

THE REPUBLIC OF THE PHILIPPINES
MINISTRY OF PUBLIC WORKS AND HIGHWAYS
NATIONAL IRRIGATION ADMINISTRATION

FEASIBILITY REPORT

ON
THE PAMPANGA DELTA
DEVELOPMENT PROJECT

APPENDICES VOLUME III

MOUNT
APPENDIX XI DRAWINGS
1026

Magalang

Candaba Swamp

Candaba

Santa Ana

FEBRUARY 1982

Mexico

SAN FERNANDO

JAPAN INTERNATIONAL COOPERATION AGENCY

TOKYO JAPAN

sds

82-41

118
61.8
SDS
13961

国際協力事業団	
受入 月日 84.7.26	11810
登録No. 09840	61.8 SDS

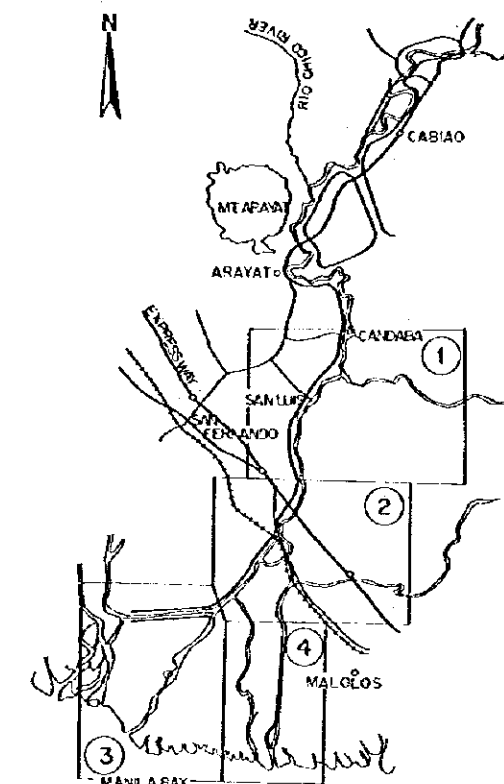
PAMPANGA DELTA DEVELOPMENT PROJECT

LIST OF DRAWINGS

PLATE NO.	DWG NO.	TITLE
		I. FLOOD CONTROL PLAN
1	I - 01	PLAN OF PROJECT ①
2	I - 02	" ②
3	I - 03	" ③
4	I - 04	" ④
5	I - 05	PROPOSED LONGITUDINAL PROFILE (Plan with 20yr. Design Flood) ①
6	I - 06	" ②
7	I - 07	PROPOSED CROSS SECTION Pampanga River 1
8	I - 08	" 2
9	I - 09	" 3
10	I - 10	" 4
11	I - 11	" 5
12	I - 12	" 6
13	I - 13	" 7
14	I - 14	" 8
15	I - 15	" 9
16	I - 16	" 10
17	I - 17	" 11
18	I - 18	PROPOSED CROSS SECTION Labangan R. & Angat R. (1)
19	I - 19	" (2)
20	I - 20	PROPOSED CROSS-SECTION Rosag R. & Bebe C.O.C.
21	I - 21	PROPOSED CROSS-SECTION Maasim River
22	I - 22	STANDARD CULVERT -TYPE A-
23	I - 23	" -TYPE B-
24	I - 24	" -TYPE C-
25	I - 25	PROPOSED SAN SIMON BRIDGE (P 16 K + 1,300m)
26	I - 26	PROPOSED SAN LUIS BRIDGE (P 24 K + 200m)

[illegible]

KEY PLAN



LEGEND

	Existing	Proposed
Levee	+++++	+++++
Heightening		+++++
Bank Protection		+++++
Station No.		P 6 K
Culvert	+++++	+++++
Power Transmission Line	----	----
Oil Tanks		o
House Area		
Rice Paddy		F.P.
Swamp		
Orchard		
Scrub		
Tropical Grass		
Fish Pond		
Woods		
Track Farm		
Bamboo		

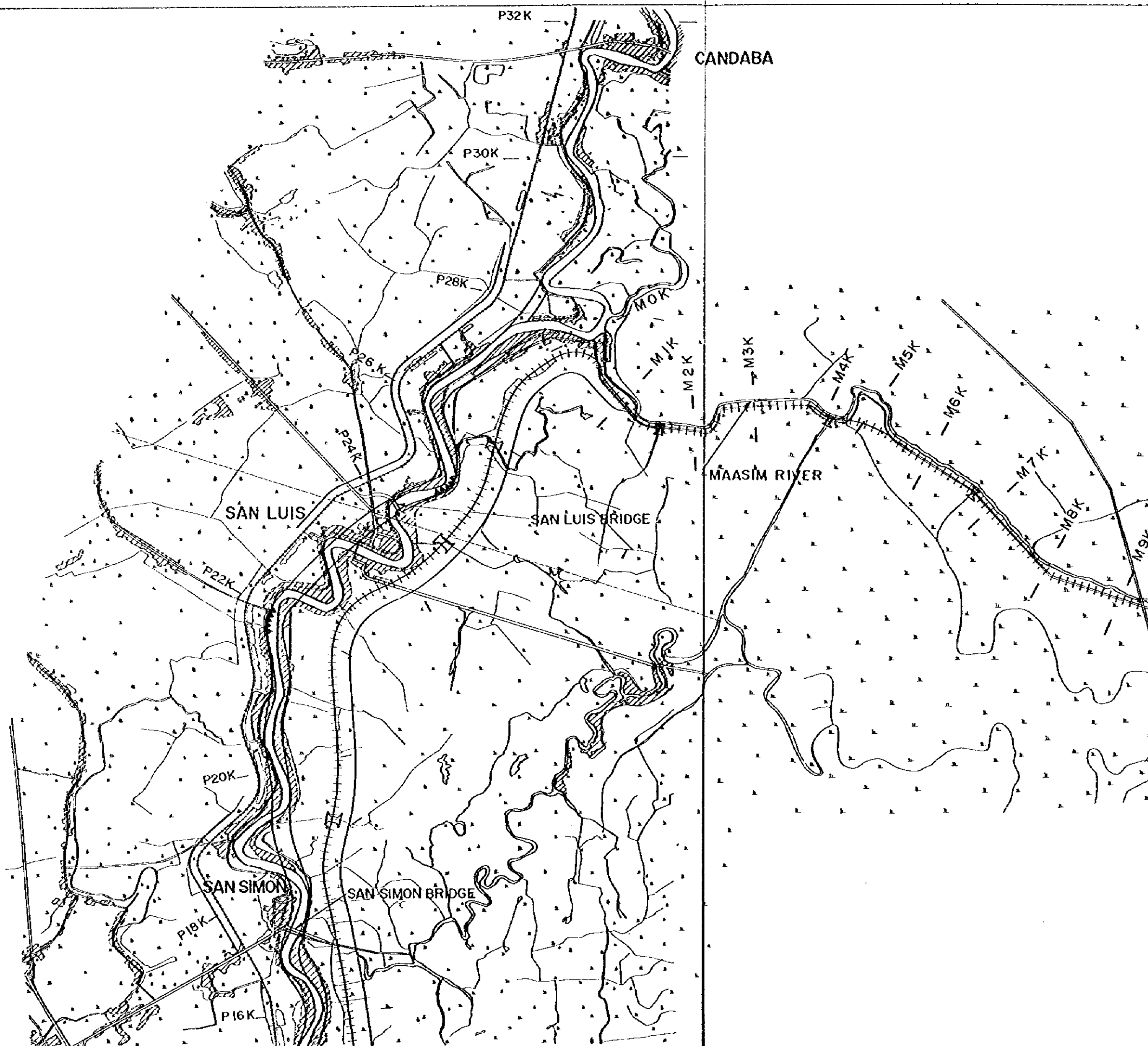
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THE REPUBLIC OF THE PHILIPPINES
MINISTRY OF PUBLIC WORKS AND HIGHWAYS
NATIONAL IRRIGATION ADMINISTRATION
PAMPANGA DELTA DEVELOPMENT PROJECT

TITLE OF DRAWING

PLAN OF PROJECT ①

JAPAN INTERNATIONAL COOPERATION AGENCY D.W.G. NO.
TOKYO 1-01



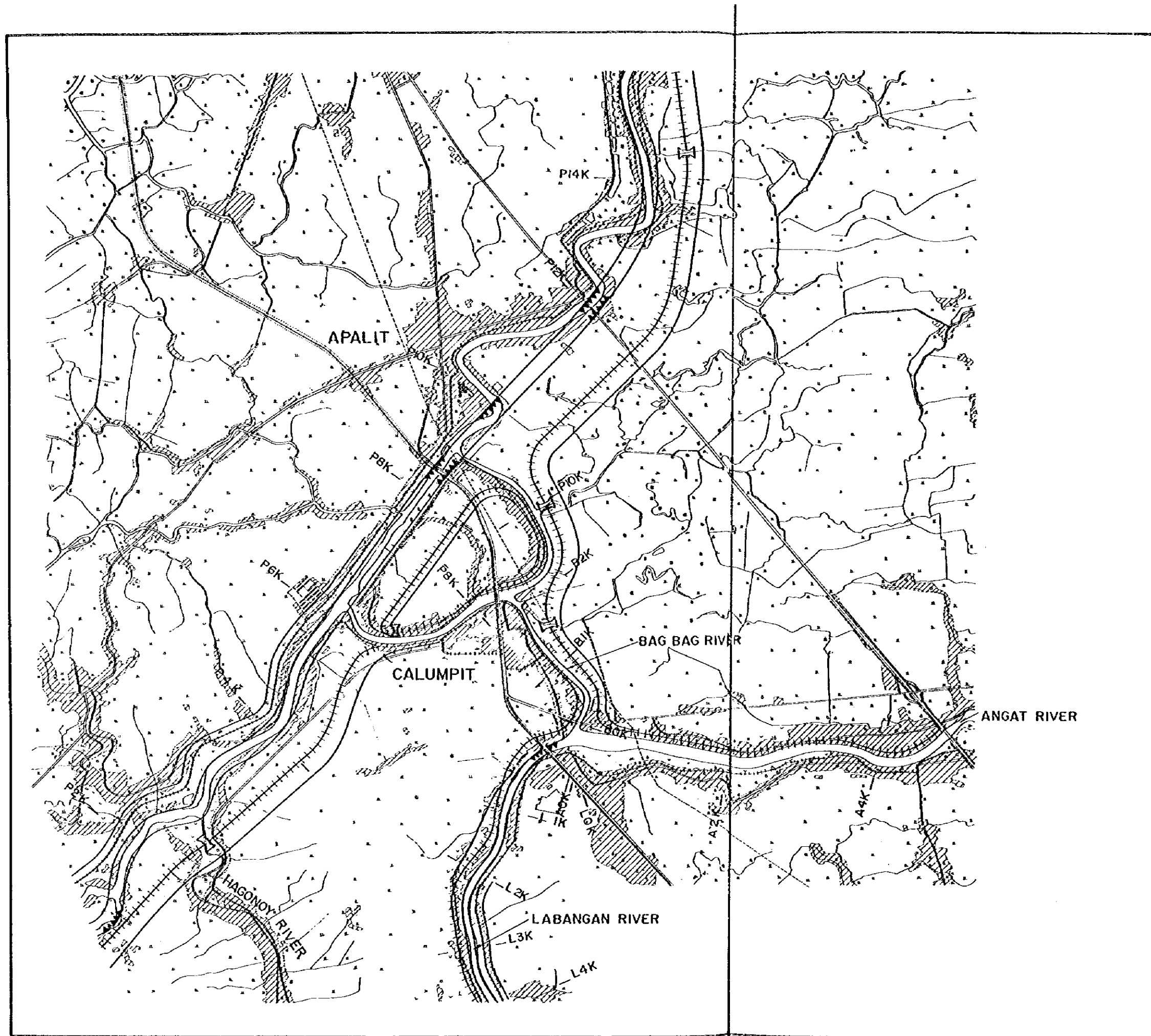
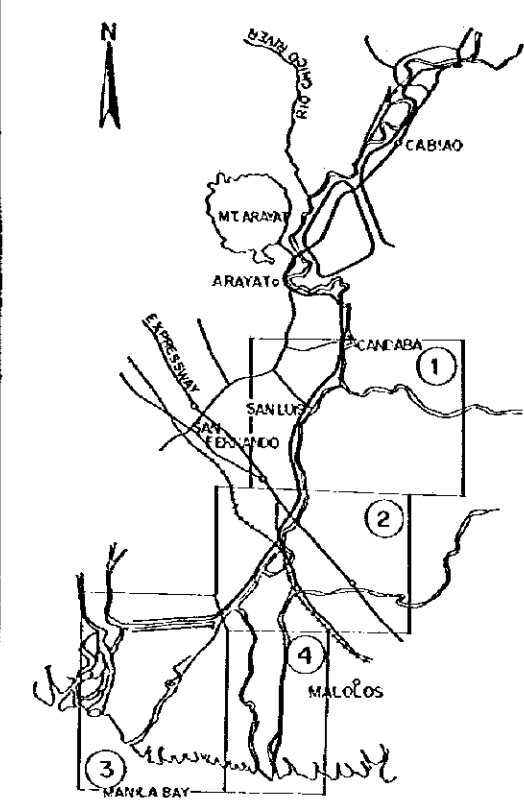


PLATE NO. 2

KEY PLAN

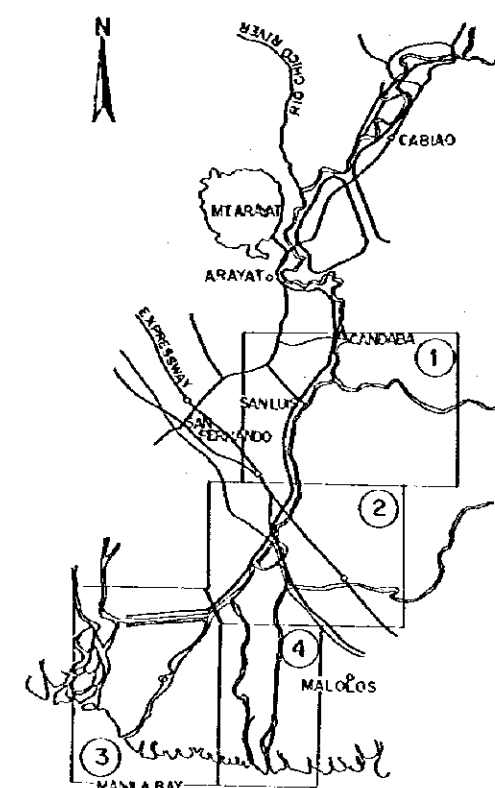


LEGEND

	Existing	Proposed
Levee	+++++	+++++
Heightening		+++++
Bank Protection		+++++
Station No.		P 6 K
Culvert	+++++	+++++
Power Transmission Line	----	
Oil Tanks	o	
House Area		
Rice Paddy	x x x	F.P.
Swamp	u u u	Woods
Orchard	o o o	Track Farm
Scrub	a a a	Bamboo
Tropical Grass	u u u	

Scale
1 0.5 0 1 2km

THE REPUBLIC OF THE PHILIPPINES
MINISTRY OF PUBLIC WORKS AND HIGHWAYS
NATIONAL IRRIGATION ADMINISTRATION
PAMPANGA DELTA DEVELOPMENT PROJECT
TITLE OF DRAWING
PLAN OF PROJECT ②
JAPAN INTERNATIONAL COOPERATION AGENCY D W G NO
TOKYO 1-02

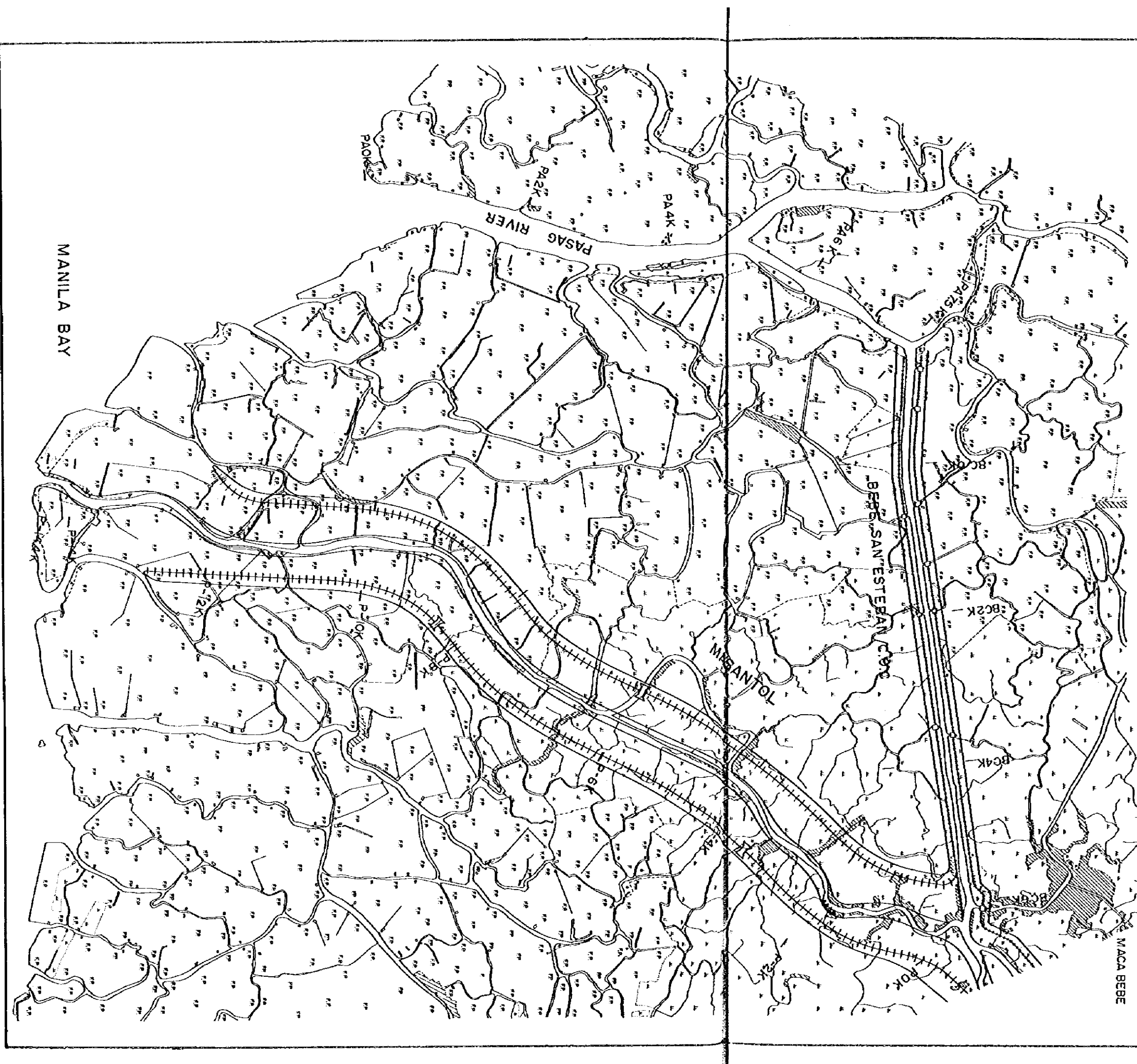


	Existing	Proposed
Levee	—+—+—+—+	++++++
Heightening	—+—+—+—+	++++++
Bank Protection		++++++
Station No.		P 6 K
Culvert	—+—+—+—+	—+—+—+—+
Power Transmission Line	—+—+—+—+	
Oil Tanks		o
House Area		////
Rice Paddy		F.P.
Swamp		Q Q Q
Orchard		~ ~ ~
Scrub		Bamboo
Tropical Grass		

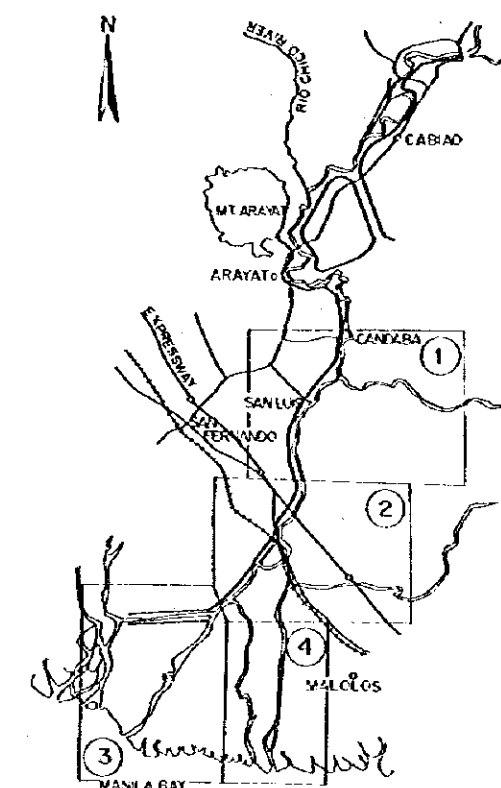
Scale 0 0.5 1 2 km

TITLE OF DRAWING

JAPAN INTERNATIONAL COOPERATION AGENCY	O.W.G. NO
TOKYO	I-03



KEY PLAN



LEGEND

	Existing	Proposed
Levee	-----	++++++
Heightening	-----	++++++
Bank Protection		++++++
Station No.		P 6 K
Culvert	-----	++++++
Power Transmission Line	-----	
Oil Tanks		o
House Area		
Rice Paddy		
Swamp		
Orchard		
Scrub		
Tropical Grass		
Fish Pond		E.P.
Woods		
Track Farm		
Bamboo		

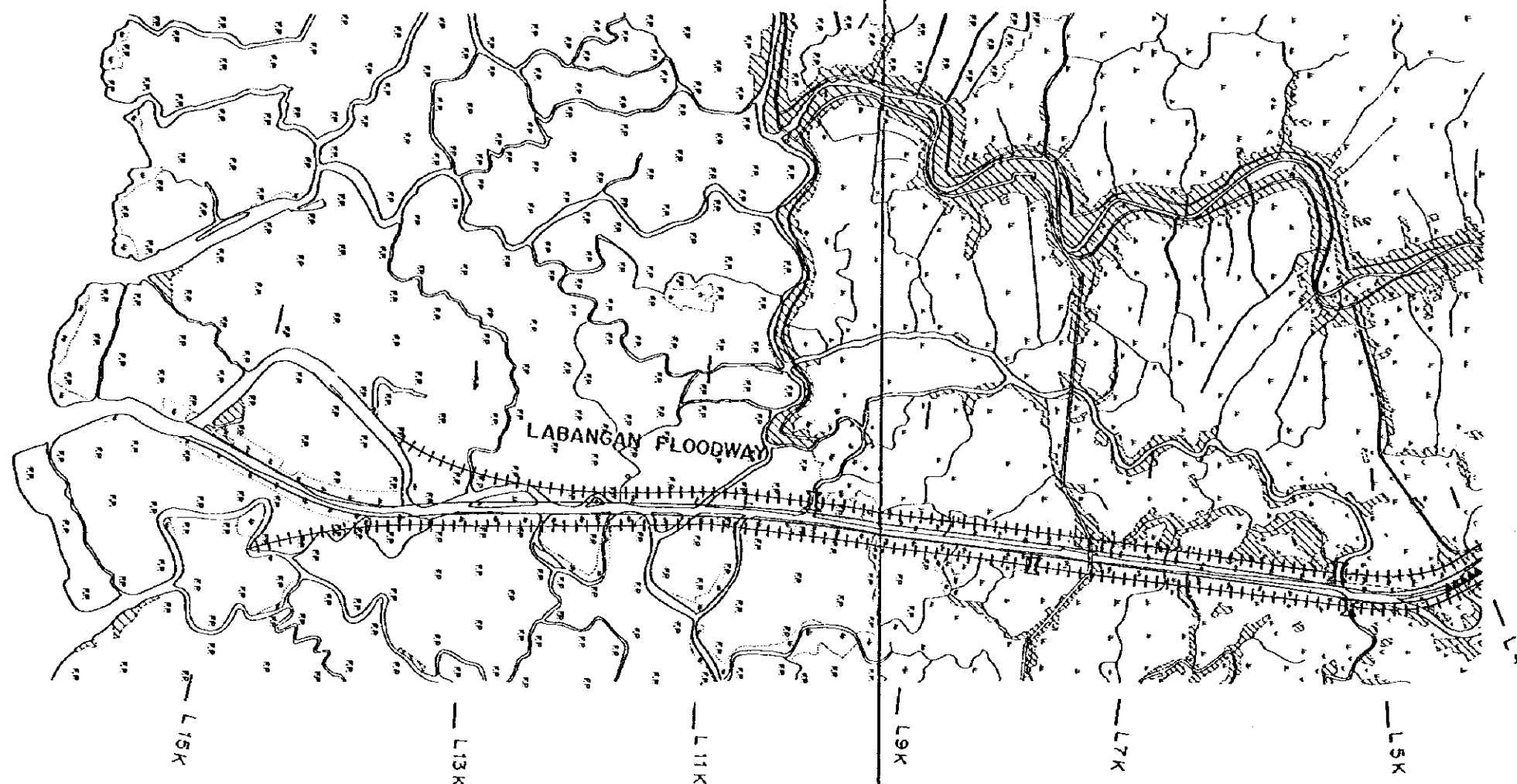


THE REPUBLIC OF THE PHILIPPINES
 MINISTRY OF PUBLIC WORKS AND HIGHWAYS
 NATIONAL IRRIGATION ADMINISTRATION
 PAMPANGA DELTA DEVELOPMENT PROJECT

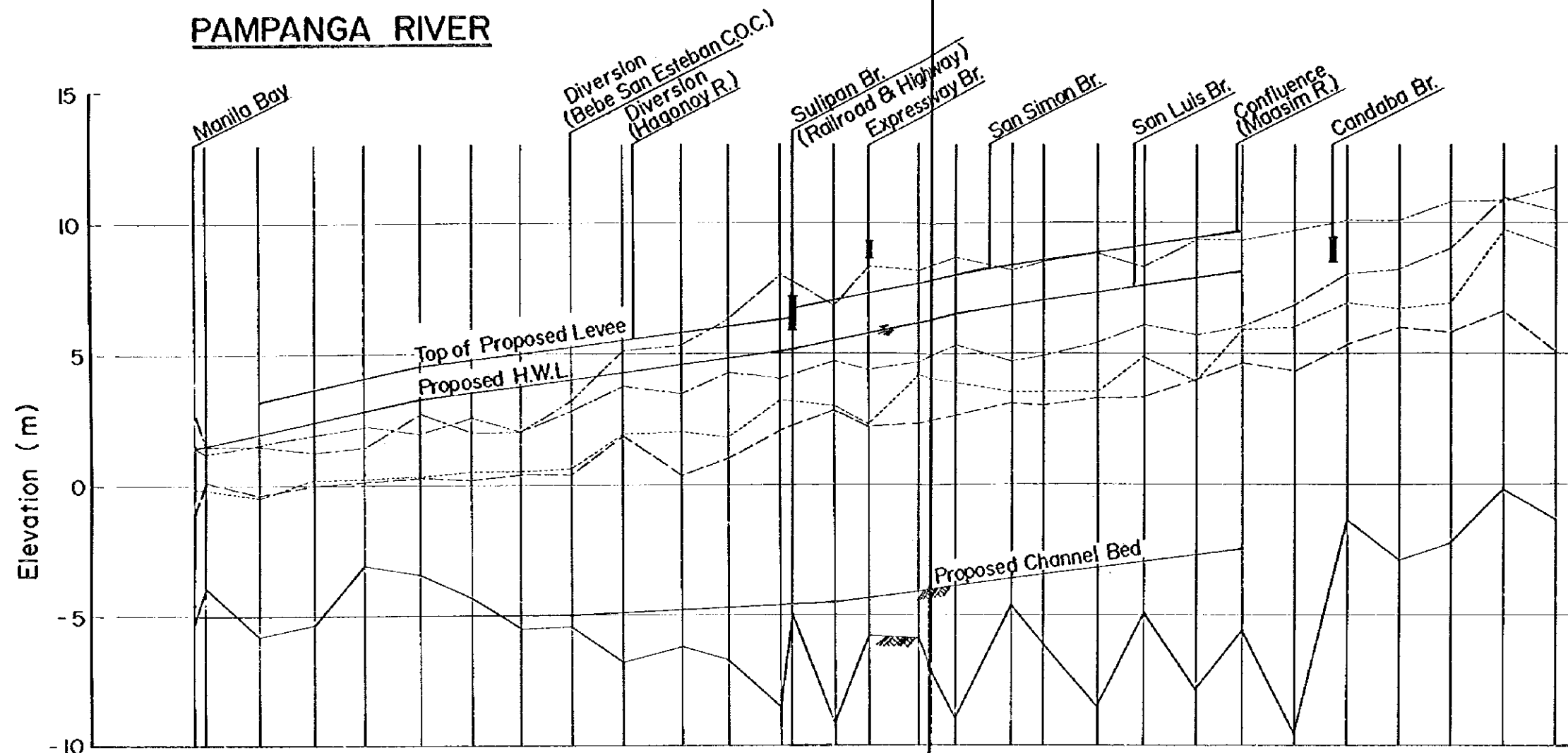
TITLE OF DRAWING

PLAN OF PROJECT (4)

JAPAN INTERNATIONAL COOPERATION AGENCY D W G NO
 TOKYO 1-04



PAMPANGA RIVER



Design Flood Discharge (m ³ /s)	3300										4700										5500																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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Station No.	P-14K										P-14K										P-12K										P-10K										P-8K										P-6K										P-4K										P-2K										P-0K										P-2K										P-4K										P-6K										P-8K										P-10K										P-12K										P-14K										P-16K										P-18K										P-20K										P-22K										P-24K										P-26K										P-28K										P-30K										P-32K										P-34K										P-36K										P-38K										P-40K										P-42K										P-44K										P-46K										P-48K										P-50K										P-52K										P-54K										P-56K										P-58K										P-60K										P-62K										P-64K										P-66K										P-68K										P-70K										P-72K										P-74K										P-76K										P-78K										P-80K										P-82K										P-84K										P-86K										P-88K										P-90K										P-92K										P-94K										P-96K										P-98K										P-100K																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													

LEGEND

- Top of Existing Levee on Left Bank
- Top of Existing Levee on Right Bank
- . - . - . Ground Elevation on Left Bank
- Ground Elevation on Right Bank
- Lowest Bed of Existing Channel

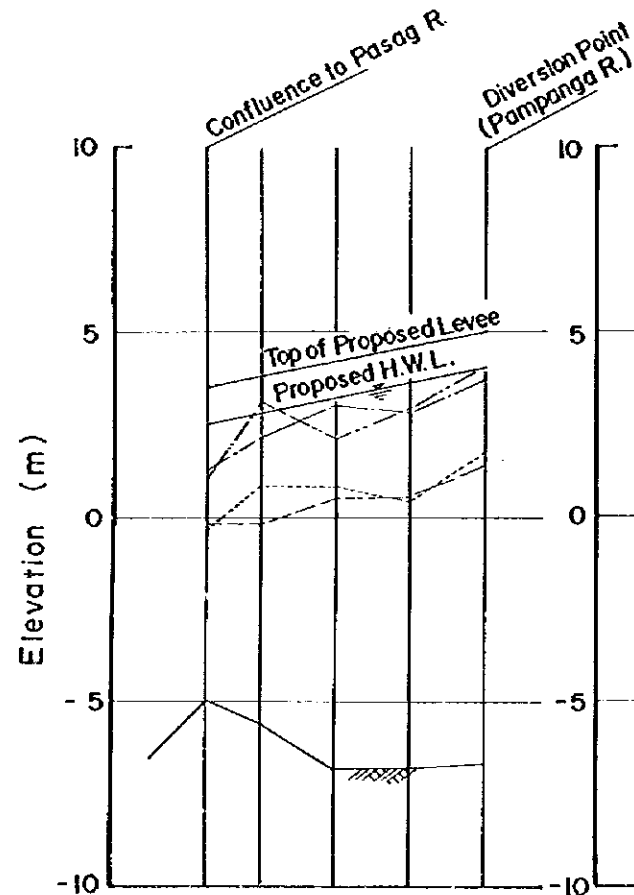
THE REPUBLIC OF THE PHILIPPINES
 MINISTRY OF PUBLIC WORKS AND HIGHWAYS
 NATIONAL IRRIGATION ADMINISTRATION
 PAMPANGA DELTA DEVELOPMENT PROJECT

TITLE OF DRAWING

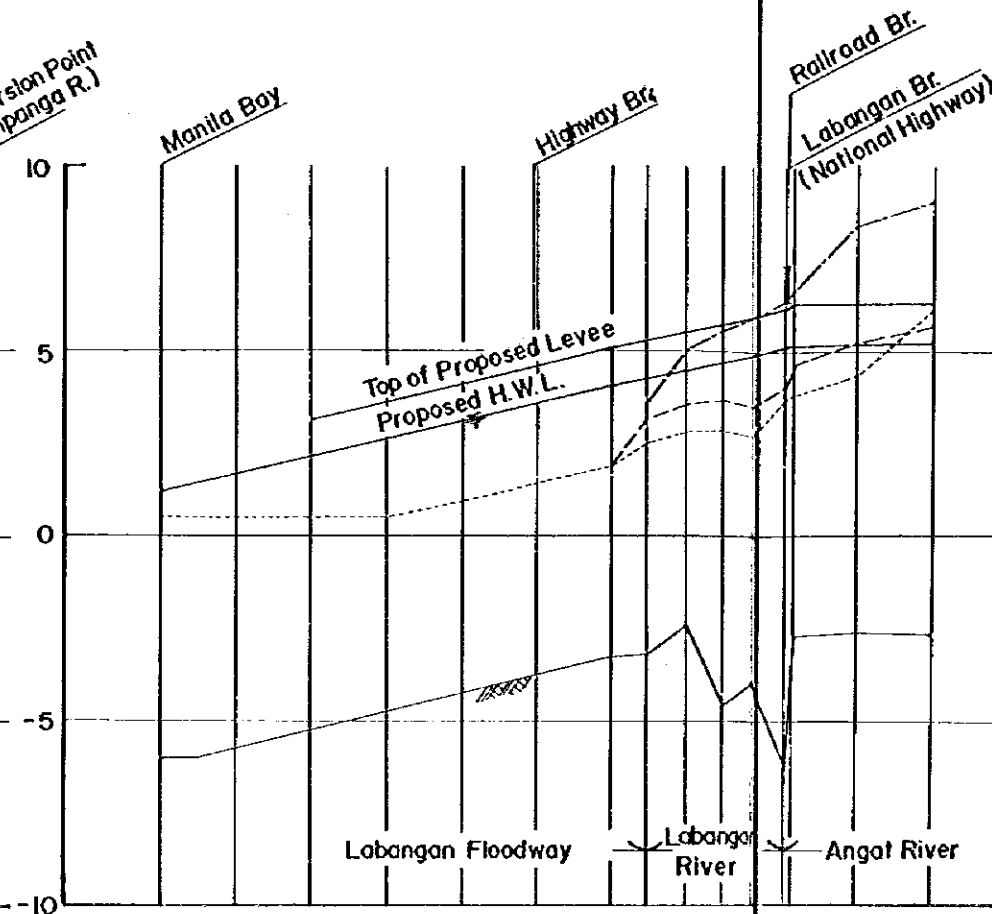
**PROPOSED LONGITUDINAL PROFILE
 (Plan with 20-yr. Design Flood)**

JAPAN INTERNATIONAL COOPERATION AGENCY D.W.G. NO.
 TOKYO I-05

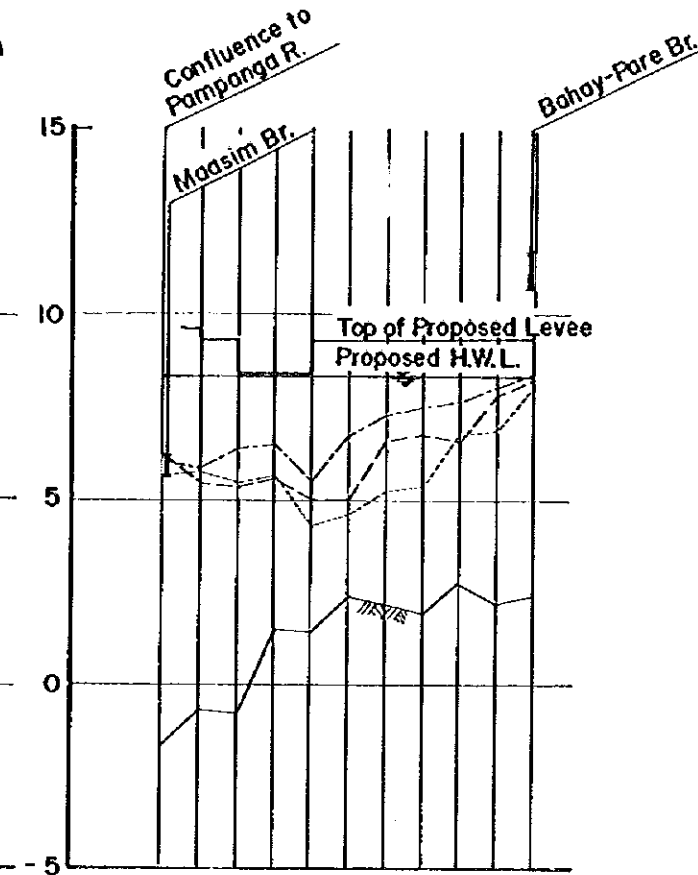
BEBE SAN ESTEBAN CUT-OFF CHANNEL



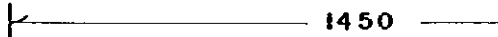
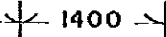




LABANGAN FLOODWAY - ANGAT RIVER



MAASIM RIVER



Design Flood Discharge (m ³ /s)	1400				
Gradient of H.W.L.	1/4900				
Gradient of Channel Bed	-	-	-	-	-
Top of Proposed Levee (El.m.)	3.50	3.81	4.21	4.62	5.03
Proposed H.W.L. (El.m.)	2.50	2.81	3.21	3.61	4.03
Proposed Channel Bed (El.m.)	-	-	-	-	-
Distance (m.)	0	1500	3500	5500	7500
Station No.	PA75K	BC0K	BC2K	BC4K	BC6K

L-17K	0	-6.00	1.20	-							
L-15K	2000	-5.75	1.68	-							
L-13K	4000	-5.25	2.16	3.16							
L-11K	6000	-4.75	2.63	3.63							
L-9K	8000	-4.25	3.11	4.11							
L-7K	1000	-3.75	3.58	4.58							
L-5K	12000	-3.25	4.06	5.06							
L-4K	13000	-3.00	4.28	5.28							
L-3K	14000	-	4.49	5.49							
L-2K	15000	-	4.70	5.70							
L 0K	17000	-	5.13	6.13							
A 0K	17200	-	5.13	6.33							
A 2K	19000	-	5.13	6.33							
A 4K	21000	-	5.13	6.33							

Level									
9.63	9.34	8.40	8.40	9.34	9.34	9.34	9.34	9.34	9.34
8.34	8.34	8.34	8.34	8.34	8.34	8.34	8.34	8.34	8.34
-	-	-	-	-	-	-	-	-	-
0	500	1000	2000	3000	4000	5000	6000	7000	8000
M 0K	M 1K	M 2K	M 3K	M 4K	M 5K	M 6K	M 7K	M 8K	M 9K
M 0K	M 1K	M 2K	M 3K	M 4K	M 5K	M 6K	M 7K	M 8K	M 9K

LEGEND	
---	Top of Existing Levee on Left Bank
---	Top of Existing Levee on Right Bank
---	Ground Elevation on Left Bank
---	Ground Elevation on Right Bank
---	Lowest Bed on Existing Channel

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PAMPANGA DELTA DEVELOPMENT PROJECT

TITLE OF DRAWING
PROPOSED LONGITUDINAL PROFILE
(Plan with 20-yr. Design Flood)

JAPAN INTERNATIONAL COOPERATION AGENCY D W G NO
TOKYO I-06

P-14.4K

H.W.L. EL. 1.39

P-14K

H.W.L. EL. 1.48

P-12K

H.W.L. EL. 1.92

P-10K

H.W.L. EL. 2.38

EL. 0.00

EL. 0.00

EL. 0.00

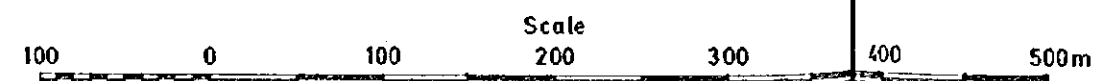
EL. 0.00

EL. 0.00

EL. 0.00

EL. 0.00

EL. 0.00



LEGEND

- Proposed Cross Section
- - - First Phase
- Existing Line

THE REPUBLIC OF THE PHILIPPINES	
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NATIONAL IRRIGATION ADMINISTRATION	
PAMPANGA DELTA DEVELOPMENT PROJECT	
TITLE OF DRAWING	
PROPOSED CROSS-SECTION	
Pampanga River I	
JAPAN INTERNATIONAL COOPERATION AGENCY	DWG. NO.
TOKYO	I-07

P-8K

▽ H.W.L. EL. 2.31

EL. 0.00

EL. 0.00

P-6K

▽ H.W.L. EL. 3.21

EL. 0.00

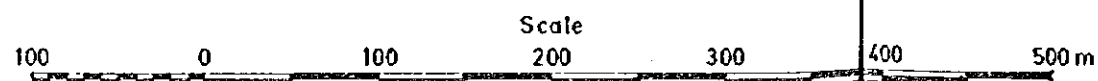
EL. 0.00

P-4K

▽ H.W.L. EL. 3.54

EL. 0.00

EL. 0.00



LEGEND

- Proposed Cross Section
- - - First Phase
- Existing Line

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NATIONAL IRRIGATION ADMINISTRATION
PAMPANGA DELTA DEVELOPMENT PROJECT

TITLE OF DRAWING

PROPOSED CROSS-SECTION
Pampanga River 2

JAPAN INTERNATIONAL COOPERATION AGENCY D W G NO
TOKYO I-08

P-2K

▽ HWL EL. 3.77

EL. 0.00

EL. 0.00

P-OK

▽ HWL EL. 4.03

EL. 0.00

EL. 0.00

P-OK

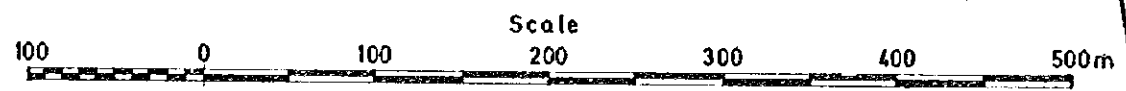
▽ HWL EL. 4.03

EL. 0.00

EL. 0.00

- LEGEND**
- Proposed Cross Section
 - - - First Phase
 - Existing Line

THE REPUBLIC OF THE PHILIPPINES MINISTRY OF PUBLIC WORKS AND HIGHWAYS NATIONAL IRRIGATION ADMINISTRATION	
PAMPANGA DELTA DEVELOPMENT PROJECT	
TITLE OF DRAWING	
PROPOSED CROSS-SECTION Pampanga River 3	
JAPAN INTERNATIONAL COOPERATION AGENCY TOKYO	DWG. NO. I-09



P2K

▽ HWL EL. 4.78

EL. 0.00

EL. 0.00

P4K

▽ HWL EL. 5.58

EL. 0.00

EL. 0.00

P6K

▽ HWL EL. 6.81

EL. 0.00

LEGEND

- Proposed Cross Section
- - - First Phase
- Existing Line

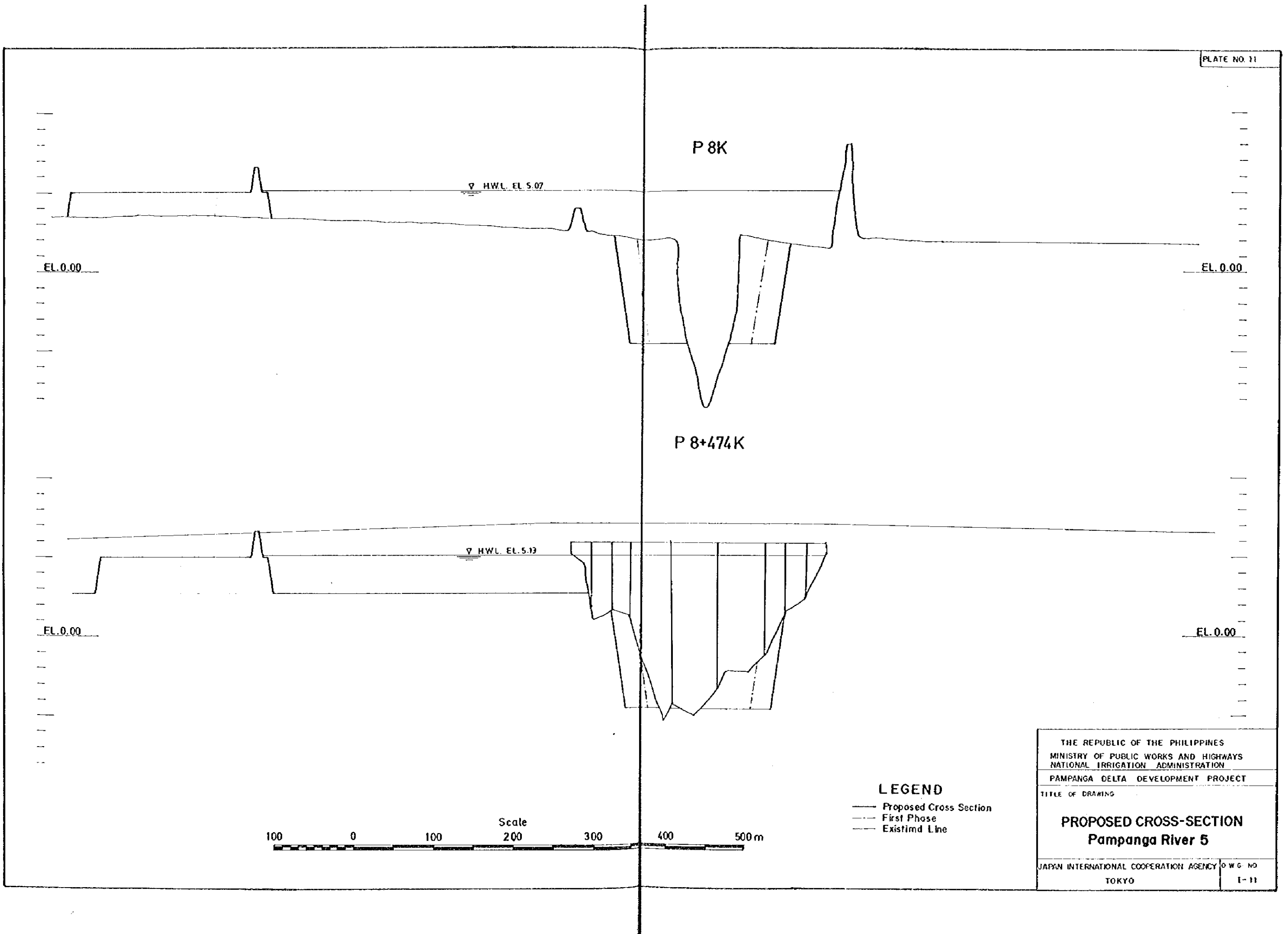
THE REPUBLIC OF THE PHILIPPINES
MINISTRY OF PUBLIC WORKS AND HIGHWAYS
NATIONAL IRRIGATION ADMINISTRATION
PAMPANGA DELTA DEVELOPMENT PROJECT

TITLE OF DRAWING

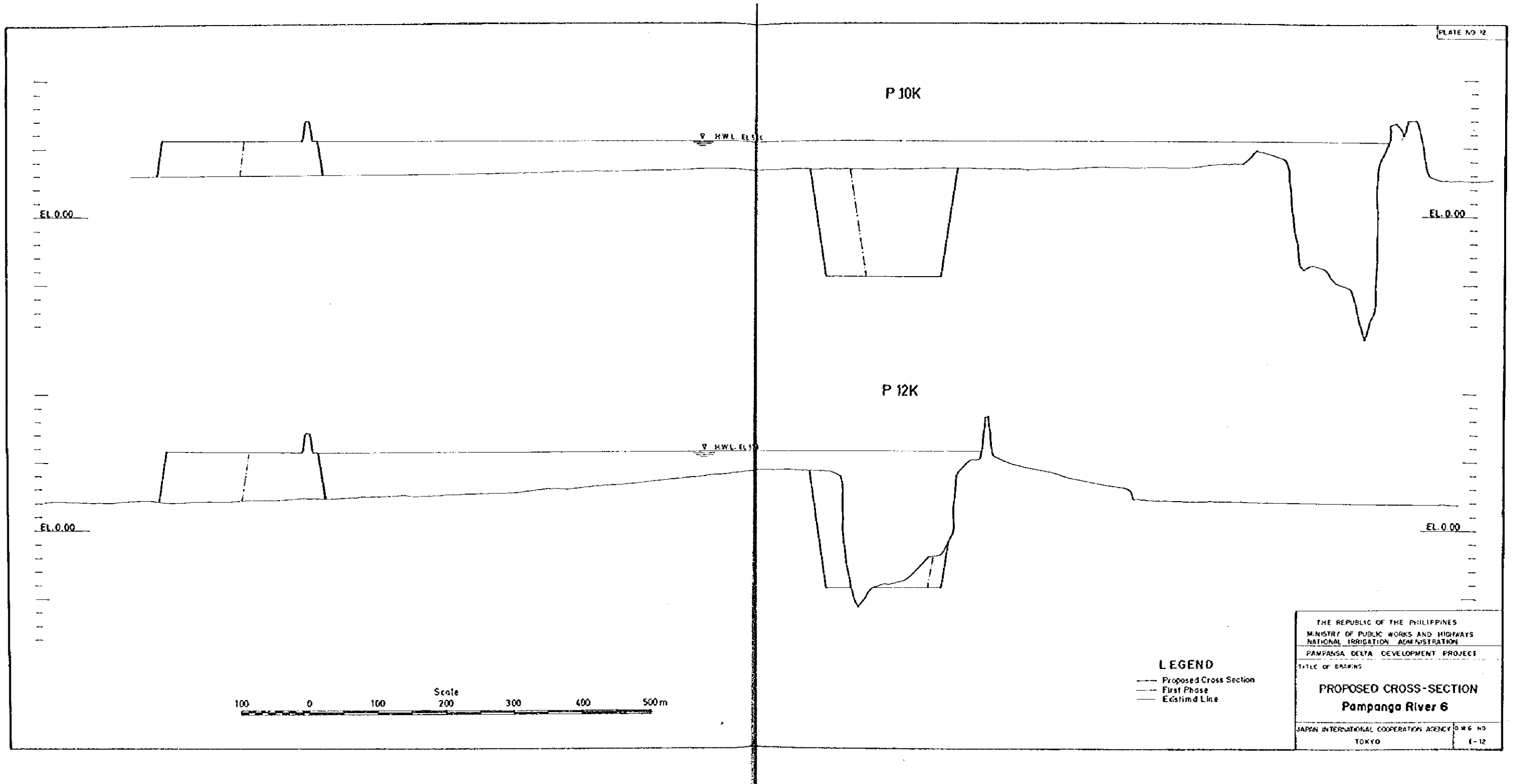
**PROPOSED CROSS-SECTION
Pampanga River 4**

JAPAN INTERNATIONAL COOPERATION AGENCY D W G. NO.
TOKYO 1-10

100 0 100 200 300 400 500 m
Scale



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PAMPANGA DELTA DEVELOPMENT PROJECT	
TITLE OF DRAWING	
PROPOSED CROSS-SECTION Pampanga River 5	
JAPAN INTERNATIONAL COOPERATION AGENCY	OWG NO.
TOKYO	I-11



P 12K (+165)

▽ HWL EL. 5.75

EL. 0.00

EL. 0.00

P 14K

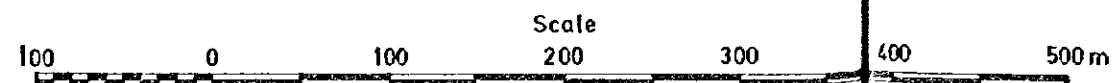
▽ HWL EL. 6.14

EL. 0.00

EL. 0.00

LEGEND

- Proposed Cross Section
- - - First Phase
- Existing Line



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NATIONAL IRRIGATION ADMINISTRATION	
PAMPANGA DELTA DEVELOPMENT PROJECT	
TITLE OF DRAWING	
PROPOSED CROSS-SECTION	
Pampanga River 7	
JAPAN INTERNATIONAL COOPERATION AGENCY	DWG. NO.
TOKYO	I-13

P 16K

HWL EL. 6.49

EL. 0.00

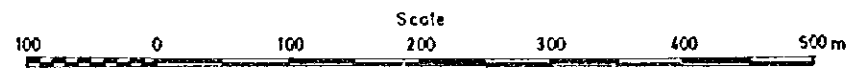
EL. 0.00

P 18K

HWL EL. 6.4

EL. 0.00

EL. 0.00



LEGEND

- Proposed Cross Section
- - - First Phase
- Existing Line

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NATIONAL IRRIGATION ADMINISTRATION	
PAMPANGA DELTA DEVELOPMENT PROJECT	
TITLE OF DRAWING	
PROPOSED CROSS-SECTION	
Pampanga River 8	
JAPAN INTERNATIONAL COOPERATION AGENCY	DWG. NO.
TOKYO	I-14

P20K

HWL EL. 7.00

EL. 0.00

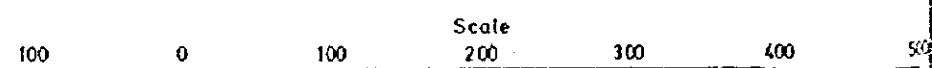
EL. 0.00

P22K

HWL EL. 7.30

EL. 0.00

EL. 0.00



LEGEND
 — Proposed Cross Section
 - - - First Phase
 — Existing Line

THE REPUBLIC OF THE PHILIPPINES
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 NATIONAL IRRIGATION ADMINISTRATION
 PAMPANGA DELTA DEVELOPMENT PROJECT

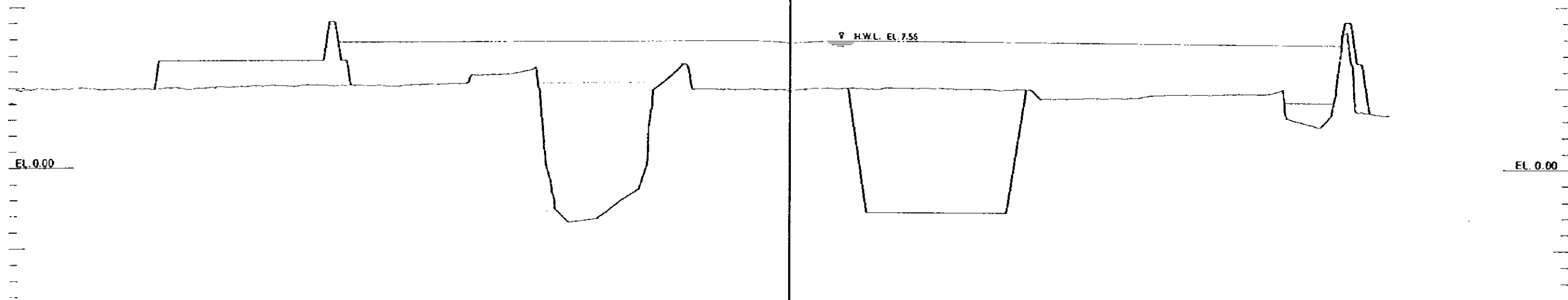
TITLE OF DRAWING

**PROPOSED CROSS-SECTION
 Pampanga River 9**

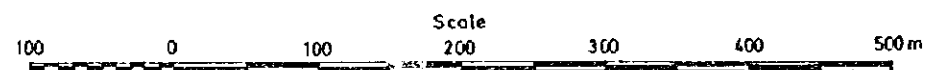
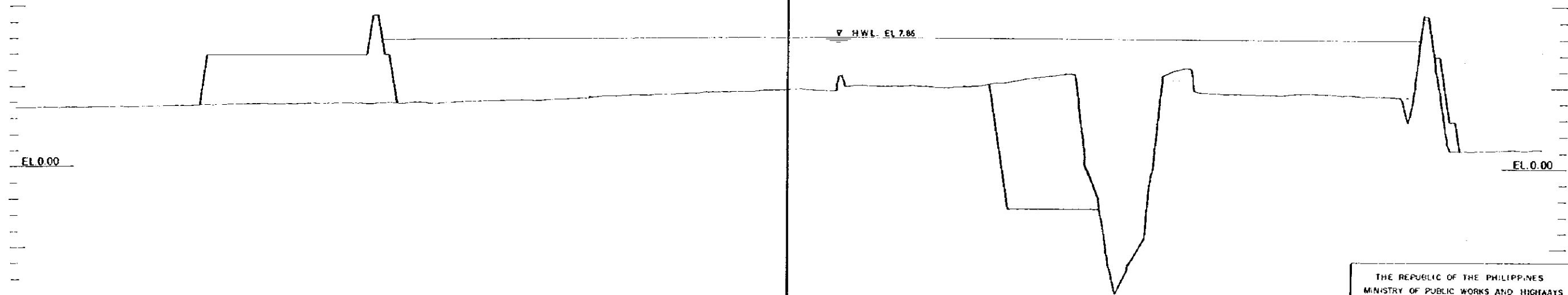
JAPAN INTERNATIONAL COOPERATION AGENCY
 TOKYO

DWG. NO.
 E-15

P 24K



P 26K



LEGEND
 — Proposed Cross Section
 - - - First Phase
 --- Existing Line

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NATIONAL IRRIGATION ADMINISTRATION	
PAMPANGA DELTA DEVELOPMENT PROJECT	
TITLE OF DRAWING	
PROPOSED CROSS-SECTION	
Pampanga River IO	
JAPAN INTERNATIONAL COOPERATION AGENCY	DWS NO
TOKYO	I-16

P 28K

HWL 813

EL. 0.00

P 30K

HWL 836

EL. 0.00

P 32K

HWL 836

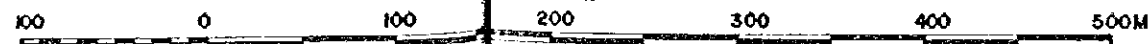
EL. 0.00

LEGEND

- Proposed Cross Section
- First Phase
- Existing Line

EL. 0.00

SCALE

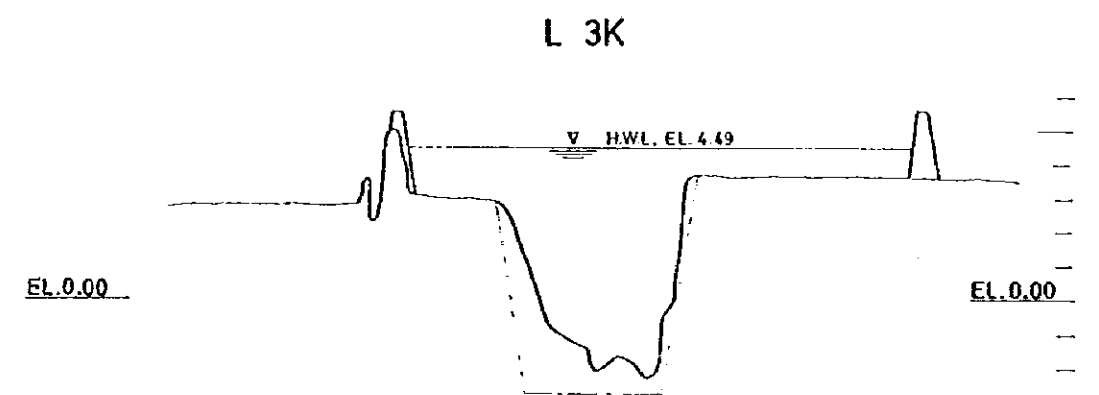
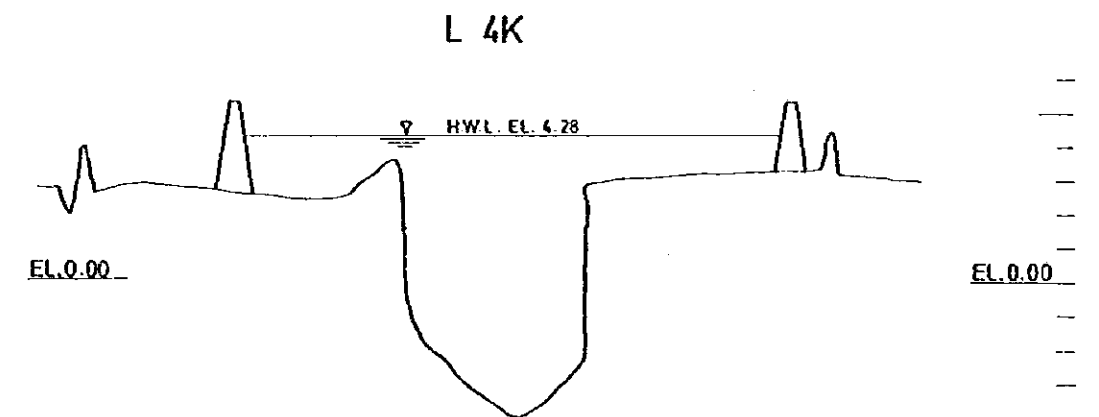
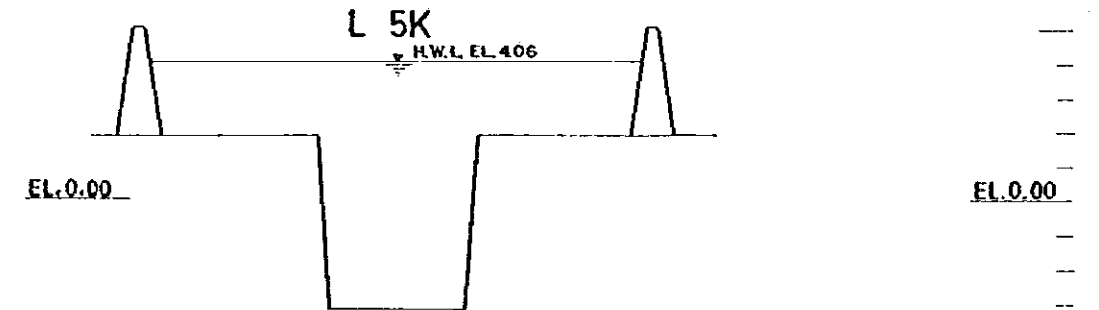
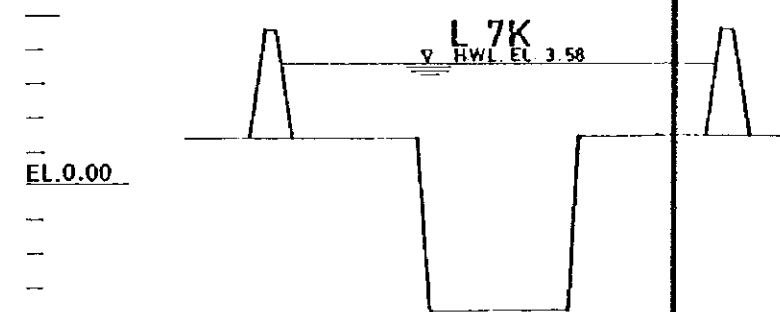
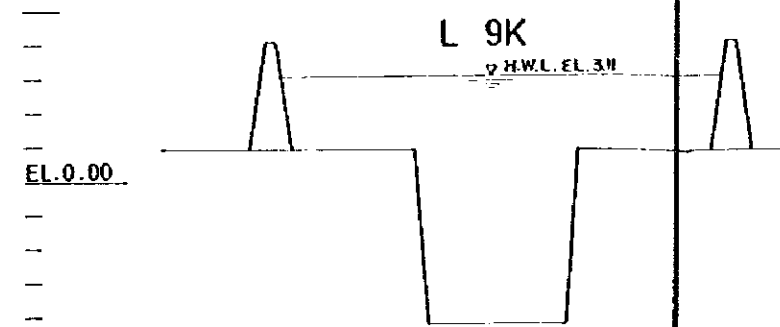
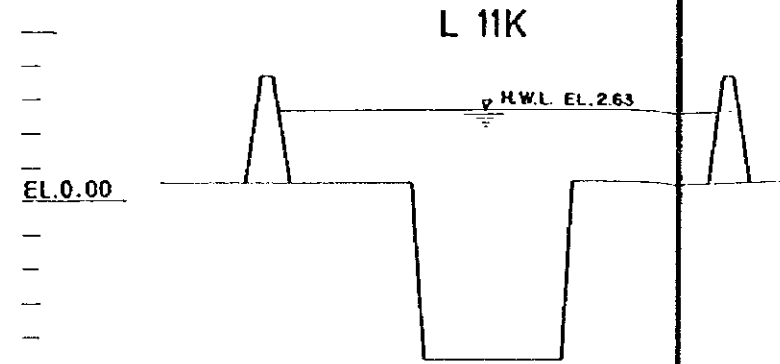
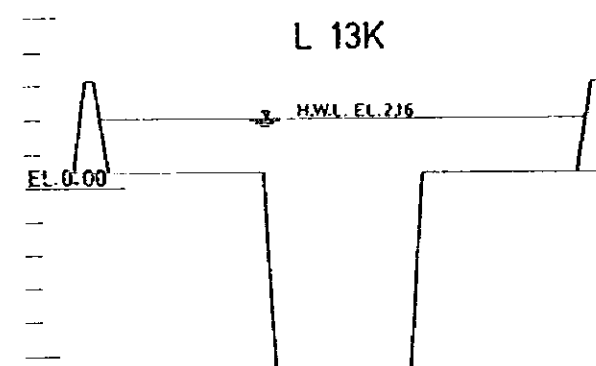
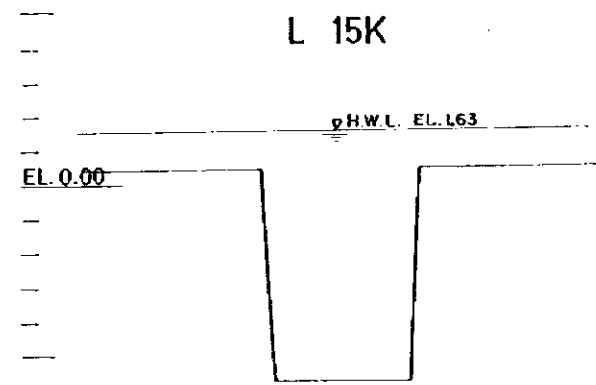
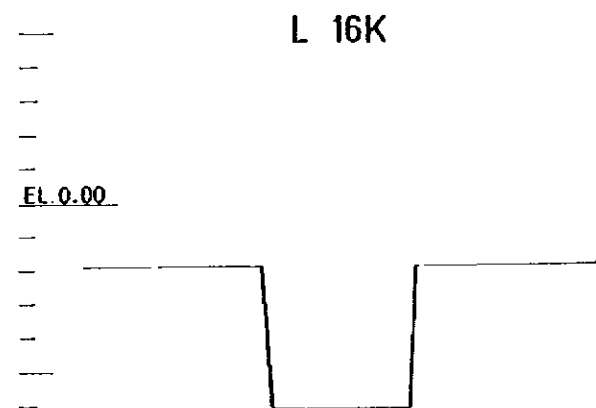


THE REPUBLIC OF THE PHILIPPINES
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NATIONAL IRRIGATION ADMINISTRATION
PAMPANGA DELTA DEVELOPMENT PROJECT

TITLE OF DRAWING

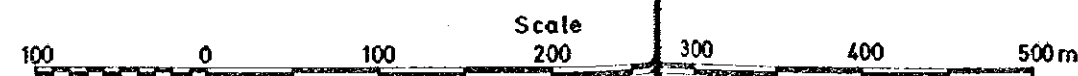
**PROPOSED CROSS-SECTION
Pampanga River II**

JAPAN INTERNATIONAL COOPERATION AGENCY D.W.G. NO.
TOKYO 1-17



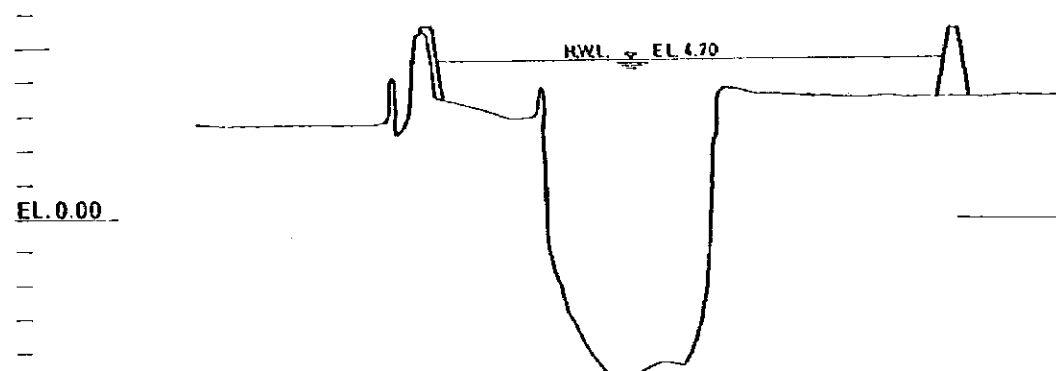
LEGEND

- Proposed Cross Section
- First Phase
- Existing Line

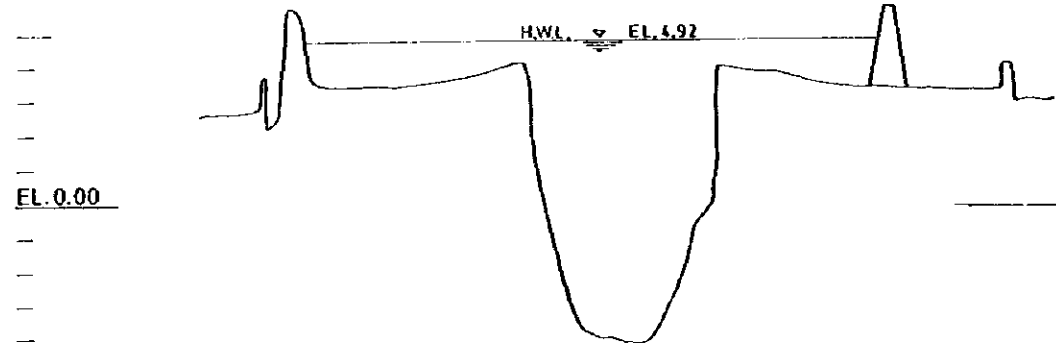


THE REPUBLIC OF THE PHILIPPINES	
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NATIONAL IRRIGATION ADMINISTRATION	
PAMPANGA DELTA DEVELOPMENT PROJECT	
TITLE OF DRAWING	
PROPOSED CROSS-SECTION	
Labangan R. & Angat R. (I)	
JAPAN INTERNATIONAL COOPERATION AGENCY	DWG. NO.
TOKYO	I-18

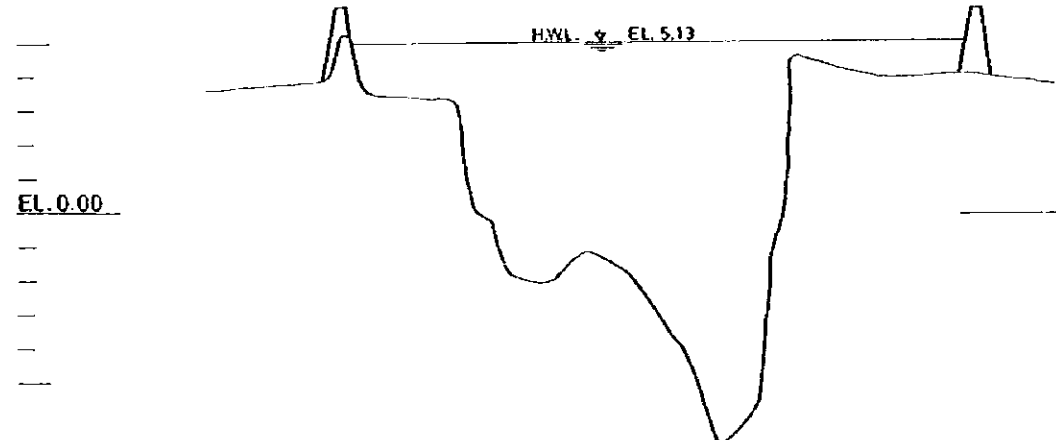
L 2K



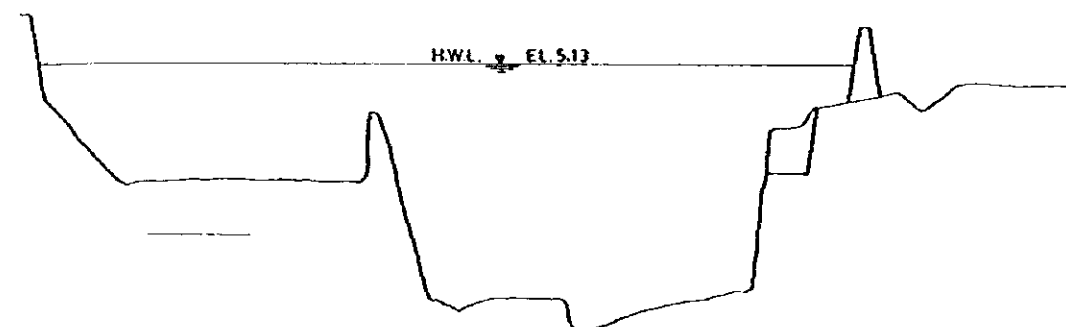
L 1K



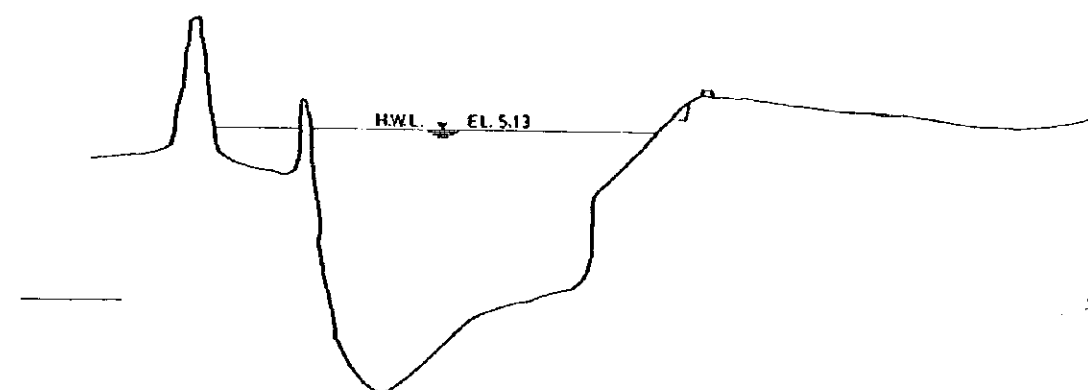
L OK



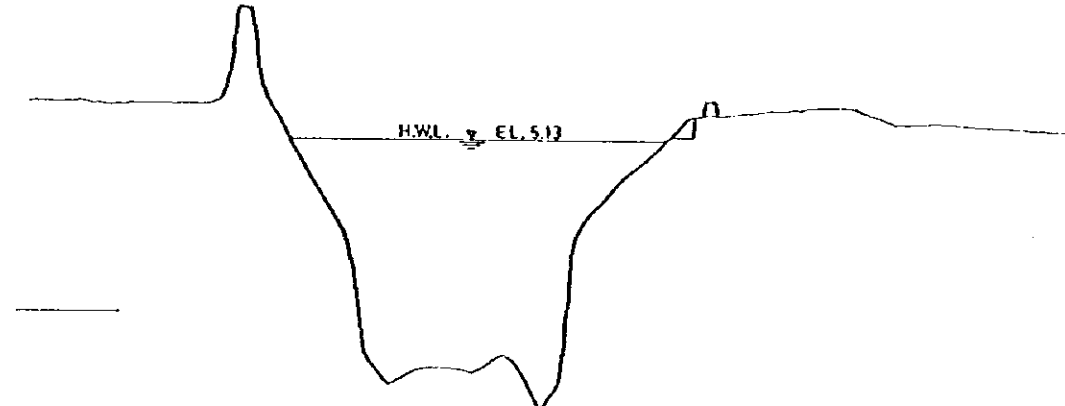
A OK



A 2K



A 4K



LEGEND

- Proposed Cross Section
- - - First Phase
- Existing Line



THE REPUBLIC OF THE PHILIPPINES
MINISTRY OF PUBLIC WORKS AND HIGHWAYS
NATIONAL IRRIGATION ADMINISTRATION
PAMPANGA DELTA DEVELOPMENT PROJECT

TITLE OF DRAWING

PROPOSED CROSS-SECTION
Labangan R. 8 Angat R. (2)

JAPAN INTERNATIONAL COOPERATION AGENCY D W G NO
TOKYO 1-19

EL. 0.00

EL. 0.00

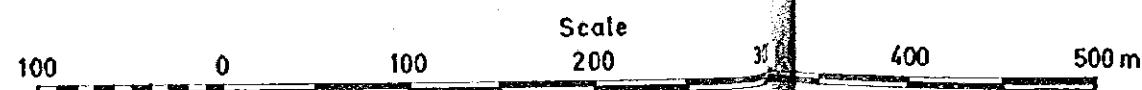
EL. 0.00

PA 7.5K

▽ HWL EL. 2.50

BC 0K

▽ HWL EL. 2.81



BC 2K

▽ HWL EL. 3.21

BC 4K

▽ HWL EL. 3.62

BC 6K

▽ HWL EL. 4.03

EL. 0.00

EL. 0.00

EL. 0.00

LEGEND

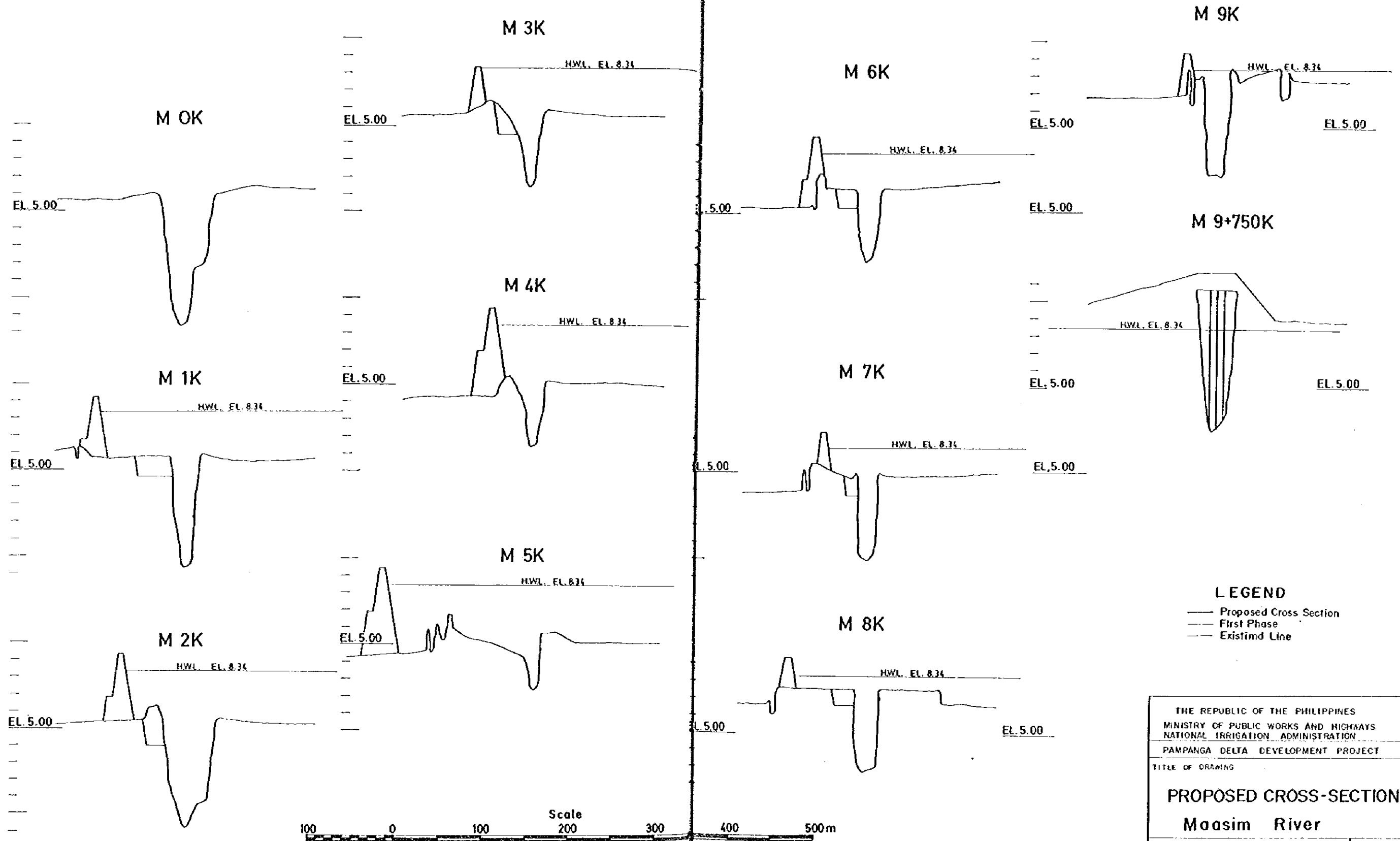
- Proposed Cross Section
- - - First Phase
- Existing Line

THE REPUBLIC OF THE PHILIPPINES
MINISTRY OF PUBLIC WORKS AND HIGHWAYS
NATIONAL IRRIGATION ADMINISTRATION
PAMPANGA DELTA DEVELOPMENT PROJECT

TITLE OF DRAWING

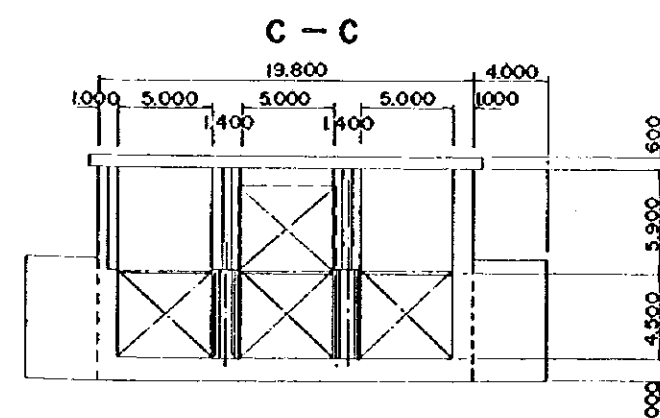
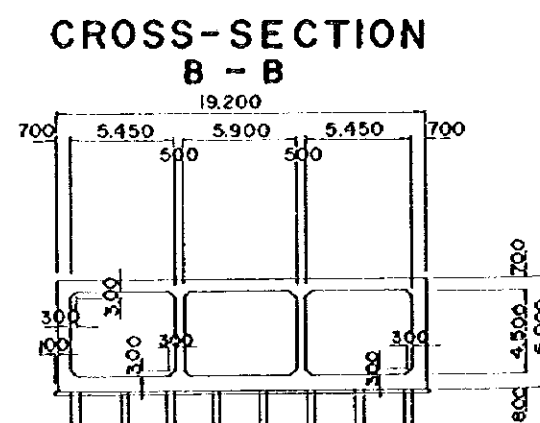
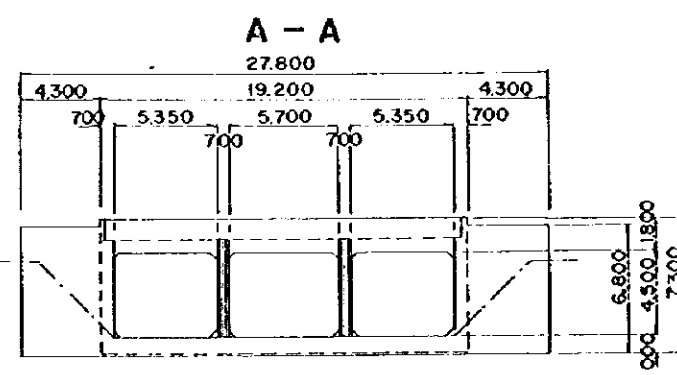
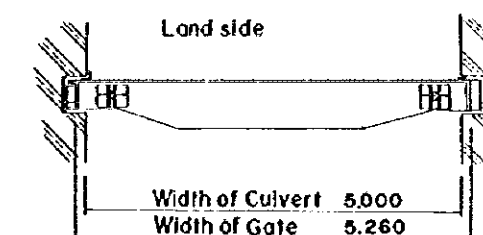
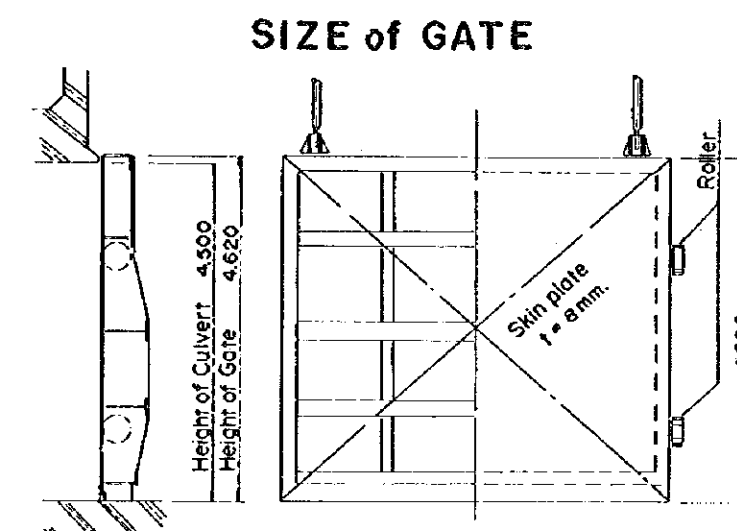
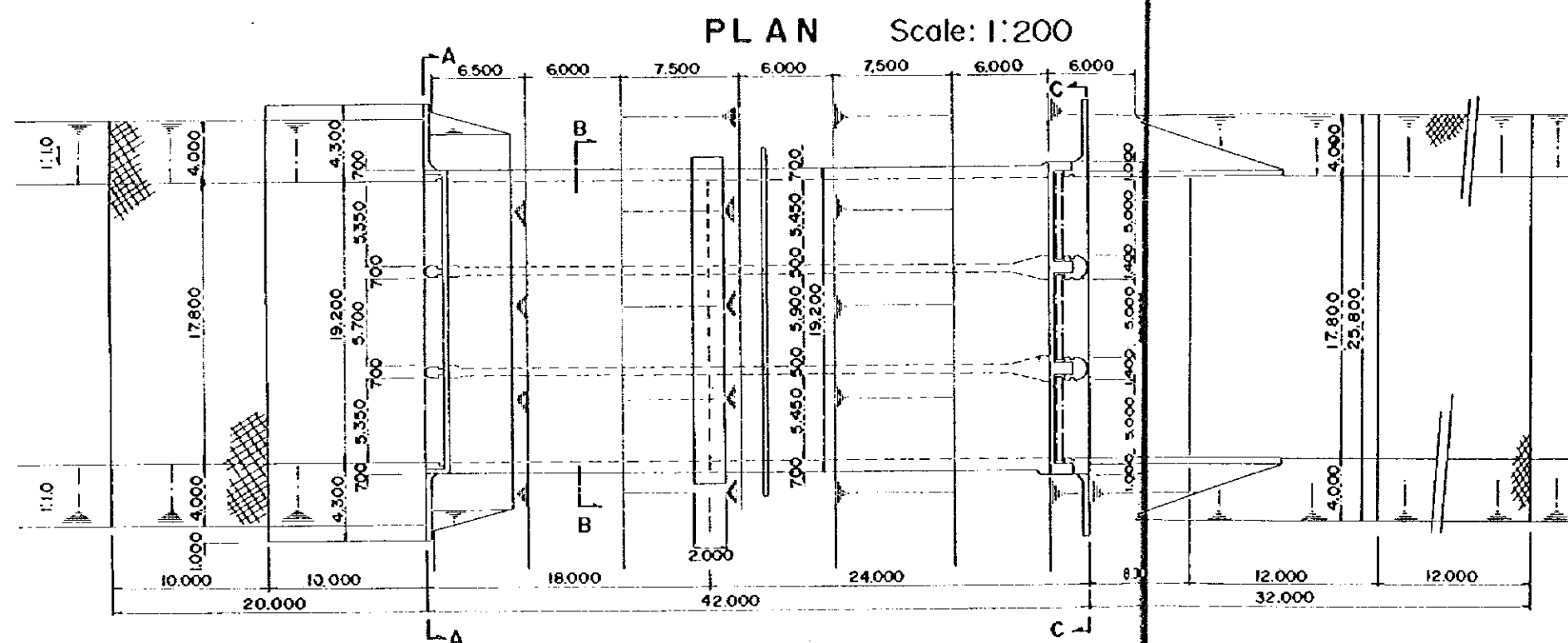
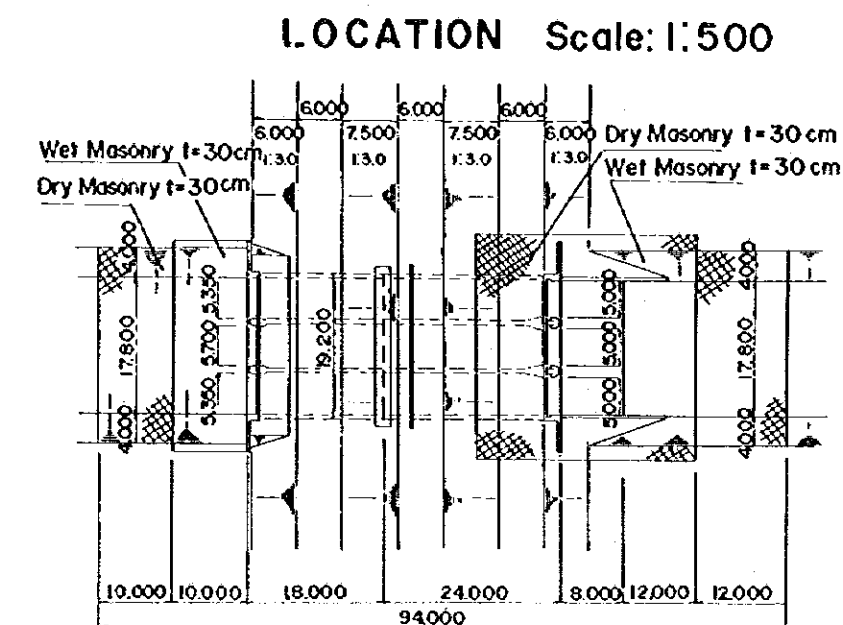
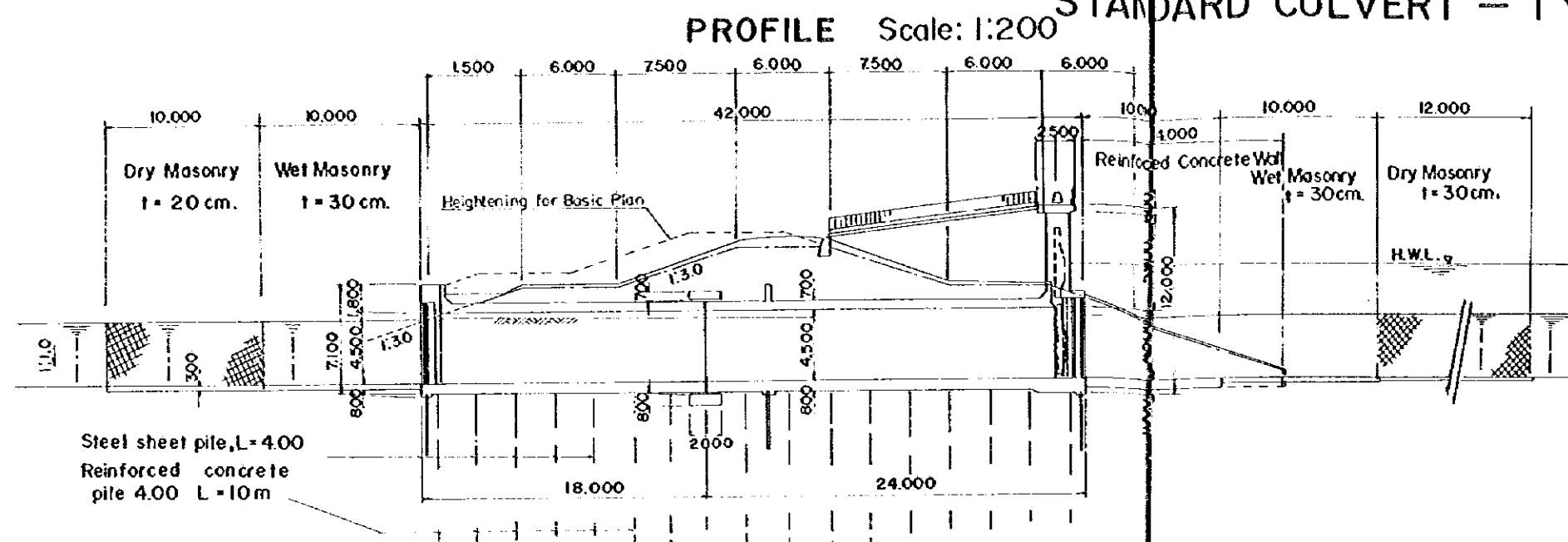
PROPOSED CROSS-SECTION
Pasag R. & Bebe C.O.C.

JAPAN INTERNATIONAL COOPERATION AGENCY D.W.G. NO.
TOKYO 1-20



LEGEND
 — Proposed Cross Section
 — First Phase
 — Existing Line

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 NATIONAL IRRIGATION ADMINISTRATION
 PAMPANGA DELTA DEVELOPMENT PROJECT
 TITLE OF DRAWING
PROPOSED CROSS-SECTION
Maasim River
 JAPAN INTERNATIONAL COOPERATION AGENCY DWG NO
 TOKYO 1-21

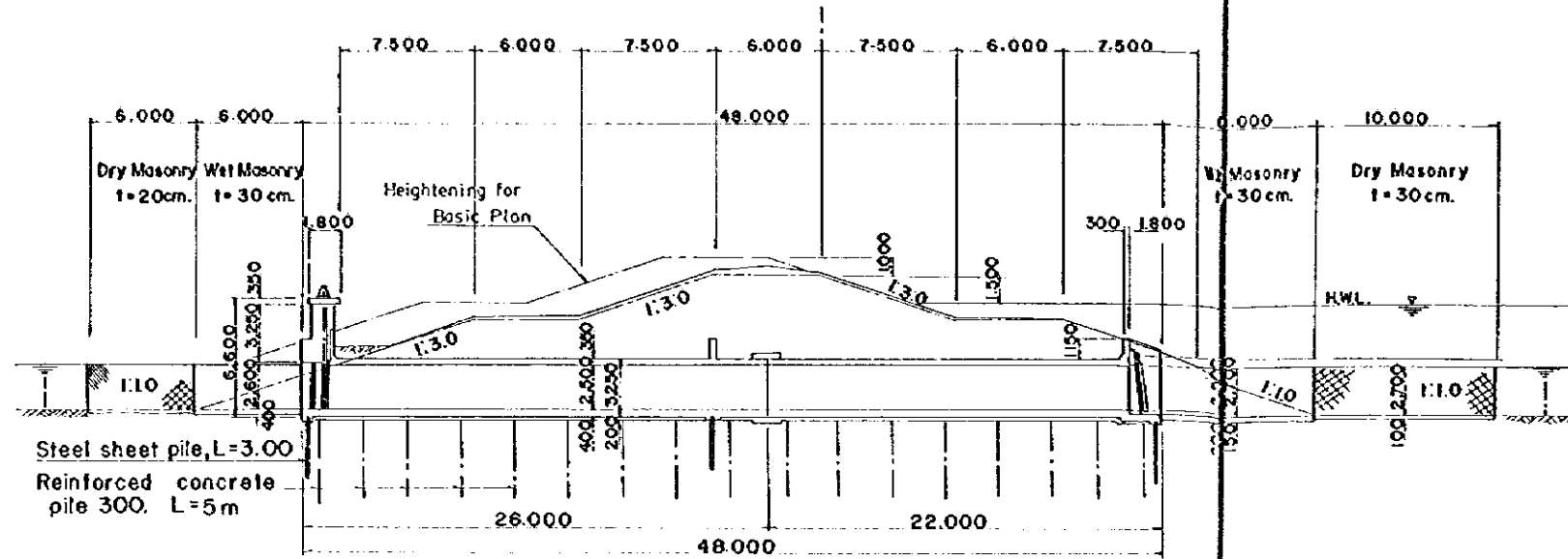


THE REPUBLIC OF THE PHILIPPINES
MINISTRY OF PUBLIC WORKS AND HIGHWAYS
NATIONAL IRRIGATION ADMINISTRATION
PAMPANGA DELTA DEVELOPMENT PROJECT
TITLE OF DRAWING

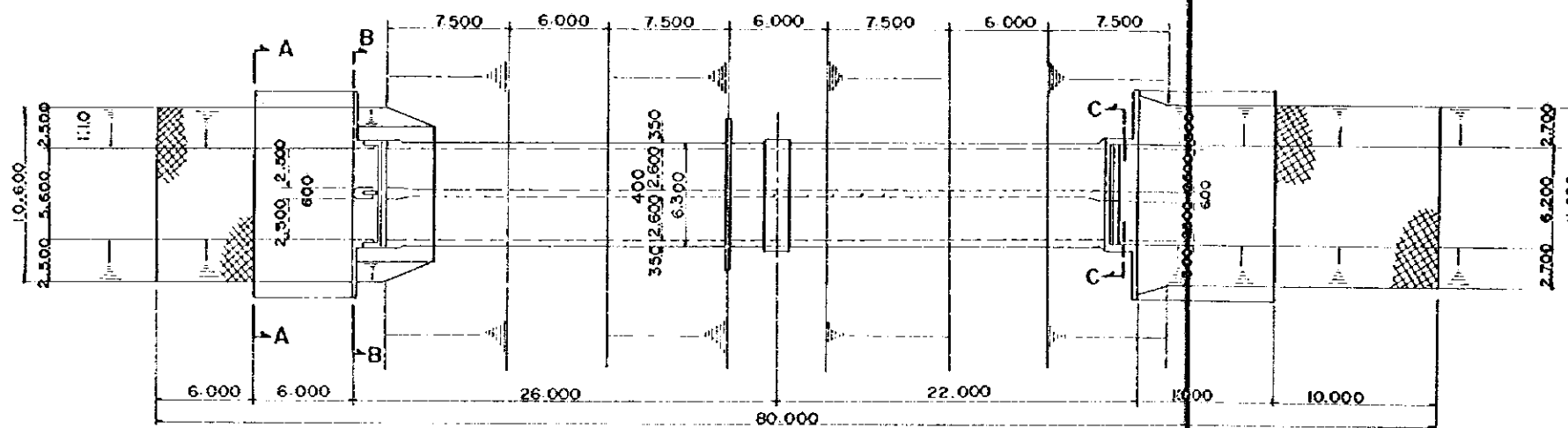
STANDARD CULVERT
— TYPE A —

JAPAN INTERNATIONAL COOPERATION AGENCY D W G - NO
TOKYO I - 22

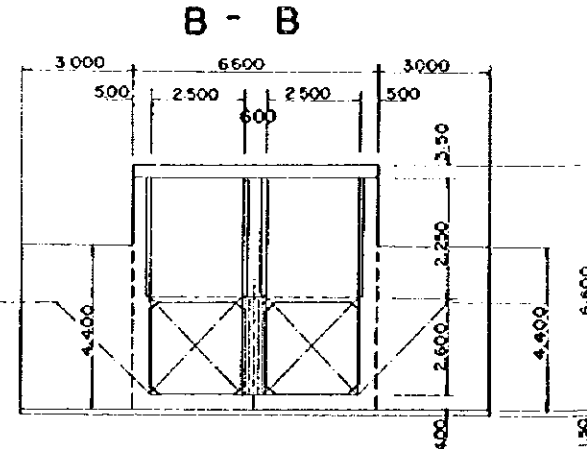
STANDARD CULVERT - TYPE B - LONGITUDINAL PROFILE Scale 1:200



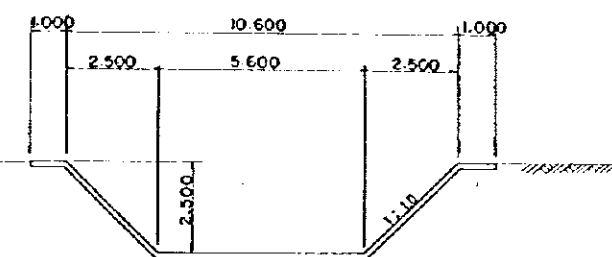
PLAN Scale: 1:200



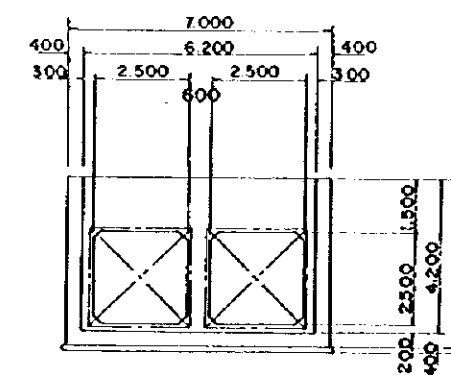
CROSS SECTION Scale: 1:100



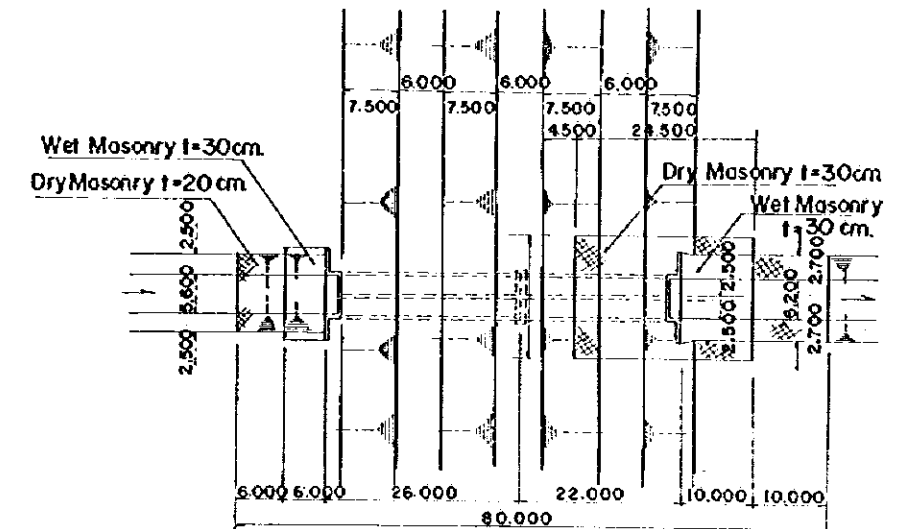
A - A



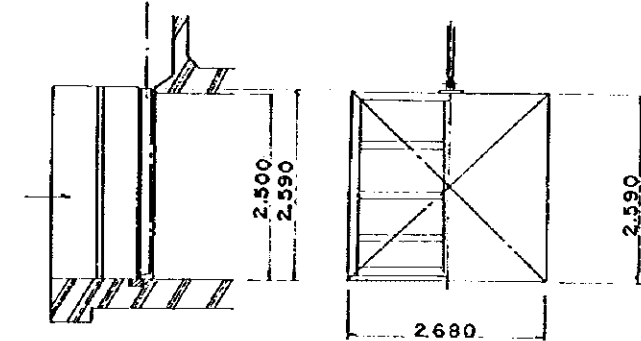
C - C



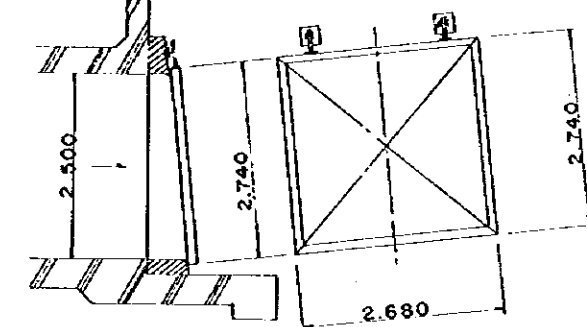
LOCATION Scale: 1:500



SIZE of Land side GATE



SIZE of River side GATE



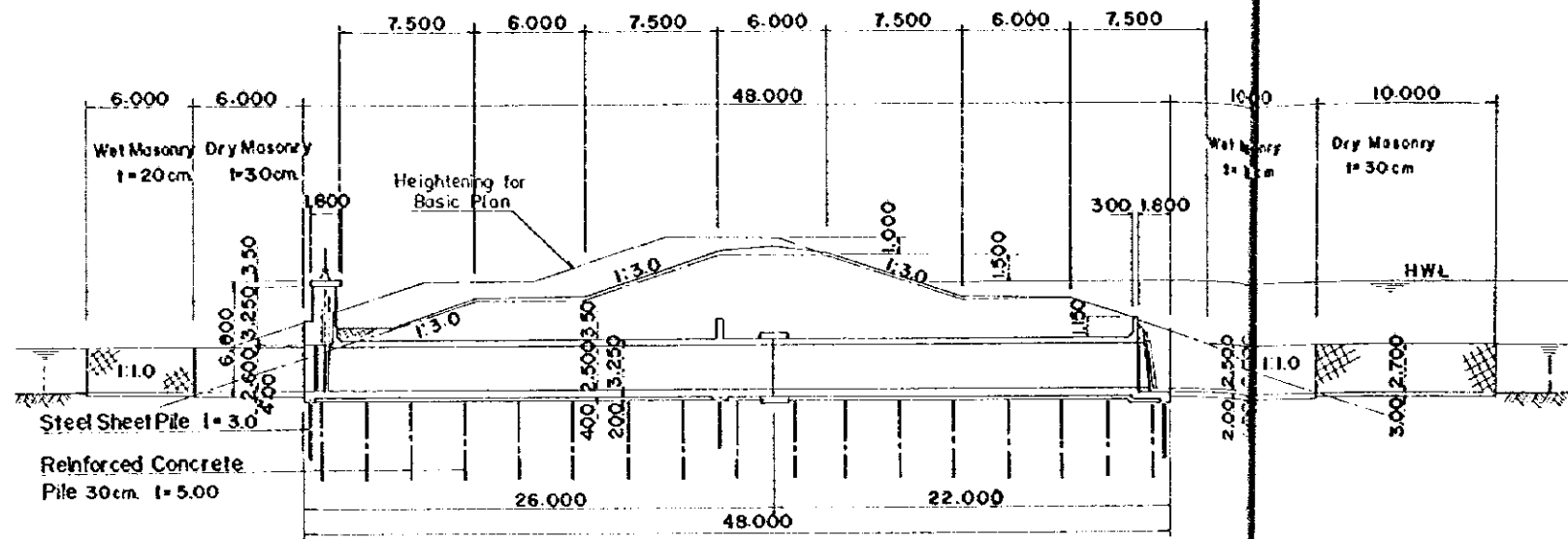
THE REPUBLIC OF THE PHILIPPINES
MINISTRY OF PUBLIC WORKS AND HIGHWAYS
NATIONAL IRRIGATION ADMINISTRATION
PAMPANGA DELTA DEVELOPMENT PROJECT
TITLE OF DRAWING

STANDARD CULVERT
- TYPE B -

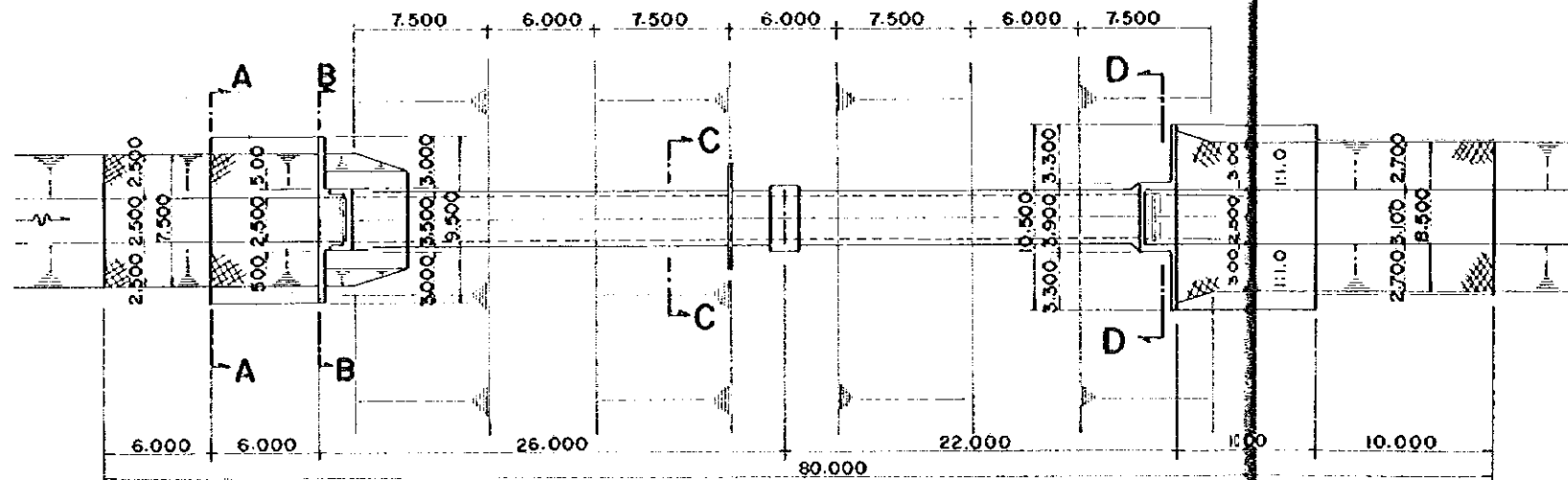
JAPAN INTERNATIONAL COOPERATION AGENCY D.W.G. NO.
TOKYO 1-23

STANDARD CULVERT - TYPE C -

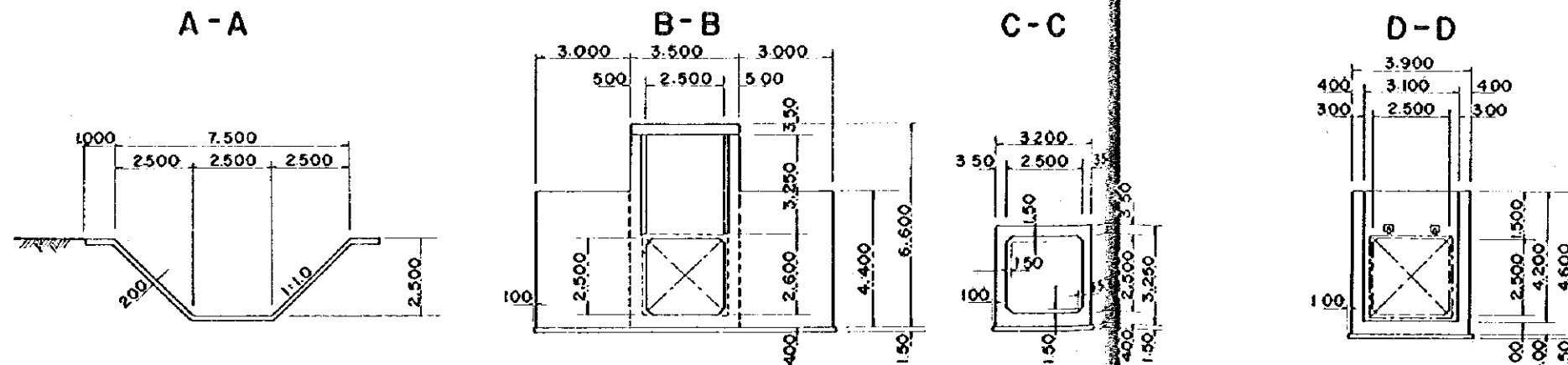
LONGITUDINAL PROFILE Scale: 1:200



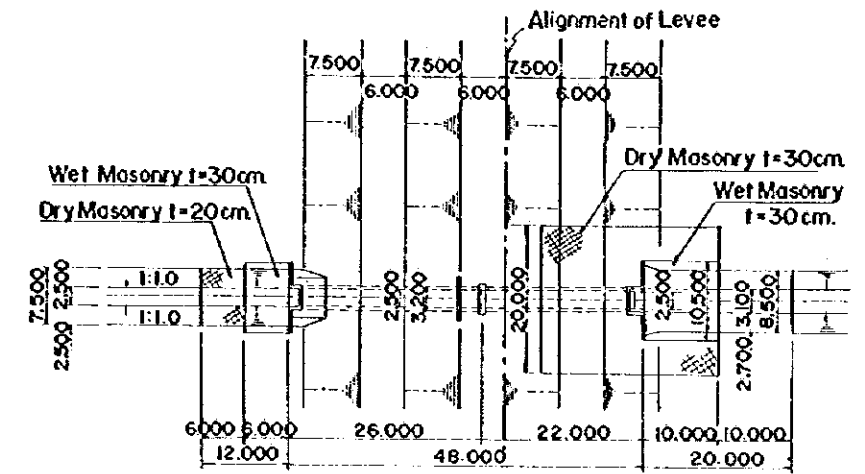
PLAN Scale: 1:200



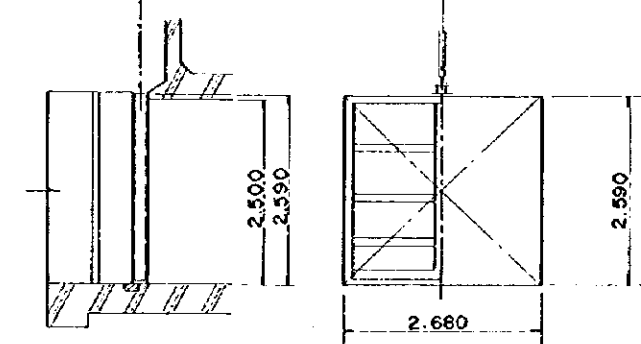
CROSS SECTION Scale: 1:100



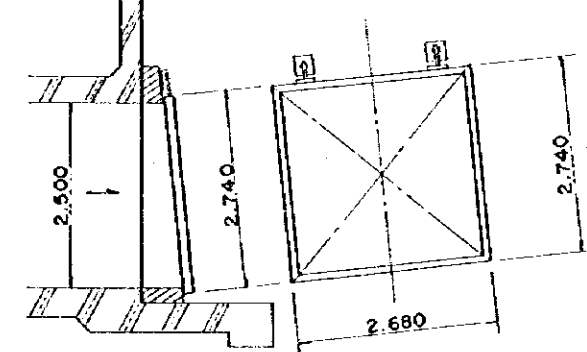
LOCATION Scale: 1:200



SIZE of Land side GATE



SIZE of River side GATE



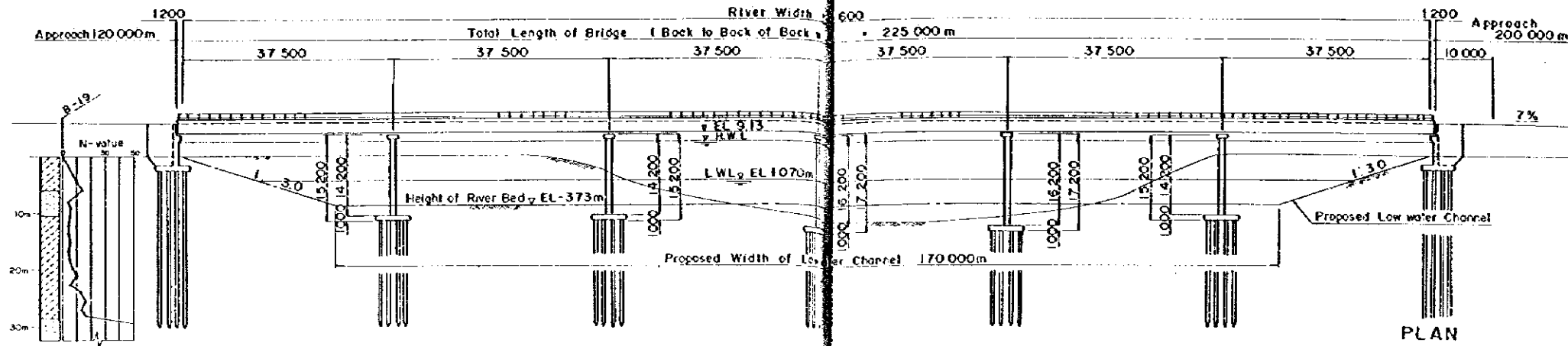
THE REPUBLIC OF THE PHILIPPINES
MINISTRY OF PUBLIC WORKS AND HIGHWAYS
NATIONAL IRRIGATION ADMINISTRATION
PAMPANGA DELTA DEVELOPMENT PROJECT

TITLE OF DRAWING

STANDARD CULVERT
- TYPE C -

JAPAN INTERNATIONAL COOPERATION AGENCY DWG NO
TOKYO 1-24

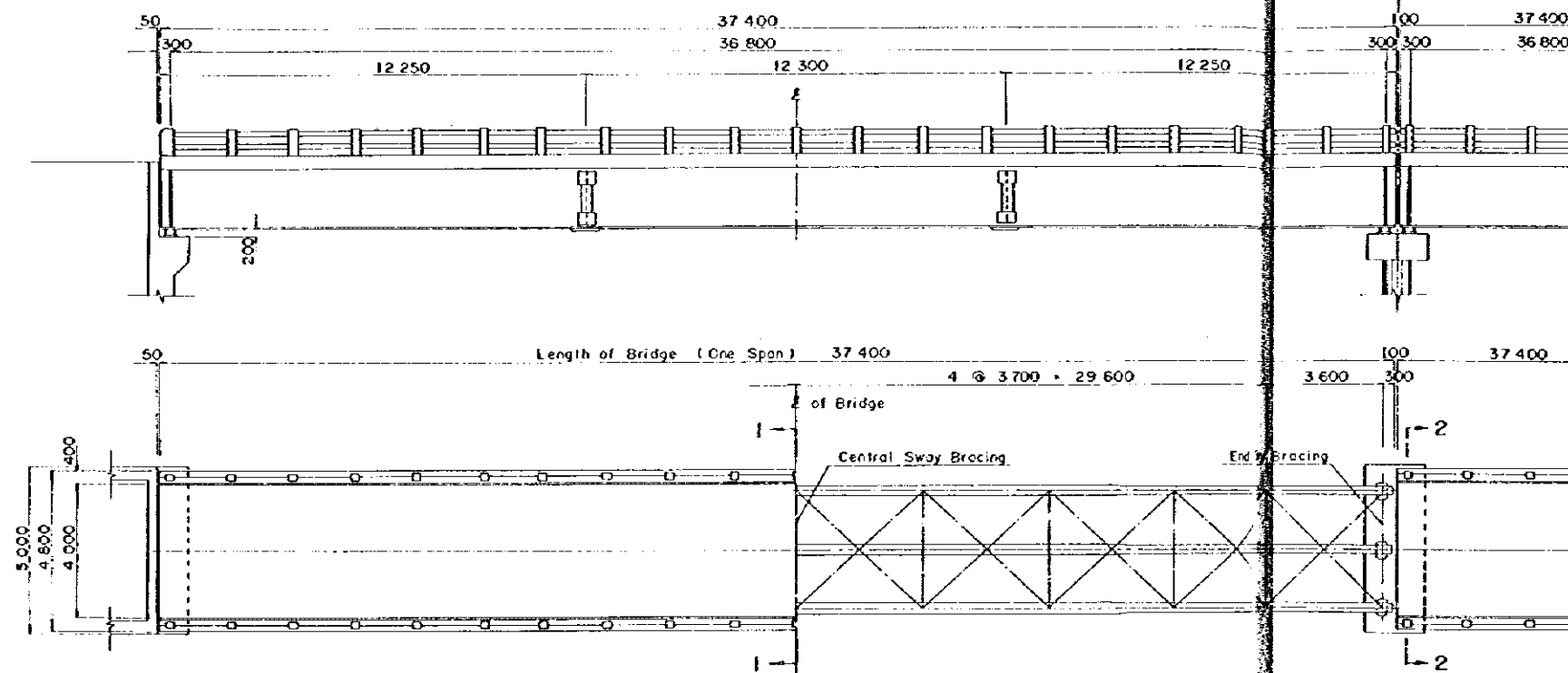
GENERAL LEVEE GRADE Scale 1:500



PLAN

Scale 1:5000

UPPER STRUCTURE Scale 1:100

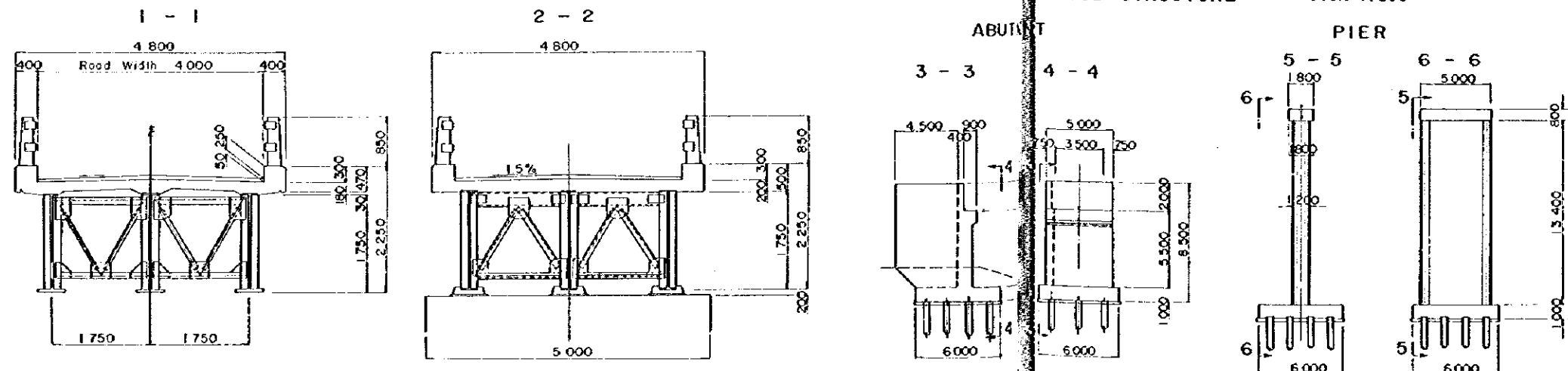


CROSS SECTION

Scale 1:50

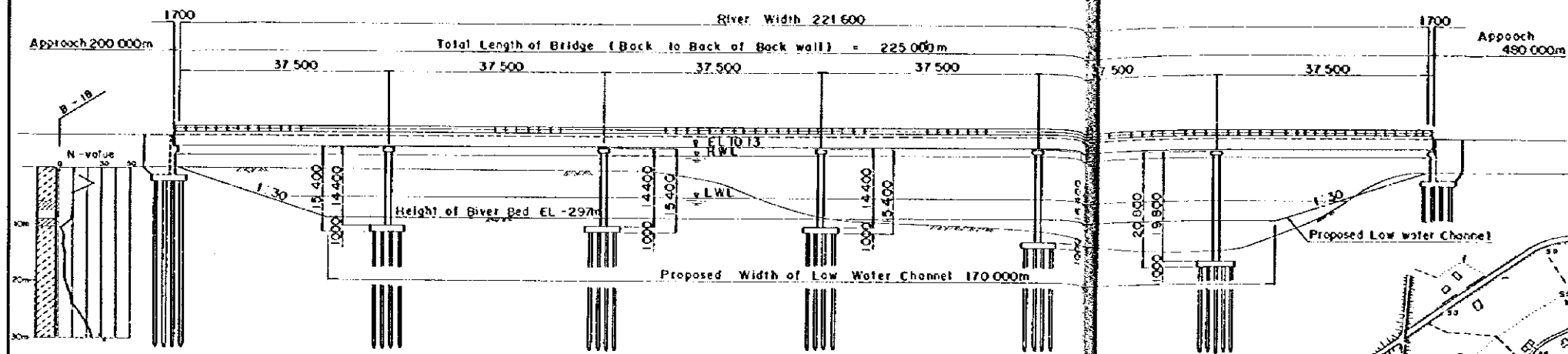
SUB STRUCTURE Scale 1:200

Scale 1:200

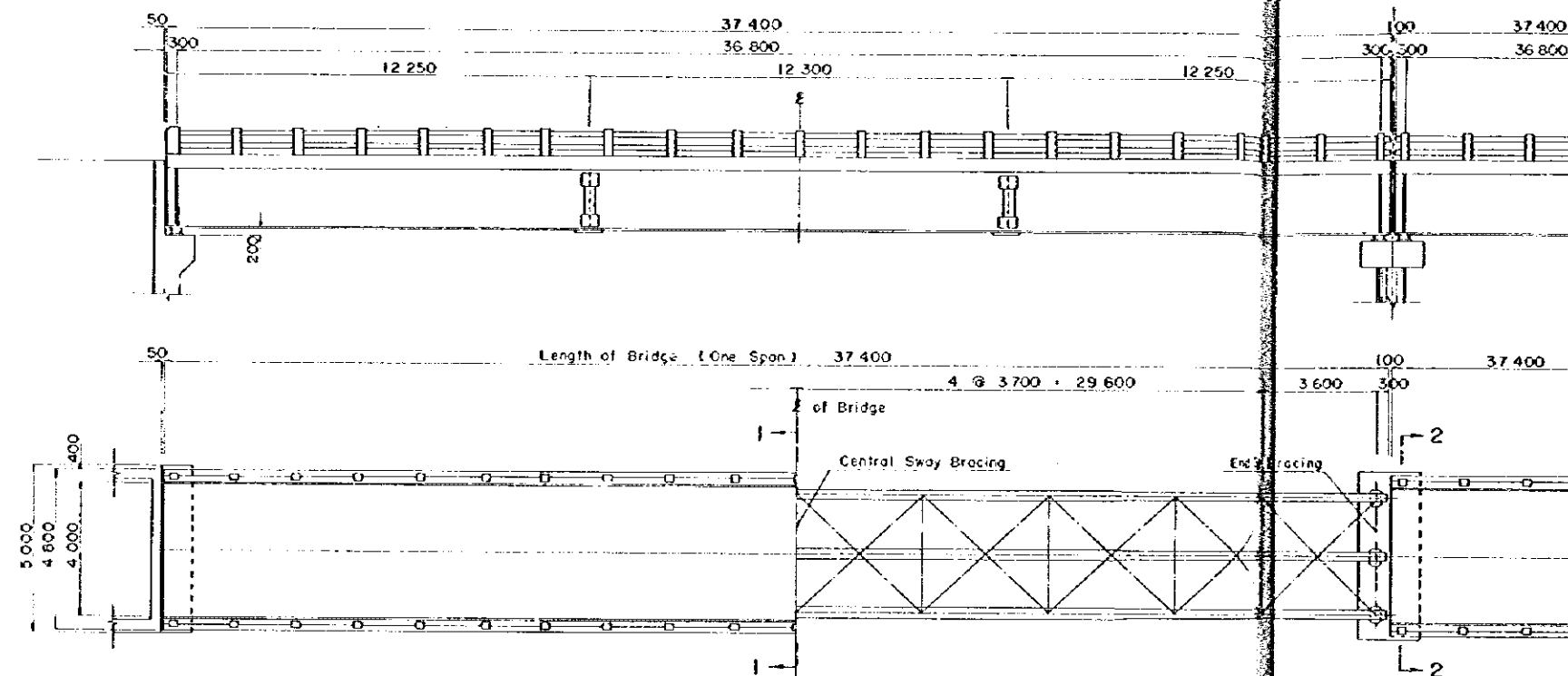


THE REPUBLIC OF THE PHILIPPINES MINISTRY OF PUBLIC WORKS AND HIGHWAYS NATIONAL IRRIGATION ADMINISTRATION PAMPANGA DELTA DEVELOPMENT PROJECT	
TITLE OF DRAWING	
PROPOSED SAN SIMON BRIDGE (P16K +1.300 m)	
JAPAN INTERNATIONAL COOPERATION AGENCY	DWG NO
TOKYO	1-25

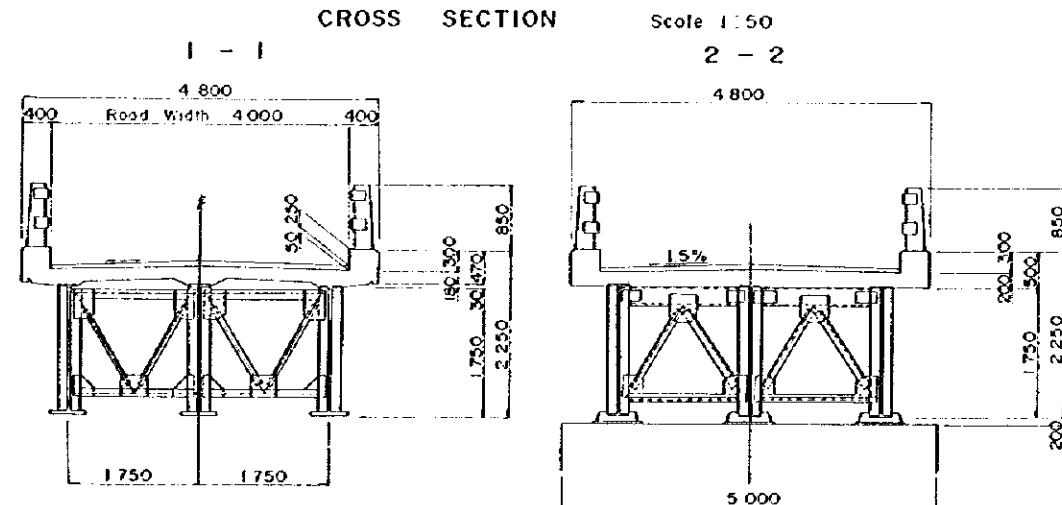
GENERAL LEVEL GRADE Scale 1:500



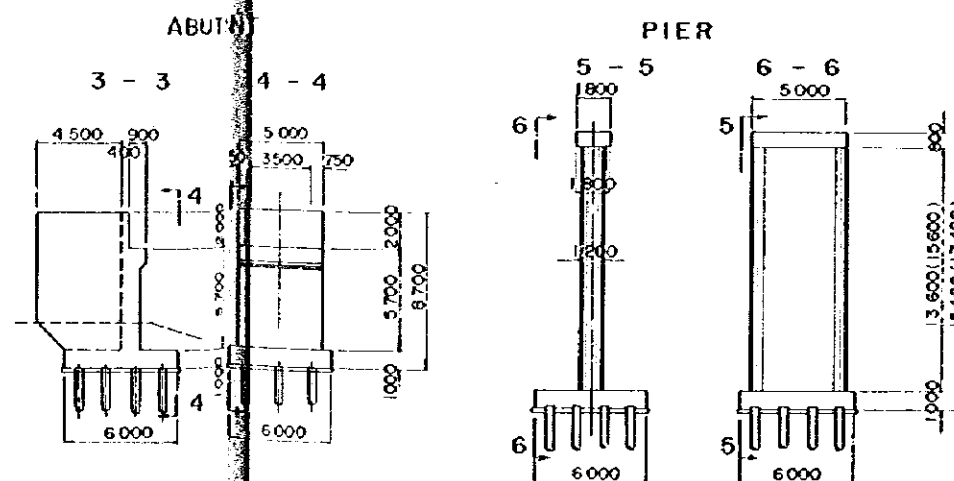
UPPER STRUCTURE



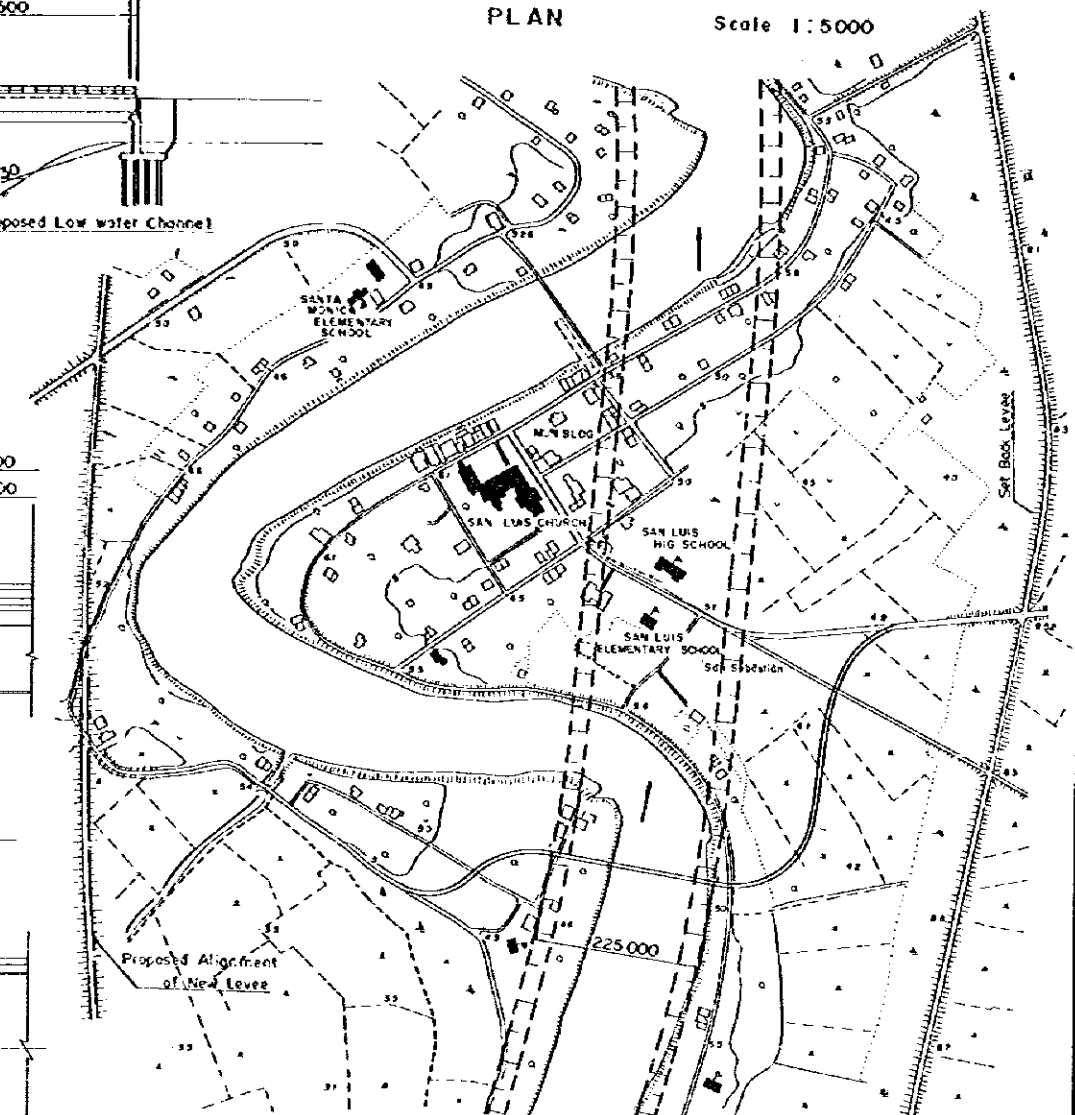
CROSS SECTION



SUB STRUCTURE



PLAN



THE REPUBLIC OF THE PHILIPPINES
MINISTRY OF PUBLIC WORKS AND HIGHWAYS
NATIONAL IRRIGATION ADMINISTRATION

PAMPANGA DELTA DEVELOPMENT PROJECT

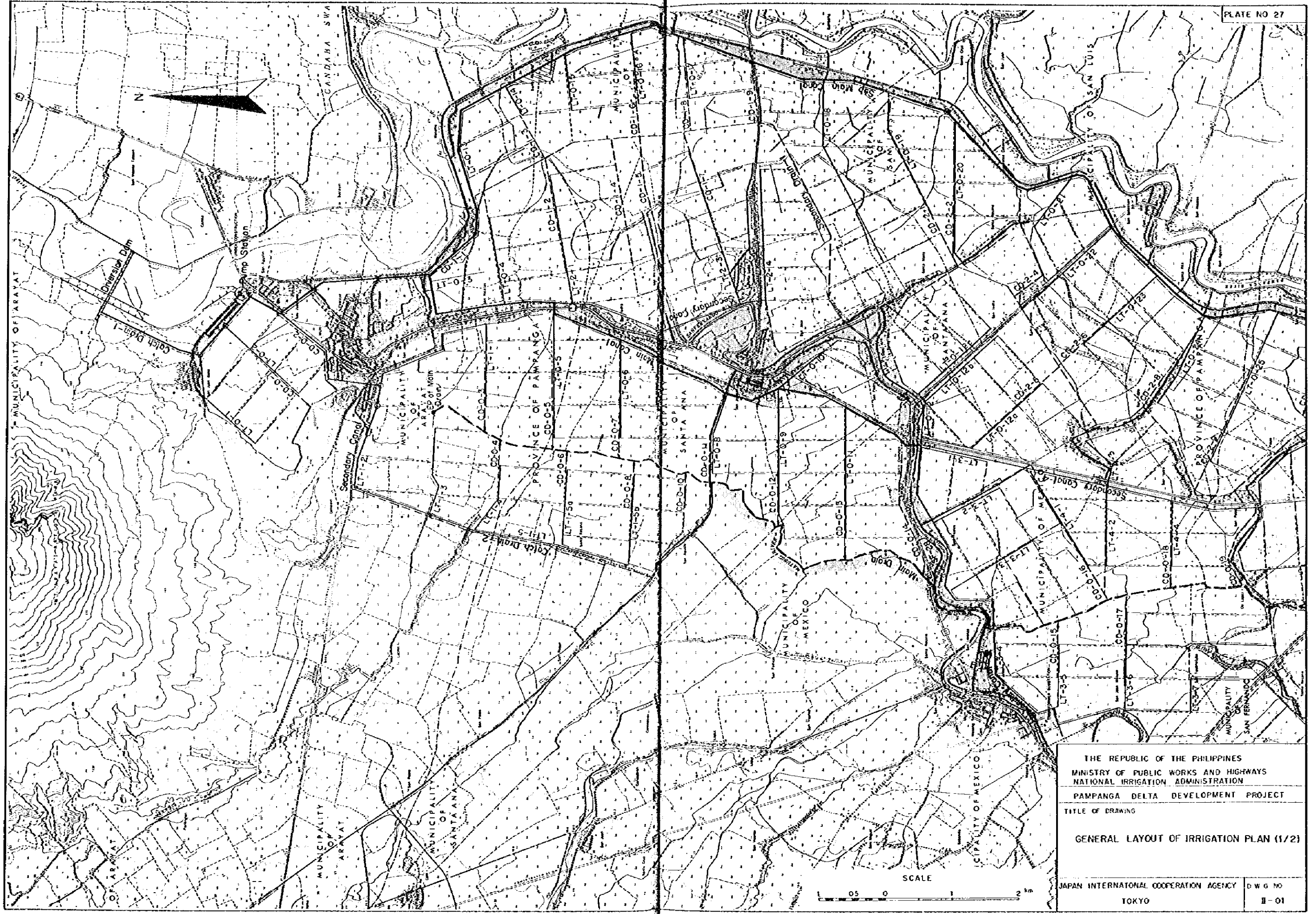
TITLE OF DRAWING

PROPOSED SAN LUIS BRIDGE
(P 24K + 200m)

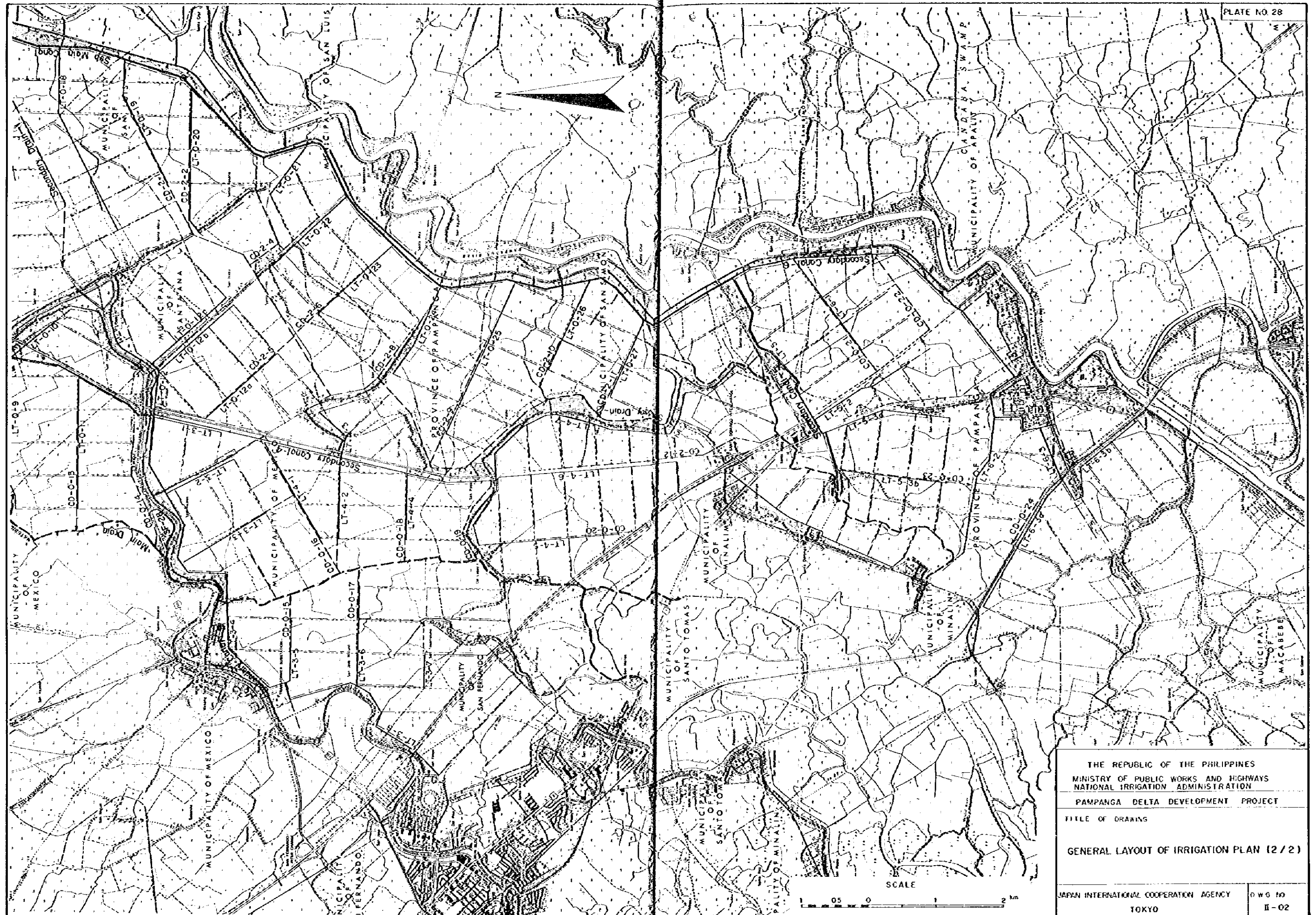
JAPAN INTERNATIONAL COOPERATION AGENCY O.W.G. NO.

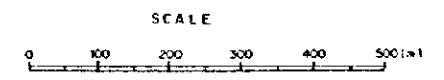
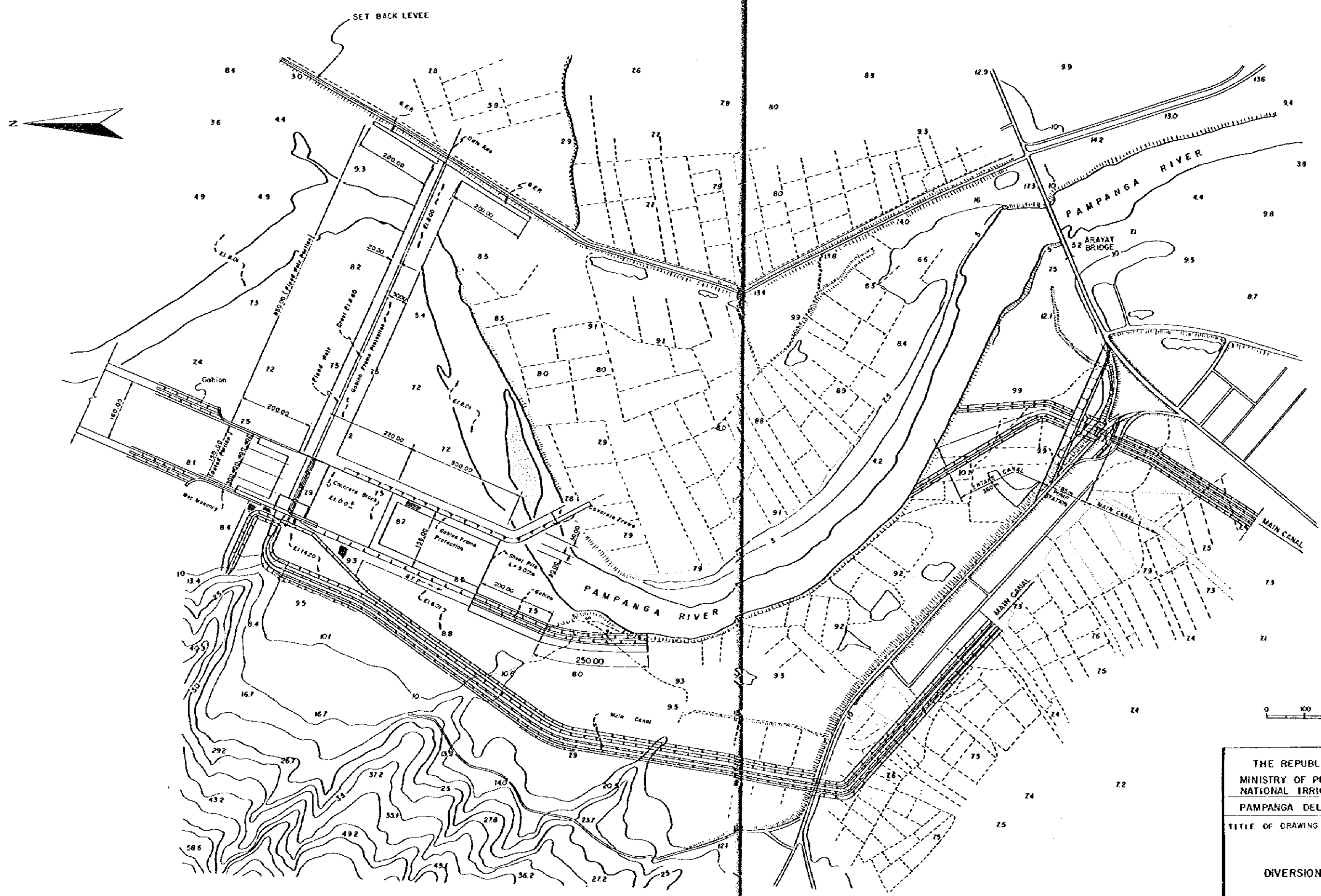
TOKYO

1 - 26

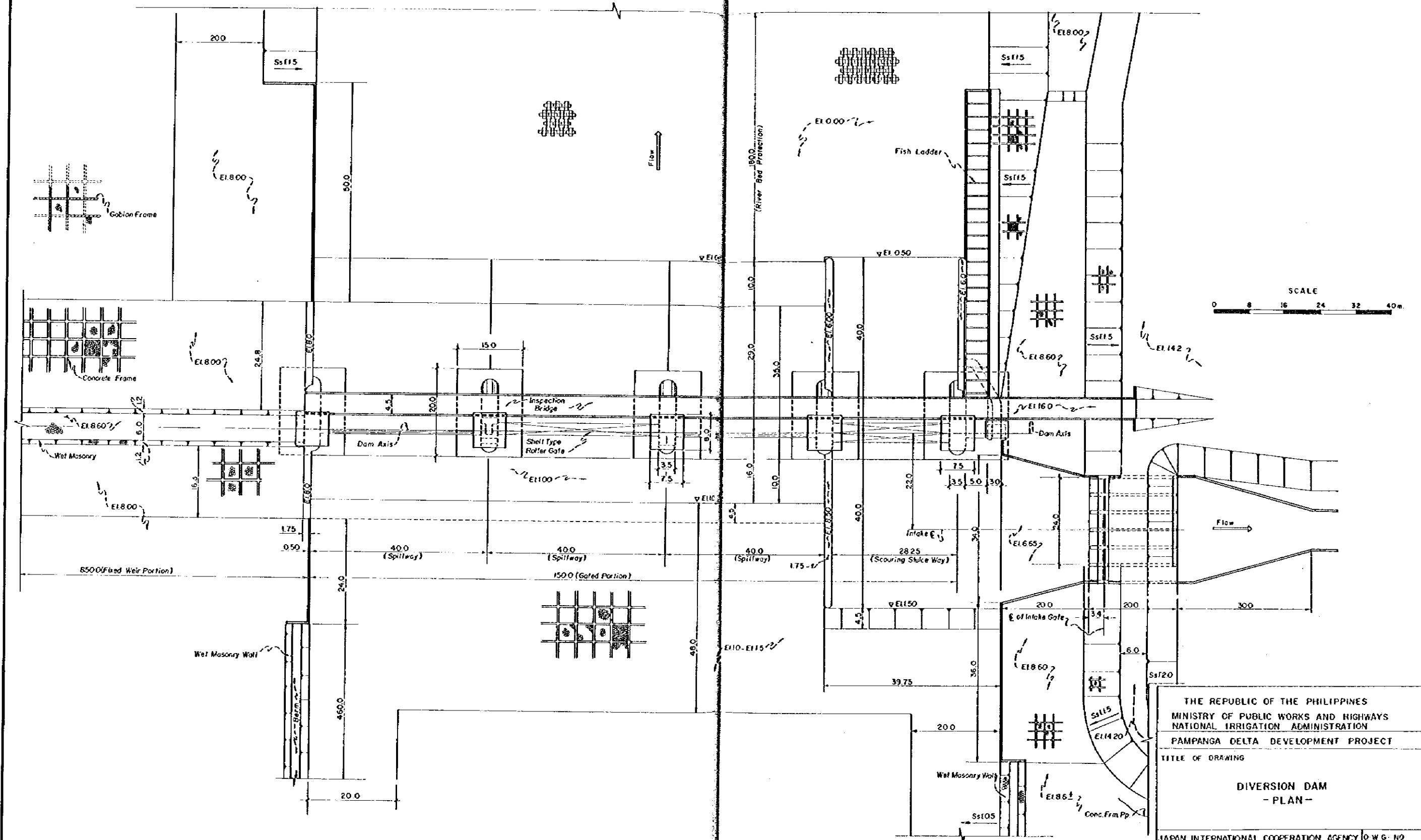


THE REPUBLIC OF THE PHILIPPINES
 MINISTRY OF PUBLIC WORKS AND HIGHWAYS
 NATIONAL IRRIGATION ADMINISTRATION
 PAMPANGA DELTA DEVELOPMENT PROJECT
 TITLE OF DRAWING
 GENERAL LAYOUT OF IRRIGATION PLAN (1/2)
 JAPAN INTERNATIONAL COOPERATION AGENCY
 TOKYO
 D W G NO
 II-01

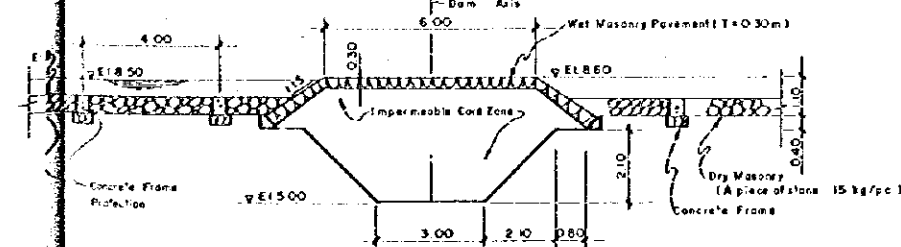




THE REPUBLIC OF THE PHILIPPINES
MINISTRY OF PUBLIC WORKS AND HIGHWAYS
NATIONAL IRRIGATION ADMINISTRATION
PAMPANGA DELTA DEVELOPMENT PROJECT
TITLE OF DRAWING
GENERAL LAYOUT
OF
DIVERSION DAM AND PUMP STATION
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO
DWG. NO
II-03

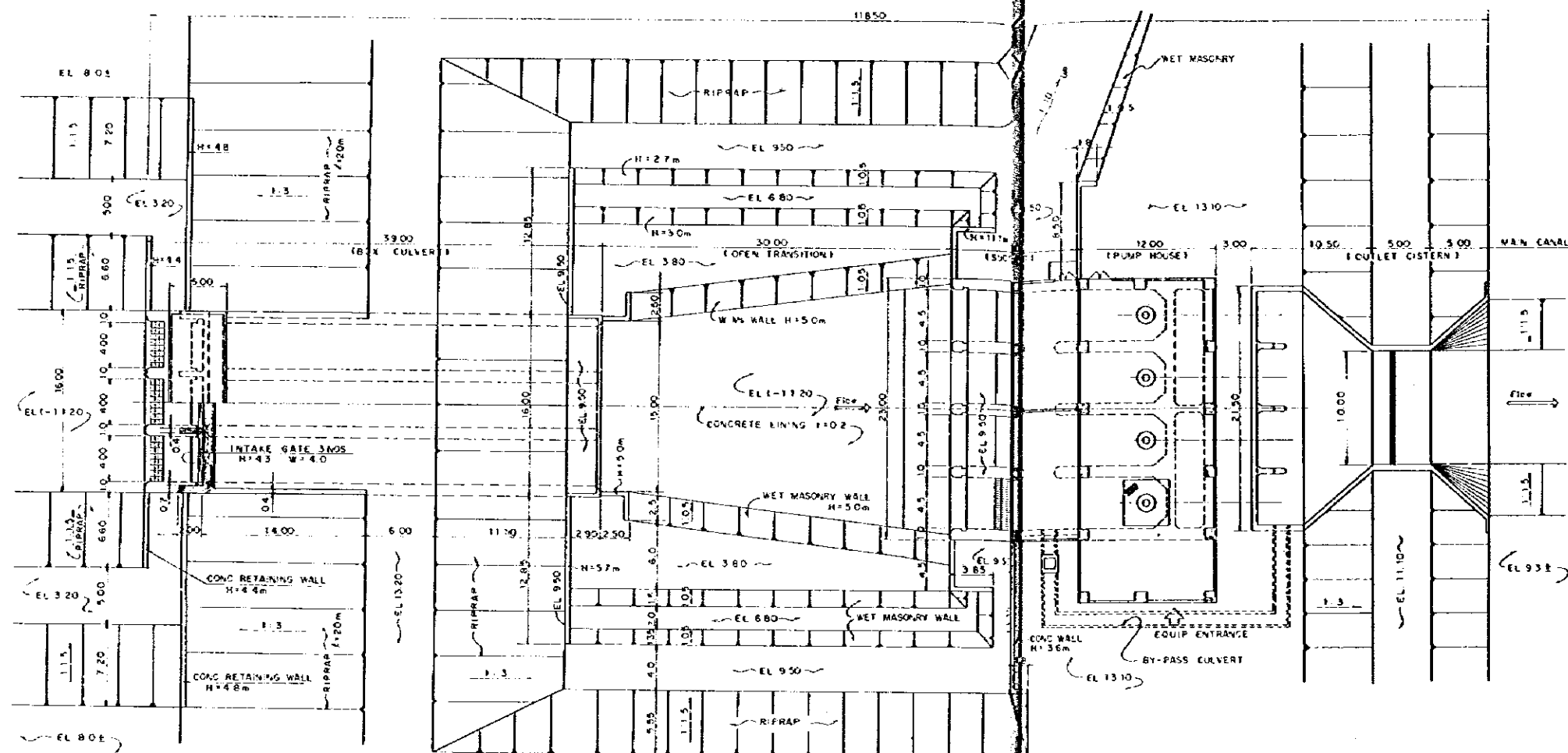


THE REPUBLIC OF THE PHILIPPINES MINISTRY OF PUBLIC WORKS AND HIGHWAYS NATIONAL IRRIGATION ADMINISTRATION PAMPANGA DELTA DEVELOPMENT PROJECT	
TITLE OF DRAWING DIVERSION DAM - PLAN -	
JAPAN INTERNATIONAL COOPERATION AGENCY TOKYO	DWG. NO. II-04

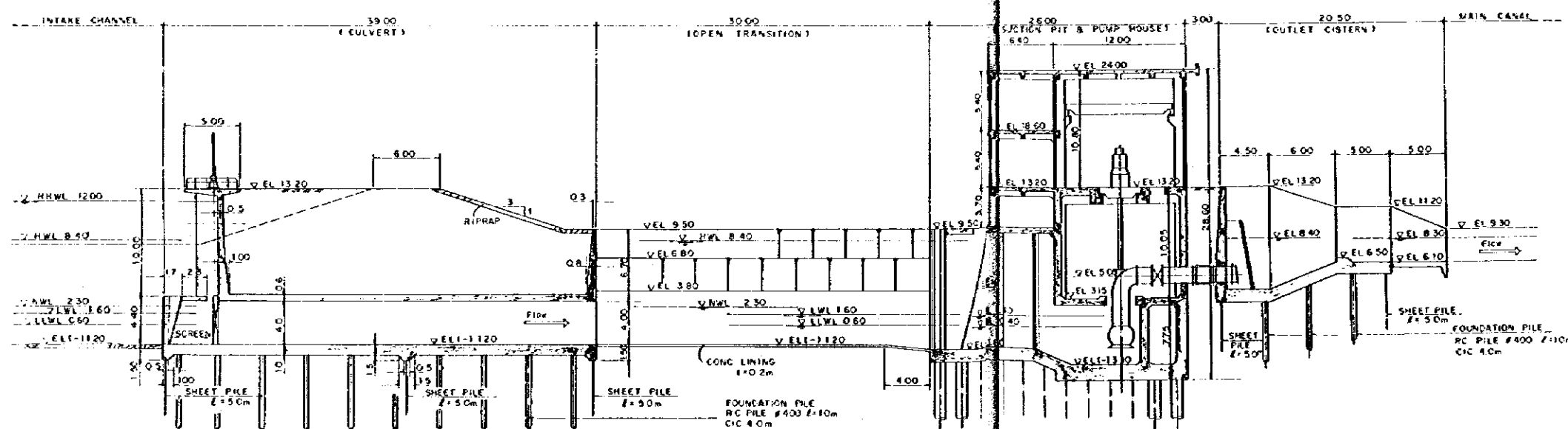


JAPAN INTERNATIONAL COOPERATION AGENCY TOKYO	DWG NO I-05
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PLAN



PROFILE



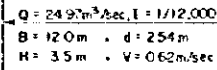
THE REPUBLIC OF THE PHILIPPINES
MINISTRY OF PUBLIC WORKS AND HIGHWAYS
NATIONAL IRRIGATION ADMINISTRATION
PAMPANGA DELTA DEVELOPMENT PROJECT

TITLE OF DRAWING

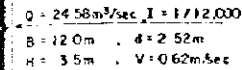
PUMP STATION
- PLAN AND PROFILE -

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO

D W C NO
I-06



STATION	DISTANCE	REDUCED DISTANCE	GROUND SURFACE ELEVATION	WATER SURFACE ELEVATION	CANAL BASE ELEVATION
NO 0	0.0	0.0	9.72	8.35	9.81
NO 1	100.0	100.0	9.70	8.35	9.01
NO 2	1000.0	200.0	9.62	8.35	9.79
1+1	65.0	265.0	9.41	8.32	9.79
NO 3	33.0	300.0	9.37	8.33	9.79
NO 4	1000.0	400.0	9.65	8.32	9.79
NO 5	1000.0	500.0	9.70	8.31	9.77
NO 6	100.0	600.0	9.61	8.30	9.76
NO 7	74.0	674.0	9.27	8.29	9.76
NO 8	67.0	741.0	8.85	8.29	9.76
NO 9	34.0	805.0	8.68	8.28	9.74
NO 10	100.0	905.0	8.46	8.27	9.73
NO 11	100.0	1,000.0	8.54	8.26	9.72
NO 12	32.0	1,032.0	9.17	8.26	9.72
NO 13	100.0	1,100.0	9.72	8.25	9.71
NO 14	100.0	1,200.0	9.05	8.25	9.71
NO 15	100.0	1,300.0	8.76	8.24	9.70
NO 16	100.0	1,400.0	8.64	8.23	9.69
NO 17	100.0	1,500.0	8.40	8.23	9.69
NO 18	60.0	1,560.0	8.02	8.19	9.67
NO 19	100.0	1,660.0	8.29	8.19	9.67
NO 20	100.0	1,760.0	8.24	8.18	9.66
1+2	1000.0	2,000.0	7.92	8.18	9.66
NO 21	100.0	2,100.0	8.08	8.17	9.65
NO 22	100.0	2,200.0	7.88	8.16	9.64
NO 23	100.0	2,300.0	8.24	8.15	9.63
NO 24	100.0	2,400.0	8.24	8.13	9.63
NO 25	100.0	2,500.0	8.15	8.12	9.62
1+3	1000.0	3,000.0	7.94	8.10	9.60
NO 26	100.0	3,100.0	7.94	8.10	9.60
NO 27	100.0	3,200.0	7.94	8.10	9.60
1+7	750.0	2,775.0	7.94	8.10	9.60
NO 28	25.0	2,800.0	7.94	8.10	9.60
NO 29	75.0	2,875.0	7.62	8.09	9.59
NO 30	25.0	2,900.0	7.62	8.09	9.59
NO 31	75.0	2,975.0	7.37	8.08	9.58
NO 32	25.0	3,000.0	7.37	8.08	9.58
NO 33	75.0	3,075.0	7.19	8.07	9.57
NO 34	25.0	3,100.0	7.19	8.07	9.57
NO 35	75.0	3,175.0	6.98	8.07	9.57
NO 36	25.0	3,200.0	6.98	8.06	9.56
NO 37	75.0	3,275.0	6.69	8.06	9.56
NO 38	25.0	3,300.0	6.69	8.05	9.55
NO 39	75.0	3,375.0	6.74	8.05	9.55
NO 40	25.0	3,400.0	6.74	8.03	9.52
NO 41	75.0	3,475.0	7.90	8.03	9.52
NO 42	25.0	3,500.0	7.90	8.02	9.51
NO 43	75.0	3,575.0	6.89	8.02	9.51
NO 44	25.0	3,600.0	6.89	8.01	9.50
NO 45	75.0	3,675.0	7.19	8.01	9.50
NO 46	25.0	3,700.0	7.19	8.01	9.50

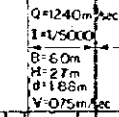
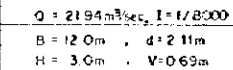
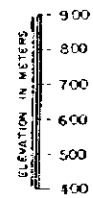


$Q = 21.94 \text{ m}^3/\text{sec}$, $I = 1/8000$
 $B = 12.0 \text{ m}$, $d = 2.11 \text{ m}$
 $H = 3.0 \text{ m}$, $V = 0.69 \text{ m/sec}$

NO 3 Bridge
 Water Surface
 Canal Base
 Original Ground Surface
 NO 4 Bridge
 NO 5 Bridge
 Bifurcation
 NO 4 HG (LT-0-3)

$Q = 240 \text{ m}^3/\text{sec}$
 $I = 1/5000$
 $B = 6.0 \text{ m}$
 $H = 2.7 \text{ m}$
 $d = 1.68 \text{ m}$
 $V = 0.75 \text{ m/sec}$

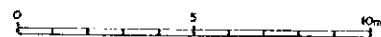
STATION	DISTANCE	REDUCED DISTANCE	GROUND SURFACE ELEVATION	WATER SURFACE ELEVATION	CANAL BASE ELEVATION
0+00	25.0	3,500.0	7.10	8.01	6.90
0+25	75.0	3,575.0	7.10	8.00	6.89
0+50	250	3,600.0	7.10	8.00	6.89
0+75	750	3,675.0	7.24	7.99	6.88
1+00	250	3,700.0	7.24	7.98	6.87
1+25	750	3,775.0	7.23	7.97	6.86
1+50	250	3,800.0	7.23	7.97	6.86
1+75	750	3,875.0	7.34	7.96	6.85
2+00	250	3,900.0	7.34	7.96	6.85
2+25	750	3,975.0	7.34	7.95	6.84
2+50	250	4,000.0	7.34	7.94	6.83
2+75	750	4,075.0	7.39	7.93	6.82
3+00	250	4,100.0	7.39	7.93	6.82
3+25	750	4,175.0	7.39	7.92	6.81
3+50	250	4,200.0	7.39	7.92	6.81
3+75	750	4,275.0	7.03	7.91	6.80
4+00	250	4,300.0	7.03	7.91	6.80
4+25	750	4,375.0	6.93	7.90	6.79
4+50	250	4,400.0	6.93	7.90	6.79
4+75	750	4,475.0	8.05	7.89	6.78
5+00	250	4,500.0	8.05	7.88	6.77
5+25	750	4,575.0	8.45	7.87	6.76
5+50	250	4,600.0	8.45	7.87	6.76
5+75	750	4,675.0	6.91	7.86	6.75
6+00	250	4,700.0	6.91	7.86	6.75
6+25	750	4,775.0	7.61	7.85	6.74
6+50	250	4,800.0	7.61	7.85	6.74
6+75	750	4,875.0	4.93	7.84	6.73
7+00	250	4,900.0	4.93	7.84	6.73
7+25	750	4,975.0	6.32	7.83	6.72
7+50	250	5,000.0	6.32	7.83	6.72
7+75	750	5,075.0	8.12	7.77	6.66
8+00	250	5,100.0	8.12	7.77	6.66
8+25	750	5,175.0	7.80	7.76	6.65
8+50	250	5,200.0	7.80	7.76	6.65
8+75	750	5,275.0	4.27	7.75	6.64
9+00	250	5,300.0	4.27	7.75	6.64
9+25	750	5,375.0	8.73	7.74	6.63
9+50	250	5,400.0	8.73	7.74	6.63
9+75	750	5,475.0	7.73	7.73	6.63
10+00	250	5,500.0	7.73	7.73	6.63
10+25	750	5,575.0	7.62	7.73	6.63
10+50	250	5,600.0	7.62	7.73	6.63
10+75	750	5,675.0	7.48	7.73	6.63
11+00	250	5,700.0	7.48	7.73	6.63
11+25	750	5,775.0	6.00	7.73	6.63
11+50	250	5,800.0	6.00	7.73	6.63
11+75	750	5,875.0	6.00	7.73	6.63
12+00	250	5,900.0	6.00	7.73	6.63
12+25	750	5,975.0	6.00	7.73	6.63
12+50	250	6,000.0	6.00	7.73	6.63
12+75	750	6,075.0	6.00	7.73	6.63
13+00	250	6,100.0	6.00	7.73	6.63
13+25	750	6,175.0	6.00	7.73	6.63
13+50	250	6,200.0	6.00	7.73	6.63</



LEGEND

- Q : Design Discharge
I : Hydraulic Gradient
B : Canal Base Width
H : Canal Height
d : Water Depth
V : Velocity

SCALE



VERTICAL :



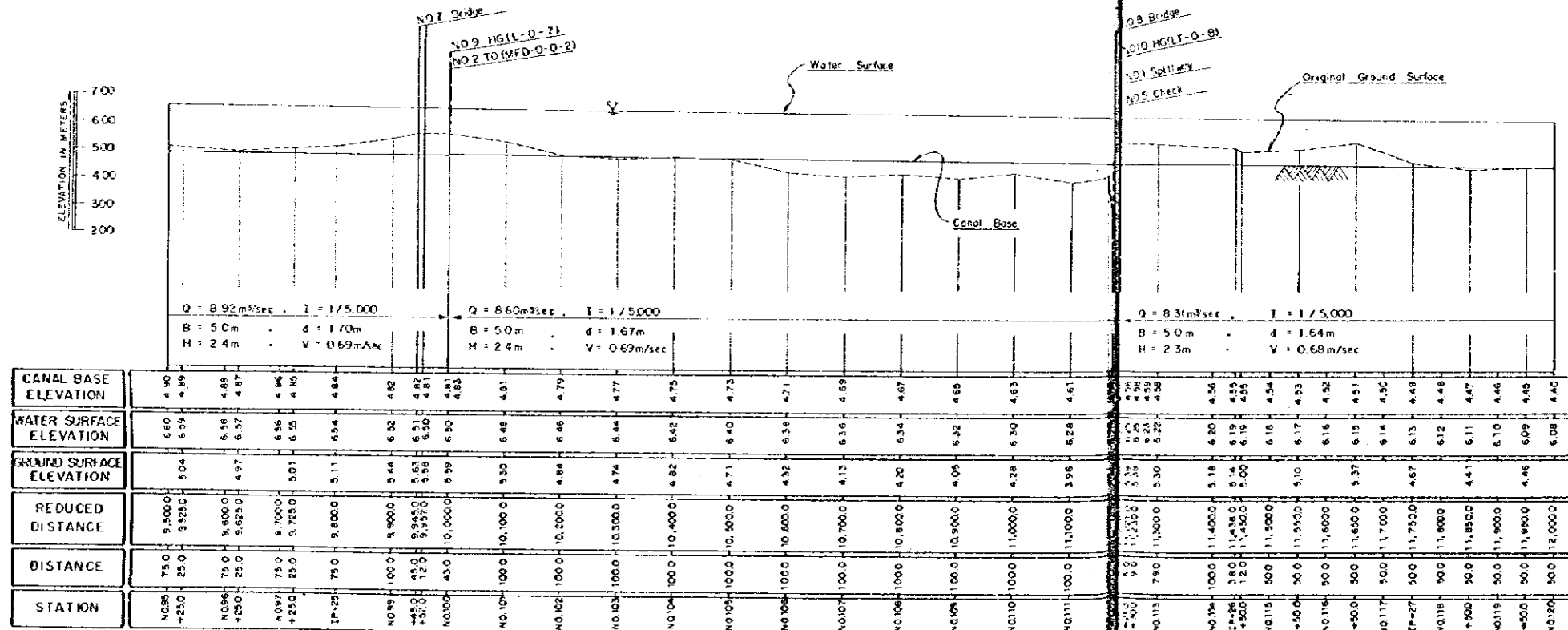
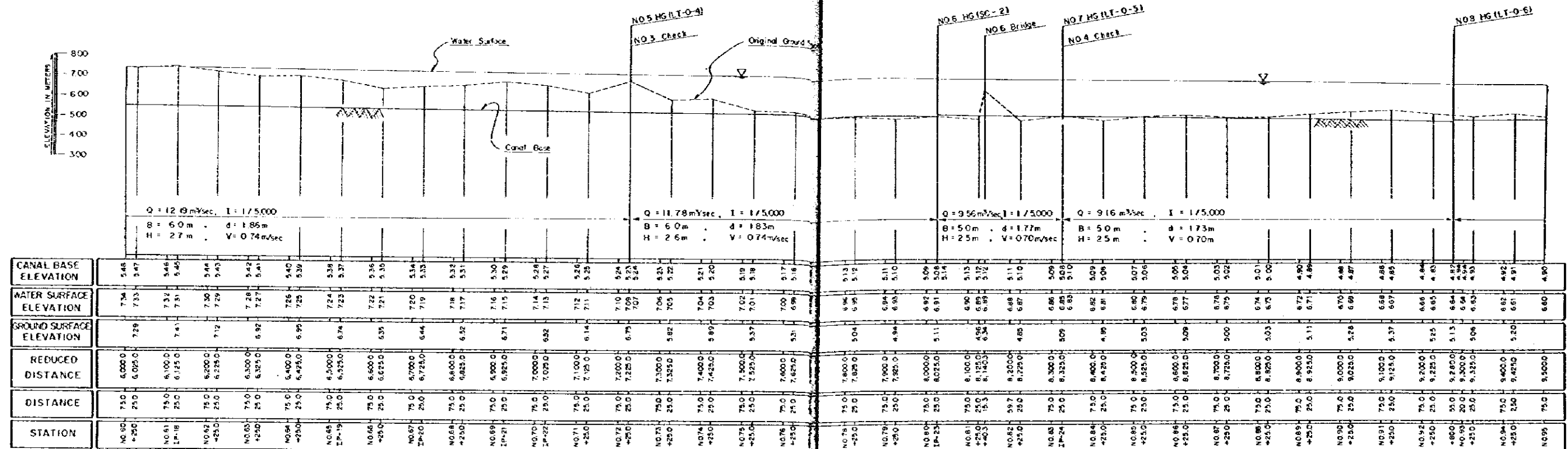
HORIZONTAL :

THE REPUBLIC OF THE PHILIPPINES
MINISTRY OF PUBLIC WORKS AND HIGHWAYS
NATIONAL IRRIGATION ADMINISTRATION
PAMPANGA DELTA DEVELOPMENT PROJECT

TITLE OF DRAWING


PROFILE OF MAIN IRRIGATION CANAL(1/3)


JAPAN INTERNATIONAL COOPERATION AGENCY	O W G NO
TOKYO	H-07



STATION	DISTANCE	REDUCED DISTANCE	GROUND SURFACE ELEVATION	WATER SURFACE ELEVATION	CANAL BASE ELEVATION
NO 120	50.0	12,000.0		6.08	444
NO 121	50.0	12,050.0	4.53	6.07	443
NO 122	50.0	12,100.0		6.06	440
NO 123	50.0	12,150.0	4.79	6.05	449
NO 124	50.0	12,200.0		6.04	449
NO 125	50.0	12,250.0	5.17	6.03	447
NO 126	50.0	12,300.0		6.02	446
NO 127	50.0	12,350.0	4.29	6.01	445
NO 128	50.0	12,400.0		6.00	444
NO 129	50.0	12,450.0	4.15	5.99	443
NO 130	50.0	12,500.0		5.98	442
NO 131	50.0	12,550.0	4.12	5.97	441
NO 132	50.0	12,600.0		5.96	440
NO 133	50.0	12,650.0	3.95	5.96	439
NO 134	50.0	12,700.0		5.94	438
NO 135	50.0	12,750.0	4.12	5.94	438
NO 136	50.0	12,800.0		5.93	437
NO 137	50.0	12,850.0	4.01	5.92	436
NO 138	50.0	12,900.0		5.92	436
NO 139	50.0	12,950.0	3.47	5.91	429
NO 140	50.0	13,000.0		5.90	430
NO 141	50.0	13,050.0	3.88	5.89	433
NO 142	50.0	13,100.0		5.88	432
NO 143	50.0	13,150.0	3.46	5.87	431
NO 144	50.0	13,200.0		5.86	430
NO 145	50.0	13,250.0	3.90	5.85	429
NO 146	50.0	13,300.0		5.82	430
NO 147	50.0	13,350.0	3.47	5.81	429
NO 148	50.0	13,400.0		5.79	427
NO 149	50.0	13,450.0	3.47	5.78	426
NO 150	50.0	13,500.0		5.77	425
NO 151	50.0	13,550.0	3.36	5.76	424
NO 152	50.0	13,600.0		5.75	423
NO 153	50.0	13,650.0	3.99	5.74	422
NO 154	50.0	13,700.0		5.73	421
NO 155	50.0	13,750.0	3.46	5.71	419
NO 156	50.0	13,800.0		5.70	418
NO 157	50.0	13,850.0	3.39	5.69	417
NO 158	50.0	13,900.0		5.68	416
NO 159	50.0	13,950.0	3.99	5.67	415
NO 160	50.0	14,000.0		5.66	414
NO 161	50.0	14,050.0	4.23	5.65	413
NO 162	50.0	14,100.0		5.64	412
NO 163	50.0	14,150.0	4.76	5.63	411
NO 164	50.0	14,200.0		5.62	410
NO 165	50.0	14,250.0	5.11	5.61	409
NO 166	50.0	14,300.0		5.60	408
NO 167	50.0	14,350.0	5.05	5.59	407
NO 168	50.0	14,400.0		5.58	406
NO 169	50.0	14,450.0	5.32	5.57	405
NO 170	50.0	14,500.0		5.56	404
NO 171	50.0	14,550.0	1.03	5.55	403
NO 172	50.0	14,600.0		5.54	402
NO 173	50.0	14,650.0	2.87	5.53	401
NO 174	50.0	14,700.0		5.52	400
NO 175	50.0	14,750.0	4.09	5.51	399
NO 176	50.0	14,800.0		5.50	398
NO 177	50.0	14,850.0	3.94	5.49	397
NO 178	50.0	14,900.0		5.48	396
NO 179	50.0	14,950.0	3.72	5.47	395
NO 180	50.0	15,000.0		5.46	394
NO 181	50.0	15,050.0	3.67	5.45	393
NO 182	50.0	15,100.0		5.44	392
NO 183	50.0	15,150.0	3.41	5.43	391
NO 184	50.0	15,200.0		5.42	390
NO 185	50.0	15,250.0	3.41	5.41	389
NO 186	50.0	15,300.0		5.40	388
NO 187	50.0	15,350.0	3.41	5.39	387
NO 188	50.0	15,400.0		5.38	386
NO 189	50.0	15,450.0	3.41	5.37	385
NO 190	50.0	15,500.0		5.36	384
NO 191	50.0	15,550.0	3.41	5.35	383
NO 192	50.0	15,600.0		5.34	382
NO 193	50.0	15,650.0	3.41	5.33	381
NO 194	50.0	15,700.0		5.32	380
NO 195	50.0	15,750.0	3.41	5.31	379
NO 196	50.0	15,800.0		5.30	378
NO 197	50.0	15,850.0	3.41	5.29	377
NO 198	50.0	15,900.0		5.28	376
NO 199	50.0	15,950.0	3.41	5.27	375
NO 200	50.0	16,000.0		5.26	374
NO 201	50.0	16,050.0	3.41	5.25	373
NO 202	50.0	16,100.0		5.24	372
NO 203	50.0	16,150.0	3.41	5.23	371
NO 204	50.0	16,200.0		5.22	370
NO 205	50.0	16,250.0	3.41	5.21	369
NO 206	50.0	16,300.0		5.20	368
NO 207	50.0	16,350.0	3.41	5.19	367
NO 208	50.0	16,400.0		5.18	366
NO 209	50.0	16,450.0	3.41	5.17	365
NO 210	50.0	16,500.0		5.16	364
NO 211	50.0	16,550.0	3.41	5.15	363
NO 212	50.0	16,600.0		5.14	362
NO 213	50.0	16,650.0	3.41	5.13	361
NO 214	50.0	16,700.0		5.12	360
NO 215	50.0	16,750.0	3.41	5.11	359
NO 216	50.0	16,800.0		5.10	358
NO 217	50.0	16,850.0	3.41	5.09	357
NO 218	50.0	16,900.0		5.08	356
NO 219	50.0	16,950.0	3.41	5.07	355
NO 220	50.0	17,000.0		5.06	354
NO 221	50.0	17,050.0	3.41	5.05	353
NO 222	50.0	17,100.0		5.04	352
NO 223	50.0	17,150.0	3.41	5.03	351
NO 224	50.0	17,200.0		5.02	350
NO 225	50.0	17,250.0	3.41	5.01	349
NO 226	50.0	17,300.0		5.00	348
NO 227	50.0	17,350.0	3.41	4.99	347
NO 228	50.0	17,400.0		4.98	346
NO 229	50.0	17,450.0	3.41	4.97	345
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NO 231	50.0	17,550.0	3.41	4.95	343
NO 232	50.0	17,600.0		4.94	342
NO 233	50.0	17,650.0	3.41	4.93	341
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NO 237	50.0	17,850.0	3.41	4.89	337
NO 238	50.0	17,900.0		4.88	336
NO 239	50.0	17,950.0	3.41	4.87	335
NO 240	50.0	18,000.0		4.86	334
NO 241	50.0	18,050.0	3.41	4.85	333
NO 242	50.0	18,100.0		4.84	332
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NO 244	50.0	18,200.0		4.82	330
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NO 246	50.0	18,300.0		4.80	328
NO 247	50.0	18,350.0	3.41	4.79	327
NO 248	50.0	18,400.0		4.78	326
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NO 252	50.0	18,600.0		4.74	322
NO 253	50.0	18,650.0	3.41	4.73	321
NO 254	50.0	18,700.0		4.72	320
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NO 259	50.0	18,950.0	3.41	4.67	315
NO 260	50.0	19,000.0		4.66	314
NO 261	50.0	19,050.0	3.41	4.65	313
NO 262	50.0	19,100.0		4.64	312
NO 263	50.0	19,150.0	3.41	4.63	311
NO 264	50.0	19,200.0		4.62	310
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NO 266	50.0	19,300.0		4.60	308
NO 267	50.0	19,350.0	3.41	4.59	307
NO 268	50.0	19,400.0		4.58	306
NO 269	50.0	19,450.0	3.41	4.57	305
NO 270	50.0	19,500.0		4.56	304
NO 271	50.0	19,550.0	3.41	4.55	303
NO 272	50.0	19,600.0		4.54	302
NO 273	50.0	19,650.0	3.41	4.53	301
NO 274	50.0	19,700.0		4.52	300
NO 275	50.0	19,750.0	3.41	4.51	299
NO 276	50.0	19,800.0		4.50	298
NO 277	50.0	19,850.0	3.41	4.49	297
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NO 279	50.0	19,950.0	3.41	4.47	295
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NO 285	50.0	20,250.0	3.41	4.41	289
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NO 287	50.0	20,350.0	3.41	4.39	287
NO 288	50.0	20,400.0		4.38	286
NO 289	50.0	20,450.0	3.41	4.37	285
NO 290	50.0	20,500.0		4.36	284
NO 291	50.0	20,550.0	3.41	4.35	283
NO 292	50.0	20,600.0		4.34	282
NO 293	50.0	20,650.0	3.41	4.33	281
NO 294	50.0	20,700.0		4.32	280
NO 295	50.0	20,750.0	3.41	4.31	279
NO 296	50.0	20,800.0		4.30	278
NO 297	50.0	20,850.0	3.41	4.29	277
NO 298	50.0	20,900.0		4.28	276
NO 299	50.0	20,950.0	3.41	4.27	275
NO 300	50.0	21,000.0		4.26	274
NO 301	50.0	21,050.0	3.41	4.25	273
NO 302	50.0	21,100.0		4.24	272
NO 303	50.0	21,150.0	3.41	4.23	271
NO 304	50.0	21,200.0		4.22	270
NO 305	50.0	21,250.0	3.41	4.21	269
NO 306	50.0	21,300.0		4.20	268
NO 307	50.0	21,350.0	3.41	4.19	267
NO 308	50.0	21,400.0		4.18	266
NO 309	50.0	21,450.0	3.41	4.17	265
NO 310	50.0	21,500.0		4.16	264
NO 311	50.0	21,550.0	3.41	4.15	263
NO 312	50.0	21,600.0		4.14	262
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NO 314	50.0	21,700.0		4.12	260
NO 315	50.0	21,750.0	3.41	4.11	259
NO 316	50.0	21,800.0		4.10	258
NO 317	50.0	21,850.0	3.41	4.09	257
NO 318	50.0	21,900.0		4.08	256
NO 319	50.0	21,950.0	3.41	4.07	255
NO 320	50.0	22,000.0		4.06	254
NO 321	50.0	22,050.0	3.41	4.05	253
NO 322	50.0	22,100.0		4.04	252
NO 323	50.0	22,150.0	3.41	4.03	251
NO 324	50.0	22,200.0		4.02	250
NO 325	50.0	22,250.0	3.41	4.01	249
NO 326	50.0	22,300.0		4.00	248
NO					

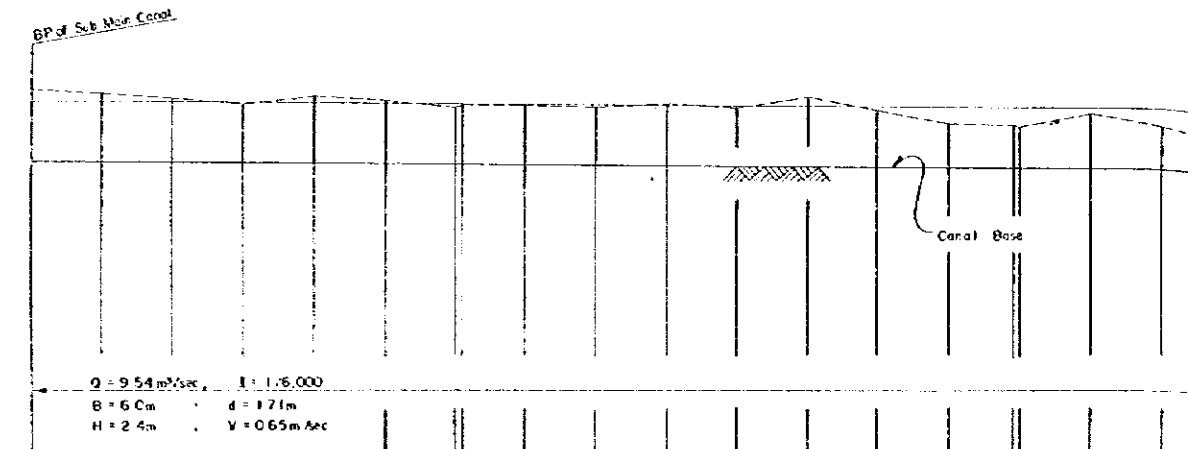
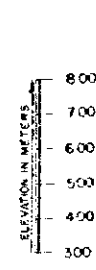
Q : Design Discharge
I : Hydraulic Gradient
B : Canal Base Width
H : Canal Height
d : Water Depth
V : Velocity

VERTICAL : 

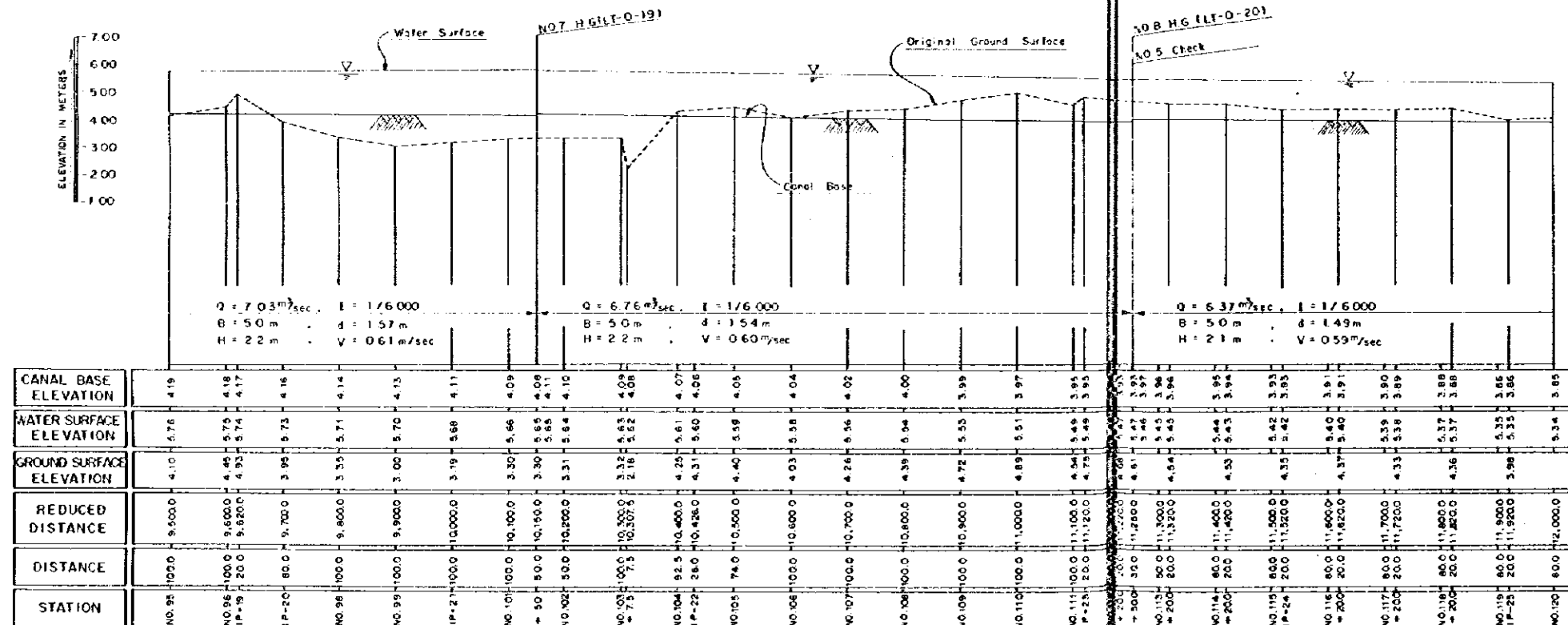
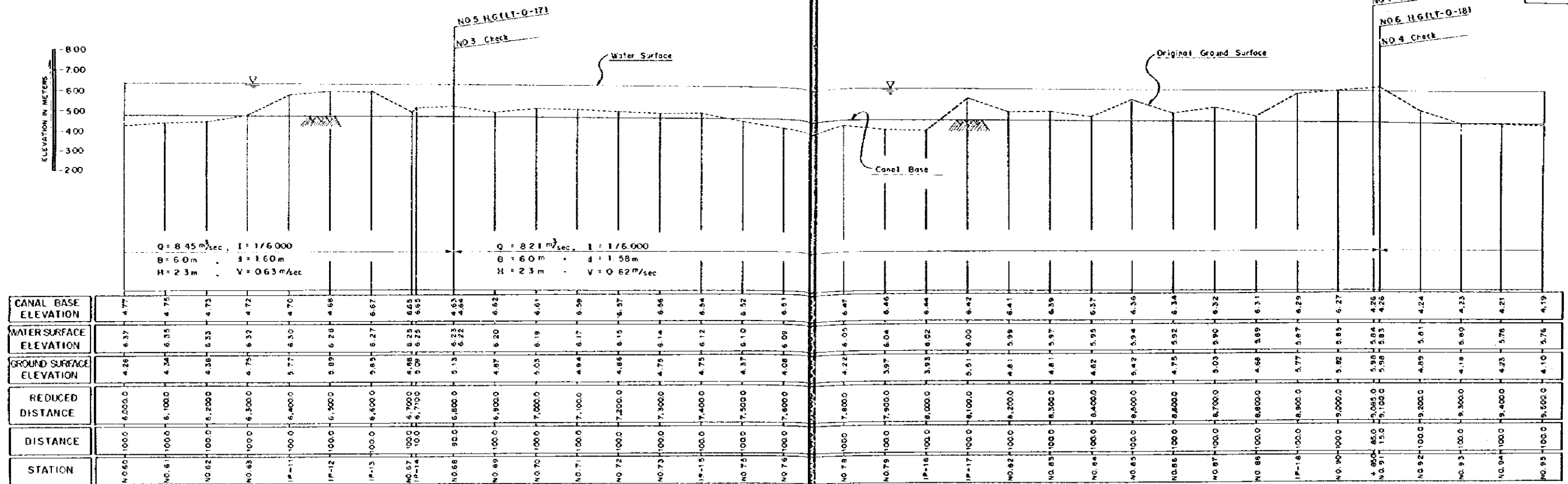
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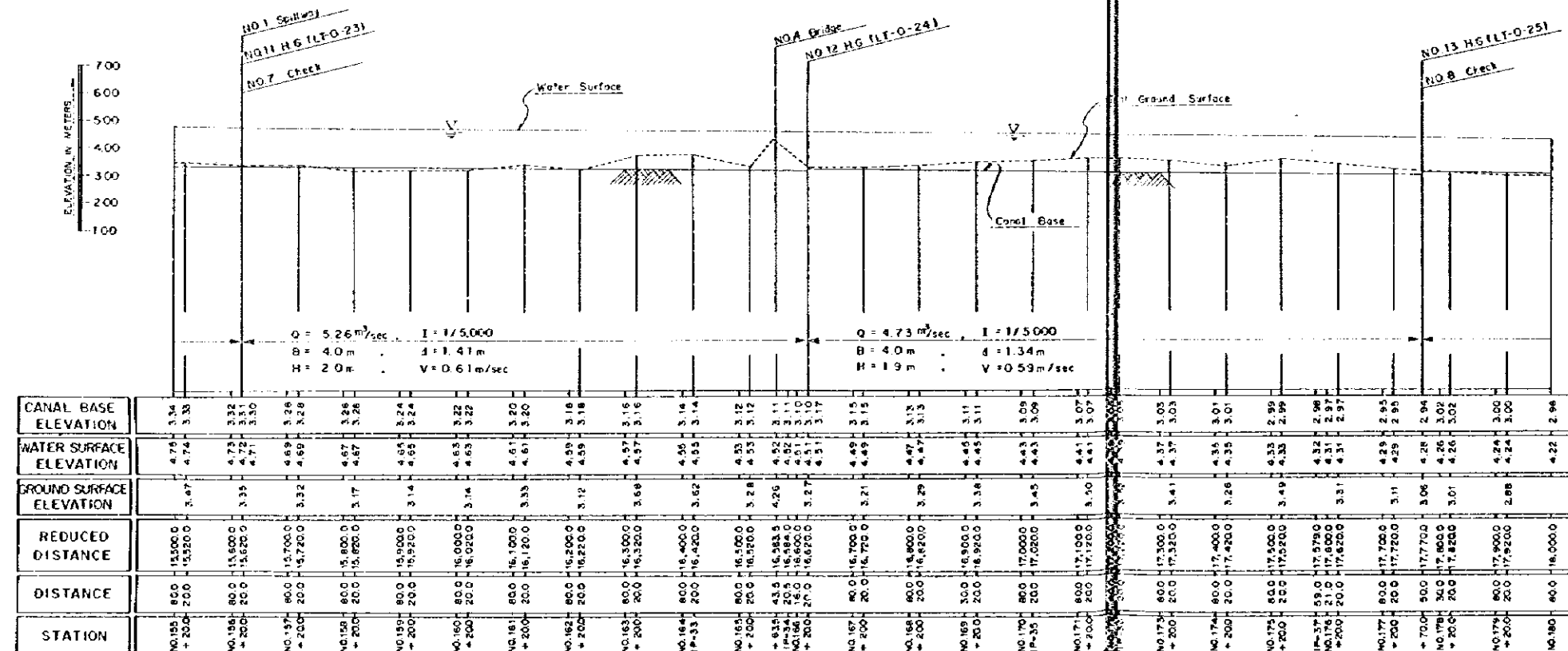
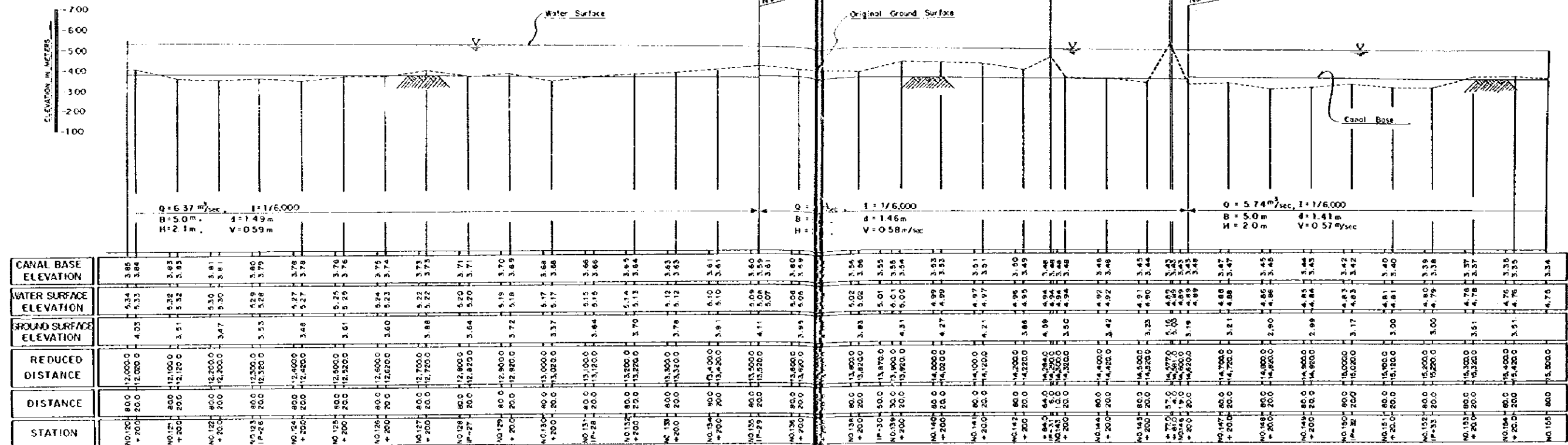
TITLE OF DRAWING

JAPAN INTERNATIONAL COOPERATION AGENCY	D W G - NO
TOKYO	II-09



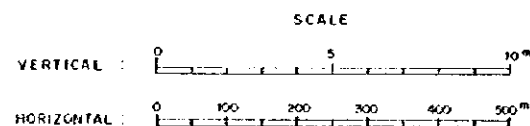
CANAL BASE ELEVATION	5.87	5.85	5.84	5.82	5.80	5.79	5.78	5.76	5.75	5.74	5.73	5.72	5.71	5.70	5.69	5.68	5.67	5.66	5.65	5.64	5.63	5.62	5.61	5.60	5.59	5.58	5.57	5.56	5.55	5.54	5.53	5.52	5.51	5.50	5.49	5.48	5.47	5.46	5.45	5.44	5.43	5.42	5.41	5.40																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
WATER SURFACE ELEVATION	7.38	7.36	7.35	7.33	7.31	7.30	7.29	7.28	7.27	7.26	7.25	7.24	7.23	7.22	7.21	7.20	7.19	7.18	7.17	7.16	7.15	7.14	7.13	7.12	7.11	7.10	7.09	7.08	7.07	7.06	7.05	7.04	7.03	7.02	7.01	7.00	6.99	6.98	6.97	6.96	6.95	6.94	6.93	6.92	6.91	6.90	6.89	6.88	6.87	6.86	6.85	6.84	6.83	6.82	6.81	6.80	6.79	6.78	6.77	6.76	6.75	6.74	6.73	6.72	6.71	6.70	6.69	6.68	6.67	6.66	6.65	6.64	6.63	6.62	6.61	6.60	6.59	6.58	6.57	6.56	6.55	6.54	6.53	6.52	6.51	6.50	6.49	6.48	6.47	6.46	6.45	6.44	6.43	6.42	6.41	6.40	6.39	6.38	6.37	6.36	6.35	6.34	6.33	6.32	6.31	6.30	6.29	6.28	6.27	6.26	6.25	6.24	6.23	6.22	6.21	6.20	6.19	6.18	6.17	6.16	6.15	6.14	6.13	6.12	6.11	6.10	6.09	6.08	6.07	6.06	6.05	6.04	6.03	6.02	6.01	6.00	5.99	5.98	5.97	5.96	5.95	5.94	5.93	5.92	5.91	5.90	5.89	5.88	5.87	5.86	5.85	5.84	5.83	5.82	5.81	5.80	5.79	5.78	5.77	5.76	5.75	5.74	5.73	5.72	5.71	5.70	5.69	5.68	5.67	5.66	5.65	5.64	5.63	5.62	5.61	5.60	5.59	5.58	5.57	5.56	5.55	5.54	5.53	5.52	5.51	5.50	5.49	5.48	5.47	5.46	5.45	5.44	5.43	5.42	5.41	5.40	5.39	5.38	5.37	5.36	5.35	5.34	5.33	5.32	5.31	5.30	5.29	5.28	5.27	5.26	5.25	5.24	5.23	5.22	5.21	5.20	5.19	5.18	5.17	5.16	5.15	5.14	5.13	5.12	5.11	5.10	5.09	5.08	5.07	5.06	5.05	5.04	5.03	5.02	5.01	5.00	4.99	4.98	4.97	4.96	4.95	4.94	4.93	4.92	4.91	4.90	4.89	4.88	4.87	4.86	4.85	4.84	4.83	4.82	4.81	4.80	4.79	4.78	4.77	4.76	4.75	4.74	4.73	4.72	4.71	4.70	4.69	4.68	4.67	4.66	4.65	4.64	4.63	4.62	4.61	4.60	4.59	4.58	4.57	4.56	4.55	4.54	4.53	4.52	4.51	4.50	4.49	4.48	4.47	4.46	4.45	4.44	4.43	4.42	4.41	4.40	4.39	4.38	4.37	4.36	4.35	4.34	4.33	4.32	4.31	4.30	4.29	4.28	4.27	4.26	4.25	4.24	4.23	4.22	4.21	4.20	4.19	4.18	4.17	4.16	4.15	4.14	4.13	4.12	4.11	4.10	4.09	4.08	4.07	4.06	4.05	4.04	4.03	4.02	4.01	4.00	3.99	3.98	3.97	3.96	3.95	3.94	3.93	3.92	3.91	3.90	3.89	3.88	3.87	3.86	3.85	3.84	3.83	3.82	3.81	3.80	3.79	3.78	3.77	3.76	3.75	3.74	3.73	3.72	3.71	3.70	3.69	3.68	3.67	3.66	3.65	3.64	3.63	3.62	3.61	3.60	3.59	3.58	3.57	3.56	3.55	3.54	3.53	3.52	3.51	3.50	3.49	3.48	3.47	3.46	3.45	3.44	3.43	3.42	3.41	3.40	3.39	3.38	3.37	3.36	3.35	3.34	3.33	3.32	3.31	3.30	3.29	3.28	3.27	3.26	3.25	3.24	3.23	3.22	3.21	3.20	3.19	3.18	3.17	3.16	3.15	3.14	3.13	3.12	3.11	3.10	3.09	3.08	3.07	3.06	3.05	3.04	3.03	3.02	3.01	3.00	2.99	2.98	2.97	2.96	2.95	2.94	2.93	2.92	2.91	2.90	2.89	2.88	2.87	2.86	2.85	2.84	2.83	2.82	2.81	2.80	2.79	2.78	2.77	2.76	2.75	2.74	2.73	2.72	2.71	2.70	2.69	2.68	2.67	2.66	2.65	2.64	2.63	2.62	2.61	2.60	2.59	2.58	2.57	2.56	2.55	2.54	2.53	2.52	2.51	2.50	2.49	2.48	2.47	2.46	2.45	2.44	2.43	2.42	2.41	2.40	2.39	2.38	2.37	2.36	2.35	2.34	2.33	2.32	2.31	2.30	2.29	2.28	2.27	2.26	2.25	2.24	2.23	2.22	2.21	2.20	2.19	2.18	2.17	2.16	2.15	2.14	2.13	2.12	2.11	2.10	2.09	2.08	2.07	2.06	2.05	2.04	2.03	2.02	2.01	2.00	1.99	1.98	1.97	1.96	1.95	1.94	1.93	1.92	1.91	1.90	1.89	1.88	1.87	1.86	1.85	1.84	1.83	1.82	1.81	1.80	1.79	1.78	1.77	1.76	1.75	1.74	1.73	1.72	1.71	1.70	1.69	1.68	1.67	1.66	1.65	1.64	1.63	1.62	1.61	1.60	1.59	1.58	1.57	1.56	1.55	1.54	1.53	1.52	1.51	1.50	1.49	1.48	1.47	1.46	1.45	1.44	1.43	1.42	1.41	1.40	1.39	1.38	1.37	1.36	1.35	1.34	1.33	1.32	1.31	1.30	1.29	1.28	1.27	1.26	1.25	1.24	1.23	1.22	1.21	1.20	1.19	1.18	1.17	1.16	1.15	1.14	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.06	1.05	1.04	1.03	1.02	1.01	1.00	0.99	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.82	0.81	0.80	0.79	0.78	0.77	0.76	0.75	0.74	0.73	0.72	0.71	0.70	0.69	0.68	0.67	0.66	0.65	0.64	0.63	0.62	0.61	0.60	0.59	0.58	0.57	0.56	0.55	0.54	0.53	0.52	0.51	0.50	0.49	0.48	0.47	0.46	0.45	0.44	0.43	0.42	0.41	0.40	0.39	0.38	0.37	0.36	0.35	0.34	0.33	0.32	0.31	0.30	0.29	0.28	0.27	0.26	0.25	0.24	0.23	0.22	0.21	0.20	0.19	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.05	0.04	0.03	0.02	0.01	0.00	-0.01	-0.02	-0.03	-0.04	-0.05	-0.06	-0.07	-0.08	-0.09	-0.10	-0.11	-0.12	-0.13	-0.14	-0.15	-0.16	-0.17	-0.18	-0.19	-0.20	-0.21	-0.22	-0.23	-0.24	-0.25	-0.26	-0.27	-0.28	-0.29	-0.30	-0.31	-0.32	-0.33	-0.34	-0.35	-0.36	-0.37	-0.38	-0.39	-0.40	-0.41	-0.42	-0.43	-0.44	-0.45	-0.46	-0.47	-0.48	-0.49	-0.50	-0.51	-0.52	-0.53	-0.54	-0.55	-0.56	-0.57	-0.58	-0.59	-0.60	-0.61	-0.62	-0.63	-0.64	-0.65	-0.66	-0.67	-0.68	-0.69	-0.70	-0.71	-0.72	-0.73	-0.74	-0.75	-0.76	-0.77	-0.78	-0.79	-0.80	-0.81	-0.82	-0.83	-0.84	-0.85	-0.86	-0.87	-0.88	-0.89	-0.90	-0.91	-0.92	-0.93	-0.94	-0.95	-0.96	-0.97	-0.98	-0.99	-1.00	-1.01	-1.02	-1.03	-1.04	-1.05	-1.06	-1.07	-1.08	-1.09	-1.10	-1.11	-1.12	-1.13	-1.14	-1.15	-1.16	-1.17	-1.18	-1.19	-1.20	-1.21	-1.22	-1.23	-1.24	-1.25	-1.26	-1.27	-1.28	-1.29	-1.30	-1.31	-1.32	-1.33	-1.34	-1.35	-1.36	-1.37	-1.38	-1.39	-1.40	-1.41	-1.42	-1.43	-1.44	-1.45	-1.46	-1.47	-1.48	-1.49	-1.50	-1.51	-1.52	-1.53	-1.54	-1.55	-1.56	-1.57	-1.58	-1.59	-1.60	-1.61	-1.62	-1.63	-1.64	-1.65	-1.66	-1.67	-1.68	-1.69	-1.70	-1.71	-1.72	-1.73	-1.74	-1.75	-1.76	-1.77	-1.78	-1.79	-1.80	-1.81	-1.82	-1.83	-1.84	-1.85	-1.86	-1.87	-1.88	-1.89	-1.90	-1.91	-1.92	-1.93	-1.94	-1.95	-1.96	-1.97	-1.98	-1.99	-2.00	-2.01	-2.02	-2.03	-2.04	-2.05	-2.06	-2.07	-2.08	-2.09	-2.10	-2.11	-2.12	-2.13	-2.14	-2.15	-2.16	-2.17	-2.18	-2.19	-2.20	-2.21	-2.22	-2.23	-2.24	-2.25	-2.26	-2.27	-2.28	-2.29	-2.30	-2.31	-2.32	-2.33	-2.34	-2.35	-2.36	-2.37	-2.38	-2.39	-2.40	-2.41	-2.42	-2.43	-2.44	-2.45	-2.46	-2.47	-2.48	-2.49	-2.50	-2.51	-2.52	-2.53	-2.54	-2.55	-2.56	-2.57	-2.58	-2.59	-2.60	-2.61	-2.62	-2.63	-2.64	-2.65	-2.66	-2.67	-2.68	-2.69	-2.70	-2.71	-2.72	-2.73	-2.74	-2.75	-2.76	-2.77	-2.78	-2.79	-2.80	-2.81	-2.82	-2.83	-2.84	-2.85	-2.86	-2.87	-2.88	-2.89	-2.90	-2.91	-2.92	-2.93	-2.94	-2.95	-2.96	-2.97	-2.98	-2.99	-3.00	-3.01	-3.02	-3.03	-3.04	-3.05	-3.06	-3.07	-3.08	-3.09	-3.10	-3.11	-3.12	-3.13	-3.14	-3.15	-3.16	-3.17	-3.18	-3.19	-3.20	-3.21	-3.22	-3.23	-3.24	-3.25	-3.26	-3.27	-3.28	-3.29	-3.30	-3.31	-3.32	-3.33	-3.34	-3.35	-3.36	-3.37	-3.38	-3.39	-3.40	-3.41	-3.42	-3.43	-3.44	-3.45	-3.46	-3.47	-3.48	-3.49	-3.50	-3.51	-3.52	-3.53	-3.54	-3.55	-3.56	-3.57	-3.58	-3.59	-3.60	-3.61	-3.62	-3.63	-3.64	-3.65	-3.66	-3.67	-3.68	-3.69	-3.70	-3.71	-3.72	-3.73	-3.74	-3.75	-3.76	-3.77	-3.78	-3.79	-3.80	-3.81	-3.82	-3.83	-3.84	-3.85	-3.86	-3.87	-3.88	-3.89	-3.90	-3.91	-3.92	-3.93	-3.94	-3.95	-3.96	-3.97	-3.98	-3.99	-4.00	-4.01	-4.02	-4.03	-4.04	-4.05	-4.06	-4.07	-4.08	-4.09	-4.10	-4.11	-4.12	-4.13	-4.14	-4.15	-4.16	-4.17	-4.18	-4.19	-4.20	-4.21	-4.22	-4.23	-4.24	-4.25	-4.26	-4.27	-4.28	-4.29	-4.30	-4.31	-4.32	-4.33	-4.34	-4.35	-4.36	-4.37	-4.38	-4.39	-4.40	-4.41	-4.42	-4.43	-4.44	-4.45	-4.46	-4.47	-4.48	-4.49	-4.50	-4.51	-4.52	-4.53	-4.54	-4.55	-4.56	-4.57	-4.58	-4.59	-4.60	-4.61	-4.62	-4.63	-4.64	-4.65	-4.66	-4.67	-4.68	-4.69	-4.70	-4.71	-4.72	-4.73	-4.74	-4.75	-4.76	-4.77	-4.78	-4.79	-4.80	-4.81	-4.82	-4.83	-4.84	-4.85	-4.86	-4.87	-4.88	-4.89	-4.90	-4.91	-4.92	-4.93	-4.94	-4.95	-4.96	-4.97	-4.98	-4.99	-5.00	-5.01	-5.02	-5.03	-5.04	-5.05	-5.06	-5.07	-5.08	-5.09	-5.10	-5.11	-5.12	-5.13	-5.14	-5.15	-5.16	-5.17	-5.18	-5.19	-5.20	-5.21	-5.22	-5.23	-5.24	-5.25	-5.26	-5.27	-5.28	-5.29	-5.30	-5.31	-5.32	-5.33	-5.34	-5.35	-5.36	-5.37	-5.38	-5.39	-5.40	-5.41	-5.42	-5.43	-5.44	-5.45	-5.46	-5.47	-5.48	-5.49	-5.50	-5.51	-5.52	-5.53	-5.54	-5.55	-5.56	-5.57	-5.58	-5.59	-5.60	-5.61	-5.62	-5.63	-5.64	-5.65	-5.6





LEGEND

- Q : Design Discharge
I : Hydraulic Gradient
B : Canal Base Width
H : Canal Height
d : Water Depth
V : Velocity



ELEVATION IN METERS
600
500
400
300
200
100
000

$Q = 4.15 \text{ m}^3/\text{sec}$ $I = 1/5000$
 $B = 4.0 \text{ m}$ $d = 1.24 \text{ m}$
 $H = 1.8 \text{ m}$ $V = 0.57 \text{ m/sec}$

NO 14 HG (LT-0-261)

Original Ground Surface

$Q = 3.79 \text{ m}^3/\text{sec}$ $I = 1/5000$
 $B = 4.0 \text{ m}$ $d = 1.18 \text{ m}$
 $H = 1.7 \text{ m}$ $V = 0.55 \text{ m/sec}$

NO 15 HG (LT-0-271)
NO 9 Check
NO 5 Bridge

Water Surface

Canal Base

$Q = 3.32 \text{ m}^3/\text{sec}$ $I = 1/5000$
 $B = 4.0 \text{ m}$ $d = 1.10 \text{ m}$
 $H = 1.6 \text{ m}$ $V = 0.53 \text{ m/sec}$

CANAL BASE ELEVATION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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ELEVATION IN METERS
600
500
400
300
200
100
000

NO 6 Bridge

NO 6 HG (SC-51)
NO 17 HG (SC-61)
NO 2 Spillway
EP of Sub Main Canal

CANAL BASE ELEVATION	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43
WATER SURFACE ELEVATION	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52
GROUND SURFACE ELEVATION	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43
REDUCED DISTANCE	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0	18,000.0
DISTANCE	800	200	800	200	800	200	800	200	800	200	800	200	800	200	800	200	800	200	800	200	800	200	800	200	800	200	800	200	800	200
STATION	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200	NO 210 +200

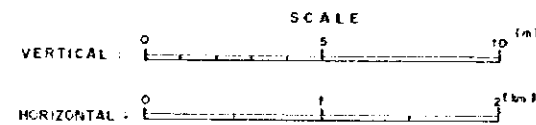
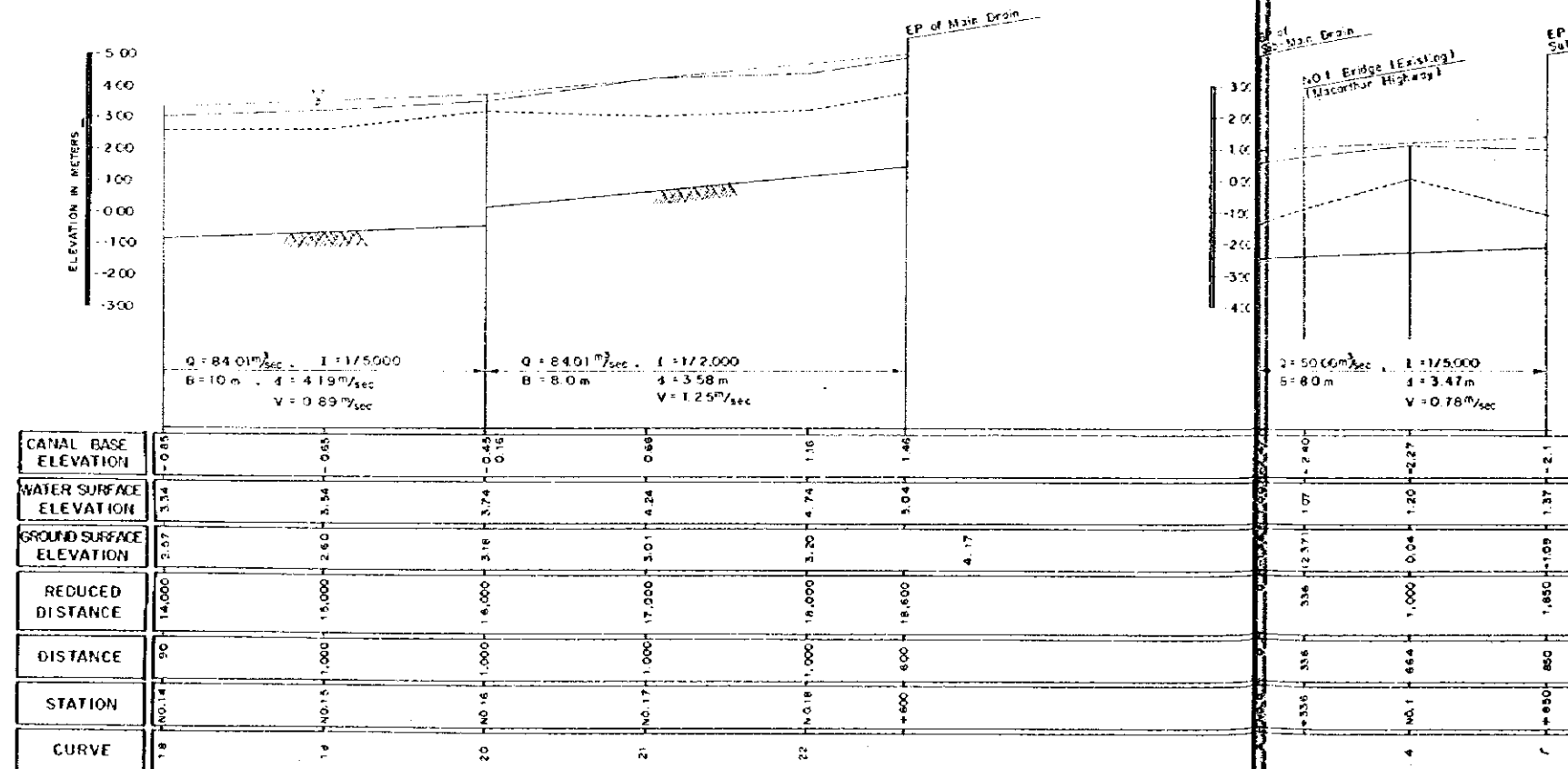
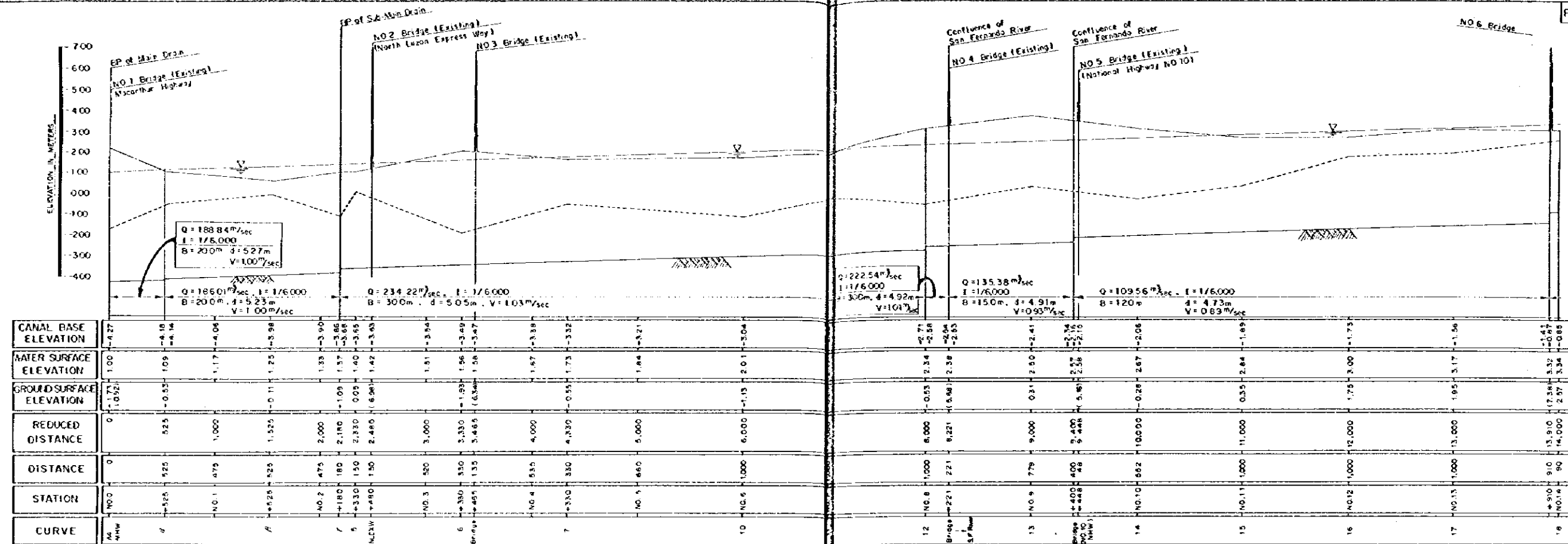
LEGEND

- Q : Design Discharge
- I : Hydraulic Gradient
- B : Canal Base Width
- H : Canal Height
- d : Water Depth
- V : Velocity

SCALE

VERTICAL : 0 5 10 m
HORIZONTAL : 0 100 200 300 400 500 m

THE REPUBLIC OF THE PHILIPPINES	
MINISTRY OF PUBLIC WORKS AND HIGHWAYS	
NATIONAL IRRIGATION ADMINISTRATION	
PAMPANGA DELTA DEVELOPMENT PROJECT	
TITLE OF DRAWING	
PROFILE OF SUB MAIN IRRIGATION CANAL (4/4)	
JAPAN INTERNATIONAL COOPERATION AGENCY TOKYO	DWG NO II-13



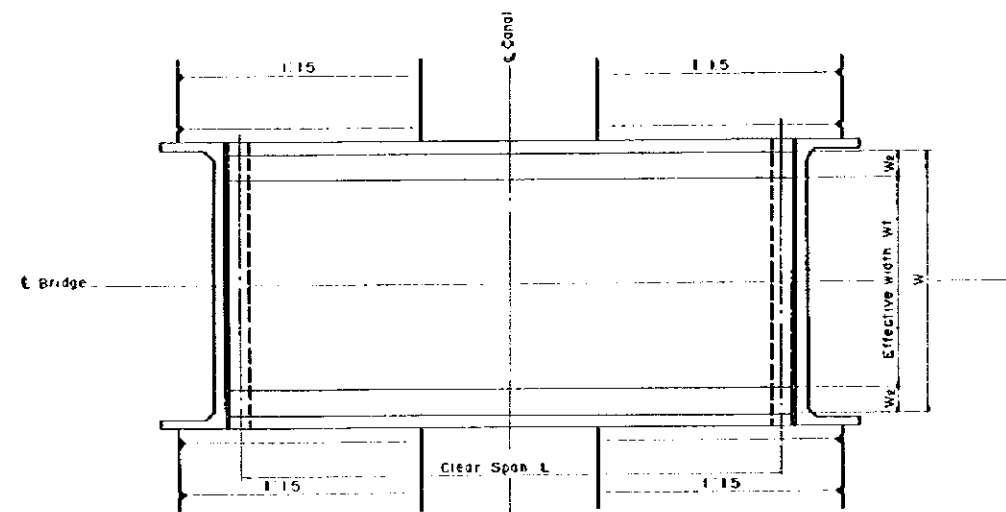
LEGEND
 Q : Design Discharge
 I : Hydraulic Gradient
 B : Canal Base Width
 H : Canal Height
 d : Water Depth
 V : Velocity

THE REPUBLIC OF THE PHILIPPINES
 MINISTRY OF PUBLIC WORKS AND HIGHWAYS
 NATIONAL IRRIGATION ADMINISTRATION
 PAMPANGA DELTA DEVELOPMENT PROJECT

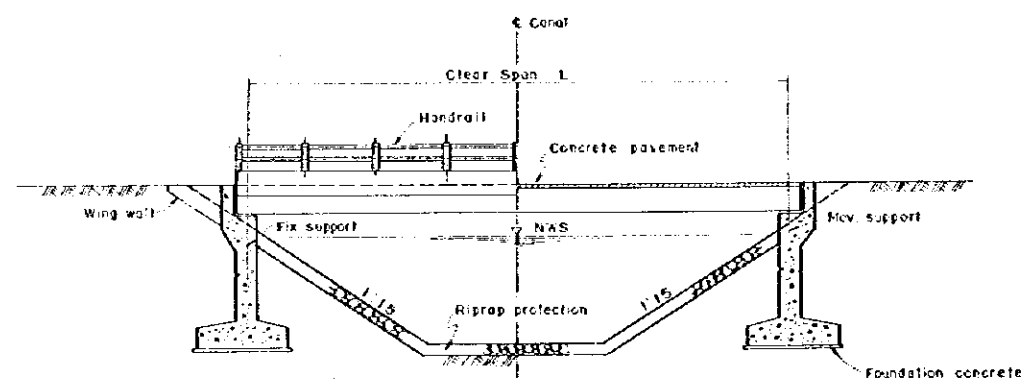
TITLE OF DRAWING
 PROFILE OF MAIN DRAINAGE CANAL

JAPAN INTERNATIONAL COOPERATION AGENCY D.W.G. NO.
 TOKYO II-14

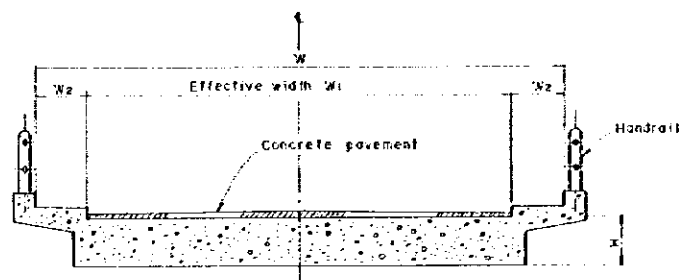
BRIDGE



PLAN
SCALE: A

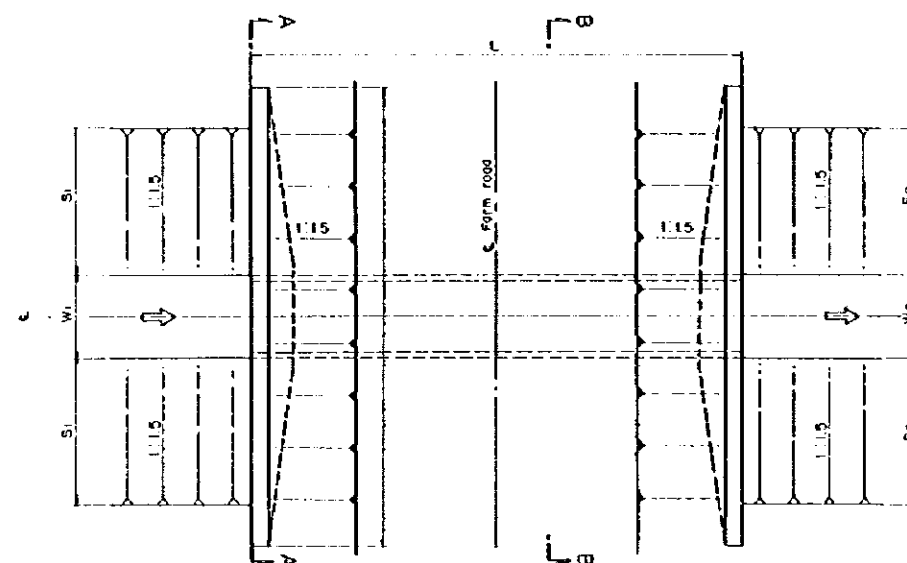


PROFILE
SCALE: A

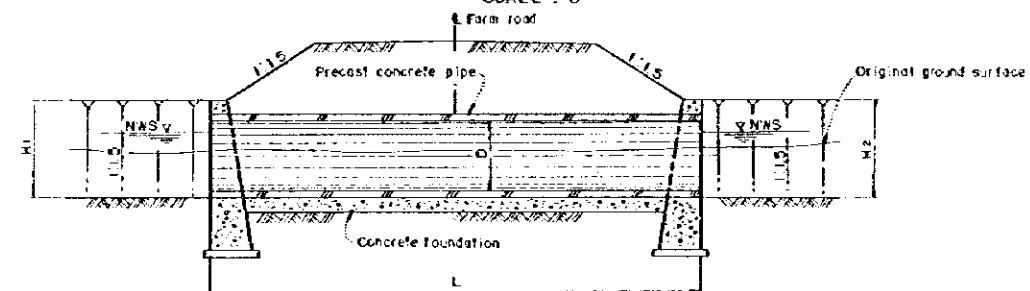


TYPICAL SECTION OF SLAB
SCALE: B

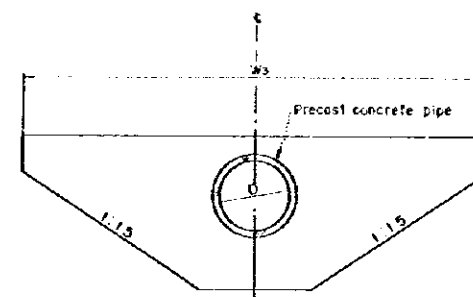
CULVERT



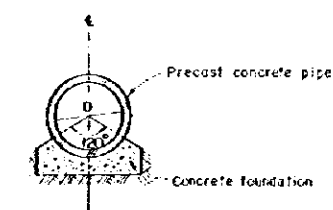
PLAN
SCALE: B



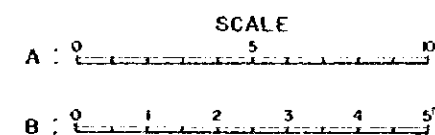
PROFILE
SCALE: B



SECTION A-A
SCALE: B



SECTION B-B
SCALE: B



THE REPUBLIC OF THE PHILIPPINES
MINISTRY OF PUBLIC WORKS AND HIGHWAYS
NATIONAL IRRIGATION ADMINISTRATION
PAMPANGA DELTA DEVELOPMENT PROJECT

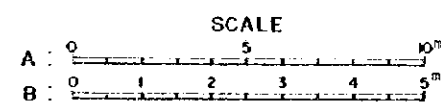
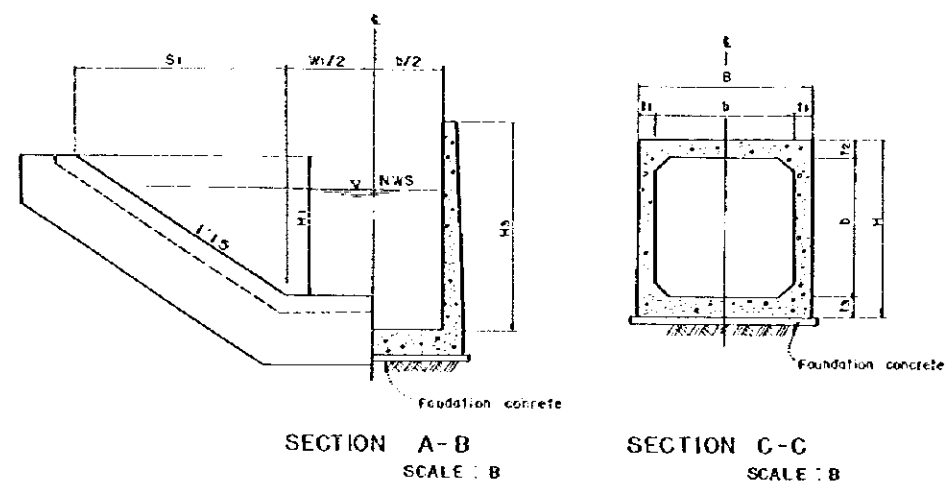
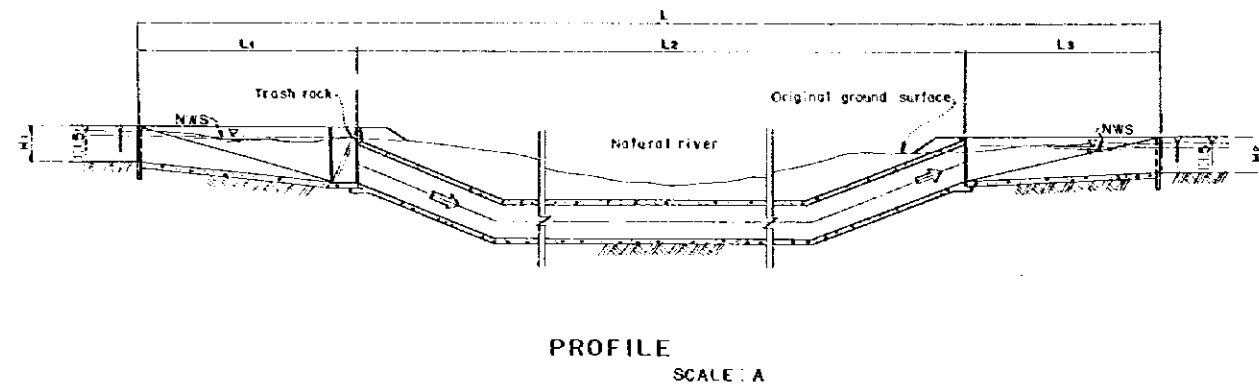
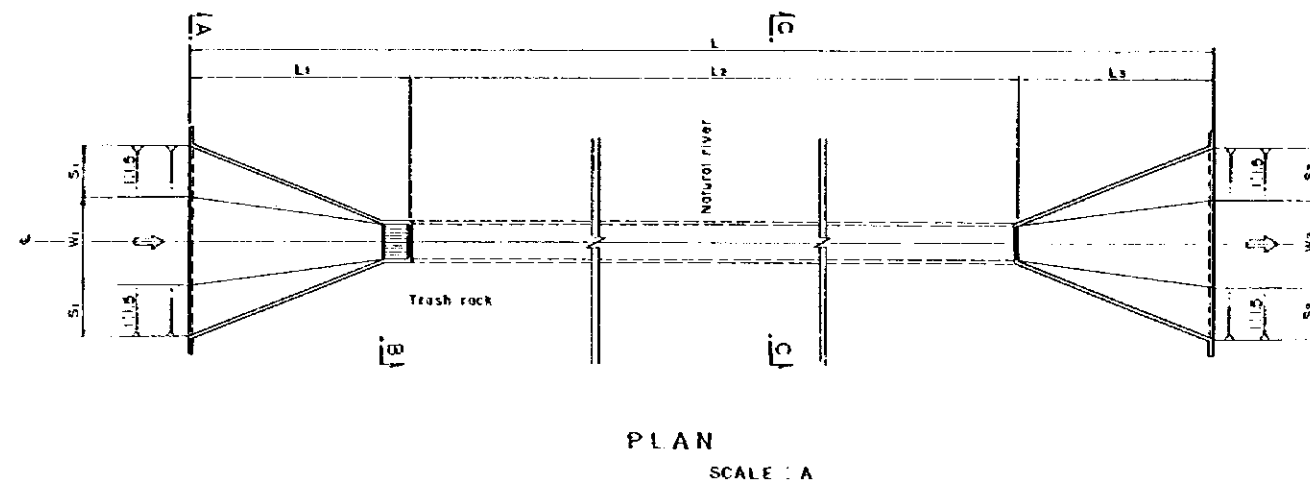
TITLE OF DRAWING

BRIDGE AND CULVERT

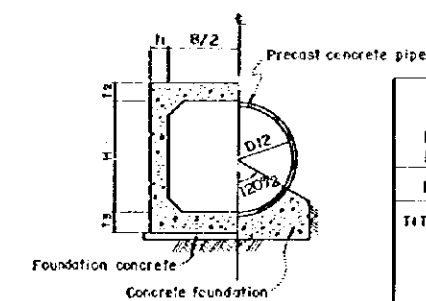
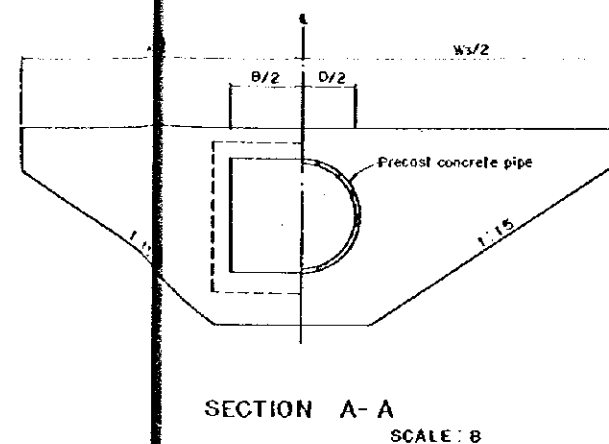
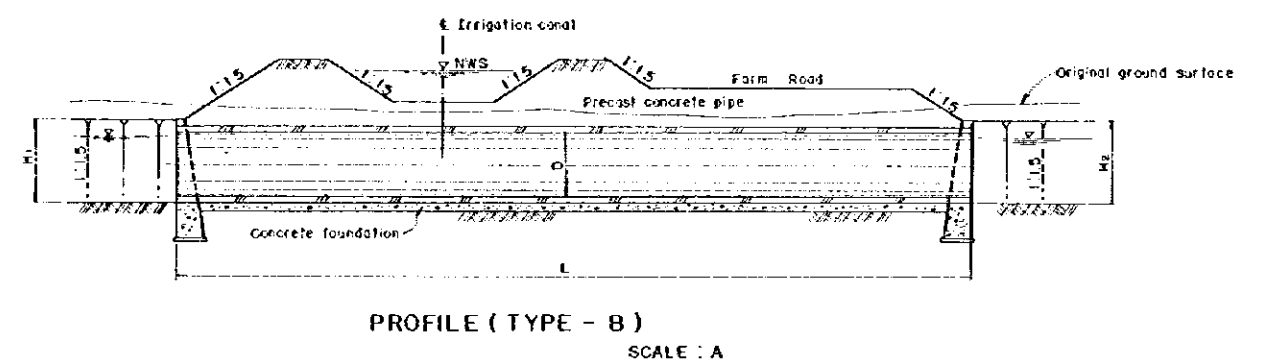
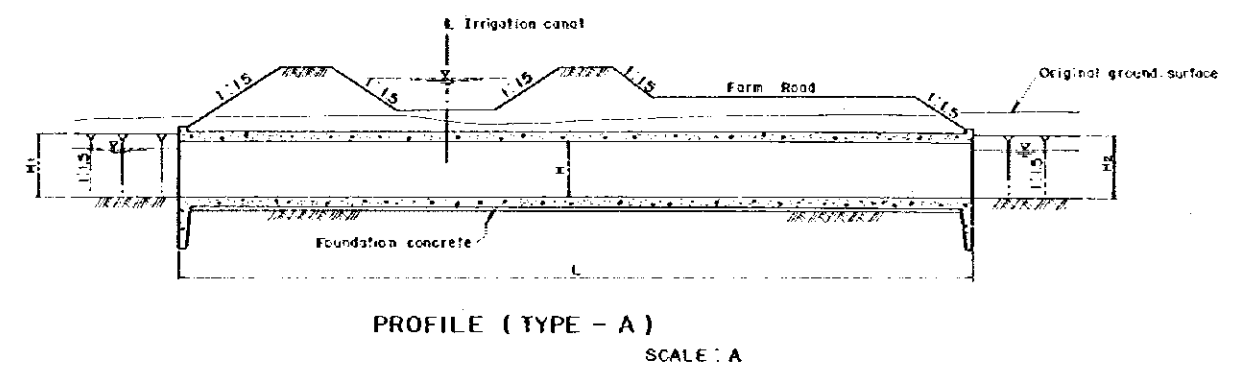
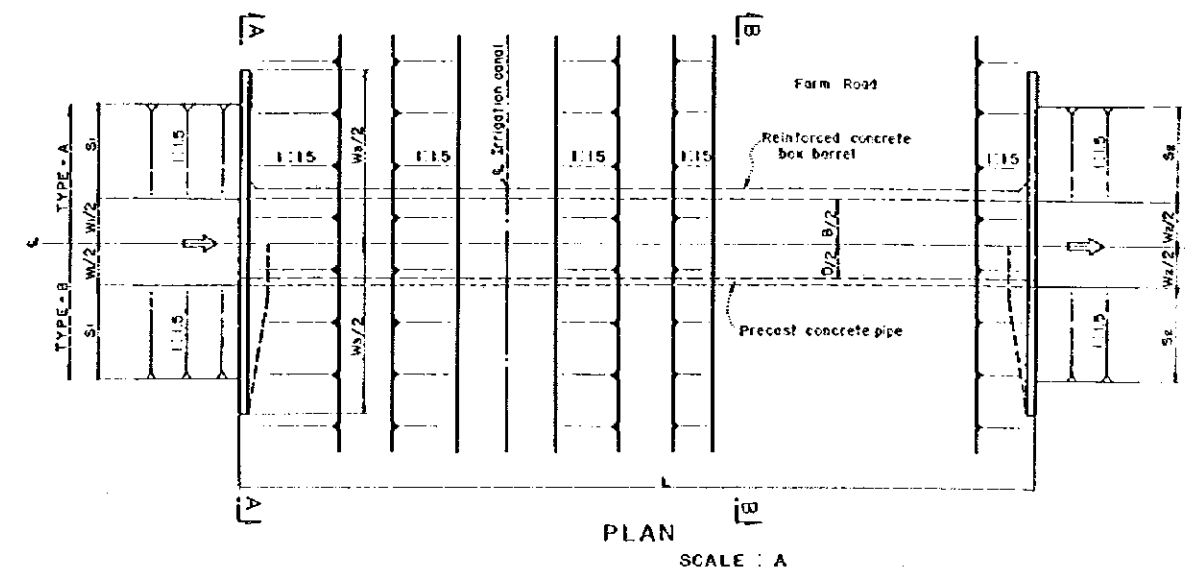
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO

OWG NO
II-15

SYPHON

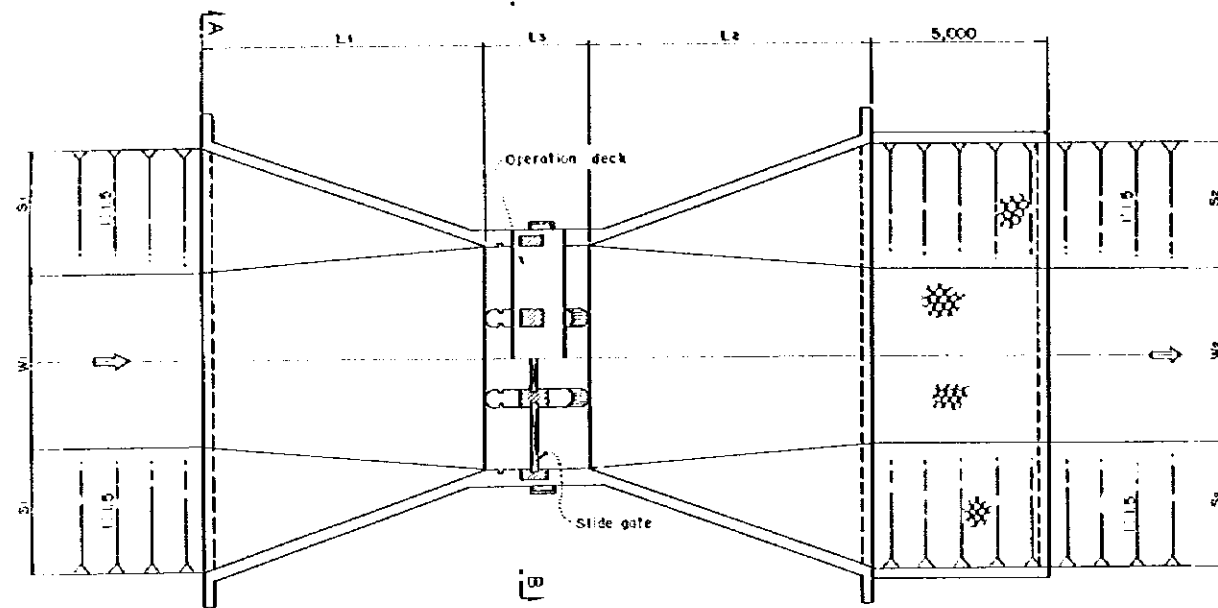


CROSS DRAIN

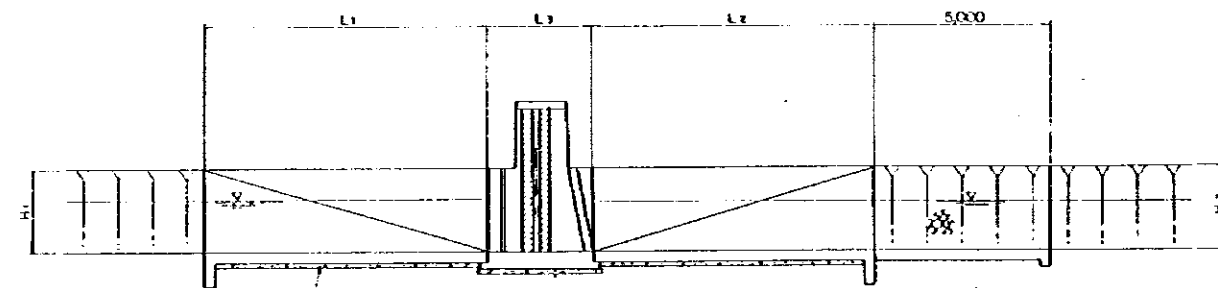


THE REPUBLIC OF THE PHILIPPINES	
MINISTRY OF PUBLIC WORKS AND HIGHWAYS	
NATIONAL IRRIGATION ADMINISTRATION	
PAMPANGA DELTA DEVELOPMENT PROJECT	
TITLE OF DRAWING	
SYPHON, AND CROSS DRAIN	
JAPAN INTERNATIONAL COOPERATION AGENCY	DWG NO.
TOKYO	I - 16

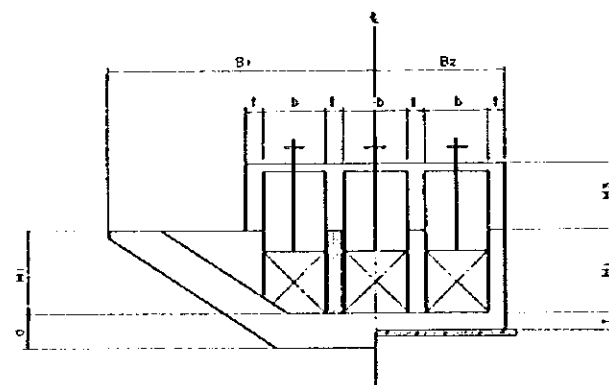
CHECK



PLAN

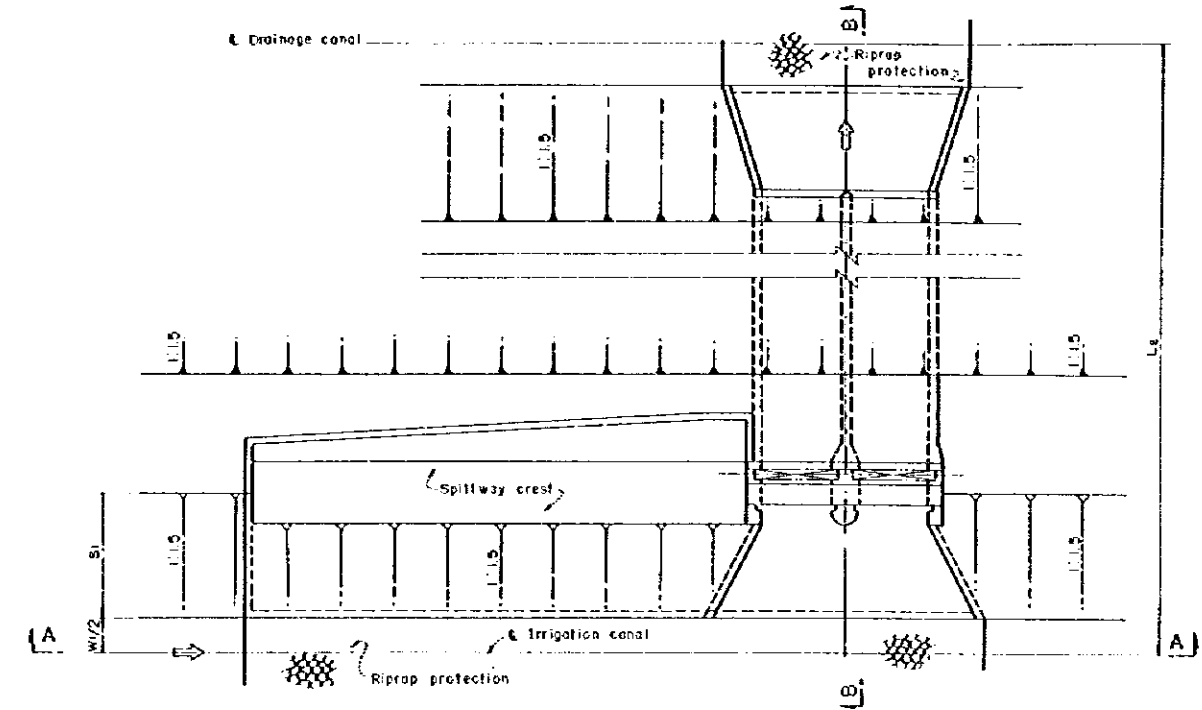


PROFILE

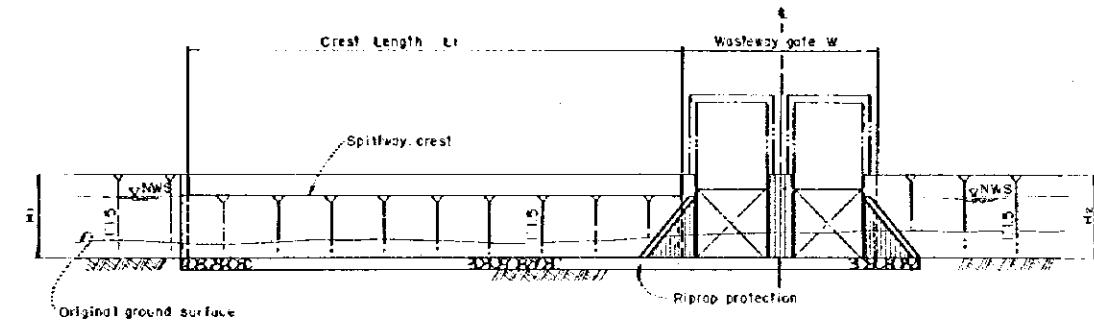


SECTION A-B

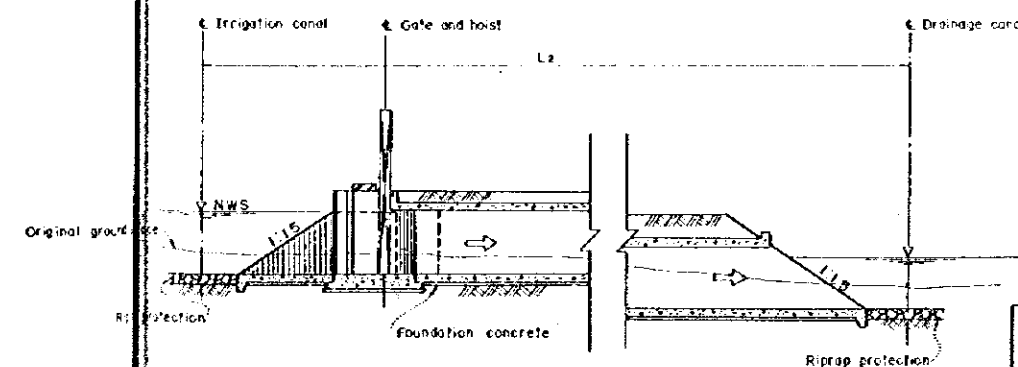
SPILLWAY AND WASTEWAY



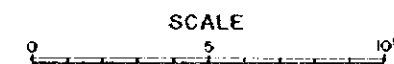
PLAN



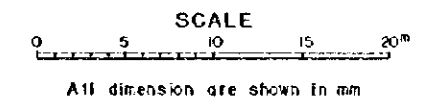
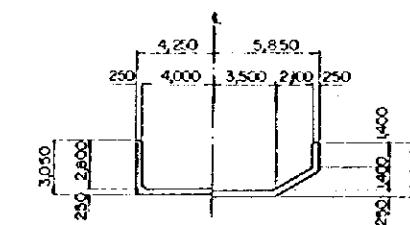
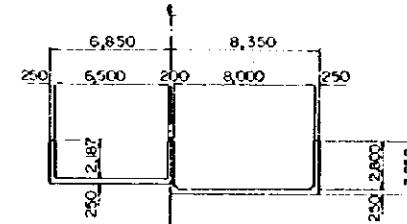
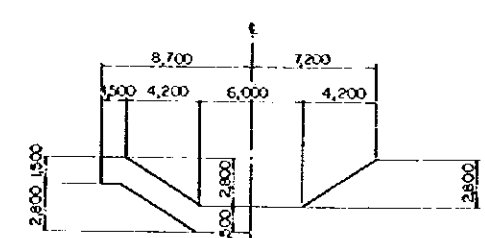
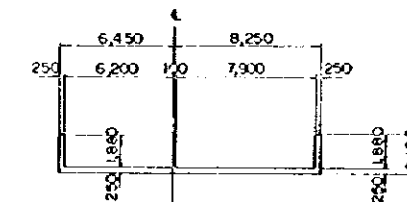
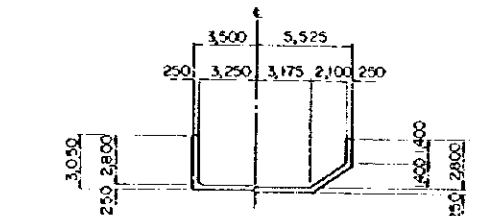
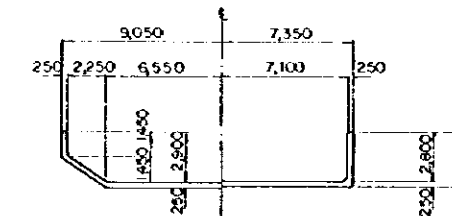
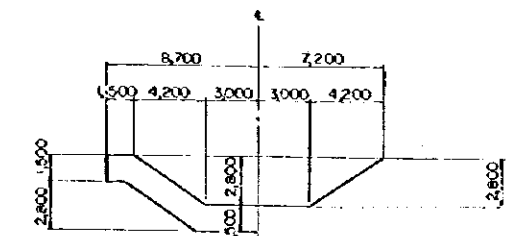
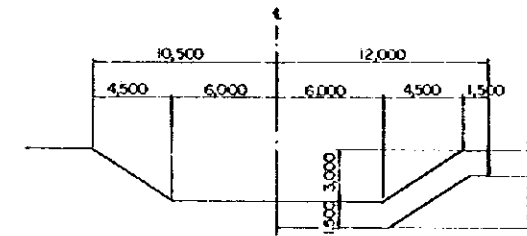
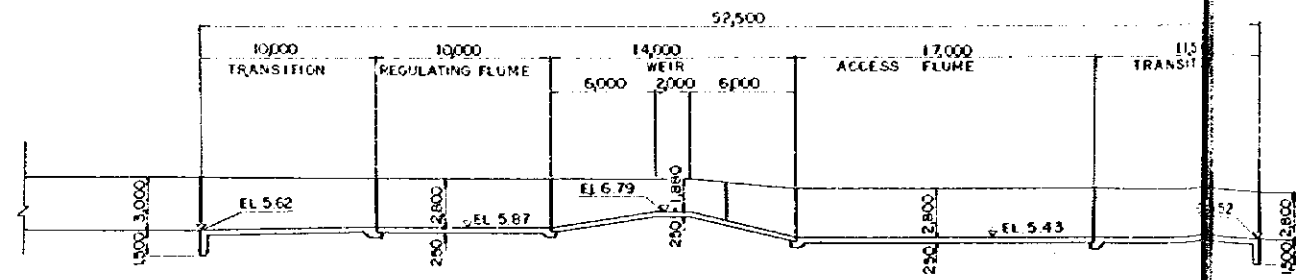
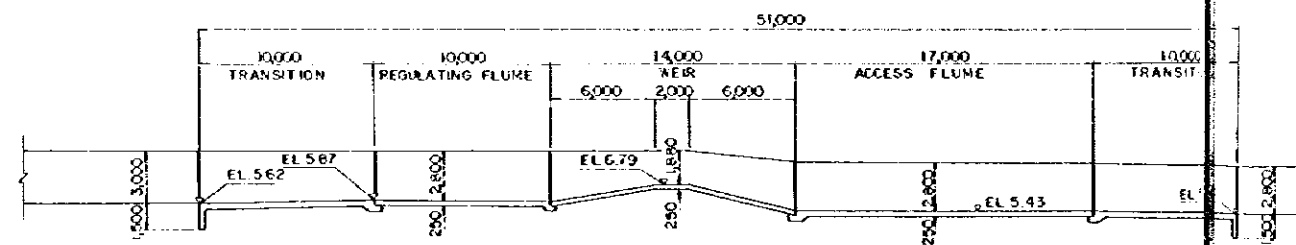
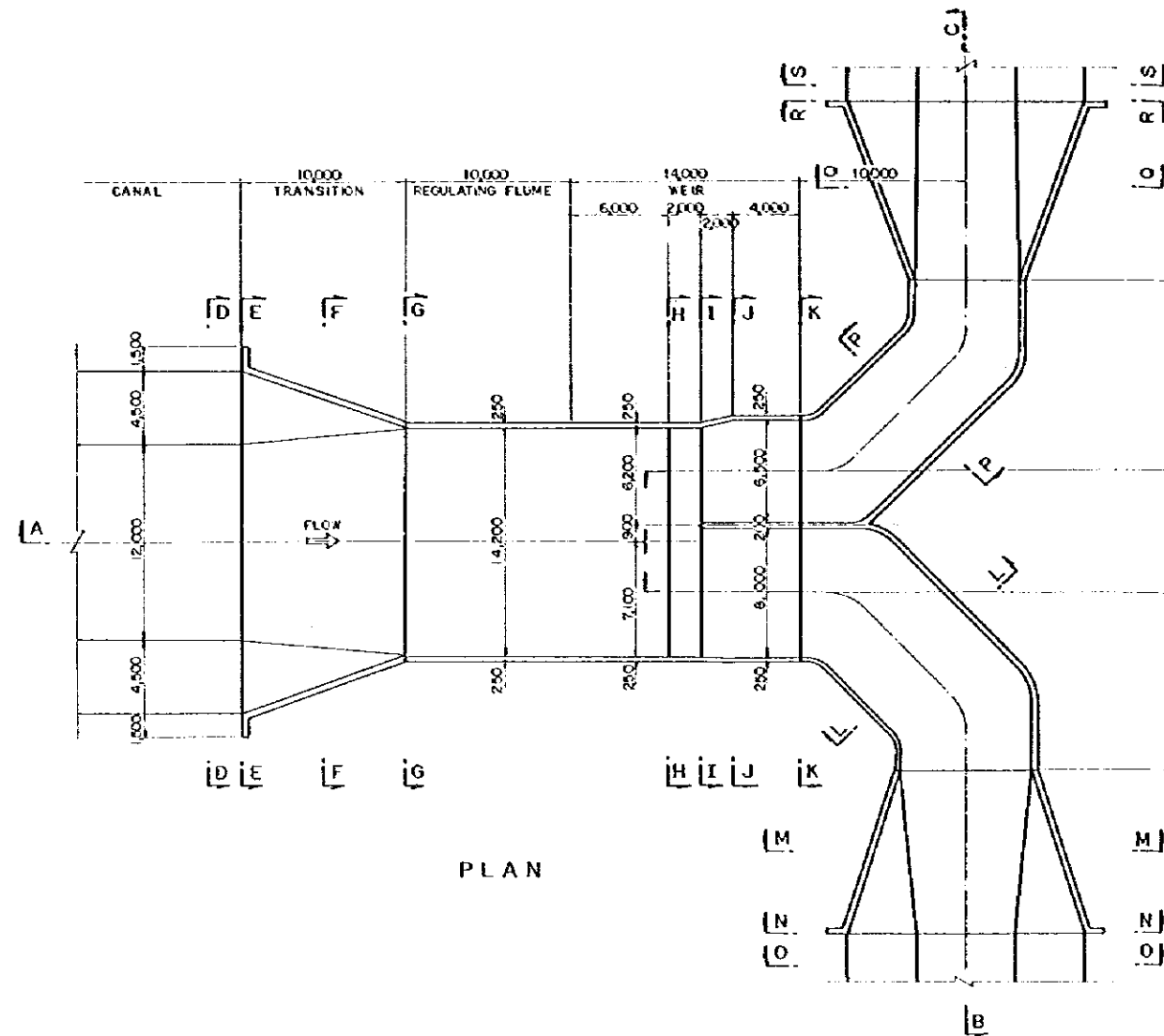
SECTION A-A



SECTION B-B

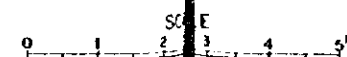
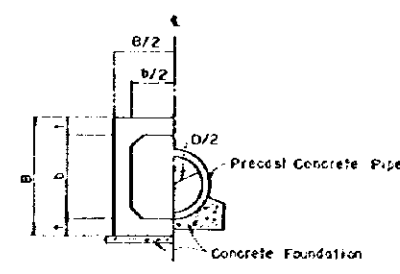
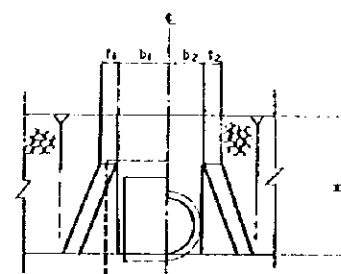
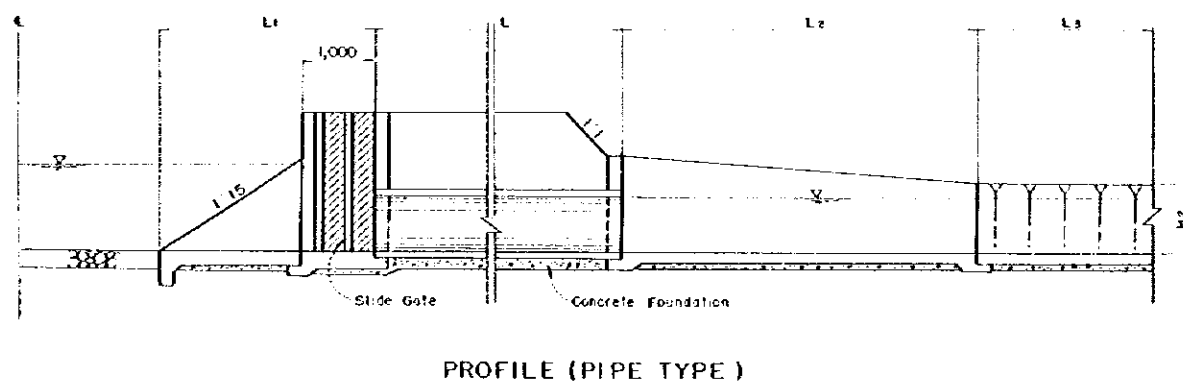
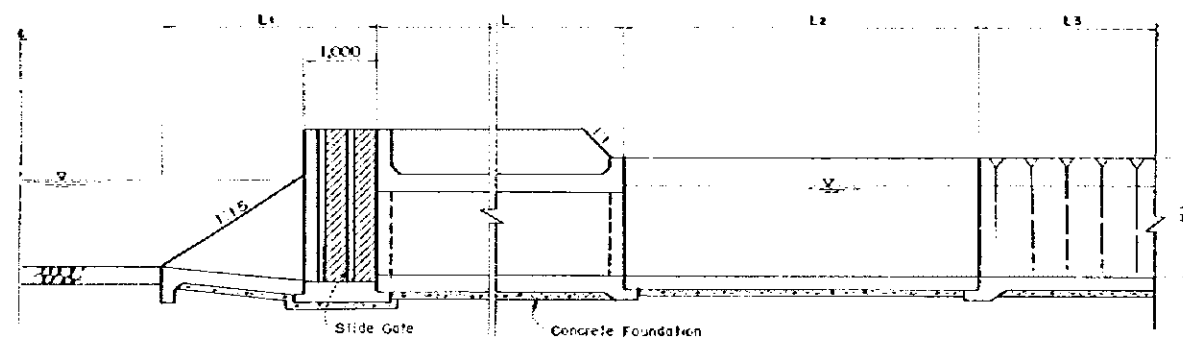
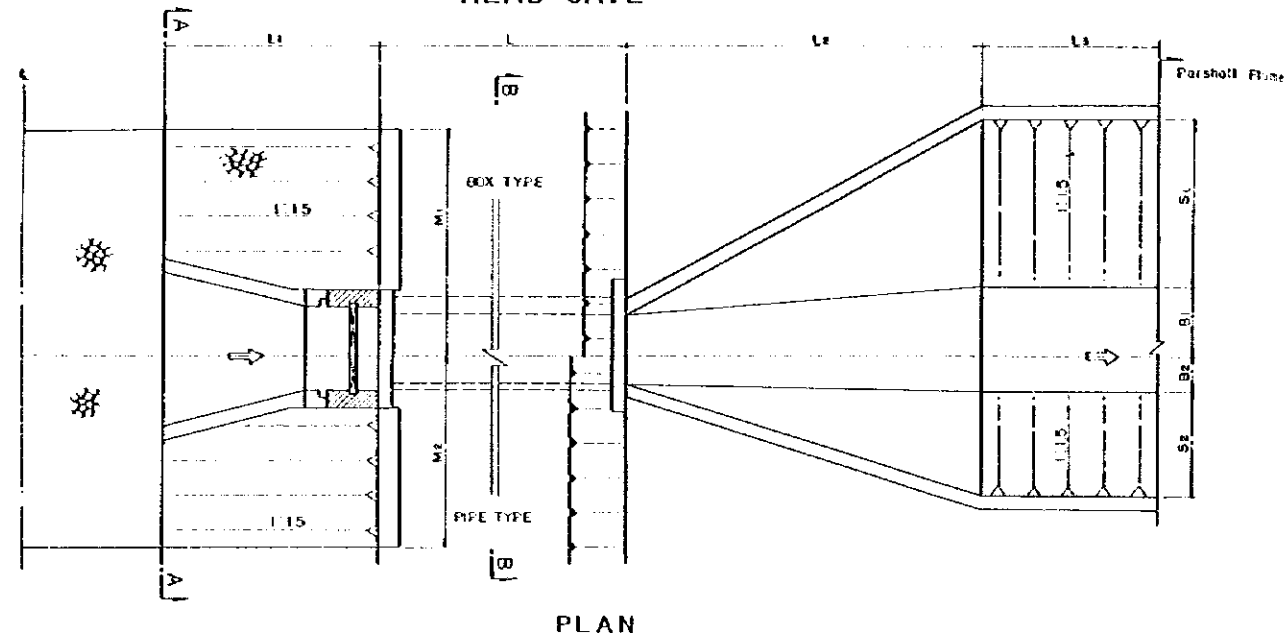


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TITLE OF DRAWING	
CHECK AND SPILLWAY AND WASTEWAY	
JAPAN INTERNATIONAL COOPERATION AGENCY	DWG. NO.
TOKYO	II - 17

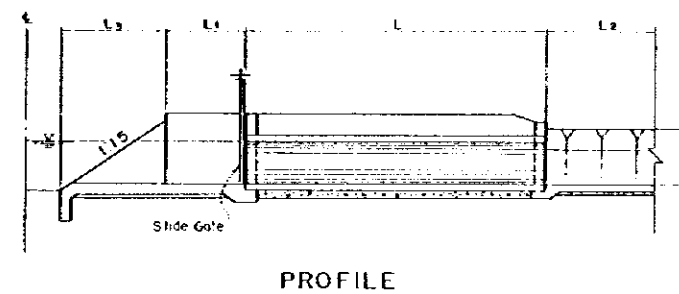
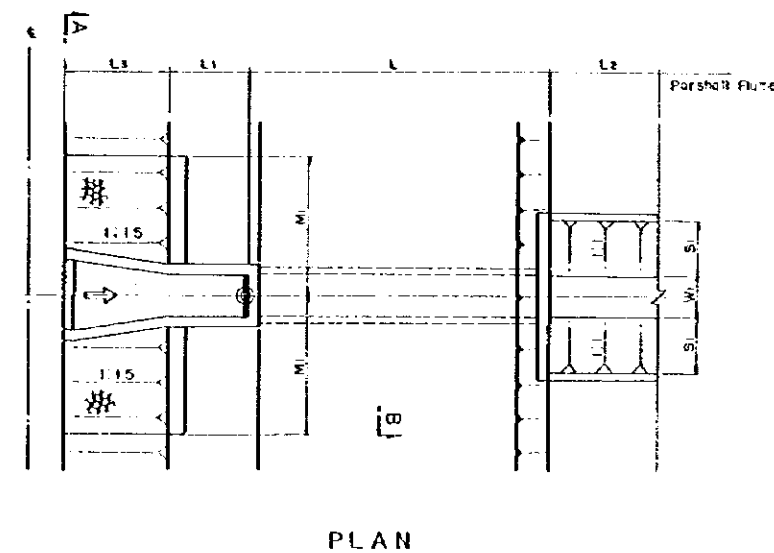


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MINISTRY OF PUBLIC WORKS AND HIGHWAYS	
NATIONAL IRRIGATION ADMINISTRATION	
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TITLE OF DRAWING	
BIFURCATION	
JAPAN INTERNATIONAL COOPERATION AGENCY	OWG NO
TOKYO	II - 18

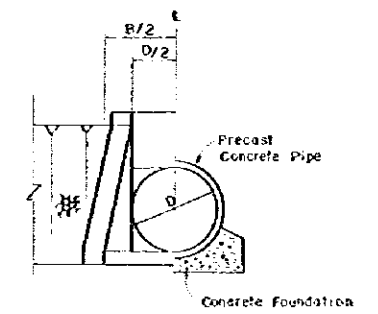
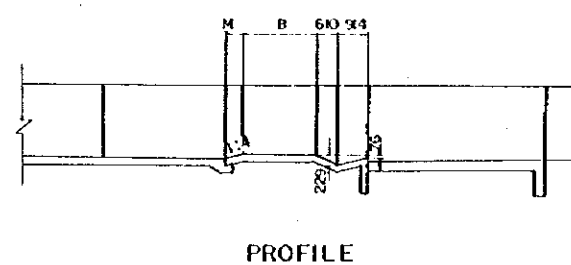
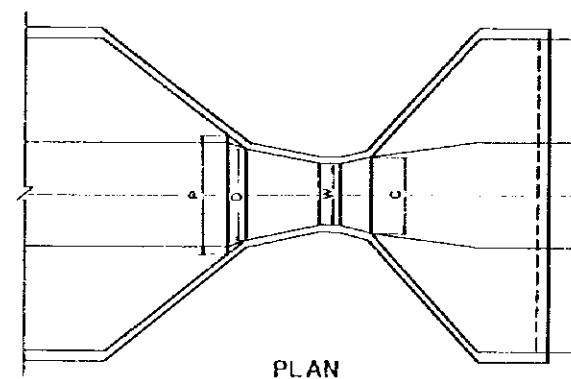
HEAD GATE



TURNOUT



PERSHALL FLUME



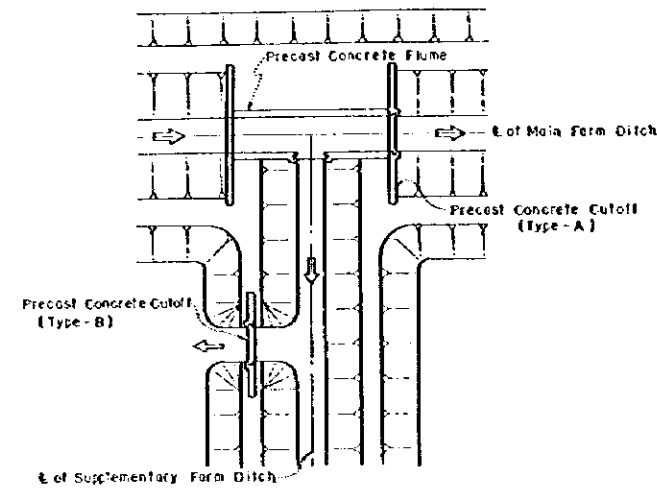
DIMENSION TABLE

DISCHARGE (m ³ /sec.)	W	B	C	D	M	P
0 ~ 0.2	30.48	134.3	61.0	84.5	38.1	149.2
0.2 ~ 0.4	45.72	141.9	76.2	102.6	•	167.6
0.4 ~ 0.6	60.96	149.5	91.4	120.7	•	185.4
0.6 ~ 1.0	91.44	164.5	121.9	157.2	•	222.3
1.0 ~ 2.93	182.88	209.2	213.4	266.7	45.7	344.2
2.93 ~ 3.44	213.36	224.42	243.8	303.2	•	381.0

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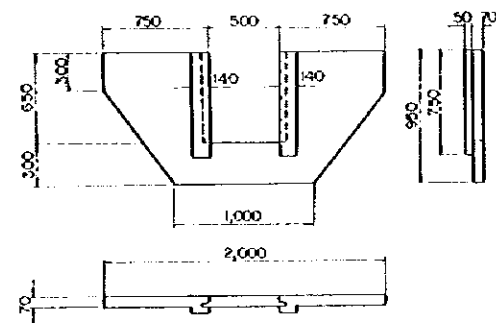
HEAD GATE AND TURNOUT

DIVISION WORK

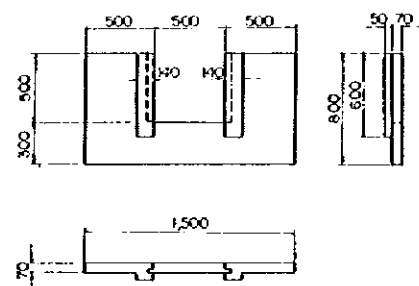


PLAN

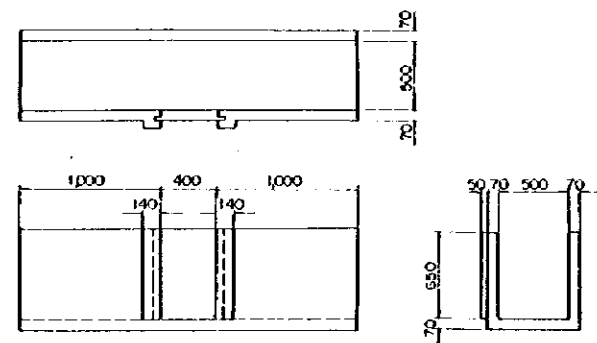
SCALE : A



PRECAST CONCRETE CUTOFF (TYPE-A)

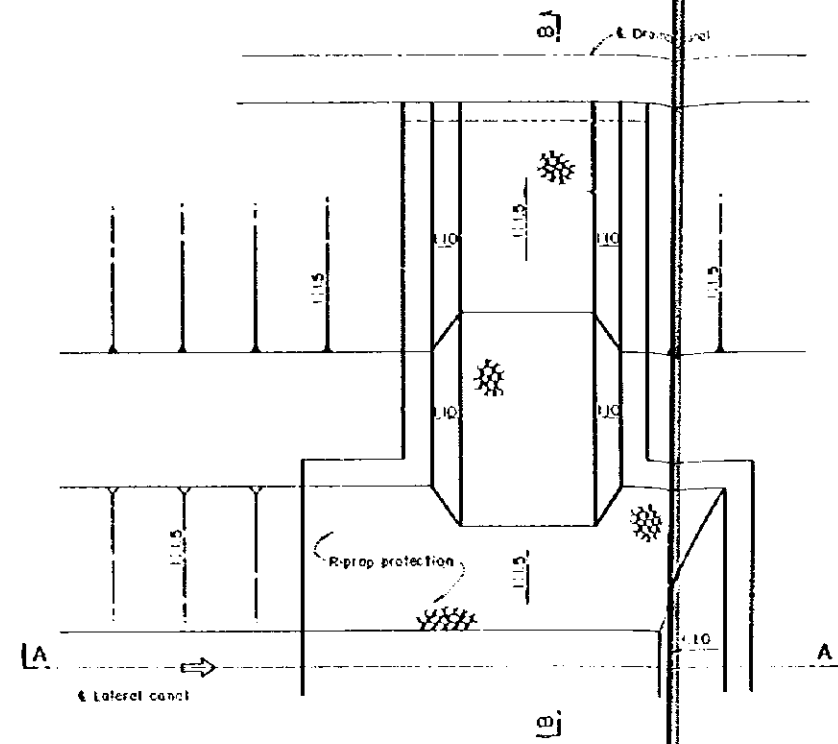


PRECAST CONCRETE CUTOFF (TYPE-B)



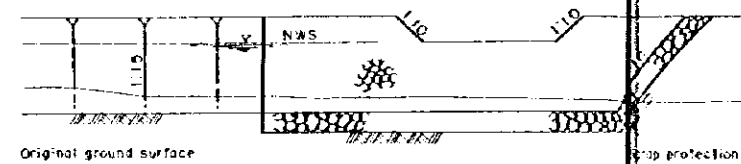
PRECAST CONCRETE FLUME

TERMINAL STRUCTURE OF LATERAL CANAL



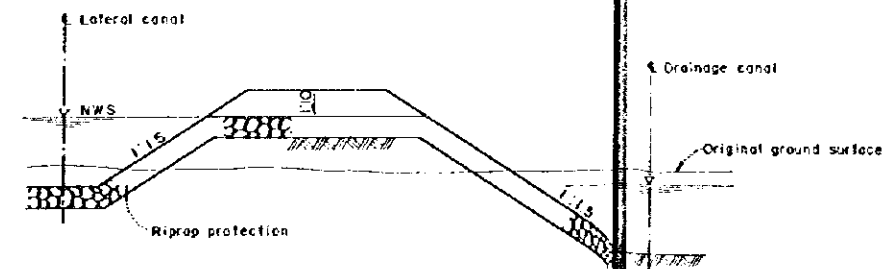
PLAN

SCALE : A



SECTION A-A

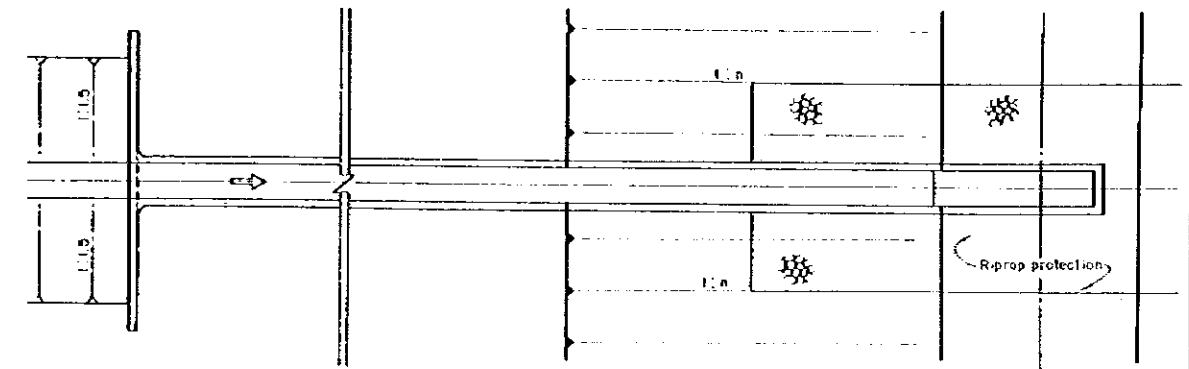
SCALE : A



SECTION B-B

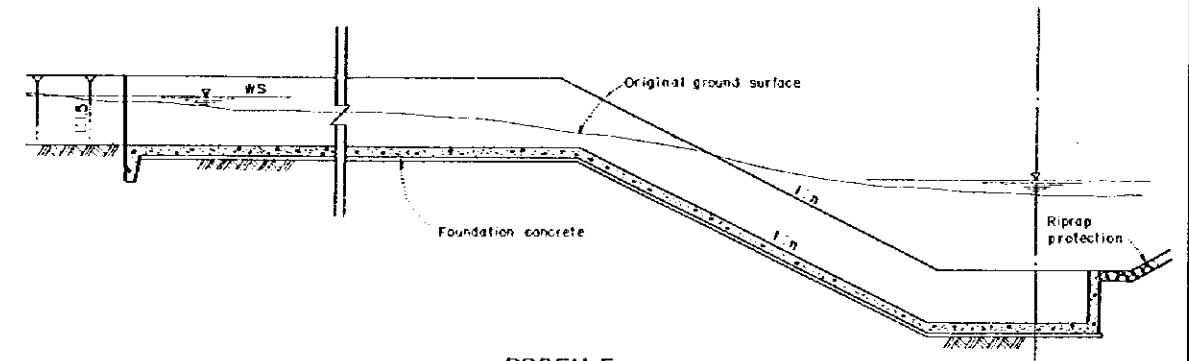
SCALE : A

DRAINAGE INLET



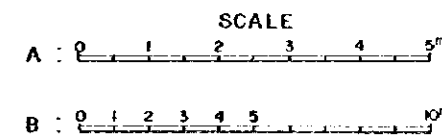
PLAN

SCALE : B



PROFILE

SCALE : B



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DIVISION WORK , TERMINAL STRUCTURE OF LATERAL CANAL, AND DRAINAGE INLET	
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