

**REPORT ON GROUND INVESTIGATION
AT
21 KIDDERPORE GARDENS
LONDON NW3 7SS**

CLIENT: MR & MRS GORDON

DATE: 15 FEBRUARY 2012

REF: G/021217/001

K F GEOTECHNICAL

CONSULTING GEOTECHNICAL
ENGINEERS

W. J. C. WALLACE B.Eng (Hons.)

85 Alexandra Road
Farnborough
Hants GU14 6BN

Tel: Farnborough (01252) 518821
Fax: Farnborough (01252) 370394
Email: kfgroup@fbro.demon.co.uk

Consultant
G. L. Martin B.Sc., M.Sc., C.Eng., M.I.C.E.

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1. INTRODUCTION

- 1.1 We were instructed by Naomi and Steven Gordon, the owners of the property, to carry out a ground investigation by means of a single flight augered borehole to 12.0m.
- 1.2 The purpose of the investigation was to determine ground conditions to assist in the design of additions and alterations to the property including a basement.
- 1.3 The site work took place on the 1 February 2012.

2. THE SITE

- 2.1 Kidderpore Gardens lies to the northeast of Finchley Road and the southwest of Hampstead Heath. It is a residential street linking Kidderpore Avenue to the south and Ferncroft Avenue to the north and No. 21 lies on the west side of the road and is the right hand unit of a pair of semi-detached properties with a garage attached to the right side.
- 2.2 The site is basically level.
- 2.3 At the front of the property there is a small garden area either side of a central pathway. There are a few small shrubs and bushes within the front garden and in the walkway at the front there is what we believe to be a plum tree.
- 2.4 The Geological Survey Sheet for the area, Sheet No. 256 (North London) indicates that the naturally occurring subsoil is Claygate Beds over London Clay.

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3. SITE WORK

- 3.1 The layout of the site and the location of our single borehole is indicated on our Location Plan G/021217/101. The log of the borehole is appended at the rear of this report.
- 3.2 The borehole revealed turf and topsoil to 0.3m over made ground consisting of a gravelly sandy silty clay with brick fragments extending to 1.7m. Below this is the natural ground consisting initially of a firm sandy silty clay, changing at 2.7m to a stiff sandy silty clay then at 4.6m to a stiff silty clay that becomes a stiff grey silty clay below 5.4m typical of an undisturbed unweathered London Clay and this is proved to the base of the borehole at 12.0m.
- 3.3 Roots of live appearance were encountered to 1.4m and there was slight water seepage at 8.2m and water was standing at 10.2m on completion.
- 3.4 In-situ testing by hand held vane test was carried out at regular depths in the borehole and the results are indicated on the log.
- 3.5 Disturbed samples were taken at regular depths and these were bagged and labelled and sent to our laboratories for appropriate geotechnical analysis.

4. LABORATORY WORK

- 4.1 Moisture contents were determined on all samples down to 6.0m with liquid and plastic limits being determined on the samples taken from 2.0m and 3.0m. The results are appended.
- 4.2 Where tested, the clay is of high plasticity but only of medium shrinkage potential. When the moisture contents are compared with the liquid and plastic limits there is no sign of any desiccation and this is consistent with the results of the in-situ vane testing.

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5. DISCUSSION

- 5.1 The ground investigation revealed the anticipated geology with the exception of perhaps of the depth of made ground. The natural subsoil down to 4.6m is more typical of Claygate Beds. Between 4.6m and 5.4m is a weathered London Clay and below this an unweathered London Clay typified by its grey colour.
- 5.2 The in-situ vane test results indicate a safe bearing capacity at 2.0m of 140kPa and at 3.0m in excess of 200kPa and we would recommend these figures for design purposes.
- 5.3 The clay is of medium shrinkage potential according to the NHBC Standard and there is no sign of any desiccation and on this basis we can see no reason why anti-heave precautions would be required for any parts of the alterations that even these might be shallow founded. However, the situation might not be the same at the rear of the property if there are any nearby trees or other significant vegetation.
- 5.4 We understand that it is proposed to construct a basement beneath the existing property and we give below parameters for basement wall design.
- Bulk density (γ_m) - 18kN/m³
- Critical state angle of shearing resistance (c') crit - 24°
- Effective cohesion (c') - 0.
- 5.5 Water was encountered in our borehole at 10.3m and this probably relates to a claystone layer. This, however, is well below the anticipated depth of any basement and there should, on this basis, be no difficulty with the excavation of the basement with regard to water.
- 5.6 Because the subsoil is clay there will be some heave recovery at the base of basement excavation. If the excavation is relatively small it is unlikely, on this basis, that the net uplift would be more than 15mm and we would recommend this figure for design purposes.

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- 5.7 Although the borehole was dry to below the depth of the basement excavation, some allowance should be made for hydrostatic pressure.
- 5.8 The excavation for the basement will be exclusively within highly plastic clay which is largely impermeable. There will, therefore, be no adverse effect on the natural flow of groundwater because there is none and in any case the site is basically level so any groundwater encountered is likely to be static.



W J C Wallace