KINGDOM OF THAILAND
MINISTRY OF AGRICULTURE AND COOPERATIVES
ROYAL IRRIGATION DEPARTMENT

FEASIBILITY STUDY ON THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT

DRAWINGS

MARCH 1986

JAPAN INTERNATIONAL COOPERATION AGENCY

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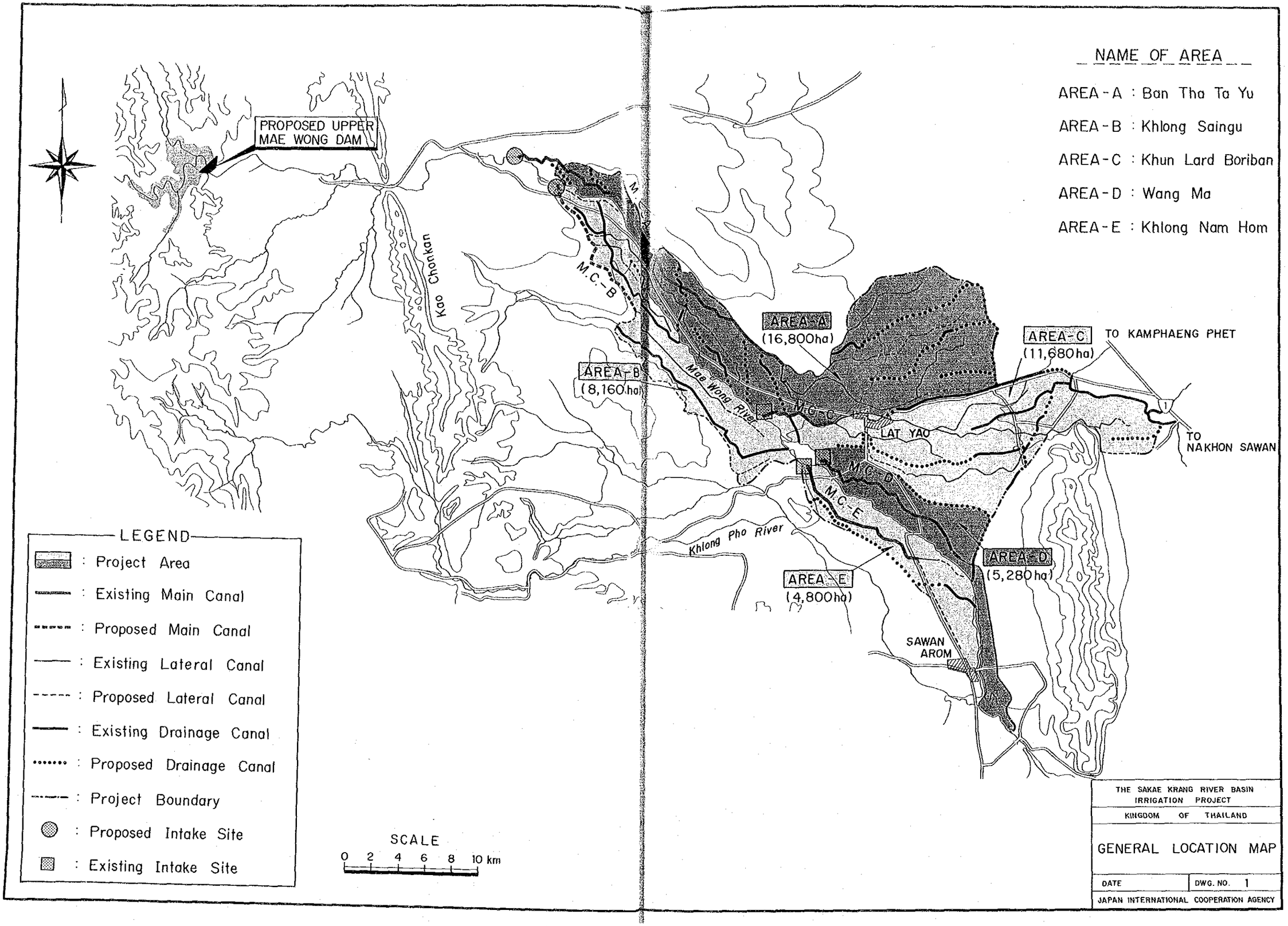
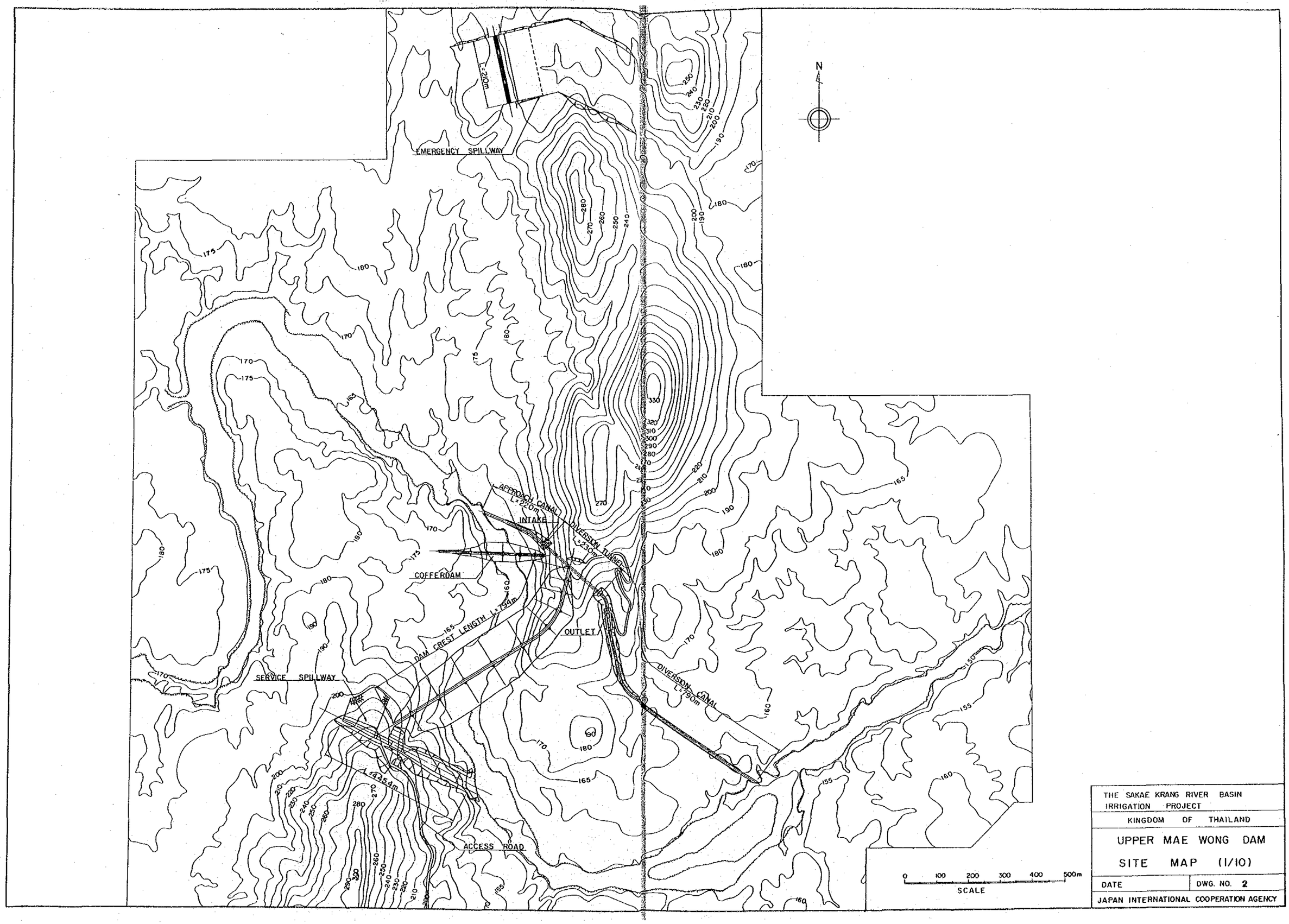
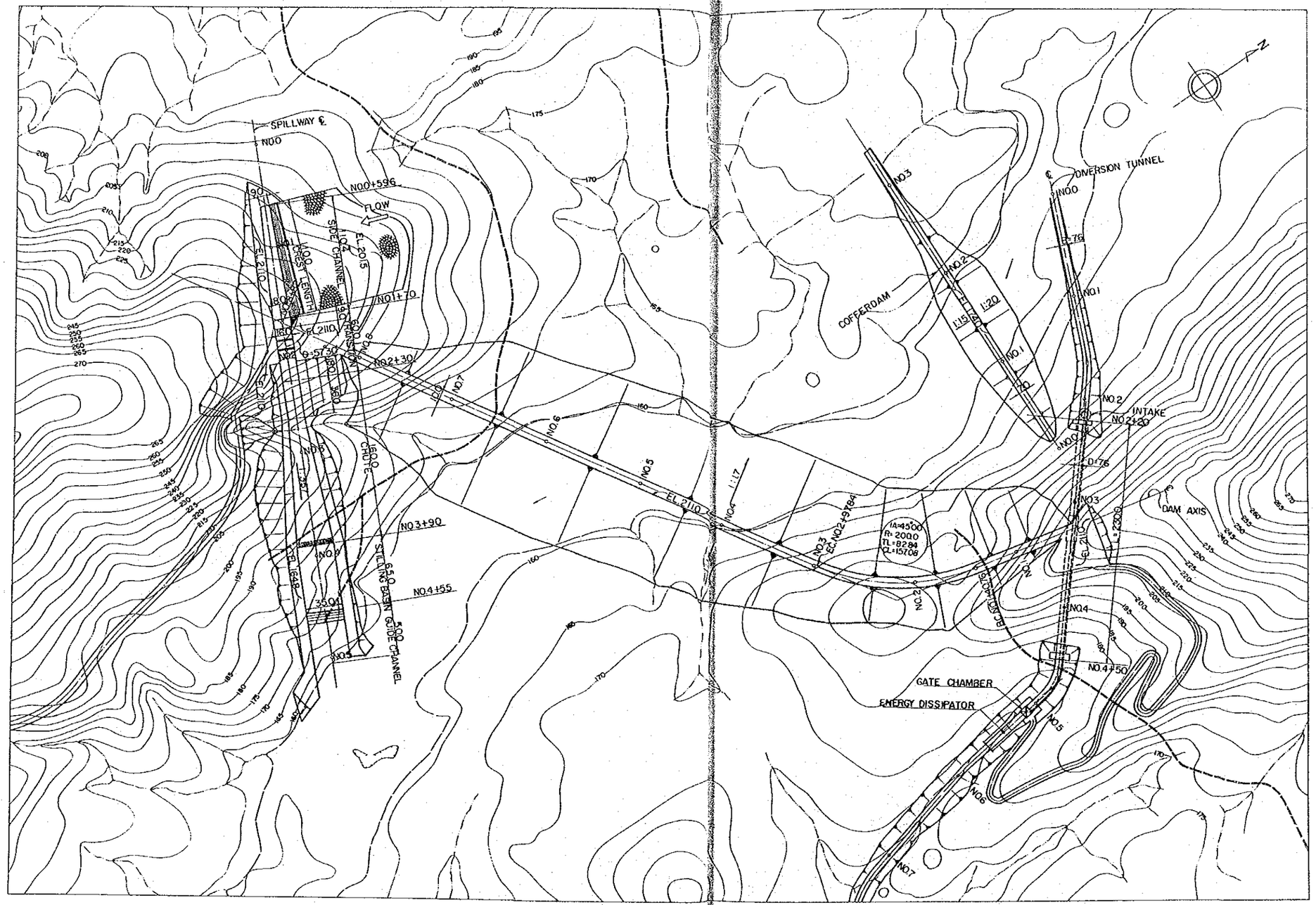

NAME OF AREA
AREA-A : Ban Tha Ta Yu
AREA-B : Khlong Saingu
AREA-C : Khun Lard Boriban
AREA-D : Wang Ma
AREA-E : Khlong Nam Hom
PROPOSED UPPER MAE WONG DAM
Kao Chonkan
M.C.-A
M.C.-B
AREA-A (16,800ha)
AREA-B (8,160ha)
AREA-C (11,680ha)
TO KAMPHAENG PHET
Mae Wong River
M.C.-C
LAT YAO
TO NAKHON SAWAN
M.C.-D
M.C.-E
Khlong Pho River
AREA-D (5,280ha)
AREA-E (4,800ha)
SAWAN AROM
LEGEND
: Project Area
: Existing Main Canal
: Proposed Main Canal
: Existing Lateral Canal
: Proposed Lateral Canal
: Existing Drainage Canal
: Proposed Drainage Canal
: Project Boundary
: Proposed Intake Site
: Existing Intake Site
SCALE
0 2 4 6 8 10 km
THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT
KINGDOM OF THAILAND
GENERAL LOCATION MAP
DATE
DWG. NO. 1
JAPAN INTERNATIONAL COOPERATION AGENCY



THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT	
KINGDOM OF THAILAND	
UPPER MAE WONG DAM SITE MAP (1/10)	
DATE	DWG. NO. 2
JAPAN INTERNATIONAL COOPERATION AGENCY	

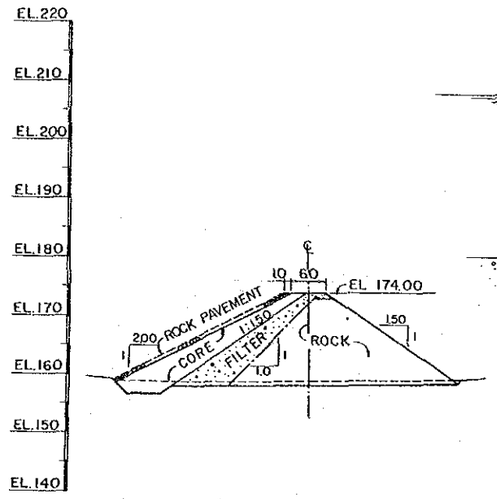


GENERAL PLAN

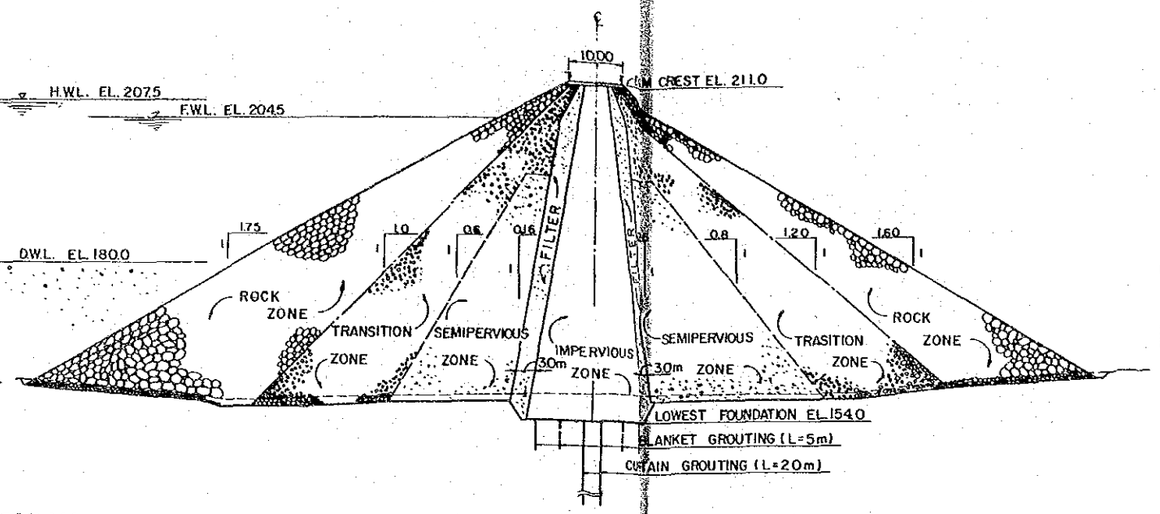
0 50 100 150 200m

SCALE

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT	
KINGDOM OF THAILAND	
UPPER MAE WONG DAM	
GENERAL PLAN (2/10)	
DATE	DWG. NO. 3
JAPAN INTERNATIONAL COOPERATION AGENCY	

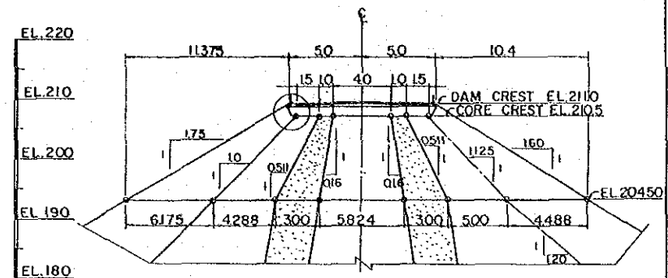


TYPICAL SECTION OF COFFERDAM



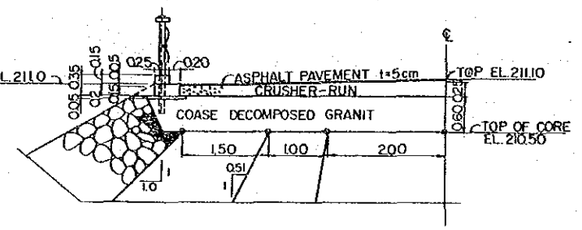
TYPICAL SECTION OF DAM

0 10 20 30 40 50m
SCALE



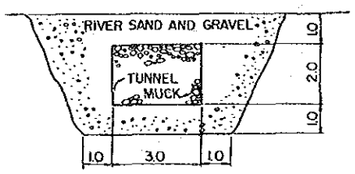
CREST DETAIL (1)

0 5 10 15 20m
SCALE



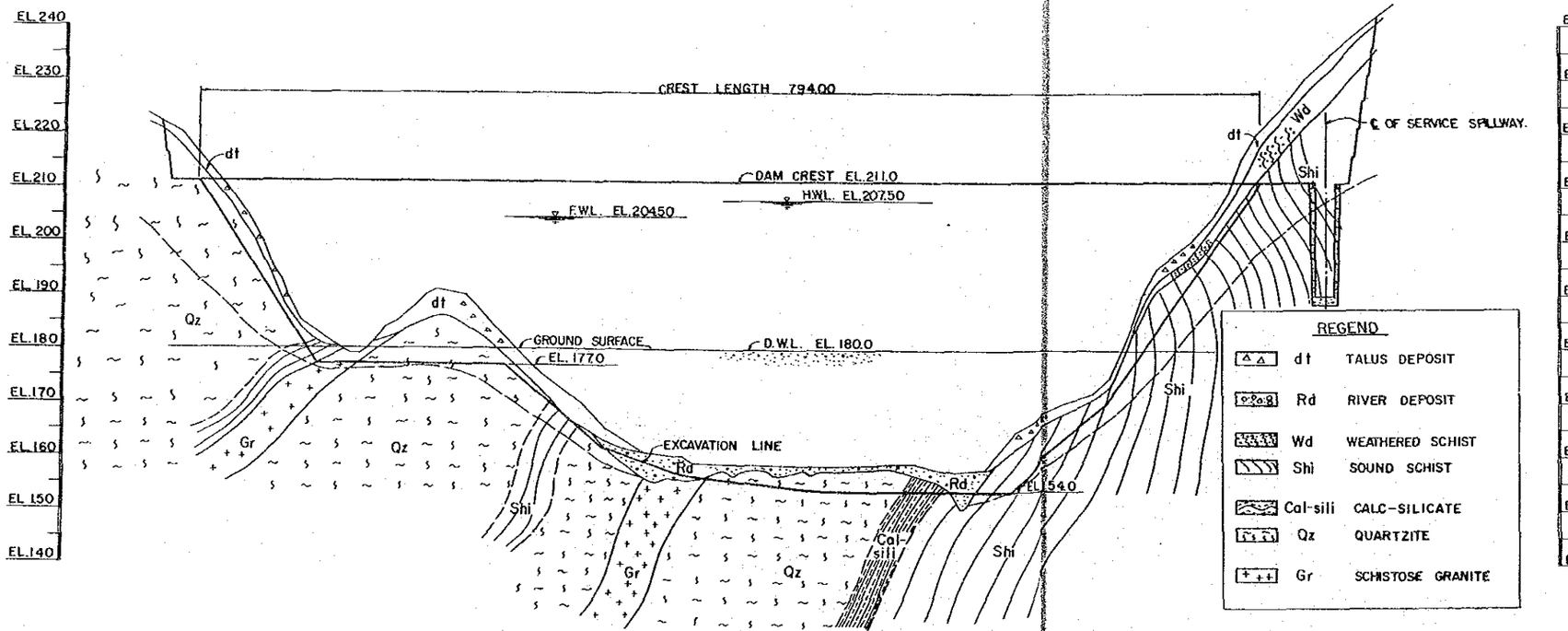
CREST DETAIL (2)

0 2 4 6 8 10m
SCALE



DRAIN DETAIL

0 1 2 3 4 5m
SCALE



PROFILE OF DAM

0 100 200m
SCALE

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT

KINGDOM OF THAILAND

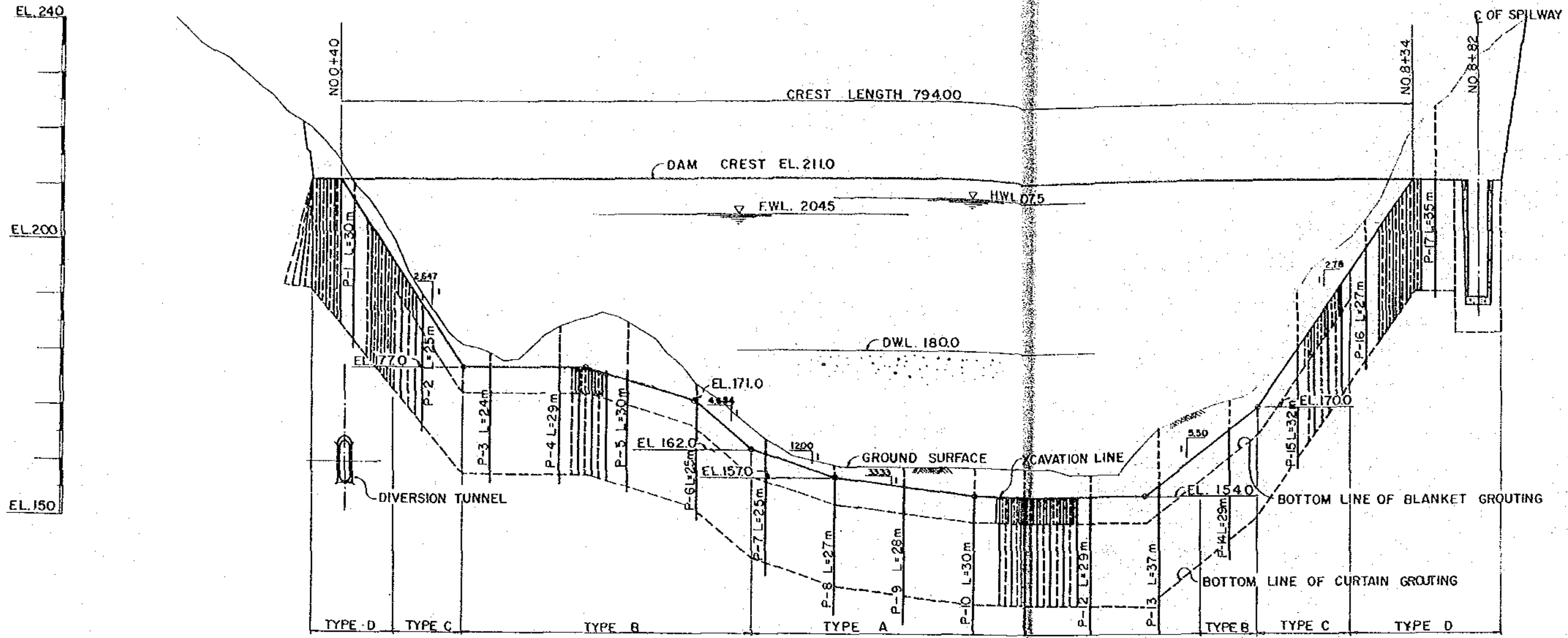
UPPER MAE WONG DAM

TYPCAL SECTION AND PROFILE (3/10)

DATE

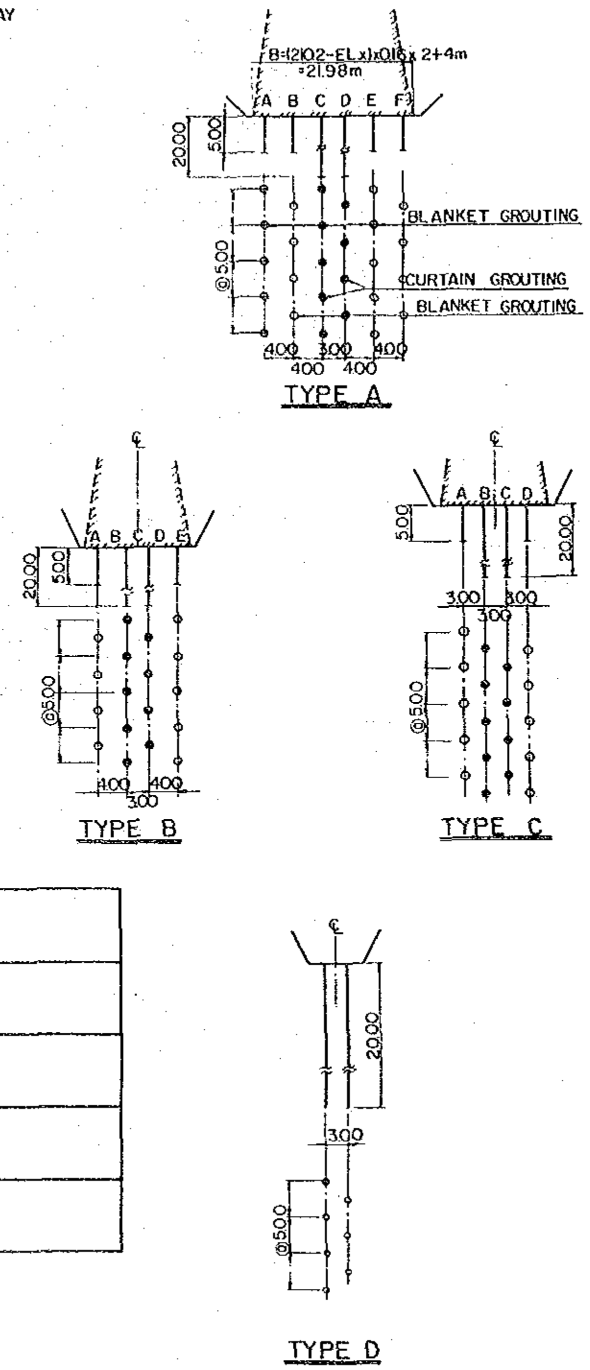
DWG. NO. 4

JAPAN INTERNATIONAL COOPERATION AGENCY



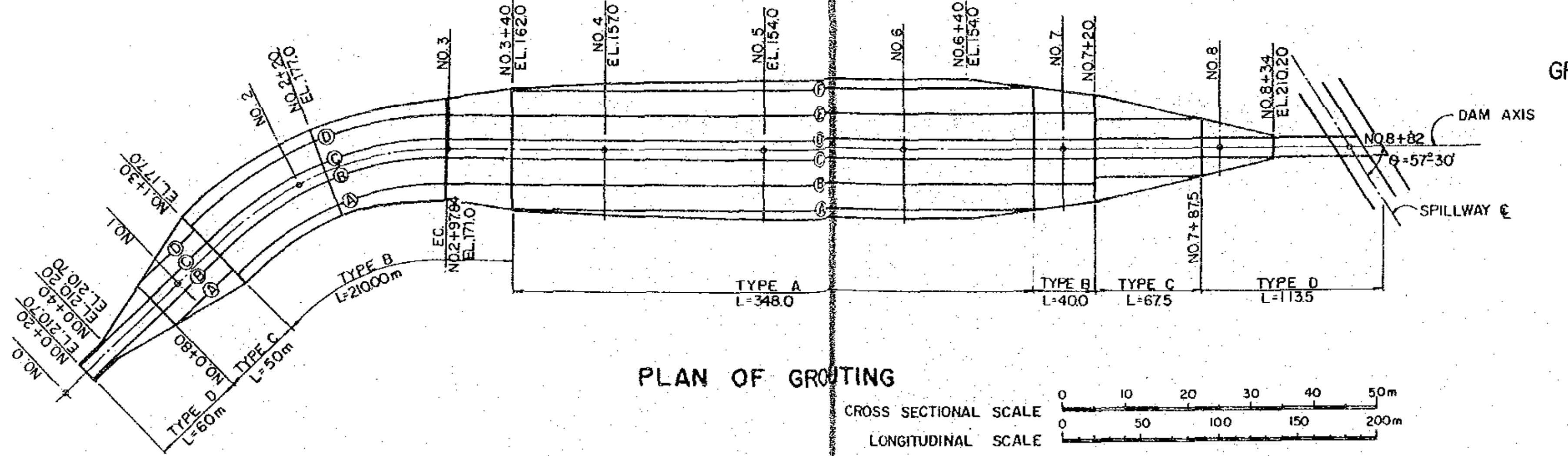
PROFILE OF GROUTING   SCALE 0 100 200m

CORE TRENCH ELEVATION		211.0	187.2	177.0	177.0	177.0	170.5	162.0	157.0	154.0	154.0	154.0	166.0	170.0	199.0	211.0	
GROUND ELEVATION		214.0	190.0	181.0	184.5	186.5	174.0	166.0	159.5	159.0	158.0	163.5	171.0	173.5	204.0	220.5	
DISTANCE	0	40.0	60.0	30.0	70.0	20.0	30.0	40.0	60.0	100.0	100.0	40.0	60.0	20.0	80.0	34.0	
CURVE				BC	IA=45°00' R=200m CL=157.08 TL=82.84		EC										
STATION	NO.0	+40.0	NO.1	+30.0 +40.76	NO.2	+20.0	+97.84 NO.3	+40.0	NO.4	NO.5	NO.6	+40.0	NO.7	+20.0	NO.8	+34.0	NO.9



GROUT HOLE ARRANGEMENT

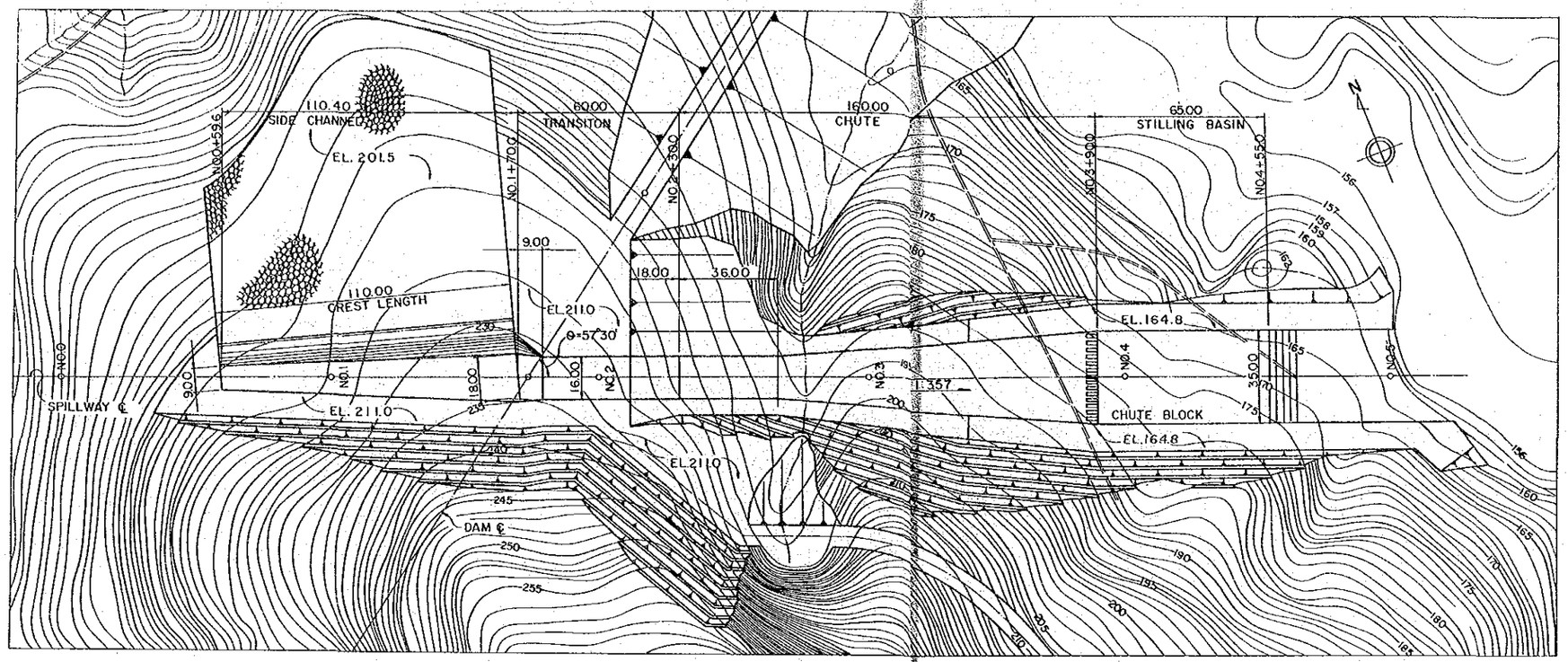
SCALE 0 10 20m



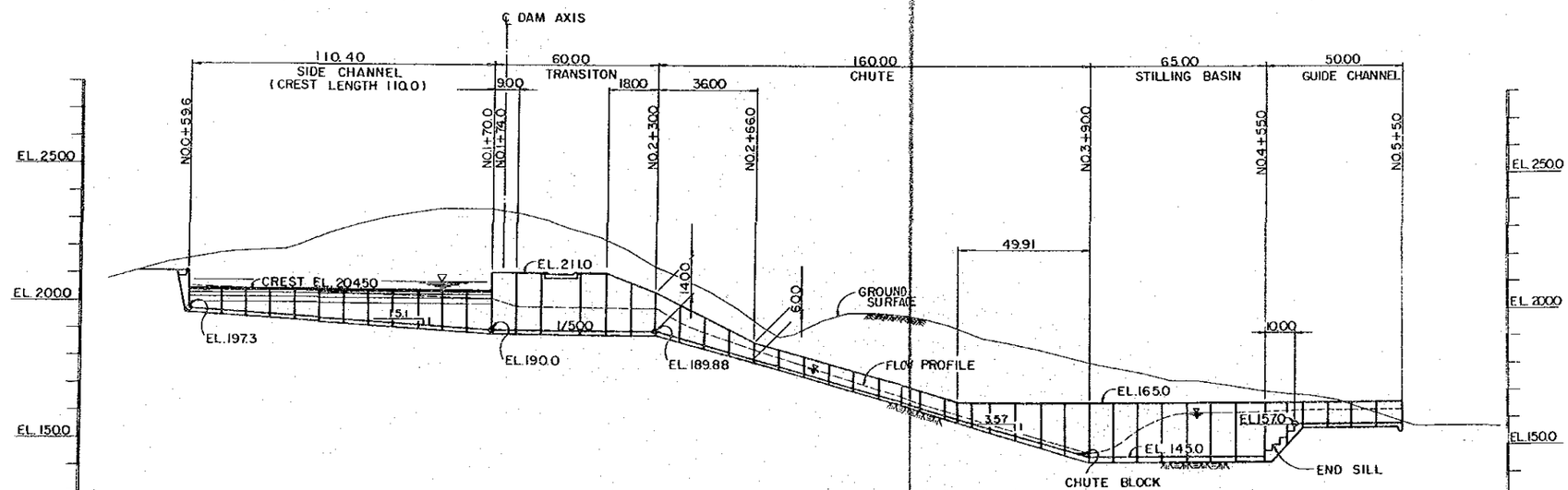
PLAN OF GROUTING

CROSS SECTIONAL SCALE 0 10 20 30 40 50m
LONGITUDINAL SCALE 0 50 100 150 200m

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT	
KINGDOM OF THAILAND	
UPPER MAE WONG DAM FOUNDATION TREATMENT (4/10)	
DATE	DWG. NO. 5
JAPAN INTERNATIONAL COOPERATION AGENCY	



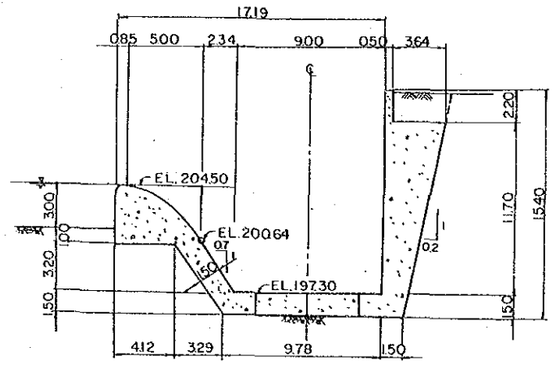
PLAN OF SERVICE SPILLWAY



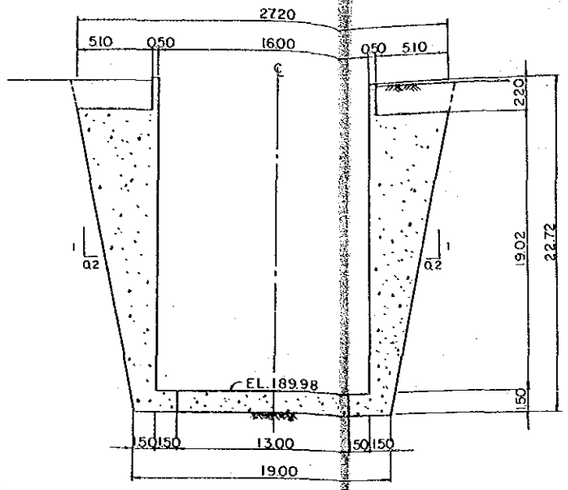
LONGITUDINAL SECTION OF SERVICE SPILLWAY

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT	
KINGDOM OF THAILAND	
UPPER MAE WONG DAM	
SERVICE SPILLWAY (5/10)	
DATE	DWG. NO. 6
JAPAN INTERNATIONAL COOPERATION AGENCY	

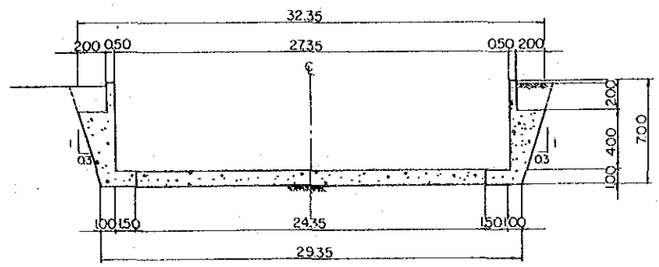
NO. 0 + 59.6



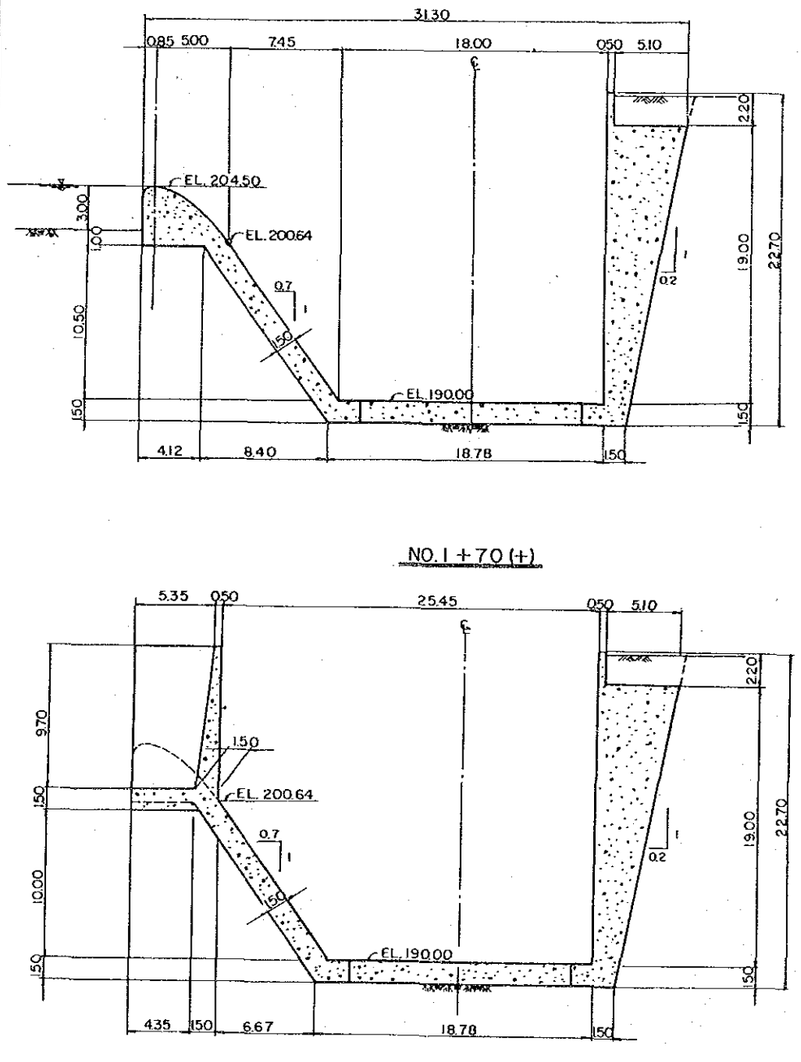
NO. 1 + 79



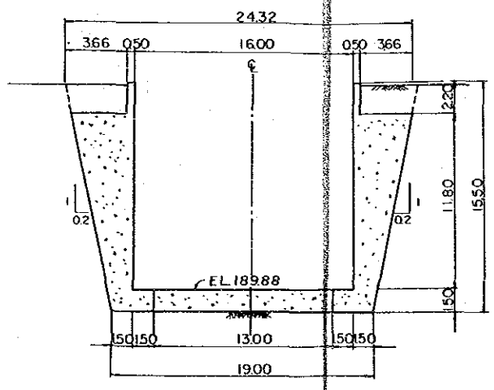
NO. 3 + 40.09



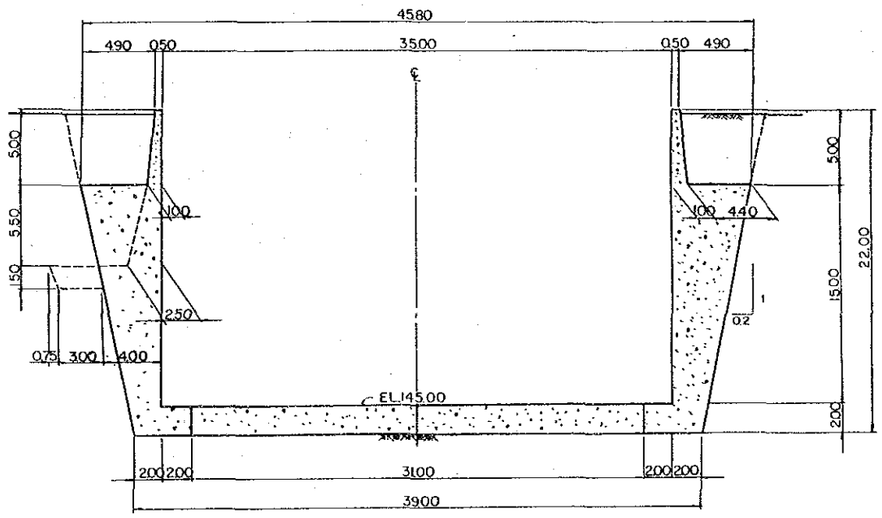
NO. 1 + 70 (−)



NO. 2 + 30

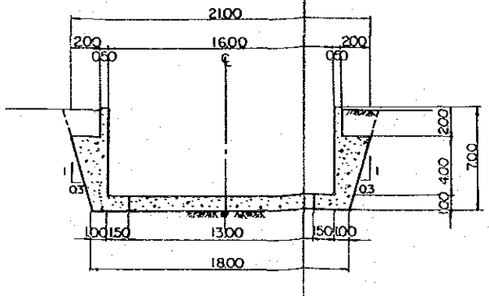


NO. 3 + 90 (NO. 4 + 55)

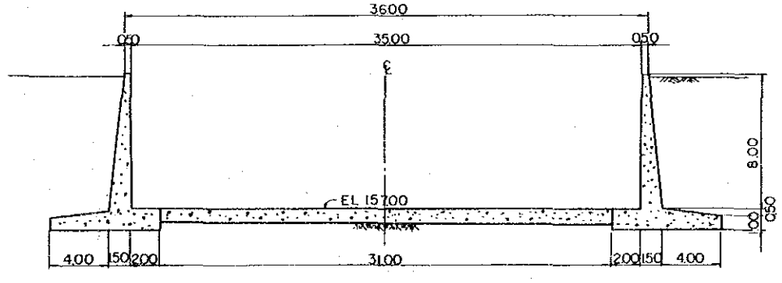


NO. 1 + 70 (+)

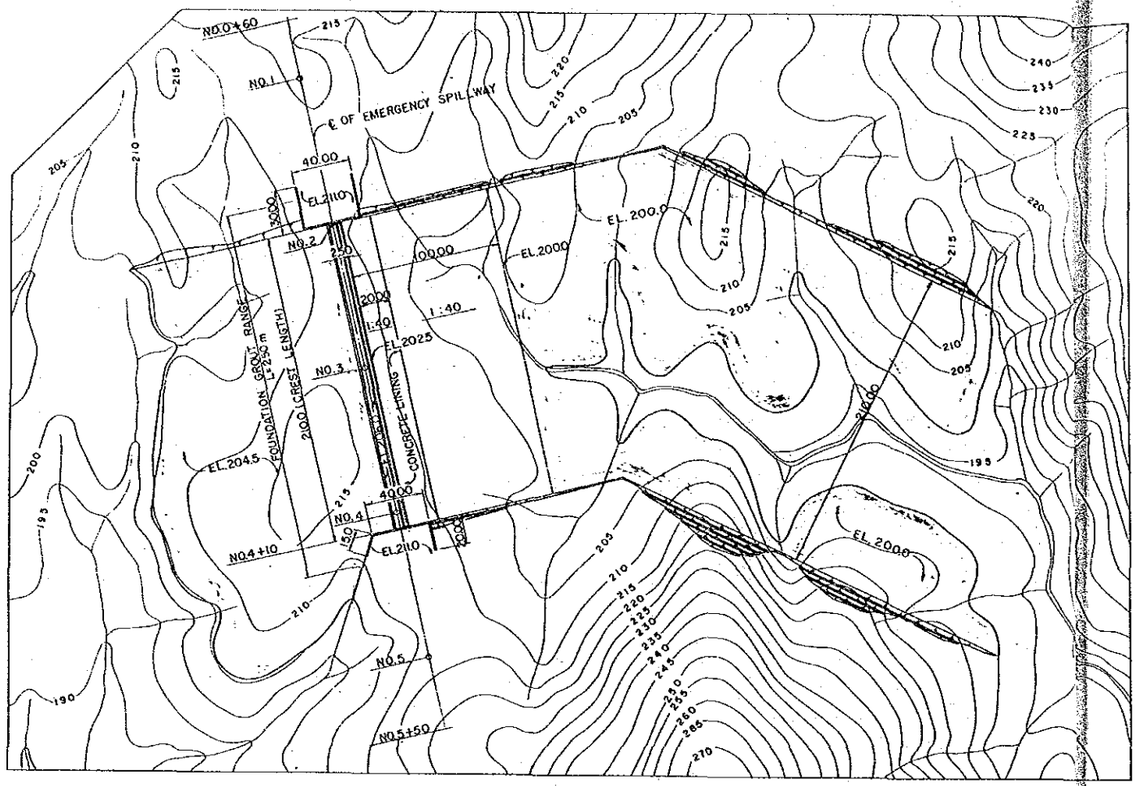
NO. 2 + 66



NO. 4 + 68



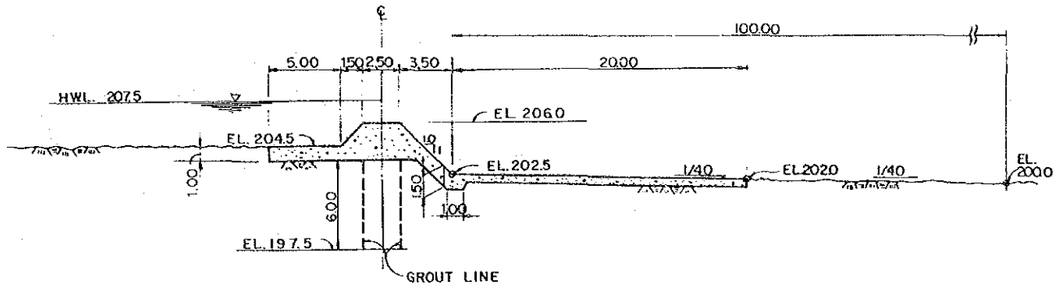
THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT	
KINGDOM OF THAILAND	
UPPER MAE WONG DAM	
CROSS SECTION OF SERVICE SPILLWAY (6/10)	
DATE	DWG NO. 7
JAPAN INTERNATIONAL COOPERATION AGENCY	



PLAN OF EMERGENCY SPILLWAY

0 100 200m

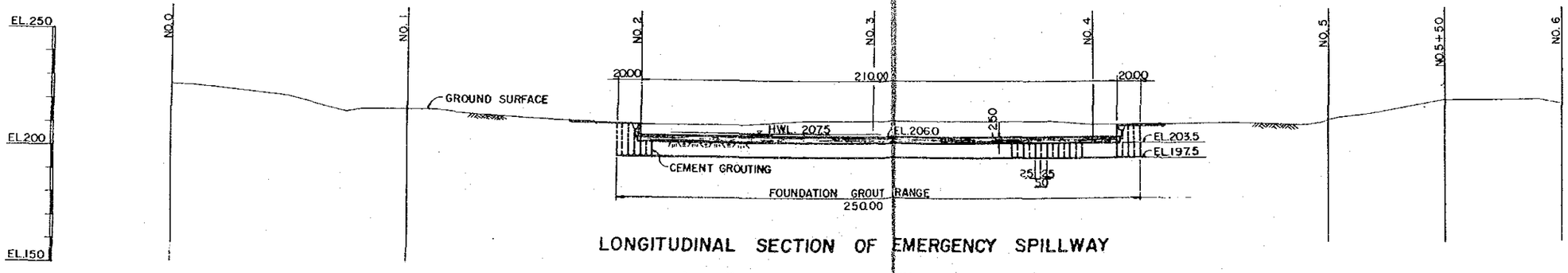
SCALE



STANDARD CROSS SECTION OF EMERGENCY SPILLWAY

0 2 4 6 8 10m

SCALE



LONGITUDINAL SECTION OF EMERGENCY SPILLWAY

0 20 40 60 80 100m

SCALE

GROUND ELEVATION	226.5	216.0	211.0	213.0	212.0	213.0	221.0
ACCUMULATE DISTANCE	0.0	100.0	200.0	300.0	400.0	500.0	550.0
DISTANCE	0.0	100.0	100.0	100.0	100.0	100.0	50.0
STATION	NO.0	NO.1	NO.2	NO.3	NO.4	NO.5	+50

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT

KINGDOM OF THAILAND

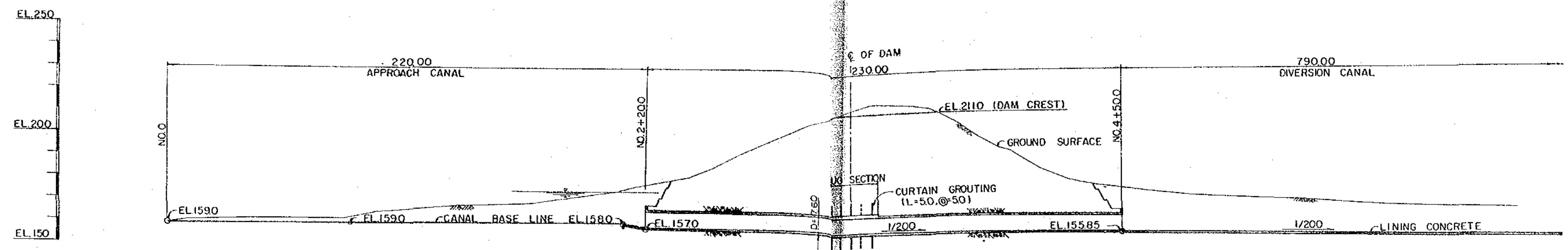
UPPER MAE WONG DAM

EMERGENCY SPILLWAY (7/10)

DATE

DWG. NO. 8

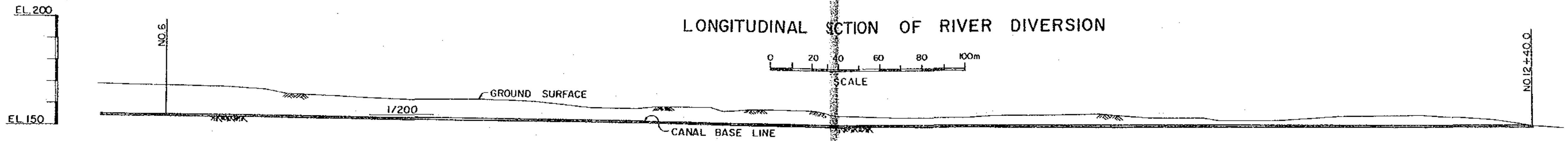
JAPAN INTERNATIONAL COOPERATION AGENCY



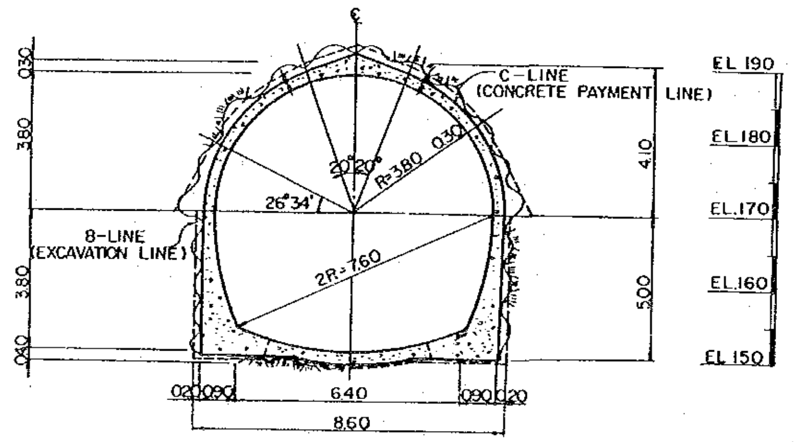
GROUND ELEVATION	159.0	164.0	172.0	176.0	206.3	212.5	193.0	176.0	172.0	168.5
ACCUMULATE DISTANCE	0.0	100.0	200.0	220.0	300.0	325.0	400.0	450.0	500.0	600.0
DISTANCE	0.0	100.0	100.0	20.0	80.0	25.0	75.0	50.0	50.0	100.0
STATION	NO.0	NO.1	NO.2	+20	NO.3	+25	NO.4	+50	NO.5	NO.6

LONGITUDINAL SECTION OF RIVER DIVERSION

0 20 40 60 80 100m
SCALE



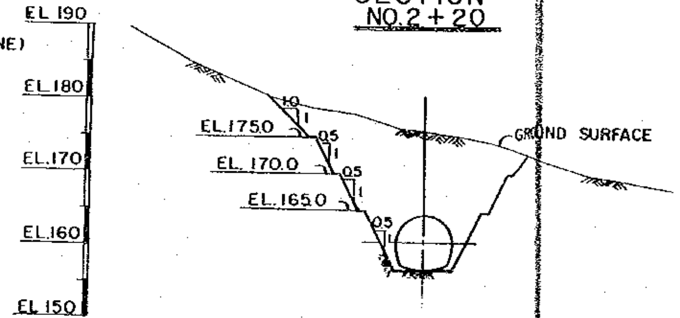
GROUND ELEVATION	168.5	163.5	160.0	160.0	158.0	156.0	156.5	152.0
ACCUMULATE DISTANCE	600.0	700.0	800.0	900.0	1000.0	1100.0	1200.0	1240.0
DISTANCE	100.0	100.0	100.0	100.0	100.0	100.0	100.0	40.0
STATION	NO.6	NO.7	NO.8	NO.9	NO.10	NO.11	NO.12	+40



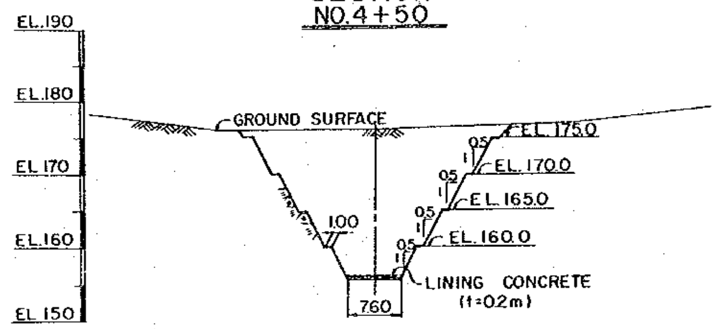
STANDARD CROSS SECTION OF DIVERSION TUNNEL

0 1 2 3 4 5m

SECTION NO.2+20

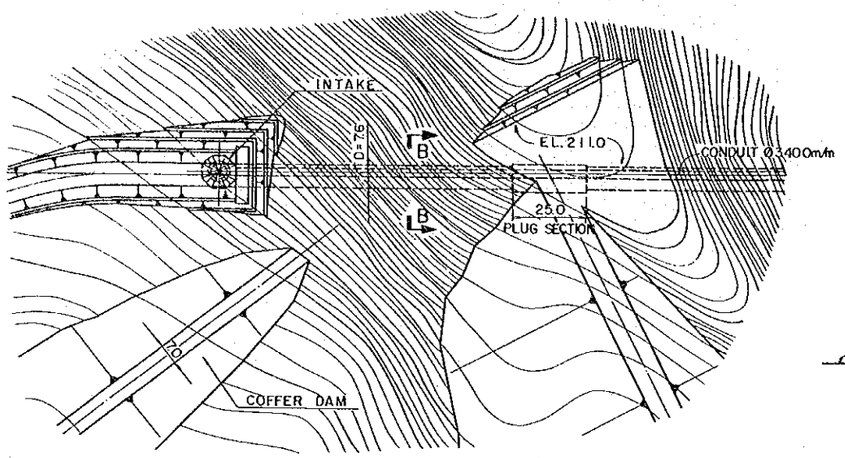


SECTION NO.4+50



0 10 20 30 40 50m

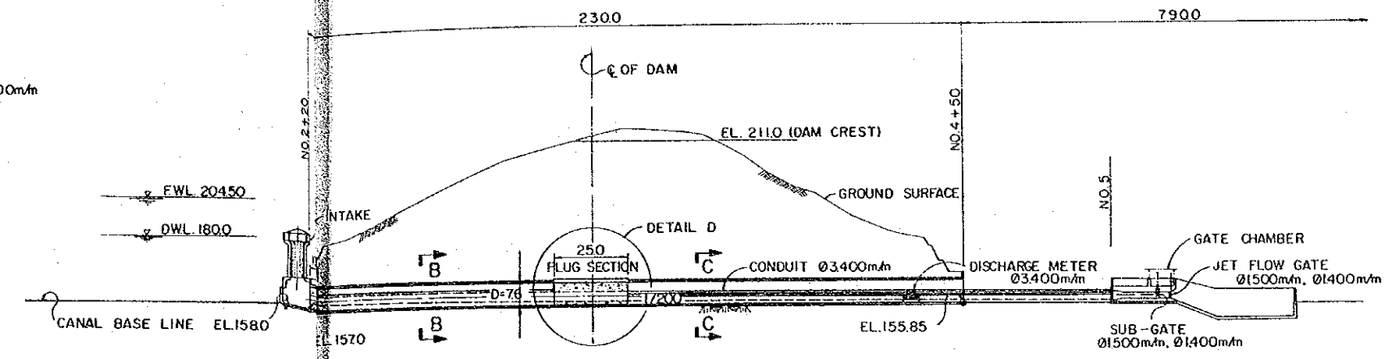
THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT	
KINGDOM OF THAILAND	
UPPER MAE WONG DAM DIVERSION CHANNEL (8/10)	
DATE	DWG. NO. 9
JAPAN INTERNATIONAL COOPERATION AGENCY	



LOCATION MAP

0 50m

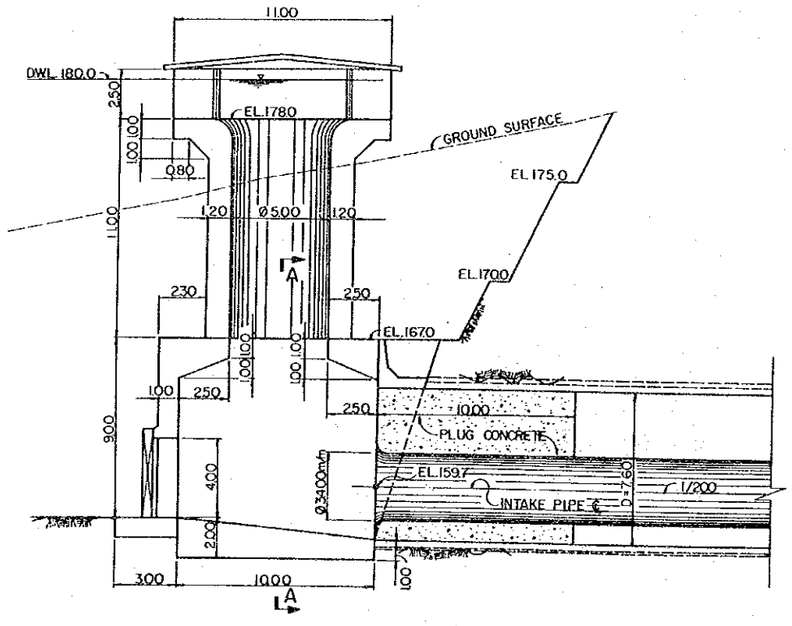
SCALE



LONGITUDINAL SECTION OF INTAKES AND OUTLETS

0 50 100m

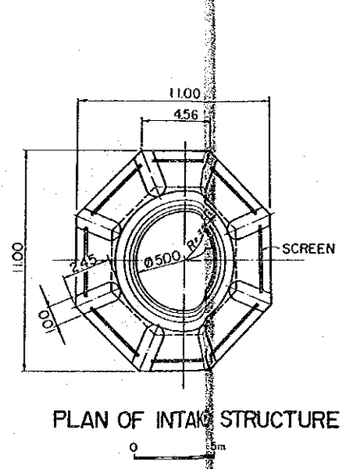
SCALE



PROFILE OF INTAKE STRUCTURE

0 2 4 6 8 10m

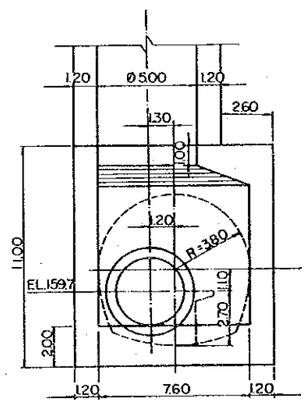
SCALE



PLAN OF INTAKE STRUCTURE

0 5m

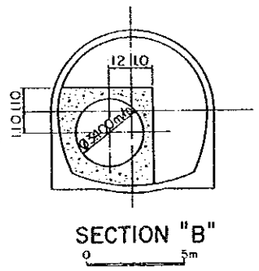
SCALE



SECTION "A"

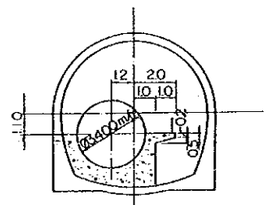
0 5m

SCALE



SECTION "B"

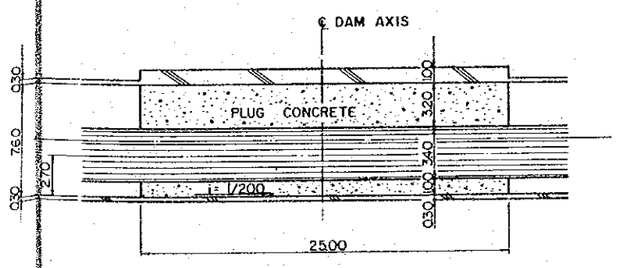
0 5m



SECTION "C"

0 5m

SCALE



DETAIL D

0 5 10m

SCALE

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT

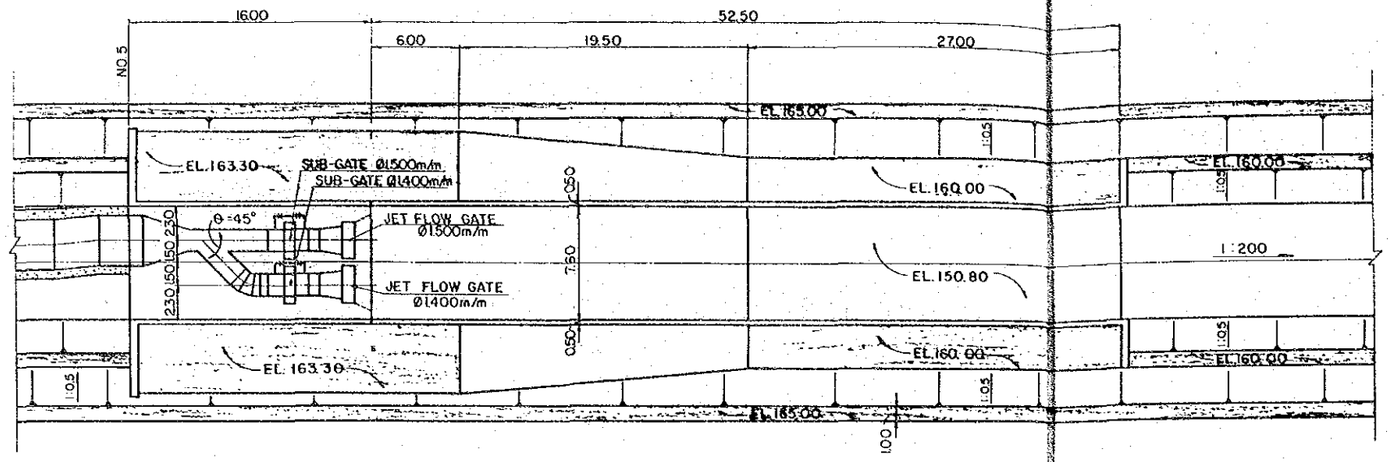
KINGDOM OF THAILAND

UPPER MAE WONG DAM

INTAKE STRUCTURE (9/10)

DATE | DWG. NO. 10

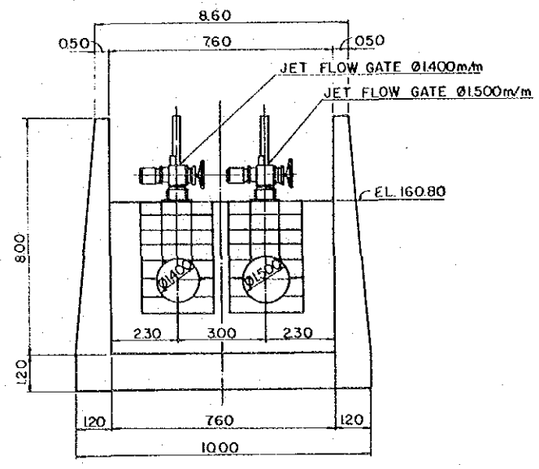
JAPAN INTERNATIONAL COOPERATION AGENCY



PLAN OF OUTLET STRUCTURE

0 5 10 15 20m

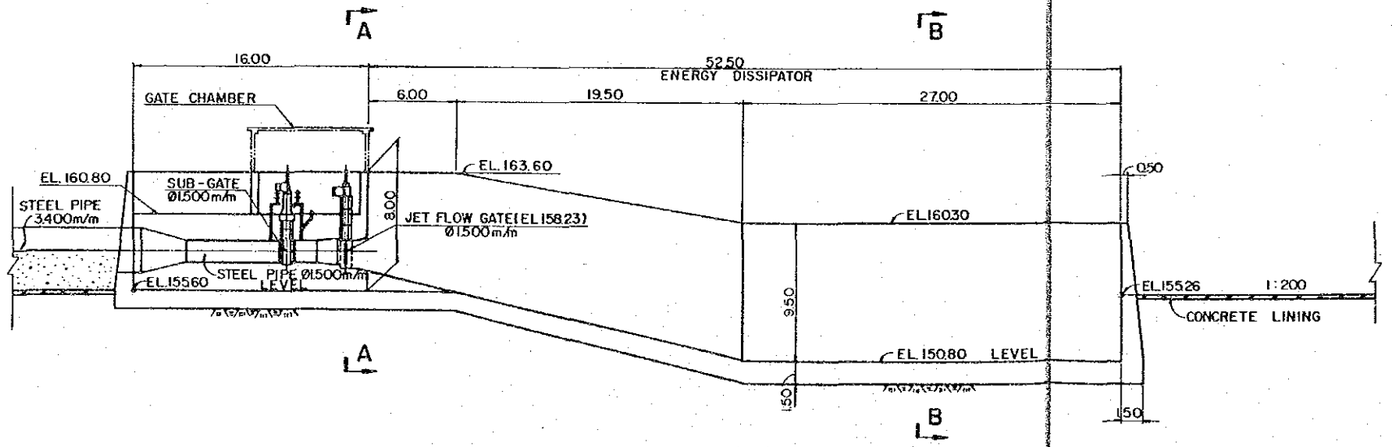
SCALE



SECTION "A"

0 5m

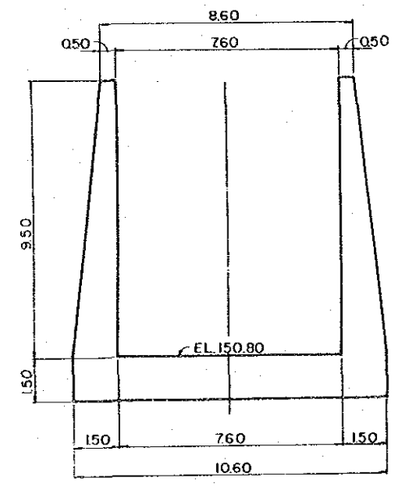
SCALE



LONGITUDINAL SECTION OF OUTLET STRUCTURE

0 5 10 15 20m

SCALE

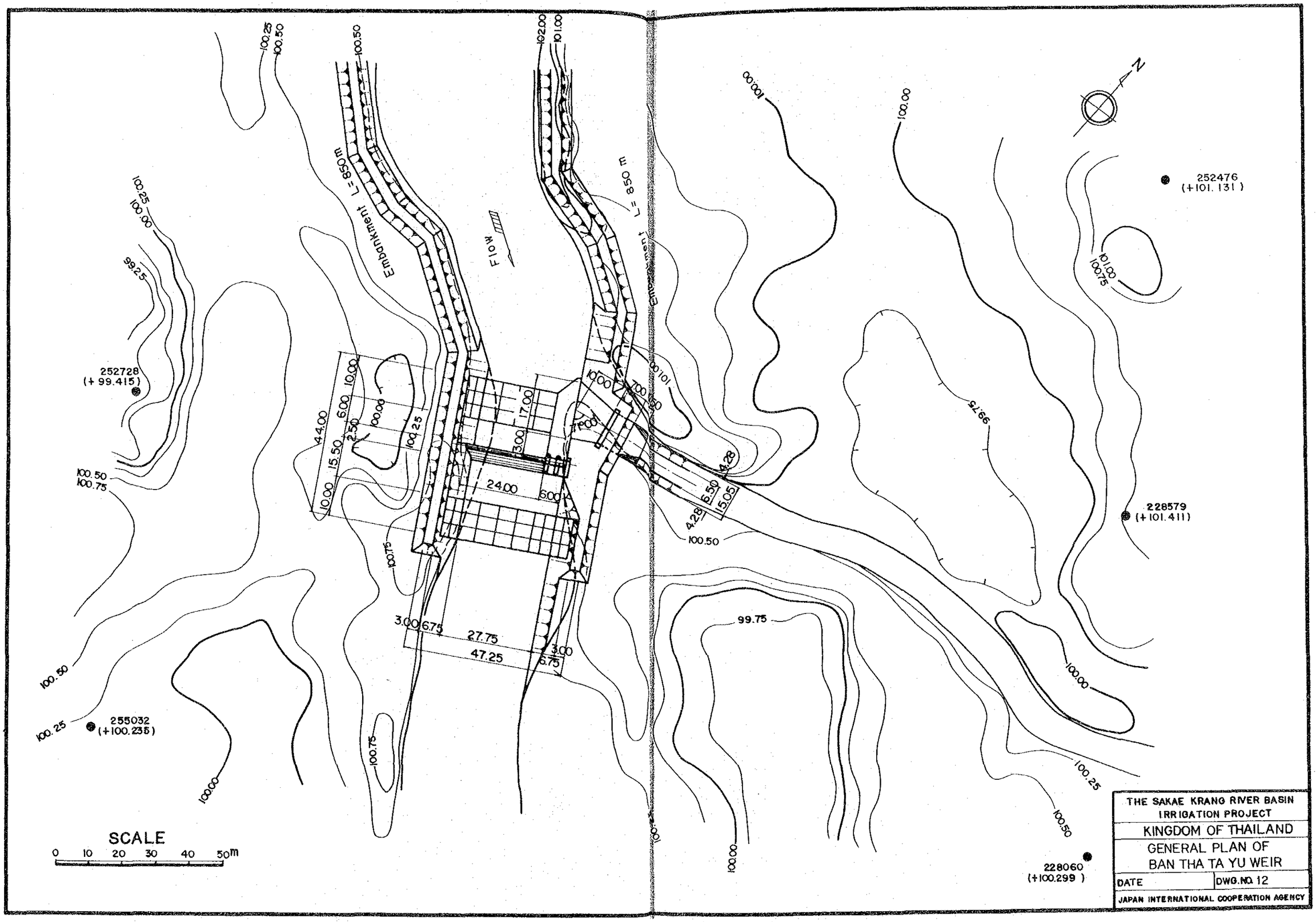


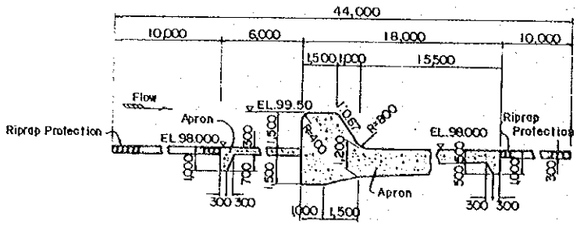
SECTION "B"

0 5m

SCALE

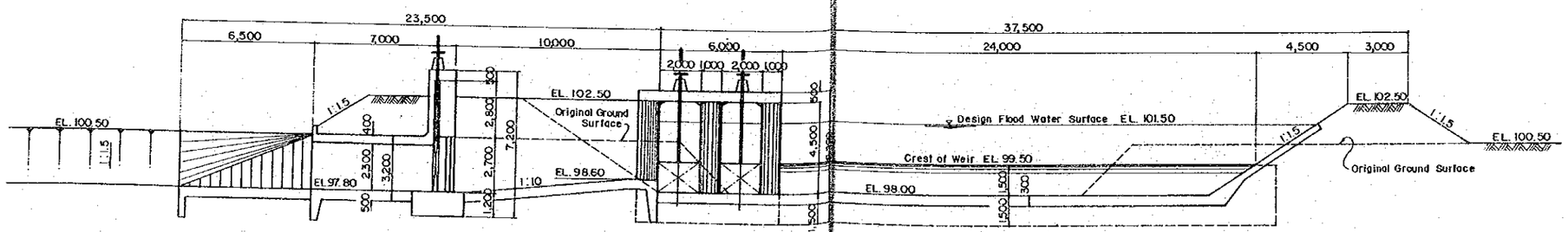
THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT	
KINGDOM OF THAILAND	
UPPER MAE WONG DAM	
OUTLET STRUCTURE (10/10)	
DATE	DWG. NO. 11
JAPAN INTERNATIONAL COOPERATION AGENCY	


Embankment L=850 m
Embankment L=850 m
FLOW
N
252728
(+99.415)
252476
(+101.131)
228579
(+101.411)
255032
(+100.235)
228060
(+100.299)
SCALE
0 10 20 30 40 50m
THE SAKAE KRANG RIVER BASIN
IRRIGATION PROJECT
KINGDOM OF THAILAND
GENERAL PLAN OF
BAN THA TA YU WEIR
DATE
DWG.NO. 12
JAPAN INTERNATIONAL COOPERATION AGENCY



PROFILE

PLAN



SECTION

SCALE

0 1 2 3 4 5 10m

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT
KINGDOM OF THAILAND
PLAN, PROFILE & SECTION OF BAN THA TA YU WEIR
DATE / DWG.NO. 13
JAPAN INTERNATIONAL COOPERATION AGENCY

N

229685
(+97.910)

227980
(+97.008)

228045
(+97.150)

97.50

97.25

97.00

Embankment L = 600m

Flow

97.60

96.56

97.50

97.25

97.00

97.00

97.72

Embankment L=600m

97.50

28.00
12.50
6.25
1.50
1.50
6.25
1.50
4.80
25.60
41.20
4.80
3.00

4.50
1.60
10.00
21.00

97.75

200

Embankment L=200m

To Intake Regulater

97.03

227140
(+97.638)

97.64

225602
(+97.435)

97.50

259789
(+97.492)

SCALE
0 10 20 30 40 50m

THE SAKAE KRANG RIVER BASIN
IRRIGATION PROJECT

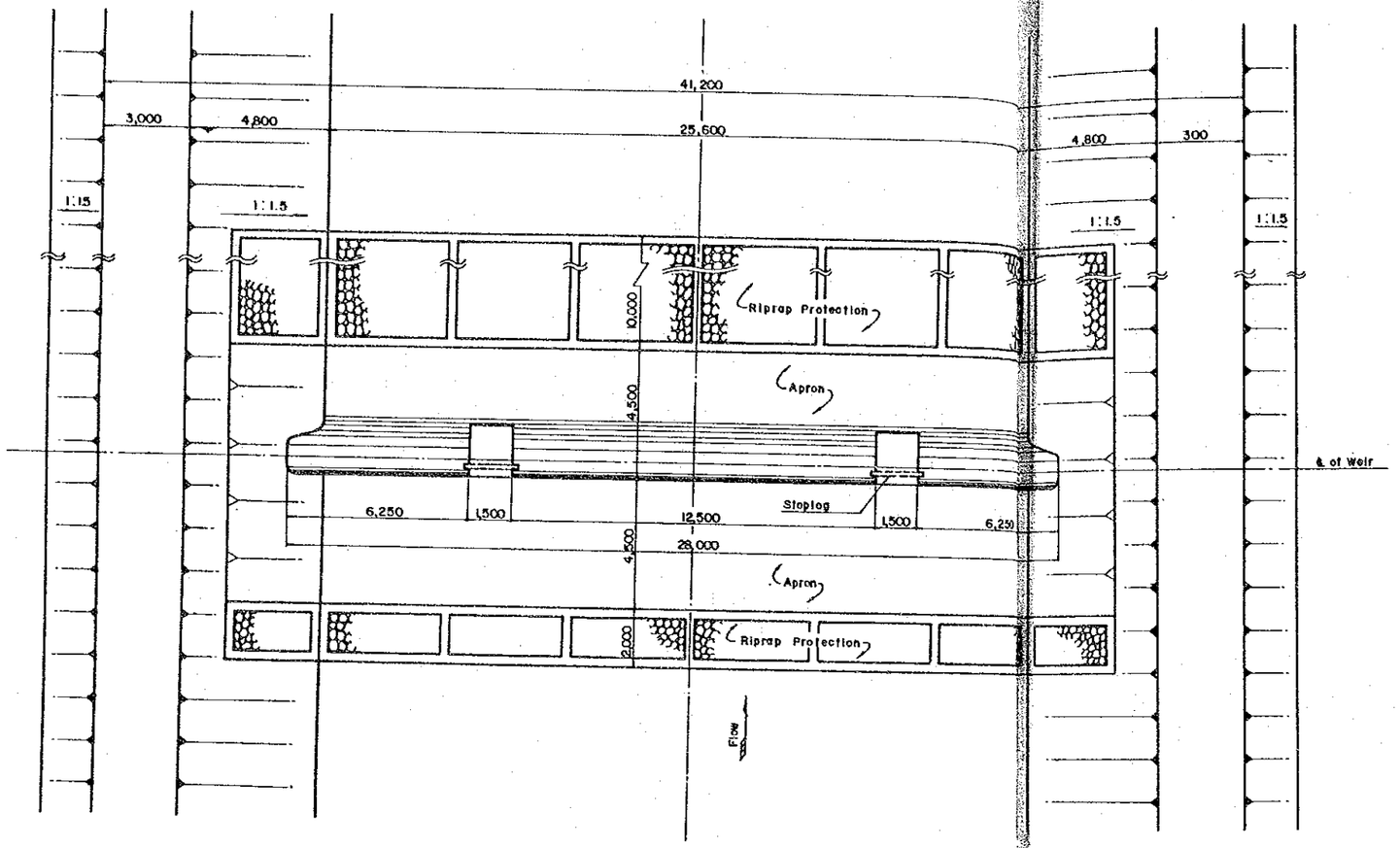
KINGDOM OF THAILAND

GENERAL PLAN OF
KHLONG SAINGU WEIR

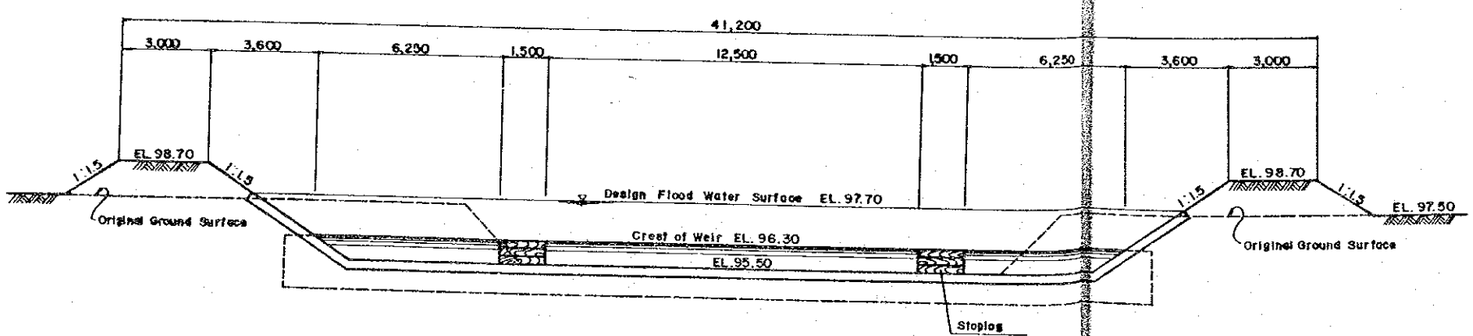
DATE

DWG.NO. 14

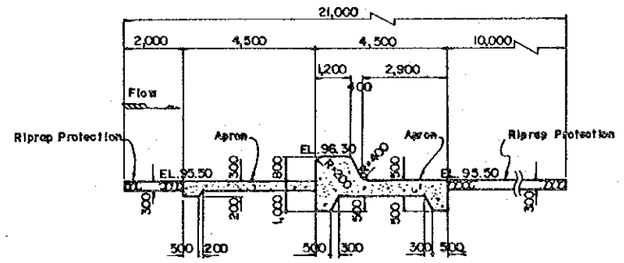
JAPAN INTERNATIONAL COOPERATION AGENCY



PLAN



SECTION

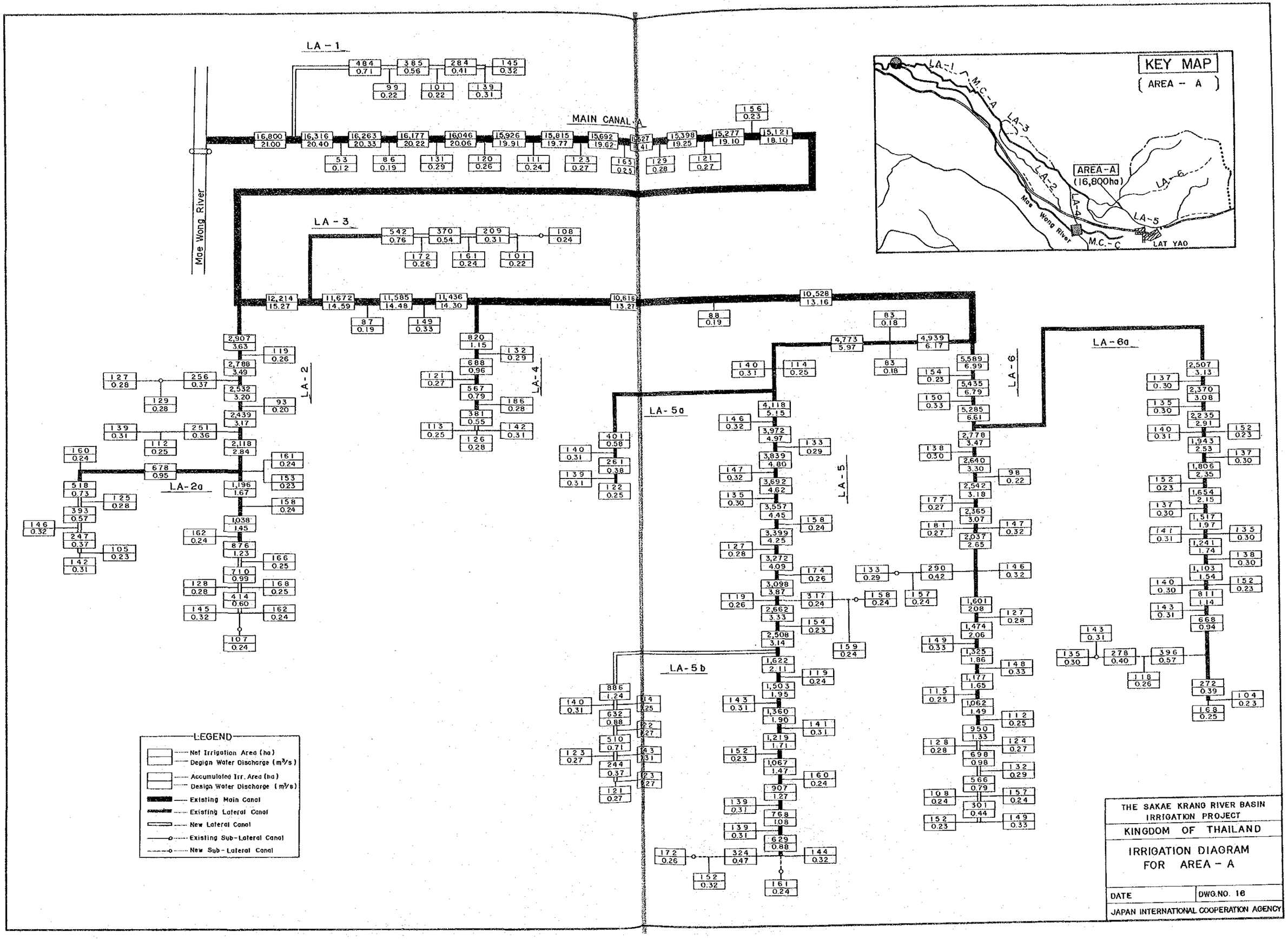


PROFILE

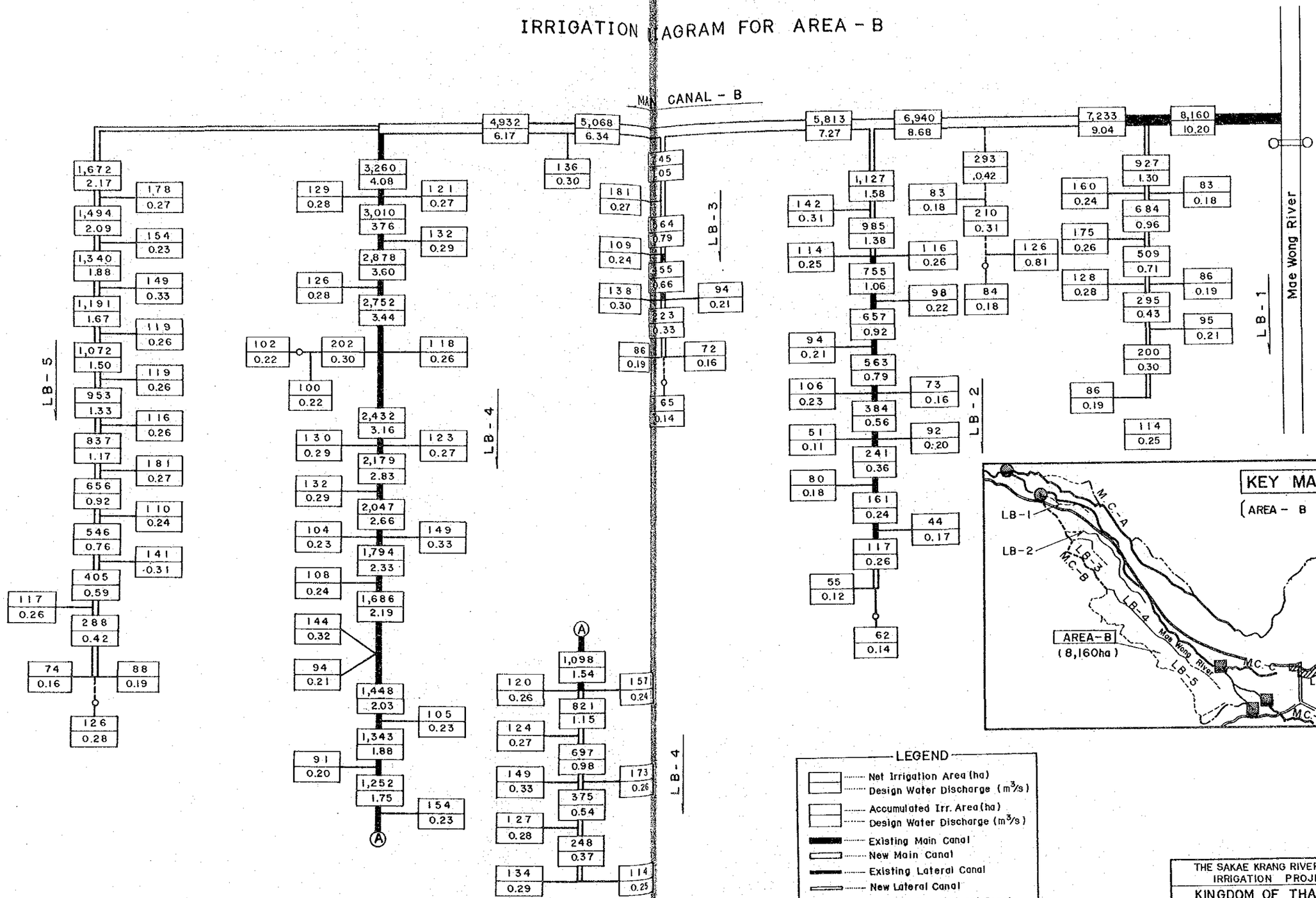
SCALE

0 1 2 3 4 5 10m

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT
KINGDOM OF THAILAND
PLAN, PROFILE & SECTION OF KHLONG SAINGU WEIR
DATE / DWG. NO. 15
JAPAN INTERNATIONAL COOPERATION AGENCY


LA-1
MAIN CANAL-A
Mae Wong River
LA-3
LA-2
LA-2a
LA-4
LA-5a
LA-5
LA-5b
LA-6
LA-6a
KEY MAP
(AREA - A)
AREA-A
(16,800ha)
M.C.-A
M.C.-C
LAT YAO
LEGEND
Net Irrigation Area (ha)
Design Water Discharge (m³/s)
Accumulated Irr. Area (ha)
Design Water Discharge (m³/s)
Existing Main Canal
Existing Lateral Canal
New Lateral Canal
Existing Sub-Lateral Canal
New Sub-Lateral Canal
THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT
KINGDOM OF THAILAND
IRRIGATION DIAGRAM FOR AREA - A
DATE
DWG.NO. 16
JAPAN INTERNATIONAL COOPERATION AGENCY

IRRIGATION DIAGRAM FOR AREA - B



THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT

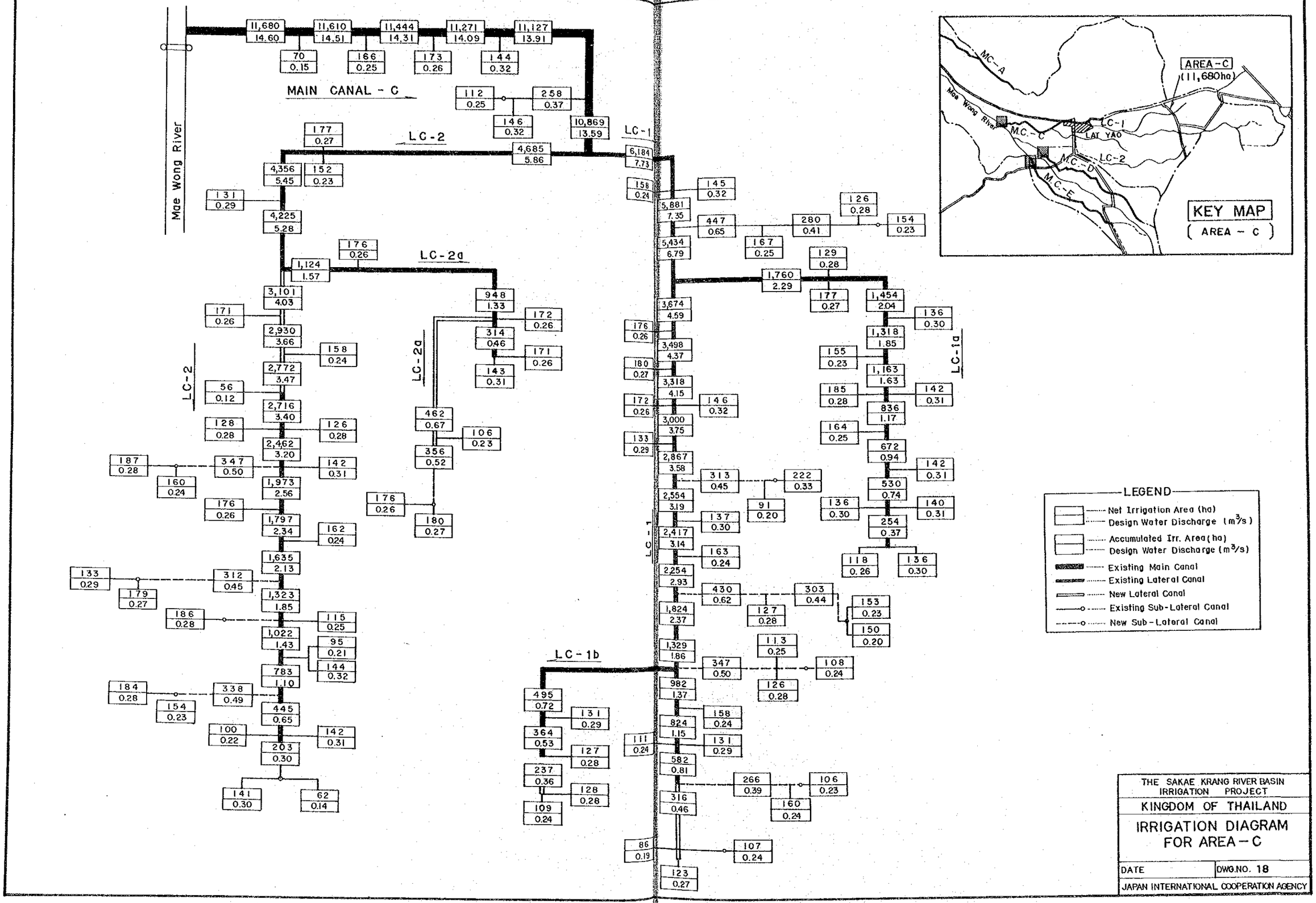
KINGDOM OF THAILAND

IRRIGATION DIAGRAM FOR AREA-B

DATE

DWG.NO. 17

JAPAN INTERNATIONAL COOPERATION AGENCY



THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT

KINGDOM OF THAILAND

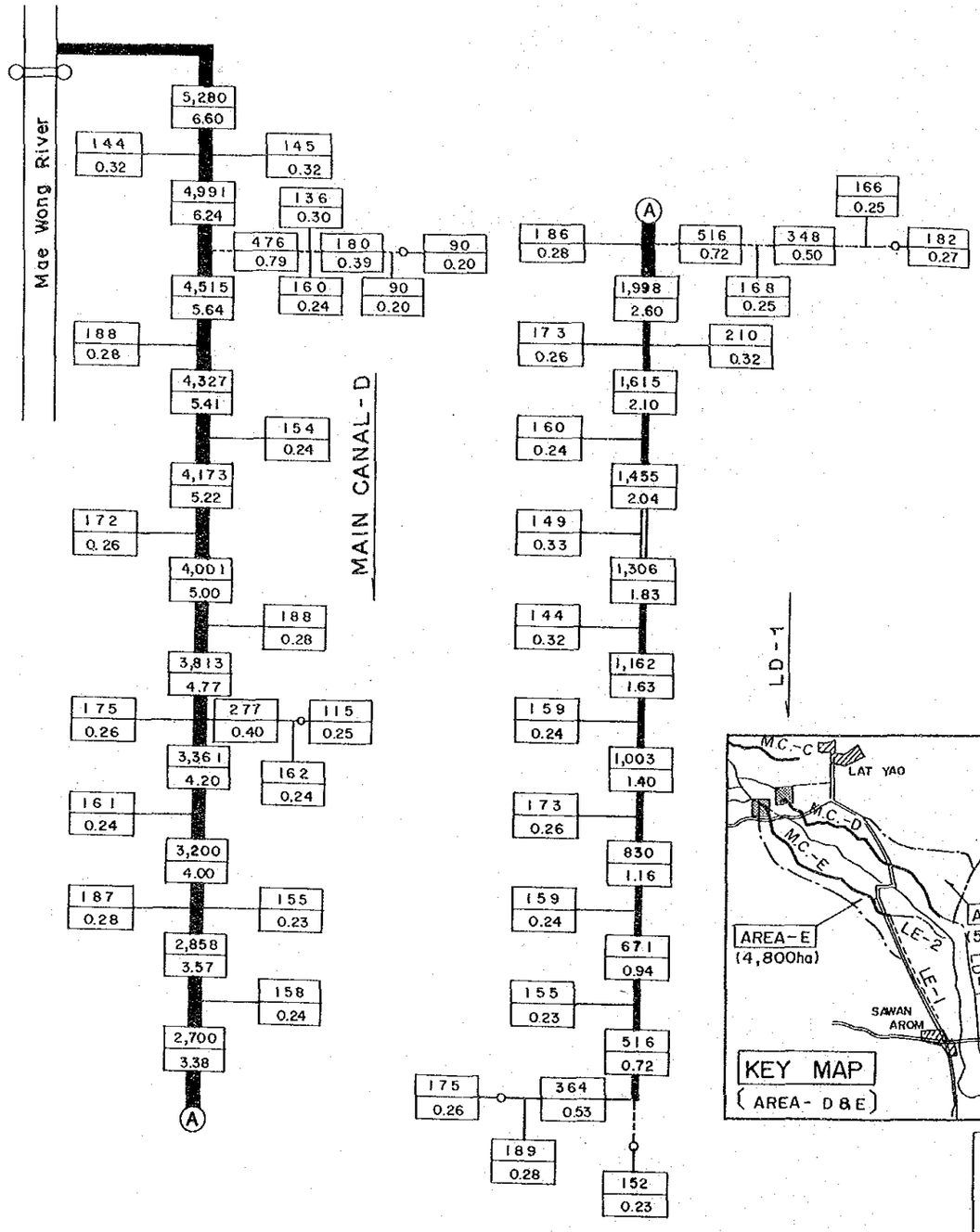
IRRIGATION DIAGRAM FOR AREA - C

DATE

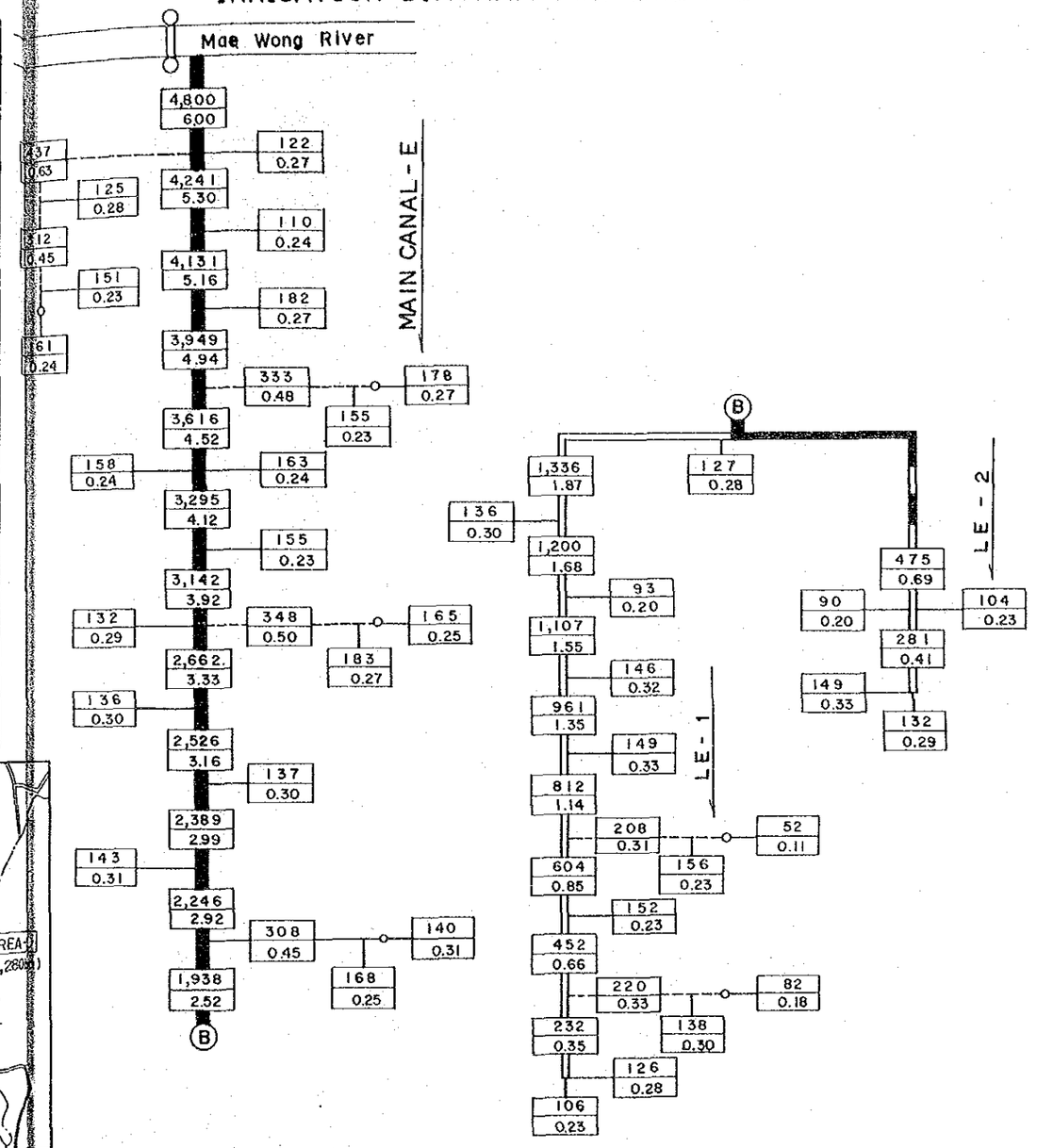
DWG.NO. 18

JAPAN INTERNATIONAL COOPERATION AGENCY

IRRIGATION DIAGRAM FOR AREA-D



IRRIGATION DIAGRAM FOR AREA-E



LEGEND

- Net Irrigation Area (ha)
- Design Water Discharge (m^3/s)
- Accumulated Irr. Area (ha)
- Design Water Discharge (m^3/s)
- Existing Main Canal
- Existing Lateral Canal
- New Lateral Canal
- Existing Sub-Lateral Canal
- New Sub-Lateral Canal

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT

KINGDOM OF THAILAND

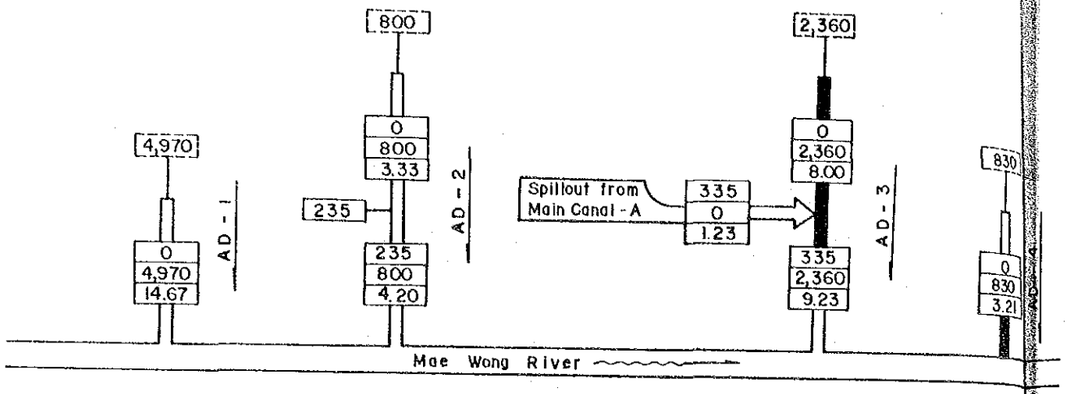
IRRIGATION DIAGRAMS FOR AREA-D & E

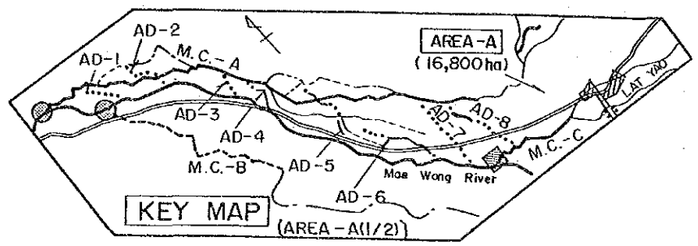
DATE

DWG.NO. 19

JAPAN INTERNATIONAL COOPERATION AGENCY

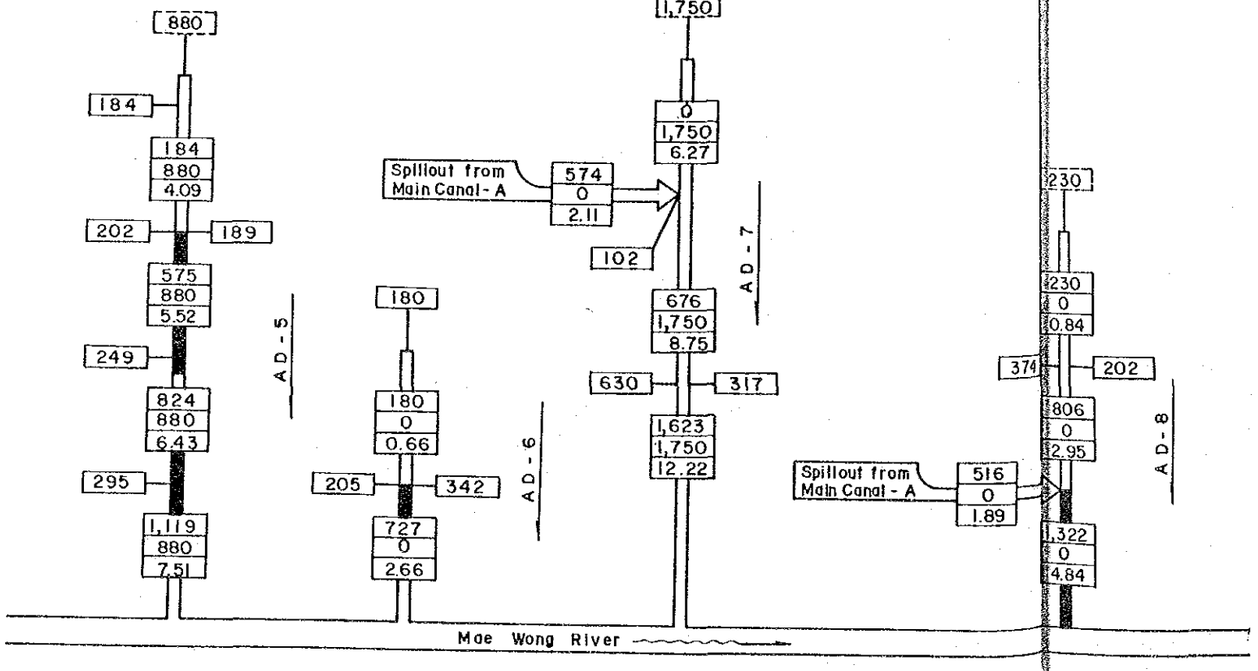
DRAINAGE DIAGRAM FOR AREA - A (1/2)

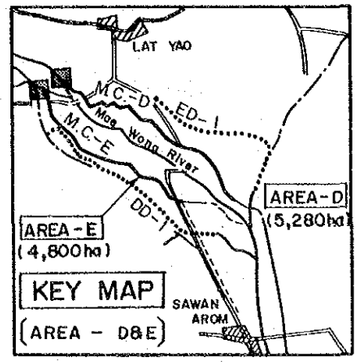




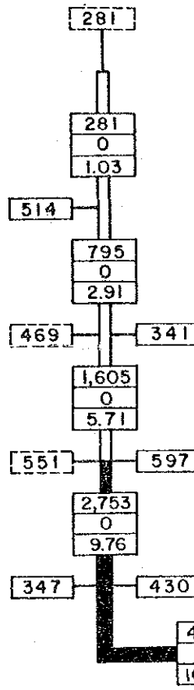
LEGEND

- Area of Commanding Area (ha)
- Area of non-Commanding Area (ha)
- Accumulated Area of Paddy Field (ha)
- Accumulated Area of non-Paddy Field (ha)
- Design Drainage Water Discharge (m^3/s)
- Existing Drainage Canal
- New Drainage Canal

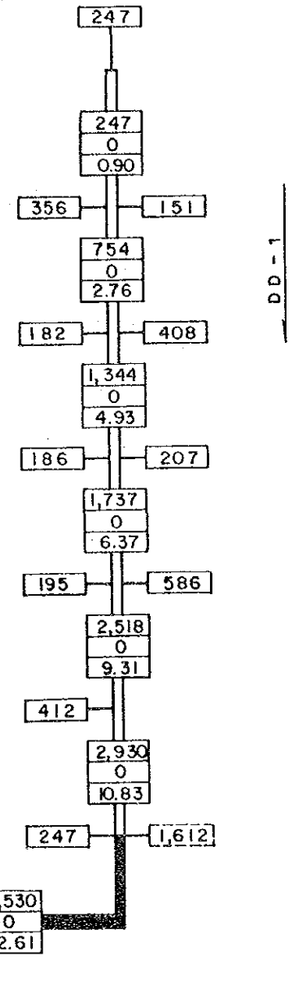




DRAINAGE DIAGRAM FOR AREA - E

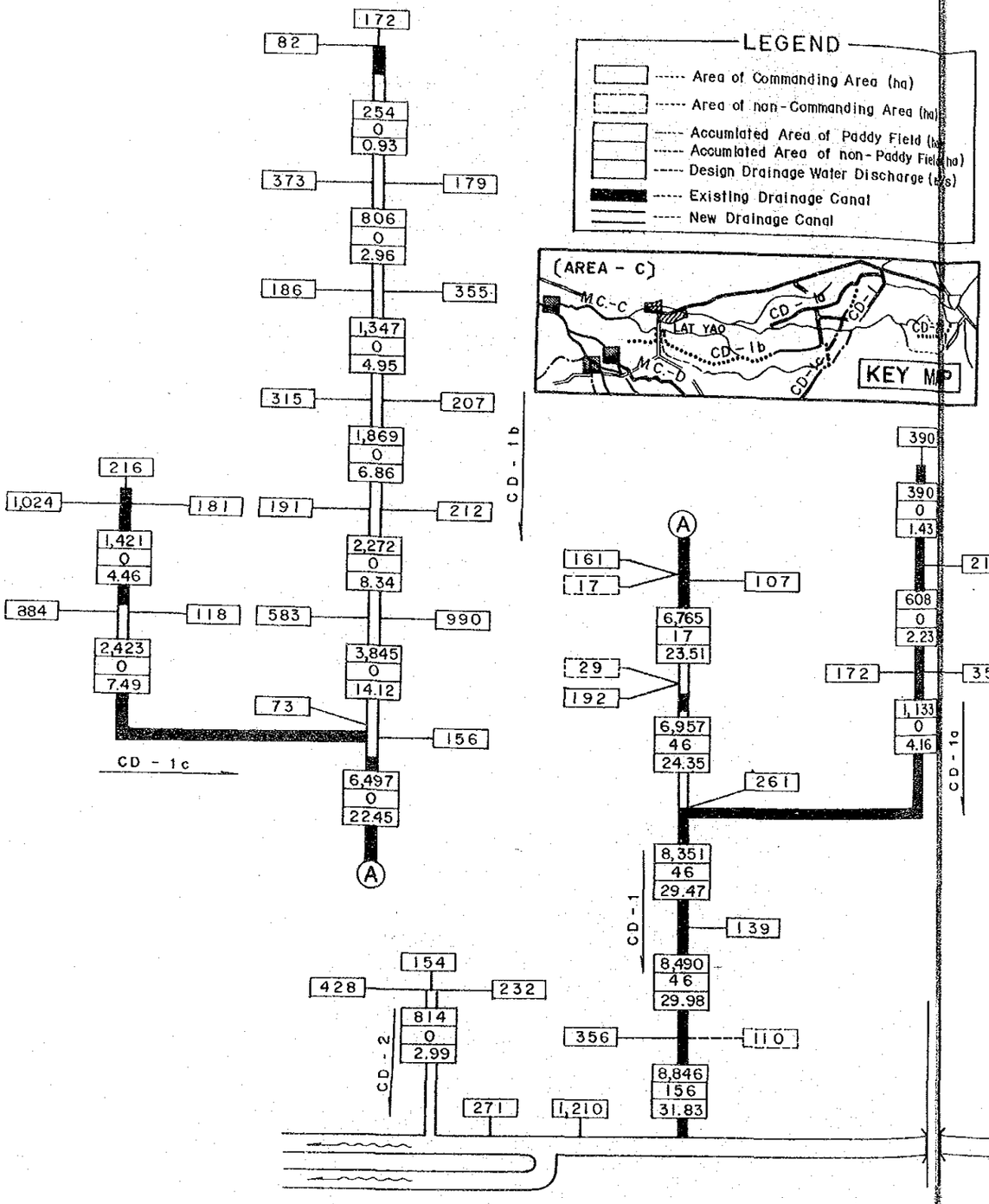


DRAINAGE DIAGRAM FOR AREA - D

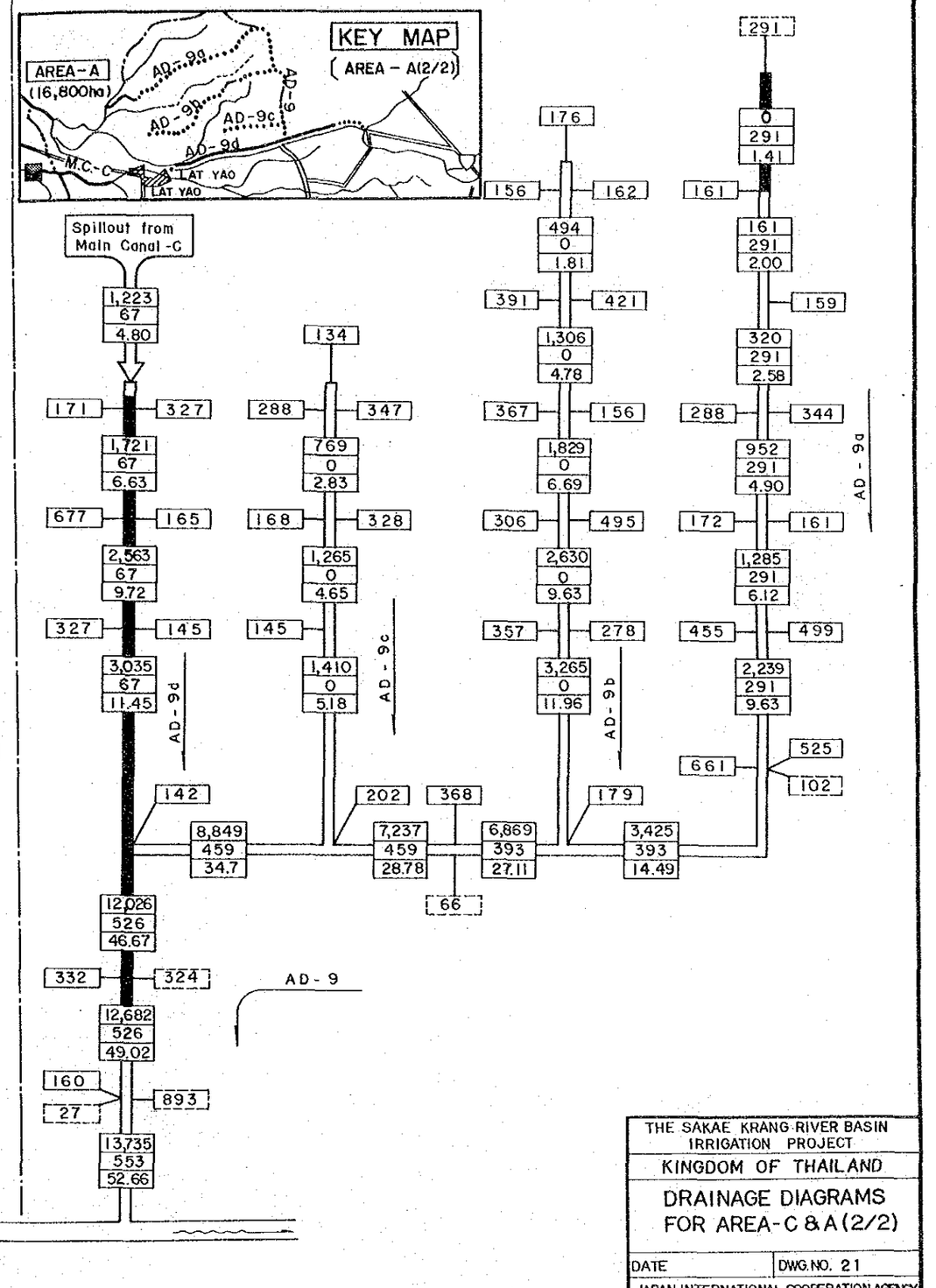


THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT	
KINGDOM OF THAILAND	
DRAINAGE DIAGRAMS FOR AREA-A(1/2), D & E	
DATE	DWG.NO. 20
JAPAN INTERNATIONAL COOPERATION AGENCY	

DRAINAGE DIAGRAM FOR AREA - C



DRAINAGE DIAGRAM FOR AREA - A (2/2)



THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT

KINGDOM OF THAILAND

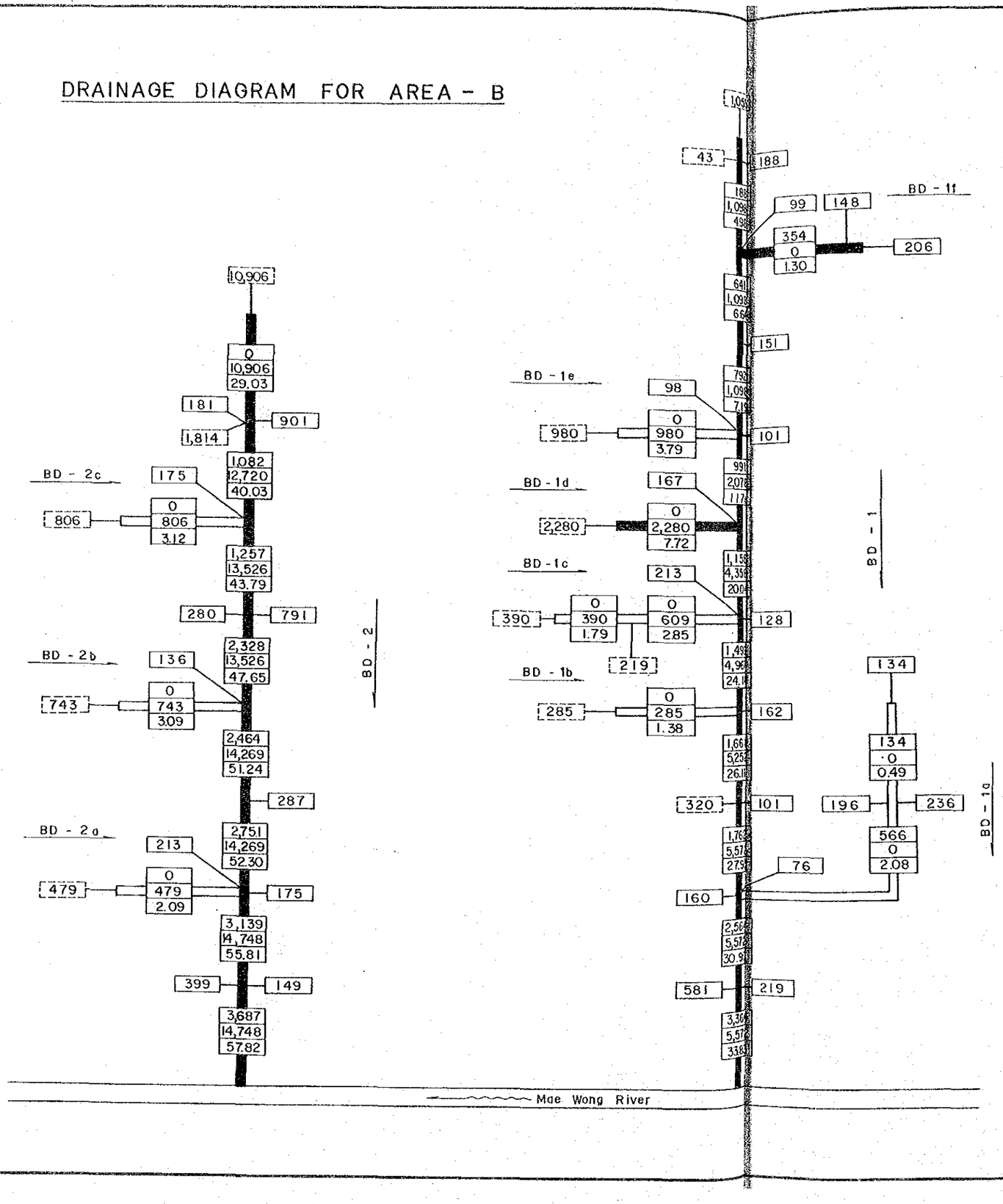
DRAINAGE DIAGRAMS FOR AREA-C & A(2/2)

DATE

DWG.NO. 21

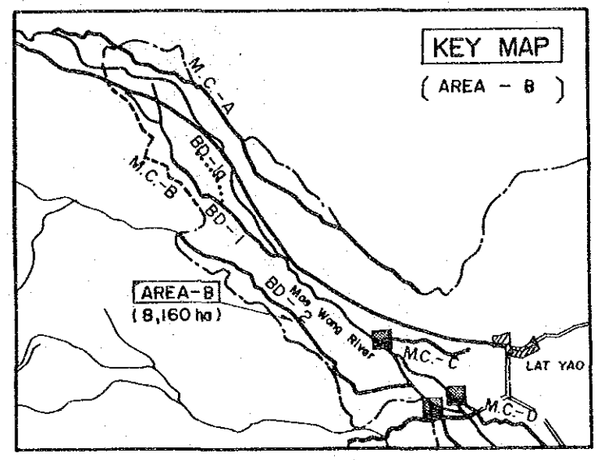
JAPAN INTERNATIONAL COOPERATION AGENCY

DRAINAGE DIAGRAM FOR AREA - B



LEGEND

- Area of Commanding Area (ha)
- Area of non-Commanding Area (ha)
- Accumlated Area of Paddy Field (ha)
- Accumlated Area of non-Paddy Field (ha)
- Design Drainage Water Discharge (m^3/s)
- Existing Drainage Canal
- New Drainage Canal



THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT

KINGDOM OF THAILAND

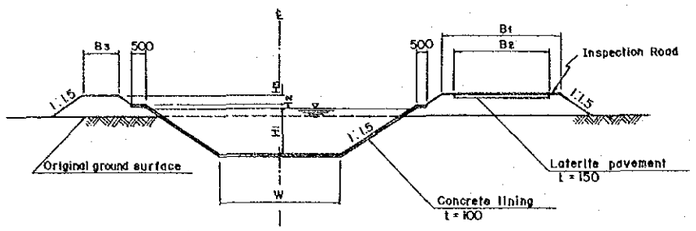
DRAINAGE DIAGRAM FOR AREA-B

DATE

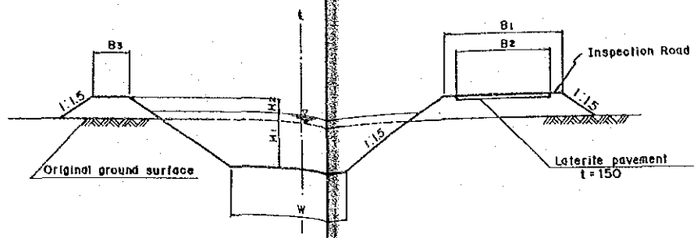
DWG.NO. 22

JAPAN INTERNATIONAL COOPERATION AGENCY

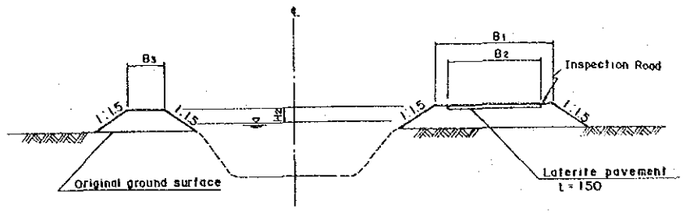
IRRIGATION CANAL LINING CANAL



IRRIGATION CANAL EARTH CANAL



IRRIGATION CANAL REHABILITATION TYPE - I

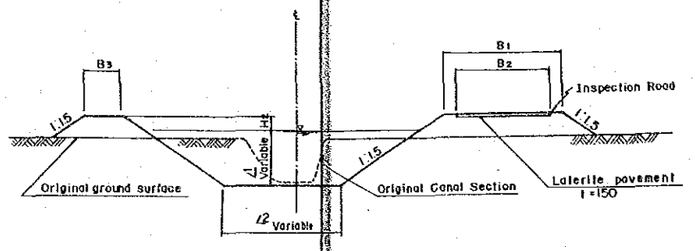


DIMENSION TABLE FOR IRRIGATION CANAL (LINING)

(Unit : m)

TYPE	DISCHARGE (m^3/sec)	GRADIENT	W	H1	H2	H3	B1	B2	B3
LA	15.00 ~ 21.00	1/2500	5.00	1.85	0.20	0.40	5.00	4.00	1.50
LB	10.00 ~ 15.00	1/2000	3.50	1.65	0.20	0.40	5.00	4.00	1.50
LC	7.00 ~ 10.00	1/2000	3.00	1.45	0.20	0.40	5.00	4.00	1.50
LD	5.00 ~ 7.00	1/2000 ~ 1/1500	2.50	1.30	0.20	0.40	5.00	4.00	1.50
LE	3.00 ~ 5.00	1/2000 ~ 1/1500	2.00	1.20	0.20	0.40	5.00	4.00	1.50
LF	1.00 ~ 3.00	1/2000 ~ 1/1000	1.50	1.00	0.15	0.30	4.00	—	1.00
LG	0.50 ~ 1.00	1/2000 ~ 1/1000	1.00	0.70	0.15	0.30	4.00	—	1.00
LH	~ 0.50	1/2000 ~ 1/1000	0.80	0.50	0.15	0.30	4.00	—	1.00

IRRIGATION CANAL REHABILITATION TYPE - II



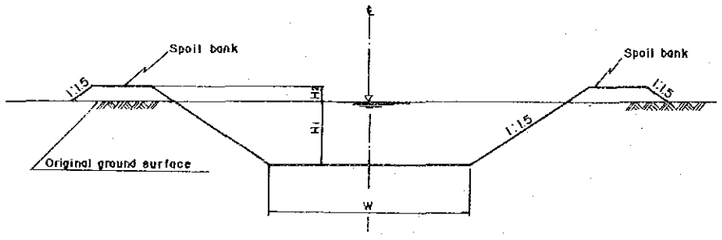
NOTES : l1 ---- Minimum Depth is Existing Canal Depth
l2 ---- Minimum Width is Existing Canal Bed Width

DIMENSION TABLE FOR IRRIGATION CANAL (EARTH)

(Unit : mm)

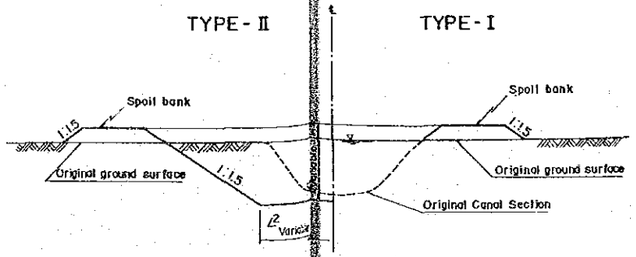
TYPE	DISCHARGE (m^3/sec)	GRADIENT	W	H1	H2	B1	B2	B3
EA	15.00~21.00	1/200	6.50	2.25	0.60	5.00	4.00	1.50
EB	10.00~15.00	1/200	6.00	1.95	0.60	5.00	4.00	1.50
EC	7.00~10.00	1/2000 ~ 1/1500	5.00	1.70	0.60	5.00	4.00	1.50
ED	5.00~ 7.00	1/2000~ 1/1500	4.00	1.55	0.60	5.00	4.00	1.50
EE	3.00 ~ 5.00	1/2000~ 1/1000	3.50	1.35	0.60	5.00	4.00	1.50
EF	1.00~ 3.00	1/2000~ 1/1000	2.50	1.20	0.45	4.00	—	1.00
EG	0.50~ 1.00	1/2000~ 1/1000	1.50	0.90	0.45	4.00	—	1.00
EH	0.50	1/2000~ 1/1000	1.00	0.70	0.45	4.00	—	1.00

DRAINAGE CANAL



DRAINAGE CANAL REHABILITATION

TYPE - II TYPE - I



NOTES : l1 ---- Minimum Depth is Existing Canal Depth
l2 ---- Minimum Width is Existing Canal Bed Width

DIMENSION TABLE FOR DRAINAGE CANAL

(Unit : mm)

TYPE	DISCHARGE (m^3/sec)	GRADIENT	W	H1	H2
DA	30.00~42.00	1/1500	8.50	2.65	0.60
DB	20.00~30.00	1/1500 ~ 1/1000	7.00	2.40	0.60
DC	15.00~20.00	1/1500 ~ 1/1000	6.00	2.10	0.60
DD	10.00~15.00	1/1500 ~ 1/1000	5.00	1.95	0.60
DE	7.00~10.00	1/1500 ~ 1/1000	4.00	1.70	0.60
DF	5.00~ 7.00	1/1500 ~ 1/1000	3.50	1.50	0.60
DG	3.00~ 5.00	1/1500 ~ 1/1000	3.00	1.35	0.60
DH	1.00~ 3.00	1/1500 ~ 1/1000	2.00	1.20	0.45
DI	0.50~ 1.00	1/1500 ~ 1/1000	1.30	0.80	0.45
DJ	~ 0.50	1/1500 ~ 1/1000	1.00	0.65	0.45

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT

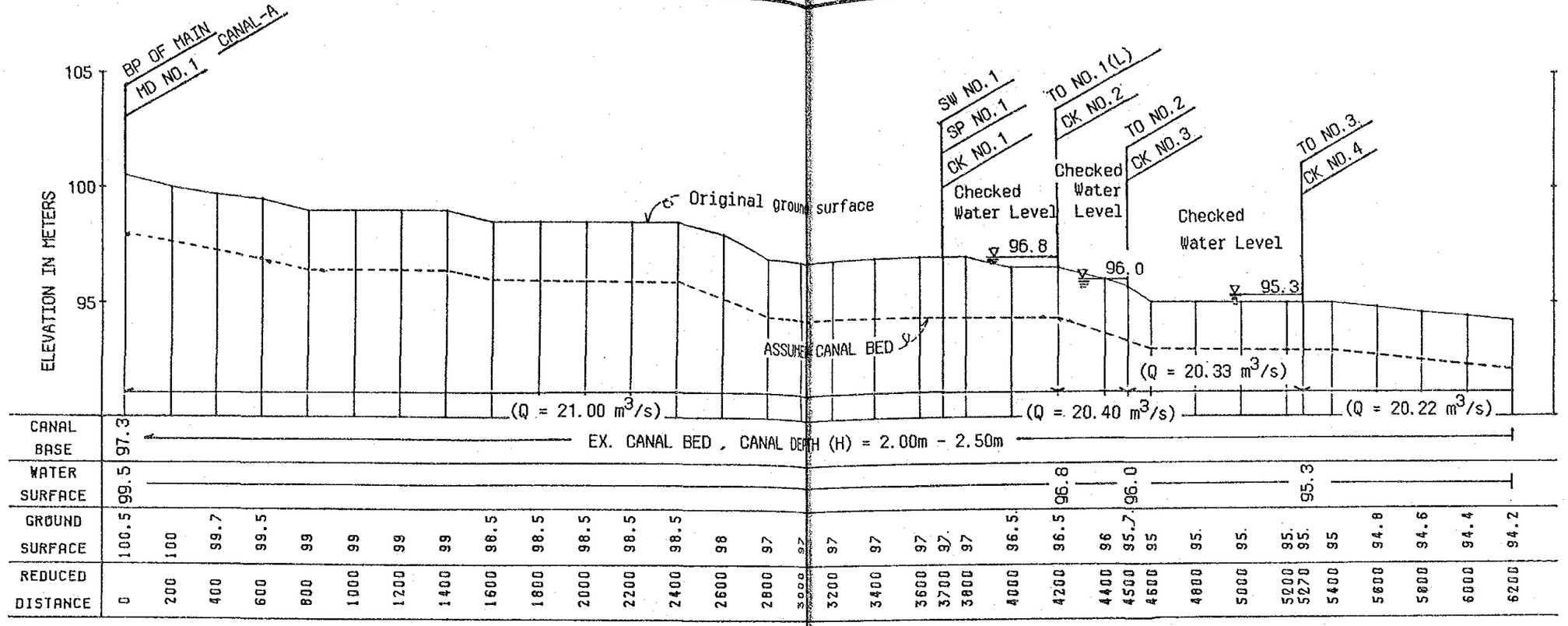
KINGDOM OF THAILAND

TYPICAL SECTION OF CANALS & INSPECTION ROAD

DATE

DWG.NO. 23

JAPAN INTERNATIONAL COOPERATION AGENCY



ABBREVIATIONS

BP	BEGINNING POINT
EP	END POINT
MD	MEASURING DEVICE
TO	TURNOUT
CK	CHECK
SW	SPILLWAY
SP	SYPHON
CD	CROSS DRAIN
CV	CULVERT
DR	DROP
(L)	LATERAL CANAL
(SL)	SUB-LATERAL CANAL

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT

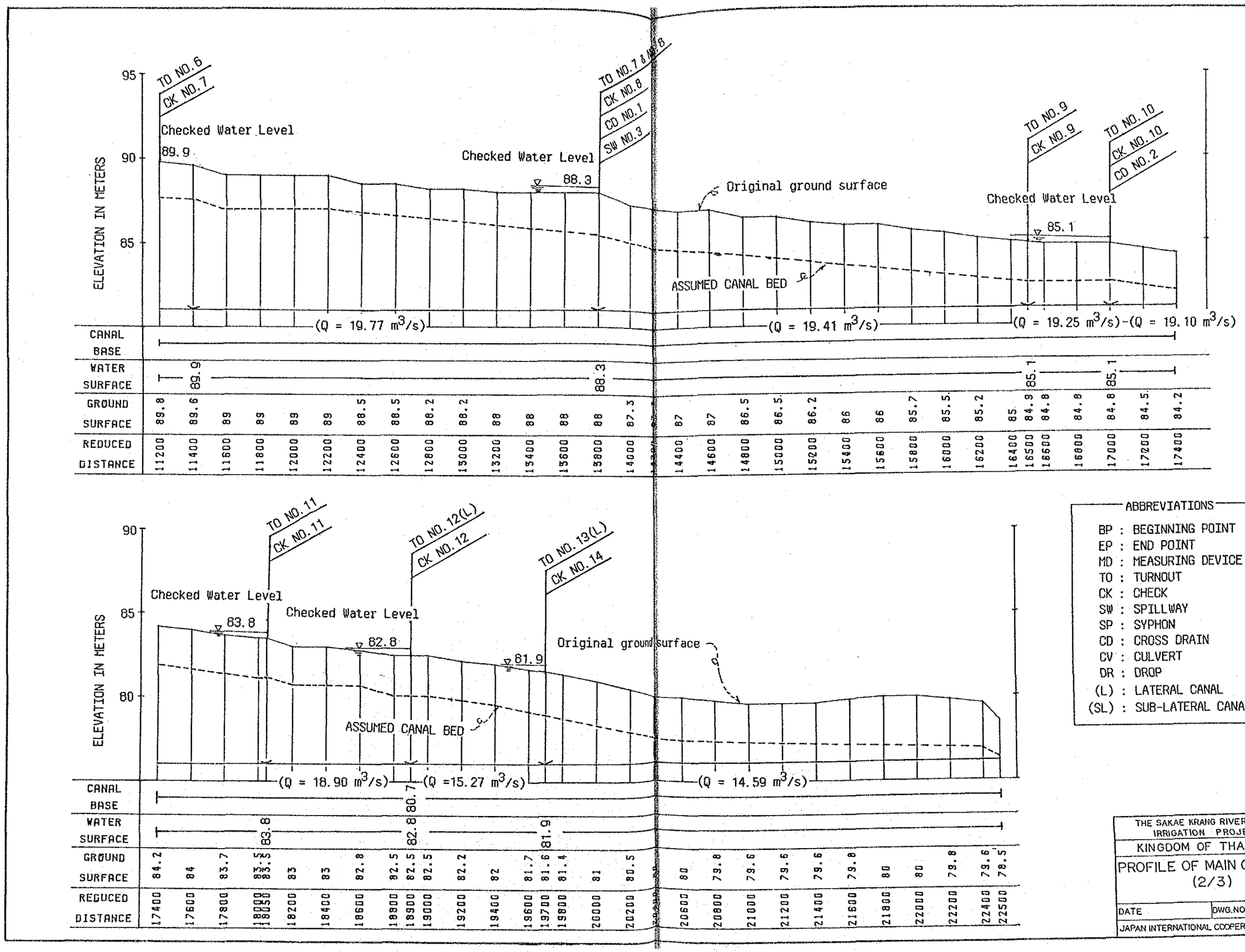
KINGDOM OF THAILAND

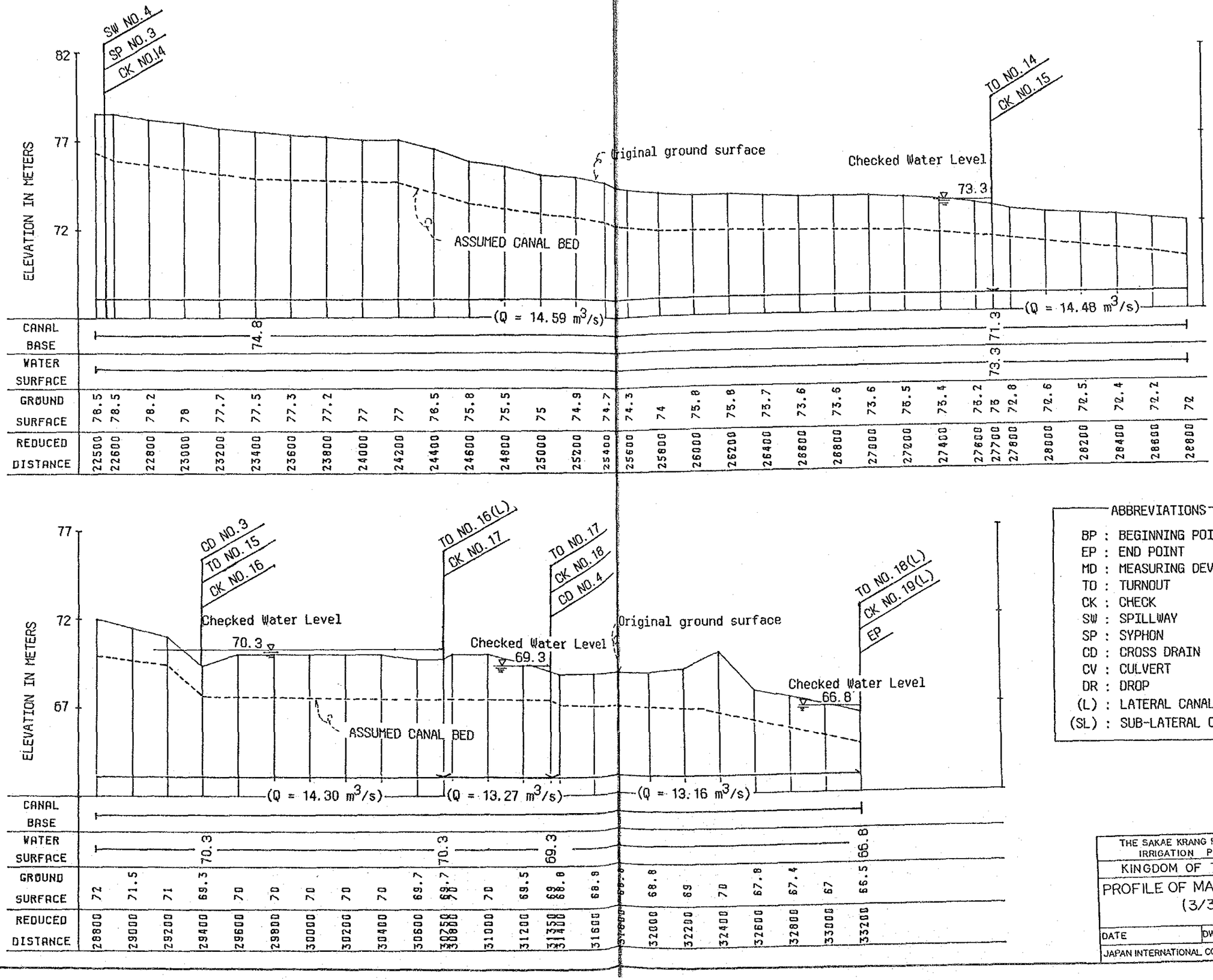
PROFILE OF MAIN CANAL-A (1/3)

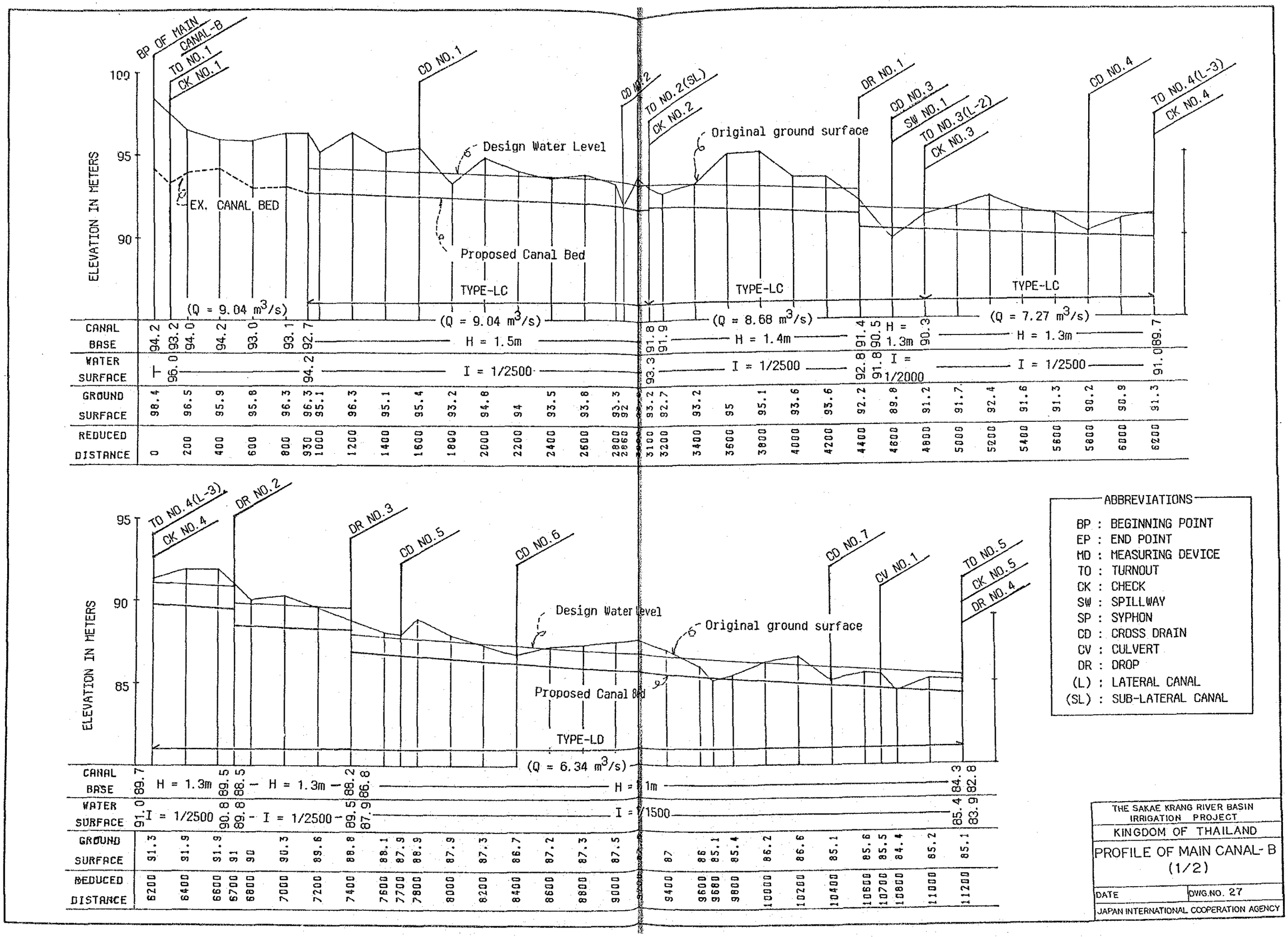
DATE

DWG.NO. 24

JAPAN INTERNATIONAL COOPERATION AGENCY


TO NO.6
CK NO.7
Checked Water Level
89.9
Checked Water Level
88.3
TO NO.7 & NO.8
CK NO.8
CD NO.1
SW NO.3
Original ground surface
TO NO.9
CK NO.9
TO NO.10
CK NO.10
CD NO.2
Checked Water Level
85.1
ASSUMED CANAL BED
ELEVATION IN METERS
95
90
85
(Q = 19.77 m3/s)
(Q = 19.41 m3/s)
(Q = 19.25 m3/s)-(Q = 19.10 m3/s)
CANAL BASE
WATER SURFACE
GROUND SURFACE
REDUCED DISTANCE
89.8 89.6 89 89 89 89 88.5 88.5 88.2 88.2 88 88 88 88 87.3 87 87 86.5 86.5 86.2 86 86 85.7 85.5 85.2 85 84.9 84.8 84.8 84.8 84.5 84.2
11200 11400 11600 11800 12000 12200 12400 12600 12800 13000 13200 13400 13600 13800 14000 14400 14600 14800 15000 15200 15400 15600 15800 16000 16200 16400 16500 16600 16800 17000 17200 17400
TO NO.11
CK NO.11
TO NO.12(L)
CK NO.12
TO NO.13(L)
CK NO.14
Checked Water Level
83.8
Checked Water Level
82.8
81.9
Original ground surface
ASSUMED CANAL BED
90
85
80
(Q = 18.90 m3/s)
(Q =15.27 m3/s)
(Q = 14.59 m3/s)
CANAL BASE
WATER SURFACE
GROUND SURFACE
REDUCED DISTANCE
84.2 84 83.7 83.5 83.5 83 83 82.8 82.5 82.5 82.5 82.2 82 81.7 81.6 81.4 81 80.5 80 79.8 79.6 79.6 79.6 79.8 80 80 79.8 79.6 78.5
17400 17600 17800 18000 18050 18200 18400 18600 18800 18900 19000 19200 19400 19600 19700 19800 20000 20200 20600 20800 21000 21200 21400 21600 21800 22000 22200 22400 22500
ABBREVIATIONS
BP : BEGINNING POINT
EP : END POINT
MD : MEASURING DEVICE
TO : TURNOUT
CK : CHECK
SW : SPILLWAY
SP : SYPHON
CD : CROSS DRAIN
CV : CULVERT
DR : DROP
(L) : LATERAL CANAL
(SL) : SUB-LATERAL CANAL
THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT
KINGDOM OF THAILAND
PROFILE OF MAIN CANAL-A (2/3)
DATE
DWG.NO. 25
JAPAN INTERNATIONAL COOPERATION AGENCY


SW NO. 4
SP NO. 3
CK NO.14
TO NO. 14
CK NO. 15
ELEVATION IN METERS
82
77
72
Original ground surface
Checked Water Level
73.3
ASSUMED CANAL BED
(Q = 14.59 m3/s)
(Q = 14.48 m3/s)
CANAL BASE
WATER SURFACE
GROUND SURFACE
REDUCED DISTANCE
CD NO. 3
TO NO. 15
CK NO. 16
TO NO. 16(L)
CK NO. 17
TO NO. 17
CK NO. 18
CD NO. 4
TO NO. 18(L)
CK NO. 19(L)
EP
Checked Water Level
70.3
Checked Water Level
69.3
Original ground surface
Checked Water Level
66.8
ASSUMED CANAL BED
(Q = 14.30 m3/s)
(Q = 13.27 m3/s)
(Q = 13.16 m3/s)
ABBREVIATIONS
BP : BEGINNING POINT
EP : END POINT
MD : MEASURING DEVICE
TO : TURNOUT
CK : CHECK
SW : SPILLWAY
SP : SYPHON
CD : CROSS DRAIN
CV : CULVERT
DR : DROP
(L) : LATERAL CANAL
(SL) : SUB-LATERAL CANAL
THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT
KINGDOM OF THAILAND
PROFILE OF MAIN CANAL-A (3/3)
DATE
DWG.NO. 26
JAPAN INTERNATIONAL COOPERATION AGENCY



ABBREVIATIONS

BP	BEGINNING POINT
EP	END POINT
MD	MEASURING DEVICE
TO	TURNOUT
CK	CHECK
SW	SPILLWAY
SP	SYPHON
CD	CROSS DRAIN
CV	CULVERT
DR	DROP
(L)	LATERAL CANAL
(SL)	SUB-LATERAL CANAL

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT

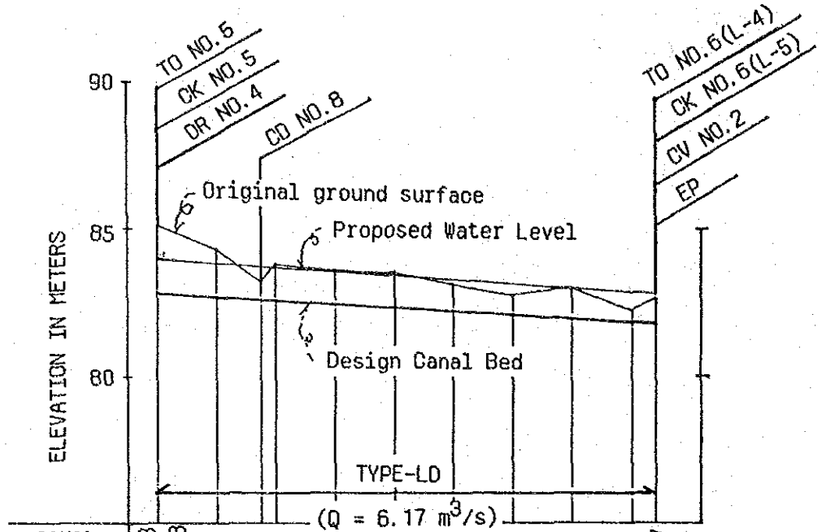
KINGDOM OF THAILAND

PROFILE OF MAIN CANAL-B (1/2)

DATE

DWG.NO. 27

JAPAN INTERNATIONAL COOPERATION AGENCY



CANAL BASE	84.3	82.8								81.7
WATER SURFACE	85.4	83.9							82.8	
GROUND SURFACE	85.1	84.3	83.2	83.6	83.5	83.1	82.7	83	82.2	82.6
REDUCED DISTANCE	11200	11400	11550	11800	12000	12200	12400	12600	12800	12880

ABBREVIATIONS

BP : BEGINNING POINT
EP : END POINT
MD : MEASURING DEVICE
TO : TURNOUT
CK : CHECK
SW : SPILLWAY
SP : SYPHON
CD : CROSS DRAIN
CV : CULVERT
DR : DROP
(L) : LATERAL CANAL
(SL) : SUB-LATERAL CANAL

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT

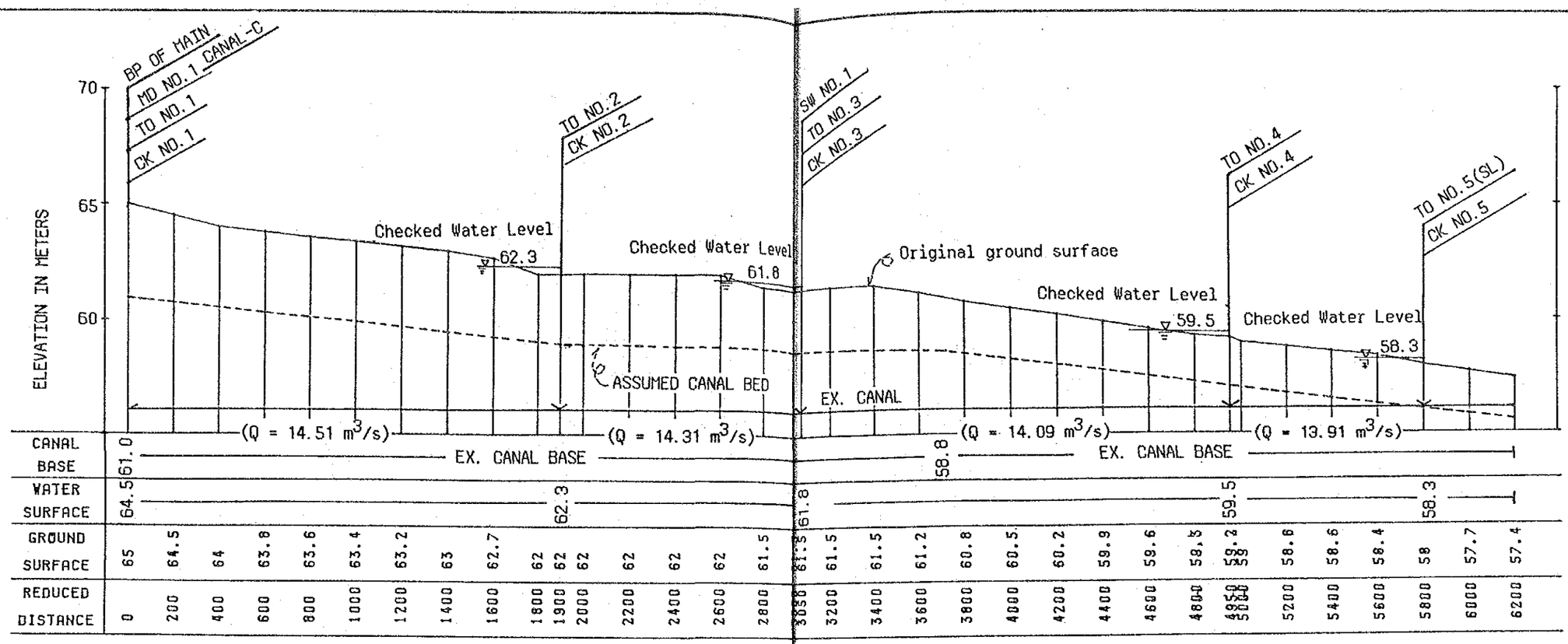
KINGDOM OF THAILAND

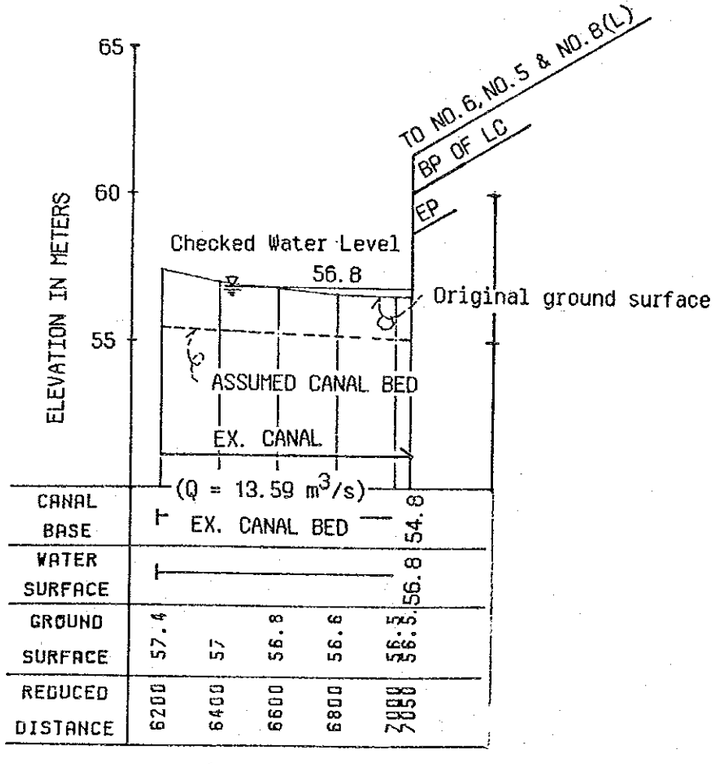
PROFILE OF MAIN CANAL-B (2/2)

DATE

DWG.NO. 28

JAPAN INTERNATIONAL COOPERATION AGENCY





ABBREVIATIONS

BP	BEGINNING POINT
EP	END POINT
MD	MEASURING DEVICE
TO	TURNOUT
CK	CHECK
SW	SPILLWAY
SP	SYPHON
CD	CROSS DRAIN
CV	CULVERT
DR	DROP
(L)	LATERAL CANAL
(SL)	SUB-LATERAL CANAL

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT

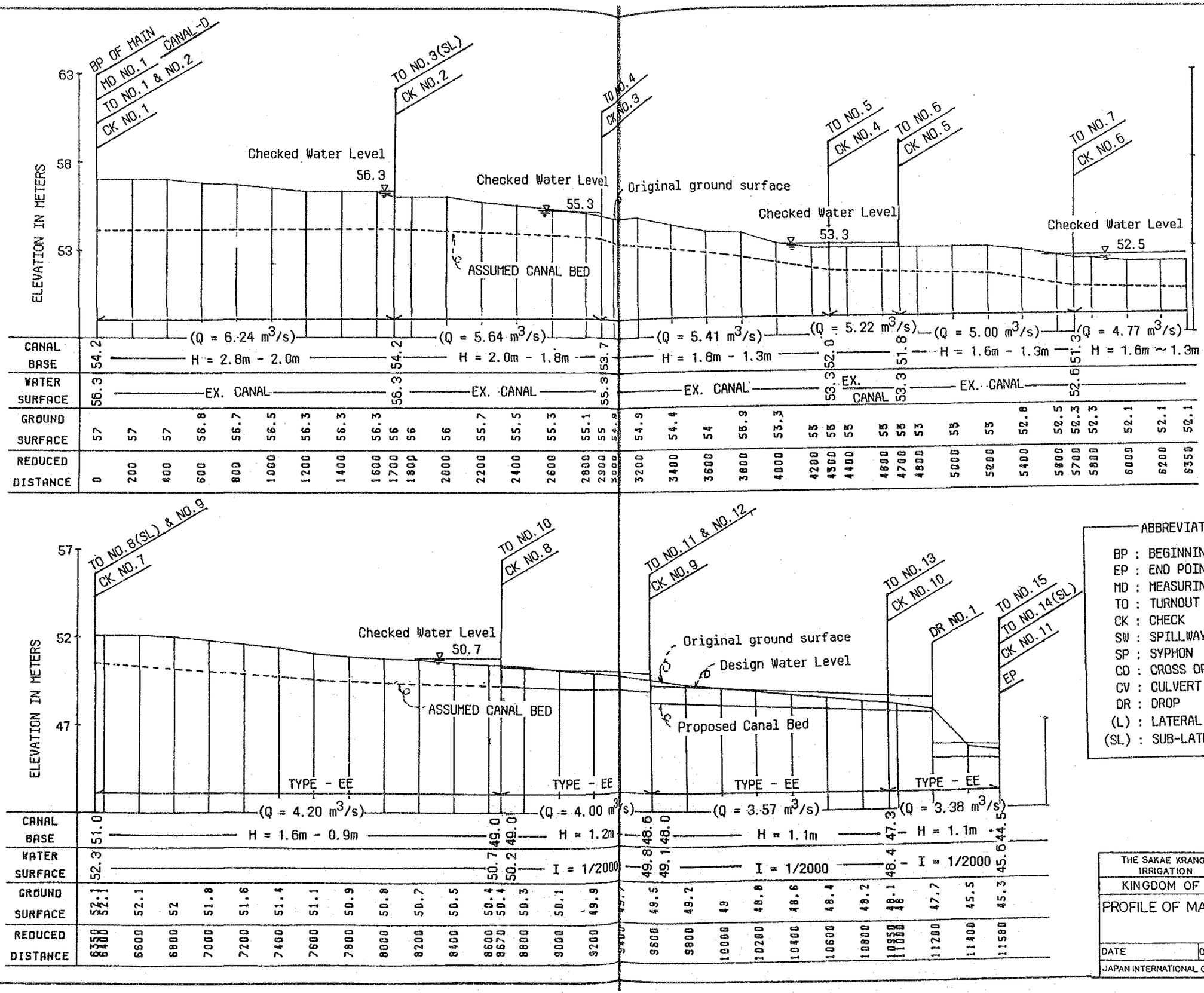
KINGDOM OF THAILAND

PROFILE OF MAIN CANAL-C

DATE

DWG.NO. 29

JAPAN INTERNATIONAL COOPERATION AGENCY



ABBREVIATIONS

BP	BEGINNING POINT
EP	END POINT
MD	MEASURING DEVICE
TO	TURNOUT
CK	CHECK
SW	SPILLWAY
SP	SYPHON
CD	CROSS DRAIN
CV	CULVERT
DR	DROP
(L)	LATERAL CANAL
(SL)	SUB-LATERAL CANAL

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT

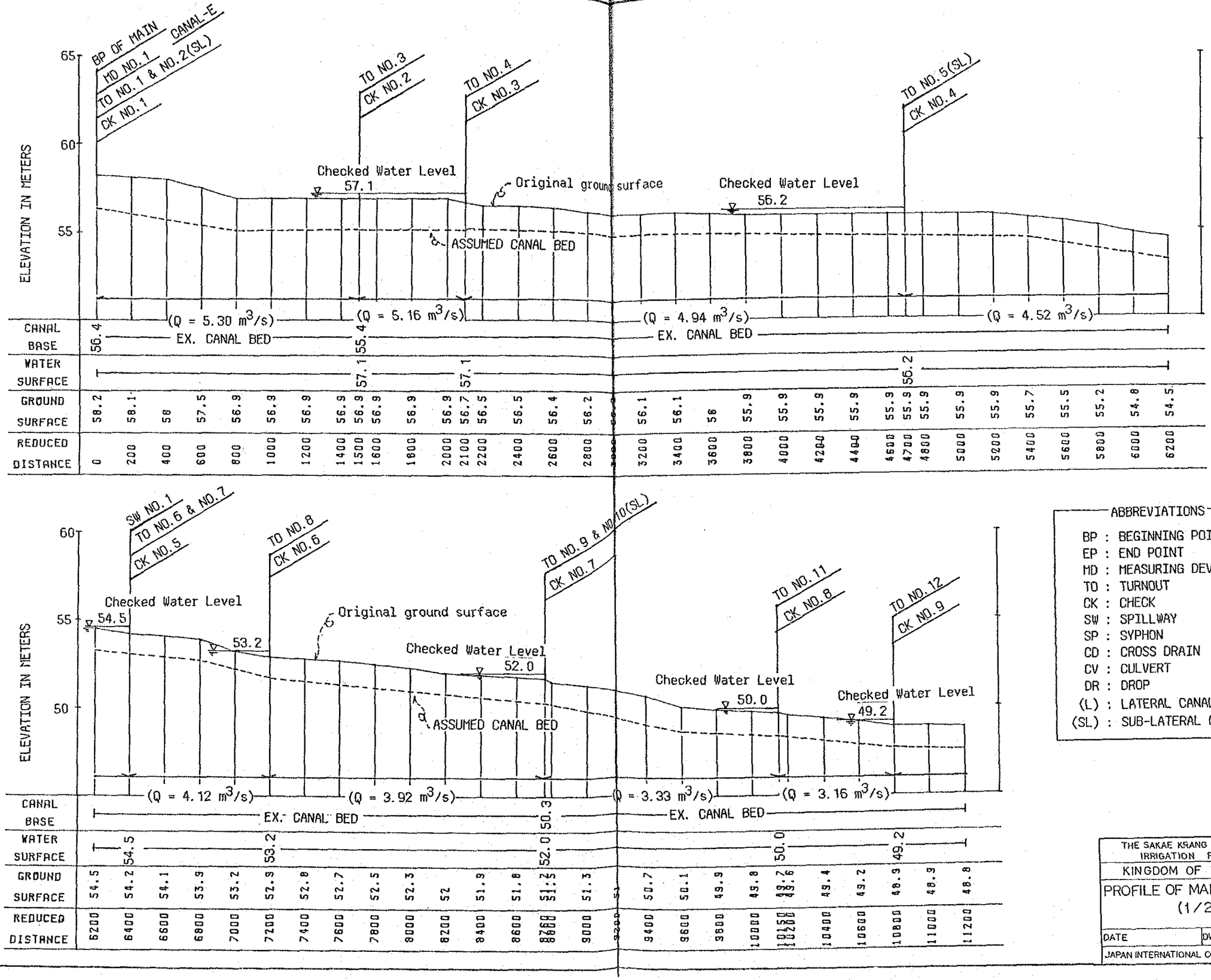
KINGDOM OF THAILAND

PROFILE OF MAIN CANAL-D

DATE

DWG.NO. 30

JAPAN INTERNATIONAL COOPERATION AGENCY



ABBREVIATIONS

BP	BEGINNING POINT
EP	END POINT
MD	MEASURING DEVICE
TO	TURNOUT
CK	CHECK
SW	SPILLWAY
SP	SYPHON
CD	CROSS DRAIN
CV	CULVERT
DR	DROP
(L)	LATERAL CANAL
(SL)	SUB-LATERAL CANAL

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT

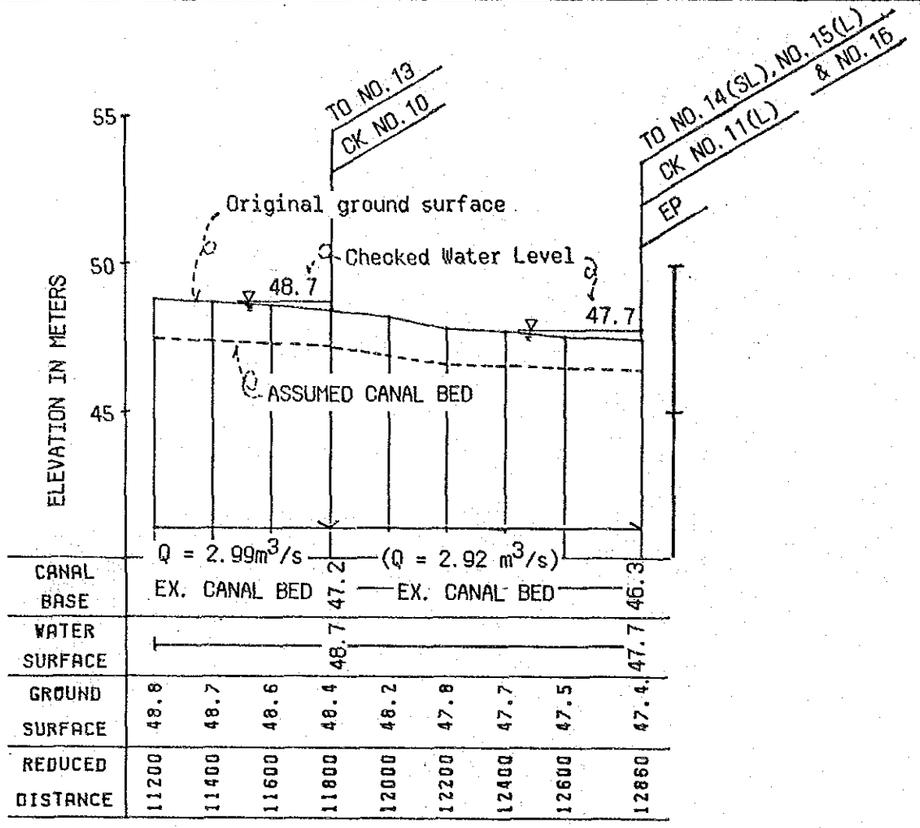
KINGDOM OF THAILAND

PROFILE OF MAIN CANAL-E (1/2)

DATE

DWG.NO. 31

JAPAN INTERNATIONAL COOPERATION AGENCY



ABBREVIATIONS

BP	BEGINNING POINT
EP	END POINT
MD	MEASURING DEVICE
TO	TURNOUT
CK	CHECK
SW	SPILLWAY
SP	SYPHON
CD	CROSS DRAIN
CV	CULVERT
DR	DROP
(L)	LATERAL CANAL
(SL)	SUB-LATERAL CANAL

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT

KINGDOM OF THAILAND

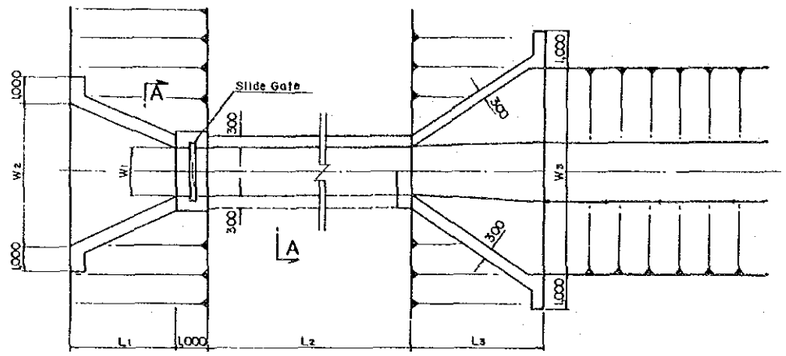
PROFILE OF MAIN CANAL-E (2/2)

DATE

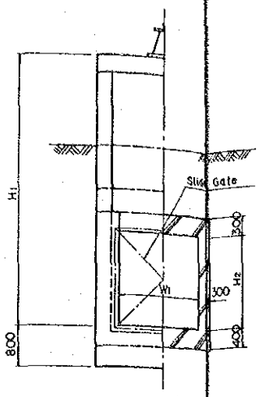
DWG.NO. 32

JAPAN INTERNATIONAL COOPERATION AGENCY

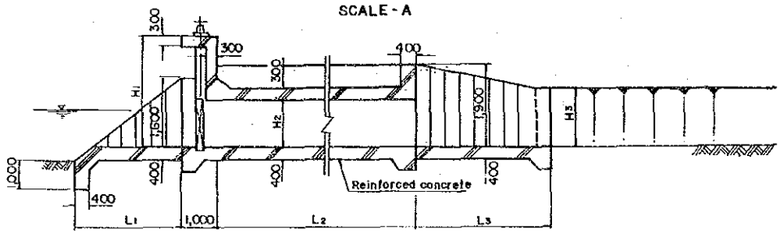
TURNOUT TYPE A~C



PLAN
SCALE-A



SECTION A-A
SCALE-A

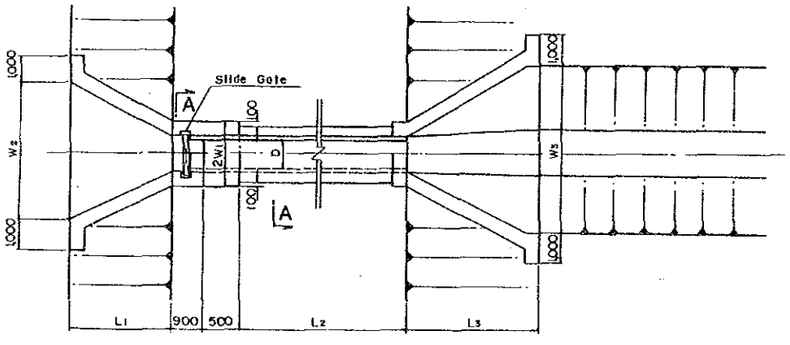


PROFILE
SCALE-A

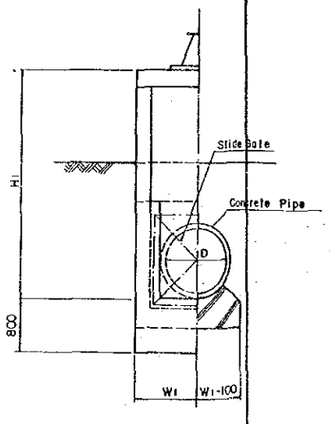
DIMENSON

(Unit : mm)

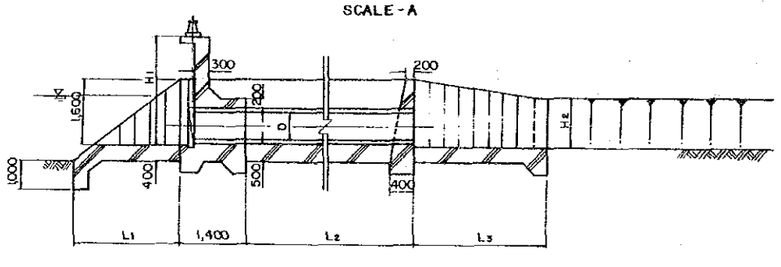
TYPE	DISCHARGE (m^3/sec)	W1	Wz	Ws	H1	Hz	Hs	L1	Lz	Ls	GATE HxW (m)
A	2.00 ~ 3.00	2,000	4,000	7,500	2,800	1,000	1,650	3,200	5,000	5,400	1.0 x 2.0
B	1.00 ~ 2.00	1,700	3,700	7,500	2,400	800	1,650	3,200	5,000	5,700	0.8 x 1.7
C	0.50 ~ 1.00	1,100	3,100	5,600	2,200	800	1,350	2,500	5,000	4,400	0.6 x 1.1



PLAN
SCALE-A



SECTION A-A
SCALE-A



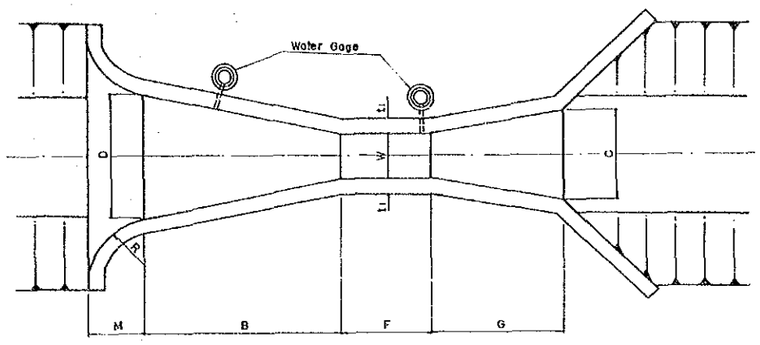
PROFILE
SCALE-A

DIMENSON

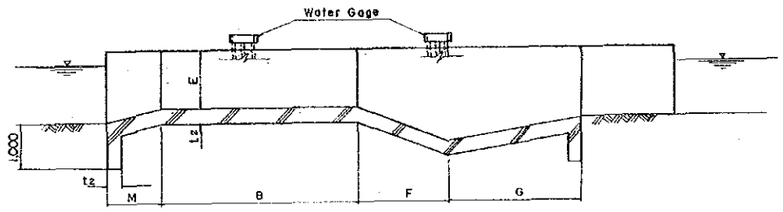
(Unit : mm)

TYPE	DISCHARGE (m^3/sec)	D	W1	Wz	Ws	H1	Hz	L1	Lz	Ls	GATE Dx D(m)
D	0.25 ~0.50	800	700	2,800	4,500	2,400	1,150	2,000	4,000	3,600	0.8 x 0.8
E	~0.25	600	600	2,600	4,500	2,200	1,150	1,700	4,000	3,800	0.6 x 0.6

WATER MEASURING DEVICE



PLAN
SCALE- B



PROFILE
SCALE - B

DIMENSION

(Unit : mm)

TYPE	DISCHARGE (m^3/sec)	M	B	F	G	W	E	C	D	R	t1	t2
A	15.00 ~ 21.00	2,743	7,620	1,829	3,658	6,096	2,134	7,315	9,144	1,646	300	600
B	10.00 ~ 15.00	1,829	7,620	1,219	3,048	4,572	1,829	5,588	7,620	1,097	300	600
C	5.00 ~ 10.00	1,372	4,877	914	2,438	3,658	1,524	4,470	5,607	823	300	600
D	3.00 ~ 5.00	1,372	4,267	914	1,829	3,048	1,219	3,658	4,576	823	200	400
E	1.00 ~ 3.00	916	2,242	610	914	2,134	914	2,438	3,032	610	200	400
F	~ 1.00	916	1,645	610	914	914	914	1,219	1,572	508	200	400

SCALE - A 0 1 2 3m

SCALE - B 0 1m

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT

KINGDOM OF THAILAND

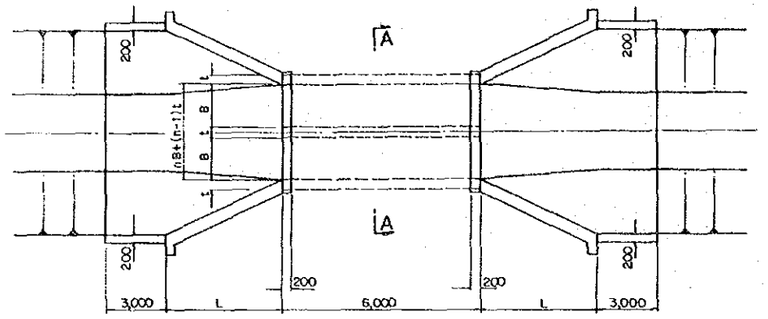
TYPICAL DRAWINGS OF TURNOUT & WATER MEASURING DEVICE

DATE

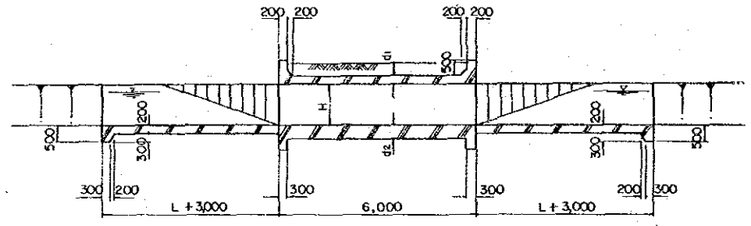
DWG.NO. 33

JAPAN INTERNATIONAL COOPERATION AGENCY

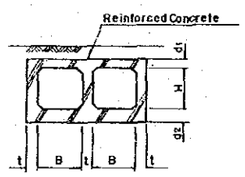
CULVERT



PLAN



PROFILE



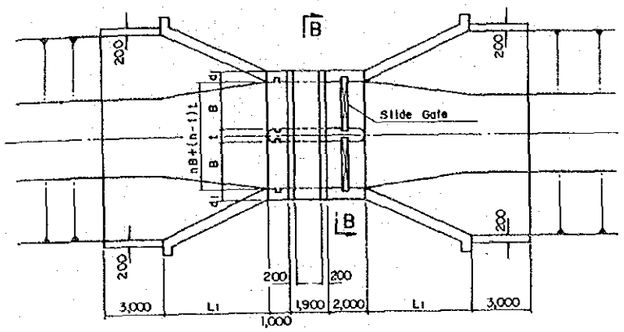
SECTION A-A

DIMENSION (Unit : mm)

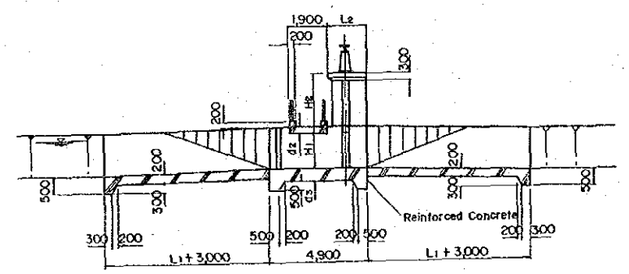
TYPE	DISCHARGE (m³/sec)	L	B	n	H	t	d1	d2
A	7.00 ~ 21.00	11,000	3,000	2	2,850	400	300	500
B	3.00 ~ 7.00	6,000	2,200	2	2,150	350	250	450
C	1.00 ~ 3.00	5,000	2,700	1	1,650	250	250	350
D	~ 1.00	4,000	1,500	1	1,350	250	250	350

SCALE
0 5 10m

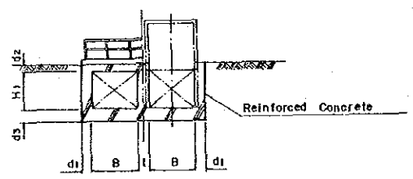
CHECK STRUCTURE



PLAN



PROFILE

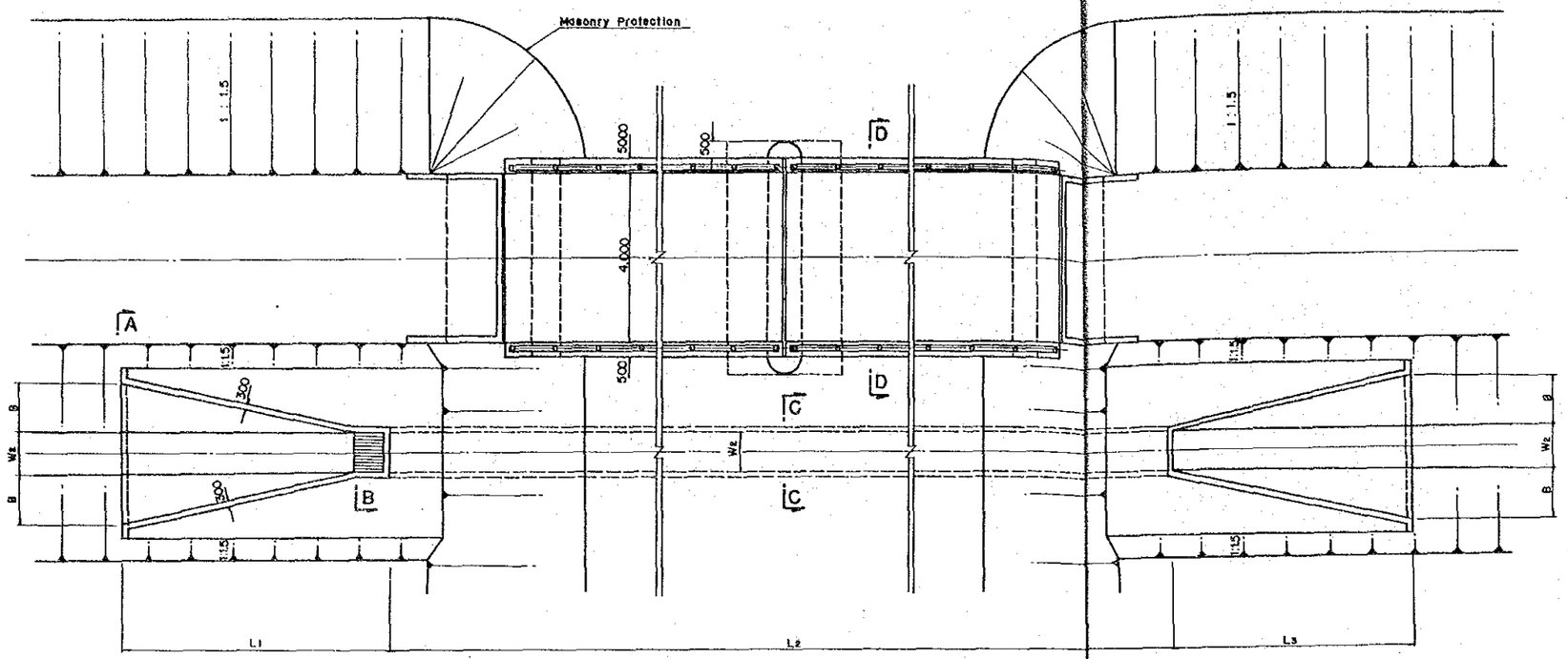


SECTION B-B

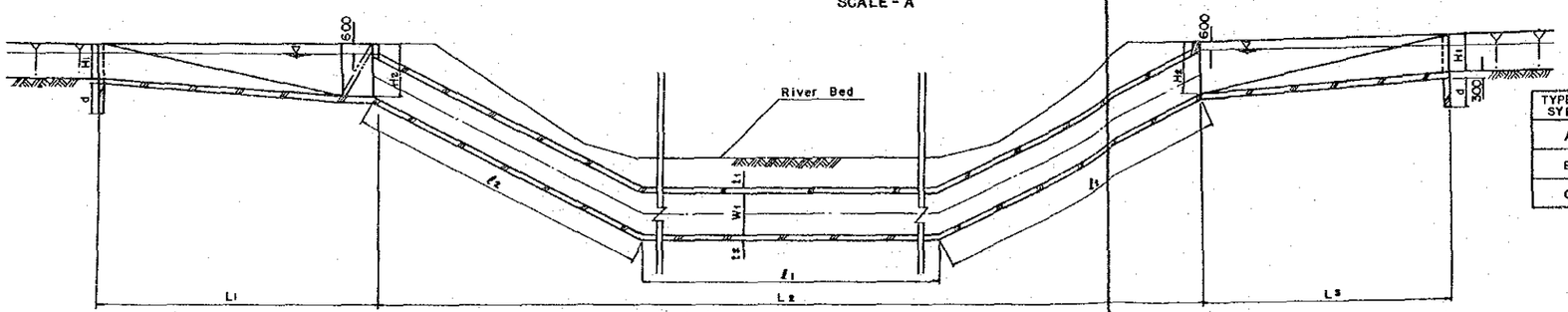
DIMENSION (Unit : mm)

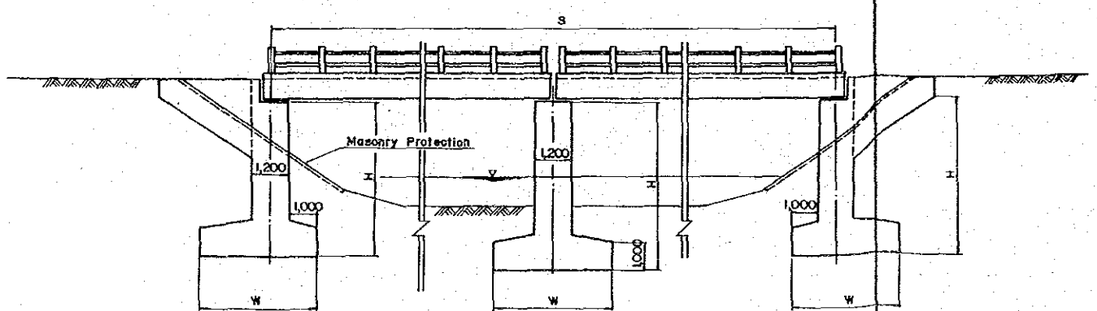
TYPE	DISCHARGE (m³/sec)	L1	Le	B	n	H1	H2	t	d1	d2	d3	GATE HxB(m)
A	7.00 ~ 21.00	10,000	2,000	3,400	2	2,400	3,400	800	400	300	500	2.4 x 3.4
B	3.00 ~ 7.00	5,500	2,000	2,400	2	1,700	2,700	600	300	200	400	1.7 x 2.4
C	1.00 ~ 3.00	4,500	1,500	2,900	1	1,300	2,100	—	300	200	400	1.3 x 2.9
D	0.50 ~ 1.00	3,500	1,500	1,700	1	1,100	1,900	—	300	200	400	1.1 x 1.7
E	~ 0.50	2,000	1,500	1,100	1	800	1,600	—	300	200	300	0.8 x 1.1

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT
KINGDOM OF THAILAND
TYPICAL DRAWINGS OF CULVERT & CHECK STRUCTURE
DATE
DWG.NO. 34
JAPAN INTERNATIONAL COOPERATION AGENCY

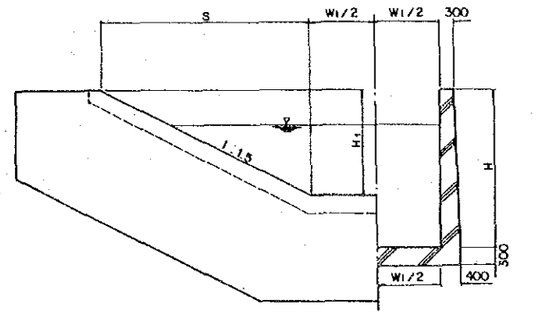


PLAN
SCALE - A

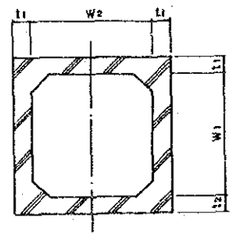




PROFILE
SCALE - A



SECTION A - B
SCALE - B



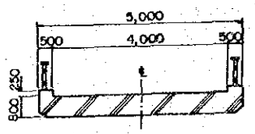
SECTION C-C
SCALE - B

SECTION C-C
SCALE - B

DIMENSION (Unit : mm)

TYPE OF SYPHON	DISCHARGE (m^3/sec)	H1	H2	L1	L2	L3	B	W1	W2	ℓ1	ℓ2	t1	t2	d
A	7.00 ~ 21.00	2850	3400	13000	12000	11000	4300	2850	3000	4000	4700	400	500	1000
B	1.00 ~ 3.00	1650	1900	7000	15000	5000	2400	1650	2700	6000	6000	350	450	1000
C	~ 1.00	1350	1450	6000	15000	4000	2000	1350	1500	6000	6000	300	400	1000

Remarks ; Type A is proposed to be two box culvert



SECTION D-D
SCALE - A

DIMENSION (Unit : mm)

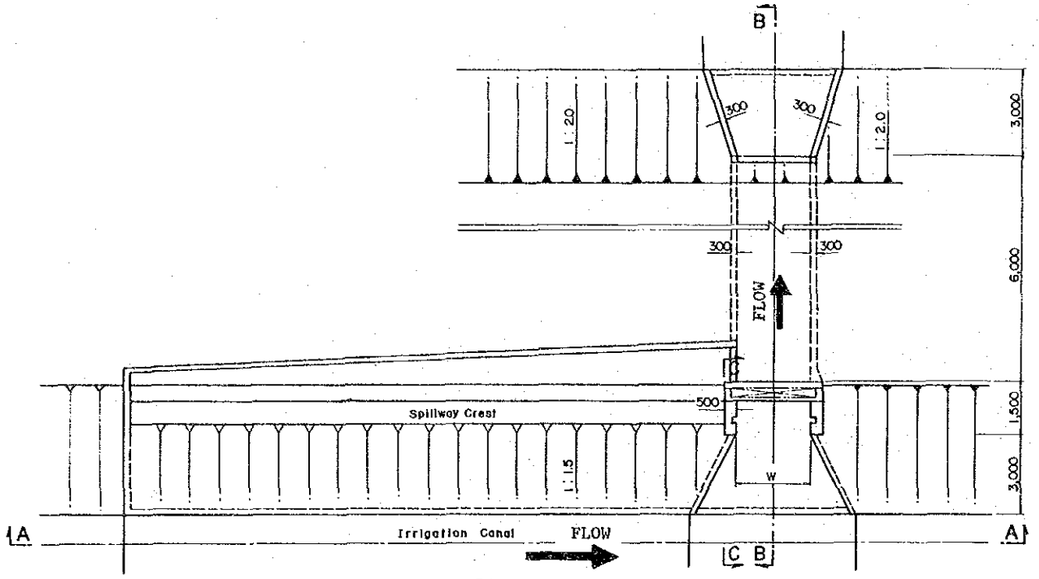
TYPE OF BRIDGE	S	H	W	REMARKS
A	18,000	4,5000	4,000	
B	15,000	4,100	3,000	
C	10,000	3,400	3,000	
D	5,000	2,600	3,000	1 Span

SCALE - A
0 2 4 6 8 10m

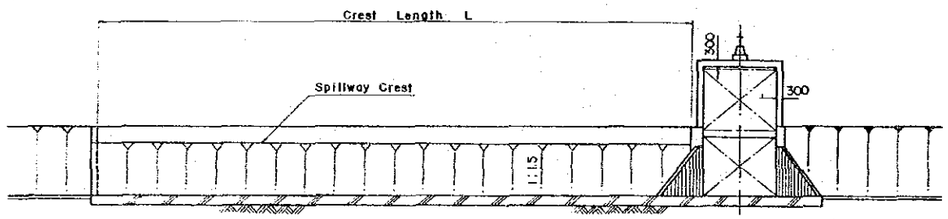
SCALE - B
0 1 2 3m

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT
KINGDOM OF THAILAND
TYPICAL DRAWINGS OF SYPHON & BRIDGE
DATE
DWG.NO. 35
JAPAN INTERNATIONAL COOPERATION AGENCY

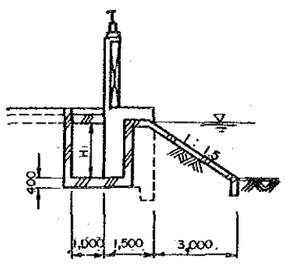
SPILLWAY



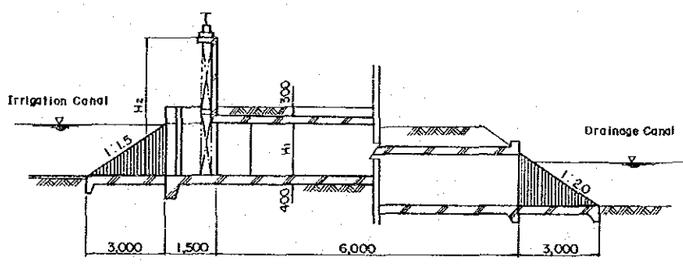
PLAN SCALE-B



SECTION A-A
SCALE-B



SECTION C-C
SCALE-B



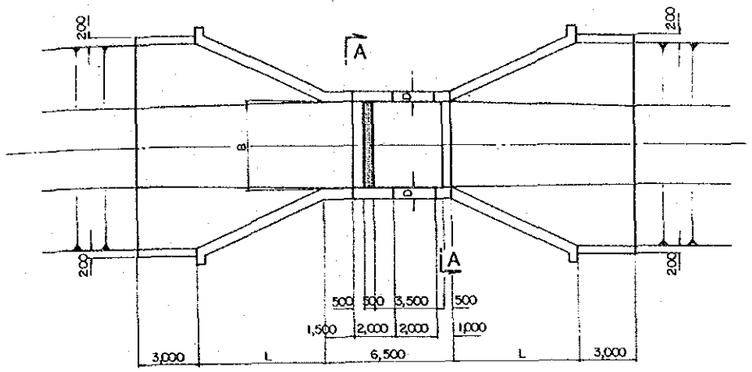
SECTION B-B
SCALE-B

DIMENSION

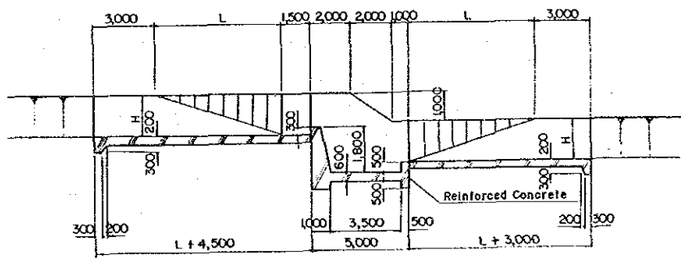
(Unit : mm)

TYPE	DISCHARGE (m^3/sec)	L	W	H1	H2	GATE WxH(m)
A	7.00 ~21.00	12,000	1,500	1,000	2,800	1.5 x 1.0
B	3.00 ~ 7.00	8,000	1,500	1,000	2,800	1.5 x 1.0
C	~ 3.00	5,000	1,500	1,000	2,800	1.5 x 1.0

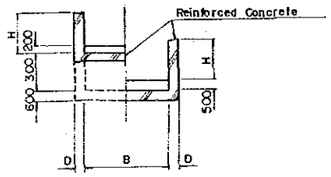
DROP



PLAN
SCALE-A



PROFILE
SCALE-A



SECTION A-A
SCALE-A

DIMENSION

(Unit : mm)

TYPE	DISCHARGE (m^3/sec)	L	B	H	D
A	7.00 ~ 21.00	11,500	6,000	2,850	500
B	3.00 ~ 7.00	6,500	4,400	2,150	400
C	1.00 ~ 3.00	5,000	2,700	1,650	350
D	~ 1.00	4,000	1,500	1,350	350

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT

KINGDOM OF THAILAND

TYPICAL DRAWINGS OF SPILLWAY & DROP

DATE

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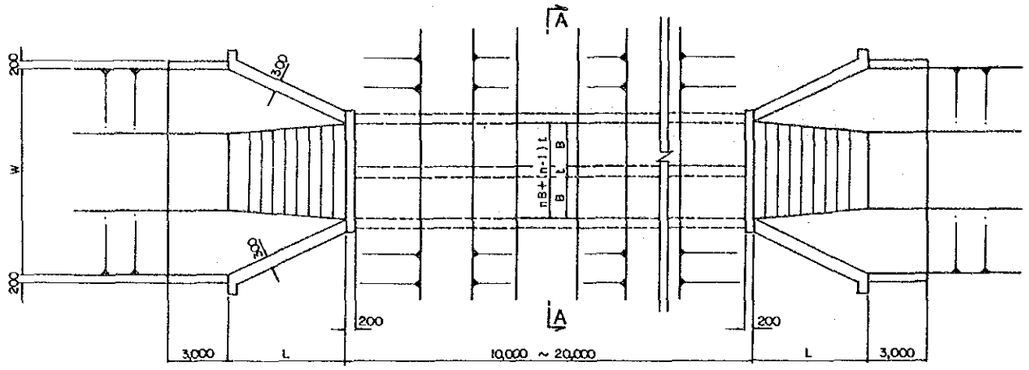
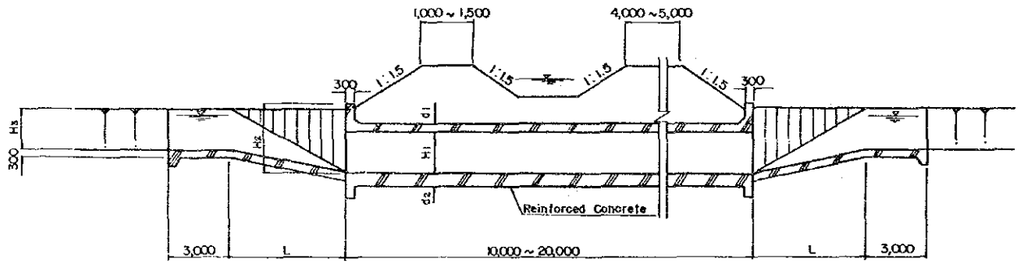
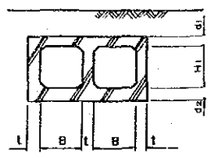
CROSS DRAIN



PLAN
SCALE-A



PROFILE
SCALE-A



SECTION A-A
SCALE-A

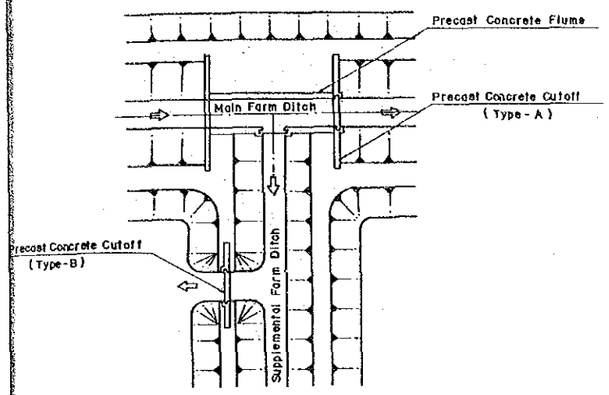
DIMENSION (Unit : mm)

TYPE	DISCHARGE (m^3/sec)	L	B	n	Hi	Hs	Hs	t	w	d1	d2
A	30.00 ~ 42.00	13,500	3,500	3	3,700	4,630	3,250	500	18,250	400	600
B	20.00 ~ 30.00	12,000	4,000	2	3,100	3,800	3,000	450	16,000	350	550
C	7.00 ~ 20.00	11,000	3,000	2	2,900	3,160	2,700	400	14,100	300	500
D	3.00 ~ 7.00	6,000	2,200	2	2,100	2,720	2,100	350	9,800	250	450
E	1.00 ~ 3.00	5,000	2,400	1	1,700	2,130	1,650	250	6,950	250	350
F	~ 1.00	4,000	1,500	1	1,300	2,020	1,250	250	5,050	250	350

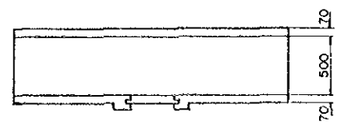
SCALE - A
0 5 10m

DIVISION WORK

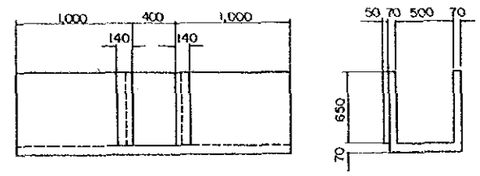
PRECAST CONCRETE FLUME



PLAN
SCALE-A

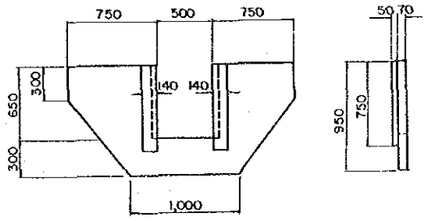


PLAN
SCALE-C

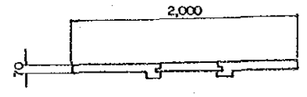


PROFILE
SCALE - C

PRECAST CONCRETE CUTOFF (TYPE-A)

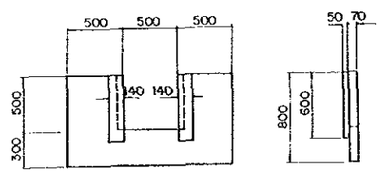


PROFILE SCALE-C

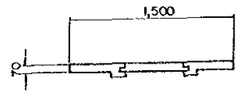


PLAN
SCALE-C

PRECAST CONCRETE CUTOFF (TYPE-B)



PROFILE SCALE-C



PLAN
SCALE-C

SCALE - A 0 1 2 3m

SCALE - B 0 5 10m

SCALE - C 0 1 2m

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT

KINGDOM OF THAILAND

TYPICAL DRAWINGS OF CROSS DRAIN & DIVISION WORK

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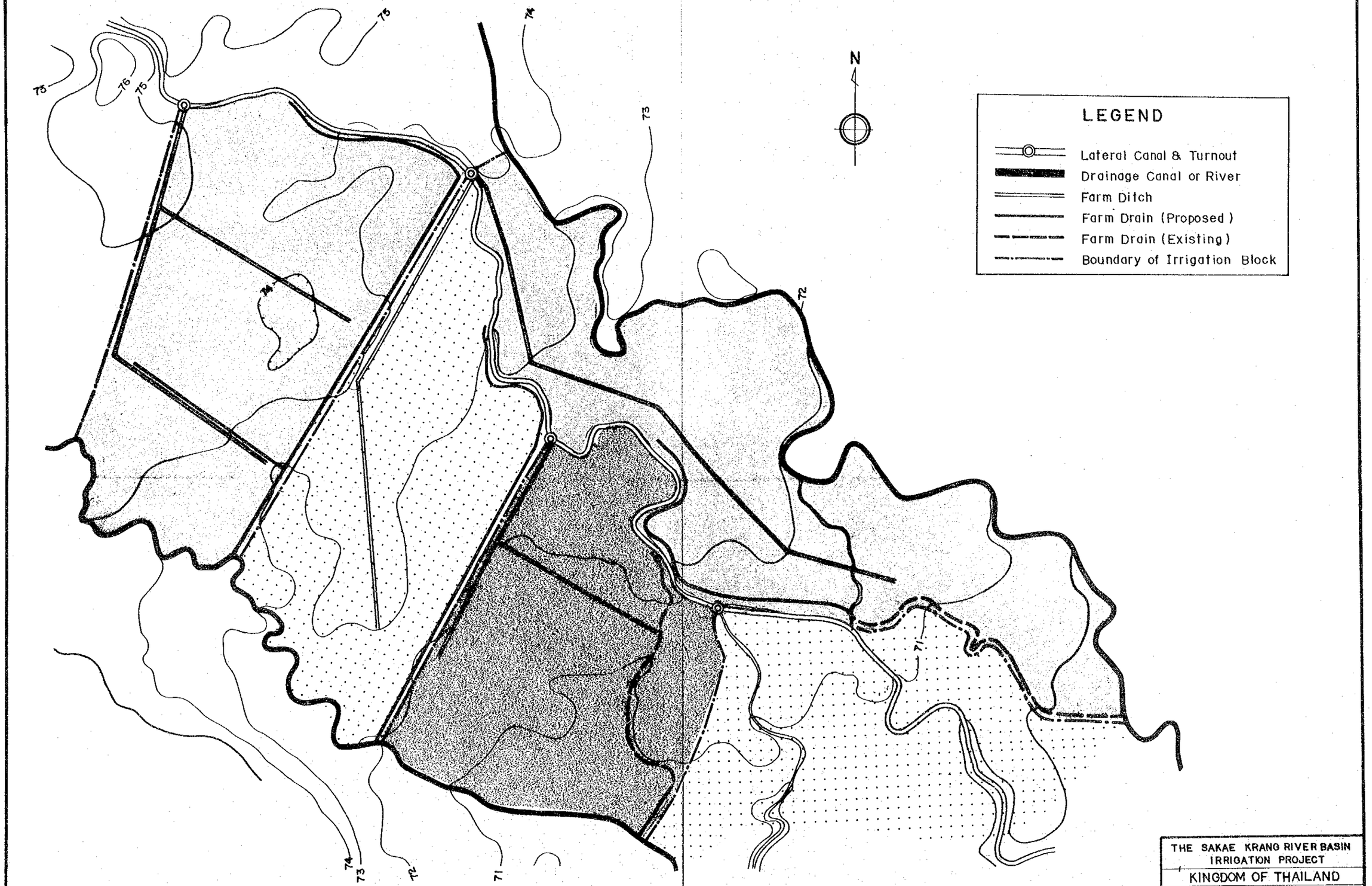

THE SAKAE KRANG RIVER BASIN IRRIGATION PROJECT

KINGDOM OF THAILAND

SAMPLE AREA OF ON-FARM DEVELOPMENT

DATE

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