

BOREHOLE NO. PH-6 N- E- TYPE OF DRILLING RY CONTRACTOR NPC
 LOCATION LANDSLIDE AREA ELEV. (COLLAR) 227.82 (GROUND)
(SPILLWAY AREA) INCLINATION DRILLING MACHINE JOY RAMROD
 DIRECTION VERTICAL STARTED ON JULY 7, 1988
 LOGGED BY J.C.F. TOTAL DEPTH 32.05 M. ENDED ON JULY 25, 1988 SCALE: 1:200

DEPTH (m.)	ELEVATION (m.)	CORE BARREL #	CASING #	WATER TABLE (m.)	SOIL TEST SPT N VALUES	TYPE OF SAMPLING	WEATHERING	HARDNESS	JOINTING	JOINT ROUGHNESS	CORE/ALTERNATE RECOVERY %	ROCK QUALITY DESIGNATION %	WPT RESULTS				CIRCULATION WATER	GRAPHICAL PROFILE	DESCRIPTION AND REMARKS
													5	10	15	20			
12.20	215.62																	SAND. LIGHT BROWN, LOOSE, DRY, SOFT, COMPOSED OF MEDIUM TO FINE GRAINED SAND. EASY DRILLING WITH BROWNISH RETURN WATER.	
2.05	195.77																	BRECCIA. LIGHT GRAY TO DARK GRAY WITH WHITE PATCHES, COMPOSED OF ANGULAR CLAST IN A FINE GRAINED MATRIX, ABUNDANT PHENOCRYST OF PLAGIOCLASE. DIFFICULT DRILLING WITH GRAYISH RETURN WATER.	
																		END OF HOLE	

SITE GEOLOGY:

JOINTING LESS THAN 1 JOINT/M - SLIGHTLY JOINTED 2 TO 5 JOINTS/M - JOINTED 6 TO 10 JOINTS/M - SIGNIFICANTLY JOINTED 11 TO 20 JOINTS/M - EXTREMELY JOINTED MORE THAN 20 JOINTS/M - CRUSHED		LEGEND: LITHOLOGY - SAND - BRECCIA - NO RETURN WATER		NATIONAL POWER CORPORATION ENGINEERING RESOURCE DEPT. GEOLOGY & GEOTECHNICAL SERVICES DIVISION ANGAT H.E. REHABILITATION PROJECT GRAPHICAL LOG BY: _____ DATE: _____ SUBMITTED: _____ CHECKED: _____ RECOMMENDED: _____ REVIEWED: _____ APPROVED: ROMEO M. PULANOC Manager, Geology & Rehabilitation			
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Table A5.1.1 Seepage through the Dyke (January 1987)

(Rain Adjust: -0 mm)

JAN. 87	L E A K A G E			R A I N F A L L							D A T A				
	SW-1 l/sec.	SW-2 l/sec.	SW-3 l/sec.	R00 mm	R01 mm	R02 mm	R03 mm	R04 mm	R05 mm	R10 mm	R20 mm	R35 mm			
DD															
01	214.28	19.26	13.82	31.55	1										
02	214.29	19.26	13.82	31.55	0										
03	214.24	19.26	13.82	31.55	0										
04	214.18	19.26	13.82	31.55	0										
05	214.10	19.26	13.82	31.55	0										
06	214.10	19.26	13.82	31.55	0										
07	213.99	19.26	13.82	31.55	0										
08	214.53	19.26	13.82	31.55	7										
09	214.73	19.26	13.82	31.55	3										
10	214.70	19.26	13.82	31.55	10										
11	214.63	19.26	13.82	31.55	0										
12	214.52	19.26	13.82	31.55	0										
13	214.43	19.26	13.82	31.55	0										
14	214.29	19.26	11.77	31.55	0										
15	214.18	19.26	11.77	31.55	0										
16	214.05	19.26	11.77	31.55	0										
17	213.89	19.26	11.77	31.55	0										
18	213.80	19.26	11.77	31.55	0										
19	213.68	19.26	11.77	31.55	0										
20	213.58	19.26	11.77	31.55	0										
21	213.44	19.26	11.77	31.55	0										
22	213.34	19.26	11.77	31.55	0										
23	213.21	19.26	11.77	31.55	0										
24	213.03	19.26	11.77	31.55	0										
25	212.94	19.26	11.77	31.55	0										
26	212.95	19.26	11.77	31.55	0										
27	213.03	19.26	11.77	31.55	0										
28	213.01	19.26	11.77	31.55	0										
29	212.97	19.26	11.77	31.55	0										
30	212.89	19.26	11.77	31.55	0										
31	212.80	19.26	11.77	31.55	0										

Table A5.1.2 Seepage through the Dyke (February 1987) (Rain Adjust: -0 mm)

FEB. 87	L E A K A G E			R A I N F A L L							D A T A				
	R.W.L. m	SW-1 l/sec.	SW-2 l/sec.	SW-3 l/sec.	R00 mm	R01 mm	R02 mm	R03 mm	R04 mm	R05 mm	R10 mm	R20 mm	R35 mm		
01	212.70	16.67	9.84	28.06	0	0	0	0	0	0	0	0	**		
02	212.61	16.67	9.84	28.06	0	0	0	0	0	0	0	0	**		
03	212.51	16.67	9.84	28.06	0	0	0	0	0	0	0	0	**		
04	212.42	16.67	9.84	28.06	0	0	0	0	0	0	0	0	**		
05	212.29	16.67	9.84	28.06	0	0	0	0	0	0	0	0	**		
06	212.15	16.67	6.35	28.06	0	0	0	0	0	0	0	0	21		
07	212.03	16.67	6.35	28.06	0	0	0	0	0	0	0	0	20		
08	211.87	14.30	6.35	28.06	0	0	0	0	0	0	0	0	20		
09	211.72	14.30	6.35	28.06	0	0	0	0	0	0	0	0	20		
10	211.54	14.30	6.35	24.81	0	0	0	0	0	0	0	0	20		
11	211.35	14.30	6.35	24.81	0	0	0	0	0	0	0	0	20		
12	211.16	14.30	6.35	24.81	0	0	0	0	0	0	0	0	20		
13	210.92	14.30	6.35	24.81	0	0	0	0	0	0	0	0	20		
14	210.70	14.30	6.35	24.81	0	0	0	0	0	0	0	0	13		
15	210.50	14.30	6.35	24.81	0	0	0	0	0	0	0	0	10		
16	210.29	10.22	6.35	24.81	0	0	0	0	0	0	0	0	0		
17	210.11	10.22	6.35	24.81	0	0	0	0	0	0	0	0	0		
18	209.90	10.22	6.35	24.81	0	0	0	0	0	0	0	0	0		
19	209.69	10.22	6.35	24.81	0	0	0	0	0	0	0	0	0		
20	209.45	10.22	6.35	24.81	0	0	0	0	0	0	0	0	0		
21	209.20	10.22	6.35	24.81	0	0	0	0	0	0	0	0	0		
22	208.72	10.22	6.35	24.81	0	0	0	0	0	0	0	0	0		
23	208.72	10.22	6.35	24.81	0	0	0	0	0	0	0	0	0		
24	208.50	10.22	6.35	24.81	0	0	0	0	0	0	0	0	0		
25	208.30	10.22	6.35	19.05	0	0	0	0	0	0	0	0	0		
26	208.07	10.22	6.35	19.05	0	0	0	0	0	0	0	0	0		
27	207.84	10.22	6.35	19.05	0	0	0	0	0	0	0	0	0		
28	207.54	10.22	6.35	19.05	0	0	0	0	0	0	0	0	0		

Table A5.1.1.3 Seepage through the Dyke (March 1987)

(Rain Adjust: -0 mm)

MAR. 87		L E A K A G E			Q			R A I N F A L L							D A T A				
DD	R.V.L. m	SW-1 1/sec.	SW-2 1/sec.	SW-3 1/sec.	R00 mm	R01 mm	R02 mm	R03 mm	R04 mm	R05 mm	R10 mm	R20 mm	R35 mm						
01	207.36	10.22	6.35	14.18	0	0	0	0	0	0	0	0	0						
02	207.12	10.22	6.35	14.18	0	0	0	0	0	0	0	0	0						
03	206.90	10.22	6.35	14.18	0	0	0	0	0	0	0	0	0						
04	206.67	10.22	6.35	14.18	0	0	0	0	0	0	0	0	0						
05	206.40	10.22	6.35	14.18	0	0	0	0	0	0	0	0	0						
06	206.13	10.22	6.35	14.18	0	0	0	0	0	0	0	0	0						
07	205.86	10.22	6.35	14.18	0	0	0	0	0	0	0	0	0						
08	205.59	10.22	6.35	14.18	0	0	0	0	0	0	0	0	0						
09	205.30	10.22	6.35	14.18	0	0	0	0	0	0	0	0	0						
10	205.01	10.22	6.35	14.18	0	0	0	0	0	0	0	0	0						
11	204.77	10.22	6.35	14.18	0	0	0	0	0	0	0	0	0						
12	204.46	10.22	6.35	14.18	0	0	0	0	0	0	0	0	0						
13	204.20	10.22	6.35	14.18	0	0	0	0	0	0	0	0	0						
14	203.97	10.22	6.35	14.18	5	0	0	0	0	0	0	0	0						
15	203.71	10.22	6.35	14.18	0	5	0	0	0	0	0	0	0						
16	203.44	10.22	6.35	10.17	0	0	5	0	0	0	0	0	0						
17	203.16	10.22	6.35	10.17	0	0	0	5	0	0	0	0	0						
18	202.93	6.96	6.35	10.17	0	0	0	0	5	0	0	0	0						
19	202.54	6.96	6.35	10.17	0	0	0	0	0	5	0	0	0						
20	202.29	6.96	6.35	10.17	0	0	0	0	0	0	5	0	0						
21	201.98	4.42	6.35	10.17	0	0	0	0	0	0	5	0	0						
22	201.69	4.42	3.43	6.93	0	0	0	0	0	0	5	0	0						
23	201.42	4.42	3.43	6.93	0	0	0	0	0	0	5	0	0						
24	201.09	4.42	3.43	6.93	0	0	0	0	0	0	5	0	0						
25	200.79	4.42	3.43	6.93	0	0	0	0	0	0	5	0	0						
26	200.51	4.42	3.43	6.93	0	0	0	0	0	0	0	5	0						
27	200.30	4.42	3.43	6.93	0	0	0	0	0	0	0	5	0						
28	200.12	4.42	3.43	6.93	0	0	0	0	0	0	0	5	0						
29	199.78	4.42	3.43	6.93	0	0	0	0	0	0	0	5	0						
30	199.70	4.42	3.43	6.93	0	0	0	0	0	0	0	5	0						
31	199.47	4.42	3.43	6.93	0	0	0	0	0	0	0	5	0						

Table A5.1.4 Seepage through the Dyke (April 1987)

(Rain Adjust: -0 mm)

APR.	87	L E A K A G E			R A I N F A L L							D A T A				
		R.W.L. m	SW-1 l/sec.	SW-2 l/sec.	SW-3 l/sec.	R00 mm	R01 mm	R02 mm	R03 mm	R04 mm	R05 mm	R10 mm	R20 mm	R35 mm		
01	199.31	4.42	3.43	6.93	1	0	0	0	0	0	0	0	5	0		
02	199.14	4.42	3.43	6.93	0	1	0	0	0	0	0	0	5	0		
03	198.96	2.54	3.43	6.93	0	0	1	0	0	0	0	0	5	0		
04	198.74	2.54	3.43	6.93	42	0	0	1	0	0	0	0	0	5		
05	198.53	2.54	3.43	6.93	0	42	0	0	1	0	0	0	0	5		
06	198.33	2.54	3.43	6.93	0	0	42	0	0	1	0	0	0	5		
07	198.17	2.54	3.43	4.41	0	0	0	42	0	0	1	0	0	5		
08	198.00	2.54	3.43	4.41	0	0	0	0	42	0	1	0	0	5		
09	197.84	2.54	3.43	4.41	0	0	0	0	0	42	1	0	0	5		
10	197.70	2.54	3.43	4.41	0	0	0	0	0	0	1	0	0	5		
11	197.54	2.54	3.43	4.41	0	0	0	0	0	0	43	0	0	5		
12	197.38	2.54	3.43	4.41	0	0	0	0	0	0	43	0	0	5		
13	197.22	2.54	3.43	4.41	0	0	0	0	0	0	42	1	1	5		
14	197.05	2.54	3.43	4.41	41	41	0	0	0	0	42	1	1	5		
15	196.88	2.54	3.43	4.41	0	0	41	0	0	0	0	1	1	5		
16	196.70	2.54	3.43	4.41	0	0	0	41	0	0	0	43	43	5		
17	196.55	2.54	3.43	4.41	0	0	0	0	41	0	0	43	43	5		
18	196.37	2.54	3.43	4.41	0	0	0	0	0	41	0	43	43	5		
19	196.25	2.54	3.43	4.41	0	0	0	0	0	0	41	43	43	5		
20	195.94	2.54	3.43	4.41	23	0	0	0	0	0	41	43	43	0		
21	195.75	2.54	3.43	4.41	0	23	0	0	0	0	41	43	43	0		
22	195.55	2.54	3.43	4.41	0	0	23	0	0	0	41	42	42	1		
23	195.37	2.54	3.43	2.54	0	0	0	23	0	0	41	42	42	1		
24	195.18	1.25	3.43	2.54	0	0	0	0	23	0	0	83	41	1		
25	194.98	1.25	3.43	2.54	0	0	0	0	0	23	0	41	41	43		
26	194.80	1.25	3.43	2.54	0	0	0	0	0	0	23	41	41	43		
27	194.62	1.25	3.43	2.54	0	0	0	0	0	0	23	41	41	43		
28	194.45	1.25	3.43	2.54	0	0	0	0	0	0	23	41	41	43		
29	194.27	1.25	3.43	2.54	0	0	0	0	0	0	23	41	41	43		
30	194.07	1.25	3.43	2.54	0	0	0	0	0	0	23	41	41	43		

Table A5.1.1.5 Seepage through the Dyke (May 1987)

(Rain Adjust: -0 mm)

MAY	87	L E A K A G E			R A I N F A L L							D A T A		
		SW-1 1/sec.	SW-2 1/sec.	SW-3 1/sec.	R00 mm	R01 mm	R02 mm	R03 mm	R04 mm	R05 mm	R10 mm	R20 mm	R35 mm	
DD	R.W.L. m													
01	193.88	1.25	3.43	2.54	0	0	0	0	0	0	0	64	43	
02	193.78	1.25	3.43	2.54	0	0	0	0	0	0	0	64	43	
03	193.52	1.25	3.43	2.54	0	0	0	0	0	0	0	64	43	
04	193.34	1.25	3.43	2.54	0	0	0	0	0	0	0	23	84	
05	193.17	1.25	3.43	2.54	0	0	0	0	0	0	0	23	84	
06	192.98	1.25	3.43	2.54	0	0	0	0	0	0	0	23	84	
07	192.82	0.47	3.43	1.25	0	0	0	0	0	0	0	23	83	
08	192.68	0.47	3.43	1.25	0	0	0	0	0	0	0	23	83	
09	192.53	0.47	3.43	1.25	0	0	0	0	0	0	0	23	83	
10	192.36	0.47	1.19	1.25	0	0	0	0	0	0	0	23	41	
11	192.20	0.47	1.19	1.25	0	0	0	0	0	0	0	0	64	
12	192.03	0.47	0	1.25	0	0	0	0	0	0	0	0	64	
13	191.88	0.47	0	1.25	0	0	0	0	0	0	0	0	64	
14	191.73	0.47	0	1.25	0	0	0	0	0	0	0	0	64	
15	191.59	0.47	0	1.25	3	0	0	0	0	0	0	0	64	
16	191.47	0.47	0	1.25	0	0	0	0	0	0	0	0	64	
17	191.35	0.47	0	1.25	0	3	0	0	0	0	0	0	64	
18	191.17	0.47	0	1.25	0	0	3	0	0	0	0	0	64	
19	191.01	0.47	0	1.25	33	0	0	3	0	0	0	0	23	
20	190.82	0.47	0	1.25	0	0	33	0	0	0	0	0	23	
21	190.64	0.47	0	1.25	0	0	0	0	0	0	0	0	23	
22	190.47	0.47	0	1.25	0	0	0	33	0	0	0	0	23	
23	190.33	0.47	0	1.25	0	0	0	0	33	0	0	0	23	
24	190.15	0.47	0	1.25	0	0	0	0	0	36	0	0	23	
25	189.99	0.47	0	1.25	0	0	0	0	0	36	0	0	23	
26	189.81	0.47	0	1.25	0	0	0	0	0	33	0	0	0	
27	189.63	0.47	0	1.25	1	0	0	0	0	33	0	0	0	
28	189.53	0.47	0	0.47	0	0	0	0	0	33	0	0	0	
29	189.41	0.47	0	0.47	0	1	0	0	0	33	0	0	0	
30	189.28	0.47	0	0.47	31	0	0	0	0	0	0	36	0	
31	189.13	0.47	0	0.47	18	31	0	0	0	0	0	36	0	
					0	18	0	1	0	0	0	36	0	

Table A5.1.6 Seepage through the Dyke (June 1987)

(Rain Adjust: -0 mm)

JUN.	87	L E A K A G E			R A I N F A L L										D A T A
		R.W.L. m	SW-1 l/sec.	SW-2 l/sec.	SW-3 l/sec.	R00 mm	R01 mm	R02 mm	R03 mm	R04 mm	R05 mm	R10 mm	R20 mm	R35 mm	
01	188.95	0.47	0	0.47	0	0	0	31	0	1	0	36	0		
02	188.76	0.47	0	0.47	0	0	18	0	31	0	1	36	0		
03	188.59	0.47	0	0.47	0	0	0	0	18	31	1	36	0		
04	188.43	0.47	0	0.47	0	0	0	0	0	18	32	36	0		
05	188.26	0.47	0	0.47	0	0	0	0	0	0	50	33	3		
06	188.08	0.47	0	0.47	0	0	0	0	0	0	50	33	3		
07	187.97	0.47	0	0.47	0	0	0	0	0	0	49	34	3		
08	187.50	0.47	0	0.47	0	50	0	0	0	0	49	1	36		
09	187.62	0.47	0	0.47	0	0	0	0	0	0	18	32	36		
10	187.47	0.47	0	0.47	0	8	0	0	0	0	0	50	36		
11	187.43	0.47	0	0.47	0	27	0	50	0	0	0	50	36		
12	187.48	0.47	0	0.47	0	51	0	0	50	0	0	50	36		
13	187.59	0.47	0	0.47	0	12	8	8	0	50	0	50	36		
14	187.57	0.47	0	0.47	0	88	27	27	8	0	50	50	36		
15	187.61	0.47	3.43	0.47	3.43	23	51	51	27	8	50	50	36		
16	187.58	0.47	3.43	0.47	3.43	19	12	12	51	27	50	50	36		
17	187.39	0.47	3.43	0.47	3.43	43	88	23	12	27	58	50	36		
18	187.10	0.47	1.19	0.47	1.19	5	88	23	12	51	85	49	37		
19	186.63	0.47	1.19	0.47	1.19	1	19	19	88	12	136	49	37		
20	186.20	0.47	1.19	0.47	1.19	3	43	19	23	88	98	68	68		
21	185.76	0.47	1.19	0.47	1.19	0	5	43	19	23	186	50	83		
22	185.30	0.47	1.19	0.47	1.19	0	1	5	19	43	201	58	83		
23	185.02	0.47	1.19	0.47	1.19	1	3	1	5	43	193	85	83		
24	184.68	0.47	1.19	0.47	1.19	0	0	3	1	5	185	136	50		
25	184.42	0.47	1.19	0.47	1.19	5	0	0	1	5	178	148	50		
26	184.24	0.47	1.19	0.47	1.19	51	1	1	0	3	91	236	50		
27	183.94	0.47	1.19	0.47	1.19	10	0	0	0	0	71	259	50		
28	183.97	0.47	1.19	0.47	1.19	7	51	5	1	0	52	278	50		
29	183.28	0.47	1.19	0.47	1.19	6	10	51	0	1	9	321	50		
30	183.09	0.47	1.19	0.47	1.19	9	7	10	5	0	5	276	100		
							6	7	10	5	4	277	100		

Table A5.1.1.7 Seepage through the Dyke (July 1987)

(Rain Adjust: -0 mm)

JUL. 87	L E A K A G E			R A I N F A L L							D A T A				
	R.W.L. m	SW-1 l/sec.	SW-2 l/sec.	SW-3 l/sec.	R00 mm	R01 mm	R02 mm	R03 mm	R04 mm	R05 mm	R10 mm	R20 mm	R35 mm		
01	182.92	0.47	3.43	6.93	17	9	6	7	10	51	6	272	108		
02	182.63	0.47	3.43	6.93	6	17	9	6	7	10	57	245	134		
03	182.38	0.47	3.43	2.54	0	6	17	9	6	7	67	194	185		
04	182.08	0.47	1.19	2.54	19	0	6	17	9	6	73	183	166		
05	181.82	0.47	1.19	2.54	4	19	0	6	17	9	79	95	236		
06	181.55	0.47	1.19	2.54	1	4	19	0	6	17	83	77	259		
07	181.27	0.47	1.19	2.54	0	1	4	19	0	6	49	109	278		
08	181.01	0.47	1.19	2.54	1	0	1	4	19	0	45	76	321		
09	180.75	0.47	1.19	2.54	1	1	0	1	4	19	38	78	326		
10	180.50	0.47	1.19	2.54	1	1	1	0	1	4	51	83	327		
11	180.25	0.47	1.19	2.54	12	1	1	1	0	1	46	89	330		
12	180.02	0.47	1.19	2.54	0	12	1	1	1	0	30	106	330		
13	179.82	0.47	1.19	2.54	24	0	12	1	1	1	24	112	330		
14	179.58	0.47	1.19	2.54	4	24	0	12	1	1	25	111	281		
15	179.43	0.47	1.19	2.54	3	4	24	0	12	1	7	130	281		
16	179.31	0.47	1.19	2.54	10	3	4	24	0	12	4	129	278		
17	179.14	0.47	1.19	2.54	2	10	3	4	24	0	15	79	302		
18	178.96	0.47	1.19	2.54	0	2	10	3	4	24	15	69	261		
19	178.79	0.47	1.19	2.54	17	0	2	10	3	4	38	63	256		
20	178.71	0.47	3.43	2.54	17	17	0	2	10	3	41	58	174		
21	178.62	0.47	3.43	6.93	19	17	17	0	2	10	43	50	160		
22	178.56	0.47	3.43	6.93	6	19	17	17	0	2	41	45	158		
23	178.41	0.47	3.43	6.93	0	6	19	17	17	0	43	39	121		
24	178.25	0.47	3.43	6.93	0	0	6	19	17	17	19	63	116		
25	178.14	0.47	3.43	4.41	0	0	0	0	6	19	32	48	134		
26	178.20	0.47	3.43	4.41	37	0	0	0	0	6	46	47	135		
27	178.16	0.47	1.19	4.41	14	37	0	0	0	6	55	56	136		
28	178.08	0.47	1.19	4.41	0	14	37	0	0	0	59	58	136		
29	177.98	0.47	1.19	4.41	2	0	14	37	0	0	59	57	136		
30	177.87	0.47	1.19	2.54	5	2	0	14	37	0	42	73	137		
31	177.85	0.47	1.19	2.54	2	5	2	0	14	37	25	89	133		

Table A5.1.8 Seepage through the Dyke (August 1987) (Rain Adjust: -0 mm)

AUG. 87	L E A K A G E			R A I N F A L L			D A T A						
	R.W.L. m	SW-1 l/sec.	SW-2 l/sec.	SW-3 l/sec.	R00 mm	R01 mm	R02 mm	R03 mm	R04 mm	R05 mm	R10 mm	R20 mm	R35 mm
01	177.76	0.47	1.19	2.54	8	2	5	2	0	14	43	96	94
02	177.65	0.47	1.19	2.54	7	8	2	5	2	0	51	102	84
03	177.54	0.47	1.19	2.54	0	7	8	2	5	2	51	78	101
04	177.42	0.47	1.19	2.54	0	0	7	8	2	5	53	74	99
05	177.31	0.47	1.19	2.54	1	0	0	7	8	2	58	71	93
06	177.23	0.47	1.19	2.54	26	1	0	0	7	8	23	98	86
07	177.20	0.47	1.19	2.54	7	26	1	0	0	7	17	110	82
08	177.33	0.47	6.35	14.18	44	7	26	1	0	0	24	110	82
09	177.48	0.47	9.84	14.18	39	44	7	26	1	0	22	95	80
10	177.50	0.47	6.35	14.18	2	39	44	7	26	1	17	83	93
11	177.42	1.25	6.35	14.18	29	2	39	44	7	26	16	66	111
12	177.40	1.25	6.35	14.18	0	29	2	39	44	7	34	68	117
13	178.72	2.54	6.35	14.18	32	0	29	2	39	44	34	75	116
14	179.12	1.25	6.35	10.17	13	32	0	29	2	39	78	75	115
15	179.35	1.25	6.35	10.17	3	13	32	0	29	2	117	75	114
16	179.53	1.25	3.43	10.17	10	3	13	32	0	29	118	39	139
17	179.91	1.25	6.35	10.17	4	10	3	13	32	0	121	51	153
18	181.13	1.25	6.35	14.18	43	4	10	3	13	32	114	58	129
19	182.32	2.54	6.35	19.05	66	43	4	10	3	13	102	100	127
20	182.86	2.54	6.35	10.17	0	66	43	4	10	3	76	134	129
21	183.18	2.54	6.35	10.17	14	0	66	43	4	10	77	134	121
22	183.45	2.54	6.35	10.17	37	14	0	66	43	4	58	155	127
23	183.64	2.54	6.35	10.17	24	37	14	0	66	43	62	148	134
24	183.75	2.54	6.35	10.17	0	24	37	14	0	66	73	180	117
25	183.80	2.54	6.35	10.17	0	0	24	37	14	0	126	193	100
26	183.81	2.54	6.35	10.17	14	14	0	24	37	14	123	195	82
27	183.80	1.25	3.43	6.93	0	14	0	0	24	37	160	179	102
28	183.85	1.25	3.43	6.93	11	0	14	0	0	24	176	176	109
29	183.91	1.25	3.43	4.41	2	11	0	14	0	0	141	175	153
30	184.00	1.25	3.43	4.41	11	2	11	0	14	0	75	202	192
31	184.10	1.25	3.43	4.41	0	11	2	11	0	14	75	200	157

Table A5.1.9 Seepage through the Dyke (September 1987) (Rain Adjust: -0 mm)

SEP.	87	L E A K A G E			Q	R A I N F A L L						D A T A						
		SW-1 1/sec.	SW-2 1/sec.	SW-3 1/sec.		R00 mm	R01 mm	R02 mm	R03 mm	R04 mm	R05 mm	R10 mm	R20 mm	R35 mm				
DD	R.W.L. m																	
01	183.99	1.25	6.35	6.93	23	0	11	2	11	0	11	0	11	0	75	185	172	
02	184.13	1.25	6.35	6.93	59	23	0	11	2	0	11	11	2	11	38	222	172	
03	184.69	1.25	6.35	6.93	0	59	23	0	11	23	0	11	2	25	214	202	202	
04	184.87	1.25	6.35	6.93	3	0	59	23	0	59	23	0	11	27	201	201	210	
05	184.90	1.25	6.35	6.93	3	3	0	59	23	0	59	0	11	38	198	198	211	
06	185.07	1.25	6.35	6.93	5	3	3	0	59	3	0	23	23	24	202	202	213	
07	185.48	1.25	6.35	6.93	41	5	3	3	0	3	3	3	59	47	198	198	210	
08	186.09	1.25	6.35	6.93	9	41	5	3	3	3	3	3	0	95	166	166	253	
09	186.44	1.25	3.43	6.93	2	9	41	5	3	41	5	3	3	93	102	102	319	
10	186.60	1.25	3.43	6.93	2	2	9	41	5	9	41	41	3	85	113	113	318	
11	186.73	1.25	3.43	6.93	0	2	2	2	41	2	9	5	3	88	99	99	306	
12	186.83	1.25	3.43	6.93	0	2	2	2	41	2	2	2	41	70	85	85	336	
13	186.93	1.25	3.43	6.93	16	0	0	2	2	2	2	2	2	52	120	120	316	
14	187.01	1.25	3.43	6.93	2	16	0	0	2	0	0	0	2	61	120	120	277	
15	187.05	1.25	3.43	6.93	0	2	16	0	0	16	0	0	2	60	123	123	275	
16	187.10	1.25	3.43	6.93	2	2	2	0	0	2	0	0	2	59	112	112	260	
17	187.30	1.25	3.43	6.93	23	2	0	2	16	0	2	0	0	54	117	117	260	
18	187.66	1.25	3.43	6.93	0	23	2	0	2	2	0	16	2	13	147	147	239	
19	187.91	1.25	3.43	6.93	0	0	23	2	2	2	2	2	2	20	154	154	228	
20	188.17	1.25	3.43	4.41	0	0	0	23	2	0	23	2	0	20	145	145	236	
21	188.34	1.25	3.43	2.54	29	0	0	0	23	0	0	23	2	18	147	147	226	
22	188.42	1.25	3.43	2.54	0	29	0	0	0	0	0	0	2	20	124	124	245	
23	188.48	1.25	1.19	2.54	0	0	29	0	0	29	0	0	0	43	65	65	261	
24	188.51	1.25	1.19	2.54	0	0	0	0	0	0	0	0	0	27	81	81	195	
25	188.53	1.25	1.19	2.54	0	0	0	0	0	0	0	0	0	25	80	80	198	
26	188.52	1.25	1.19	2.54	0	0	0	0	0	0	0	0	29	25	77	77	187	
27	188.51	0.47	1.19	2.54	9	0	0	0	0	0	0	0	0	52	74	74	155	
28	188.52	0.47	1.19	2.54	0	9	0	0	0	0	0	0	0	29	56	56	172	
29	188.51	0.47	1.19	2.54	4	0	9	0	0	9	0	0	0	29	47	47	181	
30	188.57	0.47	1.19	2.54	18	4	0	9	0	0	9	0	0	29	45	45	183	

Table A5.1.10 Seepage through the Dyke (October 1987) (Rain Adjust: -0 mm)

OCT. 87	L E A K A G E			Q	R A I N F A L L										D A T A					
	R.W.L. m	SW-1 l/sec.	SW-2 l/sec.		SW-3 l/sec.	R00 mm	R01 mm	R02 mm	R03 mm	R04 mm	R05 mm	R10 mm	R20 mm	R35 mm						
DD																				
01	188.75	0.47	1.19	2.54	21	18	4	0	0	9	0	0	0	0	29	43	171			
02	188.86	0.47	1.19	2.54	0	21	18	4	0	0	9	0	0	0	0	72	171			
03	188.87	0.47	1.19	2.54	0	0	21	18	0	4	0	0	0	0	9	72	160			
04	188.86	0.47	1.19	2.54	0	0	0	0	0	18	4	0	0	0	9	56	174			
05	189.03	0.47	1.19	2.54	19	0	0	0	0	21	18	0	0	13	31	54	165			
06	189.13	0.47	1.19	2.54	20	19	0	0	0	0	21	0	0	52	54	165				
07	189.12	0.47	1.19	2.54	1	20	19	0	0	0	0	0	0	52	52	144				
08	189.14	0.47	1.19	2.54	5	1	20	19	0	0	0	0	0	43	38	108				
09	189.41	0.47	1.19	2.54	0	5	1	20	0	19	0	0	0	43	38	108				
10	189.73	0.47	1.19	2.54	1	0	5	1	0	20	19	0	0	39	42	105				
11	189.82	0.47	1.19	2.54	0	1	0	0	5	1	20	0	0	40	60	102				
12	189.79	0.47	1.19	2.54	7	0	1	0	0	5	1	0	0	39	52	126				
13	189.74	0.47	1.19	2.54	0	7	0	0	0	0	5	0	0	40	52	85				
14	189.61	0.47	1.19	2.54	1	0	7	0	0	1	5	0	0	45	52	76				
15	189.58	0.47	1.19	2.54	6	1	0	0	0	0	5	0	0	45	52	74				
16	189.50	0.47	1.19	2.54	0	6	0	0	0	0	1	0	0	45	52	72				
17	189.72	0.47	1.19	2.54	0	6	1	0	0	7	0	0	0	27	71	72				
18	189.71	0.47	1.19	2.54	0	0	6	0	0	0	0	0	0	7	91	81				
19	189.68	0.47	1.19	2.54	0	0	0	0	0	1	6	0	0	8	83	65				
20	189.65	0.47	1.19	2.54	0	0	0	0	0	0	0	0	0	9	88	67				
21	189.71	0.47	1.19	2.54	0	0	0	0	0	0	6	0	0	9	84	85				
22	189.71	0.47	1.19	2.54	3	0	0	0	0	0	0	0	0	14	67	85				
23	189.66	0.47	1.19	1.25	0	3	0	0	0	0	0	0	0	14	46	104				
24	189.57	0.47	1.19	1.25	3	0	3	0	0	0	0	0	0	7	53	81				
25	189.48	0.47	1.19	1.25	0	3	0	0	0	0	0	0	0	7	53	81				
26	189.39	0.47	1.19	1.25	0	0	3	0	0	0	0	0	0	6	54	81				
27	189.41	0.47	1.19	1.25	2	0	3	0	0	3	0	0	0	0	41	100				
28	189.41	0.47	1.19	1.25	3	2	0	0	0	0	3	0	0	0	21	91				
29	189.53	0.47	1.19	1.25	6	3	2	0	0	0	0	0	0	3	20	92				
30	190.02	0.47	1.19	2.54	2	6	3	0	0	0	3	0	0	3	15	97				
31	190.60	0.47	1.19	2.54	7	2	6	2	2	2	0	0	0	6	15	97				

Table A5.1.11 Seepage through the Dyke (November 1987)

(Rain Adjust: -0 mm)

NOV.	87	L E A K A G E			R A I N F A L L							D A T A		
		R.W.L. m	SW-1 l/sec.	SW-2 l/sec.	SW-3 l/sec.	R00 mm	R01 mm	R02 mm	R03 mm	R04 mm	R05 mm	R10 mm	R20 mm	R35 mm
01	191.22	0.47	1.19	2.54	13	7	2	6	3	2	6	14	98	
02	191.56	0.47	1.19	2.54	2	13	7	2	6	3	5	10	96	
03	192.15	0.47	1.19	2.54	11	2	13	7	2	6	8	10	96	
04	192.73	0.47	1.19	2.54	0	11	2	13	7	2	11	12	93	
05	193.14	0.47	1.19	2.54	3	0	11	2	13	7	13	6	81	
06	193.52	0.47	1.19	2.54	0	3	0	11	2	13	20	6	60	
07	193.74	1.25	1.19	2.54	0	0	3	0	11	2	31	8	60	
08	193.80	1.25	1.19	2.54	0	0	0	3	0	11	30	11	60	
09	193.84	1.25	1.19	4.41	0	0	0	0	3	0	35	17	60	
10	193.84	1.25	1.19	4.41	0	0	0	0	0	3	33	19	41	
11	193.83	1.25	1.19	2.54	0	0	0	0	0	0	29	26	21	
12	193.80	1.25	1.19	2.54	1	0	0	0	0	0	16	36	23	
13	193.76	1.25	1.19	2.54	0	1	0	0	0	0	14	38	18	
14	193.70	1.25	1.19	2.54	0	0	1	0	0	0	3	46	21	
15	193.63	1.25	1.19	2.54	3	0	0	1	0	0	3	46	20	
16	194.07	1.25	1.19	2.54	14	3	0	0	1	0	0	49	20	
17	195.70	1.25	1.19	2.54	70	14	3	0	0	1	0	47	15	
18	197.32	1.25	3.43	4.41	13	70	14	3	0	0	1	44	18	
19	197.88	1.25	3.43	4.41	0	13	70	14	3	0	1	38	23	
20	198.19	1.25	3.43	2.54	0	0	13	14	14	3	1	36	19	
21	198.41	1.25	3.43	6.93	24	0	0	70	70	14	4	29	26	
22	198.92	1.25	3.43	6.93	15	24	0	0	13	14	18	16	39	
23	199.53	1.25	3.43	6.93	9	15	24	0	0	13	87	15	41	
24	200.30	1.25	6.35	6.93	9	9	15	24	0	0	100	4	52	
25	201.19	1.25	6.35	6.93	0	9	9	15	24	0	100	4	52	
26	201.64	10.22	13.82	14.18	84	0	9	9	15	24	97	4	55	
27	203.99	10.22	13.82	14.18	7	84	0	9	15	24	107	18	52	
28	204.74	10.22	9.84	14.18	2	7	84	0	9	15	52	88	52	
29	205.15	10.22	9.84	14.18	0	2	7	84	0	9	48	101	49	
30	205.41	10.22	9.84	14.18	0	0	2	7	84	0	57	101	49	

Table A5.1.1.12 Seepage through the Dyke (December 1987) (Rain Adjust: -0 mm)

DEC.	87	L E A K A G E			R A I N F A L L						D A T A		
		SW-1 l/sec.	SW-2 l/sec.	SW-3 l/sec.	R00 mm	R01 mm	R02 mm	R03 mm	R04 mm	R05 mm	R10 mm	R20 mm	R35 mm
DD	R.W.L. m												
01	205.58	10.22	9.84	14.18	0	0	0	2	7	84	57	101	49
02	205.71	10.22	9.84	14.18	0	0	0	0	2	7	117	125	47
03	205.73	10.22	9.84	14.18	0	0	0	0	0	2	109	139	45
04	205.76	10.22	9.84	14.18	0	0	0	0	0	0	102	148	39
05	205.97	10.22	9.84	14.18	39	0	0	0	0	0	93	157	37
06	206.44	10.22	9.84	14.18	2	39	0	0	0	0	93	154	33
07	206.65	10.22	9.84	14.18	0	2	39	0	0	0	9	224	34
08	206.82	10.22	9.84	14.18	0	0	2	39	0	0	2	161	102
09	206.86	14.30	9.84	19.05	0	0	0	2	39	0	0	150	104
10	207.15	14.30	9.84	19.05	59	0	0	0	0	39	0	150	104
11	208.20	14.30	9.84	19.05	0	59	0	0	0	2	41	150	101
12	208.45	14.30	9.84	19.05	0	0	59	0	0	0	41	126	125
13	208.60	14.30	9.84	19.05	0	0	0	59	0	0	41	111	140
14	208.66	14.30	9.84	19.05	0	0	0	0	59	0	41	102	149
15	208.79	14.30	9.84	19.05	0	0	0	0	0	59	41	93	158
16	209.00	14.30	9.84	19.05	0	0	0	0	0	0	61	132	158
17	209.06	14.30	9.84	24.08	0	0	0	0	0	0	59	50	242
18	209.38	14.30	9.84	24.08	66	0	0	0	0	0	59	43	248
19	210.86	14.30	9.84	24.08	1	66	0	0	0	0	59	41	250
20	211.45	14.30	13.82	24.08	0	1	66	0	0	0	59	41	250
21	211.73	14.30	13.82	24.08	0	0	1	66	0	0	0	100	247
22	212.01	14.30	13.82	24.08	3	0	0	1	66	0	0	100	233
23	212.30	14.30	13.82	24.08	1	3	0	0	1	66	0	100	163
24	212.98	14.30	13.82	24.08	40	1	3	0	0	1	66	100	150
25	214.53	19.26	13.82	24.08	1	40	1	3	0	0	67	100	150
26	214.89	19.26	13.82	31.55	1	1	40	1	3	0	67	61	189
27	215.03	19.26	13.82	31.55	1	1	1	40	3	0	67	59	167
28	215.05	19.26	13.82	31.55	0	1	1	1	1	1	70	59	152
29	214.92	19.26	13.82	31.55	0	0	1	1	40	40	5	125	143
30	214.72	19.26	13.82	31.55	1	0	1	1	1	1	44	126	134
31	214.45	19.26	13.82	31.55	1	1	0	0	1	1	45	67	193

Table A5.1.13 Seepage through the Dyke (January 1988) (Rain Adjust: -0 mm)

JAN. 88	L E A K A G E			R A I N F A L L							D A T A		
	R.W.L. m	SW-1 l/sec.	SW-2 l/sec.	SW-3 l/sec.	R00 mm	R01 mm	R02 mm	R03 mm	R04 mm	R05 mm	R10 mm	R20 mm	R35 mm
01	214.25	19.26	13.82	31.55	0	1	1	0	0	1	46	67	109
02	214.11	19.26	13.82	31.55	0	0	1	1	0	0	44	70	102
03	214.04	19.26	13.82	31.55	0	0	0	1	1	0	43	71	100
04	214.00	19.26	13.82	31.55	0	0	0	0	1	1	3	111	100
05	213.95	19.26	13.82	31.55	0	0	0	0	1	1	3	112	100
06	213.98	19.26	13.82	31.55	5	0	0	0	0	0	3	113	100
07	214.08	19.26	13.82	31.55	1	5	0	0	0	0	2	114	100
08	214.05	19.26	13.82	24.81	0	1	5	0	0	0	2	48	166
09	214.07	19.26	13.82	24.81	1	0	1	5	0	0	2	47	167
10	214.07	19.26	13.82	24.81	1	1	0	1	5	0	1	48	128
11	214.14	19.26	13.82	24.81	0	1	1	0	1	5	0	49	126
12	214.03	19.26	13.82	24.81	0	0	1	1	0	1	5	46	129
13	213.85	19.26	13.82	24.81	0	0	0	1	1	0	6	45	130
14	213.66	19.26	13.82	24.81	0	0	0	0	1	1	6	5	170
15	213.46	19.26	9.84	24.81	0	0	0	0	0	1	7	4	112
16	213.44	19.26	9.84	19.05	11	0	0	0	0	0	8	3	113
17	213.96	19.26	9.84	19.05	4	11	0	0	0	0	8	7	114
18	214.22	19.26	9.84	19.05	3	4	11	0	0	0	3	8	114
19	214.21	19.26	9.84	19.05	0	3	4	11	0	0	2	8	114
20	214.21	19.26	9.84	19.05	0	0	3	4	11	0	1	8	115
21	214.19	*****	*****	*****	0	0	0	3	4	11	0	8	116
22	214.13	*****	*****	*****	0	0	0	0	0	4	11	8	116
23	214.06	*****	*****	*****	0	0	0	0	0	3	15	8	50
24	214.04	*****	*****	*****	2	0	0	0	0	0	18	8	49
25	214.11	*****	*****	*****	9	2	0	0	0	0	18	8	49
26	214.16	*****	*****	*****	0	9	2	0	0	0	18	8	49
27	214.13	*****	*****	*****	0	0	9	2	0	0	7	14	51
28	214.10	*****	*****	*****	0	0	0	9	0	0	3	17	51
29	214.03	*****	*****	*****	0	0	0	0	2	0	0	20	11
30	213.98	*****	*****	*****	0	0	0	0	9	2	0	19	11
31	213.89	*****	*****	*****	0	0	0	0	0	11	11	18	11

Table A5.1.14 Seepage through the Dyke (February 1988) (Rain Adjust: -0 mm)

FEB.	88	L E A K A G E			Q	R A I N F A L L							D A T A						
		SW-1 l/sec.	SW-2 l/sec.	SW-3 l/sec.		R00 mm	R01 mm	R02 mm	R03 mm	R04 mm	R05 mm	R10 mm	R20 mm	R35 mm					
DD	R.W.L. m																		
01	213.75	19.26	9.84	31.55	0	0	0	0	0	0	0	0	0	0	11	18	10		
02	213.58	19.26	9.84	31.55	0	0	0	0	0	0	0	0	0	0	11	18	10		
03	213.40	19.26	9.84	31.55	0	0	0	0	0	0	0	0	0	0	11	18	10		
04	213.29	19.26	9.84	31.55	0	0	0	0	0	0	0	0	0	0	9	20	9		
05	213.16	19.26	9.84	31.55	0	0	0	0	0	0	0	0	0	0	0	29	8		
06	212.96	19.26	9.84	31.55	0	0	0	0	0	0	0	0	0	0	0	18	19		
07	212.82	19.26	9.84	31.55	0	0	0	0	0	0	0	0	0	0	0	14	23		
08	212.67	19.26	9.84	31.55	0	0	0	0	0	0	0	0	0	0	0	11	26		
09	212.49	19.26	9.84	24.81	0	0	0	0	0	0	0	0	0	0	0	11	26		
10	212.32	19.26	9.84	24.81	0	0	0	0	0	0	0	0	0	0	0	11	26		
11	212.14	19.26	9.84	24.81	0	0	0	0	0	0	0	0	0	0	0	11	21		
12	211.98	19.26	9.84	24.81	0	0	0	0	0	0	0	0	0	0	0	11	20		
13	211.83	19.26	9.84	24.81	0	0	0	0	0	0	0	0	0	0	0	11	20		
14	211.64	19.26	9.84	24.81	1	0	0	0	0	0	0	0	0	0	0	9	21		
15	211.61	19.26	9.84	24.81	3	1	0	0	0	0	0	0	0	0	0	0	29		
16	211.66	19.26	9.84	24.81	0	3	1	0	0	0	0	0	0	0	0	0	29		
17	211.92	19.26	9.84	24.81	9	0	3	1	0	0	0	0	0	0	0	0	29		
18	212.17	19.26	9.84	24.81	2	9	0	3	0	0	0	0	0	0	0	0	29		
19	212.50	19.26	9.84	24.81	0	2	9	0	0	0	0	0	0	0	0	0	29		
20	212.61	19.26	9.84	24.81	2	0	2	9	0	0	0	0	0	0	0	0	29		
21	212.62	19.26	9.84	24.81	1	2	0	2	0	0	0	0	0	0	1	0	18		
22	212.63	19.26	9.84	24.81	0	1	2	0	0	0	0	0	0	0	4	0	14		
23	212.55	19.26	9.84	24.81	0	0	1	2	0	0	0	0	0	0	4	0	11		
24	212.49	19.26	9.84	24.81	0	0	0	1	0	0	0	0	0	0	13	0	11		
25	212.41	19.26	9.84	24.81	0	0	0	1	0	0	0	0	0	0	15	0	11		
26	212.38	19.26	9.84	24.81	0	0	0	0	0	0	0	0	0	0	14	1	11		
27	212.34	19.26	9.84	24.81	0	0	0	0	0	0	0	0	0	0	13	4	11		
28	212.25	19.26	9.84	24.81	0	0	0	0	0	0	0	0	0	0	14	4	11		
29	212.10	19.26	9.84	24.81	0	0	0	0	0	0	0	0	0	0	5	13	11		
															3	15	9		

Table A5.1.15. Seepage through the Dyke (March 1988) (Rain Adjust: -0 mm)

MAR. 88	L E A K A G E			R A I N F A L L							D A T A				
	R.W.L. m	SW-1 l/sec.	SW-2 l/sec.	SW-3 l/sec.	R00 mm	R01 mm	R02 mm	R03 mm	R04 mm	R05 mm	R10 mm	R20 mm	R35 mm		
01	211.90	19.26	9.84	24.81	0	0	0	0	0	0	3	15	0		
02	211.73	19.26	9.84	24.81	0	0	0	0	0	0	1	17	0		
03	211.55	19.26	9.84	24.81	0	0	0	0	0	0	0	18	0		
04	211.36	19.26	9.84	24.81	0	0	0	0	0	0	0	18	0		
05	211.16	19.26	9.84	24.81	0	0	0	0	0	0	0	18	0		
06	210.96	19.26	9.84	24.81	0	0	0	0	0	0	0	17	1		
07	210.77	14.30	9.84	24.81	0	0	0	0	0	0	0	14	4		
08	210.56	14.30	9.84	24.81	1	0	0	0	0	0	0	14	4		
09	210.39	14.30	9.84	24.81	0	1	0	0	0	0	0	15	13		
10	210.26	14.30	9.84	24.81	0	0	1	0	0	0	0	3	15		
11	210.07	14.30	9.84	24.81	0	0	0	1	0	0	0	3	15		
12	209.90	14.30	9.84	24.81	0	0	0	0	0	0	0	1	17		
13	209.68	14.30	9.84	24.81	0	0	0	0	1	0	0	0	18		
14	209.44	14.30	9.84	24.81	0	0	0	0	0	0	0	0	18		
15	209.21	14.30	9.84	24.81	0	0	0	0	0	0	1	0	18		
16	208.97	14.30	9.84	24.81	0	0	0	0	0	0	1	0	18		
17	208.83	14.30	9.84	24.81	0	0	0	0	0	0	1	0	18		
18	208.60	14.30	9.84	24.81	0	0	0	0	0	0	1	0	18		
19	208.35	14.30	9.84	24.81	0	0	0	0	0	0	1	0	18		
20	208.11	14.30	9.84	24.81	0	0	0	0	0	0	0	1	18		
21	207.89	14.30	9.84	19.05	0	0	0	0	0	0	0	1	17		
22	207.67	14.30	9.84	19.05	0	0	0	0	0	0	0	1	14		
23	207.54	14.30	9.84	19.05	0	0	0	0	0	0	0	1	14		
24	207.36	14.30	9.84	19.05	0	0	0	0	0	0	0	1	5		
25	207.15	14.30	9.84	19.05	0	0	0	0	0	0	0	1	3		
26	206.97	10.22	9.84	19.05	0	0	0	0	0	0	0	1	3		
27	206.77	10.22	6.35	19.05	0	0	0	0	0	0	0	1	1		
28	206.59	10.22	6.35	14.18	0	0	0	0	0	0	0	1	0		
29	206.35	10.22	6.35	14.18	0	0	0	0	0	0	0	0	1		
30	206.14	10.22	6.35	14.18	0	0	0	0	0	0	0	0	1		
31	205.96	10.22	6.35	14.18	0	0	0	0	0	0	0	0	1		

Table A5.1.1.16 Seepage through the Dyke (April 1988)

(Rain Adjust: -0 mm)

DD	APR. 88	L E A K A G E			R A I N F A L L			D A T A						
		R.W.L. m	SW-1 l/sec.	SW-2 l/sec.	SW-3 l/sec.	R00 mm	R01 mm	R02 mm	R03 mm	R04 mm	R05 mm	R10 mm	R20 mm	R35 mm
01	205.71	10.22	6.35	14.18	0	0	0	0	0	0	0	0	0	1
02	205.49	10.22	6.35	14.18	0	0	0	0	0	0	0	0	0	1
03	205.25	10.22	6.35	14.18	0	0	0	0	0	0	0	0	0	1
04	205.09	10.22	6.35	14.18	0	0	0	0	0	0	0	0	0	1
05	204.93	10.22	6.35	14.18	0	0	0	0	0	0	0	0	0	1
06	204.72	10.22	6.35	14.18	0	0	0	0	0	0	0	0	0	1
07	204.54	10.22	6.35	14.18	0	0	0	0	0	0	0	0	0	1
08	204.39	10.22	6.35	14.18	2	0	0	0	0	0	0	0	0	1
09	204.39	10.22	6.35	14.18	12	2	0	0	0	0	0	0	0	1
10	204.44	10.22	6.35	14.18	0	12	2	0	0	0	0	0	0	1
11	204.38	10.22	6.35	14.18	0	0	12	2	0	0	0	0	0	1
12	204.44	10.22	6.35	14.18	0	0	0	12	2	0	0	0	0	1
13	204.39	10.22	6.35	10.17	25	0	0	0	12	2	0	0	0	0
14	204.29	10.22	6.35	10.17	0	25	0	0	0	12	0	0	0	0
15	204.22	10.22	6.35	10.17	0	0	25	0	0	0	2	0	0	0
16	204.17	10.22	6.35	10.17	0	0	0	25	0	0	14	0	0	0
17	204.09	10.22	6.35	10.17	0	0	0	0	25	0	14	0	0	0
18	203.96	10.22	6.35	10.17	0	0	0	0	0	25	14	0	0	0
19	203.79	6.96	6.35	10.17	0	0	0	0	0	0	14	2	0	0
20	203.63	6.96	6.35	10.17	0	0	0	0	0	0	37	14	0	0
21	203.46	6.96	6.35	10.17	0	0	0	0	0	0	25	14	0	0
22	203.26	6.96	6.35	10.17	0	0	0	0	0	0	25	14	0	0
23	203.07	6.96	6.35	10.17	0	0	0	0	0	0	25	14	0	0
24	202.87	6.96	6.35	10.17	3	0	0	0	0	0	25	14	0	0
25	203.10	6.96	6.35	10.17	5	3	0	0	0	0	0	39	0	0
26	203.15	6.96	6.35	10.17	0	5	3	0	0	0	0	39	0	0
27	203.06	6.96	6.35	10.17	0	0	5	3	0	0	0	39	0	0
28	202.92	6.96	6.35	10.17	0	0	0	5	3	0	0	39	0	0
29	202.78	6.96	6.35	10.17	0	0	0	0	3	5	0	39	0	0
30	202.61	6.96	6.35	10.17	0	0	0	0	5	0	3	37	2	14

Table A5.1.17 Seepage through the Dyke (May 1988) (Rain Adjust: -0 mm)

MAY	88	L E A K A G E			Q	R A I N F A L L										D A T A										
		SW-1 1/sec.	SW-2 1/sec.	SW-3 1/sec.		R00 mm	R01 mm	R02 mm	R03 mm	R04 mm	R05 mm	R10 mm	R20 mm	R35 mm												
DD	R.W.L. m																									
01	202.44	6.96	6.35	10.17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	14	
02	202.24	6.96	6.35	10.17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	14
03	202.07	6.96	6.35	6.93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	14
04	201.89	6.96	6.35	6.93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
05	201.71	6.96	6.35	6.93	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
06	201.51	6.96	6.35	6.93	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
07	201.30	6.96	6.35	6.93	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
08	201.09	6.96	6.35	6.93	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
09	200.88	6.96	3.43	6.93	6	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	39
10	200.67	6.96	3.43	6.93	0	6	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	39
11	200.43	6.96	3.43	6.93	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
12	200.22	6.96	3.43	6.93	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
13	200.02	6.96	3.43	6.93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
14	199.89	6.96	3.43	6.93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
15	199.75	6.96	3.43	6.93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
16	199.59	4.42	3.43	6.93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33
17	199.51	4.42	3.43	6.93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33
18	199.37	2.54	3.43	6.93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33
19	199.26	2.54	3.43	6.93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
20	199.15	2.54	3.43	6.93	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
21	199.10	2.54	3.43	6.93	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
22	199.05	2.54	3.43	6.93	32	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
23	199.01	2.54	3.43	6.93	1	32	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
24	198.91	2.54	3.43	6.93	2	1	32	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
25	198.81	2.54	1.19	6.93	0	2	1	32	1	1	32	1	1	32	1	6	0	0	0	0	0	0	0	0	0	8
26	198.79	2.54	1.19	6.93	0	0	2	1	32	2	1	2	1	32	1	1	32	1	1	1	32	1	32	1	6	28
27	198.76	2.54	1.19	6.93	10	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	28
28	198.73	4.42	6.35	10.17	8	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
29	198.76	4.42	6.35	10.17	30	8	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
30	198.97	4.42	6.35	10.17	63	30	8	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31
31	199.26	4.42	9.84	10.17	37	63	30	8	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26

Table A5.1.1.18 Seepage through the Dyke (June 1988)

(Rain Adjust: -0 mm)

JUN.	88	L E A K A G E			R A I N F A L L							D A T A				
		SW-1 l/sec.	SW-2 l/sec.	SW-3 l/sec.	R00 mm	R01 mm	R02 mm	R03 mm	R04 mm	R05 mm	R10 mm	R20 mm	R35 mm			
DD	R.W.L. m															
01	199.50	10.17	6.35	14.18	21	37	63	30	8	10	35	7	26			
02	200.11	10.17	6.35	14.18	66	21	37	63	30	8	13	39	26			
03	200.80	6.96	13.82	14.18	39	66	21	37	63	30	20	40	26			
04	200.89	6.96	13.82	14.18	19	39	66	21	37	63	48	42	26			
05	200.85	6.96	13.82	14.18	12	19	39	66	21	37	111	42	26			
06	200.67	6.96	13.82	14.18	0	12	19	39	66	21	148	42	26			
07	200.38	6.96	13.82	14.18	8	0	12	19	39	66	159	52	26			
08	200.05	6.96	13.82	14.18	1	8	0	12	19	39	217	60	26			
09	199.77	6.96	9.84	14.18	1	1	8	0	12	19	226	90	26			
10	199.51	6.96	9.84	14.18	26	1	1	8	0	12	182	147	12			
11	199.41	6.96	9.84	14.18	27	26	1	1	8	0	157	183	13			
12	*****	6.96	9.84	14.18	*****	27	26	1	1	8	136	172	45			
13	*****	6.96	9.84	14.18	*****	27	27	26	1	1	78	237	46			
14	*****	6.96	9.84	14.18	*****	27	27	26	26	1	40	274	42			
15	*****	6.96	9.84	14.18	*****	27	27	27	27	26	22	293	42			
16	*****	4.42	6.35	9.17	*****	27	27	27	27	27	36	305	42			
17	*****	4.42	6.35	7.67	*****	27	27	27	27	27	63	295	52			
18	*****	4.42	6.35	7.17	*****	27	27	27	27	27	*****	295	60			
19	*****	4.42	6.35	6.67	*****	27	27	27	27	27	*****	266	90			
20	*****	4.42	6.35	6.17	*****	27	27	27	27	27	*****	204	153			
21	*****	2.54	3.43	5.67	*****	27	27	27	27	27	*****	193	190			
22	194.65	2.54	3.43	5.33	*****	27	27	27	27	27	*****	199	211			
23	194.22	2.54	3.43	6.50	6	6	6	6	6	6	*****	*****	277			
24	193.81	2.54	3.43	4.83	4	4	4	4	4	4	*****	*****	316			
25	193.32	2.54	3.43	4.50	0	0	0	0	0	0	*****	*****	329			
26	192.78	2.54	3.43	4.50	1	1	1	1	1	1	*****	*****	340			
27	192.37	1.25	3.43	4.50	19	19	19	19	19	19	*****	*****	308			
28	192.10	1.25	3.43	4.33	1	1	1	1	1	1	*****	*****	315			
29	191.61	1.25	3.43	4.00	2	1	19	1	0	6	*****	*****	314			
30	181.19	1.25	3.43	3.83	2	2	1	19	1	0	*****	*****	315			

Table A5.1.19 Seepage through the Dyke (July 1988) (Rain Adjust: -0 mm)

JUL. 88	L E A K A G E			R A I N F A L L							D A T A		
	R.W.L. m	SW-1 l/sec.	SW-2 l/sec.	SW-3 l/sec.	R00 mm	R01 mm	R02 mm	R03 mm	R04 mm	R05 mm	R10 mm	R20 mm	R35 mm
01	191.01	1.25	3.43	3.50	8	2	2	1	19	1	***	***	341
02	190.89	1.25	3.43	3.33	39	8	2	2	1	19	17	***	358
03	190.69	1.25	3.43	3.17	0	39	8	2	2	1	30	***	***
04	190.53	1.25	1.19	3.00	1	0	39	8	2	2	27	***	***
05	190.38	1.25	1.19	3.33	0	1	0	39	2	2	23	***	***
06	190.18	1.25	1.19	5.17	4	0	1	0	8	8	25	***	***
07	190.00	1.25	1.19	4.00	0	4	0	1	0	39	32	***	***
08	189.73	1.25	1.19	8.00	5	0	4	0	1	0	52	***	***
09	189.61	1.25	1.19	6.17	12	5	0	4	1	1	51	***	***
10	189.38	1.25	1.19	6.00	15	12	5	0	0	0	50	***	***
11	189.24	1.25	1.19	6.00	2	15	5	5	0	4	48	***	***
12	189.30	1.25	1.19	5.50	39	2	12	12	5	0	44	49	***
13	189.22	1.25	1.19	9.83	19	39	15	15	12	5	82	82	***
14	189.00	1.25	1.19	21.83	12	19	2	2	15	12	10	78	***
15	188.74	1.25	1.19	***	5	12	39	2	2	15	21	73	***
16	188.53	1.25	1.19	***	2	5	19	19	2	2	36	73	***
17	188.26	1.25	6.35	***	41	2	12	12	39	39	34	76	***
18	188.59	1.25	6.35	***	43	41	5	5	19	19	57	57	***
19	188.56	1.25	6.35	***	0	43	2	2	12	12	61	61	***
20	188.29	1.25	6.35	***	1	0	41	41	5	5	87	71	***
21	188.14	1.25	3.43	***	1	1	43	43	2	2	87	84	***
22	187.99	1.25	3.43	***	2	1	0	0	41	41	77	78	***
23	187.96	1.25	6.35	***	36	2	1	1	43	43	78	78	***
24	187.88	2.54	9.84	***	0	36	1	1	0	0	97	97	***
25	187.89	2.54	9.84	***	26	0	2	2	1	1	103	103	***
26	187.89	2.54	9.84	***	13	26	0	36	1	1	91	108	***
27	187.80	2.54	9.84	***	0	13	26	0	2	2	87	113	***
28	187.74	2.54	6.35	***	16	0	13	26	36	2	86	111	93
29	188.10	2.54	6.35	***	28	16	0	26	0	36	47	152	87
30	188.24	2.54	6.35	***	2	28	0	13	26	0	40	190	88
31	188.14	2.54	6.35	***	0	2	28	16	13	26	40	178	94
											65	164	109

Table A5.1.20. Seepage through the Dyke (August 1988) (Rain Adjust: -0 mm)

AUG. 88		L E A K A G E Q			R A I N F A L L										D A T A		
DD	R.W.L. m	SW-1 l/sec.	SW-2 l/sec.	SW-3 l/sec.	R00 mm	R01 mm	R02 mm	R03 mm	R04 mm	R05 mm	R10 mm	R20 mm	R35 mm				
01	188.04	**	**	**	1	0	2	28	16	0	77	163	110				
02	187.88	**	**	**	0	1	0	2	28	16	75	126	130				
03	187.72	**	**	**	0	0	1	0	2	28	55	143	148				
04	187.70	**	**	**	0	0	0	1	0	2	83	131	158				
05	187.78	**	**	**	43	0	0	0	1	0	59	152	161				
06	187.74	**	**	**	5	43	0	0	0	1	46	163	155				
07	187.62	**	**	**	18	5	43	0	0	0	47	122	157				
08	187.65	**	**	**	20	18	5	43	0	0	31	95	200				
09	187.76	**	**	**	7	20	18	5	43	0	3	123	199				
10	187.81	**	**	**	0	7	20	18	5	43	1	124	200				
11	187.82	**	**	**	0	0	7	20	18	5	44	123	197				
12	187.83	**	**	**	0	0	0	7	20	18	48	122	199				
13	187.81	**	**	7.83	0	0	0	0	7	20	66	86	230				
14	187.79	**	**	7.33	13	13	0	0	0	7	86	86	218				
15	187.79	**	**	6.83	12	13	0	0	0	0	93	60	229				
16	188.02	**	**	7.00	14	12	13	0	0	0	50	90	240				
17	188.11	**	**	10.00	10	14	12	13	0	0	45	95	201				
18	187.95	**	**	14.17	0	10	14	12	13	0	27	97	198				
19	187.75	**	**	8.83	0	0	10	14	12	13	20	89	214				
20	187.59	**	**	8.00	0	0	0	10	14	12	25	94	211				
21	187.31	**	**	7.50	0	0	0	0	10	14	39	94	209				
22	187.08	**	**	6.67	0	0	0	0	0	10	49	93	169				
23	186.80	**	**	6.33	37	0	0	0	0	0	49	93	126				
24	186.61	**	**	6.83	12	12	37	0	0	0	36	106	126				
25	186.41	**	**	7.00	0	12	12	37	0	0	24	118	125				
26	186.28	**	**	7.17	12	0	12	12	37	0	10	89	167				
27	186.11	**	**	8.67	6	12	12	12	12	37	0	94	170				
28	185.98	**	**	6.83	0	6	12	12	12	37	0	76	152				
29	185.92	**	**	6.67	13	0	6	12	12	12	37	56	172				
30	185.88	**	**	12.83	58	13	0	6	12	12	49	49	153				
31	185.77	**	**	16.67	20	58	13	0	6	12	49	49	140				
		**	**	25.67	11	20	58	13	0	6	61	49					

Table A5.1.21 Seepage through the Dyke (September 1988)

(Rain Adjust: -0 mm)

SEP.	88	L E A K A G E			R A I N F A L L							D A T A		
		SW-1 l/sec.	SW-2 l/sec.	SW-3 l/sec.	R00 mm	R01 mm	R02 mm	R03 mm	R04 mm	R05 mm	R10 mm	R20 mm	R35 mm	
DD	R.W.L. m													
01	185.67	2.54	6.35	18.25	0	11	20	58	13	0	67	49	140	
02	185.64	2.54	6.35	16.98	9	0	11	20	58	13	30	86	124	
03	185.47	2.54	6.35	12.07	1	9	0	11	20	58	31	85	109	
04	185.26	2.54	6.35	10.90	6	1	9	0	11	20	89	73	119	
05	184.94	2.54	6.35	13.30	13	6	1	9	0	11	97	71	133	
06	184.87	1.25	6.35	11.67	1	13	6	1	9	0	102	67	142	
07	184.76	1.25	6.35	10.52	0	1	13	6	1	9	102	67	142	
08	184.66	1.25	6.35	9.97	0	0	1	13	1	9	98	80	142	
09	184.34	1.25	6.35	*****	0	0	0	1	13	6	41	138	142	
10	184.21	1.25	6.35	*****	14	0	0	0	1	13	27	158	99	
11	184.11	1.25	6.35	*****	0	14	0	0	1	13	29	169	94	
12	183.98	1.25	3.43	*****	0	0	14	0	0	0	30	132	113	
13	183.82	1.25	3.43	*****	0	0	0	14	0	0	21	129	105	
14	183.75	1.25	3.43	*****	0	0	0	0	14	0	20	130	98	
15	183.67	1.25	3.43	*****	33	0	0	0	0	14	14	124	110	
16	183.57	1.25	3.43	*****	9	33	0	0	0	0	15	131	116	
17	183.45	1.25	3.43	*****	0	9	33	0	0	0	14	132	116	
18	183.42	1.25	3.43	*****	10	0	9	33	0	0	14	119	116	
19	183.34	1.25	3.43	*****	0	10	0	9	33	0	14	61	162	
20	183.46	1.25	3.43	*****	15	0	10	0	9	33	14	41	168	
21	183.52	1.25	3.43	*****	16	15	0	10	9	9	33	44	169	
22	183.46	1.25	3.43	*****	0	16	15	0	10	9	42	44	169	
23	183.43	1.25	3.43	*****	18	0	16	15	0	10	42	35	178	
24	183.36	1.25	3.43	*****	6	18	0	16	15	0	52	34	179	
25	183.30	1.25	3.43	*****	1	6	18	0	16	15	52	28	185	
26	183.27	*****	*****	*****	0	1	6	18	0	16	34	48	198	
27	183.29	*****	*****	*****	9	0	1	6	18	0	41	56	162	
28	183.28	*****	*****	*****	9	9	0	1	18	0	41	56	150	
29	183.28	*****	*****	*****	13	9	9	0	6	18	49	66	150	
30	183.22	*****	*****	*****	18	13	9	9	0	1	55	66	138	

Table A5.1.22 Seepage through the Dyke (October 1988) (Rain Adjust: -0 mm)

OCT. 88	L E A K A G E			R A I N F A L L										D A T A		
	R.W.L. m	SW-1 l/sec.	SW-2 l/sec.	SW-3 l/sec.	R00	R01	R02	R03	R04	R05	R10	R20	R35			
DD					mm	mm	mm	mm	mm	mm	mm	mm	mm			
01	183.21	1.25	3.43	*****	0	18	13	9	9	0	41	67	146			
02	183.23	1.25	3.43	*****	3	0	18	13	9	9	25	83	146			
03	183.27	1.25	3.43	*****	9	3	0	18	13	9	34	83	133			
04	183.24	1.25	3.43	*****	0	9	3	0	18	13	25	101	75			
05	183.33	2.54	3.43	*****	0	0	9	3	0	18	32	107	55			
06	183.47	2.54	6.35	*****	15	0	0	9	3	0	49	75	77			
07	183.51	2.54	6.35	*****	4	15	0	0	9	3	49	66	86			
08	184.85	2.54	6.35	*****	22	4	15	0	0	9	43	75	77			
09	186.95	2.54	6.35	*****	58	22	4	15	0	0	43	74	86			
10	188.14	2.54	6.35	*****	35	58	22	4	15	0	30	87	80			
11	189.31	4.42	13.82	*****	3	35	58	22	4	15	12	90	82			
12	190.39	4.42	13.82	*****	42	3	35	58	22	4	27	74	97			
13	195.58	4.42	13.82	*****	23	42	3	35	58	22	28	77	97			
14	196.59	14.30	13.82	*****	168	23	42	3	35	58	41	68	115			
15	197.36	14.30	13.82	*****	8	168	23	42	3	35	99	62	121			
16	198.11	14.30	13.82	*****	6	8	168	23	42	3	134	61	108			
17	198.71	14.30	13.82	*****	1	6	8	168	23	42	122	76	108			
18	*****	14.30	13.82	*****	22	1	6	8	168	23	160	71	117			
19	*****	10.22	13.82	*****	22	22	1	6	8	168	161	84	126			
20	*****	10.22	13.82	*****	2	22	22	1	6	8	271	129	139			
21	*****	2.54	13.82	*****	32	2	22	22	1	6	244	146	124			
22	*****	*****	*****	*****	0	32	2	22	22	1	247	149	115			
23	*****	*****	*****	*****	0	0	32	2	22	22	206	188	118			

Table A.6.1.1 Cost Breakdown of Angat Rehabilitation Work

No. 1

Estimate of Unit Price

Cement Grouting : 560t

(Peso 22.00/US\$)

Description	Specification	Unit	Estimated Quantity	Unit Price (Peso)	Amount (Peso)	Note
1. Equipment						
Grout mixer	200 ϕ x 2 2.2KW	day	185	328.24	60,724	
Grout pump	37~100 ϕ /min 75KW	day	185	682.44	126,251	
contingency	(5 %)				9,349	
Sub-total					<u>196,324</u>	
2. Labour						
Foreman		day	185	256	47,360	
Skilled		day	370	120	44,400	
Unskilled		day	740	100	74,000	
Helper		day	835	100	83,500	
Sub-total					<u>249,260</u>	
3. Electricity						
Electricity		Kwh	10,767	1.02	10,982	
Sub-total					<u>10,982</u>	
4. Material						
Cement		t	560	1,350	756,000	
Sub-total					<u>756,000</u>	
5. Temporary Facilities (25%)						
		L.S.	1		303,142	
6. Field Administration (10%)						
		L.S.	1		121,257	
7. General Administration (15%)						
		L.S.	1		181,885	
Total						
					<u>1,818,850</u>	
			☆☆	(per t)	Peso 3,248	☆☆

Table A.6.1.2 Cost Breakdown of Angat Rehabilitation Work

No. 2

Estimate of Unit PriceMortar Grouting ($V = 50 \text{ m}^3$)

(Peso 22.00/US\$)

Description	Specification	Unit	Estimated Quantity	Unit Price (Peso)	Amount (Peso)	Note
1. Equipment						
Grout mixer	200 ϕ x 2 2.2KW	day	25	328.24	8,206	
Grout pump	37~100 ϕ /min 75KW	day	35	682.44	23,885	
contingency	(5 %)				1,605	
Sub-total					<u>33,696</u>	
2. Labour						
Foreman		day	35	256	8,960	
Skilled		day	35	120	4,200	
Unskilled		day	70	100	7,000	
Helper		day	100	100	10,000	
Sub-total					<u>30,160</u>	
3. Material						
Cement		t	30	1,350	40,500	
Sand		m^3	70	130	9,100	
Sub-total					<u>49,600</u>	
4. Electricity						
Electricity		KWh	300	1.02	306	
Sub-total					<u>306</u>	
5. Temporary Facilities (25%)						
		L.S.	1		28,441	
6. Field Administration (10%)						
		L.S.	1		11,376	
7. General Administration (15%)						
		L.S.	1		17,064	
Total						
					<u>170,643</u>	
			☆☆	(per t)	Peso 3,413	☆☆

Table A.6.1.3 Cost Breakdown of Angat Rehabilitation Work

No. 3

Estimate of Unit PriceClearing & Grubbing V = 16,000 m²

(Peso 22.00/US\$)

Description	Specification	Unit	Estimated Quantity	Unit Price (Peso)	Amount (Peso)	Note
1. Equipment						
Bulldozer	D7	hr	89	1,320	117,480	
Dump Truck	11 ton	hr	1,000	352	352,000	
Tractor Shovel	1.2 m ³	hr	89	506	45,034	
Sub-total					<u>514,514</u>	
2. Labour						
Foreman		hr	89	32.25	2,870	
Skilled		hr	89	15.00	1,335	
Operator		hr	1,178	17.13	20,179	
Helper		hr	1,778	12.50	22,225	
Sub-total					<u>46,609</u>	
3. Fuel						
Diesel		l	29,314	4.70	137,776	
Sub-total					<u>137,776</u>	
4. Temporary Facilities (25%)		L.S.	1		174,725	
5. Field Administration (10%)		L.S.	1		69,890	
6. General Administration (15%)		L.S.	1		104,835	
Total					<u>1,048,349</u>	
				☆☆ (per m ²)	Peso 66☆☆	

Table A.6.1.4 Cost Breakdown of Angat Rehabilitation Work

No. 4

Estimate of Unit PriceExcavation - 1 (to embankment) $V = 17,600 \text{ m}^3$

(Peso 22.00/US\$)

Description	Specification	Unit	Estimated Quantity	Unit Price (Peso)	Amount (Peso)	Note
1. Equipment						
Bulldozer	D7	hr	196	1,320	258,720	
Dump Truck	11 ton	hr	880	352	309,760	
Tractor Shovel	1.2 m^3	hr	196	506	99,176	
Sub-total					<u>667,656</u>	
2. Labour						
Foreman		hr	196	32.25	6,321	
Skilled		hr	196	15.00	2,940	
Unskilled		hr	588	12.50	7,350	
Operator		hr	1,272	17.13	21,789	
Sub-total					<u>38,400</u>	
3. Fuel						
Diesel		Q	28,856	4.70	135,623	
Sub-total					<u>135,623</u>	
4. Temporary Facilities (25%)						
		L.S.	1		210,420	
5. Field Administration (10%)						
		L.S.	1		84,168	
6. General Administration (15%)						
		L.S.	1		126,252	
Total						
					<u>1,262,519</u>	
				☆☆ (per m^3)	Peso 72☆☆	

Table A.6.1.5 Cost Breakdown of Angat Rehabilitation Work

No. 5

Estimate of Unit Price

Excavation - 2 (to disposal area) $V = 2,700 \text{ m}^3$

(Peso 22.00/US\$)

Description	Specification	Unit	Estimated Quantity	Unit Price (Peso)	Amount (Peso)	Note
1. Equipment						
Bulldozer	D7	hr	30	1,320	39,600	
Dump Truck	11 ton	hr	338	352	118,976	
Tractor Shovel	1.2 m^3	hr	30	506	15,180	
Sub-total					<u>173,756</u>	
2. Labour						
Foreman		hr	30	32.25	968	
Skilled		hr	30	15.00	450	
Unskilled		hr	60	12.50	750	
Operator		hr	398	17.13	6,818	
Sub-total					<u>8,986</u>	
3. Fuel						
Diesel		l	9,906	4.70	46,558	
Sub-total					<u>46,558</u>	
4. Temporary Facilities (25%)						
		L.S.	1		57,325	
5. Field Administration (10%)						
		L.S.	1		22,930	
6. General Administration (15%)						
		L.S.	1		34,395	
Total					<u>343,950</u>	
				☆☆ (per m^3)	Peso 127☆☆	

Table A.6.1.6 Cost Breakdown of Angat Rehabilitation Work

No. 6

Estimate of Unit Price

Embankment (Spreading and Compaction) V = 19,200 m³

(Peso 22.00/US\$)

Description	Specification	Unit	Estimated Quantity	Unit Price (Peso)	Amount (Peso)	Note
1. Equipment						
Bulldozer	D8	hr	209	1,320	275,880	
Vibrating roller	11 ton	hr	108	550	59,400	
Sub-total					<u>335,280</u>	
2. Labour						
Foreman		hr	104	32.25	3,354	
Skilled		hr	209	15.00	3,135	
Helper		hr	490	12.50	6,125	
Operator		hr	245	17.13	4,197	
Sub-total					<u>16,811</u>	
3. Fuel						
Diesel		l	5,058	4.70	23,773	
Sub-total					<u>23,773</u>	
4. Temporary Facilities (25%)		L.S.	1		93,966	
5. Field Administration (10%)		L.S.	1		37,586	
6. General Administration (15%)		L.S.	1		56,380	
Total					<u>563,796</u>	
				☆☆ (per m ³)	Peso 29☆☆	

Table A.6.1.7 Cost Breakdown of Angat Rehabilitation Work

No. 7

Estimate of Unit PriceTrench Excavation V = 4,900 m³

(Peso 22.00/US\$)

Description	Specification	Unit	Estimated Quantity	Unit Price (Peso)	Amount (Peso)	Note
1. Equipment						
Backhoe	1 m ³	hr	70	1,100	77,000	
Dump Truck	11 ton	hr	613	352	215,776	
Sub-total					<u>292,776</u>	
2. Labour						
Foreman		hr	70	32.25	2,258	
Skilled		hr	70	15.00	1,050	
Unskilled		hr	210	12.50	2,625	
Operator		hr	683	17.13	11,700	
Sub-total					<u>17,633</u>	
3. Fuel						
Diesel		l	17,811	4.70	83,712	
Sub-total					<u>83,712</u>	
4. Temporary Facility (25%)						
			1		98,530	
5. Field Administration (10%)						
		L.S.	1		39,412	
6. General Administration (15%)						
		L.S.	1		59,118	
Total						
					<u>591,181</u>	
				☆☆ (per m ³)	Peso 121☆☆	

Table A.6.1.8 Cost Breakdown of Angat Rehabilitation Work

No. 8

Estimate of Unit Price

Gabion V = 1, 545 m³

(Peso 22.00/US\$)

Description	Specification	Unit	Estimated Quantity	Unit Price (Peso)	Amount (Peso)	Note
1. Material						
Wire mesh	4 kg/unit	kg	4,120	22.68	93,442	
Cobble stone		m ³	1,545	250.00	386,250	
Miscellaneous	(2 %)	L.S.	1		9,594	
Sub-total					489,286	
2. Equipment						
Truck		hr	454	230.00	104,420	
Sub-total					104,420	
3. Fuel						
Diesel		ℓ	7,151	4.70	33,610	
Sub-total					33,610	
4. Labour						
Skilled		hr	412	15.00	6,180	
Unskilled		hr	1,236	12.50	15,450	
Operator		hr	454	17.13	7,777	
Sub-total					29,407	
5. Temporary Facilities (25%)		L.S.	1		164,181	
6. Field Administration (10%)		L.S.	1		65,672	
7. General Administration (15%)		L.S.	1		98,508	
Total					985,084	
				☆☆ (per m ³)	Peso 638☆☆	

Table A.6.1.9 Cost Breakdown of Angat Rehabilitation Work

No. 9

Estimate of Unit Price

Cobble stone $V = 1,950 \text{ m}^3$

(Peso 22.00/US\$)

Description	Specification	Unit	Estimated Quantity	Unit Price (Peso)	Amount (Peso)	Note
1. Material						
Cobble stone		m^3	1,950	230.00	448,500	
Sub-total					<u>448,500</u>	
2. Equipment						
Truck		hr	574	230.00	132,020	
Sub-total					<u>132,020</u>	
3. Fuel						
Diesel		l	9,041	4.70	42,493	
Sub-total					<u>42,493</u>	
4. Labour						
Skilled		hr	3,467	15.00	52,005	
Unskilled		day	10,400	12.5	130,000	
Operator		hr	574	17.13	9,833	
Sub-total					<u>191,838</u>	
5. Temporary Facilities (25%)		L.S.	1		203,713	
6. Field Administration (10%)		L.S.	1		81,485	
7. General Administration (15%)		L.S.	1		122,228	
Total					<u>1,222,277</u>	
				☆☆ (per m^3)	Peso 627	☆☆

Table A.6.1.10-1 Cost Breakdown of Angat Rehabilitation Work

No. 10-1

Estimate of Unit PriceConcrete $V = 710 \text{ m}^3$

(Peso 22.00/US\$)

Description	Specification	Unit	Estimated Quantity	Unit Price (Peso)	Amount (Peso)	Note
1. Equipment						
Temporary Mixer	(41KW)	mon.	2	8,148	16,296	
Truck mixer	3 m^3	hr	150	399	59,850	
Truck	6 - 8 (271HP)	hr	219	230	50,370	
Miscellaneous	(10 %)	L.S.	1		12,652	
Sub-total					<u>139,168</u>	
2. Material						
Cement		t	284	1,350	383,400	
Sand		m^3	243	130	31,590	
Gravel		m^3	501	250	125,250	
Miscellaneous	(10 %)		1		54,024	
Sub-total					<u>594,264</u>	
3. Labour						
Foreman		day	25	256	6,400	
Skilled		day	100	120	12,000	
Unskilled		day	200	100	20,000	
Carpentor	(Specialist)	day	150	137	20,550	
Operator		day	78	137	10,686	
Sub-total					<u>69,636</u>	
4. Fuel & Electricity						
Diesel		l	8,311	4.70	39,062	
Electricity		KWh	21,150	1.02	21,573	
Sub-total					<u>60,635</u>	
5. Temporary Facilities (25%)						
		L.S.	1		215,926	
6. Field Administration (10%)						
		L.S.	1		86,370	

Table A.6.1.10-2 Cost Breakdown of Angat Rehabilitation Work

No. 10-2

Description	Specification	Unit	Estimated Quantity	Unit Price (Peso)	Amount (Peso)	Note
7. General Administration	(15%)	L.S.	1		129,555	
Total					1,295,554	
			☆☆	(per m ³)	Peso 1,825	☆☆

Table A.6.1.11 Cost Breakdown of Angat Rehabilitation Work

No. 11

Estimate of Unit Price

Re-bar (33 ton)

(Peso 22.00/US\$)

Description	Specification	Unit	Estimated Quantity	Unit Price (Peso)	Amount (Peso)	Note
1. Equipment						
Truck	(175 HP)	hr	20	230	4,600	
Crane	11 ton	hr	20	484	9,680	
Miscellaneous	(20 %)	L.S.	1		2,856	
Sub-total					<u>17,136</u>	
2. Material						
Re-bar		t	33	12,100	399,300	
Miscellaneous	(20 %)				79,860	
Sub-total					<u>479,160</u>	
3. Labour						
Foreman		day	35	256	8,960	
Specialist		day	35	137	4,795	
Skilled			175	120	21,000	
Operator		hr	40	137	5,480	
Unskilled		hr	105	100	10,500	
Sub-total					<u>50,735</u>	
4. Fuel						
Diesel		l	729	4.70	3,426	
Sub-total					<u>3,426</u>	
5. Temporary Facility	(25%)				137,614	
6. Field Administration	(10%)	L.S.	1		55,046	
7. General Administration	(15%)	L.S.	1		82,569	
Total					<u>825,686</u>	
				☆☆ (per t)	Peso 25,021	☆☆

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