



YEARLY TABLE OF DAILY WATER LEVEL

Year (19/6)

River System Belonging to	S. S. C. C. G. C.		River		G. L. W. A. N. G.		Station		T. A. R. C. H. / M. A. K. A. T. E.				
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1-	0.33	0.10	0.11	0.11	0.53	0.26	1.13	1.67	0.31	0.19	0.13	0.11	0.11
2-	0.37	0.10	0.11	0.13	0.20	0.23	0.51	0.73	0.27	0.33	0.11	0.10	0.10
3-	0.33	0.10	0.13	0.13	0.11	0.23	0.27	0.33	0.27	0.13	0.11	0.10	0.10
4-	0.35	0.13	0.25	0.09	0.91	0.23	0.27	0.13	0.23	0.69	0.11	0.10	0.10
5-	0.10	0.13	0.20	0.10	0.67	0.30	3.18	0.15	0.20	0.37	0.11	0.10	0.10
6-	0.10	0.12	0.40	0.13	0.80	0.55	1.83	0.71	0.20	0.95	0.12	0.10	0.10
7-	0.37	0.11	0.43	0.63	0.83	3.20	1.23	0.11	0.18	0.31	0.10	0.10	0.10
8-	0.10	0.11	0.13	0.13	0.43	3.61	1.03	0.61	0.18	0.30	0.10	0.10	0.10
9-	0.10	0.12	0.20	0.10	0.80	2.90	4.87	0.83	0.18	0.32	0.11	0.10	0.10
10-	0.36	0.12	0.18	0.30	0.80	2.96	5.24	0.59	0.27	0.35	0.10	0.10	0.10
11-	0.33	0.13	0.13	0.30	0.20	1.10	3.97	0.19	0.19	0.33	0.11	0.10	0.10
12-	0.26	0.13	0.13	0.30	0.33	3.34	2.23	0.27	0.11	1.29	0.11	0.10	0.10
13-	0.26	0.13	0.13	0.33	0.33	3.23	3.11	0.23	0.14	0.93	0.11	0.10	0.10
14-	0.26	0.13	0.11	0.28	0.33	3.03	3.67	0.20	0.14	2.53	0.11	0.10	0.10
15-	0.23	0.13	0.35	0.37	0.13	7.20	2.37	0.27	0.11	1.57	0.11	0.10	0.10
16-	0.27	0.18	1.18	0.15	0.33	1.33	1.80	0.11	0.11	1.34	0.11	0.10	0.10
17-	0.13	0.11	0.43	0.30	0.30	1.33	1.13	0.37	0.17	1.70	0.11	0.10	0.10
18-	0.15	0.13	0.20	0.39	0.30	1.03	0.13	0.33	0.22	0.30	0.11	0.10	0.10
19-	0.13	0.11	0.19	0.34	0.23	0.93	0.63	0.35	0.20	0.23	0.11	0.10	0.10
20-	0.11	0.13	0.16	0.33	0.13	3.37	0.53	0.31	0.20	0.20	0.11	0.10	0.10
21-	0.11	0.11	0.27	0.21	0.11	1.23	0.37	0.30	0.20	0.20	0.11	0.10	0.10
22-	0.11	0.11	0.23	0.29	0.11	0.33	0.37	0.30	0.20	0.20	0.11	0.10	0.10
23-	0.11	0.11	0.20	0.63	0.11	0.33	0.39	0.10	0.18	0.29	0.11	0.10	0.10
24-	0.11	0.11	0.27	0.36	0.13	0.69	0.39	0.30	0.18	0.23	0.11	0.10	0.10
25-	0.10	0.11	0.23	0.10	0.12	0.79	0.32	4.73	0.18	0.20	0.11	0.10	0.10
26-	0.11	0.11	0.10	0.10	0.10	0.37	0.37	0.59	0.18	0.13	0.11	0.10	0.10
27-	0.11	0.11	0.11	0.10	0.12	0.40	1.37	0.27	0.20	0.27	0.11	0.10	0.10
28-	0.11	0.12	0.14	1.33	0.30	0.37	0.39	0.20	0.20	0.30	0.11	0.10	0.10
29-	0.11	0.12	0.13	1.30	0.37	0.75	0.56	0.53	0.20	0.10	0.11	0.10	0.10
30-	0.13	-	0.11	0.13	0.33	2.32	0.23	0.34	0.20	0.10	0.11	0.10	0.10
31-	0.11	-	0.10	-	0.11	-	0.27	0.34	-	0.13	-	0.10	0.10
Total	1.22	3.12	11.57	12.05	28.20	75.84	31.31	20.27	3.93	25.71	10.25	3.71	3.71
Average	0.23	0.12	0.37	0.10	0.30	1.53	1.34	0.27	0.20	0.23	0.11	0.10	0.10
Max	0.16	0.13	1.10	1.33	1.57	3.67	5.87	4.73	0.27	3.67	0.33	0.11	0.10
Min	0.10	0.10	0.10	0.09	0.11	0.13	0.20	0.10	0.10	0.10	0.10	0.10	0.10

YEARLY TABLE OF DAILY WATER LEVEL

Year (1977)

River System Belonging to	SMTT Gauge		River		GILKANG		Station		THANIPPAHGE				
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Day/ Month													
1	0.93	1.47	1.88	1.67	1.49	1.63	2.96	1.14	1.28	0.88	0.33	0.27	
2	0.97	1.95	1.99	1.70	1.91	1.77	2.93	1.20	1.37	1.15	0.33	0.23	
3	0.96	1.48	1.85	1.75	1.49	1.75	2.91	1.12	1.22	1.15	0.33	0.27	
4	1.06	1.57	1.84	1.58	1.43	1.71	2.88	1.57	1.27	1.07	0.37	0.27	
5	1.24	1.53	1.74	1.57	1.65	1.73	2.78	1.53	1.19	1.11	0.33	0.27	
6	1.41	1.59	1.94	1.52	1.54	1.70	2.70	1.71	1.20	1.01	0.37	0.27	
7	1.32	1.65	2.01	2.05	1.52	1.73	2.53	1.32	1.03	1.02	0.30	0.27	
8	1.37	1.67	1.76	2.02	1.81	1.60	2.80	1.22	0.97	0.97	0.33	0.23	
9	1.36	1.71	2.13	1.95	1.75	1.58	2.75	1.15	0.97	0.95	0.30	0.20	
10	1.67	1.63	2.25	1.90	1.65	1.54	2.70	1.05	0.86	0.82	0.37	0.13	
11	1.73	1.65	2.08	1.62	1.52	1.52	2.64	1.10	0.90	0.96	0.30	0.27	
12	1.15	1.56	2.04	1.77	1.30	1.72	2.55	1.13	1.05	1.04	0.33	0.23	
13	1.70	1.50	1.94	1.71	1.16	1.57	2.50	2.07	1.15	1.10	0.33	0.23	
14	1.52	1.45	1.85	1.73	1.16	1.60	2.41	1.87	1.25	1.06	0.33	0.23	
15	1.73	1.41	1.83	1.73	1.12	1.61	2.31	1.55	1.35	1.07	0.30	0.23	
16	1.40	1.64	1.79	1.71	1.15	1.67	2.30	1.55	1.22	0.92	0.30	0.23	
17	1.35	1.71	1.63	1.51	1.11	1.61	2.25	1.57	1.22	1.15	0.33	0.23	
18	1.35	1.84	1.82	1.63	1.49	1.67	2.24	1.53	1.23	1.12	0.30	0.23	
19	1.40	1.93	1.81	1.82	1.45	1.54	2.19	1.45	1.22	1.10	0.33	0.27	
20	1.53	1.93	1.93	1.84	1.57	1.57	2.14	1.40	1.20	1.03	0.47	0.23	
21	1.73	1.93	1.87	1.55	1.45	1.52	2.08	1.41	1.27	0.95	0.44	0.23	
22	1.54	2.07	1.91	1.85	1.61	1.60	2.03	1.30	0.95	0.92	0.30	0.23	
23	1.63	1.83	1.91	1.85	1.62	1.60	2.04	1.27	0.87	0.97	0.33	0.27	
24	1.63	1.93	1.86	1.85	1.52	1.61	1.97	1.22	0.81	0.94	0.34	0.20	
25	1.70	1.95	1.84	1.84	1.55	1.57	1.87	1.21	0.84	0.81	0.30	0.23	
26	1.71	1.96	1.84	1.74	1.55	1.56	1.84	1.21	1.07	0.92	0.33	0.27	
27	1.74	1.92	1.84	1.72	1.44	1.50	1.81	1.21	1.26	0.99	0.37	0.23	
28	1.66	2.05	1.70	1.70	1.38	1.53	1.75	1.21	1.26	0.98	0.30	0.27	
29	1.62	2.05	1.69	1.62	1.22	1.50	1.62	1.21	1.22	0.90	0.30	0.27	
30	1.52	2.05	1.65	1.55	1.22	1.50	1.62	1.21	1.22	0.90	0.30	0.27	
31	1.50	2.05	1.65	1.55	1.22	1.50	1.62	1.21	1.22	0.90	0.30	0.27	
Total	42.37	43.23	42.01	43.83	41.21	42.19	41.00	41.11	38.32	37.16	40.11	41.12	
Average	1.37	1.41	1.36	1.38	1.33	1.35	1.30	1.31	1.24	1.23	1.24	1.27	
Max	1.79	2.07	2.25	2.02	2.01	2.01	2.02	2.01	1.81	1.87	2.03	2.01	
Min	0.93	1.41	1.72	1.52	1.36	1.42	1.62	1.33	0.86	0.82	0.30	0.20	

YEARLY TABLE OF DAILY WATER LEVEL

Year (1978)

River System	SOUTH GAGES		River		GALVING		Station		Note	Total
	Station	Area	Area	Area	Area	Area	Area	Area		
1	0.55	0.10	0.37	3.70	1.08	0.57	0.50	0.30	0.37	0.37
2	0.50	0.50	0.33	1.90	3.19	0.17	0.32	0.30	0.30	0.30
3	0.11	0.33	0.33	1.32	3.31	1.70	0.90	1.00	1.00	1.00
4	0.54	0.37	0.37	0.60	2.92	1.17	0.33	0.60	0.60	0.60
5	0.67	0.30	0.30	0.72	2.90	0.67	0.55	0.60	0.60	0.60
6	0.87	0.30	0.67	0.53	1.23	0.57	0.75	0.60	0.60	0.60
7	0.90	0.30	3.00	0.50	1.27	0.50	0.65	0.60	0.60	0.60
8	0.54	0.30	0.40	0.57	1.33	0.57	0.53	0.50	0.50	0.50
9	0.60	0.30	0.67	0.33	1.13	0.10	0.60	0.60	0.60	0.60
10	0.13	0.33	0.67	0.90	6.93	0.53	0.55	0.60	0.60	0.60
11	0.17	0.33	0.60	0.67	3.13	0.33	0.50	0.60	0.60	0.60
12	0.71	0.47	0.60	0.52	1.63	0.42	0.60	0.60	0.60	0.60
13	1.33	0.40	0.55	0.30	3.07	0.50	1.30	0.60	0.60	0.60
14	0.97	0.50	0.53	0.30	1.75	0.53	0.56	0.60	0.60	0.60
15	0.63	0.50	0.40	0.30	1.60	0.77	0.95	0.60	0.60	0.60
16	0.57	0.40	0.53	0.30	1.00	0.53	0.20	0.60	0.60	0.60
17	0.63	0.40	0.47	0.40	0.82	0.40	0.30	0.60	0.60	0.60
18	0.13	0.33	0.57	0.40	0.67	0.33	0.77	0.60	0.60	0.60
19	0.11	0.27	0.57	0.33	0.63	0.37	0.75	0.60	0.60	0.60
20	0.37	0.40	0.57	0.33	0.47	0.33	0.60	0.60	0.60	0.60
21	0.37	0.40	0.70	0.30	0.47	0.33	0.60	0.60	0.60	0.60
22	0.70	0.33	0.33	0.33	0.32	0.27	0.60	0.60	0.60	0.60
23	0.37	0.50	0.67	0.67	0.72	0.37	0.60	0.60	0.60	0.60
24	0.37	0.47	0.77	0.67	0.72	0.37	0.60	0.60	0.60	0.60
25	0.10	0.30	0.50	0.92	0.33	0.37	0.60	0.60	0.60	0.60
26	0.33	0.37	0.43	1.13	0.33	0.37	0.60	0.60	0.60	0.60
27	0.30	0.33	0.47	1.00	0.30	0.37	0.60	0.60	0.60	0.60
28	0.33	0.33	0.50	1.17	0.10	0.27	0.60	0.60	0.60	0.60
29	0.33	-	0.13	4.32	0.23	0.73	0.60	0.60	0.60	0.60
30	0.37	-	0.33	1.52	0.17	0.33	0.60	0.60	0.60	0.60
31	2.10	-	0.11	-	0.03	-	0.60	0.60	0.60	0.60
Total	23.33	10.99	20.65	29.17	59.10	11.35	32.37	11.35	11.35	11.35
Average	0.75	0.35	0.67	0.91	1.91	0.35	0.35	0.35	0.35	0.35
Max	1.33	0.60	3.00	1.27	6.93	0.53	0.75	0.60	0.60	0.60
Min	0.30	0.33	0.33	0.30	0.33	0.10	0.30	0.30	0.30	0.30

Year (1979)

DAILY TABLE OF DAILY WATER LEVEL

Station TAKUNDAKKA

GILKANG

Note

River System to Belonging	STAFF GAUGE			River Catchment Area			Station					Total	
	Jan	Feb	Mar	Apr	May	June	July	AUG	Sep	Oct	Nov		Dec
Month													
Day													
1	0.53	0.40											
2	0.37	0.37											
3	0.44	0.40											
4	0.40	0.30											
5	0.40	0.33											
6	0.40	0.37											
7	0.40	0.40											
8	0.44	0.37											
9	0.40	0.40											
10	0.40	0.40											
11	0.40	0.37											
12	0.40	0.33											
13	0.40	0.33											
14	0.40	0.40											
15	0.40	0.33											
16	0.40	0.40											
17	0.40	0.33											
18	0.40	0.33											
19	0.40	0.33											
20	0.40	0.33											
21	0.40	0.37											
22	0.40	0.40											
23	0.40	0.40											
24	0.40	0.30											
25	0.40	0.37											
26	0.40	0.40											
27	0.40	0.40											
28	0.40	0.40											
29	0.40	0.40											
30	0.40	0.40											
31	0.40	0.40											
Total													
Average													
Max													
Min													



10/13/81

YEARLY TABLE OF DAILY WATER LEVEL

Year (1979)

River System	Bilua												Station	Code
	PMA						Catching Area							
DAY	MONTH	Jan	Feb	Mar	Apr	May	June	July	AUG	SEP	Oct	Nov	Dec	Year
1		0.70	0.72	0.68	0.79	1.00	1.23	0.74	0.64	0.66	0.55	0.59	0.60	
2		0.68	0.69	0.74	0.72	1.20	0.72	0.72	0.69	1.20	0.55	0.67	0.74	
3		0.67	0.72	0.92	0.94	1.17	0.73	0.77	0.69	0.79	0.55	0.67	0.71	
4		0.67	0.74	0.90	0.90	1.11	0.93	0.71	0.67	0.66	0.57	0.67	0.71	
5		0.64	0.72	0.75	1.33	1.27	0.71	0.70	0.64	0.90	0.54	0.69	0.57	
6		0.64	0.74	0.69	1.38	1.38	1.23	0.70	0.63	1.07	0.54	0.59	0.53	
7		0.64	0.76	0.66	1.21	1.39	0.96	0.72	0.63	0.60	0.54	0.58	0.55	
8		0.64	0.73	0.65	1.30	1.28	1.06	1.03	0.62	0.60	0.54	0.62	0.53	
9		0.63	0.70	0.63	1.32	1.02	1.11	1.14	0.67	0.62	0.54	0.59	0.59	
10		1.27	0.79	0.63	1.16	0.94	2.31	1.17	0.63	1.17	0.54	0.60	0.54	
11		0.72	0.69	0.61	1.00	0.92	1.12	1.13	0.62	2.14	0.57	0.64	0.52	
12		0.71	1.15	0.60	0.95	0.74	0.91	1.22	0.65	0.90	0.54	0.58	0.52	
13		0.65	1.25	0.60	1.05	0.81	0.72	1.12	0.73	0.74	0.53	0.57	0.50	
14		0.62	1.19	0.60	0.84	0.79	0.79	0.77	0.66	0.63	0.53	0.58	0.50	
15		0.62	0.75	0.59	0.79	0.79	0.67	0.77	0.67	0.68	0.53	0.63	0.49	
16		0.61	0.51	0.58	0.75	0.74	0.90	0.73	0.64	0.65	0.53	0.64	0.51	
17		0.63	0.59	0.58	0.72	0.72	1.91	0.70	0.62	0.63	0.53	0.62	0.86	
18		0.66	0.95	0.63	0.70	0.72	1.03	1.24	0.62	0.61	0.60	0.62	1.15	
19		0.66	0.97	0.76	0.74	0.70	2.12	1.57	0.62	0.59	0.56	0.61	1.39	
20		0.61	0.66	0.79	0.90	0.68	2.77	0.94	0.62	0.74	0.55	0.62	1.04	
21		0.59	0.62	0.64	0.75	0.68	1.35	0.73	0.62	0.71	0.63	0.62	0.82	
22		0.56	0.76	0.61	0.72	0.66	1.09	0.78	0.61	0.61	0.58	0.60	0.84	
23		0.65	0.73	0.69	0.75	0.66	1.00	0.74	0.60	0.58	0.56	0.61	0.87	
24		0.69	0.71	0.56	0.73	0.66	1.07	0.74	0.60	0.58	0.56	0.61	0.87	
25		0.65	0.73	0.78	0.92	0.64	0.95	0.70	0.60	0.57	0.55	0.62	0.83	
26		0.65	0.72	1.20	1.17	0.65	0.88	0.67	1.07	0.56	0.55	0.61	0.60	
27		0.71	0.76	1.18	1.31	0.64	1.05	0.60	0.60	0.56	0.55	0.70	0.66	
28		0.71	0.70	0.90	1.26	0.63	0.84	0.67	0.62	0.64	0.57	0.66	0.77	
29		0.63	1.45	1.32	1.32	0.63	0.80	0.66	0.61	0.58	0.55	0.78	0.81	
30		0.61	1.35	1.35	1.21	0.61	0.77	0.66	0.61	0.56	0.55	0.94	0.76	
31		0.60	0.92	0.92	0.63	0.63	0.63	0.63	1.19	0.60	0.60	0.60	1.10	
Total		21.89	23.18	22.88	30.20	26.84	34.27	26.29	20.93	23.73	31.25	19.03	23.11	305.20
Average		0.71	0.84	0.81	1.01	0.87	1.14	0.85	0.68	0.79	1.01	0.63	0.75	0.84
Max		1.27	1.45	1.45	1.37	1.39	2.77	1.67	1.19	2.14	0.63	0.94	1.39	2.97
Min		0.60	0.69	0.56	0.70	0.63	0.77	0.63	0.60	0.56	0.53	0.57	0.49	0.49



SEASONAL TABLE OF DAILY WATER LEVEL

1980

River Station	River												Station	BICA HKUM / U.P. STREAM	
	Catching Area														
Belonging to	BICA												Note		
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec			
1	1.24	0.61	0.90	0.80	0.94	0.86	0.76	0.82	0.66	0.42	0.45	0.46	0.46		
2	0.91	0.61	0.79	0.64	0.97	0.81	0.68	0.56	0.63	0.42	0.54	0.44	0.44		
3	0.82	0.61	0.70	0.70	1.15	1.21	0.67	0.51	0.55	0.41	0.40	0.45	0.45		
4	0.76	0.90	0.77	0.57	2.04	0.91	0.66	0.51	0.52	0.40	0.46	0.46	0.46		
5	0.79	0.67	0.85	0.60	2.15	0.99	0.80	0.52	0.51	0.40	0.46	0.58	0.58		
6	0.72	0.64	0.81	0.61	1.35	1.20	0.75	0.60	0.51	0.40	0.46	0.57	0.57		
7	0.65	0.63	0.73	0.58	1.13	0.96	0.88	0.67	0.51	0.43	0.47	0.56	0.56		
8	0.69	0.63	0.70	1.18	1.08	1.07	0.69	0.80	0.50	0.41	0.47	0.56	0.56		
9	0.73	0.61	0.92	1.30	0.98	0.98	0.64	0.65	0.49	0.40	0.49	0.58	0.58		
10	0.75	0.77	0.84	1.71	0.89	0.80	0.62	0.55	0.47	0.40	0.52	0.72	0.72		
11	0.94	0.63	0.71	1.15	1.07	0.82	0.62	0.53	0.46	0.41	0.49	0.66	0.66		
12	0.84	0.58	0.66	1.51	0.96	0.77	0.60	0.52	0.45	0.66	0.48	0.66	0.66		
13	0.69	0.55	0.60	1.12	0.86	0.75	1.19	0.51	0.45	0.52	0.47	0.51	0.51		
14	0.81	0.52	0.67	1.07	0.81	1.15	0.91	0.50	0.45	0.65	0.47	0.55	0.55		
15	0.75	0.52	0.59	1.04	0.90	1.58	0.68	0.50	0.45	0.48	0.47	0.51	0.51		
16	0.71	0.53	0.52	1.07	0.80	1.63	0.66	0.51	0.45	0.44	0.51	0.49	0.49		
17	0.72	0.51	0.57	0.85	0.70	1.48	0.59	0.50	0.45	0.41	0.53	0.48	0.48		
18	0.70	0.52	0.59	0.76	0.81	1.48	0.68	0.65	0.45	0.41	0.50	0.47	0.47		
19	0.75	0.51	0.56	1.13	0.70	1.62	0.72	0.73	0.45	0.41	0.49	0.47	0.47		
20	0.74	0.52	0.51	1.20	0.74	1.57	0.59	0.56	0.45	0.41	0.54	0.51	0.51		
21	0.73	0.54	0.49	1.23	0.69	1.04	0.57	0.90	0.41	0.41	0.40	0.72	0.72		
22	0.68	0.74	0.48	1.08	0.80	0.91	0.55	0.80	0.44	0.46	0.47	0.64	0.64		
23	0.68	0.68	0.47	0.93	0.82	0.85	0.60	0.59	0.44	0.51	0.45	0.61	0.61		
24	0.66	0.66	0.46	1.08	0.93	0.80	0.55	0.54	0.44	0.43	0.50	0.60	0.60		
25	0.64	0.62	0.46	1.00	1.24	0.79	0.54	0.52	0.45	0.44	0.48	0.54	0.54		
26	0.64	0.87	0.46	1.00	0.87	0.79	0.54	0.76	0.44	0.47	0.62	0.51	0.51		
27	0.64	1.00	0.50	1.05	1.16	0.83	0.53	0.86	0.44	0.54	0.66	0.65	0.65		
28	0.64	0.80	0.71	1.18	1.47	0.87	0.53	0.77	0.45	0.51	0.60	0.56	0.56		
29	0.62	0.86	0.72	1.14	1.60	0.75	0.51	0.60	0.42	0.40	0.52	0.53	0.53		
30	0.62	0.62	0.62	1.00	1.23	0.68	0.50	0.55	0.43	0.46	0.47	0.51	0.51		
31	0.61	0.63	0.63	0.75	0.75	0.50	0.50	0.52	0.45	0.45	0.47	0.50	0.50		
Total	23.21	18.91	19.90	30.23	33.65	21.99	20.31	19.20	13.79	13.99	14.92	17.24	256.04		
Average	0.75	0.65	0.64	1.01	1.09	1.05	0.66	0.62	0.48	0.47	0.50	0.56	0.71		
Max	1.24	1.00	0.92	1.91	2.15	1.75	1.19	0.90	0.66	0.66	0.66	0.72	2.15		
Min	0.61	0.51	0.46	0.57	0.69	0.75	0.50	0.50	0.42	0.40	0.40	0.44	0.40		



YEARLY TABLE OF DAILY WATER LEVEL

Year (1981)

River System Belonging to	BICA		River		Station		BICA HOWE / DOWNSTREAM						
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
1	0.20	0.40	0.60	1.10	0.80	0.74	0.71	0.72					
2	0.50	0.40	0.50	0.70	1.10	0.84	0.71	0.69					
3	0.30	0.41	0.47	1.24	1.12	0.70	0.78	0.64					
4	0.50	0.40	0.44	0.85	1.00	0.61	1.85	0.62					
5	0.50	0.45	0.55	0.71	1.20	0.65	1.34	0.60					
6	0.50	0.43	0.68	0.97	0.89	0.63	1.11	0.50					
7	0.57	0.42	0.72	0.94	0.82	0.59	1.65	0.65					
8	0.53	0.42	0.56	0.72	0.95	0.63	1.00	0.58					
9	0.43	0.43	0.57	0.80	0.83	0.69	0.89	0.65					
10	0.48	0.48	0.60	0.99	0.74	0.60	0.81	0.57					
11	0.45	0.53	0.68	0.84	1.19	0.62	0.96	0.54					
12	0.45	0.45	0.62	0.81	0.86	0.51	1.10	0.53					
13	0.44	0.42	0.58	0.91	0.91	0.50	1.21	0.52					
14	0.43	0.42	0.56	0.76	0.73	0.40	1.00						
15	0.43	0.42	0.52	0.70	1.20	0.96	1.84						
16	0.42	0.42	0.57	0.72	1.56	0.62	1.65						
17	0.43	0.42	0.65	0.78	1.73	0.53	1.38						
18	0.44	0.42	0.73	0.70	1.22	1.13	1.37						
19	0.45	0.43	0.57	0.80	0.72	1.22	1.75						
20	0.45	0.50	0.53	0.83	0.67	0.85	1.31						
21	0.45	0.43	0.67	0.76	0.63	0.85	1.02						
22	0.45	0.42	0.60	1.12	0.77	0.80	1.74						
23	0.44	0.44	0.67	1.03	1.01	0.90	1.52						
24	0.50	0.51	0.76	0.81	1.41	0.49	2.36						
25	0.48	0.48	0.70	0.67	1.03	0.77	1.39						
26	0.47	0.45	1.19	1.09	0.97	0.68	1.77						
27	0.47	0.54	1.26	1.34	0.92	0.63	1.09						
28	0.47	0.62	1.31	1.17	0.80	0.61	0.91						
29	0.47	0.62	1.02	0.87	0.80	0.66	0.82						
30	0.40	0.70	0.83	0.73	0.73	0.79	0.78						
31	0.40	0.68	0.68	0.69	0.69	0.72	0.72						
TOTAL	13.07	12.57	21.44	26.76	30.38	32.53	39.01	7.79					
AVERAGE	0.47	0.52	0.69	0.89	0.98	0.75	1.26	0.60					
Max	0.59	0.62	1.31	1.34	1.73	1.73	2.56	0.72					
Min	0.40	0.40	0.44	0.64	0.63	0.48	0.71	0.50					

YEARLY TABLE OF DAILY WATER LEVEL

YEAR (1981)

River Station	Biba		River		Kalola		Station		Kalola		
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Total
Belonging to	PSSA		Catchment Area		120 km <sup>2</sup>		Note		Installed on 2 Sep 1981 at Tenston Bridge		
	Day	Month									
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
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21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
Month											
Average											
Max											
Min											

**GEOLOGY**

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# RECORD OF WATER PRESSURE TEST

PROJECT BILA IRRIGATION LOCALITY BILA INTAKE WEIR SITE  
 DORE-HOLE No. BB-1 GROUND WATER LEVEL

DATE	DEPTH	SECTION LENGTH	HOLE RADIUS	SUPPLIED WATER PRESSURE		STATIC HEAD IN HOLE	MEASURING GAUGE WEIGHT	TOTAL HEAD		WATER LEAKAGE		CALCULATING CONST.	COEFFICIENT OF PERMEABILITY	LUGGON UNIT
				PRESSURE	HEAD			H	H <sub>0</sub>	Q	Q'			
	m	m	m	kg/cm <sup>2</sup>	m	m	kg	m	m	l/min	m <sup>3</sup> /min	min/meter	K=Q/NXC ml/sec	L=Q'/L-NXHP
Sep. 16	0 ~ 3 G.W.L. 2.50	300	7.6	-	-	150	-	150	0.137	127	3.16 x 10 <sup>-5</sup>	3.3 x 10 <sup>-5</sup>	2.8	
Sep. 16	3 ~ 6 G.W.L. 2.50	300	7.6	-	-	250	-	250	0.300	300	3.36 x 10 <sup>-5</sup>	4.8 x 10 <sup>-5</sup>	4.1	
Sep. 17	6 ~ 10 G.W.L. 2.50	400	7.6	-	-	250	-	250	1.00	1000	3.09 x 10 <sup>-5</sup>	1.2 x 10 <sup>-4</sup>	10	
Sep. 18	10 ~ 15 G.W.L. 4.10	500	7.6	0	0	445	195	640	20.5	20,500	2.59 x 10 <sup>-5</sup>	8.2 x 10 <sup>-4</sup>	64	
Sep. 20	17 ~ 22 G.W.L. 4.10	500	7.6	0	0	410	115	525	7.2	7,200	2.57 x 10 <sup>-5</sup>	5.6 x 10 <sup>-4</sup>		
				1	1	1,525	13,600	1,525	13.4	13,600		2.3 x 10 <sup>-4</sup>		
				2	2	3,525	20,100	3,525	20.1	20,100		2.1 x 10 <sup>-4</sup>		
				1	1	1,525	11,300	1,525	11.8	11,300		2.0 x 10 <sup>-4</sup>		
				0	0	525	4,950	525	4.75	4,950		2.4 x 10 <sup>-4</sup>		
												(2.5 x 10 <sup>-4</sup> )		
Sep. 21	22 ~ 27 G.W.L. 4.10	500	7.6	0	0	410	145	555	3.75	3,750	2.54 x 10 <sup>-5</sup>	1.8 x 10 <sup>-4</sup>		
				1	1	1,555	8,800	1,555	8.80	8,800		1.5 x 10 <sup>-4</sup>		
				2	2	2,555	16,700	2,555	16.7	16,700		1.7 x 10 <sup>-4</sup>		
				3	3	3,555	20,300	3,555	20.3	20,300		1.5 x 10 <sup>-4</sup>		
				2	2	2,555	13,200	2,555	13.7	13,200		1.4 x 10 <sup>-4</sup>		
				1	1	1,555	6,300	1,555	6.3	6,300		1.1 x 10 <sup>-4</sup>		
				0	0	555	1,950	555	1.75	1,950		9.1 x 10 <sup>-5</sup>		
												(1.5 x 10 <sup>-4</sup> )		
Sep. 22	27 ~ 30 G.W.L. 4.45	300	7.6	0	0	445	175	620	2.7	2,700	2.86 x 10 <sup>-5</sup>	1.7 x 10 <sup>-4</sup>		
				1	1	1,620	10,100	1,620	10.1	10,100		2.4 x 10 <sup>-4</sup>		
				2	2	2,620	13,700	2,620	13.7	13,700		2.0 x 10 <sup>-4</sup>		
				3	3	3,620	22,700	3,620	22.7	22,700		2.4 x 10 <sup>-4</sup>	21	
				2	2	2,620	13,000	2,620	13.0	13,000		1.9 x 10 <sup>-4</sup>		
				1	1	1,620	6,700	1,620	6.7	6,700		1.6 x 10 <sup>-4</sup>		
				0	0	620	1,200	620	1.2	1,200		7.5 x 10 <sup>-5</sup>		
												(2.0 x 10 <sup>-4</sup> )		

# RECORD OF WATER PRESSURE TEST

PROJECT BILA IRRIGATION LOCALITY BILA INTAKE WEIR SITE  
 BORE-HOLE No. BS-2 GROUND WATER LEVEL \_\_\_\_\_

DATE	DEPTH	SECTION LENGTH	HOLE RADIUS	SUPPLIED WATER PRESSURE		STATIC HEAD IN HOLE	PRESSURE GAUGE HEIGHT	TOTAL HEAD		WATER LEAKAGE		CALCULATING CONST.		COEFFICIENT OF PERMEABILITY	LUGON UNIT
				PR	PS			H <sub>1</sub>	H <sub>2</sub>	Q	h	C	S		
Sept 27	0 ~ 3	300	7.6	0	0	130	-	130	1.81	1.81	0	3.24 x 10 <sup>-5</sup>	5.4 x 10 <sup>-5</sup>	1/8	
G.W.L. 1.20															
Sept 28	3 ~ 6	300	7.6	0	0	130	-	130	8.04	8.04	8.04	3.24 x 10 <sup>-5</sup>	2.4 x 10 <sup>-3</sup>	206	
G.W.L. 1.20															
Sept 28	6 ~ 11	500	7.6	0	0	125	11.0	345	0	0	0	2.57 x 10 <sup>-5</sup>	-		
G.W.L. 1.85															
				1	1			1,345	0.1	100			1.7 x 10 <sup>-6</sup>		
				2	2			2,345	6.7	6,900			2.6 x 10 <sup>-5</sup>		
				3	3			3,345	9.1	9,100			7.0 x 10 <sup>-5</sup>	5.4	
				2	2			2,345	5.5	5,500			6.1 x 10 <sup>-5</sup>		
				1	1			1,345	0.03	50			9.4 x 10 <sup>-7</sup>		
				0	0			345	0	0			(6.7 x 10 <sup>-5</sup> )		
Sept 28	11 ~ 16	500	7.6	0	0	135	17.5	360	0	0	0	2.57 x 10 <sup>-5</sup>	-		
G.W.L. 1.85															
				1	1			1,360	0.1	100			1.7 x 10 <sup>-6</sup>		
				2	2			2,360	5.3	5,300			2.8 x 10 <sup>-5</sup>		
				3	3			3,360	8.7	8,700			6.7 x 10 <sup>-5</sup>	5.2	
				2	2			2,360	4.0	4,000			4.4 x 10 <sup>-5</sup>		
				1	1			1,360	2.3	2,300			4.4 x 10 <sup>-5</sup>		
				0	0			360	0	0			-		
Sept 29	16 ~ 21			0 to 3				-	0	0	0		(5.7 x 10 <sup>-5</sup> )	1/4 to 1.0	
Sept 30	21 ~ 25			0 to 3				-	0	0	0		-	1/4 to 1.0	

# RECORD OF WATER PRESSURE TEST

PROJECT BILA IRRIGATION LOCALITY BILA IRRIGATION PROJECT  
 BORE-HOLE No. BB-3 GROUND WATER LEVEL

DATE	DEPTH	SECTION LENGTH	HOLE RADIUS	SUPPLIED WATER PRESSURE		STATIC HEAD IN HOLE	PRESSURE GAUGE HEIGHT		TOTAL HEAD	WATER LEAKAGE		CALCULATING CONST.	Q	COEFFICIENT OF PERMEABILITY	LUGRON UNIT
				PRESSURE	HEAD		H <sub>g</sub>	H <sub>s</sub>		Q' l/min	Q ml/min				
Sep. 30	0 ~ 3 G.W.L. 2.75	300	7.6	-	-	150	-	-	150	0.912	912	$3.86 \times 10^{-5}$		$2.3 \times 10^{-4}$	20
Oct. 1	3 ~ 6 G.W.L. 2.75	300	7.6	-	-	295	-	-	295	0.571	571	$3.86 \times 10^{-5}$		$2.5 \times 10^{-5}$	6.4
Oct. 1	6 ~ 9 G.W.L. 2.75	300	7.6	-	-	295	-	-	295	0.417	417	$3.86 \times 10^{-5}$		$5.5 \times 10^{-5}$	4.7
Oct. 2	9 ~ 12 G.W.L. 5.00	300	7.6	-	-	540	-	-	540	0.544	544	$3.86 \times 10^{-5}$		$3.7 \times 10^{-5}$	3.4
Oct. 3	12 ~ 15 G.W.L. 5.40	300	7.6	-	-	540	-	-	540	1.07	1070	$3.86 \times 10^{-5}$		$7.6 \times 10^{-5}$	6.6
Oct. 4	15 ~ 21	600	7.6	1 ~ 4	-	-	-	-	-	0	-	-	-	-	$L < 1.0$
Oct. 4	21 ~ 25	400	7.6	1 ~ 4	-	-	-	-	-	0	-	-	-	-	$L < 1.0$



# RECORD OF WATER PRESSURE TEST

PROJECT BILA IRRIGATION LOCALITY BILA INTAKE WEIR SITE  
 BORE-HOLE No. BB-4 GROUND WATER LEVEL

DATE	DEPTH m	SECTION LENGTH L m	HOLE RADIUS r m	SUPPLIED WATER PRESSURE		STATIC HEAD IN HOLE H <sub>s</sub> m	PRESSURE GAUGE HEIGHT H <sub>g</sub> m	TOTAL HEAD H <sub>0</sub> = H <sub>s</sub> + H <sub>g</sub> m		WATER LEAKAGE		CALCULATING CONST. $\frac{2.3 \times 10^{-4} \times L \times r^2}{C}$	Q m <sup>3</sup> /min	COEFFICIENT OF PERMEABILITY $K = Q/HAC$	LUGON UNIT $L_u = Q^2/L \times H \times T$
				P kg/cm <sup>2</sup>	H <sub>0</sub> m			H <sub>0</sub> m	H <sub>g</sub> m	Q l/min	Q m <sup>3</sup> /min				
Oct. 6	0 ~ 3 G.W.L. 2.25	300	7.6	-	-	150	-	150	1.78	1.980	$3.36 \times 10^{-5}$		$5.1 \times 10^{-4}$	44	
Oct. 7	3 ~ 6 G.W.L. 2.25	300	7.6	-	-	225	-	225	1.43	1.430	$3.36 \times 10^{-5}$		$2.5 \times 10^{-4}$	21	
Oct. 8	6 ~ 10 G.W.L. 2.70	400	7.6	-	-	220	-	220	5.45	5.450	$3.07 \times 10^{-5}$		$7.7 \times 10^{-4}$	42	
Oct. 10	10 ~ 15 G.W.L. 4.95	500	6.6	-	-	495	-	495	5.93	5.930	$2.44 \times 10^{-5}$		$3.2 \times 10^{-4}$	24	
Oct. 11	15 ~ 20 G.W.L. 4.95	500	6.6	0	0	495	115	610	0	0	$2.66 \times 10^{-5}$		-	-	
				1	1	610		610	6.8	6.800			$1.1 \times 10^{-4}$		
				2	2	610		610	10.6	10.600			$1.1 \times 10^{-4}$		
				3	3	610		610	14.7	14.700			$1.1 \times 10^{-4}$		
				2	2	610		610	10.2	10.200			$1.0 \times 10^{-4}$		
				1	1	610		610	6.6	6.600			$1.1 \times 10^{-4}$		
				0	0	610		610	0	0			-	-	
Oct. 11	20 ~ 25	500	6.6	1 ~ 3	1 ~ 3				0	0			$(1.1 \times 10^{-4})$	$L_u < 1.0$	
Oct. 12	25 ~ 30	500	6.6	1 ~ 4	1 ~ 4				0	0			-	$L_u < 1.0$	

# RECORD OF WATER PRESSURE TEST

PROJECT EILA IRRIGATION LOCALITY KALOLA DAM SITE  
 BORE-HOLE No. KB-1 GROUND WATER LEVEL

DATE	DEPTH m	SECTION LENGTH L m	HOLE RADIUS r m	SUPPLIED WATER PRESSURE		STATIC HEAD IN HOLE H <sub>0</sub> m	PRESSURE GAUGE HEIGHT H <sub>g</sub> m	TOTAL HEAD H <sub>0</sub> + H <sub>g</sub> = H <sub>T</sub> m		WATER LEAKAGE		CALCULATING CONST. C min/m <sup>2</sup> sec	Q cm <sup>3</sup> /min	COEFFICIENT OF PERMEABILITY K=Q/HvCmber	LUCCON UNIT L=Q <sup>2</sup> /v <sub>0</sub> H <sub>0</sub> Q <sup>2</sup>
				PRESSURE T kg/cm <sup>2</sup>	HEAD H m			Q <sup>1</sup> l/min	Q <sup>2</sup> cm <sup>3</sup> /min						
Oct. 20	0 ~ 3	300	7.6	-	-	150	-	150	0.442	442	3.86 × 10 <sup>-5</sup>		1.1 × 10 <sup>-4</sup>	9.8	
Oct. 21	3 ~ 6	300	7.6	-	-	450	-	450	0.930	930	3.86 × 10 <sup>-5</sup>		8.0 × 10 <sup>-5</sup>	6.9	
Oct. 21	6 ~ 11	500	7.6	-	-	850	-	850	2.75	2,750	2.57 × 10 <sup>-5</sup>		8.4 × 10 <sup>-5</sup>	6.5	
Oct. 22	11 ~ 16 G.W.L. 15.4	500	6.6	0	0	1,350	150	1,500	27.2	27,200	2.66 × 10 <sup>-5</sup>		4.8 × 10 <sup>-4</sup>	36	
Oct. 22	16 ~ 21 G.W.L. 15.4	500	6.6	0	0	1,540	135	1,675	32.5	32,500	2.66 × 10 <sup>-5</sup>		5.2 × 10 <sup>-4</sup>	39	
Oct. 23	21 ~ 26 G.W.L. 15.4	500	6.6	0	0	1,540	50	1,590	0.1	100	2.66 × 10 <sup>-5</sup>		1.7 × 10 <sup>-6</sup>		
				1	1			2,570	9.15	9,150			7.4 × 10 <sup>-5</sup>		
				2	2			3,570	12.6	12,600			7.3 × 10 <sup>-5</sup>		
				3	3			4,570	20.3	20,300			1.2 × 10 <sup>-4</sup>		
				2	2			3,570	15.6	15,600			1.2 × 10 <sup>-4</sup>		
				1	1			2,570	11.1	11,100			1.1 × 10 <sup>-4</sup>		
				0	0			1,570	7.4	7,400			1.2 × 10 <sup>-4</sup>		
													(1.1 × 10 <sup>-4</sup> )		
Oct. 23	26 ~ 30 G.W.L. 15.4	400	6.6	0	0	1,540	70	1,630	0	0	3.18 × 10 <sup>-5</sup>		-		
				1	1			2,630	1.25	1,250			1.5 × 10 <sup>-5</sup>		
				2	2			3,630	0	0			-		
				3	3			4,630	2.85	2,850			2.0 × 10 <sup>-5</sup>		
				2	2			3,630	0	0			-		
				1	1			2,630	0	0			-		
				0	0			1,630	0	0			-		
													(1.2 × 10 <sup>-5</sup> )		

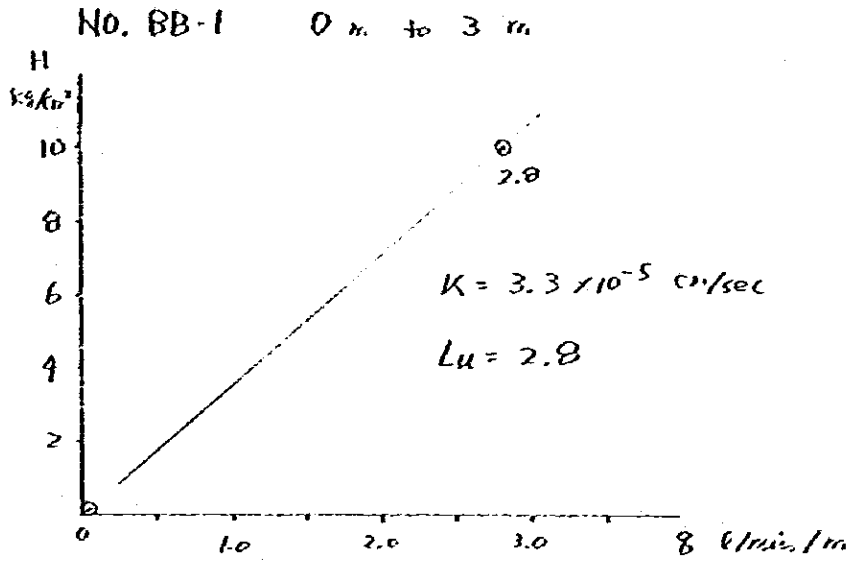


# RECORD OF WATER PRESSURE TEST

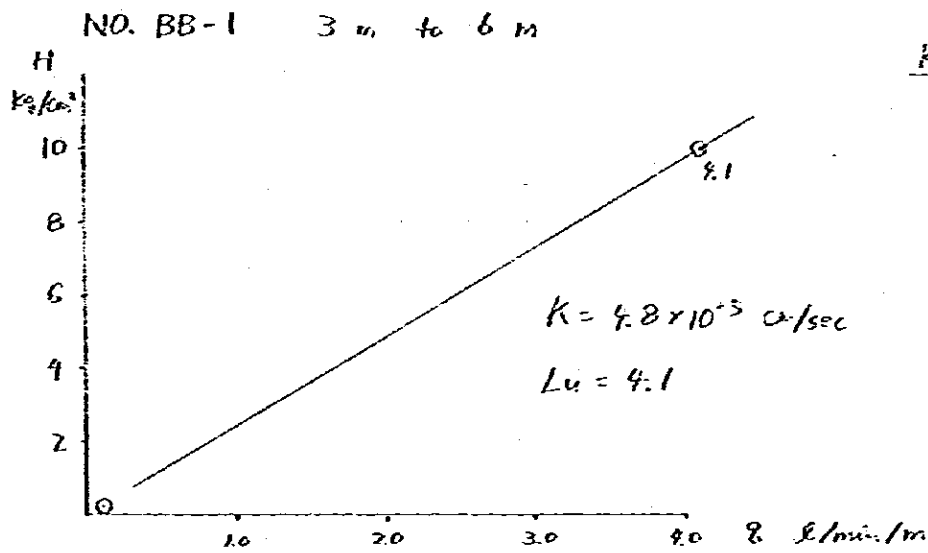
PROJECT BILA IRRIGATION LOCALITY KALOJA DAM SITE  
 BORE-HOLE No. KB-3 GROUND WATER LEVEL

DATE	DEPTH m	SECTION LENGTH L m	HOLE RADIUS r m	SUPPLIED WATER PRESSURE		STATIC HEAD IN HOLE H <sub>s</sub> m	PRESSURE GAUGE HEIGHT H <sub>g</sub> m	TOTAL HEAD H <sub>t</sub> = H <sub>s</sub> + H <sub>g</sub> m		WATER LEAKAGE		CALCULATING CONST. $C = \frac{Q}{\pi r^2 L \Delta h}$	Q m <sup>3</sup> /min	COEFFICIENT OF PERMEABILITY K = Q/VVC m/sec	LUCKON UNIT L <sub>u</sub> = Q/LVC
				PRESSURE P kg/cm <sup>2</sup>	HEAD H <sub>p</sub> m			Q, l/min	Q, m <sup>3</sup> /min						
01.27	0 ~ 5	500	7.6	-	250	-	250	1.16	1.160	2.57	2.57	2.57 × 10 <sup>-5</sup>	1.2 × 10 <sup>-4</sup>	9.3	
01.27	5 ~ 10	500	6.6	0	750	75	825	5.8	5.800	2.66	2.66	2.66 × 10 <sup>-5</sup>	1.9 × 10 <sup>-4</sup>		
				1			1,825	12.7	13,700				2.0 × 10 <sup>-4</sup>	18	
				2			2,825	24.7	24,700				2.3 × 10 <sup>-4</sup>		
				1			1,825	17.2	17,200				2.8 × 10 <sup>-4</sup>		
				0			825	10.7	10,300				3.3 × 10 <sup>-4</sup>		
													(2.5 × 10 <sup>-4</sup> )		
01.27	10 ~ 15	500	6.6	0	1,250	155	1,405	2.95	2,950	2.66	2.66	2.66 × 10 <sup>-5</sup>	5.6 × 10 <sup>-5</sup>		
				1			2,405	14.6	14,600				1.6 × 10 <sup>-4</sup>		
				2			3,405	28.7	28,700				2.5 × 10 <sup>-4</sup>	17	
				1			2,405	17.1	17,100				1.9 × 10 <sup>-4</sup>		
				0			1,405	10.4	10,400				2.0 × 10 <sup>-4</sup>		
													(2.0 × 10 <sup>-4</sup> )		
01.30	15 ~ 20	500	6.6	0	1,525	95	1,600	0	0	2.66	2.66	2.66 × 10 <sup>-5</sup>	-		
				1			2,600	5.4	5,400				5.5 × 10 <sup>-3</sup>		
				2			3,600	14.4	14,400				1.1 × 10 <sup>-4</sup>		
				3			4,600	24.7	24,700				1.4 × 10 <sup>-4</sup>	11	
				2			3,600	17.3	17,300				1.4 × 10 <sup>-4</sup>		
				1			2,600	14.7	14,700				1.5 × 10 <sup>-4</sup>		
				0			1,600	11.2	11,200				1.9 × 10 <sup>-4</sup>		
													(1.5 × 10 <sup>-4</sup> )		
				1 ~ 3			-	0	0				-	LU < 1.0	
01.30	20 ~ 25	500	6.6	1	2,175	110	2,285	0.43	430	2.66	2.66	2.66 × 10 <sup>-5</sup>	5.0 × 10 <sup>-6</sup>		
				2			3,285	2.98	2,980				2.3 × 10 <sup>-5</sup>		
01.31	25 ~ 30	500	6.6	3			4,285	1.50	1,500				7.2 × 10 <sup>-6</sup>	LU < 1.0	
				2			3,285	0	0				-	*	
				1			2,285	0	0				(1.2 × 10 <sup>-5</sup> )	*	

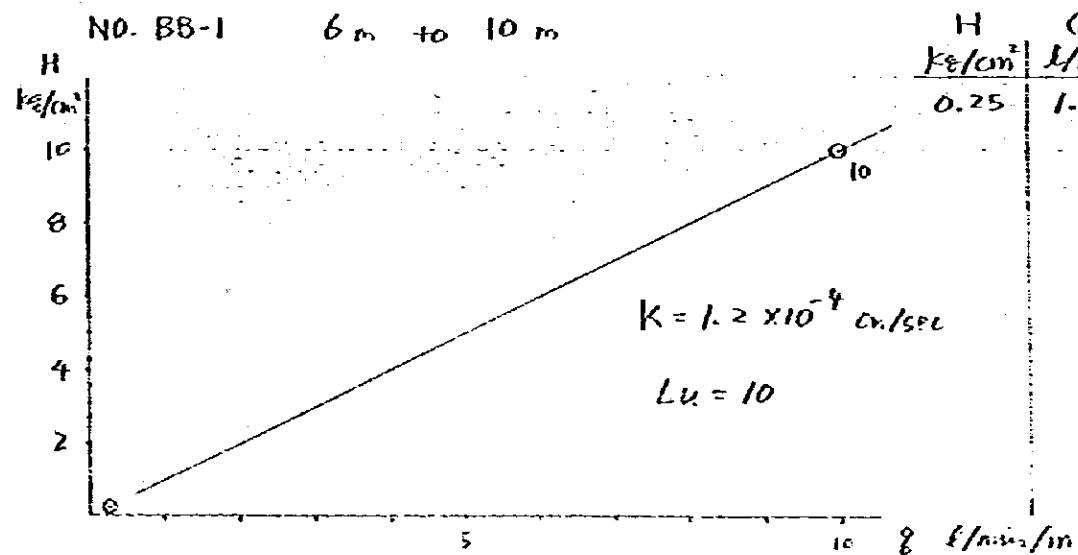
# RESULT OF LUGEON TEST



H	Q	q
kg/cm <sup>2</sup>	l/min	l/min/m
0.15	0.127	0.0423

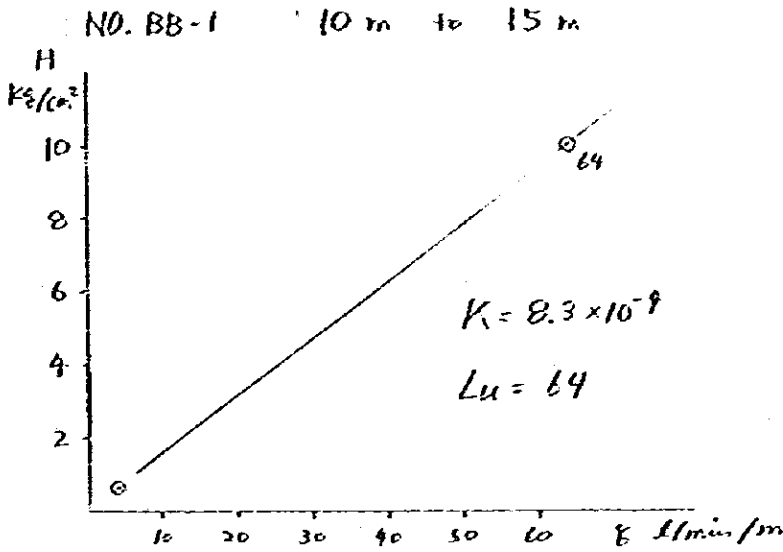


H	Q	q
kg/cm <sup>2</sup>	l/min	l/min/m
0.25	0.358	0.103

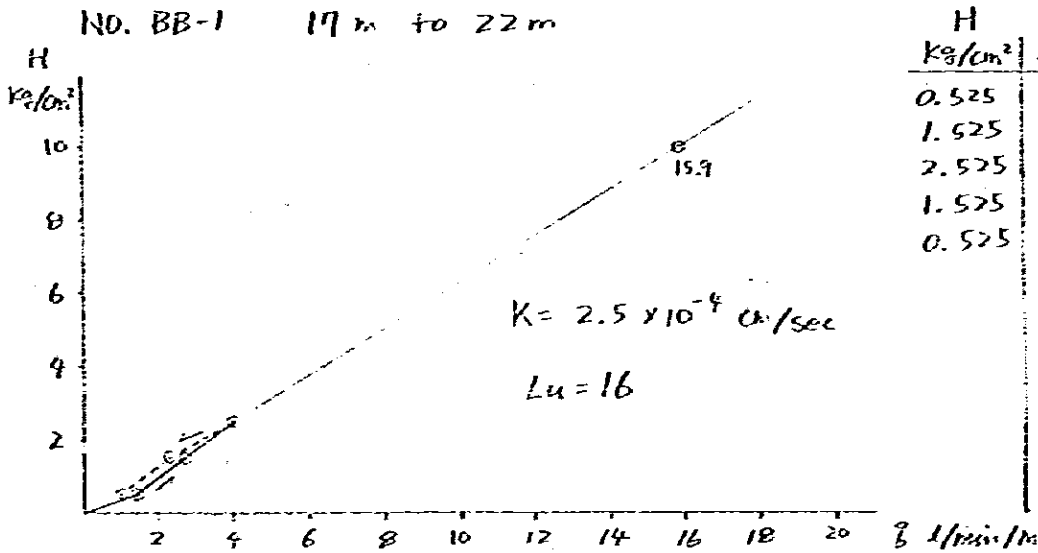


H	Q	q
kg/cm <sup>2</sup>	l/min	l/min/m
0.25	1.00	0.25

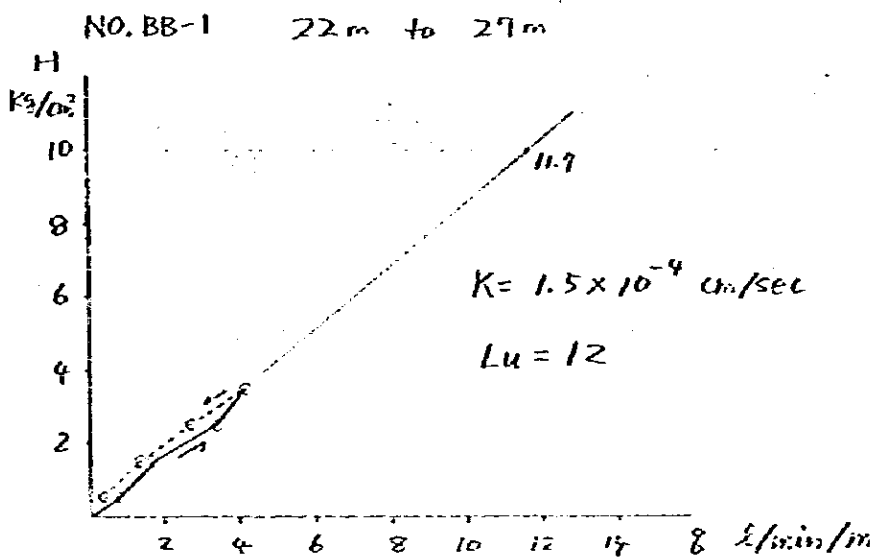
RESULT OF LUGEON TEST



H	Q	q
kg/cm <sup>2</sup>	l/min	l/min/m
0.640	20.5	4.1



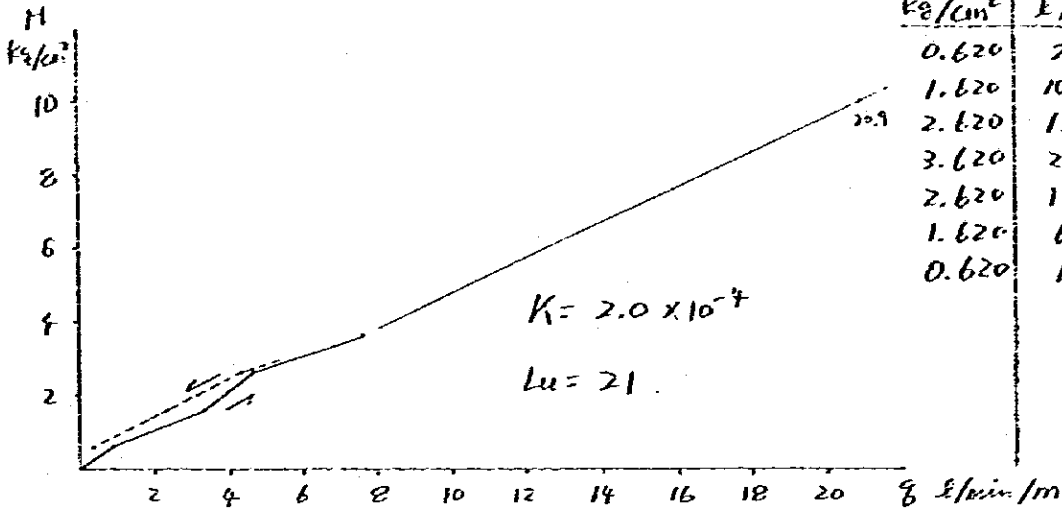
H	Q	q
kg/cm <sup>2</sup>	l/min	l/min/m
0.525	7.20	1.44
1.525	13.6	2.72
2.525	20.1	4.02
1.525	11.8	2.36
0.525	4.95	0.99



H	Q	q
kg/cm <sup>2</sup>	l/min	l/min/m
0.555	3.95	0.75
1.555	8.80	1.76
2.555	16.9	3.38
3.555	20.8	4.16
2.555	13.7	2.74
1.555	6.8	1.36
0.555	1.95	0.39

### RESULT OF LUGEON TEST

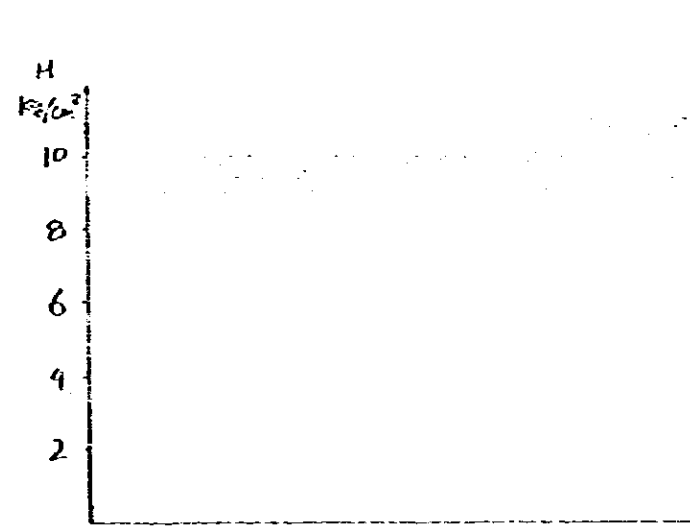
NO. BB-1      27m to 30 m



H	Q	q
kg/cm <sup>2</sup>	l/min	l/min/m
0.620	2.7	0.900
1.620	10.1	3.37
2.620	13.9	4.63
3.620	22.7	7.57
2.620	13.0	4.33
1.620	6.9	2.30
0.620	1.2	0.400



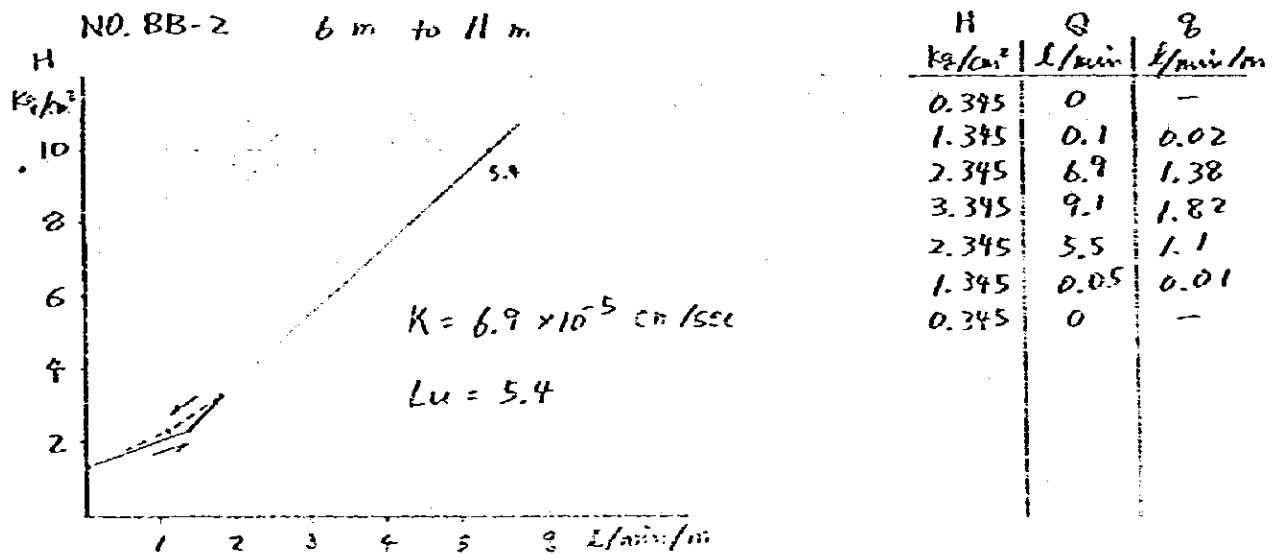
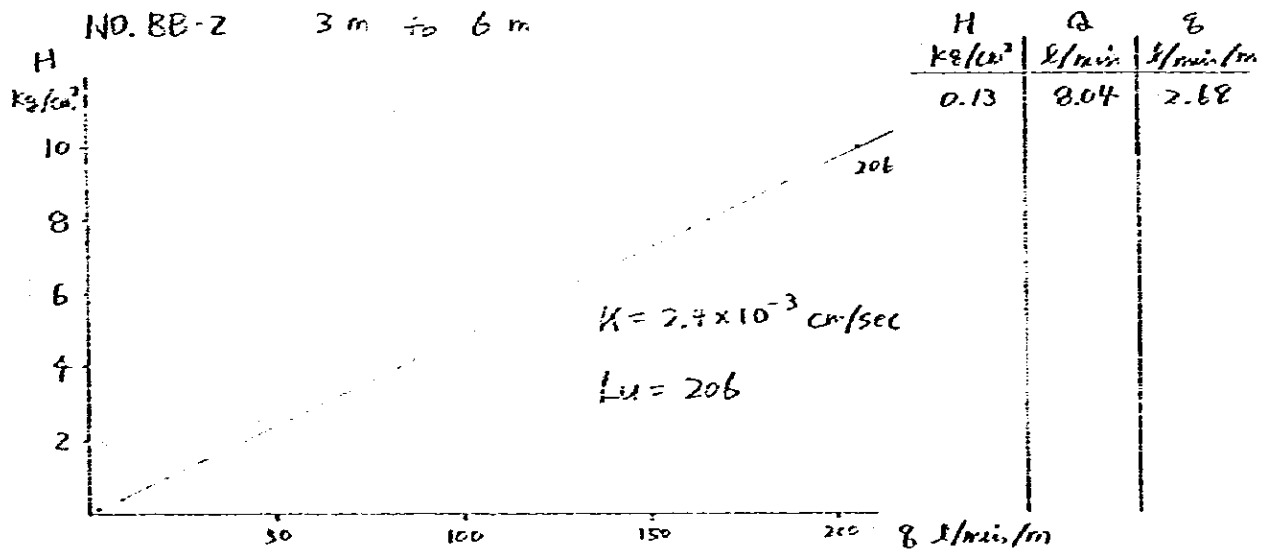
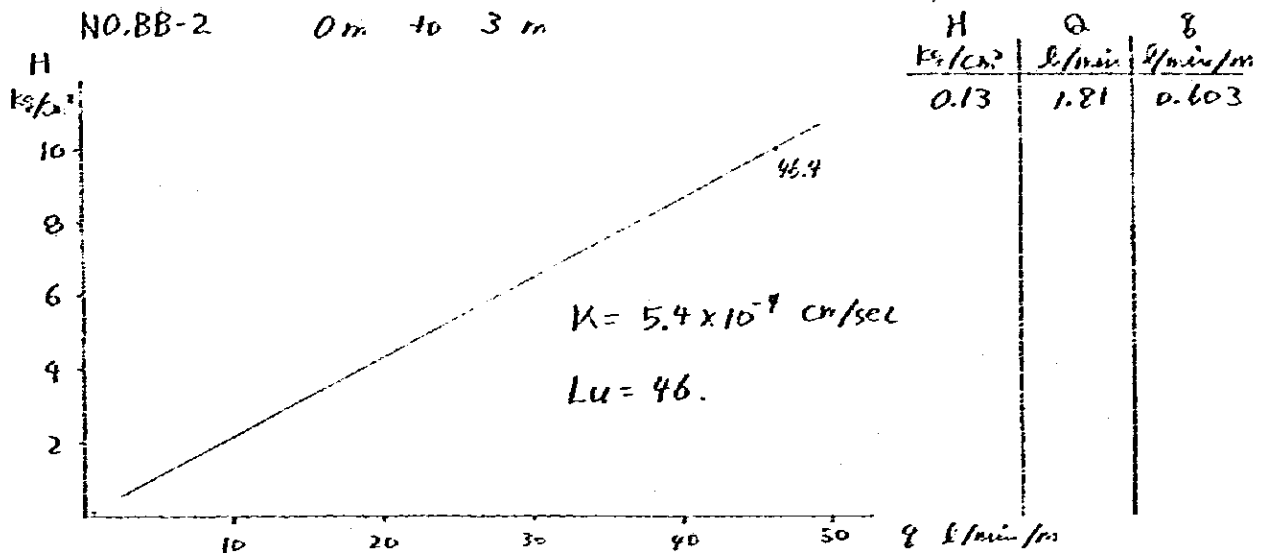
H	Q	q
kg/cm <sup>2</sup>	l/min	l/min/m



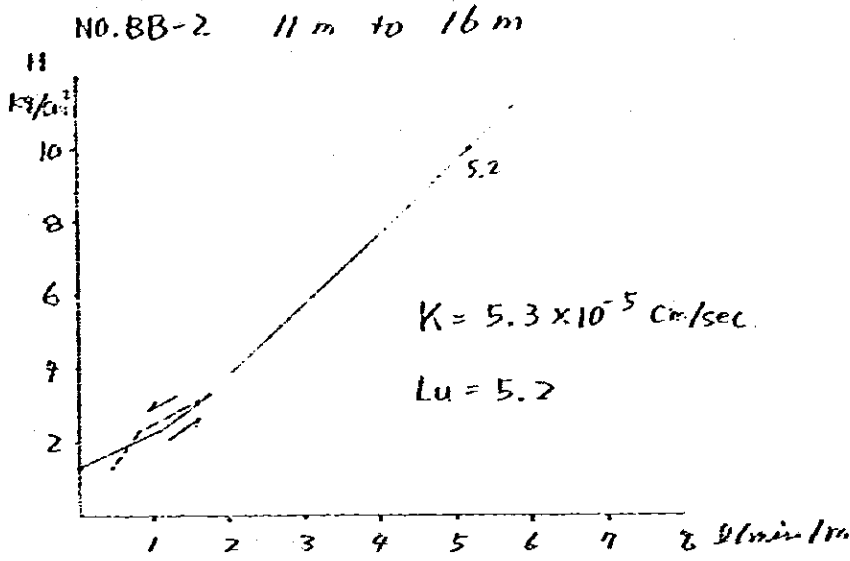
H	Q	q
kg/cm <sup>2</sup>	l/min	l/min/m



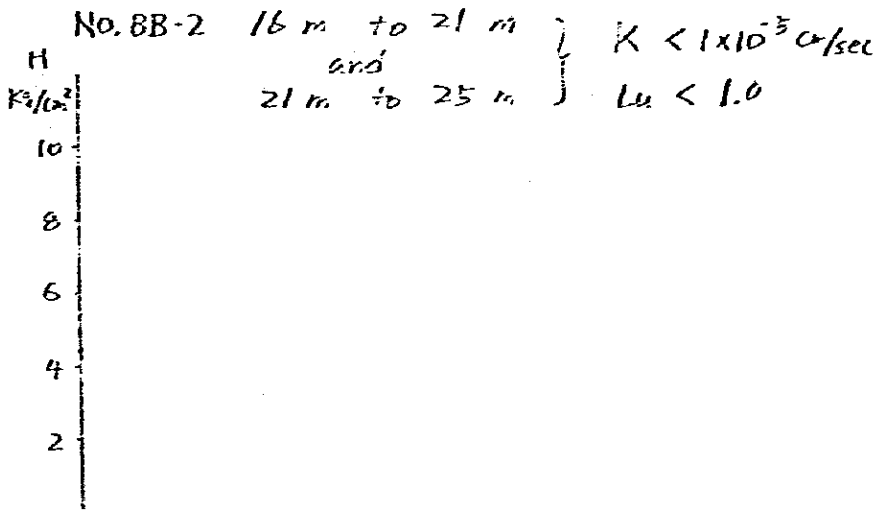
### RESULT OF LUGEON TEST



RESULT OF LUGEON TEST



H kg/cm <sup>2</sup>	Q l/min	q l/min/m
0.36	0	-
1.36	0.1	0.02
2.36	5.3	1.06
3.36	8.7	1.79
2.36	4.0	0.80
1.36	2.3	0.46
0.36	0	-



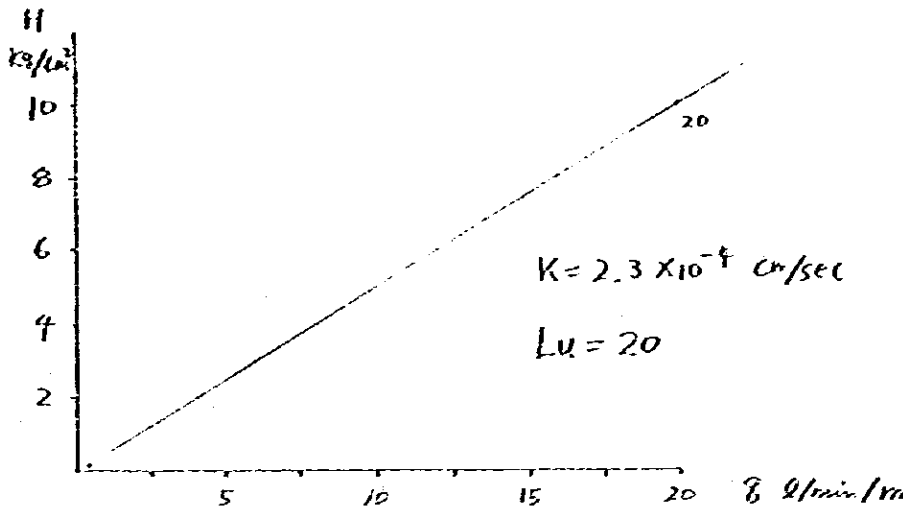
H kg/cm <sup>2</sup>	Q l/min	q l/min/m



H kg/cm <sup>2</sup>	Q l/min	q l/min/m

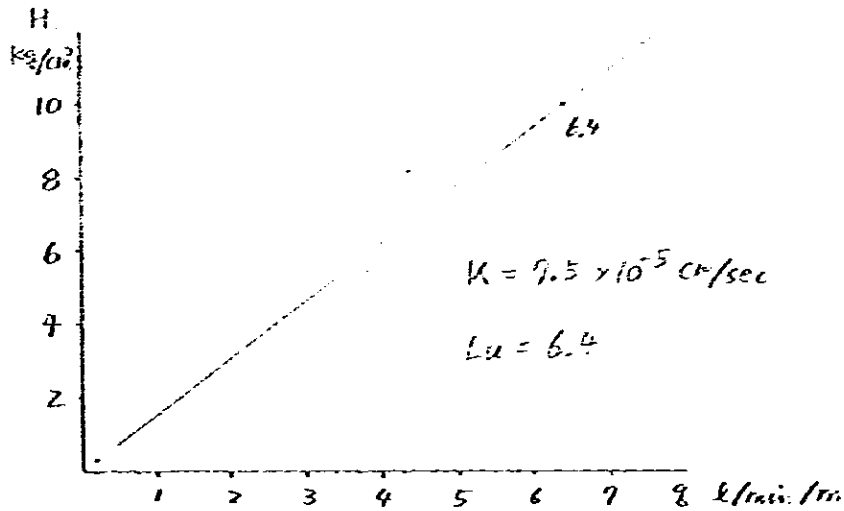
### RESULT OF LUGEON TEST

NO. BB-3 0m to 3m



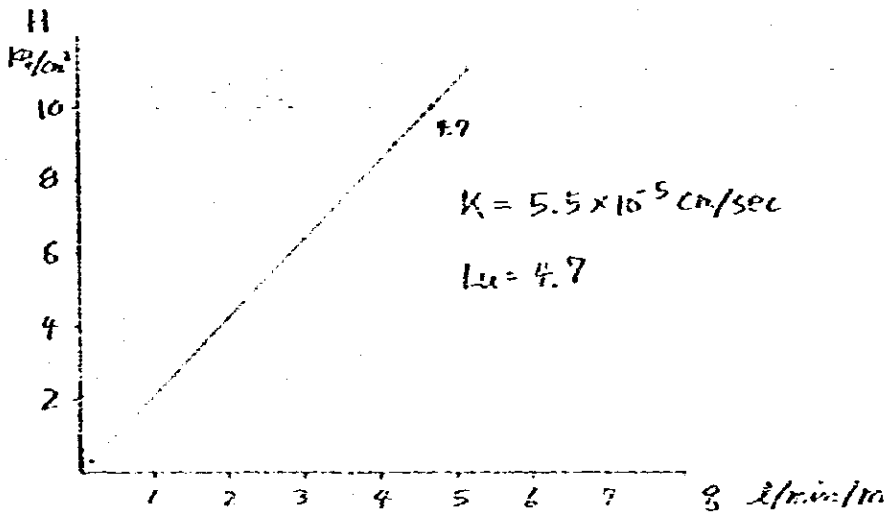
H	Q	q
kg/cm <sup>2</sup>	l/min	l/min/m
0.15	0.912	0.304

NO. BB-3 3m to 6m



H	Q	q
kg/cm <sup>2</sup>	l/min	l/min/m
0.295	0.571	0.190

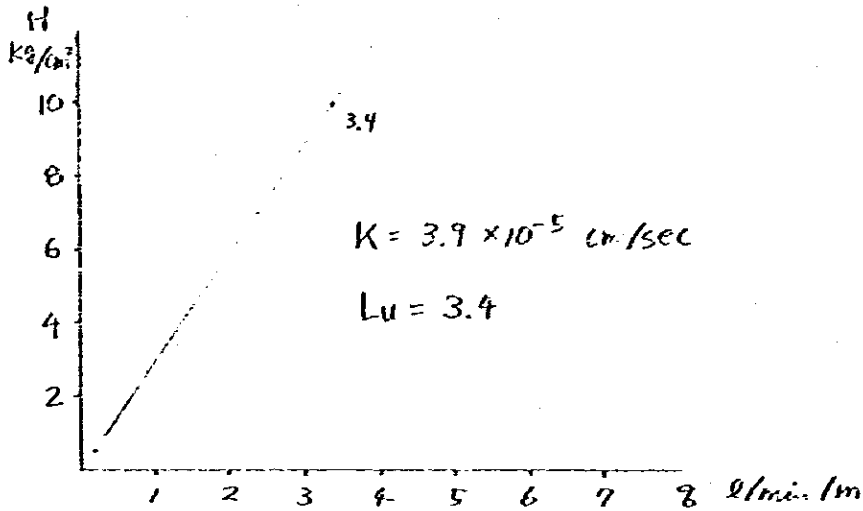
NO. BB-3 6m to 9m



H	Q	q
kg/cm <sup>2</sup>	l/min	l/min/m
0.295	0.419	0.140

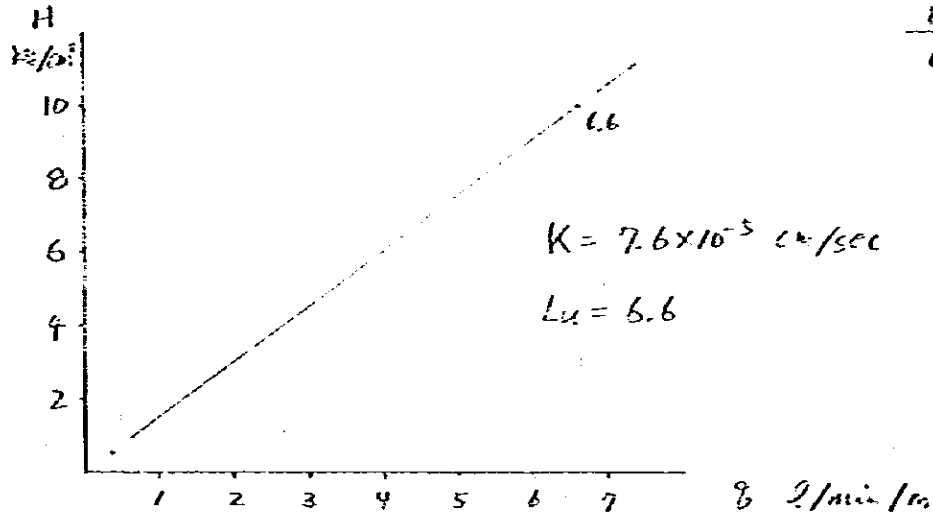
# RESULT OF LUGEON UNIT

NO. BB-3 9 m to 12 m

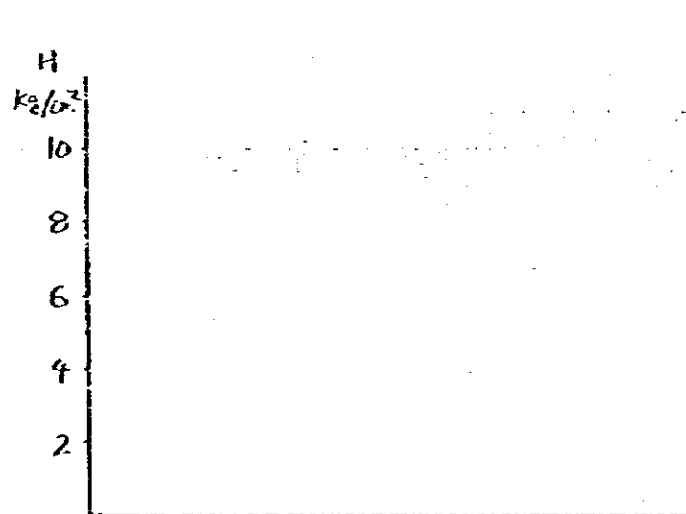


H	Q	z
Kg/cm <sup>2</sup>	l/min	l/min/m
0.540	0.544	0.181

NO. BB-3 12 m to 15 m

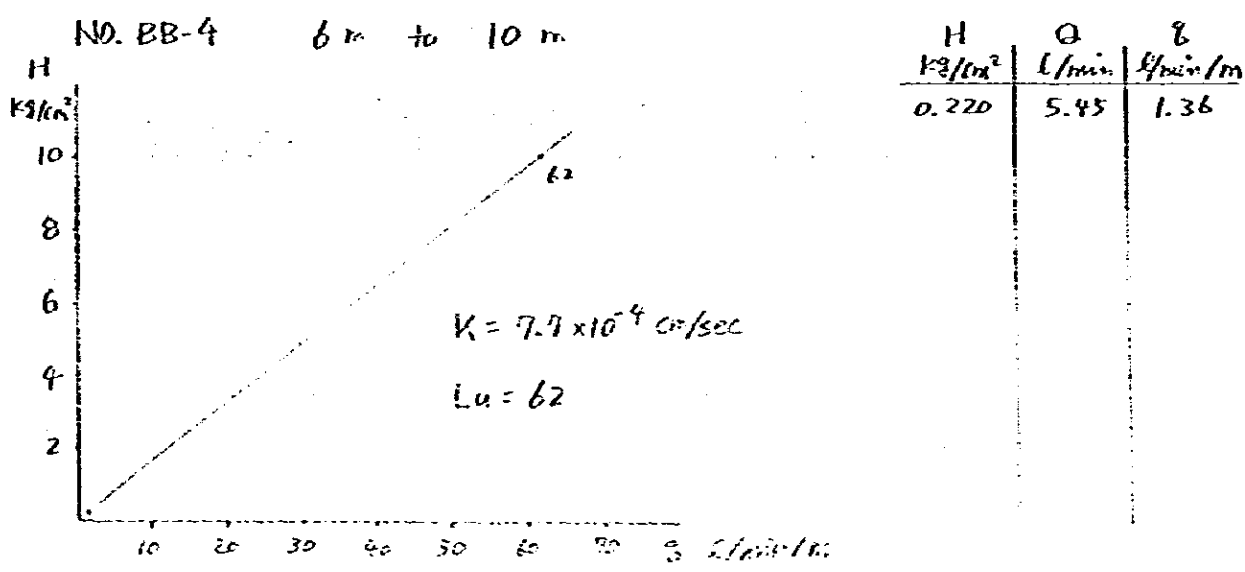
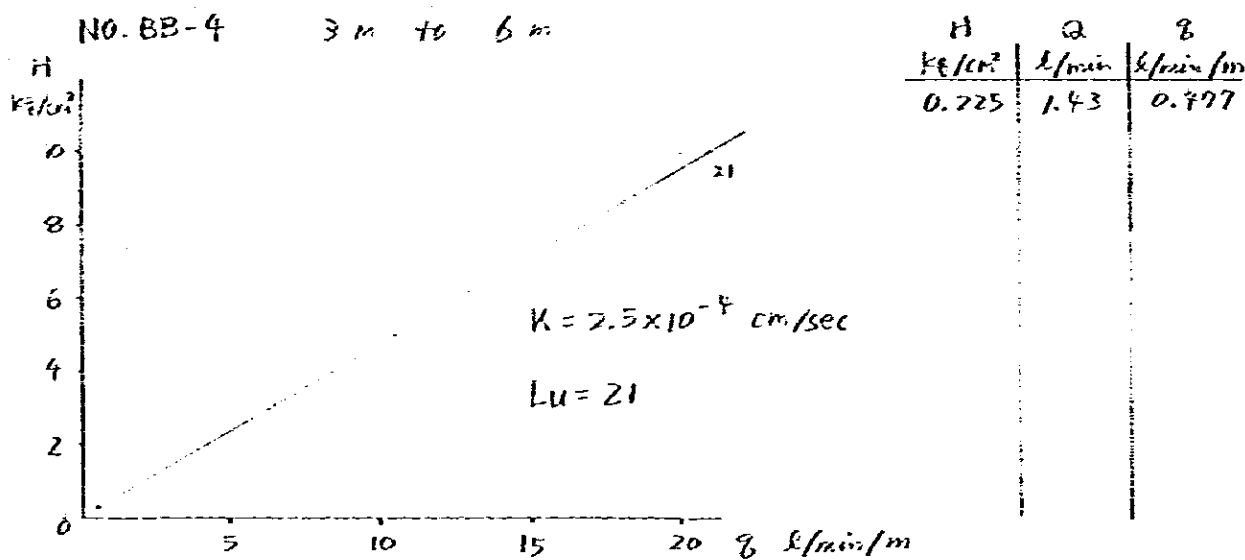
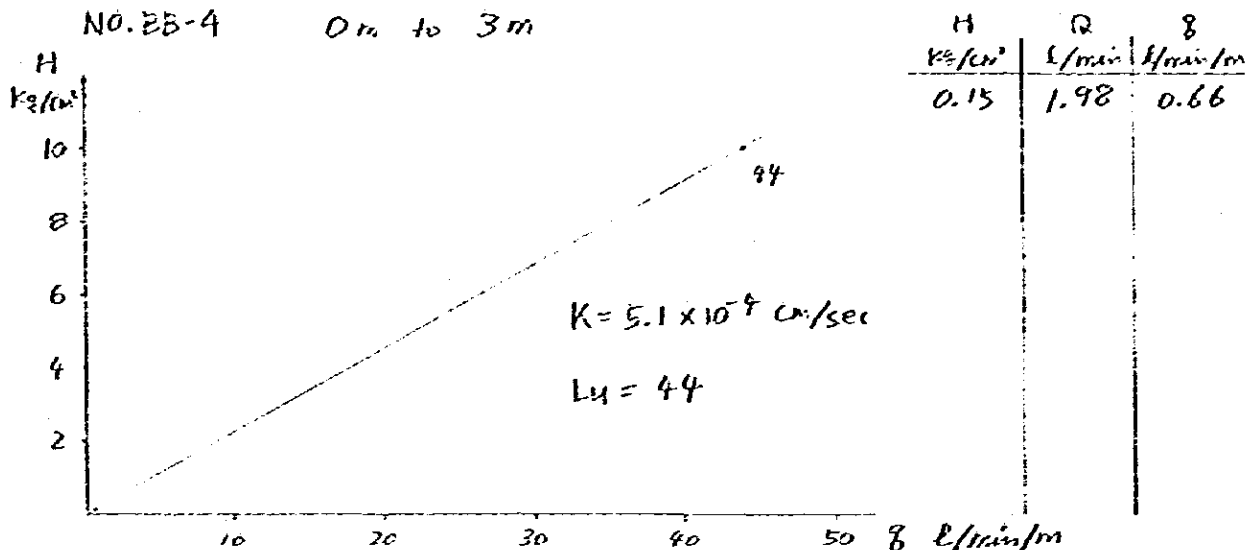


H	Q	z
Kg/cm <sup>2</sup>	l/min	l/min/m
0.540	1.07	0.357

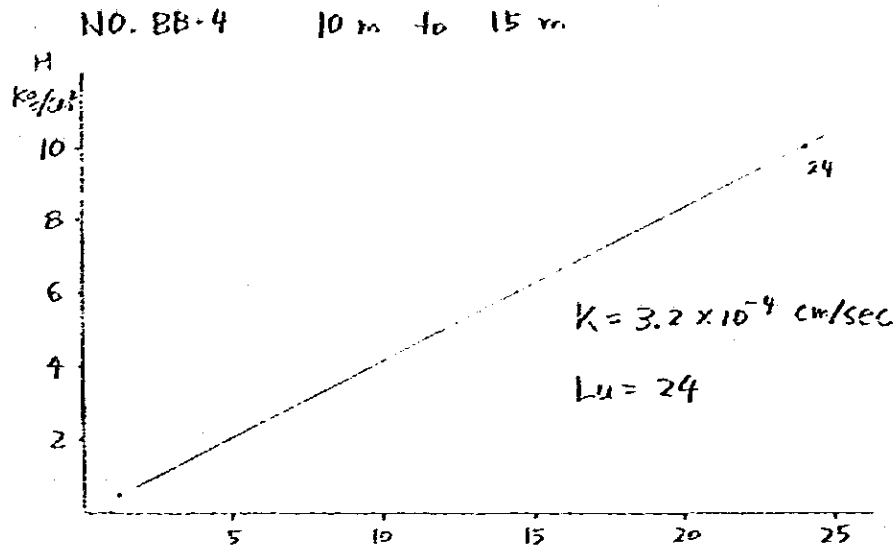


H	Q	z
Kg/cm <sup>2</sup>	l/min	l/min/m

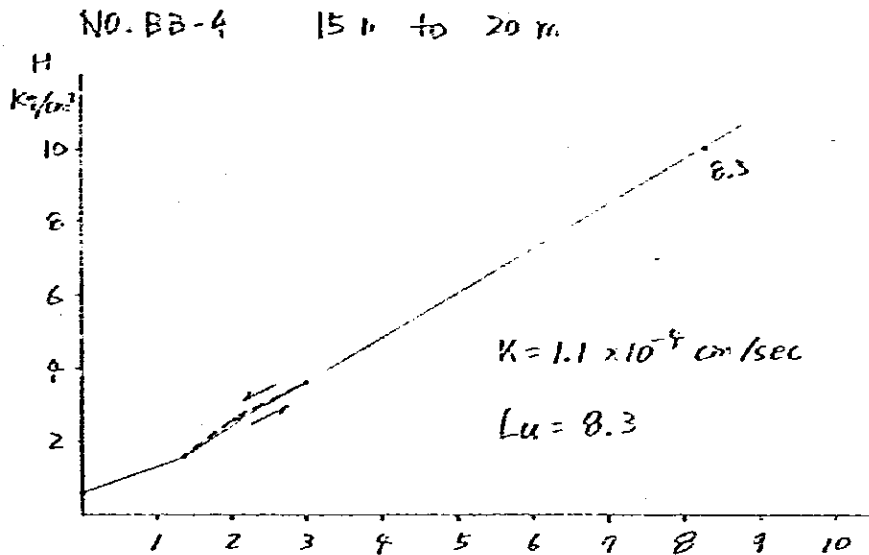
# RESULT OF LUGEON TEST



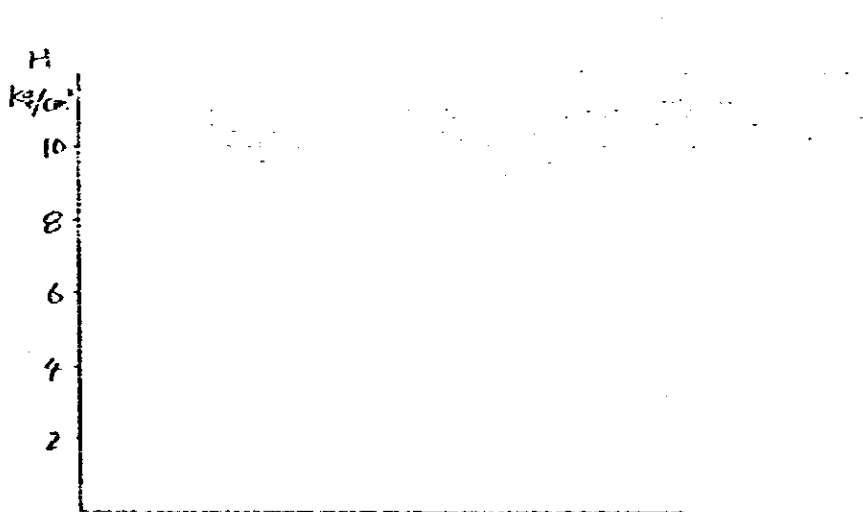
### RESULT OF LUGEON TEST



H	Q	q
kg/cm <sup>2</sup>	l/min	l/min/m
0.995	5.93	1.19

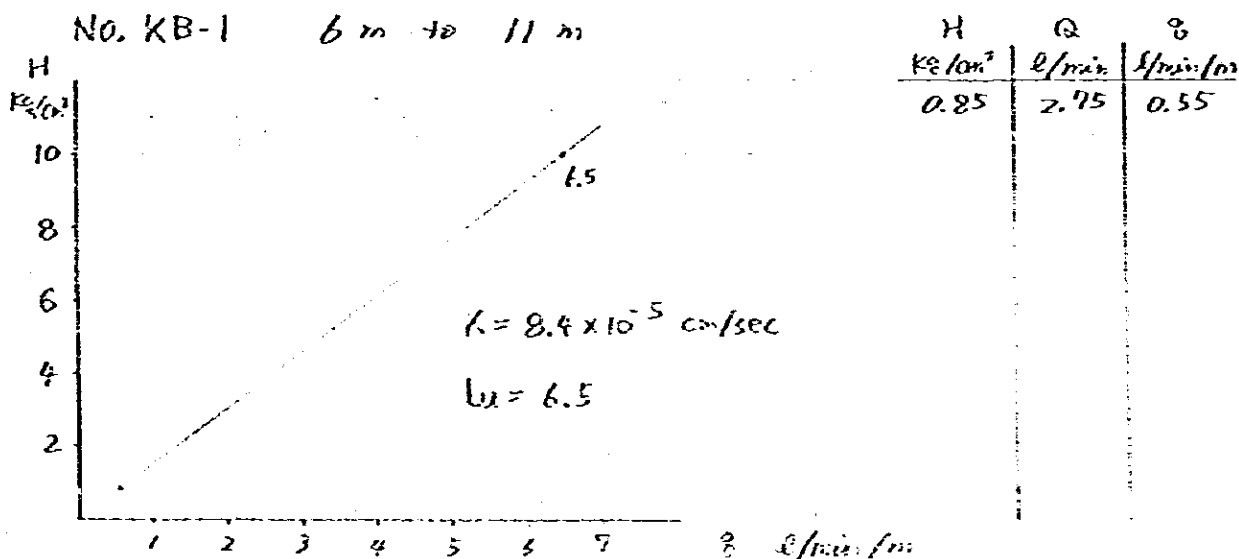
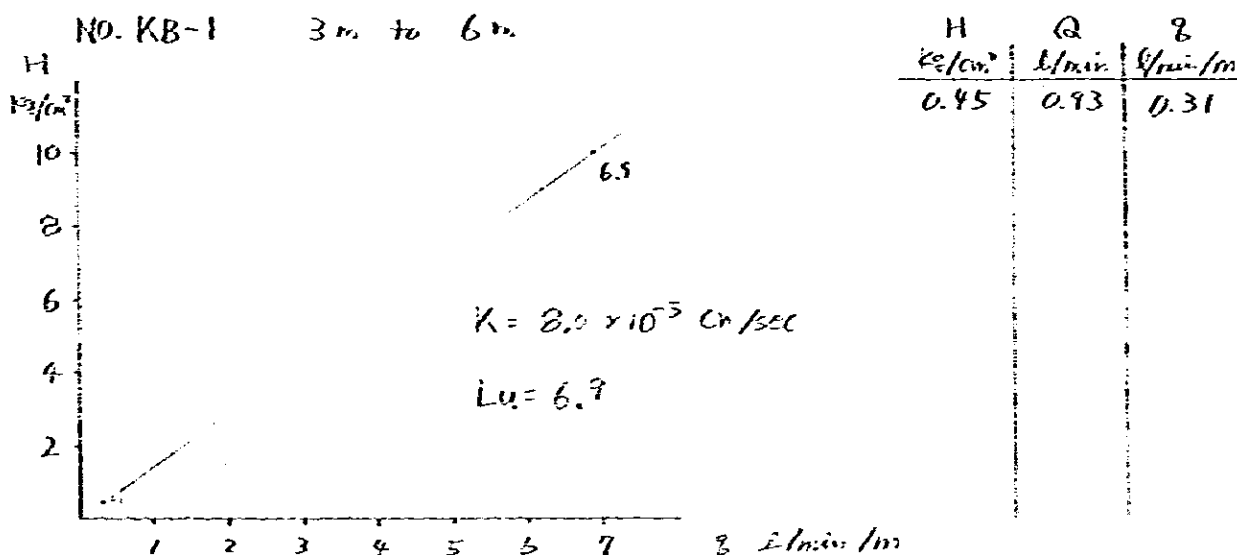
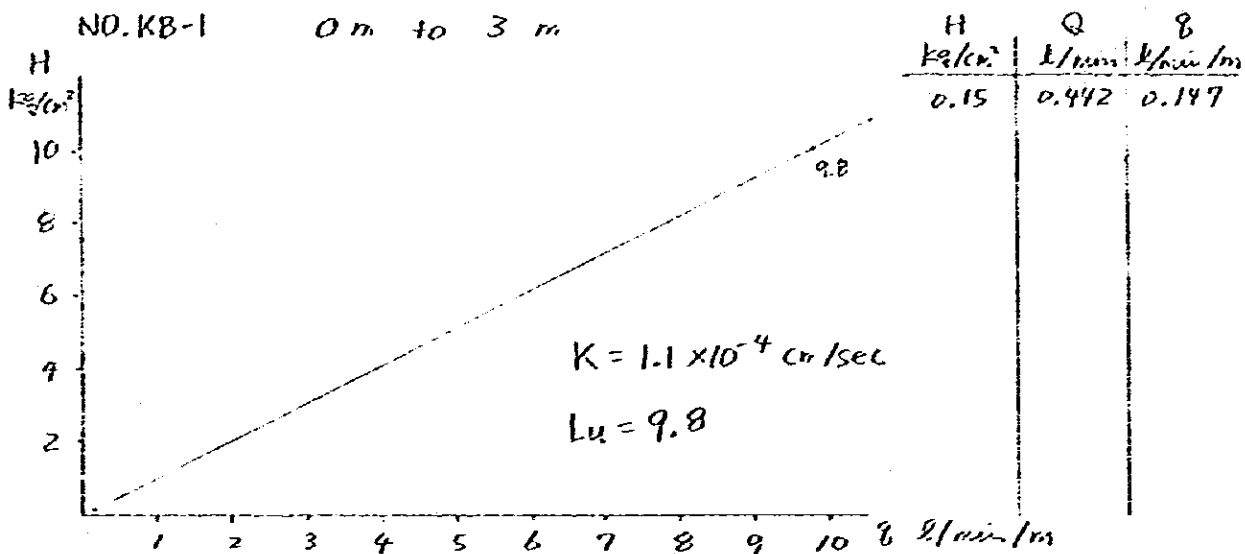


H	Q	q
kg/cm <sup>2</sup>	l/min	l/min/m
0.61	0	0
1.61	6.8	1.36
2.61	10.6	2.12
3.61	14.9	2.98
2.61	10.2	2.04
1.61	6.6	1.32
0.61	0	0



H	Q	q
kg/cm <sup>2</sup>	l/min	l/min/m

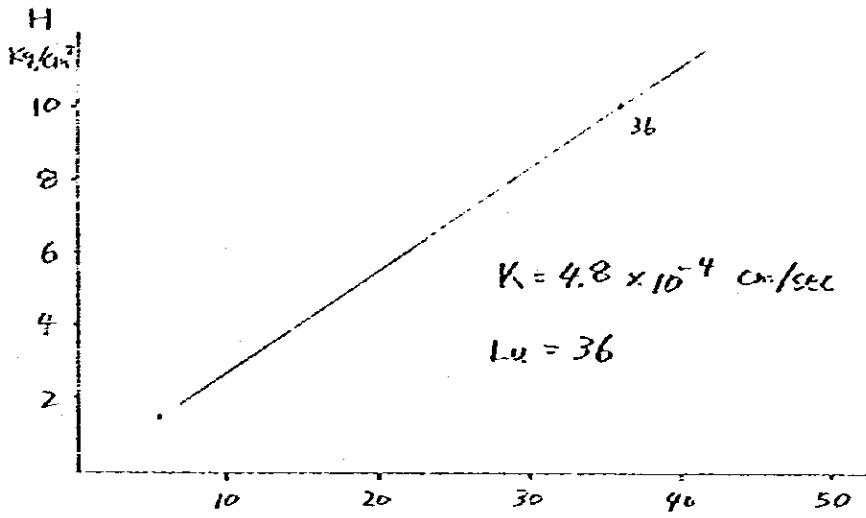
### RESULT OF LUGEON TEST





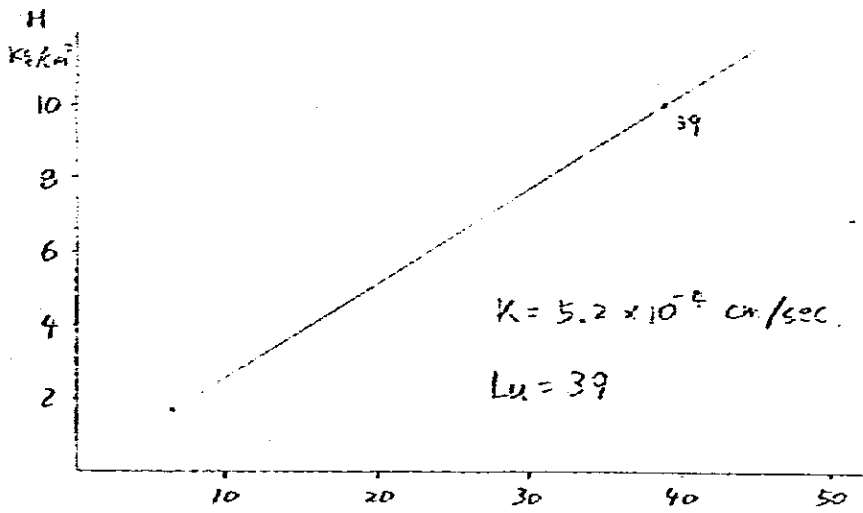
RESULT OF LUGEON TEST

NO. KB-1 11 m to 16 m



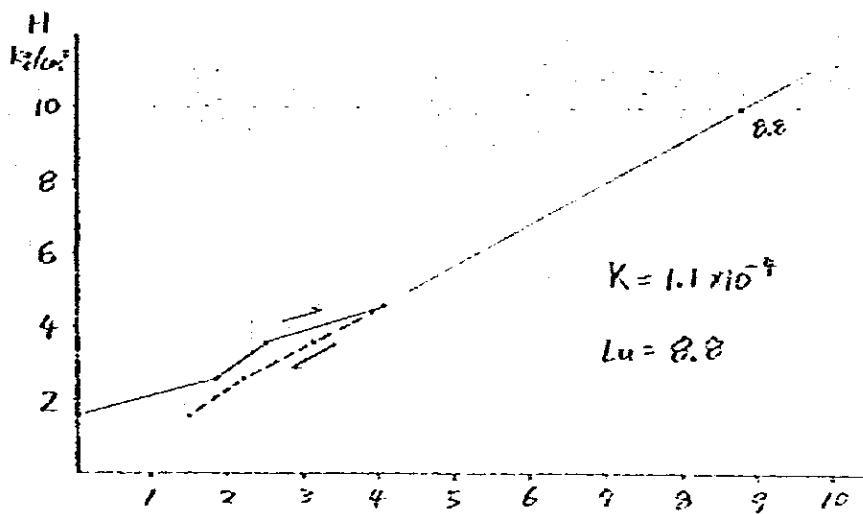
H	Q	q
Kg/cm <sup>2</sup>	l/min	l/min/m
1.50	27.2	5.44

NO. KB-1 16 m to 21 m



H	Q	q
Kg/cm <sup>2</sup>	l/min	l/min/m
1.675	32.5	6.5

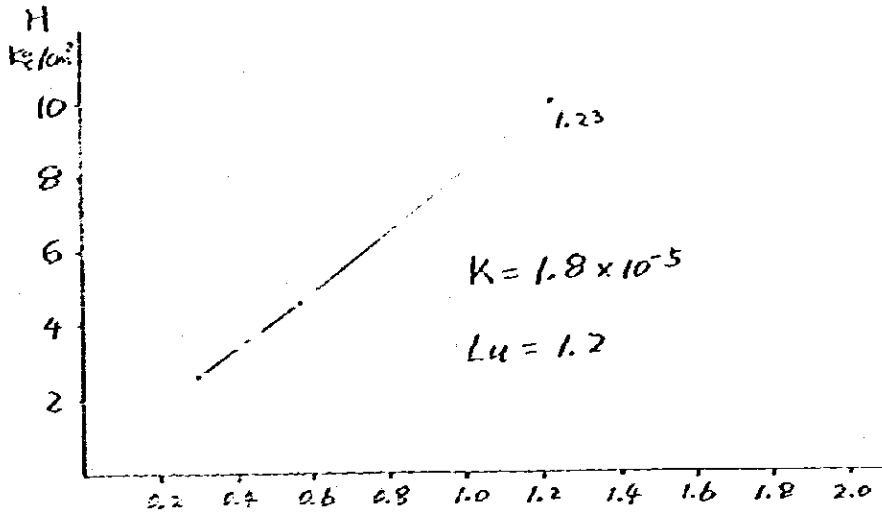
NO. KB-1 21 m to 26 m



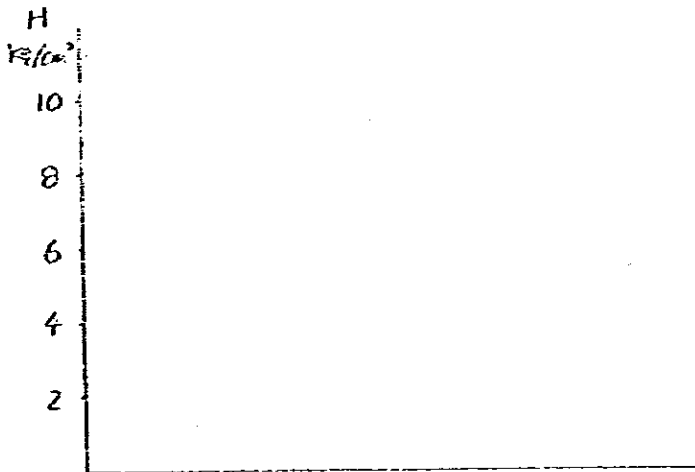
H	Q	q
Kg/cm <sup>2</sup>	l/min	l/min/m
1.59	0.1	0.02
2.59	9.15	1.83
3.59	12.6	2.52
4.59	20.3	4.06
3.59	15.6	3.12
2.59	11.1	2.22
1.59	7.4	1.48

### RESULT OF LUGEON TEST

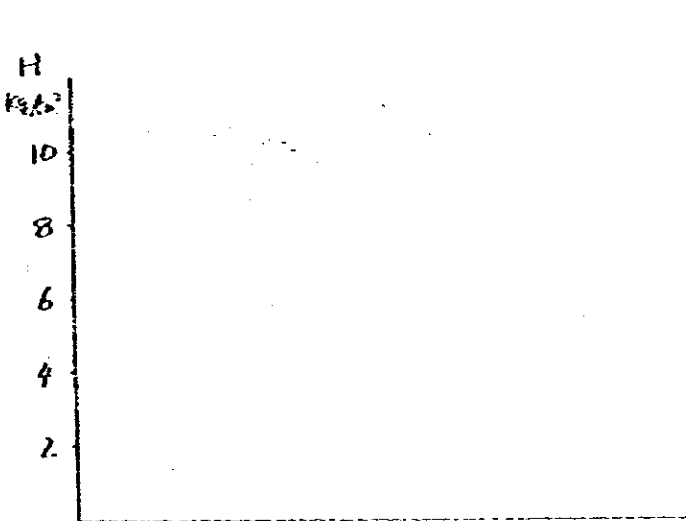
NO. KB-1 26m to 30m



H kg/cm <sup>2</sup>	Q l/min	q l/min/m
1.63	0	0
2.63	1.25	0.25
3.63	0	0
4.63	2.75	0.57
3.63	0	0
2.63	0	0
1.63	0	0

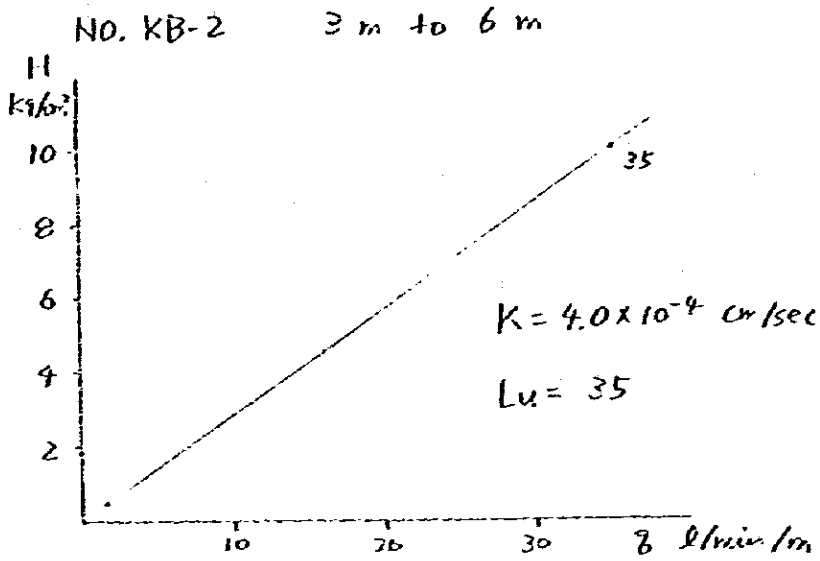


H kg/cm <sup>2</sup>	Q l/min	q l/min/m

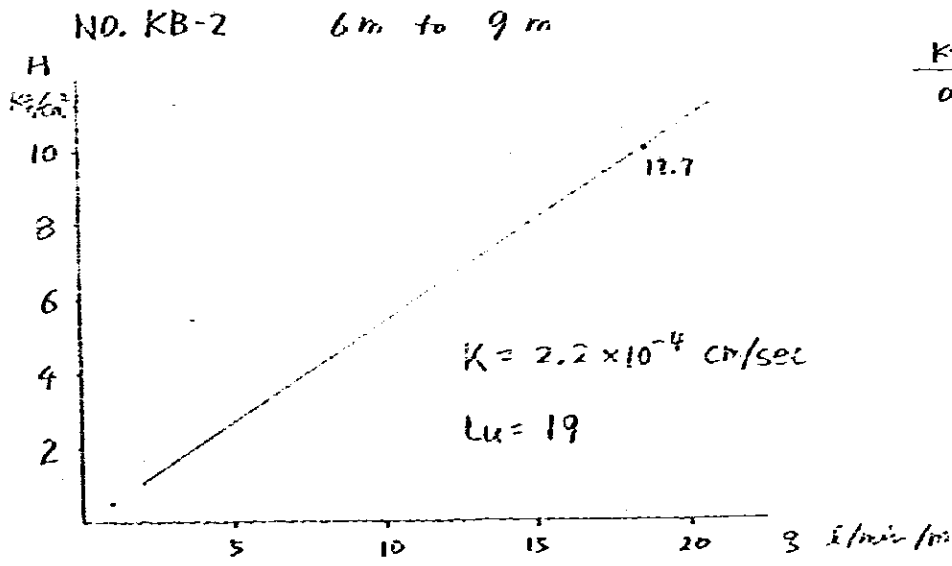


H kg/cm <sup>2</sup>	Q l/min	q l/min/m

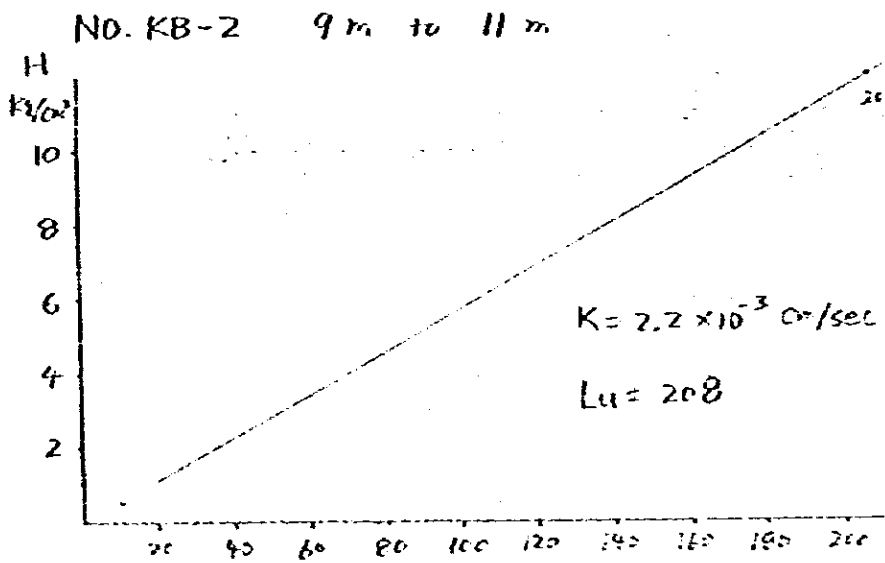
RESULT OF LUGEON TEST



H	Q	g
$kg/cm^2$	$l/min$	$l/min/m$
0.45	4.7	1.57



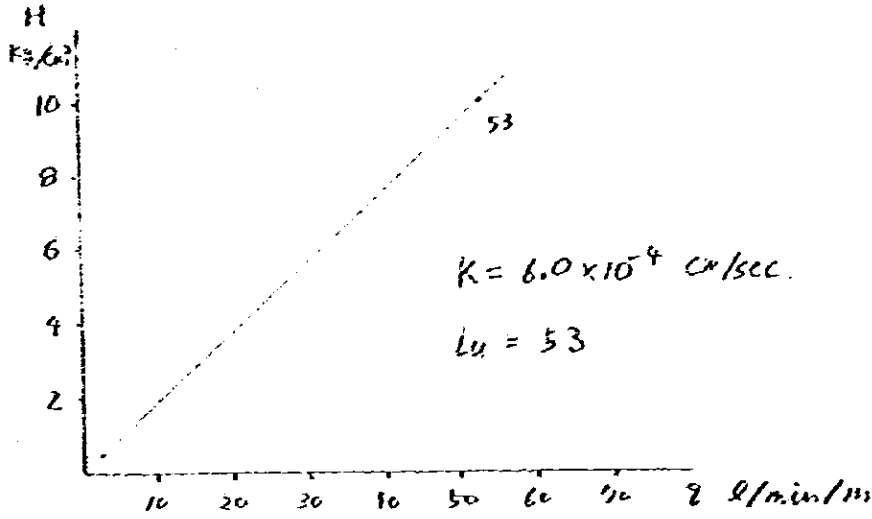
H	Q	g
$kg/cm^2$	$l/min$	$l/min/m$
0.505	2.83	0.943



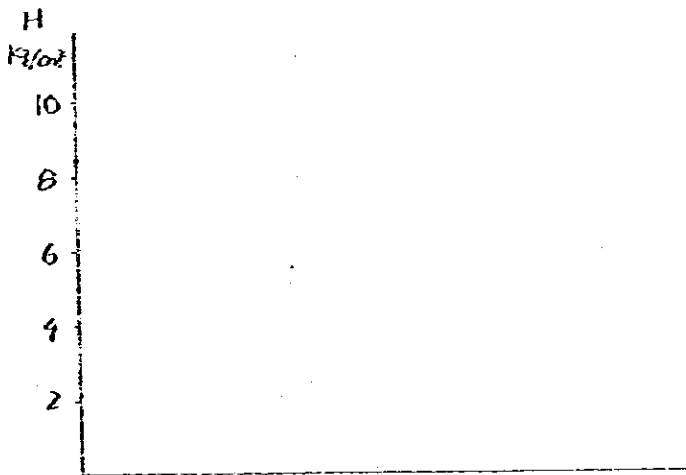
H	Q	g
$kg/cm^2$	$l/min$	$l/min/m$
0.505	21.0	10.5

### RESULT OF LUGEON TEST

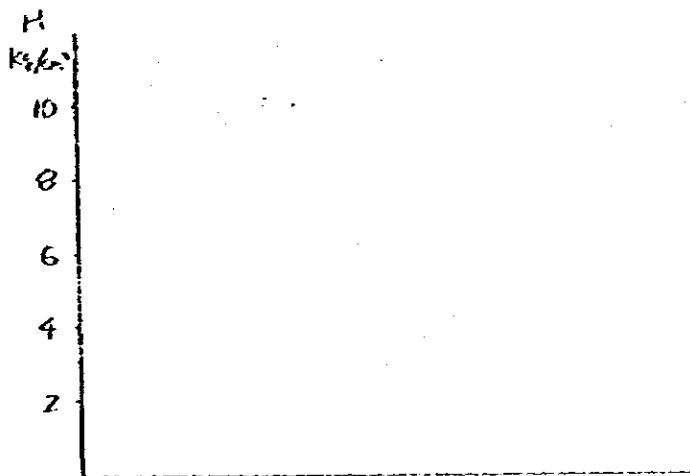
NO. KB-2      11 m to 13.7 m



H kg/cm <sup>2</sup>	Q l/min	g l/min/m
0.505	7.24	2.68



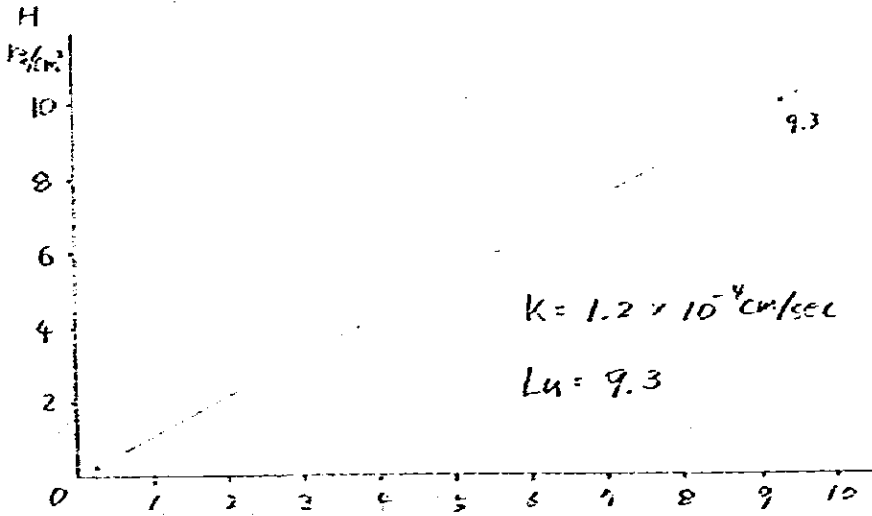
H kg/cm <sup>2</sup>	Q l/min	g l/min/m
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H kg/cm <sup>2</sup>	Q l/min	g l/min/m
-------------------------	------------	--------------

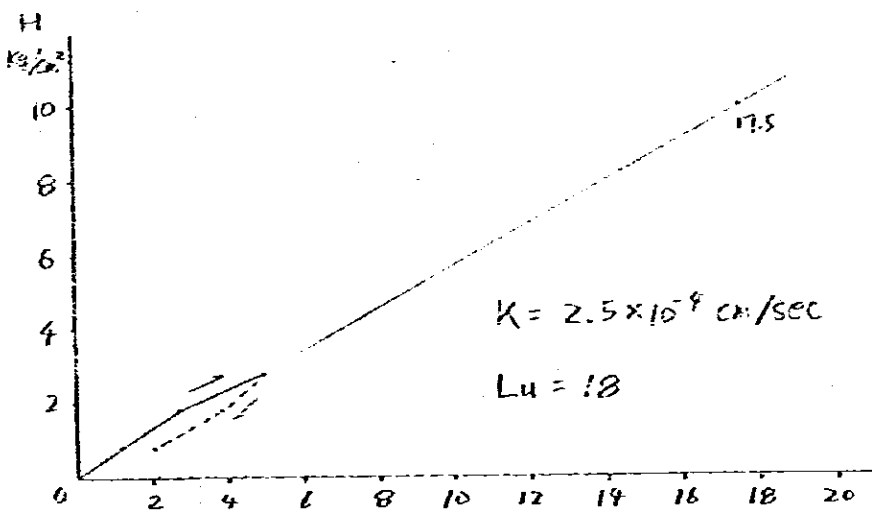
RESULT OF LUGEON TEST

NO. KB-3 0 m to 5 m



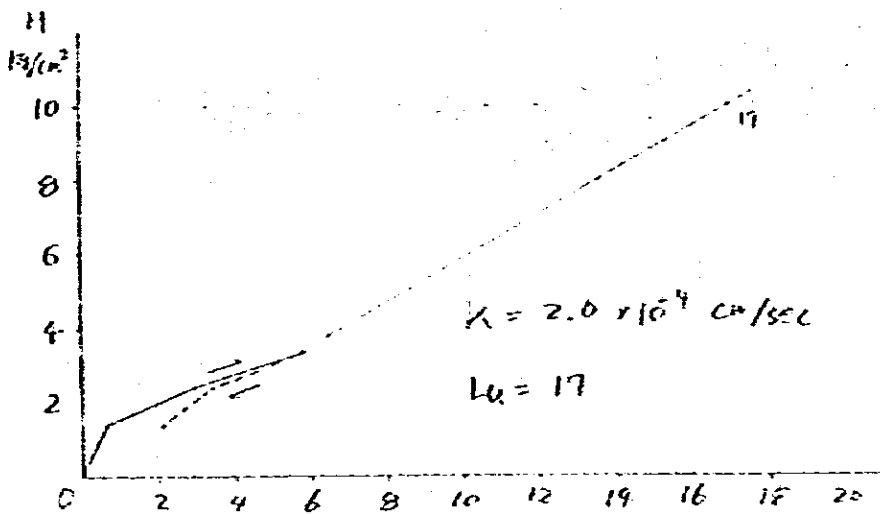
H	Q	g
Kg/cm <sup>2</sup>	l/min	l/min/m
0.25	1.16	0.232

NO. KB-3 5 m to 10 m



H	Q	g
Kg/cm <sup>2</sup>	l/min	l/min/m
0.825	5.8	1.16
1.225	13.7	2.94
2.825	24.9	4.94
1.825	19.2	3.84
0.825	10.3	2.06

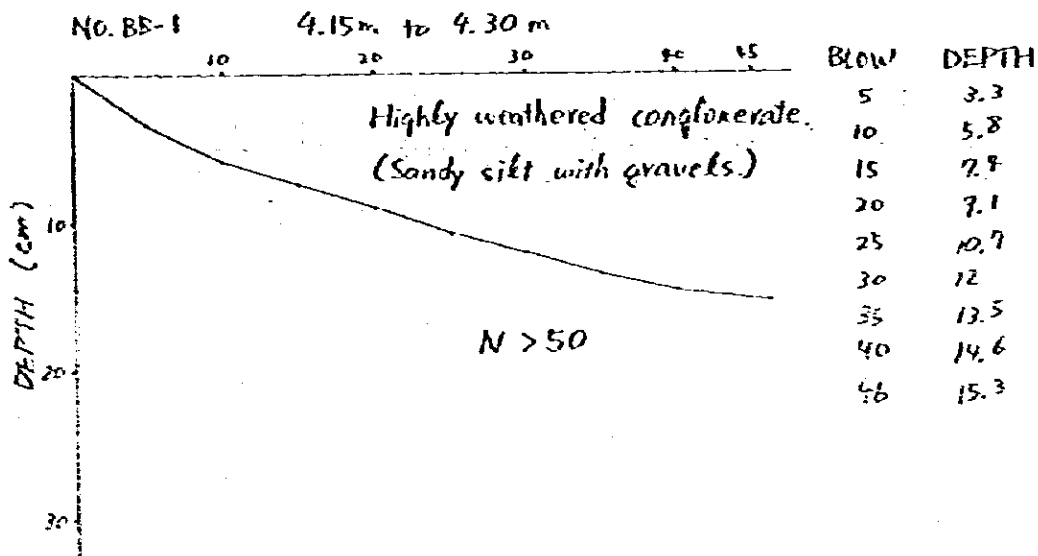
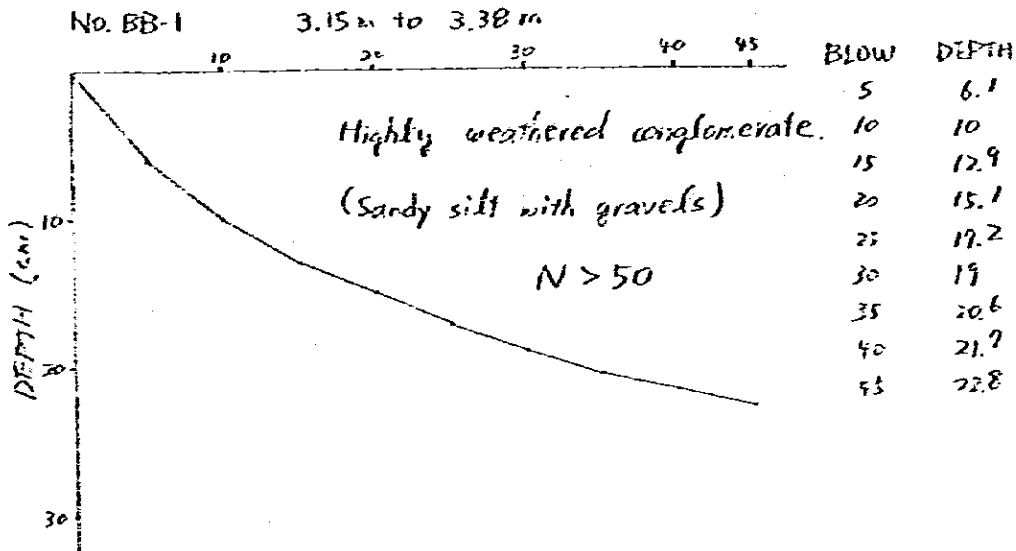
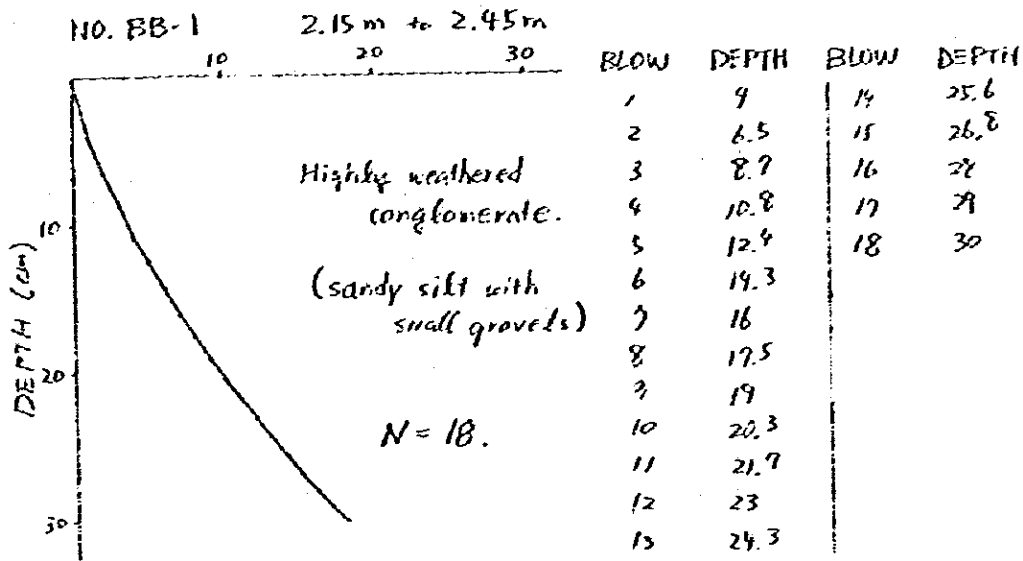
NO. KB-3 10 m to 15 m



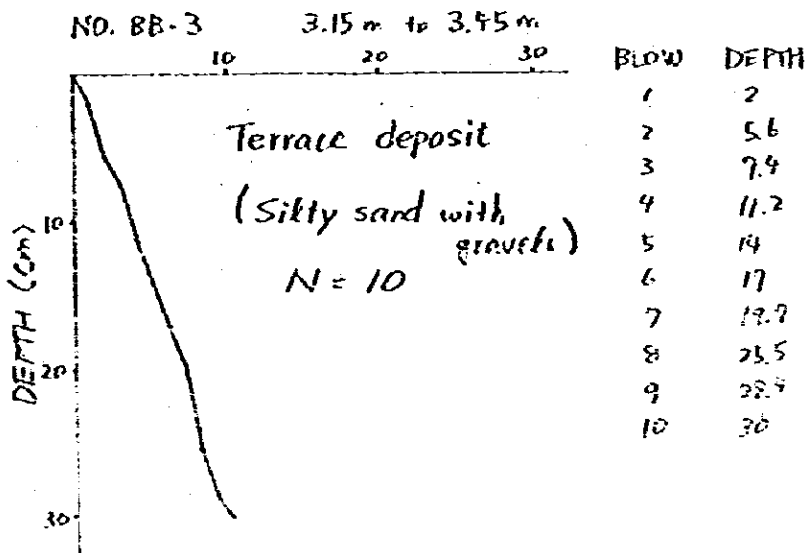
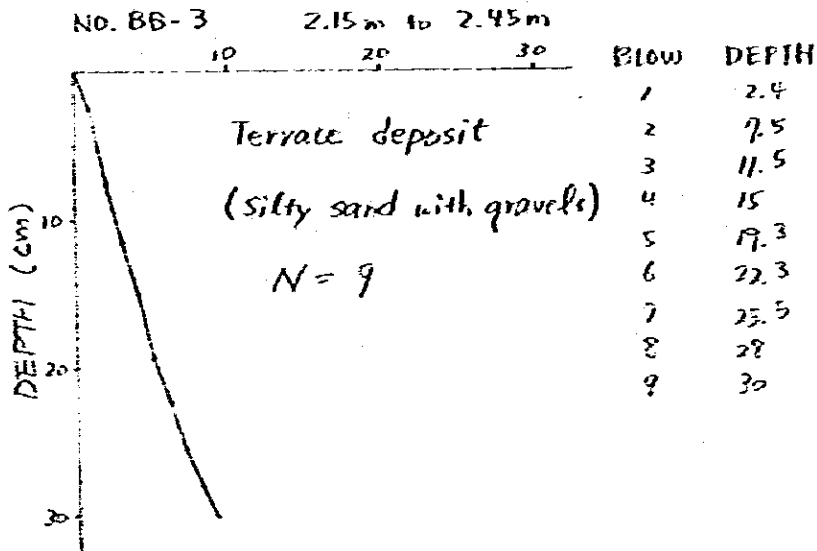
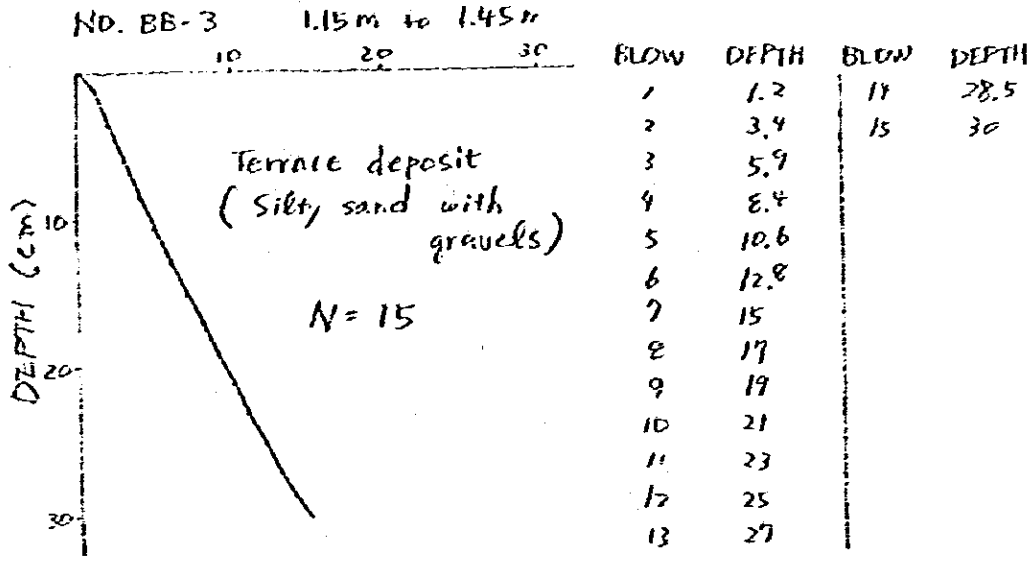
H	Q	g
Kg/cm <sup>2</sup>	l/min	l/min/m
1.405	2.95	0.59
2.405	11.6	2.92
3.405	28.9	5.98
2.405	19.1	3.42
1.405	10.4	2.08



# STANDARD PENETRATION TEST RECORD

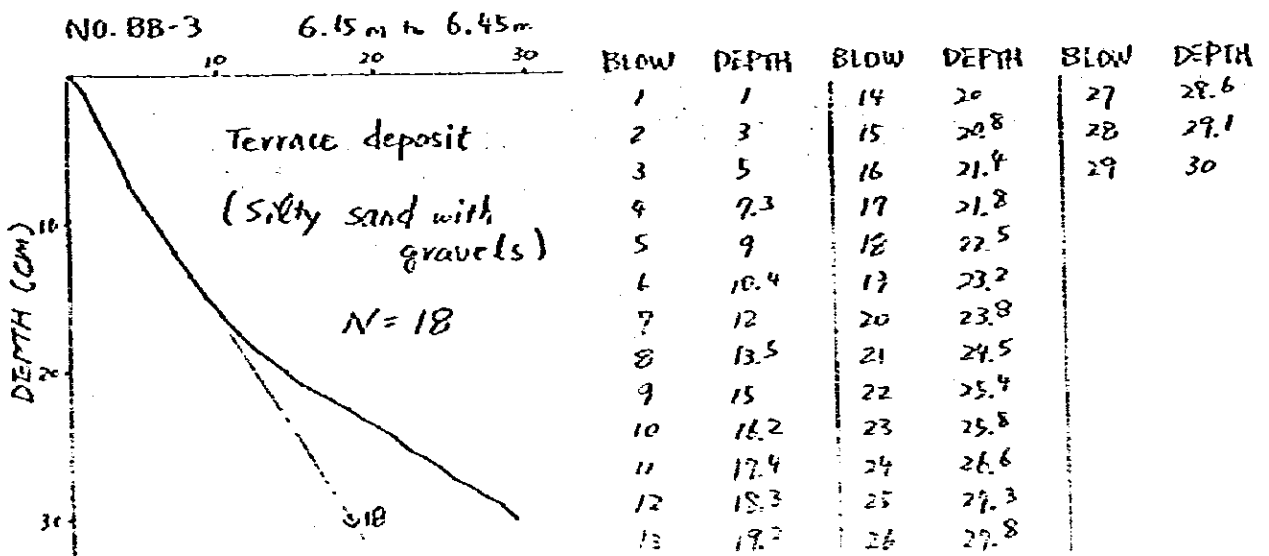
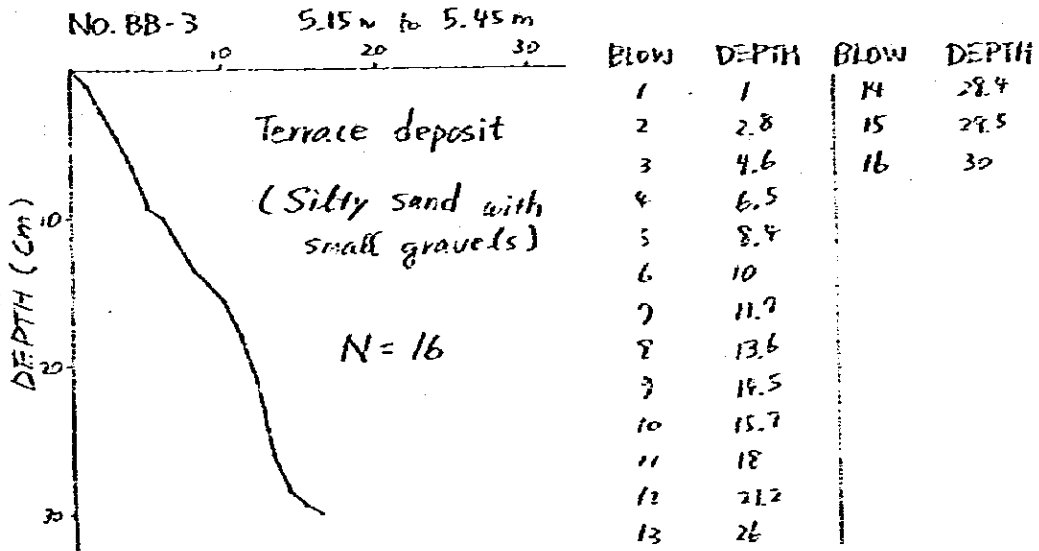
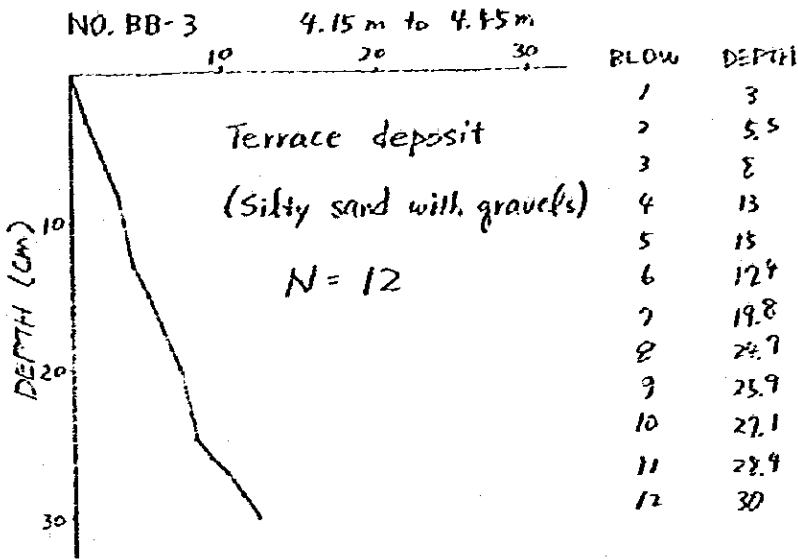


## STANDARD PENETRATION RECORD

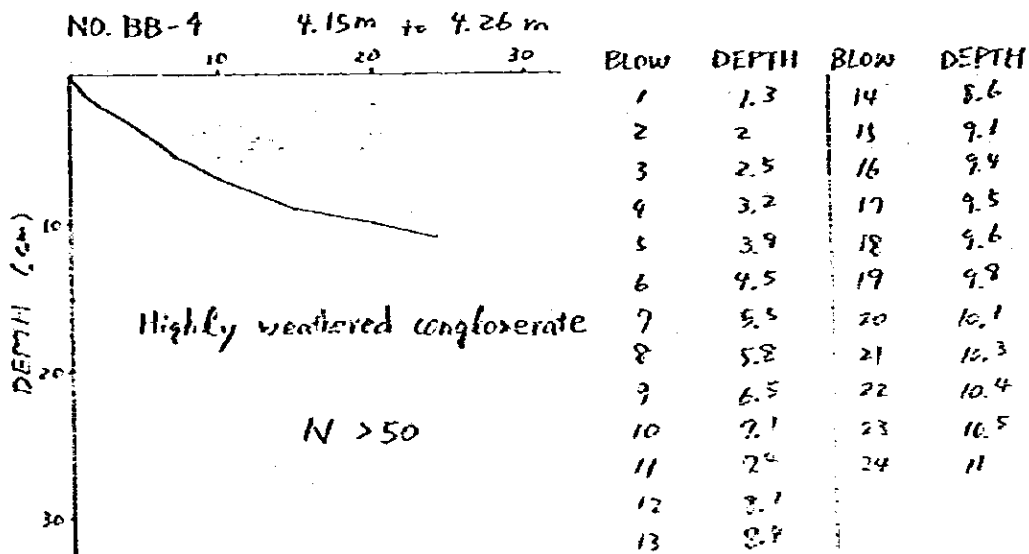
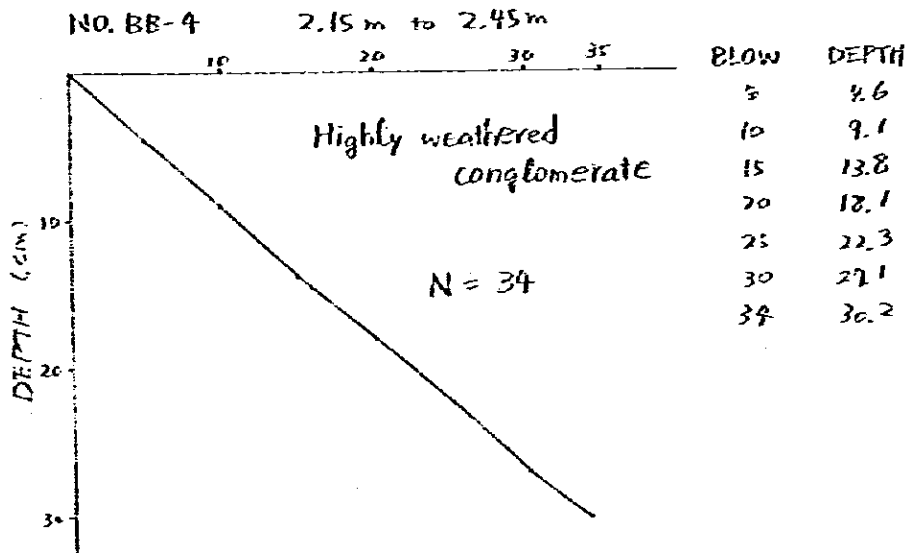
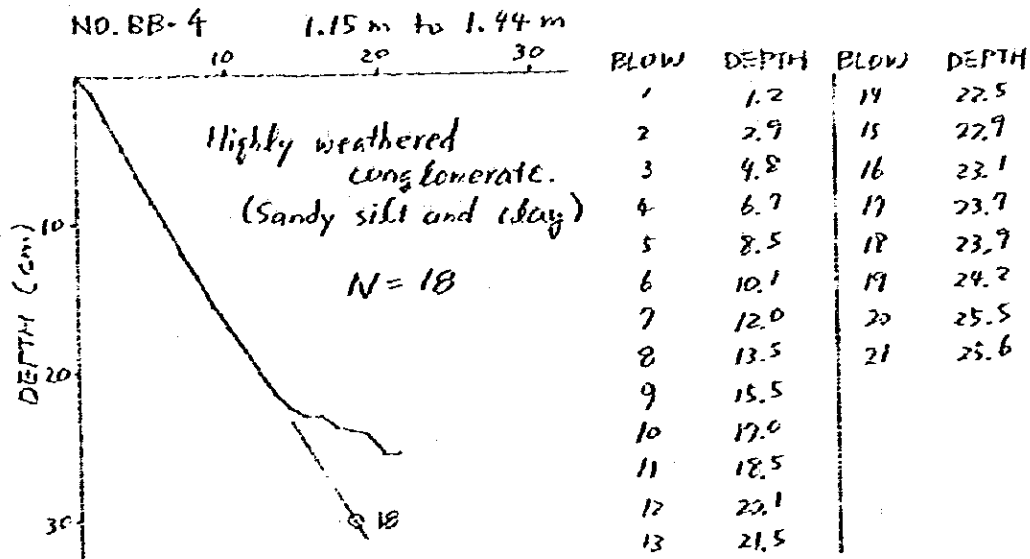




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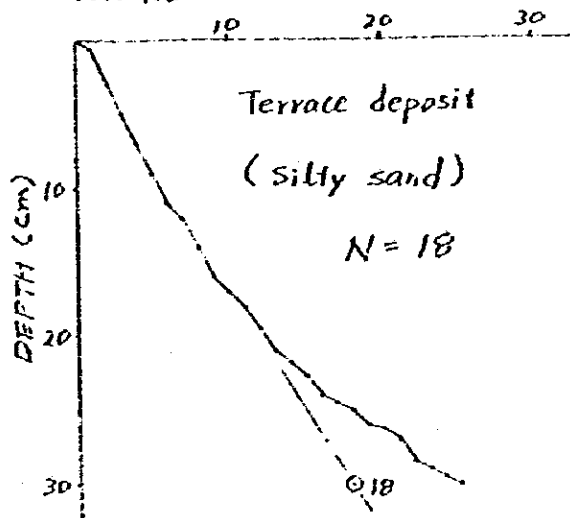


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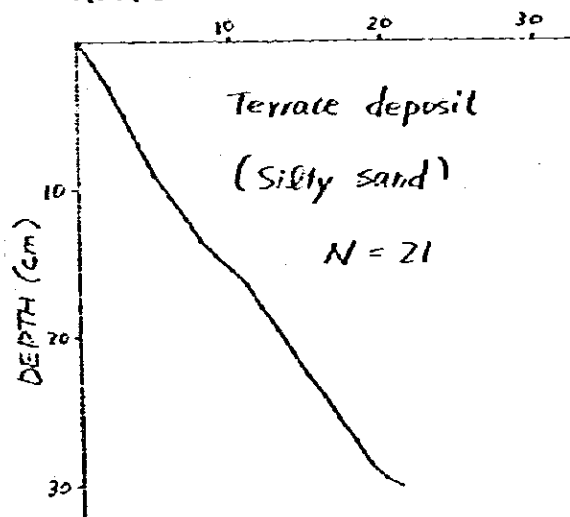
## STANDARD PENETRATION TEST RECORD.

NO. KB-2. 1.15 m to 1.45 m



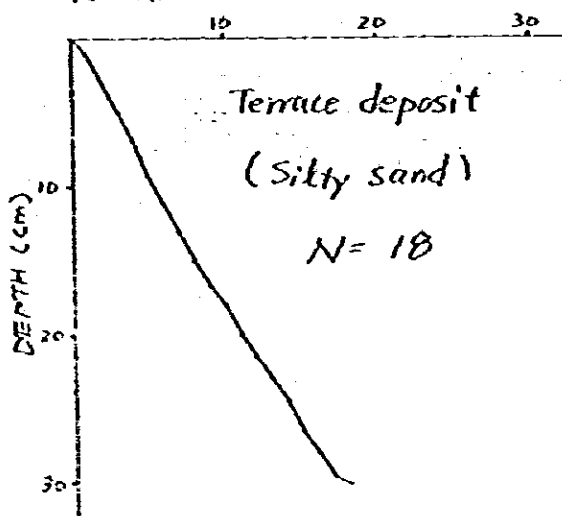
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2	3	15	22.7		
3	5	16	23.9		
4	7	17	24.6		
5	9	18	25.1		
6	11.1	19	25.8		
7	13.3	20	26.3		
8	14.1	21	27.2		
9	16	22	28.5		
10	17	23	29		
11	18.2	24	29.5		
12	19.6	25	30		
13	20.8				

NO. KB-2 2.15 m to 2.45 m



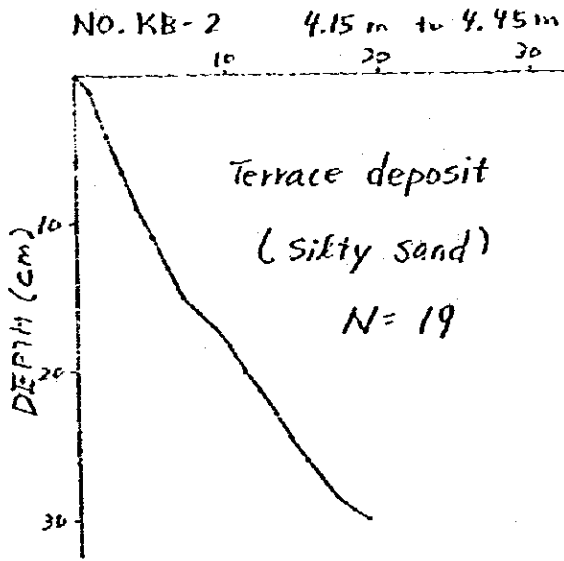
BLOW	DEPTH	BLOW	DEPTH
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2	3	15	22.7
3	5	16	24
4	7	17	25.6
5	8.9	18	27
6	10.5	19	28.4
7	12	20	29.5
8	13.5	21	30
9	14.5		
10	15.5		
11	16.4		
12	18.1		
13	19.6		

NO. KB-2 3.15 m to 3.45 m

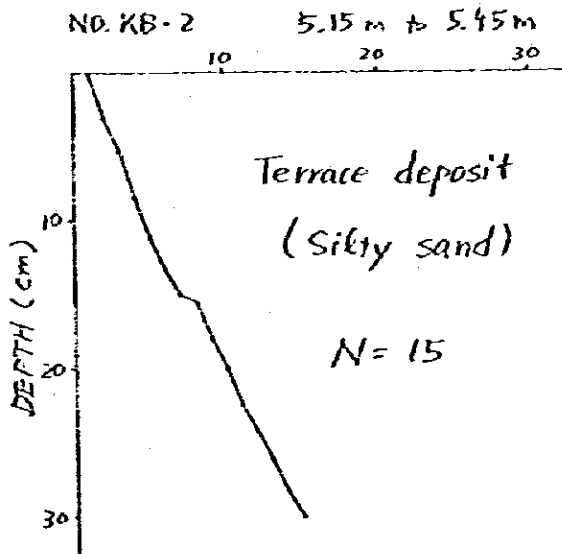


BLOW	DEPTH	BLOW	DEPTH
1	0.9	14	24.6
2	2.8	15	26.5
3	5	16	28
4	7.2	17	29.4
5	9.3	18	30
6	11.2		
7	13		
8	15		
9	16.7		
10	18.1		
11	20		
12	21.5		
13	23		

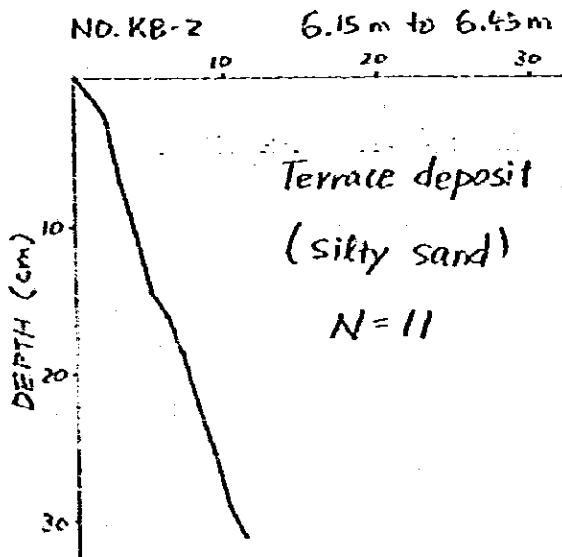
# STANDARD PENETRATION TEST RECORD



BLOW	DEPTH	BLOW	DEPTH
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2	4	15	28
3	6.5	16	27.3
4	8.9	17	28.5
5	10.8	18	29.4
6	13	17	30
7	15		
8	16		
9	16.9		
10	18.3		
11	19.8		
12	21.3		
13	22.8		

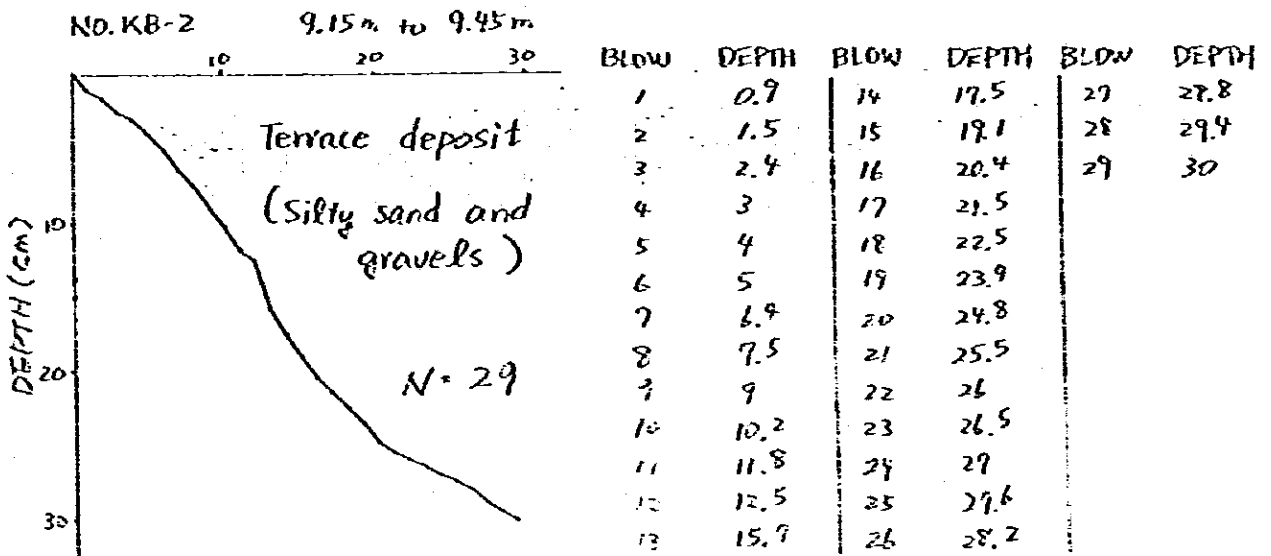
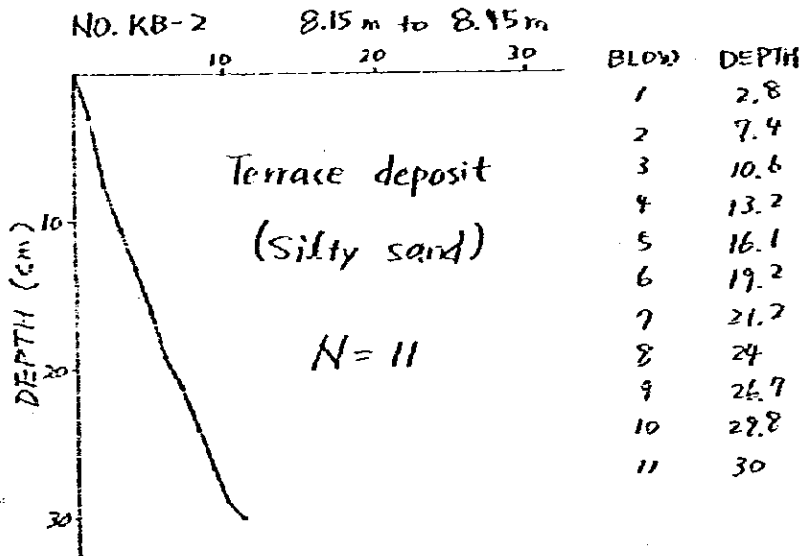
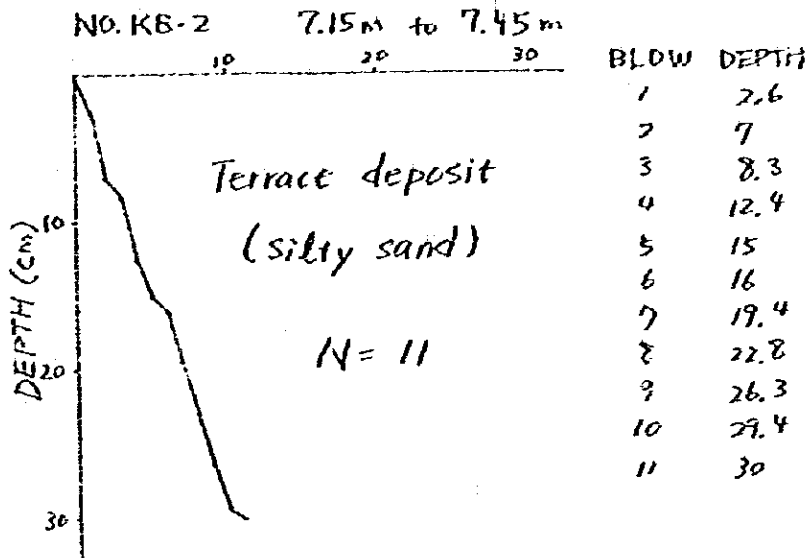


BLOW	DEPTH	BLOW	DEPTH
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2	3	15	30
3	5.3		
4	8.6		
5	11.2		
6	13.3		
7	15		
8	15.5		
9	17.8		
10	20		
11	22.4		
12	24.3		
13	26.2		

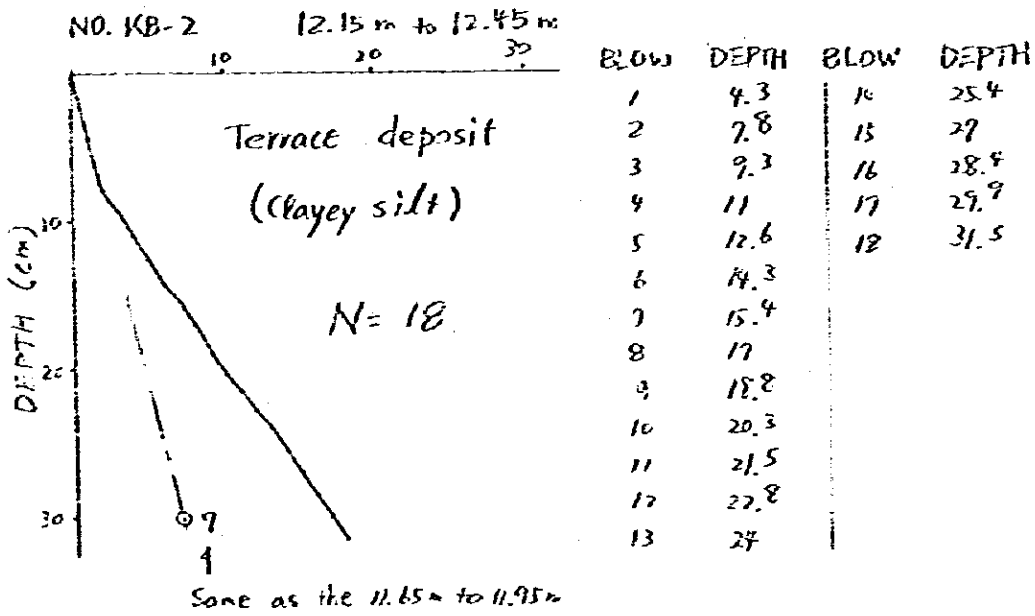
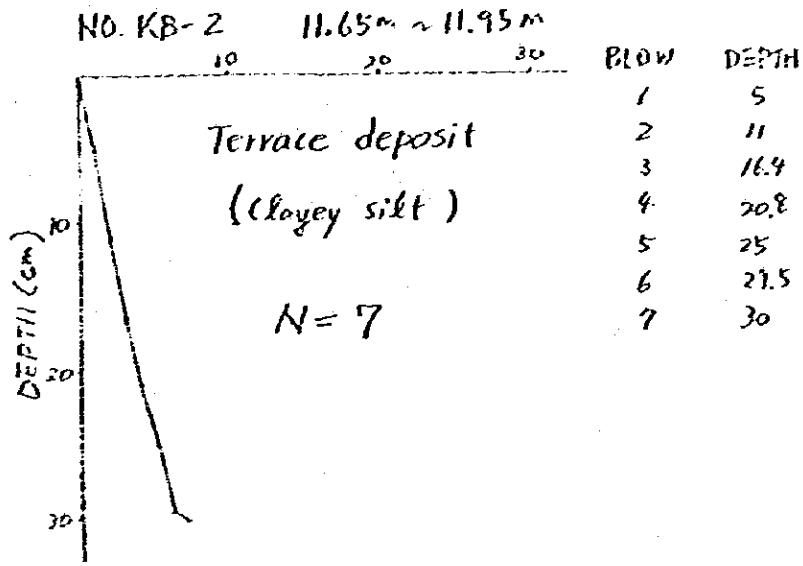


BLOW	DEPTH
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2	2.6
3	7
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5	14.5
6	16
7	18.6
8	22.2
9	25.3
10	29
11	31

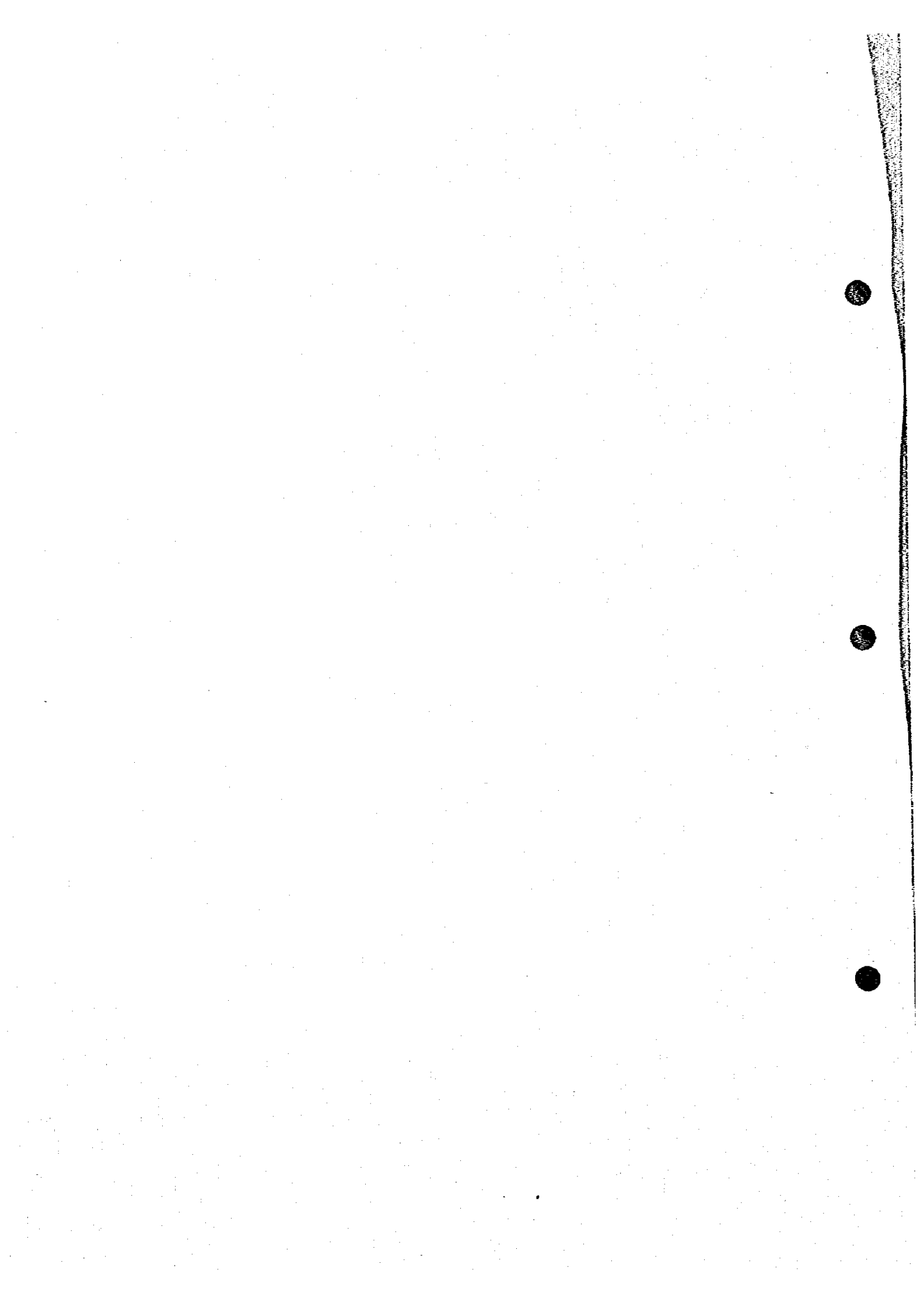
# STANDARD PENETRATION TEST RECORD



# STANDARD PENETRATION TEST RECORD



**SOIL MECHANICS**





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## SPECIFIC GRAVITY OF SOILS

LOCATION : Bila Irr. (CANAL ROUTE)      DATE : September, 1981.  
 TESTED BY : Bina Marga Laboratory of P.U.

Sample No.	TP-0(R) $d = \frac{1.4}{2.0} m$			TP-0(L) $d = \frac{0.5}{1.2} m$		
Test No.	1	2	3	1	2	3
(1) Wt. of Pycno.+Water	669.5	669.7		686.5	686.5	
(2) Wt. of Pycno.	169.5	169.7		186.5	186.5	
(3) Vol. of Pycno.	500	500		500.0	500.0	
=(1)-(2) (4) Wt. of Pycno+ <sup>Dry</sup> Soil	343.5	299.4		333.5	346.7	
=(4)-(2) (5) Wt. of Soil	174.0	129.7		147	160.2	
Temperature	°C	°C	°C	°C	°C	°C
(6) Wt. of Pycno+Soil+ Water	776.4	749.4		776.9	785.3	
=(6)-(2) (7) Wt. of Soil+Water	606.9	579.7		590.4	598.8	
=(7)-(5) (8) Wt. of Water	432.9	450		443.4	438.6	
=(3)-(8) (9) Vol. of Soil	67.1	50		56.6	61.4	
=(5)/(9) (10) Specific Gravity	2.59	2.59		2.60	2.61	
Mean	2.59			2.61		

Sample No.	TP-1 $d = \frac{0.5}{1.6} m$			TP-1 $d = \frac{1.6}{2.5} m$		
Test No.	1	2	3	1	2	3
(1) Wt. of Pycno.+Water	686.5	668.9		669.7	668.7	
(2) Wt. of Pycno.	186.5	168.9		169.7	168.7	
(3) Vol. of Pycno.	500.0	500.0		500.0	500	
=(1)-(2) (4) Wt. of Pycno+ <sup>Dry</sup> Soil	302.9	310.9		294.2	314.7	
=(4)-(2) (5) Wt. of Soil	116.4	142.0		124.5	146.0	
Temperature	°C	°C	°C	°C	°C	°C
(6) Wt. of Pycno+Soil+ Water	758.5	756.5		746.4	758.4	
=(6)-(2) (7) Wt. of Soil+Water	572	587.6		576.7	589.7	
=(7)-(5) (8) Wt. of Water	455.6	445.6		452.2	443.7	
=(3)-(8) (9) Vol. of Soil	44.4	54.4		47.8	56.3	
=(5)/(9) (10) Specific Gravity	2.62	2.61		2.60	2.59	
Mean	2.62			2.60		

**SPECIFIC GRAVITY OF SOILS**

LOCATION : Bila Irr. (CANAL ROUTE)      DATE : September, 1981.  
 TESTED BY : Bina Marga Laboratory of P.U.

Sample No.	TP-1 $d=\frac{0.5}{2.5}$ m			TP-2 $d=\frac{0.3}{1.4}$ m		
	1	2	3	1	2	3
(1) Wt. of Pycno.+Water	670.3	668.9		669.7	686.5	
(2) Wt. of Pycno.	170.3	168.9		169.7	186.5	
(3) Vol. of Pycno.	500.0	500		500.0	500	
=(1)-(2) (4) Wt. of Pycno+ <sup>Dry</sup> Soil	385.6	312.9		343.3	328.9	
=(4)-(2) (5) Wt. of Soil	215.3	144.0		173.6	142.4	
(6) Temperature	°C	°C	°C	°C	°C	°C
(6) Wt. of Pycno+Soil+ Water	803.5	758.1		778.0	775.4	
=(6)-(2) (7) Wt. of Soil+Water	633.2	589.2		608.3	588.9	
=(7)-(5) (8) Wt. of Water	417.9	445.2		434.7	446.5	
=(3)-(8) (9) Vol. of Soil	82.1	54.8		65.3	53.5	
=(5)/(9) (10) Specific Gravity	2.62	2.63		2.66	2.66	
Mean	2.63			2.66		

Sample No.	TP-3 $d=\frac{0.8}{1.4}$ m			TP-4 $d=\frac{1.0}{1.8}$ m		
	1	2	3	1	2	3
(1) Wt. of Pycno.+Water	668.7	669.7		352.0	668.9	
(2) Wt. of Pycno.	168.7	169.7		102.0	168.9	
(3) Vol. of Pycno.	500.0	500		250.0	500.0	
=(1)-(2) (4) Wt. of Pycno+ <sup>Dry</sup> Soil	341.9	292.6		194.5	314.6	
=(4)-(2) (5) Wt. of Soil	173.2	122.9		92.5	145.7	
(6) Temperature	°C	°C	°C	°C	°C	°C
(6) Wt. of Pycno+Soil+ Water	775.7	745.9		408.1	757.3	
=(6)-(2) (7) Wt. of Soil+Water	607.0	576.2		306.1	588.4	
=(7)-(5) (8) Wt. of Water	433.8	453.3		213.6	442.7	
=(3)-(8) (9) Vol. of Soil	66.2	46.7		36.4	57.3	
=(5)/(9) (10) Specific Gravity	2.62	2.63		2.54	2.54	
Mean	2.63			2.54		

### SPECIFIC GRAVITY OF SOILS

LOCATION : Bila Irr. (CANAL ROUTE)      DATE : September, 1981.  
 TESTED BY : Bina Marga Laboratory of P.U.

Sample No.		TP-4 $d = \frac{1.8}{2.0} m$			TP-5 $d = \frac{1.5}{2.0} m$			
		1	2	3	1	2	3	
	(1)	Wt. of Pycno.+Water	669.6	352		352.1	352.1	
	(2)	Wt. of Pycno.	169.6	102		102.1	102.1	
	(3)	Vol. of Pycno.	500	250		250	250	
=(1)-(2)	(4)	Wt. of Pycno+ <sup>Dry</sup> Soil	283.2	285.4		214.5	246.4	
=(4)-(2)	(5)	Wt. of Soil	113.6	183.4		112.4	144.3	
	(6)	Temperature	°C	°C	°C	°C	°C	
	(7)	Wt. of Pycno+Soil+ Water	738.9	464.0		420.9	440.6	
=(6)-(2)	(8)	Wt. of Soil+Water	569.3	362.0		318.8	338.5	
=(7)-(5)	(9)	Wt. of Water	455.7	178.6		206.4	194.2	
=(3)-(8)	(10)	Vol. of Soil	44.3	71.4		43.6	55.8	
=(5)/(9)		Specific Gravity	2.56	2.57		2.58	2.59	
		Mean	2.57			2.59		

Sample No.		TP-6 $d = \frac{0.6}{1.4} m$			TP-7 $d = \frac{1.6}{2.0} m$			
		1	2	3	1	2	3	
	(1)	Wt. of Pycno.+Water	686.5	668.9		686.4	669.7	
	(2)	Wt. of Pycno.	186.5	168.9		186.4	169.7	
	(3)	Vol. of Pycno.	500	500		500	500	
=(1)-(2)	(4)	Wt. of Pycno+ <sup>Dry</sup> Soil	384.4	340.2		358.7	334.2	
=(4)-(2)	(5)	Wt. of Soil	197.9	171.3		182.3	164.5	
	(6)	Temperature	°C	°C	°C	°C	°C	
	(7)	Wt. of Pycno+Soil+ Water	807.6	773.5		797.9	770.8	
=(6)-(2)	(8)	Wt. of Soil+Water	621.1	604.6		611.5	601.1	
=(7)-(5)	(9)	Wt. of Water	423.2	433.3		429.2	436.6	
=(3)-(8)	(10)	Vol. of Soil	76.8	66.7		70.8	63.4	
=(5)/(9)		Specific Gravity	2.58	2.57		2.57	2.59	
		Mean	2.58			2.58		

**SPECIFIC GRAVITY OF SOILS**

LOCATION : Bila Irr. (CANAL ROUTE)      DATE : September, 1981.  
 TESTED BY : Bina Marga Laboratory of P.U.

Sample No.	TP-8 $d = \frac{1.4}{2.0} m$			TP-9 $d = \frac{1.0}{1.5} m$		
	1	2	3	1	2	3
(1) Wt. of Pycno.+Water	686.5	351.7		686.5	668.7	
(2) Wt. of Pycno.	186.5	101.7		186.5	168.7	
(3) Vol. of Pycno.	500	250		500	500	
=(1)-(2) (4) Wt. of Pycno+ <sup>Dry</sup> Soil	314.5	236.1		297.6	289.8	
=(4)-(2) (5) Wt. of Soil	128.0	134.4		111.1	121.1	
(6) Temperature	°C	°C	°C	°C	°C	°C
(6) Wt. of Pycno+Soil+ Water	766.7	436.0		754.4	742.8	
=(6)-(2) (7) Wt. of Soil+Water	580.2	334.3		567.9	574.1	
=(7)-(5) (8) Wt. of Water	452.2	199.9		456.8	453	
=(3)-(8) (9) Vol. of Soil	47.8	50.1		43.2	47	
=(5)/(9) (10) Specific Gravity	2.68	2.68		2.57	2.58	
Mean	2.68			2.58		

Sample No.	$d = \quad m$			$d = \quad m$		
	1	2	3	1	2	3
(1) Wt. of Pycno.+Water						
(2) Wt. of Pycno.						
(3) Vol. of Pycno.						
=(1)-(2) (4) Wt. of Pycno+ <sup>Dry</sup> Soil						
=(4)-(2) (5) Wt. of Soil						
(6) Temperature	°C	°C	°C	°C	°C	°C
(6) Wt. of Pycno+Soil+ Water						
=(6)-(2) (7) Wt. of Soil+Water						
=(7)-(5) (8) Wt. of Water						
=(3)-(8) (9) Vol. of Soil						
=(5)/(9) (10) Specific Gravity						
Mean						

**SPECIFIC GRAVITY OF SOILS**

LOCATION : Bila Irr. (FLOOD DIKE)      DATE : September, 1981.  
 TESTED BY : Bina Marga Laboratory of P.U.

Sample No.	PW-1 $d=0.50m$			PW-2 $d=0.50m$		
	1	2	3	1	2	3
(1) Wt. of Pycno.+Water	352.1	669.5		668.9	686.5	
(2) Wt. of Pycno.	102.1	169.5		168.9	186.5	
(3) Vol. of Pycno.	250	500		500	500	
=(1)-(2) Wt. of Pycno+ Dry Soil	188.7	284.9		263.1	328.6	
(5) Wt. of Soil	86.6	115.4		94.2	142.1	
=(4)-(2) Temperature	°C	°C	°C	°C	°C	°C
(6) Wt. of Pycno+Soil+ Water	405.4	740.4		726.6	773.7	
=(6)-(2) Wt. of Soil+Water	303.3	570.9		557.7	587.2	
(8) Wt. of Water	216.7	455.5		463.5	445.1	
=(7)-(5) Vol. of Soil	33.3	44.5		36.5	54.9	
=(3)-(8) Specific Gravity	2.60	2.59		2.58	2.59	
=(5)/(9) Mean	2.60			2.59		

Sample No.	$d=$ $m$			$d=$ $m$		
	1	2	3	1	2	3
(1) Wt. of Pycno.+Water						
(2) Wt. of Pycno.						
(3) Vol. of Pycno.						
=(1)-(2) Wt. of Pycno+ Dry Soil						
(5) Wt. of Soil						
=(4)-(2) Temperature	°C	°C	°C	°C	°C	°C
(6) Wt. of Pycno+Soil+ Water						
=(6)-(2) Wt. of Soil+Water						
(8) Wt. of Water						
=(7)-(5) Vol. of Soil						
=(3)-(8) Specific Gravity						
=(5)/(9) Mean						

**SPECIFIC GRAVITY OF SOILS**

LOCATION : Hila Irr. (FLOOD CONTROL) DATE : September, 1981.  
 TESTED BY : Eina Marga Laboratory of P.U.

Sample No.	ER-1 d=0.50m			ER-4 d=0.50m		
	1	2	3	1	2	3
(1) Wt. of Pychno.+Water	351.7	669.7		668.9	352.1	
(2) Wt. of Pychno.	101.7	169.7		168.9	102.1	
(3) Vol. of Pychno.	250.0	500		500.0	250	
=(1)-(2) Wt. of Pychno+ Dry Soil	189.1	322.6		284.9	246.5	
(5) Wt. of Soil	87.4	152.9		116.0	144.4	
=(4)-(5) Temperature	°C	°C	°C	°C	°C	°C
(6) Wt. of Pychno+Soil+ Water	405.7	764		739.9	440.7	
=(6)-(2) Wt. of Soil+Water	304.0	594.3		571.0	338.6	
=(7)-(5) Wt. of Water	216.6	441.4		455	194.2	
=(3)-(8) Vol. of Soil	33.4	58.6		45	55.8	
=(5)/(9) Specific Gravity	2.62	2.61		2.58	2.59	
Mean	2.62			2.59		

Sample No.	ER-7 d=0.50m			d=0.50m		
	1	2	3	1	2	3
(1) Wt. of Pychno.+Water	669.7	352.1				
(2) Wt. of Pychno.	169.7	102.1				
(3) Vol. of Pychno.	500.0	250.0				
=(1)-(2) Wt. of Pychno+ Dry Soil	290.8	238.4				
(5) Wt. of Soil	121.1	136.3				
=(4)-(2) Temperature	°C	°C	°C	°C	°C	°C
(6) Wt. of Pychno+Soil+ Water	744	435.8				
=(6)-(2) Wt. of Soil+Water	574.3	333.7				
=(7)-(5) Wt. of Water	453.2	197.4				
=(3)-(8) Vol. of Soil	46.8	52.6				
=(5)/(9) Specific Gravity	2.59	2.59				
Mean	2.59					



**SPECIFIC GRAVITY OF SOILS**

LOCATION : Bila Irr. (RIVER MATERIAL) DATE : September, 1981.  
 TESTED BY : Bina Marga Laboratory of P.U.

Sample No.	RM-3 d=0.30m			RM-5 d=0.30m		
	1	2	3	1	2	3
(1) Wt. of Pycno.+Water	668.9	669.7		668.9	352.1	
(2) Wt. of Pycno.	168.9	169.7		168.9	102.1	
(3) Vol. of Pycno.	500.0	500		500	250	
=(1)-(2) (4) Wt. of Pycno.+ Dry Soil	301.4	290.9		365.4	216.8	
=(4)-(2) (5) Wt. of Soil	132.5	121.2		196.5	114.7	
Temperature	°C	°C	°C	°C	°C	°C
(6) Wt. of Pycno.+Soil+ Water	749.5	743.8		791.6	423.6	
=(6)-(2) (7) Wt. of Soil+Water	580.6	574.1		622.7	321.5	
=(7)-(5) (8) Wt. of Water	448.1	452.9		426.2	206.8	
=(3)-(8) (9) Vol. of Soil	51.9	47.1		73.8	43.2	
=(5)/(9) (10) Specific Gravity	2.55	2.57		2.66	2.66	
Mean	2.56			2.66		

Sample No.	RM-6 d=0.30m			RM-7 d=0.30m		
	1	2	3	1	2	3
(1) Wt. of Pycno.+Water	668.7	686.5		669.7	668.9	
(2) Wt. of Pycno.	168.7	186.5		169.7	168.9	
(3) Vol. of Pycno.	500	500		500	500	
=(1)-(2) (4) Wt. of Pycno.+ Dry Soil	323.9	324.7		347.7	311.6	
=(4)-(2) (5) Wt. of Soil	155.2	138.2		178.0	142.7	
Temperature	°C	°C	°C	°C	°C	°C
(6) Wt. of Pycno.+Soil+ Water	765.4	772.6		779.9	757.7	
=(6)-(2) (7) Wt. of Soil+Water	596.7	586.1		610.2	588.8	
=(7)-(5) (8) Wt. of Water	441.5	447.5		432.2	446.1	
=(3)-(8) (9) Vol. of Soil	58.5	52.1		67.8	53.9	
=(5)/(9) (10) Specific Gravity	2.65	2.65		2.63	2.65	
Mean	2.65			2.64		

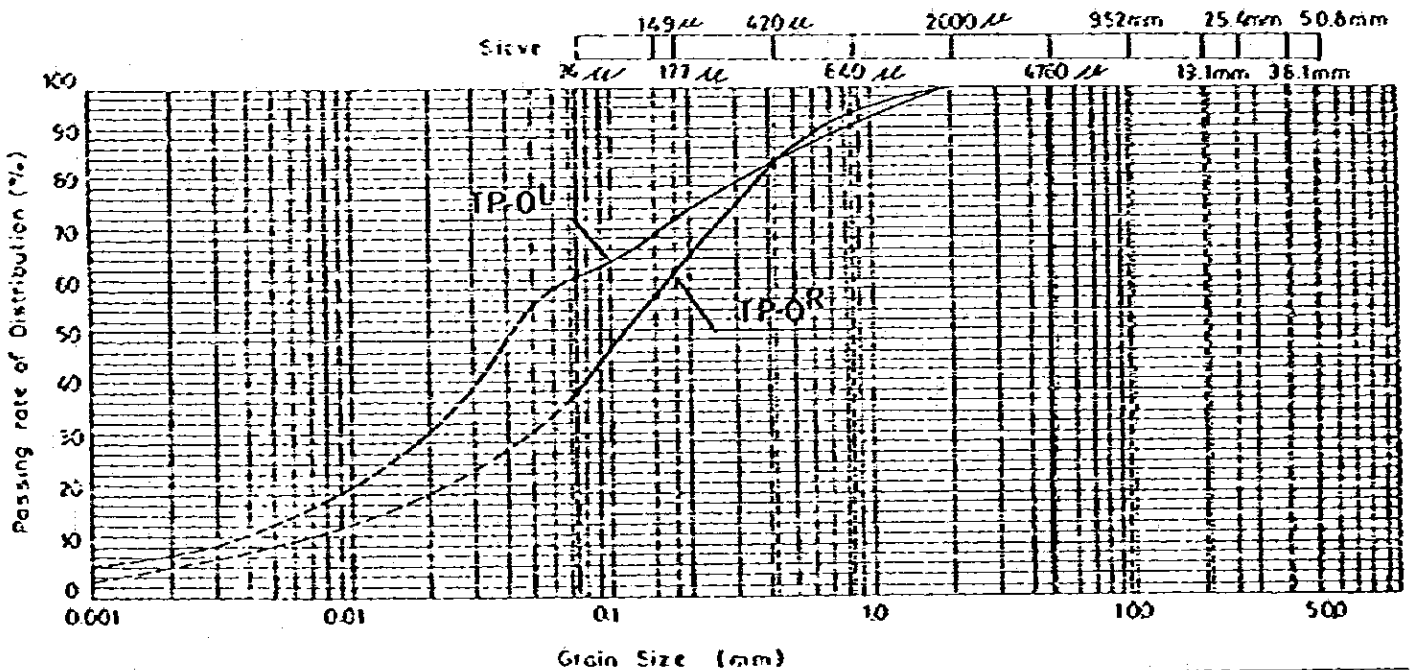
# GRAIN SIZE ANALYSIS

LOCATION **Bila Irrigation Project**  
( Canal Route )

DATE **September, 1981**  
TESTED BY **Bina Marga Luo.**

Sampling No & Depth		TP - 0 <sup>R</sup> ( 1.4 m - 2.0 m )											
Grain size	50.3	36.1	25.4	19.1	9.52	4.76	2.00	0.84	0.42	0.177	0.074	0.074	
% percentage							100	95.1	85.4	64.2	58.4	39.7	

Sampling No & Depth		TP - 0 <sup>L</sup> ( 0.5 m - 1.2 m )											
Grain size	50.3	36.1	25.4	19.1	9.52	4.76	2.00	0.84	0.42	0.177	0.074	0.074	
% percentage							100	92.3	84.5	72.0	70.1	63.2	



Clay	Silt	Sand	Gravel
0.005	0.075	4.75	

Sampling No Depth	No TP-0(R) 1.4 m - 2.0 m		No TP-0(L) 0.5 m - 1.2 m		Sampling No Depth	No TP-0(R) 1.4 m - 2.0 m		No TP-0(L) 0.5 m - 1.2 m	
	Sieve Opening								
Upper 75µ	0	%	0	%	Max dia	2.00	mm	2.00	mm
in 4.75 - 2 mm	0	%	0	%	60% dia	0.149	mm	0.061	mm
in 2 - 0.42 mm	14.6	%	15.5	%	30% dia	0.043	mm	0.018	mm
in 0.42 - 0.075 mm	45.7	%	21.3	%	10% dia	0.005	mm	0.003	mm
in 0.075 - 0.005 mm	29.7	%	49.2	%	Uniformity Coeff	29.8		20.3	
Under 0.005 mm	10.0	%	14.0	%	Curvature Coeff	2.5		1.8	
Under 0.001 mm	3.0	%	6.0	%	Character of dispersion of sample through the sieve				
Passing % Percentage in 420µ sieve	100.0	%	100.0	%	Shape and hardness of coarse soil particle				
420µ sieve	85.4	%	84.5	%					
75 µ sieve	39.7	%	63.2	%					

Estimated Curve

# GRAIN SIZE ANALYSIS

LOCATION **Bila Irrigation Project**  
( Canal Route )

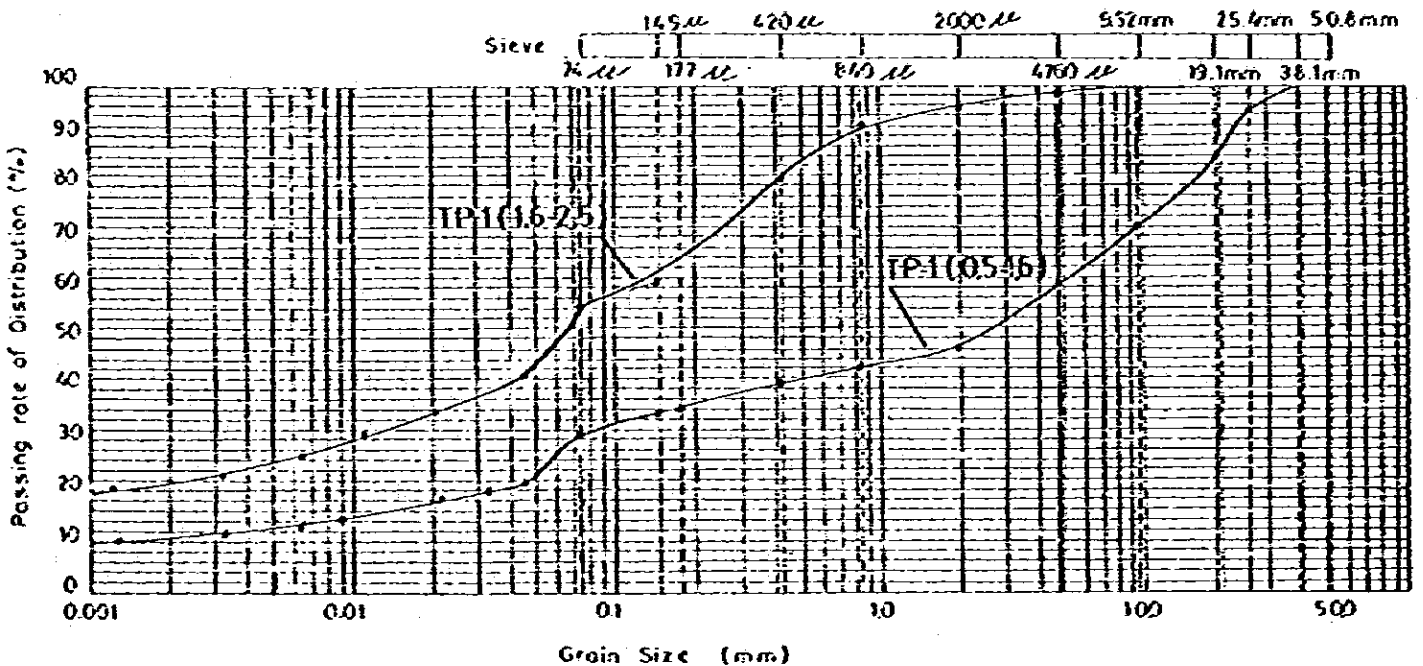
DATE **September, 1981**  
TESTED BY **Bina Barga Lab.**

Sampling No & Depth **TP-1 ( 0.5 m - 1.6 m )**

Sieve	Grain size	50.8	38.1	25.4	19.1	9.52	4.76	2.00	0.84	0.42	0.177	0.075	0.074
	Wt percentage	100	95.5	84.5	72.5	61.4	48.6	44.6	41.2	36.0	34.9	30.9	

Sampling No & Depth **TP-1 ( 1.6 m - 2.5 m )**

Sieve	Grain size	50.8	38.1	25.4	19.1	9.52	4.76	2.00	0.84	0.42	0.177	0.075	0.074
	Wt percentage	100	99.8	98	95.5	92.2	81.4	66.8	60.7	57.7			



Clay	Silt	Sand	Gravel
0.005	0.075	4.75	

Sampling No Depth	TP-1 0.5 m - 1.6 m		TP-1 1.6 m - 2.5 m		Sampling No Depth	TP-1 0.5 m - 1.6 m		TP-1 1.6 m - 2.5 m	
	No	%	No	%		No	%	No	%
Sieve Opening					Max dia	38.1 mm		19.1 mm	
Upper 1.75mm					60% dia	4.750 mm		0.130 mm	
in 4.75 - 2 mm					30% dia	0.070 mm		0.010 mm	
in 2 - 0.425 mm					10% dia	0.012 mm		- mm	
in 0.425 - 0.075 mm					Uniformity Coeff	3958		-	
Under 0.075 mm					Curvature Coeff	0.86		-	
Under 0.001 mm					Character of disper-				
Passing Wt Percentage					sion of Sample				
in 4.75µ sieve					through the sieve				
420µ sieve					Shape and hardness				
75 µ sieve					of coarse soil particles				

# GRAIN SIZE ANALYSIS

LOCATION **Bila Irrigation Project**  
( Canal Route )

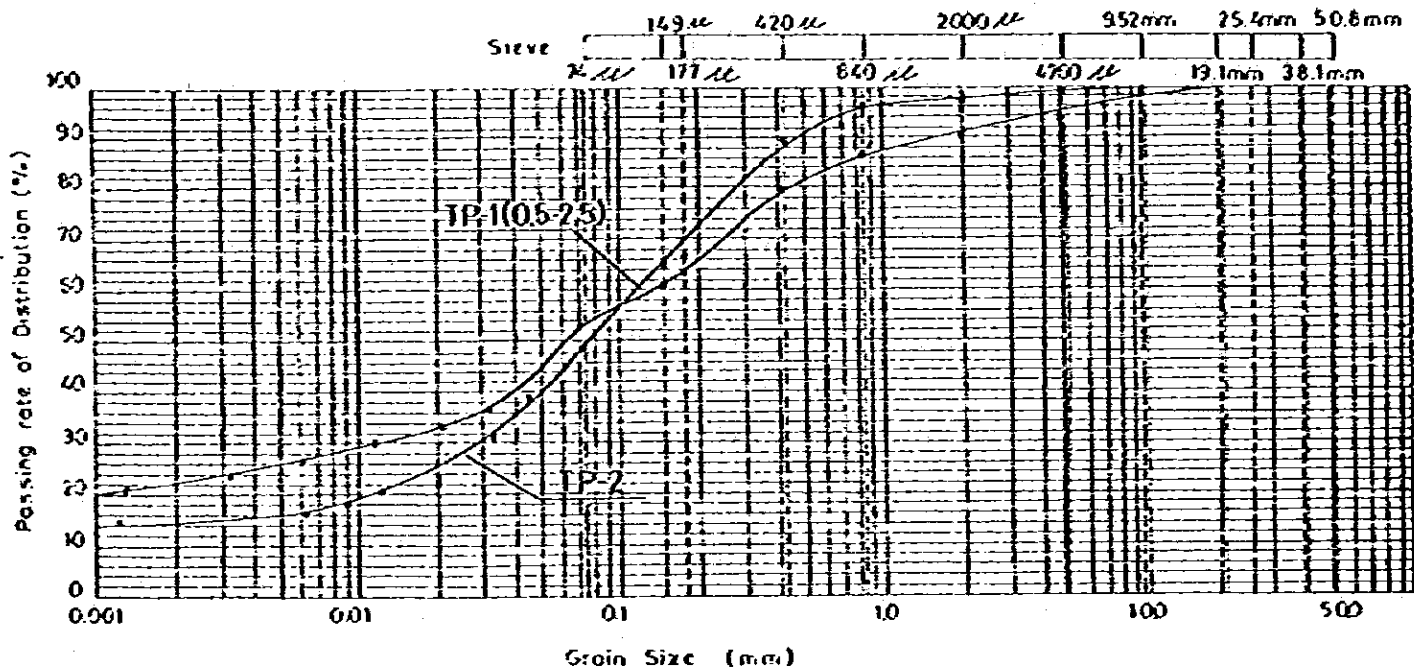
DATE **September , 1981**  
TESTED BY **Bina Marga Lab.**

Sampling No & Depth **TP-1 ( 0.5 m - 2.5 m )**

Sieve	Grain size	50.8	38.1	25.4	19.1	9.52	4.75	2.00	0.84	0.42	0.177	0.149	0.074
	Passing percentage				100	98.7	93.9	90.7	87.2	79.7	63.2	60.9	53.4

Sampling No & Depth **TP-2 ( 0.3 m - 1.4 m )**

Sieve	Grain size	50.8	38.1	25.4	19.1	9.52	4.75	2.00	0.84	0.42	0.177	0.149	0.074
	Passing percentage				100	99.3	99.0	97.5	96.0	89.6	66.3	63.2	49.4



Clay	Silt	Sand	Gravel
$0.005$	$0.0075$	$4.75$	

Sampling No Depth	No TP-1 0.5m-2.5m	No TP-2 0.3m-1.4m	Sampling No Depth	No TP-1 0.5m-2.5m	No TP-2 0.3m-1.4m
Sieve Opening Upper 4.75mm	6.1 %	1.0 %	Max dia	19.1 mm	19.1 mm
in 4.75 - 2 mm	3.2 %	1.5 %	60% dia	0.14 mm	0.13 mm
in 2 - 0.42 mm	11.0 %	7.9 %	30% dia	0.012 mm	0.030 mm
in 0.42 - 0.075 mm	26.3 %	40.2 %	10% dia	- mm	- mm
in 0.075 - 0.005 mm	27.4 %	33.4 %	Uniformity Coeff	-	-
Under 0.005 mm	26.0 %	16.0 %	Curvature Coeff	-	-
Under 0.001 mm	20.0 %	14.0 %	Character of disper- sion of Sample		
Passing % Percentage in 475mm sieve	93.9 %	99.0 %	through the sieve		
420 $\mu$ sieve	79.7 %	89.6 %	Shape and hardness of coarse soil particle		
76 $\mu$ sieve	53.4 %	49.4 %			

# GRAIN SIZE ANALYSIS

LOCATION **Bila Irrigation Project**  
( Canal Route )

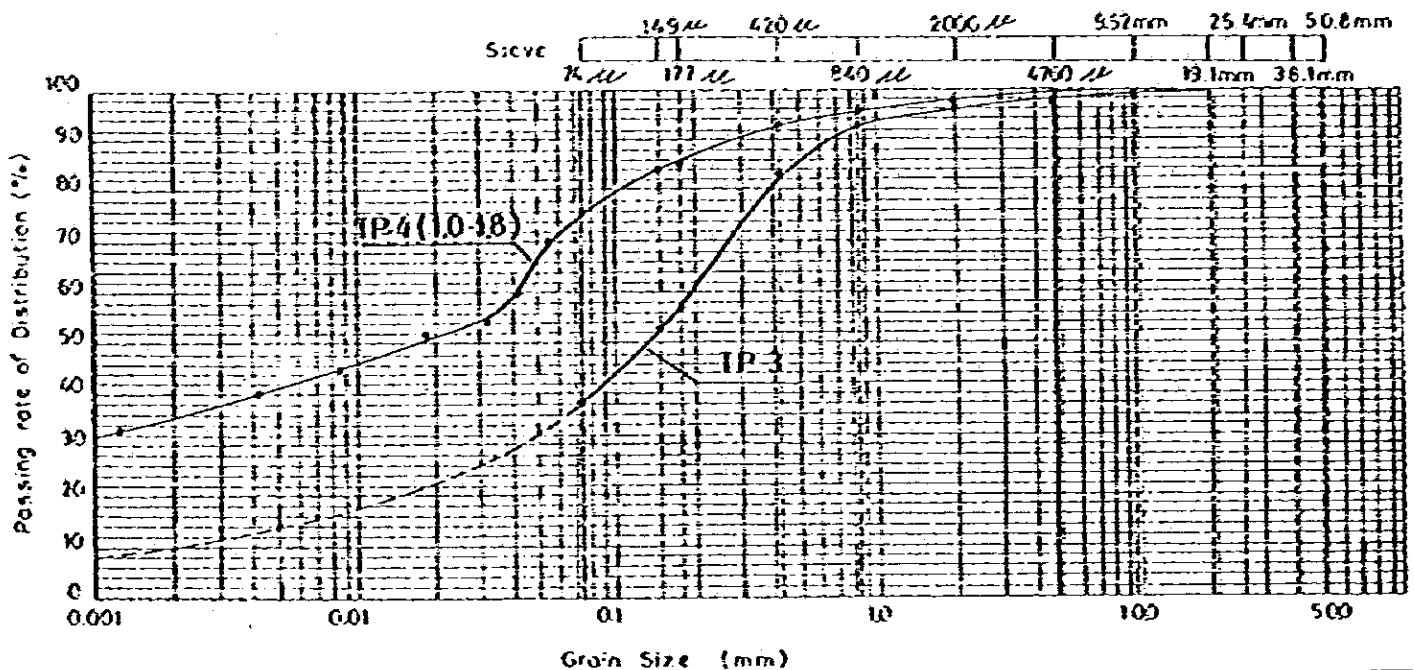
DATE **September, 1981**  
TESTED BY **Bina Marga Lab.**

Sampling No & Depth **TP-3 ( 0.8 m - 1.4 m )**

Grain size	50.8	25.4	19.1	9.52	4.76	2.00	0.84	0.42	0.177	0.074	0.037	0.019
Wt. percentage			100	99.2	97.7	96.7	93.8	83.8	57.3	52.7	38.1	

Sampling No & Depth **TP-4 ( 1.0 m - 1.8 m )**

Grain size	50.8	25.4	19.1	9.52	4.76	2.00	0.84	0.42	0.177	0.074	0.037	0.019
Wt. percentage			100	99.4	98.6	97.4	94.9	93.0	85.9	84.1	76.0	



Clay
Silt
Sand
Gravel

0.005
0.075
4.75

Sampling No Depth	No TP-3 0.8m-1.4m	No TP-4 1.0m-1.8m	Sampling No Depth	No TP-3 0.8m-1.4m	No TP-4 1.0m-1.8m
Sieve Opening Upper 2.76mm	2.3 %	1.4 %	Max dia	19.1 mm	19.1 mm
in 4.76 - 2 mm	1.0 %	1.2 %	60% dia	0.180 mm	0.042 mm
in 2 - 0.42 mm	12.9 %	4.4 %	30% dia	0.043 mm	- mm
in 0.42 - 0.075 mm	45.7 %	17.0 %	10% dia	0.002 mm	- mm
in 0.075 - 0.0075 mm	24.1 %	32.9 %	Uniformity Coeff	90	-
Under 0.0075 mm	14.0 %	43.1 %	Curvature Coeff	5.1	-
Under 0.0015 mm	8.0 %	31.0 %	Character of disper- sion of Sample through the sieve		
Passing Wt. Percentage in 4750µ sieve	97.7 %	98.6 %	Shape and hardness of coarse soil particle		
420 µ sieve	83.8 %	93.0 %			
75 µ sieve	38.1 %	76.0 %			

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Estimated Curve

# GRAIN SIZE ANALYSIS

LOCATION **Bila Irrigation Project**  
( Canal Route )

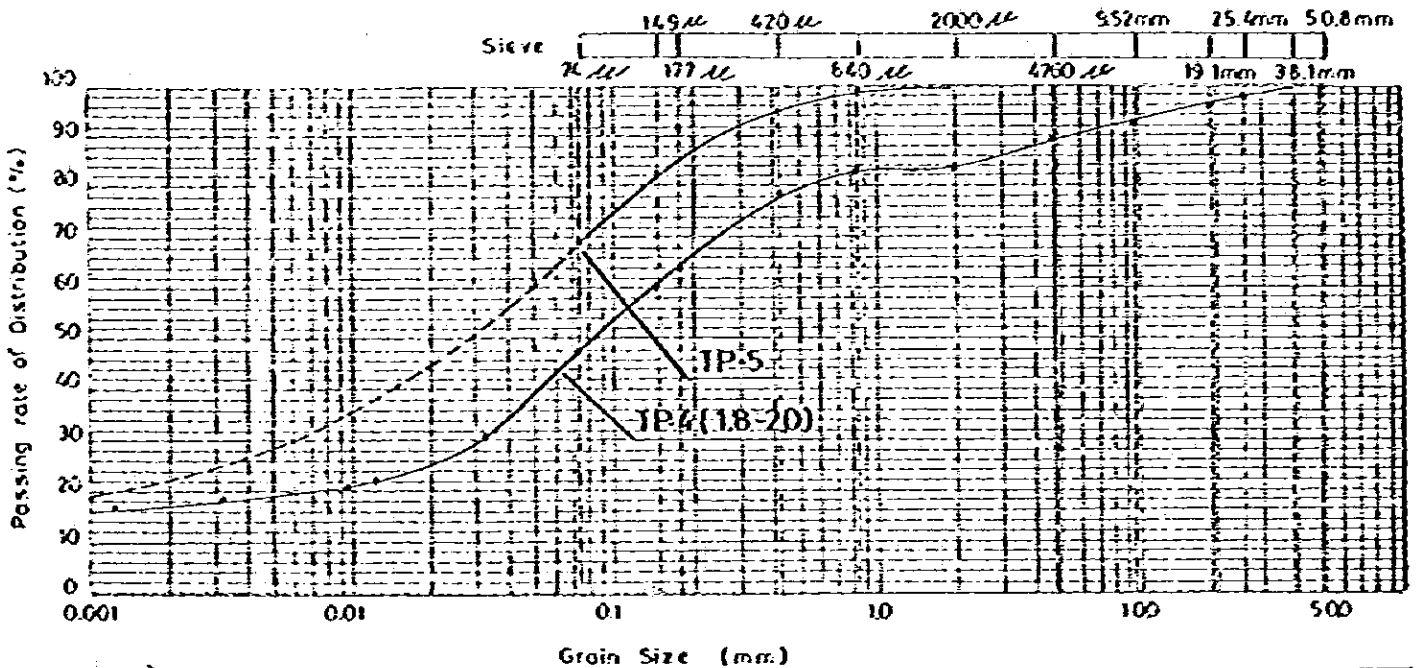
DATE **September , 1981**  
TESTED BY **Bina Marga Lab.**

Sampling No & Depth: **TP-4 ( 1.8m - 2.0m )**

Sieve	Grain size	50.8	38.1	25.4	19.1	9.52	4.76	2.00	0.84	0.42	0.177	0.074
Sieve	% percentage		100	97.6	96.2	92.8	89.8	83.9	83.5	78.7	64.3	47.5

Sampling No & Depth: **TP-5 ( 1.5m - 2.0m )**

Sieve	Grain size	50.8	38.1	25.4	19.1	9.52	4.76	2.00	0.84	0.42	0.177	0.074
Sieve	% percentage							100	99.7	95.8	85.6	68.9



Clay	Silt	Sand	Gravel
0.005	0.075	4.76	

Sampling No Depth	No TP-4 1.8-2.0	No TP-5 1.5-2.0	Sampling No Depth	No TP-4 1.8m-2.0m	No TP-5 1.5m-2.0
Sieve Opening			Max dia	38.1 mm	2.00 mm
Upper 75mm	10.2 %	0 %	60% dia	0.147mm	0.05 mm
in 4.76 - 2 mm	5.9 %	0 %	30% dia	0.032mm	0.006 mm
in 2 - 0.42mm	5.2 %	4.2 %	10% dia	- mm	- mm
in 0.42 - 0.075mm	31.2 %	26.9 %	Uniformity Coeff	-	-
in 0.075 - 0.005mm	28.7 %	40.9 %	Curvature Coeff	-	-
Under 0.005mm	18.8 %	28.0 %	Character of dispersion of Sample through the sieve		
Under 0.001mm	16.0 %	18.4 %	Shape or hardness of coarse soil particle		
Passing % Percentage in 4.76mm sieve	89.8 %	100 %			
4.76mm sieve	78.7 %	95.8 %			
75 μ sieve	47.5 %	68.9 %			

Estimated Curve

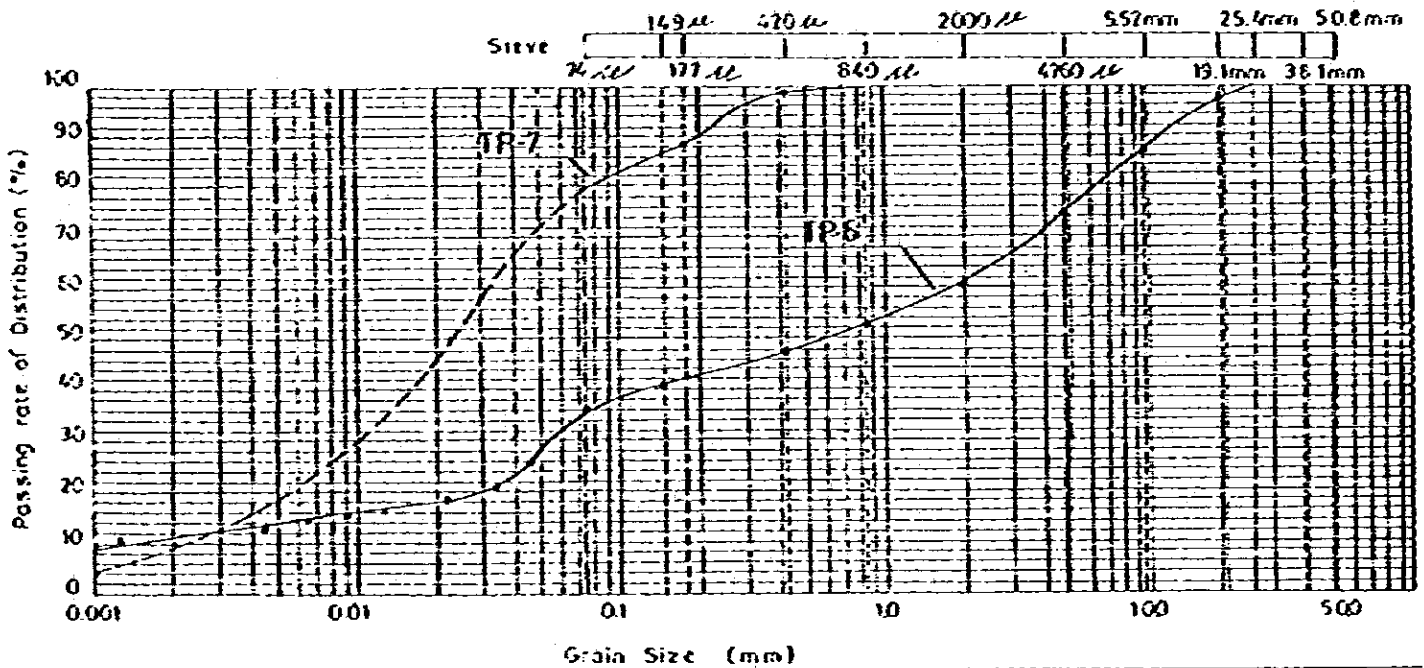
# GRAIN SIZE ANALYSIS

LOCATION **Bila Irrigation Project**  
( Canal Route )

DATE **September , 1981**  
TESTED BY **Bina Karga Lab.**

Sampling No & Depth		TP-6 ( 0.6m - 1.4m )											
Sieve	Grain size	50.8	38.1	25.4	19.1	9.52	4.75	2.00	0.84	0.42	0.177	0.149	0.074
	Wt percentage			100	97.9	86.6	74.2	60.7	52.2	47.9	42.2	41.3	36.2

Sampling No & Depth		TP-7 ( 1.6m - 2.0m )											
Sieve	Grain size	50.8	38.1	25.4	19.1	9.52	4.76	2.00	0.84	0.42	0.177	0.149	0.074
	Wt percentage								100	98.6	88.1	86.5	79.6



Clay	Silt	Sand	Gravel
0.005	0.075	4.75	

Sampling No Depth	TP-6 0.6m-1.4m		TP-7 1.6m-2.0m		Sampling No Depth	TP-6 0.6m-1.4m		TP-7 1.6m-2.0m	
	No	%	No	%		No	%	No	%
Sieve Opening Upper 4.75mm	25.8	%	0	%	Max dia	25.4	mm	0.84	mm
in 4.75 - 2 mm	13.5	%	0	%	60% dia	1.81	mm	0.034	mm
in 2 - 0.42mm	12.8	%	1.4	%	30% dia	0.054	mm	0.01	mm
in 0.42 - 0.075mm	11.7	%	19.0	%	10% dia	0.0014	mm	0.0024	mm
in 0.075 - 0.005mm	24.2	%	61.6	%	Uniformity Coeff	1293		14.2	
Under 0.005mm	12.0	%	18.0	%	Curvature Coeff	1.2		1.2	
Under 0.001mm	9.1	%	4.0	%	Character of dispersion of sample through the sieve				
Passing Wt Percentage in 4.75mm sieve	74.2	%	100	%	Shade and hardness of coarse soil particle				
4.75mm sieve	47.9	%	98.6	%					
75µ sieve	36.2	%	79.6	%					

----- Estimated Curve





# GRAIN SIZE ANALYSIS

LOCATION **Bila Irrigation Project**  
( Flood Dike )

DATE **September , 1981**  
TESTED BY **Bina Merga Lab.**

Sampling No & Depth

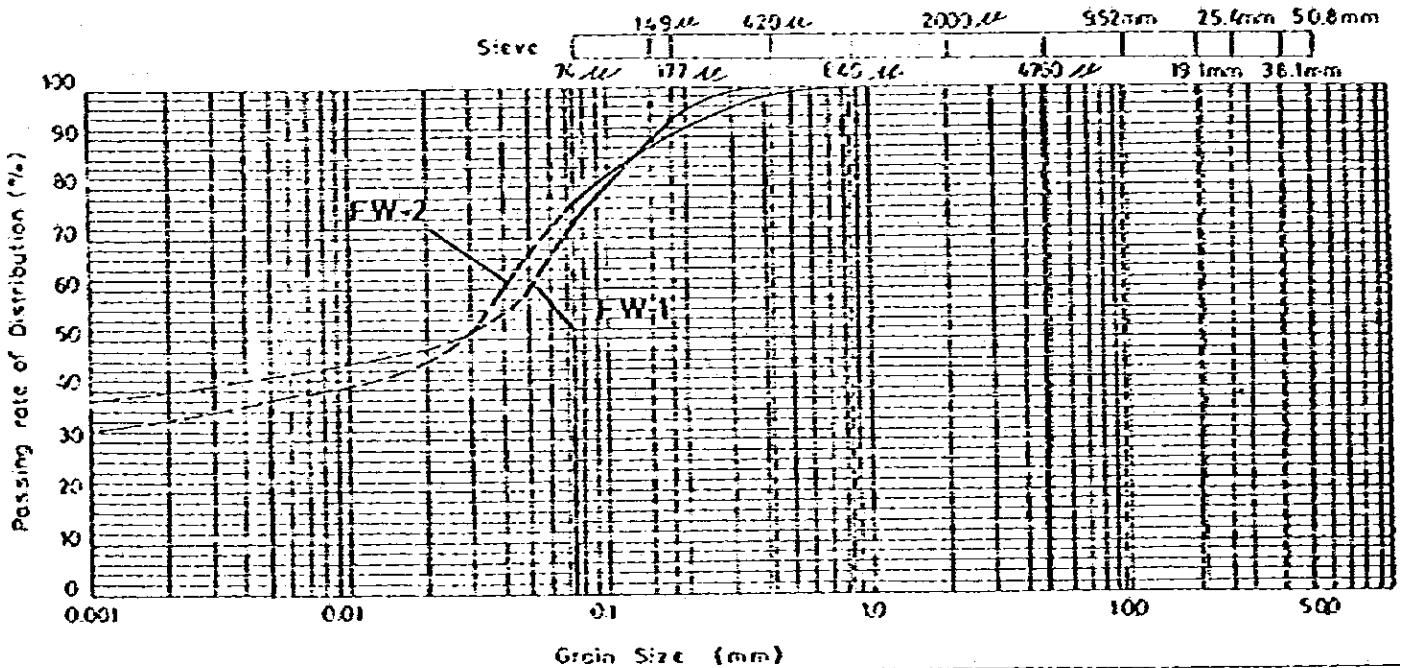
**FW-1 ( 0.5 m )**

Sieve	Grain size	50.8	39.1	25.4	19.1	9.52	4.75	2.00	0.84	0.42	0.177	0.075	0.074
Sieve	Passing %								100	93.7	89.1	73.0	

Sampling No & Depth

**FW-2 ( 0.5 m )**

Sieve	Grain size	50.8	38.1	25.4	19.1	9.52	4.75	2.00	0.84	0.42	0.177	0.075	0.074
Sieve	Passing %								100	98.8	90.5	88.2	77.1



Clay	Silt	Sand	Gravel
0.005	0.075	4.75	

Sampling No Depth	No. FW-1		No. FW-2		Sampling No Depth	No. FW-1		No. FW-2	
	0.5 m	m	0.5 m	m		0.5 m	m	0.5 m	m
Sieve Opening									
Upper 1.75mm	0	%	0	%	Max dia	0.42	mm	0.84	mm
in 4.75 - 2 mm	0	%	0	%	60% dia	0.05	mm	0.04	mm
in 2 - 0.42mm	0	%	1.2	%	30% dia	-	mm	-	mm
in 0.42 - 0.075mm	27.0	%	21.7	%	10% dia	-	mm	-	mm
in 0.075 - 0.005mm	30.0	%	39.1	%	Uniformity Coeff	-		-	
Under 0.005mm	43.0	%	38.0	%	Curvature Coeff	-		-	
Under 0.001mm	38.0	%	32.0	%	Character of disper-				
Passing % Percentage	100.0	%	100.0	%	sion of Sample				
in 4.75µ sieve					through the sieve				
4.75 µ sieve	100.0	%	98.8	%	Shape and hardness				
75 µ sieve	73.0	%	77.1	%	of coarse soil particles				

----- Estimated Curve

# GRAIN SIZE ANALYSIS

LOCATION **Bila Irrigation Project  
( Flood Control )**

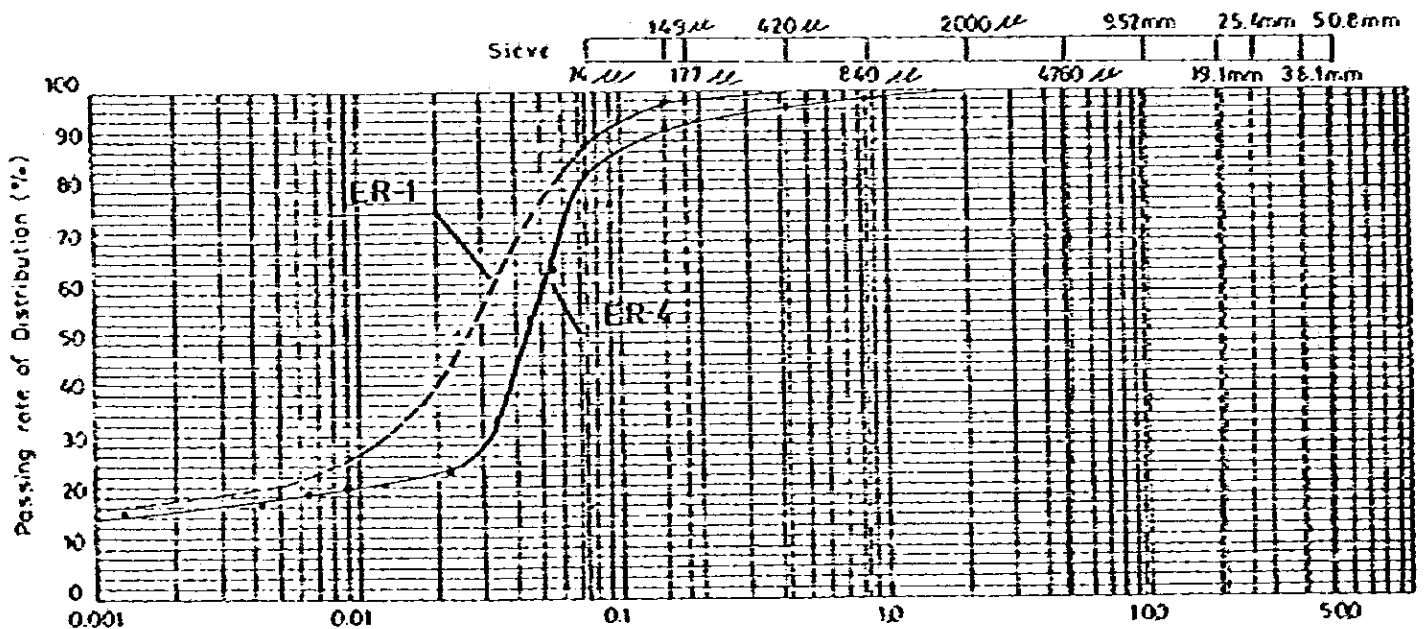
DATE **September , 1981**  
TESTED BY **Bina Marga Lab.**

Sampling No & Depth **ER-1 ( 0.5 m )**

Grain size	50.8	38.1	25.4	19.1	9.52	4.75	2.00	0.84	0.42	0.177	0.149	0.074
%W. percentage									100	98.1	97.4	89.0

Sampling No & Depth **ER-4 ( 0.5 m )**

Grain size	50.8	38.1	25.4	19.1	9.52	4.75	2.00	0.84	0.42	0.177	0.149	0.074
%W. percentage							100	98.8	96.7	93.6	92.3	84.0



Clay	Silt	Sand	Gravel
0.005	0.075	4.75	

Sampling No Depth	No ER-1 m - m	No ER-4 m - m	Sampling No Depth	No ER-1 m - m	No ER-4 m - m
Sieve Opening Upper 2.76mm	0 %	0 %	Max dia	0.42 mm	2.00 mm
in 4.75 - 2 mm	0 %	0 %	60% dia	0.032 mm	0.050 mm
in 7.5 - 0.42mm	0 %	3.3 %	30% dia	0.012 mm	0.030 mm
in 0.42 - 0.075mm	11.0 %	12.7 %	10% dia	- mm	- mm
under 0.075mm	67.0 %	64.0 %	Uniformity Coeff	-	-
under 0.005mm	22.0 %	20.0 %	Curvature Coeff	-	-
Under 0.001mm	18.0 %	15.9 %	Character of disper- sion of Sample through the sieve		
Passing % Percentage in 4750µ sieve	100 %	100 %	Shape and hardness of coarse soil particle		
420µ sieve	100 %	96.7 %			
75µ sieve	89 %	84.0 %			

----- Estimated Curve

# GRAIN SIZE ANALYSIS

LOCATION **Bila Irrigation Project**  
( Flood Control )

DATE **September , 1981**

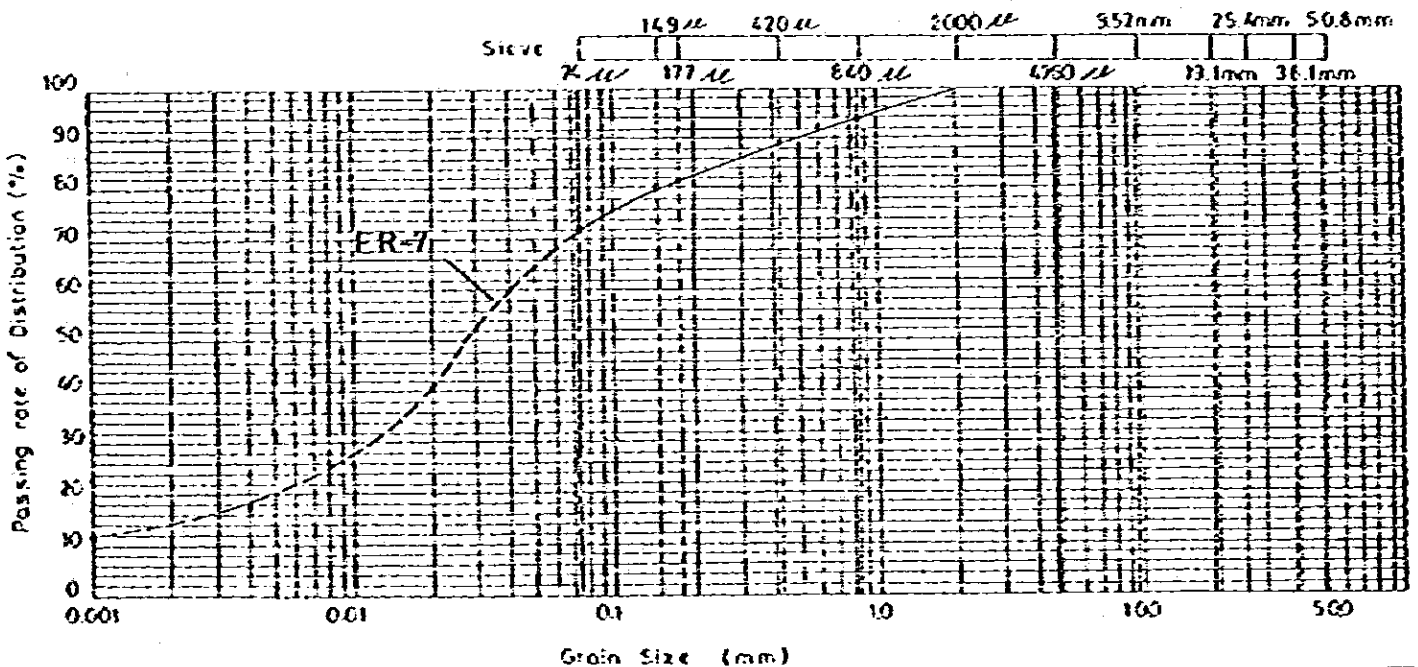
TESTED BY **Bina Karga Lab,**

Sampling No & Depth **ER - 7 ( 0.5 m )**

Grain size	50.8	36.1	25.0	19.1	9.52	4.76	2.00	0.84	0.42	0.177	0.149	0.074
Passing %							100	94.2	88.9	81.1	80.0	72.3

Sampling no & Depth

Grain size	50.8	36.1	25.0	19.1	9.52	4.76	2.00	0.84	0.42	0.177	0.149	0.074
Passing %												



Clay	Silt	Sand	Gravel
0.075	0.075	4.75	4.75

Sampling No Depth	No. <b>ER-7</b> 0.5 m	No.	Sampling No Depth	No. <b>ER-7</b> 0.5 m	No.
Sieve Opening	0	%	Max dia	2.00 mm	mm
Upper 2 mm	0	%	60% dia	0.04 mm	mm
in 2 - 0.425 mm	11.1	%	30% dia	0.012 mm	mm
in 0.42 - 0.075 mm	16.6	%	10% dia	-	mm
in 0.075 - 0.0075 mm	52.3	%	Uniformity Coeff	-	
Under 0.0075 mm	20.0	%	Curvature Coeff	-	
Under 0.001 mm	11.5	%	Character of disper- sion of Sample		
Passing % Percentage	100	%	through the sieve		
in 475.0 sieve	88.9	%	Shape and hardness		
75.0 sieve	72.3	%	of coarse soil particle		

Estimated Curve

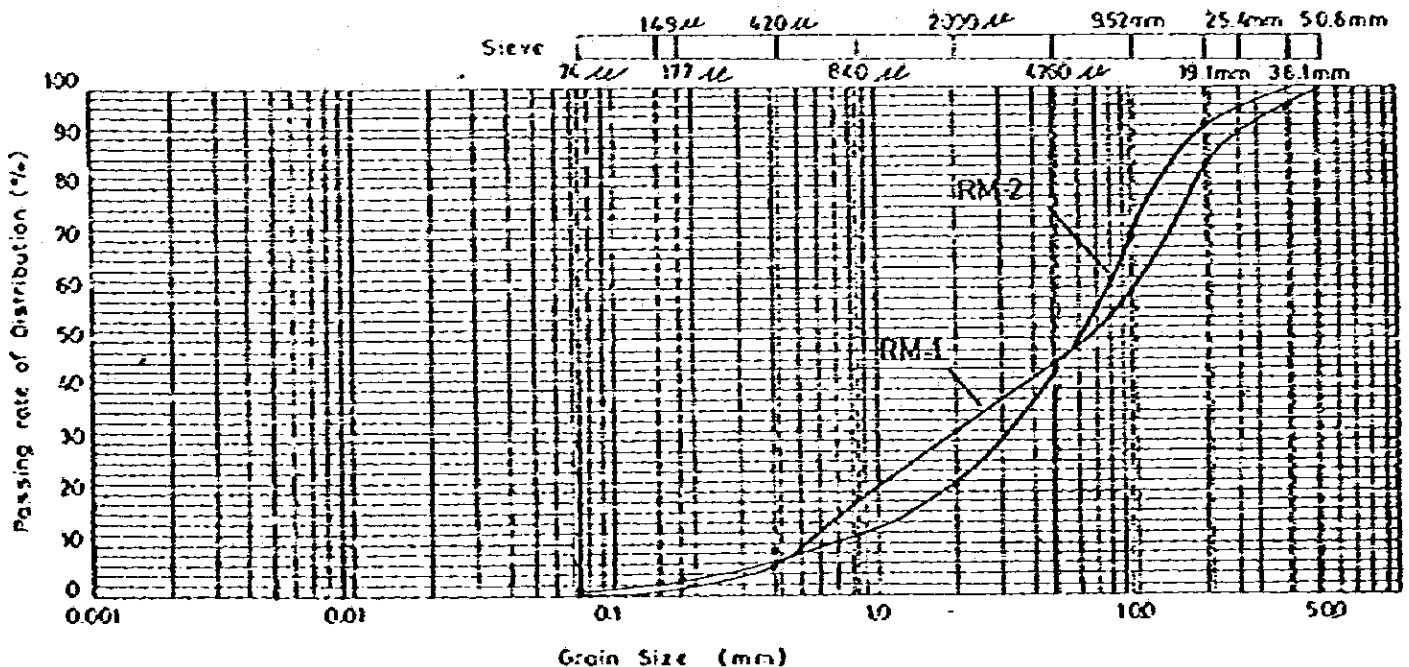
# GRAIN SIZE ANALYSIS

LOCATION **Bila Irrigation Project  
( River Material )**

DATE **September, 1981**  
TESTED BY **Bina Marga Lab.**

Sampling No & Depth		RM - 1      0,3 m											
Sieve	Grain size	50.8	38.1	25.4	19.1	9.52	4.76	2.00	0.84	0.42	0.177	0.074	0.074
Sieve	% percentage	100	94.9	90.2	82.5	58.8	44.8	31.6	18.6	5.8	0.7	0.5	0.2

Sampling No & Depth		RM - 2      0,3 m											
Sieve	Grain size	50.8	38.1	25.4	13.1	9.52	4.76	2.00	0.84	0.42	0.177	0.149	0.074
Sieve	% percentage	100	95.3	92.1	70.0	44.6	21.2	11.7	8.8	2.9	2.4	1.1	



Clay	Silt	Sand	Gravel
0.005	0.075	4.75	

Sampling No Depth	No RM-1 0,3 m - m		No RM-2 0,3 m - m		Sampling No Depth	No RM-1 0,3 m - m		No RM2 0,3 m - m	
	Sieve Opening						Max dia		
Upper 75mm	55.2	%	55.4	%	60% dia	9.80	mm	8.00	mm
in 4.75 - 2mm	13.2	%	23.4	%	30% dia	1.90	mm	3.00	mm
in 2 - 0.42mm	25.8	%	13.2	%	10% dia	0.50	mm	0.60	mm
in 0.42 - 0.075mm	5.6	%	6.9	%	Uniformity Coeff	19.6		13.3	
in 0.075 - 0.005mm	0.2	%	1.1	%	Curvature Coeff	0.7		1.9	
Under 0.005mm	-	%	-	%	Character of disper- sion of Sample through the sieve				
Under 0.001mm	-	%	-	%	Shape and hardness of coarse soil particles				
Passing % Percentage in 4750µ sieve	44.8	%	44.6	%					
420µ sieve	5.8	%	8.8	%					
75µ sieve	0.2	%	1.1	%					



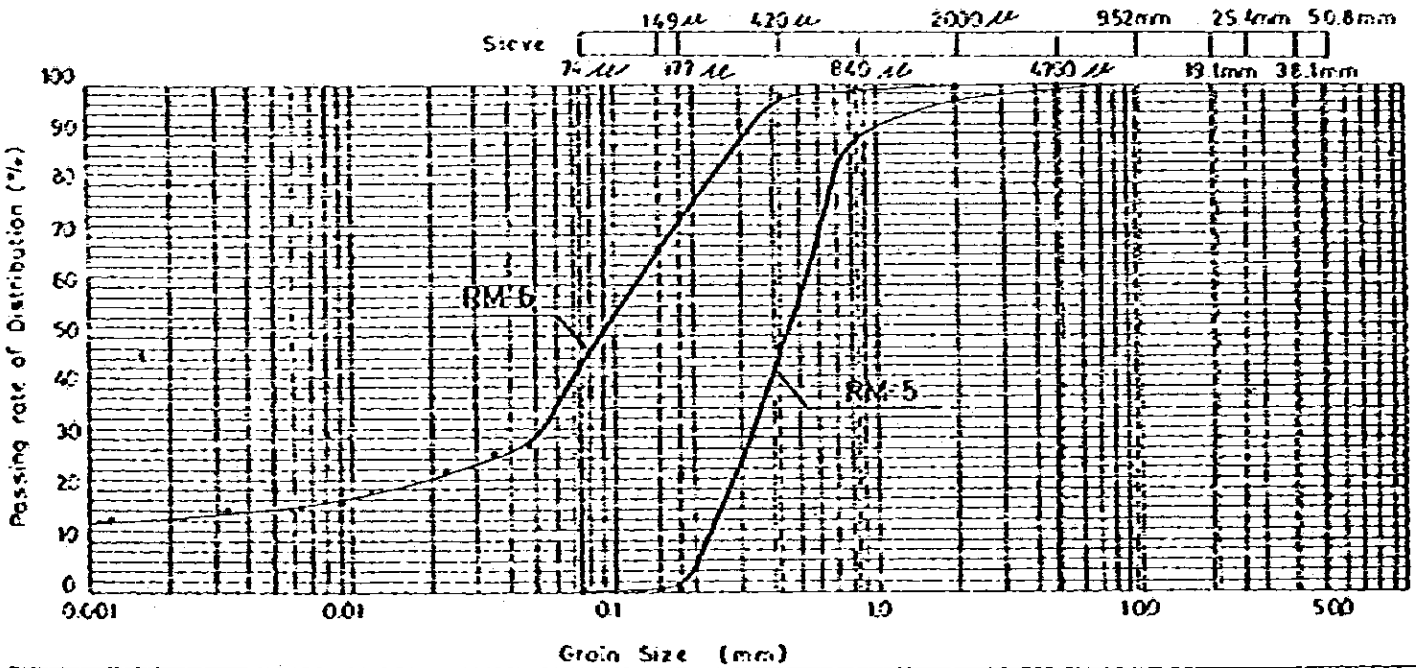
# GRAIN SIZE ANALYSIS

LOCATION: **Bila Irrigation Project**  
(River Material)

DATE: **September, 1981**  
TESTED BY: **Bina Marga Lab.**

Sampling No & Depth		RM-5					0.3m					
Grain size	50.8	38.1	25.4	19.1	9.52	4.76	2.00	0.84	0.42	0.177	0.149	0.074
Wt percentage					100	98.8	97.4	89.5	48.0	9.6	0.4	0.1

Sampling No & Depth		RM-6					0.3 m					
Grain size	50.8	38.1	25.4	19.1	9.52	4.76	2.00	0.84	0.42	0.177	0.149	0.074
Wt percentage					100	99.8	98.9	98.4	97.6	74.2	67.0	45.9



Clay	Silt	Sand	Gravel
0.005	0.075	4.75	

Sampling No & Depth	No RM-5 0.3m - m	No RM-6 0.3m - m	Sampling No & Depth	No RM-5 0.3m - m	No RM-6 0.3m - m
Sieve Opening Upper 4.75mm	1.2 %	0.2 %	Max dia	9.52 mm	9.52 mm
in 4.75 - 2 mm	1.4 %	0.9 %	60% dia	0.51 mm	0.12 mm
in 2 - 0.425 mm	49.4 %	1.3 %	30% dia	0.32 mm	0.05 mm
in 0.42 - 0.075 mm	47.9 %	51.7 %	10% dia	0.22 mm	- mm
in 0.075 - 0.005 mm	0.1 %	29.9 %	Uniformity Coeff	2.3	-
Under 0.005 mm	- %	16.0 %	Curvature Coeff	0.9	-
Under 0.001 mm	- %	13.0 %	Character of dispersion of Sample through the sieve		
Passing % Percentage at 4.75mm sieve	98.8 %	99.8 %	Shape and hardness of coarse soil particles		
4.75 mm sieve	48.0 %	97.6 %			
75 µ sieve	0.1 %	45.9 %			

# GRAIN SIZE ANALYSIS

LOCATION **Bila Irrigation Project**  
(River Material)

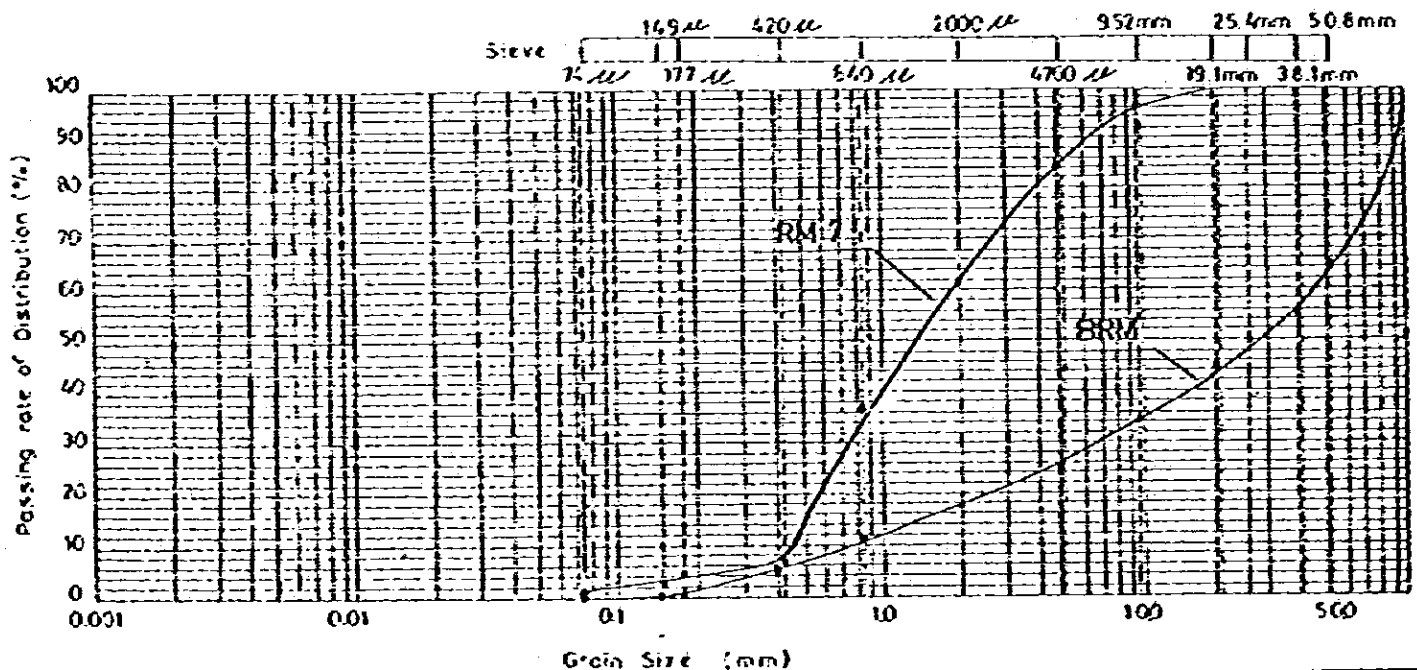
DATE **September, 1981**  
TESTED BY **Bina Marga Lab.**

Sampling No & Depth: **RM - 7 0.3 m**

Sieve	Grain size	50.8	38.1	25.4	19.1	9.52	4.75	2.00	0.84	0.42	0.177	0.074	
	% percentage				100	96.3	84.6	61.4	36.5	6.2	5.4	3.7	1.2

Sampling No & Depth: **B R M 0.3 m**

Sieve	Grain size	50.8	38.1	25.4	19.1	9.52	4.75	2.00	0.84	0.42	0.177	0.074	
	% percentage	64.1	55.2	50.0	45.8	34.2	24.8	17.4	11.7	5.0	0.6	0.5	3.2



Clay	Silt	Sand	Gravel
$0.005$	$0.02$	$0.75$	$4.75$

Sampling No Depth	No RM - 7 0.3 m - m	No B R M 0.3 m - m	Sampling No Depth	No RM - 7 0.3 m - m	No B R M 0.3 m - m
Sieve Opening	15.4%	75.2%	Max dia	19.1 mm	100 mm
Upper 7.5mm			60% dia	1.9 mm	45 mm
in 4.75 - 7 mm	23.2%	7.4%	30% dia	0.79 mm	6.9 mm
in 2 - 0.42 mm	55.2%	12.4%	10% dia	0.43 mm	0.80 mm
in 0.42 - 0.075 mm	5.0%	4.8%	Uniformity Coeff	4.4	56.2
in 0.075 - 0.005 mm	1.2%	0.2%	Curvature Coeff	0.8	1.3
Under 0.005 mm	- %	- %	Character of disper- sion of Sample		
Under 0.075 mm	- %	- %	through the sieve		
Passing % Percentage			Shape and hardness of coarse soil particle		
in 475.0mm sieve	84.6%	24.8%			
420.0mm sieve	6.2%	5.0%			
75.0mm sieve	1.2%	0.2%			

# WATER CONTENT OF SOIL

No. 1

$$\frac{W/W(\text{Wt. wet soil} + \text{Container}) - DW(\text{Wt. dry soil} + \text{container})}{DW(\text{Wt. dry soil} + \text{container}) - TW(\text{Wt. container})} \times 100 = \frac{W_w(\text{Wt. of water})}{W_d(\text{Wt. of dry soil})} \times 100 = \text{Water Content \%}$$

Date	Sample No.	Mean water content %	Calculation							
	TP - 1 0.5-1.6m	27.6	W/W	150.63	DW	121.42	W/W	133.90	DW	109.51
			DW	121.42	TW	18.84	DW	109.51	TW	18.43
			W <sub>w</sub>	29.21	W <sub>d</sub>	102.58	W <sub>w</sub>	24.39	W <sub>d</sub>	91.08
			No.		w	28.47	No.		w	25.77
	TP - 1 1.6-2.5m	40.9	W/W	149.23	DW	110.60	W/W	133.55	DW	100.93
			DW	110.60	TW	18.61	DW	100.93	TW	18.99
			W <sub>w</sub>	38.63	W <sub>d</sub>	91.99	W <sub>w</sub>	32.57	W <sub>d</sub>	81.99
			No.		w	41.99	No.		w	39.72
	TP - 1 0.5-2.5m	35.7	W/W	155.29	DW	118.19	W/W	132.29	DW	102.22
			DW	118.19	TW	18.90	DW	102.22	TW	18.95
			W <sub>w</sub>	37.10	W <sub>d</sub>	79.29	W <sub>w</sub>	30.07	W <sub>d</sub>	83.27
			No.		w	37.36	No.		w	36.11
	TP - 2 0.3-1.4m	40.5	W/W	113.32	DW	86.51	W/W	127.12	DW	95.47
			DW	86.51	TW	18.69	DW	95.47	TW	18.99
			W <sub>w</sub>	26.61	W <sub>d</sub>	67.82	W <sub>w</sub>	31.65	W <sub>d</sub>	76.43
			No.		w	39.53	No.		w	41.38
	TP - 3 0.8-1.4m	35.0	W/W	114.17	DW	90.20	W/W	126.45	DW	98.67
			DW	90.20	TW	19.05	DW	98.67	TW	13.02
			W <sub>w</sub>	23.97	W <sub>d</sub>	71.15	W <sub>w</sub>	27.78	W <sub>d</sub>	76.65
			No.		w	33.69	No.		w	35.24
	TP - 4 1.0-1.8m	38.2	W/W	105.57	DW	81.42	W/W	103.49	DW	84.50
			DW	81.42	TW	19.00	DW	84.50	TW	18.36
			W <sub>w</sub>	24.15	W <sub>d</sub>	62.42	W <sub>w</sub>	24.99	W <sub>d</sub>	66.14
			No.		w	38.69	No.		w	37.78
	TP - 4 1.8-2.0m	33.5	W/W	133.22	DW	104.60	W/W	117.92	DW	92.99
			DW	104.60	TW	18.52	DW	92.99	TW	19.15
			W <sub>w</sub>	28.62	W <sub>d</sub>	86.08	W <sub>w</sub>	24.93	W <sub>d</sub>	73.84
			No.		w	33.24	No.		w	33.75
	TP - 5 1.5-2.0m	33.1	W/W	106.89	DW	84.38	W/W	128.58	DW	101.87
			DW	84.38	TW	18.40	DW	101.87	TW	16.80
			W <sub>w</sub>	22.51	W <sub>d</sub>	65.93	W <sub>w</sub>	26.71	W <sub>d</sub>	83.07
			No.		w	34.12	No.		w	32.15
	TP - 6 0.6-1.4m	20.3	W/W	139.82	DW	120.40	W/W	152.76	DW	129.10
			DW	120.40	TW	18.95	DW	129.10	TW	18.91
			W <sub>w</sub>	19.42	W <sub>d</sub>	101.45	W <sub>w</sub>	23.66	W <sub>d</sub>	110.19
			No.		w	19.14	No.		w	21.47
	TP - 7 1.6-2.0m	35.6	W/W	126.14	DW	97.84	W/W	145.20	DW	112.25
			DW	97.84	TW	19.01	DW	112.25	TW	18.92
			W <sub>w</sub>	28.30	W <sub>d</sub>	78.83	W <sub>w</sub>	32.95	W <sub>d</sub>	93.33
			No.		w	35.90	No.		w	35.30
	TP - 8 1.4-2.0m	22.9	W/W	125.84	DW	105.30	W/W	120.84	DW	102.34
			DW	105.30	TW	18.97	DW	102.34	TW	18.92
			W <sub>w</sub>	20.45	W <sub>d</sub>	87.33	W <sub>w</sub>	18.50	W <sub>d</sub>	83.42
			No.		w	23.52	No.		w	22.16
	TP - 9 1.0-1.5m	42.7	W/W	143.32	DW	105.57	W/W	116.69	DW	103.97
			DW	105.57	TW	18.52	DW	103.97	TW	19.01
			W <sub>w</sub>	37.75	W <sub>d</sub>	87.05	W <sub>w</sub>	37.72	W <sub>d</sub>	89.96
			No.		w	43.37	No.		w	41.93



# WATER CONTENT OF SOIL

No. 2

$$\frac{WW(\text{Wt. wet soil + Container}) - DW(\text{Wt. dry soil + container})}{DW(\text{Wt. dry soil + container}) - TW(\text{Wt. container})} \times 100 = \frac{W_w(\text{Wt. of water})}{W_d(\text{Wt. of dry soil})} \times 100 = \text{Water Content \%}$$

Date	Sample No.	Mean water content %	Calculation							
	TP - 0 R 1.4-2.0m	30.3	WW	129.74	DW	103.27	WW	173.52	DW	138.50
			DIW	103.27	TW	18.67	DIW	138.50	TW	18.99
			W <sub>w</sub>	26.47	W <sub>d</sub>	84.60	W <sub>w</sub>	35.02	W <sub>d</sub>	119.51
			No.		w	31.28	No.		w	29.30
	TP - 0 L 0.5-1.2m	27.9	WW	168.68	DIW	130.90	WW	150.56	DW	125.67
			DIW	130.90	TW	19.05	DIW	125.67	TW	18.17
			W <sub>w</sub>	37.78	W <sub>d</sub>	111.40	W <sub>w</sub>	23.89	W <sub>d</sub>	109.50
			No.		w	33.91	No.		w	22.02
	F5 - 1 0.5m	44.0	WW	54.36	DIW	43.61	WW	56.03	DW	44.61
			DIW	43.61	TW	18.96	DIW	44.61	TW	18.83
			W <sub>w</sub>	10.75	W <sub>d</sub>	24.65	W <sub>w</sub>	11.42	W <sub>d</sub>	25.78
			No.		w	43.61	No.		w	44.30
	F5 - 2 0.5m	42.3	WW	129.12	DIW	95.98	WW	142.10	DW	105.65
			DIW	95.98	TW	18.01	DIW	105.65	TW	19.03
			W <sub>w</sub>	33.14	W <sub>d</sub>	77.97	W <sub>w</sub>	35.45	W <sub>d</sub>	86.56
			No.		w	42.50	No.		w	42.11
	ER - 1 0.5m	28.7	WW	145.69	DIW	117.42	WW	145.71	DW	117.45
			DIW	117.42	TW	18.91	DIW	117.45	TW	18.91
			W <sub>w</sub>	28.27	W <sub>d</sub>	98.51	W <sub>w</sub>	28.26	W <sub>d</sub>	98.54
			No.		w	28.70	No.		w	28.68
	ER - 2 0.5m	14.6	WW	126.00	DIW	112.45	WW	154.08	DW	136.71
			DIW	112.45	TW	19.04	DIW	136.71	TW	18.53
			W <sub>w</sub>	13.55	W <sub>d</sub>	93.41	W <sub>w</sub>	17.37	W <sub>d</sub>	118.18
			No.		w	14.51	No.		w	14.70
	ER - 3 0.5m	38.4	WW	132.81	DIW	101.86	WW	146.47	DW	110.49
			DIW	101.86	TW	13.03	DIW	110.49	TW	19.00
			W <sub>w</sub>	30.95	W <sub>d</sub>	82.83	W <sub>w</sub>	36.03	W <sub>d</sub>	91.44
			No.		w	37.37	No.		w	39.40
	ER - 4 0.5m	39.1	WW	136.17	DIW	103.00	WW	114.85	DW	87.96
			DIW	103.00	TW	19.03	DIW	87.96	TW	18.44
			W <sub>w</sub>	33.17	W <sub>d</sub>	83.97	W <sub>w</sub>	26.89	W <sub>d</sub>	69.52
			No.		w	39.50	No.		w	38.68
	ER - 5 0.5m	39.7	WW	141.37	DIW	102.36	WW	134.60	DW	106.84
			DIW	102.36	TW	18.99	DIW	106.84	TW	19.01
			W <sub>w</sub>	39.01	W <sub>d</sub>	83.37	W <sub>w</sub>	27.76	W <sub>d</sub>	87.83
			No.		w	46.79	No.		w	31.61
	ER - 6 0.5m	24.3	WW	150.68	DIW	125.05	WW	136.27	DW	113.27
			DIW	125.05	TW	18.90	DIW	113.27	TW	18.93
			W <sub>w</sub>	25.63	W <sub>d</sub>	106.15	W <sub>w</sub>	23.00	W <sub>d</sub>	94.34
			No.		w	24.14	No.		w	24.37
	ER - 7 0.5m	22.3	WW	130.00	DIW	109.64	WW	133.75	DW	126.00
			DIW	109.64	TW	19.04	DIW	126.00	TW	18.96
			W <sub>w</sub>	20.36	W <sub>d</sub>	90.60	W <sub>w</sub>	13.84	W <sub>d</sub>	93.92
			No.		w	22.47	No.		w	22.22
	RM - 1 0.3m	9.9	WW	139.84	DIW	126.00	WW	211.55	DW	199.60
			DIW	126.00	TW	18.93	DIW	199.60	TW	18.73
			W <sub>w</sub>	13.84	W <sub>d</sub>	107.07	W <sub>w</sub>	12.45	W <sub>d</sub>	180.37
			No.		w	12.92	No.		w	6.90

# WATER CONTENT OF SOIL

No. 3

$$\frac{WW(\text{Wt. wet soil + Container}) - DW(\text{Wt. dry soil + container})}{DW(\text{Wt. dry soil + container})} \times 100 = \frac{W_w(\text{Wt. of water})}{W_d(\text{Wt. of dry soil})} \times 100 = \text{Water Content \%}$$

Date	Sample No.	Mean water content %	Calculation							
	RM - 2 0.3m	14.2	WW	134.33	DW	119.60	WW	131.03	DW	117.52
			DIW	119.60	TW	18.93	DIW	117.52	TW	18.92
			W <sub>w</sub>	14.73	W <sub>d</sub>	100.67	W <sub>w</sub>	13.50	W <sub>d</sub>	99.59
			No.		w	14.63	No.		w	13.70
	RM - 3 0.3m	38.4	WW	129.41	DW	99.72	WW	141.66	DW	106.47
			DIW	99.72	TW	18.92	DIW	106.47	TW	18.68
			W <sub>w</sub>	29.69	W <sub>d</sub>	80.80	W <sub>w</sub>	35.15	W <sub>d</sub>	87.79
			No.		w	36.75	No.		w	40.04
	RM - 4 0.3m	7.9	WW	192.91	DW	179.86	WW	174.27	DW	163.15
			DIW	179.86	TW	18.95	DIW	163.15	TW	18.45
			W <sub>w</sub>	13.05	W <sub>d</sub>	160.91	W <sub>w</sub>	11.12	W <sub>d</sub>	144.70
			No.		w	8.11	No.		w	7.68
	RM - 5 0.3m	33.5	WW	190.04	DW	147.36	WW	177.06	DW	137.23
			DIW	147.36	TW	18.95	DIW	137.23	TW	18.95
			W <sub>w</sub>	42.68	W <sub>d</sub>	129.41	W <sub>w</sub>	39.82	W <sub>d</sub>	118.28
			No.		w	33.24	No.		w	33.67
	RM - 6 0.3m	36.5	WW	167.86	DW	127.39	WW	144.59	DW	111.52
			DIW	127.39	TW	18.94	DIW	111.52	TW	19.00
			W <sub>w</sub>	40.47	W <sub>d</sub>	103.45	W <sub>w</sub>	33.07	W <sub>d</sub>	92.52
			No.		w	37.32	No.		w	35.74
	RM - 7 0.3m	13.6	WW	153.63	DW	137.77	WW	158.15	DW	141.48
			DIW	137.77	TW	18.86	DIW	141.48	TW	18.92
			W <sub>w</sub>	15.86	W <sub>d</sub>	118.91	W <sub>w</sub>	16.67	W <sub>d</sub>	122.56
			No.		w	13.34	No.		w	13.60
	B R M 0.3m	9.5	WW	193.74	DW	182.91	WW	217.17	DW	206.20
			DIW	182.91	TW	19.09	DIW	206.20	TW	19.09
			W <sub>w</sub>	10.83	W <sub>d</sub>	163.82	W <sub>w</sub>	10.97	W <sub>d</sub>	187.11
			No.		w	6.61	No.		w	5.86
			WW		DW		WW		DW	
			DIW		TW		DIW		TW	
			W <sub>w</sub>		W <sub>d</sub>		W <sub>w</sub>		W <sub>d</sub>	
			No.		w		No.		w	
			WW		DW		WW		DW	
			DIW		TW		DIW		TW	
			W <sub>w</sub>		W <sub>d</sub>		W <sub>w</sub>		W <sub>d</sub>	
			No.		w		No.		w	
			WW		DW		WW		DW	
			DIW		TW		DIW		TW	
			W <sub>w</sub>		W <sub>d</sub>		W <sub>w</sub>		W <sub>d</sub>	
			No.		w		No.		w	
			WW		DW		WW		DW	
			DIW		TW		DIW		TW	
			W <sub>w</sub>		W <sub>d</sub>		W <sub>w</sub>		W <sub>d</sub>	
			No.		w		No.		w	

# LIQUID LIMIT & PLASTIC LIMIT TEST (ESSAI DE LIMITE DE LIQUIDITÉ ET DE LIMITE DE PLASTICITÉ)

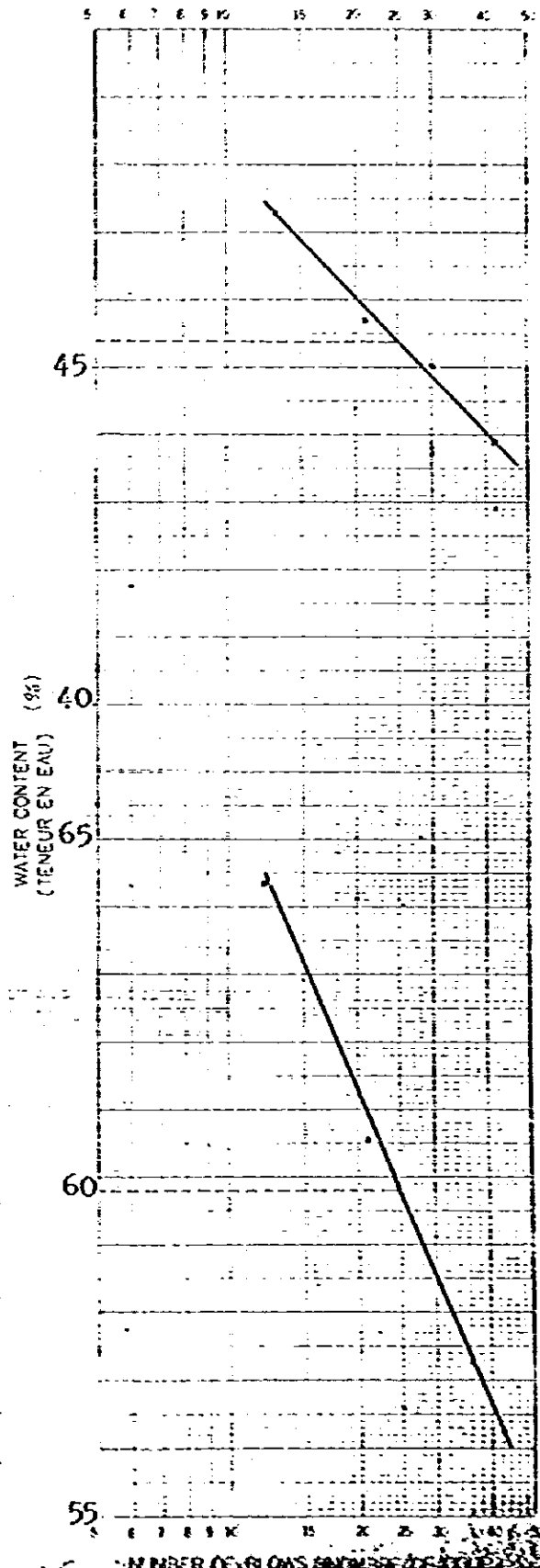
FOR REPORTING  
(POUR LE RAPPORT)

NAME OF SURVEY & LOCALITY (NOM DE L'ÉCHANTILLON ET LOCALITÉ)		BINA IRRIGATION PROJECT (CANAL ROUTE)		
DATE (DATE)	SEPTEMBER 81	TESTED BY (ESSAI PAR)	BINA MARGA LABORATORY	

FLOW CURVE  
(COURBE DE DÉTERMINATION DE LA LIMITE DE LIQUIDITÉ)

SAMPLE NO & DEPTH (N° DE L'ÉCHANTILLON ET PROFONDEUR)		No TP 0(R) (1.4m - 2.0m)		
LIQUID LIMIT TEST (LIMITE DE LIQUIDITÉ)			PLASTIC LIMIT TEST (LIMITE DE PLASTICITÉ)	
TEST NO (N° DE L'ESSAI)	NO OF BLOWS (NOMBRE DE COUP)	WATER CONTENT (TENEUR EN EAU)	TEST NO (N° DE L'ESSAI)	WATER CONTENT (TENEUR EN EAU)
1	13	47.3 %	1	17.9 %
2	21	45.7 %	2	21.7 %
3	30	45.0 %	3	%
4	41	43.9 %		
5		%		
6		%	MEAN VALUE (VALEUR MOYENNE) 19.8	
LIQUID LIMIT (LIMITE DE LIQUIDITÉ)		PLASTIC LIMIT (LIMITE DE PLASTICITÉ)		PLASTICITY INDEX (INDICE DE PLASTICITÉ)
w <sub>L</sub> 45.4 %		w <sub>p</sub> 19.8 %		I <sub>p</sub> 25.6

SAMPLE NO & DEPTH (N° DE L'ÉCHANTILLON ET PROFONDEUR)		No TP 0(L) (0.5m - 1.2m)		
LIQUID LIMIT TEST (LIMITE DE LIQUIDITÉ)			PLASTIC LIMIT TEST (LIMITE DE PLASTICITÉ)	
TEST NO (N° DE L'ESSAI)	NO OF BLOWS (NOMBRE DE COUP)	WATER CONTENT (TENEUR EN EAU)	TEST NO (N° DE L'ESSAI)	WATER CONTENT (TENEUR EN EAU)
1	12	64.3 %	1	30.9 %
2	21	67.5 %	2	31.7 %
3	33	57.2 %	3	%
4	42	56.2 %		
5		%		31.3
6		%	MEAN VALUE (VALEUR MOYENNE)	
LIQUID LIMIT (LIMITE DE LIQUIDITÉ)		PLASTIC LIMIT (LIMITE DE PLASTICITÉ)		PLASTICITY INDEX (INDICE DE PLASTICITÉ)
w <sub>L</sub> 59.8 %		w <sub>p</sub> 31.3 %		I <sub>p</sub> 28.5



# LIQUID LIMIT & PLASTIC LIMIT TEST (ESSAI DE LIMITE DE LIQUIDITÉ ET DE LIMITE DE PLASTICITÉ)

FOR REPORTING  
(POUR LE RAPPORT)

NAME OF SURVEY & LOCALITY  
(DÉNOMINATION DE L'ENQUÊTE ET LOCALITÉ)

BILA IRRIGATION PROJECT (CANAL ROUTE)

DATE  
(DATE)

SEPTEMBER, 81

TESTED BY  
(ESSAY PAR)

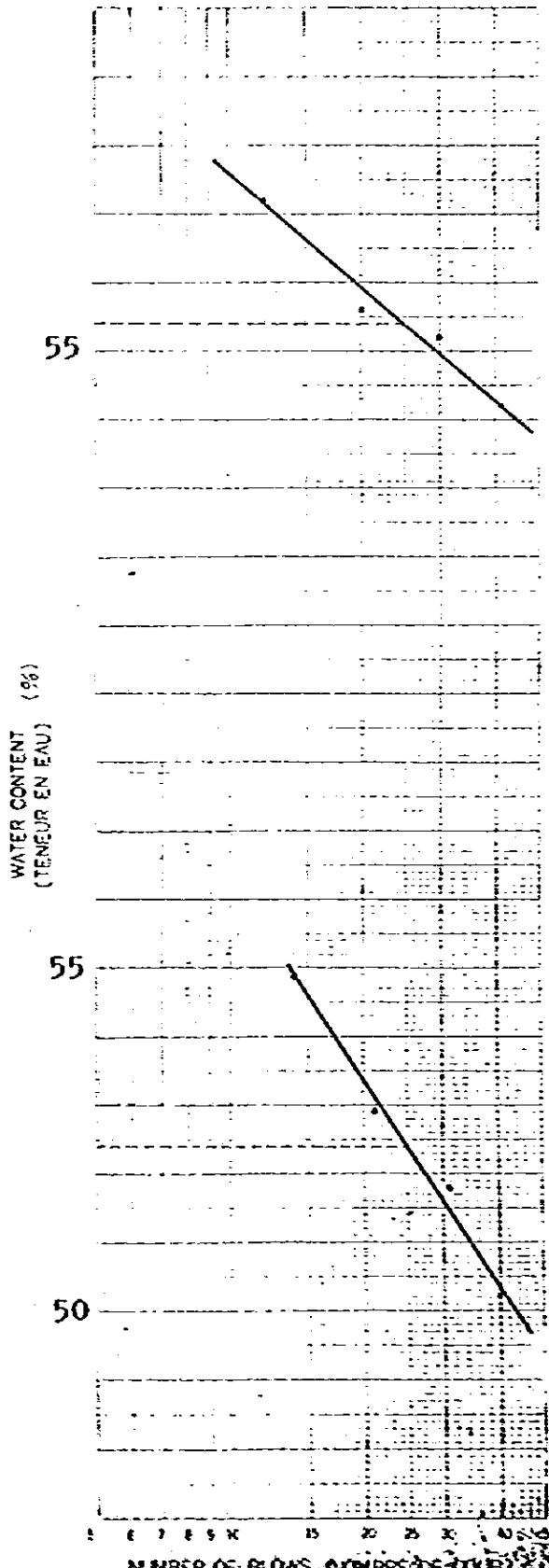
BINA MARGA LABORATORY

SAMPLE NO & DEPTH (N° DE L'ÉCHANTILLON ET PROFONDEUR)			No TP - 1 (0.5 m - 1.6 m)		
LIQUID LIMIT TEST (LIMITE DE LIQUIDITÉ)			- PLASTIC LIMIT TEST (LIMITE DE PLASTICITÉ)		
TEST NO (N° DE L'ESSAI)	NO OF BLOWS (NOMBRE DE COUP)	WATER CONTENT (TENEUR EN EAU)	TEST NO (N° DE L'ESSAI)	WATER CONTENT (TENEUR EN EAU)	
1	12	57.2 %	1	25.8	%
2	20	55.6 %	2	24.9	%
3	30	55.2 %	3		%
4	41	54.2 %			
5		%			
6		%	MEAN VALUE (VALEUR MOYENNE)		25.3
LIQUID LIMIT (LIMITE DE LIQUIDITÉ)		PLASTIC LIMIT (LIMITE DE PLASTICITÉ)		PLASTICITY INDEX (INDICE DE PLASTICITÉ)	
w <sub>L</sub> 55.4 %		w <sub>p</sub> 25.3 %		I <sub>p</sub> 30.1	

SAMPLE NO & DEPTH (N° DE L'ÉCHANTILLON ET PROFONDEUR)			No TP - 1 (1.6 m - 2.5 m)		
LIQUID LIMIT TEST (LIMITE DE LIQUIDITÉ)			- PLASTIC LIMIT TEST (LIMITE DE PLASTICITÉ)		
TEST NO (N° DE L'ESSAI)	NO OF BLOWS (NOMBRE DE COUP)	WATER CONTENT (TENEUR EN EAU)	TEST NO (N° DE L'ESSAI)	WATER CONTENT (TENEUR EN EAU)	
1	14	54.9 %	1	28	%
2	21	52.9 %	2	34.4	%
3	31	51.8 %	3		%
4	40	50.2 %			
5		%			
6		%	MEAN VALUE (VALEUR MOYENNE)		31.2
LIQUID LIMIT (LIMITE DE LIQUIDITÉ)		PLASTIC LIMIT (LIMITE DE PLASTICITÉ)		PLASTICITY INDEX (INDICE DE PLASTICITÉ)	
w <sub>L</sub> 52.4 %		w <sub>p</sub> 31.2 %		I <sub>p</sub> 21.2	

FLOW CURVE  
(COURBE DE DÉTERMINATION DE LA LIMITE DE LIQUIDITÉ)

5 6 7 8 9 10 15 20 25 30 40 50



**LIQUID LIMIT & PLASTIC LIMIT TEST**  
(ESSAI DE LIMITE DE LIQUIDITÉ ET DE LIMITE DE PLASTICITÉ)

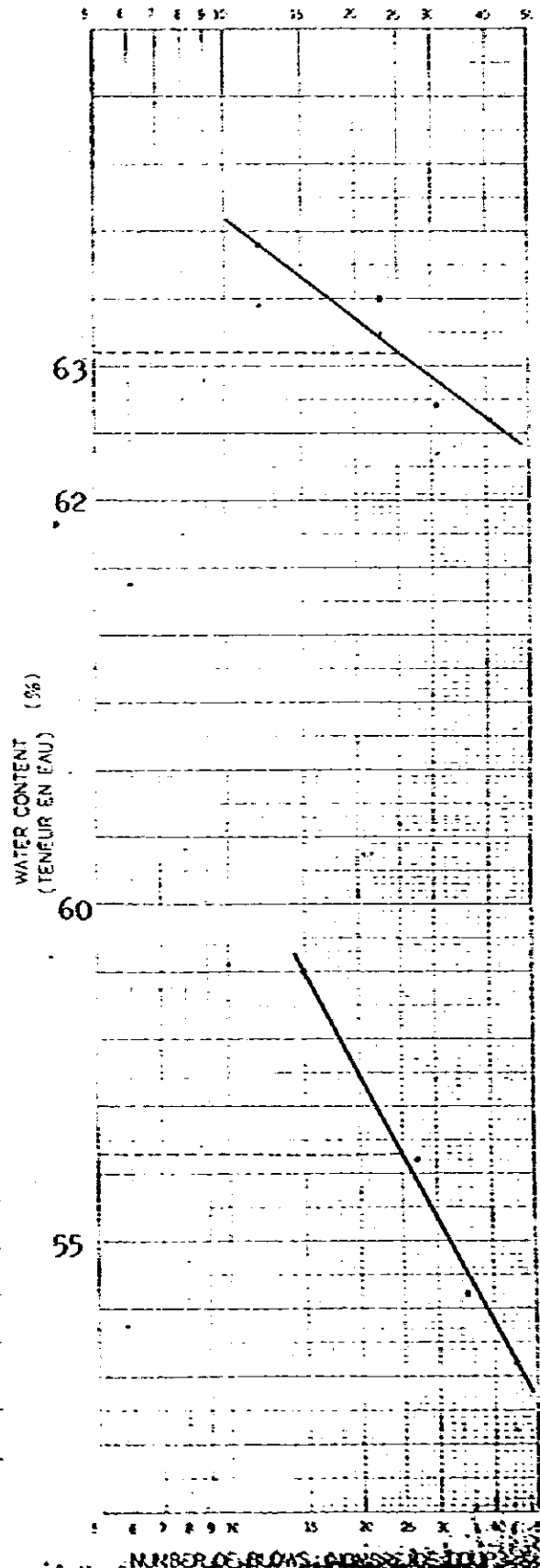
FOR REPORTING  
(POUR LE RAPPORT)

NAME OF SURVEY & LOCALITY (NOM DE L'ENQUÊTE ET LOCALITÉ)	BILA IRRIGATION PROJECT (CANAL ROUTE)		
DATE (DATE)	September, 1981	TESTED BY (ESSA PAR)	Bina Marga Laboratory

SAMPLE NO. & DEPTH (N° DE L'ÉCHANTILLON ET PROFONDEUR)		No TP - 1 (0.5 m - 2.5 m)		
LIQUID LIMIT TEST (LIMITE DE LIQUIDITÉ)			PLASTIC LIMIT TEST (LIMITE DE PLASTICITÉ)	
TEST NO. (N° DE L'ESSA)	NO OF BLOWS (NOMBRE DE COUP)	WATER CONTENT (TENEUR EN EAU)	TEST NO. (N° DE L'ESSA)	WATER CONTENT (TENEUR EN EAU)
1	12	63.9 %	1	28.8 %
2	23	63.5 %	2	26.0 %
3	31	62.7 %	3	%
4	41	62.6 %		
5		%		
6		%		MEAN VALUE (VALEUR MOYENNE)
LIQUID LIMIT (LIMITE DE LIQUIDITÉ)		PLASTIC LIMIT (LIMITE DE PLASTICITÉ)	PLASTICITY INDEX (INDICE DE PLASTICITÉ)	
w <sub>L</sub> 63.1 %		w <sub>p</sub> 27.4 %	I <sub>p</sub> 35.7	

SAMPLE NO. & DEPTH (N° DE L'ÉCHANTILLON ET PROFONDEUR)		No TP - 2 (0.3 m - 1.4 m)		
LIQUID LIMIT TEST (LIMITE DE LIQUIDITÉ)			PLASTIC LIMIT TEST (LIMITE DE PLASTICITÉ)	
TEST NO. (N° DE L'ESSA)	NO OF BLOWS (NOMBRE DE COUP)	WATER CONTENT (TENEUR EN EAU)	TEST NO. (N° DE L'ESSA)	WATER CONTENT (TENEUR EN EAU)
1	15	59.0 %	1	34.6 %
2	27	56.2 %	2	29.2 %
3	35	54.2 %	3	%
4	45	53.2 %		
5		%		
6		%		MEAN VALUE (VALEUR MOYENNE) 31.9
LIQUID LIMIT (LIMITE DE LIQUIDITÉ)		PLASTIC LIMIT (LIMITE DE PLASTICITÉ)	PLASTICITY INDEX (INDICE DE PLASTICITÉ)	
w <sub>L</sub> 56.3 %		w <sub>p</sub> 31.9 %	I <sub>p</sub> 24.4	

FLOW CURVE  
(COURBE DE DÉTERMINATION DE LA LIMITE DE LIQUIDITÉ)



# LIQUID LIMIT & PLASTIC LIMIT TEST (ESSAI DE LIMITE DE LIQUIDITÉ ET DE LIMITE DE PLASTICITÉ)

FOR REPORTS  
(POUR LE RAPPORT)

NAME OF SURVEY & LOCALITY  
(DÉNOMINATION DE L'ÉCHANTILLON ET LOCALITÉ)

BILA IRRIGATION PROJECT (CANAL ROUTE)

DATE  
(DATE)

September, 1981

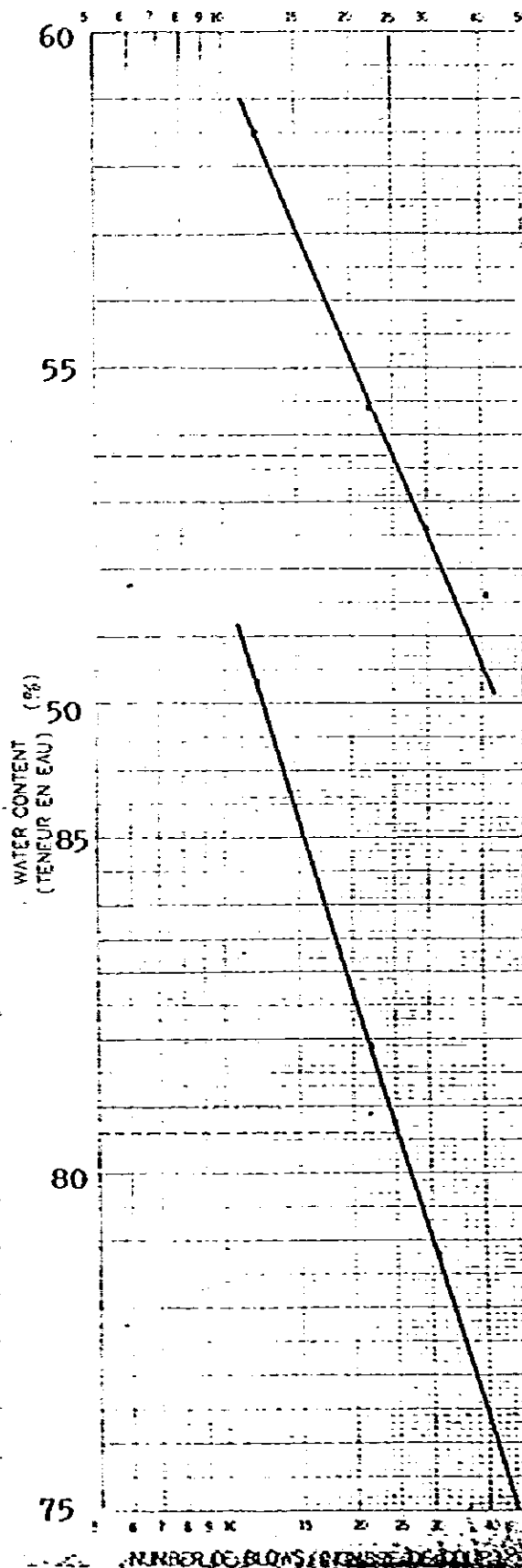
TESTED BY  
(ESSAI PAR)

Bina Merga Laboratory

SAMPLE NO & DEPTH (N° DE L'ÉCHANTILLON ET PROFONDEUR)		No TP - 3 (0.8 m - 1.4 m)			
LIQUID LIMIT TEST (LIMITE DE LIQUIDITÉ)			PLASTIC LIMIT TEST (LIMITE DE PLASTICITÉ)		
TEST NO (N° DE L'ESSAI)	NO OF BLOCS (NOMBRE DE COUP)	WATER CONTENT (TENEUR EN EAU)	TEST NO (N° DE L'ESSAI)	WATER CONTENT (TENEUR EN EAU)	
1	12	58.5 %	1	21.8 %	
2	22	54.4 %	2	20.8 %	
3	30	52.6 %	3	%	
4	41	51.6 %			
5		%			
6		%		MEAN VALUE (MOYENNE) 21.3	
LIQUID LIMIT (LIMITE DE LIQUIDITÉ)		PLASTIC LIMIT (LIMITE DE PLASTICITÉ)		PLASTICITY INDEX (INDEX DE PLASTICITÉ)	
w <sub>L</sub> 53.7 %		w <sub>p</sub> 21.3 %		I <sub>p</sub> 32.4	

SAMPLE NO & DEPTH (N° DE L'ÉCHANTILLON ET PROFONDEUR)		No TP - 4 (1.0 m - 1.8 m)			
LIQUID LIMIT TEST (LIMITE DE LIQUIDITÉ)			PLASTIC LIMIT TEST (LIMITE DE PLASTICITÉ)		
TEST NO (N° DE L'ESSAI)	NO OF BLOCS (NOMBRE DE COUP)	WATER CONTENT (TENEUR EN EAU)	TEST NO (N° DE L'ESSAI)	WATER CONTENT (TENEUR EN EAU)	
1	12	87.3 %	1	24.4 %	
2	22	81.9 %	2	23.2 %	
3	31	78.8 %	3	%	
4	46	75.1 %			
5		%			
6		%		MEAN VALUE (MOYENNE) 23.8	
LIQUID LIMIT (LIMITE DE LIQUIDITÉ)		PLASTIC LIMIT (LIMITE DE PLASTICITÉ)		PLASTICITY INDEX (INDEX DE PLASTICITÉ)	
w <sub>L</sub> 80.6 %		w <sub>p</sub> 23.8 %		I <sub>p</sub> 56.8	

FLOW CURVE  
(COURBE DE DÉTERMINATION DE LA LIMITE DE LIQUIDITÉ)



# LIQUID LIMIT & PLASTIC LIMIT TEST (ESSAI DE LIMITE DE LIQUIDITÉ ET DE LIMITE DE PLASTICITÉ)

FOR REPORTING  
(POUR LE RAPPORT)

NAME OF SURVEY & LOCALITY  
(DÉNOMINATION DE L'ENQUÊTE ET LOCALITÉ)

BILA IRRIGATION PROJECT (CANAL ROUTE)

DATE  
(DATE)

September, 1981

TESTED BY  
(ESSAI PAR)

Bina Marga Laboratory

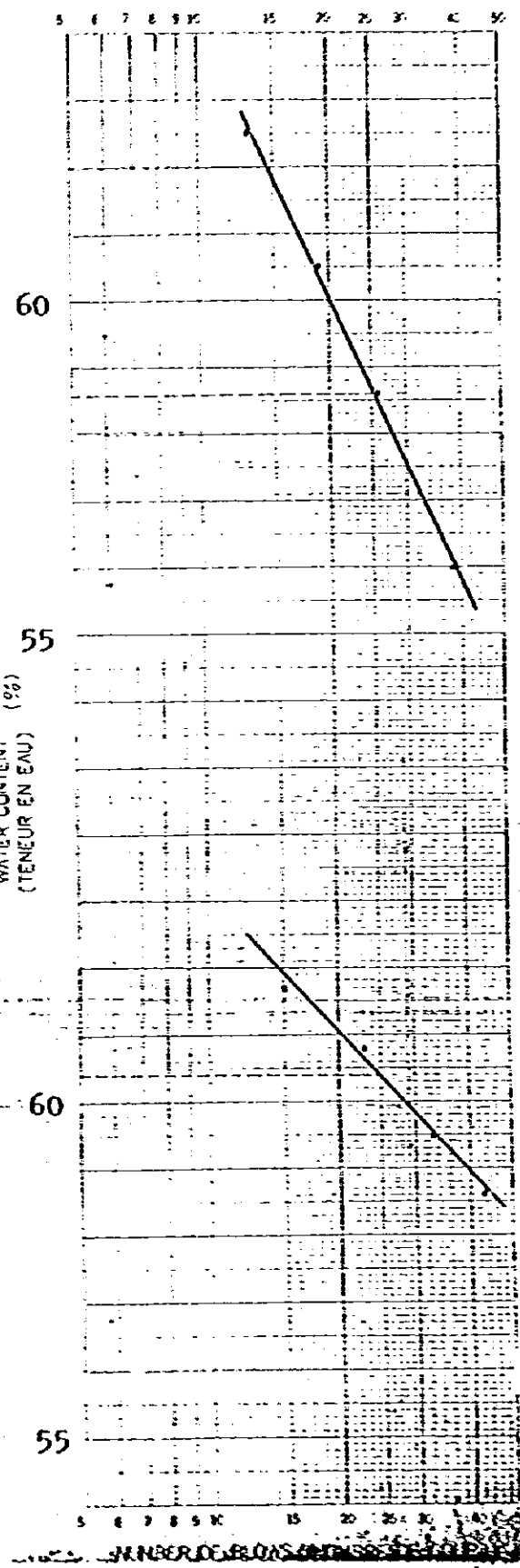
FLOW CURVE  
(COURBE DE DÉTERMINATION DE LA LIMITE DE LIQUIDITÉ)

SAMPLE NO & DEPTH  
(N° DE L'ÉCHANTILLON ET PROFONDEUR) No TP - 4 (1.8m - 2.0m)

LIQUID LIMIT TEST (LIMITE DE LIQUIDITÉ)			PLASTIC LIMIT TEST (LIMITE DE PLASTICITÉ)	
TEST NO (N° DE L'ESSAI)	NO OF BLOWS (NOMBRE DE COUPS)	WATER CONTENT (TENEUR EN EAU)	TEST NO (N° DE L'ESSAI)	WATER CONTENT (TENEUR EN EAU)

1	13	62.5 %	1	22 %
2	19	60.5 %	2	21.7 %
3	26	58.6 %	3	%
4	39	56.0 %		
5		%		
6		%	MEAN VALUE (VALEUR MOYENNE)	21.9

LIQUID LIMIT (LIMITE DE LIQUIDITÉ)	PLASTIC LIMIT (LIMITE DE PLASTICITÉ)	PLASTICITY INDEX (INDICE DE PLASTICITÉ)
w <sub>L</sub> 58.6 %	w <sub>p</sub> 21.9 %	I <sub>p</sub> 36.7



SAMPLE NO & DEPTH  
(N° DE L'ÉCHANTILLON ET PROFONDEUR) No TP - 5 (1.5m - 2.0m)

LIQUID LIMIT TEST (LIMITE DE LIQUIDITÉ)			PLASTIC LIMIT TEST (LIMITE DE PLASTICITÉ)	
TEST NO (N° DE L'ESSAI)	NO OF BLOWS (NOMBRE DE COUPS)	WATER CONTENT (TENEUR EN EAU)	TEST NO (N° DE L'ESSAI)	WATER CONTENT (TENEUR EN EAU)

1	15	61.7 %	1	17.1 %
2	23	60.8 %	2	28.2 %
3	33	59.5 %	3	%
4	43	58.6 %		
5		%		
6		%	MEAN VALUE (VALEUR MOYENNE)	22.7

LIQUID LIMIT (LIMITE DE LIQUIDITÉ)	PLASTIC LIMIT (LIMITE DE PLASTICITÉ)	PLASTICITY INDEX (INDICE DE PLASTICITÉ)
w <sub>L</sub> 60.4 %	w <sub>p</sub> 22.7 %	I <sub>p</sub> 37.7

# LIQUID LIMIT & PLASTIC LIMIT TEST (ESSAI DE LIMITE DE LIQUIDITÉ ET DE LIMITE DE PLASTICITÉ)

FOR REPORTING  
(POUR LE RAPPORT)

NAME OF SURVEY & LOCALITY  
(DÉNOMINATION DE L'ENQUÊTE ET LOCALITÉ)

**BIIA IRRIGATION PROJECT (CANAL ROUTE)**

DATE  
(DATE)

September, 1981

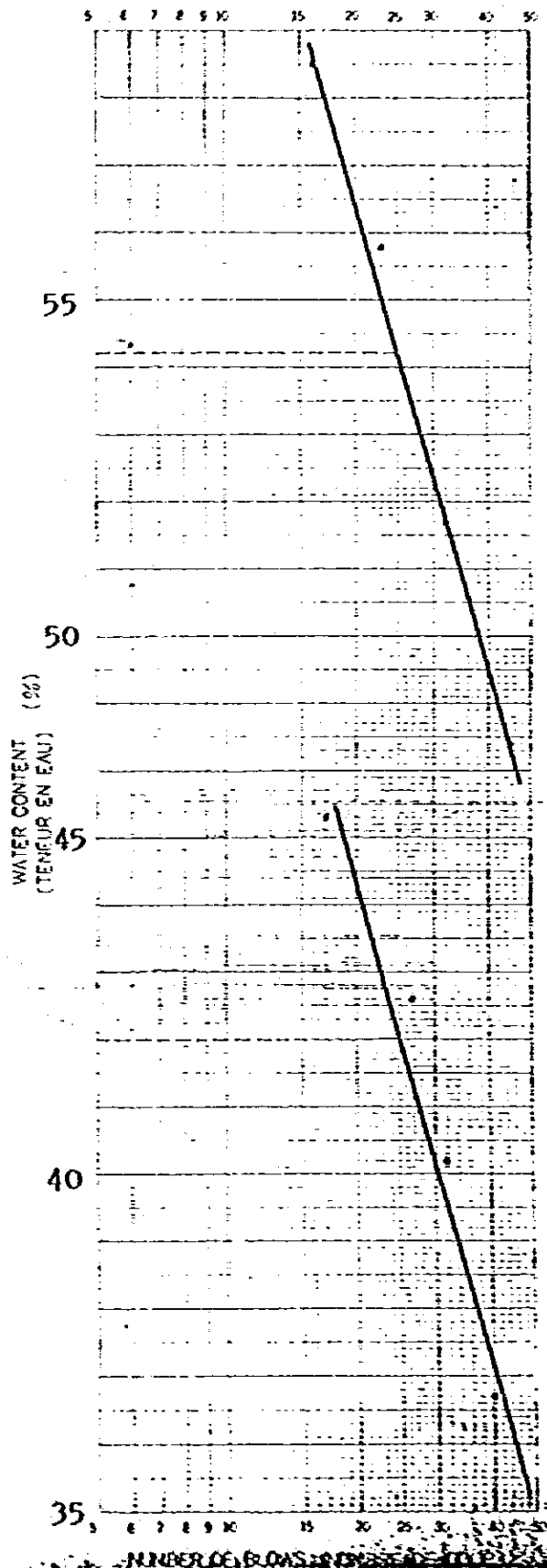
TESTED BY  
(ESSAI PAR)

Bina Marga Laboratory

FLOW CURVE  
(COURBE DE DÉTERMINATION DE LA LIMITE DE LIQUIDITÉ)

SAMPLE NO & DEPTH (N° DE L'ÉCHANTILLON ET PROFONDEUR)			No TP - 6 (0.6 m - 1.4 m)		
LIQUID LIMIT TEST (LIMITE DE LIQUIDITÉ)			PLASTIC LIMIT TEST (LIMITE DE PLASTICITÉ)		
TEST NO (N° DE L'ESSAI)	NO OF BLOWS (NOMBRE DE COUP)	WATER CONTENT (TENEUR EN EAU)	TEST NO (N° DE L'ESSAI)	WATER CONTENT (TENEUR EN EAU)	
1	16	58.5 %	1	28.1 %	
2	23	55.8 %	2	29.7 %	
3	32	51.7 %	3	%	
4	45	48.4 %			
5		%			
6		%		MEAN VALUE (VALEUR MOYENNE) 28.9	
LIQUID LIMIT (LIMITE DE LIQUIDITÉ)		PLASTIC LIMIT (LIMITE DE PLASTICITÉ)	PLASTICITY INDEX (INDICE DE PLASTICITÉ)		
w <sub>L</sub> 54.2 %		w <sub>p</sub> 28.9 %	I <sub>p</sub> 25.3		

SAMPLE NO & DEPTH (N° DE L'ÉCHANTILLON ET PROFONDEUR)			No TP - 7 (1.6 m - 2.0 m)		
LIQUID LIMIT TEST (LIMITE DE LIQUIDITÉ)			PLASTIC LIMIT TEST (LIMITE DE PLASTICITÉ)		
TEST NO (N° DE L'ESSAI)	NO OF BLOWS (NOMBRE DE COUP)	WATER CONTENT (TENEUR EN EAU)	TEST NO (N° DE L'ESSAI)	WATER CONTENT (TENEUR EN EAU)	
1	17	45.3 %	1	17.7 %	
2	27	42.6 %	2	17.1 %	
3	32	40.2 %	3	%	
4	40	36.7 %			
5		%			
6		%		MEAN VALUE (VALEUR MOYENNE) 17.4	
LIQUID LIMIT (LIMITE DE LIQUIDITÉ)		PLASTIC LIMIT (LIMITE DE PLASTICITÉ)	PLASTICITY INDEX (INDICE DE PLASTICITÉ)		
w <sub>L</sub> 42 %		w <sub>p</sub> 17.4 %	I <sub>p</sub> 24.6		





# LIQUID LIMIT & PLASTIC LIMIT TEST (ESSAI DE LIMITE DE LIQUIDITÉ ET DE LIMITE DE PLASTICITÉ)

FOR REPORTING  
(POUR LE RAPPORT)

NAME OF SURVEY & LOCALITY  
(DÉNOMINATION DE L'ENQUÊTE ET LOCALITÉ)

**BIIA IRRIGATION PROJECT (CANAL ROUTE)**

DATE  
(DATE)

September, 1981

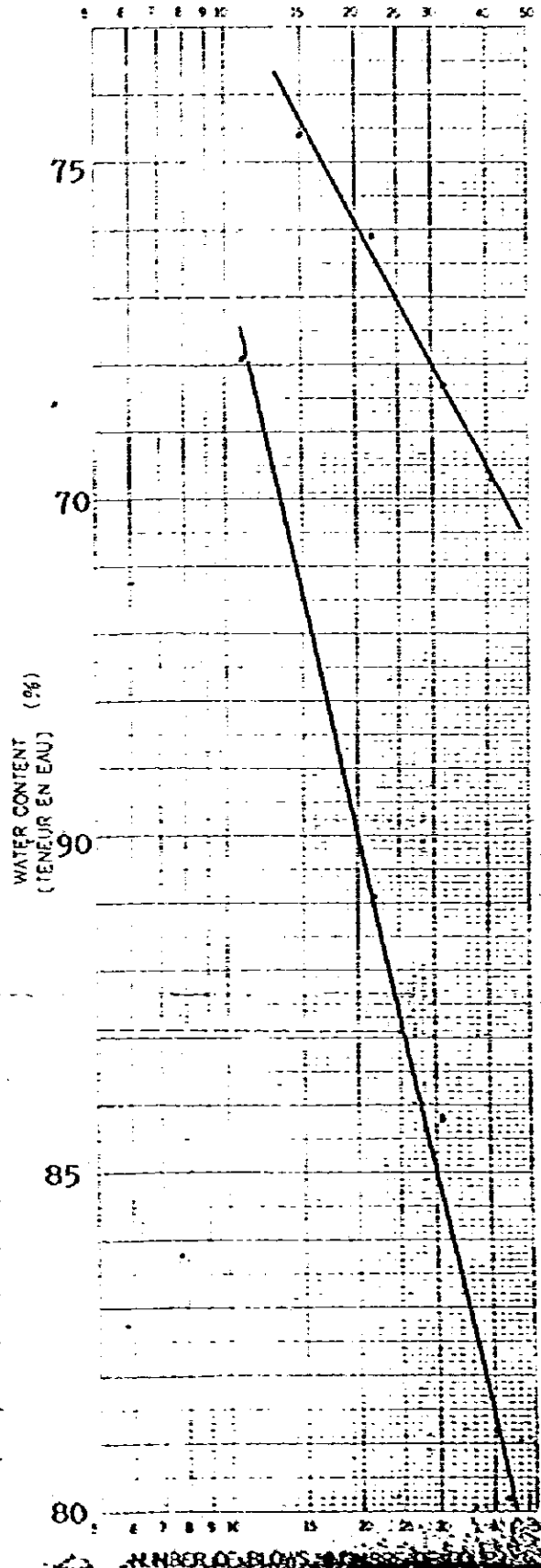
TESTED BY  
(ESSAY PAR)

Bina Marga Laboratory

FLOW CURVE  
(COUSSE DE DÉTERMINATION DE LA LIMITE DE LIQUIDITÉ)

SAMPLE NO & DEPTH (N° DE L'ÉCHANTILLON ET PROFONDEUR)			No TP - 8 (1.4 m - 2.0 m)	
LIQUID LIMIT TEST (LIMITE DE LIQUIDITÉ)			PLASTIC LIMIT TEST (LIMITE DE PLASTICITÉ)	
TEST NO (N° DE L'ESSAI)	NO OF BLOWS (NOMBRE DE COUPS)	WATER CONTENT (TENEUR EN EAU)	TEST NO (N° DE L'ESSAI)	WATER CONTENT (TENEUR EN EAU)
1	15	75.4 %	1	32.3 %
2	22	73.9 %	2	25.3 %
3	32	71.7 %	3	%
4	41	70.3 %		
5		%		
6		%	MEAN VALUE (Valeur Moyenne) 28.8	
LIQUID LIMIT (LIMITE DE LIQUIDITÉ)		PLASTIC LIMIT (LIMITE DE PLASTICITÉ)	PLASTICITY INDEX (INDICE DE PLASTICITÉ)	
w <sub>L</sub> 73 %		w <sub>p</sub> 28.8 %	I <sub>p</sub> 44.2	

SAMPLE NO & DEPTH (N° DE L'ÉCHANTILLON ET PROFONDEUR)			No TP - 9 (1.0 m - 1.5 m)	
LIQUID LIMIT TEST (LIMITE DE LIQUIDITÉ)			PLASTIC LIMIT TEST (LIMITE DE PLASTICITÉ)	
TEST NO (N° DE L'ESSAI)	NO OF BLOWS (NOMBRE DE COUPS)	WATER CONTENT (TENEUR EN EAU)	TEST NO (N° DE L'ESSAI)	WATER CONTENT (TENEUR EN EAU)
1	11	97.1 %	1	23.6 %
2	22	89.1 %	2	24.3 %
3	31	85.8 %	3	%
4	43	80.2 %		
5		%		
6		%	MEAN VALUE (Valeur Moyenne) 23.9	
LIQUID LIMIT (LIMITE DE LIQUIDITÉ)		PLASTIC LIMIT (LIMITE DE PLASTICITÉ)	PLASTICITY INDEX (INDICE DE PLASTICITÉ)	
w <sub>L</sub> 87.1 %		w <sub>p</sub> 23.9 %	I <sub>p</sub> 63.2	



**LIQUID LIMIT & PLASTIC LIMIT TEST**  
(ESSAI DE LIMITE DE LIQUIDITÉ ET DE LIMITE DE PLASTICITÉ)

FOR REPORTING  
(POUR LE RAPPORT)

NAME OF SURVEY & LOCALITY  
(DÉNOMINATION DE L'ÉCHANTILLON ET LOCALITÉ)

**BILA IRRIGATION PROJECT (FLOOD DIKE)**

DATE  
(DATE)

September, 1981

TESTED BY  
(ESSAI PAR)

Bina Marga Laboratory

SAMPLE NO & DEPTH  
(N° DE L'ÉCHANTILLON ET PROFONDEUR) No FW - 1 (0.5 m - m)

LIQUID LIMIT TEST  
(LIMITE DE LIQUIDITÉ)                      PLASTIC LIMIT TEST  
(LIMITE DE PLASTICITÉ)

TEST NO (N° DE L'ESSAI)	NO OF BLOAS (NOMBRE DE COUP)	WATER CONTENT (TENEUR EN EAU)	TEST NO (N° DE L'ESSAI)	WATER CONTENT (TENEUR EN EAU)
1	11	87.6%	1	27.2%
2	19	83.8%	2	25.9%
3	28	79.3%	3	%
4	36	75.0%		
5		%		
6		%		26.6

LIQUID LIMIT (LIMITE DE LIQUIDITÉ)	PLASTIC LIMIT (LIMITE DE PLASTICITÉ)	PLASTICITY INDEX (INDICE DE PLASTICITÉ)
LL 79.5 %	PL 26.6 %	PI 52.9

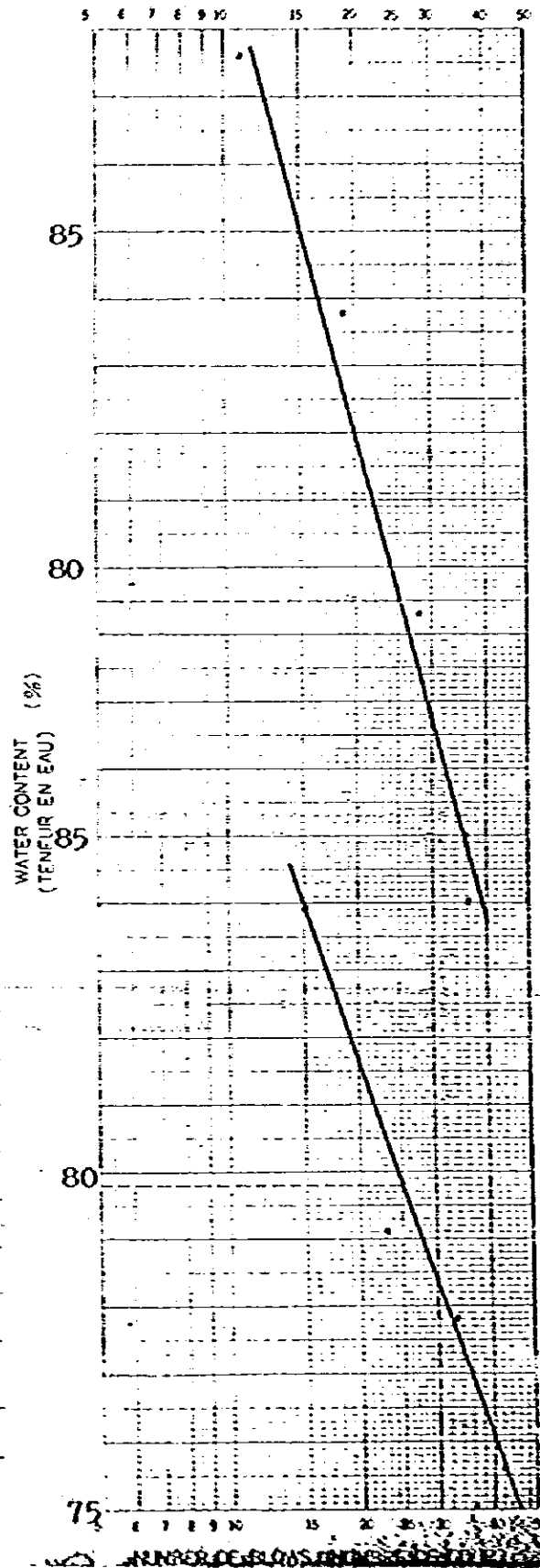
SAMPLE NO & DEPTH  
(N° DE L'ÉCHANTILLON ET PROFONDEUR) No FW - 2 (0.5 m - m)

LIQUID LIMIT TEST  
(LIMITE DE LIQUIDITÉ)                      PLASTIC LIMIT TEST  
(LIMITE DE PLASTICITÉ)

TEST NO (N° DE L'ESSAI)	NO OF BLOAS (NOMBRE DE COUP)	WATER CONTENT (TENEUR EN EAU)	TEST NO (N° DE L'ESSAI)	WATER CONTENT (TENEUR EN EAU)
1	15	83.9%	1	32.9%
2	23	79.1%	2	22.7%
3	33	77.8%	3	%
4	42	75.6%		
5		%		
6		%		27.8

LIQUID LIMIT (LIMITE DE LIQUIDITÉ)	PLASTIC LIMIT (LIMITE DE PLASTICITÉ)	PLASTICITY INDEX (INDICE DE PLASTICITÉ)
LL 79.8 %	PL 27.8 %	PI 52

FLOW CURVE  
(COURSE DE DÉTERMINATION DE LA LIMITE DE LIQUIDITÉ)



**LIQUID LIMIT & PLASTIC LIMIT TEST**  
(ESSAI DE LIMITE DE LIQUIDITÉ ET DE LIMITE DE PLASTICITÉ)

FOR REPORTING  
(POUR LE RAPPORT)

NAME OF SURVEY & LOCALITY  
(DÉNOMINATION DE L'ENQUÊTE ET LOCALITÉ)

**BILA IRRIGATION PROJECT (FLOOD CONTROL)**

DATE  
(DATE)

September, 1981

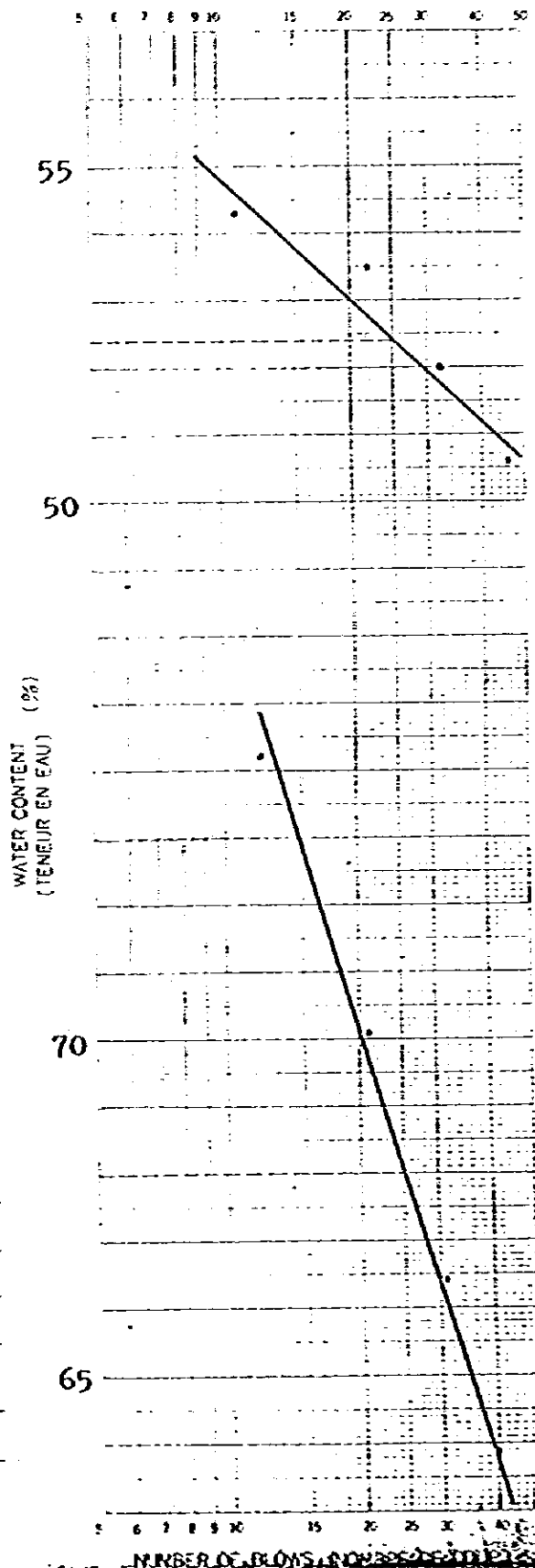
TESTED BY  
(ESSAYÉ PAR)

Bina Marga Laboratory

SAMPLE NO & DEPTH (N° DE L'ÉCHANTILLON ET PROFONDEUR)		No BR - 1 (0.5 m - m)			
LIQUID LIMIT TEST (LIMITE DE LIQUIDITÉ)			PLASTIC LIMIT TEST (LIMITE DE PLASTICITÉ)		
TEST NO (N° DE L'ESSAI)	NO OF BLOWS (NOMBRE DE COUP)	WATER CONTENT (TENEUR EN EAU)	TEST NO (N° DE L'ESSAI)	WATER CONTENT (TENEUR EN EAU)	
1	11	54.3 %	1	31.1 %	
2	22	53.5 %	2	29.9 %	
3	32	52 %	3	%	
4	46	50.6 %			
5		%			
6		%			MEAN VALUE (Valeur Moyenne) 30.5
LIQUID LIMIT (LIMITE DE LIQUIDITÉ)		PLASTIC LIMIT (LIMITE DE PLASTICITÉ)		PLASTICITY INDEX (INDICE DE PLASTICITÉ)	
w <sub>L</sub> 52.4 %		w <sub>p</sub> 30.5 %		I <sub>p</sub> 21.9	

SAMPLE NO & DEPTH (N° DE L'ÉCHANTILLON ET PROFONDEUR)		No BR - 4 (0.5 m - m)			
LIQUID LIMIT TEST (LIMITE DE LIQUIDITÉ)			PLASTIC LIMIT TEST (LIMITE DE PLASTICITÉ)		
TEST NO (N° DE L'ESSAI)	NO OF BLOWS (NOMBRE DE COUP)	WATER CONTENT (TENEUR EN EAU)	TEST NO (N° DE L'ESSAI)	WATER CONTENT (TENEUR EN EAU)	
1	12	74.2 %	1	28.6 %	
2	21	70.1 %	2	24.9 %	
3	31	66.4 %	3	%	
4	40	63.9 %			
5		%			
6		%			MEAN VALUE (Valeur Moyenne) 26.8
LIQUID LIMIT (LIMITE DE LIQUIDITÉ)		PLASTIC LIMIT (LIMITE DE PLASTICITÉ)		PLASTICITY INDEX (INDICE DE PLASTICITÉ)	
w <sub>L</sub> 68 %		w <sub>p</sub> 26.8 %		I <sub>p</sub> 41.2	

FLOW CURVE  
(COURBE DE DÉTERMINATION DE LA LIMITE DE LIQUIDITÉ)



LIQUID LIMIT & PLASTIC LIMIT TEST  
(ESSAI DE LIMITE DE LIQUIDITÉ ET DE LIMITE DE PLASTICITÉ)

FOR REPORTING  
(POUR LE RAPPORT)

NAME OF SURVEY & LOCALITY  
(DÉNOMINATION DE L'ENQUÊTE ET LOCALITÉ)

BILA IRRIGATION PROJECT (FLOOD CONTROL)

DATE  
(DATE)

September, 1981

TESTED BY  
(ESSAYÉ PAR)

Bina Marga Laboratory

SAMPLE NO. & DEPTH  
(N° DE L'ÉCHANTILLON ET PROFONDEUR) No BR - 7'0.5" - (m)

LIQUID LIMIT TEST (LIMITE DE LIQUIDITÉ)			PLASTIC LIMIT TEST (LIMITE DE PLASTICITÉ)	
TEST NO (N° DE L'ESSAI)	NO OF BLOWS (NOMBRE DE COUPS)	WATER CONTENT (TENEUR EN EAU)	TEST NO (N° DE L'ESSAI)	WATER CONTENT (TENEUR EN EAU)
1	12	66.7 %	1	29.9 %
2	24	59.5 %	2	28.8 %
3	30	57.7 %	3	%
4	39	55.8 %		
5		%		
6		%	MEAN VALUE (MOYENNE)	29.3
LIQUID LIMIT (LIMITE DE LIQUIDITÉ)		PLASTIC LIMIT (LIMITE DE PLASTICITÉ)	PLASTICITY INDEX (INDICE DE PLASTICITÉ)	
w <sub>L</sub> 59.7 %		w <sub>p</sub> 29.3 %	I <sub>p</sub> 30.4	

SAMPLE NO. & DEPTH  
(N° DE L'ÉCHANTILLON ET PROFONDEUR) No ( m - m )

LIQUID LIMIT TEST (LIMITE DE LIQUIDITÉ)			PLASTIC LIMIT TEST (LIMITE DE PLASTICITÉ)	
TEST NO (N° DE L'ESSAI)	NO OF BLOWS (NOMBRE DE COUPS)	WATER CONTENT (TENEUR EN EAU)	TEST NO (N° DE L'ESSAI)	WATER CONTENT (TENEUR EN EAU)
1		%	1	%
2		%	2	%
3		%	3	%
4		%		
5		%		
6		%	MEAN VALUE (MOYENNE)	
LIQUID LIMIT (LIMITE DE LIQUIDITÉ)		PLASTIC LIMIT (LIMITE DE PLASTICITÉ)	PLASTICITY INDEX (INDICE DE PLASTICITÉ)	
w <sub>L</sub> %		w <sub>p</sub> %	I <sub>p</sub>	

FLOW CURVE  
(COURBE DE DÉTERMINATION DE LA LIMITE DE LIQUIDITÉ)

