

**APPENDIX E.5: Minutes and Resolutions for New Items from Study Team by the Letter on  
October 1999**

## **5. New Items to be Discussed and/or Confirmed**

**Item V-01 : The study team proposes suitable construction method of pipeline works for both Stage I and Stage II taking into account stock pile yards and realistic side slope protection.**

Resolution : According to the basic design report, the proposed center line of the pipes are installed 25 m interval from the centerline of operation/maintenance roads left hand side for stage I and right hand side for stage II, respectively. The followings are possible three case construction methods. (Refer to Figure V-1, V-2 and V-3 )

Case A : Construction works of the stage I pipeline are completely finished with surface and side slope protection works as indicates in the attached figure Case A. However, this case has no stock pile yard for 2,400mm steel pipe during the construction period and some part of the existing stone pitching (side slope protection) will be demolished before commencement of stage II pipe installation works.

Case B : Construction works of the stage I pipeline are completely finished with stock pile yard for stage I pipeline installation as illustrated in the figure Case B. Minimum width of stock pile yard is about 12 m for stage I pipeline installation.

Case C : Construction works of the stage I pipeline are completely finished with necessary protection works and earth work of both excavation and embankment will be finished for stage II considering stock pile yards for pipe installation of stage I as indicated in the figure Case C, except excavation and compaction of core parts of pipe installation for stage II.

Resolution : The conclusion of study team is Case B, because stock pile yard of pipe installation is necessary and temporary work for stage II shall be minimized taking into consideration of time interval of stage I and II project implementation.

Figure V-1 Case A

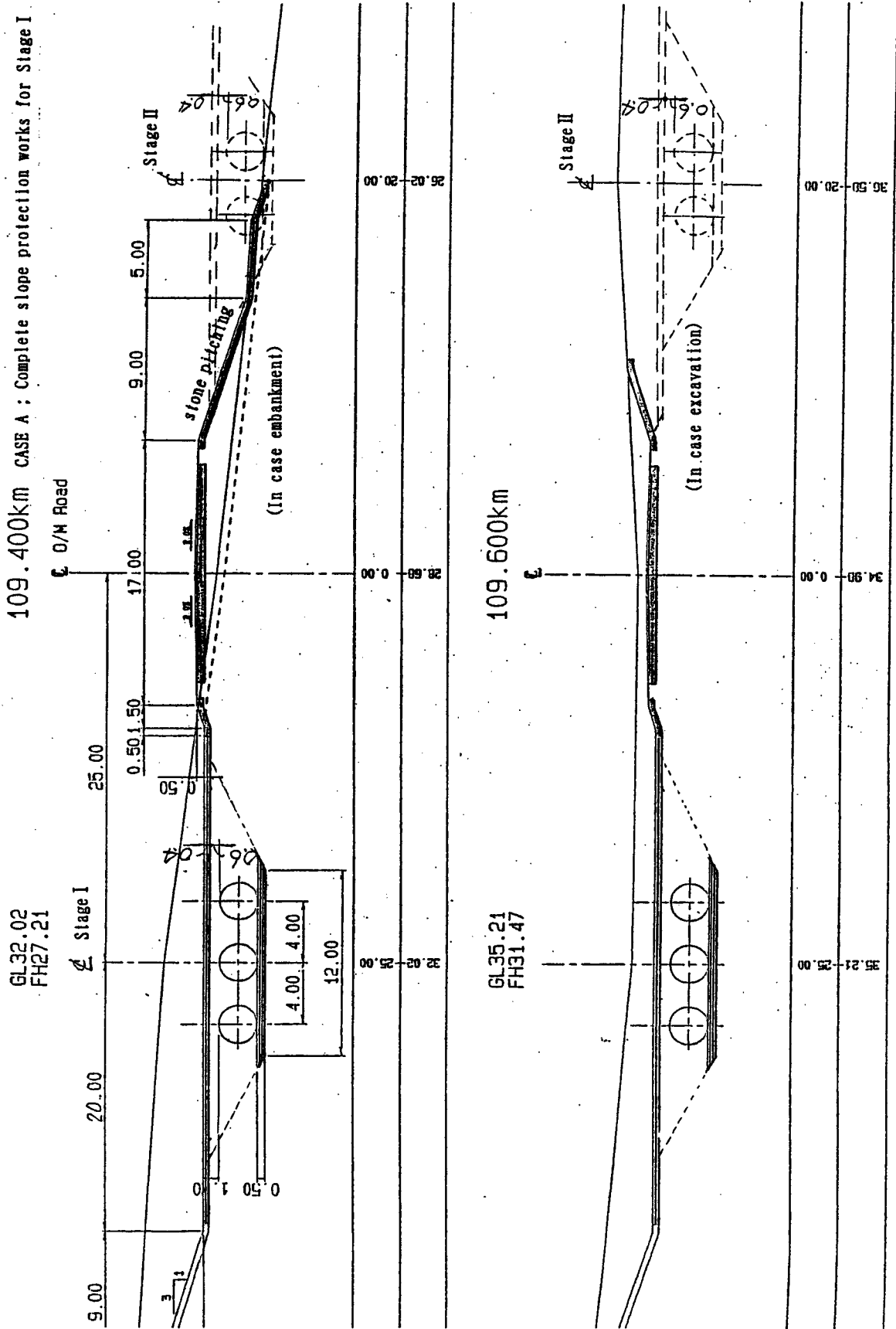


Figure V-2 Case B

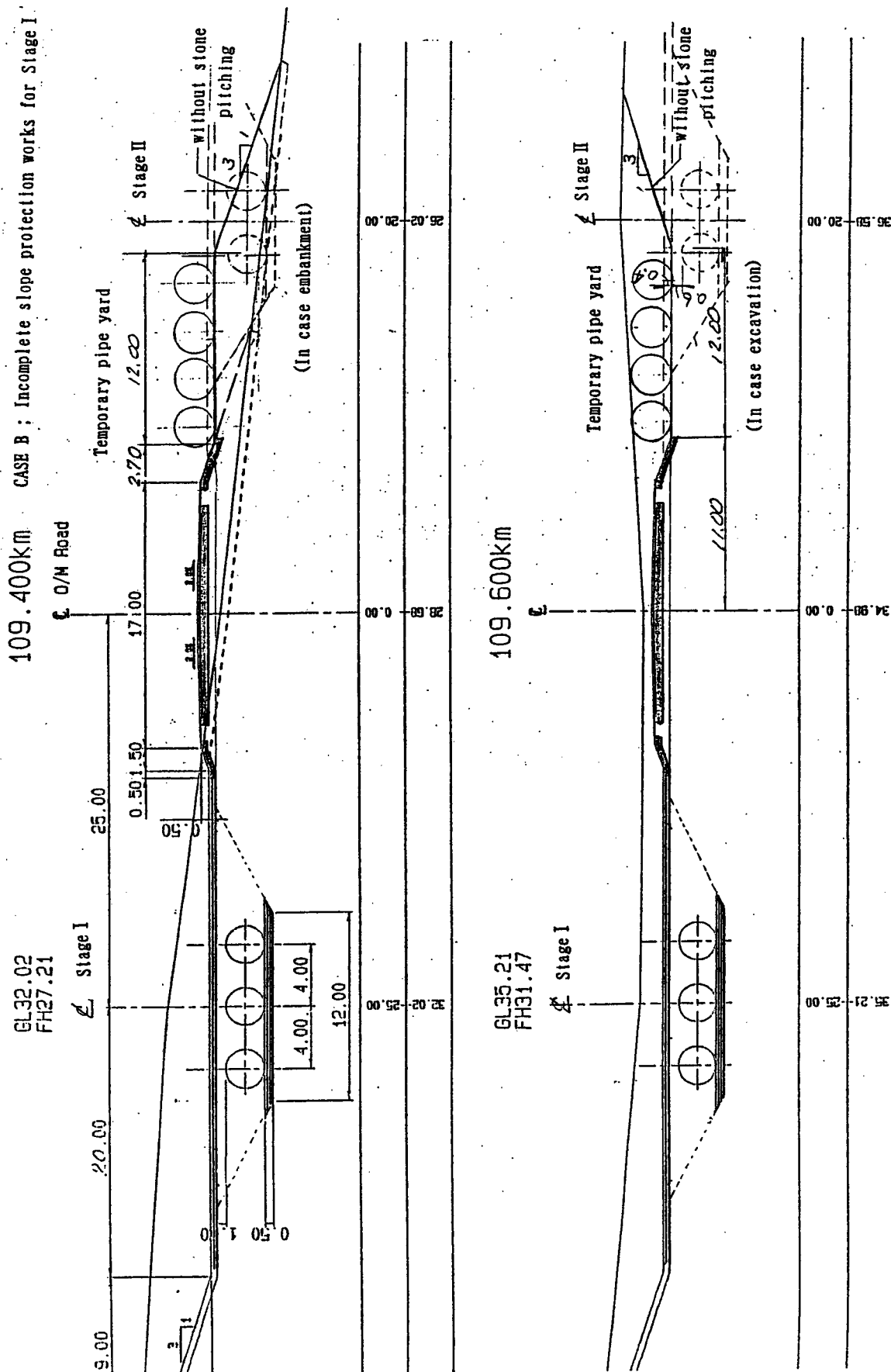
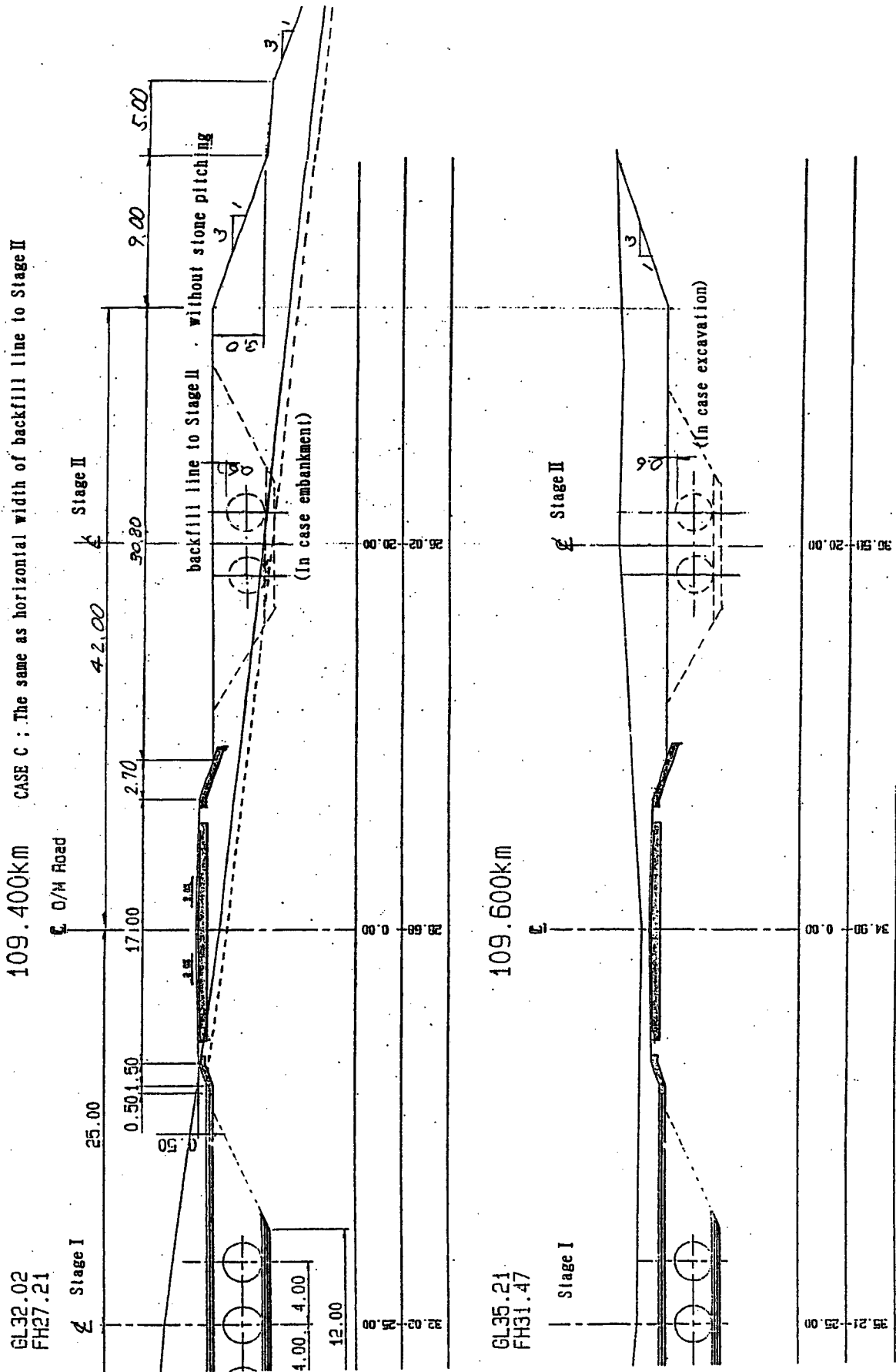


Figure V-3 Case C



**Item V-02 : The study team proposes recommendable side-wall type of the sand settling basin taking into account structural stability, foundation conditions, easy construction and economy.**

Resolution : According to the Interim Report (2), the side-wall type of the sand settling basin was proposed inverted T-shape type of the height: 6.70m ( lower section ) and slope protection of the height: 4.50m ( upper section ). The followings are possible three types alternatives of side-wall.(Refer to Figure V.2-1, V.2-2 and V2-3)

The conclusion of the study team is Inverted T-shape type of the height: 8.90m with slope protection of the height: 2.5m, because this type is structural safety, no leakage of water, normal construction and most economy.(Refer to Table V.2-1 and V.2-2)

**Table V.2-1 Alternatives of Side Wall Type of Sand Settling Basin**

Type	Inverted T-Shape (1)	Inverted T-Shape (2)	Counterfort Wall
Dimensions	Wall: Height: 6.70 m Width(B): 4.70 m Slope: Height: 4.50 m Length: 10.06 m	Wall: Height: 8.90 m Width(B): 5.80 m Slope: Height: 2.50 m Length: 5.59 m	Wall: Height: 11.50 m Width(B): 10.60 m Slope: Height: — Length: —
Structural Stability	Against overturning $e = 0.50\text{m} < B/6 = 0.78\text{m}$ Against sliding $F_s = 1.54 > F_a = 1.50$ Against bearing capacity $R = 19.14 \text{ tf/m}^2 < R_a = 22.66 \text{ tf/m}^2$	Against overturning $e = 0.66\text{m} < B/6 = 0.97\text{m}$ Against sliding $F_s = 1.62 > F_a = 1.50$ Against bearing capacity $R = 26.67 \text{ tf/m}^2 < R_a = 27.90 \text{ tf/m}^2$	Against overturning $e = 0.94\text{m} < B/6 = 1.77\text{m}$ Against sliding $F_s = 1.51 > F_a = 1.50$ Against bearing capacity $R = 12.19 \text{ tf/m}^2 < R_a = 38.88 \text{ tf/m}^2$
Structural Safety	<ul style="list-style-type: none"> <li>Reinforced concrete lining of upper section will occur differential settlement.</li> <li>Leakage of water will be easy occurred at the part of settlement of the berm.</li> </ul>	<ul style="list-style-type: none"> <li>Plain concrete lining may be sunk at a part of berm.</li> <li>Leakage of water will not occur.</li> </ul>	<ul style="list-style-type: none"> <li>This type is most safety.</li> </ul>
Construction	<ul style="list-style-type: none"> <li>Normal</li> </ul>	<ul style="list-style-type: none"> <li>Normal</li> </ul>	<ul style="list-style-type: none"> <li>Complicated</li> </ul>
Economy (1,000 LE)	(LE 9,845 x 226.5m) 2,230 ( 1.12 )	(LE 8,758 x 226.5m) 1,984 ( 1.00 )	(LE 18,060 x 226.5m) 4,091 ( 2.06 )

**Table V.2-2 Construction Cost of Side Wall**

Unit:LE

Description per 100m	Unit	Unit Price	T-Shape Type (1)		T-Shape Type (2)		Counterfort Type	
			Quantities	Amount	Quantities	Amount	Quantities	Amount
<b>1. Earth Works</b>								
Excavation	m3	2	40,800	81,600	42,500	85,000	47,400	94,800
Backfill (Laterite)	m3	36	7,660	275,760	100	3,600	180	6,480
Backfill (Sand)	m3	3	6,300	18,900	18,700	56,100	24,900	74,700
<b>2. Concrete Lining Works</b>								
Concrete Lining (t = 0.25)	m2	54	1,056	57,024	1,079	58,266	0	0
Mortar Lining (t = 0.10)	m2	15	1,056	15,840	1,079	16,185	0	0
Polyethylene Sheet (t= 1mm)	m2	20	1,056	21,120	1,079	21,580	0	0
<b>3. Concret Works</b>								
Plain Concrete	m3	184	345	63,480	320	58,880	390	71,760
Reinforced Concrete	m3	575	784	450,800	1,002	576,150	2,710	1,558,250
<b>Total</b>				984,524		875,761	75,580	1,805,990
<b>Total (per meter)</b>				9,845		8,758	756	18,060

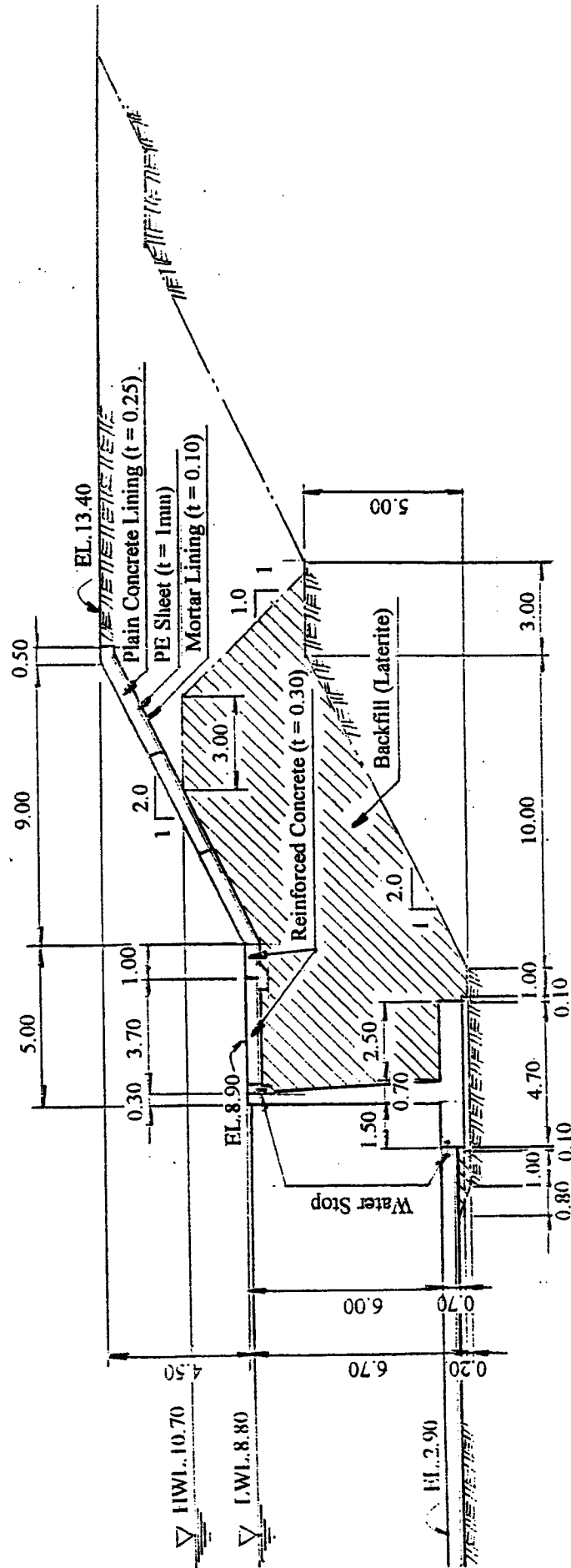


Figure V.2-1 Typical Cross Section of Inverted T-Shape Type (1)



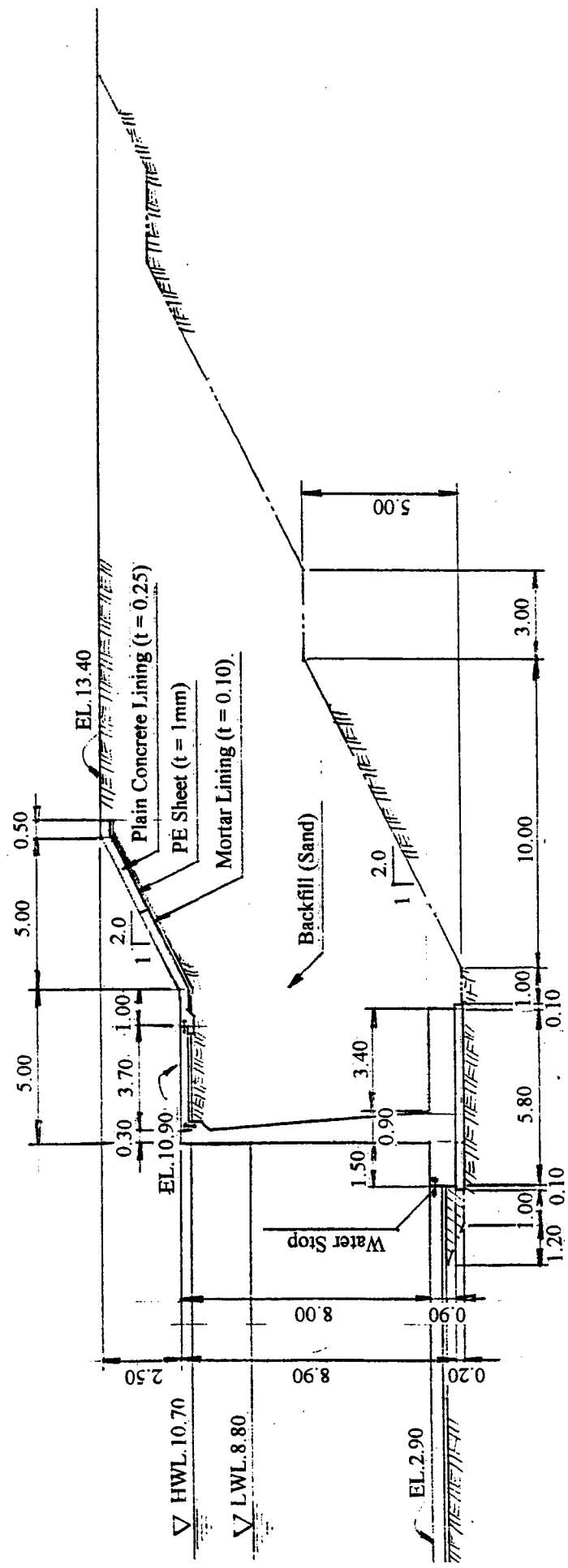


Figure V.2-2 Typical Cross Section of Inverted T-Shape Type (2)

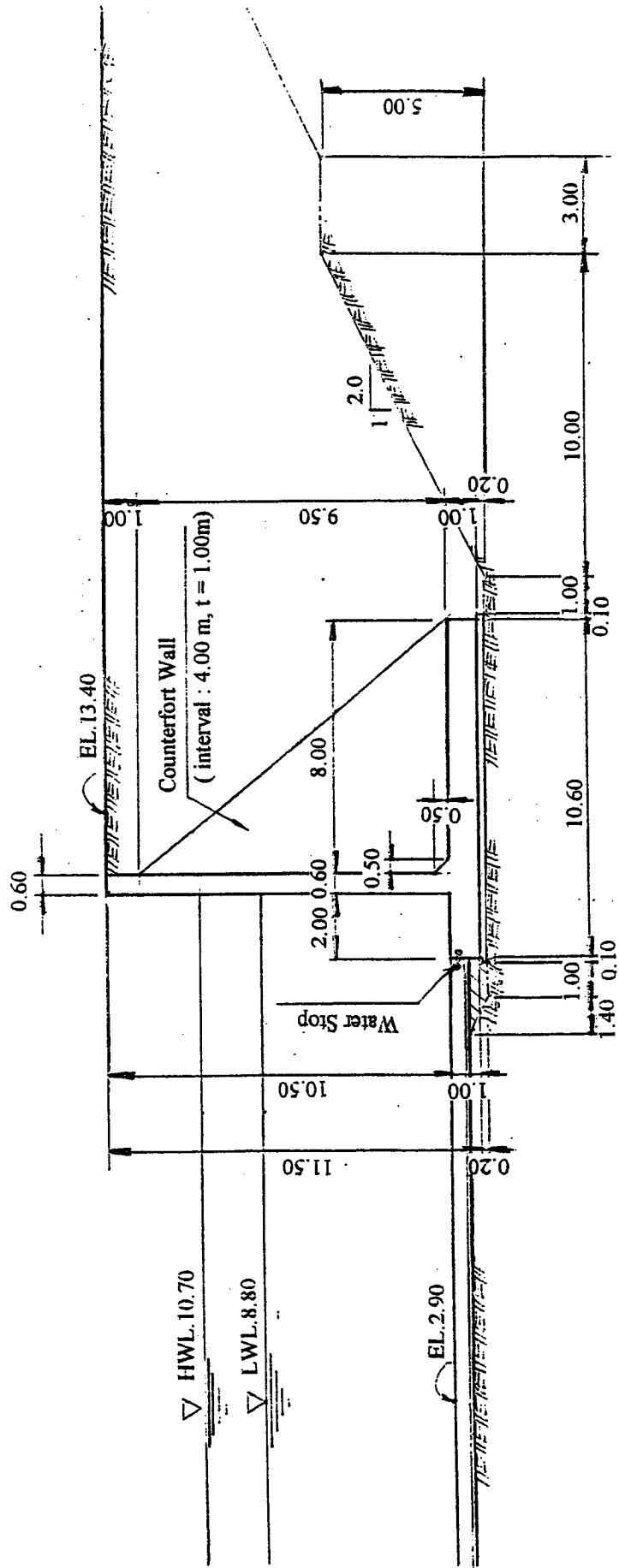
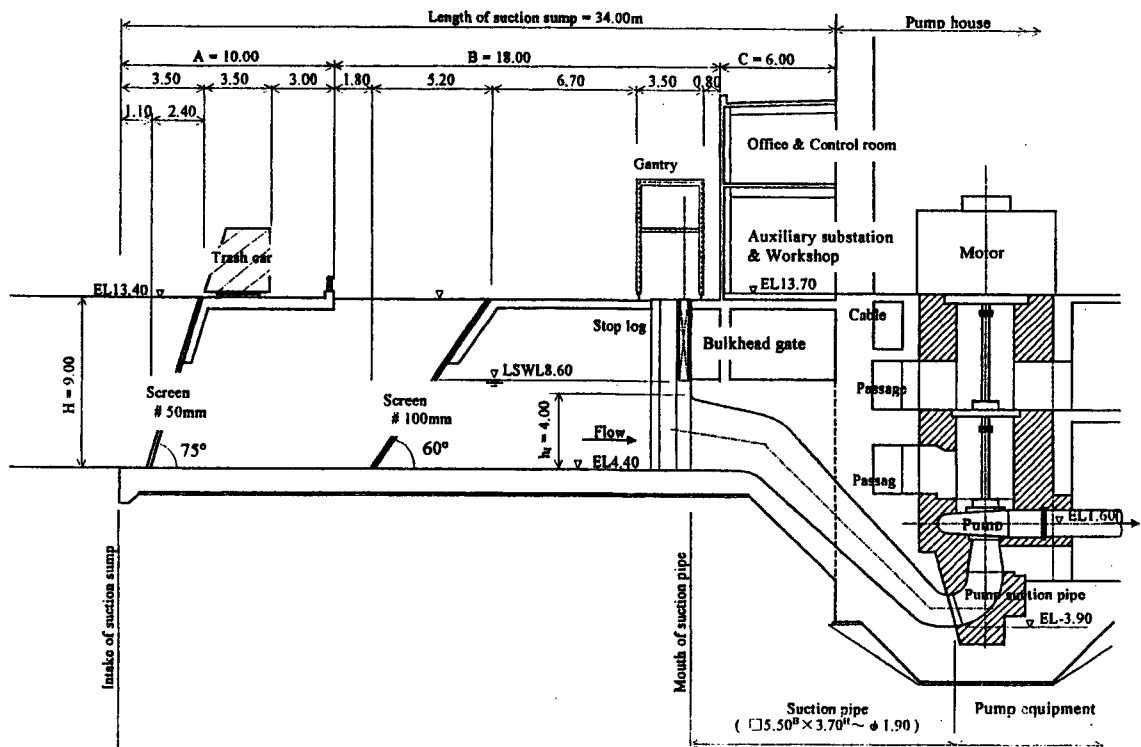


Figure V.2-3 Typical Cross Section of Counterfort Wall Type

**Item V-03 : The study team proposes the revised length of the suction sump for enough maintenance space of the guard screen.**

**Resolution :** According to the Technical Meeting with MED held on 2<sup>nd</sup> October 1999, MED requested to revise the maintenance space of the guard screen. The conclusion of the study team is the space of 6.70m, because the distance (: 11.0m) between the guard screen and the building of pumping station is more than the length of the guard screen(: 10.4m).(Refer to Figure V.3-1)

Therefore, the length of suction sump shall be changed from 30.50m to 34.00m



**Figure V.3-1 Length of Suction Sump**

**Item V-04 : The study team proposes provision of green belt zone to protect against drift sand dune phenomenon at vicinity of the residential buildings area and main substation of the No.7 pumping station.**

Resolution : For protection against sand dunes, the study team proposes the green belt with 50m width on the northern boundary of No.7 pumping station.

The location of the main substation and residential buildings area is planned at the northeast of the No.7 pumping station area. According to the Feasibility Study Report, the residential buildings area has about 1.0 ha (80m x 130m) for 15 buildings.(Refer to Figure V.4-1)

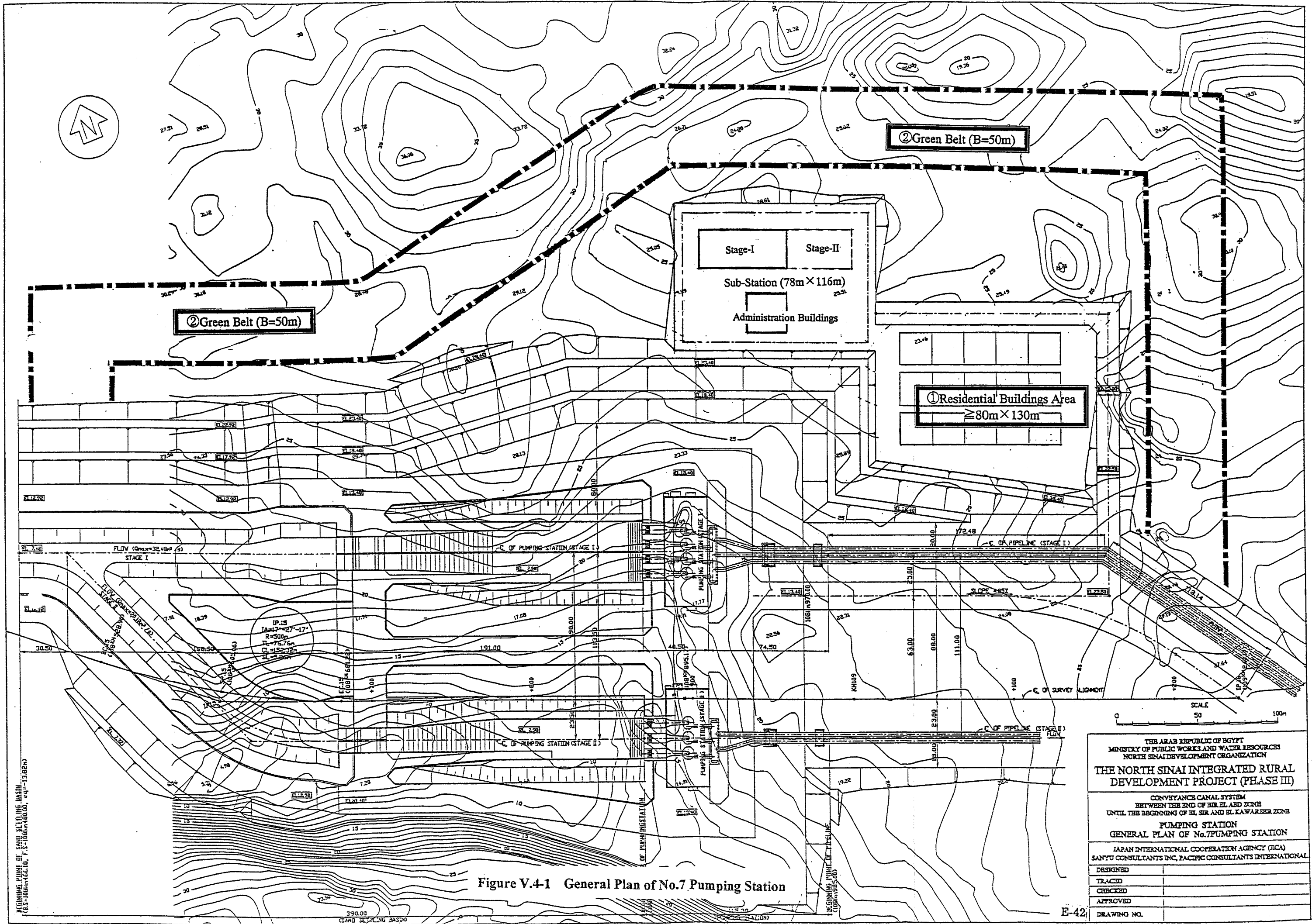


Figure V.4-1 General Plan of No.7 Pumping Station

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

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

CONVEYANCE CANAL SYSTEM  
 BETWEEN THE END OF EL EL AND ZONE  
 UNTIL THE BEGINNING OF EL SIR AND EL KAWAR ZONE

**PUMPING STATION**  
 GENERAL PLAN OF No.7 PUMPING STATION

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

DESIGNED	
TRACED	
CHECKED	
APPROVED	

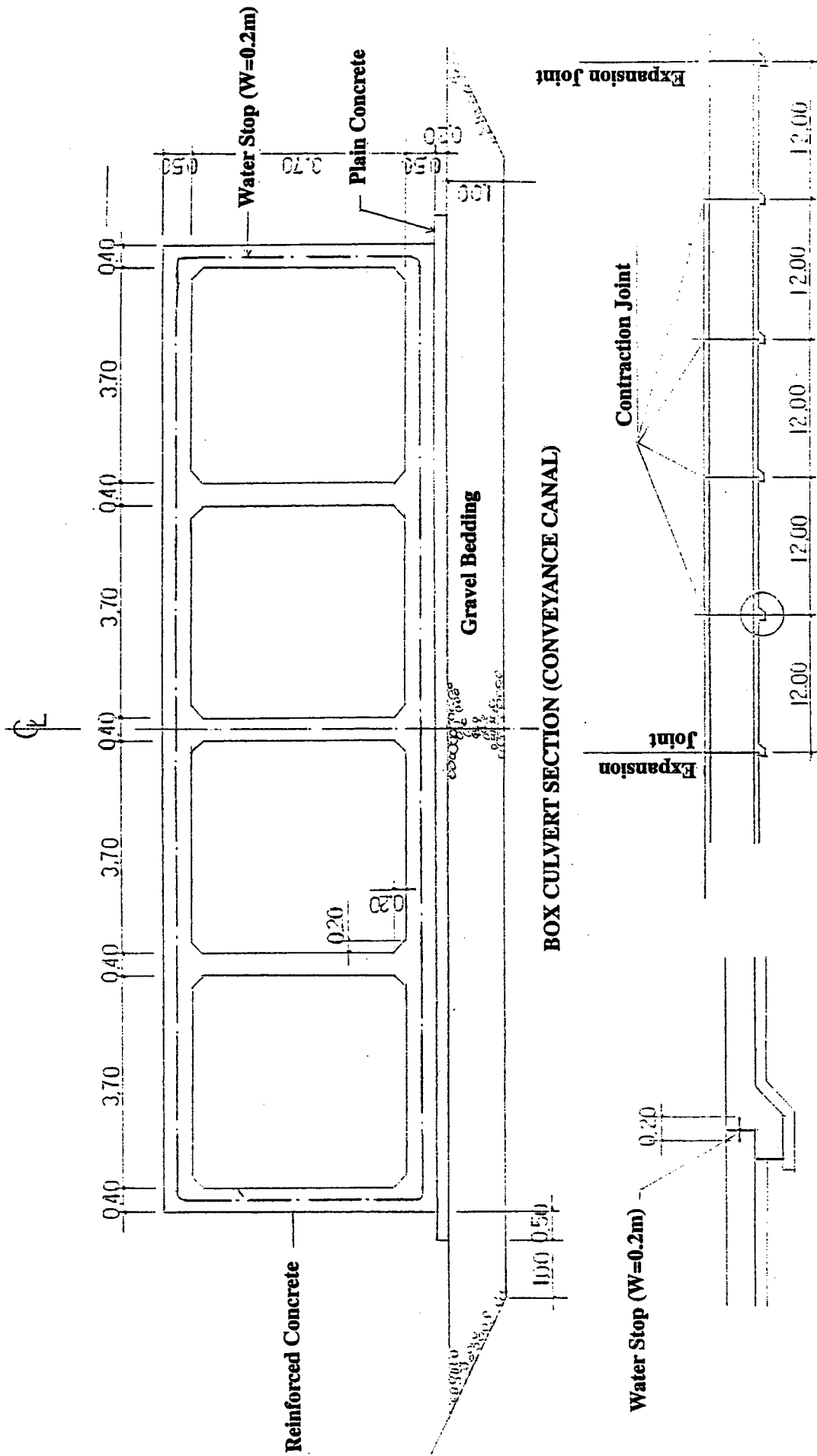
E-42  
 DRAWING NO.

*Item V-05!*

**OPEN CANAL AND BOX CULVERT**

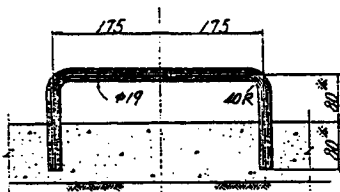
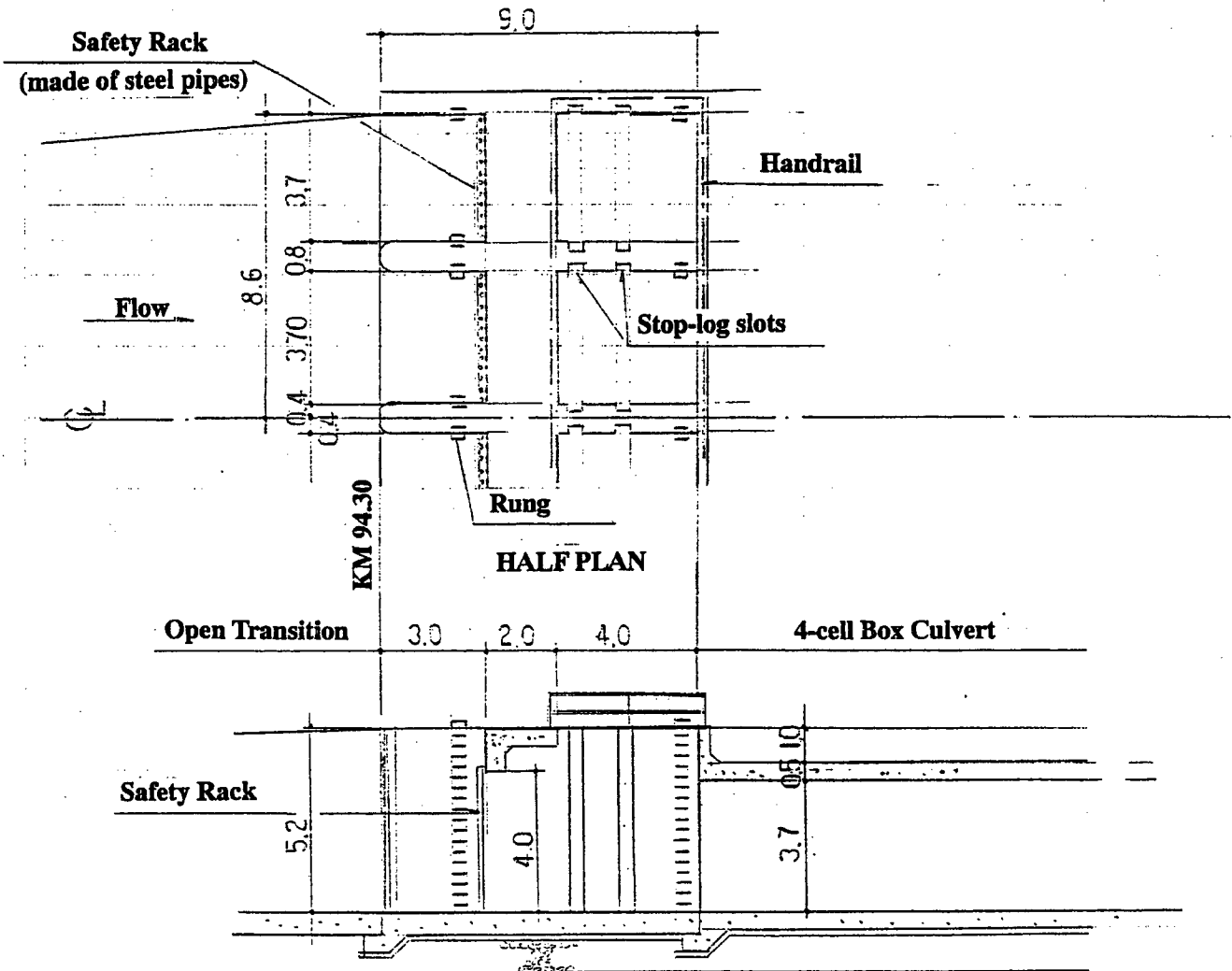
Please check the design of Box Culvert and Spillway System and give us your information for Item No.3 shown below.

Items	Description															
1. Box Culvert	<p>a) Thickness of Bottom Slab Thickness of bottom slab of box culvert section is changed from 0.6m to 0.5m based on the detailed structural calculation. (Refer to Appendix-1)</p> <p>b) Water Stop Water stop of 20 cm wide will be used at both sections of expansion and contraction joints. (Refer to Appendix-1)</p> <p>c) Expansion Joint Expansion joint will be provided every 5 sections (Refer to Appendix-1)</p> <p>d) Inlet of Box Culvert Inlet of box culvert is as shown in Appendix-2.1. Safety racks made of steel pipe (0.3m spacing) will be installed.</p> <p>e) Safety device along openings Top of wall of opening structures is planned 1.0m higher than the ground elevation. Therefore, safety devices such as safety fence, handrail, etc. are not installed along the openings. (Refer to Appendix-2.2)</p>															
2. Spillway System	<p>a) The profile of spillway and spillway outlet channel is shown in Appendix-3.</p> <p>b) The spillway structures are shown in Appendix-4.1 – 4.5.</p> <p>c) In the Interim Report (2), the bridge has been planned at 780m downstream from the beginning point of the spillway and spillway outlet channel. However, it is changed to box culvert section. (Refer to Appendix-5)</p> <p>d) The bottom width of spillway outlet channel is changed from 15m to 10m. (Refer to Appendix-5)</p> <p>e) Expansion joint will be provided every 3 sections. (Refer to Appendix-5)</p> <p>f) The chute and stilling basin structures are shown in Appendix-6.</p> <p>g) Asphalt paved road will be only provided from the beginning point to the existing road. (Refer to Appendix-7)</p> <p>h) The width of O/M road along the spillway outlet channel will be changed from 17m (shown in Interim Report (2)) to 12m. (Refer to Appendix-8)</p>															
3. Necessary Information	<p>a) Location and size of NSDO's office and residence for construction.</p> <table border="1" data-bbox="558 1523 1037 1691"> <thead> <tr> <th>Package</th> <th>Location</th> <th>Size</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Bir El Abd (?)</td> <td>?</td> </tr> <tr> <td>2</td> <td>El Arish (?)</td> <td>?</td> </tr> <tr> <td>3</td> <td>El Arish (?)</td> <td>?</td> </tr> <tr> <td>4</td> <td>?</td> <td>?</td> </tr> </tbody> </table> <p>b) Capacities of Slope Trimming Machine and Lining Machine ( ? m/hr)</p> <p>c) Give us the drawing of "Kilometer Sign" (Pay item No.31 of BQ for the work between KM 73.00 and KM 86.50).</p> <p>d) Please teach us whether it is proper to install safety fence along the outlet channel. (Refer to Appendix-9)</p>	Package	Location	Size	1	Bir El Abd (?)	?	2	El Arish (?)	?	3	El Arish (?)	?	4	?	?
Package	Location	Size														
1	Bir El Abd (?)	?														
2	El Arish (?)	?														
3	El Arish (?)	?														
4	?	?														

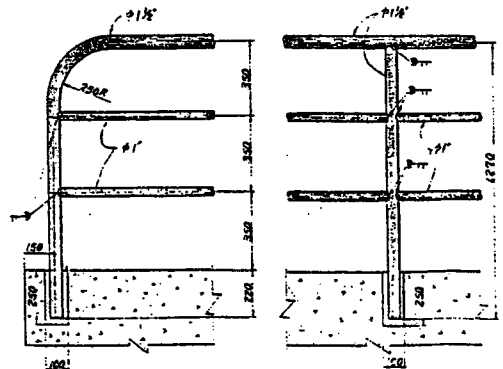
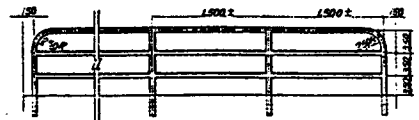


**BOX CULVERT SECTION (CONVEYANCE CANAL)**

**LONGITUDINAL SECTION  
(ARRANGEMENT OF EXP. & CONTR. JOINTS)**



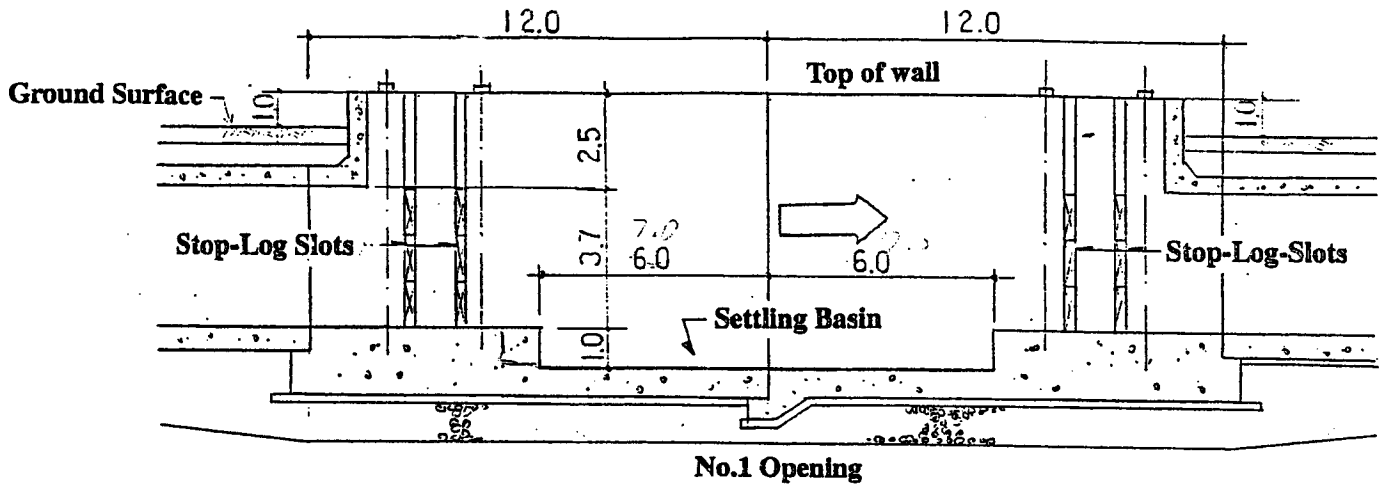
Rung



Handrail

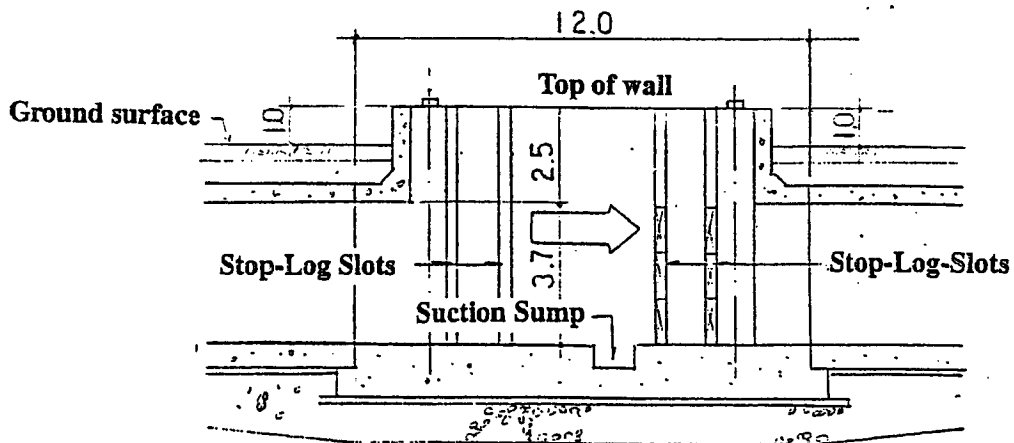


Safety devices such as safety fence, handrail, etc. are not installed.



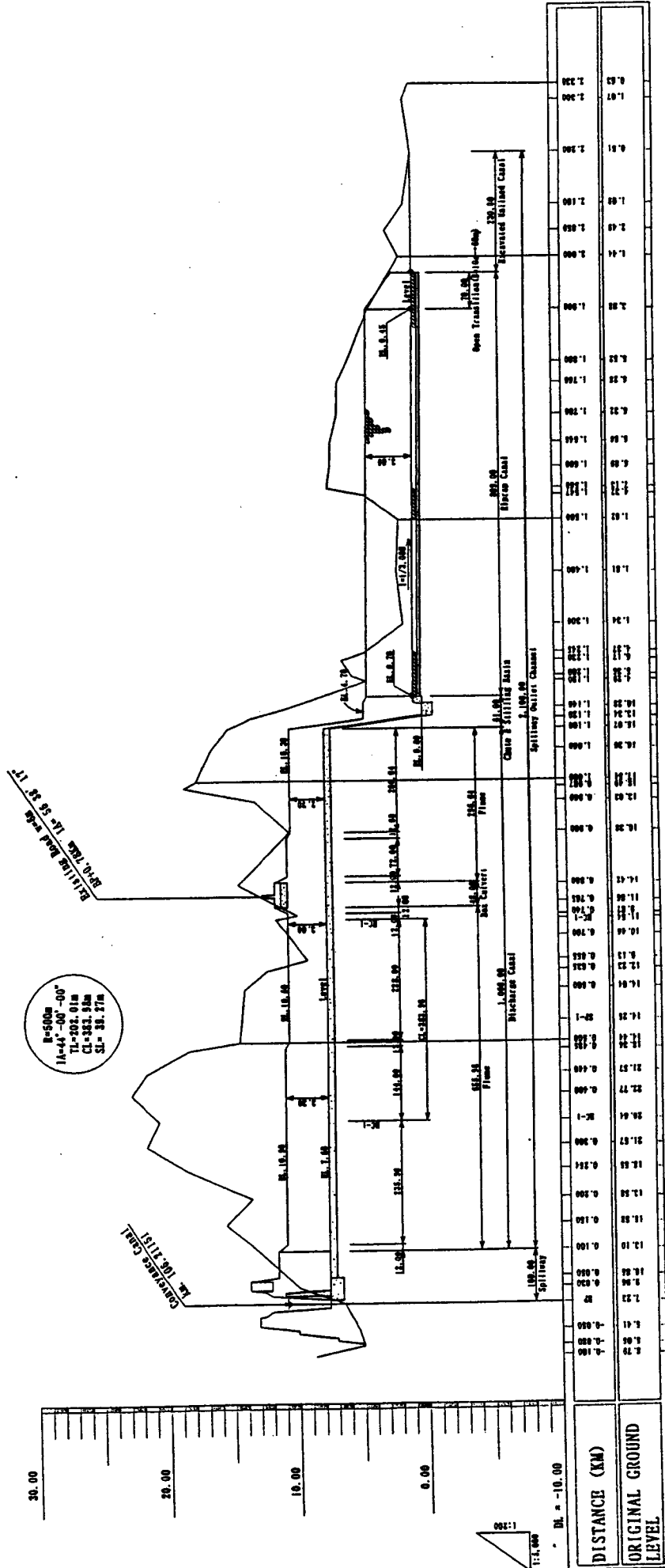
Longitudinal Section of No.1 Opening

Safety devices such as safety fence, handrail, etc. are not installed.



Openings (other than No.1 Opening)

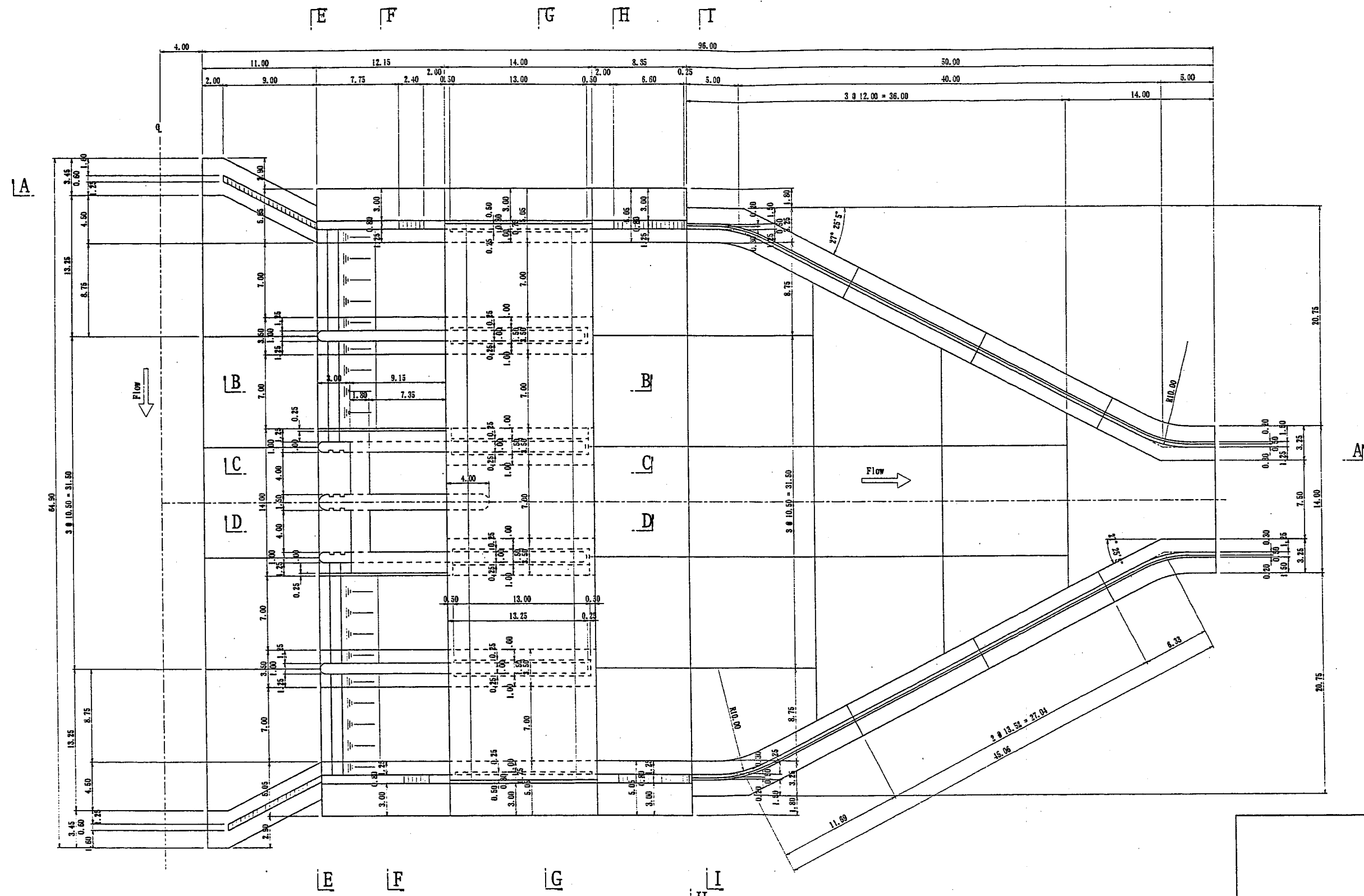
Longitudinal Section of Openings other than No.1 Opening



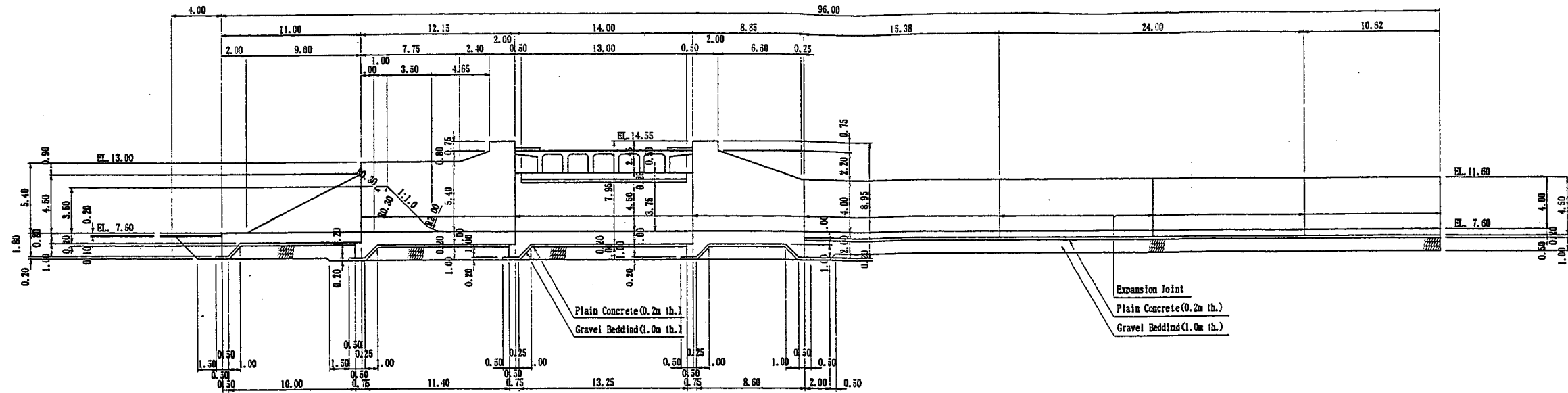
PROFILE

SPILLWAY

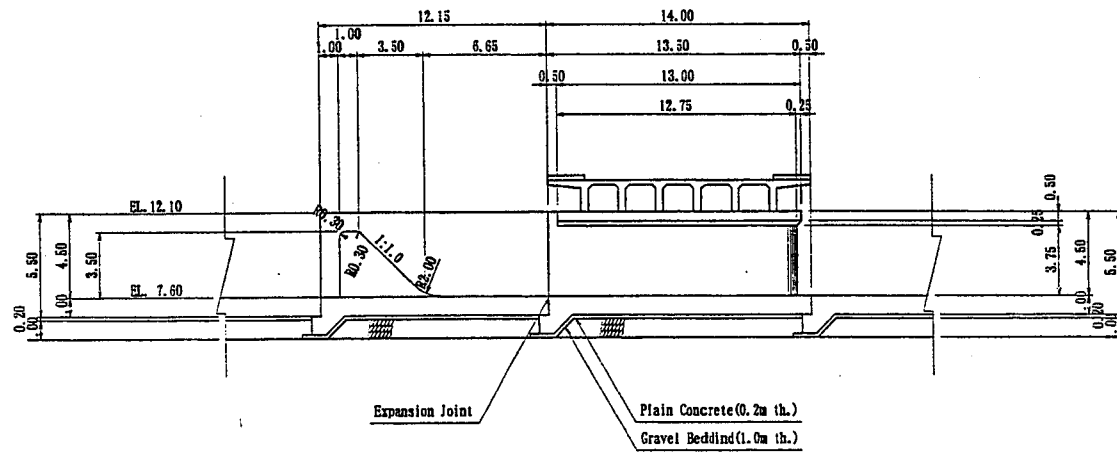
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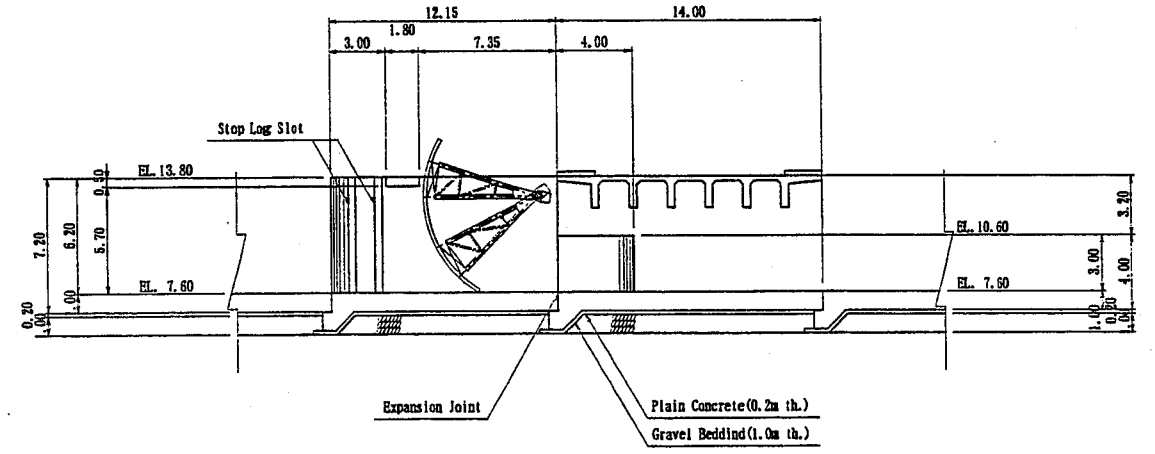
Plan Of Spillway



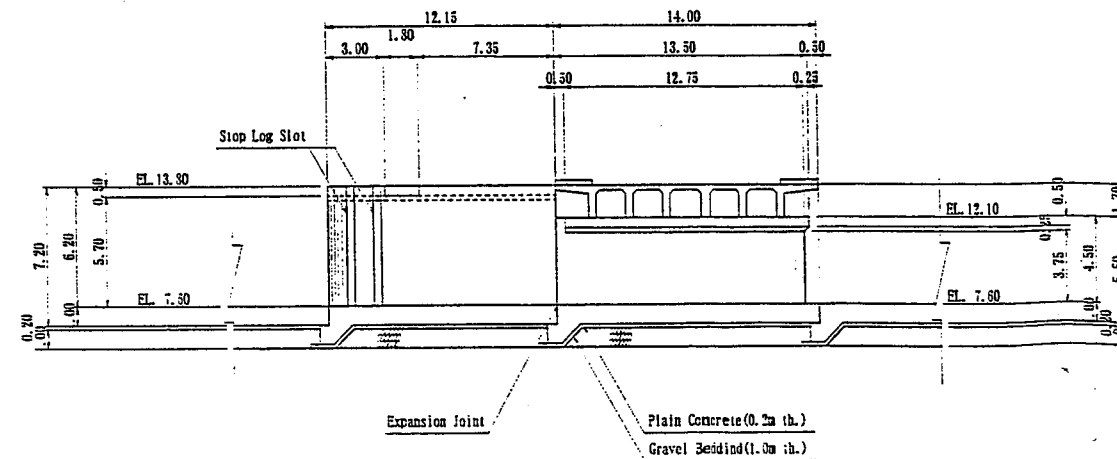
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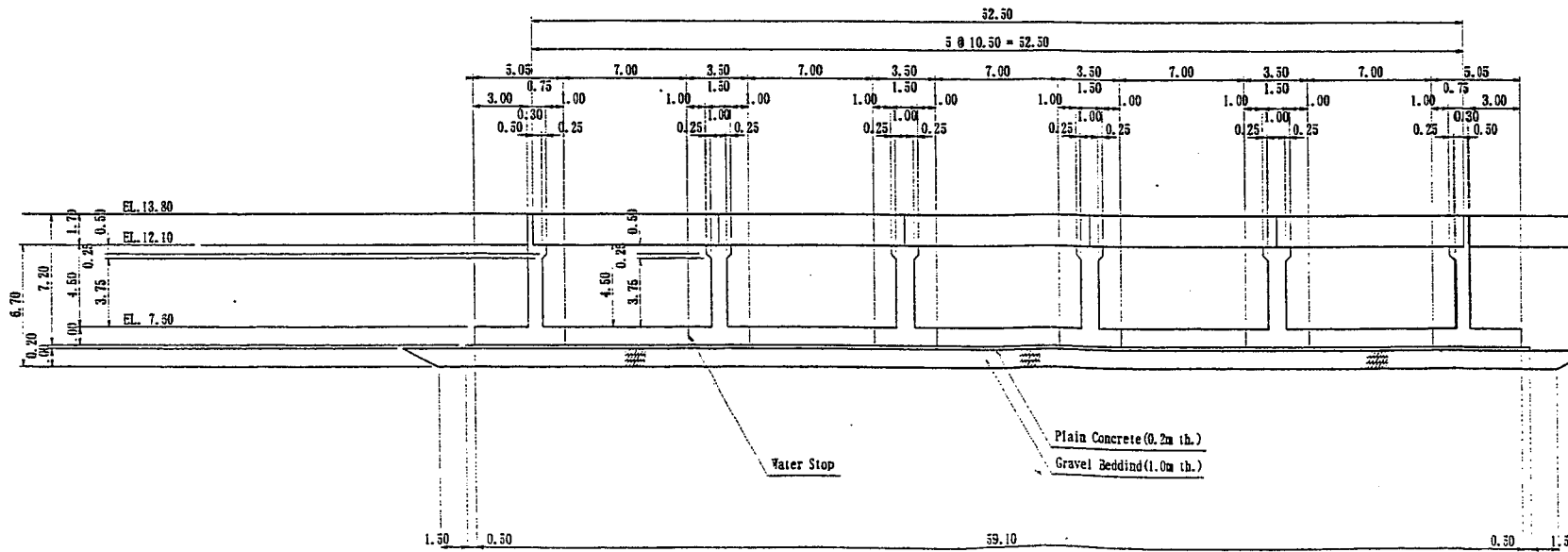
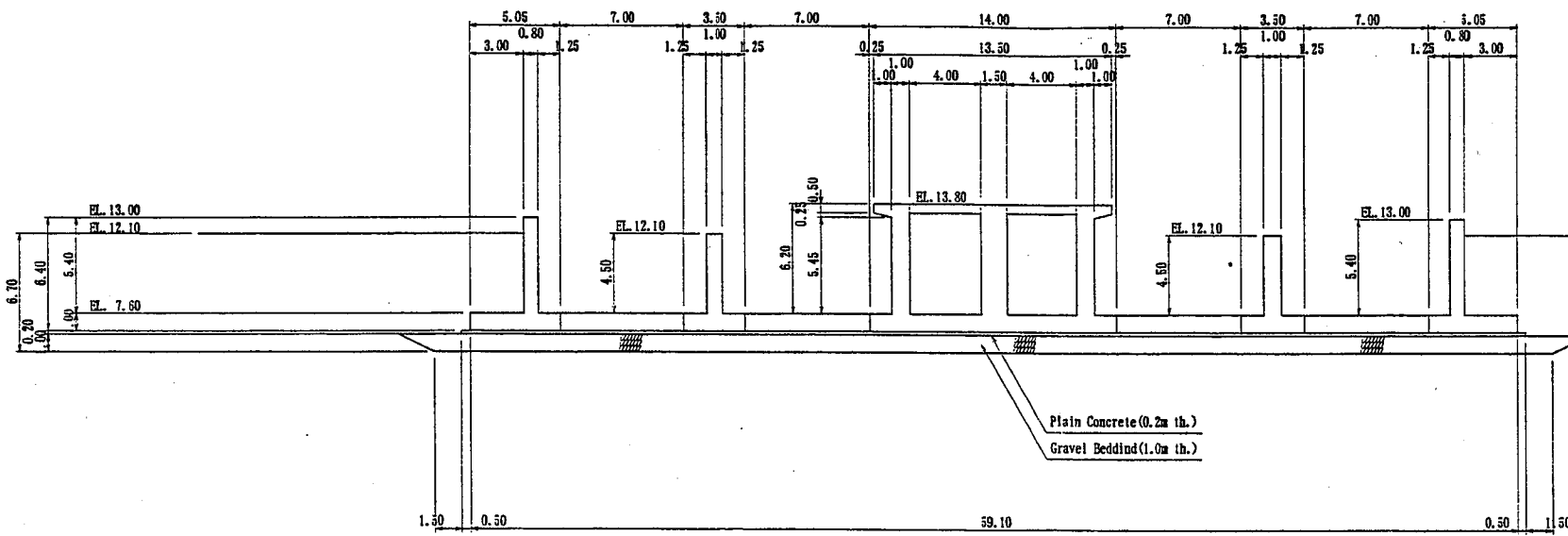
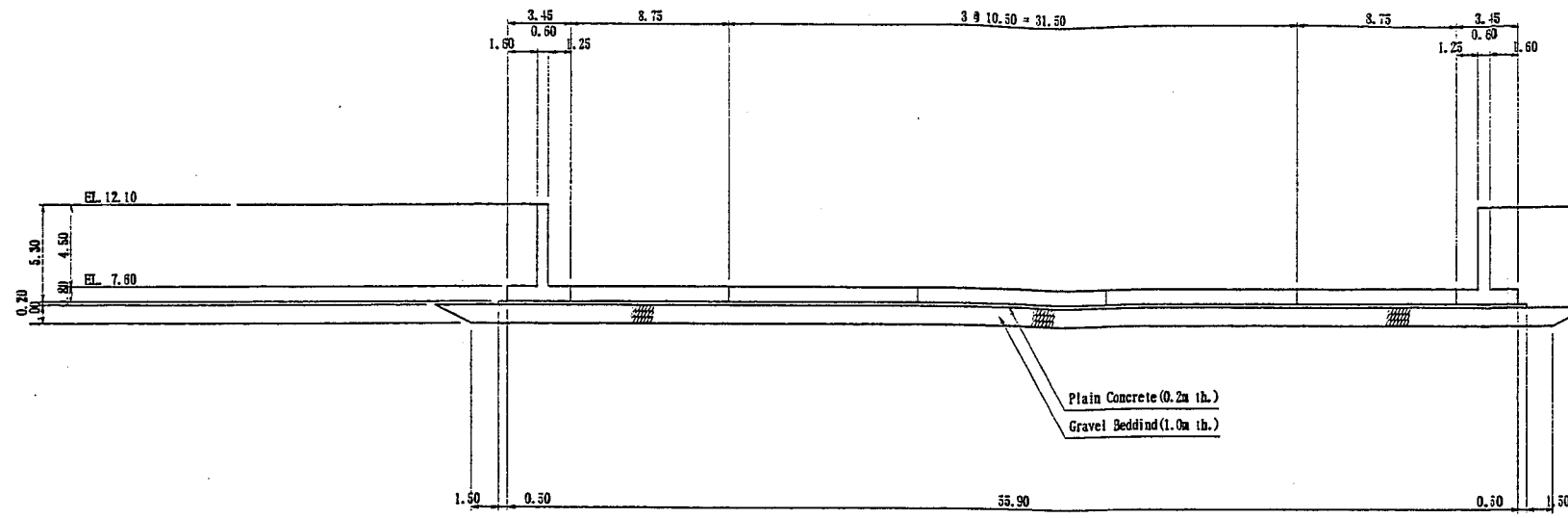
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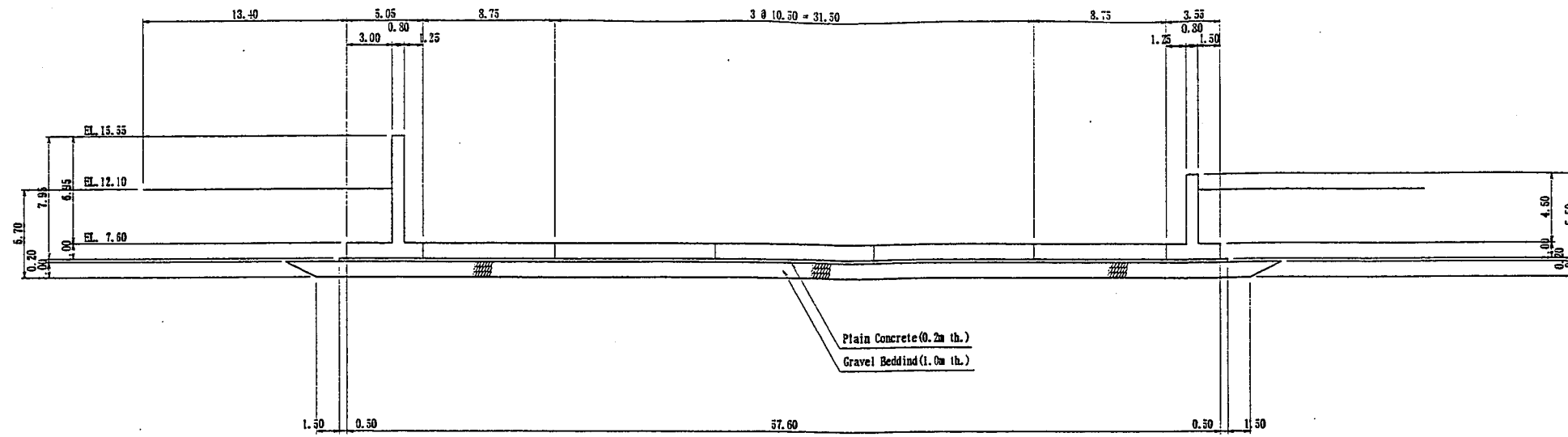


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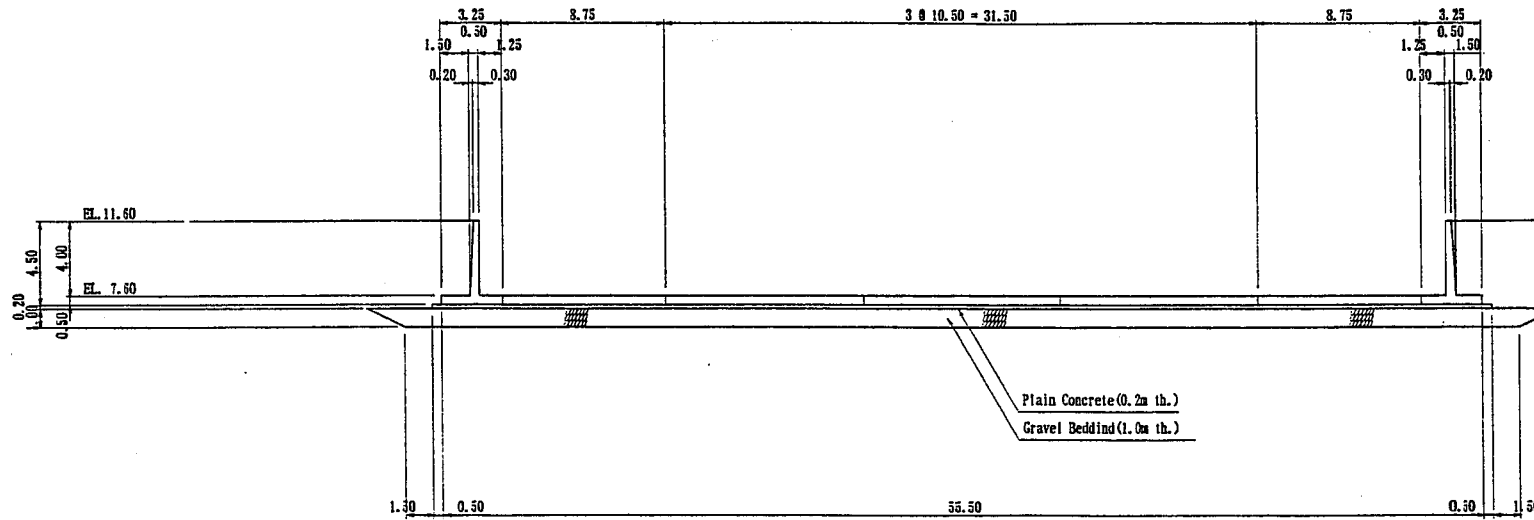
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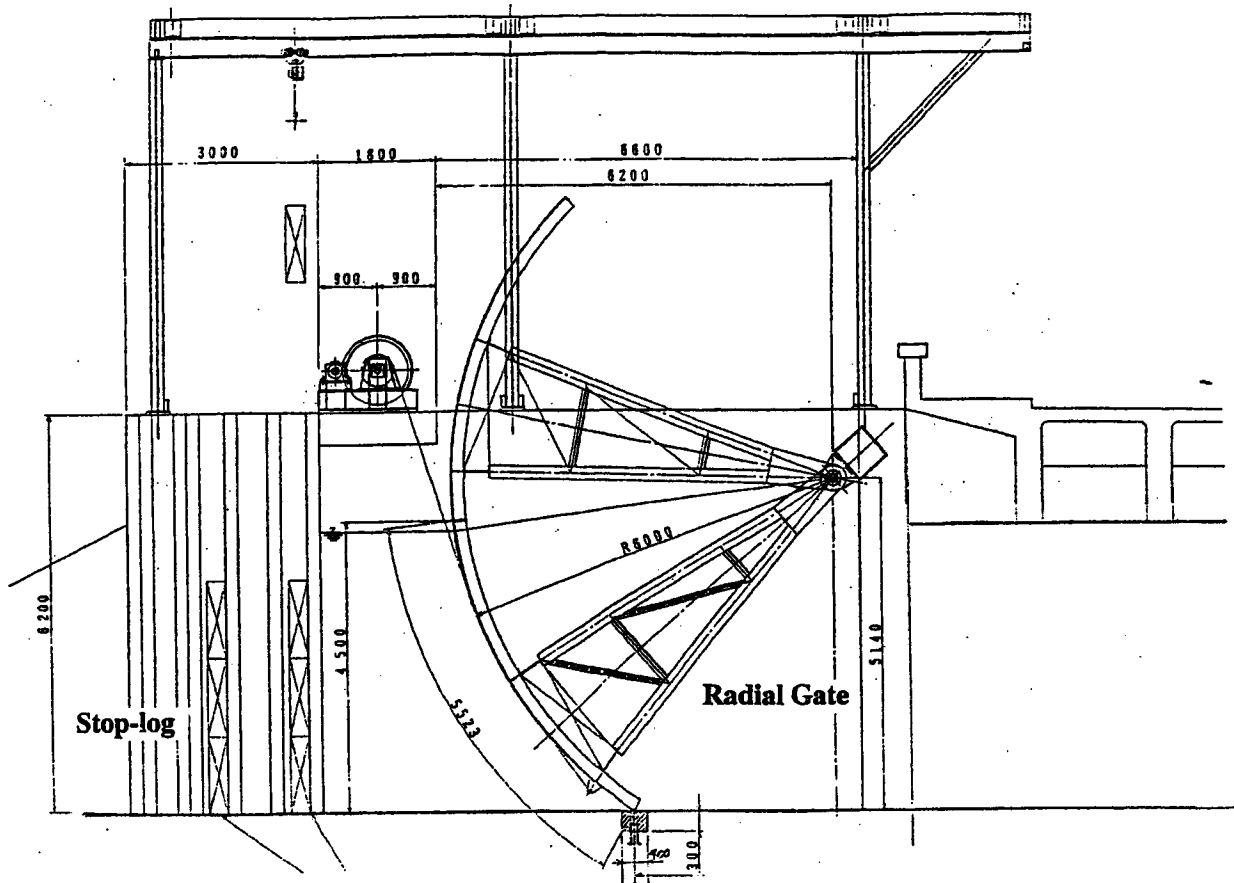
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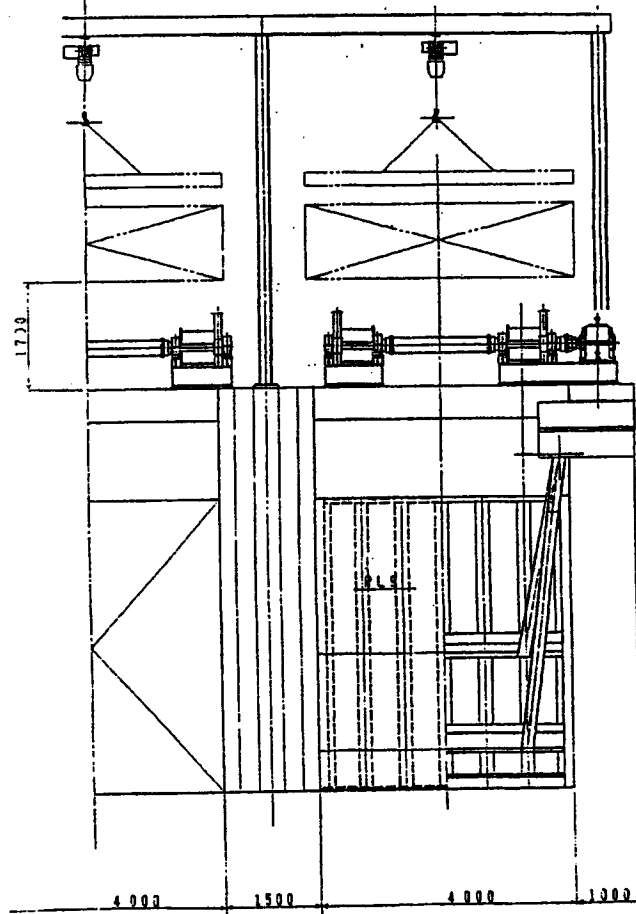


**SECTION I-I**

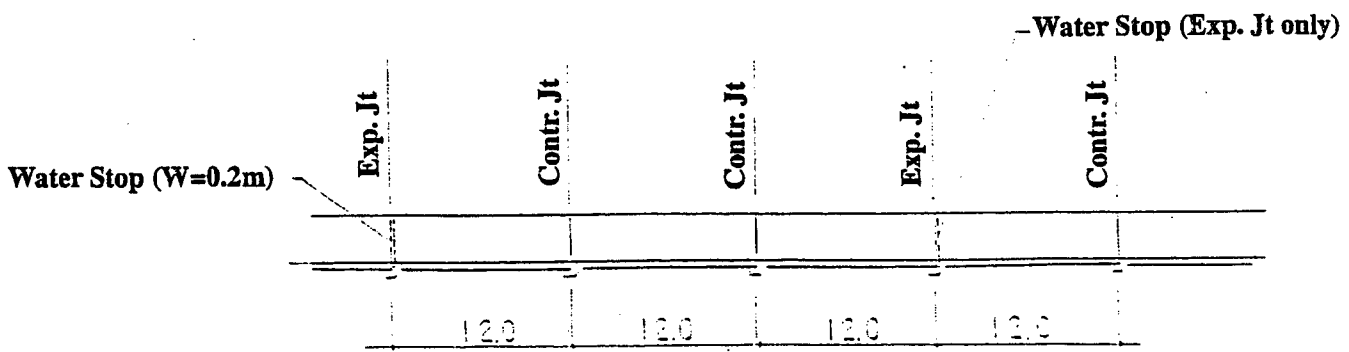
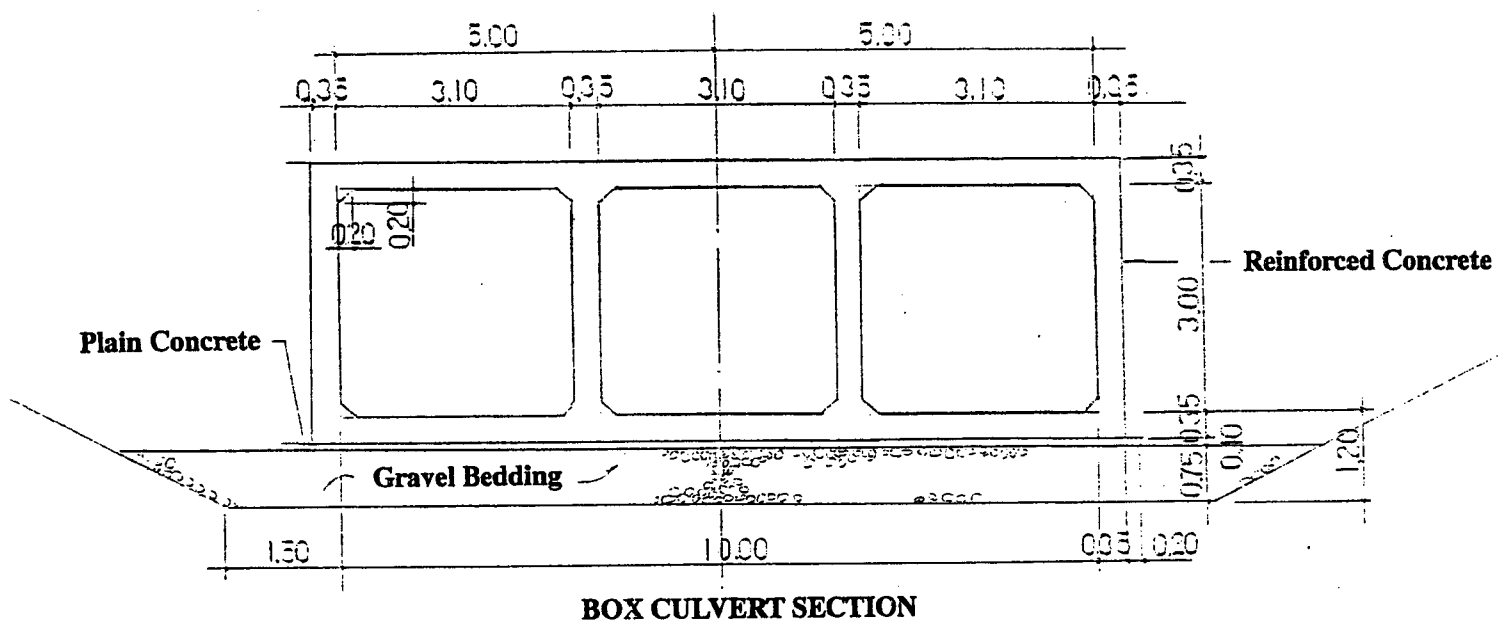
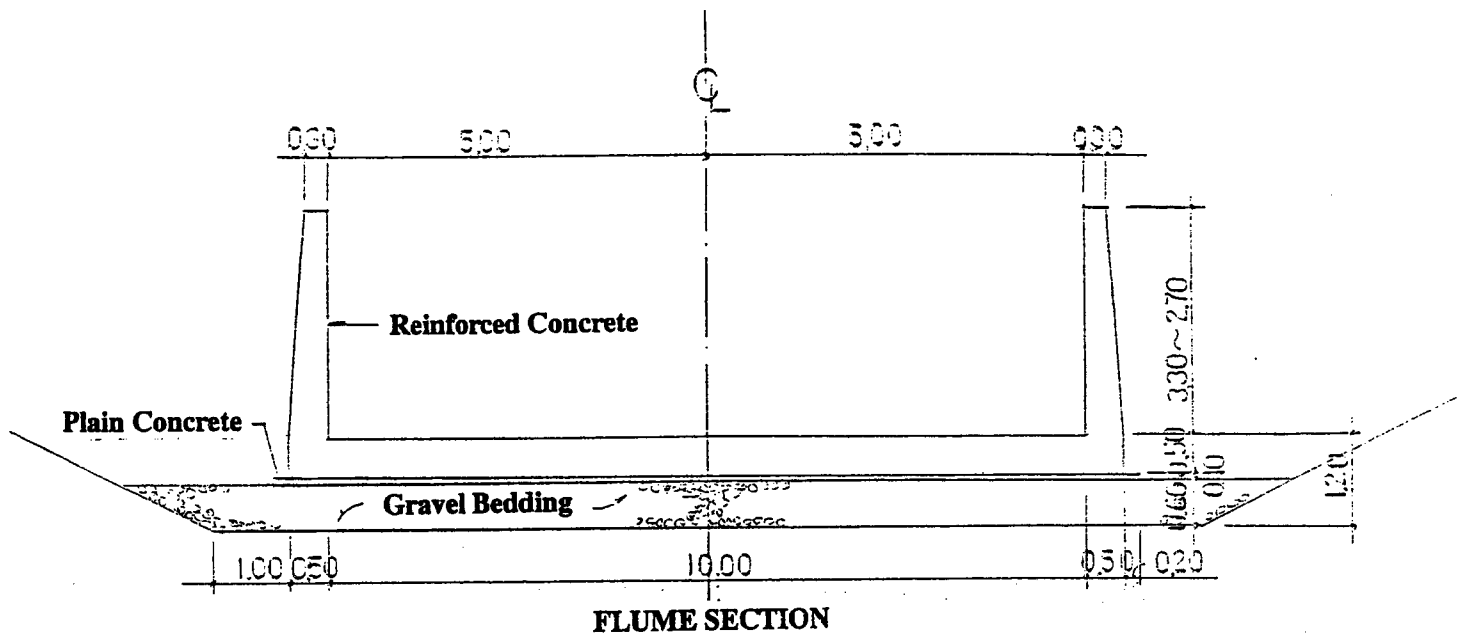
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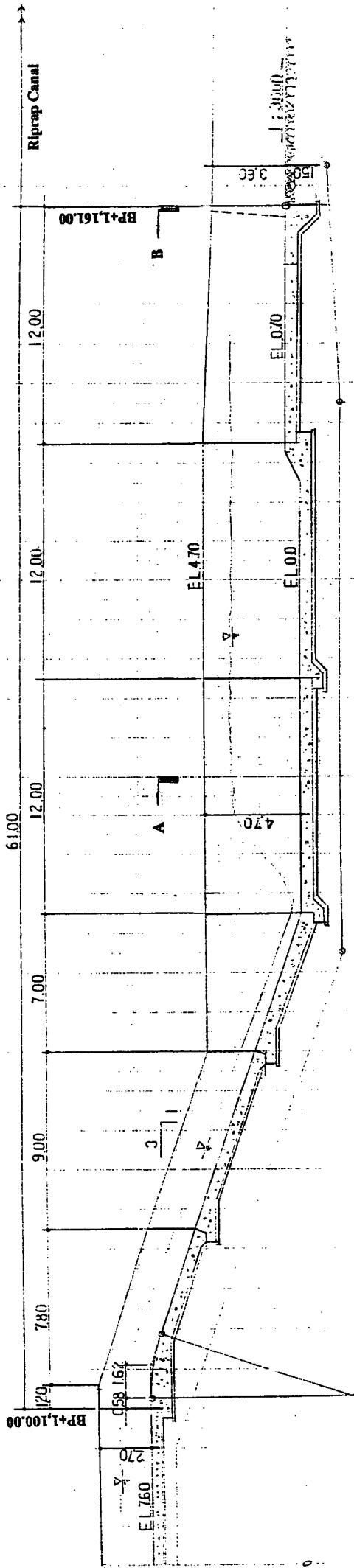
**PROFILE OF GATED SECTIONS**



**HALF ELEVATION OF GATED SECTIONS**

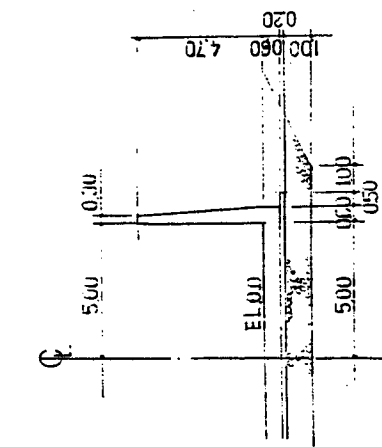




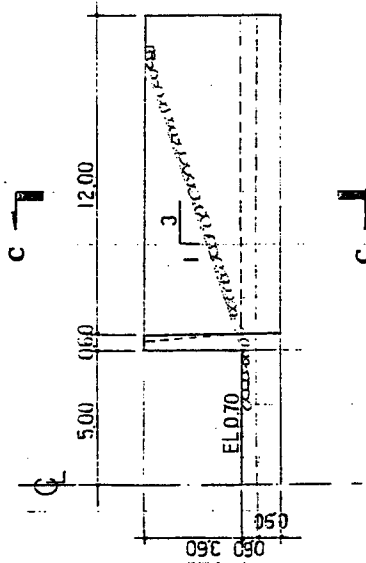


LONGITUDINAL SECTION OF CHUTE & STILLING BASIN

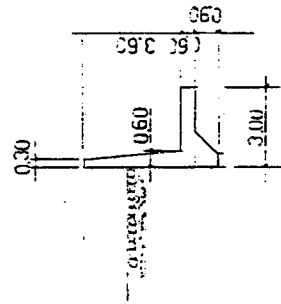
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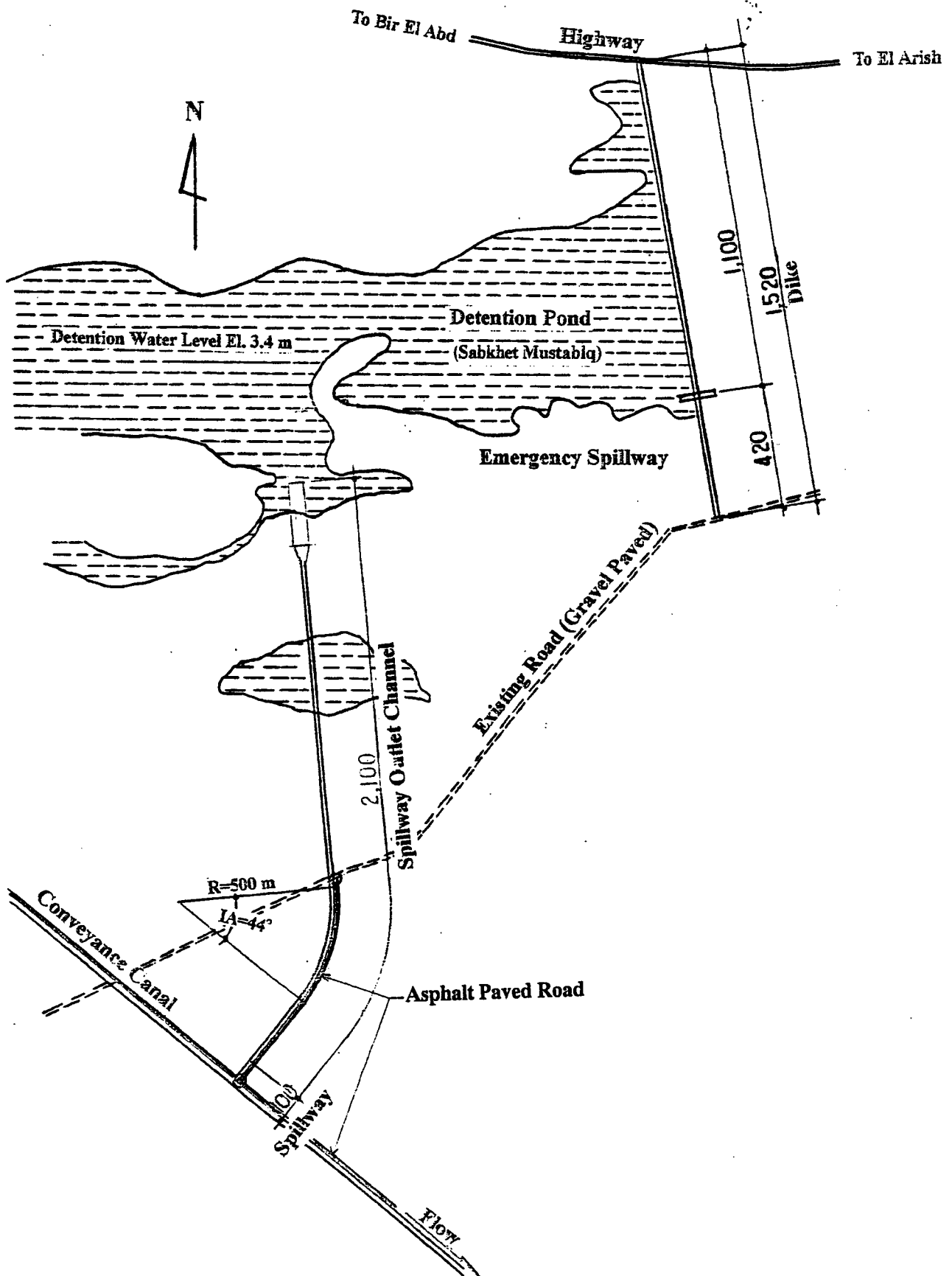
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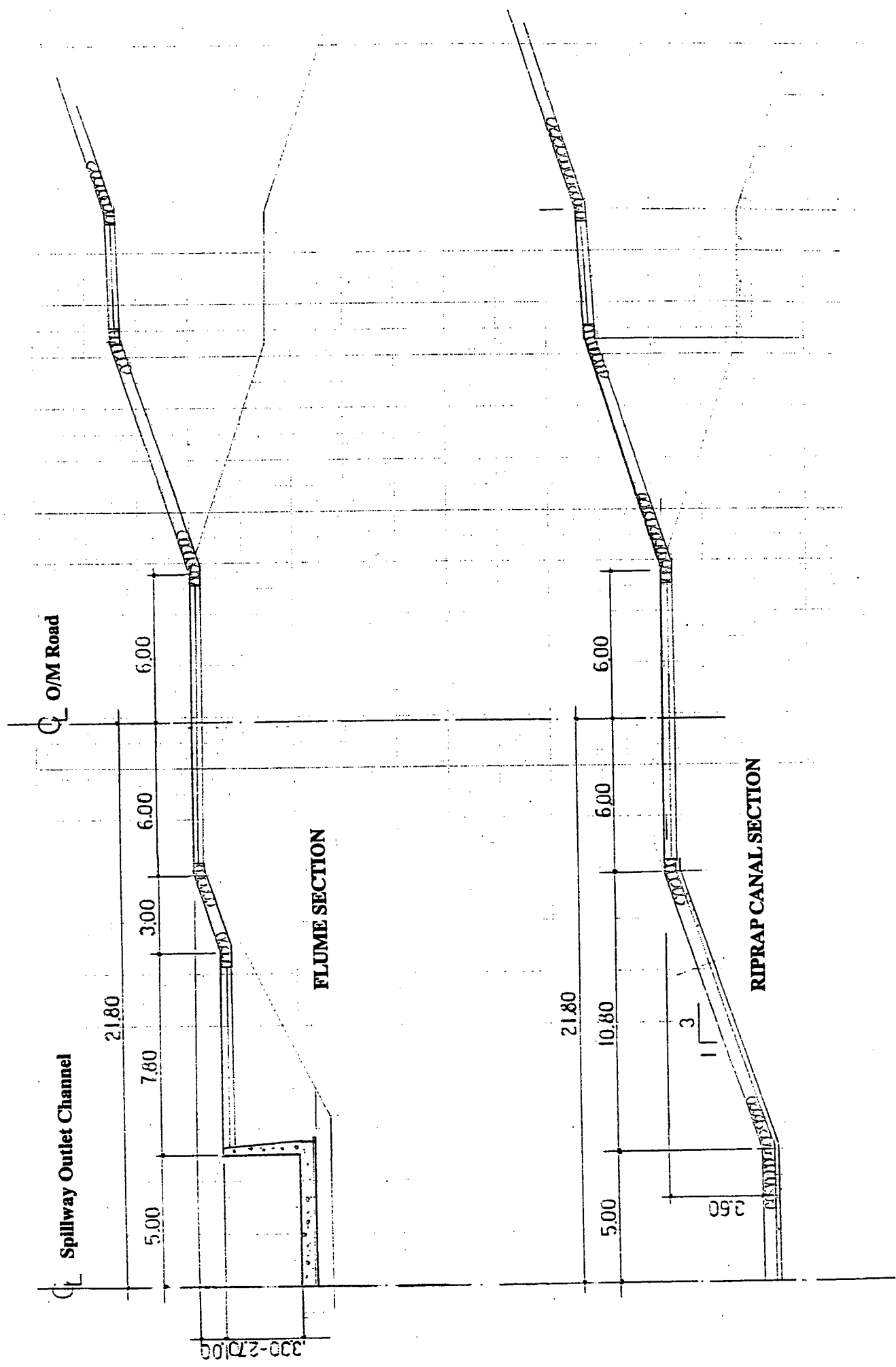
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SECTION C-C

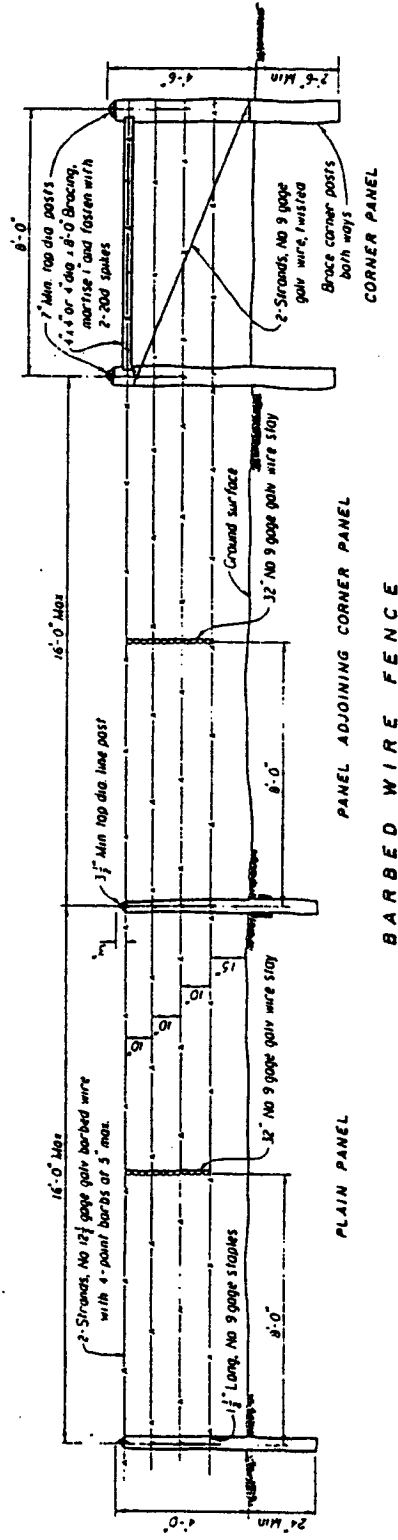


LAYOUT PLAN OF SPILLWAY SYSTEM



Appendix-9

SAMPLE OF SAFETY FENCE (BARBED WIRE FENCE)



**APPENDIX E.6 : Minutes and Resolutions for NSDO Kantara Meeting held on 24<sup>th</sup> and 25<sup>th</sup>  
November 1999**

Minutes of Meeting for Detailed Design of North Sinai Conveyance Canal Systems

1. Date : 24<sup>th</sup> and 25<sup>th</sup> November, 1999
2. Place : Mr. Naser Office, NSDO Kantara
3. Participants : NSDO : Messrs. Naser, Nabil and Resokkei  
SCI : Kadowaki
4. Conclusion and confirmation :

- (1) Both sides have discussed mutually based on Resolution Papers and additional papers provided by the SCI.
- (2) Main discussion items are Item No.1( PSC meeting), Item No.2 (PMC meeting), Item No.5 (New item) and additional items
- (3) Accepted and or confirmed items : Item I-2, I-3, I-4, I-6, II-2, II-3, II-4, II-5, II-6, II-8, II-13 (Applied Rectangular weir type), II-16, II-17, II-18, V-01( Applied Case-B), V-02 (Applied T-Shape(2) ) and "Form of Tittle Block" shall be No.2 option.
- (4) Item III and Item IV including Item V-03 and V-04 shall be discussed on 28<sup>th</sup> Nov. 1999 with MED officials concerned.
- (5) Regarding discussion materials No.2 (Additional Resolution Paper), both sides agreed the Study Team proposals except the following items.

5.1 : Item 1. Sub-item d), safety racks with diameter 2 inches steel pipe shall be installed with 0.30 m interval instead of 0.15 m interval which are discussed at the meeting, due to too narrow the pipe space each others)

5.2 : Item 1. Sub-item e), we accept to install safety slab on the opening part of box culvert but cancel provision of handrail on the wall top of the openings.

5.3 : All items in the Item 2 were accepted as proposed.

5.4 : Conclusion of the Item 3. can be summarized as follows ;

Sub-item a) :

Package	Location	Land space	Office	Residence
1	Bir El Abd	100mx 100m	200sq.m	40 x 80sq.m
2	El Rouda	100mx 100m	200sq.m	40 x 80sq.m
3	El Rouda	100mx 100m	200sq.m	40 x 80sq.m
4	?	?	?	?

Sub-item b) : Equipment workability : 50-60m/hr for side slope trimming with 3 labors, 40-60 m/hr for mortar lining with 3 labors and 20m/hr for concrete lining with 15 labors.

Sub-item c) : Kilometer Sign Post size will be 0.50m square and 1.00m height concrete column.

Sub-item d) : Safety fence along the concrete flume canal shall be provided as indicated fence details.

Prepared by Kadowaki, Sanyu Consultants Inc. dated on 26<sup>th</sup> November, 1999.

**APPENDIX E.7 : Minutes and Resolutions for MED Meeting held on 28<sup>th</sup> November 1999**



## Minutes of Meeting for Detailed Design of North Sinai Conveyance Canal Systems

1. Date : 28<sup>th</sup> November, 1999
2. Place : Mr.Kamel Office, MED Cairo
3. Participants : MED Mr. Kamel (Undersecretary of State) and civil sector of MED  
SCI : Kadowaki
4. Conclusion and confirmation :

- (1) Both sides have discussed mutually based on Resolution Papers and additional papers provided by the SCI.
- (2) Main discussion items are Item No.3(MED), No.4 (MED), Item No.5 (New item) and additional items
- (3) Accepted and or confirmed items : Item III-1( Total length of suction sump shall be 34.0m instead of 30.5m which was recommended by Resolution item III-1), III-2, III-3 (Only for stage I foundation), III-4, III-5(item(1) shall be open type instead of proposed with wall type when installed DRY Type transformer), III-6, III-8, III-9, III-10 and III-11.

In addition to this, IV-01( Provide simple bedouin symbol on the roof for example), IV-02, IV-03, IV-04 ( Land mark for pipeline is to be 5m concrete column above top of pipeline), IV-05, IV-06, IV-09 ( including machinery of pipelines to demolish such sand), IV-10, IV-11 and IV-12 including Item V-01.

- (4) New items from building design expert, detailed proposals shall be provided by the MED officials concerned. Brief discussion of the items can be summarized as follows;
  - i) Water supply plan : The level of water treatment shall be human drinkable level.  
So the water filtration and chlorination method shall be decided based on the design standards and water quality of row water.
  - ii) There were no conclusion of selection of Septic tank and or Soak pit.  
Connection method from the said tanks does not allow gravity seepage into the ground from the environmental view point.  
Total person utilized such facilities are preliminary (detailed information shall be provided by MED officially)as follows;  
Pump house :35 person  
Administration building for substation : 16 person
  - iii) They have no idea in details , even, local consultants. MED suggests that the team should adopt appropriate design taking into function of window account.

MM

**ARAB REPUBLIC OF EGYPT (A.R.E)**  
**MINISTRY OF PUBLIC WORKS AND**  
**WATER RESOURCES (MPWWR)**  
**MECHANICAL AND ELECTRICAL DEPARTMENT**  
**(MED)**

**From** : Eng./ Kamel abo El-Seoud  
Undersecretary of Electromechanical  
Studies & Designs and Specifications .

**Address** : Taftesh El-Ray St., Shoubra El-Mazallat – Cairo  
**Tel. no.** : (00202) 2069294  
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**To** : Mr. Satoshi Kadawaki  
Team Leader, JICA Study Team .

**Fax no.** : 0031 773073367

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**Subject** : North Sanai Integrated Development Project  
( Phase III detailed design )

Dear Sir,

Referring to the meeting held between us in MED on 28,11,99 and your attached questionnaire , please note the following :-

1) Water Supply

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Water quality required is of the drinking water standard . It will be used by staff in both the pump house and the administration building .

2) For Drainage Facility

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- a. Preliminary water demand for buildings as follows :-
- Pump house ,. 35 persons with average 2 m<sup>3</sup>/ p / d .
  - Administration building ,. 25 persons with average 1.5 m<sup>3</sup>/p/d
- b. According to the Egyptian Law , its compulsory to provide a suitable Sewage Water Treatment Plant ( SWTP ) .

As guidance for you .. enclosed you can find a copy of the SWTP for Baloza Staff Housing . Regarding to your request concerning the details of the doors and windows , MED does not use a fixed standard type for windows and doors and it is left for the designers to determine them .

With our Best Regards.

*Yours Faithfully,*

*Eng./ Kamel Abo El-Seoud*  
*Undersecretary of Electromechanical*  
*Studies & Designs and Spec.*

29. 11. 1999