

付録F 施設計画
(マスタープラン)

Catchment Name	Line No.	Inflow No.	Year 2000										Existing Condition			Remarks							
			Area		Length		Time of Flow in the Drain		Concentration Time of (min)	Runoff Coefficient	Storage Coefficient	Design Runoff		Major Storm Runoff (m ³ /s)	Proposed Drain		Existing Drain						
			Each (ha)	Total (ha)	Each (m)	Total (m)	Each (min)	Total (min)				Per ha (m ³ /s)	Total (m ³ /s)		Size (m)		Slope Velocity (m/s)	Capacity (m ³ /s)	Size (m)	Capacity (m ³ /s)			
N-2	⑥		24.4		680		10.3	10.3	20.3	0.55	0.80	0.174	4.25	5.84	4.8	2.0x1.4	1.2	1.13	4.64				
	⑦	⑤	19.9	210.1	160	2020	1.8	33.9	43.9	0.55	0.72	0.106	22.27	31.18	10.0	5.0x2.5	0.9	1.53	24.96				
			To Kelang River																				
N-3																							
	①		14.3		(650) 340		18.9	18.9	28.9	0.65	0.75	0.164	2.35	3.226	5.0	2.0x1.5	0.3	0.60	2.67				
	②		11.2		400		12.1	12.1	22.1	0.65	0.79	0.195	2.18	3.02	4.8	2.0x1.4	0.3	0.60	2.34				
	③	1	0	25.5	40	440	1.0	19.9	29.9	0.65	0.75	0.161	4.11	5.71	6.3	2.5x1.9	0.3	0.68	4.90				
			To Kelang River																				
N-4																							
	①		47.2		(900) 400		11.5	11.5	21.5	0.60	0.79	0.183	8.64	11.89	6.4	3.0x1.7	1.2	1.34	9.29	1.8	0.9x0.6	2.28	
	②		24.4	71.6	610	1010	7.8	19.3	29.3	0.60	0.75	0.150	10.74	14.95	7.0	3.0x2.0	1.0	1.32	11.40	5.6	0.8x1.3	7.48	
	③		48.8	120.4	770	1780	9.9	29.2	39.2	0.60	0.73	0.125	15.05	21.07	8.6	4.0x2.3	0.8	1.33	16.71	6.9	3.7x1.4	7.42	
			To																				
	④		38.6		(1300) 800		21.3	21.3	31.3	0.60	0.75	0.145	5.60	7.81	5.6	2.0x1.8	0.8	1.05	6.16				
	⑤	③	3.0	162.0	80	1860	1.0	30.2	40.2	0.60	0.73	0.123	19.93	27.95	9.5	4.5x2.5	0.8	1.41	21.41				
			To Kelang River																				

Name of Catchment	Line No.	Inflow No.	in Year 2000										Existing Condition			Remarks					
			Area		Length		Time of Flow in the Drain		Runoff Coefficient	Storage Coefficient	Design Perha (m/s)	Total Runoff (m ³ /s)	Major Storm Runoff (m ³ /s)	Proposed Drain			Existing Drain				
			Each (ha)	Total (ha)	Each (m)	Total (m)	Each (min)	Total (min)						Time of Concentration (min)	Size (m)		Slope (%)	Velocity (m/s)	Capacity (m ³ /s)	Size (m)	Capacity (m ³ /s)
N-5	①		2.07 (8.46)	10.53 (565)	1.55	720	1.8	10.5	18.7	0.71	0.80	0.223	2.35	3.24	1.4x1.4	1.5	1.52	2.67	30	8.14	R1=1.13 (0.46) O=0.94
	②		8.11 (3.96)	22.60 (9.36)	4.00	1120	4.5	15.0	25.0	0.72	0.77	0.200	4.52	6.26	2.0x2.0	1.0	1.57	5.55	2.2x1.0	1.93	R1=7.43 (0.16) R2=0.46 O=0.22 (S=0.80)
	③		7.18 (1.20)	39.34 (1.20)	4.00	1520	4.2	19.2	29.2	0.72	0.75	0.180	7.08	9.85	2.3x2.3	0.9	1.64	7.79	3.8x1.4	3.57	R2=7.09 (3.10) (R1=102) O=0.09 (C=5.44) (R1=102) R2=0.35 (C=0.85) O=0.74
	④		0.74 (9.46)	4.128 (9.46)	7.5	1595	0.8	20.0	30.0	0.71	0.75	0.175	7.22	10.05	2.4x2.4	0.9	1.68	8.72			R2=1.61 (C=7.53) O=0.77 (0.32)
	⑤		0.77 (2.25)	5.151 (2.25)	1.70	1765	1.7	21.7	31.7	0.73	0.75	0.175	9.02	12.57	2.6x2.6	0.8	1.68	10.18			R2=2.07 (C=0.84) (2.03) O=0.22 (0.20) S=0.80
	⑥		4.17 (8.37)	37.93 (8.37)	1.65	1930	1.7	23.4	33.4	0.72	0.74	0.166	9.62	13.43	2.7x2.7	0.8	1.72	11.26	6.0	17.22	C=3.20 (0.29) (R2=8.08)
	⑦		3.20	69.50	6.0	1990	0.6	24.0	34.0	0.71	0.74	0.162	11.26	15.72	2.8x2.8	0.9	1.86	13.16			

流量表 (S-1, S-2, S-3, S-4)

Name of Catchment	Line No.	Inflow No.	in Year 2000												Existing Condition			Remarks					
			Area		Length		Time of Flow in the Drain		Runoff Coefficient	Storage Coefficient	Design Per ha (m ³ /s)	Total Runoff (m ³ /s)	Major Storm (m ³ /s)	Proposed Drain		Existing Drain							
			Each (ha)	Total (ha)	Each (m)	Total (m)	Each (min)	Total (min)						Time of Concentration (min)	Size (m)	Slope (%)	Velocity (m/s)		Capacity (m ³ /s)	Size (m)	Capacity (m ³ /s)		
S-1	①		77.5	(1500)			31.1	31.1	41.1	0.40	0.73	0.081	6.28	8.81	70 x 20	0.4	0.84	7.26	228 x 1.1	1.29			
	②		34.5	112.0	640	1440	12.8	43.9	53.9	0.40	0.71	0.067	7.50	10.53	75 x 20	0.4	0.86	8.20	50 x 1.0 x 1.5	2.48			
	③		16.6	128.6	180	1620	3.5	47.4	57.4	0.40	0.71	0.064	8.23	11.62	80 x 20	0.4	0.88	9.19	58 x 1.1 x 1.3	2.36			
			To Kelang River																				
S-2	①		108.9	(1100)			13.3	13.3	23.3	0.40	0.78	0.116	12.63	17.48	78 x 40 x 1.9	1.1	1.42	13.87	29 x 22 x 0.6	0.79			
	②		18.6	127.5	530		6.4	19.7	29.7	0.40	0.75	0.099	12.62	17.63	78 x 40 x 1.9	1.1	1.42	13.87	29 x 29 x 1.2	1.72			
	③			70																			
	④		30.6	(600)			8.2	8.2	18.2	0.40	0.82	0.135	4.12	5.67	42 x 70 x 1.6	1.6	1.25	4.39					
			19.5	177.5	100	1410	1.1	20.8	30.9	0.40	0.75	0.098	17.40	24.12	80 x 50 x 2.0	1.1	1.51	18.48	12.5 x 3.1 x 1.6	13.23			
			To Kelang River																				
S-3	①		11.8		350		3.7	3.7	13.7	0.75	0.88	0.301	3.55	4.85	1.6 x 1.6	1.4	1.60	3.69	1.5 x 1.2 x 1.2	1.78			
			To Kelang River																				
S-4	①		53.9	(900)			6.3	6.3	16.3	0.55	0.84	0.198	10.67	14.66	82.7 x 20	1.9	2.44	11.52	1.6 x 0.6 x 3.0	1.69			
			To Kelang River																				

Name of Catchment	Line No.	Inflow No.	in Year 2000												Existing Condition			Remarks				
			Area (ha)		Length (m)		Time of Flow in the Drain (min)		Concentration	Runoff Coefficient	Storage Coefficient	Design Runoff Per ha (m ³ /s)	Total Runoff (m ³ /s)	Major Storm (m ³ /s)	Runoff	Proposed Drain			Existing Drain			
			Each	Total	Each	Total	Each	Total	(m ³ /min)	(m ³ /s)	(m ³ /s)	(m ³ /s)	(m ³ /s)	Size (m)	Slope (%)	Velocity (m/s)	Capacity (m ³ /s)		Size (m)	Capacity (m ³ /s)		
S-5	①		160		480	7.9	7.9	17.9	0.55	0.82	0.187	2.99	4.11		4.1	1.04	3.25	1.0	0.51			
	②		290	450	455	6.3	7.4	24.2	0.55	0.77	0.154	6.93	9.65		8.8	1.22	7.33	0.4	2.60			
	③		524	974	800	10.9	25.1	35.1	0.55	0.74	0.123	11.98	16.80		16.8	1.24	12.74	0.3	1.11			
	④		497	To	⑤																	
	⑤		90	156.1	800	11.0	37.1	47.1	0.55	0.72	0.101	15.74	22.23		22.2	1.25	17.46	0.7	1.46			
S-6	①		59.5		850	15.8	15.8	25.8	0.45	0.77	0.123	7.32	10.15		7.6	0.93	8.47	0.5	0.51			
	②		372	252.8	400	5.3	42.4	52.4	0.55	0.71	0.093	23.48	33.27		33.2	1.27	25.16	0.6	1.6			
	③		0	252.8	50	30.50	0.7	43.2	53.1	0.55	0.71	0.092	23.20	33.00		33.0	1.27	25.16	0.6	1.6		70 Retention Pond
S-7	①		270		800	17.1	17.1	27.1	0.55	0.76	0.145	3.87	5.43		5.4	0.80	4.32	0.5	0.15			
	②		673	94.3	600	10.3	27.4	37.4	0.55	0.73	0.118	11.11	15.52		15.5	1.01	12.45	0.5	0.63			
	③		165	110.8	200	3.3	30.7	40.7	0.55	0.73	0.112	12.40	17.41		17.4	1.03	13.53	0.5	0.63			
S-8	①		2556		(2200) 1200	35.9	35.9	45.9	0.65	0.72	0.121	30.93	43.68		43.6	1.04	32.81	0.3	1.48			
	②		619	317.5	1200	19.8	55.7	65.7	0.65	0.70	0.093	29.53	42.06		42.0	1.04	32.81	0.3	2.21			
	③		118	329.3	500	8.4	64.1	74.1	0.65	0.70	0.086	28.32	40.17		40.1	1.04	32.81	0.3	1.19			
	④		54.1	To	⑤																	
	⑤		40	387.4	200	3.2	67.5	77.5	0.65	0.70	0.083	32.15	45.87		45.8	1.06	34.89	0.3	0.40			
⑥		36.5	To	⑧																		
					14.5	14.5	24.5	0.65	0.77	0.182	6.64	9.20		9.2	1.09	7.13	0.3	0.40				

Name of Catchment	Line No.	Inflow No.	in Year 2000										Existing Condition			Remarks										
			Area		Length		Time of Flow in the Drain		Time of Concentration (min)	Runoff Coefficient	Storage Coefficient	Perha (m ² /s)	Design Runoff		Runoff		Proposed Drain		Existing Drain							
			Each (ha)	Total (ha)	Each (m)	Total (m)	Each (min)	Total (min)					Major Storm (m ³ /s)	Total Runoff (m ³ /s)	Size (m)		Slope (%-)	Velocity (m/s)	Capacity (m ³ /s)	Size (m)	Capacity (m ³ /s)					
S-8	⑦		106.4	142.9	1870	2500	27.6	42.1	52.1	0.65	0.71	0.111	15.86	22.31	170	170										
	⑧		8.9	539.2	300	3400	4.6	71.9	81.9	0.65	0.69	0.079	42.60	60.39	188	110	44.82	45.8	0.9	0.71						
	⑨		0	539.2	267	3667	4.2	76.1	86.1	0.65	0.69	0.076	40.98	58.25	188	110	44.82	47.5	1.4	1.88						
S-9	①		23.2		1100		13.4	13.4	23.4	0.65	0.78	0.188	4.36	6.04	223	170	0.8	1.42	4.02	22	170	0.8	1.42	4.02	0.89	
	②		29.8		1000		12.7	12.7	22.7	0.65	0.78	0.191	5.69	7.86	225	20	0.6	1.33	5.90	57	176	1.1	3.02			
	③	①	34.8	87.8	290	1290	3.5	16.9	26.9	0.65	0.76	0.172	15.10	20.95	85	25	20	1.0	1.41	15.99	47	20	1.83			
	④		32.7		1740		12.7	12.7	22.7	0.65	0.78	0.191	6.25	8.62	67	35	1.6	0.7	1.02	7.26	55	15	0.8	1.51		
	⑤	③	0	120.5	100	1390	1.2	18.1	28.1	0.65	0.76	0.168	20.24	28.17	72	2	2.1	0.6	1.42	21.47						
S-10	①		48.4		1210		18.5	18.5	28.5	0.70	0.75	0.178	8.62	11.95	40	20	0.4	1.29	9.07	58	18	1.4	1.54			
	②		26.5		1100		17.2	17.2	27.2	0.70	0.76	0.184	4.88	6.77	25	1.9	0.6	1.31	5.47	20	0.8	0.6	0.24			
	③	①	30.1	105.0	400	1610	4.4	22.9	32.9	0.70	0.74	0.163	17.12	23.84	54	2.5	0.4	1.53	18.23	69	26	1.6	2.47			
	④		39.6		880		12.6	12.6	22.6	0.70	0.78	0.206	8.16	11.26	33	2.0	0.6	1.48	8.61							
	⑤	③	0	144.6	90	1700	1.0	23.9	33.9	0.70	0.74	0.160	23.14	32.33	105	5.5	2.5	0.9	1.55	27.03						

流量表 (A-2, A-3, A-5)

Name of Catchment	Line No	Inflow No	in Year 2000												Existing Condition		Remarks				
			Area		Length		Time of Flow in the Drain		Time of Concentration (min)	Runoff Coefficient	Storage Coefficient	Design Runoff		Major Storm Runoff (m ³ /s)	Proposed Drain			Existing Drain			
			Each (ha)	Total (ha)	Each (m)	Total (m)	Each (min)	Total (min)				Per ha (m ³ /s)	Total (m ³ /s)		Size (m)	Slope Velocity (m/s)		Capacity (m ³ /s)	Size (m)	Capacity (m ³ /s)	
A-2	④	①②	13.3	133.6	600	1800	6.0	27.9	37.9	0.55	0.73	0.117	15.63	21.83	4.50x2.3	0.5	1.62	16.46	4.50x1.4	0.58	
				To Aur River																	
A-3	①		9.7		300		8.0		18.0	0.70	0.82	0.237	2.30	3.17	4.5x1.5	0.4	0.64	2.46			
	②		25.3		700		21.8		31.8	0.70	0.74	0.166	4.20	5.84	2.5x1.7	0.4	0.75	4.62	3.8x1.1	0.85	
	③	1	8.3	43.3	820	1520	12.0	33.8	43.8	0.70	0.72	0.135	5.85	8.19	3.3x1.8	0.4	1.17	6.09	8.5x2.8	1.92	
	④		12.2		1000		17.4		27.4	0.70	0.76	0.183	2.23	3.11	1.8x1.5	0.5	0.99	2.33	3.1x1.0	0.58	
	⑤		24.0		570		10.3		20.3	0.70	0.80	0.221	5.30	7.31	3.2x1.6	0.5	1.24	5.58			
	⑥	④	27.4	63.6	560	1550	7.1	24.5	34.5	0.70	0.74	0.159	10.11	14.09	4.3x2.1	0.4	1.34	10.65	4.0x1.5	0.91	
	⑦	③	0	106.9	250	1810	4.0	37.8	47.8	0.70	0.72	0.128	13.68	19.20	4.5x2.3	0.5	1.07	14.55	5.9x1.9	0.83	
				To Aur River																	
A-5	①		16.8		750		10.1		20.1	0.85	0.80	0.269	4.52	6.24	2.5x1.7	0.6	1.27	4.74			
	②		20.1	36.9	800	1550	10.8	20.9	30.9	0.85	0.75	0.207	7.64	10.64	3.5x2.1	0.4	1.25	8.07			
	③		19.2	56.1	230	1780	3.1	24.0	34.0	0.85	0.74	0.194	10.88	16.21	3.3x2.1	0.9	1.32	13.45			
	④		16.3	72.4	50	1830	0.6	24.6	34.6	0.85	0.74	0.192	13.91	19.45	4.0x2.1	1.0	1.42	15.81	7.0x3.8	1.0.98	Port Area (285ha) is directly drained to the sea.
				To Aur River																	

Name of Catchment	Line No.	Inflow No.	in Year 2000										Existing Condition			Remarks							
			Area		Length		Time of Flow in the Drain		Time of Concentration	Runoff Coefficient	Storage Coefficient	Perha (m ³ /s)	Design Total Runoff (m ³ /s)	Major Storm (m ³ /s)	Proposed Drain		Existing Drain						
			Each (ha)	Total (ha)	Each (m)	Total (m)	Each (min)	Total (min)							Size (m)		Slope (%)	Velocity (m/s)	Capacity (m ³ /s)	Size (m)	Capacity (m ³ /s)		
0-1																							
	①		279.2	6250	3340	156.9	156.9	166.9	0.45	0.68	0.030	8.38	12.22	8.8	4.0x2.4	0.2	0.68	9.05					
	②		To	(4750)	2840	111.0	111.0	121.0	0.45	0.69	0.040	11.99	17.30	11.0	6.0x2.5	0.2	0.74	13.74					
	③	①	63.8	642.7	2000	5340	44.0	200.9	210.9	0.45	0.68	0.025	16.07	23.03	12.7	7.5x2.6	0.2	0.78	17.96				
	④		To	(2200)	2000	35.9	35.9	45.9	0.45	0.72	0.084	10.22	14.40	4.9x2.5	0.2	1.05	11.25						
	⑤		To	(2450)	2540	74.9	74.9	84.9	0.45	0.69	0.053	8.01	11.42	8.8	4.0x2.4	0.2	0.68	9.05					
	⑥	④	42.4	315.3	1000	3540	15.0	89.9	99.9	0.45	0.69	0.047	14.82	21.11	5.5x3.0	0.2	1.16	16.48					
	⑦	③	1.1	959.1	80	5420	1.6	202.5	212.5	0.45	0.68	0.025	23.98	34.14	13.0	7.5x3.2	0.2	0.87	26.01			959.1 ^{1.6} = 366.9+870.1x 0.39	
			To Puloh River																				
0-2																							
	①		109.3	(2300)	2100	59.3	59.3	69.3	0.50	0.70	0.069	7.54	10.74	8.6	4.0x2.3	0.2	0.67	8.42					
	②		To	(2000)	1800	46.2	46.2	56.2	0.50	0.71	0.081	6.25	8.83	7.2	3.0x2.1	0.3	0.74	6.84					
	③	①	41.5	227.9	530	2630	10.2	69.5	79.5	0.50	0.70	0.063	14.36	20.35	11.0	6.0x2.5	0.3	0.91	16.89				
	④		To	(900)	700	19.0	19.0	29.0	0.50	0.75	0.126	3.93	5.46	3.0x2.0	0.2	0.82	4.27						
	⑤	③	1.6	260.7	150	2780	2.8	72.3	82.3	0.50	0.69	0.060	15.64	22.38	11.2	6.0x2.6	0.3	0.93	18.15				
			To Puloh River																				

Name of Catchment	Line No.	Inflow No.	in Year 2000												Existing Condition		Remarks		
			Area		Length		Time of Flow in the Drain		Runoff Coefficient	Storage Coefficient	Perha (m ³ /s)	Total Runoff (m ³ /s)	Major Storm (m ³ /s)	Proposed Drain		Existing Drain			
			Each (ha)	Total (ha)	Each (m)	Total (m)	Each (min)	Total (min)						Time of Concentration (min)	Size (m)	Slope Velocity (%/s) (m/s)		Capacity (m ³ /s)	Size (m)
0-3																			
	(C)		377.3		3900	87.5	87.5	97.5	0.35	0.69	0.037	13.96	20.01	¹¹⁴ 6.0 x 2.7	0.2	0.77	15.77		
	(1)		211.0	588.3	2380	52.0	139.5	149.5	0.35	0.68	0.026	15.30	21.94	¹¹⁶ 6.0 x 2.8	0.2	0.79	16.96		
	(2)		168.0	756.3	1250	26.3	76.8	175.8	0.35	0.68	0.023	17.39	24.64	¹²² 6.0 x 3.1	0.2	0.83	20.36		
	(3)		177.9	934.2	1300	27.0	142.8	202.8	0.35	0.68	0.020	18.68	26.93	¹²⁷ 6.5 x 3.1	0.2	0.84	21.77		
	(4)		90.2	1024.4	1000	20.9	213.7	223.7	0.35	0.68	0.018	18.44	27.12	¹²⁷ 6.5 x 3.1	0.2	0.84	21.77		
	(5)		18.8	To (900)	700	20.8	20.8	30.8	0.35	0.75	0.085	1.60	2.24	¹¹⁶ 1.6 x 1.6	0.3	0.74	1.71		
	(6)		29.4	To	700	13.9	13.9	23.9	0.35	0.77	0.099	2.91	4.03	¹²⁰ 2.0 x 2.0	0.3	0.86	3.10		
	(7)		0.3	1072.9	80	1.6	215.3	225.3	0.35	0.68	0.018	19.31	28.23	¹²⁷ 6.5 x 3.1	0.2	0.84	21.77		1072.9 ^{ms} = 2086 + 1008.3 x 0.30
			To	Fulok River															
0-4																			
	(C)		479.1		3500	58.6	58.6	68.6	0.35	0.70	0.049	23.48	33.19	¹²⁴ 6.0 x 3.2	0.3	1.03	26.34		
	(1)		87.0	To	2100	35.0	35.0	45.0	0.35	0.72	0.066	5.74	8.10	¹²⁸ 2.8 x 2.5	0.3	1.05	6.30		
	(2)		23.7	To	800	16.9	16.9	26.9	0.35	0.76	0.093	2.20	3.04	¹³⁰ 2.2 x 1.5	0.3	0.83	2.38		
	(3)	(C)	0	589.8	180	2.9	61.5	71.5	0.35	0.70	0.047	27.72	39.71	¹³⁰ 6.0 x 3.5	0.3	1.08	31.13		589.8 ^{ms} = 778 + 574 x 0.30
			To	Besar River															

Name of Catchment	Line No.	Inflow No.	In Year 2000										Existing Condition			Remarks					
			Area		Length		Time of Flow in the Drain		Runoff Coefficient	Storage Coefficient	Per ha Runoff (m ³ /s)	Total Runoff (m ³ /s)	Major Storm Runoff (m ³ /s)	Proposed Drain			Existing Drain				
			Each (ha)	Total (ha)	Each (m)	Total (m)	Each (min)	Total (min)						Time of Concentration (min)	Size (m)		Slope Velocity (m/s)	Capacity (m ³ /s)	Size (m)	Capacity (m ³ /s)	
0-5																					
	①		311.7			89.1	89.1	99.1	99.1	0.50	0.69	0.052	16.20	23.33	^{11.0} 2.0 x 2.5	0.3	0.91	16.89			
	②		59.6	371.3	620	5420	11.2	100.3	110.3	0.50	0.69	0.048	17.82	25.61	^{11.2} 6.0 x 2.6	0.3	0.93	18.15			
	③		104.4	70			31.0	31.0	41.0	0.50	0.73	0.101	10.54	14.85	^{11.2} 4.6 x 2.5	0.2	1.03	10.56			
	④		25.6	70			17.2	17.2	27.2	0.50	0.76	0.131	3.35	4.67	^{16.4} 2.1 x 2.1	0.3	0.89	3.53			
	⑤		303.9	805.2	2060	7480	39.1	139.4	149.4	0.50	0.68	0.037	29.79	42.93	^{16.2} 10.0 x 3.1	0.2	0.90	32.12			
	⑥		289.1	1094.3	2560	10040	47.7	187.1	197.1	0.50	0.68	0.029	31.73	46.19	^{16.4} 10.0 x 3.2	0.2	0.91	33.76			
	⑦		217.3	1311.6	3660	13700	70.2	257.3	267.3	0.50	0.68	0.022	28.86	42.38	^{16.4} 10.0 x 3.2	0.2	0.91	33.76			
			42.4	1354.0	300	14000	5.7	263.0	273.0	0.50	0.67	0.022	29.79	42.30	^{16.4} 10.0 x 3.2	0.2	0.91	33.76			13540 ^{m³} = 3033 + 1751 + 0.30

Name of Catchment	Line No.	Inflow No.	in Year 2000												Existing Condition		Remarks		
			Area		Length		Time of Flow in the Drain		Time of Concentration (min)	Runoff Coefficient	Storage Coefficient	Design Runoff		Runoff Major Storm (m ³ /s)	Proposed Drain			Existing Drain Capacity (m ³ /s)	
			Total (ha)	Each (ha)	Total (m)	Each (m)	Each (min)	Total (min)				Perha (m ³ /s)	Total (m ³ /s)		Size (m)	Slope (‰)			Velocity (m/s)
0-6																			
	(C1)		1398.3	7600	138.6	148.6	148.6	0.40	0.68	0.030	41.95	59.90	210 150x3.0	0.2	0.93	44.44			
	(1)		9.1	1407.4	400	146.0	155.0	0.40	0.68	0.029	40.81	57.92	210 150x3.0	0.2	0.93	44.44			
				(3)															
	(C2)		294.8	2900	52.7	62.7	62.7	0.40	0.70	0.059	17.39	24.79	114 60x2.7	0.3	0.94	19.26			
	(2)		30.9	325.7	400	59.9	69.9	0.40	0.70	0.055	17.91	25.46	114 60x2.7	0.3	0.94	19.26			
	(3)	(1)	80.3	1813.4	700	158.6	168.6	0.40	0.68	0.027	48.96	69.94	240 180x3.0	0.2	0.95	53.10			
	(4)		168.5	1981.9	1370	183.5	193.5	0.40	0.68	0.024	47.57	68.00	240 180x3.0	0.2	0.95	53.10			
	(5)		153.0	2134.9	1300	207.6	217.6	0.40	0.68	0.021	44.83	66.18	240 180x3.0	0.2	0.95	53.10			
	(6)		151.7	2286.6	1450	212.2	224.8	0.40	0.68	0.019	43.45	63.91	240 180x3.0	0.2	0.95	53.10			
	(7)		148.2	2434.8	2250	278.5	288.5	0.40	0.67	0.016	38.96	57.91	240 180x3.0	0.2	0.95	53.10			
				(9)															
	(C3)		3480.2	11700	180.7	190.7	190.7	0.40	0.68	0.024	83.52	120.91	275 200x3.8	0.2	1.10	88.11			
	(8)		26.4	3506.6	1400	202.9	212.9	0.40	0.68	0.022	77.15	110.78	275 200x3.8	0.2	1.10	88.11			
	(9)	(7)	6.8	5948.2	700	289.1	299.1	0.40	0.67	0.016	95.17	136.95	275 200x3.8	0.2	1.13	101.18			
				(12)															
	(C4)		905.1	6700	134.9	144.9	144.9	0.40	0.68	0.030	27.15	39.59	174 120x2.7	0.2	0.85	29.81			
	(10)		199.3	1104.4	1220	158.7	168.7	0.40	0.68	0.027	29.82	42.58	174 120x2.8	0.2	0.87	31.83			
	(11)		51.3	155.7	500	168.6	178.6	0.40	0.68	0.025	28.89	42.45	174 120x2.8	0.2	0.87	31.83			
	(12)	(9)	4.0	7107.9	350	294.2	304.2	0.40	0.67	0.016	113.73	161.17	332 250x4.1	0.2	1.17	123.86			
				(14)															
	(C5)		52.1	1300	33.4	43.4	43.4	0.40	0.72	0.077	4.01	5.66	58 20x1.9	0.3	0.66	4.19			
	(13)		51.4	103.5	630	50.2	60.2	0.40	0.71	0.062	6.42	9.07	78 30x2.4	0.2	0.65	7.24			
	(14)		148.9	252.4	2920	74.1	134.3	0.40	0.68	0.032	8.08	11.74	89 40x2.4	0.2	0.68	9.05			
	(15)		236.6	489.0	3000	70.2	194.5	0.40	0.68	0.023	11.25	16.00	102 50x2.6	0.2	0.73	12.54			
	(16)		290.6	779.6	2660	59.5	254.0	0.40	0.68	0.018	14.03	20.38	112 60x2.6	0.2	0.76	14.83			
				(18)															

Name of Catchment	Line No.	Inflow No.	Alternative A (N-6) in Year 2000														Existing Condition		Remarks		
			Area		Length		Time of Flow in the Drain		Time of Concentration (min)	Runoff Coefficient	Storage Coefficient	Design Runoff		Major Storm Runoff (m ³ /s)	Proposed Drain		Existing Drain				
			Each (ha)	Total (ha)	Each (m)	Total (m)	Each (min)	Total (min)				Perha (m ³ /s)	Total (m ³ /s)		Size (m)	Slope (%)	Velocity (m/s)	Capacity (m ³ /s)		Size (m)	Capacity (m ³ /s)
	①		390	7160	225	1510	3.1	19.3	29.3	0.60	0.75	0.150	10.64	72	0.8	1.21	1.118				
	②		2000	9160	400	1910	5.4	24.7	34.7	0.60	0.74	0.136	12.42	79	0.8	1.27	1.378				
	③		3150	2310	370	2280	4.8	20.5	39.5	0.60	0.73	0.124	15.27	86	0.8	1.33	1.671				
	④		3890	16200	80	2360	1.0	30.5	40.5	0.60	0.73	0.123	19.86	98	0.8	1.41	2.181				
		⑤																			
	⑤		228	1655	250	1660	3.0	22.1	32.1	0.80	0.74	0.188	3.12	117	1.0	1.42	3.67				
	⑥		372	2027	340	2000	4.0	26.1	36.1	0.82	0.73	0.179	3.63	118	1.0	1.46	4.27				
		⑦																			
	⑦		606	2393	230	1200	2.7	17.6	27.6	0.55	0.76	0.144	3.45	117	1.1	1.48	3.84				
	⑧		179	2572	320	1520	3.7	21.3	31.3	0.57	0.75	0.138	3.55	118	1.1	1.54	4.48				
	⑨		045	5082	125	2125	1.1	27.2	37.2	0.69	0.73	0.148	7.49	121	1.9	1.89	8.33				
	⑩		107	5169	35	2160	0.3	27.5	37.5	0.69	0.73	0.147	7.60	121	1.9	1.89	8.33				
	⑪		089	5387	295	2455	2.7	30.2	40.2	0.69	0.73	0.142	7.65	121	1.9	1.89	8.33				
	⑫		286	7230	85	2540	0.7	30.9	40.9	0.74	0.73	0.150	10.85	124	1.9	2.07	11.92				
		⑬																			
	⑬		170	422	125	505	2.0	8.8	18.8	0.79	0.81	0.260	1.09	122	1.0	1.12	1.45				
	⑭		009	769	25	530	0.3	9.1	19.1	0.83	0.81	0.272	2.09	124	1.2	1.36	2.39				
	⑮		005	1235	20	550	0.2	9.3	19.3	0.71	0.81	0.232	2.88	124	1.1	1.42	3.27				
	⑯		273	1432	180	730	2.2	11.5	21.5	0.69	0.79	0.210	4.08	124	0.9	1.44	4.68				
	⑰		267	2556	220	950	2.6	14.1	24.1	0.70	0.77	0.197	5.04	124	0.8	1.45	5.76				
	⑱		—	4820	20	970	0.2	14.3	24.3	0.75	0.77	0.211	10.16	129	0.6	1.56	11.79				
		⑳																			

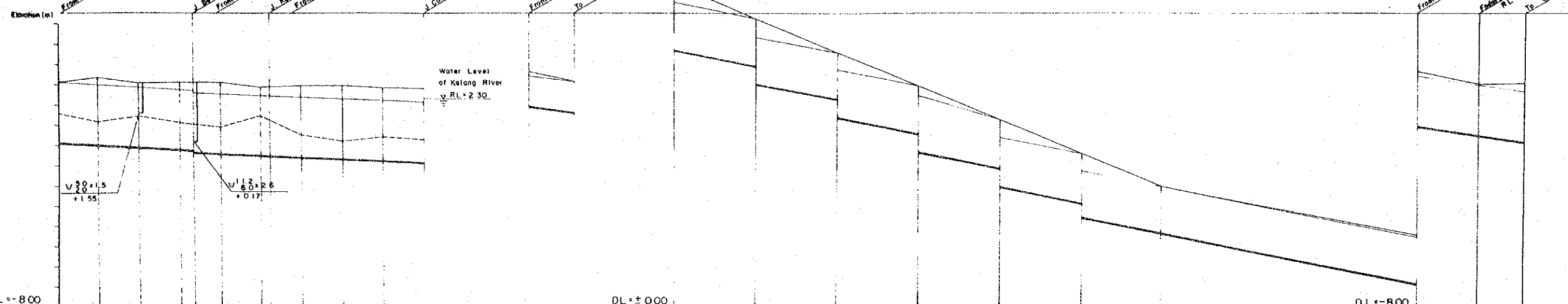
Name of Catchment	Line No.	Inflow No.	Alternative B (N-6) in Year 2000										Existing Condition		Remarks			
			Area		Length		Time of Flow in the Drain		Runoff Coefficient	Storage Coefficient	Design Runoff		Major Storm Runoff (m ³ /s)	Proposed Drain		Existing Drain		
			Each (ha)	Total (ha)	Each (m)	Total (m)	Each (min)	Total (min)			Per ha (m ³ /s)	Total (m ³ /s)		Size (m)		Slope (%)	Velocity (m/s)	Capacity (m ³ /s)
N-6 (B)	①		32.14	1400	29	184	284	0.75	0.75	0.181	7.34		24x24	0.8	1.59	8.22		
	②		40.48	270	6.5	27.8	37.8	0.75	0.73	0.159	6.44		24x24	0.8	1.59	8.22		
	③		112.08	225	29	30.7	40.7	0.65	0.73	0.132	14.72		83	0.8	1.33	16.26		
	④		132.08	400	50	35.7	45.7	0.65	0.72	0.122	16.10		85	0.8	1.36	17.60		
	⑤		163.58	370	4.5	40.2	50.2	0.65	0.71	0.113	18.39		90	0.8	1.39	19.55		
	⑥		202.48	80	0.9	41.1	51.1	0.65	0.71	0.112	22.72		99	0.8	1.47	24.75		
	⑦		11.21	155	1.5	5.0	15.0	0.75	0.84	0.269	3.01		1.5x1.5	1.9	1.79	3.62		
	⑧		13.39	295	2.8	9.3	19.3	0.75	0.81	0.245	3.28		1.5x1.5	1.9	1.79	3.62		
	⑨		31.82	80	0.6	9.9	19.9	0.75	0.80	0.239	7.59		2.1x2.1	1.9	2.24	8.88		
	⑩		4.22	125	2.0	5.8	18.8	0.79	0.81	0.260	1.09		1.2x1.2	1.0	1.12	1.45		
	⑪		7.69	25	0.3	9.1	19.1	0.83	0.81	0.272	2.09		1.4x1.4	1.2	1.36	2.39		
	⑫		12.35	20	0.2	9.3	19.3	0.71	0.81	0.232	2.88		1.6x1.6	1.1	1.42	3.27		
	⑬		19.40	180	2.2	11.5	21.5	0.69	0.79	0.210	4.08		1.9x1.9	0.9	1.44	4.68		
	⑭		25.36	220	2.6	14.1	24.1	0.70	0.77	0.197	5.04		2.1x2.1	0.8	1.45	5.76		
	⑮		48.20	20	0.2	14.3	24.3	0.75	0.77	0.211	10.16		2.9x2.9	0.6	1.56	11.79		

Name of Catchment	Line No.	Inflow No.	Alternative C (N-6) in Year 2000												Existing Condition			Remarks	
			Area		Length		Time of Flow in the Drain		Time of Concentration	Runoff Coefficient	Storage Coefficient	Design Per ha (m ³ /s)	Total Runoff (m ³ /s)	Major Storm (m ³ /s)	Proposed Drain		Existing Drain		
			Each (ha)	Total (ha)	Each (m)	Total (m)	Each (min)	Total (min)							Size (m)	Slope Velocity (%/s)	Capacity (m ³ /s)		Size (m)
N-6 (C)	①		3.90 (67.70) 71.60	225 (1285) 1510	3.1 (16.2) 19.3	29.3 (26.2) 29.3	0.60	0.75	0.150	10.64		7.2 3.0 x 2.1	0.8	1.21	11.18				
	②		20.00	91.60	4.00	191.0	5.4	24.7	0.60	0.74	0.136	12.42		7.9 3.5 x 2.2	0.8	1.27	13.78		
	③		31.50	123.10	3.70	228.0	4.8	29.5	0.60	0.73	0.124	15.27		8.6 4.0 x 2.3	0.8	1.33	16.71		
	④		38.90	162.00	8.0	236.0	1.0	30.5	0.60	0.73	0.123	19.86		9.8 5.0 x 2.4	0.8	1.41	21.81		
			7.03 (4.18) 11.21	1.55 (410) 565	1.5 (5.0) 6.5	16.5 (15.0) 16.5	0.75	0.84	0.269	3.01		1.5 x 1.5	1.9	1.79	3.62				
			2.18	13.39	2.95	86.0	2.8	9.3	0.75	0.81	0.245	3.28		1.5 x 1.5	1.9	1.79	3.62		
			18.43	31.82	8.0	94.0	0.6	9.9	0.75	0.80	0.239	7.59		2.1 x 2.1	1.9	2.24	8.88		
			6.06 (34.42) 40.48	505 (1420) 1925	5.5 (19.4) 23.9	33.9 (28.4) 33.9	0.75	0.74	0.172	6.96		(5.260) 2.4 x 2.4	0.8	1.59	8.22				
			4.77	45.25	3.00	222.5	3.2	1.1	0.75	0.73	0.161	7.30		2.4 x 2.4	0.8	1.59	8.22		
			11.36	56.61	6.75	290.0	7.1	34.2	0.75	0.72	0.143	8.09		2.5 x 2.5	0.8	1.63	9.17		
			6.39 (298) 9.37	245 (495) 740	3.5 (8.8) 12.3	22.3 (18.8) 22.3	0.75	0.78	0.222	2.07		1.5 x 1.5	0.9	1.23	2.49				
			6.16	15.53	2.05	94.5	2.7	15.0	0.75	0.77	0.208	3.23		1.8 x 1.8	0.8	1.31	3.82		
			—	(16.34) 88.68	20	292.0	0.2	34.4	0.75	0.72	0.143	12.68		3.1 x 3.1	0.6	1.63	14.09		

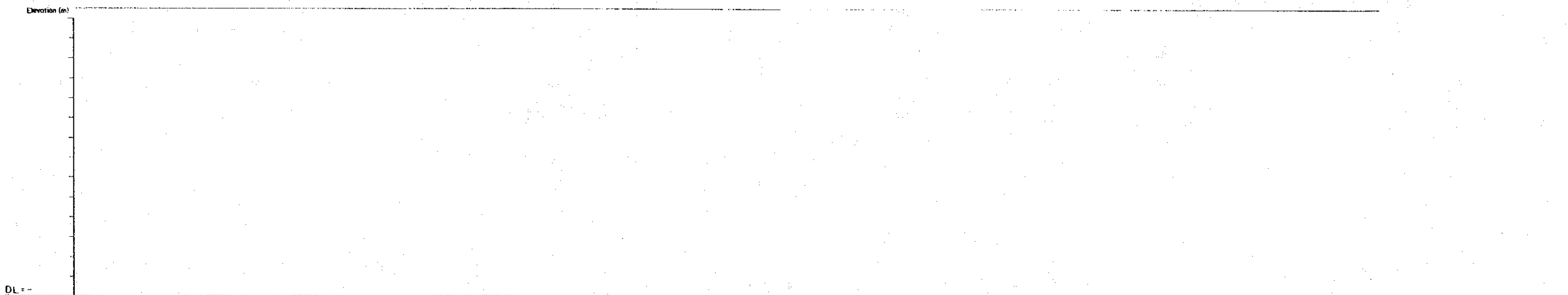
Name of Catchment	Line No.	Inflow No.	Case B (S5~S7 Catchments) in Year 2000										Existing Condition			Remarks			
			Area		Length		Time of Flow in the Drain		Time of Concentration (min)	Runoff Coefficient	Storage Coefficient	Design Perha (m ² /s)	Total Runoff (m ³ /s)	Major Storm Runoff (m ³ /s)	Proposed Drain		Existing Drain		
			Each (ha)	Total (ha)	Each (m)	Total (m)	Each (min)	Total (min)							Size (m)		Slope (%)	Velocity (m/s)	Capacity (m ³ /s)
S5~S7	①		68.6	1140	740	15.7	15.7	25.7	0.60	0.77	0.164	11.25		4.4x2.5	0.3	1.24	11.98		
(B)	②		To			9.8	9.8	19.8	0.60	0.80	0.191	6.97		3.8x2.0	0.3	1.10	7.32		
	③	①	49.7	154.8	1800	19.9	35.6	45.6	0.60	0.72	0.113	17.49		5.2x2.6	0.4	1.53	18.37		
	④		To			7.7	7.7	17.7	0.60	0.82	0.205	3.28		4.3x1.4	1.2	1.08	3.76		
	⑤		16.0	480		6.2	13.9	23.9	0.60	0.77	0.170	7.65		3.7x2.0	0.4	1.25	8.13		
	⑥		29.0	45.0	455	10.6	24.5	34.5	0.60	0.74	0.136	13.25		5.6x2.2	0.3	1.27	13.97		
	⑦	③	52.4	97.4	800	9.6	45.2	55.2	0.60	0.71	0.098	24.72		1.09 5.5x2.7	0.7	1.42	27.36		
	⑧		To			15.8	15.8	25.8	0.45	0.77	0.123	7.32		7.6 4.0x1.8	0.5	0.93	8.47		
	⑨	⑦	59.5	850		4.8	50.0	60.0	0.60	0.71	0.093	32.45		1.28 7.0x2.9	0.6	1.42	35.62		
	⑩		0	348.9	50	0.6	50.6	60.6	0.60	0.71	0.092	32.26		1.28 7.0x2.9	0.6	1.42	35.62		
			To Kelang River																

Name of Catchment	Line No.	Inflow No.	N-2 (With Upstream Retention Pond) in Year 2000										Existing Condition			Remarks				
			Area		Length		Time of Flow in the Drain		Retention Time (min)	Runoff Coefficient	Storage Coefficient	Design Perha (m ² /s)	Total Runoff (m ³ /s)	Major Storm Runoff (m ³ /s)	Proposed Drain		Existing Drain			
			Each (ha)	Total (ha)	Each (m)	Total (m)	Each (min)	Total (min)							Size (m)		Slope Velocity (m/s)	Capacity (m ³ /s)	Size (m)	Capacity (m ³ /s)
N-2	(H)		Each (ha) (29.0)	Total (ha) (44.8)	Each (m) (1400)	Total (m) (23.2)	Each (min) (23.2)	Total (min) (33.2)	Retention Time (min) (33.2)	Runoff Coefficient (0.55)	Storage Coefficient (0.74)	Design Perha (m ² /s) (0.127)	Total Runoff (m ³ /s) (887)	Major Storm Runoff (m ³ /s)	Size (m) (40x19)	Slope Velocity (m/s) (0.6)	Capacity (m ³ /s) (1.025)	Size (m)	Capacity (m ³ /s)	
(R.P.)			Each (ha) (70.0)	Total (ha) (10.22)	Each (m) (250)	Total (m) (250)	Each (min) (250)	Total (min) (250)	Retention Time (min) (250)	Runoff Coefficient	Storage Coefficient	Design Perha (m ² /s)	Total Runoff (m ³ /s)	Major Storm Runoff (m ³ /s)	Size (m)	Slope Velocity (m/s)	Capacity (m ³ /s)	Size (m)	Capacity (m ³ /s)	
			Each (ha) (15.8)	Total (ha) (44.8)	Each (m) (660)	Total (m) (910)	Each (min) (12.6)	Total (min) (35.8)	Retention Time (min) (45.8)	Runoff Coefficient (0.55)	Storage Coefficient (0.72)	Design Perha (m ² /s) (0.103)	Total Runoff (m ³ /s) (454)	Major Storm Runoff (m ³ /s)	Size (m) (53x19)	Slope Velocity (m/s) (0.6)	Capacity (m ³ /s) (4.89)	Size (m)	Capacity (m ³ /s)	
	(2)		Each (ha) (20.0)	Total (ha) (105.8)	Each (m) (500)	Total (m) (1410)	Each (min) (6.2)	Total (min) (42.0)	Retention Time (min) (52.0)	Runoff Coefficient (0.55)	Storage Coefficient (0.71)	Design Perha (m ² /s) (0.094)	Total Runoff (m ³ /s) (600)	Major Storm Runoff (m ³ /s)	Size (m) (28x19)	Slope Velocity (m/s) (0.6)	Capacity (m ³ /s) (6.42)	Size (m)	Capacity (m ³ /s)	
	(3)		Each (ha) (32.4)	Total (ha) (70)	Each (m) (700)	Total (m) (700)	Each (min) (9.7)	Total (min) (9.7)	Retention Time (min) (19.7)	Runoff Coefficient (0.55)	Storage Coefficient (0.80)	Design Perha (m ² /s) (0.176)	Total Runoff (m ³ /s) (570)	Major Storm Runoff (m ³ /s)	Size (m) (54x17)	Slope Velocity (m/s) (1.0)	Capacity (m ³ /s) (6.16)	Size (m)	Capacity (m ³ /s)	
	(4)		Each (ha) (12.8)	Total (ha) (45.2)	Each (m) (250)	Total (m) (900)	Each (min) (3.5)	Total (min) (13.2)	Retention Time (min) (23.2)	Runoff Coefficient (0.55)	Storage Coefficient (0.78)	Design Perha (m ² /s) (0.160)	Total Runoff (m ³ /s) (723)	Major Storm Runoff (m ³ /s)	Size (m) (61x18)	Slope Velocity (m/s) (1.0)	Capacity (m ³ /s) (8.14)	Size (m)	Capacity (m ³ /s)	
	(5)	(2)	Each (ha) (14.8)	Total (ha) (24.8)	Each (m) (450)	Total (m) (1860)	Each (min) (5.7)	Total (min) (47.7)	Retention Time (min) (57.7)	Runoff Coefficient (0.55)	Storage Coefficient (0.71)	Design Perha (m ² /s) (0.088)	Total Runoff (m ³ /s) (1096)	Major Storm Runoff (m ³ /s)	Size (m) (89x21)	Slope Velocity (m/s) (1.0)	Capacity (m ³ /s) (11.54)	Size (m)	Capacity (m ³ /s)	
	(6)		Each (ha) (24.4)	Total (ha) (69.1)	Each (m) (680)	Total (m) (680)	Each (min) (10.3)	Total (min) (20.3)	Retention Time (min) (20.3)	Runoff Coefficient (0.55)	Storage Coefficient (0.80)	Design Perha (m ² /s) (0.174)	Total Runoff (m ³ /s) (425)	Major Storm Runoff (m ³ /s)	Size (m) (48x20)	Slope Velocity (m/s) (1.2)	Capacity (m ³ /s) (4.64)	Size (m)	Capacity (m ³ /s)	
	(7)	(5)	Each (ha) (19.9)	Total (ha) (210.1)	Each (m) (160)	Total (m) (160)	Each (min) (2.0)	Total (min) (49.7)	Retention Time (min) (59.7)	Runoff Coefficient (0.55)	Storage Coefficient (0.71)	Design Perha (m ² /s) (0.086)	Total Runoff (m ³ /s) (1450)	Major Storm Runoff (m ³ /s)	Size (m) (81x23)	Slope Velocity (m/s) (0.9)	Capacity (m ³ /s) (15.91)	Size (m)	Capacity (m ³ /s)	
			Each (ha) (To Kelang River)	Total (ha) (To Kelang River)	Each (m) (To Kelang River)	Total (m) (To Kelang River)	Each (min) (To Kelang River)	Total (min) (To Kelang River)	Retention Time (min) (To Kelang River)	Runoff Coefficient	Storage Coefficient	Design Perha (m ² /s)	Total Runoff (m ³ /s)	Major Storm Runoff (m ³ /s)	Size (m)	Slope Velocity (m/s)	Capacity (m ³ /s)	Size (m)	Capacity (m ³ /s)	

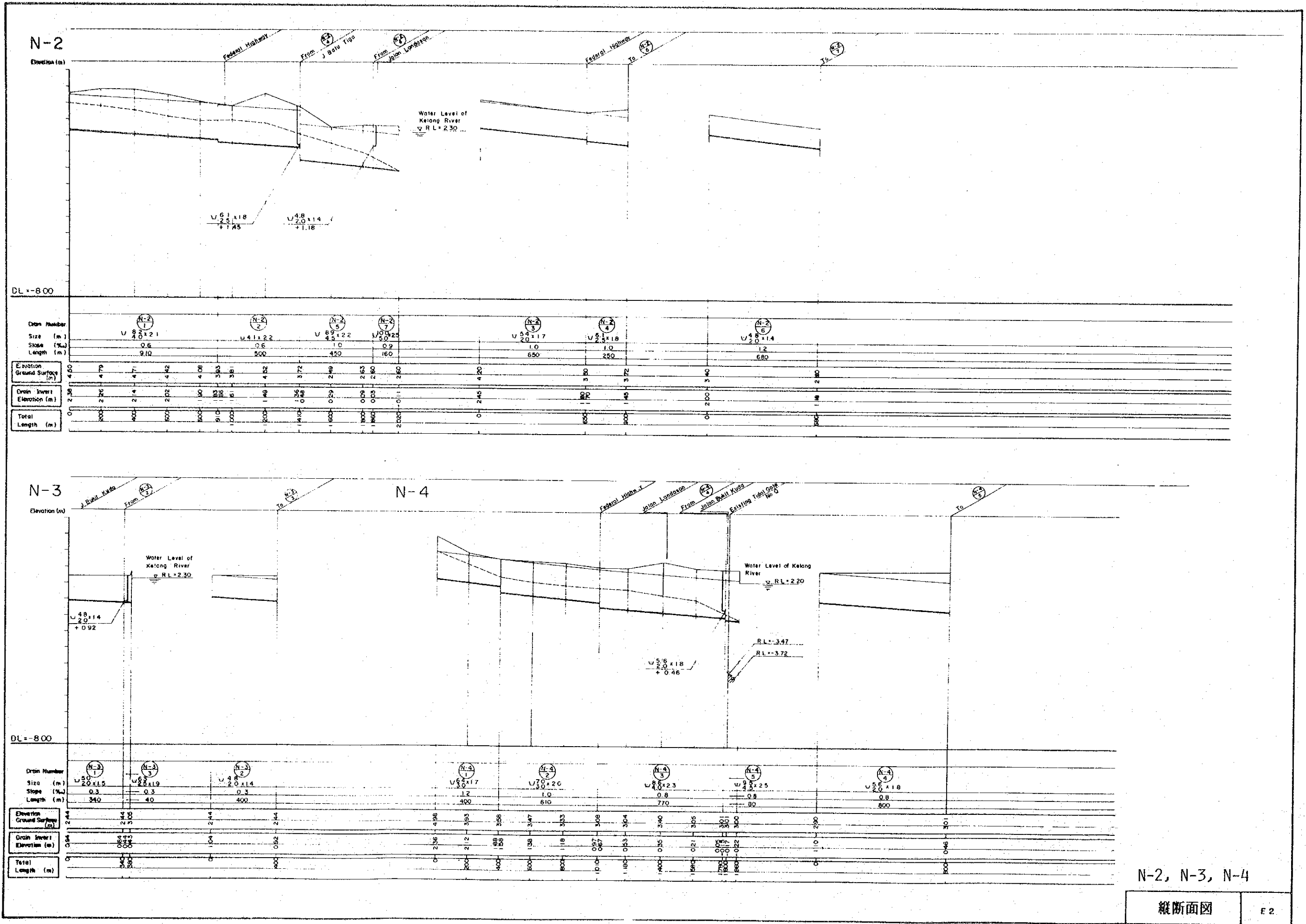
N-1



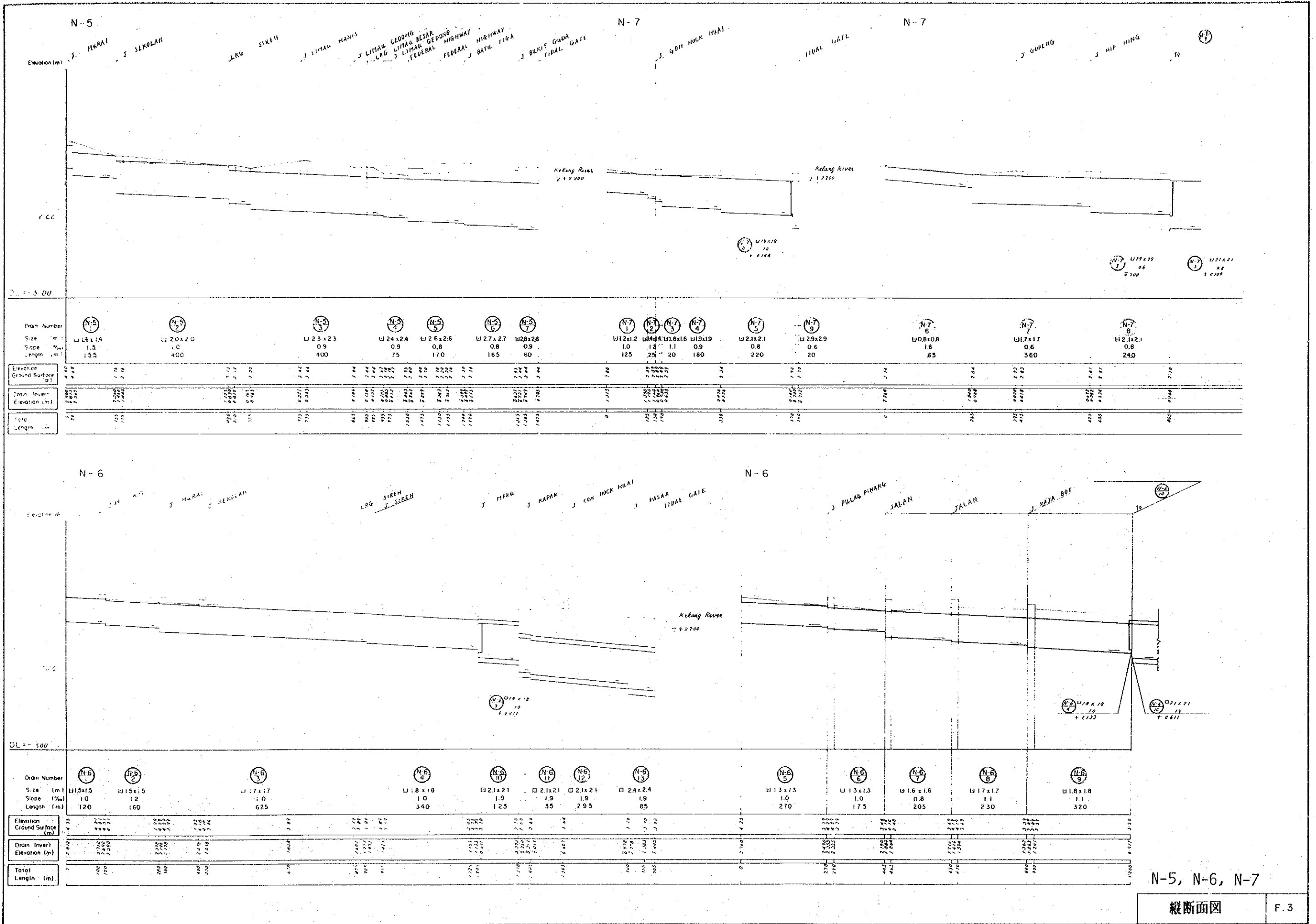
Drain Number	Size (m)	Slope (%)	Length (m)	Elevation Ground Surface (m)	Drain Invert Elevation (m)	Total Length (m)
N-1-1	V 30 x 30	0.4	400	2.8	0.0	200
N-1-2	V 30 x 30	0.4	270	2.8	0.0	300
N-1-3	V 30 x 32	0.4	370	2.8	0.0	800
N-1-4	V 30 x 32	0.4	760	2.8	0.0	1000
N-1-5	V 30 x 15	1.0	220	2.8	0.0	200
N-1-6	V 30 x 24	2.0	2360	2.8	0.0	1200
N-1-7	V 30 x 24	2.0	1240	2.8	0.0	1800
N-1-8	V 30 x 24	1.5	300	2.8	0.0	2000
N-1-9	V 30 x 24	1.5	220	2.8	0.0	2960



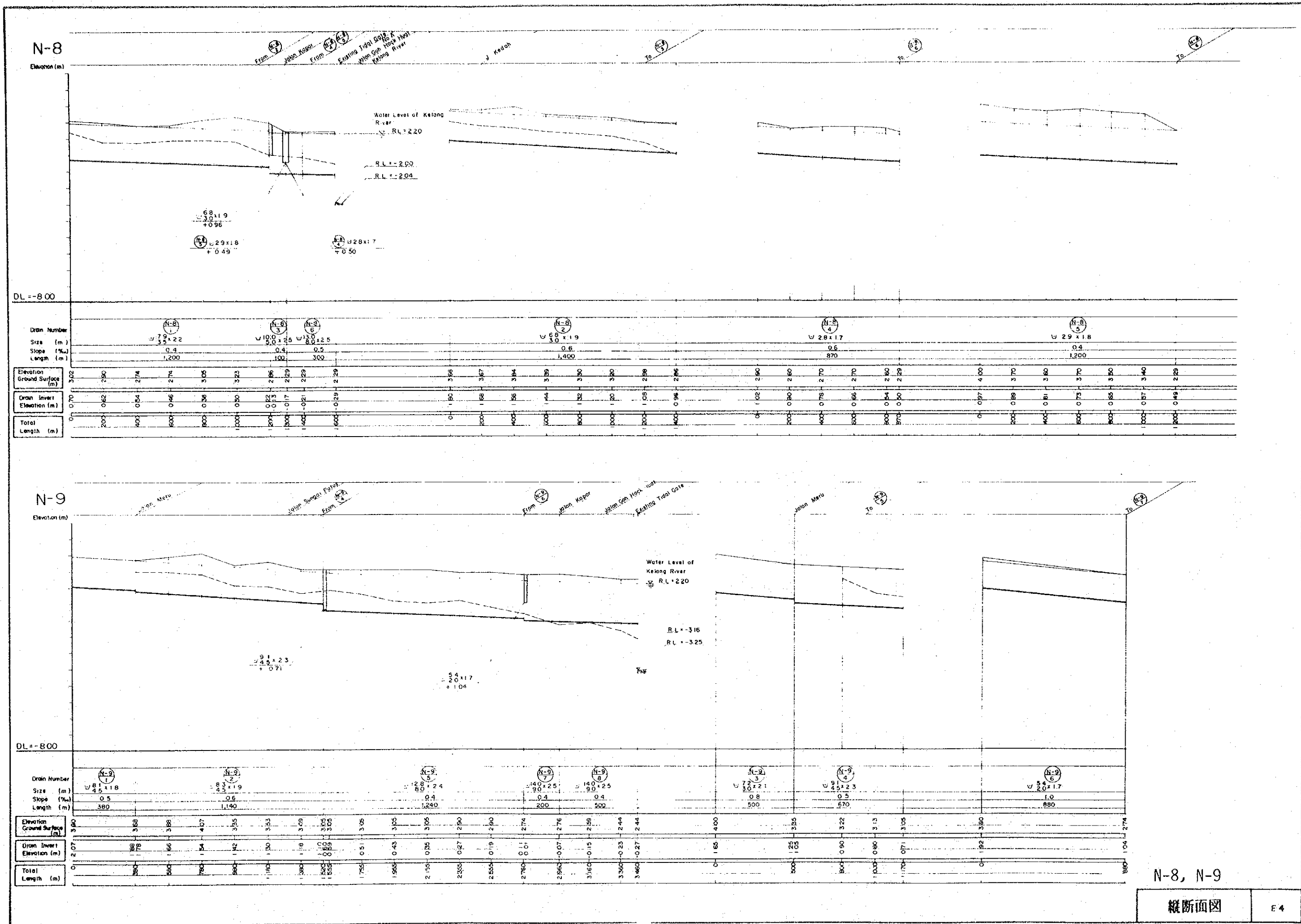
Drain Number	Size (m)	Slope (%)	Length (m)	Elevation Ground Surface (m)	Drain Invert Elevation (m)	Total Length (m)



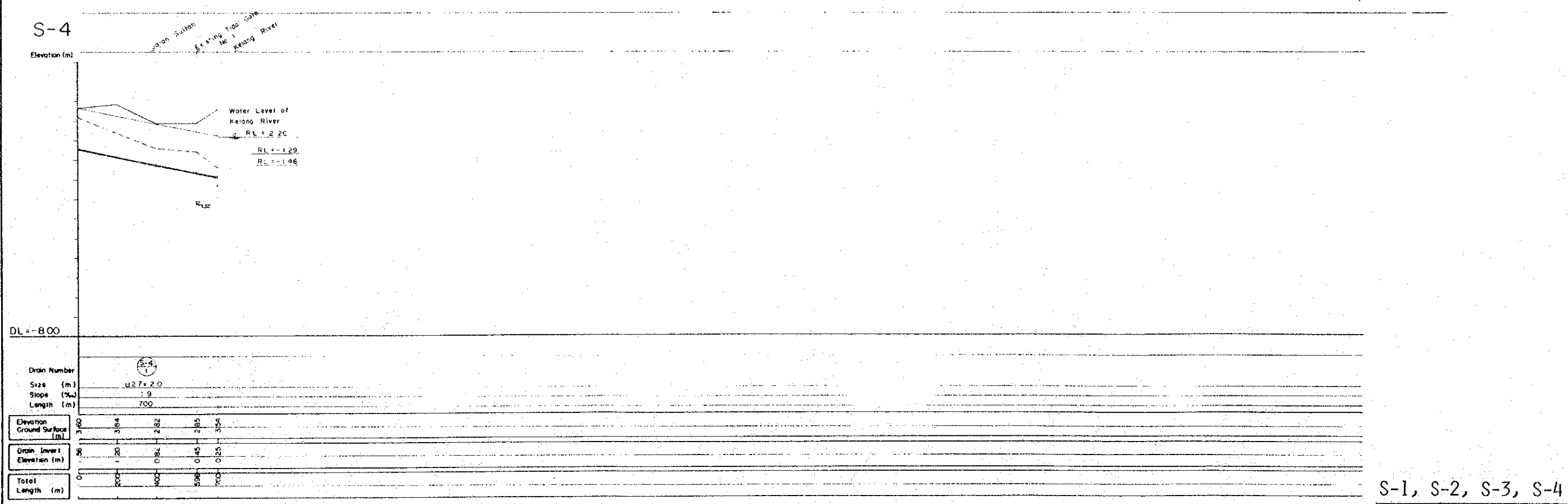
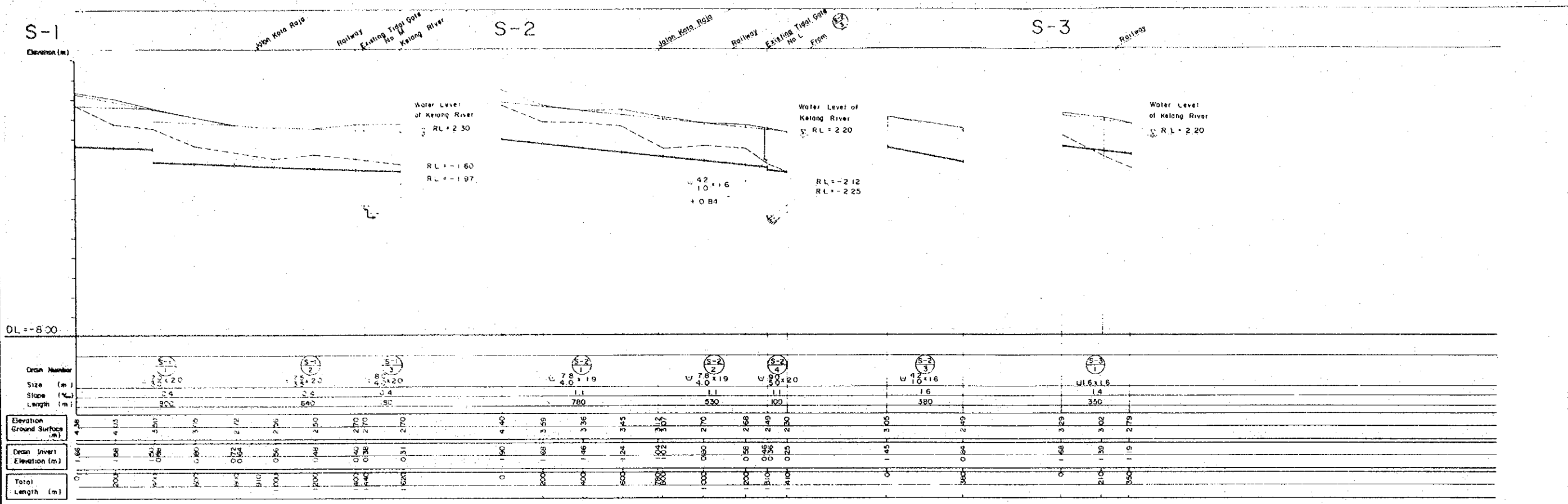
N-2, N-3, N-4



N-5, N-6, N-7

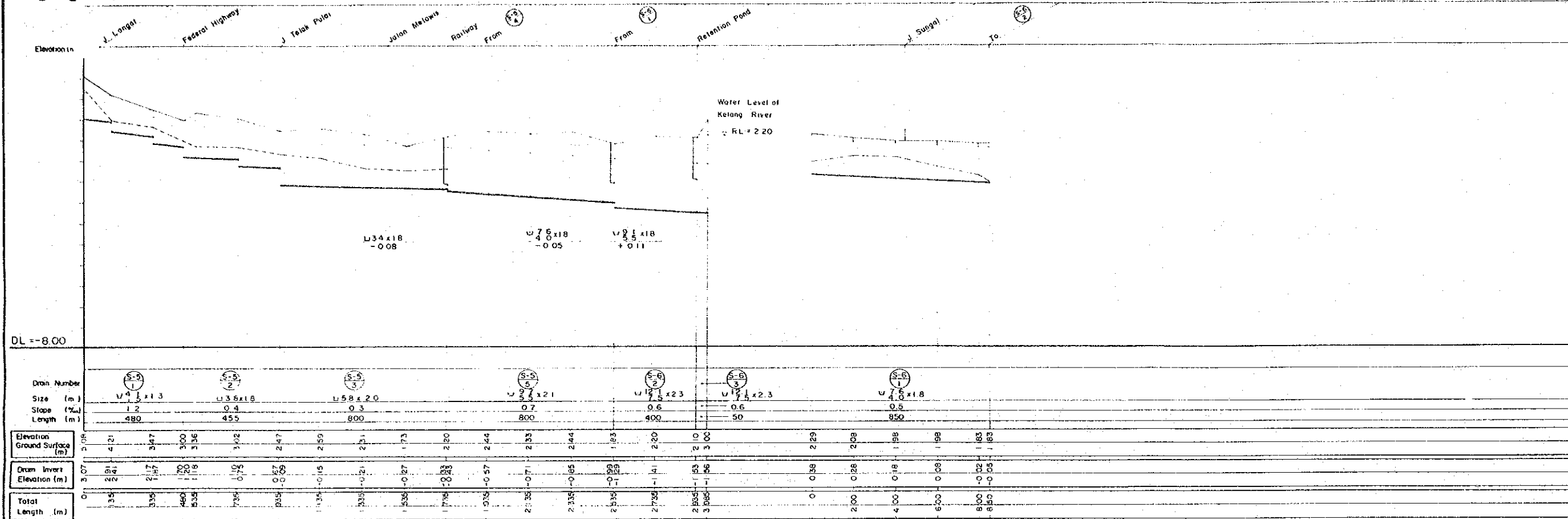


N-8, N-9
縦断面図
F4



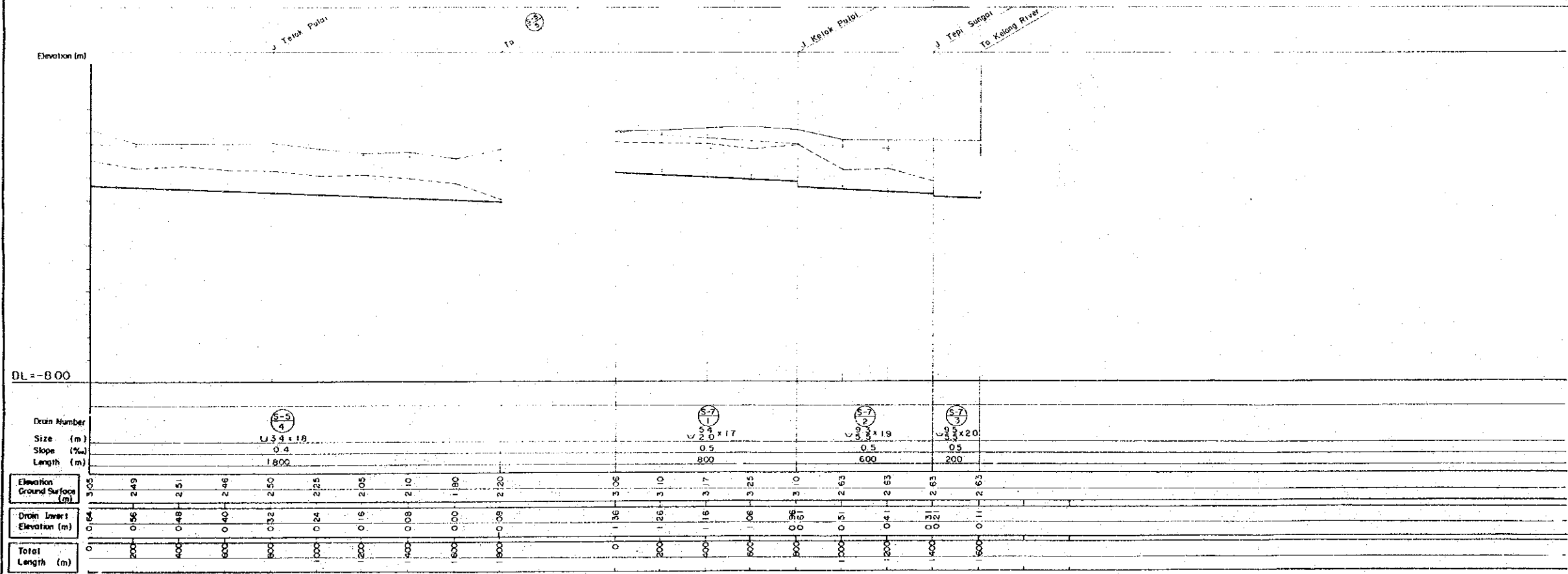
S-1, S-2, S-3, S-4
縦断面図 F5

S-5~S-6



S-5~S-6

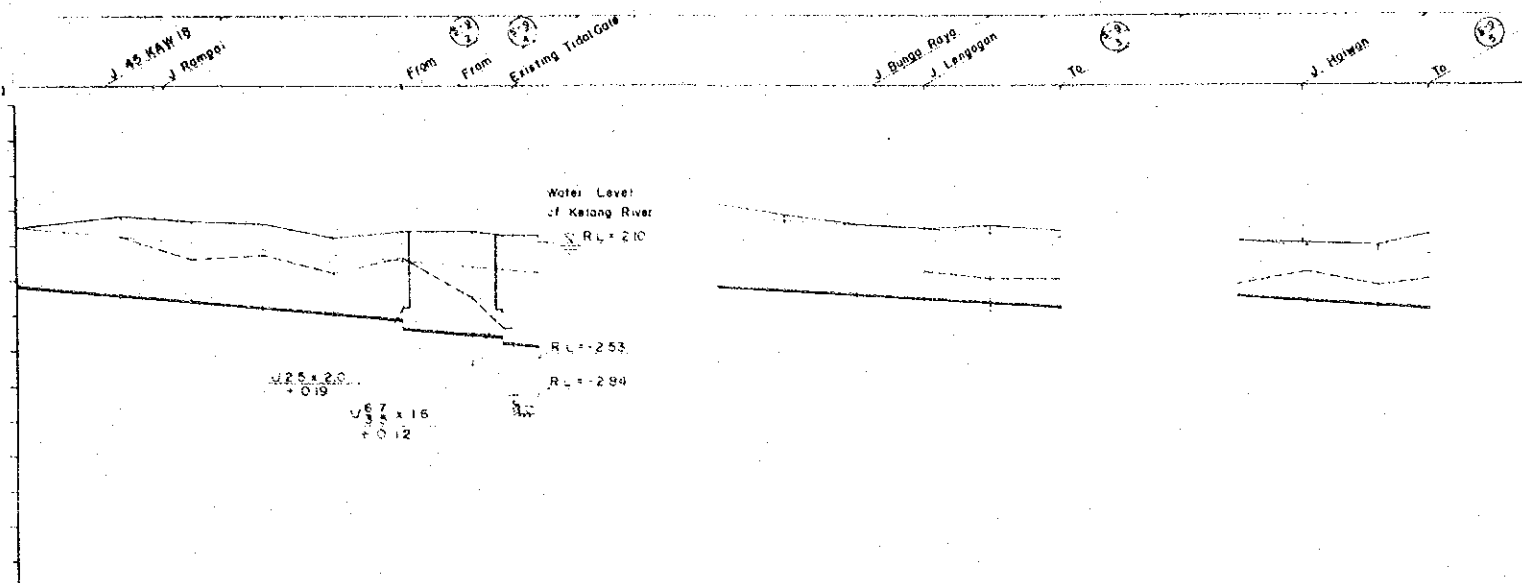
S-7



S-5, S-6, S-7

S-9

Elevation (m)



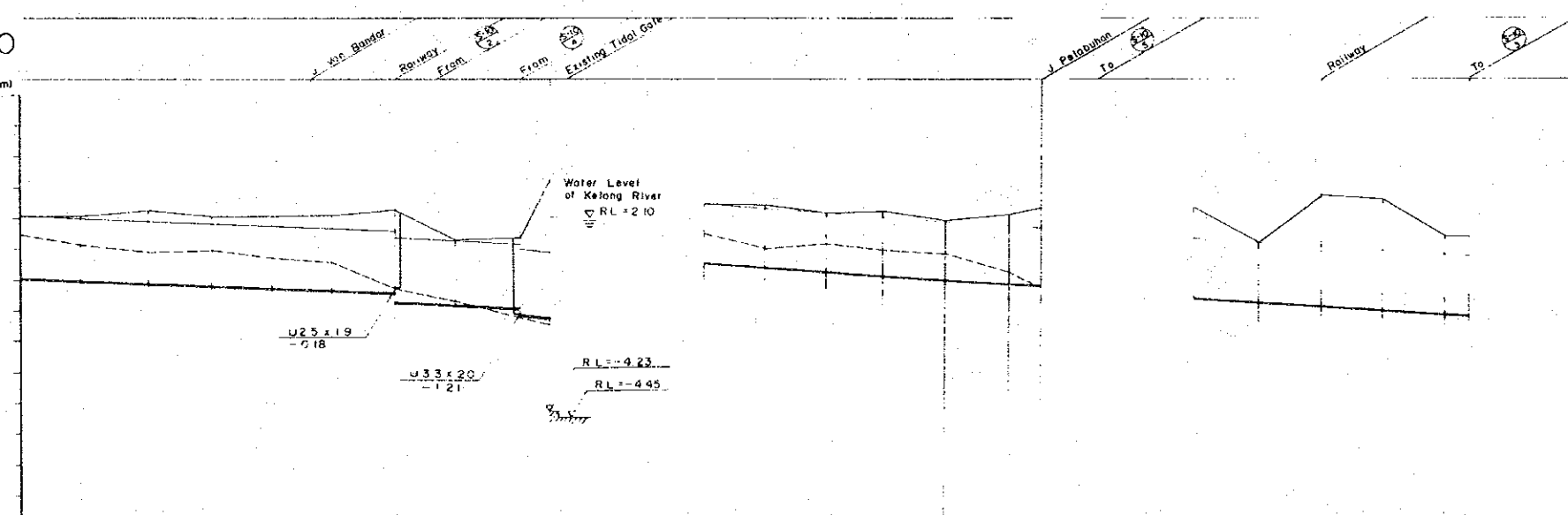
DL = -8.00

Drain Number	Size (m)	Slope (%)	Length (m)
S-9/1	U 2.3 x 1.7	0.8	100
S-9/2	U 2.5 x 2.0	1.0	220
S-9/3	U 2.5 x 2.1	0.6	100
S-9/4	U 2.5 x 2.0	0.6	1000
S-9/5	U 2.5 x 1.6	0.7	540

Elevation Ground Surface (m)	Drain Invert Elevation (m)	Total Length (m)
2.00	0.98	0
2.03	0.96	200
2.71	0.40	500
2.60	0.24	700
2.20	0.08	900
2.90	-0.08	1000
2.90	-0.36	1200
2.90	-0.56	1400
2.29	-0.79	1600
2.29	-0.82	1800
3.15	-0.79	2000
2.91	-0.67	2200
2.56	-0.56	2400
2.83	-0.43	2600
2.51	-0.31	2800
2.40	-0.19	3000
2.10	-0.00	3200
2.00	0.36	3400
1.98	0.22	3600
2.29	0.12	3800

S-10

Elevation (m)



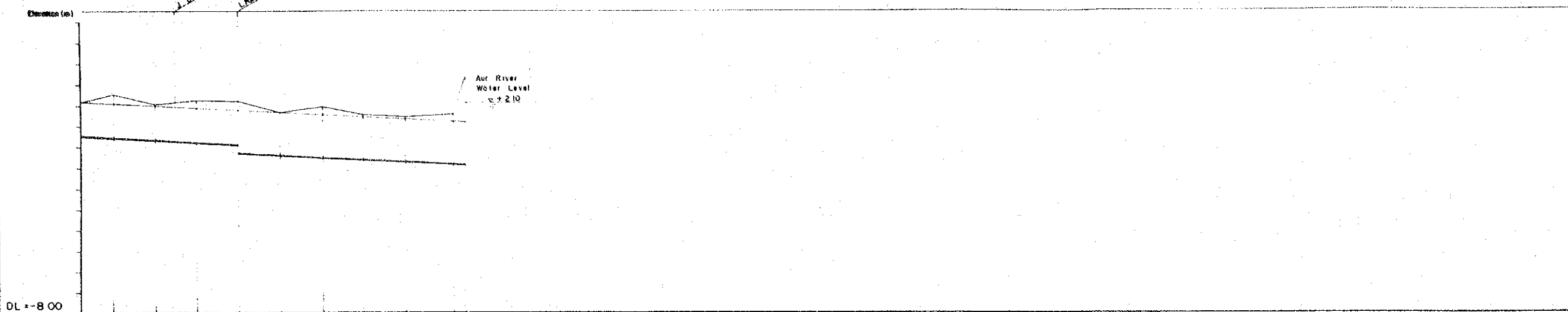
DL = -8.00

Drain Number	Size (m)	Slope (%)	Length (m)
S-10/1	U 2.0 x 2.0	0.4	1210
S-10/2	U 2.5 x 2.5	0.4	422
S-10/3	U 2.5 x 2.5	0.9	90
S-10/4	U 2.5 x 1.9	0.6	1100
S-10/5	U 3.3 x 2.0	0.6	860

Elevation Ground Surface (m)	Drain Invert Elevation (m)	Total Length (m)
2.10	0.02	0
2.00	0.07	200
2.10	-0.19	620
2.10	-0.23	810
2.10	-0.31	1010
2.28	-0.39	1210
2.30	-0.50	1410
2.40	-0.79	1610
2.30	-0.86	1700
2.50	-0.48	1900
2.40	-0.36	2100
2.20	-0.24	2300
2.20	-0.12	2500
2.30	0.00	2700
1.90	0.00	2900
2.10	-0.12	3100
2.28	-0.18	3300
2.30	-0.68	3500
2.20	-0.30	3700
2.72	-0.02	3900
2.60	0.04	4100
2.40	0.16	4300
2.40	0.12	4500

S-9, S-10

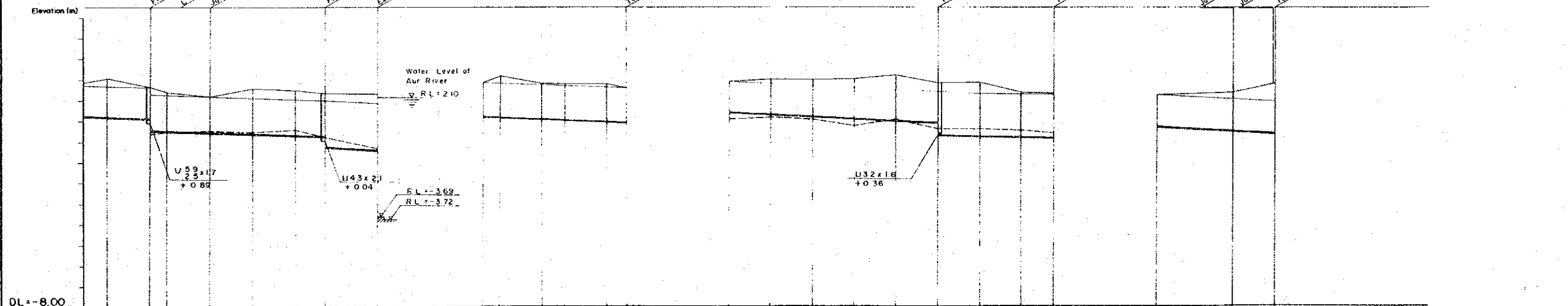
A-5



Drain Number	Size (m)	Slope (%)	Length (m)
A-5/1	U 25 x 17	0.6	750
A-5/2	U 35 x 21	0.4	800
A-5/3	V 7.5 x 2.1	0.9	230
A-5/4	V 8.0 x 2.1	1.0	50

Elevation Ground Surface (m)	Drain Invert Elevation (m)	Total Length (m)
2.00	0.40	100
2.00	0.29	300
2.00	0.17	500
2.12	0.05	750
1.80	-0.43	900
1.90	-0.51	1000
1.80	-0.69	1300
1.40	-0.67	1500
1.55	-0.88	1700
1.30	-0.93	1800

A-3

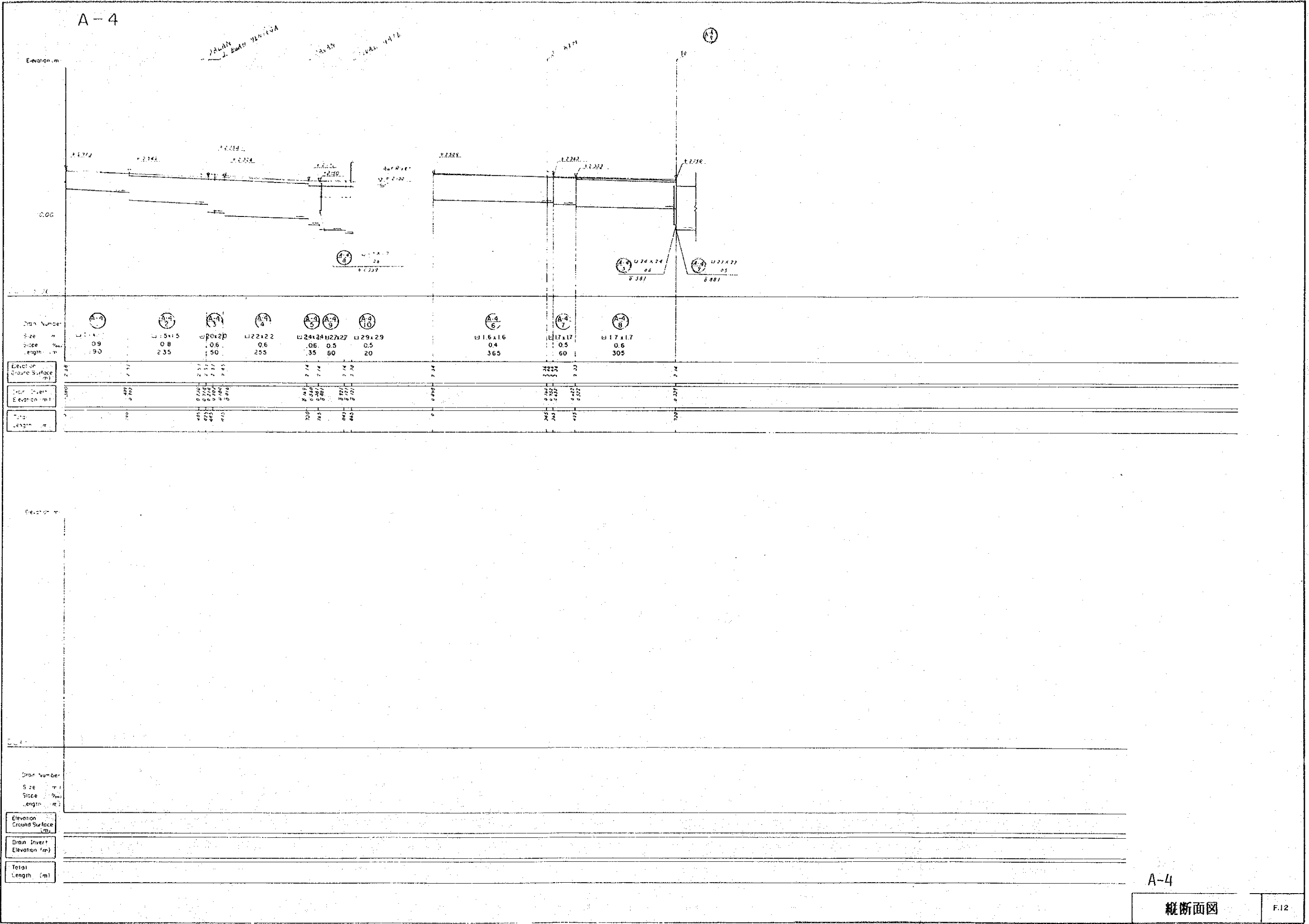


Drain Number	Size (m)	Slope (%)	Length (m)
A-3/1	V 4.5 x 1.5	0.4	300
A-3/2	U 3.3 x 1.8	0.4	820
A-3/3	V 9.1 x 2.3	0.5	250
A-3/4	U 5.0 x 1.7	0.4	700
A-3/5	U 18 x 1.5	0.5	1,000
A-3/6	U 4.3 x 2.1	0.4	560
A-3/7	U 5.2 x 1.6	0.5	570

Elevation Ground Surface (m)	Drain Invert Elevation (m)	Total Length (m)
2.00	1.70	100
2.00	1.05	300
2.00	0.48	500
2.20	0.40	700
2.60	0.32	820
2.50	0.24	900
2.29	0.18	1000
2.29	0.12	1120
2.29	0.45	1270
2.90	1.17	1400
3.20	1.14	1580
2.80	1.06	1730
2.80	1.01	1800
2.80	0.95	1900
2.90	0.89	2000
2.90	1.40	2100
3.00	1.30	2200
3.00	1.20	2300
3.00	1.10	2400
3.20	1.00	2500
2.80	0.90	2600
2.80	0.86	2700
2.25	0.10	2800
2.25	0.04	2900
2.25	0.65	3000
2.35	0.40	3100
2.80	0.26	3200

A-3, A-5

A-4

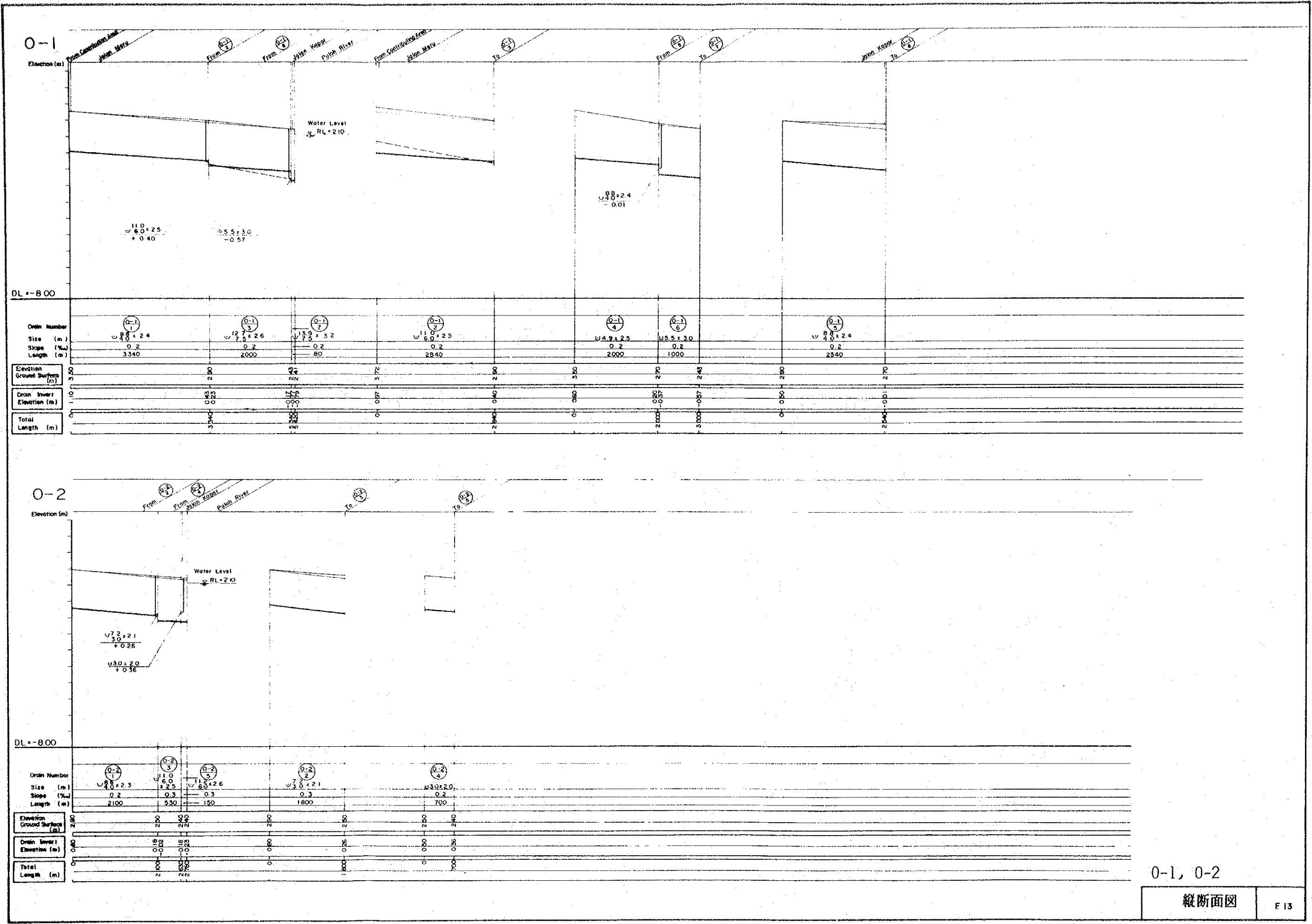


Man Number	Size	Slope %	Length (m)	Elevation Ground Surface (m)	Man Invert Elevation (m)	Total Length (m)
A-1	1.5x1.5	0.9	90	2.48	2.40	90
A-2	2.0x2.0	0.8	235	2.31	2.21	235
A-3	2.2x2.2	0.6	50	2.11	2.06	50
A-4	2.2x2.2	0.6	255	2.11	2.06	255
A-5	2.4x2.4	0.6	35	2.14	2.08	35
A-6	2.4x2.4	0.5	60	2.14	2.09	60
A-7	2.9x2.9	0.5	20	2.10	2.05	20
A-8	1.6x1.6	0.4	365	2.34	2.29	365
A-9	1.7x1.7	0.5	60	2.24	2.19	60
A-10	1.7x1.7	0.6	305	2.03	1.98	305

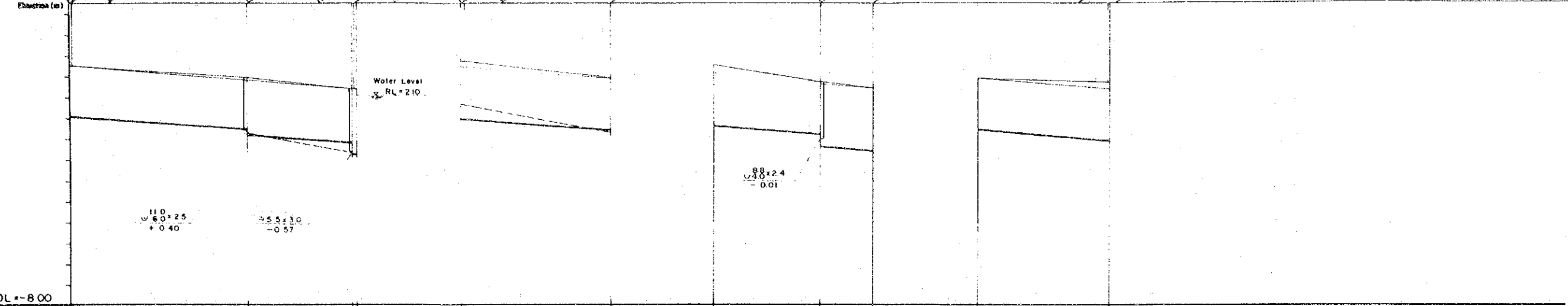
Man Number	Size	Slope %	Length (m)	Elevation Ground Surface (m)	Man Invert Elevation (m)	Total Length (m)

A-4

縦断面図



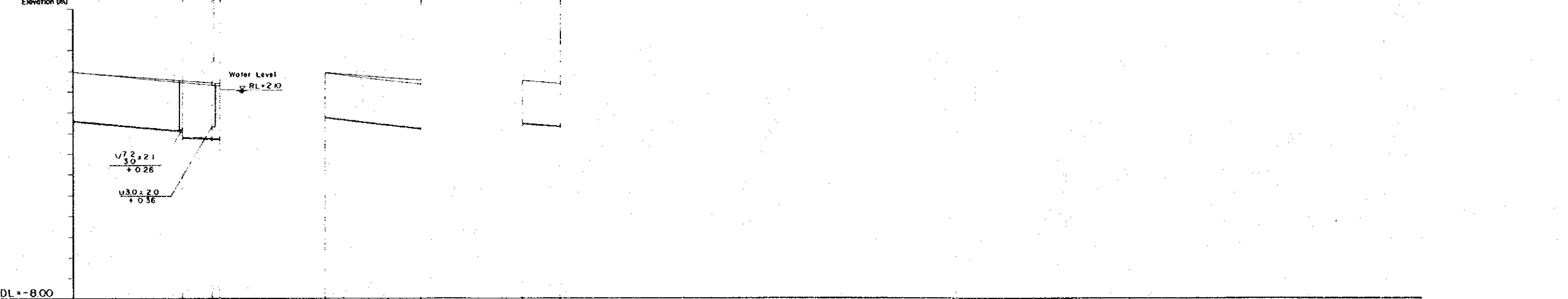
0-1



Drain Number	Size (m)	Slope (%)	Length (m)
0-1/1	88 x 2.4	0.2	3340
0-1/2	127 x 2.6	0.2	2000
0-1/3	139 x 3.2	0.2	80
0-1/4	110 x 2.5	0.2	2840
0-1/5	88 x 2.4	0.2	2000
0-1/6	88 x 2.4	0.2	1000
0-1/7	88 x 2.4	0.2	2340

Elevation Ground Surface (m)	Drain Invert Elevation (m)	Total Length (m)
2.80	0.82	3340
2.80	0.82	2000
2.80	0.82	80
2.80	0.82	2840
2.80	0.82	2000
2.80	0.82	1000
2.80	0.82	2340

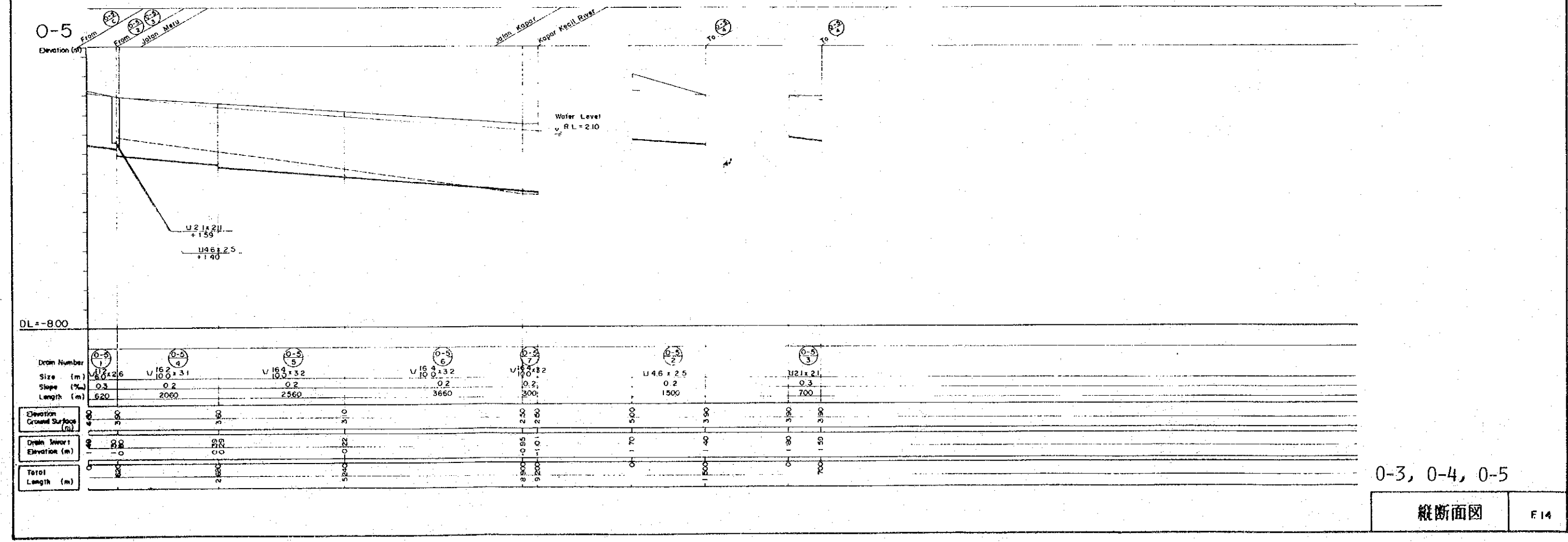
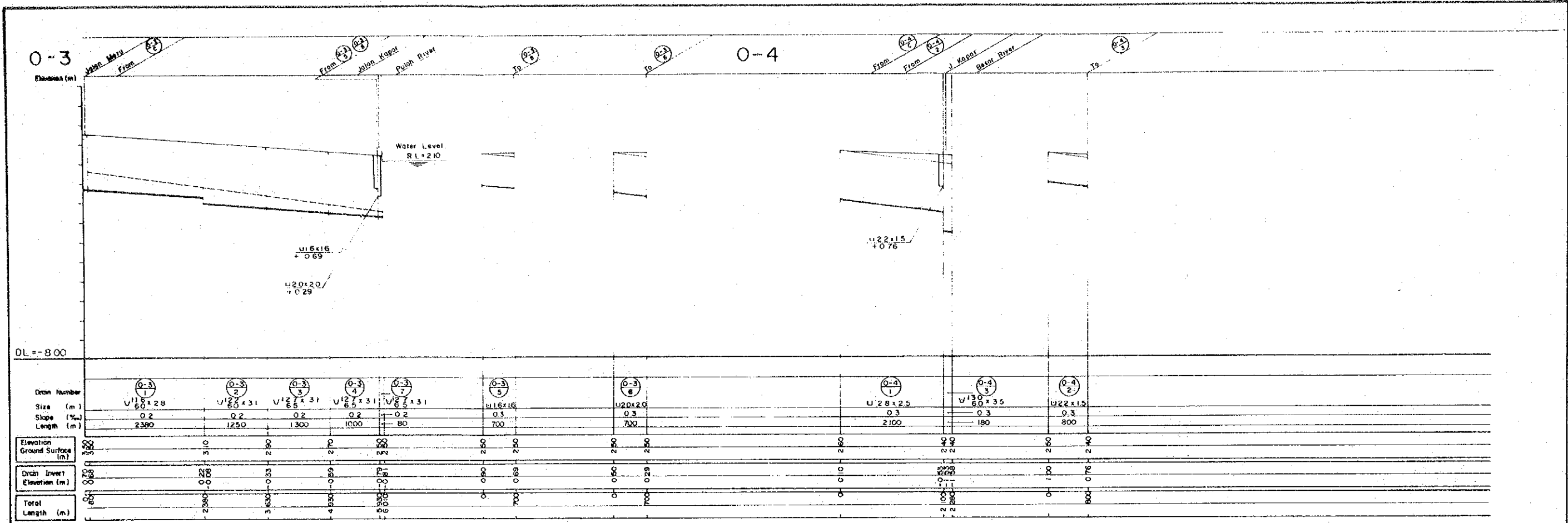
0-2



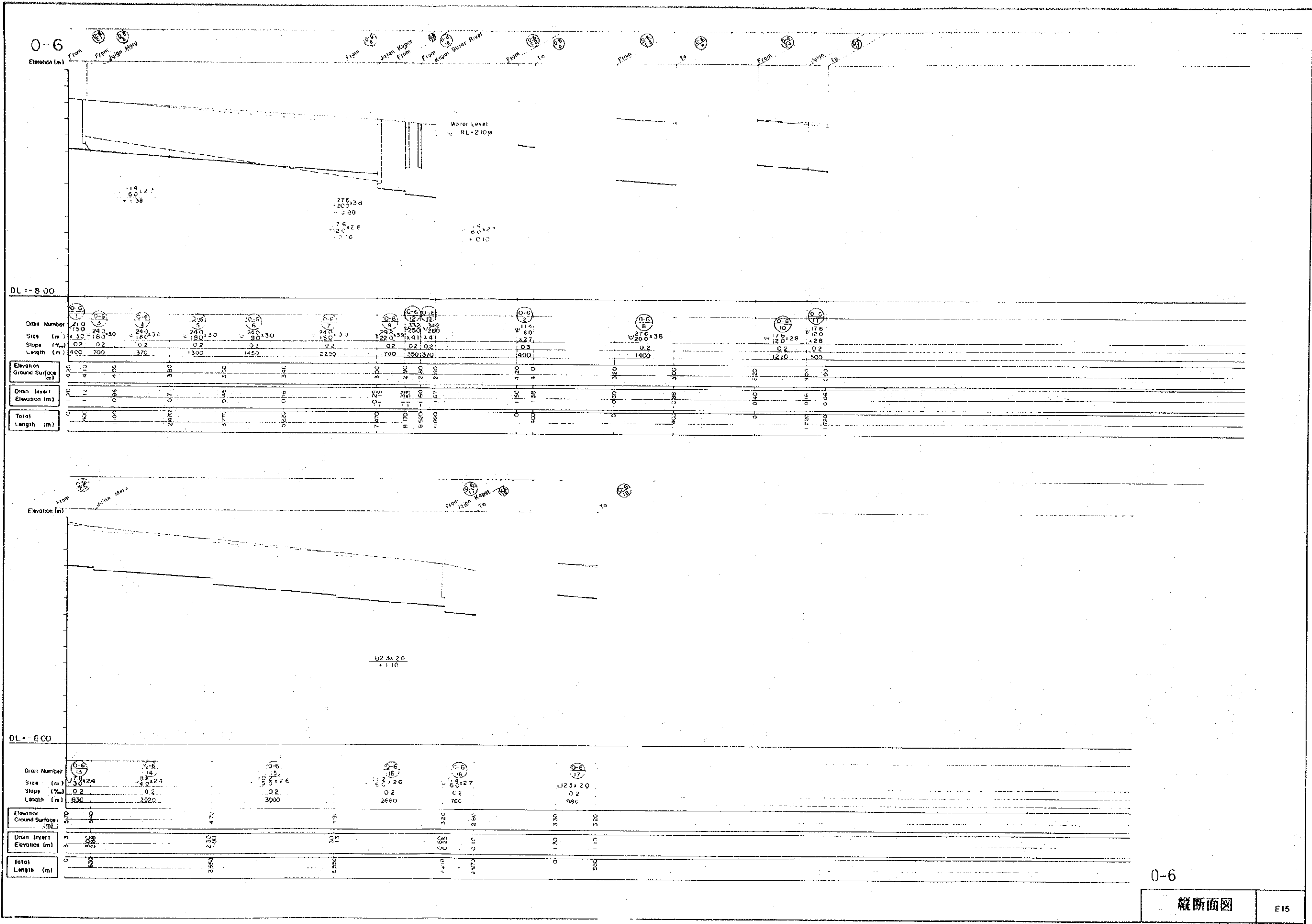
Drain Number	Size (m)	Slope (%)	Length (m)
0-2/1	88 x 2.3	0.2	2100
0-2/2	110 x 2.5	0.3	530
0-2/3	110 x 2.6	0.3	150
0-2/4	73 x 2.1	0.3	1800
0-2/5	110 x 2.0	0.2	700

Elevation Ground Surface (m)	Drain Invert Elevation (m)	Total Length (m)
2.80	0.82	2100
2.80	0.82	530
2.80	0.82	150
2.80	0.82	1800
2.80	0.82	700

0-1, 0-2



0-3, 0-4, 0-5
縦断面図 F14



0-6

付録 G 実施順位

表 G. 1. 排水区别人口密度

Catchment Code No.	Area		Served Population		Population Density		Rating Points	
	Served Area (ha)	Contributing Area (ha)	1980	2000	1980	2000	1980	2000
			(Person)	(Person)	(Person/ha)	(Person/ha)		
N-1	372.7	2,378.3	5,166	22,578	13.9	60.6	0	120
2	210.1	-	9,900	20,270	47.1	96.5	80	160
3	25.5	-	798	3,045	31.3	119.4	40	200
4	162.0	-	11,890	16,047	73.4	99.1	120	160
5	69.5	-	6,959	7,904	100.1	113.7	200	200
6	72.3	-	7,286	7,024	96.6	97.2	160	160
7	48.2	-	2,604	3,252	60.2	67.5	80	120
8	255.0	-	13,559	21,380	53.2	83.8	80	160
9	342.7	39.4	-	14,550	-	42.5	0	80
S-1	65.1	63.5	1,724	2,060	26.5	31.6	40	40
2	169.8	7.7	3,691	3,360	21.7	19.8	40	0
3	11.8	-	863	1,056	73.1	89.5	120	160
4	53.9	-	2,898	2,016	53.8	37.4	80	40
5	156.1	-	6,035	13,441	38.7	98.9	40	160
6	96.7	-	1,620	5,140	16.8	63.5	0	120
7	110.8	-	4,941	10,212	44.6	92.2	80	160
8	539.2	-	22,574	56,732	41.9	99.7	80	160

(to be Cont'd)

表 G. 1. (続)

Catchment Code No.	Area		Served Population		Population Density		Rating Points	
	Served Area (ha)	Contributing Area (ha)	1980 (Person)	2000 (Person)	1980 (Person/ha)	2000 (Person/ha)	1980	2000
S-9	120.5	-	9,250	14,326	76.8	118.9	120	200
10	144.6	-	14,084	9,702	97.4	67.1	160	120
11	295.5	-	4,096	-	13.9	-	0	-
A-1	761.7	1,591.6	19,891	65,582	26.1	86.1	40	160
2	133.6	-	8,195	8,465	61.3	63.4	120	120
3	106.9	-	10,764	12,015	100.7	112.4	200	200
4	52.5	-	7,488	5,405	142.6	103.0	200	200
5	100.9	-	2,704	2,970	26.8	29.4	40	40
6	310.4	-	2,964	4,905	9.5	15.8	0	0
0-1	366.9	870.1	-	7,602	-	20.7	0	40
2	96.7	164.0	-	696	-	7.2	0	0
3	208.6	1,008.3	-	792	-	3.8	0	0
4	77.8	597.4	-	1,428	-	18.4	0	0
5	303.3	1,751.1	-	1,062	-	3.5	0	0
6	786.7	8,151.6	23,629	23,852	30.0	30.3	40	40
Total	6,628.0	16,623.0	202,813*	370,856**	30.6	56.0		

Notes: * Excluding 2,817 persons.

** Excluding inhabitants of North Port area

表 G. 2. 浸水区域面積比率

Catchment Code No.	Flooded Area (ha)	Ratio of Flooded Area to Catchment Area (%)	Rating Points	Catchment Code No.	Flooded Area (ha)	Ratio of Flooded Area to Catchment Area (%)	Rating Points
N-1	0	0	0	S-11	0	0	0
2	13.9	7	0	A-1	25.2	3	0
3	3.7	15	0	2	26.2	20	50
4	15.9	10	0	3	17.7	17	0
5	18.2	26	50	4	14.6	28	50
6	29.1	40	100	5	72.3	72	150
7	30.7	64	150	6	0	1	0
8	31.1	12	0	0-1	0	0	0
9	24.3	7	0	2	0	0	0
S-1	0	0	0	3	0	0	0
2	27.2	16	0	4	0	0	0
3	2.5	21	50	5	0	0	0
4	7.5	14	0	6	0	0	0
5	145.1	93	200				
6	96.7	100	200				
7	89.2	81	200				
8	127.4	24	50				
9	30.9	26	50				
10	24.9	17	0				

表 G. 3. 計画流出量の既存施設能力に対する割合

Catchment Code No.	Ratio of Estimated Stormwater Runoff to Existing Drain Capacity	Rating Points	Catchment Code No.	Ratio of Estimated Stormwater Runoff to Existing Drain Capacity	Rating Points
N-1	25.0	200	S-9	4.8	40
2	6.5	80	10	7.2	80
3	-	200	11	-	200
4	2.4	40	A-1	24.7	200
5	1.0	40	2	11.3	120
6	3.8	40	3	7.9	80
7	3.8	40	4	20.3	200
8	13.2	120	5	1.3	40
9	15.9	160	6	-	200
S-1	3.8	40	0-1	1.4	40
2	8.2	80	2	-	40
3	1.9	40	3	2.3	40
4	6.3	80	4	1.0	0
5	6.6	80	5	3.1	40
6	14.5	120	6	2.4	40
7	19.5	160			
8	36.7	200			

表 G. 4. 商工業地域面積比率

Drainage Catchment Code No.	Ratio of Commercial & Industrial Use Areas to Catchment Area * (%)	Rating Points	Drainage Catchment Code No.	Ratio of Commercial & Industrial Use Areas to Catchment Area * (%)	Rating Points
N-1	22.5	25	S-9	14.9	0
2	1.6	0	10	66.9	75
3	2.0	0	11	97.8	100
4	14.4	0	A-1	1.2	0
5	31.4	25	2	30.5	25
6	63.8	75	3	25.1	25
7	86.3	100	4	65.7	75
8	21.3	25	5	80.4	100
9	24.9	25	6	64.7	75
S-1	-	0	O-1	31.1	25
2	10.1	0	2	56.4	50
3	74.6	75	3	13.2	0
4	65.7	75	4	-	0
5	8.0	0	5	50.7	50
6	7.3	0	6	5.3	0
7	1.4	0			
8	10.3	0			

Note: * Excluding contributing area

付録H 費用の積算

A. Construction Cost

a. Trunk Drain

Line * No.	Length (m)	Width x Height (m) (m)	Construc- tion Cost (M\$1,000)	Land Acqui- tion Cost (M\$1,000)	Remarks
1	400	R 29.5 x 3.0 23.5	664	3,131	
2	220	R 5.0 x 1.5 2.0	180	585	
3	270	R 29.5 x 3.0 23.5	448	2,360	
4	2,360	R 8.8 x 2.4 4.0	2,572	-	
5	1,240	R 9.3 x 2.4 4.5	1,364	-	
6	300	R 11.2 x 2.6 6.0	356	88	
7	170	R 11.2 x 2.6 6.0	201	633	
	50	B 4-2.8 x 2.6	426	-	
8	363	R 30.4 x 3.2 24.0	635	1,647	
	7	Br 30.4	638	-	
9	746	R 30.4 x 3.2 24.0	1,306	152	
	14	Br 2-30.4	1,276	-	

Sub Total 6,140 m 10,066

b. Tidal Gate 665

c. Retention Pond -

d. Bund -

Total 10,731

B. Land Acquisition Cost - 8,596

C. Engineering Fee 1,610

D. Contingency Cost 2,468

GRAND TOTAL 23,405

* Line Nos are shown in Fig. 5.8. of Vol.VI

R : Rubble Wall Channel

B : Box Culvert

Br: Bridge

A. Construction Cost

a. Trunk Drain

Line * No.	Length (m)	Width x Height		Construc- tion Cost (M\$1,000)	Land Acqui- tion Cost (M\$1,000)	Remarks
		(m)	(m)			
1	910	R	8.2 4.0 x 2.1	919	1,492	
2	450	C	4.1 x 2.2	878	-	
	50	B	2-2.05 x 2.2	140	-	
3	650	R	5.4 2.0 x 1.7	569	962	
4	200	R	6.1 2.5 x 1.8	182	226	
	50	B	2-3.05 x 1.8	153	-	
5	430	R	8.9 4.5 x 2.2	449	50	
	20	B	3-3.00 x 2.2	129	-	
6	680	R	4.8 2.0 x 1.4	541	69	
7	140	R	10.0 5.0 x 2.5	160	36	
	20	B	4-2.5 x 2.5	155	-	
Sub Total	3,600 m			4,275		
b. Tidal Gate				210		
c. Retention Pond				-		
d. Bund				-		
Total				4,485		

B. Land Acquisition Cost

- 2,835

C. Engineering Fee

673

D. Contingency Cost

1,032

GRAND TOTAL

9,025

* Line Nos are shown in Fig. 5.8. of Vol.VI

R : Rubble Wall Channel

B : Box Culvert

C : Railway Crossing

A. Construction Cost

a. Trunk Drain

Line * No.	Length (m)	Width x Height		Construc- tion Cost (M\$1,000)	Land Acqui- tion Cost (M\$1,000)	Remarks
		(m)	(m)			
1	320	R	5.0 2.0 x 1.5	262	35	
	20	B	2-2.5 x 1.5	51	-	
2	400	R	4.8 2.0 x 1.4	318	41	
3	40	R	6.3 2.5 x 1.9	37	-	
Sub Total 780 m				668		
b. Tidal Gate				140		
c. Retention Pond				-		
d. Bund				112		
Total				<u>920</u>		
B. Land Acquisition Cost				-	<u>76</u>	
C. Engineering Fee				<u>138</u>		
D. Contingency Cost				<u>212</u>		
GRAND TOTAL				<u>1,346</u>		

* Line Nos are shown in Fig. 5.8. of Vol.VI

R : Rubble Wall Channel

B : Box Culvert

A. Construction Cost

a. Trunk Drain

<u>Line*</u> <u>No.</u>	<u>Length</u> (m)	<u>Width x Height</u> (m) (m)	<u>Construc-</u> <u>tion Cost</u> (M\$1,000)	<u>Land Acqui-</u> <u>tion Cost</u> (M\$1,000)	<u>Remarks</u>
1	400	R 6.4 x 1.7 3.0	354	370	
2	610	R 7.0 x 2.0 3.0	592	-	
3	700	R 8.6 x 2.3 4.0	746	25	
	70	B 3-2.9 x 2.3	455	-	
4	800	R 5.6 x 1.8 2.0	720	101	
5	60	R 9.5 x 2.5 4.5	678	15	
	20	B 3-3.2 x 2.5	150	-	
Sub Total 2,660 m			3,695		
b. Tidal Gate			200		
c. Retention Pond			-		
d. Bund			117		
Total			<u>4,012</u>		
B. Land Acquisition Cost			-	<u>511</u>	
C. Engineering Fee			<u>602</u>		
D. Contingency Cost			<u>923</u>		
GRAND TOTAL			<u>6,048</u>		

* Line Nos are shown in Fig. 5.8. of Vol.VI

R : Rubble Wall Channel

B : Box Culvert

A. Construction Cost

a. Trunk Drain

Line ^A No.	Length (m)	Width x Height		Construc- tion Cost (M\$1,000)	Land Acqui- tion Cost (M\$1,000)	Remarks
		(m)	(m)			
1	135	C	1.4 x 1.4	99	-	
	20	B	1.4 x 1.4	24	-	
2	360	C	2.0 x 2.0	421	-	
	40	B	2.0 x 2.0	74	-	
3	320	C	2.3 x 2.3	448	-	
	80	B	2.3 x 2.3	174	-	
4	55	C	2.4 x 2.4	81	-	
	20	B	2.4 x 2.4	45	-	
5	100	C	2.6 x 2.6	165	-	
	70	B	2.6 x 2.6	172	-	
6	145	C	2.7 x 2.7	251	-	
	20	B	2.7 x 2.7	51	-	
7	40	C	2.8 x 2.8	72	-	
	20	B	2.8 x 2.8	53	-	
Sub Total	1,425 m			2,130		
b. Tidal Gate				155		
c. Retention Pond				-		
d. Bund				8		
Total				<u>2,293</u>		

B. Land Acquisition Cost

C. Engineering Fee

344

D. Contingency Cost

527

GRAND TOTAL

3,164

* Line Nos are shown in Fig. 5.8. of Vol.VI

C : Concrete Channel

B : Box Culvert

A. Construction Cost

a. Trunk Drain

Line [*] No.	Length (m)	Width x Height		Construc- tion Cost (M\$1,000)	Land Acqui- sition Cost (M\$1,000)	Remarks
		(m)	(m)			
1	100	C	1.5 x 1.5	80	-	
	20	B	1.5 x 1.5	26	-	
2	160	C	1.5 x 1.5	128	-	
3	555	C	1.7 x 1.7	527	-	
	70	B	1.7 x 1.7	105	-	
4	270	C	1.8 x 1.8	278	-	
	70	B	1.8 x 1.8	116	-	
5	270	C	1.3 x 1.3	176	-	
6	155	C	1.3 x 1.3	101	-	
	20	B	1.3 x 1.3	21	-	
7	185	C	1.6 x 1.6	161	-	
	20	B	1.6 x 1.6	28	-	
8	210	C	1.7 x 1.7	200	-	
	20	B	1.7 x 1.7	30	-	
9	300	C	1.8 x 1.8	309	-	
	20	B	1.8 x 1.8	33	-	
10	125	B	2.1 x 2.1	244	-	Depth of Box >1.5m Culvert
11	35	B	2.1 x 2.1	82	-	"
12	295	B	2.1 x 2.1	693	-	"
13	85	B	2.4 x 2.4	225	-	"
Sub Total	2,985 m			3,563		
b. Tidal Gate				155		
c. Retention Pond				-		
d. Bund				24		
Total				<u>3,742</u>		
B. Land Acquisition Cost				-		
C. Engineering Fee				<u>561</u>		
D. Contingency Cost				<u>861</u>		

GRAND TOTAL

5,164

* Line Nos are shown in Fig. 5.8. of Vol.VI

C : Concrete Channel

B : Box Culvert

A. Construction Cost

a. Trunk Drain

Line * No.	Length (m)	Width x Height		Construc- tion Cost (M\$1,000)	Land Acqui- sition Cost (M\$1,000)	Remarks
		(m)	(m)			
1	125	C	1.2 x 1.2	75	-	
2	25	C	1.4 x 1.4	18	-	
3	20	B	1.6 x 1.6	28	-	
4	180	C	1.9 x 1.9	198	-	
5	220	C	2.1 x 2.1	275	-	
6	265	C	0.8 x 0.8	80	-	
7	340	C	1.7 x 1.7	323	-	
	20	B	1.7 x 1.7	30	-	
8	210	C	2.1 x 2.1	263	115	
	30	B	2.1 x 2.1	59	-	
9	20	C	2.9 x 2.9	37	-	

Sub Total 1,455 m 1,386

b. Tidal Gate 155

c. Retention Pond -

d. Bund 50

Total 1,591

B. Land Acquisition Cost - 115

C. Engineering Fee 239

D. Contingency Cost 366

GRAND TOTAL 2,311

* Line Nos are shown in Fig. 5.8. of Vol.VI

C : Concrete Channel

B : Box Culvert

A. Construction Cost

a. Trunk Drain

<u>Line *</u> <u>No.</u>	<u>Length</u> (m)	<u>Width x Height</u> (m) (m)	<u>Construc- tion Cost</u> (M\$1,000)	<u>Land Acqui- sition Cost</u> (M\$1,000)	<u>Remarks</u>
1	1,200	R 7.9 3.5 x 2.2	1,236	130	
2	1,380	R 6.8 3.0 x 1.9	1,297	248	
	20	B 3-2.3 x 1.9	65	-	
3	80	R 10.0 5.0 x 2.5	91	21	
	20	B 3-3.35 x 2.5	155	-	
4	870	C 2.8 x 1.7	1,131	-	
5	1,200	C 2.9 x 1.8	1,656	-	
6	293	R 13.0 8.0 x 2.5	349	40	
	7	Br 13.0	273	-	
Sub Total	5,070 m		6,253		
b. Tidal Gate			260		
c. Retention Pond			-		
d. Bund			71		
Total			<u>6,584</u>		
B. Land Acquisition Cost			-	<u>439</u>	
C. Engineering Fee			<u>988</u>		
D. Contingency Cost			<u>1,514</u>		
GRAND TOTAL			<u>9,525</u>		

* Line Nos are shown in Fig. 5.8. of Vol.VI

C : Concrete Channel
R : Rubble Wall Channel
B : Box Culvert
Br: Bridge

A. Construction Cost

a. Trunk Drain

Line * No.	Length (m)	Width x Height (m) (m)	Construc- tion Cost (M\$1,000)	Land Acqui- sition Cost (M\$1,000)	Remarks
1	380	R 8.1 4.5 x 1.8	353	76	
2	1,100	R 8.3 4.5 x 1.9	1,056	-	
	40	B 3-2.8 x 1.9	203	-	
3	500	R 7.2 3.0 x 2.1	498	87	
4	650	R 9.1 4.5 x 2.3	696	103	
	20	B 3-3.05 x 2.3	135	-	
5	1,240	R 12.8 8.0 x 2.4	1,438	283	
6	880	R 5.4 2.0 x 1.7	770	106	
7	200	R 14.0 9.0 x 2.5	241	67	
8	486	R 14.0 9.0 x 2.5	586	322	
	14	Br 14.0	588	-	
Sub Total	5,510 m		6,564		
b. Tidal Gate			275		
c. Retention Pond			-		
d. Bund			-		
Total			<u>6,839</u>		
B. Land Acquisition Cost			-	<u>1,044</u>	
C. Engineering Fee			<u>1,026</u>		
D. Contingency Cost			<u>1,573</u>		
GRAND TOTAL			<u>10,482</u>		

* Line Nos are shown in Fig. 5.8. of Vol.VI

R : Rubble Wall Channel

B : Box Culvert

Br: Bridge

A. Construction Cost

a. Trunk Drain

Line * No.	Length (m)	Width x Height		Construc- tion Cost (M\$1,000)	Land Acqui- tion Cost (M\$1,000)	Remarks	
		(m)	(m)				
1	(800)	R	7.0 3.0	x 2.0	-	-	Outside of the Project Area
2	(600)	R	7.5 3.5	x 2.0	-	-	"
	(20)	B	3-2.5	x 2.0	-	-	"
	(20)	B	3-2.5	x 2.0	-	-	"
3	180	R	8.0 4.0	x 2.0	176	33	

Sub Total 180 m 176

b. Tidal Gate 165

c. Retention Pond -

d. Bund -

Total 341

B. Land Acquisition Cost - 33

C. Engineering Fee 51

D. Contingency Cost 78

GRAND TOTAL 503

* Line Nos are shown in Fig. 5.8. of Vol.VI

R : Rubble Wall Channel

B : Box Culvert

A. Construction Cost

a. Trunk Drain

Line * No.	Length (m)	Width x Height (m) (m)	Construc- tion Cost (M\$1,000)	Land Acqui- sition Cost (M\$1,000)	Remarks
1	780	R 7.8 4.0 x 1.9	745	187	
2	510	R 7.8 4.0 x 1.9	487	129	
	20	B 3-2.6 x 1.9	92	-	
3	380	R 4.2 1.0 x 1.6	319	71	
4	80	R 9.0 5.0 x 2.0	80	1	
	20	B 3-3.0 x 2.0	555	-	Cross the railway line

Sub Total 1,790 m 2,278

b. Tidal Gate 180

c. Retention Pond -

d. Bund 112

Total 2,570

B. Land Acquisition Cost 388

C. Engineering Fee 386

D. Contingency Cost 591

GRAND TOTAL 3,935

* Line Nos are shown in Fig. 5.8. of Vol.VI

R : Rubble Wall Channel

B : Box Culvert

A. Construction Cost

a. Trunk Drain

<u>Line *</u> <u>No.</u>	<u>Length</u> (m)	<u>Width x Height</u> (m) (m)	<u>Construc- tion Cost</u> (M\$1,000)	<u>Land Acqui- tion Cost</u> (M\$1,000)	<u>Remarks</u>
1	330	C 1.6 x 1.6	284	83	
	20	B 1.6 x 1.6	150	-	Cross the railway line

Sub Total 350 m 434

b. Tidal Gate 100

c. Retention Pond -

d. Bund 15

Total 549

B. Land Acquisition Cost - 83

C. Engineering Fee 82

D. Contingency Cost 126

GRAND TOTAL 840

* Line Nos are shown in Fig. 5.8. of Vol.VI

C : Concrete Channel

B : Box Culvert

A. Construction Cost

a. Trunk Drain

<u>Line*</u> <u>No.</u>	<u>Length</u> (m)	<u>Width x Height</u> (m) (m)	<u>Construc-</u> <u>tion Cost</u> (M\$1,000)	<u>Land Acqui-</u> <u>tion Cost</u> (M\$1,000)	<u>Remarks</u>
1	680	C 2.7 x 2.0	952	82	
	20	B 2.7 x 2.0	44		
Sub Total 700 m			996		
b. Tidal Gate			120		
c. Retention Pond			-		
d. Bund			20		
Total			<u>1,136</u>		
B. Land Acquisition Cost			-	82	
C. Engineering Fee			<u>170</u>		
D. Contingency Cost			<u>261</u>		
GRAND TOTAL			<u>1,649</u>		

* Line Nos are shown in Fig. 5.8. of Vol.VI

C : Concrete Channel
B : Box Culvert

A. Construction Cost

a. Trunk Drain

<u>Line* No.</u>	<u>Length (m)</u>	<u>Width x Height (m) (m)</u>	<u>Construc- tion Cost (M\$1,000)</u>	<u>Land Acqui- tion Cost (M\$1,000)</u>	<u>Remarks</u>
1	460	R 4.1 1.5 x 1.3	352	-	
	20	B 2-2.05 x 1.3	43	-	
2	435	C 3.8 x 1.8	718	-	
	20	B 2-1.9 x 1.8	50	-	
3	760	C 5.8 x 2.0	1,702	502	
	40	B 2-2.9 x 2.0	125	-	
4	1,780	C 3.4 x 1.8	2,706	-	
	20	B 2-1.7 x 1.8	46	-	
5	780	R 9.2 5.0 x 2.1	800	-	
	20	B 3-3.3 x 2.1	630	-	Cross the railway line
Sub Total	4,335 m		7,172		
b. Tidal Gate			180		
c. Retention Pond			-		
d. Bund			72		
Total			<u>7,424</u>		
B. Land Acquisition Cost			-	502	
C. Engineering Fee			<u>1,080</u>		
D. Contingency Cost			<u>1,656</u>		
GRAND TOTAL			<u>10,662</u>		

* Line Nos are shown in Fig. 5.8. of Vol.VI

C : Concrete Channel
R : Rubble Wall Channel
B : Box Culvert

A. Construction Cost

a. Trunk Drain

Line* No.	Length (m)	Width x Height (m) (m)	Construc- tion Cost (M\$1,000)	Land Acqui- tion Cost (M\$1,000)	Remarks
1	830	R 7.6 4.0 x 1.8	768	169	
	20	B 3-2.55 x 1.8	83	-	
2	400	R 12.1 7.5 x 2.3	444	170	
3	50	R 12.1 7.5 x 2.3	56	-	
Sub Total	1,300 m		1,351		
b. Tidal Gate			238		
c. Retention Pond			1,480	2,160	V = 118,000 m ³ A = 54,000 m ²
d. Bund			122		
Total			<u>3,191</u>		
B. Land Acquisition Cost			-	<u>2,499</u>	
C. Engineering Fee			<u>1,107</u>		
D. Contingency Cost			<u>1,698</u>		
GRAND TOTAL			<u>8,495</u>		

* Line Nos are shown in Fig. 5.8. of Vol.VI

R : Rubble Wall Channel

B : Box Culvert

A. Construction Cost

a. Trunk Drain

<u>Line *</u> <u>No.</u>	<u>Length</u> (m)	<u>Width x Height</u> (m) (m)	<u>Construc- tion Cost</u> (M\$1,000)	<u>Land Acqui- tion Cost</u> (M\$1,000)	<u>Remarks</u>
1	800	R 5.4 2.0 x 1.7	704	120	
2	580	R 9.3 5.5 x 1.9	568	81	
	20	B 3-3.1 x 1.9	114	-	
3	180	R 9.5 5.5 x 2.0	180	28	
	20	B 3-3.2 x 2.0	125	-	

Sub Total 1,600 m 1,691

b. Tidal Gate 185

c. Retention Pond -

d. Bund 12

Total 1,888

B. Land Acquisition Cost - 229

C. Engineering Fee 450

D. Contingency Cost 688

GRAND TOTAL 3,255

* Line Nos are shown in Fig. 5.8. of Vol.VI

R : Rubble Wall Channel

B : Concrete Channel

A. Construction Cost

a. Trunk Drain

Line * No.	Length (m)	Width x Height (m) x (m)	Construc- tion Cost (M\$1,000)	Land Acqui- tion Cost (M\$1,000)	Remarks
1	1,200	R 15.6 10.0 x 2.8	1,584	2,592	
2	1,200	R 15.6 10.0 x 2.8	1,584	2,832	
3	493	R 15.6 10.0 x 2.8	651	211	
	7	Br 15.6	328	-	
4	980	R 7.2 3.0 x 2.1	975	90	
	20	B 2-3.6 x 2.1	94	-	
5	200	R 15.8 10.0 x 2.9	270	74	
6	630	C 3.7 x 2.0	1,077	-	
7	1,810	C 6.0 x 2.8	6,570	-	
	60	B 2-3.0 x 2.8	325	-	20m/No. x 3 No. = 60m
8	300	R 18.8 13.0 x 2.9	423	122	
9	257	R 18.8 13.0 x 2.9	362	67	
	10	Br 18.8	1,045	-	Cross the railway line
Sub Total	4,167 m		15,288		
b. Tidal Gate			390		
c. Retention Pond			-		
d. Bund			-		
Total			15,678		
B. Land Acquisition Cost			-	5,988	
C. Engineering Fee			2,352		
D. Contingency Cost			3,606		
GRAND TOTAL			27,624		

* Line Nos are shown in Fig. 5.8. of Vol.VI

R : Rubble Wall Channel

C : Concrete Channel

B : Box Culvert

Br: Bridge

A. Construction Cost

a. Trunk Drain

<u>Line* No.</u>	<u>Length (m)</u>	<u>Width x Height (m) (m)</u>	<u>Construc- tion Cost (M\$1,000)</u>	<u>Land Acqui- tion Cost (M\$1,000)</u>	<u>Remarks</u>
1	1,060	C 2.3 x 1.7	1,219	-	
	40	B 2.3 x 1.7	74	-	2-Box Culverts
2	960	C 2.5 x 2.0	1,296	-	
	40	B 2.5 x 2.0	83	-	
3	290	R 8.5 4.5 x 2.0	287	191	
4	520	R 6.7 3.5 x 1.6	450	-	
	20	B 3-2.25 x 1.6	61	-	
5	100	B 3-2.4 x 2.1	2,350	-	Cross the railway line
Sub Total	3,030 m		5,820		
b. Tidal Gate			185		
c. Retention Pond			960	960	V = 70,000 m ³
d. Bund			-		
Total			<u>6,965</u>		

B. Land Acquisition Cost

1,151

C. Engineering Fee

1,045

D. Contingency Cost

1,602

GRAND TOTAL

10,763

* Line Nos are shown in Fig. 5.8. of Vol.VI

C : Concrete Channel

R : Rubble Wall Channel

B : Box Culvert

A. Construction Cost

a. Trunk Drain

<u>Line* No.</u>	<u>Length (m)</u>	<u>Width x Height (m) (m)</u>	<u>Construc- tion Cost (M\$1,000)</u>	<u>Land Acqui- tion Cost (M\$1,000)</u>	<u>Remarks</u>
1	1,190	C 4.0 x 2.0	2,142	-	
	20	B 2-2.0 x 2.0	53	-	
2	1,080	C 2.5 x 1.9	1,404	-	
	20	B 2.5 x 1.9	41	-	
3	380	C 5.4 x 2.5	1,140	-	
	20	B 2-2.7 x 2.5	452	-	Cross the railway line
4	860	C 3.3 x 2.0	1,376	131	
	20	B 3.3 x 2.0	265	-	Cross the railway line
5	90	R 10.5 5.5 x 2.5	104	-	

Sub Total 3,680 m

6,977

b. Tidal Gate

215

c. Retention Pond

1,160

1,230

V = 88,000 m³

d. Bund

-

Total

8,352

B. Land Acquisition Cost

-

1,361

C. Engineering Fee

1,253

D. Contingency Cost

1,921

GRAND TOTAL

12,887

* Line Nos are shown in Fig. 5.8. of Vol.VI

C : Concrete Channel
 R : Rubble Wall Channel
 B : Box Culvert

A. Construction Cost

a. Trunk Drain

Line* No.	Length (m)	Width x Height (m) (m)	Construc- tion Cost (M\$1,000)	Land Acqui- sition Cost (M\$1,000)	Remarks
1	400	R 10.5 x 2.5 5.5	458	562	
2	1,500	R 11.5 x 2.0 7.5	1,545	2,727	
3	490	R 13.0 x 2.5 8.0	583	794	
4	1,300	R 6.8 x 1.9 3.0	1,222	1,240	
5	240	R 14.0 x 2.5 9.0	289	428	
6	1,263	R 15.5 x 2.5 10.5	1,553	165	
7	7	Br 15.5	326	-	
7	2,040	R 6.8 x 1.9 3.0	1,918	-	
8	1,340	R 25.4 x 2.7 20.0	1,970	346	
9	1,320	R 5.4 x 1.7 2.0	1,155	-	
20	20	B 3-1.8 x 1.7	56	-	
10	870	R 7.7 x 2.1 3.5	870	55	
11	13	R 25.4 x 2.7 20.0	19	-	
7	7	Br 25.4	533	-	
Sub Total	10,810 m		12,497		
b. Tidal Gate			495		
c. Retention Pond			-		
d. Bund (for A-6 Catchment)			83		
Total			<u>13,075</u>		

B. Land Acquisition Cost

6,317

C. Engineering Fee

1,608

D. Contingency Cost

2,534

GRAND TOTAL

23,534

* Line Nos are shown in Fig. 5.8. of Vol.VI

R : Rubble Wall Channel

Br: Bridge

A. Construction Cost

a. Trunk Drain

<u>Line* No.</u>	<u>Length (m)</u>	<u>Width x Height (m) x (m)</u>	<u>Construc- tion Cost (M\$1,000)</u>	<u>Land Acqui- sition Cost (M\$1,000)</u>	<u>Remarks</u>
1	980	C 3.5 x 2.1	1,676	-	
	20	B 3.5 x 2.1	51	-	
2	1,160	C 3.0 x 2.1	1,798	-	
	40	B 3.0 x 2.1	94	-	
3	430	C 1.9 x 1.5	404	-	
4	560	C 5.0 x 2.3	1,238	-	
	40	B 2-2.5 x 2.3	124	-	

Sub Total 3,230 m 5,385

b. Tidal Gate 155

c. Retention Pond -

d. Bund -

Total 5,540

B. Land Acquisition Cost -

C. Engineering Fee 831

D. Contingency Cost 1,274

GRAND TOTAL 7,645

* Line Nos are shown in Fig. 5.8. of Vol.VI

C : Concrete Channel

B : Box Culvert

A. Construction Cost

a. Trunk Drain

Line* No.	Length (m)	Width x Height	Construc- tion Cost (M\$1,000)	Land Acqui- tion Cost (M\$1,000)	Remarks
1	300	R 4.5 1.5 x 1.5	245	-	
2	700	R 5.9 2.5 x 1.7	616	-	
3	780	C 3.3 x 1.8	1,162	-	
	40	B 3.3 x 1.8	92	-	
4	1,000	C 1.8 x 1.5	900	-	
5	530	C 3.2 x 1.6	721	-	
	40	B 2-1.6 x 1.6	84	-	
6	560	C 4.3 x 2.1	1,092	-	
7	250	R 9.1 4.5 x 2.3	269	-	
Sub Total	4,200 m		5,181		
b. Tidal Gate			190		
c. Retention Pond			-		
d. Bund			29		
Total			<u>5,400</u>		

B. Land Acquisition Cost

C. Engineering Fee

810

D. Contingency Cost

1,242

GRAND TOTAL

7,452

* Line Nos are shown in Fig. 5.8. of Vol:VI

C : Concrete Channel

R : Rubble Wall Channel

B : Box Culvert

A. Construction Cost

a. Trunk Drain

<u>Line* No.</u>	<u>Length (m)</u>	<u>Width x Height (m) (m)</u>	<u>Construc- tion Cost (M\$1,000)</u>	<u>Land Acqui- tion Cost (M\$1,000)</u>	<u>Remarks</u>
1	190	C 1.1 x 1.1	95	-	
2	215	C 1.5 x 1.5	172	-	
	20	B 1.5 x 1.5	26	-	
3	30	C 2.0 x 2.0	35	-	
	20	B 2.0 x 2.0	37	-	
4	255	C 2.2 x 2.2	339	-	
5	35	B 2.4 x 2.4	79	-	
6	345	C 1.6 x 1.6	300	-	
	20	B 1.6 x 1.6	28	-	
7	60	C 1.7 x 1.7	57	-	
8	305	C 1.7 x 1.7	290	-	
9	80	C 2.7 x 2.7	138	-	
10	20	C 2.9 x 2.9	37	-	
Sub Total	1,595 m		1,633		
b. Tidal Gate			155		
c. Retention Pond			-		
d. Bund			-		
Total			<u>1,788</u>		
B. Land Acquisition Cost			-		
C. Engineering Fee			<u>268</u>		
D. Contingency Cost			<u>411</u>		
GRAND TOTAL			<u><u>2,467</u></u>		

* Line Nos are shown in Fig. 5.8. of Vol.VI

C : Concrete Channel

B : Box Culvert

A. Construction Cost

a. Trunk Drain

Line* No.	Length (m)	Width x Height		Construc- tion Cost (M\$1,000)	Land Acqui- sition Cost (M\$1,000)	Remarks
		(m)	(m)			
1	730	C	2. x 1.7	883	-	
	20	B	2.5 x 1.7	38	-	
2	780	C	3.5 x 2.1	1,334	-	
	20	B	3.5 x 2.1	51	-	
3	230	B	7.7 3.5 x 2.1	230	76	
4	50	R	8.2 4.0 x 2.1	51	4	
Sub Total	1,830 m			2,587		
b. Tidal Gate				170	-	
c. Retention Pond				770	1,080	V = 53,000 m ³
d. Bund				-		
Total				<u>3,527</u>		
B. Land Acquisition Cost					<u>1,160</u>	
C. Engineering Fee				<u>529</u>		
D. Contingency Cost				<u>811</u>		
GRAND TOTAL				<u>6,027</u>		

* Line Nos are shown in Fig. 5.8. of Vol.VI

C : Concrete Channel

R : Rubble Wall Channel

B : Box Culvert

A. Construction Cost

a. Trunk Drain

Line* No.	Length (m)	Width x Height (m) (m)	Construc- tion Cost (M\$1,000)	Land Acqui- sition Cost (M\$1,000)	Remarks
1	(3,320)	R 8.8 4.0 x 2.4	-	-	Outside of the Project Area
	20	B 3-2.95 x 2.4	137	-	
2	(2,833)	R 11.0 6.0 x 2.5	-	-	Outside of the Project Area
	7	Br 11.0	231	-	
3	2,000	R 12.7 7.5 x 2.6	2,420	882	
4	2,000	C 4.9 x 2.5	5,480	204	
5	2,520	R 8.8 4.0 x 2.4	2,747	816	
	20	B 3-2.95 x 2.4	137	-	
6	1,000	C 5.5 x 3.0	3,600	120	
7	73	R 13.9 7.5 x 3.2	101	-	
	7	Br 13.9	292	-	
Sub Total	7,647 m		15,145		
b. Tidal Gate			-		
c. Retention Pond			-		
d. Bund			-		
Total			<u>15,145</u>		
B. Land Acquisition Cost				<u>2,022</u>	
C. Engineering Fee			<u>2,272</u>		
D. Contingency Cost			<u>3,483</u>		
GRAND TOTAL			<u>22,922</u>		

* Line Nos are shown in Fig. 5.9. of Vol.VI

C : Concrete Channel
R : Rubble Wall Channel
B : Box Culvert
Br: Bridge

A. Construction Cost

a. Trunk Drain

Line* No.	Length (m)	Width x Height		Construc- tion Cost (M\$1,000)	Land Acqui- tion Cost (M\$1,000)	Remarks
		(m)	(m)			
1	(2,100)	R	8.6 4.0 x 2.3	-	-	Outside of the Project Area
2	(1,800)	R	7.2 3.0 x 2.1	-	-	"
3	530	R	11.0 6.0 x 2.5	612	153	
4	700	C	3.0 x 2.0	1,050	32	
5	143	R	11.2 6.0 x 2.6	169		
	7	Br	11.2	235	-	

Sub Total 1,380 m 2,066

b. Tidal Gate -

c. Retention Pond -

d. Bund -

Total 2,066

B. Land Acquisition Cost 185

C. Engineering Fee 310

D. Contingency Cost 475

GRAND TOTAL 3,036

* Line Nos are shown in Fig. 5.9. of Vol.VI

C : Concrete Channel
R : Rubble Wall Channel
Br: Bridge

A. Construction Cost

a. Trunk Drain

Line * No.	Length (m)	Width x Height (m) (m)	Construc- tion Cost (M\$1,000)	Land Acqui- sition Cost (M\$1,000)	Remarks
1.	(2,373)	R 11.6 6.0 x 2.8	-	-	Outside of the Project Area
	7	Br 11.6	244	-	
2	(650)	R 12.2 6.0 x 3.1	-	-	Outside of the Project Area
	600	R 12.2 6.0 x 3.1	798	194	
3	1,300	R 12.7 6.5 x 3.1	1,742	441	
4	1,000	R 12.7 6.5 x 3.1	1,340	339	
5	700	C 1.6 x 1.6	602	-	
6	700	C 2.0 x 2.0	812	-	
7	73	R 12.7 6.5 x 3.1	98	-	
	7	Br 12.7	267	-	
Sub Total	4,387 m		5,903		
b. Tidal Gate			-		
c. Retention Pond			-		
d. Bund			-		
Total			<u>5,903</u>		
B. Land Acquisition Cost			-	<u>974</u>	
C. Engineering Fee			<u>885</u>		
D. Contingency Cost			<u>1,358</u>		
GRAND TOTAL			<u>9,120</u>		

* Line Nos are shown in Fig. 5.9. of Vol.VI

C : Concrete Channel
R : Rubble Wall Channel
Br: Bridge

A. Construction Cost

a. Trunk Drain

<u>Line *</u> <u>No.</u>	<u>Length</u> (m)	<u>Width x Height</u> (m) (m)	<u>Construc-</u> <u>tion Cost</u> (M\$1,000)	<u>Land Acqui-</u> <u>tion Cost</u> (M\$1,000)	<u>Remarks</u>
1	2,100	C 2.8 x 2.5	3,528	82	
2	800	C 2.2 x 1.5	824	-	
3	173	R 13.0 6.0 x 3.5	251	-	
	7	Br 13.0	273	-	
Sub Total 3,080 m			4,876		
b. Tidal Gate			-		
c. Retention Pond			-		
d. Bund			-		
Total			<u>4,876</u>		
B. Land Acquisition Cost			-	<u>82</u>	
C. Engineering Fee			<u>731</u>		
D. Contingency Cost			<u>1,121</u>		
GRAND TOTAL			<u>6,810</u>		

* Line Nos are shown in Fig. 5.9. of Vol.VI

C : Concrete Channel
R : Rubble Wall Channel
Br: Bridge

A. Construction Cost

a. Trunk Drain

Line * No.	Length (m)	Width x Height		Construc- tion Cost (M\$1,000)	Land Acqui- sition Cost (M\$1,000)	Remarks	
		(m)	(m)				
1	620	R	11.2 6.0	x 2.6	735	182	
2	1,500	C	4.6	x 2.5	3,315	140	
3	700	C	2.1	x 2.1	868	-	
4	(2,053)	R	16.2 10.0	x 3.1	-	-	Outside of the Project Area
	7	Br	16.2		340	-	
5	(2,560)	R	16.4 10.0	x 3.2	-	-	Outside of the Project Area
6	(3,660)	R	16.4 10.0	x 3.2	-	-	"
7	293	R	16.4 10.0	x 3.2	425	162	
	7	Br	16.4		344	-	
Sub Total				3,127 m	5,991		
b. Tidal Gate					-		
c. Retention Pond					-		
d. Bund					-		
Total					<u>5,991</u>		
B. Land Acquisition Cost					-	<u>484</u>	
C. Engineering Fee					899		
D. Contingency Cost					<u>1,378</u>		
GRAND TOTAL					<u>8,752</u>		

* Line Nos are shown in Fig. 5.10. of Vol.VI

C : Concrete Channel
R : Rubble Wall Channel
Br: Bridge

A. Construction Cost

a. Trunk Drain

Line* No.	Length (m)	Width x Height (m) (m)	Construc- tion Cost (M\$1,000)	Land Acqui- sition Cost (M\$1,000)	Remarks
1	400	R 21.0 15.0 x 3.0	594	235	
2	400	R 11.4 6.0 x 2.7	486	120	
3	693	R 24.0 18.0 x 3.0	1,074	470	
	7	Br 24.0	504	-	
4	1,370	R 24.0 18.0 x 3.0	2,124	929	
5	1,300	R 24.0 18.0 x 3.0	2,015	881	
6	1,450	R 24.0 18.0 x 3.0	2,248	896	
7	2,250	R 24.0 18.0 x 3.0	3,488	1,391	
8	1,400	R 27.6 20.0 x 3.8	2,660	1,016	
9	693	R 29.8 22.0 x 3.9	1,379	-	
	7	Br 29.8	626	-	
10	220	R 17.6 12.0 x 2.8	1,659	717	
11	493	R 17.6 12.0 x 2.8	670	290	
	7	Br 17.6	370	-	
12	350	R 33.2 25.0 x 4.1	754	-	
13	630	R 7.8 3.0 x 2.4	677	185	
14	300	R 8.8 4.0 x 2.4	327	67	
	(2,600)	R 8.8 4.0 x 2.4	-	-	Outside of the Project Area
	20	3-2.95 x 2.4	137	-	
15	(3,000)	R 10.2 5.0 x 2.6	-	-	Outside of the Project Area
16	(2,660)	R 11.2 6.0 x 2.6	-	-	"
17	980	C 2.3 x 2.0	1,235	-	
18	753	R 11.4 6.0 x 2.7	913	226	
	7	Br 11.4	239	-	
19	370	R 34.2 26.0 x 4.1	808	-	
Sub Total	15,100 m		24,987		
b. Tidal Gate			-		
c. Retention Pond			-		
d. Bund			-		
Total			24,987		
B. Land Acquisition Cost			-	7,423	
C. Engineering Fee			3,748		
D. Contingency Cost			5,747		
GRAND TOTAL			41,905		

* Line Nos are shown in Fig. 5.10. of Vol.VI
H-30

付録 I 個々の施設の優先順位

付録 I. 個々の施設の優先順位

マレーシア政府より要請のあった、個々の排水施設の実施優先順位を以下に示す。

I.1. 個々の排水施設の種類

幹線排水路については、地形状況、現況水路疎通能力を考慮して、計画水路区分と同じ分類とした。各幹線排水路は、小さな場合は全線を1本、大きな場合は13本に分類した。(第6巻図 5.8～ 5.10 参照)

I.2. 順位付けの方法

個々の排水施設の順位付けをするためには、浸水緩和の結果を明確にする必要がある。

ここで、とりあげた指標は、現況の浸水人口に排水施設を改良した結果減少する浸水時間をかけ、これを工事費でわったものである。

$$\text{事業効果指標} = \frac{(\text{現況浸水人口}) \times (\text{浸水減少時間})}{(\text{工事費})}$$

ここに、現況浸水人口；浸水区域における1980年人口

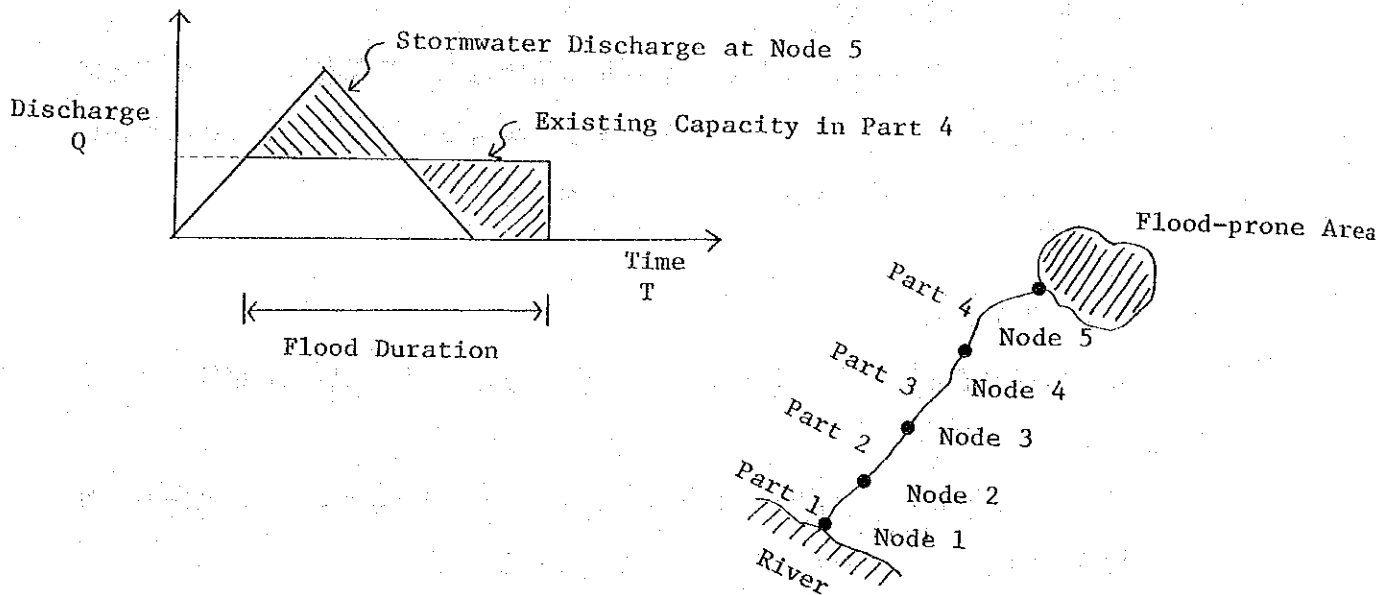
浸水減少時間；(1980年時点の土地利用で確率年5年の流出量における浸水時間) - (2000年時点の土地利用で確率年5年に対応する施設をある区間で改良した場合の浸水時間)

工事費；ある区間を改良した時の工事費
(技術経費、予備費は含まず。)

ここでは、データ不足のため、上記の指標を用いたが、本来は、損害額の減少、浸水面積、浸水深さ等も考慮すべきである。したがって、上記の指標を用いた個々の排水施設の順位づけは、一つの例であり、これの適用については、十分注意することが必要である。

3. 計算の方法

図 I.1. 幹線排水路の優先順位付け



a) 区間①～④に起因する浸水時間の算出

i) 区間④に起因する浸水時間 $T_④$ の算出

- (1) 節点5における時間-流入量(現時点の確率年5年のもの、以下同じ)曲線
- (2) 区間④における現在の疎通能力
- (3) 1), 2)より浸水継続時間 $T_④$ を算出する。

ii) 区間③に起因する浸水時間 $T_③$ の算出

- (1) 節点4における時間-流入量曲線
- (2) 区間③における現在の疎通能力
- (3) 1), 2)より浸水継続時間 $T_③$ を算出する。

以下同様に、区間②、①の浸水継続時間 $T_②$ 、 $T_①$ を算出する。

浸水継続時間 $T_①$ ～ $T_④$ の大きいものほど、浸水に関係がある。たとえば

$$T_① = 250分$$

T②= 0分

T③= 350分

T④= 400分

とすれば、区間④の現時点での疎通能力では 400分の浸水継続時間となり、区間④が最大のボトルネックであり、改修をおこなう区間はまず④である。以下浸水継続時間の大きな順、区間③、①の順で改修をおこなっていく。なお、区間②は十分な疎通能力があり、改修の必要はない。

b) 浸水継続時間の減少

区間④を改修すれば、これによる浸水継続時間は 400分となる。今度は、2番目のボトルネックである区間③による浸水が生ずる。すなわち浸水継続時間はT③= 350分となる。すなわち、区間④を改修することにより、浸水継続時間は 400分から 350分となり、軽減される浸水時間は50分といえる。以下同様にして、区間③、①による改修により、浸水継続時間は、おのこの 150分、400分、軽減する。以上をまとめると、次のとおりである。

区間④改修により50分

上記に加えて区間③の改修により 150分 (= 400 - 250)

上記に加えて区間①の改修により 400分 (= 400 - 0)

浸水時間が減少する。

c) 浸水人口×浸水減少時間／工事費

1) で算出した浸水減少時間に、浸水区域の人口をかけ、これを所要建設費でわる。

これを、表 I.3. に示す。

I.4. 結果

上記で算出した指標に基づくと、幹線排水路区間の順位は表 I.1. に示すようになる。

なお、表 I.2. に示す区間は全て指標が0のものである。

ゲート、堤防、滞水池については、浸水の原因、所要建設費等を考慮すると、表 I.1. の幹線排水路区間よりは優先順位は高いと判断される。

表 1. 1. 幹線排水路区間優先順位

Implementation Priority	Parts of Trunk Drain	Catchment Code No.	Implementation Priority	Parts of Trunk Drain	Catchment Code No.
1.	8	(S-8)	25.	5,7	(N-9)
2.	8,9	(N-6)	26.	3,5	(S-5)
3.	5	(S-8)	27.	1	(S-4)
4.	8,11	(A-1)	28.	8	(N-9)
5.	9	(S-8)	29.	2	(N-9)
6.	2	(A-5)	30.	4,5	(N-4)
7.	2,4	(A-2)	31.	3,5	(S-10)
8.	12,13	(N-6)	32.	5,7,8,9	(N-7)
9.	11	(N-6)	33.	5	(N-8)
10.	7	(A-3)	34.	2,5,7	(N-2)
11.	10	(N-6)	35.	1,2	(S-5)
12.	3,6	(N-8)	36.	4	(S-5)
13.	1,3	(A-5)	37.	1	(S-7)
14.	3	(A-3)	38.	3,4,5	(N-5)
15.	7	(S-8)	39.	1,3,5	(S-9)
16.	3	(S-2)	40.	1,3	(N-4)
17.	1	(N-8)	41.	2,3,4	(N-6)
18.	5,9,10	(A-4)	42.	2	(S-5)
19.	6	(A-3)	43.	4	(S-9)
20.	2	(S-10)	44.	2,3	(N-3)
21.	2,3	(S-7)	45.	1	(S-10)
22.	4	(A-3)	46.	1	(S-3)
23.	4,6,7	(A-4)	47.	2	(N-5)
24.	1,2,3	(S-6)			

Note: Parts of trunk drain are the same as line numbers of trunk drain which are shown in Figs.5.8 to 5.10 of Volume VI.

表 1. 2. 幹線排水路区間優先順位
(指標値ゼロ)

Catchment Code No.	Parts of Trunk Drain
N-1	1-9
2	1,3,4,6
3	1
4	2
5	1,6,7
6	1,5-7
7	1-4,6
8	2,4
9	1,3,4,6
S-1	1-3
2	1,2,4
8	1-4,6
9	2
10	4
A-1	1-7,9,10
2	1,3
3	1,2,5
4	1-3,8
5	4
O-1	1-7
2	1-5
3	1-8
4	1-5
5	1-8
6	1-19

Note: Parts of trunk drain are the same as line numbers of trunk drain which are shown in Figs.5.8 to 5.10 of Volume VI.

表 I. 3. (1) 効果費用指数

(浸水区域人口) × (浸水継続時間の減少) / (建設費)

Flood-Prone Area No.	Catchment Code No.	Proposed Line No.	Time of Concentration (min)	Runoff Coefficient C	Served Area A (ha)	Existing Capacity (m ³ /sec)	Flood-Prone Area Population (a)	Flood Duration (min) 3.	Decrease of Flood Duration (min)(b)	Construction Cost & Accumulated Construction Cost (C) (M\$)	Index (a)×(b)/(c)	Implementation Priority
1	N-2	5,7	42.1	0.45	165.8	1.71	400	700	330	979,000	(135)	-
		(5,7),2	37.0	0.45	105.8	1.90		370	700	1,018,000	140	34
2		7	43.9	0.45	210.1	1.71	0	910	910	351,000	0	-
3	N-3	7	43.9	0.45	210.1	1.71	0	910	910	351,000	0	-
4		3,1	28.9	0.45	14.3	0.50	0	170	170	385,000	0	-
5		3,2	22.1	0.45	11.2	0.50	100	130	130	396,000	33	44
6	N-4	1	21.5	0.55	47.2	2.28	1000	150	30	724,000	(41)	-
		(1),5,3	39.2	0.55	120.4	7.42		120	150	2,069,000	54	40
7		5,3	39.2	0.55	120.4	7.42	200	120	120	2,069,000	(12)	-
8	N-5	5,4	31.3	0.55	38.6	0.30	400	1180	1180	1,664,000	284	30
9		5,4	31.3	0.55	38.6	0.30	200	1180	1180	1,664,000	(141)	-
10		5,3	39.2	0.55	120.4	7.42	0	120	120	2,069,000	0	-
11	N-5	5	31.7	0.65	51.5	3.57	500	120	30	337,000	(45)	-
		(5),4	30.0	0.65	41.2	3.57		90	30	126,000	(32)	-
		(5,4),2	25.0	0.65	22.6	1.93		90	30	495,000	16	47
		(5,4,2),3	29.2	0.65	39.3	3.57		90	120	958,000	(38)	-
12		5	31.7	0.65	51.5	3.57	800	120	30	1,580,000	(71)	-
	(5),4		30.0	0.65	41.2	3.57		90	30	126,000	(52)	-
								90	120	463,000	88	38
								90	120	622,000		
		(5,4),3	29.2	0.65	39.3	3.57		90	120	1,085,000		

表 1.3. (2)

Flood-Prone Area No.	Catchment Code No.	Proposed Line No.	Time of Concentration tc (min)	Runoff Coefficient C	Served Area A (ha)	Existing Capacity (m ³ /sec)	Flood-Prone Area Population (a)	Flood Duration (min) 3	Decrease of Flood Duration (min) (b)	Construction Cost & Accumulated Construction Cost (C) (MS)	Index (a)x(b) -(c)	Implementation Priority
15	N-6	13,12	40.2	0.75	53.8	1.47	300	420	20	912,000	(7)	-
		(13,12),11	37.5	0.75	51.6	1.47		400	30	82,000 1,000,000	(9)	-
		(13-11),10	37.2	0.75	50.6	1.47		390	100	244,000 1,244,000	(24)	-
		(13-10),4	36.1	0.75	20.2	0.70		320	270	394,000 1,638,000	(49)	-
		(13-10),4,3	32.1	0.75	16.5	1.07		150	340	632,000 2,270,000	(45)	-
		(13-10),4,3,2	24.4	0.75	10.2	1.15		80	420	128,000 2,398,000	53	41
		8,9	31.3	0.75	25.7	0.10	(1000)	3420	3000	472,000	5245	2
		(8,9),13,12	40.2	0.75	53.8	1.47		420	3020	918,000 1,490,000	2027	8
		(8,9,13,12),11	37.5	0.75	51.6	1.47		400	3030	82,000 1,572,000	1927	9
		(8,9,13,12,11),10	37.2	0.75	50.6	1.47		390	3420	244,000 1,816,000	1883	11
19	N-7	7,8,9,5	24.1	0.65	25.5	2.08	1700	100	100	1,102,000	154	32
		6	51.5	0.40	255.0	1.07	1000	1630	750	662,000	(1133)	-
20	N-8	(6),3	48.7	0.40	141.8	1.05		880	1170	267,000 929,000	1259	12
		(6,3),1	42.0	0.40	78.4	1.05		460	1630	1,366,000 2,295,000	710	17
		6	51.5	0.40	255.0	1.07	200	1630	950	662,000	(287)	-
21		(6),5	28.2	0.40	32.2	0.30		680	1630	1,656,000 2,318,000	141	33
		6	51.5	0.40	255.0	1.07	0	1630	1630	662,000	0	-
22		6	51.5	0.40	255.0	1.07	300	1630	750	662,000	(340)	-
		(6),3	48.7	0.40	141.8	1.05		880	1170	267,000 929,000	(378)	-
23		(6,3),1	42.0	0.40	78.4	1.05		460	1630	1,366,000 2,295,000	(213)	-
		6	51.5	0.40	255.0	1.07		1630	1630	662,000	(340)	-

表 I.3. (3)

Flood-Prone Area No.	Catchment Code No.	Proposed Line No.	Time of Concentration (min)	Runoff Coefficient C	Served Area A (ha)	Existing Capacity (m ³ /sec)	Flood-Prone Area Population (a)	Flood-Duration (min) 3	Decrease of Flood Duration (min) (b)	Construction Cost & Accumulated Construction Cost (C) (RS)	Index (a)x(b)/(c)	Implementation Priority
24	N-9	7	62.1	0.40	337.8	1.75	1100	1300	10	378,000	(36)	-
		(7),5	59.0	0.40	280.7	1.47		1290	680	1,721,000 2,029,000	369	25
		(7,5),8	69.8	0.40	366.3	3.77		620	1060	1,496,000 3,525,000	331	28
		(7,5,8),2	39.3	0.40	95.1	2.25		240	1300	1,259,000 4,782,000	299	29
25	S-2	1	23.3	0.40	108.9	0.79	0	900	450	932,000	0	-
		(1),2	29.7	0.40	127.5	1.72		450	900	708,000 1,640,000	0	-
		3	18.2	0.40	30.5	0.30		640	640	319,000	803	16
27	S-3	1	13.7	0.75	11.8	1.78	300	50	50	517,000	29	46
		1	13.7	0.75	11.8	1.78	100	50	50	517,000	(10)	-
29	S-4	1	16.3	0.55	53.9	1.69	1500	240	240	1,078,000	334	27
		S-6, S-6 3 2 5	47.1	0.50	147.1	1.11	1300	1100	400	7,010,000	(74)	-
30	S-5	(5),3	35.1	0.50	97.4	1.11		700	890	2,329,000 9,339,000	(124)	-
		(5,3),1	17.9	0.50	16.0	0.51		210	990	395,000 9,734,000	(132)	-
		(5,3,1),2	24.2	0.50	45.0	2.60		110	1100	768,000 10,502,000	136	35
		S-6, S-6 3 2 5	47.1	0.50	147.1	1.11	400	1100	400	7,010,000	(23)	-
		(5),3	35.1	0.50	97.4	1.11		700	990	2,329,000 9,339,000	(42)	-
32	S-6, S-6 3 2 5	(5,3),2	24.2	0.50	45.0	2.60		110	1100	768,000 10,107,000	44	42
		S-6, S-6 3 2 5	47.1	0.50	147.1	1.11	3100	1100	400	7,010,000	(177)	-
		(5),3	35.1	0.50	97.4	1.11		700	1100	2,329,000 9,339,000	365	26

表 I.3. (4)

Flood-Prone Area No.	Catchment Code No.	Proposed Line No.	Time of Concentration (min)	Runoff Coefficient C	Served Area A (ha)	Existing Capacity (m ³ /sec)	Flood-Prone Area Population (a)	Flood Duration (min) 3	Decrease of Flood Duration (min) (b)	Construction Cost & Accumulated Construction Cost (C) (M\$)	Index (a)x(b)/(c)	Implementation Priority
34	S-5	S-6, S-6 3, 2	47.1	0.50	147.1	1.11	1200	1100	640	7,010,000	(120)	-
		(5), 4	36.1	0.50	49.7	0.83		460	1100	2,752,000 9,762,000	135	36
35	S-6	3, 2, 1	25.8	0.40	99.5	0.51	3600	750	750	6,661,000	405	24
36	S-7	1	27.6	0.45	27.0	0.15	500	1360	30	784,000	(19)	-
		(1), S-6 3, 3	48.8	0.45	110.8	0.63		1330	240	5,752,000 6,536,000	(18)	-
37		(1, 3), 2	38.2	0.45	94.3	0.63		1120	1360	732,000 7,268,000	94	37
		S-6 3, 3	48.8	0.45	110.8	0.63	2500	1330	210	5,752,000	(91)	-
		(3), 2	38.2	0.45	94.3	0.63		1120	1330	732,000 6,484,000	513	21
33	S-8	8	83.6	0.45	539.2	0.71	1400	5570	3320	545,000	8528	1
		(8), 9	87.8	0.45	539.2	1.88		2250	3940	1,474,000 2,019,000	2782	5
38		(8, 9), 7	52.1	0.45	106.4	0.50		1630	5570	6,895,000 8,914,000	875	15
		5	77.3	0.45	387.4	0.40	1000	5610	40	344,000	(116)	-
39		(5), 8	83.6	0.45	539.2	0.71		5570	3320	545,000 889,000	3735	3
		(5, 8), 9	87.8	0.45	539.2	1.88		2250	5610	1,474,000 2,363,000	(2374)	-
40		8	83.6	0.45	539.2	0.71	600	5570	3320	545,000	(3655)	-
		(8), 9	87.8	0.45	539.2	1.88		2250	3940	1,474,000 2,019,000	(1171)	-
40		(8, 9), 7	52.1	0.45	106.4	0.50		1630	5570	6,895,000 8,914,000	(375)	-
		8	83.6	0.45	539.2	0.71	300	5570	3320	545,000	(676)	-
		(8), 9	87.8	0.45	539.2	1.88		2250	5570	1,474,000 2,019,000	(828)	-

表 I.3. (5)

Flood-Prone Area No.	Catchment Code No.	Proposed Line No.	Time of Concentration (min)	Runoff Coefficient C	Served Area A (ha)	Existing Capacity (m ³ /sec)	Flood-Prone Area Population (a)	Flood Duration (min) 3	Decrease of Flood Duration (min)(b)	Construction Cost & Accumulated Construction Cost (C) (M\$)	Index (a)x(b)/(c)	Implementation Priority
41	S-9	(5),3	26.9	0.55	87.2	1.83	1000	390	200	4,781,000	(42)	-
		(5,3),1	23.4	0.55	23.2	0.89		190	390	1,293,000 6,074,000	64	39
42		5,4	22.7	0.55	32.7	1.51	1100	160	160	4,781,000	37	43
43	S-10	5,3	32.9	0.55	105.0	2.47	600	350	110	4,086,000	(16)	-
		(5,3),1	28.5	0.55	48.4	1.54		240	350	2,195,000 6,281,000	33	45
44		2	27.2	0.55	26.5	0.24	700	1450	1100	1,445,000	533	20
		(2),5,3	32.9	0.55	105.0	2.47		350	1450	4,086,000 5,531,000	(184)	31
45		5,4	22.6	0.55	39.6	0.10	0	3890	3890	4,266,000	0	-
46	A-1	11	255.3	0.40	1623.0	0.38	0	6390	300	532,000	0	-
		(11),8	168.3	0.40	1178.2	0.38		6090	6390	2,316,000 2,868,000	0	-
47		11	255.3	0.40	1623.0	0.38	1400	6390	300	532,000	(761)	-
		(11),8	168.3	0.40	1178.2	0.38		6090	6390	2,316,000 2,868,000	3119	4
48	A-2	2,4	52.3	0.50	133.6	0.58	3300	1990	1990	3,234,000	2018	7
		7	53.6	0.55	106.9	0.83	900	1180	570	269,000	1907	10
49		(7),6	46.6	0.55	63.6	0.91		610	1030	1,092,000 1,361,000	681	19
		(7,6),4	35.7	0.55	12.2	0.58		150	1180	900,000 2,261,000	470	22
50		3,7	53.6	0.55	106.9	0.83	1600	1180	1180	1,523,000	1240	14
		10,9,5	31.5	0.65	52.5	1.14	600	460	290	254,000	685	18
51	A-4	(10,9,5) 6,7,4	26.4	0.65	21.8	1.14		170	460	724,000	465	23
		2	30.9	0.85	36.9	0.30	3100	1790	1020	1,385,000	2283	6
52	A-5	(2),3	34.0	0.85	56.1	1.00		770	1030	2,156,000 3,541,000	(902)	-
		(2,3),1	20.1	0.85	16.8	0.30		760	1790	921,000 4,462,000	1244	13

