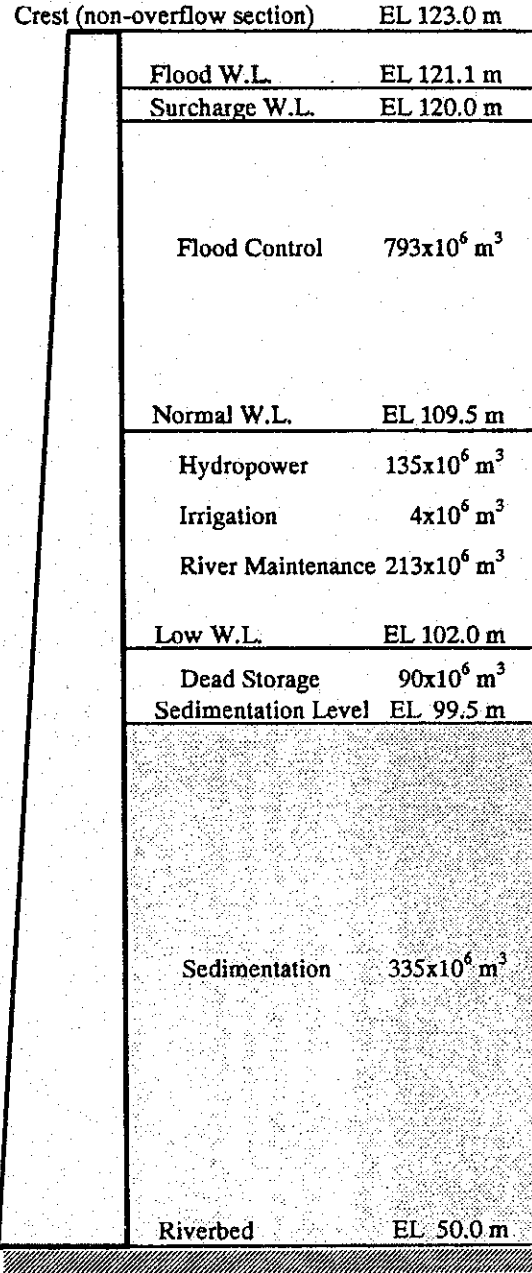
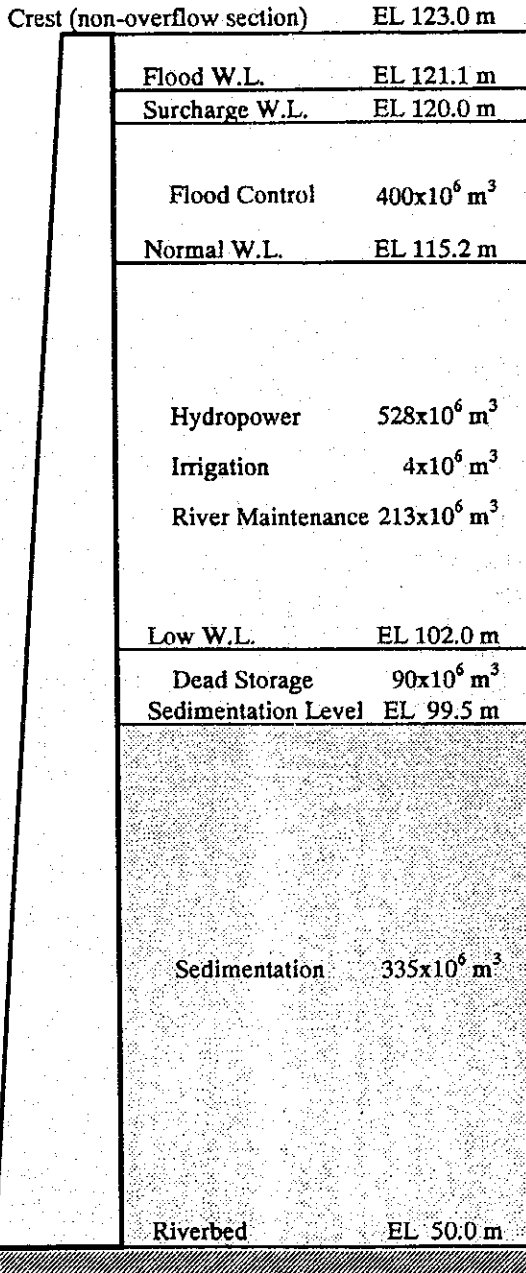


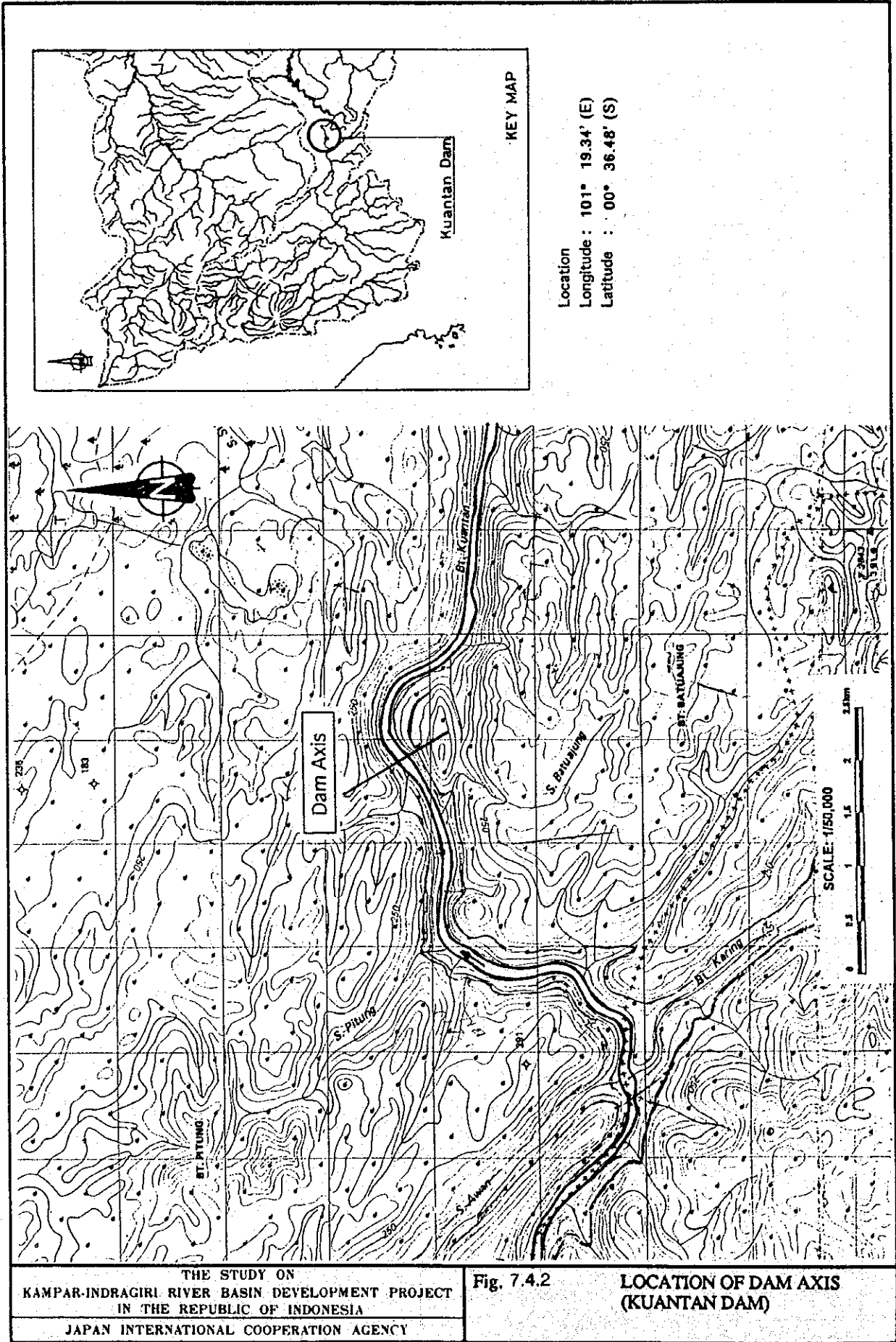
BANGKINANG AREA - INITIAL PHASE

Work Item	Quantity	Initial		
		2002	2003	2004
1. Preparatory Works	1 ls			
2. Main Civil Works				
a. Dredging/Excavation	5,600,000 cu m			
b. Earth Dike				
- Stripping/Clearing	1,970,000 sq m			
- Embankment	4,170,000 cu m			
- Sodding	1,551,000 sq m			
- Filter	0 cu m			
- Gravel Metaling	44,000 cu m			
c. Concrete Dike	0 m			
d. Sluice				
- Type A	8 units			
- Type B	5 units			
- Type C	8 units			
- Type D	8 units			
- Type E	4 units			
- Type F	0 unit			
- Type G	0 unit			
- Type H	0 unit			
e. Revetment				
- Low Water Channel	113,000 sq m			
- High Water Channel	35,400 sq m			
f. Groin	57 sets			
g. Bridge				
- Footbridge	0 sq m			
- Road Bridge	4,200 sq m			
h. Miscellaneous	1 l.s.			

Dry Season (April-September)

Rainy Season (October-March)



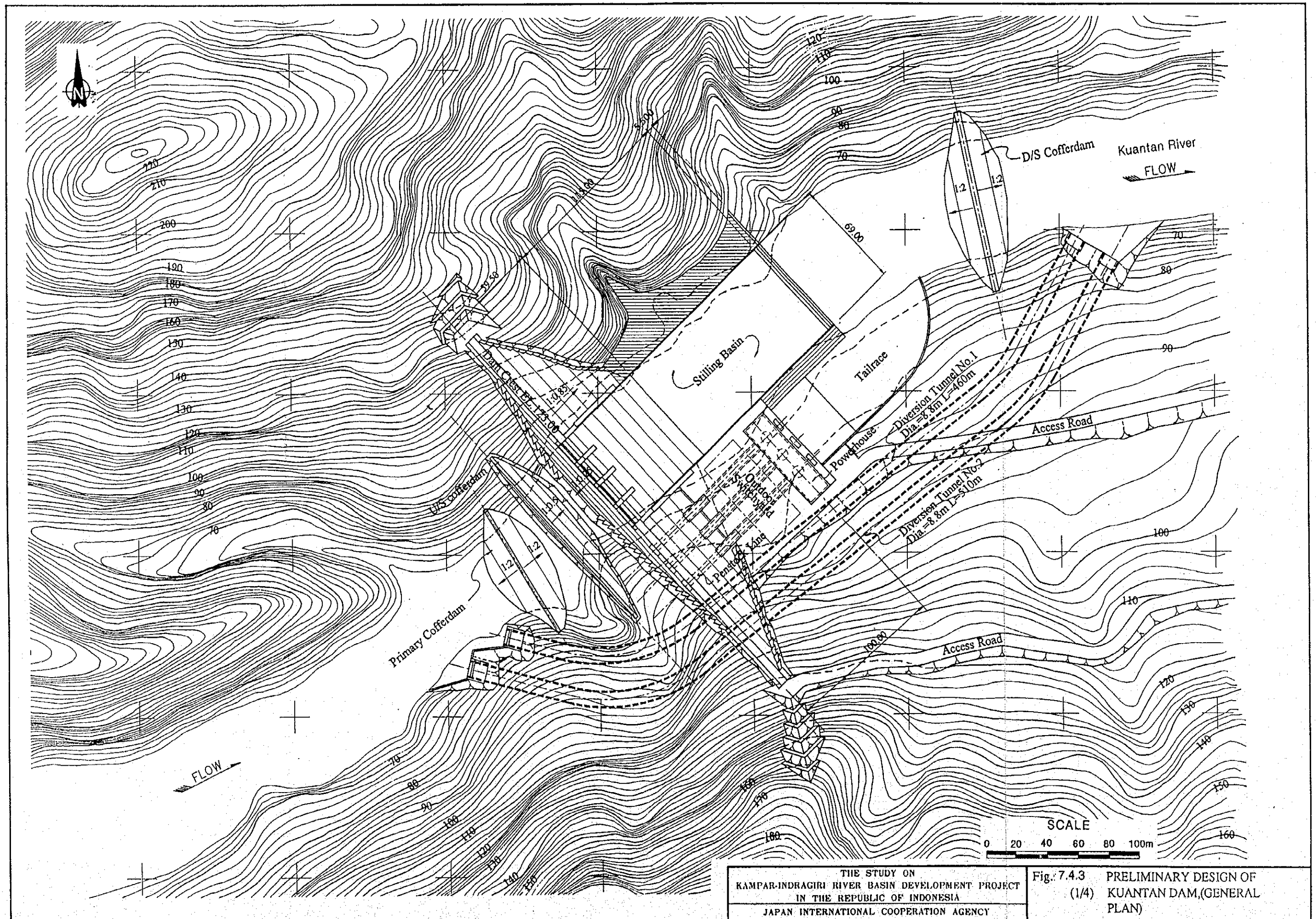


THE STUDY ON
 KAMPAR-INDRAGIRI RIVER BASIN DEVELOPMENT PROJECT
 IN THE REPUBLIC OF INDONESIA

Fig. 7.4.2

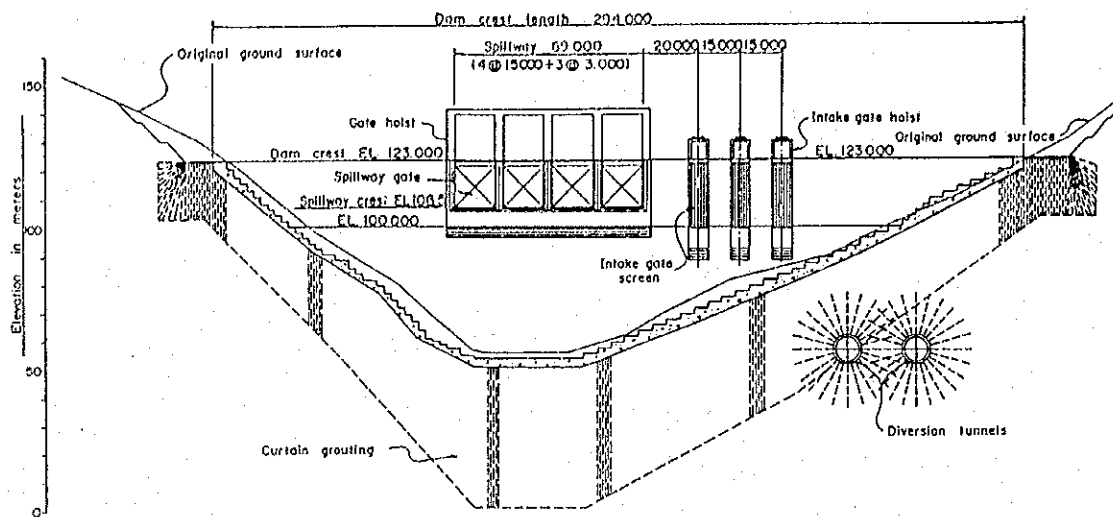
LOCATION OF DAM AXIS
 (KUANTAN DAM)

JAPAN INTERNATIONAL COOPERATION AGENCY

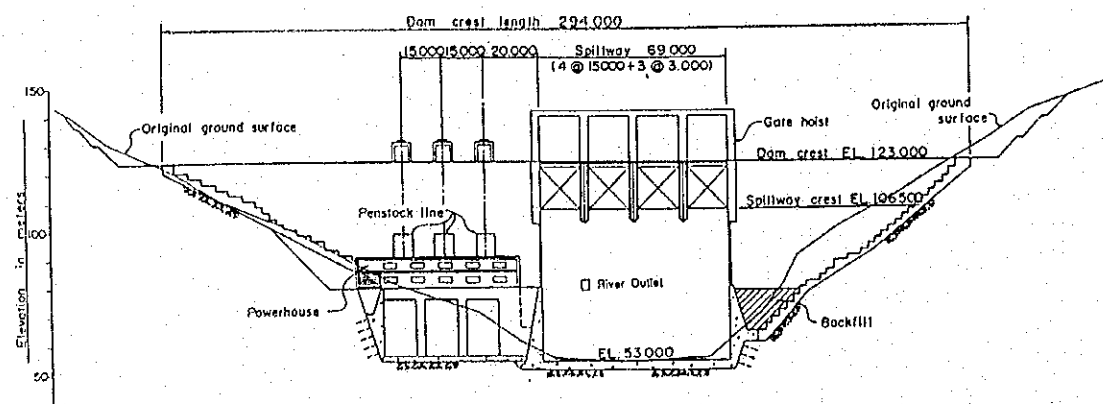


THE STUDY ON
 KAMPAR-INDRAGIRI RIVER BASIN DEVELOPMENT PROJECT
 IN THE REPUBLIC OF INDONESIA
 JAPAN INTERNATIONAL COOPERATION AGENCY

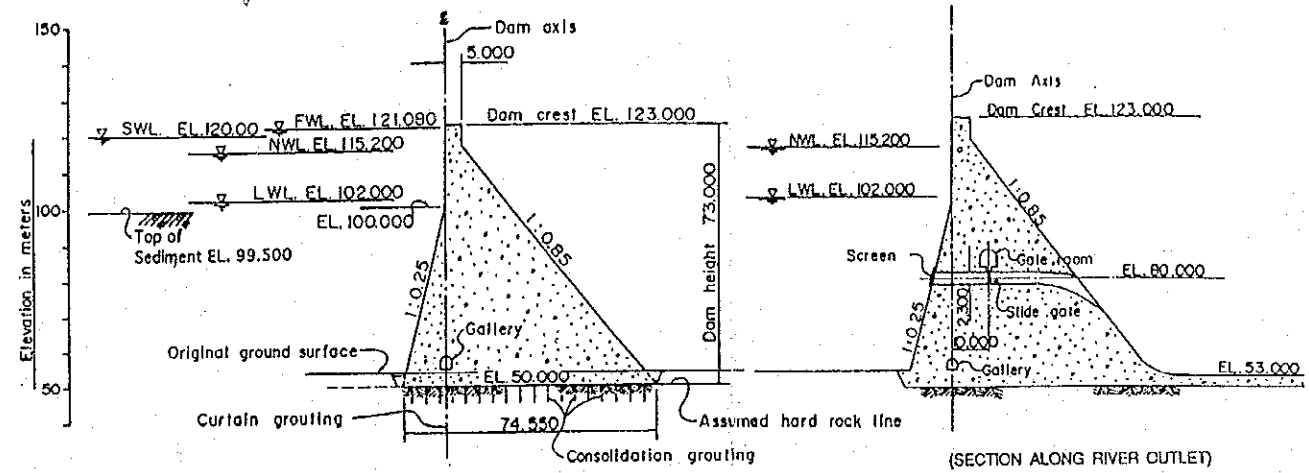
Fig. 7.4.3 PRELIMINARY DESIGN OF
 (1/4) KUANTAN DAM, (GENERAL
 PLAN)



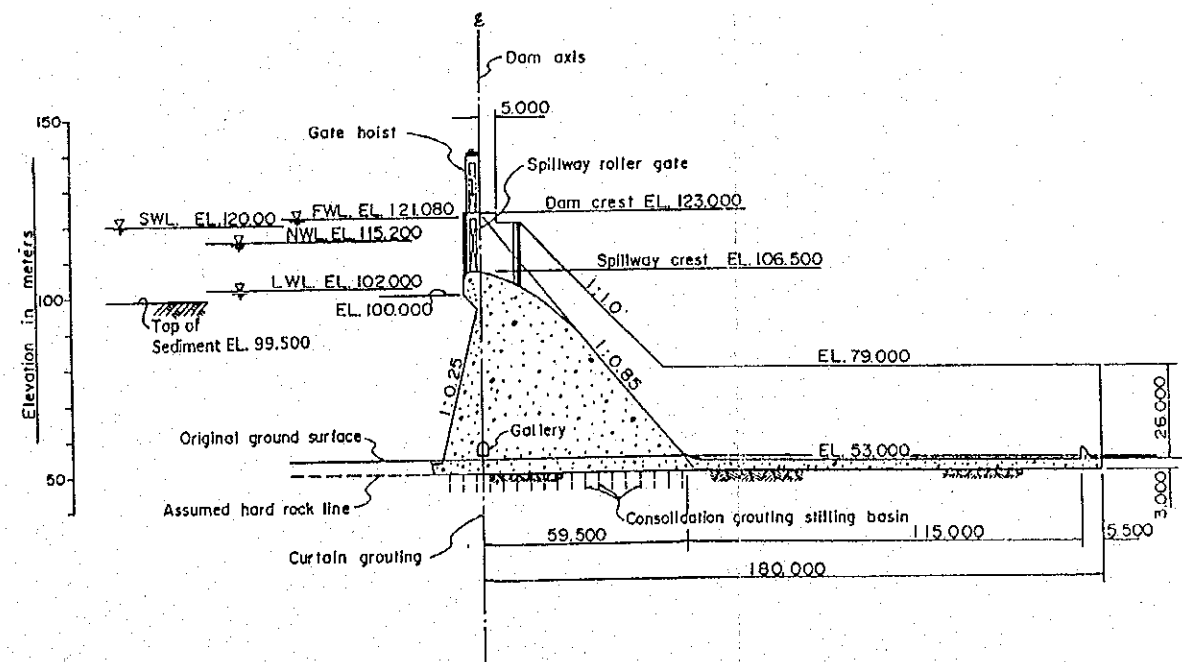
UPSTREAM ELEVATION



DOWNSTREAM ELEVATION



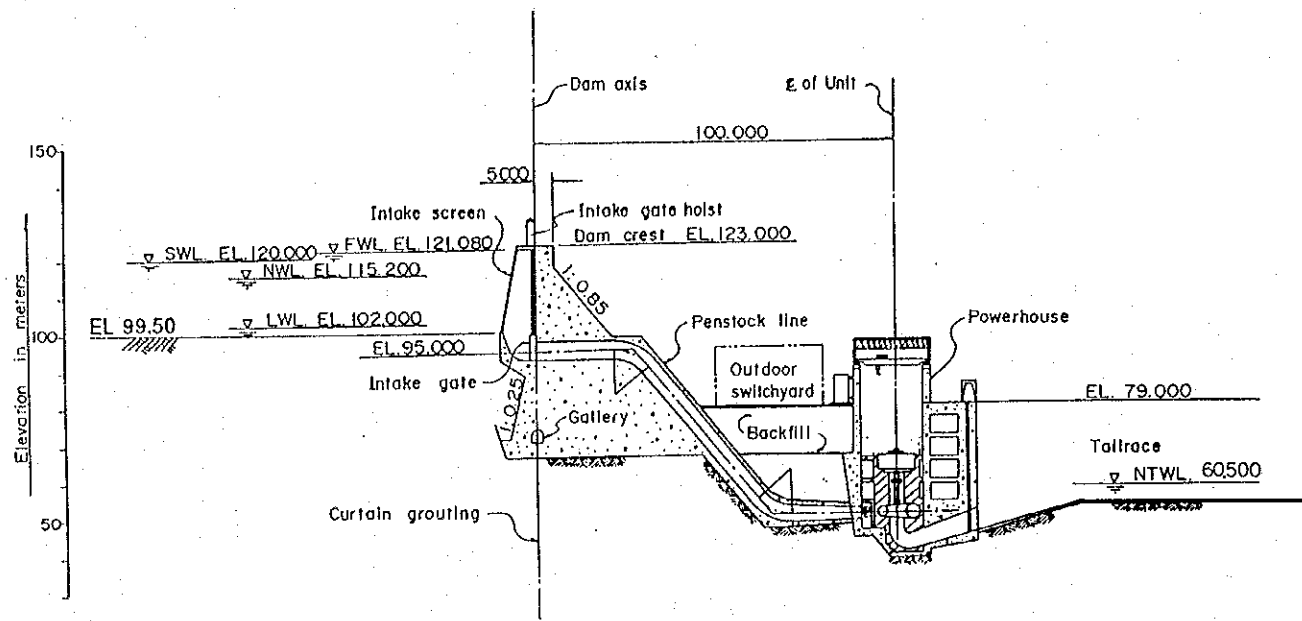
TYPICAL NON-OVERFLOW SECTION



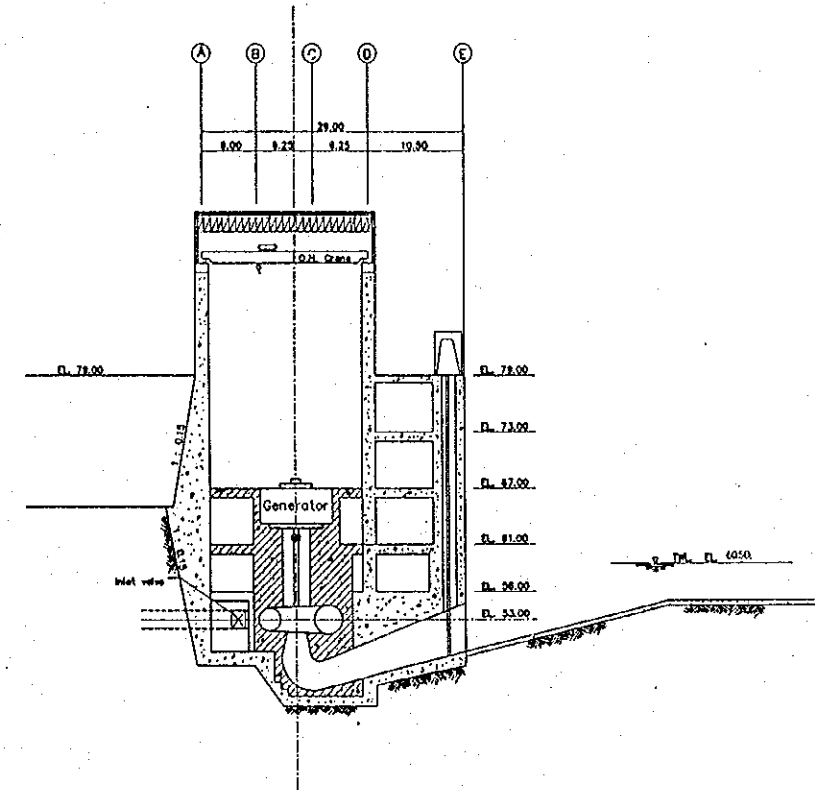
TYPICAL OVERFLOW SECTION

THE STUDY ON
KAMPAR-INDRAGIRI RIVER BASIN DEVELOPMENT PROJECT
IN THE REPUBLIC OF INDONESIA
JAPAN INTERNATIONAL COOPERATION AGENCY

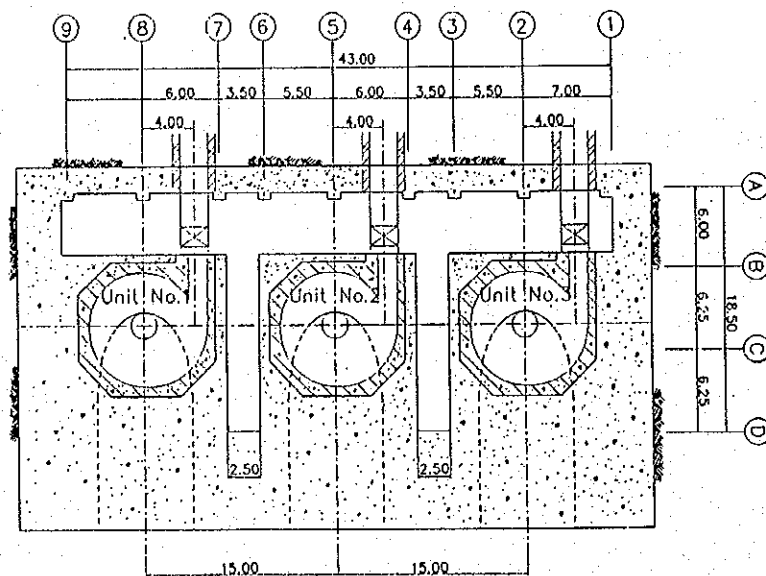
Fig. 7.4.3 PRELIMINARY DESIGN OF
(2/4) KUANTAN DAM, (DAM PROFILE
AND CROSS SECTION)



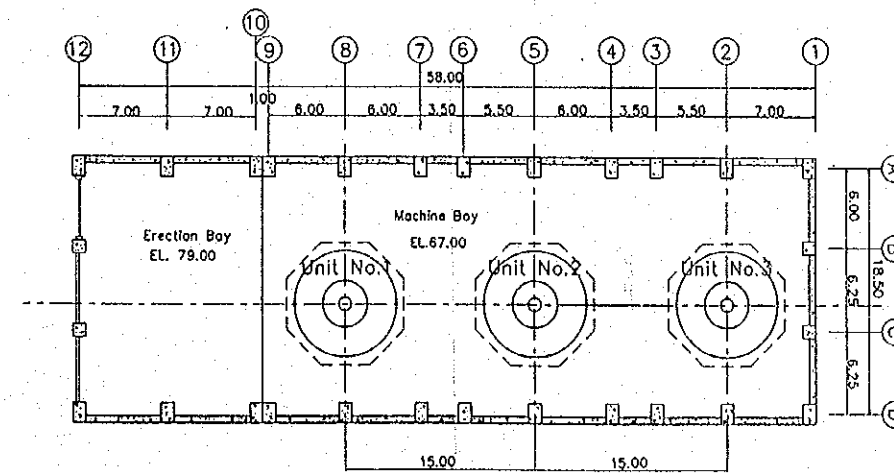
PROFILE OF WATERWAY



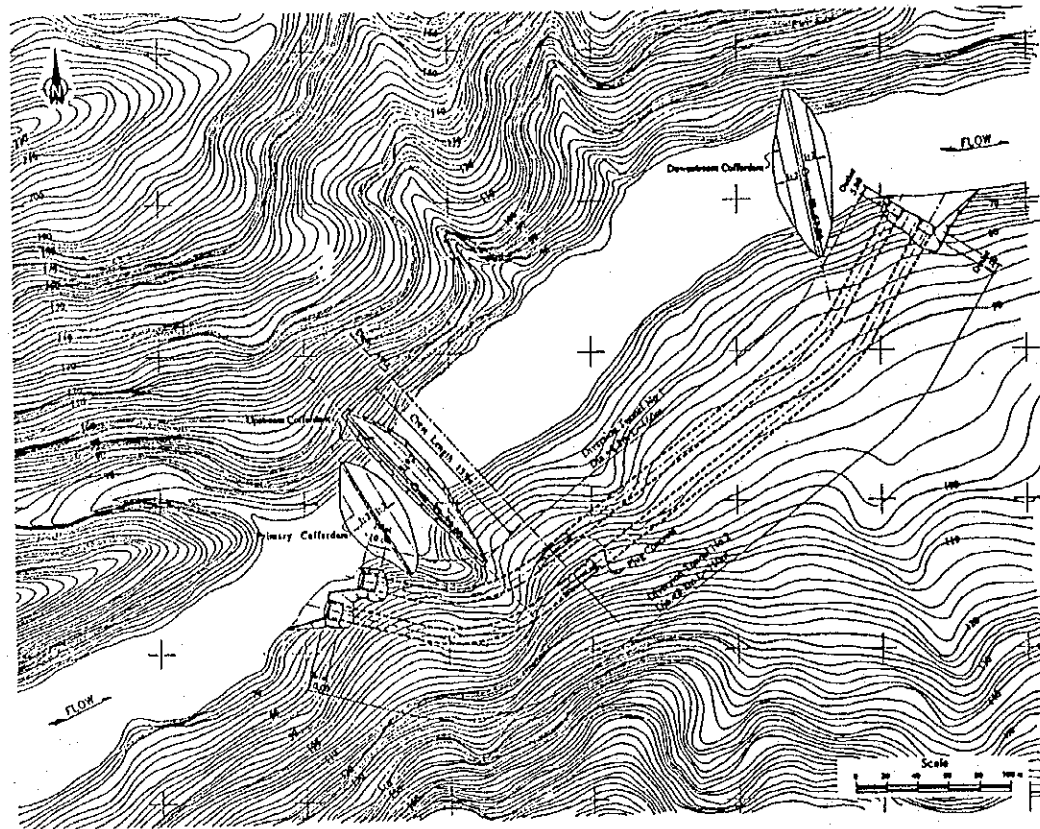
TRANSVERSE SECTION OF POWERHOUSE



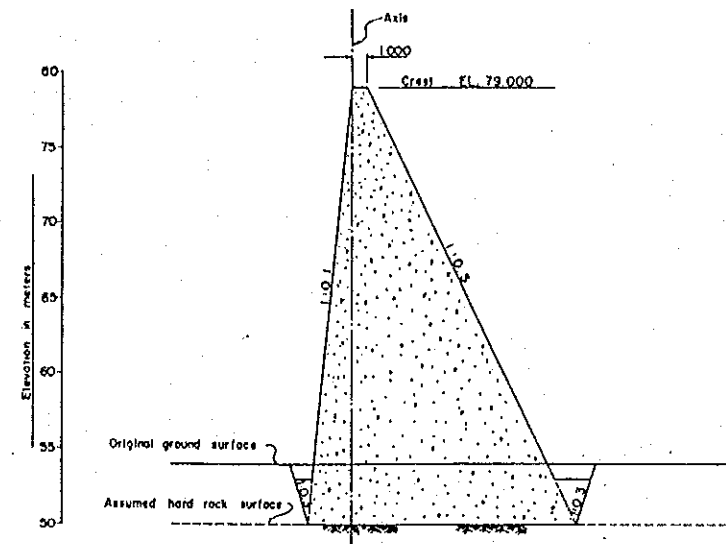
FLOOR PLAN OF POWERHOUSE AT EL. 53.00 M



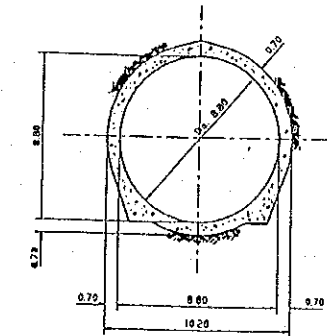
FLOOR PLAN OF POWERHOUSE AT EL. 67.00 M



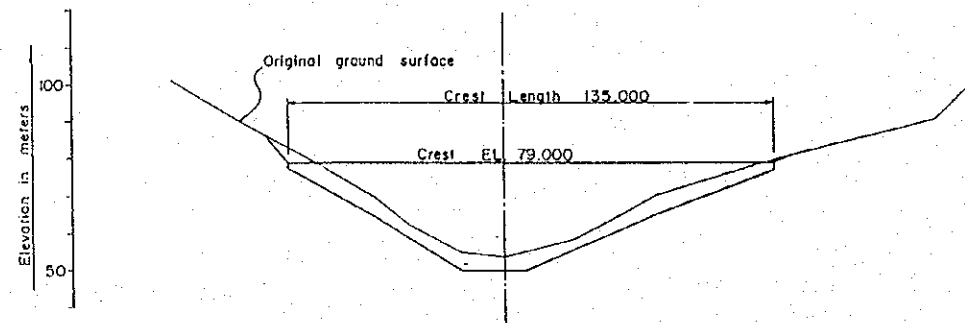
PLAN OF DIVERSION SYSTEM



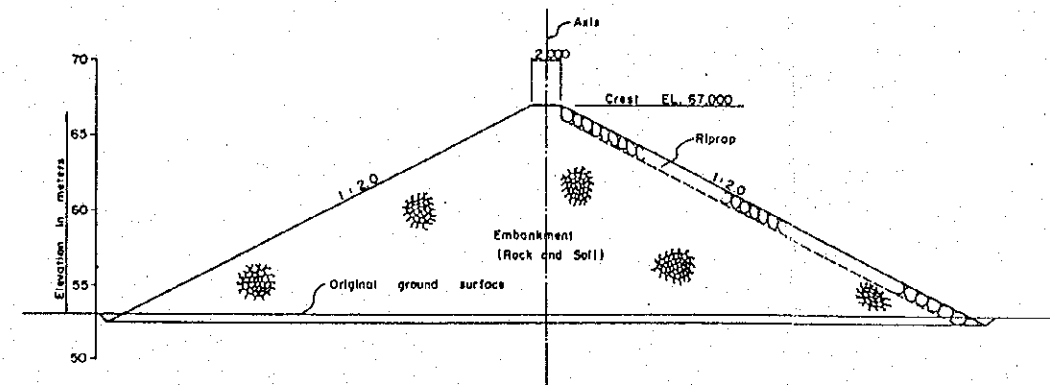
TYPICAL CROSS SECTION OF UPSTREAM COFFERDAM



TYPICAL CROSS SECTION OF DIVERSION TUNNEL



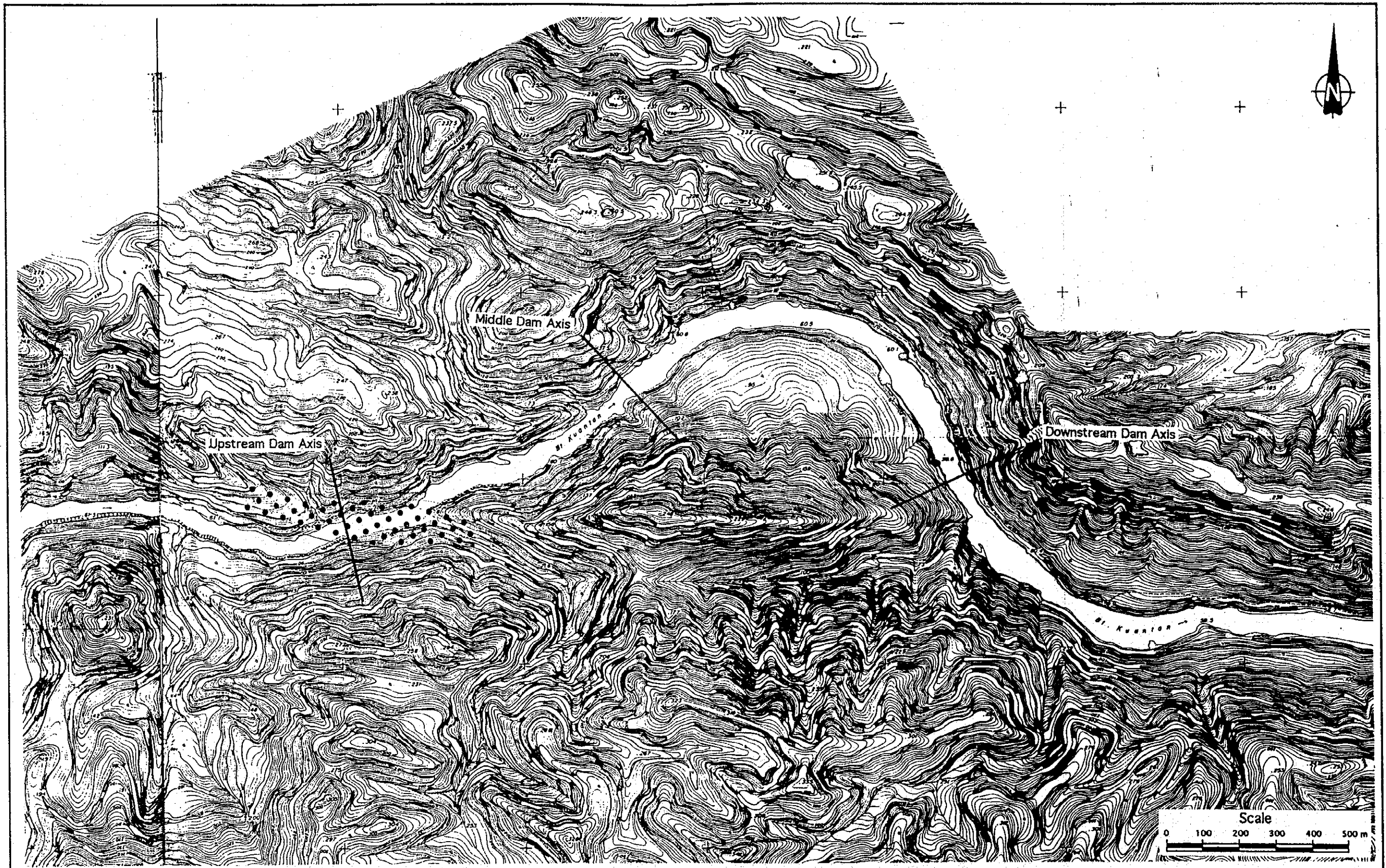
PROFILE OF UPSTREAM COFFERDAM




TYPICAL CROSS SECTION OF DOWNSTREAM COFFERDAM

THE STUDY ON
KAMPAR-INDRAGIRI RIVER BASIN DEVELOPMENT PROJECT
IN THE REPUBLIC OF INDONESIA
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 7.4.3 PRELIMINARY DESIGN OF
(4/4) KUANTAN DAM, (DIVERSION
SYSTEM)

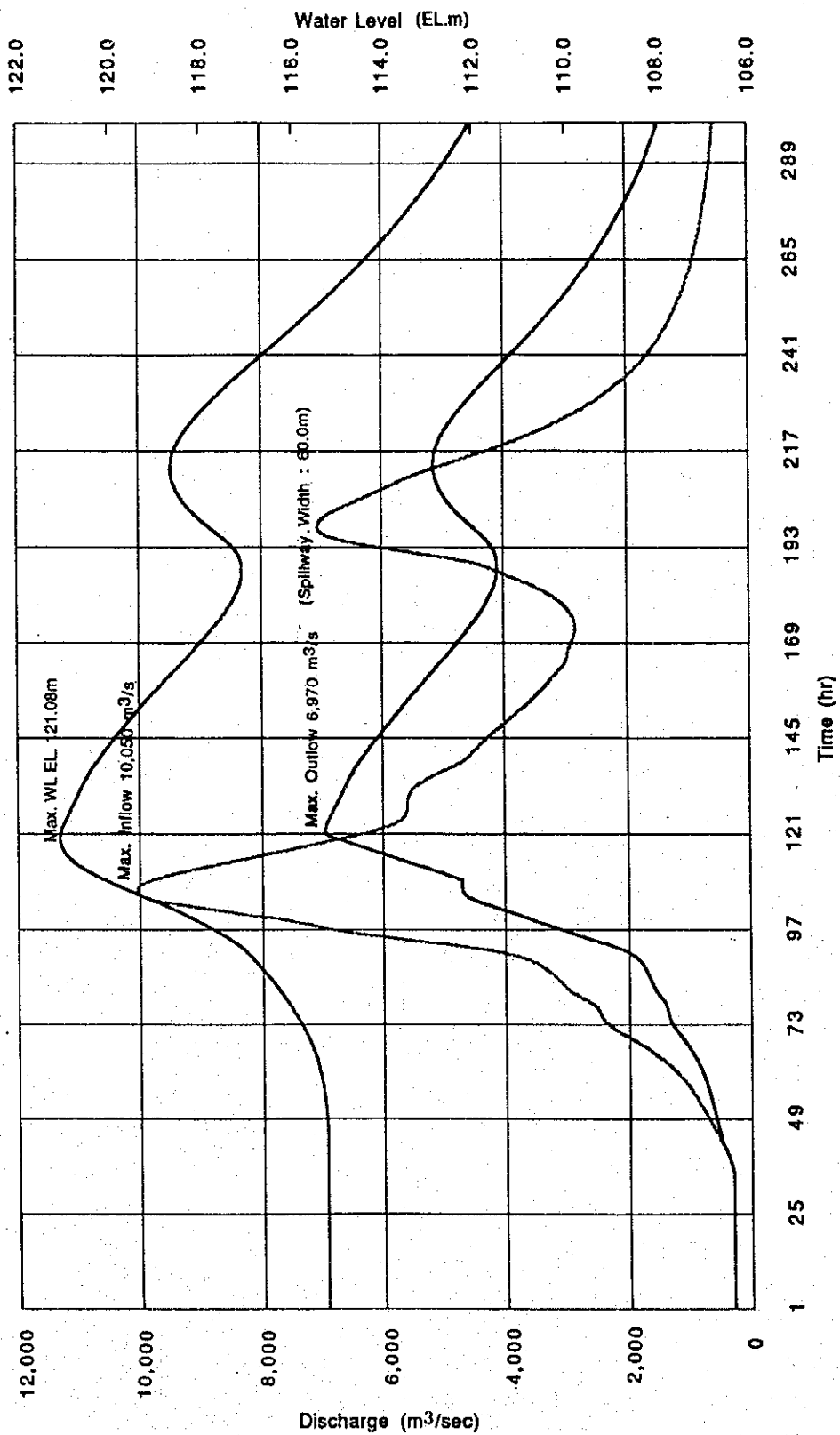


Legend

 Shale Zone

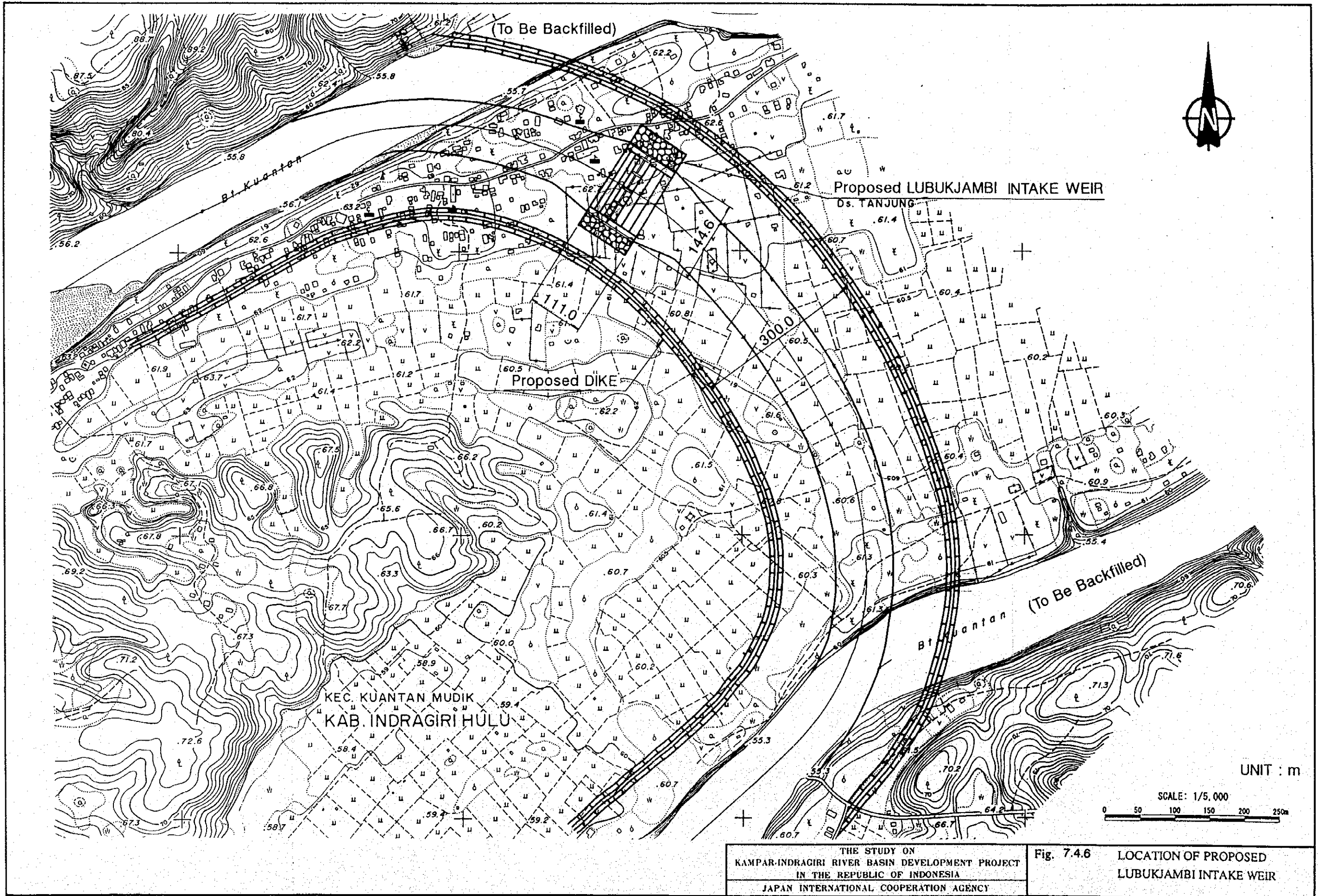
THE STUDY ON
 KAMPAR-INDRAGIRI RIVER BASIN DEVELOPMENT PROJECT
 IN THE REPUBLIC OF INDONESIA
 JAPAN INTERNATIONAL COOPERATION AGENCY

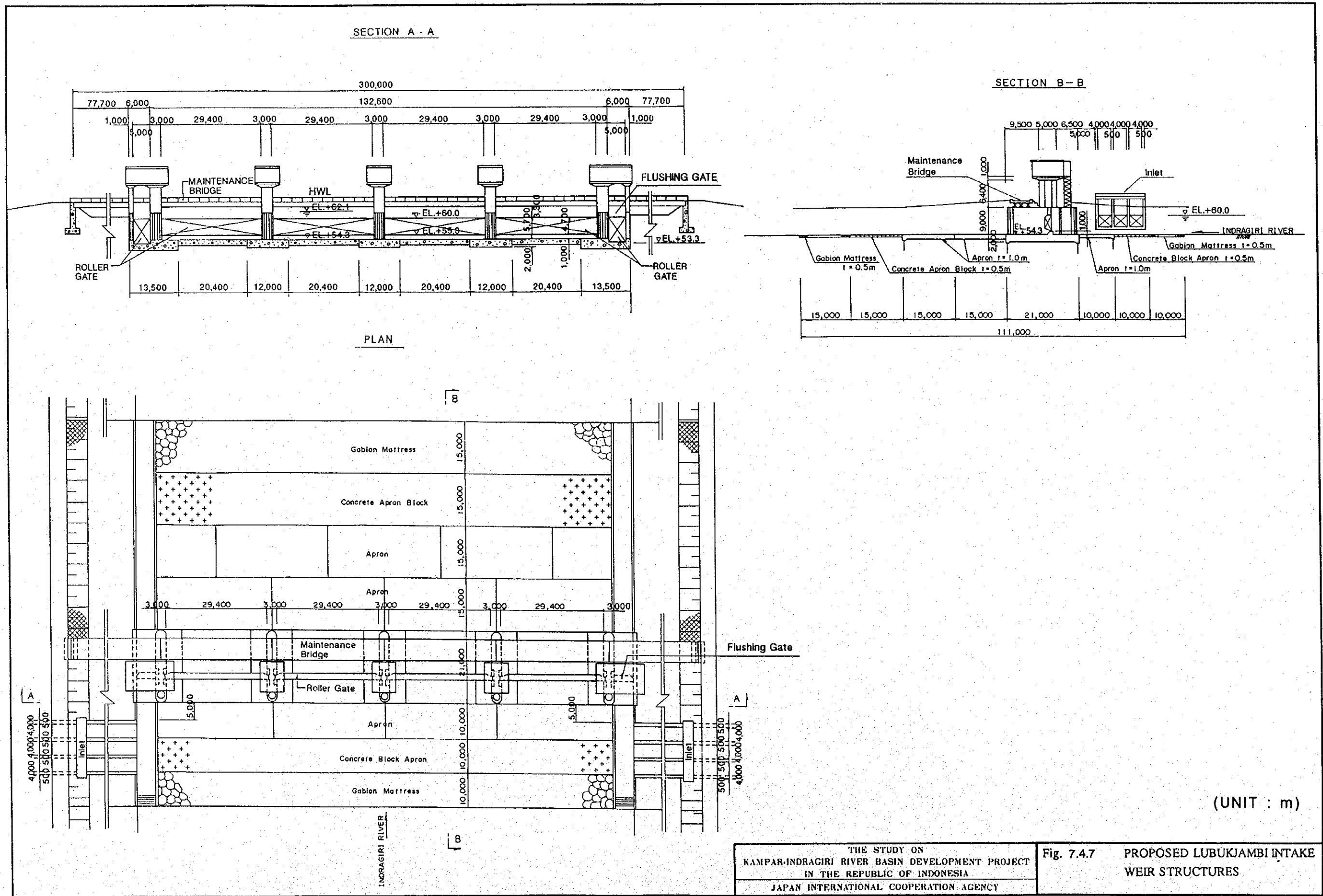
Fig. 7.4.4 LOCATION OF ALTERNATIVE AXES OF KUANTAN DAM



THE STUDY ON
 KAMPAR-INDRAGIRI RIVER BASIN DEVELOPMENT PROJECT
 IN THE REPUBLIC OF INDONESIA
 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 7.4.5 FLOOD ROUTING RESULT OF KUANTAN DAM

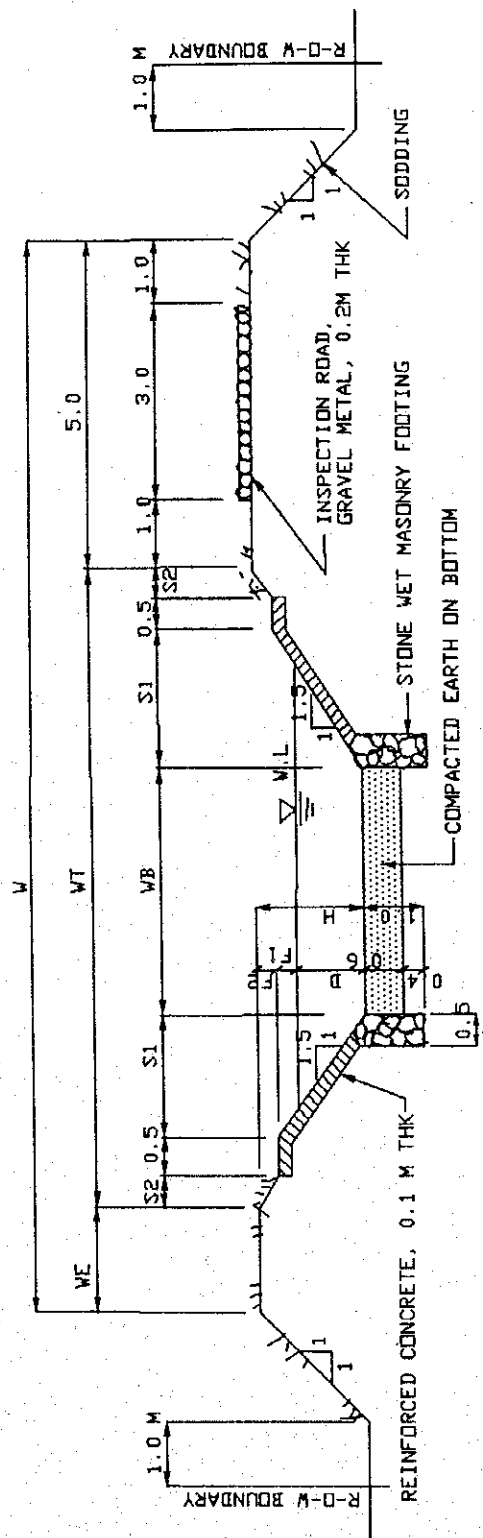




(UNIT : m)

THE STUDY ON
KAMPAR-INDRAGIRI RIVER BASIN DEVELOPMENT PROJECT
IN THE REPUBLIC OF INDONESIA
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 7.4.7 PROPOSED LUBUKJAMBI INTAKE
WEIR STRUCTURES

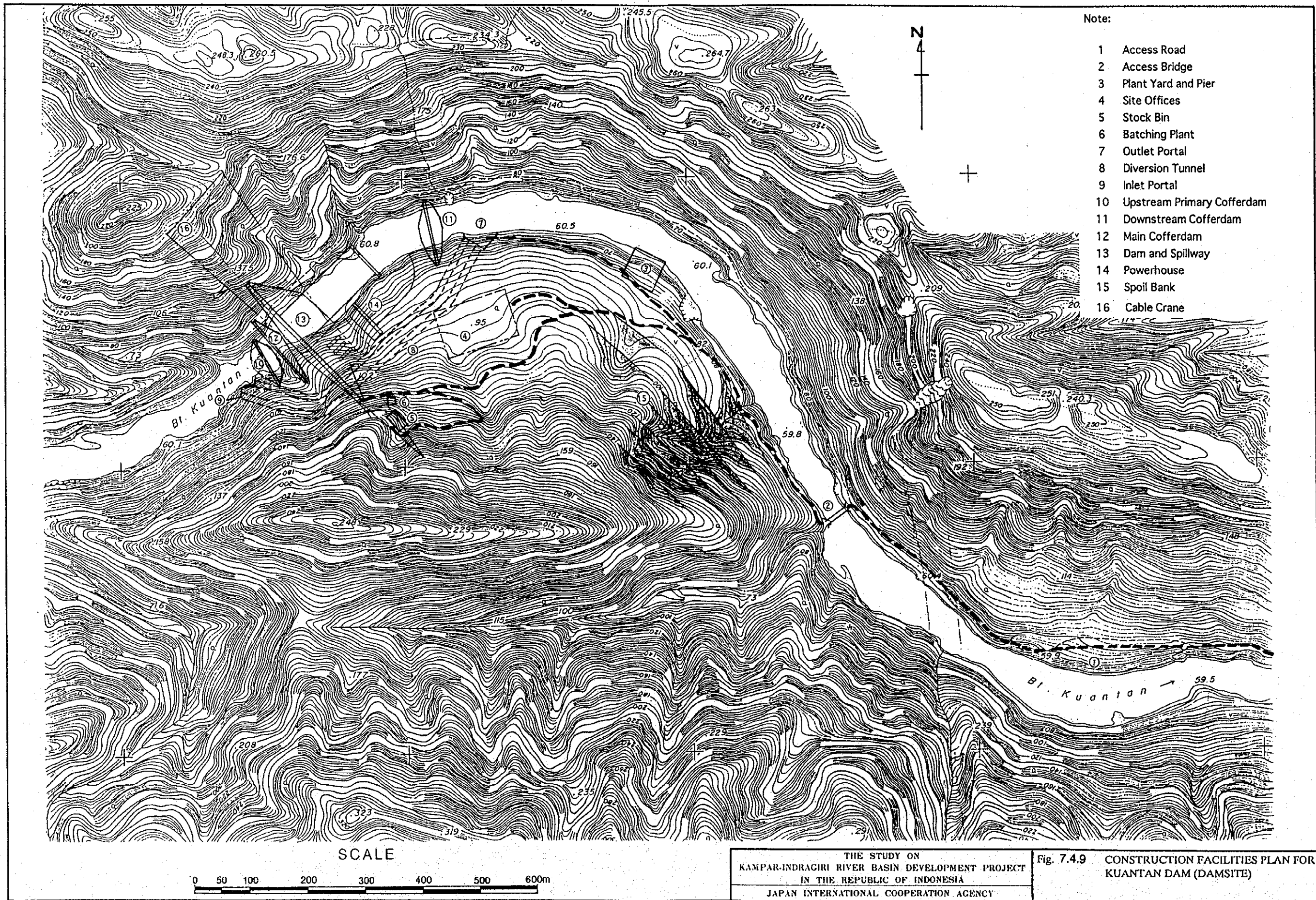


(1) RANTAUBERANGIN IRRIGATION DEVELOPMENT PROJECT, KAMPAR RIVER BASIN

AREA	DESIGN DISCHARGE (m ³ /s)	D	F1	F2	H	S1	S2	WB	WT	WE	W
LEFT BANK UPPER REACHES	11.31	1.47	0.50	0.50	2.47	2.96	0.75	5.40	13.81	3.50	22.31
RIGHT BANK	4.80	1.14	0.25	0.35	1.74	2.09	0.53	3.70	9.92	1.50	16.42

(2) LUBUKJAMBI IRRIGATION DEVELOPMENT PROJECT, INDRAGIRI RIVER BASIN

AREA	DESIGN DISCHARGE (m ³ /s)	D	F1	F2	H	S1	S2	WB	WT	WE	W
LEFT BANK UPPER REACHES	7.85	1.43	0.50	0.50	2.43	2.90	0.75	3.60	11.89	2.00	18.87



- Note:
- 1 Access Road
 - 2 Access Bridge
 - 3 Plant Yard and Pier
 - 4 Site Offices
 - 5 Stock Bin
 - 6 Batching Plant
 - 7 Outlet Portal
 - 8 Diversion Tunnel
 - 9 Inlet Portal
 - 10 Upstream Primary Cofferdam
 - 11 Downstream Cofferdam
 - 12 Main Cofferdam
 - 13 Dam and Spillway
 - 14 Powerhouse
 - 15 Spoil Bank
 - 16 Cable Crane

THE STUDY ON
 KAMPAR-INDRAGIRI RIVER BASIN DEVELOPMENT PROJECT
 IN THE REPUBLIC OF INDONESIA
 JAPAN INTERNATIONAL COOPERATION AGENCY

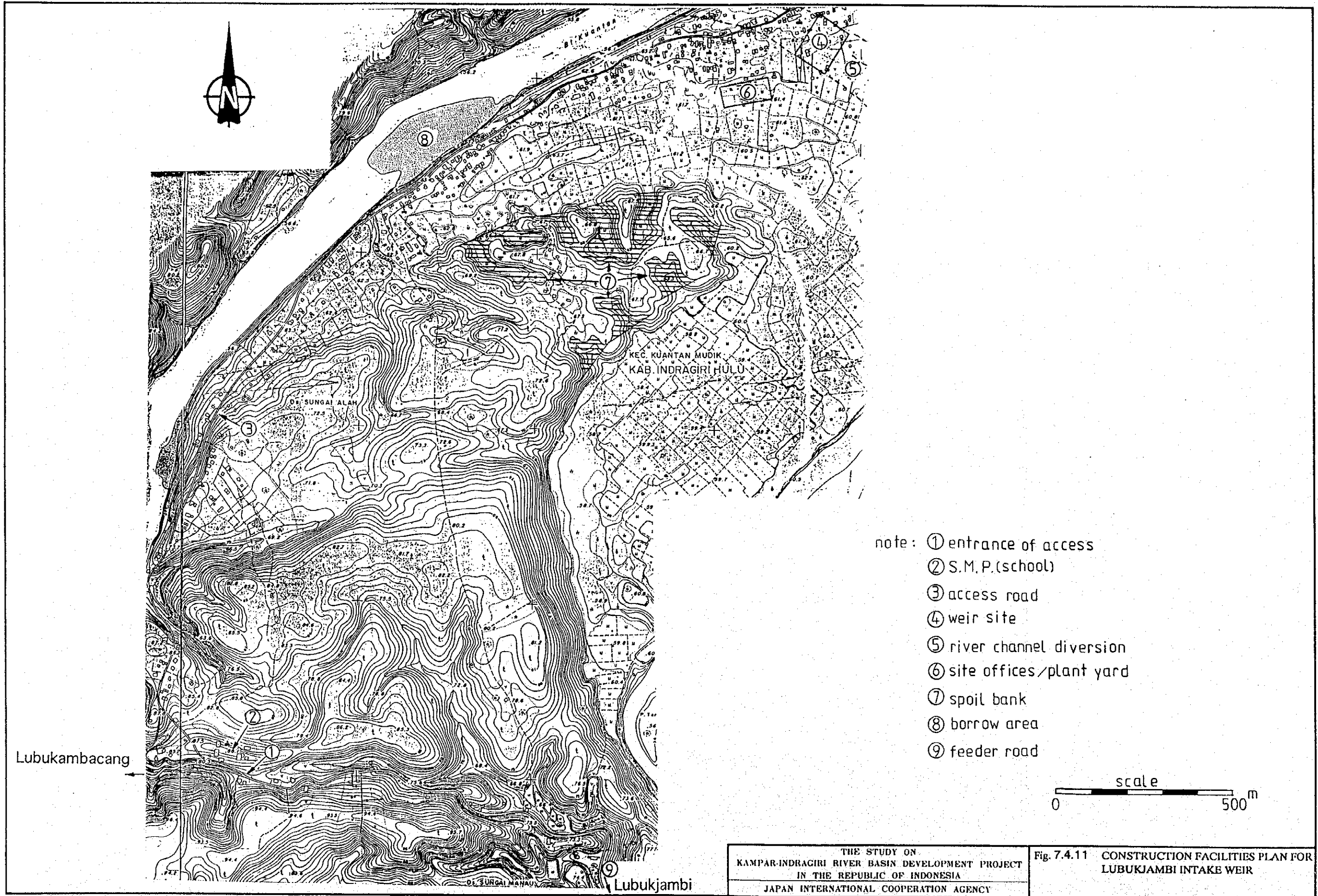
Fig. 7.4.9 CONSTRUCTION FACILITIES PLAN FOR
 KUANTAN DAM (DAMSITE)

KUANTAN DAM

Work Item	Quantity	Year				
		2000	2001	2002	2003	2004
1. Preparatory Works	1 l.s.					
2. Access Road						
a. Road (New and Relocation)	32,000 m					
b. Bridge	300 m					
3. Main Civil Works						
a. Diversion Tunnel						
- Open Excavation	6,400 cu m					
- Tunnel Excavation	81,200 cu m					
- Concrete Lining	22,300 cu m					
b. Cofferdam						
- Initial cofferdam embankment	7,200 cu m					
- Open Excavation	4,300 cu m					
- Mass Concrete (Main Cofferdam)	16,600 cu m					
c. Main Dam and Spillway						
- Open Excavation	190,400 cu m					
- Mass Concrete, Dam	339,100 cu m					
- Concrete, Spillway	43,400 cu m					
- Grouting	16,900 m					
d. Penstock						
- Trench Excavation	21,600 cu m					
- Fill and Backfill	16,200 cu m					
e. Powerhouse and Tailrace						
- Open Excavation	129,500 cu m					
- Concrete (Reinforced)	29,200 cu m					
f. Switchyard						
- Open Excavation	2,300 cu m					
- Concrete, Switchyard	600 cu m					
4. Hydro-Mechanical Works						
a. Diversion Tunnel Gates (Slide)	220 ton					
b. Spillway Gates (Radial)	1,100 ton					
c. River Outlet Intake Screen	5 ton					
d. River Outlet Gate (Roller)	15 ton					
e. River Outlet Main Valve	1 l.s.					
f. River Outlet Steel Pipe	30 ton					
g. Power Intake Screen	60 ton					
h. Power Intake Gate (Roller)	290 ton					
i. Power Tailrace Gate (Roller)	90 ton					
j. Power Steel Penstock	720 ton					
5. Generating Equipment	1 l.s.					
6. Transmission Line	1 l.s.					

THE STUDY ON
KAMPAR-INDRAGIRI RIVER BASIN DEVELOPMENT PROJECT
IN THE REPUBLIC OF INDONESIA
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 7.4.10 CONSTRUCTION SCHEDULE OF
KUANTAN DAM



- note :
- ① entrance of access
 - ② S.M.P.(school)
 - ③ access road
 - ④ weir site
 - ⑤ river channel diversion
 - ⑥ site offices /plant yard
 - ⑦ spoil bank
 - ⑧ borrow area
 - ⑨ feeder road

scale
0 500 m

THE STUDY ON KAMPAR-INDRAGIRI RIVER BASIN DEVELOPMENT PROJECT IN THE REPUBLIC OF INDONESIA JAPAN INTERNATIONAL COOPERATION AGENCY	Fig. 7.4.11 CONSTRUCTION FACILITIES PLAN FOR LUBUKJAMBI INTAKE WEIR
--	--

LUBUKJAMBI INTAKE WEIR

Work Item	Quantity	2001	2002	2003	2004
1. Preparatory Works	1 l.s.				
2. Head Works					
- Temporary Cofferdam	0 l.s.				
- Excavation	814,000 cu m				
- Backfill	18,000 cu m				
- Embankment	800 cu m				
- Weir					
Foundation Works	1 l.s.				
Concrete	13,200 cu m				
Apron	10,130 sq m				
Riverbed Protection	6,190 sq m				
Gate	553 sq m				
- Intake					
Foundation Works	1 l.s.				
Concrete	1,200 cu m				
Gate	84 sq m				
- Flushing Gate					
Foundation Works	1 l.s.				
Concrete	820 cu m				
Gate	57 sq m				
- Steel Stop Log	85 ton				
- Control Bridge	1,142 sq m				
- Control House	315 sq m				

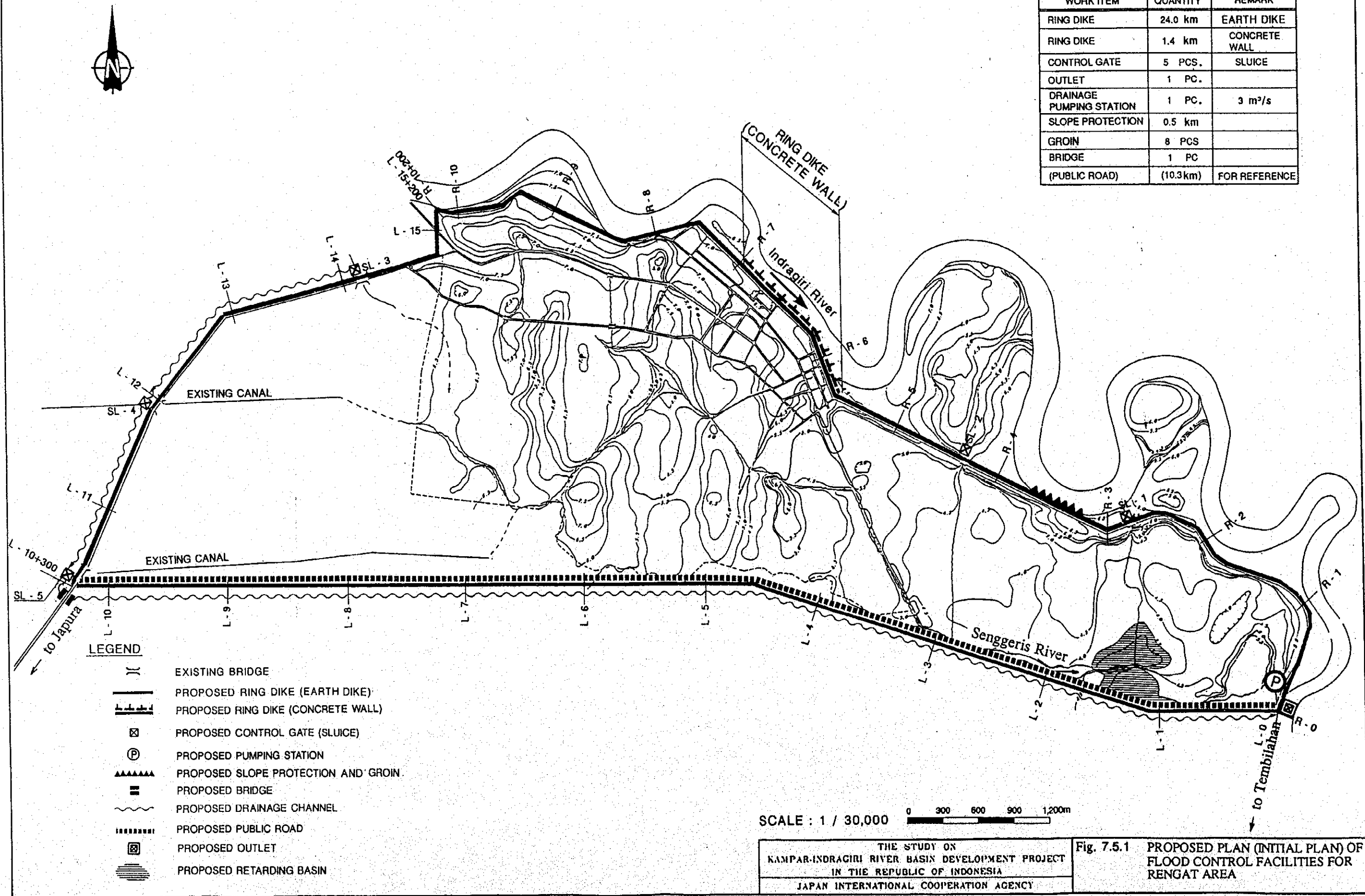
LUBUKJAMBI IRRIGATION SYSTEM - INITIAL PHASE

Work Item	Quantity	2001	2002	2003	2004
1. Preparatory Works	1 l.s.				
2. Irrigation Facilities					
a. Head Reach & Main Canal					
- Left bank (L=76 km)					
Excavation	1,254,000 cu m				
Embankment	35,000 cu m				
Concrete Lining	60,800 cu m				
Footing	76,000 cu m				
Expansion Joint	87,000 m				
Weep Hole	1,500 unit				
Gravel Metaling	45,600 cu m				
Regulation Ponds	1 l.s.				
b. Left Bank Irrigation System					
- Existing/Existing *	1,670 ha				
- Existing/Rainfed	376 ha				
- Existing/Undeveloped	2,096 ha				
- New/Undeveloped	5,234 ha				

* No construction work is generated because the existing irrigation facilities are to be utilized for water distribution.

PROPOSED STRUCTURES

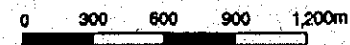
WORK ITEM	QUANTITY	REMARK
RING DIKE	24.0 km	EARTH DIKE
RING DIKE	1.4 km	CONCRETE WALL
CONTROL GATE	5 PCS.	SLUICE
OUTLET	1 PC.	
DRAINAGE PUMPING STATION	1 PC.	3 m ³ /s
SLOPE PROTECTION	0.5 km	
GROIN	8 PCS	
BRIDGE	1 PC	
(PUBLIC ROAD)	(10.3 km)	FOR REFERENCE



LEGEND

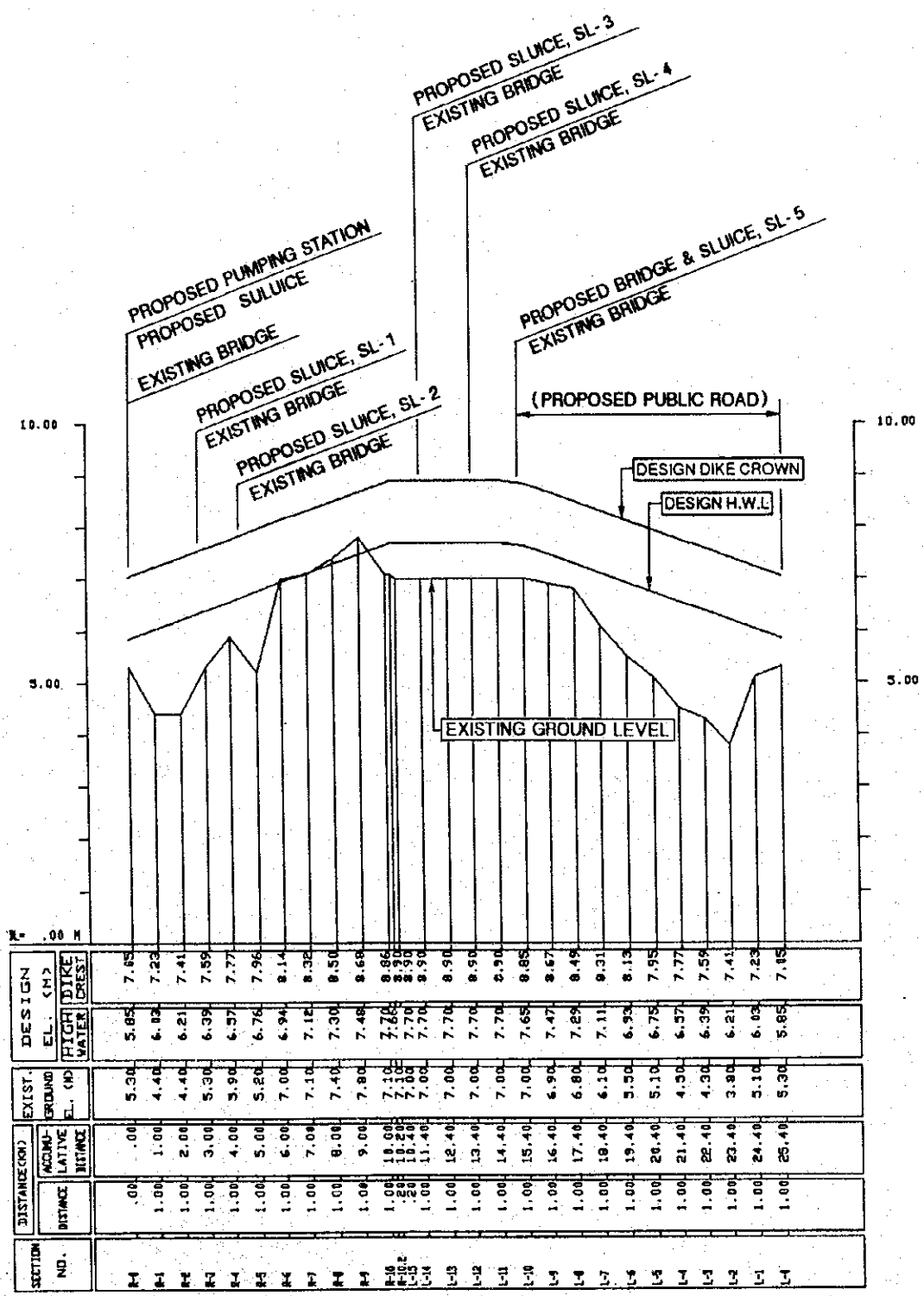
- () EXISTING BRIDGE
- PROPOSED RING DIKE (EARTH DIKE)
- PROPOSED RING DIKE (CONCRETE WALL)
- ⊠ PROPOSED CONTROL GATE (SLUICE)
- ⊙ PROPOSED PUMPING STATION
- ▲▲▲▲ PROPOSED SLOPE PROTECTION AND GROIN
- ▬ PROPOSED BRIDGE
- ~~~~~ PROPOSED DRAINAGE CHANNEL
- PROPOSED PUBLIC ROAD
- ⊞ PROPOSED OUTLET
- ▨ PROPOSED RETARDING BASIN

SCALE : 1 / 30,000



THE STUDY ON
KAMPAR-INDRAGIRI RIVER BASIN DEVELOPMENT PROJECT
IN THE REPUBLIC OF INDONESIA
JAPAN INTERNATIONAL COOPERATION AGENCY

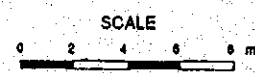
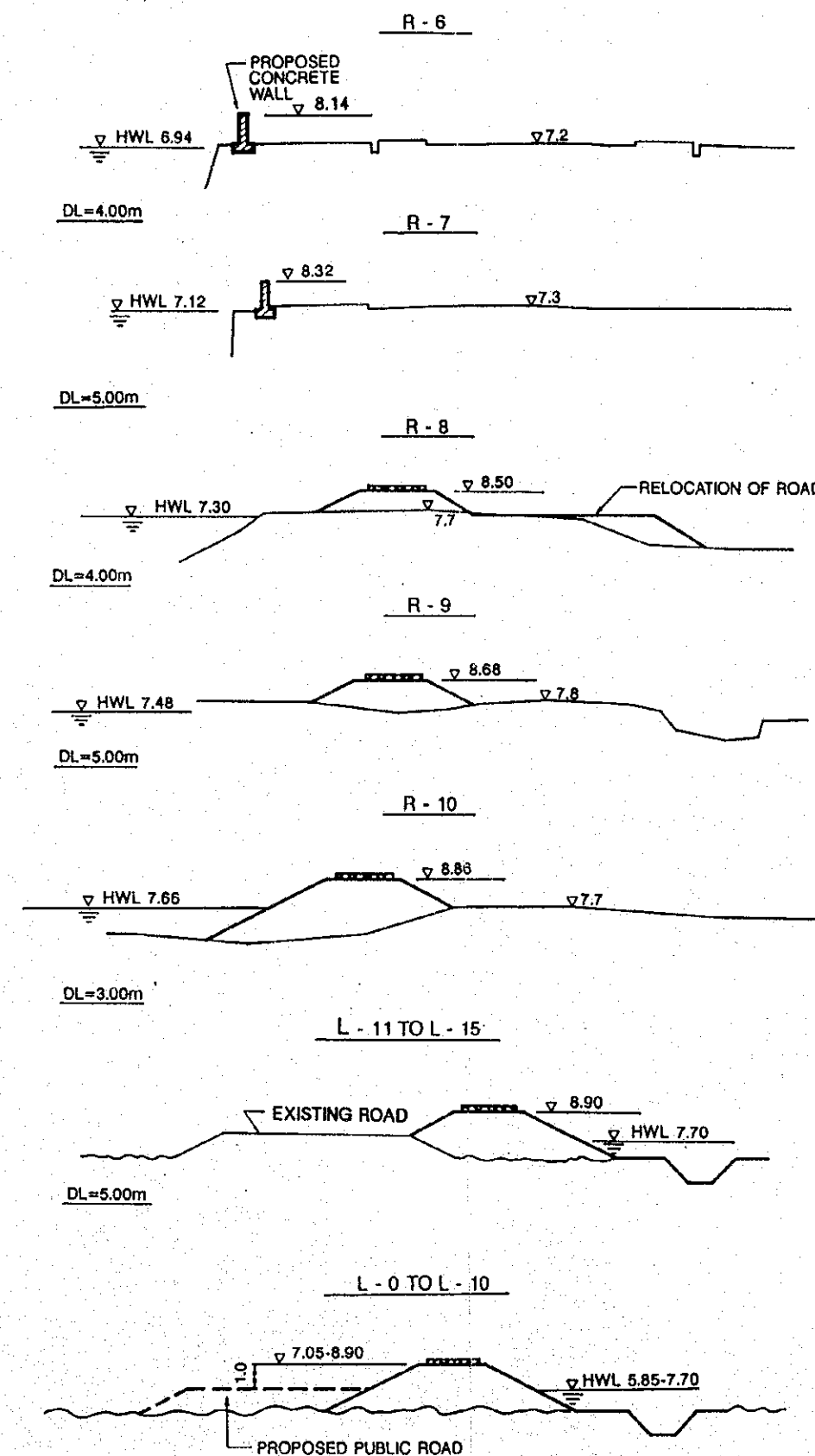
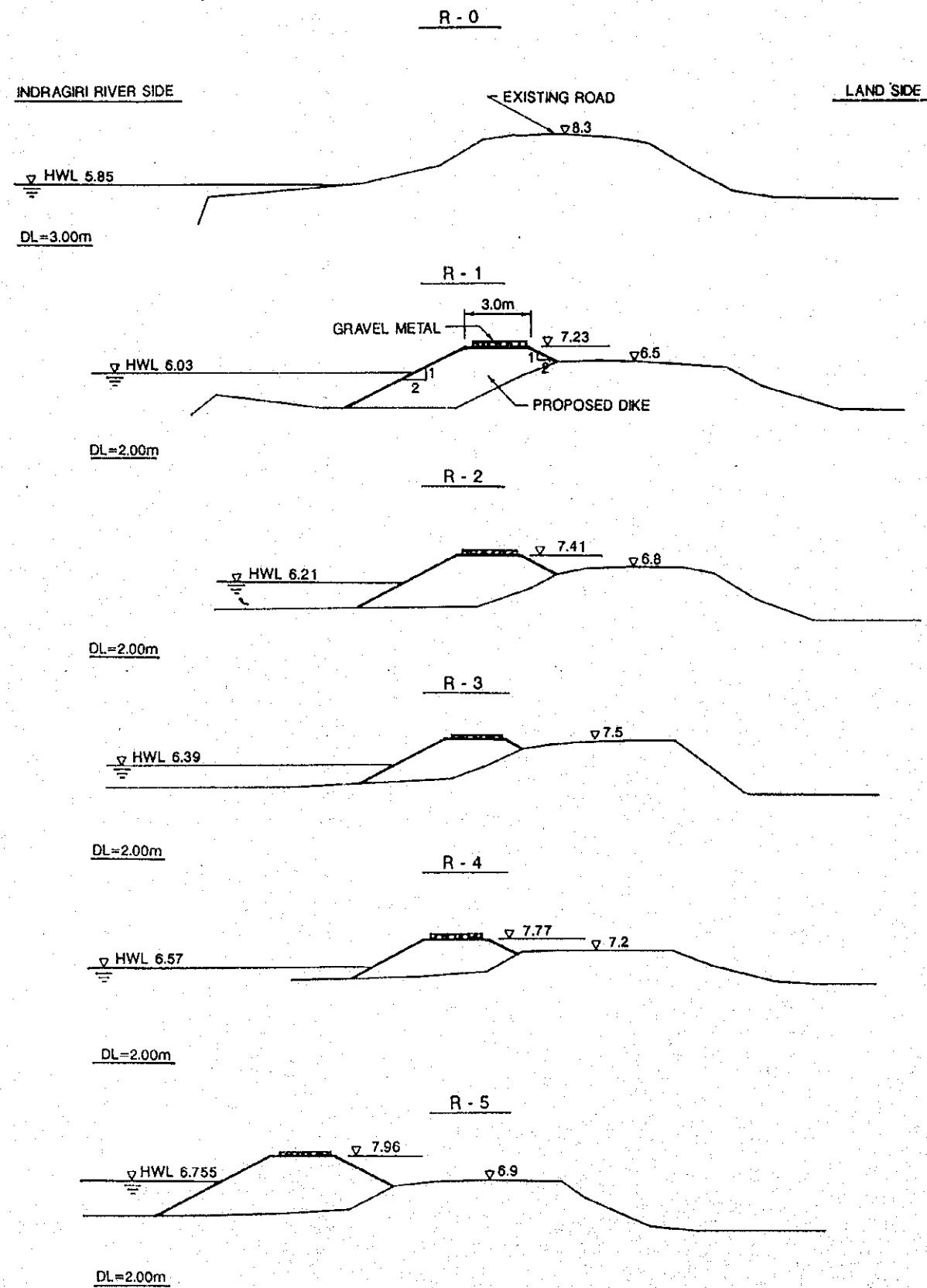
Fig. 7.5.1 PROPOSED PLAN (INITIAL PLAN) OF FLOOD CONTROL FACILITIES FOR RENGAT AREA



SECTION NO.	DISTANCE (M)		EXIST. GROUND EL. (M)	DESIGN EL. (M)	
	DISTANCE	ACCUMULATIVE DISTANCE		RIGHT WATER	DIKE CREST
R-1	0.00	0.00	5.30	5.85	7.65
R-1	1.00	1.00	4.40	6.82	7.23
R-2	1.00	2.00	4.40	6.21	7.41
R-3	1.00	3.00	5.30	6.39	7.59
R-4	1.00	4.00	3.90	6.57	7.77
R-5	1.00	5.00	5.20	6.76	7.96
R-6	1.00	6.00	7.00	6.94	8.14
R-7	1.00	7.00	7.10	7.12	8.32
R-8	1.00	8.00	7.40	7.30	8.50
R-9	1.00	9.00	7.80	7.48	8.68
R-10	1.00	10.00	7.10	7.70	8.66
R-11	1.00	11.00	7.10	7.70	8.90
R-12	1.00	12.00	7.00	7.70	8.90
R-13	1.00	13.00	7.00	7.70	8.90
R-14	1.00	14.00	7.00	7.70	8.90
R-15	1.00	15.00	7.00	7.65	8.85
R-16	1.00	16.00	6.90	7.47	8.67
R-17	1.00	17.00	6.80	7.29	8.49
R-18	1.00	18.00	6.10	7.11	8.31
R-19	1.00	19.00	5.50	6.93	8.13
R-20	1.00	20.00	5.10	6.75	7.95
R-21	1.00	21.00	4.50	6.57	7.77
R-22	1.00	22.00	4.30	6.39	7.59
R-23	1.00	23.00	3.80	6.21	7.41
R-24	1.00	24.00	5.10	6.03	7.23
R-25	1.00	25.40	5.30	5.85	7.05

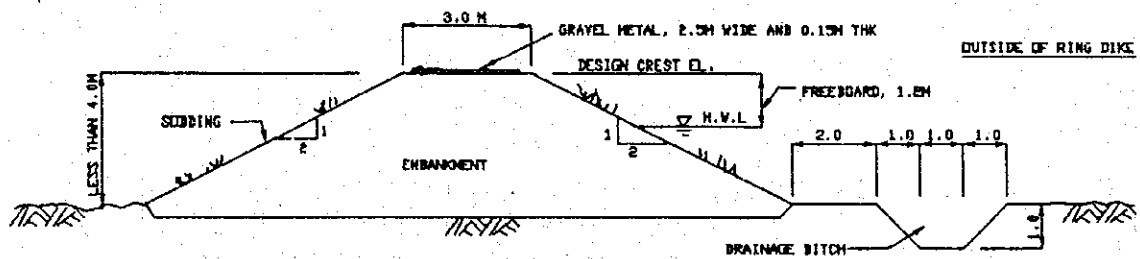
THE STUDY ON KAMPAR-INDRAGIRI RIVER BASIN DEVELOPMENT PROJECT IN THE REPUBLIC OF INDONESIA
 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 7.5.2 PROPOSED LONGITUDINAL PROFILE (INITIAL PLAN) OF RING DIKE FOR RENGAT AREA

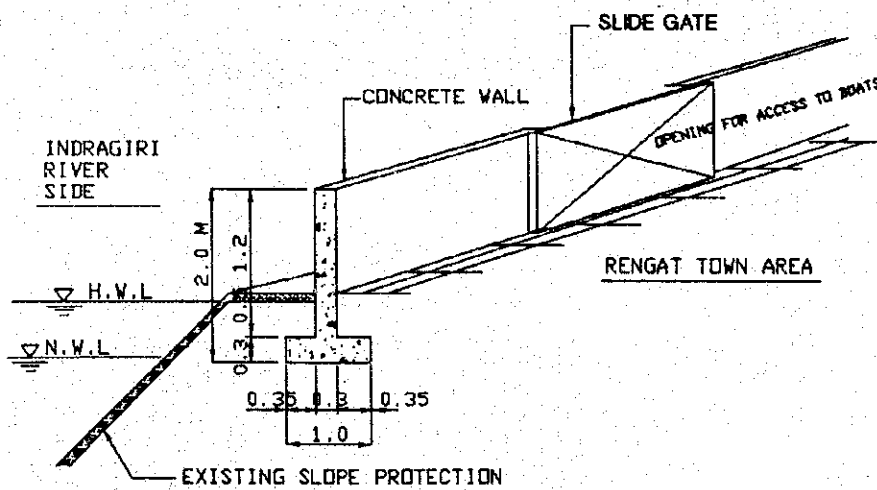


THE STUDY ON
 KAMPAR-INDRAGIRI RIVER BASIN DEVELOPMENT PROJECT
 IN THE REPUBLIC OF INDONESIA
 JAPAN INTERNATIONAL COOPERATION AGENCY

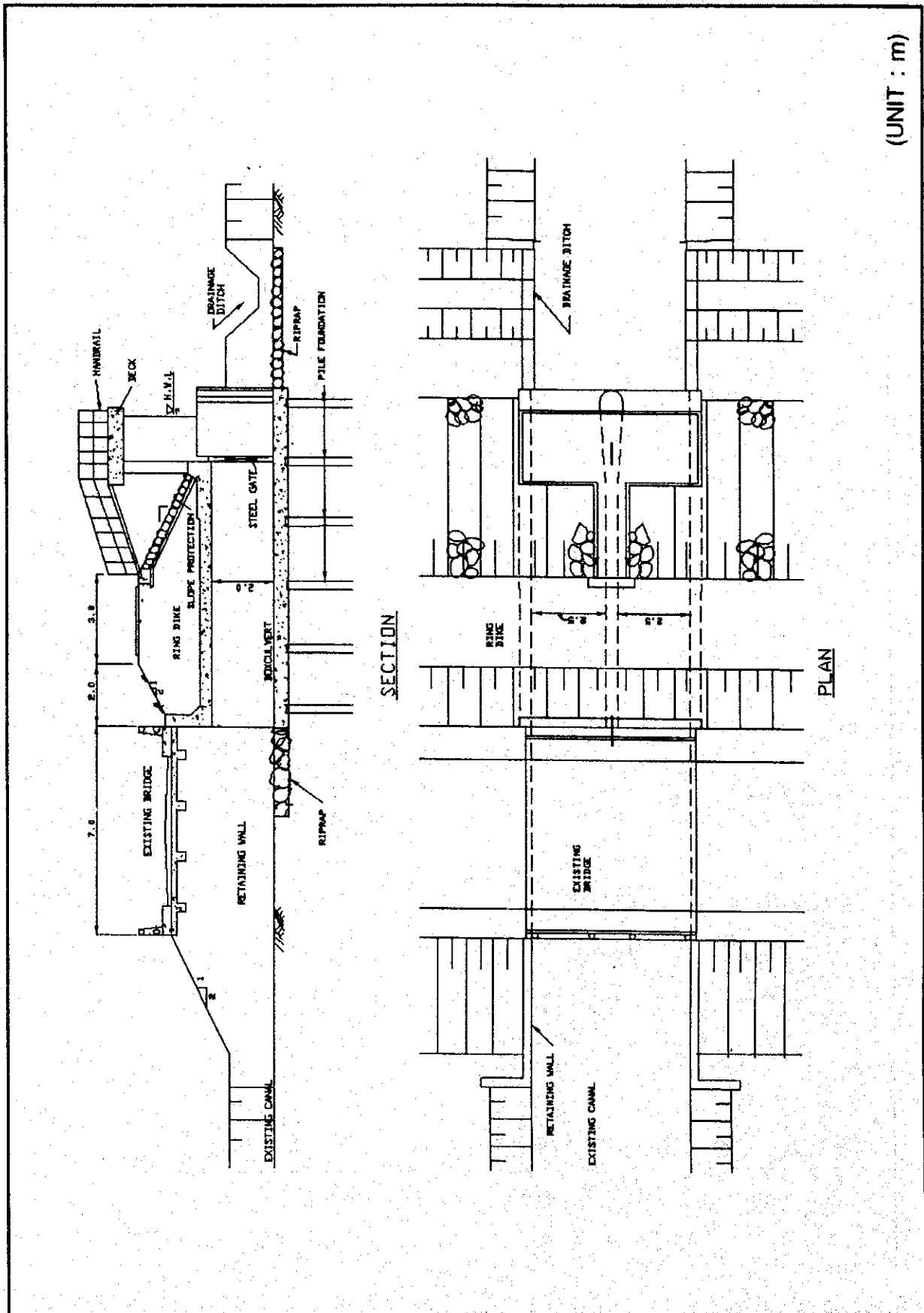
Fig. 7.5.3 PROPOSED CROSS SECTIONS
 (INITIAL PLAN) OF RING DIKE FOR
 RENGAT AREA



TYPICAL CROSS SECTION OF RING DIKE



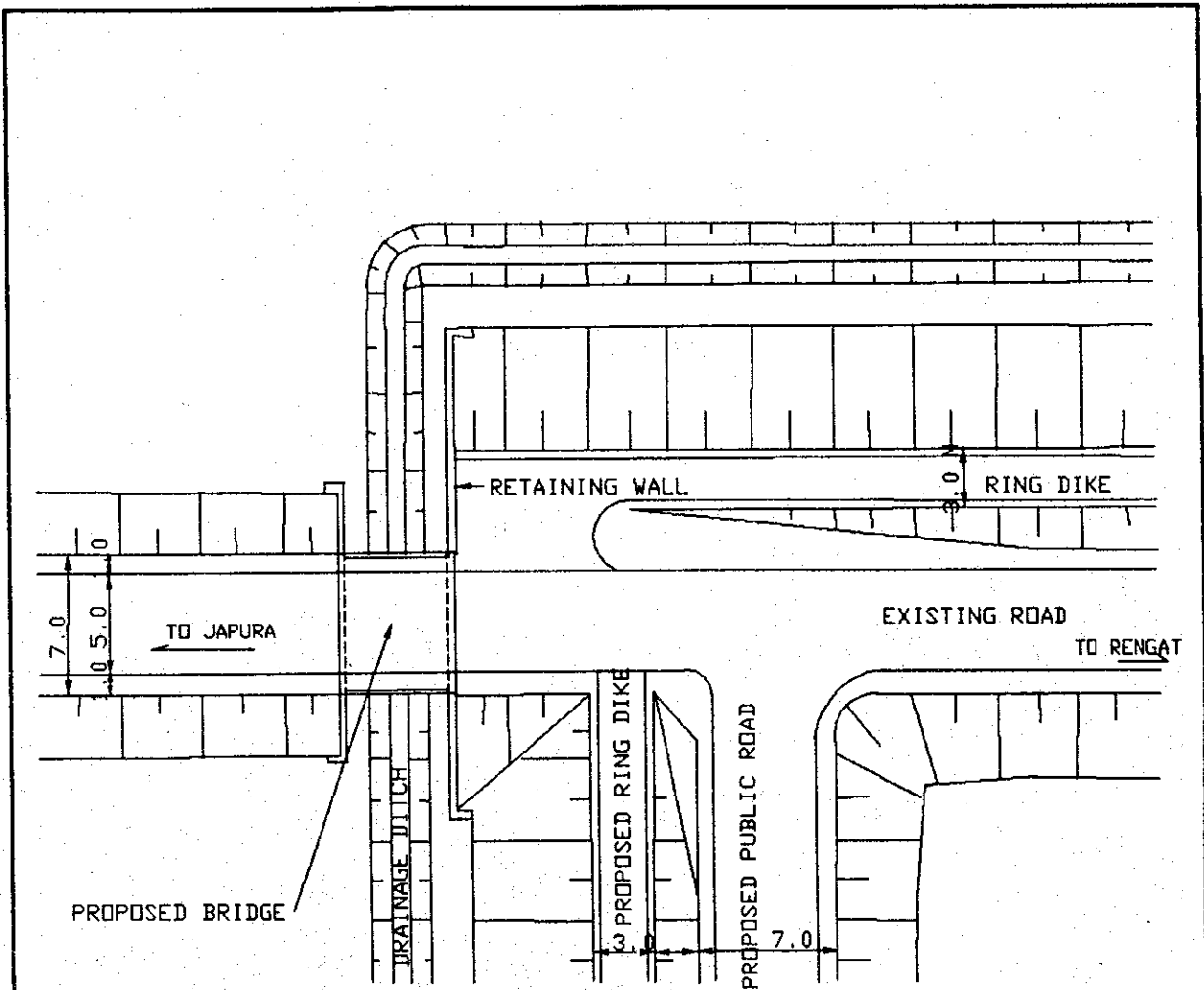
TYPICAL SECTION OF CONCRETE WALL AT RENGAT TOWN CENTER



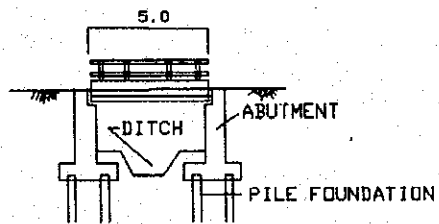
(UNIT : m)

THE STUDY ON
 KAMPAR-INDRAGIRI RIVER BASIN DEVELOPMENT PROJECT
 IN THE REPUBLIC OF INDONESIA
 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 7.5.5 TYPICAL PROPOSED CONTROL GATE IN RENGAT AREA



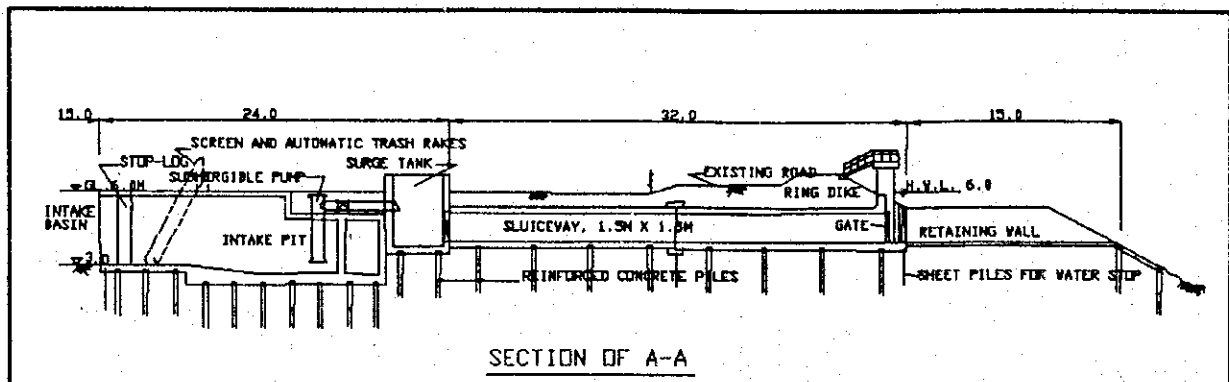
PLAN



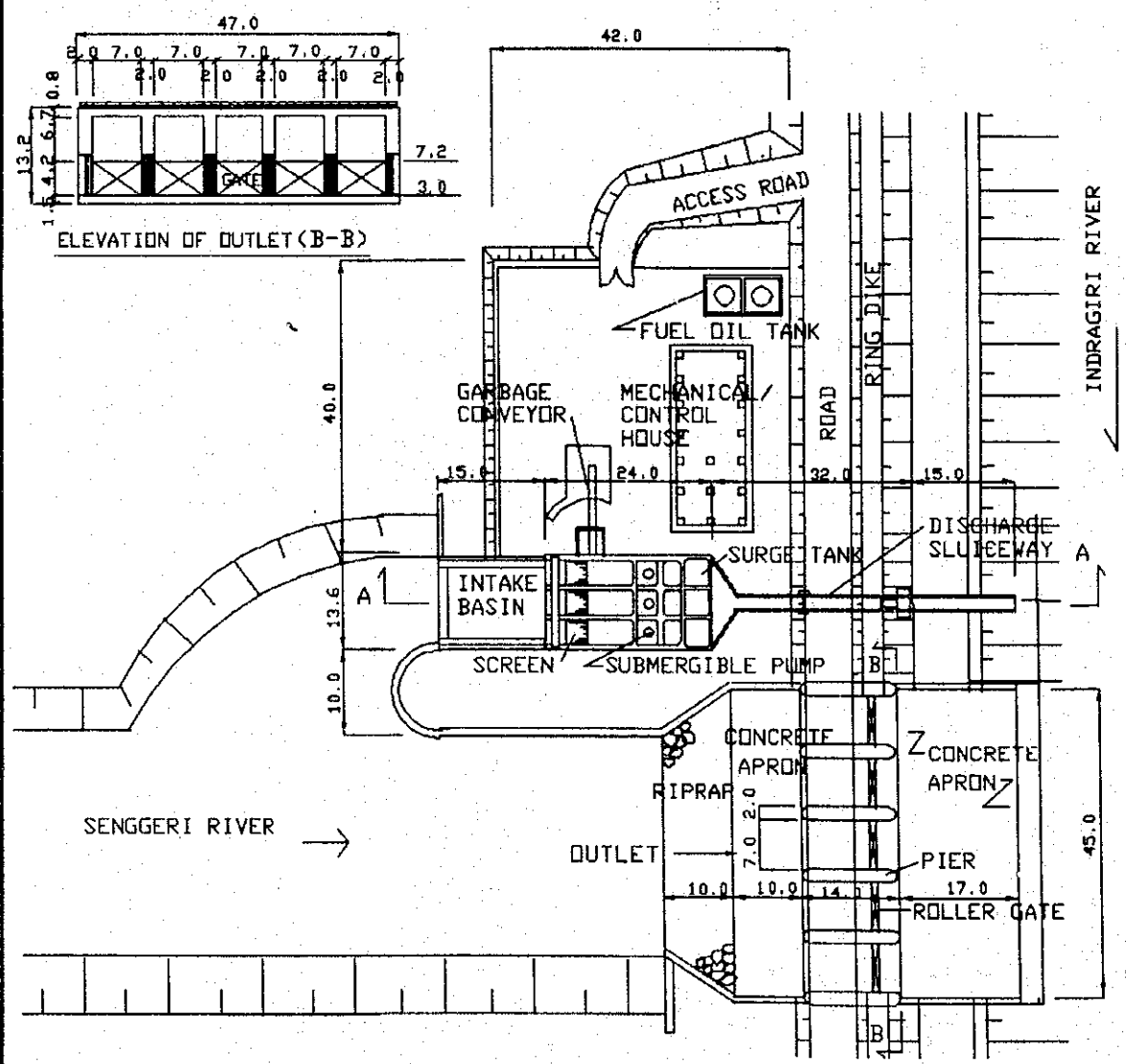
BRIDGE SECTION

UNIT : m

<p>THE STUDY ON KAMPAR-INDRAGIRI RIVER BASIN DEVELOPMENT PROJECT IN THE REPUBLIC OF INDONESIA</p>	<p>Fig. 7.5.6 PROPOSED ROAD BRIDGE IN RENGAT AREA</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	



SECTION OF A-A



PLAN OF PUMPING STATION AND OUTLET

(UNIT : m)

THE STUDY ON
 KAMPAR-INDRAGIRI RIVER BASIN DEVELOPMENT PROJECT
 IN THE REPUBLIC OF INDONESIA
 JAPAN INTERNATIONAL COOPERATION AGENCY

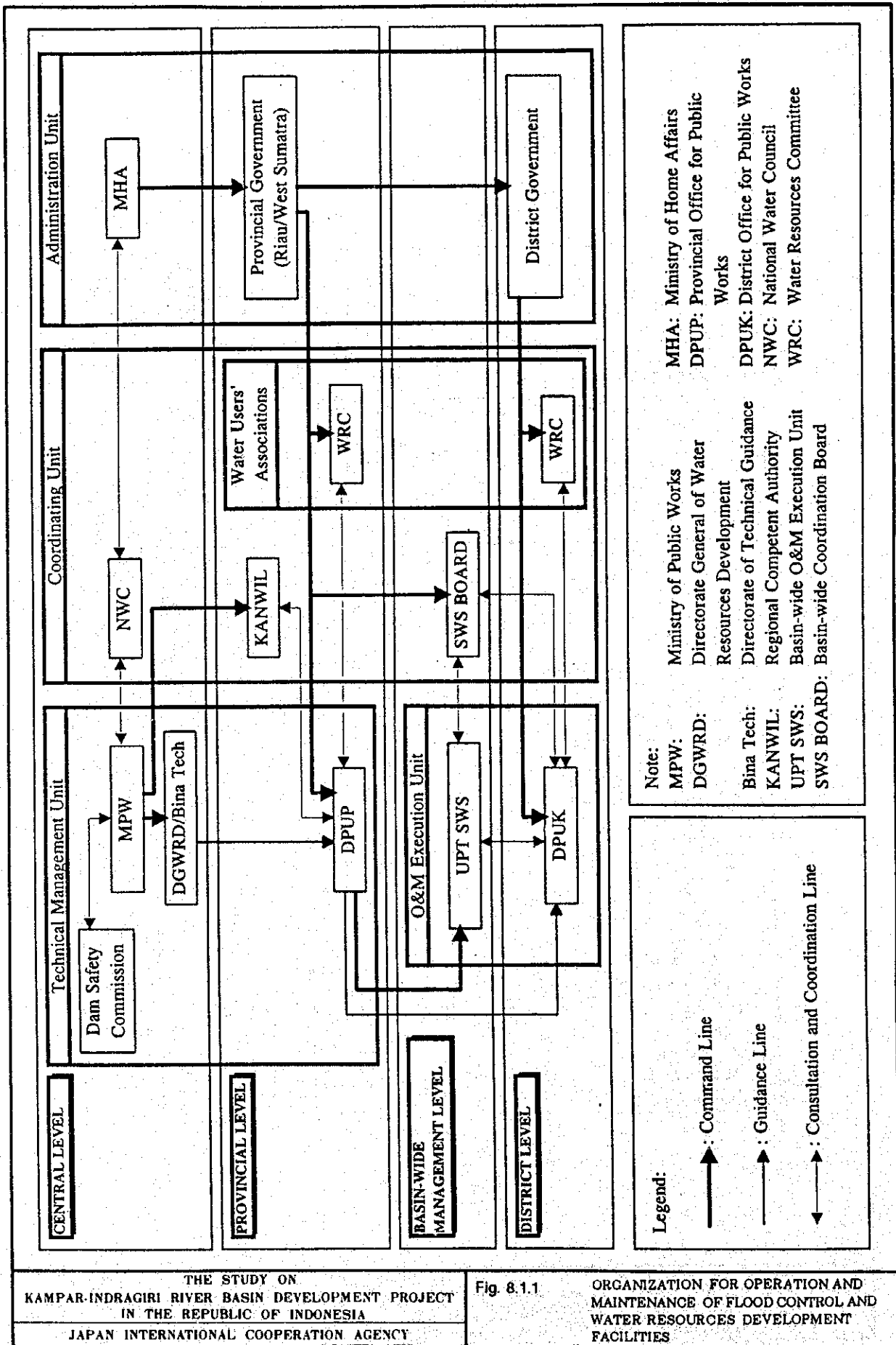
Fig. 7.5.7 PROPOSED PUMPING STATION AND SLUICE IN RENGAT AREA

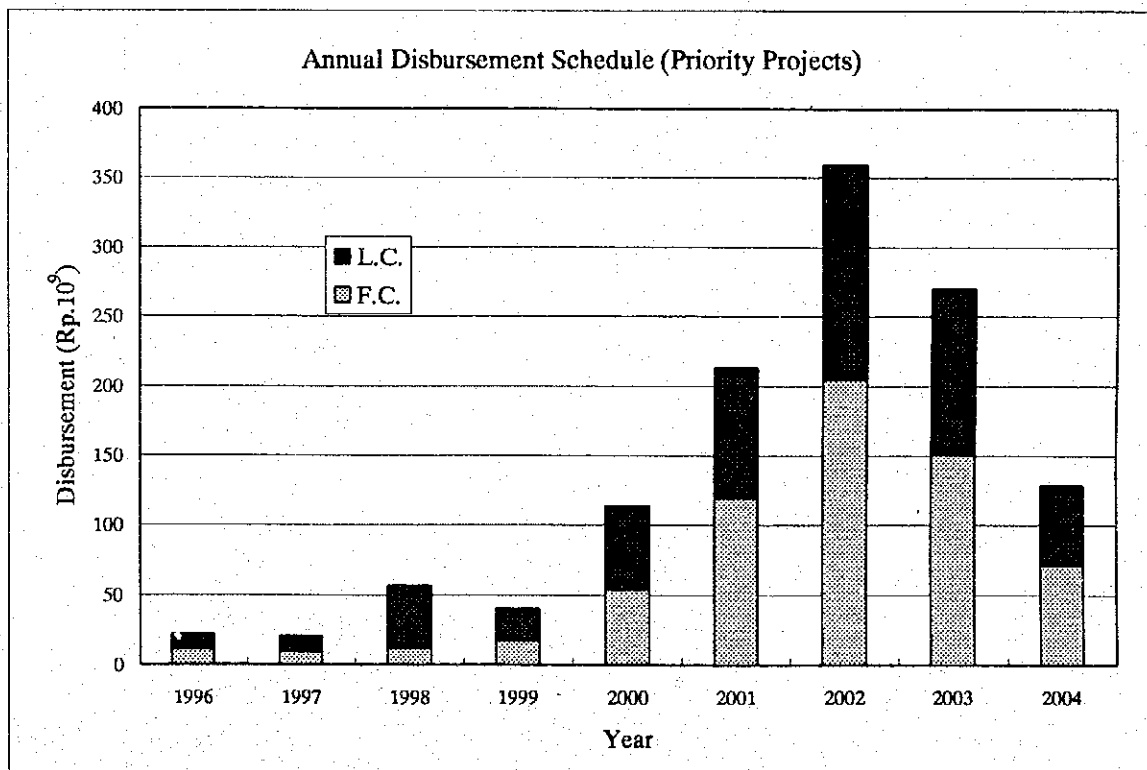
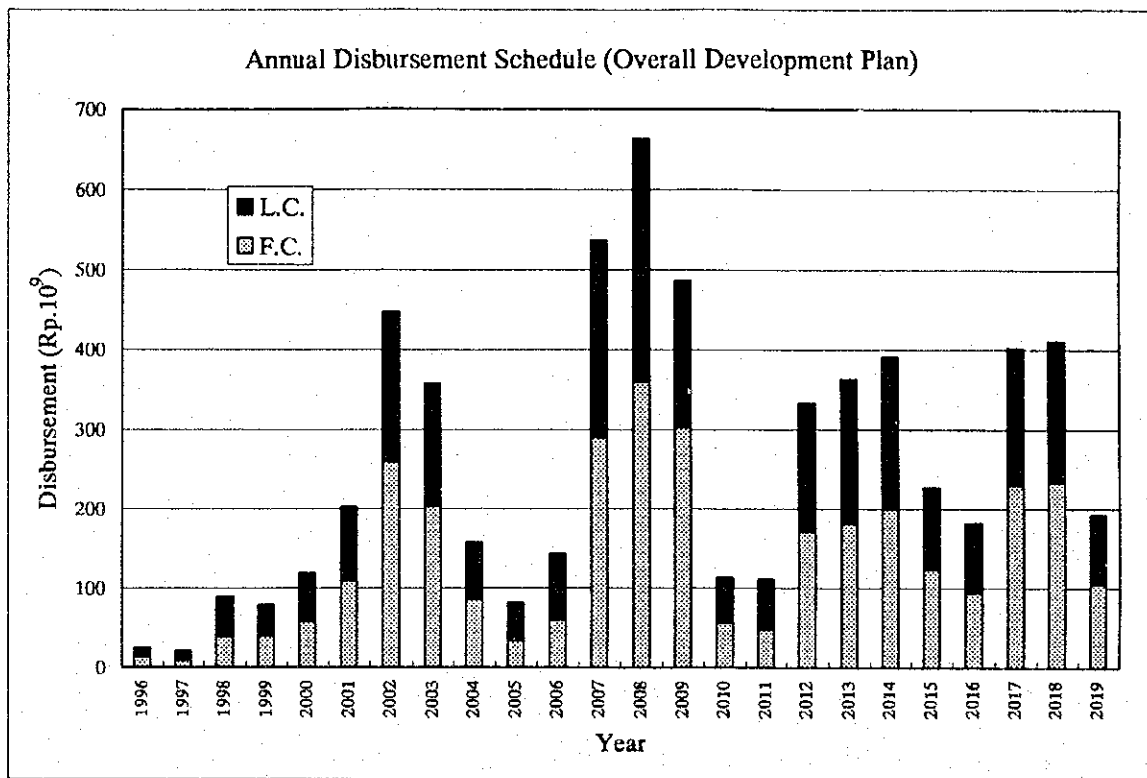
RENGAT AREA - INITIAL PHASE

Work Item	Quantity *	Initial		
		1998	1999	2000
1. Preparatory Works	1 l.s.			
2. Main Civil Works				
a. Dredging/Excavation	0 cu m			
b. Earth Dike				
- Stripping/Clearing	271,000 sq m			
- Embankment	472,000 cu m			
- Sodding	245,600 sq m			
- Filter	0 cu m			
- Gravel Metaling	9,100 cu m			
c. Concrete Dike	1,400 m			
d. Control Gate (2 spans x 2.5W x 2.0H)	5 units			
e. Sluice				
- Type A	0 unit			
- Type B	0 unit			
- Type C	0 unit			
- Type D	0 unit			
- Type E	0 unit			
- Type F	0 unit			
- Type G	0 unit			
- Type H	0 unit			
- 5 spans x 7.0W x 5.2H	1 unit			
e. Drainage Pumping Station				
- Excavation	3,200 cu m			
- Embankment	3,400 cu m			
- Reinforced Concrete	690 cu m			
- Control House	300 sq m			
- Mechanical Works	1 l.s.			
f. Revetment				
- Low Water Channel	4,400 sq m			
- High Water Channel	0 sq m			
g. Groin	8 sets			
h. Bridge				
- Footbridge	0 sq m			
- Road Bridge	35 sq m			
i. Miscellaneous	1 l.s.			

THE STUDY ON
KAMPAR-INDRAGIRI RIVER BASIN DEVELOPMENT PROJECT
IN THE REPUBLIC OF INDONESIA
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 7.5.8 CONSTRUCTION SCHEDULE OF KUANTAN-
INDRAGIRI RIVER IMPROVEMENT
PROJECT-RENGAT AREA





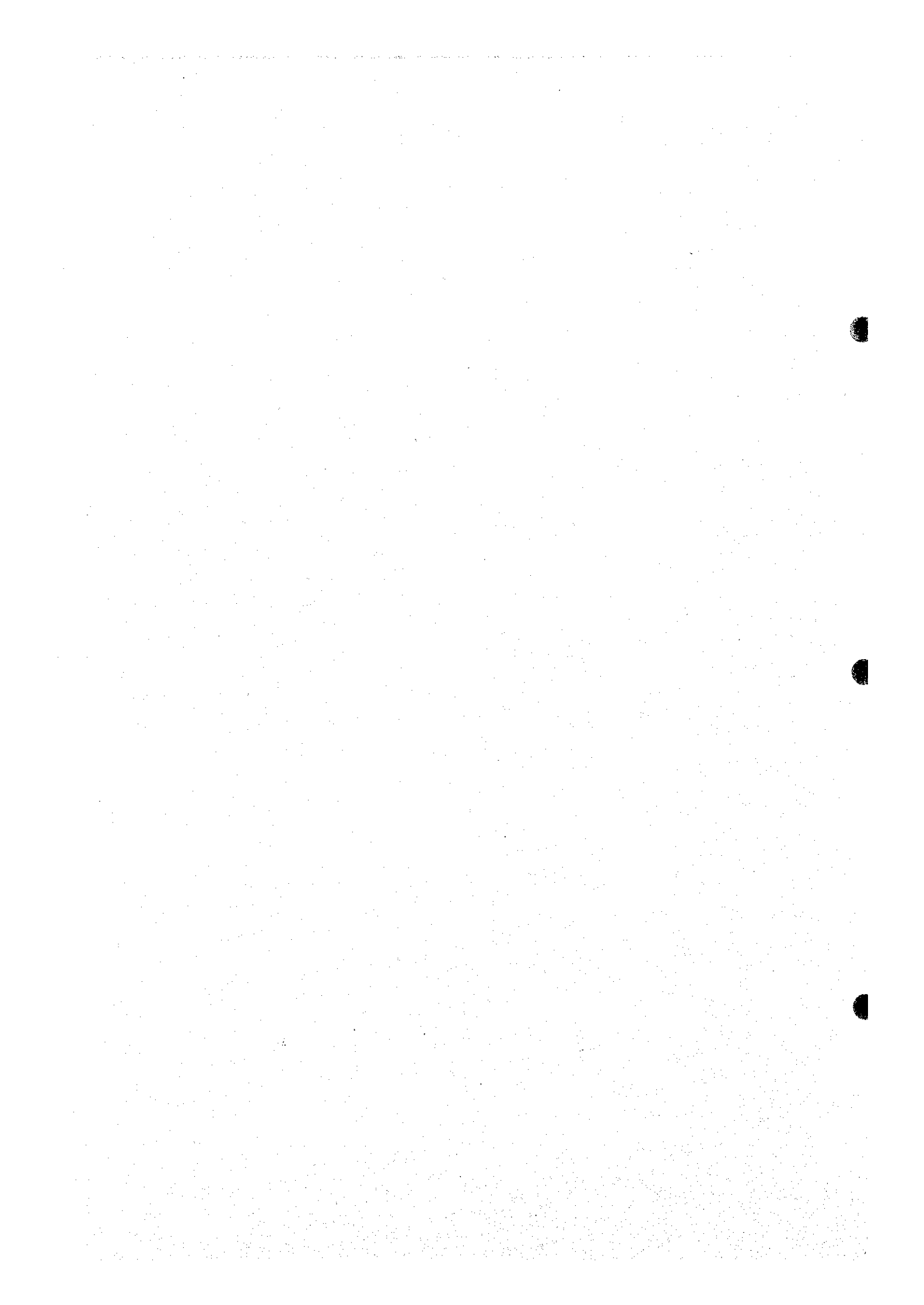
Note: Price Contingency is not included.
Physical Contingency and Value Added Tax are included.

Fig. 9.2.1 SUMMARY OF ANNUAL DISBURSEMENT SCHEDULE

[The main body of the document contains extremely faint and illegible text, likely due to low contrast or a very light scan. The text is arranged in several paragraphs but cannot be transcribed accurately.]



[The page contains extremely faint and illegible text, likely bleed-through from the reverse side of the document. The text is too light to transcribe accurately.]



JICA