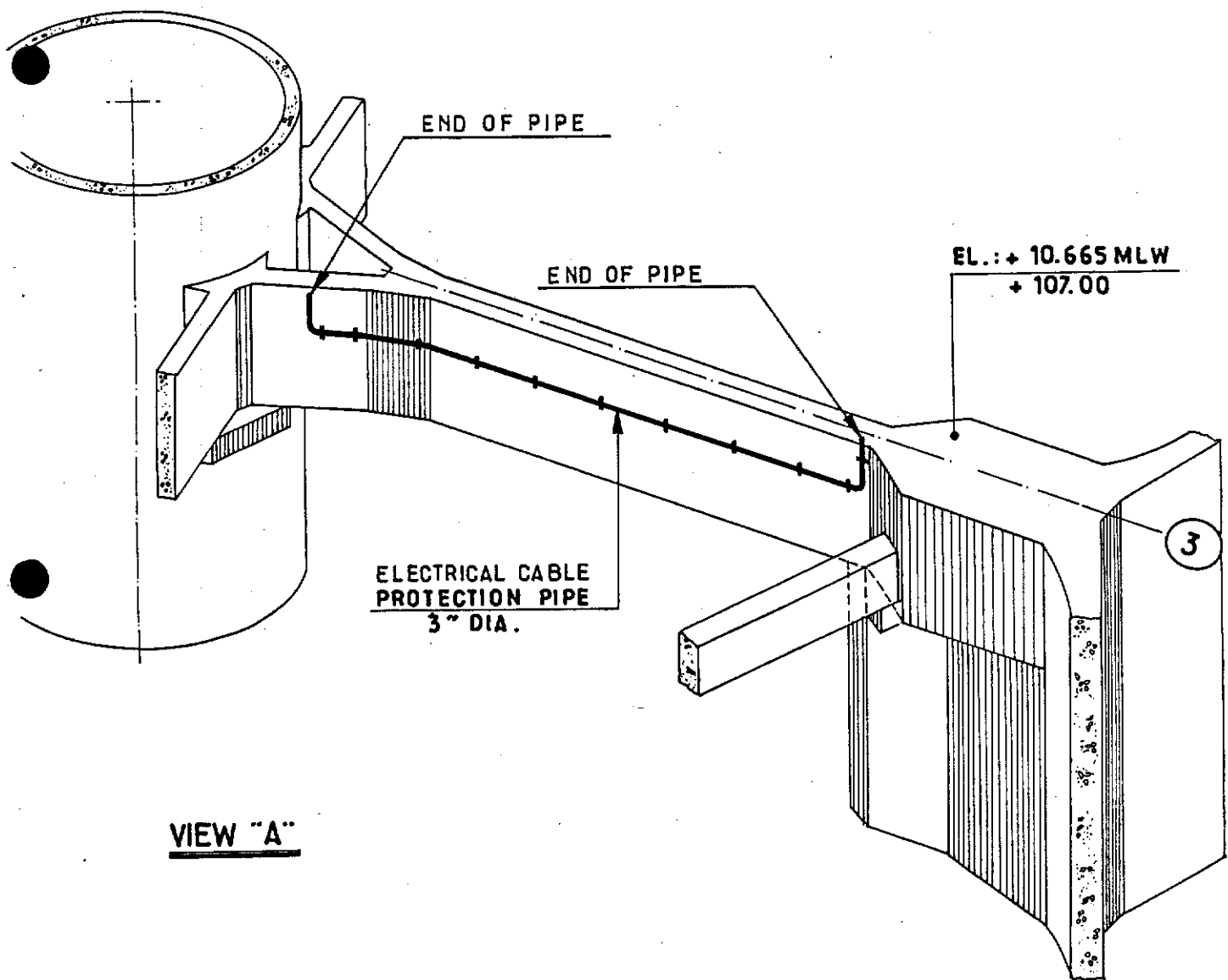
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					 elf	Job no.	Installation CDP 1	System UNDERWATER		
Rev. Date DESCRIPTION by app.						Scale				
Contractor						Dwgr. no. FF	1591		Rev.	Sheet /

GRID NORTH
19° 37'
PLAT. NORTH



KEY PLAN



VIEW "A"

SEE ALSO SK. FF.91.36.35.1063 TO 1072

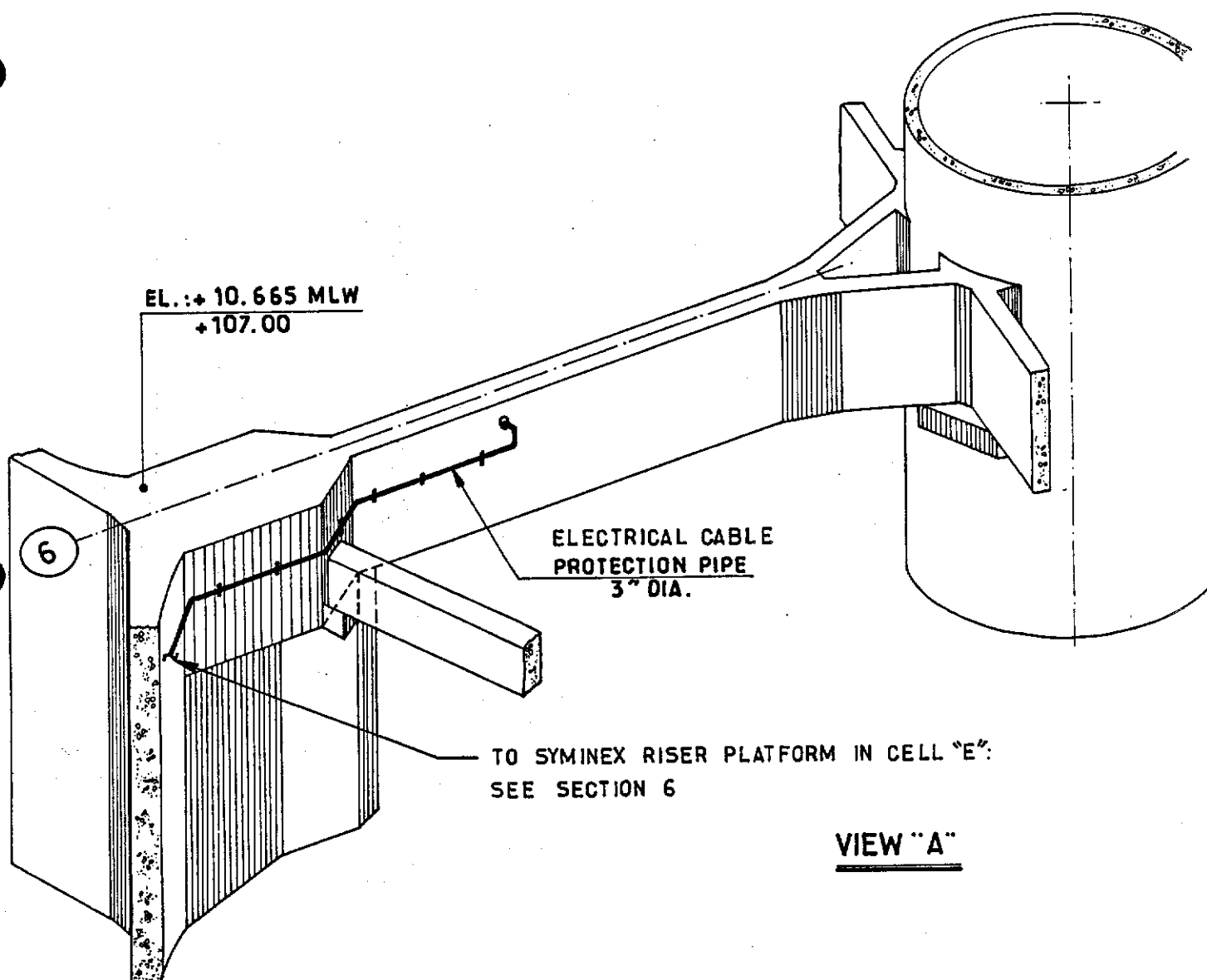
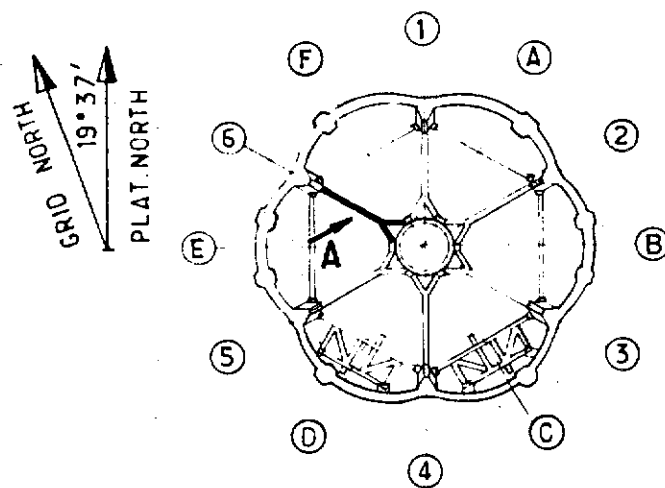
					 elf	Job no.	Installation CDP 1	System UNDERWATER			
1	01.84	UPDATED	D.P	J.L.C.		Scale	CABLE RUN ON FILE 3 CELL. "C" SIDE				
Rev.	Date	DESCRIPTION	by	app.		Dwgr. no.	FF 91-36-35-1592		Rev.	1	Sheet
Contractor JVD 1029.80.12						FRIGG FIELD					

CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: CATHODIC PROTECTION

[illegible][illegible]

					 elf	Job no.	Installation CDP 1	System UNDERWATER		
						Scale				
Rev.	Date	DESCRIPTION	by	app.	 elf	Dwg. no.	FF — <u>1592</u>		Rev.	Sheet /
Contractor						elf aquitaine norge a/s p.o.box 168 4001 Stavanger				



						elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER	
1	01.84	UPDATED	D.P.	JLC				Scale /	CABLE RUN ON FILE 6 CELL. "E" SIDE		
Rev.	Date	DESCRIPTION	by	app.				Dwgr. no.	FF 91-36-35-1593	1	/
Contractor JVD 1029.80.13						FRIGG FIELD					

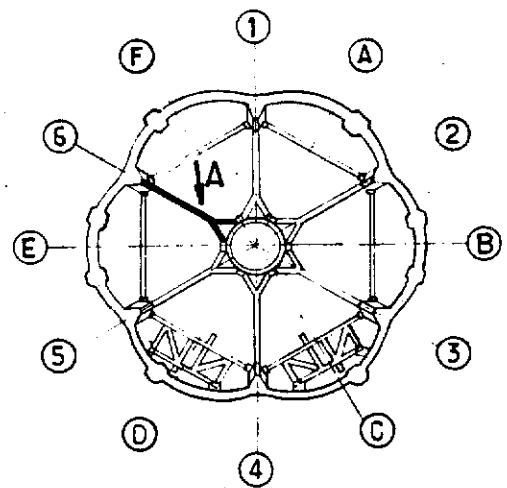
CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: CATHODIC PROTECTION

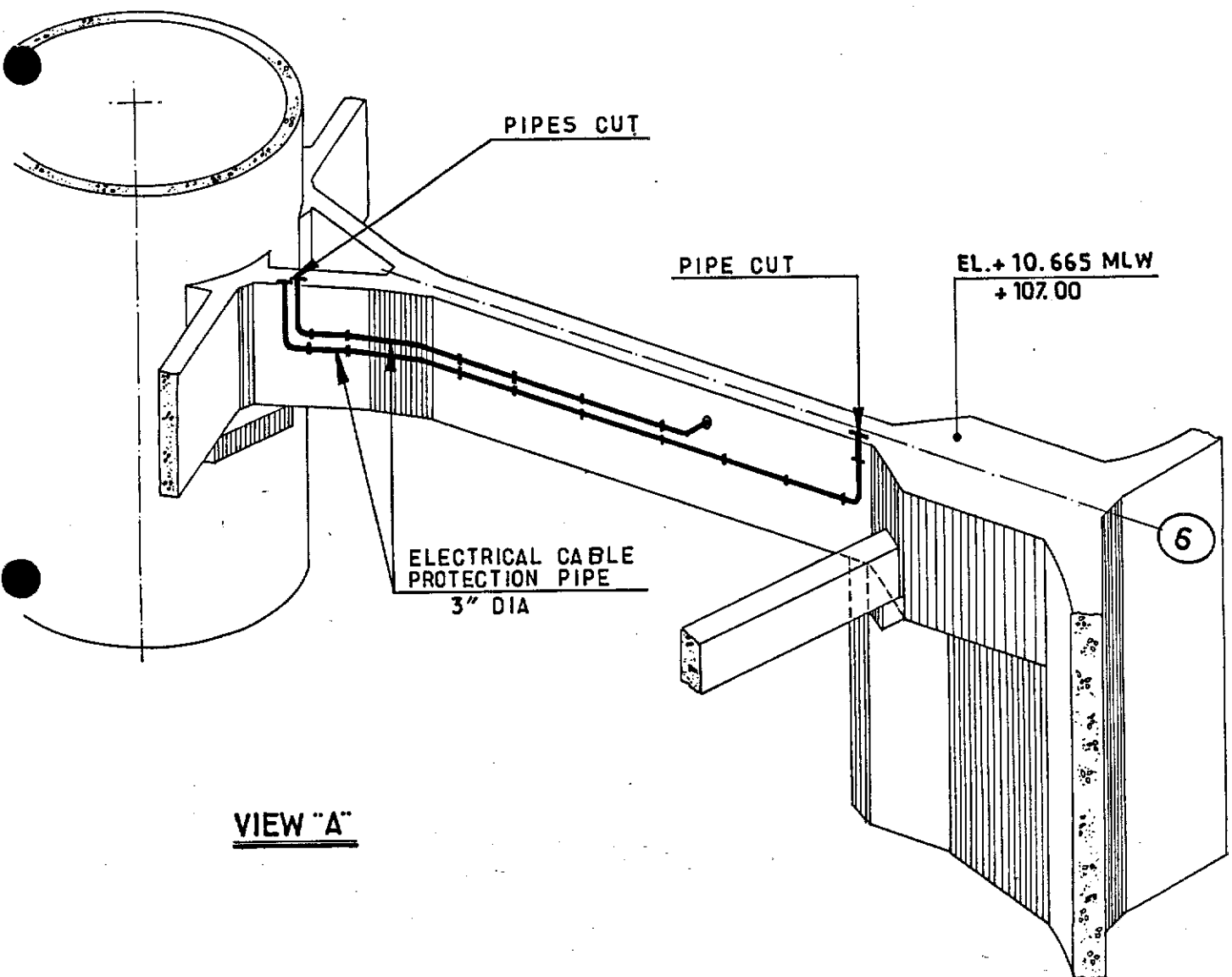
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							Scale			
Rev.	Date	DESCRIPTION	by	app.			Dwgr. no.		Rev.	Sheet
Contractor							FF	<u>1593</u>		/
elf aquitaine norge a/s p.o.box 168 4001 Stavanger						FRIGG FIELD				

GRID NORTH
19° 37' PLAT. NORTH



KEY PLAN



VIEW "A"

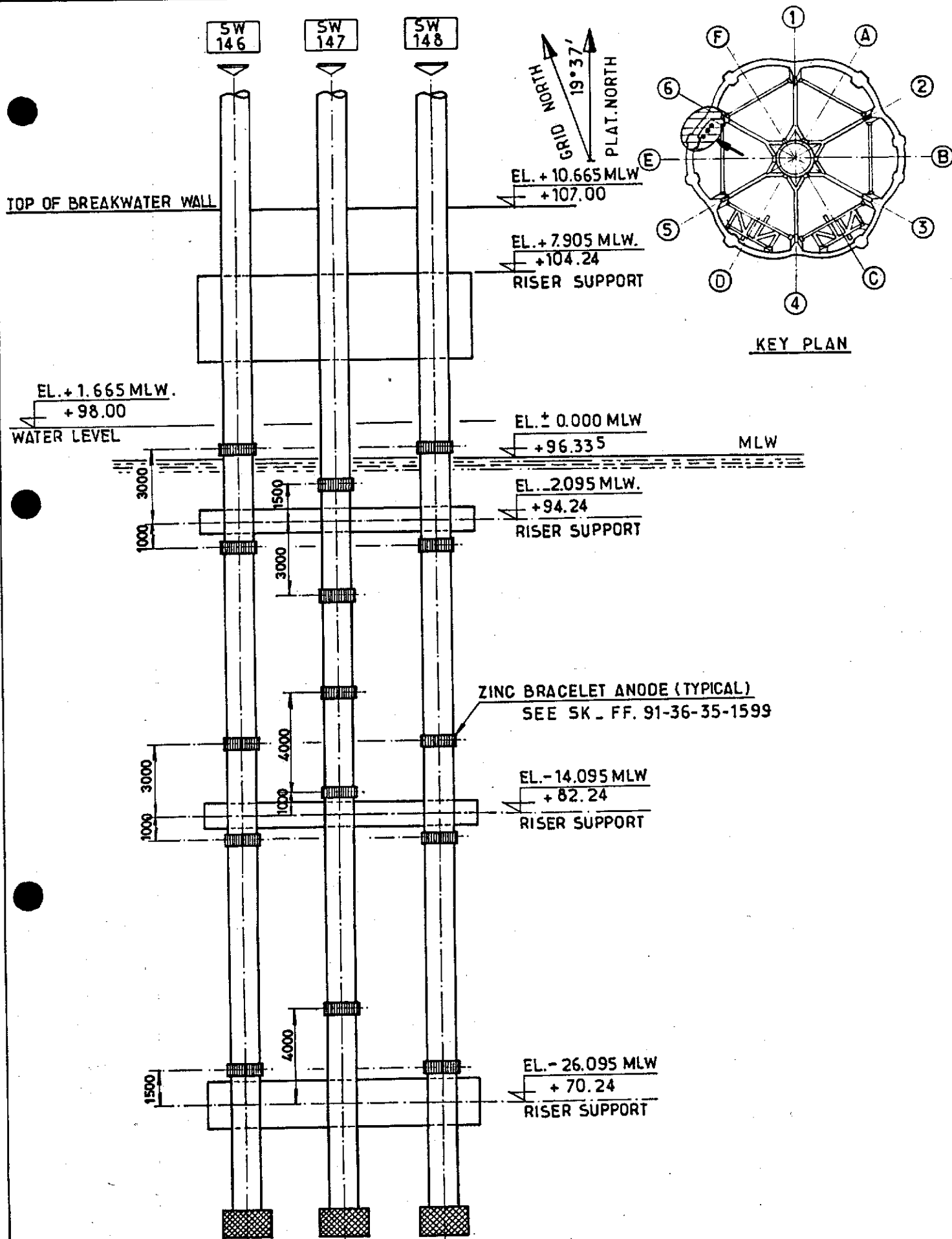
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Rev.	Date	DESCRIPTION	by	app.			Dwgr. no.	FF 91-36-35-1594		Rev.	Sheet	
Contractor JVD 1029.8 0.14					4001 Stavanger		FRIGG FIELD				1	

CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: CATHODIC PROTECTION

[illegible][illegible]

					 elf		Job no.		Installation CDP 1		System UNDERWATER	
Scale												
Rev.	Date	DESCRIPTION	by	app.	p.o.box 168		Dwgr. no.		Rev.	Sheet		
Contractor					4001 Stavanger		FF <u>1594</u>			/		
					FRIGG FIELD							



elf aquitaine norge a/s p.o. box 168 4001 Stavanger				elf		Job no. Scale Dwgr. no.	Installation CDP 1	System UNDERWATER
1	01.84	UPDATED	D.P. HLC	UTILITY RISER - SEA WATER LOCATION OF BRACELET ANODES		FF 91-36-35-1595	Rev 1	Sheet 1
Contractor JVD 1029.80.15				FRIGG FIELD		FF 91-36-35-1595		

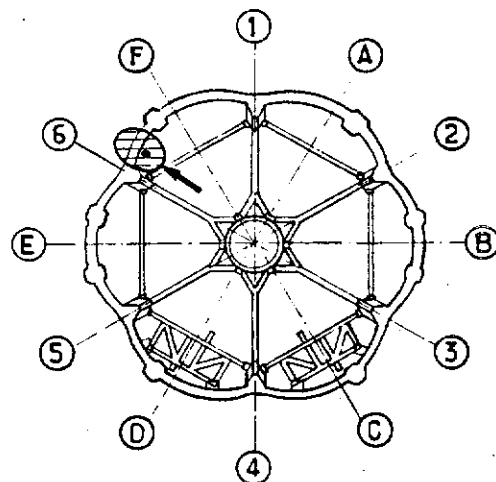
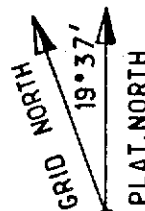
CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: CATHODIC PROTECTION

[illegible][illegible]

						Job no.	Installation	System
						Scale	CDP 1	UNDERWATER
Rev.	Date	DESCRIPTION	by	app.		Dwgr. no.		
						FF <u>1595</u>		
Contractor					4001 Stavanger	FRIGG FIELD		

SW
144



KEY PLAN

TOP OF BREAKWATER WALL

EL. + 10.665 MLW
+ 107.00

EL. + 6.905 MLW
+ 103.24

RISER SUPPORT

EL. + 1.665 MLW
+ 98.00

WATER LEVEL

EL. ± 0.000 MLW
+ 96.335

MLW

EL. - 4.095 MLW
+ 92.24

RISER SUPPORT

EL. - 8.045 MLW
+ 88.29

AXIS PECHINEY TEST ANODE
SEE SK. FF 91-36-35-1600

30" Ø PIPE

EL. - 16.095 MLW
+ 80.24

RISER SUPPORT

EL. - 22.045 MLW
+ 74.29

AXIS PECHINEY TEST ANODE
SEE SK. FF 91-36-35-1600.

EL. - 26.095 MLW
+ 70.24

RISER SUPPORT

elf
aquitaine
norge a/s
p.o. box 168
4001 Stavanger



FRIGG FIELD

Job no.

Installation
CDP 1

System
UNDERWATER

Scale
1:200

UTILITY RISER - FIRE WATER 144
LOCATION OF ANODES - CELL. "F"

Dwgr. no.

FF 91-36-35-1596

Rev.

1

Sheet

Rev.	Date	DESCRIPTION	by	app.
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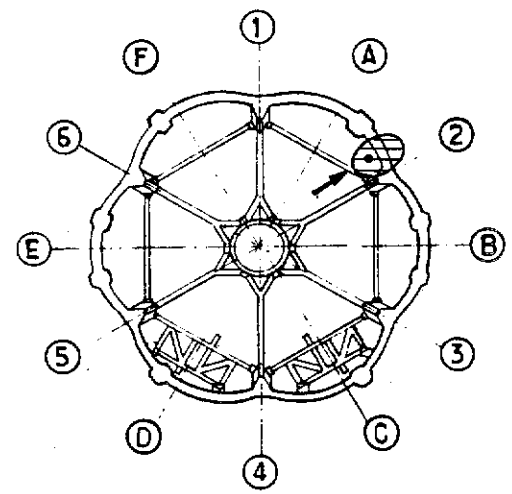
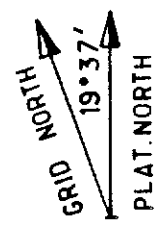
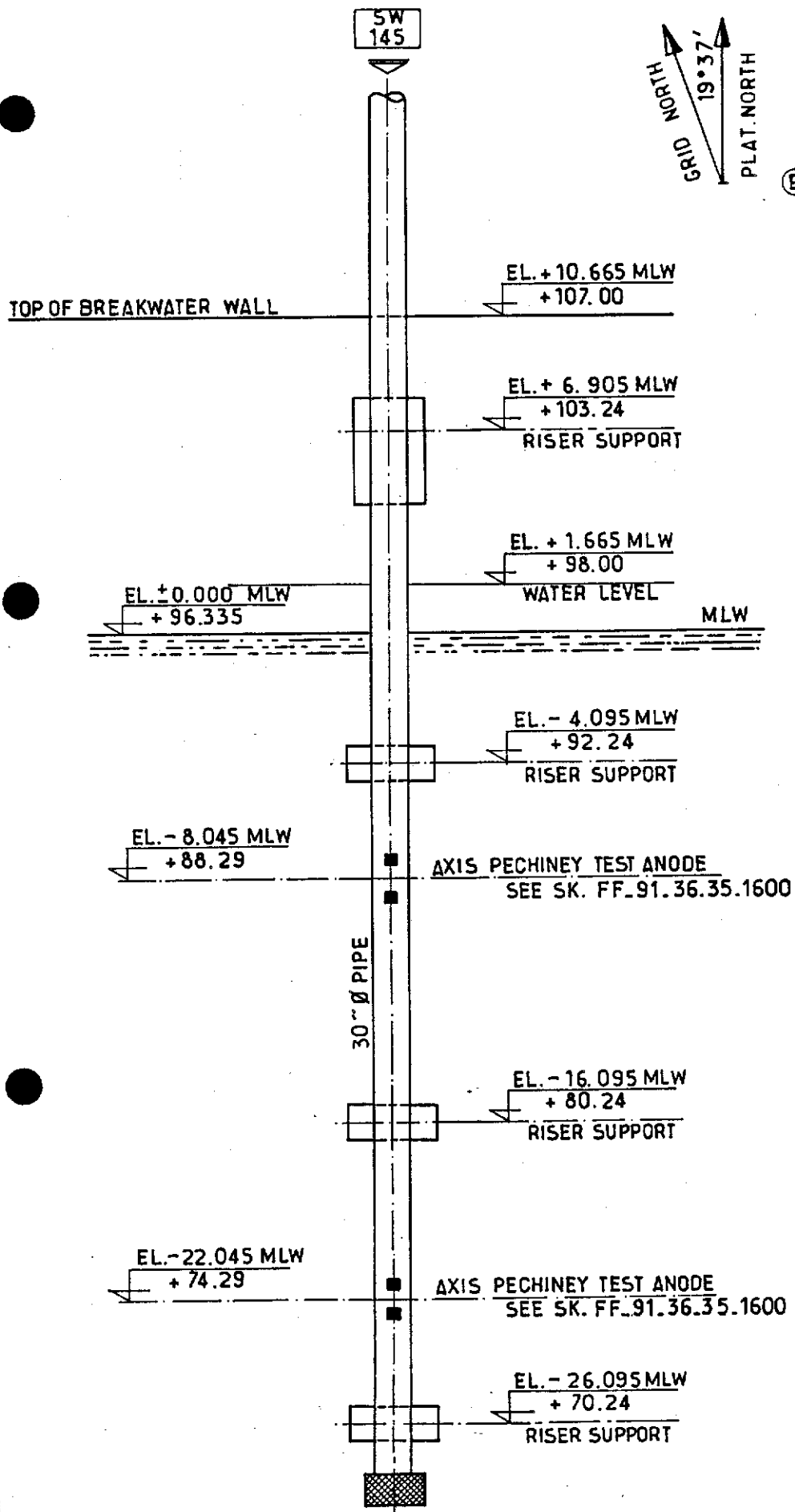
Contractor JVD 1029-80.16

CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: *CATHODIC PROTECTION*

[illegible][illegible]

						elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER
								Scale		
Rev.	Date	DESCRIPTION	by	app.		Contractor	FRIGG FIELD	Dwgr. no.	He.	Sheet
								FF	1596	



KEY PLAN

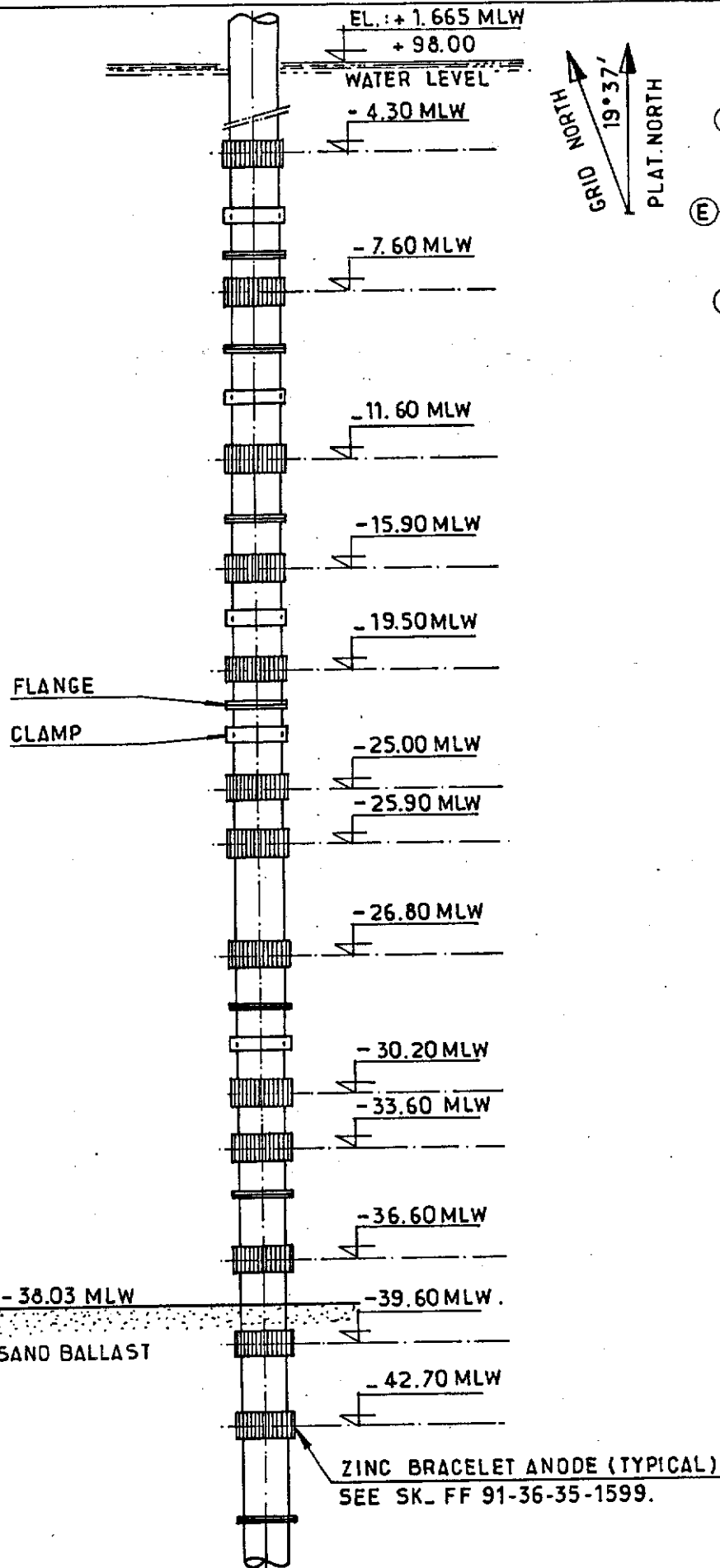
elf aquitaine norge a/s p.o.box 168 4001 Stavanger				Job no. Installation CDP 1		System UNDERWATER	
1 01.84 UPDATED D.P J.L.C				Scale 1:200		UTILITY RISER - FIRE WATER 145 LOCATION OF ANODES - CELL. "A"	
Rev. Date DESCRIPTION by app.				Dwgr. no. FF 91-36-35-1597		Rev 1	Sheet /
Contractor JVD 1029.80.17				FRIGG FIELD		Form 100 318	

CDP 1 AS BUILT DRAWINGS

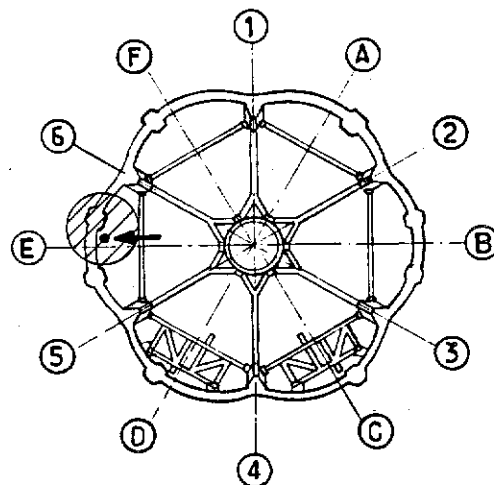
REFERENCE DRAWING LIST FOR: CATHODIC PROTECTION

[illegible][illegible]

					elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER	
							Scale			
Rev.	Date	DESCRIPTION	by	app.			Dwgr. no		Re.	Sheet
Contractor							FF	1597		/



HYPON
19°37'
PLAT. NORTH



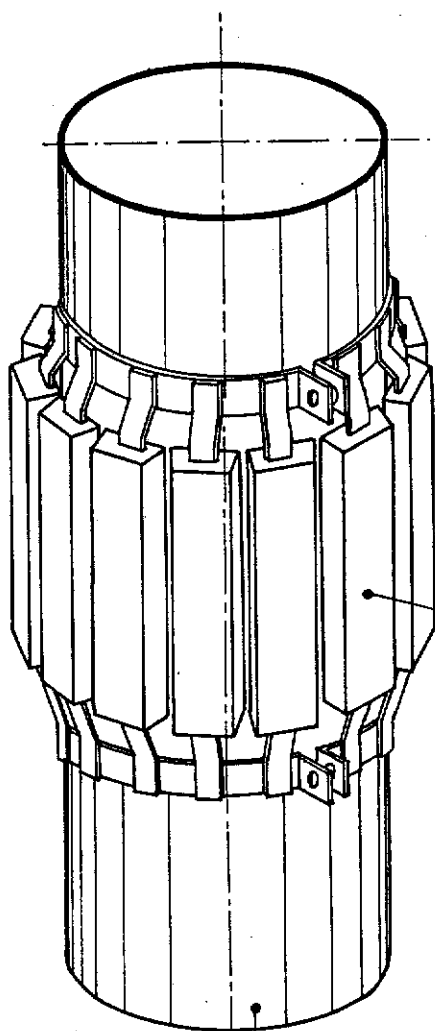
elf aquitaine norge a/s p.o.box 168 4001 Stavanger				Job no. Scale Dwgr. no.	Installation CDP 1 SIMINEX RISER Ø 8" LOCATION OF ANODES . CELL. "E"	System UNDERWATER
1	01.84	UPDATED	D.P. J.L.C.	FF 91-36-35-1598	Rev. 1	Sheet
Contractor JVD 1029.80.18				FRIGG FIELD		

CDP 1 AS BUILT DRAWINGS

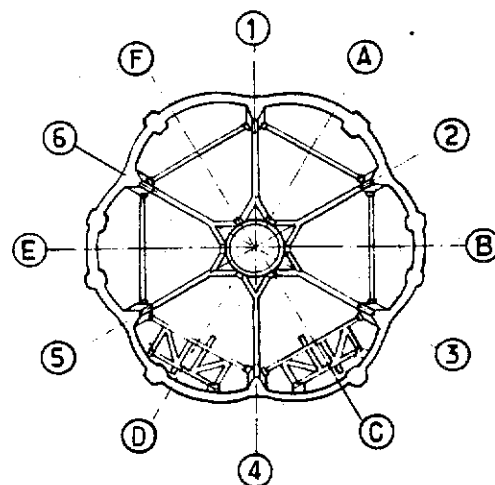
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[illegible][illegible]

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							Scale			
Rev.	Date	DESCRIPTION	by	app.	4001 Stavanger	FRIGG FIELD	Dwgr. no.	Rev.		Sheet
Contractor							FF	1598		



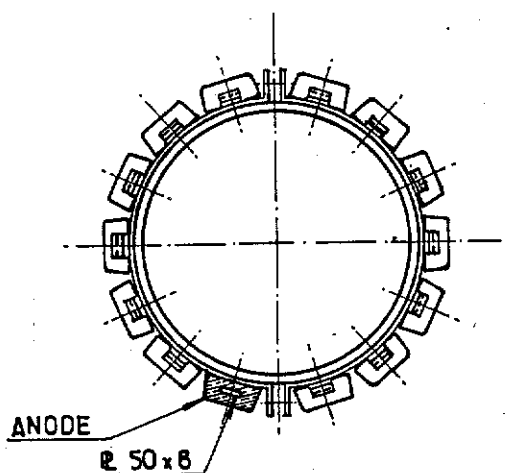
GRID NORTH
19° 37'
PLAT. NORTH



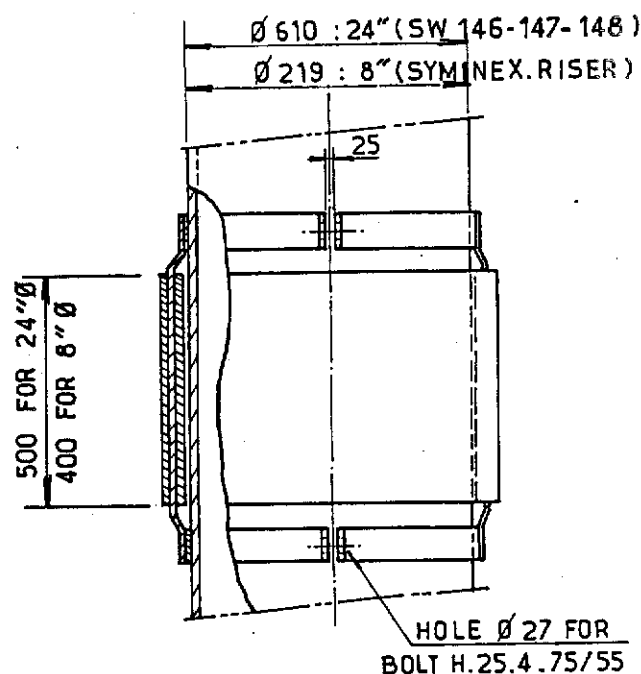
KEY PLAN

ANODE DIMENSIONS : 125 x 50 x 500 (FOR Ø 30" & Ø 24")
" " : 82 x 47 x 400 (FOR Ø 8")

UTILITY RISERS
24" - 8"



VUE EN PLAN



ELEVATION

1	01.84	UPDATED	D.P	J.L.C
Rev.	Date	DESCRIPTION	by	app.
Contractor JVD 1029.80.19				

elf
aquitaine
norge a/s
p.o.box 168
4001 Stavanger

elf
FRIGG FIELD

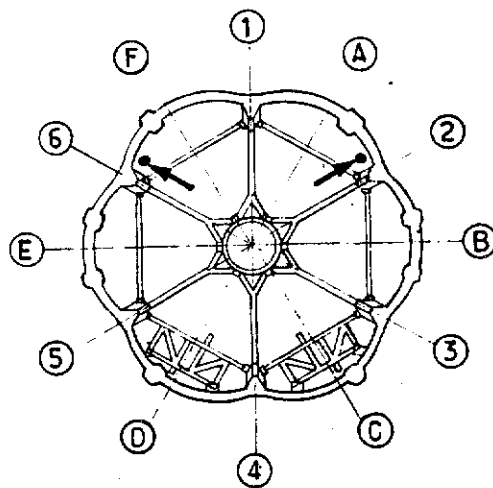
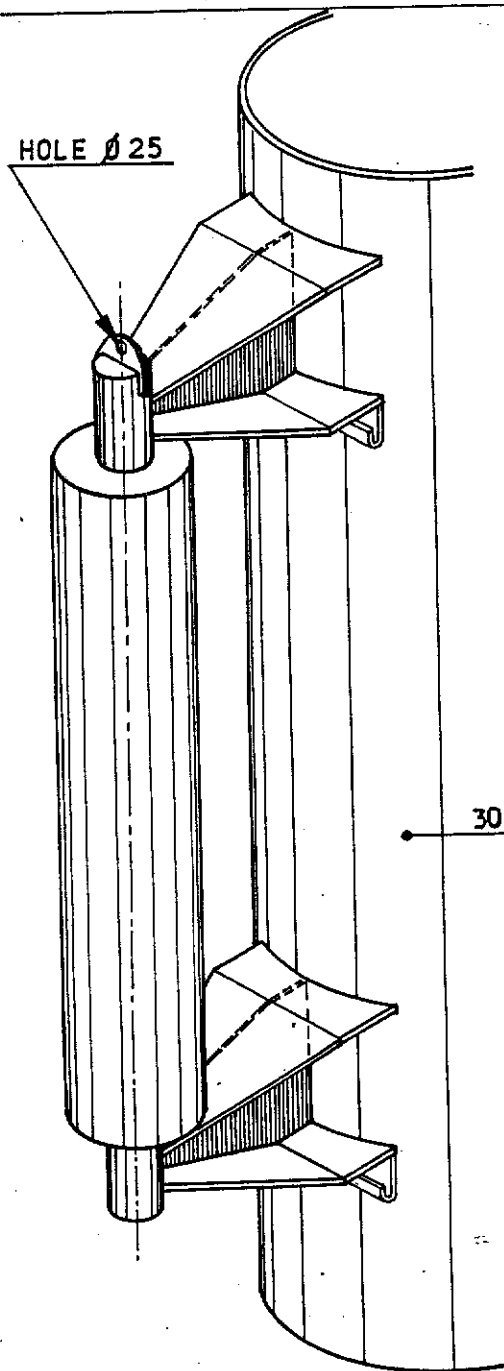
Job no.	Installation CDP 1	System UNDERWATER
Scale	TYPICAL ZINC BRACELET ANODE FOR UTILITY RISERS SW 146.147.148.	
Dwgr. no.	FF 91-36-35-1599	Rev 1
		Sheet /

CDP 1 AS BUILT DRAWINGS

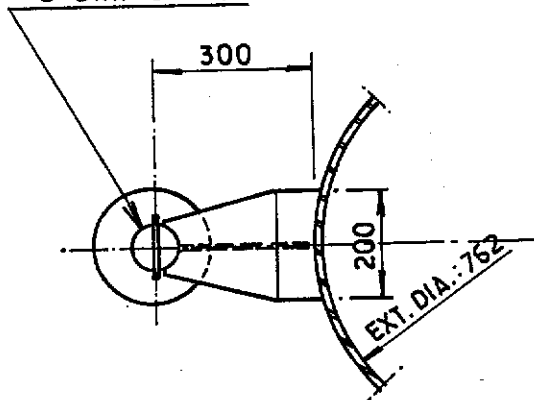
REFERENCE DRAWING LIST FOR: CATHODIC PROTECTION

[illegible][illegible]

					 elf	Job no.	Installation CDP 1	System UNDERWATER	
						Scale			
Rev.	Date	DESCRIPTION	by	app.	p.o.box 168 4001 Stavanger		Dwgr. no. FF <u>1599</u>	Re.	Sheet /
Contractor					FRIGG FIELD				



30" Ø FIRE WATER
RISER



Technical drawing of a vertical riser assembly. The riser is a vertical cylinder with a diameter of 220 mm. It is supported by a base plate with a diameter of 80 mm. The riser is connected to a riser wall. Dimensions include a total height of 1250 mm, a riser wall thickness of 10 mm, and various vertical offsets of 200 mm, 1000 mm, 1400 mm, and 1250 mm. A force F is applied at the top.

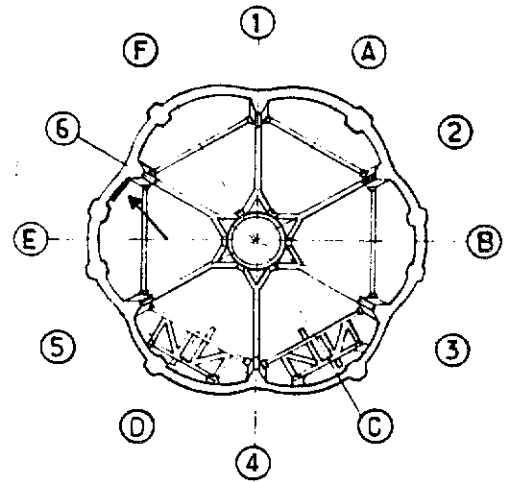
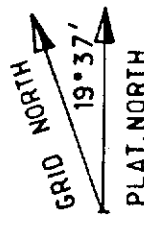
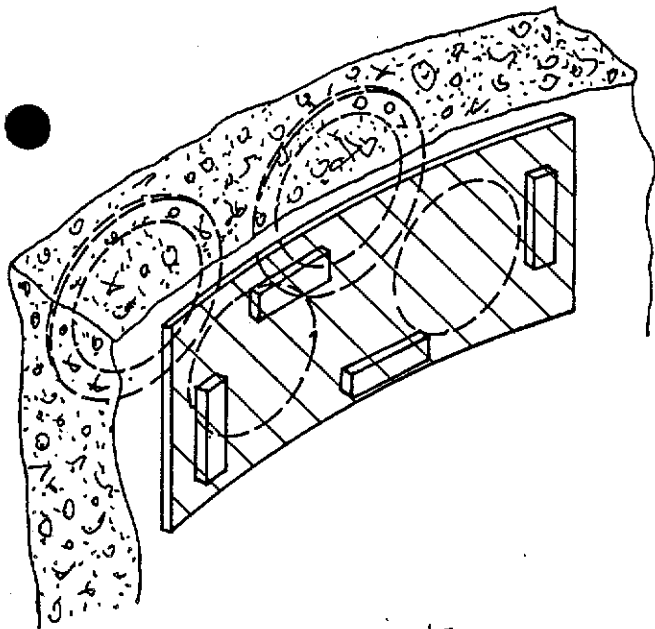
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1		01.84	UPDATED	D. P	JLL	PECHINEY ANODES. DETAIL			
Rev.	Date	DESCRIPTION		by	app.				
Contractor JVD 1029.80.20						Dwgr. no. FF 91-36-35-1600			
4001 Stavanger FRIGG FIELD						Rev 1			
						Sheet 			

CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: CATHODIC PROTECTION

[illegible][illegible]

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Rev. Date DESCRIPTION by app.							Scale				
Contractor					4001 Stavanger	FRIGG FIELD	Dwgr. no FF	1600		Rel.	Sheet /

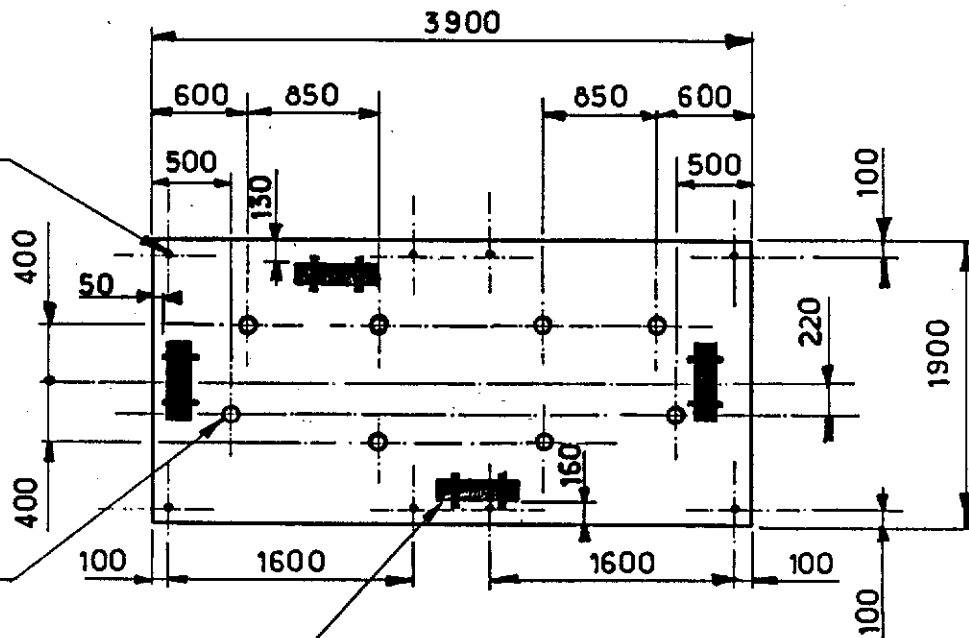


KEY PLAN

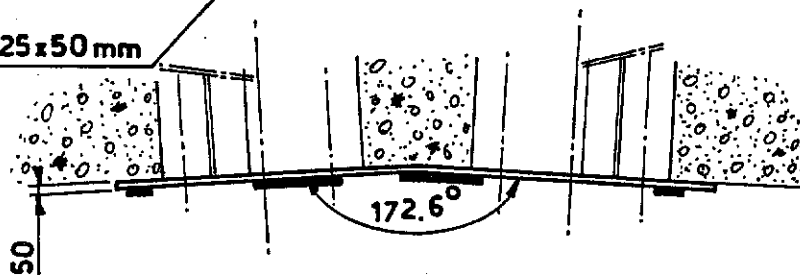
● x 16mm
EXPANSION BOLTS

8 N° x 50mm DIA.
BOLTS (TYP)

4 ANODES DIMS: 500x125x50mm
WEIGHT: 20 kg EACH



—PLAN VIEW—



—VIEW F—

SEA WATER PUMP

NOTES

- _ FOR LOCATION OF BASE PLATE SEE SK _ FF.91.36.35.1145.
- _ FOR LOWER SUPPORT DETAIL SEE SK _ FF.91.36.35.1520.
- _ FOR BASE PLATE DETAIL SEE SK _ FF.91.36.35.1535.

elf aquitaine norge a/s p.o.box 168 4001 Stavanger				Job no. Installation CDP 1		System UNDERWATER	
1 01.84 UPDATED D.P. JLC				Scale 1:50		LOCATION OF ANODES BASE PLATE. (RISERS SW. 146.147.148.)	
Rev. Date DESCRIPTION by app.				Dwgr. no. FF 91-36-35-1601		Rev 1 Sheet /	
Contractor JVD 1029_80_21				FRIGG FIELD			

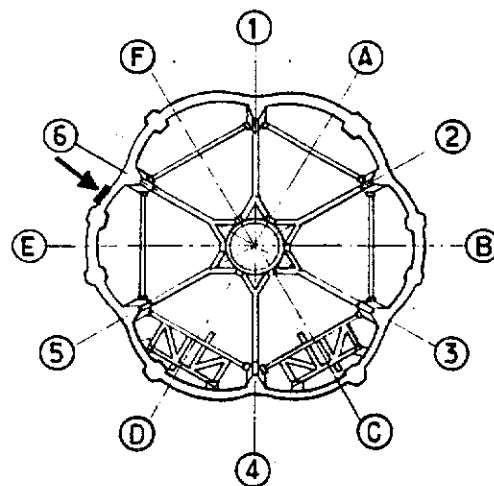
CDP 1 AS BUILT DRAWINGS

●REFERENCE DRAWING LIST FOR: *CATHODIC PROTECTION*

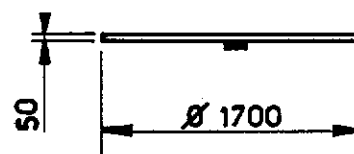
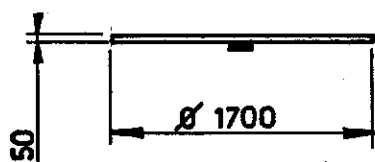
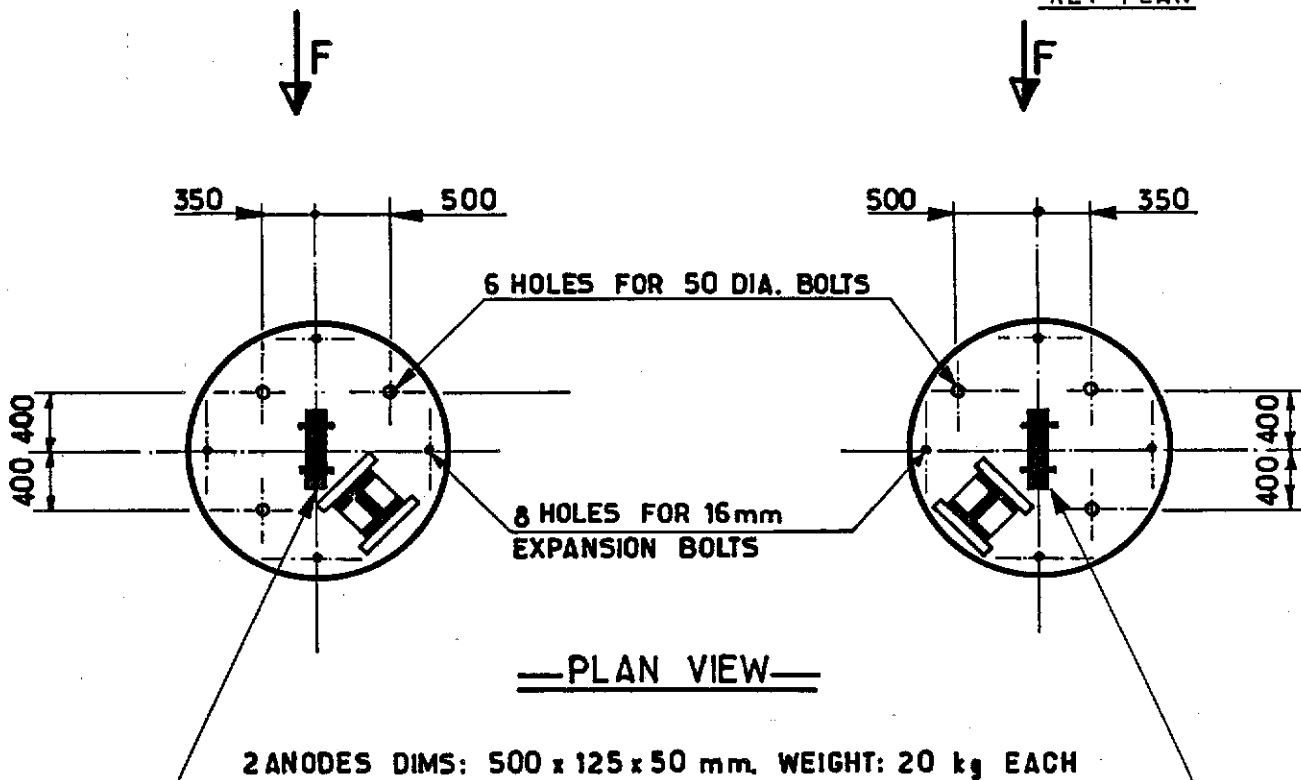
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						elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER	
								Scale			
Rev.	Date	DESCRIPTION	by	app.				Dwgr. no.		Rev.	Sheet
Contractor						4001 Stavanger	FRIGG FIELD	FF	<u>1601</u>		/

GRID NORTH
19° 37'
PLAT. NORTH



KEY PLAN



VIEW F

SEA WATER PUMP

NOTES

- _ FOR LOCATION OF BACKING PLATE SEE SK_FF 91.36.35.1139.
- _ FOR LOWER SUPPORT DETAIL SEE SK_FF 91.36.35.1520.
- _ FOR BACKING PLATE DETAIL SEE SK_FF 91.36.35.1532.

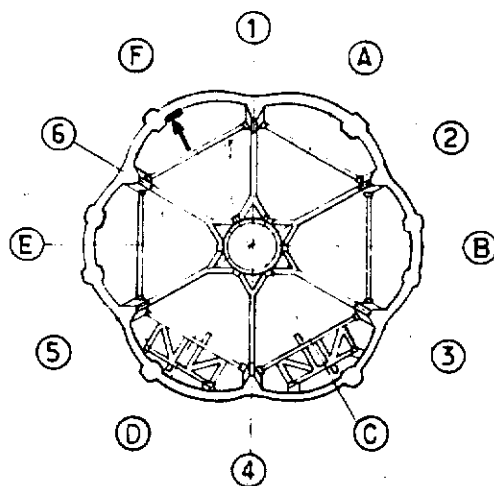
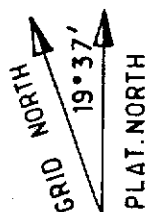
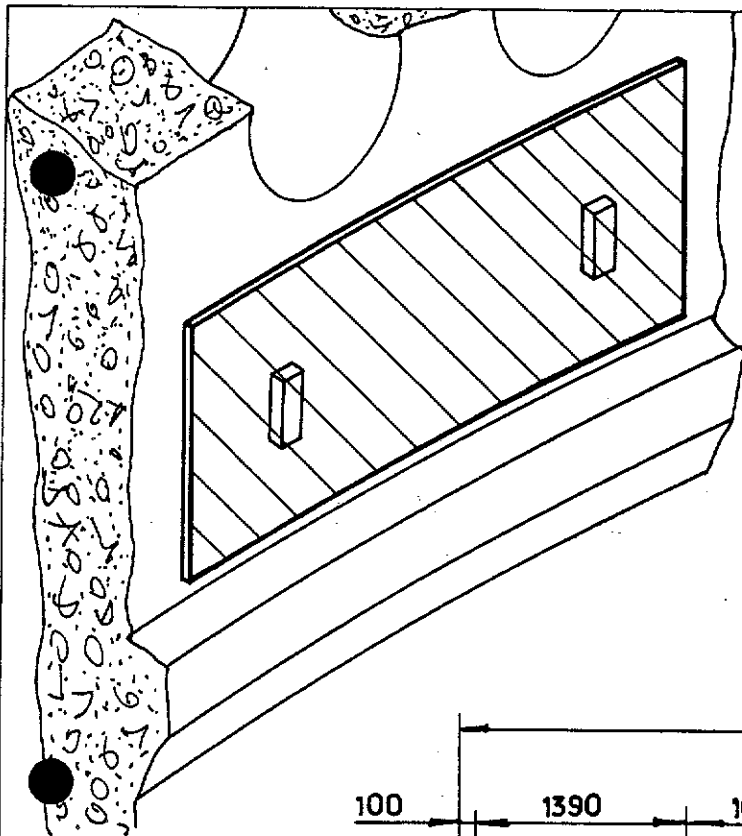
elf aquitaine norge a/s p.o. box 168 4001 Stavanger					Job no. Scale 1:50 Dwgr. no. FF 91-36-35-1602	Installation CDP 1 LOCATION OF ANODES BACKING PLATE, RISERS SW. 146-147-148.	System UNDERWATER
1	01.84	UPDATED	D.P.	JLC			
Rev.	Date	DESCRIPTION	by	app.			
Contractor JVD 1029_80_22					FRIGG FIELD		
					Rev 1 Sheet		

CDP 1 AS BUILT DRAWINGS

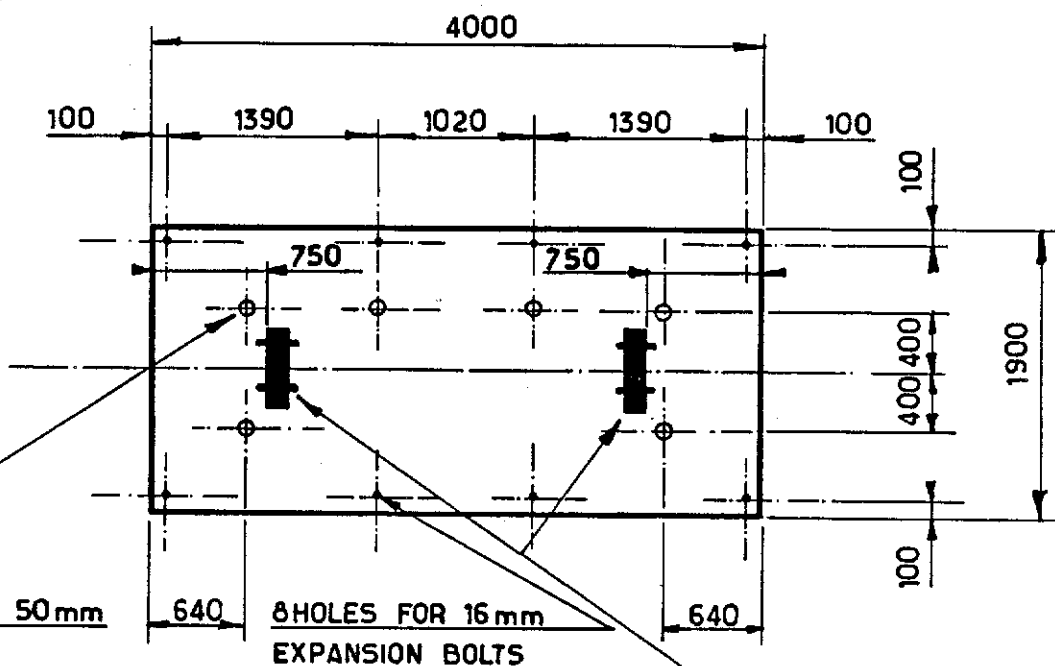
REFERENCE DRAWING LIST FOR: *CATHODIC PROTECTION*

[illegible][illegible]

					elf			Job no.		Installation CDP 1		System UNDERWATER		
					aquitaine			Scale						
					norge a/s		elf	Dwgr. no.				Rev.		
Rev. Date DESCRIPTION by app.					p.o.box 168			FF		1602		Shee		
Contractor					4001 Stavanger		FRIGG FIELD							

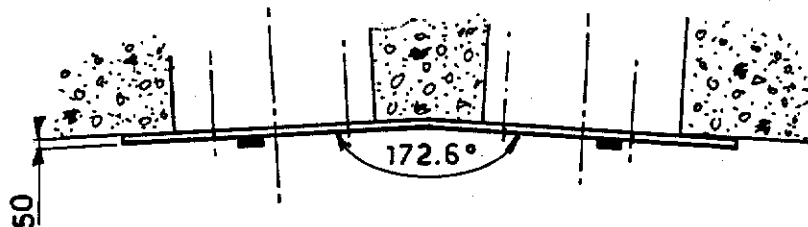


KEY PLAN



—PLAN VIEW—

2 ANODES DIMS: 500x125x50mm.
WEIGHT: 20kg EACH



—VIEW F—

SLOPS

NOTES

- _FOR LOCATION OF BASE PLATE SEE SK_FF.91 36 35 1146.
- _FOR LOWER SUPPORT DETAIL SEE SK_FF.91 36 35 1508.
- _FOR BASE PLATE DETAIL SEE SK_91 36 35 1536.

			elf aquitaine norge a/s			Job no.	Installation CDP 1	System UNDERWATER
1	01.84	UPDATED	D.P.	JLC		Scale 1:50	LOCATION OF ANODES - BASE PLATE. (SLOPS RISERS 143)	
Rev.	Date	DESCRIPTION	by	app.		Dwgr. no.		Sheet
Contractor JVD 1029 -80-23.			4001 Stavanger		FRIGG FIELD	FF 91-36-35-1603		1

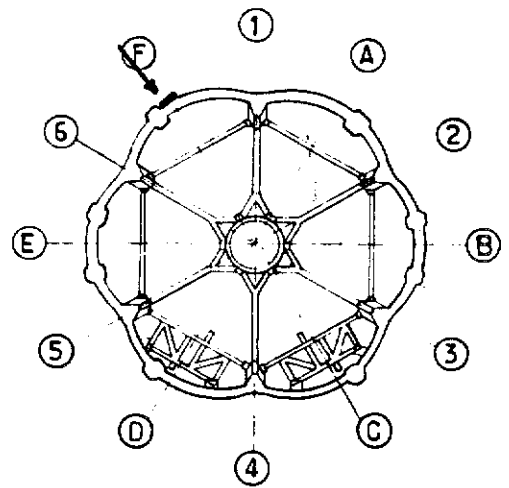
CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: *CATHODIC PROTECTION*

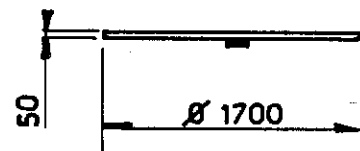
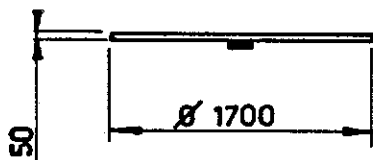
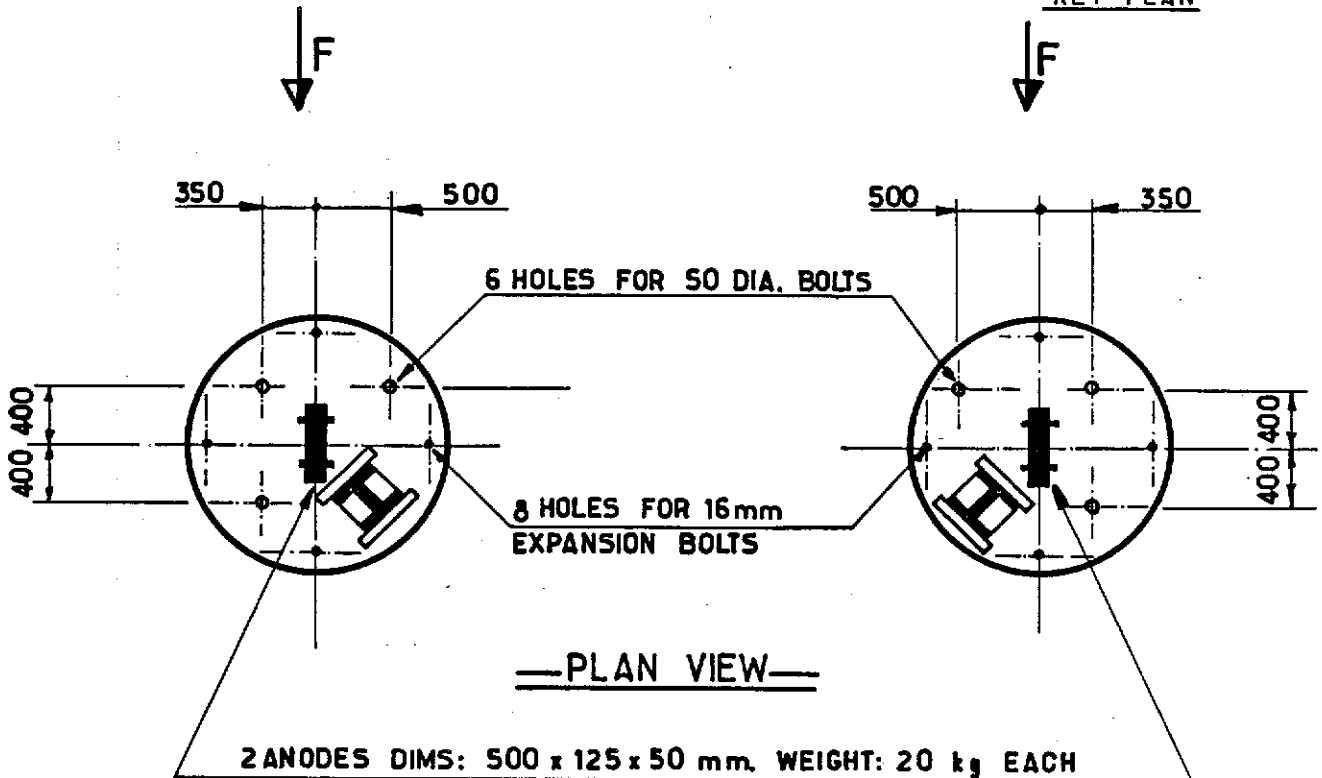
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						 elf	Job no.	Installation CDP 1	System UNDERWATER		
							Scale				
Rev.	Date	DESCRIPTION	by	app.			Dwgr. no.	FF — <u>1603</u>	Re.	Check /	
Contractor						p.o.box 168 4001 Stavanger	FRIGG FIELD				

GRID NORTH
19°37'
PLAT. NORTH



KEY PLAN



— VIEW F —

SLOPS.

NOTES

- FOR LOCATION OF BACKING PLATE SEE SK_FF.91.36.35.1140.
- FOR BACKING PLATE DETAIL SEE SK_FF.91.36.35.1531.

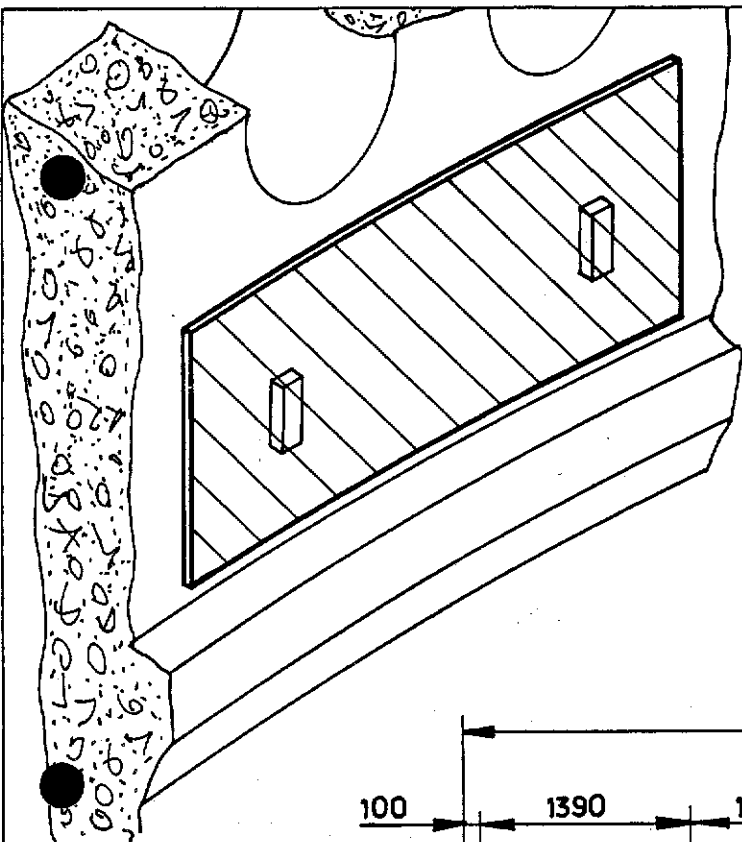
				elf aquitaine norge a/s		elf	Job no.	Installation CDP 1	System UNDERWATER
1	01.84	UPDATED	D.P.	JLL	p.o.box 168		Scale 1:50	LOCATION OF ANODES BACKING PLATE. (SLOPS RISER 143)	
Rev.	Date	DESCRIPTION	by	app.	4001 Stavanger		Dwgr. no.	Rev.	Sheet
Contractor JVD 1029.80.24				FRIGG FIELD			FF 91-36-35-1604	1	

CDP 1 AS BUILT DRAWINGS

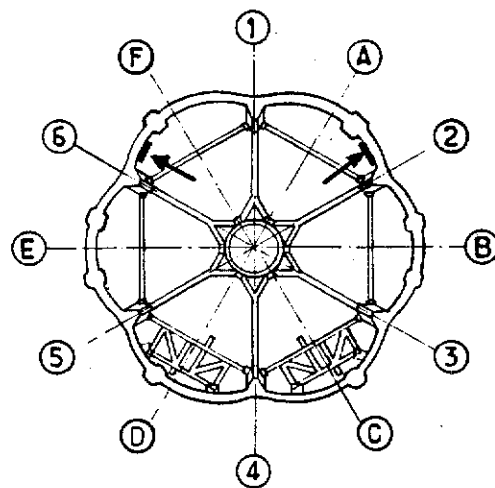
REFERENCE DRAWING LIST FOR: *CATHODIC PROTECTION*

[illegible][illegible]

						 elf	Job no.	Installation CDP 1	System UNDERWATER	
							Scale			
Rev.	Date	DESCRIPTION	by	app.			Dwgr. no.		Re.	Chg.
Contractor							FF	1604		/
elf aquitaine norge a/s p.o.box 168 4001 Stavanger						FRIGG FIELD				

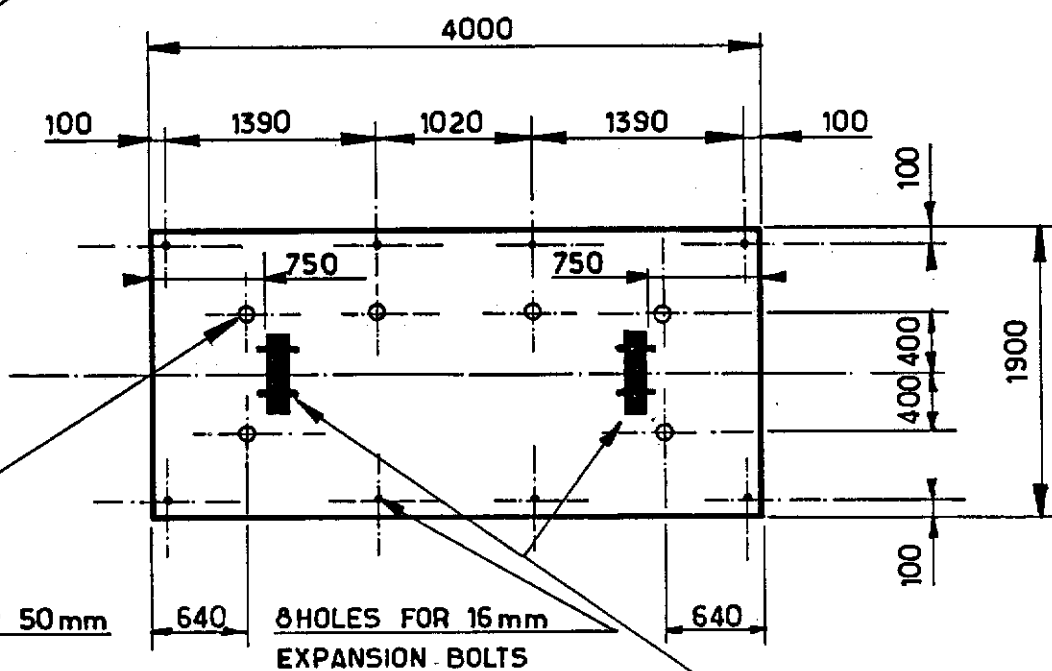


DIRG NORTH
19° 37'
PLAT. NORTH



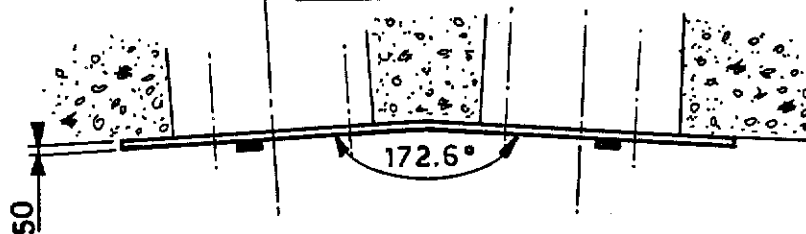
KEY PLAN

F



—PLAN VIEW—

2 ANODES DIMS: 500x125x50mm.
WEIGHT: 20kg EACH



—VIEW F—

FIRE WATER.

NOTES

- _ FOR LOCATION OF BASE PLATE SEE SK_FF.91.36.35.1145 AND 1141.
- _ FOR LOWER SUPPORT DETAIL SEE SK_FF.91.36.35.1510 AND 1515.
- _ FOR BASE PLATE DETAIL SEE SK_FF.91.36.35.1536.

					elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER
1	01.84	UPDATED	D.P.	J.L.C.			Scale 1:50	LOCATION OF ANODES BASE PLATE (FIRE WATER RISERS 144.145)	
Rev.	Date	DESCRIPTION	by	app.			Dwgr. no.	FF 91-36-35-1605	Rev 1
Contractor JVD 1029-80-25									

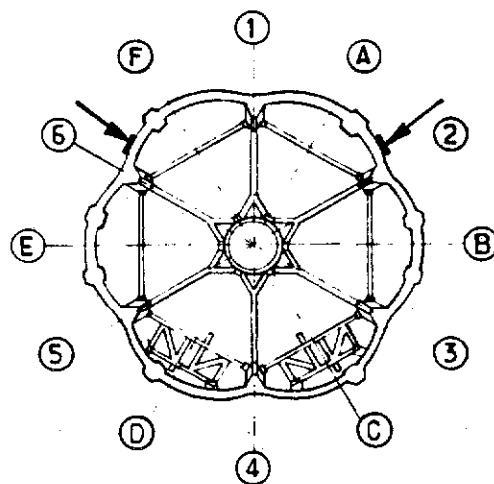
CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: *CATHODIC PROTECTION*

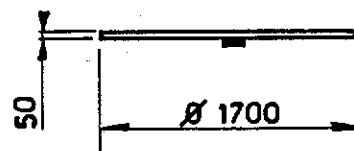
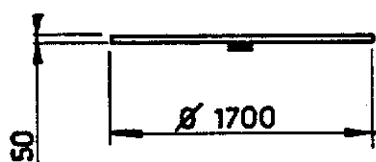
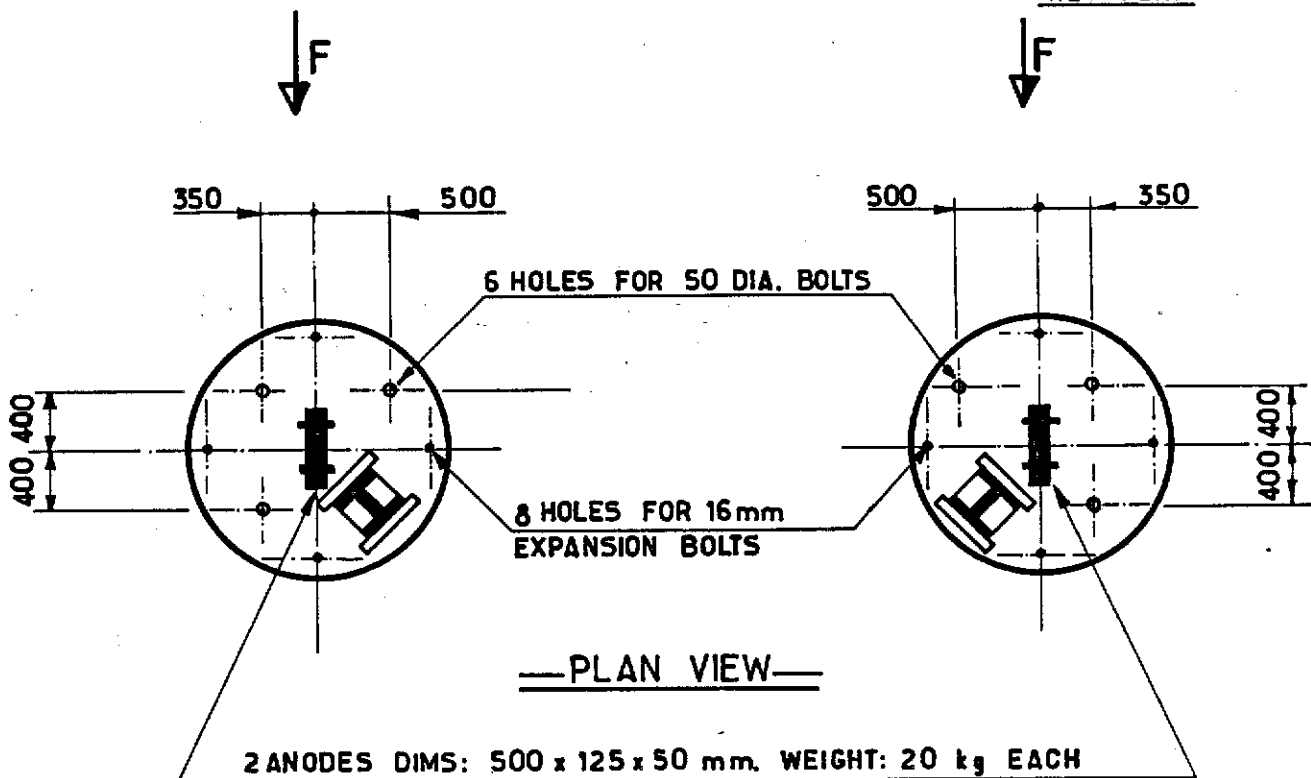
[illegible][illegible]

						 elf	Job no.	Installation CDP 1	System UNDERWATER	
							Scale			
Rev.	Date	DESCRIPTION	by	app.			Dwgr. no.		Rel.	Cheer
Contractor							FF	<u>1605</u>		/

GRID NORTH
19° 37'
PLAT. NORTH



KEY PLAN



VIEW F

FIRE WATER

NOTES

- _ FOR LOCATION OF BACKING PLATE SEE SK_FF.91.36.35.1140 AND 1135.
- _ FOR BACKING PLATE DETAIL SEE SK_FF.91.36.35.1531

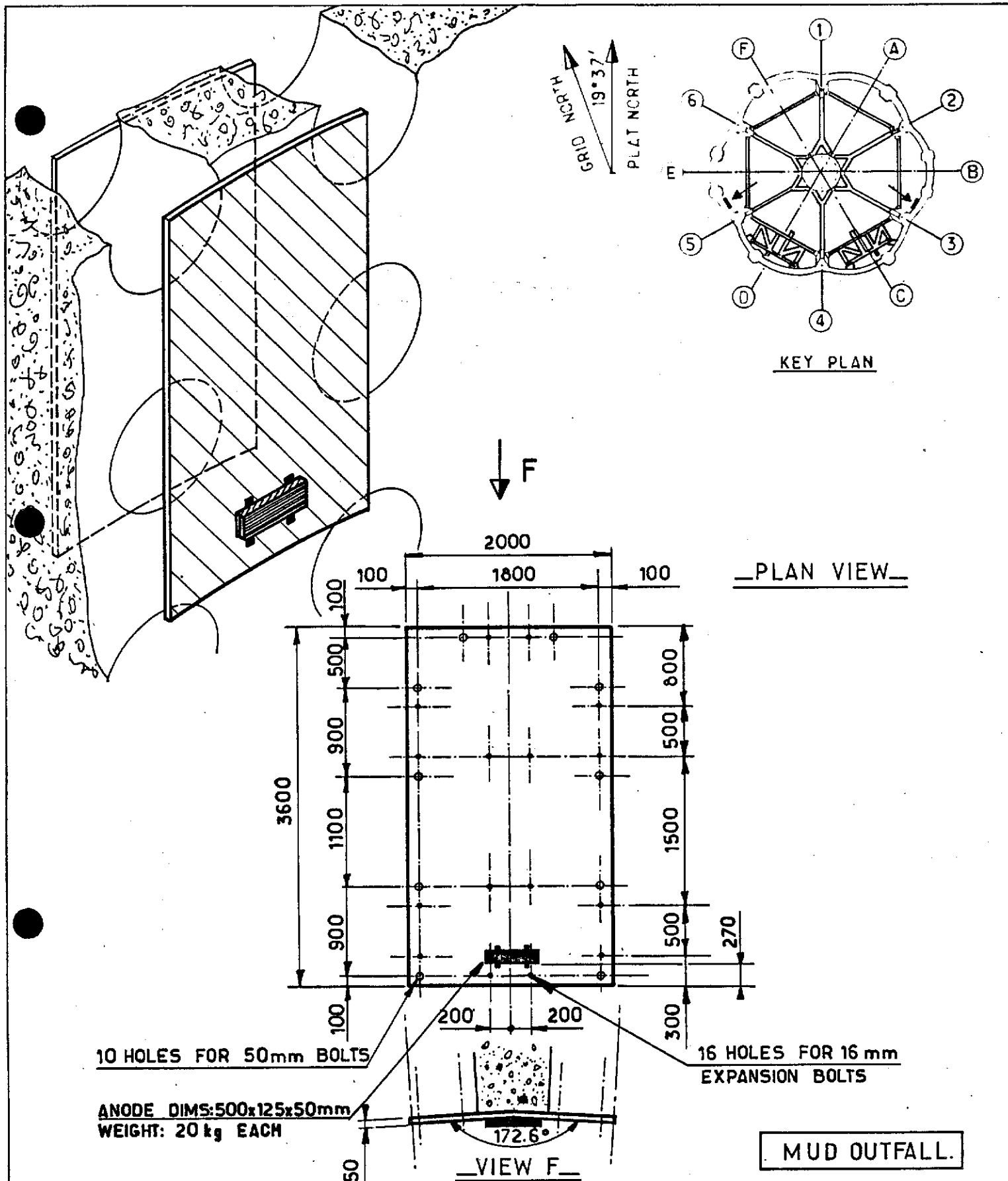
					elf aquitaine norge a/s p.o.box 168 4001 Stavanger		 elf		Job no.	Installation CDP 1		System UNDERWATER	
1	01.84	UPDATED		D.P. J.L.C.	p.o.box 168	Scale 1:50	LOCATION OF ANODES BACKING PLATE. (FIRE WATER RISERS 144, 145)						
Rev.	Date	DESCRIPTION		by	app.	Dwgr. no.	FF 91-36-35-1606.			Rev.	Sheet		
Contractor JVD 1029.80.26					4001 Stavanger	FRIGG FIELD		1				/	

CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: *CATHODIC PROTECTION*

[illegible][illegible]

						elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER		
								Scale				
Rev.	Date	DESCRIPTION	by	app.				Dwgr. no.	FF — 1606		Re.	Sheet
Contractor							FRIGG FIELD					



NOTES

- _FOR LOCATION OF BASE PLATE SEE SK_FF.91.36.35.1145
- _FOR UPPER SUPPORT DETAIL SEE SK_FF.91.36.35.1524 AND 1526.
- _FOR BASE PLATE DETAIL SEE SK_FF.91.36.35.1534.

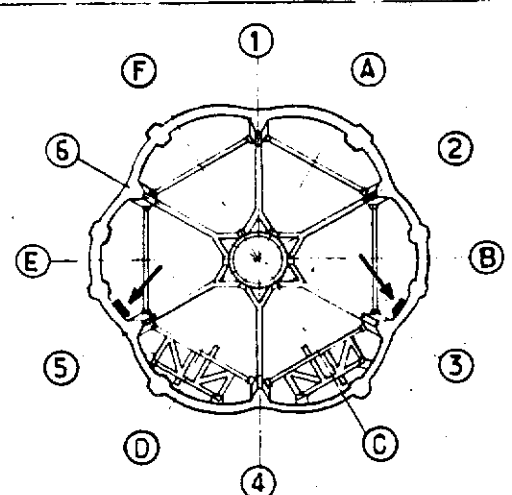
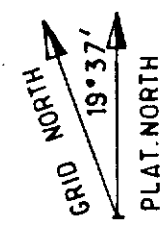
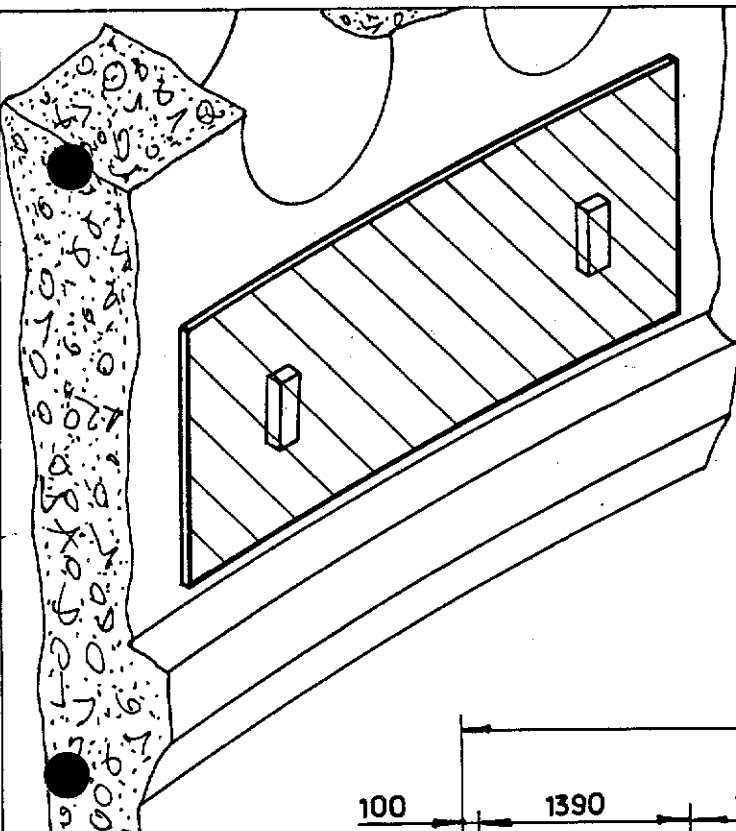
				elf aquitaine norge a/s		Job no.		Installation CDP 1	System UNDERWATER
1	01.84	UPDATED	D.P. LLC	p.o. box 168		Scale 1:50		LOCATION OF ANODES. BASE PLATE (MUD OUTFALL RISERS 149_150)	
Rev.	Date	DESCRIPTION	by	app.		Dwgr. no		Rev.	Sheet.
Contractor JVD 1029_80_ 27.				4001 Stavanger		FRIGG FIELD		FF 91-36-35-1607.	
								1	

CDP 1 AS BUILT DRAWINGS

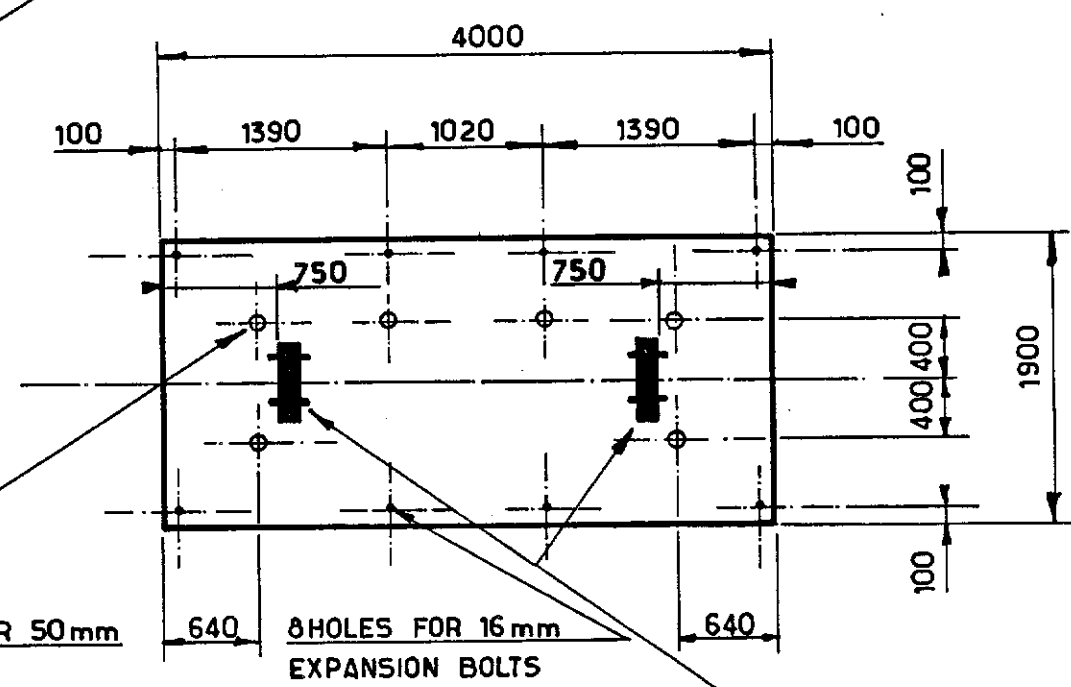
REFERENCE DRAWING LIST FOR: *CATHODIC PROTECTION*

[illegible][illegible]

				elf aquitaine norge a/s		 elf		Job no.		Installation CDP 1		System UNDERWATER		
				p.o.box 168				Scale						
Rev.	Date	DESCRIPTION	by	app.	4001 Stavanger		FRIGG FIELD		Dwgr. no. FF — 1607		He.		Sheet	
Contractor														

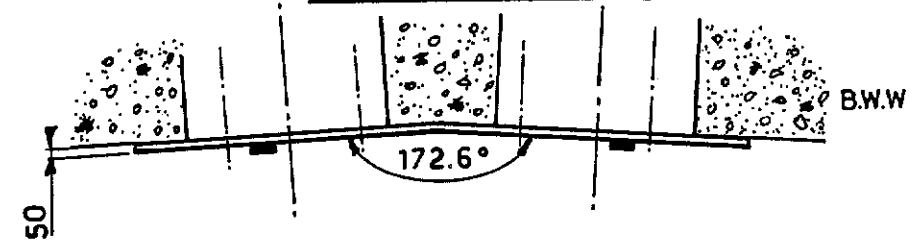


KEY PLAN



PLAN VIEW

2 ANODES DIMS: 500x125x50mm.
WEIGHT: 20kg EACH



VIEW F

MUD OUTFALL

NOTES.

- _FOR LOCATION OF LOWER BASE PLATE SEE SK_FF.91.36.35 1142 AND 1145.
- _FOR LOWER SUPPORT DETAIL SEE SK_FF.91.36.35.1525 AND 1527.
- _FOR BASE PLATE DETAIL SEE SK_FF.91.36.35.1536.

					elf aquitaine norge a/s p.o.box 168 4001 Stavanger		 elf FRIGG FIELD	Job no.	Installation CDP 1	System UNDERWATER
1	01.84	UPDATED	D.P	J.L.L.	Scale 1:50	LOCATION OF ANODES .BASE PLATE . (MUD OUTFALL RISERS 149_150.)				
Rev.	Date	DESCRIPTION	by	app.	Dwgr. no.	FF 91-36-35-1608.		Rev. 1	Sheet /	
Contractor JVD 1029_80_28.					4001 Stavanger					

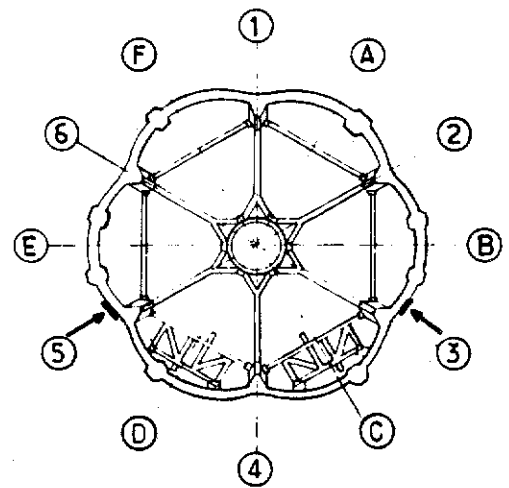
CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: *CATHODIC PROTECTION*

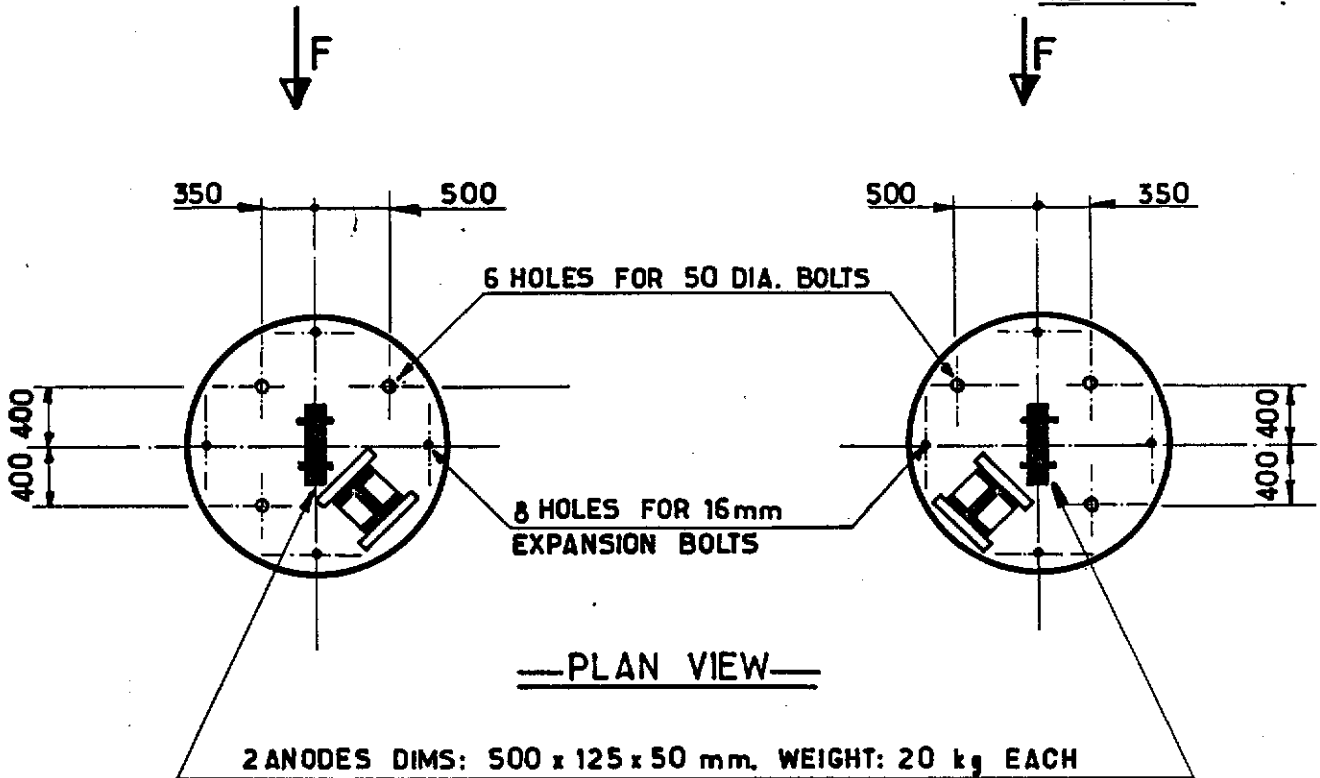
[illegible][illegible]

						elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER		
								Scale				
Rev.	Date	DESCRIPTION		by	app.			Dwgr. no.	FF <u>1608</u>		Re.	Sheet
Contractor							FRIGG FIELD					/

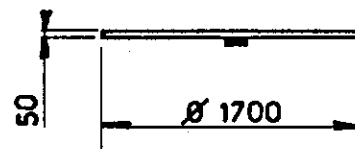
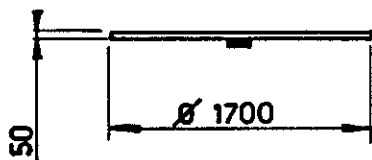
19°37'
PLAT. NORTH
GRID NORTH



KEY PLAN



PLAN VIEW



VIEW F

MUD OUTFALL

NOTES

- _ FOR LOCATION OF BACKING PLATE SEE SK_FF91.36.35.1136 AND 1139
- _ FOR BACKING PLATE DETAIL SEE SK_FF.91.36.35.1530
- _ FOR LOWER SUPPORT DETAIL SEE SK_FF.36.35.1525 AND 1527.

						elf aquitaine norge a/s		 elf	Job no.	Installation CDP 1	System UNDERWATER	
1	01.84	UPDATED	D.P	JLC	p.o.box 168				Scale 1:50	LOCATION OF ANODES BACKING PLATE. (MUD OUTFALL RISERS 149-150)		
Rev.	Date	DESCRIPTION	by	app.	Contractor JVD 1029 80.29.			FRIGG FIELD	Dwgr. no.	FF 91-36-35-1609	Rev 1	Sheet /
					4001 Stavanger							

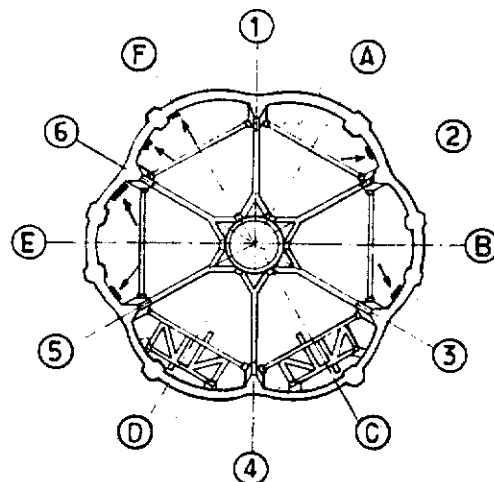
CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: *CATHODIC PROTECTION*

[illegible][illegible]

						elf		Job no.		Installation		System	
						aquitaine				CDP 1		UNDERWATER	
						norge a/s		Scale					
Rev.	Date	DESCRIPTION		by	app.	p.o.box 168		elf		Dwgr. no.		He.	
Contractor						4001 Stavanger		FRIGG FIELD		FF — 1609		Sheet /	

GRID
19° 37'
PLAT. NORTH



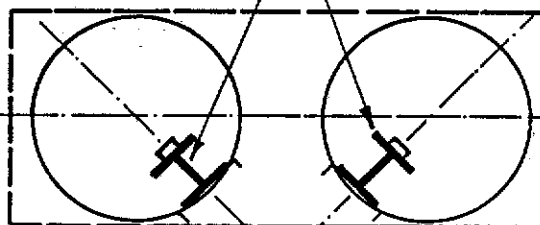
KEY PLAN

B.W.W

A

ANODE DIMS: 500x125x50 mm
WEIGHT: 20 kg EACH.

HEA 300



SECTION A A

VALID FOR:

SEA WATER PUMP RISERS 146_147_148.
SLOPS RISER 143.
FIRE WATER RISERS 144_145.
MUD OUTFALL RISERS 149_150.

NOTES

- FOR LOCATION OF SUPPORTS SEE SK_FF.91.36.35.1141 TO 1146.
- FOR LOWER SUPPORTS DETAILS SEE SK_FF.91.36.35.1508/1510/1515/1520/1525/1527.
- FOR BASE PLATE DETAILS SEE SK_FF.91.36.35.1535/1536.
- FOR BACKING PLATE DETAILS SEE SK_FF.91.36.35.1531/1532.

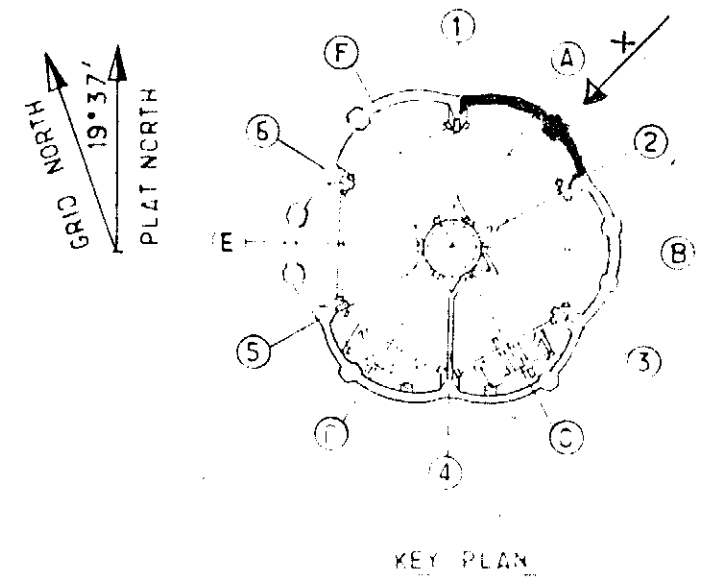
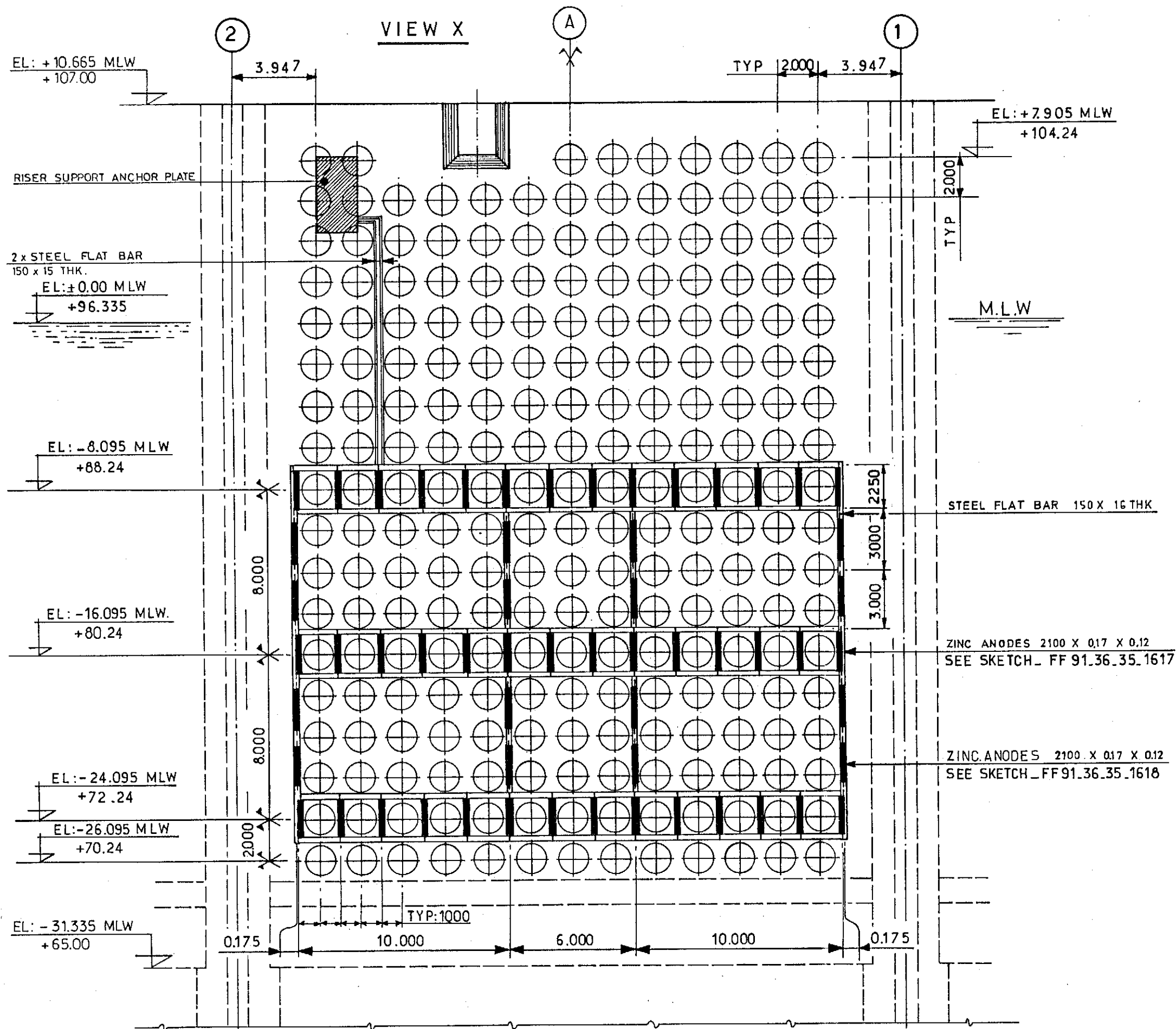
					 elf	Job no.	Installation CDP 1	System UNDERWATER		
1	0184	UPDATED	D.P.	L.C.		Scale 1:50	TYPICAL ANODE ON LOWER SUPPORT.			
Rev.	Date	DESCRIPTION	by	app.		Dwgr. no.	FF 91-36-35-1610.		Rev 1	Sheet /
Contractor JVD 1029.80.30						4001 Stavanger FRIGG FIELD				

CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: *CATHODIC PROTECTION*

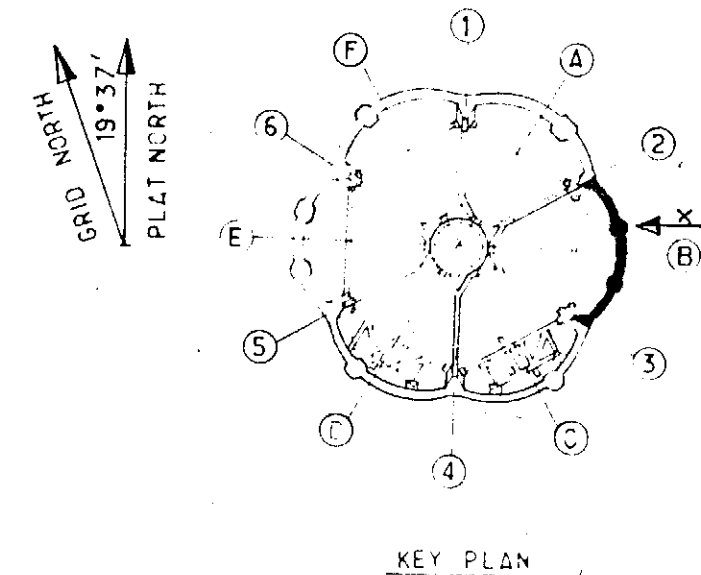
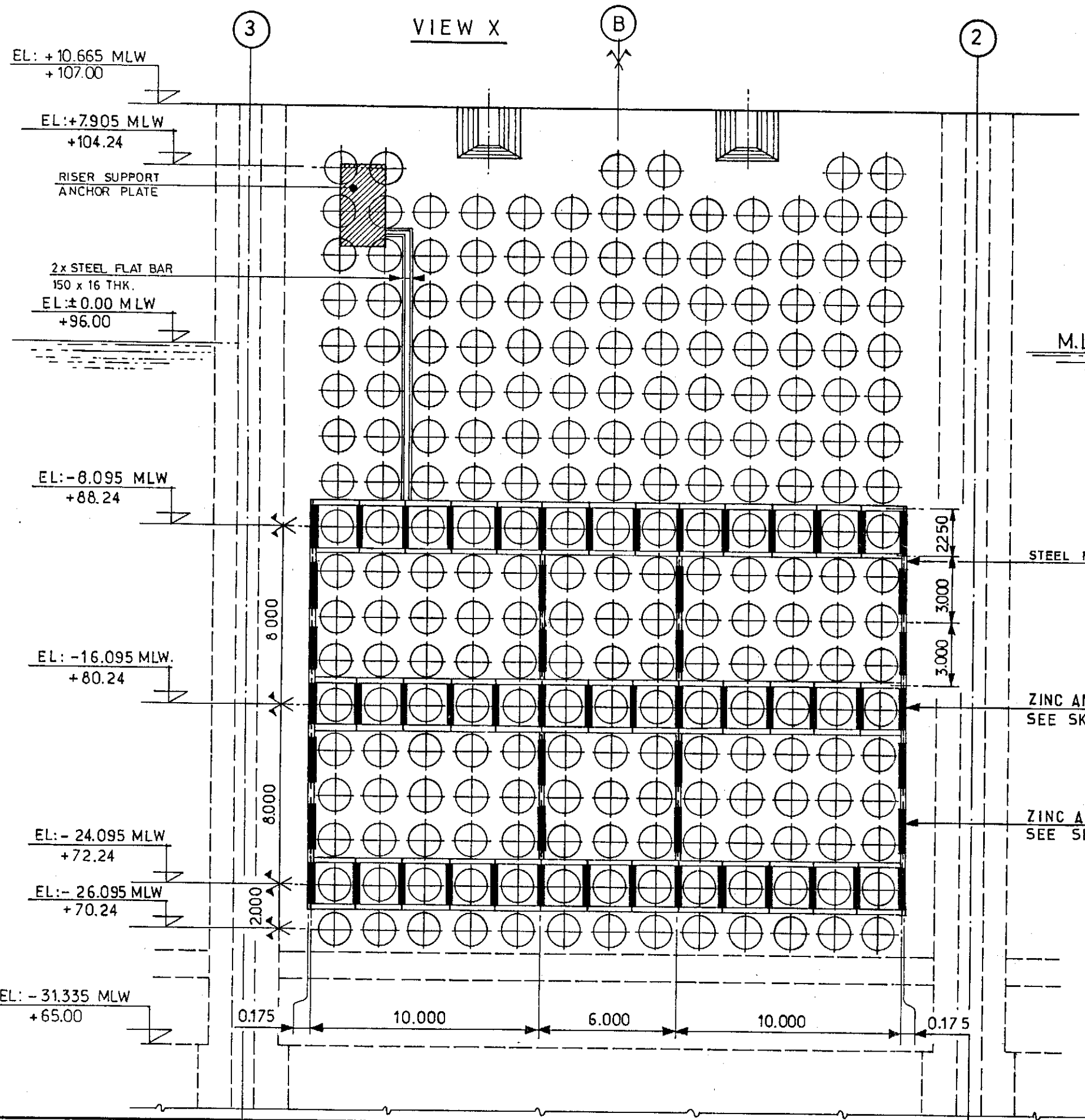
[illegible][illegible]

						elf		Job no.		Installation		System	
						aquitaine				CDP 1		UNDERWATER	
						norge a/s		elf		Scale			
Rev.	Date	DESCRIPTION		by	app.	p.o.box 168				Dwgr. no.		Re.	Sheet
Contractor						4001 Stavanger		FRIGG FIELD		FF <u>1610</u>			/



NOTES:
 _ FOR ANODES FIXATION DETAIL SEE SK_FF91.36.35.1617 AND 1618.
 _ FOR ALL OTHER DETAILS FIXED ON B.W.W SEE SK_FF91.36.35.1135

						 elf	Job no.	Installation CDP 1	System UNDERWATER			
1	01.84	UPDATED	D.P.	LLC			Scale 1: 200	CATHODIC PROTECTION ON BREAKWATER WALL. CELL. "A"				
Rev.	Date	DESCRIPTION	by	app.			Dwgr. no.		Rev.	Sheet		
Contractor JVD 1029_80_31						4001 Stavanger	FRIGG FIELD		FF 91-36-35-1611		1	



NOTES:

- FOR ANODES FIXATION DETAIL SEE SK_FF91.36.35.1617 AND 1618
- FOR ALL OTHER DETAILS FIXED ON B.W.W SEE SK_FF91.36.35.1136

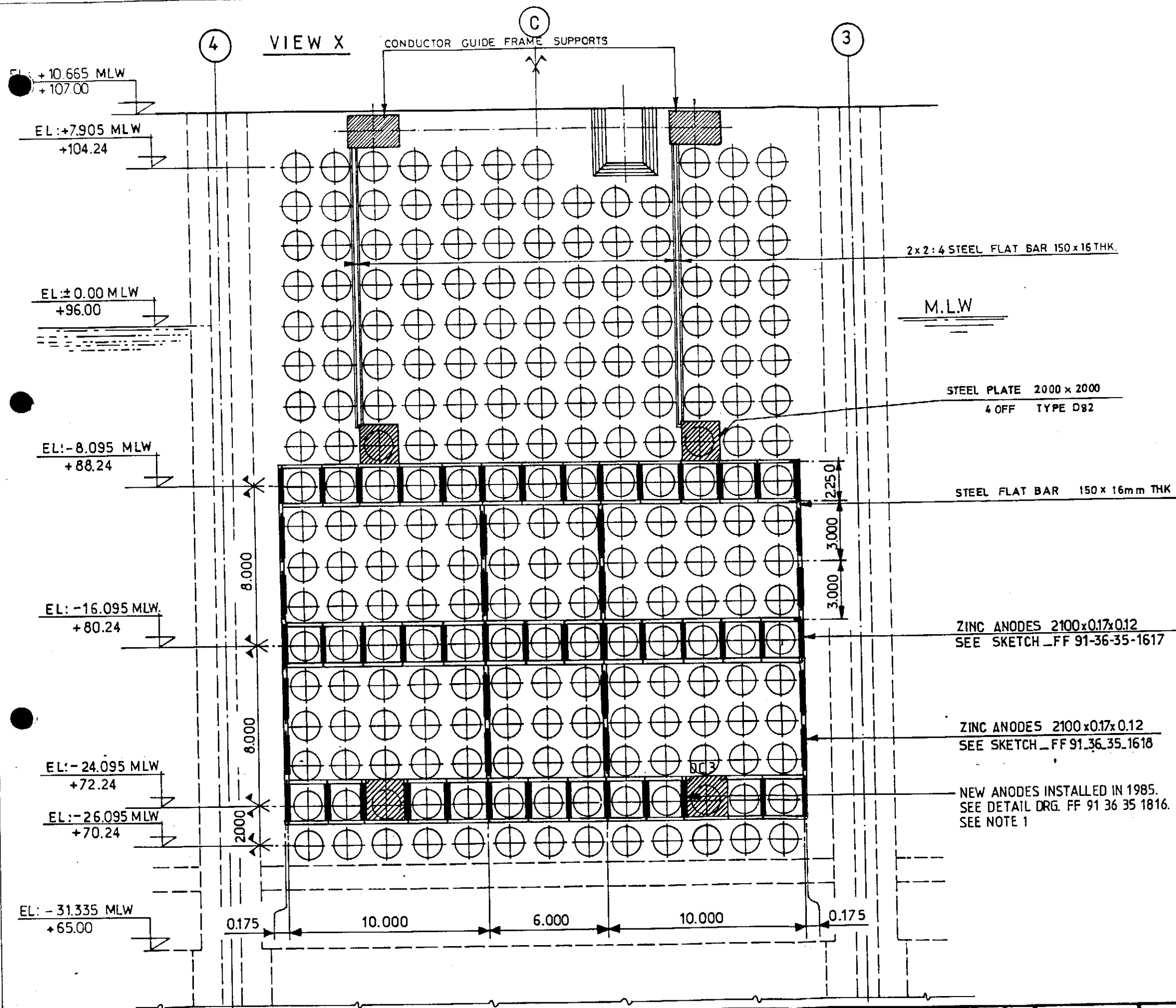
elf aquitaine norge a/s p.o.box 168 4001 Stavanger				elf FRIGG FIELD		Job no. Installation CDP 1	System UNDERWATER
1	0184	UPDATED	D.P	ALC		Scale 1:200	CATHODIC PROTECTION ON BREKWER WALL CELL "B"
Rev. Date DESCRIPTION by app.				Dwgr. no FF 91-36-35-1612		Rev. 1	Sheet
Contractor JVD 1029_80.32							

CDP 1 AS BUILT DRAWINGS

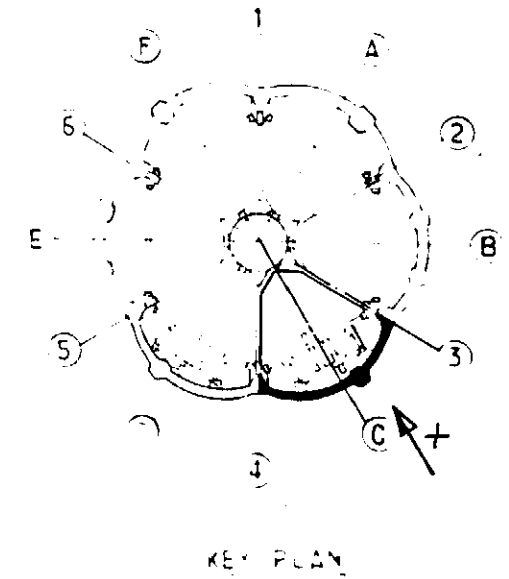
REFERENCE DRAWING LIST FOR: CATHODIC PROTECTION

[illegible][illegible]

						elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER		
								Scale				
Rev.	Date	DESCRIPTION	by	app.				Dwgr. no.	FF — 1612		Rev.	Sheet /
Contractor						4001 Stavanger	FRIGG FIELD					



GRID NORTH
19°37'
PLAT NORTH



- NOTES:**
- FOR ANODES FIXATION DETAIL SEE SK_FF91.36.35.1617 AND 1618
 - FOR ALL OTHER DETAILS FIXED ON B.W.W SEE SK_FF 91.36.35.1137
 - 1. THE RIGTH SIDE ANODE ON DC3 IS MISSING. 1986 DIVING SEASON.

3	10.86	NOTE 1 ADDED	T.B.	
2	3.2.86	ANODES ON DC3 REF. TO SST 5452	T.B.	
1	01.84	UPDATED	D.P.	JLL
Rev	01.84	DESCRIPTION	BY	100

JVD 1029_80_33

elf
aquitaine
norge a s



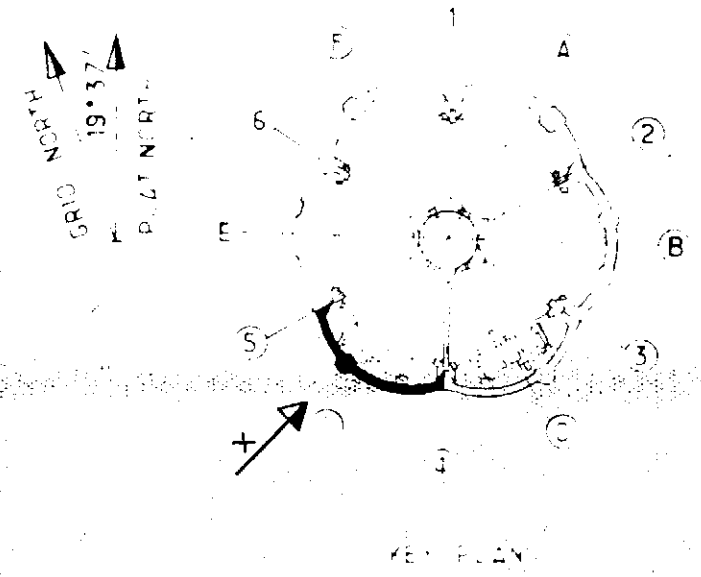
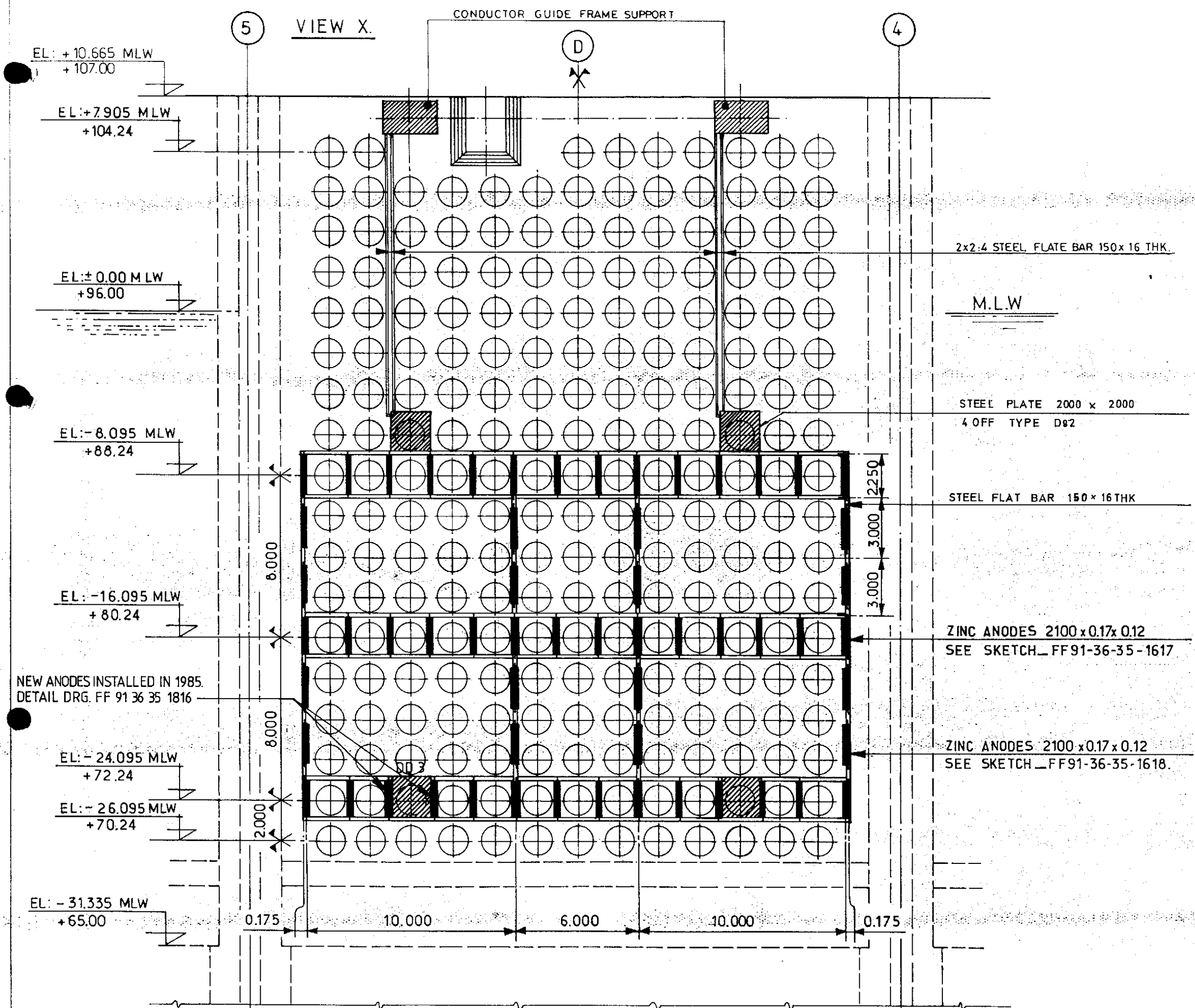
Job no.	Installation CDP 1	System UNDERWATER
Scale 1:200	CATHODIC PROTECTION ON BREAKWATER WALL CELL "C"	
Dwg no.	Rev	Sheet
FF 91-36-35-1613	3	

CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: CATHODIC PROTECTION

[illegible][illegible]

						elf	 elf	Job no.	Installation	System	
						aquitaine		Scale	CDP 1	UNDERWATER	
						norge a/s					
Rev.	Date	DESCRIPTION	by	app.		p.o.box 168		Dwg. no.		Rev.	Sheet
Contractor						4001 Stavanger	FRIGG FIELD	FF	1613		/



NOTES:

- FOR ANODES FIXATION DETAIL SEE SK_FF91.36.35-1617 AND 1618
- FOR ALL OTHER DETAILS FIXED ON B.W.W SEE SK_FF91.36.35-1138

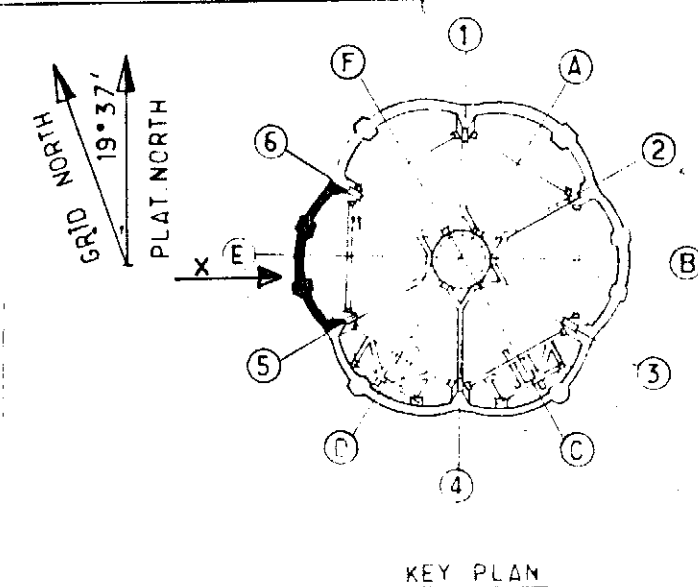
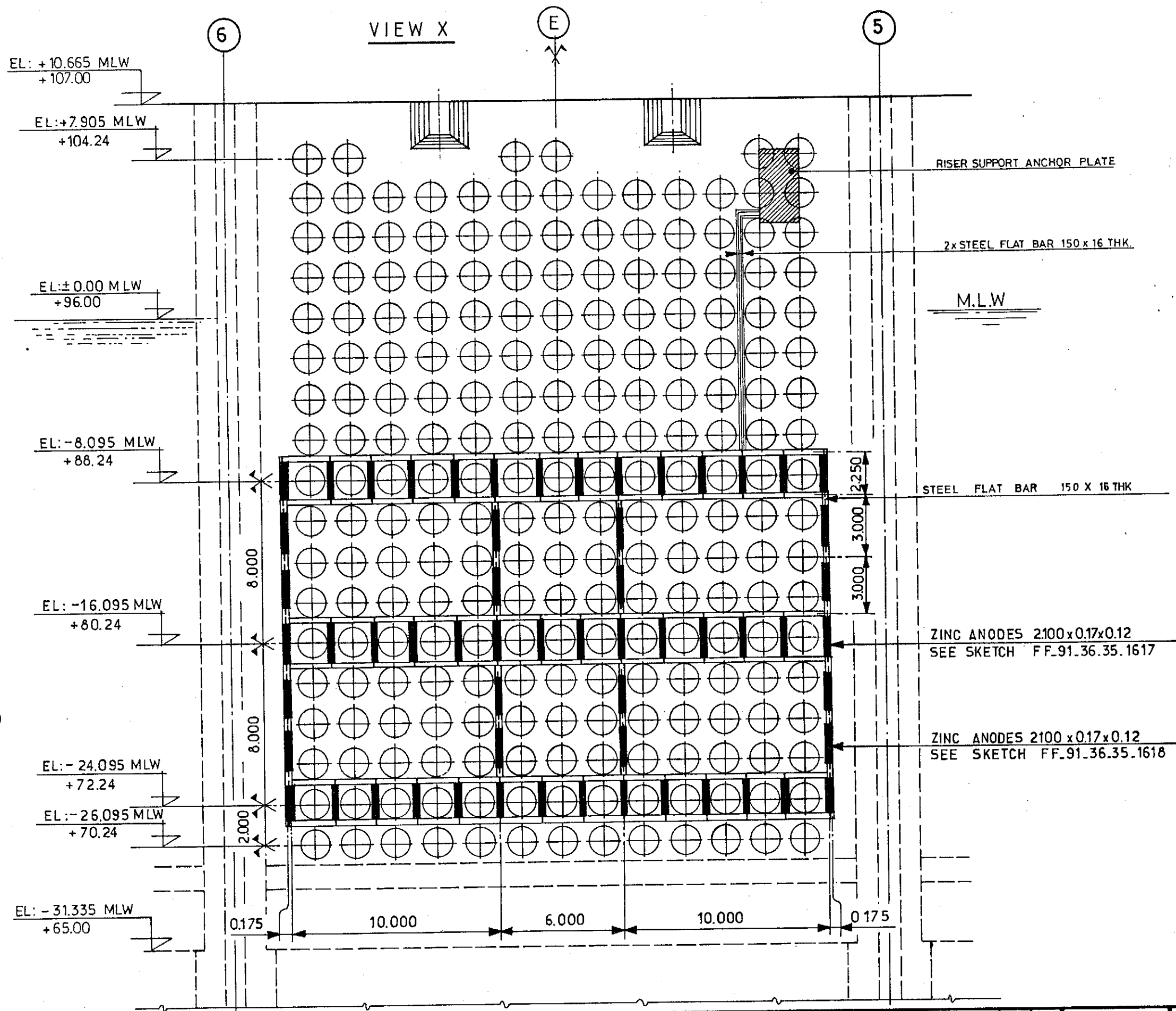
					elf aquitaine norge a s	 elf	Job no.	Installation COP 1	System UNDERWATER		
2	32.86	ANODES ON D03 REF. TO SST 5451	T.B.				Scale 1:200	CATHODIC PROTECTION ON BREAKWATER WALL CELL. "D"			
1	0184	UPDATED	D.P.	1/11							
JVD 1029_80_34					FF 91-36-35-1614					Rev. 2	Sheet

CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: CATHODIC PROTECTION

[illegible][illegible]

					elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER	
							Scale			
Rev.	Date	DESCRIPTION	by	app.	Contractor	FRIGG FIELD	Dwgr. no.	Rev		Sheet
							FF	1614		



NOTES:

- _FOR ANODES FIXATION DETAIL SEE SK_FF91.36.35.1617 AND 1618
- _FOR ALL OTHER DETAILS FIXED ON B.W.W SEE SK_FF91.36.35.1139

elf aquitaine norge a/s p.o. box 168 4001 Stavanger				Job no.	Installation CDP 1	System UNDERWATER
1 0184 UPDATED D.P. / LC				Scale 1: 200	CATHODIC PROTECTION ON BREAKWATER WALL CELL "E"	
Contractor JVD 1029_80_35				Dwgr. no.	FF 91-36-35-1615	Rev. 1
				FRIGG FIELD		Sheet

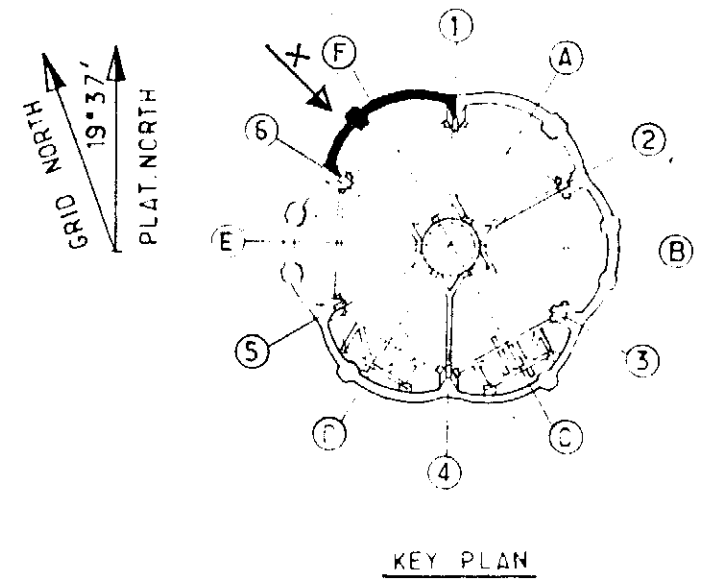
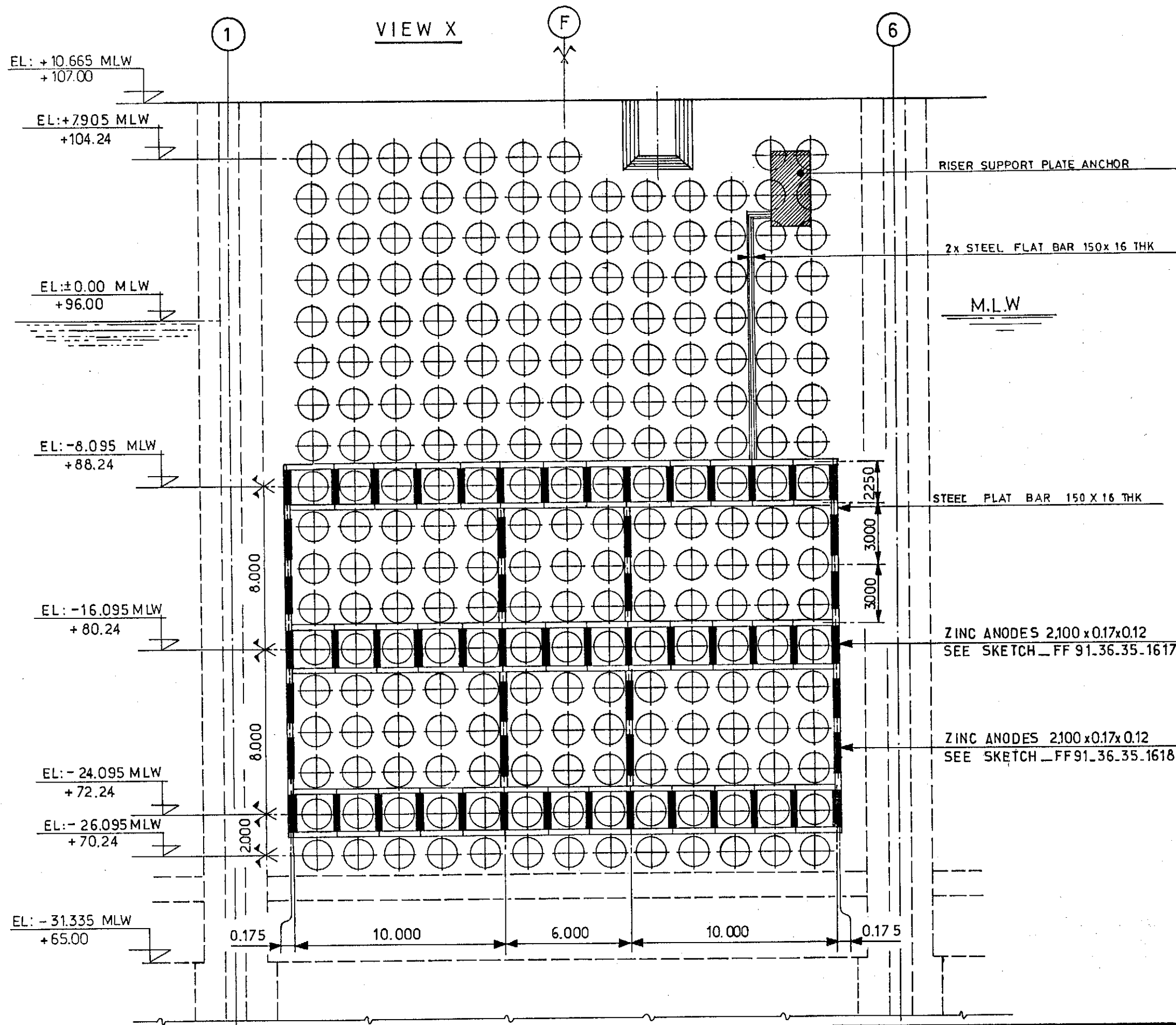
CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: *CATHODIC PROTECTION*

ORIGINATOR	CONSTRUCTION DRAWING REF.	TITLE	Rev	Sheet	Size
BROWN & ROOT	AL-MPX DPL M 7342	LOBATE WALLS ANODE ARRGT ZONES E & F	1		A1
" "	AL-MPX DPL M 7351	LOBATE WALL VERTICAL BOND BARS	3		A1
" "	A3-EN SK 089	LOBATE WALL ANODES DETAILS	3		A3
C-G DORIS	AL-MP-M-1209	SUPPORT FOR CATHODIC PROTECTION SYSTEM	1		A1

[illegible]

					elf aquitaine norge a/s				Job no.		Installation CDP 1		System UNDERWATER			
					p.o.box 168		elf		Scale							
Rev. Date DESCRIPTION by app.					4001 Stavanger		FRIGG FIELD		Dwgr. no.		FF		Rev.		Sheet	
Contractor											1615				/	



NOTES:
 _ FOR ANODES FIXATION DETAIL SEE SK_FF91.36.35.1617 AND 1618
 _ FOR ALL OTHER DETAILS FIXED ON B.W.W SEE SK_FF91.36.35.1140

elf aquitaine norge a/s p.o.box 168 4001 Stavanger				Job no. Installation CDP 1		System UNDERWATER	
1 0184 UPDATED D.P. ALC				Scale 1: 200		CATHODIC PROTECTION ON BREAKWATER WALL CELL "F"	
Rev. Date DESCRIPTION by app.				Dwgr. no. FF 91-36-35-1616		Rev. 1	Sheet
Contractor JVD1029_80_36				FRIGG FIELD			

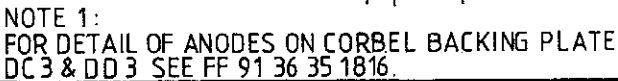
CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: CATHODIC PROTECTION

ORIGINATOR	CONSTRUCTION DRAWING REF.	TITLE	Rev	Sheet	Size
BROWN & ROOT	A1-MPX DPI M 7342	LOBATE WALLS ANODE ARRAY ZONES E & F	1		A1
" "	A1-MPX DPI M 7351	LOBATE WALL VERTICAL BOND BARS	3		A1
" "	A3-EN SK 089	LOBATE WALL ANODES DETAILS	3		A3
C-G DORIS	A1-MP M 1209	SUPPORT FOR CATHODIC PROTECTION SYSTEM	1		A1

[illegible]

				elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER		
						Scale				
Rev.	Date	DESCRIPTION	by	app.	FRIGG FIELD	Dwgr. no.	FF <u>1616</u>		Rev.	Sheet /
Contractor										

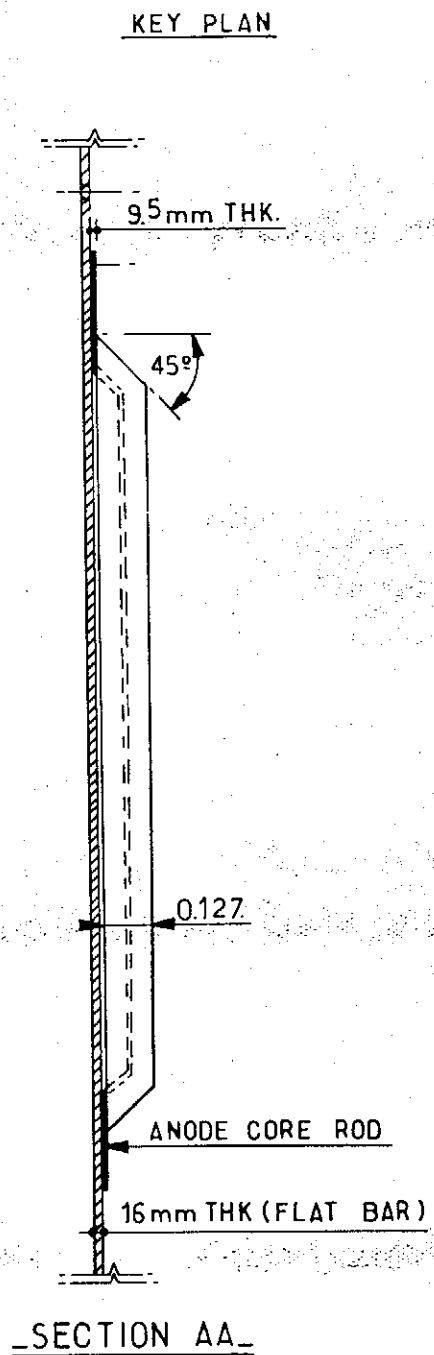


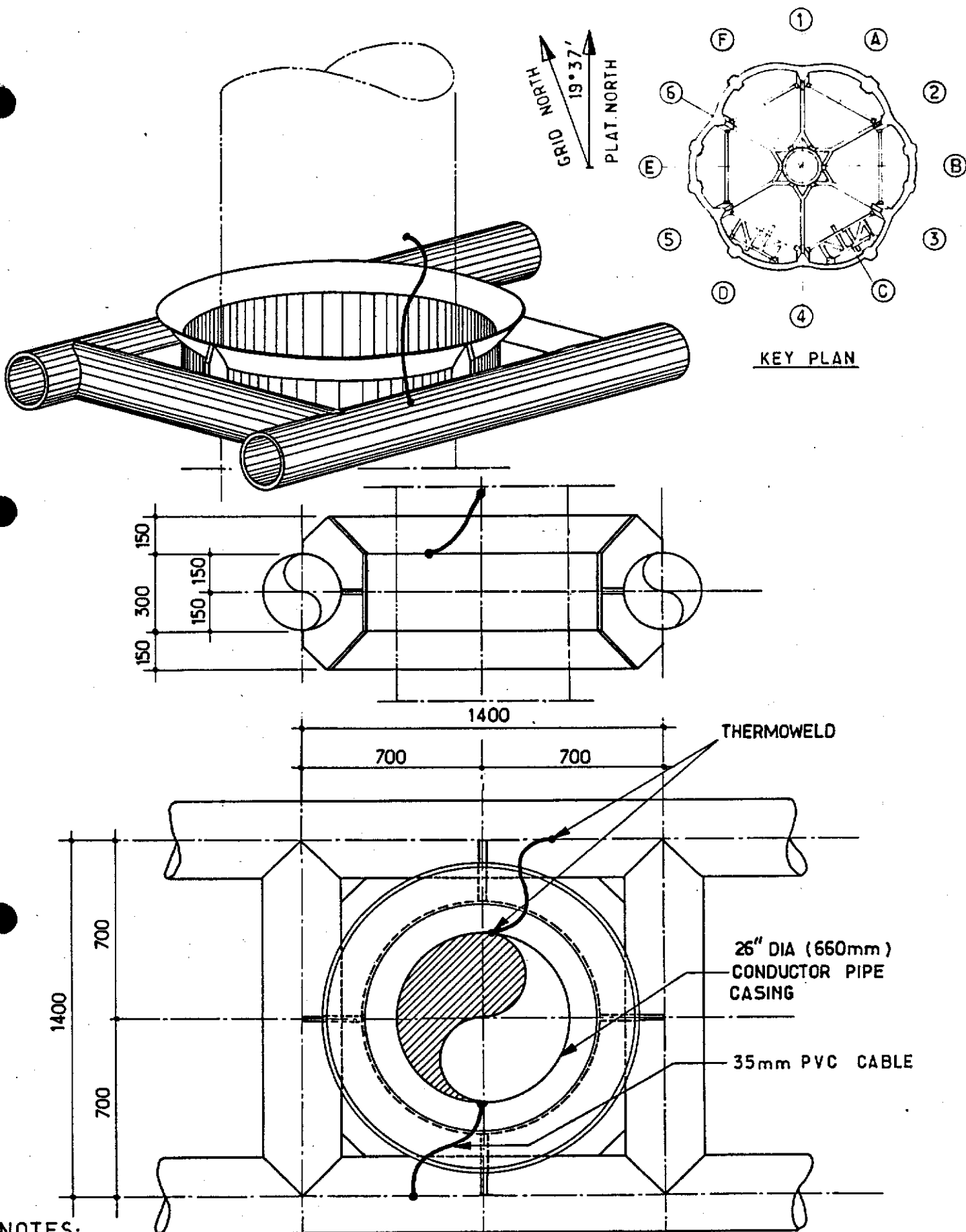
CDP 1 AS BUILT DRAWINGS

ORIGINATOR	CONSTRUCTION DRAWING REF.	TITLE	Rev	Sheet	Size
BROWN & ROOT	A1-MPX-DP1-M-7340	LOBATE WALL ANODE ARRGT ^{ZONE} A&B	1		A1
" "	A1-MPX-DP1-M-7341	" " " " C&D	4		A1
" "	A1-MPX-DP1-M-7342	" " " " E&F	1		A1
" "	A3.EN-SK.OBG	" " * . DETAILS	3		A3
C G DORIS	A1-MP-M 1209	SUPPORT FOR CATHODIC PROTECTION	1		A1

[illegible]

						 elf	Job no.	Installation CDP 1	System UNDERWATER	
							Scale			
Rev.	Date	DESCRIPTION	by	app.	p.o.box 168 4001 Stavanger		Dwgr. no. FF	<u>1617</u>	Rev.	Sheet /
Contractor						FRIGG FIELD				

[illegible]



NOTES:

VALID FOR ALL 24 CONDUCTOR FUNNELS ON LEVELS D, E & G
 FOR DETAILS OF FUNNELS SEE SK_FF91-36.35.1491.

elf aquitaine norge a/s p.o.box 168 4001 Stavanger				Job no. Installation CDP 1		System UNDERWATER	
1 01.84 UPDATED D. P. JLC				Scale 1:20		PERMANENT BONDING CONNECTION CONDUCTOR PIPE / GUIDE FRAME	
Rev. Date DESCRIPTION by app.				Dwgr. no. FF 91-36-35-1619		1	
Contractor JVD 1029-80-39.				FRIGG FIELD		1	

CDP 1 AS BUILT DRAWINGS

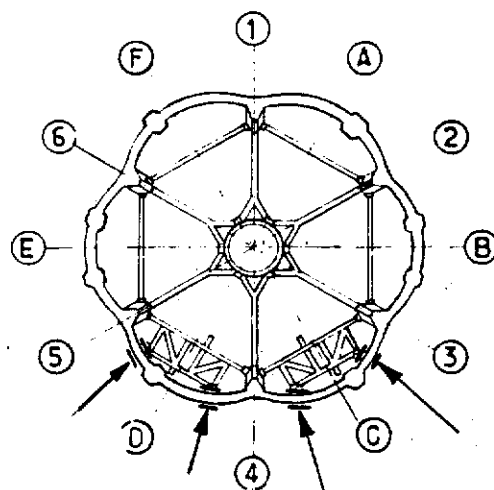
REFERENCE DRAWING LIST FOR: CATHODIC PROTECTION

[illegible][illegible]

							Job no.	Installation CDP 1		System UNDERWATER		
							Scale					
Rev.	Date	DESCRIPTION	by	app.			Dwgr. no.	FF <u>1619</u>		Rev.	Sheet	
Contractor						4001 Stavanger	FRIGG FIELD					

2 OFF FLAT BARS 100x10 mm THK
200mm SPACING WELDED TO BOTH
SUPPORT PLATES

GRID NORTH
19°37'
PLAT. NORTH



KEY PLAN

TOP OF B.W.W.

BREAKWATER WALL (B.W.W)
1200 THK.

EL: +10.665 MLW
+10.700

FLAT BAR 100x10

WELD

WELD

NOTES

.THIS SKETCH IS VALID FOR GUIDE
FRAME SUPPORTS LEVEL 'G' C2_D2_D3
.FLAT BARS ON SUPPORT C3 HAVE BEEN
CUT

1	0184	UPDATED	D.P.	/LC
Rev.	Date	DESCRIPTION	by	app.
Contractor JVD 1029_80_40				

elf
aquitaine
norge a/s
p.o.box 168



FRIGG FIELD

Job no.	Installation CDP 1	System UNDERWATER
Scale	PERMANENT BONDING CONNECTION ON CONDUCTOR GUIDE FRAME SUPPORT	
Dwgr. no.	Rev.	Sheet
FF 91-36-35-1620	1	/

CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: *CATHODIC PROTECTION*

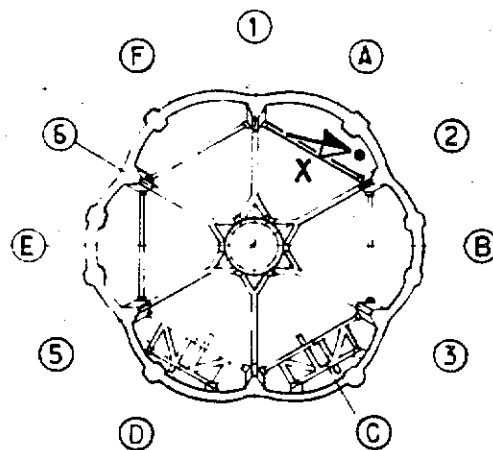
[illegible][illegible]

						elf aquitaine norge a/s		Job no.	Installation CDP 1		System UNDERWATER	
								Scale				
Rev.	Date	DESCRIPTION	by	app.	p.o.box 168			Dwgr. no.	FF ———— 1620		Rev.	Sheet /
Contractor					4001 Stavanger	FRIGG FIELD						

LOBED WALL

UTILITY RISER

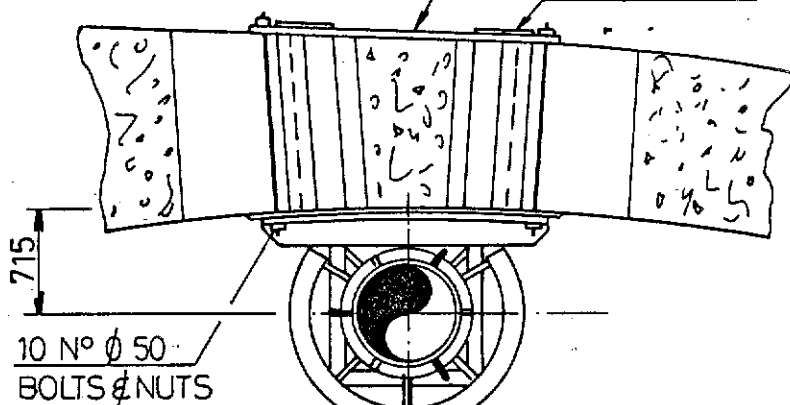
NORTH
GRID NORTH
19° 37'
PLAT. NORTH



50 OUTSIDE PLATE
CONTOUR TO SUIT

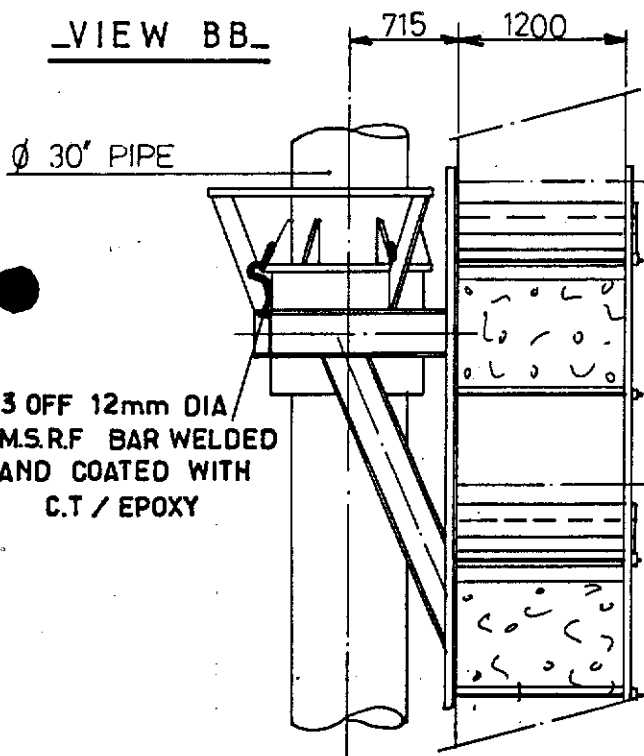
KEY PLAN

4 N° HEA 300



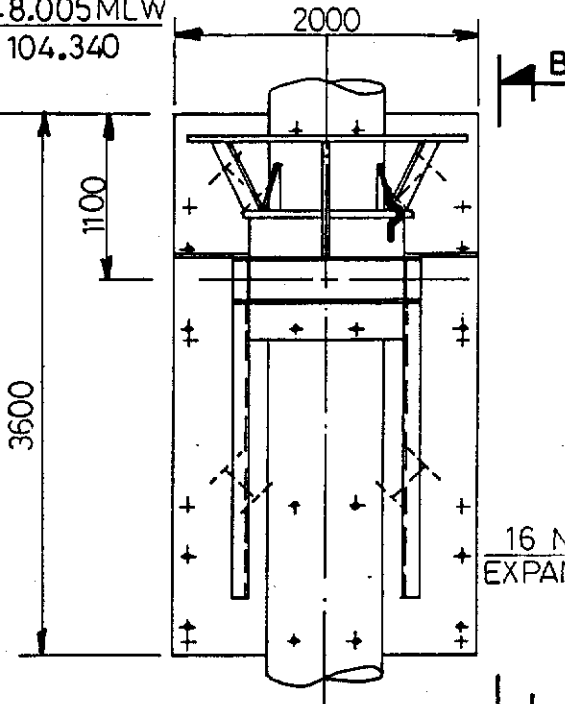
PLAN VIEW

VIEW BB



EL. +8.005 MLW
+ 104.340

2000



VIEW AA

NOTES:

VALID FOR ALL UTILITY RISER SUPPORTS.

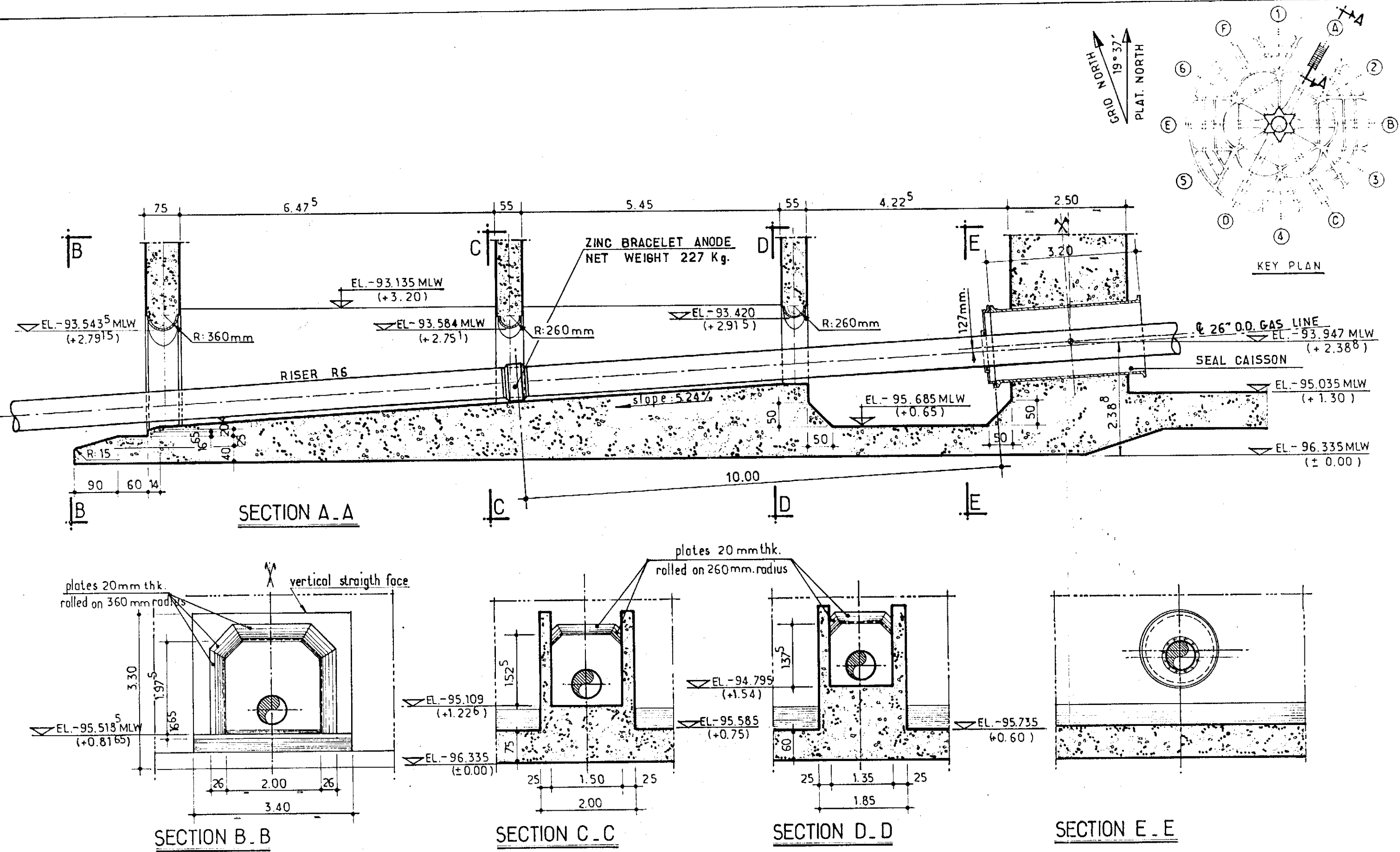
				elf aquitaine norge a/s		Job no.	Installation CDP 1	System UNDERWATER
1	01.84	UPDATED	D.P.	h/c		Scale 1/50	PERMANENT BONDING CONNECTION PIPE RISER AND RISER SUPPORT	
Rev.	Date	DESCRIPTION	by	app.	p.o. box 168	Dwgr. no		
Contractor JVD 1029 -80-41				4001 Stavanger	FRIGG FIELD	FF 91-36-35-1621		1

CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: CATHODIC PROTECTION

[illegible][illegible]

					elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER	
							Scale			
Rev.	Date	DESCRIPTION	by	app.	FRIGG FIELD	Dwgr. no. FF <u>1621</u>	Rev.	Sheet		
Contractor										



NOTES: - FOR CATHODIC PROTECTION (ZINC ANODE) SEE SK. F.F. 91_36_35_1626
 - FOR SEAL CAISSON DETAILS SEE SK. F.F. 91_36_35_1656 and 1657

elf aquitaine norge a/s p.o. box 168 4001 Stavanger				Job no.		Installation CDP 1	System UNDERWATER
1 10/83 REDRAWN mira JLC				Scale 1:75		OUTSIDE TUNNEL "A" SECTIONS	
Rev. Date DESCRIPTION by app.				Dwgr no		FF 91_36_35_1622	1
Contractor JVD 1029.80_42				FRIGG FIELD			

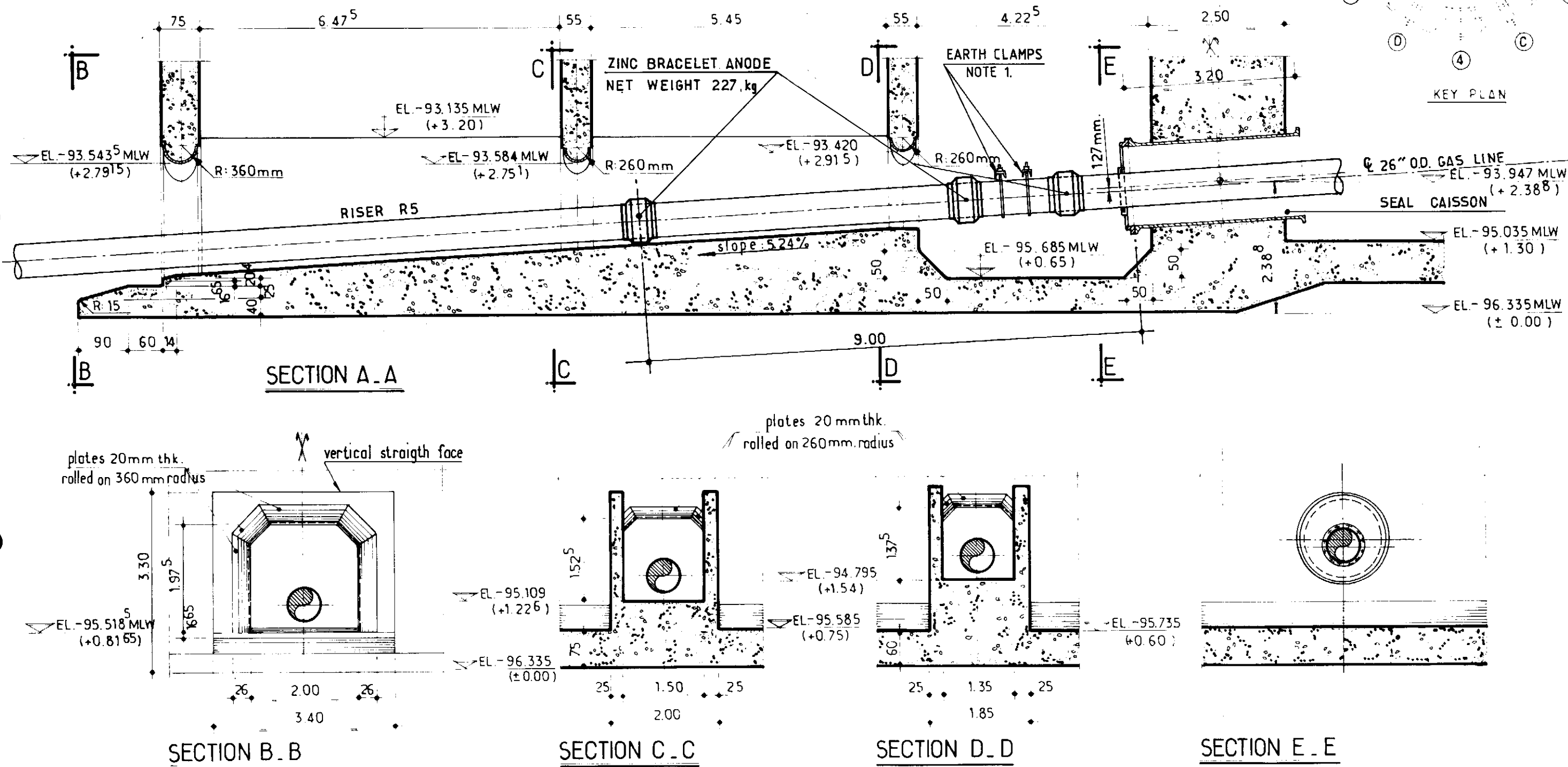
CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: *CATHODIC PROTECTION*

[illegible]

ELF DRAWING NUMBER	REVISION		TITLE
	Index	Date	
			INSPECTION LOCATIONS FOR FLOW LINES PHASE I & II
ELF.		12-81	FRIGG FIELD OGD SUR SEA L-ROBERSTAD
FF 70-36-320589	0	1-82	INSPECTION LOCATIONS FOR FLOWLINES INSIDE ANTISCOURING WALL CDP1

							Job no.		Installation CDP 1		System UNDERWATER	
							Scale					
Rev.	Date	DESCRIPTION	by	app.	elf aquitaine norge a/s p.o.box 168 4001 Stavanger		Dwgr. no. FF		1622		Rev.	Sheet
Contractor JVB-1029-9045					FRIGG FIELD							/



NOTES:

- FOR CATHODIC PROTECTION (ZINC ANODE) SEE SK F.F. 91_36_35_1626
- FOR SEAL CAISSON DETAILS SEE SK F.F. 91_36_35_1678 and 1679

NOTE 1. EARTH CABLES BETWEEN ANODES AND EARTH CLAMPS

02 08.88 EARTH CLAMPS INST. REF. SST. 88105		elf aquitaine norge a s p o box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER
1 10/83 REDRAWN	min J.C.			Scale 1:75	OUTSIDE TUNNEL "F" SECTIONS	
Rev Date DESCRIPTION by app.		Dwg no		FF 91_36_35_1623	02	
Contractor JVD 1029.80_43		FRIGG FIELD				

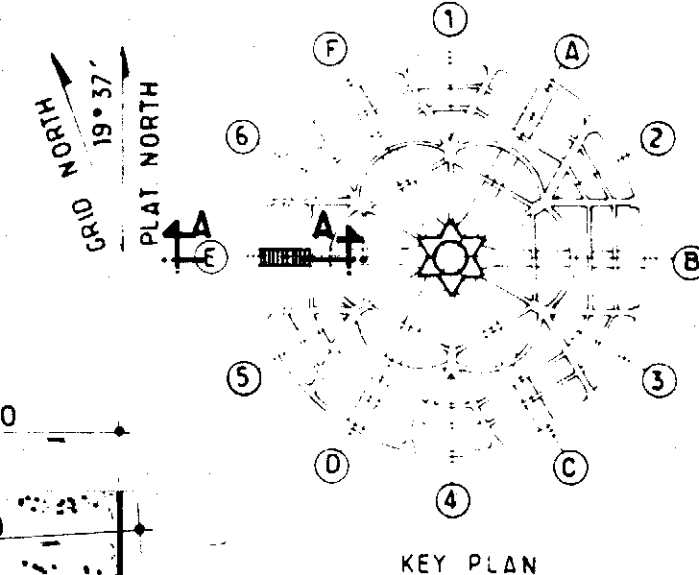
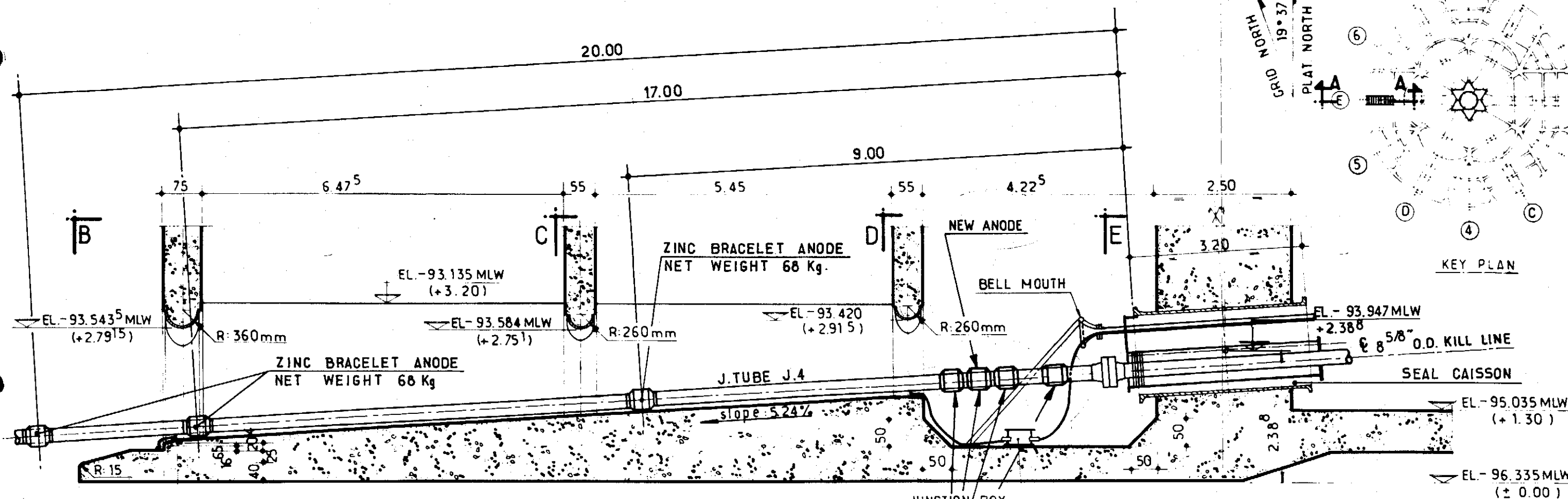
CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: *CATHODIC PROTECTION*

[illegible]

ELF DRAWING NUMBER	REVISION		TITLE
	Index	Date	
			INSPECTION LOCATIONS FOR FLOW LINES PHASE I & II
ELF.		12-81	FRIGG FIELD OGD SUBSEA L-ROBERSTAD
FF 70-36-32 05 89	0	1-82	INSPECTION LOCATIONS FOR FLOWLINES INSIDE ANTISEIZURING WALL CDP1

<table><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>																									elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER	
Rev.	Date	DESCRIPTION	by	app.	Scale																									
Contractor					Dwgr. no.		Rev.	Sheet																						
VD 1029-5046						FF	1623		/																					

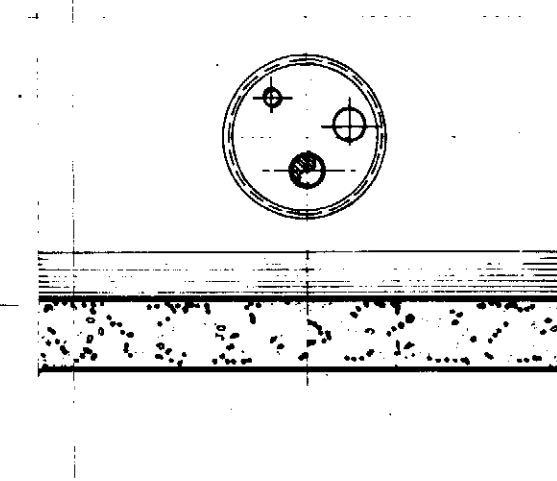
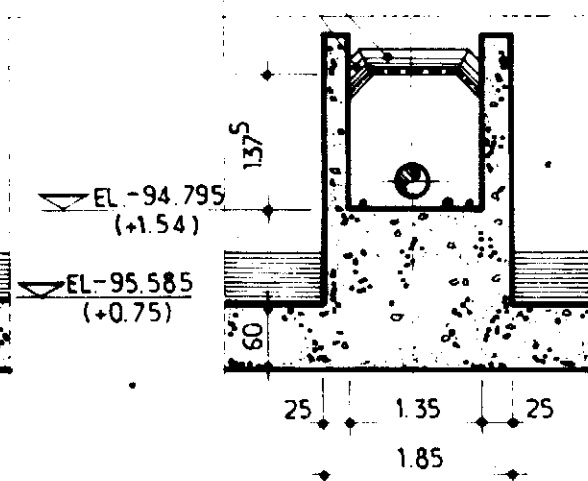
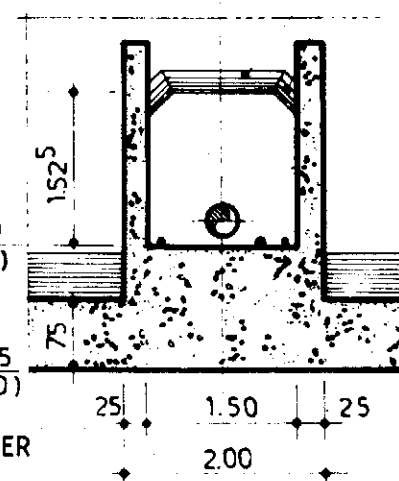
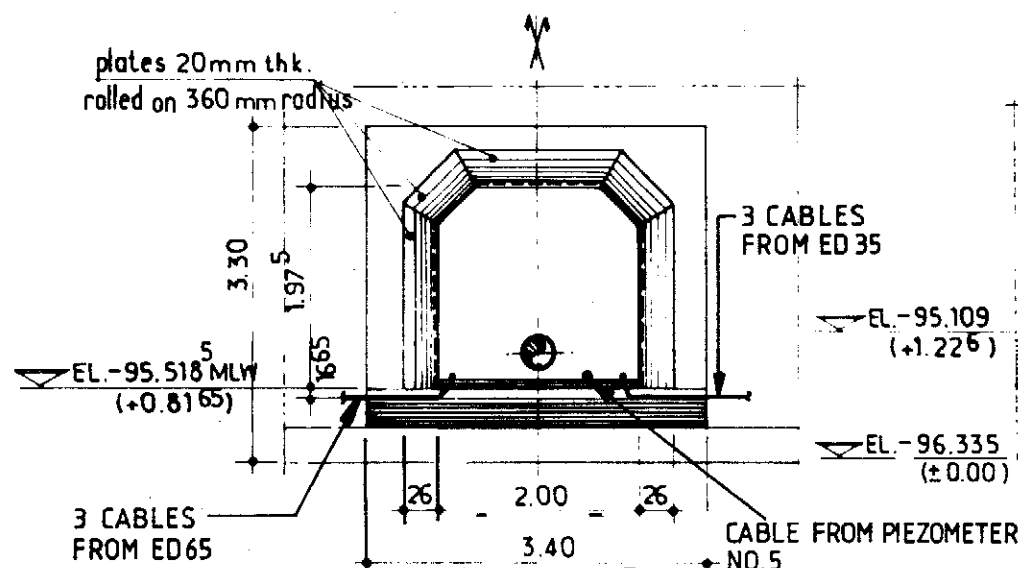


SECTION A.A

SECTION C.C

SECTION D.D

SECTION E.E



SECTION B.B

SECTION C.C

SECTION D.D

SECTION E.E

NOTES:

- FOR CATHODIC PROTECTION (ZINC ANODE) SEE SK. FF. 91_36_35_1627
- FOR SEAL CAISSON DETAILS SEE SK. FF. 91_36_35_1672 to 1675
- FOR CABLE LAYOUT, SEE FF 91_36_35_1718.

NOTE 1: NEW ANODE CONNECTED TO OLD ANODES BY GROUND CABLE

03	10/87	ANODE INSTALLED	REF. SST. 87234	OK	MY
2	32.86	CABLE NOTE ADDED	REF. TO SST 5443	T.B.	
1	10/83	REDRAWN		mira	J-LC
Rev.	Date	DESCRIPTION	by	app.	
Contractor JVD 1029-80-44					

elf
aquitaine
norge a s
p.o. box 168
4001 Stavanger

elf
FRIGG FIELD

Job no.	Installation CDP 1	System UNDERWATER
Scale 1:75	OUTSIDE TUNNEL "E" SECTIONS	
Dwgr no.	FF 91_36_35_1624	03

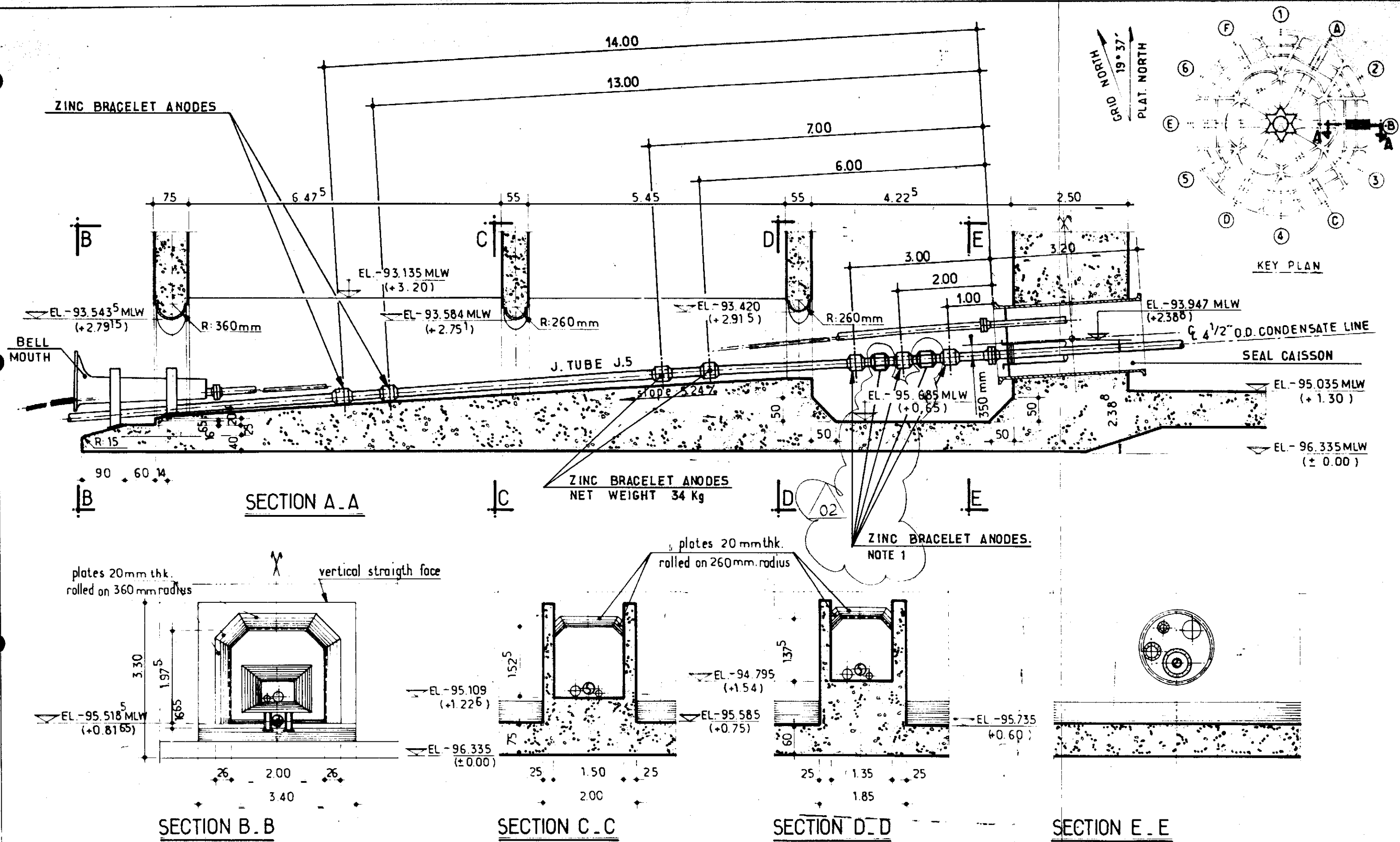
CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: *CATHODIC PROTECTION*

[illegible]

ELF DRAWING NUMBER	REVISION		TITLE
	Index	Date	
			INSPECTION LOCATIONS FOR FLOW LINES PHASE I & II
ELF		12-81	FRIGG FIELD OGD SURSEA 1-ROBERTSTAD
FF 70-36-32 0589	0	1-82	INSPECTION LOCATIONS FOR FLOWLINES INSIDE ANTISEISMIC WALL CDP 1
FF 91 36 33 1838			Exact position of piezometers

						elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER		
								Scale				
Rev.	Date	DESCRIPTION	by	app.				Dwgr. no.			Rev	Sheet
Contractor JVD 1022 9047						4001 Stavanger	FRIGG FIELD	FF	1624			/



NOTES:

- FOR CATHODIC PROTECTION (ZINC ANODE) SEE SK. F.F. 91_36_35_1628
- FOR SEAL CAISSON DETAILS SEE SK. F.F. 91_36_35_1658 to 1661
- FOR BELL MOUTH DETAILS SEE SK. F.F. 91_36_35_1307

NOTE 1: NEW ANODES CONNECTED TO OLD ANODES BY GROUND CABLE

02

02 10/87 TWO ANODES INST. REF. SST. 87233 1 10/83 REDRAWN Rev. Date: DESCRIPTION by app. Contractor JVD 1029.80-45	elf aquitaine norge a s p.o. box 3,68 4001, Stavanger	<table border="1"> <tr> <td>Job no.</td><td>Installation CDP 1</td><td>System UNDERWATER</td></tr> <tr> <td>Scale 1:75</td><td colspan="2">OUTSIDE TUNNEL "B" SECTIONS</td></tr> <tr> <td>Dwgr no. FF 91_36_35_1625</td><td>02</td><td></td></tr> </table>	Job no.	Installation CDP 1	System UNDERWATER	Scale 1:75	OUTSIDE TUNNEL "B" SECTIONS		Dwgr no. FF 91_36_35_1625	02	
Job no.	Installation CDP 1	System UNDERWATER									
Scale 1:75	OUTSIDE TUNNEL "B" SECTIONS										
Dwgr no. FF 91_36_35_1625	02										

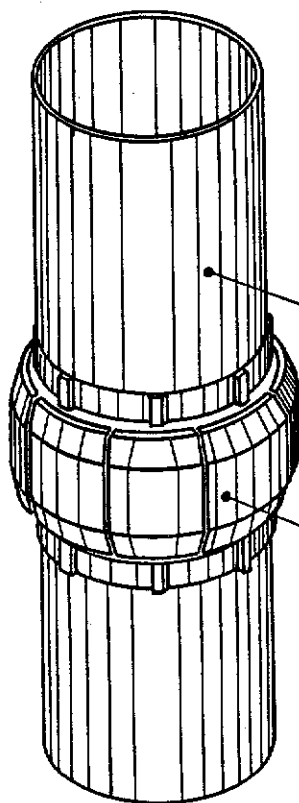
CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: *CATHODIC PROTECTION*

[illegible]

ELF DRAWING NUMBER	REVISION		TITLE
	Index	Date	
			INSPECTION LOCATIONS FOR FLOW LINES PHASE I & II
ELF.		12-81	FRIGG FIELD OGD SUB SEA L-ROBERSTAD.
FF 70-36-32 05 89	0	1-82	INSPECTION LOCATIONS FOR FLOWLINES INSIDE ANTISOURING
			WALL CDP 1

					 elf	Job no.	Installation CDP 1	System UNDERWATER		
						Scale				
Rev.	Date	DESCRIPTION	by	app.	p.o.box 168 4001 Stavanger	Dwgr. no.	FF — 1625		Rev.	Sheet /
Contractor JVD 1029 QD 48					FRIGG FIELD					

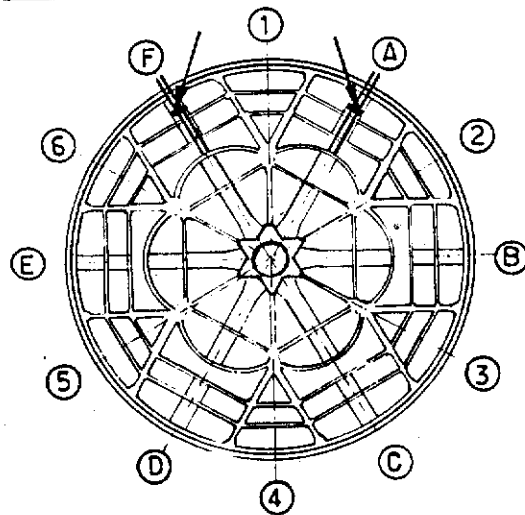


26" DIA PIPE . GAS LINE

ANODE

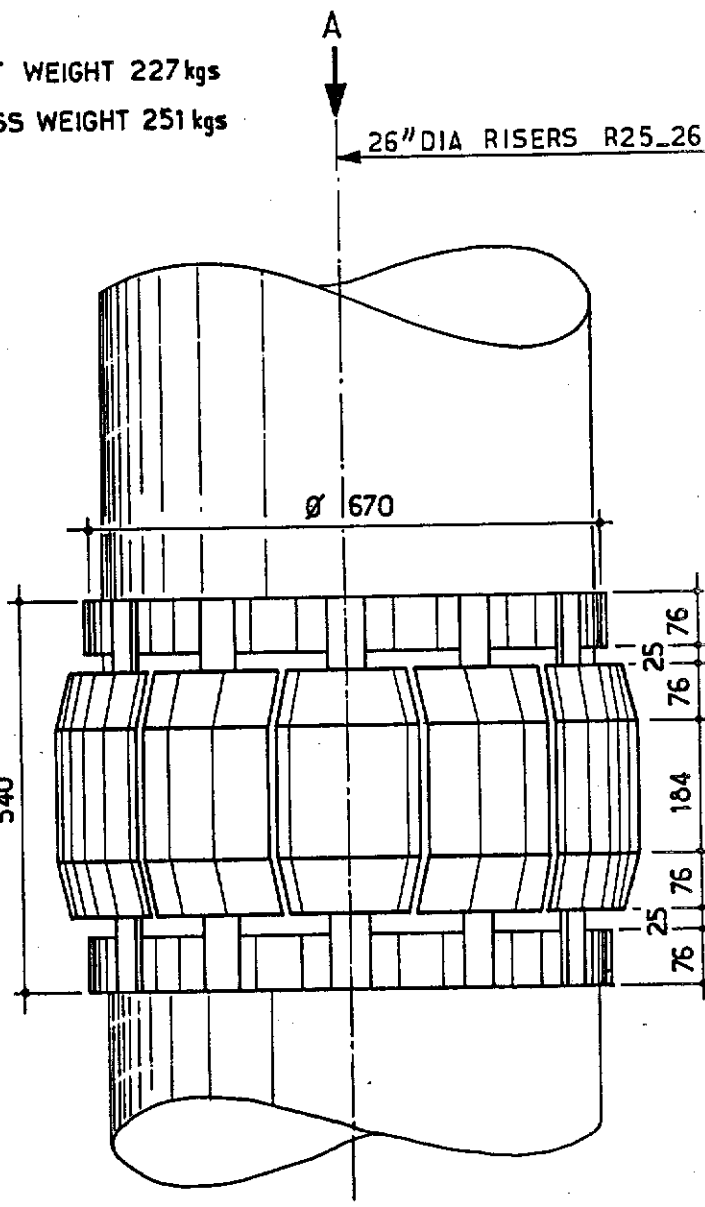
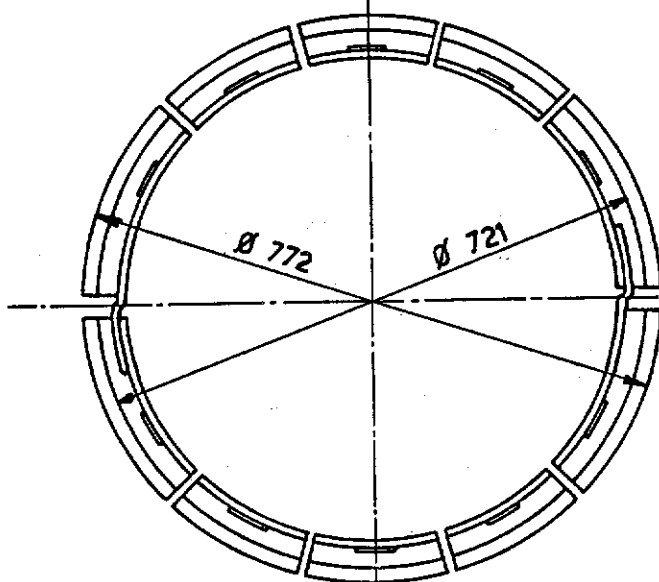
NETT WEIGHT 227 kgs
GROSS WEIGHT 251 kgs

GRID NORTH
19° 37'
PLAT. NORTH



KEY PLAN

VIEW A



NOTES:

_ FOR LOCATION SEE SK _ FF91 36 35 1622 & 1623

FOR LOCATION SEE SK - FF 91-36-35-1626 & 1029					elf		 elf	Job no.	Installation CDP 1	System UNDERWATER	
1	01.84	UPDATED	D.P.	JLC	aquitaine	Scale 1:10		TYPICAL ANODE DETAIL FOR 26" O.D.			
Rev.	Date	DESCRIPTION	by	app.	norge a/s	Dwgr. no.					
Contractor JVD 1029.80.46					p.o.box 168	4001 Stavanger	FRIGG FIELD	FF 91-36-35-1626		Rev. 1	Sheet /

CDP 1 AS BUILT DRAWINGS

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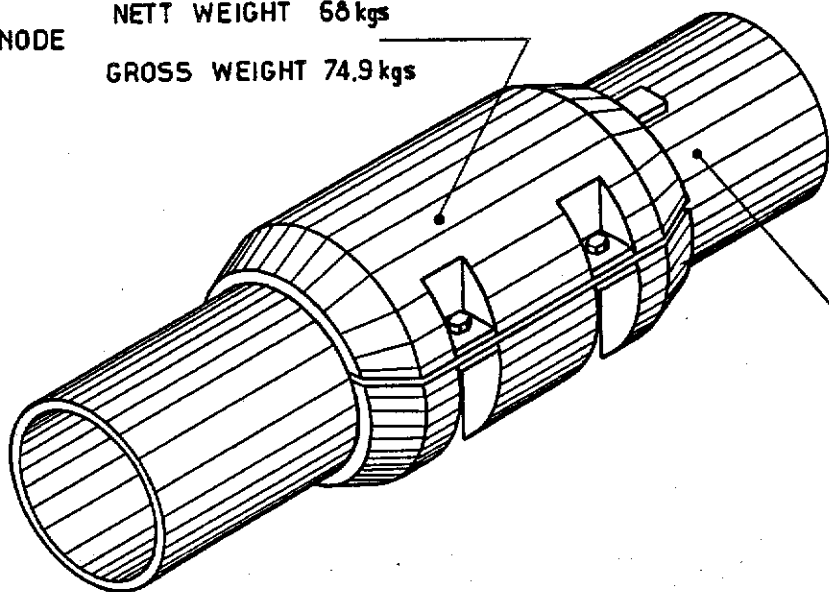
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					elf aquitaine norge a/s p.o.box 168 4001 Stavanger		 elf		Job no. Scale		Installation CDP 1		System UNDERWATER	
Rev. Date DESCRIPTION by app.					Dwgr. no. FF		1626		Rev.		Sheet /			
Contractor					FRIGG FIELD									

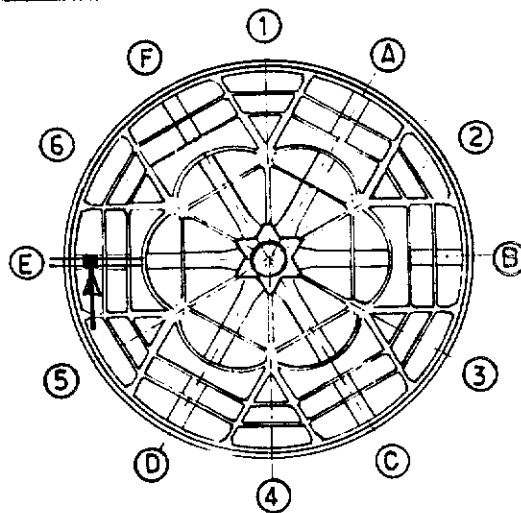
ANODE

NETT WEIGHT 68 kgs

GROSS WEIGHT 74.9 kgs



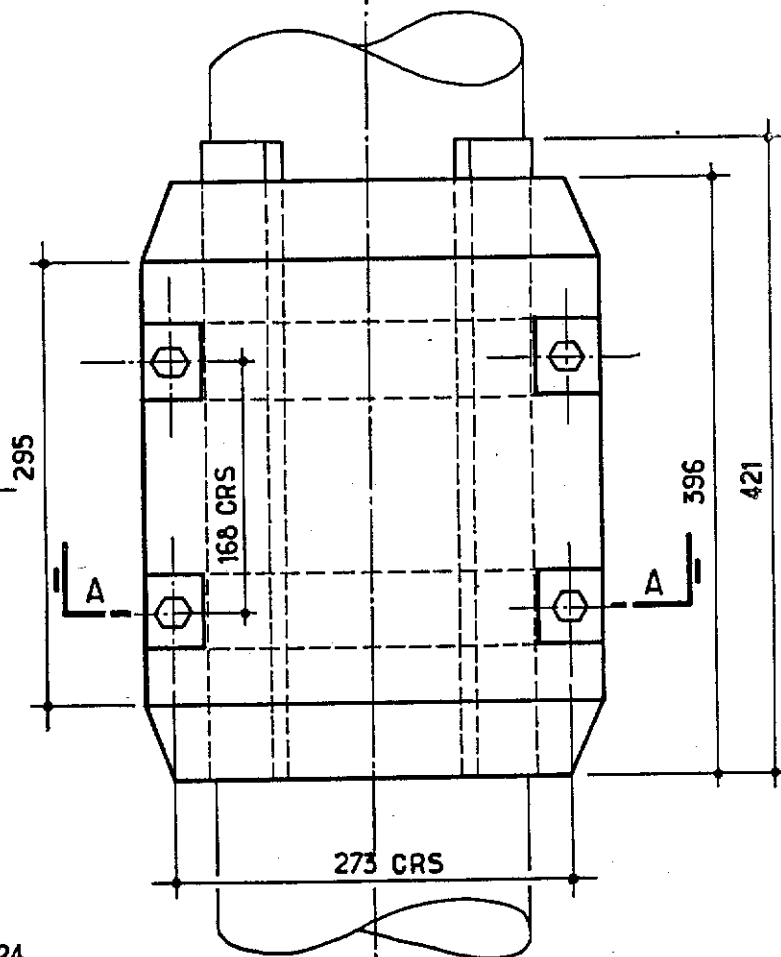
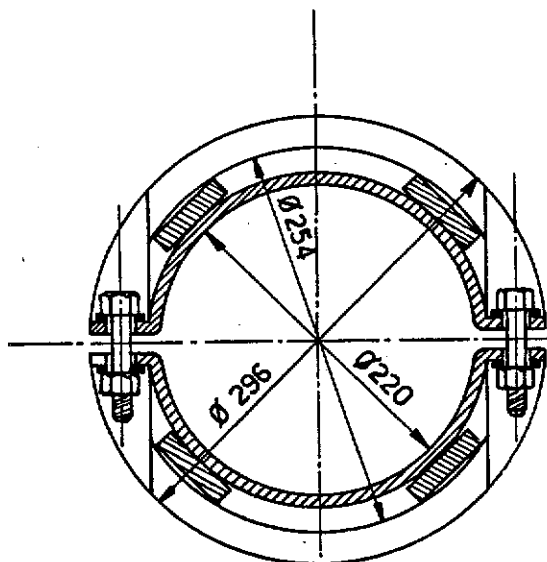
GRID NORTH
19° 37'
PLAT. NORTH



KEY PLAN

8" DIA RISER J4 KILL LINE.

SECTION A-A



NOTES:

_FOR LOCATION SEE SK _ FF 91.36.35.1624 .

				elf aquitaine norge a/s		Job no.	Installation CDP 1	System UNDERWATER
1	01.84	UPDATED	D.P. WLC	p.o. box 168		Scale 1/5	TYPICAL ANODE FOR 8" DIA RISER J4 KILL LINE	
Rev.	Date	DESCRIPTION	by	app.		Dwgr. no.	Rev	Sheet
Contractor JVD 1029.80.47				4001 Stavanger		FF 91-36-35-1627	1	/
				FRIGG FIELD				

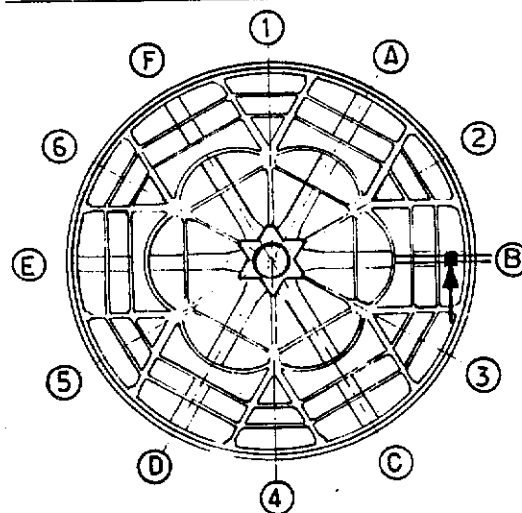
CDP 1 AS BUILT DRAWINGS

●REFERENCE DRAWING LIST FOR: CATHODIC PROTECTION

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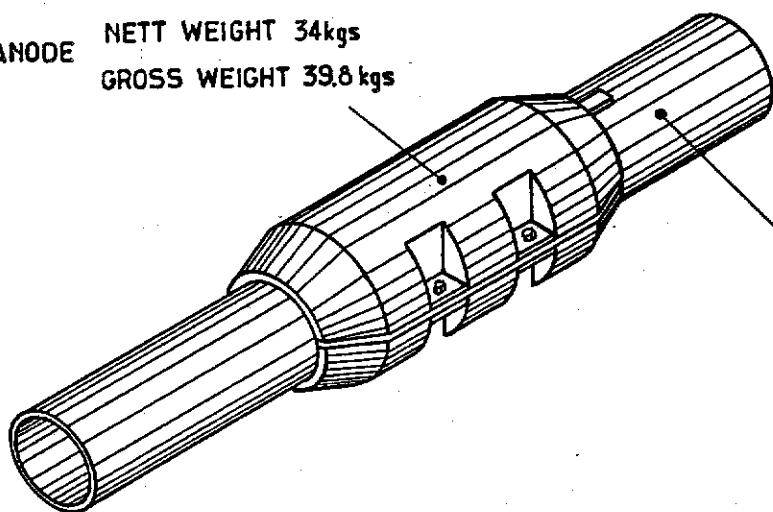
										Job no.		Installation CDP 1		System UNDERWATER					
												Scale							
Rev.		Date		DESCRIPTION		by		app.		elf aquitaine norge a/s p.o.box 168 4001 Stavanger		 elf		Dwgr. no. FF <u>1627</u>		Rev.		Sheet /	
Contractor										FRIGG FIELD									

GRID NORTH
19° 37'
PLAT. NORTH



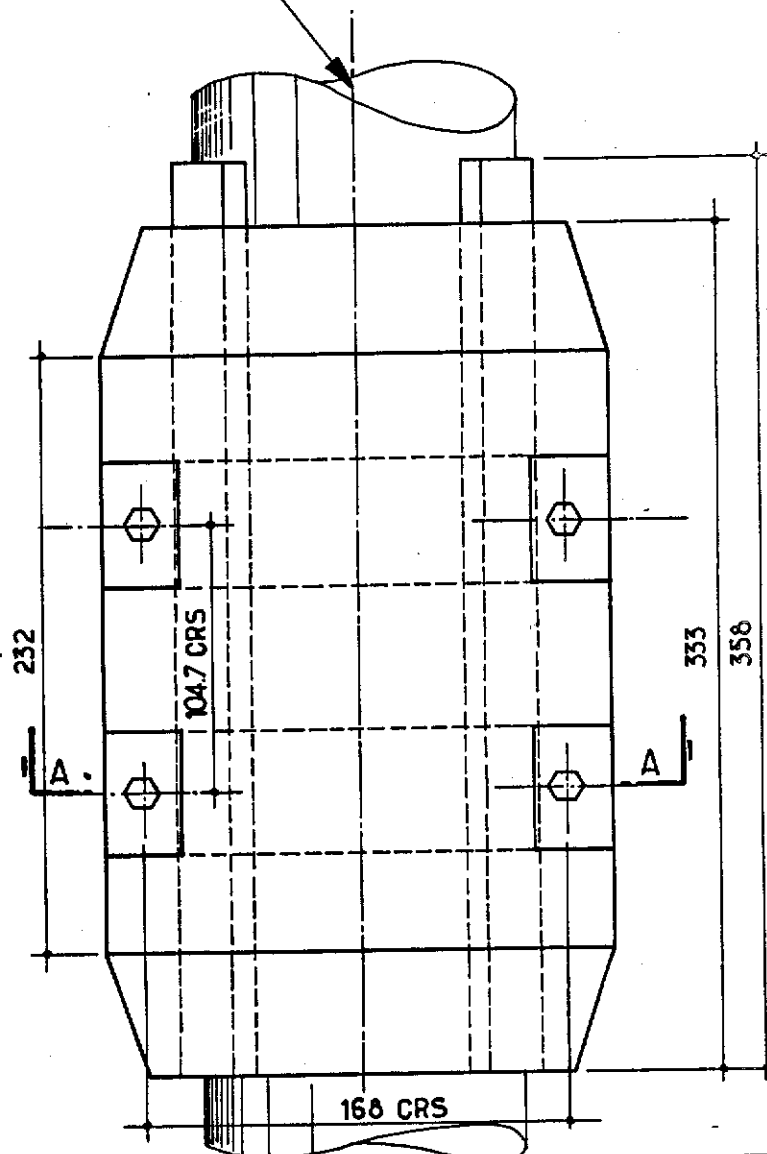
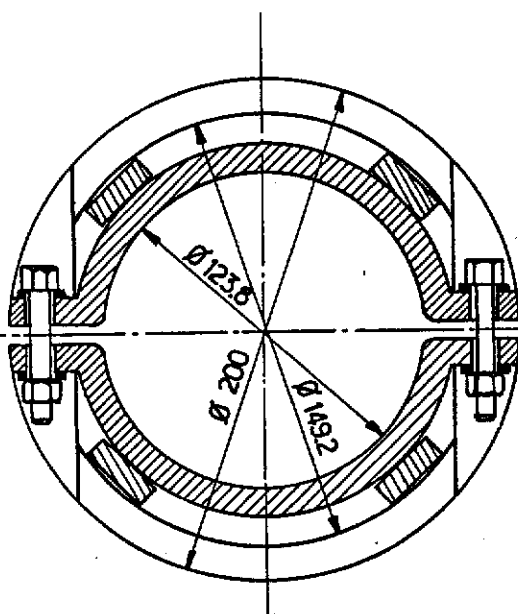
KEY PLAN

ANODE NETT WEIGHT 34kgs
GROSS WEIGHT 39.8 kgs



4" DIA RISER J5 CONDENSATE LINE

SECTION A-A



NOTES:

_ FOR LOCATION SEE SK _ FF 91.36.35.1625

			elf aquitaine norge a/s		Job no.	Installation CDP 1	System UNDERWATER
1	01 84	UPDATED	D.P. /-LL		Scale	TYPICAL ANODE FOR RISER J5 CONDENSATE LINE	
Rev.	Date	DESCRIPTION	by	app.	Dwgr. no.	FF 91-36-35-1628	Rev 1
Contractor JVD 1029.80.48			4001 Stavanger		FRIGG FIELD		Sheet

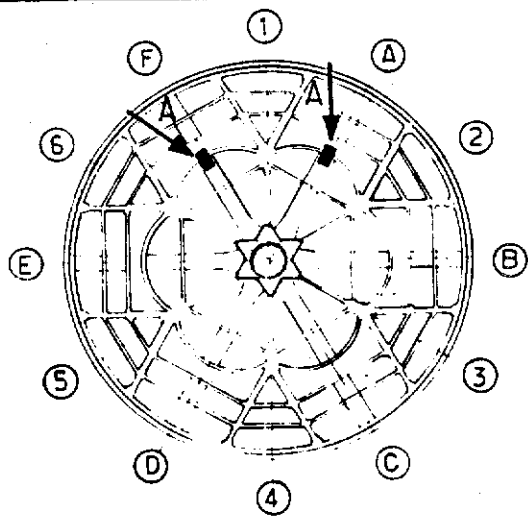
CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: CATHODIC PROTECTION

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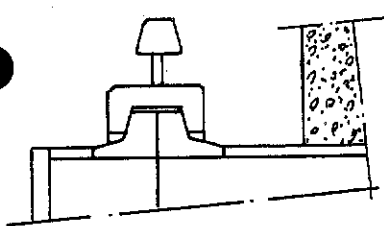
						elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER		
								Scale				
Rev.	Date	DESCRIPTION	by	app.				Dwgr. no.	FF 1628		Rev.	Sheet /
Contractor							FRIGG FIELD					

GRID NORTH
19° 37'
PLAT. NORTH

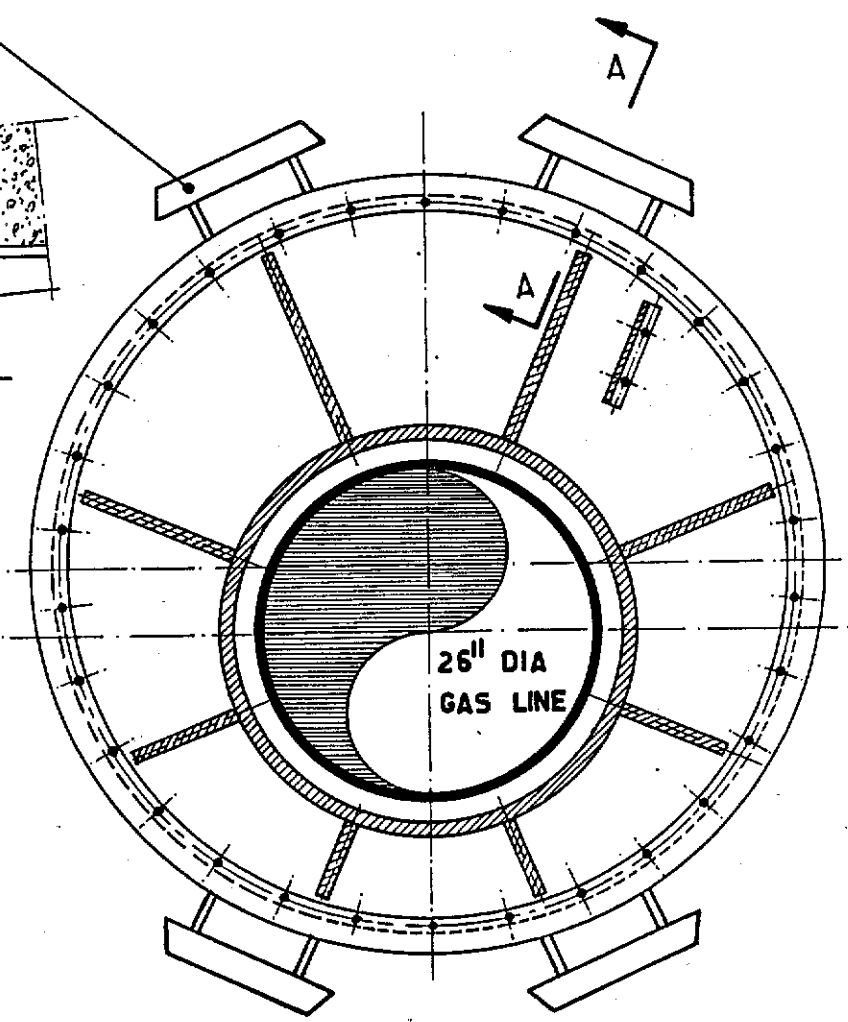


KEY PLAN

4 OFF ZINC ANODES 50 kg EACH WELDED ON CLAMP



SECTION AA



VIEW A

SEE ALSO GENERAL COMMENTS PARAGRAPH IV

					elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER	
1	1.84	UPDATED	D.P.	J.L.C.			Scale —	TYPICAL LOCATION OF ANODES OUTSIDE SEAL CAISSONS A & F		
Rev.	Date	DESCRIPTION	by	app.			Dwgr. no.		Rev.	Sheet
Contractor JVD 1029_80_49						FRIGG FIELD	FF 91-36-35-1629		1	/

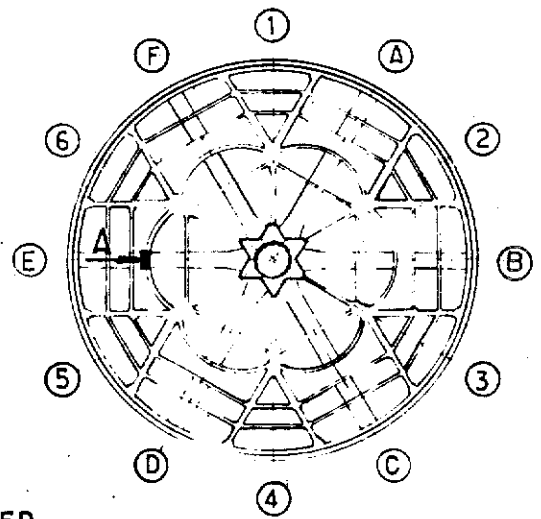
CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: *CATHODIC PROTECTION*

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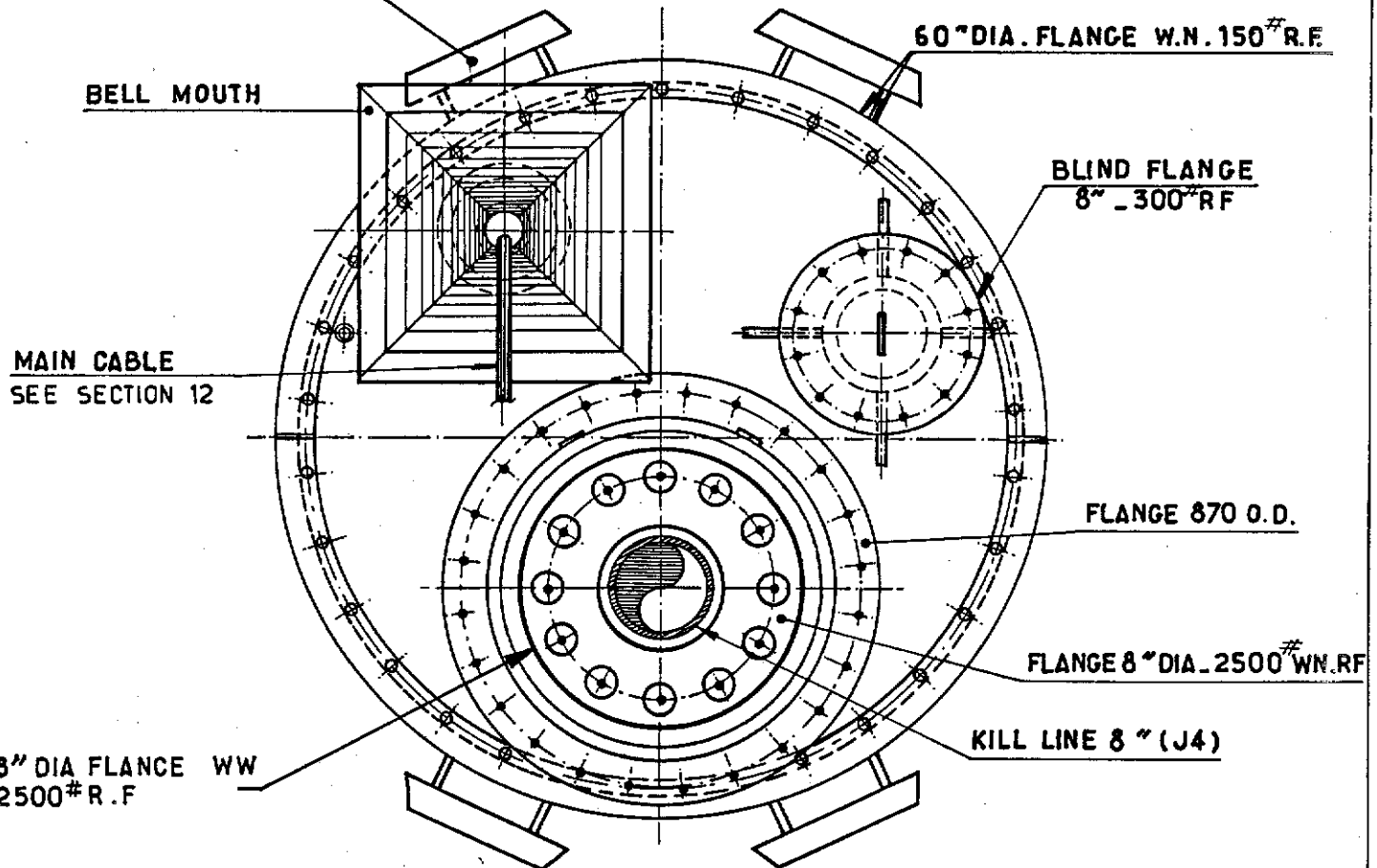
						 elf	Job no.	Installation CDP 1	System UNDERWATER		
							Scale				
Rev.	Date	DESCRIPTION	by	app.		 elf	Dwgr. no.	FF — <u>1629</u>		Rev.	Sheet /
Contractor							FRIGG FIELD				

GRID NORTH
19° 37'
PLAT. NORTH



KEY PLAN

4 OFF ZINC ANODES 50 Kg EACH WELDED TO FLANGE



VIEW "A"

NOTES:

SEE ALSO GENERAL COMMENTS. PARAGRAPH IV.
FOR SECTION THROUGH CAISSON SEE SK. FF 91.36.35.1675

		elf aquitaine norge a/s		Job no.		Installation CDP 1		System UNDERWATER	
1	01/84	UPDATED	miral JLC	p.o. box 168		Scale		TYPICAL LOCATION OF ANODES OUTSIDE SEAL CAISSON E.	
Rev.	Date	DESCRIPTION	by	app.	Dwgr. no.		FF 91.36.35.1630		1
Contractor. JVD 1029.80.50				4001 Stavanger		FRIGG FIELD			

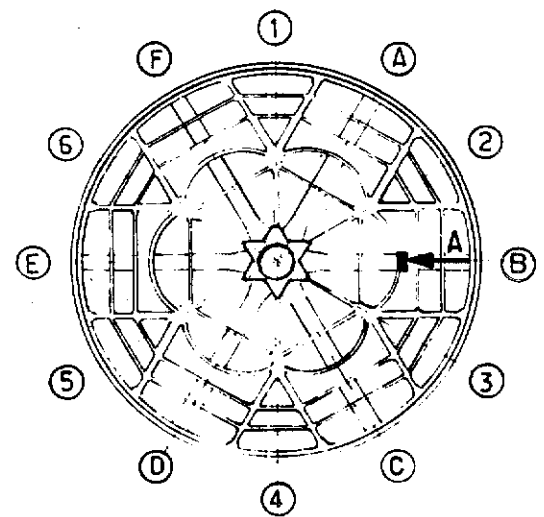
CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: *CATHODIC PROTECTION*

[illegible][illegible]

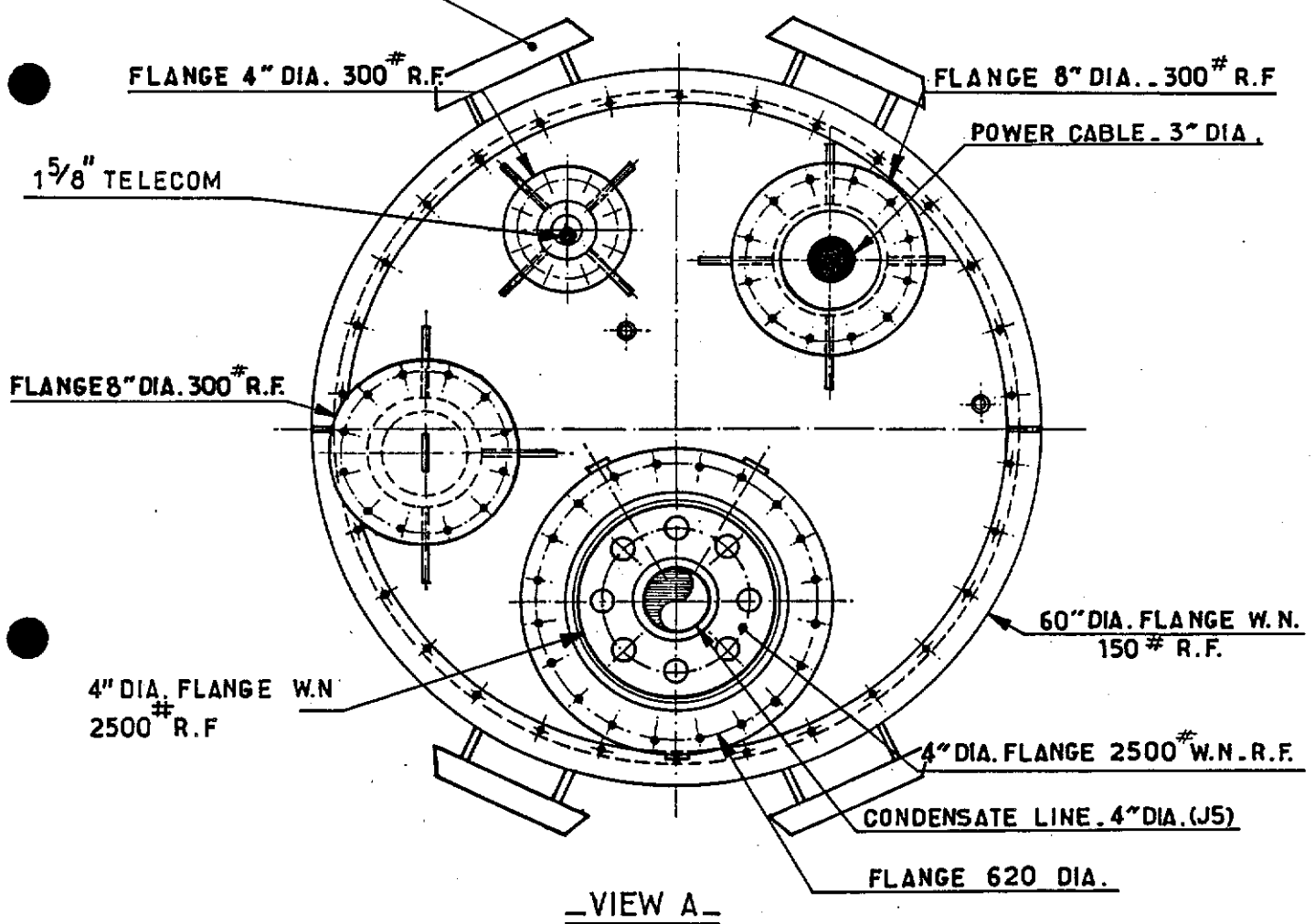
<table border="1"> <tr> <td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>Rev.</td><td>Date</td><td>DESCRIPTION</td><td>by</td><td>app.</td> </tr> </table>																				Rev.	Date	DESCRIPTION	by	app.	elf aquitaine norge a/s p.o.box 168 4001 Stavanger		 elf		Job no. Scale Dwgr. no. FF		Installation CDP 1		System UNDERWATER	
Rev.	Date	DESCRIPTION	by	app.																														
Contractor					FRIGG FIELD		1630		Rev.		Sheet /																							

NORTH
 19°37'
 PLAT. NORTH



KEY PLAN

4. OFF ZINC ANODES 50 kg EACH WELDED TO FLANGE



VIEW A

.SEE ALSO GENERAL COMMENTS PARAGRAPH IV.
 .SECTION THROUGH SEAL CAISSON SEE SK. FF 91.36-35-1661

				elf aquitaine norge a/s			Job no.	Installation CDP 1	System UNDERWATER
1	01/84	UPDATED	mirg	14C	p.o.box 168		Scale /	TYPICAL LOCATION OF ANODES OUTSIDE SEAL CAISSON B	
Rev.	Date	DESCRIPTION	by	app.	4001 Stavanger		Dwgr. no.	FF 91.36-35-1631	Rev. 1
Contractor JVD 1029-80-51.						FRIGG FIELD			

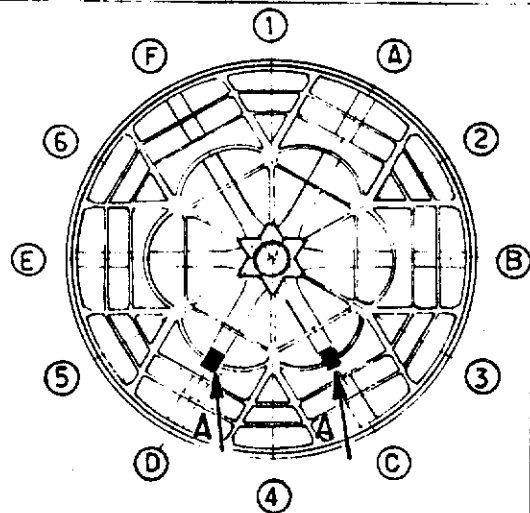
CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: *CATHODIC PROTECTION*

[illegible]

					elf aquitaine norge a/s p.o.box 168 4001 Stavanger		 elf FRIGG FIELD		Job no. Scale Dwgr. no.		Installation CDP 1		System UNDERWATER	
Rev. Date DESCRIPTION by app.					Contractor		FF 1631		Rev. Sheet					

G.R.D. NORTH
19° 37'
PLAT. NORTH



KEY PLAN

4 OFF ANODES 50 kg EACH
WELDED TO CLAMP

RING - 2100 O.D.

SEAL CAISSON
60" DIA.

2" VALVE

CLAMP - 1830 O.D.

VIEW "A"

NOTES:

- SEE ALSO GENERAL COMMENTS PARAGRAPH IV.
- FOR FRONT VIEW & SECTION SEE SK. FF. 91-36-35-1669

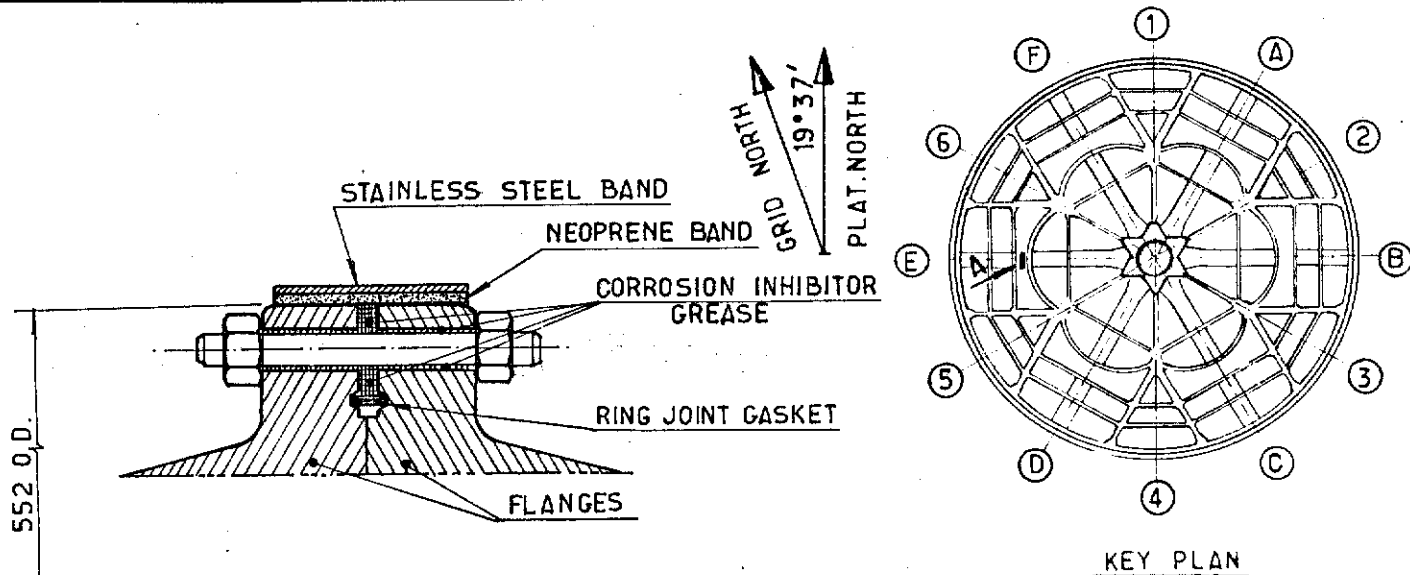
						elf aquitaine norge a/s				Job no.		Installation CDP 1		System UNDERWATER	
1	01/84	UPDATED		mrs	JLC	p.o.box 168				Scale /		TYPICAL LOCATION OF ANODES OUTSIDE SEAL CAISSONS C & D			
Rev.	Date	DESCRIPTION		by	app.	p.o.box 168				Dwgr. no.				Rev	Sheet
Contractor JVD 1029-80 _52						4001 Stavanger		FRIGG FIELD		FF		91_36_35.1632		1	/

CDP 1 AS BUILT DRAWINGS

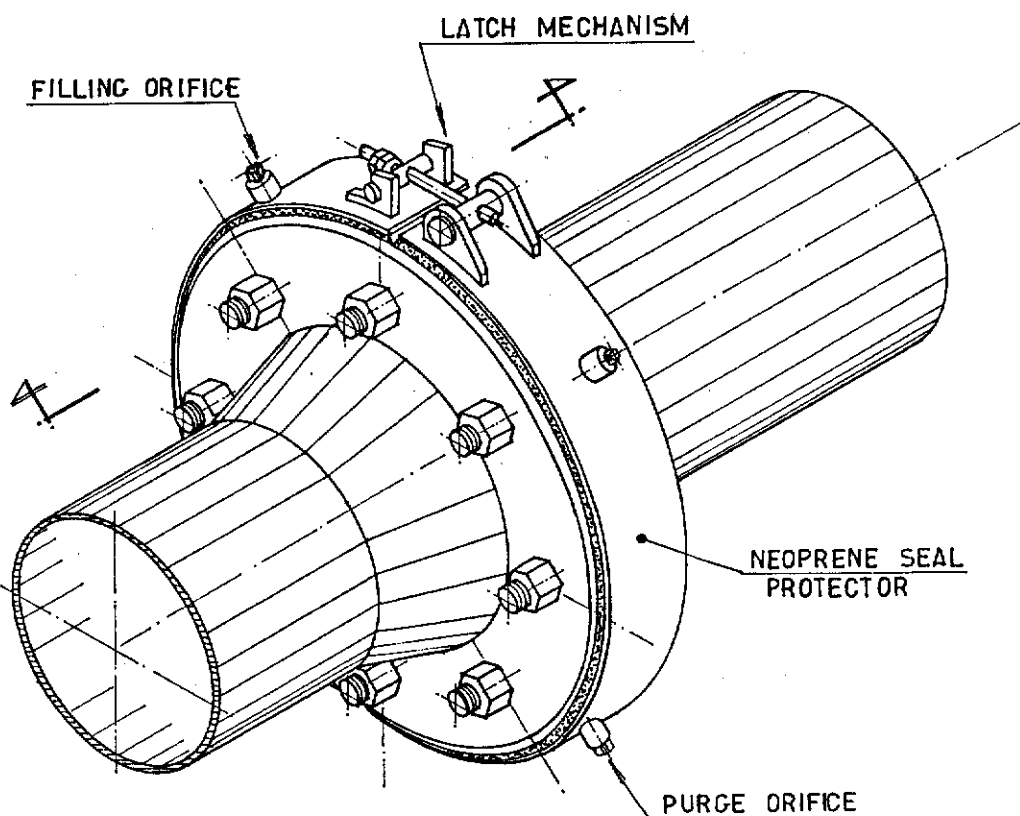
REFERENCE DRAWING LIST FOR: CATHODIC PROTECTION

[illegible]

						elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER			
								Scale					
Rev.	Date	DESCRIPTION	by	app.				Dwgr. no.	FF — 1632		Rev.	Sheet /	
Contractor							FRIGG FIELD						



SECTION B.B



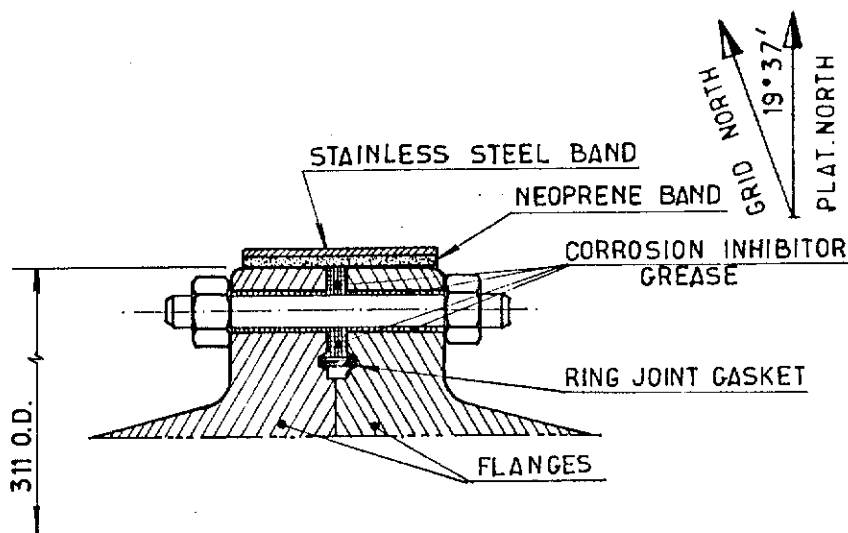
VIEW "A"

1 02/84		REDRAWN		elf aquitaine norge a/s p.o.box 168 4001 Stavanger		Job no. Installation CDP 1		System UNDERWATER	
Rev. Date		DESCRIPTION		by app.		Scale —		NEOPRENE SEAL FLANGE PROTECTOR FOR 8" DIA.	
Contractor		JVD 1029.80.53		FRIGG FIELD		Dwgr. no. FF 91.36.35.1633		Rev 1	
								Sheet /	

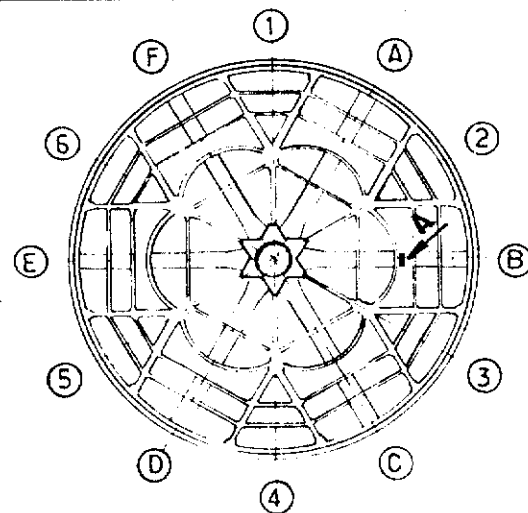
CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR:

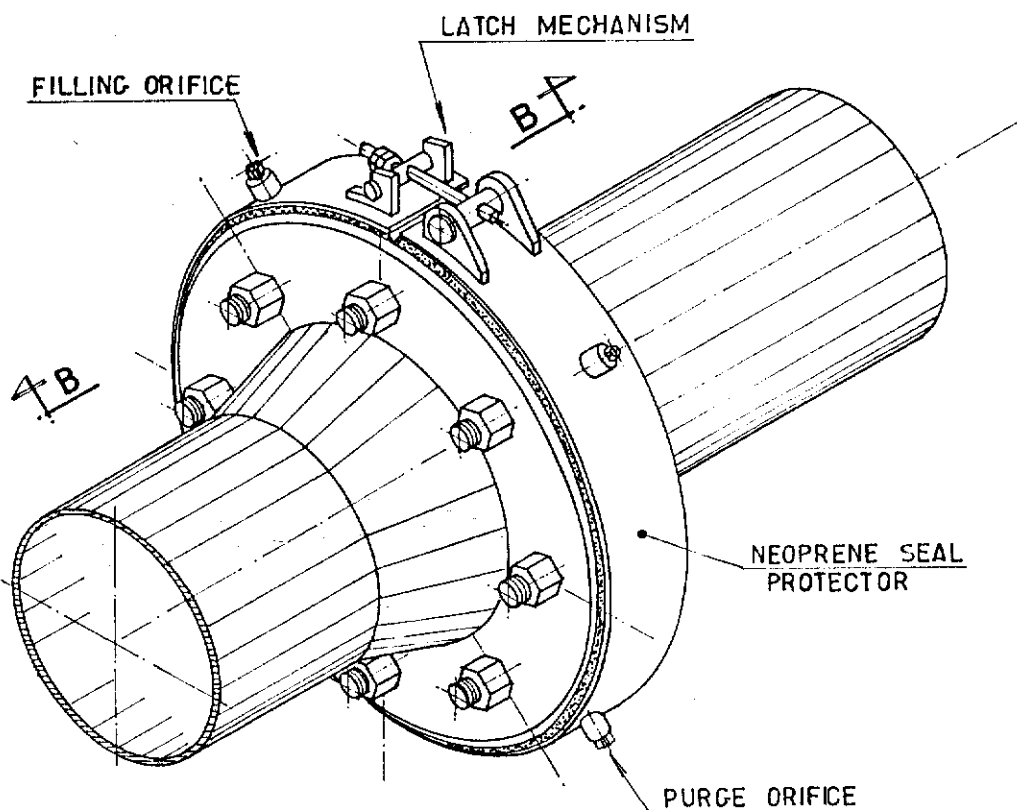
[illegible]



SECTION B. B



KEY PLAN



VIEW "A"

				elf		Job no.	Installation	System
				aquitaine			CDP 1	UNDERWATER
				norge a/s		Scale	NEOPRENE SEAL FLANGE	
				p.o. box 168			PROTECTOR FOR 4" DIA.	
				4001 Stavanger		Dwgr. no.	FF 91.36.35.1634	Rev. 1
1	02/84	REDRAWN						Sheet
Rev.	Date	DESCRIPTION	by	app.				
Contractor JVD 1029.80.54				elf		FRIGG FIELD		

CDP 1 AS BUILT DRAWINGS

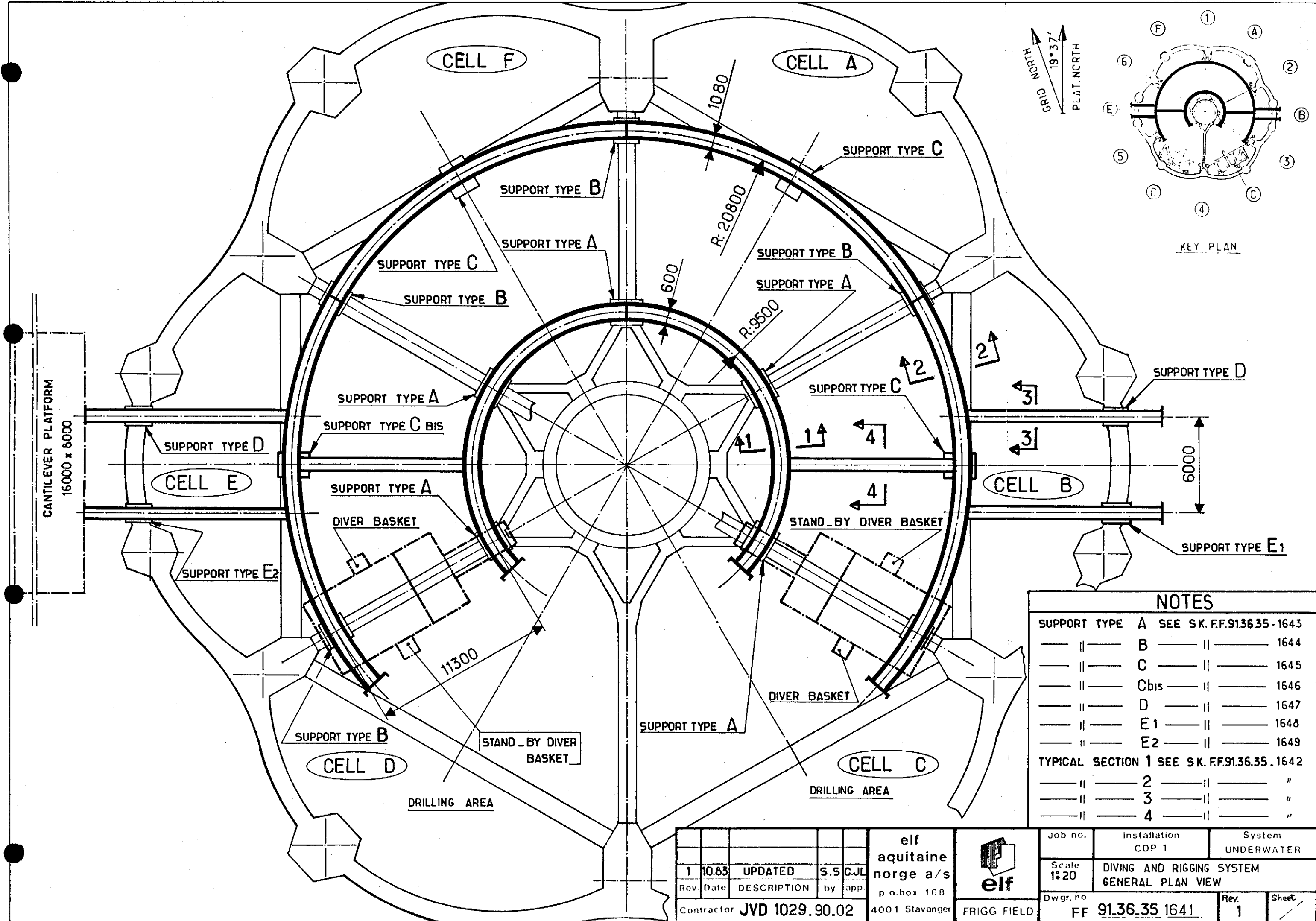
REFERENCE DRAWING LIST FOR:

[illegible]

						 elf	Job no.	Installation CDP 1	System UNDERWATER	
							Scale	NEOPRENE SEAL FLANGE PROTECTOR FOR 4" DIA.		
02/84	REDRAWN						Dwgr. no.	FF 91-36-35-1634	Rev. 1	Sheet /
Rev.	Date	DESCRIPTION	by	app.						
Contractor JVD-1029-80-54						p.o.box 168 4001 Stavanger	FRIGG FIELD			

9. DIVING MODULE RAIL

DRAWING TITLE	E.A.N DRAWING No
DIVING MODULE RAIL - ISOMETRIC	FF 91 36 35 - 1640
GENERAL PLAN VIEW	FF 91 36 35 - 1641
TYPICAL SECTIONS OF CIRCULAR AND TRANSFER RAILS	FF 91 36 35 - 1642
SUPPORT TYPE A	FF 91 36 35 - 1643
SUPPORT TYPE B	FF 91 36 35 - 1644
SUPPORT TYPE C	FF 91 36 35 - 1645
SUPPORT TYPE C BIS	FF 91 36 35 - 1646
SUPPORT TYPE D	FF 91 36 35 - 1647
SUPPORT TYPE E1	FF 91 36 35 - 1648
SUPPORT TYPE E2	FF 91 36 35 - 1649
BOLTING DETAIL FOR RAIL SUPPORTS	FF 91 36 35 - 1650
RESERVED	FF 91 36 35 - 1651
RESERVED	FF 91 36 35 - 1652
RESERVED	FF 91 36 35 - 1253
RESERVED	FF 91 36 35 - 1654



NOTES			
SUPPORT TYPE	A	SEE SK.FF.9136.35-1643	
— —	B	— —	1644
— —	C	— —	1645
— —	Cbis	— —	1646
— —	D	— —	1647
— —	E1	— —	1648
— —	E2	— —	1649
TYPICAL SECTION 1	SEE SK.FF.9136.35-1642		
— —	2	— —	"
— —	3	— —	"
— —	4	— —	"

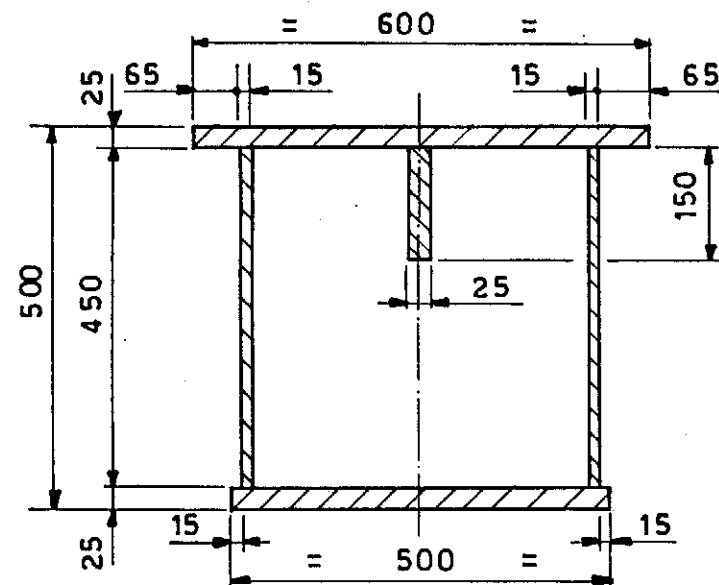
1 10.83 UPDATED S.S.C.JL				elf aquitaine norge a/s		Job no. Installation CDP 1		System UNDERWATER	
Rev. Date DESCRIPTION by app				p.o. box 168 4001 Stavanger		Scale 1:20		DIVING AND RIGGING SYSTEM GENERAL PLAN VIEW	
Contractor JVD 1029.90.02				FRIGG FIELD		Dwgr. no FF 91.36.35 1641		Rev. 1	
								Sheet 1	

CDP 1 AS BUILT DRAWINGS

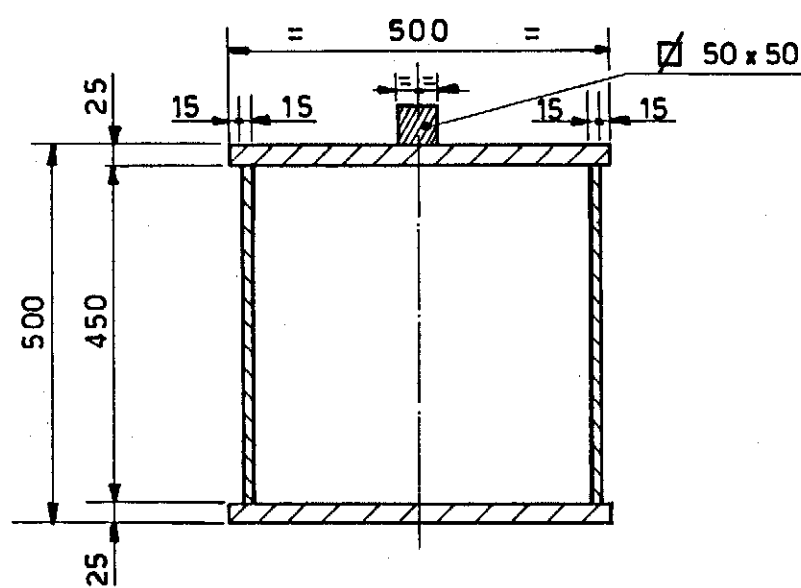
REFERENCE DRAWING LIST FOR: DIVING MODULE RAILS.

[illegible][illegible]

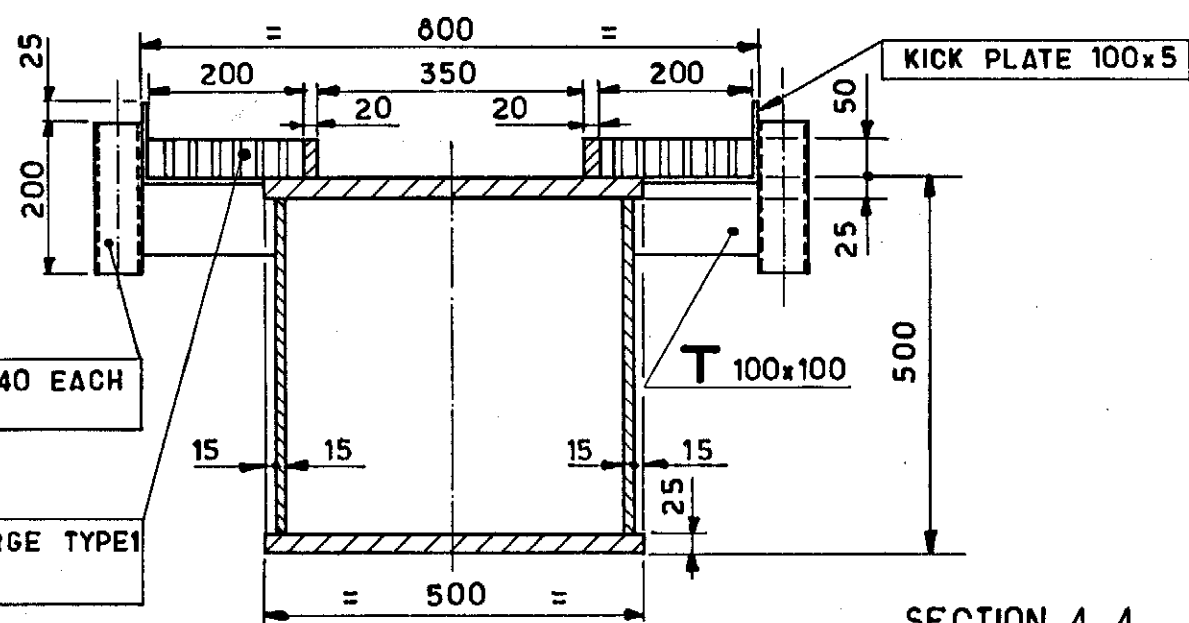
						elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER
								Scale		
Rev.	Date	DESCRIPTION	by	app.			Dwgr. no.		Rev.	Sheet
Contractor						4001 Stavanger	FF	<u>1641</u>		/



SECTION 1.1



SECTION 3.3

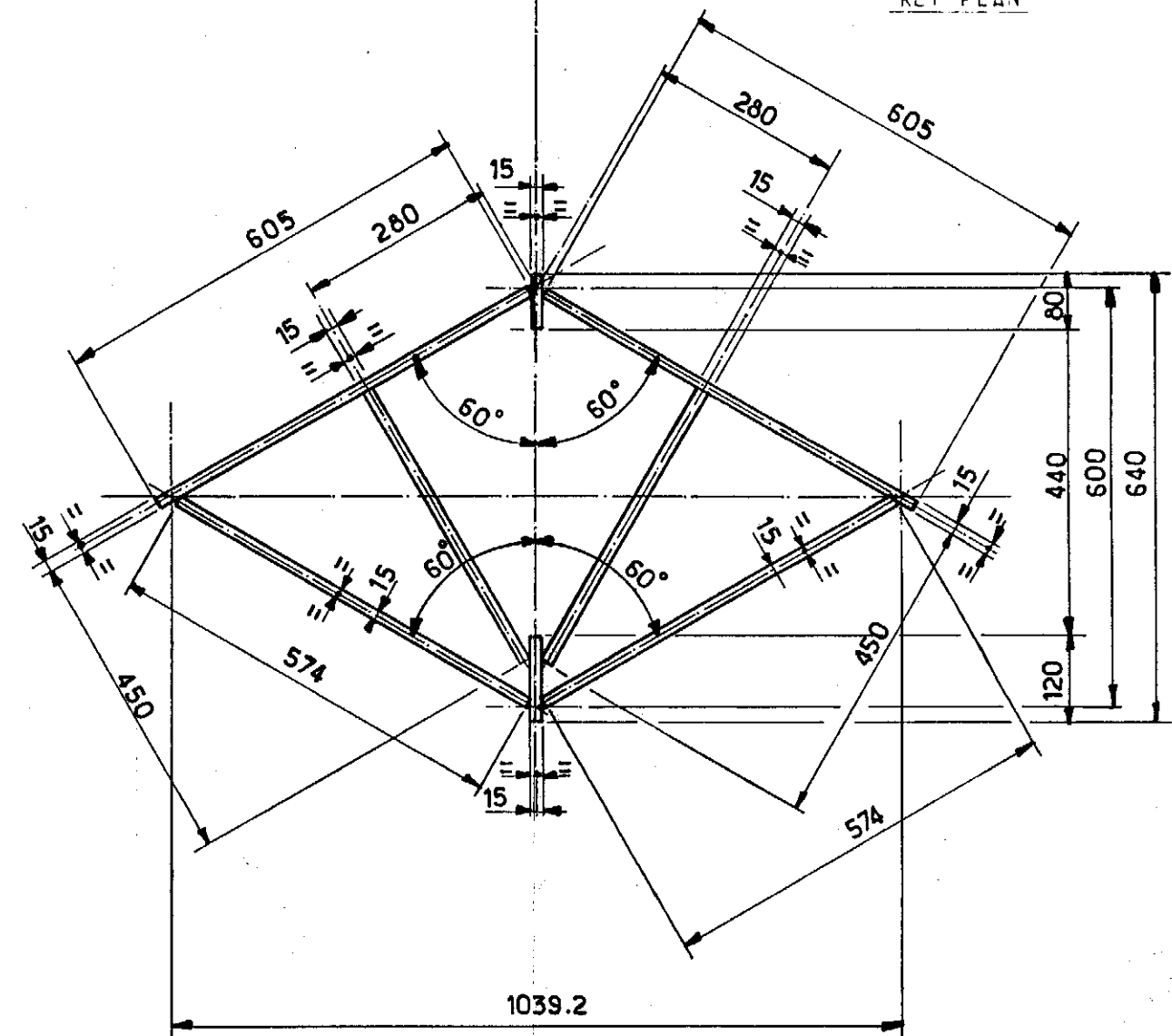
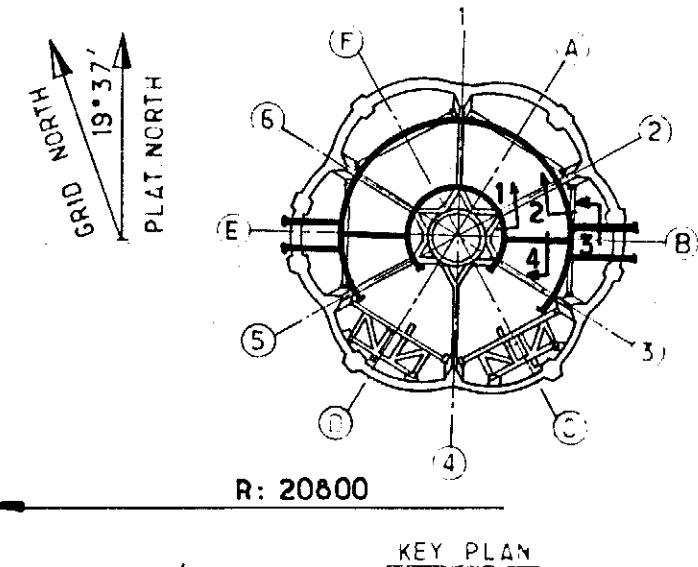


SECTION 4.4

2" DIA PIPE SCH 40 EACH
METRE

GRATING FLOWFORGE TYPE1
50 x 5

FOR LOCATION OF SECTIONS SEE SK. F.F. 91.36.35.1641



SECTION 2.2

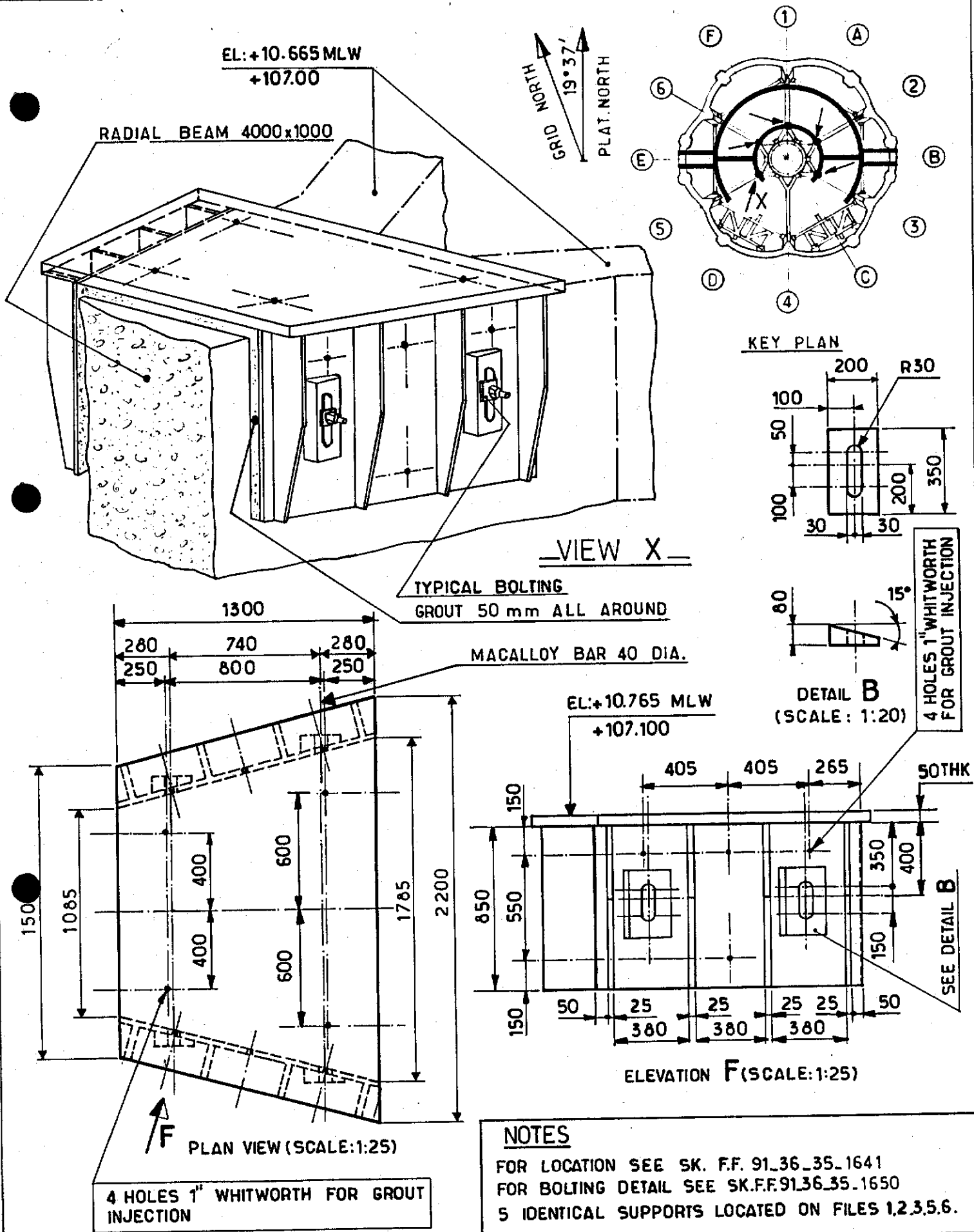
elf aquitaine norge a/s				Job no.		Installation CDP 1	System UNDERWATER
1	11.83	REDRAWN	S.S.C.JL	Scale 1:10	CIRCULAR AND TRANSFER RAILS TYPICAL SECTIONS		
Rev.	Date	DESCRIPTION	by app.	Dwgr. no.	FF 91.36.35.1642	Rev	Sheet
Contractor JVD 1029_90.03				4001 Stavanger		FRIGG FIELD	1

CDP 1 AS BUILT DRAWINGS

●REFERENCE DRAWING LIST FOR: *DIVING MODULE RAILS*

[illegible][illegible]

						Job no.	Installation CDP 1	System UNDERWATER	
						Scale			
Rev.	Date	DESCRIPTION	by	app.		Dwgr. no.			Rev.
Contractor					elf aquitaine norge a/s p.o.box 168 4001 Stavanger	FF	<u>1642</u>		/



					elf aquitaine norge a/s p.o.box 168 4001 Stavanger		 elf		Job no.		Installation CDP 1		System UNDERWATER		
1		10.83		UPDATED		S.S C.J.L		Scale AS NOTED		DIVING MODULE - RAIL SUPPORT TYPICAL SUPPORT TYPE "A"					
Rev.		Date		DESCRIPTION		by app.		Dwgr. no.		FF 91.36.35.1643		Re. 1		Sheet /	
Contractor JVD 1029.90.04								FRIGG FIELD							

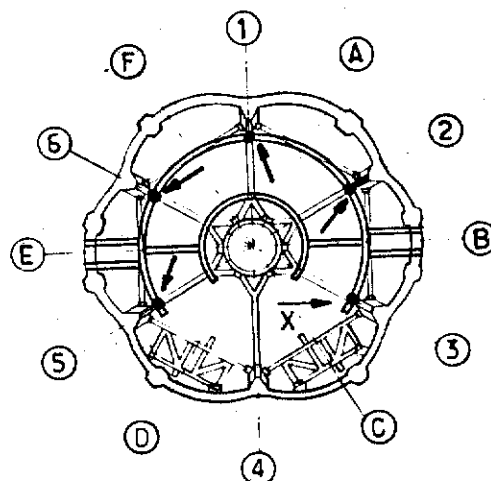
CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: *DIVING AND RIGGING SYSTEM*

[illegible][illegible][illegible]

EL: +10.665 MLW
+107.00

GRID NORTH
19° 37'
PLAT. NORTH



KEY PLAN

RADIAL BEAM 4000 x 1000

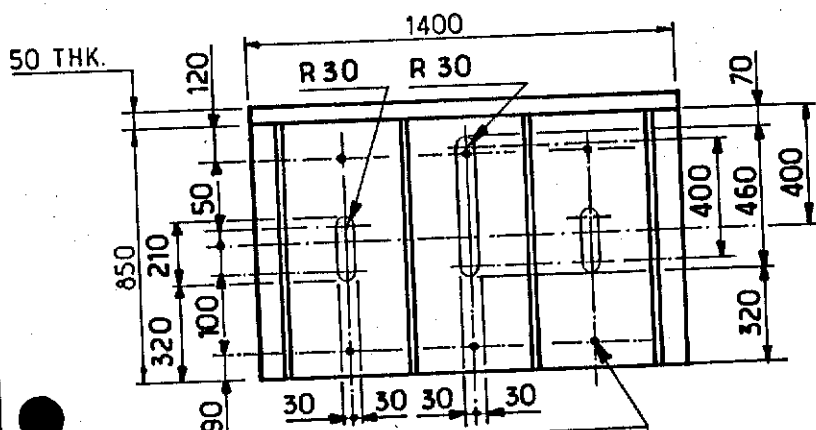
TYPICAL BOLTING

VIEW X

GROUT 50mm ALL AROUND

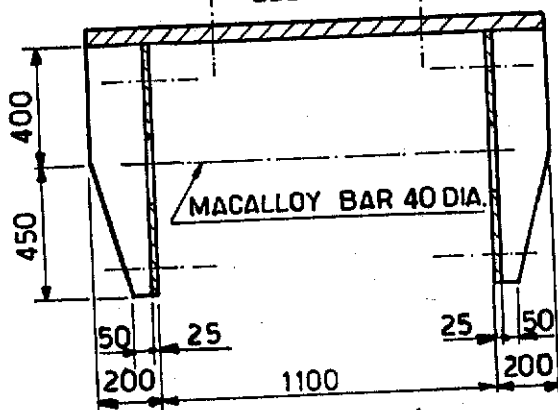
4 HOLES 1" WHITWORTH FOR GROUT INJECTION

50 THK.

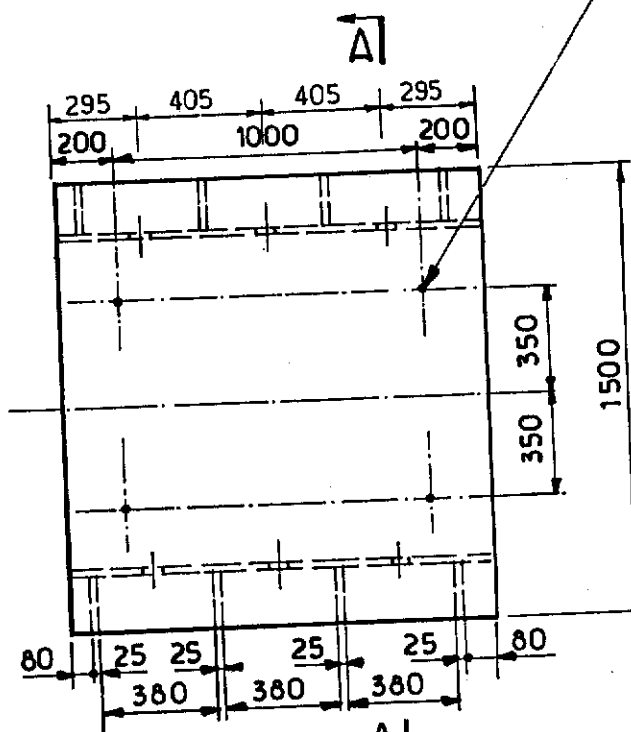


2x6 HOLES 1" WHITWORTH FOR GROUT INJECTION

ELEVATION



SECTION A A



PLAN VIEW

NOTES

FOR LOCATION SEE SK. FF.91.36.35.1641
FOR BOLTING DETAIL SEE SK. F.F. 91.36.35.1650
5 IDENTICAL SUPPORTS LOCATED ON FILES 1.2.3.5.6.

Rev.	Date	DESCRIPTION	by	app.
1	10.83	UPDATED	S.S	C.JL
Contractor JVD 1029.90.05				

elf
aquitaine
norge a/s
p.o.box 168
4001 Stavanger

elf
FRIGG FIELD

Job no.	Installation CDP 1	System UNDERWATER
Scale 1: 25	DIVING MODULE - RAIL SUPPORT TYPICAL SUPPORT TYPE "B"	
Dwgr. no. FF 91.36.35.1644	Rev 1	Sheet

CDP 1 AS BUILT DRAWINGS

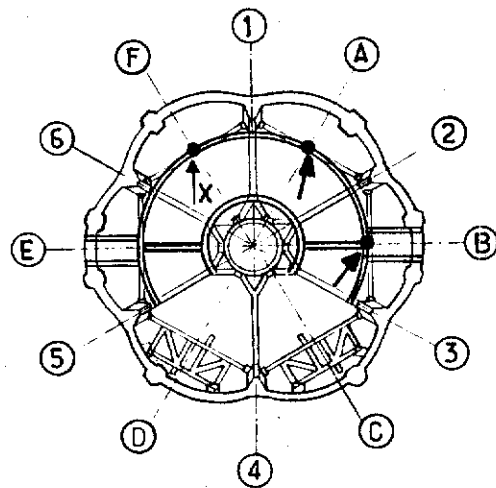
REFERENCE DRAWING LIST FOR: *DIVING AND RIGGING SYSTEM*

[illegible][illegible]

						Job no.	Installation CDP 1	System UNDERWATER	
						Scale			
Rev.	Date	DESCRIPTION	by	app.		Dwgr. no			
						FF <u>1644</u>			
Contractor					4001 Stavanger	FRIGG FIELD			

EL: +105.10 MLW
+8.765

GRID NORTH
19°37'
PLAT. NORTH



KEY PLAN

—VIEW X—

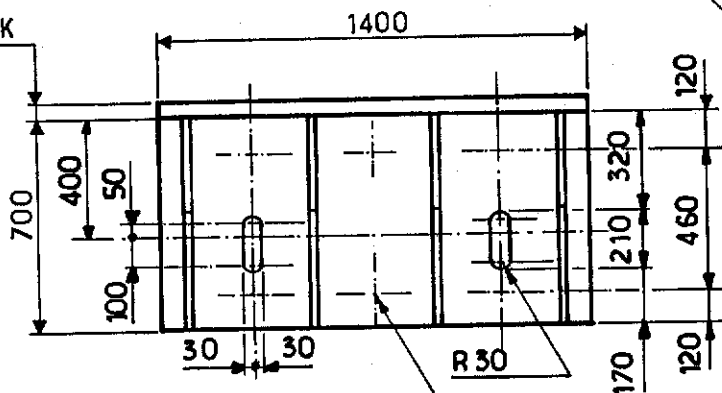
TYPICAL BOLTING

RADIAL BEAM 1600x1200

GROUT 50 mm ALL AROUND

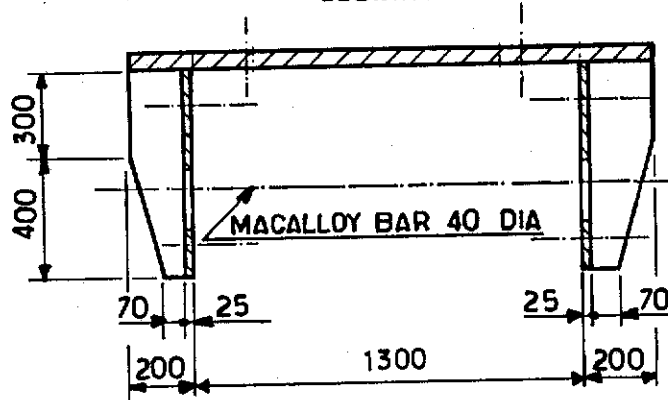
4 HOLES 1" WHITWORTH FOR GROUT INJECTION

50 THK

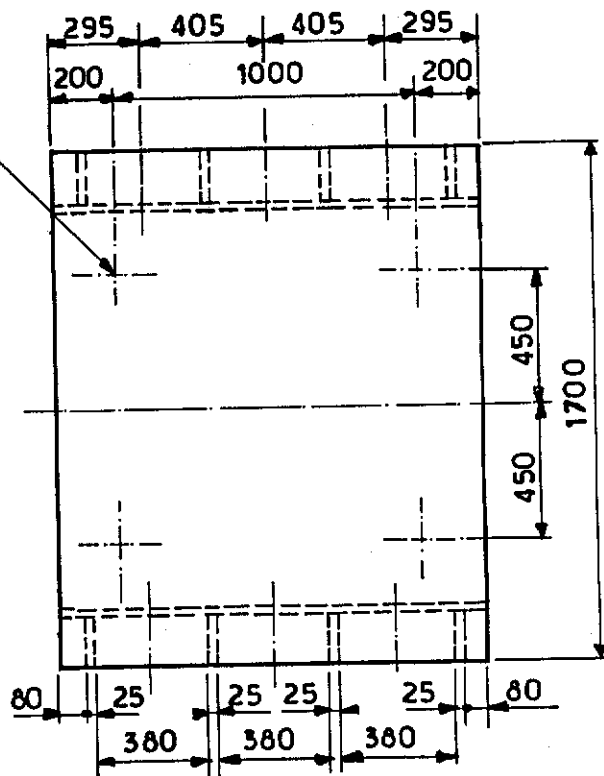


2x6 HOLES 1" WHITWORTH FOR GROUT INJECTION

ELEVATION



SECTION A A



PLAN VIEW

NOTES

FOR LOCATION SEE SK. FF. 91.36.35.1641
FOR BOLTING DETAIL SEE SK. FF. 91.36.35.1650
3 IDENTICAL SUPPORT LOCATED ON FILES A.B.C.

Rev.	Date	DESCRIPTION	by	app.
1	10.83	UPDATED	S.S	C.J.L
Contractor	JVD	1029.90.06		

elf
aquitaine
norge a/s
p.o. box 168
4001 Stavanger



FRIGG FIELD

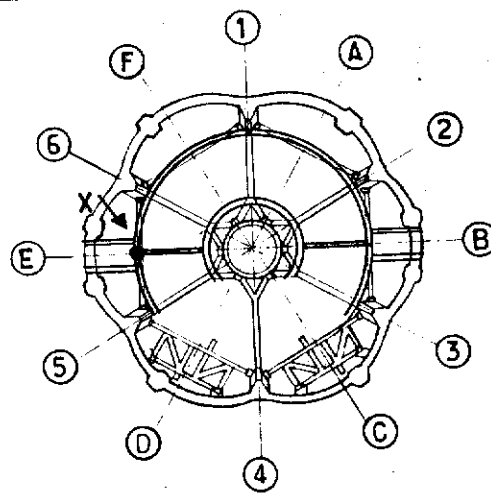
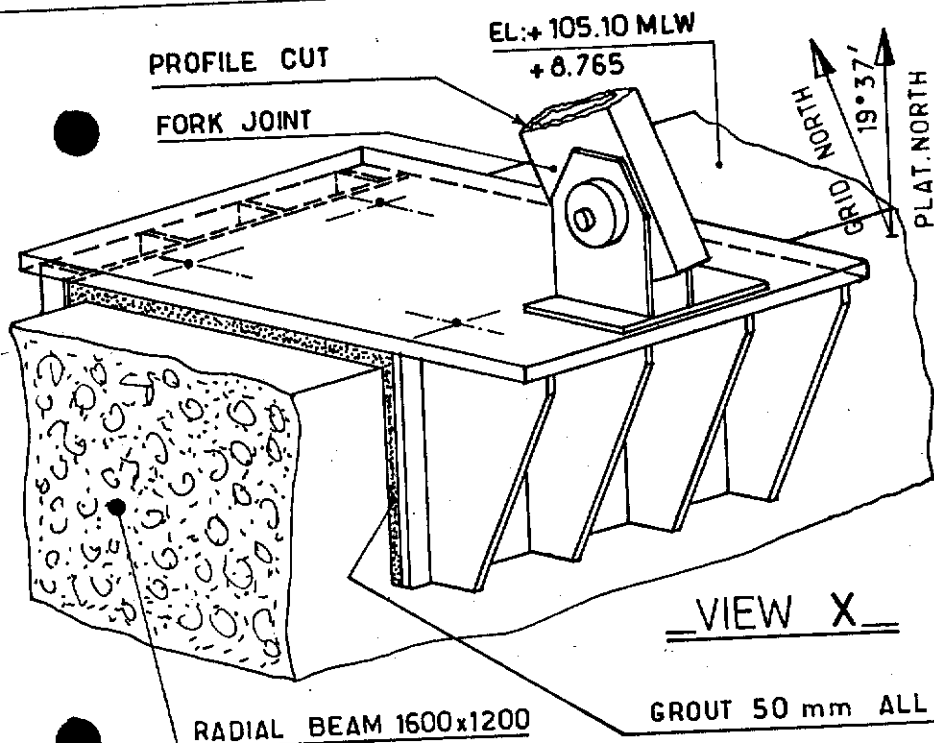
Job no.	Installation	System
	CDP 1	UNDERWATER
Scale	DIVING MODULE RAIL SUPPORT TYPICAL SUPPORT TYPE " C "	
1:25		
Dwgr. no.	Rev	Sheet
FF 91.36.35.1645	1	

CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: *DIVING AND RIGGING SYSTEM*

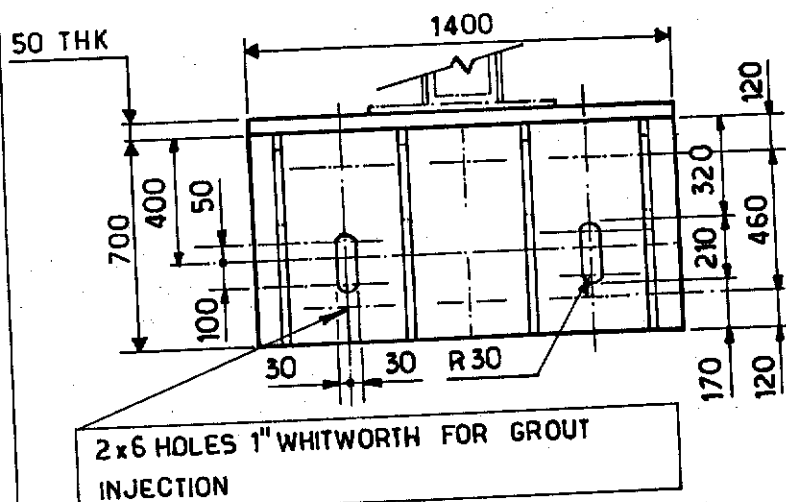
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						elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER		
								Scale				
Rev.	Date	DESCRIPTION	by	app.				Dwgr. no.	FF <u>1645</u>		Rev.	Sheet /
Contractor							FRIGG FIELD					

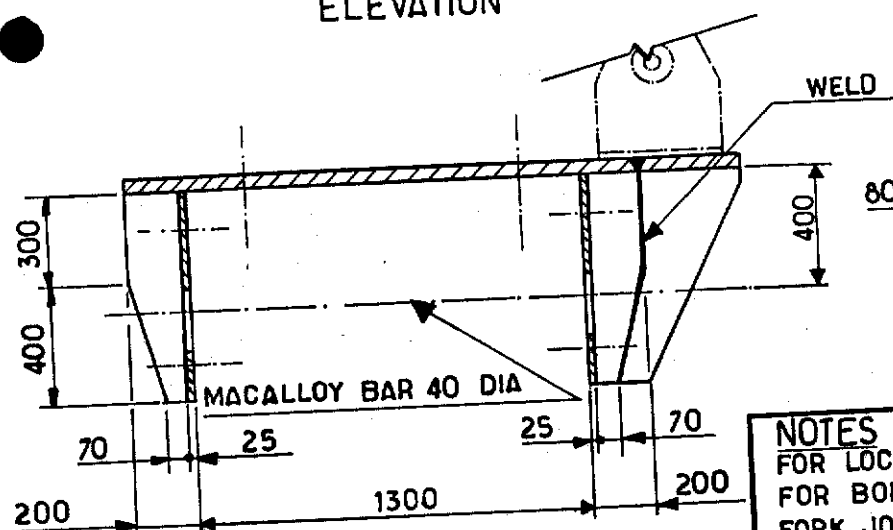


KEY PLAN

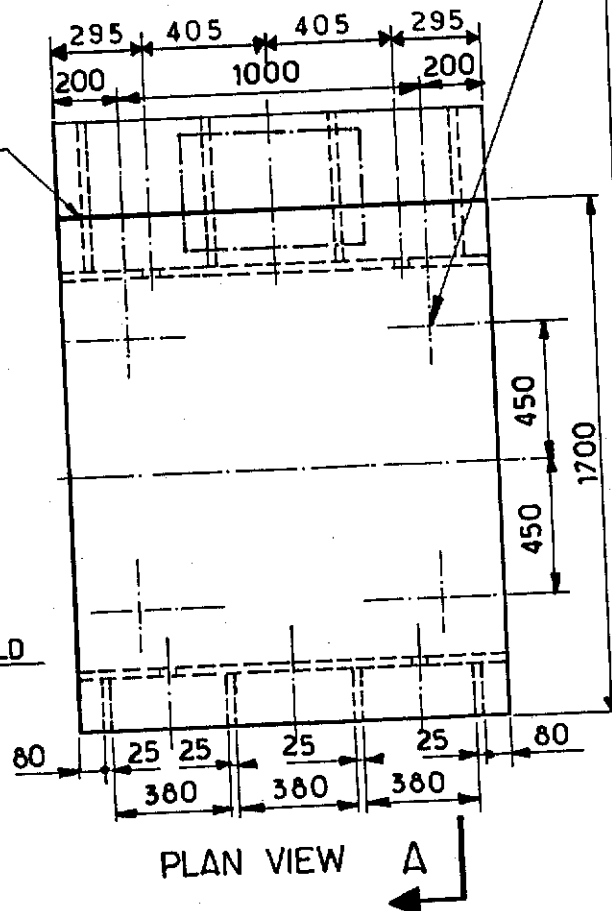
4 HOLES 1" WHITWORTH FOR GROUT INJECTION



ELEVATION



SECTION A A



NOTES

FOR LOCATION SEE SK.F.F.91.36.35.1641
FOR BOLTING DETAIL SEE SK.F.F.91.36.35.1650
FORK JOINT HAS BEEN DRAWN FROM PICTURE AS
NO DRAWING WAS FOUND

Rev.	Date	DESCRIPTION	by	app.
1	10.83	UPDATED	S.S.C.JL	
Contractor JVD 1029.90.07				

elf
aquitaine
norge a/s
p.o. box 168
4001 Stavanger



FRIGG FIELD

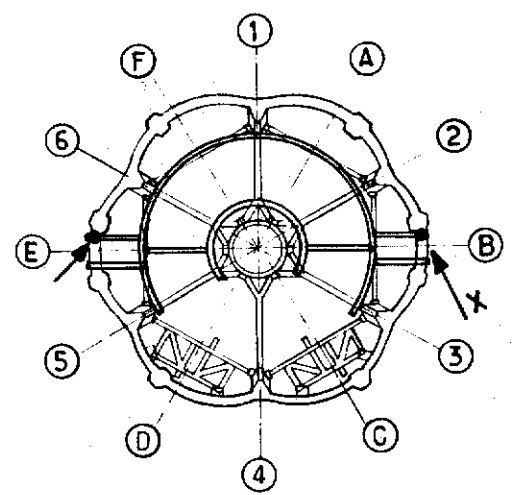
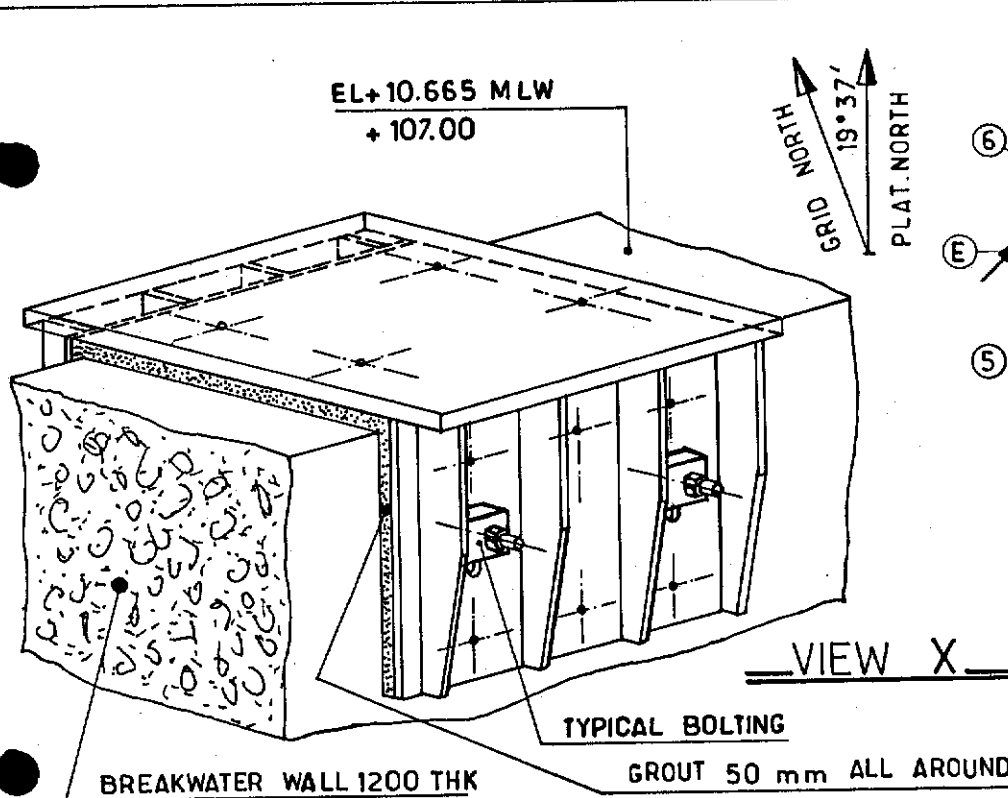
Job no.	Installation	System
	CDP 1	UNDERWATER
Scale	DIVING MODULE - RAIL SUPPORT	
1:25	TYPICAL SUPPORT TYPE "Cbis"	
Dwgr. no.	Rev	Sheet
FF 91.36.35.1646	1	

CDP 1 AS BUILT DRAWINGS

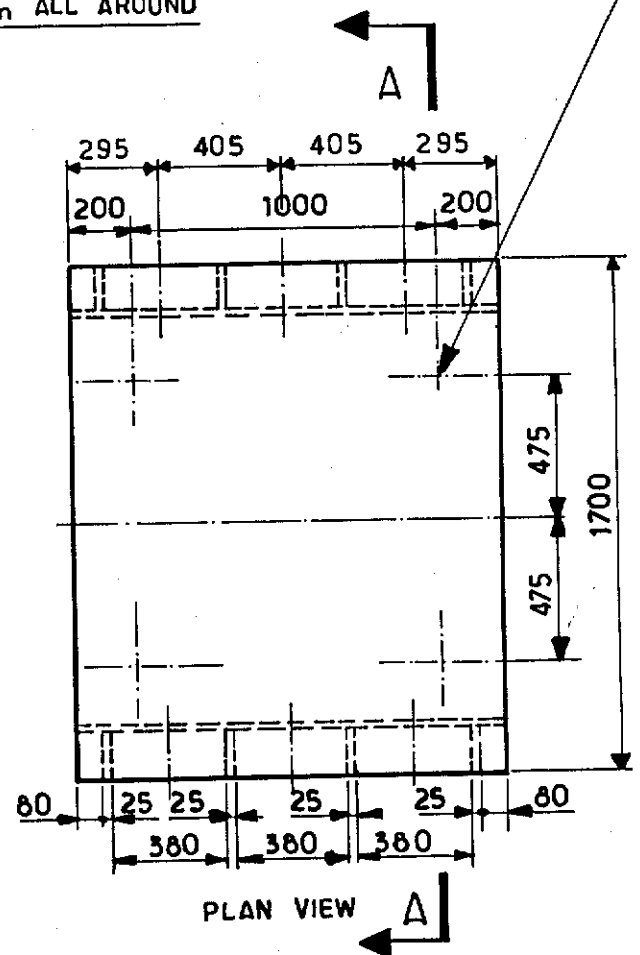
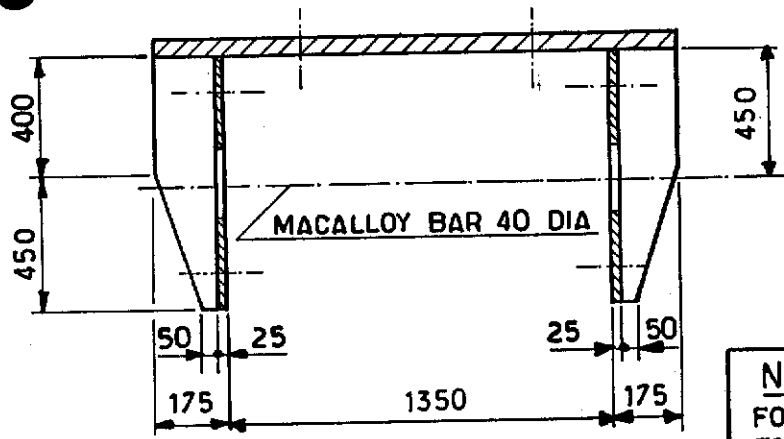
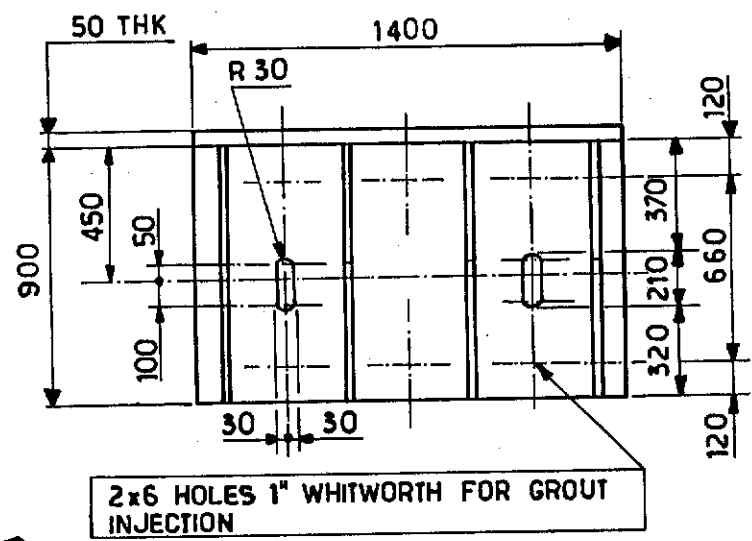
● REFERENCE DRAWING LIST FOR: *DIVING AND RIGGING SYSTEM*

[illegible][illegible]

							Job no.	Installation CDP 1	System UNDERWATER		
							Scale				
Rev.	Date	DESCRIPTION	by	app.			Dwgr. no.	FF — <u>1646</u>		Rev	Sheet /
Contractor								FRIGG FIELD			



4 HOLES 1" WHITWORTH FOR GROUT INJECTION



NOTES

FOR LOCATION SEE SK.F.F.91.36_35.1641
FOR BOLTING DETAIL SEE S.K.F.F.91.36_35.1650
1 SUPPORT AS DRAWN (CELL B)
1 SYMMETRICAL SUPPORT (CELL E)

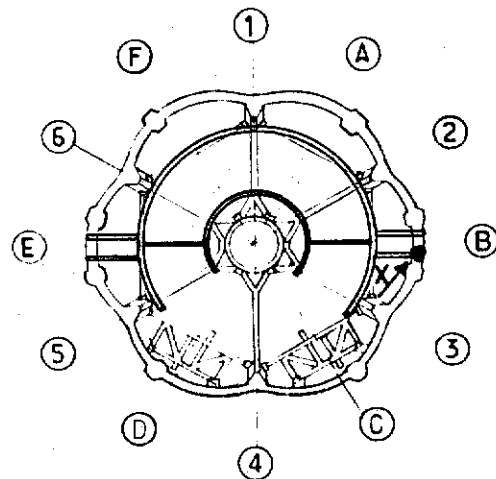
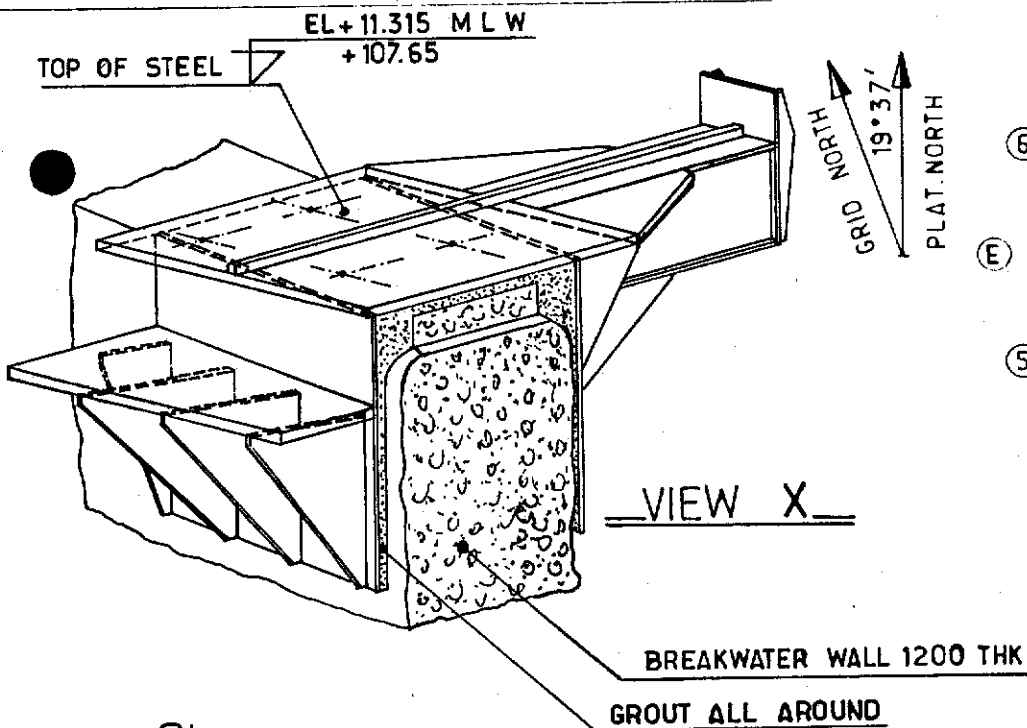
					elf aquitaine norge a/s p.o.box 168 4001 Stavanger		 elf FRIGG FIELD		Job no.		Installation CDP 1		System UNDERWATER				
1		10.83		UPDATED		S.S		C.J.L		Scale 1:25		DIVING MODULE, RAIL SUPPORT TYPICAL SUPPORT TYPE "D"					
Rev.		Date		DESCRIPTION		by		app.		Dwgr. no.		FF 91.36.35.1647		Rev 1		Sheet /	
Contractor JVD 1029.90.08																	

CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: *DIVING AND RIGGING SYSTEM*

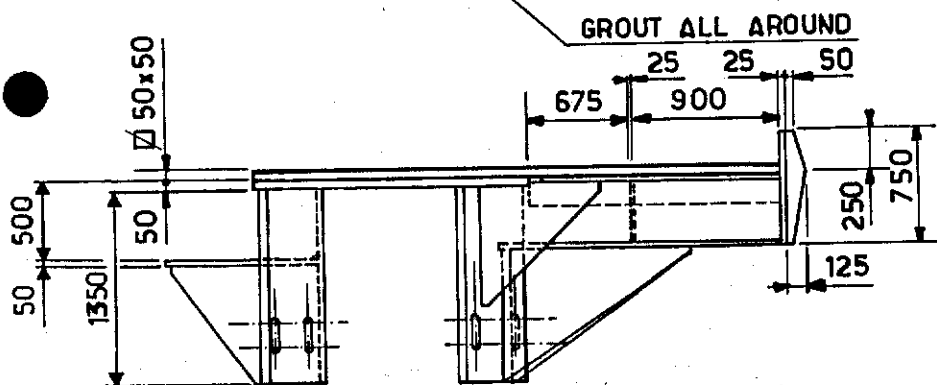
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						Job no.	Installation CDP 1	System UNDERWATER	
						Scale			
Rev.	Date	DESCRIPTION	by	app.		Dwgr. no.	Rev		Sheet
Contractor						FRIGG FIELD	FF	1647	



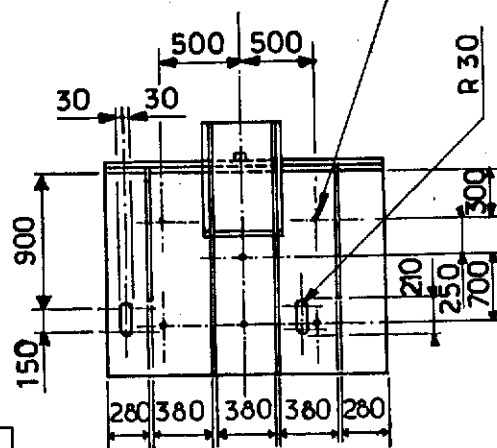
KEY PLAN

2x6 HOLES 1" WHITWORTH
FOR GROUT INJECTION

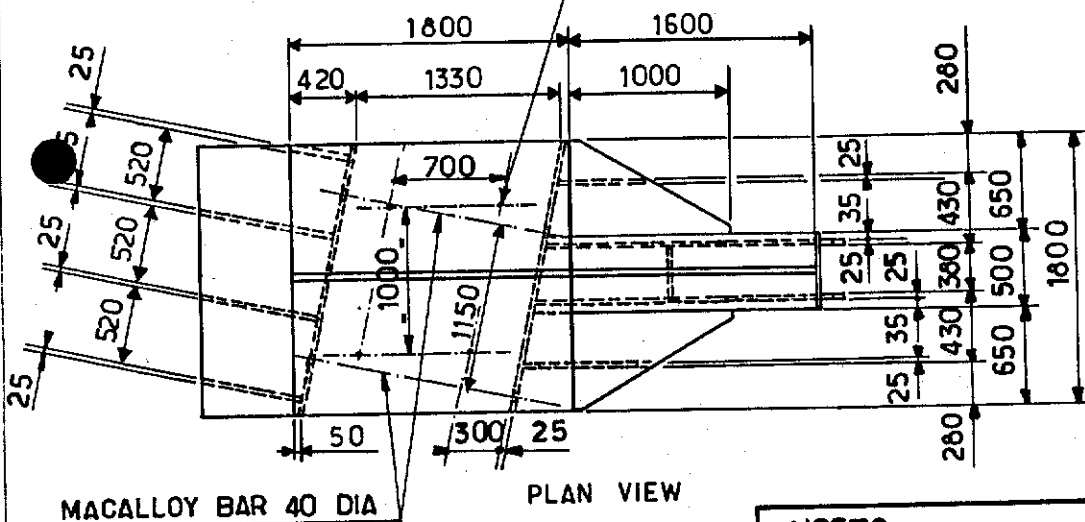


ELEVATION

4 HOLES 1" WHITWORTH FOR
GROUT INJECTION



VIEW A



PLAN VIEW

MACALLOY BAR 40 DIA

NOTES

FOR LOCATION SEE SK.FF.91.36.35.1641
FOR BOLTING DETAIL SEE SK.F.F.91.36.35.1650

					elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER	
1	10.83	UPDATED	S.S.	C-JL			Scale 1:50	DIVING MODULE - RAIL SUPPORT SUPPORT TYPE "E1"		
Rev.	Date	DESCRIPTION	by	app.			Dwgr. no.	FF 91.36.35.1648	Rev. 1	Sheet /
Contractor JVD 1029.90.09						FRIGG FIELD				

CDP 1 AS BUILT DRAWINGS

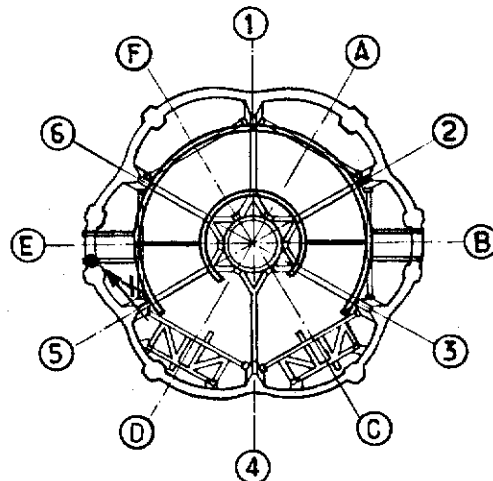
REFERENCE DRAWING LIST FOR: *DIVING AND RIGGING SYSTEM*

[illegible][illegible]

				elf aquitaine norge a/s p.o.box 168 4001 Stavanger		 elf		Job no.		Installation CDP 1		System UNDERWATER	
								Scale					
Rev.		Date		DESCRIPTION		by		app.		Dwgr. no.		Rev	
										FF — <u>1648</u>		Sheet /	
Contractor						FRIGG FIELD							

TOP OF STEEL $\rightarrow$ EL+11.315 M L W
+107.65

GRID NORTH
19°37'
PLAT. NORTH



KEY PLAN

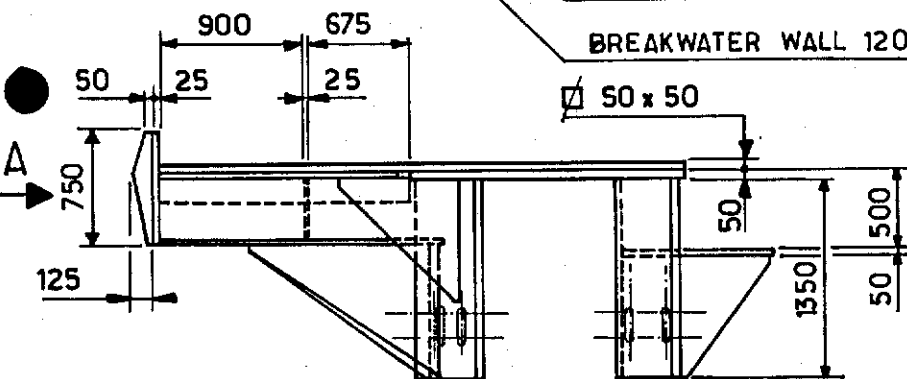
VIEW X

GROUT ALL AROUND

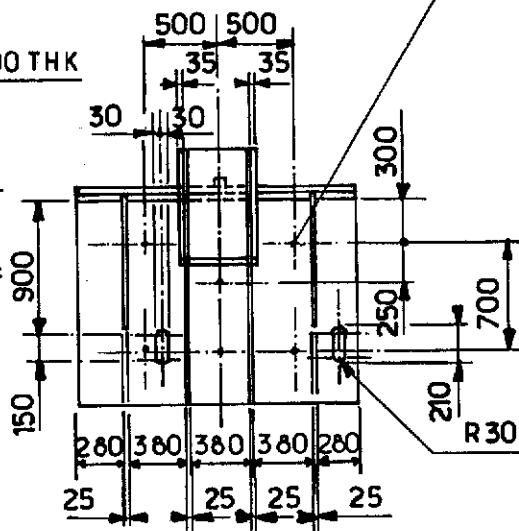
BREAKWATER WALL 1200 THK

50 x 50

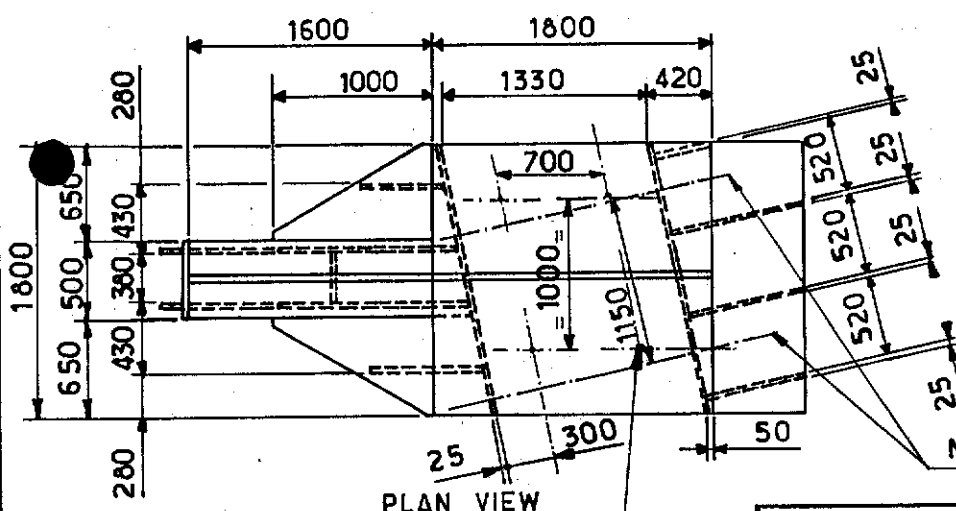
2x6 HOLES 1" WHITWORTH FOR GROUT INJECTION



ELEVATION



VIEW A



PLAN VIEW

MACALLOY BAR 40 DIA

4 HOLES 1" WHITWORTH FOR GROUT INJECTION

NOTES

FOR LOCATION SEE SK.F.F.91.36.35.1641

FOR BOLTING DETAIL SEE SK.F.F.91.36.35.1650

					elf aquitaine norge a/s p.o.box 168 4001 Stavanger	 elf	Job no.	Installation CDP 1	System UNDERWATER		
1	10.83	UPDATED	S.S	C.JL			Scale 1:50	DIVING MODULE - RAIL SUPPORT SUPPORT TYPE "E2"			
Rev.	Date	DESCRIPTION	by	app.			Dwgr. no.	FF 91_36_35_1649		Rev	Sheet
Contractor JVD 1029.90.10							FRIGG FIELD		1		/

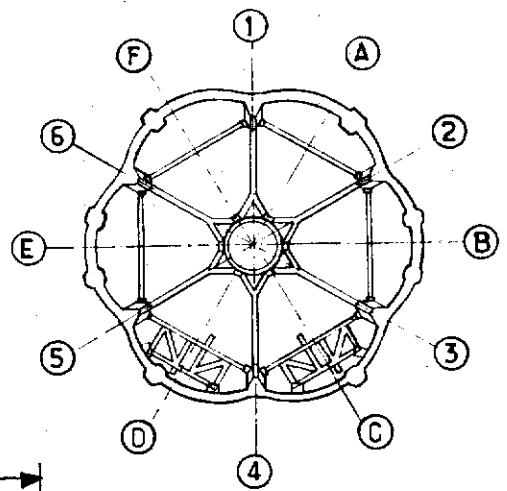
CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: *DIVING AND RIGGING SYSTEM*

[illegible][illegible]

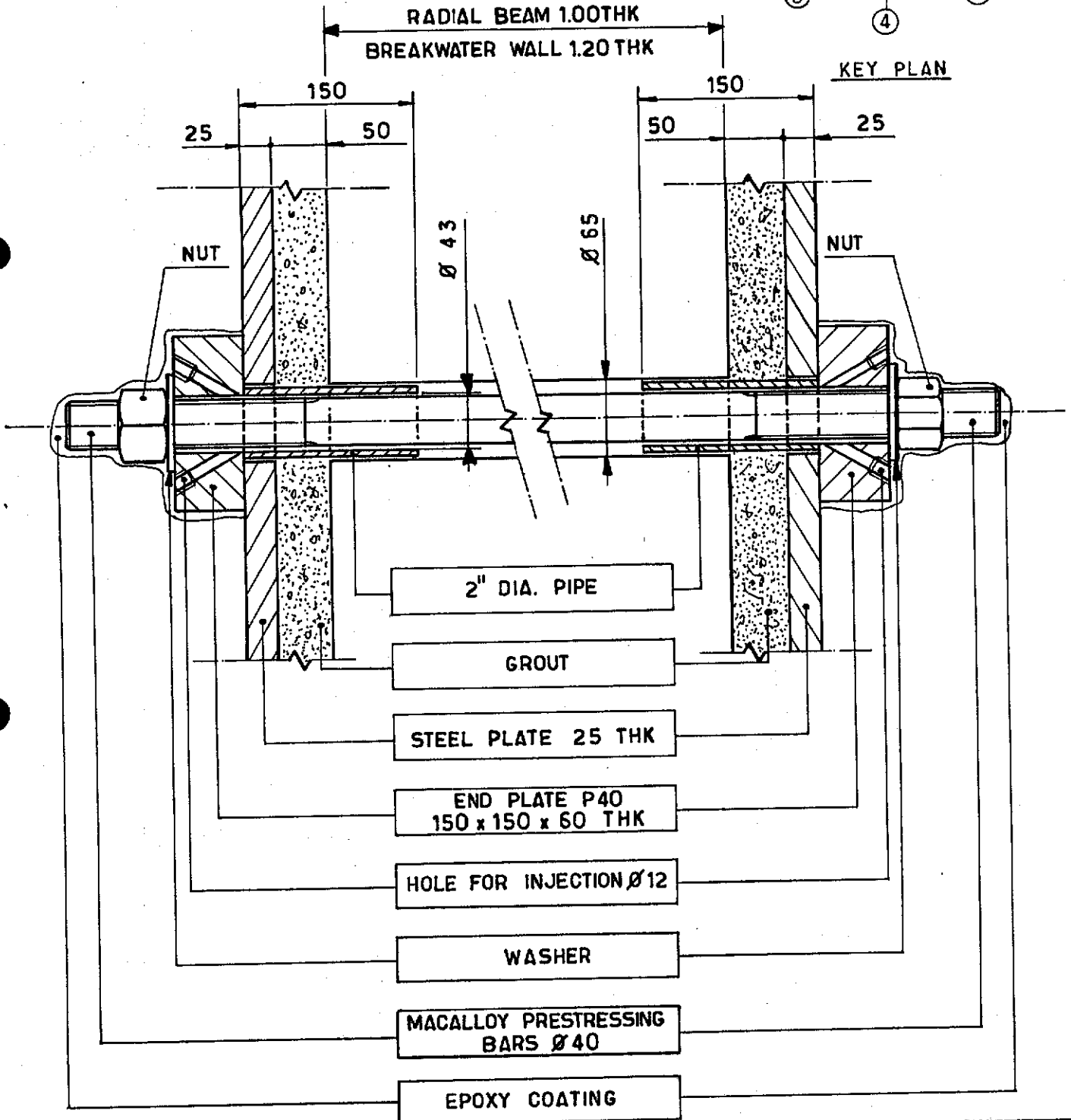
					 elf	Job no.	Installation CDP 1	System UNDERWATER		
						Scale				
Rev.	Date	DESCRIPTION	by	app.	 elf	Dwgr. no.			Rev.	Sheet
Contractor						4001 Stavanger	FF	<u>1649</u>		

GRD NORTH
19°37'
PLAT. NORTH



RADIAL BEAM 1.00THK
BREAKWATER WALL 1.20 THK

KEY PLAN



				elf aquitaine norge a/s		Job no.	Installation CDP 1	System UNDERWATER
1	11.83	REDRAWN	S.S JLC	p.o.box 168		Scale 1:5	BOLTING DETAIL FOR RAIL SUPPORTS	
Rev.	Date	DESCRIPTION	by	app.		Dwgr. no.	Rev	Sheet
Contractor	JVD 1029	90 11			4001 Stavanger	FF 91.36.35.1650	1	

CDP 1 AS BUILT DRAWINGS

REFERENCE DRAWING LIST FOR: DIVING MODULE RAIL

[illegible][illegible]

						 elf	Job no.	Installation CDP 1	System UNDERWATER	
							Scale			
Rev.	Date	DESCRIPTION	by	app.	p.o.box 168		Dwgr. no.		Rev.	Sheet
Contractor					4001 Stavanger	FRIGG FIELD	FF	<u>1650</u>		/