

**REPORT OF SOIL INVESTIGATIONS FOR
THE PROPOSED BUILDINGS AT
KAPRA (V), GHMC KAPRA CIRCLE
KEESARA (M), R. R. DISTRICT**

Prepared by

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1. INTRODUCTION

M/s Vista Homes, and others are proposing to construct Buildings at Sy. Nos. 193, 194 & 195 situated at Kapra Village, Kapra Circle, GHMC, Keesara Mandal, R. R. District.

Total area of the site is 5 acres 25 guntas.

The buildings comprise RCC framed structures with C + S + 5 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

One (1) trial pit was excavated at the site.

The generalized subsoil profile in the site consists of filling and loose soil in the top 2.0 m, followed by hard morum. No water is seen in the pits.

3. LABORATORY TESTING

The soil samples from the site were tested in the Soil Mechanics Laboratory at Hyderabad. The following tests were conducted in accordance with IS: 2720 (Code of Practice for Testing of Soils):

Specific gravity

Bulk Density

Grain size distribution

Direct shear test

4. RESULTS

Table 1 gives the results of physical and engineering tests on soil samples. At 3 m depth below ground level, the soil is hard morum. It is designated as silty gravel (GM) as per IS: 1498.

Isolated foundations are recommended. No correction is needed for water table.

Appendix gives the calculations for SBC.

5. RECOMMENDATIONS

Based on Field investigations, the following Recommendations are given:

- a) The subsoil profile in the site consists of filling and loose soil in the top 2.0 m, followed by morum.
- b) No Correction is applied for water table.
- c) SBC is recommended as 35 tonnes per sq m for foundations resting on hard morum. This is based on the assumption of isolated footings of width 2 m at 2 m depth below cellar floor level. The actual size would be based on the loads from the super structure.
- d) SBC will be finalized later after detailed investigations.
- e) All foundations should be carried to hard strata.
- f) All foundation pits should be filled back with well-compacted morum.



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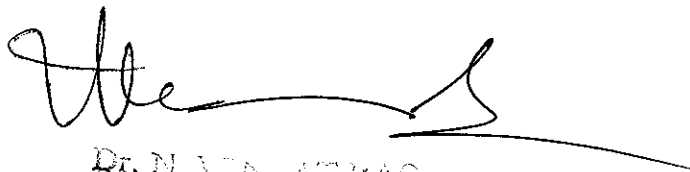
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TABLE 1

SUMMARY OF SOIL PROPERTIES

PROPOSED BUILDINGS AT KAPRA (V),
GHMC KAPRA CIRCLE, KEESARA (M), R. R. DISTRICT

Property	Location
	TP 1
Specific gravity	2.61
Density, KN / cu m	18.0
Grain size distribution	
Gravel > 4.75 mm	20
Coarse sand, 4.75-2 mm	21
Medium sand, 2-0.425 mm	23
Fine sand, 0.425-0.075 mm	24
Silt, 0.075-0.002 mm	8
Clay, < 0.002 mm	4
Shear Parameters	
Cohesion	3
Angle of internal friction, deg	35



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APPENDIX

CALCULATION OF BEARING CAPACITY

PROPOSED BUILDINGS AT KAPRA (V),
GHMC KAPRA CIRCLE, KEESARA (M), R. R. DISTRICT

a) Shear Criterion:

Assumed width of foundation... 2 m

Assumed depth of foundation... 2 m

Unit wt. = 18.0KN / cu m

Cohesion = 3 KN / sq m (Neglected) Angle of internal friction = 35 deg.

No correction is needed for water table.

Using IS Code 6403 – 1981 formula:

$N_c = 33.53$ $N_q = 22.07$ $N_r = 29.58$

Net, Ult B.C. = $1.3 c N_c + r D (N_q - 1) + 0.4 r B N_r$
= 1184 KN per sq m

With a F.S. of 3.0, SBC = 394 KN per sq m

b) Settlement Criterion:

In frictional soils as these, settlement is a better criterion. Based on the results of Direct shear test, N is taken as 25. For a permissible settlement of 40 mm,

Allowable bearing capacity = $12.3 N [(B + 0.3)/B] R_q R_d$
= 353.6 KN per sq m

Recommended Safe Bearing Capacity is 35 tonnes per sq m.

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Groundwater Feasibility Report

Client: M/s Vista Homes

Address: Sy. Nos. 193, 194 & 195, Kapra (V), GHMC, Kapra, Keesara (M), R. R. District

Area: 5 acres 25 guntas

1. Geology:

- (a) Rock Type: Granite
- (b) Texture : Coarse to Medium grained
- (c) Soil Type: Silty gravel
- (d) Recharge Conditions: Moderate

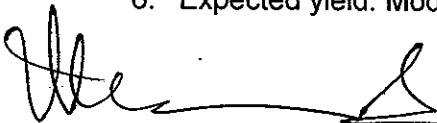
2. Geophysical Data:

- (a) No. of Vertical Electrical Soundings (VES): 5
- (b) Configuration: Schlumberger
- (c) Generalised Sequence based on VES:

0 – 5 m ... Top soil
5 – 15 m ... Weathered zone
15 – 70 m ... Rock with intermittent fractures
70 – 150 m ... Hard Rock with minor fractures
Below 150 m ... Hard rock with no fractures

3. Recommendations:

1. The site has moderate potential for groundwater. One point is suggested for drilling in N-E Corner.
2. Type of well: Bore well
3. Size: 6 ½ "
4. Depth: 150 m
5. Casing: 15-20 m
6. Expected yield: Moderate (1 ½ " – 2 ")



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