

TABLE AND FIGURES

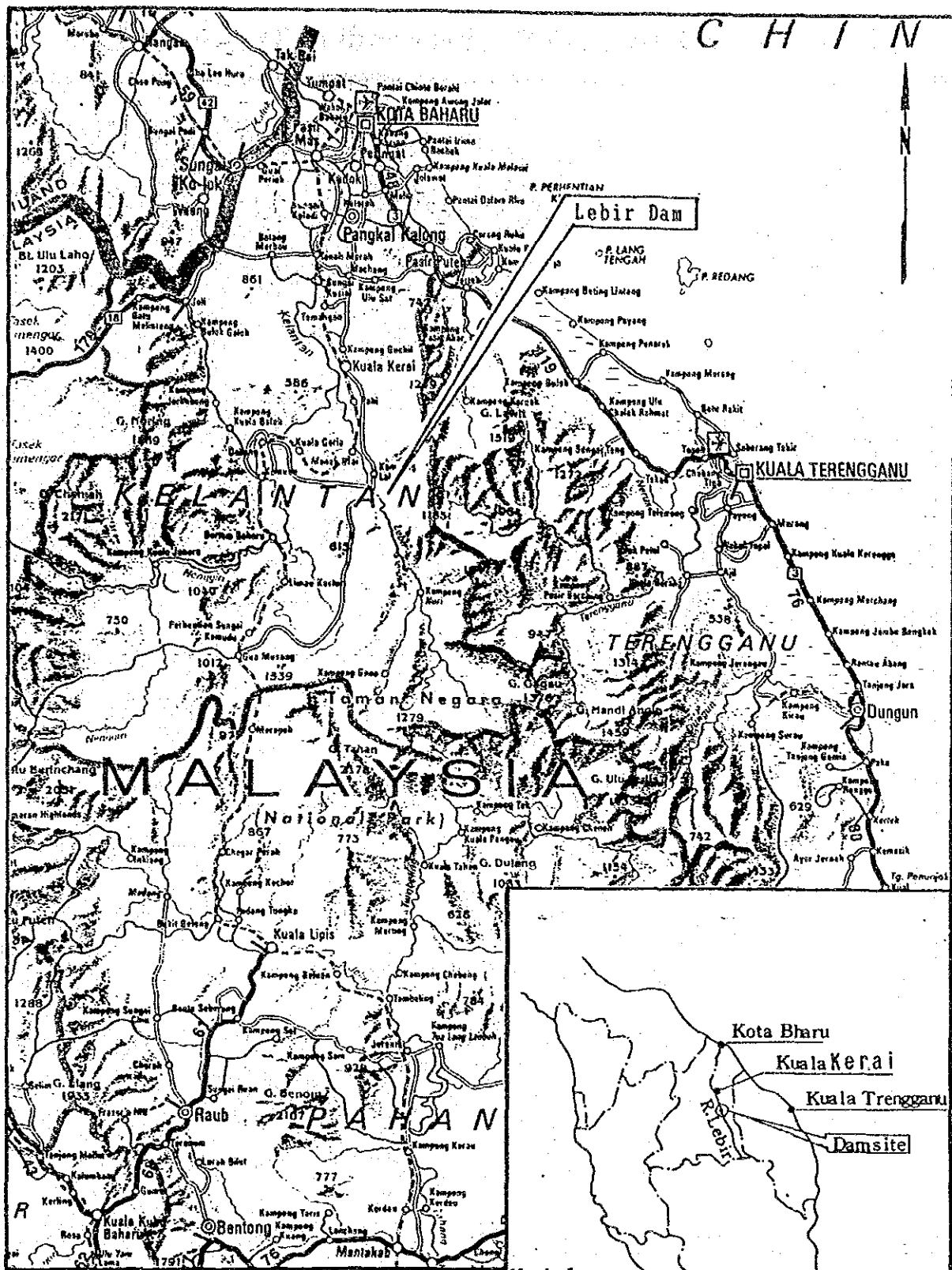


Fig. 1 Location Map (1)

S=1/1,500,000

S=1:4,060,000

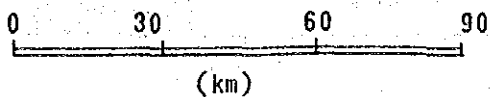
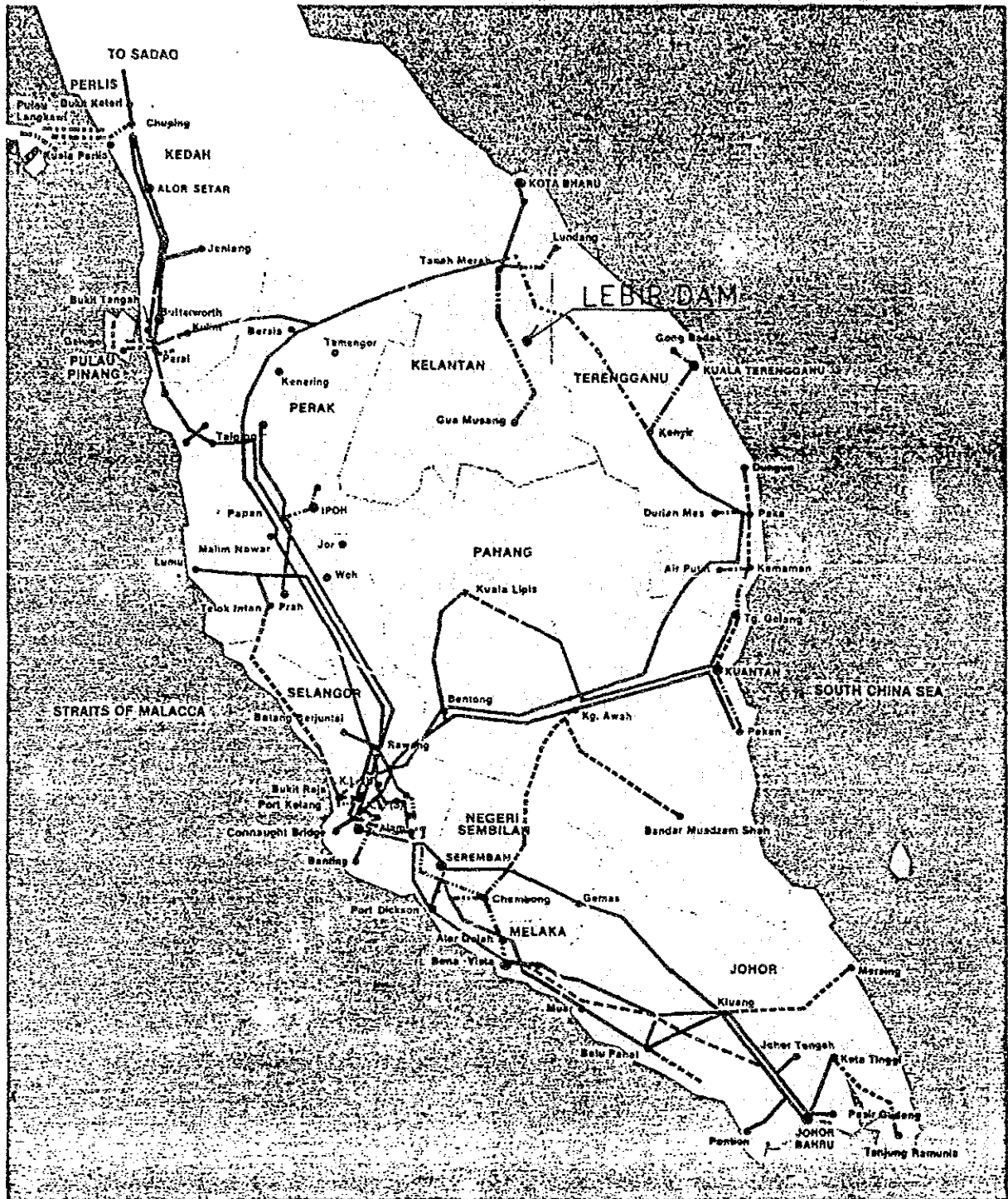
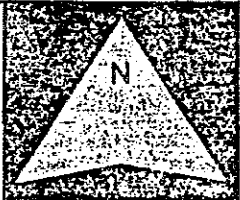


Fig. 2 THE NATIONAL GRID (Year ending 31 August 1985)



Legend	Transmission Lines				PRHEP
	In Operation	Under Construction	Planned		
275 kV	—————	———	———	———	
132 kV	—————	———	———	———	
66 kV	—————	———	———	———	—————
132 kV Cable	———	———	———	———	



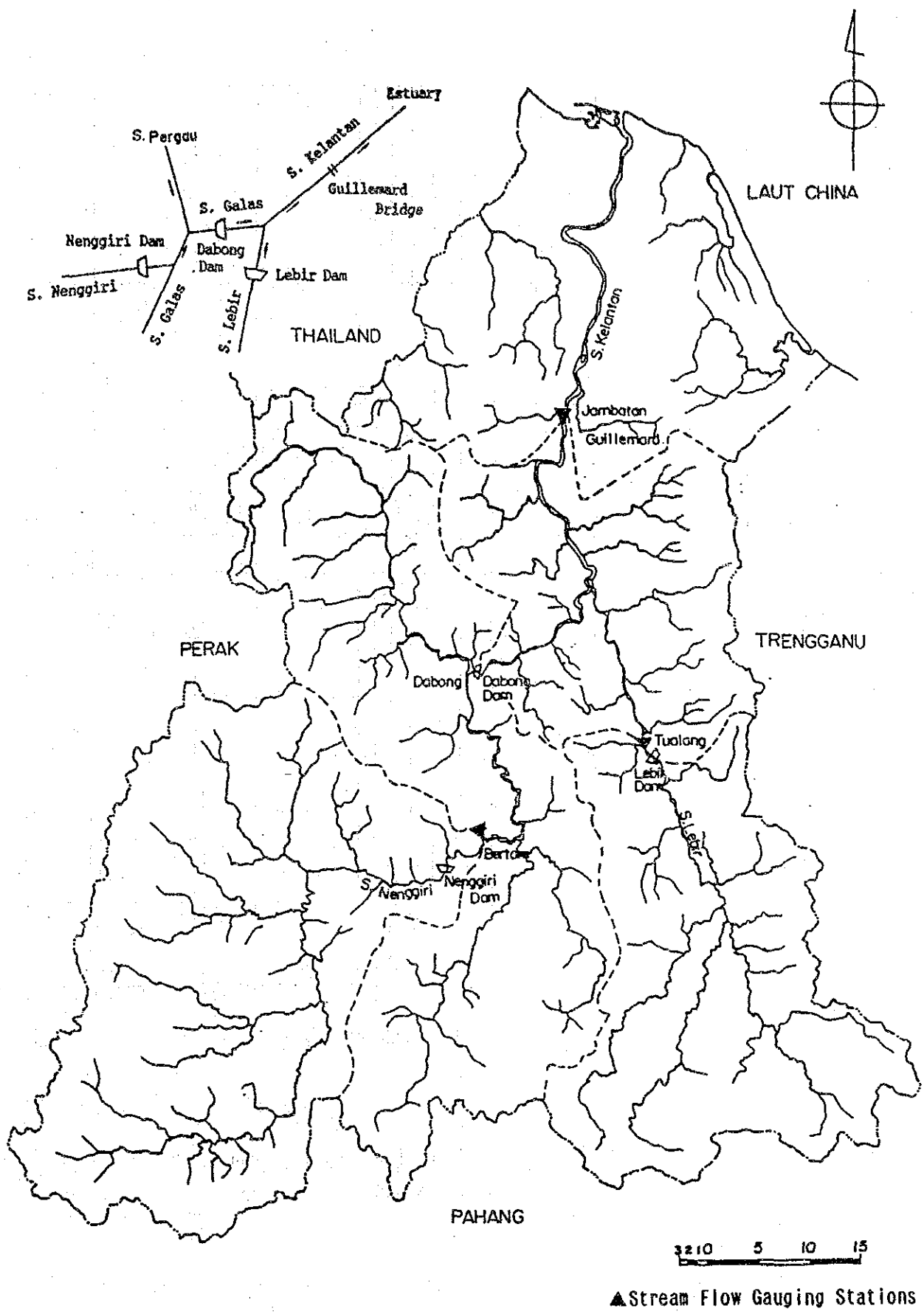


Fig. 3 Map of Kelantan River Basin

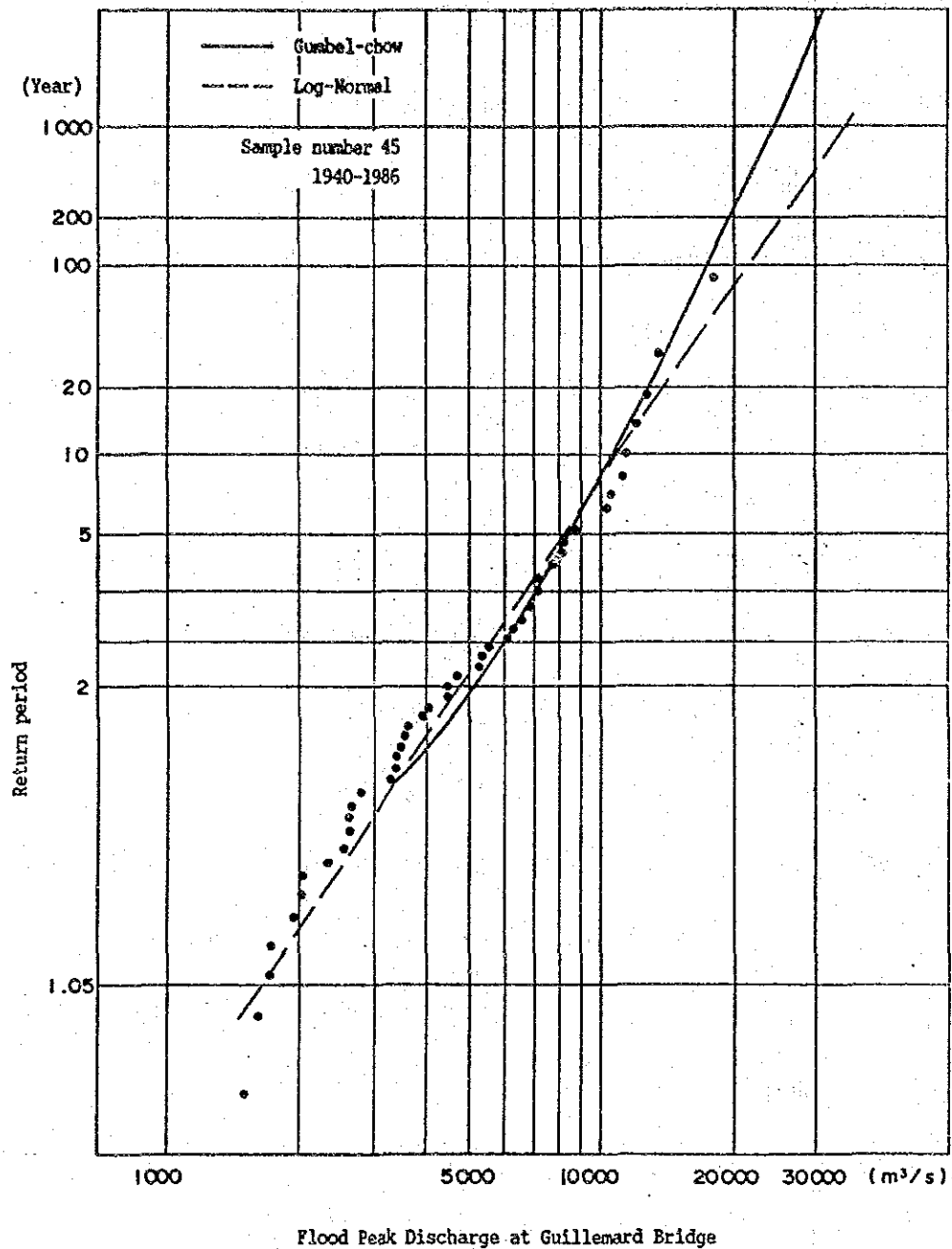
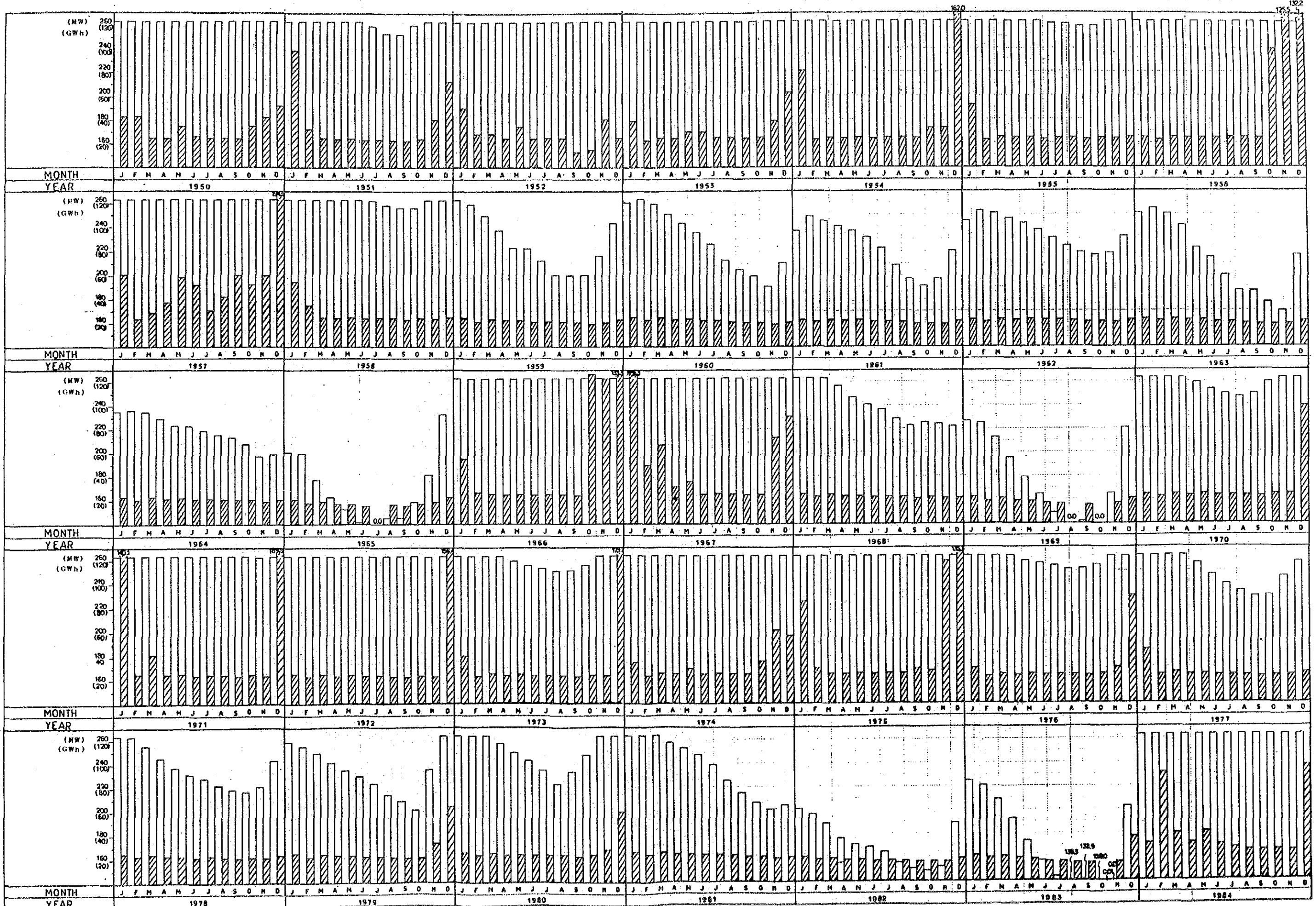


Fig. 4 Relationship between Flood Peak Discharge at Guillemard Bridge and Its Return Period

Fig. 5 Monthly Output of Lebir Power Station (by Simulation Model)

□ : Output (MW)
 ▨ : Energy (GWh)



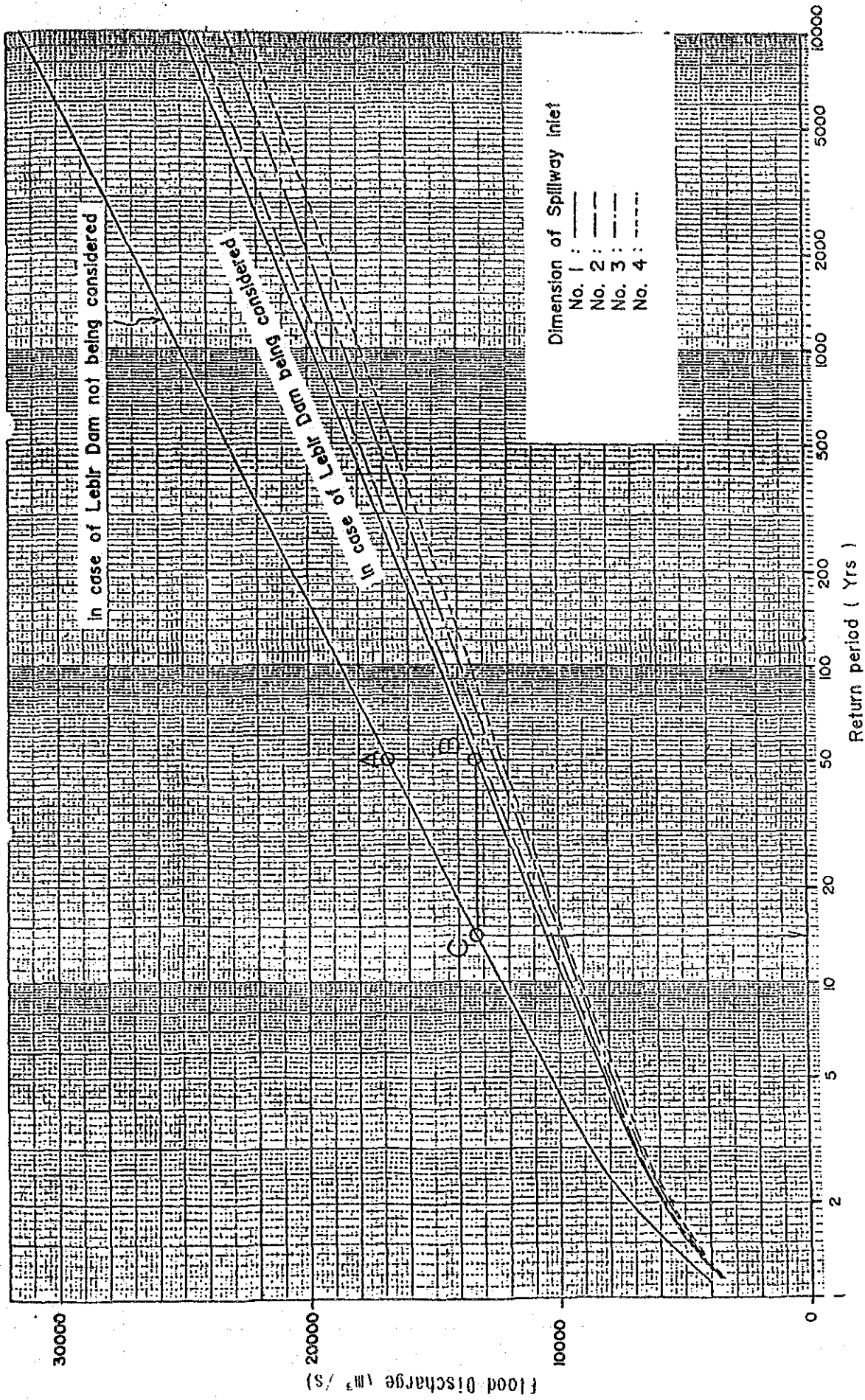


Fig. 6 Probable peak flood discharge at Gullebard Bridge with / without Lebir Dam (Lebir Dam , ungated spillway)

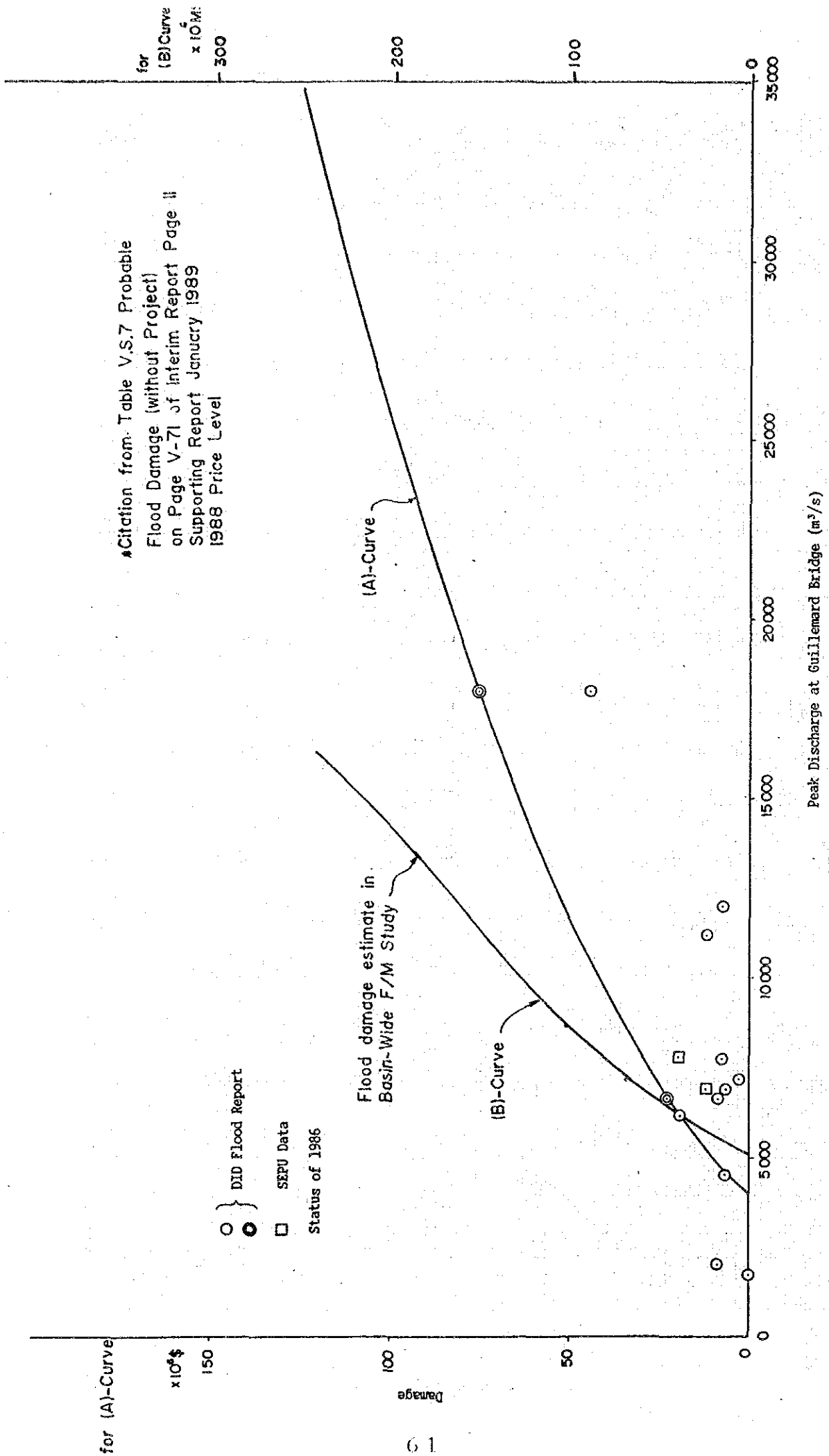


Fig. 7 RELATIONSHIP BETWEEN DAMAGES AND FLOOD DISCHARGES AT GUILLEMERD BRIDGE

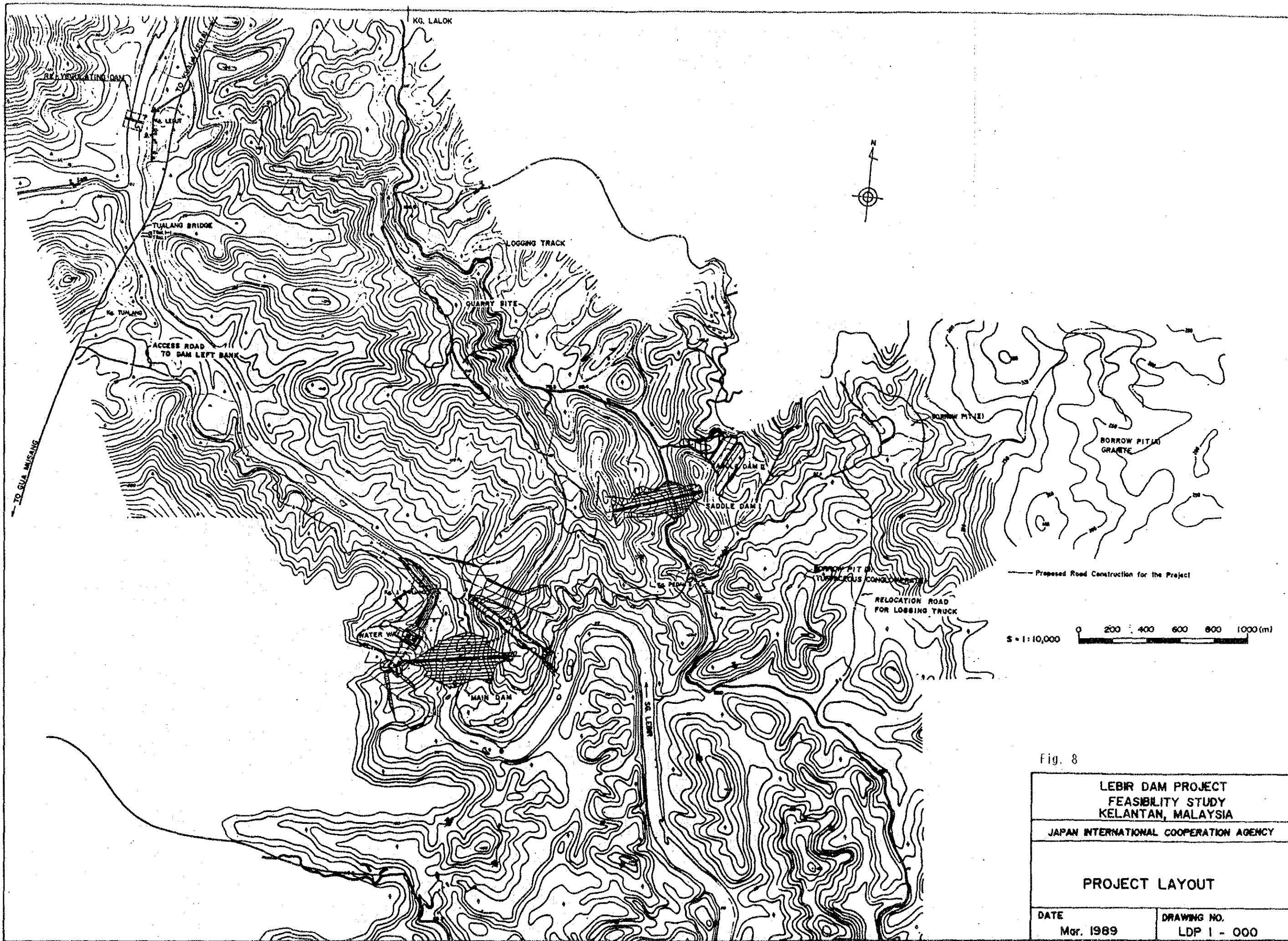


Fig. 8

LEBR DAM PROJECT FEASIBILITY STUDY KELANTAN, MALAYSIA	
JAPAN INTERNATIONAL COOPERATION AGENCY	
PROJECT LAYOUT	
DATE Mar. 1989	DRAWING NO. LDP 1 - 000

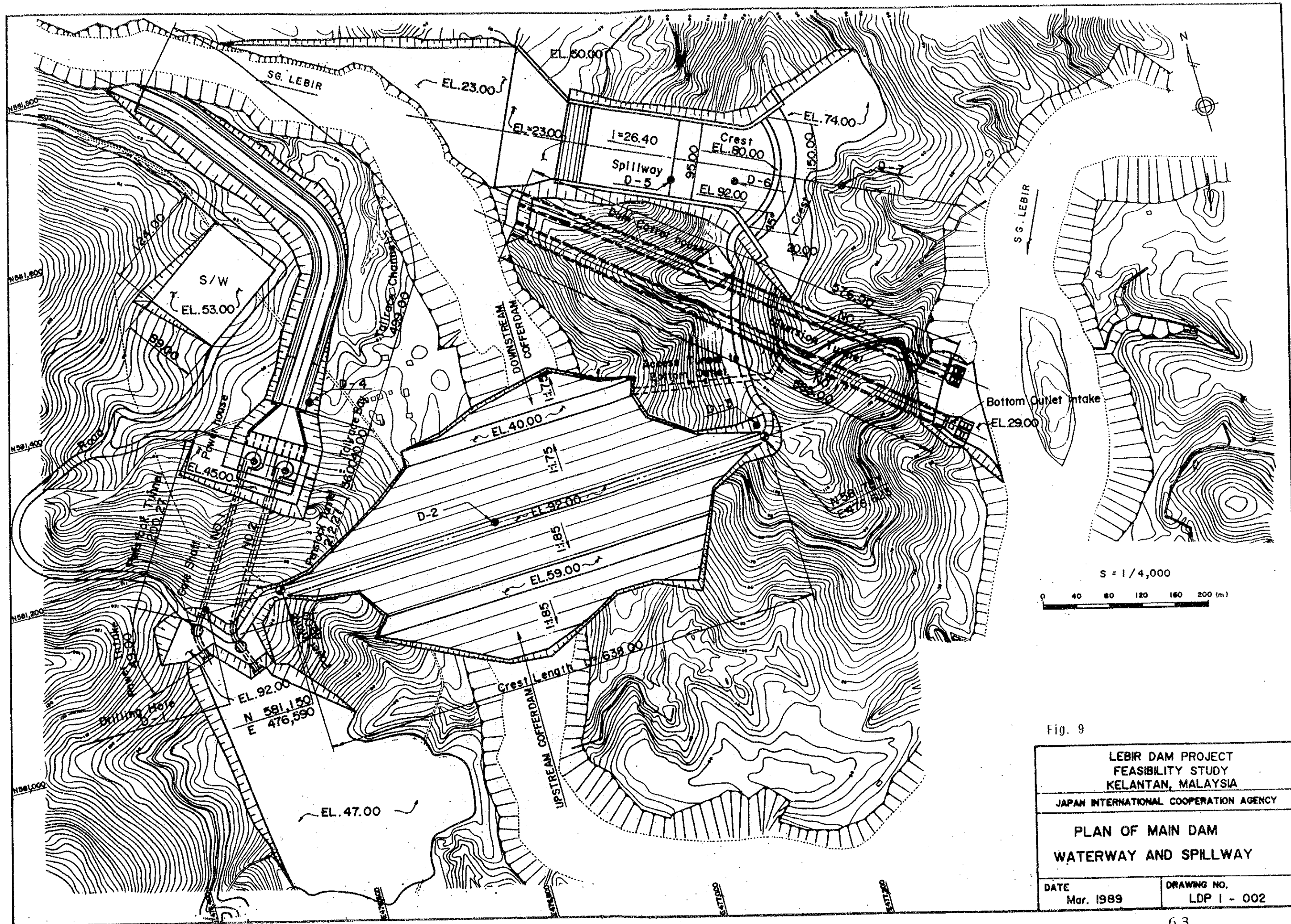
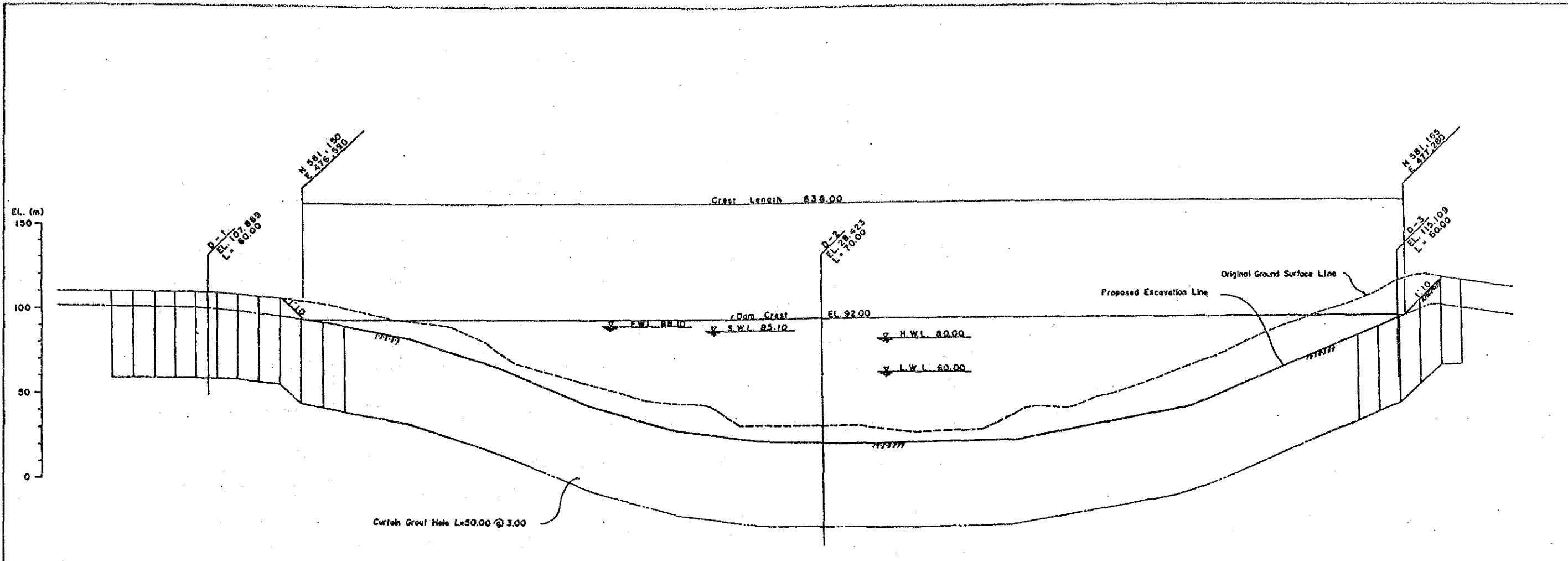
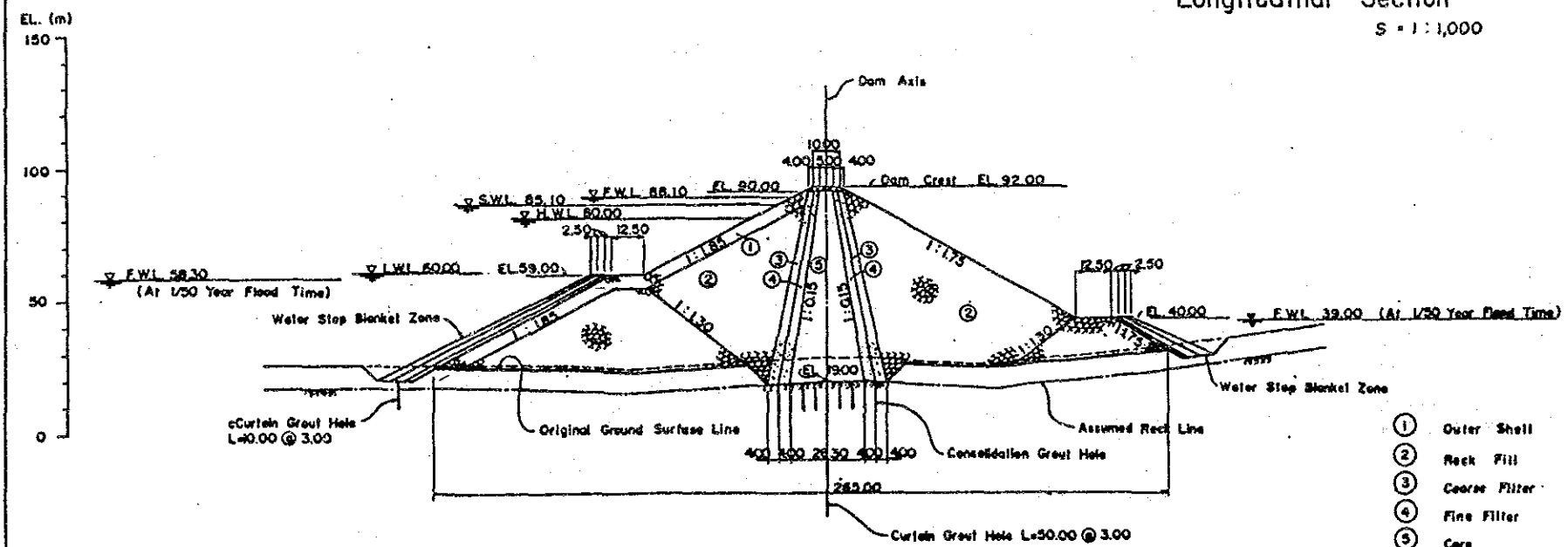
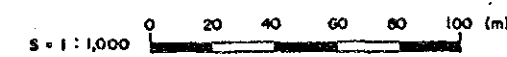


Fig. 9

LEBIR DAM PROJECT FEASIBILITY STUDY KELANTAN, MALAYSIA	
JAPAN INTERNATIONAL COOPERATION AGENCY	
PLAN OF MAIN DAM WATERWAY AND SPILLWAY	
DATE Mar. 1989	DRAWING NO. LDP 1 - 002



Longitudinal Section
S = 1 : 1,000

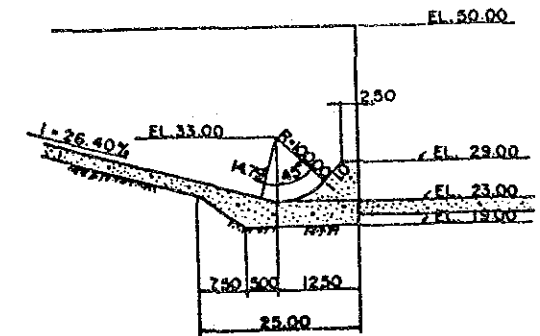
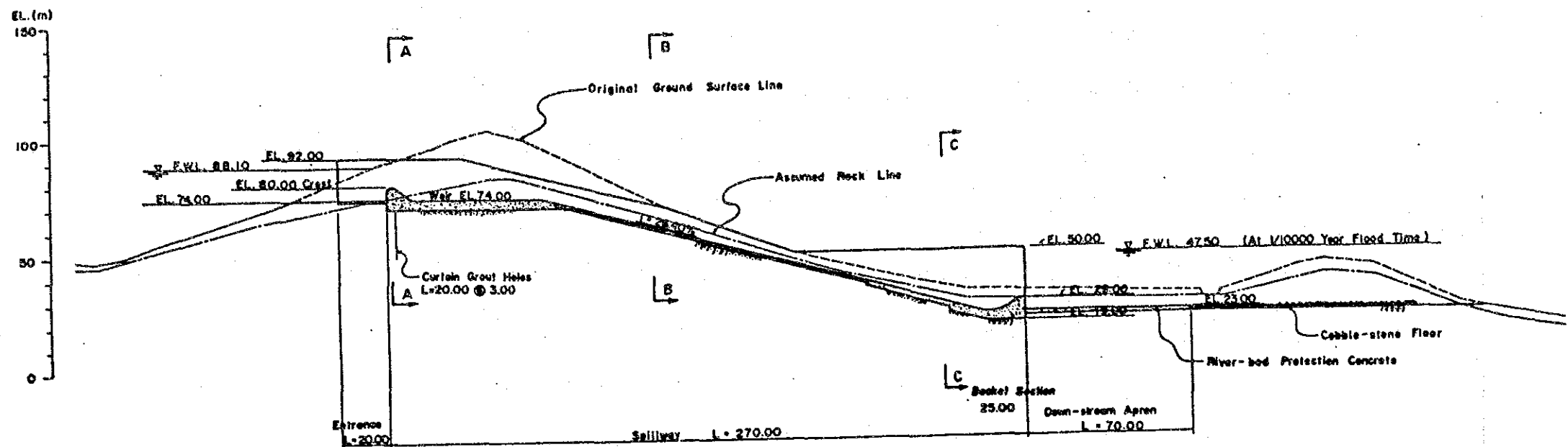


Typical Section
S = 1 : 1,000

- ① Outer Shell
- ② Rock Fill
- ③ Coarse Filter
- ④ Fine Filter
- ⑤ Core

Fig. 10

LEBR DAM PROJECT FEASIBILITY STUDY KELANTAN, MALAYSIA	
JAPAN INTERNATIONAL COOPERATION AGENCY	
MAIN DAM SECTIONS	
DATE Mar. 1989	DRAWING NO. LDP 1 - 002.



Detail of Bucket
S = 1 : 500

Profile
S = 1 : 1,000

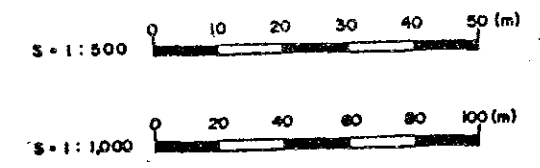
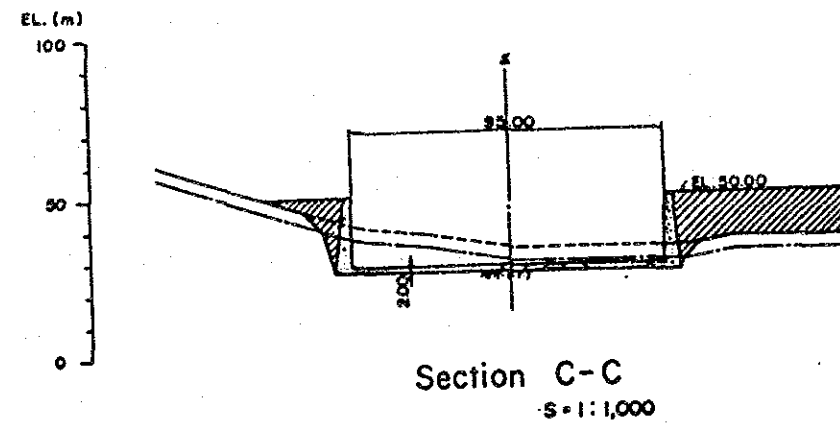
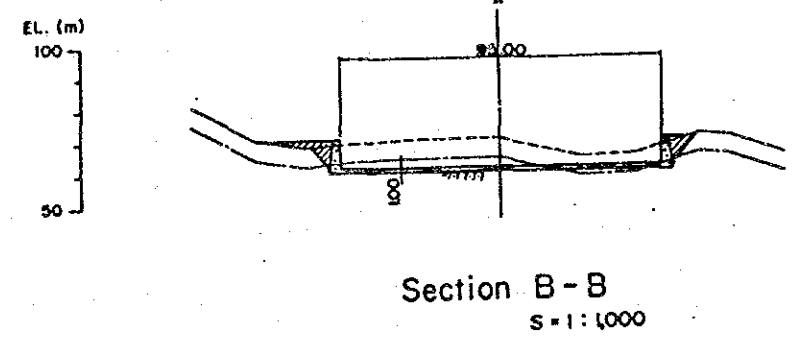
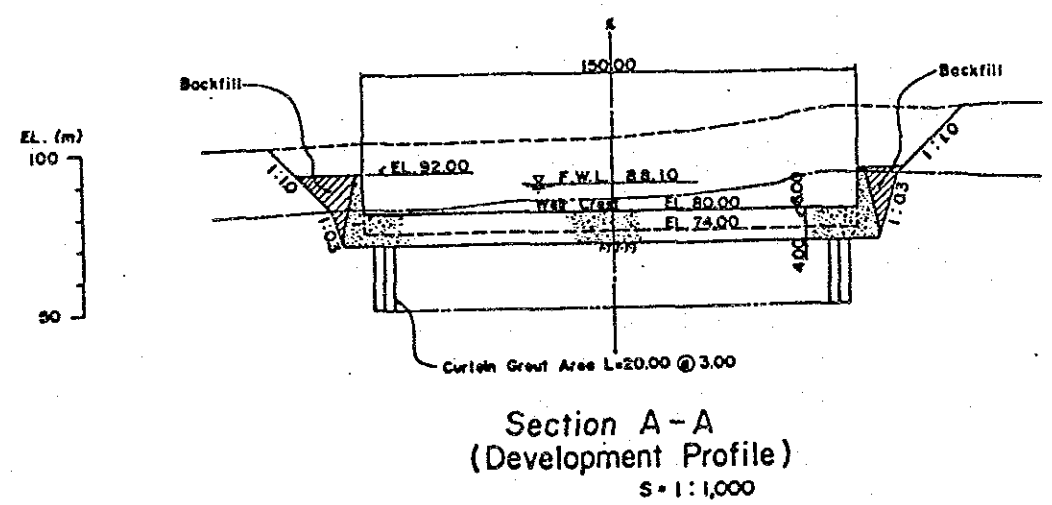
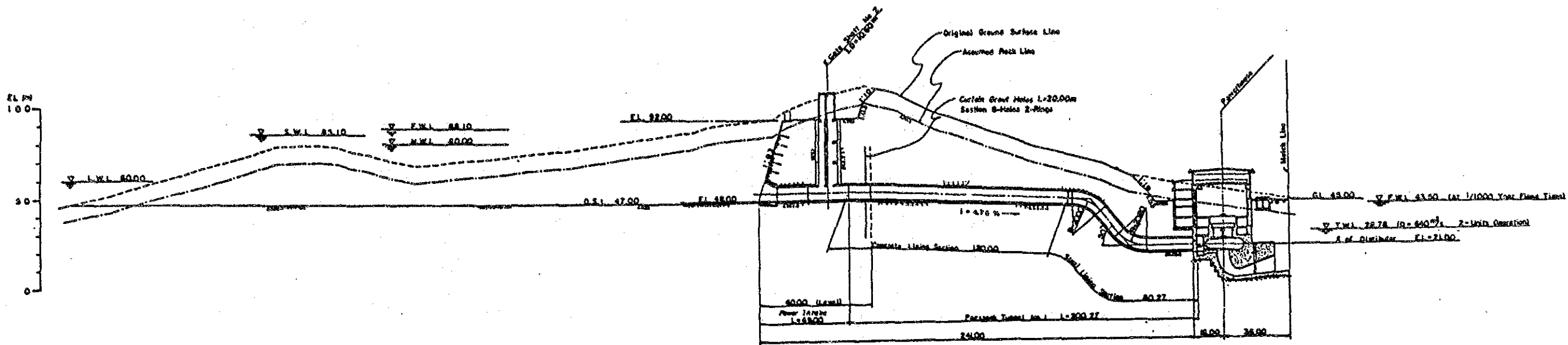


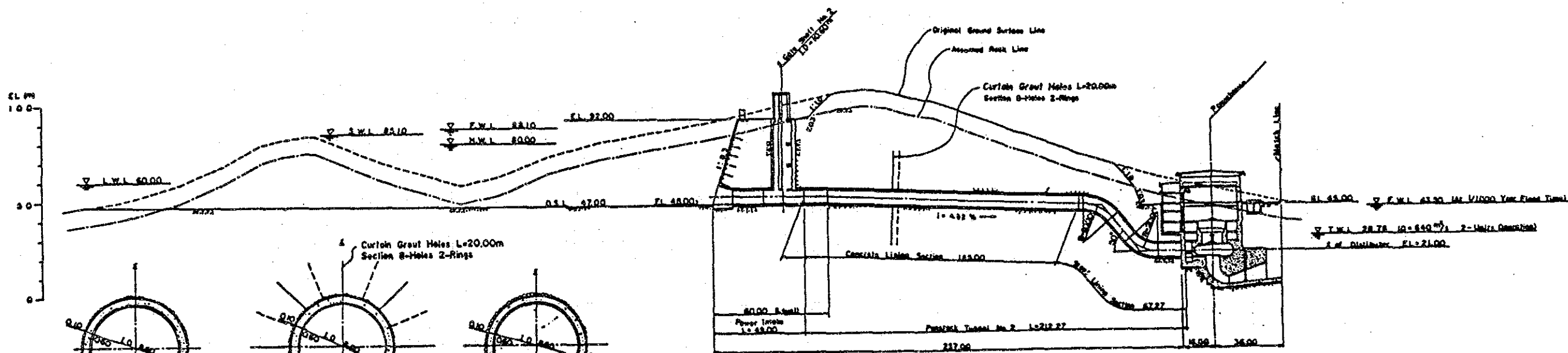
Fig. 11

LEBIR DAM PROJECT FEASIBILITY STUDY KELANTAN, MALAYSIA	
JAPAN INTERNATIONAL COOPERATION AGENCY	
SPILLWAY PROFILE AND CROSS SECTIONS	
DATE Mar. 1989	DRAWING NO. LDP 1 - 007



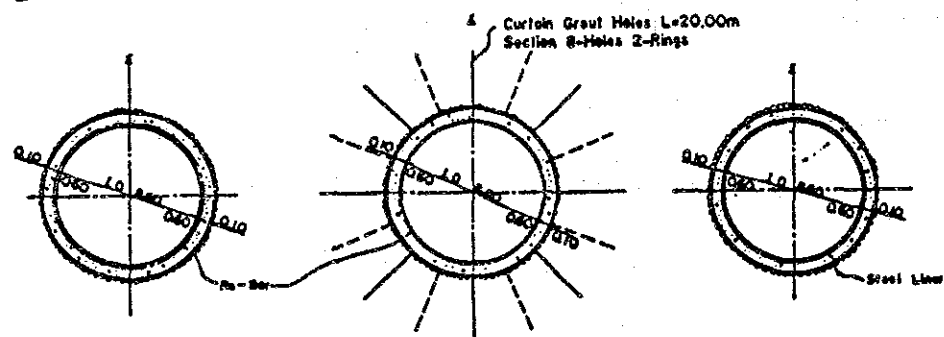
Profile No 1

S=1:1000



Profile No 2

S=1:1000



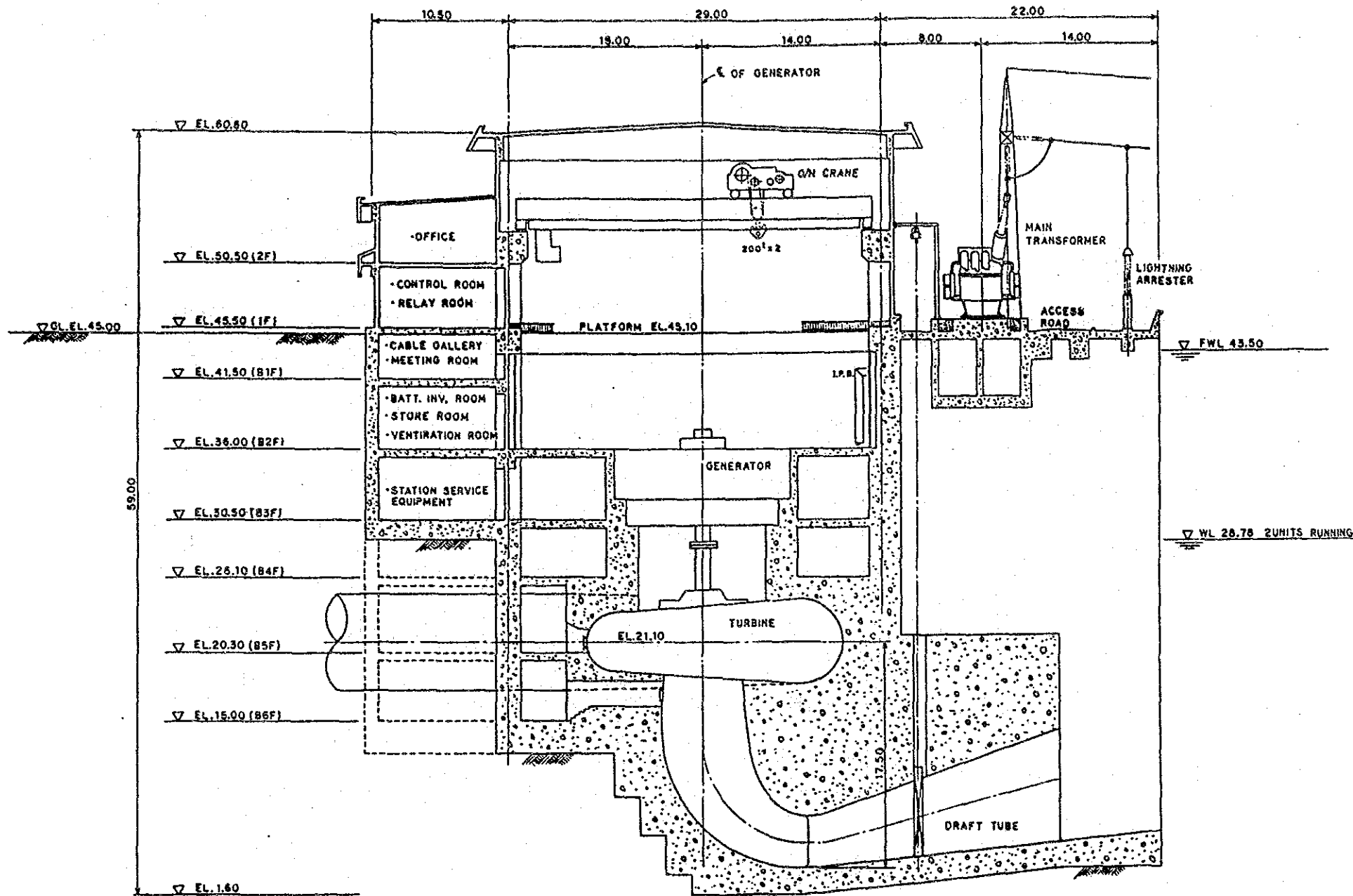
Typical Sections

S=1:200



Fig. 12

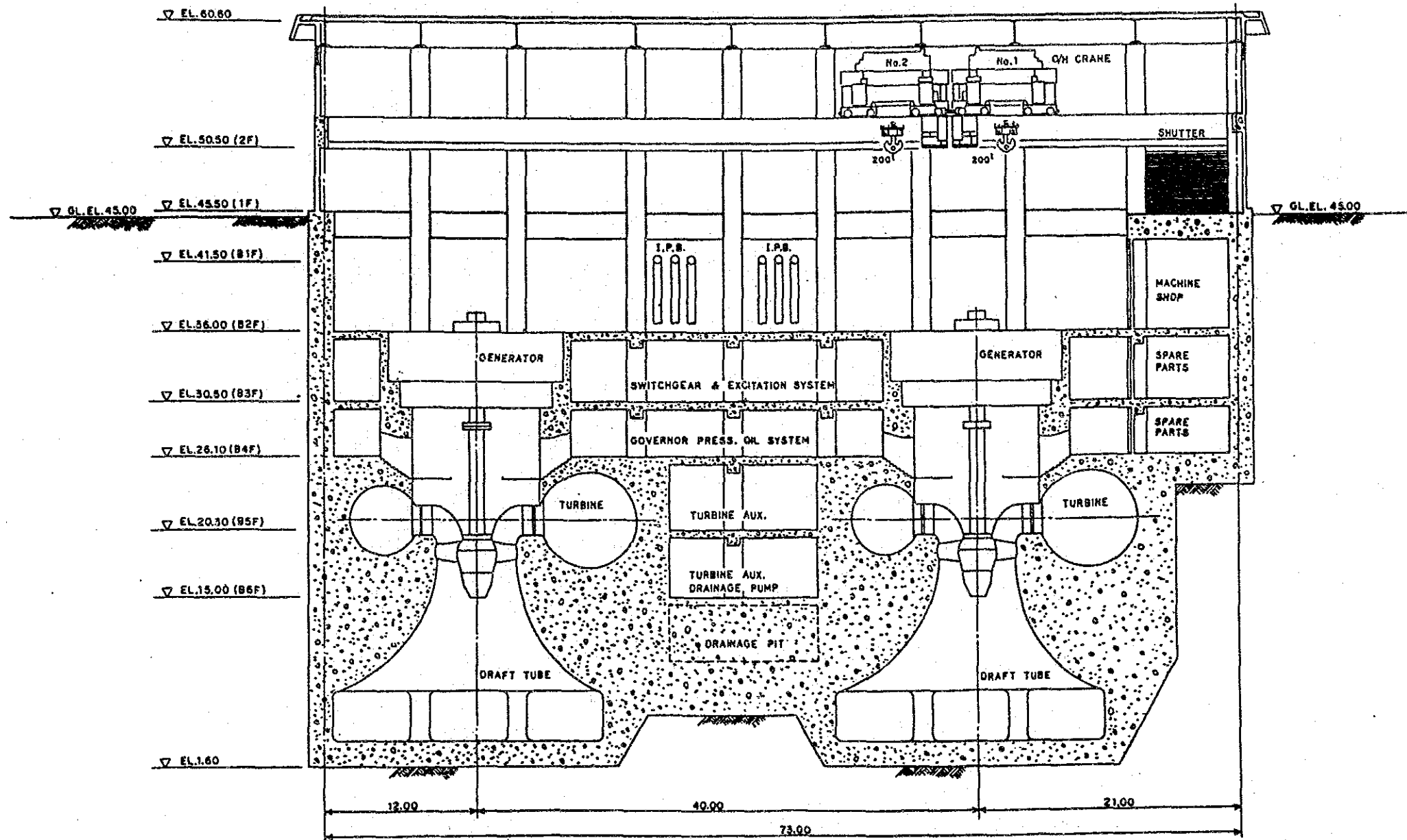
LEBR DAM PROJECT FEASIBILITY STUDY KELANTAN, MALAYSIA	
JAPAN INTERNATIONAL COOPERATION AGENCY	
POWER WATERWAY (I)	
PROFILES AND TYPICAL SECTIONS	
DATE Mar. 1989	DRAWING NO. LDP I - 009



CROSS SECTION

Fig. 13

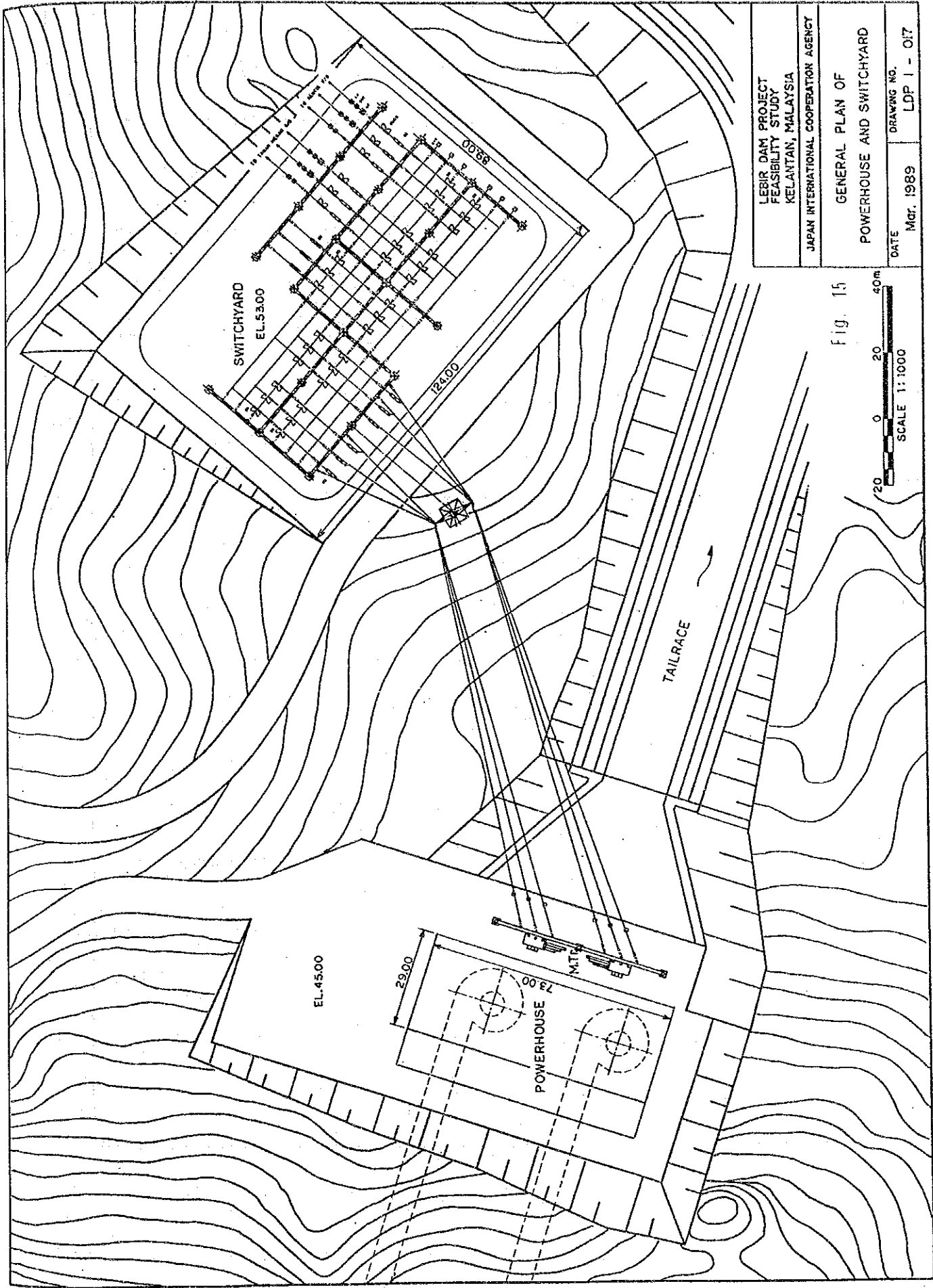
LEBIR DAM PROJECT FEASIBILITY STUDY KELANTAN, MALAYSIA	
JAPAN INTERNATIONAL COOPERATION AGENCY	
POWERHOUSE CROSS SECTION	
DATE	DRAWING NO.
Mar. 1989	LDP I - 011



LONGITUDINAL SECTION

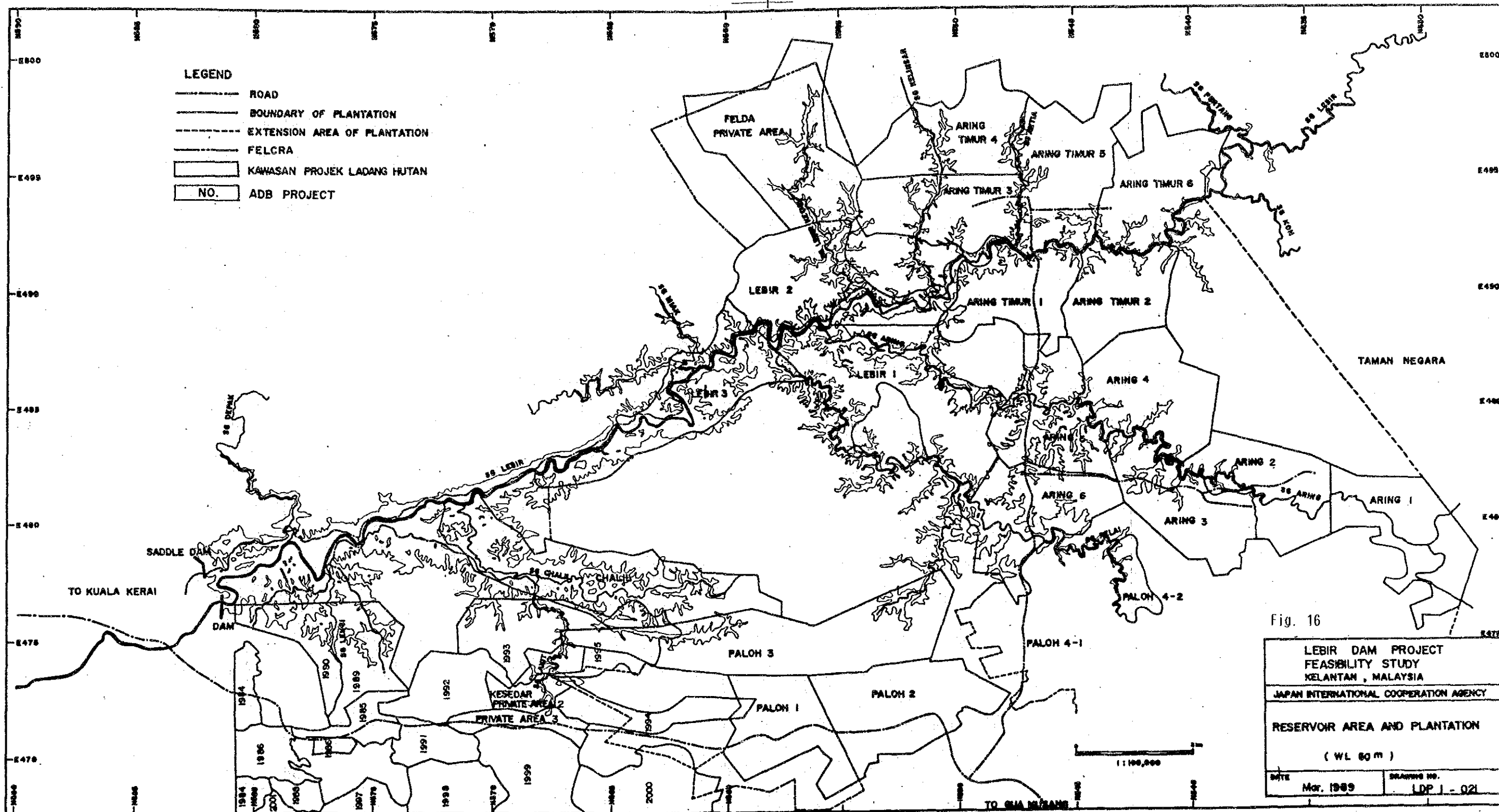
Fig. 14

LEBIR DAM PROJECT FEASIBILITY STUDY KELANTAN, MALAYSIA	
JAPAN INTERNATIONAL COOPERATION AGENCY	
POWERHOUSE LONGITUDINAL SECTION	
DATE Mar. 1989	DRAWING NO. LDP 1 - 012



LEBIR DAM PROJECT FEASIBILITY STUDY KELANTAN, MALAYSIA	
JAPAN INTERNATIONAL COOPERATION AGENCY	
GENERAL PLAN OF POWERHOUSE AND SWITCHYARD	
DATE	DRAWING NO.
Mar. 1989	LDP 1 - 017

Fig. 15



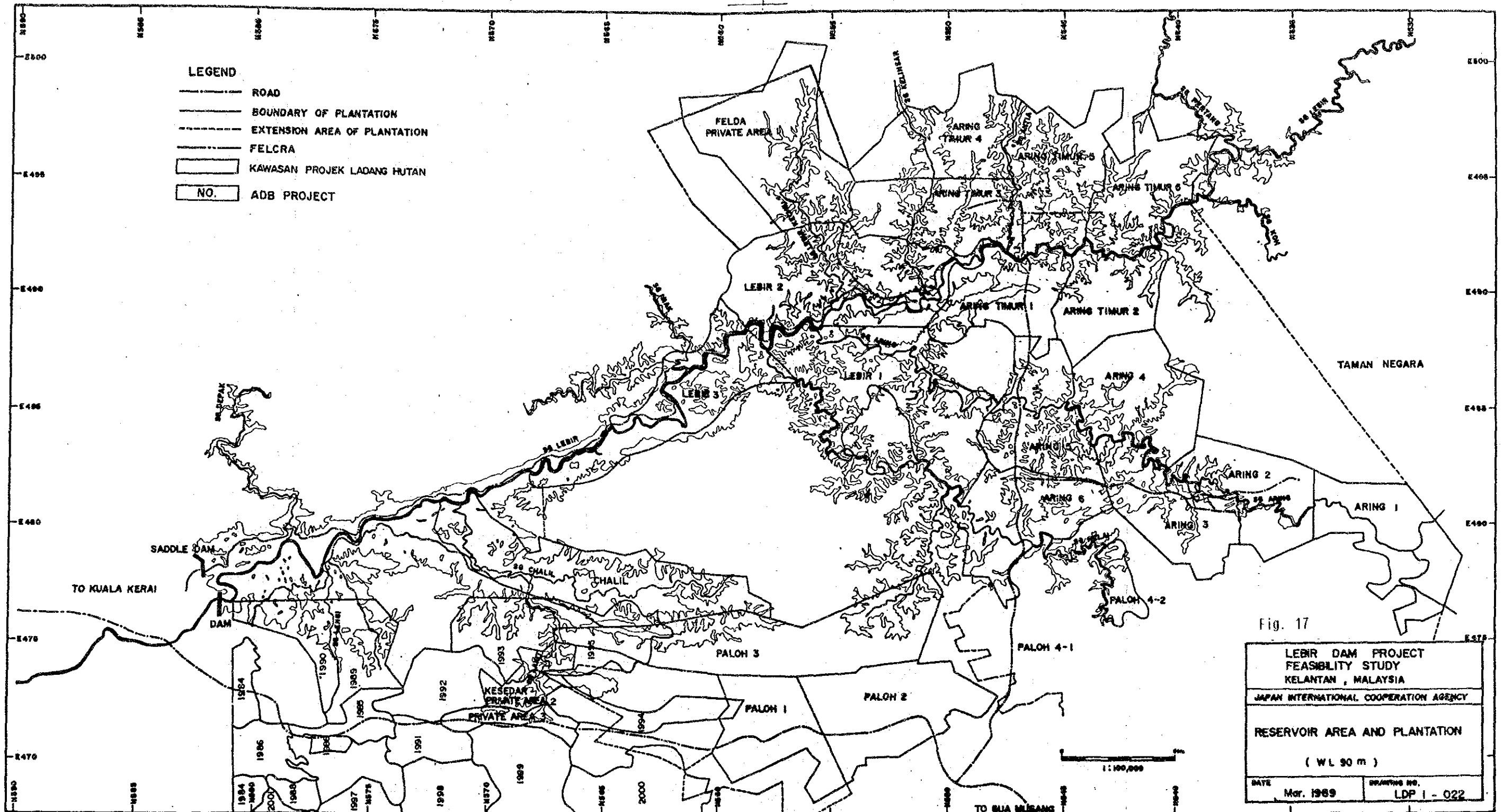
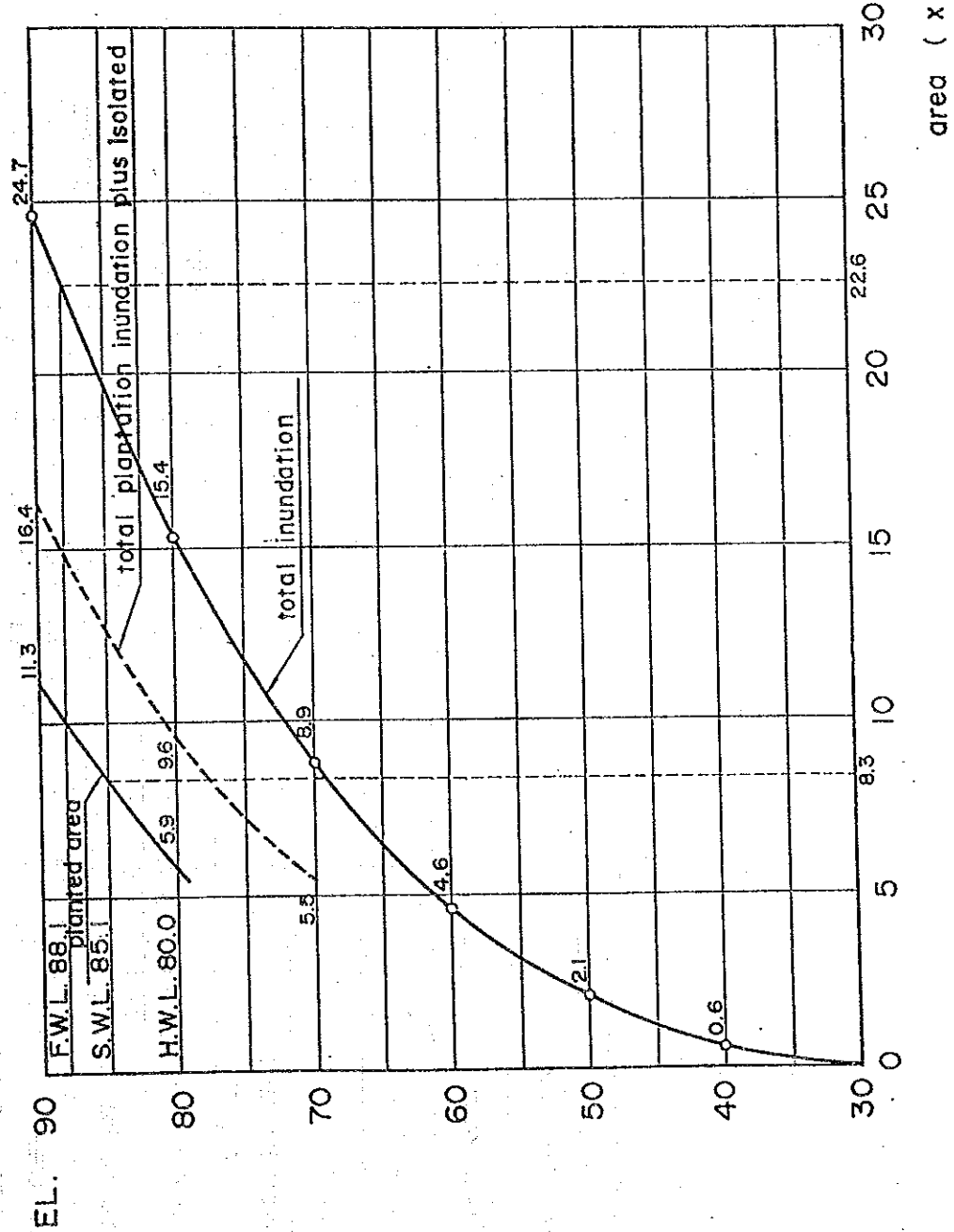


Fig. 18 Plantation Area to be Compensated due to inundation of Lebir Dam
 (based on the current development)

Reservoir Level



Area at F.W.L 88.1 = 10,000ha
 Rubber (31%) 3,100ha
 Oil Palm (69%) 6,900ha

Location	WL 80	WL 90
Kesedar	3,312ha	5,565ha
Felda	1,758	4,402
Felcra	77	129
ADBproject	750	1,180
total	5,897ha	11,276ha

Note :

Kesedar includes Paloh 3, Lebir 1 and Chailil.

Felda includes Aring 1, 2, 3, 4 and 5, Aring Timur 1, 2, 3 and 4. (refer to Table 11 - 5)

Fig. 19 Lebir Dam Project Implementation Programme

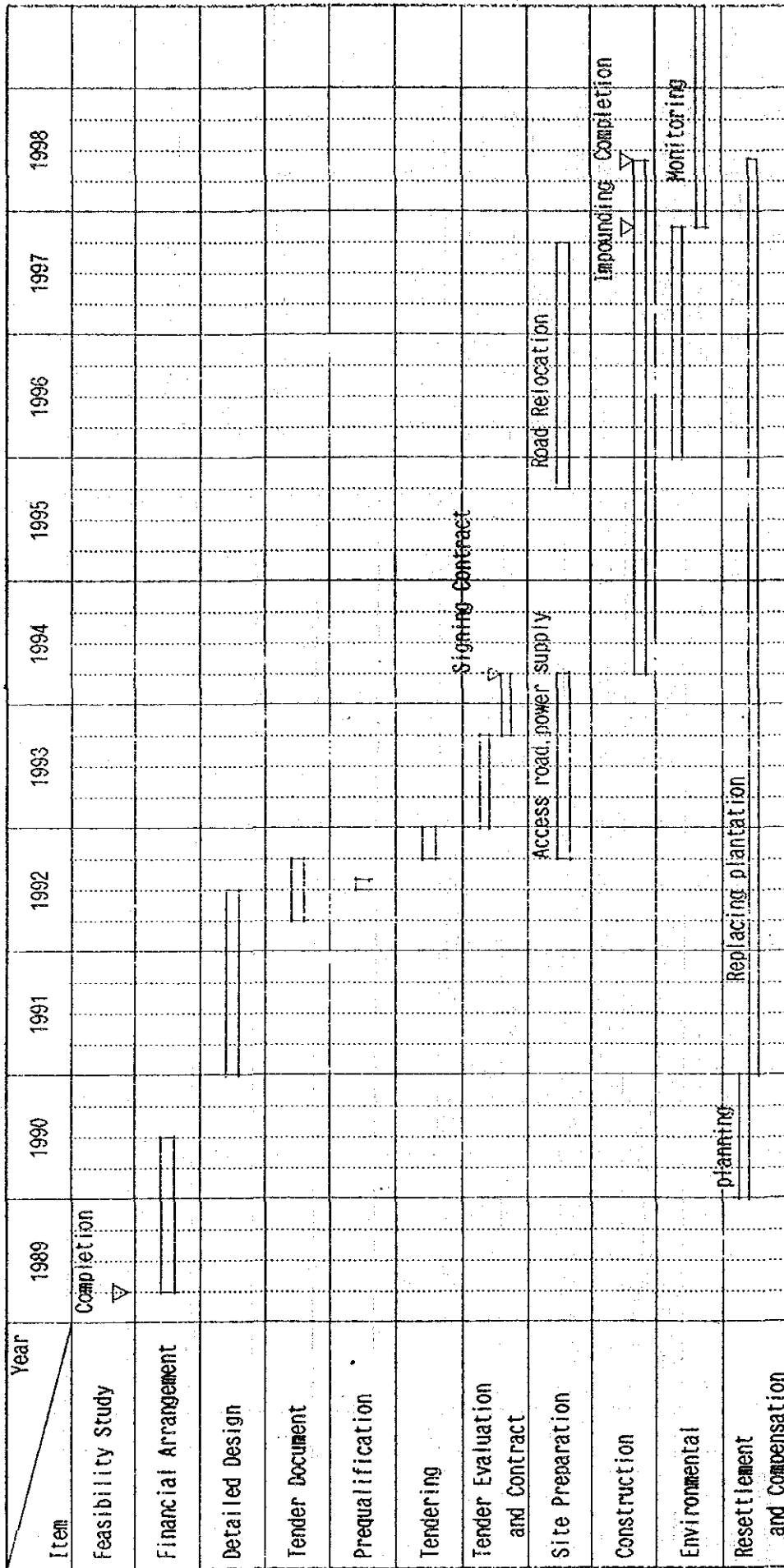
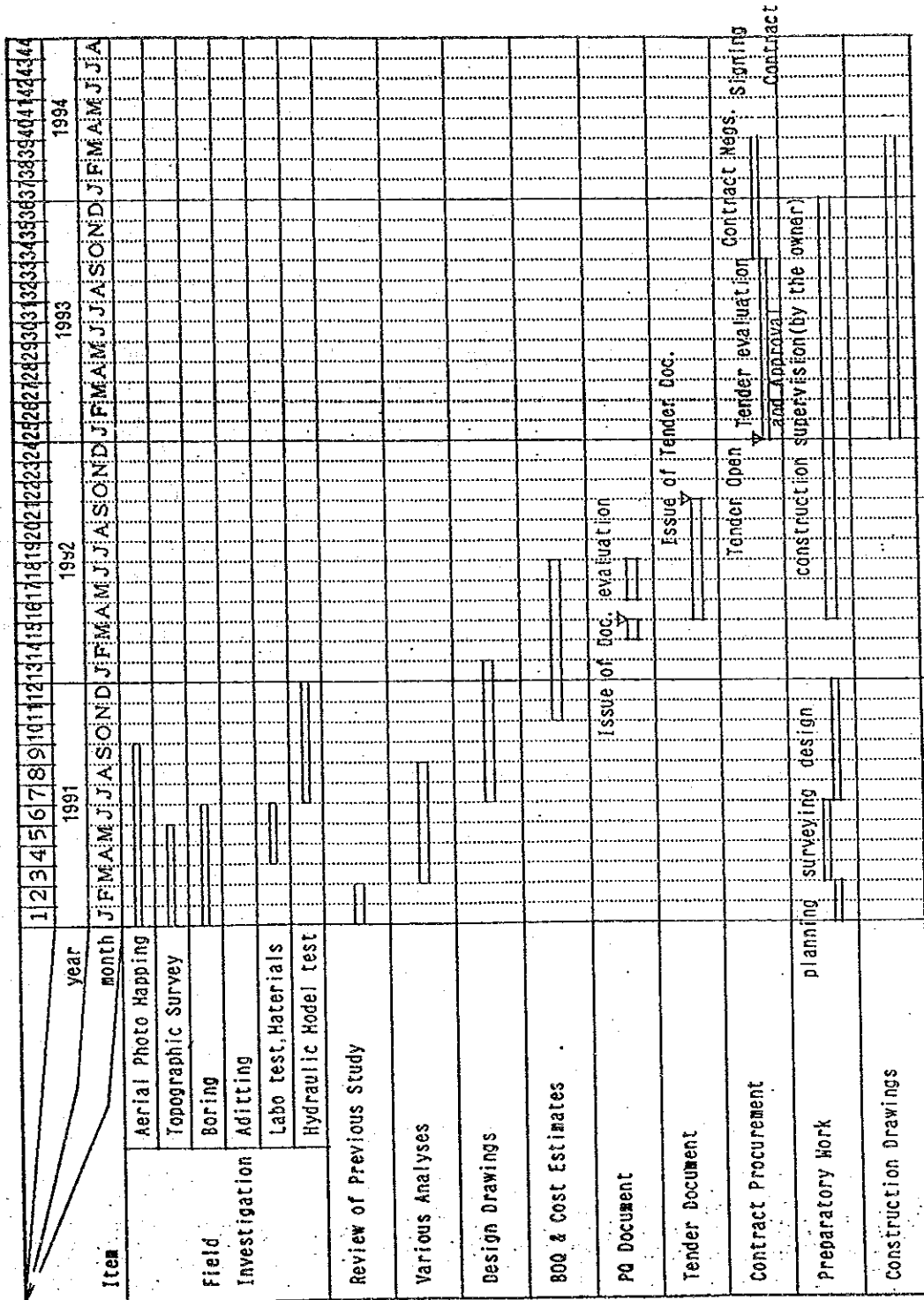


Fig. 20 Time Schedule for Detail Design and Preparation for Lebir Dam Project and Contract Procurement



詳細設計・入札図書 ← ○ → 工事監理
の準備

Fig. 21 Construction Schedule of Main Works

Item	Quantity	1994												1995												1996												1997												1998												Remarks
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
		4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12				
Mobilization		[Gantt bars]																																																												
Site Installation		[Gantt bars]																																																												
Quarry	Common	1 250,500 m ³	[Gantt bars]																																																											
	Rock Product	5 000,000 m ³	[Gantt bars]																																																											
Diversion Tunnel	Open Ex.	141,200 m ³	[Gantt bars]																																																											
	Tunnel Ex.	189,100 m ³	[Gantt bars]																																																											
Upstream Cofferdam	Con.	79,500 m ³	[Gantt bars]																																																											
	Ex.	127,300 m ³	[Gantt bars]																																																											
Downstream Cofferdam	Em.	503,500 m ³	[Gantt bars]																																																											
	Ex.	45,700 m ³	[Gantt bars]																																																											
Main Dam	Em.	154,000 m ³	[Gantt bars]																																																											
	Ex.	356,200 m ³	[Gantt bars]																																																											
Saddle Dam I	Grouting	13,050 m	[Gantt bars]																																																											
	Em.	2 362,000 m ³	[Gantt bars]																																																											
Saddle Dam II	Ex.	868,100 m ³	[Gantt bars]																																																											
	Grouting	8,820 m	[Gantt bars]																																																											
Spillway	Em.	1 395,500 m ³	[Gantt bars]																																																											
	Ex.	195,100 m ³	[Gantt bars]																																																											
Bottom Outlet	Em.	741,700 m ³	[Gantt bars]																																																											
	Con.	1 318,800 m ³	[Gantt bars]																																																											
Power Intake	Tunnel Ex.	121,600 m ³	[Gantt bars]																																																											
	Con.	3,600 m ³	[Gantt bars]																																																											
Penstock Tunnel	Facility Inst.	1,500 m ³	[Gantt bars]																																																											
	Open Ex.	1 042,100 m ³	[Gantt bars]																																																											
Power house	Tunnel Ex.	2,600 m ³	[Gantt bars]																																																											
	Shaft Ex.	14,700 m ³	[Gantt bars]																																																											
Tailrace	Con.	12,270 m ³	[Gantt bars]																																																											
	Ex.	437,300 m ³	[Gantt bars]																																																											
Switchyard	Gate & Screen	—	[Gantt bars]																																																											
	Tunnel Ex.	31,100 m ³	[Gantt bars]																																																											
Transmission Line	Con.	8,100 m ³	[Gantt bars]																																																											
	Steel Liner	920 m ³	[Gantt bars]																																																											
Hydrological Telemetering & Downstream Warning System	Ex.	238,000 m ³	[Gantt bars]																																																											
	Con.	74,000 m ³	[Gantt bars]																																																											
Draft Gate	Over Head Crane	—	[Gantt bars]																																																											
	Unit # 1	—	[Gantt bars]																																																											
Tailrace	Unit # 2	—	[Gantt bars]																																																											
	M.T. # 1	—	[Gantt bars]																																																											
Switchyard	M.T. # 2	—	[Gantt bars]																																																											
	Ex.	437,300 m ³	[Gantt bars]																																																											
Transmission Line	Con.	12,300 m ³	[Gantt bars]																																																											
	Ex.	74,900 m ³	[Gantt bars]																																																											
Hydrological Telemetering & Downstream Warning System	Con.	4,000 m ³	[Gantt bars]																																																											
	E/M	—	[Gantt bars]																																																											

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