

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

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

THE NORTH SINAI INTEGRATED RURAL DEVELOPMENT PROJECT ( PHASE III )

( DETAILED DESIGN STUDY )

VOLUME I : MAIN REPORT

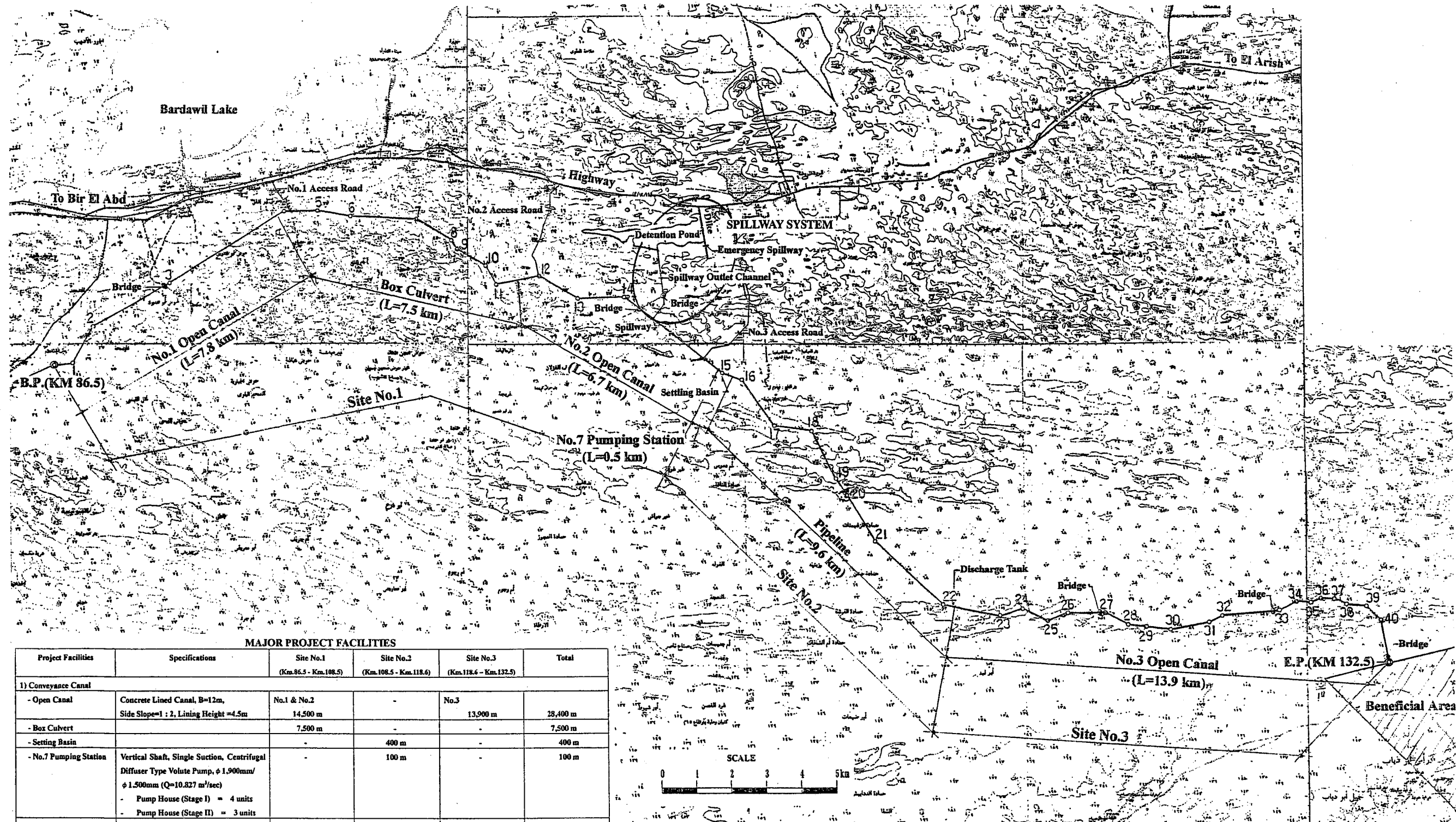
( VOL. I-2 : BASIC DESIGN DRAWINGS )

OCTOBER, 2000

SANYU CONSULTANTS INC.  
PACIFIC CONSULTANTS INTERNATIONAL

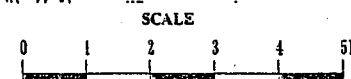
**LIST OF DRAWINGS**

Category		Drawing No.	Title of Drawings	Category	Drawing No.	Title of Drawings		
Conveyance Canal (A)	Open and Box Culvert (AC)	AC-01	General Plan of the Project	No.7 Pumping Station (B)	Electrical Equipment (BE)	BE-01	Pump Unit Power Supply One-Line Diagram and 380V Load Center (Stage I)	
		AC-02	Plan and Profile of No.1 Open Canal, Box Culvert, and No.2 Open Canal			BE-02	Main Pump Aux. Motor Control Center (MCC) (Stage I)	
		AC-03	Plan and Profile of No.3 Open Canal			BE-03	Main Pump Common Aux. Motor Control Center (Stage I)	
		AC-04	Typical Cross Section of Open Canal			BE-04	Pump Unit Power Supply One-Line Diagram and 380V Load Center (Stage II)	
		AC-05	Typical Cross Section of Box Culvert			BE-05	Main Pump Aux. Motor Control Center (MCC) (Stage II)	
		AC-06	Inlet, Outlet and Openings of Box Culvert			BE-06	Main Pump Common Aux. Motor Control Center (Stage II)	
		AC-07	Plan, Elevation and Section of Spillway	Maintenance Road (C)	Access Road (CR)	CR-01	Plane and Profile of No.1 Access Road	
		AC-08	Profiles and Section of Spillway Outlet Channel			CR-02	Plane and Profile of No.2 Access Road	
		AC-09	Profile and Section of Dike, Longitudinal Section and Elevation of Emergency Spillway			CR-03	Plane and Profile of No.3 Access Road	
		AC-10	Elevation and Section of Bridge			DS-01	66kv Main Substation Single Line Diagram (Stage I)	
	Pipeline (AP)	AP-01	Plan and Profile of Pipeline	Power Supply (D)	Substation (DS)	DS-02	66 kv Main Substation Layout Plan (Stage I)	
		AP-02	Typical Cross Section of Pipeline and Surge Tank			DS-03	66 kv Main Substation Typical Section (Stage I)	
		AP-03	Elevation and Section of Blow-Off			DS-04	66kv Main Substation Earthing Plan-1 (Earth Grid) (Stage I)	
		AP-04	Elevation and Section of Air Valve			DS-05	66 kv Main Substation Earthing Plan-2 (Indoor Earth Link) (Stage I)	
		AP-05	Plan and Profile of Discharge Tank			DS-06	Auxiliary Substation-1 Single Line Diagram (Stage I)	
		AP-06	Cross Section of Discharge Tank			DS-07	Panel Composition of Auxiliary Substation-1 (Stage I)	
	No.7 Pumping Station (B)	Civil Works (BC)	BC-01			General Plan of No.7 Pumping Station	DS-08	Auxiliary Substation-1, Switchgears and Panels Layout Plan (Stage I)
			BC-02			Plan of No.7 Pumping Station (Stage I)	DS-09	Auxiliary Substation-1 Earth Link Plan (Stage I)
			BC-03			Profile of No.7 Pumping Station (Stage I)	DS-10	66kv Main Substation Extension Works Single Line Diagram (Stage II)
			BC-04			Cross Section of No.7 Pumping Station (Stage I)	DS-11	66 kv Main Substation Extension Works Layout Plan (Stage II)
BC-05			Plan of No.7 Pumping Station (Stage II)			DS-12	66 kv Main Substation Extension Works Protection Earthing Plan (Stage II)	
BC-06			Profile of No.7 Pumping Station (Stage II)			DS-13	Auxiliary Substation-2 Single Line Diagram (Stage II)	
BC-07			Cross Section of No.7 Pumping Station (Stage II)			DS-14	Panel Composition of Auxiliary Substation-2 (Stage II)	
BC-08			Suction Sump Structure (Stage I) (1/4)			DS-15	Auxiliary Substation-2, Switchgears and Panels Layout Plan (Stage II)	
BC-09			Suction Sump Structure (Stage I) (2/4)			DS-16	Auxiliary Substation-2 Earth Link Plan (Stage II)	
BC-10			Suction Sump Structure (Stage I) (3/4)			Buildings (DB)	DB-01	Main Substation and Administration Building Finishing Schedule (Stage I)
BC-11			Suction Sump Structure (Stage I) (4/4)	DB-02	Main Substation and Administration Building Ground Floor Plan (Stage I)			
BC-12			Plan and Profile of Sand Settling Basin	DB-03	Main Substation and Administration Building Sections (Stage I)			
BC-13			Cross Section of Sand Settling Basin	DB-04	Main Substation and Administration Building Elevations (Stage I)			
			DB-05	Main Substation and Administration Building Ground Floor Plan (Stage II)				
	Buildings (BB)	BB-01	Pump House Finishing Schedule (Stage I)					
		BB-02	Pump House Ground Floor Plan (Stage I)					
		BB-03	Pump House First Floor Plan (Stage I)					
		BB-04	Pump House Roof Plan (Stage I)					
		BB-05	Pump House Sections (Stage I)					
		BB-06	Pump House Elevation-1 (Stage I)					
		BB-07	Pump House Elevation-2 (Stage I)					
		BB-08	Pump House Finishing Schedule (Stage II)					
		BB-09	Pump House Ground Floor Plan (Stage II)					
		BB-10	Pump House First Floor Plan (Stage II)					
		BB-11	Pump House Roof Plan (Stage II)					
	BB-12	Pump House Sections (Stage II)						
	BB-13	Pump House Elevation-1 (Stage II)						
	BB-14	Pump House Elevation-2 (Stage II)						



MAJOR PROJECT FACILITIES

Project Facilities	Specifications	Site No.1 (Km.86.5 - Km.108.5)	Site No.2 (Km.108.5 - Km.118.6)	Site No.3 (Km.118.6 - Km.132.5)	Total
<b>1) Conveyance Canal</b>					
- Open Canal	Concrete Lined Canal, B=12m, Side Slope=1 : 2, Lining Height =4.5m	No.1 & No.2 14,500 m	-	No.3 13,900 m	28,400 m
- Box Culvert		7,500 m	-	-	7,500 m
- Setting Basin		-	400 m	-	400 m
- No.7 Pumping Station	Vertical Shaft, Single Suction, Centrifugal Diffuser Type Volute Pump, $\phi$ 1,900mm/ $\phi$ 1,500mm (Q=10.827 m <sup>3</sup> /sec) - Pump House (Stage I) = 4 units - Pump House (Stage II) = 3 units	-	100 m	-	100 m
- Pipeline	$\phi$ 2,400mm Steel Pipe Stage I = 3 rows, Stage II = 2 rows	-	9,400 m	-	9,400 m
- Discharge Tank		-	200 m	-	200 m
<b>Total</b>		<b>22,000 m</b>	<b>10,100 m</b>	<b>13,900 m</b>	<b>46,000 m</b>
<b>2) Appurtenance Structure</b>					
- Bridge		3 nos.	-	3 nos.	6 nos.
- Spillway System	Spillway, Spillway Outlet Channel, Dike, Emergency Spillway	1 unit	-	-	1 unit
<b>3) Access Road</b>					
- Access Road	No.1, No.2 and No.3 Access Road	Nos.1&2 4,000 m	No.3 5,000 m	-	9,000 m
<b>4) Others (to be constructed by PEA (Rural Electrification Authority))</b>					
- Transmission Line	66kV	-	1 unit	-	1 unit
- Main Substation		-	1 unit	-	1 unit

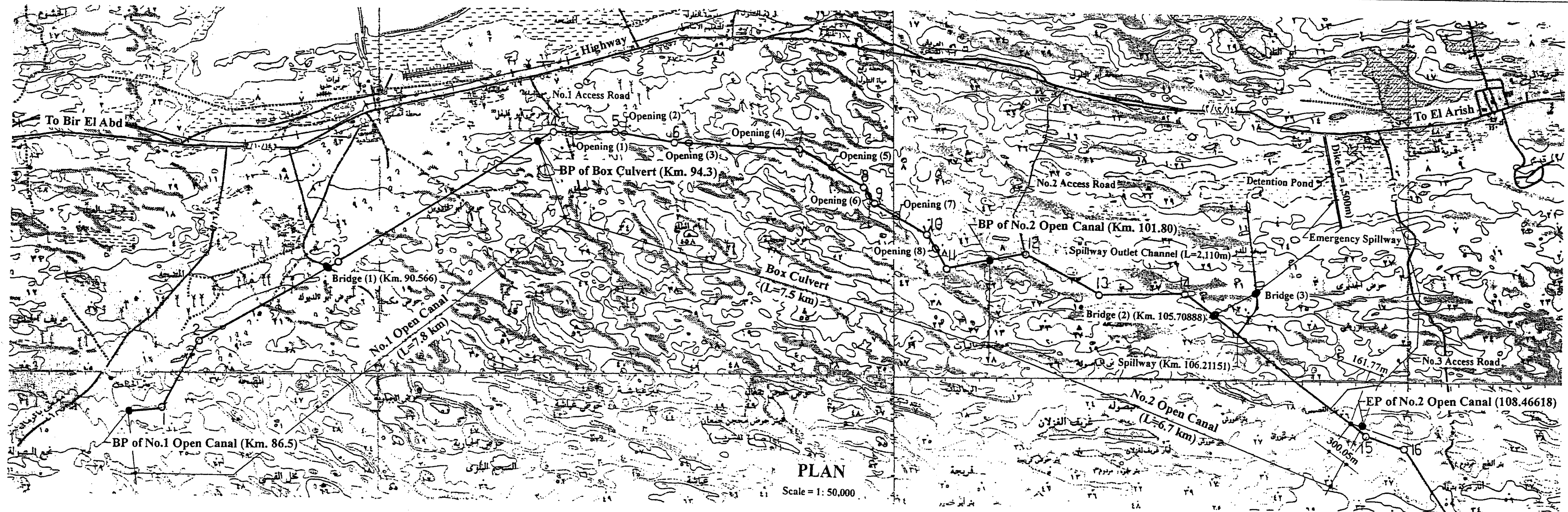


THE ARAB REPUBLIC OF EGYPT  
 MINISTRY OF WATER RESOURCES AND IRRIGATION  
 NORTH SINAI DEVELOPMENT ORGANIZATION  
**THE NORTH SINAI INTEGRATED RURAL  
 DEVELOPMENT PROJECT (PHASE III)**

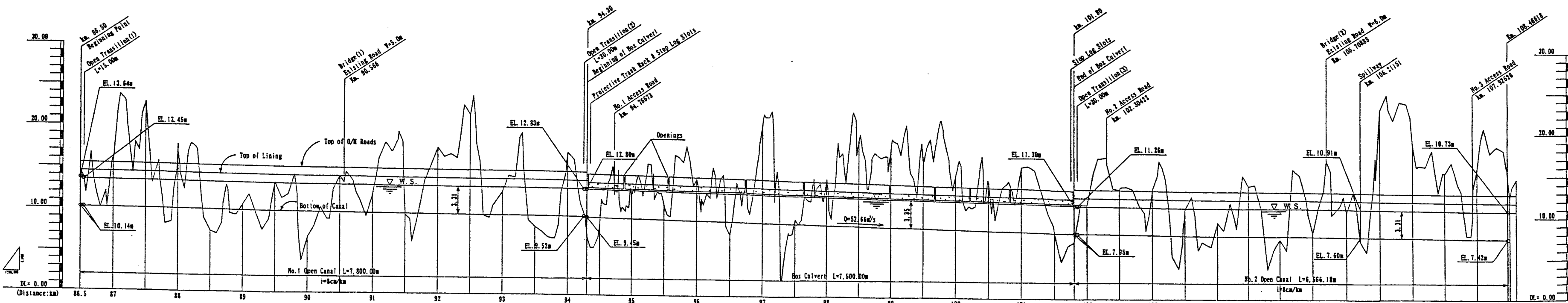
CONVEYANCE CANAL SYSTEM BETWEEN  
 THE END OF BIR EL ABD ZONE  
 UNTIL THE BEGINNING OF EL SIR AND EL KAWAREER ZONE.  
**GENERAL PLAN OF THE PROJECT**

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

DESIGNED	
TRACED	
CHECKED	
APPROVED	
DRAWING NO.	AC - 01

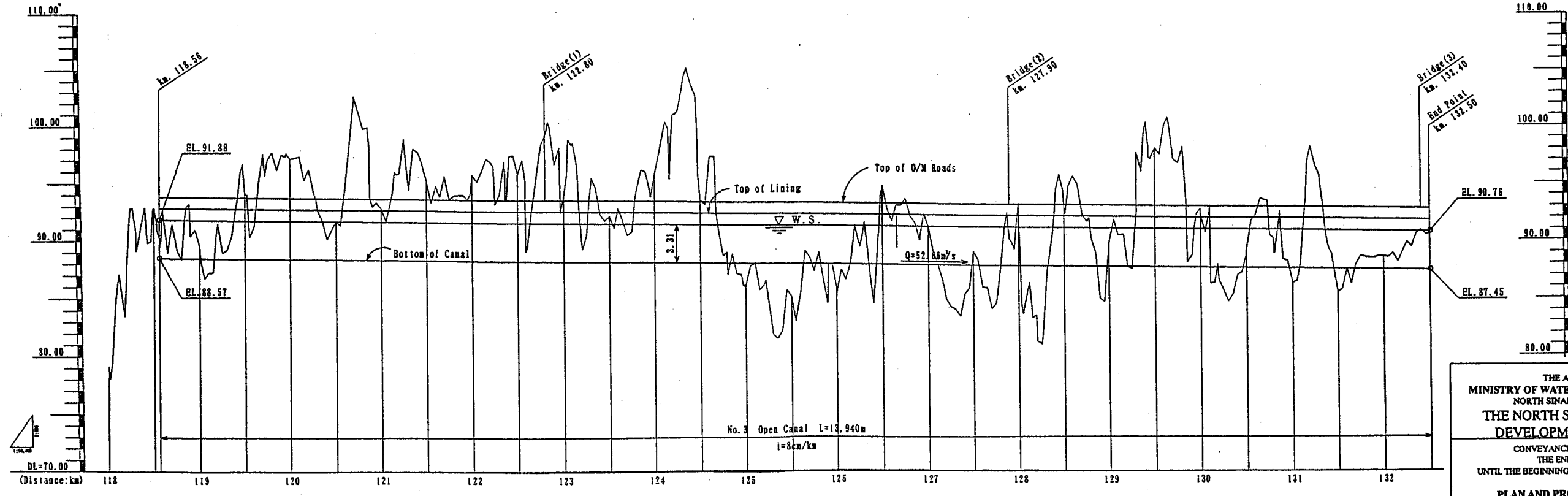
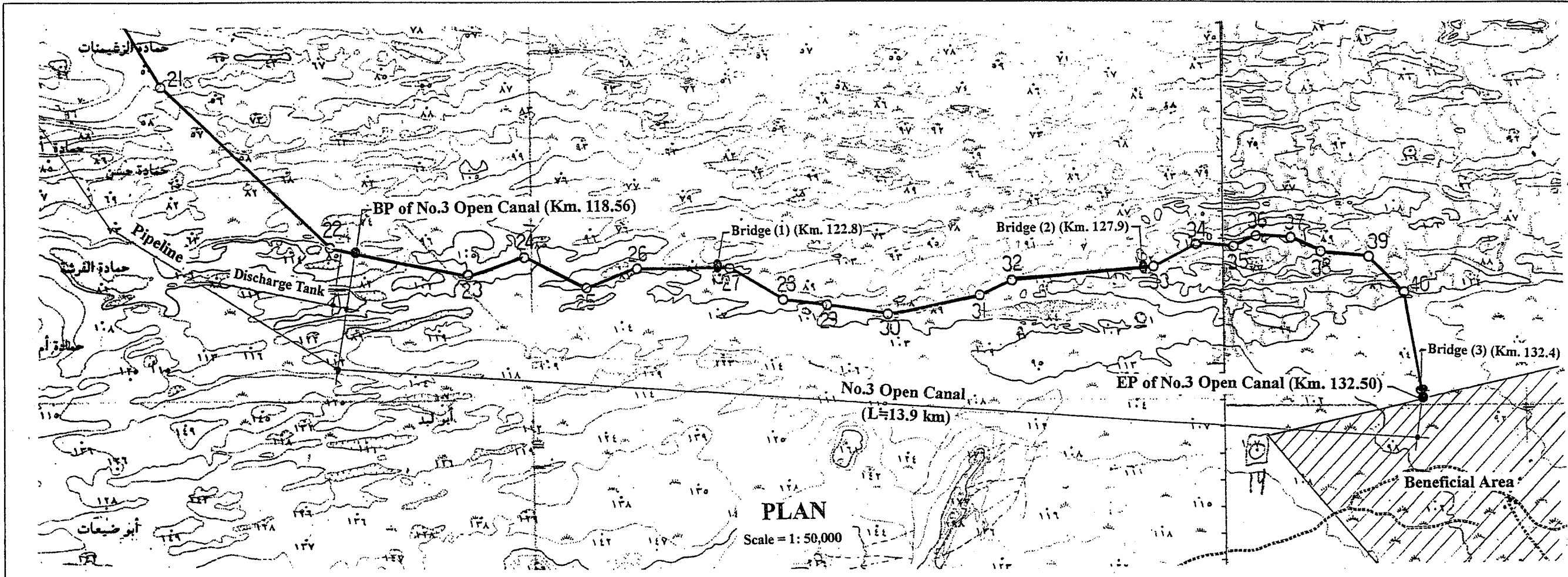


PLAN  
Scale = 1 : 50,000



PROFILE

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 CANAL SYSTEM BETWEEN THE END OF BIR EL ABD ZONE UNTIL THE BEGINNING OF EL SIR AND EL KAWAREER ZONE	
PLAN AND PROFILE OF No.1 OPEN CANAL, BOX CULVERT AND No.2 OPEN CANAL	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) SANYU CONSULTANTS INC. PACIFIC CONSULTANTS INTERNATIONAL	
DESIGNED	
TRACED	
CHECKED	
APPROVED	
DRAWING NO.	AC - 02



PROFILE

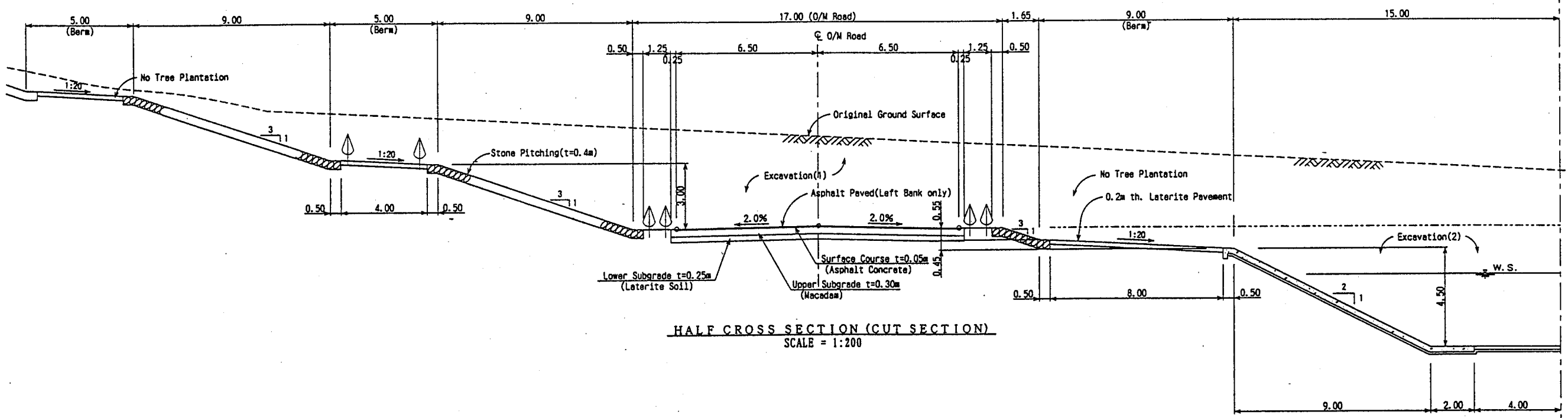
THE ARAB REPUBLIC OF EGYPT  
 MINISTRY OF WATER RESOURCES AND IRRIGATION  
 NORTH SINAI DEVELOPMENT ORGANIZATION  
 THE NORTH SINAI INTEGRATED RURAL  
 DEVELOPMENT PROJECT (PHASE III)

CONVEYANCE CANAL SYSTEM BETWEEN  
 THE END OF BIR EL ABD ZONE  
 UNTIL THE BEGINNING OF EL SIR AND EL KAWAREER ZONE

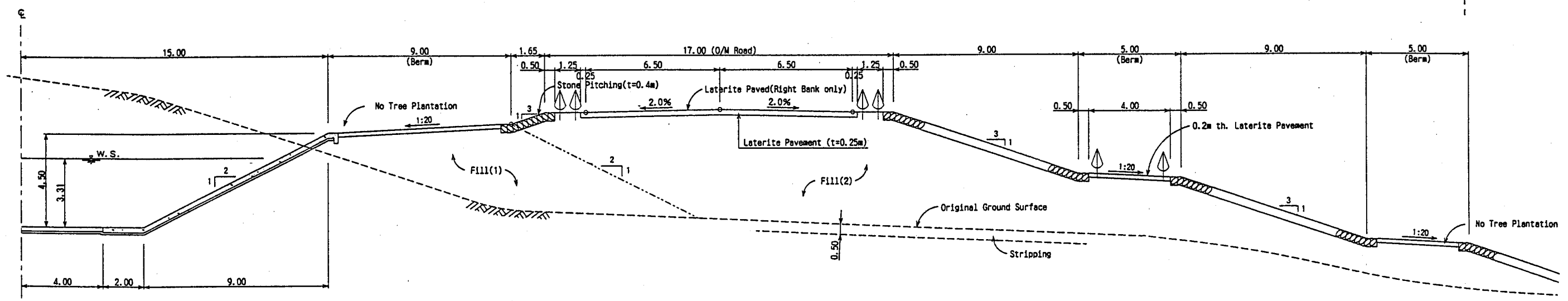
PLAN AND PROFILE OF No.3 OPEN CANAL

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

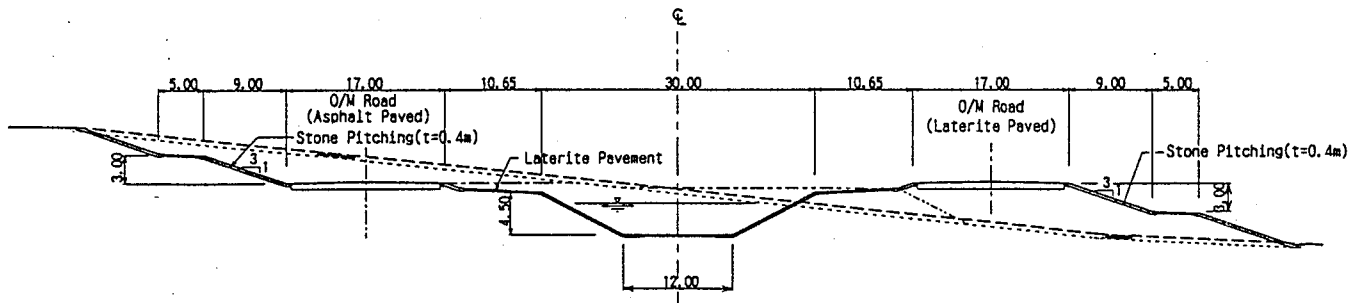
DESIGNED	
TRACED	
CHECKED	
APPROVED	
DRAWING NO.	AC - 03



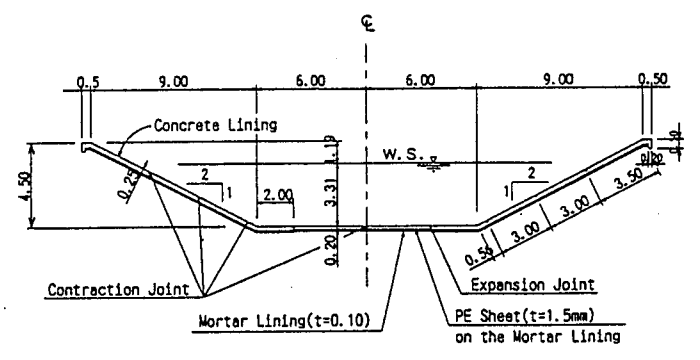
HALF CROSS SECTION (CUT SECTION)  
SCALE = 1:200



HALF CROSS SECTION (FILL SECTION)  
SCALE = 1:200



TYPICAL CROSS SECTION OF OPEN CANAL

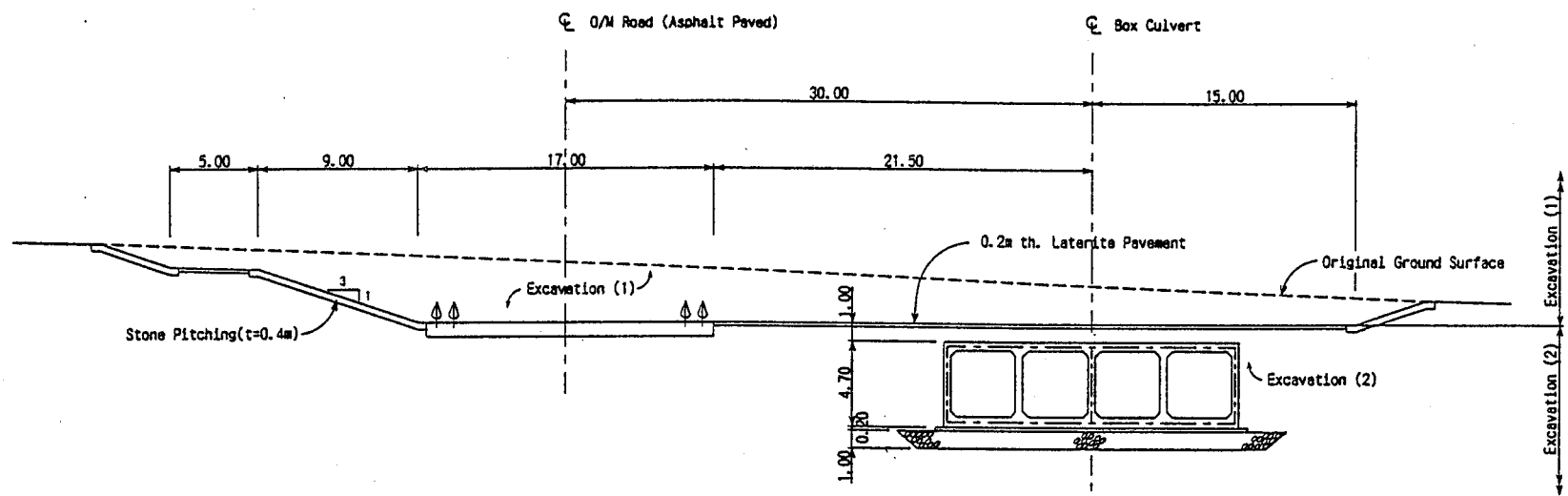


CONCRETE LINED SECTION

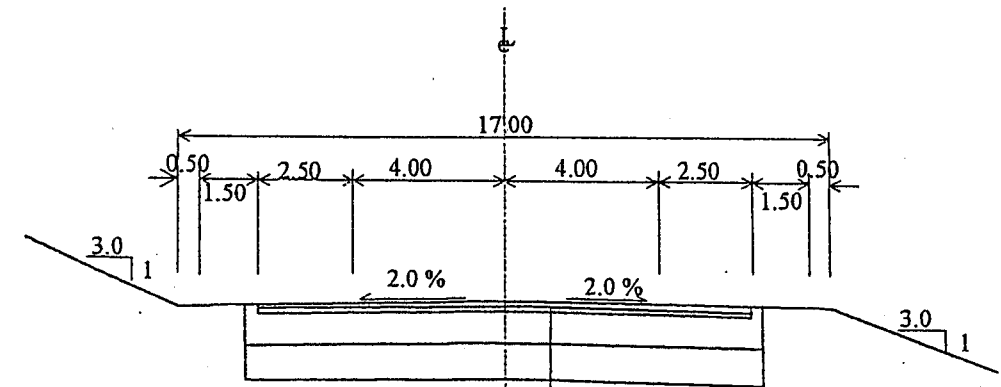
THE ARAB REPUBLIC OF EGYPT  
MINISTRY OF WATER RESOURCES AND IRRIGATION  
NORTH SINAI DEVELOPMENT ORGANIZATION  
THE NORTH SINAI INTEGRATED RURAL DEVELOPMENT PROJECT (PHASE III)  
CONVEYANCE CANAL SYSTEM BETWEEN THE END OF BIR EL ABD ZONE UNTIL THE BEGINNING OF EL SIR AND EL KAWAREER ZONE  
TYPICAL CROSS SECTION OF OPEN CANAL

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

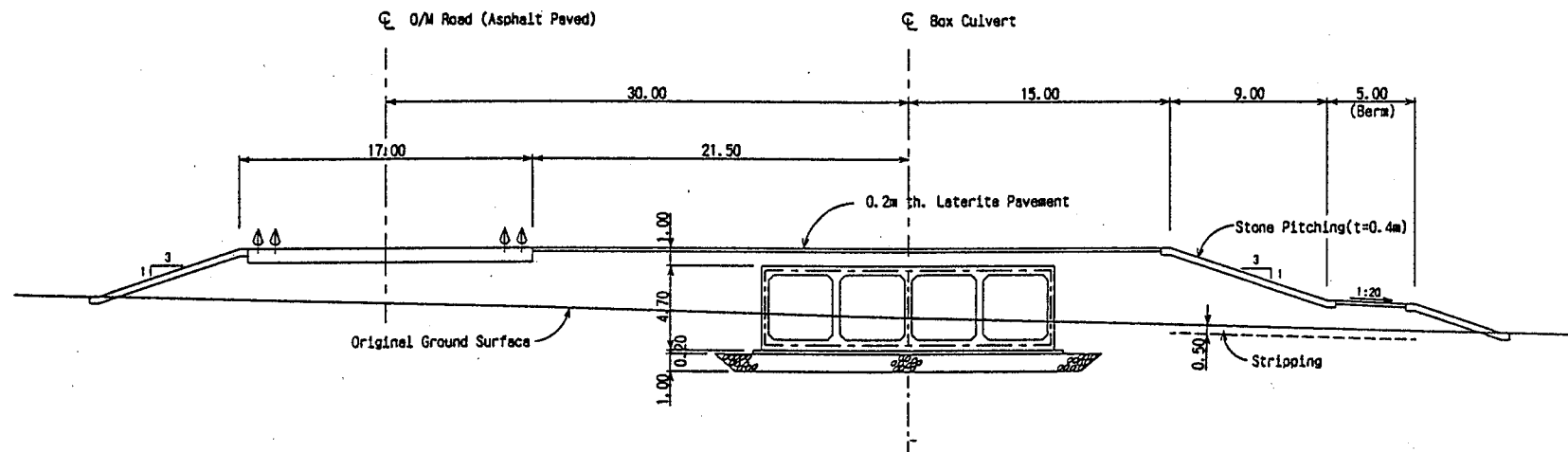
DESIGNED	
TRACED	
CHECKED	
APPROVED	
DRAWING NO.	AC-04



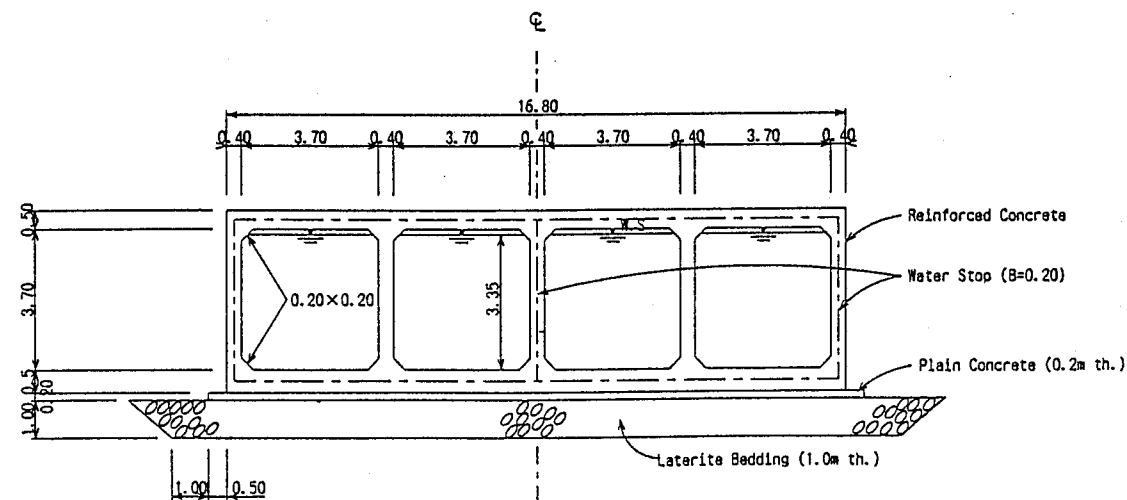
TYPICAL CROSS SECTION OF BOX CULVERT (CUT SECTION)  
SCALE = 1:400



ASPHALT PAVED O/M ROAD  
SURFACE COURSE : t = 5 cm (ASPHALT CONCRETE)  
BASE COURSE : t = 6 cm (ASPHALT CONCRETE)  
UPPER SUBGRADE : t = 30 cm (MACADAM)  
LOWER SUBGRADE : t = 25 cm (LATERITE SOIL)

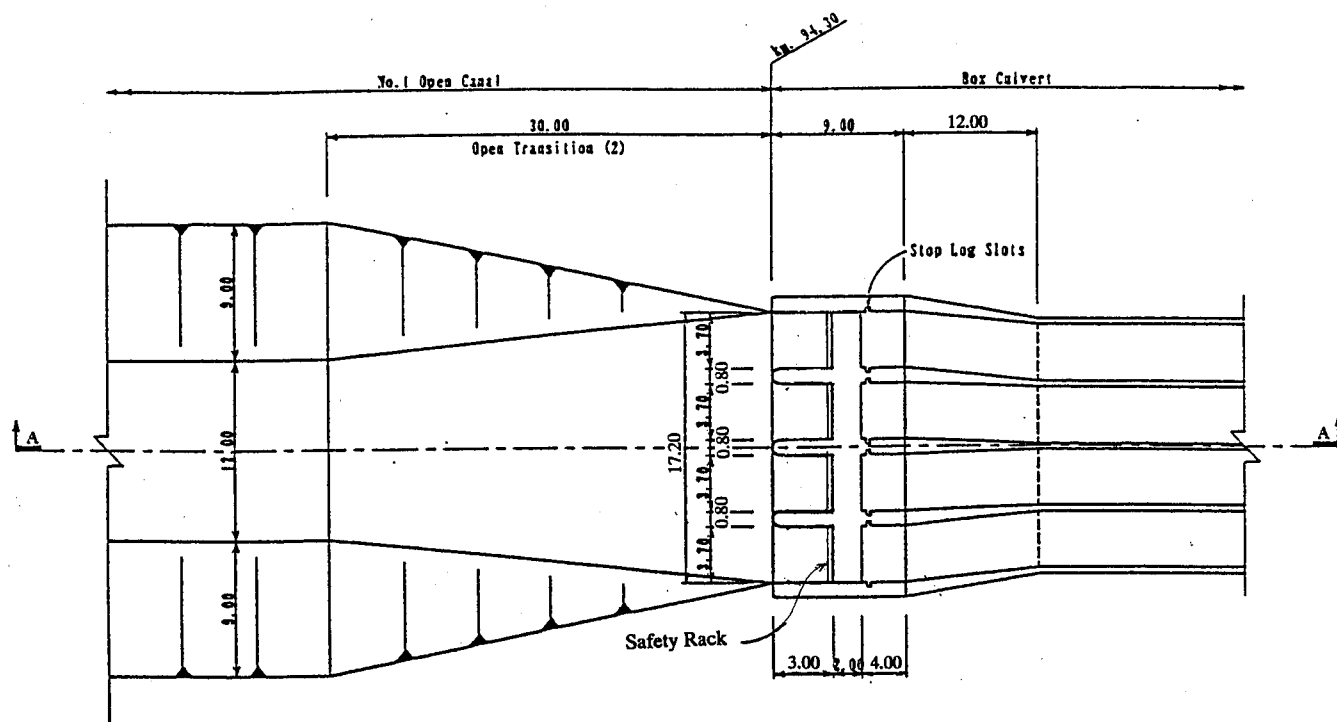


TYPICAL CROSS SECTION OF BOX CULVERT (FILL SECTION)  
SCALE = 1:400

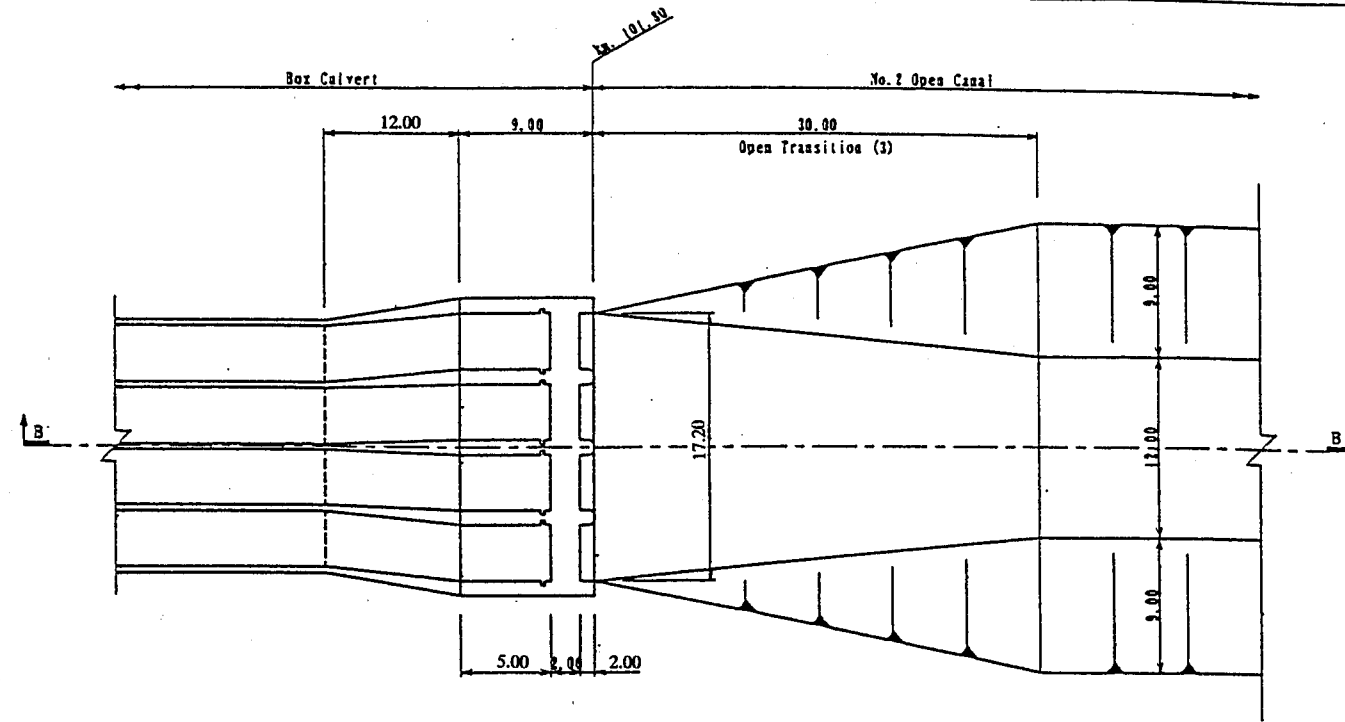


FOUR-CELL BOX  
SCALE = 1:200

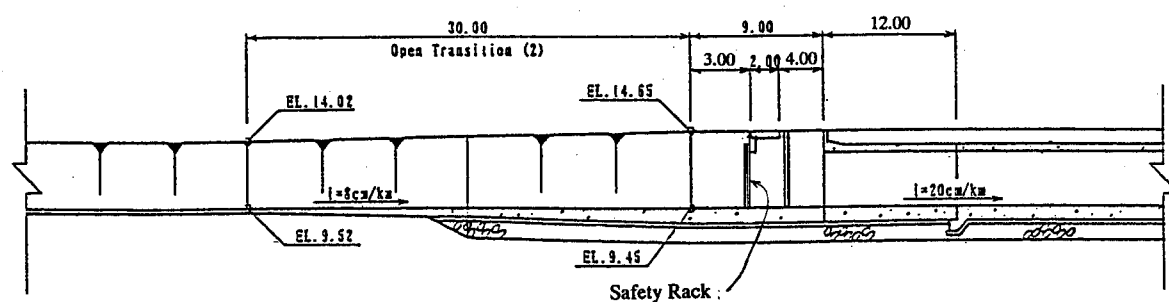
THE ARAB REPUBLIC OF EGYPT MINISTRY OF WATER RESOURCES AND IRRIGATION NORTH SINAI DEVELOPMENT ORGANIZATION THE NORTH SINAI INTEGRATED RURAL DEVELOPMENT PROJECT (PHASE III) CONVEYANCE CANAL SYSTEM BETWEEN THE END OF BIR EL ABD ZONE UNTIL THE BEGINNING OF EL SIR AND EL KAWAREER ZONE TYPICAL CROSS SECTION OF BOX CULVERT	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) SANYU CONSULTANTS INC, PACIFIC CONSULTANTS INTERNATIONAL	
DESIGNED	
TRACED	
CHECKED	
APPROVED	
DRAWING NO.	AC - 05



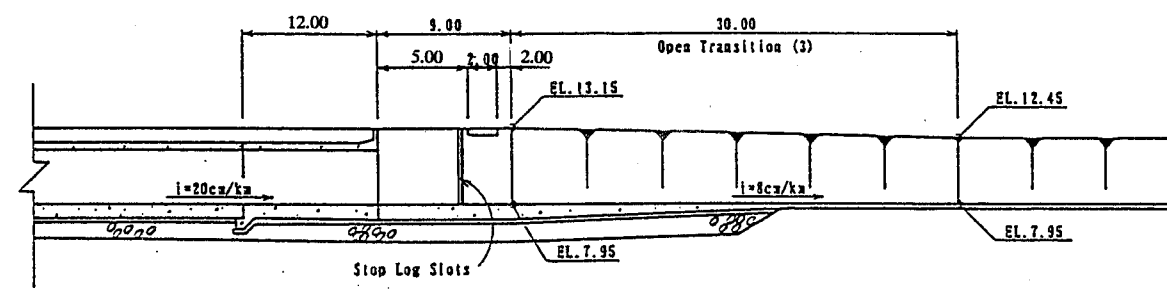
PLAN OF INLET



PLAN OF OUTLET



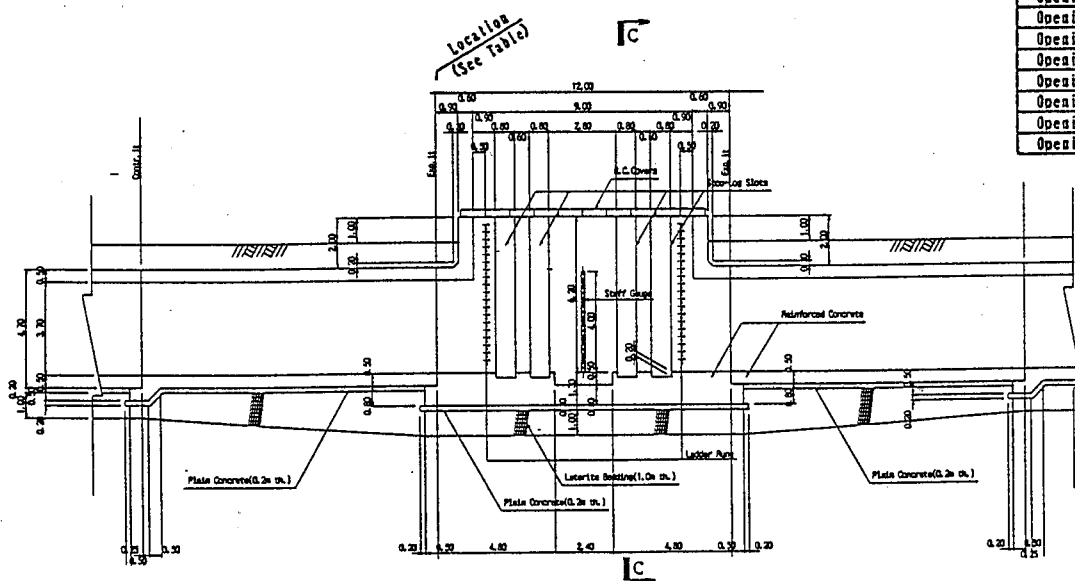
SECTION A-A



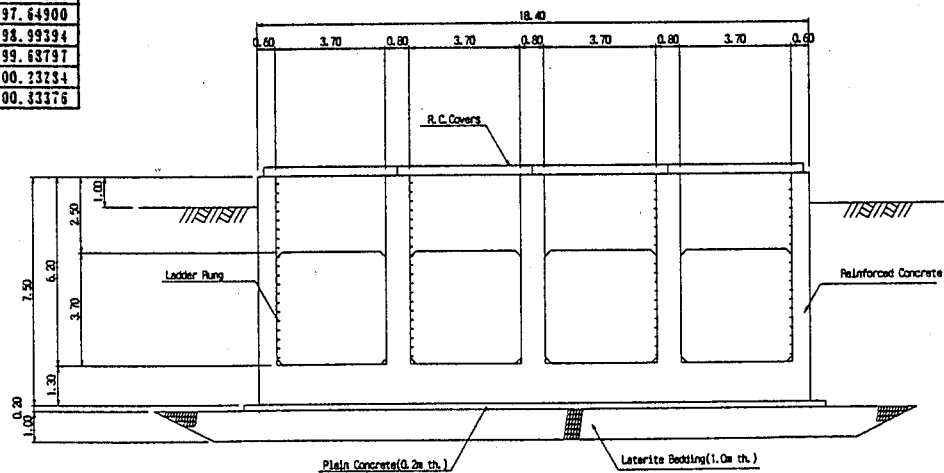
SECTION B-B

LOCATION OF OPENING

No. of Opening	Location
Opening (1)	km. 94.39673
Opening (2)	km. 95.58030
Opening (3)	km. 96.74900
Opening (4)	km. 97.64900
Opening (5)	km. 98.99394
Opening (6)	km. 99.68797
Opening (7)	km. 100.23234
Opening (8)	km. 100.33376



LONGITUDINAL SECTION OF OPENING



SECTION C-C

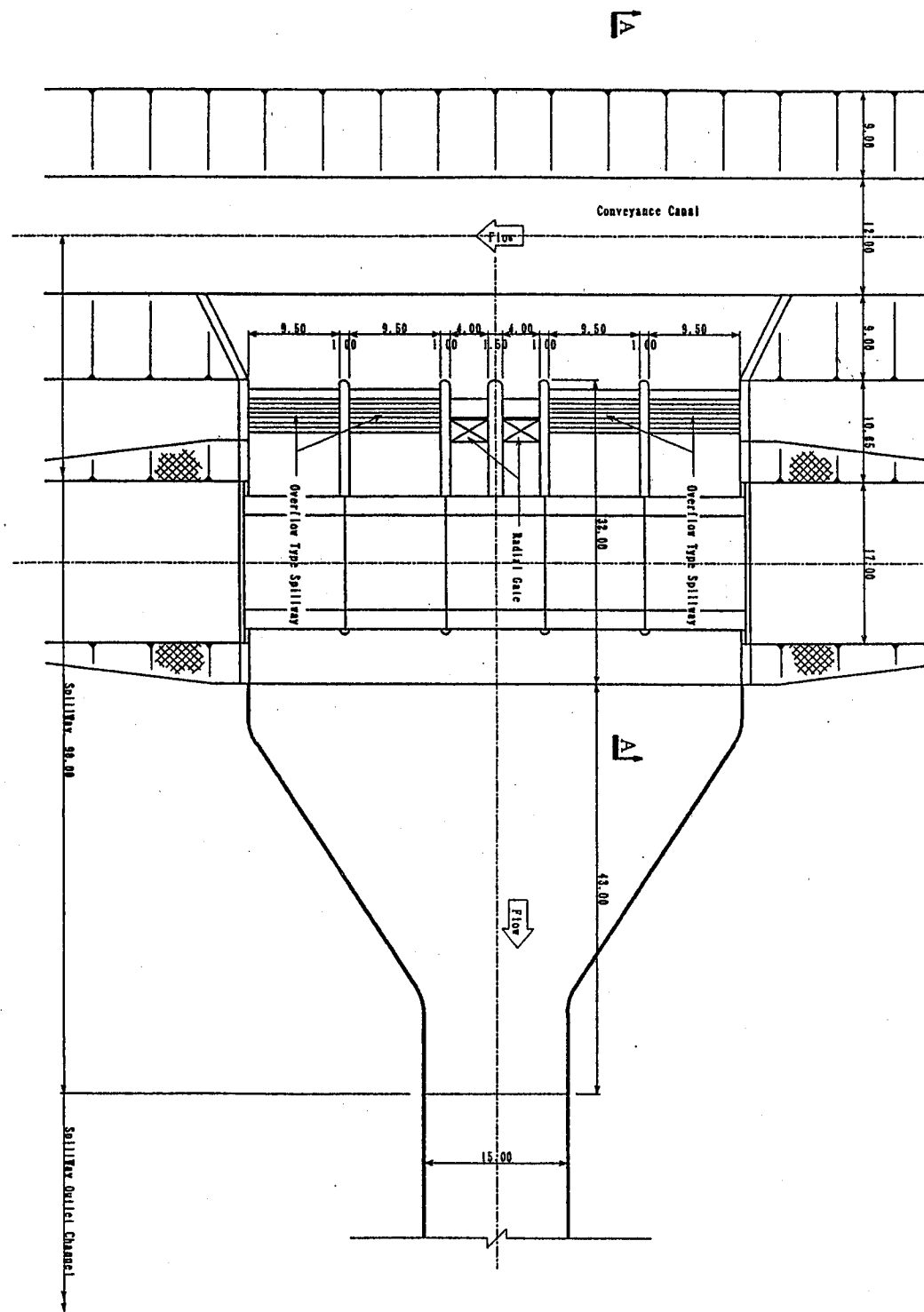
Note: Dimensions shown in this figure are tentative.

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 CANAL SYSTEM BETWEEN  
 THE END OF BIR EL ABD ZONE  
 UNTIL THE BEGINNING OF EL SIR AND EL KAWAAREER ZONE  
 INLET, OUTLET AND OPENINGS OF  
 BOX CULVERT

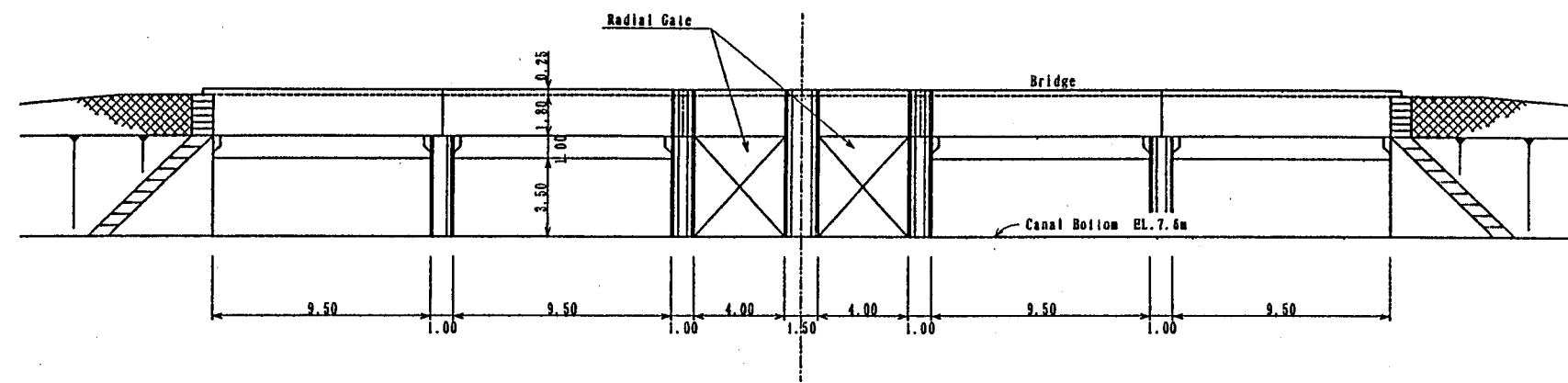
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)  
 SANYU CONSULTANTS INC, PACIFIC CONSULTANTS INTERNATIONAL

DESIGNED	
TRACED	
CHECKED	
APPROVED	
DRAWING NO.	AC-06

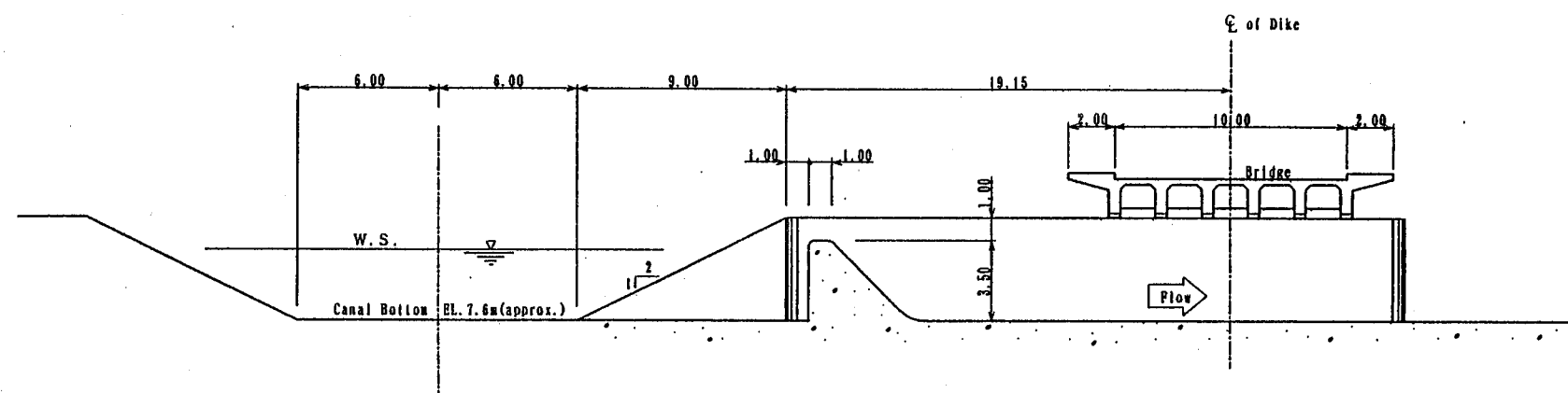




PLAN OF SPILLWAY



ELEVATION OF SPILLWAY



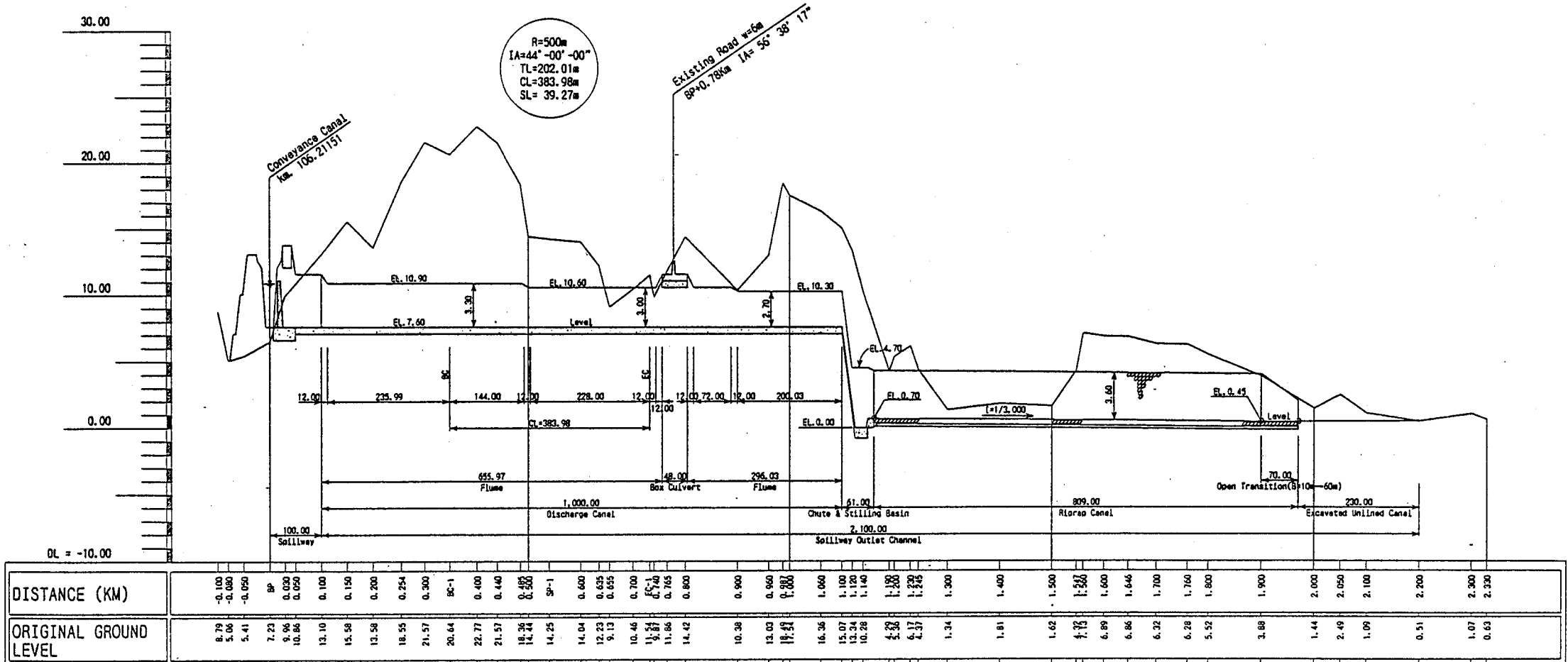
SECTION A-A

For the location of spillway system, see Dwg. No. AC-01.

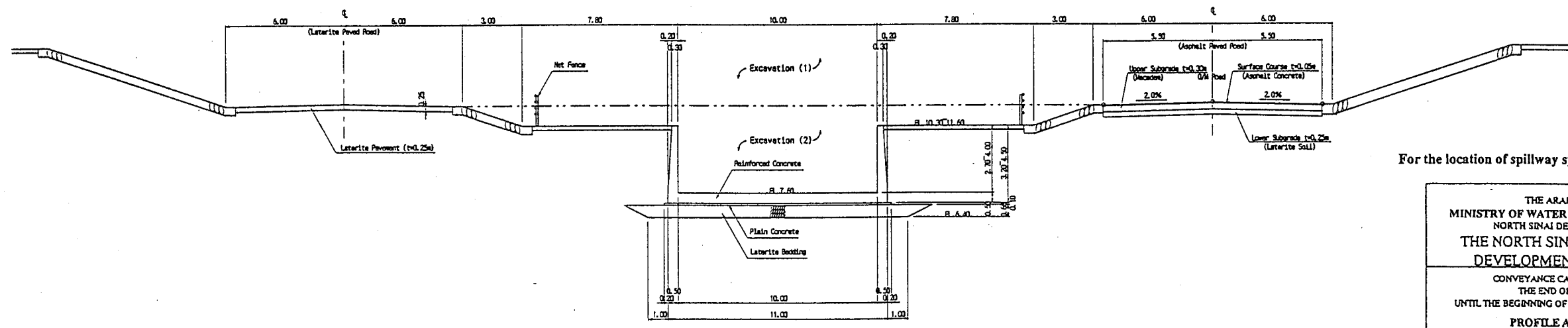
THE ARAB REPUBLIC OF EGYPT  
 MINISTRY OF WATER RESOURCES AND IRRIGATION  
 NORTH SINAI DEVELOPMENT ORGANIZATION  
 THE NORTH SINAI INTEGRATED RURAL  
 DEVELOPMENT PROJECT (PHASE III)  
 CONVEYANCE CANAL SYSTEM BETWEEN  
 THE END OF BIR EL ABD ZONE  
 UNTIL THE BEGINNING OF EL SIR AND EL KAWAREER ZONE  
 PLAN, ELEVATION AND SECTION OF  
 SPILLWAY

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

DESIGNED	
TRACED	
CHECKED	
APPROVED	
DRAWING NO.	AC-07



PROFILE



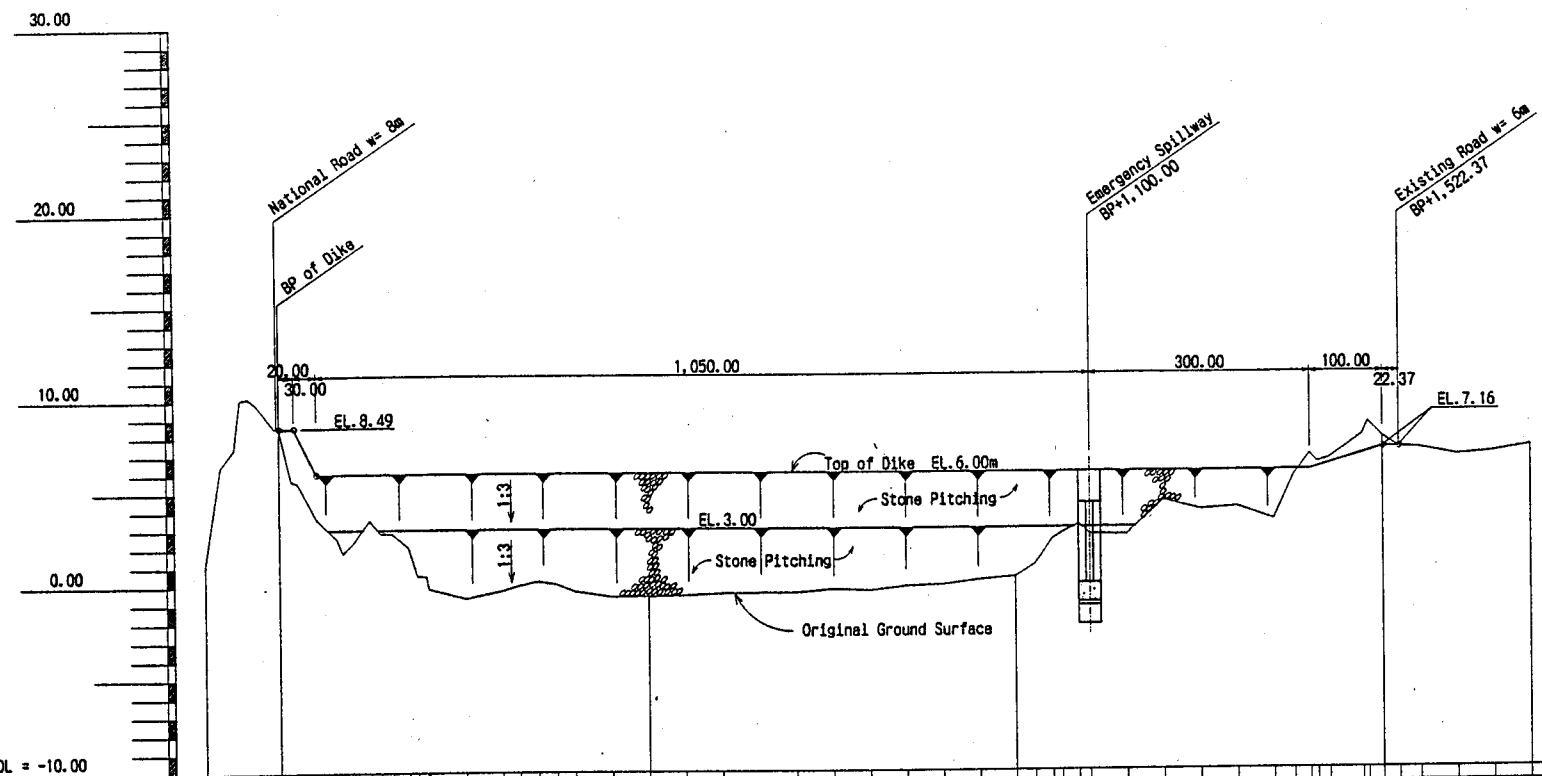
TYPICAL SECTION OF DISCHARGE CANAL

For the location of spillway system, see Dwg. No. AC-01.

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 CANAL SYSTEM BETWEEN THE END OF BIR EL ABD ZONE UNTIL THE BEGINNING OF EL SIR AND EL KAWAREER ZONE  
 PROFILE AND SECTION OF SPILLWAY OUTLET CHANNEL

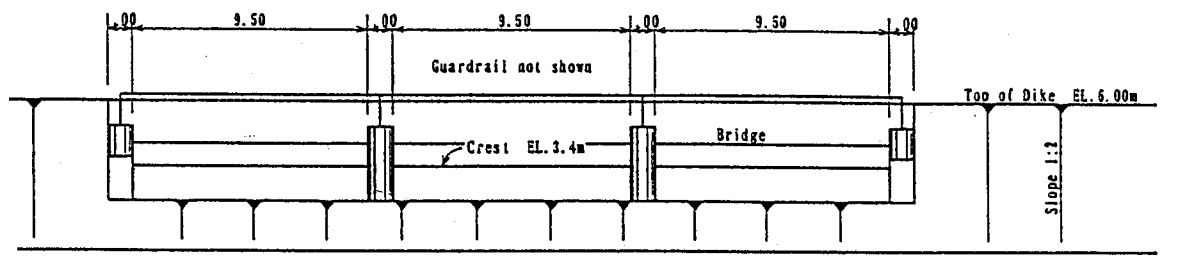
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)  
 SANYU CONSULTANTS INC, PACIFIC CONSULTANTS INTERNATIONAL

DESIGNED	
TRACED	
CHECKED	
APPROVED	
DRAWING NO.	AC-08

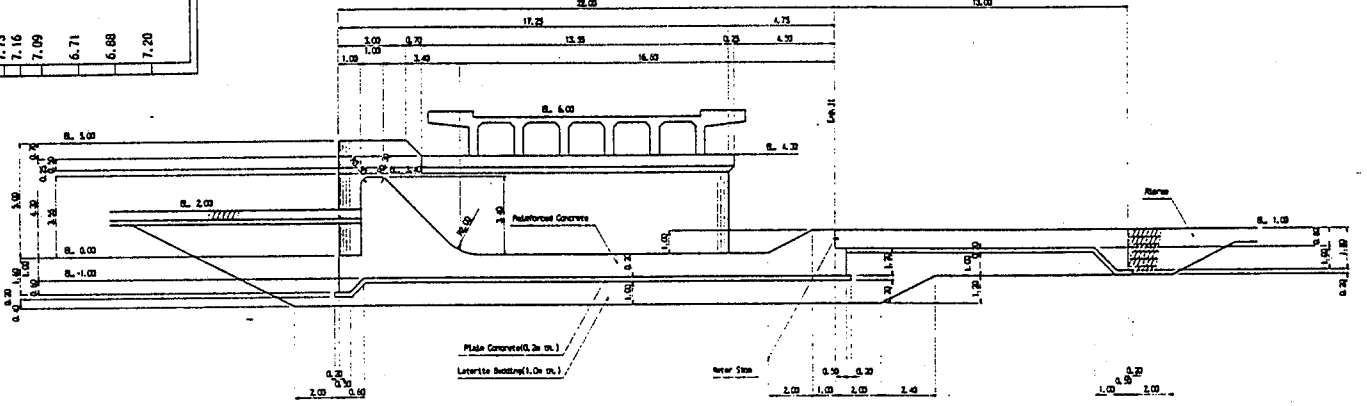


DISTANCE (KM)	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.70	0.75	0.80	0.85	0.90	0.95	1.00	1.05	1.10	1.15	1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
ORIGINAL GROUND SURFACE	1.21	0.78	0.72	0.65	0.52	0.39	0.25	0.10	-0.05	-0.16	-0.28	-0.41	-0.54	-0.67	-0.80	-0.93	-1.06	-1.19	-1.32	-1.45	-1.58	-1.71	-1.84	-1.97	-2.10	-2.23	-2.36	-2.49	-2.62	-2.75	-2.88	-3.01	-3.14	-3.27	-3.40	-3.53	-3.66	-3.79	-3.92	-4.05	-4.18	-4.31	-4.44	-4.57	-4.70	-4.83	-4.96	-5.09	-5.22	-5.35	-5.48	-5.61	-5.74	-5.87	-6.00	-6.13	-6.26	-6.39	-6.52	-6.65	-6.78	-6.91	-7.04	-7.17	-7.30	-7.43	-7.56	-7.69	-7.82	-7.95	-8.08	-8.21	-8.34	-8.47	-8.60	-8.73	-8.86	-8.99	-9.12	-9.25	-9.38	-9.51	-9.64	-9.77	-9.90	-10.03	-10.16	-10.29	-10.42	-10.55	-10.68	-10.81	-10.94	-11.07	-11.20	-11.33	-11.46	-11.59	-11.72	-11.85	-11.98	-12.11	-12.24	-12.37	-12.50	-12.63	-12.76	-12.89	-13.02	-13.15	-13.28	-13.41	-13.54	-13.67	-13.80	-13.93	-14.06	-14.19	-14.32	-14.45	-14.58	-14.71	-14.84	-14.97	-15.10	-15.23	-15.36	-15.49	-15.62	-15.75	-15.88	-16.01	-16.14	-16.27	-16.40	-16.53	-16.66	-16.79	-16.92	-17.05	-17.18	-17.31	-17.44	-17.57	-17.70	-17.83	-17.96	-18.09	-18.22	-18.35	-18.48	-18.61	-18.74	-18.87	-19.00	-19.13	-19.26	-19.39	-19.52	-19.65	-19.78	-19.91	-20.04	-20.17	-20.30	-20.43	-20.56	-20.69	-20.82	-20.95	-21.08	-21.21	-21.34	-21.47	-21.60	-21.73	-21.86	-21.99	-22.12	-22.25	-22.38	-22.51	-22.64	-22.77	-22.90	-23.03	-23.16	-23.29	-23.42	-23.55	-23.68	-23.81	-23.94	-24.07	-24.20	-24.33	-24.46	-24.59	-24.72	-24.85	-24.98	-25.11	-25.24	-25.37	-25.50	-25.63	-25.76	-25.89	-26.02	-26.15	-26.28	-26.41	-26.54	-26.67	-26.80	-26.93	-27.06	-27.19	-27.32	-27.45	-27.58	-27.71	-27.84	-27.97	-28.10	-28.23	-28.36	-28.49	-28.62	-28.75	-28.88	-29.01	-29.14	-29.27	-29.40	-29.53	-29.66	-29.79	-29.92	-30.05	-30.18	-30.31	-30.44	-30.57	-30.70	-30.83	-30.96	-31.09	-31.22	-31.35	-31.48	-31.61	-31.74	-31.87	-32.00	-32.13	-32.26	-32.39	-32.52	-32.65	-32.78	-32.91	-33.04	-33.17	-33.30	-33.43	-33.56	-33.69	-33.82	-33.95	-34.08	-34.21	-34.34	-34.47	-34.60	-34.73	-34.86	-34.99	-35.12	-35.25	-35.38	-35.51	-35.64	-35.77	-35.90	-36.03	-36.16	-36.29	-36.42	-36.55	-36.68	-36.81	-36.94	-37.07	-37.20	-37.33	-37.46	-37.59	-37.72	-37.85	-37.98	-38.11	-38.24	-38.37	-38.50	-38.63	-38.76	-38.89	-39.02	-39.15	-39.28	-39.41	-39.54	-39.67	-39.80	-39.93	-40.06	-40.19	-40.32	-40.45	-40.58	-40.71	-40.84	-40.97	-41.10	-41.23	-41.36	-41.49	-41.62	-41.75	-41.88	-42.01	-42.14	-42.27	-42.40	-42.53	-42.66	-42.79	-42.92	-43.05	-43.18	-43.31	-43.44	-43.57	-43.70	-43.83	-43.96	-44.09	-44.22	-44.35	-44.48	-44.61	-44.74	-44.87	-45.00	-45.13	-45.26	-45.39	-45.52	-45.65	-45.78	-45.91	-46.04	-46.17	-46.30	-46.43	-46.56	-46.69	-46.82	-46.95	-47.08	-47.21	-47.34	-47.47	-47.60	-47.73	-47.86	-47.99	-48.12	-48.25	-48.38	-48.51	-48.64	-48.77	-48.90	-49.03	-49.16	-49.29	-49.42	-49.55	-49.68	-49.81	-49.94	-50.07	-50.20	-50.33	-50.46	-50.59	-50.72	-50.85	-50.98	-51.11	-51.24	-51.37	-51.50	-51.63	-51.76	-51.89	-52.02	-52.15	-52.28	-52.41	-52.54	-52.67	-52.80	-52.93	-53.06	-53.19	-53.32	-53.45	-53.58	-53.71	-53.84	-53.97	-54.10	-54.23	-54.36	-54.49	-54.62	-54.75	-54.88	-55.01	-55.14	-55.27	-55.40	-55.53	-55.66	-55.79	-55.92	-56.05	-56.18	-56.31	-56.44	-56.57	-56.70	-56.83	-56.96	-57.09	-57.22	-57.35	-57.48	-57.61	-57.74	-57.87	-58.00	-58.13	-58.26	-58.39	-58.52	-58.65	-58.78	-58.91	-59.04	-59.17	-59.30	-59.43	-59.56	-59.69	-59.82	-59.95	-60.08	-60.21	-60.34	-60.47	-60.60	-60.73	-60.86	-60.99	-61.12	-61.25	-61.38	-61.51	-61.64	-61.77	-61.90	-62.03	-62.16	-62.29	-62.42	-62.55	-62.68	-62.81	-62.94	-63.07	-63.20	-63.33	-63.46	-63.59	-63.72	-63.85	-63.98	-64.11	-64.24	-64.37	-64.50	-64.63	-64.76	-64.89	-65.02	-65.15	-65.28	-65.41	-65.54	-65.67	-65.80	-65.93	-66.06	-66.19	-66.32	-66.45	-66.58	-66.71	-66.84	-66.97	-67.10	-67.23	-67.36	-67.49	-67.62	-67.75	-67.88	-68.01	-68.14	-68.27	-68.40	-68.53	-68.66	-68.79	-68.92	-69.05	-69.18	-69.31	-69.44	-69.57	-69.70	-69.83	-69.96	-70.09	-70.22	-70.35	-70.48	-70.61	-70.74	-70.87	-71.00	-71.13	-71.26	-71.39	-71.52	-71.65	-71.78	-71.91	-72.04	-72.17	-72.30	-72.43	-72.56	-72.69	-72.82	-72.95	-73.08	-73.21	-73.34	-73.47	-73.60	-73.73	-73.86	-73.99	-74.12	-74.25	-74.38	-74.51	-74.64	-74.77	-74.90	-75.03	-75.16	-75.29	-75.42	-75.55	-75.68	-75.81	-75.94	-76.07	-76.20	-76.33	-76.46	-76.59	-76.72	-76.85	-76.98	-77.11	-77.24	-77.37	-77.50	-77.63	-77.76	-77.89	-78.02	-78.15	-78.28	-78.41	-78.54	-78.67	-78.80	-78.93	-79.06	-79.19	-79.32	-79.45	-79.58	-79.71	-79.84	-79.97	-80.10	-80.23	-80.36	-80.49	-80.62	-80.75	-80.88	-81.01	-81.14	-81.27	-81.40	-81.53	-81.66	-81.79	-81.92	-82.05	-82.18	-82.31	-82.44	-82.57	-82.70	-82.83	-82.96	-83.09	-83.22	-83.35	-83.48	-83.61	-83.74	-83.87	-84.00	-84.13	-84.26	-84.39	-84.52	-84.65	-84.78	-84.91	-85.04	-85.17	-85.30	-85.43	-85.56	-85.69	-85.82	-85.95	-86.08	-86.21	-86.34	-86.47	-86.60	-86.73	-86.86	-86.99	-87.12	-87.25	-87.38	-87.51	-87.64	-87.77	-87.90	-88.03	-88.16	-88.29	-88.42	-88.55	-88.68	-88.81	-88.94	-89.07	-89.20	-89.33	-89.46	-89.59	-89.72	-89.85	-89.98	-90.11	-90.24	-90.37	-90.50	-90.63	-90.76	-90.89	-91.02	-91.15	-91.28	-91.41	-91.54	-91.67	-91.80	-91.93	-92.06	-92.19	-92.32	-92.45	-92.58	-92.71	-92.84	-92.97	-93.10	-93.23	-93.36	-93.49	-93.62	-93.75	-93.88	-94.01	-94.14	-94.27	-94.40	-94.53	-94.66	-94.79	-94.92	-95.05	-95.18	-95.31	-95.44	-95.57	-95.70	-95.83	-95.96	-96.09	-96.22	-96.35	-96.48	-96.61	-96.74	-96.87	-97.00	-97.13	-97.26	-97.39	-97.52	-97.65	-97.78	-97.91	-98.04	-98.17	-98.30	-98.43	-98.56	-98.69	-98.82	-98.95	-99.08	-99.21	-99.34	-99.47	-99.60	-99.73	-99.86	-100.00

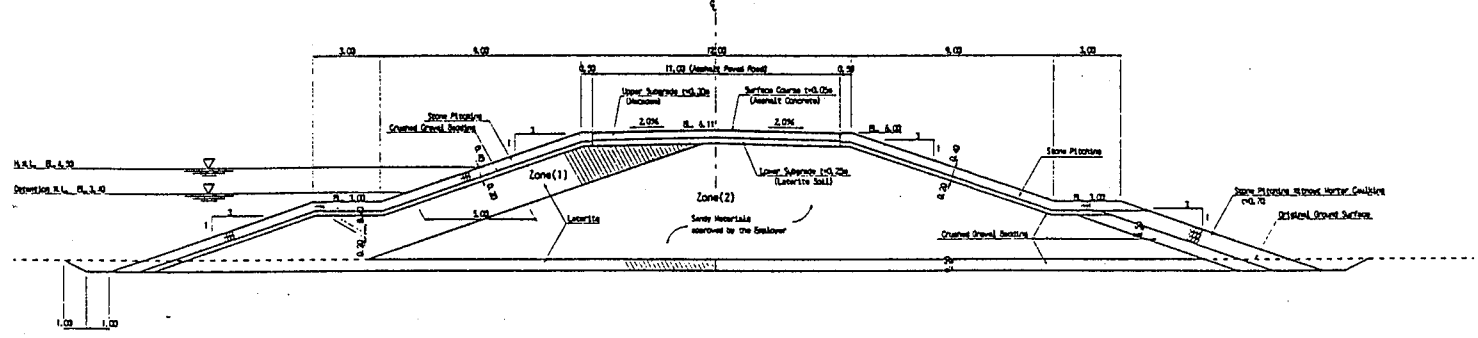
PROFILE



ELEVATION OF EMERGENCY SPILLWAY  
NO SCALE



LONGITUDINAL SECTION OF EMERGENCY SPILLWAY  
NO SCALE



TYPICAL CROSS SECTION OF DIKE  
NO SCALE

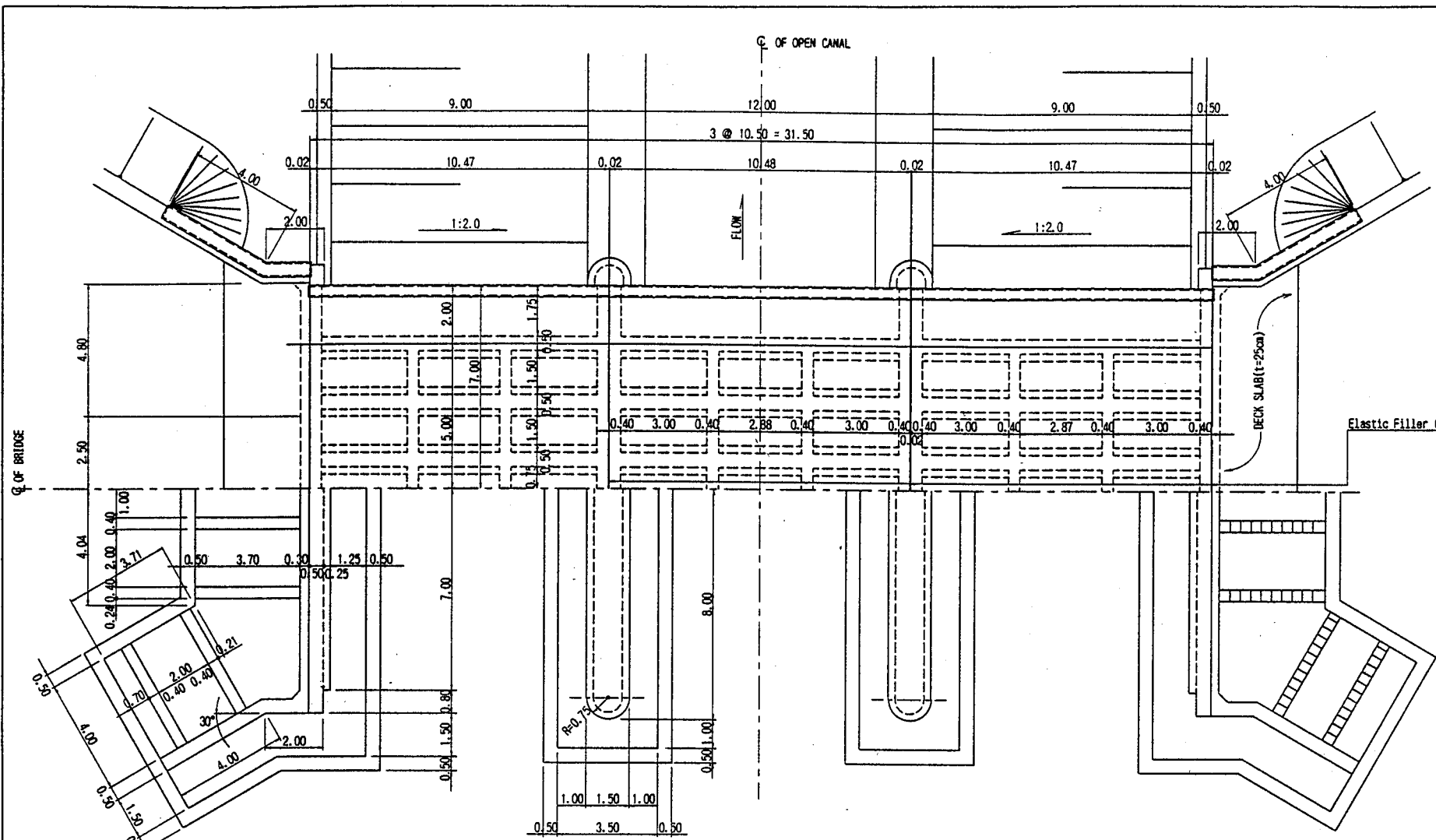
For the location of spillway system, see Dwg. No. AC-01.

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

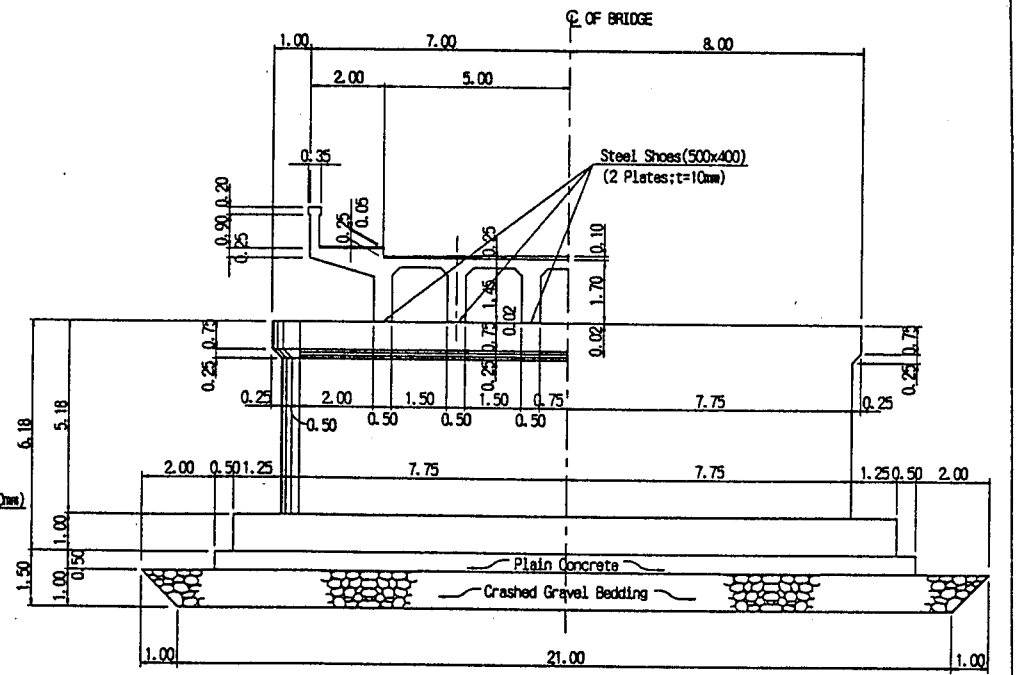
CONVEYANCE CANAL SYSTEM BETWEEN  
THE END OF BIR EL ABD ZONE  
UNTIL THE BEGINNING OF EL SIR AND EL KAWAREER ZONE  
PROFILE AND SECTION OF DIKE,  
LONGITUDINAL SECTION AND ELEVATION  
OF EMERGENCY SPILLWAY

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

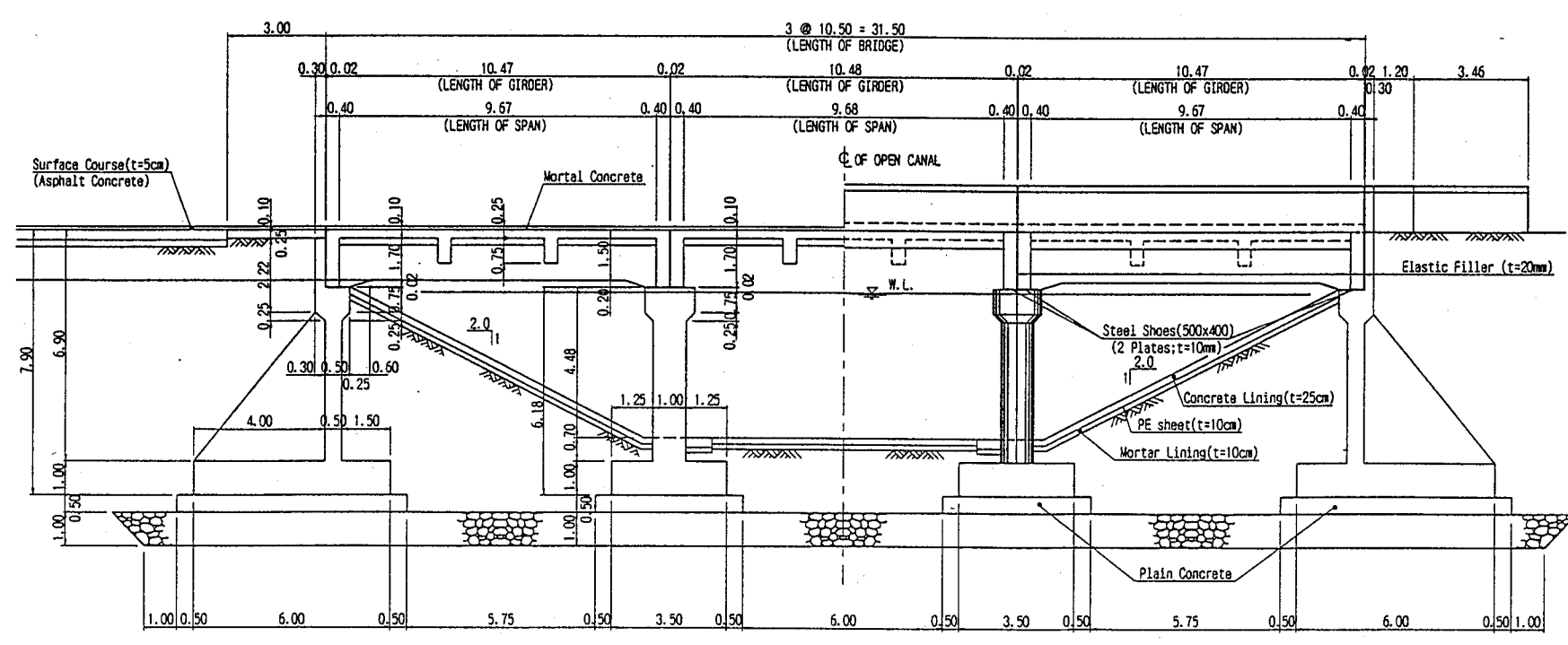
DESIGNED	
TRACED	
CHECKED	
APPROVED	
DRAWING NO.	AC - 09



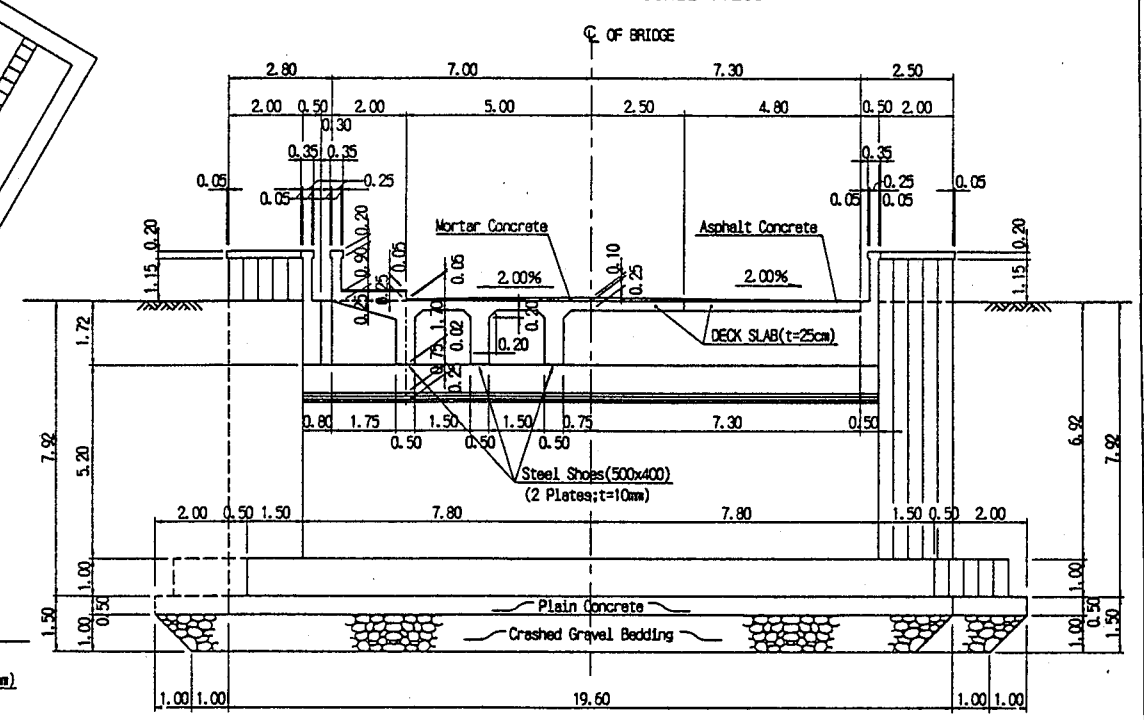
**PLAN**  
SCALE 1:200



**ELEVATION OF PIER**  
SCALE 1:200



**ELEVATION**  
SCALE 1:200



**ELEVATION OF ABUTMENT**  
SCALE 1:200

THE ARAB REPUBLIC OF EGYPT  
 MINISTRY OF WATER RESOURCES AND IRRIGATION  
 NORTH SINAI DEVELOPMENT ORGANIZATION  
**THE NORTH SINAI INTEGRATED RURAL DEVELOPMENT PROJECT (PHASE IIB)**  
 CONVEYANCE CANAL SYSTEM BETWEEN THE END OF BIR EL ABO ZONE UNTIL THE BEGINNING OF EL SIR AND EL KAWAREER ZONE  
**ELEVATION AND SECTION OF BRIDGE**

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

DESIGNED	
TRACED	
CHECKED	
APPROVED	
DRAWING NO.	<b>AC - 10</b>