elf aquitaine norge a/s

CDP 1

SUBSEA

AS BUILT FILE

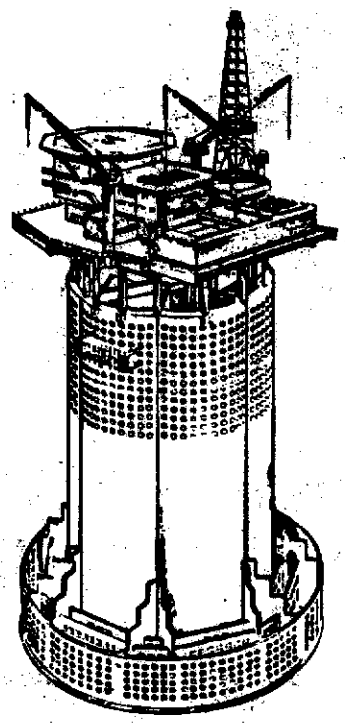
VOLUME 1

elf aquitaine norge a/s

FRIGG FIELD BLOCK 10/1

CDP1 PLATFORM

AS BUILT DRAWINGS



VOLUME 1

JERNBETON-DORIS A/S
P.O. BOX 68
4032 GAUSEL-NORWAY

DOC. N. JVD 1029
JUNE 1983

ELF NORGE A/S - FRIGG FIELD - CDP1 PLATFORM (BOTTOM) - TP1 PLATFORM (TOP)

TABLE OF CONTENTS

		Page
1.	GENERALITIES	1
2.	AS BUILT DOCUMENT GUIDE LINES	3
2.1.	General	4
2.2.	Description of the sketch	4
2.3.	Area limits	5
3.	GENERAL COMMENTS	6
3.1.	Introduction	7
3.2.	General comments for each section	8
4.	GENERAL INDEX	21

- LIST OF SUBJECTS WITH LOCATION IN VOLUME
- DRAWING NUMBERS ALLOCATED PER SUBJECT
- DRAWING LIST PER SUBJECT

1. GENERALITES

2. GENERALITES

Since its installation on the Frigg Field in September 1975, the platform CDP 1 has been reviewed by several maintenance programs and particularly with sub-sea operations.

The present document aims to help all personel involved in offshore marine operations, such as ELF/MSD people, diving companies, divers, maintenance people, etc.

This document will make these people familiar with all items (mainly structural steel parts) located underwater and anchored in the concrete structure by mechanical devices.

2. AS BUILT DOCUMENT GUIDE LINES

2. DOCUMENT GUIDE LINES

2.1. General

- This present original "As Built" document is presented in 8 volumes comprising the sketches in A 4 or A 3 size following the different items described in the index drawings.

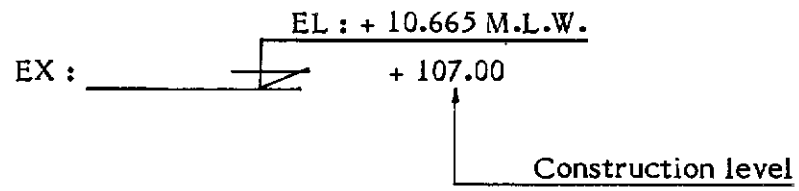
- Each "As Built" sketch is accompanied with a standard form indicating all relevant reference construction drawings number and/or document number.

2.2. Description of the sketch

The following is included on each sketch :

- A key plan with grid and platform north as well as an arrow showing clearly the location of the item.
- An isometric view of the item.
- A plan view, elevation and sections of the item with general dimensions.
- An E.A.N. company title block with relevant sketch number.

NOTE : All items are marked with both construction as well as M.L.W. levels.



- In some cases, only one large isometric view of item is drawn on the sheet for clarity.

2.3. Area limits

The area limits covered by this document are :

- from the bottom of the platform slab to the top of the breakwater wall,
- seal caissons both internal and external sides,
- pipeline (risers and J-tube) from the internal face of the seal caisson to the external face of the anti-scour wall.

Are excluded in this document :

- areas inside the central shaft,
- areas inside of the 6 tunnels.

3. GENERAL COMMENTS

3. GENERAL COMMENTS

3.1. Introduction

The present "As Built" document is based on construction drawings coming from C.G. DORIS, Paris, BROWN & ROOT, London, and ELF AQUITAINE NORGE, Stavanger.

Most of the construction drawings are dated from 1974. Some discrepancies may arise between the original drawings and the present state of things in 1983 about 10 years after.

This concerns mainly items located underwater (below M.L.W. + 96.335).

Basically, we assume that the original construction drawings are considered as "As Built" drawings.

All modifications, repairs, removal, additional items executed on the platform during the various maintenance programs, (subsea task) have been taken into consideration to prepare this "As Built" document.

3.2. General comments for each section

Section 1 : General Drawings.

On sketch FF 91-36-35-1044, cranes onboard CDP 1 platform are not derated according to maintenance people Mr VØLSTAD PER MAGNE, but for any critical heavy lift close to the limit indicated on the load chart, maintenance people must be warned.

Section 2 : Concrete Works

- Sketches FF 91-35-1114 to 1119 show pipelines outside seal caissons. This part of the platform is not well known. Several discrepancies are observed between original BROWN & ROOT drawings or documents (mainly dated 1975) and real situation in 1983 seen on video inspection. This concerns mainly location and condition of zinc anodes.

- The present location shown on these sketches is based on an E.A.N. document called. Inspection locations for flow lines phases I and II Frigg Field OCD subsea. L.ROSBERSTAD and drawing N° FF 70-36-32-0589.

- Risers and J-tubes are more or less covered by sand particularly J-tube 4" condensate pipeline in tunnel B.

- Zinc anodes on pipelines are difficult to locate because they are covered by sand.

- Abundance of marine growth located on risers and outside parts of seal caissons make any observation, inspections and surveys difficult.

Section 3 : Steel Work Embedded in Concrete

- All sketches concerning this section have been done from original construction drawings from C.G. DORIS, Paris, and BROWN & ROOT, London.

- Some items located underwater may have been removed during various maintenance programs such as :

  - base plates,
  - pipe supports welded on base plates,
  - guide pipes,
  - pump casing,
  - padeye,
  - ballasting spools, etc...

  This items may be checked in case of need during an inspection program, to update the "As Built" file.

- As regard of the above, a document has been made by Jernbeton-Doris (Document N° STA-B 1049 dated December 1983). This document shows clearly the items to be checked on platform.

Section 4 : Conductor Guide Frames

- For memory, conductor guide frames located inside the ballast (level A and level B) are shown on sketches.

- Sketch N° FF 91-36-35-1492 called conductor pipe casing typical locking device is drawn from a photographic report as construction drawing has not been found. This is located on level "G" (top of breakwater wall).

Section 5 : Utility Risers

- Location of Syminex riser supports to be verified.

- Construction drawings to be provided regarding intermediate supports for utility risers N° 144 and 145 as well as location on breakwater wall.

Section 6 : Piping and Instrumentation

Location of Syminex riser supports to be verified.

See Jernbeton-Doris document N° STA-B-1049 called "Summary of steel items embedded in concrete to be checked on platform".

Section 7 : Safety Ladders, Walkways - El. + 107 m

- Sketch N° FF-91-36-35-1560 tries to show a general arrangement of all items located on top of breakwater wall.

- Most of these items have no construction drawings such as :

  - walkway around column F 2.

  - Walkway between column H'4 and Syminex platform in cell F.

  - Handrail fixation details SK FF-91-36-35-1573 to 1575.

  - Prestressing cables cachetage on top of breakwater wall.

- Sketch N° FF-91-36-35-1572 is drawn from a photographic report. This sketch can be improved and redrawn after a survey on the platform.

- General arrangement and present state of handrails (fixation) may be usefull for safety and maintenance people.

Section 8 : Cathodic Protection

- According to people in charge of cathodic protection on CDP 1, the reference electrode system does not work anymore. Only sacrificial zinc anodes are still existing.

  The reason of the above is due to a lot of cable rupture of reference electrodes located mainly in the anti-scour wall area (ladder) and conductor guide frame area. Protection pipe (3" dia.) for cables are also broken at various locations - See sketches FF-91-36-35--1589 to 1594 for the emerged parts which can be seen from the platform. For the underwater parts, only reference construction drawings can be taken into consideration - See sketches FF-91-36-35-1583 to 1585.

- Doubt subsists for the exact location and existance of sacrificial zinc anodes for sea water utility risers (FF-91-36-35-1595) for all base plates support of utility risers (FF-91-36-35-1601 to 1610) for Syminex riser 8" dia. in cell "E" (FF-91-36-35-1598) and for anodes located outside of the breakwater wall for each cell (FF-91-36-35-1611 to 1616).

All these above mentioned anode may have been subject to deterioration or removal.

- Doubt also subsists for the location and existance of sacrificial zinc bracelet anodes on J-tubes and risers. The present "As Built" sketches are based on the document called : Inspection location for flow lines Phase I and II on Frigg Field - OCD subsea L.Roberstad.

- Contradiction is reported on two drawings about cathodic protection of seal caissons. C.G. DORIS drawing number AI-MP-QM 45047 Rev. 1 and AI-MP-QM-5125 Rev. 4 (annoted).

Section 9 : Diving Module Rail

========

No comment.

Section 10 : Seal Caissons

Tunnel B

During photographic inspection report on CDP 1 platform (24-25 Feb. 83) it was impossible to enter in tunnel B because this tunnel was flooded (more than 1 meter water depth). So no pictures could be taken. Informations have to be given regarding the exact location of cartridges used for passage in the seal caisson for power cable and telecom cable. As well as their connection and sealing system both outside and inside lobed wall.

Tunnel E

From orignal drawings only one riser (8" kill line) is coming out of the seal caisson. Pictures taken from inside of this tunnel show two additional J-tubes connected on the seal caisson. These pipes run horizontally in the tunnel and go up in central shaft. precision has to be given regarding those two J-tubes.

Section 11 : Cantilever Platform

- Information has to be given regarding the new design load on this platform.

- Precision must be given on the hanging system of the platform drawn on drawing FF-91-37-34-70-00 Rev. 2.

  - Type of shackles on upper padeyes.
  - Type and capacities of turnbuckles installed on lower padeyes on the platform.

Section 12 : Repairs on exterior diaphragms

On sketch FF-91-36-35-1719 location of secondary cables entries into the junction box to be given.

4. GENERAL INDEX

SECTION	SUBJECT	VOLUME
1	GENERAL DRAWINGS	2
2	CONCRETE WORKS DETAILS	2
3	STEEL WORK EMBEDDED IN CONCRETE	3 . 4
4	CONDUCTOR GUIDE FRAME	5
5	UTILITY RISERS	6
6	PIPING AND INSTRUMENTATION	6
7	SAFETY LADDERS , WALKWAYS	6
8	CATHODIC PROTECTION	7
9	DIVING MODULE RAIL	7
10	SEAL CAISSONS	8
11	CANTILEVER PLATFORM EL: 107 m	8
12	REPAIRS ON EXTERIOR DIAPHRAGMS	8

DRAWING NUMBERS ALLOCATED PER SUBJECT

SECTION	SUBJECT	DRAWING NUMBERS
1	GENERAL DRAWING	FF 91.36.35-1036 to FF 91.36.35-1044
2	CONCRETE WORK DETAILS	FF 91.26.35-1050 to FF 91.36.35-1125
3	STEEL WORK EMBEDDED IN CONCRETE	FF 91.36.35-1130 to FF 91.36.35-1321
4	CONDUCTOR GUIDE FRAME	FF 91.36.35-1330 to FF 91.36.35-1501
5	UTILITY RISERS	FF 91.36.35-1505 to FF 91.36.35-1539
6	PIPING AND INSTRUMENTATION	FF 91.36.35-1545 to FF 91.36.35-1553
7	SAFETY LADDER, WALKWAYS TOP	FF 91.36.35-1560 to FF 91.36.35-1575
8	CATHODIC PROTECTION	FF 91.36.35-1580 to FF 91.36.35-1634
9	DIVING MODULE RAIL	FF 91.36.35-1640 to FF 91.36.35-1650
10	SEAL CAISSONS	FF 91.36.35-1655 to FF 91.36.35-1679
11	CANTILEVER PLATFORM	FF 91.36.35-1685 to FF 91.36.35-1694
12	REPAIRS ON EXTERIOR DIAPHRAGM	FF 91.36.35-1694 to FF 91.36.35-1721

1. GENERAL DRAWINGS

DRAWING TITLE	E.A.N DRAWING No
- FRIGG FIELD - PLAN VIEW	FF 91 36 35 - 1036
- PIPE LINE LAYOUT	FF 91 36 35 - 1037
- CDP 1 ISOMETRIC VIEW	FF 91 36 35 - 1038
- GENERAL ELEVATION AA	FF 91 36 35 - 1039
- COMPARISON BETWEEN LEVELS	FF 91 36 35 - 1040
- STEEL COLUMNS LAYOUT	FF 91 36 35 - 1041
- SECTION THROUGH STRUCTURE	FF 91 36 35 - 1042
- RISER IDENTIFICATION AND CONDUCTOR GUIDE NUMBERING	FF 91 36 35 - 1043
- DECK PLAN VIEW AT LEVEL + 127.40 WITH CRANES CAPACITY	FF 91 36 35 - 1044
- RESERVED	FF 91 36 35 - 1045
- RESERVED	FF 91 36 35 - 1046
- RESERVED	FF 91 36 35 - 1047
- RESERVED	FF 91 36 35 - 1048
- RESERVED	FF 91 36 35 - 1049

2. CONCRETE WORK DETAILS

DRAWING TITLE	E.A.N DRAWING No
- CENTRAL SHAFT AND TUNNELS	FF 91 36 35 - 1050
2.1. - RADIAL BEAM 1 LEVEL + 107 m	FF 91 36 35 - 1051
- RADIAL BEAM 2 LEVEL + 107 m	FF 91 36 35 - 1052
- RADIAL BEAM 3 LEVEL + 107 m	FF 91 36 35 - 1053
- RADIAL BEAM 4 LEVEL + 107 m	FF 91 36 35 - 1054
- RADIAL BEAM 5 LEVEL + 107 m	FF 91 36 35 - 1055
- RADIAL BEAM 6 LEVEL + 107 m	FF 91 36 35 - 1056
- RADIAL BEAM 1 LEVEL + 68 m	FF 91 36 35 - 1057
- RADIAL BEAM 2 LEVEL + 68 m	FF 91 36 35 - 1058
- RADIAL BEAM 3 LEVEL + 68 m	FF 91 36 35 - 1059
- RADIAL BEAM 4 LEVEL + 68 m	FF 91 36 35 - 1060
- RADIAL BEAM 5 LEVEL + 68 m	FF 91 36 35 - 1061
- RADIAL BEAM 6 LEVEL + 68 m	FF 91 36 35 - 1062
2.2. - INTERIOR DIAPHRAGM ID 13 VIEW FROM CELL A	FF 91 36 35 - 1063
- INTERIOR DIAPHRAGM ID 13 VIEW FROM CELL F	FF 91 36 35 - 1064
- INTERIOR DIAPHRAGM ID 23	FF 91 36 35 - 1065
- INTERIOR DIAPHRAGM ID 33 VIEW FROM CELL B	FF 91 36 35 - 1066
- INTERIOR DIAPHRAGM ID 33 VIEW FROM CELL C	FF 91 36 35 - 1067
- INTERIOR DIAPHRAGM ID 43 VIEW FROM CELL C	FF 91 36 35 - 1068
- INTERIOR DIAPHRAGM ID 43 VIEW FROM CELL D	FF 91 36 35 - 1069
- INTERIOR DIAPHRAGM ID 53 VIEW FROM CELL D	FF 91 36 34 - 1070
- INTERIOR DIAPHRAGM ID 53 VIEW FROM CELL E	FF 91 36 35 - 1071
- INTERIOR DIAPHRAGM ID 63	FF 91 36 35 - 1072
2.3. - LOBED WALL AND BREAKWATER WALL	FF 91 36 35 - 1073
2.4. - EXTERIOR DIAPHRAGM ED 14	FF 91 36 35 - 1074
- EXTERIOR DIAPHRAGM ED 24	FF 91 36 35 - 1075
- EXTERIOR DIAPHRAGM ED 34	FF 91 36 35 - 1076
- EXTERIOR DIAPHRAGM ED 44	FF 91 36 35 - 1077
- EXTERIOR DIAPHRAGM ED 54	FF 91 36 35 - 1078
- EXTERIOR DIAPHRAGM ED 64	FF 91 36 35 - 1079
- EXTERIOR DIAPHRAGM ED 15	FF 91 36 35 - 1080

2. CONCRETE WORK DETAILS

	DRAWING TITLE	E.A.N DRAWING No
-	EXTERIOR DIAPHRAGM ED 25	FF 91 36 35 - 1081
-	EXTERIOR DIAPHRAGM ED 35	FF 91 36 35 - 1082
-	EXTERIOR DIAPHRAGM ED 45	FF 91 36 35 - 1083
-	EXTERIOR DIAPHRAGM ED 55	FF 91 36 35 - 1084
-	EXTERIOR DIAPHRAGM ED 65	FF 91 36 35 - 1085
	RESERVED	FF 91 36 35 - 1086
	RESERVED	FF 91 36 35 - 1087
	RESERVED	FF 91 36 35 - 1088
	RESERVED	FF 91 36 35 - 1089
2.5. -	PERFORATED WALL PW A 7	FF 91 36 35 - 1090
-	PERFORATED WALL PW B 7	FF 91 36 35 - 1091
-	PERFORATED WALL PW C 7	FF 91 36 35 - 1092
-	PERFORATED WALL PW D 7	FF 91 36 35 - 1093
-	PERFORATED WALL PW E 7	FF 91 36 35 - 1094
-	PERFORATED WALL PW F 7	FF 91 36 35 - 1095
2.6. -	EXTERIOR WALL EW A 6	FF 91 36 35 - 1096
-	EXTERIOR WALL EW B 6	FF 91 36 35 - 1097
-	EXTERIOR WALL EW C 6	FF 91 36 35 - 1098
-	EXTERIOR WALL EW D 6	FF 91 36 35 - 1099
-	EXTERIOR WALL EW E 6	FF 91 36 35 - 1100
-	EXTERIOR WALL EW F 6	FF 91 36 35 - 1101
2.7. -	PERFORATED WALL PW 17	FF 91 36 35 - 1102
-	PERFORATED WALL PW 27	FF 91 36 35 - 1103
-	PERFORATED WALL PW 37	FF 91 36 35 - 1104
-	PERFORATED WALL PW 47	FF 91 36 35 - 1105
-	PERFORATED WALL PW 57	FF 91 36 35 - 1106
-	PERFORATED WALL PW 67	FF 91 36 35 - 1107

2. CONCRETE WORK DETAILS

DRAWING TITLE	E.A.N DRAWING No
2.8. - EXTERIOR WALL EW 16	FF 91 36 35 - 1108
- EXTERIOR WALL EW 26	FF 91 36 35 - 1109
- EXTERIOR WALL EW 36	FF 91 36 35 - 1110
- EXTERIOR WALL EW 46	FF 91 36 35 - 1111
- EXTERIOR WALL EW 56	FF 91 36 35 - 1112
- EXTERIOR WALL EW 66	FF 91 36 35 - 1113
2.9. - OUTSIDE TUNNEL A SECTIONS	FF 91 36 35 - 1114
- OUTSIDE TUNNEL B SECTIONS	FF 91 36 35 - 1115
- OUTSIDE TUNNEL E SECTIONS	FF 91 36 35 - 1116
- OUTSIDE TUNNEL F SECTIONS	FF 91 36 35 - 1117
2.10. - SECTION THROUGH TUNNEL C	FF 91 36 35 - 1118
- SECTION THROUGH TUNNEL D	FF 91 36 35 - 1119
2.11. - LOBED WALL LW A 5 EXTERIOR VIEW	FF 91 36 35 - 1120
- LOBED WALL LW B 5 EXTERIOR VIEW	FF 91 36 35 - 1121
- LOBED WALL LW C 5 EXTERIOR VIEW	FF 91 36 35 - 1122
- LOBED WALL LW D 5 EXTERIOR VIEW	FF 91 36 35 - 1123
- LOBED WALL LW E 5 EXTERIOR VIEW	FF 91 36 35 - 1124
- LOBED WALL LW F 5 EXTERIOR VIEW	FF 91 36 35 - 1125
- RESERVED	FF 91 36 35 - 1126
- RESERVED	FF 91 36 35 - 1127
- RESERVED	FF 91 36 35 - 1128
- RESERVED	FF 91 36 35 - 1129

3. STEEL WORK EMBEDDED IN CONCRETE

	DRAWING TITLE	E.A.N DRAWING No
3.1.	CENTRAL SHAFT DEVELOPED EXTERIOR VIEW	FF 91 36 35 - 1130
	ANCHOR PLATE TYPE 43	FF 91 36 35 - 1131
	ANCHOR PLATE TYPE 51	FF 91 36 35 - 1132
	SUPPORT FOR BALLASTING LINE	FF 91 36 35 - 1133
	2 x 16" DIA. WATER EQUALIZING APERTURES	FF 91 36 35 - 1134
3.2.	BREAKWATER WALL DEVELOPED EXTERNAL VIEW	
	CELL A	FF 91 36 35 - 1135
	CELL B	FF 91 36 35 - 1136
	CELL C	FF 91 36 35 - 1137
	CELL D	FF 91 36 35 - 1138
	CELL E	FF 91 36 35 - 1139
	CELL F	FF 91 36 35 - 1140
3.3.	BREAKWATER WALL DEVELOPED INTERNAL VIEW	
	CELL A	FF 91 36 35 - 1141
	CELL B	FF 91 36 35 - 1142
	CELL C	FF 91 36 35 - 1143
	CELL D	FF 91 36 35 - 1144
	CELL E	FF 91 36 35 - 1145
	CELL F	FF 91 36 35 - 1146
	BASE PLATES ON BREAKWATER WALL	
	BASE PLATES TYPE 22	FF 91 36 35 - 1147
	BASE PLATES TYPE D 30	FF 91 36 35 - 1148
	BASE PLATES TYPE D 40	FF 91 36 35 - 1149
	BASE PLATES TYPE D 42	FF 91 36 35 - 1150
	BASE PLATES TYP D 76	FF 91 36 35 - 1151

3. STEEL WORK EMBEDDED IN CONCRETE

	DRAWING TITLE	E.A.N DRAWING No
	SUPPORTS	
	TOWING LINKS	FF 91 36 35 - 1152
	SUPPORT FOR SEA WATER LOADING LINE	FF 91 36 35 - 1153
	GUIDE FOR BALLASTING LINE	FF 91 36 35 - 1154
	PROTECTION FOR BALLASTING LINE	FF 91 36 35 - 1155
	MISCELLANEOUS	
	STEEL TEMPLATE DETAIL 1	FF 91 36 35 - 1156
	STEEL TEMPLATE DETAIL 2	FF 91 36 35 - 1157
	RESERVED	FF 91 36 35 - 1158
	RESERVED	FF 91 36 35 - 1159
3.4.	**CONDUCTOR GUIDE FRAME SUPPORTS**	
	LOCATION OF CORBEL PLATES (INSIDE B.W.W.)	FF 91 36 35 - 1160
	LOCATION OF BACKING PLATES (OUTISE B.W.W.)	FF 91 36 35 - 1161
3.4.1.	LEVEL "G" EL. + 9.755 MLW	
	CORBEL PLATE SUPPORT C 1	FF 91 36 35 - 1162
	CORBEL SUPPORT SUPPORT C 1	FF 91 36 35 - 1163
	CORBEL PLATE SUPPORT C 2	FF 91 36 35 - 1164
	CORBEL SUPPORT SUPPORT C 2	FF 91 36 35 - 1165
	BACKING PLATE SUPPORT C 2	FF 91 36 35 - 1166
	CORBEL PLATE SUPPORT C 3	FF 91 36 35 - 1167
	CORBEL SUPPORT SUPPORT C 3	FF 91 36 35 - 1168
	BACKING PLATE SUPPORT C 3	FF 91 36 35 - 1169
	CORBEL PLATE SUPPORT C 4	FF 91 36 35 - 1170
	CORBEL SUPPORT SUPPORT C 4	FF 91 36 35 - 1171
	CORBEL PLATE SUPPORT D 1	FF 91 36 35 - 1172
	CORBEL SUPPORT SUPPORT D 1	FF 91 36 35 - 1173

3. STEEL WORK EMBEDDED IN CONCRETE

DRAWING TITLE	E.A.N DRAWING No
CORBEL PLATE SUPPORT D 2	FF 91 36 35 - 1174
CORBEL SUPPORT SUPPORT D 2	FF 91 36 35 - 1175
BACKING PLATE SUPPORT D 2	FF 91 36 35 - 1176
CORBEL PLATE SUPPORT D 3	FF 91 36 35 - 1177
CORBEL SUPPORT SUPPORT D 3	FF 91 36 35 - 1178
BACKING PLATE SUPPORT D 3	FF 91 36 35 - 1179
CORBEL PLATE SUPPORT D 4	FF 91 36 35 - 1180
CORBEL SUPPORT SUPPORT D 4	FF 91 36 35 - 1181
3.4.2. LEVEL "E" EL. - 6.095 MLW	
CORBEL PLATE SUPPORT C 1	FF 91 36 35 - 1182
CORBEL SUPPORT SUPPORT C 1	FF 91 36 35 - 1183
CORBEL PLATE SUPPORT C 2	FF 91 36 35 - 1184
CORBEL SUPPORT SUPPORT C 2	FF 91 36 35 - 1185
BACKING PLATE SUPPORT C 2	FF 91 36 35 - 1186
CORBEL PLATE SUPPORT C 3	FF 91 36 35 - 1187
CORBEL SUPPORT SUPPORT C 3	FF 91 36 35 - 1188
BACKING PLATE SUPPORT C 3	FF 91 36 35 - 1189
CORBEL PLATE SUPPORT C 4	FF 91 36 35 - 1190
CORBEL SUPPORT SUPPORT C 4	FF 91 36 35 - 1191
BACKING PLATE SUPPORT C 4	FF 91 36 35 - 1192
CORBEL PLATE SUPPORT D 1	FF 91 36 35 - 1193
CORBEL SUPPORT SUPPORT D 1	FF 91 36 35 - 1194
CORBEL PLATE SUPPORT D 2	FF 91 36 35 - 1195
CORBEL SUPPORT SUPPORT D 2	FF 91 36 35 - 1196
BACKING PLATE SUPPORT D 2	FF 91 36 35 - 1197
CORBEL PLATE SUPPORT D 3	FF 91 36 35 - 1198
CORBEL SUPPORT SUPPORT D 3	FF 91 36 35 - 1199
BACKING PLATE SUPPORT D 3	FF 91 36 35 - 1200
CORBEL PLATE SUPPORT D 4	FF 91 36 35 - 1201

3. STEEL WORK EMBEDDED IN CONCRETE

	DRAWING TITLE	E.A.N DRAWING No
	CORBEL SUPPORT SUPPORT D 4	FF 91 36 35 - 1202
	BACKING PLATE SUPPORT D 4	FF 91 36 35 - 1203
3.4.3.	LEVEL "D" EL. - 24.095 MLW	
	CORBEL PLATE SUPPORT C 1	FF 91 36 35 - 1204
	CORBEL SUPPORT SUPPORT C 1	FF 91 36 35 - 1205
	CORBEL PLATE SUPPORT C 2	FF 91 36 35 - 1206
	CORBEL SUPPORT SUPPORT C 2	FF 91 36 35 - 1207
	BACKING PLATE SUPPORT C 2	FF 91 36 35 - 1208
	CORBEL PLATE SUPPORT C 3	FF 91 36 35 - 1209
	CORBEL SUPPORT SUPPORT C 3	FF 91 36 35 - 1210
	BACKING PLATE SUPPORT C 3	FF 91 36 35 - 1211
	CORBEL PLATE SUPPORT C 4	FF 91 36 35 - 1212
	CORBEL SUPPORT SUPPORT C 4	FF 91 36 35 - 1213
	BACKING PLATE SUPPORT C 4	FF 91 36 35 - 1214
	CORBEL PLATE SUPPORT D 1	FF 91 36 35 - 1215
	CORBEL SUPPORT SUPPORT D 1	FF 91 36 35 - 1216
	CORBEL PLATE SUPPORT D 2	FF 91 36 35 - 1217
	CORBEL SUPPORT SUPPORT D 2	FF 91 36 35 - 1218
	BACKING PLATE SUPPORT D 2	FF 91 36 35 - 1219
	CORBEL PLATE SUPPORT D 3	FF 91 36 35 - 1220
	CORBEL SUPPORT SUPPORT D 3	FF 91 36 35 - 1221
	BACKING PLATE SUPPORT D 3	FF 91 36 35 - 1222
	CORBEL PLATE SUPPORT D 4	FF 91 36 35 - 1223
	CORBEL SUPPORT SUPPORT D 4	FF 91 36 35 - 1224
	BACKING PLATE SUPPORT D 4	FF 91 36 35 - 1225

3. STEEL WORK EMBEDDED IN CONCRETE

DRAWING TITLE	E.A.N DRAWING No
3.4.4. LEVEL " C" EL. - 36.835 MLW	
CORBEL PLATE SUPPORT C 1	FF 91 36 35 - 1226
CORBEL SUPPORT SUPPORT C 1	FF 91 36 35 - 1227
CORBEL PLATE SUPPORT C 2	FF 91 36 35 - 1228
CORBEL SUPPORT SUPPORT C 2	FF 91 36 35 - 1229
CORBEL PLATE SUPPORT C 3	FF 91 36 35 - 1230
CORBEL SUPPORT SUPPORT C 3	FF 91 36 35 - 1231
CORBEL PLATE SUPPORT C 4	FF 91 36 35 - 1232
CORBEL SUPPORT SUPPORT C 4	FF 91 36 35 - 1233
BACKING PLATE SUPPORT C 4	FF 91 36 35 - 1234
CORBEL PLATE SUPPORT D 1	FF 91 36 35 - 1235
CORBEL SUPPORT SUPPORT D 1	FF 91 36 35 - 1236
CORBEL PLATE SUPPORT D 2	FF 91 36 35 - 1237
CORBEL SUPPORT SUPPORT D 2	FF 91 36 35 - 1238
CORBEL PLATE SUPPORT D 3	FF 91 36 35 - 1239
CORBEL SUPPORT SUPPORT D 3	FF 91 36 35 - 1240
CORBEL PLATE SUPPORT D 4	FF 91 36 35 - 1241
CORBE SUPPORT SUPPORT D 4	FF 91 36 35 - 1242
BACKING PLATE SUPPORT D 4	FF 91 36 35 - 1243

3. STEEL WORK EMBEDDED IN CONCRETE

DRAWING TITLE	E.A.N DRAWING No
3.4.5. LEVEL "B" EL. - 59.835 MLW	
CORBEL PLATE SUPPORT C 1	FF 91 36 35 - 1244
CORBEL SUPPORT SUPPORT C 1	FF 91 36 35 - 1245
CORBEL PLATE SUPPORT C 2	FF 91 36 35 - 1246
CORBEL SUPPORT SUPPORT C 2	FF 91 36 35 - 1247
CORBEL PLATE SUPPORT C 3	FF 91 36 35 - 1248
CORBEL SUPPORT SUPPORT C 3	FF 91 36 35 - 1249
CORBEL PLATE SUPPORT C 4	FF 91 36 35 - 1250
CORBEL SUPPORT SUPPORT C 4	FF 91 36 35 - 1251
BACKING PLATE SUPPORT C 4	FF 91 36 35 - 1252
CORBEL PLATE SUPPORT D 1	FF 91 36 35 - 1253
CORBEL SUPPORT SUPPORT D 1	FF 91 36 35 - 1254
CORBEL PLATE SUPPORT D 2	FF 91 36 35 - 1255
CORBEL SUPPORT SUPPORT D 2	FF 91 36 35 - 1256
CORBEL PLATE SUPPORT D 3	FF 91 36 35 - 1257
CORBEL SUPPORT SUPPORT D 3	FF 91 36 35 - 1258
CORBEL PLATE SUPPORT D 4	FF 91 36 35 - 1259
CORBEL SUPPORT SUPPORT D 4	FF 91 36 35 - 1260
BACKING PLATE SUPPORT D 4	FF 91 36 35 - 1261

3. STEEL WORK EMBEDDED IN CONCRETE

	DRAWING TITLE	E.A.N DRAWING No
3.4.6.	LEVEL "A" EL. - 81.335 MLW	
	SUPPORT ON INTERNAL WALL	FF 91 36 35 - 1262
	SUPPORT ON LOBED WALL (INTERNAL)	FF 91 36 35 - 1263
	RESERVED	FF 91 36 35 - 1264
3.5.	LOBED WALL DEVELOPED EXTERNAL VIEW	
	CELL A	FF 91 36 35 - 1265
	CELL B	FF 91 36 35 - 1266
	CELL C	FF 91 36 35 - 1267
	CELL D	FF 91 36 35 - 1268
	CELL E	FF 91 36 35 - 1269
	CELL F	FF 91 36 35 - 1270
3.6.	LOBED WALL DEVELOPED INTERNAL VIEW	
	CELL A	FF 91 36 35 - 1271
	CELL B	FF 91 36 35 - 1272
	CELL C	FF 91 36 35 - 1273
	CELL D	FF 91 36 35 - 1274
	CELL E	FF 91 36 35 - 1275
	CELL F	FF 91 36 35 - 1276
3.7.	ANTI-SCOUR WALL DEVELOPED EXTERNAL VIEW	
	CELL A	FF 91 36 35 - 1277
	CELL B	FF 91 36 35 - 1278
	CELL C	FF 91 36 35 - 1279
	CELL D	FF 91 36 35 - 1280
	CELL E	FF 91 36 35 - 1281
	CELL F	FF 91 36 35 - 1282

3. STEEL WORK EMBEDDED IN CONCRETE

	DRAWING TITLE	E.A.N DRAWING No
3.8.	ANTI-SCOUR WALL DEVELOPED INTERNAL VIEW	
	CELL A	FF 91 36 35 - 1283
	CELL B	FF 91 36 35 - 1284
	CELL C	FF 91 36 35 - 1285
	CELL D	FF 91 36 35 - 1286
	CELL E	FF 91 36 35 - 1287
	CELL F	FF 91 36 35 - 1288
3.9.	BASE PLATES DETAILS	
	BASE PLATE TYPE 5	FF 91 36 35 - 1289
	BASE PLATE TYPE 6	FF 91 36 35 - 1290
	BASE PLATE TYPE 10	FF 91 36 35 - 1291
	BASE PLATE TYPE D 20	FF 91 36 35 - 1292
	BASE PLATE TYPE 21	FF 91 36 35 - 1293
	BASE PLATE TYPE D 49	FF 91 36 35 - 1294
	BASE PLATE TYPE D 50	FF 91 36 35 - 1295
	BASE PLATE TYPE D 52	FF 91 36 35 - 1296
	BASE PLATE TYPE D 53	FF 91 36 35 - 1297
	RESERVED	FF 91 36 35 - 1298
	RESERVED	FF 91 36 35 - 1299
	RESERVED	FF 91 36 35 - 1300
	RESERVED	FF 91 36 35 - 1301
	RESERVED	FF 91 36 35 - 1302
	RESERVED	FF 91 36 35 - 1303
	RESERVED	FF 91 36 35 - 1304

3. STEEL WORK EMBEDDED IN CONCRETE

DRAWING TITLE	E.A.N DRAWING No
3.10. MISCELLANEOUS	
TYPICAL PADEYE FOR RISER PASSAGE	FF 91 36 35 - 1305
ANCHOR PLATE FOR TOWING	FF 91 36 35 - 1306
BELL MOUTH DETAIL	FF 91 36 35 - 1307
CAT WALK DETAIL	FF 91 36 35 - 1308
LADDER SUPPORT ON B.W.W.	FF 91 36 35 - 1309
LADDER SUPPORT ON WALL	FF 91 36 35 - 1310
LADDER SUPPORT ON LOBED WALL	FF 91 36 35 - 1311
ANCHOR BOLT DETAIL	FF 91 36 35 - 1320
ANCHOR BOLT DETAIL	FF 91 36 35 - 1321
STUD BOLT DETAIL	FF 91 36 35 - 1322

4. CONDUCTOR GUIDE FRAME

DRAWING TITLE	E.A.N DRAWING No
REFERENCE LEVELS OF GUIDE FRAME	FF 91 36 35 - 1330
GENERAL PLAN VIEW WITH CONDUCTOR NUMBER	FF 91 36 35 - 1331
4.1. CONDUCTOR GUIDE FRAMES LEVEL "G"	
4.1.1. CELL "C"	
GENERAL VIEW OF GUIDE FRAME	FF 91 36 35 - 1332
GENERAL VIEW OF SECONDARY FRAME SUPPORTS	FF 91 36 35 - 1333
SECONDARY FRAME FOR CONDUCTOR N° 13	FF 91 36 35 - 1334
SECONDARY FRAME FOR CONDUCTOR N° 14	FF 91 36 35 - 1335
SECONDARY FRAME FOR CONDUCTOR N° 15	FF 91 36 35 - 1336
SECONDARY FRAME FOR CONDUCTOR N° 16	FF 91 36 35 - 1337
SECONDARY FRAME FOR CONDUCTOR N° 17	FF 91 36 35 - 1338
SECONDARY FRAME FOR CONDUCTOR N° 18	FF 91 36 35 - 1339
SECONDARY FRAME FOR CONDUCTOR N° 19	FF 91 36 35 - 1340
SECONDARY FRAME FOR CONDUCTOR N° 20	FF 91 36 35 - 1341
SECONDARY FRAME FOR CONDUCTOR N° 21	FF 91 36 35 - 1342
SECONDARY FRAME FOR CONDUCTOR N° 22	FF 91 36 35 - 1343
SECONDARY FRAME FOR CONDUCTOR N° 23	FF 91 36 35 - 1344
SECONDARY FRAME FOR CONDUCTOR N° 24	FF 91 36 35 - 1345
FREE LOCK PIPE END GC1	FF 91 36 35 - 1346
FREE LOCK PIPE END GC4	FF 91 36 35 - 1347
BOX FOR FREE LOCK GC1	FF 91 36 35 - 1348
BOX FOR FREE LOCK GC4	FF 91 36 35 - 1349
RESERVED	FF 91 36 35 - 1350 TO 1354

4. CONDUCTOR GUIDE FRAME

DRAWING TITLE	E.A.N DRAWING No
4.1.2. CELL "D"	
GENERAL VIEW OF GUIDE FRAME	FF 91 36 35 - 1355
GENERAL VIEW OF SECONDARY FRAME SUPPORTS	FF 91 36 35 - 1356
SECONDARY FRAME FOR CONDUCTOR N° 1	FF 91 36 35 - 1357
SECONDARY FRAME FOR CONDUCTOR N° 2	FF 91 36 35 - 1358
SECONDARY FRAME FOR CONDUCTOR N° 3	FF 91 36 35 - 1359
SECONDARY FRAME FOR CONDUCTOR N° 4	FF 91 36 35 - 1360
SECONDARY FRAME FOR CONDUCTOR N° 5	FF 91 36 35 - 1361
SECONDARY FRAME FOR CONDUCTOR N° 6	FF 91 36 35 - 1362
SECONDARY FRAME FOR CONDUCTOR N° 7	FF 91 36 35 - 1363
SECONDARY FRAME FOR CONDUCTOR N° 8	FF 91 36 35 - 1364
SECONDARY FRAME FOR CONDUCTOR N° 9	FF 91 36 35 - 1365
SECONDARY FRAME FOR CONDUCTOR N° 10	FF 91 36 35 - 1366
SECONDARY FRAME FOR CONDUCTOR N° 11	FF 91 36 35 - 1367
SECONDARY FRAME FOR CONDUCTOR N° 12	FF 91 36 35 - 1368
FREE LOCK PIPE END GD1	FF 91 36 35 - 1369
FREE LOCK PIPE END GD4	FF 91 36 35 - 1370
BOX FOR FREE LOCK GD1	FF 91 36 35 - 1371
BOX FOR FREE LOCK GD4	FF 91 36 35 - 1372
RESERVED	FF 91 36 35 - 1373
RESERVED	FF 91 36 35 - 1374
RESERVED	FF 91 36 35 - 1375
RESERVED	FF 91 36 35 - 1376
RESERVED	FF 91 36 35 - 1377

4. CONDUCTOR GUIDE FRAME

DRAWING TITLE	E.A.N DRAWING No
4.2. CONDUCTOR GUIDE FRAMES LEVEL "E"	
4.2.1. CELL "C"	
GENERAL VIEW OF GUIDE FRAME	FF 91 36 35 - 1378
GENERAL VIEW OF SECONDARY FRAME SUPPORTS	FF 91 36 35 - 1379
SECONDARY FRAME FOR CONDUCTOR N° 13	FF 91 36 35 - 1380
SECONDARY FRAME FOR CONDUCTOR N° 14	FF 91 36 35 - 1381
SECONDARY FRAME FOR CONDUCTOR N° 15	FF 91 36 35 - 1382
SECONDARY FRAME FOR CONDUCTOR N° 16	FF 91 36 35 - 1383
SECONDARY FRAME FOR CONDUCTOR N° 17	FF 91 36 35 - 1384
SECONDARY FRAME FOR CONDUCTOR N° 18	FF 91 36 35 - 1385
SECONDARY FRAME FOR CONDUCTOR N° 19	FF 91 36 35 - 1386
SECONDARY FRAME FOR CONDUCTOR N° 20	FF 91 36 35 - 1387
SECONDARY FRAME FOR CONDUCTOR N° 21	FF 91 36 35 - 1388
SECONDARY FRAME FOR CONDUCTOR N° 22	FF 91 36 35 - 1389
SECONDARY FRAME FOR CONDUCTOR N° 23	FF 91 36 35 - 1390
SECONDARY FRAME FOR CONDUCTOR N° 24	FF 91 36 35 - 1391
FREE LOCK PIPE END EC1	FF 91 36 35 - 1392
FREE LOCK PIPE END EC4	FF 91 36 35 - 1393
BOX FOR FREE LOCK EC1	FF 91 36 35 - 1394
BOX FOR FREE LOCK EC4	FF 91 36 35 - 1395
VERTICAL BRACING INST. BETWEEN COND+ GUIDE FRAME AND STRUC.	FF 91 36 35 - 1396
GENERAL VIEW OF VERTICAL BRACING IN CELL C LEVEL E	FF 91 36 35 - 1397
RESERVED	FF 91 36 35 - 1398
RESERVED	FF 91 36 35 - 1399

4. CONDUCTOR GUIDE FRAME

DRAWING TITLE	E.A.N DRAWING No
4.2.2. CELL "D"	
GENERAL VIEW OF GUIDE FRAME	FF 91 36 35 - 1400
GENERAL VIEW OF SECONDARY FRAME SUPPORTS	FF 91 36 35 - 1401
SECONDARY FRAME FOR CONDUCTOR N° 1	FF 91 36 35 - 1402
SECONDARY FRAME FOR CONDUCTOR N° 2	FF 91 36 35 - 1403
SECONDARY FRAME FOR CONDUCTOR N° 3	FF 91 36 35 - 1404
SECONDARY FRAME FOR CONDUCTOR N° 4	FF 91 36 35 - 1405
SECONDARY FRAME FOR CONDUCTOR N° 5	FF 91 36 35 - 1406
SECONDARY FRAME FOR CONDUCTOR N° 6	FF 91 36 35 - 1407
SECONDARY FRAME FOR CONDUCTOR N° 7	FF 91 36 35 - 1408
SECONDARY FRAME FOR CONDUCTOR N° 8	FF 91 36 35 - 1409
SECONDARY FRAME FOR CONDUCTOR N° 9	FF 91 36 35 - 1410
SECONDARY FRAME FOR CONDUCTOR N° 10	FF 91 36 35 - 1411
SECONDARY FRAME FOR CONDUCTOR N° 11	FF 91 36 35 - 1412
SECONDARY FRAME FOR CONDUCTOR N° 12	FF 91 36 35 - 1413
FREE LOCK PIPE END ED1	FF 91 36 35 - 1414
FREE LOCK PIPE END ED4	FF 91 36 35 - 1415
BOX FOR FREE LOCK ED1	FF 91 36 35 - 1416
BOX FOR FREE LOCK ED4	FF 91 36 35 - 1417
GENERAL VIEW OF VERTICAL BRACING IN CELL D, LEVEL E	FF 91 36 35 - 1418
RESERVED	FF 91 36 35 - 1419
RESERVED	FF 91 36 35 - 1420
RESERVED	FF 91 36 35 - 1421

4. CONDUCTOR GUIDE FRAME

DRAWING TITLE	E.A.N DRAWING No
4.3. CONDUCTOR GUIDE FRAMES LEVEL "D"	
4.3.1. CELL "C"	
GENERAL VIEW OF GUIDE FRAME	FF 91 36 35 - 1422
GENERAL VIEW OF SECONDARY FRAME SUPPORTS	FF 91 36 35 - 1423
SECONDARY FRAME FOR CONDUCTOR N° 13	FF 91 36 35 - 1424
SECONDARY FRAME FOR CONDUCTOR N° 14	FF 91 36 35 - 1425
SECONDARY FRAME FOR CONDUCTOR N° 15	FF 91 36 35 - 1426
SECONDARY FRAME FOR CONDUCTOR N° 16	FF 91 36 35 - 1427
SECONDARY FRAME FOR CONDUCTOR N° 17	FF 91 36 35 - 1428
SECONDARY FRAME FOR CONDUCTOR N° 18	FF 91 36 35 - 1429
SECONDARY FRAME FOR CONDUCTOR N° 19	FF 91 36 35 - 1430
SECONDARY FRAME FOR CONDUCTOR N° 20	FF 91 36 35 - 1431
SECONDARY FRAME FOR CONDUCTOR N° 21	FF 91 36 35 - 1432
SECONDARY FRAME FOR CONDUCTOR N° 22	FF 91 36 35 - 1433
SECONDARY FRAME FOR CONDUCTOR N° 23	FF 91 36 35 - 1434
SECONDARY FRAME FOR CONDUCTOR N° 24	FF 91 36 35 - 1435
FREE LOCK PIPE END DC1	FF 91 36 35 - 1436
FREE LOCK PIPE END DC4	FF 91 36 35 - 1437
BOX FOR FREE LOCK DC1	FF 91 36 35 - 1438
BOX FOR FREE LOCK DC4	FF 91 36 35 - 1439
RESERVED	FF 91 36 35 - 1440
RESERVED	FF 91 36 35 - 1441
RESERVED	FF 91 36 35 - 1442
RESERVED	FF 91 36 35 - 1443

4. CONDUCTOR GUIDE FRAME

DRAWING TITLE	E.A.N DRAWING No
4.3.2. CELL "D"	
GENERAL VIEW OF GUIDE FRAME	FF 91 36 35 - 1444
GENERAL VIEW OF SECONDARY FRAME SUPPORTS	FF 91 36 35 - 1445
SECONDARY FRAME FOR CONDUCTOR N° 1	FF 91 36 35 - 1446
SECONDARY FRAME FOR CONDUCTOR N° 2	FF 91 36 35 - 1447
SECONDARY FRAME FOR CONDUCTOR N° 3	FF 91 36 35 - 1448
SECONDARY FRAME FOR CONDUCTOR N° 4	FF 91 36 35 - 1449
SECONDARY FRAME FOR CONDUCTOR N° 5	FF 91 36 35 - 1450
SECONDARY FRAME FOR CONDUCTOR N° 6	FF 91 36 35 - 1451
SECONDARY FRAME FOR CONDUCTOR N° 7	FF 91 36 35 - 1452
SECONDARY FRAME FOR CONDUCTOR N° 8	FF 91 36 35 - 1453
SECONDARY FRAME FOR CONDUCTOR N° 9	FF 91 36 35 - 1454
SECONDARY FRAME FOR CONDUCTOR N° 10	FF 91 36 35 - 1455
SECONDARY FRAME FOR CONDUCTOR N° 11	FF 91 36 35 - 1456
SECONDARY FRAME FOR CONDUCTOR N° 12	FF 91 36 35 - 1457
FREE LOCK PIPE END DD1	FF 91 36 35 - 1458
FREE LOCK PIPE END DD4	FF 91 36 35 - 1459
BOX FOR FREE LOCK DD1	FF 91 36 35 - 1460
BOX FOR FREE LOCK DD4	FF 91 36 35 - 1461
RESERVED	FF 91 36 35 - 1462
RESERVED	FF 91 36 35 - 1463
RESERVED	FF 91 36 35 - 1464
RESERVED	FF 91 36 35 - 1465

4. CONDUCTOR GUIDE FRAME

DRAWING TITLE	E.A.N DRAWING No
4.4. CONDUCTOR GUIDE FRAMES LEVEL "C"	
REMAINING PART OF FIXED LOCK C2 IN CELL C	FF 91 36 35 - 1466
REMAINING PART OF FIXED LOCK C3 IN CELL C	FF 91 36 35 - 1467
REMAINING PART OF FIXED LOCK D2 IN CELL D	FF 91 36 35 - 1468
REMAINING PART OF FIXED LOCK D3 IN CELL D	FF 91 36 35 - 1469
BOX FOR FREE LOCK CC1	FF 91 36 35 - 1470
BOX FOR FREE LOCK CC4	FF 91 36 35 - 1471
BOX FOR FREE LOCK CD1	FF 91 36 35 - 1472
BOX FOR FREE LOCK CD4	FF 91 36 35 - 1473
RESERVED	FF 91 36 35 - 1474
RESERVED	FF 91 36 35 - 1475
RESERVED	FF 91 36 35 - 1476
RESERVED	FF 91 36 35 - 1477
4.5. CONDUCTOR GUIDE FRAME LEVEL "B"	
GENERAL VIEW OF GUIDE FRAME CELL "C"	FF 91 36 35 - 1478
GENERAL VIEW OF GUIDE FRAME CELL "D"	FF 91 36 35 - 1479
SECONDARY FRAME TYPE 1	FF 91 36 35 - 1480
SECONDARY FRAME TYPE 2	FF 91 36 35 - 1481
SECONDARY FRAME TYPE 3	FF 91 36 35 - 1482
BOX FOR FREE LOCK BC1	FF 91 36 35 - 1483
BOX FOR FREE LOCK BC4	FF 91 36 35 - 1484
BOX FOR FREE LOCK BD1	FF 91 36 35 - 1485
BOX FOR FREE LOCK BD4	FF 91 36 35 - 1486
RESERVED	FF 91 36 35 - 1487
RESERVED	FF 91 36 35 - 1488

4. CONDUCTOR GUIDE FRAME

	DRAWING TITLE	E.A.N DRAWING No
4.6.	**CONDUCTOR GUIDE FRAME LEVEL "A"**	
	GENERAL VIEW OF GUIDE FRAME CELL "C"	FF 91 36 35 - 1489
	GENERAL VIEW OF GUIDE FRAME CELL "D"	FF 91 36 35 - 1490
4.7.	**MISCELLANEOUS**	
	CONDUCTOR SLEEVE TYPICAL DETAIL	FF 91 36 35 - 1491
	CONDUCTOR PIPE CASING LOCKING DEVICE	FF 91 36 35 - 1492
	RESERVED	FF 91 36 35 - 1493
	RESERVED	FF 91 36 35 - 1494
	RESERVED	FF 91 36 35 - 1495
	RESERVED	FF 91 36 35 - 1496
4.8.	**CONDUCTOR SLEEVES**	
	GENERAL PLAN VIEW CELLS "C" and "D" AT SLAB LEVEL	FF 91 36 35 - 1497
	CONDUCTOR SLEEVE TYPE 1	FF 91 36 35 - 1498
	CONDUCTOR SLEEVE TYPE 2	FF 91 36 35 - 1599
	CONDUCTOR SLEEVE TYPE 3	FF 91 36 35 - 1500
	CONDUCTOR SLEEVE - FUNNEL	FF 91 36 35 - 1501
	RESERVED	FF 91 36 35 - 1502
	RESERVED	FF 91 36 35 - 1503
	RESERVED	FF 91 36 35 - 1504

5. UTILITY RISERS

DRAWING TITLE	E.A.N DRAWING No
UTILITY RISERS - GENERAL LAYOUT	FF 91 36 35 - 1505
UTILITY RISERS - GENERAL ELEVATION	FF 91 36 35 - 1506
5.1. SLOP RISER N° 143 CELL "F"	
UPPER SUPPORT	FF 91 36 35 - 1507
LOWER SUPPORT	FF 91 36 35 - 1508
5.2. FIRE WATER RISER N° 144 CELL "F"	
UPPER SUPPORT	FF 91 36 35 - 1509
LOWER SUPPORT	FF 91 36 35 - 1510
INTERMEDIATE SUPPORT :	
. Gle ISOMETRIC	FF 91 36 35 - 1511
. SUPPORT DTL. 1	FF 91 36 35 - 1512
. CLAMP DTL. 2	FF 91 36 35 - 1513
5.3. FIRE WATER RISER N° 145 CELL "A"	
UPPER SUPPORT	FF 91 36 35 - 1514
LOWER SUPPORT	FF 91 36 35 - 1515
INTERMEDIATE SUPPORT :	
. Gle ISOMETRIC	FF 91 36 35 - 1516
. SUPPORT DTL. 1	FF 91 36 35 - 1517
. CLAMP DTL. 2	FF 91 36 35 - 1518

5. UTILITY RISERS

DRAWING TITLE		E.A.N DRAWING No
5.4.	SEA WATER RISERS N° 146-147-148 CELL "E"	
	UPPER SUPPORT	FF 91 36 35 - 1519
	LOWER SUPPORT	FF 91 36 35 - 1520
	INTERMEDIATE SUPPORT :	
	. Gle ISOMETRIC	FF 91 36 35 - 1521
	. SUPPORT DTL. 1	FF 91 36 35 - 1522
	. CLAMP DTL. 2	FF 91 36 35 - 1523
5.5.	MUD OUTFALL RISER N° 150 CELL "B"	
	UPPER SUPPORT	FF 91 36 35 - 1524
	LOWER SUPPORT	FF 91 36 35 - 1525
5.6.	MUD OUTFALL RISER N° 149 CELL "E"	
	UPPER SUPPORT	FF 91 36 35 - 1526
	LOWER SUPPORT	FF 91 36 35 - 1527
5.7.	BACKING PLATE OF SUPPORTS	
	UPPER SUPPORT RISERS 146-147-148	FF 91 36 35 - 1528
	UPPER SUPPORT RISERS 143-144-145	FF 91 36 35 - 1529
	UPPER SUPPORT RISERS 149-150	FF 91 36 35 - 1530
	LOWER SUPPORT RISERS 143-144-145-149-150	FF 91 36 35 - 1531
	LOWER SUPPORT RISERS 146-147-148	FF 91 36 35 - 1532

5. UTILITY RISERS

DRAWING TITLE	E.A.N DRAWING No
5.8. BASE PLATE OF SUPPORTS	
UPPER SUPPORT RISERS 146-147-148	FF 91 36 35 - 1533
UPPER SUPPORT RISERS 143-144-145-149-150	FF 91 36 35 - 1534
LOWER SUPPORT RISERS 146-147-148	FF 91 36 35 - 1535
LOWER SUPPORT RISERS 143-144-145-149-150	FF 91 36 35 - 1536
5.9. MISCELLANEOUS	
INLET SCREEN FOR RISERS N° 144 - 30" DIA.	FF 91 36 35 - 1537
INLET SCREEN FOR RISERS N° 145 - 30" DIA.	FF 91 36 35 - 1538
INLET SCREEN FOR RISERS N° 146-147-148-24"DIA.	FF 91 36 35 - 1539
RESERVED	FF 91 36 35 - 1540
RESERVED	FF 91 36 35 - 1541
RESERVED	FF 91 36 35 - 1542
RESERVED	FF 91 36 35 - 1543
RESERVED	FF 91 36 35 - 1544

6. PIPING AND INSTRUMENTATION

DRAWING TITLE	E.A.N DRAWING No
- SYMINEX RISERS -	
- GENERAL DEVELOPED VIEW FROM INSIDE BWW	FF 91 36 35 - 1545
- PLATFORM SUPPORT AT LEVEL + 107 M CELL "F"	FF 91 36 35 - 1546
- PLATFORM SUPPORT AT LEVEL + 105 M CELL "E"	FF 91 36 35 - 1547
- TYPICAL SUPPORT CELL "E" TYPE "B"	FF 91 36 35 - 1548
- TYPICAL SUPPORT CELL "F" TYPE "A"	FF 91 36 35 - 1549
- TYPICAL SUPPORT CELL "F" TYPE "B"	FF 91 36 35 - 1550
- CLAMP DETAIL	FF 91 36 35 - 1551
- ANTI-ROTATING DETAIL	FF 91 36 35 - 1552
- FIXATION THROUGH JARLAN HOLE DETAIL	FF 91 36 35 - 1553
- RESERVED	FF 91 36 35 - 1554
- RESERVED	FF 91 36 35 - 1555
- RESERVED	FF 91 36 35 - 1556
- RESERVED	FF 91 36 35 - 1557
- RESERVED	FF 91 36 35 - 1558
- RESERVED	FF 91 36 35 - 1559

7. SAFETY LADDER,WALKWAYS ETC.AT TOP OF B.W.W

DRAWING TITLE	E.A.N DRAWING No
- G.A. ON TOP OF BREAKWATER WALL EL + 107 M	FF 91 36 35 - 1560
- ACCESS WALKWAY FOR EMERGENCY LADDER LINE 3	FF 91 36 35 - 1561
- ACCESS WALKWAY FOR EMERGENCY LADDER LINE 5	FF 91 36 35 - 1562
- ACCESS WALKWAY FOR EMERGENCY LADDER LINE 1	FF 91 36 35 - 1563
- EMERGENCY LADDER ON BREAKWATER WALL G.A.	FF 91 36 35 - 1564
. UPPER LADDER DETAIL	FF 91 36 35 - 1565
. LOWER LADDER DETAIL	FF 91 36 35 - 1566
. REST PLATFORM DETAIL	FF 91 36 35 - 1567
. FIXATION THROUGH JARLAN HOLE DETAIL	FF 91 36 35 - 1568
- EMERGENCY LADDER ON CENTRAL SHAFT G.A.	FF 91 36 35 - 1569
- WAY ABOVE EXTERNAL RAIL	FF 91 36 35 - 1570
- WALKWAY AROUND COLUMN H'4	FF 91 36 35 - 1571
- HANDRAIL G'A ON TOP OF BREAKWATER WALL	FF 91 36 35 - 1572
- HANDRAIL FIXATION DETAIL TYPE 1	F 91 36 35 - 1573
- HANDRAIL FIXATION DETAIL TYPE 2	FF 91 36 35 - 1574
- HANDRAIL FIXATION DETAIL TYPE 3	FF 91 36 35 - 1575
- RESERVED	FF 91 36 35 - 1576
- RESERVED	FF 91 36 35 - 1577
RESERVED	FF 91 36 35 - 1578
- RESERVED	FF 91 36 35 - 1579

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
8.8. SEAL CAISSONS	
- TYPICAL LOCATION OF ANODE OUTSIDE SEAL CAISSON TUNNELS A AND F	FF 91 36 35 - 1629
- TYPICAL LOCATION OF ANODE OUTSIDE SEAL CAISSON TUNNEL E	FF 91 36 35 - 1630
- TYPICAL LOCATION OF ANODE OUTSIDE SEAL CAISSON TUNNEL B	FF 91 36 35 - 1631
- TYPICAL LOCATION OF ANODE OUTSIDE SEAL CAISSON TUNNELS C AND D	FF 91 36 35 - 1632
8.9. MISCELLANEOUS	
- NEOPRENE SEAL FLANGE PROTECTOR FOR 8"DIA.	FF 91 36 35 - 1633
- NEOPRENE SEAL FLANGE PROTECTOR FOR 4"DIA.	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

8. CATHODIC PROTECTION

DRAWING TITLE	E.A.N DRAWING No
8.3. UTILITY RISERS	
- SEA WATER RISERS 146-147-148 LOCATION OF ANODES	FF 91 36 35 - 1595
- FIRE WATER RISER 144 LOCATION OF ANODES	FF 91 36 35 - 1596
- FIRE WATER RISER 145 LOCATION OF ANODES	FF 91 36 35 - 1597
- SYMINEX RISER CELL E LOCATION OF ANODES	FF 91 36 35 - 1598
- TYPICAL ZINC BRACELET ANODE FOR UTILITY RISER	FF 91 36 35 - 1599
- PECHINEY TEST ANODE FIXATION ON RISERS 144-145	FF 91 36 35 - 1600
8.4. UTILITY RISERS SUPPORTS	
SEA WATER PUMP RISER 146-147-148	
LOWER PIPE SUPPORT BASE PLATE	FF 91 36 35 - 1601
LOWER PIPE SUPPORT BACKING PLATE	FF 91 36 35 - 1602
SLOPS RISER 143	
LOWER PIPE SUPPORT BASE PLATE	FF 91 36 35 - 1603
LOWER PIPE SUPPORT BACKING PLATE	FF 91 36 35 - 1604
FIRE WATER RISERS 144-145	
LOWER PIPE SUPPORT BASE PLATE	FF 91 36 35 - 1605
LOWER PIPE SUPPORT BACKING PLATE	FF 91 36 35 - 1606
MUD OUTFALL RISERS 149-150	
UPPER PIPE SUPPORT BASE PLATE	FF 91 36 35 - 1607
UPPER PIPE SUPPORT BASE PLATE	FF 91 36 35 - 1608
LOWER PIPE SUPPORT BACKING PLATE	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

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

10. SEAL CAISSONS

DRAWING TITLE	E.A.N DRAWING No
ISOMETRIC VIEW OF SEAL CAISSON FOR 26" RISERS (R5 and R6)	FF 91 36 35 - 1655
10.1 TUNNEL A	
FRONT VIEW AND SECTION FROM OUTSIDE	FF 91 36 35 - 1656
SECTION FROM INSIDE TUNNEL "A"	FF 91 36 35 - 1657
10.2. TUNNEL B	
ISOMETRIC VIEW OF SEAL CAISSON	FF 91 36 35 - 1658
FRONT VIEW FROM OUTSIDE TUNNEL	FF 91 36 35 - 1659
FRONT VIEW FROM INSIDE TUNNEL	FF 91 36 35 - 1660
SECTIONS THROUGHT SEAL CAISSON	FF 91 36 35 - 1661
RESERVED	FF 91 36 35 - 1662
RESERVED	FF 91 36 35 - 1663
10.3. TUNNEL C	
- ISOMETRIC VIEW OF SEAL CAISSON FROM OUTSIDE TUNNEL	FF 91 36 35 - 1664
- FRONT VIEW AND SECTION	FF 91 36 35 - 1665
- RESERVED	FF 91 36 35 - 1666
- RESERVED	FF 91 36 35 - 1667
10.4 TUNNEL D	
- ISOMETRIC VIEW OF SEAL CAISSON FROM OUTSIDE TUNNEL	FF 91 36 35 - 1668
- FRONT VIEW AND SECTION	FF 91 36 35 - 1669
- RESERVED	FF 91 36 35 - 1670
- RESERVED	FF 91 36 35 - 1671

10. SEAL CAISSONS

	DRAWING TITLE	E.A.N DRAWING No
10.5.	**TUNNEL E**	
	ISOMETRIC VIEW OF SEAL CAISSON	FF 91 36 35 - 1672
	FRONT VIEW FROM OUTSIDE TUNNEL	FF 91 36 35 - 1673
	FRONT VIEW FROM INSIDE TUNNEL	FF 91 36 35 - 1674
	SECTIONS THROUGHT SEAL CAISSON	FF 91 36 35 - 1675
	RESERVED	FF 91 36 35 - 1676
	RESERVED	FF 91 36 35 - 1677
10.6.	**TUNNEL F**	
	FRONT VIEW AND SECTION FROM OUTSIDE	FF 91 36 35 - 1678
	SECTION FROM INSIDE TUNNEL "F"	FF 91 36 35 - 1679
	RESERVED	FF 91 36 35 - 1680
	RESERVED	FF 91 36 35 - 1681
	RESERVED	FF 91 36 35 - 1682
	RESERVED	FF 91 36 35 - 1683
	RESERVED	FF 91 36 35 - 1684

11. CANTILEVER PLATFORM

DRAWING TITLE	E.A.N DRAWING No
- GENERAL ISOMETRIC VIEW	FF 91 36 35 - 1685
- PLAN VIEW AND ELEVATION	FF 91 36 35 - 1686
- MAIN ATTACHMENT DETAIL	FF 91 36 35 - 1687
- SECONDARY ATTACHMENT DETAIL	FF 91 36 35 - 1688
- RESERVED	FF 91 36 35 - 1689
- RESERVED	FF 91 36 35 - 1690
- RESERVED	FF 91 36 35 - 1691
- RESERVED	FF 91 36 35 - 1692
- RESERVED	FF 91 36 35 - 1693
RESERVED	FF 91 36 35 - 1694

12. REPAIRS ON EXTERIOR DIAPHRAGMS

DRAWING TITLE	E.A.N DRAWING No
1. LOCATION OF DIAPHRAGMS ON STRUCTURE	FF 91 36 31 - 1695
2. SHUTTERING ARRANGEMENT	
EXTERIOR DIAPHRAGM ED 14 EAST SIDE	FF 91 36 35 - 1696
EXTERIOR DIAPHRAGM ED 14 WEST SIDE	FF 91 36 35 - 1697
EXTERIOR DIAPHRAGM ED 35 EAST SIDE	FF 91 36 35 - 1698
EXTERIOR DIAPHRAGM ED 35 WEST SIDE	FF 91 36 35 - 1699
EXTERIOR DIAPHRAGM ED 44 EAST SIDE	FF 91 36 35 - 1700
EXTERIOR DIAPHRAGM ED 44 WEST SIDE	FF 91 36 35 - 1701
EXTERIOR DIAPHRAGM ED 65 EAST SIDE	FF 91 36 35 - 1702
EXTERIOR DIAPHRAGM ED 65 WEST SIDE	FF 91 36 35 - 1703
TYPICAL SHUTTERING ISOMETRIC	FF 91 36 35 - 1704
TYPICAL SECTION THROUGH AN INJECTOR	FF 91 36 35 - 1705
3. POSITION OF TACK CORING POINTS	
ED 35 EAST SIDE	FF 91 36 35 - 1706
ED 35 WEST SIDE	FF 91 36 35 - 1707
ED 65 EAST SIDE	FF 91 36 35 - 1708
ED 65 WEST SIDE	FF 91 36 35 - 1709
TYPICAL JACK DETAIL - ISOMETRIC	FF 91 36 35 - 1710
4. POSITION OF CRACK MEASURING GAUGES	
ED 35 EAST SIDE	FF 91 36 35 - 1711
ED 35 WEST SIDE	FF 91 36 35 - 1712
ED 65 EAST SIDE	FF 91 36 35 - 1713
ED 65 WEST SDIE	FF 91 36 35 - 1714
ISOMETRIC OF CRACK MEASURING GAUGE	FF 91 36 35 - 1715

12. REPAIRS ON EXTERIOR DIAPHRAGMS

DRAWING TITLE	E.A.N DRAWING No
5. CRACK MONITORING DEVICE (SYMINEX SENSOR)	
DIAPHRAGM ED 35 ISOMETRIC	FF 91 36 35 - 1716
DIAPHRAGM ED 65 ISOMETRIC	FF 91 36 35 - 1717
SECONDARY CABLES LAYOUT	FF 91 36 35 - 1718
JUNCTION BOX ISOMETRIC	FF 91 36 35 - 1719
BELL MOUTH ISOMETRIC	FF 91 36 35 - 1720
GENERAL ARRANGEMENT JUNCTION BOX BELL MOUTH	FF 91 36 35 - 1721
RESERVED	FF 91 36 35 - 1722
RESERVED	FF 91 36 35 - 1723
RESERVED	FF 91 36 35 - 1724