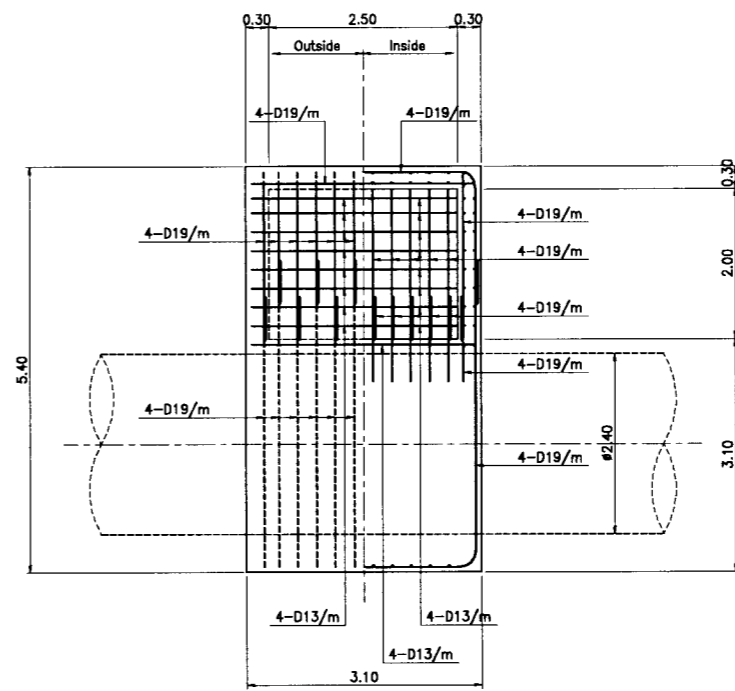
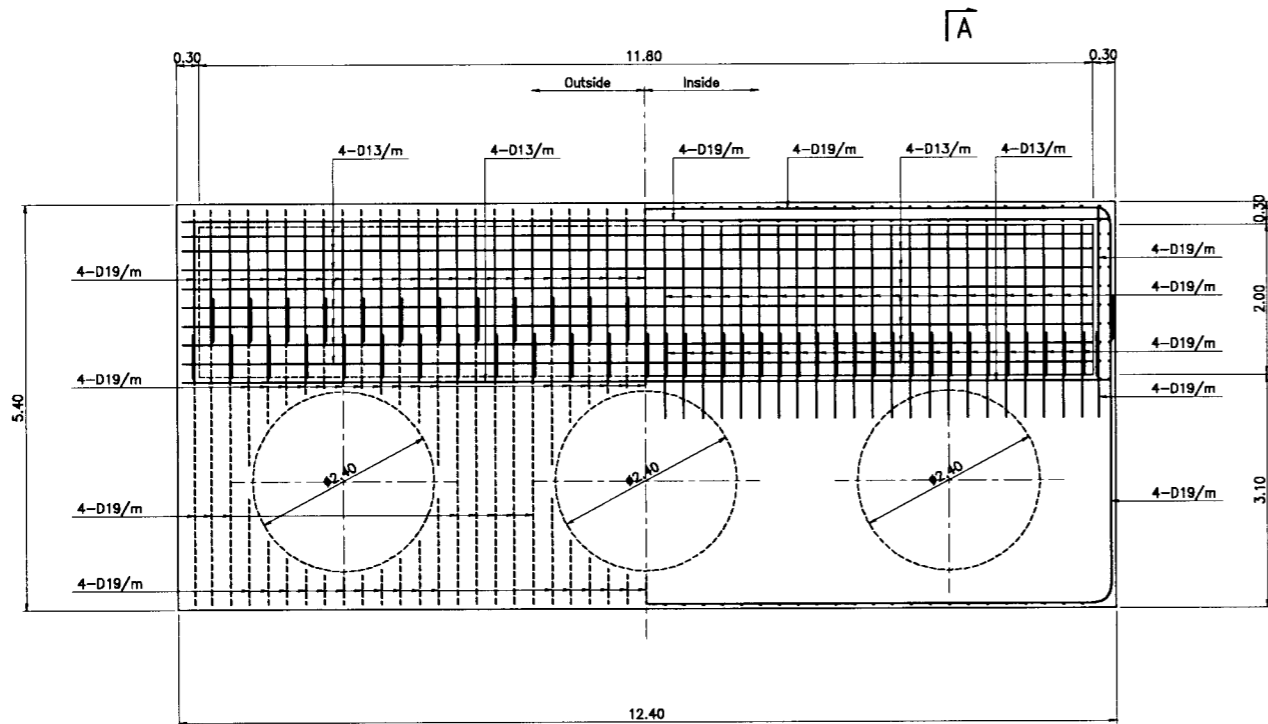
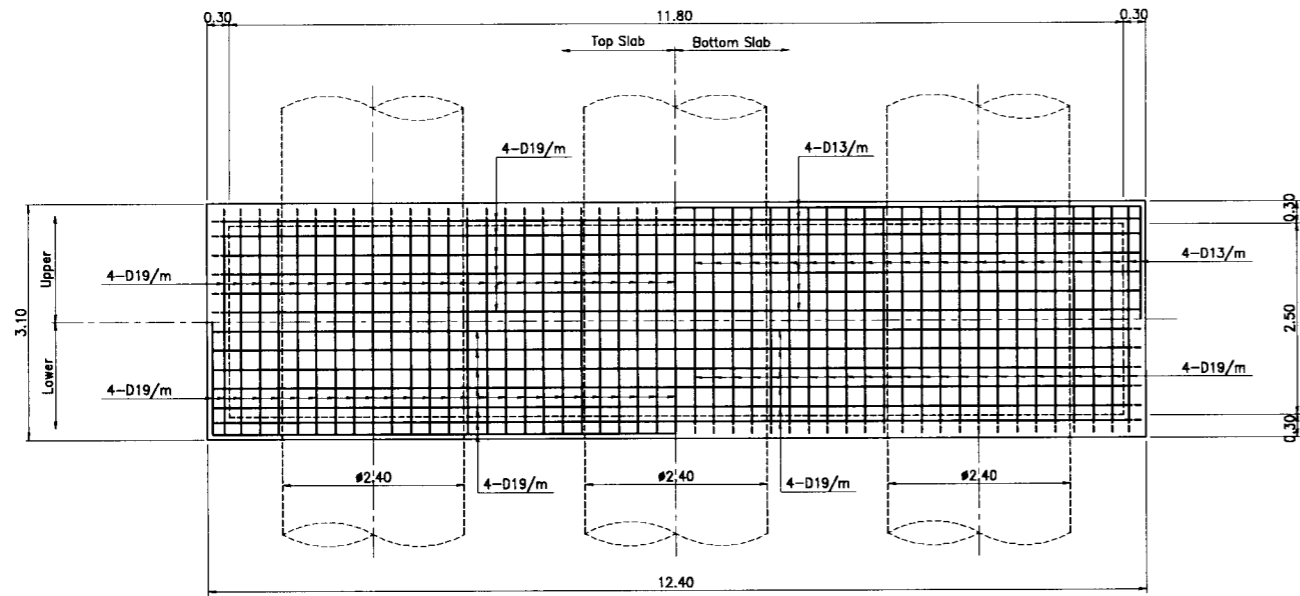
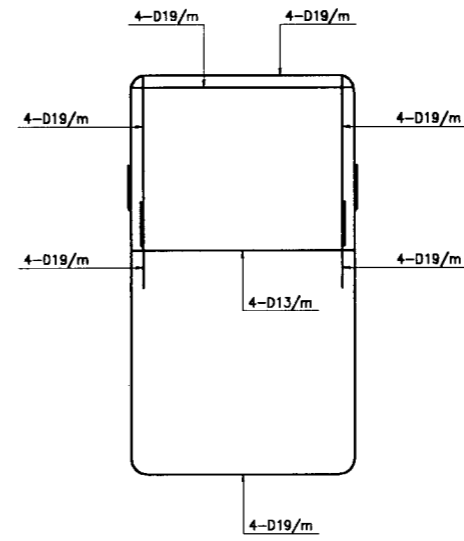
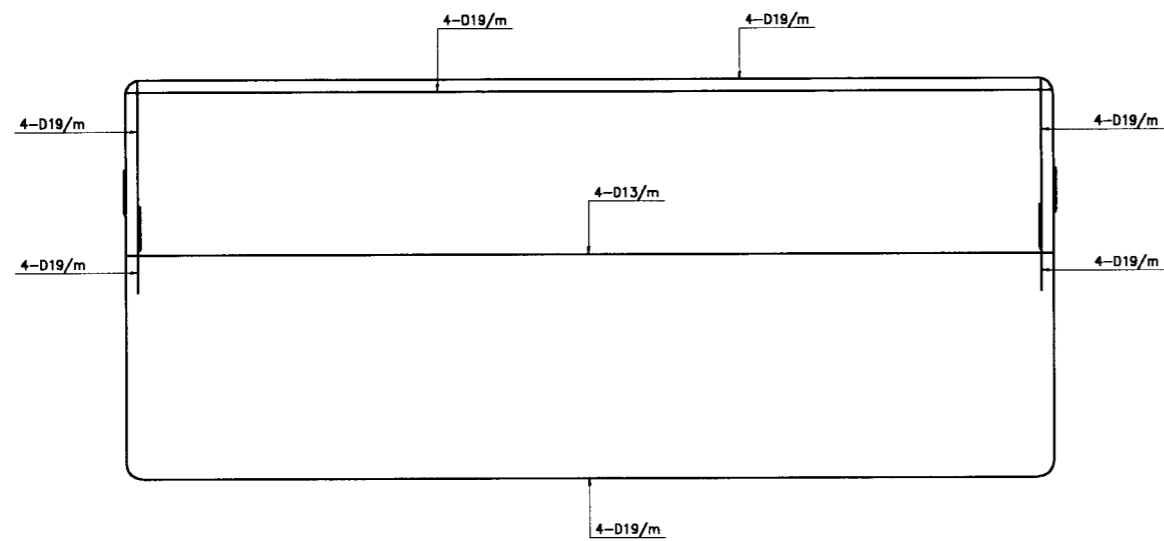


**AIR VALVE WORKS**  
SCALE 1:100

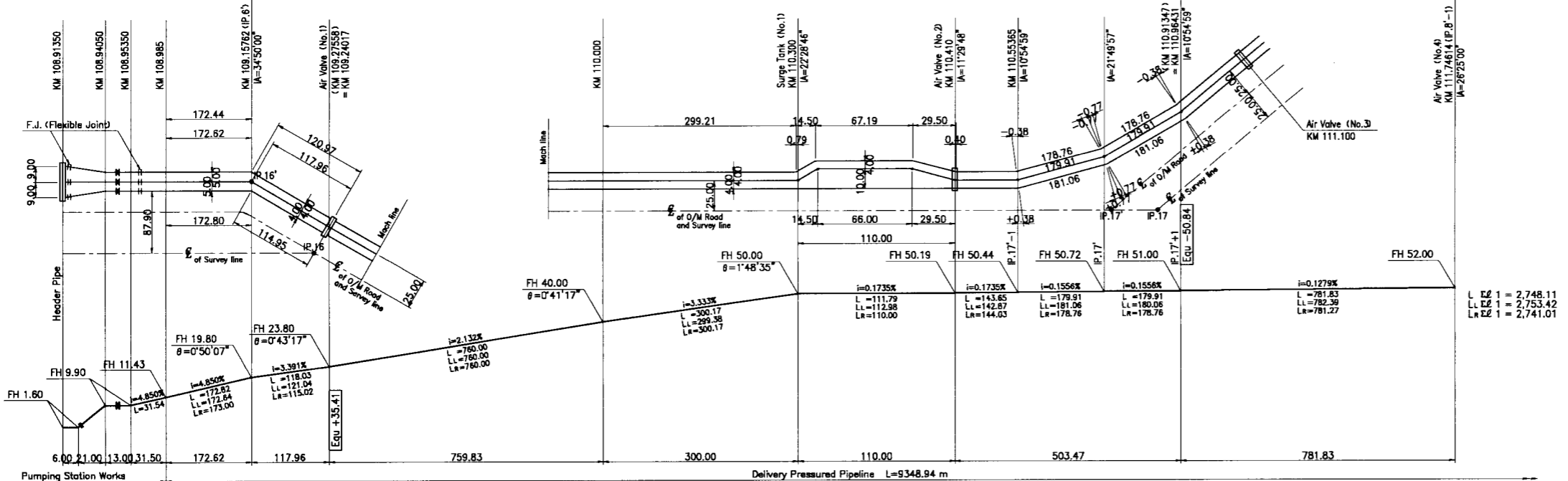


**SECTION A-A**

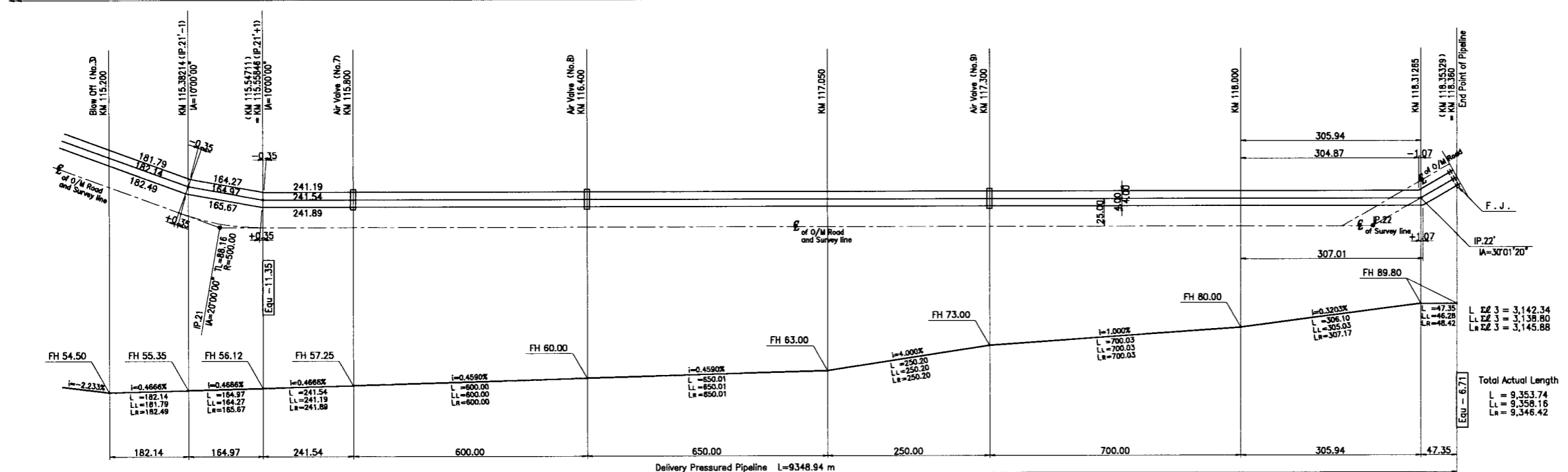
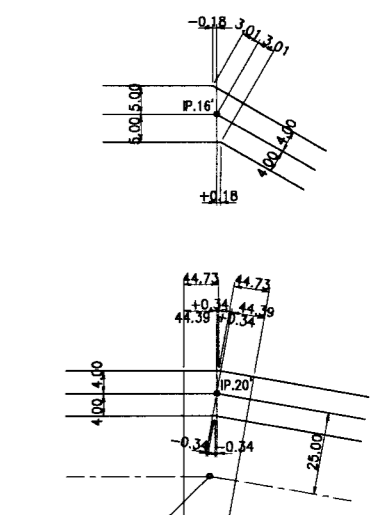
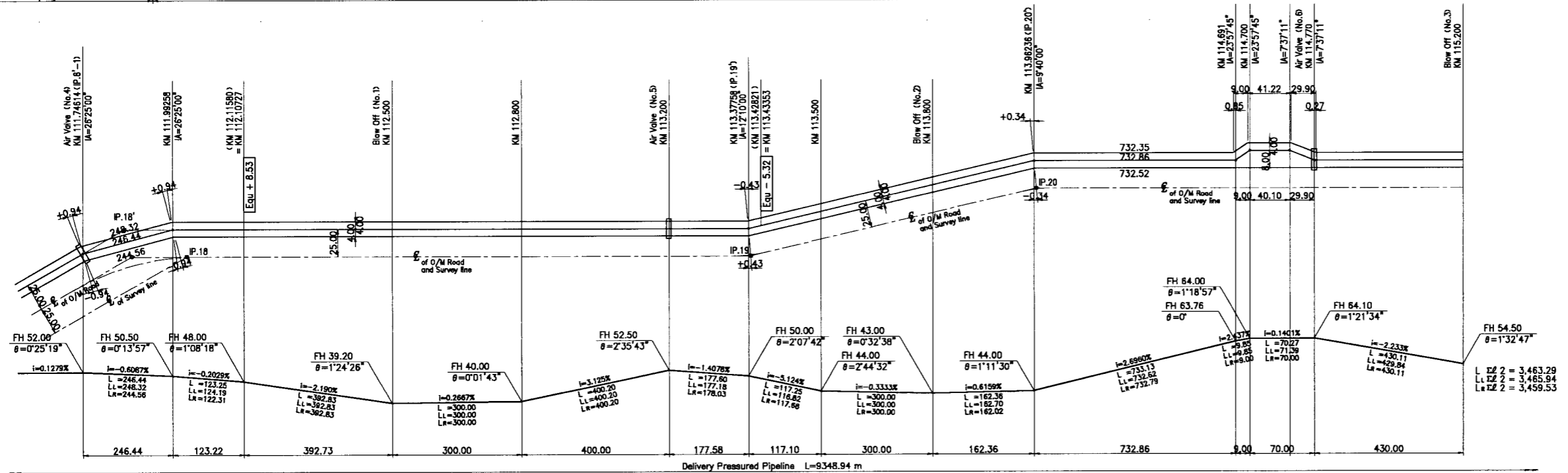


SCALE 1:100

|   |         |
|---|---------|
| THE ARAB REPUBLIC OF EGYPT<br>MINISTRY OF WATER RESOURCES AND IRRIGATION<br>NORTH SINAI DEVELOPMENT ORGANIZATION<br>THE NORTH SINAI INTEGRATED RURAL<br>DEVELOPMENT PROJECT (PHASE III)<br>CONVEYANCE SYSTEM OF EL SHEIKH GABER EL SABBABH CANAL<br>BETWEEN KM 108.466 AND KM 118.560<br>EL SALAAM No.7 (BIR EL ABD) PUMPING STATION<br>DELIVERY PRESSURED PIPELINE<br>AIR VALVES<br>REINFORCEMENTS |         |
| JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)<br>SANYU CONSULTANTS INC., PACIFIC CONSULTANTS INTERNATIONAL  |         |
| DESIGNED  |         |
| TRACED  |         |
| CHECKED   |         |
| APPROVED  |         |
| DRAWING NO.   | DPP-254 |



- NOTES:**
- This drawing shows actual length of each row, inter angles, slopes and others for Pipeline.
  - LEGEND**  
*i* : Gradient of Pipeline  
*IA* : Horizontal inter angle  
*θ* : Vertical inter angle  
*L* : Actual length of middle row of Pipeline  
*L<sub>L</sub>* : Actual length of left row of Pipeline  
*L<sub>R</sub>* : Actual length of right row of Pipeline  
*FH* : Elevation of pipe Center
  - Compound angles of horizontal and vertical inter angle, see drawing No. DPP-256.



THE ARAB REPUBLIC OF EGYPT  
 MINISTRY OF WATER RESOURCES AND IRRIGATION  
 NORTH SINAI DEVELOPMENT ORGANIZATION

**THE NORTH SINAI INTEGRATED RURAL DEVELOPMENT PROJECT (PHASE III)**

CONVEYANCE SYSTEM OF EL SHEIKH GABER EL SABBAH CANAL  
 BETWEEN KM 108.466 AND KM 118.580  
 EL SALAAM No.7 (BIR EL ABD) PUMPING STATION  
**DELIVERY PRESSURED PIPELINE**  
 DETAILS OF PIPE ALIGNMENT

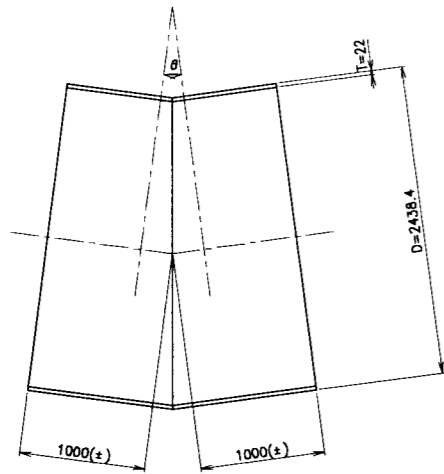
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)  
 SANYU CONSULTANTS INC., PACIFIC CONSULTANTS INTERNATIONAL

|             |         |
|-------------|---------|
| DESIGNED    |         |
| TRACED      |         |
| CHECKED     |         |
| APPROVED    |         |
| DRAWING NO. | DPP-255 |

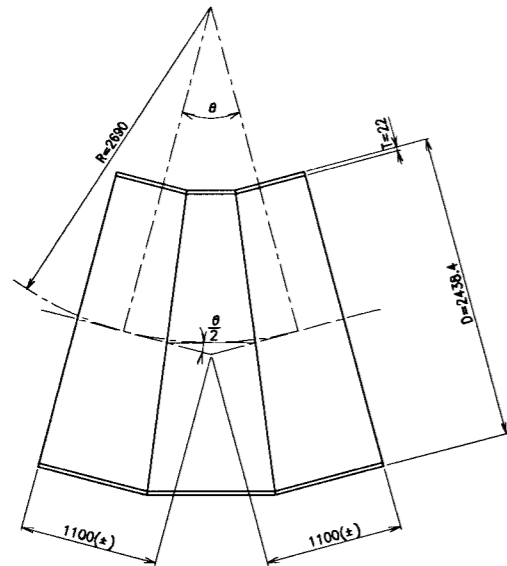
Total Actual Length  
*L* = 9,353.74  
*L<sub>L</sub>* = 9,358.16  
*L<sub>R</sub>* = 9,346.42

**DETAILS FOR BENDS**

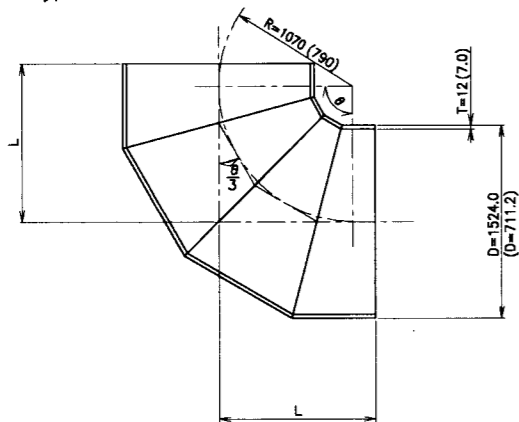
Type 1 :  $\theta \leq 30^\circ$



Type 2 :  $30^\circ < \theta \leq 60^\circ$



Type 3 :  $60^\circ < \theta \leq 90^\circ$



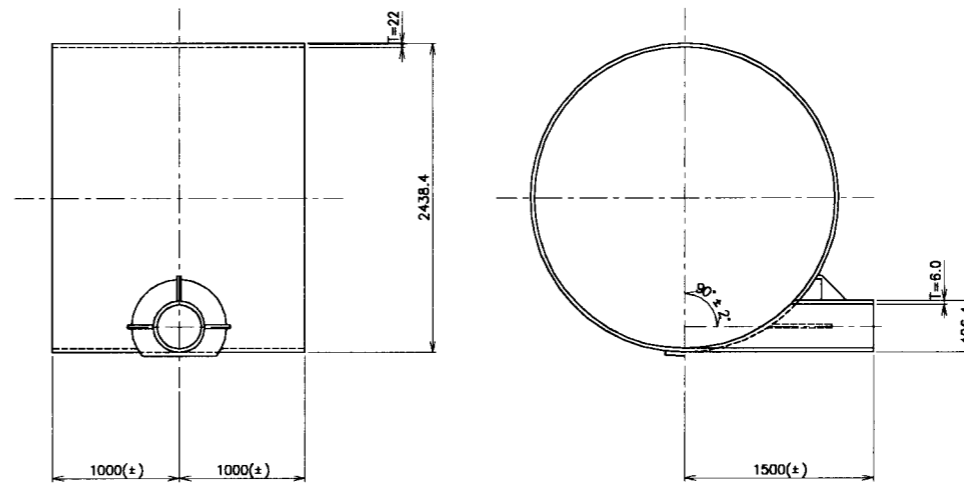
L : 1250(±) for D=1500  
( 950(±) for D=700 )  
Referred to Surge Tank Works

Table Major dimensions of pipe bends (D=2400mm)

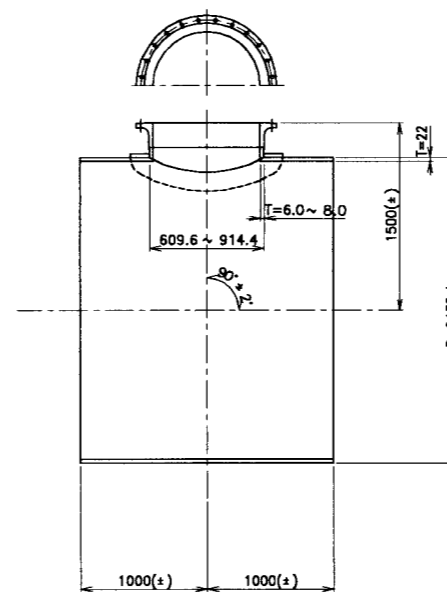
| Location     | Real Pipe Length (m) | Compound Angle $\theta$ (° - ' - ") | Type | L   | Remark                   |
|--------------|----------------------|-------------------------------------|------|-----|--------------------------|
| KM108+985.00 | 0.000                |                                     |      |     |                          |
| KM109+157.62 | 172.823              | 34 - 48 - 45                        | 2    | 1.1 |                          |
| IP.16        | 118.028              | 0 - 43 - 14                         | 1    | 1.0 |                          |
| KM110+ 0.00  | 760.003              | 0 - 41 - 15                         | 1    | 1.0 |                          |
| KM110+300.00 | 300.167              | 22 - 32 - 52                        | 1    | 1.0 |                          |
| KM110+315.69 | 15.690               | 22 - 28 - 45                        | 1    | 1.0 |                          |
| KM110+381.69 | 66.000               | 11 - 29 - 47                        | 1    | 1.0 |                          |
| KM110+410.00 | 30.100               | 11 - 29 - 47                        | 1    | 1.0 |                          |
| KM110+553.65 | 143.650              | 10 - 54 - 58                        | 1    | 1.0 |                          |
| IP.17        | 179.910              | 21 - 49 - 57                        | 1    | 1.0 |                          |
| KM110+964.31 | 179.910              | 10 - 54 - 59                        | 1    | 1.0 |                          |
| KM111+746.14 | 781.831              | 26 - 25 - 11                        | 1    | 1.0 |                          |
| KM111+992.58 | 246.445              | 26 - 25 - 35                        | 1    | 1.0 |                          |
| KM112+115.80 | 123.245              | 0 - 5 - 57                          |      |     | Jointed by straight pipe |
| KM112+500.00 | 392.825              | 1 - 23 - 9                          | 1    | 1.0 |                          |
| KM112+800.00 | 300.001              | 1 - 39 - 56                         | 1    | 1.0 |                          |
| KM113+200.00 | 400.195              | 2 - 35 - 47                         | 1    | 1.0 |                          |
| IP.19        | 177.598              | 12 - 20 - 38                        | 1    | 1.0 |                          |
| KM113+500.00 | 117.254              | 2 - 42 - 14                         | 1    | 1.0 |                          |
| KM113+750.00 | 250.002              | 0 - 29 - 56                         |      |     |                          |
| IP.20        | 212.362              | 9 - 44 - 56                         | 1    | 1.0 |                          |
| KM114+691.00 | 733.126              | 23 - 57 - 17                        | 1    | 1.0 |                          |
| KM114+700.00 | 9.853                | 23 - 59 - 45                        | 1    | 1.0 |                          |
| KM114+740.10 | 40.100               | 7 - 37 - 10                         | 1    | 1.0 |                          |
| KM114+770.00 | 30.170               | 7 - 44 - 22                         | 1    | 1.0 |                          |
| KM115+200.00 | 430.107              | 1 - 32 - 47                         | 1    | 1.0 |                          |
| KM115+382.14 | 182.142              | 9 - 59 - 59                         | 1    | 1.0 |                          |
| KM115+558.46 | 164.972              | 9 - 59 - 59                         | 1    | 1.0 |                          |
| KM115+800.00 | 241.543              | 0 - 0 - 14                          |      |     | Jointed by straight pipe |
| KM117+ 50.00 | 1250.013             | 2 - 1 - 37                          | 1    | 1.0 |                          |
| KM117+300.00 | 250.200              | 1 - 43 - 3                          | 1    | 1.0 |                          |
| KM118+ 0.00  | 700.035              | 1 - 15 - 42                         | 1    | 1.0 |                          |
| IP.22        | 306.097              | 30 - 4 - 22                         | 2    | 1.1 |                          |
| KM118+380.00 | 47.350               |                                     |      |     |                          |
| Total        | 9353.747             |                                     |      |     |                          |

Note : Real pipe Length and Compound Angle are Shown the middle of three (3) pipelines

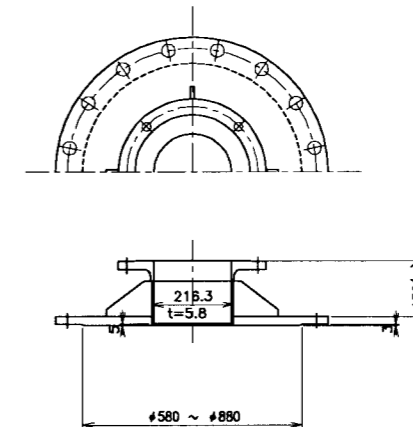
**DETAIL FOR BLOW OFF PIPE**



**DETAIL FOR MANHOLE PIPE**



**DETAIL FOR AIR VALVE COVER**



**NOTES:**

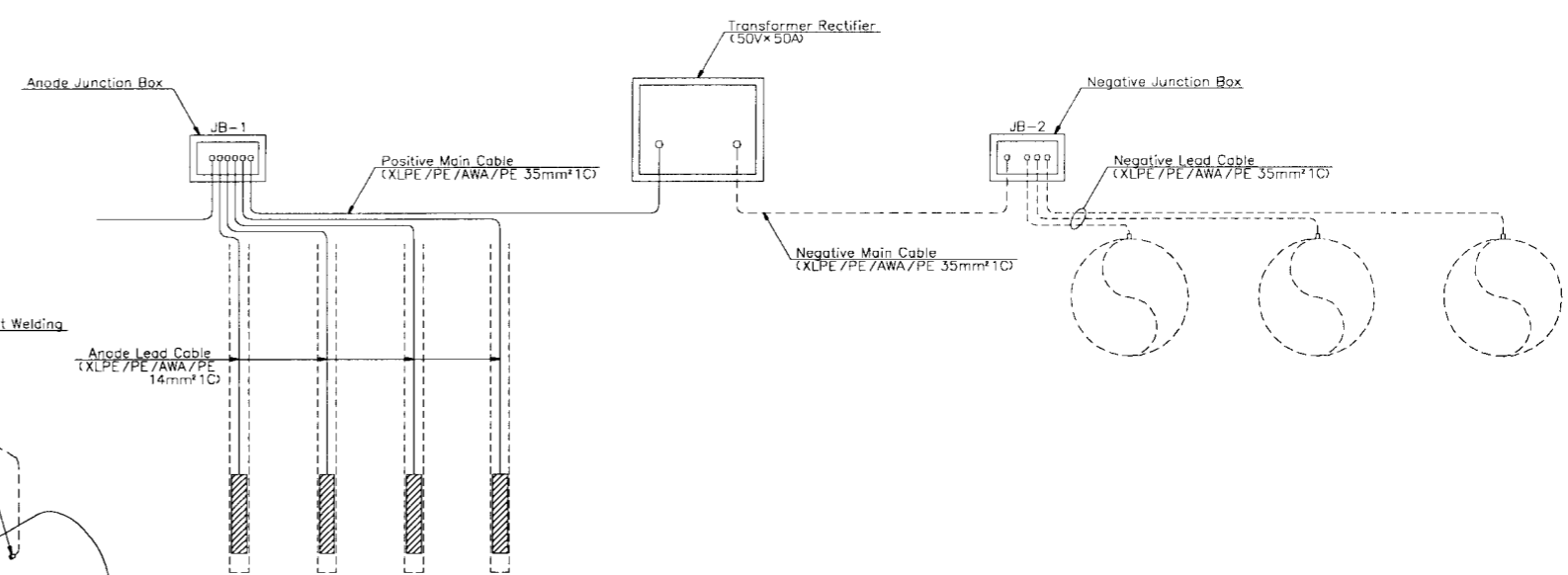
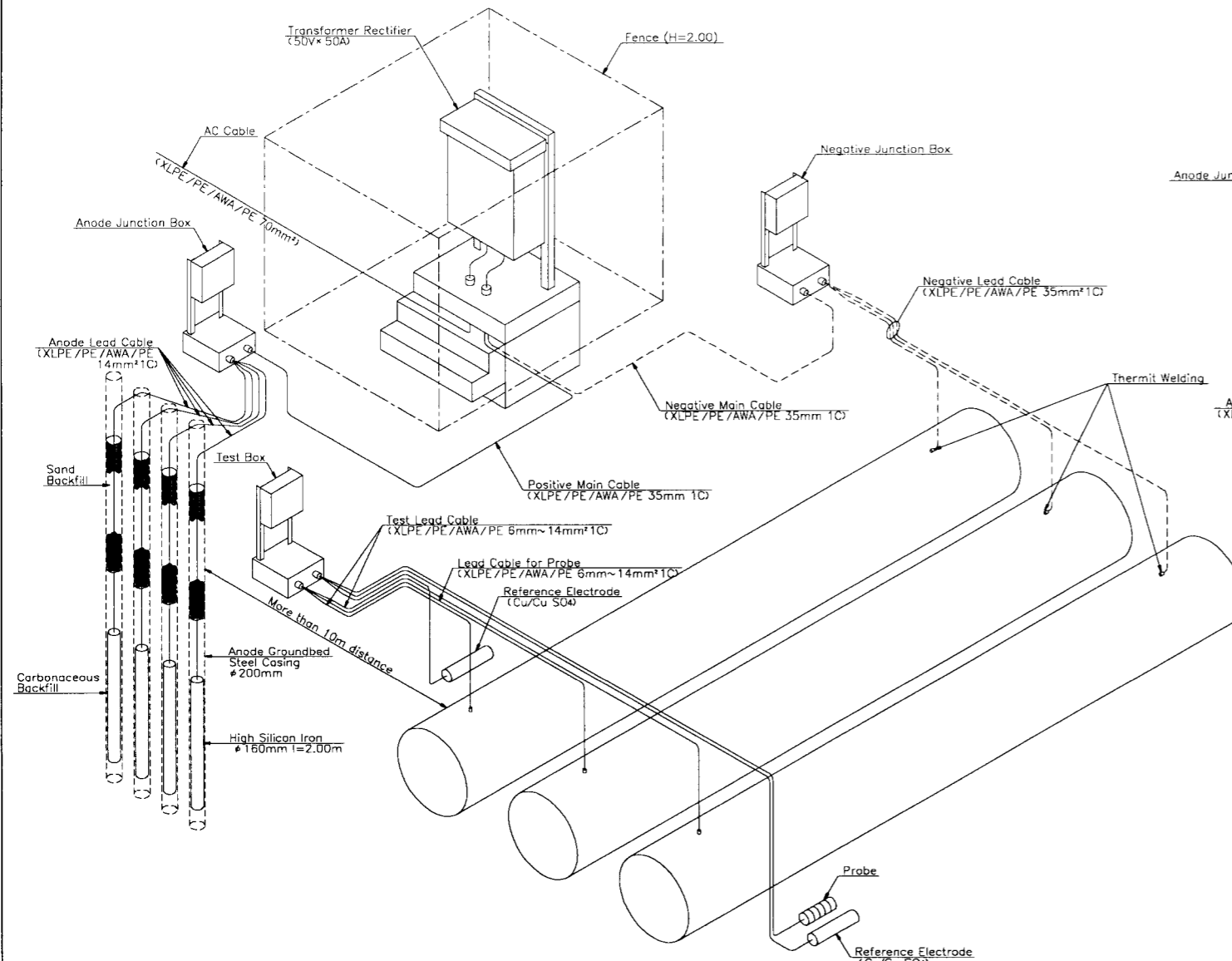
- (1) This drawing is shown in mm unless otherwise shown, but not to Scale.
- (2) Figures in this drawing are shown only for reference.

THE ARAB REPUBLIC OF EGYPT  
MINISTRY OF WATER RESOURCES AND IRRIGATION  
NORTH SINAI DEVELOPMENT ORGANIZATION  
THE NORTH SINAI INTEGRATED RURAL  
DEVELOPMENT PROJECT (PHASE III)

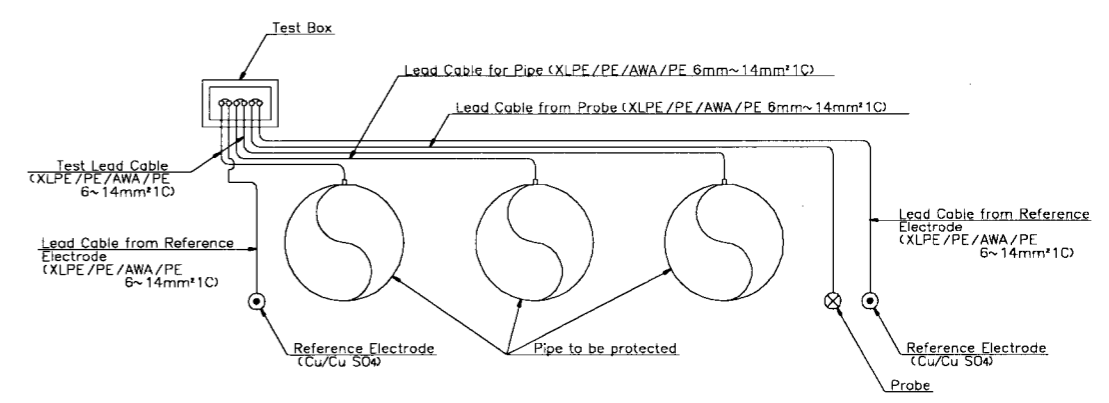
CONVEYANCE SYSTEM OF EL SHEIKH GABER EL SABBABH CANAL  
BETWEEN KM 108.466 AND KM118.560  
EL SALAAM No.7 (BIR EL ABD) PUMPING STATION  
DELIVERY PRESSURED PIPELINE  
DETAILS OF PIPE SPECIALS

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)  
SANYU CONSULTANTS INC., PACIFIC CONSULTANTS INTERNATIONAL

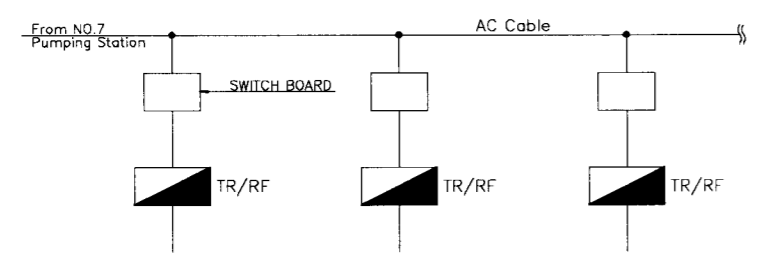
|             |         |
|-------------|---------|
| DESIGNED    |         |
| TRACED      |         |
| CHECKED     |         |
| APPROVED    |         |
| DRAWING NO. | DPP-256 |



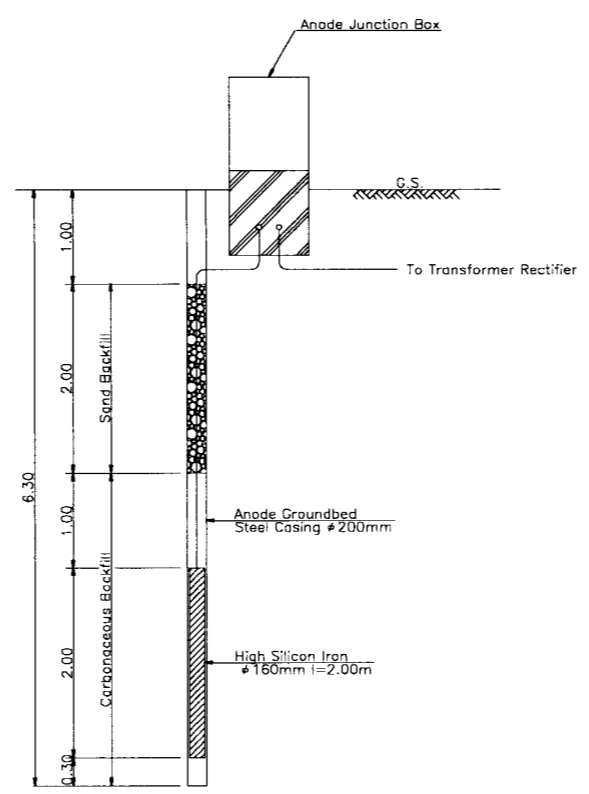
WIRING DIAGRAM OF CATHODIC PROTECTION SYSTEM



WIRING DIAGRAM AT TEST BOX



ELECTRIC DISTRIBUTION DIAGRAM



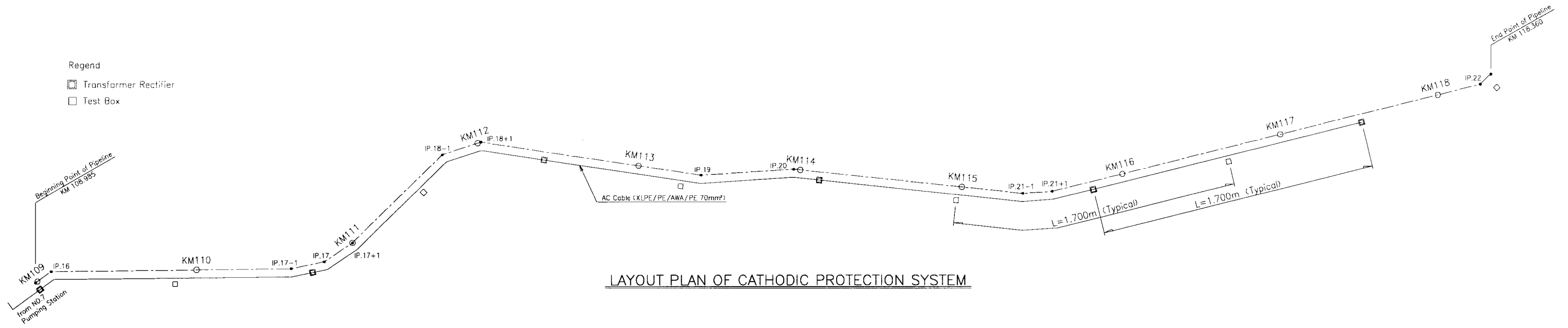
DETAIL OF ANODE GROUND BED

Notes:  
 Each Box (switch board boxes, transformer rectifier boxes, test boxes, negative junction boxes and anode junction boxes) shall be installed on a concrete stand with more than 1.0m height, and these facilities shall be surrounded by 2m height of fence with door.

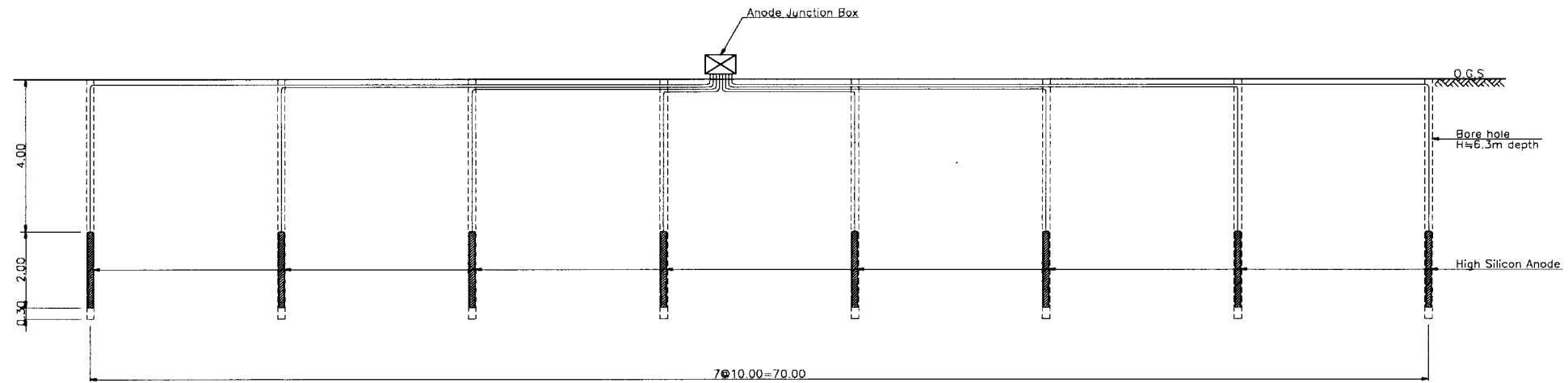
|   |         |
|---|---------|
| THE ARAB REPUBLIC OF EGYPT<br>MINISTRY OF WATER RESOURCES AND IRRIGATION<br>NORTH SINAI DEVELOPMENT ORGANIZATION                          |         |
| THE NORTH SINAI INTEGRATED RURAL DEVELOPMENT PROJECT (PHASE III)  |         |
| CONVEYANCE SYSTEM OF EL SHEIKH GABER EL SABBABH CANAL<br>BETWEEN KM 108.466 AND KM 118.560<br>EL SALAAM No.7 (BIR EL ABD) PUMPING STATION |         |
| DELIVERY PRESSURED PIPELINE<br>DETAILS OF CATHODIC PROTECTION SYSTEM (1/2)  |         |
| JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)<br>SANYU CONSULTANTS INC, PACIFIC CONSULTANTS INTERNATIONAL                                 |         |
| DESIGNED  |         |
| TRACED  |         |
| CHECKED   |         |
| APPROVED  |         |
| DRAWING NO.   | DPP-257 |

Legend

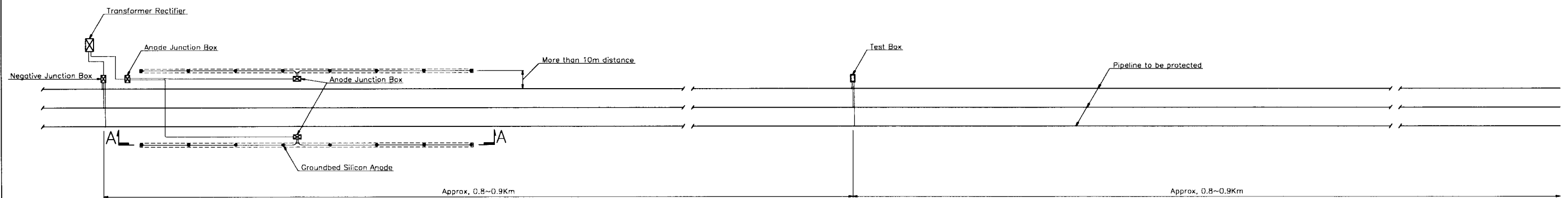
- ◻ Transformer Rectifier
- ◻ Test Box



LAYOUT PLAN OF CATHODIC PROTECTION SYSTEM

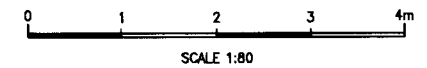
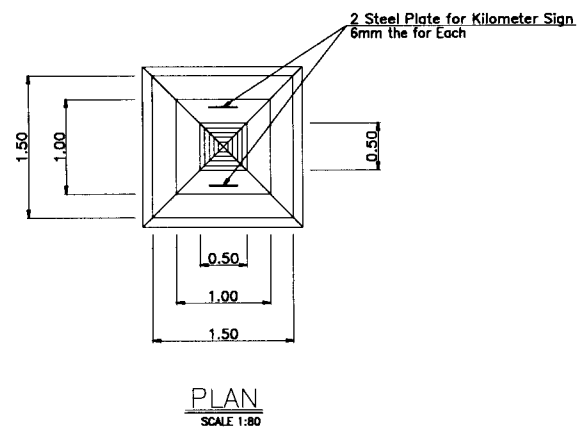
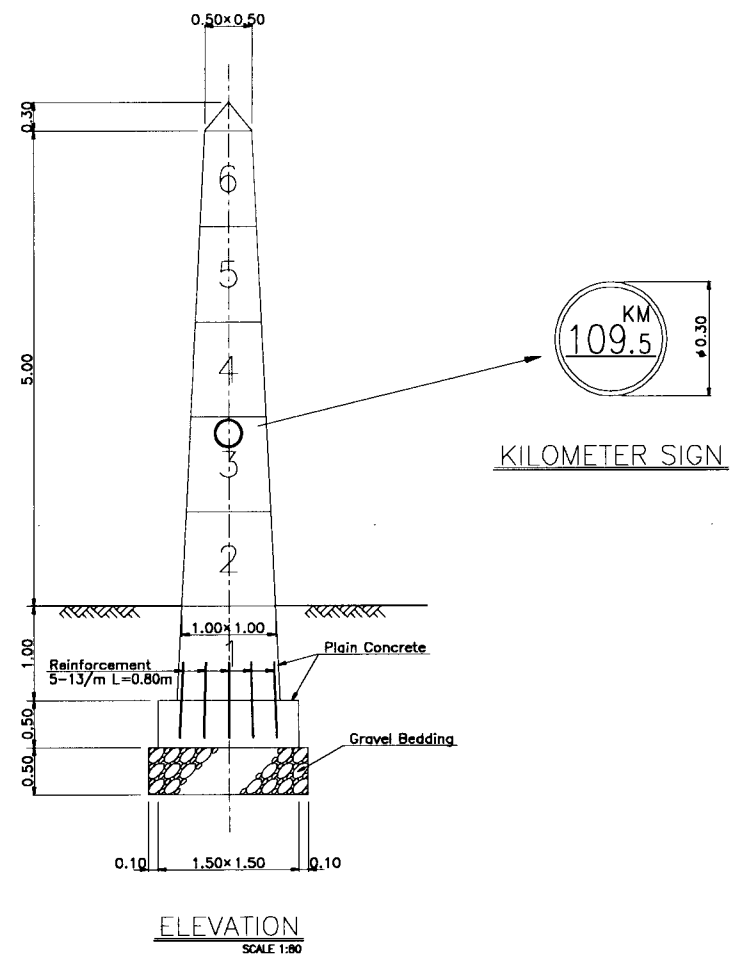


SECTION A-A

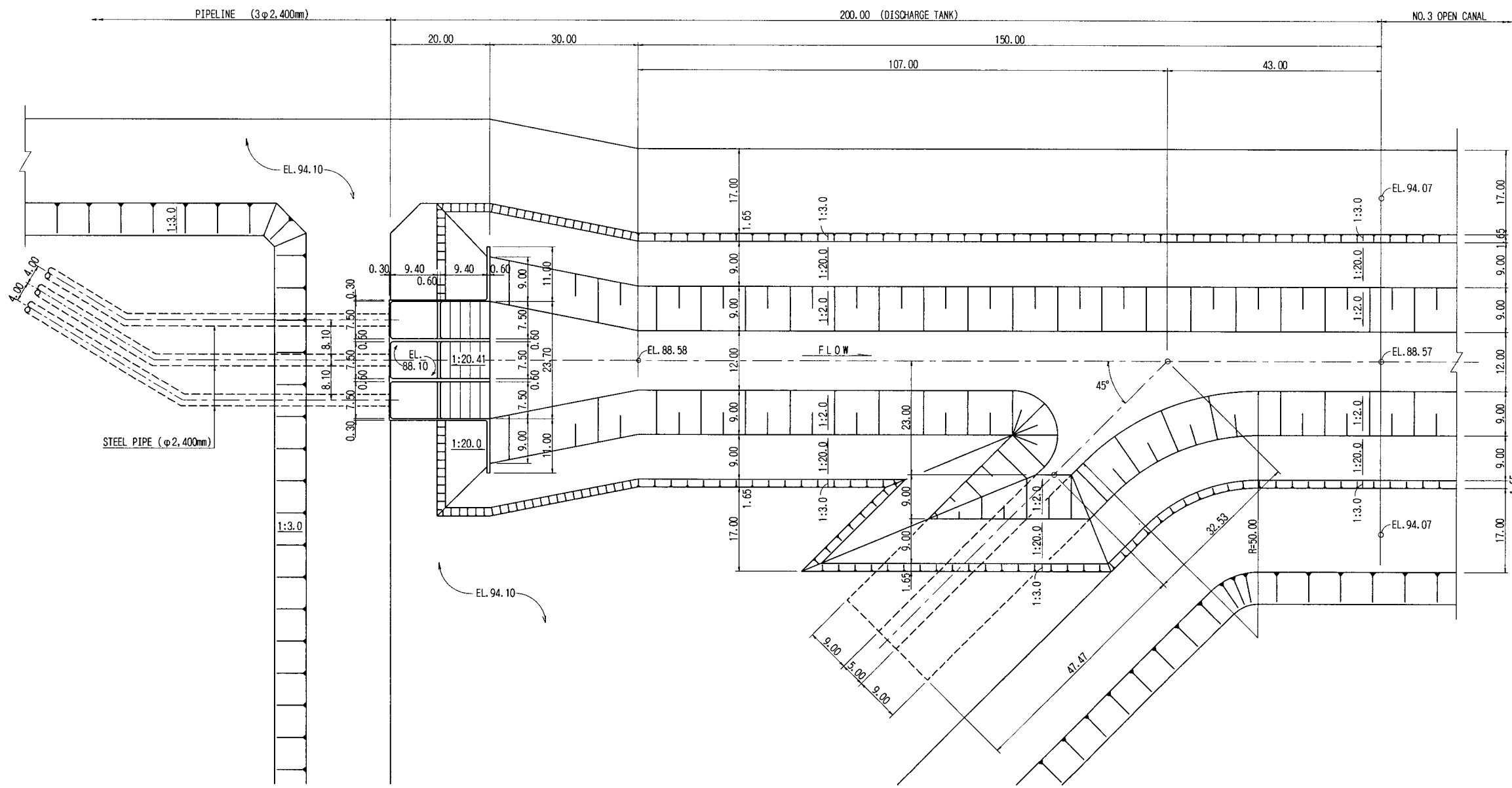


LAYOUT PLAN OF CATHODIC PROTECTION SYSTEM

|  |         |
|--|---------|
| THE ARAB REPUBLIC OF EGYPT<br>MINISTRY OF WATER RESOURCES AND IRRIGATION<br>NORTH SINAI DEVELOPMENT ORGANIZATION<br>THE NORTH SINAI INTEGRATED RURAL<br>DEVELOPMENT PROJECT (PHASE III)<br>CONVEYANCE SYSTEM OF EL SHEIKH GABER EL SABBAAH CANAL<br>BETWEEN KM 108.466 AND KM 118.560<br>EL SALAAM NO.7 (BIR EL ABD) PUMPING STATION<br>DELIVERY PRESSURED PIPELINE<br>DETAILS OF CATHODIC PROTECTION SYSTEM (2/2) |         |
| JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)<br>SANYU CONSULTANTS INC./PACIFIC CONSULTANTS INTERNATIONAL  |         |
| DESIGNED   |         |
| TRACED   |         |
| CHECKED  |         |
| APPROVED   |         |
| DRAWING NO.  | DPP-258 |



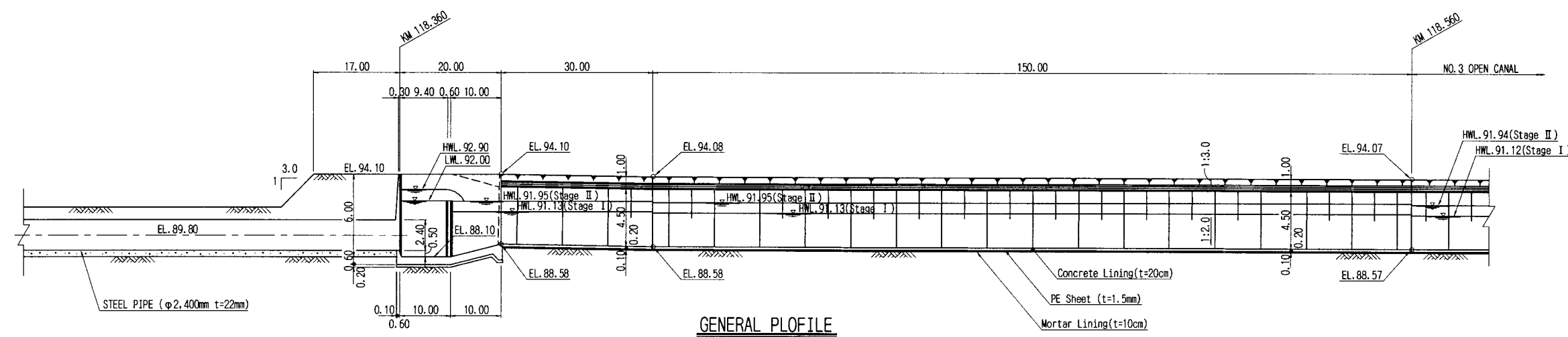
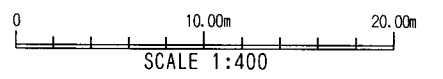
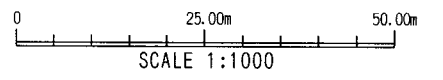
|   |         |
|---|---------|
| THE ARAB REPUBLIC OF EGYPT<br>MINISTRY OF WATER RESOURCES AND IRRIGATION<br>NORTH SINAI DEVELOPMENT ORGANIZATION<br>THE NORTH SINAI INTEGRATED RURAL<br>DEVELOPMENT PROJECT (PHASE III)               |         |
| CONVEYANCE SYSTEM OF EL SHEIKH GABER EL SABBABH CANAL<br>BETWEEN KM 108.466 AND KM 118.560<br>EL SALAAM No.7 (BIR EL ABD) PUMPING STATION<br>DELIVERY PRESSURED PIPELINE<br>DETAIL OF CONCRETE COLUMN |         |
| JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)<br>SANYU CONSULTANTS INC., PACIFIC CONSULTANTS INTERNATIONAL  |         |
| DESIGNED  |         |
| TRACED  |         |
| CHECKED   |         |
| APPROVED  |         |
| DRAWING NO.   | DPP-259 |



**GENERAL PLAN**  
SCALE 1:1000

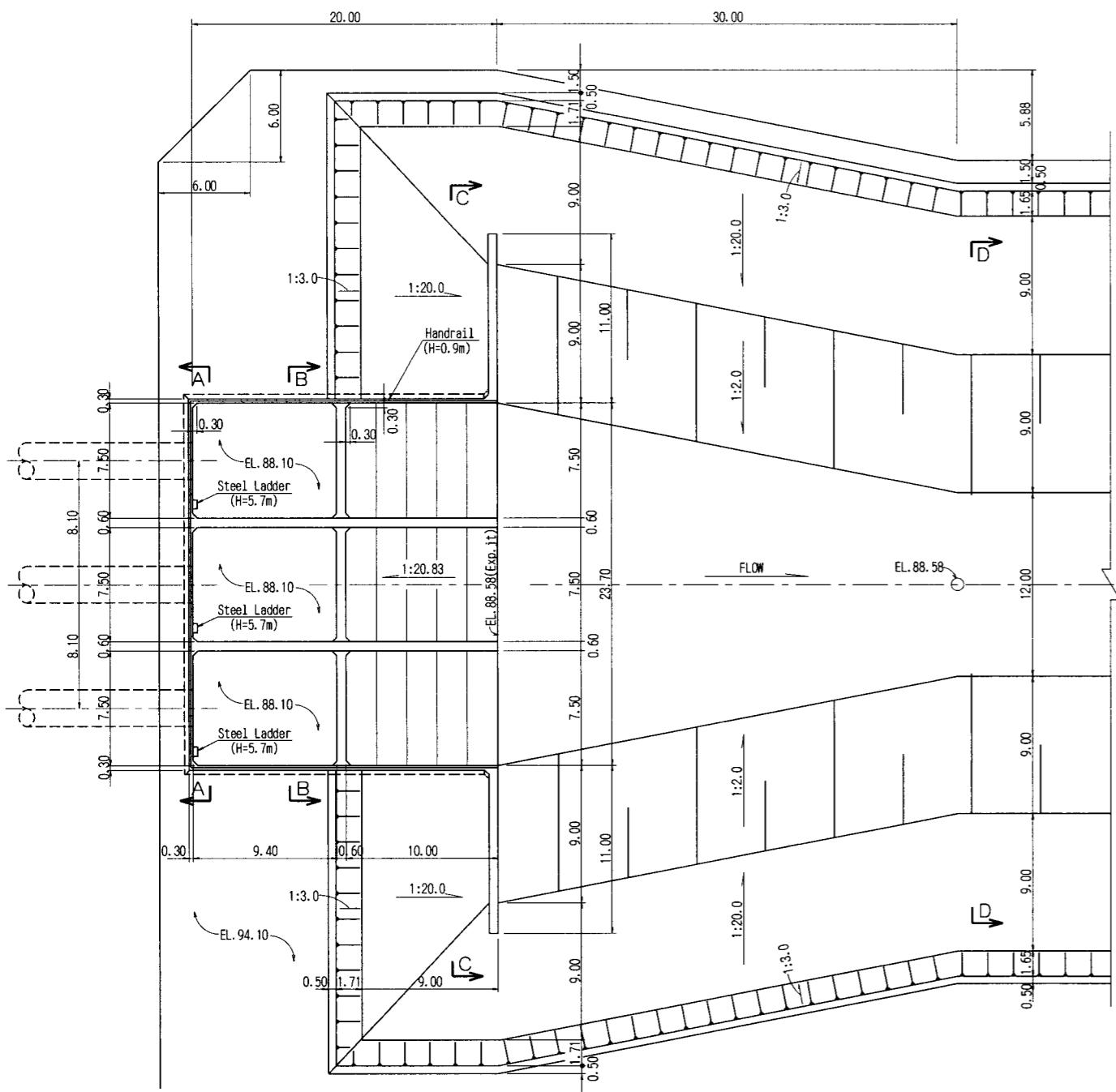
**NOTES:**

1. This drawing scales are as follows:

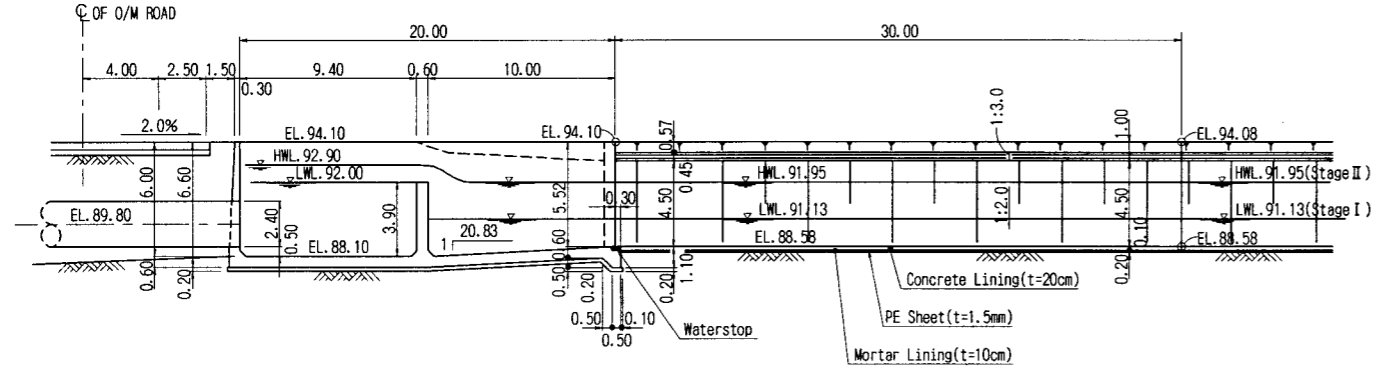


**GENERAL PROFILE**  
H; SCALE 1:1000 V; SCALE 1:400

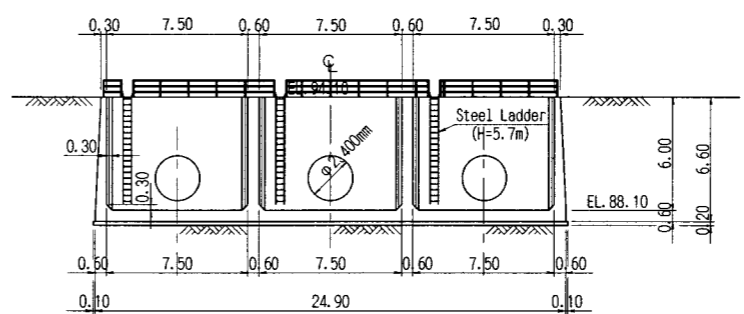
|  |         |
|--|---------|
| THE ARAB REPUBLIC OF EGYPT<br>MINISTRY OF WATER RESOURCES AND IRRIGATION<br>NORTH SINAI DEVELOPMENT ORGANIZATION                         |         |
| THE NORTH SINAI INTEGRATED RURAL<br>DEVELOPMENT PROJECT (PHASE III)  |         |
| CONVEYANCE SYSTEM OF EL SHEIKH GABER EL SABBAH CANAL<br>BETWEEN KM 108.466 AND KM 118.560<br>EL SALAAM No.7 (BIR EL ABO) PUMPING STATION |         |
| DISCHARGE TANK<br>GENERAL PLAN AND PROFILE   |         |
| JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)<br>SANYU CONSULTANTS INC, PACIFIC CONSULTANTS INTERNATIONAL                                |         |
| DESIGNED   |         |
| TRACED   |         |
| CHECKED  |         |
| APPROVED   |         |
| DRAWING NO.  | DST-201 |



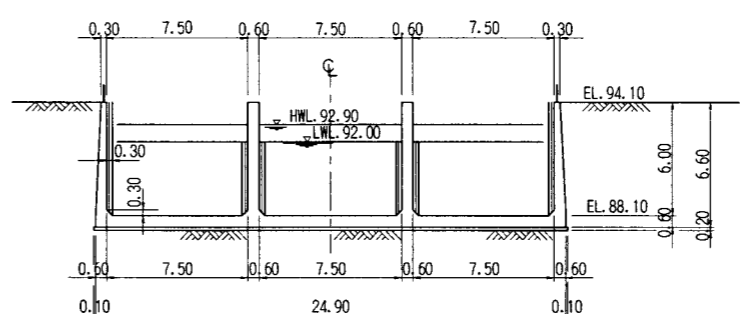
**DETAILED PLAN**  
SCALE 1:400



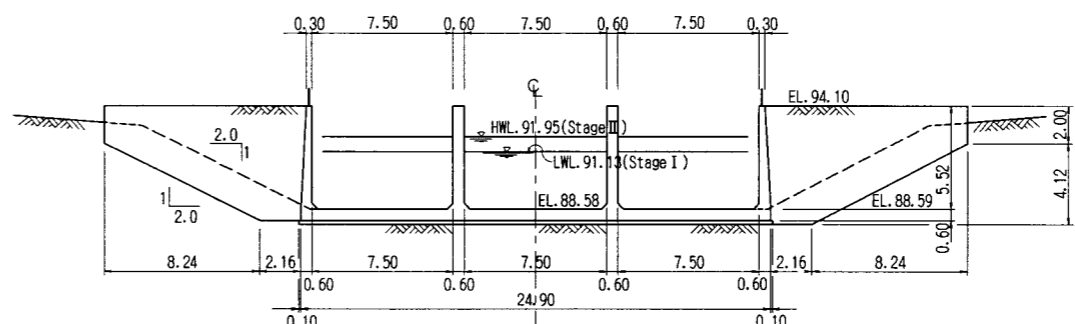
**DETAILED PROFILE**  
SCALE 1:400



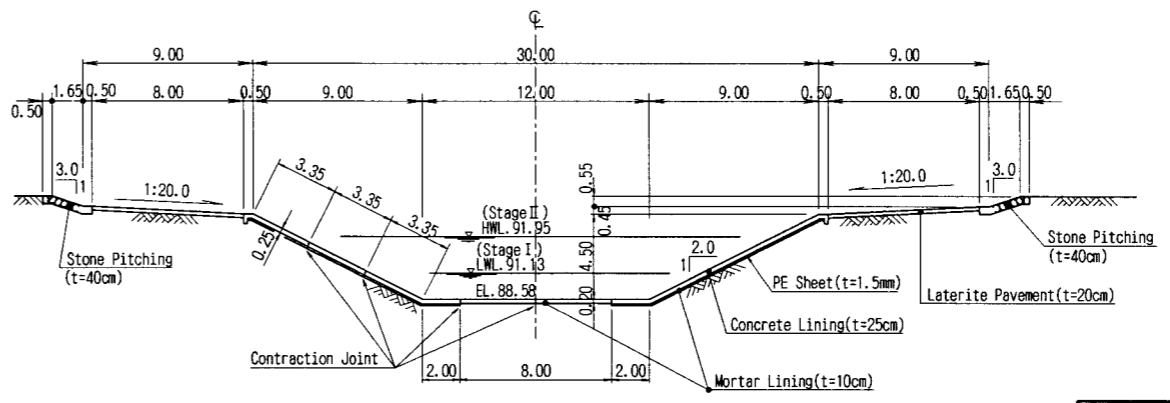
**SECTION A-A**  
SCALE 1:400



**SECTION B-B**  
SCALE 1:400



**SECTION C-C**  
SCALE 1:400

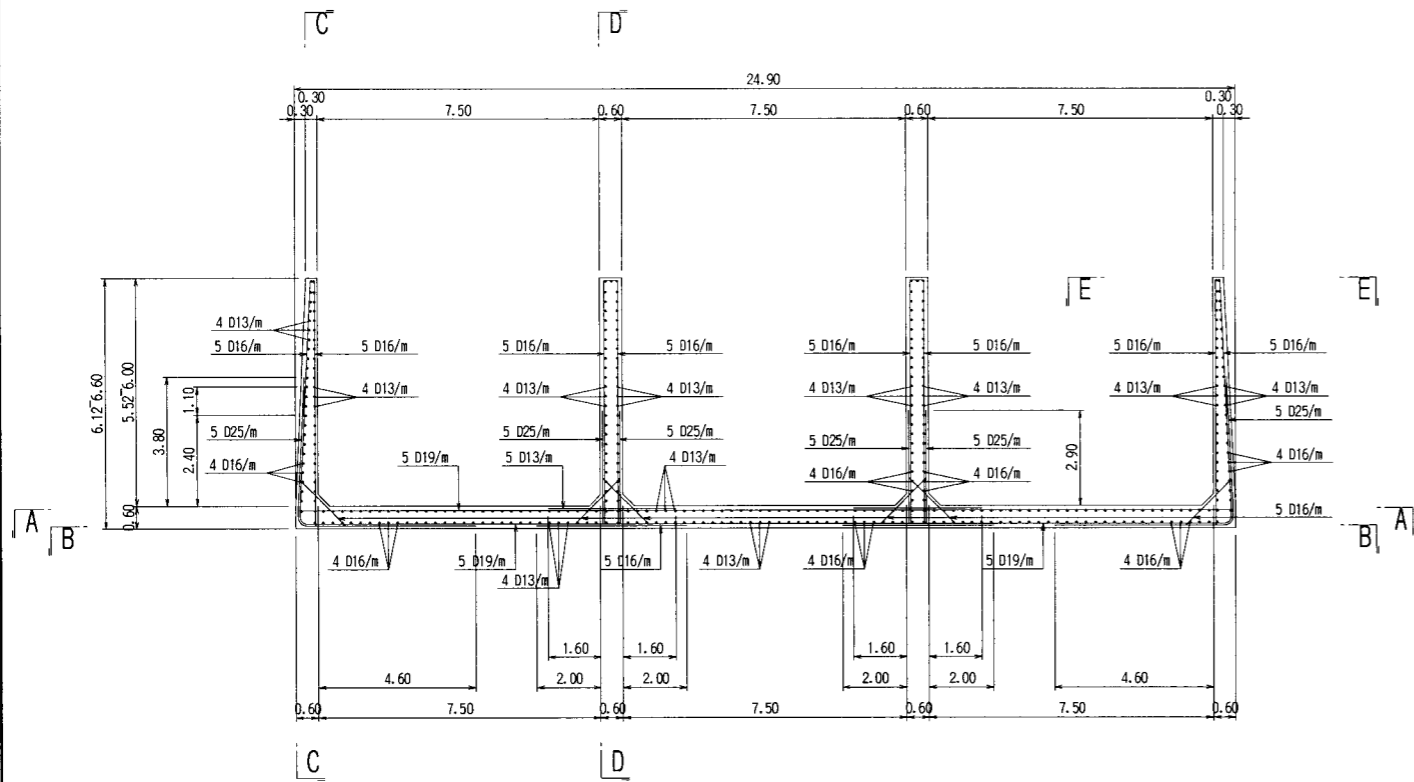


**SECTION D-D**  
SCALE 1:400

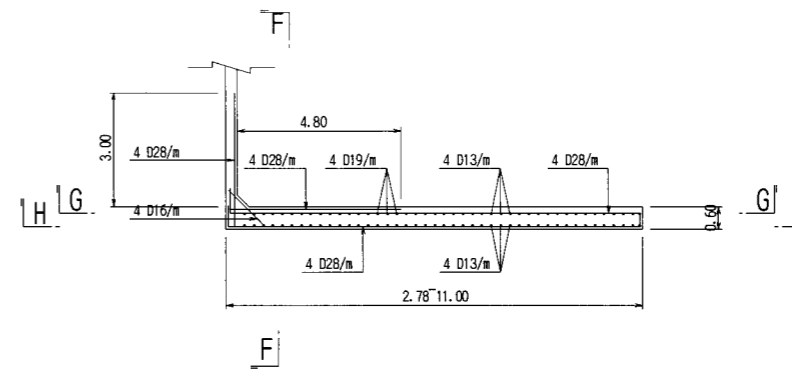
**NOTES:**  
1. This drawing scale is 1:400.  
0 10.00m 20.00m  
SCALE 1:400

|  |         |
|--|---------|
| THE ARAB REPUBLIC OF EGYPT<br>MINISTRY OF WATER RESOURCES AND IRRIGATION<br>NORTH SINAI DEVELOPMENT ORGANIZATION                           |         |
| THE NORTH SINAI INTEGRATED RURAL<br>DEVELOPMENT PROJECT (PHASE III)  |         |
| CONVEYANCE SYSTEM OF EL SHEIKH GABER EL SABBABH CANAL<br>BETWEEN KM 108.466 AND KM 118.560<br>EL SALAAM No. 7 (BIR EL ABD) PUMPING STATION |         |
| DISCHARGE TANK<br>DETAILED PLAN, PROFILE AND SECTIONS  |         |
| JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)<br>SANYU CONSULTANTS INC, PACIFIC CONSULTANTS INTERNATIONAL                                  |         |
| DESIGNED   |         |
| TRACED   |         |
| CHECKED  |         |
| APPROVED   |         |
| DRAWING NO.  | DST-202 |

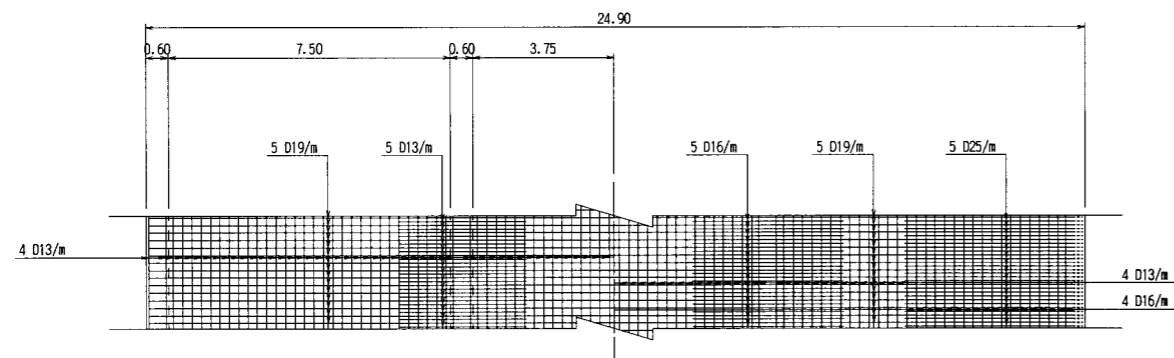




DISCHARGE TANK  
SCALE 1:200

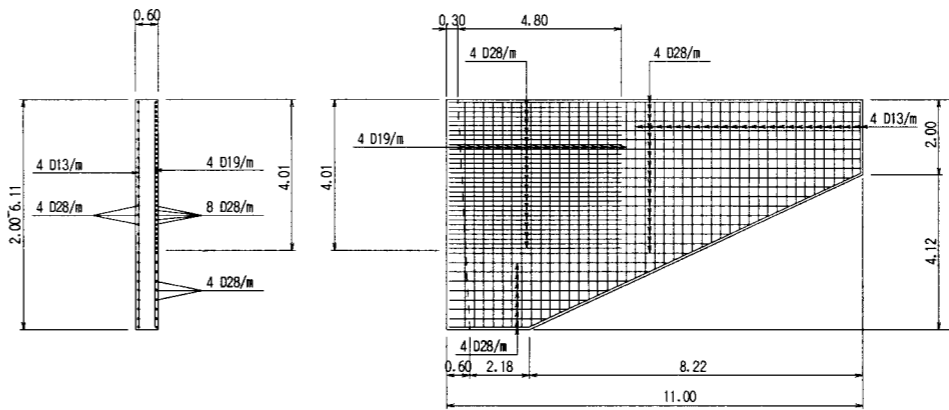


SECTION E-E  
SCALE 1:200



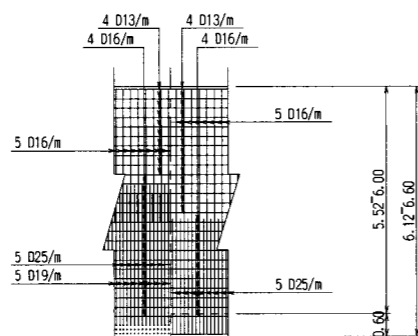
SECTION A-A  
SCALE 1:200

SECTION B-B  
SCALE 1:200



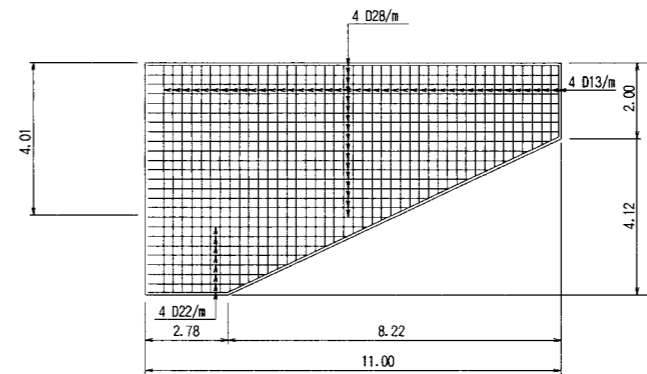
SECTION F-F  
SCALE 1:200

SECTION G-G  
SCALE 1:200



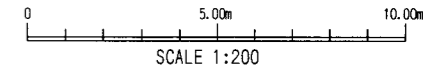
SECTION C-C  
SCALE 1:200

SECTION D-D  
SCALE 1:200



SECTION H-H  
SCALE 1:200

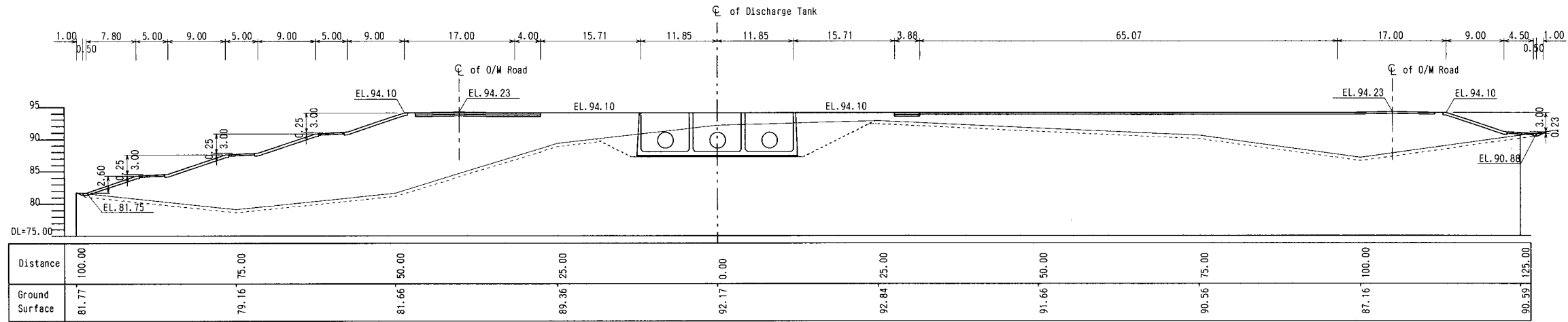
NOTES:  
1. This drawing scale is as follows:



|  |         |
|--|---------|
| THE ARAB REPUBLIC OF EGYPT<br>MINISTRY OF WATER RESOURCES AND IRRIGATION<br>NORTH SINAI DEVELOPMENT ORGANIZATION                           |         |
| THE NORTH SINAI INTEGRATED RURAL<br>DEVELOPMENT PROJECT (PHASE III)  |         |
| CONVEYANCE SYSTEM OF EL SHEIKH GABER EL SABBABH CANAL<br>BETWEEN KM 108.466 AND KM 118.560<br>EL SALAAM No. 7 (BIR EL ABD) PUMPING STATION |         |
| DISCHARGE TANK<br>REINFORCEMENT  |         |
| JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)<br>SANYU CONSULTANTS INC, PACIFIC CONSULTANTS INTERNATIONAL                                  |         |
| DESIGNED   |         |
| TRACED   |         |
| CHECKED  |         |
| APPROVED   |         |
| DRAWING NO.  | DST-203 |

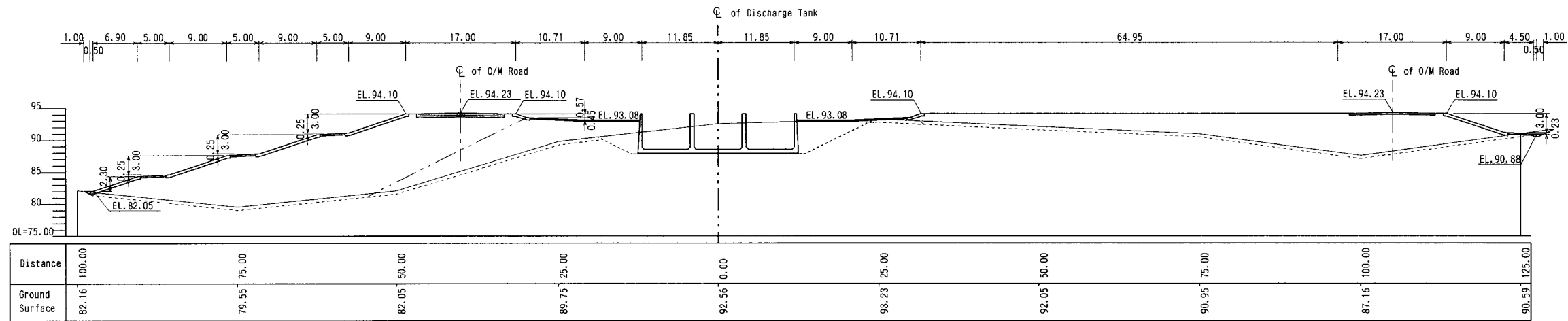
**KM 118.360**

GH = 92.17 m  
FH = 88.10 m



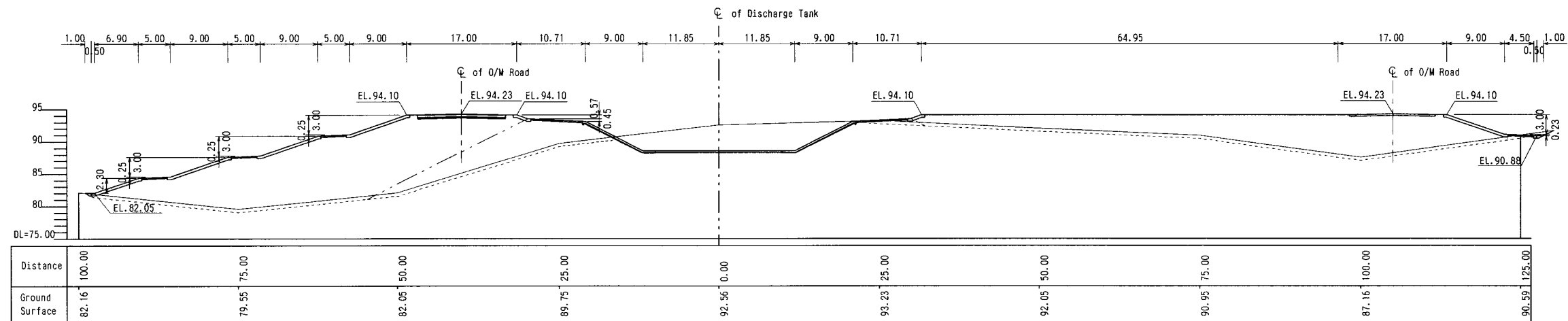
**KM 118.380 (B.S.)**

GH = 92.56 m  
FH = 88.58 m



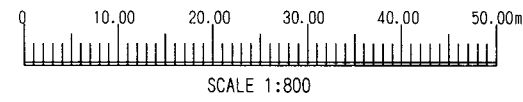
**KM 118.380 (F.S.)**

GH = 92.56 m  
FH = 88.58 m



**NOTES:**

1. This drawing shows "DISTANCE 118.360KM to 118.380KM".
2. The benchmark referred to BM.07 of EL. 21.978 m.
3. This drawing scale is as follows :



THE ARAB REPUBLIC OF EGYPT  
MINISTRY OF WATER RESOURCES AND IRRIGATION  
NORTH SINAI DEVELOPMENT ORGANIZATION

THE NORTH SINAI INTEGRATED RURAL  
DEVELOPMENT PROJECT (PHASE III)

CONVEYANCE SYSTEM OF EL SHEIKH GABER EL SABBABH CANAL  
BETWEEN KM 108.466 AND KM 118.560  
EL SALAAM No. 7 (BIR EL ABD) PUMPING STATION

DISCHARGE TANK  
CROSS SECTIONS (1/2)

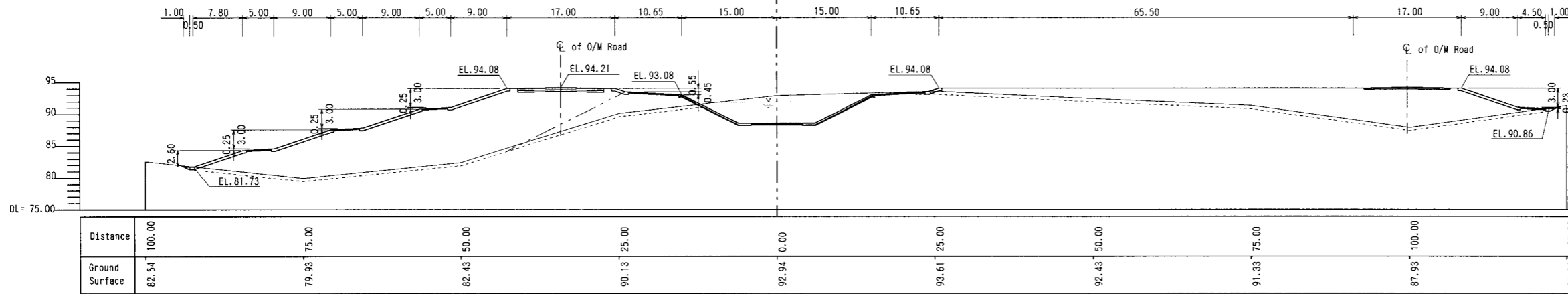
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)  
SANYU CONSULTANTS INC, PACIFIC CONSULTANTS INTERNATIONAL

|             |         |
|-------------|---------|
| DESIGNED    |         |
| TRACED      |         |
| CHECKED     |         |
| APPROVED    |         |
| DRAWING NO. | DST-204 |

**KM 118.410**

GH = 92.94 m  
FH = 88.58 m

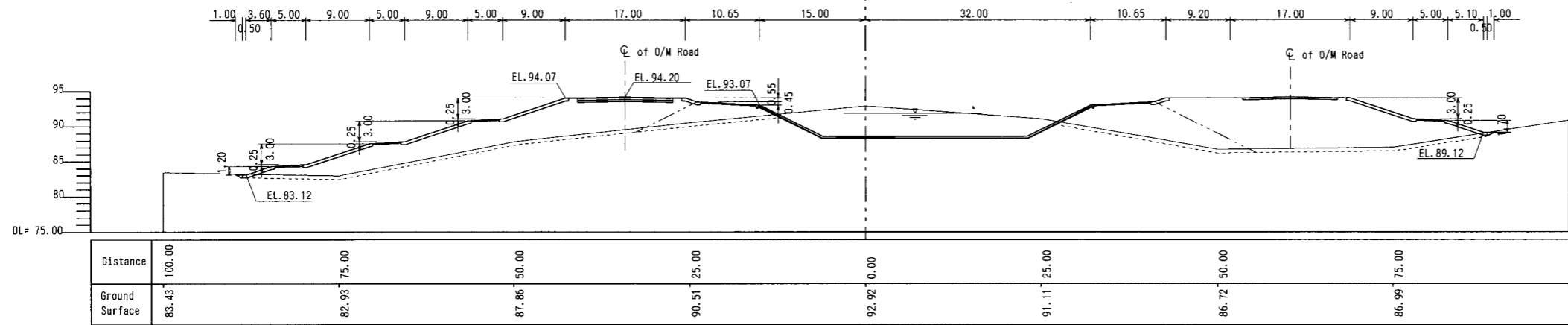
☉ of Discharge Tank



**KM 118.500**

GH = 92.92 m  
FH = 88.57 m

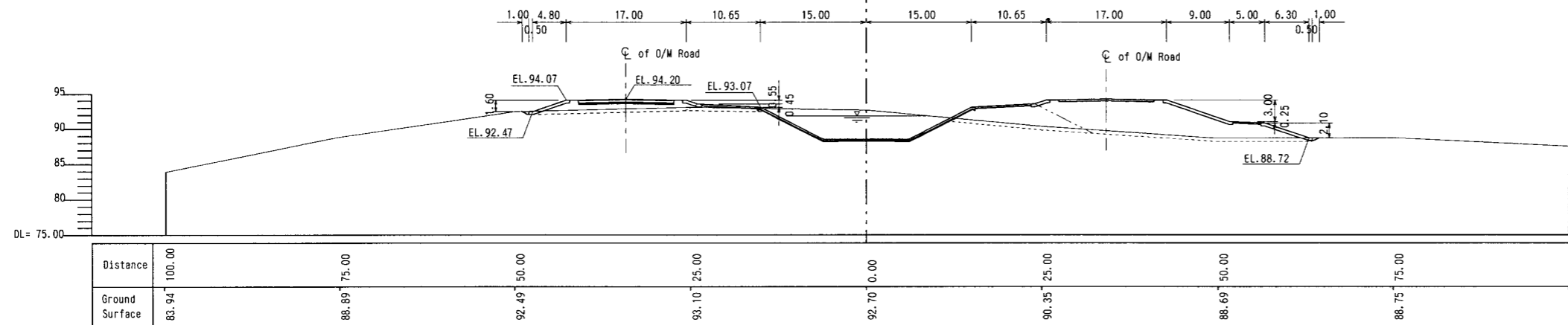
☉ of Discharge Tank



**KM 118.560**

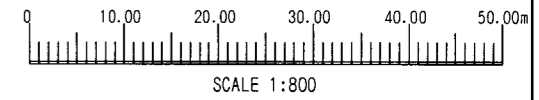
GH = 92.70 m  
FH = 88.57 m

☉ of Discharge Tank



**NOTES:**

1. This drawing shows "DISTANCE 118.410KM to 118.560KM".
2. The benchmark referred to BM.07 of EL. 21.978 m.
3. This drawing scale is as follows ;



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| THE NORTH SINAI INTEGRATED RURAL<br>DEVELOPMENT PROJECT (PHASE III)  |         |
| CONVEYANCE SYSTEM OF EL SHEIKH GABER EL SABBABH CANAL<br>BETWEEN KM 108.466 AND KM 118.560<br>EL SALAAM No. 7 (BIR EL ABD) PUMPING STATION |         |
| DISCHARGE TANK<br>CROSS SECTIONS (2/2)   |         |
| JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)<br>SANYU CONSULTANTS INC, PACIFIC CONSULTANTS INTERNATIONAL                                  |         |
| DESIGNED   |         |
| TRACED   |         |
| CHECKED  |         |
| APPROVED   |         |
| DRAWING NO.  | DST-205 |