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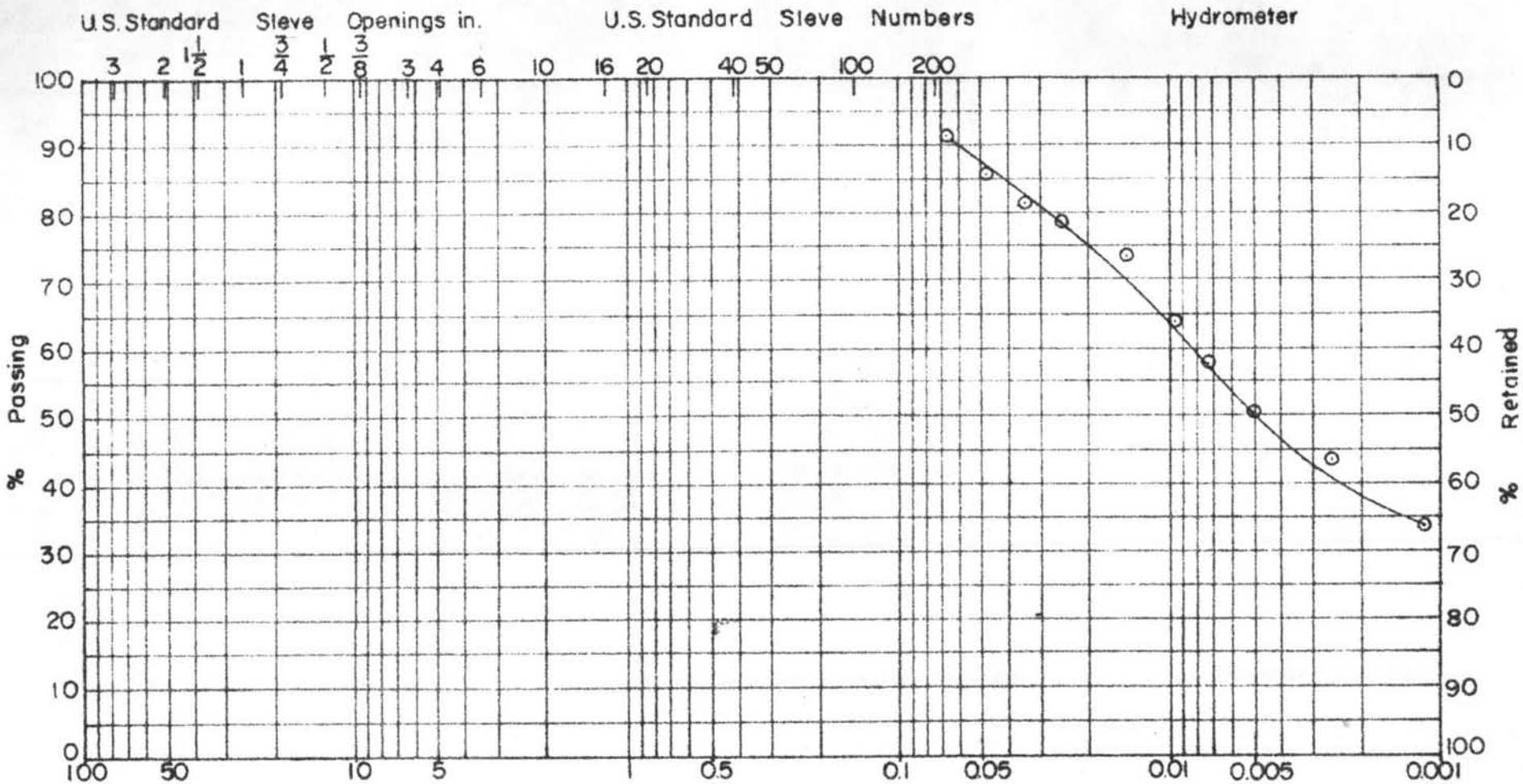
APPENDIX



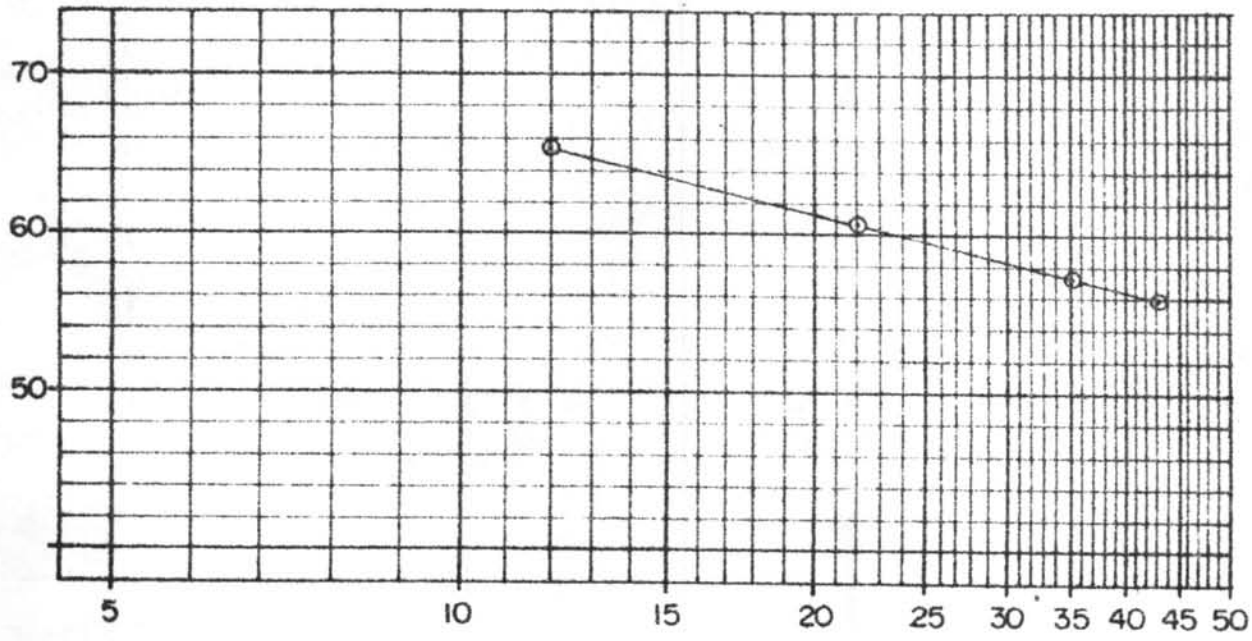
USBR	GRAVEL		SAND			SILT or CLAY	
	Coarse	Fine	Coarse	Medium	Fine		
AASHO ASTM	GRAVEL		SAND			SILT	CLAY
			Coarse		Fine		

Fig. A1 — Grain Size Distribution of Nong Ngoo Hao CLay

Table. AI – Detailed Results from Atterberg Limit Determination of Nong Ngoo Hao CLay

TYPE OF TEST	LIQUID LIMIT				PLASTIC LIMIT			
RUN NUMBER	1	2	3	4	1	2	3	4
CONTAINER NO.	122	28	217	189	7	81	153	11
WT. WET SOIL + CON.	38.73	36.63	39.73	36.82	25.80	25.11	25.55	26.01
WT. DRY SOIL + CON.	33.82	32.34	34.36	31.81	25.71	25.01	25.46	25.90
WT. WATER	4.91	4.29	5.57	5.01	0.09	0.10	0.09	0.11
WT. CONTAINER	25.04	24.83	25.19	24.20	25.10	24.32	24.83	25.12
WT. DRY SOIL	8.78	7.51	9.17	7.61	0.61	0.69	0.63	0.78
WATER CONTENT	55.92	57.13	60.74	65.83	14.75	14.49	14.29	13.92
NO. OF BLOWS	43	35	22	12	Average = 14.36			

FLOW CURVE



LIQUID LIMIT, W_L	59.50	PLASTIC LIMIT, W_P	14.36	PLASTICITY INDEX	45.14

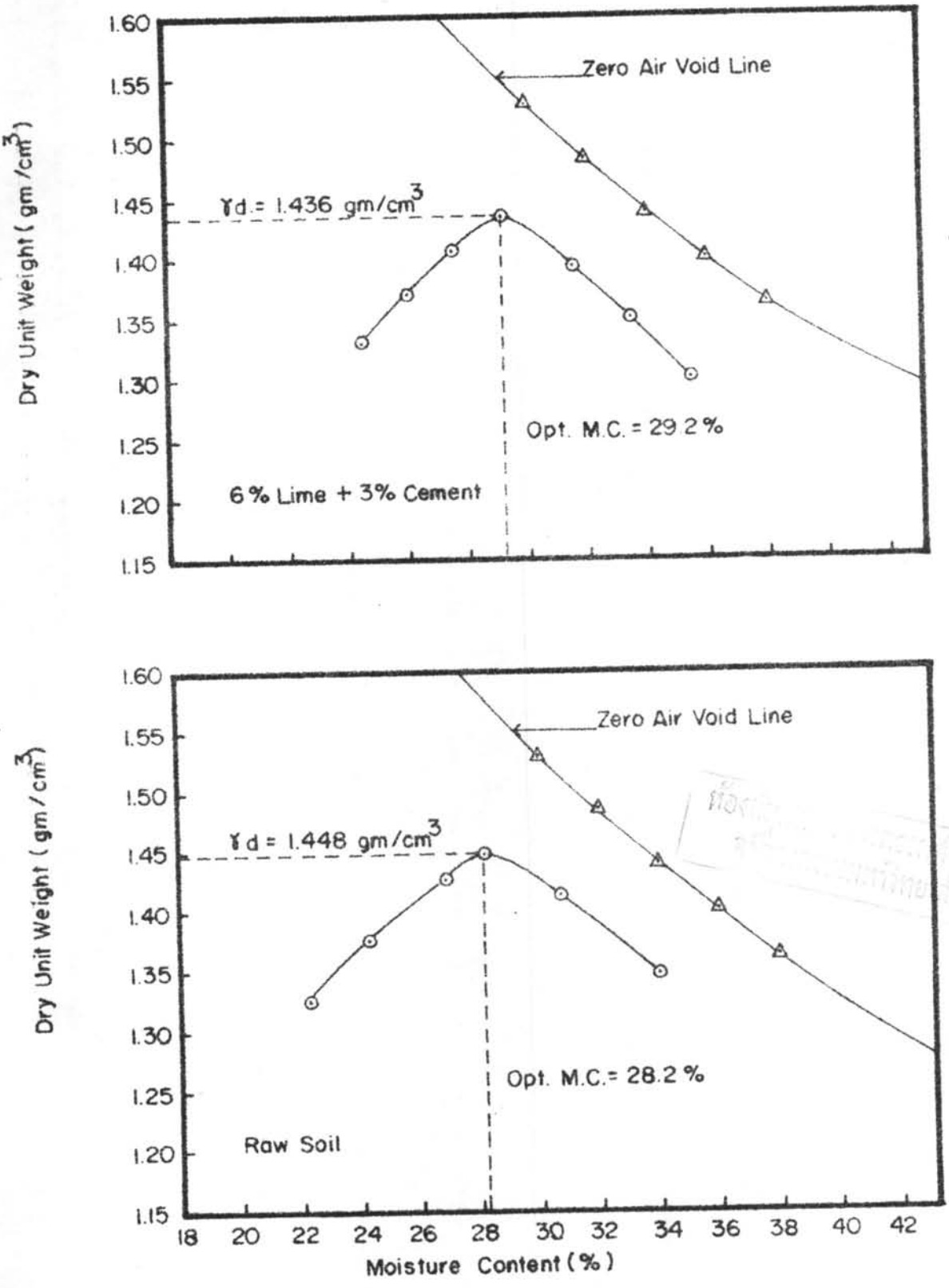


Fig. A2 – Compaction Curves of Nong Ngoo Hao CLay

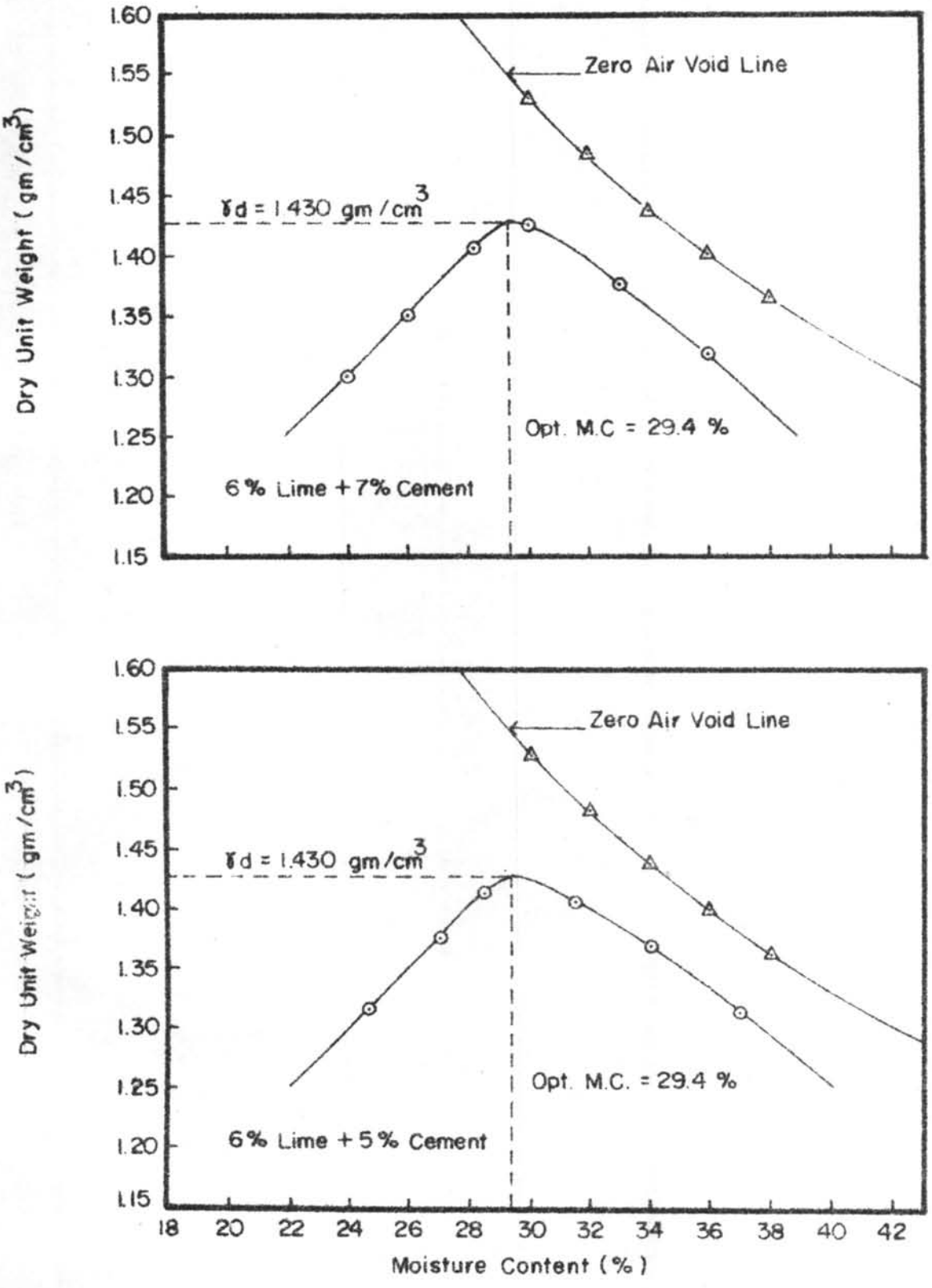


Fig. A2 - Compaction Curves of Nong Ngoo Hao CLay

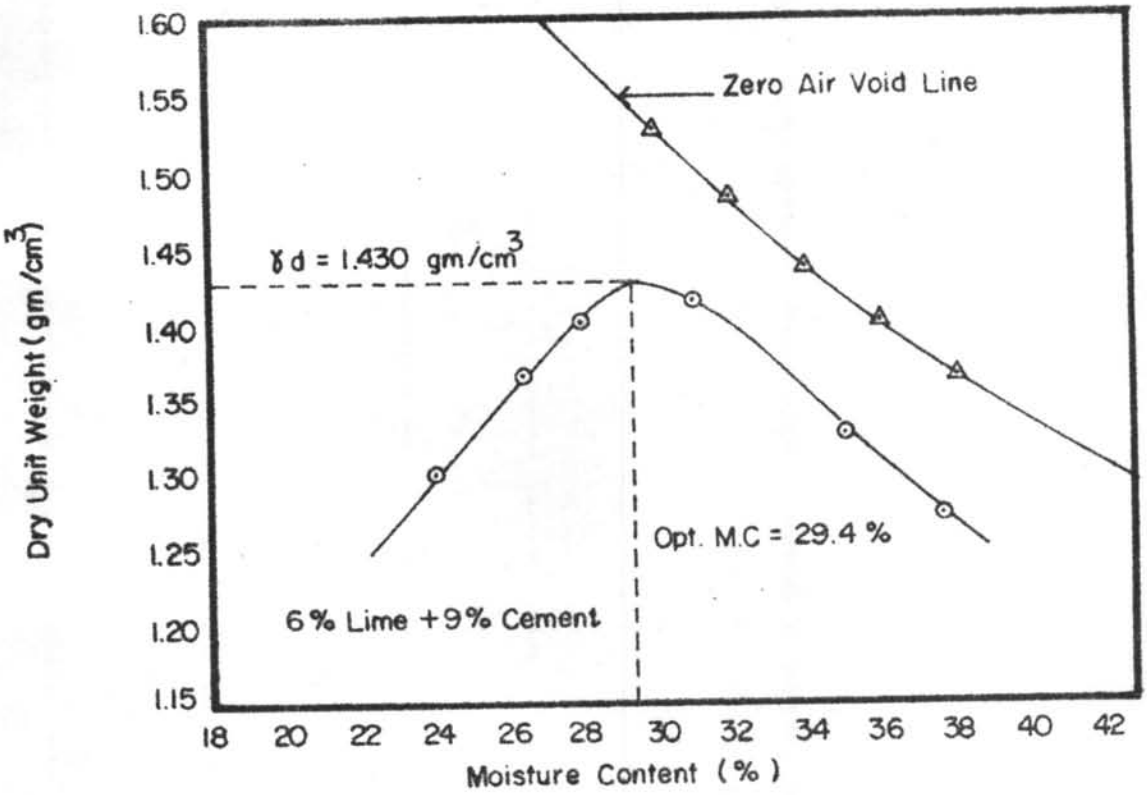


Fig. A2- Compaction Curves of Nong Ngoo Hao Clay

Table A 2 - Detailed Results for the Raw Soil

Number	Molding Moisture Content (%)	Initial Area Ao (cm^2)	Height h (in.)	Deformation at Failure Δh (in.)	Strain at Failure ϵ (in/in)	Corrected Area A (cm^2)	Load Penetration P (in.)	Load Px3500 (kg)	Comp Strength (kg/cm^2)
1	25.28	8.76	2.827	0.080	0.028	9.01	0.0085	29.75	3.30
2	28.73	8.76	2.789	0.120	0.043	9.15	0.0102	35.70	3.90
3	31.97	8.77	2.807	0.180	0.064	9.37	0.0065	22.75	2.43
4	32.77	8.75	2.798	0.140	0.050	9.21	0.0050	17.50	1.90
5	36.23	8.73	2.814	0.200	0.071	9.40	0.0034	11.90	1.27

Table A 3 - Detailed Results for the Soil Stabilized with 6 % Lime and 3 % Cement

Number	Curing Period (days)	Molding Moisture Content (%)	Initial Area Ao (cm^2)	Height h (in.)	Deformation at Failure Δh (in.)	Strain at Failure ϵ ($\frac{in.}{in.}$)	Corrected Area A (cm^2)	Load Penetration P (in.)	Load Px3500 (kg)	Comp. Strength (kg/cm^2)
1	7	24.46	8.76	2.814	0.045	0.016	8.90	0.0088	30.80	3.46
2	7	27.64	8.75	2.798	0.040	0.014	8.87	0.0119	41.65	4.70
3	7	29.04	8.75	2.804	0.050	0.018	8.91	0.0127	44.45	4.99
4	7	30.53	8.75	2.810	0.050	0.018	8.91	0.0122	42.86	4.81
5	7	33.51	8.74	2.814	0.050	0.018	8.90	0.0058	20.30	3.50
1	14	23.87	8.76	2.816	0.020	0.007	8.82	0.0084	29.40	3.33
2	14	25.70	8.76	2.815	0.025	0.008	8.83	0.0108	37.80	4.28
3	14	28.45	8.77	2.807	0.042	0.015	8.90	0.0132	46.20	5.19
4	14	32.87	8.75	2.817	0.055	0.020	8.93	0.0102	35.90	4.02
5	14	35.59	8.75	2.806	0.050	0.018	8.91	0.0070	24.50	2.75
1	28	22.84	8.75	2.824	0.020	0.007	8.81	0.0060	23.10	2.62
2	28	27.44	8.74	2.807	0.040	0.014	8.86	0.0143	50.05	5.65
3	28	28.35	8.75	2.807	0.040	0.014	8.87	0.0148	51.80	5.84
4	28	34.80	8.76	2.817	0.040	0.014	8.88	0.0089	31.15	3.51
5	28	38.93	8.73	2.821	0.080	0.028	8.98	0.0042	14.70	1.64

Table A 4 - Detailed Results for the Soil Stabilized with 6 % Lime and 5 % cement

Number	Curing Period (days)	Molding Moisture Content (%)	Initial Area Ao (cm^2)	Height h (in.)	Deformation at Failure Δh (in.)	Strain at Failure ϵ ($\frac{in.}{in.}$)	Corrected Area A (cm^2)	Load Penetration P (in.)	Load Px3500 (kg)	Comp. Strength (kg/cm^2)
1	7	24.21	8.75	2.814	0.020	0.007	8.81	0.0112	39.20	4.45
2	7	26.92	8.76	2.810	0.055	0.019	8.93	0.0169	59.15	6.62
3	7	30.06	8.75	2.810	0.075	0.027	8.99	0.0147	60.90	6.77
4	7	33.74	8.76	2.813	0.050	0.018	8.92	0.0114	39.90	4.47
5	7	36.43	8.75	2.813	0.075	0.027	8.99	0.0089	31.15	3.46
1	14	26.96	8.76	2.815	0.022	0.008	8.83	0.0162	56.69	6.42
2	14	28.50	8.76	2.809	0.038	0.013	8.87	0.0180	63.00	7.10
3	14	31.43	8.75	2.812	0.050	0.018	8.91	0.0165	57.75	6.48
4	14	33.86	8.75	2.814	0.050	0.018	8.91	0.0128	44.80	5.03
5	14	36.93	8.74	2.811	0.055	0.020	8.92	0.0094	32.90	3.69
1	28	25.37	8.77	2.813	0.020	0.007	8.83	0.0139	48.65	5.51
2	28	29.30	8.77	2.815	0.038	0.013	8.88	0.0216	75.60	8.51
3	28	30.45	8.76	2.816	0.040	0.014	8.88	0.0206	72.10	8.12
4	28	33.82	8.76	2.814	0.060	0.021	8.95	0.0161	56.35	6.30
5	28	36.08	8.74	2.821	0.080	0.028	8.99	0.0123	43.05	4.79

Table A 5 - Detailed Results for the Soil Stabilized with 6 % Lime and 7 % Cement

Number	Curing Period (days)	Molding Noisture Content (%)	Initial Area Ao (cm^2)	Height h (in.)	Deformation at Failure Δ h (in.)	Strain at Failure ϵ $(\frac{in.}{in.})$	Corrected Area A (cm^2)	Load Penetration P (in.)	Load Px3500 (kg)	Comp. Strength (kg/cm^2)
1	7	25.79	8.76	2.813	0.030	0.010	8.85	0.0199	69.65	7.87
2	7	27.13	8.76	2.809	0.055	0.019	8.93	0.0232	81.20	9.09
3	7	29.13	8.75	2.809	0.045	0.016	8.89	0.0233	81.55	9.17
4	7	31.01	8.76	2.814	0.040	0.014	8.88	0.0208	72.80	8.20
5	7	34.68	8.72	2.786	0.065	0.023	8.92	0.0151	52.85	5.92
1	14	23.67	8.75	2.816	0.020	0.007	8.81	0.0163	57.05	6.48
2	14	26.01	8.77	2.789	0.030	0.010	8.86	0.0186	65.10	7.35
3	14	27.66	8.77	2.801	0.038	0.013	8.88	0.0217	75.95	8.55
4	14	30.26	8.77	2.808	0.032	0.011	8.87	0.0230	80.50	9.07
5	14	38.20	8.75	2.815	0.060	2.021	8.94	0.0137	47.95	5.36
1	28	21.58	8.77	2.820	0.025	0.009	8.85	0.0202	70.70	7.99
2	28	25.83	8.77	2.816	0.050	0.018	8.93	0.0362	126.70	14.19
3	28	27.32	8.77	2.816	0.045	0.016	8.91	0.0371	129.85	14.57
4	28	33.97	8.75	2.819	0.090	0.032	9.04	0.0260	91.00	10.07
5	28	38.76	8.77	2.816	0.140	0.050	9.23	0.0160	56.00	6.07

Table A 6 - Detailed Results for the Soil Stabilized with 6 % Lime and 9 % Cement

Number	Curing Period (days)	Molding Moisture Content (%)	Initial Area Ao (cm^2)	Height h (in.)	Deformation at Failure Δh (in.)	Strain at Failure ϵ ($\frac{in.}{in.}$)	Corrected Area A (cm^2)	Load Penetration P (in.)	Load Px3500 (kg)	Comp. Strength (kg/cm^2)
1	7	25.20	8.76	2.816	0.035	0.012	8.86	0.0237	82.95	9.36
2	7	28.08	8.76	2.814	0.045	0.016	8.90	0.0312	109.20	12.27
3	7	30.65	8.76	2.814	0.055	0.019	8.93	0.0273	95.55	10.70
4	7	33.87	8.75	2.790	0.048	0.017	8.90	0.0220	77.00	8.65
5	7	35.56	8.70	2.796	0.060	0.021	8.89	0.0191	66.85	7.52
1	14	24.98	8.75	2.811	0.035	0.012	8.85	0.0273	95.55	10.79
2	14	27.02	8.76	2.808	0.050	0.018	8.92	0.0307	107.45	12.04
3	14	29.58	8.76	2.808	0.050	0.018	8.92	0.0314	109.90	12.32
4	14	32.21	8.74	2.811	0.046	0.016	8.88	0.0267	93.45	10.52
5	14	36.04	8.75	2.813	0.050	0.018	8.91	0.0200	70.00	7.86
1	28	25.16	8.76	2.815	0.025	0.009	8.84	0.0347	121.45	13.74
2	28	27.84	8.77	2.816	0.035	0.012	8.87	0.0419	146.65	16.53
3	28	30.26	8.76	2.814	0.042	0.015	8.89	0.0430	150.50	16.93
4	28	33.07	8.75	2.808	0.046	0.016	8.89	0.0385	134.75	15.16
5	28	36.27	8.74	2.812	0.050	0.018	8.90	0.0314	109.90	12.35

VITA

Mr. Niti Arunyanak pregraduated from Triam Udom School, Bangkok in 1967 and graduated from Khon-Kaen University in 1971 with a Bachelor Degree in Civil Engineering. After graduation he joined Public Work Department, Ministry of Interior up to now.