Geo Technologies

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REPORT OF SOIL INVESTIGATION FOR PROPOSED BUILDING AT VIKARABAD, T.S.

1. INTRODUCTION

M/s. Modi Reality Vikarabad L.L.P. are proposing to construct a Building at Vikarabad, T.S.

The proposed building comprises RCC structure with S+4 upper floors.

The aim of this Report is to evaluate the nature and depth of soils at the site, and to determine the safe bearing capacity of the foundations accordingly.

2. FIELD INVESTIGATIONS

The site was visited by Geotechnical Engineer, Mr. A E Sham Sunder on 17-10-2018. The site was a Flat land with a sloping terrain from north towards the south. Six (6) Trial pits were excavated, samples were collected from the bottom of the pits. TP2, TP3, TP4 & TP5 consisted of Silty Sand up to 1.0 m depth, followed by Gravel. These pits were terminated at 1.5 m to 1.7 m. TP1 & TP6 which were located towards the south side consisted of soft Silty Clay up to 2.7 m depth, followed by Gravel. These pits were terminated at 3.0 m. No water was seen in the pits.

3. LABORATORY TESTING

The soil samples were tested in the Soil Mechanics Laboratory at Hyderabad. The following tests were conducted:

Bulk Density Direct Shear test

All the tests were conducted in accordance with IS: 2720 (Code of Practice for Testing of Soils).

4. RESULTS

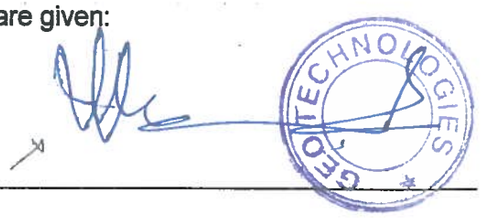
Table 1 gives the results of physical and engineering tests on soil samples. Open foundations are recommended. Appendix gives the calculations for SBC.

5. RECOMMENDATIONS

Based on Lab testing of samples, the following Recommendations are given:

a) The soil samples consist of Gravel.

b) No Water correction is applied.



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c) Open Foundations are recommended as follows:

Sample ID	Foundations Resting in	Depth, m	S.B.C., t / sq. m.
SW & SE	Gravel	3.0	30
West, NW, NE & East	Gravel	1.5	30

d) Actual shape and size would be based on loads from the superstructure.

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PROPOSED BUILDING AT VIKARABAD, T.S.

TABLE-1: SUMMARY OF SOIL PROPERTIES

TP No.	Sample ID	Depth, m	Soil	Unit weight, kN / cu m	Shear Parameters	
					C	Φ
					kN/m^2	deg
1	SW	3.0	Gravel	18.7	10	33
2	West	1.7	Gravel	18.8	8	34
3	NW	1.5	Gravel	18.8	7	34
4	NE	1.5	Gravel	18.8	8	34
5	East	1.5	Gravel	18.8	8	34
6	SE	3.0	Gravel	18.7	10	33

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APPENDIX: TYPICAL CALCULATIONS OF BEARING CAPACITY

As per IS: 6403: 1981

Based on Sample ID - SW:

Assumed depth of foundation D = 3.0 m

Assumed Width of foundation B = 2.0 m

Assumed Unit wt. r = 18.7 kN / cu m,

Cohesion = 10 kN / sq m;(Neglected) Φ = 33 degrees

Using IS Code 6403 -1981 formula for Isolated footings:

Nc= 25.92 Nq= 15.41 Nr = 20.12

Net ult B.C. = 1.3 c Nc+ r D (Nq -1) + 0.4 r B Nr = 1109 kN/ sq m

With a FS of 3, SBC = 369 kN / sq m

Recommended Safe Bearing capacity is 30 tonnes per sq m at 3.0 m depth

Based on Sample ID - East:

Assumed depth of foundation D = 1.5 m

Assumed Width of foundation B = 2.0 m

Assumed Unit wt. r = 18.8 kN / cu m,

Cohesion = 8 kN / sq m;(Neglected) Φ = 34 degrees

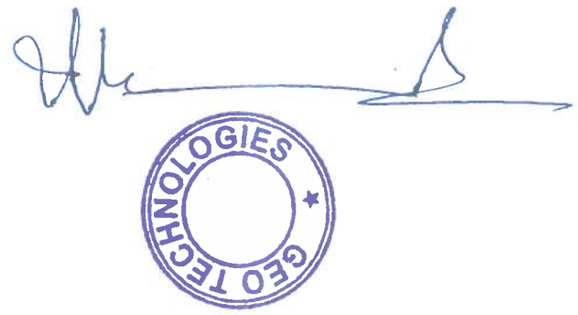
Using IS Code 6403 -1981 formula for Isolated footings:

Nc= 31.45 Nq= 20.36 Nr = 26.57

Net ult B.C. = 1.3 c Nc+ r D (Nq -1) + 0.4 r B Nr = 946 kN/ sq m

With a FS of 3, SBC = 316 kN / sq m

Recommended Safe Bearing capacity is 30 tonnes per sq m at 1.5 m depth



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