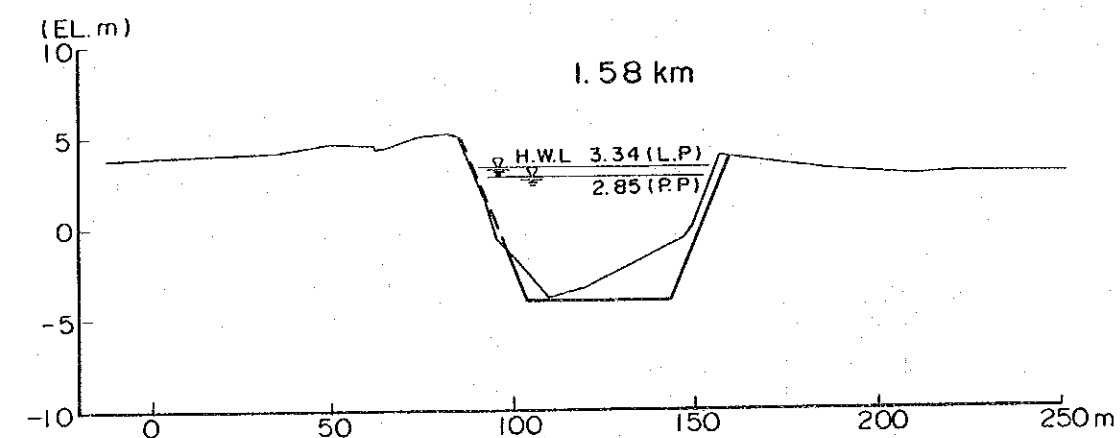
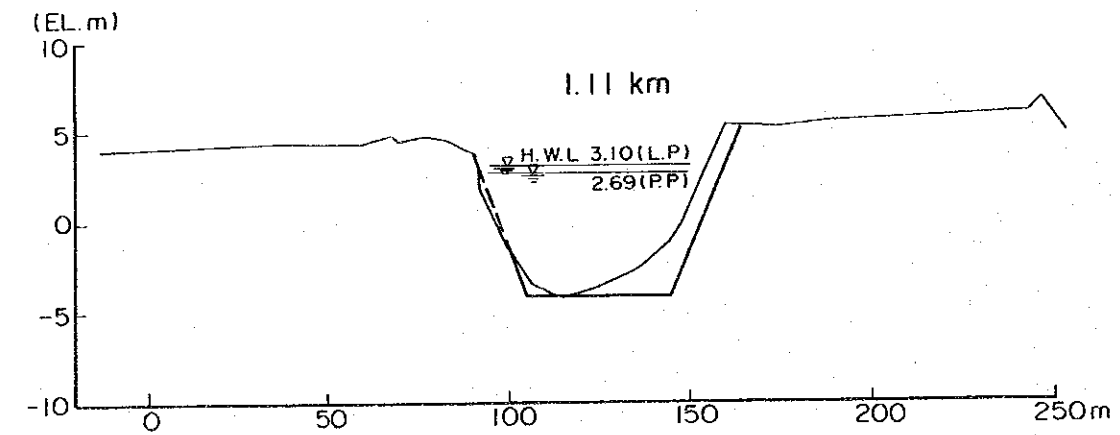
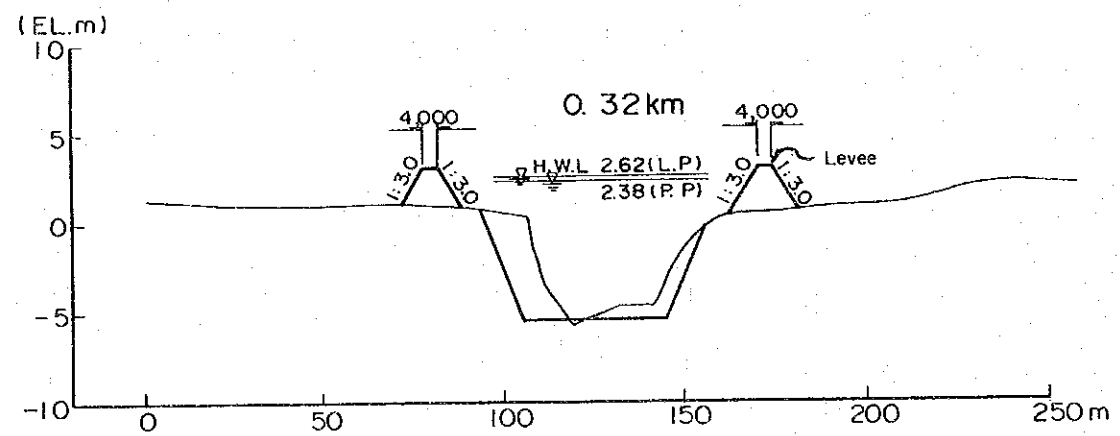
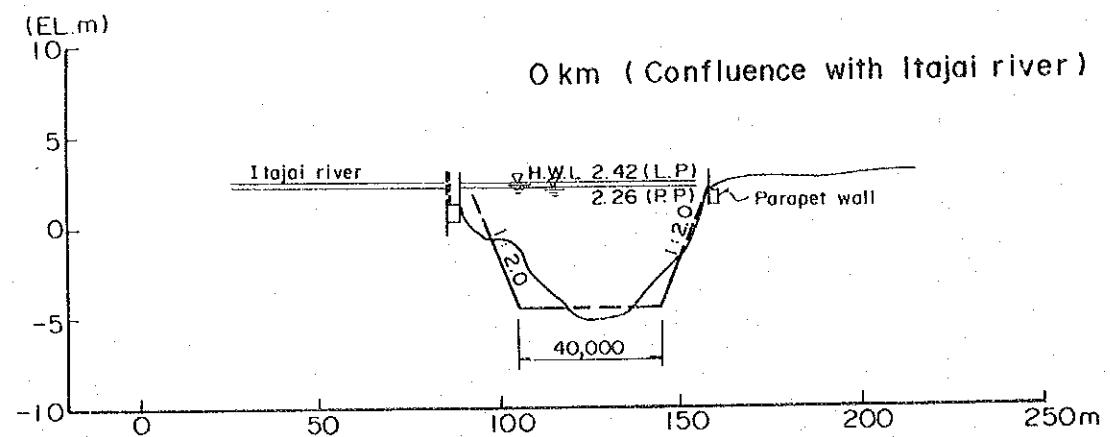


Remark, L.P: Long-term Plan
P.P: Provisinal Plan

Fig. 3.9 RIVER CROSS SECTION OF ITAJAI MIRIM RIVER



Remarks, L.P : Long-term Plan
P.P : Provisional Plan

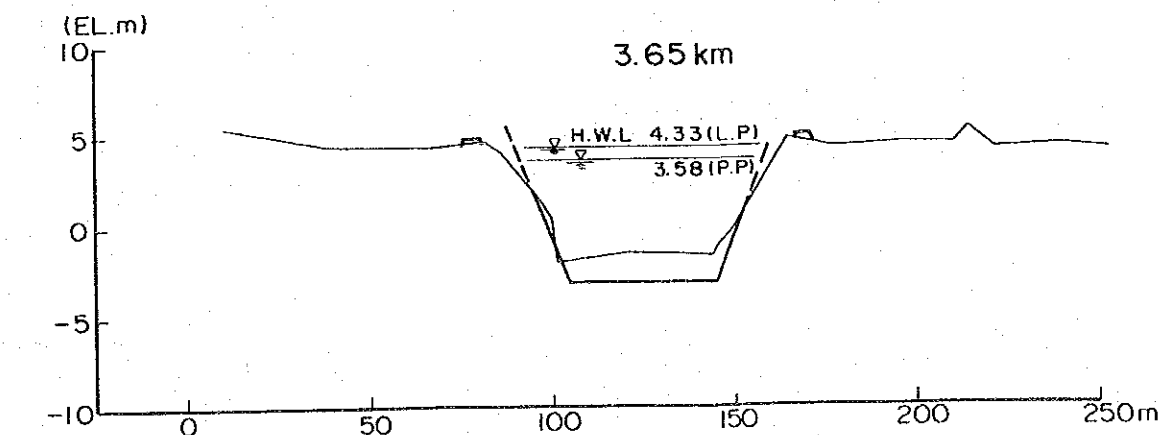
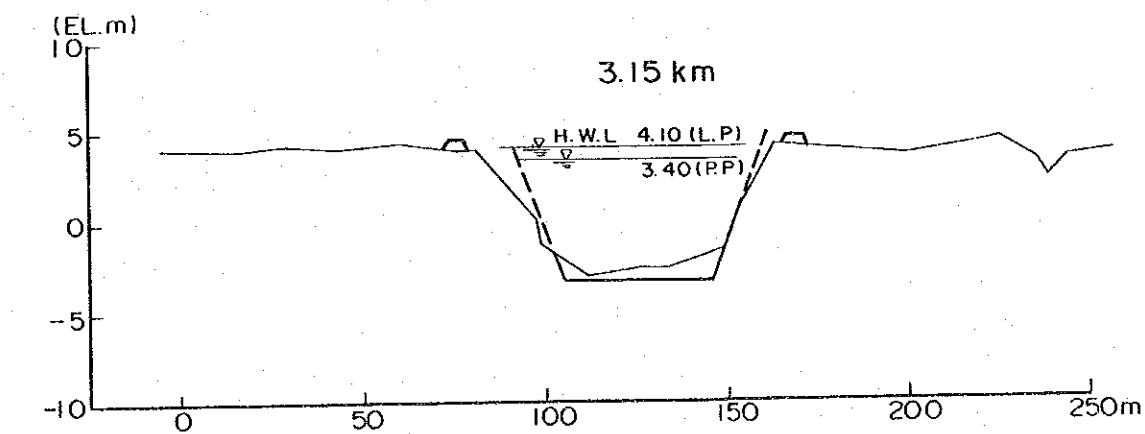
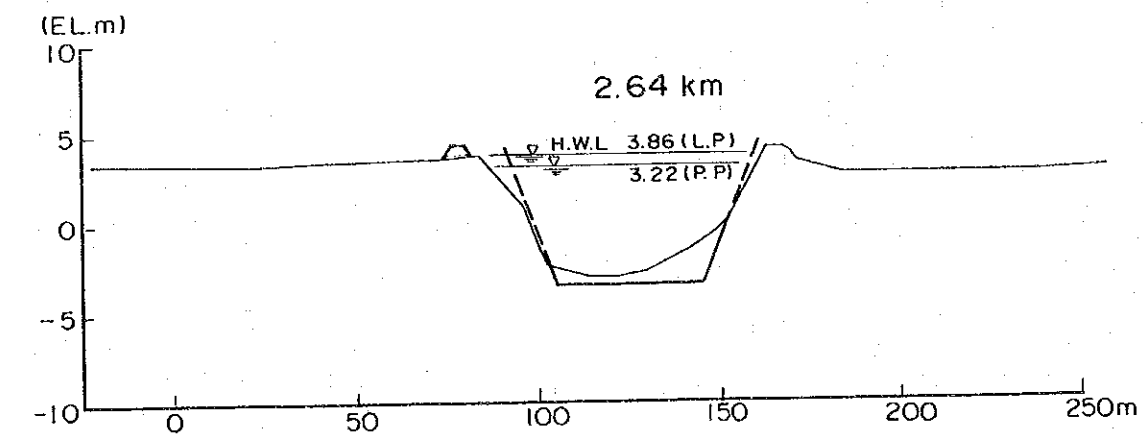
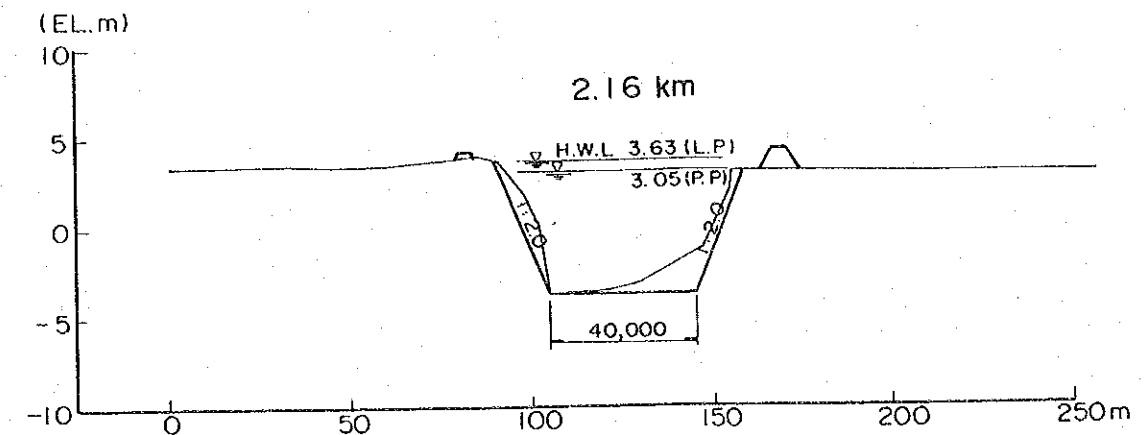
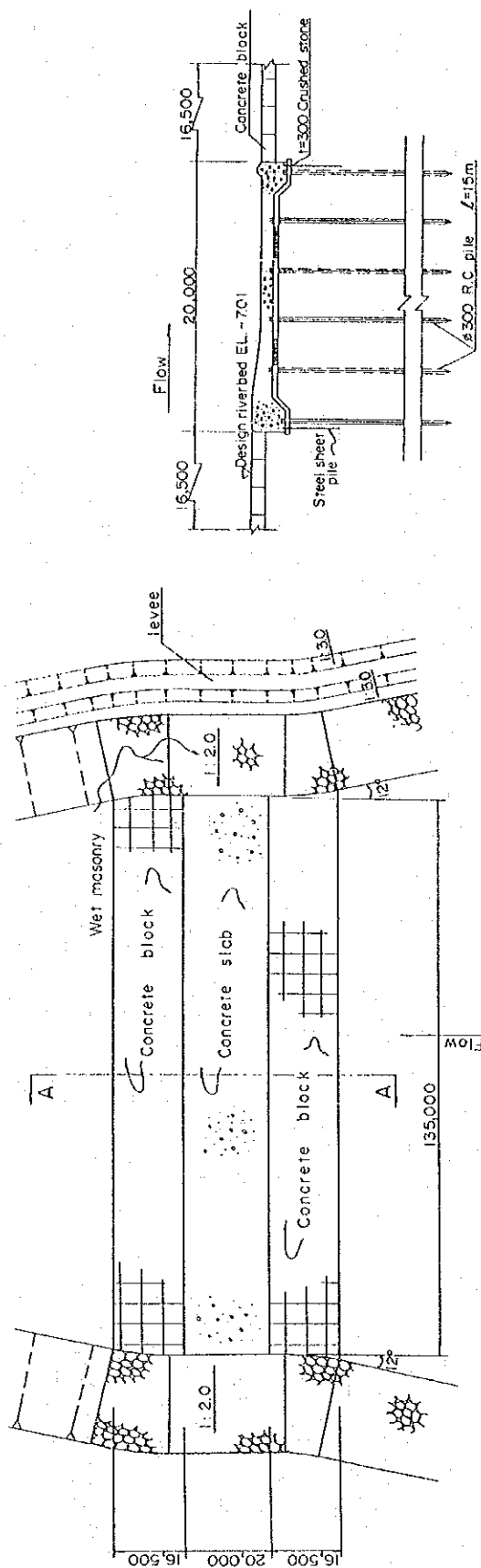
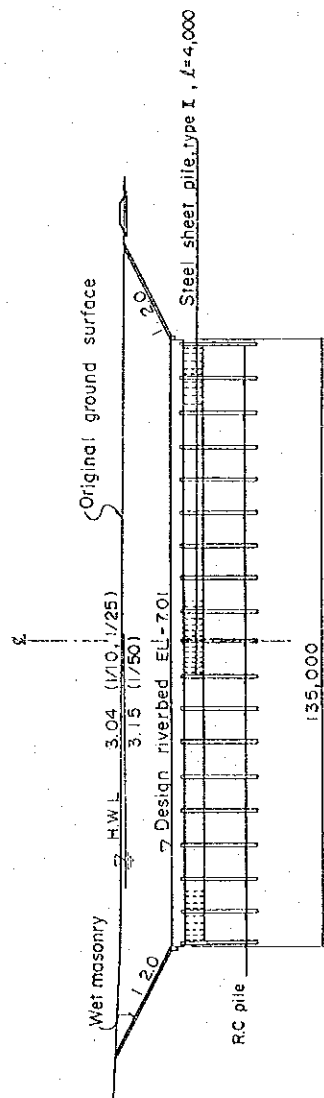


Fig. 3.10 RIVER CROSS SECTION OF ITAJAI MIRIM SHORT-CUT CHANNEL



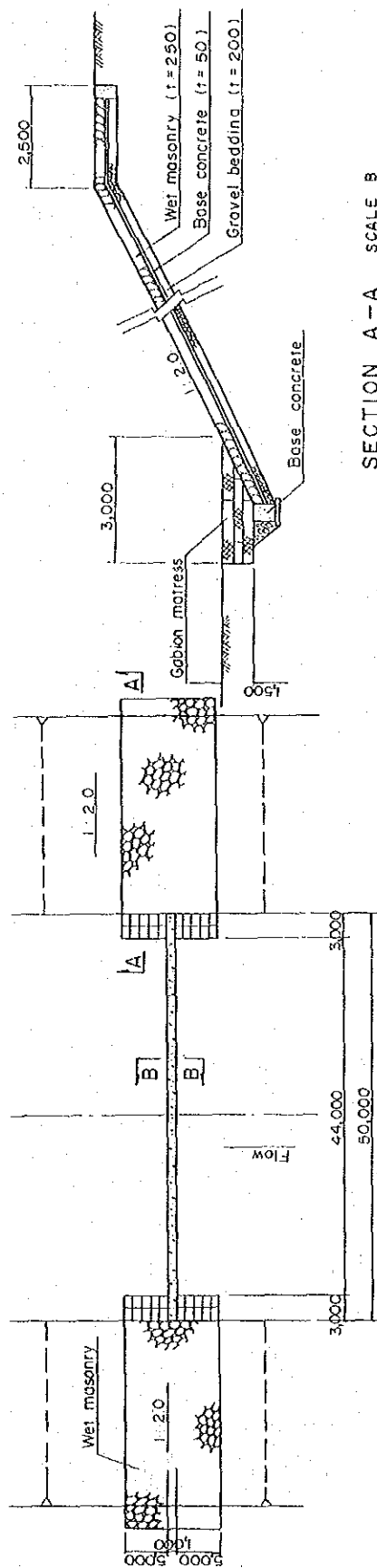
PLAN SCALE A

SECTION A-A SCALE B

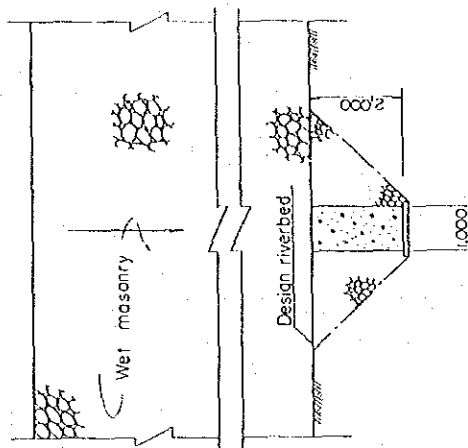


PROFILE SCALE A

Fig. 3.11 RIVERBED PROTECTION AT BRANCHING POINT OF ITAJAI RIVER AND FLOODWAY

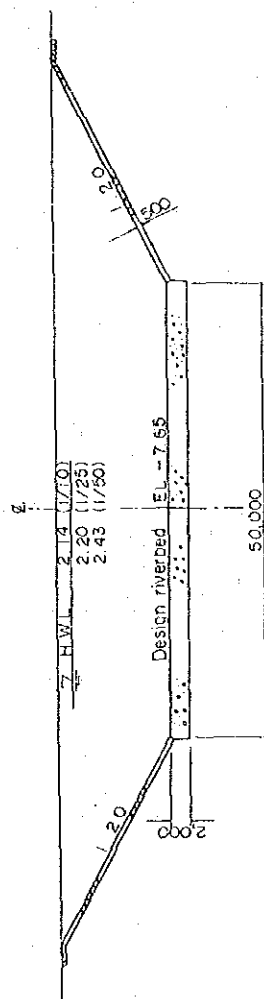


SECTION A-A SCALE B



SECTION B-B SCALE B

PLAN SCALE A

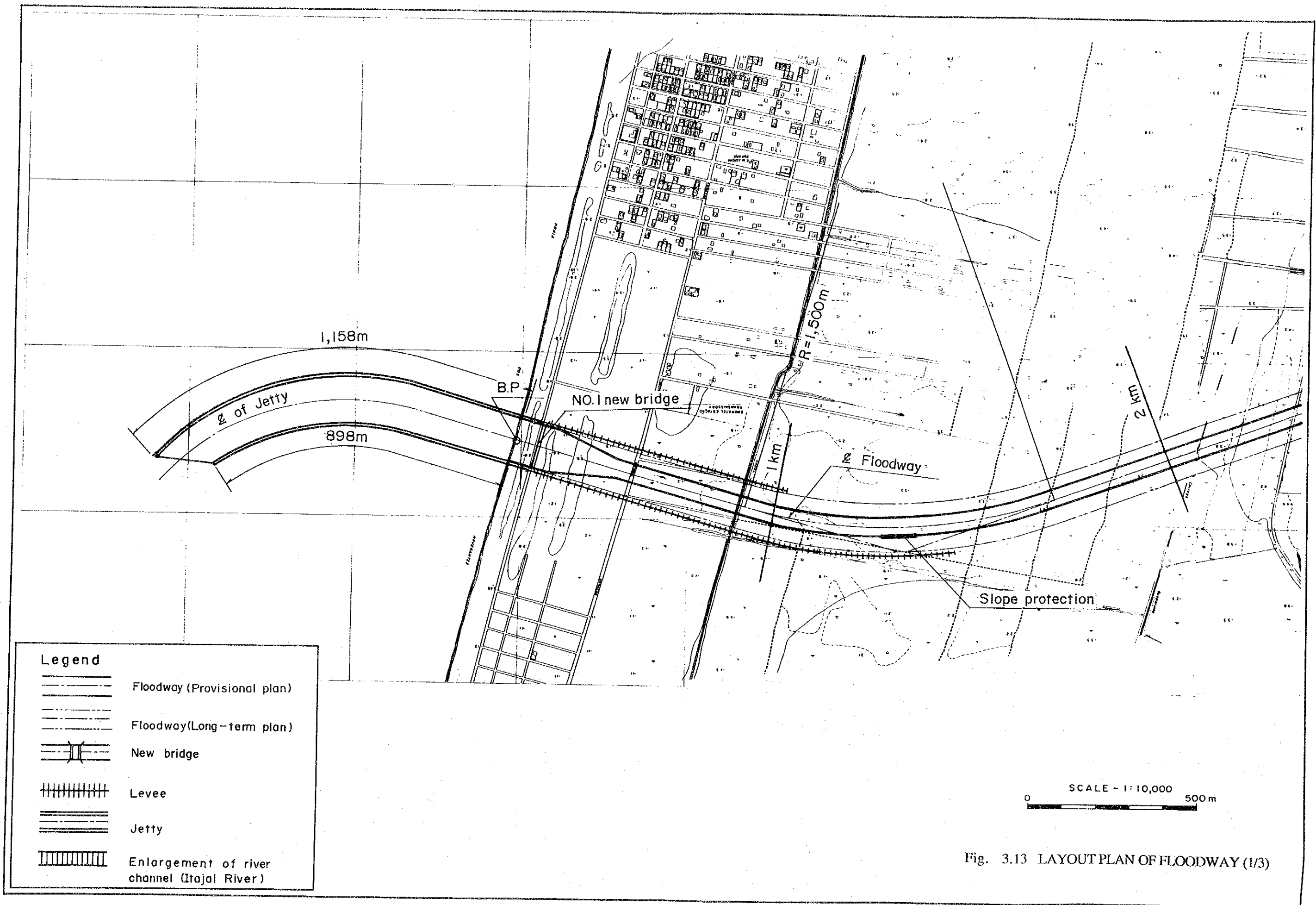


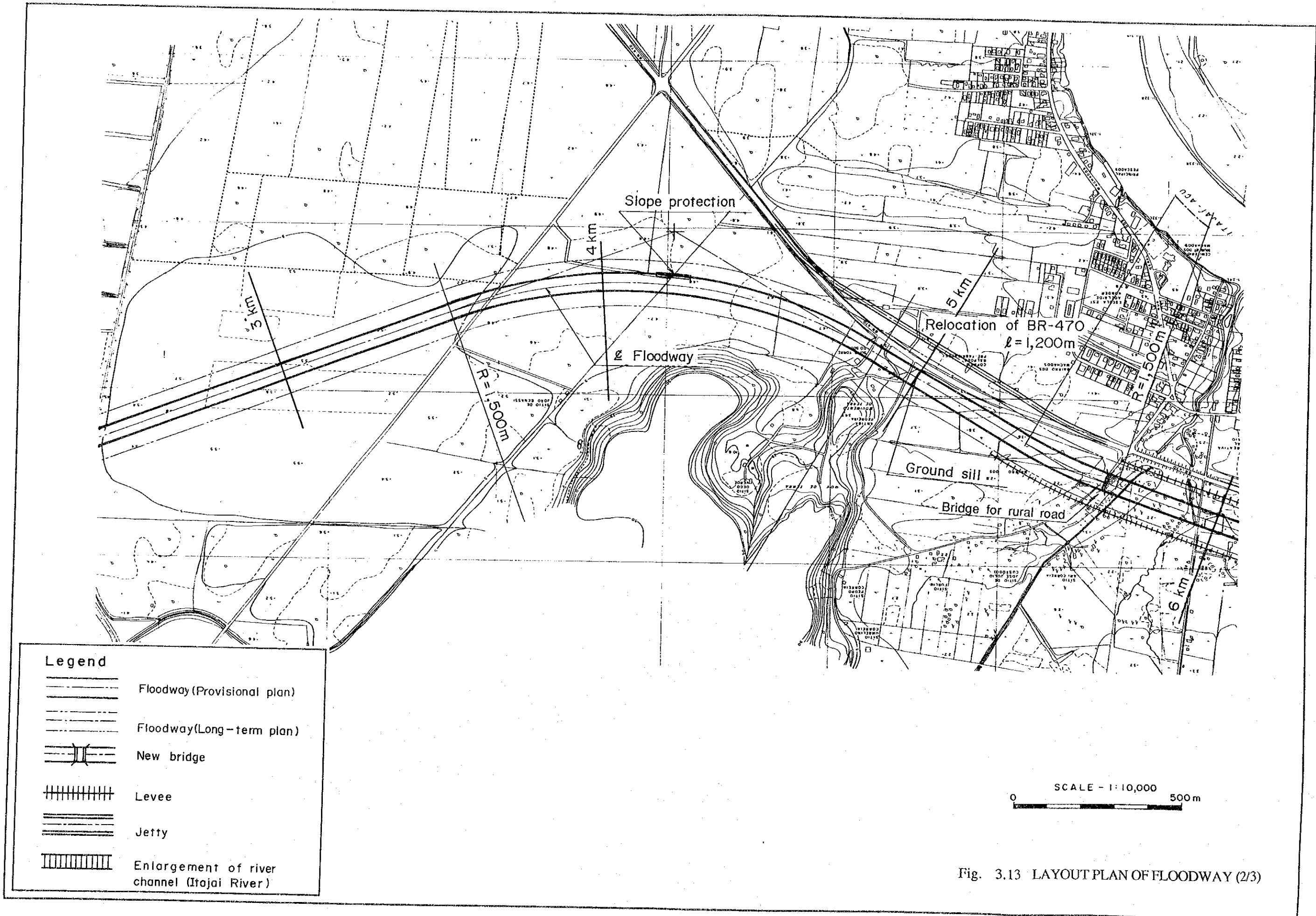
PROFILE SCALE A

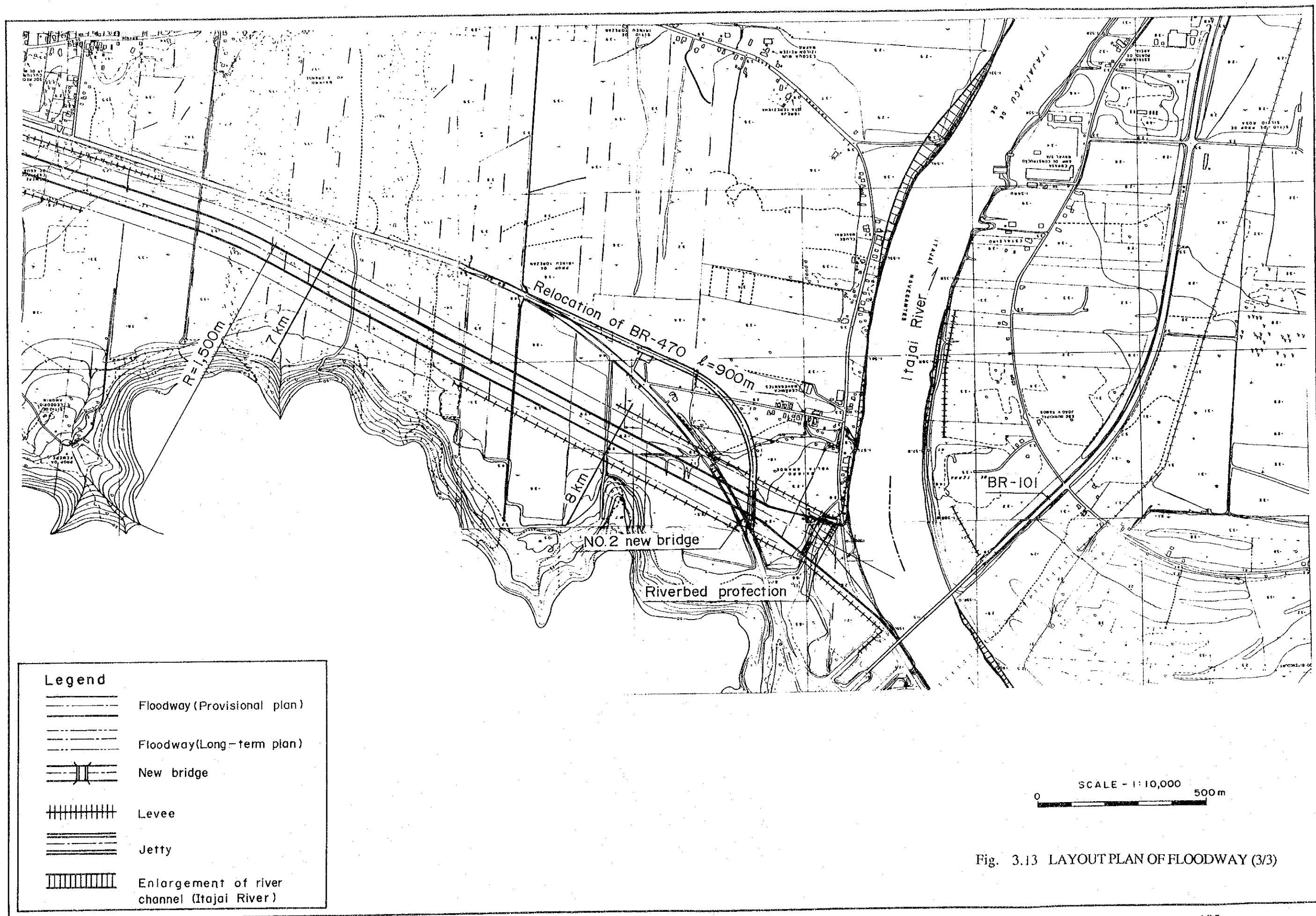
SCALE A 0 25m

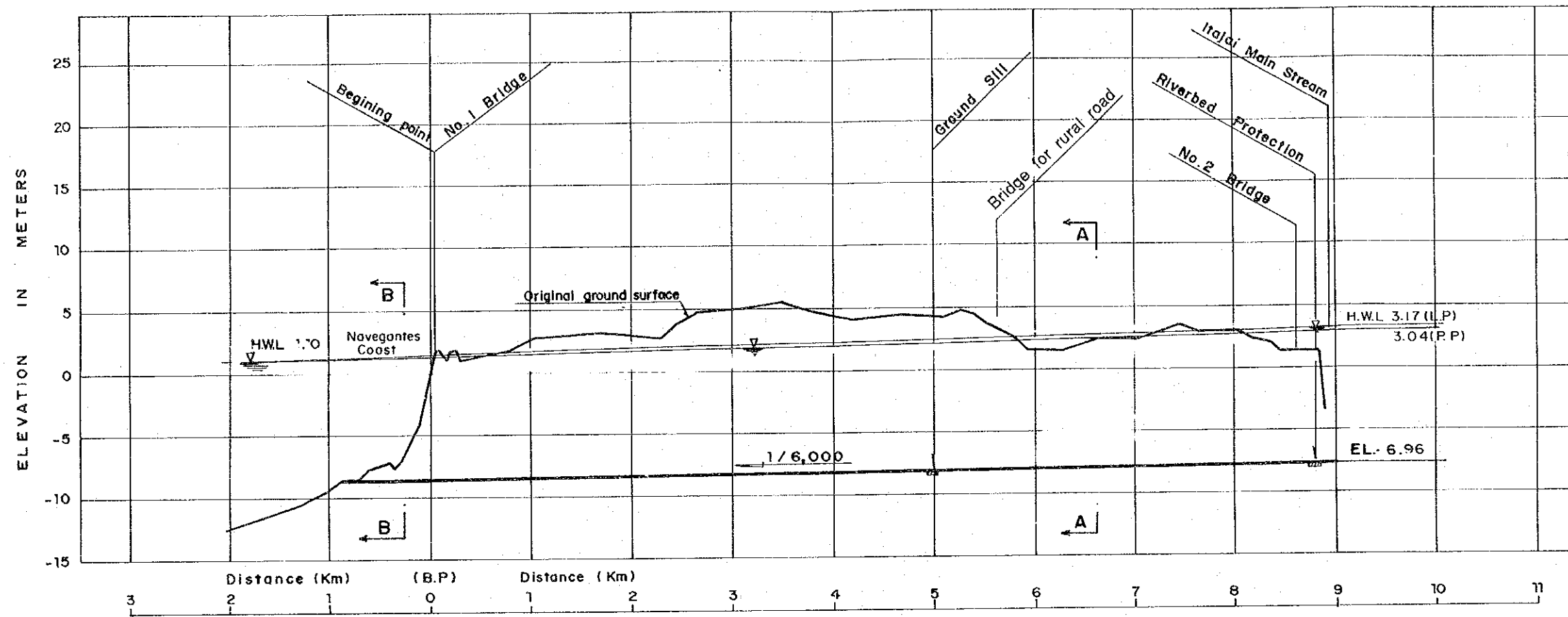
SCALE B 0 5m

Fig. 3.12 GROUND SILL

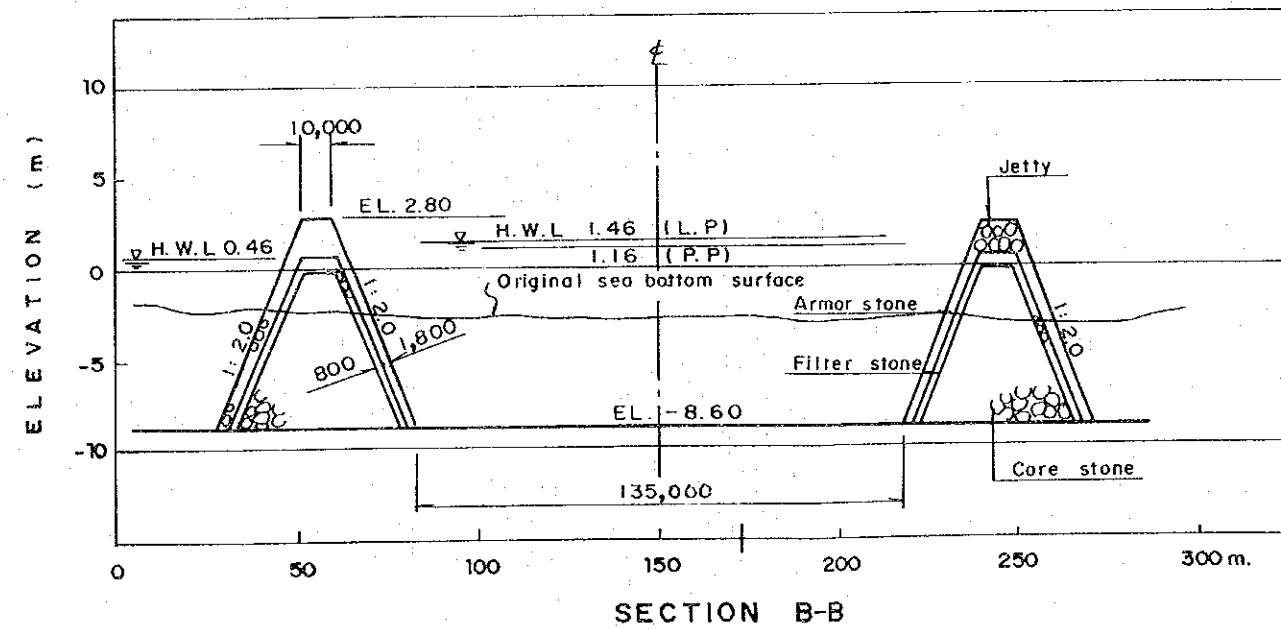
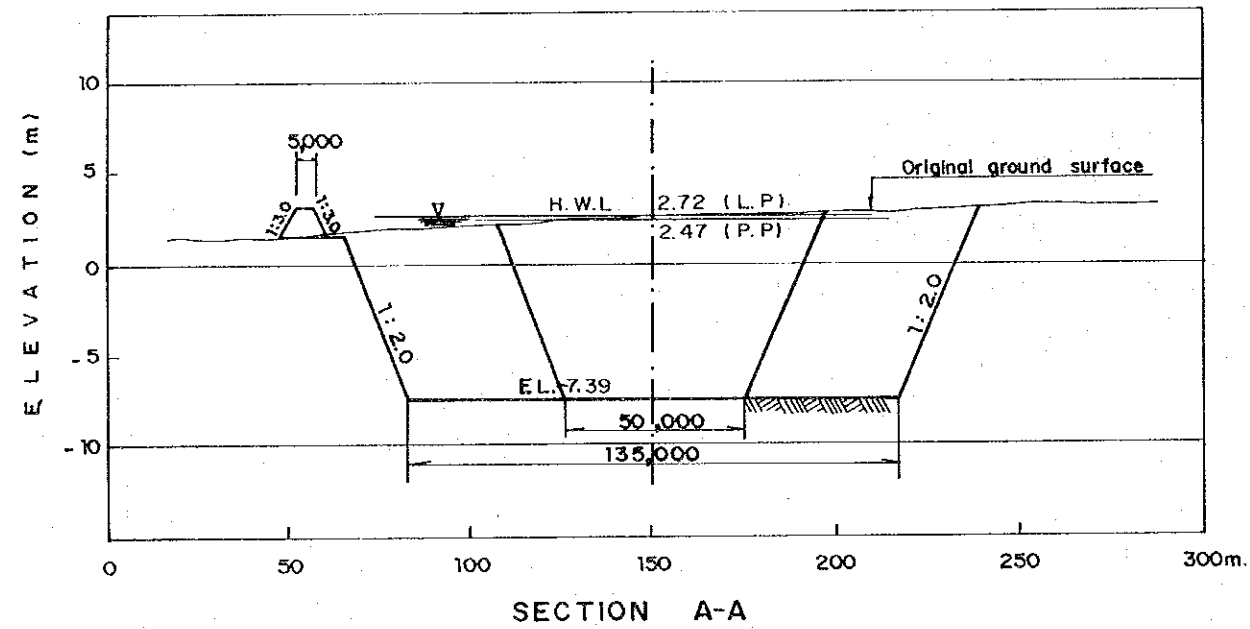








LONGITUDINAL PROFILE



Note:

Required width of Floodway - II; for 50 year probable flood : 135m
for 10 year probable flood : 50m

Fig.3.14 LONGITUDINAL PROFILE AND TYPICAL CROSS SECTION OF FLOODWAY

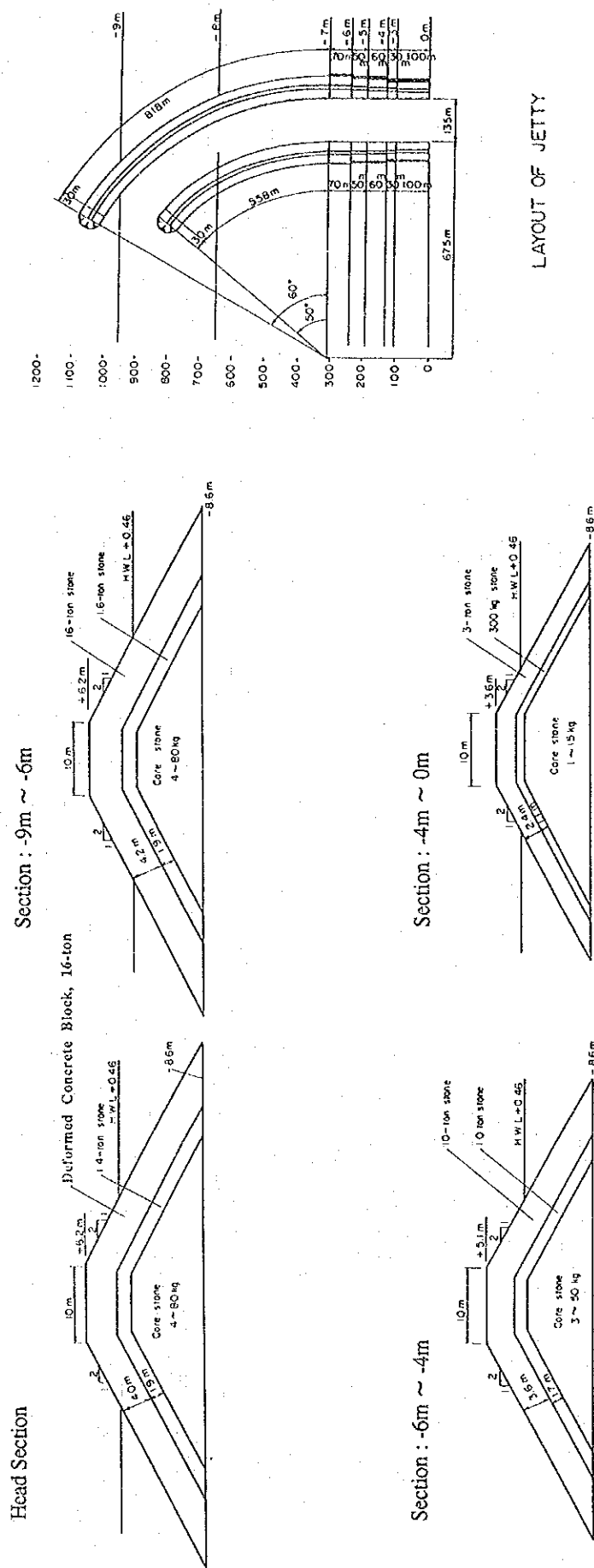
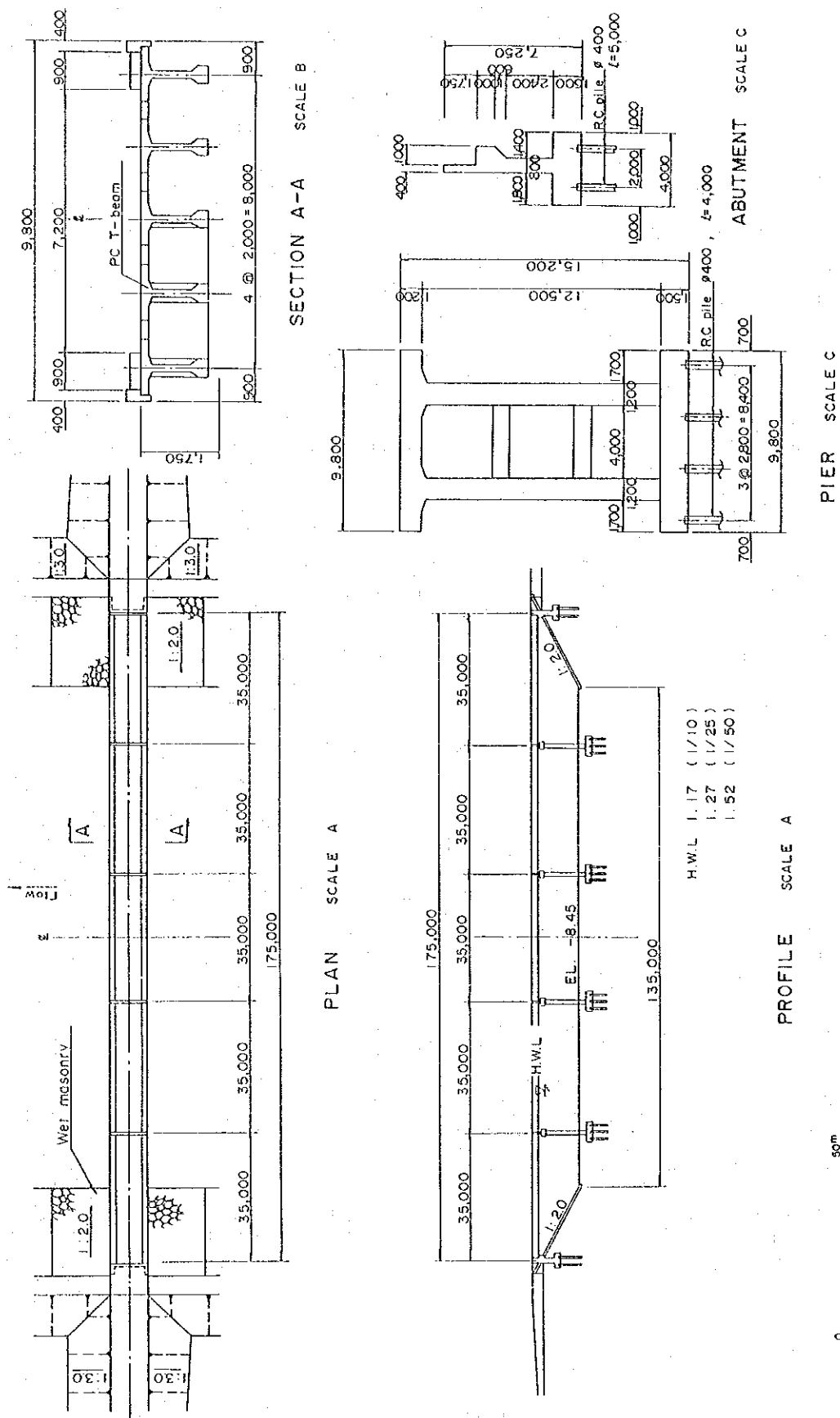


Fig.3.15 CROSS SECTION AND LAYOUT OF JETTY AT NAVEGANTES COAST



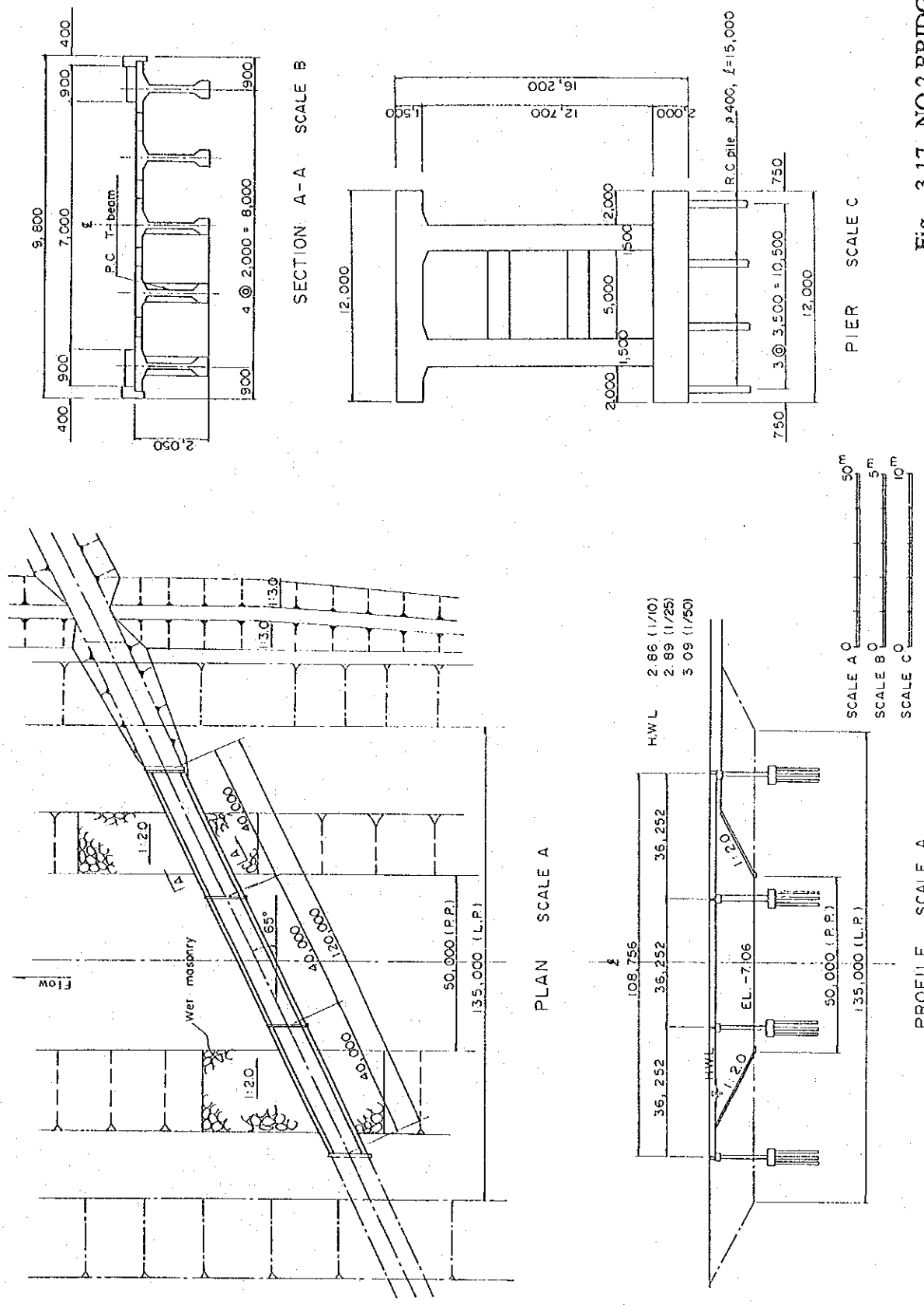
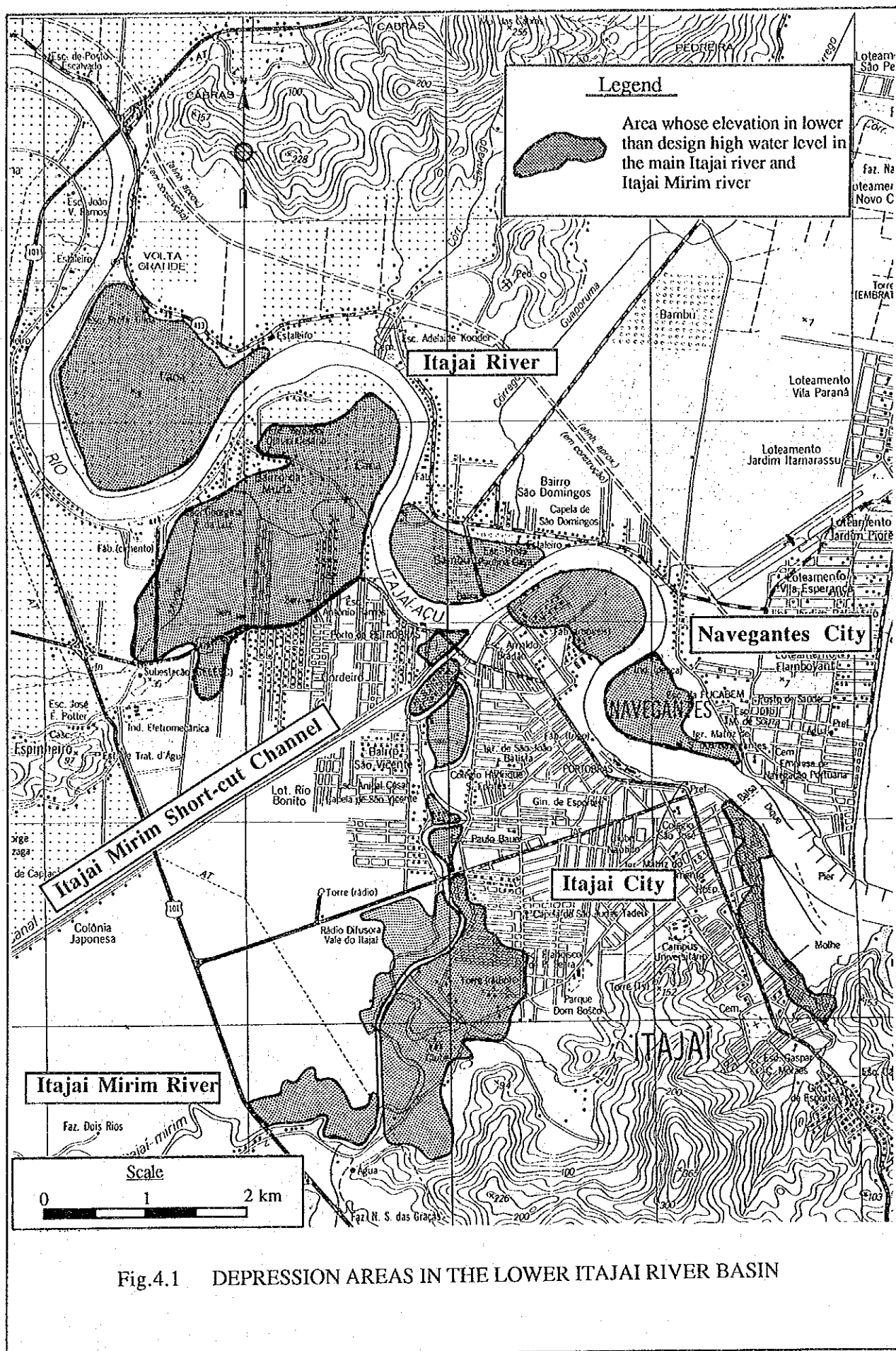


Fig. 3.17 NO.2 BRIDGE



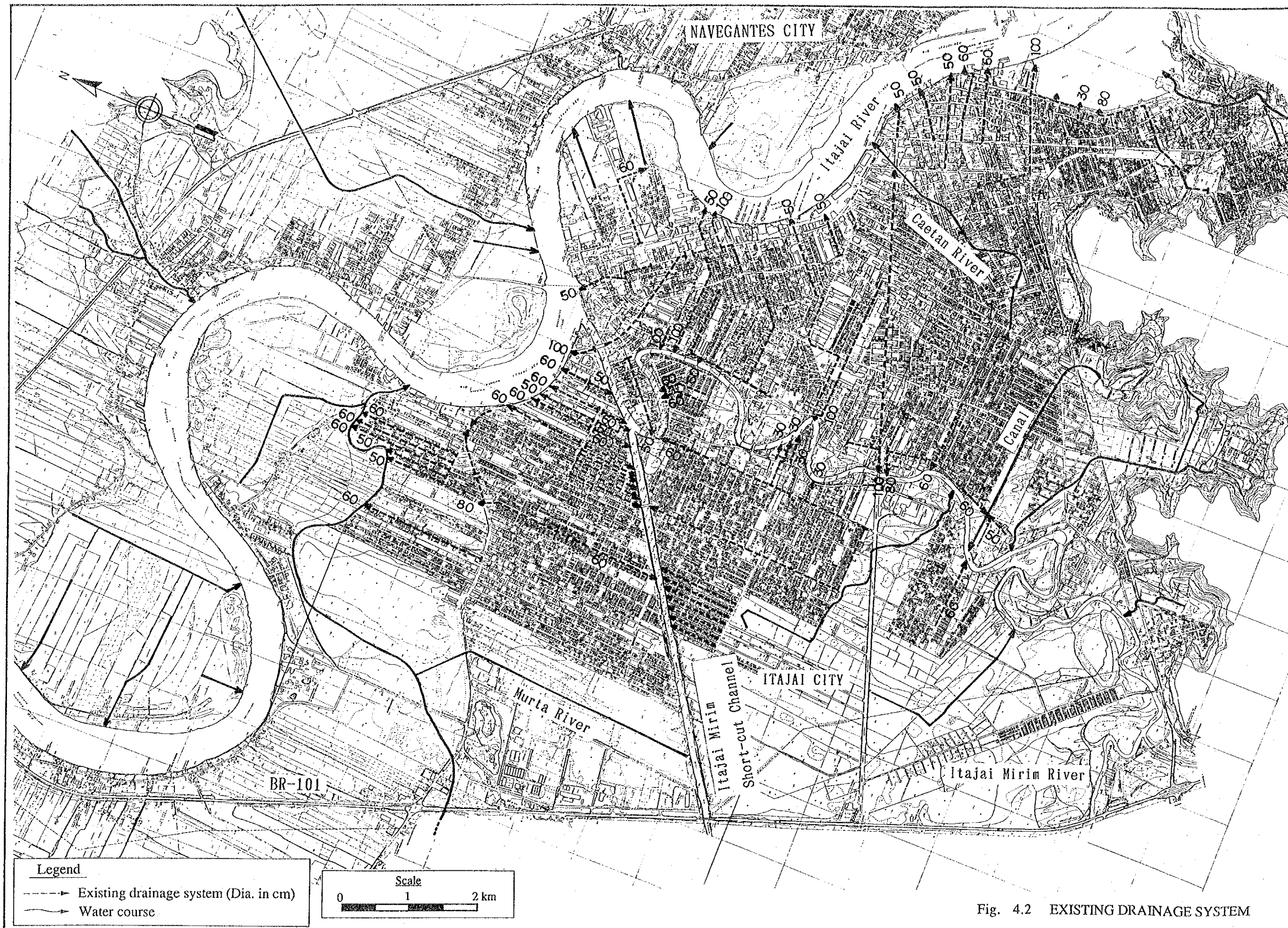


Fig. 4.2 EXISTING DRAINAGE SYSTEM

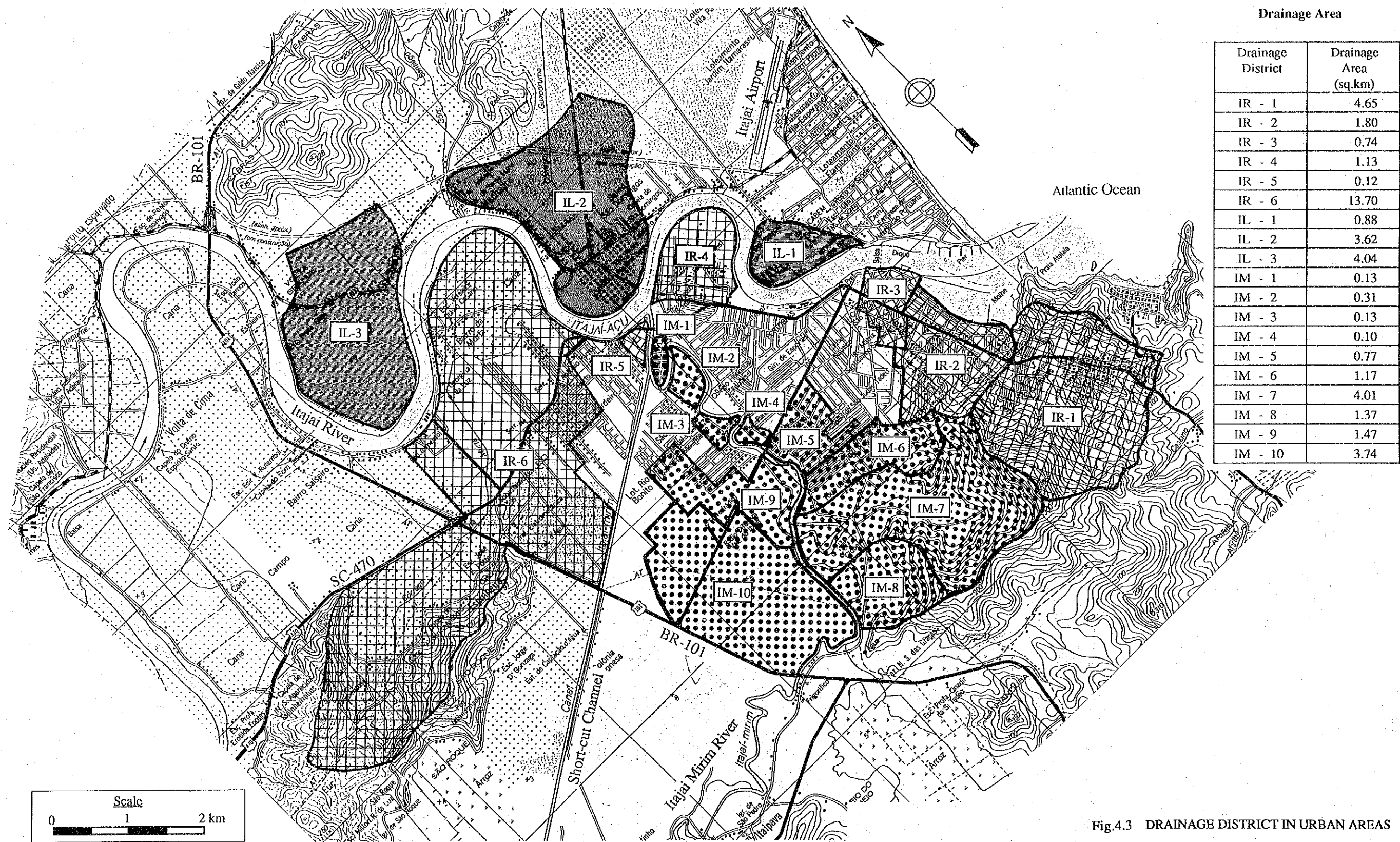


Fig.4.3 DRAINAGE DISTRICT IN URBAN AREAS

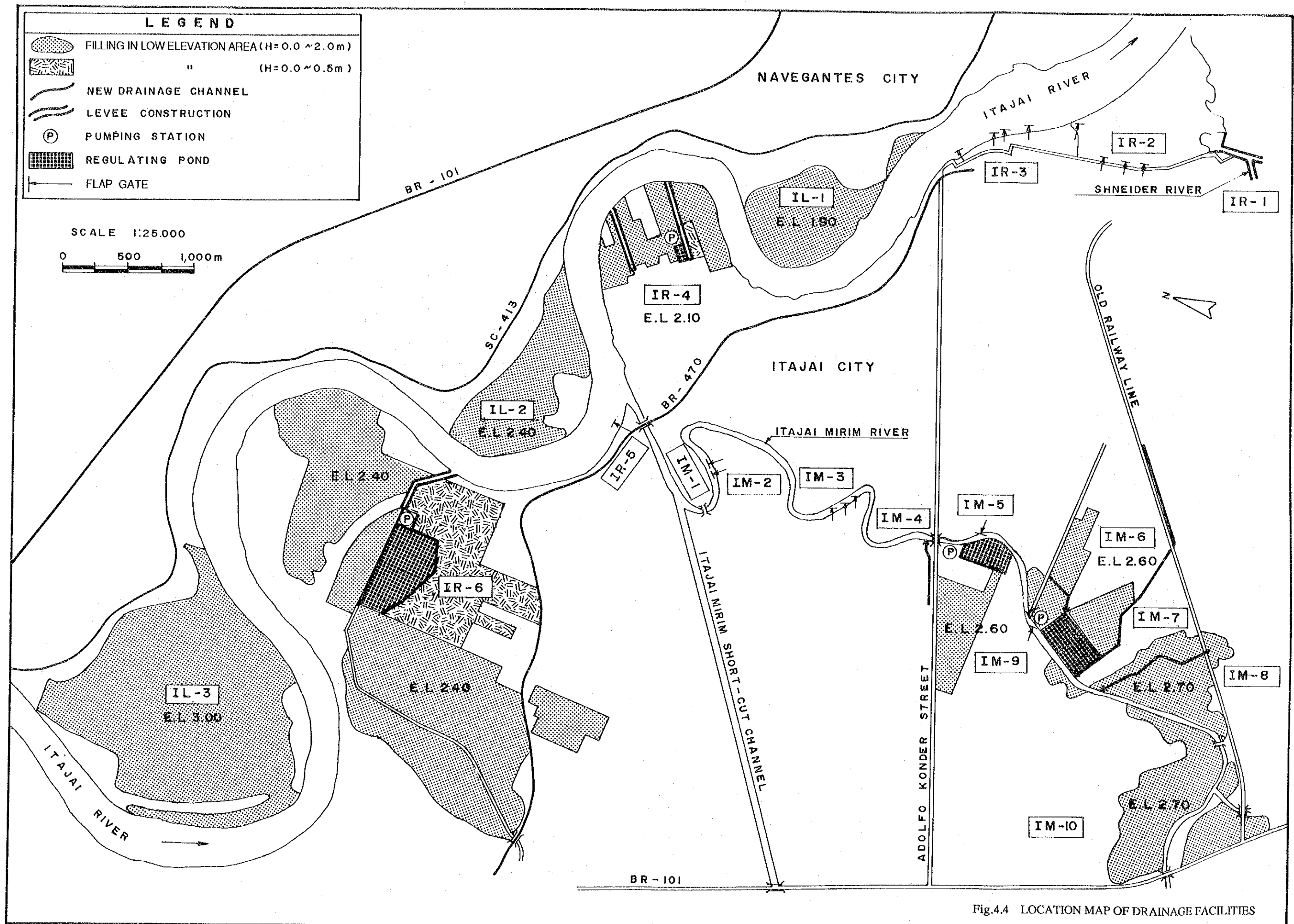
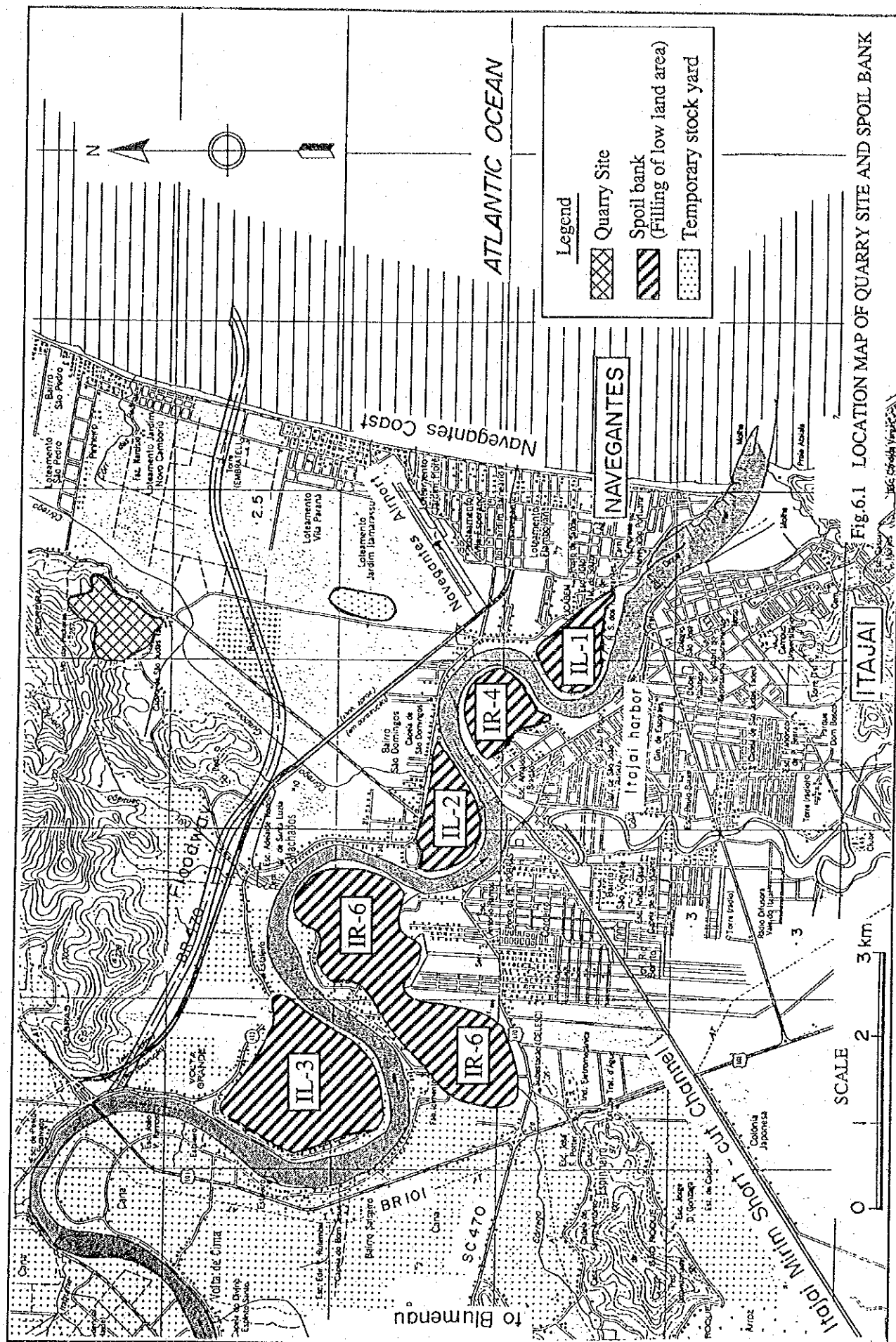


Fig.4.4 LOCATION MAP OF DRAINAGE FACILITIES



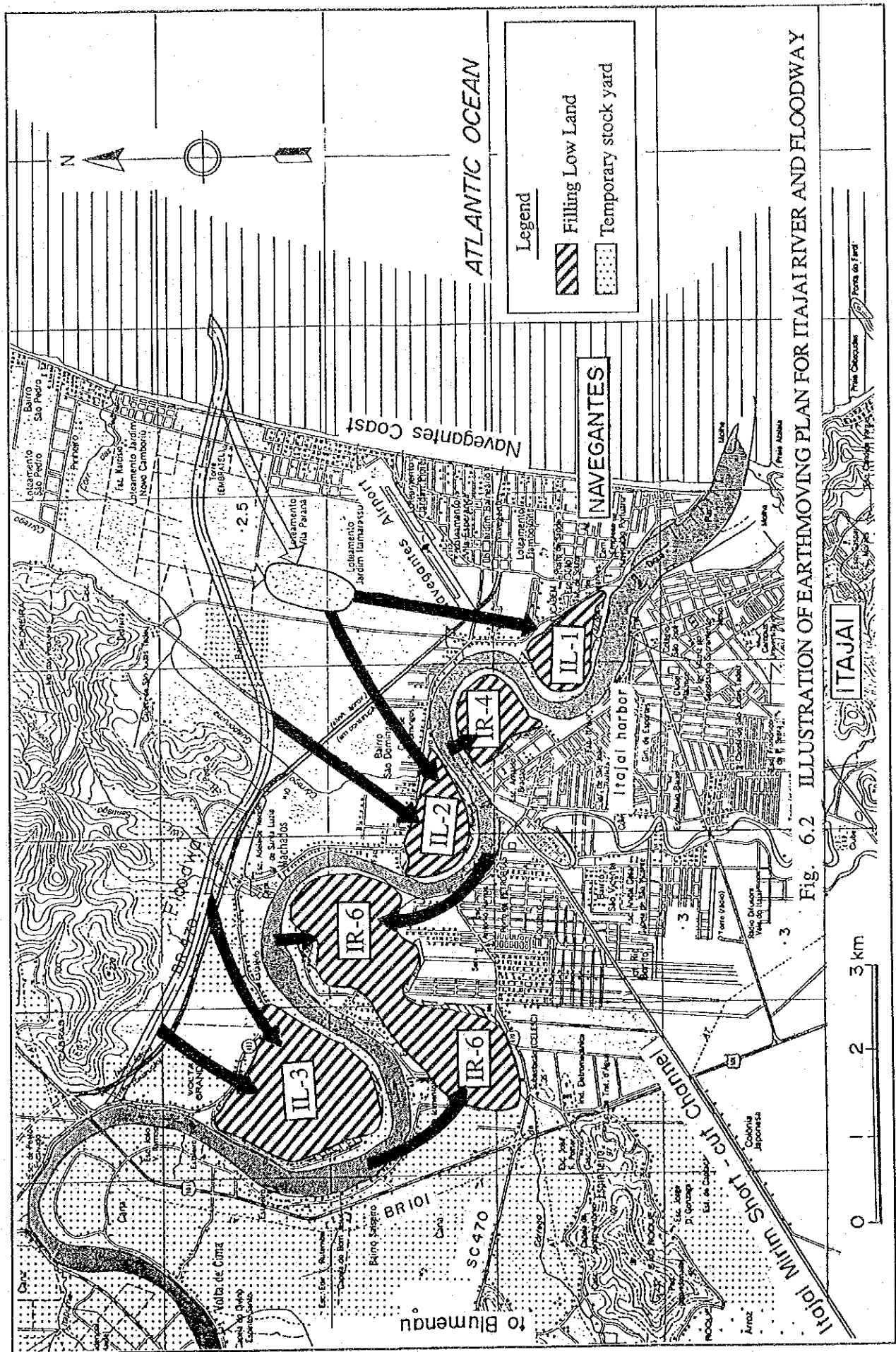


Fig. 6.2 ILLUSTRATION OF EARTHMOVING PLAN FOR ITAJAÍ RIVER AND FLOODWAY

ACTION \ YEAR	1989	'90	'91	'92	'93	'94	'95	'96	'97	'98
A. Feasibility Study	■									
B. Detailed design										
(1) Financing		■								
(2) Selection of consultant		■								
(3) Detailed design			■							
C. Construction										
(1) Land acquisition				■	■					
(2) Financing				■						
(3) P/Q & tendering					■					
(4) Construction						■	■	■	■	■

Fig 6.3 IMPLEMENTATION SCHEDULE

Work Items	Unit	Qty	1st Year	2nd Year	3rd Year	4th Year	5th Year
A. River Improvement Works							
1. Itajai River							
(1) Riverbed dredging	cu.m	8,156,000					
(2) Levee embankment	cu.m	743,900					
(3) Parapet wall construction	lin.m	11,100					
2. Floodway Construction							
(1) Excavation - common	cu.m	4,343,200					
(2) Dredging	cu.m	3,006,800					
(3) Excavation - rock	cu.m	150,000					
(4) Levee embankment	cu.m	140,000					
(5) Riverbed protection	sq.m	5,400					
(6) Slope protection	sq.m	5,200					
(7) Road relocation (BR-470)	lin.m	2,100					
(8) Bridge construction, newly	set	2					
(9) Jetty, dredging seabed	cu.m	480,000					
(10) Jetty, embankment (core, filter & armor stone)	cu.m	1,123,000					
(11) Jetty, tetrapod, 16 t	pcs	3,675					
3. Itajai Mirim River							
(1) Riverbed dredging	cu.m	151,400					
(2) Exca., channel & short-cut	cu.m	180,400					
(3) Levee embankment	cu.m	725,400					
(4) Heightening existing bridges	set	4					
4. Itajai Mirim Short-cut Channel							
(1) Riverbed dredging	cu.m	227,100					
(2) Excavation, channel	cu.m	53,200					
(3) Levee embankment	cu.m	137,900					
(4) Parapet wall construction	lin.m	320					
B. Urban Drainage Works							
1. Regulation Ponds							
(1) Excavation	cu.m	258,000					
(2) Embankment	cu.m	28,000					
2. Sluiceway in Regulating Ponds							
(1) Excavation	cu.m	3,000					
(2) Foundation piling	-	L.S.					
(3) Concreting	cu.m	280					
(4) Revetment/Gabion	sq.m	1,550					
(5) Flap gate	-	L.S.					
3. New Drainage System							
(1) Channel exca. Muta R.	cu.m	85,000					
(2) Filling low land area	cu.m	210,000					
(3) Concreting	cu.m	3,800					
4. Pumping Station							
(1) Civil works	lot						
(2) Electro-mechanical works	lot			(Manufacturing)			
(3) Building works	lot						

Fig.6.4 CONSTRUCTION TIME SCHEDULE

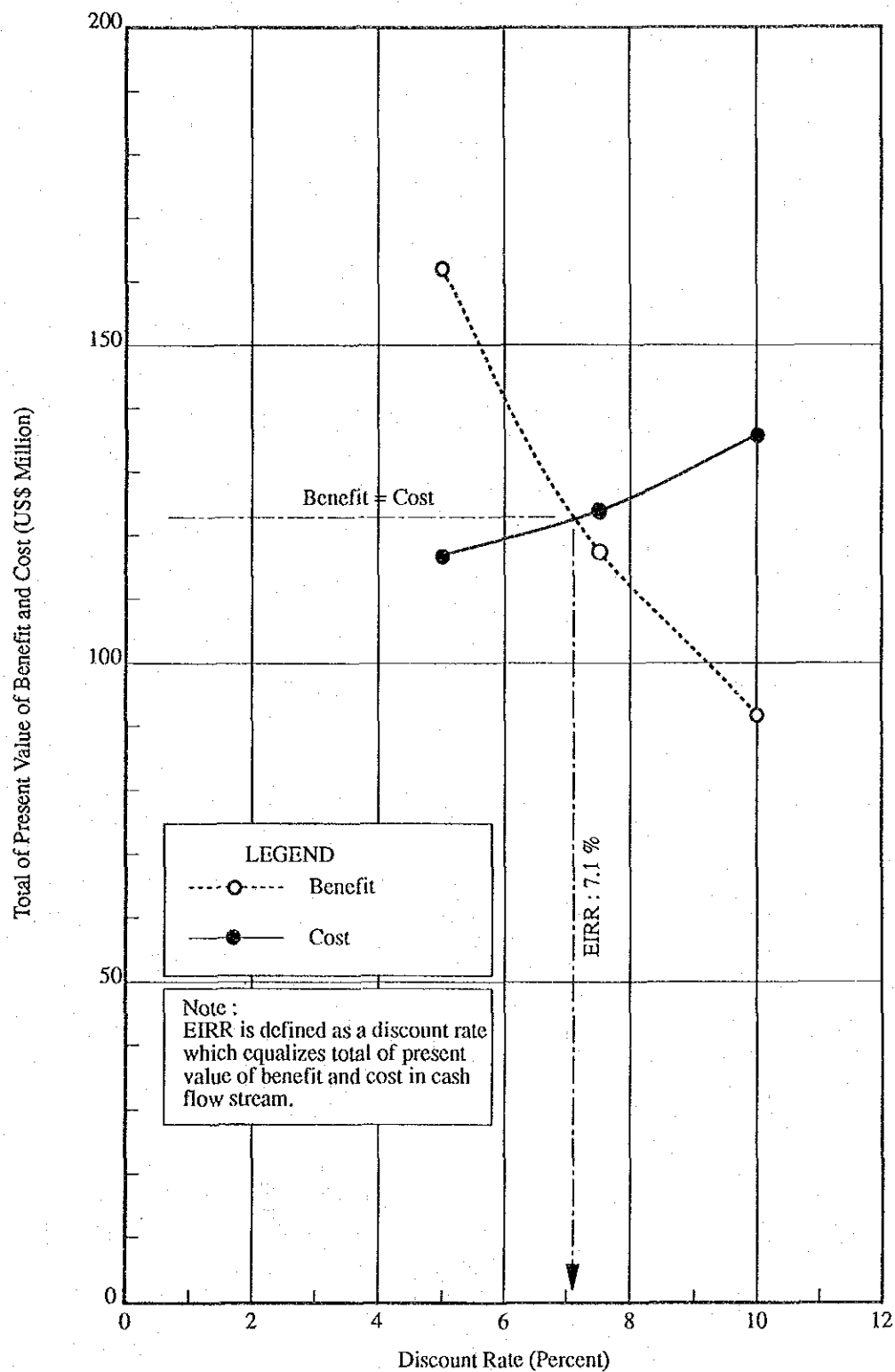


Fig.7.1 RELATION BETWEEN DISCOUNT RATE AND PRESENT VALUES OF TOTAL BENEFIT AND COST

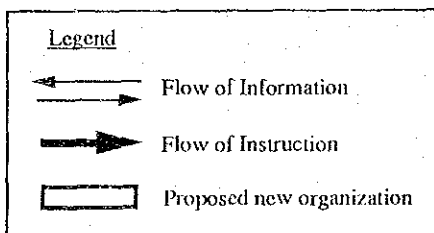
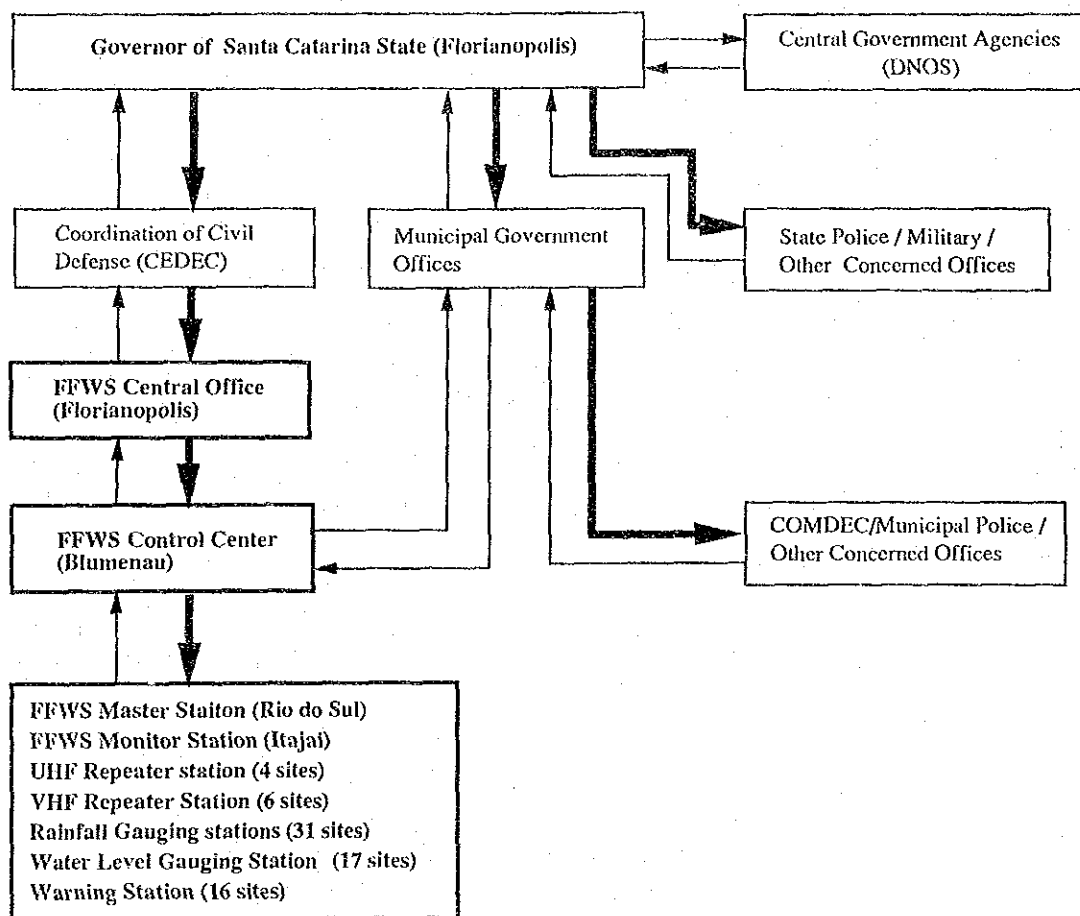


Fig.9.1 PROPOSED ORGANIZATION FOR FFWS

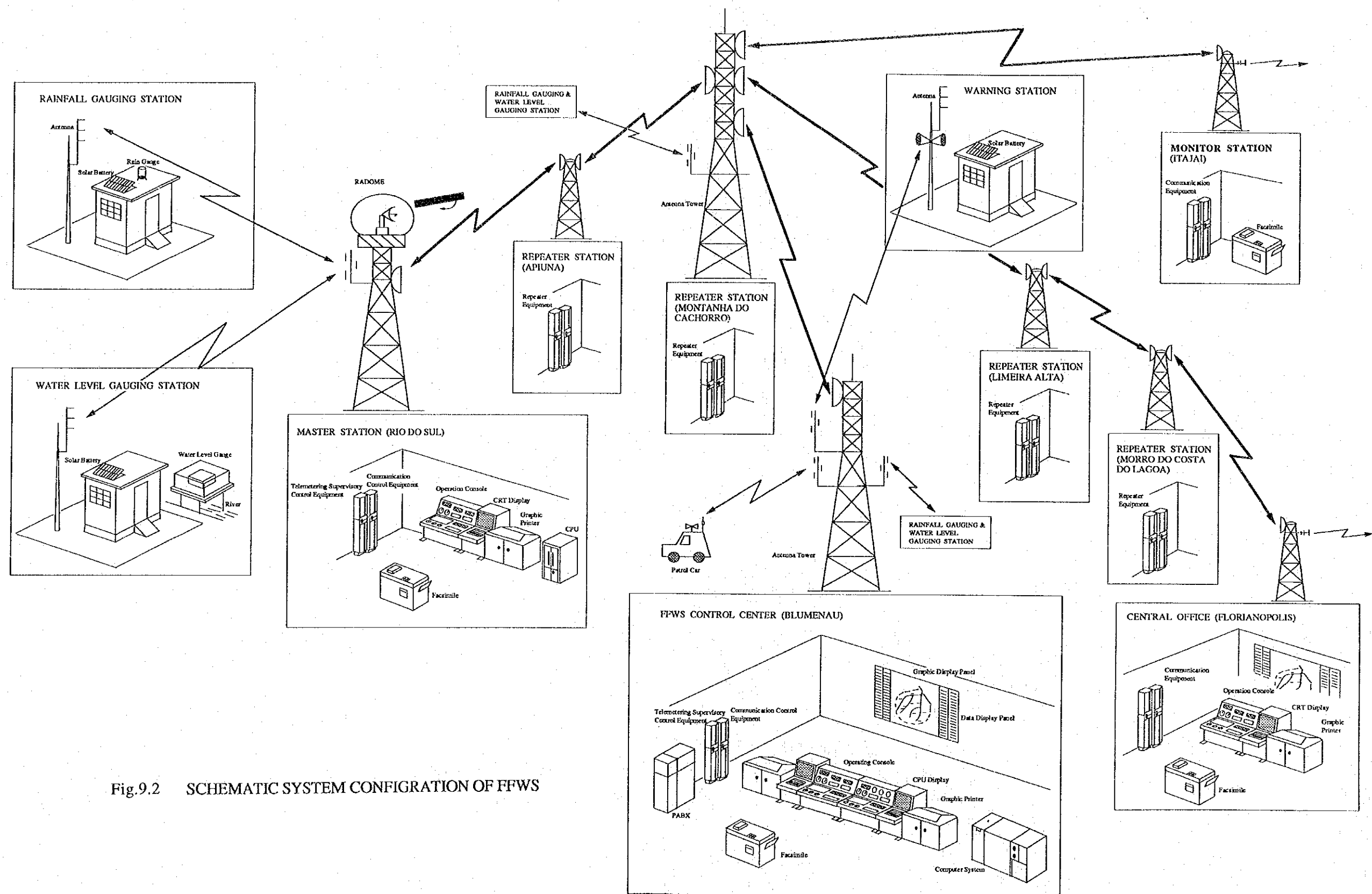
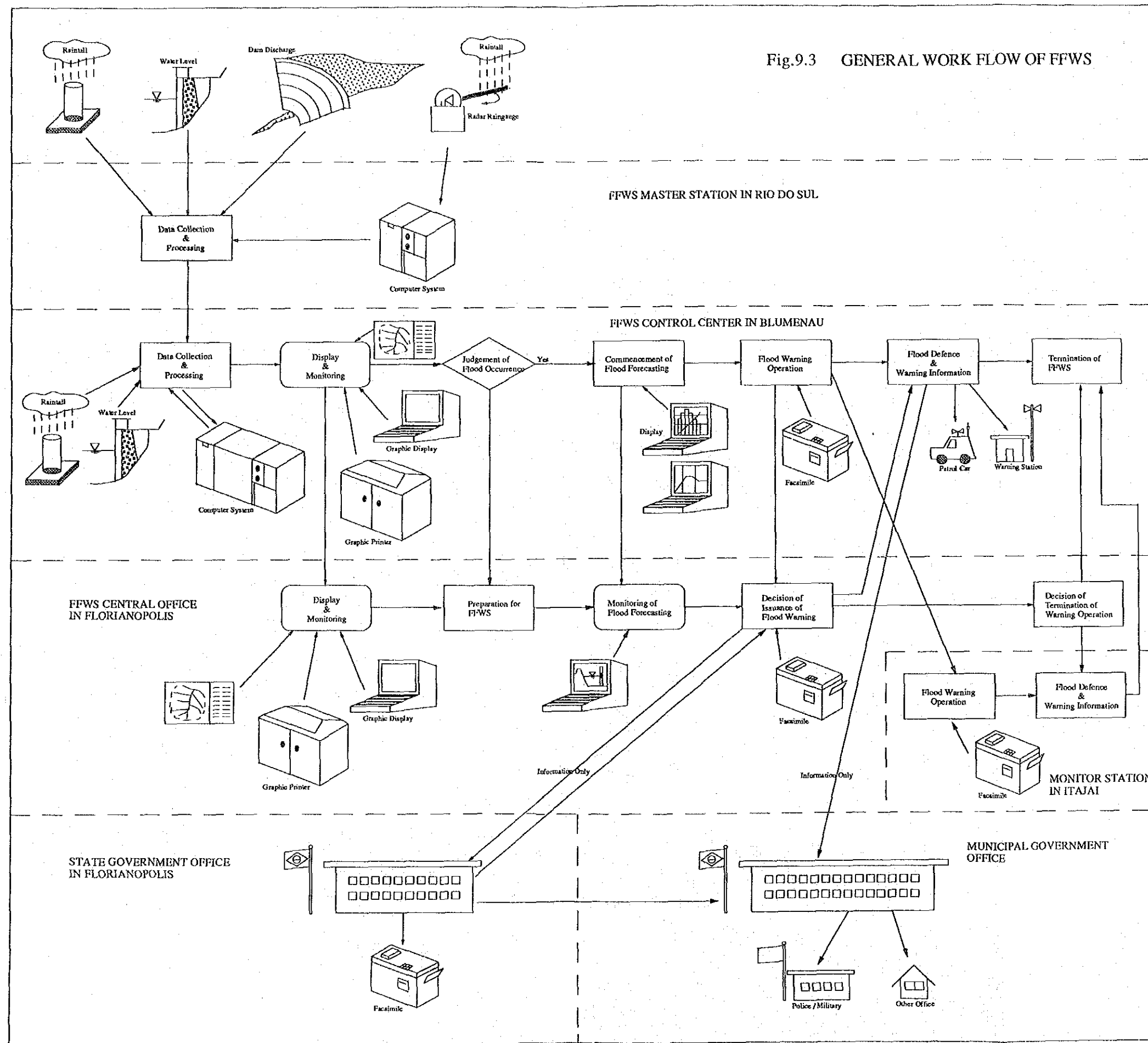


Fig.9.2 SCHEMATIC SYSTEM CONFIGURATION OF FFWS

Fig.9.3 GENERAL WORK FLOW OF FFWS



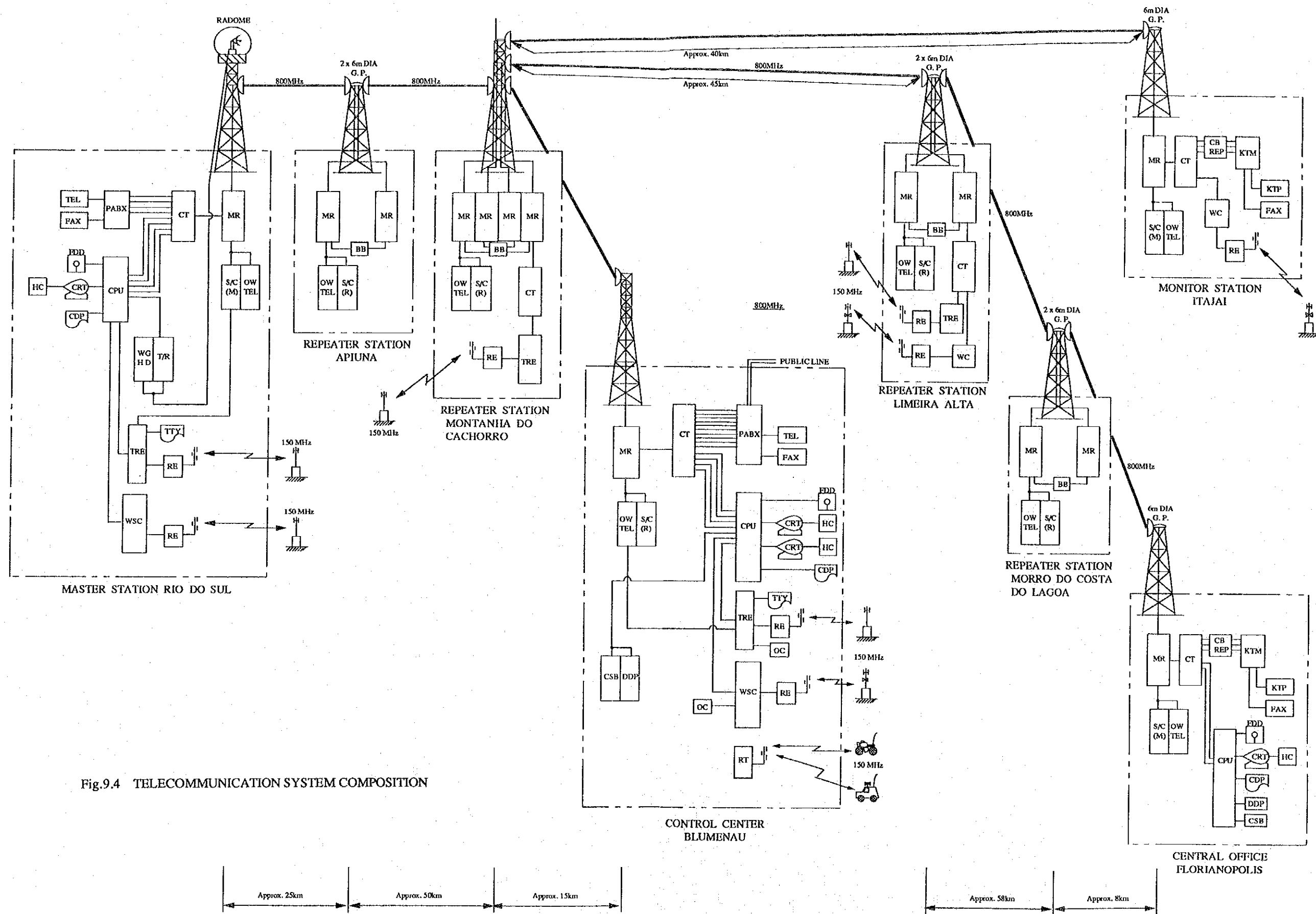


Fig.9.4 TELECOMMUNICATION SYSTEM COMPOSITION

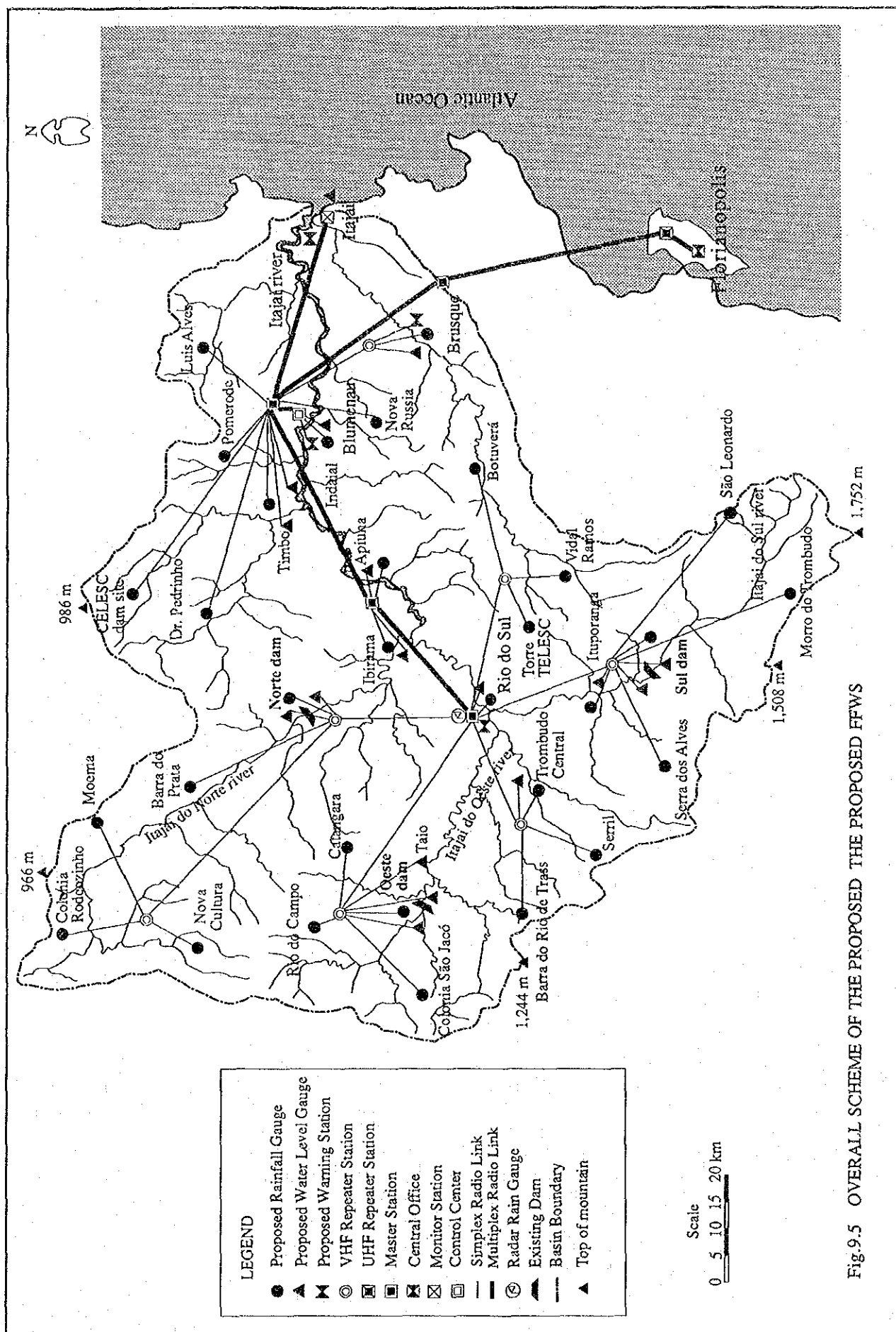
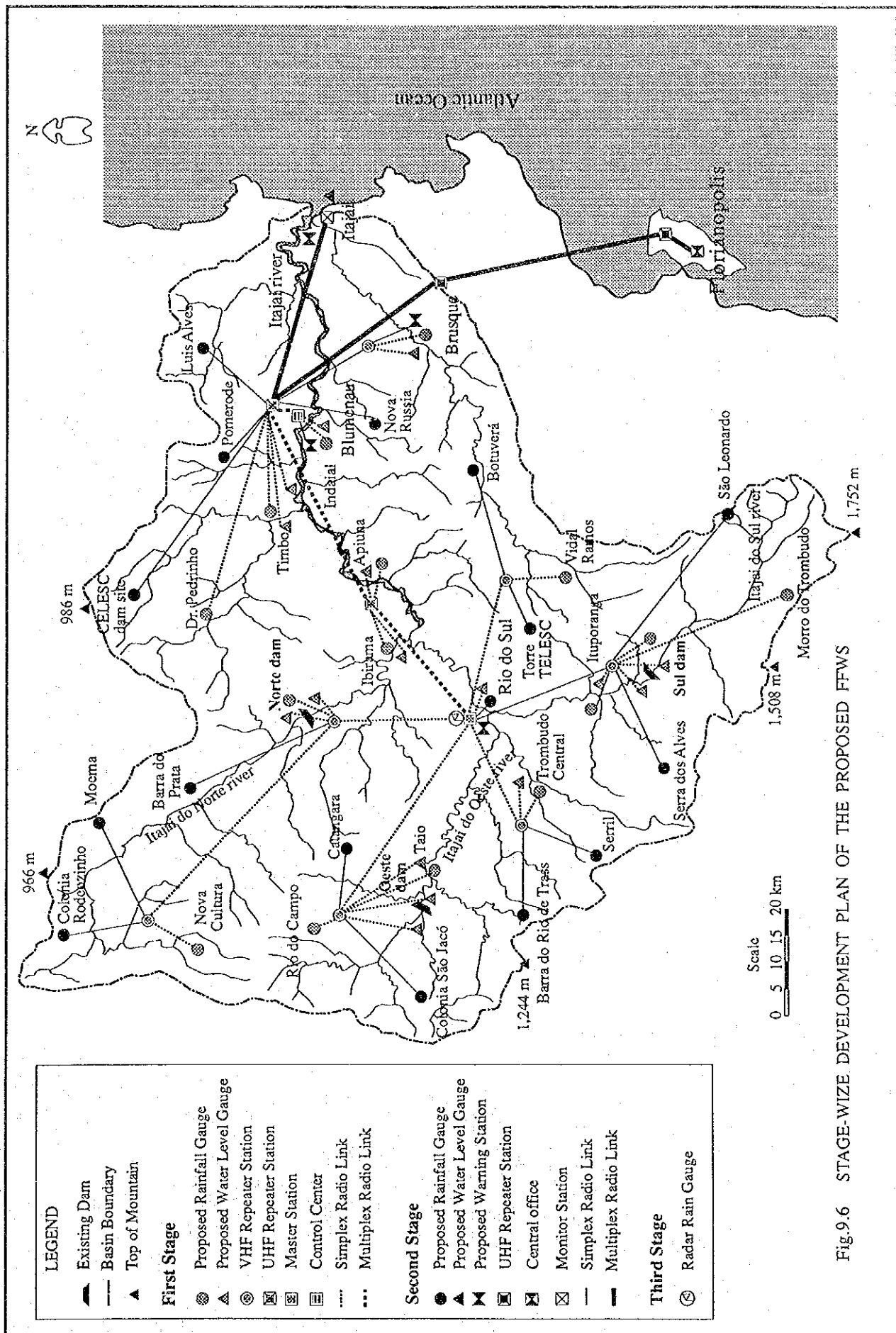


Fig.9.5 OVERALL SCHEME OF THE PROPOSED THE PROPOSED FFWS



Stage \ Year	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year
Feasibility Study	■									
Financing		■								
Detailed Design		■	■							
<u>1st Stage</u>										
Financing			■	■						
Tender and Contract				■						
Construction and Training					■	■	■	■		
<u>2nd Stage</u>										
Tender and Contract						■				
Construction and Training							■	■	■	■
<u>3rd Stage</u>										
Tender and Contract								■		
Construction and Training								■	■	■

Fig.9.7 IMPLEMENTATION SCHEDULE OF THE PROPOSED FFWS

JICA