### Garden House, Ellerdale Road, NW3

### **Response to comments by Campbell Reith**

## 1.0 Introduction

This report has been prepared for Jon McElory, by Alan Baxter Ltd. We produced a Basement Impact Assessment for the proposed basement at Garden House, Ellerdale Road as part of planning application 2015/7036/P. Our BIA has since been reviewed by Campbell Reith (CR) and their comments set out in their report dated June 2016, reference 12336-7 Rev D1.

We note that CR has raised three queries which require a response as set out in the audit query tracker in Appendix 2 of their report. This note sets out our response to the comments. The query numbers are as per the audit query tracker.

## 2.0 Response to comments

#### 2.1 Query 1

Clarification was requested on the methods to be adopted to avoid excavation base failure due to groundwater pressures beneath the base of the excavation.

The results from the ground investigation, set out on drawing 1706/02/31 in Appendix J of the BIA indicated that the groundwater pressures are not significant and therefore this is unlikely to be an issue.

The bored contiguous piles will extend to around 12m below ground level. The boring of the piles will be monitored to establish whether they intersect any sand lenses containing water under pressure. As the piles will extend to around 4m below the base of the excavation they will puncture any sand lenses containing water under pressure thus relieving the pressure. Lenses containing water under pressure below this will have at least a 4m overburden at the base of the excavation. Given the basement's small plan area, it is very unlikely that a lens containing any significant amounts of water under pressure will be located solely within the piled wall.

Although we don't think it necessary, based on our reasoning above, the groundwater pressures below the base of the excavation will be monitored and action taken if this appears to be an issue. Broadly how this could be achieved is set out in section 5.2 of the BIA but the details will need to be developed by the contractor once the nature of the issue is known.

# 2.2 Query 2

Campbell Reith has requested clarification on whether the wall embedment depth of 4m satisfies the requirements of Section 6.3.5 of CIRIA C580 which states 'the wall toe level should be the deeper of that required to satisfy load bearing capacity, hydraulic cut-off and uplift, global stability or lateral stability'.

The piles are to be contractor designed however we have carried out our preliminary assessment of the design for the BIA.

We have estimated the depth of the piles required to satisfy load bearing capacity is 3.5m. This is based on shaft adhesion and end bearing values provided in the SI report and assuming a FOS of 3.0, which is in excess of normal requirements.

Hydraulic cut-off is not relevant here as a contiguous pile wall is proposed.

We have estimated the highest credible groundwater level to be at 3mbgl for reasons set out in drawing 1706/02/04 in Appendix B of the BIA. The weight of the basement itself is sufficient to resist uplift on this basis. Should the groundwater rise above the highest credible level the FOS against uplift, using the self-weight only, is still greater than one discounting loads from finishes and friction between the basement and surrounding ground (i.e. conservative).

Global stability is not an issue. As shown in the sequence of construction drawings set out in Appendix K of the BIA, stiff temporary propping will be provided at high, mid and low level and in the permanent case propping of the retaining walls is provided by stiff RC slabs.

By inspection, laterally stability is not an issue.

Therefore a pile embedment depth of 4m is deemed sufficient to satisfy the requirements of section 6.3.5 of CIRIA C580.

#### 2.3 Query 3

The report notes that the magnitude of heave has not been given. This was discussed with Campbell Reith and it was concluded that given a heave protection layer is provided and the basement is small on plan, calculating the magnitude would not be necessary for the BIA.

#### 2.4 Other

The report notes that proposals for a movement monitoring strategy are not set out in the report. As suggested these will be agreed as part of the party wall award process.