Appendix 2.2 Soil Investigation (Part–2)

SUBSOIL INVESTIGATION
FOR
PATTAYA TOURISM DEVELOPMENT (PHASE II)
PATTAYA, CHONBURI
REPORT NO. 85 JUNE 1978

SUBMITTED TO
PACIFIC CONSULTANTS INTERNATIONAL
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CONTENT

1. INTRODUCTION

This report is a second phase subsoil investigation of the Pattaya Tourism Development Project. The first phase investigation was carried out in January 1978, by the Design 103 Co., Ltd. and the results were summaried in the report entitled "Subsoil Investigation For Pattaya Tourism Development Project, Report No. 77 February 1978"

Seven (7) deep borings (BW 1-BW 7) were drilled on land for the solid waste disposal purposes. Five (5) deep borings (BS 1-BS 5) were drilled along the proposed sewer line. Six (6) deep borings (BP 1-BP 6) and water jetting (or wash boring) were made in the Pattaya Bay area for the marine structures. The soil type of the sea bed were collected and observed. In addition, 10 hand auger borings (HA 2, 3, 5, 6, 8, 9, 10, 12, 13 and 14) were carried out along the proposed drainage line.

The main objective of this investigation is to collect and evaluate the standard penetration test results, soil type and general soil engineering properties.

2. FIELD INVESTIGATION

2.1 Shallow Boring A 10 cm diameter bucket type auger was manually augered to a required depth, the representative samples were collected and kept in the plastic bags. Usually the boring holes were controlled by the depth of 2 meters or the stabilizing of the bore hole.

2.2 Deep Boring The drilling procedure was performed in accordance with the conventional wash boring method. The bore holes were advanced by a rotary drilling rig, in stabilizing the bore hole, the 10 cm diameter casing were driven into the poor soil strata and the heavy mud slurry was employed in the stiff clay or cohesionless soil strata.

The soil classification presented in the boring logs were visually identified.

2.3 Standard Penetration Test The standard split barrel sampler (ASTM D-1586) was used. The sampler was seated at the bottom of stiff cohesive soil or cohesionless soil, the 140 pounds hammer was freely dropped from 30 inches vertical distance (through a guide pipe). The number of blows at every 6-inch of penetration was recorded. Each test was stopped at 18 inches of penetration or the number of blows was greater than 100 blows per foot. The sum of blows of the last two 6-inch (per foot) is taken as the standard penetration resistance; N value, which is an indication of the relative in-situ soil resistance. The standard penetration tests were carried out only in deep borings programe, the test results are presented in the boring logs figures 1 to 28.

2.4 Diving Sampling At location along the proposed sewer disposal line, the sea bed soil samples of 15 cm deep were scooped by a diver, the soil type were visually identified. The investigation results presented in table 9.

3. SOIL ENGINEERING PROPERTIES

3.1 Atterberg Limits, Water Content, Unit Weight, Specific Gravity The tests were executed on the selected samples in accordance with the standard procedure, the test results are tabulated in the tables 1 to 6.

3.2 Grain Size Distribution The representative coarse grain soil was processed with the standard procedure on a set of sieves. On the fine grain soil, the grain size was determined by the hydrometer method, firstly; an about 150 gramms of nature soil was washed throught the No. 200 sieve (0.074 mm openening). The mud solution was oven dried, then an approximate 50 gramms of

sample was dissolved with the dispersion agent in the distilled water and kept for overnight, before testing, the water was added into the solution and poured into the one litre standard cylinder. The tes was carried out in accordance with the standard procedure. The grain size distribution curve of the individual sample was persented in figures 29 to 58.

3.3 Permeability Test The constant head permeability was carried out on the sandy specimen of 3.4 cm diameter by 7.1 cm in length. The split spoon samples was compacted in to the mold and saturated for about 15 minutes or until the air bubble was disappeared in the system. The quantity of discharge was collected and the corresponding elapsed time was observed. The tests only carried out on sample of boring group and the test results are presented in table 7.

3.4 In-Situ Permeability Test The field permeability were observed from the relatively large diameter of local wells (70 to 110 cm in diameter). Firstly, the water in the well was pumped out to a certain level below the ground water table, then the elapsed time of the water rising was observed.

In the reversed procedure, the water was filled into the well until the water level was above the ground water table, the elapsed time of falling water level was observed. The test results are presented in table 8.

TABLE 1 SUMMARY OF SOIL ENGINEERING PROPERTIES

Project : Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

Date: June 12, 1978

Bore Hole No.	Depth m	Water Content %	Liquid Limit %	Plastic Limit %	Wet Unit Weight t/m^3	Dry Unit Weight t/m^3	Specific Gravity	Standard Penetration Blow Count blow/ft
BS 1	1.5-2.0	18.5	-	-	2.17	1.83	2.68	12
	3.0-3.5	18.8	-	-	1.86	1.57	2.62	2
	4.5-5.0	21.2	-	-	1.92	1.58	2.66	6
	6.0-6.5	16.2	-	-	2.04	1.76	2.62	17
	7.5-8.0	11.0	27.7	15.8	2.24	2.04	2.62	40
	9.0-9.5	10.4	25.5	15.5	1.95	1.77	2.61	35
	10.5-11.0	-	-	-	-	-	2.66	100/11"
BS 2	1.5-2.0	6.9	42.5	21.8	2.05	1.92	2.64	176
	3.0-3.5	21.7	-	-	1.81	1.49	2.59	63
	4.5-5.0	4.2	-	-	1.64	1.57	2.62	41
	6.0-6.5	8.7	-	-	2.00	1.84	2.63	33
	7.5-8.0	22.3	-	-	1.84	1.50	2.62	57
	9.0-9.5	17.4	-	-	2.05	1.75	2.60	47
	10.5-11.0	-	-	-	-	-	-	58
BS 3	1.5-2.0	17.1	-	-	2.10	1.80	2.64	11
	3.0-3.5	12.3	-	-	2.25	2.00	2.62	26
	4.5-5.0	8.8	-	-	2.06	1.89	2.65	41
	6.0-6.5	17.1	-	-	2.07	1.77	2.67	46
	7.5-8.0	-	-	-	-	-	2.62	39
	9.0-9.5	11.4	36.3	16.7	1.98	1.78	2.62	26
	10.5-11.0	10.8	-	-	1.97	1.78	2.61	31

TABLE 2 SUMMARY OF SOIL ENGINEERING PROPERITES

Project : Pattaya Tourism Development (Phase II)

Location: Pattaya Cholburi Date: June 12, 1978

Bore Hole No.	Depth m	Water Content %	Liquid Limit %	Plastic Limit %	Wet Unit Weight t/m^3	Dry Unit Weight t/m^3	Specific Gravity	Standard Penetration Blow Count blow/ft
BS 4	1.5-2.0	9.6	-	-	2.04	1.84	-	19
	3.0-3.5	9.8	-	-	-	-	2.66	14
	4.5-5.0	4.9	-	-	-	-	-	37
	6.0-6.5	9.5	-	-	1.95	1.77	2.61	96
	7.5-8.0	8.1	-	-	2.04	1.88	-	77
	9.0-10.0	11.0	30.1	13.7	2.01	1.81	2.66	133
	10.5-11.0	-	-	-	-	-	-	74
BS 5	1.0-1.5	6.5	-	-	1.84	1.73	-	6
	4.0-4.5	13.3	39.0	26.5	2.11	1.87	2.64	19
	5.5-6.0	17.8	-	-	2.06	1.75	-	27
	7.0-7.5	15.0	-	-	1.98	1.72	-	39
	8.5-9.0	20.6	-	-	2.02	1.97	-	73
	10.0-10.5	13.5	41.3	27.1	1.92	1.69	2.64	70
	11.5-12.0	16.0	-	-	2.00	1.97	-	92

TABLE 3 SUMMARY OF SOIL ENGINEERING PROPERTIES

Project : Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

Date: June 12, 1978

Bore Hole No.	Depth m	Water Content %	Liquid Limit %	Plastic Limit %	Wet Unit Weight t/m^3	Dry Unit Weight t/m^3	Specific Gravity	Standard Penetration Blow Count blow/ft
BP 1	3.0-3.5	14.5	-	-	2.02	1.77	2.65	53
	6.0-6.5	35.4	42.8	24.6	2.04	1.50	2.61	85
	7.0-7.5	14.6	-	-	2.03	1.78	2.66	113
BP 2	1.0-1.5	17.5	-	-	2.09	1.77	2.66	10
	4.0-4.5	14.1	40.7	22.9	1.96	1.72	2.69	25
	7.0-7.5	11.4	-	-	1.90	1.71	2.66	42
	10.0-10.5	13.4	-	-	2.02	1.79	2.63	170
BP 3	4.5-5.0	13.5	49.0	27.1	2.01	1.77	2.67	47
	6.0-6.5	-	-	-	-	-	2.65	118/11"
	7.5-8.0	6.5	-	-	2.03	1.90	2.64	147/11"
	10.5-11.0	23.5	43.5	22.3	2.00	1.60	2.60	49
BP 4	1.5-2.0	14.5	-	-	2.09	1.83	2.66	39
	4.5-5.0	22.0	39.4	26.3	1.94	1.59	2.62	96
	7.5-8.0	22.8	-	-	1.94	1.58	2.65	28
	10.5-11.0	17.5	47.5	27.4	2.09	1.78	2.64	13
	13.5-14.0	7.6	-	-	1.97	1.83	2.65	100/5"
BP 5	1.0-1.5	19.7	-	-	2.06	1.73	2.61	47
	4.0-4.5	10.4	-	-	2.00	1.81	2.65	55
	7.0-7.5	13.6	-	-	1.99	1.75	2.65	47
	10.0-10.5	18.5	41.2	27.5	2.10	1.77	2.65	55

TABLE 4 SUMMARY OF SOIL ENGINEERING PROPERTIES

Project : Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi Date: June 12, 1978

Bore Hole No.	Depth m	Water Content %	Liquid Limit %	Plastic Limit %	Wet Unit Weight t/m^3	Dry Unit Weight t/m^3	Specific Gravity	Standard Penetration Blow Count blow/ft
BW 1	1.5-2.0	19.0	79.8	31.1	2.08	1.75	2.66	69
	3.0-3.5	16.5	47.5	22.2	2.12	1.82	2.69	100
	4.5-5.0	14.0	-	-	2.05	1.80	2.63	113
	6.0-6.5	16.0	-	-	2.24	1.93	2.66	145
	7.5-8.0	23.9	37.4	17.6	2.05	1.66	2.61	152
	9.0-9.5	16.6	-	-	2.12	1.82	-	112
	10.5-11.0	17.8	-	-	2.01	1.71	2.65	99
	12.0-12.5	19.7	-	-	1.92	1.61	-	91
	13.5-14.0	18.9	-	-	2.05	1.72	2.64	97
	15.0-15.5	24.9	-	-	2.06	1.65	-	115
BW 2	1.5-2.0	4.5	62.0	28.5	2.02	1.93	2.64	36
	3.0-3.5	10.1	-	-	2.18	1.98	-	39
	4.5-5.0	13.2	-	-	2.11	1.86	2.68	39
	6.0-6.5	9.4	-	-	1.98	1.81	2.65	69
	7.5-8.0	13.6	82.2	33.9	1.99	1.75	2.68	107
	9.0-9.5	14.9	-	-	2.08	1.81	-	72
	10.5-11.0	11.0	58.8	29.7	2.10	1.90	2.65	41
	12.0-12.5	25.8	-	-	2.06	1.64	-	30
	13.5-14.0	20.7	82.5	38.0	2.06	1.70	2.60	42
	15.0-15.5	35.4	-	-	1.99	1.47	-	36

TABLE 5 SUMMARY OF SOIL ENGINEERING PROPERTIES

Project : Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

Date: June 12, 1978

Bore Hole No.	Depth m	Water Content %	Liquid Limit %	Plastic Limit %	Wet Unit Weight t/m^3	Dry Unit Weight t/m^3	Specific Gravity	Standard Penetration Blow Count blow/ft
BW 3	0.5-1.0	10.8	-	-	2.07	1.87	2.64	16
	2.0-2.5	10.2	-	-	2.19	1.96	2.64	46
	3.5-4.0	14.7	-	-	2.11	1.84	2.64	43
	5.0-5.5	8.4	-	-	2.03	1.87	2.64	165
	6.5-7.0	10.4	-	-	2.01	1.83	2.61	134
	8.0-8.5	11.6	54.2	26.2	2.04	1.83	2.61	97
	9.5-10.0	11.6	-	-	1.95	1.95	-	42
	10.0-10.5	5.2	-	-	1.92	1.83	2.61	60
BW 4	1.5-2.0	18.9	-	-	1.96	1.65	2.60	8
	4.5-5.0	11.3	44.5	23.4	2.09	1.87	2.64	28
	7.5-8.0	6.5	-	-	1.95	1.83	2.65	68
	10.5-11.0	5.7	-	-	1.99	1.88	2.65	85
BW 5	1.5-2.0	13.5	-	-	2.08	1.83	2.69	30
	3.0-3.5	-	-	-	-	-	2.61	75
	4.5-5.0	18.3	-	-	2.01	1.70	2.62	140/11"
	7.5-8.0	12.1	-	-	2.08	1.86	2.64	136
	9.0-9.5	-	-	-	-	-	-	162
	10.5-11.0	12.1	46.1	28.6	2.13	1.90	2.64	100/7"
BW 6	1.0-1.5	10.1	-	-	2.00	1.82	2.63	7
	4.0-4.5	9.8	39.4	26.2	1.97	1.79	2.64	84
	7.0-7.5	13.6	-	-	1.97	1.73	2.65	119
	10.0-10.5	13.4	-	-	1.95	1.72	2.64	80

TABLE 6 SUMMARY OF SOIL ENGINEERING PROPERTIES

Project : Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

Date: June 12, 1978

Bore Hole No.	Depth m	Water Content %	Liquid Limit %	Plastic Limit %	Wet Unit Weight t/m^3	Dry Unit Weight t/m^3	Specific Gravity	Standard Penetration Blow Count blow/ft
BH 7	3.0-3.5	6.5	-	-	1.97	1.85	2.61	70
	6.0-6.5	8.5	-	-	1.99	1.83	2.64	100/5"
	9.0-9.5	20.7	48.3	25.4	2.14	1.77	2.62	58
HA 2	0.0-0.5	14.6	-	-	2.16	1.88	2.66	-
	0.5-1.0	30.6	-	-	2.06	1.51	2.66	-
	1.0-1.5	11.8	-	-	1.79	1.60	-	-
HA 3	1.5	12.4	-	-	1.79	1.86	-	-
HA 5	1.0-1.5	14.6	-	-	1.89	1.65	2.66	-
HA 6	1.0-2.0	12.1	-	-	1.87	1.67	-	-
HA 7	1.0-1.5	15.4	-	-	2.00	1.73	-	-
HA 8	1.0-1.5	4.0	-	-	1.56	1.50	2.66	-
	2.0-2.5	19.9	-	-	1.95	1.63	2.66	-
HA 9	1.0	13.7	-	-	2.12	1.86	-	-
HA 10	0.0-1.0	19.1	-	-	2.08	1.75	-	-
	1.0-2.0	16.3	-	-	2.13	1.83	2.67	-
HA 12	0.0-1.0	8.5	-	-	1.83	1.69	-	-
	1.0-2.0	12.0	-	-	2.22	1.98	2.68	-
HA 13	0.5	6.6	-	-	1.79	1.68	-	-
	1.0	13.8	-	-	2.29	2.00	-	-
	2.0	16.0	-	-	2.12	1.83	2.60	-
HA 14	1.0-1.5	11.1	-	-	1.65	1.48	-	-

TABLE 7 CONSTANT HEAD PERMEABILITY TEST RESULTS

Project : Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

Date: June 13, 1978

Bore Hole No.	Depth m	Permeability K cm/sec	Dry Unit Weight t/m^3	Remarks
BW-2	7.5 - 8.0	2.51×10^{-3}	1.67	
BW-5	3.0 - 3.5	1.34×10^{-4}	1.80	
BW-5	9.0 - 9.5	1.16×10^{-5}	1.77	
BW-6	5.5 - 6.0	4.71×10^{-3}	1.60	

TABLE 8 IN-SITU PERMEABILITY TEST RESULTS

Project : Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

Date: June 13, 1978

Well No.	Well Diameter cm	Well Depth cm	Water Table cm	Permeability cm/sec		Remarks
				Rising	Falling	
1	93	294		2.07×10^{-2}	4.01×10^{-2}	Located beside BW 7
2	93	231		9.79×10^{-3}	-	Located near by BW.3
3	114	694		6.12×10^{-2}	4.61×10^{-2}	Located near by BW 2
4	93	778		2.32×10^{-2}	2.69×10^{-2}	Located near by BW 4
5	84	885		5.52×10^{-4}	-	Located near by BW 6 and new dumping site.
6	112	-		8.27×10^{-4}	2.34×10^{-2}	Located, behind lumber shop.
7	73	-		3.61×10^{-2}	3.69×10^{-2}	Located near old dumping site.
8	73	-		3.23×10^{-2}	-	Located near old dumping site.

TABLE 9 DIVING SAMPLE DESCRIPTION

Project : Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

Date: June 13, 1978

Location	Water Depth m	Soil Description
DS 1		Gray SILTY FINE SAND, with shiny shell powder.
DS 2		Gray SILTY FINE SAND, with tiny shell fragments.
DS 3		Gray SILTY FINE SAND, with shiny and tiny shell fragment.

TABLE 10 JETTING TEST RESULTS

Project : Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

Date: June 13, 1978

Test No.	Depth of Jetting m	Wash Out Soil Description	Water Level Above Sea Bed				
			Date	Time	Depth cm	Time	Depth cm
JK 1	0.0-6.0	Sandy Clay	2 June 78	4.10 PM	250	-	-
JK 2	0.0-6.0	Sand	2 June 78	4.40 PM	675	-	-
JK 3	0.0-6.0	Sand	2 June 78	5.15 PM	1030	-	-
JN 1	0.0-6.0	Clay	1 June 78	9.00 AM	400	9.30 AM	400
			1 June 78	10.00 AM	420	10.30 AM	480
JN 2	0.0-6.0	Clay	1 June 78	11.00 AM	500	11.30 AM	500
			1 June 78	12.00 AM	580	12.30 PM	580
JN 3	0.0-6.0	Clay	1 June 78	1.20 PM	800	1.30 PM	820
			1 June 78	2.00 PM	880	-	-

SURCON COMPANY LIMITED
LOG BORING NO. BS 1

PROJECT: Pattaya Tourism Development (Phase II) DATE COMMENCED May 17, 78
LOCATION: Pattaya, Cholburi DATE FINISHED May 18, 78

ABBREVIATIONS: PA = POWER AUGER; HA = HAND AUGER; ST = SHELBY TUBE; SS = SPLIT SPOON; WO = WASHOUT; SPT = STANDARD PENETRATION TEST; DB = DIAMOND BIT; RB = ROCK BIT; GROUND ELEV. M; WATER TABLE -1.30 M

O LL X · Nat. W X · ⊕ PL X · △ UNCON. ST. T/m² · ● SPT BLS/FT · ■ WET UNIT WT. T/m³

SOIL DESCRIPTION	DEPTH (m)	SAMPLING METHOD
Gray-light brown, loose FINE SAND. (SP)	0–5	WO, SS, WO, SS, WO, SS
Gray, medium SAND. (SP)	5–7	WO, SS
Light gray-light brown, dense to very dense clayey COARSE SAND. (SC)	7–11	WO, SS, WO, SS, WO, SS
End of Boring		

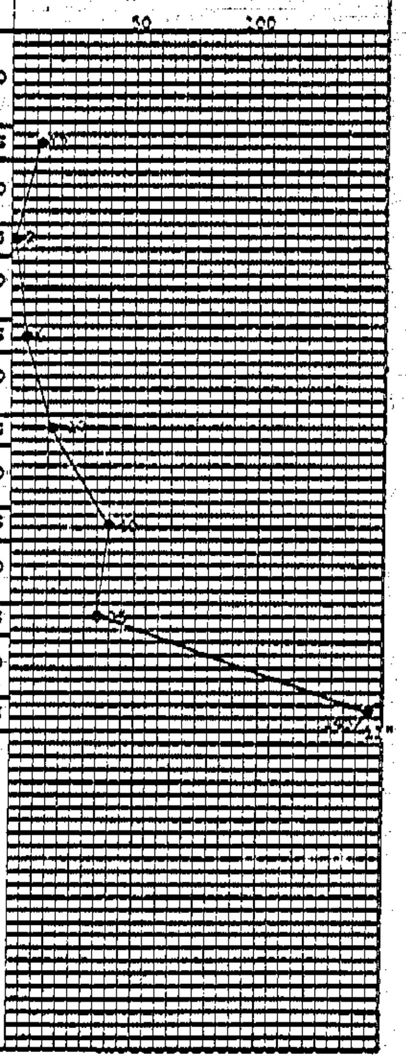


Figure 1

SURCON COMPANY LIMITED
LOG BORING NO. BS 2

PROJECT: Pattaya Tourism Development (Phase II) DATE COMMENCED May 18, 78
LOCATION: Pattaya, Cholburi DATE FINISHED May 18, 78

ABBREVIATIONS: PA = POWER AUGER; HA = HAND AUGER; ST = SHELBY TUBE; SS = SPLIT SPOON; WO = WASHOUT; SPT = STANDARD PENETRATION TEST; DB = DIAMOND BIT; RB = ROCK BIT; GROUND ELEV. M; WATER TABLE -0.10 M

O LL X · Nat. W X · ⊕ PL X · △ UNCON. ST. T/m² · ● SPT BLS/FT · ■ WET UNIT WT. T/m³

SOIL DESCRIPTION	DEPTH (m)	SAMPLING METHOD
Reddish brown, hard SANDY CLAY. (CL)	0–2	WO, SS
Light gray, dense to very dense, medium to coarse SAND, some pea gravel. (SP)	2–11	WO, SS, WO, SS, WO, SS, WO, SS, WO, SS
End of Boring		

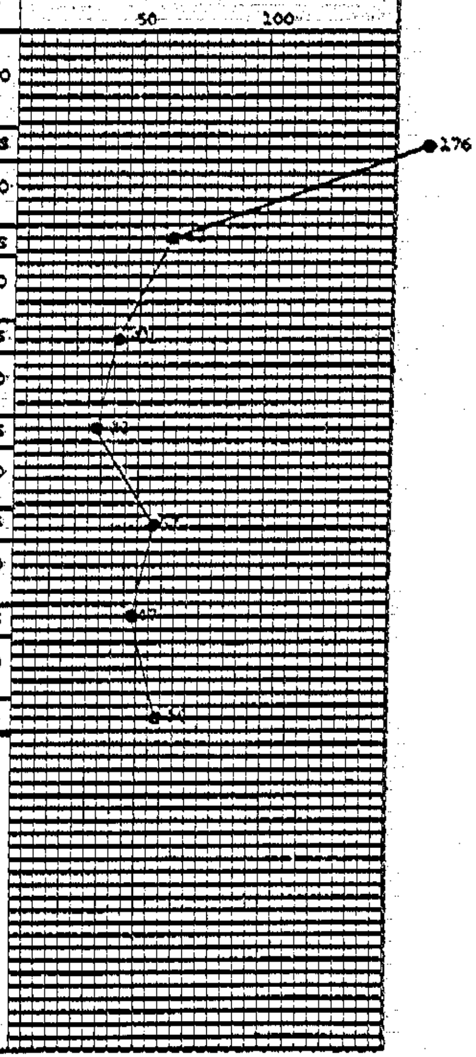


Figure 2

SURCON COMPANY LIMITED

LOG BORING NO. BS 3

PROJECT: Pattaya Tourism Development (Phase II) DATE COMMENCED May 19, 78

LOCATION: Pattaya, Cholburi DATE FINISHED May 19, 78

ABBREVIATIONS
PA = POWER AUGER
HA = HAND AUGER
ST = SHELBY TUBE
SS = SPLIT SPOON
WO = WASH OUT

SPT = STANDARD PENETRATION TEST
DB = DIAMOND BIT
RB = ROCK BIT
GROUND ELEV m
WATER TABLE -0.45 m

○ LL X Nat. w % ⊕ PL %
△ UNCON. ST. t/m² ● SPT. Blo/ft
▪ WET UNIT WT. t/m³

SOIL DESCRIPTION	DEPTH m	SAMPLING METHOD	50 100
Brown to light brown, loose to medium, FINE SAND. (SP)	0	WO	
	1	SS	11
	2	WO	
	3	SS	21
	4	WO	
	5	SS	43
	6	WO	
	7	SS	46
Light gray, dense COARSE SAND. (SC)	8	WO	
	9	SS	31
Light gray medium clayey COARSE SAND. (SC)	10	WO	
	11	SS	26
End of Boring	12		

Figure 3

SURCON COMPANY LIMITED

LOG BORING NO. BS 4

PROJECT: Pattaya Tourism Development (Phase II) DATE COMMENCED May 16, 78

LOCATION: Pattaya, Cholburi DATE FINISHED May 16, 78

ABBREVIATIONS
PA = POWER AUGER
HA = HAND AUGER
ST = SHELBY TUBE
SS = SPLIT SPOON
WO = WASH OUT

SPT = STANDARD PENETRATION TEST
DB = DIAMOND BIT
RB = ROCK BIT
GROUND ELEV m
WATER TABLE -0.00 m

○ LL X Nat. w % ⊕ PL %
△ UNCON. ST. t/m² ● SPT Blo/ft
▪ WET UNIT WT. t/m³

SOIL DESCRIPTION	DEPTH m	SAMPLING METHOD	50 100
Light gray to yellowish brown stiff CLAY. (CH)	0	WO	
	1	SS	27
	2	WO	
	3	SS	14
Gray, medium to dense coarse SAND, some pea gravel. (SP)	4	WO	
	5	SS	37
	6	WO	
	7	SS	70
Light gray to light brown, very dense CLAYEY SAND, some pea gravel. (SC)	8	WO	
	9	SS	100
Light gray, to-light brown very dense COARSE SAND, some gravel. (SP)	10	WO	
	11	SS	
End of Boring	12		
	14		

Figure 4

SURCON COMPANY LIMITED

LOG BORING NO. BS 5

PROJECT: Pattaya Tourism Development (Phase II) DATE COMMENCED May 21, 78

LOCATION: Pattaya, Cholburi DATE FINISHED May 21, 78

ABBREVIATIONS
PA = POWER AUGER
HA = HAND AUGER
ST = SHELBY TUBE
SS = SPLIT SPOON
WO = WASH OUT

SPT = STANDARD PENETRATION TEST
DB = DIAMOND BIT
RB = ROCK BIT
GROUND ELEV. M
WATER TABLE -1.20 M

SOIL DESCRIPTION	STRATA	DEPTH m	SAMPLING METHOD
Brown, loose FINE SAND. (Fill-SP)			WO
		2	SS
Dark gray, loose FINE SAND. (SP)			WO
			SS
Gray, stiff SANDY CLAY. (CL)		4	WO
			SS
		6	WO
			SS
Gray to light gray, dense to very dense COARSE SAND. (SP)			WO
		8	SS
			WO
		10	SS
			WO
			SS
End of Boring		12	

○ LL X Nat. w X ⊕ PL X
△ UNCON. ST. t/m² ● SPT BLS/ft
⊕ WET UNIT WT. t/m³

50 100

Figure 5

SURCON COMPANY LIMITED

LOG BORING NO. BP 1

PROJECT: Pattaya Tourism Development (Phase II) DATE COMMENCED May 29, 78

LOCATION: Pattaya, Cholburi DATE FINISHED May 31, 78

ABBREVIATIONS
PA = POWER AUGER
HA = HAND AUGER
ST = SHELBY TUBE
SS = SPLIT SPOON
WO = WASH OUT

SPT = STANDARD PENETRATION TEST
DB = DIAMOND BIT
RB = ROCK BIT
GROUND ELEV. M
WATER TABLE M

SOIL DESCRIPTION	STRATA	DEPTH m	SAMPLING METHOD
Gray, loose SAND. (SP)			SS
			WO
		2	SS
Light gray, to light brown very stiff to hard SANDY CLAY. (CL)			WO
		4	SS
			WO
		6	SS
			WO
Light brown hard coarse SANDY CLAY, and BED ROCK. (CL)			SS
			WO
			SS
End of Boring		8	
Note: A jetting hole was checked against this refusal layer of bed rock. The depth of jetting hole was 6.0 m below sea bed.		10	
		12	
		14	

○ LL X Nat. w X ⊕ PL X
△ UNCON. ST. t/m² ● SPT BLS/ft
⊕ WET UNIT WT. t/m³

50 100

Figure 6

SURCON COMPANY LIMITED

LOG BORING NO. BP 2

PROJECT: Pattaya Tourism Development (Phase XX) DATE COMMENCED May 27, 78

LOCATION: Pattaya, Cholburi DATE FINISHED May 27, 78

ABBREVIATIONS
PA = POWER AUGER
HA = HAND AUGER
ST = SHELBY TUBE
SS = SPLIT SPOON
WO = WASH OUT

SPT = STANDARD PENETRATION TEST
DB = DIAMOND BIT
RB = ROCK BIT
GROUND ELEV m
WATER TABLE m

O LL X Nat. w % @ PL %
Δ UNCON ST t/m² ● SPT kg/cm²
⊕ WET UNIT WT t/m³

SOIL DESCRIPTION	DEPTH	SAMPLING RECORD	50	100
Dark gray, loose fine SAND. (SP)	0	WO		
		SS	4	
	2	WO		
Light gray, very stiff coarse SANDY CLAY. (CL)		SS	20	
	4	WO		
		SS	27	
	6	WO		
Light brown, hard coarse SANDY CLAY, seams pea gravel. (CL)		SS	42	
	8	WO		
		SS	97	
	10	WO		
		SS	170	
End of Boring				

Figure 7

SURCON COMPANY LIMITED

LOG BORING NO. BP 3

PROJECT: Pattaya Tourism Development (Phase XX) DATE COMMENCED May 24, 78

LOCATION: Pattaya, Cholburi DATE FINISHED May 24, 78

ABBREVIATIONS
PA = POWER AUGER
HA = HAND AUGER
ST = SHELBY TUBE
SS = SPLIT SPOON
WO = WASH OUT

SPT = STANDARD PENETRATION TEST
DB = DIAMOND BIT
RB = ROCK BIT
GROUND ELEV m
WATER TABLE m

O LL X Nat. w % @ PL %
Δ UNCON ST t/m² ● SPT kg/cm²
⊕ WET UNIT WT t/m³

SOIL DESCRIPTION	DEPTH	SAMPLING RECORD	50	100
Dark gray to black, loose FINE SAND. (SP)	0	WO		
		SS	12	
	2	WO		
Dark gray to black, very stiff to hard coarse SANDY CLAY. (CL)		SS	20	
	4	WO		
		SS	35	
	6	WO		
Light gray to light brown, very dense COARSE SAND. (SP)		SS	74	
	8	WO		
		SS	147/11cm	
Gray very dense CLAYEY SAND. (SC)		WO		
	10	SS	50/	
Light gray to light brown hard CLAY. (CH)		WO		
		SS		
End of Boring	12			

Figure 8

SURCON COMPANY LIMITED

LOG BORING NO. BP 4

PROJECT: Pattaya Tourism Development (Phase II) DATE COMMENCED May 23, 78

LOCATION: Pattaya, Cholburi DATE FINISHED May 25, 78

ABBREVIATIONS: PA. = POWER AUGER; HA. = HAND AUGER; ST = SHELBY TUBE; SS = SPLIT SPOON; WO = WASH OUT; SPT = STANDARD PENETRATION TEST; DB = DIAMOND BIT; RB = ROCK BIT; GROUND ELEV. M.; WATER TABLE M.

SOIL DESCRIPTION	GRAPHIC LOG	DEPTH m	SAMPLING METHOD
Light gray, dense coarse SAND. (SP)		2	WO, SS
Light gray, very dense clayey coarse SAND. (SC)		4	WO, SS
Light gray, hard to stiff SILTY CLAY, some sand. (CL)		8	WO, SS
Light gray, to light brown, very hard SANDY CLAY. (SC)		12	WO, SS
End of Boring		14	SS

Figure 9

SURCON COMPANY LIMITED

LOG BORING NO. BP 5

PROJECT: Pattaya Tourism Development (Phase II) DATE COMMENCED May 26, 78

LOCATION: Pattaya, Cholburi DATE FINISHED May 26, 78

ABBREVIATIONS: PA. = POWER AUGER; HA. = HAND AUGER; ST = SHELBY TUBE; SS = SPLIT SPOON; WO = WASH OUT; SPT = STANDARD PENETRATION TEST; DB = DIAMOND BIT; RB = ROCK BIT; GROUND ELEV. M.; WATER TABLE M.

SOIL DESCRIPTION	GRAPHIC LOG	DEPTH m	SAMPLING METHOD
Light gray, very stiff silty to fine sandy CLAY. (CL)		2	WO, SS
Light gray, very dense clayey FINE SAND. (SC)		4	WO, SS
Gray, hard coarse SANDY CLAY. (CL)		6	WO, SS
Light gray, hard CLAYEY SILT. (MH)		8	WO, SS
End of Boring		10	SS

Figure 10

SURCON COMPANY LIMITED

LOG BORING NO. BP 6

PROJECT: Pattaya Tourism Development (Phase II) — DATE COMMENCED June 2, 78

LOCATION: Pattaya, Chonburi (Ko Lan) — DATE FINISHED June 2, 78

ABBREVIATIONS: PA = POWER AUGER; HA = HAND AUGER; ST = SHELBY TUBE; SS = SPLIT SPOON; WO = WASH OUT; SPT = STANDARD PENETRATION TEST; DR = DIAMOND BIT; RB = ROCK BIT; GROUND ELEV. ___ M; WATER TABLE ___ M

SOIL DESCRIPTION	GRAPHIC LOG	DEPTH (m)	SAMPLING METHOD
Dark gray, very loose FINE SAND. (SP)		2	WO / SS
Light brown, hard gravelly CLAY, some decomposed sand and rock. (CL-GC)		4	WO / SS
Light gray, very hard, silty CLAY. (CL)		6	WO / SS
Light gray to white, very hard SANDY CLAY, some gravel. (CL)		8	WO / SS
End of Boring		10	WO / SS

Notes: Sea Water Depth on June 2, 1978
10.00 AM = 5.9 m
03.30 PM = 6.0 m

Figure 11

SURCON COMPANY LIMITED

LOG BORING NO. BH 1

PROJECT: Pattaya Tourism Development (Phase II) — DATE COMMENCED May 20, 78

LOCATION: Pattaya, Chonburi — DATE FINISHED May 22, 78

ABBREVIATIONS: PA = POWER AUGER; HA = HAND AUGER; ST = SHELBY TUBE; SS = SPLIT SPOON; WO = WASH OUT; SPT = STANDARD PENETRATION TEST; DR = DIAMOND BIT; RB = ROCK BIT; GROUND ELEV. ___ M; WATER TABLE -2.25 M

SOIL DESCRIPTION	GRAPHIC LOG	DEPTH (m)	SAMPLING METHOD
Reddish brown, hard SILTY CLAY. (CL)		2	WO / SS
Light gray-reddish brown, hard SILTY CLAY, some sand. (CL)		4	WO / SS
Light gray to white, hard SILTY CLAY, some coarse sand. (CL)		6	WO / SS
Yellowish brown-light gray hard CLAYEY SILT, some sand. (ML)		8	WO / SS
End of Boring		10	WO / SS
		12	WO / SS
		14	WO / SS

Figure 12

SURCON COMPANY LIMITED

LOG BORING NO. BH 2

PROJECT: Pattaya Tourism Development (Phase II) DATE COMMENCED May 19, 78

LOCATION: Pattaya, Cholburi DATE FINISHED May 19, 78

ABBREVIATIONS
PA = POWER AUGER
HA = HAND AUGER
ST = SHELBY TUBE
SS = SPLIT SPOON
WO = WASH OUT

SPT = STANDARD PENETRATION TEST
DB = DIAMOND BIT
RB = ROCK BIT
GROUND ELEV m
WATER TABLE -2.40 m

○ LL X | Nat. w X | ⊗ PL X
△ UNCON. ST. t/m² | ● SPT kg/cm²
≡ WET UNIT WT. t/m³

SOIL DESCRIPTION	GRAPHIC LOG	DEPTH m	SAMPLING METHOD	50	100
Reddish brown, hard SILTY CLAY. (CL)			WO		
		2	SS	10	
Brown, hard sandy CLAY. (CL)			WO		
		4	SS	30	
Light brown-light gray, dense to very dense clayey coarse SAND. (SC)			WO		
		6	SS	70	
			WO		
			SS		
		8	WO		
			SS		
Light brown-light gray, dense coarse SAND. (SP)		10	WO		
			SS	80	
			WO		
Light gray to white, hard CLAYEY SILT, some sand. (MH)		12	SS	60	
			WO		
			SS		
		14	WO		
			SS		
End of Boring					

Figure 13

SURCON COMPANY LIMITED

LOG BORING NO. BH 3

PROJECT: Pattaya Tourism Development (Phase II) DATE COMMENCED May 20, 78

LOCATION: Pattaya, Cholburi DATE FINISHED May 20, 78

ABBREVIATIONS
PA = POWER AUGER
HA = HAND AUGER
ST = SHELBY TUBE
SS = SPLIT SPOON
WO = WASH OUT

SPT = STANDARD PENETRATION TEST
DB = DIAMOND BIT
RB = ROCK BIT
GROUND ELEV m
WATER TABLE -0.80 m

○ LL X | Nat. w X | ⊗ PL X
△ UNCON. ST. t/m² | ● SPT kg/cm²
≡ WET UNIT WT. t/m³

SOIL DESCRIPTION	GRAPHIC LOG	DEPTH m	SAMPLING METHOD	50	100
Reddish brown, loose FINE SAND. (SP)			SS		
			SS	15	
		2	WO		
Light brown-light gray, dense clayey coarse SAND. (SC)			SS	45	
			WO		
		4	SS		
			WO		
			SS		165
		6	WO		
			SS	134	
Light gray, very dense CLAYEY SAND. (SC)			WO		
		8	SS	55	
			WO		
			SS	77	
		10	WO		
			SS	40	
End of Boring		12			

Figure 14

SURCON COMPANY LIMITED

LOG BORING NO. BW 4

PROJECT: Pattaya Tourism Development (Phase II)

LOCATION: Pattaya, Cholburi

DATE COMMENCED: May 29, 78

DATE FINISHED: May 30, 78

ABBREVIATIONS: PA = POWER AUGER; HA = HAND AUGER; ST = SHELBY TUBE; SS = SPLIT-SPOON; WO = WASH OUT; SPT = STANDARD PENETRATION TEST; DB = DIAMOND BIT; RB = ROCK BIT

GROUND ELEV. M.

WATER TABLE -0.70 M.

SOIL DESCRIPTION	SAMPLING METHOD
Brown, loose, medium SAND. (SP)	WO, SS
Light brown medium to dense, clayey SAND. (SC)	WO, SS, WO, SS
Light brown, dense FINE SAND. (SP)	WO, SS, WO, SS, WO, SS, WO, SS
End of Boring	

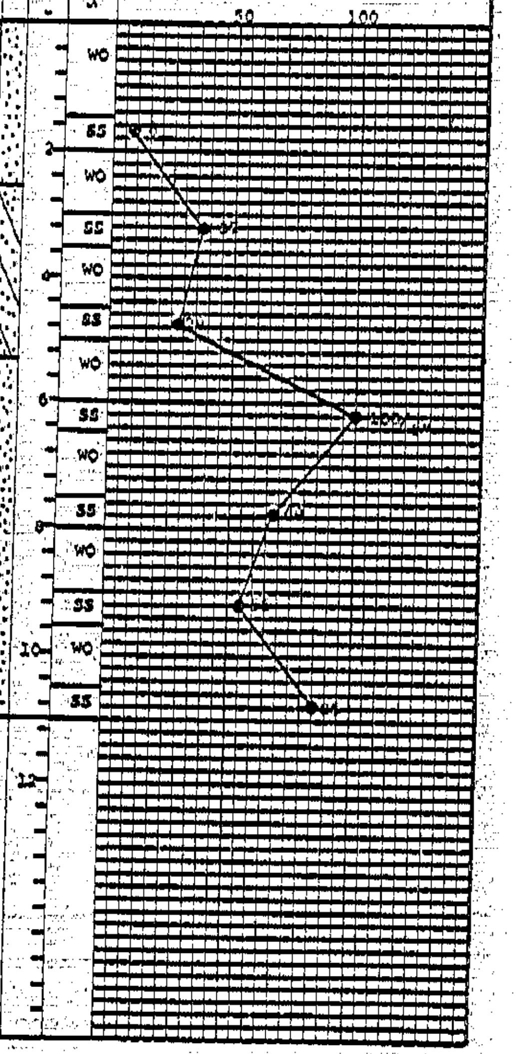


Figure 15

SURCON COMPANY LIMITED

LOG BORING NO. BW 3

PROJECT: Pattaya Tourism Development (Phase II)

LOCATION: Pattaya, Cholburi

DATE COMMENCED: May 27, 78

DATE FINISHED: May 28, 78

ABBREVIATIONS: PA = POWER AUGER; HA = HAND AUGER; ST = SHELBY TUBE; SS = SPLIT-SPOON; WO = WASH OUT; SPT = STANDARD PENETRATION TEST; DB = DIAMOND BIT; RB = ROCK BIT

GROUND ELEV. M.

WATER TABLE -1.80 M.

SOIL DESCRIPTION	SAMPLING METHOD
Brown, medium to dense, coarse SAND. (SP)	WO, SS
Light brown to light gray, very dense clayey COARSE SAND. (SC)	WO, SS, WO, SS, WO, SS, WO, SS, WO, SS, WO, SS
End of Boring	

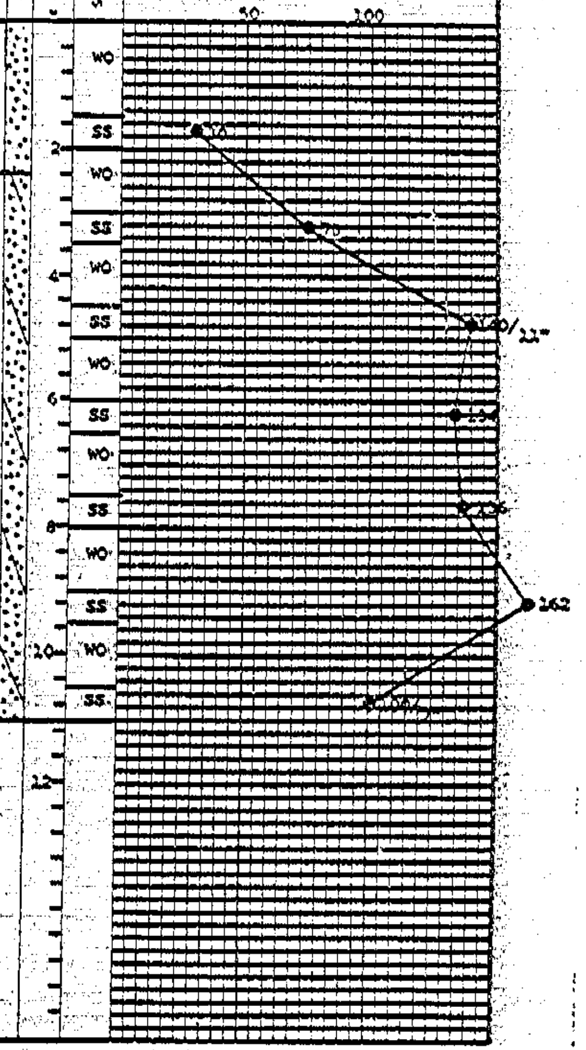


Figure 16

SURCON COMPANY LIMITED

LOG BORING NO. BW 7

PROJECT: Pattaya Tourism Development (Phase II) — DATE COMMENCED: May 31, 78

LOCATION: Pattaya, Cholburi — DATE FINISHED: May 31, 78

ABBREVIATIONS: PA = POWER AUGER, HA = HAND AUGER, ST = SHELBY TUBE, SS = SPLIT SPOON, WO = WASHOUT

SPT = STANDARD PENETRATION TEST, DB = DIAMOND BIT, RB = ROCK BIT, GROUND ELEV. M, WATER TABLE −0.70 M

SOIL DESCRIPTION	DEPTH (m)	SAMPLING METHOD
Light brown, very dense COARSE SAND. (SP)	0 – 6.9	WO, SS, WO, SS, WO, SS
Light gray, hard coarse SANDY CLAY. (CL)	6.9 – 11	WO, SS, WO, SS, WO, SS
End of Boring		

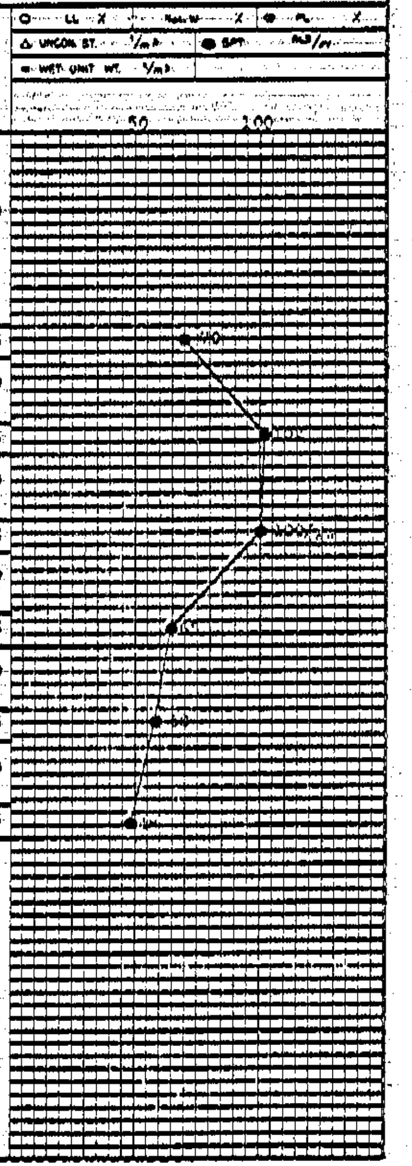


Figure 18

SURCON COMPANY LIMITED

LOG BORING NO. BW 6

PROJECT: Pattaya Tourism Development (Phase II) — DATE COMMENCED: May 28, 78

LOCATION: Pattaya, Cholburi — DATE FINISHED: May 29, 78

ABBREVIATIONS: PA = POWER AUGER, HA = HAND AUGER, ST = SHELBY TUBE, SS = SPLIT SPOON, WO = WASHOUT

SPT = STANDARD PENETRATION TEST, DB = DIAMOND BIT, RB = ROCK BIT, GROUND ELEV. M, WATER TABLE −1.90 M

SOIL DESCRIPTION	DEPTH (m)	SAMPLING METHOD
Dark brown, loose SAND, some decomposed rock. (SP)	0 – 1.9	WO, SS
Light brown, hard SANDY CLAY. (CL)	1.9 – 4.7	WO, SS, WO, SS
Light brown, very dense CLAYEY SAND. (SC)	4.7 – 7.9	WO, SS, WO, SS
Light brown, hard SANDY CLAY. (CL)	7.9 – 10.5	WO, SS, WO, SS
End of Boring		

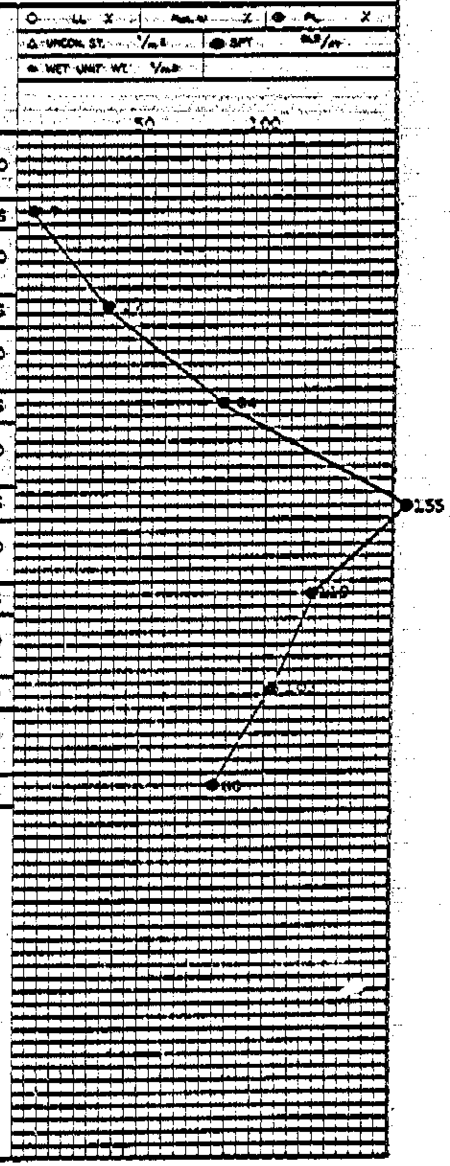


Figure 17

SURCON COMPANY LIMITED

LOG BORING NO. KA 2

PROJECT: Pattaya Tourism Development (Phase II) DATE COMMENCED May 20, 78

LOCATION: Pattaya, Cholburi DATE FINISHED May 20, 78

ABBREVIATIONS
PA = POWER AUGER
HA = HAND AUGER
ST = SHELBY TUBE
SS = SPLIT SPOON
WO = WASH OUT

SPT = STANDARD PENETRATION TEST
DB = DIAMOND BIT
RB = ROCK BIT
GROUND ELEV. M.
WATER TABLE -0.10 M.

O LL X ● Nat. w X ⊕ PL X
△ UNCON. ST. T/m² ▲ SPT BLS/FT
⊕ WET UNIT WT. T/m³

SOIL DESCRIPTION	SOIL SYMBOL	DEPTH M	SAMPLING METHOD
Topsoil of dark brown fine SAND. (SP)		0	
Light brown coarse to medium SAND. (SC)		1	End Auger Boring
End of Boring		2	

Figure 19

SURCON COMPANY LIMITED

LOG BORING NO. KA 3

PROJECT: Pattaya Tourism Development (Phase II) DATE COMMENCED May 20, 78

LOCATION: Pattaya, Cholburi DATE FINISHED May 20, 78

ABBREVIATIONS
PA = POWER AUGER
HA = HAND AUGER
ST = SHELBY TUBE
SS = SPLIT SPOON
WO = WASH OUT

SPT = STANDARD PENETRATION TEST
DB = DIAMOND BIT
RB = ROCK BIT
GROUND ELEV. M.
WATER TABLE -0.15 M.

O LL X ● Nat. w X ⊕ PL X
△ UNCON. ST. T/m² ▲ SPT BLS/FT
⊕ WET UNIT WT. T/m³

SOIL DESCRIPTION	SOIL SYMBOL	DEPTH M	SAMPLING METHOD
Topsoil of dark gray fine SAND. (SP)		0	
Gray to light brown coarse SAND. (SP)		1	End Auger Boring
End of Boring		2	

Figure 20

SURCON COMPANY LIMITED

LOG BORING NO. KA 5

PROJECT: Pattaya Tourism Development (Phase II) DATE COMMENCED May 20, 78

LOCATION: Pattaya, Cholburi DATE FINISHED May 20, 78

ABBREVIATIONS: PA = POWER AUGER; HA = HAND AUGER; ST = SHELBY TUBE; SS = SPLIT SPOON; WO = WASH OUT; SPT = STANDARD PENETRATION TEST; DB = DIAMOND BIT; RB = ROCK BIT; GROUND ELEV ___ M; WATER TABLE -0.00 M

SOIL DESCRIPTION	DEPTH (M)	SAMPLING METHOD
Topsoil of dark brown fine SAND. (SP)	0	Hand Auger Boring
Brown fine SAND. (SP)	1	
End of Boring	2	

Figure 21

SURCON COMPANY LIMITED

LOG BORING NO. KA 6

PROJECT: Pattaya Tourism Development (Phase II) DATE COMMENCED May 20, 78

LOCATION: Pattaya, Cholburi DATE FINISHED May 20, 78

ABBREVIATIONS: PA = POWER AUGER; HA = HAND AUGER; ST = SHELBY TUBE; SS = SPLIT SPOON; WO = WASH OUT; SPT = STANDARD PENETRATION TEST; DB = DIAMOND BIT; RB = ROCK BIT; GROUND ELEV ___ M; WATER TABLE 0.00 M

SOIL DESCRIPTION	DEPTH (M)	SAMPLING METHOD
Light brown fine SAND. (SP)	0	Hand Auger Boring
Light brown coarse SAND. (SP)	1	
End of Boring	2	

Figure 22

SURCON COMPANY LIMITED

LOG BORING NO. HA 8

PROJECT: Pattaya Tourism Development (Phase II) DATE COMMENCED May 21, 70

LOCATION: Pattaya, Cholburi DATE FINISHED May 22, 70

ABBREVIATIONS: PA = POWER AUGER; HA = HAND AUGER; ST = SHELBY TUBE; SS = SPLIT SPOON; WO = WASH OUT; SPT = STANDARD PENETRATION TEST; DB = DIAMOND BIT; RB = ROCK BIT; GROUND ELEV ... m; WATER TABLE 0.00 m

SOIL DESCRIPTION	GRAPHIC LOG	DEPTH m	SAMPLING METHOD
Brown medium to fine SAND. (SP)		1	Hand Auger Boring
Light brown medium to coarse SAND. (SW)		2	
End of Boring			

Figure 23

SURCON COMPANY LIMITED

LOG BORING NO. HA 9

PROJECT: Pattaya Tourism Development (Phase II) DATE COMMENCED May 23, 70

LOCATION: Pattaya, Cholburi DATE FINISHED May 23, 70

ABBREVIATIONS: PA = POWER AUGER; HA = HAND AUGER; ST = SHELBY TUBE; SS = SPLIT SPOON; WO = WASH OUT; SPT = STANDARD PENETRATION TEST; DB = DIAMOND BIT; RB = ROCK BIT; GROUND ELEV ... m; WATER TABLE -0.20 m

SOIL DESCRIPTION	GRAPHIC LOG	DEPTH m	SAMPLING METHOD
Topsoil of brown fine SAND. (SP)		1	Hand Auger Boring
Brown medium to fine SAND. (SP)			
Brown medium to fine SAND. (SP)			
End of Boring		4	

Figure 24

SURCON COMPANY LIMITED

LOG BORING NO. KA 10

PROJECT: Pattaya Cholburi Development (Phase II) DATE COMMENCED: May 21, 78

LOCATION: Pattaya, Cholburi DATE FINISHED: May 21, 78

ABBREVIATIONS: PA = POWER AUGER; HA = HAND AUGER; ST = SHELBY TUBE; SS = SPLIT SPOON; WO = WASH OUT; SPT = STANDARD PENETRATION TEST; DB = DIAMOND BIT; RB = ROCK BIT; GROUND ELEV: M; WATER TABLE: -0.50 M

SOIL DESCRIPTION	GRAPHIC LOG	DEPTH (m)	SAMPLING METHOD
Light brown to light gray clayey fine SAND. (SC)			
Light gray to light brown sandy CLAY. (CL)		1	Hand Auger boring
Light gray to light brown coarse sandy CLAY. (CL)			
End of Boring		2	

Figure 25

SURCON COMPANY LIMITED

LOG BORING NO. KA 12

PROJECT: Pattaya Tourism Development (Phase III) DATE COMMENCED: May 22, 78

LOCATION: Pattaya, Cholburi DATE FINISHED: May 22, 78

ABBREVIATIONS: PA = POWER AUGER; HA = HAND AUGER; ST = SHELBY TUBE; SS = SPLIT SPOON; WO = WASH OUT; SPT = STANDARD PENETRATION TEST; DB = DIAMOND BIT; RB = ROCK BIT; GROUND ELEV: M; WATER TABLE: -1.30 M

SOIL DESCRIPTION	GRAPHIC LOG	DEPTH (m)	SAMPLING METHOD
Light brown to light gray fine SAND. (SP)			
Light brown medium to fine SAND. (SP)		1	Hand Auger boring
End of Boring		2	

Figure 26

SURCON COMPANY LIMITED

LOG BORING NO. HA 13

PROJECT: Pattaya Tourism Development (Phase II) DATE COMMENCED May 22, 78

LOCATION: Pattaya, Cholburi DATE FINISHED May 22, 78

ABBREVIATIONS
PA = POWER AUGER
HA = HAND AUGER
ST = SHELBY TUBE
SR = SPLIT SPOON
WO = WASH OUT

SPT = STANDARD PENETRATION TEST
DB = DIAMOND BIT
RB = ROCK BIT
GROUND ELEV m
WATER TABLE -0.10 m

○ LL X ● Nat. w X ◎ PL X
△ UNCON. ST. t/m² ▲ SPT m/ft
⊕ WET UNIT WT. t/m³

SOIL DESCRIPTION

Light gray to light brown sandy CLAY. (CL)

Light gray sandy CLAY. (CL)

End of Boring

Hand Auger Boring

Figure 27

SURCON COMPANY LIMITED

LOG BORING NO. HA 14

PROJECT: Pattaya Tourism Development (Phase II) DATE COMMENCED May 22, 78

LOCATION: Pattaya, Cholburi DATE FINISHED May 22, 78

ABBREVIATIONS
PA = POWER AUGER
HA = HAND AUGER
ST = SHELBY TUBE
SR = SPLIT SPOON
WO = WASH OUT

SPT = STANDARD PENETRATION TEST
DB = DIAMOND BIT
RB = ROCK BIT
GROUND ELEV m
WATER TABLE -0.95 m

○ LL X ● Nat. w X ◎ PL X
△ UNCON. ST. t/m² ▲ SPT m/ft
⊕ WET UNIT WT. t/m³

SOIL DESCRIPTION

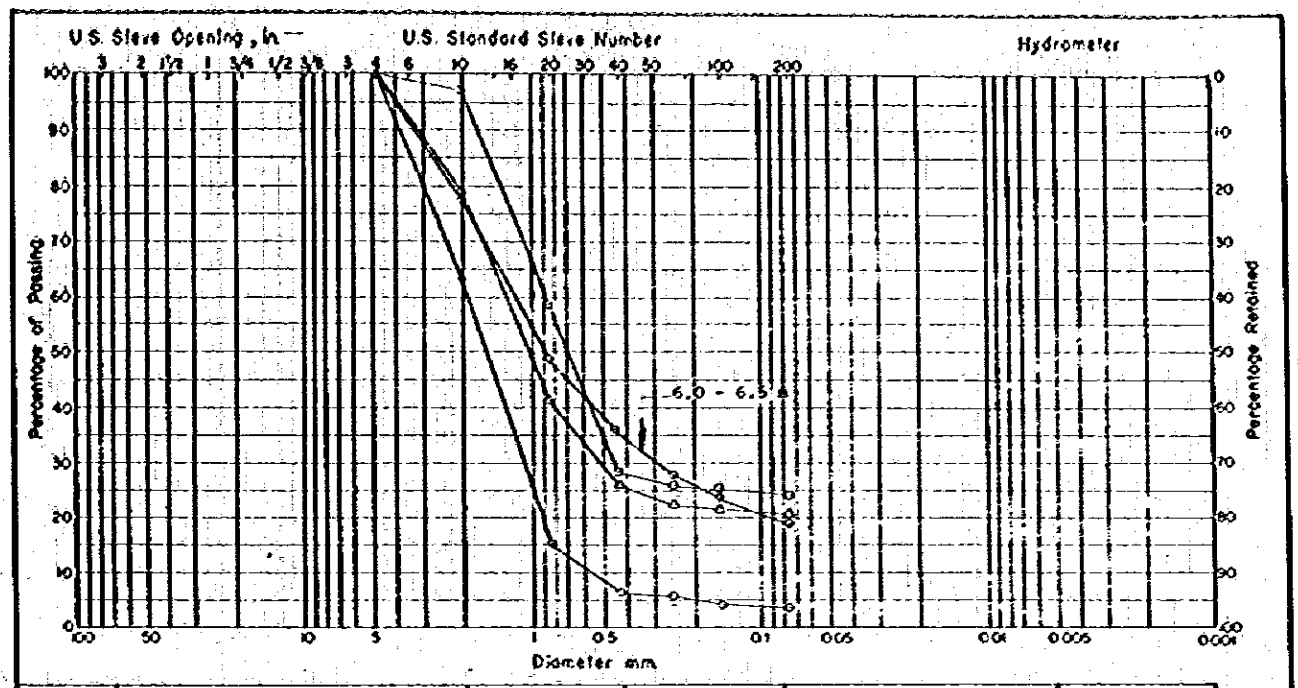
Brown to light gray fine SAND. (SP)

Brown medium to fine SAND. (SP)

End of Boring

Hand Auger Boring

Figure 28



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
BS-1	1.5 - 2.0	○	SP	Project: Pattaya Tourism Development (Phase II)
	3.0 - 3.5	△	SP	Location: Pattaya, Cholburi
	4.5 - 5.0	□	SP	

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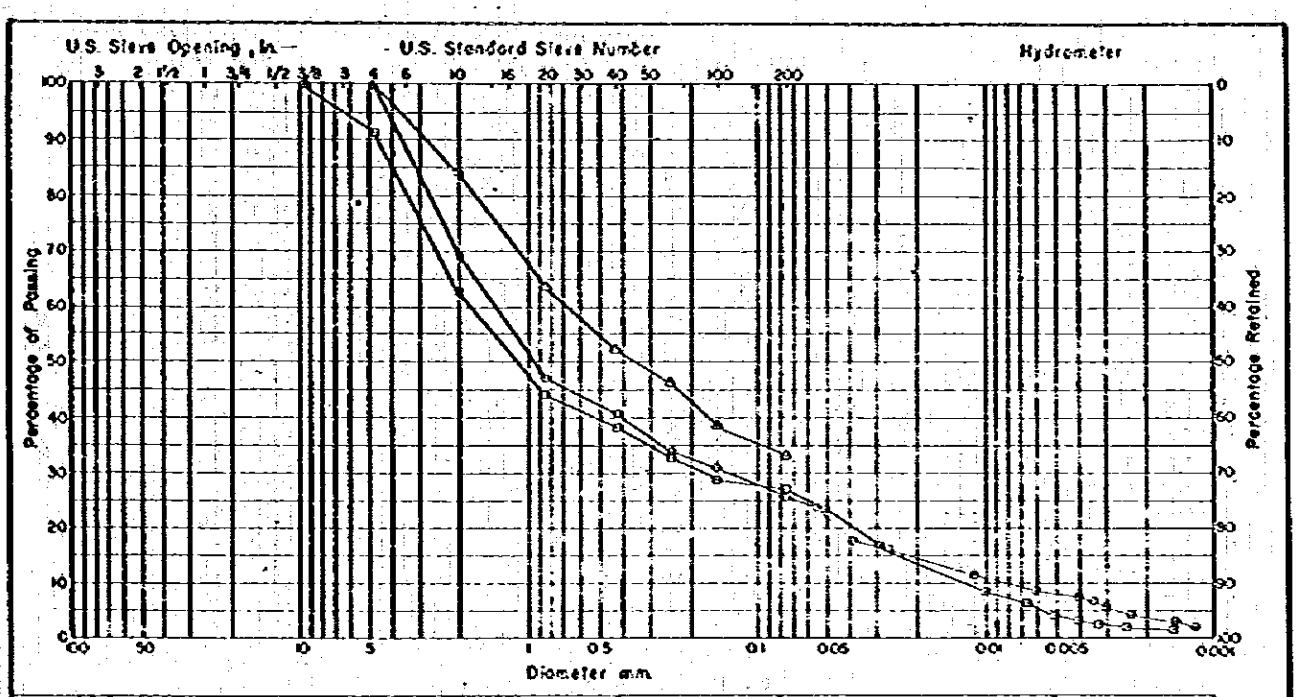
Figure 29

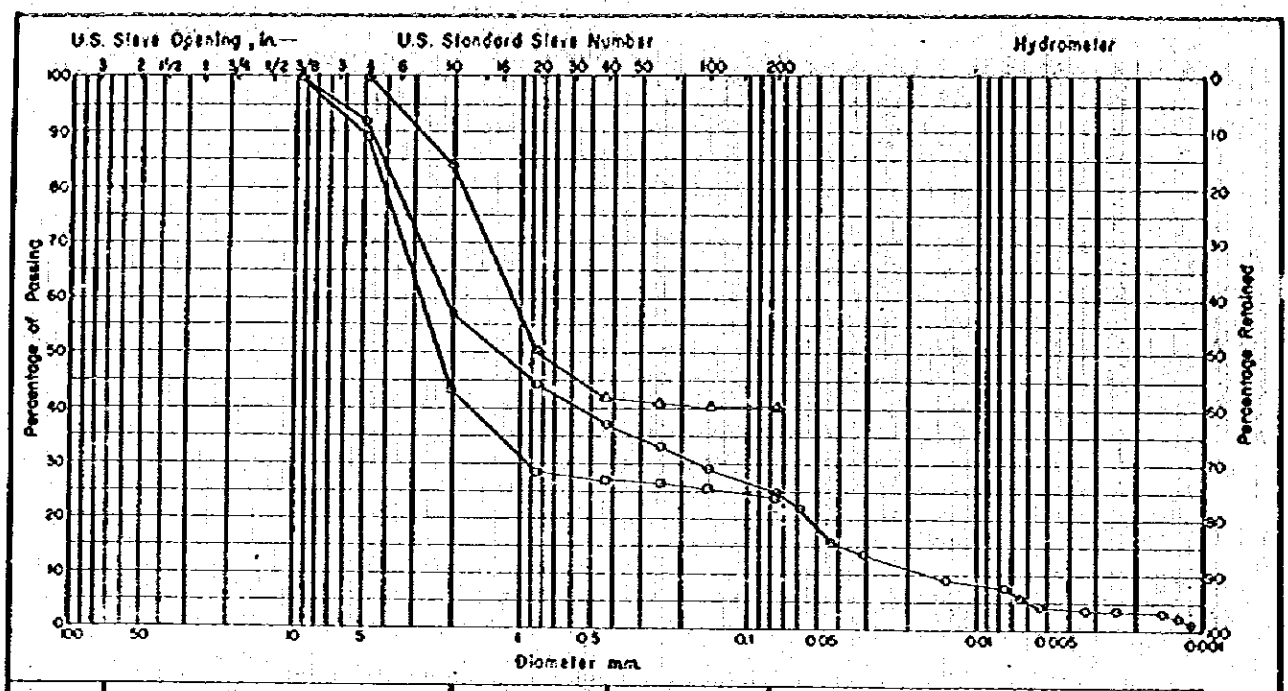


ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
BS-1	7.5 - 8.0	○	SC	Project: Pattaya Tourism Development (Phase II)
	9.0 - 9.5	△	SC	Location: Pattaya, Cholburi
	10.5 - 11.0	□	SC	

SUNCON COMPANY LIMITED

Figure 30



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification
BS-2	1.5 - 2.0	O	SP
	3.0 - 3.5	Δ	SP
	4.0 - 4.5	□	SP

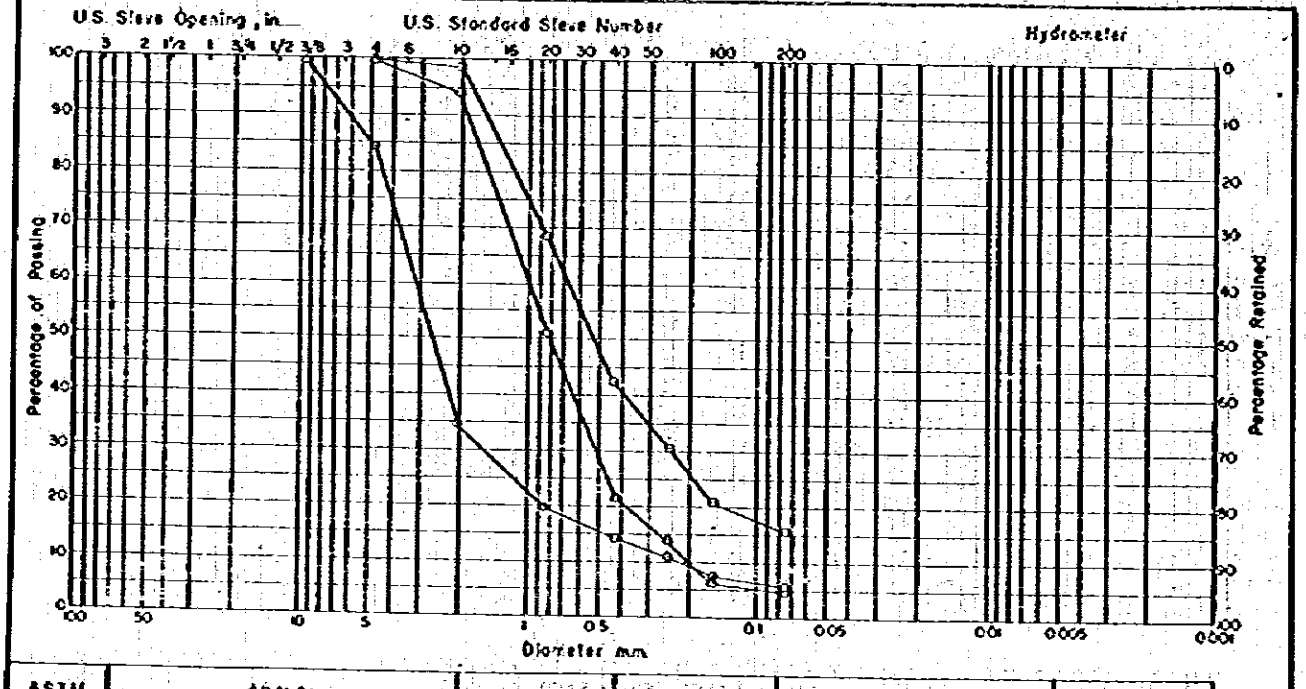
GRAIN SIZE DISTRIBUTION

Project: Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

SUNCON COMPANY LIMITED

Figure 31



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification
BS-2	6.0 - 6.5	O	SP
	7.5 - 8.0	Δ	SC
	10.5 - 11.0	□	SC

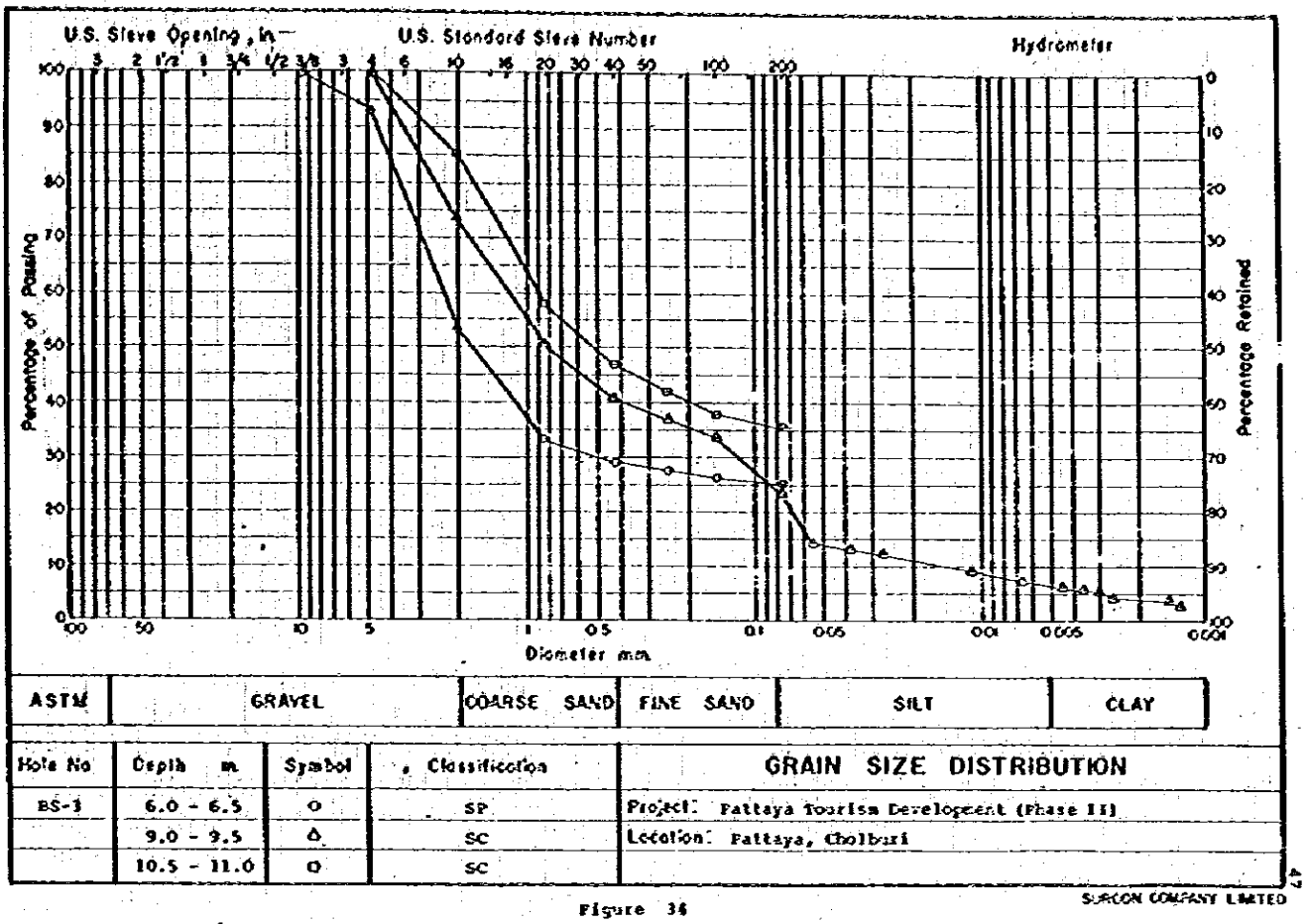
GRAIN SIZE DISTRIBUTION

Project: Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

SUNCON COMPANY LIMITED

Figure 32

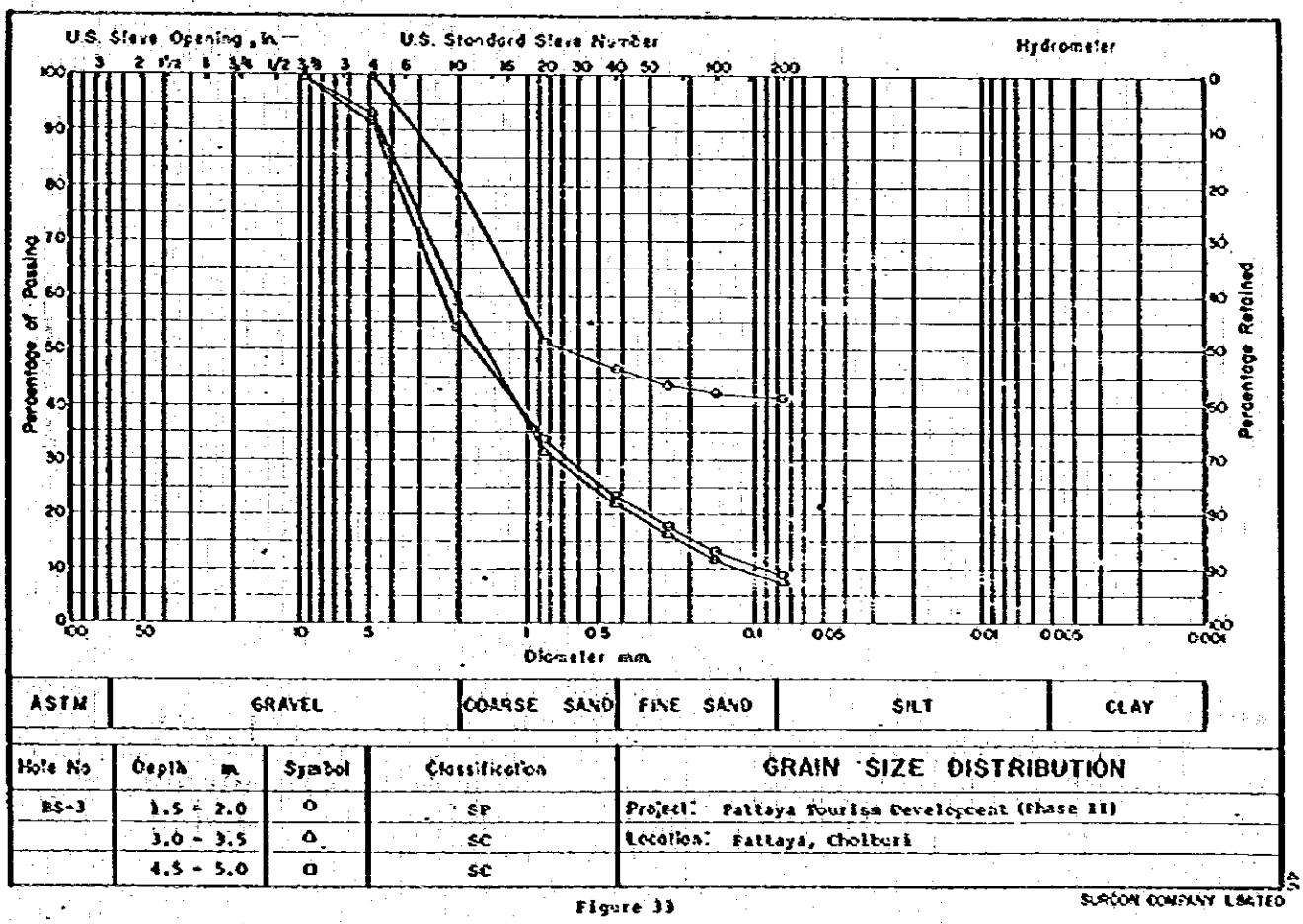


ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
BS-3	6.0 - 6.5	O	SP	Project: Pattaya Tourism Development (Phase II)
	9.0 - 9.5	Δ	SC	Location: Pattaya, Cholburi
	10.5 - 11.0	□	SC	

SURCON COMPANY LIMITED

Figure 34

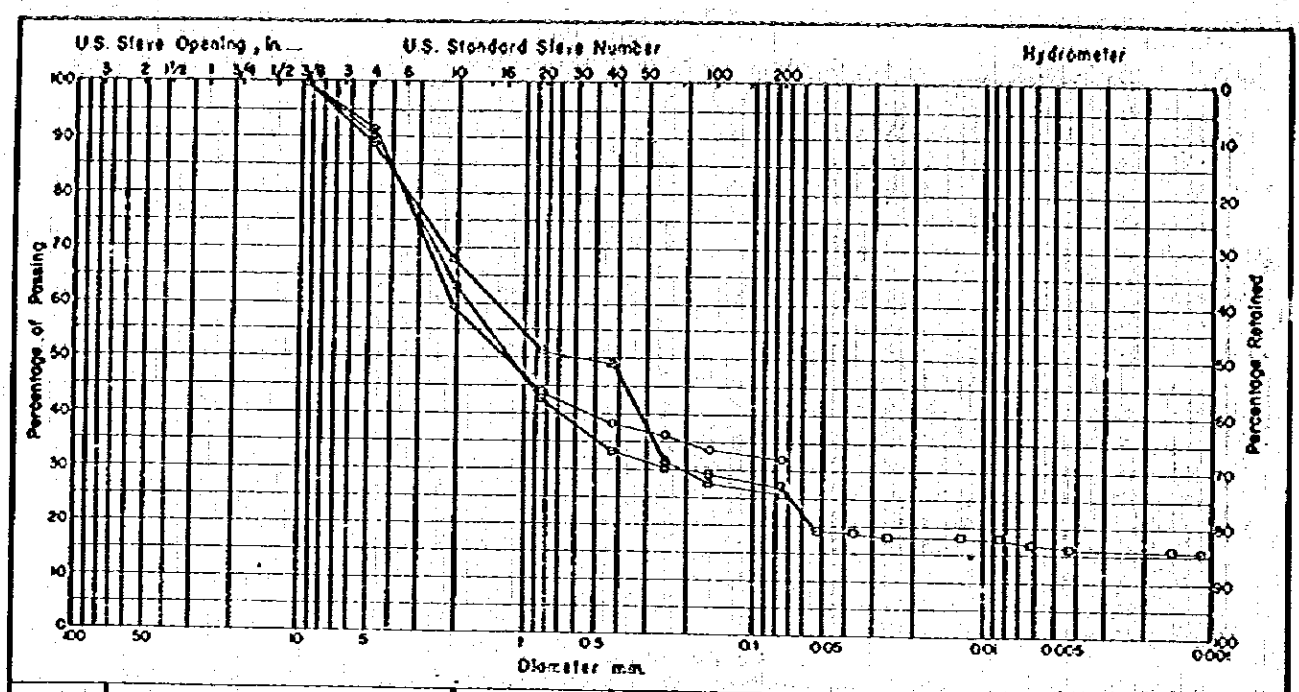


ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
BS-3	1.5 - 2.0	O	SP	Project: Pattaya Tourism Development (Phase II)
	3.0 - 3.5	Δ	SC	Location: Pattaya, Cholburi
	4.5 - 5.0	□	SC	

SURCON COMPANY LIMITED

Figure 33



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification
BS-4	3.0 - 3.5	○	SP
	6.0 - 6.5	△	SC
	9.0 - 9.5	□	SC

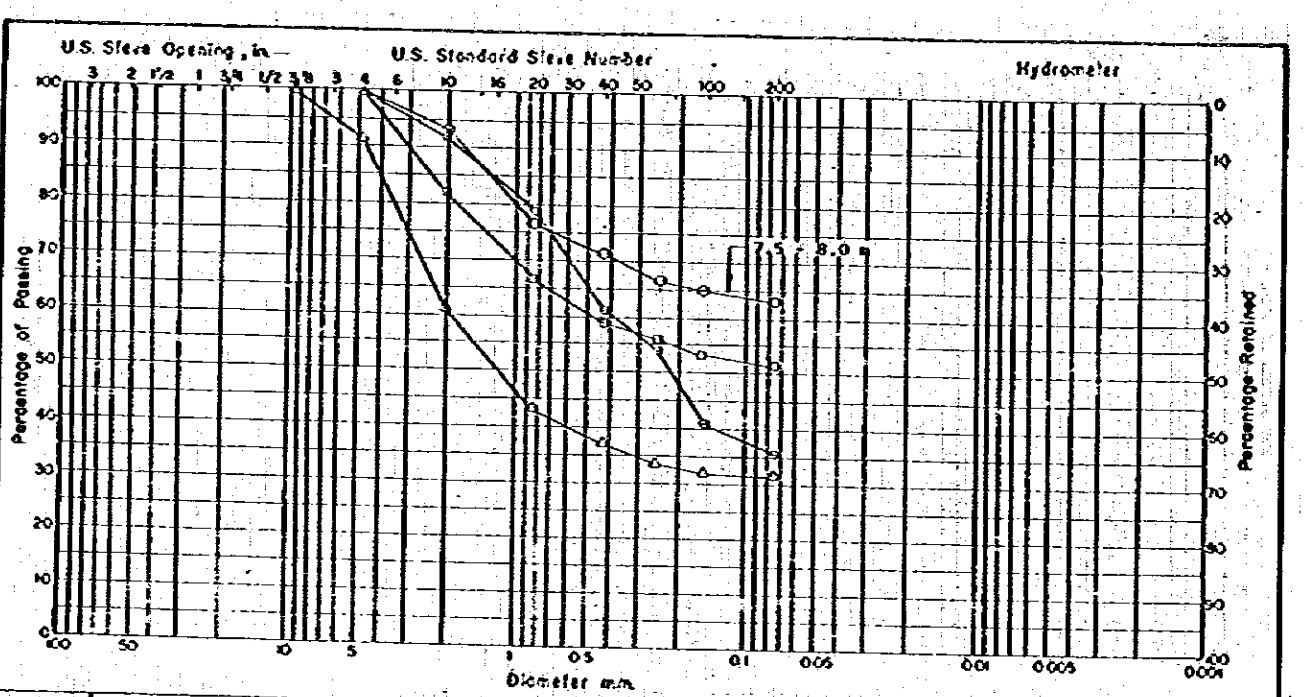
GRAIN SIZE DISTRIBUTION

Project: Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

SURCON COMPANY LIMITED

Figure 35



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification
BS-5	1.0 - 1.5	○	SP
	4.5 - 5.0	△	CL
	10.0 - 10.5	□	SP

GRAIN SIZE DISTRIBUTION

Project: Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

SURCON COMPANY LIMITED

Figure 36

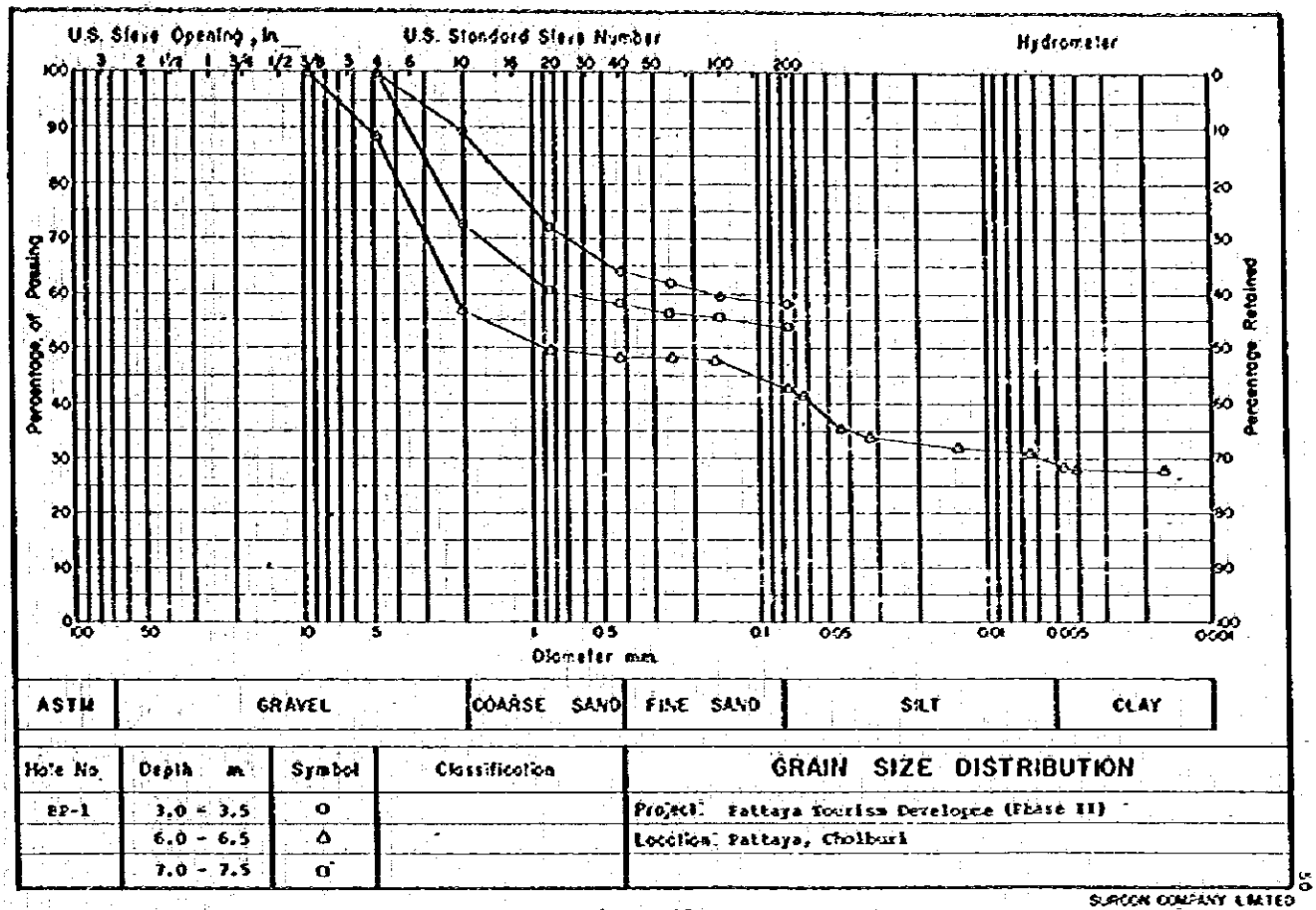


Figure 37

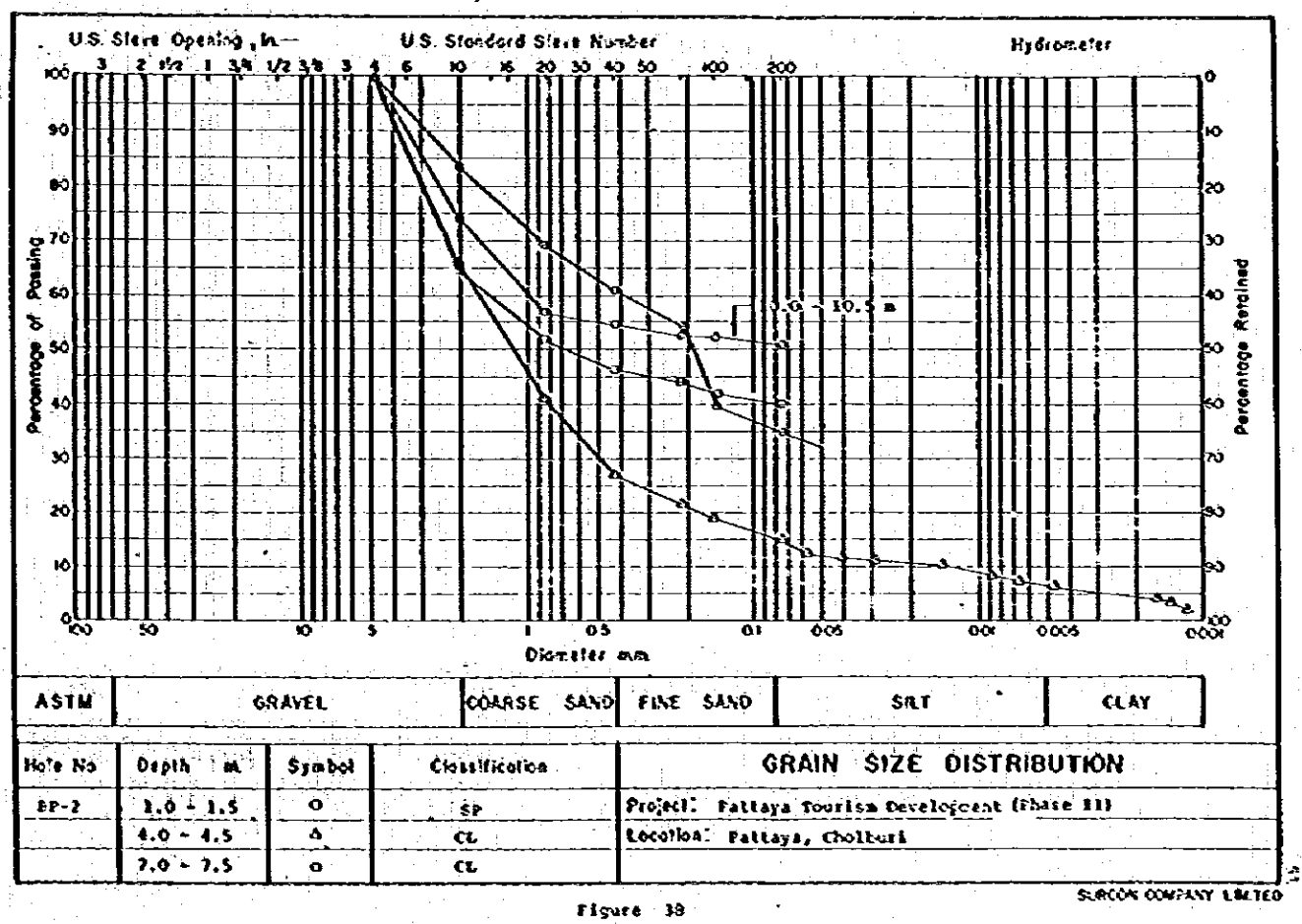
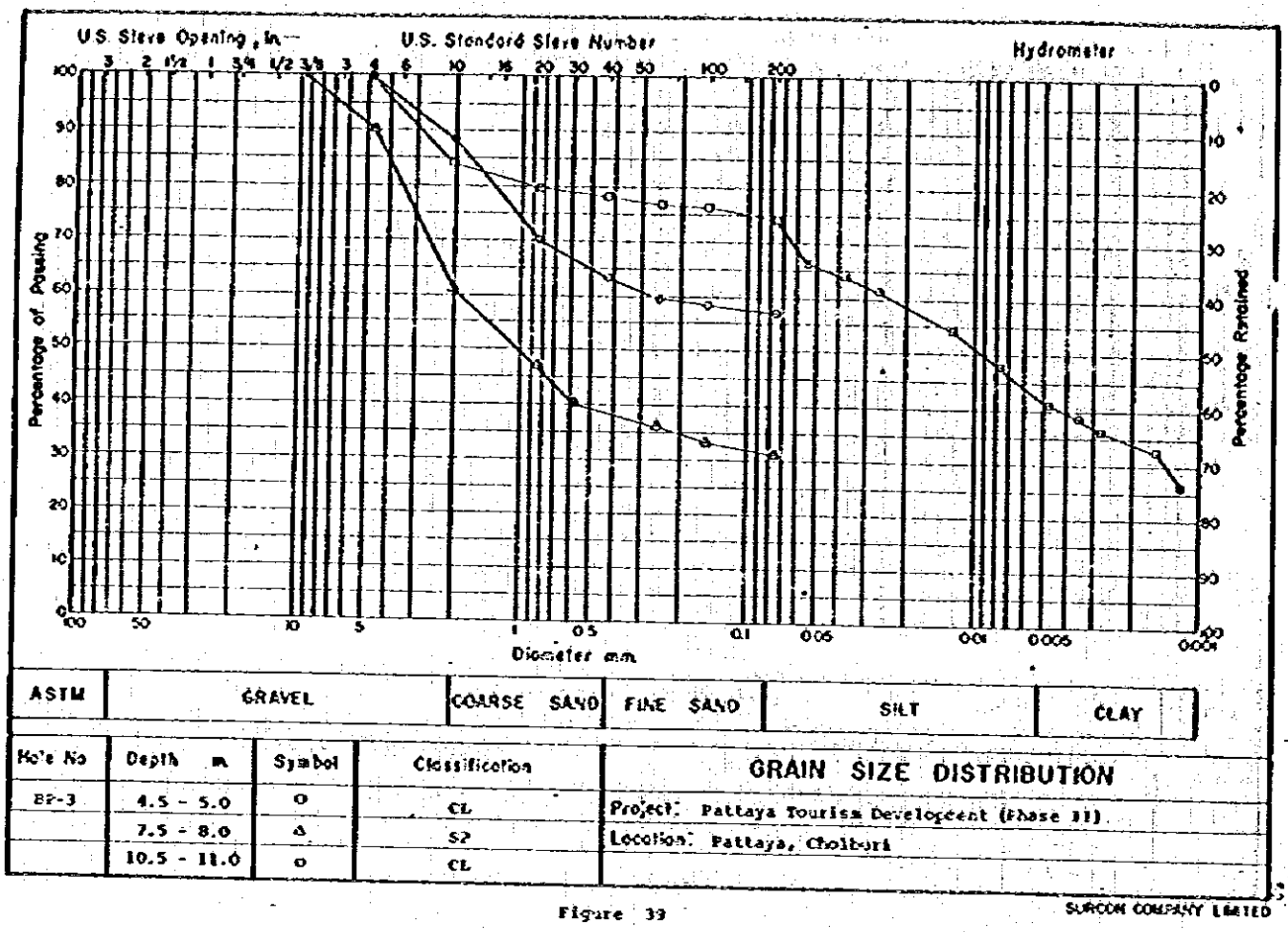


Figure 38



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification
BP-3	4.5 - 5.0	o	CL
	7.5 - 8.0	Δ	SP
	10.5 - 11.0	o	CL

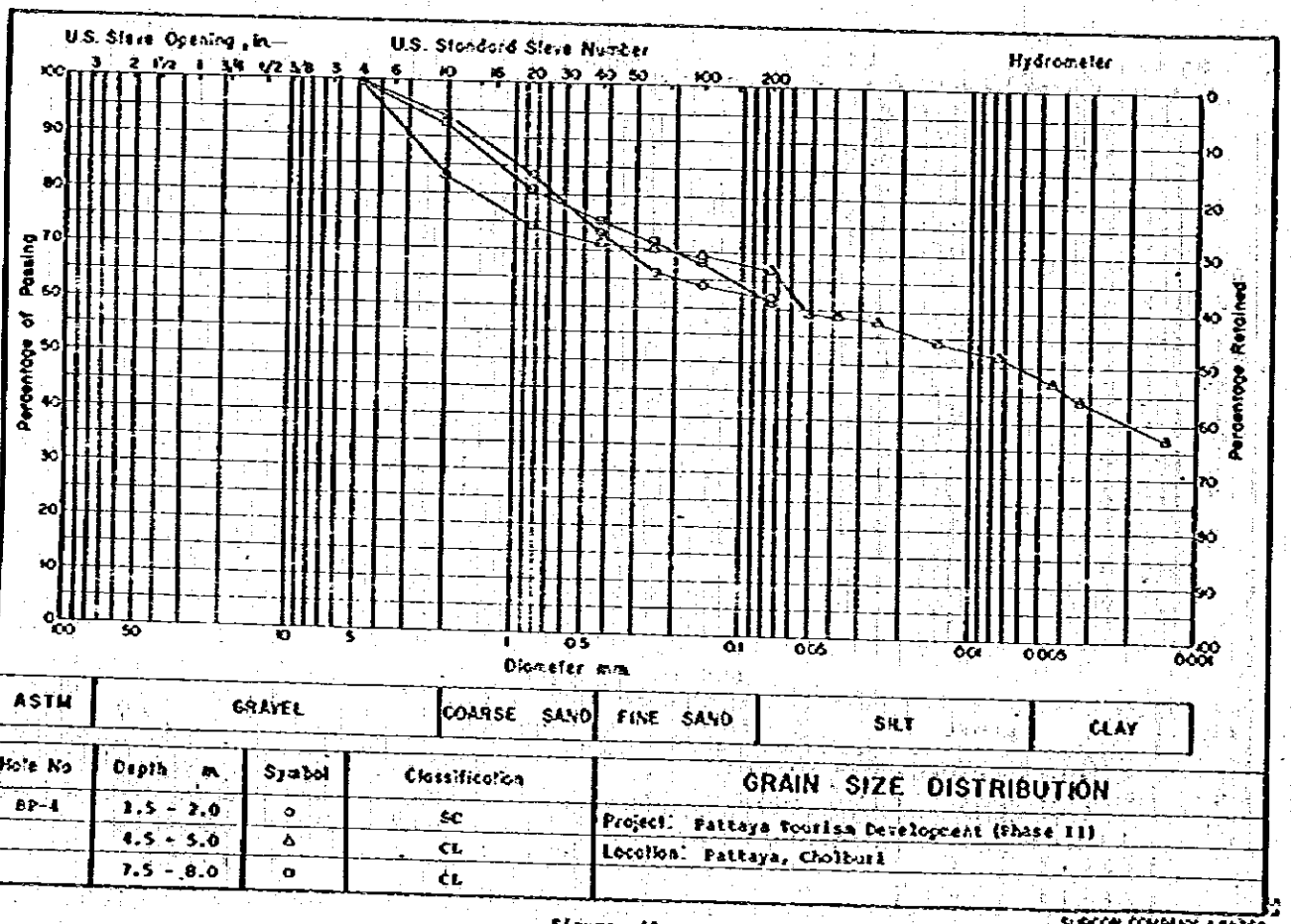
GRAIN SIZE DISTRIBUTION

Project: Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

SURCON COMPANY LIMITED

Figure 39



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification
BP-4	1.5 - 2.0	o	SC
	4.5 - 5.0	Δ	CL
	7.5 - 8.0	o	CL

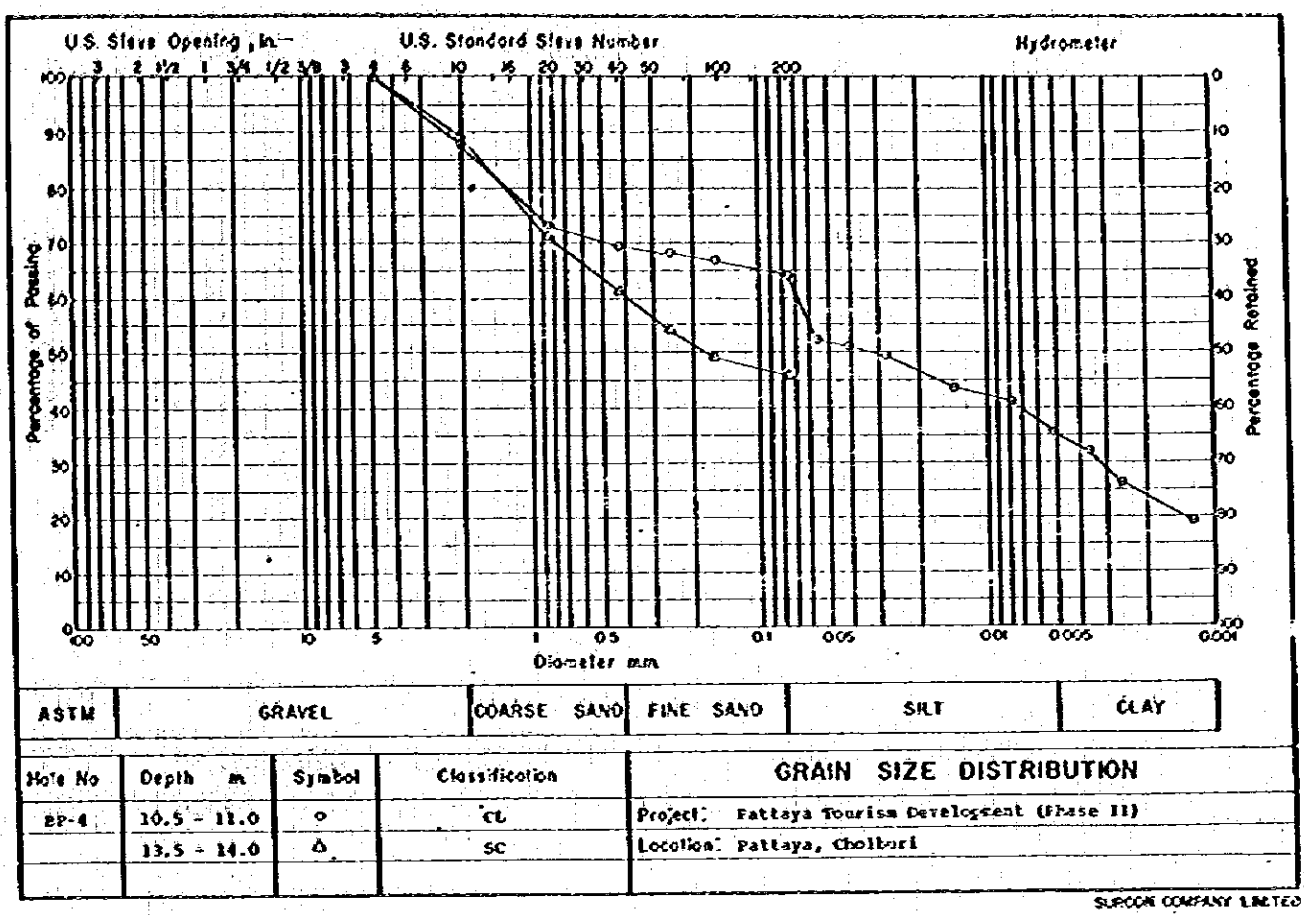
GRAIN SIZE DISTRIBUTION

Project: Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

SURCON COMPANY LIMITED

Figure 40



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification
BP-4	10.5 - 11.0	o	CL
	13.5 - 14.0	Δ	SC

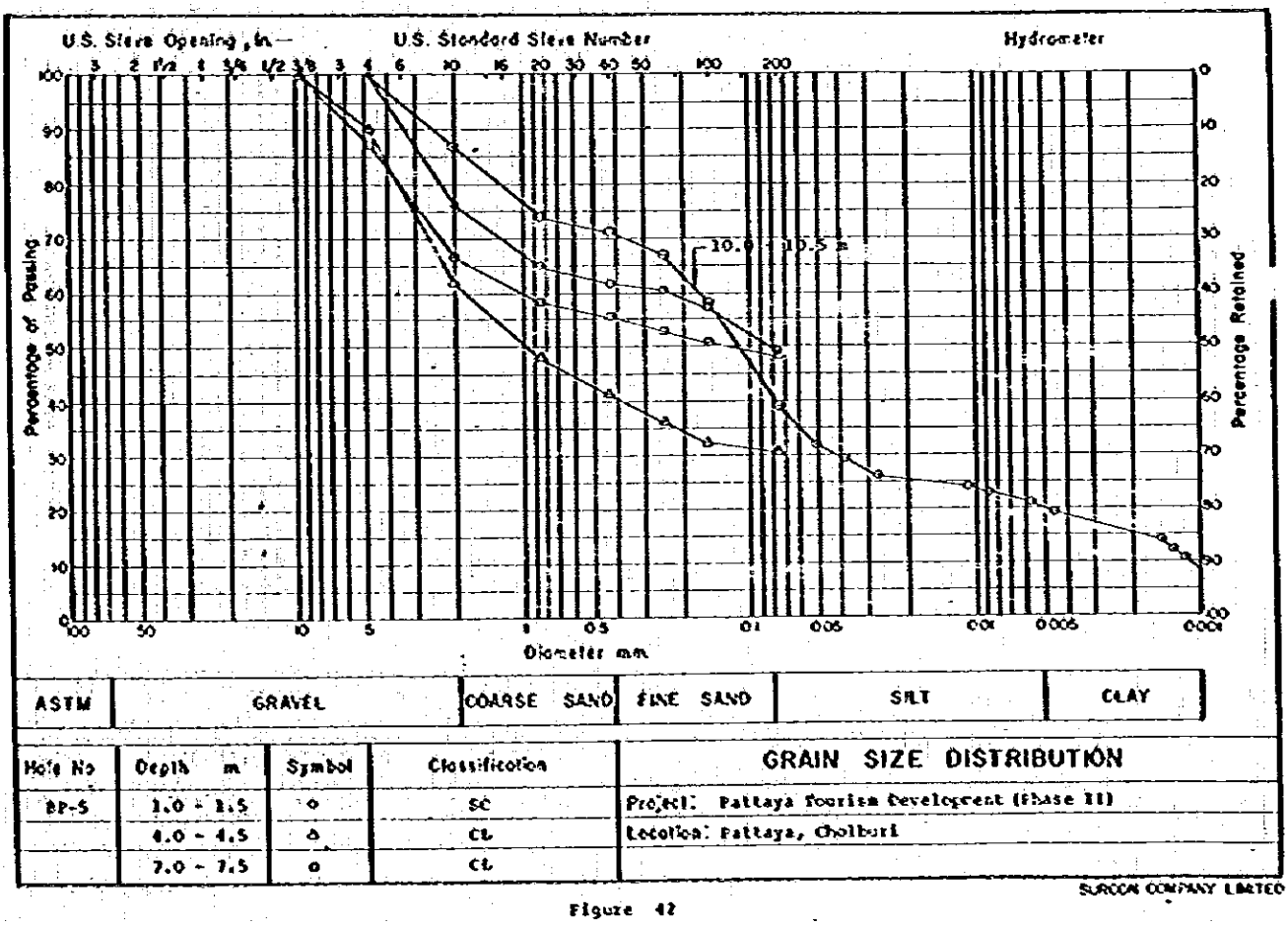
GRAIN SIZE DISTRIBUTION

Project: Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

SUNCON COMPANY LIMITED

Figure 41



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification
BP-5	1.0 - 1.5	o	SC
	4.0 - 4.5	Δ	CL
	7.0 - 7.5	□	CL

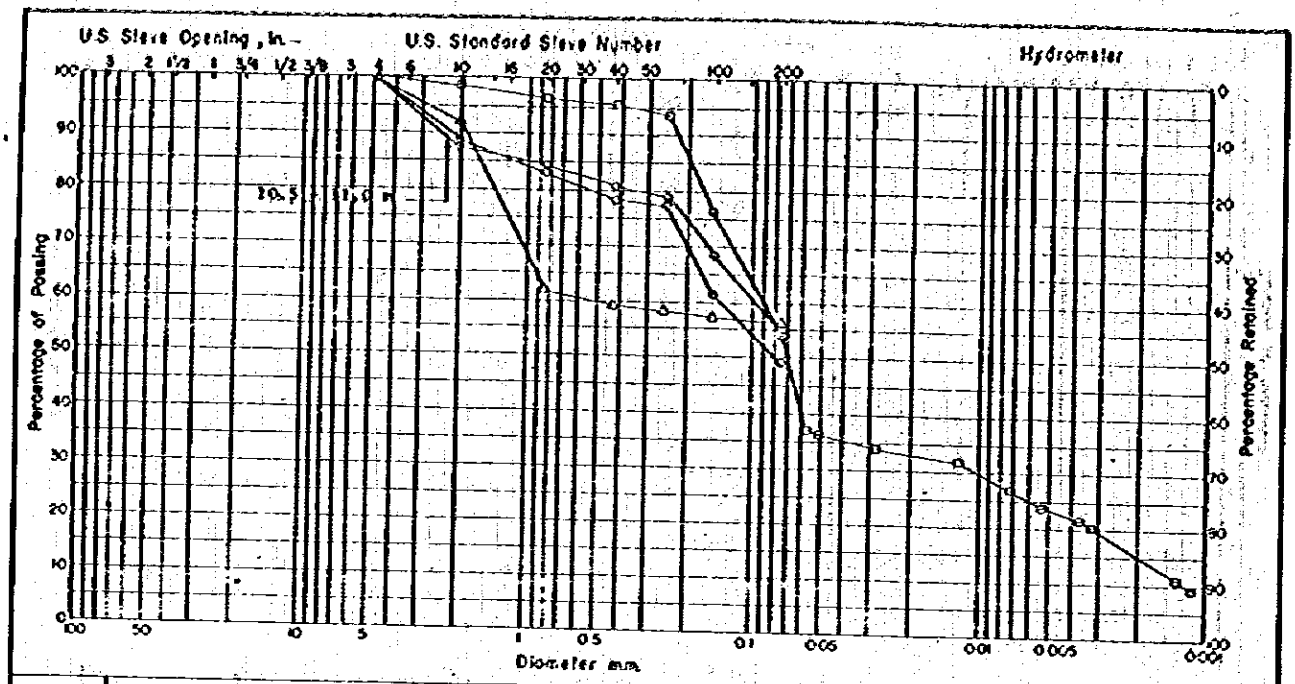
GRAIN SIZE DISTRIBUTION

Project: Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

SUNCON COMPANY LIMITED

Figure 42



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification
BP-6	1.5 - 2.0	O	
	4.5 - 5.0	Δ	
	7.5 - 8.0	□	

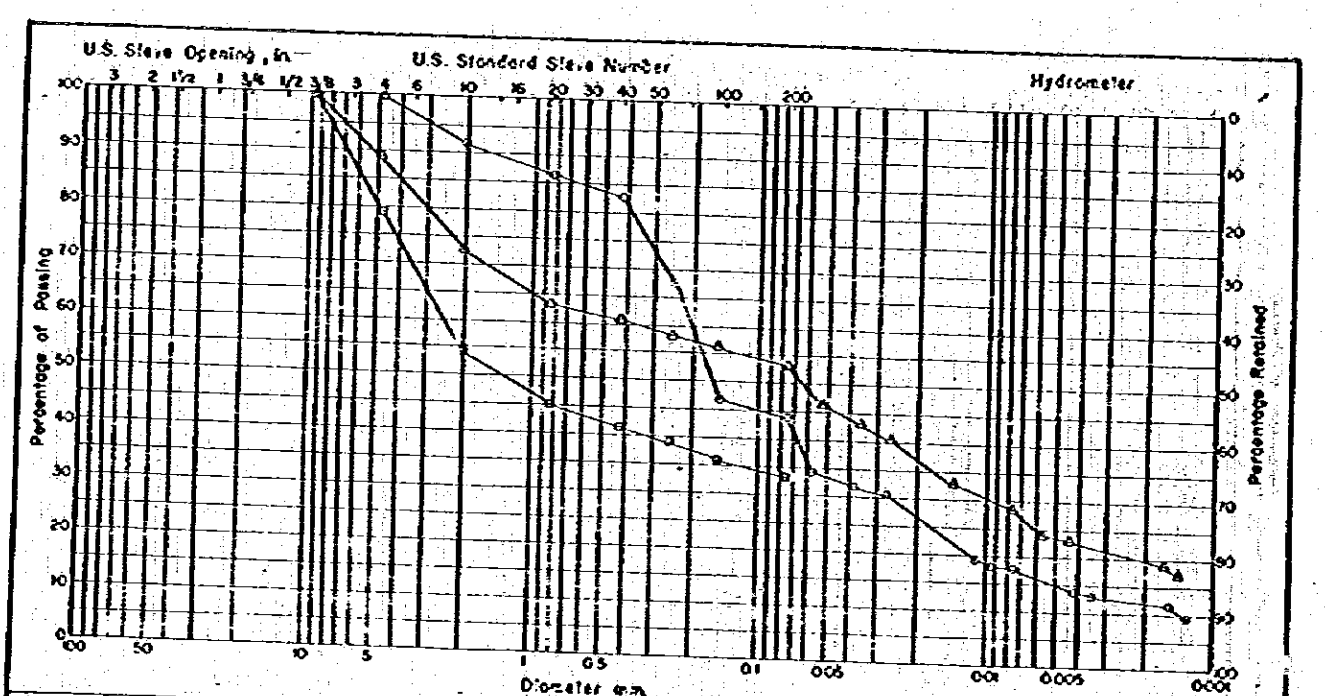
GRAIN SIZE DISTRIBUTION

Project: Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

Figure 43

SURCON COMPANY LIMITED



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification
BH-1	1.5 - 2.0	O	CL
	4.5 - 5.0	Δ	CL
	6.0 - 6.5	□	CL

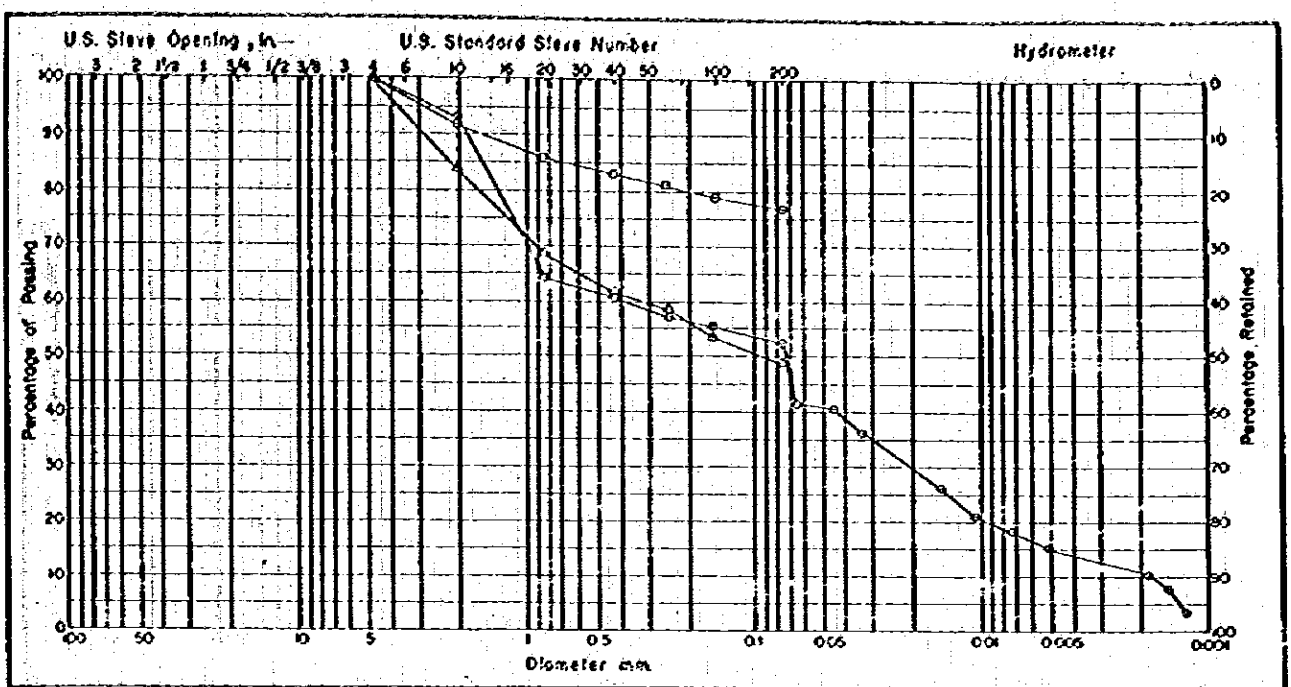
GRAIN SIZE DISTRIBUTION

Project: Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

Figure 44

SURCON COMPANY LIMITED

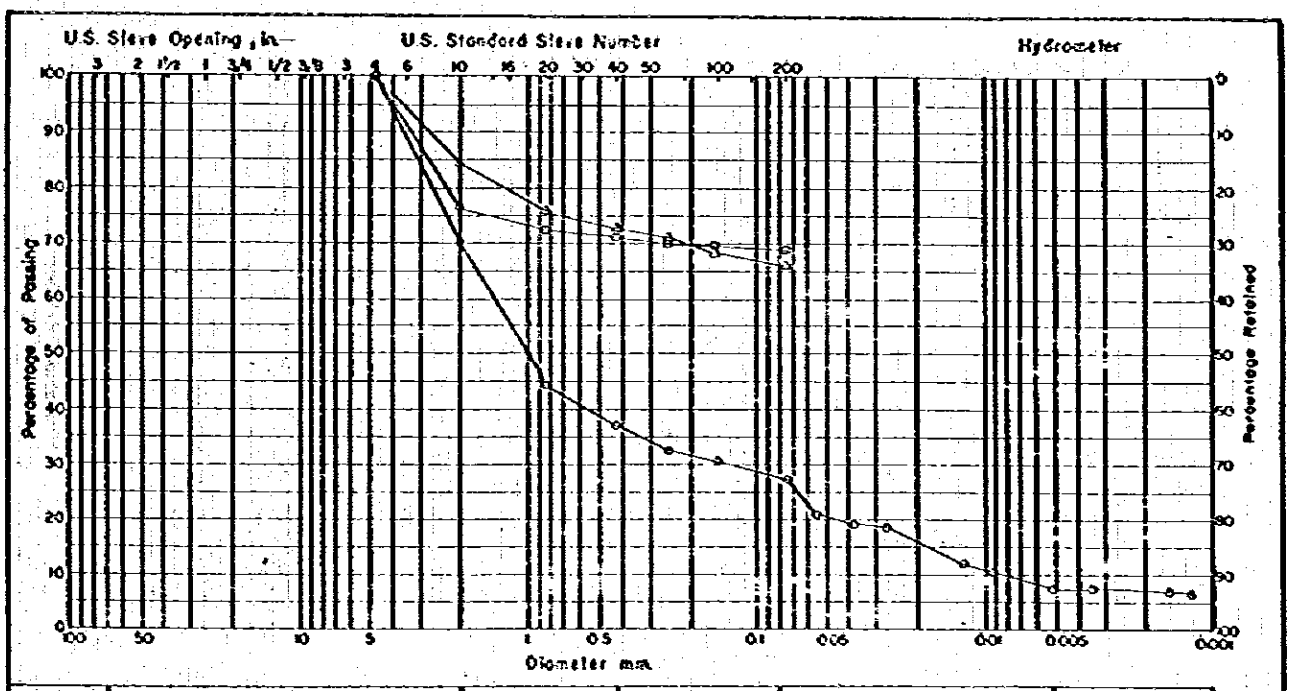


ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m.	Symbol	Classification	GRAIN SIZE DISTRIBUTION
BH-1	7.5 - 8.0	O	CL	Project: Pattaya Tourism Development (Phase II)
	10.5 - 11.0	Δ	MH	Location: Pattaya, Cholburi
	13.5 - 14.0	O	MH	

SUKOON COMPANY LIMITED

Figure 45

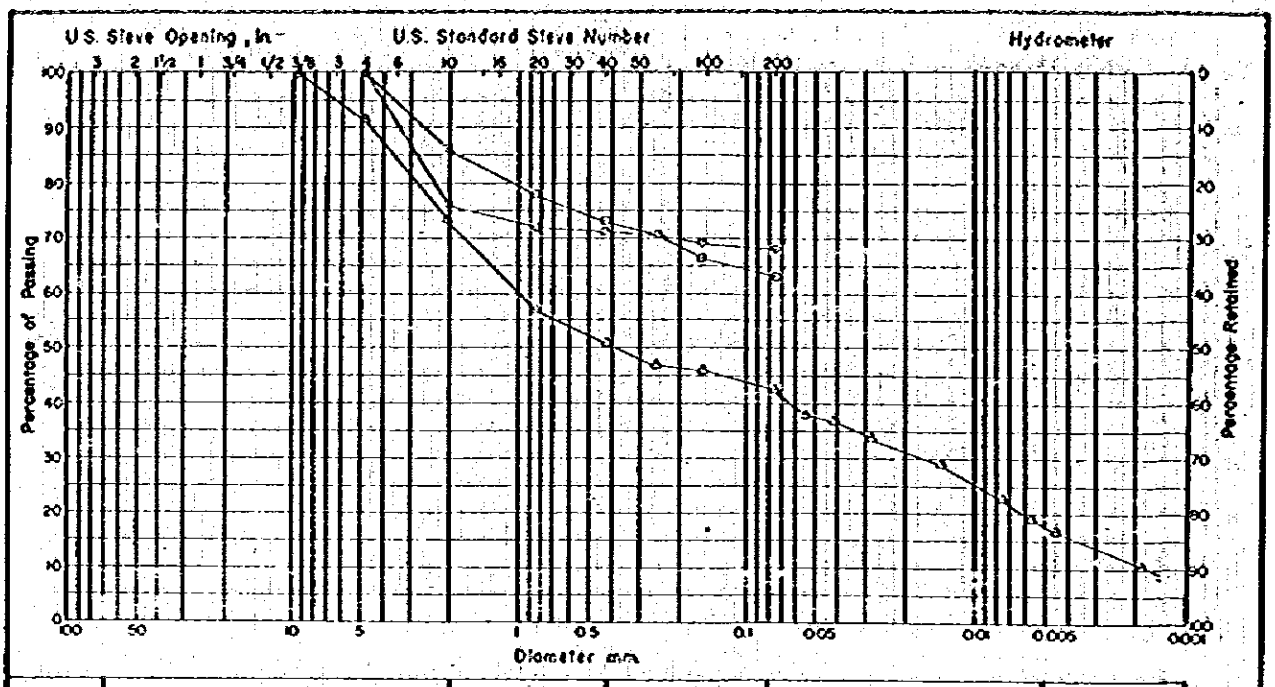


ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m.	Symbol	Classification	GRAIN SIZE DISTRIBUTION
BH-2	1.5 - 2.0	O	CL	Project: Pattaya Tourism Development (Phase II)
	3.0 - 3.5	Δ	CL	Location: Pattaya, Cholburi
	4.5 - 5.0	O	SC	

SUKOON COMPANY LIMITED

Figure 46

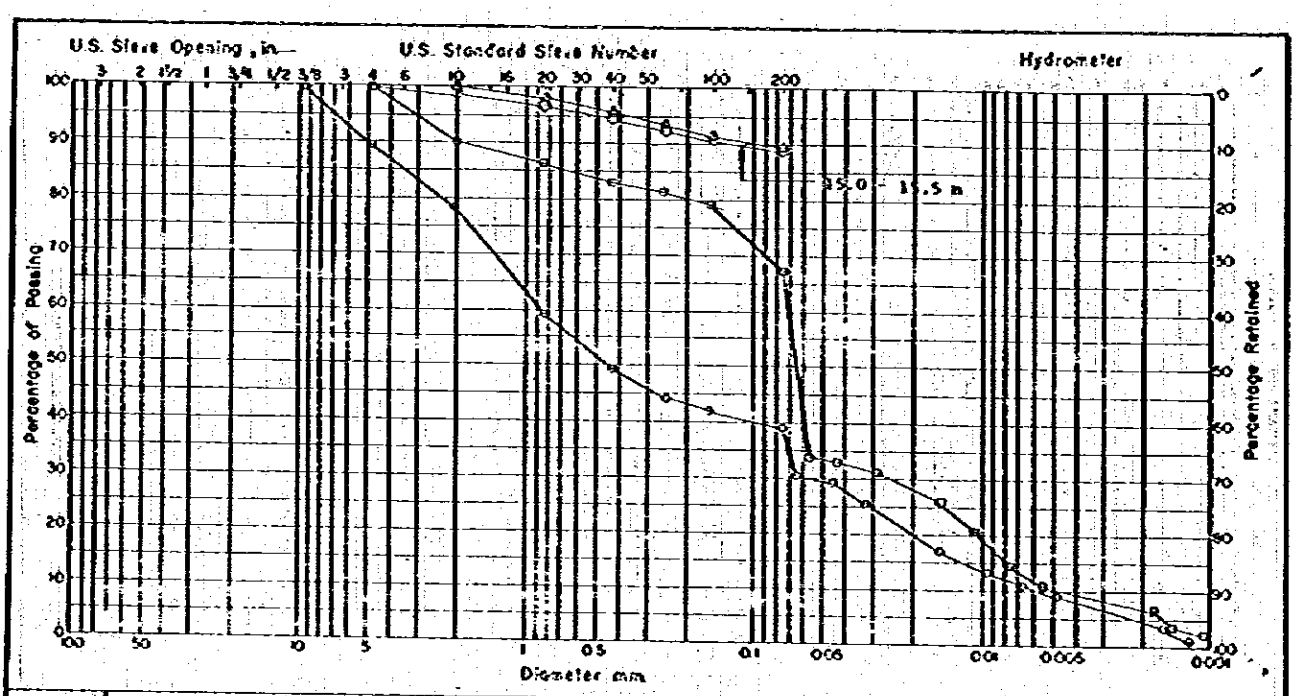


ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
BH-2	6.0 - 6.5	○	SC	Project: Pattaya Tourism Development (Phase II)
	7.5 - 8.0	△	SC	Location: Pattaya, Cholburi
	9.0 - 9.5	□	SC	

SUNCON COMPANY LIMITED

Figure 47

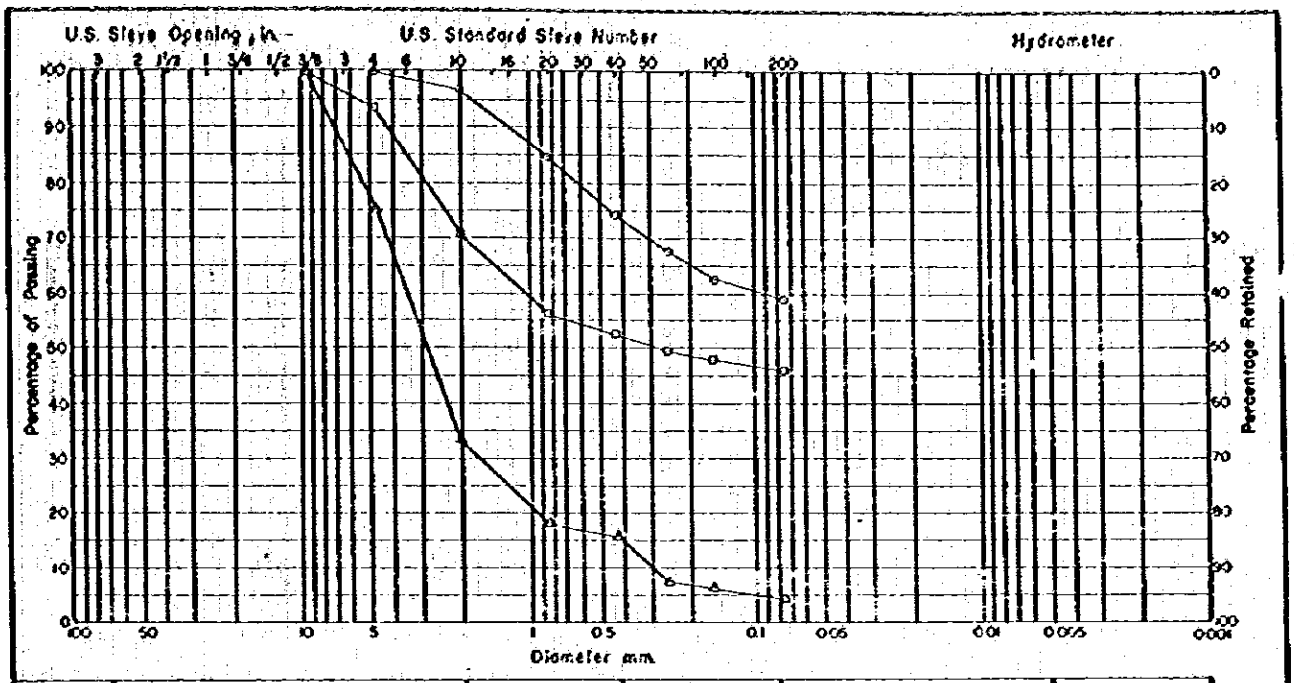


ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
BH-2	10.5 - 11.0	○	SP	Project: Pattaya Tourism Development (Phase II)
	12.0 - 12.5	△	MH	Location: Pattaya, Cholburi
	13.5 - 14.0	□	MH	

SUNCON COMPANY LIMITED

Figure 48



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification
BK-3	0.5 - 1.0	○	SP
	2.0 - 2.5	△	SC
	3.5 - 4.0	□	SC

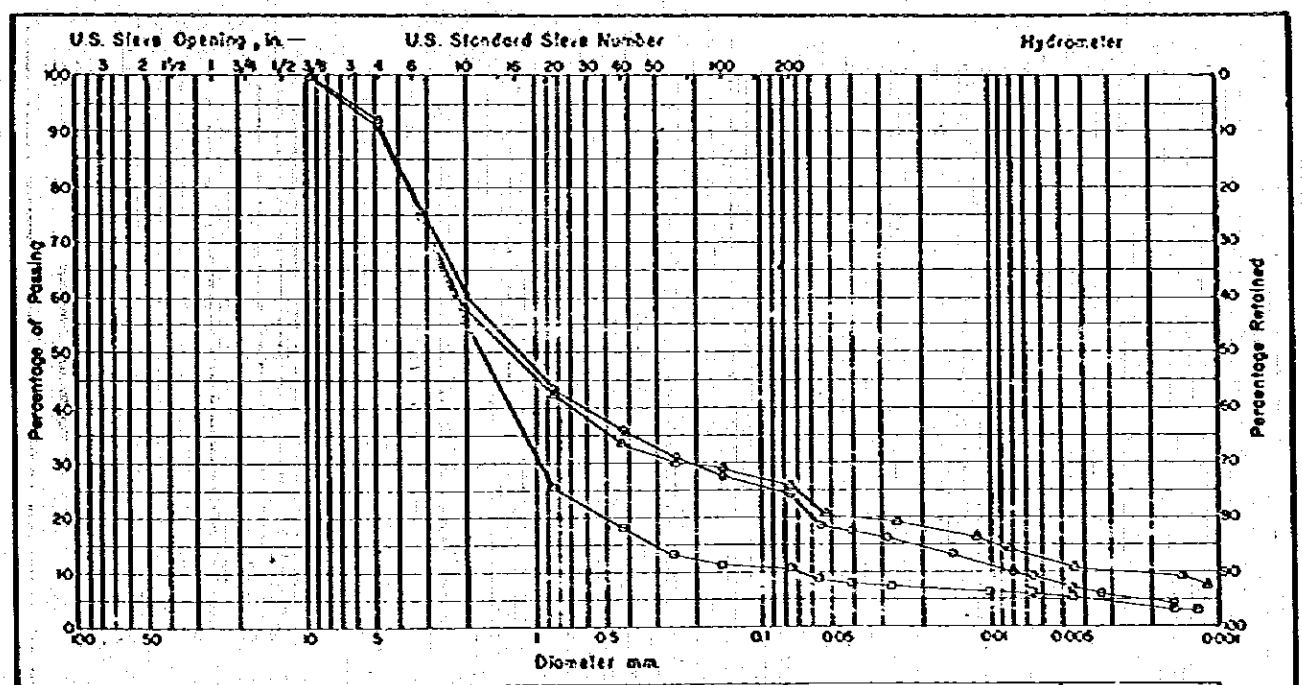
GRAIN SIZE DISTRIBUTION

Project: Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

SUKCON COMPANY LIMITED

Figure 49



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification
BK-3	5.0 - 5.5	○	SC
	6.5 - 7.0	△	SC
	8.0 - 8.5	□	SC

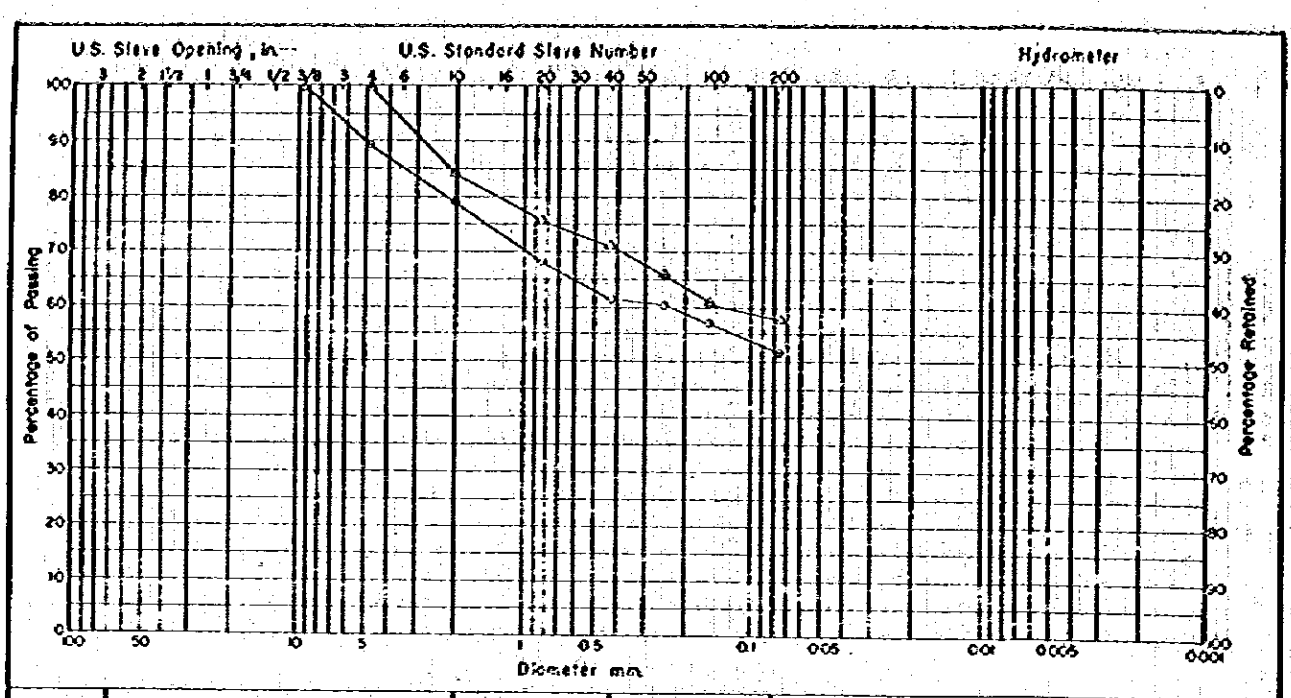
GRAIN SIZE DISTRIBUTION

Project: Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

SUKCON COMPANY LIMITED

Figure 50



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification
BH-3	9.5 - 10.0	o	SC
	11.0 - 11.5	Δ	SC

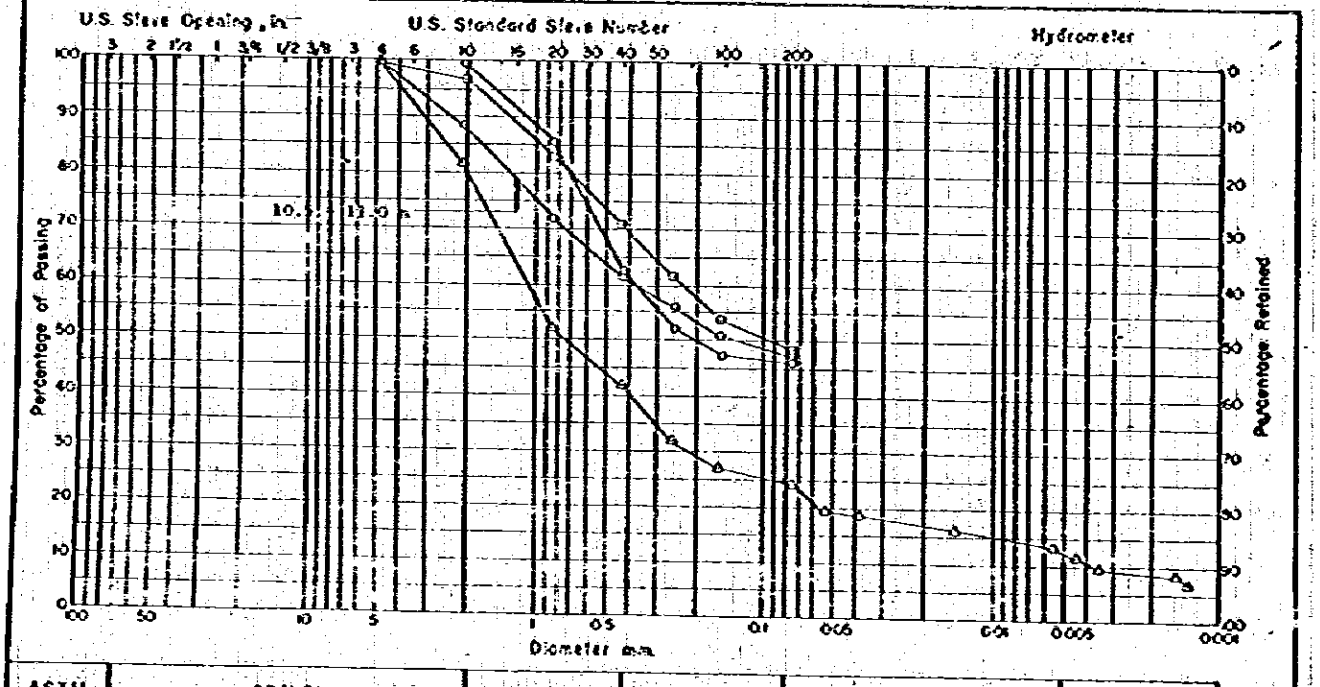
GRAIN SIZE DISTRIBUTION

Project: Pattaya Tourism Developeent (Phase II)

Location: Pattaya, Cholburi

Figure 51

SURCON COMPANY LIMITED



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification
BH-4	1.5 - 2.0	o	SP
	4.5 - 5.0	Δ	SC
	7.5 - 8.0	□	SP

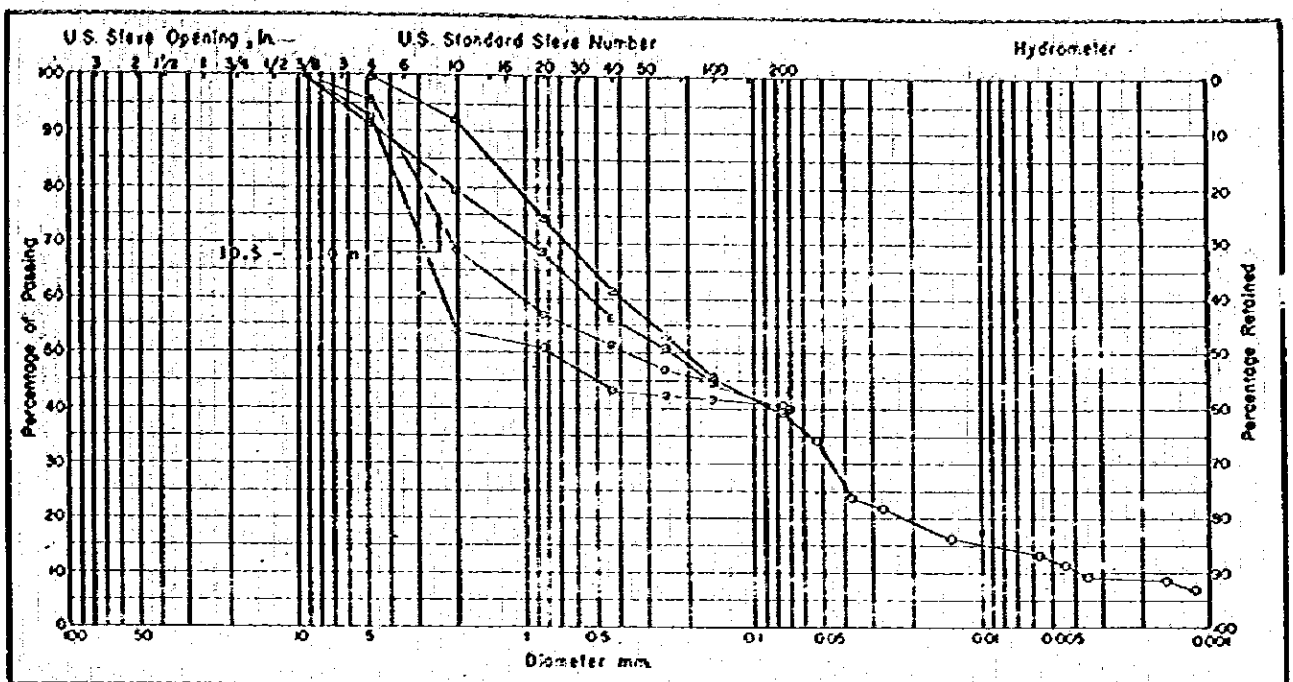
GRAIN SIZE DISTRIBUTION

Project: Pattaya Tourism Developent (Phase II)

Location: Pattaya, Cholburi

Figure 52

SURCON COMPANY LIMITED

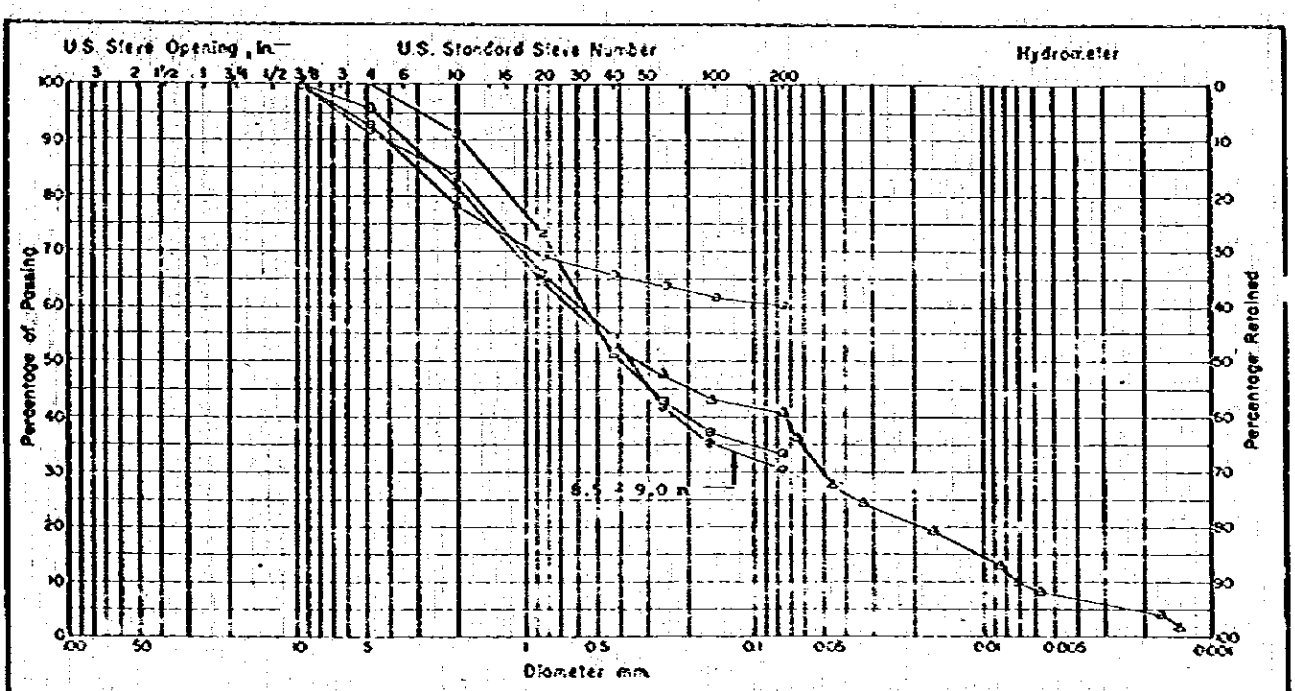


ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
BH-5	1.5 - 2.0	○	SP	Project: Pattaya Tourism Development (Phase II)
	4.5 - 5.0	△	SC	Location: Pattaya, Cholburi
	7.5 - 8.0	□	SC	

SURCON COMPANY LIMITED

Figure 53

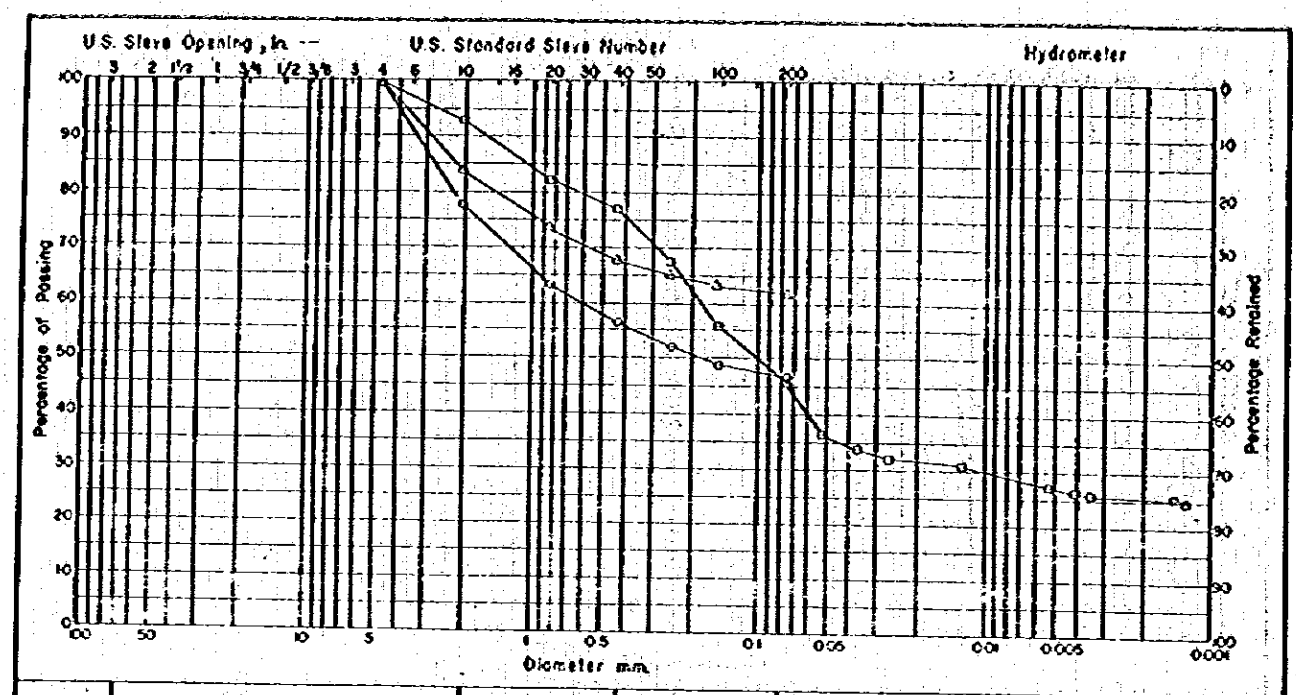


ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
BH-6	1.0 - 1.5	○	SP	Project: Pattaya Tourism Development (Phase II)
	4.5 - 5.0	△	CL	Location: Pattaya, Cholburi
	7.0 - 7.5	□	CL	

SURCON COMPANY LIMITED

Figure 54



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification
BH-7	3.0 - 3.5	○	SP
	6.0 - 6.5	△	SP
	9.0 - 9.5	□	CL

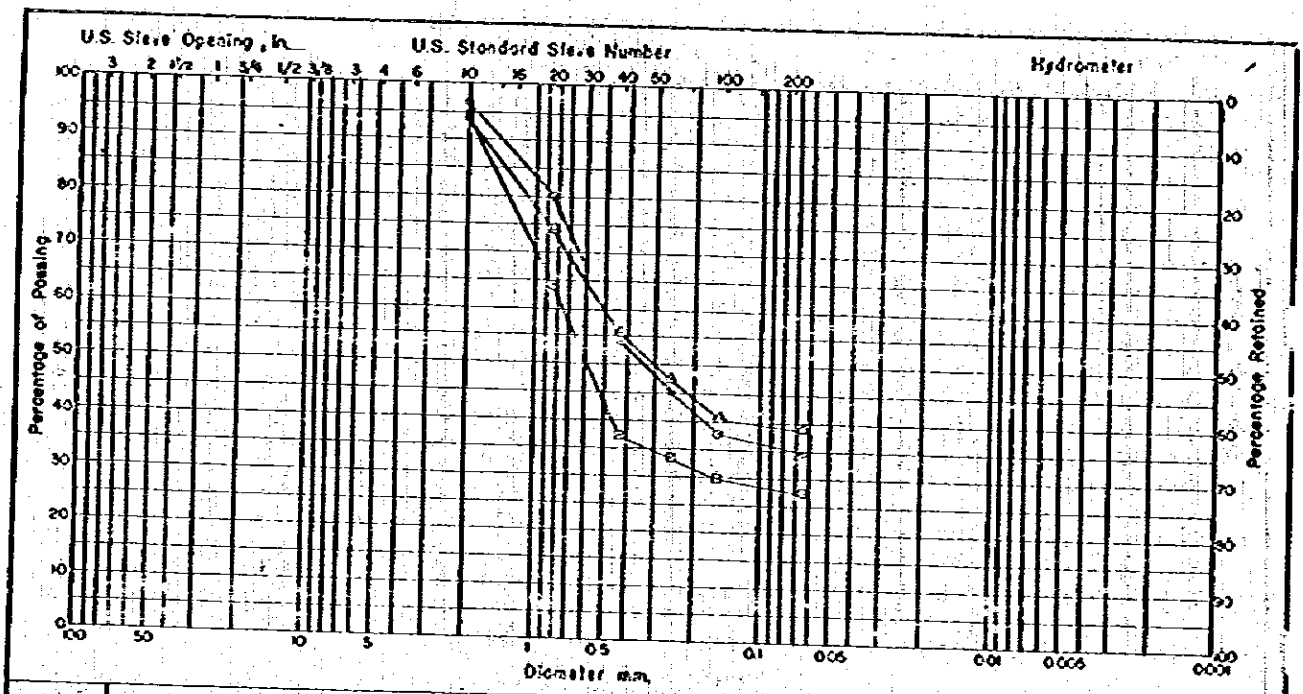
GRAIN SIZE DISTRIBUTION

Project: Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

SUNCON COMPANY LIMITED

Figure 55



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification
BA 2	1.5	○	SP
BA 3	1.5	○	SP
BA 5	1.5	○	SP

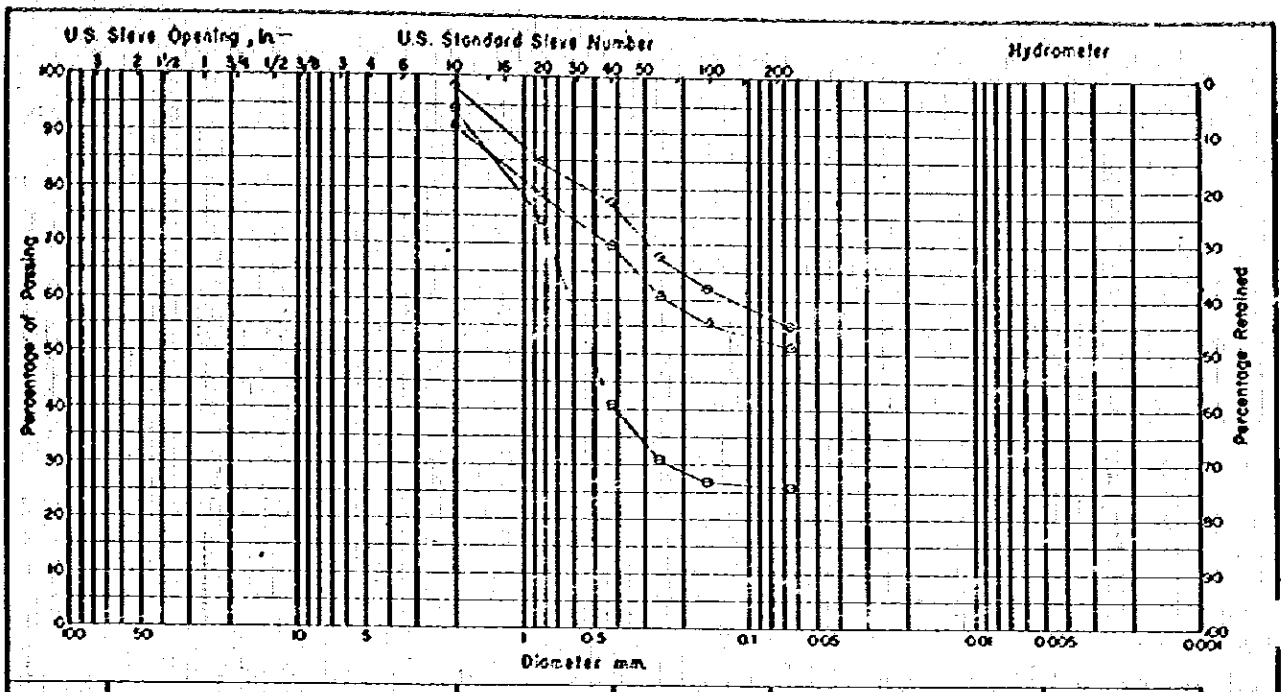
GRAIN SIZE DISTRIBUTION

Project: Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

SUNCON COMPANY LIMITED

Figure 56



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification
BA 6	2.0	Δ	SP
BA 8	1.5	□	SM
BA 9	1.0	○	SP

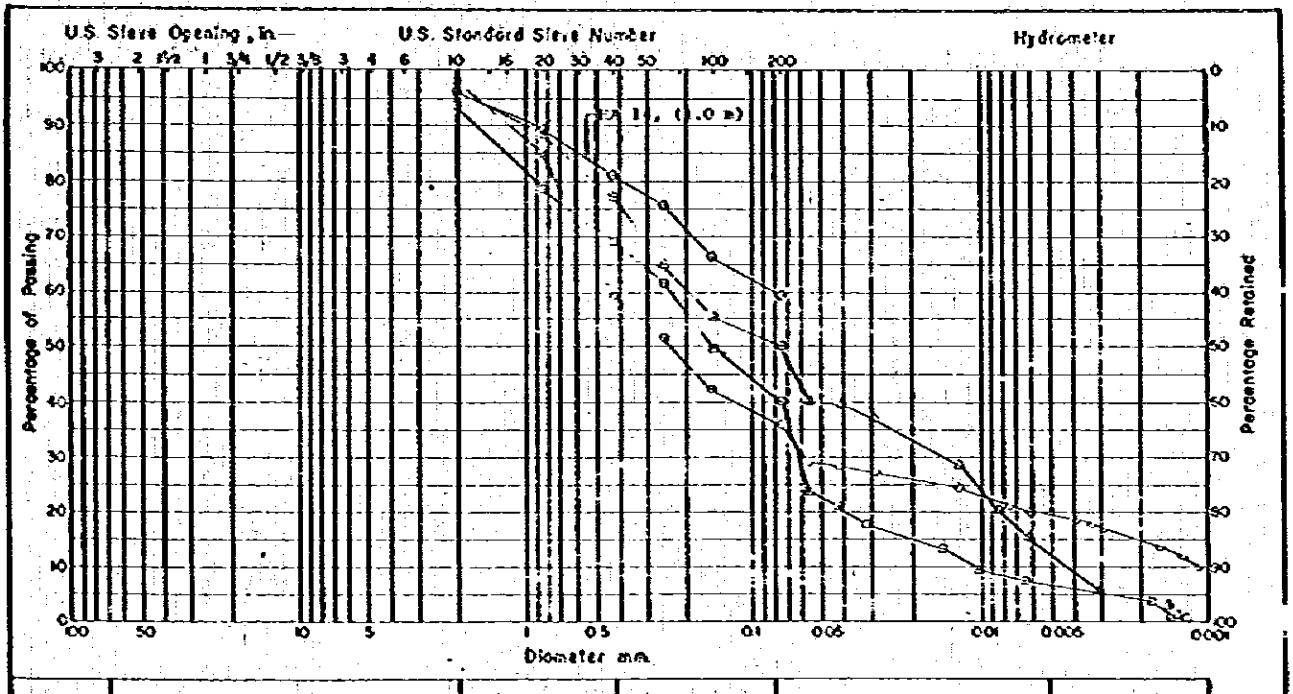
GRAIN SIZE DISTRIBUTION

Project: Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

SUNCON COMPANY LIMITED

Figure 57



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification
BA 10	1.0	Δ	CL
BA 12	1.5	○	SP
BA 13	2.0	○	CL

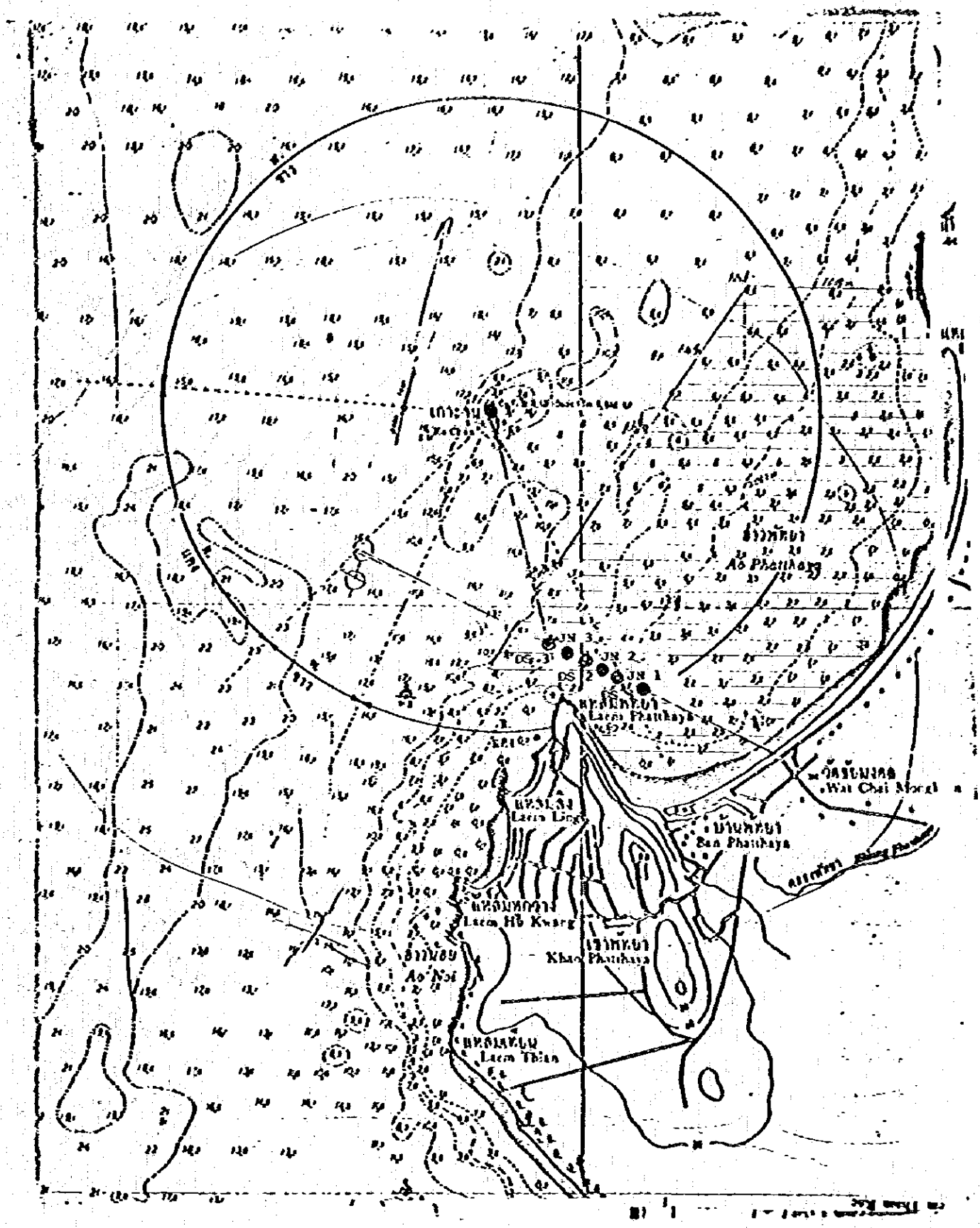
GRAIN SIZE DISTRIBUTION

Project: Pattaya Tourism Development (Phase II)

Location: Pattaya, Cholburi

SUNCON COMPANY LIMITED

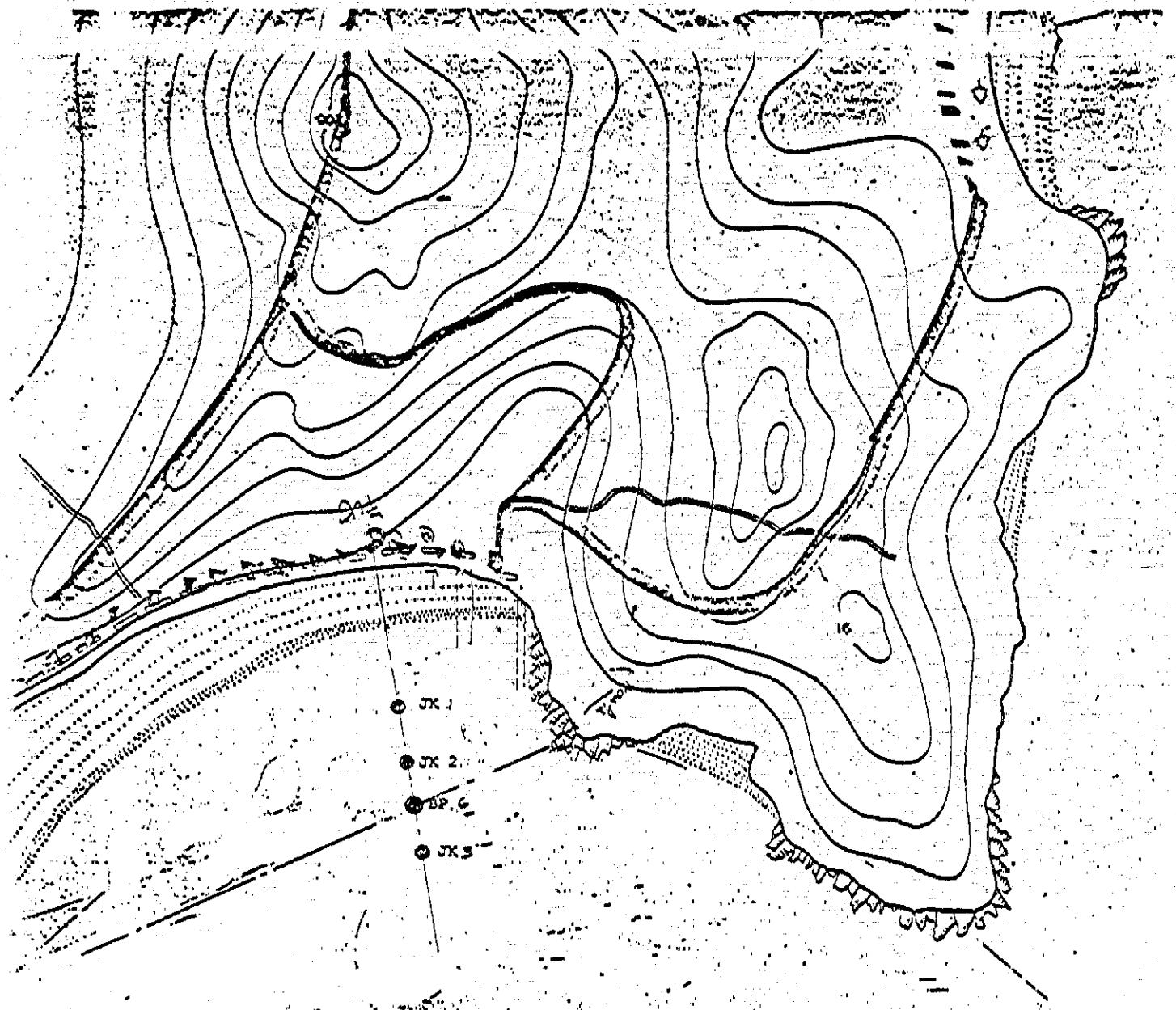
Figure 58



● Water Jetting Test

● Diving Sampling

LOCATION MAP WATER JETTING TEST AND DIVING SAMPLING



BORING AND WATER JETTING LOCATION MAP AT KO LAN