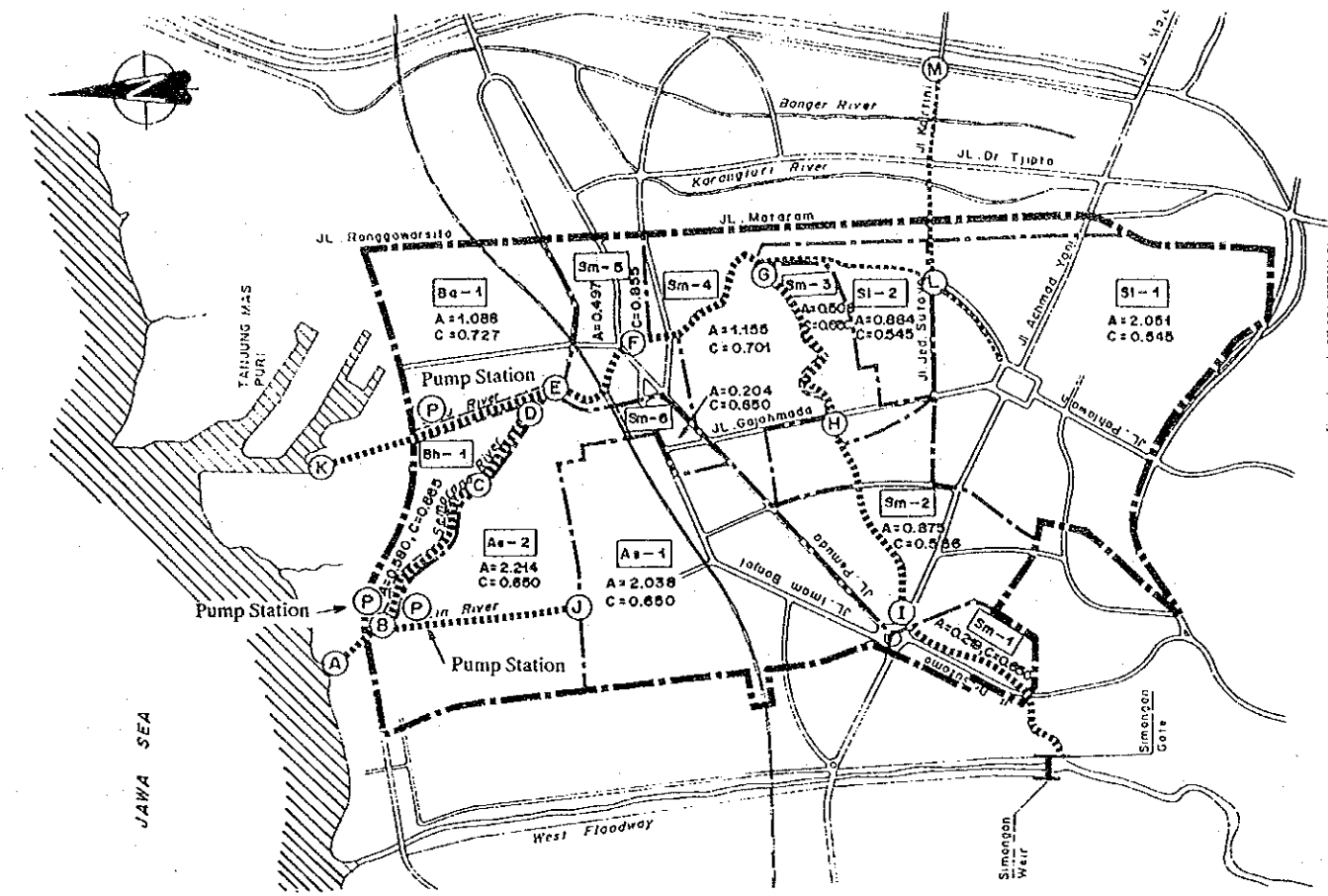
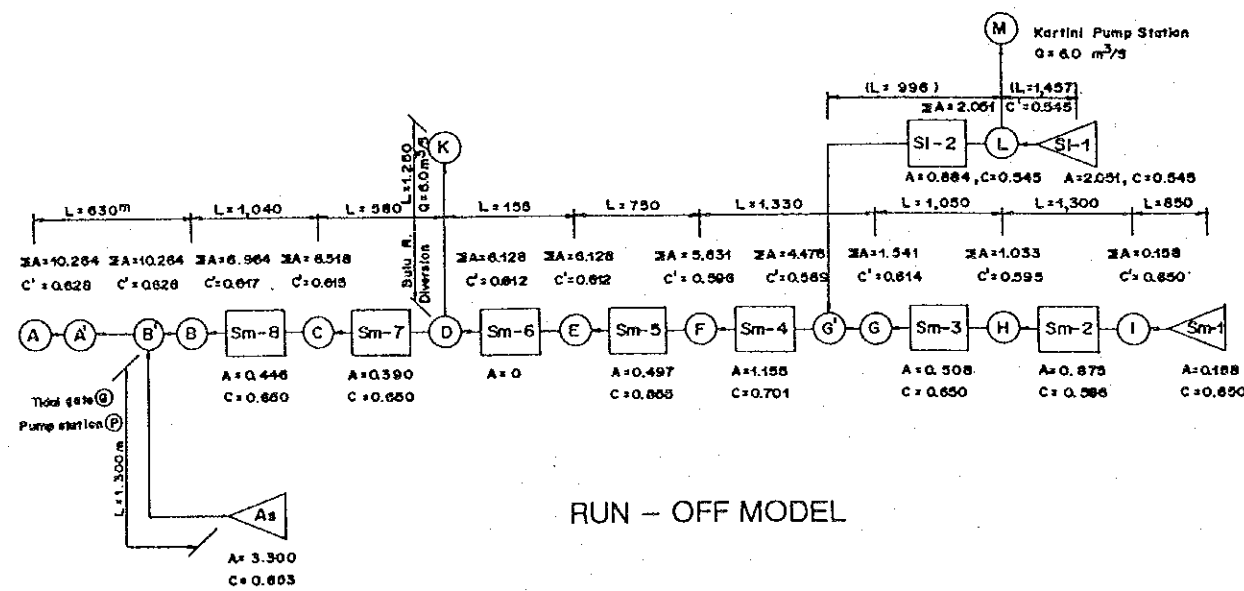


DRAINAGE SYSTEM

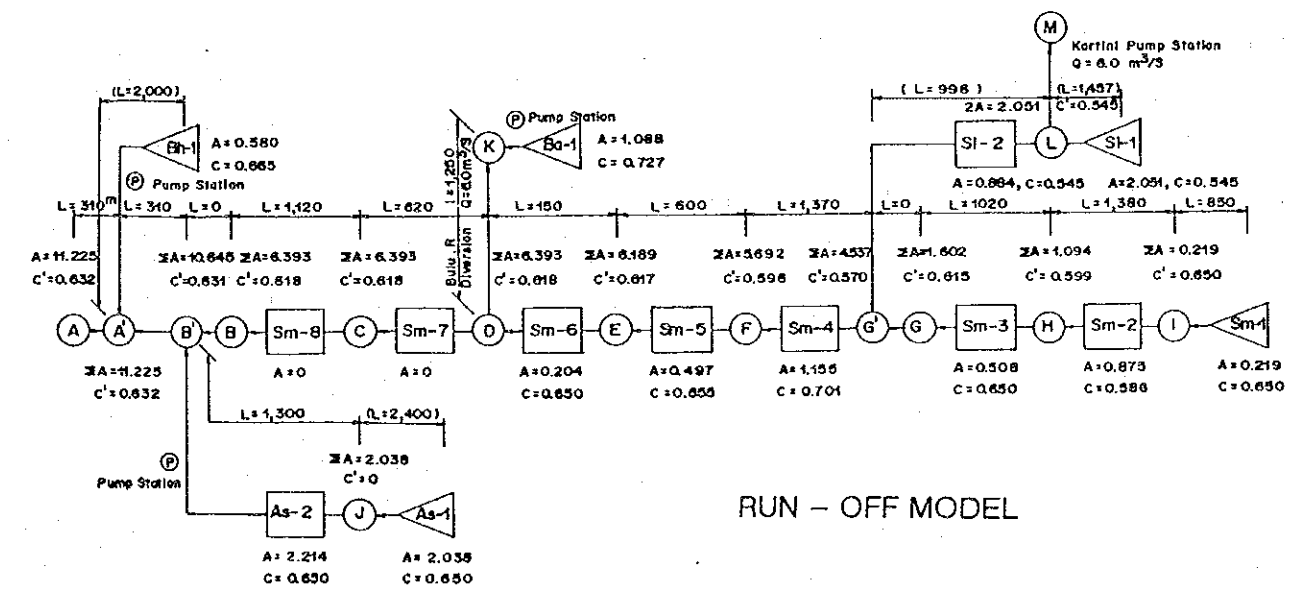


DRAINAGE SYSTEM



RUN - OFF MODEL

ALTERNATIVE 2 - A



RUN - OFF MODEL

ALTERNATIVE 2 - B

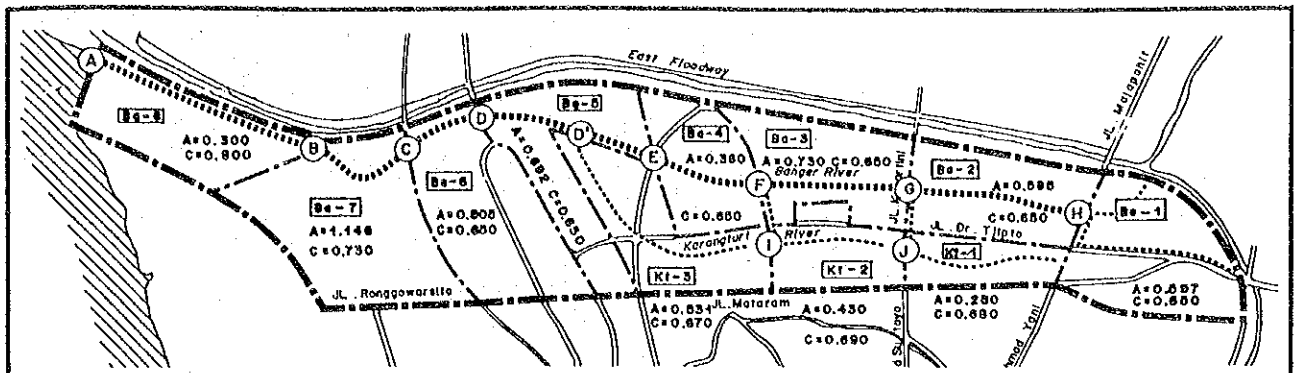
- LEGEND**
- Ba-1 = Sub-drainage Area
 - A = Calculation Point

- Ba-2 = River Channel
- A = Drainage Area (Km²)

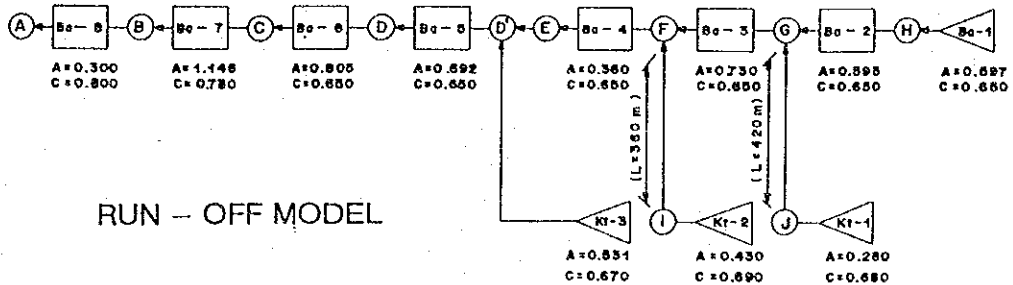
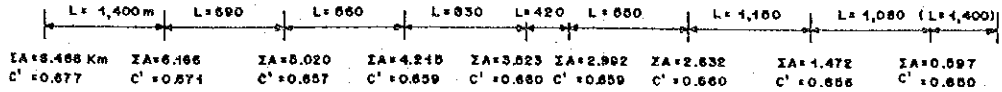
- ΣA = Accumulated Drainage Area (Km²)
- L = Length of River Channel (m)
- C = Run off Coefficient

MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
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JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 5.8 (3/7)
ALTERNATIVES OF DRAINAGE SYSTEM
AND RUN-OFF MODEL (SEMARANG RIVER)

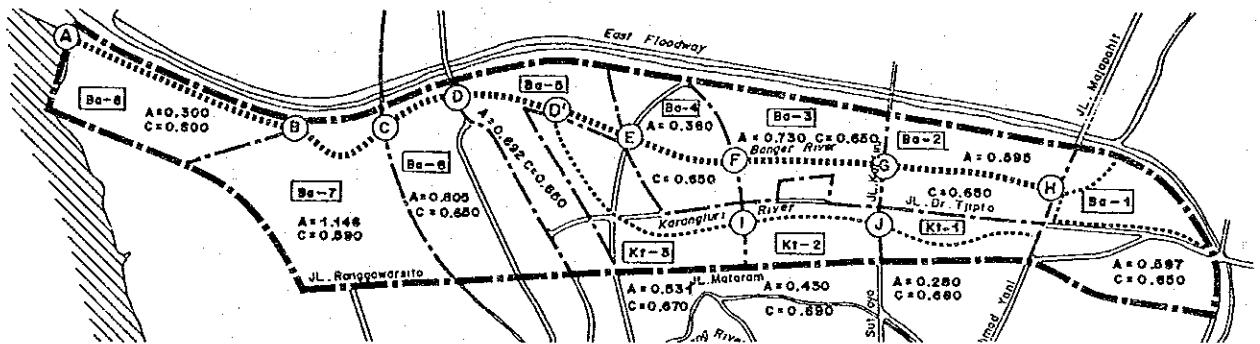


DRAINAGE SYSTEM

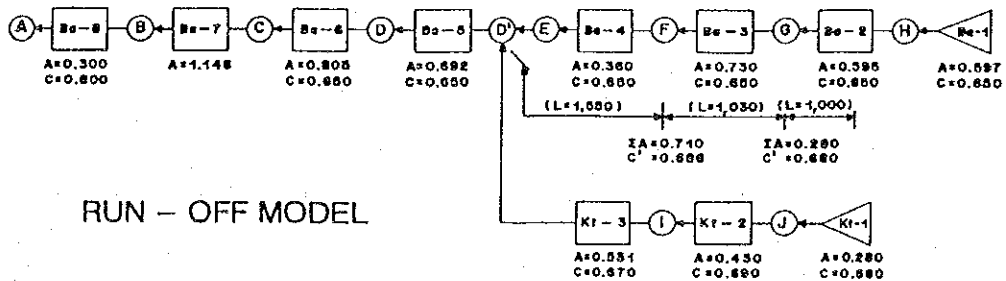
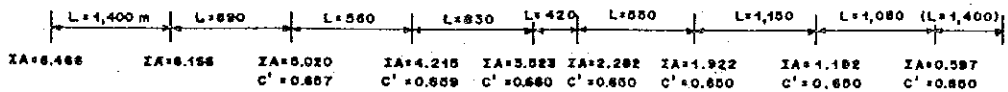


RUN - OFF MODEL

ALTERNATIVE 3 - A



DRAINAGE SYSTEM

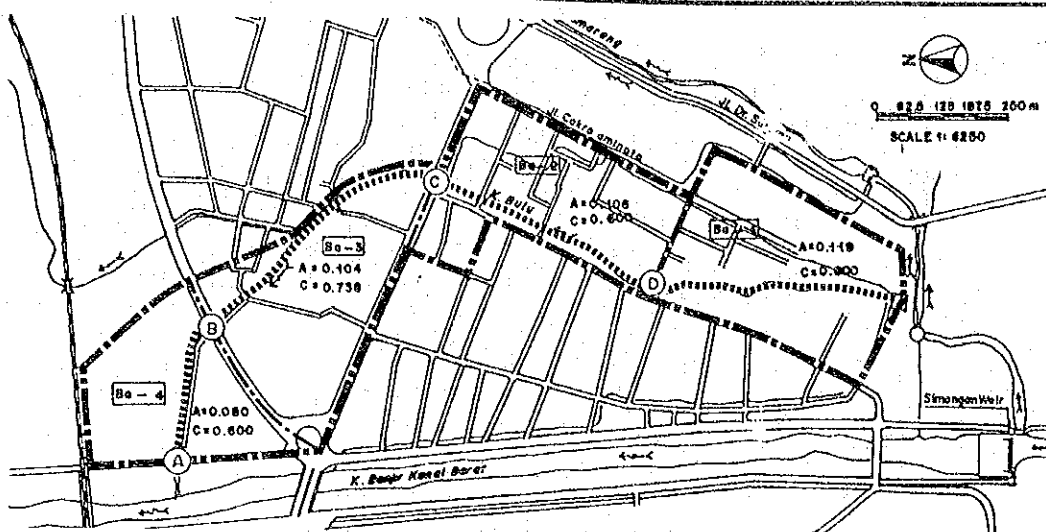


RUN - OFF MODEL

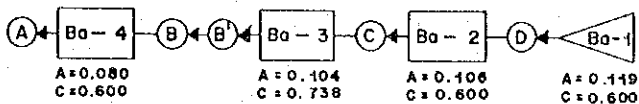
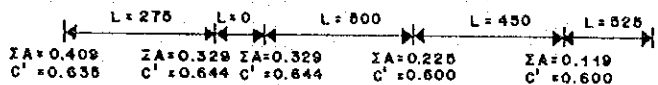
ALTERNATIVE 3 - B

MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 5.8 (4/7)
ALTERNATIVES OF DRAINAGE SYSTEM
AND RUN-OFF MODEL (BANGER RIVER)

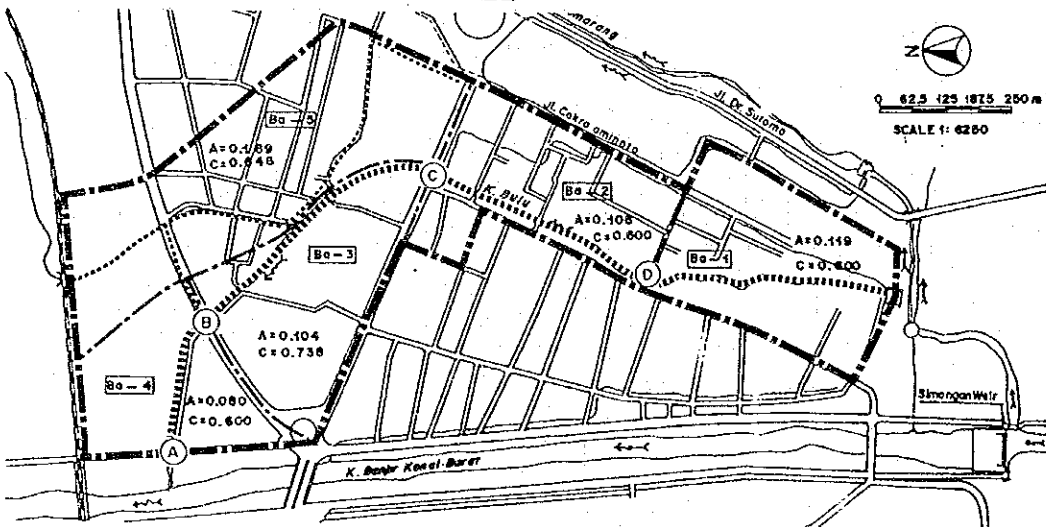


DRAINAGE SYSTEM

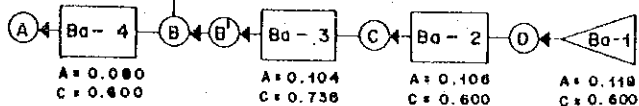
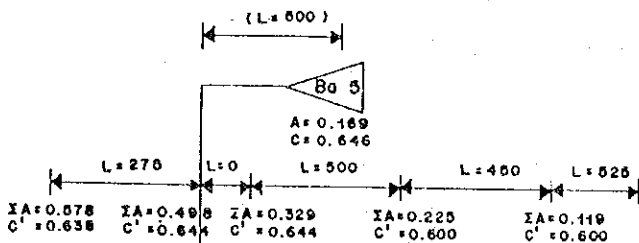


ALTERNATIVE 4 - A

RUN - OFF MODEL



DRAINAGE SYSTEM

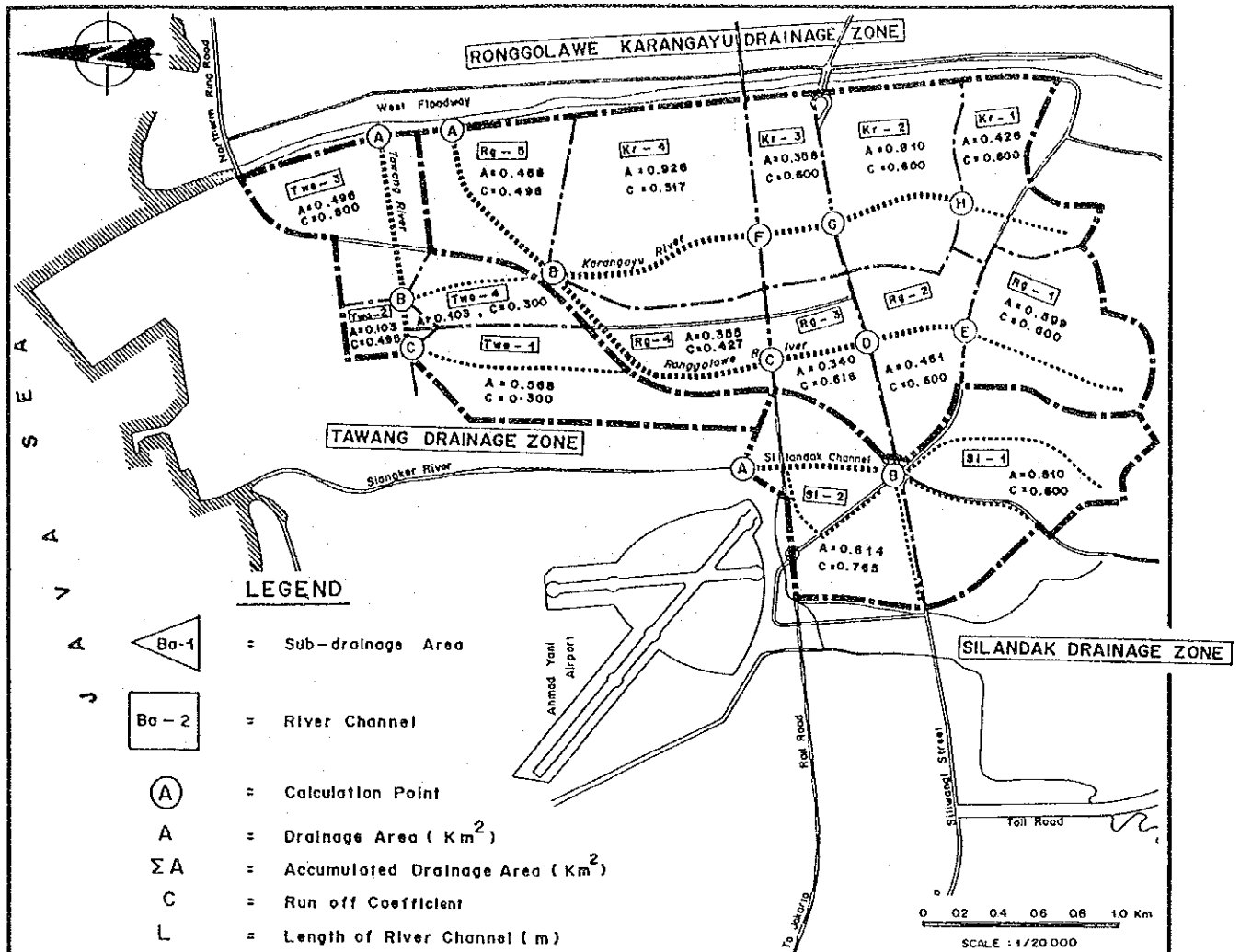


ALTERNATIVE 4 - B

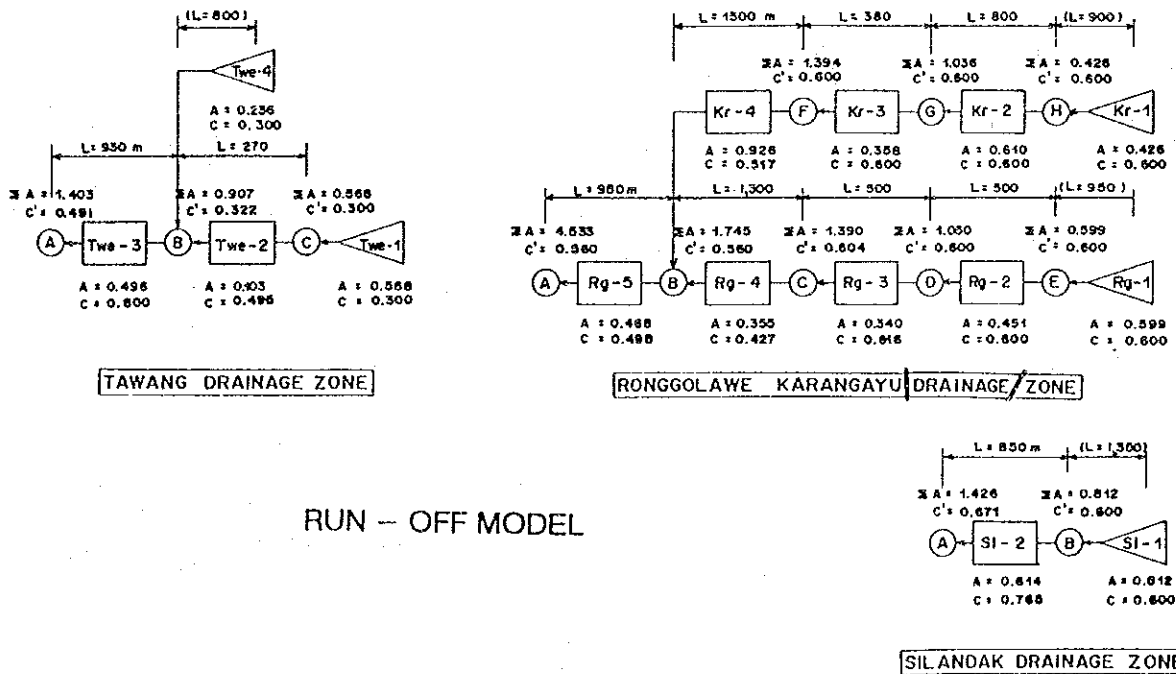
RUN - OFF MODEL

MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 5.8 (5/7)
ALTERNATIVES OF DRAINAGE SYSTEM
AND RUN-OFF MODEL (BULU RIVER)

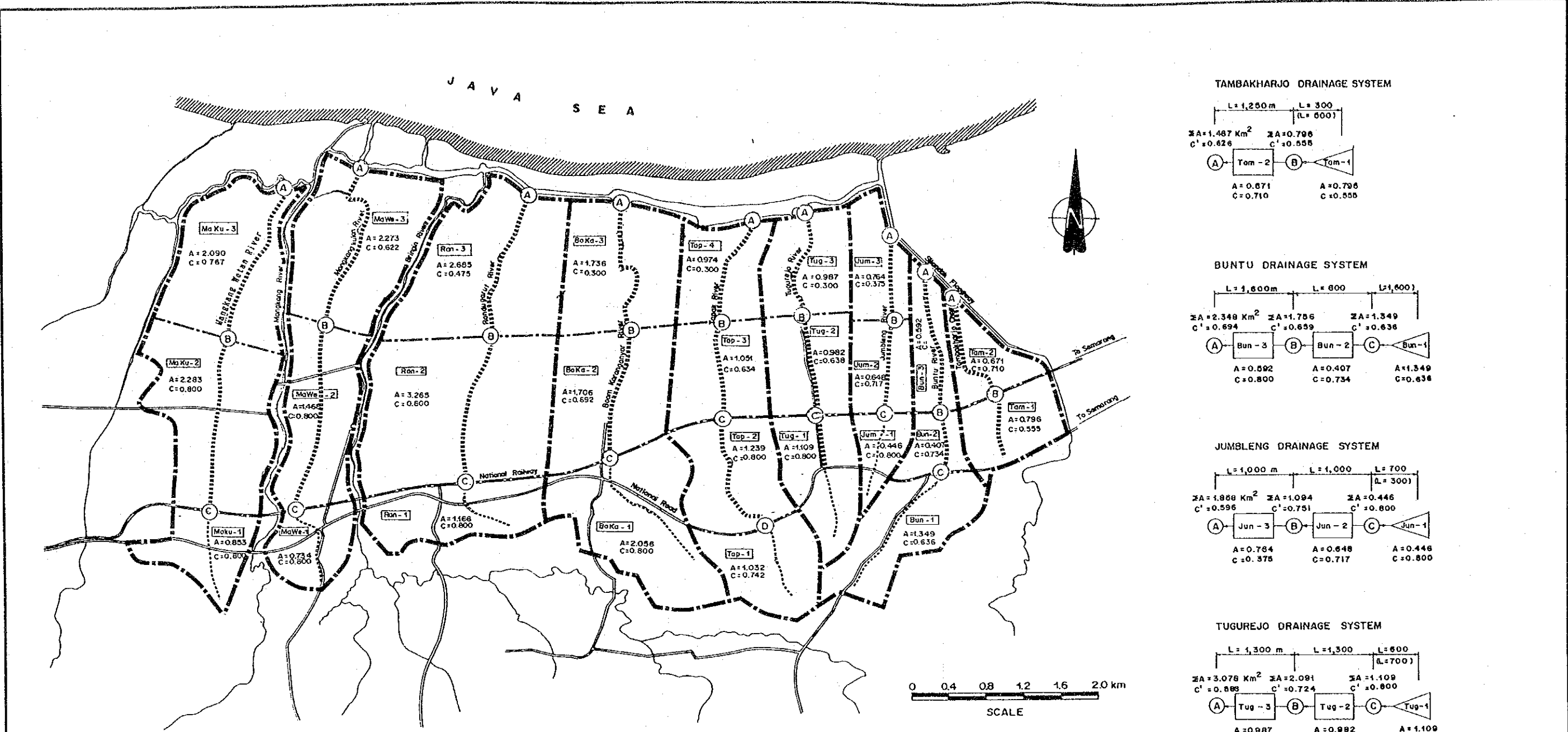


DRAINAGE SYSTEM

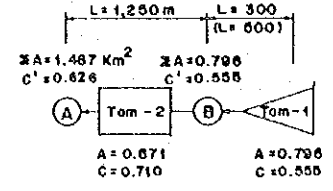


MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
JAPAN INTERNATIONAL COOPERATION AGENCY

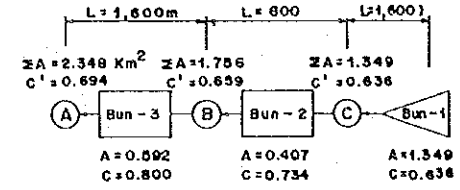
Fig. 5.8 (6/7)
PROPOSED DRAINAGE SYSTEM AND
RUN-OFF MODEL (WESTERN SEMARANG AREA)



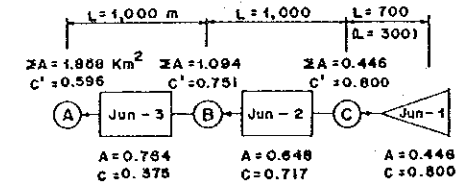
TAMBAKHARJO DRAINAGE SYSTEM



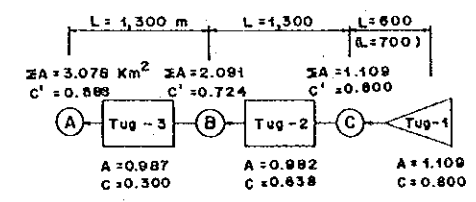
BUNTU DRAINAGE SYSTEM



JUMBLANG DRAINAGE SYSTEM

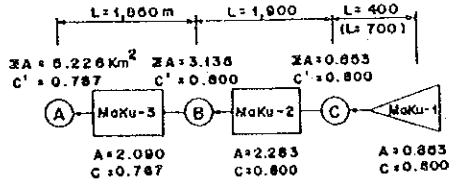


TUGUREJO DRAINAGE SYSTEM

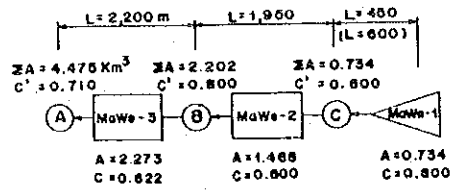


DRAINAGE SYSTEM

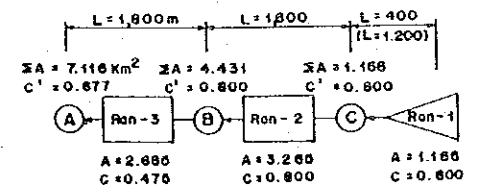
MANGKANG KULON DRAINAGE SYSTEM



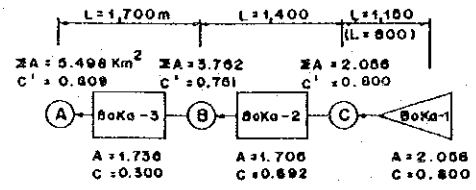
MANGKANG WETAN DRAINAGE SYSTEM



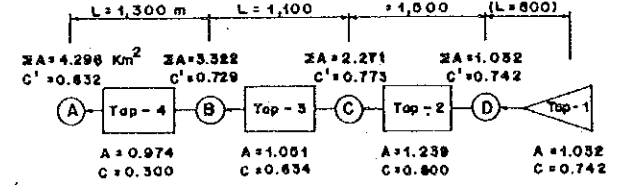
RANDUGARUT DRAINAGE SYSTEM



BOOMKARANGANYAR DRAINAGE SYSTEM



TAPAK DRAINAGE SYSTEM



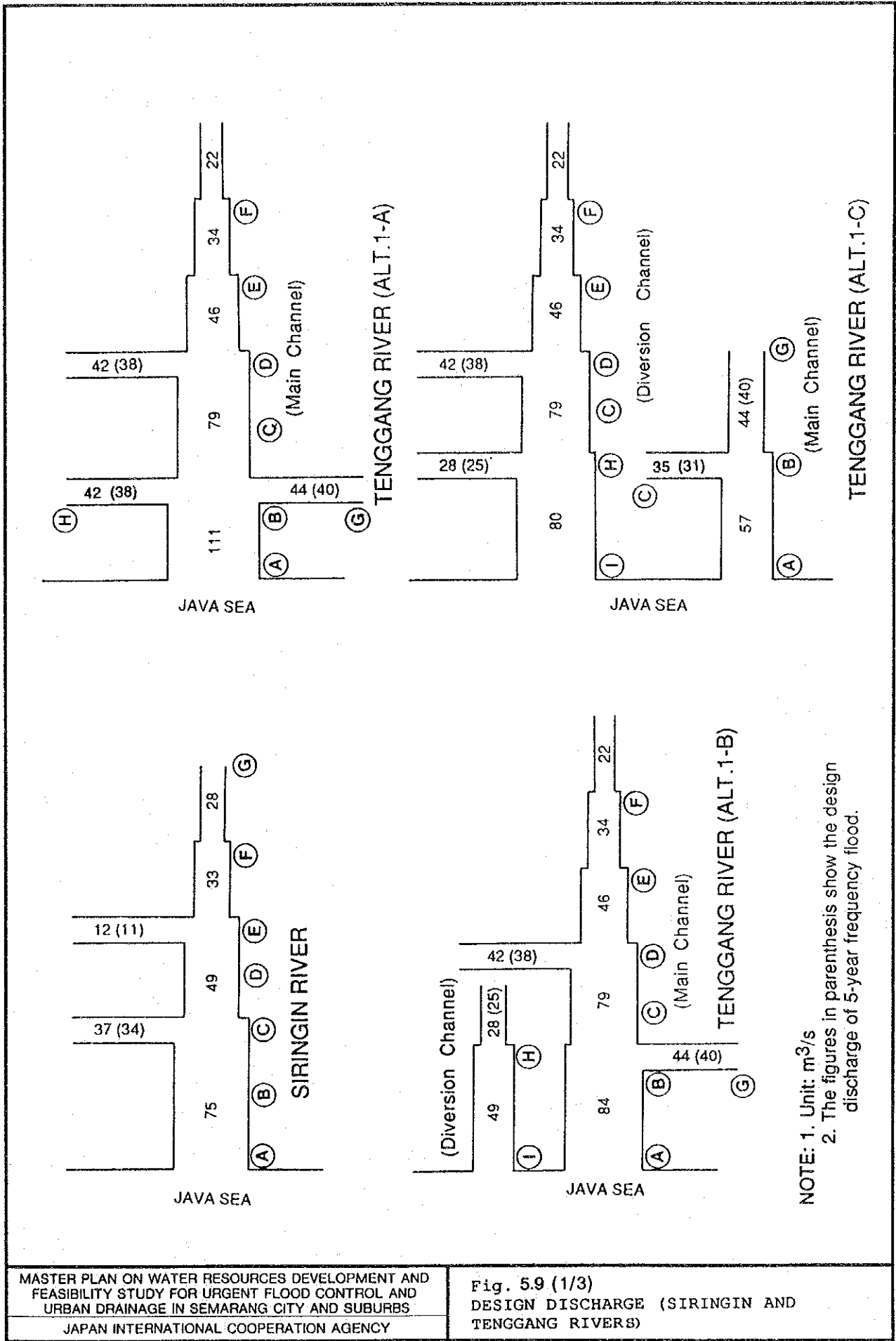
RUN - OFF MODEL

LEGEND

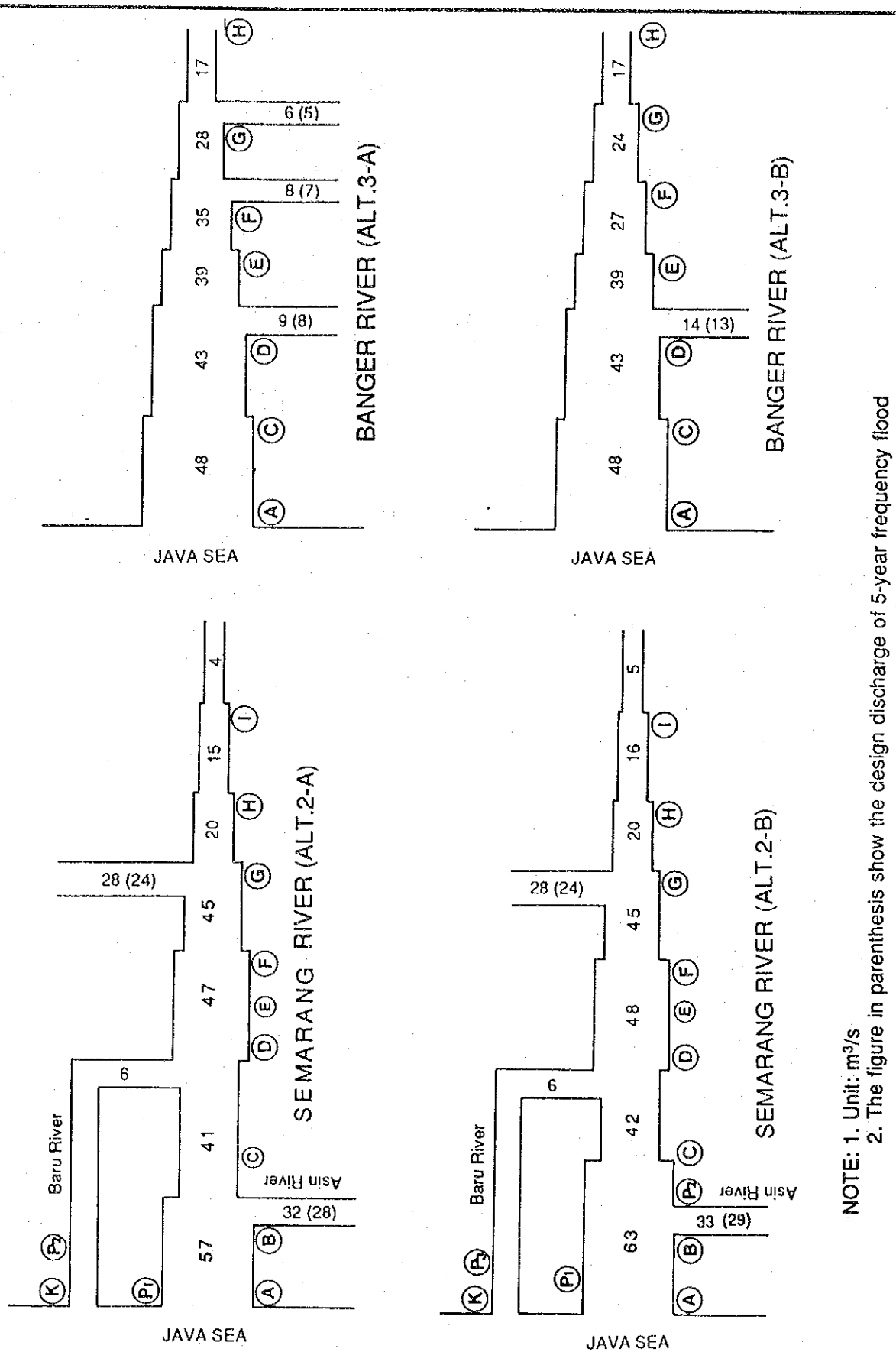
- Ba-1 = Sub-drainage Area
- A = Calculation Point
- Ba-2 = River Channel
- A = Drainage Area (Km²)
- ΣA = Accumulated Drainage Area (Km²)
- L = Length of River Channel (m)
- C = Run off Coefficient

MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 5.8 (7/7)
PROPOSED DRAINAGE SYSTEM AND
RUN-OFF MODEL (KEC. TUGU AREA)

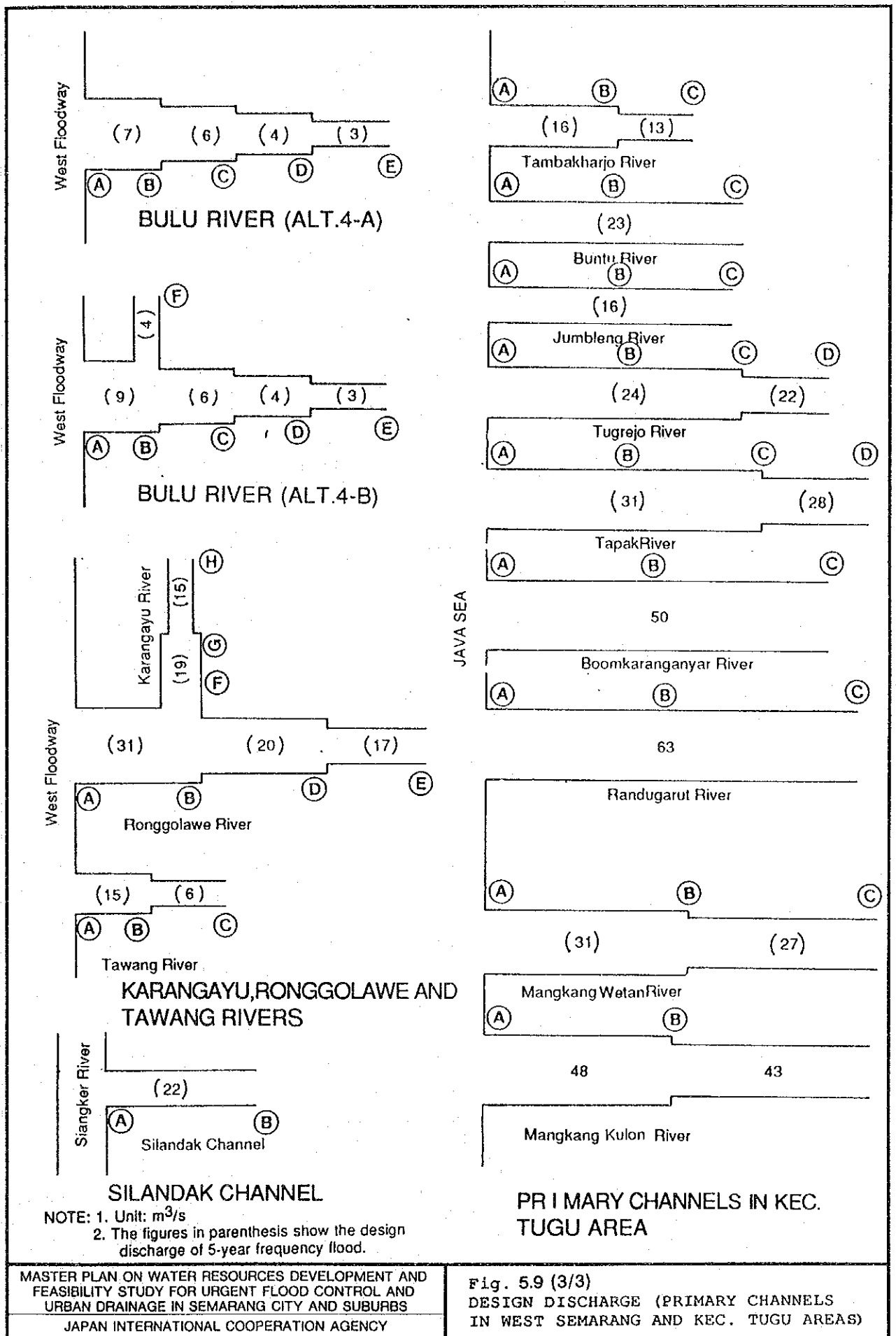


NOTE: 1. Unit: m³/s
 2. The figures in parenthesis show the design discharge of 5-year frequency flood.

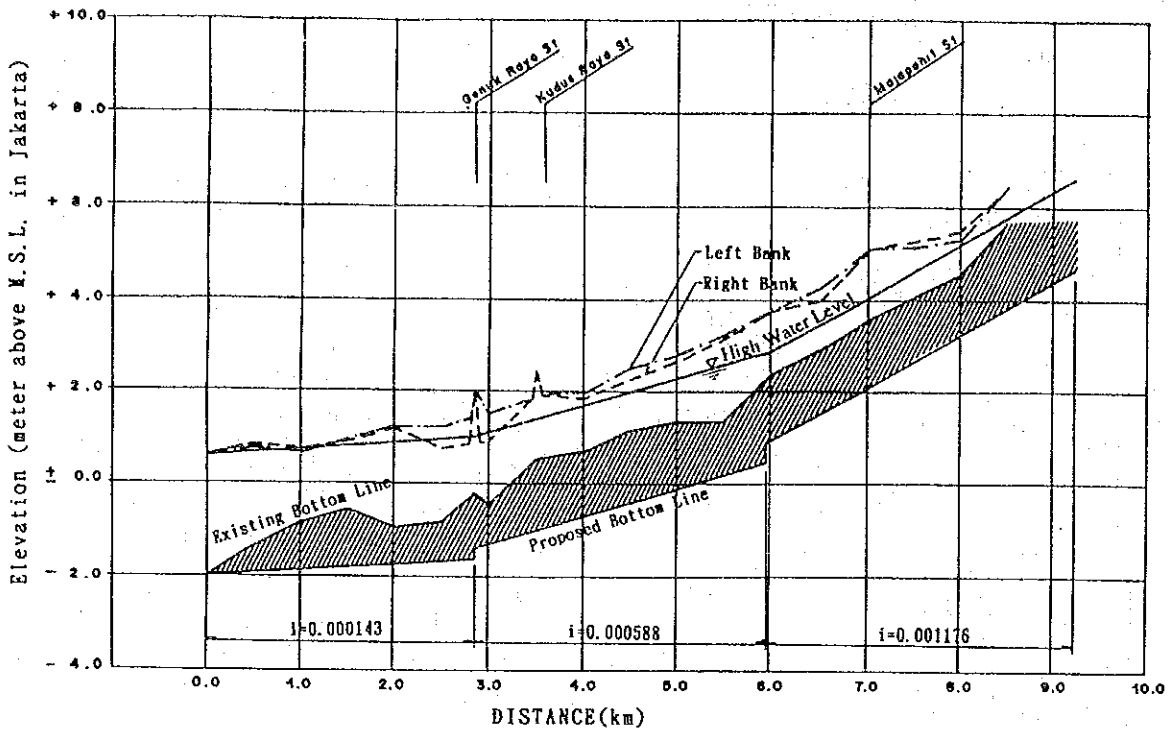


NOTE: 1. Unit: m³/s
 2. The figure in parenthesis show the design discharge of 5-year frequency flood

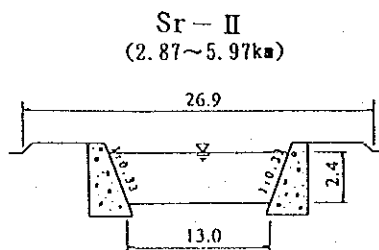
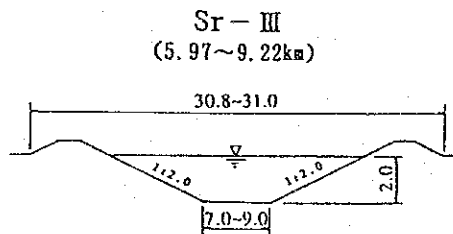
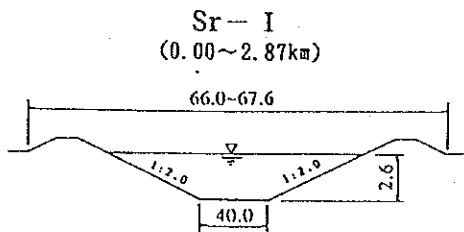
Fig. 5.9 (2/3)
 DESIGN DISCHARGE (SEMARANG AND
 BANGER RIVERS)



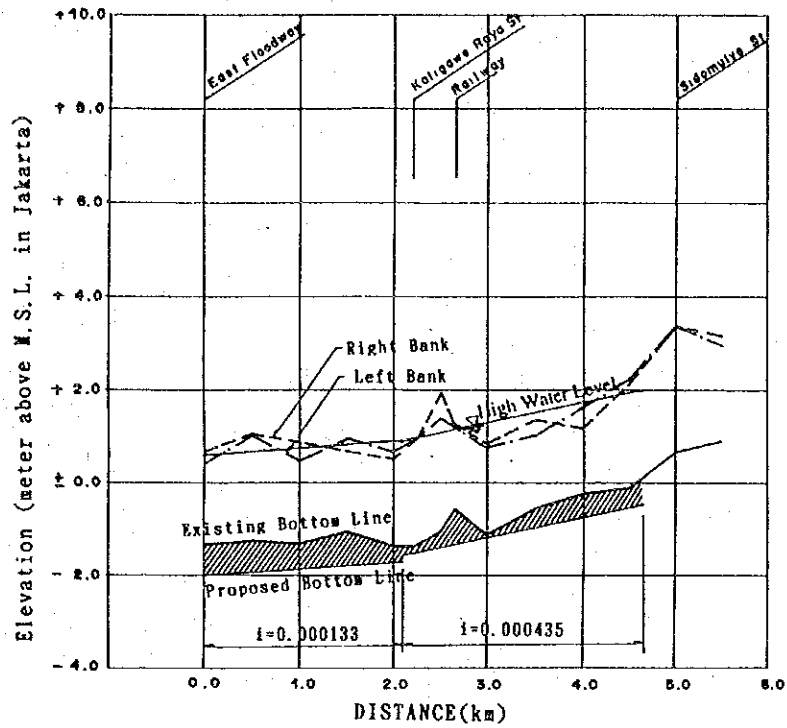
SIRINGIN RIVER



Section No.	Sr - I	Sr - II	Sr - III
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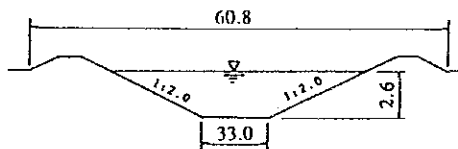


Tenggang River

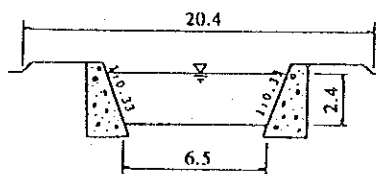


Section No.	Te - I	Te - II
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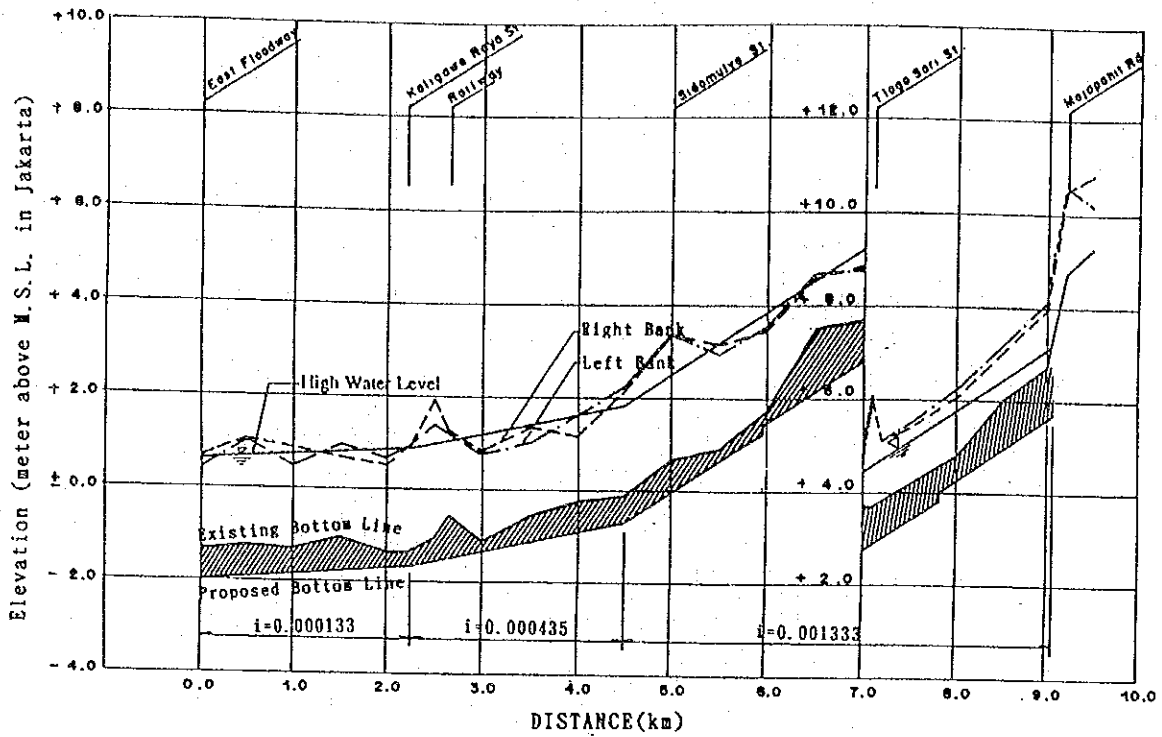
Te - I
(0.00 ~ 2.10 km)



Te - II
(2.10 ~ 4.65 km)

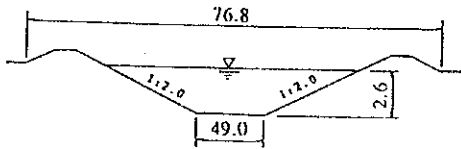


Tenggang River (Diversion)

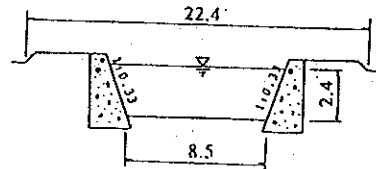


Section No.	Ted - I	Ted - II	Ted - III	Ted - IV	Ted - V
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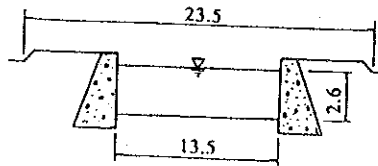
Ted - I
(0.00 ~ 2.25 km)



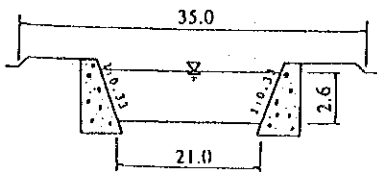
Ted - IV
(5.95 ~ 7.50 km)



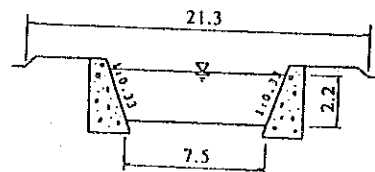
Ted - III
(4.50 ~ 5.95 km)



Ted - II
(2.25 ~ 4.50 km)



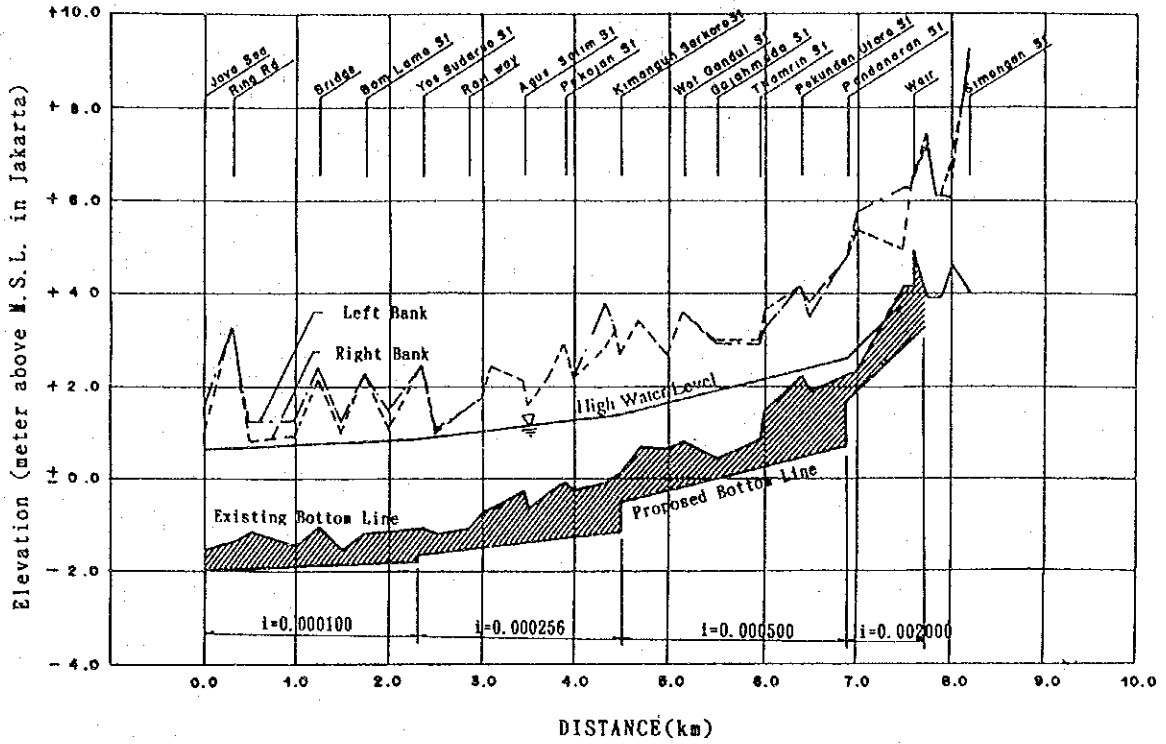
Ted - V
(7.50 ~ 9.05 km)



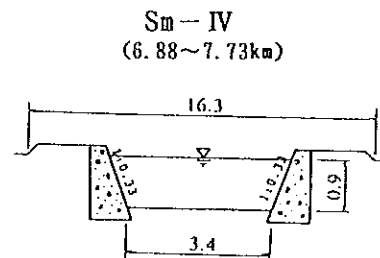
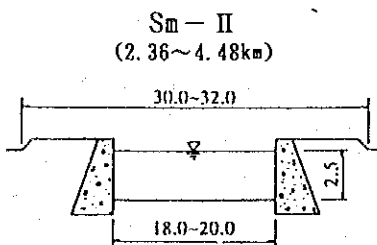
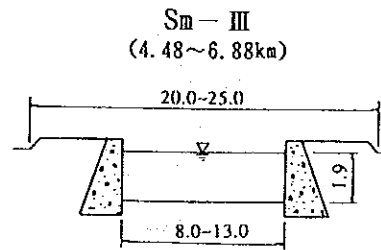
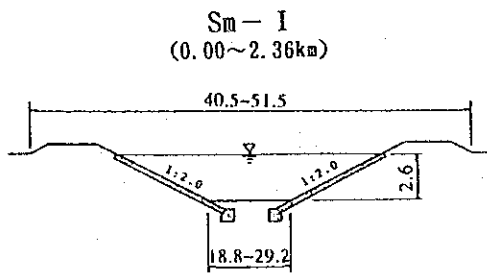
MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 5.10 (3/8)
PROPOSED LONGITUDINAL AND CROSS
SECTIONS OF TENGGANG RIVER (DIVERSION)

SEMARANG RIVER



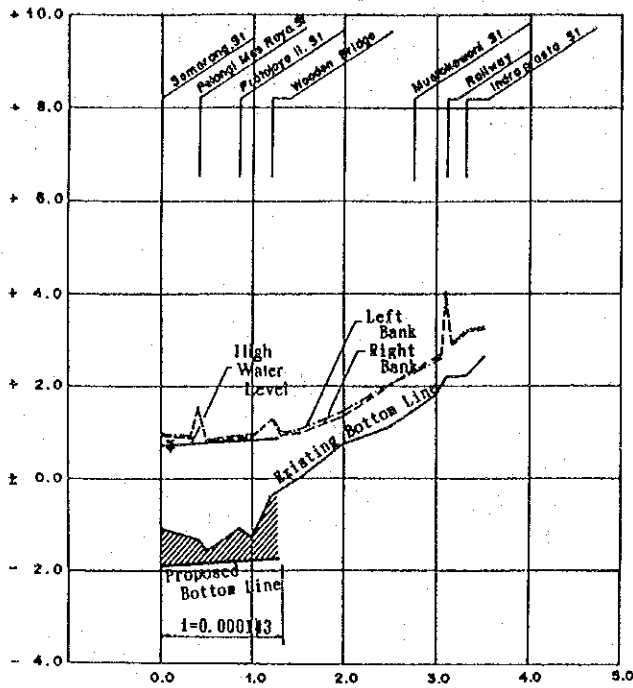
Section No.	Sm - I	Sm - II	Sm - III	Sm - IV
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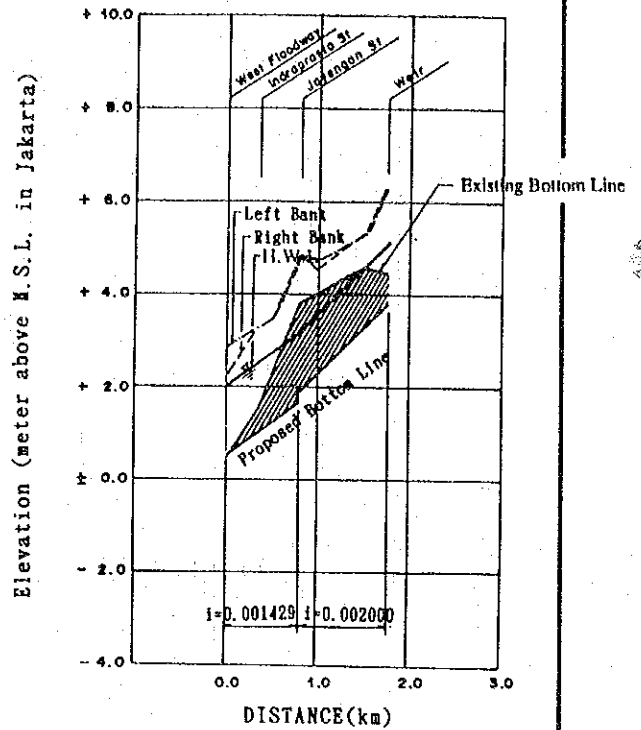
MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 5.10 (4/8)
PROPOSED LONGITUDINAL AND CROSS
SECTIONS OF SEMARANG RIVER

ASIN RIVER



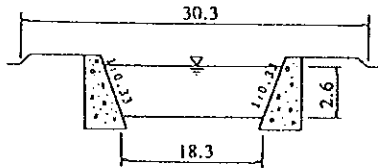
BULU RIVER



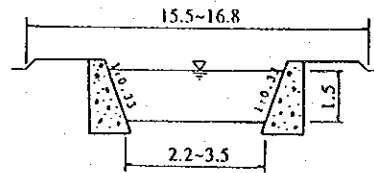
Section No. As-I

Section No. Bu-I Bu-II

As-I
(0.00~1.30km)



Bu-I
(0.00~0.78km)



Bu-II
(0.78~1.75km)

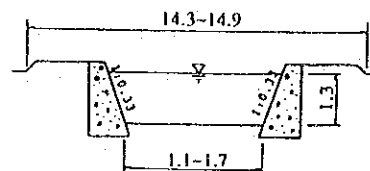
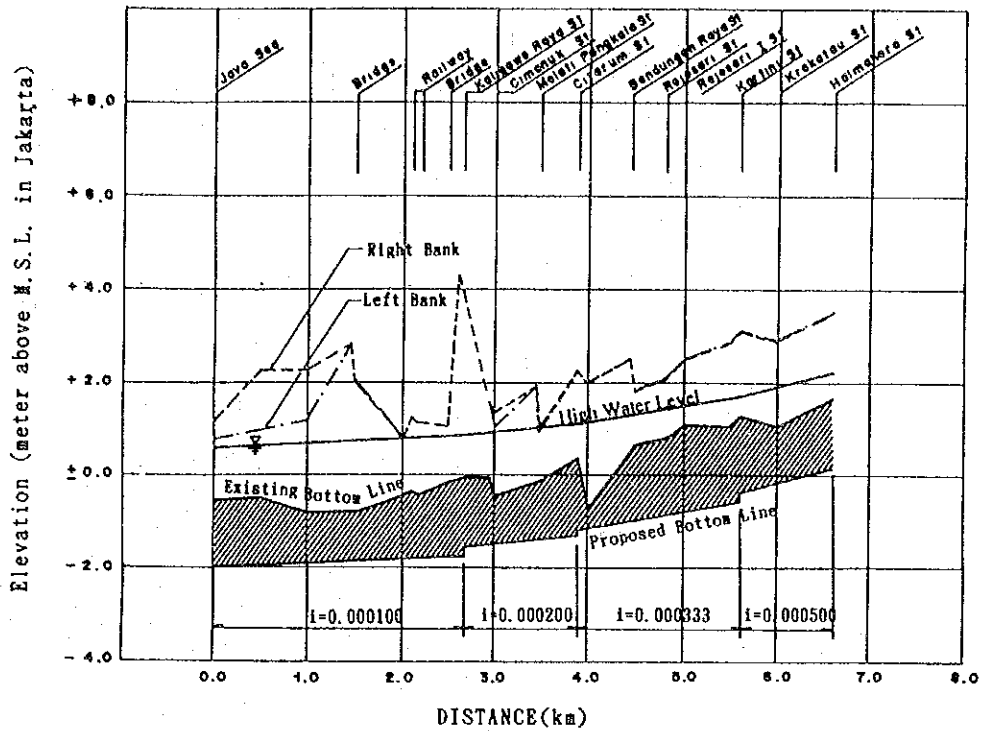
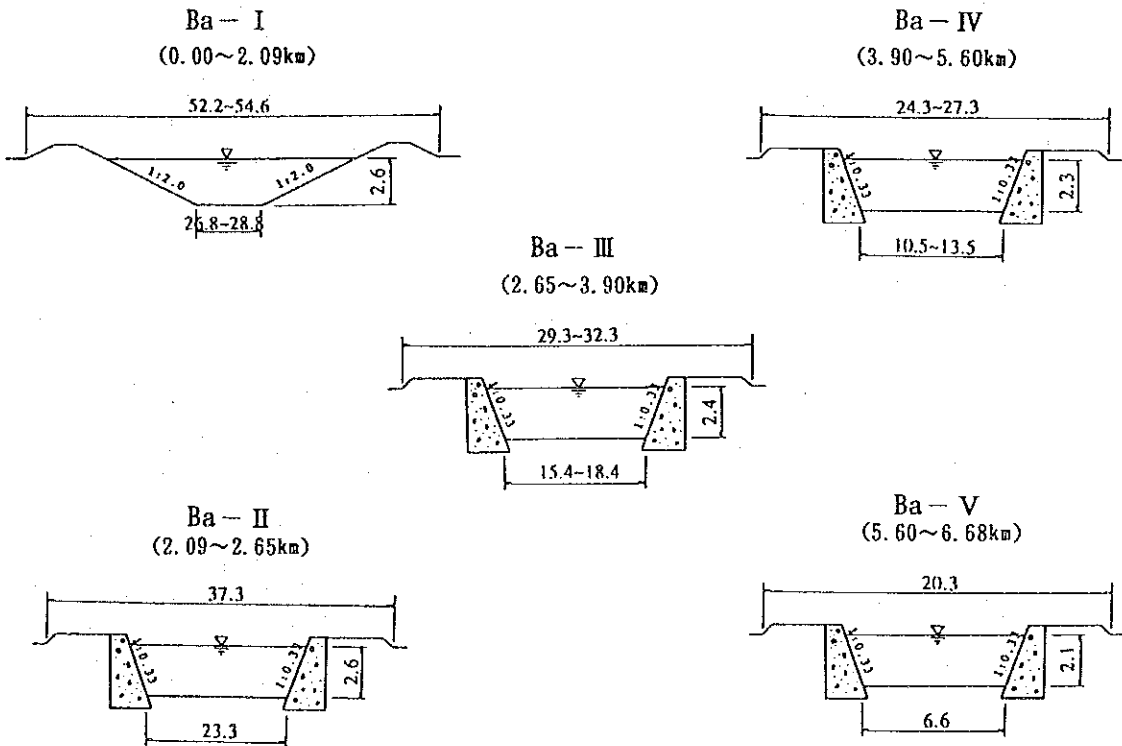


Fig. 5.10 (5/8)
PROPOSED LONGITUDINAL AND CROSS
SECTIONS OF ASIN AND BULU RIVERS

BANGER RIVER



Section No.	Ba - I	Ba - II	Ba - III	Ba - IV	Ba - V
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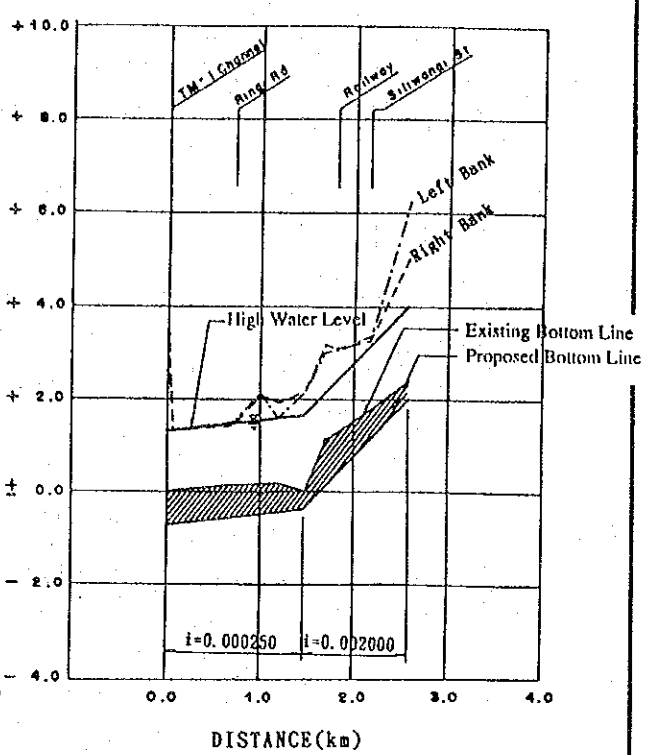
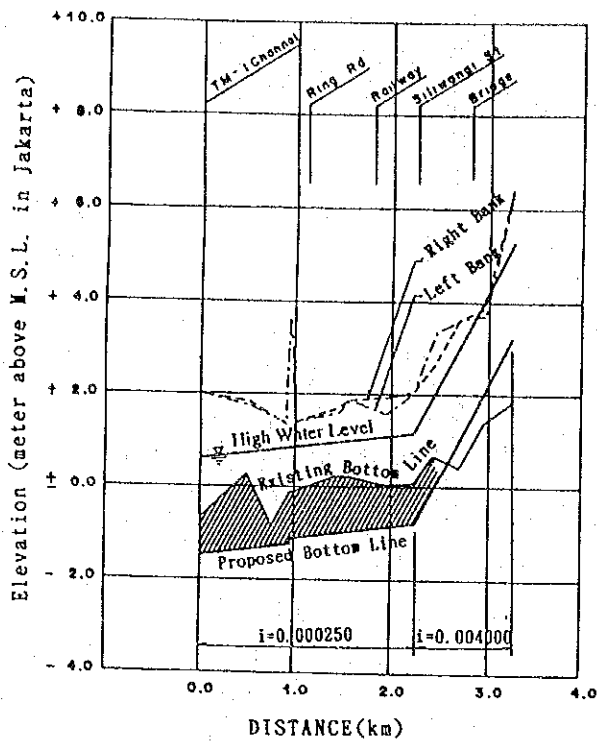
MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 5.10 (6/8)

PROPOSED LONGITUDINAL AND CROSS
SECTIONS OF BANGER RIVER

RONGGOLAWE RIVER

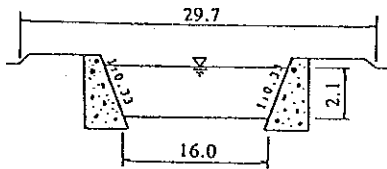
KARANGAYU RIVER



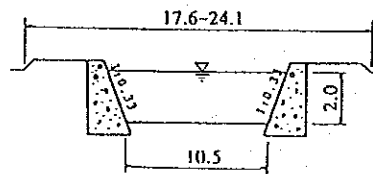
Section No.	Rg - I	Rg - II	Rg - III
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Section No.	Kr - I	Kr - II
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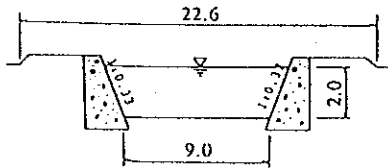
Rg - I
(0.00 ~ 0.95km)



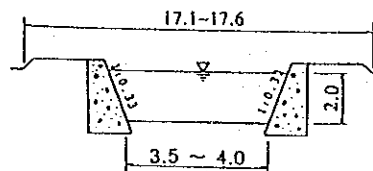
Kr - I
(0.00 ~ 1.50km)



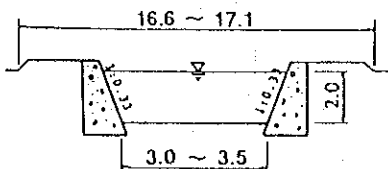
Rg - II
(0.95 ~ 2.25km)



Kr - II
(1.50 ~ 2.68km)



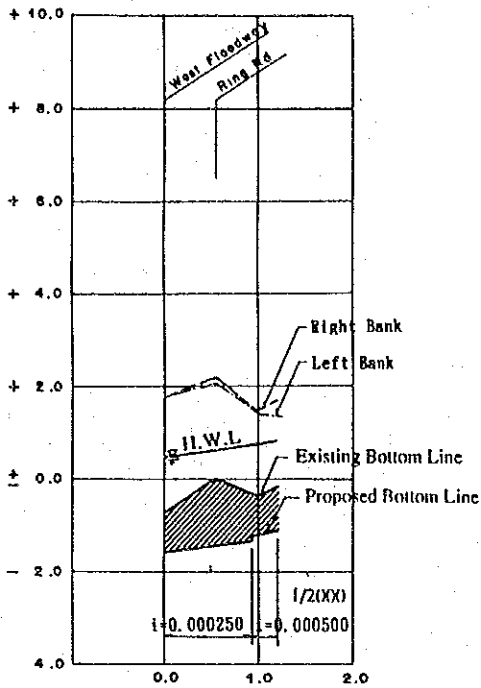
Rg - III
(2.25 ~ 3.25km)



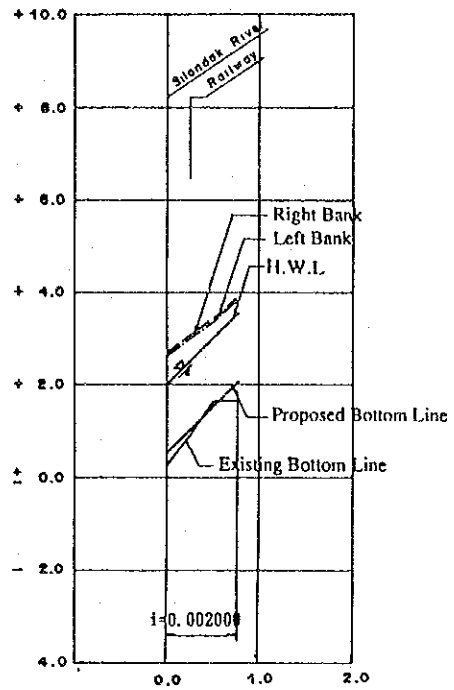
MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 5.10 (7/8)
PROPOSED LONGITUDINAL AND CROSS
SECTIONS OF KARANGAYU AND
RONGGOLAWE RIVERS

TAWANG RIVER



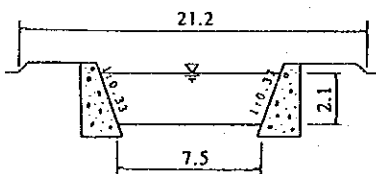
SILANDAK CHANNEL



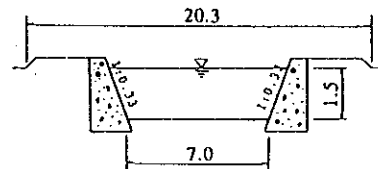
Section No.	Twe-I	Twe-II
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Section No.	Si-I
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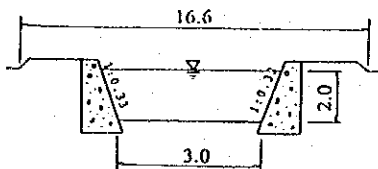
Twe - I
(0.00~0.93km)



Si - I
(0.00~0.85km)



Twe - II
(0.93~1.20km)



MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
JAPAN INTERNATIONAL COOPERATION AGENCY.

Fig. 5.10 (8/8)
PROPOSED LONGITUDINAL AND CROSS
SECTIONS OF TAWANG RIVER AND
SILANDAK CHANNEL

URBAN DRAINAGE PLAN

Description	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
1. Eastern Semarang																						
Sirigin River		On-going Project																				
Tenggang River		On-going Project																				
2. Central Semarang																						
Semarang River																						
Banger River		On-going Project																				
Bulu River		On-going Project																				
3. Western Semarang																						
Ronggolawe River																						
Karangayu River																						
Tawang River																						
Silandak Channel																						

 On-going Project


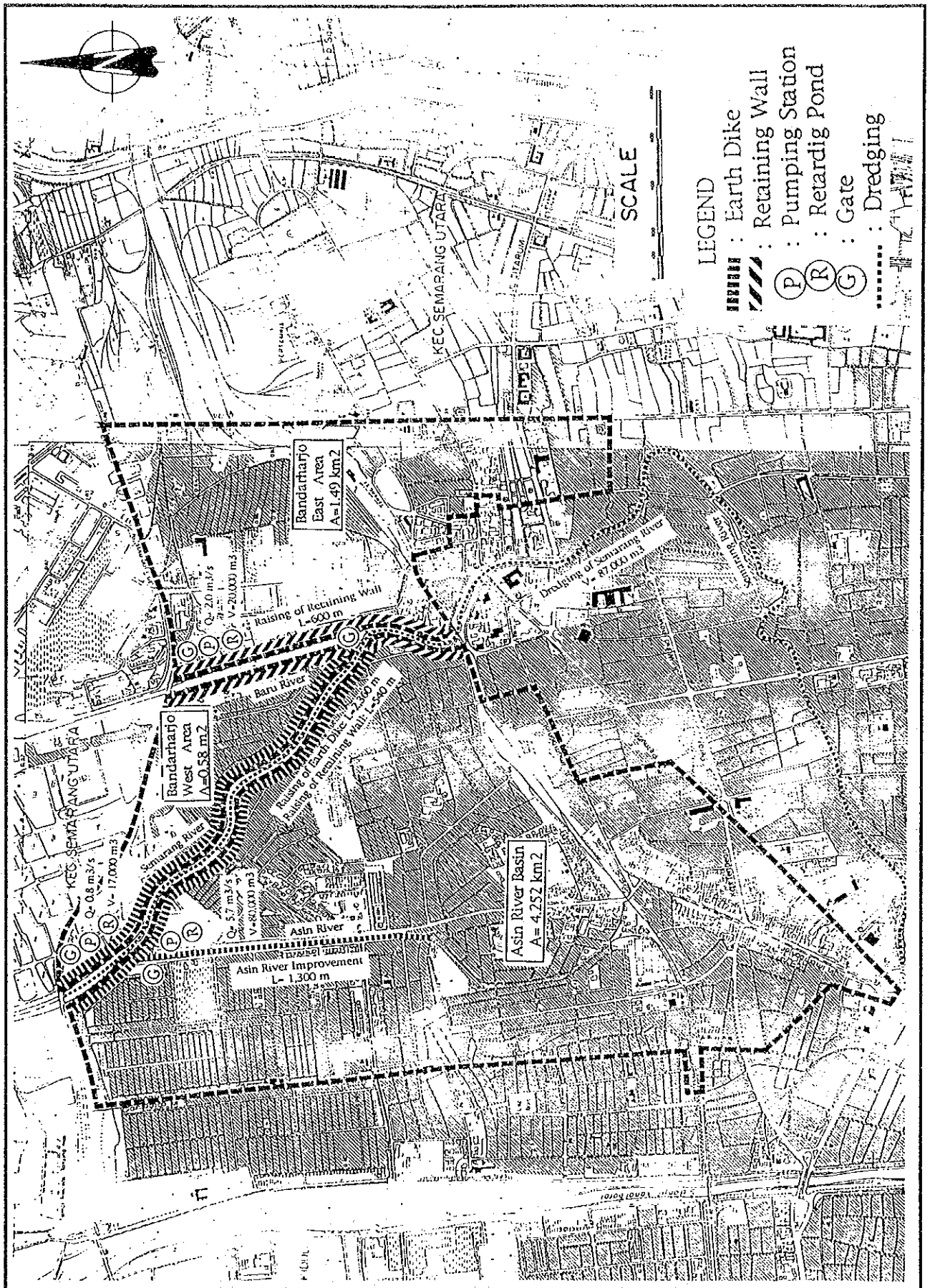
 Implemented by Master Plan

Fig. 5.11

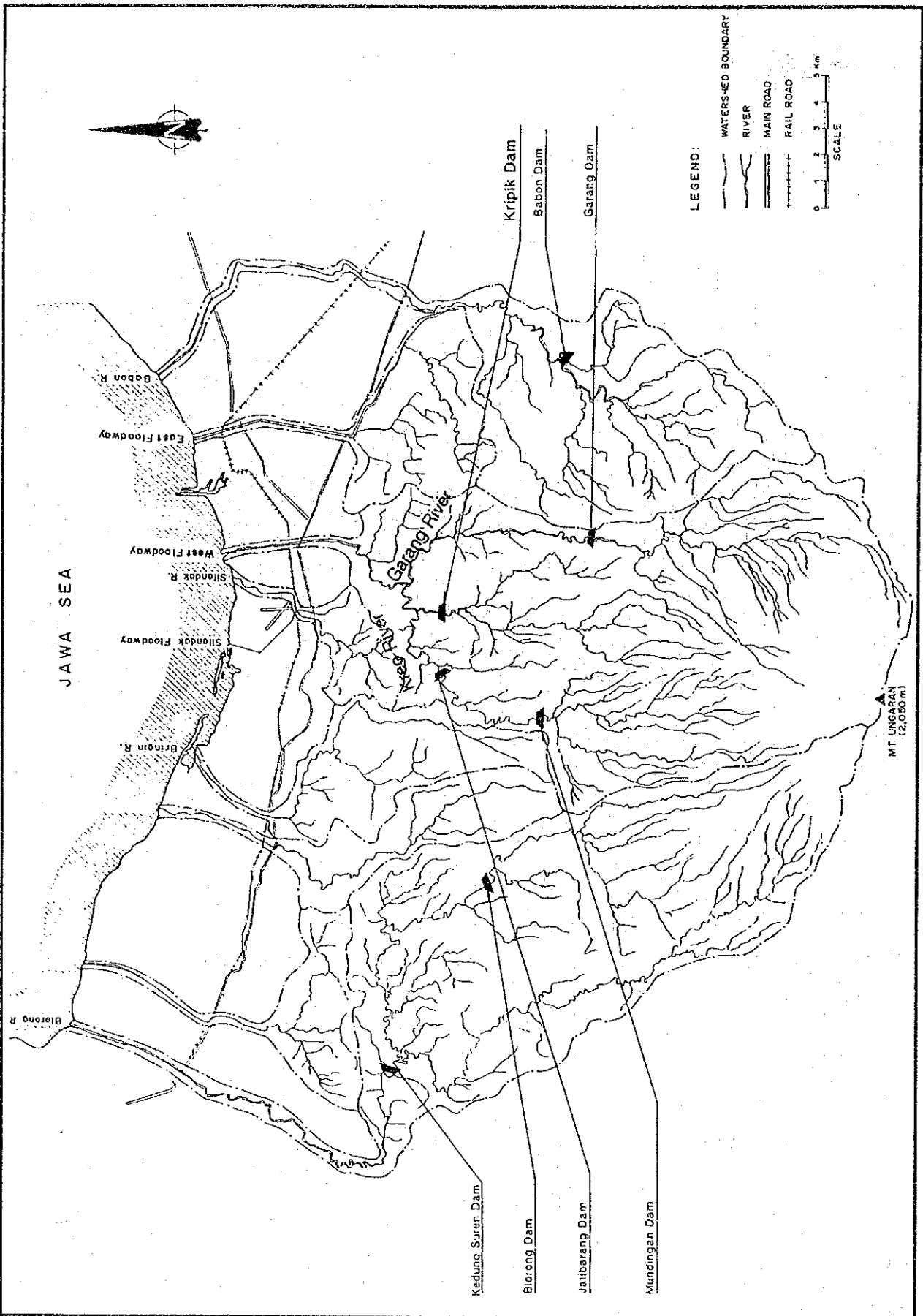
IMPLEMENTATION SCHEDULE FOR
MASTER PLAN OF URBAN DRAINAGE WORKS



MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
 JAPAN INTERNATIONAL COOPERATION AGENCY

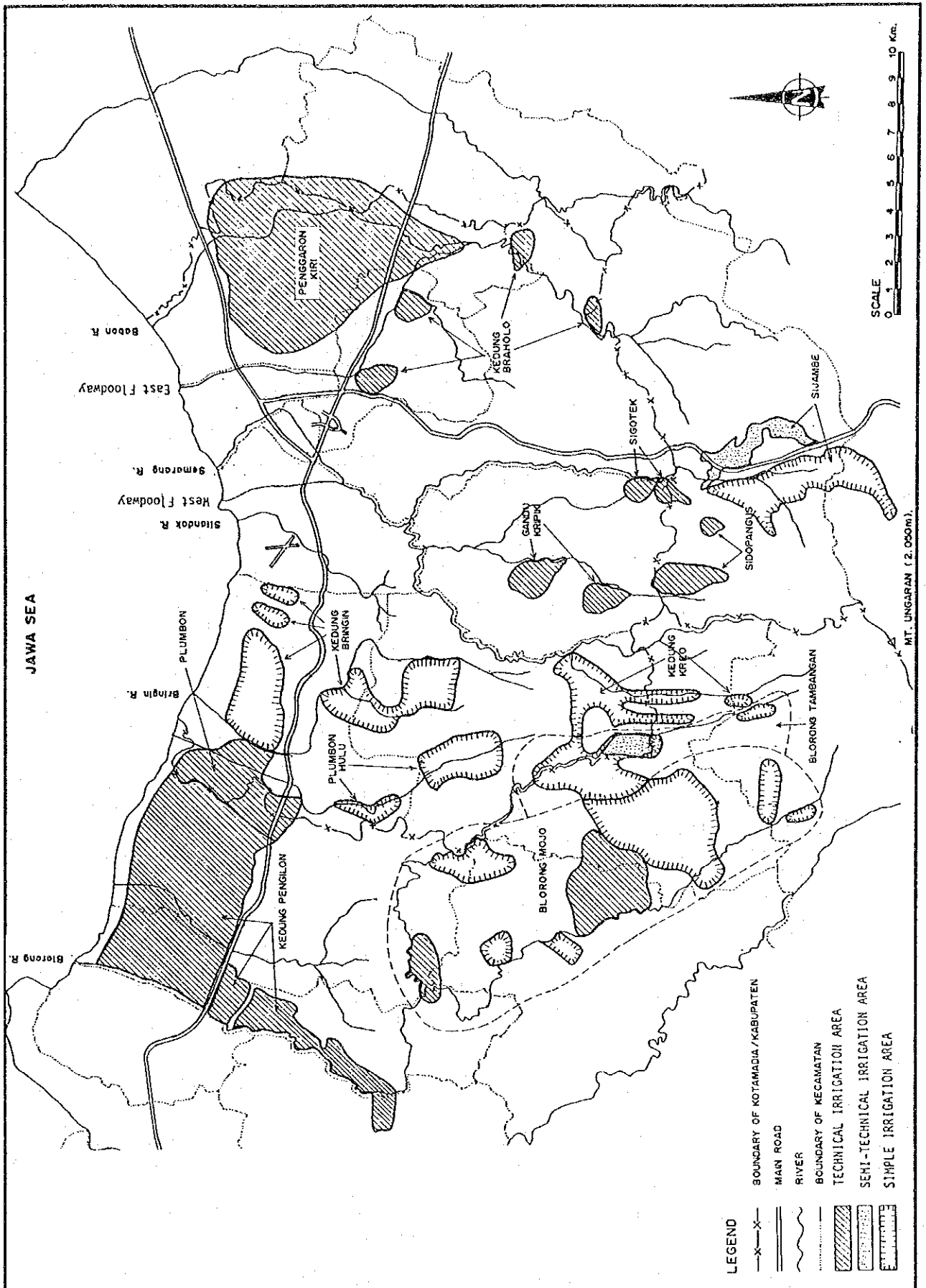
Fig. 5.12

LOCATION OF PRIORITY PROJECT
 FOR FEASIBILITY STUDY



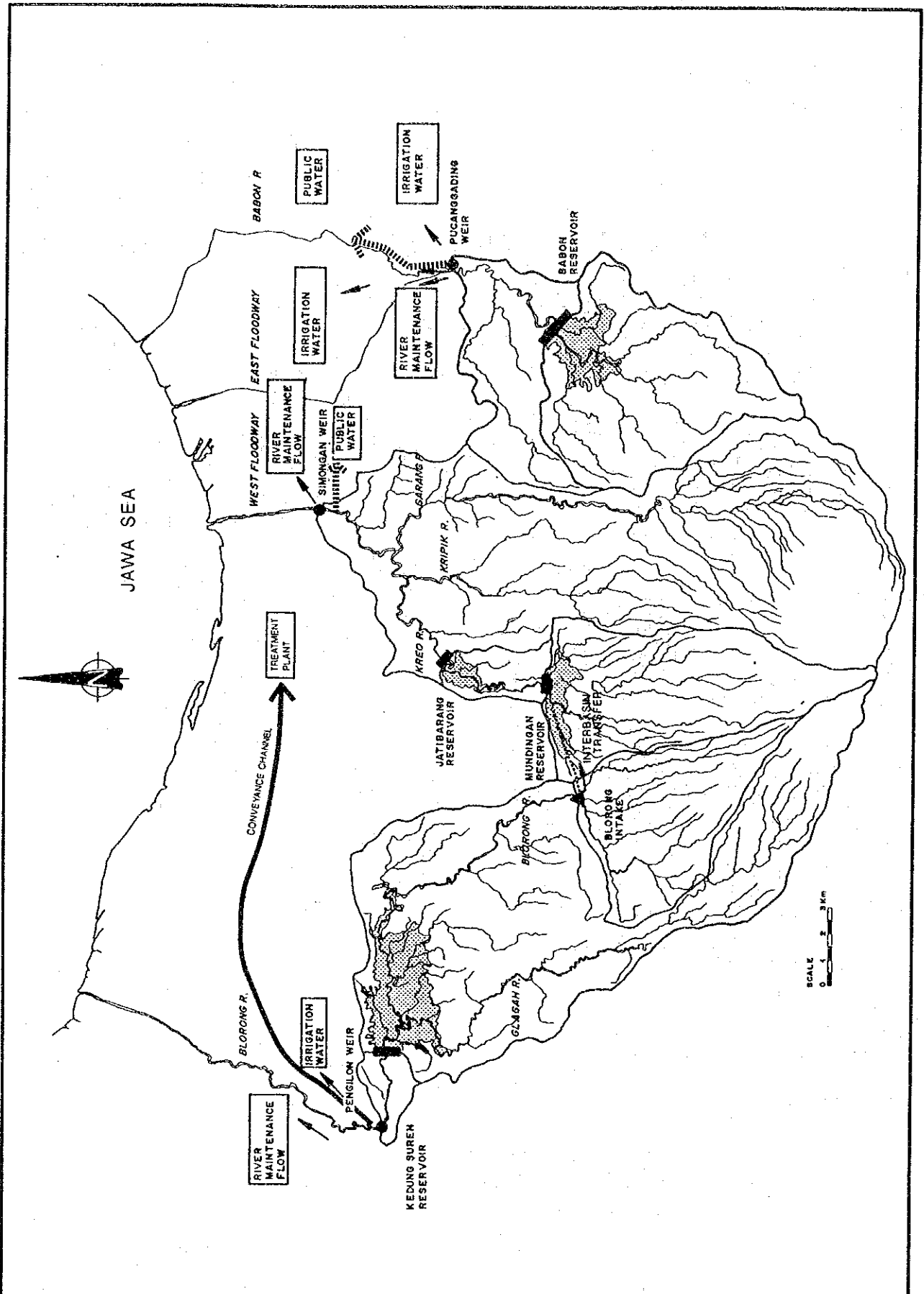
MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
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Fig. 5.13
 LOCATION OF POTENTIAL DAM SITES



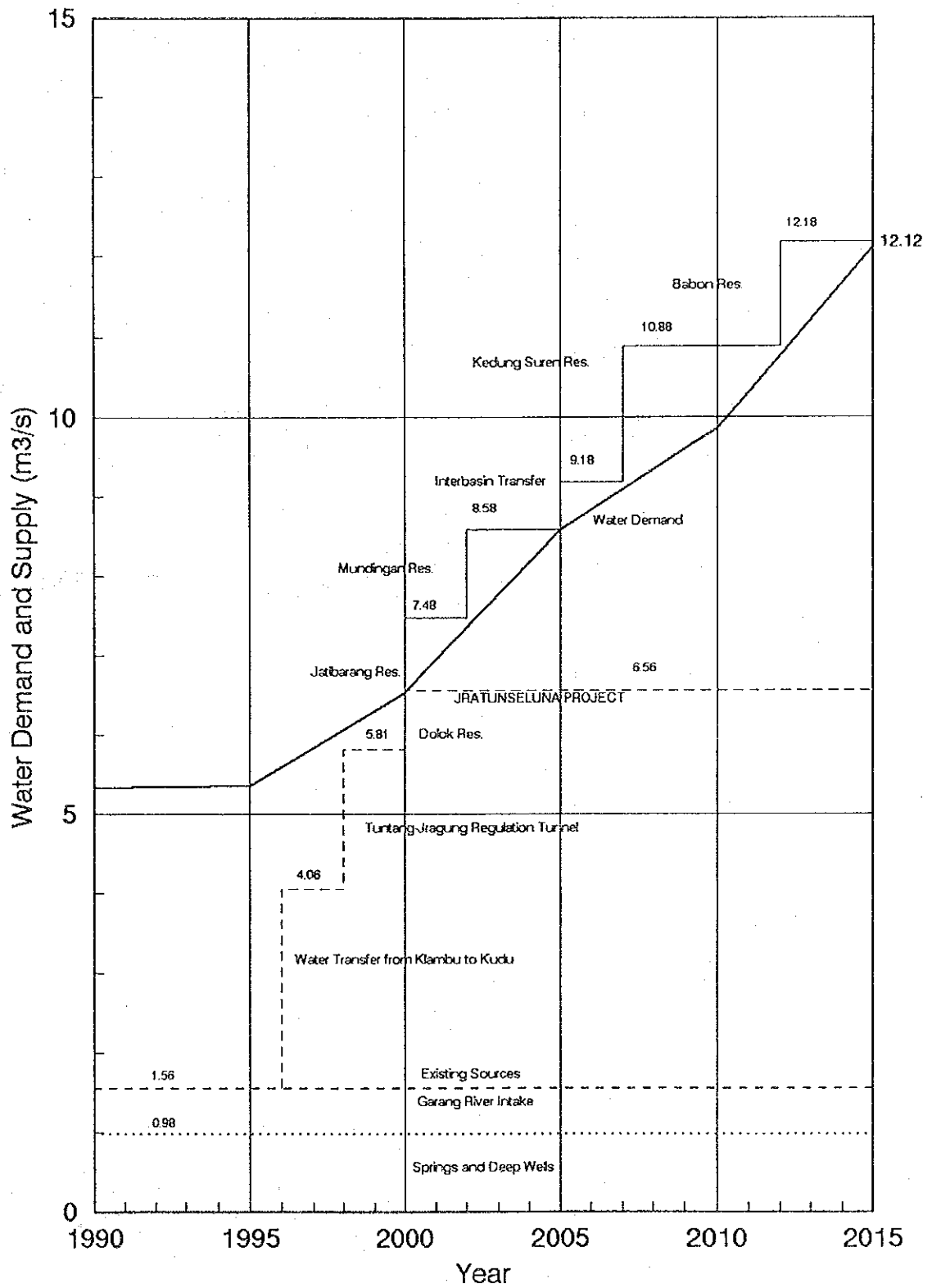
MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
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Fig. 5.14
 IRRIGATION AREA



MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 5.15
 SCHEMATIC DIAGRAM OF WATER
 RESOURCES DEVELOPMENT PLAN



MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
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Fig. 5.16
 PUBLIC WATER SUPPLY PROGRAMME

WATER RESOURCES DEVELOPMENT PLAN

Description	1984	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
	1. Babon Dam																					
2. Jatibarang Dam																						
3. Mundingan Dam																						
4. Interbasin Transfer																						
5. Kedung Suren Dam																						
Kedung Suren Dam																						
Conveyance Channel																						


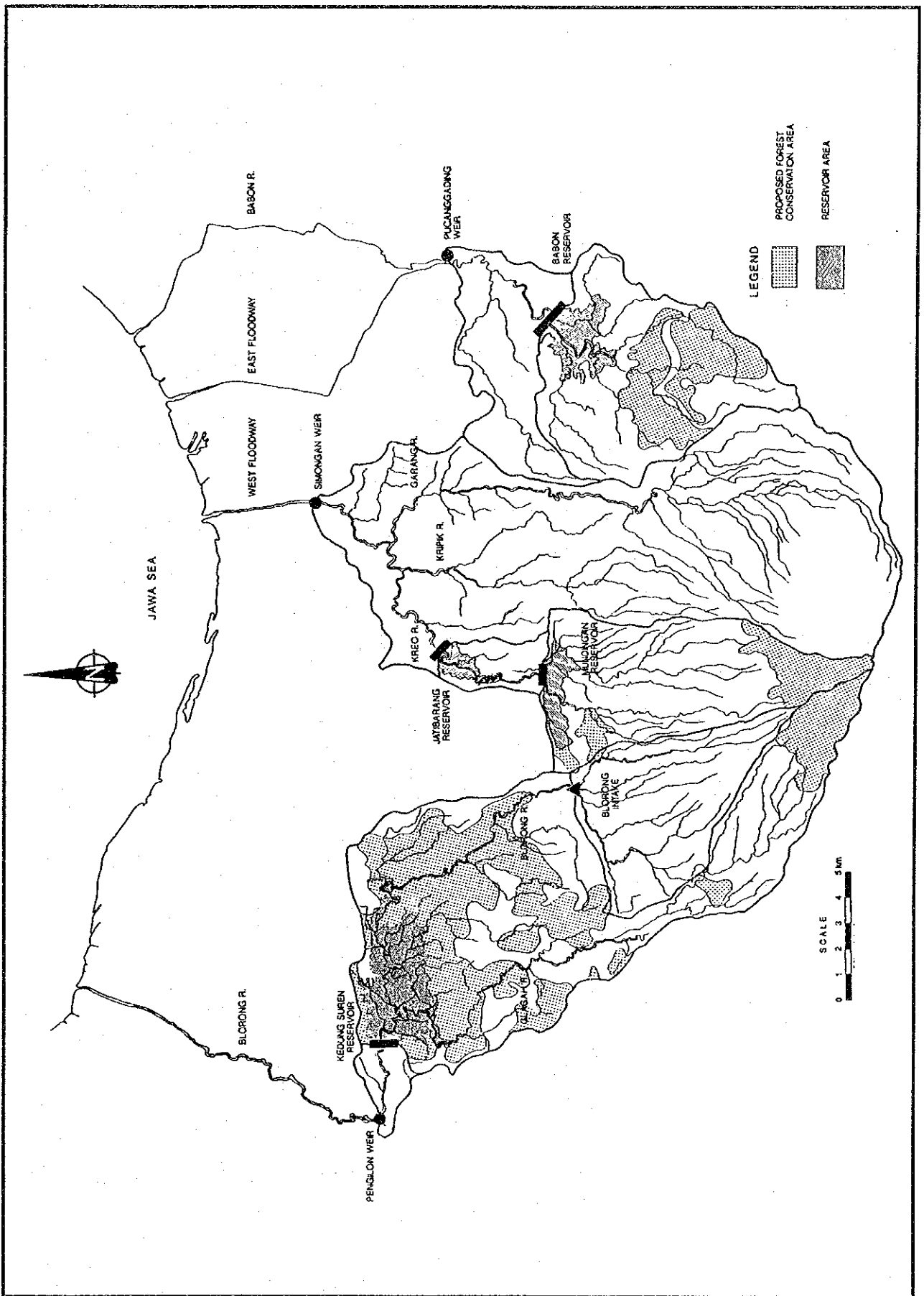
 Implemented by Master Plan

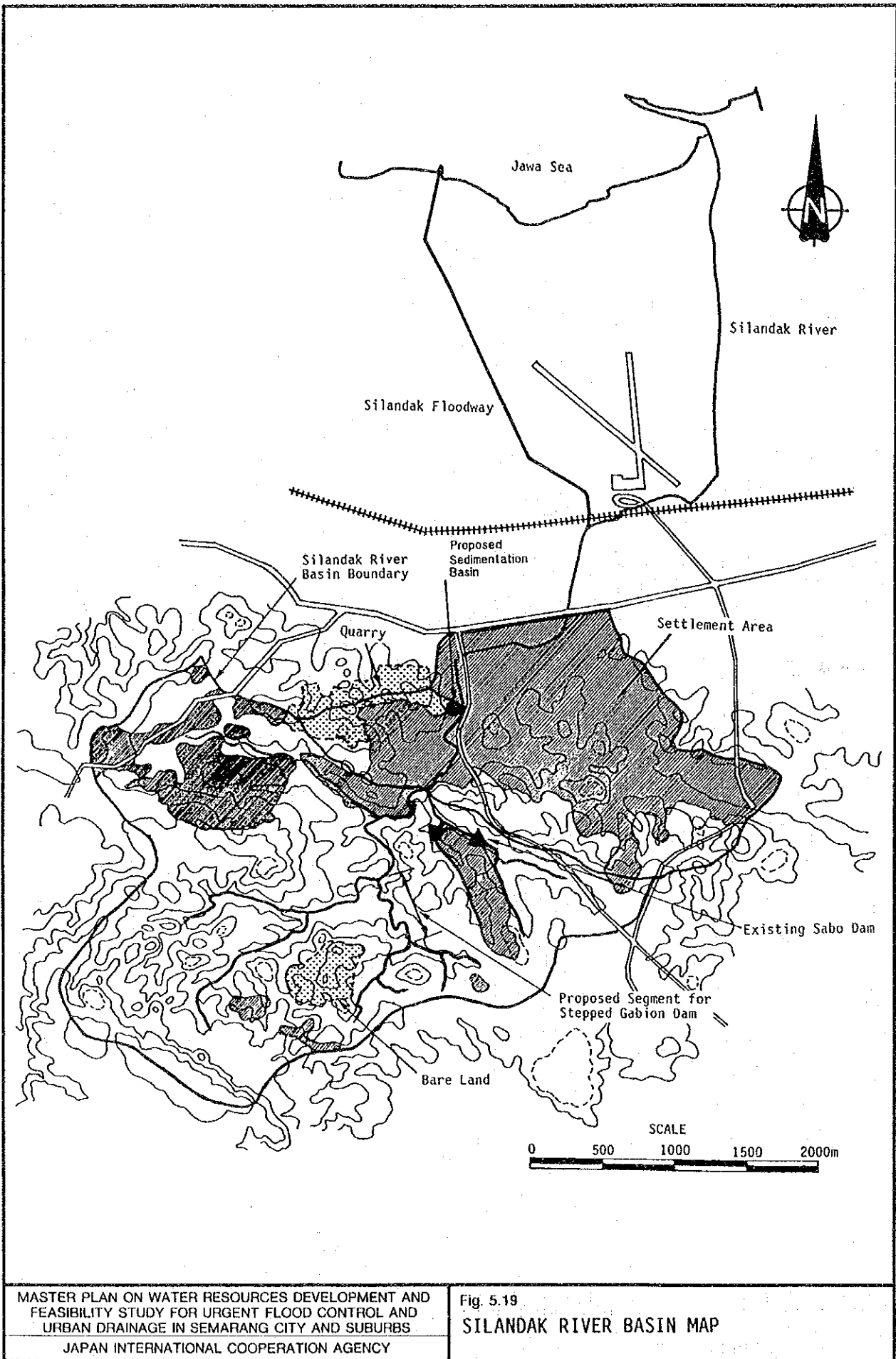
Fig. 5.17

IMPLEMENTATION SCHEDULE FOR MASTER PLAN OF WATER SUPPLY WORKS



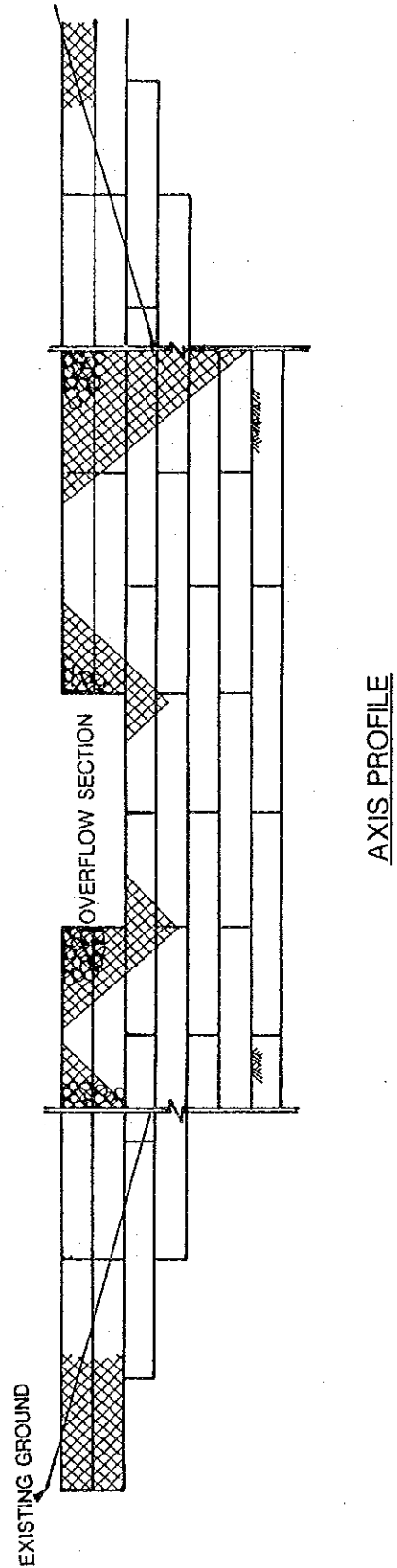
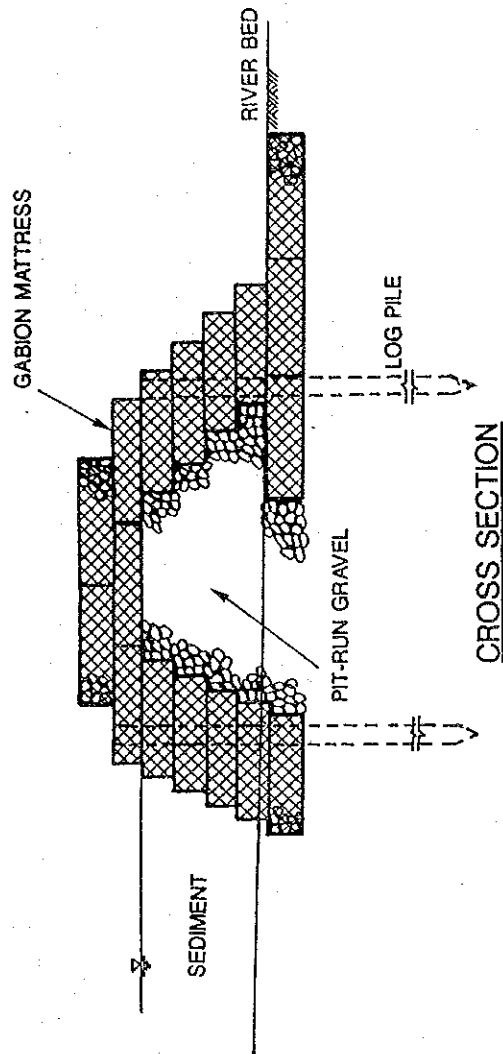
MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 5.18
 PROPOSED FOREST CONSERVATION AREA
 IN THE RESERVOIR WATERSHED



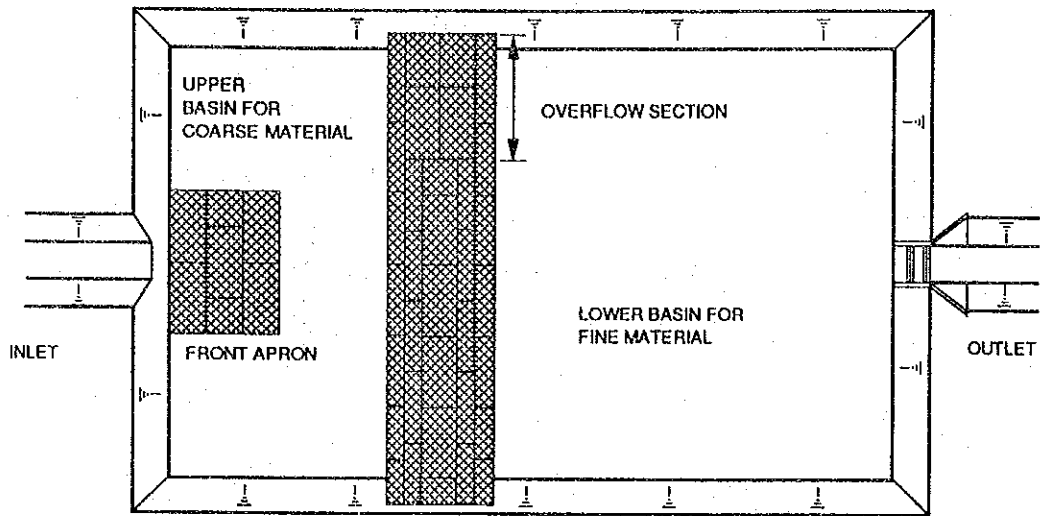
MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
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Fig. 5.19
 SILANDAK RIVER BASIN MAP

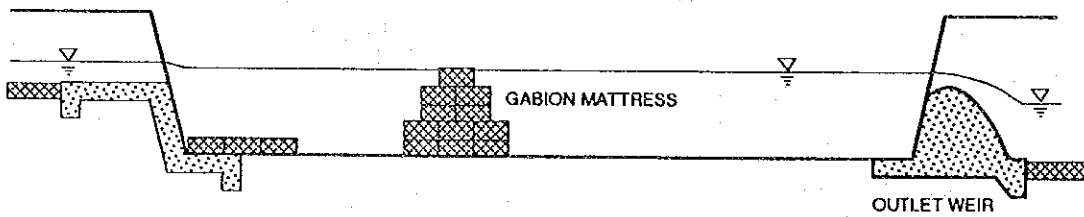


MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
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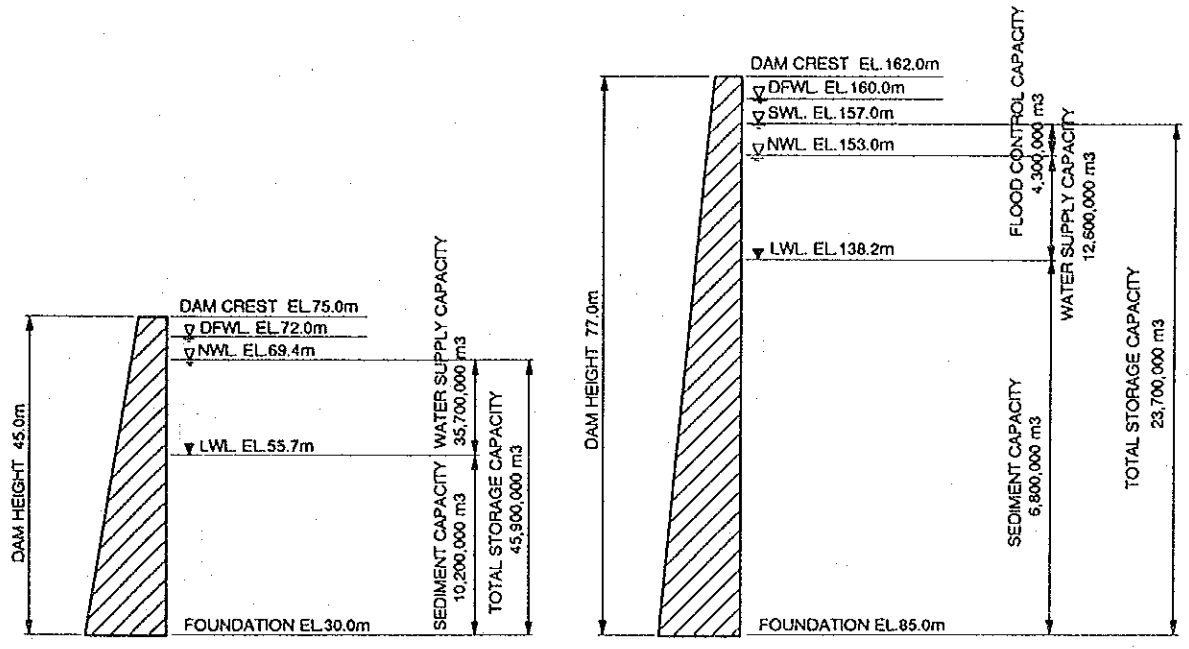
Fig. 5.20
 STANDARD FEATURES OF GABION DAM



PLAN

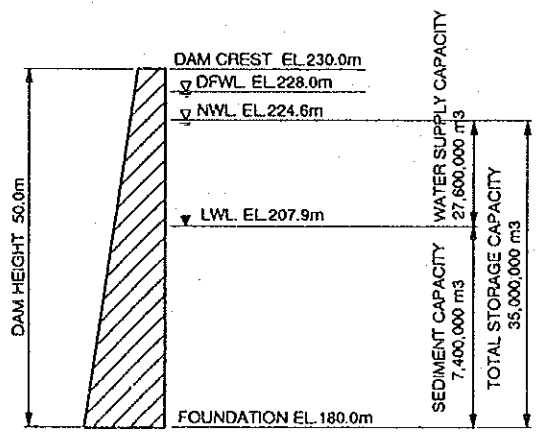


CROSS SECTION

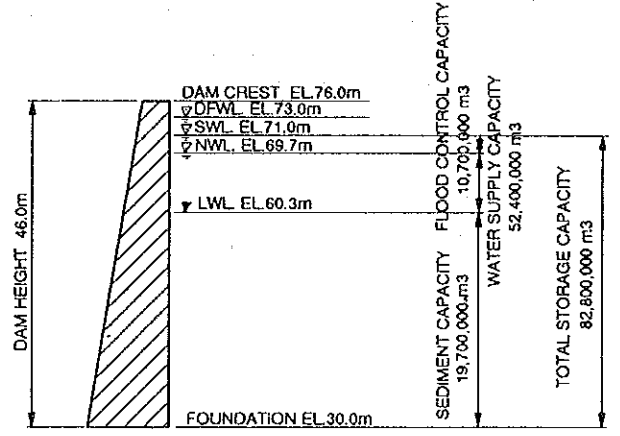


BABON DAM

JATIBARANG DAM



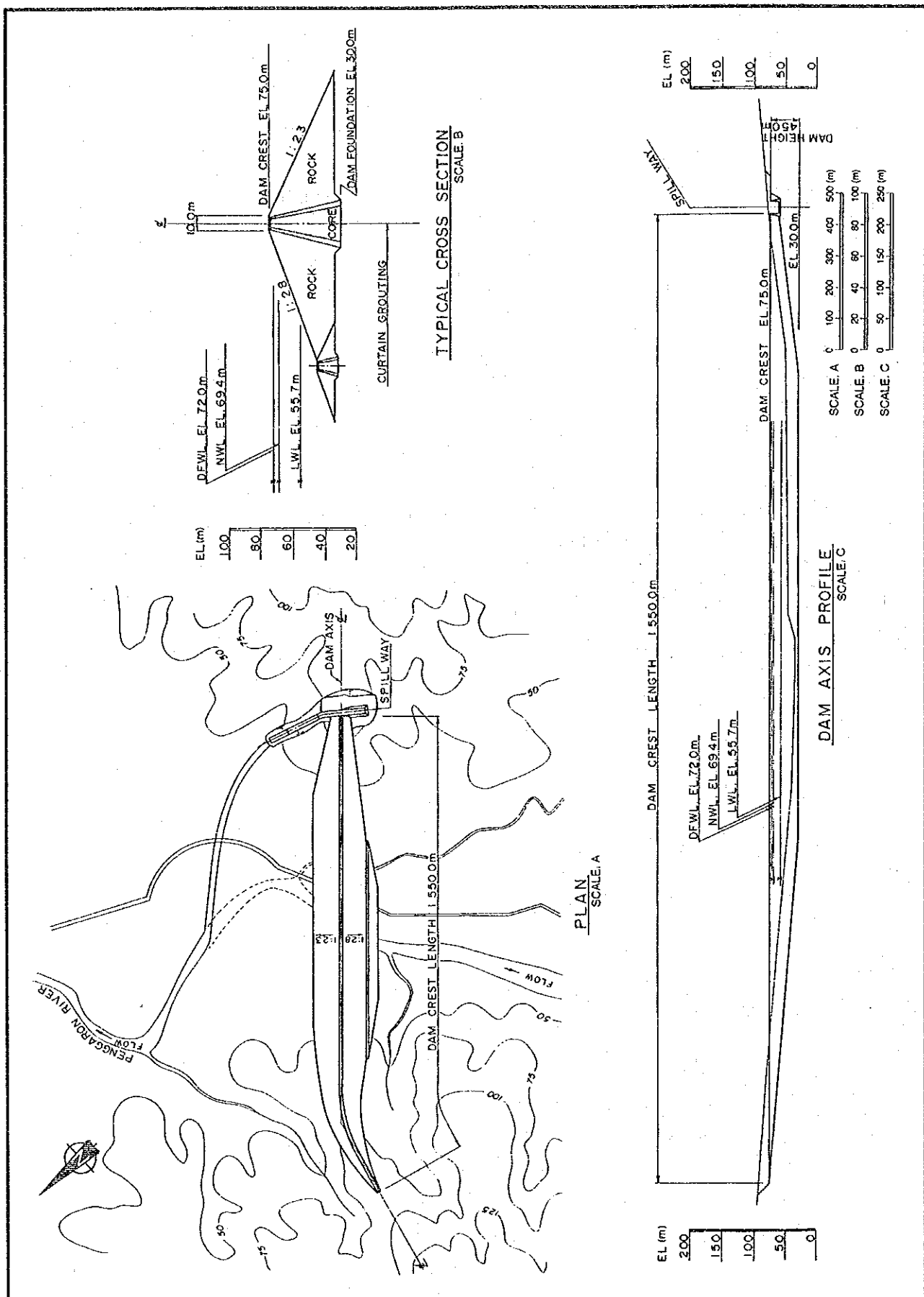
MUNDINGAN DAM



KEDUNG SUREN DAM

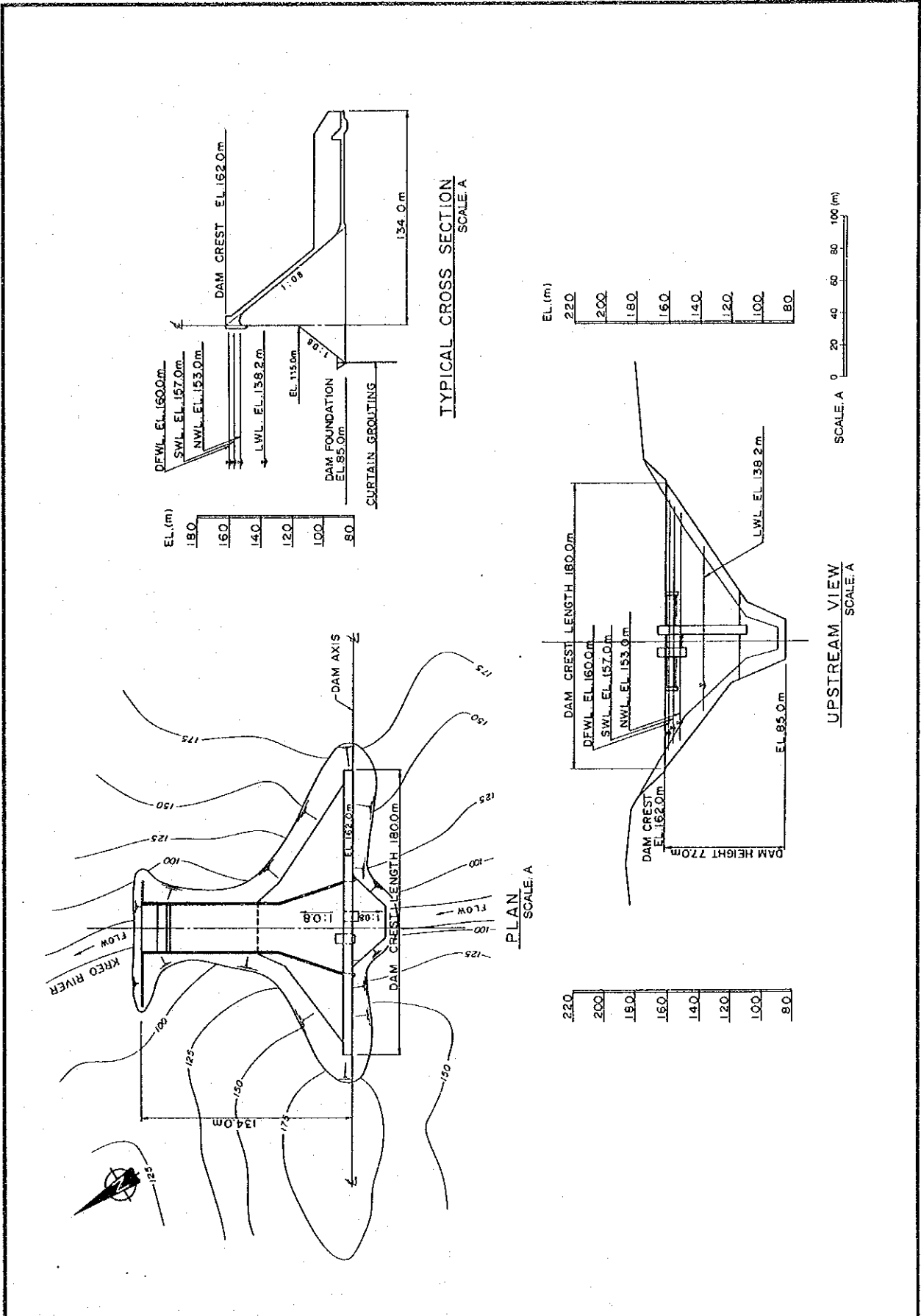
MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 5.22 RESERVOIR CAPACITY ALLOCATION OF PROPOSED DAM



MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
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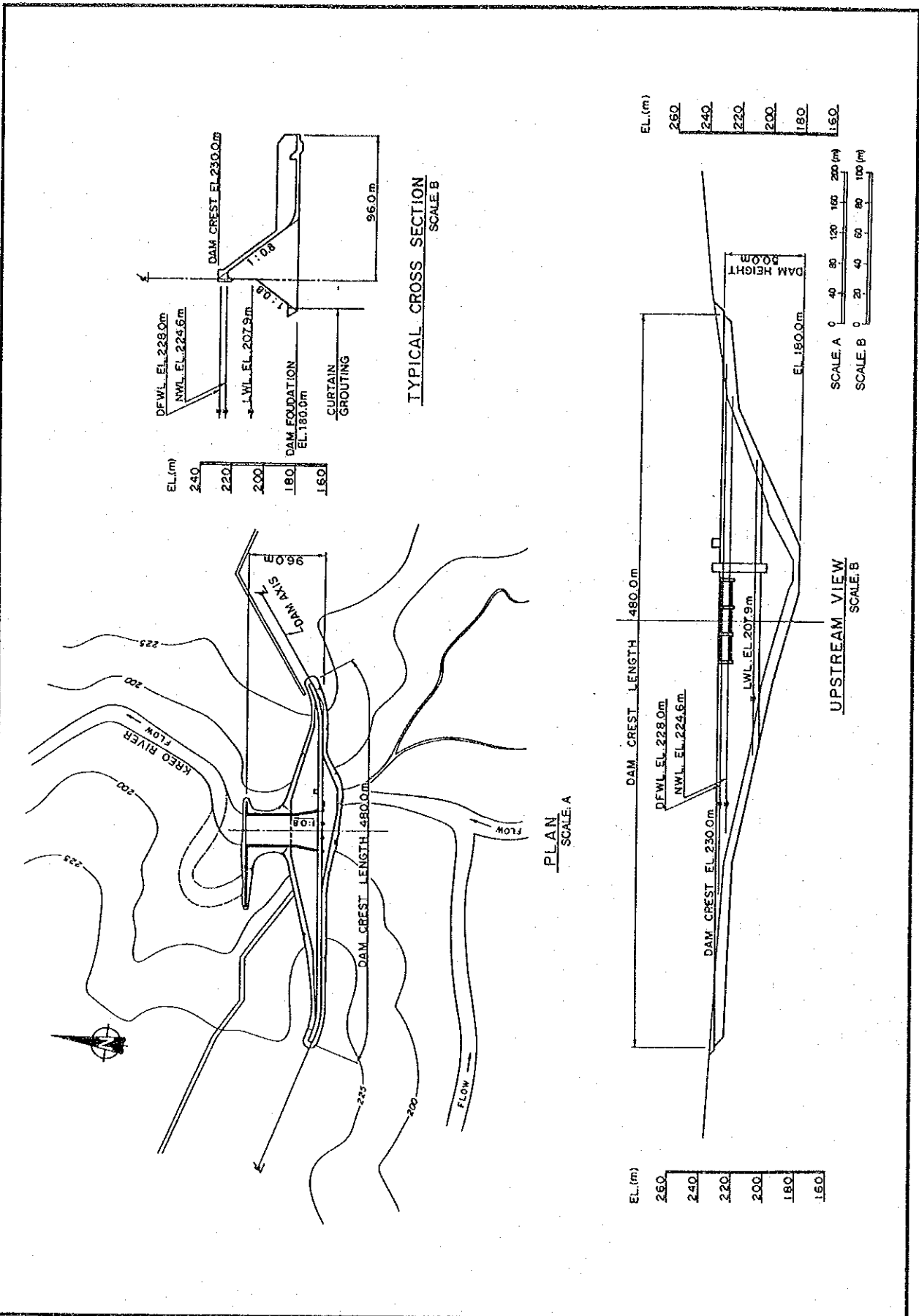
Fig. 5.23 (1/4)
 GENERAL DRAWING OF BABON DAM



MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
 JAPAN INTERNATIONAL COOPERATION AGENCY

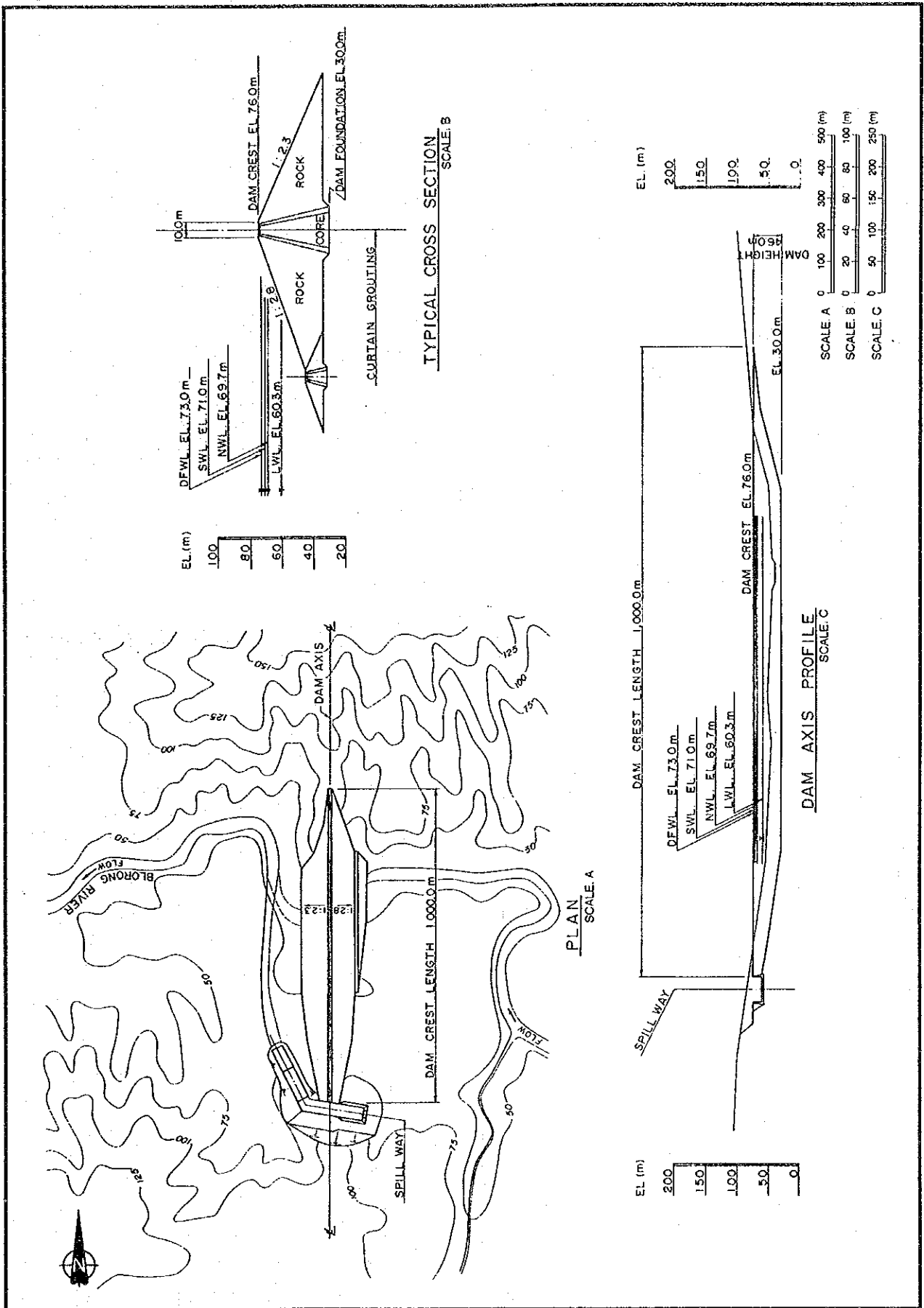
Fig. 5.23 (2/4)

GENERAL DRAWING OF JATIBARANG DAM



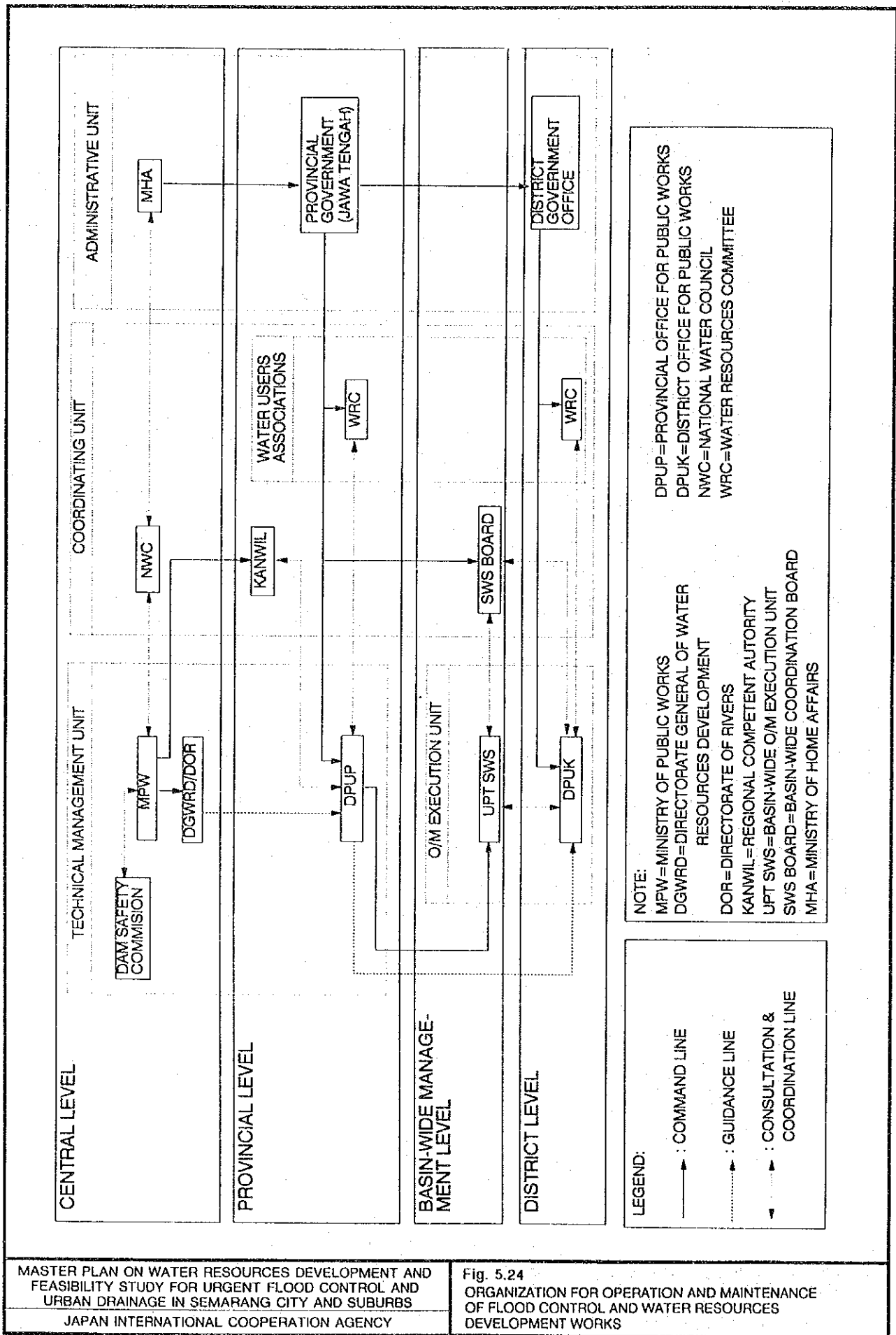
MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 5.23 (3/4)
 GENERAL DRAWING OF MUNDINGAN DAM



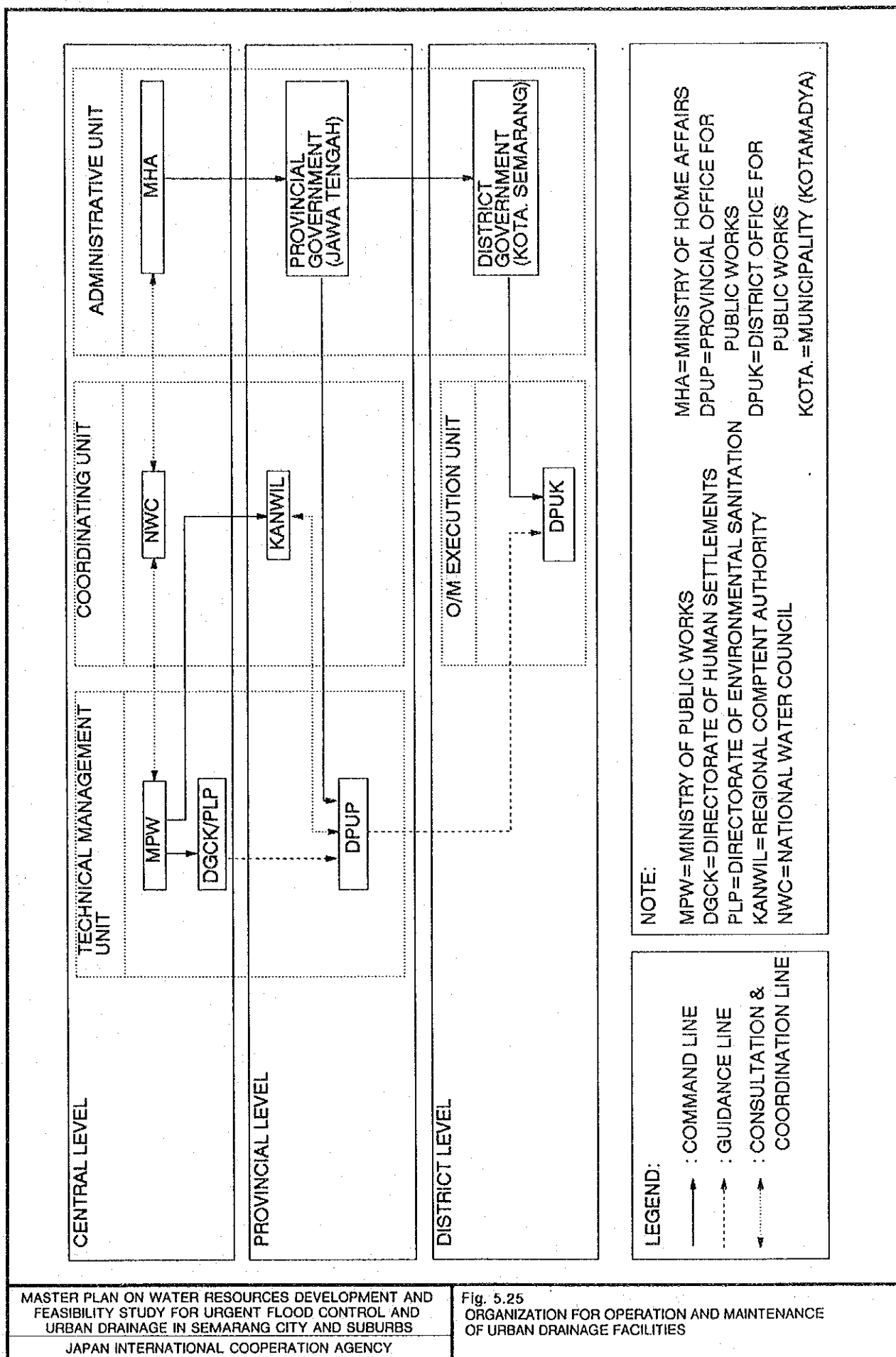
MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 5.23 (4/4)
 GENERAL DRAWING OF KEDUNG SUREN DAM



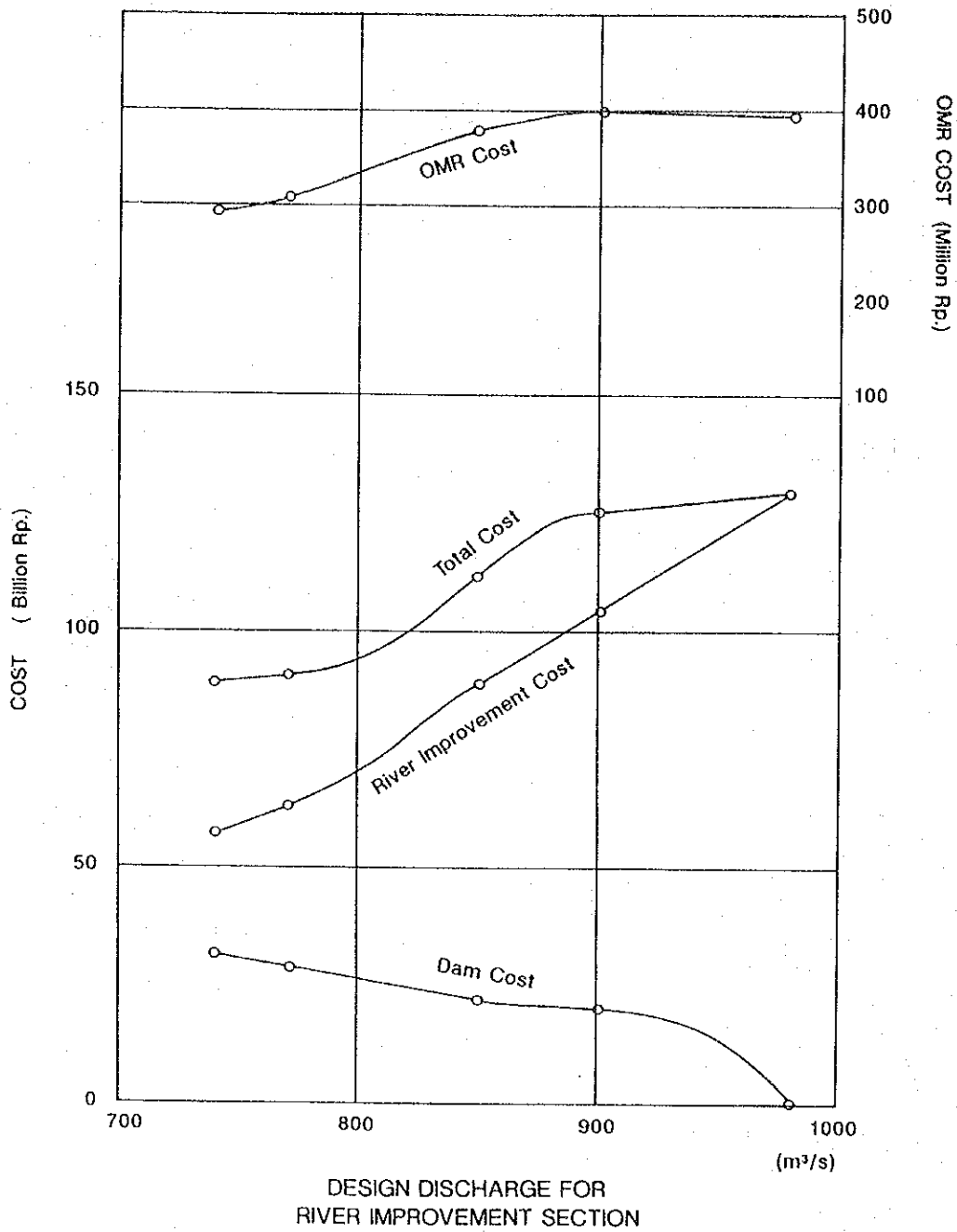
MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
JAPAN INTERNATIONAL COOPERATION AGENCY

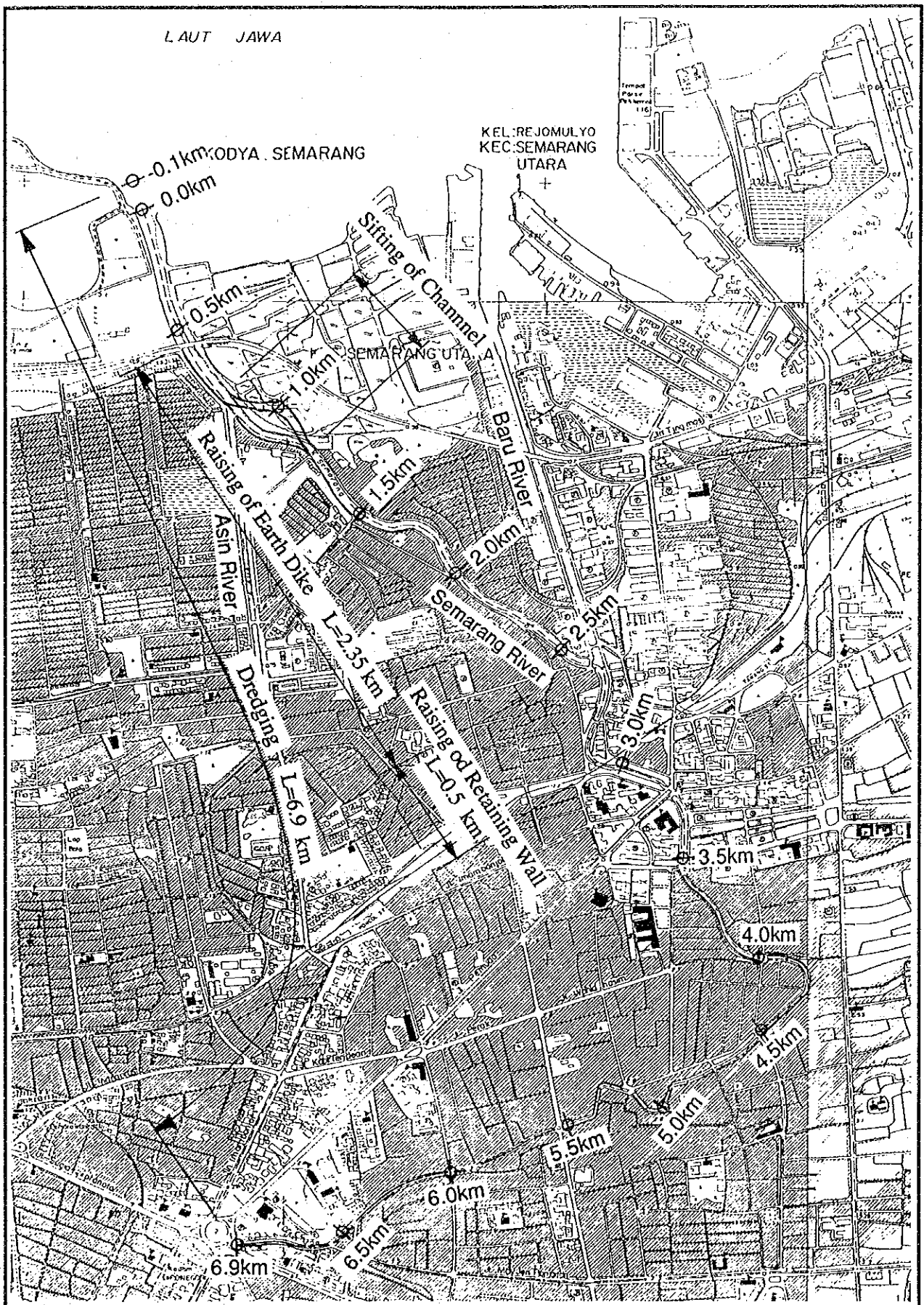
Fig. 5.24 ORGANIZATION FOR OPERATION AND MAINTENANCE OF FLOOD CONTROL AND WATER RESOURCES DEVELOPMENT WORKS



MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
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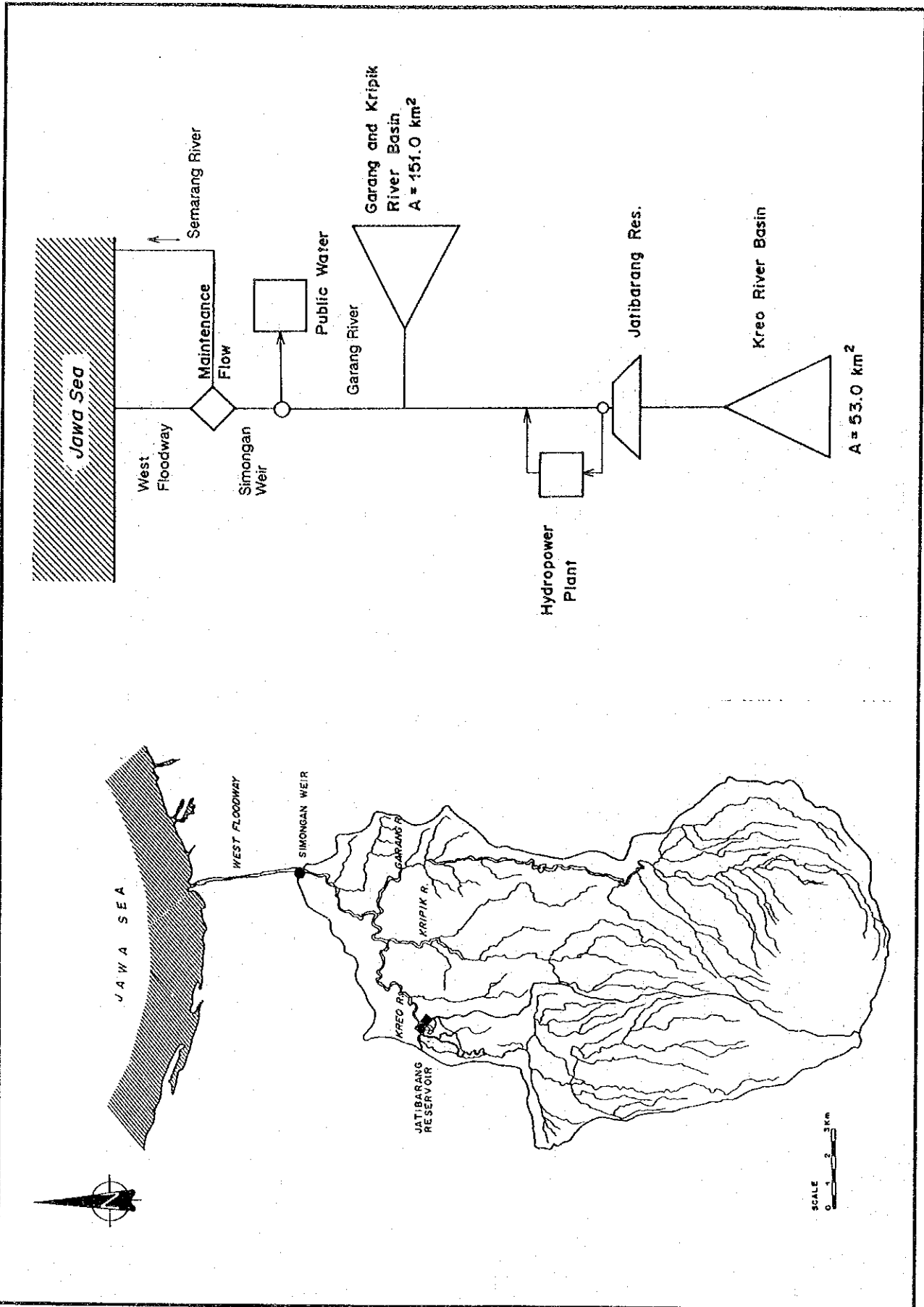
Fig. 5.25
 ORGANIZATION FOR OPERATION AND MAINTENANCE
 OF URBAN DRAINAGE FACILITIES





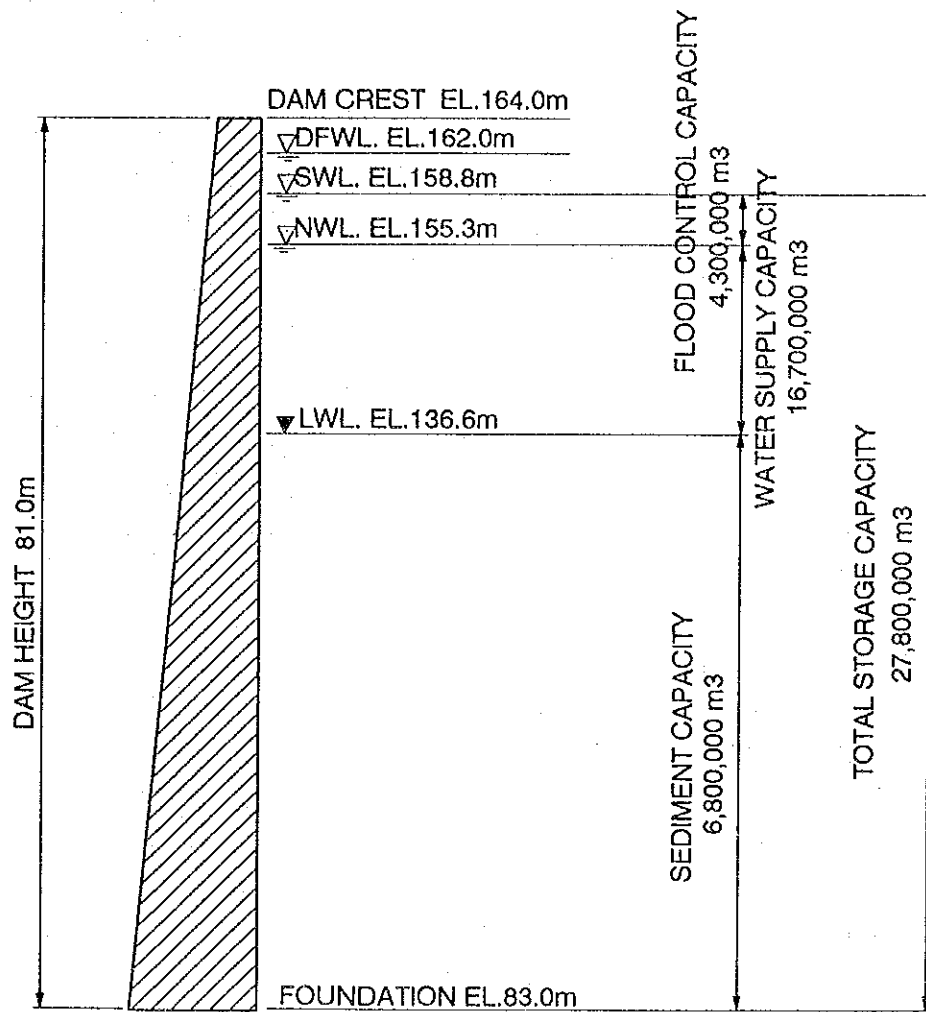
MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
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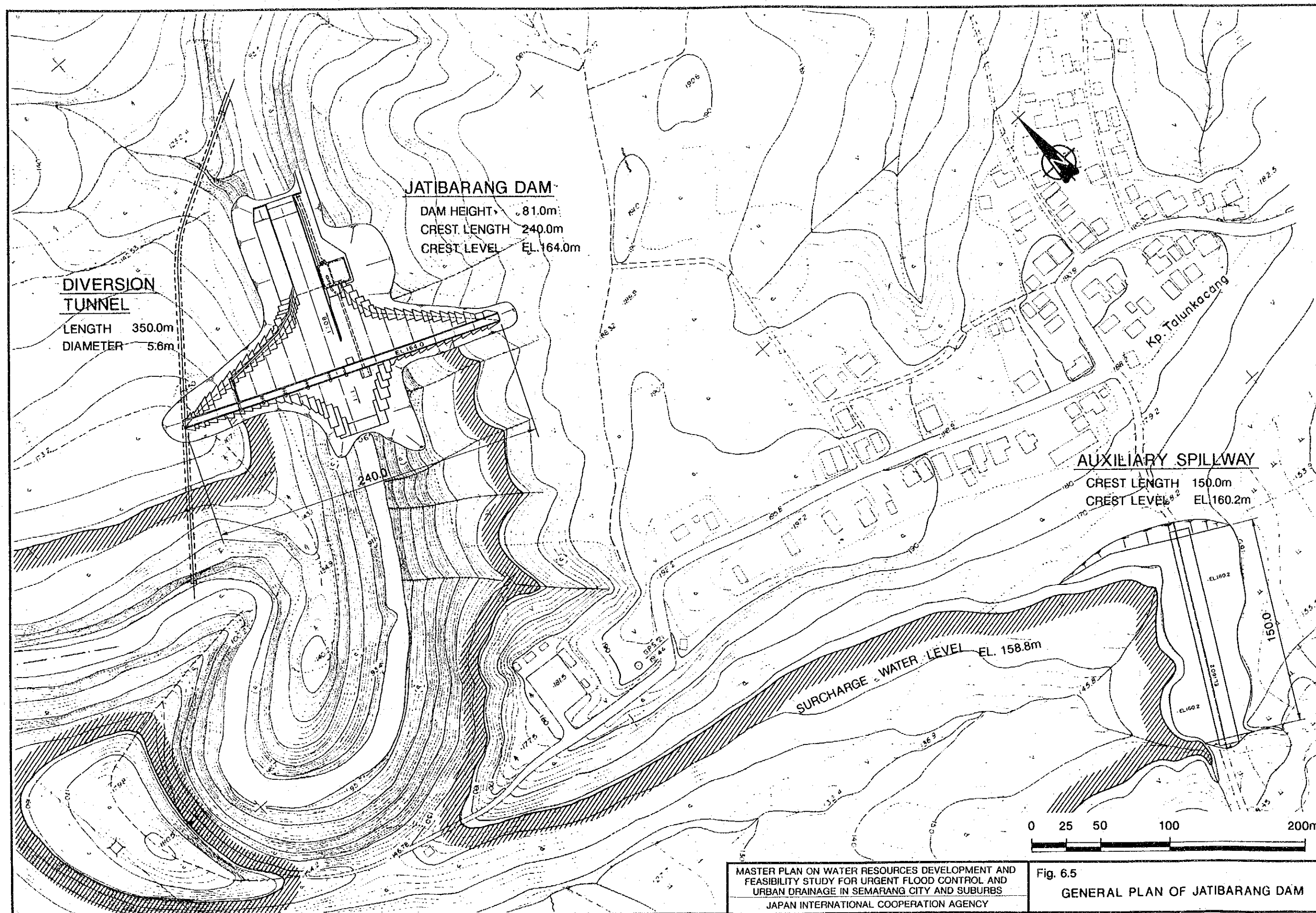
Fig. 6.2
 PLAN OF PROPOSED SEMARANG RIVER
 IMPROVEMENT



MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
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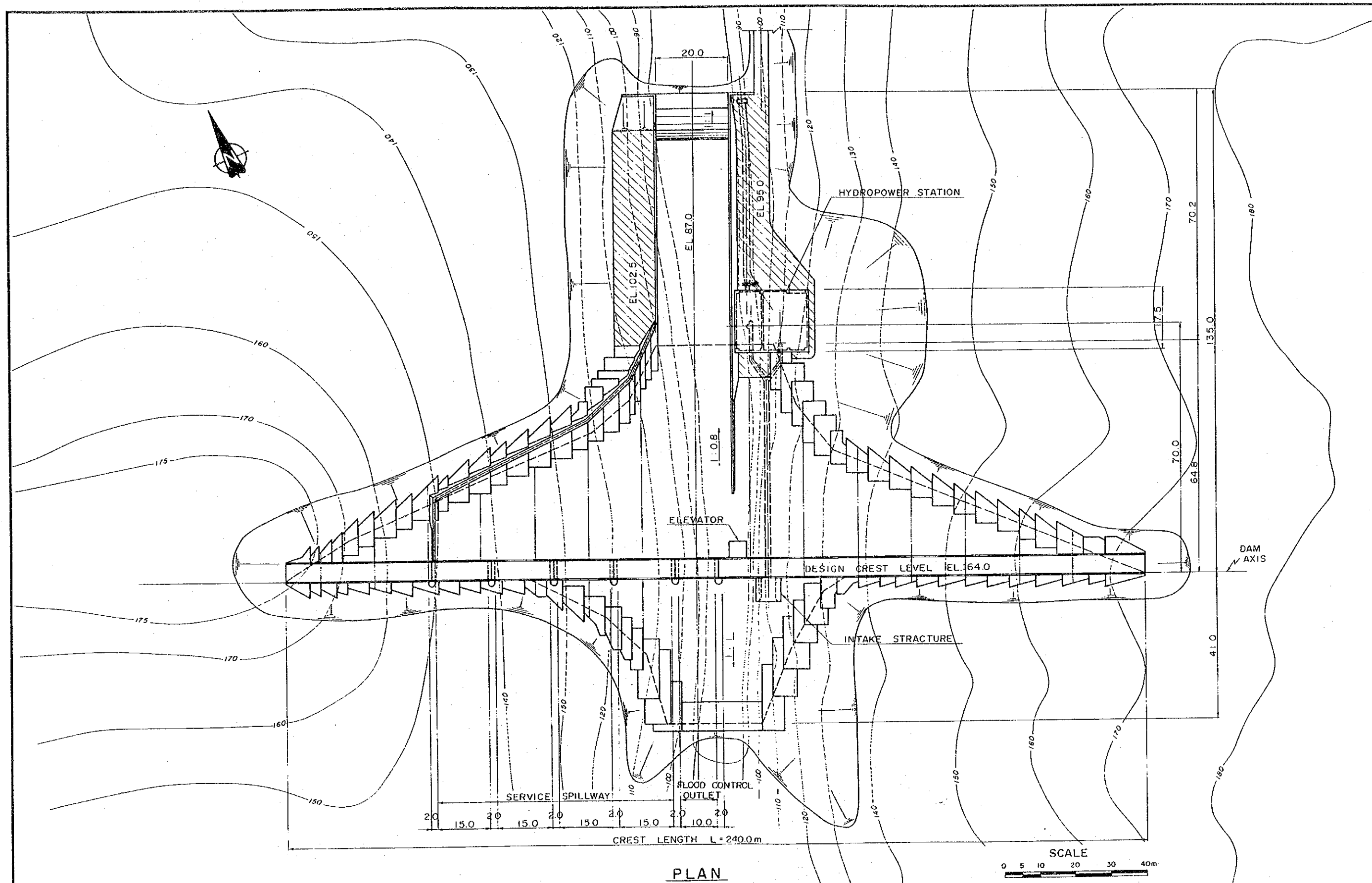
Fig. 6.3
 LOCATION OF JATIBARANG RESERVOIR AND
 SCHEMATIC DIAGRAM OF WATER BALANCE MODEL





MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
 JAPAN INTERNATIONAL COOPERATION AGENCY

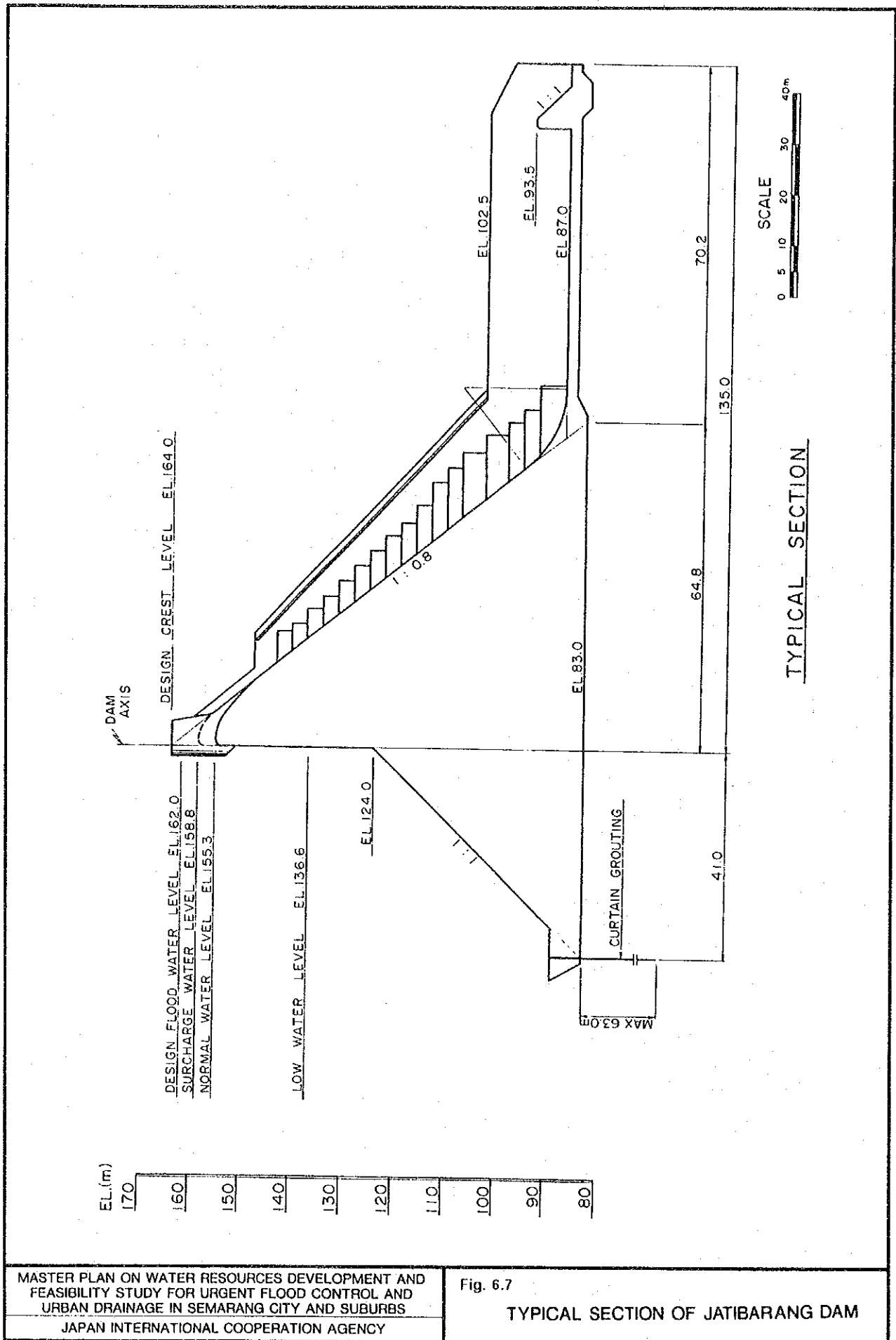
Fig. 6.5
 GENERAL PLAN OF JATIBARANG DAM



MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
 JAPAN INTERNATIONAL COOPERATION AGENCY

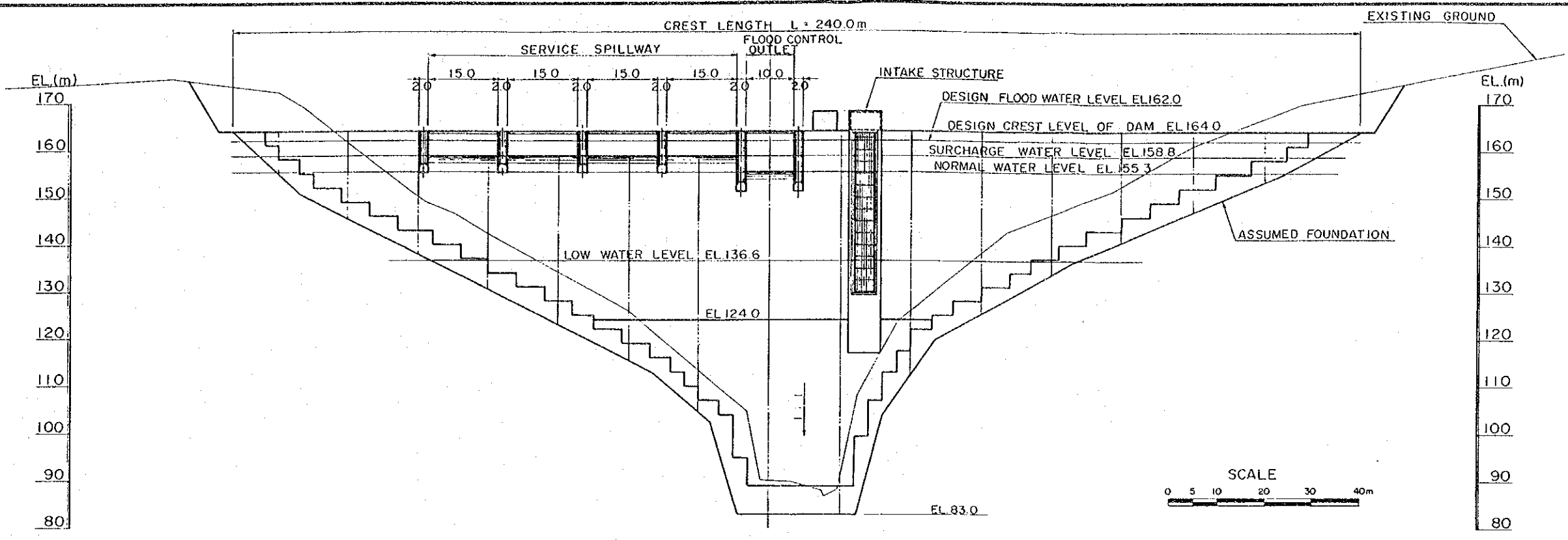
Fig. 6.6

PLAN OF JATIBARANG DAM

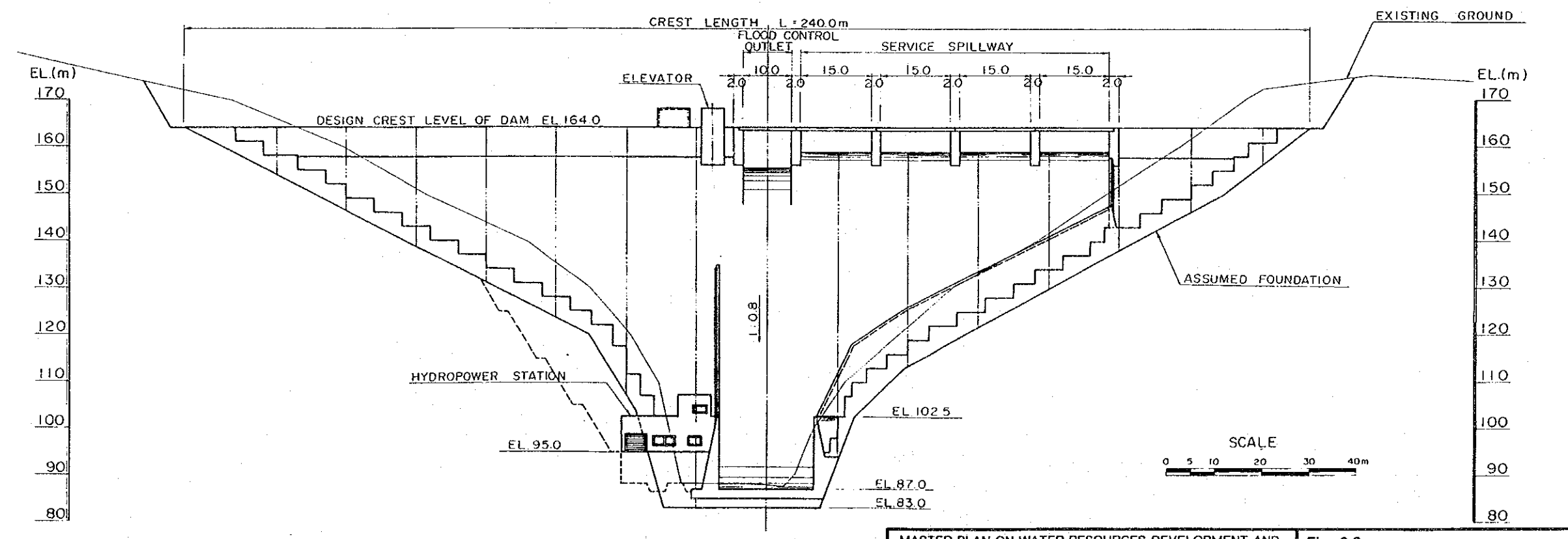


MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 6.7
 TYPICAL SECTION OF JATIBARANG DAM



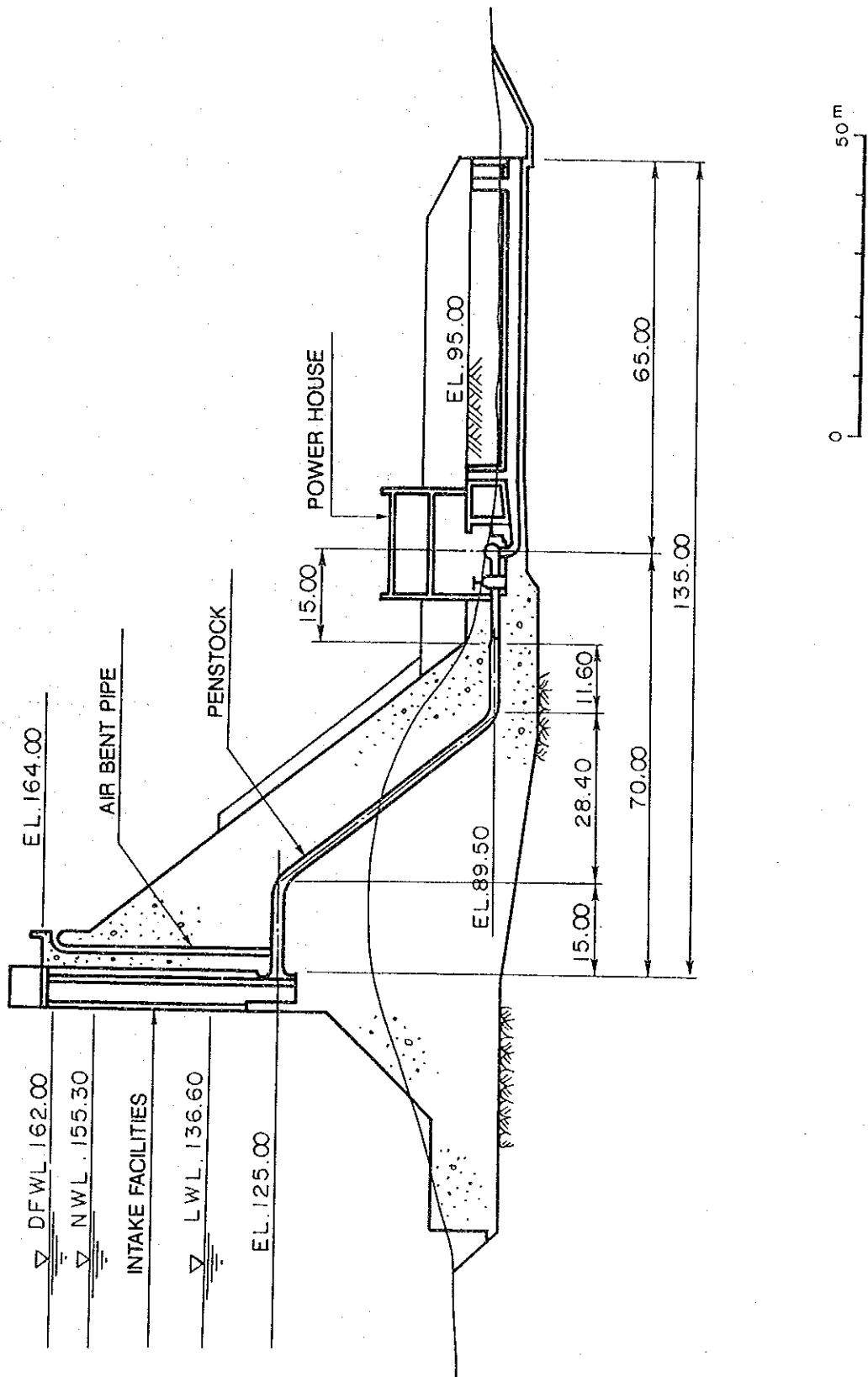
UPSTREAM VIEW



DOWNSTREAM VIEW

MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 6.8
 UPSTREAM AND DOWNSTREAM
 VIEW OF JATIBARANG DAM



MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
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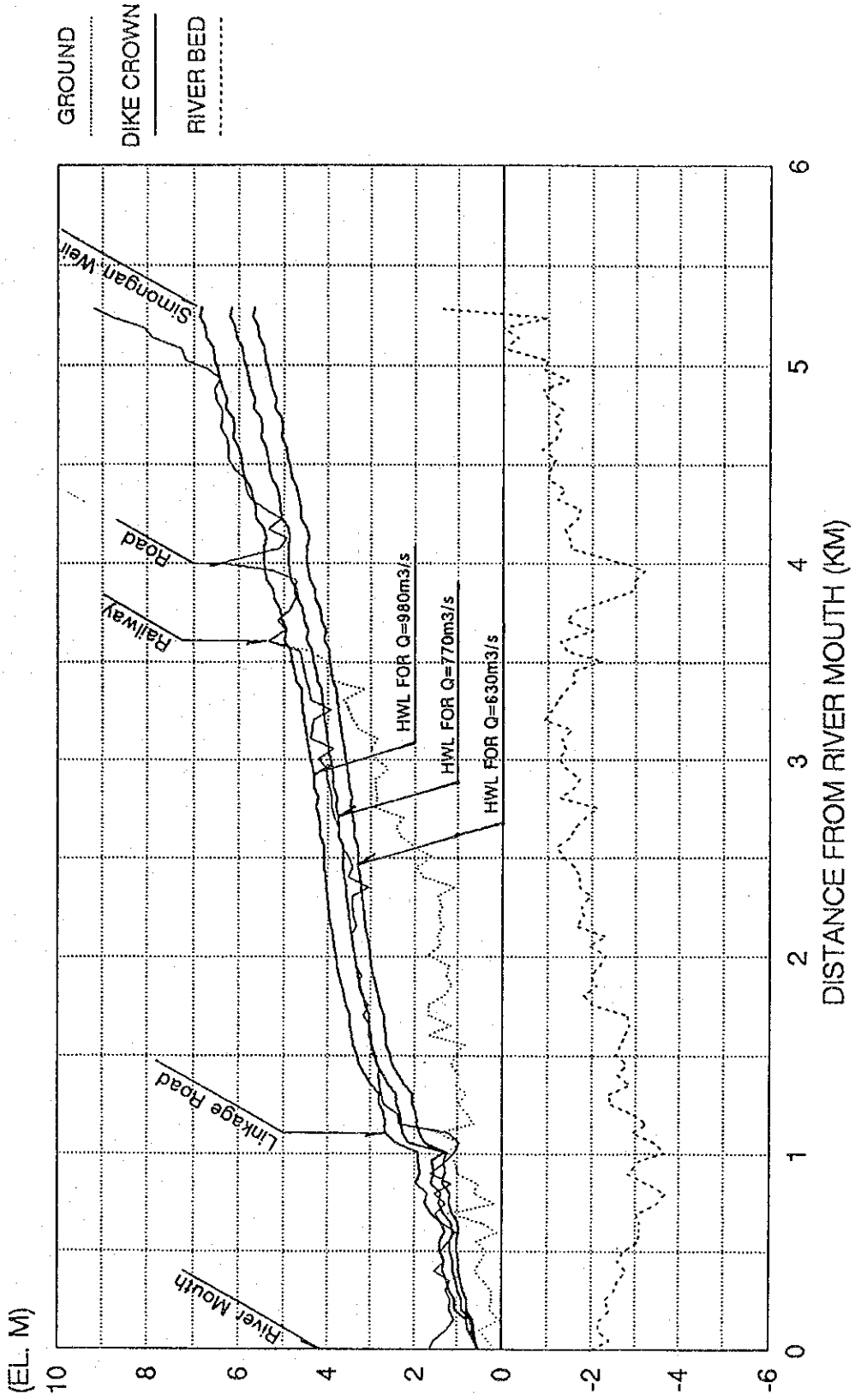
Fig. 6.9

SECTION OF PENSTOCK AND
HYDROPOWER STATION

Description		1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Flood Control Plan	River Improvement Works for West Floodway/ Garang River		■			■	■					
	Jatibarang Dam Construction Works		■	■	■	■	■					
Water Resources Development Plan	Hydropower Station Construction Works		■			■	■					
	Urban Drainage Plan				■	■	■	■				

- Detailed Design
- ▣ Land Acquisition
- Construction Works

WEST FLOODWAY



MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 7.1

PROBABLE HIGH WATER LEVEL FOR
 EXISTING RIVER CHANNEL
 (WEST FLOODWAY)

GARANG RIVER

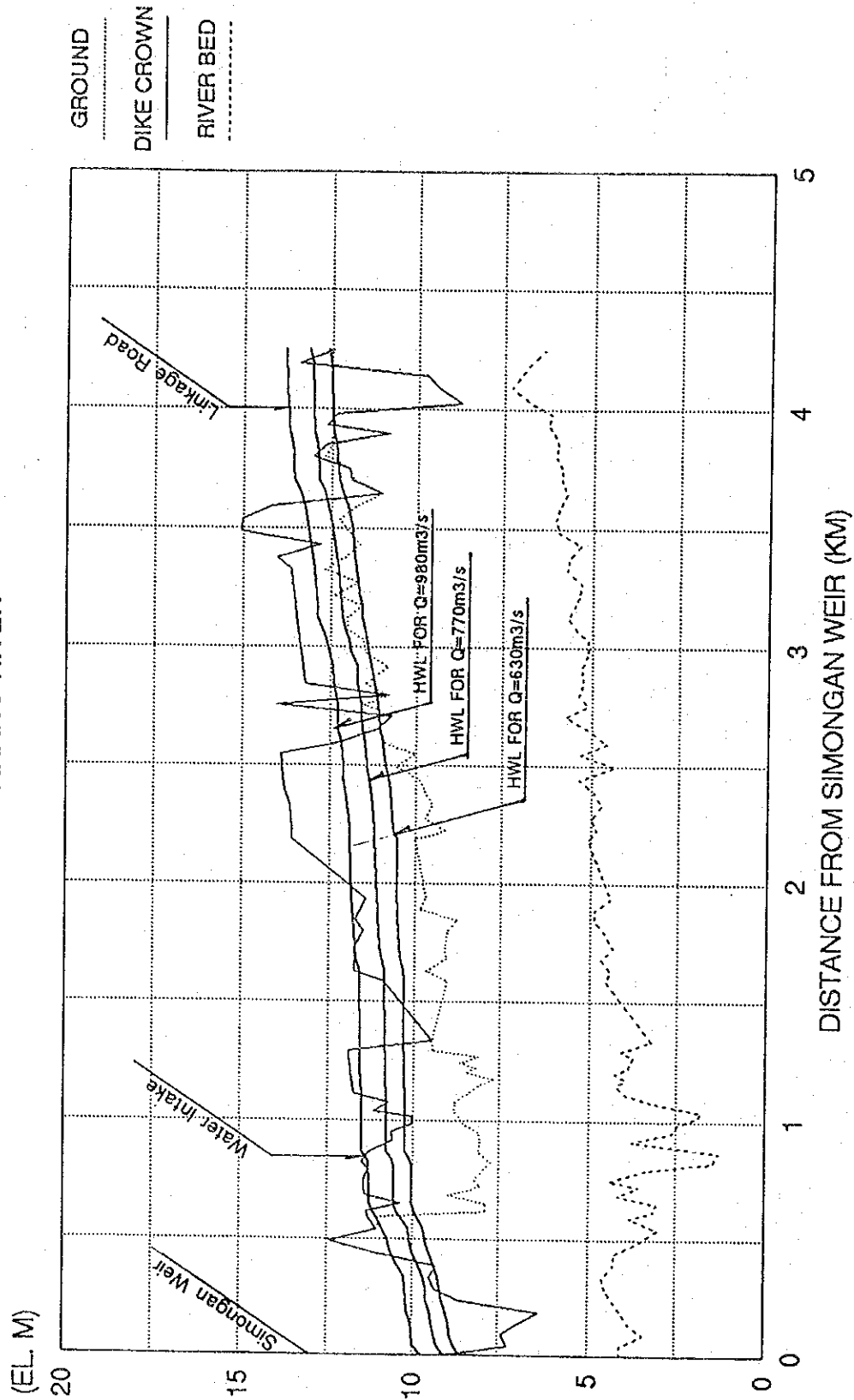
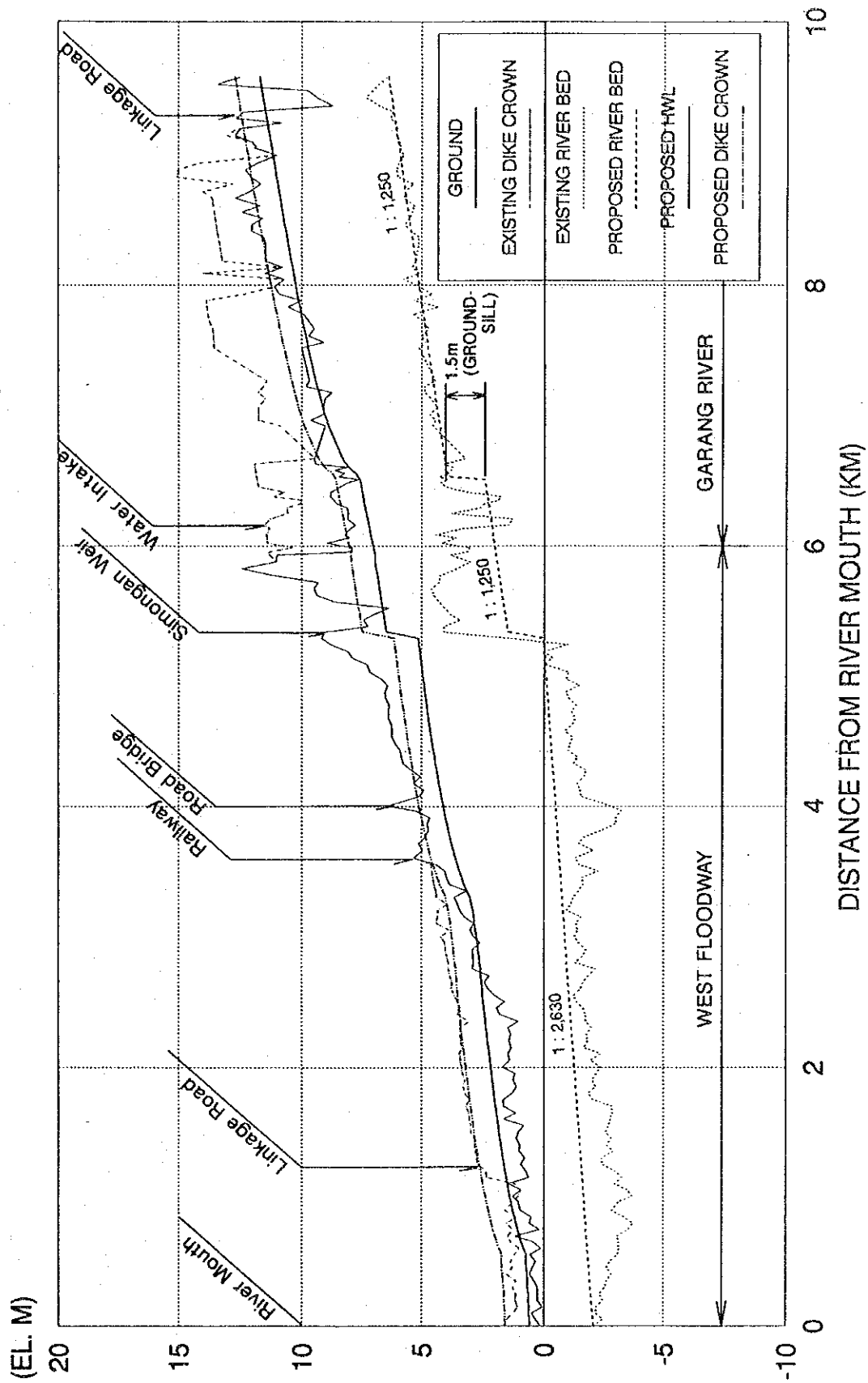


Fig. 7.2

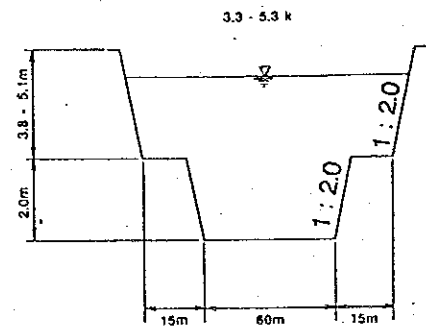
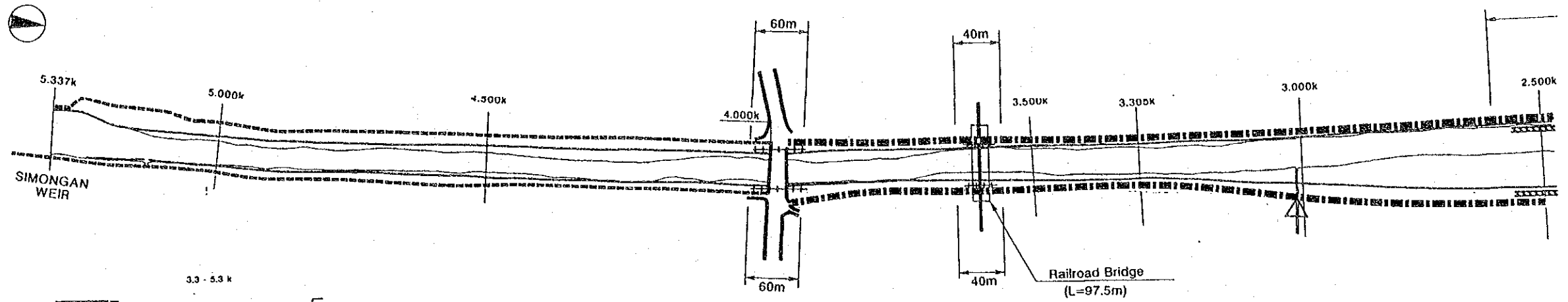
PROBABLE HIGH WATER LEVEL FOR
 EXISTING RIVER CHANNEL
 (GARANG RIVER)



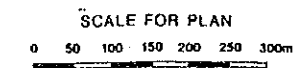
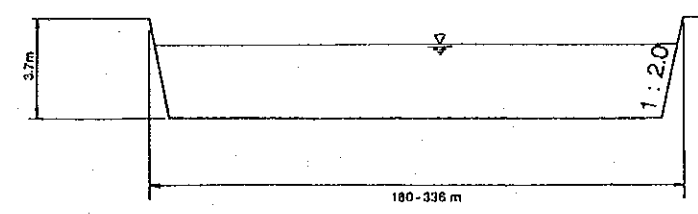
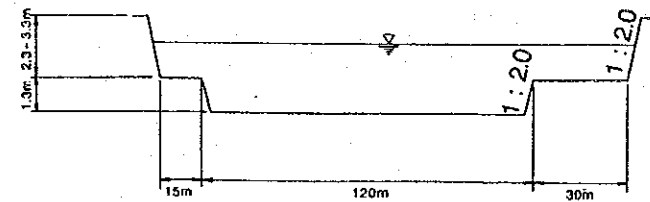
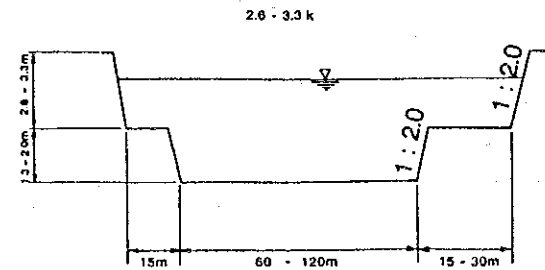
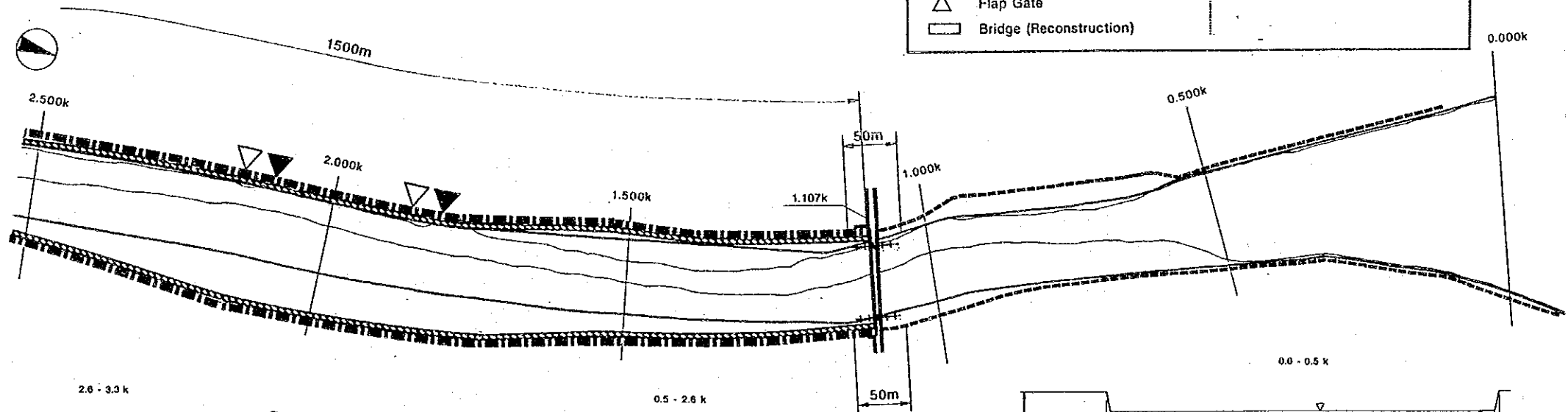
MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 7.3

LONGITUDINAL PROFILE PROPOSED FOR THE OPTIMUM
 RIVER IMPROVEMENT PLAN

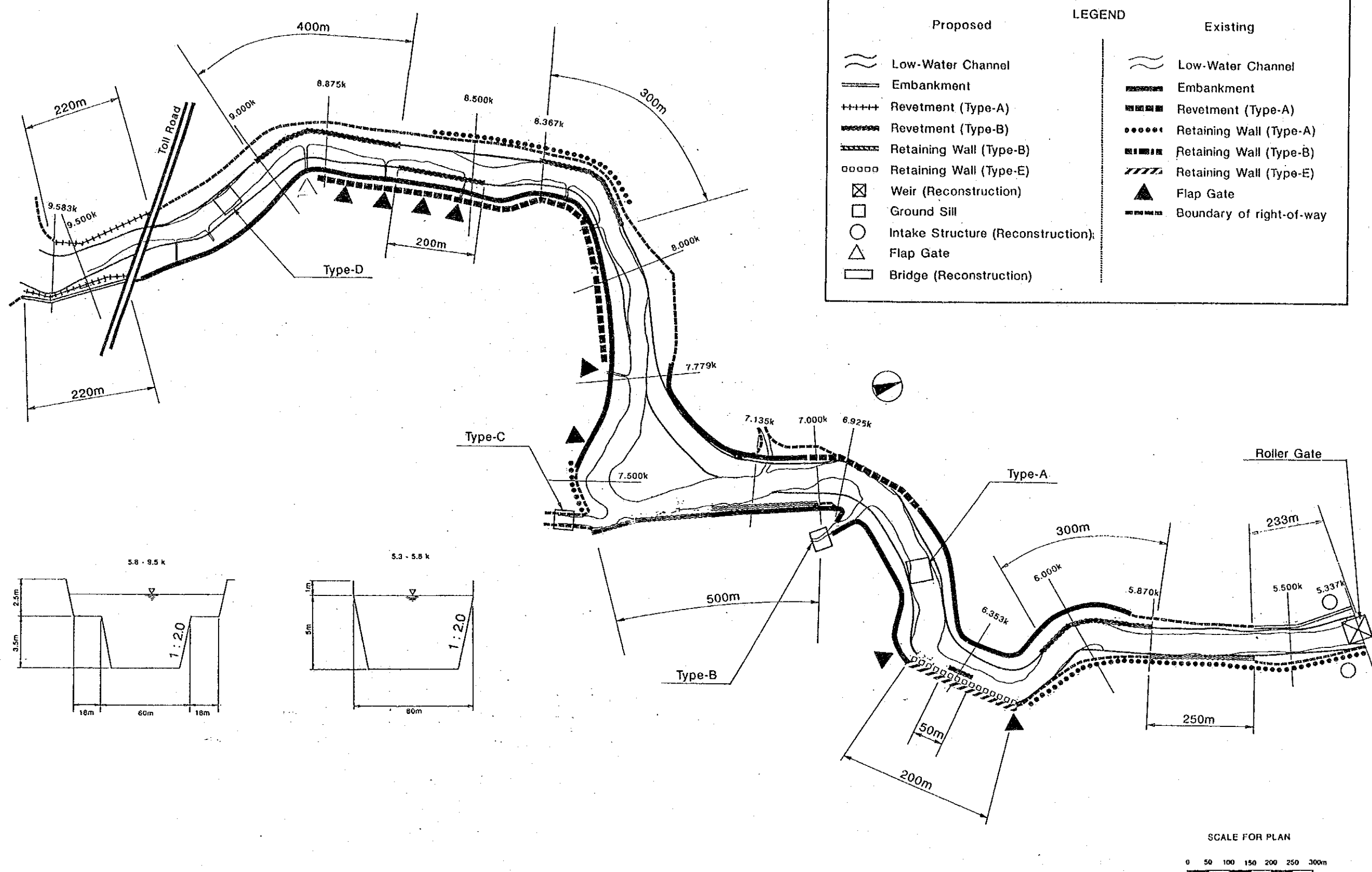


Proposed		Existing	
	Low-Water Channel		Low-Water Channel
	Embankment		Embankment
	Revetment (Type-A)		Revetment (Type-A)
	Revetment (Type-B)		Revetment (Type-B)
	Retaining Wall (Type-B)		Retaining Wall (Type-B)
	Retaining Wall (Type-E)		Retaining Wall (Type-E)
	Weir (Reconstruction)		Flap Gate
	Ground Sill		Boundary of right-of-way
	Intake Structure (Reconstruction)		
	Flap Gate		
	Bridge (Reconstruction)		



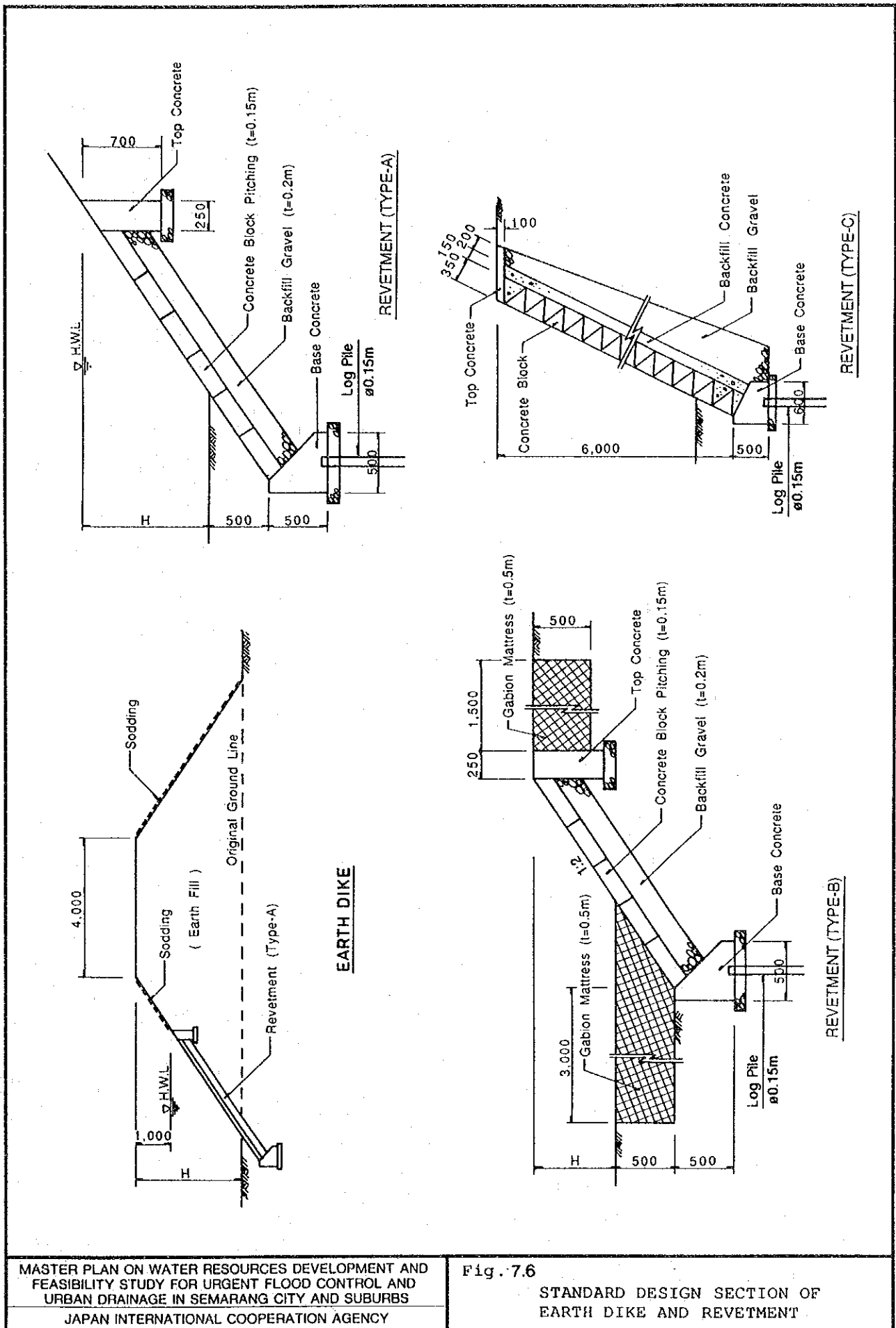
MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 7.4
STANDARD CROSS-SECTION AND ALIGNMENT PROPOSED FOR
THE OPTIMUM RIVER IMPROVEMENT PLAN OF WEST FLOOD-
WAY



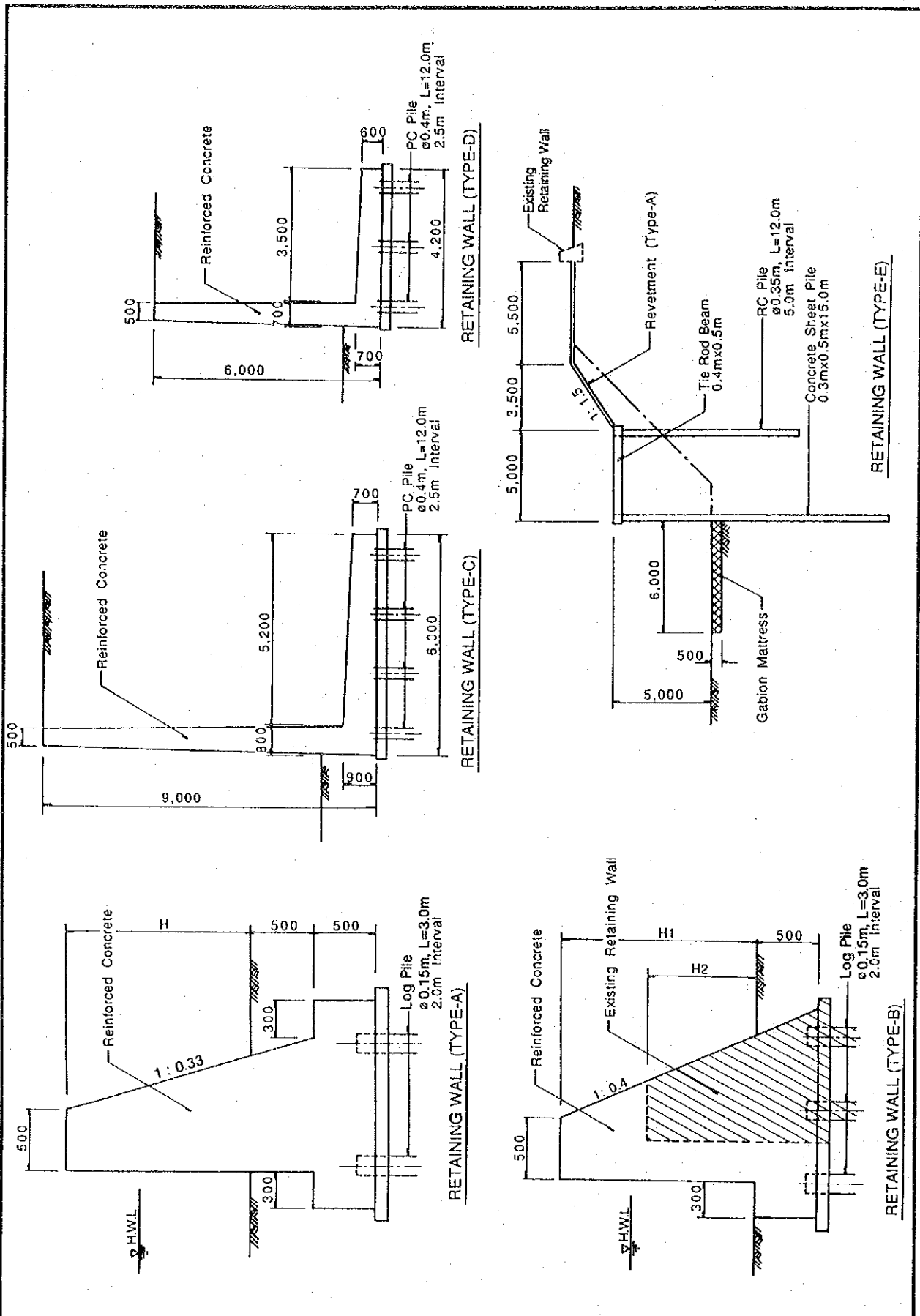
MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
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Fig. 7.5
 STANDARD CROSS-SECTION AND ALIGNMENT PROPOSED FOR
 THE OPTIMUM RIVER IMPROVEMENT PLAN OF GARANG RIVER



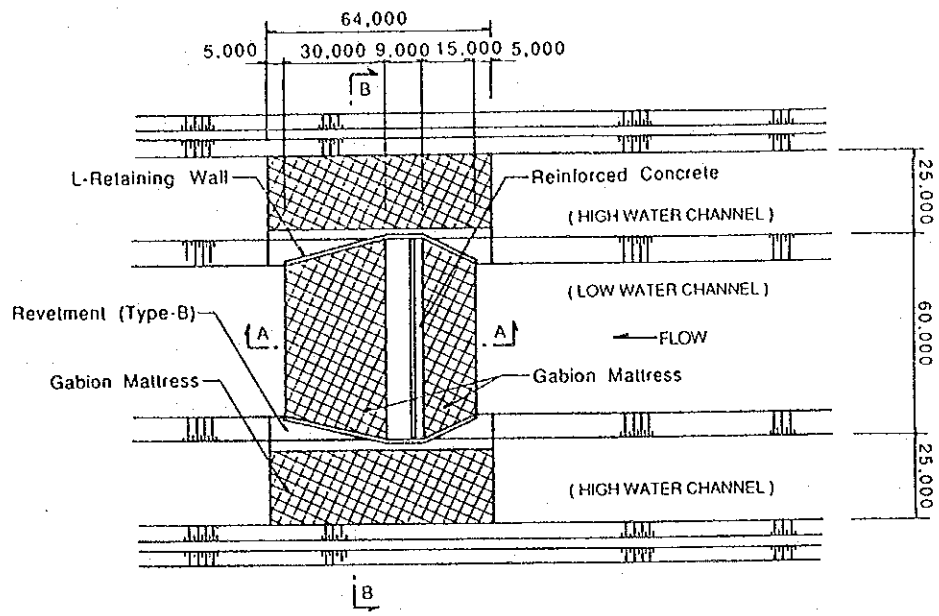
MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 7.6
 STANDARD DESIGN SECTION OF
 EARTH DIKE AND REVETMENT

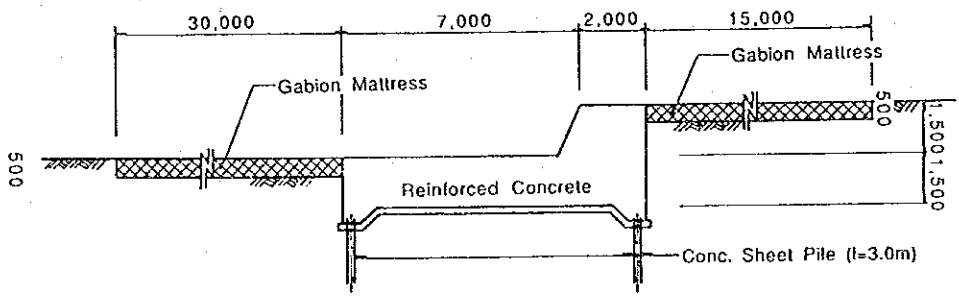


MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
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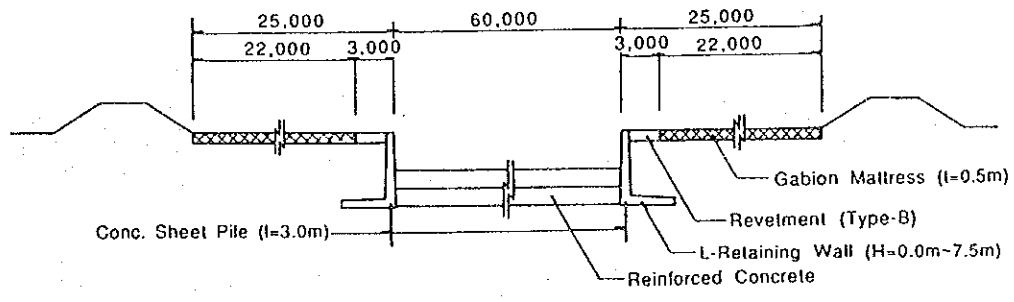
Fig. 7.7
 STANDARD DESIGN SECTION OF
 RETAINING WALL



PLAN



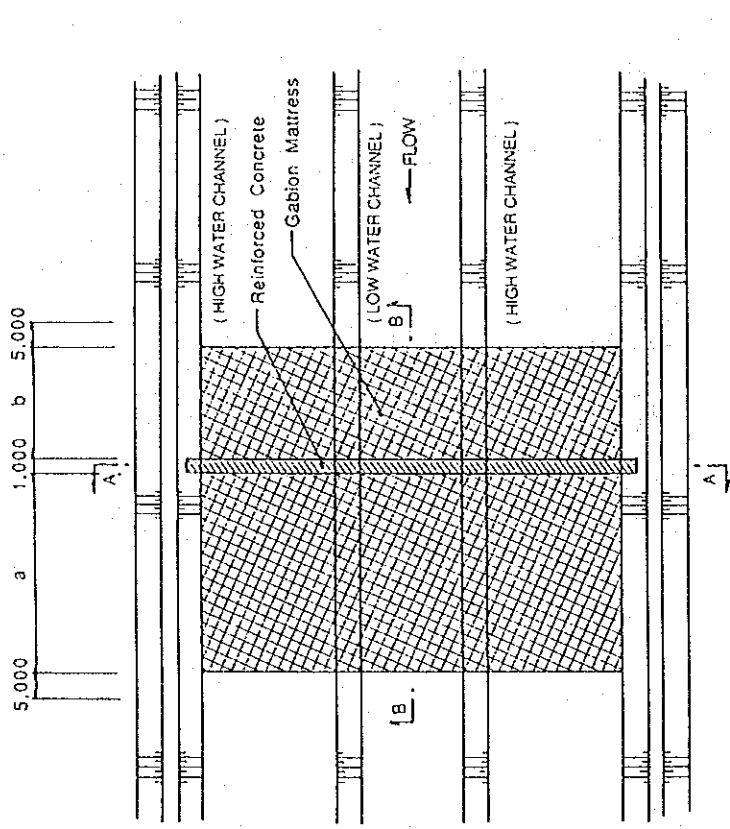
SECTION A-A



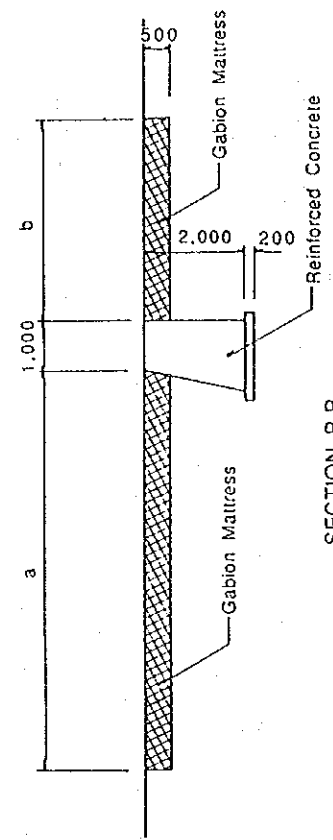
SECTION B-B

MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
 JAPAN INTERNATIONAL COOPERATION AGENCY

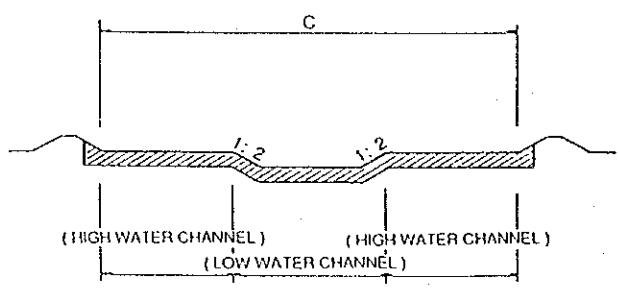
Fig. 7.8 (1/2)
 STANDARD DESIGN OF GROUND SILL
 (TYPE-A)



PLAN



SECTION B-B

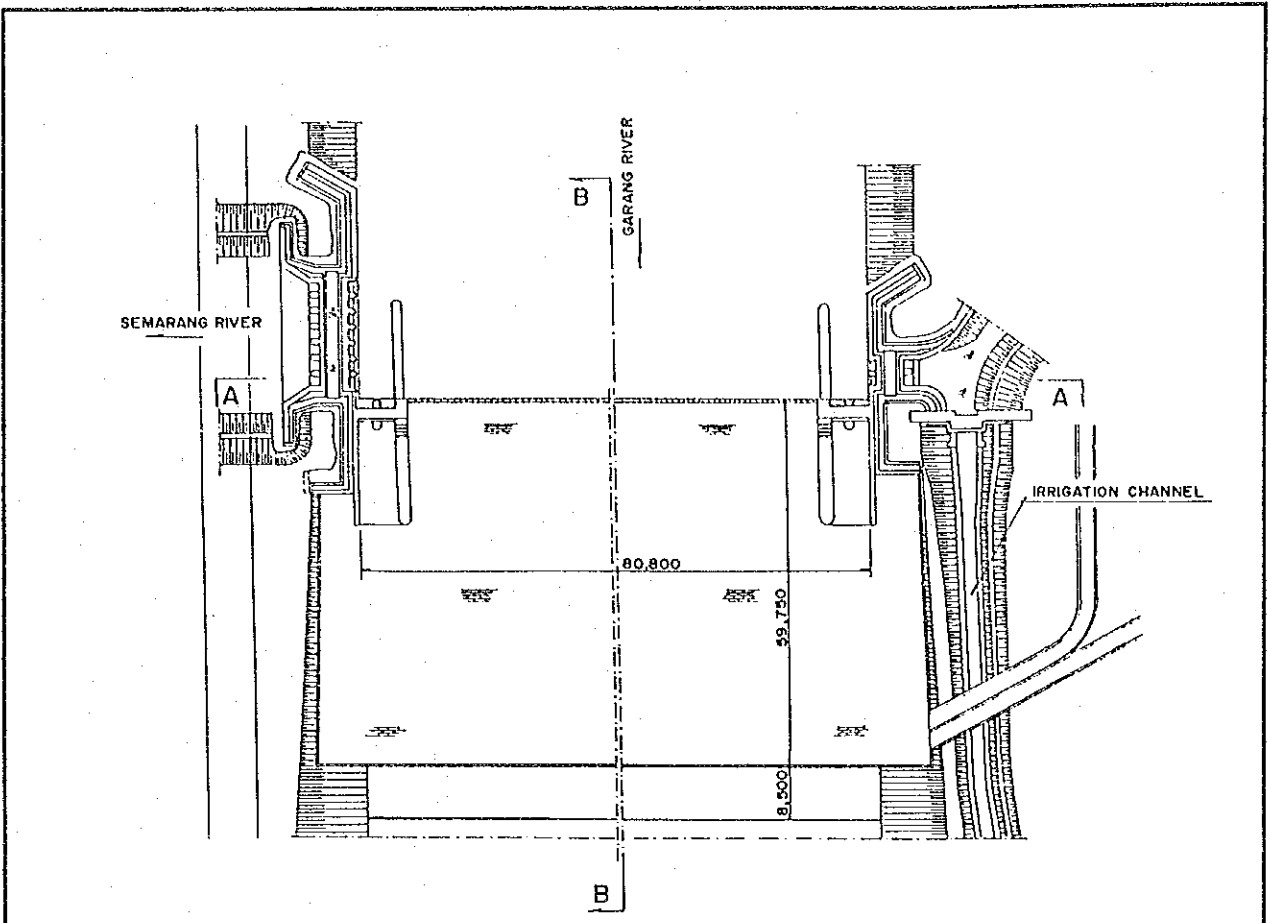


SECTION A-A

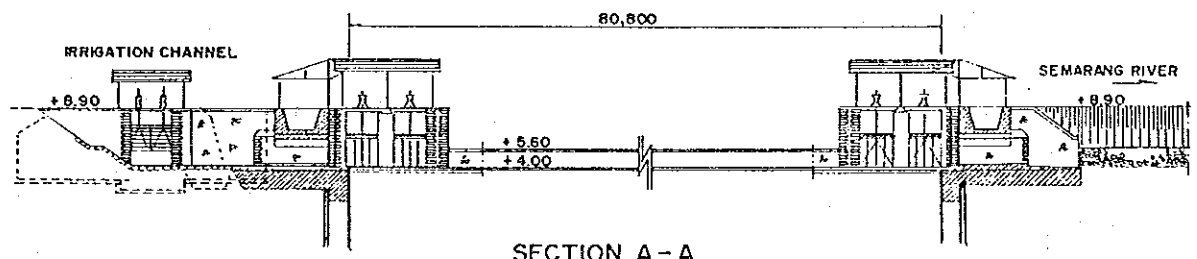
NOTE:

1) LOCATION AND DIMENSIONS

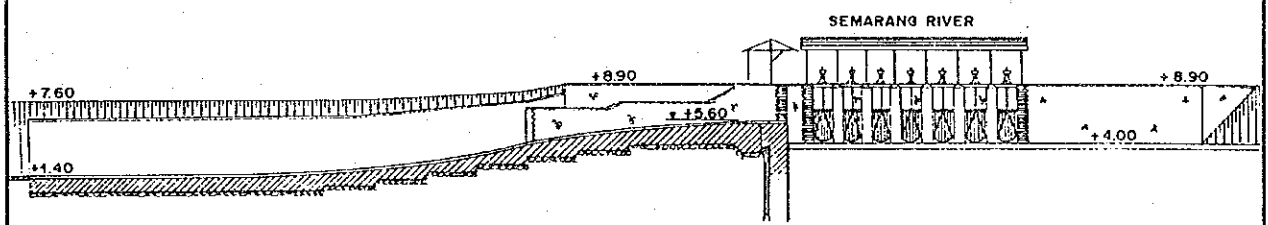
	LOCATION (from the mouth)	a (m)	b (m)	c (m)
TYPE-B	6.90 km	20	10	40
TYPE-C	7.50 km	20	10	10
TYPE-D	9.20 km	30	15	150



PLAN



SECTION A-A

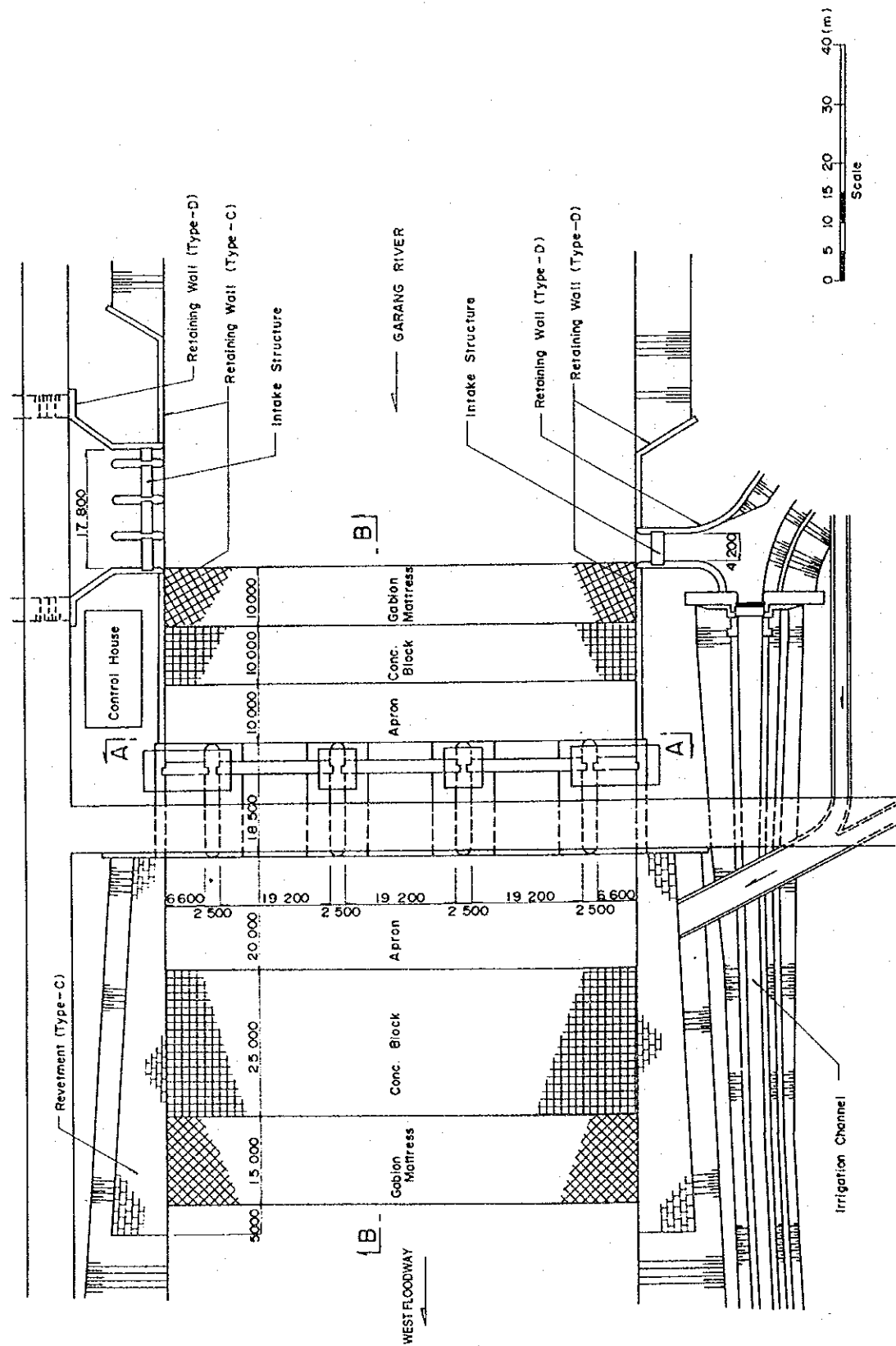


SECTION B-B

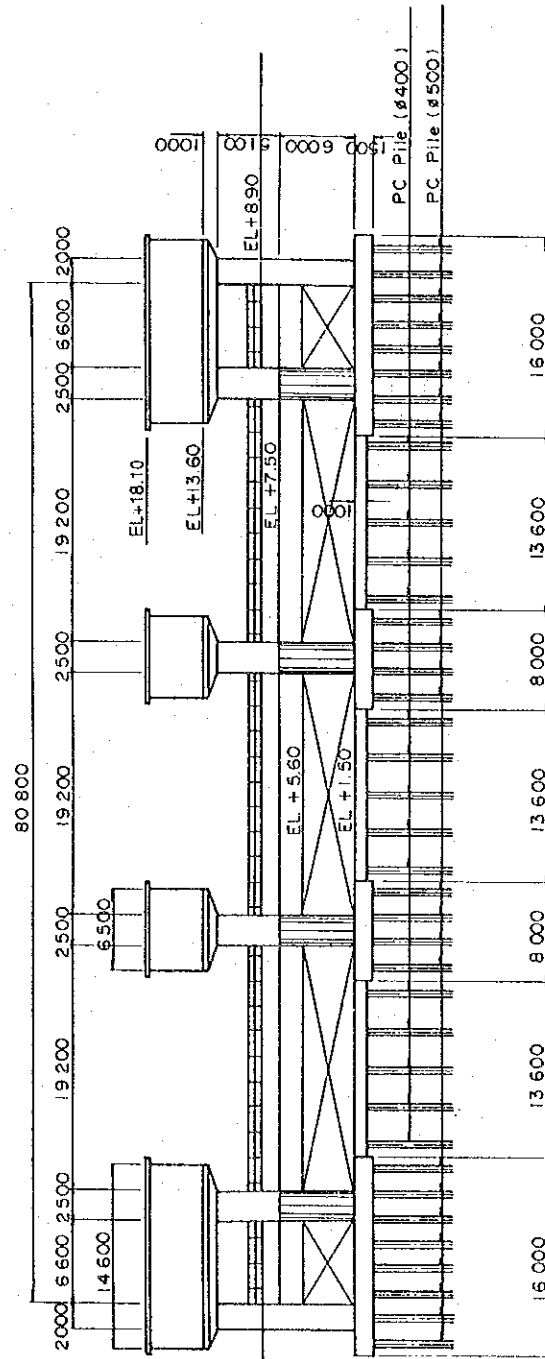
0 2 4 6 8 10 m
Scale

MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
JAPAN INTERNATIONAL COOPERATION AGENCY

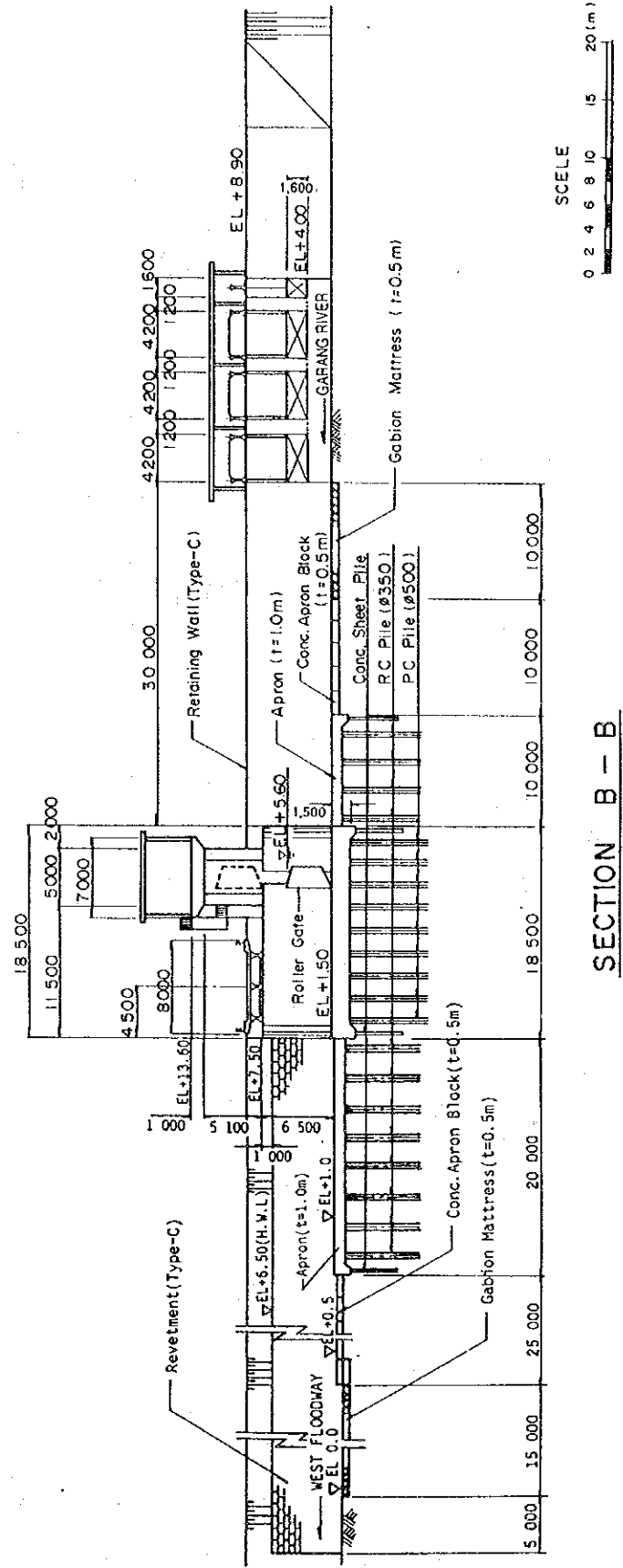
Fig. 7.9
GENERAL VIEW OF EXISTING
SIMONGAN WEIR



PLAN



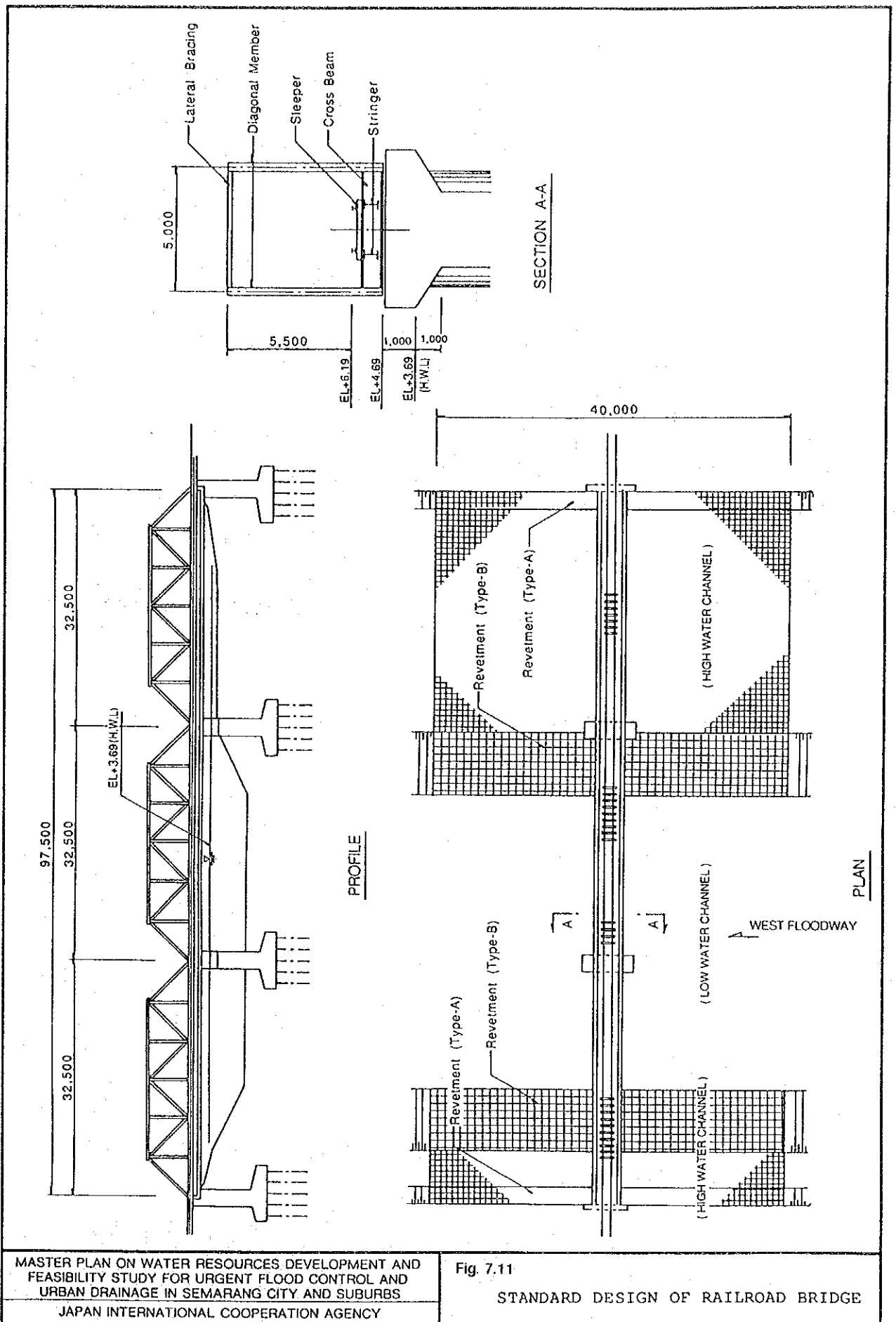
SECTION A - A



SECTION B - B

MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 7.10
STANDARD DESIGN OF SIMONGAN WEIR
(ROLLER GATE TYPE)



Item	1992	1993	1994	1995	1996	1997	1998	1999	2000
Feasibility Study	■								
Application for Loan		■							
Detailed Design			■	■					
P/Q and Tendering					■				
Construction						■	■	■	■

MASTER PLAN ON WATER RESOURCES DEVELOPMENT AND
 FEASIBILITY STUDY FOR URGENT FLOOD CONTROL AND
 URBAN DRAINAGE IN SEMARANG CITY AND SUBURBS
 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 7.12

IMPLEMENTATION SCHEDULE
 FOR URGENT PROJECT

JICA