Verified RealEstate™

Your trusted partner for buying, selling, and managing property, ensuring hassle-free service with 100% transparency.

3/350/2 Mettukuppam,
OMR Thoraipakkam,
Chennai, India

hello@verified.realestate
+91 9996 12 9996

Official Property Record

Digitally Verified Record - Powered by Verified RealEstate™



REPORT ON GEOTECHNICAL INVESTIGATION FOR THE PROPOSED CONSTRUCTION OF STILT + 3 FLOORS RESIDENTIAL APARTMENT AT S.NO.278/10A4A & 278/10B4A, KOTTIVAKKAM VILLAGE, NO-6, VOC STREET, KOTTIVAKKAM, OMR, CHENNAI–600 041, TAMIL NADU, INDIA.

Client:

M/s. Sri Kirthika Builders Pvt Ltd,
No-7, Kondi Chetty Street,
Parrys Corner,
Chennai – 600 001.

REPORT ISSUE STATUS			
<1>	13.08.2024	Revision 1	Detailed Site Address incorporated in the report
<0>	11.01.2024	Final Report	-
Issue	**Date**	**Description**	**Updation**

MS GEOTECH
Geotechnical, Geophysical & Engineering Survey in Offshore & Onshore

MARS SYNERGY GEOTECH Pvt Ltd
An ISO 9001: 2015 Certified Company

No-30/25, Throwpathy Amman Koil 1st Street,
Velachery, Chennai – 600 042.
Tele: 044-48563144, 48527555,
Mail : info@msgeotech.com, projects@msgeotech.com,
Web: www.msgeotech.com

Project No: MSGTPL/SI-6035-R1/23-24 **Jan-2024**

MS
GE TECH
Geotechnical, Geophysical & Engineering Survey in Offshore & Onshore

13th August 2024

To

M/s. Sri Kirthika Builders Pvt Ltd,
No-7, Kondi Chetty Street,
Parrys Corner,
Chennai – 600 001.

Reg: Proposed construction of Stilt + 3 Floors Residential Apartment at S.No.278/10A4A & 278/10B4A, Kottivakkam Village, No-6, VOC Street, Kottivakkam, OMR, Chennai – 600 041, Tamil Nadu, INDIA.

The **Mars Synergy Geotech Pvt Ltd**, Chennai has completed the geotechnical engineering services for the above referred project.

This geotechnical engineering report presents the results of the subsurface exploration and the recommendations for your proposed structures foundation are presented here in final form together with a summary of field and laboratory data.

We appreciate the opportunity to be of service to you on this project. If you have any comments concerning this report, or if we may be of further services, please contact us/mail.

Note:

1. The test results enclosed are only related to the sample tested by us.
2. The Report shall not be reproduced in full or part without written permission from Mars Synergy Geotech Laboratory.
3. All the lab related tested values are as per the standard conditions followed by the lab.
4. Samples are retained for 30 days from sample received date at lab.

Sincerely,

Mars Synergy Geotech Pvt Ltd.

VASANTHI PADMANABAN, M.Tech.,
Registered Geotechnical Engineer
Reg. No: GTE/19/04/016

Report No: **MSGTPL/SI-6035-R1/23-24**

Copies Submitted: **(2)**

Total No. of pages: **(17)**

TABLE OF CONTENTS

1.0 INTRODUCTION..... 1

1.1 DESCRIPTION OF STRUCTURE..... 1

1.2 SOIL INVESTIGATION PROGRAMME 2

1.3 FIELD SAMPLING..... 2

1.4 LABORATORY TESTS..... 2

1.5 SOIL PROFILE..... 2

1.6 GROUND WATER TABLE..... 3

1.7 DISCUSSION ON FOUNDATION..... 3

1.8 RECOMMENDATIONS..... 3

2.0 PILE CAPACITY CALCULATIONS..... 5

3.0 LATERAL CAPACITY CALCULATIONS..... 6

4.0 SITE PLAN –MSGTPL/SI-**6035-R1**..... 7

5.0 BORE-LOGS..... 8

6.0 SUMMARY OF TEST RESULTS..... 10

7.0 NATURAL MOISTURE CONTENT..... 12

8.0 GRAIN SIZE ANALYSIS..... 15

MARS SYNERGY GEOTECH PVT LTD

REPORT ON GEOTECHNICAL INVESTIGATION AND RECOMMENDATIONS FOR THE PROPOSED CONSTRUCTION OF STILT + 3 FLOORS RESIDENTIAL APARTMENT AT S.NO.278/10A4A & 278/10B4A, KOTTIVAKKAM VILLAGE, NO-6, VOC STREET, KOTTIVAKKAM, OMR, CHENNAI–600 041, TAMIL NADU, INDIA.

1.0 INTRODUCTION

M/s. Sri Kirthika Builders Pvt Ltd, Chennai are planning to construct a Stilt + 3 Floors Residential Apartment at S.No.278/10A4A & 278/10B4A, Kottivakkam Village, No-6, VOC Street, Kottivakkam, OMR, Chennai – 600 041, Tamil Nadu, INDIA. **M/s. Mars Synergy Geotech Pvt Ltd**, Chennai, carried out this investigation and completed on 01st Jan 2023 as per the client instructions.

The scope of work includes the following:

- Making two numbers of Standard Soil Investigation bore-holes
- Collecting soil samples at regular depth intervals
- Conducting SPTs at every 1.0m/1.50m depth intervals
- Conducting laboratory tests on samples collected
- Submitting report with laboratory test results and recommendations for foundations.

1.1 DESCRIPTION OF STRUCTURE

The proposed structure is a Stilt + 3 Floors Residential Apartment. The exact details of columns are not available at the time of preparation of this report. Assuming an approximate column spacing of 4 to 5 m c/c considering this central column load works about 100 to 125 tones for proposed building. These loads are assumed for the purpose of foundation only and for the structural design, exact loads are to be estimated based on a suitable structural analysis.

1.2 SOIL INVESTIGATION

The field investigation works were carried out using 1 set of Rotary mechanical drilling Rig. The following activities, carried out in chronological sequence, comprised the field work for the project

- Mobilisation of rotary drilling rig, water pump, testing tools and accessories.
- Collection of disturbed samples of non-cohesive soils.
- Sampling and logging of the boreholes. Packing, labeling and dispatching the samples

MARS SYNERGY GEOTECH PVT. LTD.

to laboratory.

- Field investigation, tests and laboratory tests conducted as per IS-1892 and IS -2720

1.3 FIELD SAMPLING

Two standard soil investigation boreholes of 100mm diameter was made at the locations shown in the drawing, **MSGTPL/SI-6035-R1** enclosed. Investigations were conducted up to 12.0m depth from existing ground level where SPT "N" is more than 50blows. SPTs were conducted at every 1.0/1.5m depth intervals and samples were collected for identification and testing.

1.4 LABORATORY TESTS

The laboratory-testing scheme is so designed to obtain the design parameters for the foundations. The following parameters are evaluated:

- Type of soil and it's gradation properties
- Natural Moisture Content (NMC)
- Sieve analysis on the coarse-grained soil fraction

All the test results are presented in the tabular forms. Comprehensive field information along with SPT values is presented on separate sheet.

1.5 SOIL PROFILE

Based on visual identification of soil samples and test results (of both field and laboratory tests), the soil profile arrived. Subsoil is made-up of five to five distinctive layers there are

(i) Filled up soil up to -1.50m with **SPT's N= 21-29**
(ii) Loose SAND/Medium stiff CLAY -1.50m to -2.50m with SPT's **N=6-9**
(iii) Very loose SAND -2.50m to -7.0m with **SPT's N=0-3**
(iv) Very dense clayey SAND -7.0m to -10.0m with **SPT's N=>50**
(v) Soft disintegrated Rock -10.0m to -12.0m with **SPT's N=>100**

The soil profile details are presented in the bore-chart.

MARS SYNERGY GEOTECH PVT LTD

BMQR
IS/ISO 9001:2015 Certificate Of Quality

1.6 GROUND WATER TABLE

Determination of Ground Water Table from Existing Ground level was done using Steel tape with weight. The depth of Ground water table was determined as per procedure laid in IS 6935-1973. At the time of Soil Investigation (01/01/2024) at site, ground water table was **(-)1.0m depth** encountered from existing Ground Level.

1.7 DISCUSSION ON FOUNDATION

Two boreholes were investigated at this location, and soil strata is described in section 1.5 of this report. Out of these two boreholes, BH-1 is weaker borehole. Hence BH-1 soil strata are considered for the foundation design.

Due to the presence of very loose SAND layer from 2.50m to 7.0m depth (SPT N=0 to 3), shallow foundation is not satisfactory for the proposed apartment. Hence deep foundation such as Bored cast In-situ pile foundation is suggested for the proposed structure.

Based BH-1 borehole data and laboratory test data soil design parameters are arrived and same as used for foundation analysis.

Soil Design Parameters

From (m)	To (m)	Thickness (m)	Soil Type	Avg SPT 'N'	γ' (kN/m³)	C (kN/sq.m)	α	Φ (deg)	K
0	1.5	1.5	Fille up soil	25	8.5	-	-	30	1.0
1.5	2.5	1.0	Loose clayey SAND	7	7.5	-	-	18	1.0
2.5	7.0	4.5	Very loose SAND	1	6.0	-	-	10	1.0
7.0	10.0	3.0	Very dense SAND/Moorum	>50	9.0	-	-	35	1.1
10.0	12.0	2.0	Soft Disintegrated Rock	>100	10.0	400	0.28	-	-

MARS SYNERGY GEOTECH PVT LTD

1.8 RECOMMENDATIONS

- ✓ Proposed structure is a four storied residential apartment.
- ✓ Pile foundations are recommended up to **12.0m depth** from existing Ground level.
- ✓ The pile bore may be terminated at a depth of minimum three times diameter of the pile in to hard strata (where three consecutive SPT 'N' values of more than 50 are obtained in each test at depth intervals of one pile diameter).
- ✓ To satisfy the above criterion the pile length shall be about **12.0m** from the existing ground level.
- ✓ The capacities of piles of varying diameters are provided below for the proposed structure.

Pile Termination Depth (m)	Pile Dia (mm)	Safe Vertical Capacity (Tones)	Safe Uplift Capacity (Tones)	Safe lateral Capacity with 5mm deflection	
				Free Head (Tones)	Fixed Head (Tones)
12	450	40	17	0.9	0.35
	500	45	20	0.13	0.50
	600	65	25	0.24	0.91

General Recommendation

- The proposed project site is situated in Kottivakkam, Chennai which falls under Seismic Zone III as per IS 1893 (Part 1) - 2002. Structure should be design against Earth quake resistance
- Pile Cut of level is considered 1.0m below EGL.
- Use minimum M25 Grade of concrete
- Temporary/permanent casing shall be provided up to 7.0m depth from EGL
- Centre to centre spacing of piles shall not be less than 3 times of the diameter of the pile shaft.
- The above safe loads suggested are only tentative and these have to be confirmed by conducting through pile load tests conducted as per I.S-2911part –IV:2013

VASANTH PADMANABAN, M.Tech.,
Registered Geotechnical Engineer
Reg. No: GTE/19/04/016

M S
GE TECH

ESTIMATION OF VERTICAL CAPACITY OF PILE

Project:	6035-R1, Stilt + 3 Floors Residential Apartment
Location:	Kottivakkam
Reference BH's	BH-1 & BH-2

$$Q_u = A_p(\gamma D N_q + P_D N_q) + \sum_{i=1}^{n} K_i P_{Di} \tan\delta_i A_{si}$$

$$Q_u = A_p N_c c_p + \sum_{i=1}^{n} \alpha_i c_i A_{si}$$

Dia of Pile	600	mm
Elevation	0	m
Pile Cut off Level	1.0	m
Pile termination level below G.L	12	m
Total Length of Pile	11.0	m
Factor of safety	**2.5**	

Soil Design Parameters

Sl.No	From (m)	To (m)	Thickness (m)	Soil Type	Avg 'N'	γ' (kN/m^3)	C (kPa)	α	ϕ	K	Pdi (kN/m^2)
1	0	1.5	1.5	Fille up soil	25	8.5	-	-	30	1	6.375
2	1.5	2.5	1	Loose clayey SAND	7	7.5	-	-	18	1	16.5
3	2.5	7	4.5	Very loose SAND	1	6	-	-	10	1	33.75
4	7	10	3	Very dense SAND/Moorum	>50	9	-	-	35	1.1	60.75
5	10	12	2	Soft Disintegrated Rock	>100	10	400	0.28	-	-	84.25

Pile Calculations As per IS-2911 part-1/Sec-2-2010

Sl.No	From (m)	To (m)	Thickness (m)	γ' (kN/m3)	Pdi (kN/m2)	C (kPa)	α	ϕ	K	Asi	Sf (kN)	Sfi (kN)
1	1.0	1.5	0.5	8.5	2.125	-	-	30	1	0.94	1.16	1.16
2	1.5	2.5	1	7.5	8	-	-	18	1	1.88	4.90	6.06
3	2.5	7	4.5	6	25.25	-	-	10	1	8.48	37.77	43.82
4	7	10	3	9	52.25	-	-	35	1.1	5.65	227.58	271.40
5	10	12	2	10	65.75	400	0.28	-	-	3.77	422.23	693.63
Due to very loose SAND layers, and liquefaction to 7.0m considered as negative Drag												**605.99**

End Bearing

Bearing Strata	Dia (m)	Ap (m^2)	γ' (kN/m^3)	q	Nq	Ng	Nc	Cp (kpa)	Qp (kN)	Qult (kN)	Qallow (kN)
Soft Disintegrated Rock	0.6	0.28274334	10	65.75			9	400.0	1017.88	1623.9	**649.54**

Safe Vertical Capacity of Single Pile	**65**	Tones

MARS SYNERGY GEOTECH PVT LTD

BSI ISO 9001:2015 Certificate Company

Lateral Pile Capacity Calculation

Project Title : 6035-R1, Stilt + 3 Floors Residential Apartment
Site : Kottivakkam
BH: BH-1 & BH-2

As Per IS-2911(Part-1/Sec-2):2010

Deflection $y = \frac{H(e+Z_f)^3}{3EI} \times 10^3$ ... for free head pile

Deflection $y = \frac{H(e+Z_f)^3}{12EI} \times 10^3$ ... for fixed head pile

Input

Soil		Dense sand (Submerged)	
Diameter of Pile	=	600	mm
Length of Pile Below FGL, (L)	=	12	m
Length of Pile Above FGL, (L1=e)	=	7	m
Grade of Concrete	=	25	
Allowable Deflection, (y)	=	5	mm
Young's modulus of pile material, (E)	=	25000.00	MN/m^2
Moment Inertia of the Pile Cross section (I)	=	0.0064	m^4

For CLAY

k_1 = MN/m²
K= 0 MN/m³
R= #DIV/0! m

Stiffness factor $T = \sqrt[5]{\frac{EI}{KB}}$

L1/R= #DIV/0!
Lf/R (Free Head)= 1.9
Lf/R (Fixed Head)= 2.2

For SAND

η_h= 12 MN/m³
T= 1.68 m
L_1/T= 4.1748

Stiffness factor $T = \sqrt[5]{\frac{EI}{\eta_h}}$

L_f/T(Free Head)= 1.8
L_f/T(Fixed Head)= 1.89

Output for SANDY Soil

Z_f (Free Head) / Depth of Fixity = 3.02 m
Z_f (Fixed Head) / Depth of Fixity = 3.17 m

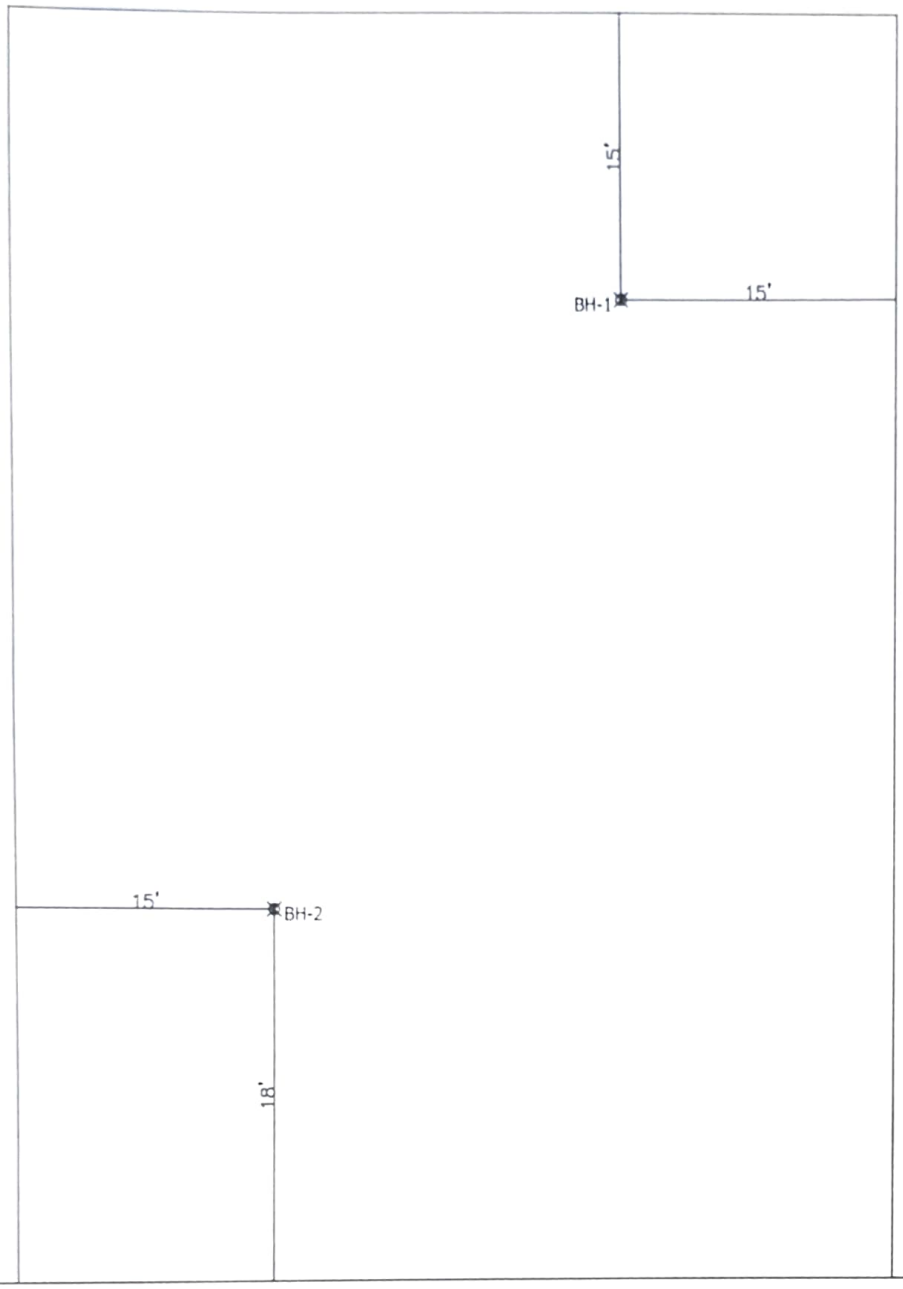
Result

Lateral Load Free Head = 0.24 Tones

Lateral Load Fixed Head = 0.91 Tones

MARS SYNERGY GEOTECH PVT LTD

BMQR ... An ISO 9001:2015 Certificate Company



MARS SYNERGY GEOTECH PVT LTD

TITLE: DRAWING SHOWING THE SOIL INVESTIGATION BORE HOLE LOCATIONS

PROJECT: PROPOSED CONSTRUCTION OF STILT + 3 FLOORS RESIDENTIAL APARTMENT AT KOTTIVAKKAM

LEGEND:

BH: BORE HOLE -SOIL TEST LOCATION

ACTIVITY	EXECUTED BY
FOREMEN	GANDHI
DRAFTING	JB

SCALE: N T S

MARS SYNERGY GEOTECH Pvt Ltd
(An ISO 9001: 2015 Certified Company)
Engineering Survey & Soil Investigation
#30/25,DROWPATHY AMMAN KOIL MAIN ROAD
VELACHERY,CHENNAI - 600 042.
Mobile: 94440 51563 / 94441 22047

DRAWING NO: MSGTPL/SI-6035-R1/23-24

BOREHOLE LOG

Project No: MSGTPL/SI-6035-R1/23-24

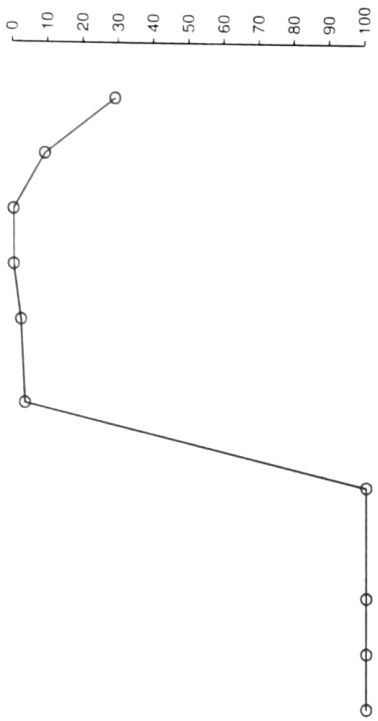
Project: Proposed Construction of Stilt + 3 Floors Residential Apartment at Kottivakkam

Location	Kottivakkam
Ground R.L	Nil
Drilling	Rotary

Borehole No	BH-1	
G.W.T (m)	(-)1.0	
Date of Start	1-Jan-2024	
Date of Complete	1-Jan-2024	
Dia of Bore (mm)	100	Sheet
Termination Depth (m)	12.00	1 of 1

Depth below EGL (m)	Layer Thickness	Soil Layers Description	Soil Symbol	IS-Classification	Type Field Test	Test Depth (m)	SPT Values Record 0 to 45cm			SPT- N- Value
0.0										
0.5	1.0	Filled up Soil								
1.0										
1.5	1.0	Loose Brownish Clayey SAND		SC	SPT	1.0	8	19	10	**29**
2.0										
2.5					SPT	2.0	3	4	5	**9**
3.0	2.0	Very Loose Greyish Clayey SAND		SC						
3.5					SPT	3.0	0	0	0	**0**
4.0										
4.5					SPT	4.0	0	0	0	**0**
5.0	2.5	Very Loose Greyish Fine to Medium SAND		SW-SM						
5.5					SPT	5.0	1	1	1	**2**
6.0										
6.5					SPT	6.5	1	1	2	**3**
7.0										
7.5										
8.0	3.5	Very Dense Brownish Fine to Medium SAND		SM	SPT	8.0	14	23	50 Blows for 13Cm	
8.5										
9.0										
9.5										
10.0					SPT	10.0	41	50 Blows for 5Cm		
10.5										
11.0	2.0	Soft Disintegrated Rock		GP	SPT	11.0	50 Blows for 0Cm			
11.5										
12.0					SPT	12.0	50 Blows for 0Cm			
12.5										
13.0										
13.5										
14.0										
14.5										
15.0										

Graphical Representation of SPT



Borehole Termination Depth (m) 12.0

EGL- Existing Ground Level
R.L- Reduced Level
GWT- Ground Water Table
SPT- Standard Penetration Test
UDS- Undisturbed Sample
DS- Disturbed Sample
CR- Core Recovery
RQD- Rock Quality Designation

MARS SYNERGY GEOTECH PVT LTD

BOREHOLE LOG

Project No: MSGTPL/SI-6035-R1/23-24

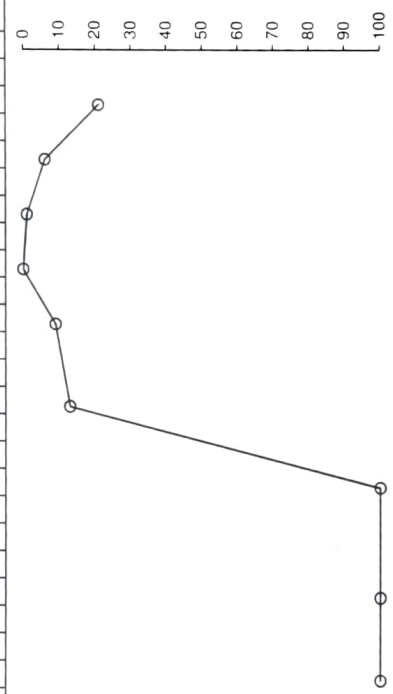
Project: Proposed Construction of Stilt + 3 Floors Residential Apartment at Kottivakkam

Location	Kottivakkam
Ground R.L	Nil
Drilling	Rotary

Borehole No	BH-2	
G.W.T (m)	(-)1.0	
Date of Start	1-Jan-2024	
Date of Complete	1-Jan-2024	
Dia of Bore (mm)	100	Sheet
Termination Depth (m)	11.50	1 of 1

Depth below EGL (m)	Layer Thickness	Soil Layers Description	Soil Symbol	IS-Classification	Type Field Test	Test Depth (m)	SPT Values Record 0 to 45cm			SPT- N- Value
0.0										
0.5	1.0	Filled up Soil								
1.0					SPT	1.0	4	7	14	**21**
1.5	1.0	Medium Stiff Greyish Sandy CLAY		CH						
2.0					SPT	2.0	2	3	3	**6**
2.5										
3.0	2.0	Very Loose Greyish Clayey SAND		SC	SPT	3.0	0	0	1	**1**
3.5										
4.0					SPT	4.0	0	0	0	**0**
4.5	1.0	Loose Greyish Fine to Medium SAND		SW						
5.0					SPT	5.0	3	4	5	**9**
5.5										
6.0	1.5	Medium Dense Greyish Fine to Medium SAND		SW						
6.5					SPT	6.5	5	6	7	**13**
7.0										
7.5	1.5	Very Dense Brownish Moorum		SM-GP						
8.0					SPT	8.0	50 Blows for 11Cm			
8.5										
9.0										
9.5										
10.0	3.5	Soft Disintegrated Rock		GP	SPT	10.0	50 Blows for 0Cm			
10.5										
11.0										
11.5					SPT	11.5	50 Blows for 0Cm			
12.0										
12.5										
13.0										
13.5										
14.0										
14.5										
15.0										

Graphical Representation of SPT



Borehole Termination Depth (m) 11.5

EGL- Existing Ground Level
R.L- Reduced Level
GWT- Ground Water Table

SPT- Standard Penetration Test
UDS- Undisturbed Sample

DS- Disturbed Sample
CR- Core Recovery
RQD- Rock Quality Designation

MARS SYNERGY GEOTECH PVT LTD

MS GE TECH
Geotechnical, Geophysical Engineering Survey in Offshore & Onshore

Project No: MSGTPL/SI-6035-R1/23-24

Project : Proposed Construction of Stilt + 3 Floors Residential Apartment at Kottivakkam

BH No	1	Ground Water Level:(-)1.0m	Termination Depth:12.0m

SUMMARY OF TEST RESULTS

N Value	Layer Thickness	Depth (m)	Soil Description	IS Classification	Index Properties (%)						Specific Gravity	Grain Size Analysis (%)				
					NMC	W_L	W_P	I_P	Ic	FreeSwell		Gravel	Coarse Sand	Medium Sand	Fine Sand	Silt & Clay
	1.0	0.00	Filled up Soil													
29		1.00														
	1.0															
9		2.00	Loose Brownish Clayey SAND	SC	25						2.65					
0	2.0	3.00	Very Loose Greyish Clayey SAND	SC	39							7	2	23	32	36
0		4.00			40						2.63					
2	2.5	5.00	Very Loose Greyish Fine to Medium SAND	SW-SM	19							1	3	54	33	9
3		6.50			20							1	2	51	33	13
>100	3.5	8.00	Very Dense Brownish Fine to Medium SAND	SM	14						2.68	7	7	34	34	18
>100		10.00			15											
>100	2.0	11.00	Soft Disintegrated Rock	GP												
>100		12.00														

MARS SYNERGY GEOTECH PVT LTD

MS GE TECH
Geotechnical, Geophysical & Engineering Survey in Offshore & Onshore

Project No: MSGTPL/SI-6035-R1/23-24

Project : Proposed Construction of Stilt + 3 Floors Residential Apartment at Kottivakkam

BH No	1	Ground Water Level:(-)1.0m	Termination Depth:11.50m

SUMMARY OF TEST RESULTS

N Value	Layer Thickness	Depth (m)	Soil Description	IS Classification	Index Properties (%)						Specific Gravity	Grain Size Analysis (%)				
					NMC	W_L	W_P	I_P	Ic	FreeSwell		Gravel	Coarse Sand	Medium Sand	Fine Sand	Silt & Clay
	1.0	0.00	Filled up Soil													
21		1.00														
	1.0		Medium Stiff Greyish Sandy CLAY	CH												
6		2.00			39							0	1	21	16	62
	2.0		Very Loose Greyish Clayey SAND	SC												
1		3.00			32						2.65	0	1	27	42	30
0		4.00			44							14	1	33	30	22
	1.0		Loose Greyish Fine to Medium SAND	SW												
9		5.00			16						2.66	0	3	58	34	5
	1.5		Medium Dense Greyish Fine to Medium SAND	SW												
13		6.50			17							0	3	56	36	5
	1.5		Very Dense Brownish Moorum	SM-GP												
>100		8.00			14						2.69	21	8	22	31	18
	3.5		Soft Disintegrated Rock	GP												
>100		10.00														
>100		11.50														

MARS SYNERGY GEOTECH PVT LTD

Project No: MSGTPL/SI-6035-R1/23-24
Project :Proposed Construction of Stilt + 3 Floors Residential Apartment at Kottivakkam

Name & Address of Lab: M/s. Mars Synergy Geotech Private Limited ; #30/25, Drowpathy Amman Koil 1st Street, Velachery, Chennai - 600 042.
Client Name: M/s. Sri Kirthika Builders Pvt Ltd
Method Use: IS-2720 P-2
Sample Received on:02.01.2024
Test Started on:02.01.2024
Test Completed on:03.01.2024

Natural Moisture Content Data Sheet

BH.No/ Pit no	1		1		1		1		1		1	
Depth (m)	2.0		3.0		4.0		5.0		6.5		8.0	
Tare No	569	555	503	316	543	584	324	505	588	393	446	594
Wt of Tare (gr)	44.80	45.15	44.32	45.49	45.75	45.15	45.45	44.64	45.66	45.18	43.50	44.83
Tare + Soil (gr)	77.71	79.01	82.96	80.80	78.23	76.21	78.81	75.90	80.36	79.76	74.84	72.26
Tare+Dry soil (gr)	71.10	72.20	72.14	70.90	68.92	67.30	73.50	70.95	74.54	73.88	71.00	68.83
Wt of Water (gr)	6.61	6.81	10.82	9.90	9.31	8.91	5.31	4.95	5.82	5.88	3.84	3.43
Wt Dry soil (gr)	26.30	27.05	27.82	25.41	23.17	22.15	28.05	26.31	28.88	28.70	27.50	24.00
Water Content (%)	25.13	25.18	38.89	38.96	40.18	40.23	18.93	18.81	20.15	20.49	13.96	14.29
Average Water Content (%)	25		39		40		19		20		14	

Tested by:K.N Reviewed by:R.N Authorized by:V.A

MARS SYNERGY GEOTECH PVT LTD

Project No: MSGTPL/SI-6035-R1/23-24
Project :Proposed Construction of Stilt + 3 Floors Residential Apartment at Kottivakkam

Name & Address of Lab: M/s. Mars Synergy Geotech Private Limited ; #30/25, Drowpathy Amman Koil 1st Street, Velachery, Chennai - 600 042.
Client Name: M/s. Sri Kirthika Builders Pvt Ltd
Method Use: IS-2720 P-2
Sample Received on:02.01.2024
Test Started on:02.01.2024
Test Completed on:03.01.2024

Natural Moisture Content Data Sheet

BH.No/ Pit no	1		2		2		2		2		2	
Depth (m)	10.0		2.0		3.0		4.0		5.0		6.5	
Tare No	425	465	312	534	458	420	550	522	560	590	412	513
Wt of Tare (gr)	44.82	44.89	44.81	44.74	45.23	45.28	44.93	45.09	45.00	45.24	43.89	45.71
Tare + Soil (gr)	79.26	78.29	79.87	80.91	77.60	76.55	70.49	77.58	79.40	69.92	79.16	80.93
Tare+Dry soil (gr)	74.77	74.05	69.96	70.70	69.77	68.94	62.65	67.65	74.55	66.44	73.95	75.70
Wt of Water (gr)	4.49	4.24	9.91	10.21	7.83	7.61	7.84	9.93	4.85	3.48	5.21	5.23
Wt Dry soil (gr)	29.95	29.16	25.15	25.96	24.54	23.66	17.72	22.56	29.55	21.20	30.06	29.99
Water Content (%)	14.99	14.54	39.40	39.33	31.91	32.16	44.24	44.02	16.41	16.42	17.33	17.44
Average Water Content (%)	15		39		32		44		16		17	

Tested by:K.N Reviewed by:R.N Authorized by:V.A

MARS SYNERGY GEOTECH PVT LTD

Project No: MSGTPL/SI-6035-R1/23-24
Project :Proposed Construction of Stilt + 3 Floors Residential Apartment at Kottivakkam

Name & Address of Lab: M/s. Mars Synergy Geotech Private Limited ; #30/25, Drowpathy Amman Koil 1st Street, Velachery, Chennai - 600 042.
Client Name: M/s. Sri Kirthika Builders Pvt Ltd
Method Use: IS-2720 P-2
Sample Received on:02.01.2024
Test Started on:02.01.2024
Test Completed on:03.01.2024

Natural Moisture Content Data Sheet

BH.No/ Pit no	2											
Depth (m)	8.0											
Tare No	499	391										
Wt of Tare (gr)	44.21	44.92										
Tare + Soil (gr)	74.34	76.95										
Tare+Dry soil (gr)	70.60	72.90										
Wt of Water (gr)	3.74	4.05										
Wt Dry soil (gr)	26.39	27.98										
Water Content (%)	14.17	14.47										
Average Water Content (%)	14											

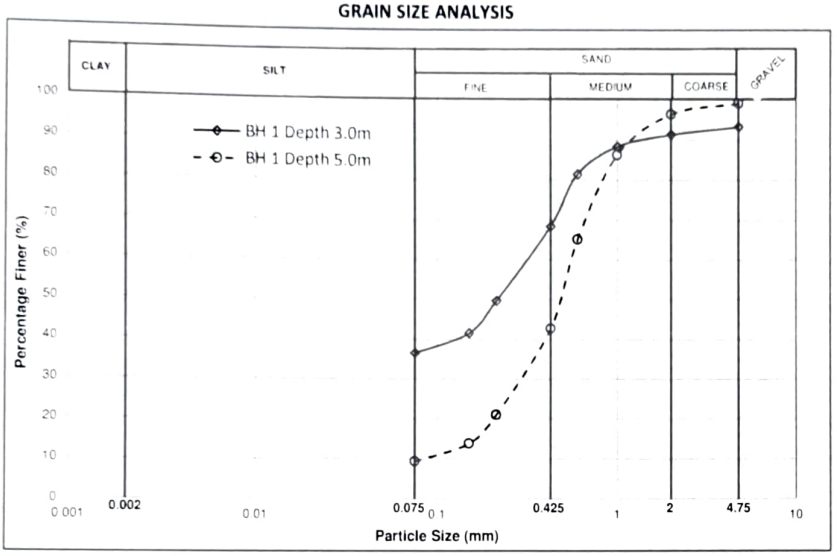
Tested by:K.N Reviewed by:R.N Authorized by:V.A

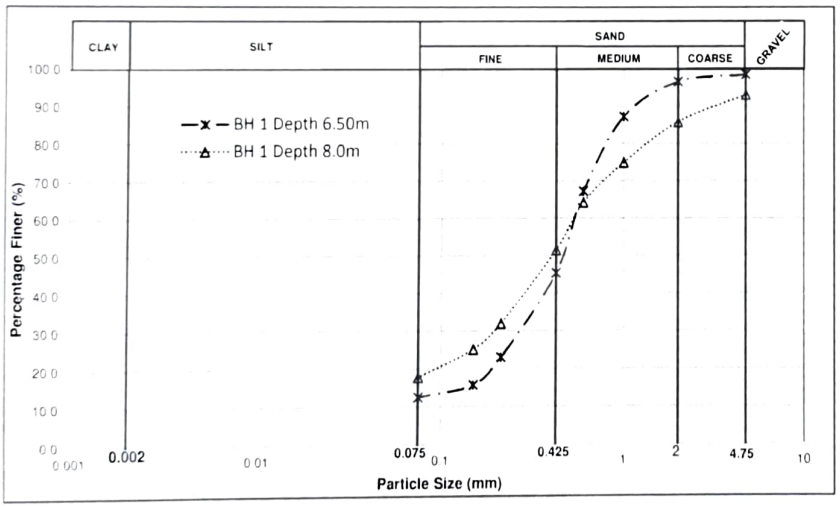
MARS SYNERGY GEOTECH PVT LTD

Project No: MSGTPL/SI-6035-R1/23-24
Project : Construction of Stilt + 3 Floors Residential Apartment at Kottivakkam

Name & Address of Lab: M/s. Mars Synergy Geotech Private Limited ; #30/25, Drowpathy Amman Koil 1st Street, Velachery, Chennai - 600 042.
Client Name: M/s. Sri Kirthika Builders Pvt Ltd
Method Use: IS-2720 P-4
Sample Received on:02.01.2024
Test Started on:03.01.2024
Test Completed on:04.01.2024

GRAIN SIZE ANALYSIS





BH-No	Depth	Gravel	SAND (%)			SILT& CLAY	D_{10}	D_{30}	D_{60}	Cu	Cc
	(m)	(%)	Coarse	Medium	Fine	(%)	(mm)	(mm)	(mm)		
1	3.0m	7	2	23	32	36			0.329		
1	5.0m	1	3	54	33	9	0.087	0.300	0.560	6.42	1.85
1	6.50m	1	2	51	33	13		0.279	0.543		
1	8.0m	7	7	34	34	18		0.194	0.542		

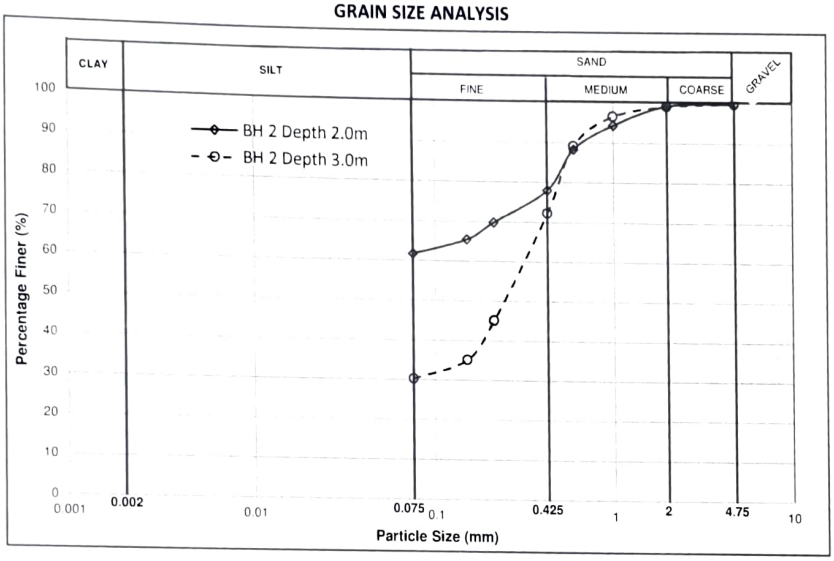
Tested by:V.K Reviewed by:R.N Authorized by:V.A

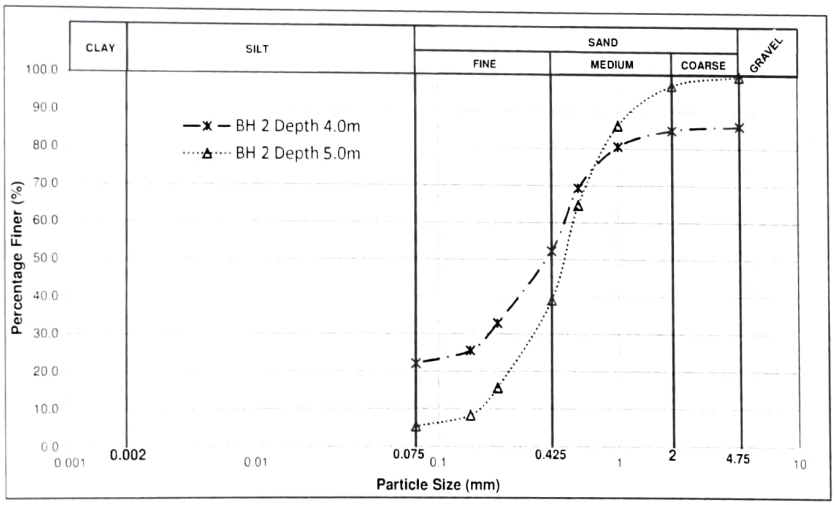
MARS SYNERGY GEOTECH PVT LTD

Project No: MSGTPL/SI-6035-R1/23-24
Project : Construction of Stilt + 3 Floors Residential Apartment at Kottivakkam

Name & Address of Lab: M/s. Mars Synergy Geotech Private Limited ; #30/25, Drowpathy Amman Koil 1st Street, Velachery, Chennai - 600 042.
Client Name: M/s. Sri Kirthika Builders Pvt Ltd
Method Use: IS-2720 P-4
Sample Received on:02.01.2024
Test Started on:03.01.2024
Test Completed on:04.01.2024

GRAIN SIZE ANALYSIS





BH-No	Depth	Gravel	SAND (%)			SILT& CLAY	D_{10}	D_{30}	D_{60}	Cu	Cc
	(m)	(%)	Coarse	Medium	Fine	(%)	(mm)	(mm)	(mm)		
2	2.0m	0	1	21	16	62					
2	3.0m	0	1	27	42	30			0.329		
2	4.0m	14	1	33	30	22		0.188	0.504		
2	5.0m	0	3	58	34	5	0.164	0.342	0.568	3.45	1.26

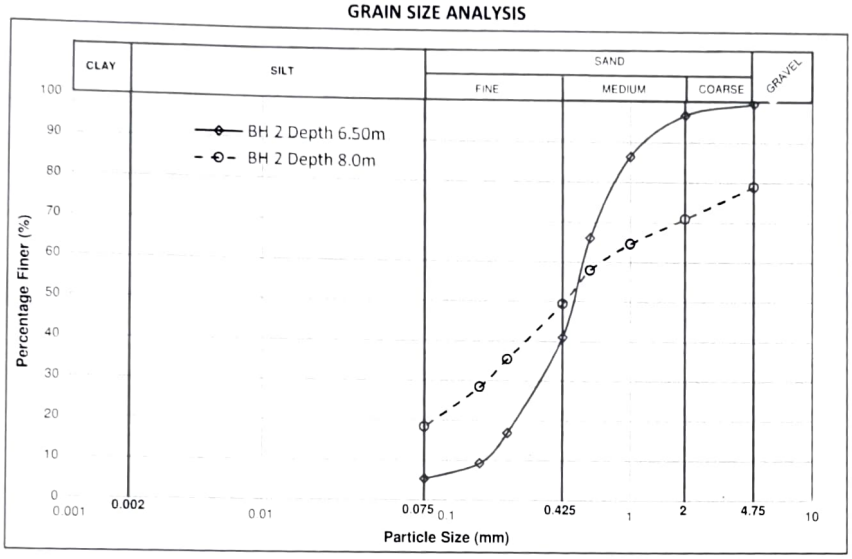
Tested by:V.K Reviewed by:R.N Authorized by:V.A

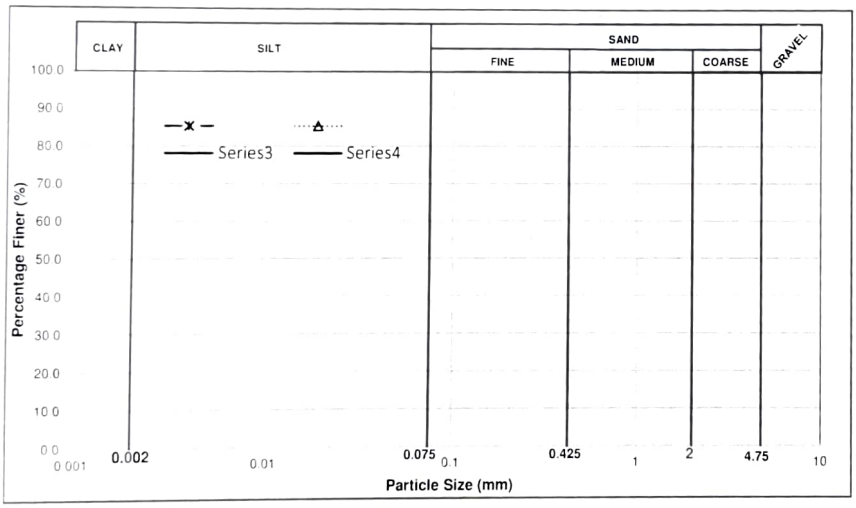
MARS SYNERGY GEOTECH PVT LTD

Project No: MSGTPL/SI-6035-R1/23-24
Project : Construction of Stilt + 3 Floors Residential Apartment at Kottivakkam

Name & Address of Lab: M/s. Mars Synergy Geotech Private Limited ; #30/25, Drowpathy Amman Koil 1st Street, Velachery, Chennai - 600 042.
Client Name: M/s. Sri Kirthika Builders Pvt Ltd
Method Use: IS-2720 P-4
Sample Received on:02.01.2024
Test Started on:03.01.2024
Test Completed on:04.01.2024

GRAIN SIZE ANALYSIS





BH-No	Depth	Gravel	SAND (%)			SILT& CLAY	D_{10}	D_{30}	D_{60}	Cu	Cc
	(m)	(%)	Coarse	Medium	Fine	(%)	(mm)	(mm)	(mm)		
2	6.50m	0	3	56	36	5	0.156	0.328	0.558	3.57	1.23
2	8.0m	21	8	22	31	18		0.164	0.727		

Tested by:V.K Reviewed by:R.N Authorized by:V.A

.....END OF THE REPORT.....

VASANTH PADMANABAN, M.Tech.,
Registered Geotechnical Engineer
Reg. No: GTE/19/04/016



our services doesn't just end there

Buying & Selling Services

Property Buying Assistance, Property Selling Support, Market Price Analysis, Owner Outreach and Negotiation.

Legal & Documentation Services

Certified EC, Patta, legal opinions, property verification, due diligence, litigation solutions, and legal heir certificates.

Property Development & Approvals

Building plan approvals, construction, layout and sub-division approvals, zone conversion, and occupancy certification.

NRI & Investment Services

Escrow Services, Rentals, Litigation Solutions, Property Valuation and Property Management

Compliance & Special Services

Demolition, Vaasthu checks, regularization of unauthorized buildings, and office space solutions.



empowering your real estate decisions with smart tools

Property Valuation & Cost Estimation

Guideline Value, Apartment Composite Value, Stamp Duty & Registration Fees Calculator, Building Value Calculator, Capital Gains Calculator, Area Unit Converter, Length Unit Converter

Ownership, Compliance & Legal Verification

Encumbrance Certificate (EC) Search, Find Your SRO, Temple Property Check, WAQF Property Check, View Patta/Chitta, View FMB, Patta Analyzer, EC Analyzer

Zoning & Land Use Analysis

Land Use Zone Finder, CRZ Zone Check, Aquifer Zone Check, CBA Check, EWS Check, Road Width Check, Proposed Road Widening Check, FSI Calculator

Property Documentation & Workflow Tools

Forms & Templates, Document Generator, Document Translation, Dictionary

Vastu & Property Management Tools

Home Vastu Shastra, Plot Vastu Shastra, Property Management

Verified RealEstate™

We're honored to be part of your real estate journey

3/350/2 Mettukuppam,
OMR Thoraipakkam,
Chennai, India

hello@verified.realestate
+91 9996 12 9996
www.verified.realestate