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™



NAGADI

REGISTERED OFFICE
Bangalore :

1014, Dr. Rajkumar Road, 4th Block,
Rajaji Nagar, Bangalore - 560 010.
Tel : +91-80-23156076; Fax : + 91-80-23303007
E-mail : bangalore@nagadi.co.in

REGIONAL OFFICE
New Delhi :

106/ID, Krishan Garh, Vasant Kunj,
New Delhi - 110 070.
Tel. : +91-11-26891980; Fax : +91-11-26897403
E-mail : delhi@nagadi.co.in

Chennai :

61C, East Coast Road, Thiruvanmiyur,
Chennai - 600 041.
Tel.: +91-40-24487870; Fax : +91-40-24488957
E-mail : chennai@nagadi.co.in

Secunderabad:

60, Manovikas Nagar, Opp. NIMH
Secunderabad - 500 009.
Tel : +91-40-27754446; Fax : +91-40-27751194
E-mail : secunderabad@nagadi.co.in

Website : nagadi.co.in

Member of:

Association of Professional Firms Practicising Geotechnicques (ASFE); Association of Consulting Civil Engineers (ACCE); Association of Consulting Engineer (ACE) (India); Builders Association of India (BAD; Bureau of India Standards, BDC 43 & BDC 23 (BIS); Consultancy Department Center (CDC); Geotechnical Engineering International Resources Center (GEIRC) (Bangkok); Indian Concrete Institute (ICI); Indian Geotechnical Society (IGS); Indian Group of Geotextiles (IGG); Indian Institute of Public Administration (IIPA); Indian Institution of Plant Engineers (IIPE); Indian Roads Congress (IRC); Indian Society for Rock Mechanics & Tunneling Technology (ISRMTT); Indian Society of Earthquake Technology (ISET); Institute of Standards Engineers (ISE); Institution of Engineers (India) (IE); Institution of Mechanical Engineers (IME); International Federation of Consulting Engineers (IFCE); International Geotextiles Society (IGS); International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE)

GEOTECHNICAL REPORT FOR

RESIDENTIAL BUILDING AT NEDUNKUNDRAM ROAD, KOLAPAKKAM VILLAGE, VANDALUR TALUK, CHENGALPET DISTRICT,

Client :

M/s. The Nest,
Chennai.

Architect :

Consultant :

Structural Consultant :

For THE NEST

Managing Partner

Job No. : G(C)9865 Date : 05.10.2023

NAGADI CONSULTANTS PRIVATE LIMITED

Branch :

Chennai

Project :

RESIDENTIAL BUILDING AT NEDUNKUNDRAM ROAD, KOLAPAKKAM VILLAGE, VANDALUR TALUK, CHENGALPET DISTRICT, CHENNAI

CONTENTS

		Page No.
	Executive Summary	1 and 2
1.	Introduction	3
2.	Project Details	
	The Site	3 and 4
	Structure	4
	Seismic Zone	4
	Geographical Information	4
3.	Object of Investigation	4 and 5
4.	Scope of Investigation	5
5.	Field Investigations	5 and 6
6.	Laboratory Investigations	6 and 7
7.	Results of Investigations & Analysis	7 to 11
8.	Design Criteria - A Discussion	11 to 13
9.	Recommendations	13 and 14
10.	Construction Advisory	14
11.	References	14
12.	Limitations	15
	List of IS Codes	Tables & Figures

For THE NEST

Managing Partner

Job No. : G(C)9865 Date : 05.10.2023

GEOTECHNICAL INVESTIGATION REPORT

for Residential Building at Nedunkundram Road, Kolapakkam Village, Vandalur Taluk, Chengalpet District, Chennai

EXECUTIVE SUMMARY

M/s. The Nest, Chennai are proposing to construct a Residential Building "Accolade" at Nedunkundram Road, Kolapakkam Village, Vandalur Taluk, Chengalpet District, Chennai - 600126.

The site for the proposed Residential Building is situated at Survey No.72/1A & 72/1B2A1 Nedunkundram road which is on the western side in Kolapakkam Village, Vandalur Taluk, Chengalpet District, Chennai - 600126. The site measures approximately 40.72m x 60.92m in size. The site is having boundary wall on all the sides and is fairly level in topography. The site is lower than the adjacent road by about 1.2m. There is a shed existing on the North Eastern corner side of the site which will be demolished before the construction of new building.

The proposed Residential building consists of a ground floor and five upper floors.

Geotechnical investigations have been undertaken at the site as per the scope of investigations, stipulated by the client, which consisted of conducting 3 boreholes down to 8m depth or refusal strata (where N-value is >50); whichever is met earlier.

The results of borehole investigations indicate the presence of Brown silty clayey sand/Brownish grey clayey silty sand with or without gravel down to the depths of refusal strata encountered between 3m-3.2m depth below existing ground level. The refusal strata encountered is in the form of completly weathered rock strata.

The soil strata is in a medium dense state from existing ground level down to the depths of refusal strata encountered between 3-3.2m depth below existing ground level.

For THE NEST

Managing Partner

Ground water table was encountered between 0.6m and 0.7m depth in the boreholes during the period of field investigations. This high ground water table may be on account of rains that occurred prior to the field investigations and may go down in due course of time.

In view of the observed subsoil conditions, the proposed residential building can be supported on *Isolated/Strip Footings laid at a minimum depth of 2m below the existing ground level. Net Allowable bearing pressures for various widths of foundations at different depths are given in table below:*

Depth of Foundation Below EGL (m)	Allowable Settlement (mm)	Net Allowable Bearing Pressure (t/m²) for Width of Foundations (m)	
		1.5	≥3
2	40	20	24
3.5	12	30	30

The excavated soil cannot be used for backfilling purposes as the top soil is predominantly medium swelling in nature.

After the excavation for the foundations, the top slush should then be removed and the surface compacted heavily. If any loose pockets are observed, the same shall be filled with brickbats/ gravel and compacted well. Foundations can subsequently be placed over such a prepared surface. Stiff Tie-beams connecting the columns in both directions may be provided which will render additional rigidity to the structure.

For THE NEST

Managing Partner

REPORT ON GEOTECHNICAL INVESTIGATION FOR RESIDENTIAL BUILDING AT NEDUNKUNDRAM ROAD, KOLAPAKKAM VILLAGE, VANDALUR TALUK, CHENGALPET DISTRICT, CHENNAI

1.0 INTRODUCTION

1.1 Overview

1.1.1 M/s. The Nest, Chennai are proposing to construct a Residential Building "Accolade" at Nedunkundram Road, Kolapakkam Village, Vandalur Taluk, Chengalpet District, Chennai - 600126.

1.1.2 The geotechnical investigations have been carried to ascertain the soil conditions for the design of foundations of the proposed Residential building.

1.2 Authority

A detailed geotechnical investigations programme has been conducted as per the authorisation by M/s. The Nest, Chennai vide their mail confirmation dated 15.09.2023.

2.0 PROJECT DETAILS

2.1 Site Location

The site for the proposed Residential Building is situated at Survey No.72/1A & 72/1B2A1 Nedunkundram road which is on the western side in Kolapakkam Village, Vandalur Taluk, Chengalpet District, Chennai - 600126.

2.2 Site Layout and Topography

2.2.1 The site measures approximately 40.72m x 60.92m in size. The site is having boundary wall on all the sides and is fairly level in topography. The site is lower than the adjacent road by about 1.2m. There is a shed existing on the north eastern corner side of the site which will be demolished before the construction of new building.

For THE NEST

Managing Partner

2.2.2 The colour of the exposed soil surface is Brown.

2.3 The Structure

As per information provided by the client, the proposed Residential building consists of a ground floor and five upper floors.

2.4 Seismic Zone

Site for the proposed Residential building is situated in Kolapakkam Village, Chennai which falls under Seismic Zone III as per IS 1893 (Part 1) - 2016.

2.5 Geographical Information

2.5.1 Site for the proposed Residential building is situated at:

a) Latitude : 12°52'

b) Longitude : 80°06'

3.0 OBJECT OF INVESTIGATIONS

3.1 For designing the foundation system of the proposed residential building, the following data are required:

a) Type of foundation system.

b) Depth below the ground level at which the foundation system is to be laid.

c) Allowable bearing pressure on the foundations levels.

3.2 To determine above factors, the following information would be required:

a) The subsoil profile indicating thicknesses of the various soil strata, to a depth down to the influence zone below the foundations.

b) Engineering properties of the soil strata at various levels.

c) Physical characteristics of the soil strata.

d) Variation of the strength of the strata with depth.

3.3 For evaluating the above parameters, field investigations and laboratory investigations on the soil samples collected during the field investigations, have been carried out.

For THE NEST
Managing Partner

3.4 The results from these investigations have been analysed to provide the recommendations for the design of foundations.

4.0 SCOPE OF INVESTIGATIONS

4.1 Scope of investigations as given in the work order consisted of :

a) Conducting 3 boreholes down to 8m depth or refusal strata (where N-value is >50); whichever is met earlier, as required by the client.

b) Conducting standard penetration tests at regular intervals.

c) Recovering undisturbed soil samples from various levels of the subsoil strata.

d) Recording ground water table levels, if met with.

e) Conducting relevant laboratory tests on soil samples recovered.

f) Preparation and submission of a technical report containing the details of the tests carried out, their analysis and recommendations regarding the foundation system to be adopted. Two copies of the report are to be submitted.

5.0 FIELD INVESTIGATIONS

5.1 General Details

5.1.1 The locations of the borehole were shown at site by the client's representative. A Schematic site plan showing the borehole locations marked by the client is given in fig.1.

5.1.2 Weather was clear during the period of field investigations which were carried out in the third week of September 2023.

5.2 Boreholes

5.2.1 The boreholes were progressed by shell and auger method.

For THE NEST

Managing Partner

5.2.2 The boreholes were terminated at refusal strata where further augering and penetration were not possible. The refusal strata encountered is in the form of completely weathered rock strata. The N-value in refusal strata is >50.

5.2.3 The depths at which ground water table was encountered in the boreholes during the period of field investigations and termination depths of the boreholes are given below.

Borehole No.	Depth of Water Table Below EGL (m)	Termination Depth Below EGL (m)
1	0.7	3.1
2	0.6	3.2
3	0.6	3

5.2.4 Ground water table was encountered between 0.6m and 0.7m depth in the boreholes during the period of field investigations. This high water table might be due to the rains before the field investigations and is likely to godown in due course of time.

5.2.5 Standard Penetration Tests were conducted in soil strata at 1.0m depth intervals.

5.2.6 Disturbed soil samples recovered from split spoon sampler were packed in polythene bags, labelled and retained for identification purposes.

5.2.7 Undisturbed soil samples were recovered by thin walled tubes conforming to IS 2132. These tubes had an area ratio of less than 10%. The diameter of soil samples were 50mm and length 45cm.

6.0 LABORATORY INVESTIGATIONS

6.1 The soil samples brought to the laboratory were subjected to various tests to determine the following properties

a) Type of soil and its gradation

b) Consistency limits

For THE NEST

Managing Partner

c) Natural density

d) Natural water content

e) Shear strength properties

6.2 In order to determine the above properties listed in 6.1, the following tests were conducted.

a) Sieve analysis on the coarse grained soil fraction

b) Hydrometer analysis on the fine grained soil fraction

c) Liquid and plastic limits

d) Natural Density and Water Content tests

e) Triaxial compression tests

f) Free Swell Index tests

7.0 RESULTS AND ANALYSIS

7.1 Presentation of Results

7.1.1 The results of borehole investigations and of the laboratory investigations conducted on the soil samples collected from the borehole have been presented in the form of soil profile tables in Table No. 1 to 3.

7.1.2 The soil profile tables indicate the following:

a) Standard Penetration Test Values (i.e. N- values observed) at various depths

b) Soil description identifying the type of soil

c) Grain size analysis indicating composition of subsoil

d) Consistency limits

e) In-situ bulk density and Water content

f) Triaxial compression test results

For THE NEST

Managing Partner

7.2 Analysis of Soil Profile

7.2.1 A perusal of the data presented in the soil profile tables indicate the presence of the following substrata.

a) Stratum - I : Brown silty clayey sand

b) Stratum - II : Brownish grey clayey silty sand with or without gravel

7.2.2 The thicknesses in each borehole of each strata described in 7.2.1 is given in the table below:

BH No.	Depth (m) : from - to	
	Stratum - I	Stratum - II
1	0.0 - 1.3	1.3 - 3.1
2	-	0.0 - 3.2
3	-	0.0 - 3

7.2.3 The above results show that :

a) Stratum - I consisting of Brown silty clayey sand having significant percentages of sand and varying percentages of silt and clay, has been encountered from ground level to 1.3m depth below the existing ground level only at the location of borehole BH1.

b) Stratum - II consisting of Brownish grey clayey silty sand with or without gravel having significant percentages of sand and varying percentages of silt, clayey and gravel, has been encountered from ground level/0.8 to 3/3.1/3.2m depth below the existing ground level.

7.3 Soil Composition

7.3.1 The grain size distribution of the soil samples at various depths, as determined in the laboratory have been presented in the form of grain size analysis curves in figs. 3.

For THE NEST

Managing Partner

7.3.2 The variations in the grain size distribution - strata wise across the borehole are as follows:

a) Stratum - I : Brown silty clayey sand

BH No.	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
1	0	43	27	30

This stratum was encountered only at the location of borehole BH1.

b) Stratum - II : Brownish grey clayey silty sand with or without gravel

BH No.	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
1	16 - 30	42 - 43	16 - 22	11 - 20
2	0 - 37	35 - 39	16 - 32	12 - 29
3	0 - 34	35 - 45	13 - 34	8 - 31

7.3.3 The above results indicate that the soil in :

a) Stratum - I consists of about 27% of silt, 30% of clay, 43% of sand.

b) Stratum - II consists of about 8 -31% of clay, 13 -34% of silt, 35 - 45% of sand 0 -37% of gravel.

7.4 Density and Water Content

7.4.1 The natural / in-situ bulk densities, water contents and dry densities obtained from undisturbed soil samples are tabulated below.

BH No.	Depth (m)	In-situ Bulk Density (g/cm^3)	Water Content (%)	Dry Density (g/cm^3)
1	1.5	2.04	16.1	1.76
2	2	2.05	15.9	1.77
3	1.5	2.07	14.8	1.8

For THE NEST

Managing Partner

7.4.2 The above results indicate that the subsoil is in a medium dense state down to the depths of refusal strata encountered between 3-3.2m depth below existing ground level.

7.5 Consistency Limits

7.6 The Consistency Limits determined for the soil in Stratum - I (Brown silty clayey sand) indicates that the liquid limit is 41%, plastic limit is 17% and plasticity index is 24%.

7.6.1 The Consistency Limits determined for the soil in Stratum - II (Brownish grey clayey silty sand with or without gravel) indicate that the liquid limit varies between 20 - 44%, plastic limit varies between 13 - 18% and plasticity index varies between 7 - 26%.

7.6.2 The Consistency Limits indicate that the soil in :

a) Stratum - II (Brown silty clayey sand) is medium plastic in nature.

b) Stratum - III (Brownish grey clayey silty sand with or without gravel) is non to low to medium plastic in nature.

7.7 Standard Penetration Tests

7.7.1 Standard Penetration Test values (N-values observed) are presented in the soil profile table no.1 to 3.

7.7.2 The N-values indicate that the soil is in a medium dense state down to the depths of refusal stratum encountered between 3-3.2m depth below existing ground level with observed N-values ranging between 9 to 16.

7.8 Triaxial Test Results

The cohesion 'c' obtained from consolidated drained triaxial test on undistrubed and remoulded samples varies between 0.09kg/cm² & 0.11kg/cm² and the angle of shearing resistance 'ϕ' of the soil varies between 28° & 29°.

For THE NEST

Managing Partner

7.9 Free Swell Index

7.9.1 The free swell index of the soil samples collected at various depths are given below:

BH No.	Free Swell Index (%) at Depth (m)		
	1	1.5	2.5
1	40.1	-	12.6
2	-	36.9	10.8
3	7.7	-	8.1

7.9.2 The above results indicate that the top soil strata is predominantly medium swelling in nature. Hence, the excavated soil cannot be used for backfilling purposes.

7.10 Compiled Soil Profile

7.10.1 An overview of the results and their analysis has been presented in the form of a compiled soil (fig. 2).

7.10.2 The above figure shows the various strata encountered and their thicknesses in each of the borehole and also gives the soil composition and the observed N-values at various depths along with the depth at which undisturbed soil samples were collected.

8.0 DESIGN CRITERIA

8.1 Primary Parameters

8.1.1 The parameters required for the design of foundation system for the proposed residential building are:

a) Type of foundation to be adopted

b) Depth at which the foundations have to be laid

c) Allowable bearing pressure on the soil at the foundation level

8.1.2 On the basis of the analysis of the results of investigations, the required design parameters have been arrived at and are given in the following sections.

For THE NEST

Managing Partner

8.2 Type of Foundations

8.2.1 The type of foundation depends on the following:

a) Subsoil conditions

b) Type of structure

c) Configuration at loading points

8.2.2 As per information provided by the client, the proposed Residential building consists of a ground floor and five upper floors.

8.2.3 The soil strata is in a medium dense state from existing ground level down to the depths of refusal stratum encountered between 3m-3.2m depth below existing ground level.

8.2.4 In view of the above, *Shallow Foundations -Isolated/Strip Footings* can be adopted for the proposed residential building.

8.3 Depth of Foundations

8.3.1 The depth at which foundations should be laid will be governed by the following criteria.

a) Top filled up strata/loose soil, if any

b) There should be sufficient thickness of soil above the footing/foundations so that the bearing capacity of the soil can be fully mobilised.

c) Soil below the level of footings/foundations should have the requisite strength to support the anticipated bearing pressures on the foundations without allowing the settlement of footings/foundations to exceed the acceptable limits.

d) Requirements of the type of structure (Residential building consisting of a ground floor and five upper floors).

For THE NEST

Managing Partner

8.3.2 In view of the above factors, foundations of the proposed residential building can be made to rest at a minimum depth of *2m below the existing ground level*. The soil available at the founding level will be Brownish grey clayey silty sand with or without gravel. However, the depth of foundations may be suitably increased depending on the requirements of the structure.

8.4 Allowable Bearing Pressure

8.4.1 Allowable bearing pressure has been evaluated by:

a) Shear failure criteria based on the average soil data

b) Settlement criteria based on the SPT values (N-values)

c) Settlement criteria based on deformation modulus

8.4.2 An allowable settlement of 40mm has been considered to evaluate the allowable bearing pressure for Isolated/Strip footings.

8.4.3 A water table correction factor of 0.5 has been considered.

8.4.4 The Allowable bearing pressure in weathered rock strata is based on the provisions given in Table 2 of BIS code IS 12070 - 1987 (RA - 1995). The settlement of foundations resting in completely weathered rock strata will be within 12mm as per IS 13063-1991 (RA 1996).

8.4.5 On the basis of the above analysis, net allowable bearing pressures at different depths for various widths of foundations are given below:

Depth of Foundation Below EGL (m)	Allowable Settlement (mm)	Net Allowable Bearing Pressure (t/m²) for Width of Foundations (m)	
		1.5	≥3
2	40	20	24
3.5	12	30	30

FOR THE NEST

Managing Partner

9.0 RECOMMENDATIONS

9.1 Type of Foundations

Shallow Foundations - Isolated/Strip Footings

9.2 Depth of Foundations

Minimum 2m depth below the existing ground level

9.3 Allowable Bearing Pressure

Net allowable bearing pressure at different depths for various widths of foundations are given below

Depth of Foundation Below EGL (m)	*Allowable Settlement (mm)*	*Net Allowable Bearing Pressure (t/m²) for Width of Foundations (m)*	
		1.5	*≥3*
2	*40*	*20*	*24*
3.5	*12*	*30*	*30*

9.4 Construction Advisories

9.4.1 The soil of each strata has been described with name, colour etc. During excavation, any variations observed in the nature and condition of the soil from those given in this Report should be noted and appropriate action should be taken.

9.4.2 The excavated soil cannot be used for backfilling purposes as the top soil is predominantly medium swelling type.

9.4.3 After the excavation for the foundations, the top slush should then be removed and the surface compacted heavily. If any loose pockets are observed, the same shall be filled with brickbats/ gravel and compacted well. Foundations can subsequently be placed over such a prepared surface.

For THE NEST

Managing Partner

9.4.4 Stiff Tie-beams connecting the columns in both directions may be provided which will render additional rigidity to the structure.

9.5 Appendices

9.5.1 The calculations for the allowable bearing pressure have been provided in Appendix-A of this report.

9.5.2 The List of IS codes referred for providing the recommendations and that which might be required to implement the same have been given in Appendix-B of this report.

9.6 Notes

9.6.1 The recommendations given in this report have been arrived at on the basis of design parameters which have been judiciously adopted by giving due consideration to the results of field and laboratory investigations as well as NAGADI's experience of over four decades in working in various types of soil and rock conditions all over India.

9.6.2 The entire report should be studied before adopting the recommendations given in the report.

10.0 LIMITATIONS

This Geotechnical investigation has been carried out at locations in the site chosen by the client as representing the entire site. The recommendations provided in this Report are hence valid only for those test locations. However, if there is any change in the subsoil conditions and properties at places between or beyond the chosen test locations, Nagadi may be contacted for further actions. Fresh investigations will have to be carried out at such locations.

Dr. N. Santosh Rao
Technical Director
*For **NAGADI CONSULTANTS PVT. LTD.***

For THE NEST
Managing Partner

ANALYSIS FOR ALLOWABLE BEARING PRESSURE

Data

(i) Soil Properties :

c (kg/cm^2) = 0.10 ϕ = 28° γ (g/cm^3) = 2.0

(ii) Depth of Foundation, D (m) = 2

(iii) Allowable Settlement, s (mm) = 40

Shear Failure Criterion (Ref. IS : 6403)

N_c = 21.99 N_q = 11.84 N_γ = 12.82 R_w = 0.50 R_w' = 0.50 (average of 2G+1L)

$$q_s = \frac{1}{2.5}\left(c \cdot N_c + \gamma\, D \cdot N_q \cdot R_w + 0.5 \cdot \gamma \cdot B \cdot N_\gamma \cdot R'_w\right) - \gamma\, D.R_w$$

B (m)	1.5	≥3.0
q_s (t/m^2)	20.1	24.0

Settlement Criterion (Ref. IS : 8009)

(i) From N Values

B (m)	1.5	≥3
H (m)	1	1
N_{av}	50	50
q_a (t/m^2)	46.9	39.4

(ii) From Triaxial Compression Tests : $q_a = \frac{s \cdot E}{0.7 \cdot H}$

B (m)	1.5	≥3
H (m)	1	1
E (kg/cm^2)	100	125
q_a (t/m^2)	57.1	71.4

ADOPT	**B (m)**	**1.5**	**≥3**
	q (t/m^2)	**20**	**24**

Note : q_s and q_a are NET VALUES, Weight of backfill etc. need not be added to the loading except in case of filling above original G.L.

FOR THE NEST

Managing Partner

LIST OF IS CODES

Field Investigation

1. IS : 1498 - 1970 : Classification and identification of soils for general engineering purposes (First Revision) (Amendment 2)
2. IS : 1892 - 1979 : Code of practice for sub surface investigations for foundations (First revision)
3. IS : 2131 - 1981 : Method of Standard Penetration Tests for soils (First revision)
4. IS : 2132 - 1986 : Code of practice for thin walled tube sampling of soils (Second revision)

Laboratory Tests

1. IS : 2720 - 1983 (Part 1) : Methods of test for soils: Preparation of dry soil samples for various tests (Second revision)
2. IS : 2720 - 1980 (Part 2) : Method of test for soils: Determination of water content (Second revision) Amendment 1
3. IS : 2720 - 1980 (Part 3/Sec 1) : Method of test for soils : Determination of Specific Gravity : Fine grained soils. (First revision)
4. IS : 2720 - 1980 (Part 3/Sec 2) : Method of test for soils : Determination of Specific Gravity : Fine, Medium & Coarse grained soils. (First revision).
5. IS : 2720 - 1985 (Part 4) : Method of test for soils : Grain size analysis (Second revision)
6. IS : 2720 - 1985 (Part 5) : Method of test for soils : Determination of liquid and plastic limit (Second revision)
7. IS : 2720 - 1977 (Part 40) : Methods of tests for soils: Determination of free swell index of soils.

Foundation Construction

1. IS : 1080 - 1986 : Code of practice for design and construction of shallow foundations on soils (other than raft, ring and shell) (Second revision)
2. IS : 1904 - 1986 : Code of practice for design and construction of foundation in soils: General requirements (Third revision)
3. IS 6403 - 1981 : Code of practice for determination of bearing capacity of shallow foundations : First revision (Amendment 1)
4. IS 8009 - 1976 (Part 1) : Code of practice for calculation of settlements of foundations : Shallow foundations subject to symmetrical static vertical loads (Amendment 2)
5. IS 12070 - 1987 : Design and construction of shallow foundations in rocks (RA - 1995)
6. IS 13063-1991 (RA 1996): Structural safety of buildings on shallow foundations on rocks — Code of practice

For THE NEST
Managing Partner

TABLES

For THE NEST

Managing Partner

NAGADI

SOIL PROFILE

Project: Residential building at Nedunkundram Road, Kolapakkam Village, Vandalur Taluk, Chengalpet District.

B.H. Location: | Water Table: 0.7m | Term. Depth : 3.0m | B.H. No. : 1

N - Value#	Depth (m)	Soil Description	Grain Size Analysis				Atterberg Limits		In-situ properties		Triaxial Test		
			Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Density* (g/cm^3)	Water Cont (%)	Type	c (kg/cm^2)	ϕ (°)
	0.0	Ground Level											
9	1.0	Brown silty clayey sand	0	43	27	30	41	17					
	1.3	Change of strata											
	1.5	Brownish grey clayey silty sand with gravels	30	43	16	11	20	13	2.04	16.1	CD$	0.11	28
	2.0	Brownish grey clayey silty sand with gravels											
>50 (58)	2.5	Brownish grey clayey silty sand with gravels	16	42	22	20	24	15					
>50 (40/4cm)	3.1	Refusal strata											

*-Natural Bulk Density # -N Values (Observed)

$ - Remoulded Sample

For THE NEST

Managing Partner

NAGADI

NAGADI CONSULTANTS PRIVATE LIMITED

Geotechnical Consultants

Delhi: 011 (T) 26891980 (F) 26897403 delhi@nagadi.co.in
Bangalore: 080 (T) 23156076 (F) 23303007 bangalore@nagadi.co.in
Chennai: 044 (T) 24487870 (F) 24488957 chennai@nagadi.co.in
Secunderabad: 040 (T) 27754446 (F) 27751194 secunderabad@nagadi.co.in

Job No. : G(C)9865

Sheet No. : 1

SOIL PROFILE

Project: Residential building at Nedunkundram Road, Kolapakkam Village, Vandalur Taluk, Chengalpet District.

B.H. Location: | Water Table: 0.6m | Term. Depth : 3.0m | B.H. No. : 2

N - Value#	Depth (m)	Soil Description	Grain Size Analysis				Atterberg Limits		In-situ properties		Triaxial Test		
			Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Density* (g/cm^3)	Water Cont (%)	Type	c (kg/cm^2)	ϕ (°)
	0.0	Ground Level											
9	1.5	Brown clayey silty sand	0	39	32	29	40	17					
	2.0	Brown clayey silty sand							2.05	15.9	CD	0.10	28
	2.3	Change of strata											
>50 (52) >50 (45/5cm)	2.5	Brownish grey clayey silty sand with gravels	37	35	16	12	20	13					
	3.2	Refusal strata											

*-Natural Bulk Density # -N Values (Observed)

For THE NEST

Managing Partner

NAGADI

NAGADI CONSULTANTS PRIVATE LIMITED

Geotechnical Consultants

Delhi: 011 (T) 26891980 (F) 26897403 delhi@nagadi.co.in
Bangalore: 080 (T) 23156076 (F) 23303007 bangalore@nagadi.co.in
Chennai: 044 (T) 24487870 (F) 24488957 chennai@nagadi.co.in
Secunderabad: 040 (T) 27754446 (F) 27751194 secunderabad@nagadi.co.in

Job No. : G(C)9865

Sheet No. : 2

SOIL PROFILE

Project: Residential building at Nedunkundram Road, Kolapakkam Village, Vandalur Taluk, Chengalpet District.

B.H. Location: | Water Table: 0.6m | Term. Depth : 3.0m | B.H. No. : 3

N - Value#	Depth (m)	Soil Description	Grain Size Analysis				Atterberg Limits		In-situ properties		Triaxial Test		
			Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Density* (g/cm³)	Water Cont (%)	Type	c (kg/cm²)	ϕ (°)
	0.0	Ground Level											
	0.5	Brown clayey silty sand	0	35	34	31	44	17					
	0.8	Change of strata											
16	1.0	Brown clayey silty sand with gravels	34	45	13	8	-	NP					
	1.5	Brown clayey silty sand with gravels							2.07	14.8	CD$	0.09	29
>50 (52)	2.5	Brownish grey clayey silty sand with gravels	30	45	14	11	-	NP					
>50 (50/6cm)	3.0	Refusal strata											

*-Natural Bulk Density # -N Values (Observed)

$ - Remoulded Sample

For THE NEST

Managing Partner

NAGADI

NAGADI CONSULTANTS PRIVATE LIMITED

Geotechnical Consultants

Delhi: 011 (T) 26891980 (F) 26897403 delhi@nagadi.co.in
Bangalore: 080 (T) 23156076 (F) 23303007 bangalore@nagadi.co.in
Chennai: 044 (T) 24487870 (F) 24488957 chennai@nagadi.co.in
Secunderabad: 040 (T) 27754446 (F) 27751194 secunderabad@nagadi.co.in

Job No. : G(C)9865

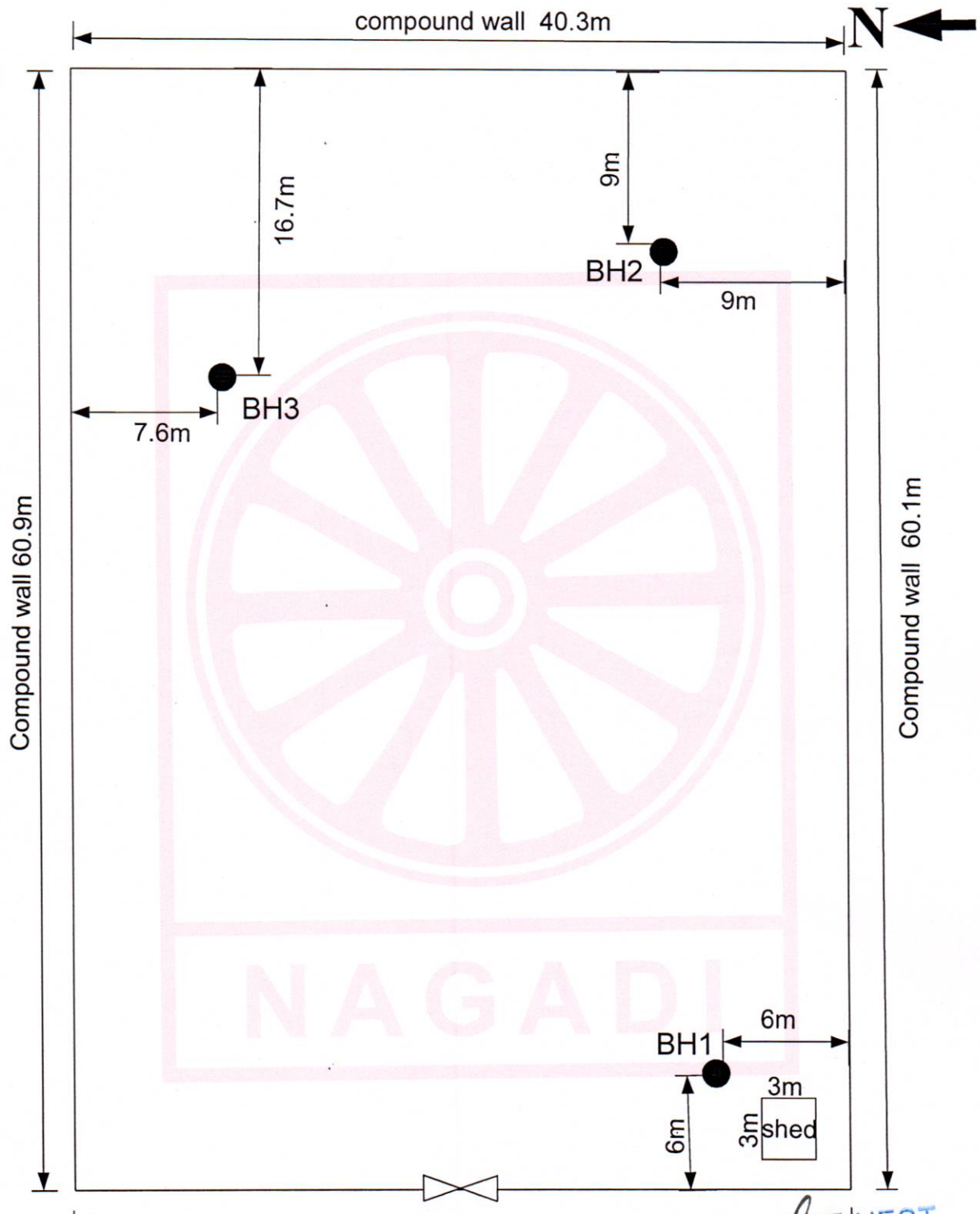
Sheet No. : 3

FIGURES

For THE NEST

Managing Partner

NAGADI



For THE NEST

Managing Partner

SCHEMATIC SITE PLAN
(Not to Scale)

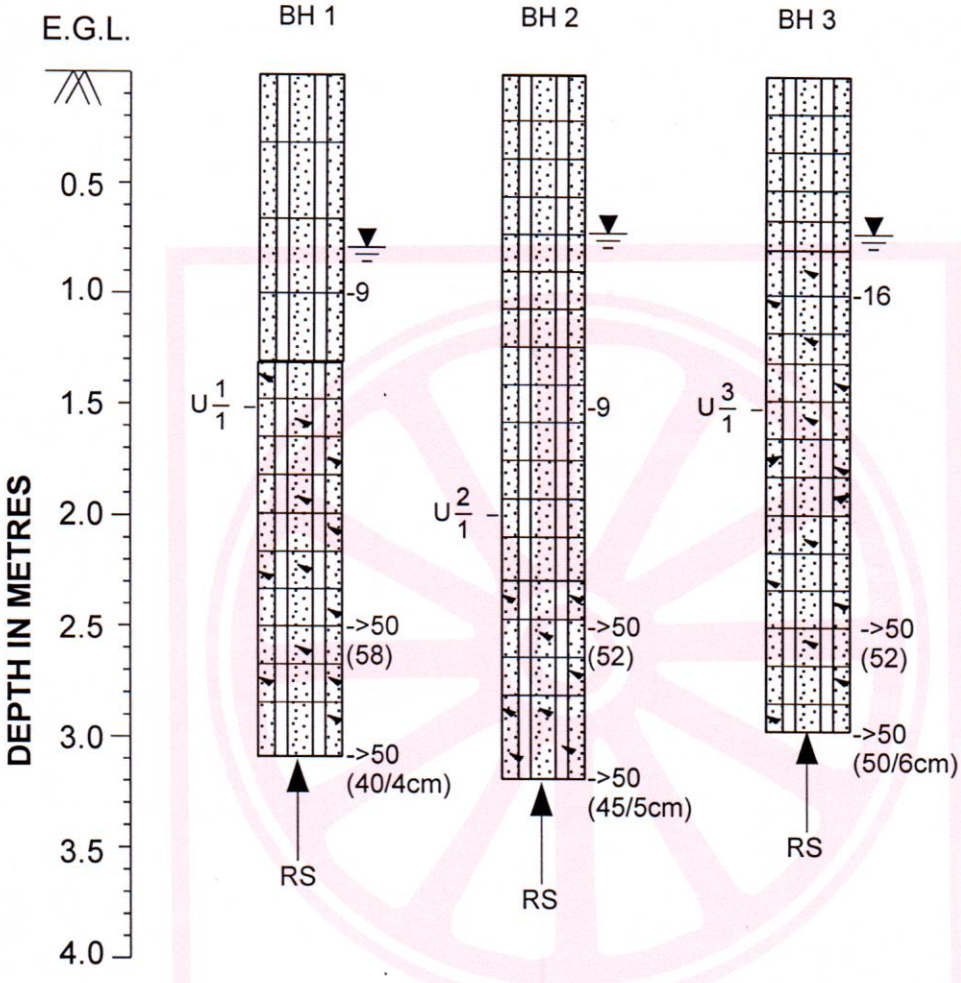
Legend
● **BH -Borehole**

NAGADI CONSULTANTS PRIVATE LIMITED
Geotechnical Consultants

Delhi:	011 (T) 26891980 (F) 26897403	delhi@nagadi.co.in
Bangalore:	080 (T) 23156076 (F) 23303007	bangalore@nagadi.co.in
Chennai:	044 (T) 24487870 (F) 24488957	chennai@nagadi.co.in
Secunderabad:	040 (T) 27754446 (F) 27751194	secunderabad@nagadi.co.in

Job No. : G(C)9865

Sheet No. : 1



LEGEND

Brown/ Silty (27%) Clayey (30%) Sand (43%)

Brown/Grey Clayey (8-31%) Silty (13-34%) Sand (35-45%) with/without Gravel (16-37%)

9 'N' Value (Observed)

Water table observed

E.G.L : Existing Ground level

$U\frac{2}{1}$ – 1st undisturbed soil sample at borehole no.2

COMPILED SOIL PROFILE

PROJECT : Residential building at S.No.72/1A & S.No.72/1B2A1, Kolapakkam village, Vandalur Taluk, chengalpet District.

For THE NEST

Managing Partner

NAGADI CONSULTANTS PRIVATE LIMITED
Geotechnical Consultants

Delhi:	011 (T) 26891980	(F) 26897403	delhi@nagadi.co.in
Bangalore:	080 (T) 23156076	(F) 23303007	bangalore@nagadi.co.in
Chennai:	044 (T) 24487870	(F) 24488957	chennai@nagadi.co.in
Secunderabad:	040 (T) 27754446	(F) 27751194	secunderabad@nagadi.co.in

NAGADI

Job No. : G(C)9865

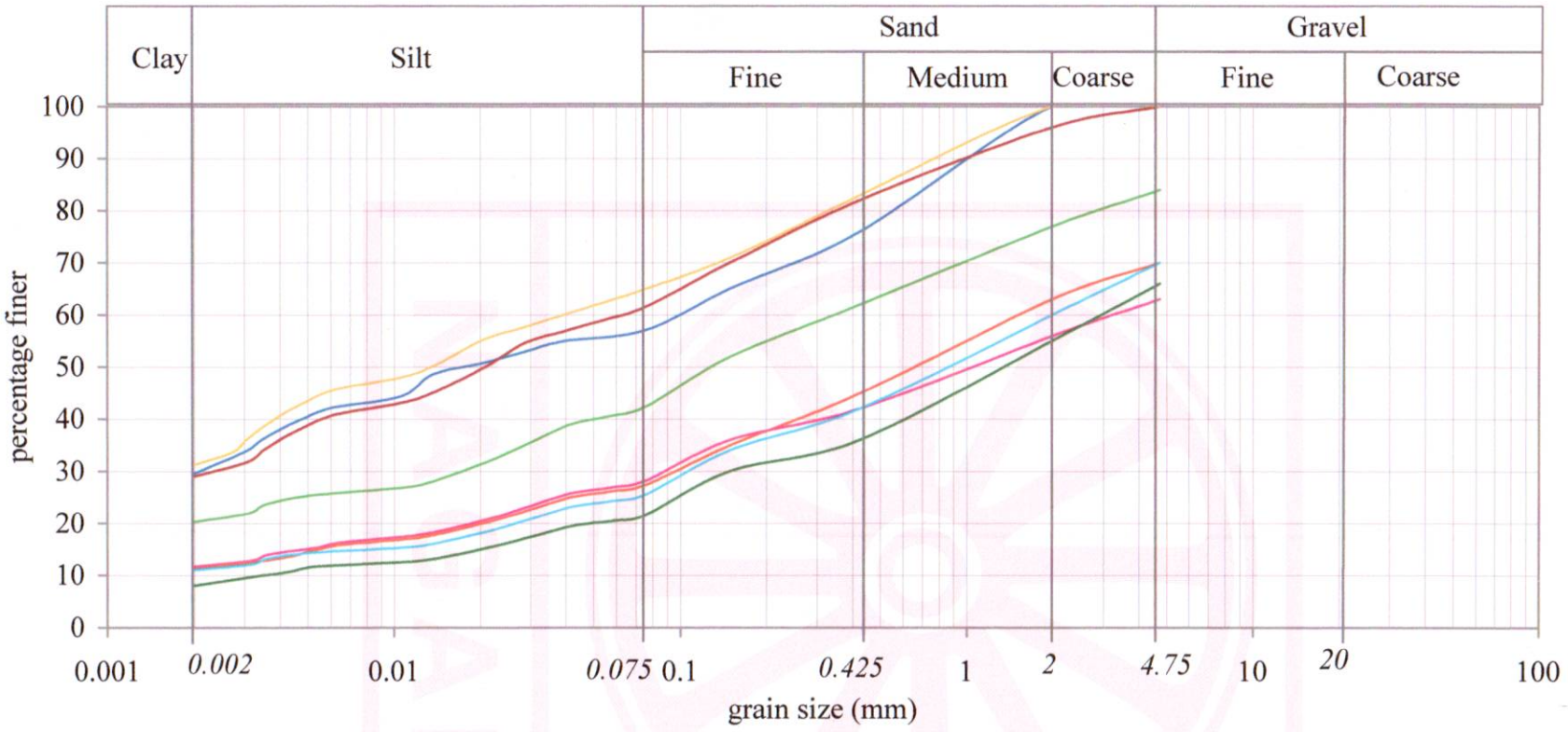
Sheet No. : 2

NAGADI

NAGADI CONSULTANTS PRIVATE LIMITED

Geotechnical Consultants

Delhi: 011 (T) 26891980 (F) 26897403 delhi@nagadi.co.in
Bangalore: 080 (T) 23156076 (F) 2330307 bangalore@nagadi.co.in
Chennai: 044 (T) 24487870 (F) 24488957 chennai@nagadi.co.in
Secunderabad: 040 (T) 27754446 (F) 27751194 secunderabad@nagadi.co.in



Line Style	Bore hole	Depth (m)	Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	d_{60}	d_{10}	U
	1	1.0	Silty clayey sand	0	43	27	30	0.100	-	-
	1	1.5	Clayey silty sand with gravels	30	43	16	11	1.700	-	-
	1	2.5	Clayey silty sand with gravels	16	42	22	20	0.360	-	-
	2	1.5	Clayey silty sand	0	39	32	29	0.065	-	-
	2	2.5	Clayey silty sand with gravels	37	35	16	12	3.400	-	-
	3	0.5	Clayey silty sand	0	35	34	31	0.038	-	-
	3	1.0	Clayey silty sand with gravels	34	45	13	8	3.000	0.034	88.2
	3	2.5	Clayey silty sand with gravels	30	45	14	11	2.000	-	-

For THE NEST
Managing Partner

G(C)9865

Sheet No. : 3a



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