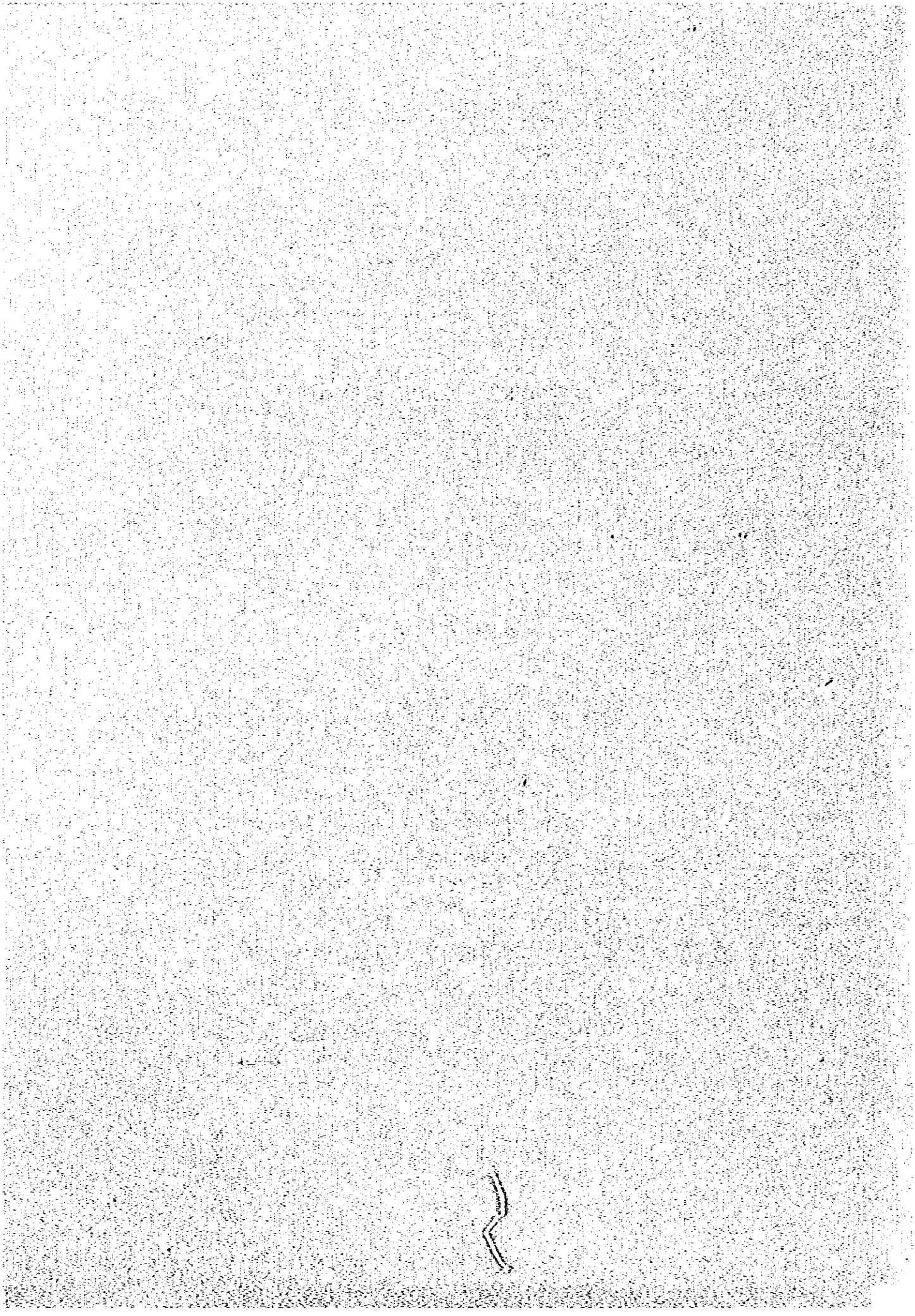
APPENDIX 2. SOIL INVESTIGATION



C O N T E N T S

Appendix 2.1 Soil Investigation (Part-1)

SUBSOIL INVESTIGATION

FOR

PATTAYA TOURISM DEVELOPMENT PROJECT

PATTAYA, CHOLBURI, THAILAND

REPORT NO. 77 FEBRUARY 1978

SUBMITTED TO

PACIFIC CONSULTANTS INTERNATIONAL

8-2 JINGUMAE, 2-CHOME

SHIBUYAKU, TOKYO 150

JAPAN

DESIGN 103

1. INTRODUCTION

This report presents the subsoil investigation results of Pattaya Tourism Development Project at Pattaya, Cholburi, Thailand.

Twenty one (21) shallow borings by hand auger and 17 deep borings were carried out at the proposed developed area. The purpose of this investigation is to collect the general characteristic of soil engineering properties, ie grain size distribution, Atterberg limits, specific gravity, maximum dry density and C.B.R.

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 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 statra.

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 17.

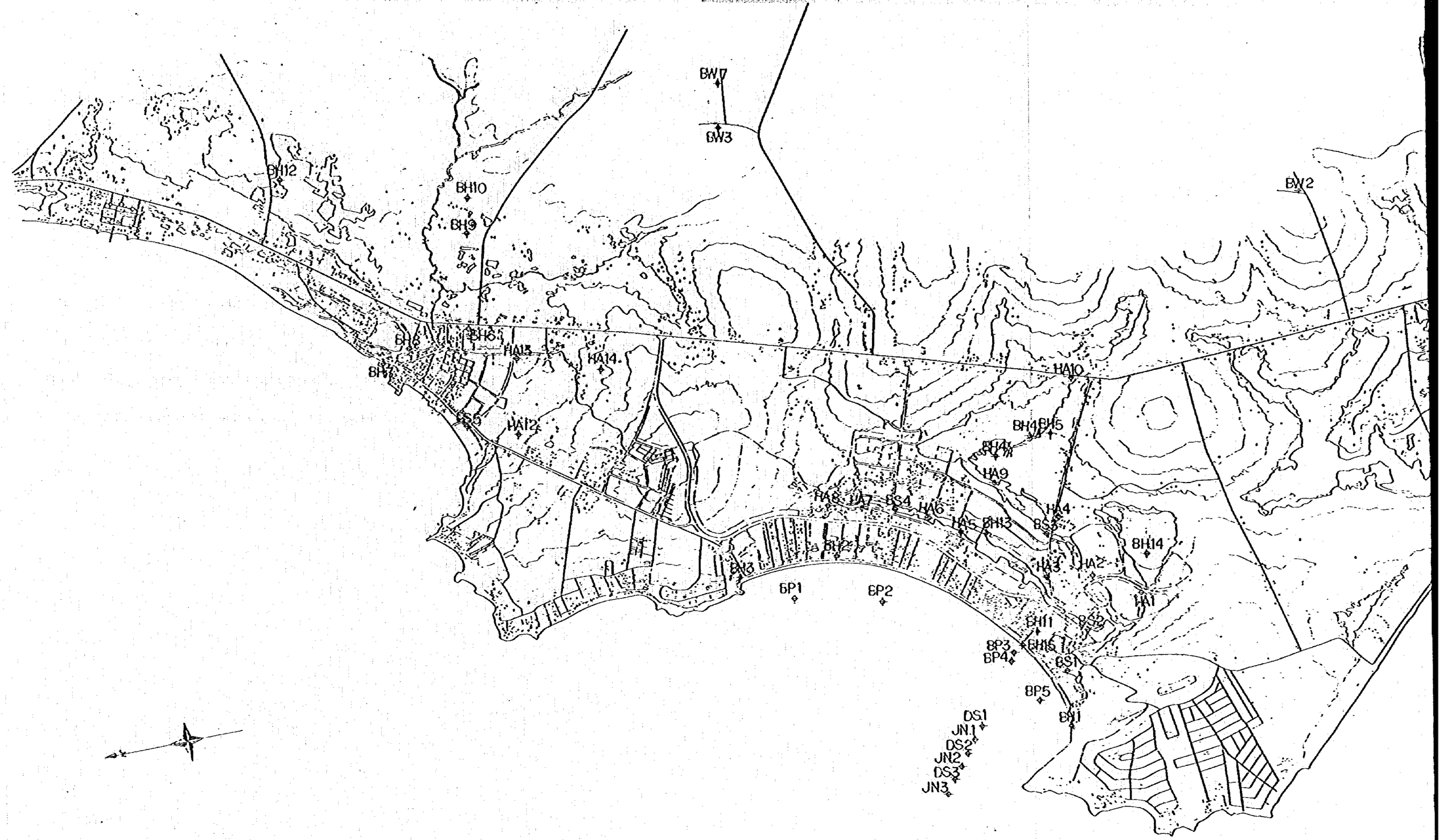
3. SOIL ENGINEERING PROPERTIES

3.1 Atterberg Limits, Water Content, 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 7.

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 test was carried out in accordance with the standard procedure. The grain size distribution curve of the individual sample was persented in figures 18 to 87 and figures 110 to 153.

3.3 Compaction Test The modified proctor compaction tests were carried out on the shallow boring samples. The compaction test result is presented in table 8.

3.4 California Bearing Ratio Test (C.B.R) The soaked C.B.R of 55, 25, 12 blows of energy were carried out on each compaction curve at the optimum water content. The swelling observation were made within 36 hours period. The test result is presented in table 8.


BW7
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HA2
HA1
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BH3
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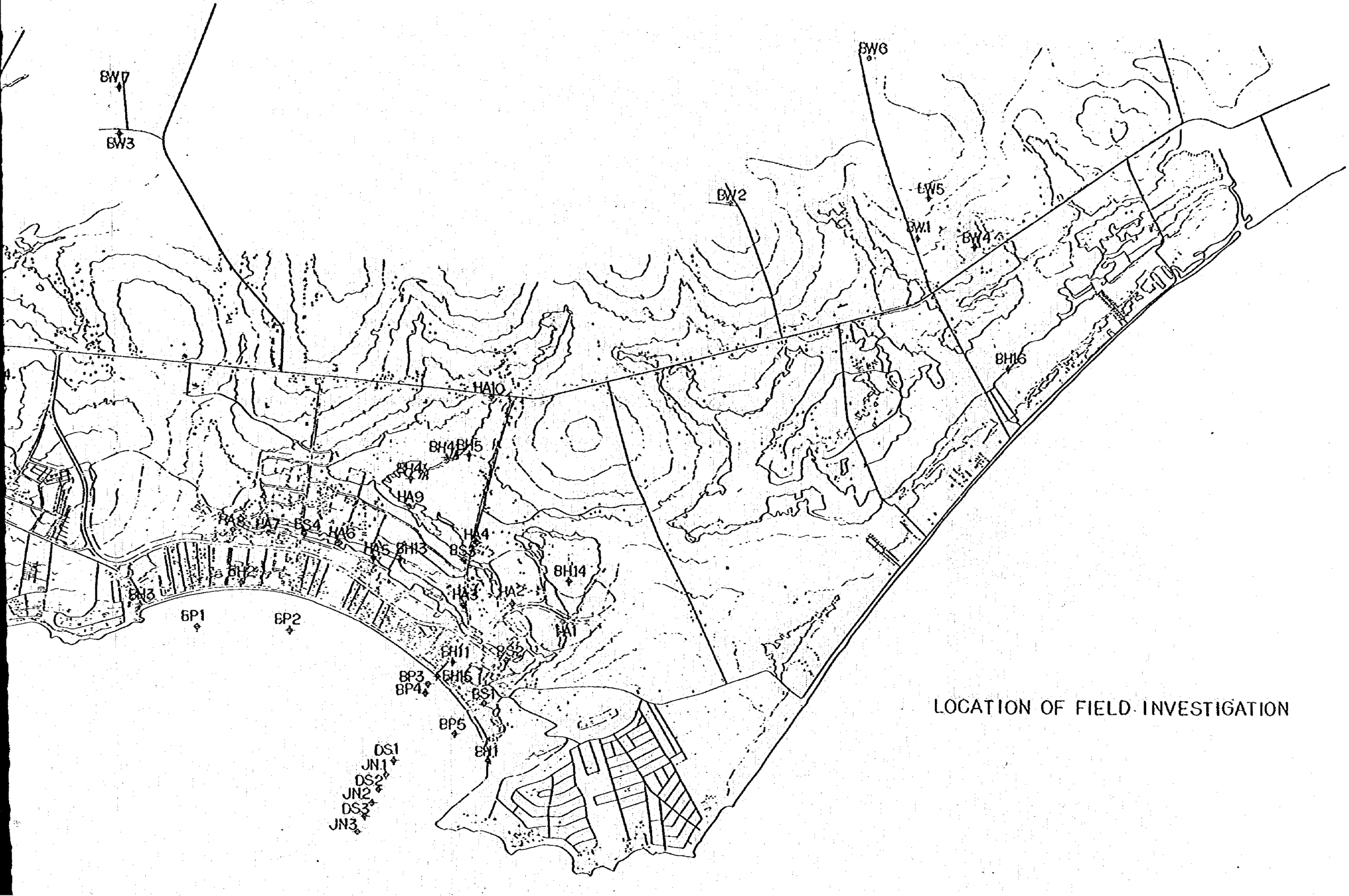
DS3
JN3



LOCATION OF FIELD INVESTIGATION

SECTION I DEEP BORING TEST RESULTS

TABLE 1 SUMMARY OF SOIL ENGINEERING PROPERTIES

Project : Pattaya Tourism Development

Location: Pattaya, Cholburi

Date: February 2, 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
1	0.50-1.00	20.9	-	-	1.82	1.65	2.59	17
	1.50-1.95	10.1	-	-	1.96	1.77	2.59	7
	3.00-3.45	10.5	-	-	1.80	1.49	2.60	23
2	1.50-2.00	13.3	-	-	1.89	1.67	2.60	18
	4.50-5.00	27.4	-	-	1.97	1.55	-	35
	7.50-8.00	13.8	-	-	1.94	1.70	2.65	46
	12.00-12.50	12.1	-	-	2.16	1.92	-	44
	15.00-15.50	21.4	-	-	2.21	1.83	2.66	38
	18.00-18.50	5.5	-	-	2.18	2.06	-	58
3	1.00-1.50	8.9	-	-	1.96	1.80	2.63	52
	4.00-4.50	10.0	-	-	2.04	1.85	-	80/6"
	7.00-7.50	10.6	-	-	2.17	1.96	-	120/4"
	10.00-10.50	9.2	-	-	2.09	1.91	-	90/4"
4-A	0.50-1.00	15.3	40.7	19.8	1.82	1.58	2.65	19
	3.50-4.00	7.0	-	-	2.17	2.03	-	86/6"
	6.50-7.00	3.8	-	-	2.27	2.18	-	73/6"
	9.50-10.00	9.6	-	-	1.64	1.45	-	104/6"
4-B	0.50-1.00	19.9	-	-	1.84	1.53	2.65	2
	3.50-4.00	7.0	-	-	1.89	1.77	-	35
	6.50-7.00	14.8	-	-	1.90	1.65	2.67	48
	9.50-10.00	15.1	-	-	2.08	1.86	-	95
	12.50-13.00	12.2	-	-	2.17	1.93	-	50/2"

TABLE 2 SUMMARY OF SOIL ENGINEERING PROPERTIES

Project : Pattaya Tourism Development

Location: Pattaya, Cholburi

Date: February 2, 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
5	0.50-1.00	9.0	-	-	1.96	1.80	2.66	6
	3.50-4.00	22.9	-	-	1.99	1.62	2.60	36
	6.50-7.00	12.1	-	-	1.90	1.69	2.67	46
	9.50-10.00	11.3	-	-	2.19	1.97	2.63	54
	12.50-13.00	8.0	-	-	2.03	1.88	2.63	57
6	0.50-1.00	6.6	-	-	1.89	1.77	2.64	13
	3.50-4.00	17.4	39.2	22.1	2.19	1.86	2.66	37
	6.50-7.00	16.1	-	-	1.92	1.66	-	56
	9.50-10.00	11.2	-	-	2.08	1.87	-	65
	12.50-13.00	10.0	40.7	23.9	2.29	2.08	2.66	33
	15.50-16.00	18.3	-	-	2.33	1.97	2.66	62
7	1.50-2.00	20.7	-	-	2.09	1.74	2.64	9
	4.50-5.00	10.2	-	-	2.15	1.95	2.66	82
	7.50-8.00	10.2	-	-	2.16	1.96	-	50/3"
	10.50-11.00	13.7	-	-	2.23	1.97	-	101
8	1.50-2.00	18.8	-	-	1.82	1.53	2.60	6
	4.50-5.00	15.0	-	-	1.87	1.63	2.61	30
	7.50-8.00	13.2	38.4	13.6	1.92	1.70	2.60	24
	10.50-11.00	11.9	-	-	1.99	1.78	2.66	60
	13.50-14.00	8.9	-	-	2.05	1.90	2.65	85
	16.50-17.00	10.9	-	-	1.96	1.77		65

TABLE 3 SUMMARY OF SOIL ENGINEERING PROPERTIES

Project : Pattaya Tourism Development

Location: Pattaya, Cholburi

Date: February 2, 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
9	0.50-1.00	5.6	-	-	1.80	1.70	2.67	5
	3.00-3.50	8.6	-	-	1.88	1.73	2.65	31
	6.00-6.50	14.9	-	-	2.16	1.88	2.67	47
	9.00-9.50	12.5	-	-	1.99	1.77	-	53
	12.00-12.50	8.8	-	-	2.05	1.88	-	89
	15.00-15.50	19.2	-	-	2.01	1.69	-	55
	18.00-18.50	8.6	-	-	1.96	1.80	-	54
10	0.50-1.00	5.5	-	-	1.84	1.74	2.64	13
	3.00-3.50	8.4	-	-	1.88	1.73	-	22
	6.00-6.50	9.2	-	-	1.95	1.78	2.61	91
	9.00-9.50	9.8	-	-	1.99	1.81	-	50/4"
	12.00-12.50	9.8	-	-	2.07	1.88	2.63	82
11	0.50-1.00	23.2	-	-	1.94	1.57	2.60	7
	3.50-4.00	12.2	-	-	1.99	1.77	-	33
	6.50-7.00	11.1	-	-	1.95	1.78	-	43
	9.50-10.00	16.7	-	-	1.95	1.67	2.61	32
	12.50-13.00	10.2	-	-	1.86	1.69	-	50/4"
12	1.50-2.00	12.7	34.0	17.8	1.81	1.61	2.67	22
	4.50-5.00	11.7	-	-	1.90	1.70	2.64	46
	7.50-8.00	10.0	-	-	1.94	1.76	-	61
	10.50-11.00	14.8	-	-	1.99	1.73	-	82
	13.50-14.00	7.7	-	-	2.01	1.87	-	89

TABLE 4 SUMMARY OF SOIL ENGINEERING PROPERTIES

Project : Pattaya Tourism Development

Location:

Date:

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
13	0.50-1.00	12.7	-	-	1.80	1.60	2.62	12
	3.00-3.50	11.9	-	-	1.79	1.60	2.62	10
	6.00-6.50	14.5	-	-	1.92	1.68	2.64	54
	9.00-9.50	15.8	-	-	1.98	1.71	2.65	62
	12.00-12.50	12.3	-	-	1.92	1.71	2.67	81
	15.00-15.50	12.7	-	-	2.00	1.77	2.67	50/3"
14	1.50-2.00	13.7	-	-	1.91	1.68	-	25
	4.50-5.00	22.2	-	-	1.96	1.60	-	36
	7.50-8.00	20.4	39.3	18.0	2.04	1.69	2.64	33
	10.50-11.00	24.1	-	-	1.89	1.52	-	31
	13.50-14.00	28.8	-	-	1.91	1.48	-	50/4"
15	1.50-2.00	9.3	-	-	1.83	1.67	-	9
	4.50-5.00	11.5	-	-	1.87	1.68	-	28
	7.50-8.00	9.3	-	-	1.91	1.75	-	50/6"
	10.50-11.00	10.8	32.5	16.2	1.93	1.74	2.65	7
	13.50-14.00	11.8	-	-	1.96	1.75	-	36
	16.50-17.00	11.3	-	-	1.91	1.72	-	46/5"
	19.50-20.00	12.1	-	-	2.04	1.82	-	76/11"
16	1.50-2.00	11.9	-	-	1.91	1.71	-	33
	4.50-5.00	16.1	41.4	23.5	1.87	1.61	2.66	25
	7.50-8.00	23.4	-	-	2.06	1.67	-	57
	10.50-11.00	20.9	-	-	2.14	1.77	-	84
	13.50-14.00	13.2	-	-	2.05	1.81	-	53

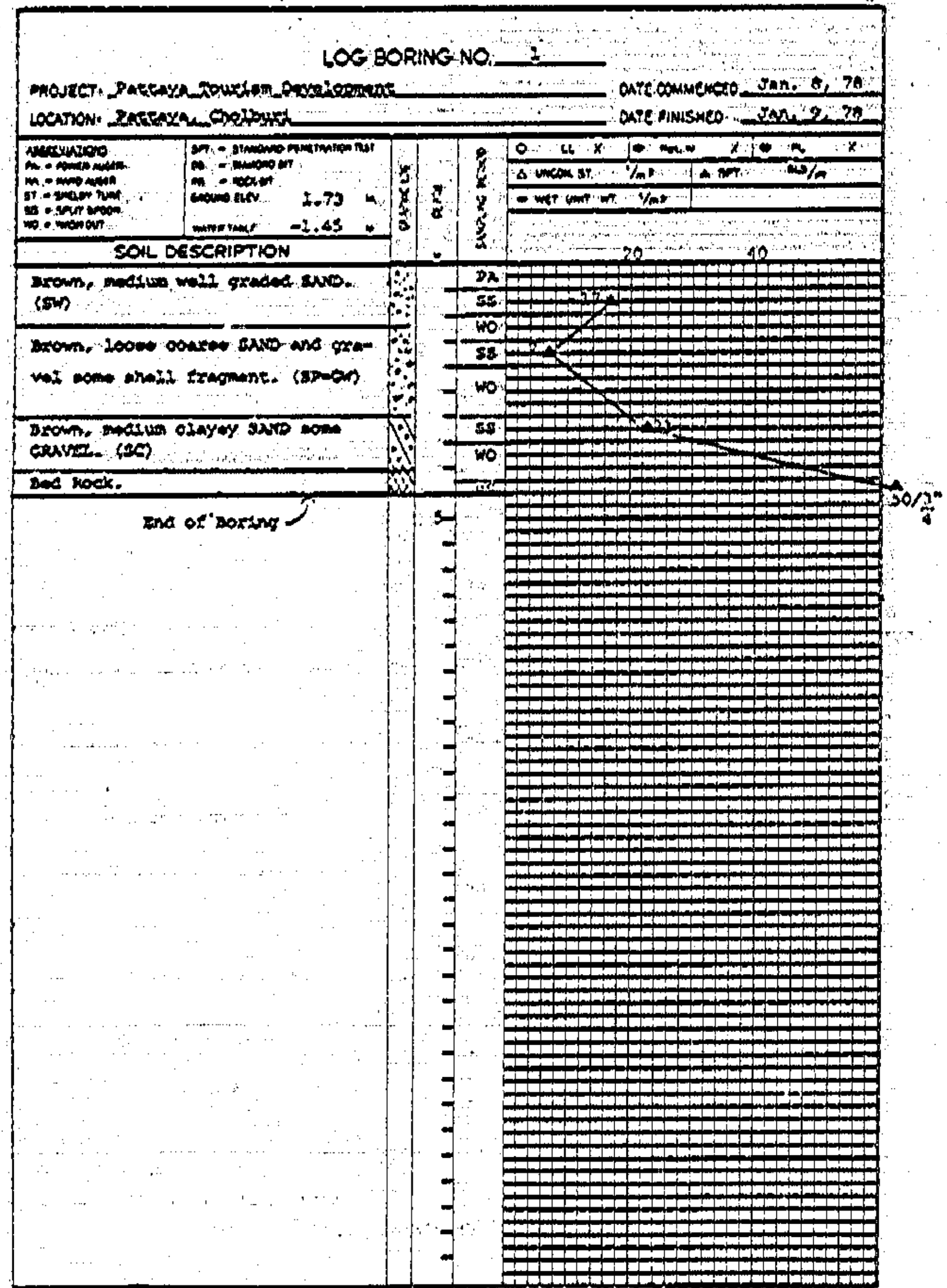


Figure 1 SOIL BORING LOG OF BORE HOLE 1

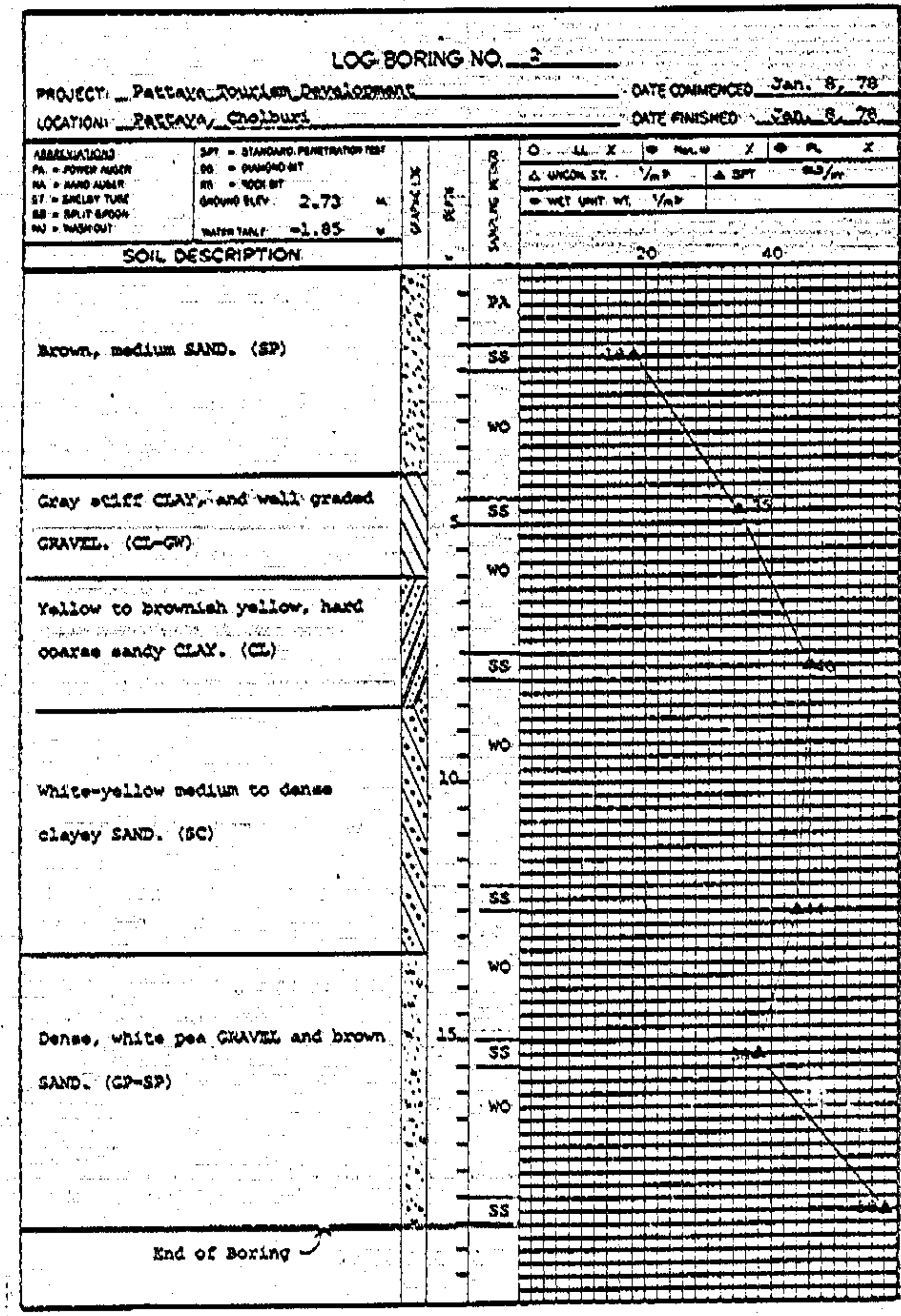


Figure 2 SOIL BORING LOG OF BORE HOLE 2

LOG BORING NO. 3

PROJECT: Pattaya Tourism Development — DATE COMMENCED: Jan. 4, 78

LOCATION: Pattaya, Cholburi — DATE FINISHED: Jan. 5, 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: 2.63 M

WATER TABLE: -0.65 M

SOIL DESCRIPTION	SAMPLING METHOD	SPT
Brown, very dense fine to medium SAND. (SP)	PA	
	SS	50/6"
	WO	
Brown, very dense SAND. (SP)	SS	120/4"
	WO	
Light brown, very dense clayey to silty SAND. (SC)	SS	WO/4"
	WO	
End of Boring		

Figure 3 SOIL BORING LOG OF BORE HOLE 3

LOG BORING NO. 4-A

PROJECT: Pattaya Tourism Development — DATE COMMENCED: Jan. 3, 78

LOCATION: Pattaya, Cholburi — DATE FINISHED: Jan. 3, 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: 4.39 M

WATER TABLE: -0.50 M

SOIL DESCRIPTION	SAMPLING METHOD	SPT
Brown, stiff CLAY. (CH)	PA	
	SS	
Light gray, very dense clayey coarse SAND. (SC)	WO	
	SS	86/6"
Brownish gray, coarse sandy CLAY. (CL)	WO	
	SS	53/6"
Light greenish gray very dense coarse SAND. (SP)	WO	
	SS	104/6"
End of Boring	WO	

Figure 4 SOIL BORING LOG OF BORE HOLE 4-A

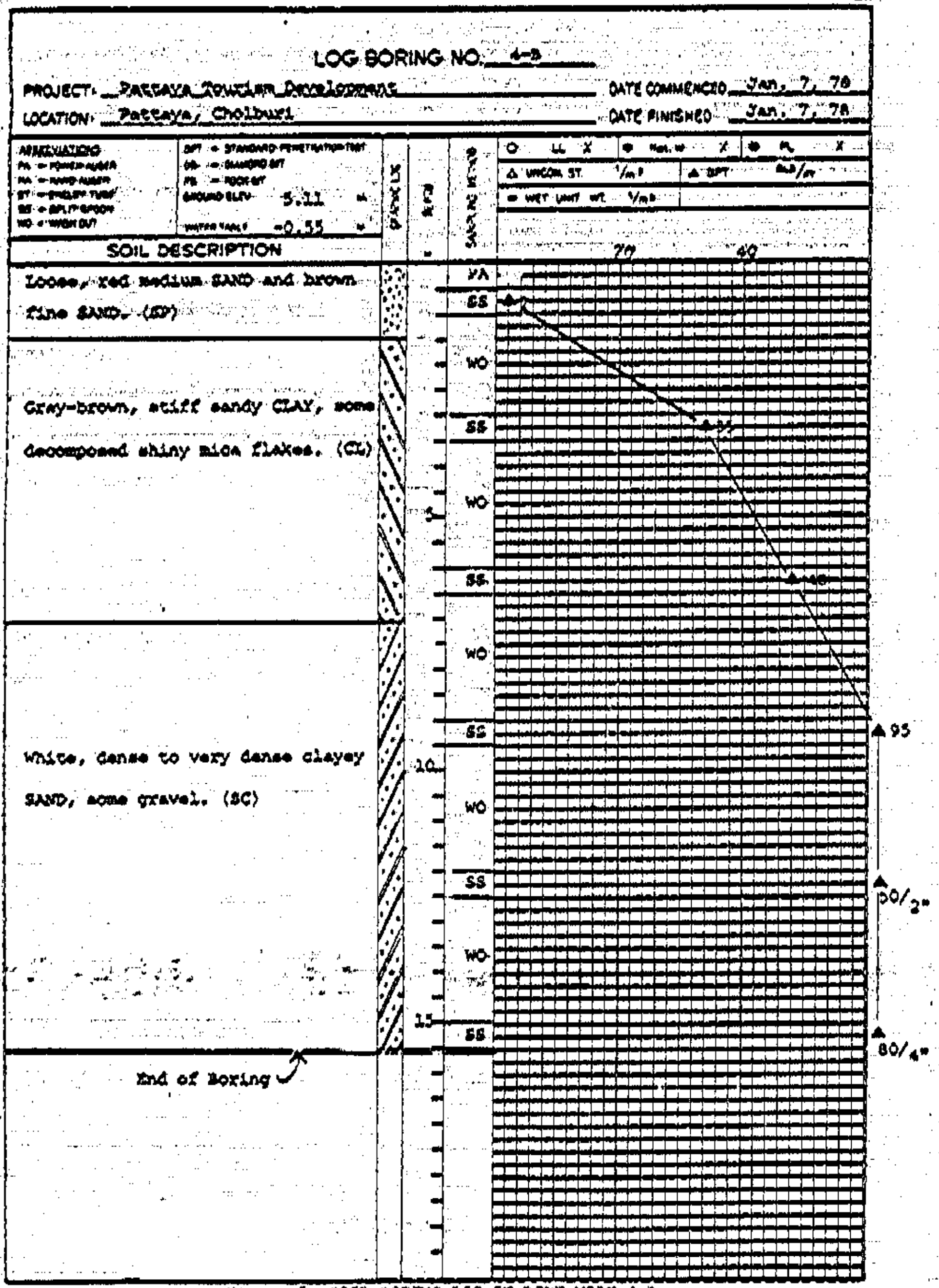


Figure 5 SOIL BORING LOG OF BORE HOLE 4-B

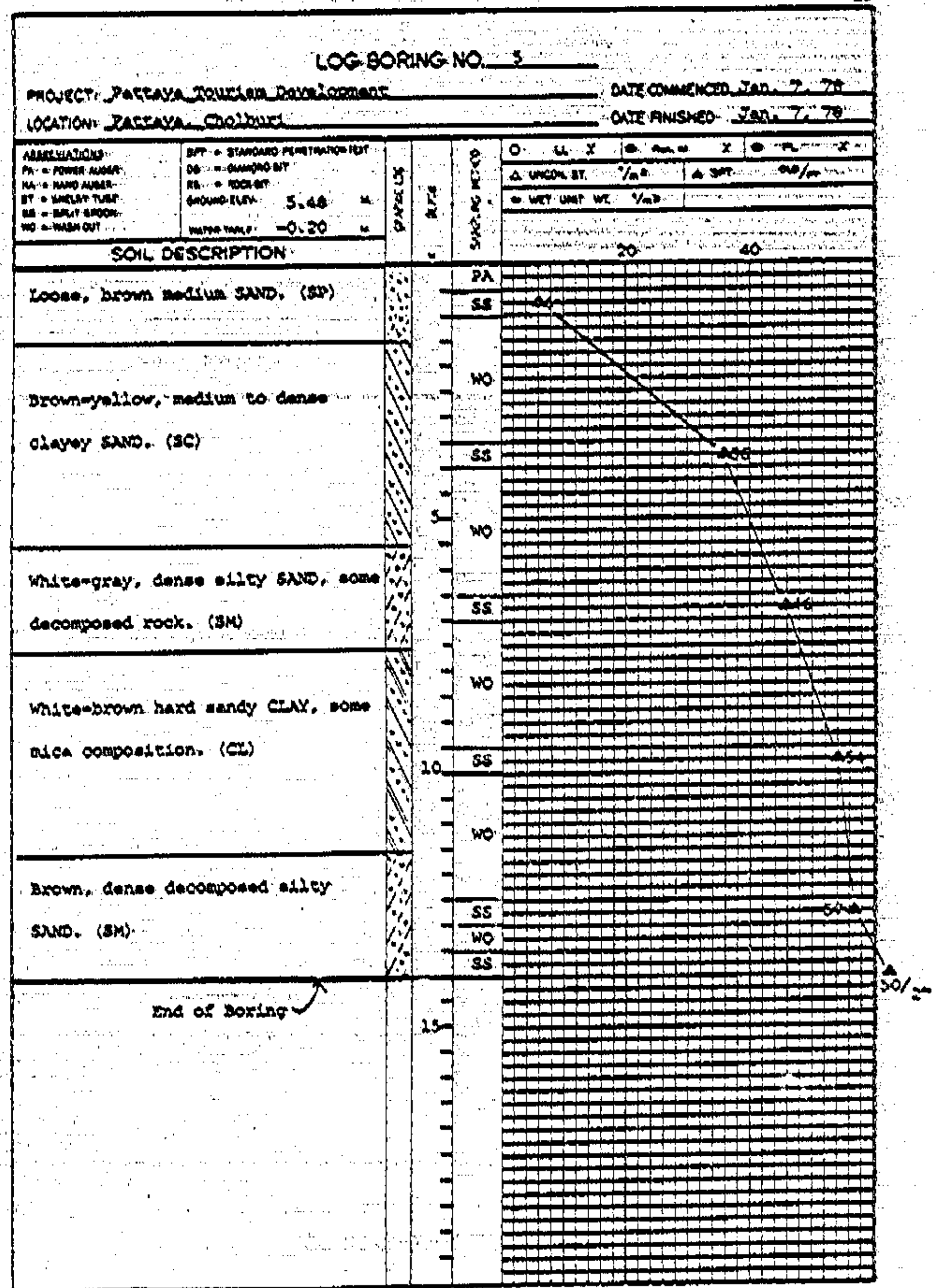


Figure 6 SOIL BORING LOG OF BORE HOLE 5

LOG BORING NO. 6

PROJECT: Pattaya Tourism Development — DATE COMMENCED Jan. 4, 78

LOCATION: Pattaya, Cholburi — DATE FINISHED Jan. 5, 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 5.62 M

WATER TABLE * M

SOIL DESCRIPTION	SAMPLING METHOD	DEPTH m	SAMPLING NO.
Grayish brown, clayey SAND. (SC)	PA		
	SS		
Reddish brown, stiff sandy CLAY. (CL)	WO		
	SS	5	
Light brown-light gray, hard coarse sandy CLAY. (CL)	WO		
	SS		
	WO		
	SS	10	
Reddish brown, very stiff sandy CLAY. (CL)	WO		
	SS		
	WO	15	
Reddish brown to yellowish brown, silty to fine sandy CLAY. (CL)	SS		
	WO		
	SS		
End of Boring			

* Bore hole was filled by land owner

Figure 7 SOIL BORING LOG OF BORE HOLE 6

LOG BORING NO. 7

PROJECT: Pattaya Tourism Development — DATE COMMENCED Jan. 4, 78

LOCATION: Pattaya, Cholburi — DATE FINISHED Jan. 4, 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 1.50 M

WATER TABLE -0.04 M

SOIL DESCRIPTION	SAMPLING METHOD	DEPTH m	SAMPLING NO.
Light brown, loose coarse SAND. (SP)	PA		
	SS		
Light gray-light brown, very dense clayey coarse SAND. (SC)	WO		
	SS	5	
	WO		
Light gray, very dense clayey SAND. (SC)	SS		
	WO		
	SS	10	
	WO		
	SS		
End of Boring		15	

Figure 8 SOIL BORING LOG OF BORE HOLE 7

LOG BORING NO. 8

PROJECT: Pattaya Tourism Development — DATE COMMENCED Jan. 6, 78

LOCATION: Pattaya, Cholburi — DATE FINISHED Jan. 6, 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. 1.81 M

WATER TABLE = 0.84 M

SOIL DESCRIPTION	SAMPLING METHOD
Brown, loose fine SAND. (SP)	PA, SS
White-gray-brown, medium to dense well graded SAND. (SW)	WO, SS, WO
Light brown, dense coarse SAND and silty fine SAND. (SP-SM)	SS, WO
Light brown to light gray, very stiff to hard fine sandy CLAY. (CL)	SS, WO, SS, WO, SS
End of Boring	

Figure 9 SOIL BORING LOG OF BORE HOLE 8

LOG BORING NO. 9

PROJECT: Pattaya Tourism Development — DATE COMMENCED Jan. 6, 78

LOCATION: Pattaya, Cholburi — DATE FINISHED Jan. 6, 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. 7.73 M

WATER TABLE = 1.00 M

SOIL DESCRIPTION	SAMPLING METHOD
Dark brown, loose fine SAND. (SP)	PA, SS
White-gray, loose clayey SAND. (SC)	WO, SS
White, dense clayey SAND. (SC)	WO, SS
Yellow-gray, very stiff to hard sandy CLAY. (CL)	WO, SS, WO, SS, WO
Gray, very stiff silty CLAY. (CL)	SS, WO, SS
End of Boring	

Figure 10 SOIL BORING LOG OF BORE HOLE 9

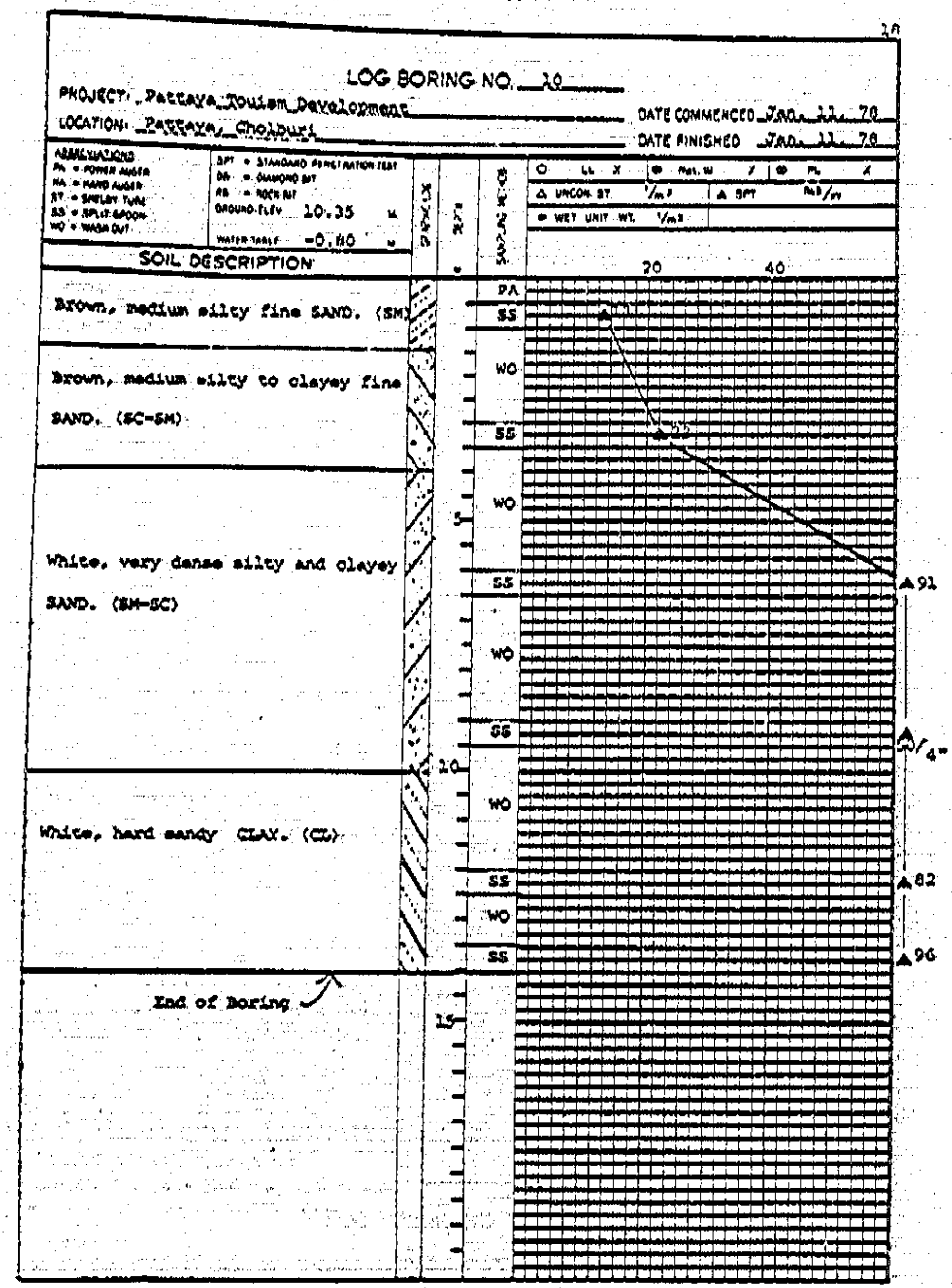


Figure 11 SOIL BORING LOG OF BORE HOLE 10

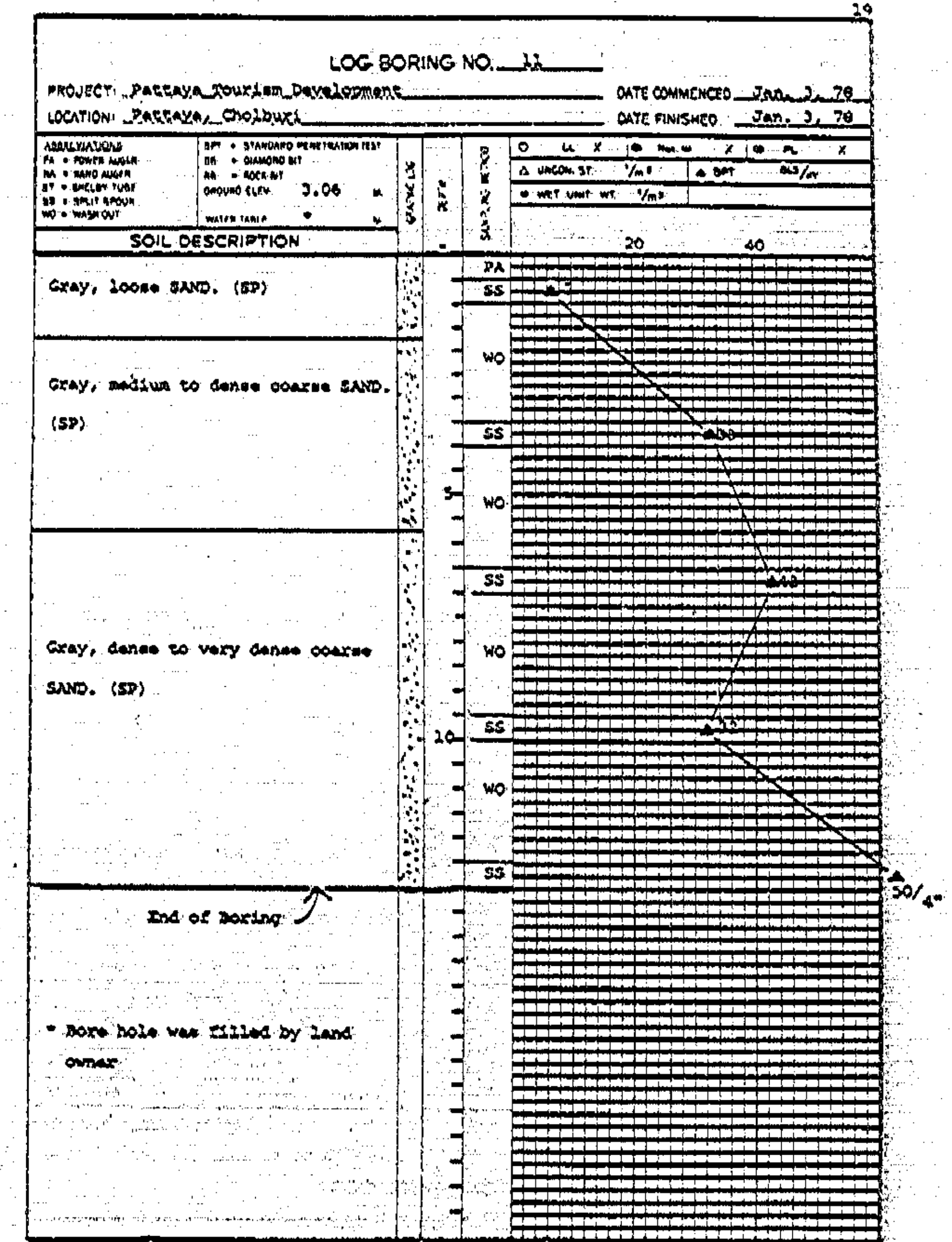


Figure 12 SOIL BORING LOG OF BORE HOLE 11

LOG BORING NO. 12

PROJECT: Pattaya Tourism Development — DATE COMMENCED Jan. 11, 78

LOCATION: Pattaya, Cholburi — DATE FINISHED Jan. 11, 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. 5.58 M.
WATER TABLE -0.20 M.

SOIL DESCRIPTION

Gray-yellow, stiff sandy CLAY. (CL)

Hard, gray-light brown, hard sandy CLAY. (CL)

Yellow-gray, very dense clayey SAND. (SC)

End of Boring

SAMPLING METHOD	DEPTH M.
PA	
SS	
WO	
SS	5
WO	
SS	
WO	10
SS	
WO	
SS	
WO	15
SS	

○ LL X ⊕ Nat. w X ⊕ PL X
△ UNCON. ST. T/m² ▲ SPT BLS/m
■ WET UNIT WT. T/m³

20 40

▲61 ▲82 ▲89 ▲83

Figure 13 SOIL BORING LOG OF BORE HOLE 12

LOG BORING NO. 13

PROJECT: Pattaya Tourism Development — DATE COMMENCED Jan. 10, 78

LOCATION: Pattaya, Cholburi — DATE FINISHED Jan. 10, 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 1.47 M.
WATER TABLE -0.35 M.

SOIL DESCRIPTION

Brown, medium fine SAND. (SP)

Gray-brown, very dense silty fine SAND. (SM)

White, hard fine sandy to silty CLAY. (CL)

End of Boring

SAMPLING METHOD	DEPTH M.
PA	
SS	
WO	
SS	5
WO	
SS	
WO	10
SS	
WO	
SS	
WO	15
SS	

○ LL X ⊕ Nat. w X ⊕ PL X
△ UNCON. ST. T/m² ▲ SPT BLS/m
■ WET UNIT WT. T/m³

20 40

▲19 ▲40 ▲54 ▲62 ▲81 50/3"

Figure 14 SOIL BORING LOG OF BORE HOLE 13

LOG BORING NO. 14

PROJECT: Pattaya Tourism Development — DATE COMMENCED Jan. 10, 78

LOCATION: Pattaya, Cholburi — DATE FINISHED Jan. 10, 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 4.56 m
WATER TABLE -0.13 m

SOIL DESCRIPTION	DEPTH m	SAMPLING METHOD
Gray-Brown, very stiff silty CLAY. (CL)	0	PA
		SS
		WO
	5	SS
		WO
		SS
Brown, very stiff silty CLAY with mica composition. (CL)		WO
	10	SS
		WO
Yellow, dense medium to coarse SAND. (SP)		SS
	15	WO
		SS
End of Boring		

Figure 15 SOIL BORING LOG OF BORE HOLE 14

LOG BORING NO. 15

PROJECT: Pattaya Tourism Development — DATE COMMENCED Jan. 9, 78

LOCATION: Pattaya, Cholburi — DATE FINISHED Jan. 9, 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 2.76 m
WATER TABLE

SOIL DESCRIPTION	DEPTH m	SAMPLING METHOD
Brown, loose silty SAND. (SM)	0	PA
		SS
		WO
Brown-black medium, coarse SAND. (SP)	5	SS
		WO
Light brown-white, very dense SAND. (SP)		SS
		WO
Gray, medium clayey coarse SAND. (SC-CL)	10	SS
		WO
		SS
Brown-gray, very stiff to hard sandy CLAY. (CL)	15	WO
		SS
		WO
		SS
End of Boring		

" Bore hole was filled by hand auger

Figure 16 SOIL BORING LOG OF BORE HOLE 15

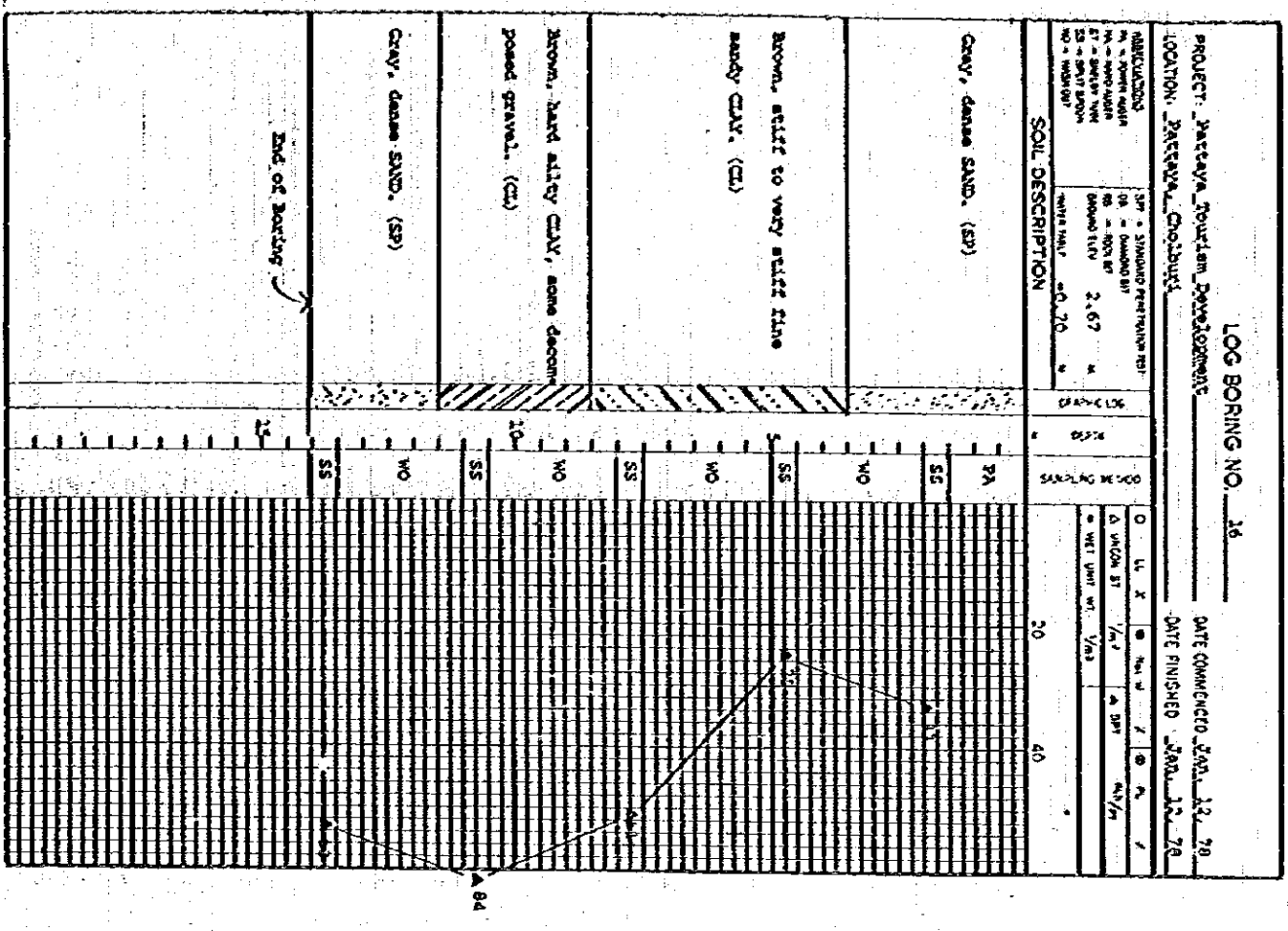
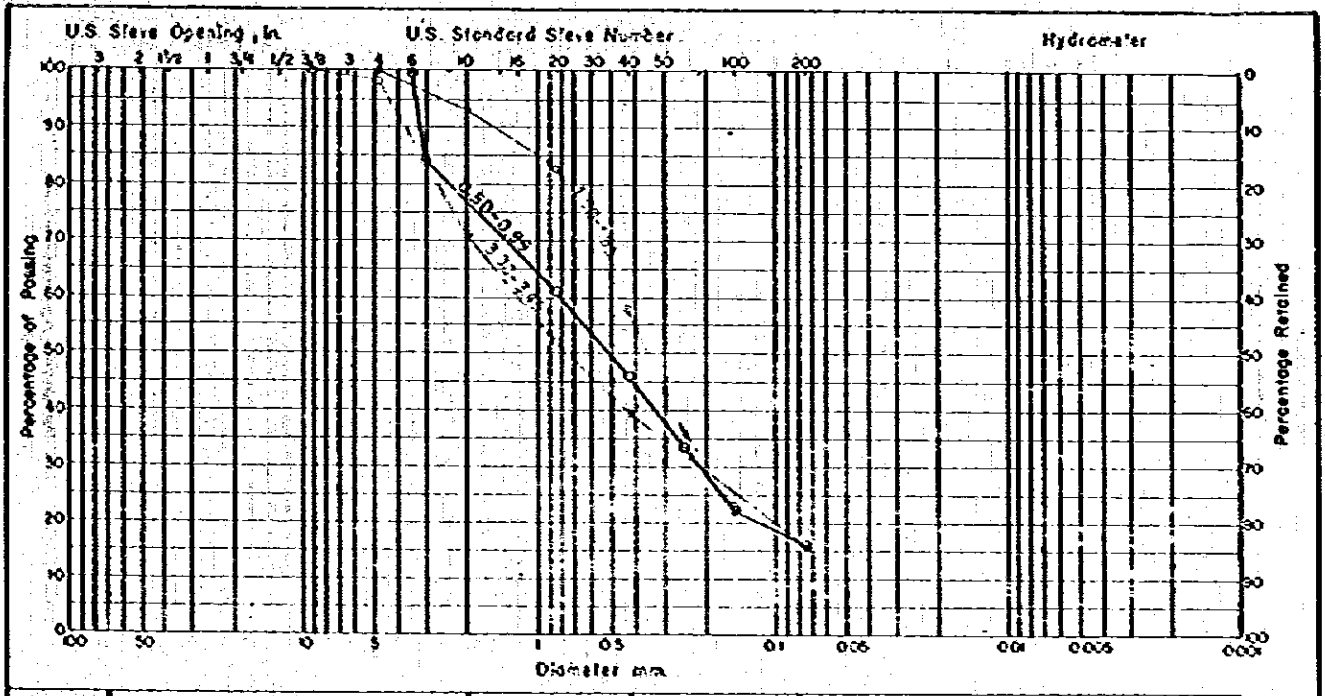


FIGURE 17 SOIL BORING LOG OR BORE HOLE 16



Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
1	0.50-0.95		SP	Project: Pattaya Tourism Development
	1.[illegible]-1.55			Location: Pattaya, Cholburi
	3.00-3.45			

Figure 18

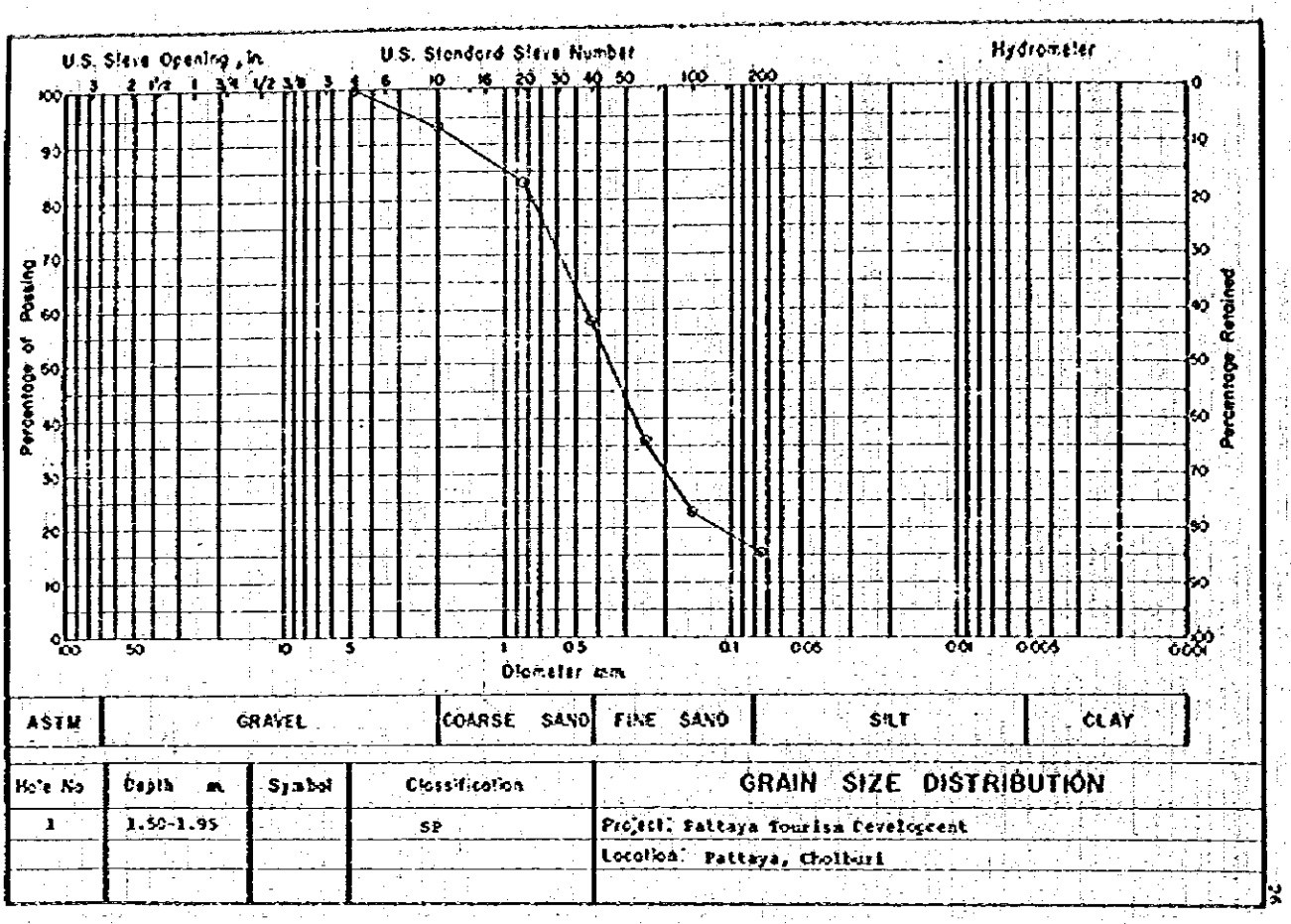


Figure 19

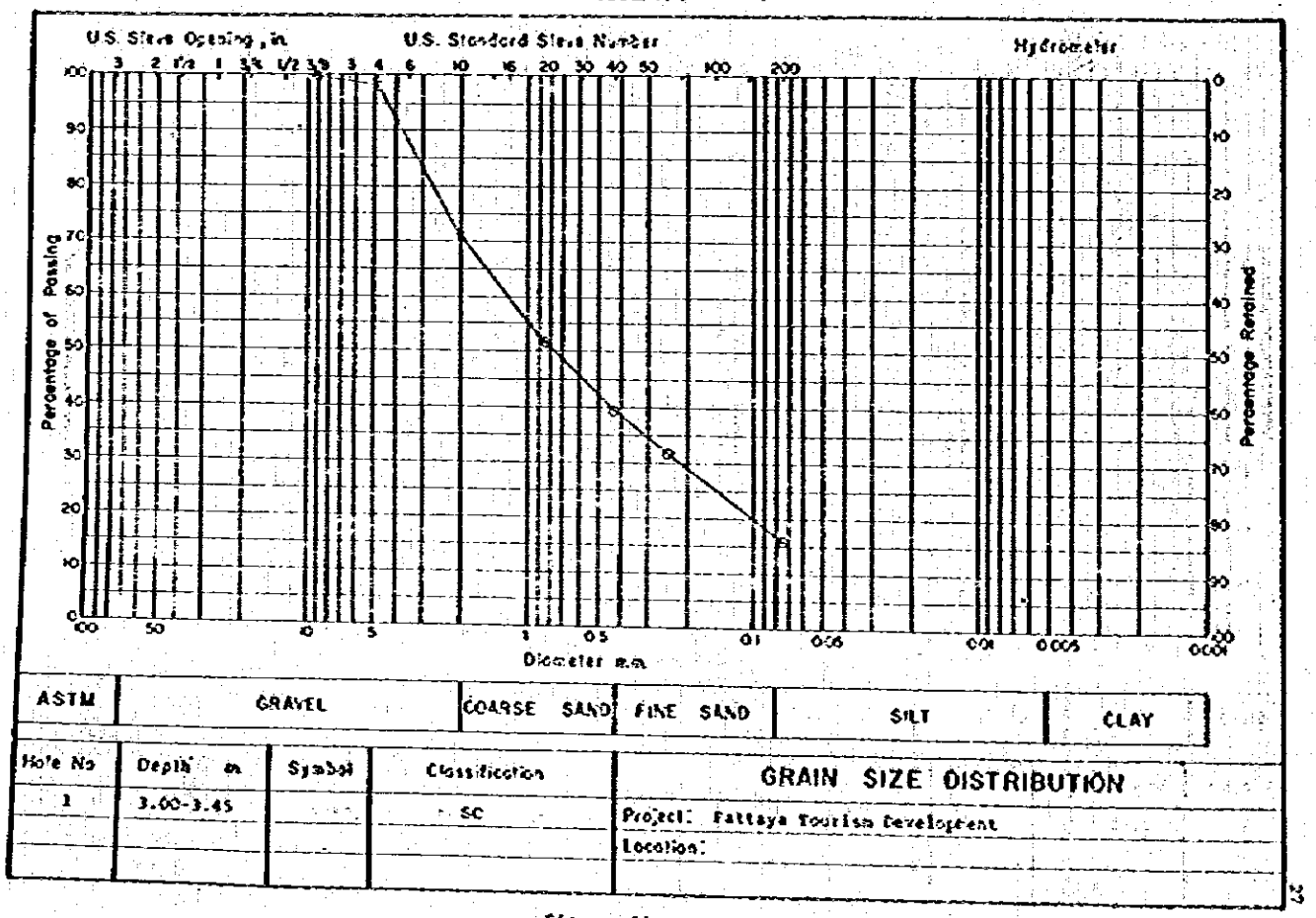
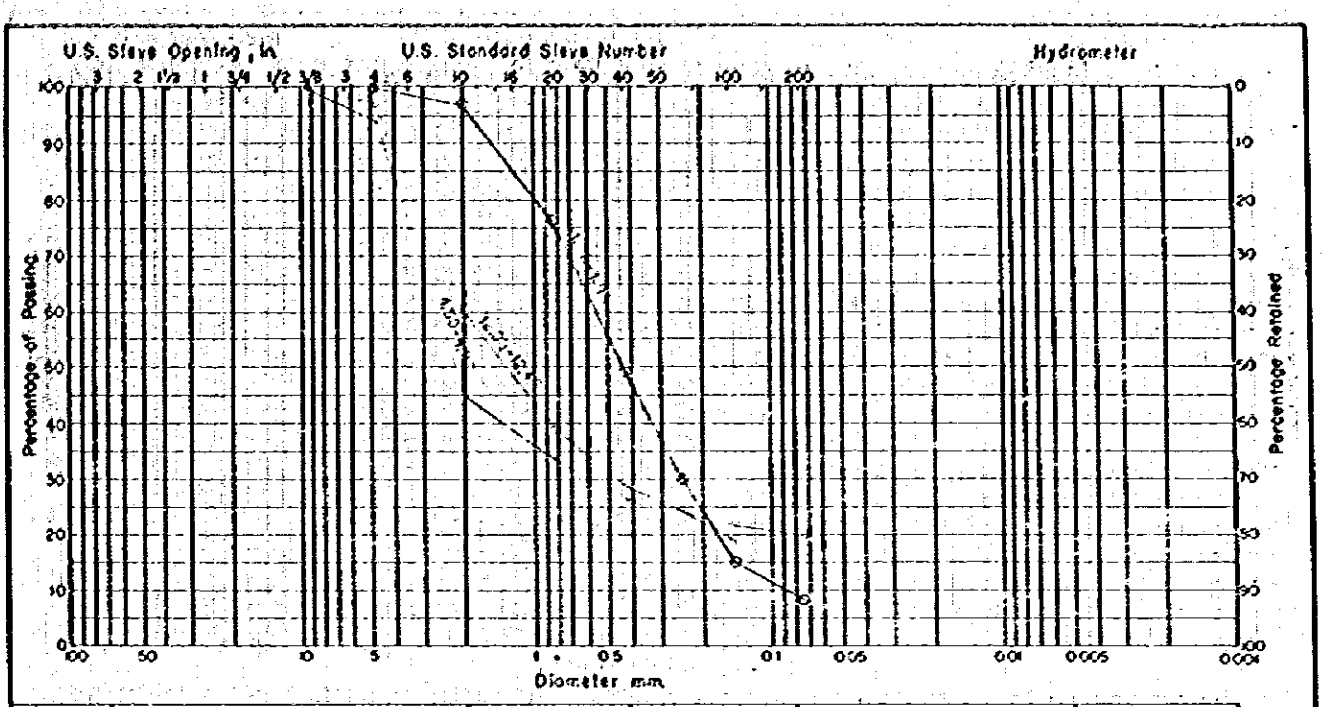


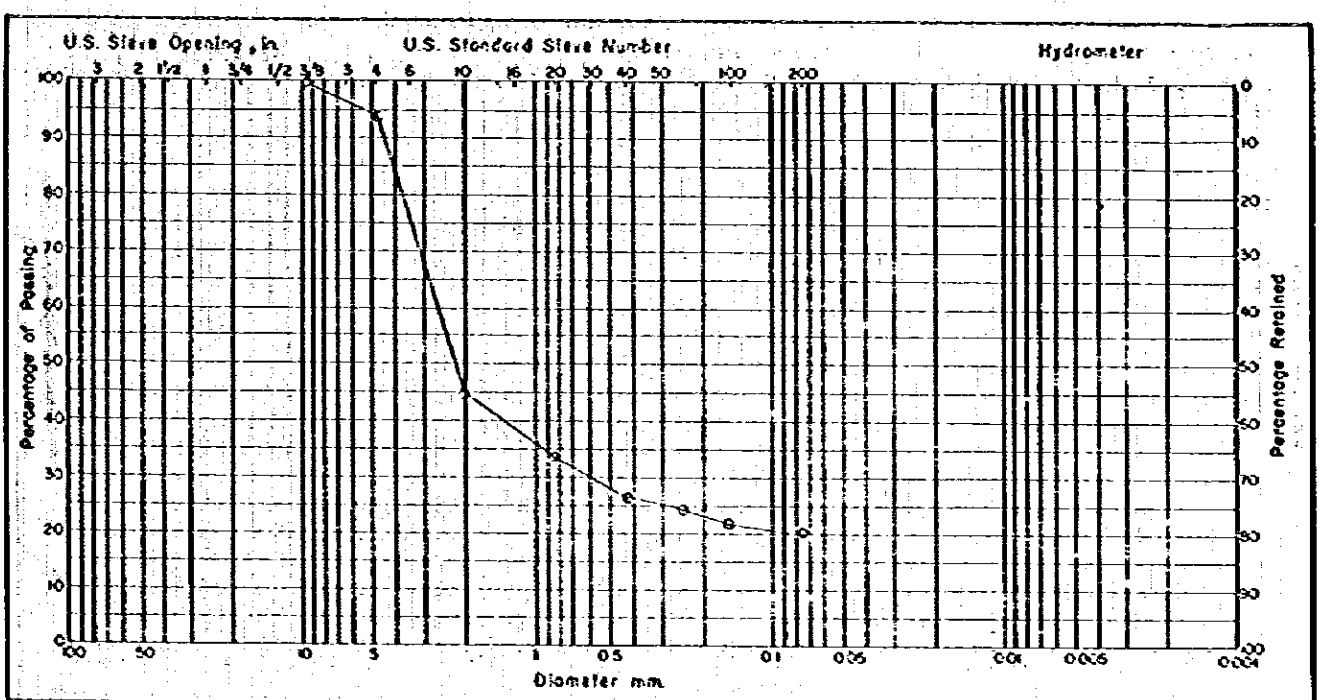
Figure 20



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
2	1.50-1.95		SP	Project: Pattaya Tourism Development
	4.50-4.95		CL-CH	Location: Pattaya, Cholburi
	12.00-12.45		SC	

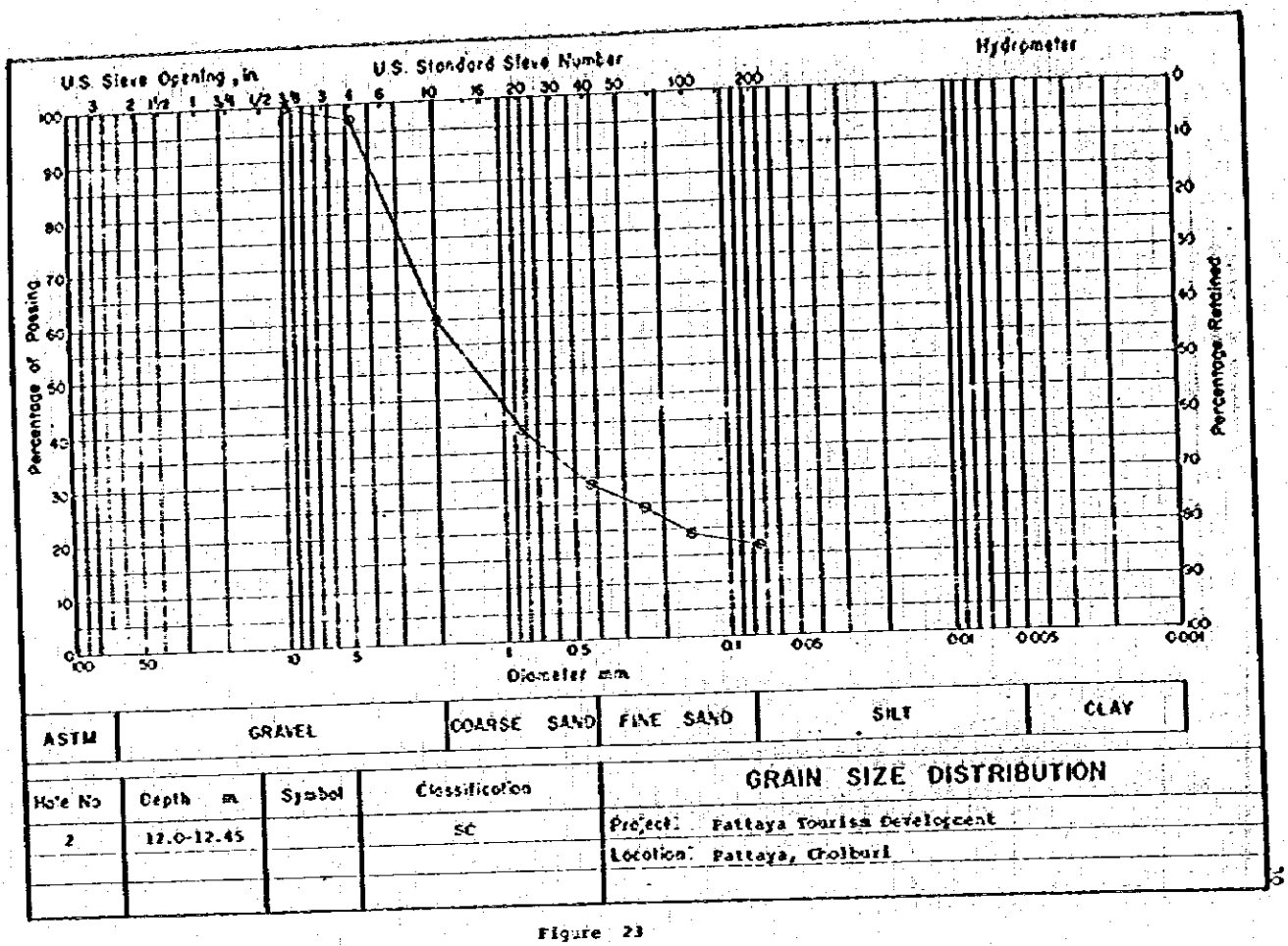
Figure 21



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
2	4.50-4.95		CL-CH	Project: Pattaya Tourism Development
				Location: Pattaya, Cholburi

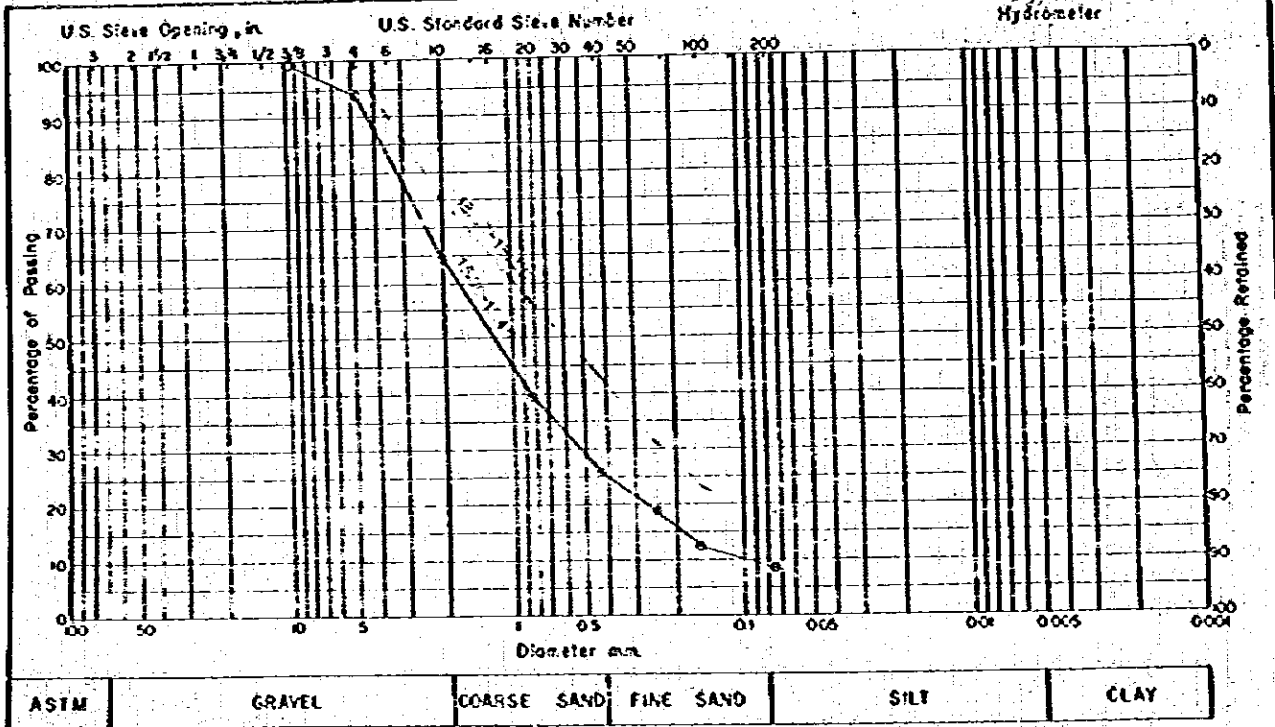
Figure 22



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
2	12.0-12.45		SC	Project: Pattaya Tourism Development
				Location: Pattaya, Cholburi

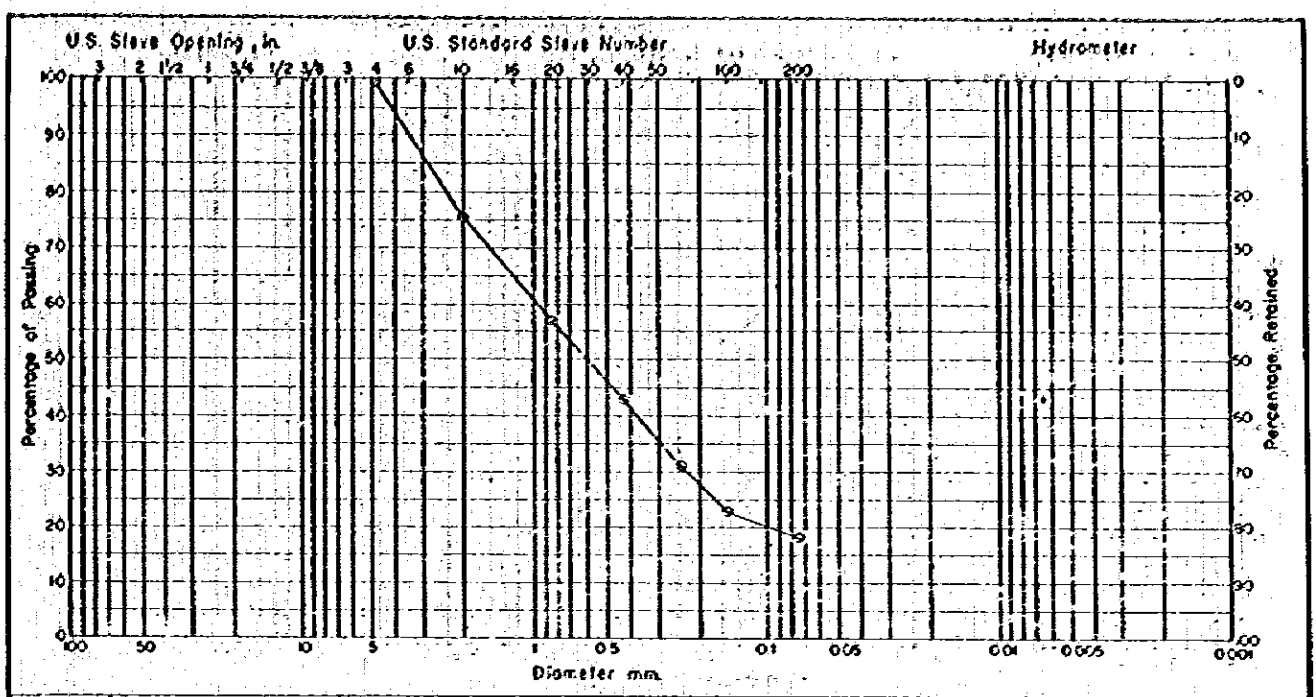
Figure 23



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
2	35.00-35.45		GP-SP	Project: Pattaya Tourism Development
	13.00-13.45		SP-SC	Location: Pattaya, Cholburi

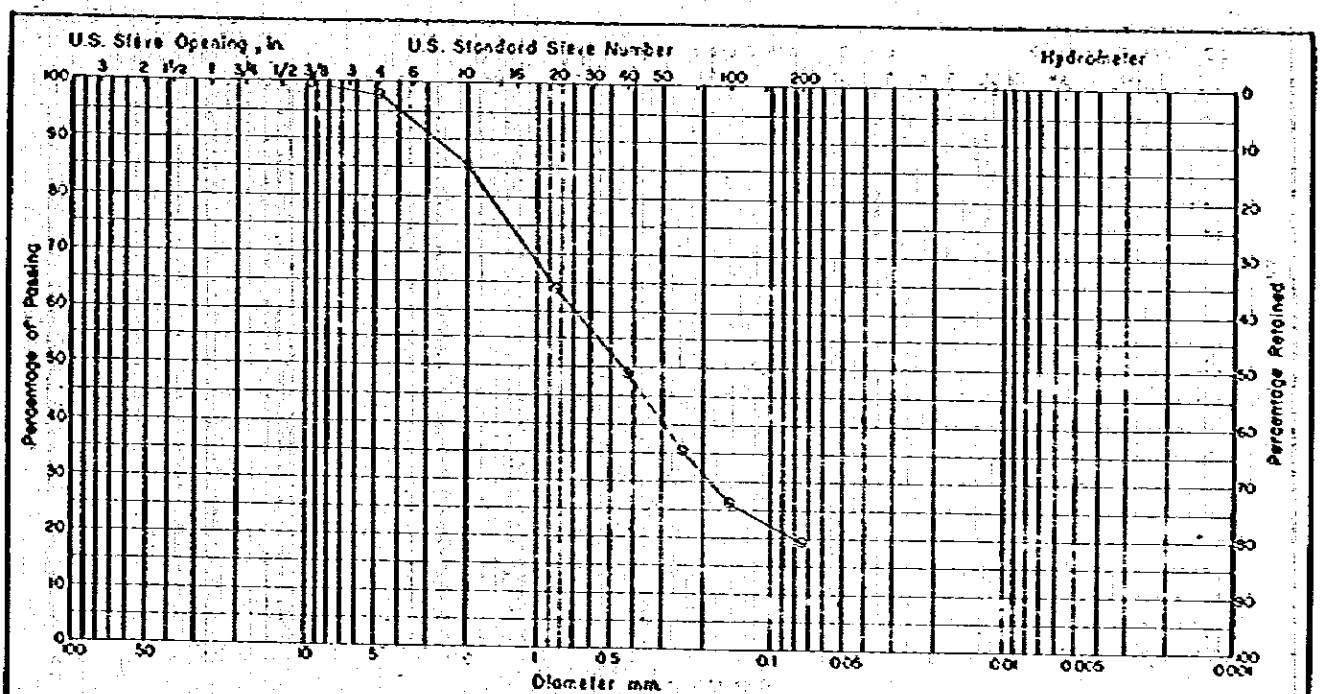
Figure 24



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
2	18.00-18.50		SP-GP	Project: Pattaya Tourism Developcent
				Locolion: Pattaya, Cholburi

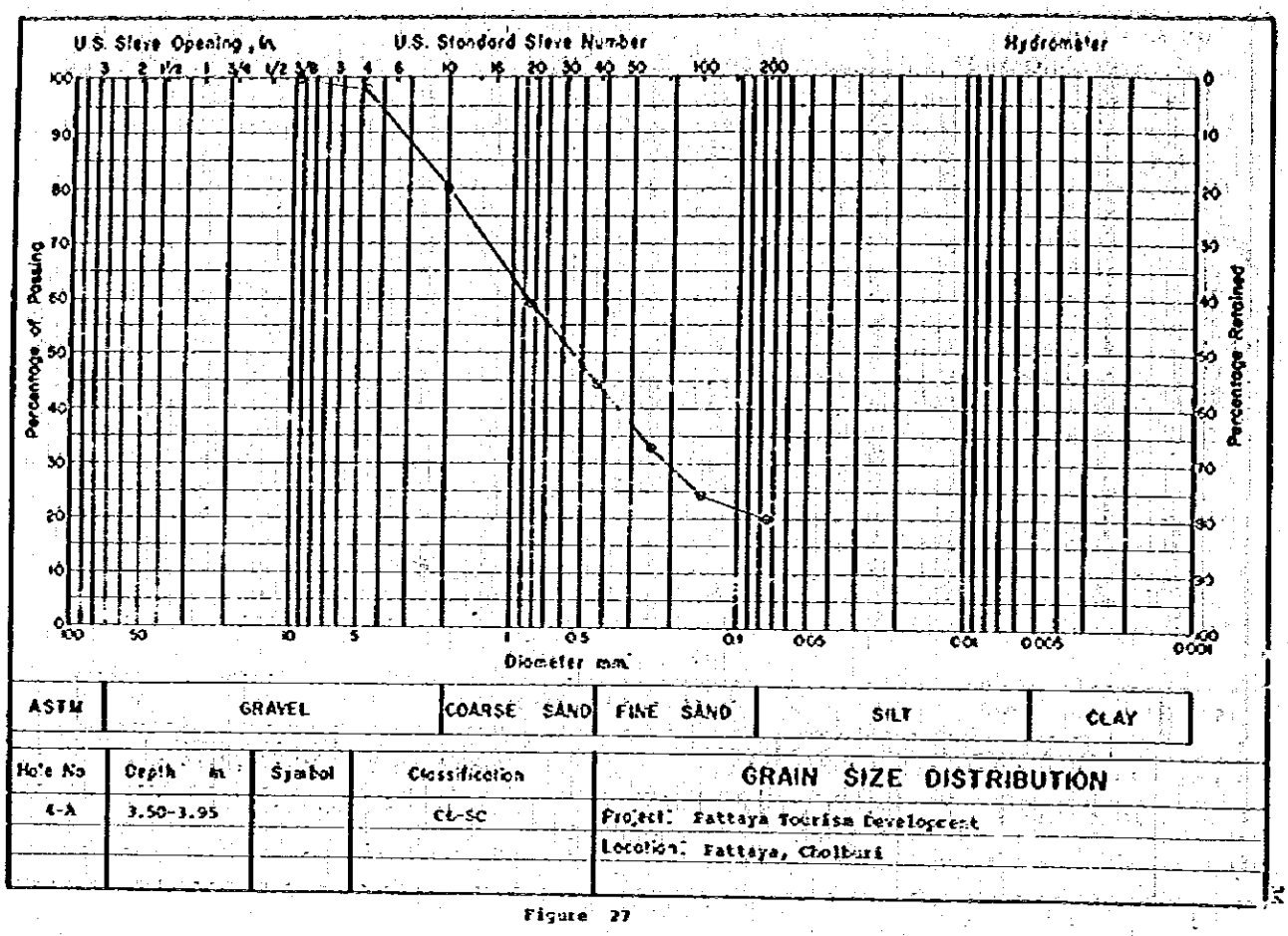
Figure 25



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
3	1.00-1.45		SP	Project: Pattaya Tourism Developcent
				Locolion: Pattaya, Cholburi

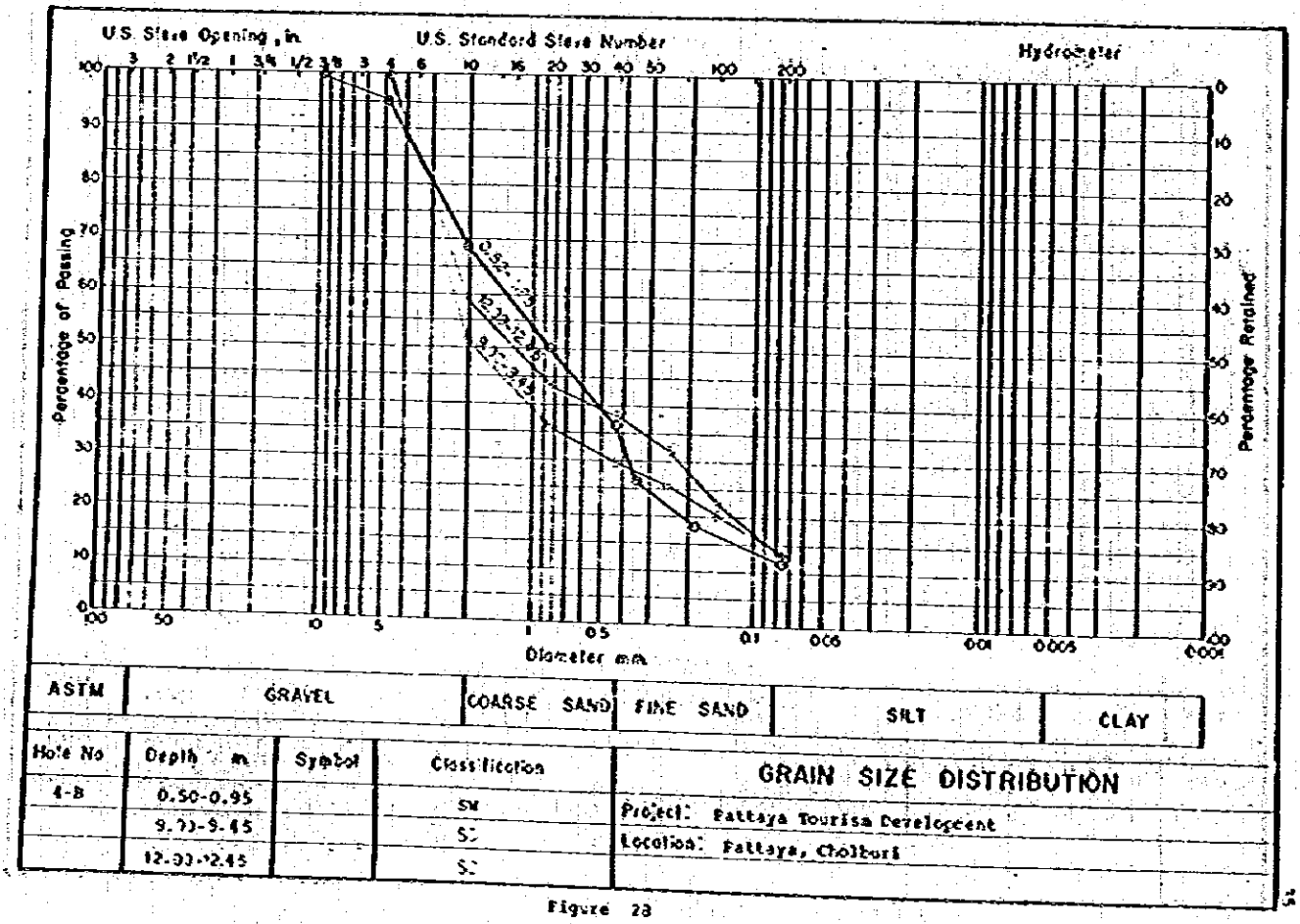
Figure 26



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
4-A	3.50-3.95		CL-SC	Project: Pattaya Tourism Development
				Location: Pattaya, Cholburi

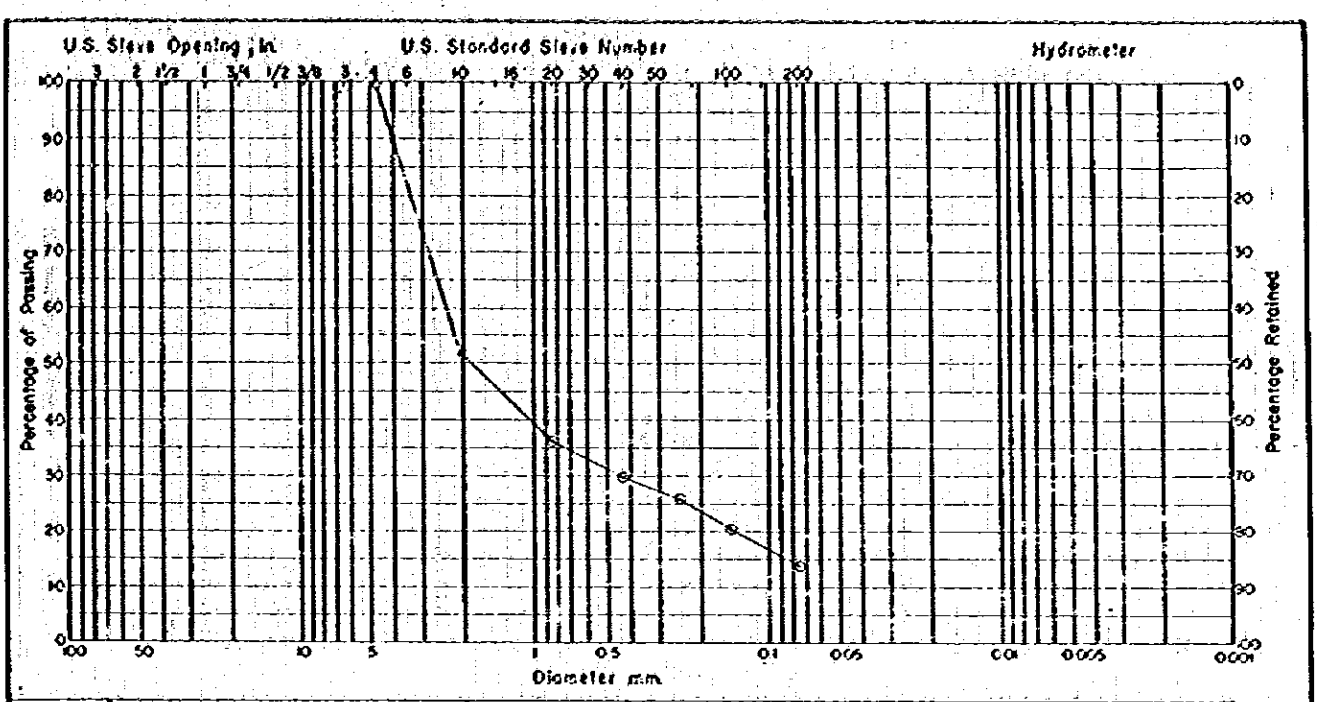
Figure 27



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
4-B	0.50-0.95		SM	Project: Pattaya Tourism Development
	9.00-9.45		SC	Location: Pattaya, Cholburi
	12.00-12.45		SC	

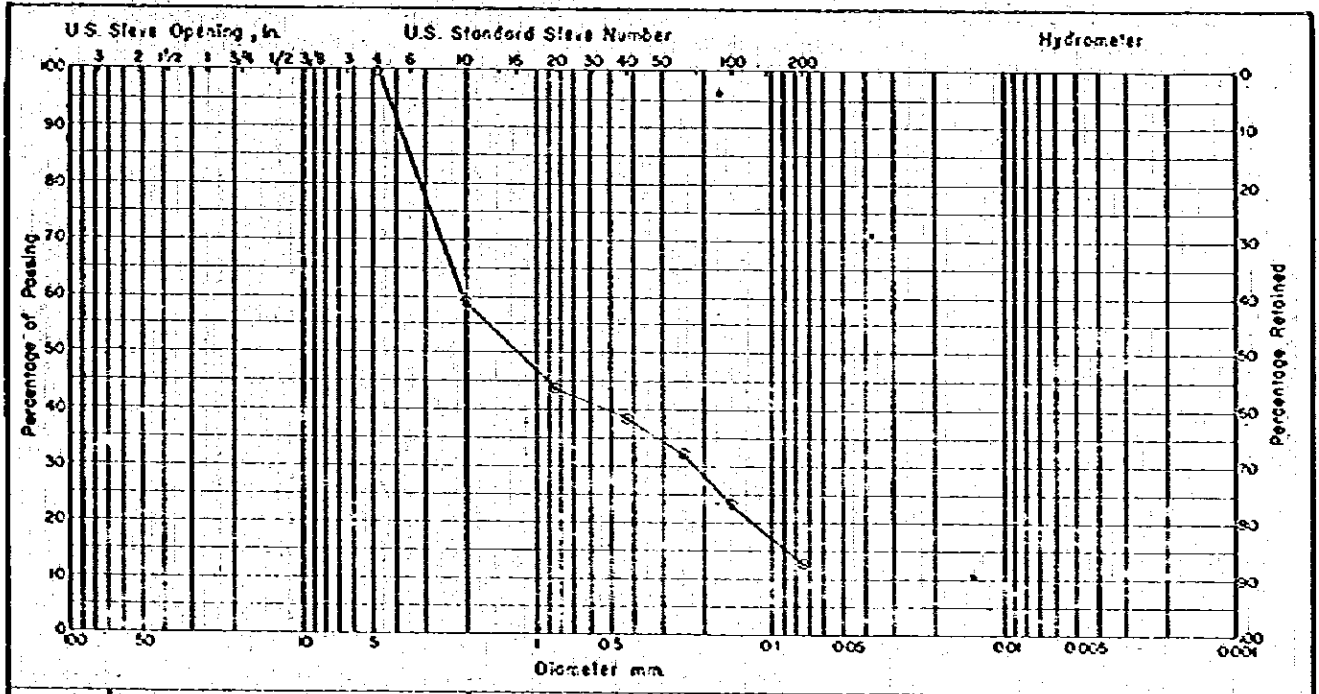
Figure 28



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
4-B	9.00-9.45		SC	Project: Pattaya Tourism Development
				Location: Pattaya, Cholburi

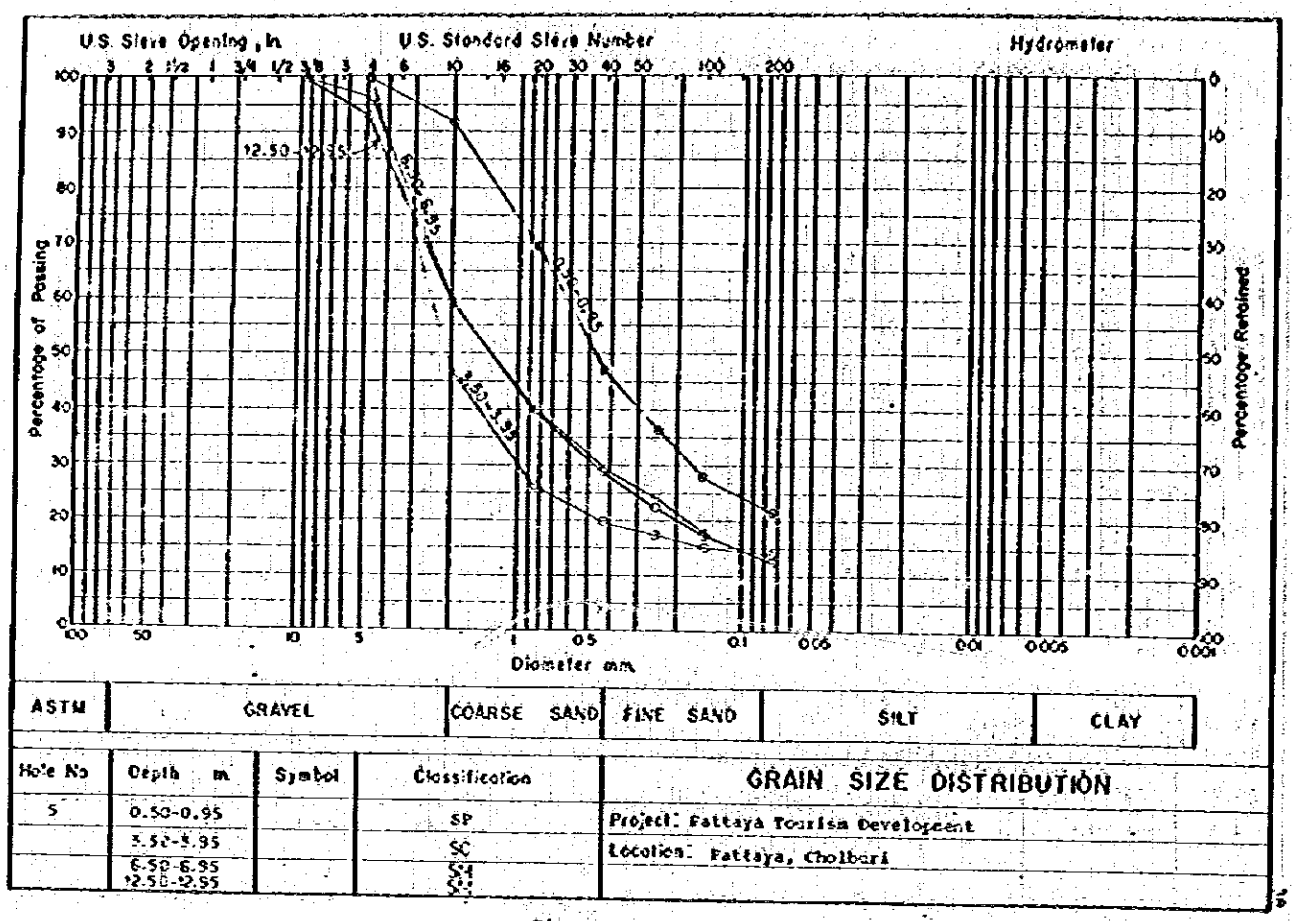
Figure 29



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
4-B	12.00-12.45		SC	Project: Pattaya Tourism Development
				Location: Pattaya, Cholburi

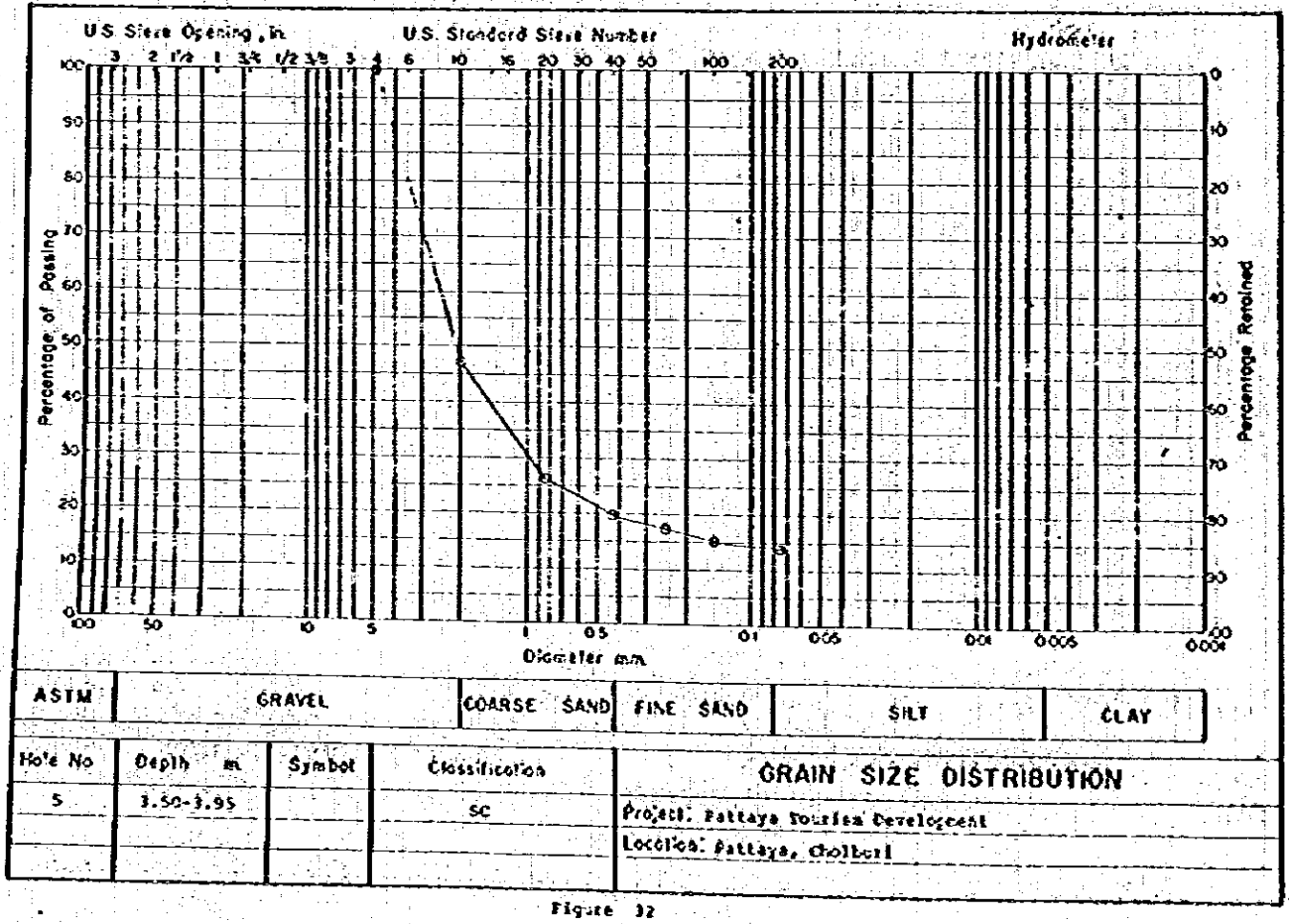
Figure 30



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
5	0.50-0.95		SP	Project: Pattaya Tourism Development
	3.50-3.95		SC	Location: Pattaya, Cholburi
	6.50-6.95		SM	
	12.50-12.95		SC	

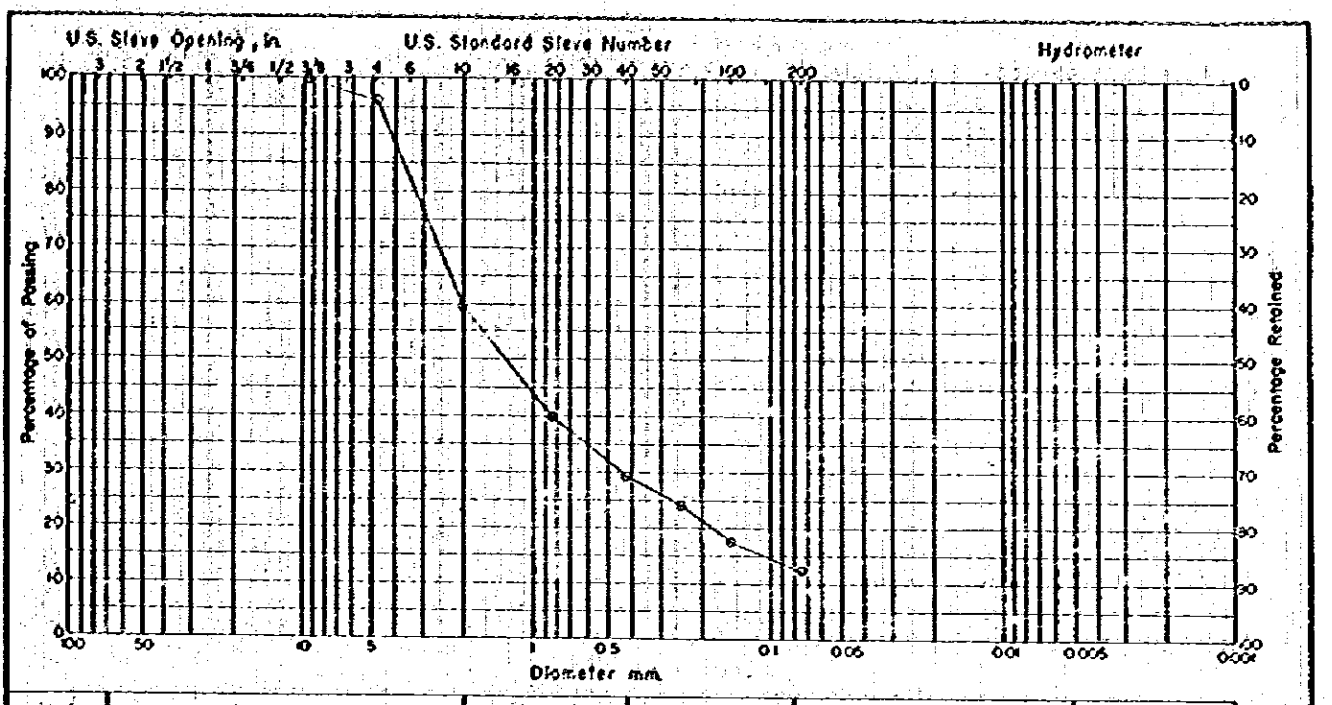
Figure 31



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
5	3.50-3.95		SC	Project: Pattaya Tourism Development
				Location: Pattaya, Cholburi

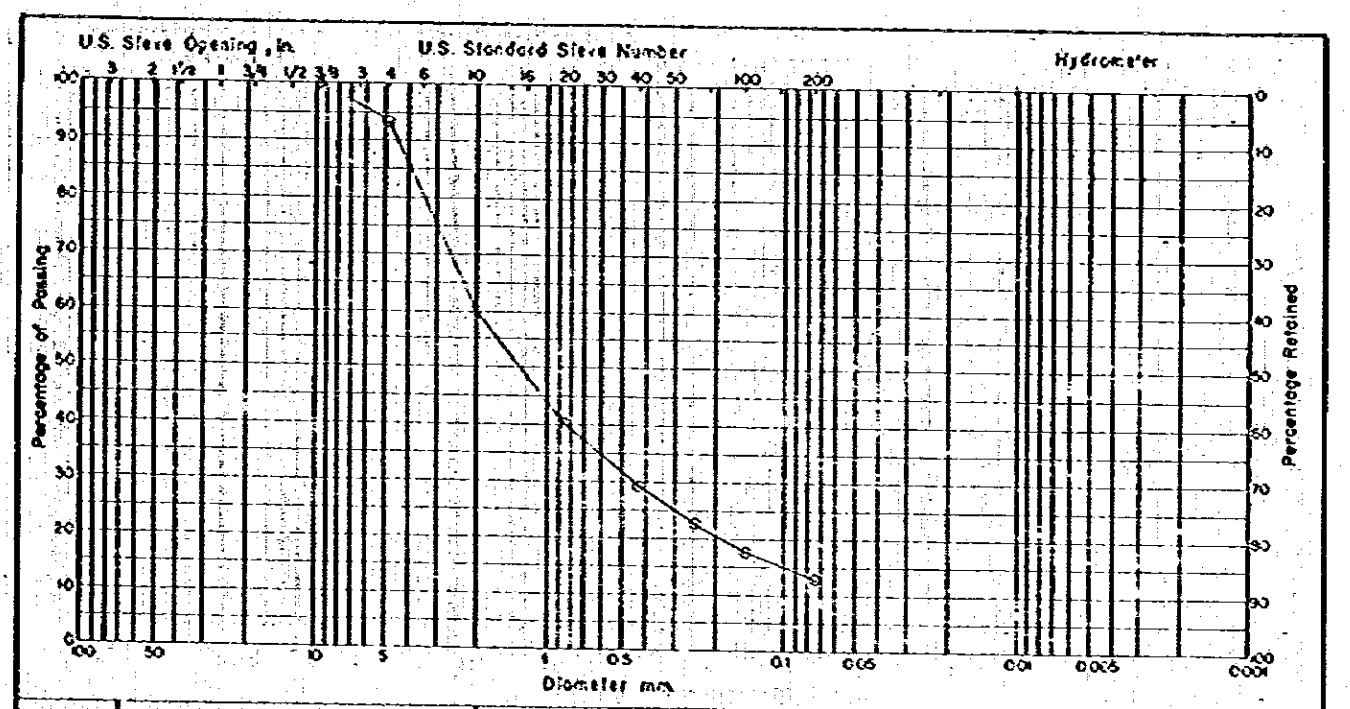
Figure 32



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
5	6.50-6.95		SM	Project: Pattaya Tourism Development
				Location: Pattaya, Cholburi

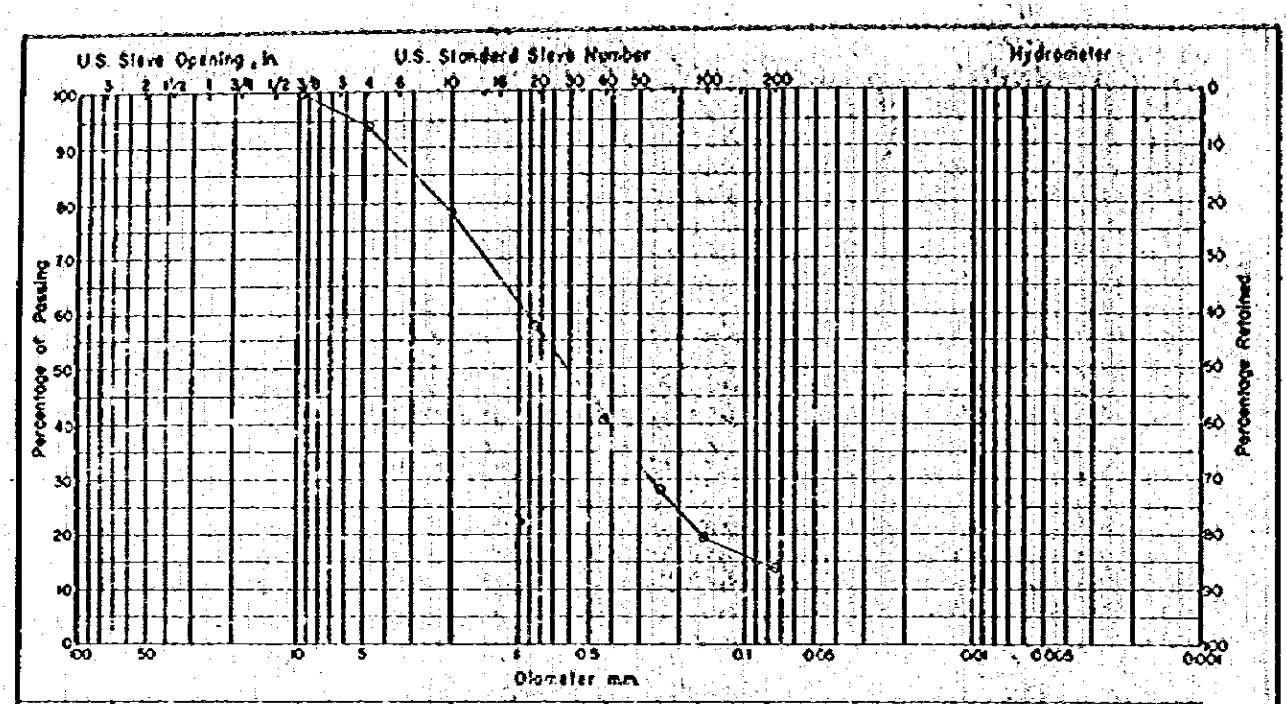
Figure 33



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
5	12.50-12.95		SM	Project: Pattaya Tourism Development
				Location: Pattaya, Cholburi

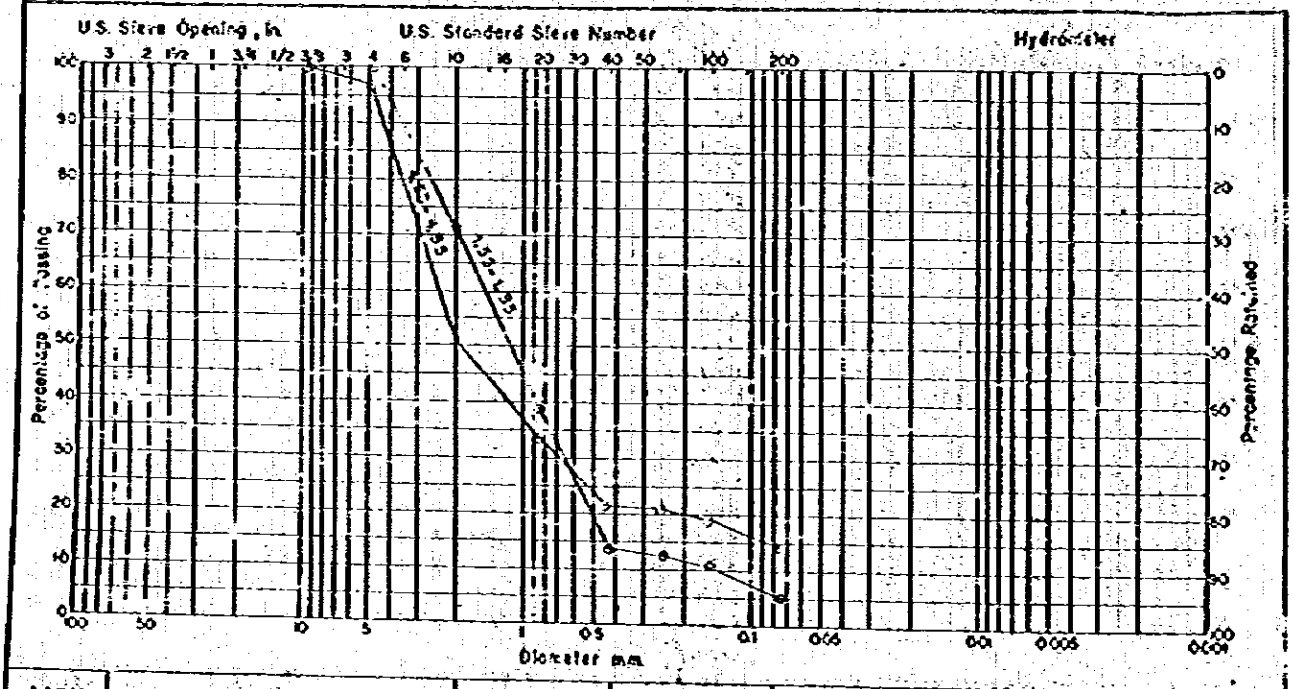
Figure 34



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
6	0.50-0.95		SC	Project: Pattaya Tourism Development
				Location:

Figure 35



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
7	1.50-1.95		SP	Project: Pattaya Tourism Development
	5.50-4.95		SC	Location: Pattaya, Cholburi

Figure 36

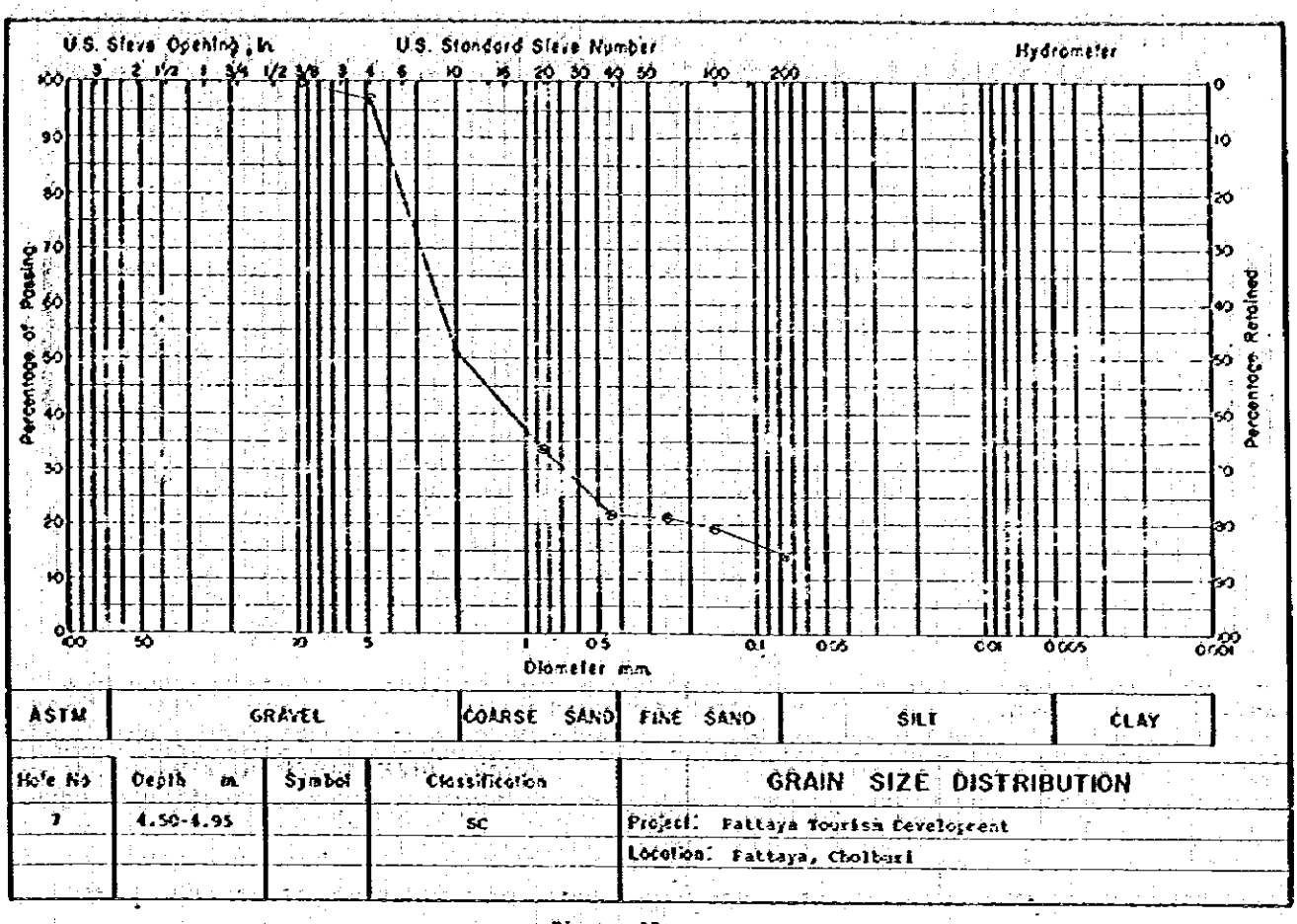


Figure 37

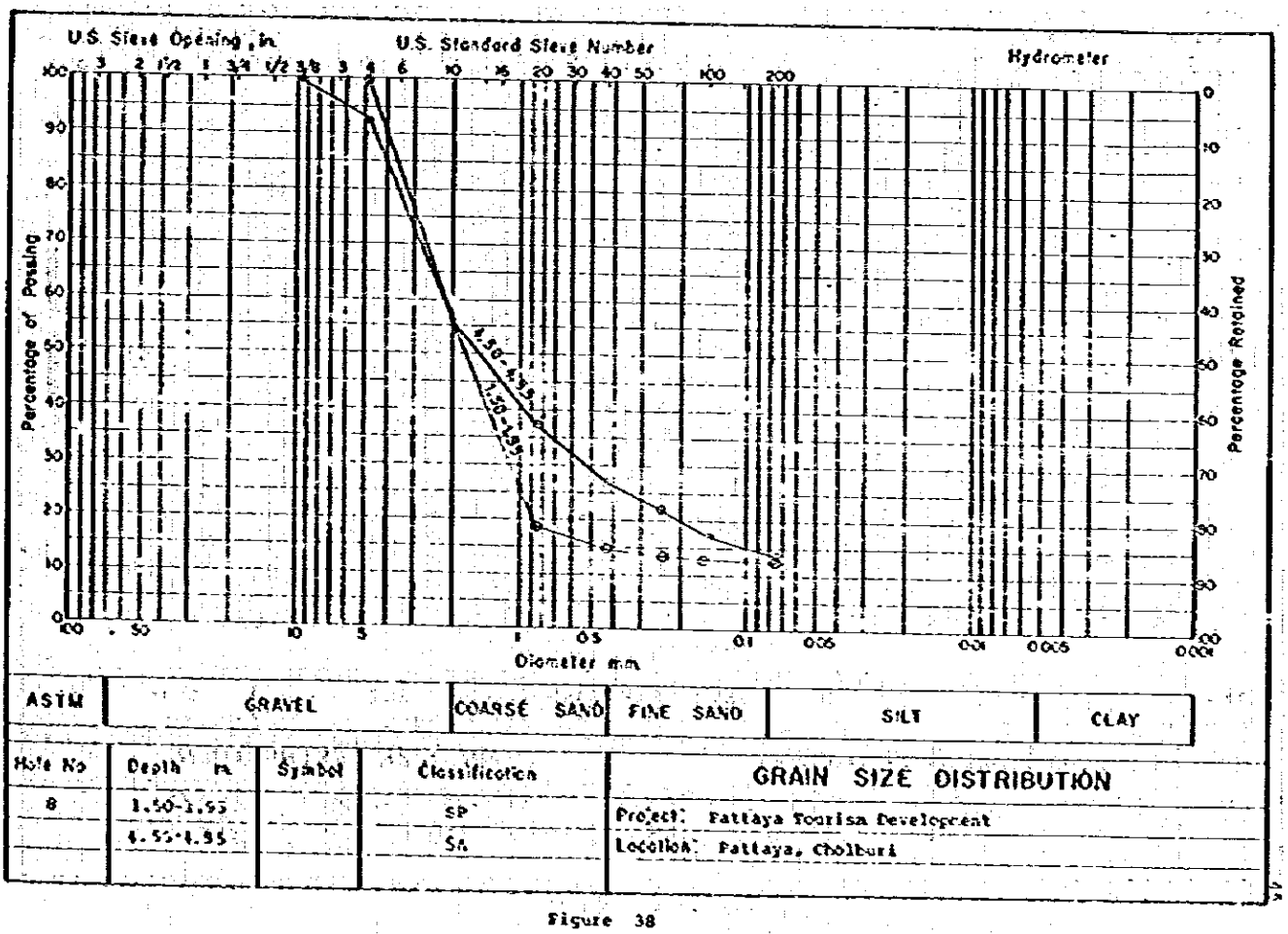
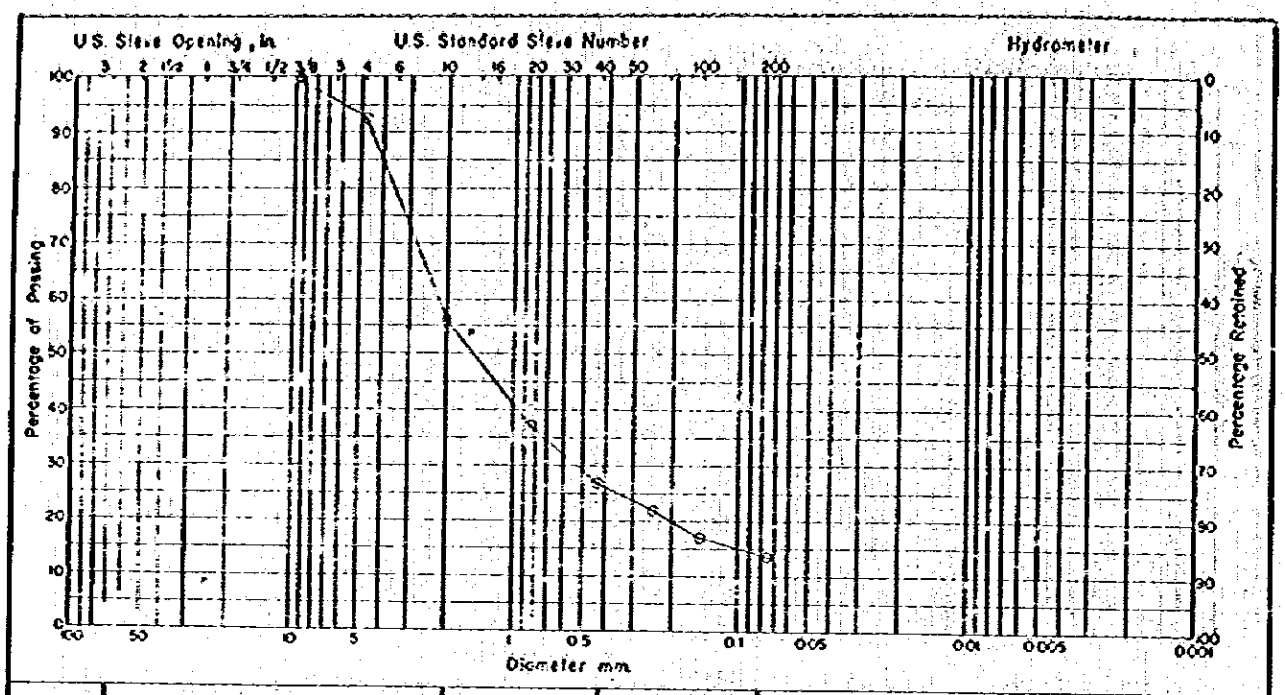


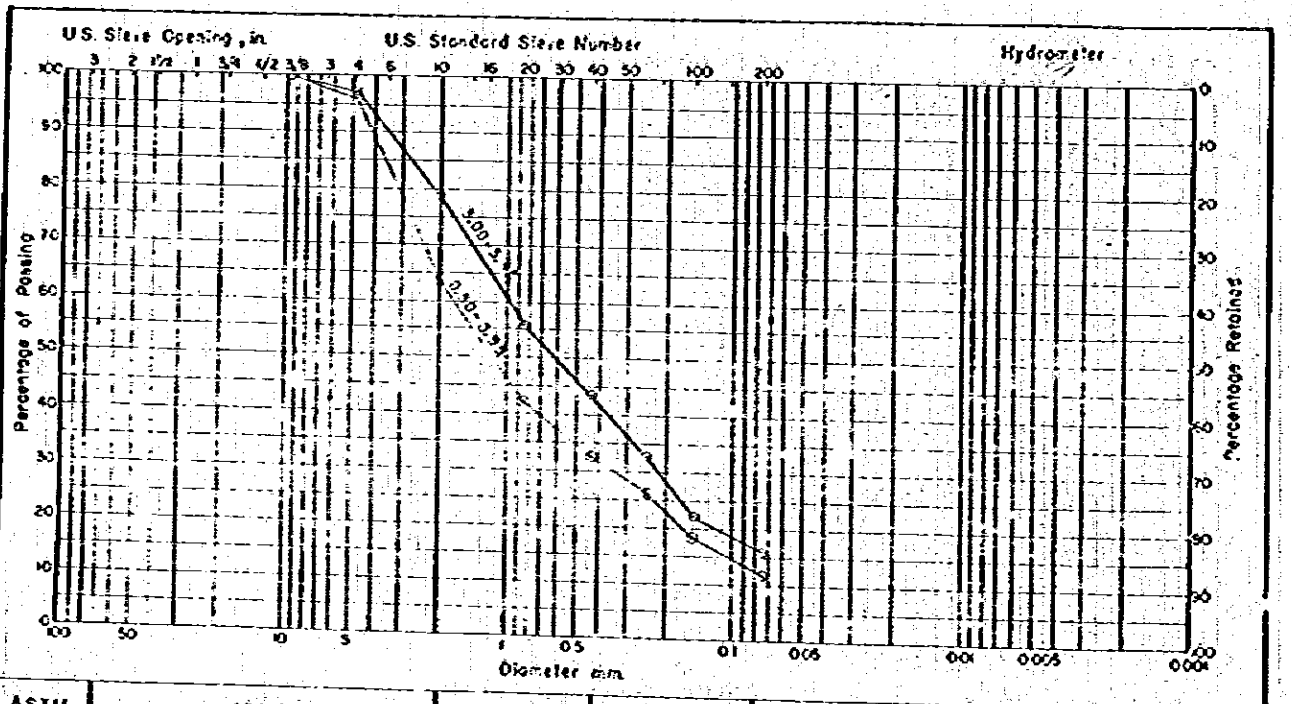
Figure 38



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
8	4.50-4.95		SM	Project: Pattaya Tourism Development
				Location: Pattaya, Cholburi

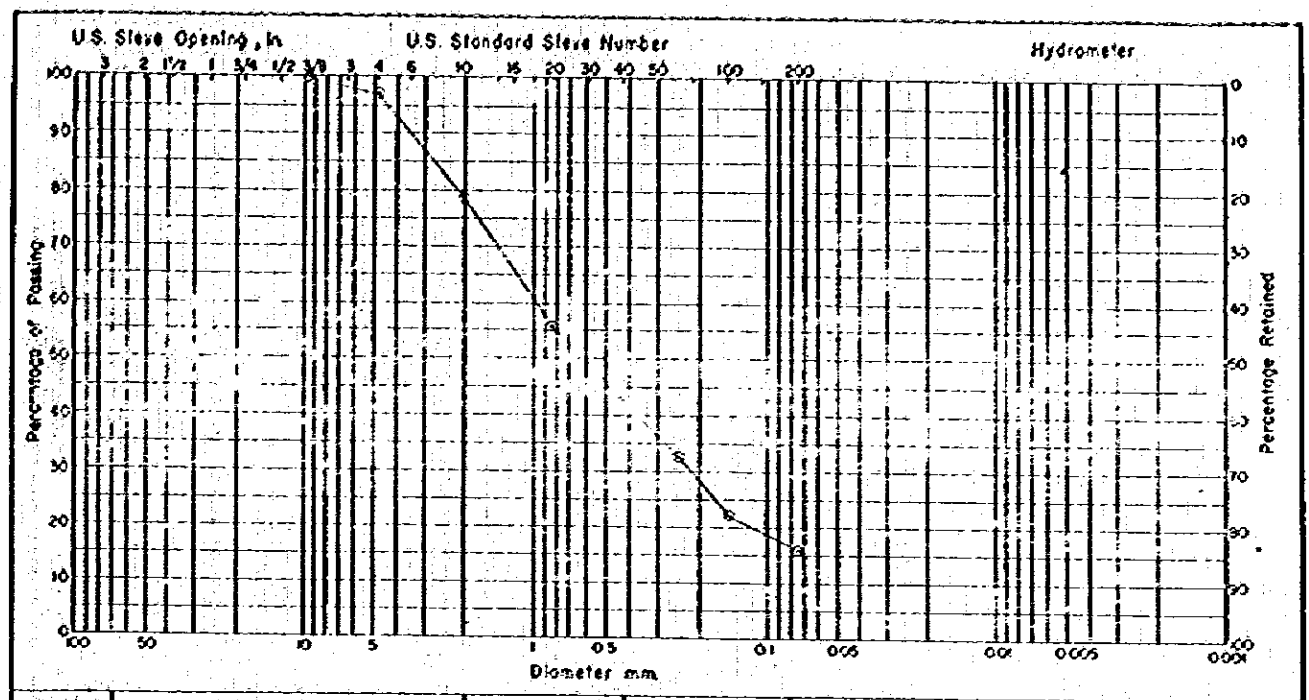
Figure 39



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
9	0.50-0.95		SP	Project: Pattaya Tourism Development
	3.30-3.45		SC	Location: Pattaya, Cholburi

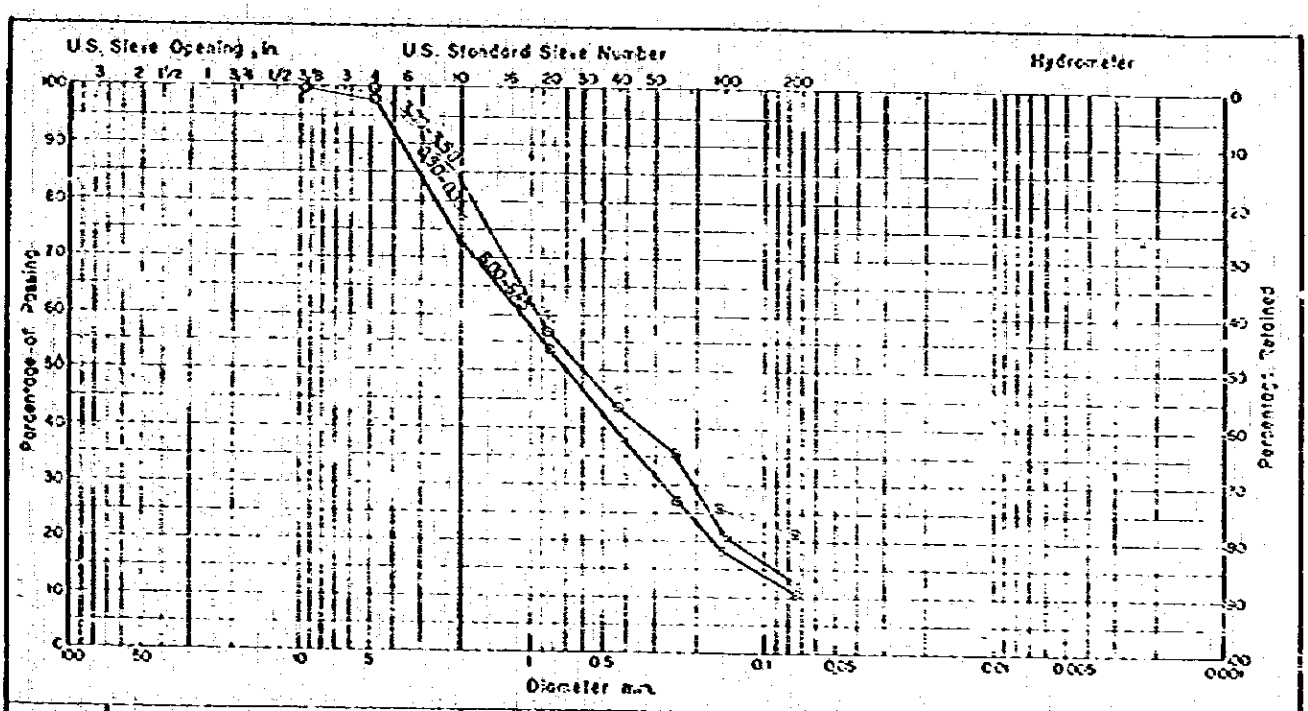
Figure 40



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
9	3.00-3.45		SC	Project: Pattaya Tourism Development
				Location: Pattaya, Cholburi

Figure 41



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
10	0.50-0.95		SM	Project: Pattaya Tourism Development
	3.00-3.50		SC - SM	Location: Pattaya, Cholburi
	6.00-6.45		SM	

Figure 42

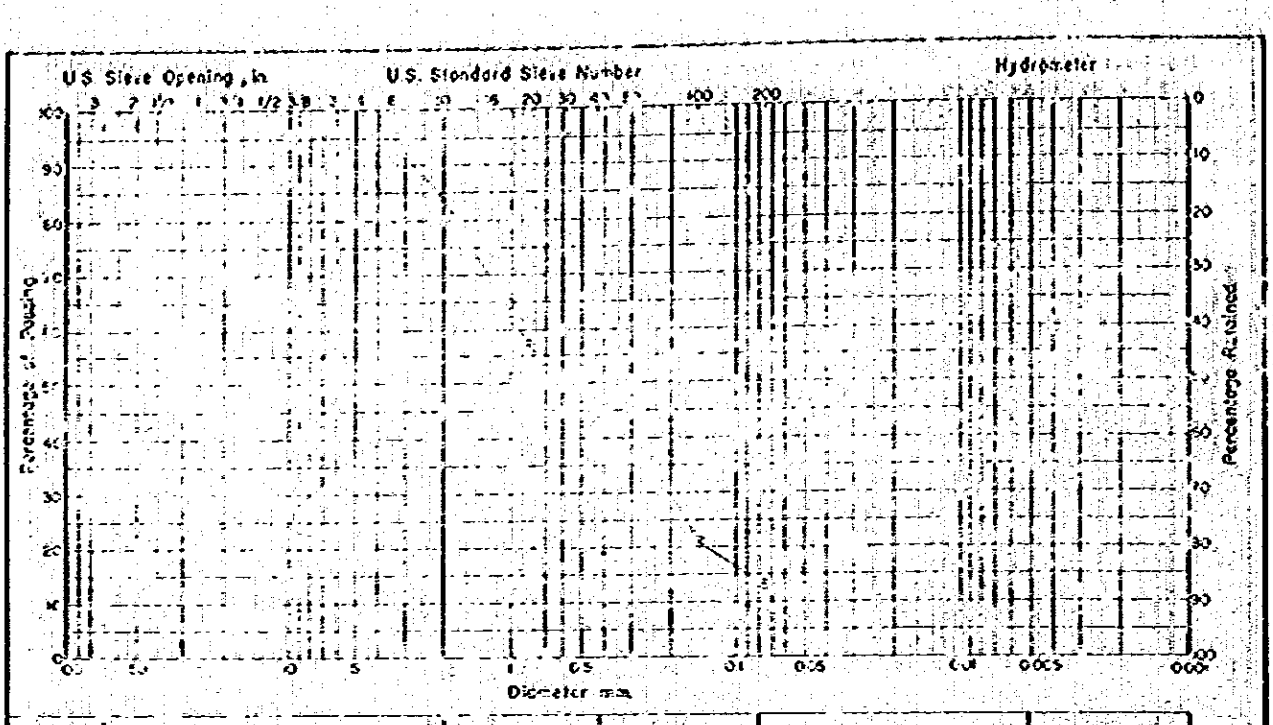


Figure 43

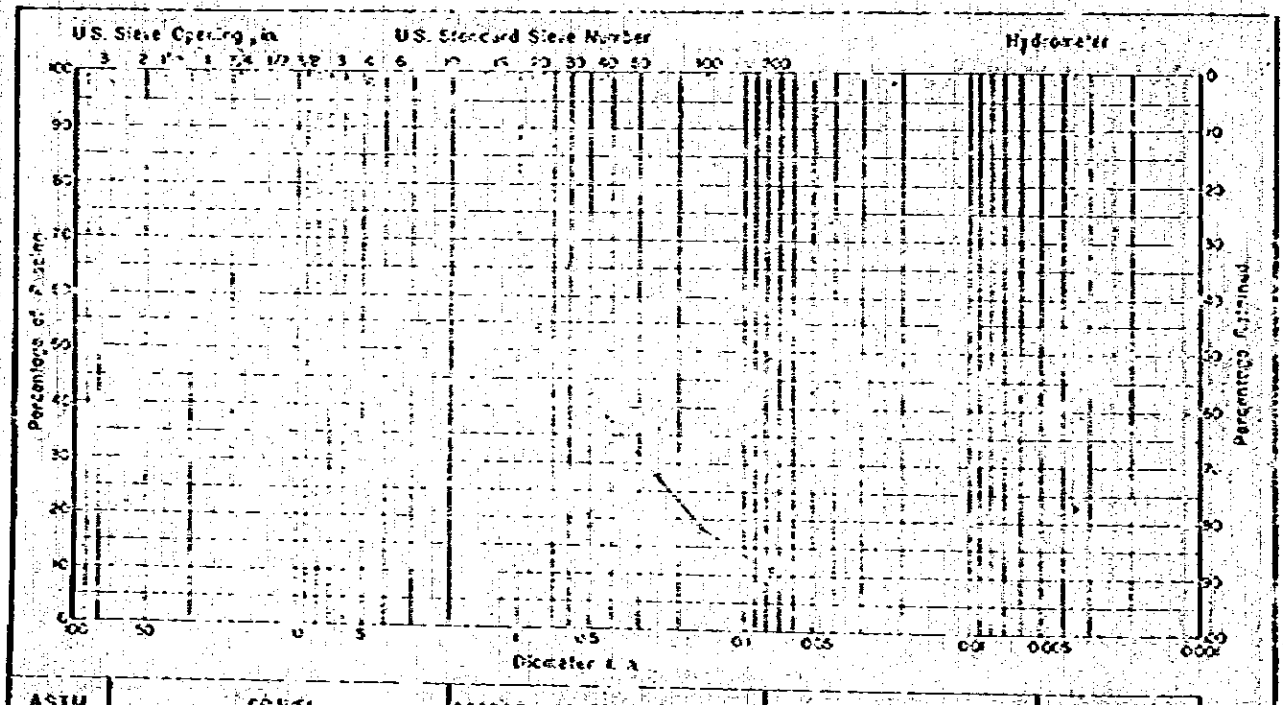


Figure 44

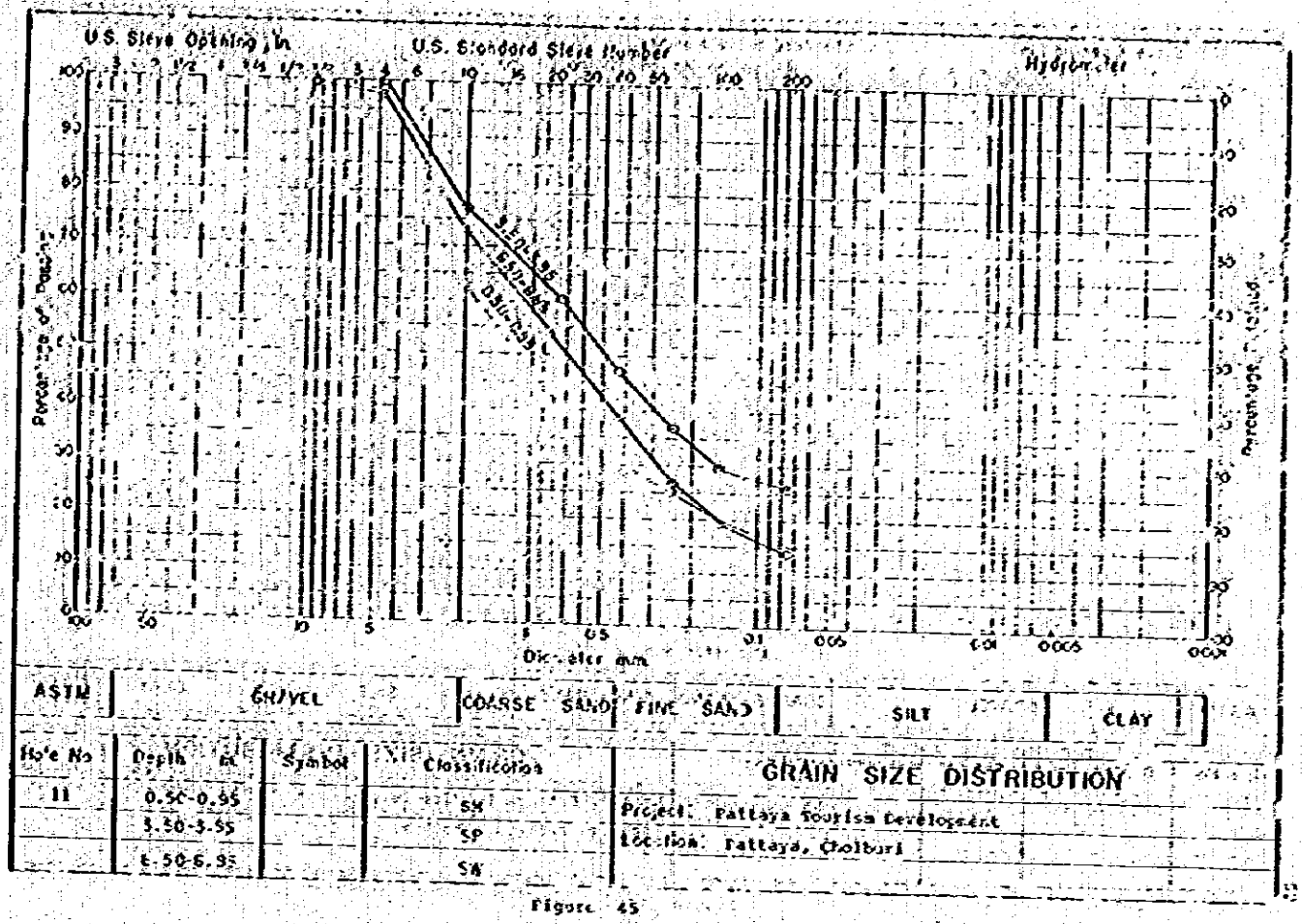


Figure 45

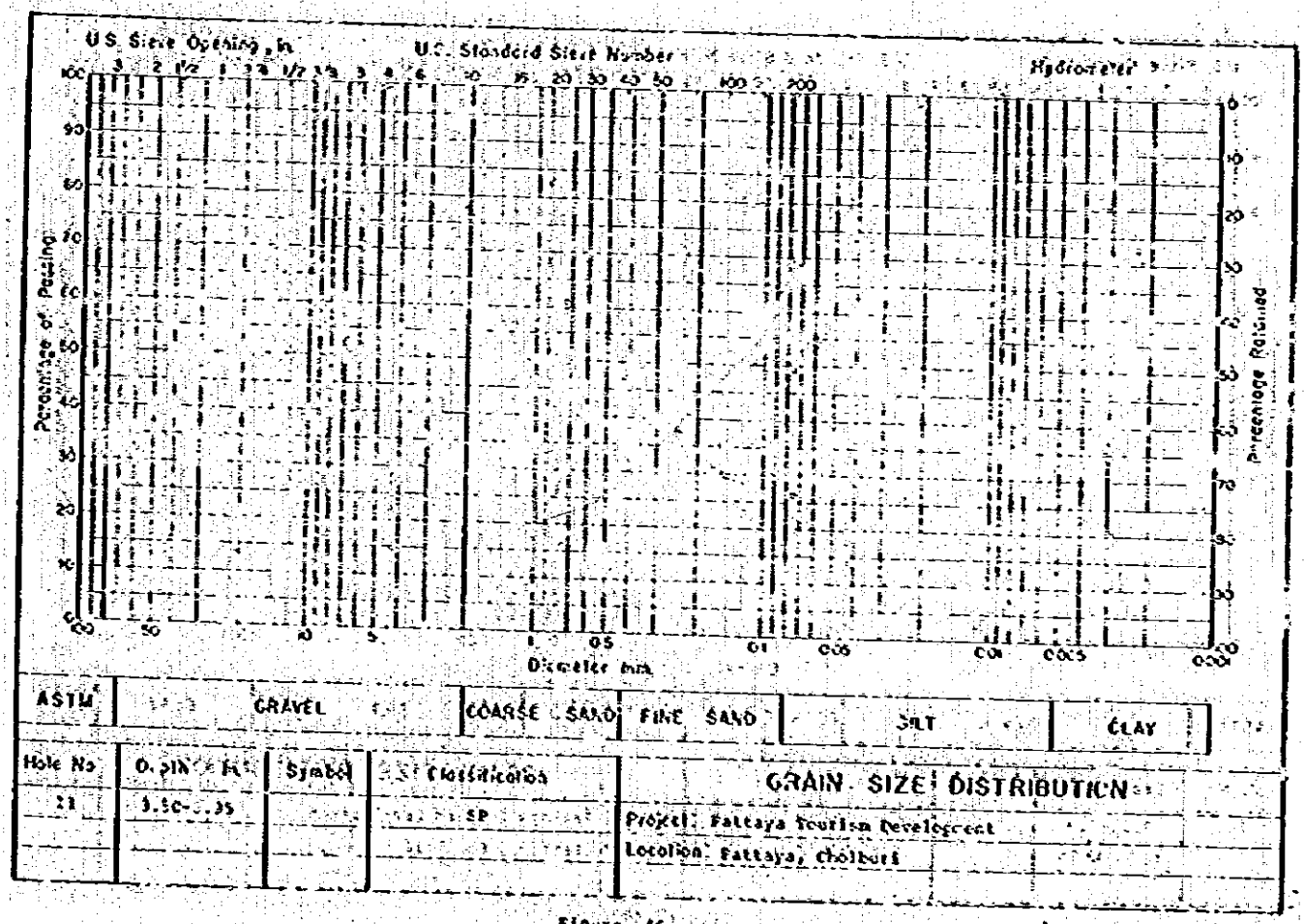


Figure 46

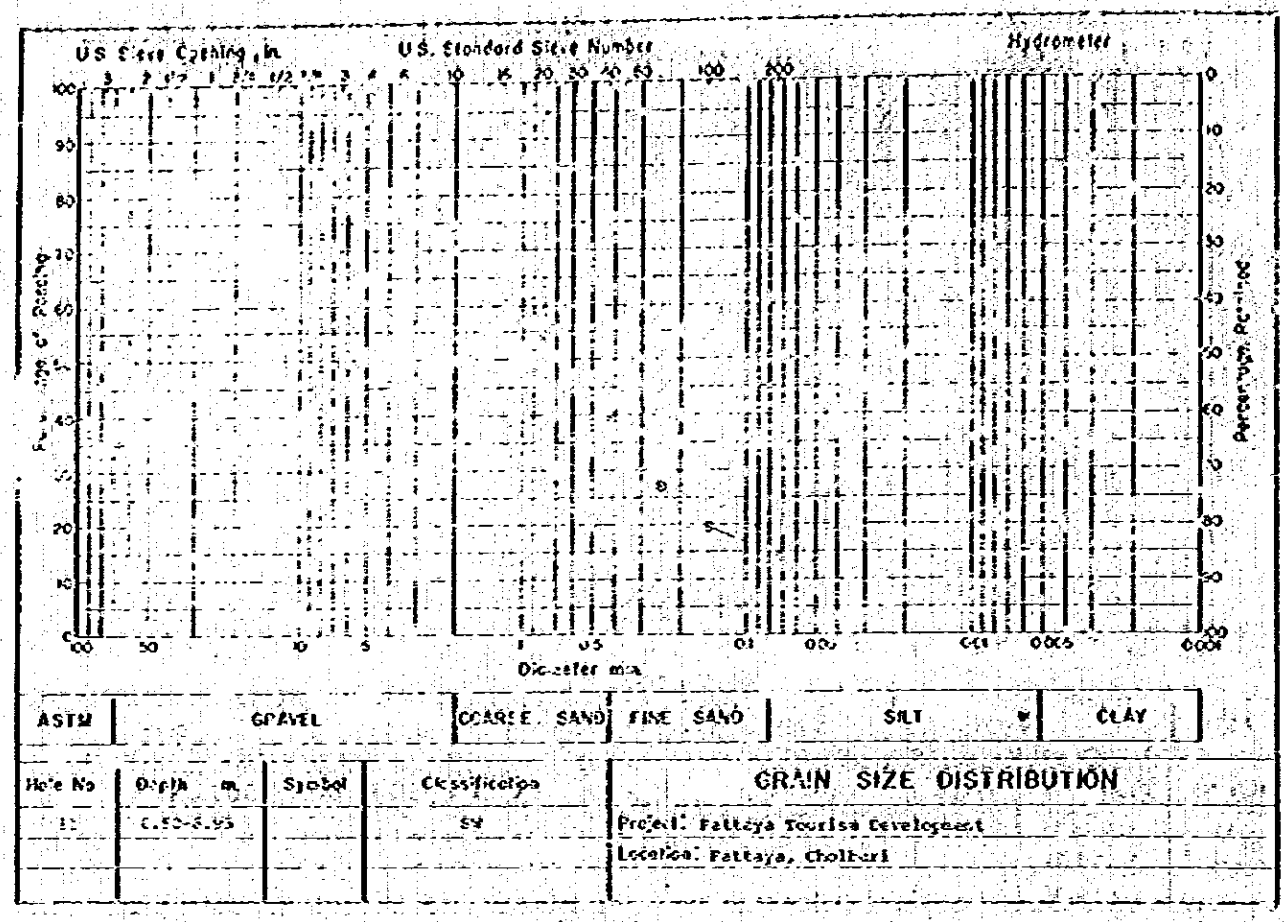


Figure 47

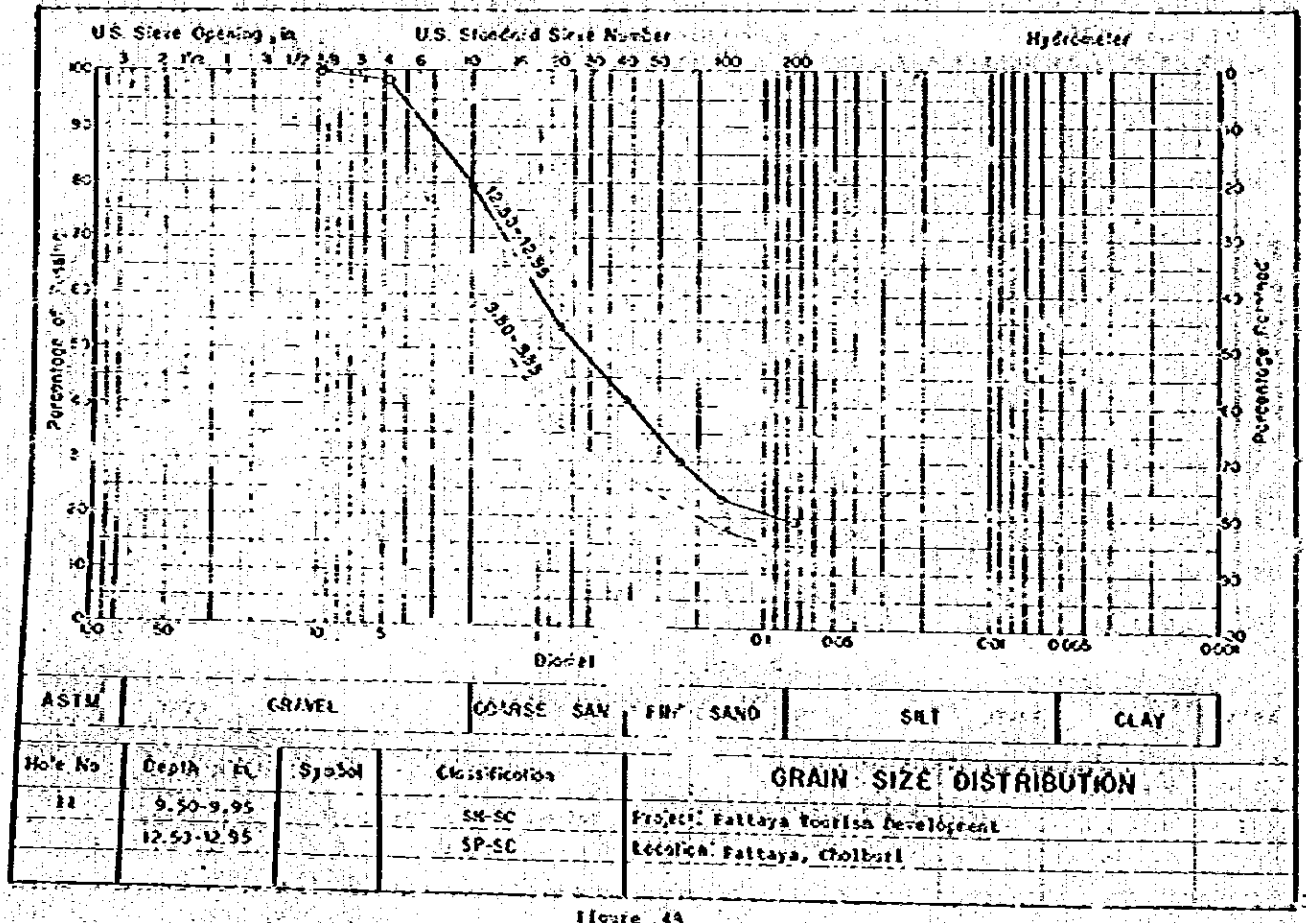


Figure 48

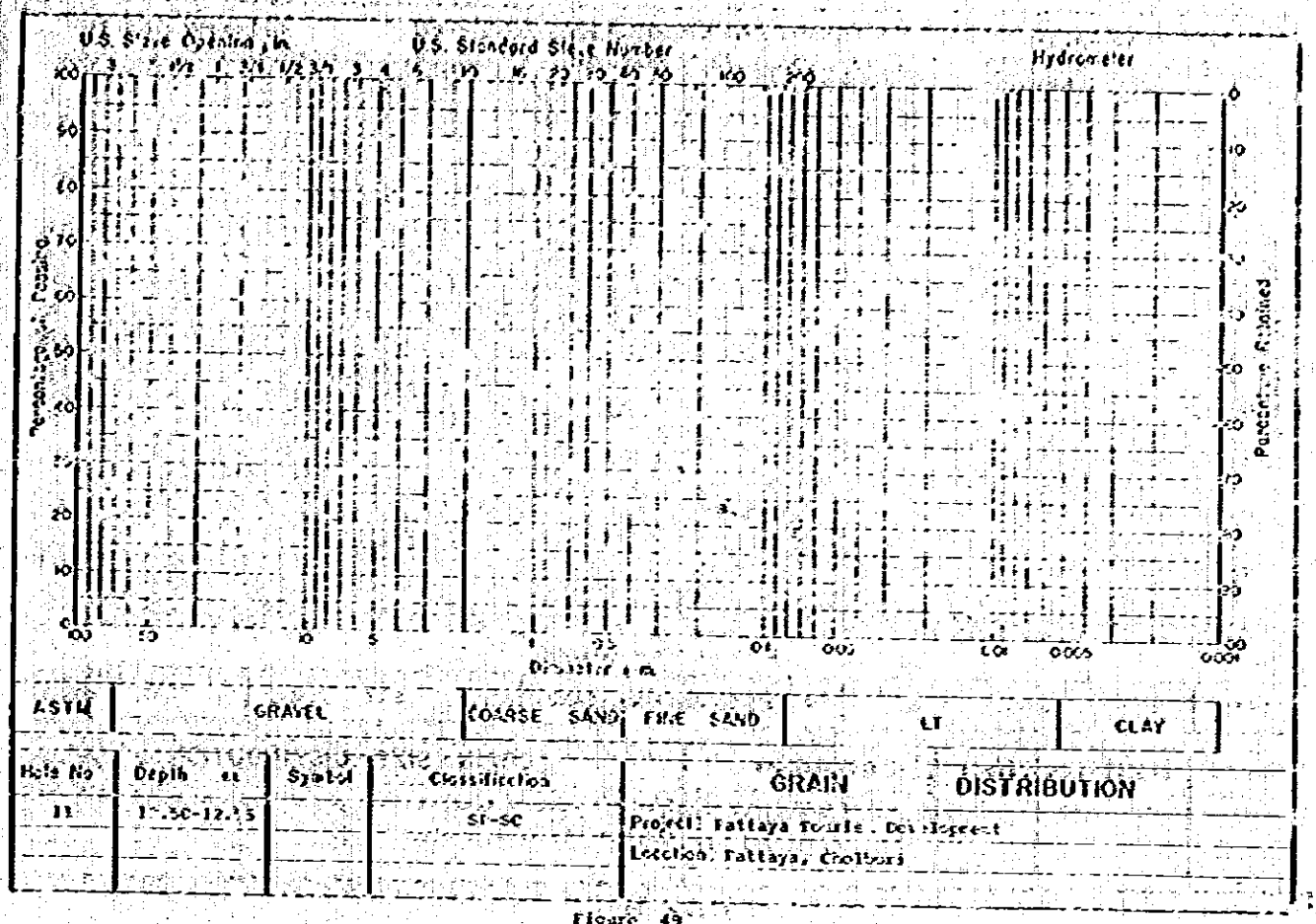


Figure 49

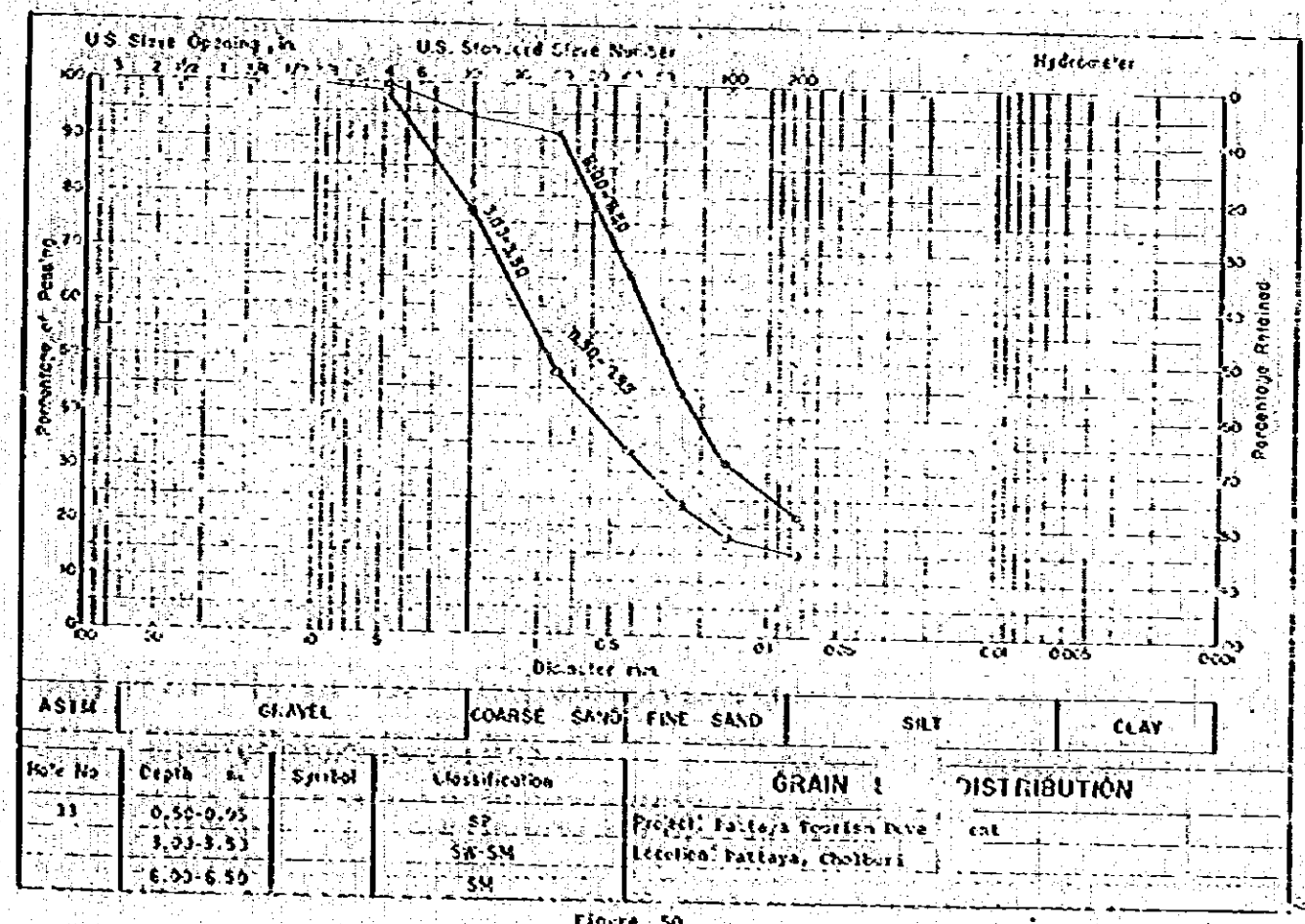


Figure 50

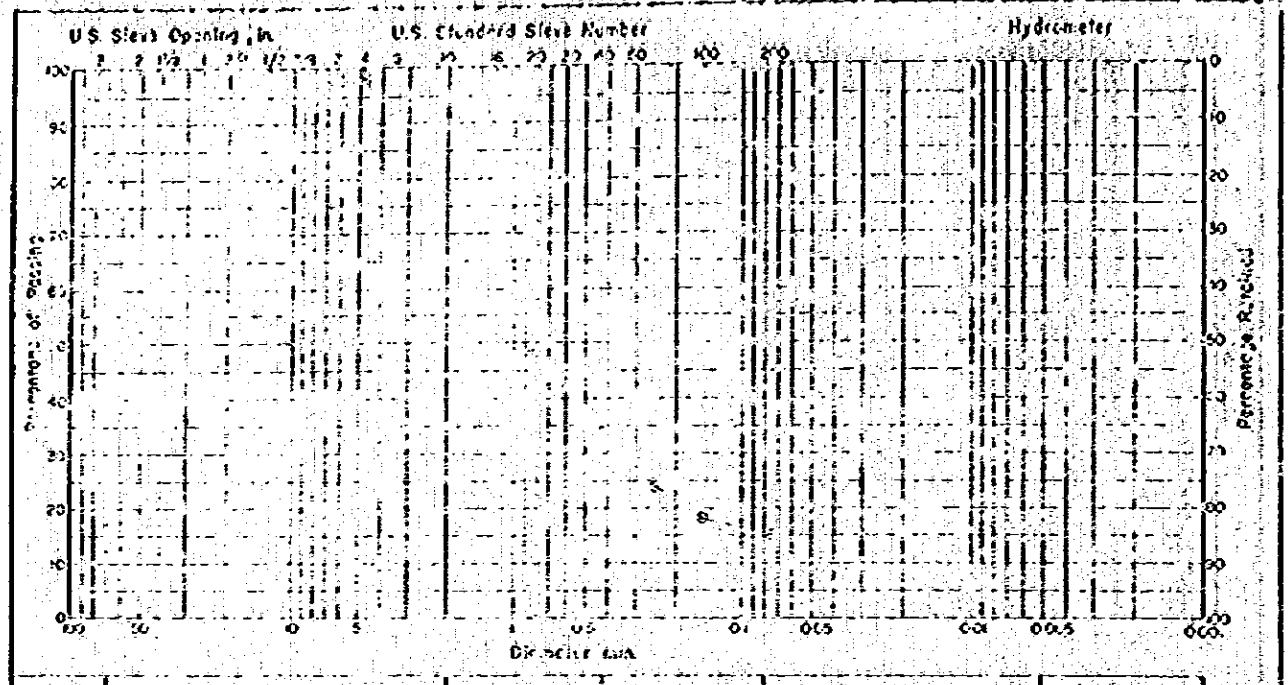


Figure 51

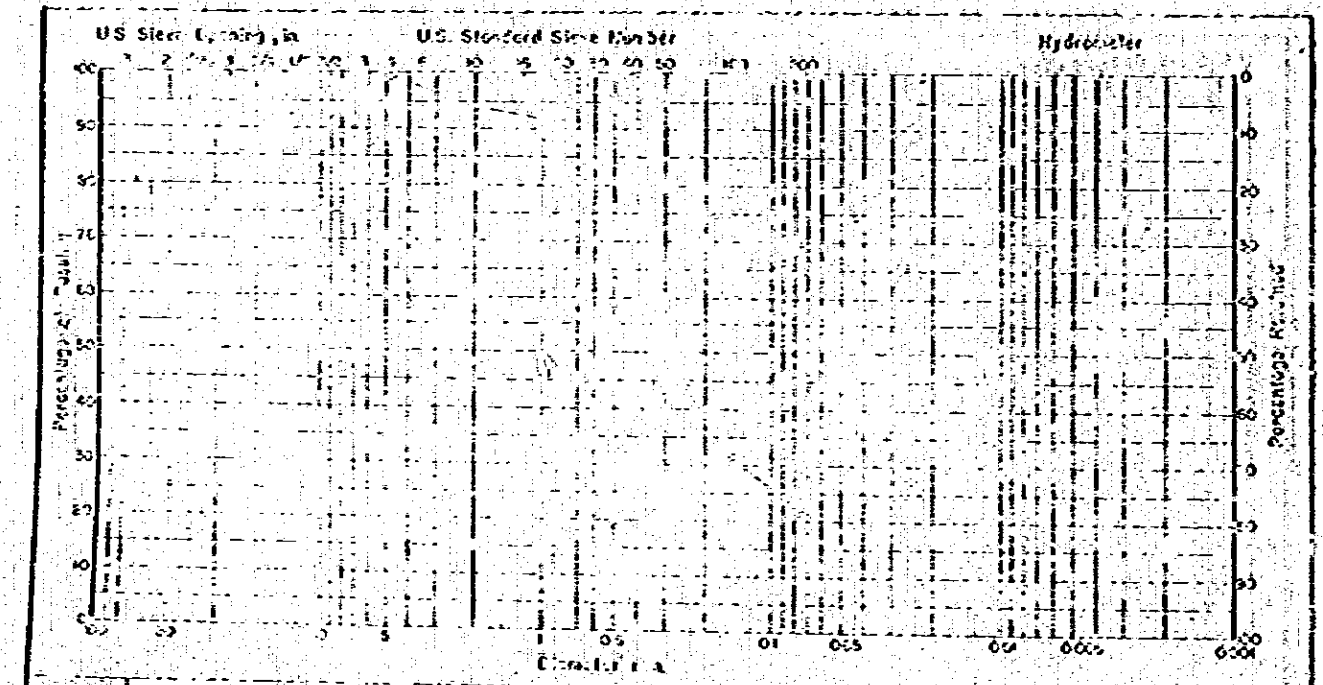
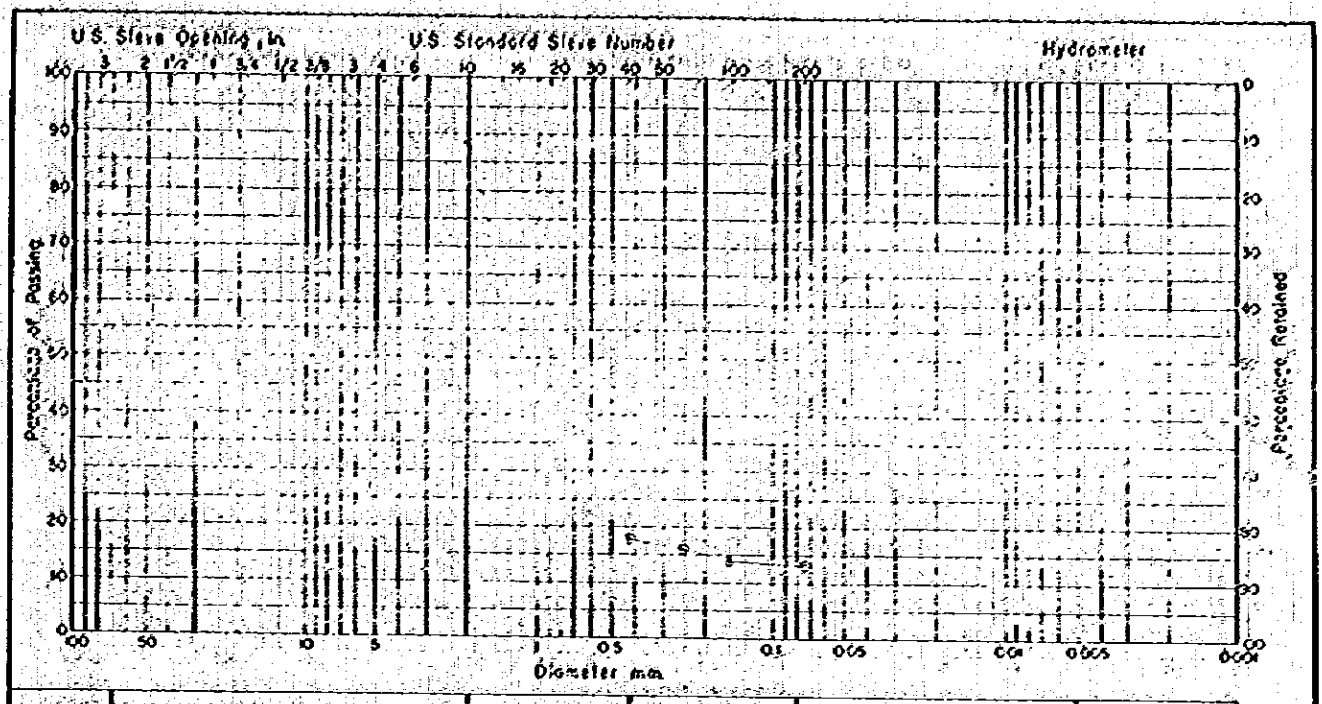
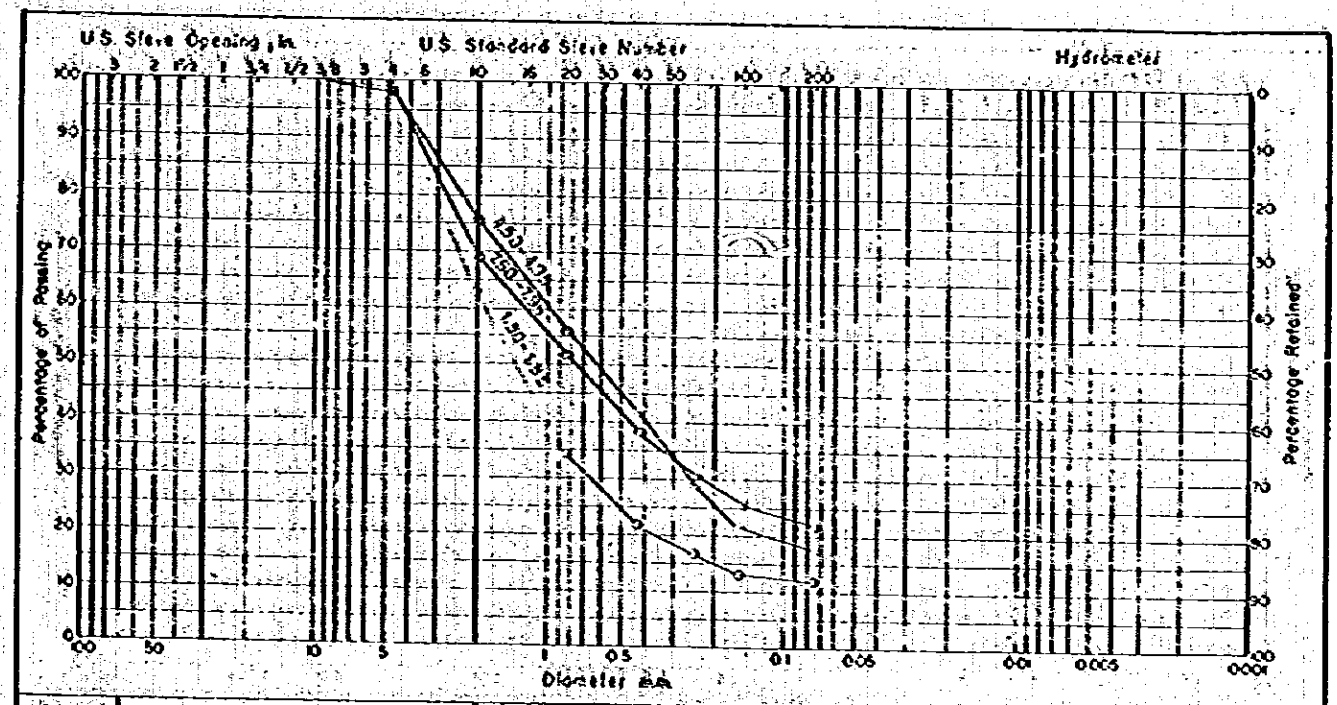


Figure 52



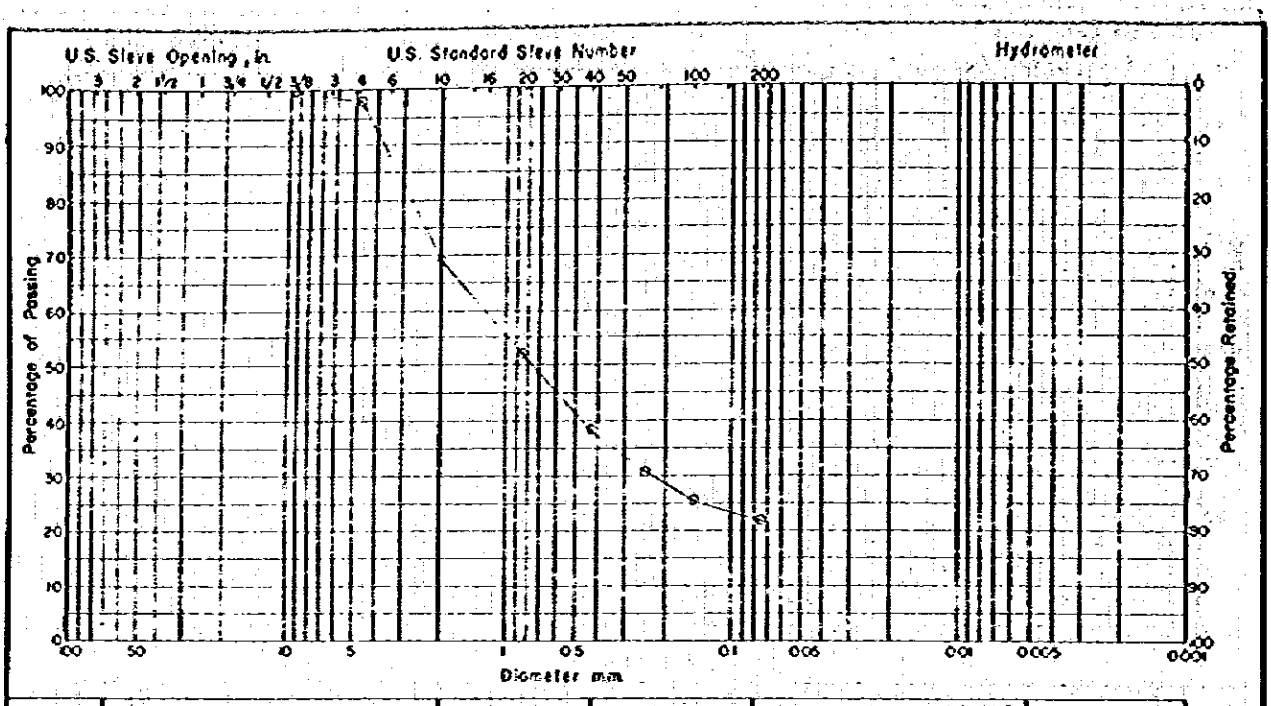
Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
14	13.50-13.95		SP	Project: Pattaya Tourism Development
				Location: Pattaya, Cholburi

Figure 53



Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
15	1.50-1.95		SM	Project: Pattaya Tourism Development
	4.50-4.95		SP	Location: Pattaya, Cholburi
	7.50-7.95		SP-SC	

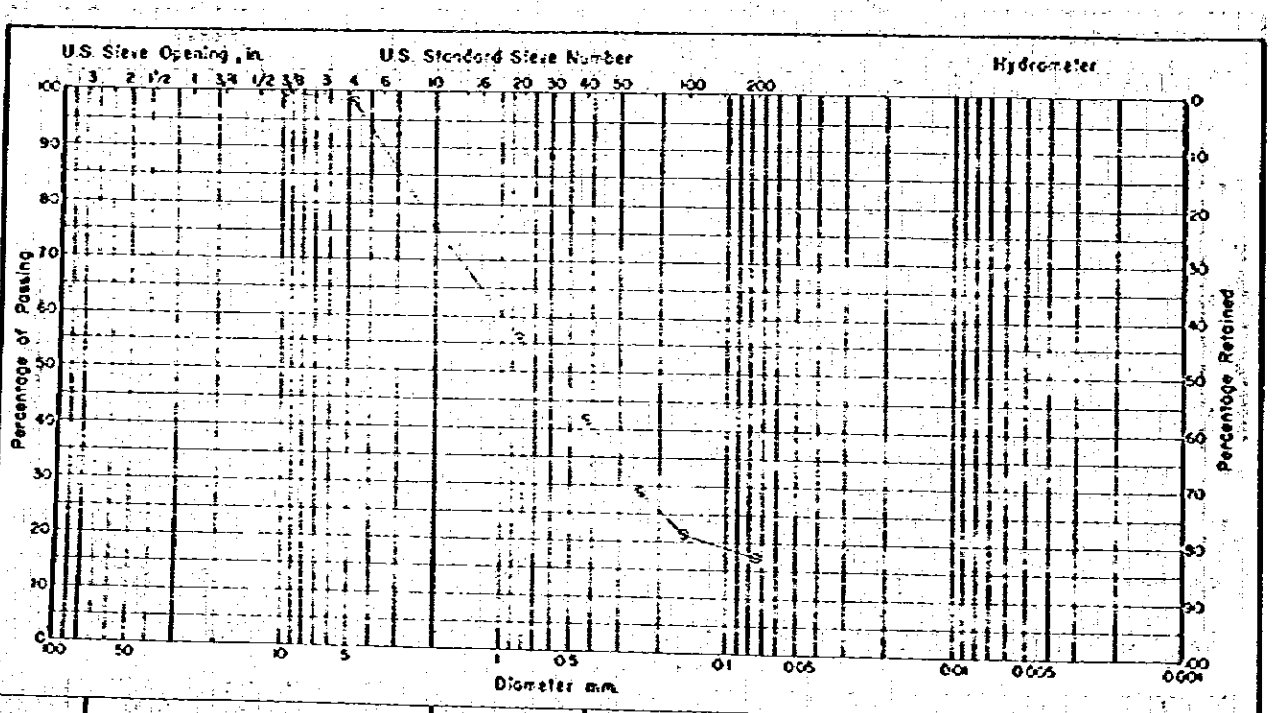
Figure 54



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
15	7.50-7.95		SP-SC	Project: Pattaya Tourism Development
				Location: Pattaya, Cholburi

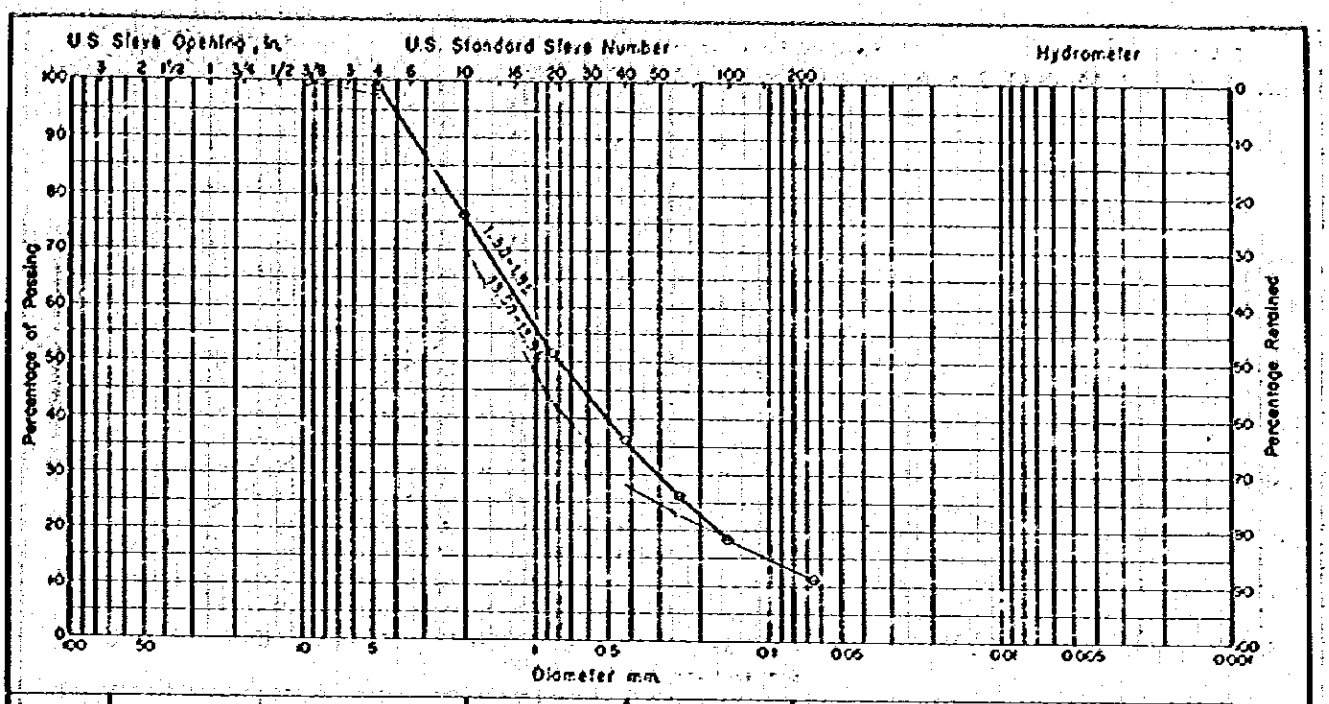
Figure 56



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
15	4.50-4.95		SP	Project: Pattaya Tourism Development
				Location:

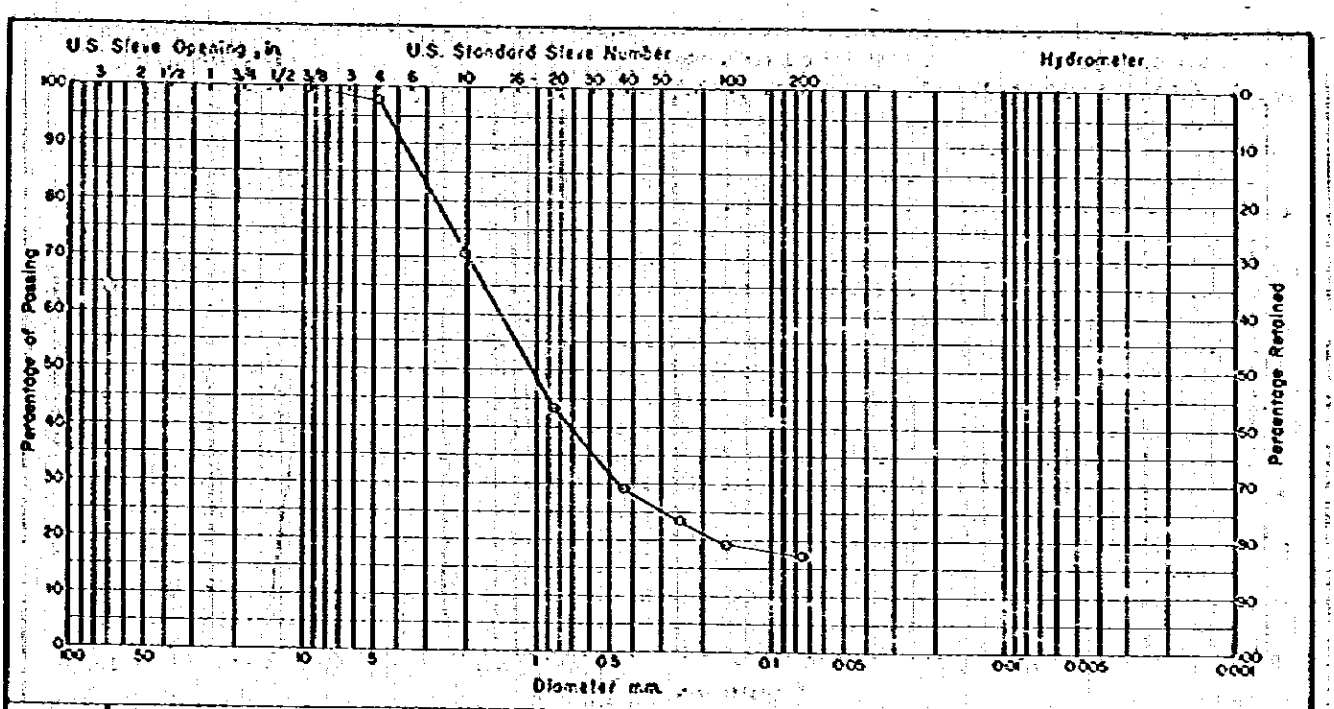
Figure 55



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
16	1.50-1.95		SM	Project: Pattaya Tourism Development
	13.5 - 13.9		SM	Location: Pattaya, Cholburi

Figure 57



ASTM	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY

Hole No	Depth m	Symbol	Classification	GRAIN SIZE DISTRIBUTION
16	13.50-13.95		SM	Project: Pattaya Tourism Development
				Location: Pattaya, Cholburi

Figure 58