

4 The Hexagon, Fitzroy Park

Report to FPRA

1.0 Brief

Alan Baxter Ltd have been appointed by the Fitzroy Park Residents Association (FPRA) to review the engineering, geotechnical and hydrogeological issues associated with the new development at 4 The Hexagon, Fitzroy Park.

Details of the proposal which have been submitted for planning have been considered.

We have also been asked to review the construction logistics in relation to material delivered to and removed from the site.

2.0 Overview

The proposals are relatively modest in that the proposed lower ground floor level is only approximately 0.5m lower than the existing level. However the proposed lower ground floor now extends over the full footprint of the house, which will require retaining structure on two sides of the "lower ground floor".

A contiguous bored pile wall is proposed on the northern boundary and reinforced concrete underpins are proposed on the south-easterly side.

The ground conditions are Claygate Beds which are overlain by downwash or Head Deposits with variable depths of made ground over them. Three boreholes were constructed with standpipe installed in two of them. No groundwater monitoring results have been provided but it was noted that some groundwater was found at the interface between the made ground and the downwash material. Both the downwash material and Claygate Beds were noted to be sandy clays and no sand lens are noted in the borehole logs.

3.0 Comments on the Proposals

3.1 Hydrology

We do not envisage that the enlarged lower ground floor will have a significant impact on the overall hydrology of the area.

3.2 Groundwater

As the lower ground floor now extends to the site boundary on two sides of the site, it could locally impact on any flow of groundwater at the junction of the made ground and the downwash (noted in one of the boreholes). A land drain is proposed on the northern boundary which should address this adjacent to No. 3 The Hexagon. However, the retaining structure could locally impact on the groundwater at the corner of No. 5 and along part of the boundary with No. 6 The Hexagon. Ideally a drain should be provided in this area, but this would require an alternative method of construction and a reduction in the size of the lower ground floor.

The groundwater is proposed to be put back into the ground using land drains in the garden. The effectiveness of this will depend on the local permeability of the ground. No tests have been carried out in relation to this, so there is a small risk that this could lead to groundwater appearing in the garden.

3.3 Ground Movement Analysis

A simplified ground movement analysis has been carried out using CIRIA Report C580, which relates to piled walls. This is appropriate for the contiguous piled wall, but has been used for both this section and for the underpinned wall. While strictly speaking, this analysis does not apply for this, it is commonly used.

Provided that the retaining walls are propped as noted in the engineering report, then ground movement should be small and unlikely to be of a concern.

At a later date, the contractor should provide more details of the proposed temporary works.

3.4 Construction Issues

As requested, we have briefly reviewed some of the volumes of materials, both on and off site, which will result in a reasonable number of vehicle movements. The two most obvious ones are:

The approximate volume of soil to be removed from site is 400-450m³. This will probably require 80 to 90 relatively small skip size lorries or 160 to 180 vehicle movements.

The approximate volume of concrete required to form the lower ground floor including the piles and underpinning is 130m³. It is noted that all concrete will be site mixed, but it will still require 25-30 lorries to deliver the materials or 50-60 vehicle movements.

We have not carried out a detailed assessment of all vehicle movements, but our estimate generally appears to be in line with the Anticipated HGV deliveries stated within the document provided.

We have also been asked to make an approximate estimate of the total weight of the material brought to or removed from site. The weight of soil and concrete noted above is in the region of 1150 Tonnes (T). The weight of other materials, assuming an average load carried for each lorry of 5T will be in the region of 1075T. It is reasonable to assume that the lorries/vans will be lighter during the fit out stage. If an average weight of 4T is assumed for the fit out phase, this will weigh in the region of 400T.

In summary, and as an approximate estimate, the total weight of materials taken from or delivered to site is in the region of 2625T. If the self-weight of the HGV's used is added, the total weight will be in the region of 4500T.