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PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING AT
KOTTIVAKKAM.

Report on Geotechnical Investigation

CLIENT

K.PRAVEEN

PLOT NO: 60, 61 & 62 NEHRU NAGAR,
2ND LINK ROAD KOTTIVAKKAM,
CHENNAI-600 041

M/S Chennai Soil Lab Pvt Ltd

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Vadapalani,

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MAY-2018



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PROPOSED CONSTRUCTION OF RESIDENTAIL BUILDING AT KOTTIVAKKAM.

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NMC

Specific Gravity

Grain Size Analysis

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REPORT ON SOIL INVESTIGATION AT PROPOSED CONSTRUCTION, RESIDENTIAL BUILDING, KOTTIVAKKAM.

INTRODUCTION

The proposed site investigation and foundation recommendation is done for Residential Building, Kottivakkam.

SCOPE OF WORK

Scope of work consists of

- Drilling of 4 boreholes in Soil.
- Conducting Standard Penetration tests
- Collection of Disturbed and Undisturbed soil samples
- Collection of rock core samples
- Laboratory testing of the collected samples

FIELD TESTS:

A. Bore hole

The fieldwork includes drilling of 4 Nos. of boreholes in Soil at the specified locations. The bore logs were done using rotary type of drilling.

Standard Penetration tests were conducted in the borehole at regular intervals and 'SPT-N' values are noted. The samples from the split spoon samplers were collected and used as representative samples for laboratory tests. The details of boring with soil profile, SPT-N values along with sampling details and depth of the water table are given in the respective bore logs.

B. Standard Penetration Tests:

Standard Penetration tests were conducted in the borehole at regular intervals and 'SPT-N' values are noted. The samples from the split spoon samplers were collected and used as representative samples for laboratory tests. The details of boring with soil profile, SPT-N values along with sampling details and depth of the water table are given in the respective bore logs. For the determination of resistance to dynamic penetration SPT has been conducted at regular interval as per specifications. Samples from split spoon sampler has been observed and collected for soil classification and sent to the lab for testing.

C. Laboratory tests:

Soil samples (Disturbed & Undisturbed) were collected from boreholes and tested for their Physical and engineering properties. The following tests were conducted as per the Indian standard code of practice.

D. Soil samples

- a) Natural moisture content
- a) Grain size distribution analysis
- b) Specific gravity
- a) Atterberg's limit



Bored Cast in Situ piles

Diameter of pile = 500 mm 0.5 m
(As per "DESIGN AND CONSTRUCTION OF PILE FOUNDATION (Part/Sec 2)

Skin friction resistance

Layer - 1 (0m to 1.5m)

Type of soil = CLAY
Thickness of the layer = 1.50 m
Surface area (A_s) = 2.36 m^2
Undrained cohesion, C_u = 5.000 t/m^2
 α = 0.7
Skin friction = $\alpha * C_u * A_{si}$
8.2

Layer - 2 (1.5m to 7.5m)

Type of soil = SANDY CLAY
Layer thickness = 6.00 m
Surface area (A_{si}) = 9.42
Undrained cohesion, C_u = 3.25
Skin friction = $\alpha * C_u * A_{si}$
 α = 0.5

= 15.3 t

Layer - 2 (7.5m to 12.5m)

Type of soil = SOFT ROCK
Layer thickness = 5.00 m
Surface area (A_s) = 7.85 m^2
Undrained cohesion, C_u = 8.75 t/m^2
 α = 0.5
Skin friction in Layer - 3 (Q_{f3}) = $\alpha * C_u * A_{si}$
34.4 t



Layer - 3 (7.5m to 12.5m)

Type of soil

Layer thickness

Surface area (A_s)

Undrained cohesion, C_u

α

Skin friction in Layer - 3 (Q_{f3})

Ultimate skin friction

End Bearing resistance

End Bearing resistance in cohesionless Soils

Founding Depth from FGL

Angle of internal friction at tip

Area of c/s of pile at toe A_p

Overburden pressure at pile toe

Dia of pile

submerged unit wt. of soil (γ_{sub})

N_γ

N_q

End bearing resistance (Q_e)

Safe Load Capacity of Pile:

Ultimate bearing capacity of pile (Q_u)

Self weight of pile (W_p)

Factor of Safety (FOS)

Safe vertical Load capacity of pile (Q_s)

Recommended Vertical compression capacity, $P =$

= SOFT ROCK

= 5.00 m

= 7.85 m^2

= 17.5 t/m^2

= 0.5

= $\alpha \cdot C_u \cdot A_{si}$

= 68.7 t

= 126.6 t

$$Q_e = A_p(0.5 \cdot D \cdot \gamma \cdot N_\gamma + P \cdot N_q)$$

= 20 m

= 36.0 deg

= 0.196 m^2

= 6.4 t/m^2

= 500.0 mm

= 1.00 t/m^3

= 60.31

= 67.00

= 87.2 t

= $Q_f + Q_e$

= 213.8 t

= 0.3 t

= 2.5

= $\{Q_u / FOS\} - W_p$

= 85.2 t

= 85 t



Bored Cast in Situ piles

Diameter of pile	=	600 mm	0.6 m
Skin friction resistance			
<u>Layer - 1 (0m to 1.5m)</u>			
Type of soil	=	CLAY	
Thickness of the layer	=	1.50 m	
Surface area (A_s)	=	2.83 m ²	
Undrained cohesion, C_u	=	5.000 t/m ²	
	α	=	0.7
Skin friction	=	$\alpha * C_u * A_{si}$	
			9.9
<u>Layer - 2 (1.5m to 7.5m)</u>			
Type of soil	=	SANDY CLAY	
Layer thickness	=	6.00 m	
Surface area (A_{si})	=	11.31	
Undrained cohesion, C_u	=	3.25	
Skin friction	=	$\alpha * C_u * A_{si}$	
	α	=	0.5
			18.4 t
<u>Layer - 2 (7.5m to 12.5m)</u>			
Type of soil	=	SOFT ROCK	
Layer thickness	=	5.00 m	
Surface area (A_s)	=	9.42 m ²	
Undrained cohesion, C_u	=	8.75 t/m ²	
	α	=	0.5
Skin friction in Layer - 3 (Q_{f3})	=	$\alpha * C_u * A_{si}$	
			41.2 t



Layer - 3 (7.5m to 12.5m)

Type of soil

= SOFT ROCK

Layer thickness

= 5.00 m

Surface area (A_s)

= 9.42 m^2

Undrained cohesion, C_u

= 17.5 t/m^2

α

= 0.5

Skin friction in Layer - 3 (Q_{f3})

= $\alpha \cdot C_u \cdot A_{si}$

= 82.5 t

= 152.0 t

Ultimate skin friction

End Bearing resistance

End Bearing resistance in cohesionless Soils

$$Q_e = A_p(0.5 \cdot D \cdot \gamma \cdot N_\gamma + P \cdot N_q)$$

Founding Depth from FGL

= 20 m

Angle of internal friction at tip

= 36.0 deg

Area of c/s of pile at toe A_p

= 0.283 m^2

Overburden pressure at pile toe

= 6.4 t/m^2

Dia of pile

= 600.0 mm

submerged unit wt. of soil (γ_{sub})

= 1.00 t/m^3

N_γ

= 60.31

N_q

= 67.00

End bearing resistance (Q_e)

= 126.4 t

Safe Load Capacity of Pile:

Ultimate bearing capacity of pile (Q_u)

= $Q_f + Q_e$

= 278.3 t

Self weight of pile (W_p)

= 0.4 t

Factor of Safety (FOS)

= 2.5

Safe vertical Load capacity of pile (Q_s)

= $\{Q_u / FOS\} - W_p$

= 110.9 t

Recommended Vertical compression capacity, P =

110 t



FOUNDATION ANALYSIS AND RECOMMENDATION

For determining subsoil condition and to obtain various soil and rock parameters, 4 boreholes were drilled at different locations.

DESCRIPTION OF SUB STRATA:

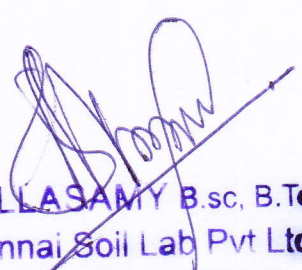
The ground water found at 1.0m depth from ground level at the time of investigation.

ANALYSIS

Based on the importance of the structure, usage, life time & futuristic load incrementation of the general perception, structural Load distribution, settlement & bearing capacity analysis of the technical perception it is concluded to go for Pile foundation of bored cast in situ. The Pile capacity estimated by using "Cole and Stroud" method based on IS CED43(7283), "Design and construction of pile foundation" Code of practice Part-1 Concrete piles, section-2, "Bored cast in situ piles" clause B-8. The intensity of loading that will cause a permissible settlement or specified settlement of the structure is termed as allowable bearing pressure. The settlements are calculated using IS: 8009 – Part.1. The pressure distribution below the footing is assumed as 2V:1H for estimating the settlement. The allowable settlement considered is 12 mm as per IS: 1904-1986. The pile capacity for various diameters furnished below.

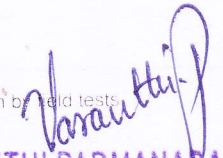
RECOMMENDATIONS

DIA(mm)	ESTIMATED CAPACITY(t)	PILE LENGTH(m)
500	83	12.5
600	110	


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* The recommended values are estimated. No case this can be claimed as firm value. Recommended to confirm by field tests.


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SPECIFIC GRAVITY TEST

Project: Proposed construction of Residential building (G+4) at kottivakkam

BH.No	1
Depth(m)	1.50
Pycnometer number	
Weight of bottle	
Weight of bottle + soil	
Weight of bottle + soil + water	
Weight of bottle full of water	
Weight of soil	
Specific gravity	
Average value G_s	

w_1	g	35.5000	35.6000
w_2	g	46.5000	48.7000
w_3	g	92.2000	93.5000
w_4	g	85.4000	85.4000
w_2-w_1	g	11.0000	13.1000
$\frac{w_2-w_1}{(w_4-w_1)-(w_3-w_2)}$		2.61905	2.62000
Average value G_s		2.62	

BH.No	1
Depth(m)	3.00
Pycnometer number	
Weight of bottle	w_1
Weight of bottle + soil	w_2
Weight of bottle + soil + water	w_3
Weight of bottle full of water	w_4
Weight of soil	w_2-w_1
Specific gravity	$\frac{w_2-w_1}{(w_4-w_1)-(w_3-w_2)}$
Average value G_s	

	g	39.7000	36.0000
	g	49.6000	46.4000
	g	95.4000	92.5000
	g	89.3000	86.1000
	g	9.9000	10.4000
		2.60526	2.60000
Average value G_s		2.60	





Chennai Soil Lab Pvt Ltd

SPECIFIC GRAVITY TEST

Project: Proposed construction of Residential building (G+4) at kottivakkam

BH.No	1
Depth(m)	4.50
Pycnometer number	
Weight of bottle	
Weight of bottle + soil	
Weight of bottle + soil + water	
Weight of bottle full of water	
Weight of soil	
Specific gravity	
Average value G_s	

		6	7
w_1	g	36 5000	34 5000
w_2	g	48 8000	47 1000
w_3	g	94 0000	92 9000
w_4	g	86 4000	85 1000
w_2-w_1	g	12 3000	12 6000
w_2-w_1 $(w_4-w_1)/(w_3-w_2)$		2 61702	2 62500
Average value G_s		2 62	

BH.No	1						
Depth(m)	6.00						
Pycnometer number							
Weight of bottle		w_1			g	34 9000	41 6000
Weight of bottle + soil		w_2			g	44 3000	51 8000
Weight of bottle + soil + water		w_3			g	92 2000	96 2000
Weight of bottle full of water		w_4			g	86 4000	89 9000
Weight of soil		w_2-w_1			g	9 4000	10 2000
Specific gravity		w_2-w_1 $(w_4-w_1)/(w_3-w_2)$				2 61111	2 61538
Average value G_s						2 61	

Chennai Soil Lab Pvt Ltd

SPECIFIC GRAVITY TEST

Project: Proposed construction of Residential building (G+4) at kottivakkam

BH.No	1
Depth(m)	9.00
Pycnometer number	
Weight of bottle	
Weight of bottle + soil	
Weight of bottle + soil + water	
Weight of bottle full of water	
Weight of soil	
Specific gravity	
Average value G_s	

	1	3
w_1	35 5000	35 6000
w_2	49 4000	47 4000
w_3	94 0000	92 7000
w_4	85 4000	85 4000
w_2-w_1	13 9000	11 8000
$\frac{w_2-w_1}{(w_4-w_1) \cdot (w_3-w_2)}$	2.62264	2.62222
Average value G_s	2.62	

BH.No	1
Depth(m)	10.00
Pycnometer number	
Weight of bottle	
Weight of bottle + soil	
Weight of bottle + soil + water	
Weight of bottle full of water	
Weight of soil	
Specific gravity	
Average value G_s	

	4	5
w_1	39 7000	36 0000
w_2	50 9000	46 2000
w_3	96 2000	92 4000
w_4	89 3000	86 1000
w_2-w_1	11 2000	10 2000
$\frac{w_2-w_1}{(w_4-w_1) \cdot (w_3-w_2)}$	2.60465	2.61538
Average value G_s	2.61	





BORE LOG																			
Project: Proposed construction of Residential building (G+4) at kottivakkam																			
BH.NO		1		SITE : kottivakkam		DIA OF BORING: 150 mm		TYPE OF BORING: ROTARY											
DATE OF START:		27.05.2018		DATE OF COMPLETION: 27.05.2018		GROUND WATER LEVEL:1mts													
Visual Description of Soil										UDS		Depth of samples collected (m)							
Soil Profile										DS		Standard Penetration Test (SPT)							
Depth Below G.L. (in meters)		1.50		3.00		4.50		6.00		7.50		9.00		10.50		12.00		13.2	



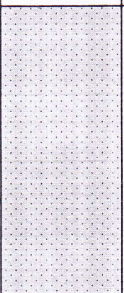
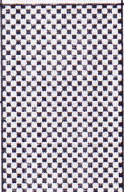
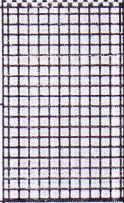
Project: Proposed construction of Residential building (G+4) at kottivakkam

Bore Hole No: 1

Ground Water Level: 1mts

LABORATORY TEST RESULTS

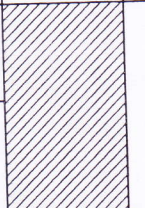
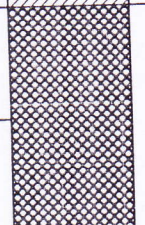
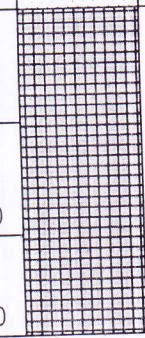
N' Value	Depth (m)	Soil Description	IS-Classification	Index Properties (%)						Grain Size Analysis (%)					Direct		
				Natural Moisture Content (NMC)	Liquid Limit	Plastic Limit	Plastic Index	Consistency index (%)	Free Swell Index	Specific Gravity	Gravel	Coarse Sand	Medium Sand	Fine Sand	Silt & Clay	Cohesion, C (kg/Sq.cm.)	Angle of friction
15	1.5	Sand		21						2.62	9	11	52	26	2		
5	3.0			16						2.60	21	13	40	22	4		
8	4.5			20						2.62	7	7	44	39	3		
3	6.0	Sandyclay		30						2.61	4	13	21	5	57		
2	7.5	clay		54	42	30	12										
18	9.0	sand		21						2.62	8	12	34	20	26		
68	10.5	mooram		11						2.61	8	6	27	38	21		
90	12.0	sdr		9						2.61	5	6	44	23	21		
>50	13.5			10						2.61	0	1	79	18	2		

BORE LOG										
Project: Proposed construction of Residential building (G+4) at kottivakkam										
BH.NO	2				DATE OF START:		28.05.2018			
SITE : kottivakkam					DATE OF COMPLETION:		28.05.2018			
DIA OF BORING: 150 mm					GROUND WATER LEVEL:		1mts			
TYPE OF BORING: ROTARY										
Depth Below G.L (in meters)	Soil Profile	Visual Description of Soil	Depth of samples collected (m)		Standard Penetration Test (SPT)				IS Classification	Relative Density/ Consistency
			UDS	DS	15	30	45	N		
1.50		sand		1.50	4	4	8	12	Medium Dense	
3.00				3.00	4	3	3	6		
4.50				4.50	5	5	6	11		
6.00		sandyclay		6.00	2	2	2	4		
7.50				7.50	2	3	2	5		
9.00		sdr		9.00	>50					
10.50				10.50	>50					
12.30		soft rock		12.30	>50					
Bore Hole Terminated 12.30m Below G.L										





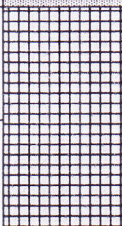
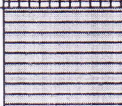
Project: Proposed construction of Residential building (G+4) at kottivakkam																
Bore Hole No: 1			Ground Water Level: 1mts													
LABORATORY TEST RESULTS																
N° Value	Depth (m)	Soil Description	IS-Classification	Index Properties (%)						Specific Gravity	Grain Size Analysis (%)			Direct		
				Natural Moisture Content (NMC)	Liquid Limit	Plastic Limit	Plastic Index	Consistency Index (%)	Free Swell Index		Gravel	Coarse Sand	Medium Sand	Fine Sand	Silt & Clay	Cohesion, C (kg/Sq.cm.)
12	1.5	Sand		24						2.61	8	10	47	25	10	
6	3.0			16						2.61	16	9	30	16	29	
11	4.5			19						2.61	6	8	39	42	5	
4	6.0	Sandy clay		28						2.61	8	11	19	7	55	
5	7.5			48						2.61	8	12	34	20	26	
>50	9.0	sdr		23						2.60	7	13	34	22	24	
>50	10.5			13						2.61	7	14	27	38	14	
>50	12.3	soft rock		11						2.61	7	7	51	28	7	

BORE LOG										
Project: Proposed construction of Residential building (G+4) at kottivakkam										
BH.NO 3				DATE OF START:		29.05.2018				
SITE : Kottivakkam				DATE OF COMPLETION:		29.05.2018				
DIA OF BORING: 150 mm				GROUND WATER LEVEL:		1mts				
TYPE OF BORING: ROTARY										
Depth Below G.L (in meters)	Soil Profile	Visual Description of Soil	Depth of samples collected (m)		Standard Penetration Test (SPT)				IS Classification	Relative Density/ Consistency
			UDS	DS	15	30	45	N		
1.50		clay		1.50	5	6	5	11	Medium Dense	
3.00				3.00	3	3	3	6		
4.50		sandy clay		4.50	4	5	5	10		
6.00				6.00	1	2	2	4		
7.50		sand		7.50	3	2	2	4		
9.00		sdr		9.00	>50					
10.00				10.00	>50					
12.00				12.00	>50					
Bore Hole Teriminated 12.0m Below G.L										

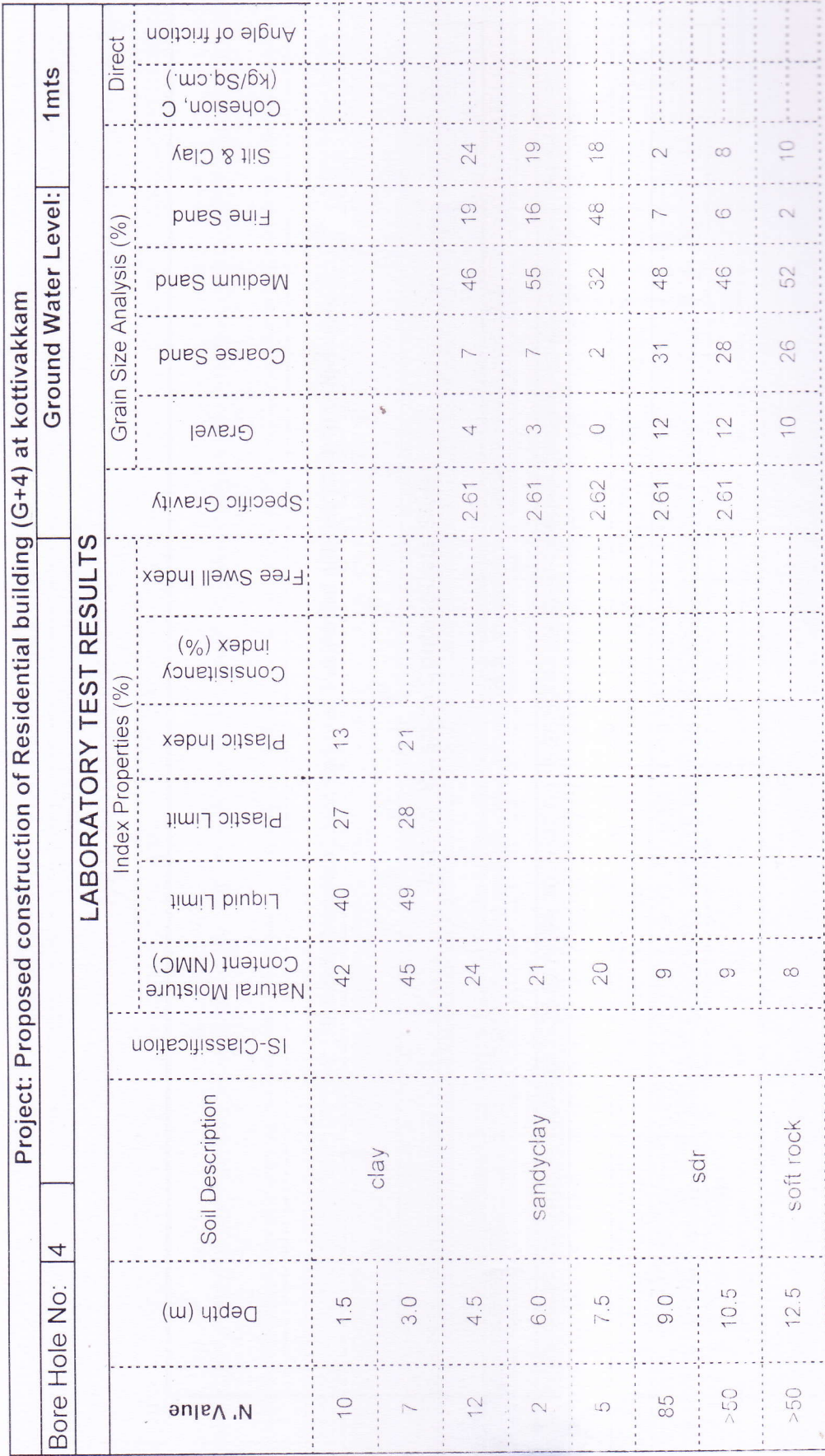




Project: Proposed construction of Residential building (G+4) at kottivakkam																	
Bore Hole No: 1		Ground Water Level:						1mts									
LABORATORY TEST RESULTS																	
N° Value	Depth (m)	Soil Description	IS-Classification	Index Properties (%)					Specific Gravity	Grain Size Analysis (%)				Direct			
				Natural Moisture Content (NMC)	Liquid Limit	Plastic Limit	Plastic Index	Consistency Index (%)		Free Swell Index	Gravel	Coarse Sand	Medium Sand	Fine Sand	Silt & Clay	Cohesion, C (kg/Sq.cm.)	Angle of friction
11	1.5	clay		30	47	34	13										
6	3.0			28	38	23	15										
10	4.5	sandyclay		20						2.61	5	5	32	31	27		
4	6.0			19							2.62	8	14	28	17	33	
4	7.5	sand		19						2.60	7	7	58	17	11		
>50	9.0			9							2.60	12	18	61	8	1	
>50	10.5	sdr		9						2.61	9	15	65	7	4		
>50	12.0			8							2.60	11	15	60	10	4	

BORE LOG										
Project: Proposed construction of Residential building (G+4) at kottivakkam										
BH.NO 4					DATE OF START:		30.05.2018			
SITE : kottivakkam					DATE OF COMPLETION:		30.05.2018			
DIA OF BORING:		150 mm			GROUND WATER LEVEL:		1mts			
TYPE OF BORING: ROTARY										
Depth Below G.L (in meters)	Soil Profile	Visual Description of Soil	Depth of samples collected (m)		Standard Penetration Test (SPT)				IS Classification	Relative Density/ Consistency
			UDS	DS	15	30	45	N		
1.50		clay		1.50	5	5	5	10	Medium Dense	
3.00				3.00	4	4	3	7		
4.50		sandy clay		4.50	5	6	6	12		
6.00				6.00	1	1	1	2		
7.50				7.50	2	2	3	5		
9.00		sdr		9.00	20	36	49	85		
10.50				10.50	>50					
12.50		soft rock		12.5	>50					
Bore Hole Terminated 12.50m Below G.L										







Project: Proposed construction of Residential building (G+4) at kottivakkam

Natural Moisture Content Data Sheet

BH.No/ Pit no	1		1		1		1		1		1		1		1	
Depth (m)	1.5		3.0		4.5		6.0		7.5		9.0					
Tare No	55	57	36	38	27	29	21	25	13	14	97	98				
Wt of Tare (gr)	27.00	26.50	26.50	27.50	26.50	25.00	24.50	26.50	32.50	28.50	34.50	35.10				
Tare + Soil (gr)	37.00	37.00	37.50	38.50	38.50	35.50	36.00	36.50	42.50	38.50	46.00	46.00				
Tare+Dry soil (gr)	35.30	35.20	36.00	37.00	36.50	33.70	33.40	34.20	39.00	35.00	44.00	44.10				
Wt of Water (gr)	1.70	1.80	1.50	1.50	2.00	1.80	2.60	2.30	3.50	3.50	2.00	1.90				
Wt Dry soil (gr)	8.30	8.70	9.50	9.50	10.00	8.70	8.90	7.70	6.50	6.50	9.50	9.00				
Water Content (%)	20.48	20.69	15.79	15.79	20.00	20.69	29.21	29.87	53.85	53.85	21.05	21.11				
Average Water Content (%)	21		16		20		30		54		21					



Project: Proposed construction of Residential building (G+4) at kottivakkam

Natural Moisture Content Data Sheet

BH No/ Pit no	1			1			1		
Depth (m)	10.5			12.0			13.5		
Tare No	101	102		56	58		66	67	
Wt of Tare (gr)	32.00	34.50		27.10	27.50		32.50	28.60	
Tare + Soil (gr)	42.00	45.50		38.00	37.50		43.00	38.50	
Tare+Dry soil (gr)	41.00	44.40		37.10	36.60		42.00	37.60	
Wt of Water (gr)	1.00	1.10		0.90	0.90		1.00	0.90	
Wt Dry soil (gr)	9.00	9.90		10.00	9.10		9.50	9.00	
Water Content (%)	11.11	11.11		9.00	9.89		10.53	10.00	
Average Water Content (%)	11			9			10		



Project: Proposed construction of Residential building (G+4) at kottivakkam

Natural Moisture Content Data Sheet

BH.No/ Pit no	2		2		2		2		2		2		2		2	
Depth (m)	1.5		3.0		4.5		6.0		7.5		9.0					
Tare No	148	149	24	25	43	46	26	30	132	134	142	147				
Wt of Tare (gr)	21.00	21.00	31.30	30.90	26.30	25.30	37.40	36.00	20.70	22.80	20.30	19.30				
Tare + Soil (gr)	31.50	31.40	41.50	41.30	38.10	37.60	47.90	50.30	33.00	35.00	32.70	29.00				
Tare+Dry soil (gr)	29.50	29.40	40.10	39.90	36.20	35.60	45.60	47.10	29.00	31.00	30.40	27.20				
Wt of Water (gr)	2.00	2.00	1.40	1.40	1.90	2.00	2.30	3.20	4.00	4.00	2.30	1.80				
Wt Dry soil (gr)	8.50	8.40	8.80	9.00	9.90	10.30	8.20	11.10	8.30	8.20	10.10	7.90				
Water Content (%)	23.53	23.81	15.91	15.56	19.19	19.42	28.05	28.83	48.19	48.78	22.77	22.78				
Average Water Content (%)	24		16		19		28		48		23					



Project: Proposed construction of Residential building (G+4) at kottivakkam

Natural Moisture Content Data Sheet

BH No/ Pit no	3	3	3	3	3	3	3	3
Depth (m)	1.5	3.0	4.5	6.0	7.5	9.0		
Tare No	21	22	44	46	41	43	26	27
Wt of Tare (gr)	27.00	26.40	26.50	27.50	26.50	25.00	24.50	26.40
Tare + Soil (gr)	37.00	37.00	37.60	38.60	38.50	35.50	36.00	36.50
Tare+ Dry soil (gr)	34.70	34.60	35.20	36.20	36.50	33.70	34.20	34.90
Wt of Water (gr)	2.30	2.40	2.40	2.40	2.00	1.80	1.80	1.60
Wt Dry soil (gr)	7.70	8.20	8.70	8.70	10.00	8.70	9.70	8.50
Water Content (%)	29.87	29.27	27.59	27.59	20.00	20.69	18.56	18.82
Average Water Content (%)	30	28	20	19	19	9		



Project: Proposed construction of Residential building (G+4) at kottivakkam

Natural Moisture Content Data Sheet

BH No/ Pit no	3			3		
	10.5			12.0		
Depth (m)						
Tare No	66	68	102	103		
Wt of Tare (gr)	32.00	34.50	27.10	27.50		
Tare + Soil (gr)	42.00	45.50	38.00	37.50		
Tare + Dry soil (gr)	41.20	44.60	37.20	36.80		
Wt of Water (gr)	0.80	0.90	0.80	0.70		
Wt Dry soil (gr)	9.20	10.10	10.10	9.30		
Water Content (%)	8.70	8.91	7.92	7.53		
Average Water Content (%)	9			8		

Project: Proposed construction of Residential building (G+4) at kottivakkam

Natural Moisture Content Data Sheet

BH.No/ Pit no	4		4		4		4		4		4		4		4	
	1.5		3.0		4.5		6.0		7.5		9.0		10.5		12.0	
Depth (m)	11	12	259	260	37	38	211	212	101	102	205	206	101	102	205	206
Tare No	29.90	28.50	26.80	26.60	25.30	26.30	27.00	26.60	34.90	33.30	25.70	26.80	34.90	33.30	25.70	26.80
Wt of Tare (gr)	40.30	38.60	39.40	38.30	37.50	37.70	37.90	37.20	45.30	45.50	36.50	38.10	45.30	45.50	36.50	38.10
Tare + Soil (gr)	37.20	35.60	35.50	34.70	35.20	35.50	36.00	35.30	43.60	43.50	35.60	37.10	43.60	43.50	35.60	37.10
Tare+Dry soil (gr)	3.10	3.00	3.90	3.60	2.30	2.20	1.90	1.90	1.70	2.00	0.90	1.00	1.70	2.00	0.90	1.00
Wt of Water (gr)	7.30	7.10	8.70	8.10	9.90	9.20	9.00	8.70	8.70	10.20	9.90	10.30	8.70	10.20	9.90	10.30
Wt Dry soil (gr)	42.47	42.25	44.83	44.44	23.23	23.91	21.11	21.84	19.54	19.61	9.09	9.71	19.54	19.61	9.09	9.71
Water Content (%)	42		45		24		21		20		9		20		9	
Average Water Content (%)																





Project: Proposed construction of Residential building (G+4) at kottivakkam

Natural Moisture Content Data Sheet									
BH.No/ Pit no	4		4		4				
Depth (m)	10.5		12.5						
Tare No	95	96	254	255					
Wt of Tare (gr)	33.80	33.30	27.60	26.80					
Tare + Soil (gr)	47.80	46.50	38.60	38.50					
Tare+Dry soil (gr)	46.60	45.40	37.80	37.70					
Wt of Water (gr)	1.20	1.10	0.80	0.80					
Wt Dry soil (gr)	12.80	12.10	10.20	10.90					
Water Content (%)	9.37	9.09	7.84	7.34					
Average Water Content (%)	9		8						



SPECIFIC GRAVITY TEST

Project: Proposed construction of Residential building (G+4) at kottivakkam

B.H.No	1
Depth(m)	12.00
Pycnometer number	
Weight of bottle	
Weight of bottle + soil	
Weight of bottle + soil + water	
Weight of bottle full of water	
Weight of soil	
Specific gravity	
Average value G_s	

BH.No	1					
Depth(m)	12.00					
Pycnometer number						
Weight of bottle	w_1	g		36 5000		34 5000
Weight of bottle + soil	w_2	g		50 3000		45 2000
Weight of bottle + soil + water	w_3	g		94 9000		91 7000
Weight of bottle full of water	w_4	g		86 4000		85 1000
Weight of soil	w_2-w_1	g		13 8000		10 7000
Specific gravity	$w_2 \cdot w_1$			2 60377		2 60976
	$(w_4-w_1) \cdot (w_3-w_2)$					
Average value G_s						2 61

BH No	1
Depth(m)	13.50
Pycnometer number	
Weight of bottle	
Weight of bottle + soil	
Weight of bottle + soil + water	
Weight of bottle full of water	
Weight of soil	
Specific gravity	
Average value G_s	

Chennai Soil Lab Pvt Ltd

SPECIFIC GRAVITY TEST

Project: Proposed construction of Residential building (G+4) at kottivakkam

BH.No	2
Depth(m)	1.50
Pycnometer number	
Weight of bottle	
Weight of bottle + soil	
Weight of bottle + soil + water	
Weight of bottle full of water	
Weight of soil	
Specific gravity	
Average value G_s	

		3	4
w_1	g	35 6000	39 7000
w_2	g	46 3000	49 6000
w_3	g	92 0000	95 4000
w_4	g	85 4000	89 3000
w_2-w_1	g	10 7000	9 9000
w_2-w_1 $(w_4-w_1)-(w_3-w_2)$		2 60976	2 60526
Specific gravity			
Average value G_s		2 61	

BH.No	2
Depth(m)	3.00
Pycnometer number	
Weight of bottle	w_1
Weight of bottle + soil	w_2
Weight of bottle + soil + water	w_3
Weight of bottle full of water	w_4
Weight of soil	w_2-w_1
Specific gravity	w_2-w_1 $(w_4-w_1)-(w_3-w_2)$
Average value G_s	2 61





SPECIFIC GRAVITY TEST

Project: Proposed construction of Residential building (G+4) at kottivakkam

BH No	2
Depth(m)	4.50
Pycnometer number	
Weight of bottle	
Weight of bottle + soil	
Weight of bottle + soil + water	
Weight of bottle full of water	
Weight of soil	
Specific gravity	
Average value G_s	

Depth(m)	4.50			7	8
Pycnometer number					
Weight of bottle		w_1	g	34 5000	34 9000
Weight of bottle + soil		w_2	g	44 9000	45 1000
Weight of bottle + soil + water		w_3	g	91 5000	92 7000
Weight of bottle full of water		w_4	g	85 1000	86 4000
Weight of soil		$w_2 - w_1$	g	10 4000	10 2000
Specific gravity		$w_2 - w_1$			
		$(w_4 - w_1) / (w_2 - w_1)$		2 60000	2 61538
Average value G_s					2 61

BH No	2
Depth(m)	6.00
Pycnometer number	
Weight of bottle	
Weight of bottle + soil	
Weight of bottle + soil + water	
Weight of bottle full of water	
Weight of soil	
Specific gravity	
Average value G_s	

Average value G_s	2.61
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Chennai Soil Lab Pvt Ltd

SPECIFIC GRAVITY TEST

Project: Proposed construction of Residential building (G+4) at kottivakkam

BH No	2
Depth(m)	7.50
Pycnometer number	
Weight of bottle	
Weight of bottle + soil	
Weight of bottle + soil + water	
Weight of bottle full of water	
Weight of soil	
Specific gravity	
Average value G_s	

		3	4
w_1	g	35 6000	39 7000
w_2	g	46 3000	50 4000
w_3	g	92 0000	95 9000
w_4	g	85 4000	89 3000
w_2-w_1	g	10 7000	10 7000
w_2-w_1 (w_4-w_1)-(w3-w2)		2 60976	2 60976
Average value G_s		2 61	

BH No	2
Depth(m)	9.00
Pycnometer number	
Weight of bottle	w_1
Weight of bottle + soil	w_2
Weight of bottle + soil + water	w_3
Weight of bottle full of water	w_4
Weight of soil	w_2-w_1
Specific gravity	w_2-w_1 (w_4-w_1)-(w3-w2)
Average value G_s	2 60



SPECIFIC GRAVITY TEST

Project: Proposed construction of Residential building (G+4) at kottivakkam

BH.No	2
Depth(m)	10.50
Pycnometer number	
Weight of bottle	
Weight of bottle + soil	
Weight of bottle + soil + water	
Weight of bottle full of water	
Weight of soil	
Specific gravity	
Average value G_s	

BH.No	2				
Depth(m)	10.50				
Pycnometer number					
Weight of bottle	w_1	g	34 5000	7	8
Weight of bottle + soil	w_2	g	48 1000		45 4000
Weight of bottle + soil + water	w_3	g	93 5000		93 5000
Weight of bottle full of water	w_4	g	85 1000		85 4000
Weight of soil	w_2-w_1	g	13 6000		11 5000
Specific gravity	w_2-w_1		2 61538		2 61364
	$(w_2-w_1)/(w_3-w_2)$				
Average value G_s					2 61

BH No	2
Depth(m)	12.30
Pycnometer number	
Weight of bottle	w_1
Weight of bottle + soil	w_2
Weight of bottle + soil + water	w_3
Weight of bottle full of water	w_4
Weight of soil	$w_2 - w_1$
Specific gravity	$\frac{w_2 - w_1}{(w_4 - w_1) - (w_3 - w_2)}$
Average value G_s	

Chennai Soil Lab Pvt Ltd

SPECIFIC GRAVITY TEST

Project: Proposed construction of Residential building (G+4) at kottivakkam

BH.No	3
Depth(m)	4.50
Pycnometer number	
Weight of bottle	
Weight of bottle + soil	
Weight of bottle + soil + water	
Weight of bottle full of water	
Weight of soil	
Specific gravity	
Average value G_s	

		3	4
w_1	g	35 6000	39 7000
w_2	g	48 1000	51 7000
w_3	g	93 1000	96 7000
w_4	g	85 4000	89 3000
w_2-w_1	g	12 5000	12 0000
w_2-w_1 (w_4-w_1)-(w_3-w_2)		2 60417	2 60870
Average value G_s		2 61	

BH.No	3
Depth(m)	6.00
Pycnometer number	
Weight of bottle	
Weight of bottle + soil	
Weight of bottle + soil + water	
Weight of bottle full of water	
Weight of soil	
Specific gravity	
Average value G_s	

		5	6
w_1	g	36 0000	36 5000
w_2	g	51 4000	49 6000
w_3	g	95 6000	94 5000
w_4	g	86 1000	86 4000
w_2-w_1	g	15 4000	13 1000
w_2-w_1 (w_4-w_1)-(w_3-w_2)		2 61017	2 62000
Average value G_s		2 62	



Chennai Soil Lab Pvt Ltd

SPECIFIC GRAVITY TEST

Project: Proposed construction of Residential building (G+4) at kottivakkam

BH.No	3
Depth(m)	7.50
Pycnometer number	
Weight of bottle	
Weight of bottle + soil	
Weight of bottle + soil + water	
Weight of bottle full of water	
Weight of soil	
Specific gravity	
Average value G_s	

		7	8
w_1	g	34 5000	34 9000
w_2	g	48 8000	51 3000
w_3	g	93 9000	96 5000
w_4	g	85 1000	86 4000
w_2-w_1	g	14 3000	16 4000
w_2-w_1 (w_4-w_1)(w_3-w_2)		2 50000	2 60317
Average value G_s		2.60	

BH.No	3
Depth(m)	9.00
Pycnometer number	
Weight of bottle	w_1
Weight of bottle + soil	w_2
Weight of bottle + soil + water	w_3
Weight of bottle full of water	w_4
Weight of soil	w_2-w_1
Specific gravity	w_2-w_1 (w_4-w_1)(w_3-w_2)
Average value G_s	

2.60



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SPECIFIC GRAVITY TEST

Project: Proposed construction of Residential building (G+4) at kottivakkam

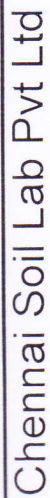
BH.No	3
Depth(m)	10.00
Pycnometer number	
Weight of bottle	
Weight of bottle + soil	
Weight of bottle + soil + water	
Weight of bottle full of water	
Weight of soil	
Specific gravity	
Average value G_s	

		3	4
w_1	g	35 6000	39 7000
w_2	g	47 6000	50 7000
w_3	g	92 8000	96 1000
w_4	g	85 4000	89 3000
w_2-w_1	g	12 0000	11 0000
w_2-w_1 $(w_4-w_1)-(w_3-w_2)$		2 60870	2 61905
Average value G_s		2 61	

BH.No	3
Depth(m)	12.00
Pycnometer number	
Weight of bottle	
Weight of bottle + soil	
Weight of bottle + soil + water	
Weight of bottle full of water	
Weight of soil	
Specific gravity	
Average value G_s	

		5	6
w_1	g	36 0000	36 5000
w_2	g	47 2000	48 2000
w_3	g	93 0000	93 6000
w_4	g	86 1000	86 4000
w_2-w_1	g	11 2000	11 7000
w_2-w_1 $(w_4-w_1)-(w_3-w_2)$		2 60465	2 60000
Average value G_s		2 60	





SPECIFIC GRAVITY TEST

Project: Proposed construction of Residential building (G+4) at kottivakkam

BH. No	4
Depth(m)	4.50
Pycnometer number	
Weight of bottle	
Weight of bottle + soil	
Weight of bottle + soil + water	
Weight of bottle full of water	
Weight of soil	
Specific gravity	
Average value G_s	

BH. No	4				
Depth(m)	4.50				
Pycnometer number					
Weight of bottle	w_1	g	7	8	
Weight of bottle + soil	w_2	g	47 8000	48 7000	
Weight of bottle + soil + water	w_3	g	93 3000	94 9000	
Weight of bottle full of water	w_4	g	85 1000	86 4000	
Weight of soil	w_2-w_1	g	13 3000	13 8000	
Specific gravity	w_2-w_1		2 60784	2 60377	
	$(w_4-w_1)/(w_3-w_2)$				
Average value G_s					

BH.No	4
Depth(m)	6.00
Pycnometer number	
Weight of bottle	
Weight of bottle + soil	
Weight of bottle + soil + water	
Weight of bottle full of water	
Weight of soil	
Specific gravity	
Average value G_s	

Chennai Soil Lab Pvt Ltd

SPECIFIC GRAVITY TEST

Project: Proposed construction of Residential building (G+4) at kottivakkam

BH.No	4
Depth(m)	7.50
Pycnometer number	
Weight of bottle	
Weight of bottle + soil	
Weight of bottle + soil + water	
Weight of bottle full of water	
Weight of soil	
Specific gravity	
Average value G_s	

	3	4
w_1	35 6000	39 7000
w_2	46 6000	51 5000
w_3	92 2000	96 6000
w_4	85 4000	89 3000
w_2-w_1	11 0000	11 8000
w_2-w_1 $(w_4-w_1)-(w_3-w_2)$	2 61905	2 62222
Average value G_s	2 62	

BH.No	4
Depth(m)	9.00
Pycnometer number	
Weight of bottle	
Weight of bottle + soil	
Weight of bottle + soil + water	
Weight of bottle full of water	
Weight of soil	
Specific gravity	
Average value G_s	

	5	6
w_1	36 0000	36 5000
w_2	46 7000	48 0000
w_3	92 7000	93 5000
w_4	86 1000	86 4000
w_2-w_1	10 7000	11 5000
w_2-w_1 $(w_4-w_1)-(w_3-w_2)$	2 60976	2 61364
Average value G_s	2 61	





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SPECIFIC GRAVITY TEST

Project: Proposed construction of Residential building (G+4) at kottivakkam

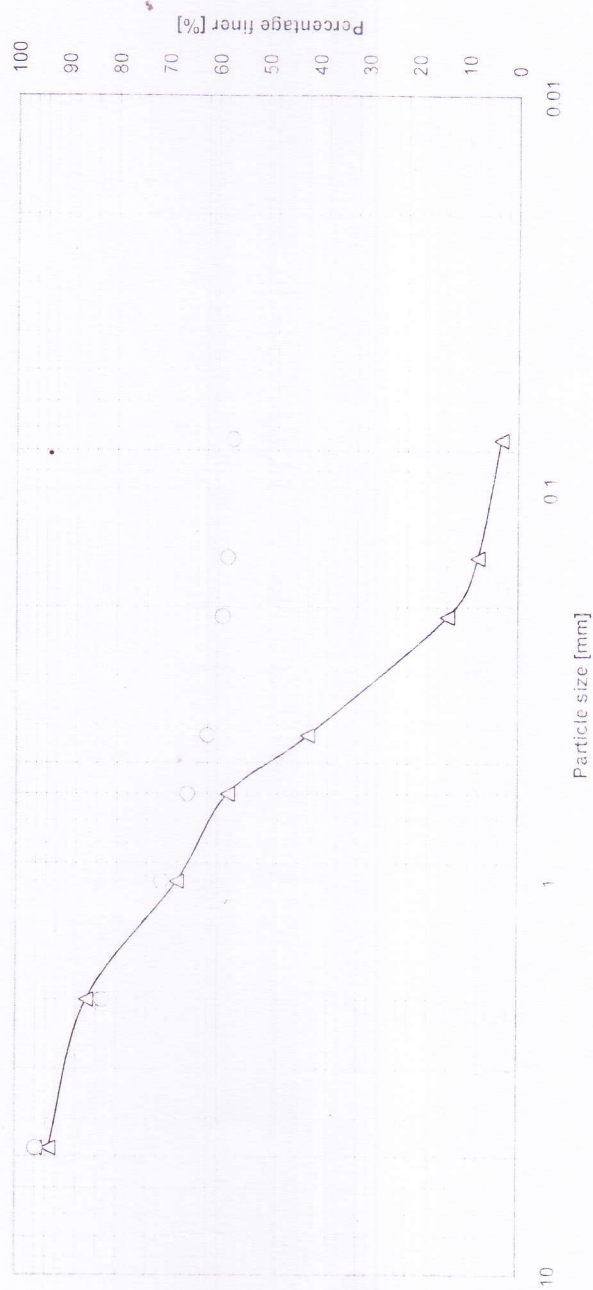
BH.No	4
Depth(m)	10.50
Pycnometer number	
Weight of bottle	w_1
Weight of bottle + soil	w_2
Weight of bottle + soil + water	w_3
Weight of bottle full of water	w_4
Weight of soil	$w_2 - w_1$
Specific gravity	$w_2 - w_1$
	$(w_4 - w_1) / (w_3 - w_2)$
Average value G_s	2.61

Project: Proposed construction of Residential building (G+4) at kottivakkam

	COBBLES	Coarse			Medium			Fine			CLAY <0.02mm
Boulders		>4.75mm			Gravel			2.00mm to 0.075mm			
BH-1	Depth: 1.5m	Λ		9				11	52	26	2
BH-1	Depth: 3.0m	○		21				13	40	22	4

GRAIN SIZE DISTRIBUTION CHART

Project: Proposed construction of Residential building (G+4) at kottivakkam

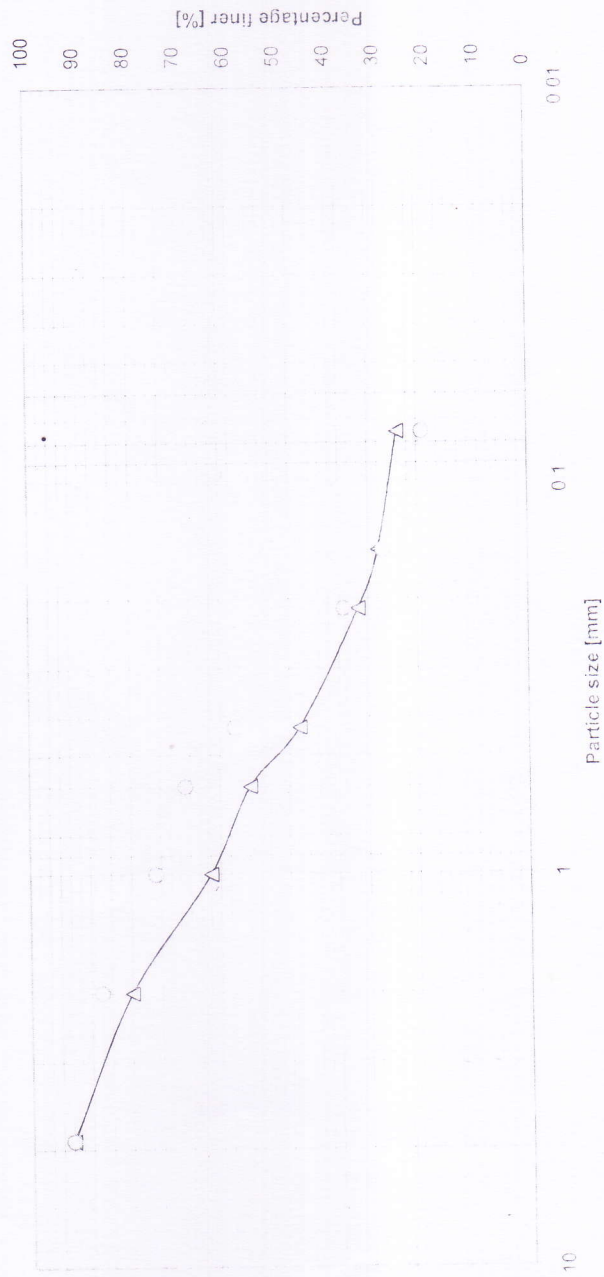


Boulders	COBBLES	Coarse			Medium			Fine			CLAY <0.02mm
		>4.75mm	Gravel	Fine	Coarse	Medium	Fine	Coarse	Medium	Fine	
						Sand				Silt	
					2.00mm to 0.075mm			0.075mm to 0.02mm			
BH-1	Depth:4.5m	△	7	7	7	44	39		3		
BH-1	Depth:6.0m	○	4	4	13	21	5		57		



GRAIN SIZE DISTRIBUTION CHART

Project: Proposed construction of Residential building (G+4) at kottivakkam

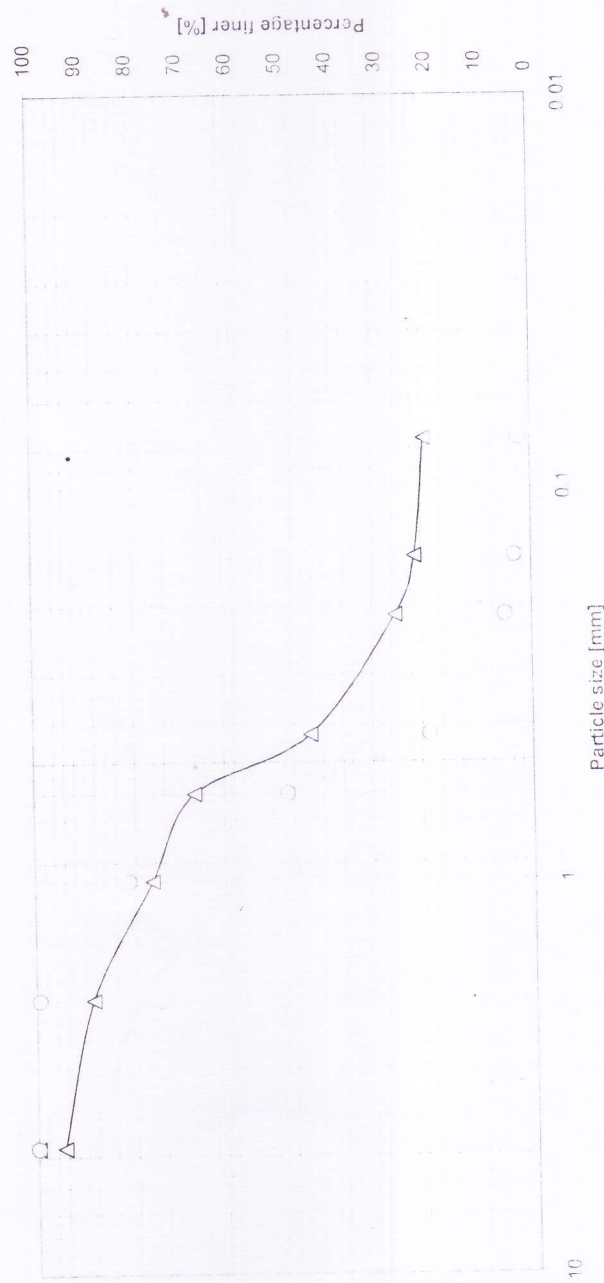


Boulders	COBBLES	Gravel			Sand			Silt			CLAY <0.02mm
		Coarse	Medium	Fine	Coarse	Medium	Fine	Coarse	Medium	Fine	
		>4.75mm			2.00mm to 0.075mm			0.075mm to 0.02mm			
BH-1	Depth:9.0m	△	8		12	34	20			26	
BH-1	Depth:10.5m	○	8		6	27	38			21	



GRAIN SIZE DISTRIBUTION CHART

Project: Proposed construction of Residential building (G+4) at kottivakkam

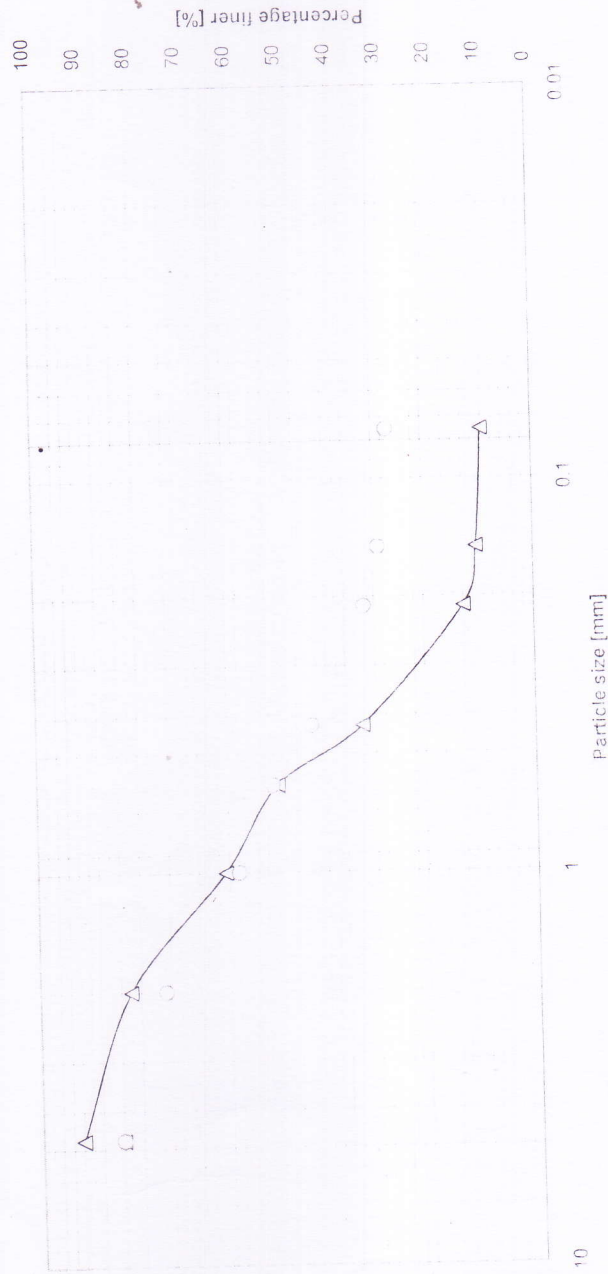


Boulders	COBBLES	Gravel			Sand			Silt			CLAY <0.02mm
		Coarse >4.75mm	Medium	Fine	Coarse 2.00mm to 0.075mm	Medium	Fine	Coarse 0.075mm to 0.02mm	Medium	Fine	
BH-1	Depth: 12.0m	△	5	23	6	44	23		21		
BH-1	Depth: 13.5m	○	0	18	1	79	18		2		



GRAIN SIZE DISTRIBUTION CHART

Project: Proposed construction of Residential building (G+4) at kottivakkam

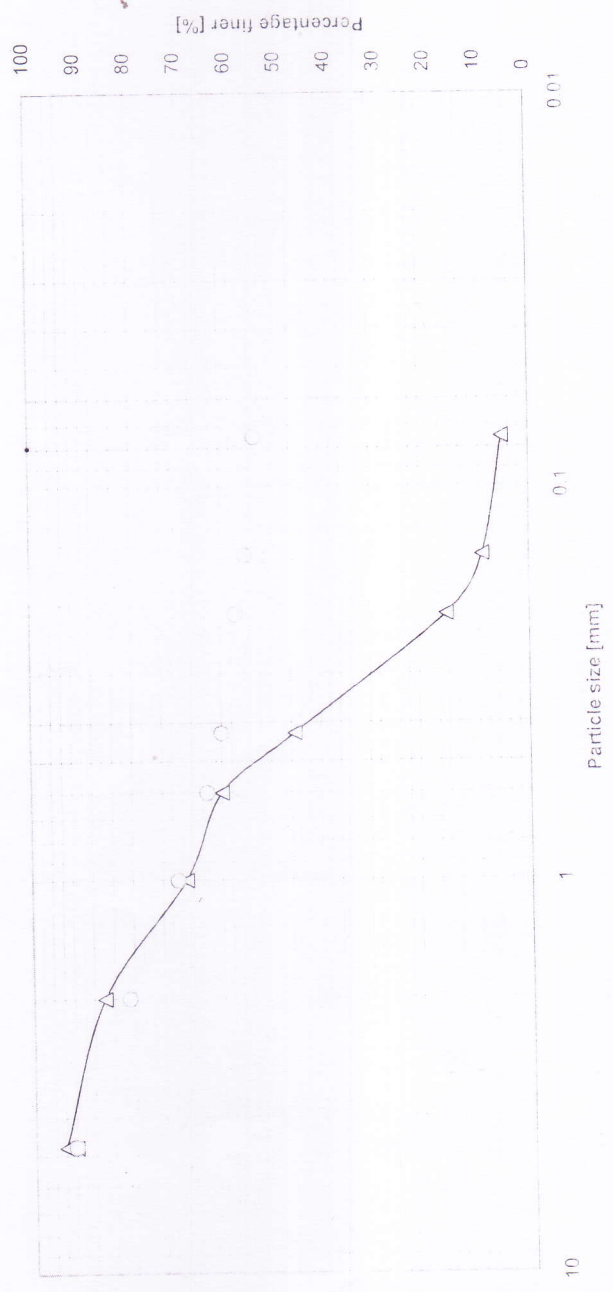


Boulders	COBBLES	Gravel			Sand			Silt			CLAY <0.02mm
		Coarse	Medium	Fine	Coarse	Medium	Fine	Coarse	Medium	Fine	
		>4.75mm			2.00mm to 0.075mm			0.075mm to 0.02mm			
BH-2	Depth: 1.5m	△		8		10	47	25		10	
BH-2	Depth: 3.0m	○		16		9	30	16		29	

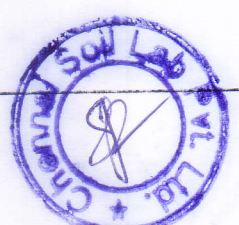


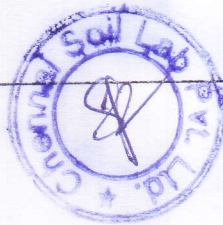
GRAIN SIZE DISTRIBUTION CHART

Project: Proposed construction of Residential building (G+4) at kottivakkam



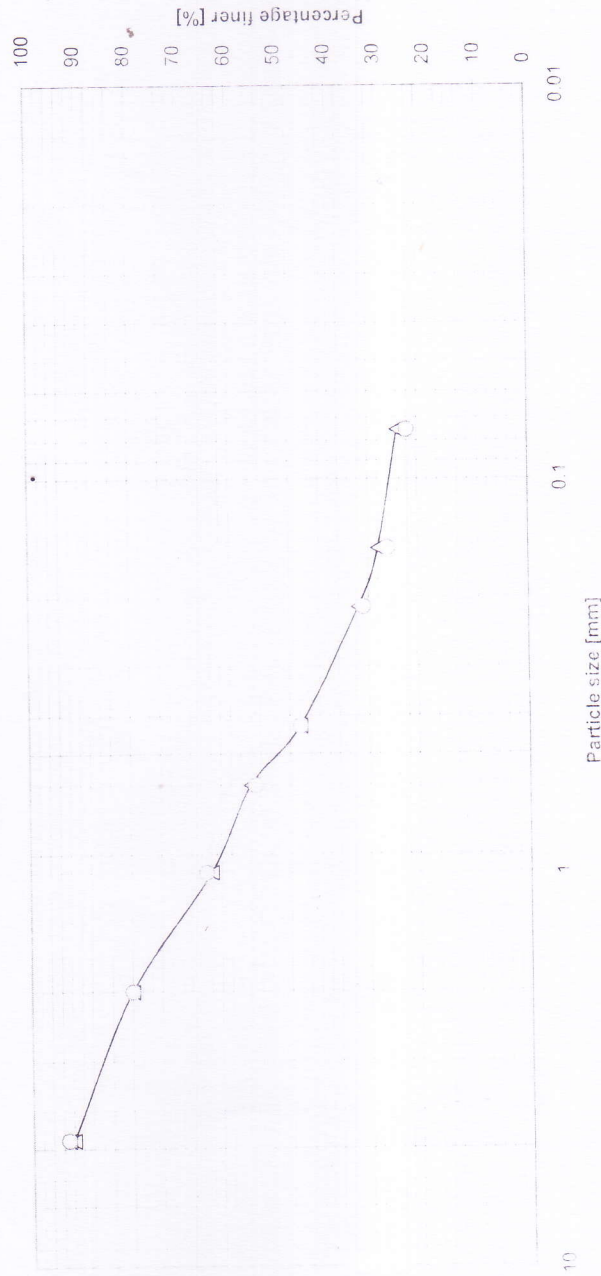
Boulders	COBBLES	Gravel			Sand			Silt		CLAY
		Coarse	Medium	Fine	Coarse	Medium	Fine	Coarse	Medium	
		>4.75mm			2.00mm to 0.075mm			0.075mm to 0.02mm		<0.02mm
BH-2	Depth:4.5m	△	6	8	8	39	42		5	
BH-2	Depth:6.0m	○	8	11	19	7	55			





GRAIN SIZE DISTRIBUTION CHART

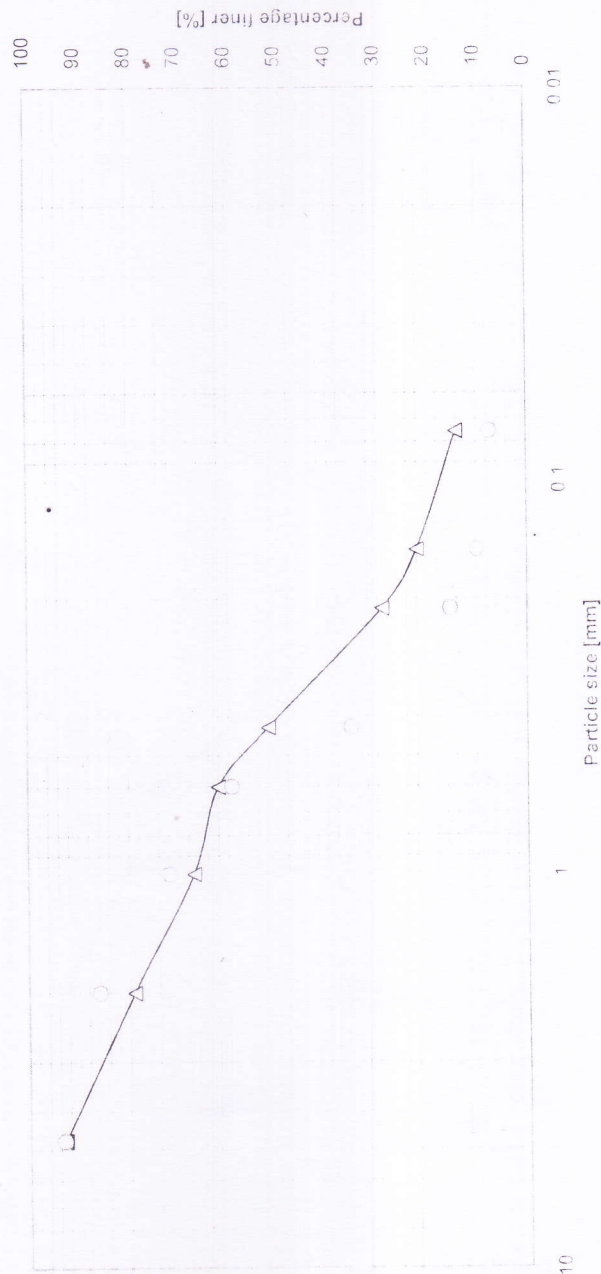
Project: Proposed construction of Residential building (G+4) at kottivakkam



Boulders	COBBLES	Coarse			Medium			Fine			CLAY <0.02mm
		>4.75mm	Gravel	Fine	Coarse	Medium	Fine	Coarse	Medium	Fine	
					2.00mm to 0.075mm	Sand		0.075mm to 0.02mm	Silt		
BH-2	Depth: 7.5m	△	8		12	34	20		26		
BH-2	Depth: 9.0m	○	7		13	34	22		24		

GRAIN SIZE DISTRIBUTION CHART

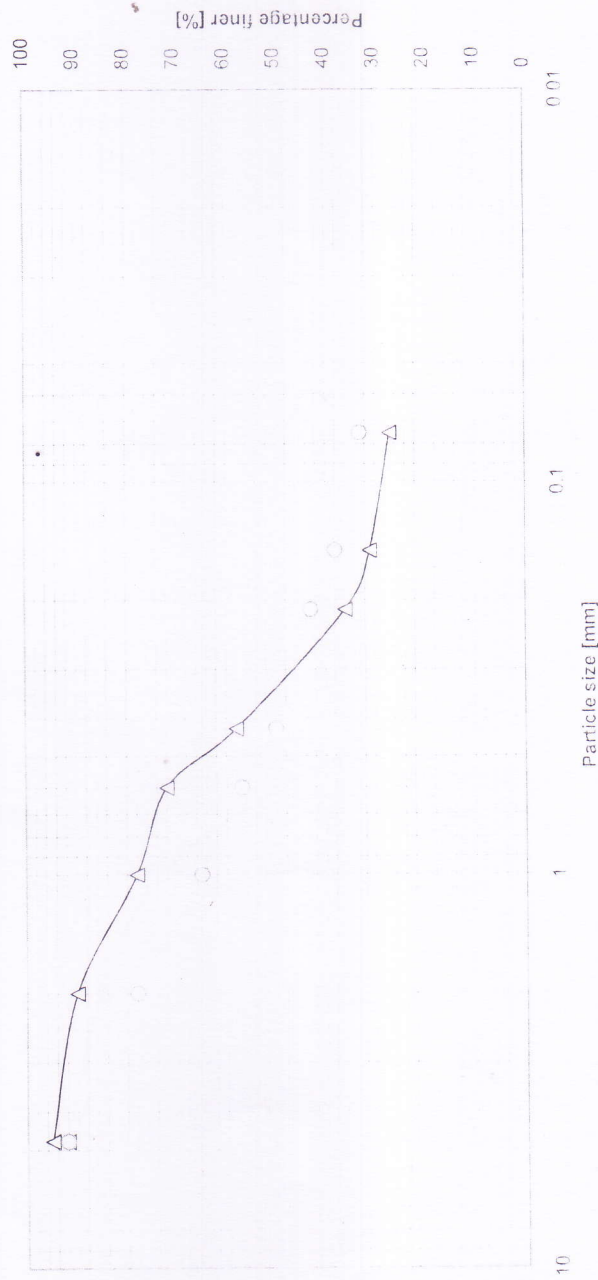
Project: Proposed construction of Residential building (G+4) at kottivakkam



Boulders	COBBLES	>4.75mm				2.00mm to 0.075mm				0.075mm to 0.02mm				CLAY <0.02mm	
		Coarse	Medium	Fine	Gravel	Coarse	Medium	Fine	Sand	Coarse	Medium	Fine	Silt		
BH-2	Depth 10.5m	Δ	7	7		14	27	38					14		
BH-2	Depth 12.30m	○	7	7		7	51	28					7		

GRAIN SIZE DISTRIBUTION CHART

Project: Proposed construction of Residential building (G+4) at kottivakkam

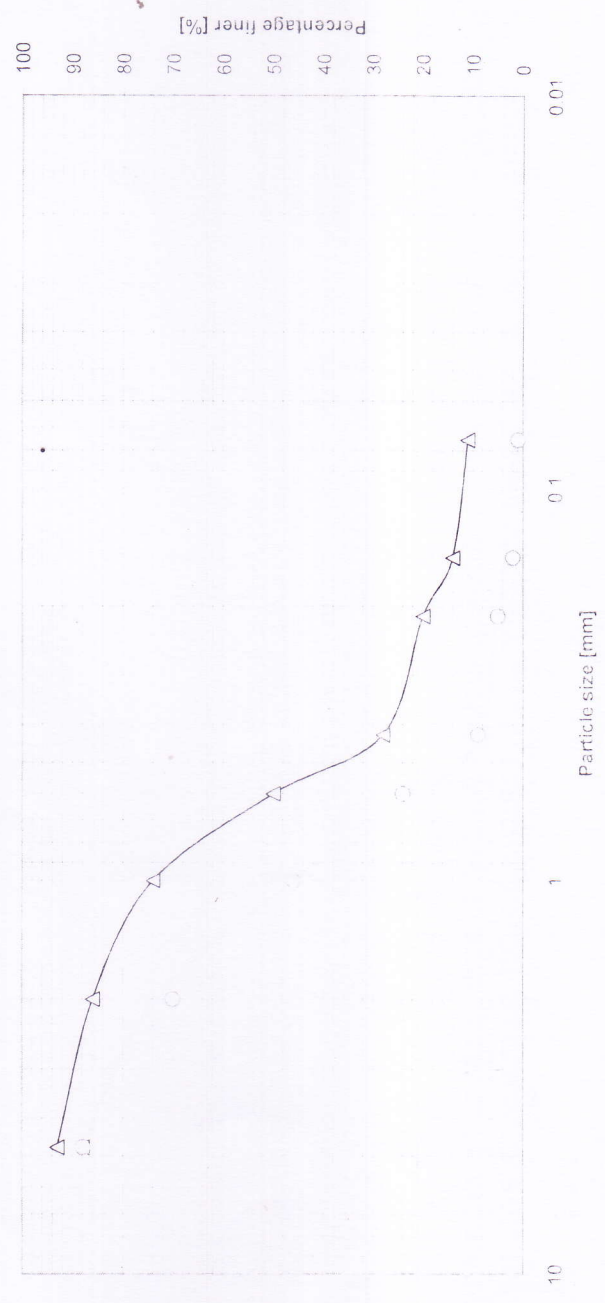


Boulders	COBBLES	Gravel			Sand			Silt			CLAY <0.02mm
		Coarse	Medium	Fine	Coarse	Medium	Fine	Coarse	Medium	Fine	
		>4.75mm			2.00mm to 0.075mm			0.075mm to 0.02mm			
BH-3	Depth 4.5m	△	5	5	5	32	31		27		
BH-3	Depth 6.0m	○	8	8	14	28	17		33		



GRAIN SIZE DISTRIBUTION CHART

Project: Proposed construction of Residential building (G+4) at kottivakkam

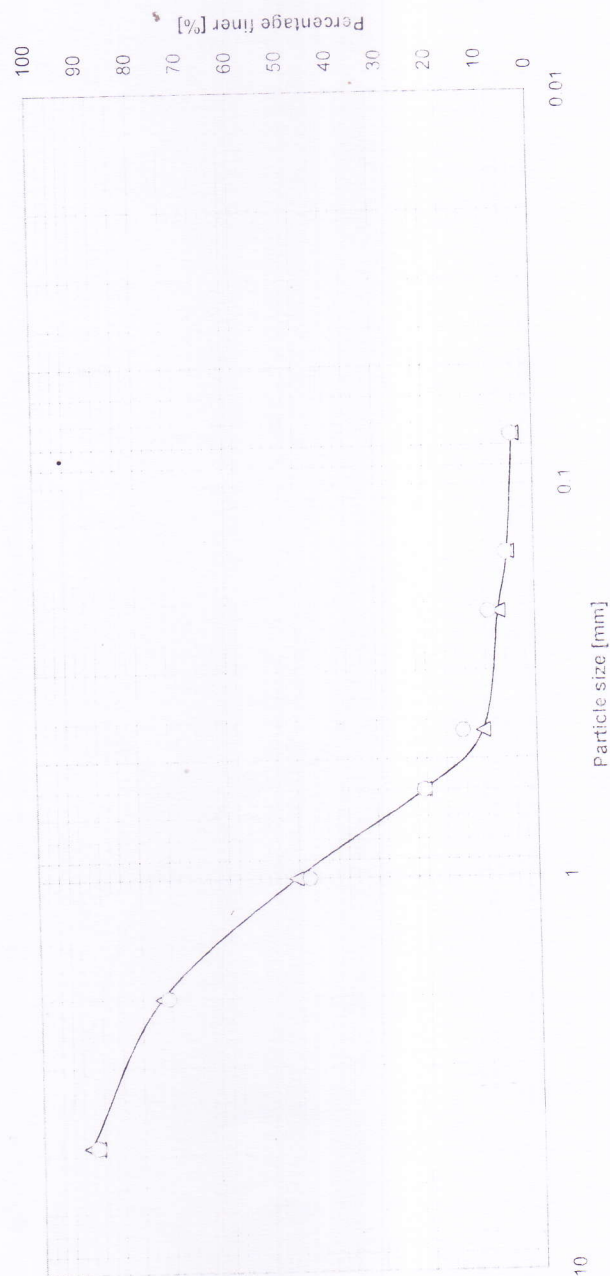


Boulders	COBBLES	Gravel			Sand			Silt			CLAY <0.02mm	
		Coarse	Medium	Fine	Coarse	Medium	Fine	Coarse	Medium	Fine		
		>4.75mm			2.00mm to 0.075mm			0.075mm to 0.02mm				
BH-3	Depth.7.5m	△		7				7	58	17		11
BH-3	Depth.9.0m	○		12				18	61	8		1



GRAIN SIZE DISTRIBUTION CHART

Project: Proposed construction of Residential building (G+4) at kottivakkam

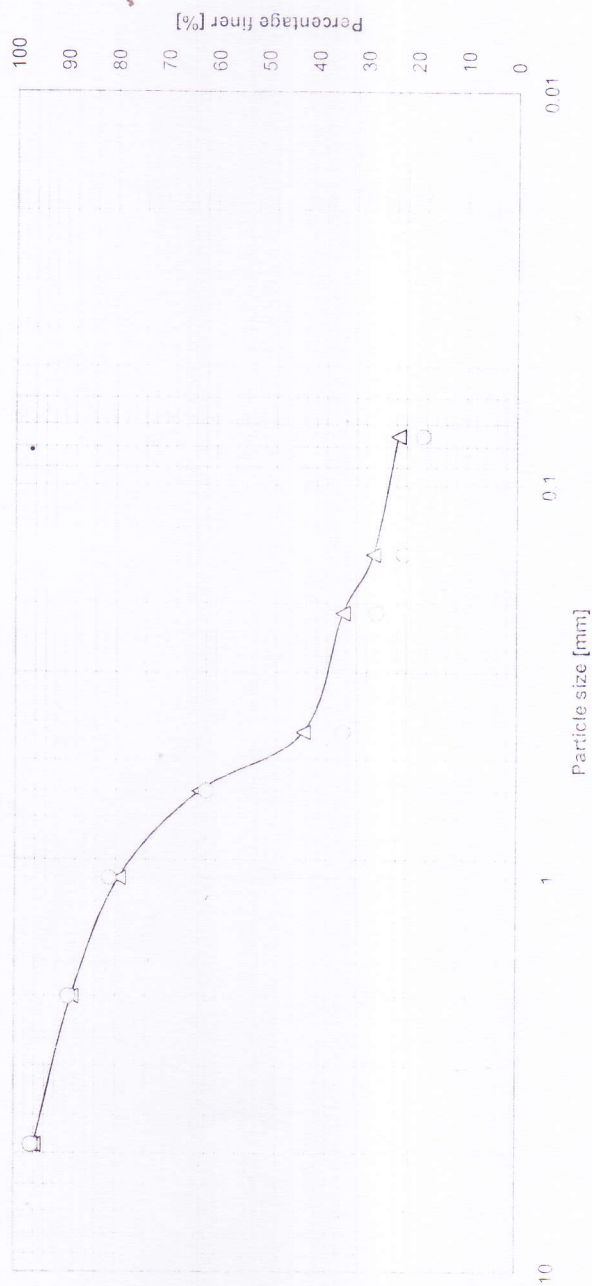


Boulders	COBBLES	>4.75mm			2.00mm to 0.075mm			0.075mm to 0.02mm			<0.02mm	
		Coarse	Medium	Fine	Coarse	Medium	Fine	Coarse	Medium	Fine	CLAY	
BH-3	Depth: 10.0m	△		9	15	65	7					
BH-3	Depth: 12.0m	○		11	15	60	10					



GRAIN SIZE DISTRIBUTION CHART

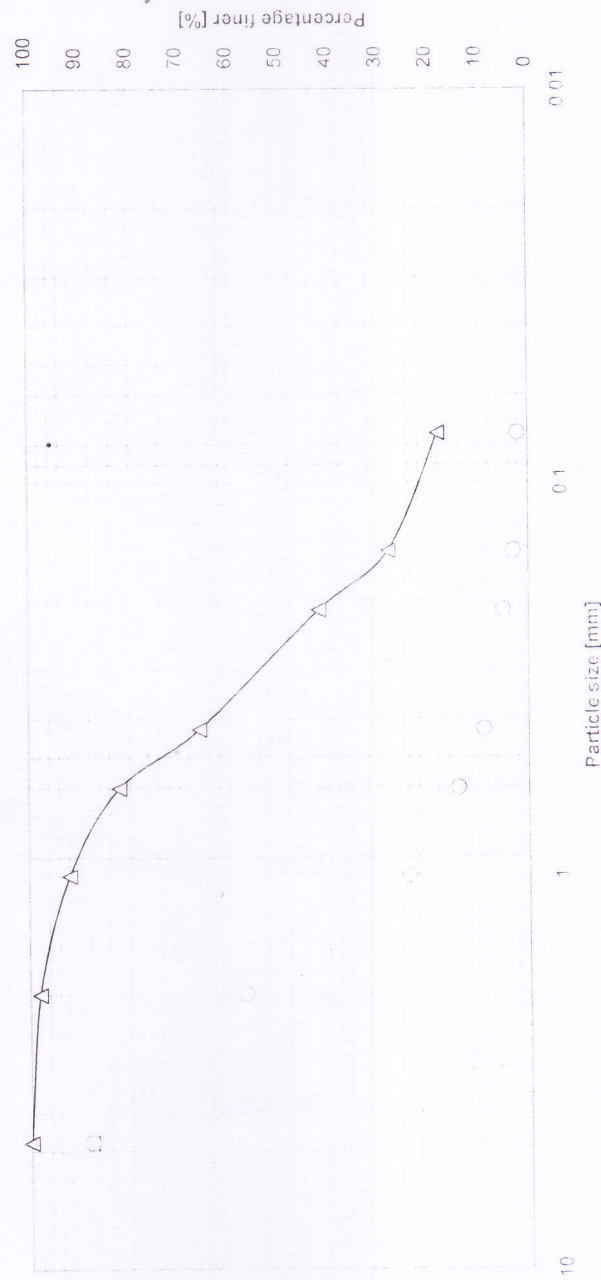
Project: Proposed construction of Residential building (G+4) at kottivakkam



Boulders	COBBLES	Coarse	Medium	Fine	Coarse	Medium	Fine	CLAY <0.02mm
		>4.75mm	Gravel	2.00mm to 0.075mm	Sand	Silt	0.075mm to 0.02mm	
BH-4	Depth:4.5m	△	4	7	46	19	24	
BH-4	Depth:6.0m	○	3	7	55	16	19	

GRAIN SIZE DISTRIBUTION CHART

Project: Proposed construction of Residential building (G+4) at kottivakkam

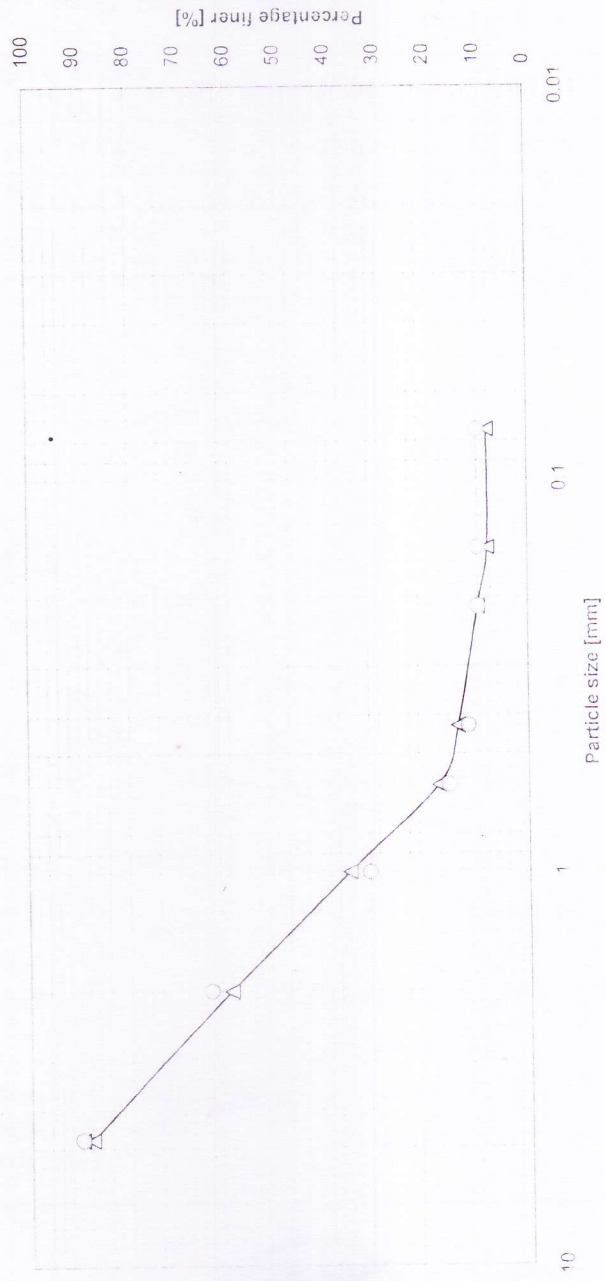


Boulders	COBBLES	Gravel				Sand				Silt		CLAY
		Coarse	Medium	Fine		Coarse	Medium	Fine		Coarse	Medium	
		>4.75mm				2.00mm to 0.075mm				0.075mm to 0.02mm		<0.02mm
BH-4	Depth: 7.5m	△	0	0		2	32	48		18		
BH-4	Depth: 9.0m	○	12			31	48	7		2		



GRAIN SIZE DISTRIBUTION CHART

Project: Proposed construction of Residential building (G+4) at kottivakkam



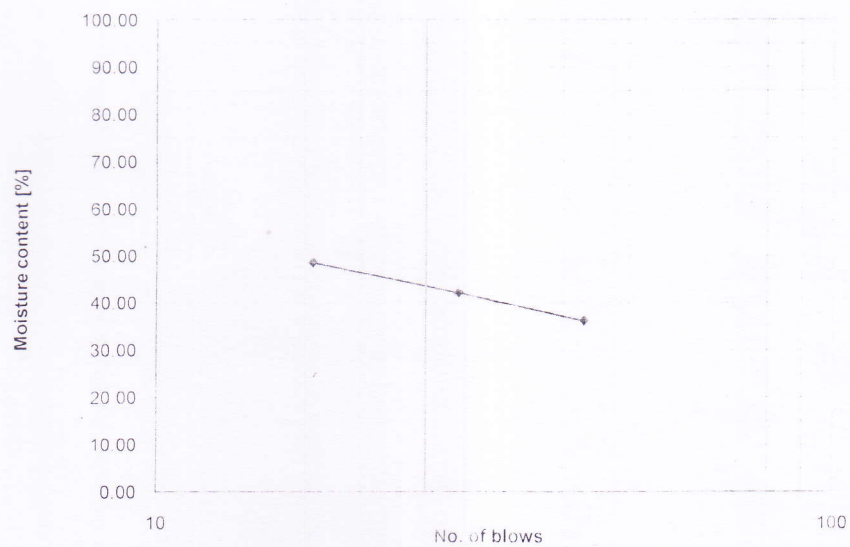
Boulders	COBBLES	Gravel			Sand			Silt			CLAY
		Coarse	Medium	Fine	Coarse	Medium	Fine	Coarse	Medium	Fine	
		> 4.75mm			2.00mm to 0.075mm			0.075mm to 0.02mm			< 0.02mm
BH-4	Depth: 10.5m	△	12		28	46	6		8		
BH-4	Depth: 12.0m	○	10		26	52	2		10		

ATTERBERG LIMITS TEST

Project: Proposed construction of Residential building (G+4) at kottivakkam

Bore Hole No: 1
Depth: 7.50

No. of blows		Liquid limit			Plastic limit	
		17	28	43	2	8
Weight of wet Soil + Tare	g	44.50	44.50	36.00	42.50	46.00
Weight of dry soil + Tare	g	41.00	41.30	33.00	40.00	43.60
Weight of Tare	g	33.80	33.70	24.70	31.60	35.50
Weight of water	g	3.50	3.20	3.00	2.50	2.40
Weight of dry Soil	g	7.20	7.60	8.30	8.40	8.10
Moisture content	%	48.61	42.11	36.14	29.76	29.63



Liquid limit : 42 %
 Plastic limit : 30 %
 Plasticity index : 12 %

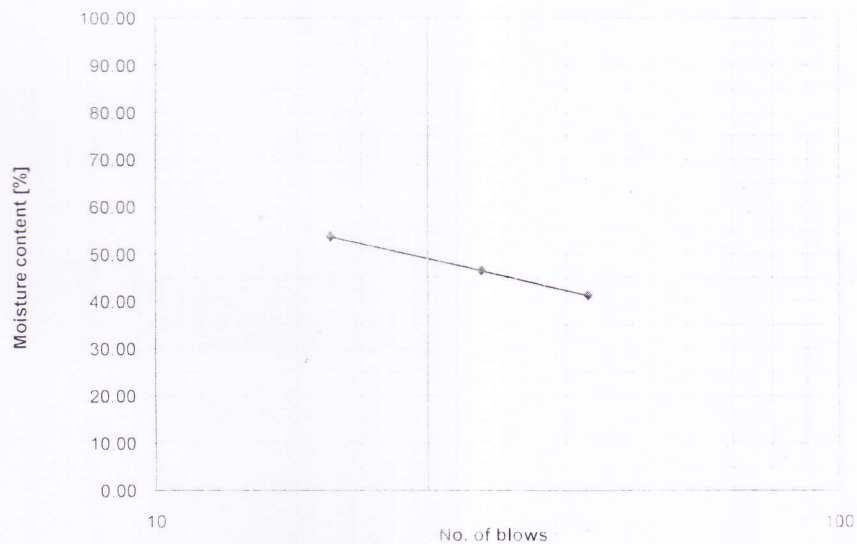


ATTERBERG LIMITS TEST

Project: Proposed construction of Residential building (G+4) at kottivakkam

Bore Hole No: 3
Depth: 1.50

No. of blows		Liquid limit			Plastic limit	
		18	30	43	30	7
Weight of wet soil + Tare	g	38.20	36.50	37.10	48.00	44.60
Weight of dry soil + Tare	g	34.00	33.00	34.00	45.00	41.70
Weight of Tare	g	26.20	25.50	26.50	36.10	33.10
Weight of water	g	4.20	3.50	3.10	3.00	2.90
Weight of dry Soil	g	7.80	7.50	7.50	8.90	8.60
Moisture content	%	53.85	46.67	41.33	33.71	33.72



Liquid limit : 47 %
 Plastic limit : 34 %
 Plasticity index : 13 %

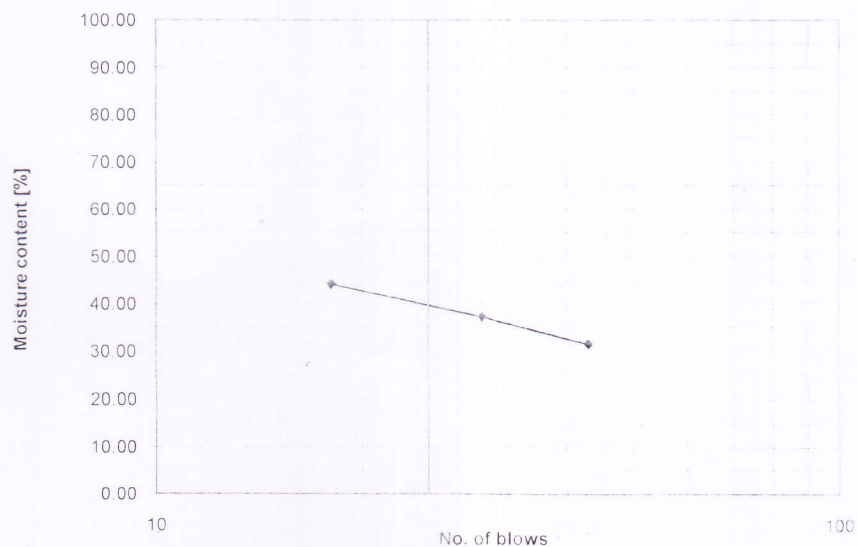


ATTERBERG LIMITS TEST

Project: Proposed construction of Residential building (G+4) at kottivakkam

Bore Hole No: 3
Depth: 3.00

No. of blows		Liquid limit			Plastic limit	
		18	30	43	1	4
Weight of wet soil + Tare	g	39.00	37.00	37.00	44.50	45.60
Weight of dry soil + Tare	g	35.20	34.20	34.60	42.50	43.50
Weight of Tare	g	26.60	26.70	27.00	33.80	34.30
Weight of water	g	3.80	2.80	2.40	2.00	2.10
Weight of dry Soil	g	8.60	7.50	7.60	8.70	9.20
Moisture content	%	44.19	37.33	31.58	22.99	22.83



Liquid limit : 38 %
 Plastic limit : 23 %
 Plasticity index : 15 %

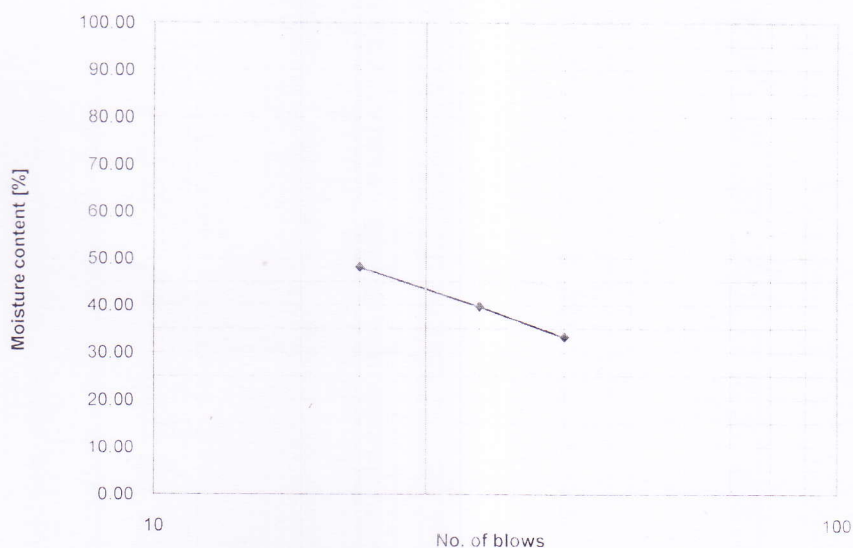


ATTERBERG LIMITS TEST

Project: Proposed construction of Residential building (G+4) at kottivakkam

Bore Hole No: 4
Depth: 1.50

No. of blows		Liquid limit			Plastic limit	
		20	30	40	35	36
Weight of wet soil + Tare	g	39.90	37.50	39.50	43.60	43.50
Weight of dry soil + Tare	g	36.00	34.00	36.70	41.00	41.00
Weight of Tare	g	27.90	25.20	28.30	31.40	32.00
Weight of water	g	3.90	3.50	2.80	2.60	2.50
Weight of dry Soil	g	8.10	8.80	8.40	9.60	9.00
Moisture content	%	48.15	39.77	33.33	27.08	27.78



Liquid limit : 40 %
 Plastic limit : 27 %
 Plasticity index : 13 %

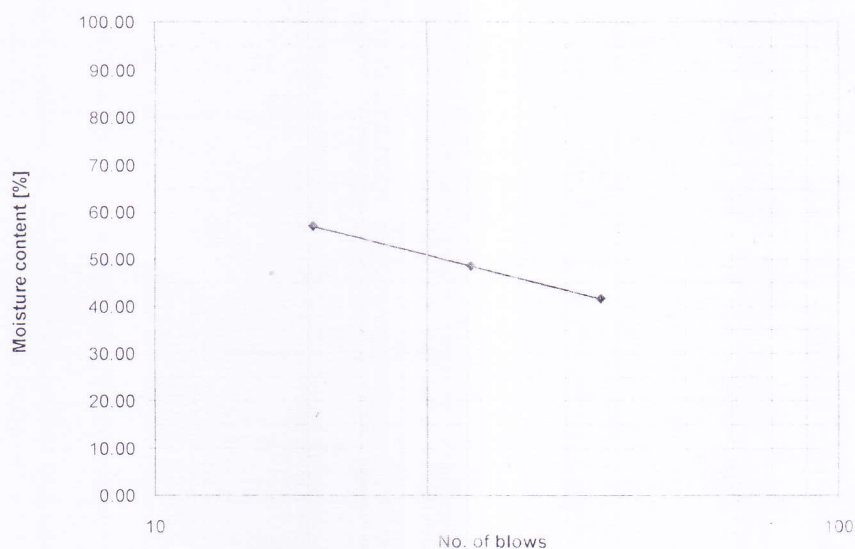


ATTERBERG LIMITS TEST

Project: Proposed construction of Residential building (G+4) at kottivakkam

Bore Hole No: 4
Depth: 3.00

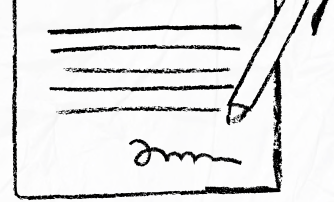
No. of blows		Liquid limit			Plastic limit	
		17	29	45	243	16
Weight of wet soil + Tare	g	37.50	37.50	38.00	37.00	41.00
Weight of dry soil + Tare	g	33.50	34.00	34.70	34.80	38.80
Weight of Tare	g	26.50	26.80	26.80	26.90	30.80
Weight of water	g	4.00	3.50	3.30	2.20	2.20
Weight of dry Soil	g	7.00	7.20	7.90	7.90	8.00
Moisture content	%	57.14	48.61	41.77	27.85	27.50



Liquid limit : 49 %
Plastic limit : 28 %
Plasticity index : 21 %



Vasanthi
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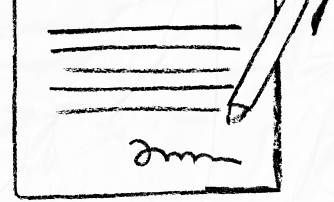
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