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SOIL EXPLORATION AND FOUNDATION REPORT

FOR THE PROPOSED BUILDING

AT

NO. 2/3, & 3/5, 2ND STREET

BAKTHAVATCHALAM NAGAR

ADYAR

CHENNAI-600 020

PROJECT NO. TJE/003102/2024

T.J.ENGINEERS

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EXPLORATION REPORT

PROJECT NO. TJE/003102/2024

1.INTRODUCTION:

M/S SAGAS CONSTRUCTIONS has proposed to construct a Stilt Floor + Five Floors Building at No. 2/3, & 3/5, 2nd Street, Bakthavatchalam Nagar, Adyar, Chennai-600 020. The work was entrusted to T.J. Engineers by the promoter. The location is shown in Fig No.1. The object of the soil exploration work done is to determine the soil properties of the proposed area and to arrive at a most suitable type of foundation system for the proposed structure.

2.0 SCOPE OF WORK

The Scope of Work includes the following

Boreholes

- Drilling of borehole at the proposed borehole locations as per the direction of the client.
- Collection of disturbed and undisturbed soil samples and carrying out the relevant laboratory test on soils.
- Conducting of standard penetration test (SPT) within the borehole at every 1.50m depth interval or as required.
- Collection of soil sample from bore hole.
- Preparation of geotechnical investigation Report.

3.0. LOCATION & NUMBER OF BORE HOLES

For this purpose three bore holes were bored up to maximum depth of 16.00m below existing ground level. The bore hole location is shown in Fig No.1 and bore log details are given in Fig No. 2,3&4. The bore holes were terminated in the Very Dense Sandy Gravel-(Disintegrated Rock) layer.

4.0. GEOTECHNICAL INVESTIGATIONS

4.1. Filed Investigations of Boreholes

Rotary drilling boring technique was adopted for boring in this area. The Standard penetration tests were conducted at change of layers and at specified intervals, commencing the test at 1.50m below the existing ground level. The relative density of different soil layers obtained from the N-Values are given in the Fig No. 2,3&4. Disturbed and un disturbed samples were collected from all the layers for visual observation, classification tests and strength characteristics of the soil layers.

Standard Penetration Test (SPT)

Standard Penetration Tests were conducted using a split spoon sampler, as per relevant codal provision (IS: 2131 – 1981). The SPT is generally conducted in sandy and completely weathered rock strata till 45 cm penetration with number of blows recorded for every 15 cm penetration. The number of blows required for first 15 cm in neglected. The blows for last 30 cm penetration or refusal 'N' value of 100 whichever is earlier is taken as the 'N' value. In the clayey strata, when driving of sampling tube is not possible, SPT was conducted to know the consistency of the soil strata and to retrieve the disturbed soil sample. The soil samples obtained in the split spoon sampler are carefully packed in polythene bags for testing in the laboratory. The SPT values obtained at every 1.50m interval are given in the bore logs.

4.2. Grain Size Analysis

Combined sieve and hydrometer analyses were conducted on the various samples collected. The results are given in Table-1a, 1b. Based on the proportion of the different soil constituents, the soil is classified.

4.3. Laboratory Tests for Borehole samples

The following laboratory tests were conducted on collected Soil Samples.

I. Moisture Content as per IS: 2720 (Part 2)

II. Specific Gravity as per IS: 2720 (Part 2)

III. Sieve Analysis as per IS: 2720 (Part 4)

IV. Hydrometer Analysis as per IS: 2720 (Part 4)

V. Liquid Limit as per IS: 2720 (Part 5)

VI. Plastic Limit as per IS: 2720 (Part 5)

VII. Swelling Index as per IS: 2720 (Part 40)

5.0.BORE LOG DATA

The Summary of bore hole log data for BH-01, BH-02 & BH-03 is given in Fig-2,3&4. Bore hole location is given in Fig.1.

6.0.LABORATORY TEST RESULTS

The laboratory test results of boreholes samples are presented in Table-1a, 1b and Table-2a, 2b.

7.0.GROUND WATER TABLE

The ground water table was encountered at the **depth of 2.50m**, below the existing ground level at the time of soil exploration.

8.0.SUB SOIL PROFILE

From the visual identification from field test results, it is concluding that soil strata is not similar in BH-01, BH-02 & BH-03 location.

In BH-01 Location the soil strata is made-up of eight distinctive layers.

i. Filled Up Soil 0.00m to 0.60m

ii. Medium Stiff Silty Clay, 0.60m to 2.40m SPT's N= 6

iii. Medium Dense Silty Sand, 2.40m to 5.90m SPT's N= 13

iv. Medium Dense Silty Clayey Sand, 5.90m to 8.40m SPT's N= 12-15

v. Medium Dense Clayey Silty Sand, 8.40m to 11.50m SPT's N= 22-23

vi. Dense Silty Clayey Sand, 11.50m to 13.10m SPT's N= 36

vii. Very Dense Clayey Silty Sandy Gravel, 13.10m to 14.60m SPT's N= >100

viii. Very Dense Sandy Gravel, 14.60m to 16.00m SPT's N=>100

In BH-02 Location the soil strata is made-up of five distinctive layers.

i. Filled Up Soil 0.00m to 0.40m

ii. Medium Stiff to Stiff Silty Clay, 0.40m to 3.60m SPT's N= 6-10

iii. Medium Dense Silty Sand, 3.60m to 6.60m SPT's N= 20-24

iv. Medium Dense Silty Clayey Sand, 6.60m to 8.70m SPT's N= 11

v. Medium Dense Clayey Silty Sand, 8.70m to 10.50m SPT's N= 14-19

In BH-03 Location the soil strata is made-up of five distinctive layers.

i. Filled Up Soil 0.00m to 0.80m

ii. Medium Stiff to Stiff Silty Clay, 0.80m to 3.50m SPT's N= 7-9

iii. Medium Dense Clayey Silty Sand, 3.50m to 5.90m SPT's N= 23

iv. Medium Dense Silty Clayey Sand, 5.90m to 8.80m SPT's N= 13-17

v. Medium Dense Clayey Silty Sand, 8.80m to 10.50m SPT's N= 18-25

The soil profile details are presented in the Bore logs, in Fig. 2,3&4.

9.0 FOUNDATION ANALYSIS

From the bore log data at the top from 0.00m to 0.80m filled up soil is present. From 0.80m to 2.40m/3.60m medium stiff to stiff Silty Clayey layer is present, and this layer has got swelling character. From 2.40m/3.60m to 11.50m medium dense Silty Sand/Clayey Silty Sand/Silty Clayey Sand layer is present. From 11.50m to 13.10m dense Silty Clayey Sand layer is present. From 13.10m to 14.60m very dense Clayey Silty Sandy Gravel layer is present. Below 14.60m very dense Sandy Gravel-(Disintegrated Rock) layer is seen, this layer is fair to rest pile foundation for heavy loaded structure.

The layer up to 11.50m is the critical zone for open foundation system for light loaded structure, within the critical zone medium stiff to stiff Clayey and medium dense Sandy layers are present, and the Clayey layer has got swelling character.

For light loaded structure with column positions are symmetrical and short span, open foundation of **Isolated Footing Foundation** can be adopted. For light loaded structure with column positions are un symmetrical long span sensitive for differential settlement, open foundation of **Continues Strip Raft Footing** or **Raft Foundation** can be adopted. The open foundation can be placed at the minimum **depth of 2.10m** below the existing ground level. The existing ground level was same as the road level at the time of soil investigation.

For heavy loaded structure**, if the SBC is not sufficient for the expected loading intensity,** it is advisable to provide deep foundation of pile foundations. The pile foundation can be Bored Cast in situ pile. The pile foundation should be terminated at the minimum **depth of 16.00m (Including anchorage depth)** below existing ground level.

The pile should be anchored into the very dense Sandy Gravel-(Disintegrated Rock) layer for minimum of 1.00m depth.

9.1. COMPUTATION OF THE SAFE BEARING CAPACITY AT 2.10m DEPTH

Based on the standard penetration test value the ultimate net bearing capacity (q_u) could be calculated from the following formula.

$q_u = 1.2\ C\ Nc + \gamma\ D_f\ N_q$

The minimum observed N-Value is taken as 9 from Fig. 2,3&4.

The corresponding bearing capacity factors are,

$Nc = 5.7$

$N_q = 1$

Where,

C = Un drained shear strength = 4.65 t/m^2

γ = Unit weight of the soil = 1.50 t/m^3

γ' = Submerged unit weight of the soil = 0.50 t/m^3

D_f = Depth of footing = 2.10 m

D_w = Depth of water table = 2.50 m

Substitute all the above values in the formula,

$q_u = 1.2 \times 4.65 \times 5.7 + 1.50 \times 2.10 \times 1$

$= 31.806 + 3.15 = 34.956\ t/m^2$

Safe bearing capacity could be considered with a factor of safety of 2.5

Hence, safe bearing capacity $q_s = 34.956/2.50 = 13.982\ t/m^2$. Say 14.00 t/m^2.

Therefore, safe bearing capacity of the soil at 2.10m is 14.00 t/m^2

9.2. SETTLEMENT ANALYSIS FOR THE LOADING INTENSITY OF 14.00 t/m^2

LAYER -1, SILTY CLAY

The Consolidation Settlement of the Clay layer can be calculated using the following formula.

$$S_1 = (C_c / 1 + e_0)\, H \quad \text{Log}\, (\sigma'_0 + \Delta\sigma / \sigma'_0)$$

Where

C_c = Coefficient of compression index

= 0.35

e_0 = The initial void ratio

= 1.81

H =The thickness of the compressible clay layer

= 9.40m

σ'_0 = The original effective over burden pressure at the centre of the clay layer

= 5.90 t/m^2

$\Delta\sigma$ = The stress increases at the centre of the clay layer due to foundation loads (or) pressure

= 0.230 t/m^2

S_1 = (0.35 /1+1.81) 9.40 Log (5.90 +0.230/5.90)

= 0.124 x 9.40 x 0.0166

= 0.019358m

= 19.358mm

TOTAL SETTLEMENT

= 19.358mm < 50mm

The maximum allowable settlement as per IS: 1904-1986 for R.C.C structure with Isolated footing foundation is 50mm. **The settlement is within the permissible limit**. **Hence it is Safe.**

9.3. LOAD CARRYING CAPACITY OF THE CONVENTIONAL PILE

Based on the standard penetration test value the ultimate load carrying capacity (q_u) could be calculated from the following formula.

$$\mathbf{Qu = Qb + Qs}$$

Qs = Ultimate unit skin friction on an individual layer

$$= Ks\ \sigma'_{vo} \tan\delta\ \pi\ D\ L$$

Where

Ks = Co-efficient of horizontal soil stress = 0.471

σ'_{vo} = average effective overburden pressure = 7.50 t/m^2

δ = angle of wall friction = 32

D = Dia meter of pile = 0.40m

L = Length of individual layer = 2.00m

= 0.471 x 7.50 x 0.624 x 3.14 x 0.40 x 2.00

= 5.537 t

$q_b = Nq\ \sigma'_{vo}\ Ab$

where

Nq = Bearing Capacity Factor = 130

σ'_{vo} = effective overburden pressure at the toe = 8.00 t/m^2

Ab = Cross sectional area at the base

D = Dia of Pile = 0.40m

= 130 x 8.00 x 3.14 x 0.40^2 /4

= 130.624 t

$$\mathbf{Qu = Qb + Qs}$$

$$= 130.624 + 5.537 = 136.161 \text{ t}$$

Q safe = Qu/F.S = 136.161/2.5 = 54.464 say 54.50 t

The safe load carrying capacity for five different diameter of piles for the **depth of 16.00m** are worked and are given below.

Dia of Pile	Depth of Pile	Safe Load (Tones)
400mm	**16.00m**	**54.50**
450mm	**16.00m**	**69**
500mm	**16.00m**	**84**
600mm	**16.00m**	**121**
750mm	**16.00m**	**184**

The above safe loads are provisional and shall be confirmed by conducting pile load test as per the guide line laid down in IS: 2911 (Part: IV).

10.0. CONCLUSIONS

1. Soil in the shallow depth is fair to adopt open foundation system for light loaded structure.
2. For light loaded structure with column positions are symmetrical and short span, open foundation of **Isolated Footing Foundation** can be adopted. For light loaded structure with column positions are unsymmetrical long span sensitive for differential settlement, open foundation of **Continues Strip Raft Footing** or **Raft Foundation** can be adopted.
3. The open foundation can be placed at the minimum **depth of 2.10m** below the existing ground level. The existing ground level was same as the road level at the time of soil investigation.
4. The **Safe Bearing Capacity** of the soil at **2.10m depth is 14.00 t/m^2**.
5. The **minimum width** of footing should be maintained as **1.00m** to avoid any punching shear failure and to achieve suggested SBC.
6. All the foundation should rest on 100 mm thick river sand or M sand and 100mm thick 1:4:8 concrete mat.
7. The foundation bed should be well compacted by ramming before laying PCC.
8. The foundation should rest on the natural undisturbed strata.
9. For heavy loaded structure, **if the SBC is not sufficient** for the expected loading intensity **deep foundation of pile** can be provided. The pile foundation can be **Bored Cast in situ pile**. The pile foundation can be terminated at the minimum depth of **16.00m (Including anchorage depth)** below existing ground level, existing ground level at the time of soil investigation.

10. The safe load carrying capacity for five different diameter of piles for the **depth of 16.00m** are worked and are given below.

Dia of Pile	Depth of Pile	Safe Load (Tones)
400mm	**16.00m**	**54.50**
450mm	**16.00m**	**69**
500mm	**16.00m**	**84**
600mm	**16.00m**	**121**
750mm	**16.00m**	**184**

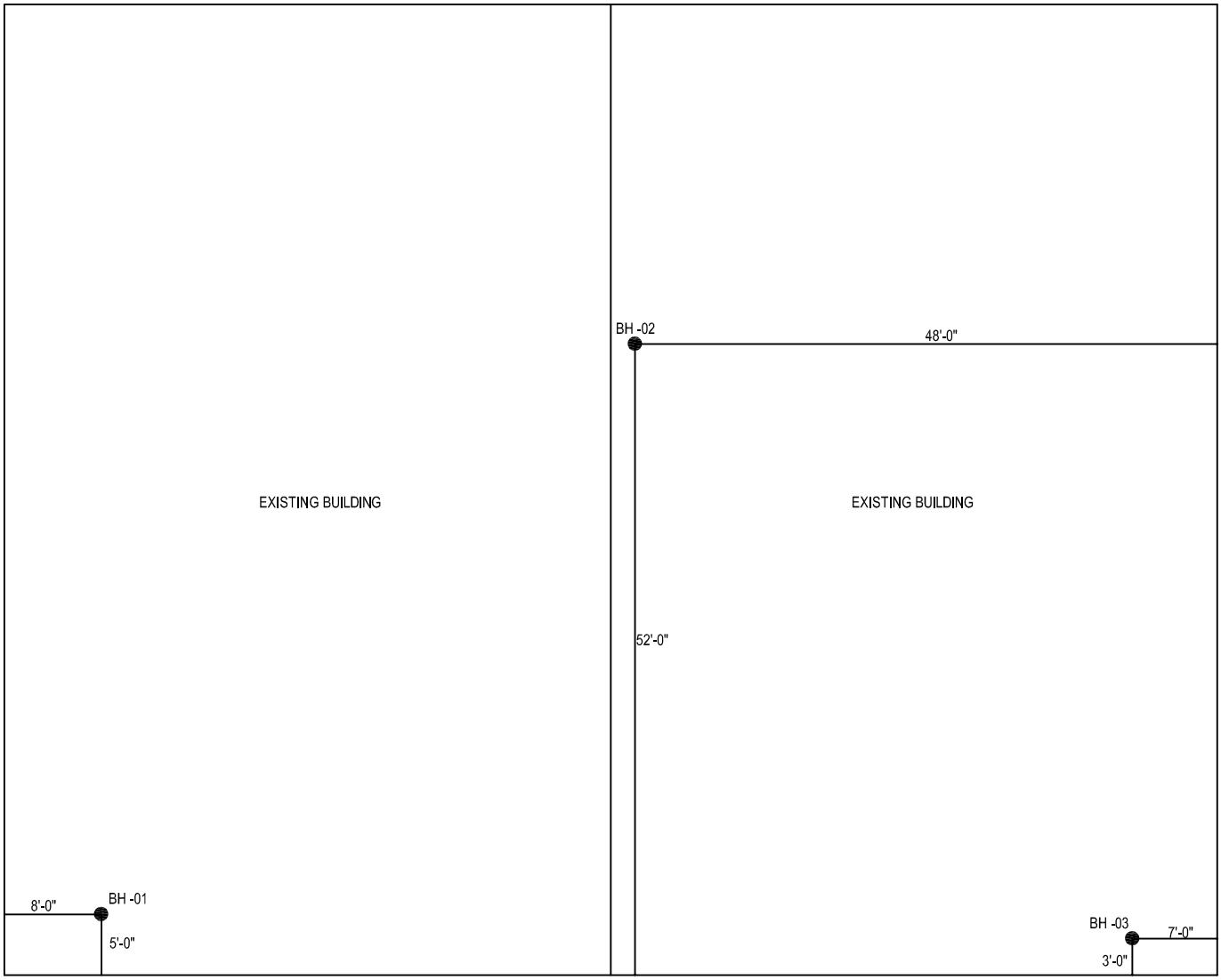
The above safe loads are provisional and shall be confirmed by conducting pile load test as per the guide line laid down in IS: 2911 (Part: IV)

11. The pile should be anchored in to the very dense **Sandy Gravel-(Dis-integrated Rock)** layer for minimum of 1.00m depth. The depth of pile may vary slightly according to site condition.
12. Proper precaution should be taken while boring the pile against sliding of bore hole, by maintaining the proper dense bentonite slurry or providing temporary casing or permanent casing and pile concreting should be done as soon as boring is over.
13. The bore hole should be flushed properly before laying concrete. It has to be ensured by comparing the depth of pile bore hole and Tremie Pipe. The depth of Tremie Pipe lowered can be 300mm less than borehole depth. If the gap between bore hole bottom and Tremie Pipe bottom is more than 300mm, there is a possibility of slush deposit in the bore hole.

14. The pile boring should be done with **Percussion** drilling or **Hydraulic** Rotary Drilling with DMC method.
15. For foundation design stress due to any eccentricity and horizontal force should be considered and stability should be checked.
16. It is advisable not to mix deep foundation and shallow foundation in same building. Combined Raft cum Pile can be adopted.
17. All suggested foundation recommendations and precautions should be adopted while undertaking the design aspects and construction activities.

For T.J. Engineers

30 – 01 – 2024



NOT TO SCALE

CLIENT:-	PROJECT:-		
M/S SAGAS CONSTRUCTIONS CHENNAI.	PROPOSED BUILDING AT NO. 2/3, & 3/5, 2ND STREET, BAKTHAVATCHALAM NAGAR, ADYAR, CHENNAI-600 020.	SITE PLAN FIG.1	T.J. ENGINEERS soil investigation and foundation design division T.J. HOUSE PLOT NO. 4, ANNA NAGAR, 1ST STREET, VELACHERY, CHENNAI-42, tjengineers@yahoo.com tjengineers1998@gmail.com OFF: 044-42334194

BORE LOG

PROJECT : **Proposed Building at No. 2/3, & 3/5, 2nd Street, Bakthavatchalam Nagar, Adyar, Chennai-600 020.**

BORE HOLE NO : **B.H:01**

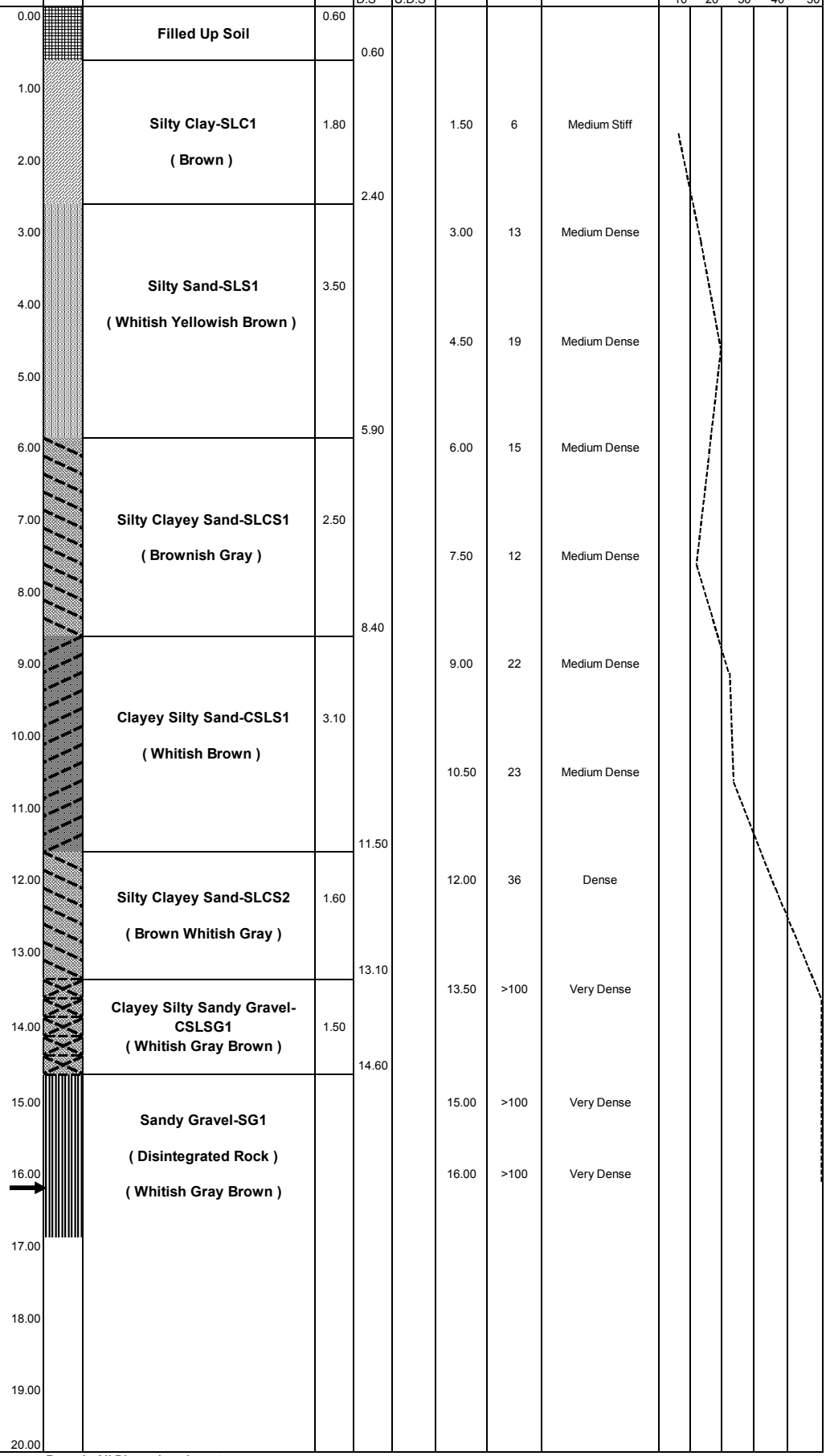
TYPE OF BORING : **Rotary Drilling**

DATE OF COMMENCEMENT: **18 - 01 - 2024**

DATE OF COMPLETION : **19 - 01 - 2024**

G.W.L : **2.50m**

Depth below G.L	Soil profile	Description of soil	Thickness of layer	Depth at witch samples are collected D.S	Depth at witch samples are collected U.D.S	Standard penetration testdata: Depth at witch test is conducted	N-Value	Relative density/ Consistency	Graphical representation of penetration resistance
0.00		**Filled Up Soil**	0.60	0.60					
1.00		**Silty Clay-SLC1** **(Brown)**	1.80			1.50	6	Medium Stiff	
2.00				2.40					
3.00		**Silty Sand-SLS1** **(Whitish Yellowish Brown)**	3.50			3.00	13	Medium Dense	
4.00									
5.00						4.50	19	Medium Dense	
6.00				5.90		6.00	15	Medium Dense	
7.00		**Silty Clayey Sand-SLCS1** **(Brownish Gray)**	2.50						
8.00						7.50	12	Medium Dense	
9.00		**Clayey Silty Sand-CSLS1** **(Whitish Brown)**	3.10	8.40		9.00	22	Medium Dense	
10.00									
11.00						10.50	23	Medium Dense	
12.00		**Silty Clayey Sand-SLCS2** **(Brown Whitish Gray)**	1.60	11.50		12.00	36	Dense	
13.00									
14.00		**Clayey Silty Sandy Gravel-CSLSG1** **(Whitish Gray Brown)**	1.50	13.10		13.50	>100	Very Dense	
15.00		**Sandy Gravel-SG1** **(Disintegrated Rock)** **(Whitish Gray Brown)**		14.60		15.00	>100	Very Dense	
16.00						16.00	>100	Very Dense	
17.00									
18.00									
19.00									
20.00									



Remark: All Dimensions in meters

End of Boring

FIG: 2

BORE LOG

PROJECT : **Proposed Building at No. 2/3, & 3/5, 2nd Street, Bakthavatchalam Nagar, Adyar, Chennai-600 020.**

BORE HOLE NO : **B.H:02**

TYPE OF BORING : **Rotary Drilling**

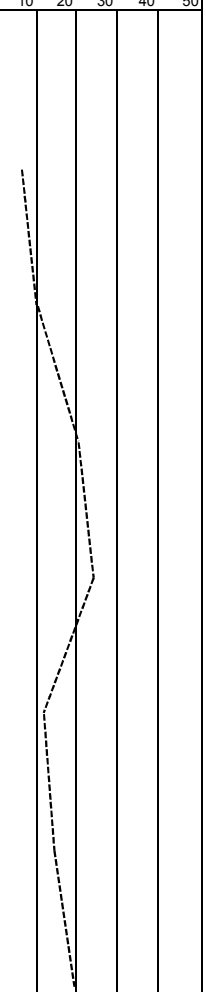
DATE OF COMMENCEMENT: **19 - 01 - 2024**

DATE OF COMPLETION : **19 - 01 - 2024**

G.W.L : **2.50m**

Depth below G.L	Soil profile	Description of soil	Thickness of layer	Depth at witch samples are collected D.S	Depth at witch samples are collected U.D.S	Standard penetration testdata: Depth at witch test is conducted	Standard penetration testdata: N-Value	Standard penetration testdata: Relative density/ Consistency
0.00		**Filled Up Soil**	0.40	0.40				
1.00		**Silty Clay-SLC1** **(Brown)**	3.20			1.50	6	Medium Stiff
2.00								
3.00						3.00	10	Stiff
				3.60				
4.00		**Silty Sand-SLS1** **(Whitish Yellowish Brown)**	3.00			4.50	20	Medium Dense
5.00								
6.00						6.00	24	Medium Dense
				6.60				
7.00		**Silty Clayey Sand-SLCS1** **(Brownish Gray)**	2.10			7.50	11	Medium Dense
8.00								
				8.70				
9.00		**Clayey Silty Sand-CSLS1** **(Whitish Brown)**				9.00	14	Medium Dense
10.00								
10.50						10.50	19	Medium Dense
11.00								
12.00								
13.00								
14.00								
15.00								
16.00								
17.00								
18.00								
19.00								
20.00								

Graphical representation of penetration resistance



Remark: All Dimensions in meters

End of Boring

FIG: 3

BORE LOG

PROJECT : **Proposed Building at No. 2/3, & 3/5, 2nd Street, Bakthavatchalam Nagar, Adyar, Chennai-600 020.**

BORE HOLE NO : **B.H:03**

TYPE OF BORING : **Rotary Drilling**

DATE OF COMMENCEMENT: **19 - 01 - 2024**

DATE OF COMPLETION : **20 - 01 - 2024**

G.W.L : **2.50m**

Depth below G.L	Soil profile	Description of soil	Thickness of layer	Depth at witch samples are collected D.S	Depth at witch samples are collected U.D.S	Standard penetration testdata: Depth at witch test is conducted	N-Value	Relative density/ Consistency	Graphical representation of penetration resistance
0.00		**Filled Up Soil**	0.80	0.80					
1.00		**Silty Clay-SLC1** **(Brown)**	2.70			1.50	7	Medium Stiff	
2.00									
3.00						3.00	9	Stiff	
4.00		**Clayey Silty Sand-CSLS1** **(Grayish Brown)**	2.40	3.50		4.50	23	Medium Dense	
5.00									
6.00		**Silty Clayey Sand-SLCS1** **(Brownish Gray)**	2.90	5.90		6.00	17	Medium Dense	
7.00						7.50	13	Medium Dense	
8.00				8.80					
9.00		**Clayey Silty Sand-CSLS2** **(Whitish Brown)**				9.00	18	Medium Dense	
10.00									
10.50						10.50	25	Medium Dense	
11.00									
12.00									
13.00									
14.00									
15.00									
16.00									
17.00									
18.00									
19.00									
20.00									

Graphical representation of penetration resistance: 10 20 30 40 50

Remark: All Dimensions in meters

End of Boring

FIG: 4

Project: Proposed Building at No. 2/3, & 3/5, 2nd Street, Bakthavatchalam Nagar, Adyar, Chennai-600 020.

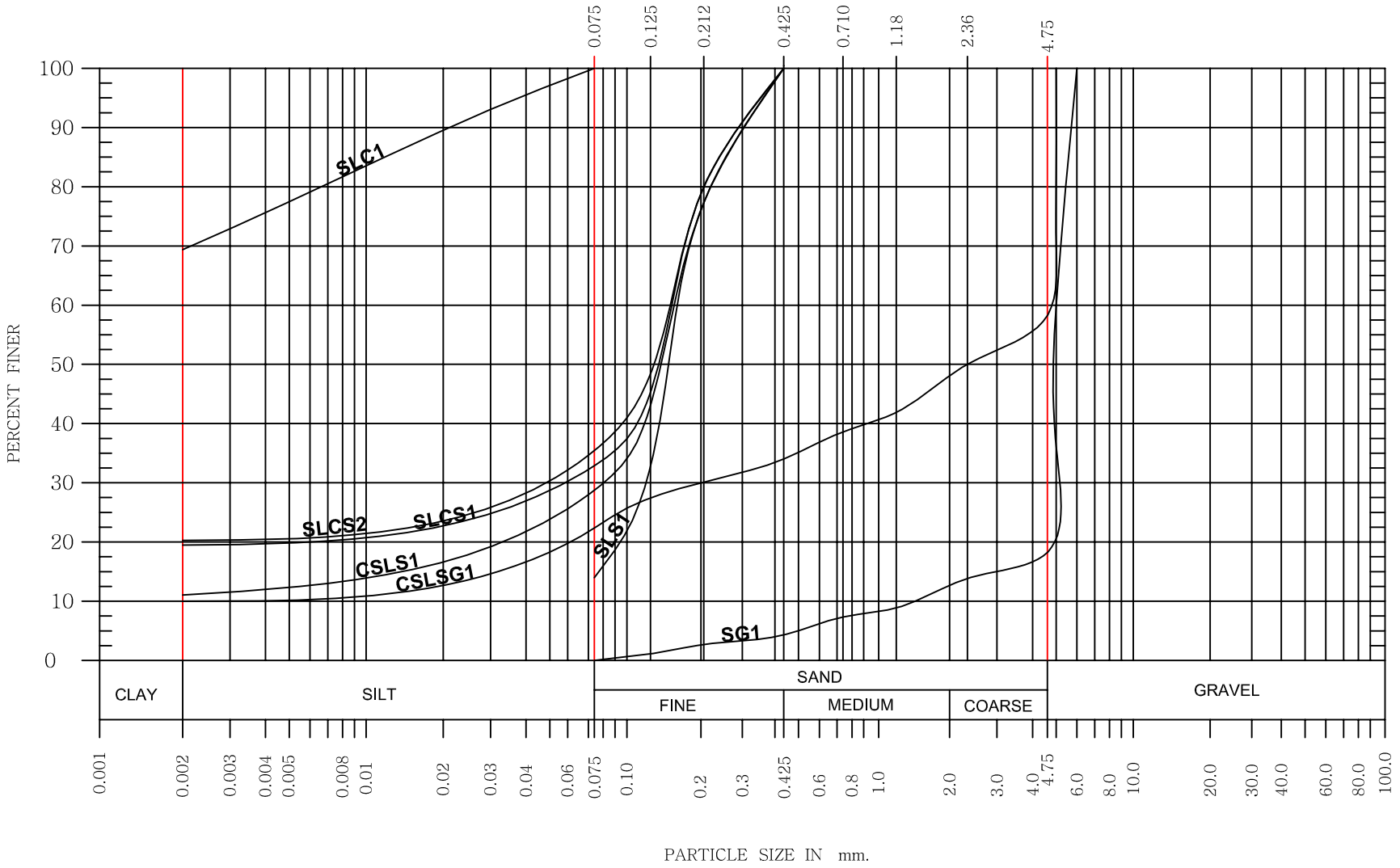


FIG. 5 GRAIN SIZE DISTRIBUTION CURVE-BH-01

Project: Proposed Building at No. 2/3, & 3/5, 2nd Street, Bakthavatchalam Nagar, Adyar, Chennai-600 020.

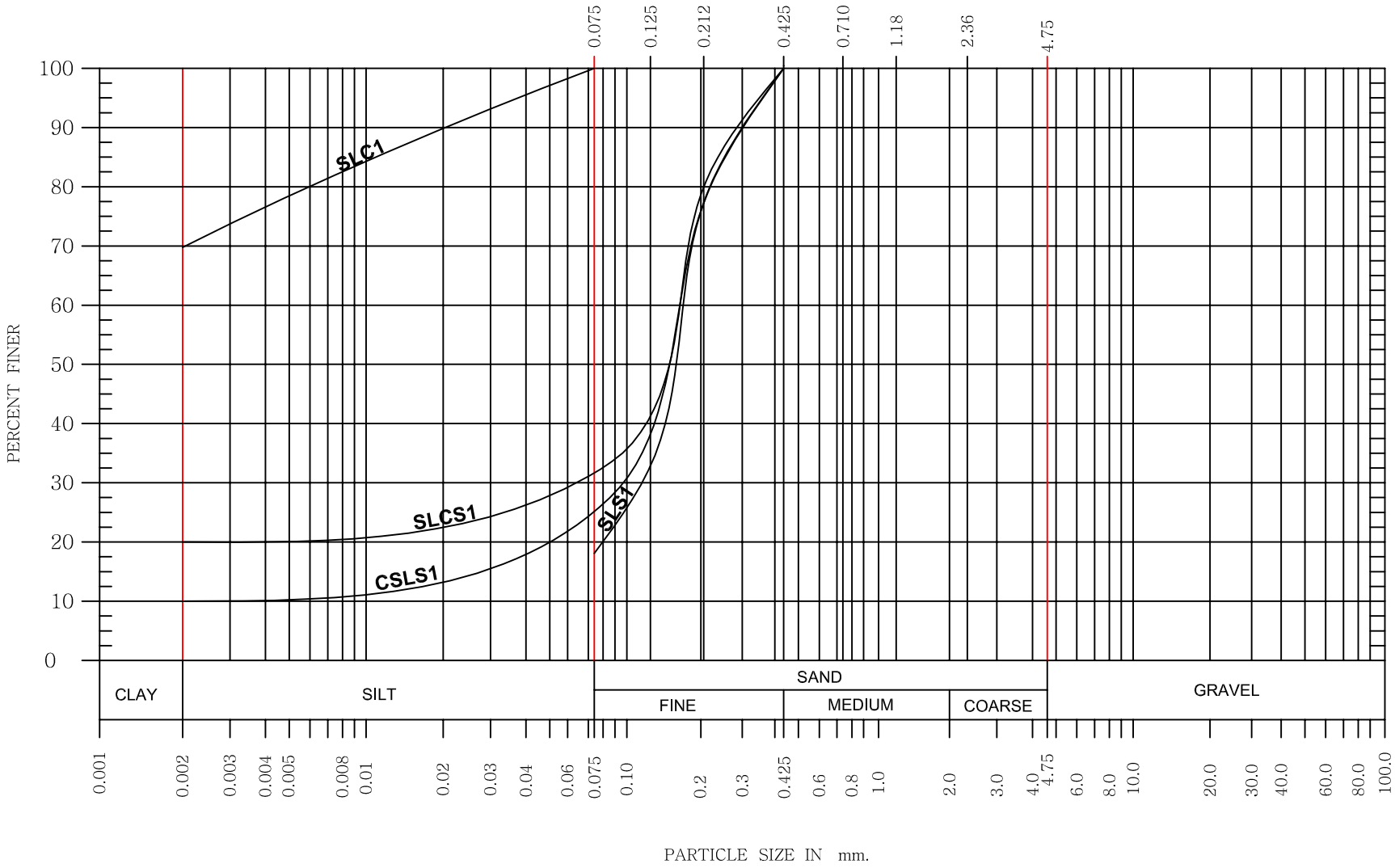


FIG. 6 GRAIN SIZE DISTRIBUTION CURVE-BH-02

Project: Proposed Building at No. 2/3, & 3/5, 2nd Street, Bakthavatchalam Nagar, Adyar, Chennai-600 020.

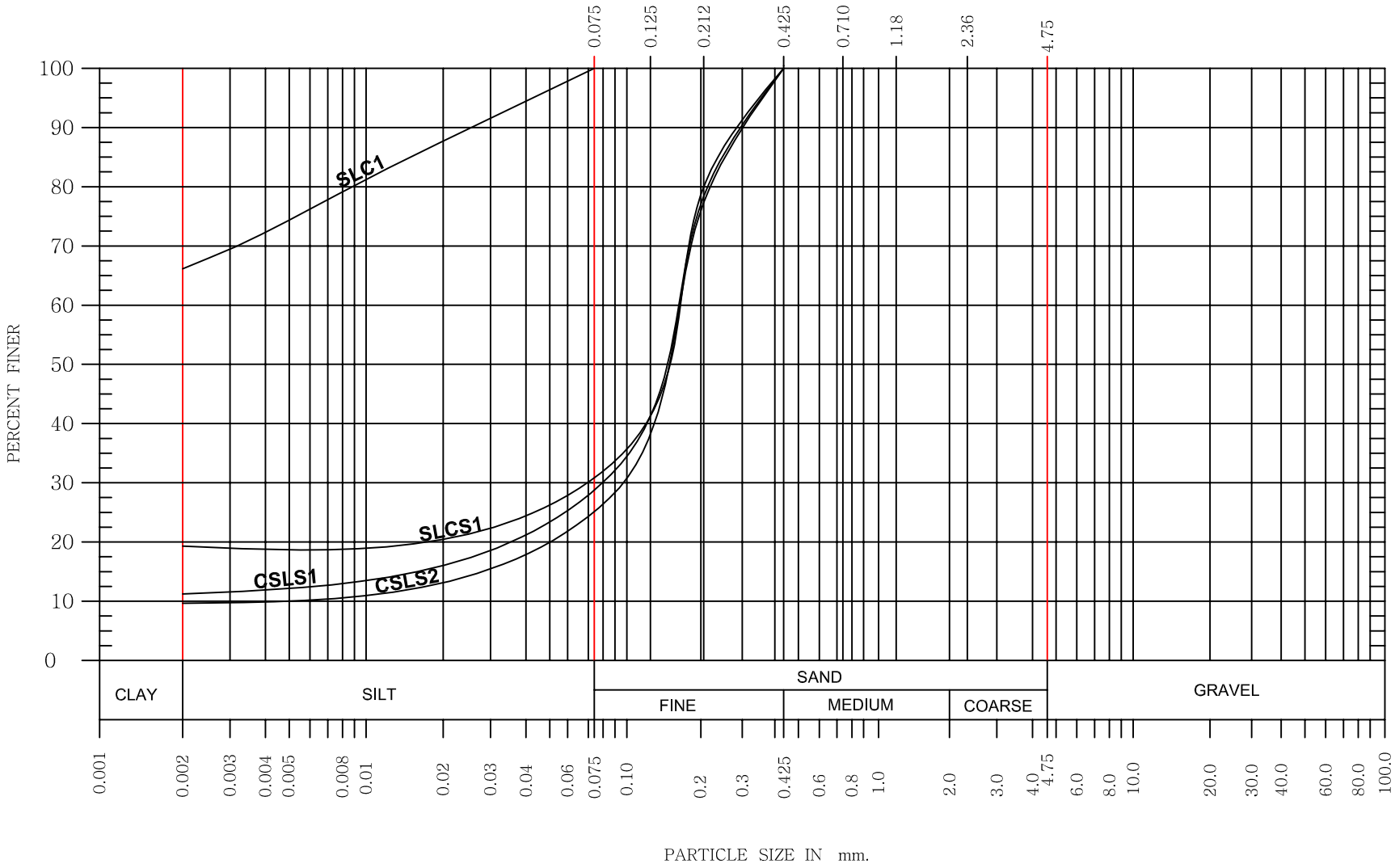


FIG. 7 GRAIN SIZE DISTRIBUTION CURVE-BH-03

LABORATARY TEST RESULTS

TABLE-1a

B.H No	Layer thickness	Soil classification	Depth of sample collected		SP. gravity	%of free swell	Grain size distribution				Remarks
			DS / SPT	UDS			Clay	Silt	Sand	Gravel	
	m		m	m		%	%	%	%	%	
1	0.00 - 0.60	Filled Up Soil	_	_	_	_	_	_	_	_	_
	0.60 - 2.40	Silty Clay-SLC1	1.50	_	2.66	32	68	32	0	0	_
	2.40 - 5.90	Silty Sand-SLS1	3.00	_	2.63	_	0	14	86	0	_
	5.90 - 8.40	Silty Clayey Sand-SLCS1	6.00	_	2.65	_	19	14	67	0	_
	8.40 - 11.50	Clayey Silty Sand-CSLS1	9.00	_	2.64	_	12	16	72	0	_
	11.50 - 13.10	Silty Clayey Sand-SLCS2	12.00	_	2.65	_	21	14	65	0	_
	13.10 - 14.60	Clayey Silty Sandy Gravel-CSLSG1	13.50	_	2.64	_	10	13	35	42	_
	14.60 - 16.00	Sandy Gravel-SG1	16.00	_	2.63	_	0	0	17	83	_

LABORATARY TEST RESULTS

TABLE-1b

B.H No	Layer thickness	Soil classification	Depth of sample collected		SP. gravity	%of free swell	Grain size distribution				Remarks
			DS / SPT	UDS			Clay	Silt	Sand	Gravel	
	m		m	m		%	%	%	%	%	
2	0.00 - 0.40	Filled Up Soil	_	_	_	_	_	_	_	_	_
	0.40 - 3.60	Silty Clay-SLC1	1.50	_	2.66	34	69	31	0	0	_
	3.60 - 6.60	Silty Sand-SLS1	4.50	_	2.63	_	0	17	83	0	_
	6.60 - 8.70	Silty Clayey Sand-SLCS1	7.50	_	2.65	_	20	12	68	0	_
	8.70 - 10.50	Clayey Silty Sand-CSLS1	10.50	_	2.64	_	10	15	75	0	_
3	0.00 - 0.80	Filled Up Soil	_	_	_	_	_	_	_	_	_
	0.80 - 3.50	Silty Clay-SLC1	1.50	_	2.66	31	66	34	0	0	_
	3.50 - 5.90	Clayey Silty Sand-CSLS1	4.50	_	2.64	_	12	16	72	0	_
	5.90 - 8.80	Silty Clayey Sand-SLCS1	6.00	_	2.65	_	18	13	69	0	_
	8.80 - 10.50	Clayey Silty Sand-CSLS2	10.50	_	2.64	_	9	15	76	0	_

LABORATARY TEST RESULTS

TABLE -2a

B.H No	Layer thickness	Soil classification	Depth of sample collected		LL	PL	Bulk density	Consolidation Parameters		Shear Strength Parmeters		Remarks
			DS / SPT	UDS				e_o	Cc	Cu	Ø	
	m		m	m	%	%	t/m^3			t/m^2	degree	
1	0.00 - 0.60	Filled Up Soil	_	_	_	_	_	_	_	_	_	_
	0.60 - 2.40	Silty Clay-SLC1	1.50	_	66	24	1.50	1.81	0.35	4.10	_	_
	2.40 - 5.90	Silty Sand-SLS1	3.00	_	_	_	1.54	_	_	_	33	_
	5.90 - 8.40	Silty Clayey Sand-SLCS1	6.00	_	_	_	1.53	_	_	_	32	_
	8.40 - 11.50	Clayey Silty Sand-CSLS1	9.00	_	_	_	1.56	_	_	_	35	_
	11.50 - 13.10	Silty Clayey Sand-SLCS2	12.00	_	_	_	1.57	_	_	_	36	_
	13.10 - 14.60	Clayey Silty Sandy Gravel-CSLSG1	13.50	_	_	_	1.59	_	_	_	38	_
	14.60 - 16.00	Sandy Gravel-SG1	16.00	_	_	_	1.61	_	_	_	41	_

LABORATARY TEST RESULTS

TABLE -2b

B.H No	Layer thickness	Soil classification	Depth of sample collected		LL	PL	Bulk density	Consolidation Parameters		Shear Strength Parmeters		Remarks
			DS / SPT	UDS				e_o	Cc	Cu	Ø	
	m		m	m	%	%	t/m^3			t/m^2	degree	
2	0.00 - 0.40	Filled Up Soil	_	_	_	_	_	_	_	_	_	_
	0.40 - 3.60	Silty Clay-SLC1	1.50	_	67	26	1.52	1.70	0.33	4.65	_	_
	3.60 - 6.60	Silty Sand-SLS1	4.50	_	_	_	1.56	_	_	_	34	_
	6.60 - 8.70	Silty Clayey Sand-SLCS1	7.50	_	_	_	1.53	_	_	_	32	_
	8.70 - 10.50	Clayey Silty Sand-CSLS1	10.50	_	_	_	1.54	_	_	_	35	_
3	0.00 - 0.80	Filled Up Soil	_	_	_	_	_	_	_	_	_	_
	0.80 - 3.50	Silty Clay-SLC1	1.50	_	65	25	1.50	1.72	0.34	4.62	_	_
	3.50 - 5.90	Clayey Silty Sand-CSLS1	4.50	_	_	_	1.55	_	_	_	36	_
	5.90 - 8.80	Silty Clayey Sand-SLCS1	6.00	_	_	_	1.54	_	_	_	36	_
	8.80 - 10.50	Clayey Silty Sand-CSLS2	10.50	_	_	_	1.56	_	_	_	41	_



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