

53

KINGDOM OF THAILAND  
MINISTRY OF AGRICULTURE AND COOPERATIVES  
ROYAL IRRIGATION DEPARTMENT

# FEASIBILITY STUDY ON THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT

VOLUME 3  
DRAWINGS

MARCH 1983

JAPAN INTERNATIONAL  
COOPERATION AGENCY

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KINGDOM OF THAILAND  
MINISTRY OF AGRICULTURE OPERATIVES  
ROYAL IRRIGATION DEPARTMENT

**FEASIBILITY STUDY  
ON THE UPPERBAK MEDIUM  
SCALE IRRIGATION PROJECT**

**VOLUME 3  
DRAWINGS**

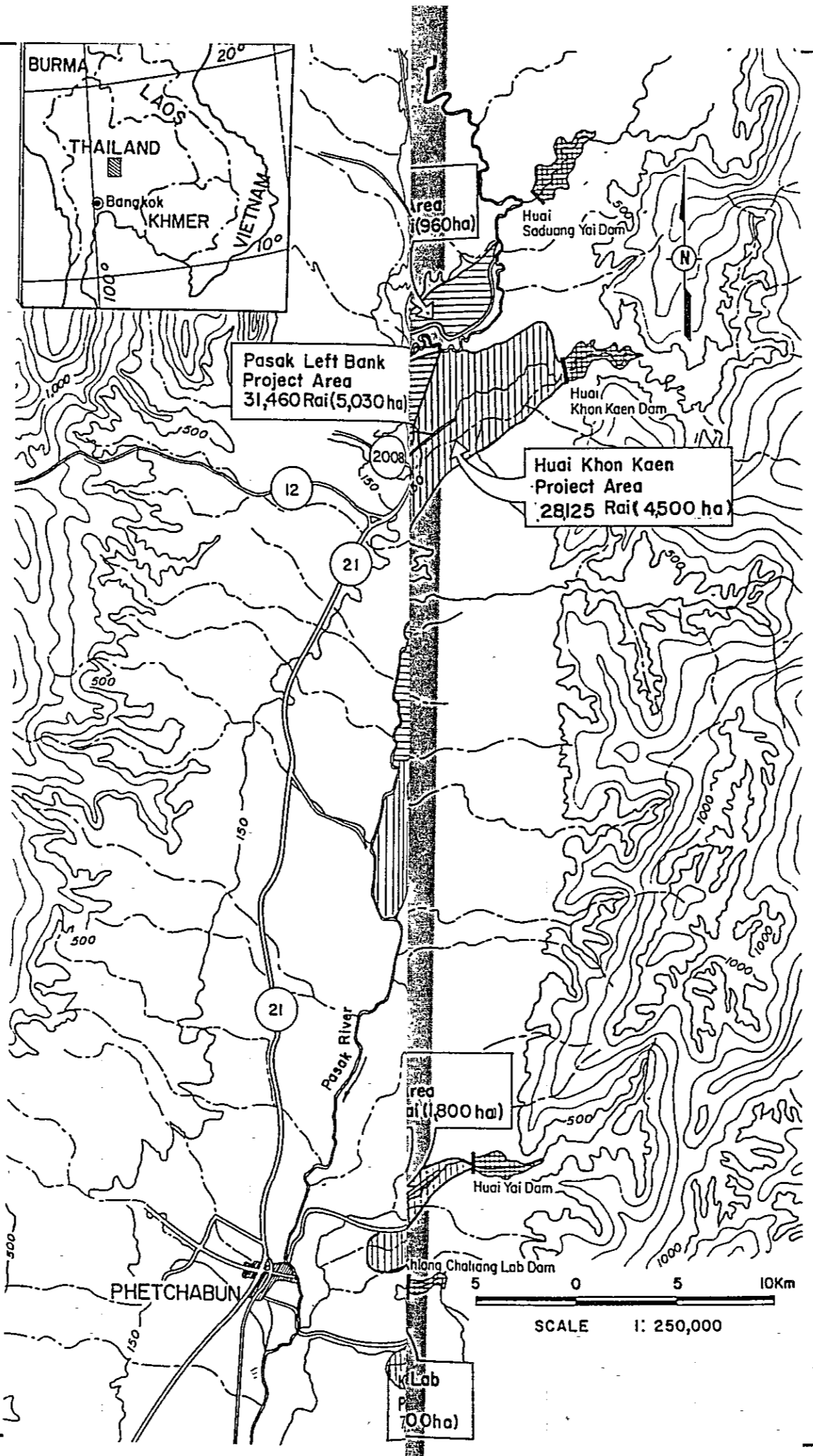
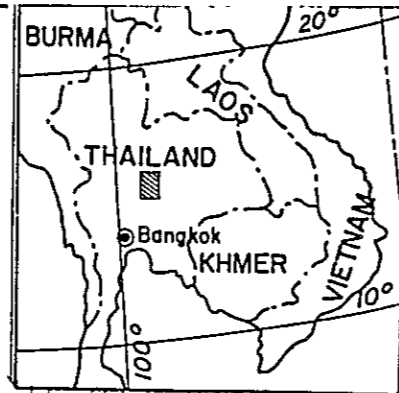
**MARCH 1983**

JAPAN INTERNATIONAL  
COOPERATION AGENCY

国際協力事業団	
受入 月日: 84.9.28	12.2
登録No: 09294	83.3
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L I S T    D R A W I N G S

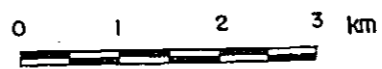
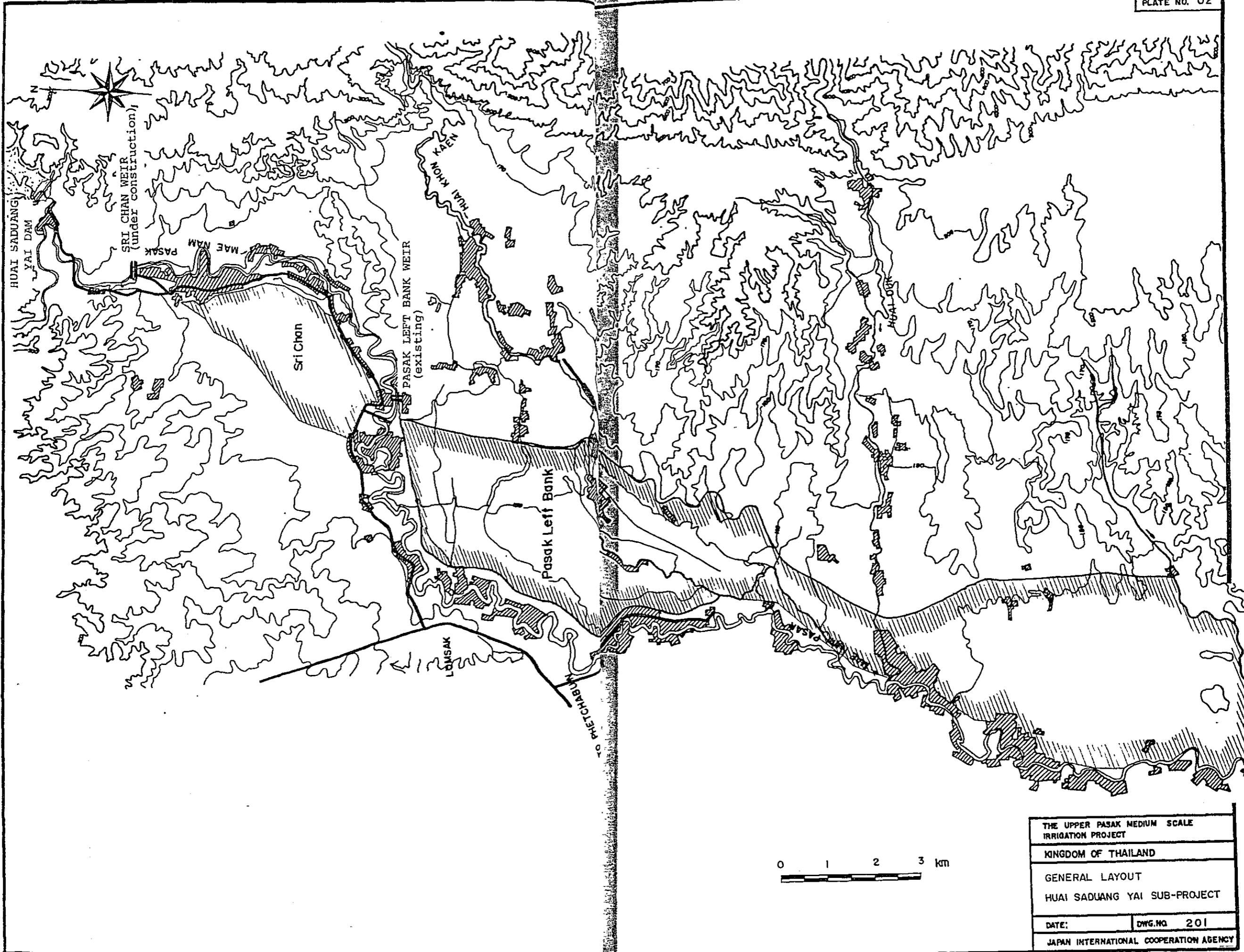
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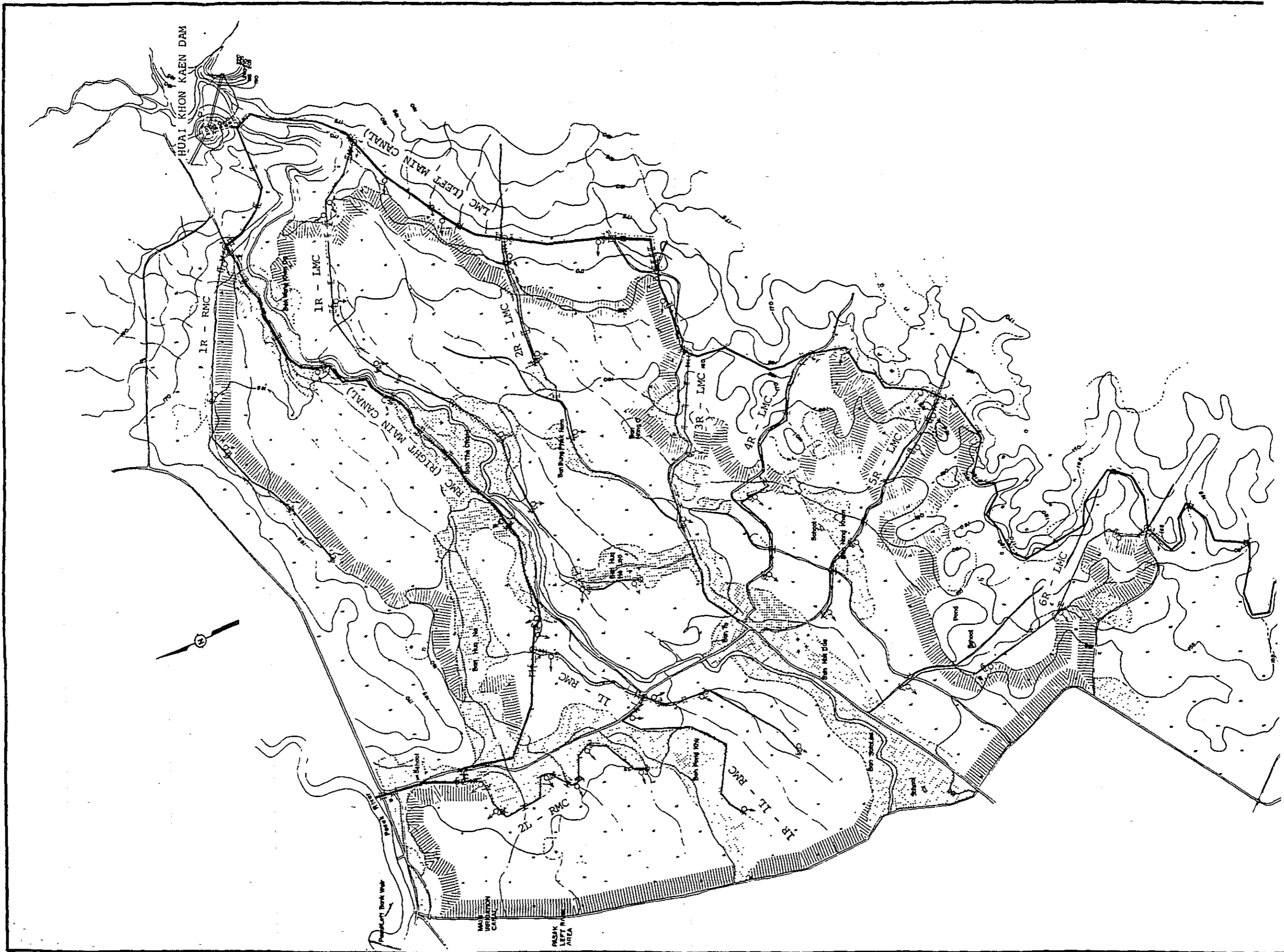
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THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT	
KINGDOM OF THAILAND	
LOCATION MAP OF THE PROJECT	
DATE:	DWG NO. 101
JAPAN INTERNATIONAL COOPERATION AGENCY	

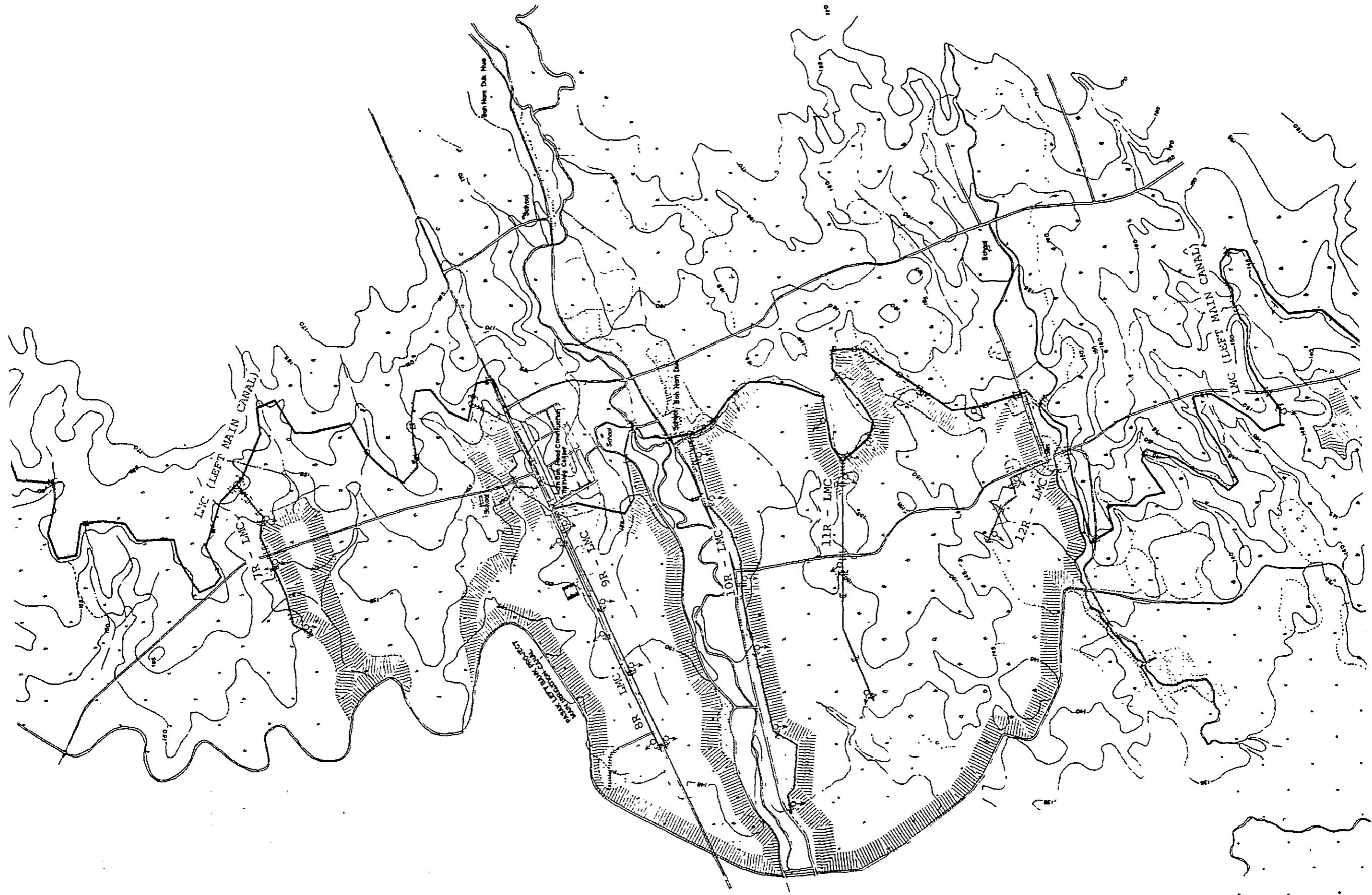




THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT	
KINGDOM OF THAILAND	
GENERAL LAYOUT	
HUI SADIANG YAI SUB-PROJECT	
DATE:	DWG. NO. 201
JAPAN INTERNATIONAL COOPERATION AGENCY	

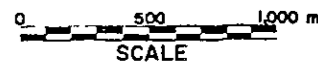
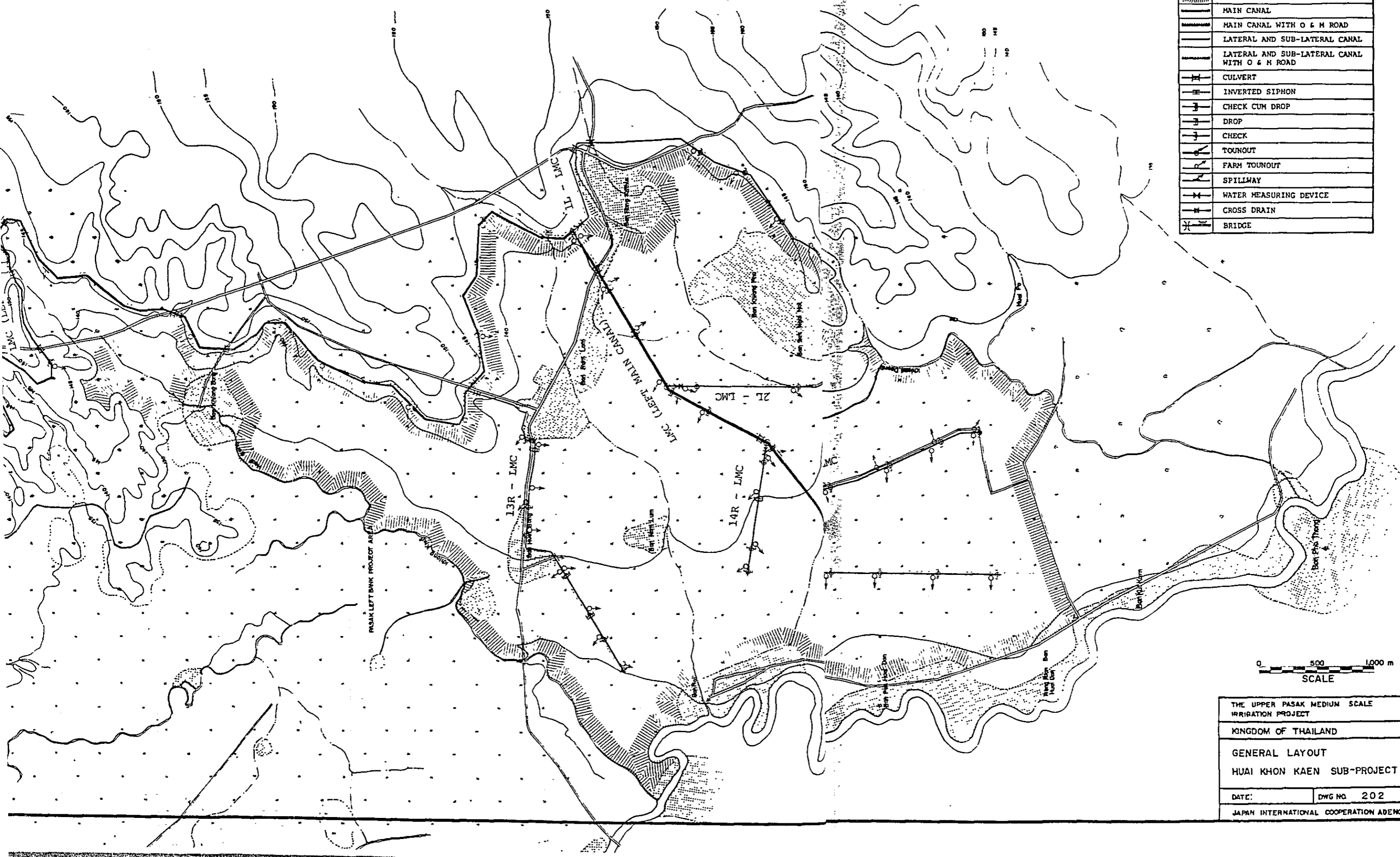






**LEGEND**

	BOUNDARY OF SERVICE AREA
	MAIN CANAL
	MAIN CANAL WITH O & M ROAD
	LATERAL AND SUB-LATERAL CANAL
	LATERAL AND SUB-LATERAL CANAL WITH O & M ROAD
	CULVERT
	INVERTED SIPHON
	CHECK CUM DROP
	DROP
	CHECK
	TOURNOUT
	FARM TOURNOUT
	SPILLWAY
	WATER MEASURING DEVICE
	CROSS DRAIN
	BRIDGE



THE UPPER PASAK MEDIUM SCALE  
IRRIGATION PROJECT

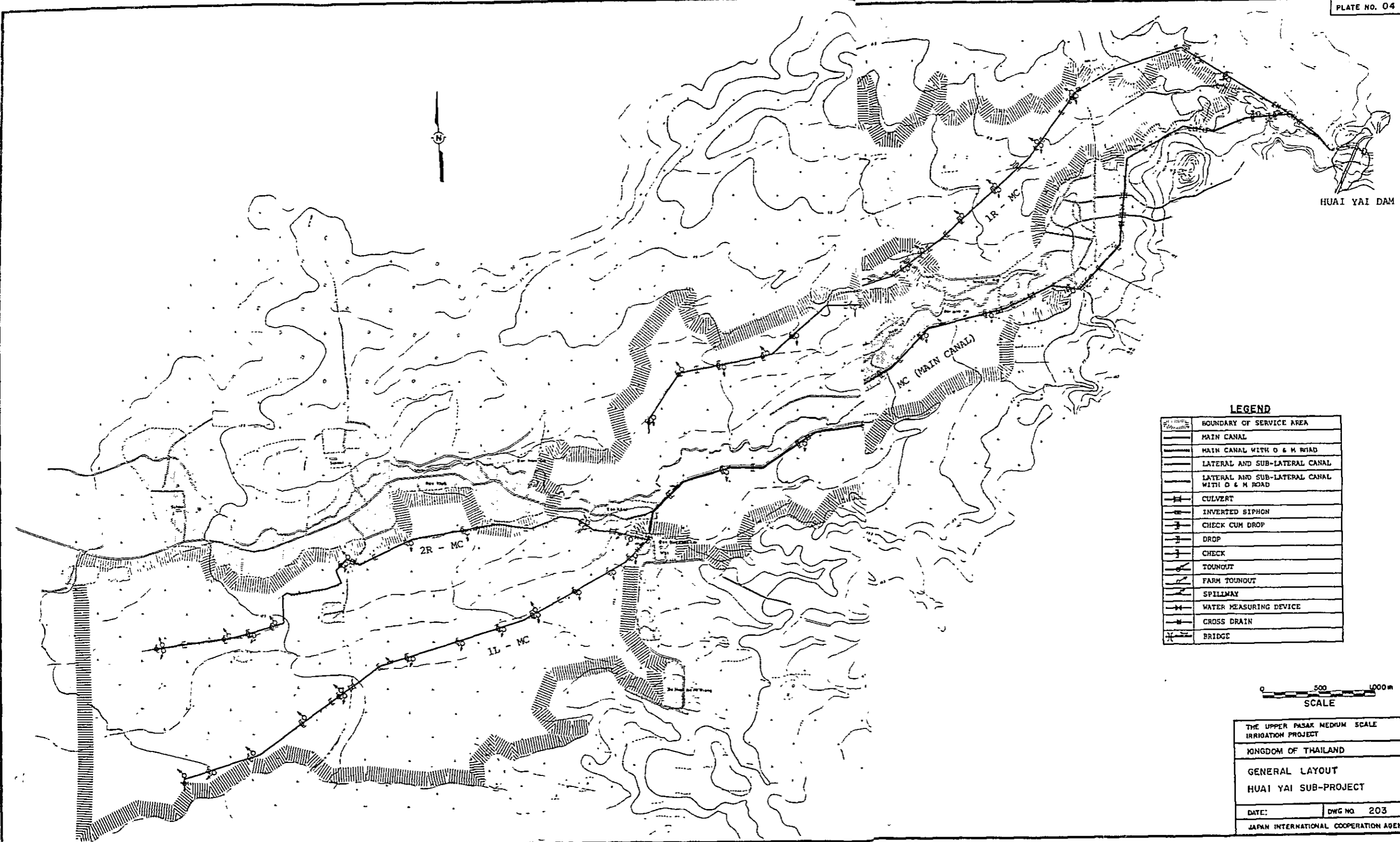
KINGDOM OF THAILAND

GENERAL LAYOUT  
HUI KHON KAEN SUB-PROJECT

DATE: \_\_\_\_\_ DWG NO. 202

JAPAN INTERNATIONAL COOPERATION AGENCY

HUAI YAI DAM

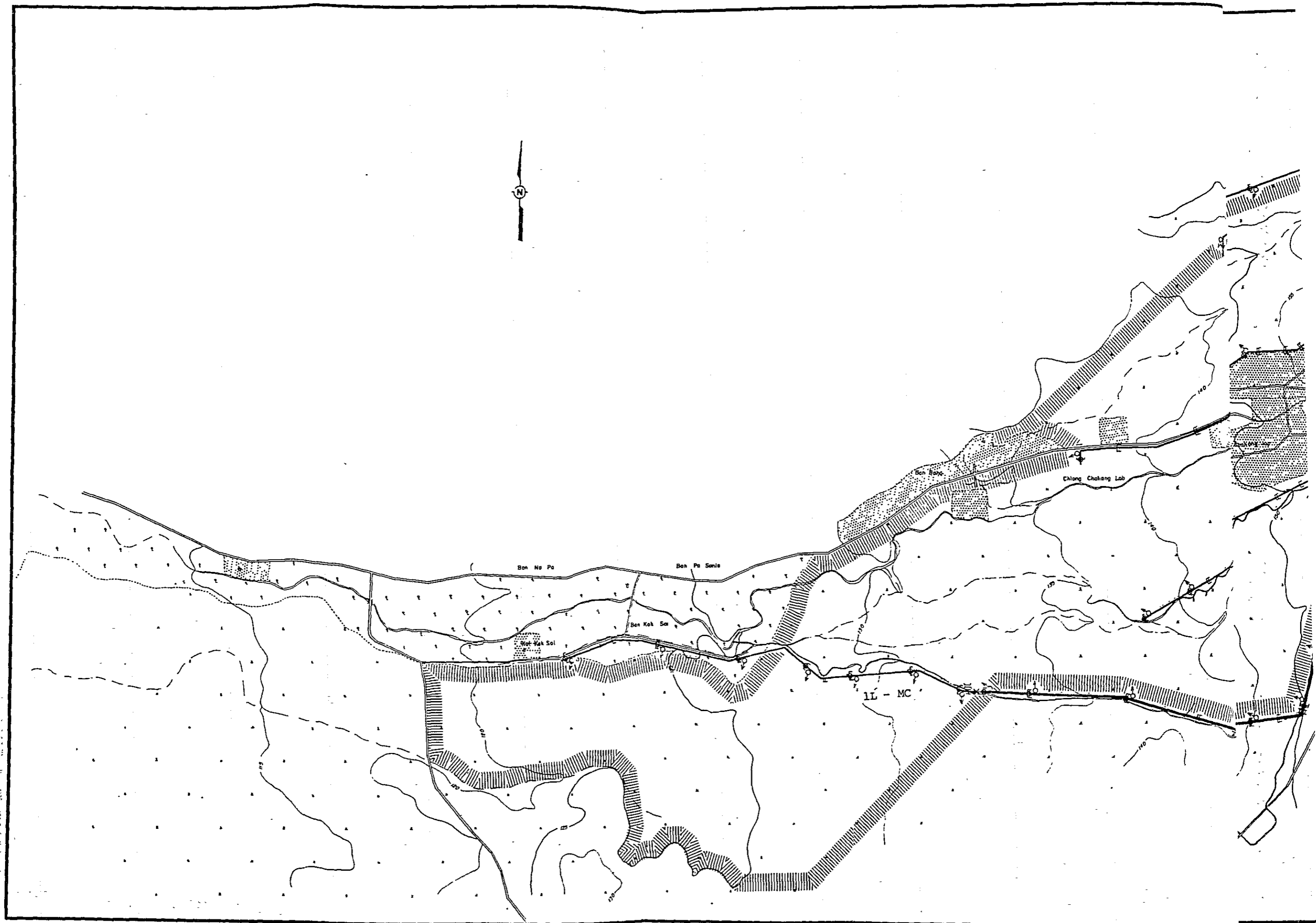


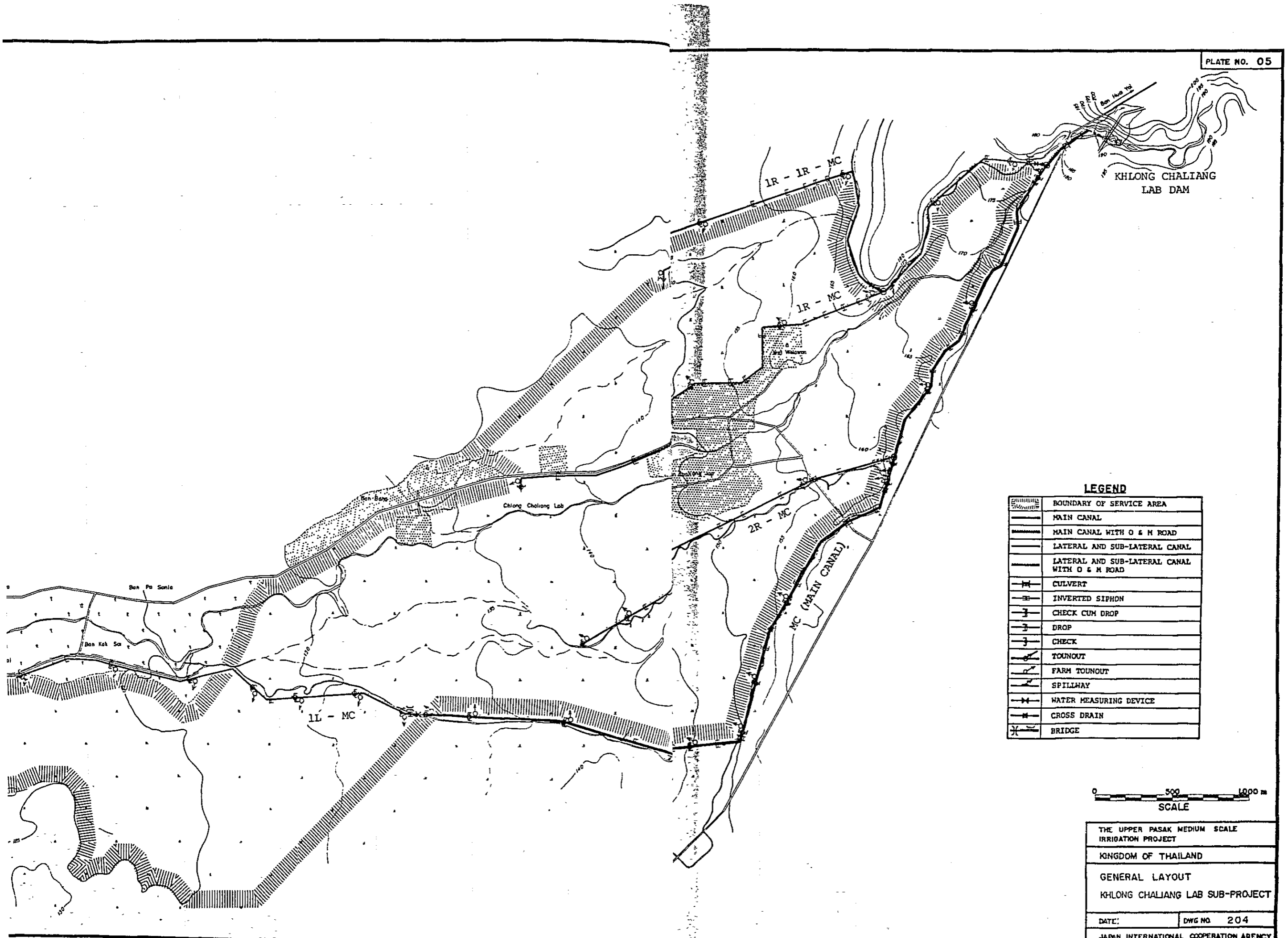
LEGEND

	BOUNDARY OF SERVICE AREA
	MAIN CANAL
	MAIN CANAL WITH O & M ROAD
	LATERAL AND SUB-LATERAL CANAL
	LATERAL AND SUB-LATERAL CANAL WITH O & M ROAD
	CULVERT
	INVERTED SIPHON
	CHECK CUM DROP
	DROP
	CHECK
	TOUNOUT
	FARM TOUNOUT
	SPILLWAY
	WATER MEASURING DEVICE
	CROSS DRAIN
	BRIDGE



THE UPPER PASAK MEDIUM SCALE  
IRRIGATION PROJECT  
KINGDOM OF THAILAND  
GENERAL LAYOUT  
HUAI YAI SUB-PROJECT  
DATE:                      DWG NO 203  
JAPAN INTERNATIONAL COOPERATION AGENCY





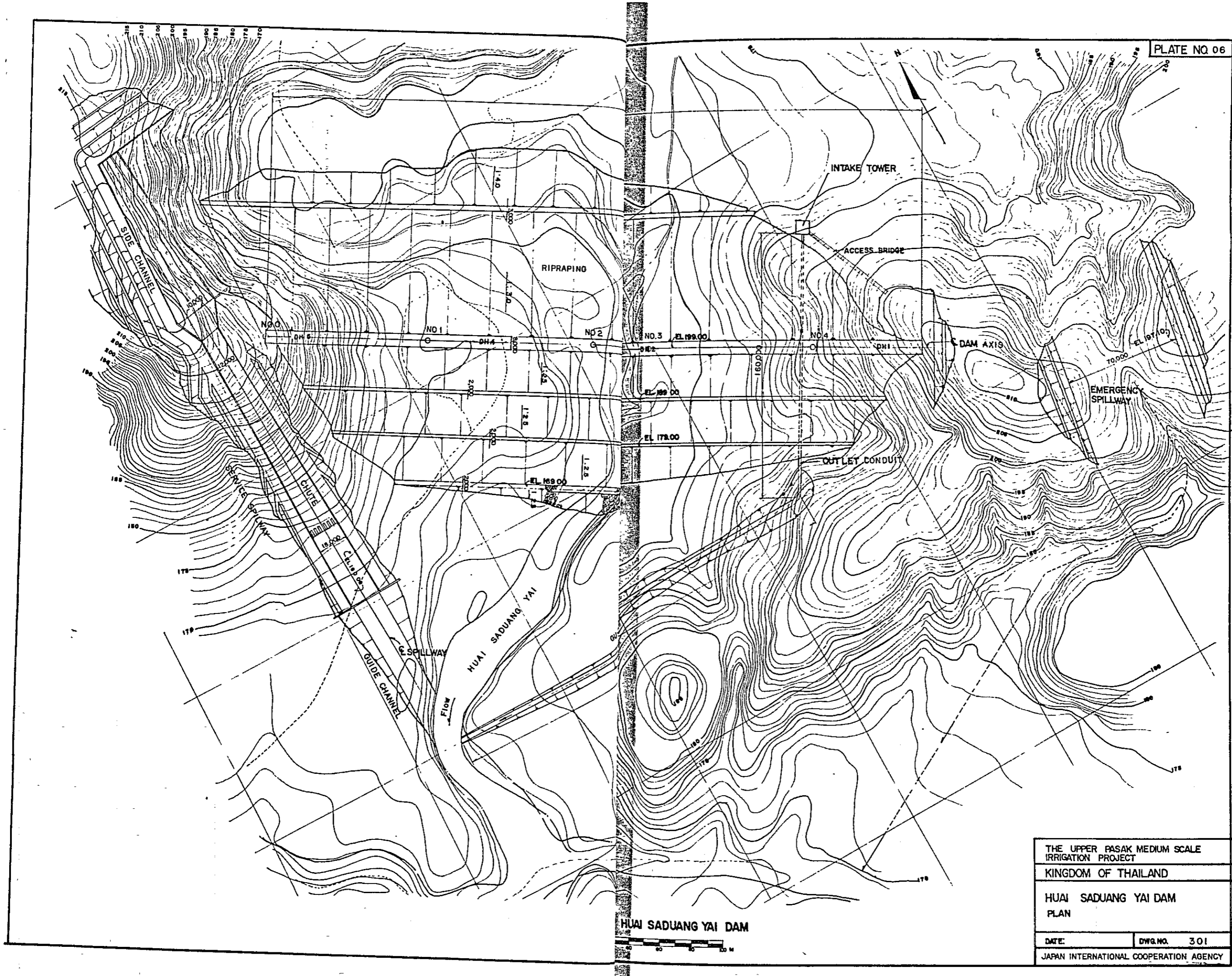
KHLONG CHALIANG  
LAB DAM

**LEGEND**

	BOUNDARY OF SERVICE AREA
	MAIN CANAL
	MAIN CANAL WITH O & M ROAD
	LATERAL AND SUB-LATERAL CANAL
	LATERAL AND SUB-LATERAL CANAL WITH O & M ROAD
	CULVERT
	INVERTED SIPHON
	CHECK CUM DROP
	DROP
	CHECK
	TOUNOUT
	FARM TOUNOUT
	SPILLWAY
	WATER MEASURING DEVICE
	CROSS DRAIN
	BRIDGE



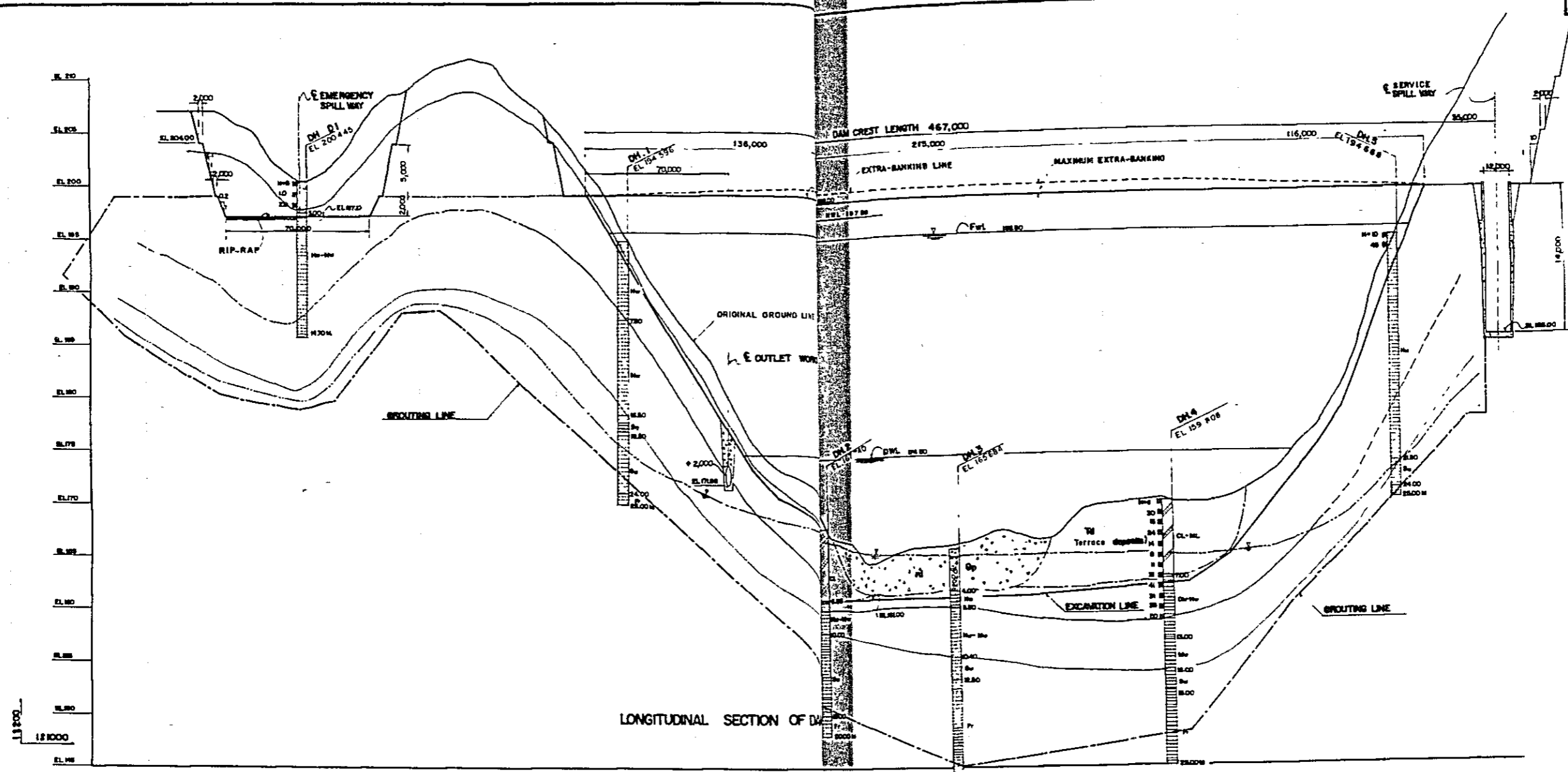
THE UPPER PASAK MEDIUM SCALE  
IRRIGATION PROJECT  
KINGDOM OF THAILAND  
GENERAL LAYOUT  
KHLONG CHALIANG LAB SUB-PROJECT  
DATE: \_\_\_\_\_ DWG NO. 204  
JAPAN INTERNATIONAL COOPERATION AGENCY



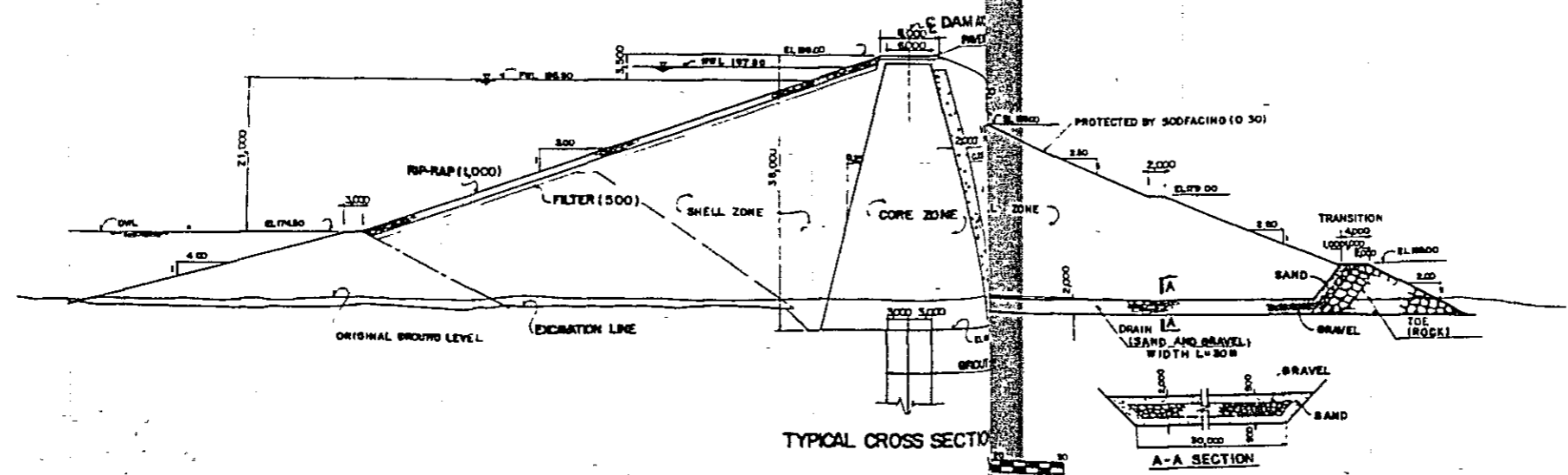
HUAI SADUANG YAI DAM

THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT	
KINGDOM OF THAILAND	
HUAI SADUANG YAI DAM PLAN	
DATE:	DWG. NO. 301
JAPAN INTERNATIONAL COOPERATION AGENCY	

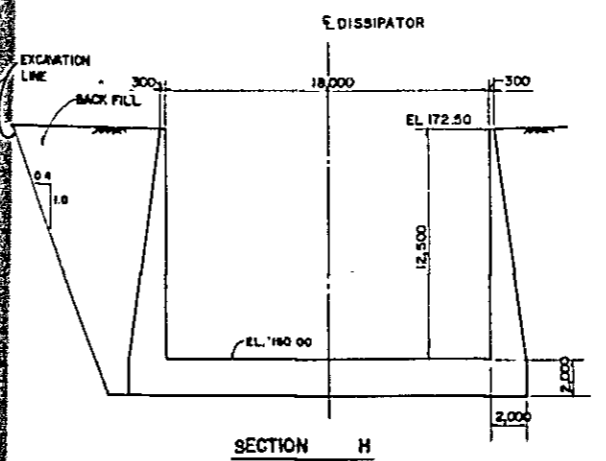
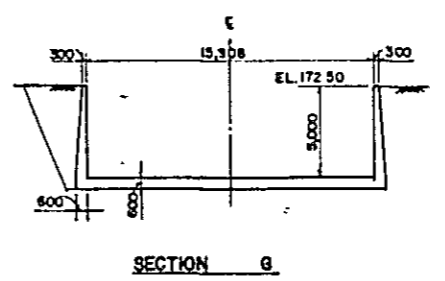
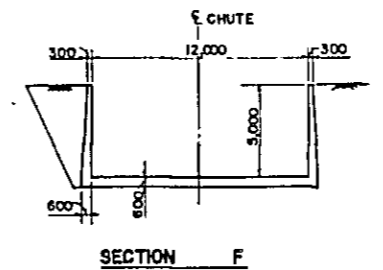
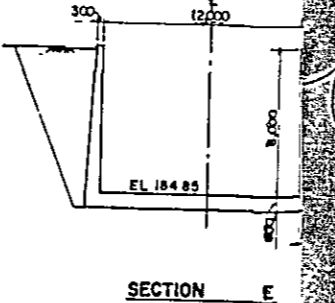
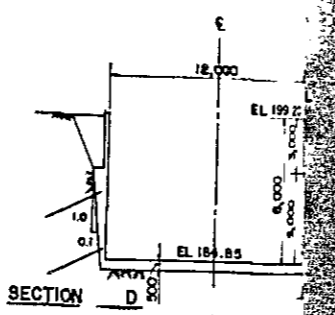
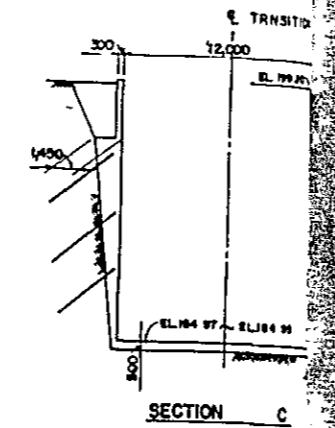
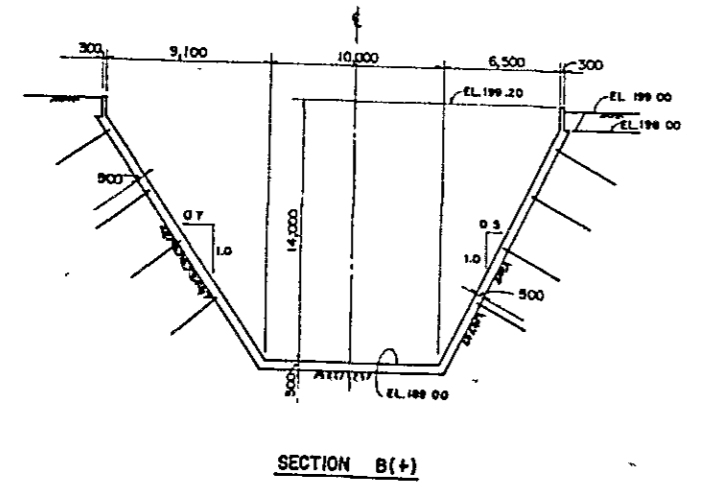
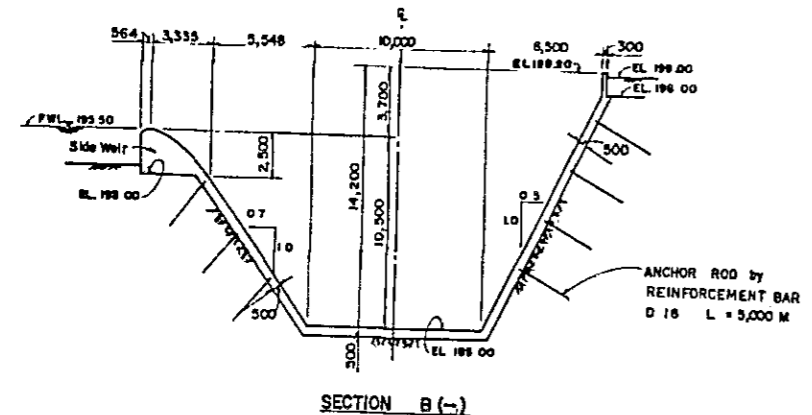
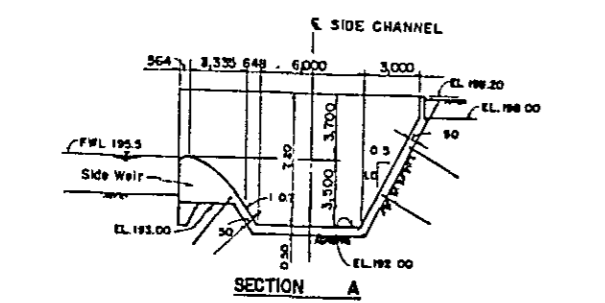
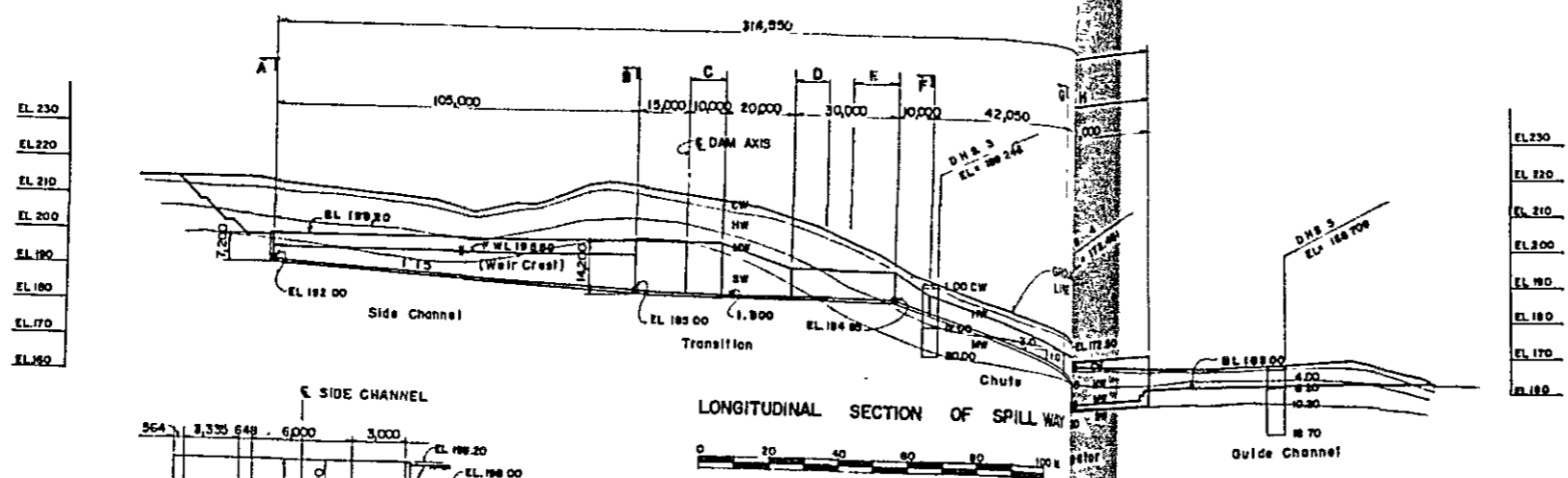




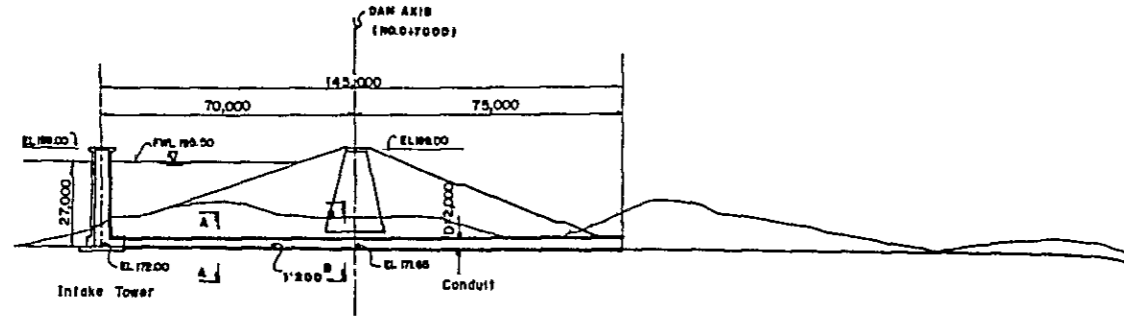
GROUND ELEVATION	ACCUMULATE DISTANCE	DISTANCE	STATION
200.00	0.00	0.00	NO.0
201.60	70.00	70.00	NO.1
172.60	100.00	30.00	NO.2
164.50	200.00	100.00	NO.3
153.00	300.00	100.00	NO.4
140.00	400.00	100.00	NO.5
120.00	467.00	67.00	NO.6
215.00	534.00	67.00	NO.7



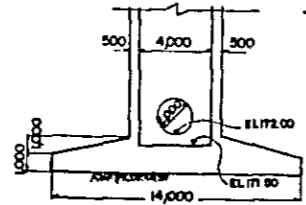
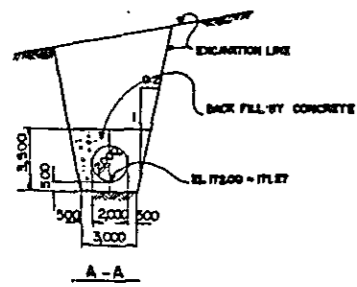
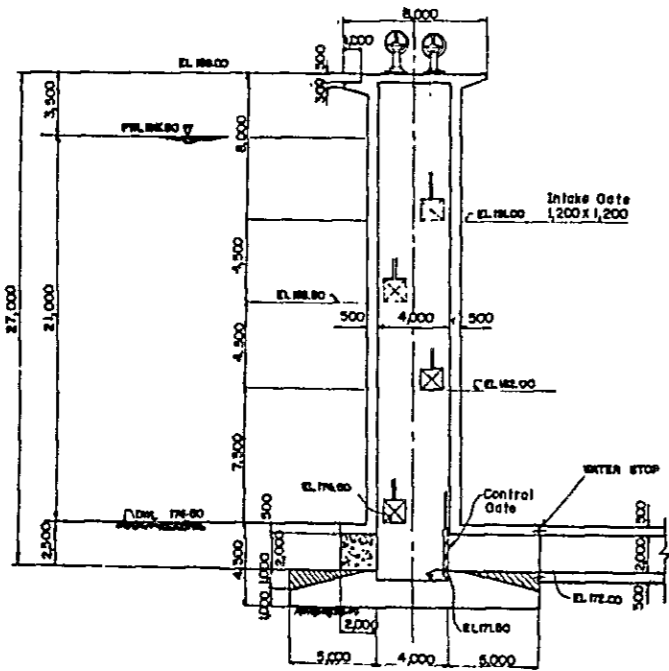
THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT  
 KINGDOM OF THAILAND  
 HUAI SADUNG YAI DAM  
 TYPICAL CROSS SECTION LONGITUDINAL SECTION  
 DATE: \_\_\_\_\_ DWS. NO. 302  
 JAPAN INTERNATIONAL COOPERATION AGENCY



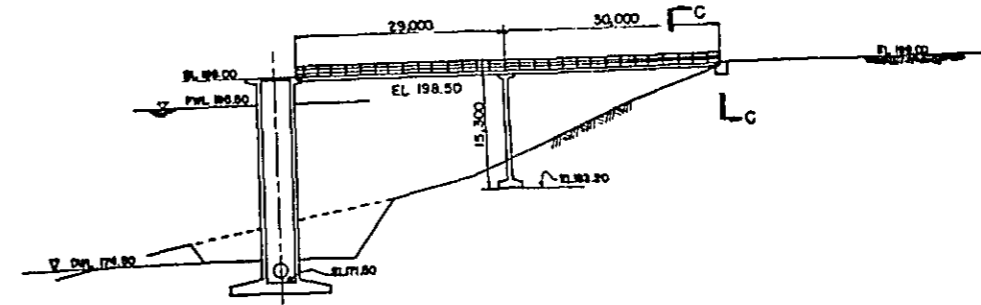
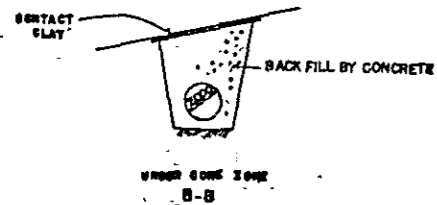
THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT	
KINGDOM OF THAILAND	
HUAI SADUANG YAI DAM	
CROSS SECTION OF SPILL WAY	
DATE	DWG. NO. 303
JAPAN INTERNATIONAL COOPERATION AGENCY	



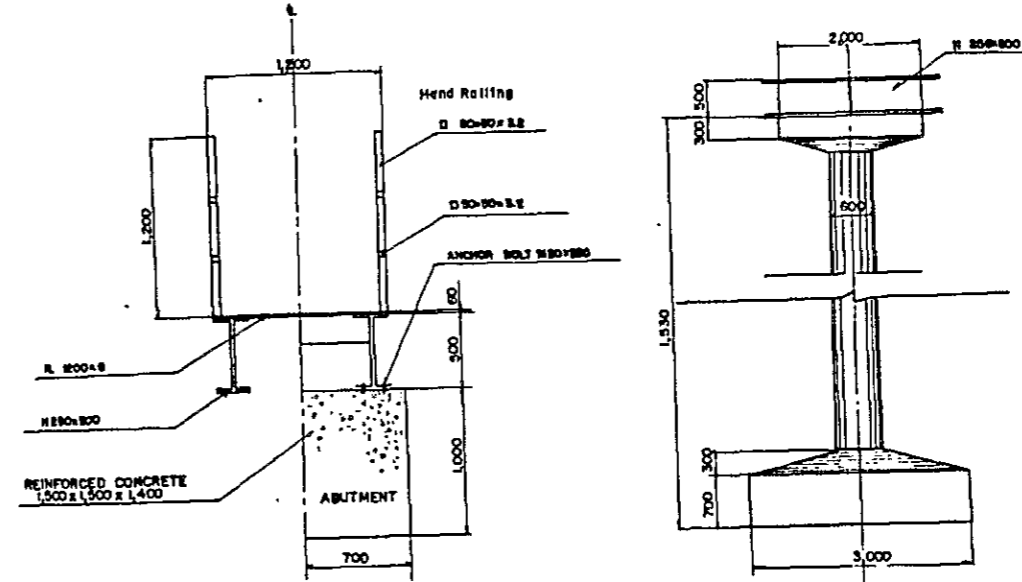
LONGITUDINAL SECTION OF OUTLET WORKS



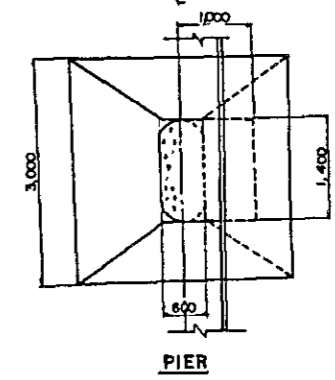
DETAIL OF INTAKE TOWER



ACCESS BRIDGE TO INTAKE TOWER



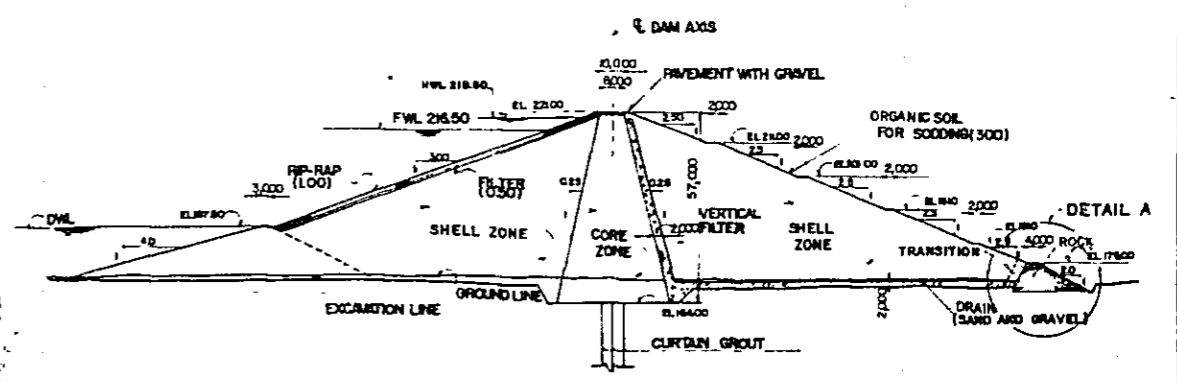
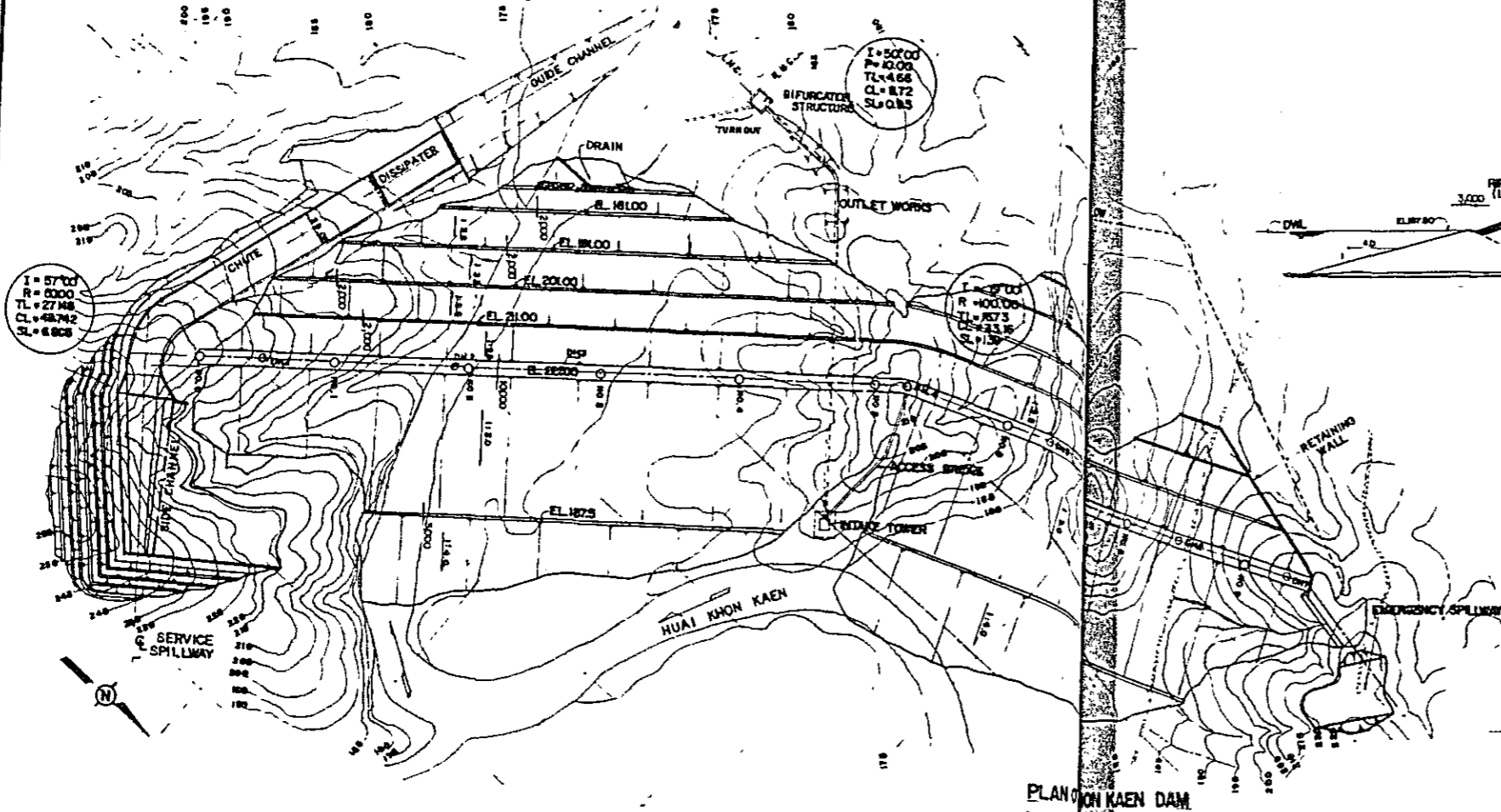
SECTION OF FOOT BRIDGE



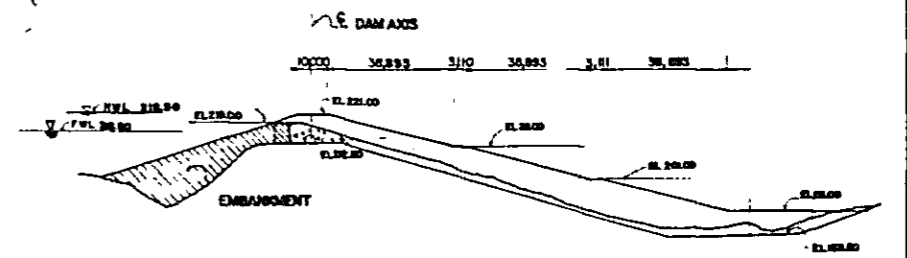
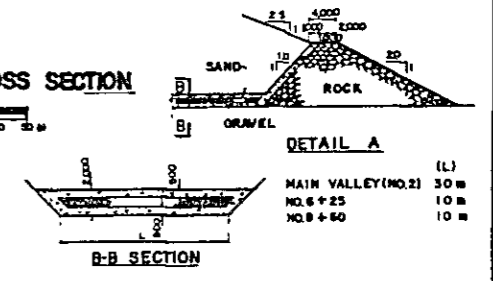
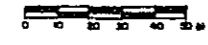
SECTION OF PIER



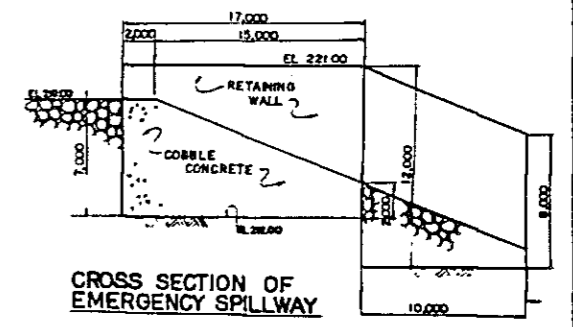
THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT	
KINGDOM OF THAILAND	
HUAI SADUANG YAI DAM	
OUTLET WORK , ACCESS BRIDGE	
DATE :	DWG. NO. 304
JAPAN INTERNATIONAL COOPERATION AGENCY	



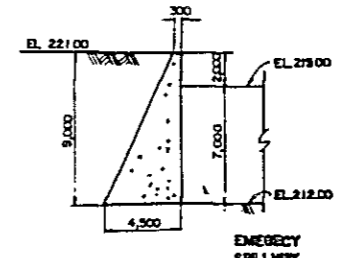
TYPICAL CROSS SECTION



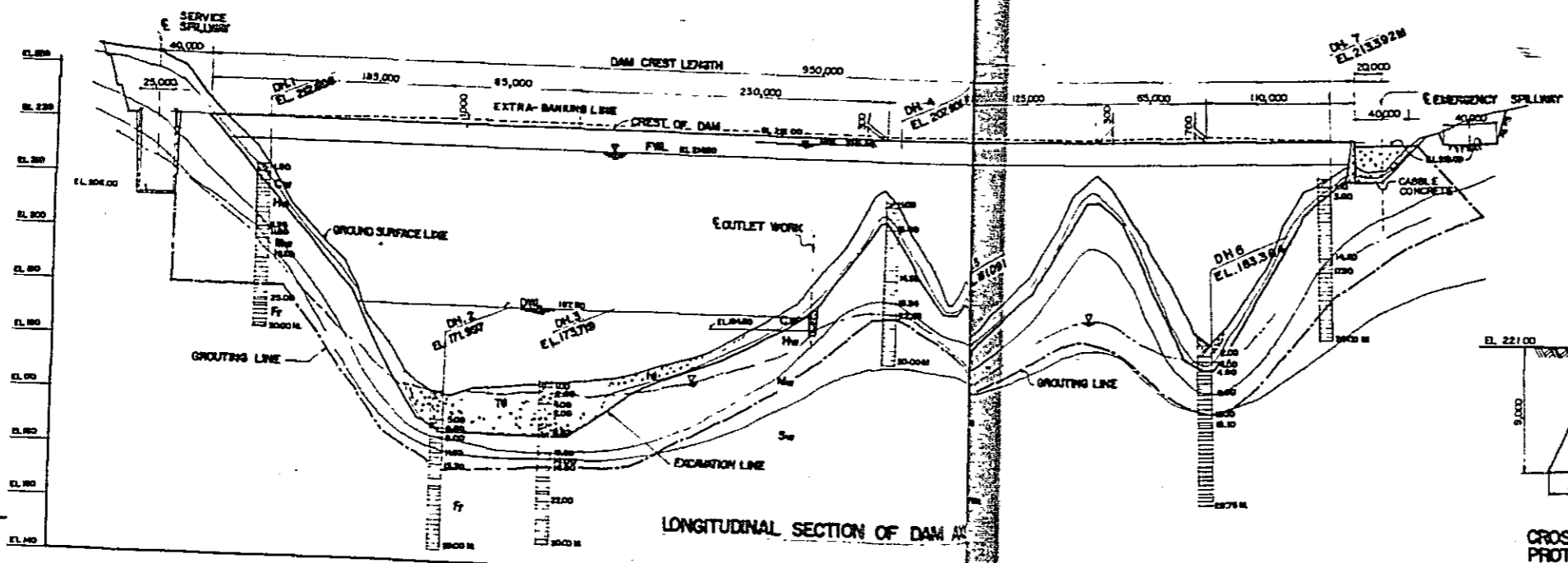
EMERGENCY SPILLWAY PROTECTION WALL



CROSS SECTION OF EMERGENCY SPILLWAY



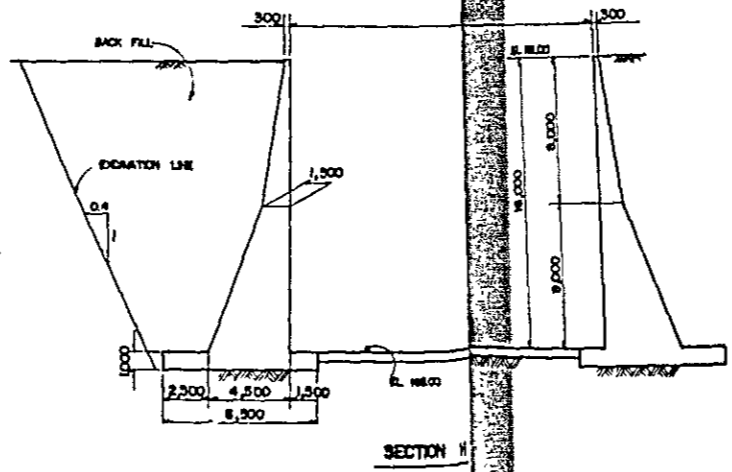
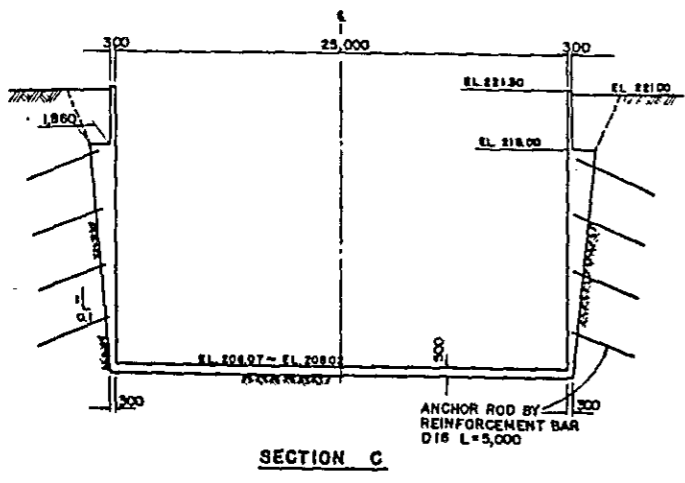
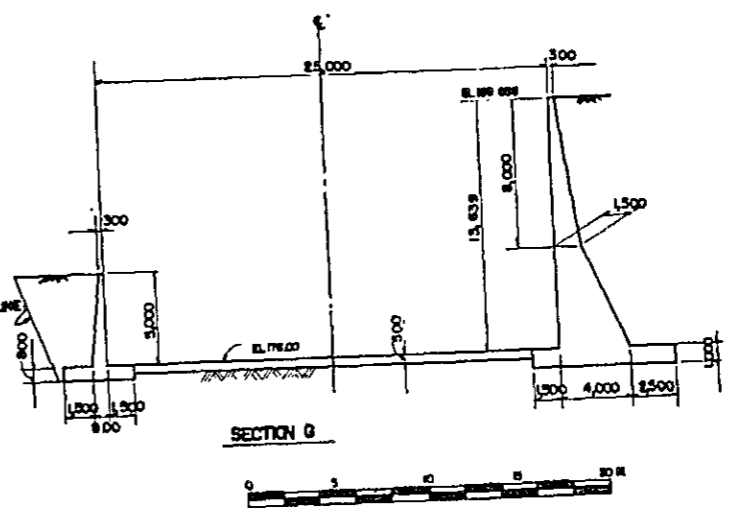
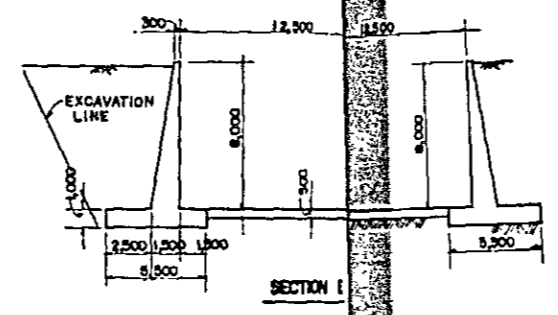
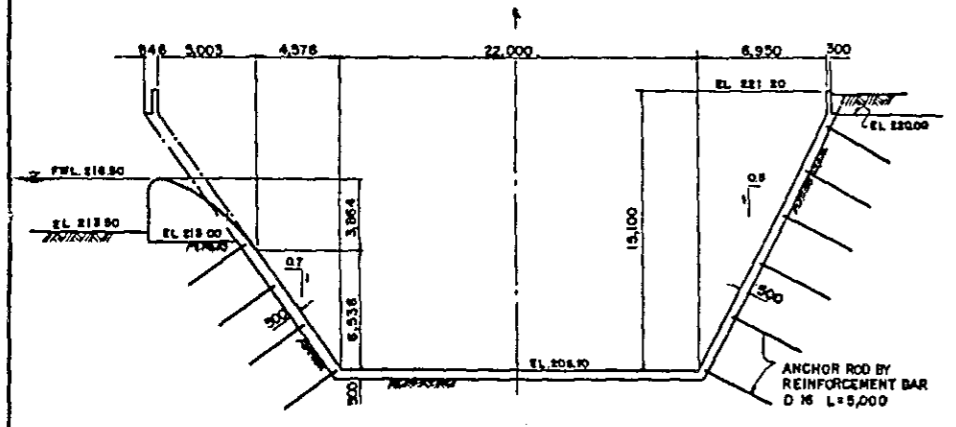
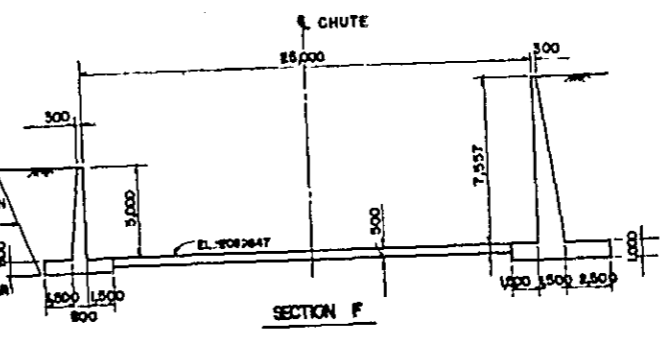
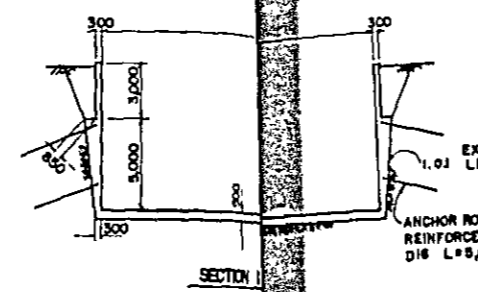
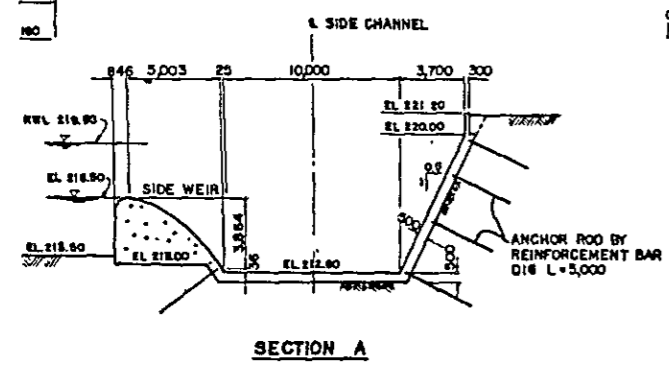
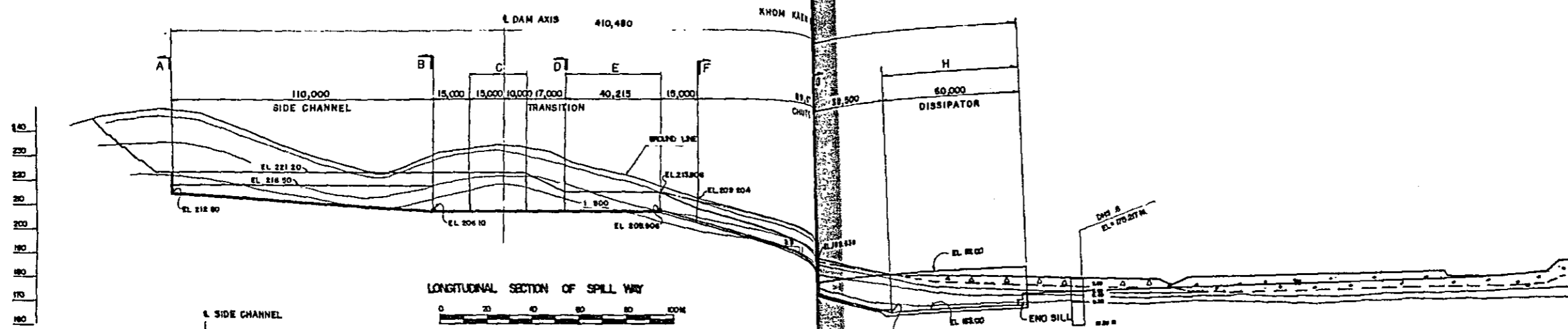
CROSS SECTION OF PROTECTION WALL



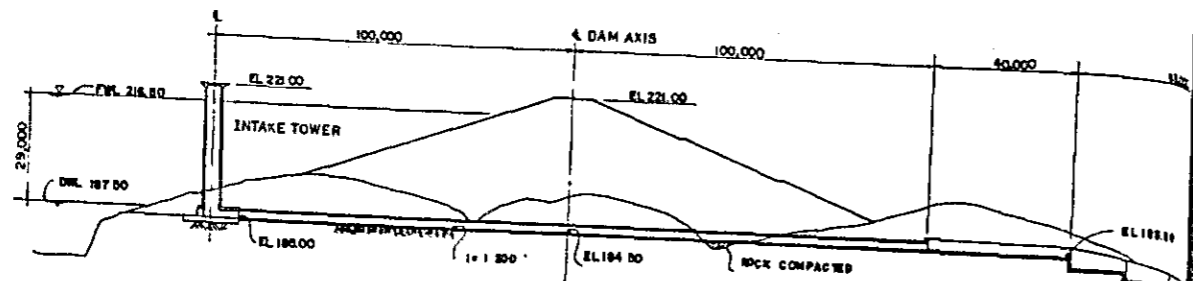
LONGITUDINAL SECTION OF DAM

GROUND ELEVATION	228.70	228.40	228.00	227.60	227.20	226.80	226.40	226.00	225.60	225.20	224.80	224.40	224.00	223.60	223.20	222.80	222.40	222.00	221.60	221.20	220.80	220.40	220.00	
ACCUMULATE DISTANCE	0.00	0.00	50.00	100.00	150.00	200.00	250.00	300.00	350.00	400.00	450.00	500.00	550.00	600.00	650.00	700.00	750.00	800.00	850.00	900.00	950.00	1000.00	1050.00	1100.00
DISTANCE	0.00	0.00	50.00	100.00	150.00	200.00	250.00	300.00	350.00	400.00	450.00	500.00	550.00	600.00	650.00	700.00	750.00	800.00	850.00	900.00	950.00	1000.00	1050.00	1100.00
STATION	0+00	0+00	0+50	1+00	1+50	2+00	2+50	3+00	3+50	4+00	4+50	5+00	5+50	6+00	6+50	7+00	7+50	8+00	8+50	9+00	9+50	10+00	10+50	11+00

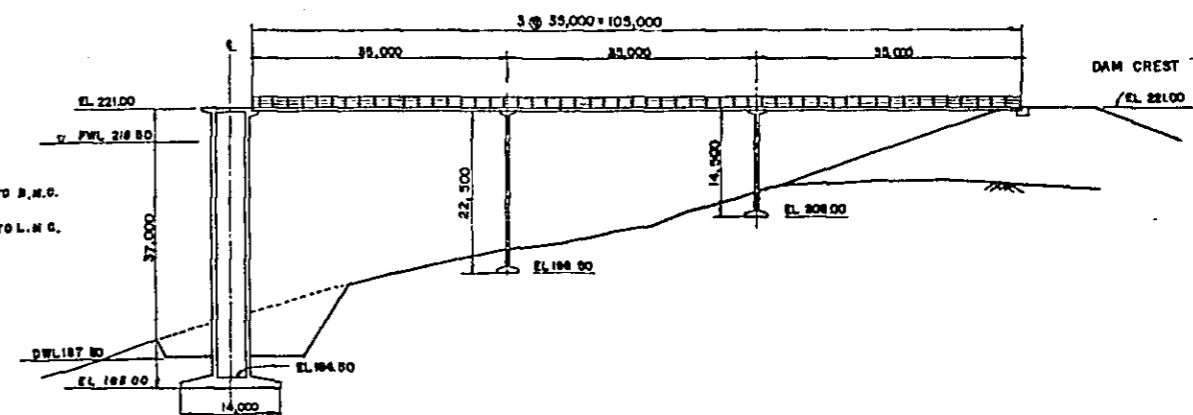
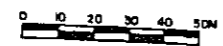
THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT  
 KINGDOM OF THAILAND  
 HUAI KHON KAEN DAM  
 PLAN, LONGITUDINAL SECTION, TYPICAL CROSS SECTION  
 DATE: \_\_\_\_\_ DWG. NO. 305  
 JAPAN INTERNATIONAL COOPERATION AGENCY



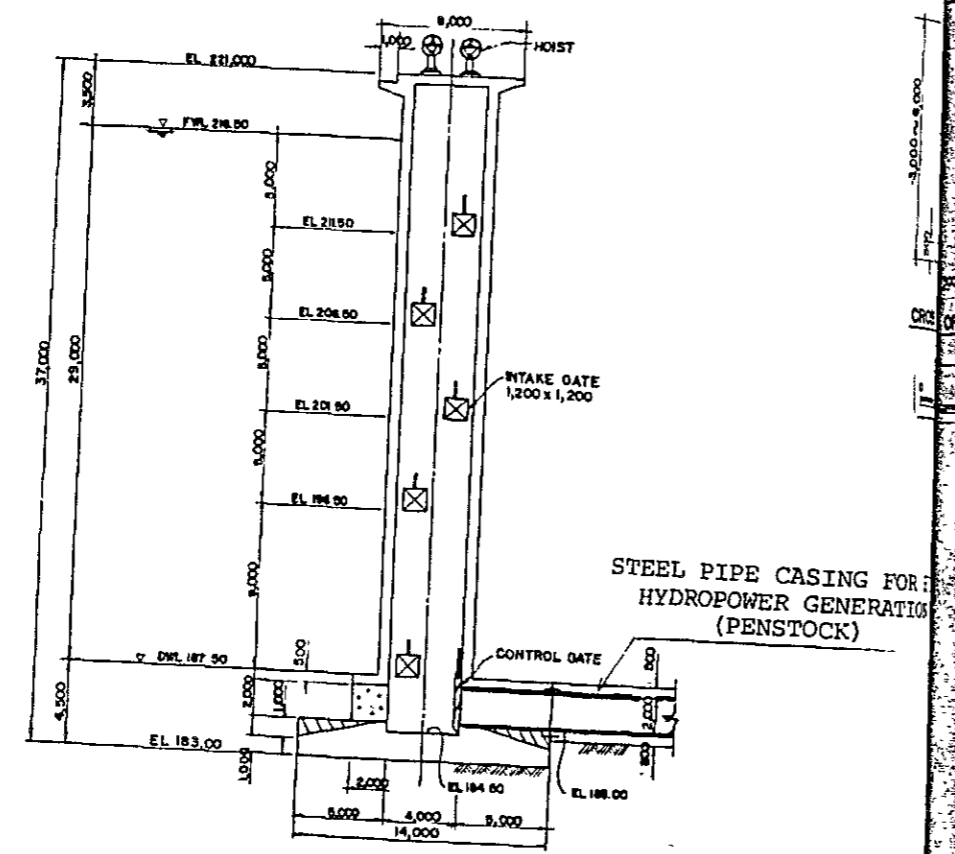
THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT	
KINGDOM OF THAILAND	
HUAI KHON KAEN DAM	
CROSS SECTION OF SPILLWAY	
DATE	DWG NO. 306
JAPAN INTERNATIONAL COOPERATION AGENCY	



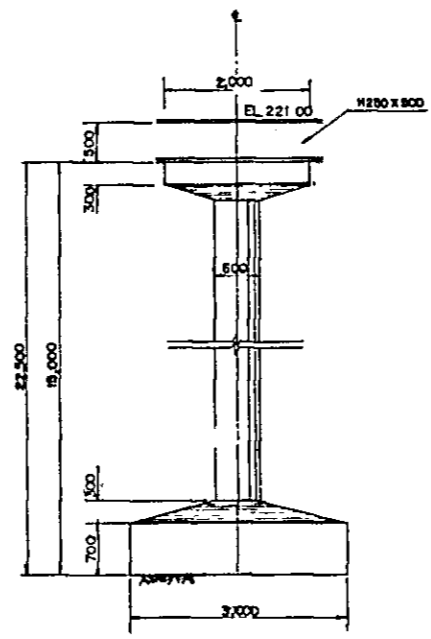
LONGITUDINAL SECTION OF OUTLET WORKS



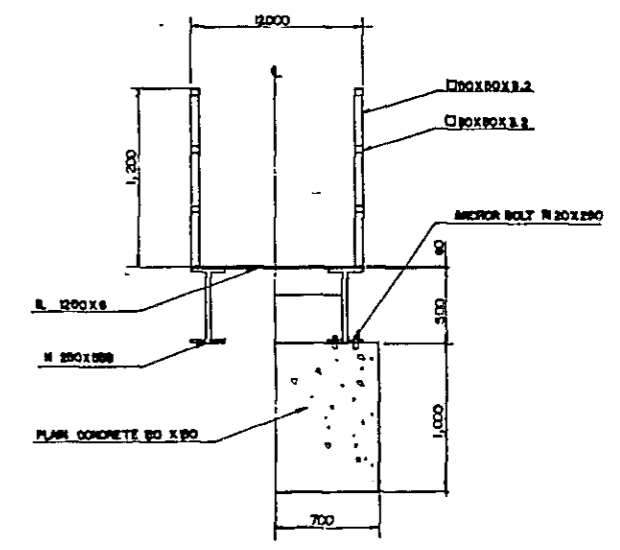
ACCESS BRIDGE TO INTAKE TOWER



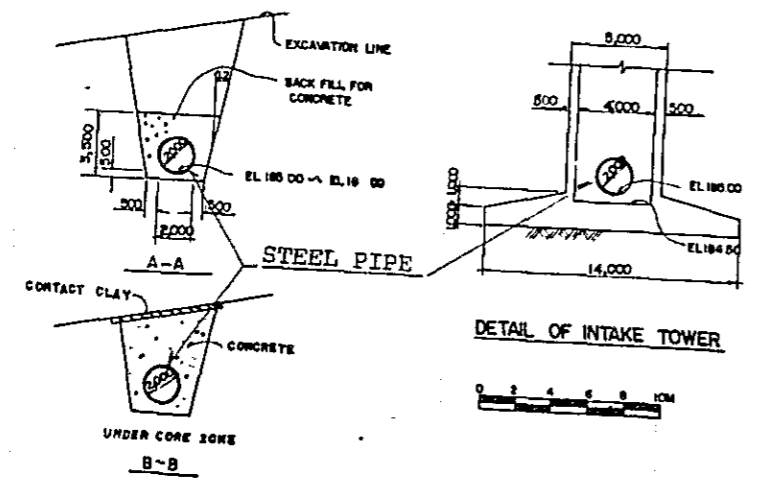
STEEL PIPE CASING FOR HYDROPOWER GENERATION (PENSTOCK)



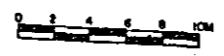
PIER



SECTION OF FOOT BRIDGE

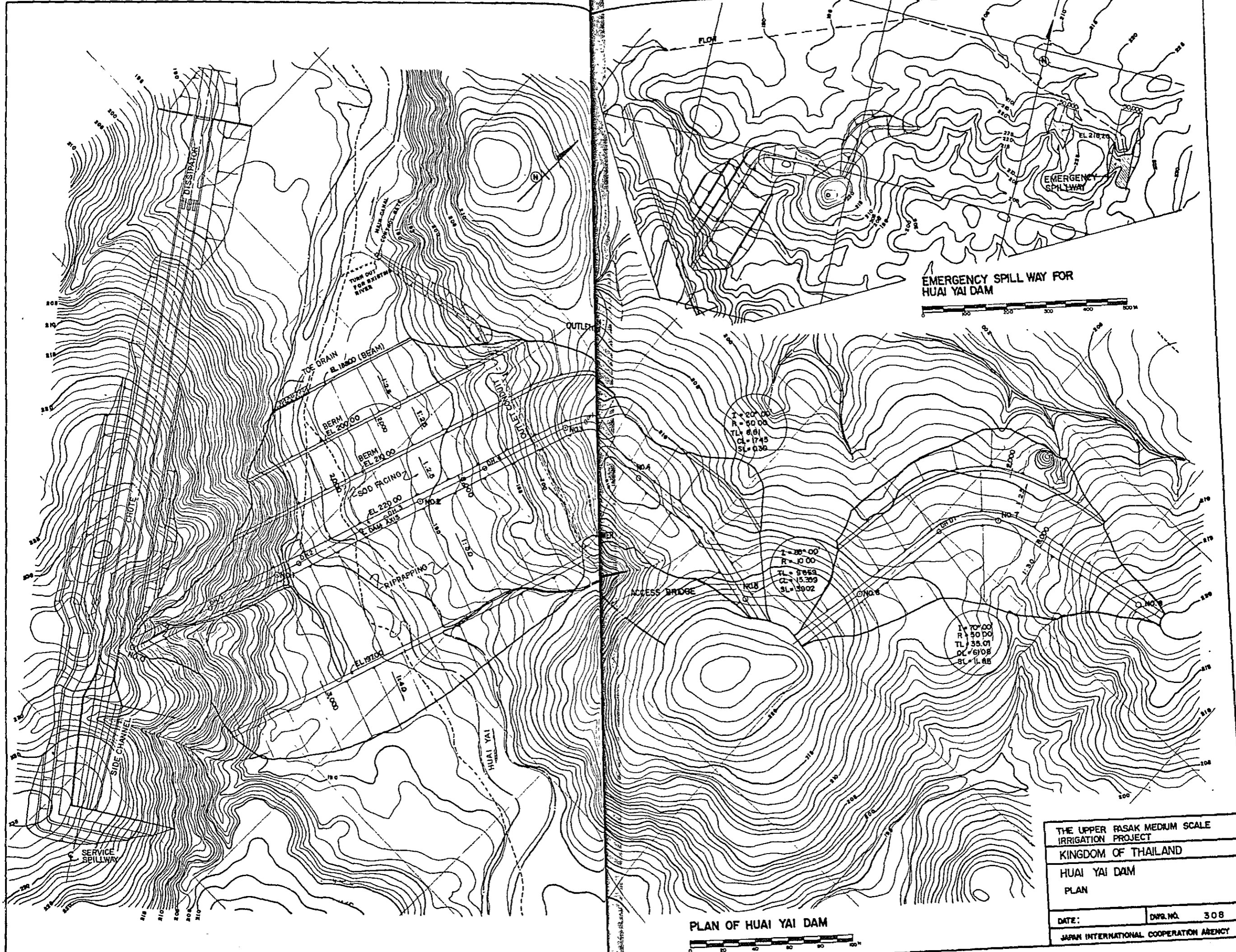


DETAIL OF INTAKE TOWER

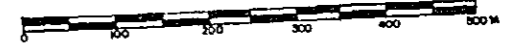


THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT	
KINGDOM OF THAILAND	
HUAI KHON KAEN DAM	
OUTLET WORKS, ACCESS BRIDGE	
DATE	DWG. NO. 307
JAPAN INTERNATIONAL COOPERATION AGENCY	

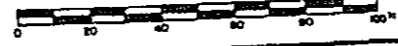




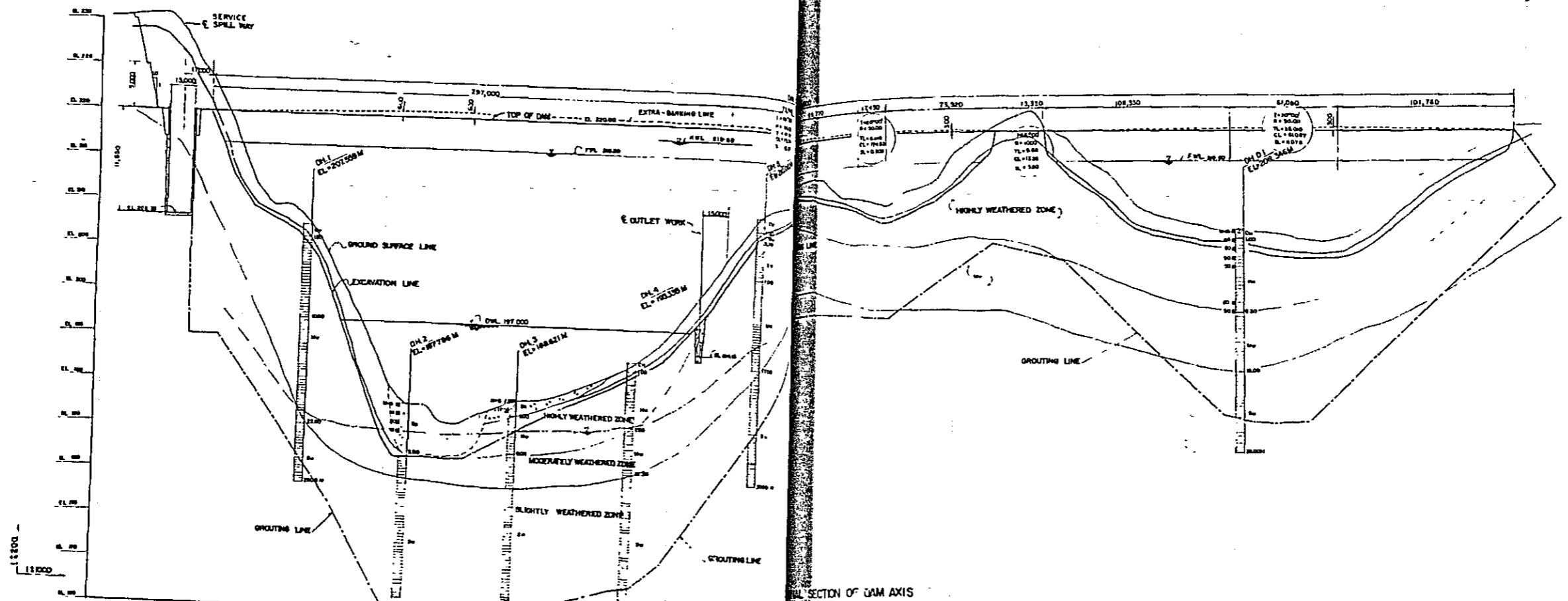
EMERGENCY SPILL WAY FOR HUAI YAI DAM



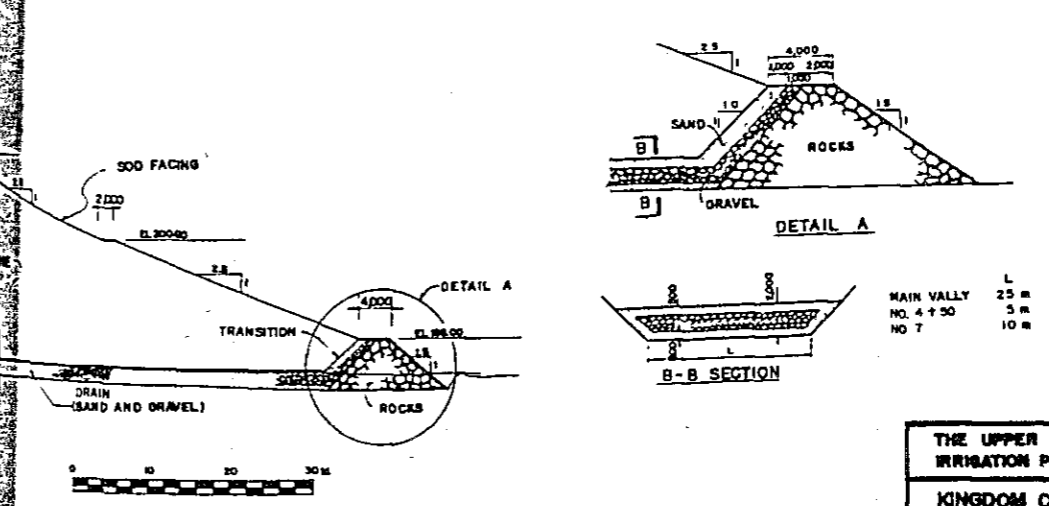
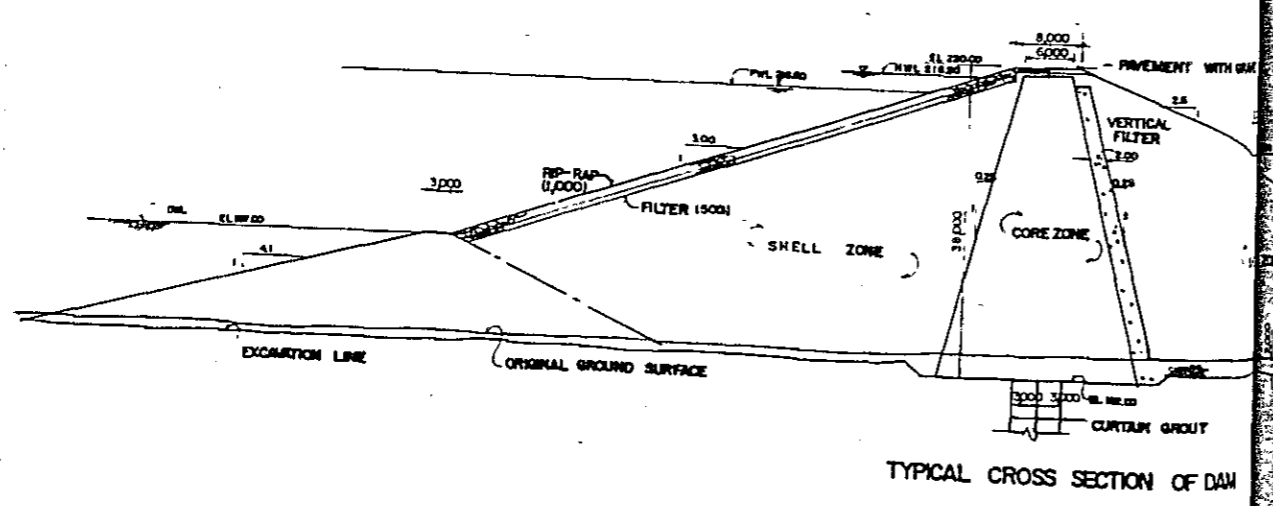
PLAN OF HUAI YAI DAM



THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT	
KINGDOM OF THAILAND	
HUAI YAI DAM	
PLAN	
DATE:	DWG. NO. 308
JAPAN INTERNATIONAL COOPERATION AGENCY	



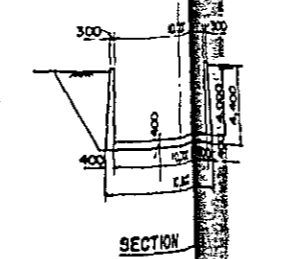
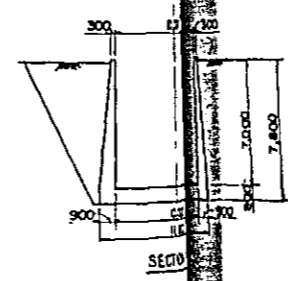
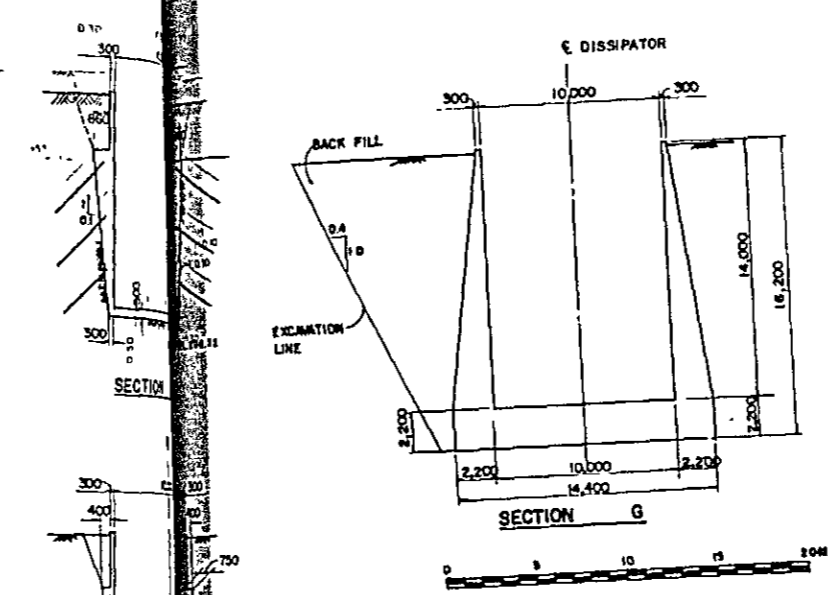
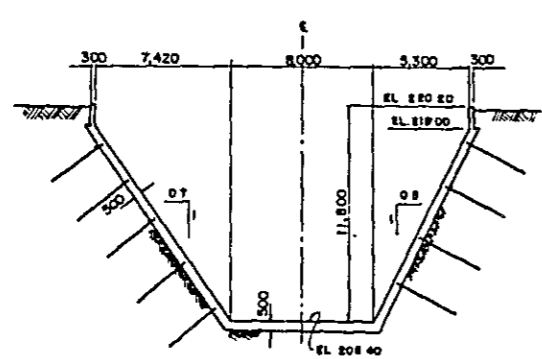
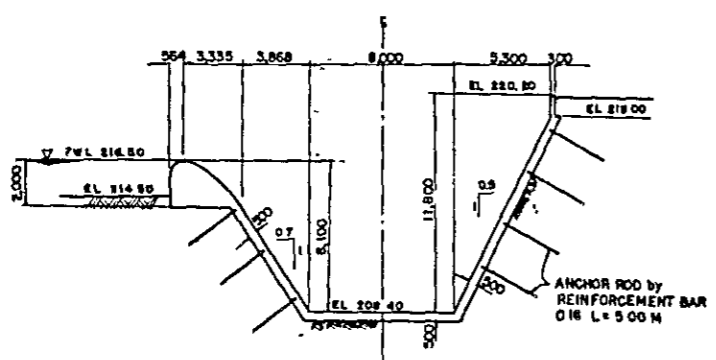
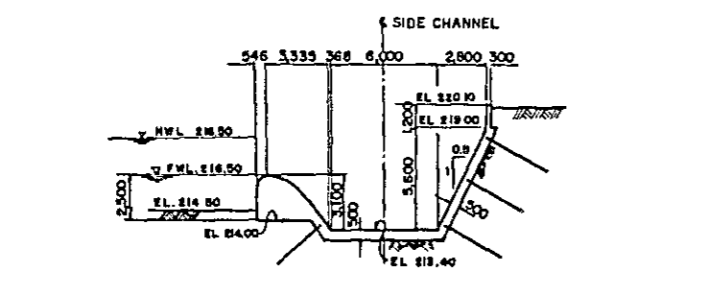
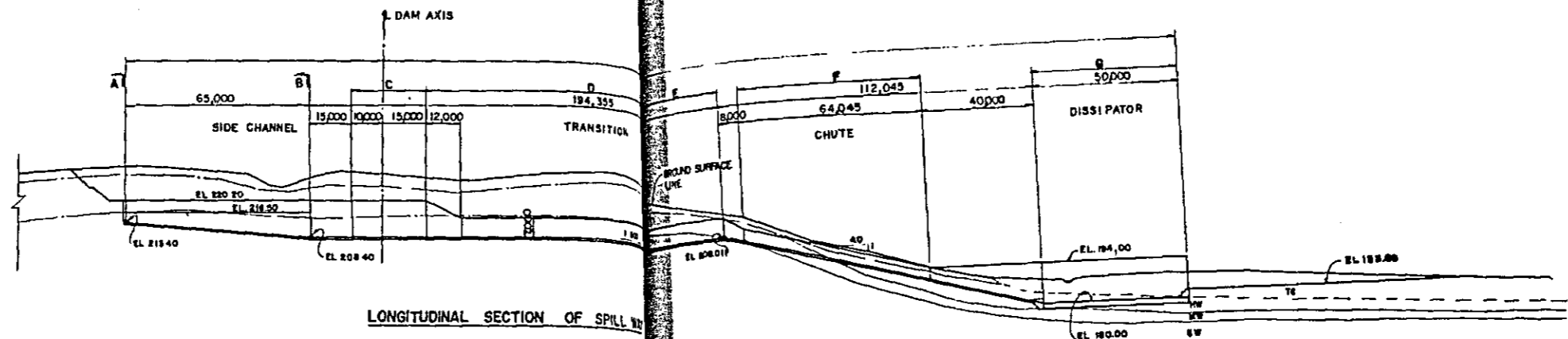
GROUND ELEVATION	11,840	11,800	11,750	11,700	11,650	11,600	11,550	11,500	11,450	11,400	11,350	11,300	11,250	11,200	11,150	11,100	11,050	11,000	10,950	10,900	10,850	10,800	10,750	10,700	10,650	10,600	10,550	10,500	10,450	10,400	10,350	10,300	10,250	10,200	10,150	10,100	10,050	10,000			
ACCUMULATE DISTANCE	0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000
DISTANCE	0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000
STATION	1+000	1+100	1+200	1+300	1+400	1+500	1+600	1+700	1+800	1+900	2+000	2+100	2+200	2+300	2+400	2+500	2+600	2+700	2+800	2+900	3+000	3+100	3+200	3+300	3+400	3+500	3+600	3+700	3+800	3+900	4+000	4+100	4+200	4+300	4+400	4+500	4+600	4+700	4+800	4+900	
CURVE																																									



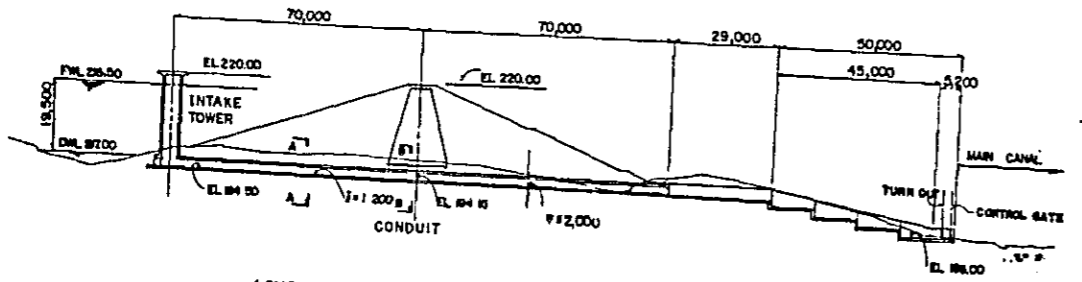
MAIN VALLY L  
NO. 4 + 50 25 m  
NO 7 10 m

THE UPPER PASAK MEDIUM SCALE  
IRRIGATION PROJECT  
KINGDOM OF THAILAND  
HJAI YAI DAM  
TYPICAL CROSS SECTION  
LONGITUDINAL SECTION  
DATE: DWS. NO. 309  
JAPAN INTERNATIONAL COOPERATION AGENCY

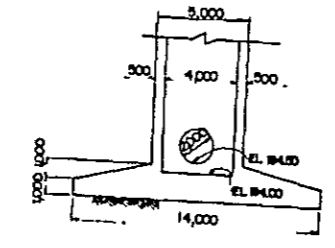
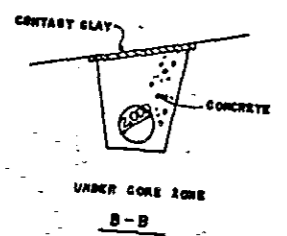
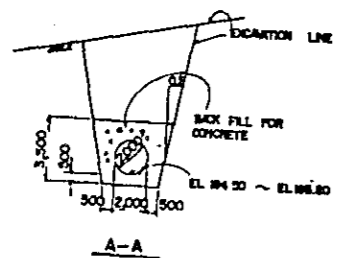
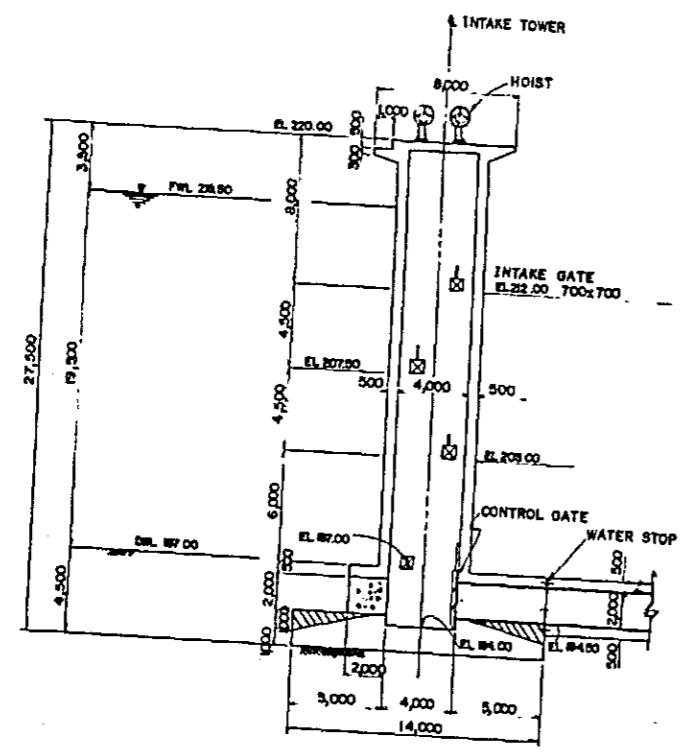
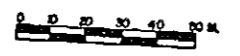
EL. 240  
EL. 230  
EL. 220  
EL. 210  
EL. 200  
EL. 190  
EL. 180  
EL. 170  
EL. 160



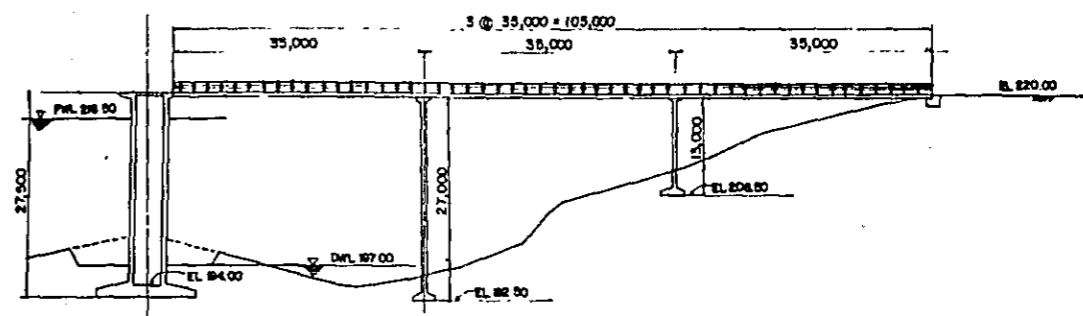
THE UPPER PASAK MEDIUM SCALE  
IRRIGATION PROJECT  
KINGDOM OF THAILAND  
HUAI YAI DAM  
CROSS SECTION OF SPILL WAY  
DATE \_\_\_\_\_ DWG. NO. 310  
JAPAN INTERNATIONAL COOPERATION AGENCY



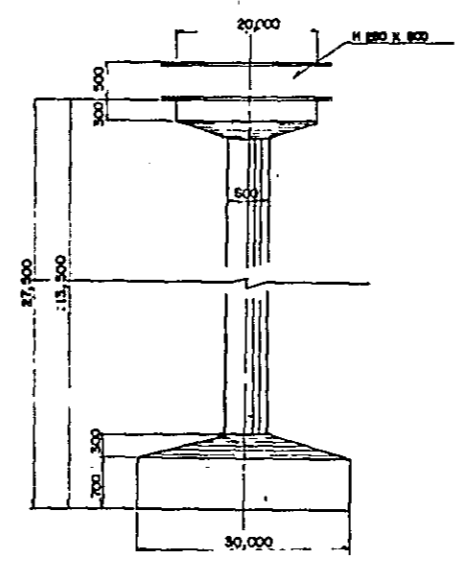
LONGITUDINAL SECTION OF OUTLET WORKS



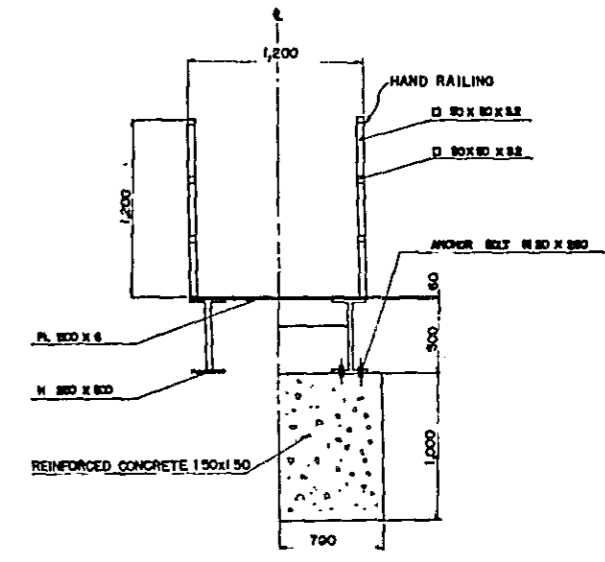
DETAIL OF INTAKE TOWER



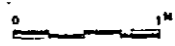
ACCESS BRIDGE TO INTAKE TOWER



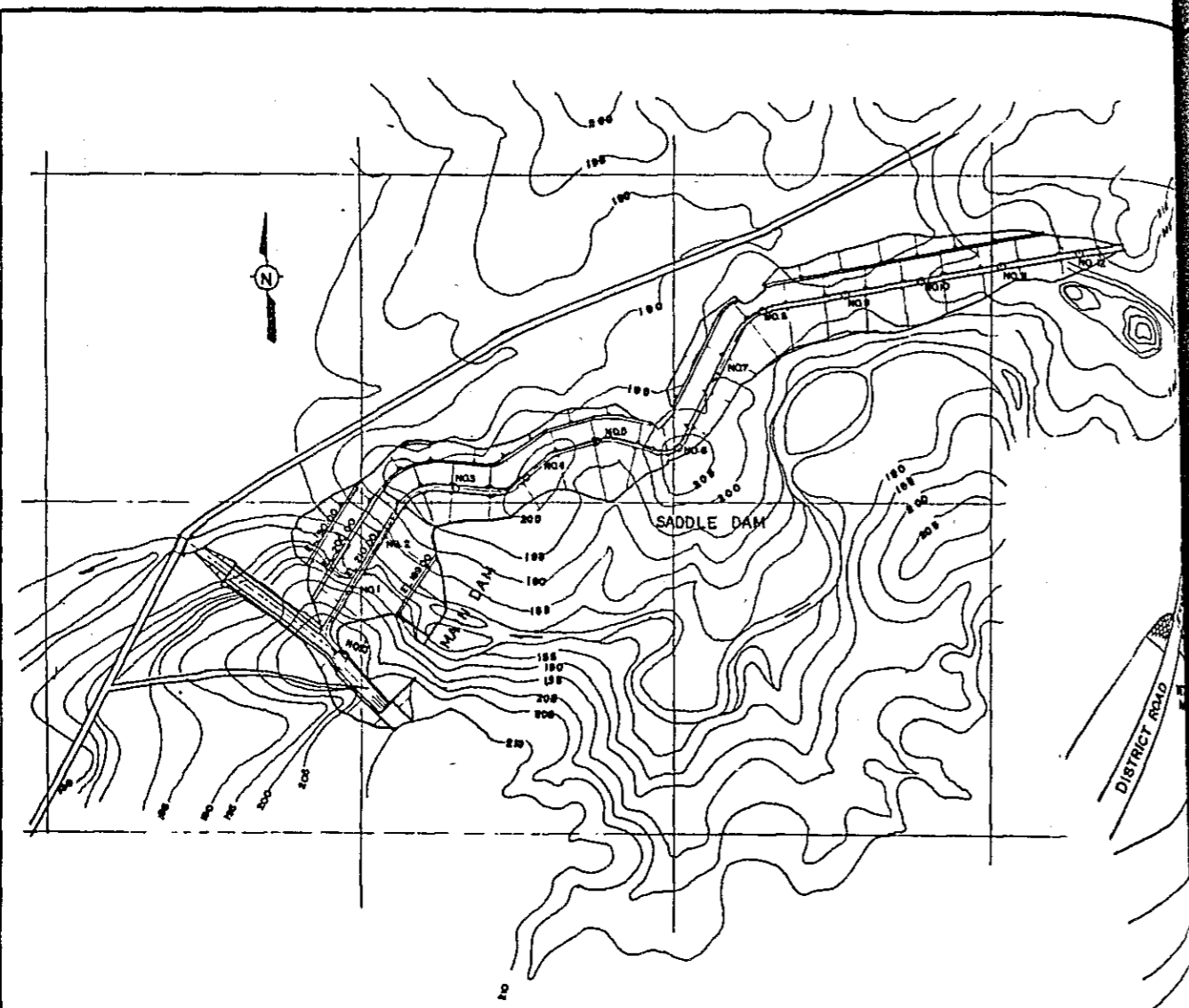
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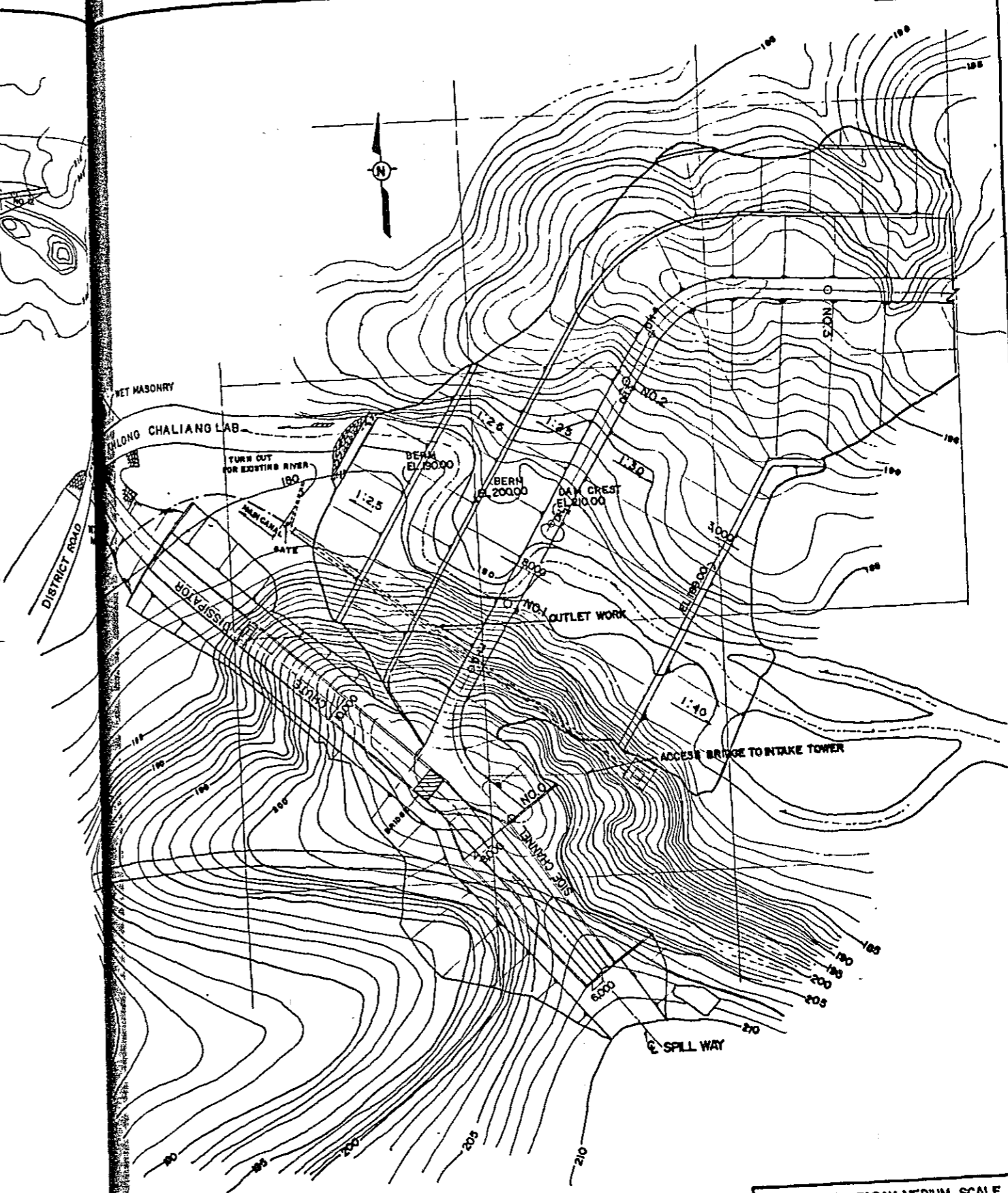
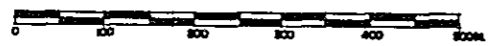
SECTION OF FOOT BRIDGE



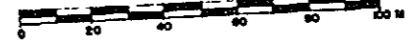
THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT	
KINGDOM OF THAILAND	
HUAL YAI DAM	
OUTLET WORKS, ACCESS BRIDGE	
DATE	DWGNO. 311
JAPAN INTERNATIONAL COOPERATION AGENCY	



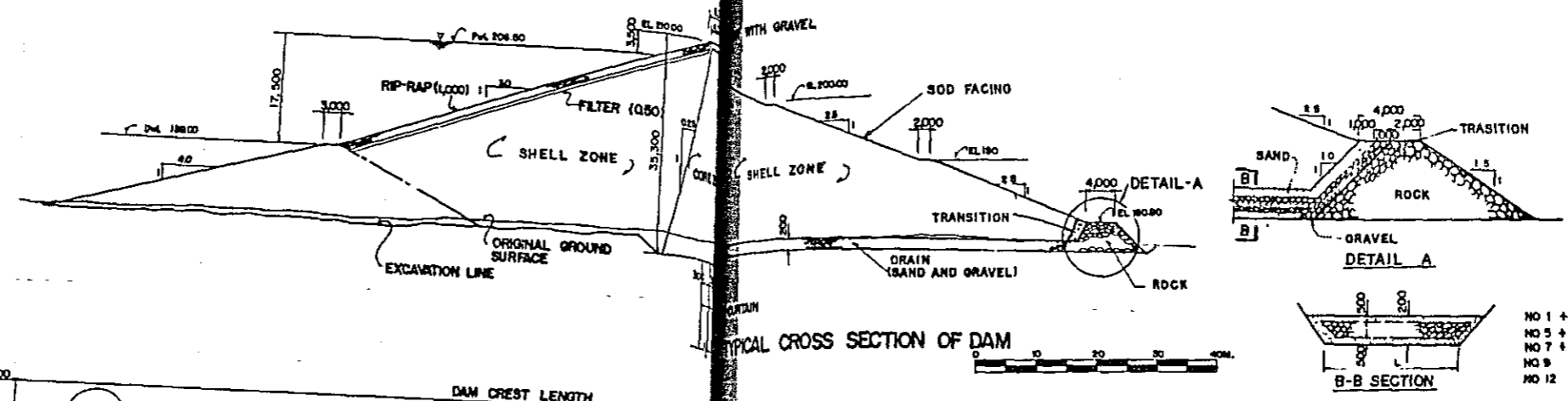
PLAN OF KHLONG CHALIANG LAB DAM 1-1



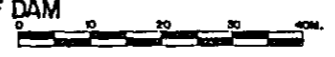
PLAN OF KHLONG CHALIANG LAB DAM 1-2



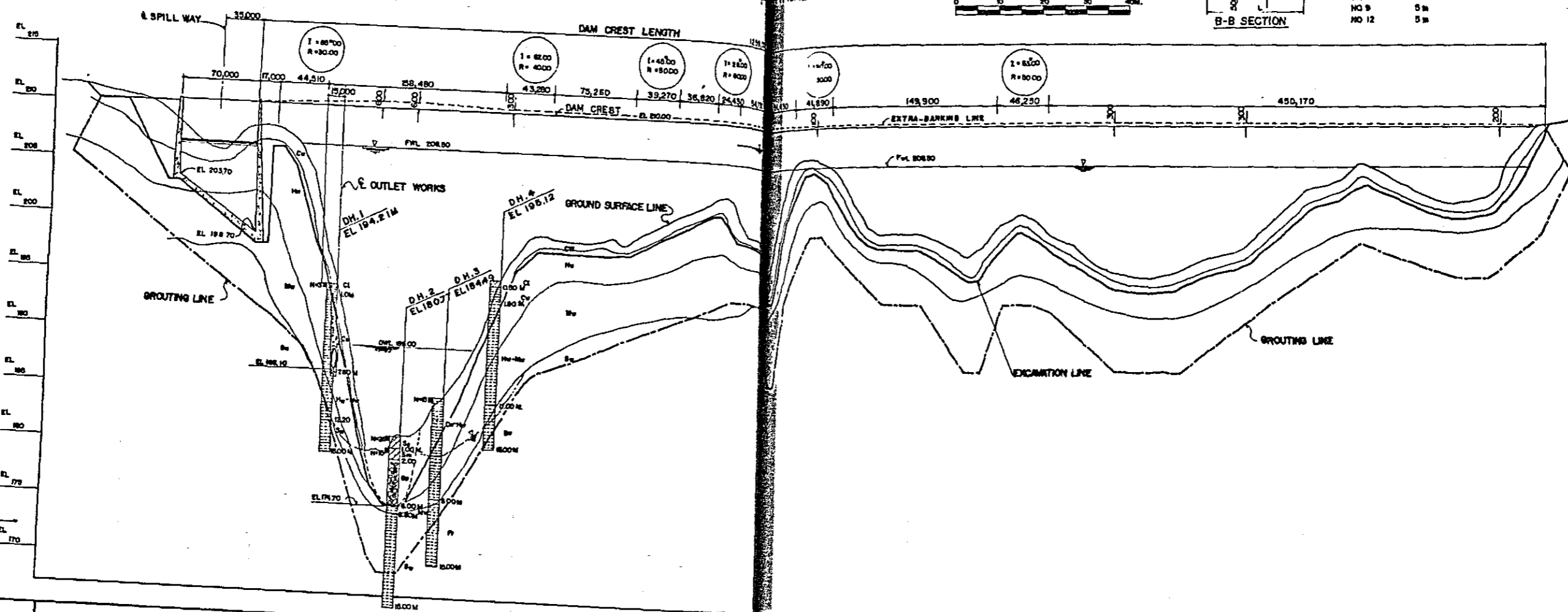
THE UPPER FASAK MEDIUM SCALE IRRIGATION PROJECT	
KINGDOM OF THAILAND	
KHLONG CHALIANG LAB DAM	
PLAN	
DATE	DWG NO. 312
JAPAN INTERNATIONAL COOPERATION AGENCY	



TYPICAL CROSS SECTION OF DAM



NO	(L)
NO 1 + 30	20M
NO 5 + 25	5M
NO 7 + 50	5M
NO 9	5M
NO 12	5M



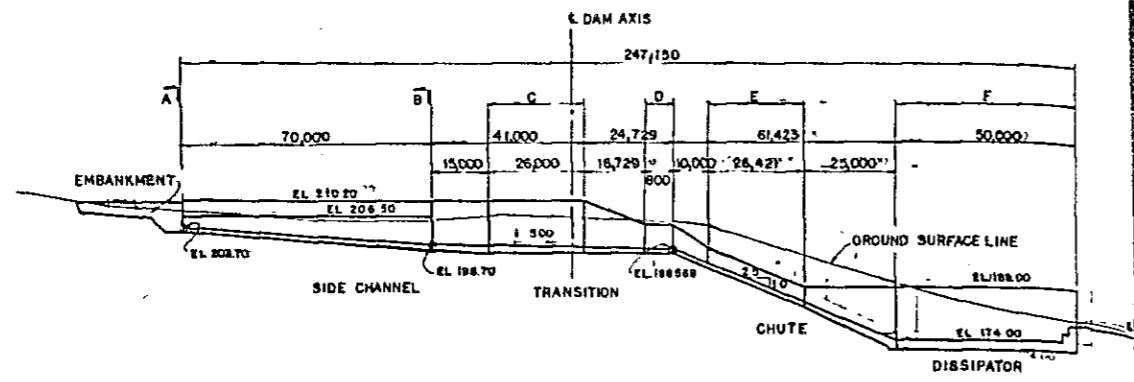
GROUND ELEVATION	ACCUMULATE DISTANCE	DISTANCE	STATION	CURVE
EL 215				
EL 210				
EL 208				
EL 200				
EL 198				
EL 190				
EL 180				
EL 170				
EL 160				
EL 150				
EL 140				
EL 130				
EL 120				
EL 110				
EL 100				
EL 90				
EL 80				
EL 70				
EL 60				
EL 50				
EL 40				
EL 30				
EL 20				
EL 10				
EL 0				
EL -10				
EL -20				
EL -30				
EL -40				
EL -50				
EL -60				
EL -70				
EL -80				
EL -90				
EL -100				
EL -110				
EL -120				
EL -130				
EL -140				
EL -150				
EL -160				
EL -170				
EL -180				
EL -190				
EL -200				
EL -210				
EL -220				
EL -230				
EL -240				
EL -250				
EL -260				
EL -270				
EL -280				
EL -290				
EL -300				
EL -310				
EL -320				
EL -330				
EL -340				
EL -350				
EL -360				
EL -370				
EL -380				
EL -390				
EL -400				
EL -410				
EL -420				
EL -430				
EL -440				
EL -450				
EL -460				
EL -470				
EL -480				
EL -490				
EL -500				
EL -510				
EL -520				
EL -530				
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EL -550				
EL -560				
EL -570				
EL -580				
EL -590				
EL -600				
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EL -620				
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EL -660				
EL -670				
EL -680				
EL -690				
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EL -750				
EL -760				
EL -770				
EL -780				
EL -790				
EL -800				
EL -810				
EL -820				
EL -830				
EL -840				
EL -850				
EL -860				
EL -870				
EL -880				
EL -890				
EL -900				
EL -910				
EL -920				
EL -930				
EL -940				
EL -950				
EL -960				
EL -970				
EL -980				
EL -990				
EL -1000				

LONGITUDINAL SECTION OF AXIS

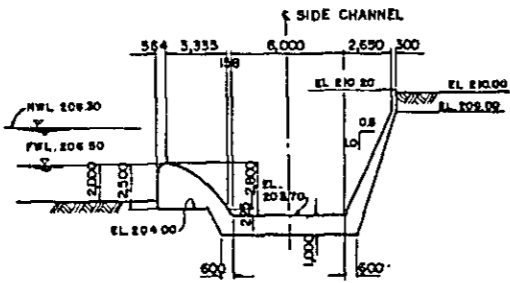
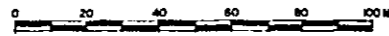
THE UPPER PASAK MEDIUM SCALE  
IRRIGATION PROJECT  
KINGDOM OF THAILAND  
KHLONG CHALIANG LAB DAM  
TYPICAL CROSS SECTION  
LONGITUDINAL SECTION  
DATE: \_\_\_\_\_ DWS. NO. 313  
JAPAN INTERNATIONAL COOPERATION AGENCY



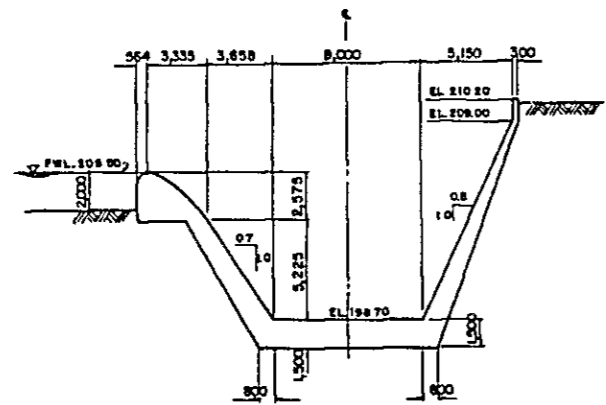
EL 230  
EL 220  
EL 210  
EL 200  
EL 190  
EL 180  
EL 170  
EL 160  
EL 150



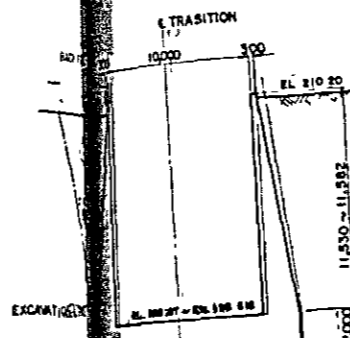
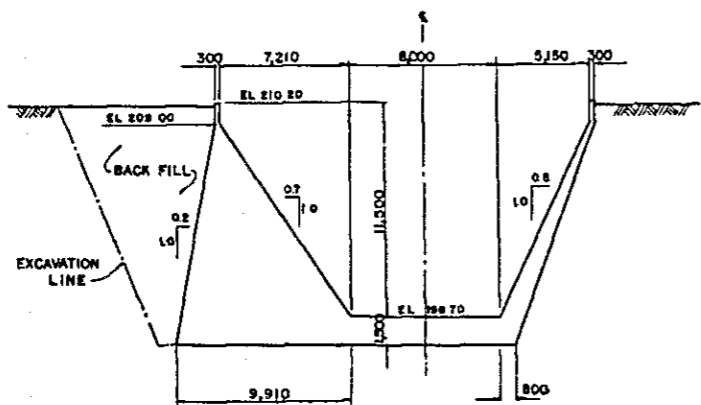
LONGITUDINAL SECTION OF SPILL WAY



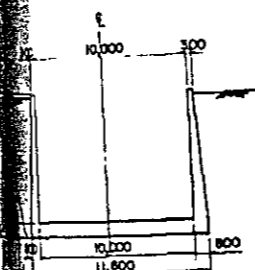
SECTION A



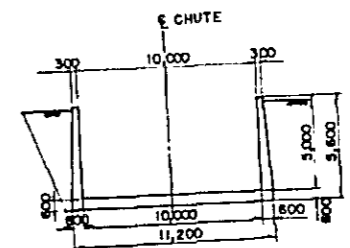
SECTION B



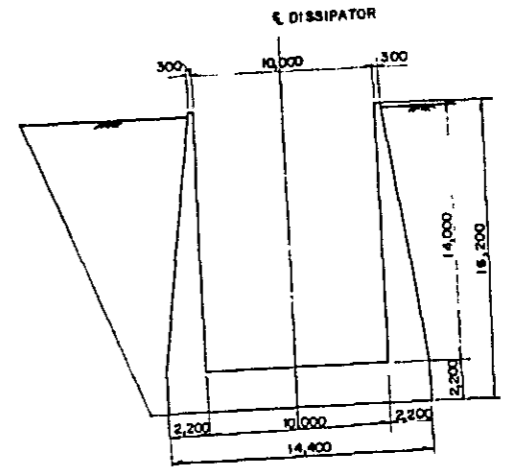
SECTION C



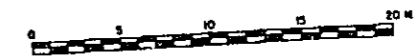
SECTION D



SECTION E

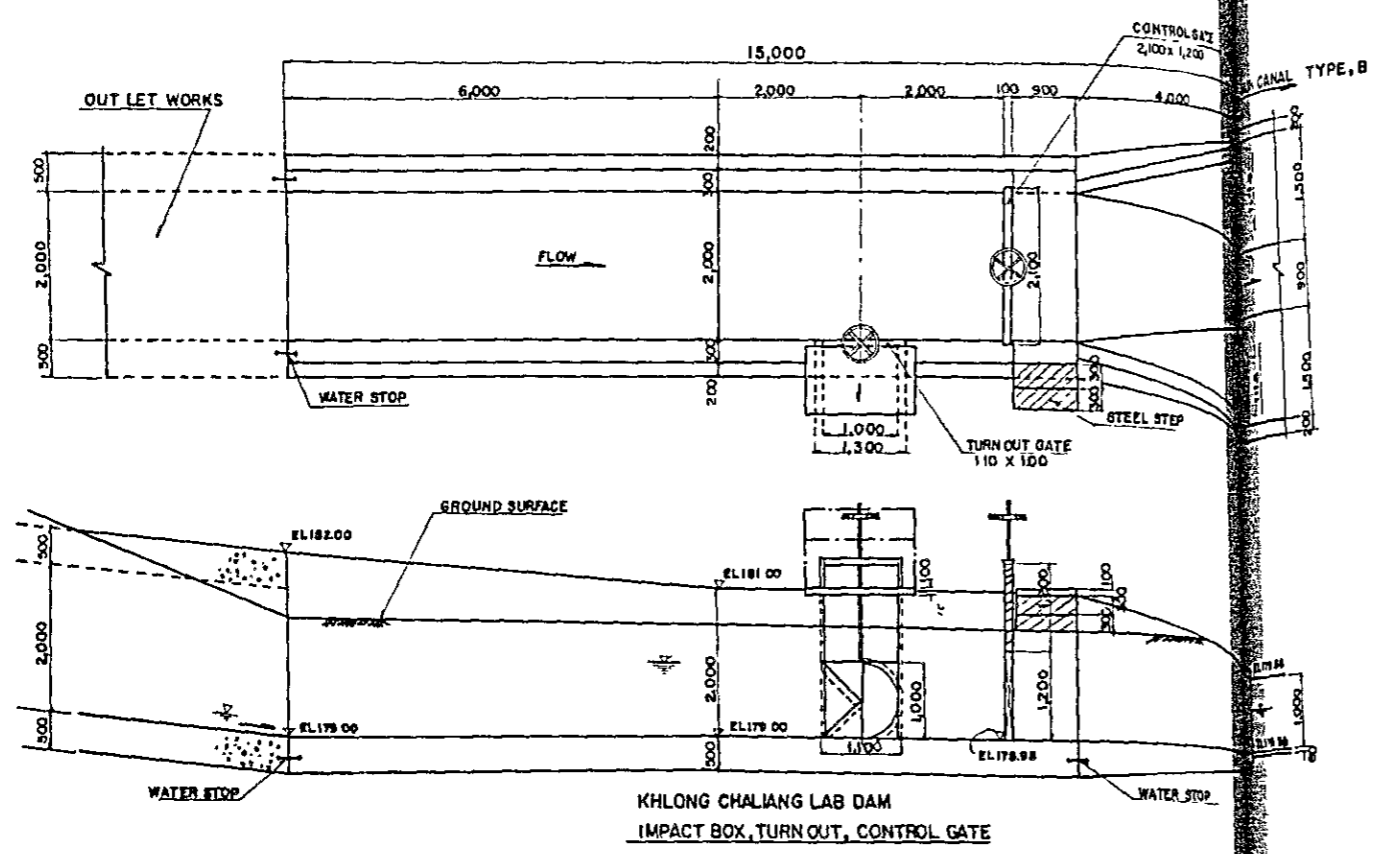


SECTION F

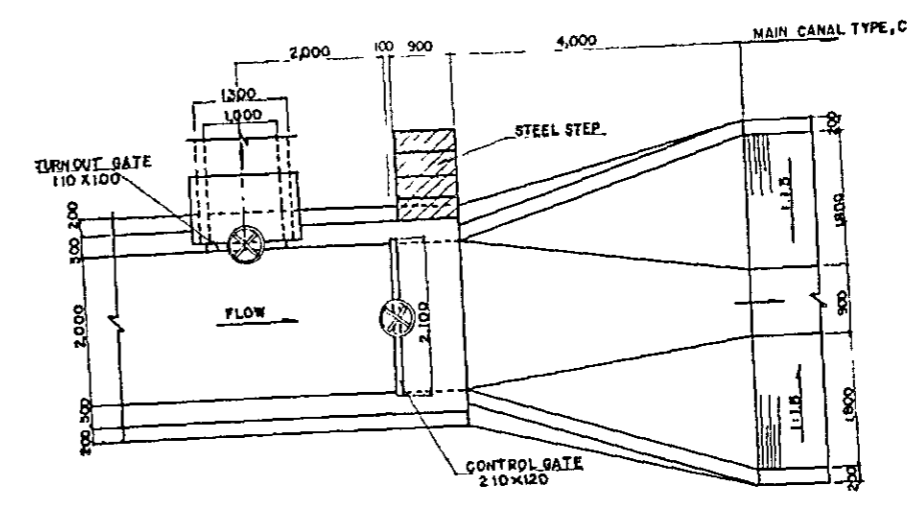


THE UPPER PASAK MEDIUM SCALE  
IRRIGATION PROJECT  
KINGDOM OF THAILAND  
KHLONG CHALIANG LAB DAM  
CROSS SECTION OF SPILL WAY  
DATE \_\_\_\_\_ DWG. NO. 314  
JAPAN INTERNATIONAL COOPERATION AGENCY

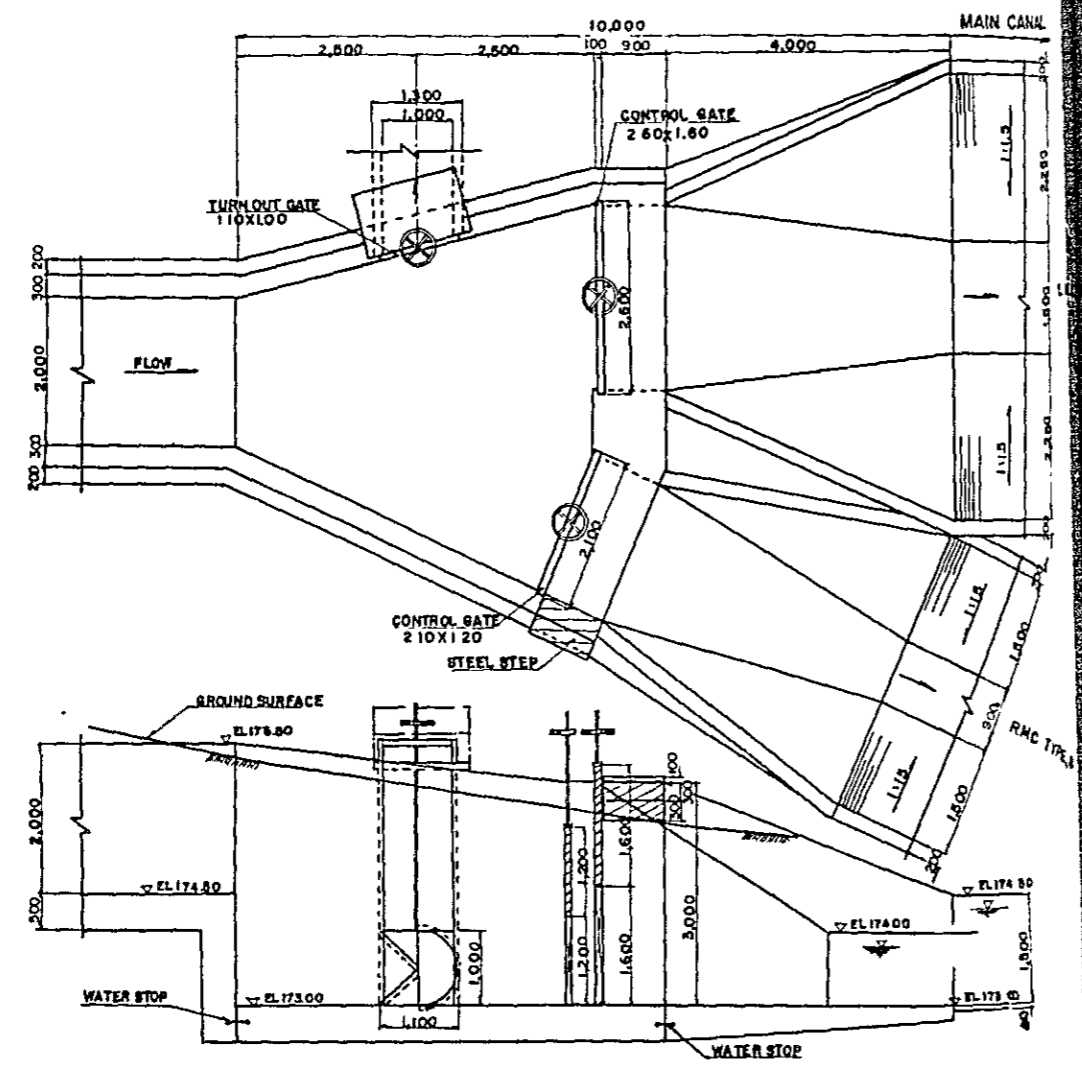




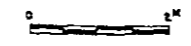
KHLONG CHALIANG LAB DAM  
IMPACT BOX, TURN OUT, CONTROL GATE



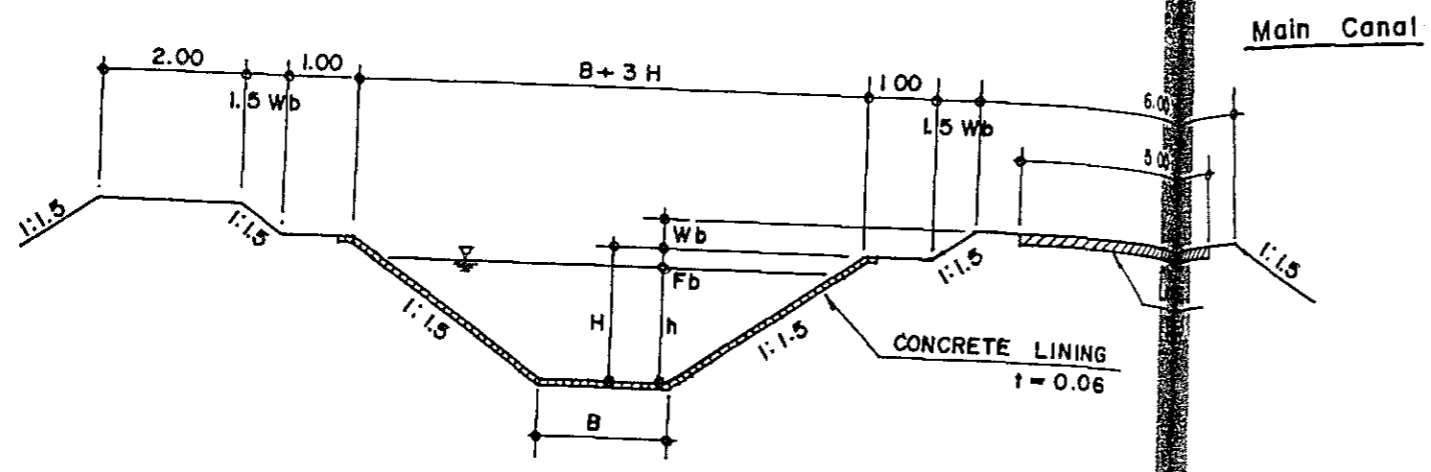
HUAI YAI DAM  
TURN OUT, CONTROL GATE



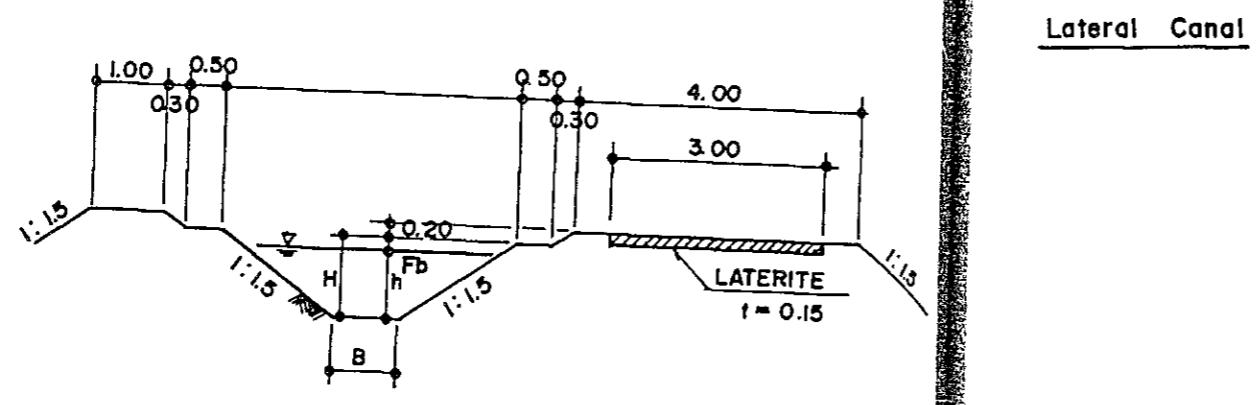
HUAI KHON KAEN DAM  
TURN OUT, CONTROL GATE



THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT	
KINGDOM OF THAILAND	
KHLONG CHALIANG LAB, HUAI YAI, HUAI KHON KAEN, DAM	
IMPACT BOX, TURN OUT, CONTROL GATE	
DATE	DWG NO 316
JAPAN INTERNATIONAL COOPERATION AGENCY	

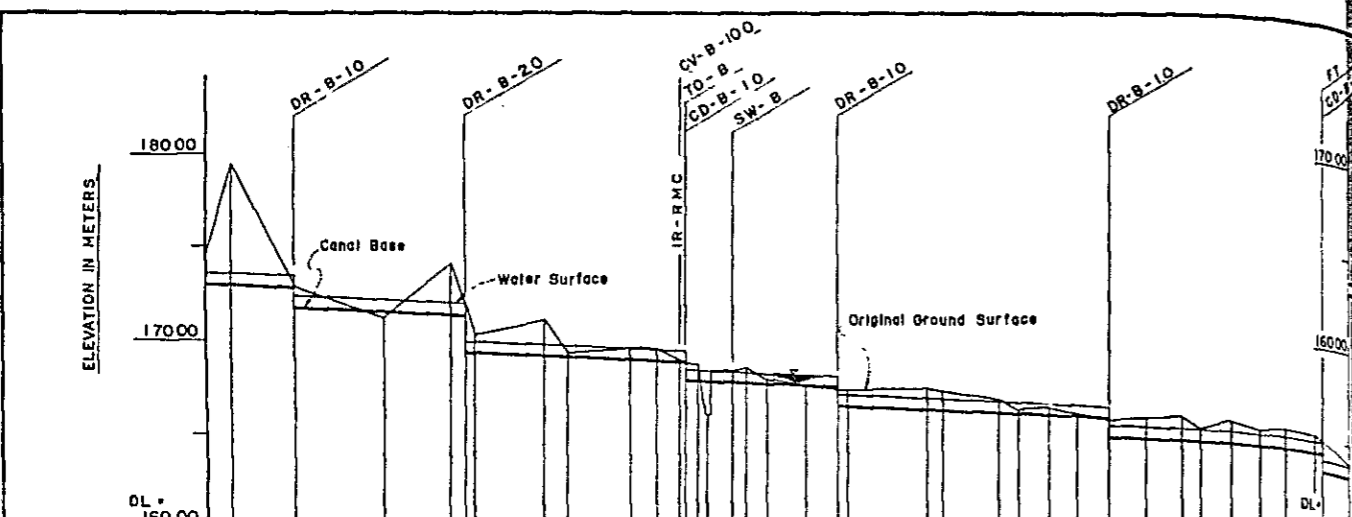


Canal Type	B	H	Wb
A	0.6	0.8	0.2
B	0.9	1.0	0.2
C	0.9	1.2	0.2
D	1.2	1.3	0.3
E	1.2	1.5	0.3
F	1.5	1.5	0.3

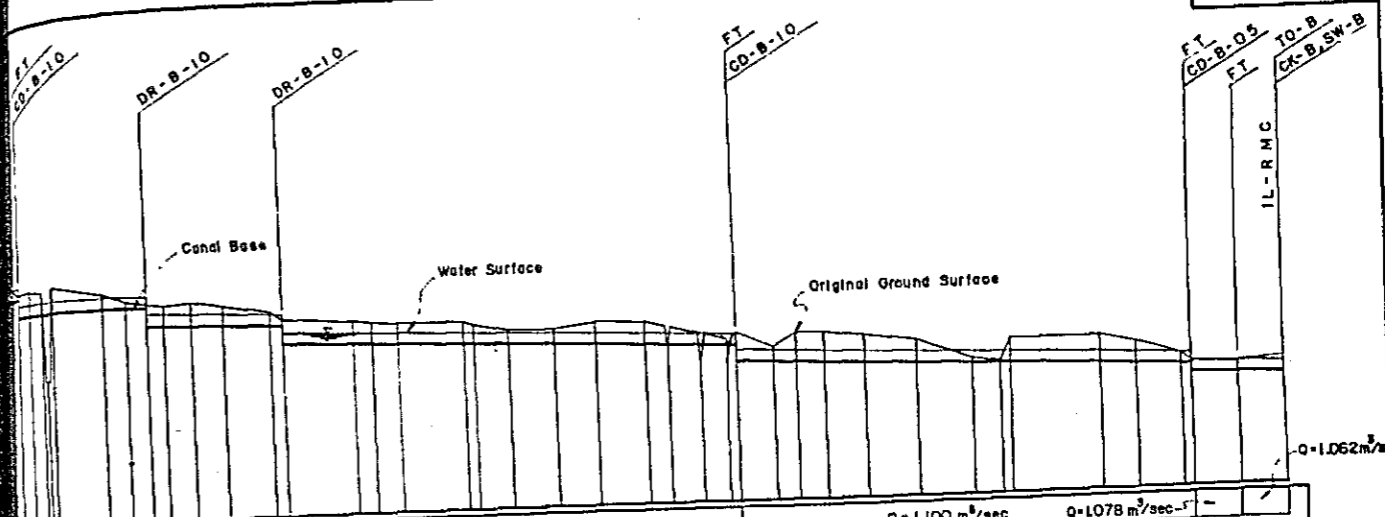


Canal Type	B	H	Wb
A	0.5	0.6	0.2
B	0.5	0.7	0.2
C	0.6	0.7	0.2
D	0.6	0.8	0.2
E	0.9	0.9	0.25

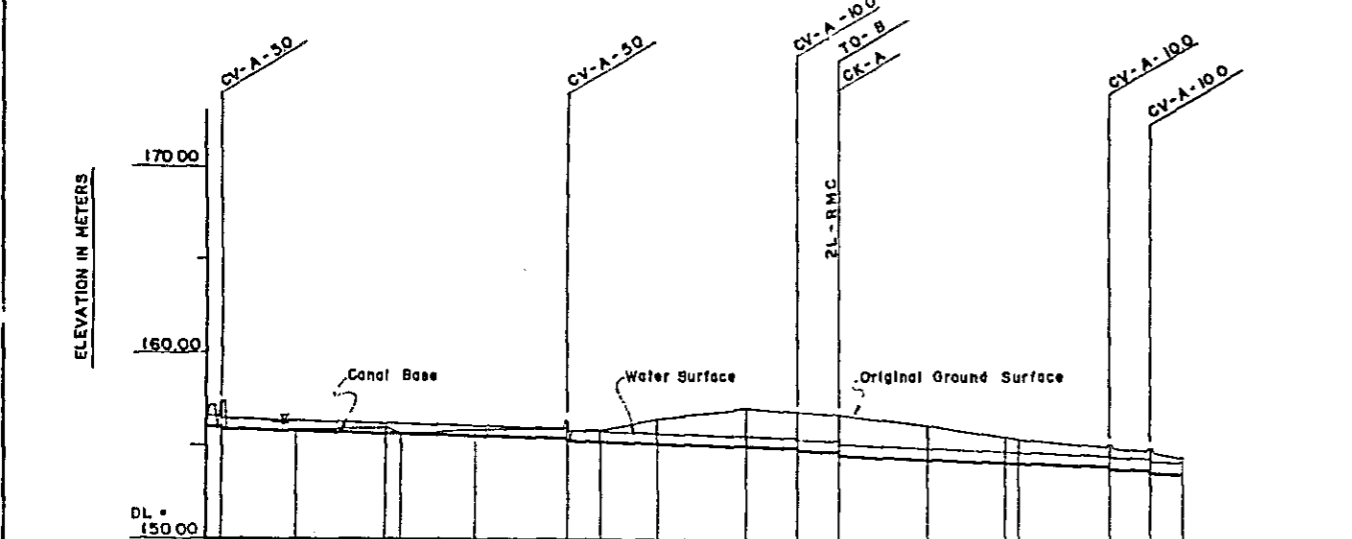
THE UPPER PASAK MEDIUM SCALE  
IRRIGATION PROJECT  
KINGDOM OF THAILAND  
IRRIGATION CANAL CROSS SECTION  
AND PROFILE  
CANAL CROSS SECTION  
DATE: DWS.NO. 401  
JAPAN INTERNATIONAL COOPERATION AGENCY



DISCHARGE,CANAL TYPE AND SLOPE	Q = 1.370 m <sup>3</sup> /sec B TYPE I = 1/900						Q = 1.178 m <sup>3</sup> /sec B TYPE I = 1/1,000					
CANAL BASE ELEVATION (m)	173.00	172.78	172.56	172.34	172.12	171.90	171.68	171.46	171.24	171.02	170.80	170.58
WATER SURFACE ELEVATION (m)	173.64	173.42	173.20	172.98	172.76	172.54	172.32	172.10	171.88	171.66	171.44	171.22
GROUND SURFACE ELEVATION (m)	174.50	174.28	174.06	173.84	173.62	173.40	173.18	172.96	172.74	172.52	172.30	172.08
REDUCED DISTANCE (m)	0.0	56.5	113.0	169.5	226.0	282.5	339.0	395.5	452.0	508.5	565.0	621.5
DISTANCE (m)	0	56.5	113.0	169.5	226.0	282.5	339.0	395.5	452.0	508.5	565.0	621.5
STATION NO.	0	1	2	3	4	5	6	7	8	9	10	11

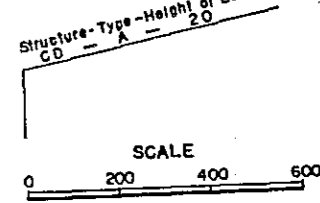


DISCHARGE,CANAL TYPE AND SLOPE	Q = 1.122 m <sup>3</sup> /sec B TYPE I = 1/1,200						Q = 1.100 m <sup>3</sup> /sec B TYPE I = 1/1,200						Q = 1.078 m <sup>3</sup> /sec		
CANAL BASE ELEVATION (m)	173.00	172.78	172.56	172.34	172.12	171.90	171.68	171.46	171.24	171.02	170.80	170.58	170.36	170.14	169.92
WATER SURFACE ELEVATION (m)	173.64	173.42	173.20	172.98	172.76	172.54	172.32	172.10	171.88	171.66	171.44	171.22	171.00	170.78	170.56
GROUND SURFACE ELEVATION (m)	174.50	174.28	174.06	173.84	173.62	173.40	173.18	172.96	172.74	172.52	172.30	172.08	171.86	171.64	171.42
REDUCED DISTANCE (m)	0.0	56.5	113.0	169.5	226.0	282.5	339.0	395.5	452.0	508.5	565.0	621.5	678.0	734.5	791.0
DISTANCE (m)	0	56.5	113.0	169.5	226.0	282.5	339.0	395.5	452.0	508.5	565.0	621.5	678.0	734.5	791.0
STATION NO.	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27

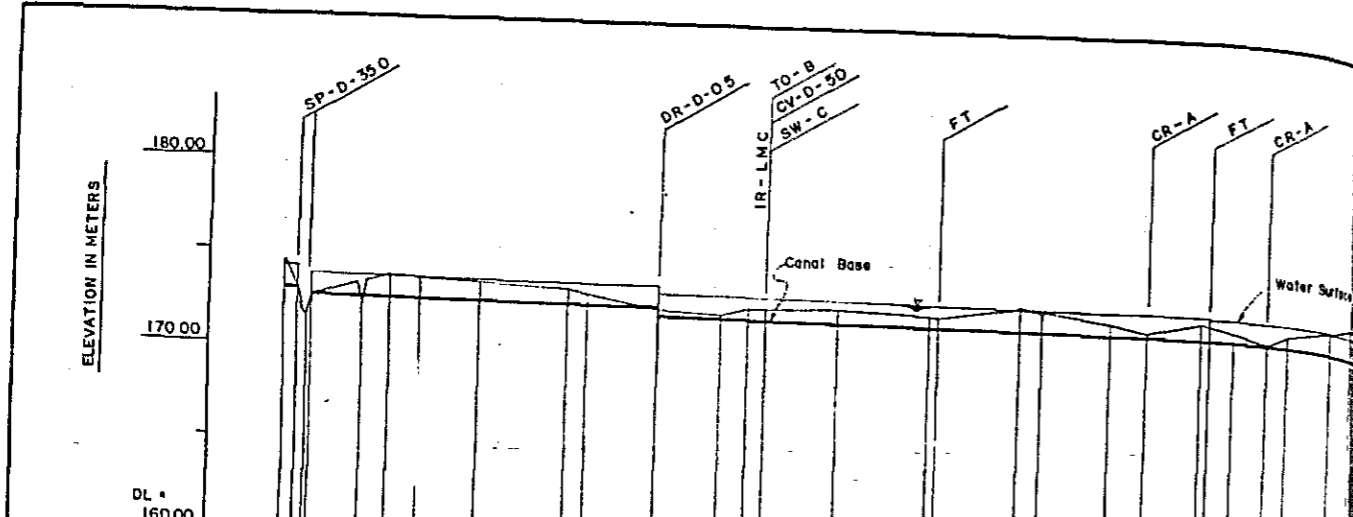


DISCHARGE,CANAL TYPE AND SLOPE	Q = 0.867 m <sup>3</sup> /sec B TYPE I = 1/1,300						Q = 0.636 m <sup>3</sup> /sec A TYPE I = 1/1,000								
CANAL BASE ELEVATION (m)	153.99	153.77	153.55	153.33	153.11	152.89	152.67	152.45	152.23	152.01	151.79	151.57	151.35	151.13	150.91
WATER SURFACE ELEVATION (m)	154.63	154.41	154.19	153.97	153.75	153.53	153.31	153.09	152.87	152.65	152.43	152.21	151.99	151.77	151.55
GROUND SURFACE ELEVATION (m)	155.50	155.28	155.06	154.84	154.62	154.40	154.18	153.96	153.74	153.52	153.30	153.08	152.86	152.64	152.42
REDUCED DISTANCE (m)	3,800.0	5,823.5	6,000.0	6,200.0	6,400.0	6,600.0	6,800.0	7,000.0	7,200.0	7,400.0	7,600.0	7,800.0	8,000.0	8,200.0	8,400.0
DISTANCE (m)	1000	1700	2000	2300	2600	2900	3200	3500	3800	4100	4400	4700	5000	5300	5600
STATION NO.	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43

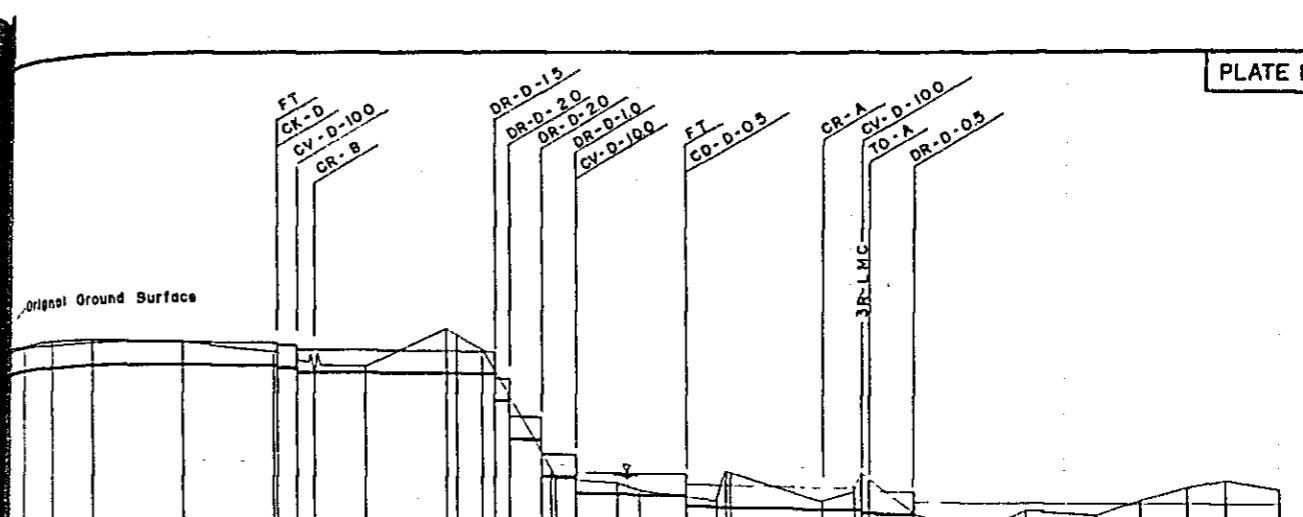
- REMARKS
- SP : SIPHON
  - CV : CULVERT
  - CD : CHECK CUM DROP
  - DR : DROP
  - CK : CHECK
  - TO : TURNOUT
  - FT : FARM TURNOUT
  - SW : SPILLWAY
  - MD : WATER MEASURING DEVICE
  - CR : CROSS DRAIN
  - BD : BRIDGE



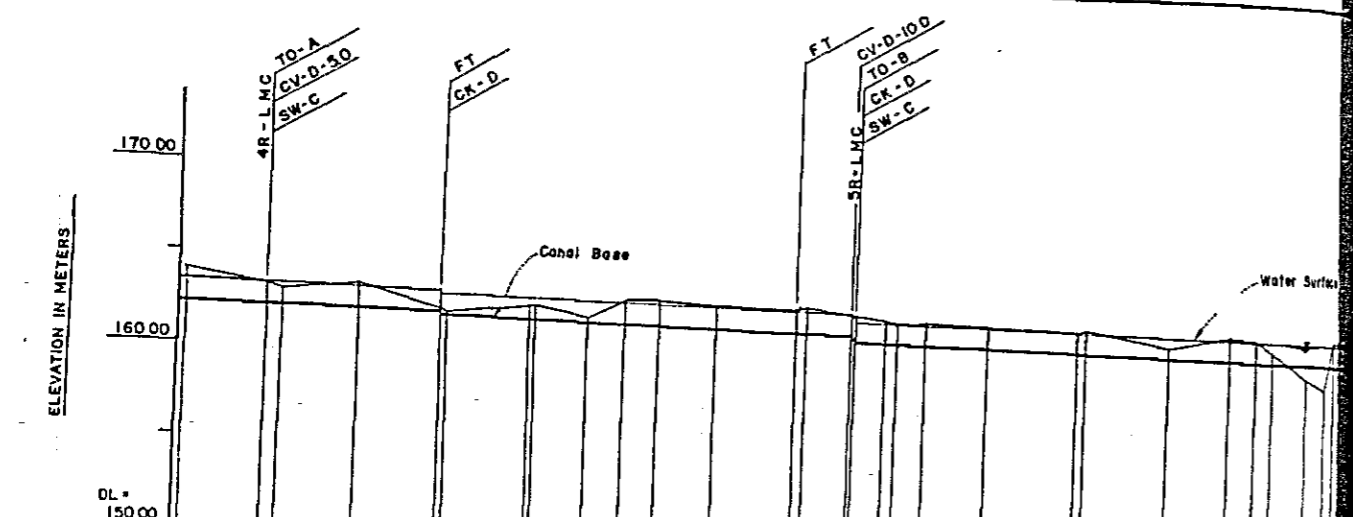
THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT  
 KINGDOM OF THAILAND  
 CANAL CROSS SECTION AND PROFILE  
 CANAL PROFILE  
 HUAI KHON KAEN SUB-PROJECT  
 RIGHT MAIN CANAL  
 DATE: \_\_\_\_\_ DWG. NO. 402 (1)  
 JAPAN INTERNATIONAL COOPERATION AGENCY



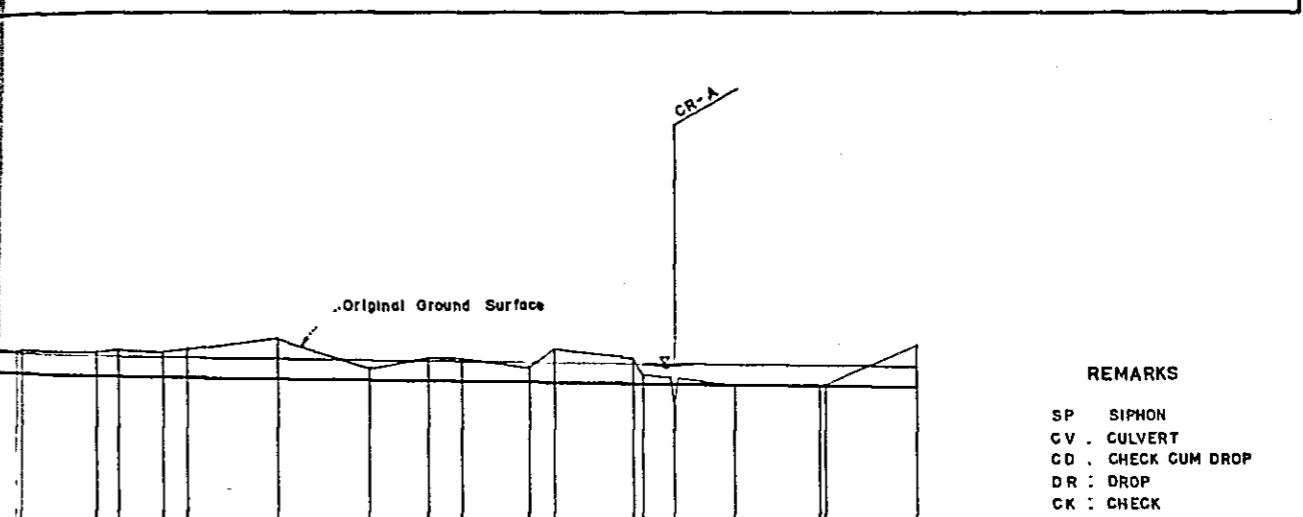
DISCHARGE, CANAL TYPE AND SLOPE	Q = 3.776 m³/sec		Q = 3.477 m³/sec		Q = 3.439 m³/sec		Q = 3.400 m³/sec	
CANAL BASE ELEVATION (m)	173.00	173.00	172.99	172.99	F TYPE I = 1/4,000			
WATER SURFACE ELEVATION (m)	174.29	174.29	173.88	173.88	F TYPE I = 1/4,000			
GROUND SURFACE ELEVATION (m)	174.30	173.30	173.30	173.30	F TYPE I = 1/4,000			
REDUCED DISTANCE (m)	0	1100	1700	1720	F TYPE I = 1/4,000			
DISTANCE (m)	0	1100	1700	1720	F TYPE I = 1/4,000			
STATION NO.	0	1	2	3	4	5	6	7



DISCHARGE, CANAL TYPE AND SLOPE	Q = 3.320 m³/sec		Q = 3.289 m³/sec		Q = 3.258 m³/sec		Q = 3.211 m³/sec	
CANAL BASE ELEVATION (m)	172.10	172.10	172.10	172.10	E TYPE I = 1/3,000			
WATER SURFACE ELEVATION (m)	172.10	172.10	172.10	172.10	E TYPE I = 1/3,000			
GROUND SURFACE ELEVATION (m)	172.10	172.10	172.10	172.10	E TYPE I = 1/3,000			
REDUCED DISTANCE (m)	0	1100	1700	1720	E TYPE I = 1/3,000			
DISTANCE (m)	0	1100	1700	1720	E TYPE I = 1/3,000			
STATION NO.	14	15	16	17	18	19	20	21

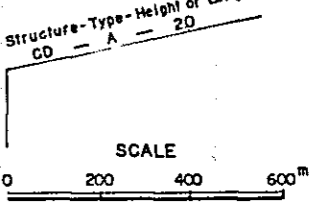


DISCHARGE, CANAL TYPE AND SLOPE	Q = 3.162 m³/sec		Q = 3.132 m³/sec		Q = 3.102 m³/sec	
CANAL BASE ELEVATION (m)	162.19	162.12	162.12	162.12	E TYPE I = 1/3,000	
WATER SURFACE ELEVATION (m)	163.39	163.32	163.32	163.32	E TYPE I = 1/3,000	
GROUND SURFACE ELEVATION (m)	164.20	163.30	163.30	163.30	E TYPE I = 1/3,000	
REDUCED DISTANCE (m)	0	1100	1700	1720	E TYPE I = 1/3,000	
DISTANCE (m)	0	1100	1700	1720	E TYPE I = 1/3,000	
STATION NO.	28	29	30	31	32	33



DISCHARGE, CANAL TYPE AND SLOPE	Q = 2.970 m³/sec	
CANAL BASE ELEVATION (m)	160.49	160.49
WATER SURFACE ELEVATION (m)	160.49	160.49
GROUND SURFACE ELEVATION (m)	160.49	160.49
REDUCED DISTANCE (m)	0	1100
DISTANCE (m)	0	1100
STATION NO.	43	44

- REMARKS
- SP SIPHON
  - CV CULVERT
  - CD CHECK CUM DROP
  - DR DROP
  - CK CHECK
  - TO TURNOUT
  - FT FARM TURNOUT
  - SW SPILLWAY
  - MD WATER MEASURING DEVICE
  - CR CROSS DRAIN
  - BD BRIDGE

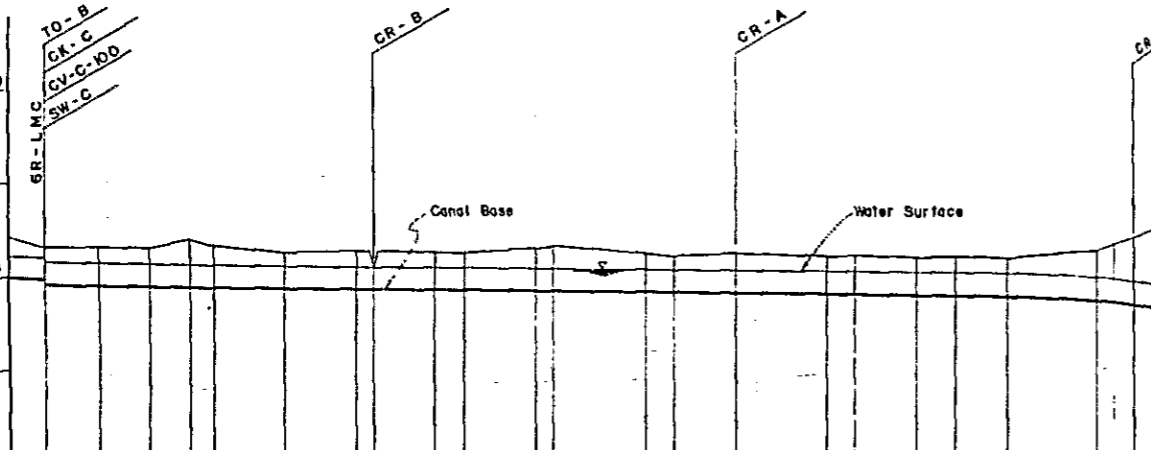


THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT  
 KINGDOM OF THAILAND  
 CANAL CROSS SECTION AND PROFILE  
 CANAL PROFILE  
 HUAI KHON KAEN SUB-PROJECT  
 LEFT MAIN CANAL (1/5)  
 DATE: DWG. NO. 402 (2)  
 JAPAN INTERNATIONAL COOPERATION AGENCY



ELEVATION IN METERS

170 00  
160 00



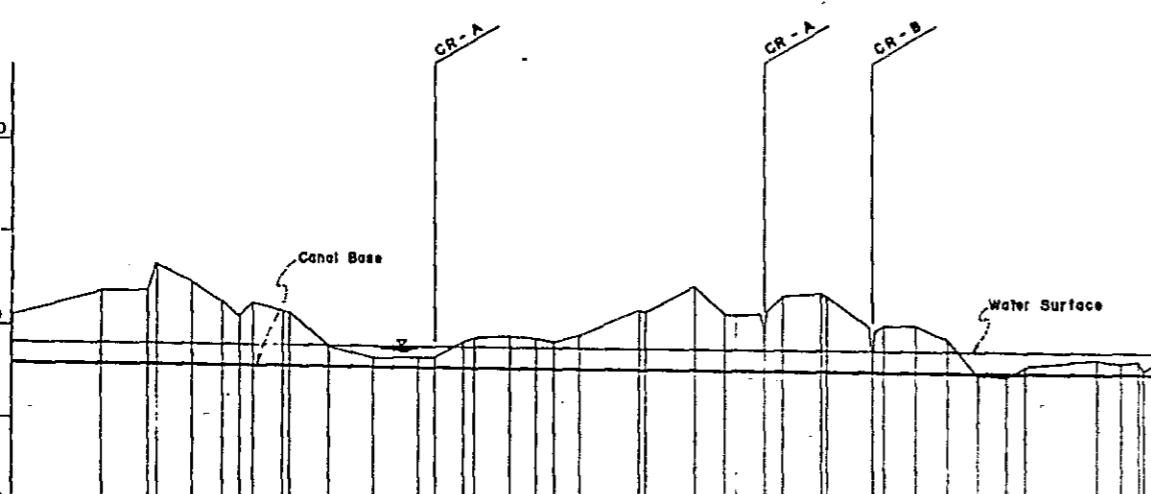
DISCHARGE, CANAL TYPE AND SLOPE	Q = 2.852 m <sup>3</sup> /sec E TYPE										
CANAL BASE ELEVATION (m)	159.9	159.9	159.9	159.9	159.9	159.9	159.9	159.9	159.9	159.9	159.9
WATER SURFACE ELEVATION (m)	161.10	161.08	161.06	161.04	161.02	161.00	160.98	160.96	160.94	160.92	160.90
GROUND SURFACE ELEVATION (m)	162.00	161.50	161.30	161.20	161.10	161.00	160.90	160.80	160.70	160.60	160.50
REDUCED DISTANCE (m)	10.8300	10.7100	10.5900	10.4700	10.3500	10.2300	10.1100	9.9900	9.8700	9.7500	9.6300
DISTANCE (m)	2000	800	1200	1100	900	500	1100	1060	1020	980	940
STATION NO	53	54	55	56	57	58	59	60	61	62	63

Original Ground Surface

Q = 2.791 m<sup>3</sup>/sec

ELEVATION IN METERS

170 00  
160 00



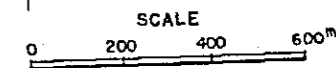
DISCHARGE, CANAL TYPE AND SLOPE	Q = 2.791 m <sup>3</sup> /sec E TYPE I = 4.000										
CANAL BASE ELEVATION (m)	157.93	157.93	157.93	157.93	157.93	157.93	157.93	157.93	157.93	157.93	157.93
WATER SURFACE ELEVATION (m)	159.12	159.12	159.12	159.12	159.12	159.12	159.12	159.12	159.12	159.12	159.12
GROUND SURFACE ELEVATION (m)	160.30	161.81	162.20	162.20	162.20	162.20	162.20	162.20	162.20	162.20	162.20
REDUCED DISTANCE (m)	16.4300	16.6300	16.7200	16.7900	16.8500	16.9000	16.9400	16.9700	17.0000	17.0300	17.0600
DISTANCE (m)	1150	2000	1000	1900	800	380	330	320	320	320	320
STATION NO	62	63	64	65	66	67	68	69	70	71	72

Original Ground Surface

Q = 2.629 m<sup>3</sup>/sec  
E TYPE I = 1/3.000

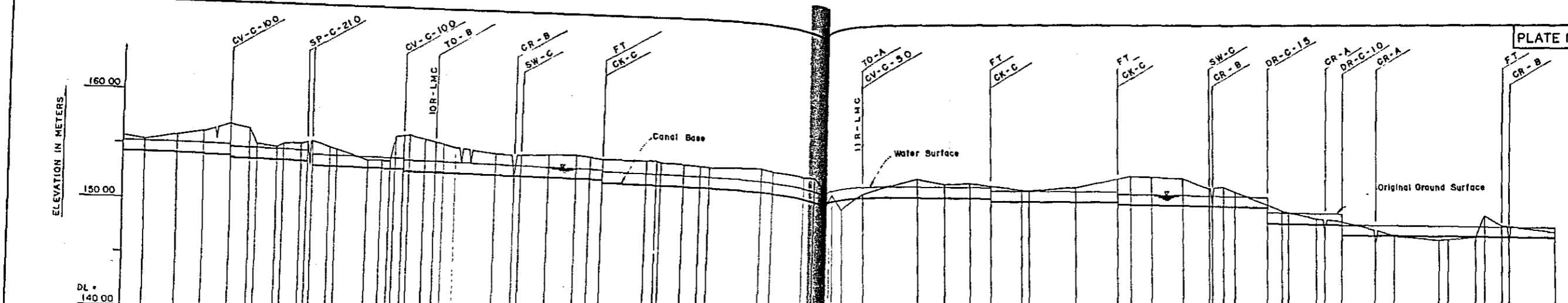
- REMARKS
- SP : SIPHON
  - CV : CULVERT
  - CD : CHECK CUM DROP
  - DR : DROP
  - CK : CHECK
  - FT : TURNOUT
  - TO : FARM TURNOUT
  - SW : SPILLWAY
  - MD : WATER MEASURING DEVICE
  - CR : CROSS DRAIN
  - BD : BRIDGE

Structure-Type-Height or Length  
CD - A - 2.0

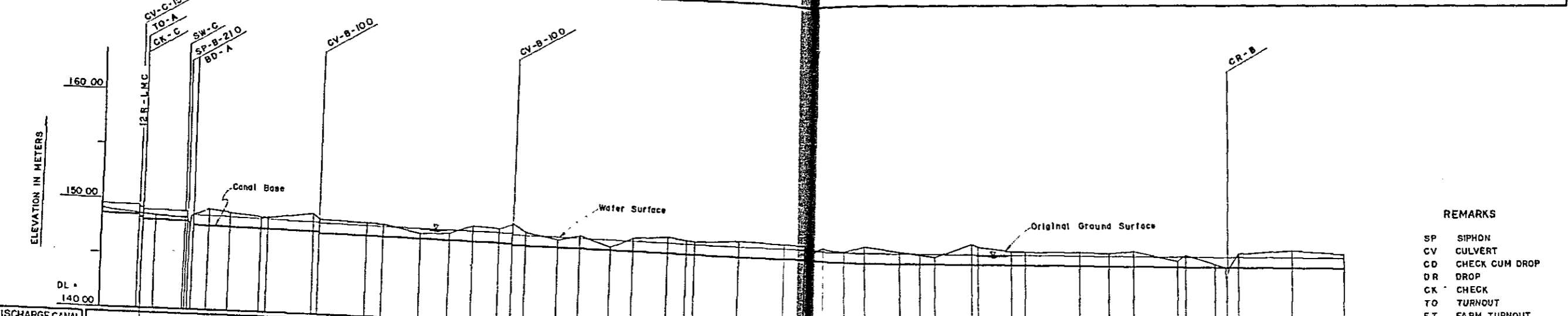


THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT  
KINGDOM OF THAILAND  
CANAL CROSS SECTION AND PROFILE  
CANAL PROFILE  
HUAI KHON KAEN SUB-PROJECT  
LEFT MAIN CANAL (2/5)  
DATE :  
DWG. NO. 402 (3)  
JAPAN INTERNATIONAL COOPERATION AGENCY

DISCHARGE, CANAL TYPE AND SLOPE	Q = 2.480 m <sup>3</sup> /sec E TYPE I = 1/3.000										
CANAL BASE ELEVATION (m)	156.97	156.97	156.97	156.97	156.97	156.97	156.97	156.97	156.97	156.97	156.97
WATER SURFACE ELEVATION (m)	158.00	158.00	158.00	158.00	158.00	158.00	158.00	158.00	158.00	158.00	158.00
GROUND SURFACE ELEVATION (m)	157.00	157.00	157.00	157.00	157.00	157.00	157.00	157.00	157.00	157.00	157.00
REDUCED DISTANCE (m)	16.5000	16.5000	16.5000	16.5000	16.5000	16.5000	16.5000	16.5000	16.5000	16.5000	16.5000
DISTANCE (m)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
STATION NO	73	74	75	76	77	78	79	80	81	82	83

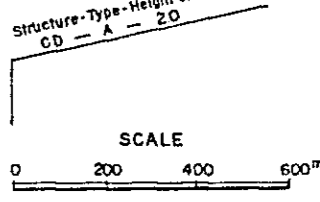


DISCHARGE CANAL TYPE AND SLOPE	Q = 2.480 m <sup>3</sup> /sec E TYPE 1 = 1/3.000										Q = 2.285 m <sup>3</sup> /sec										Q = 2.251 m <sup>3</sup> /sec									
CANAL BASE ELEVATION (m)	154.23										154.11										153.94									
WATER SURFACE ELEVATION (m)	155.25										155.15										155.05									
GROUND SURFACE ELEVATION (m)	155.60										155.50										155.40									
REDUCED DISTANCE (m)	21,430.0										21,330.0										21,230.0									
DISTANCE (m)	913										827										741									
STATION NO.	107-116										117-120										121-130									

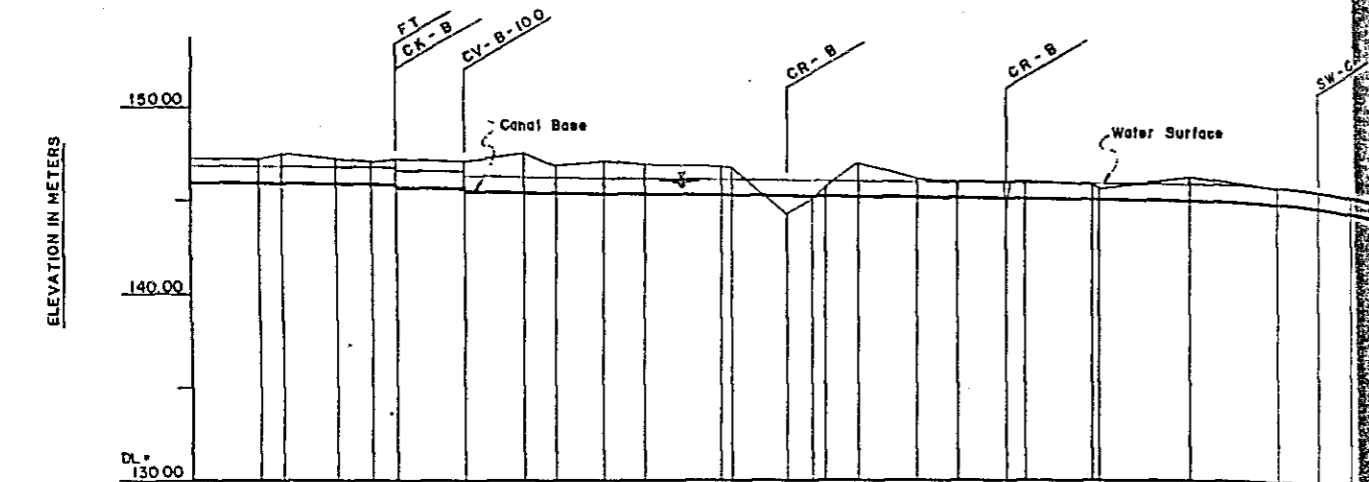


DISCHARGE CANAL TYPE AND SLOPE	Q = 1.992 m <sup>3</sup> /sec D TYPE 1 = 1/1.000										Q = 2.073 m <sup>3</sup> /sec										Q = 2.045 m <sup>3</sup> /sec									
CANAL BASE ELEVATION (m)	148.53										148.44										148.35									
WATER SURFACE ELEVATION (m)	149.49										149.39										149.30									
GROUND SURFACE ELEVATION (m)	149.01										148.91										148.81									
REDUCED DISTANCE (m)	27,230.0										27,130.0										27,030.0									
DISTANCE (m)	1723										1637										1551									
STATION NO.	136-140										141-144										145-154									

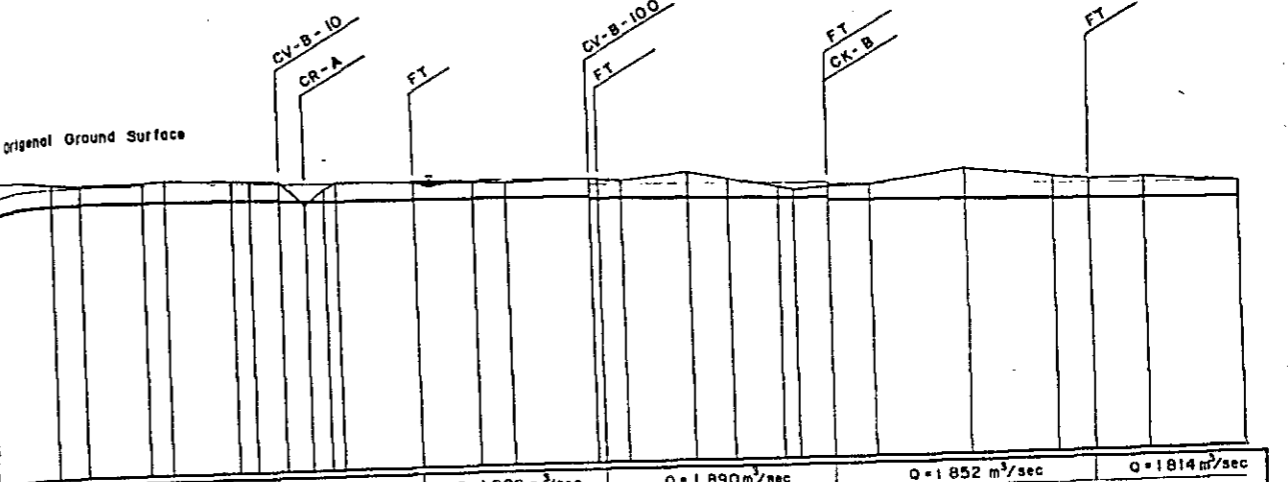
- REMARKS
- SP SIPHON
  - CV CULVERT
  - CD CHECK CUM DROP
  - DR DROP
  - CK CHECK
  - TO TURNOUT
  - FT FARM TURNOUT
  - SW SPILLWAY
  - MD WATER MEASURING DEVICE
  - CR CROSS DRAIN
  - BD BRIDGE



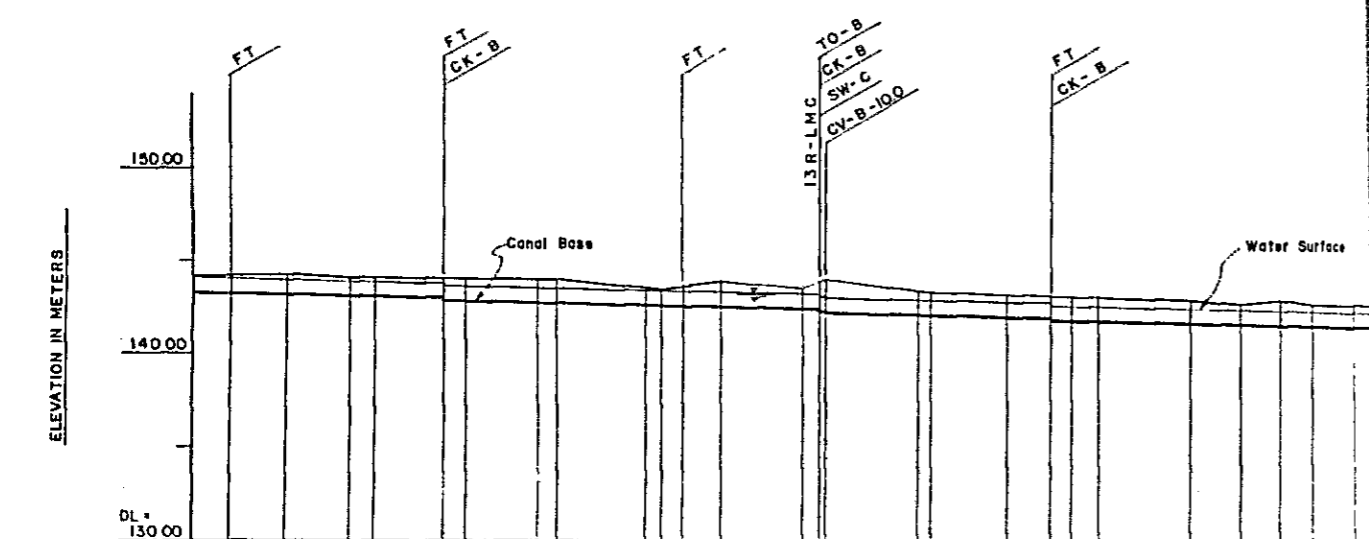
THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT  
 KINGDOM OF THAILAND  
 CANAL CROSS SECTION AND PROFILE -  
 CANAL PROFILE  
 HUAI KHON KAEN SUB-PROJECT  
 LEFT MAIN CANAL (3/5)  
 DATE: DWG. NO. 402 (4)  
 JAPAN INTERNATIONAL COOPERATION AGENCY



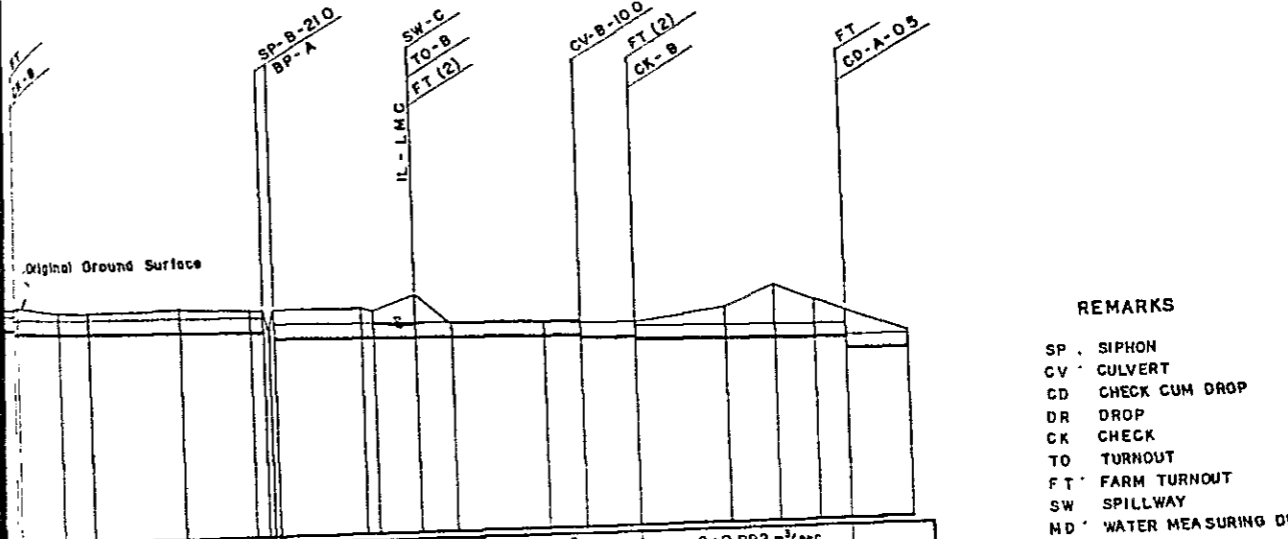
DISCHARGE, CANAL TYPE AND SLOPE	Q = 1 992 m <sup>3</sup> /sec		Q = 1 966 m <sup>3</sup> /sec	
CANAL BASE ELEVATION (m)	D TYPE		D TYPE	
WATER SURFACE ELEVATION (m)	1 : 1/3 000		1 : 1/3 000	
GROUND SURFACE ELEVATION (m)	147.30	147.20	146.30	145.80
REDUCED DISTANCE (m)	32,230.0	32,800.0	33,920.0	34,000.0
DISTANCE (m)	2000	1500	2000	1000
STATION NO.	161	162	167	172



DISCHARGE, CANAL TYPE AND SLOPE	Q = 1 928 m <sup>3</sup> /sec		Q = 1 890 m <sup>3</sup> /sec		Q = 1 852 m <sup>3</sup> /sec		Q = 1 814 m <sup>3</sup> /sec							
CANAL BASE ELEVATION (m)	D TYPE		D TYPE		D TYPE		D TYPE							
WATER SURFACE ELEVATION (m)	1 : 1/2 000		1 : 1/2 000		1 : 1/2 000		1 : 1/2 000							
GROUND SURFACE ELEVATION (m)	145.80	145.70	145.65	145.50	144.50	144.40	144.30	144.26						
REDUCED DISTANCE (m)	35,430.0	35,495.0	35,630.0	35,680.0	36,830.0	37,030.0	37,630.0	38,030.0						
DISTANCE (m)	2000	850	1330	500	1500	1100	2000	2000						
STATION NO.	177	178	179	180	181	182	183	184	185	186	187	188	189	190

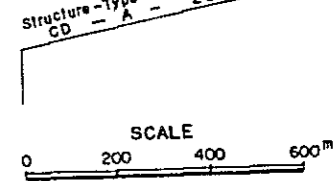


DISCHARGE, CANAL TYPE AND SLOPE	Q = 1 776 m <sup>3</sup> /sec		Q = 1 738 m <sup>3</sup> /sec		Q = 1 700 m <sup>3</sup> /sec		Q = 1 343 m <sup>3</sup> /sec		Q = 1 304 m <sup>3</sup> /sec		
CANAL BASE ELEVATION (m)	D TYPE		D TYPE		D TYPE		C TYPE		C TYPE		
WATER SURFACE ELEVATION (m)	1 : 1/2 000		1 : 1/2 000		1 : 1/2 000		1 : 1/2 000		1 : 1/2 000		
GROUND SURFACE ELEVATION (m)	144.10	144.20	144.30	144.40	144.50	144.60	143.30	143.20	143.10	143.00	
REDUCED DISTANCE (m)	38,030.0	38,110.0	38,230.0	38,375.0	38,430.0	38,580.0	39,030.0	39,200.0	39,300.0	39,350.0	
DISTANCE (m)	2000	800	1200	1430	550	1500	400	900	500	600	
STATION NO.	190	191	192	193	194	195	196	197	198	199	200

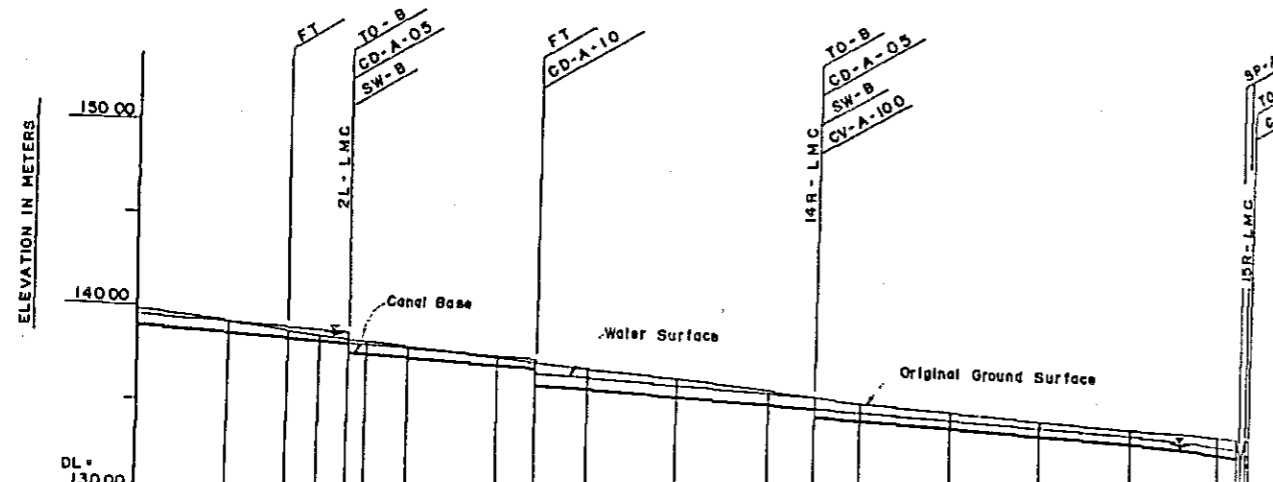


DISCHARGE, CANAL TYPE AND SLOPE	Q = 1 265 m <sup>3</sup> /sec		Q = 1 072 m <sup>3</sup> /sec		Q = 992 m <sup>3</sup> /sec					
CANAL BASE ELEVATION (m)	B TYPE		B TYPE		B TYPE					
WATER SURFACE ELEVATION (m)	1 : 1/2 000		1 : 1/2 000		1 : 1/2 000					
GROUND SURFACE ELEVATION (m)	142.60	142.60	142.60	142.60	142.60	142.60				
REDUCED DISTANCE (m)	41,300.0	41,300.0	41,300.0	41,300.0	41,300.0	41,300.0				
DISTANCE (m)	700	700	700	700	700	700				
STATION NO.	206	207	208	209	210	211	212	213	214	215

- REMARKS
- SP SIPHON
  - CV CULVERT
  - CD CHECK CUM DROP
  - DR DROP
  - CK CHECK
  - TO TURNOUT
  - FT FARM TURNOUT
  - SW SPILLWAY
  - MD WATER MEASURING DEVICE
  - CR CROSS DRAIN
  - BD BRIDGE

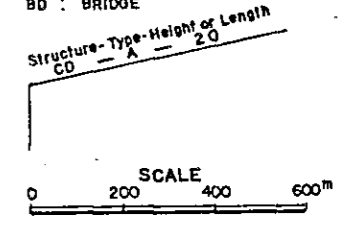


THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT  
 KINGDOM OF THAILAND  
 CANAL CROSS SECTION AND PROFILE  
 CANAL PROFILE  
 HUAI KHON KAEN SUB - PROJECT  
 LEFT MAIN CANAL (4/5)  
 DATE: Dwg. No. 402 (5)  
 JAPAN INTERNATIONAL COOPERATION AGENCY

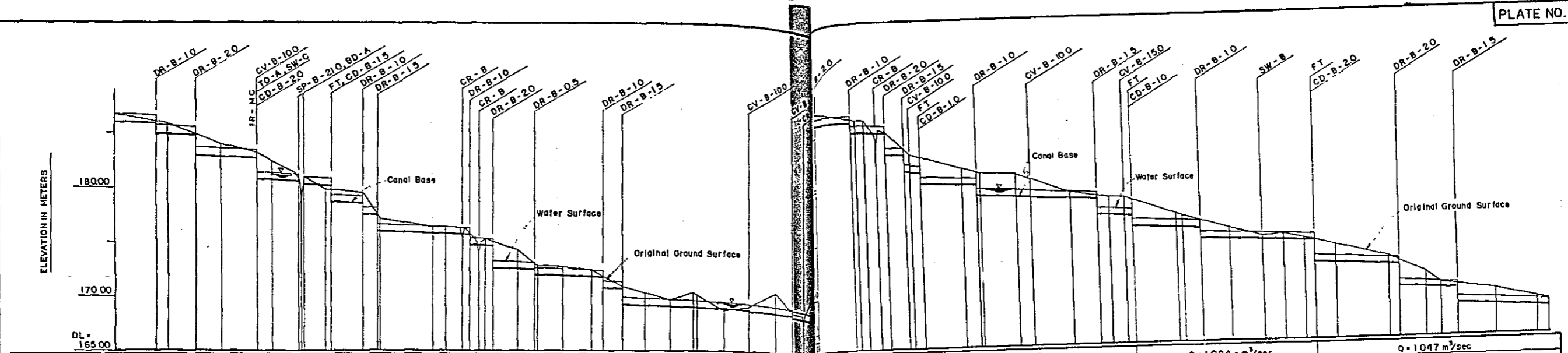


DISCHARGE, CANAL TYPE AND SLOPE	Q = 0.952 m³/sec		Q = 0.792 m³/sec		Q = 0.752 m³/sec		Q = 0.592 m³/sec	
CANAL BASE ELEVATION (m)	138.99	139.48	138.31	137.81	137.28	136.81	136.40	134.40
WATER SURFACE ELEVATION (m)	139.58	139.07	138.89	138.59	138.22	137.87	136.87	134.83
GROUND SURFACE ELEVATION (m)	139.80	139.30	138.70	138.40	137.80	137.20	136.90	134.90
REDUCED DISTANCE (m)	43,030.0	43,360.0	43,430.0	43,495.0	43,535.0	43,630.0	43,830.0	45,230.0
DISTANCE (m)	1300	2000	1300	650	400	950	2000	2000
STATION NO.	215	216	217	218	219	220	221	222

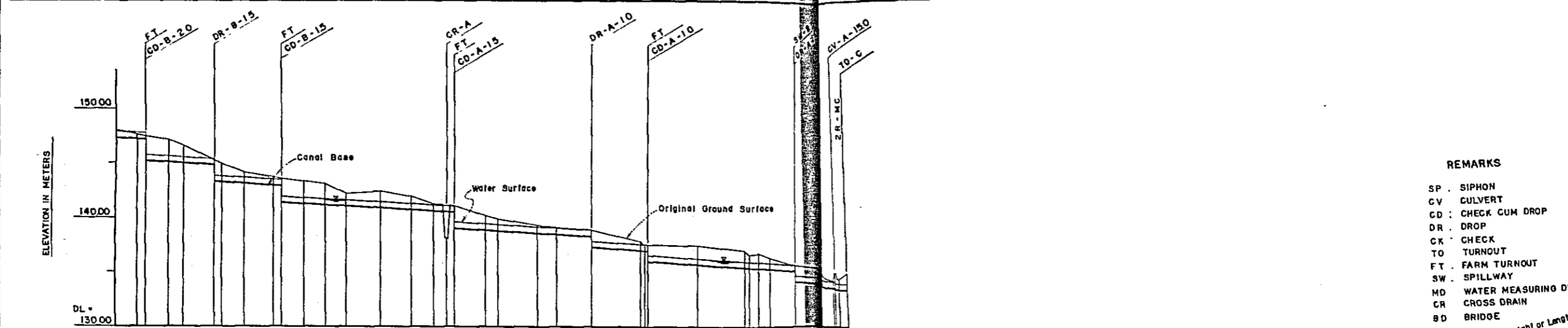
- REMARKS
- SP : SIPHON
  - CV : CULVERT
  - CD : CHECK CUM DROP
  - DR : DROP
  - CK : CHECK
  - TO : TURNOUT
  - FT : FARM TURNOUT
  - SW : SPILLWAY
  - MD : WATER MEASURING DEVICE
  - CR : CROSS DRAIN
  - BD : BRIDGE



THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT  
 KINGDOM OF THAILAND  
 CANAL CROSS SECTION AND PROFILE  
 CANAL PROFILE  
 HUAI KHON KAEN SUB-PROJECT  
 LEFT MAIN CANAL (5/5)  
 DATE: DWO NO. 402 (6)  
 JAPAN INTERNATIONAL COOPERATION AGENCY



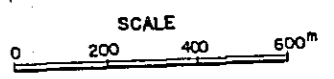
DISCHARGE, CANAL TYPE AND SLOPE	Q = 1.800 m <sup>3</sup> /sec C TYPE 1 = 1/1,200		Q = 1.175 m <sup>3</sup> /sec B TYPE 1 = 1/1,200		Q = 1.121 m <sup>3</sup> /sec B TYPE 1 = 1/1,000		Q = 1.084 m <sup>3</sup> /sec B TYPE 1 = 1/1,200		Q = 1.047 m <sup>3</sup> /sec A TYPE 1 = 1/700	
CANAL BASE ELEVATION (m)	186.00	185.87 (185.86)	185.74 (185.71)	185.61 (185.58)	185.48 (185.45)	185.35 (185.32)	185.22 (185.19)	185.09 (185.06)	184.96 (184.93)	184.83 (184.80)
WATER SURFACE ELEVATION (m)	186.79	186.56 (186.55)	186.43 (186.40)	186.30 (186.27)	186.17 (186.14)	186.04 (186.01)	185.91 (185.88)	185.78 (185.75)	185.65 (185.62)	185.52 (185.49)
GROUND SURFACE ELEVATION (m)	186.70	185.80	184.00	182.40	181.10	180.20	179.30	178.40	177.50	176.60
REDUCED DISTANCE (m)	00	1350	2000	3000	4000	5400	6000	6800	7200	7800
DISTANCE (m)	00	1350	2000	3000	4000	5400	6000	6800	7200	7800
STATION NO.	16	17	18	19	20	21	22	23	24	25



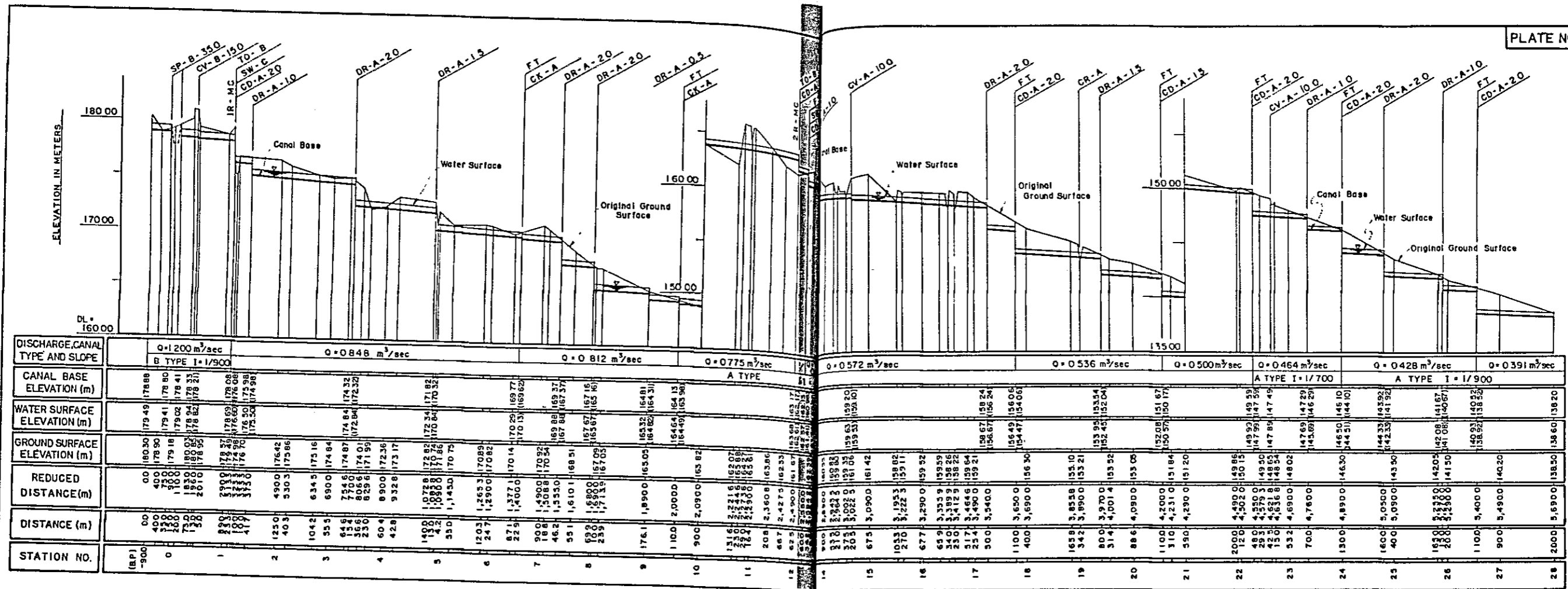
DISCHARGE, CANAL TYPE AND SLOPE	Q = 1.010 m <sup>3</sup> /sec		Q = 0.973 m <sup>3</sup> /sec A TYPE 1 = 1/700		Q = 0.936 m <sup>3</sup> /sec		Q = 0.900 m <sup>3</sup> /sec	
CANAL BASE ELEVATION (m)	147.33	147.18 (147.15)	147.03 (147.00)	146.88 (146.85)	146.73 (146.70)	146.58 (146.55)	146.43 (146.40)	146.28 (146.25)
WATER SURFACE ELEVATION (m)	147.92	147.77 (147.74)	147.62 (147.59)	147.47 (147.44)	147.32 (147.29)	147.17 (147.14)	147.02 (146.99)	146.87 (146.84)
GROUND SURFACE ELEVATION (m)	148.07	147.56	146.65	145.18	144.27	143.36	142.45	141.54
REDUCED DISTANCE (m)	5,800.0	5,879.7	5,910.0	5,940.3	5,970.6	6,000.9	6,031.2	6,061.5
DISTANCE (m)	433	797	303	516	1184	1136	300	1151
STATION NO.	29	30	31	32	33	34	35	36

REMARKS  
 SP . SIPHON  
 CV . CULVERT  
 CD : CHECK CUM DROP  
 DR . DROP  
 CK . CHECK  
 TO . TURNOUT  
 FT . FARM TURNOUT  
 SW . SPILLWAY  
 MD . WATER MEASURING DEVICE  
 CR . CROSS DRAIN  
 BD . BRIDGE

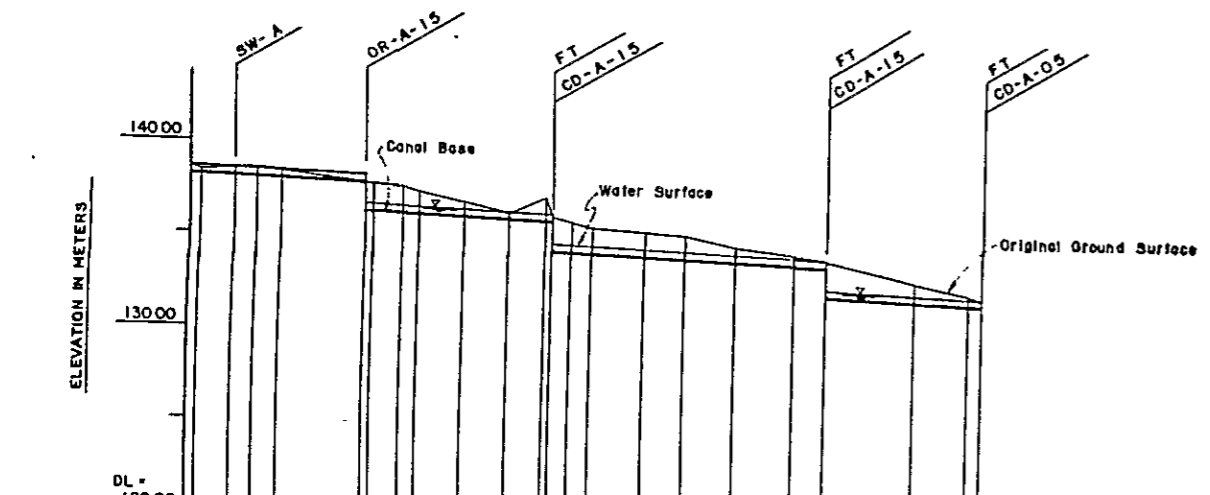
Structure-Type-Height or Length  
 CD - A - 20



THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT  
 KINGDOM OF THAILAND  
 CANAL CROSS SECTION AND PROFILE  
 CANAL PROFILE  
 HUI YAI SUB-PROJECT  
 MAIN CANAL  
 DATE :  
 JAPAN INTERNATIONAL COOPERATION AGENCY  
 DWG NO. 403

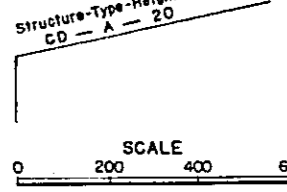


DISCHARGE, CANAL TYPE AND SLOPE	Q = 1.200 m <sup>3</sup> /sec B TYPE I = 1/900										Q = 0.848 m <sup>3</sup> /sec A TYPE										Q = 0.572 m <sup>3</sup> /sec A TYPE I = 1/700										Q = 0.464 m <sup>3</sup> /sec A TYPE I = 1/900									
CANAL BASE ELEVATION (m)	178.88, 178.80, 178.41, 178.31, 178.21, 178.08, 176.08, 174.98, 173.50, 174.98										173.34, 173.34, 173.34, 173.34, 173.34, 173.34, 173.34, 173.34, 173.34, 173.34										158.24, 158.24, 158.24, 158.24, 158.24, 158.24, 158.24, 158.24, 158.24, 158.24										146.29, 146.29, 146.29, 146.29, 146.29, 146.29, 146.29, 146.29, 146.29, 146.29									
WATER SURFACE ELEVATION (m)	179.49, 179.41, 179.02, 178.82, 178.72, 178.63, 176.63, 175.53, 175.53, 174.98										173.34, 173.34, 173.34, 173.34, 173.34, 173.34, 173.34, 173.34, 173.34, 173.34										158.67, 158.67, 158.67, 158.67, 158.67, 158.67, 158.67, 158.67, 158.67, 158.67										147.69, 147.69, 147.69, 147.69, 147.69, 147.69, 147.69, 147.69, 147.69, 147.69									
GROUND SURFACE ELEVATION (m)	180.30, 179.80, 179.18, 180.03, 180.65, 178.82, 176.30, 175.98, 175.53, 174.98										173.34, 173.34, 173.34, 173.34, 173.34, 173.34, 173.34, 173.34, 173.34, 173.34										158.67, 158.67, 158.67, 158.67, 158.67, 158.67, 158.67, 158.67, 158.67, 158.67										147.69, 147.69, 147.69, 147.69, 147.69, 147.69, 147.69, 147.69, 147.69, 147.69									
REDUCED DISTANCE (m)	0.00, 400.00, 730.00, 1100.00, 1830.00, 2010.00, 3100.00, 3300.00, 4900.00, 5300.00										1400.00, 1400.00, 1400.00, 1400.00, 1400.00, 1400.00, 1400.00, 1400.00, 1400.00, 1400.00										2000.00, 2000.00, 2000.00, 2000.00, 2000.00, 2000.00, 2000.00, 2000.00, 2000.00, 2000.00										2400.00, 2400.00, 2400.00, 2400.00, 2400.00, 2400.00, 2400.00, 2400.00, 2400.00, 2400.00									
DISTANCE (m)	0.00, 400.00, 730.00, 1100.00, 1830.00, 2010.00, 3100.00, 3300.00, 4900.00, 5300.00										1400.00, 1400.00, 1400.00, 1400.00, 1400.00, 1400.00, 1400.00, 1400.00, 1400.00, 1400.00										2000.00, 2000.00, 2000.00, 2000.00, 2000.00, 2000.00, 2000.00, 2000.00, 2000.00, 2000.00										2400.00, 2400.00, 2400.00, 2400.00, 2400.00, 2400.00, 2400.00, 2400.00, 2400.00, 2400.00									
STATION NO.	(EP) -900, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12										13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28										29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50																			



DISCHARGE, CANAL TYPE AND SLOPE	Q = 0.391 m <sup>3</sup> /sec A TYPE I = 1/900										Q = 0.354 m <sup>3</sup> /sec A TYPE I = 1/900										Q = 0.317 m <sup>3</sup> /sec A TYPE I = 1/900									
CANAL BASE ELEVATION (m)	138.20, 138.20, 138.20, 138.20, 138.20, 138.20, 138.20, 138.20, 138.20, 138.20										133.66, 133.66, 133.66, 133.66, 133.66, 133.66, 133.66, 133.66, 133.66, 133.66										132.66, 132.66, 132.66, 132.66, 132.66, 132.66, 132.66, 132.66, 132.66, 132.66									
WATER SURFACE ELEVATION (m)	138.60, 138.60, 138.60, 138.60, 138.60, 138.60, 138.60, 138.60, 138.60, 138.60										133.66, 133.66, 133.66, 133.66, 133.66, 133.66, 133.66, 133.66, 133.66, 133.66										132.66, 132.66, 132.66, 132.66, 132.66, 132.66, 132.66, 132.66, 132.66, 132.66									
GROUND SURFACE ELEVATION (m)	138.50, 138.40, 138.50, 138.50, 138.50, 138.50, 138.50, 138.50, 138.50, 138.50										133.66, 133.66, 133.66, 133.66, 133.66, 133.66, 133.66, 133.66, 133.66, 133.66										132.66, 132.66, 132.66, 132.66, 132.66, 132.66, 132.66, 132.66, 132.66, 132.66									
REDUCED DISTANCE (m)	5,690.00, 5,712.00, 5,790.00, 5,800.00, 5,890.00, 6,075.00, 6,090.00, 6,155.00, 6,190.00, 6,290.00										6,396.00, 6,470.00, 6,490.00, 6,530.00, 6,570.00, 6,690.00, 6,779.00, 6,890.00, 6,990.00, 7,090.00										7,290.00, 7,409.00, 7,440.00, 7,530.00, 7,620.00, 7,710.00, 7,800.00, 7,890.00, 7,980.00, 8,070.00									
DISTANCE (m)	5,690.00, 5,712.00, 5,790.00, 5,800.00, 5,890.00, 6,075.00, 6,090.00, 6,155.00, 6,190.00, 6,290.00										6,396.00, 6,470.00, 6,490.00, 6,530.00, 6,570.00, 6,690.00, 6,779.00, 6,890.00, 6,990.00, 7,090.00										7,290.00, 7,409.00, 7,440.00, 7,530.00, 7,620.00, 7,710.00, 7,800.00, 7,890.00, 7,980.00, 8,070.00									
STATION NO.	28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50										51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72										73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100									

- REMARKS
- SP SIPHON
  - CV CULVERT
  - CD CHECK CUM DROP
  - DR DROP
  - CK CHECK
  - TO TURNOUT
  - FT FARM TURNOUT
  - SW SPILLWAY
  - MD WATER MEASURING DEVICE
  - CR CROSS DRAIN
  - BD BRIDGE



THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT

KINGDOM OF THAILAND

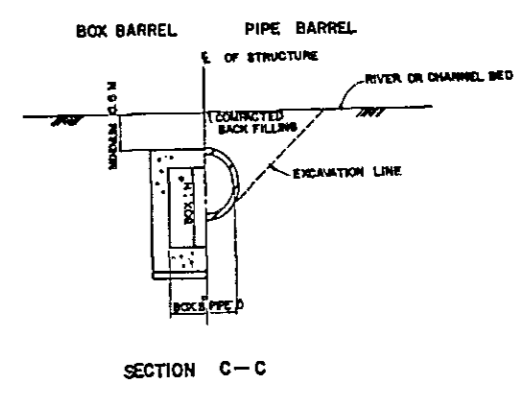
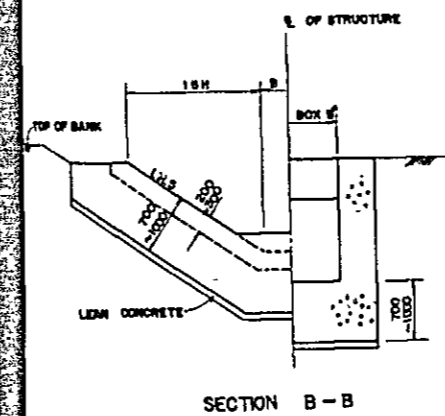
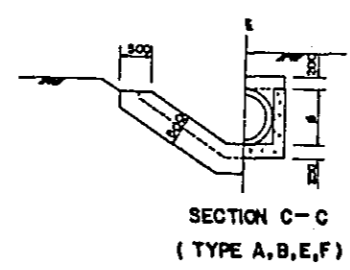
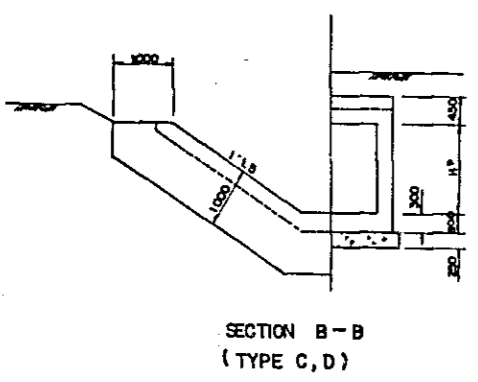
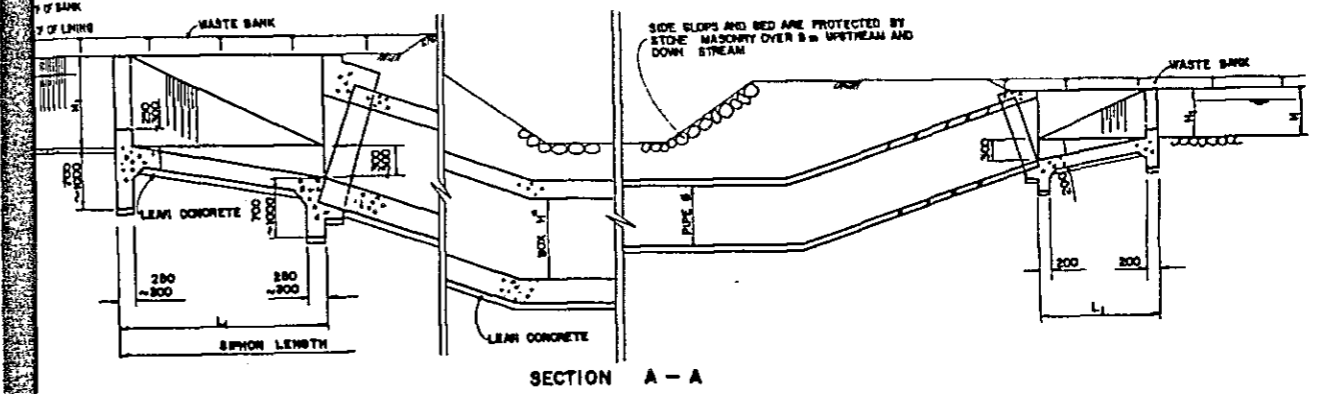
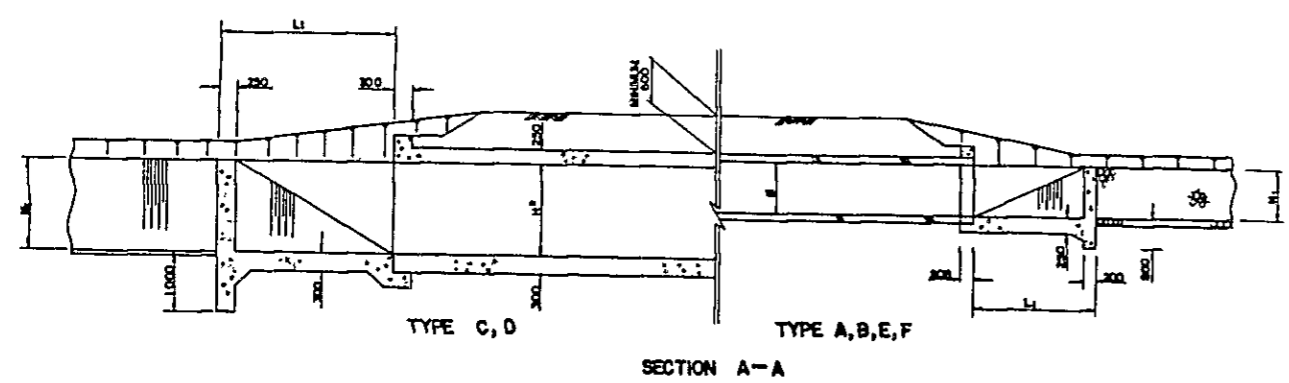
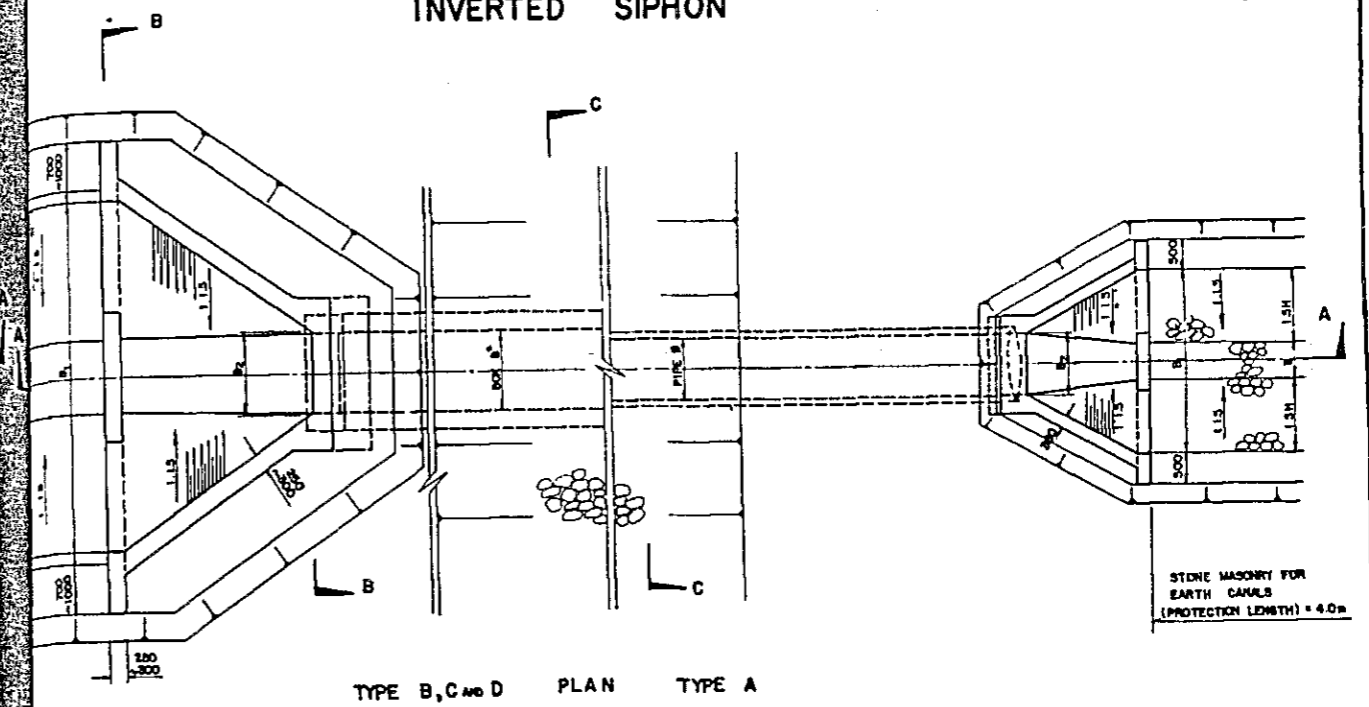
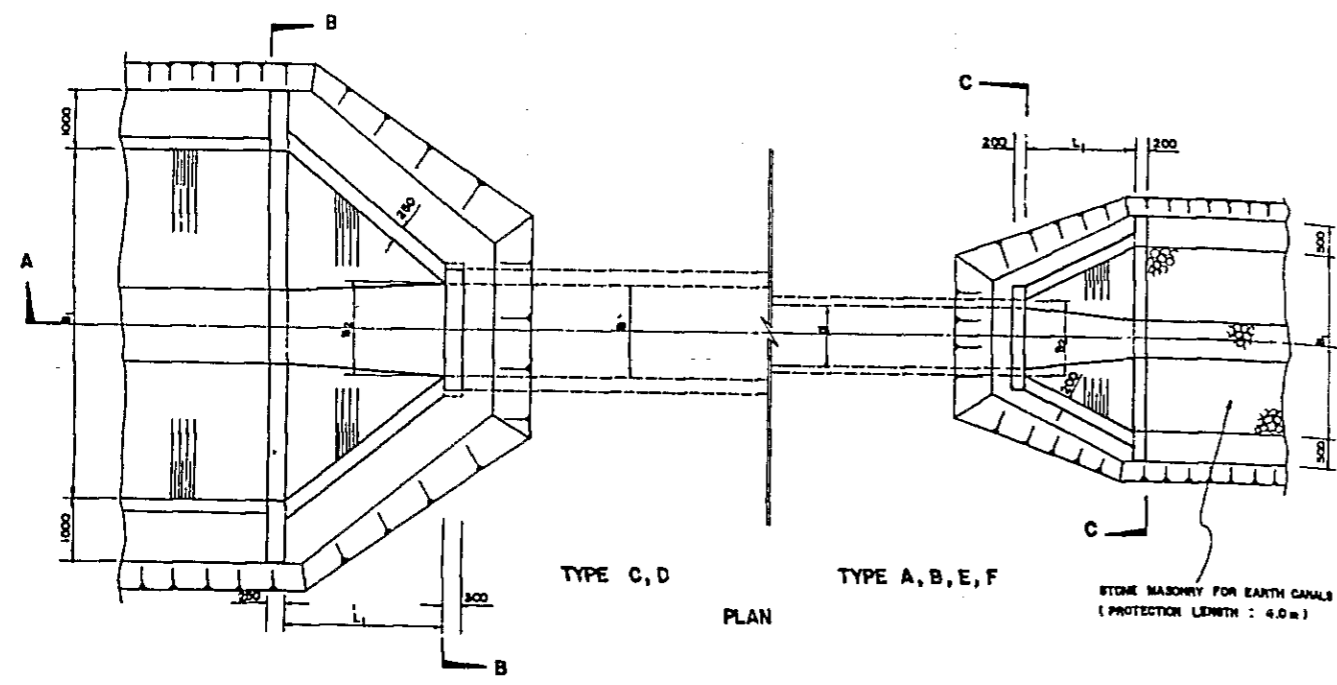
CANAL CROSS SECTION AND PROFILE  
CANAL PROFILE  
KHLONG CHALIANG LAB SUB-PROJECT  
MAIN CANAL

DATE: \_\_\_\_\_ DWO NO. 404

JAPAN INTERNATIONAL COOPERATION AGENCY

CULVERT

INVERTED SIPHON



DIMENSION TABLE OF CULVERT

TYPE	CANAL TYPE	Q (m <sup>3</sup> /sec)	BARREL		L <sub>1</sub> (m)	B <sub>1</sub> (m)	B <sub>2</sub> (m)	H <sub>1</sub> (m)
			TYPE	SIZE (m)				
A	MAIN	0~10	PIPE	φ 8	20	B+3H	0.8	H
B	-do-	10~20	-do-	φ 10	25	-do-	1.0	H
C	-do-	20~30	BOX	8' x 8'	35	-do-	1.5	H
D	-do-	30~40	-do-	10' x 10'	35	-do-	1.7	H
E	LATERAL SUB-LATERAL	0~0.8	PIPE	φ 8	20	-do-	0.8	H
F	-do-	0.8~1.0	-do-	φ 10	25	-do-	1.0	H

NOTE: 'B' IS CANAL BASE WIDTH AND 'H' IS CANAL HEIGHT IN METERS

NOTES 1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE AND THE DIMENSIONS WHICH IS NOT SHOWN ON TOPOGRAPHY AND CANAL SIZES

2. THE DRAWING IS PRELIMINARY AND NOT TO BE USED FOR CONSTRUCTION

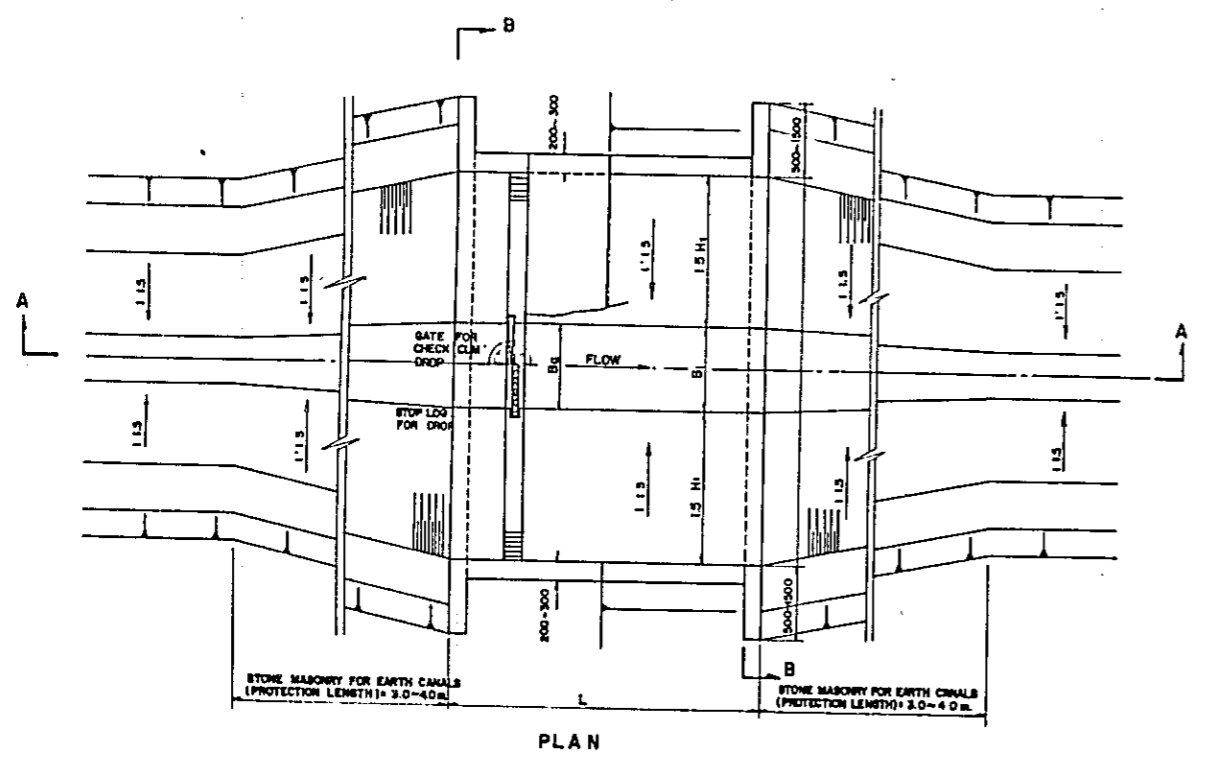
TYPE	Q (m <sup>3</sup> /sec)	BARREL		L <sub>1</sub> (m)	B <sub>1</sub> (m)	B <sub>2</sub> (m)	H <sub>1</sub> (m)
		TYPE	SIZE (m)				
A	0~10	PIPE	φ 8	20	B+3H	1.0	H
B	10~20	BOX	8' x 8' (10' x 10')	25	B+3H	1.0	H
C	20~30	BOX	8' x 8' (10' x 10')	35	B+3H	1.3	H
D	30~40	BOX	8' x 8' (10' x 10')	35	B+3H	1.3	H

NOTE: 'B' IS CANAL BASE WIDTH AND 'H' IS CANAL HEIGHT IN METERS

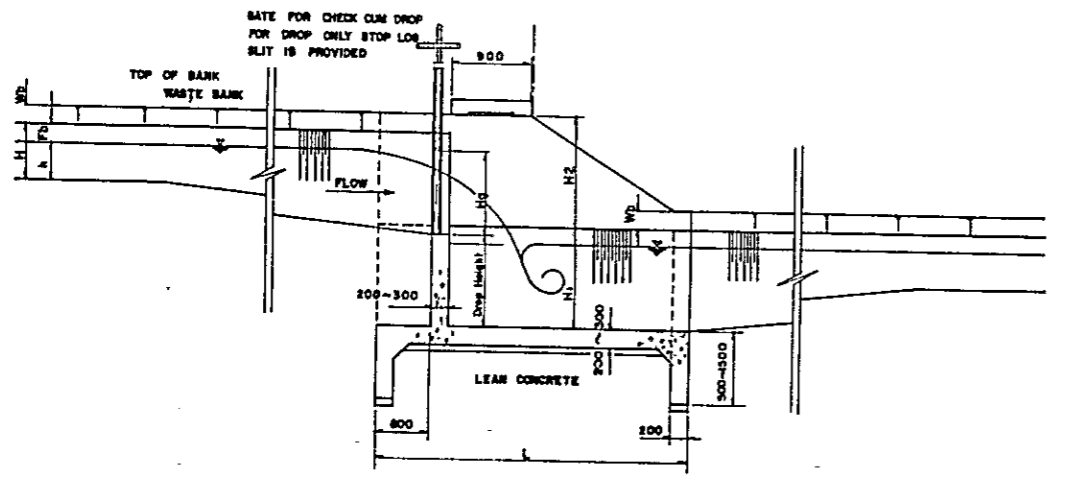
THE UFFER PASAK MEDIUM SCALE IRRIGATION PROJECT  
 KINGDOM OF THAILAND  
 RELATED STRUCTURE  
 CULVERT, INVERTED SIPHON  
 DATE \_\_\_\_\_ DWG. NO. 501  
 JAPAN INTERNATIONAL COOPERATION AGENCY



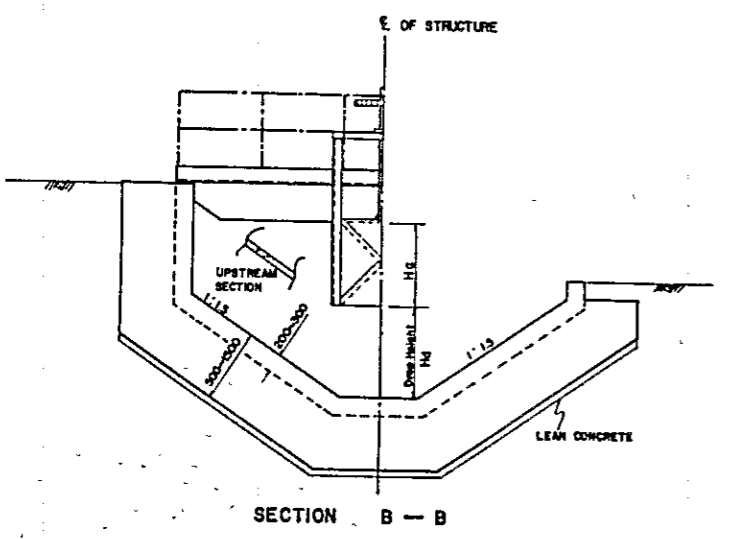
### CHECK CUM DROP, DROP



PLAN



SECTION A-A

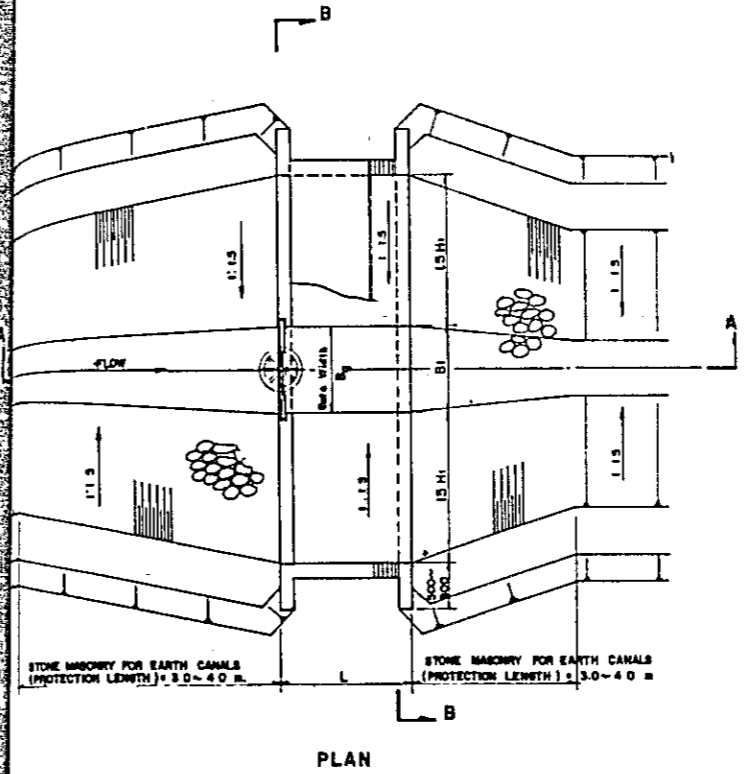


SECTION B-B

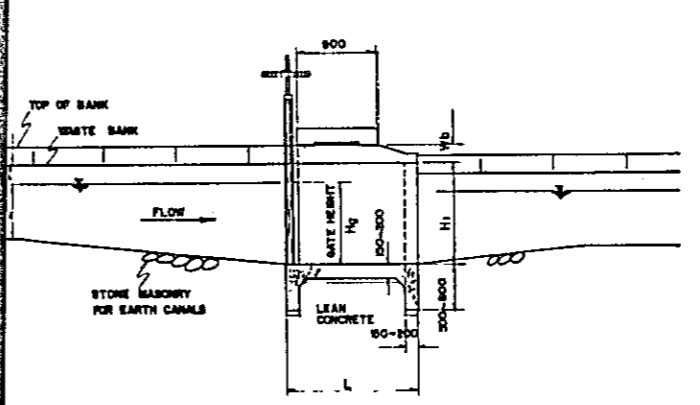
TYPE	CANAL TYPE	Q (m <sup>3</sup> /sec)	GATE SIZE <sup>1)</sup> B <sub>g</sub> x H <sub>g</sub> x Nos (m)	DROP HEIGHT (m)	L	H <sub>1</sub>	H <sub>2</sub>
A	MAIN	0~1.0	0.9 x 0.9 x 1	H <sub>1</sub> (DARY)	1.5H <sub>1</sub> + H <sub>1</sub> 2.0	H <sub>1</sub> + P <sub>1</sub>	H <sub>1</sub> + P <sub>1</sub> + H <sub>2</sub>
B	-	1.0~2.0	1.2 x 1.2 x 1	-	-	-	-
C	-	2.0~3.0	1.0 x 1.0 x 2	-	-	-	-
D	-	3.0~4.0	1.2 x 1.2 x 2	-	-	-	-
E	LATERAL SUB-LATERAL	0~0.5	0.9 x 0.9 x 1	-	-	-	-
F	-	0.5~1.0	1.2 x 1.2 x 1	-	-	-	-

NOTE: L, P<sub>1</sub> IS FREEBOARD OF CANAL. H<sub>2</sub> IS HEIGHT OF WASTE BANK IN METERS.  
 1.5H<sub>1</sub> IS FOR CHECK CUM DROP FOR DROP STOP LOS.  
 NOTES: 1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.  
 2. THE DIMENSIONS WHICH IS NOT SHOWN ARE TO BE TAKEN FROM TOPOGRAPHY AND CANAL SECTIONS.  
 3. THE DRAWING IS PRELIMINARY AND NOT TO BE USED FOR CONSTRUCTION.

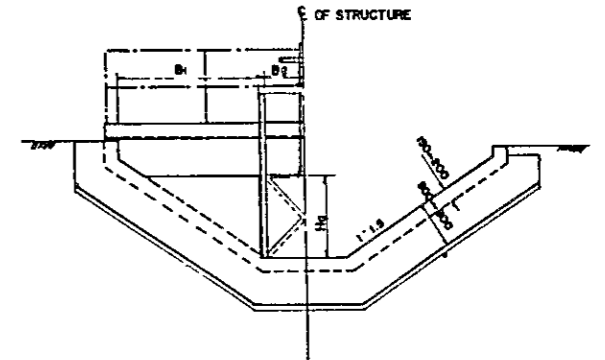
### CHECK



PLAN



SECTION A-A



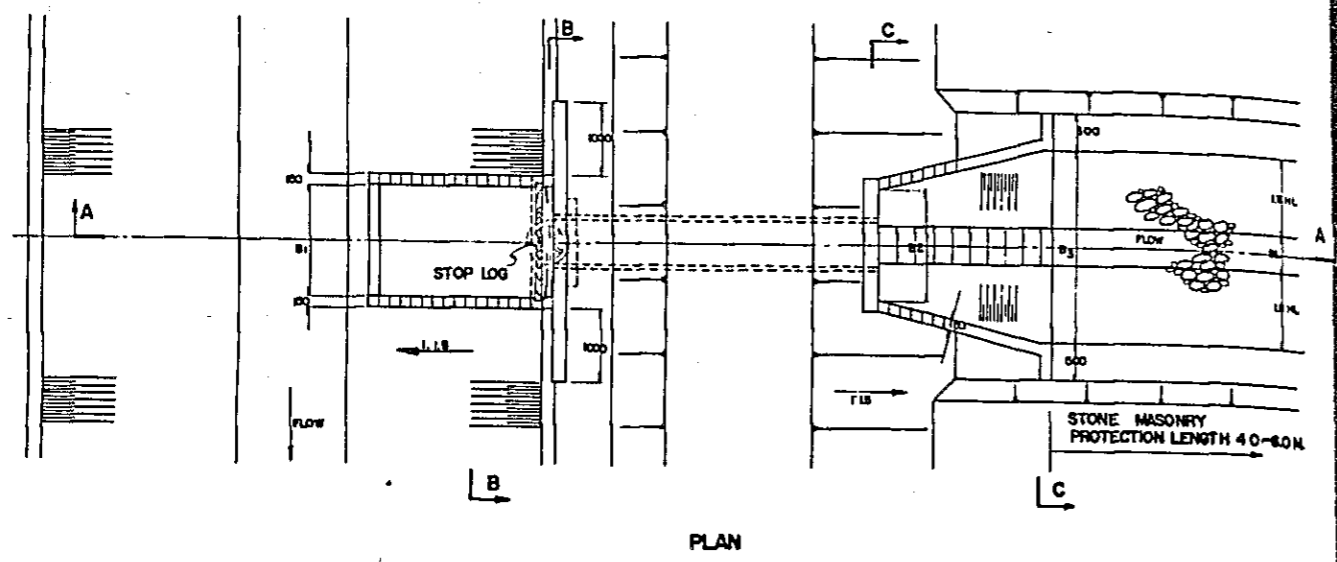
SECTION B-B

TYPE	CANAL TYPE	Q (m <sup>3</sup> /sec)	GATE SIZE B <sub>g</sub> x H <sub>g</sub> x Nos (m)	L (m)	H <sub>1</sub> (m)	B <sub>1</sub> (m)
A	MAIN	0~1.0	0.9 x 0.9 x 1	1.5	H <sub>1</sub> + P <sub>1</sub>	H <sub>1</sub>
B	-	1.0~2.0	1.2 x 1.2 x 1	2.0	-	-
C	-	2.0~3.0	1.0 x 1.0 x 2	3.5	-	2H <sub>1</sub> + 0.2
D	-	3.0~4.0	1.2 x 1.2 x 2	4.0	-	-
E	LATERAL SUB-LATERAL	0~0.5	0.9 x 0.9 x 1	1.5	-	H <sub>1</sub>
F	-	0.5~1.0	1.2 x 1.2 x 1	2.0	-	-

NOTE: P<sub>1</sub> IS FREEBOARD OF CANAL IN METERS.

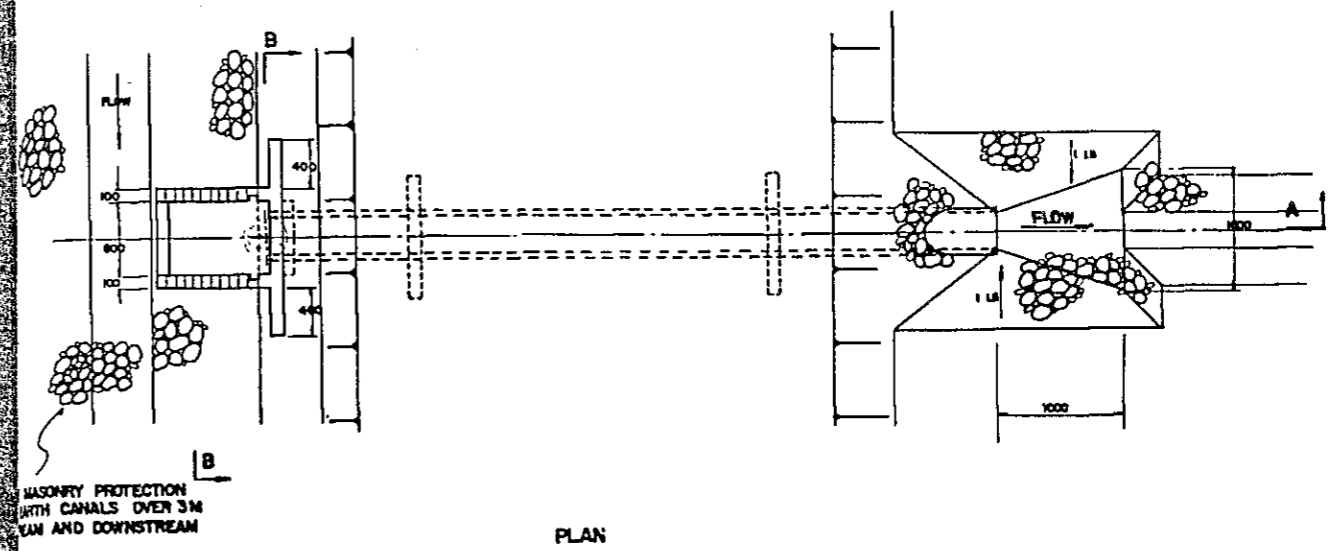
THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT	
KINGDOM OF THAILAND	
RELATED STRUCTURE CHECK CUM DROP, DROP, CHECK	
DATE:	DWG. NO. 502
JAPAN INTERNATIONAL COOPERATION AGENCY	

TURNOUT

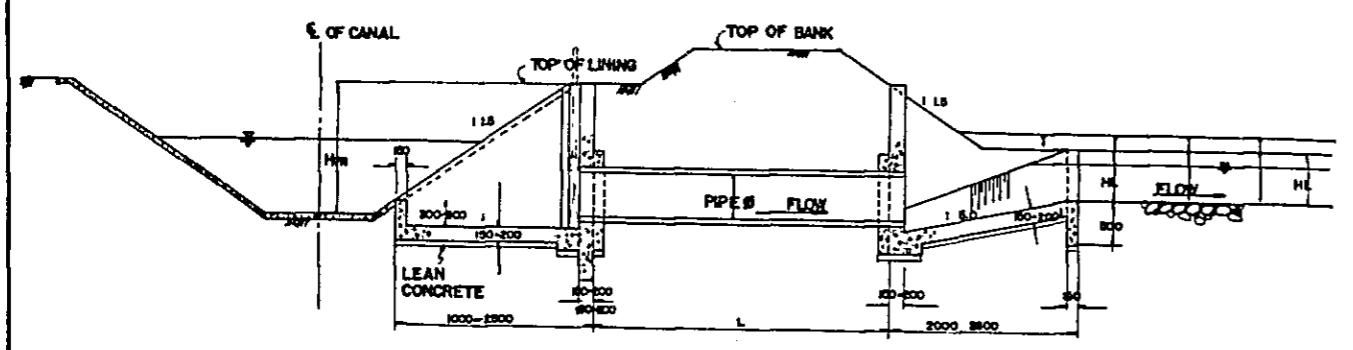


PLAN

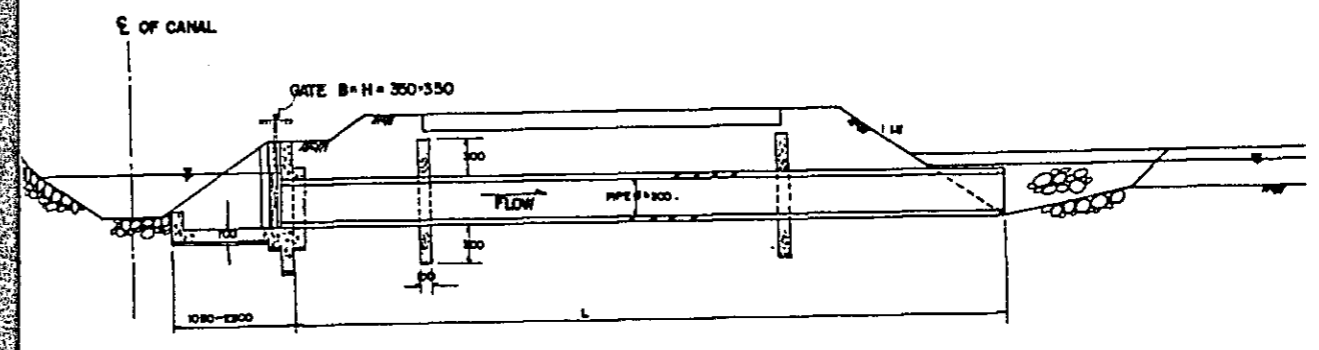
FARM TURNOUT



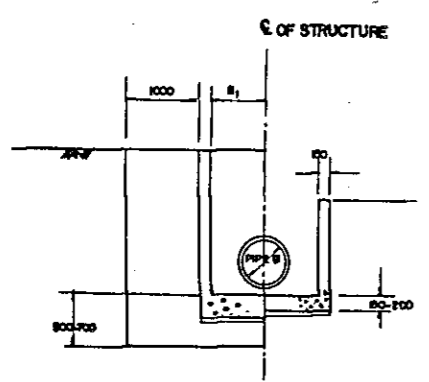
PLAN



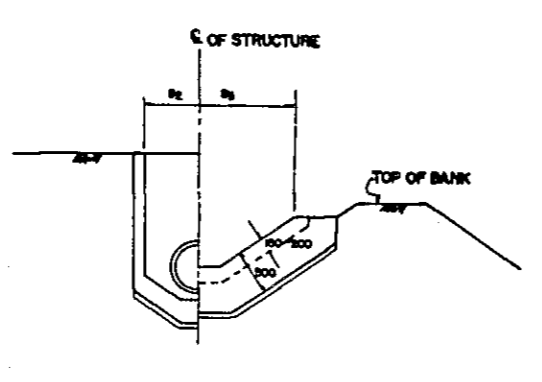
SECTION A-A



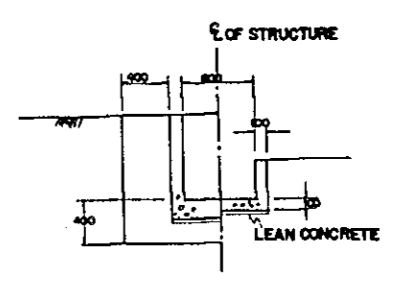
SECTION A-A



SECTION B-B



SECTION C-C

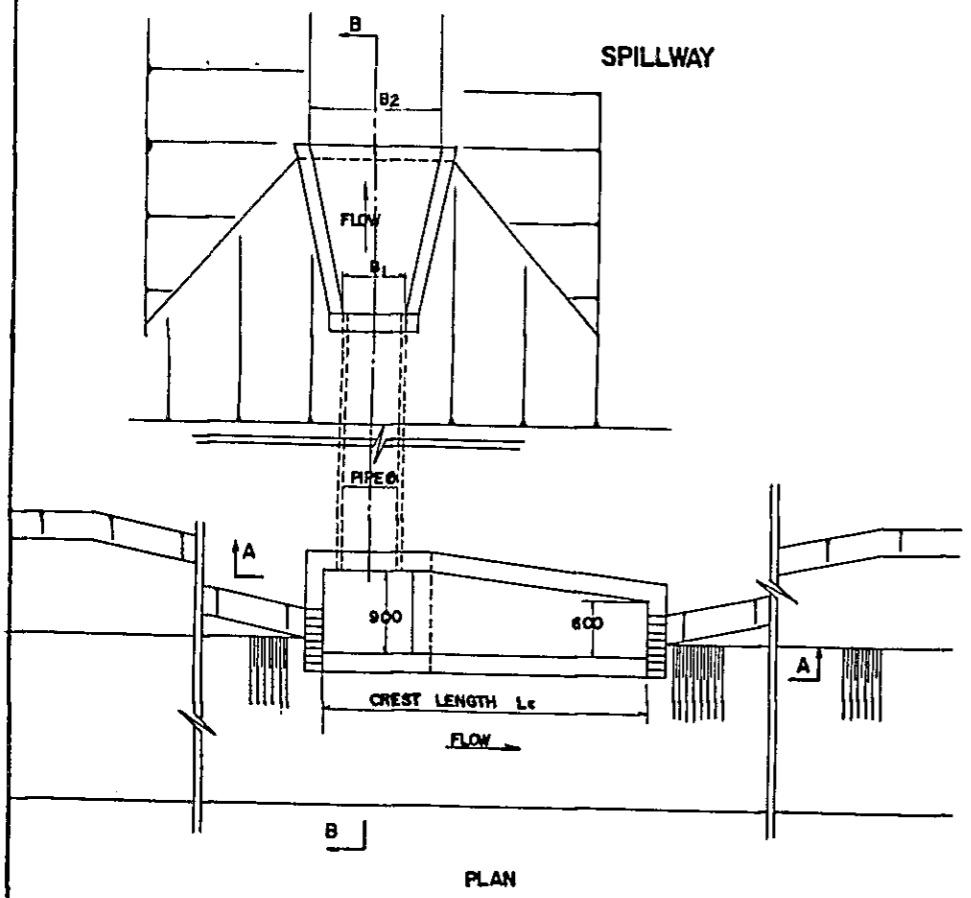


SECTION B-B

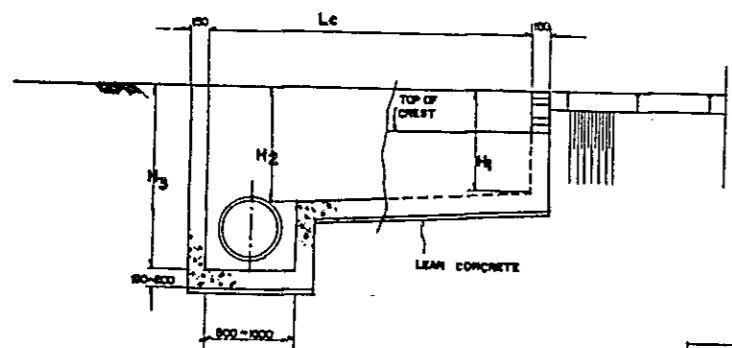
TYPE	Q (m/sec)	PIPE DIA (m)	B <sub>1</sub> (m)	B <sub>2</sub> (m)	B <sub>3</sub> (m)	L (m)	
						UP ROAD SIDE	OP D.M. ROAD
A	0.04 ~ 0.1	0.3	1.0	1.0	BL-3H	675-710	2.75-3.10
B	0.1 ~ 0.4	0.6	1.5	1.5	BL-3H	675-710	2.75-3.10
C	0.4 ~	0.8	1.8	1.8	BL-3H	675-710	2.75-3.10

NOTES  
 1. ALL DIMENSION ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN AND THE DIMENSION WHICH IS NOT SHOWN ARE DEPENDENT ON TOPOGRAPHY AND CANAL SIZES  
 2. THE DRAWING IS PRELIMINARY AND NOT TO SCALE

THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT  
 KINGDOM OF THAILAND  
 RELATED STRUCTURE  
 TURNOUT, FARM TURNOUT  
 DATE: \_\_\_\_\_ DWG. NO. 503  
 JAPAN INTERNATIONAL COOPERATION AGENCY

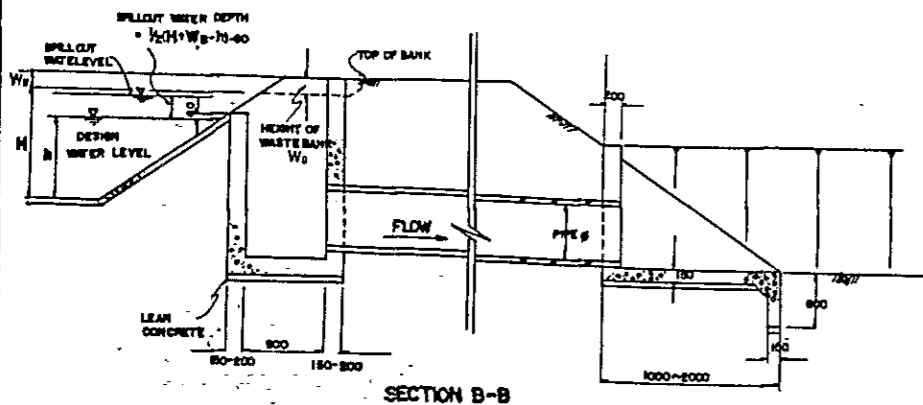


PLAN

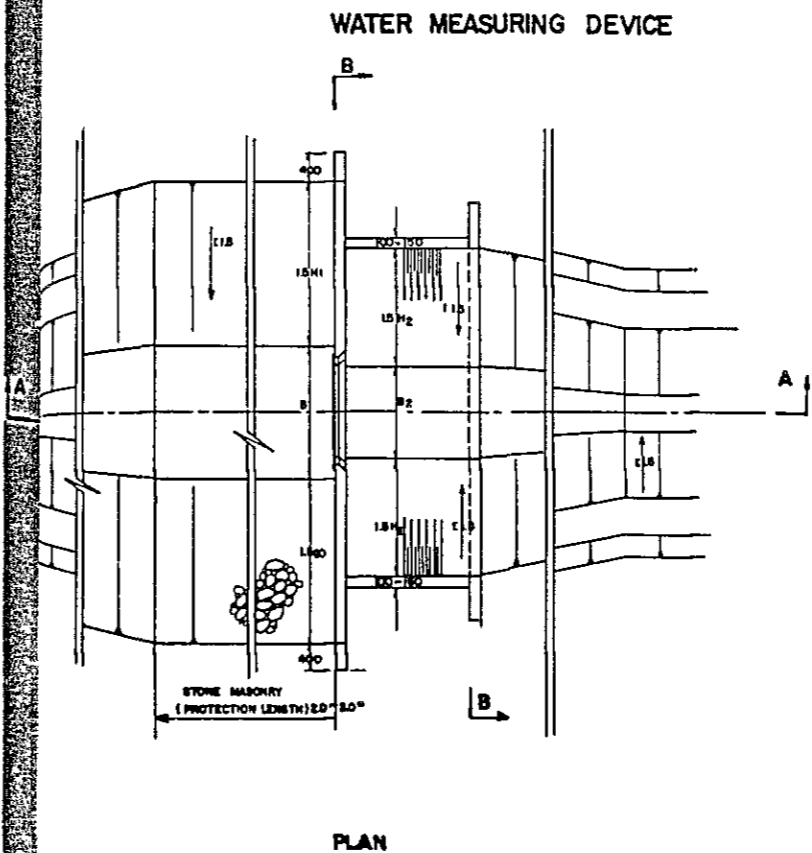


SECTION A-A

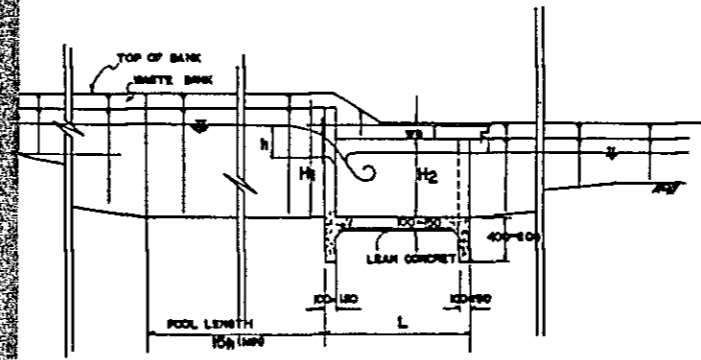
TYPE	Q (m <sup>3</sup> /sec)	Lc (m)	H <sub>1</sub> (m)	H <sub>2</sub> (m)	H <sub>3</sub> (m)	PIPE DIA (m)	B <sub>1</sub> (m)	B <sub>2</sub> (m)
A	0 ~ 0.1	1.50	0.40	0.50	1.00	0.30	0.40	0.80
B	0.1 ~ 0.3	2.50	0.55	0.65	1.85	0.60	0.75	1.50
C	0.3 ~ 0.5	3.50	0.90	0.80	2.00	0.80	0.75	1.50



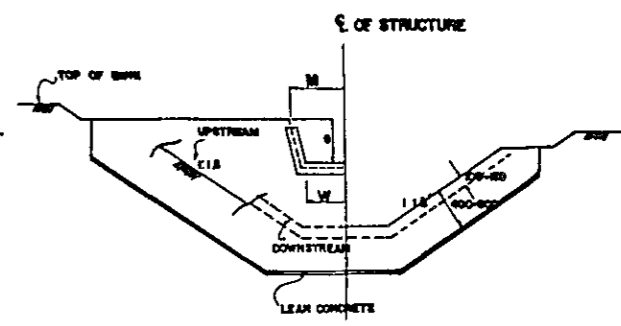
SECTION B-B



PLAN



SECTION A-A



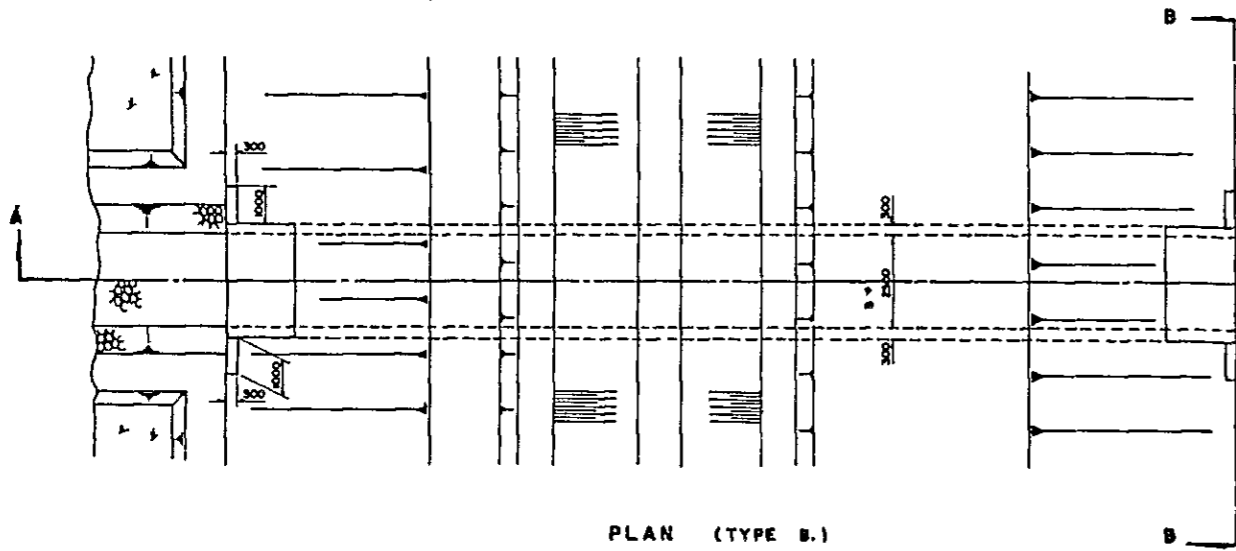
SECTION B-B

TYPE	Q (m <sup>3</sup> /sec)	F (m)	h (m)	M (m)	G (m)	W (m)	L (m)	H <sub>1</sub> (m)	H <sub>2</sub> (m)	B <sub>1</sub> (m)	B <sub>2</sub> (m)
A	0 ~ 0.1	0.20	0.20	0.90	0.57	0.81	1.50	0.80	0.80	0.90	0.81
B	0.1 ~ 0.3	0.30	0.30	1.22	0.61	0.81	1.50	1.10	0.80	1.40	0.91
C	0.3 ~ 0.5	0.41	0.41	1.52	0.61	1.22	2.00	1.4	1.02	1.80	1.22
D	0.5 ~ 1.0	0.51	0.51	1.83	0.61	1.52	2.50	1.72	1.27	2.00	1.52

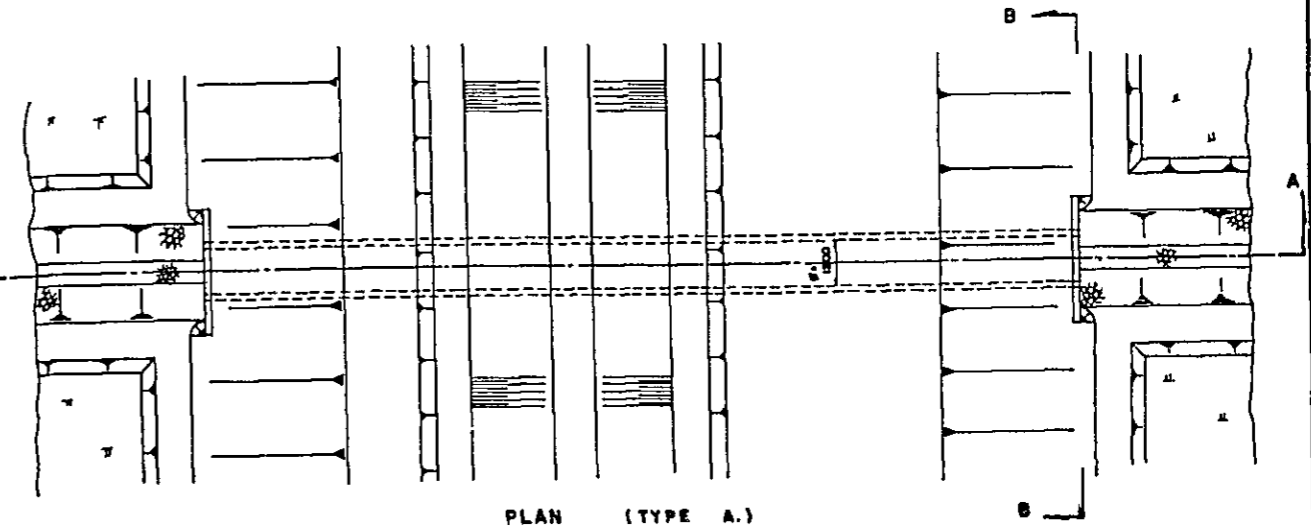
NOTES  
 1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN AND THE DIMENSION WHICH IS NOT SHOWN ARE DEPENDENT ON TOPOGRAPHY AND CANAL SIZES  
 2. THE DRAWING IS PRELIMINARY AND NOT TO SCALE

THE UPPER PASAK MEDIUM SCALE  
 IRRIGATION PROJECT  
 KINGDOM OF THAILAND  
 RELATED STRUCTURE  
 SPILLWAY  
 WATER MEASURING DEVICE  
 DATE : \_\_\_\_\_ DWG. NO. 504  
 JAPAN INTERNATIONAL COOPERATION AGENCY

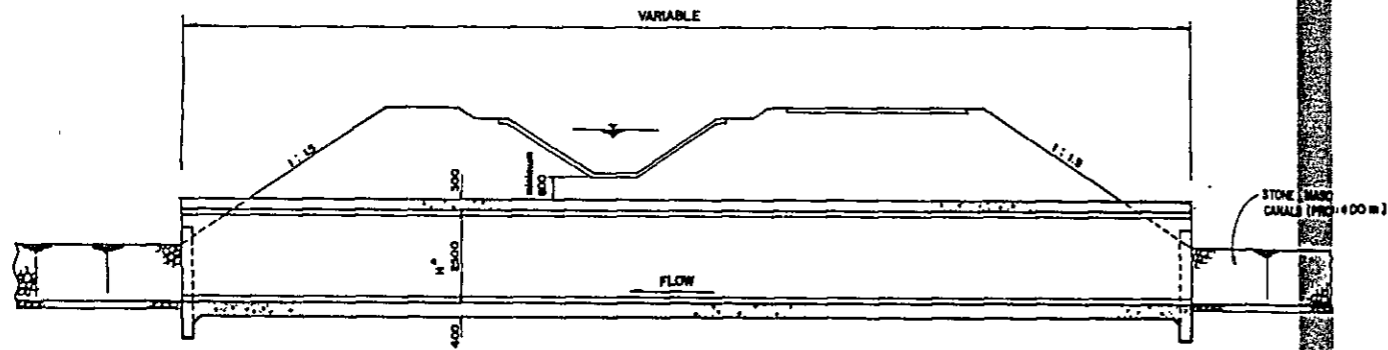
CROSS DRAIN



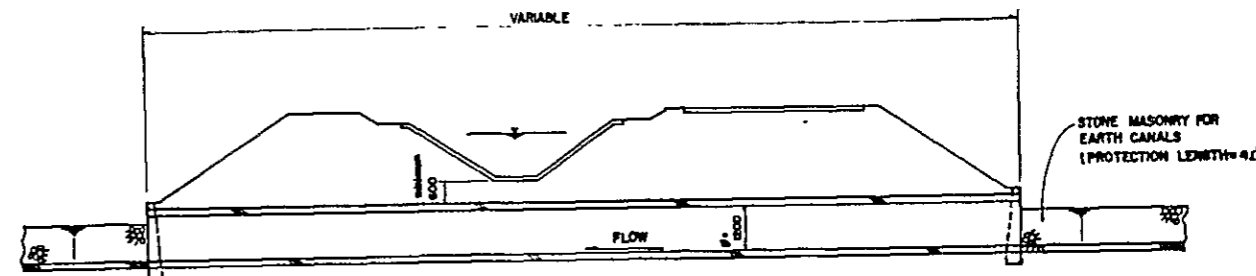
PLAN (TYPE B.)



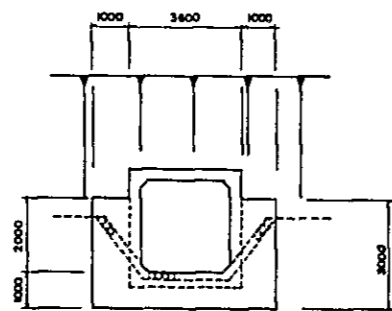
PLAN (TYPE A.)



SECTION A-A (TYPE B.)



SECTION A-A (TYPE A.)

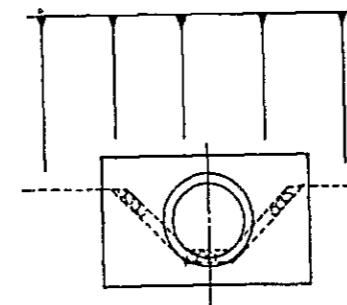


SECTION B-B (TYPE B.)

INLET AND OUTLET

DIMENSION TABLE DRAIN

TYPE	INLET SIZE (mm)	OUTLET SIZE (mm)
A	1000	1000
B	1000	1000

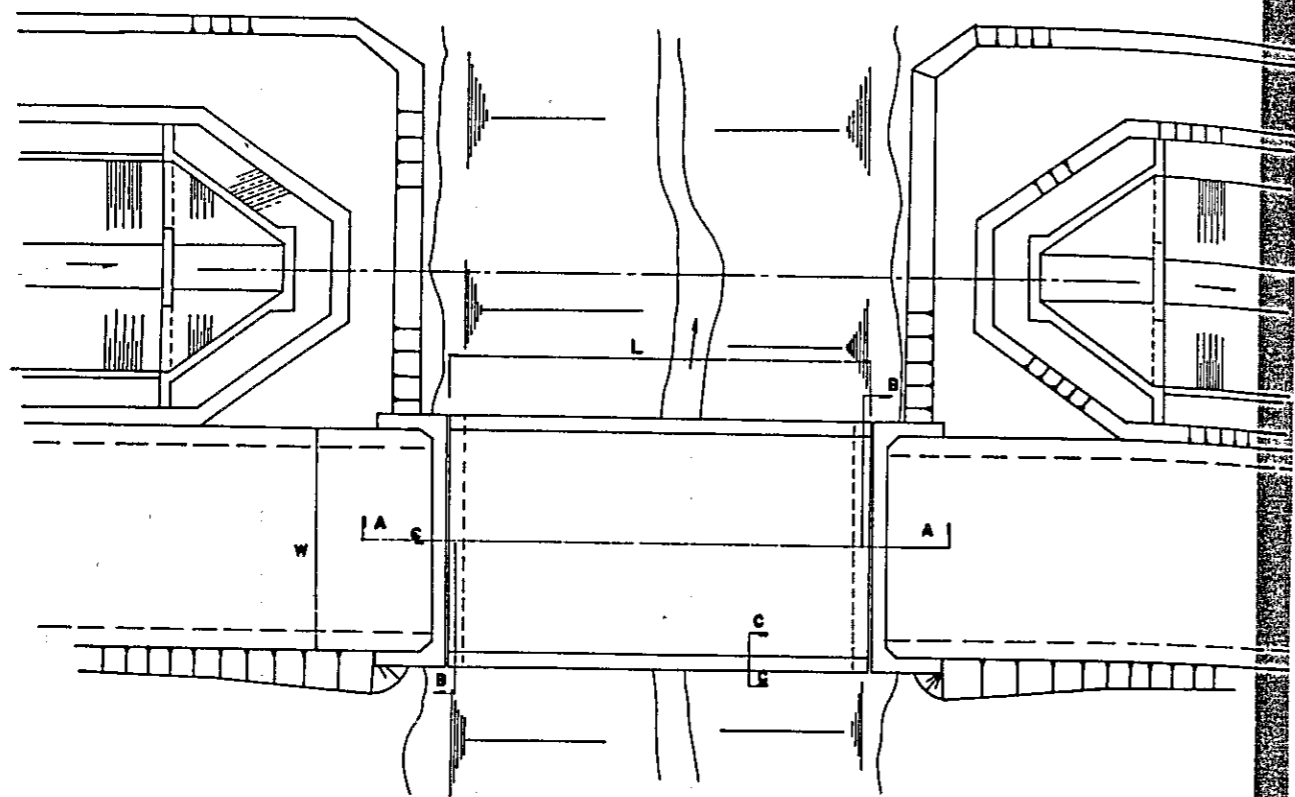


SECTION B-B (TYPE A.)

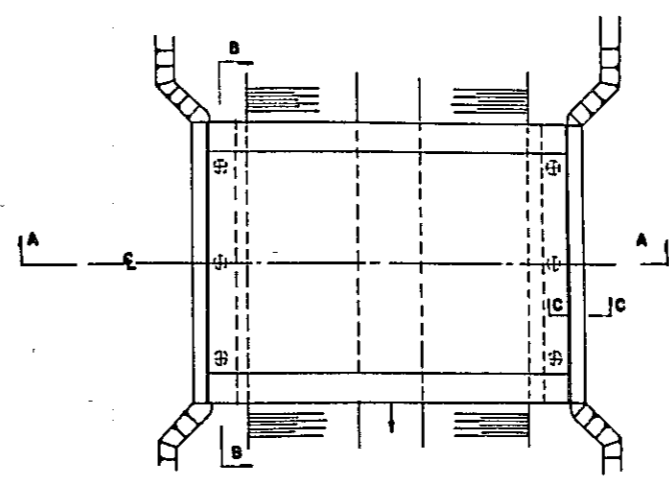
INLET AND OUTLET

- NOTES
1. ALL DIMENSION ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN AND THE DIMENSION WHICH IS NOT SHOWN ARE DEPENDENT ON TOPOGRAPHY AND CANAL SIZES
  2. THE DRAWING IS PRELIMINARY AND NOT TO SCALE

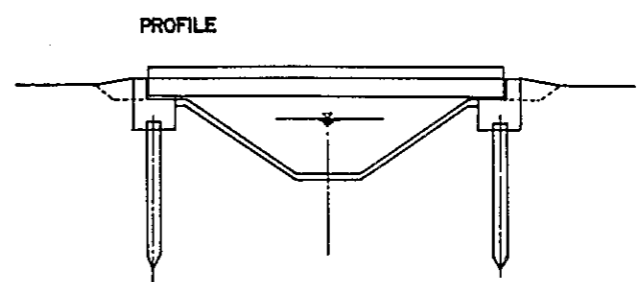
THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT	
KINGDOM OF THAILAND	
RELATED STRUCTURE	
CROSS DRAIN	
DATE:	DWG. NO. 505
JAPAN INTERNATIONAL COOPERATION AGENCY	



PLAN (TYPE A,B)

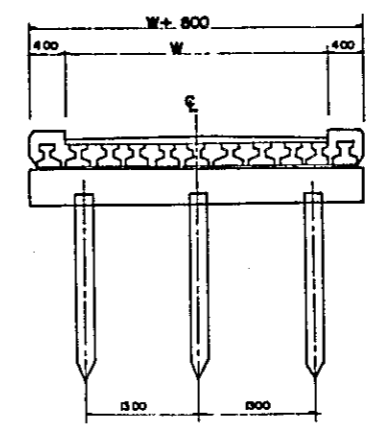


PLAN (TYPE C)

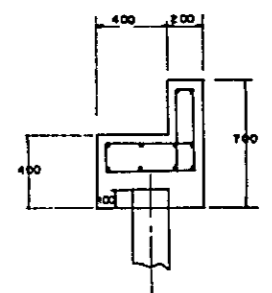


PROFILE

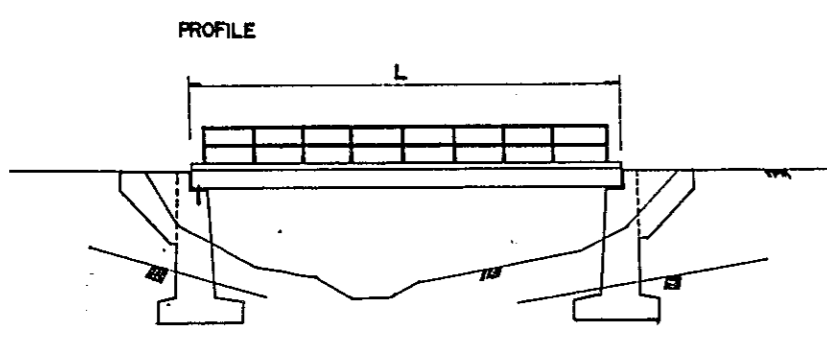
SECTION A-A (TYPE C)



SECTION B-B (TYPE C)

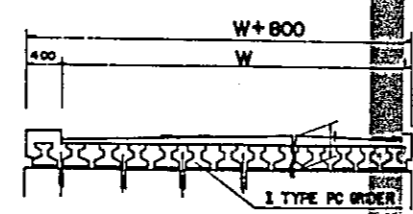


SECTION C-C (TYPE C)

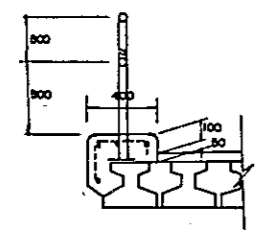


PROFILE

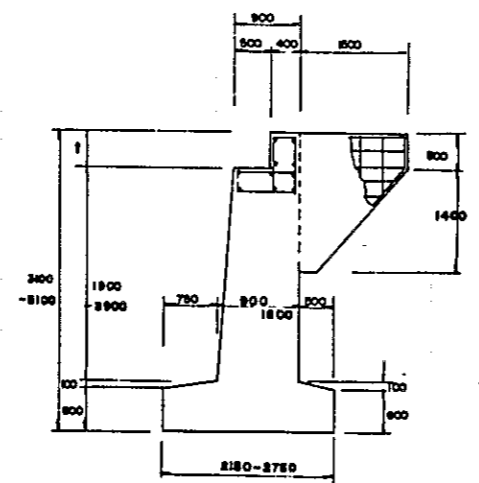
SECTION A-A (TYPE A,B)



SECTION B-B (TYPE A,B)



SECTION C-C (TYPE A,B)



PROFILE ABUTMENT (TYPE A,B)

- NOTES
1. ALL DIMENSION ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN AND THE DIMENSION WHICH IS NOT SHOWN ARE DEPENDENT ON TOPOGRAPHY AND CANAL SIZES
  2. THE DRAWING IS PRELIMINARY AND NOT TO SCALE

DIMENSION TABLE OF BRIDGE

TYPE	SPAN(L)	WIDTH(W)	REMARK
A	12.00 M	6.00 M	0+M ROAD MAIN CANAL
	9.00 M		
B	12.00 M	4.00 M	0+M ROAD LATERAL CANAL
	9.00 M		
C	6.00 M	3.00 M	PASSAGE BRIDGE FOR HOUSE
	6.00 M		

THE UPPER PASAK MEDIUM SCALE IRRIGATION PROJECT	
KINGDOM OF THAILAND	
RELATED STRUCTURE BRIDGE	
DATE:	DWG. NO. 506
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