KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING, GEOTECHNICAL ENGINEERING LABOLATORY

SIEVE ANALYSIS (ASTM C136)

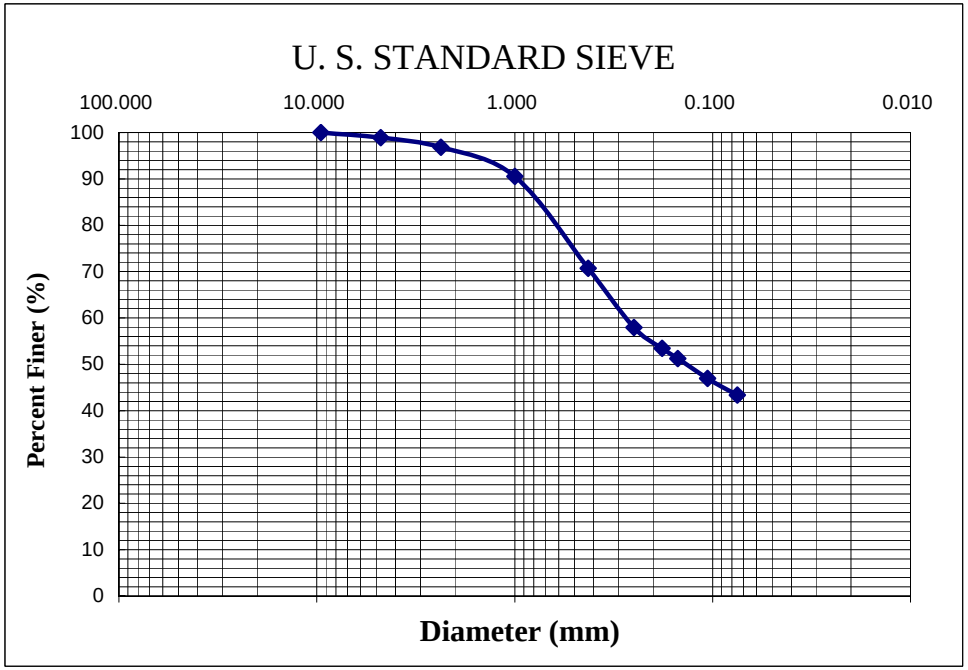
Project:	Landslide Behavior in Phuket		
For:	Stability Analysis		
Description of Sample	Red Sand		
Location	Kamala Phuket	Depth	2 m.
Test Pit No.	KML_2.00Cliff	Date	06-12-03
Tested by	THIPMANEE		

SAMPLE WEIGHT

Container No.		Y1
Weight of Container+Dry Sample	g.	950.35
Weight of Container	g.	273.53
Weight of Dry Sample	g.	676.82

Sieve No.	Sieve Opening	Weight of Soil Retained, g	Cumulative Retained, g	Cumulative Retained, %	Percent Finer
3/8"	9.53	0	0	0	100
#4	4.75	7.42	7.42	1.10	98.90
#8	2.36	14.30	21.72	3.21	96.79
#18	1.00	42.34	64.06	9.46	90.54
#40	0.43	133.95	198.01	29.26	70.74
#60	0.25	86.62	284.63	42.05	57.95
#80	0.18	30.58	315.21	46.57	53.43
#100	0.15	14.88	330.09	48.77	51.23
#140	0.106	28.94	359.03	53.05	46.95
#200	0.08	24.06	383.09	56.60	43.40
PAN	PAN	292.22	675.31	99.78	0.22

D10= D30 = D60 =



Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

HYDROMETER TEST

PROJECT	Landslide Behavior in Phuket	OWNER		JOB NO.	
LOCATION	Kamala Phuket	BORING NO	KML0.8well	SAMPLE NO.	
SOIL DESCRIPTION		Red Clay		DEPTH	0.80
TEST BY				DATE	23-12-04

SP. GR. OF SOIL =	2.61		SAMPLE WEIGHT		
HYDROMETER NO.	623		CAN NO.	M11	
DISPERSING AGENT			DRY SIOL + CAN	430.31	gm.
MENISCUS CORRECTION			CAN WT.	375.95	gm.
% FINER THAN No. 200	51.56	%	WT. OF DRY SOIL	54.36	gm.

DATE	TIME	ELAPSED TIME, MIN	R_A	TEMP. ^oC	R_C	N %	h cm.	D mm.	N'%
18/12/2004		0.25	32	20	32.5	96.92	9.07	0.083	49.97
		0.5	32	20	32.5	96.92	9.07	0.059	49.97
		1	30.5	20	31	92.45	9.53	0.043	47.67
		2	30	20	30.5	90.96	9.68	0.030	46.90
		4	29.2	20	29.7	88.57	8.66	0.020	45.67
		8	28.5	20	29	86.48	8.88	0.015	44.59
		15	27.5	20	28	83.50	9.18	0.011	43.05
	15.15	30	26	20	26.5	79.03	9.64	0.008	40.75
	15.45	60	25	20	25.5	76.05	9.95	0.006	39.21
	16.45	120	24.2	20	24.7	73.66	10.19	0.004	37.98
19-12-04	10.15	1182	21.5	22	22	65.61	11.01	0.001	33.83
	12.15	1302	21.5	22	22	65.61	11.01	0.001	33.83
20-12-04	12.10	1449.15	21	22	21.5	64.12	11.17	0.001	33.06
	15.45	1653.1	20.8	22	21.3	63.52	11.23	0.001	32.75
21-12-04	13.00	2943.15	20.5	25	21	62.63	11.32	0.001	32.29
	16.15	3135.1	20.2	25	20.7	61.73	11.41	0.001	31.83
22-12-04	10.45	4230.15	20	25	20.5	61.13	11.47	0.001	31.52
	12.15	4335.1	19.5	25	20	59.64	11.63	0.001	30.75
23-12-04	10.40	5667.15	19.5	26	20	59.64	11.63	0.001	30.75
	12.30	5784.1	19.5	26	20	59.64	11.63	0.001	30.75

$N = K_1 . R_C$ $\quad$ $N' = N . (\%\ \text{Finer No. 200})$

$D = K2 . \sqrt{h / t}$ $\quad$ $R_C = R_a - C_M + C_T$

Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

HYDROMETER TEST

PROJECT	Landslide Behavior in Phuket	OWNER		JOB NO.	
LOCATION	Kamala Phuket	BORING NO	KML2well	SAMPLE NO.	
SOIL DESCRIPTION		Brown Granitics Soil		DEPTH	2.00
TEST BY				DATE	23-12-04

SP. GR. OF SOIL =	2.61		SAMPLE WEIGHT		
HYDROMETER NO.	623		CAN NO.	M12	
DISPERSING AGENT			DRY SOIL + CAN	331.73	gm.
MENISCUS CORRECTION			CAN WT.	277.23	gm.
% FINER THAN No. 200	43.79	%	WT. OF DRY SOIL	54.5	gm.

DATE	TIME	ELAPSED TIME, MIN	R_A	TEMP. ^oC	R_C	N %	h cm.	D mm.	N'%
18/12/2004		0.25	33.5	20	34	100.19	8.61	0.081	43.88
		0.5	32	20	32.5	95.77	9.07	0.059	41.94
		1	30.5	20	31	91.35	9.53	0.043	40.00
		2	29.3	20	29.8	87.82	9.90	0.031	38.46
		4	26.2	20	26.7	78.68	9.58	0.021	34.45
		8	24	20	24.5	72.20	10.25	0.016	31.62
		15	22	20	22.5	66.31	10.86	0.012	29.04
	14.55	30	19.5	20	20	58.94	11.63	0.009	25.81
	15.25	60	18	20	18.5	54.52	12.08	0.006	23.87
	16.25	120	16	20	16.5	48.62	12.69	0.004	21.29
19-12-04	10.15	1194	11.8	22	12.3	36.25	13.98	0.001	15.87
	12.15	1314	11.5	22	12	35.36	14.07	0.001	15.49
20-12-04	12.10	1449.15	11	22	11.5	33.89	14.22	0.001	14.84
	15.45	1653.1	10.5	22	11	32.42	14.37	0.001	14.19
21-12-04	13.00	2943.15	10.2	25	10.7	31.53	14.47	0.001	13.81
	16.15	3135.1	10.2	25	10.7	31.53	14.47	0.001	13.81
22-12-04	10.45	4230.15	10	25	10.5	30.94	14.53	0.001	13.55
	12.15	4335.1	10	25	10.5	30.94	14.53	0.001	13.55
23-12-04	10.40	5667.15	9.8	26	10.3	30.35	14.59	0.001	13.29
	12.30	5784.1	9.8	26	10.3	30.35	14.59	0.001	13.29

$N = K_1 . R_C$ $\quad N' = N . (\%\ \text{Finer No. 200})$

$D = K2 . \sqrt{h / t}$ $\quad R_C = R_a - C_M + C_T$

Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

HYDROMETER TEST

PROJECT	Landslide Behavior in Phuket	OWNER		JOB NO.	
LOCATION	Patong Phuket	BORING NO	PT3well	SAMPLE NO.	
SOIL DESCRIPTION		Brown Granitics Soil		DEPTH	3.00
TEST BY				DATE	23-12-04

SP. GR. OF SOIL =	2.64		SAMPLE WEIGHT		
HYDROMETER NO.	623		CAN NO.	M13	
DISPERSING AGENT			DRY SOIL + CAN	438.83	gm.
MENISCUS CORRECTION			CAN WT.	384.17	gm.
% FINER THAN No. 200	39.91	%	WT. OF DRY SOIL	54.66	gm.

DATE	TIME	ELAPSED TIME, MIN	R_A	TEMP. ^oC	R_C	N %	h cm.	D mm.	N'%
18/12/2004		0.25	32	20	32.5	96.88	9.07	0.082	38.67
		0.5	30.7	20	31.2	93.01	9.47	0.059	37.12
		1	29.5	20	30	89.43	9.83	0.043	35.69
		2	27.5	20	28	83.47	10.44	0.031	33.31
		4	25.2	20	25.7	76.61	9.88	0.021	30.58
		8	22.5	20	23	68.56	10.71	0.016	27.36
		15	20.2	20	20.7	61.71	11.41	0.012	24.63
	14.35	30	17.2	20	17.7	52.76	12.33	0.009	21.06
	15.05	60	15	20	15.5	46.21	13.00	0.006	18.44
	16.05	120	12.5	20	13	38.75	13.76	0.005	15.47
19-12-04	10.15	1206	9.2	22	9.7	28.92	14.77	0.001	11.54
	12.15	1326	5.8	22	6.3	18.78	15.81	0.001	7.50
20-12-04	12.10	1449.15	5.5	22	6	17.89	15.90	0.001	7.14
	15.45	1653.1	5	22	5.5	16.40	16.05	0.001	6.54
21-12-04	13.00	2943.15	5	25	5.5	16.40	16.05	0.001	6.54
	16.15	3135.1	5	25	5.5	16.40	16.05	0.001	6.54
22-12-04	10.45	4230.15	4.8	25	5.3	15.80	16.11	0.001	6.31
	12.15	4335.1	4.8	25	5.3	15.80	16.11	0.001	6.31
23-12-04	10.40	5667.15	4.5	26	5	14.91	16.21	0.001	5.95
	12.30	5784.1	4.5	26	5	14.91	16.21	0.001	5.95

$N = K_1 \cdot R_C$ $\quad N' = N \cdot (\%\ \text{Finer No. 200})$

$D = K2 \cdot \sqrt{h / t}$ $\quad R_C = R_a - C_M + C_T$

Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

HYDROMETER TEST

PROJECT	Landslide Behavior in Phuket	OWNER		JOB NO.	
LOCATION	Patong Phuket	BORING NO	PT4LS	SAMPLE NO.	
SOIL DESCRIPTION	Brown Sand			DEPTH	4.00
TEST BY				DATE	23-12-04

SP. GR. OF SOIL =	2.65		SAMPLE WEIGHT		
HYDROMETER NO.	623		CAN NO.	M14	
DISPERSING AGENT			DRY SOIL + CAN	334.12	gm.
MENISCUS CORRECTION			CAN WT.	285.21	gm.
% FINER THAN No. 200	44.63 %		WT. OF DRY SOIL	48.91	gm.

DATE	TIME	ELAPSED TIME, MIN	R_A	TEMP. ^oC	R_C	N %	h cm.	D mm.	N'%
18/12/2004		0.25	33.5	20	34	111.65	8.61	0.080	49.83
		0.5	32.8	20	33.3	109.35	8.83	0.057	48.80
		1	32	20	32.5	106.72	9.07	0.041	47.63
		2	31	20	31.5	103.44	9.38	0.030	46.16
		4	29.8	20	30.3	99.50	8.48	0.020	44.41
		8	28.5	20	29	95.23	8.88	0.014	42.50
		15	26.9	20	27.4	89.97	9.37	0.011	40.16
	15.40	30	25	20	25.5	83.73	9.95	0.008	37.37
	16.10	60	23.2	20	23.7	77.82	10.50	0.006	34.73
	17.10	120	21	20	21.5	70.60	11.17	0.004	31.51
19-12-04	10.15	1143	14.8	22	15.3	50.24	13.06	0.001	22.42
	12.15	1263	14.8	22	15.3	50.24	13.06	0.001	22.42
20-12-04	12.10	1449.15	14	22	14.5	47.61	13.31	0.001	21.25
	15.45	1653.1	13	22	13.5	44.33	13.61	0.001	19.78
21-12-04	13.00	2943.15	13	25	13.5	44.33	13.61	0.001	19.78
	16.15	3135.1	12.8	25	13.3	43.67	13.67	0.001	19.49
22-12-04	10.45	4230.15	12	25	12.5	41.05	13.92	0.001	18.32
	12.15	4335.1	11.8	25	12.3	40.39	13.98	0.001	18.03
23-12-04	10.40	5667.15	11.8	26	12.3	40.39	13.98	0.001	18.03
	12.30	5784.1	11.8	26	12.3	40.39	13.98	0.001	18.03

$N = K_1 \cdot R_C$ $\qquad$ $N' = N \cdot$ (% Finer No. 200)

$D = K2 \cdot \sqrt{h / t}$ $\qquad$ $R_C = R_a - C_M + C_T$

Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING, GEOTECHNICAL ENGINEERING LABOLATORY

SIEVE ANALYSIS (ASTM C136)

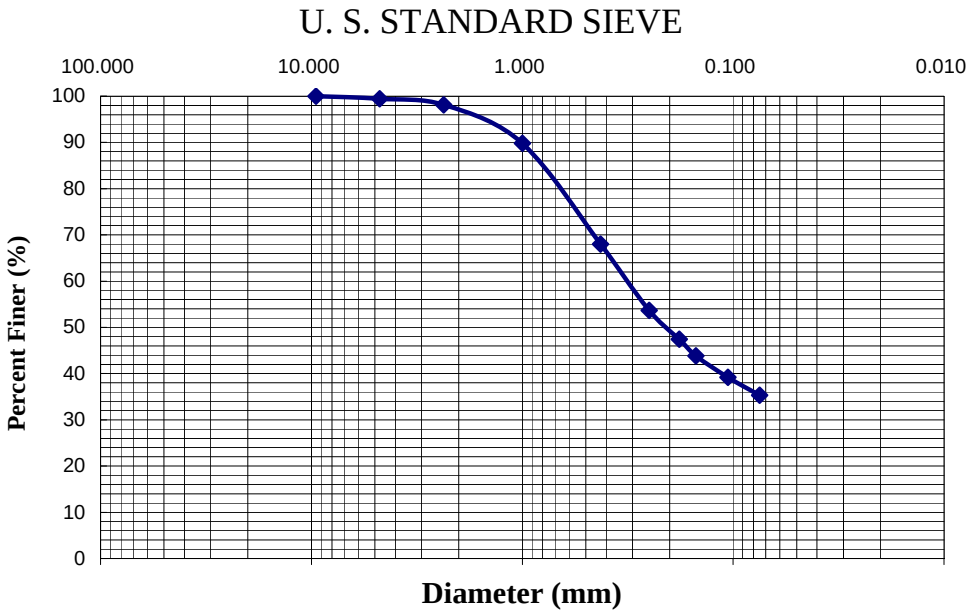
Project:	Landslide Behavior in Phuket		
For:	Stability Analysis		
Description of Sample	Red Sand		
Location	Kamala Phuket	Depth	5 m.
Test Pit No.	KML_5.00RCliff	Date	20/12/2003
Tested by	THIPMANEE		

SAMPLE WEIGHT

Container No.		x2
Weight of Container+Dry Sample	g.	849.07
Weight of Container	g.	250.42
Weight of Dry Sample	g.	598.65

Sieve No.	Sieve Opening	Weight of Soil Retained, g	Cumulative Retained, g	Cumulative Retained, %	Percent Finer
3/8"	9.53	0	0	0	100
#4	4.75	3.42	3.42	0.57	99.43
#8	2.36	7.82	11.24	1.88	98.12
#18	1.00	49.70	60.94	10.18	89.82
#40	0.43	130.60	191.54	32.00	68.00
#60	0.25	85.66	277.20	46.30	53.70
#80	0.18	37.42	314.62	52.55	47.45
#100	0.15	21.52	336.14	56.15	43.85
#140	0.106	27.72	363.86	60.78	39.22
#200	0.08	23.22	387.08	64.66	35.34
PAN	PAN	209.43	596.51	99.64	0.36

D10= D30 = D60 =



Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING, GEOTECHNICAL ENGINEERING LABOLATORY

SIEVE ANALYSIS (ASTM C136)

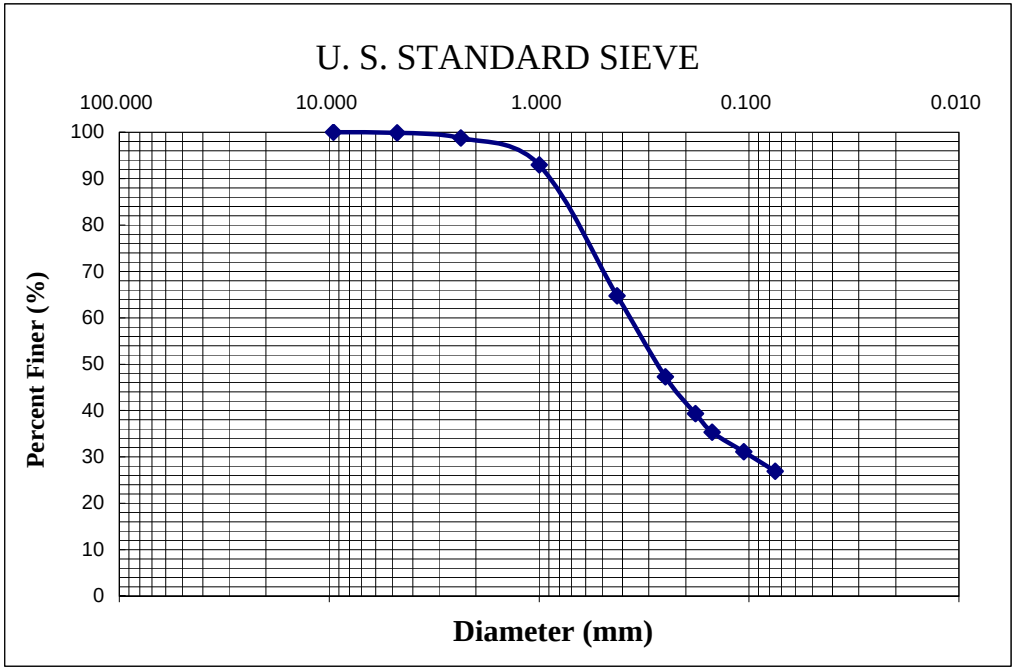
Project:	Landslide Behavior in Phuket		
For:	Stability Analysis		
Description of Sample	Red Sand		
Location	Kamala Phuket	Depth	5 m.
Test Pit No.	KML_5.00LCliff	Date	28/12/2003
Tested by	THIPMANEE		

SAMPLE WEIGHT

Container No.		z6
Weight of Container+Dry Sample	g.	597.75
Weight of Container	g.	62.38
Weight of Dry Sample	g.	535.37

Sieve No.	Sieve Opening	Weight of Soil Retained, g	Cumulative Retained, g	Cumulative Retained, %	Percent Finer
3/8"	9.53	0	0	0	100
#4	4.75	0.61	0.61	0.11	99.89
#8	2.36	6.09	6.70	1.25	98.75
#18	1.00	30.85	37.55	7.01	92.99
#40	0.43	151.31	188.86	35.28	64.72
#60	0.25	93.55	282.41	52.75	47.25
#80	0.18	42.19	324.60	60.63	39.37
#100	0.15	21.66	346.26	64.68	35.32
#140	0.106	22.55	368.81	68.89	31.11
#200	0.08	22.38	391.19	73.07	26.93
PAN	PAN	143.72	534.91	99.91	0.09

D10= D30 = D60 =



Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING, GEOTECHNICAL ENGINEERING LABOLATORY

SIEVE ANALYSIS (ASTM C136)

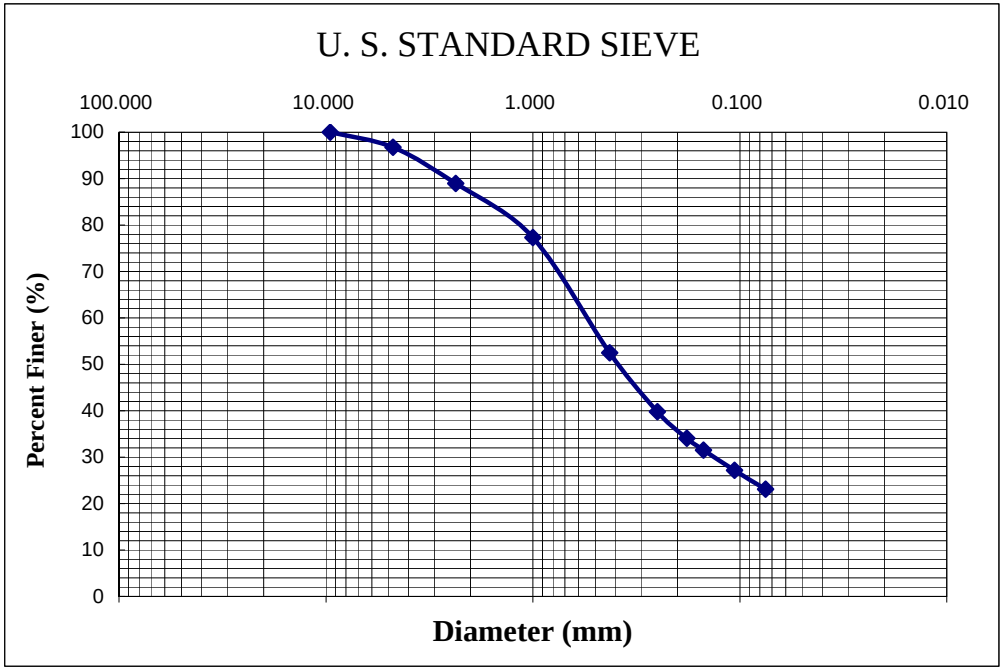
Project:	Landslide Behavior in Phuket		
For:	Stability Analysis		
Description of Sample	Brown Sand		
Location	Kamala Phuket	Depth	13 m.
Test Pit No.	KML_13.00Cliff	Date	29-12-03
Tested by	THIPMANEE		

SAMPLE WEIGHT

Container No.		x2
Weight of Container+Dry Sample	g.	843.37
Weight of Container	g.	250.42
Weight of Dry Sample	g.	592.95

Sieve No.	Sieve Opening	Weight of Soil Retained, g	Cumulative Retained, g	Cumulative Retained, %	Percent Finer
3/8"	9.53	0	0	0	100
#4	4.75	19.27	19.27	3.25	96.75
#8	2.36	46.03	65.30	11.01	88.99
#18	1.00	69.30	134.60	22.70	77.30
#40	0.43	147.13	281.73	47.51	52.49
#60	0.25	75.10	356.83	60.18	39.82
#80	0.18	34.25	391.08	65.95	34.05
#100	0.15	14.79	405.87	68.45	31.55
#140	0.106	26.02	431.89	72.84	27.16
#200	0.08	23.93	455.82	76.87	23.13
PAN	PAN	135.55	591.37	99.73	0.27

D10= D30 = D60 =



Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING, GEOTECHNICAL ENGINEERING LABOLATORY

SIEVE ANALYSIS (ASTM C136)

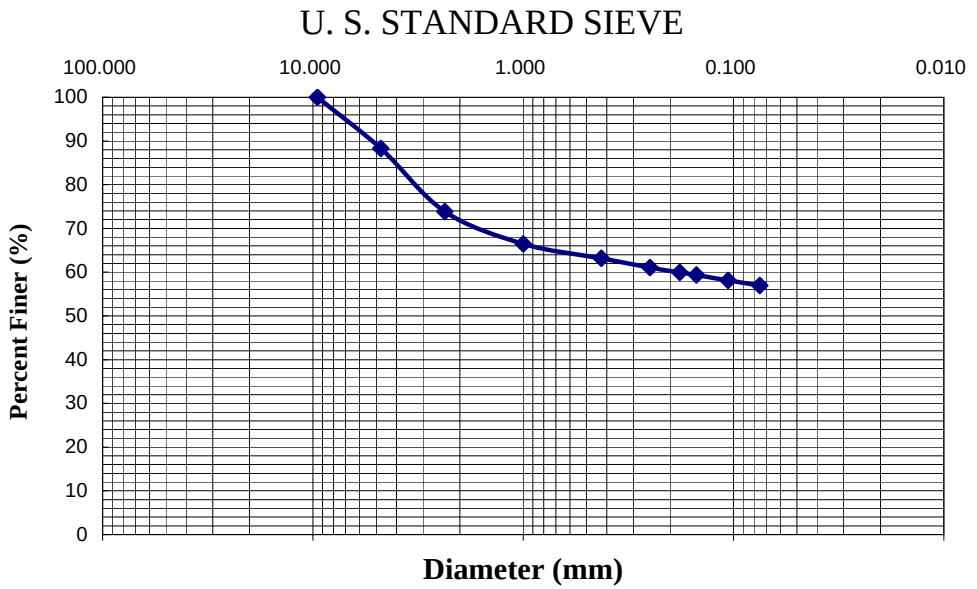
Project:	Landslide Behavior in Phuket		
For:	Stability Analysis		
Description of Sample	Brown Clayey Sand		
Location	Kamala Phuket	Depth	0.40 m.
Test Pit No.	KML_0.40T1Well	Date	13/1/2004
Tested by	THIPMANEE		

SAMPLE WEIGHT

Container No.		z7
Weight of Container+Dry Sample	g.	493.23
Weight of Container	g.	140.1
Weight of Dry Sample	g.	353.13

Sieve No.	Sieve Opening	Weight of Soil Retained, g	Cumulative Retained, g	Cumulative Retained, %	Percent Finer
3/8"	9.53	0	0	0	100
#4	4.75	41.25	41.25	11.68	88.32
#8	2.36	51.06	92.31	26.14	73.86
#18	1.00	26.02	118.33	33.51	66.49
#40	0.43	11.66	129.99	36.81	63.19
#60	0.25	7.62	137.61	38.97	61.03
#80	0.18	3.80	141.41	40.04	59.96
#100	0.15	2.19	143.60	40.66	59.34
#140	0.106	4.19	147.79	41.85	58.15
#200	0.08	4.33	152.12	43.08	56.92
PAN	PAN	201.21	353.33	100.06	-0.06

D10= D30 = D60 =



Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING, GEOTECHNICAL ENGINEERING LABOLATORY

SIEVE ANALYSIS (ASTM C136)

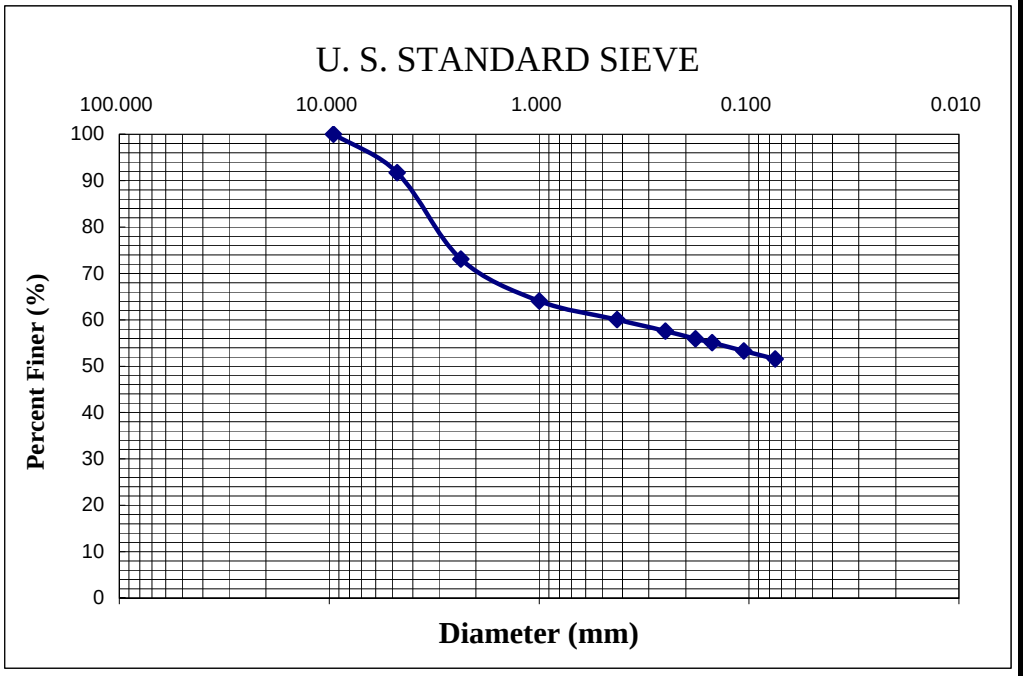
Project:	Landslide Behavior in Phuket		
For:	Stability Analysis		
Description of Sample	Brown Clayey Sand		
Location	Kamala Phuket	Depth	0.80 m.
Test Pit No.	KML_0.80T2Well	Date	15-01-04
Tested by	THIPMANEE		

SAMPLE WEIGHT

Container No.		x2
Weight of Container+Dry Sample	g.	651.55
Weight of Container	g.	250.42
Weight of Dry Sample	g.	401.13

Sieve No.	Sieve Opening	Weight of Soil Retained, g	Cumulative Retained, g	Cumulative Retained, %	Percent Finer
3/8"	9.53	0	0	0	100
#4	4.75	33.11	33.11	8.25	91.75
#8	2.36	74.80	107.91	26.90	73.10
#18	1.00	36.21	144.12	35.93	64.07
#40	0.43	16.30	160.42	39.99	60.01
#60	0.25	9.78	170.20	42.43	57.57
#80	0.18	6.56	176.76	44.07	55.93
#100	0.15	3.56	180.32	44.95	55.05
#140	0.106	6.99	187.31	46.70	53.30
#200	0.08	7.00	194.31	48.44	51.56
PAN	PAN	206.03	400.34	99.80	0.20

D10= D30 = D60 =



Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING, GEOTECHNICAL ENGINEERING LABOLATORY

SIEVE ANALYSIS (ASTM C136)

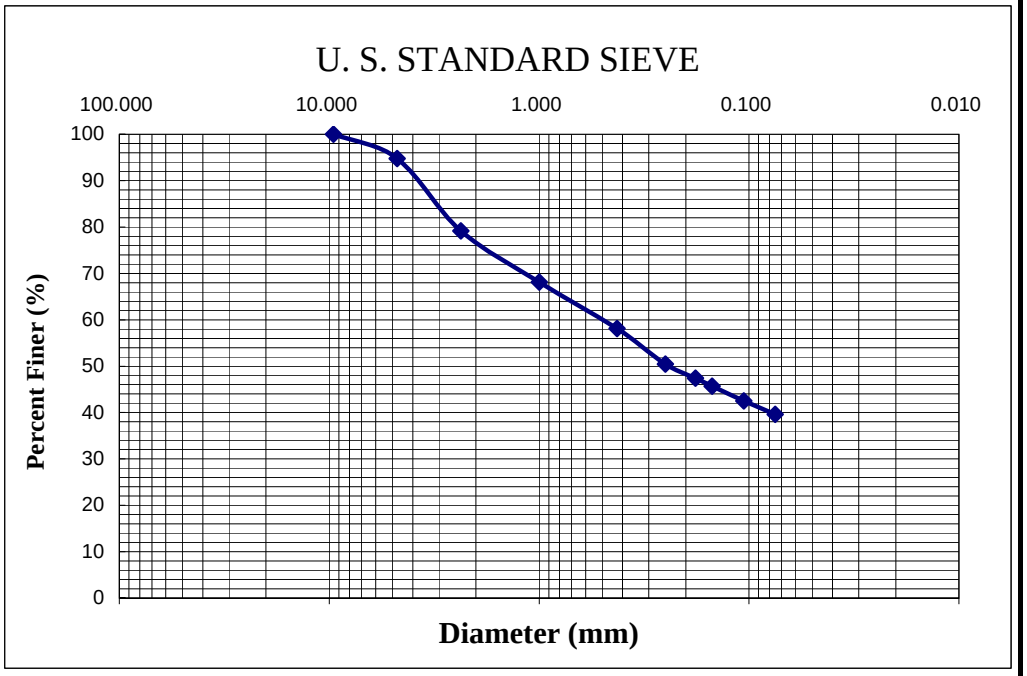
Project:	Landslide Behavior in Phuket		
For:	Stability Analysis		
Description of Sample	Red Brown Clayey Sand		
Location	Kamala Phuket	Depth	1.20 m.
Test Pit No.	KML_1.20T3Well	Date	07-01-04
Tested by	THIPMANEE		

SAMPLE WEIGHT

Container No.		z7
Weight of Container+Dry Sample	g.	550.81
Weight of Container	g.	140.1
Weight of Dry Sample	g.	410.71

Sieve No.	Sieve Opening	Weight of Soil Retained, g	Cumulative Retained, g	Cumulative Retained, %	Percent Finer
3/8"	9.53	0	0	0	100
#4	4.75	21.57	21.57	5.25	94.75
#8	2.36	63.92	85.49	20.82	79.18
#18	1.00	45.33	130.82	31.85	68.15
#40	0.43	41.30	172.12	41.91	58.09
#60	0.25	31.52	203.64	49.58	50.42
#80	0.18	12.42	216.06	52.61	47.39
#100	0.15	7.13	223.19	54.34	45.66
#140	0.106	13.02	236.21	57.51	42.49
#200	0.08	11.88	248.09	60.41	39.59
PAN	PAN	161.93	410.02	99.83	0.17

D10= D30 = D60 =



Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING, GEOTECHNICAL ENGINEERING LABOLATORY

SIEVE ANALYSIS (ASTM C136)

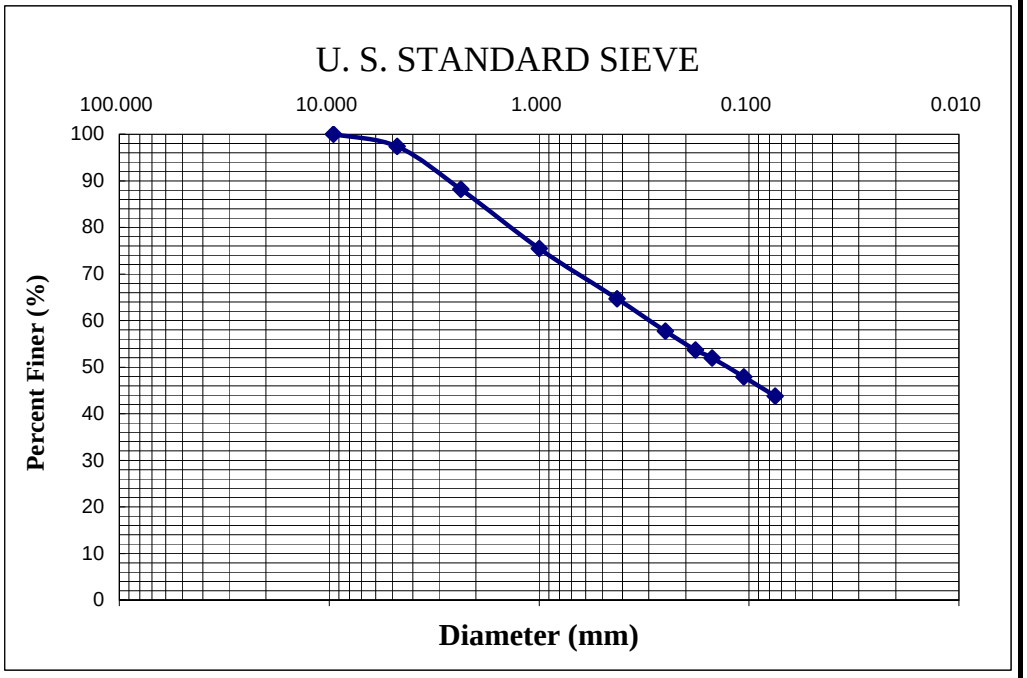
Project:	Landslide Behavior in Phuket		
For:	Stability Analysis		
Description of Sample	Brown Granitics Soil		
Location	Kamala Phuket	Depth	2 m.
Test Pit No.	KML_2.00T4Well	Date	04-01-04
Tested by	THIPMANEE		

SAMPLE WEIGHT

Container No.		x2
Weight of Container+Dry Sample	g.	615.48
Weight of Container	g.	250.42
Weight of Dry Sample	g.	365.06

Sieve No.	Sieve Opening	Weight of Soil Retained, g	Cumulative Retained, g	Cumulative Retained, %	Percent Finer
3/8"	9.53	0	0	0	100
#4	4.75	9.61	9.61	2.63	97.37
#8	2.36	33.50	43.11	11.81	88.19
#18	1.00	46.44	89.55	24.53	75.47
#40	0.43	39.40	128.95	35.32	64.68
#60	0.25	25.29	154.24	42.25	57.75
#80	0.18	14.99	169.23	46.36	53.64
#100	0.15	6.03	175.26	48.01	51.99
#140	0.106	14.88	190.14	52.08	47.92
#200	0.08	15.05	205.19	56.21	43.79
PAN	PAN	158.92	364.11	99.74	0.26

D10= D30 = D60 =



Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING, GEOTECHNICAL ENGINEERING LABOLATORY

SIEVE ANALYSIS (ASTM C136)

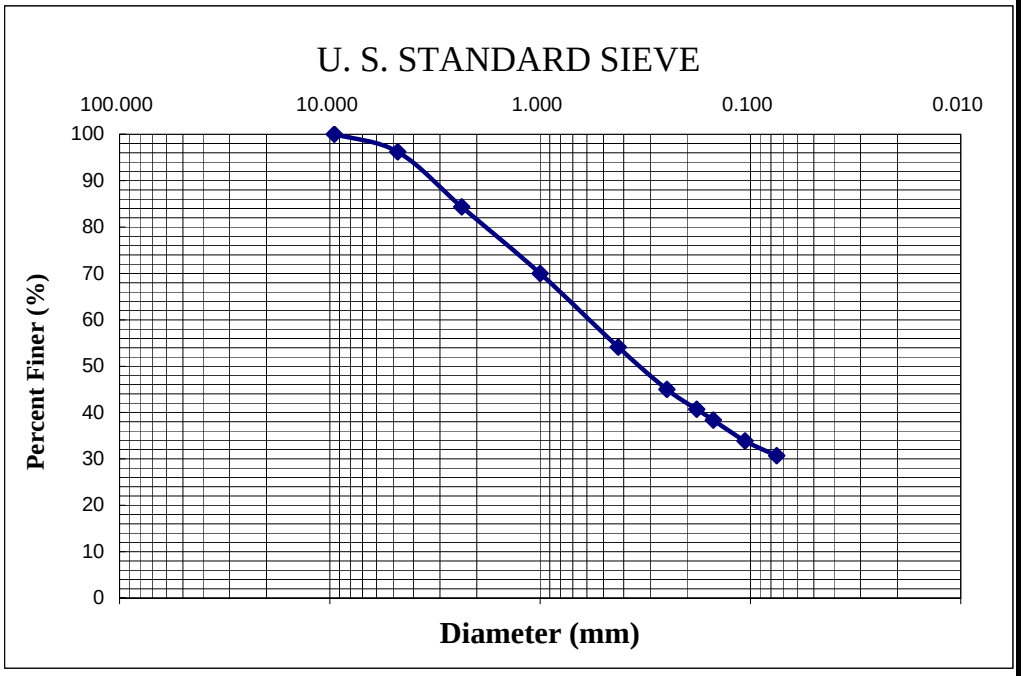
Project:	Landslide Behavior in Phuket		
For:	Stability Analysis		
Description of Sample	Brown Granitics Soil		
Location	Kamala Phuket	Depth	2.80 m.
Test Pit No.	KML_2.80T5Well	Date	02-01-04
Tested by	THIPMANEE		

SAMPLE WEIGHT

Container No.		z7
Weight of Container+Dry Sample	g.	617.1
Weight of Container	g.	140.1
Weight of Dry Sample	g.	477.00

Sieve No.	Sieve Opening	Weight of Soil Retained, g	Cumulative Retained, g	Cumulative Retained, %	Percent Finer
3/8"	9.53	0	0	0	100
#4	4.75	18.16	18.16	3.81	96.19
#8	2.36	56.59	74.75	15.67	84.33
#18	1.00	68.43	143.18	30.02	69.98
#40	0.43	75.78	218.96	45.90	54.10
#60	0.25	43.31	262.27	54.98	45.02
#80	0.18	20.43	282.70	59.27	40.73
#100	0.15	11.13	293.83	61.60	38.40
#140	0.106	21.44	315.27	66.09	33.91
#200	0.08	15.17	330.44	69.27	30.73
PAN	PAN	146.06	476.50	99.90	0.10

D10= D30 = D60 =



Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING, GEOTECHNICAL ENGINEERING LABOLATORY

SIEVE ANALYSIS (ASTM C136)

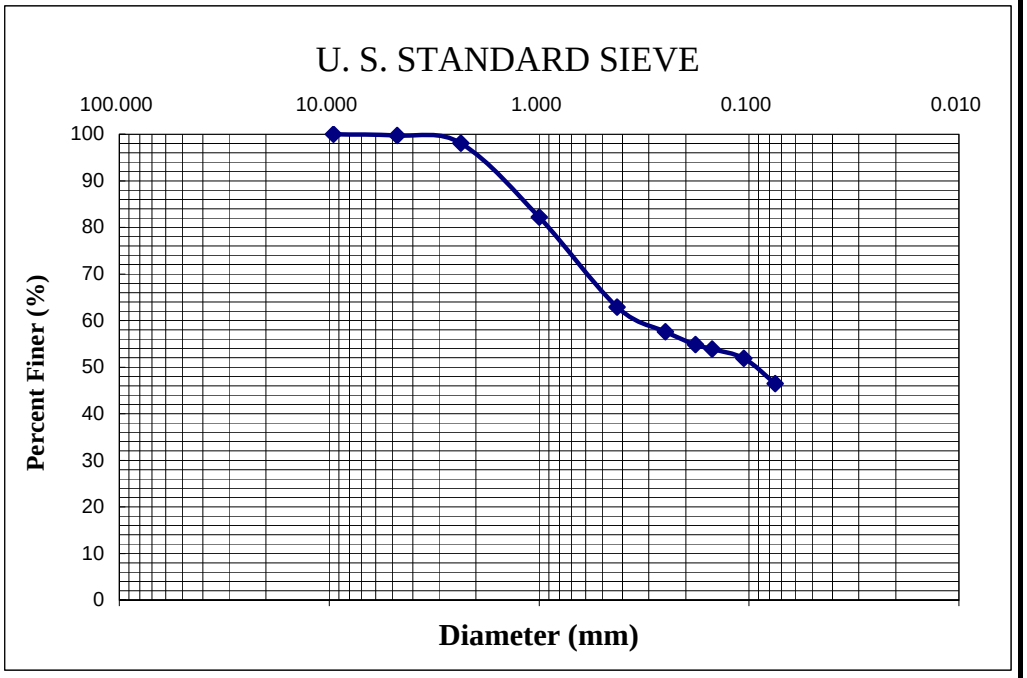
Project:	Landslide Behavior in Phuket		
For:	Stability Analysis		
Description of Sample	Brown Clayey Sand		
Location	Patong Phuket	Depth	1 m.
Test Pit No.	PT_1.00Well	Date	14/11/2003
Tested by	THIPMANEE		

SAMPLE WEIGHT

Container No.		Y2
Weight of Container+Dry Sample	g.	767.35
Weight of Container	g.	156.18
Weight of Dry Sample	g.	611.17

Sieve No.	Sieve Opening	Weight of Soil Retained, g	Cumulative Retained, g	Cumulative Retained, %	Percent Finer
3/8"	9.53	0	0	0	100
#4	4.75	1.61	1.61	0.26	99.74
#8	2.36	10.27	11.88	1.94	98.06
#18	1.00	97.00	108.88	17.82	82.18
#40	0.43	117.98	226.86	37.12	62.88
#60	0.25	32.42	259.28	42.42	57.58
#80	0.18	16.75	276.03	45.16	54.84
#100	0.15	5.86	281.89	46.12	53.88
#140	0.106	12.11	294.00	48.10	51.90
#200	0.08	33.05	327.05	53.51	46.49
PAN	PAN	282.98	610.03	99.81	0.19

D10= D30 = D60 =



Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING, GEOTECHNICAL ENGINEERING LABOLATORY

SIEVE ANALYSIS (ASTM C136)

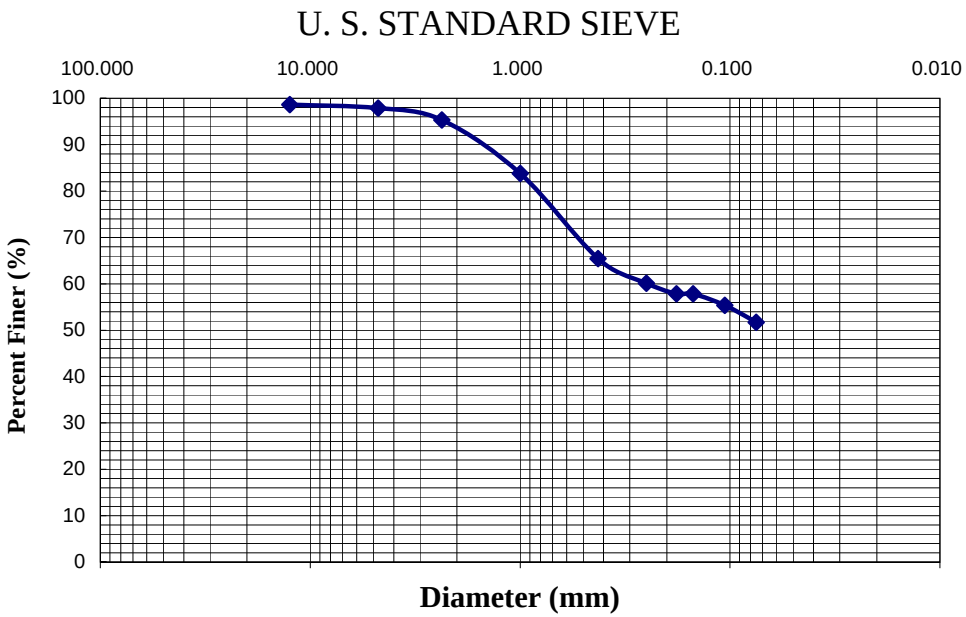
Project:	Landslide Behavior in Phuket		
For:	Stability Analysis		
Description of Sample	Brown Clayey Sand		
Location	Patong Phuket	Depth	1.30 m.
Test Pit No.	PT_1.30Well	Date	21/11/2003
Tested by	THIPMANEE		

SAMPLE WEIGHT

Container No.		Y1
Weight of Container+Dry Sample	g.	1039.57
Weight of Container	g.	460.75
Weight of Dry Sample	g.	578.82

Sieve No.	Sieve Opening	Weight of Soil Retained, g	Cumulative Retained, g	Cumulative Retained, %	Percent Finer
1/2"	12.50	7.88	7.88	1.36	98.64
#4	4.75	4.69	12.57	2.17	97.83
#8	2.36	14.68	27.25	4.71	95.29
#18	1.00	66.47	93.72	16.19	83.81
#40	0.43	106.39	200.11	34.57	65.43
#60	0.25	30.93	231.04	39.92	60.08
#80	0.18	13.01	244.05	42.16	57.84
#100	0.15	0.00	244.05	42.16	57.84
#140	0.106	14.44	258.49	44.66	55.34
#200	0.08	21.15	279.64	48.31	51.69
PAN	PAN	291.19	570.83	98.62	1.38

D10= D30 = D60 =



Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING, GEOTECHNICAL ENGINEERING LABOLATORY

SIEVE ANALYSIS (ASTM C136)

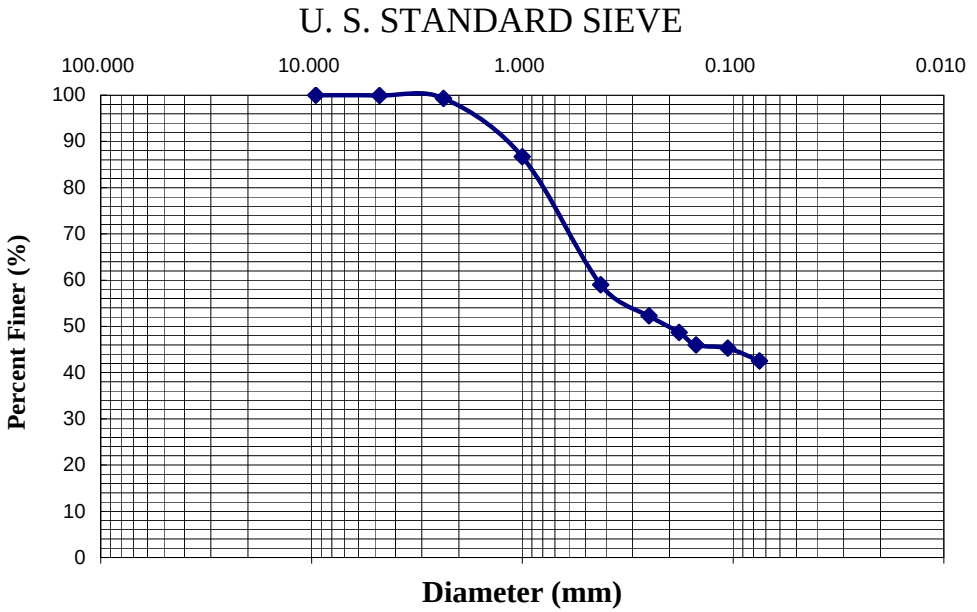
Project:	Landslide Behavior in Phuket		
For:	Stability Analysis		
Description of Sample	Brown Clayey Sand		
Location	Patong Phuket	Depth	2 m.
Test Pit No.	PT_2.00Well	Date	13/11/2003
Tested by	THIPMANEE		

SAMPLE WEIGHT

Container No.		Y2
Weight of Container+Dry Sample	g.	738.32
Weight of Container	g.	156.18
Weight of Dry Sample	g.	582.14

Sieve No.	Sieve Opening	Weight of Soil Retained, g	Cumulative Retained, g	Cumulative Retained, %	Percent Finer
3/8"	9.53	0	0	0	100
#4	4.75	0.29	0.29	0.05	99.95
#8	2.36	3.94	4.23	0.73	99.27
#18	1.00	73.36	77.59	13.33	86.67
#40	0.43	161.02	238.61	40.99	59.01
#60	0.25	39.05	277.66	47.70	52.30
#80	0.18	20.91	298.57	51.29	48.71
#100	0.15	15.76	314.33	54.00	46.00
#140	0.106	4.28	318.61	54.73	45.27
#200	0.08	16.09	334.70	57.49	42.51
PAN	PAN	242.13	576.83	99.09	0.91

D10= D30 = D60 =



Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING, GEOTECHNICAL ENGINEERING LABOLATORY

SIEVE ANALYSIS (ASTM C136)

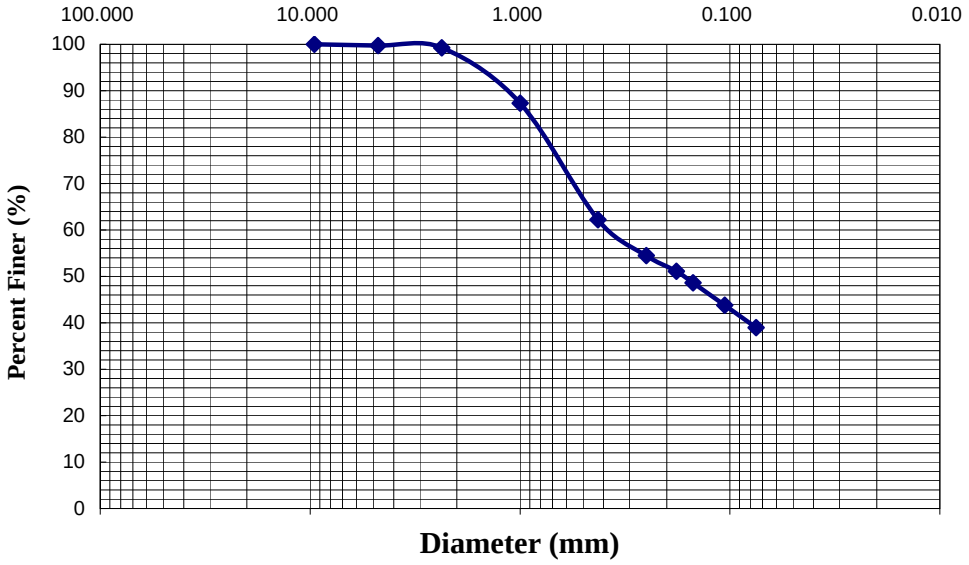
Project:	Landslide Behavior in Phuket		
For:	Stability Analysis		
Description of Sample	Brown Granitics Soil		
Location	Patong Phuket	Depth	2.50 m.
Test Pit No.	PT_2.50Well	Date	04-12-03
Tested by	THIPMANEE		

SAMPLE WEIGHT

Container No.		Y1
Weight of Container+Dry Sample	g.	1209.07
Weight of Container	g.	460.75
Weight of Dry Sample	g.	748.32

Sieve No.	Sieve Opening	Weight of Soil Retained, g	Cumulative Retained, g	Cumulative Retained, %	Percent Finer
3/8"	9.53	0	0	0	100
#4	4.75	1.89	1.89	0.25	99.75
#8	2.36	4.04	5.93	0.79	99.21
#18	1.00	88.91	94.84	12.67	87.33
#40	0.43	187.73	282.57	37.76	62.24
#60	0.25	58.20	340.77	45.54	54.46
#80	0.18	25.20	365.97	48.91	51.09
#100	0.15	18.54	384.51	51.38	48.62
#140	0.106	36.23	420.74	56.22	43.78
#200	0.08	36.12	456.86	61.05	38.95
PAN	PAN	286.15	743.01	99.29	0.71

D10= D30 = D60 =



Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING, GEOTECHNICAL ENGINEERING LABOLATORY

SIEVE ANALYSIS (ASTM C136)

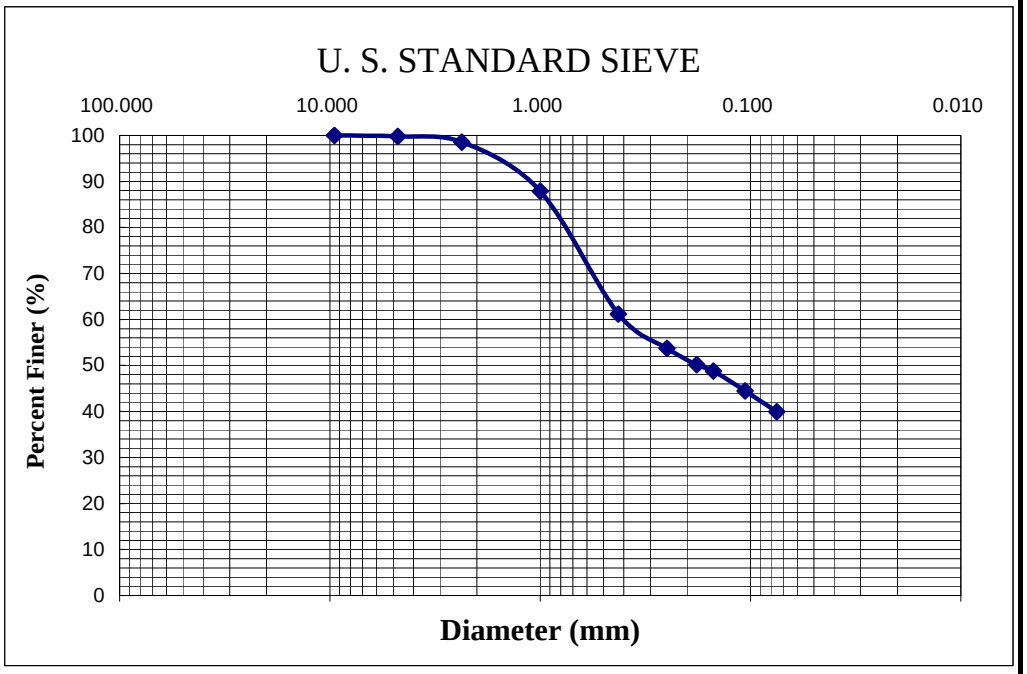
Project:	Landslide Behavior in Phuket		
For:	Stability Analysis		
Description of Sample	Brown Granitics Soil		
Location	Patong Phuket	Depth	3 m.
Test Pit No.	PT_3.00Well	Date	11-12-03
Tested by	THIPMANEE		

SAMPLE WEIGHT

Container No.		Y1
Weight of Container+Dry Sample	g.	1203.4
Weight of Container	g.	460.75
Weight of Dry Sample	g.	742.65

Sieve No.	Sieve Opening	Weight of Soil Retained, g	Cumulative Retained, g	Cumulative Retained, %	Percent Finer
3/8"	9.53	0	0	0	100
#4	4.75	1.42	1.42	0.19	99.81
#8	2.36	9.27	10.69	1.44	98.56
#18	1.00	79.37	90.06	12.13	87.87
#40	0.43	198.13	288.19	38.81	61.19
#60	0.25	55.70	343.89	46.31	53.69
#80	0.18	26.13	370.02	49.82	50.18
#100	0.15	10.36	380.38	51.22	48.78
#140	0.106	32.10	412.48	55.54	44.46
#200	0.08	33.77	446.25	60.09	39.91
PAN	PAN	284.52	730.77	98.40	1.60

D10= D30 = D60 =



Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING, GEOTECHNICAL ENGINEERING LABOLATORY

SIEVE ANALYSIS (ASTM C136)

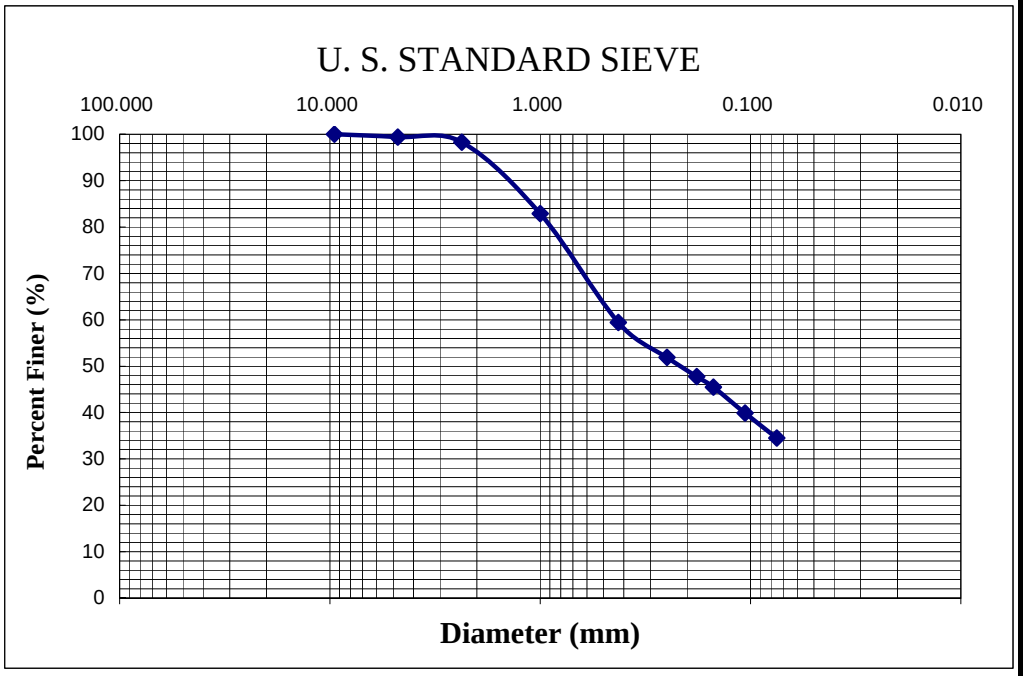
Project:	Landslide Behavior in Phuket		
For:	Stability Analysis		
Description of Sample	Brown Granitics Soil		
Location	Patong Phuket	Depth	3.50 m.
Test Pit No.	PT_3.50Well	Date	20/11/2003
Tested by	THIPMANEE		

SAMPLE WEIGHT

Container No.		x2
Weight of Container+Dry Sample	g.	758.7
Weight of Container	g.	156.13
Weight of Dry Sample	g.	602.57

Sieve No.	Sieve Opening	Weight of Soil Retained, g	Cumulative Retained, g	Cumulative Retained, %	Percent Finer
3/8"	9.53	0	0	0	100
#4	4.75	3.84	3.84	0.64	99.36
#8	2.36	6.49	10.33	1.71	98.29
#18	1.00	92.70	103.03	17.10	82.90
#40	0.43	141.68	244.71	40.61	59.39
#60	0.25	44.97	289.68	48.07	51.93
#80	0.18	25.29	314.97	52.27	47.73
#100	0.15	13.36	328.33	54.49	45.51
#140	0.106	34.07	362.40	60.14	39.86
#200	0.08	32.29	394.69	65.50	34.50
PAN	PAN	206.54	601.23	99.78	0.22

D10= D30 = D60 =



Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING, GEOTECHNICAL ENGINEERING LABOLATORY

SIEVE ANALYSIS (ASTM C136)

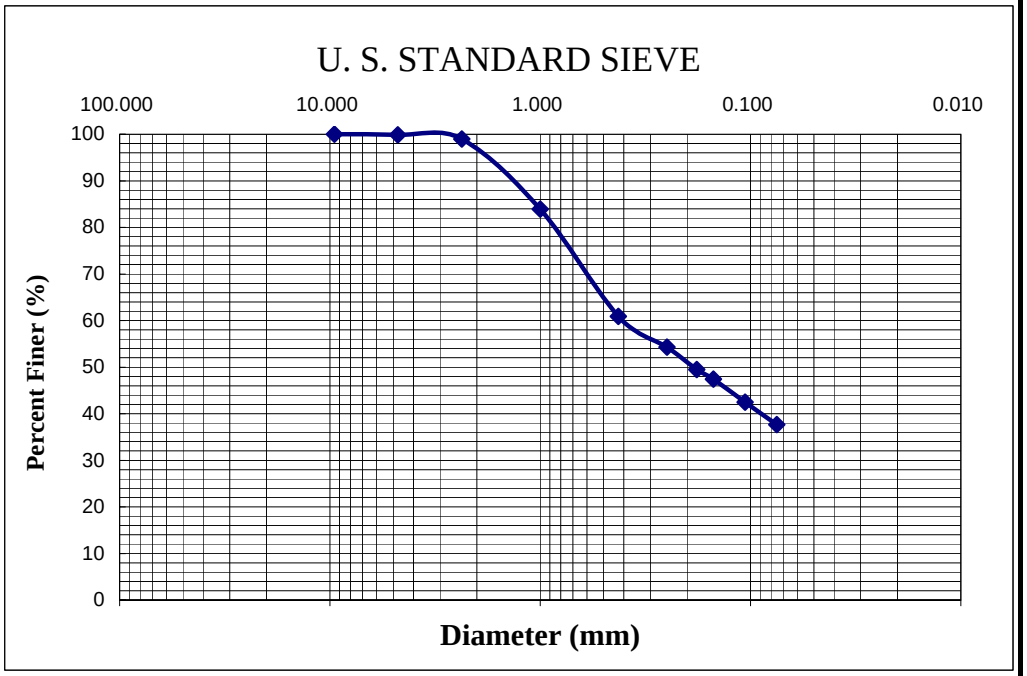
Project:	Landslide Behavior in Phuket		
For:	Stability Analysis		
Description of Sample	Brown Granitics Soil		
Location	Patong Phuket	Depth	4 m.
Test Pit No.	PT_4.00Well	Date	22/11/2003
Tested by	THIPMANEE		

SAMPLE WEIGHT

Container No.		x2
Weight of Container+Dry Sample	g.	771.1
Weight of Container	g.	156.13
Weight of Dry Sample	g.	614.97

Sieve No.	Sieve Opening	Weight of Soil Retained, g	Cumulative Retained, g	Cumulative Retained, %	Percent Finer
3/8"	9.53	0	0	0	100
#4	4.75	0.96	0.96	0.16	99.84
#8	2.36	5.38	6.34	1.03	98.97
#18	1.00	92.45	98.79	16.06	83.94
#40	0.43	141.85	240.64	39.13	60.87
#60	0.25	40.29	280.93	45.68	54.32
#80	0.18	29.74	310.67	50.52	49.48
#100	0.15	12.57	323.24	52.56	47.44
#140	0.106	30.47	353.71	57.52	42.48
#200	0.08	29.76	383.47	62.36	37.64
PAN	PAN	229.87	613.34	99.73	0.27

D10= D30 = D60 =



Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING, GEOTECHNICAL ENGINEERING LABOLATORY

SIEVE ANALYSIS (ASTM C136)

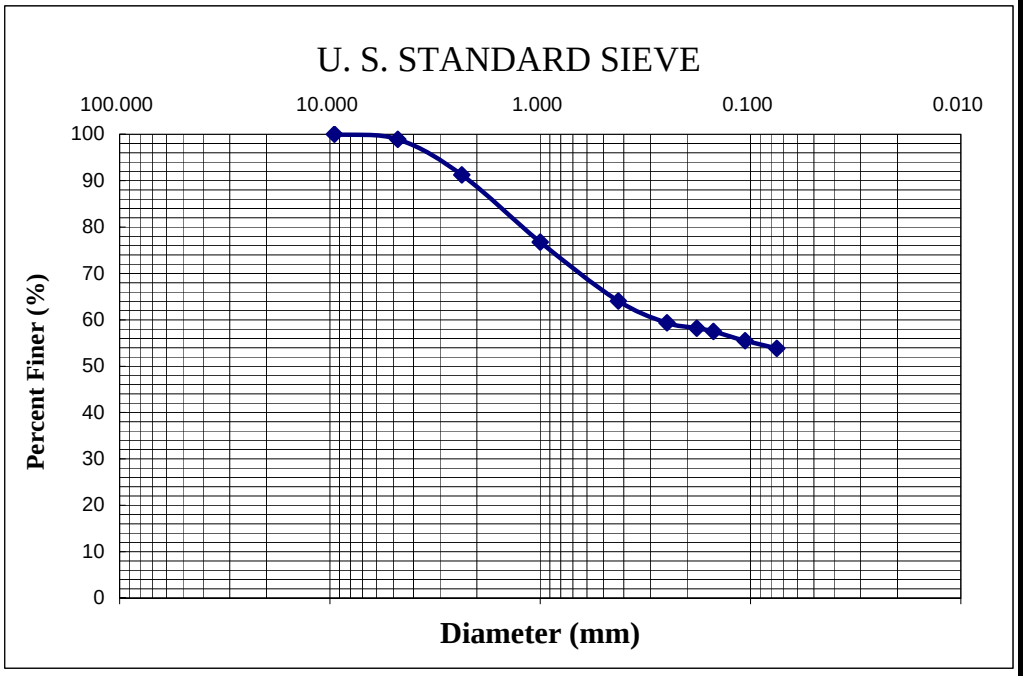
Project:	Landslide Behavior in Phuket		
For:	Stability Analysis		
Description of Sample	Brown Clayey Sand		
Location	Patong Phuket	Depth	1.80 m.
Test Pit No.	PT_1.80LS	Date	07-12-03
Tested by	THIPMANEE		

SAMPLE WEIGHT

Container No.		Y1
Weight of Container+Dry Sample	g.	1000.42
Weight of Container	g.	460.75
Weight of Dry Sample	g.	539.67

Sieve No.	Sieve Opening	Weight of Soil Retained, g	Cumulative Retained, g	Cumulative Retained, %	Percent Finer
3/8"	9.53	0	0	0	100
#4	4.75	6.12	6.12	1.13	98.87
#8	2.36	41.23	47.35	8.77	91.23
#18	1.00	78.18	125.53	23.26	76.74
#40	0.43	68.67	194.20	35.98	64.02
#60	0.25	25.04	219.24	40.62	59.38
#80	0.18	6.60	225.84	41.85	58.15
#100	0.15	3.43	229.27	42.48	57.52
#140	0.106	11.02	240.29	44.53	55.47
#200	0.08	8.77	249.06	46.15	53.85
PAN	PAN	289.03	538.09	99.71	0.29

D10= D30 = D60 =



Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING, GEOTECHNICAL ENGINEERING LABOLATORY

SIEVE ANALYSIS (ASTM C136)

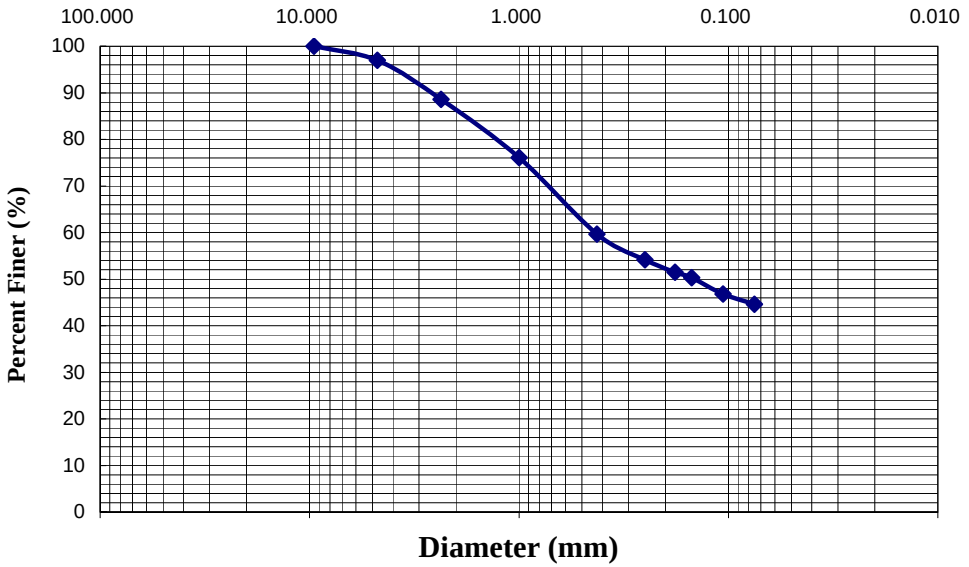
Project:	Landslide Behavior in Phuket		
For:	Stability Analysis		
Description of Sample	Brown Sand		
Location	Patong Phuket	Depth	4 m.
Test Pit No.	PT_4.00LS	Date	13/12/2003
Tested by	THIPMANEE		

SAMPLE WEIGHT

Container No.		x2
Weight of Container+Dry Sample	g.	847.07
Weight of Container	g.	250.42
Weight of Dry Sample	g.	596.65

Sieve No.	Sieve Opening	Weight of Soil Retained, g	Cumulative Retained, g	Cumulative Retained, %	Percent Finer
3/8"	9.53	0	0	0	100
#4	4.75	17.84	17.84	2.99	97.01
#8	2.36	50.25	68.09	11.41	88.59
#18	1.00	74.52	142.61	23.90	76.10
#40	0.43	98.18	240.79	40.36	59.64
#60	0.25	32.71	273.50	45.84	54.16
#80	0.18	16.18	289.68	48.55	51.45
#100	0.15	6.64	296.32	49.66	50.34
#140	0.106	21.22	317.54	53.22	46.78
#200	0.08	12.82	330.36	55.37	44.63
PAN	PAN	264.00	594.36	99.62	0.38

D10= D30 = D60 =



Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING, GEOTECHNICAL ENGINEERING LABOLATORY

SIEVE ANALYSIS (ASTM C136)

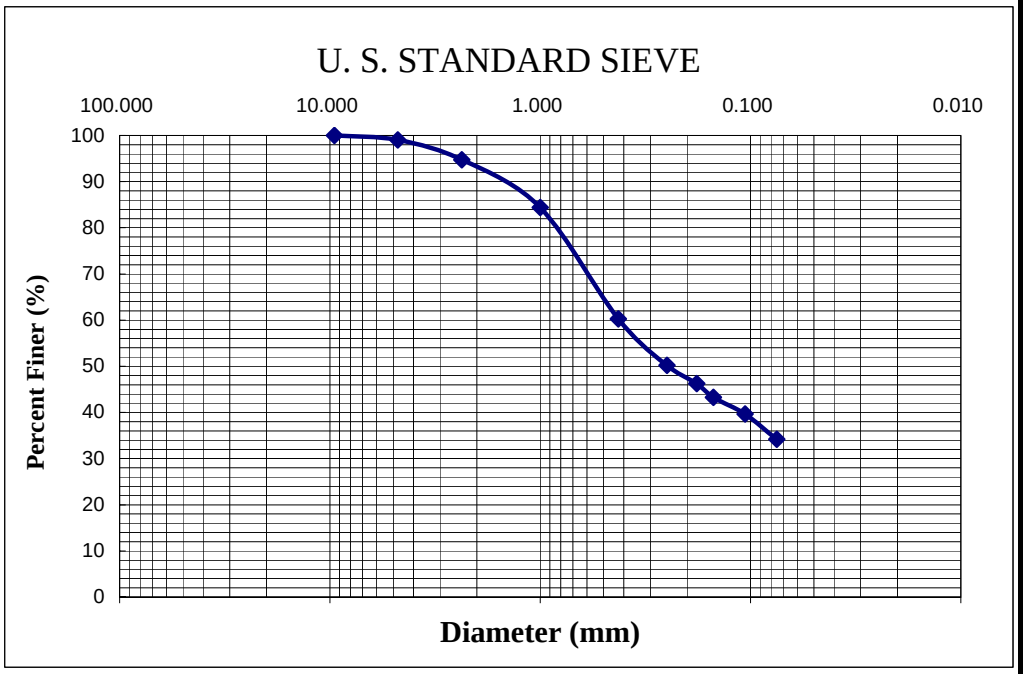
Project:	Landslide Behavior in Phuket		
For:	Stability Analysis		
Description of Sample	Red Brown Sand		
Location	Patong Phuket	Depth	7 m.
Test Pit No.	PT_7.00LS	Date	07-12-03
Tested by	THIPMANEE		

SAMPLE WEIGHT

Container No.		x2
Weight of Container+Dry Sample	g.	773.72
Weight of Container	g.	156.13
Weight of Dry Sample	g.	617.59

Sieve No.	Sieve Opening	Weight of Soil Retained, g	Cumulative Retained, g	Cumulative Retained, %	Percent Finer
3/8"	9.53	0	0	0	100
#4	4.75	5.99	5.99	0.97	99.03
#8	2.36	26.36	32.35	5.24	94.76
#18	1.00	64.20	96.55	15.63	84.37
#40	0.43	149.07	245.62	39.77	60.23
#60	0.25	62.05	307.67	49.82	50.18
#80	0.18	24.44	332.11	53.78	46.22
#100	0.15	18.04	350.15	56.70	43.30
#140	0.106	22.54	372.69	60.35	39.65
#200	0.08	33.58	406.27	65.78	34.22
PAN	PAN	208.02	614.29	99.47	0.53

D10= D30 = D60 =



Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING, GEOTECHNICAL ENGINEERING LABOLATORY

SIEVE ANALYSIS (ASTM C136)

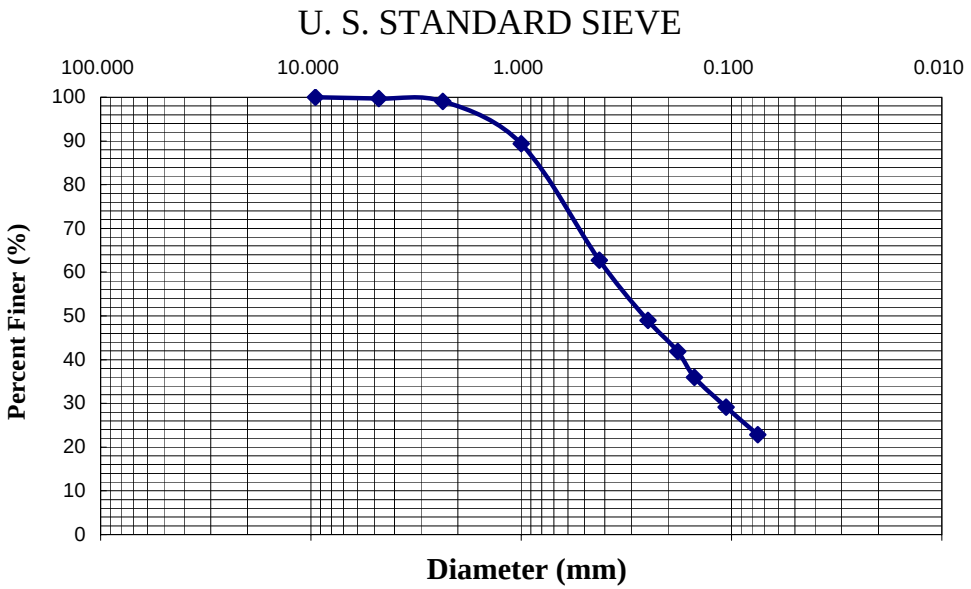
Project:	Landslide Behavior in Phuket		
For:	Stability Analysis		
Description of Sample	Red Brown Sand		
Location	Patong Phuket	Depth	10 m.
Test Pit No.	PT_10.00LS	Date	21/12/2003
Tested by	THIPMANEE		

SAMPLE WEIGHT

Container No.		X2
Weight of Container+Dry Sample	g.	829.72
Weight of Container	g.	250.42
Weight of Dry Sample	g.	579.30

Sieve No.	Sieve Opening	Weight of Soil Retained, g	Cumulative Retained, g	Cumulative Retained, %	Percent Finer
3/8"	9.53	0	0	0	100
#4	4.75	1.83	1.83	0.32	99.68
#8	2.36	3.61	5.44	0.94	99.06
#18	1.00	55.92	61.36	10.59	89.41
#40	0.43	154.55	215.91	37.27	62.73
#60	0.25	79.59	295.50	51.01	48.99
#80	0.18	41.42	336.92	58.16	41.84
#100	0.15	34.26	371.18	64.07	35.93
#140	0.106	39.41	410.59	70.88	29.12
#200	0.08	36.51	447.10	77.18	22.82
PAN	PAN	130.60	577.70	99.72	0.28

D10= D30 = D60 =



Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

SPECIFIC GRAVITY TEST

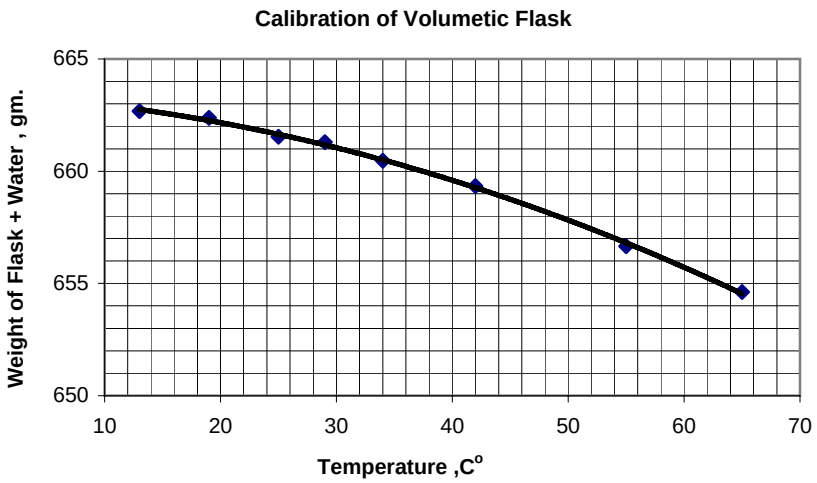
PROJECT	Landslide Behavior in Phuket	**Location**	Kamala Phuket	
Borehole No.	KML_0.40T1Well	**Sample No.**	1	
Soil Description	Red Clay	**Depth**	0.40	m.
Test by	THIPMANEE	**Date**	13/1/2004	

Flask Calibation

Determination No.	1	2	3	4	5	6	7	8
Temperature	65	55	42	34	29	25	19	13
Wt. Flask+Water	654.62	656.66	659.34	660.46	661.29	661.53	662.37	662.68

SPECIFIC GRAVITY DETERMINATION

Determination No.		1	2	3	4	5	6	7	8
Temperature	C^o	25	25.5						
Flask+Water	g.	661.67	661.61						
Flask+Water+Soil	g.	687.71	686.37						
Container No.		x3	x3						
Dry Soil+Container	g.	193.7	191.95						
Weight of Container	g.	151.78	151.78						
Dry Soil	g.	41.92	40.17						
Specific Gravity of Water		0.9971	0.9970						
Specific Gravity of Soil		2.633	2.599						
Average Specific Gravity of Soil		2.616							



Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

SPECIFIC GRAVITY TEST

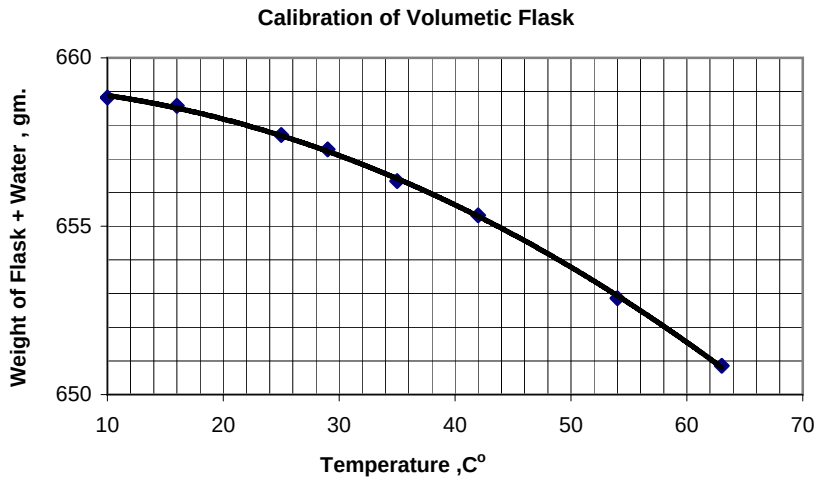
PROJECT	Landslide Behavior in Phuket	**Location**	Kamala Phuket	
Borehole No.	KML_0.80T2Well	**Sample No.**	1	
Soil Description	Red Clay	**Depth**	0.80	m.
Test by	THIPMANEE	**Date**	13/1/2004	

Flask Calibation

Determination No.	1	2	3	4	5	6	7	8
Temperature	63	54	42	35	29	25	16	10
Wt. Flask+Water	650.86	652.86	655.32	656.34	657.28	657.71	658.57	658.82

SPECIFIC GRAVITY DETERMINATION

Determination No.		1	2	3	4	5	6	7	8
Temperature	C^o	25.5	25.5						
Flask+Water	g.	657.64	657.64						
Flask+Water+Soil	g.	682.08	682.74						
Container No.		x1	x1						
Dry Soil+Container	g.	193.54	194.82						
Weight of Container	g.	154.12	154.12						
Dry Soil	g.	39.42	40.7						
Specific Gravity of Water		0.99695	0.9970						
Specific Gravity of Soil		2.623	2.601						
Average Specific Gravity of Soil		2.612							



Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

SPECIFIC GRAVITY TEST

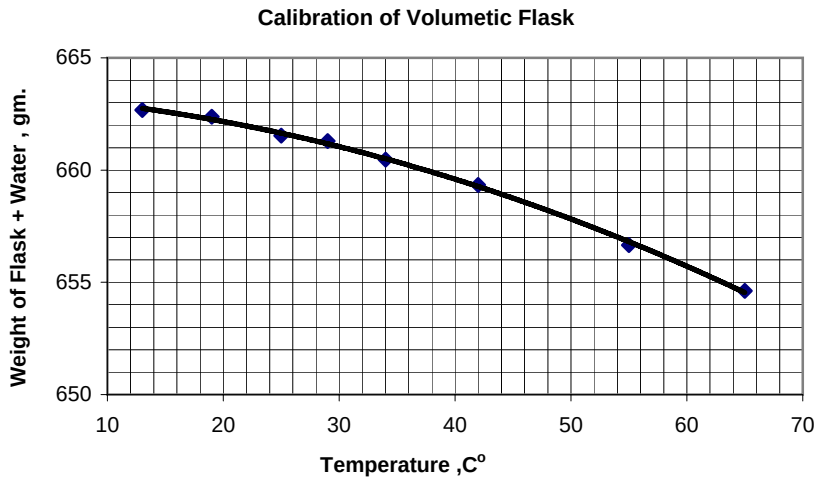
PROJECT	Landslide Behavior in Phuket	**Location**	Kamala Phuket	
Borehole No.	KML_1.20T3Well	**Sample No.**	1	
Soil Description	Red Clayey Sand	**Depth**	1.20	m.
Test by	THIPMANEE	**Date**	07-01-04	

Flask Calibation

Determination No.	1	2	3	4	5	6	7	8
Temperature	65	55	42	34	29	25	19	13
Wt. Flask+Water	654.62	656.66	659.34	660.46	661.29	661.53	662.37	662.68

SPECIFIC GRAVITY DETERMINATION

Determination No.		1	2	3	4	5	6	7	8
Temperature	C^o	24.5	24						
Flask+Water	g.	661.72	661.77						
Flask+Water+Soil	g.	692.95	692.98						
Container No.		x3	x3						
Dry Soil+Container	g.	202.06	202.02						
Weight of Container	g.	151.78	151.78						
Dry Soil	g.	50.28	50.24						
Specific Gravity of Water		0.9972	0.9973						
Specific Gravity of Soil		2.632	2.632						
Average Specific Gravity of Soil		2.632							



Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

SPECIFIC GRAVITY TEST

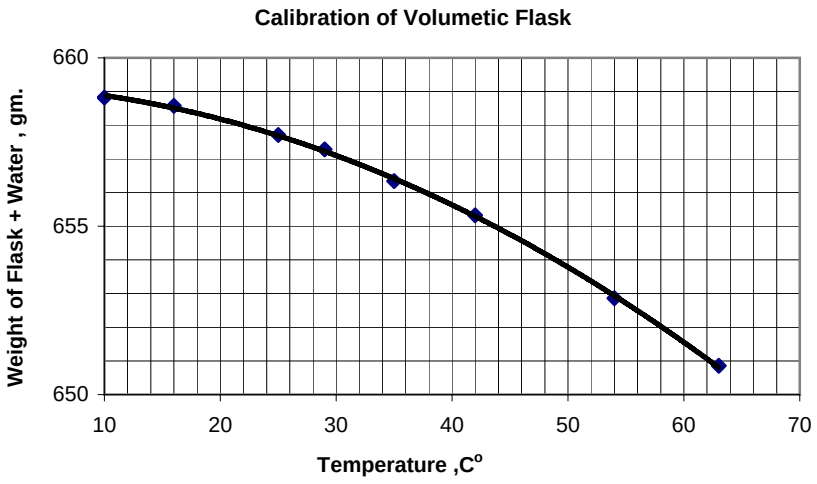
PROJECT	Landslide Behavior in Phuket	**Location**	Kamala Phuket	
Borehole No.	KML_2.00T4Well	**Sample No.**	1	
Soil Description	Brown Granitics Soil	**Depth**	2.00	m.
Test by	THIPMANEE	**Date**	07-01-04	

Flask Calibation

Determination No.	1	2	3	4	5	6	7	8
Temperature	63	54	42	35	29	25	16	10
Wt. Flask+Water	650.86	652.86	655.32	656.34	657.28	657.71	658.57	658.82

SPECIFIC GRAVITY DETERMINATION

Determination No.		1	2	3	4	5	6	7	8
Temperature	C^o	24.5	24						
Flask+Water	g.	657.75	657.80						
Flask+Water+Soil	g.	683.09	679.69						
Container No.		x1	x1						
Dry Soil+Container	g.	195.2	189.53						
Weight of Container	g.	154.12	154.12						
Dry Soil	g.	41.08	35.41						
Specific Gravity of Water		0.9972	0.9973						
Specific Gravity of Soil		2.603	2.612						
Average Specific Gravity of Soil		2.607							



Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

SPECIFIC GRAVITY TEST

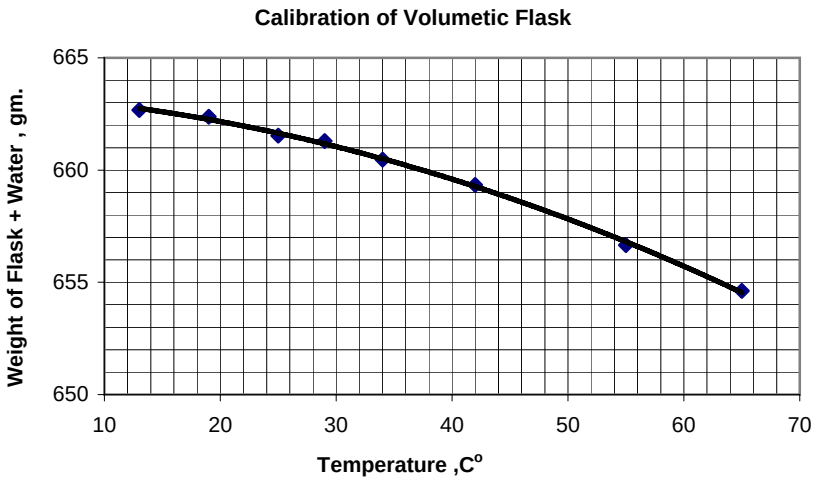
PROJECT	Landslide Behavior in Phuket	**Location**	Kamala Phuket	
Borehole No.	KML_2.80T5Well	**Sample No.**	1	
Soil Description	Brown Granitics Soil	**Depth**	2.80	m.
Test by	THIPMANEE	**Date**	04-01-04	

Flask Calibation

Determination No.	1	2	3	4	5	6	7	8
Temperature	65	55	42	34	29	25	19	13
Wt. Flask+Water	654.62	656.66	659.34	660.46	661.29	661.53	662.37	662.68

SPECIFIC GRAVITY DETERMINATION

Determination No.		1	2	3	4	5	6	7	8
Temperature	C^o	28	23.5						
Flask+Water	g.	661.32	661.83						
Flask+Water+Soil	g.	692.48	693.08						
Container No.		x3	z6						
Dry Soil+Container	g.	201.96	112.41						
Weight of Container	g.	151.78	62.38						
Dry Soil	g.	50.18	50.03						
Specific Gravity of Water		0.9963	0.9975						
Specific Gravity of Soil		2.628	2.658						
Average Specific Gravity of Soil		2.643							



Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

SPECIFIC GRAVITY TEST

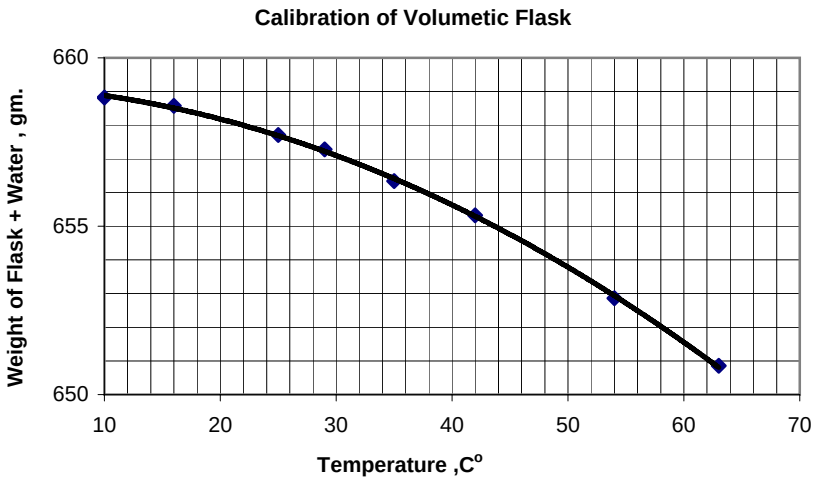
PROJECT	Landslide Behavior in Phuket	**Location**	Kamala Phuket	
Borehole No.	KML_2.00Cliff	**Sample No.**	1	
Soil Description	Red Sand	**Depth**	2.00	m.
Test by	THIPMANEE	**Date**	04-01-04	

Flask Calibation

Determination No.	1	2	3	4	5	6	7	8
Temperature	63	54	42	35	29	25	16	10
Wt. Flask+Water	650.86	652.86	655.32	656.34	657.28	657.71	658.57	658.82

SPECIFIC GRAVITY DETERMINATION

Determination No.		1	2	3	4	5	6	7	8
Temperature	C^o	28	23.5						
Flask+Water	g.	657.35	657.85						
Flask+Water+Soil	g.	688.42	689.07						
Container No.		x1	z1						
Dry Soil+Container	g.	204.27	111.86						
Weight of Container	g.	154.12	61.85						
Dry Soil	g.	50.15	50.01						
Specific Gravity of Water		0.9963	0.9975						
Specific Gravity of Soil		2.618	2.654						
Average Specific Gravity of Soil		2.636							



Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

SPECIFIC GRAVITY TEST

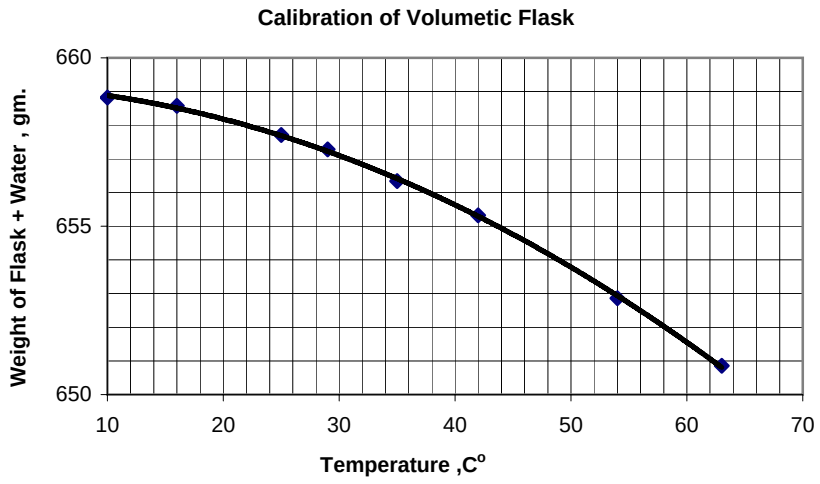
PROJECT	Landslide Behavior in Phuket	**Location**	Kamala Phuket	
Borehole No.	KML_5.00RCliff	**Sample No.**	1	
Soil Description	Red Sand	**Depth**	5.00	m.
Test by	THIPMANEE	**Date**	28/12/2003	

Flask Calibation

Determination No.	1	2	3	4	5	6	7	8
Temperature	63	54	42	35	29	25	16	10
Wt. Flask+Water	650.86	652.86	655.32	656.34	657.28	657.71	658.57	658.82

SPECIFIC GRAVITY DETERMINATION

Determination No.		1	2	3	4	5	6	7	8
Temperature	C^o	26	27						
Flask+Water	g.	657.59	657.47						
Flask+Water+Soil	g.	688.85	688.69						
Container No.		z1	x1						
Dry Soil+Container	g.	112.14	204.34						
Weight of Container	g.	61.85	154.12						
Dry Soil	g.	50.29	50.22						
Specific Gravity of Water		0.9968	0.9965						
Specific Gravity of Soil		2.635	2.634						
Average Specific Gravity of Soil		2.634							



Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

SPECIFIC GRAVITY TEST

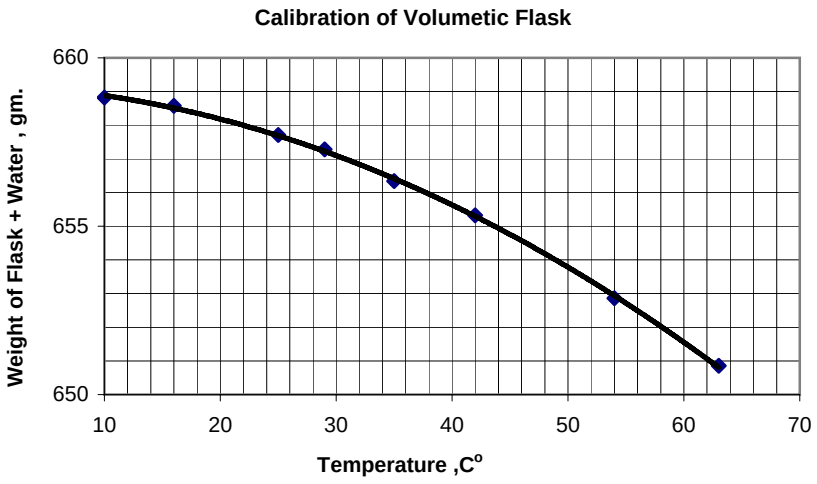
PROJECT	Landslide Behavior in Phuket	**Location**	Kamala Phuket	
Borehole No.	KML_5.00LCliff	**Sample No.**	1	
Soil Description	Red Sand	**Depth**	5.00	m.
Test by	THIPMANEE	**Date**	29/12/2003	

Flask Calibation

Determination No.	1	2	3	4	5	6	7	8
Temperature	63	54	42	35	29	25	16	10
Wt. Flask+Water	650.86	652.86	655.32	656.34	657.28	657.71	658.57	658.82

SPECIFIC GRAVITY DETERMINATION

Determination No.		1	2	3	4	5	6	7	8
Temperature	C^o	25.5	27.5						
Flask+Water	g.	657.64	657.41						
Flask+Water+Soil	g.	688.77	688.45						
Container No.		x1	x1						
Dry Soil+Container	g.	204.33	204.31						
Weight of Container	g.	154.12	154.12						
Dry Soil	g.	50.21	50.19						
Specific Gravity of Water		0.99695	0.9964						
Specific Gravity of Soil		2.623	2.611						
Average Specific Gravity of Soil		2.617							



Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

SPECIFIC GRAVITY TEST

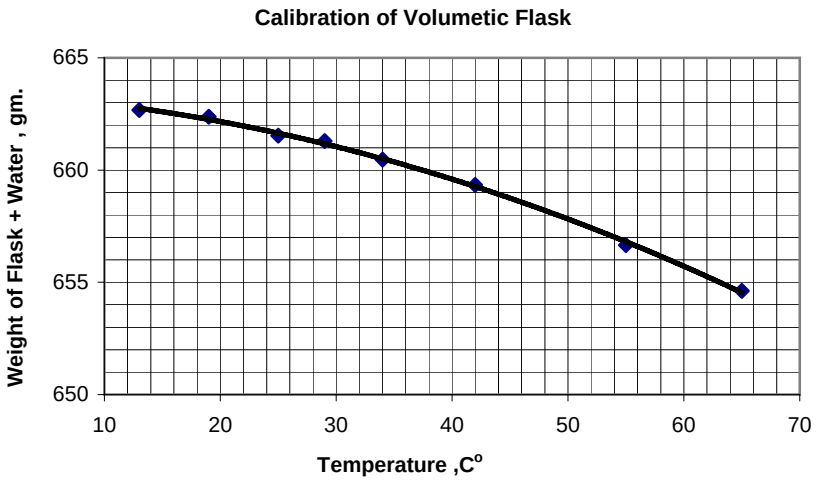
PROJECT	Landslide Behavior in Phuket	**Location**	Kamala Phuket	
Borehole No.	KML_13.00Cliff	**Sample No.**	1	
Soil Description	Brown Sand	**Depth**	13.00	m.
Test by	THIPMANEE	**Date**	29/12/2003	

Flask Calibation

Determination No.	1	2	3	4	5	6	7	8
Temperature	65	55	42	34	29	25	19	13
Wt. Flask+Water	654.62	656.66	659.34	660.46	661.29	661.53	662.37	662.68

SPECIFIC GRAVITY DETERMINATION

Determination No.		1	2	3	4	5	6	7	8
Temperature	C^o	25.5	27.5						
Flask+Water	g.	661.61	661.38						
Flask+Water+Soil	g.	692.88	692.55						
Container No.		x3	x3						
Dry Soil+Container	g.	201.99	202.04						
Weight of Container	g.	151.78	151.78						
Dry Soil	g.	50.21	50.26						
Specific Gravity of Water		0.99695	0.9964						
Specific Gravity of Soil		2.643	2.623						
Average Specific Gravity of Soil		2.633							



Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

SPECIFIC GRAVITY TEST

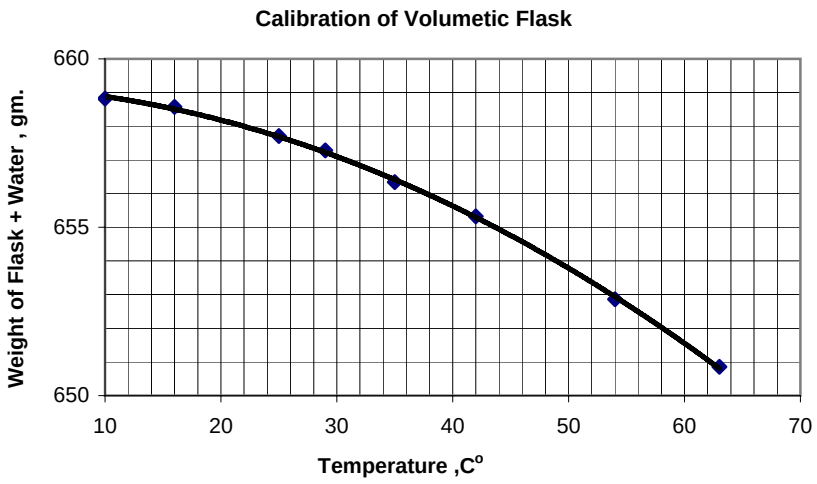
PROJECT	Landslide Behavior in Phuket	**Location**	Patong Phuket	
Borehole No.	PT_1.00Well	**Sample No.**	1	
Soil Description	Brown Clayey Sand	**Depth**	1.00	m.
Test by	THIPMANEE	**Date**	15/12/2003	

Flask Calibation

Determination No.	1	2	3	4	5	6	7	8
Temperature	63	54	42	35	29	25	16	10
Wt. Flask+Water	650.86	652.86	655.32	656.34	657.28	657.71	658.57	658.82

SPECIFIC GRAVITY DETERMINATION

Determination No.	1	2	3	4	5	6	7	8
Temperature C^o	28.5	26.5						
Flask+Water g.	657.29	657.53						
Flask+Water+Soil g.	688.9	688.88						
Container No.	x1	x1						
Dry Soil+Container g.	204.57	204.48						
Weight of Container g.	154.31	154.31						
Dry Soil g.	50.26	50.17						
Specific Gravity of Water	0.99615	0.9967						
Specific Gravity of Soil	2.684	2.657						
Average Specific Gravity of Soil	2.670							



Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

SPECIFIC GRAVITY TEST

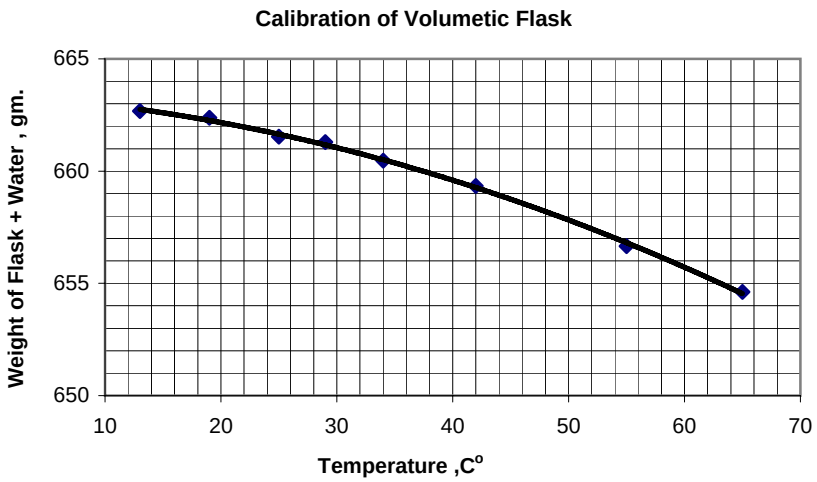
PROJECT	Landslide Behavior in Phuket	**Location**	Patong Phuket	
Borehole No.	PT_1.30Well	**Sample No.**	1	
Soil Description	Brown Clayey Sand	**Depth**	1.30	m.
Test by	THIPMANEE	**Date**	13/12/2003	

Flask Calibation

Determination No.	1	2	3	4	5	6	7	8
Temperature	65	55	42	34	29	25	19	13
Wt. Flask+Water	654.62	656.66	659.34	660.46	661.29	661.53	662.37	662.68

SPECIFIC GRAVITY DETERMINATION

Determination No.	1	2	3	4	5	6	7	8
Temperature C^o	27	27						
Flask+Water g.	661.44	661.44						
Flask+Water+Soil g.	692.86	692.5						
Container No.	x3	z1						
Dry Soil+Container g.	202.11	111.92						
Weight of Container g.	151.90	61.95						
Dry Soil g.	50.21	49.97						
Specific Gravity of Water	0.9965	0.9965						
Specific Gravity of Soil	2.663	2.633						
Average Specific Gravity of Soil	2.648							



Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

SPECIFIC GRAVITY TEST

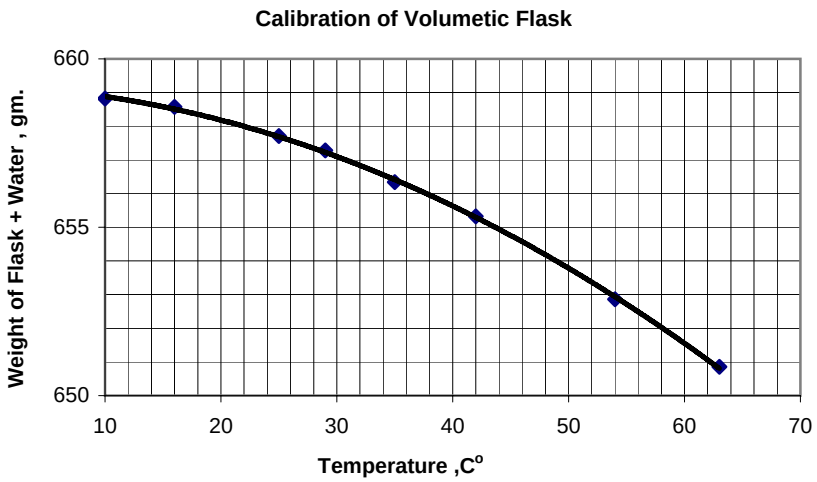
PROJECT	Landslide Behavior in Phuket	**Location**	Patong Phuket	
Borehole No.	PT_2.00Well	**Sample No.**	1	
Soil Description	Red Clayey Sand	**Depth**	2.00	m.
Test by	THIPMANEE	**Date**	21/12/2003	

Flask Calibation

Determination No.	1	2	3	4	5	6	7	8
Temperature	63	54	42	35	29	25	16	10
Wt. Flask+Water	650.86	652.86	655.32	656.34	657.28	657.71	658.57	658.82

SPECIFIC GRAVITY DETERMINATION

Determination No.		1	2	3	4	5	6	7	8
Temperature	C^o	25	29						
Flask+Water	g.	657.70	657.23						
Flask+Water+Soil	g.	688.86	688.6						
Container No.		x1	x1						
Dry Soil+Container	g.	204.29	204.35						
Weight of Container	g.	154.31	154.31						
Dry Soil	g.	49.98	50.04						
Specific Gravity of Water		0.9971	0.9960						
Specific Gravity of Soil		2.649	2.669						
Average Specific Gravity of Soil		2.659							



Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

SPECIFIC GRAVITY TEST

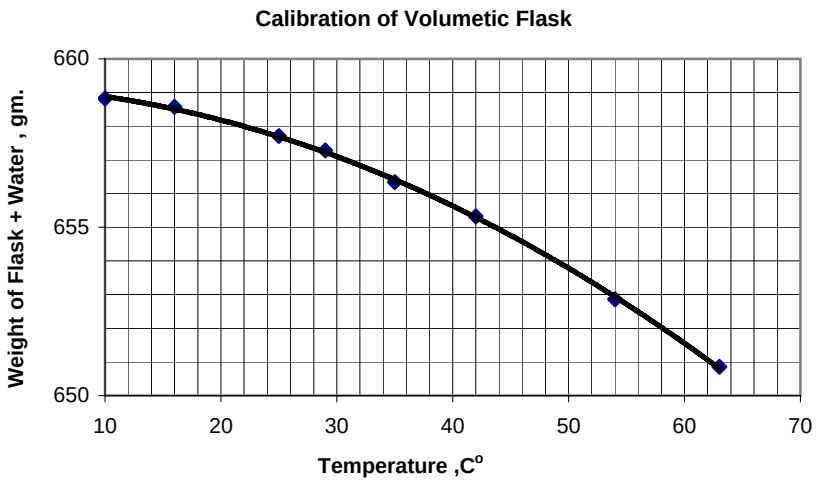
PROJECT	Landslide Behavior in Phuket	**Location**	Patong Phuket	
Borehole No.	PT_2.50Well	**Sample No.**	1	
Soil Description	Brown Granitics Soil	**Depth**	2.50	m.
Test by	THIPMANEE	**Date**	13/12/2003	

Flask Calibation

Determination No.	1	2	3	4	5	6	7	8
Temperature	63	54	42	35	29	25	16	10
Wt. Flask+Water	650.86	652.86	655.32	656.34	657.28	657.71	658.57	658.82

SPECIFIC GRAVITY DETERMINATION

Determination No.		1	2	3	4	5	6	7	8
Temperature	C^o	27	27						
Flask+Water	g.	657.47	657.47						
Flask+Water+Soil	g.	688.63	688.56						
Container No.		x1	z6						
Dry Soil+Container	g.	204.39	112.32						
Weight of Container	g.	154.31	62.38						
Dry Soil	g.	50.08	49.94						
Specific Gravity of Water		0.9965	0.9965						
Specific Gravity of Soil		2.637	2.640						
Average Specific Gravity of Soil		2.639							



Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

SPECIFIC GRAVITY TEST

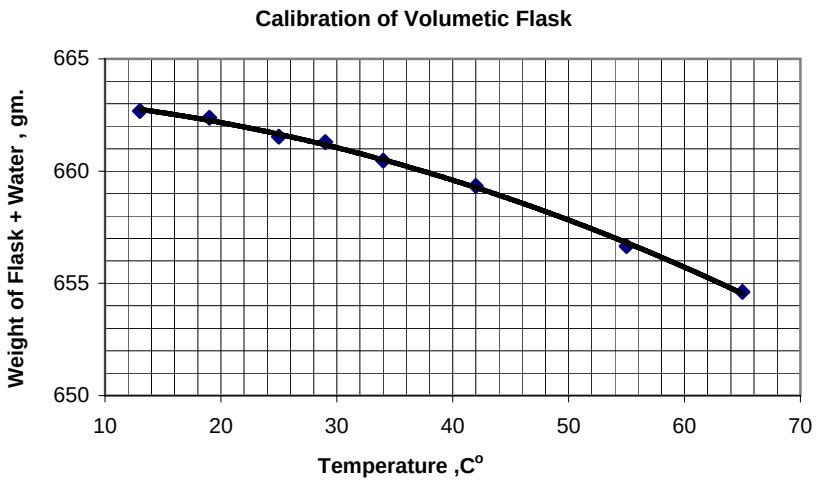
PROJECT	Landslide Behavior in Phuket	**Location**	Patong Phuket	
Borehole No.	PT_3.00Well	**Sample No.**	1	
Soil Description	Brown Granitics Soil	**Depth**	3.00	m.
Test by	THIPMANEE	**Date**	21/12/2003	

Flask Calibation

Determination No.	1	2	3	4	5	6	7	8
Temperature	65	55	42	34	29	25	19	13
Wt. Flask+Water	654.62	656.66	659.34	660.46	661.29	661.53	662.37	662.68

SPECIFIC GRAVITY DETERMINATION

Determination No.	1	2	3	4	5	6	7	8
Temperature C^o	24.5	28.5						
Flask+Water g.	661.72	661.26						
Flask+Water+Soil g.	692.77	692.41						
Container No.	x3	x3						
Dry Soil+Container g.	201.88	201.89						
Weight of Container g.	151.90	151.90						
Dry Soil g.	49.98	49.99						
Specific Gravity of Water	0.9972	0.9962						
Specific Gravity of Soil	2.633	2.643						
Average Specific Gravity of Soil	2.638							



Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

SPECIFIC GRAVITY TEST

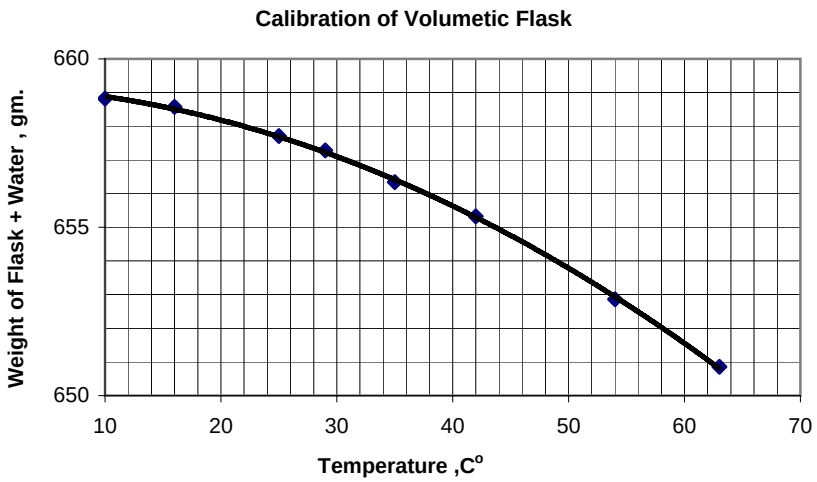
PROJECT	Landslide Behavior in Phuket	**Location**	Patong Phuket	
Borehole No.	PT_3.50Well	**Sample No.**	1	
Soil Description	Brown Granitics Soil	**Depth**	3.50	m.
Test by	THIPMANEE	**Date**	10-12-03	

Flask Calibation

Determination No.	1	2	3	4	5	6	7	8
Temperature	63	54	42	35	29	25	16	10
Wt. Flask+Water	650.86	652.86	655.32	656.34	657.28	657.71	658.57	658.82

SPECIFIC GRAVITY DETERMINATION

Determination No.		1	2	3	4	5	6	7	8
Temperature	C^o	28	28.5						
Flask+Water	g.	657.35	657.29						
Flask+Water+Soil	g.	684.4	688.42						
Container No.		x3	x3						
Dry Soil+Container	g.	195.51	201.92						
Weight of Container	g.	151.90	151.90						
Dry Soil	g.	43.61	50.02						
Specific Gravity of Water		0.9963	0.9962						
Specific Gravity of Soil		2.623	2.637						
Average Specific Gravity of Soil		2.630							



Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

SPECIFIC GRAVITY TEST

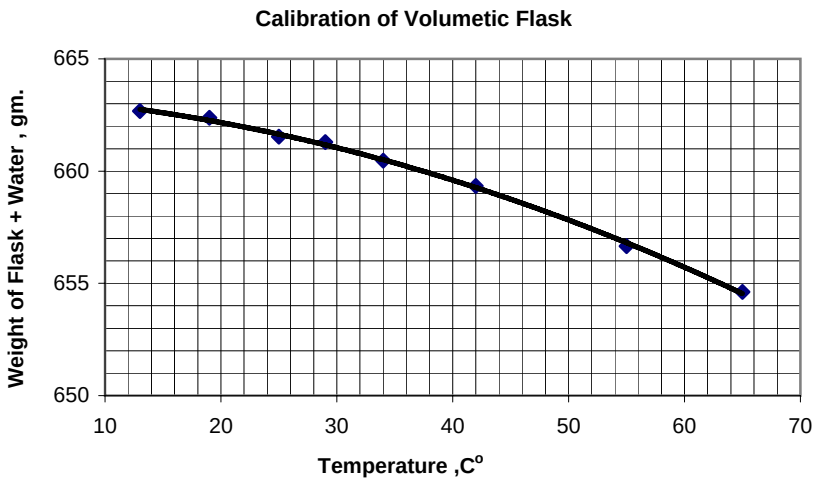
PROJECT	Landslide Behavior in Phuket	**Location**	Patong Phuket	
Borehole No.	PT_4.00Well	**Sample No.**	1	
Soil Description	Brown Granitics Soil	**Depth**	4.00	m.
Test by	THIPMANEE	**Date**	07-12-03	

Flask Calibation

Determination No.	1	2	3	4	5	6	7	8
Temperature	65	55	42	34	29	25	19	13
Wt. Flask+Water	654.62	656.66	659.34	660.46	661.29	661.53	662.37	662.68

SPECIFIC GRAVITY DETERMINATION

Determination No.		1	2	3	4	5	6	7	8
Temperature	C^o	28	28						
Flask+Water	g.	661.32	661.32						
Flask+Water+Soil	g.	692.28	692.4						
Container No.		x1	x1						
Dry Soil+Container	g.	203.8	204.31						
Weight of Container	g.	154.31	154.31						
Dry Soil	g.	49.49	50						
Specific Gravity of Water		0.9963	0.9963						
Specific Gravity of Soil		2.661	2.633						
Average Specific Gravity of Soil		2.647							



Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

SPECIFIC GRAVITY TEST

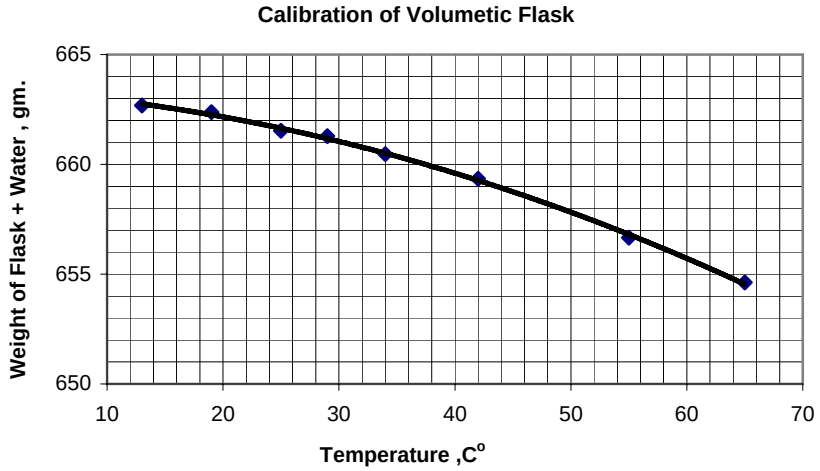
PROJECT	Landslide Behavior in Phuket	**Location**	Patong Phuket	
Borehole No.	PT_1.80Cliff	**Sample No.**	1	
Soil Description	Brown Clayey Sand	**Depth**	1.80	m.
Test by	THIPMANEE	**Date**	15/12/2003	

Flask Calibation

Determination No.	1	2	3	4	5	6	7	8
Temperature	65	55	42	34	29	25	19	13
Wt. Flask+Water	654.62	656.66	659.34	660.46	661.29	661.53	662.37	662.68

SPECIFIC GRAVITY DETERMINATION

Determination No.		1	2	3	4	5	6	7	8
Temperature	C^o	28.5	26.5						
Flask+Water	g.	661.26	661.50						
Flask+Water+Soil	g.	692.61	692.65						
Container No.		x3	x3						
Dry Soil+Container	g.	202.15	202.06						
Weight of Container	g.	151.90	151.90						
Dry Soil	g.	50.25	50.16						
Specific Gravity of Water		0.99615	0.9967						
Specific Gravity of Soil		2.648	2.630						
Average Specific Gravity of Soil		2.639							



Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

SPECIFIC GRAVITY TEST

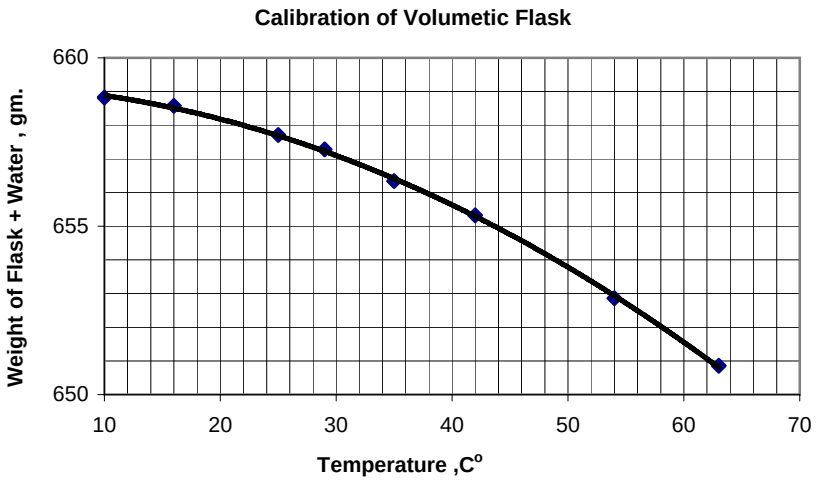
PROJECT	Landslide Behavior in Phuket	**Location**	Patong Phuket	
Borehole No.	PT_4.00Cliff	**Sample No.**	1	
Soil Description	Brown Sand	**Depth**	4.00	m.
Test by	THIPMANEE	**Date**	20/12/2003	

Flask Calibation

Determination No.	1	2	3	4	5	6	7	8
Temperature	63	54	42	35	29	25	16	10
Wt. Flask+Water	650.86	652.86	655.32	656.34	657.28	657.71	658.57	658.82

SPECIFIC GRAVITY DETERMINATION

Determination No.		1	2	3	4	5	6	7	8
Temperature	C^o	26.5	26.5						
Flask+Water	g.	657.53	657.53						
Flask+Water+Soil	g.	688.67	688.8						
Container No.		x1	x1						
Dry Soil+Container	g.	204.39	204.36						
Weight of Container	g.	154.31	154.31						
Dry Soil	g.	50.08	50.05						
Specific Gravity of Water		0.99665	0.9967						
Specific Gravity of Soil		2.635	2.656						
Average Specific Gravity of Soil		2.646							



Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

SPECIFIC GRAVITY TEST

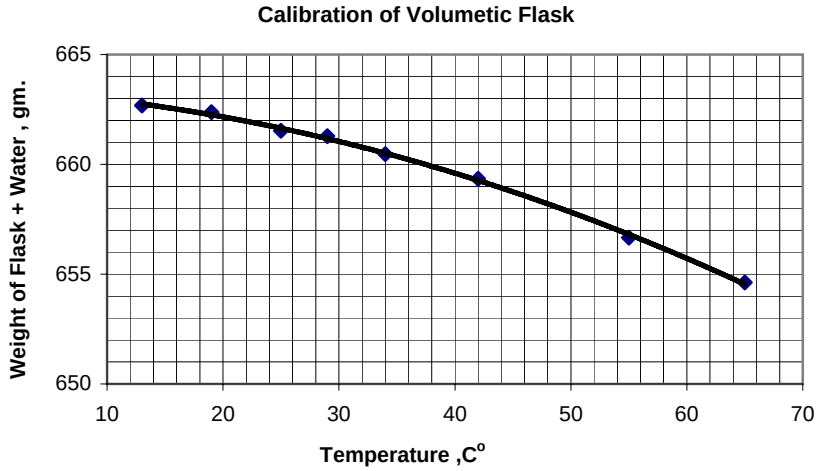
PROJECT	Landslide Behavior in Phuket	**Location**	Patong Phuket	
Borehole No.	PT_7.00Cliff	**Sample No.**	1	
Soil Description	Red Brown Sand	**Depth**	7.00	m.
Test by	THIPMANEE	**Date**	20/12/2003	

Flask Calibation

Determination No.	1	2	3	4	5	6	7	8
Temperature	65	55	42	34	29	25	19	13
Wt. Flask+Water	654.62	656.66	659.34	660.46	661.29	661.53	662.37	662.68

SPECIFIC GRAVITY DETERMINATION

Determination No.		1	2	3	4	5	6	7	8
Temperature	C^o	26.5	26.5						
Flask+Water	g.	661.50	661.50						
Flask+Water+Soil	g.	692.76	692.76						
Container No.		x3	x3						
Dry Soil+Container	g.	201.99	202.04						
Weight of Container	g.	151.90	151.90						
Dry Soil	g.	50.09	50.14						
Specific Gravity of Water		0.99665	0.9967						
Specific Gravity of Soil		2.652	2.647						
Average Specific Gravity of Soil		2.649							



Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

SPECIFIC GRAVITY TEST

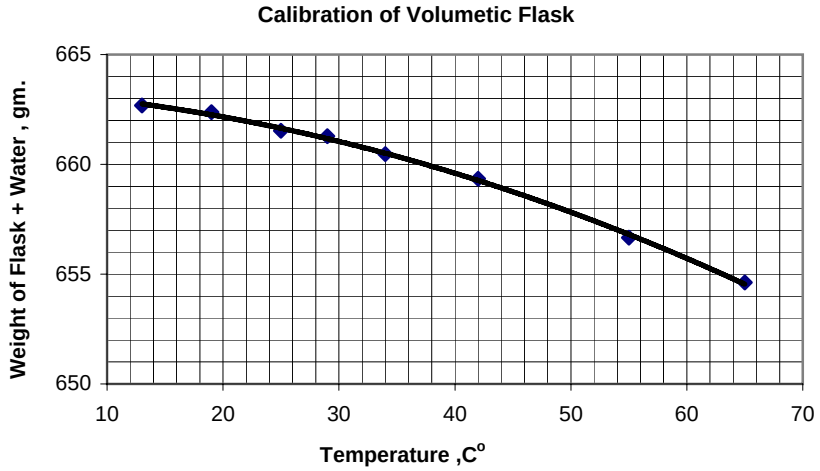
PROJECT	Landslide Behavior in Phuket	**Location**	Patong Phuket
Borehole No.	PT_10.00Cliff	**Sample No.**	1
Soil Description	Red Brown Sand	**Depth**	10.00 m.
Test by	THIPMANEE	**Date**	28/12/2003

Flask Calibation

Determination No.	1	2	3	4	5	6	7	8
Temperature	65	55	42	34	29	25	19	13
Wt. Flask+Water	654.62	656.66	659.34	660.46	661.29	661.53	662.37	662.68

SPECIFIC GRAVITY DETERMINATION

Determination No.		1	2	3	4	5	6	7	8
Temperature	C^o	26	27						
Flask+Water	g.	661.55	661.44						
Flask+Water+Soil	g.	692.83	692.72						
Container No.		z6	x3						
Dry Soil+Container	g.	112.54	201.87						
Weight of Container	g.	62.38	151.90						
Dry Soil	g.	50.16	49.97						
Specific Gravity of Water		0.9968	0.9965						
Specific Gravity of Soil		2.648	2.664						
Average Specific Gravity of Soil		2.656							



Remarks: 1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

ATTERBERG'S LIMITS TEST

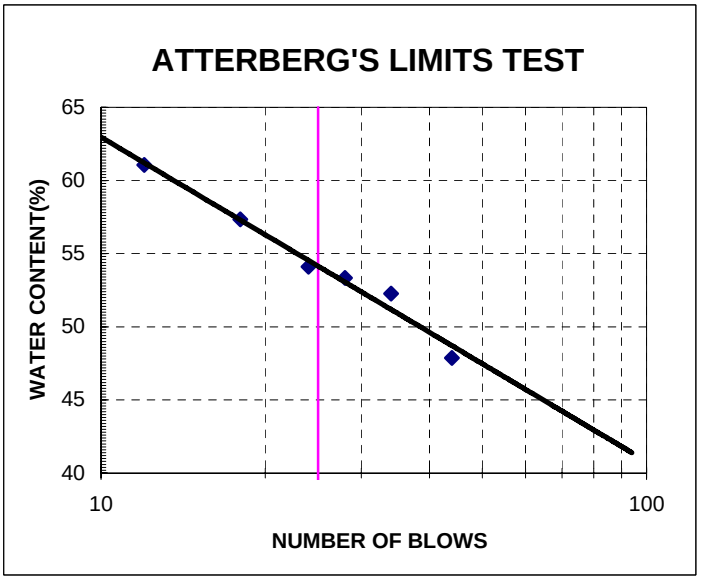
Project	Landslide Behavior in Phuket	Location:	Kamala Phuket			
Borehole No.	KML_0.40T1Well	Sample No.	1	Depth	0.40	m
Soil Description	Red Clay	Tested by	THIPMANEE	Date	9-2-04	

Plastic Limit

Container No.		s19	s2	s4	s21	s15
Weight of Wet Soil+Container	g	6.95	9.65	10.34	8.02	11.57
Weight of Dry Soil+Container	g	6.42	8.38	8.93	7.25	9.90
Weight of Container	g	4.97	4.86	4.94	4.98	4.93
Weight of Water	g	0.53	1.27	1.41	0.77	1.67
Weight of Dry Soil	g	1.45	3.52	3.99	2.27	4.97
Water Content, W	%	36.55	36.08	35.34	33.92	33.60
Average	%	35.10				

Liquid Limit

Number of Blows		12	18	24	28	34	44
Container No.		s25	s16	s10	s24	s22	s8
Weight of Wet Soil+Container	g	13.40	12.51	13.47	15.02	13.67	12.93
Weight of Dry Soil+Container	g	10.2	9.78	10.5	11.51	10.68	10.34
Weight of Container	g	4.96	5.02	5.01	4.93	4.96	4.93
Weight of Water	g	3.20	2.73	2.97	3.51	2.99	2.59
Weight of Dry Soil	g	5.24	4.76	5.49	6.58	5.72	5.41
Water Content,W	%	61.07	57.35	54.10	53.34	52.27	47.87



Liquid Limit,LL =	54.15	%
Plastic Limit,PL=	35.10	%
Plasticity Index, PI =	19.05	%
Water content,W_n =		%

Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

ATTERBERG'S LIMITS TEST

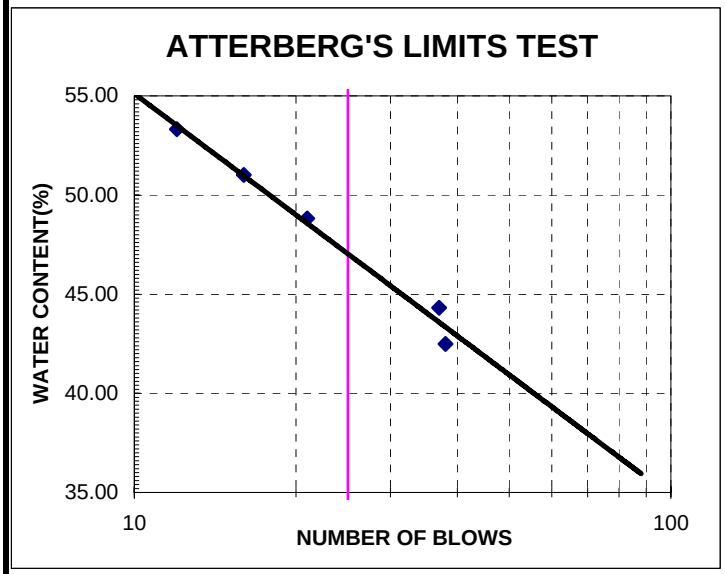
Project	Landslide Behavior in Phuket	Location:	Kamala Phuket			
Borehole No.	KML_0.80T2Well	Sample No.	1	Depth	0.80	m
Soil Description	Red Clay	Tested by	THIPMANEE	Date	9-2-04	

Plastic Limit

Container No.		s9	s13	s5	s3	
Weight of Wet Soil+Container	g	10.71	9.22	10.66	9.47	
Weight of Dry Soil+Container	g	9.31	8.20	9.28	8.37	
Weight of Container	g	4.91	4.90	4.91	4.94	
Weight of Water	g	1.40	1.02	1.38	1.10	
Weight of Dry Soil	g	4.40	3.30	4.37	3.43	
Water Content, W	%	31.82	30.91	31.58	32.07	
Average	%	31.59				

Liquid Limit

Number of Blows		12	16	21	37	38	
Container No.		s14	s12	s26	s20	s1	
Weight of Wet Soil+Container	g	16.35	13.12	14.35	12.65	11.69	
Weight of Dry Soil+Container	g	12.42	10.36	11.25	10.27	9.68	
Weight of Container	g	5.05	4.95	4.90	4.90	4.95	
Weight of Water	g	3.93	2.76	3.1	2.38	2.01	
Weight of Dry Soil	g	7.37	5.41	6.35	5.37	4.73	
Water Content,W	%	53.32	51.02	48.82	44.32	42.49	



Liquid Limit,LL =	47.04	%
Plastic Limit,PL=	31.59	%
Plasticity Index, PI =	15.44	%
Water content,W_n =		%

Remarks:
1) Certification applies to test samples only.
2) Information under "For","Project",are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

ATTERBERG'S LIMITS TEST

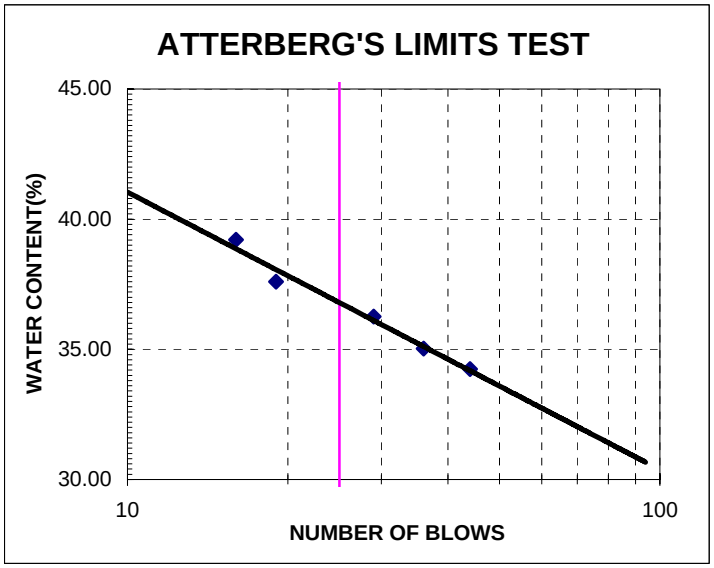
Project	Landslide Behavior in Phuket	Location:	Kamala Phuket			
Borehole No.	KML_1.20T3Well	Sample No.	1	Depth	1.20	m
Soil Description	Red Clayey Sand	Tested by	THIPMANEE	Date	11-2-04	

Plastic Limit

Container No.		s17	s25	s6	s14	
Weight of Wet Soil+Container	g	10.06	13.40	11.71	10.53	
Weight of Dry Soil+Container	g	8.93	11.57	10.30	9.41	
Weight of Container	g	4.93	4.96	4.96	5.05	
Weight of Water	g	1.13	1.83	1.41	1.12	
Weight of Dry Soil	g	4.00	6.61	5.34	4.36	
Water Content, W	%	28.25	27.69	26.40	25.69	
Average	%	27.01				

Liquid Limit

Number of Blows		16	19	29	36	44	
Container No.		s3	s13	s11	s9	s10	
Weight of Wet Soil+Container	g	14.10	12.22	15.53	12.89	13.40	
Weight of Dry Soil+Container	g	11.52	10.22	12.8	10.82	11.26	
Weight of Container	g	4.94	4.90	5.27	4.91	5.01	
Weight of Water	g	2.58	2.00	2.73	2.07	2.14	
Weight of Dry Soil	g	6.58	5.32	7.53	5.91	6.25	
Water Content,W	%	39.21	37.59	36.25	35.03	34.24	



Liquid Limit,LL =	36.80	%
Plastic Limit,PL=	27.01	%
Plasticity Index, PI =	9.79	%
Water content,W_n =		%

Remarks:
1) Certification applies to test samples only.
2) Information under "For","Project",are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

ATTERBERG'S LIMITS TEST

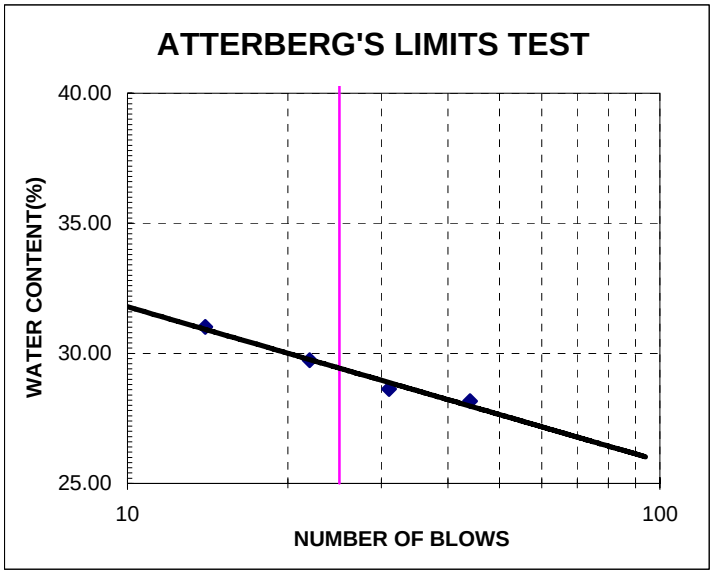
Project	Landslide Behavior in Phuket	Location:	Kamala Phuket			
Borehole No.	KML_2.00T4Well	Sample No.	1	Depth	2.00	m
Soil Description	Brown Granitics Soil	Tested by	THIPMANEE	Date	2-11-04	

Plastic Limit

Container No.		s19	s21	s4	s12	
Weight of Wet Soil+Container	g	9.55	8.76	9.47	8.45	
Weight of Dry Soil+Container	g	8.63	7.98	8.49	7.69	
Weight of Container	g	4.97	4.98	4.94	4.96	
Weight of Water	g	0.92	0.78	0.98	0.76	
Weight of Dry Soil	g	3.66	3.00	3.55	2.73	
Water Content, W	%	25.14	26.00	27.61	27.84	
Average	%	26.65				

Liquid Limit

Number of Blows		14	22	31	44		
Container No.		s2	s24	s5	s16		
Weight of Wet Soil+Container	g	12.59	13.22	14.57	14.35		
Weight of Dry Soil+Container	g	10.76	11.32	12.42	12.3		
Weight of Container	g	4.86	4.93	4.91	5.02		
Weight of Water	g	1.83	1.90	2.15	2.05		
Weight of Dry Soil	g	5.90	6.39	7.51	7.28		
Water Content,W	%	31.02	29.73	28.63	28.16		



Liquid Limit,LL =	29.43	%
Plastic Limit,PL=	26.65	%
Plasticity Index, PI =	2.79	%
Water content,W_n =		%

Remarks:
1) Certification applies to test samples only.
2) Information under "For","Project",are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

ATTERBERG'S LIMITS TEST

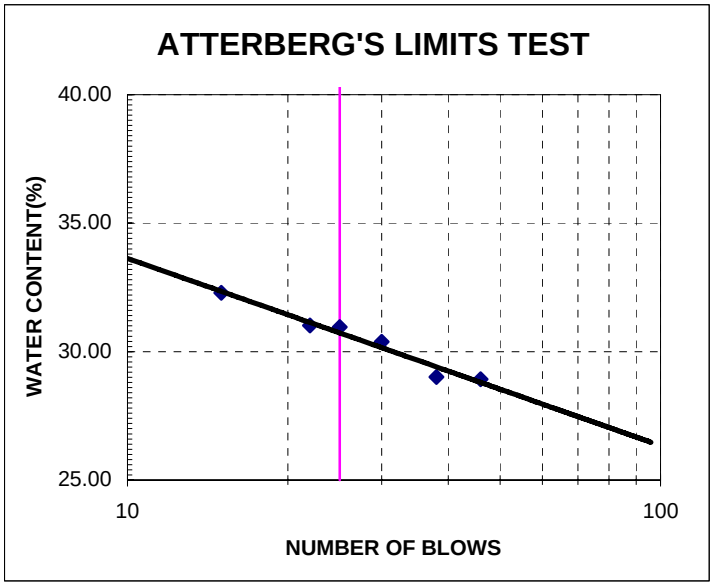
Project	Landslide Behavior in Phuket	Location:	Kamala Phuket			
Borehole No.	KML_2.00Cliff	Sample No.	1	Depth	2.00	m
Soil Description	Red Sand	Tested by	THIPMANEE	Date	30/1/2004	

Plastic Limit

Container No.		s12	s10	s18	s26	
Weight of Wet Soil+Container	g	9.28	7.70	8.65	9.44	
Weight of Dry Soil+Container	g	8.38	7.13	7.81	8.52	
Weight of Container	g	4.95	5.01	4.91	4.89	
Weight of Water	g	0.90	0.57	0.84	0.92	
Weight of Dry Soil	g	3.43	2.12	2.90	3.63	
Water Content, W	%	26.24	26.89	28.97	25.34	
Average	%	26.86				

Liquid Limit

Number of Blows		15	22	25	30	38	46
Container No.		s19	s20	s15	s8	s7	s25
Weight of Wet Soil+Container	g	16.32	16.94	17.75	14.50	16.17	15.97
Weight of Dry Soil+Container	g	13.55	14.09	14.72	12.27	13.64	13.5
Weight of Container	g	4.97	4.90	4.93	4.93	4.92	4.96
Weight of Water	g	2.77	2.85	3.03	2.23	2.53	2.47
Weight of Dry Soil	g	8.58	9.19	9.79	7.34	8.72	8.54
Water Content,W	%	32.28	31.01	30.95	30.38	29.01	28.92



Liquid Limit,LL =	30.73	%
Plastic Limit,PL=	26.86	%
Plasticity Index, PI =	3.87	%
Water content,W_n =		%

Remarks:
1) Certification applies to test samples only.
2) Information under "For","Project",are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

ATTERBERG'S LIMITS TEST

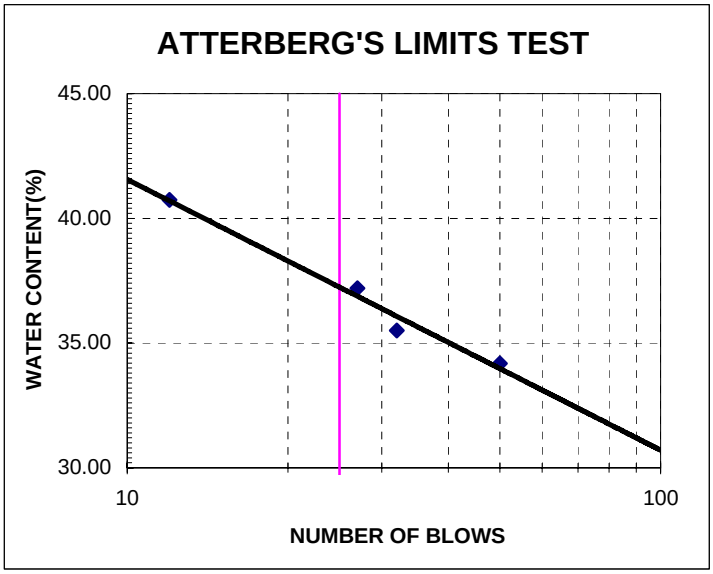
Project	Landslide Behavior in Phuket	Location:	Patong Phuket			
Borehole No.	PT_1.00Well	Sample No.	1	Depth	1.00	m
Soil Description	Brown Clayey Sand	Tested by	THIPMANEE	Date	17/1/2004	

Plastic Limit

Container No.		s2	s9	s17	s4	
Weight of Wet Soil+Container	g	14.13	11.73	8.64	8.26	
Weight of Dry Soil+Container	g	11.97	10.15	7.79	7.53	
Weight of Container	g	4.85	4.91	4.93	4.94	
Weight of Water	g	2.16	1.58	0.85	0.73	
Weight of Dry Soil	g	7.12	5.24	2.86	2.59	
Water Content, W	%	30.34	30.15	29.72	28.19	
Average	%	29.60				

Liquid Limit

Number of Blows		12	27	32	50		
Container No.		s1	s12	s10	s16		
Weight of Wet Soil+Container	g	16.27	15.84	18.33	22.31		
Weight of Dry Soil+Container	g	12.99	12.89	14.84	17.91		
Weight of Container	g	4.94	4.96	5.01	5.04		
Weight of Water	g	3.28	2.95	3.49	4.4		
Weight of Dry Soil	g	8.05	7.93	9.83	12.87		
Water Content,W	%	40.75	37.20	35.50	34.19		



Liquid Limit,LL =	37.24	%
Plastic Limit,PL=	29.60	%
Plasticity Index, PI =	7.64	%
Water content,W_n =		%

Remarks:
1) Certification applies to test samples only.
2) Information under "For","Project",are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

ATTERBERG'S LIMITS TEST

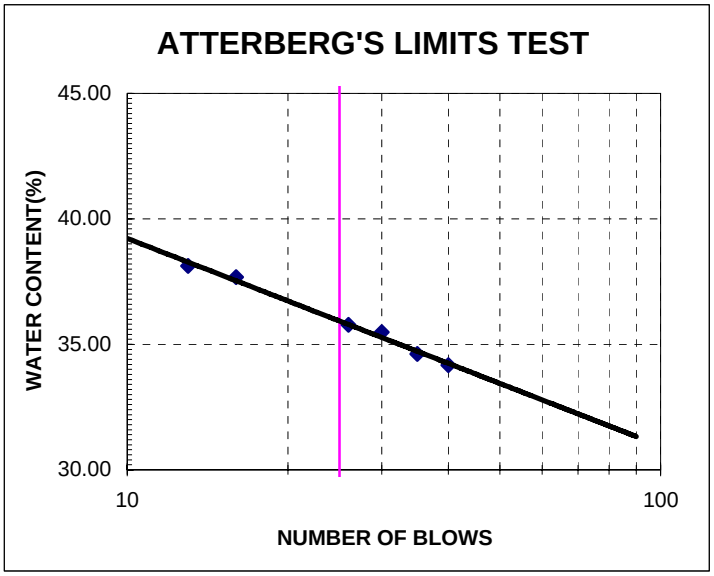
Project	Landslide Behavior in Phuket	Location:	Patong Phuket			
Borehole No.	PT_1.30Well	Sample No.	1	Depth	1.30	m
Soil Description	Brown Clayey Sand	Tested by	THIPMANEE	Date	26/1/2004	

Plastic Limit

Container No.		s4	s1	s16	s6	
Weight of Wet Soil+Container	g	8.17	8.58	8.04	8.00	
Weight of Dry Soil+Container	g	7.43	7.77	7.38	7.33	
Weight of Container	g	4.94	4.95	5.02	4.97	
Weight of Water	g	0.74	0.81	0.66	0.67	
Weight of Dry Soil	g	2.49	2.82	2.36	2.36	
Water Content, W	%	29.72	28.72	27.97	28.39	
Average	%	28.70				

Liquid Limit

Number of Blows		13	16	26	30	35	40
Container No.		s17	s9	s3	s2	s14	s5
Weight of Wet Soil+Container	g	16.74	16.64	18.30	15.59	15.55	18.85
Weight of Dry Soil+Container	g	13.48	13.43	14.78	12.78	12.85	15.3
Weight of Container	g	4.93	4.91	4.94	4.86	5.05	4.91
Weight of Water	g	3.26	3.21	3.52	2.81	2.70	3.55
Weight of Dry Soil	g	8.55	8.52	9.84	7.92	7.80	10.39
Water Content,W	%	38.13	37.68	35.77	35.48	34.62	34.17



Liquid Limit,LL = 35.93 %

Plastic Limit,PL= 28.70 %

Plasticity Index, PI = 7.23 %

Water content,W_n = ____ %

Remarks:
1) Certification applies to test samples only.
2) Information under "For","Project",are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

ATTERBERG'S LIMITS TEST

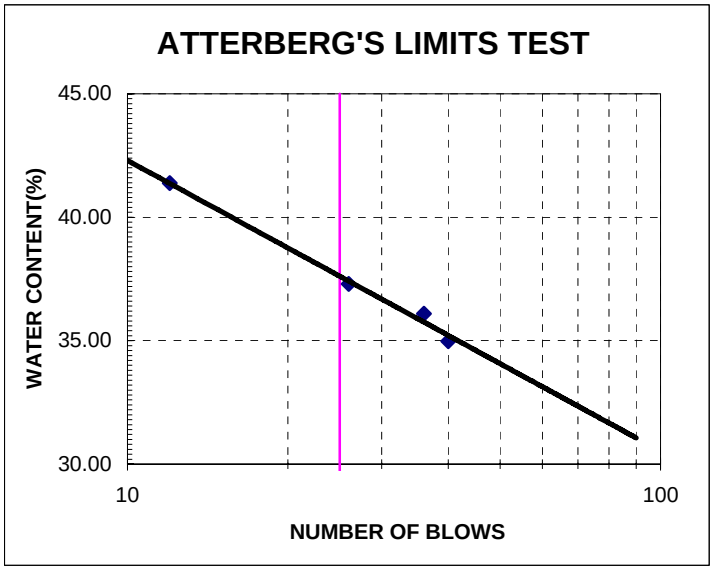
Project	Landslide Behavior in Phuket	Location:	Patong Phuket			
Borehole No.	PT_2.00Well	Sample No.	1	Depth	2.00	m
Soil Description	Red Clayey Sand	Tested by	THIPMANEE	Date	17/1/2004	

Plastic Limit

Container No.		s2	s3	s10	s1	
Weight of Wet Soil+Container	g	8.39	6.92	8.78	6.94	
Weight of Dry Soil+Container	g	7.55	6.45	7.85	6.46	
Weight of Container	g	4.88	4.95	5.02	4.95	
Weight of Water	g	0.84	0.47	0.93	0.48	
Weight of Dry Soil	g	2.67	1.50	2.83	1.51	
Water Content, W	%	31.46	31.33	32.86	31.79	
Average	%	31.86				

Liquid Limit

Number of Blows		12	26	36	40		
Container No.		s4	s5	s8	s12		
Weight of Wet Soil+Container	g	19.47	19.83	17.08	20.60		
Weight of Dry Soil+Container	g	15.22	15.78	13.86	16.55		
Weight of Container	g	4.95	4.92	4.94	4.97		
Weight of Water	g	4.25	4.05	3.22	4.05		
Weight of Dry Soil	g	10.27	10.86	8.92	11.58		
Water Content,W	%	41.38	37.29	36.10	34.97		



Liquid Limit,LL =	37.62	%
Plastic Limit,PL=	31.86	%
Plasticity Index, PI =	5.75	%
Water content,W_n =		%

Remarks:
1) Certification applies to test samples only.
2) Information under "For","Project",are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

ATTERBERG'S LIMITS TEST

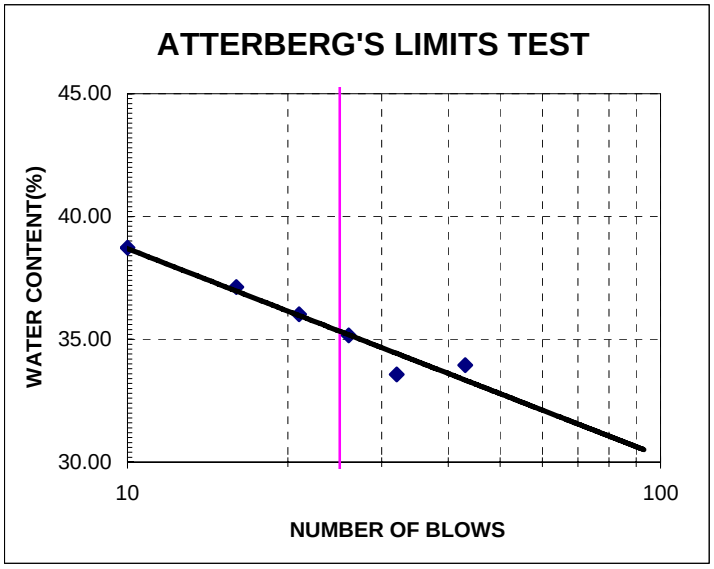
Project	Landslide Behavior in Phuket	Location:	Patong Phuket			
Borehole No.	PT_2.50Well	Sample No.	1	Depth	2.50	m
Soil Description	Brown Granitics Soil	Tested by	THIPMANEE	Date	27/1/2004	

Plastic Limit

Container No.		s17	s6	s1	s4	
Weight of Wet Soil+Container	g	6.37	7.48	8.11	7.31	
Weight of Dry Soil+Container	g	6.01	6.88	7.32	6.74	
Weight of Container	g	4.93	4.96	4.94	4.94	
Weight of Water	g	0.36	0.60	0.79	0.57	
Weight of Dry Soil	g	1.08	1.92	2.38	1.80	
Water Content, W	%	33.33	31.25	33.19	31.67	
Average	%	32.36				

Liquid Limit

Number of Blows		10	16	21	26	32	43
Container No.		s3	s9	s5	s2	s16	s14
Weight of Wet Soil+Container	g	20.27	17.54	20.77	18.62	19.90	16.57
Weight of Dry Soil+Container	g	15.99	14.12	16.57	15.04	16.16	13.65
Weight of Container	g	4.94	4.91	4.91	4.86	5.02	5.05
Weight of Water	g	4.28	3.42	4.2	3.58	3.74	2.92
Weight of Dry Soil	g	11.05	9.21	11.66	10.18	11.14	8.60
Water Content,W	%	38.73	37.13	36.02	35.17	33.57	33.95



Liquid Limit,LL =	35.33	%
Plastic Limit,PL=	32.36	%
Plasticity Index, PI =	2.97	%
Water content,W_n =		%

Remarks:
1) Certification applies to test samples only.
2) Information under "For","Project",are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

ATTERBERG'S LIMITS TEST

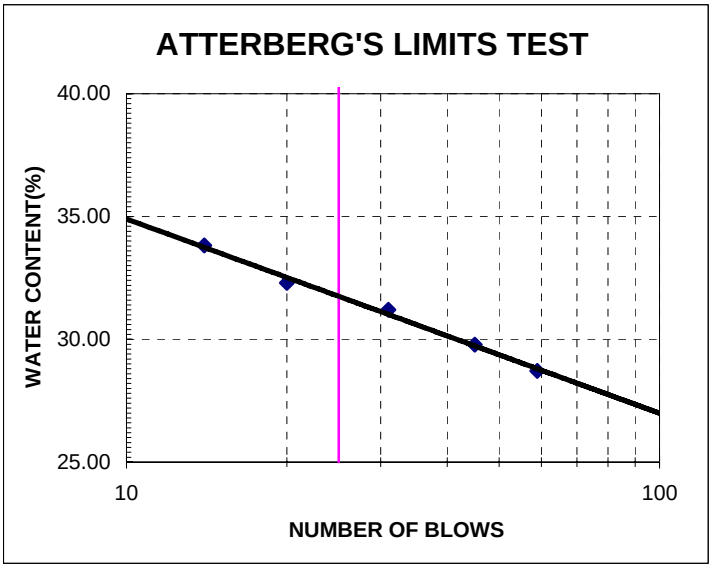
Project	Landslide Behavior in Phuket	Location:	Patong Phuket			
Borehole No.	PT_3.00Well	Sample No.	1	Depth	3.00	m
Soil Description	Brown Granitics Soil	Tested by	THIPMANEE	Date	15/1/2004	

Plastic Limit

Container No.		D2	A3	C9	C1	
Weight of Wet Soil+Container	g	21.76	19.75	21.37	20.73	
Weight of Dry Soil+Container	g	20.80	18.79	20.00	19.96	
Weight of Container	g	17.34	15.31	15.59	17.21	
Weight of Water	g	0.96	0.96	1.37	0.77	
Weight of Dry Soil	g	3.46	3.48	4.41	2.75	
Water Content, W	%	27.75	27.59	31.07	28.00	
Average	%	28.60				

Liquid Limit

Number of Blows		14	20	31	45	59	
Container No.		B4	D3	C6	A4	D4	
Weight of Wet Soil+Container	g	35.27	31.92	37.82	44.50	35.60	
Weight of Dry Soil+Container	g	30.16	27.78	32.25	38.15	30.96	
Weight of Container	g	15.05	14.96	14.40	16.83	14.80	
Weight of Water	g	5.11	4.14	5.57	6.35	4.64	
Weight of Dry Soil	g	15.11	12.82	17.85	21.32	16.16	
Water Content,W	%	33.82	32.29	31.20	29.78	28.71	



Liquid Limit,LL =	31.75	%
Plastic Limit,PL=	28.60	%
Plasticity Index, PI =	3.15	%
Water content,W_n =		%

Remarks:
1) Certification applies to test samples only.
2) Information under "For","Project",are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

ATTERBERG'S LIMITS TEST

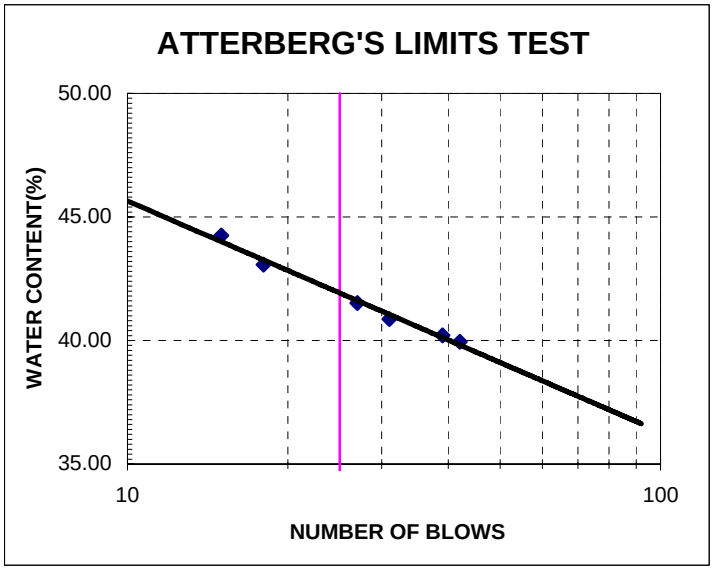
Project	Landslide Behavior in Phuket	Location:	Patong Phuket			
Borehole No.	PT_1.80LS	Sample No.	1	Depth	1.80	m
Soil Description	Brown Clayey Sand	Tested by	THIPMANEE	Date	27/1/2004	

Plastic Limit

Container No.		s25	s12	s18	s22	
Weight of Wet Soil+Container	g	8.83	6.57	8.65	8.08	
Weight of Dry Soil+Container	g	7.91	6.18	7.72	7.32	
Weight of Container	g	4.96	4.95	4.91	4.96	
Weight of Water	g	0.92	0.39	0.93	0.76	
Weight of Dry Soil	g	2.95	1.23	2.81	2.36	
Water Content, W	%	31.19	31.71	33.10	32.20	
Average	%	32.05				

Liquid Limit

Number of Blows		15	18	27	31	39	42
Container No.		s8	s20	s24	s10	s19	s7
Weight of Wet Soil+Container	g	17.71	16.36	17.61	16.96	15.77	17.25
Weight of Dry Soil+Container	g	13.79	12.91	13.89	13.49	12.67	13.73
Weight of Container	g	4.93	4.90	4.93	5.00	4.96	4.92
Weight of Water	g	3.92	3.45	3.72	3.47	3.10	3.52
Weight of Dry Soil	g	8.86	8.01	8.96	8.49	7.71	8.81
Water Content,W	%	44.24	43.07	41.52	40.87	40.21	39.95



Liquid Limit,LL =	44.29	%
Plastic Limit,PL=	32.05	%
Plasticity Index, PI =	12.24	%
Water content,W_n =		%

Remarks:
1) Certification applies to test samples only.
2) Information under "For","Project",are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

ATTERBERG'S LIMITS TEST

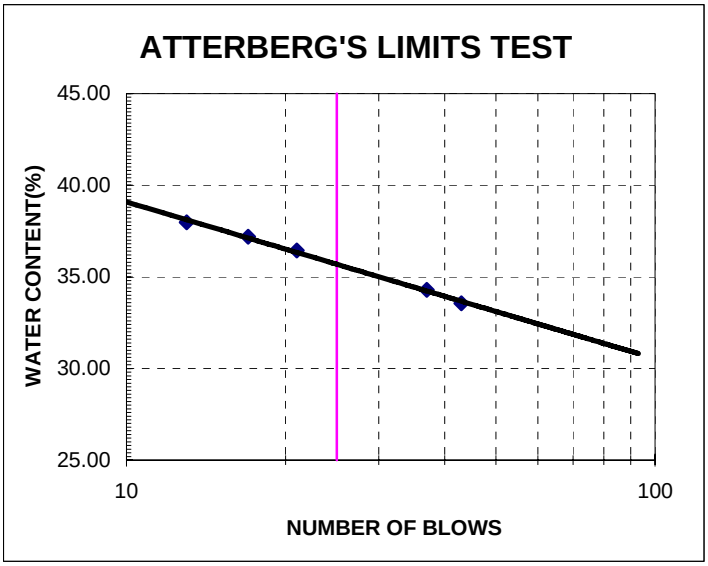
Project	Landslide Behavior in Phuket	Location:	Patong Phuket			
Borehole No.	PT_4.00LS	Sample No.	1	Depth	4.00	m
Soil Description	Brown Sand	Tested by	THIPMANEE	Date	28/1/2004	

Plastic Limit

Container No.		s14	s2	s4	s17	
Weight of Wet Soil+Container	g	8.44	7.63	6.97	6.72	
Weight of Dry Soil+Container	g	7.66	7.02	6.51	6.31	
Weight of Container	g	5.05	4.86	4.94	4.93	
Weight of Water	g	0.78	0.61	0.46	0.41	
Weight of Dry Soil	g	2.61	2.16	1.57	1.38	
Water Content, W	%	29.89	28.24	29.30	29.71	
Average	%	29.28				

Liquid Limit

Number of Blows		13	17	21	37	43	
Container No.		s11	s13	s16	s5	s1	
Weight of Wet Soil+Container	g	17.43	18.77	19.77	16.07	14.98	
Weight of Dry Soil+Container	g	14.08	15.01	15.83	13.22	12.46	
Weight of Container	g	5.26	4.90	5.02	4.91	4.95	
Weight of Water	g	3.35	3.76	3.94	2.85	2.52	
Weight of Dry Soil	g	8.82	10.11	10.81	8.31	7.51	
Water Content,W	%	37.98	37.19	36.45	34.30	33.56	



Liquid Limit,LL =	35.69	%
Plastic Limit,PL=	29.28	%
Plasticity Index, PI =	6.40	%
Water content,W_n =		%

Remarks:
1) Certification applies to test samples only.
2) Information under "For","Project",are supplied by client.These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

PERMEABILITY TEST (ASTM D 2434)

PROJECT	Landslide Behavior in Phuket	OWNER		BORING NO.	
SOIL DISCRIPTION	Brown Clayey Sand	LOCATION	Patong Phuket	SAMPLE DEPTH	0.00-2.20
TESTED BY		DATE	07-01-48		

SAMPLE DATA :

SAMPLE DIAMETER	3.812	cm.	WEIGHT OF MOLD + SOIL	633.56	gm.
SAME HEIGHT	7.752	cm.	WEIGHT OF MOLD	477.24	gm.
SAMEPLE AREA	11.407	$cm.^2$	WEIGHT OF SOIL	156.32	gm.
SAMPLE VOLUME	88.428	$cm.^3$	DENSITY OF SOIL	1.77	$gm/cm.^3$
TYPE OF SAMPLE	DISTURBED		TESTING HEAD	400	cm.

CONSTANT HEAD PERMEABILITY TEST :

TRIAL NO.	TIME (sec)	Q (cc)	T (c)	TRIAL NO.	TIME (sec)	Q (cc)	T (c)
1	60.25	0.77	25	6	60.22	0.73	25
2	61.29	0.78	25	7	60.31	0.66	25
3	60.29	0.74	25	8	60.25	0.66	25
4	60.28	0.75	25	9	60.44	0.79	25
5	60.59	0.76	25	10	60.53	0.66	25
				Average Values	60.45	0.73	

SOIL PERMEABILITY **k** : 2.05E-05 cm./sec.

VARIABLE HEAD PERMEABILITY TEST : AREA OF STANDPIPE _____ $cm.^2$

TRIAL NO.	h_1 (sec)	h_1 (sec)	TIME (sec)	TRIAL NO.	h_1 (sec)	h_1 (sec)	TIME (sec)
1				6			
2				7			
3				8			
4				9			
5				10			
				Average Values			

SOIL PERMEABILITY **k** : _____ cm./sec.

Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3) This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABORATORY

PERMEABILITY TEST (ASTM D 2434)

PROJECT	Landslide Behavior in Phuket	OWNER		BORING NO.	
SOIL DISCRIPTION	Red Clayey Sand	LOCATION	Kamala Phuket	SAMPLE DEPTH	0.00-1.50
TESTED BY		DATE	30-12-47		

SAMPLE DATA :

SAMPLE DIAMETER	3.862	cm.	WEIGHT OF MOLD + SOIL	643.18	gm.
SAME HEIGHT	7.912	cm.	WEIGHT OF MOLD	477.4	gm.
SAMEPLE AREA	11.708	$cm.^2$	WEIGHT OF SOIL	165.78	gm.
SAMPLE VOLUME	92.636	$cm.^3$	DENSITY OF SOIL	1.79	$gm/cm.^3$
TYPE OF SAMPLE	DISTURBED		TESTING HEAD	400	cm.

CONSTANT HEAD PERMEABILITY TEST :

TRIAL NO.	TIME (sec)	Q (cc)	T (c)	TRIAL NO.	TIME (sec)	Q (cc)	T (c)
1	60.09	0.37	25	6	60.10	0.36	25
2	60.22	0.43	25	7	60.09	0.37	25
3	60.24	0.43	25	8	60.10	0.36	25
4	60.22	0.43	25	9	60.22	0.42	25
5	60.21	0.42	25	10	60.25	0.43	25
				Average Values	60.17	0.40	

SOIL PERMEABILITY **k** : 1.13E-05 cm./sec.

VARIABLE HEAD PERMEABILITY TEST : AREA OF STANDPIPE _____ $cm.^2$

TRIAL NO.	h_1 (sec)	h_1 (sec)	TIME (sec)	TRIAL NO.	h_1 (sec)	h_1 (sec)	TIME (sec)
1				6			
2				7			
3				8			
4				9			
5				10			
				Average Values			

SOIL PERMEABILITY **k** : _____ cm./sec.

Remarks:
1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3) This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

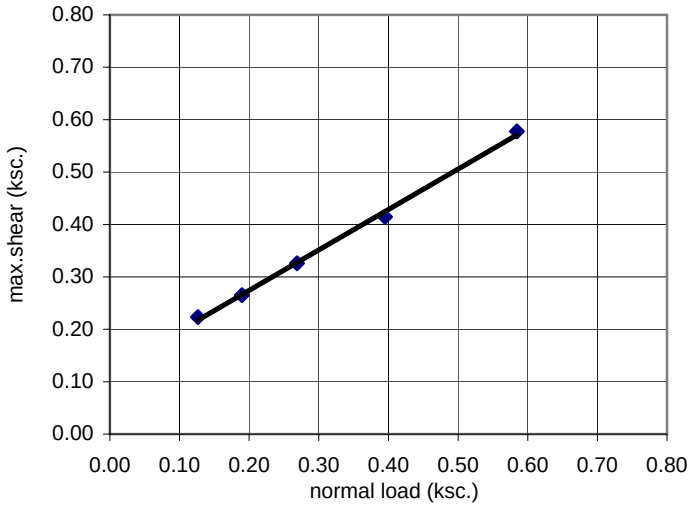
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. KML1well
Soil Description	Red Clayey Sand			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		H1		
Wet soil+Container	g.	161.38		
Dry soil+Container	g.	127.81		
Weigth of Water	g.	33.57		
Weight Container	g.	18.60		
Weigth of Dry Soil	g.	109.21		
Water Content	%	30.74		
Average Water Content	%	30.74		

Specific Gravity		2.612
Unit Weight	ton/m^3	1.800
Void Ratio		0.745
Degree of Saturation	%	107.79



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.126	0.223
2	0.190	0.265
3	0.269	0.326
4	0.395	0.414
5	0.584	0.577
	ϕ = 37.67 Degree	c = 0.1197 ksc.

Remark:

1) Certification applies to test samples only.

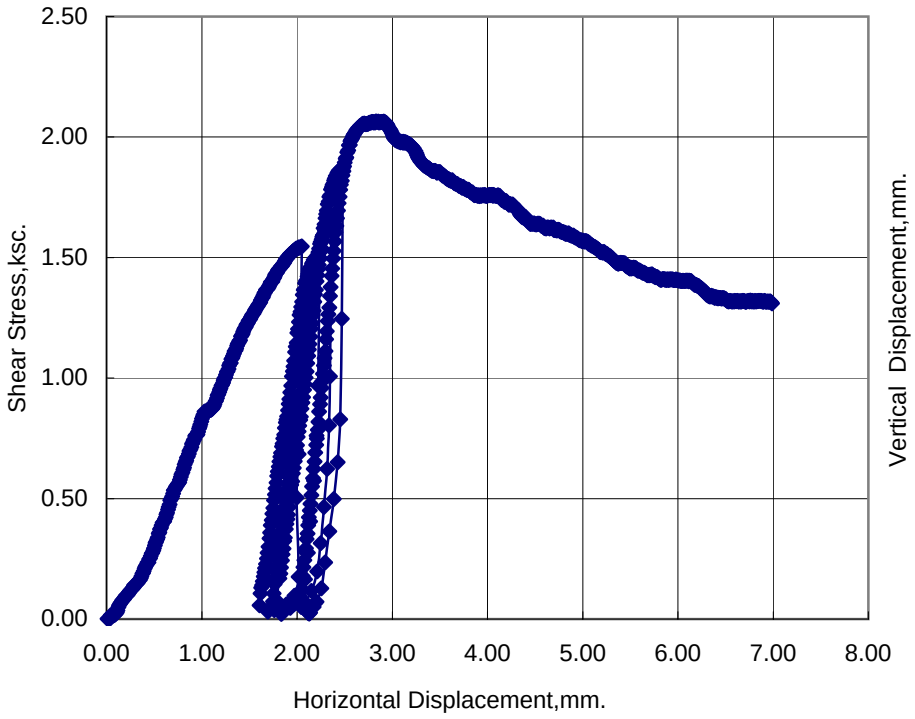
2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

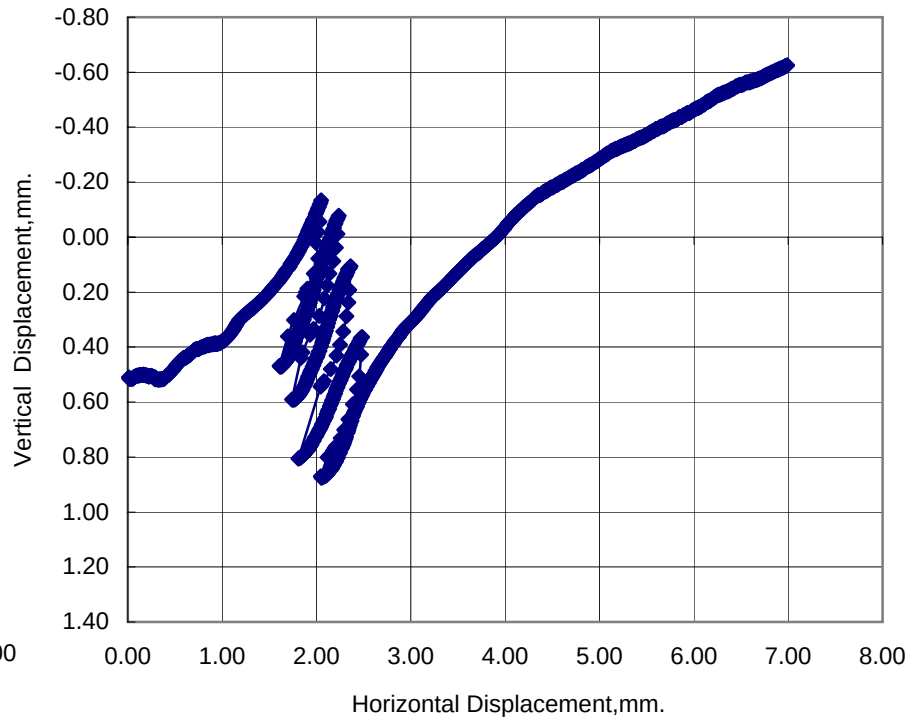
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	KML1well
Sr ; %	51.97

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.



Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

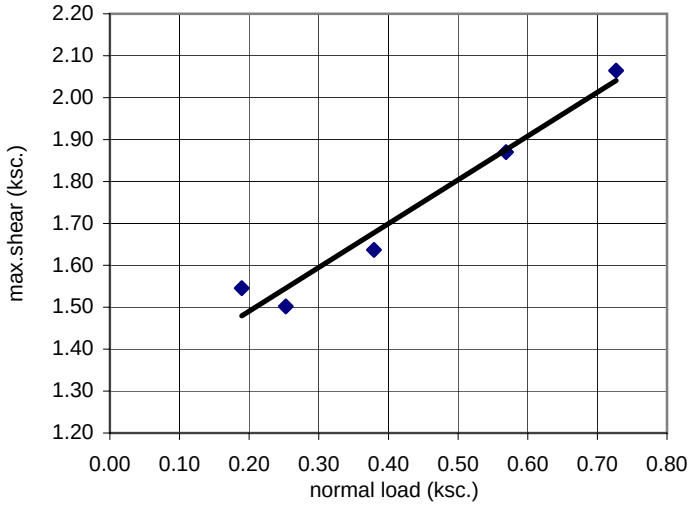
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. KML1well
Soil Description	Red Clayey Sand			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		D6	A7	140
Wet soil+Container	g.	50.67	38.59	140.98
Dry soil+Container	g.	45.92	35.35	126.53
Weigth of Water	g.	4.75	3.24	14.45
Weight Container	g.	15.53	14.08	20.26
Weigth of Dry Soil	g.	30.39	21.27	106.27
Water Content	%	15.63	15.23	13.60
Average Water Content	%	14.82		

Specific Gravity		2.612
Unit Weight	ton/m^3	1.800
Void Ratio		0.745
Degree of Saturation	%	51.97



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.189	1.546
2	0.253	1.502
3	0.379	1.637
4	0.569	1.870
5	0.727	2.064
	ϕ = 46.26 Degree	c = 1.2814 ksc.

Remark:

1) Certification applies to test samples only.

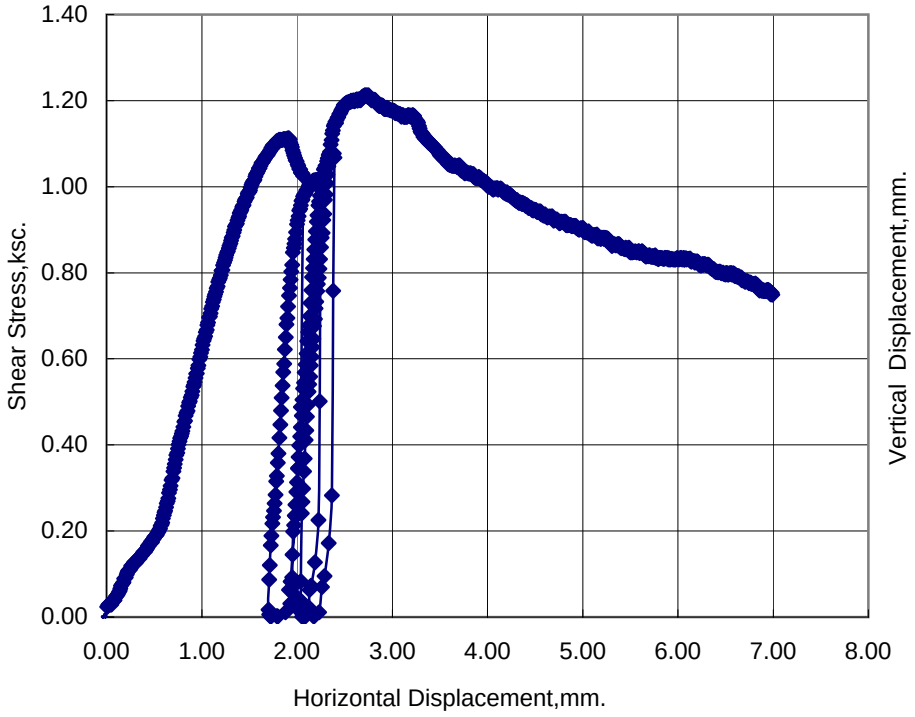
2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

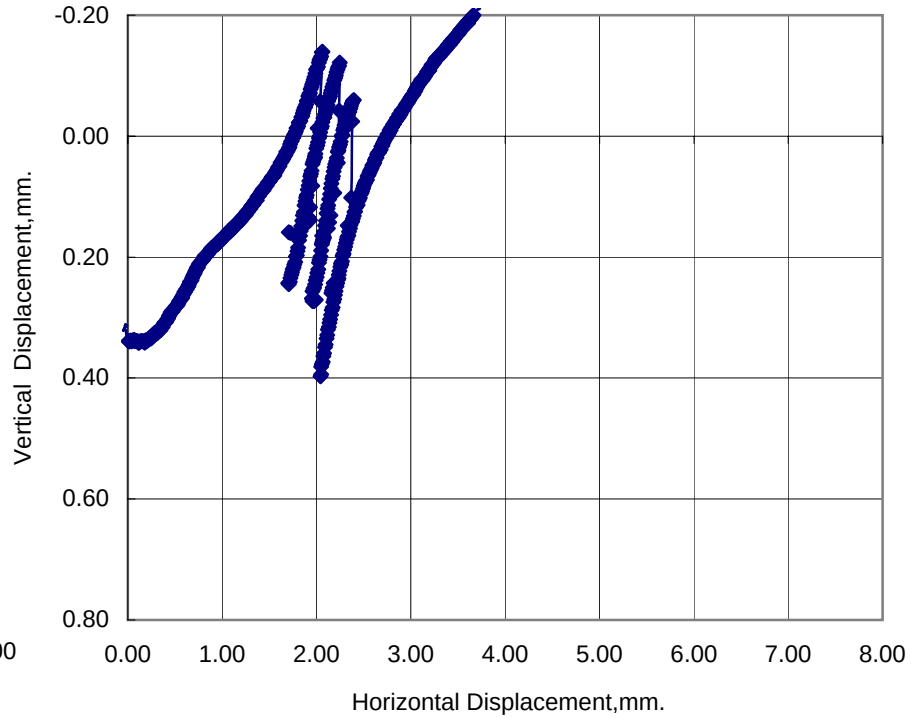
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	KML1well
Sr ; %	76.39

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.



Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

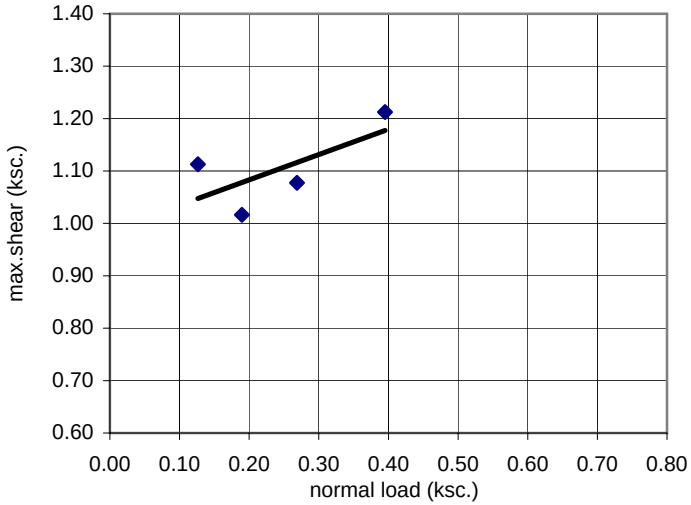
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. KML1well
Soil Description	Red Clayey Sand			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		D6	B3	H3
Wet soil+Container	g.	51.99	60.66	150.18
Dry soil+Container	g.	45.78	52.43	127.4
Weigth of Water	g.	6.21	8.23	22.78
Weight Container	g.	15.53	18.02	18.43
Weigth of Dry Soil	g.	30.25	34.41	108.97
Water Content	%	20.53	23.92	20.90
Average Water Content	%	21.78		

Specific Gravity		2.612
Unit Weight	ton/m^3	1.800
Void Ratio		0.745
Degree of Saturation	%	76.39



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.126	1.113
2	0.190	1.016
3	0.269	1.078
4	0.395	1.212
5		
	ϕ = 25.82 Degree	c = 0.9863 ksc.

Remark:

1) Certification applies to test samples only.

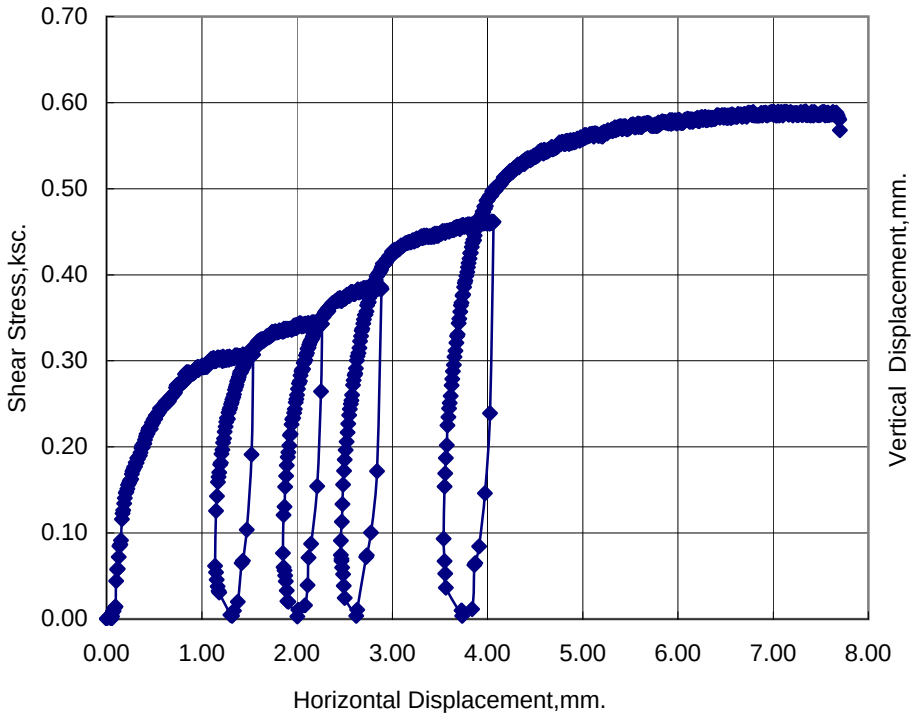
2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

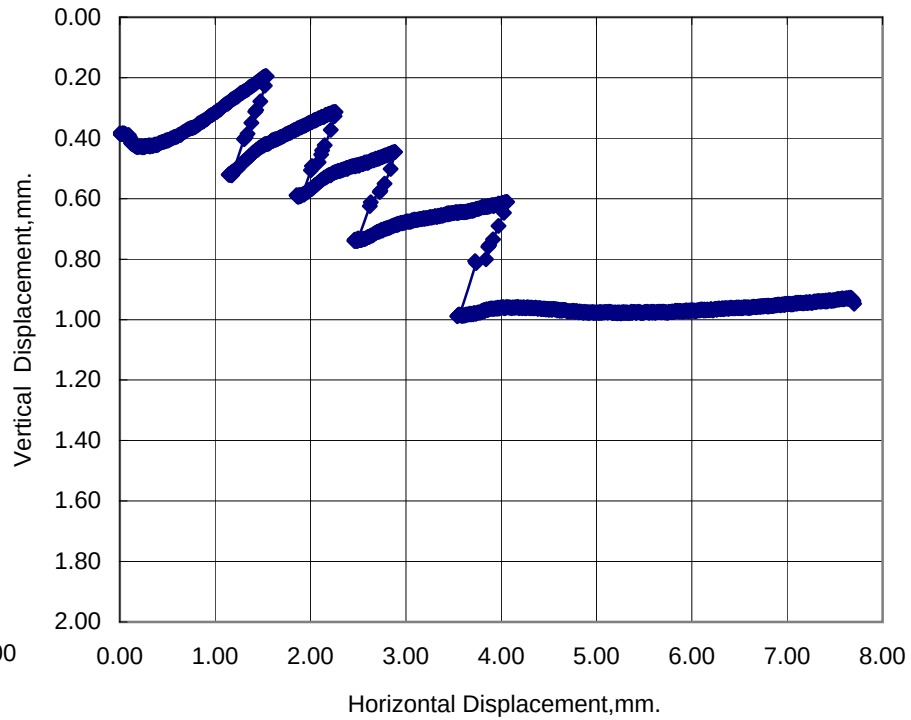
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	KML1well
Sr ; %	85.79

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.



Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

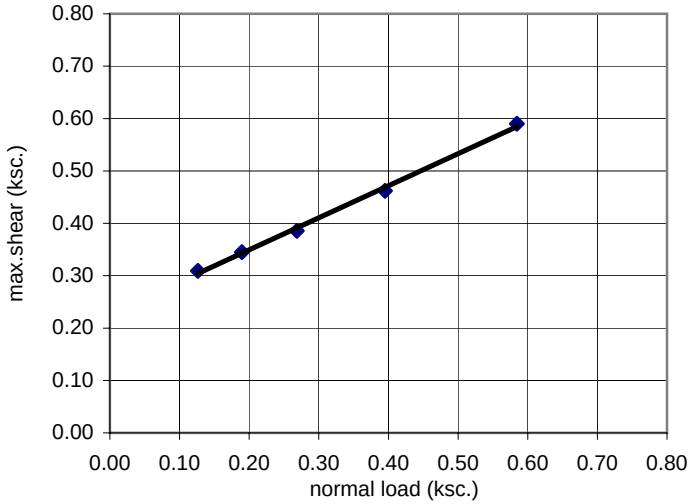
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. KML1well
Soil Description	Red Clayey Sand			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		A4	A7	
Wet soil+Container	g.	60.98	51.65	
Dry soil+Container	g.	52.23	44.33	
Weigth of Water	g.	8.75	7.32	
Weight Container	g.	16.85	14.08	
Weigth of Dry Soil	g.	35.38	30.25	
Water Content	%	24.73	24.20	
Average Water Content	%	24.46		

Specific Gravity		2.612
Unit Weight	ton/m^3	1.800
Void Ratio		0.745
Degree of Saturation	%	85.79



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.126	0.309
2	0.190	0.345
3	0.269	0.386
4	0.395	0.462
5	0.584	0.590
	ϕ = 31.46 Degree	c = 0.227 ksc.

Remark:

1) Certification applies to test samples only.

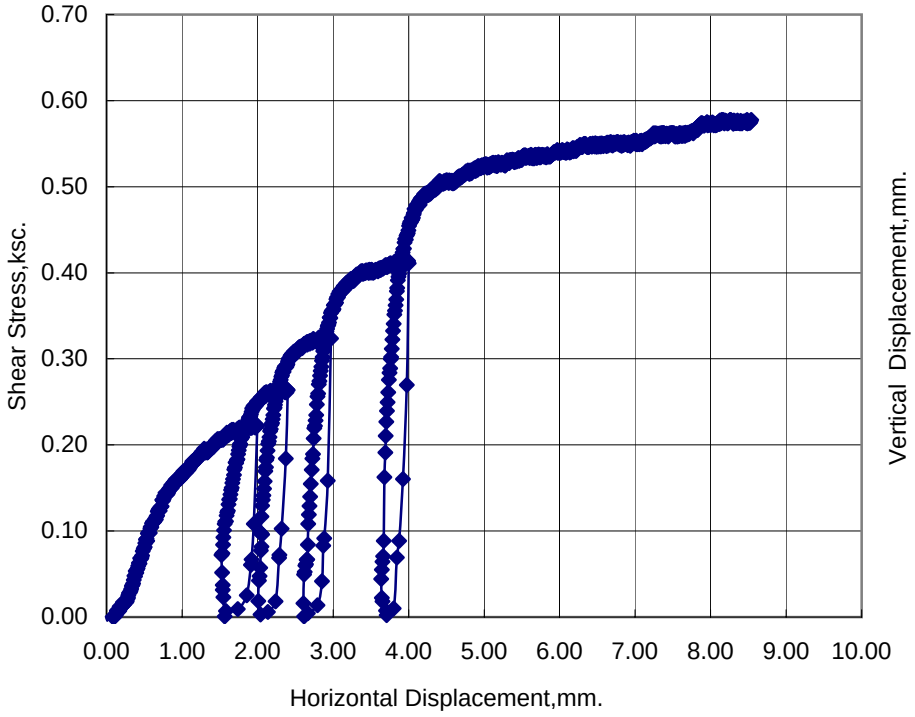
2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

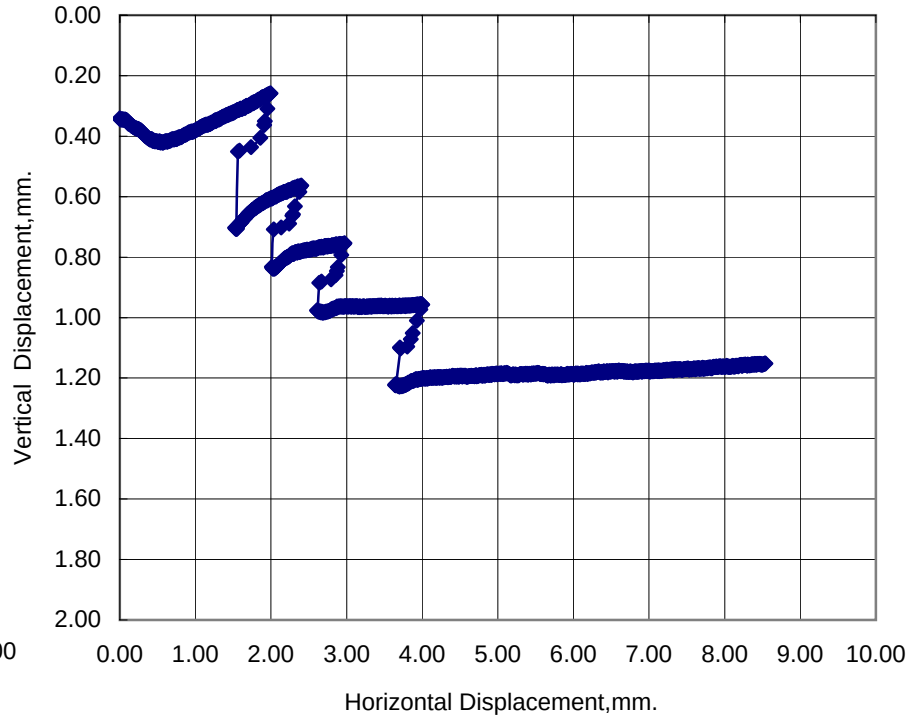
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	KML1well
Sr ; %	107.79

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.



Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

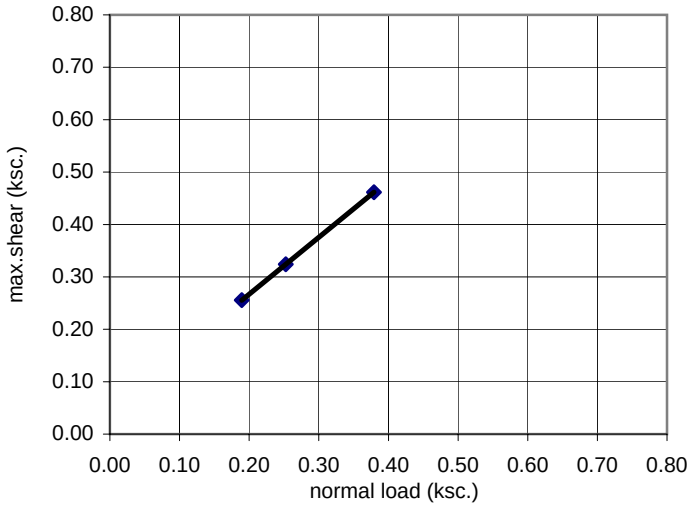
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. KML2well
Soil Description	Brown Granitics Soil			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		H5		
Wet soil+Container	g.	165.34		
Dry soil+Container	g.	128.57		
Weigth of Water	g.	36.77		
Weight Container	g.	18.43		
Weigth of Dry Soil	g.	110.14		
Water Content	%	33.38		
Average Water Content	%	33.38		

Specific Gravity		2.607
Unit Weight	ton/m^3	1.779
Void Ratio		0.792
Degree of Saturation	%	109.89



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.189	0.256
2	0.253	0.324
3	0.379	0.462
4		
5		
	ϕ = 47.38 Degree	c = 0.00495 ksc.

Remark:

1) Certification applies to test samples only.

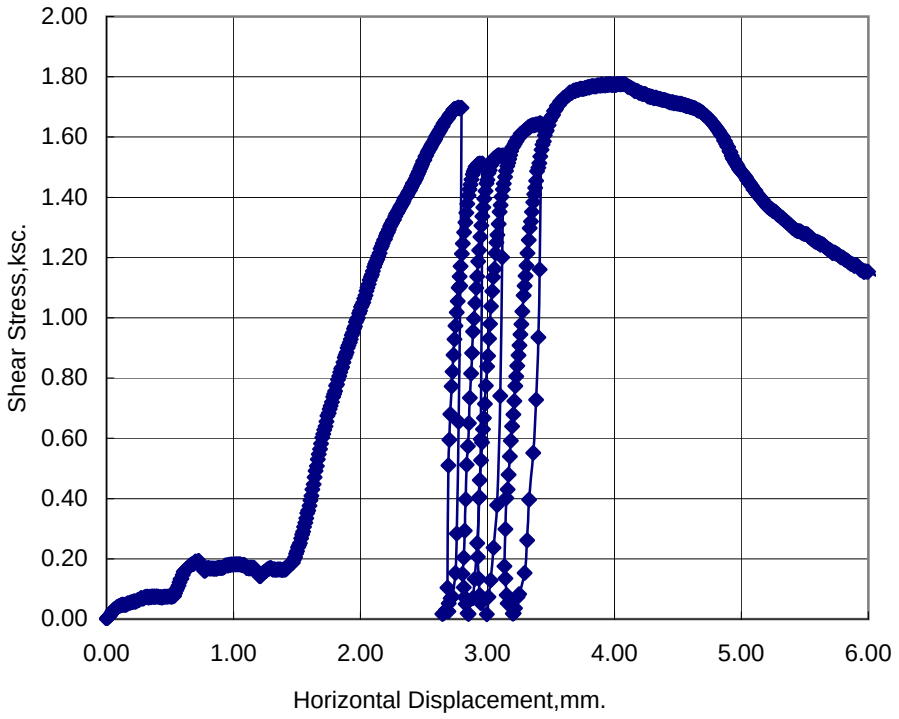
2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

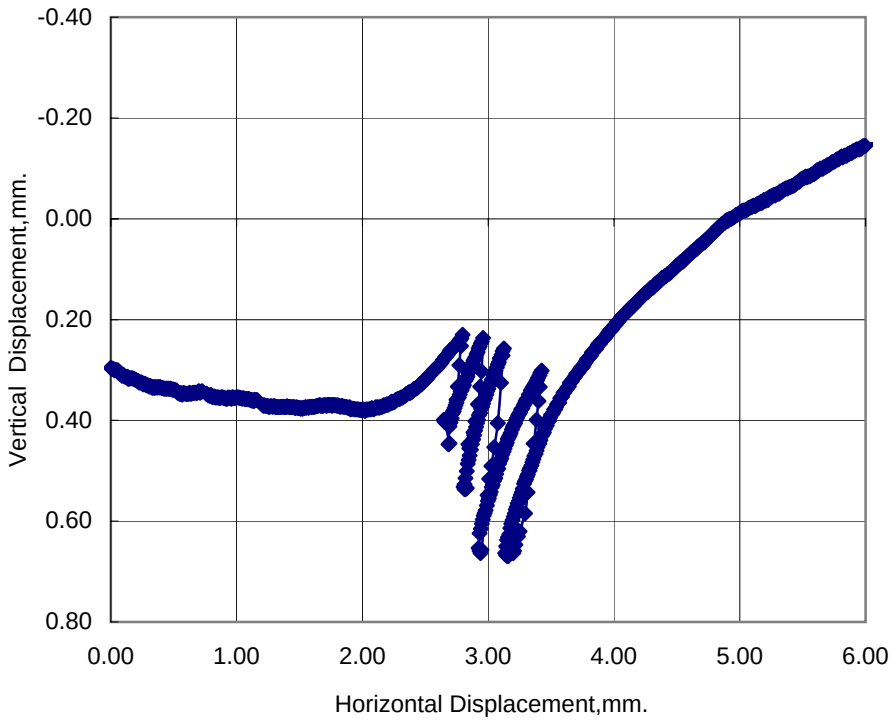
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	KML2well
Sr ; %	34.52

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.



Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

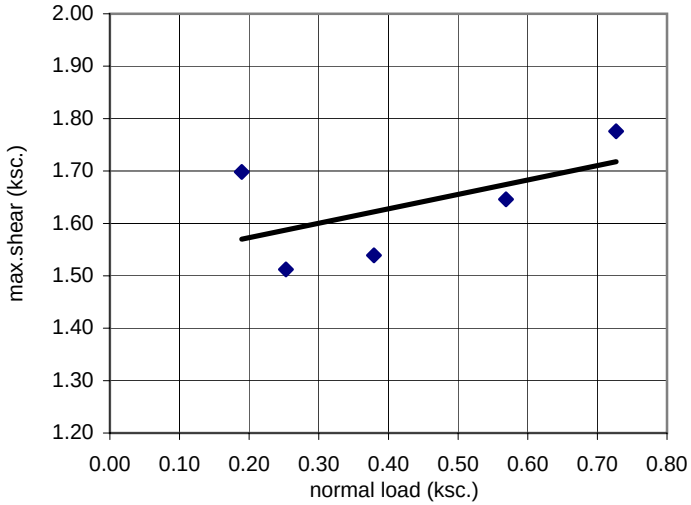
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. KML2well
Soil Description	Brown Granitics Soil			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		B3	A4	H5
Wet soil+Container	g.	56.91	38.47	134.49
Dry soil+Container	g.	52.75	36.55	124.19
Weigth of Water	g.	4.16	1.92	10.30
Weight Container	g.	18.02	16.84	18.44
Weigth of Dry Soil	g.	34.73	19.71	105.75
Water Content	%	11.98	9.74	9.74
Average Water Content	%	10.49		

Specific Gravity		2.607
Unit Weight	ton/m^3	1.779
Void Ratio		0.792
Degree of Saturation	%	34.52



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.189	1.698
2	0.253	1.512
3	0.379	1.539
4	0.569	1.646
5	0.727	1.776
	ϕ = 15.39 Degree	c =1.5177 ksc.

Remark:

1) Certification applies to test samples only.

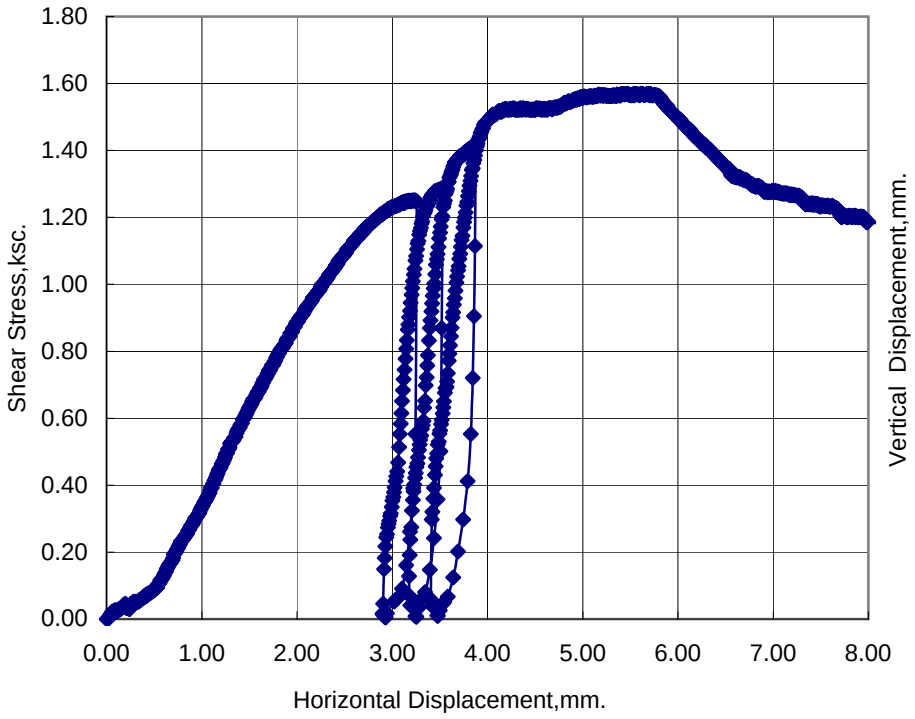
2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

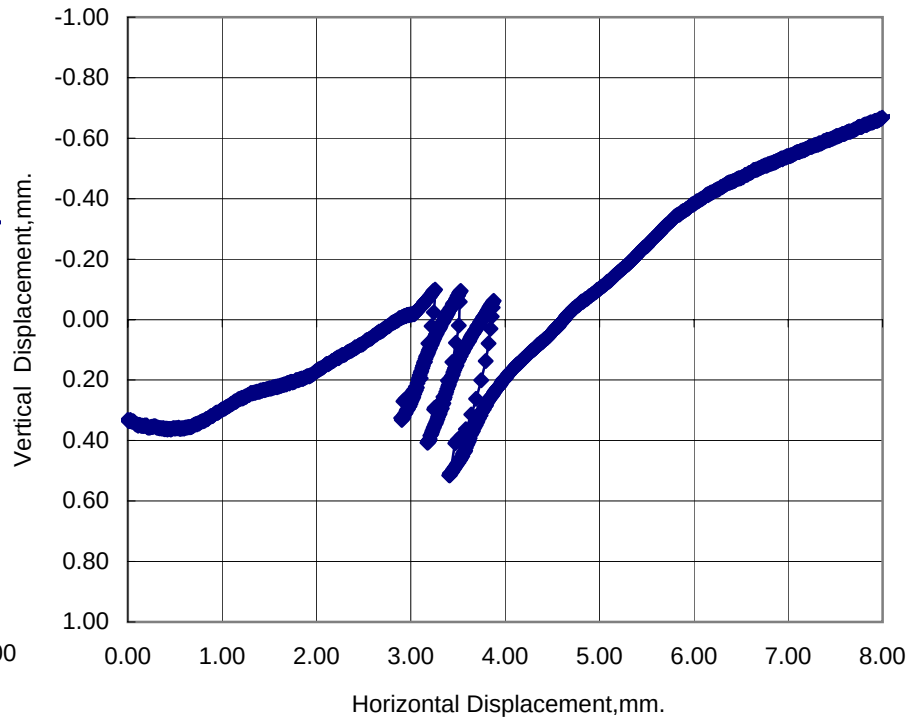
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	KML2well
Sr ; %	46.43

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.



Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

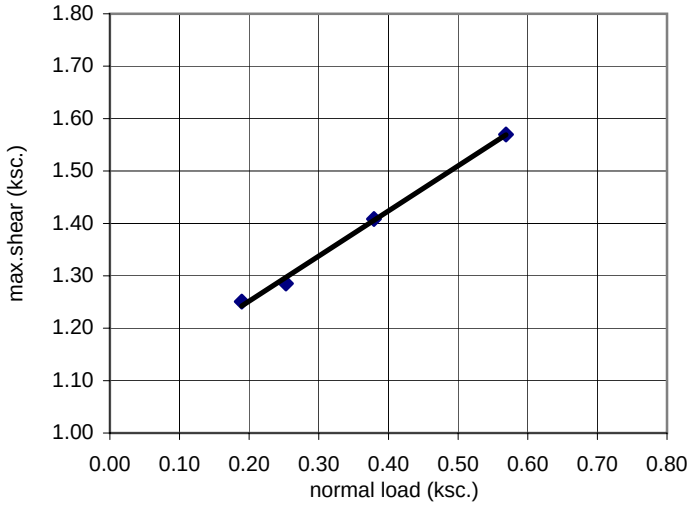
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. KML2well
Soil Description	Brown Granitics Soil			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		B3	G21	H5
Wet soil+Container	g.	37.15	38.89	137.55
Dry soil+Container	g.	34.65	36.89	121.76
Weigth of Water	g.	2.50	2.00	15.79
Weight Container	g.	18.02	20.98	14.45
Weigth of Dry Soil	g.	16.63	15.91	107.31
Water Content	%	15.03	12.57	14.71
Average Water Content	%	14.11		

Specific Gravity		2.607
Unit Weight	ton/m^3	1.779
Void Ratio		0.792
Degree of Saturation	%	46.43



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.189	1.251
2	0.253	1.285
3	0.379	1.408
4	0.569	1.570
5		
	ϕ = 40.72 Degree	c = 1.0795 ksc.

Remark:

1) Certification applies to test samples only.

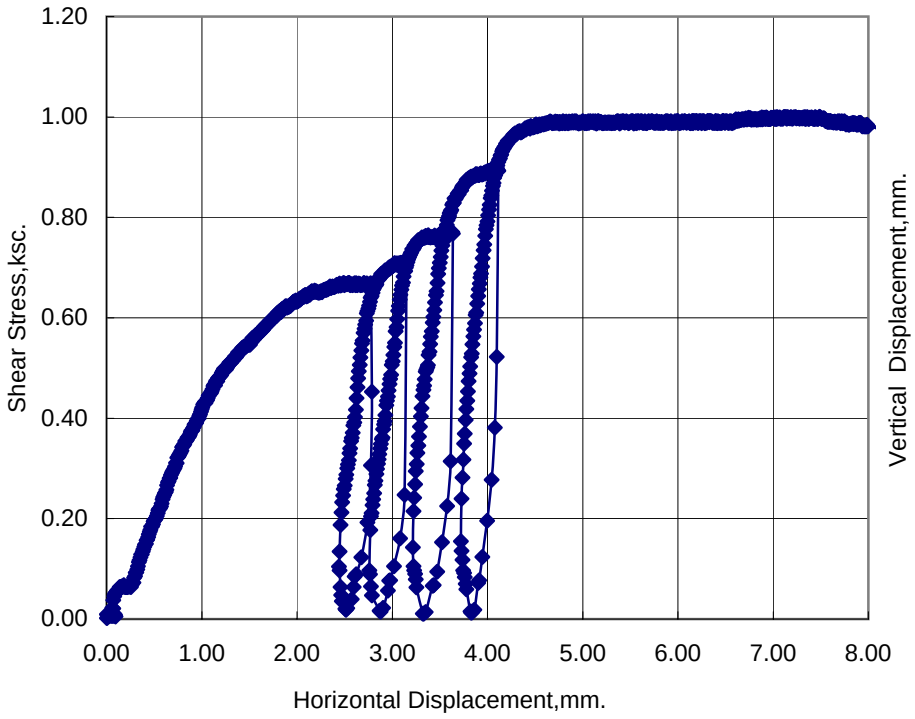
2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

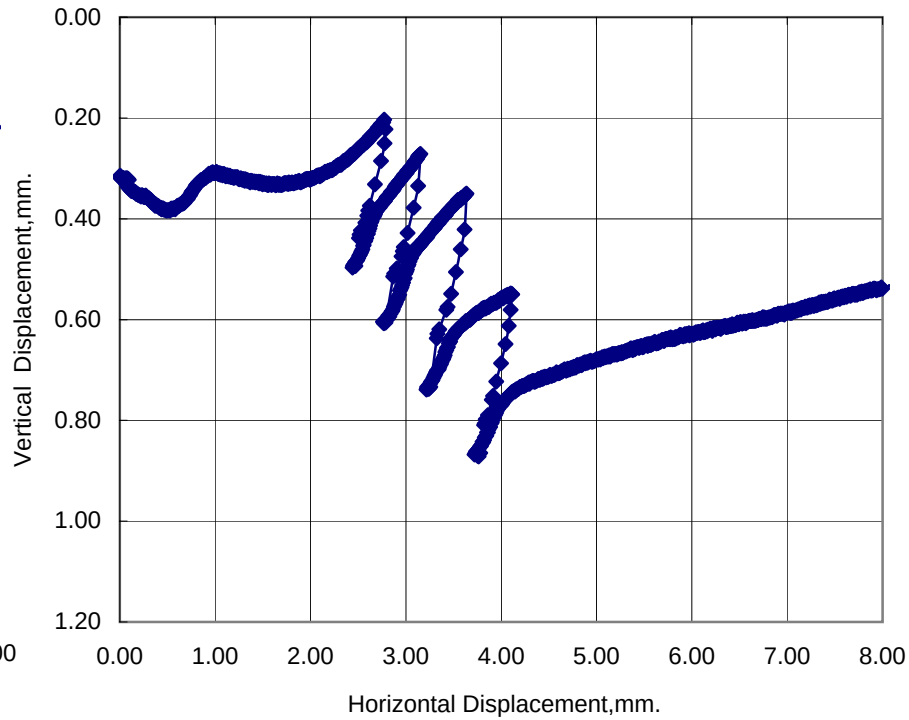
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	KML2well
Sr ; %	66.75

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.



Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

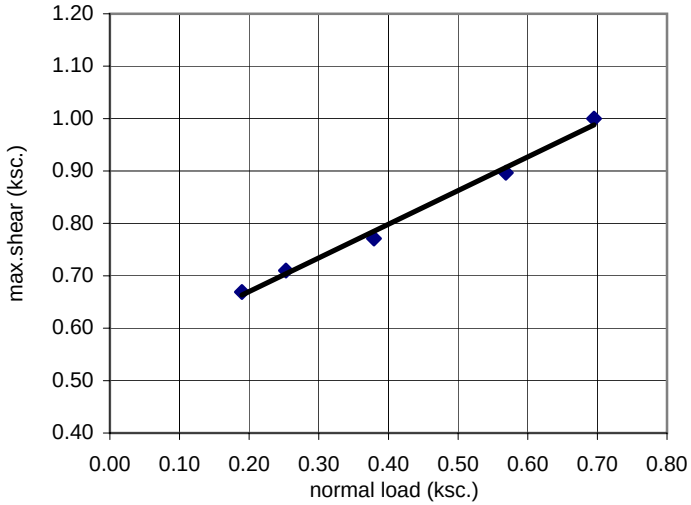
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. KML2well
Soil Description	Brown Granitics Soil			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		D6	B3	H5
Wet soil+Container	g.	37.78	63.17	138.48
Dry soil+Container	g.	34.24	54.95	118.77
Weigth of Water	g.	3.54	8.22	19.71
Weight Container	g.	15.54	18.03	18.43
Weigth of Dry Soil	g.	18.70	36.92	100.34
Water Content	%	18.93	22.26	19.64
Average Water Content	%	20.28		

Specific Gravity		2.607
Unit Weight	ton/m^3	1.779
Void Ratio		0.792
Degree of Saturation	%	66.75



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.190	0.669
2	0.253	0.710
3	0.379	0.771
4	0.569	0.897
5	0.695	1.000
	ϕ = 32.70 Degree	c = 0.5416 ksc.

Remark:

1) Certification applies to test samples only.

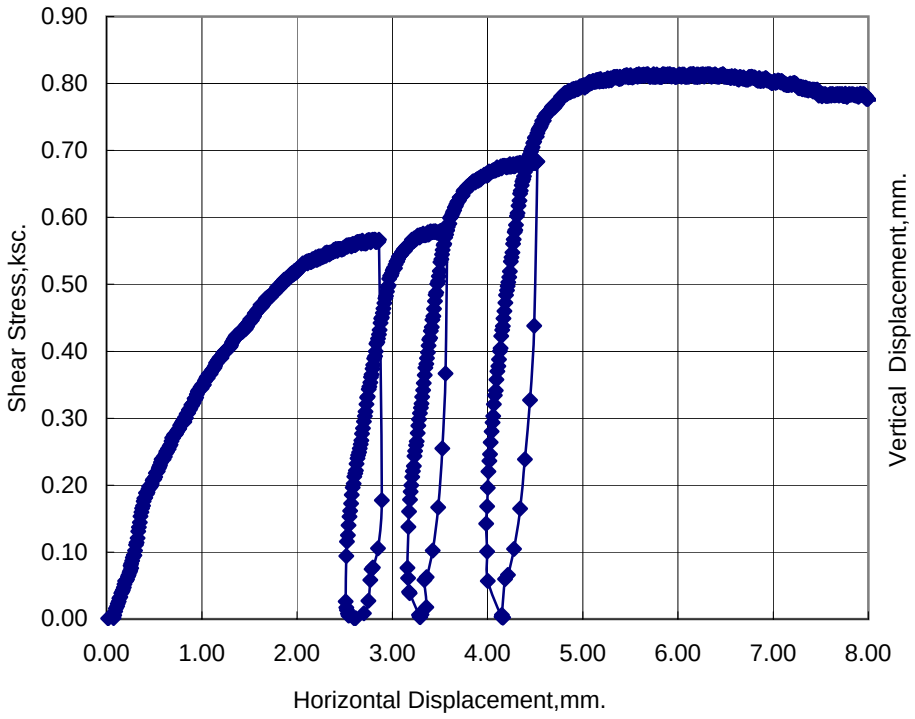
2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

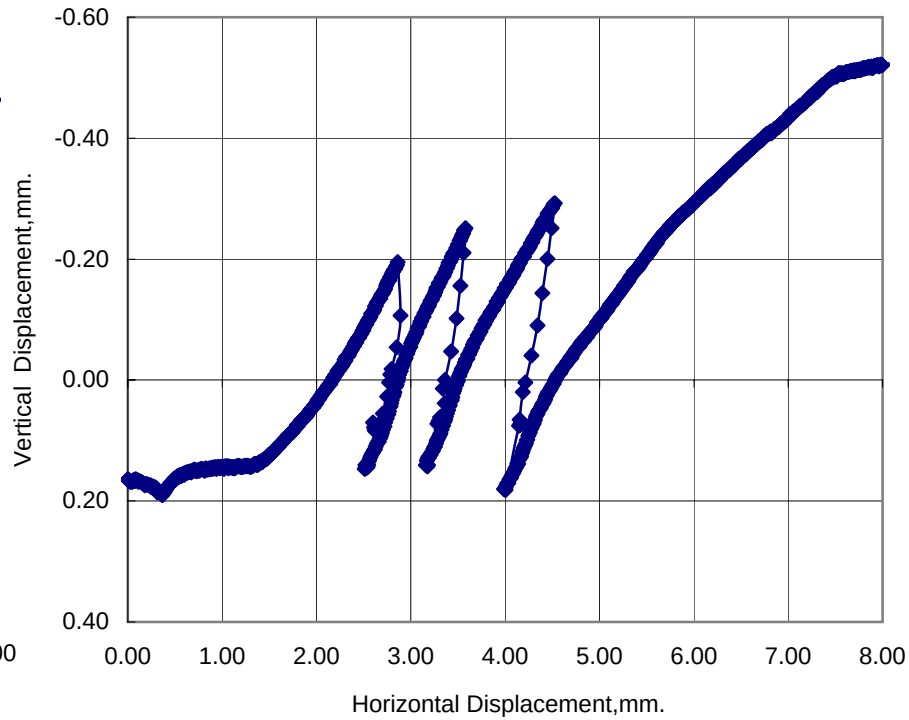
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	KML2well
Sr ; %	81.62

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.



Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

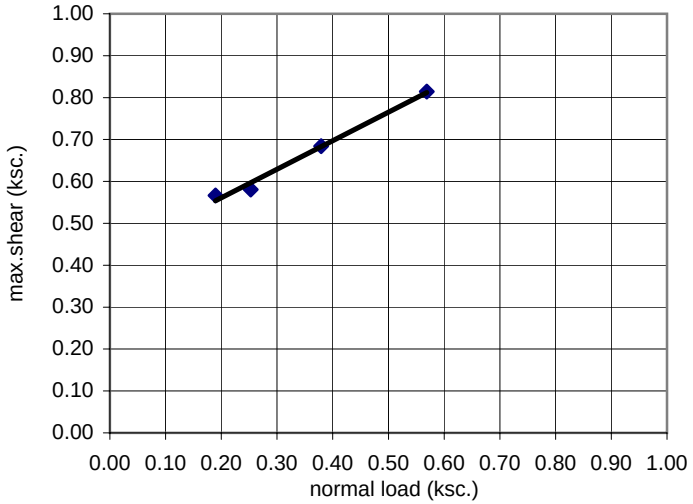
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. KML2well
Soil Description	Brown Granitics Soil			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		H1			
Wet soil+Container	g.	142.00			
Dry soil+Container	g.	117.48			
Weigth of Water	g.	24.52			
Weight Container	g.	18.59			
Weigth of Dry Soil	g.	98.89			
Water Content	%	24.80			
Average Water Content	%	24.80			

Specific Gravity		2.607
Unit Weight	ton/m^3	1.779
Void Ratio		0.792
Degree of Saturation	%	81.62



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.190	0.567
2	0.253	0.581
3	0.379	0.684
4	0.569	0.814
5		
	ϕ = 34.27 Degree	c = 0.4246 ksc.

Remark:

1) Certification applies to test samples only.

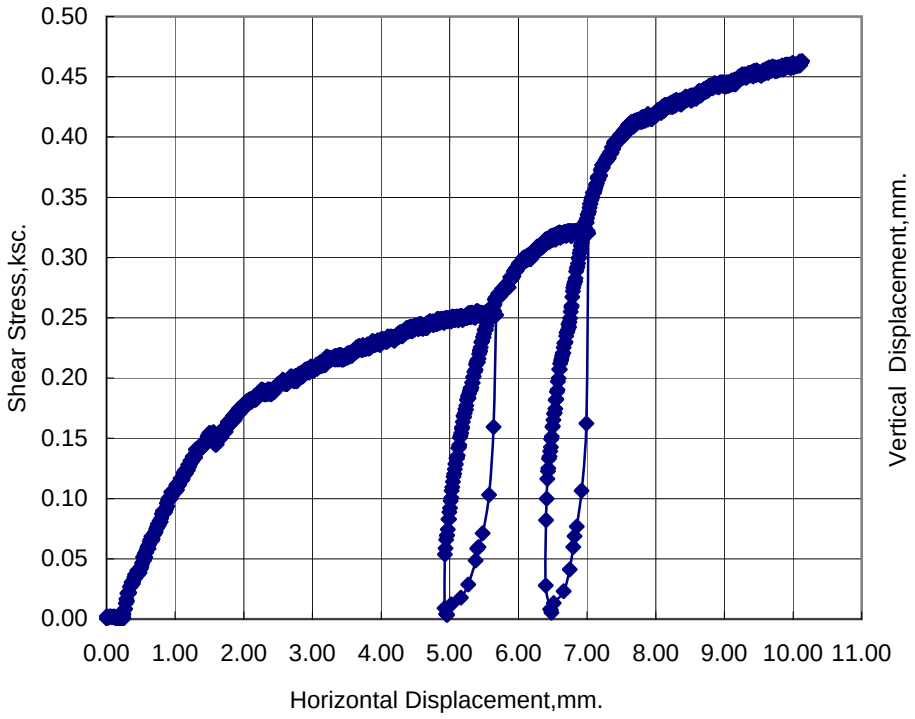
2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

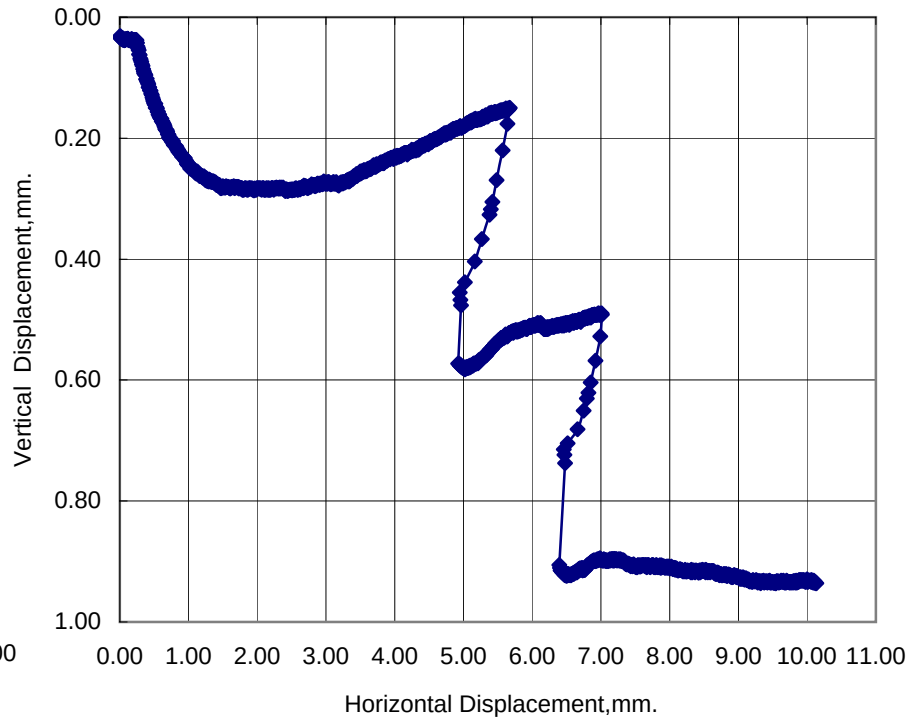
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	KML2well
Sr ; %	109.89

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.



Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

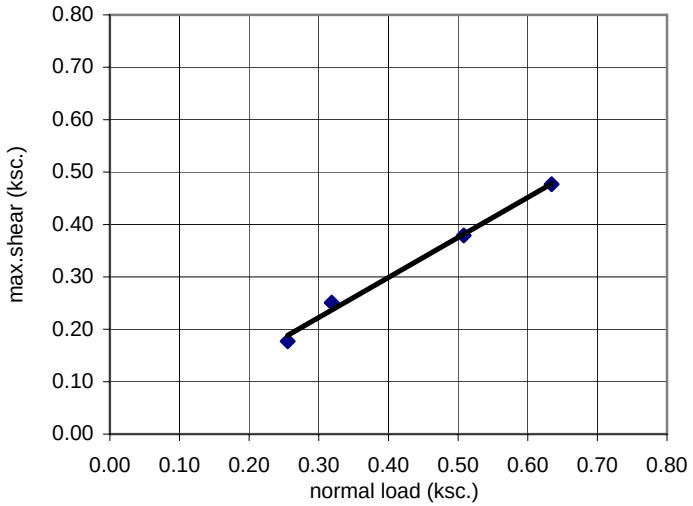
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. PT3well
Soil Description	Brown Granitics Soil			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		H1		
Wet soil+Container	g.	131.99		
Dry soil+Container	g.	101.92		
Weigth of Water	g.	30.07		
Weight Container	g.	16.80		
Weigth of Dry Soil	g.	85.12		
Water Content	%	35.33		
Average Water Content	%	35.33		

Specific Gravity		2.638
Unit Weight	ton/m^3	1.667
Void Ratio		0.903
Degree of Saturation	%	103.24



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.255	0.177
2	0.319	0.251
3	0.508	0.379
4	0.634	0.477
5		
	ϕ = 37.35 Degree	c = 0.0065 ksc.

Remark:

1) Certification applies to test samples only.

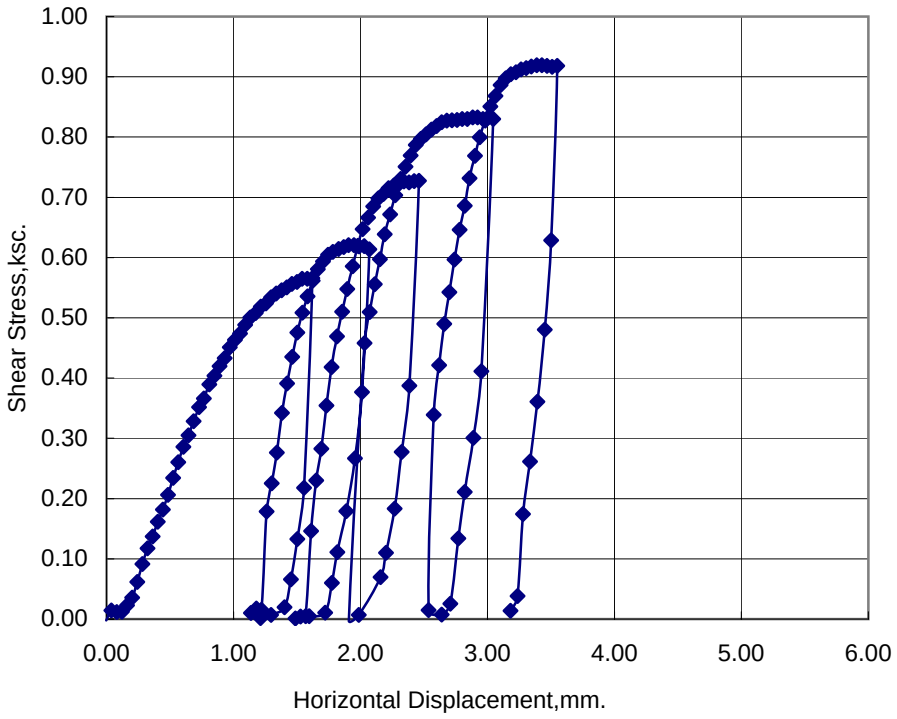
2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

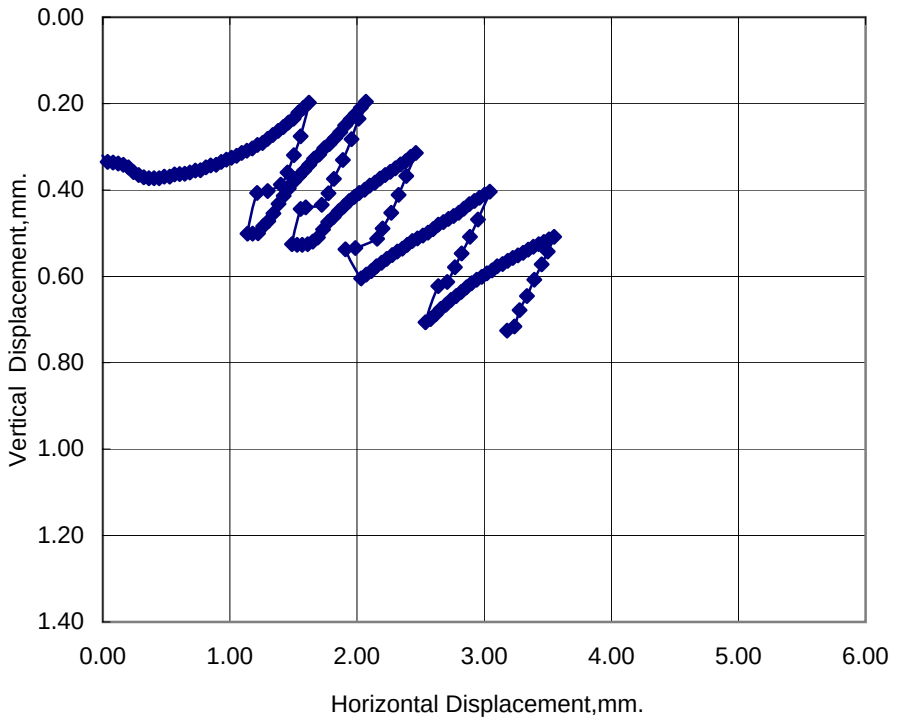
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	PT3well
Sr ; %	34.66

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.



Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

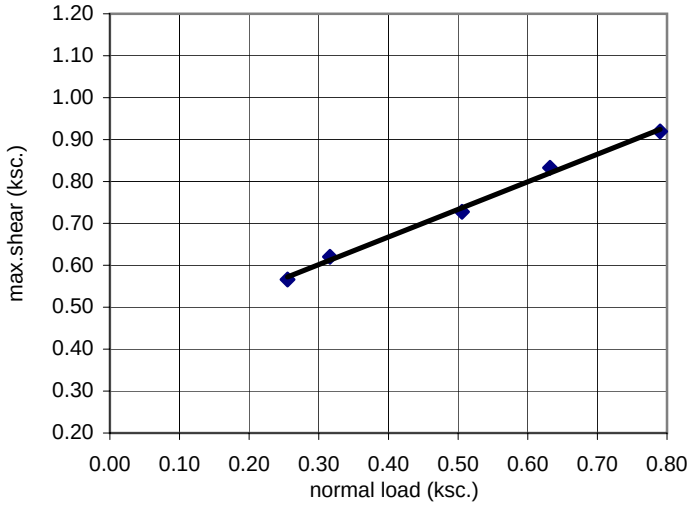
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. PT3well
Soil Description	Brown Granitics Soil			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		ค40	ค200	
Wet soil+Container	g.	38.43	44.66	
Dry soil+Container	g.	36.5	42.05	
Weigth of Water	g.	1.93	2.61	
Weight Container	g.	20.45	19.74	
Weigth of Dry Soil	g.	16.05	22.31	
Water Content	%	12.02	11.70	
Average Water Content	%	11.86		

Specific Gravity		2.638
Unit Weight	ton/m^3	1.667
Void Ratio		0.903
Degree of Saturation	%	34.66



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.255	0.566
2	0.316	0.621
3	0.506	0.728
4	0.632	0.833
5	0.790	0.919
	ϕ = 33.36 Degree	c = 0.4042 ksc.

Remark:

1) Certification applies to test samples only.

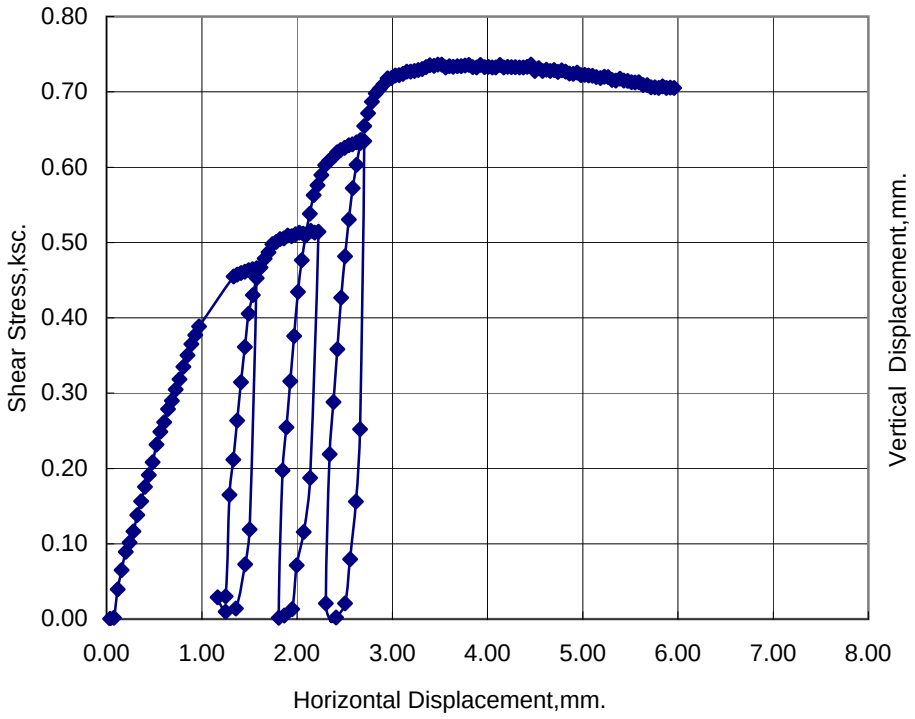
2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

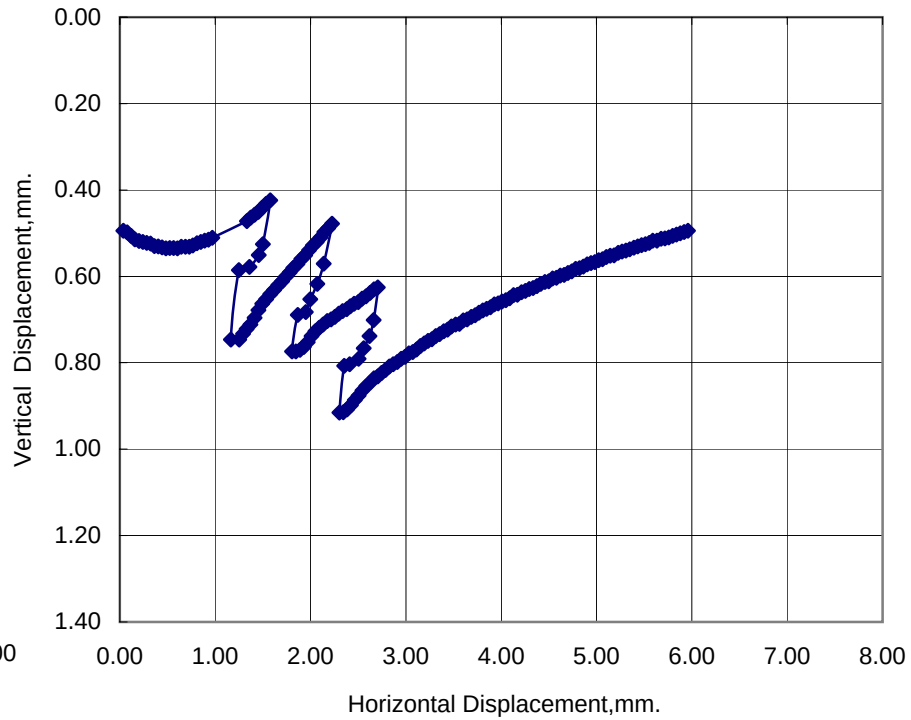
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	PT3well
Sr ; %	47.18

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.



Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

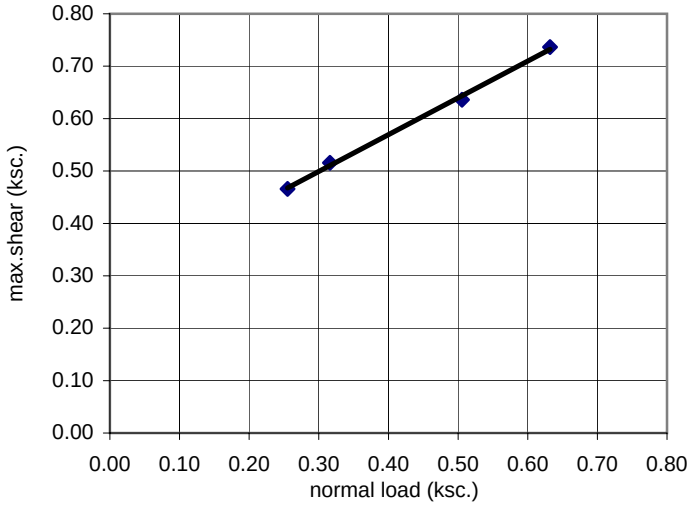
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. PT3well
Soil Description	Brown Granitics Soil			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		A4	ค60	
Wet soil+Container	g.	49.29	49.94	
Dry soil+Container	g.	44.93	45.45	
Weigth of Water	g.	4.36	4.49	
Weight Container	g.	16.85	18.66	
Weigth of Dry Soil	g.	28.08	26.79	
Water Content	%	15.53	16.76	
Average Water Content	%	16.14		

Specific Gravity		2.638
Unit Weight	ton/m^3	1.667
Void Ratio		0.903
Degree of Saturation	%	47.18



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.255	0.466
2	0.316	0.516
3	0.506	0.636
4	0.632	0.736
5		
	ϕ = 35.07 Degree	c = 0.2887 ksc.

Remark:

1) Certification applies to test samples only.

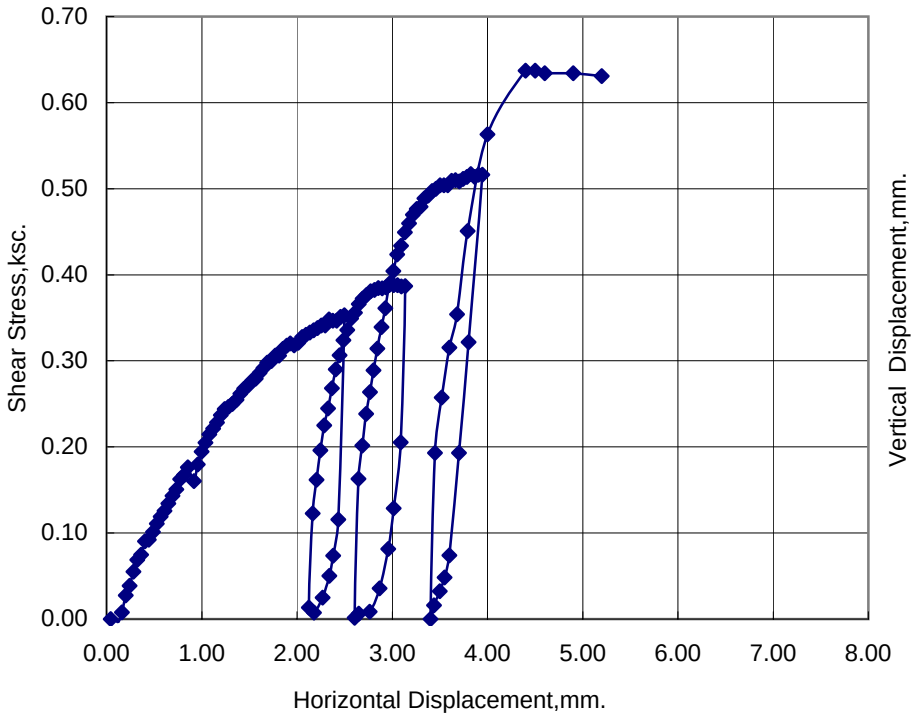
2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

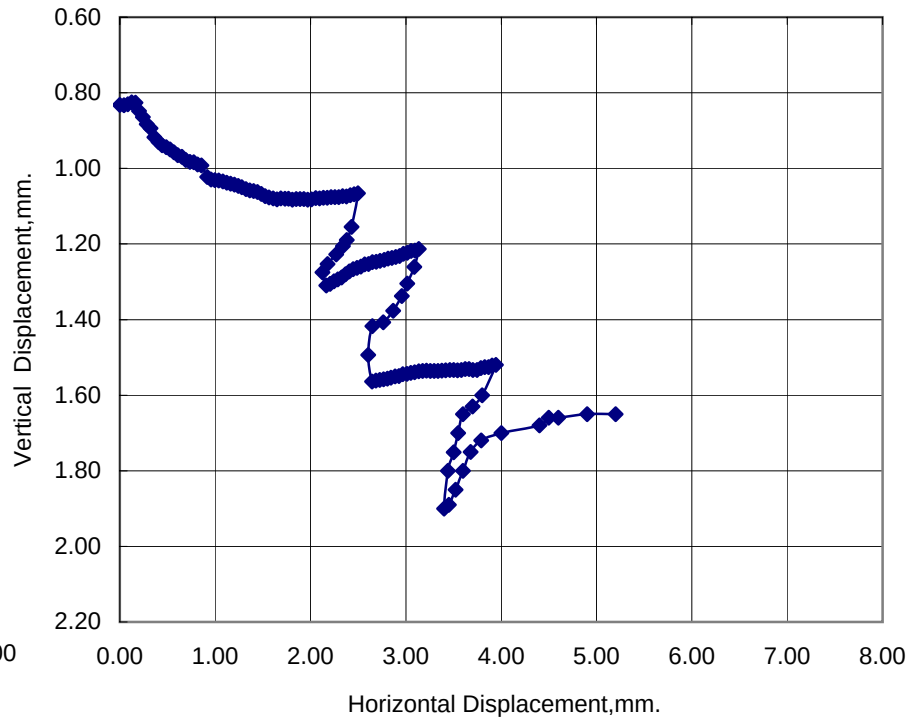
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	PT3well
Sr ; %	77.38

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.



Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

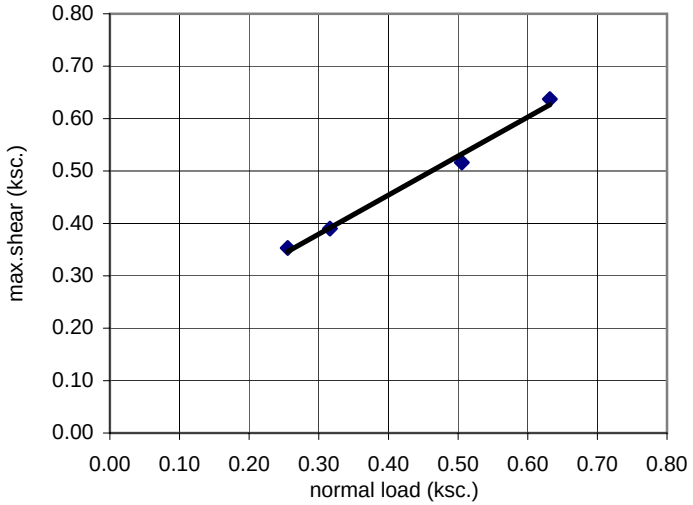
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. PT3well
Soil Description	Brown Granitics Soil			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		H1	ค40	ค200
Wet soil+Container	g.	139.54	47.66	57.27
Dry soil+Container	g.	114.41	41.98	49.33
Weigth of Water	g.	25.13	5.68	7.94
Weight Container	g.	18.61	20.44	19.74
Weigth of Dry Soil	g.	95.80	21.54	29.59
Water Content	%	26.23	26.37	26.83
Average Water Content	%	26.48		

Specific Gravity		2.638
Unit Weight	ton/m^3	1.667
Void Ratio		0.903
Degree of Saturation	%	77.38



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.255	0.353
2	0.316	0.390
3	0.505	0.516
4	0.632	0.637
5		
	ϕ = 36.64 Degree	c = 0.1565 ksc.

Remark:

1) Certification applies to test samples only.

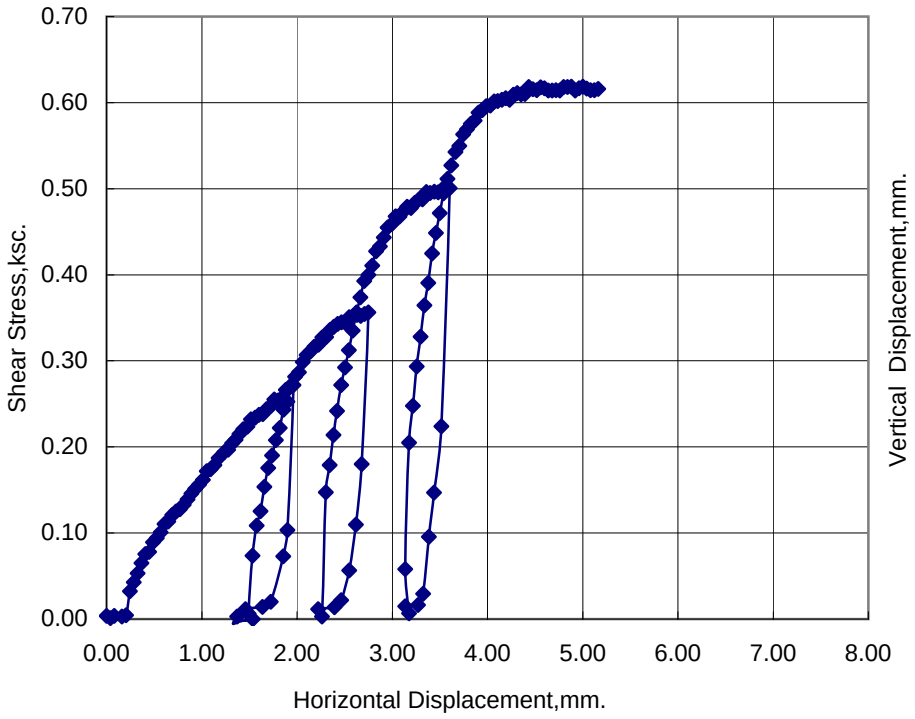
2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

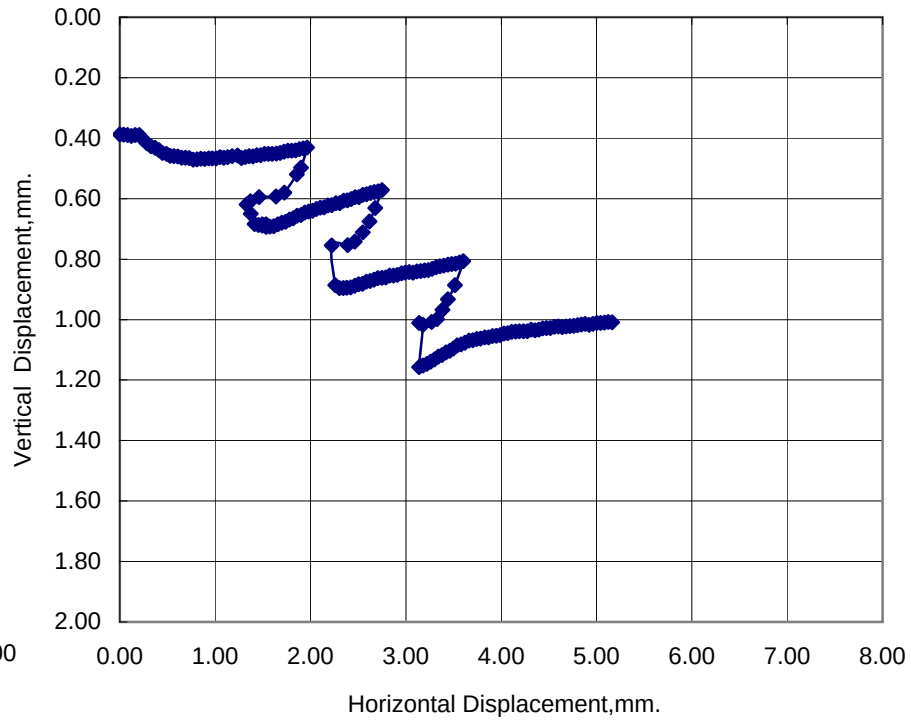
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	PT3well
Sr ; %	93.91

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.



Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

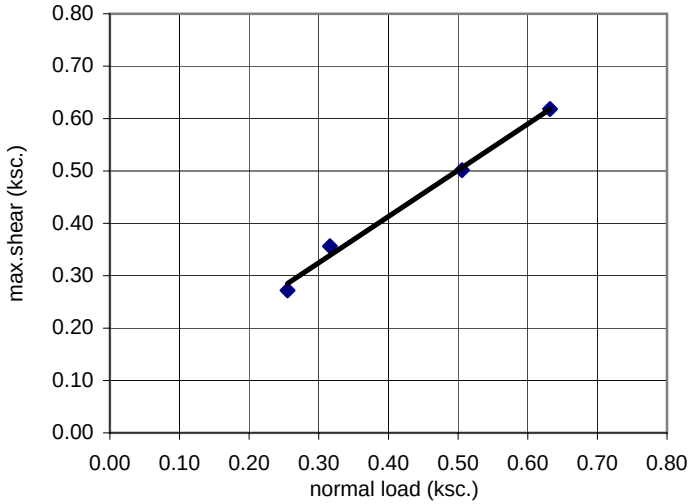
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. PT3well
Soil Description	Brown Granitics Soil			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		H1	D6	A4
Wet soil+Container	g.	150.46	58.79	68.91
Dry soil+Container	g.	119.31	48.19	55.99
Weigth of Water	g.	31.15	10.60	12.92
Weight Container	g.	18.61	15.55	16.84
Weigth of Dry Soil	g.	100.70	32.64	39.15
Water Content	%	30.93	32.48	33.00
Average Water Content	%	32.14		

Specific Gravity		2.638
Unit Weight	ton/m^3	1.667
Void Ratio		0.903
Degree of Saturation	%	93.91



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.255	0.272
2	0.316	0.356
3	0.506	0.502
4	0.632	0.618
5		
	ϕ = 41.46 Degree	c = 0.0596 ksc.

Remark:

1) Certification applies to test samples only.

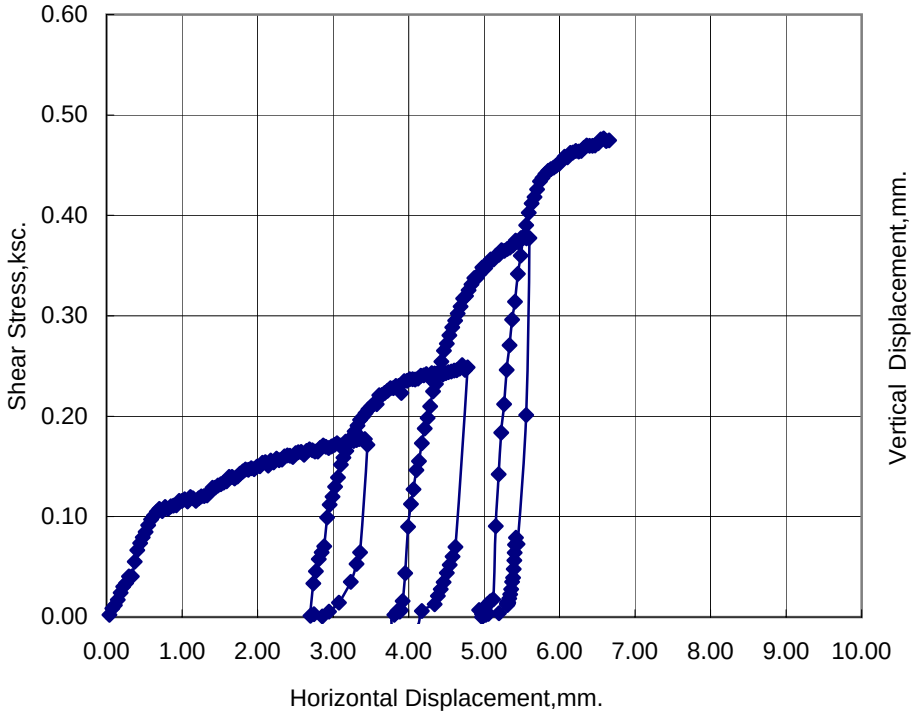
2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

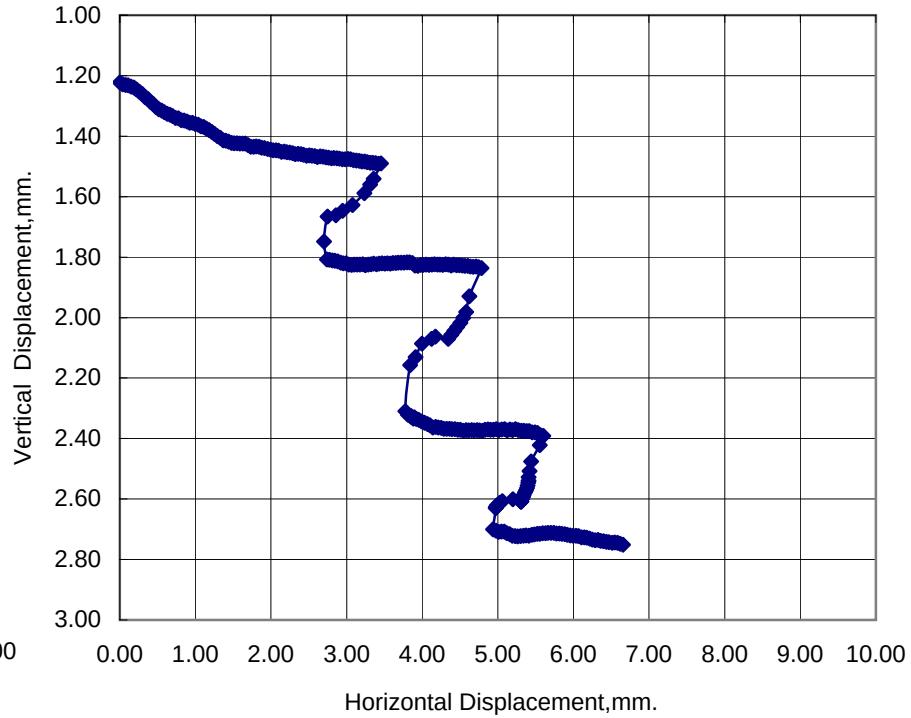
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	PT3well
Sr ; %	103.24

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.



Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

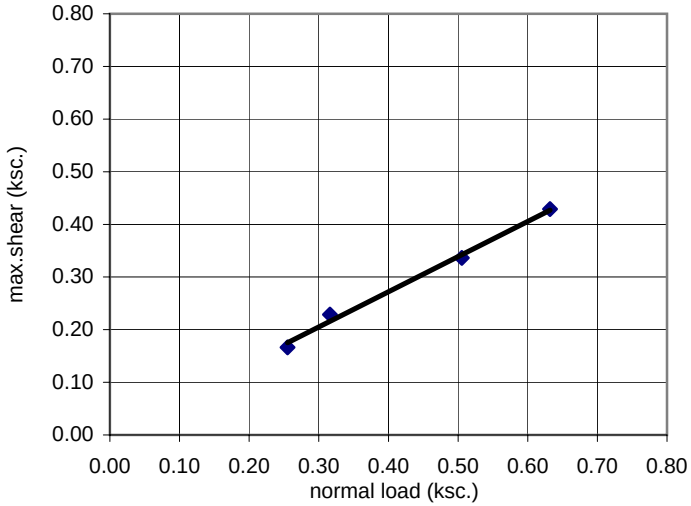
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. PT4LS
Soil Description	Brown Sand			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		A
Wet soil+Container	g.	144.52
Dry soil+Container	g.	117.22
Weigth of Water	g.	27.30
Weight Container	g.	18.59
Weigth of Dry Soil	g.	98.63
Water Content	%	27.68

Specific Gravity		2.646
Unit Weight	ton/m^3	1.653
Void Ratio		0.889
Degree of Saturation	%	82.42



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.255	0.166
2	0.316	0.229
3	0.505	0.336
4	0.632	0.429
5		
	ϕ = 33.76 Degree	c = 0.0046 ksc.

Remark:

1) Certification applies to test samples only.

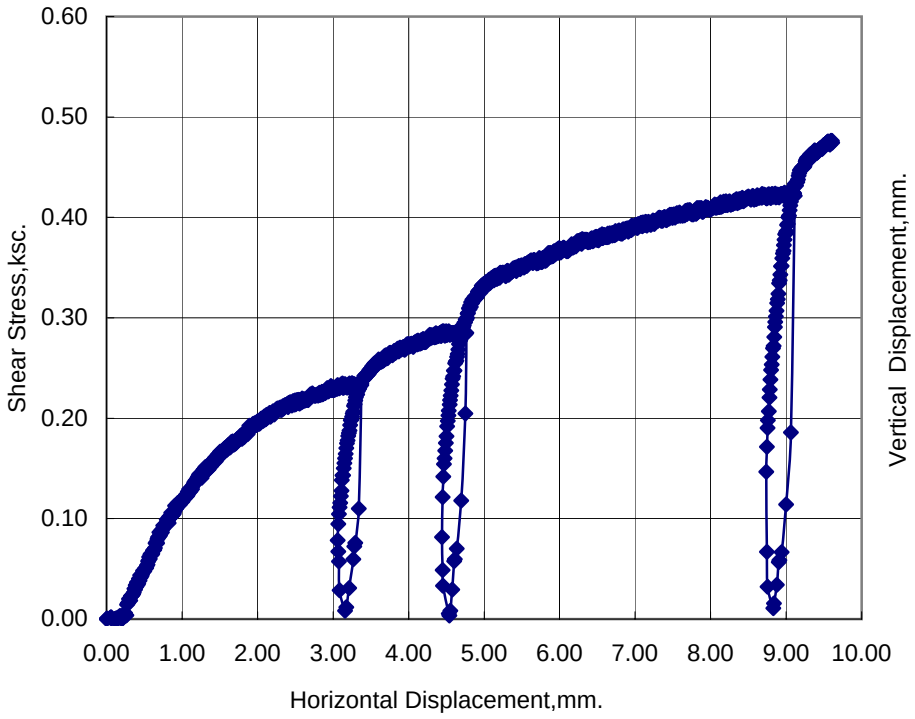
2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

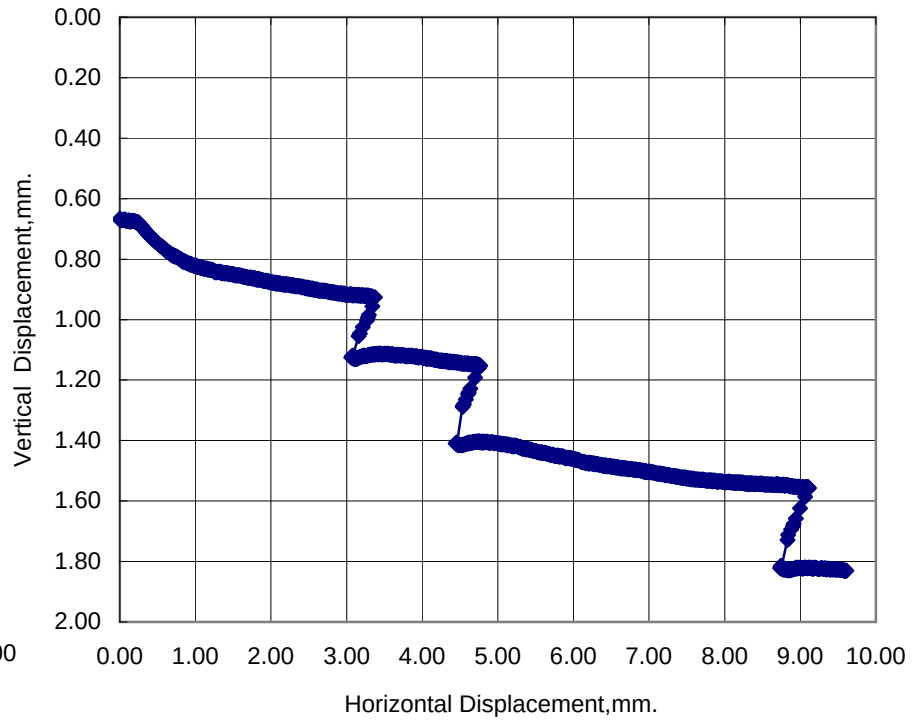
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	PT4LS
Sr ; %	80.42

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.



Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

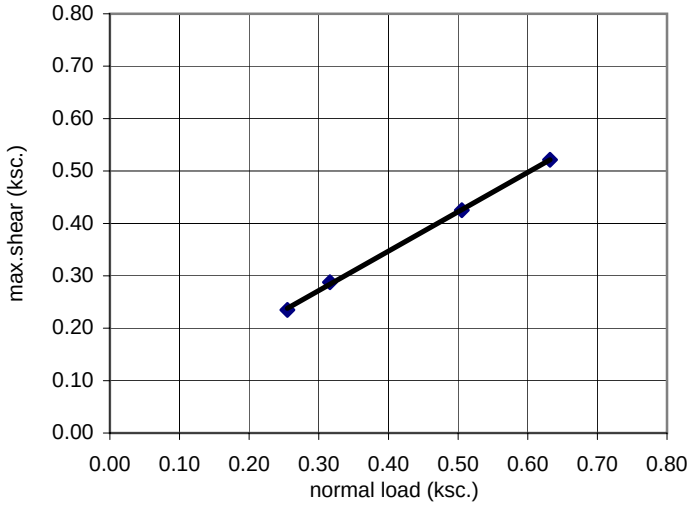
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. PT4LS
Soil Description	Brown Sand			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		A	D6	B3
Wet soil+Container	g.	138.67	59	73.92
Dry soil+Container	g.	113.75	49.54	62.03
Weigth of Water	g.	24.92	9.46	11.89
Weight Container	g.	18.60	15.53	18.02
Weigth of Dry Soil	g.	95.15	34.01	44.01
Water Content	%	26.19	27.82	27.02
Average Water Content	%	27.01		

Specific Gravity		2.646
Unit Weight	ton/m^3	1.653
Void Ratio		0.889
Degree of Saturation	%	80.42



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.255	0.235
2	0.316	0.288
3	0.505	0.425
4	0.632	0.521
5		
	ϕ = 36.94 Degree	c = 0.0462 ksc.

Remark:

1) Certification applies to test samples only.

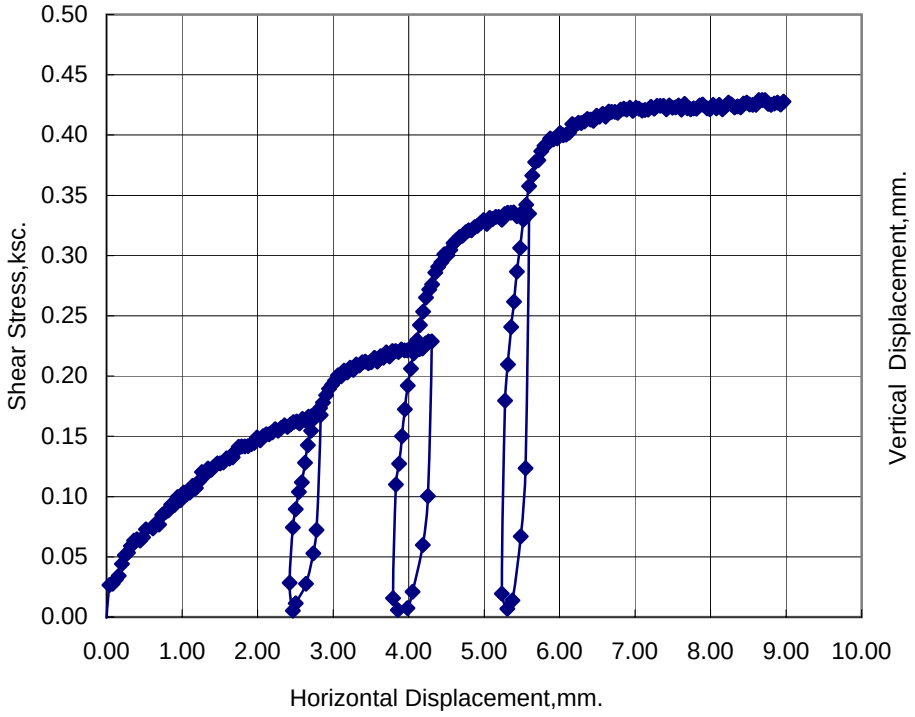
2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

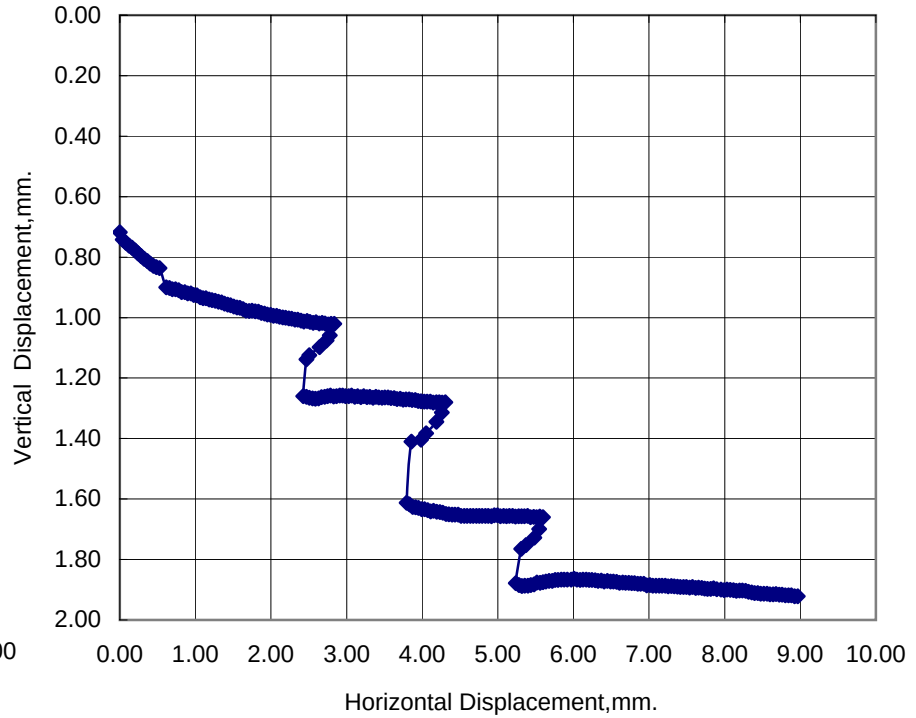
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	PT4LS
Sr ; %	82.42

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.



Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

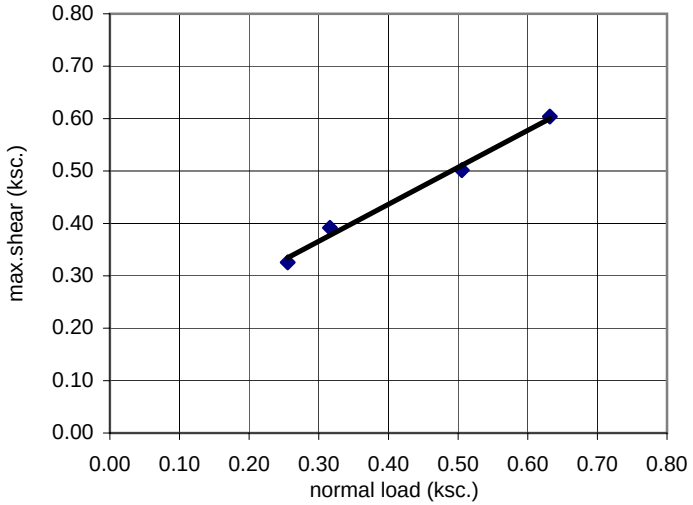
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. PT4LS
Soil Description	Brown Sand			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		A	D6	
Wet soil+Container	g.	56.62	57.93	
Dry soil+Container	g.	49.12	50.67	
Weigth of Water	g.	7.50	7.26	
Weight Container	g.	15.54	18.03	
Weigth of Dry Soil	g.	33.58	32.64	
Water Content	%	22.33	22.24	
Average Water Content	%	22.29		

Specific Gravity		2.646
Unit Weight	ton/m^3	1.653
Void Ratio		0.889
Degree of Saturation	%	66.37



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.255	0.326
2	0.316	0.392
3	0.505	0.502
4	0.632	0.604
5		
	ϕ = 35.20 Degree	c = 0.1543 ksc.

Remark:

1) Certification applies to test samples only.

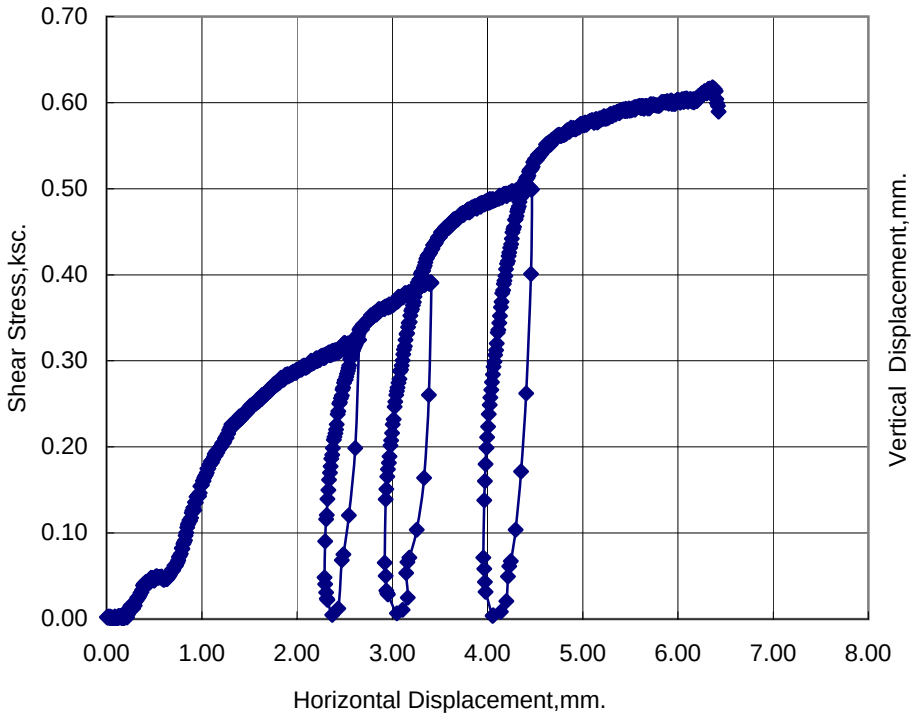
2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

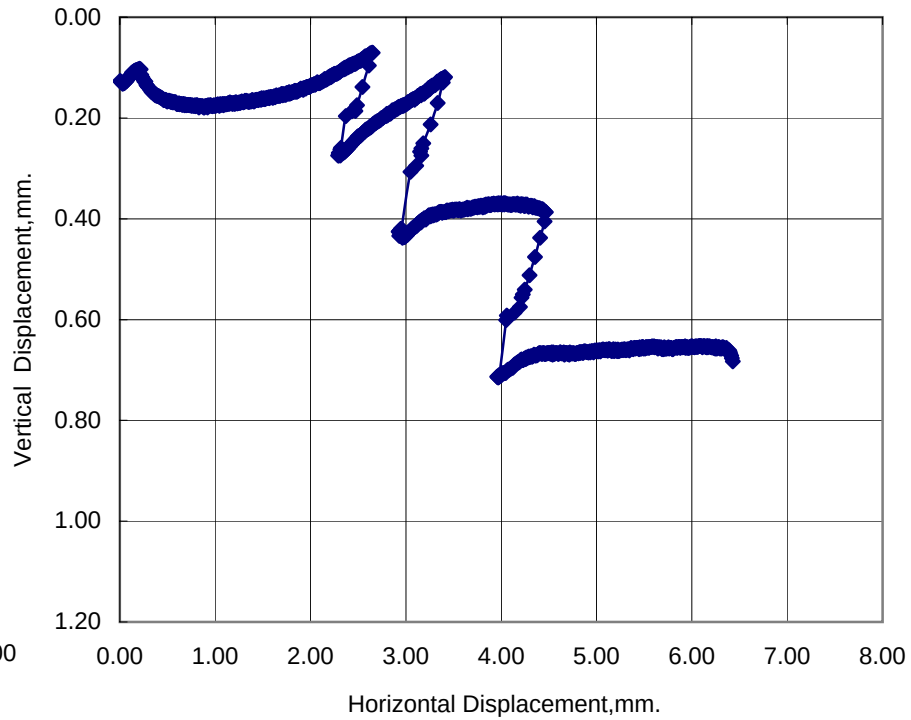
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	PT4LS
Sr ; %	66.37

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.



Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

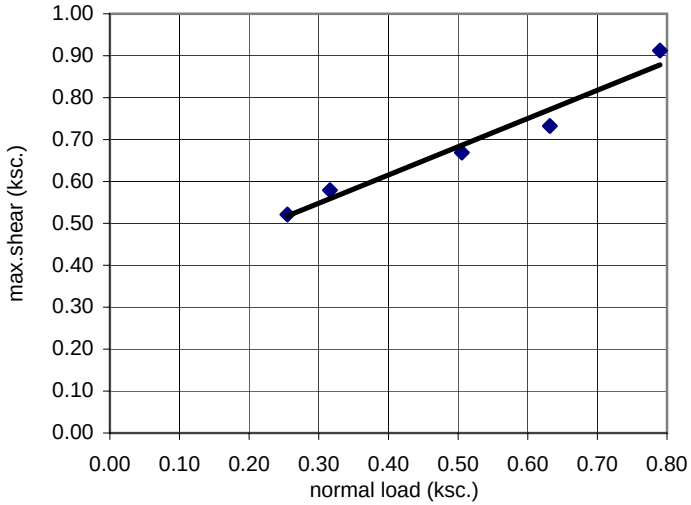
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. PT4LS
Soil Description	Brown Sand			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		B3	A4	
Wet soil+Container	g.	63.83	41.73	
Dry soil+Container	g.	57.39	38.27	
Weigth of Water	g.	6.44	3.46	
Weight Container	g.	18.03	16.86	
Weigth of Dry Soil	g.	39.36	21.41	
Water Content	%	16.36	16.16	
Average Water Content	%	16.26		

Specific Gravity		2.646
Unit Weight	ton/m^3	1.653
Void Ratio		0.889
Degree of Saturation	%	48.42



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.255	0.521
2	0.316	0.579
3	0.505	0.669
4	0.632	0.732
5	0.790	0.912
	ϕ = 33.96 Degree	c = 0.3462 ksc.

Remark:

1) Certification applies to test samples only.

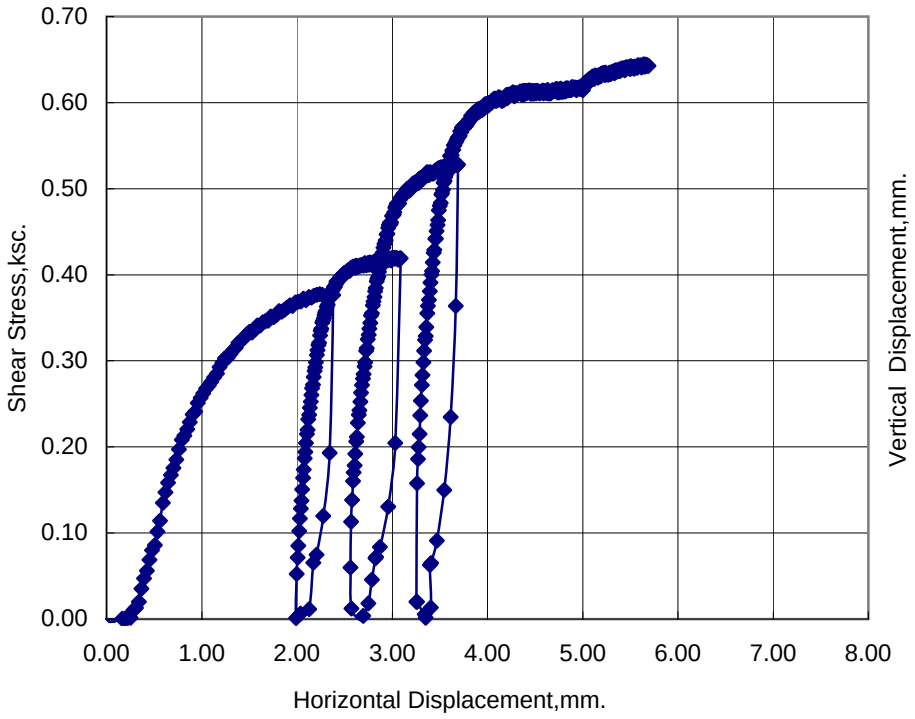
2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

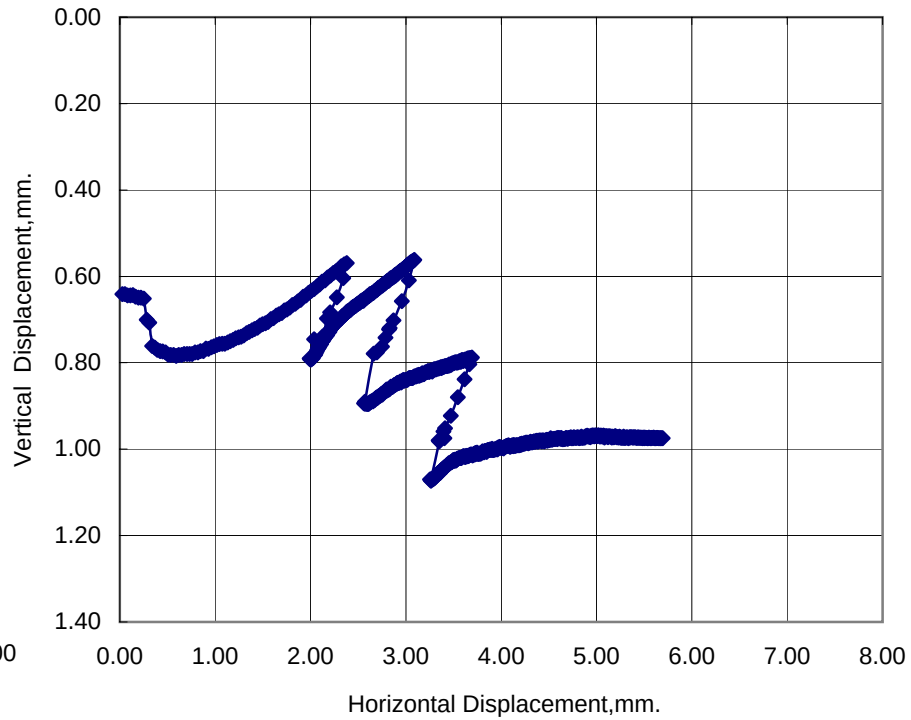
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	PT4LS
Sr ; %	59.57

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.



Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

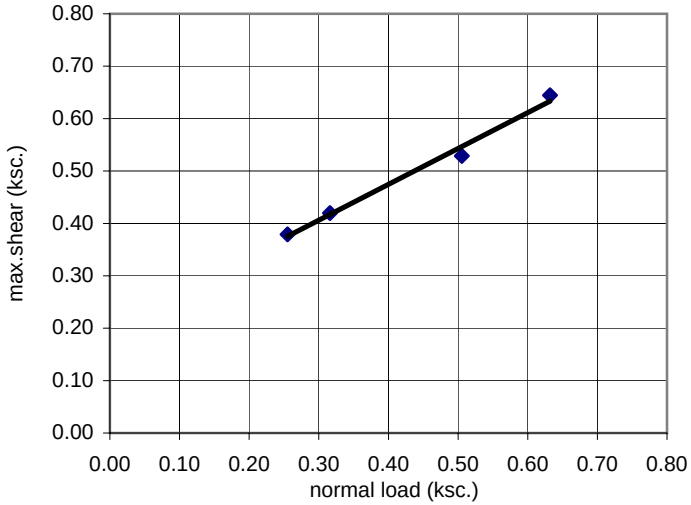
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. PT4LS
Soil Description	Brown Sand			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		A	D6	B3
Wet soil+Container	g.	137.32	53.73	50.1
Dry soil+Container	g.	117.43	47.05	44.64
Weigth of Water	g.	19.89	6.68	5.46
Weight Container	g.	18.60	14.07	16.84
Weigth of Dry Soil	g.	98.83	32.98	27.80
Water Content	%	20.13	20.25	19.64
Average Water Content	%	20.01		

Specific Gravity		2.646
Unit Weight	ton/m^3	1.653
Void Ratio		0.889
Degree of Saturation	%	59.57



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.255	0.379
2	0.316	0.420
3	0.505	0.529
4	0.632	0.645
5		
	ϕ = 34.38 Degree	c = 0.2008 ksc.

Remark:

1) Certification applies to test samples only.

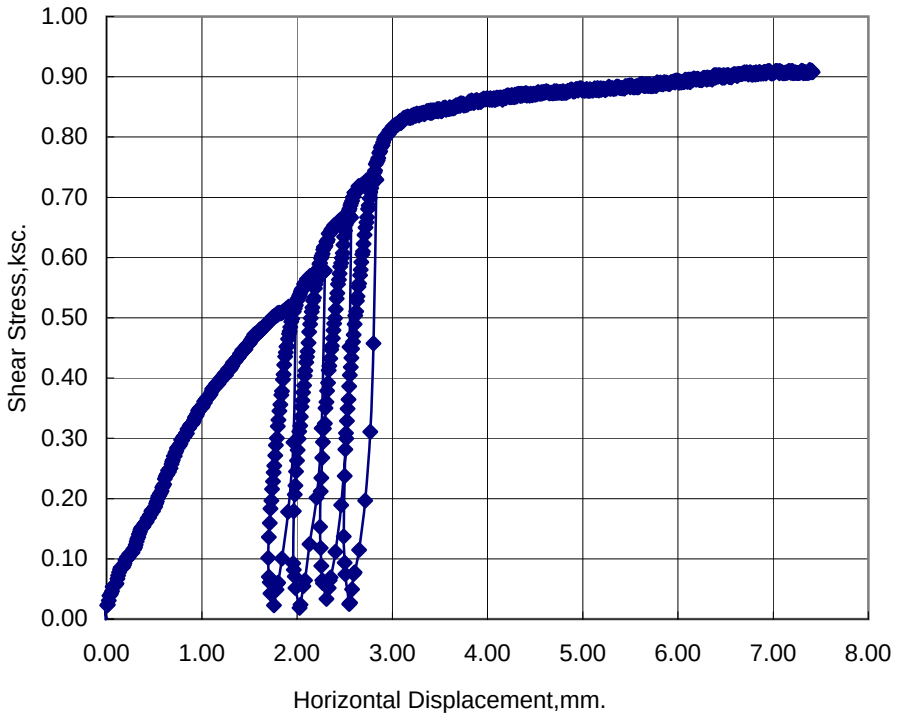
2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

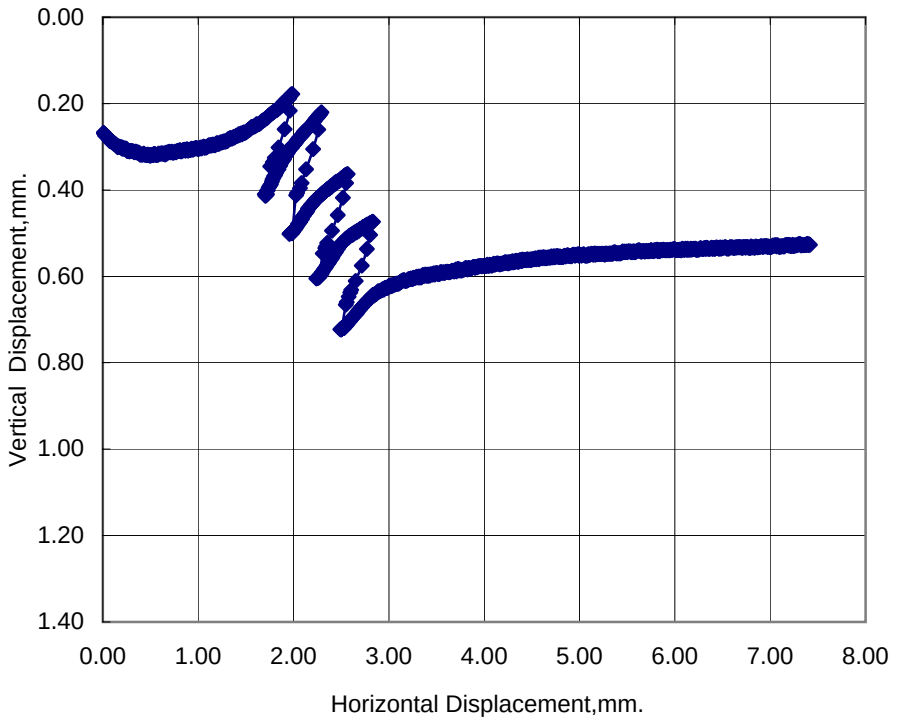
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	PT4LS
Sr ; %	48.42

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.



Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

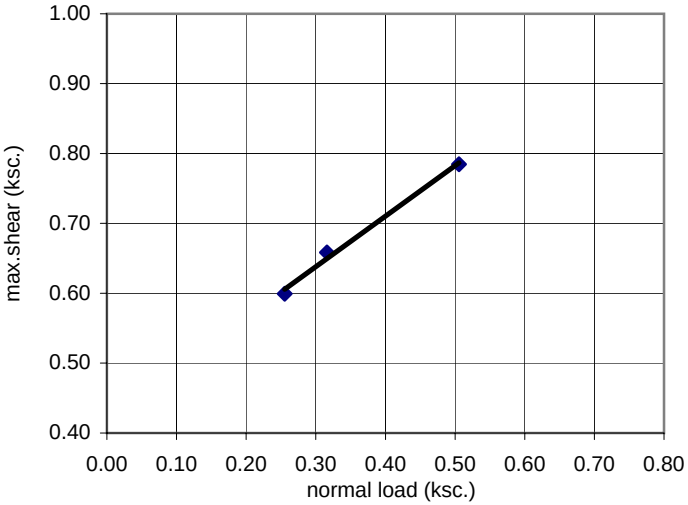
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. PT4LS
Soil Description	Brown Sand			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		B3	G21	
Wet soil+Container	g.	43.75	44.23	
Dry soil+Container	g.	40.71	41.15	
Weigth of Water	g.	3.04	3.08	
Weight Container	g.	18.02	20.99	
Weigth of Dry Soil	g.	22.69	20.16	
Water Content	%	13.40	15.28	
Average Water Content	%	14.34		

Specific Gravity		2.646
Unit Weight	ton/m^3	1.653
Void Ratio		0.889
Degree of Saturation	%	42.69



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.255	0.599
2	0.316	0.658
3	0.506	0.785
4		
5		
	ϕ = 35.86 Degree	c = 0.4213 ksc.

Remark:

1) Certification applies to test samples only.

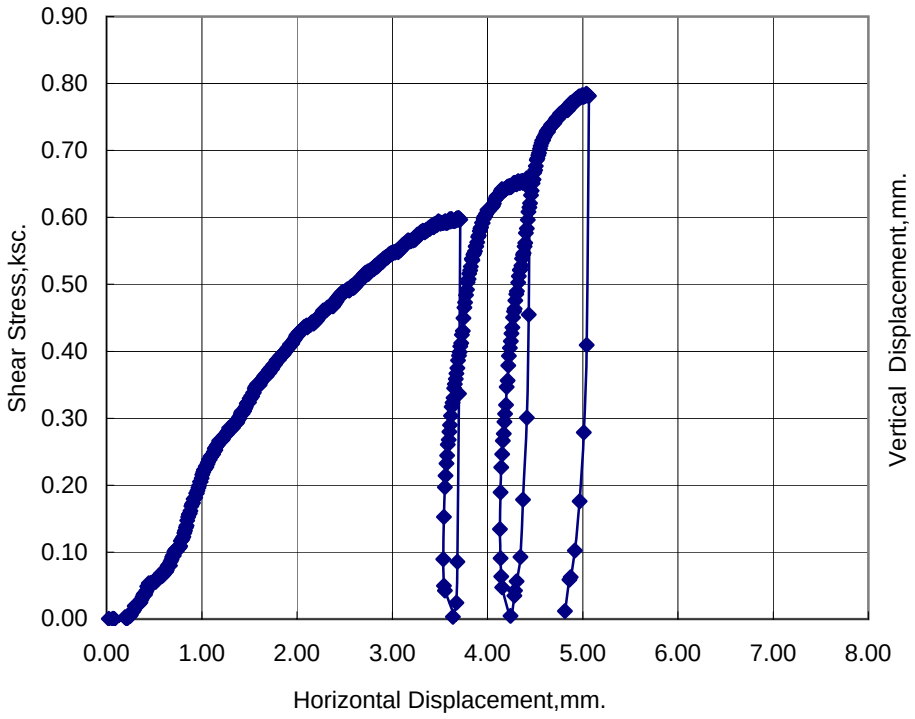
2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

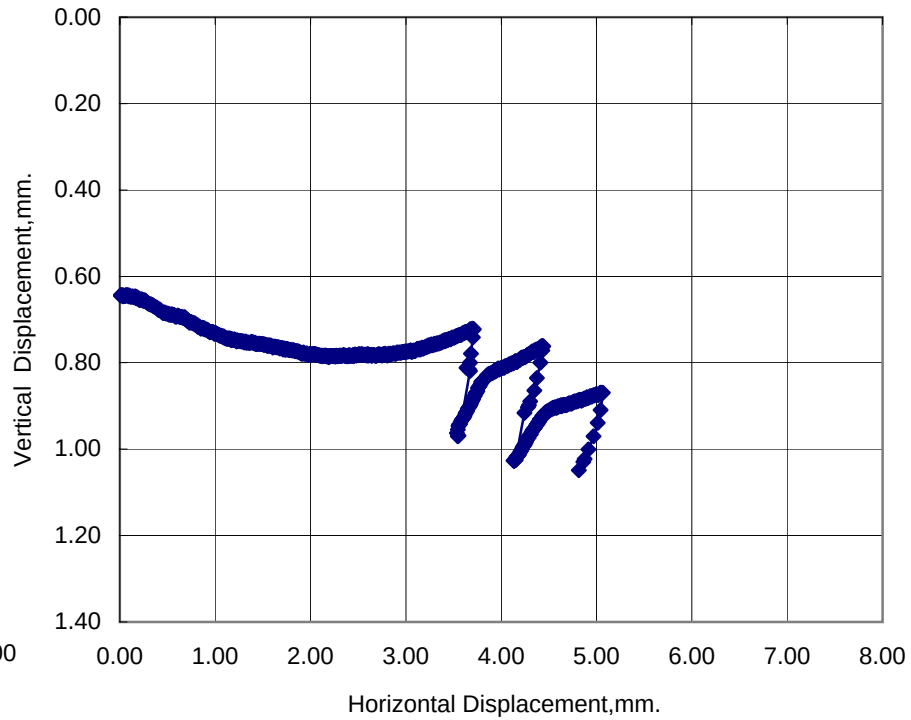
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	PT4LS
Sr ; %	42.69

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.



Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

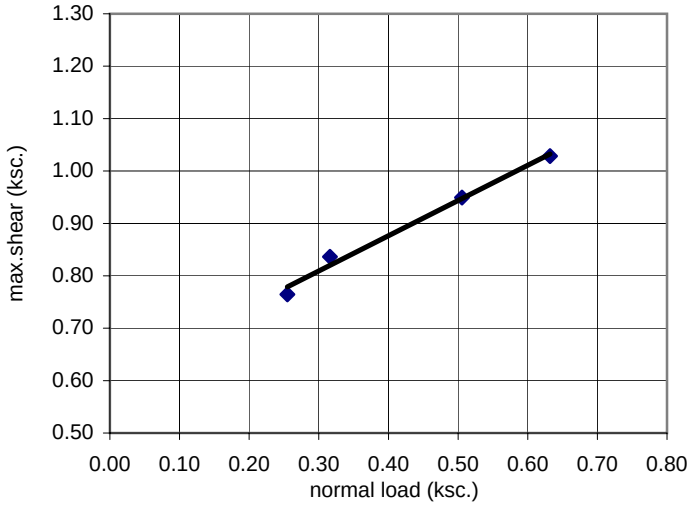
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. PT4LS
Soil Description	Brown Sand			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		A1	D6	B3
Wet soil+Container	g.	139.51	38.58	45.05
Dry soil+Container	g.	125.95	35.74	42.04
Weigth of Water	g.	13.56	2.84	3.01
Weight Container	g.	20.23	15.54	18.03
Weigth of Dry Soil	g.	105.72	20.20	24.01
Water Content	%	12.83	14.06	12.54
Average Water Content	%	13.14		

Specific Gravity		2.646
Unit Weight	ton/m^3	1.653
Void Ratio		0.889
Degree of Saturation	%	39.13



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.255	0.764
2	0.316	0.836
3	0.506	0.949
4	0.632	1.029
5		
	ϕ = 33.91 Degree	c =0.6075 ksc.

Remark:

1) Certification applies to test samples only.

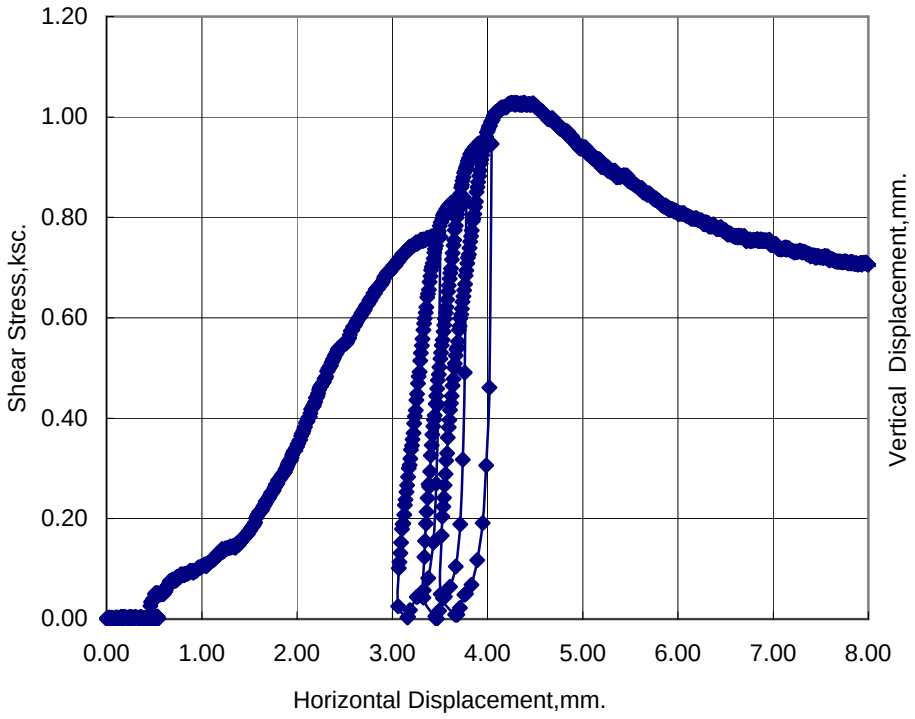
2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.

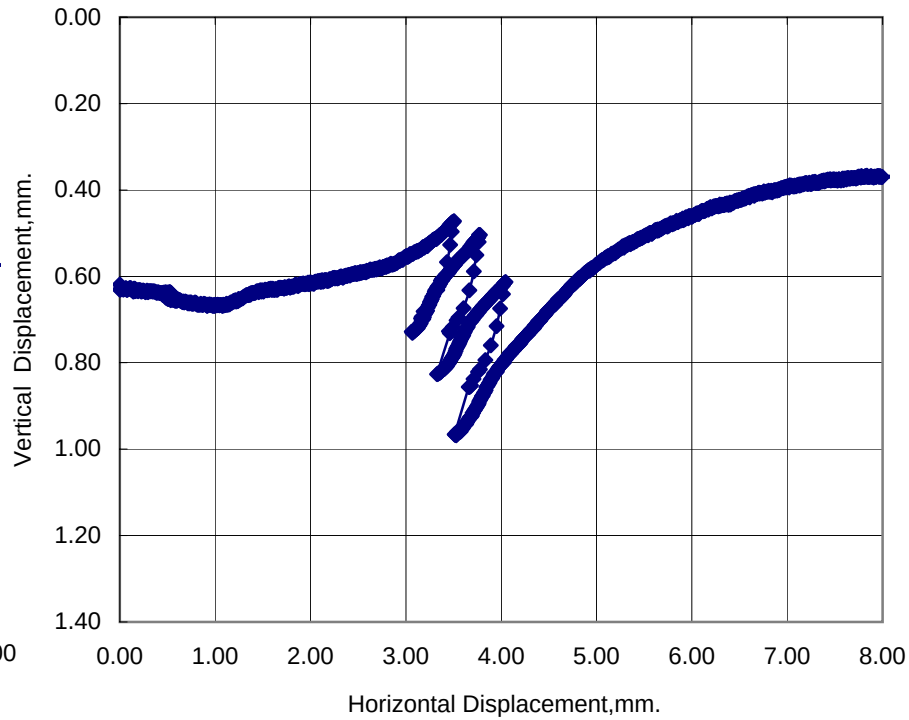
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	PT4LS
Sr ; %	39.13

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.

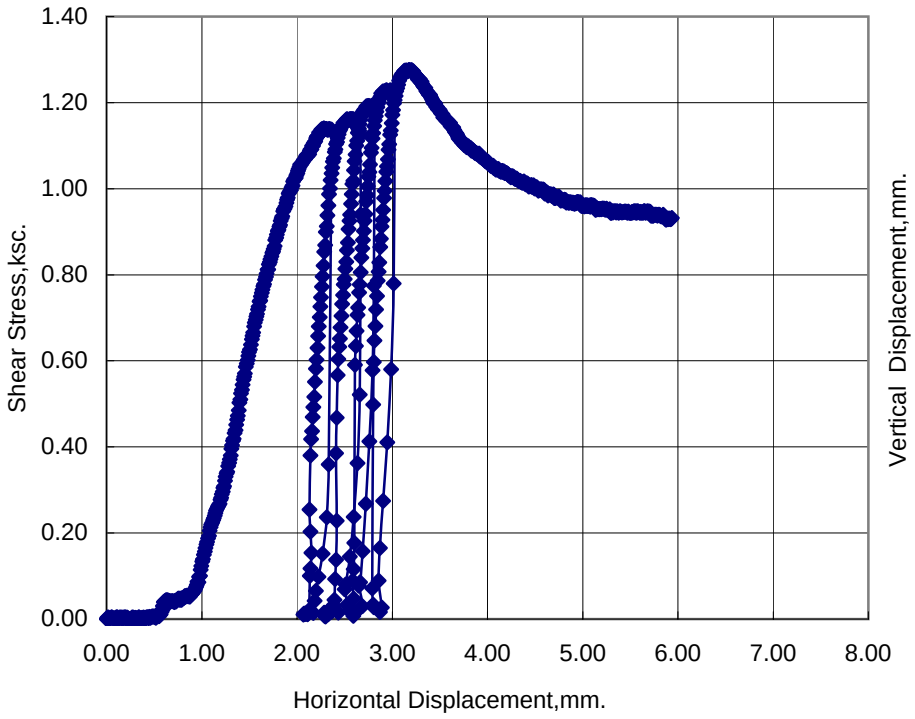


Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

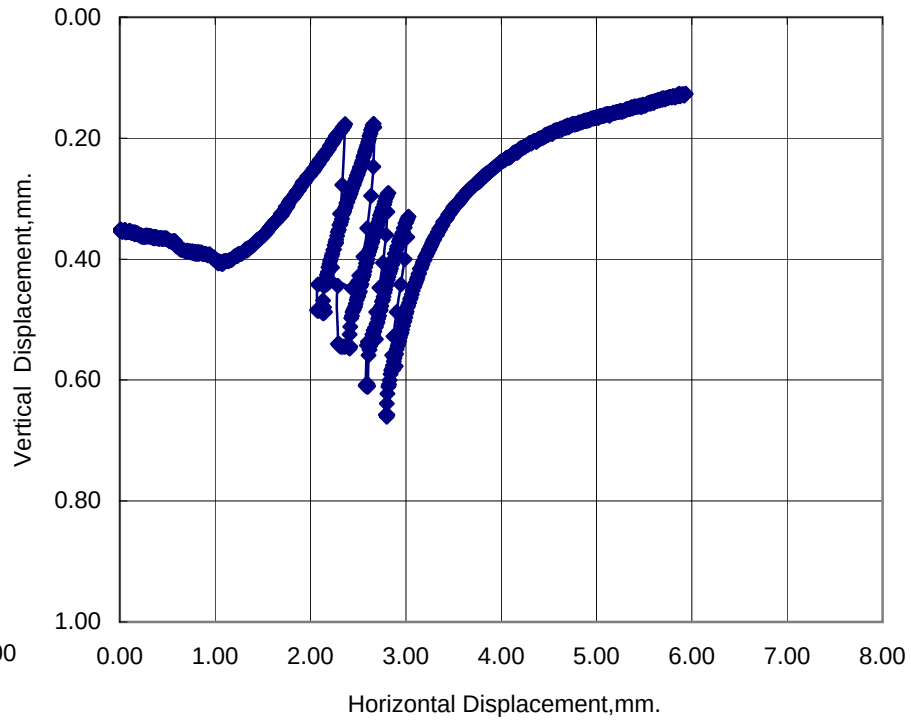
KASETSART UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

Project:	Landslide Behavior in Phuket
Boring No.	PT4LS
Sr ; %	29.97

Shear Stress and Displacement,mm.



Vertical and Horizontal Displacement,mm.



Remarks: 1) Certification applies to test samples only.
2) Information under "For", "Project", are supplied by client. These are not certified.
3)This certificate is invalid without appropriate signature and seal.

KASETSART UNIVERSITY

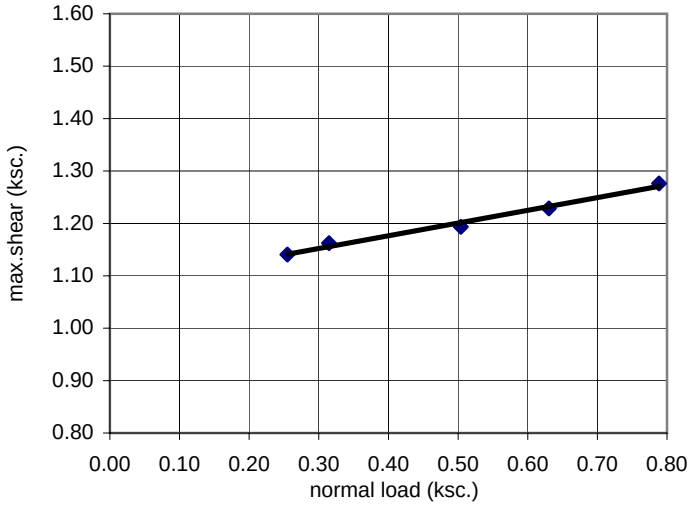
DEPARTMENT OF CIVIL ENGINEERING,GEOTECHNICAL ENGINEERING LABOLATORY

DIRECT SHEAR TEST (ASTM D 3080)

Project	Landslide Behavior in Phuket		Location	Patong Phuket	BORING NO. PT4LS
Soil Description	Brown Sand			Proving Ring No.	1155-15-11838
Diameter of Sample	6.330	cm.		Shearing Rate	0.01 mm/min
Hight of Sample	2.540	cm.		Test by:	THIPMANEE
Area of Sample	31.454	$cm.^2$			
Volume	79.893	$cm.^3$			
Type of Test	Multi Stage Direct Shear Test				
	Consolidation Drained Test				

Container No.		H1	A4	A7
Wet soil+Container	g.	128.19	47.85	35.54
Dry soil+Container	g.	118.53	44.74	33.7
Weigth of Water	g.	9.66	3.11	1.84
Weight Container	g.	18.60	16.85	14.07
Weigth of Dry Soil	g.	99.93	27.89	19.63
Water Content	%	9.67	11.15	9.37
Average Water Content	%	10.06		

Specific Gravity		2.646
Unit Weight	ton/m^3	1.653
Void Ratio		0.889
Degree of Saturation	%	29.97



Test No.	Normal Stress ksc.	Max Shear Stress ksc.
1	0.255	1.140
2	0.315	1.162
3	0.504	1.193
4	0.630	1.229
5	0.789	1.276
	ϕ = 13.64 Degree	c =1.0792 ksc.

Remark:

1) Certification applies to test samples only.

2) Information under "For", "Project", are supplied by client. These are not certified.

3)This certificate is invalid without appropriate signature and seal.