Chelmer
Consultancy Services
'Ground-breaking Services'

6 Beechworth Properties Ltd

20th July 2016

Our Ref: 6970a

6 Beechworth Close, London NW3 7UT – Response to LBH Wembley

We write in response to your request for comments on the 'Independent Review of Basement Impact Assessment for planning application 16/01277/S73' by LBH Wembley (LBHW, Ref: LBH4418 Ver. 0.1, dated 4th July 2016).

General Comments:

1. Our Basement Impact Assessment reports (original and revised) were specifically hydrogeological Basement Impact Assessments which, although not included in the title, was recorded in paragraph 1.5, as noted by LBHW, and in the title to Section 7 – "Hydrogeological Basement Impact Assessment". The continuing theme throughout their report that our hydrogeological BIA was actually a defective 'full' BIA is therefore inappropriate. The hydrogeological BIA was never intended to cover the other aspects which would normally be included in a 'full' BIA because those aspects were provided in separate documents as described below and as fully referenced by LBHW in their list of "Information Examined".

2. The hydrogeological BIA formed part of a suite of documents which support the original/current planning applications including:
   - Ground Stability Report by CSI.
   - Flood Risk Assessment by CSI.
   - Geotechnical Interpretive Report by CSI.
   - Construction Method Statements (CMS), originally by Fidler Associates, and more recently by Hennerton.

All these reports are listed under "Information Examined" in Section 1.4 of LBHW's report, with the exception of the original CMS by Fidler Associates.

3. LBH Wembley will be aware that it is common practice for multiple specialist reports to be submitted in support of individual planning applications for basements, especially where the lead consultants do not have all the required technical expertise available in-house.
4. To our knowledge, no 'Hydrology Report' as defined in LB Barnet's Sustainable Design & Construction SPD has been requested by any party in relation to this basement.

Specific Comments:

A. LBH Wembley's brief is stated (in Section 1.2) as "to provide an independent assessment of information submitted against the requirements of planning policy". The relevant policies are those of the London Borough of Barnet, as identified in Section 2.1. Minimal evidence has been seen to suggest that they have considered any of the technical reports, by ourselves or others, other than our hydrogeological BIA.

B. Section 3.1: While we agree that the "three broad areas of consideration" in a 'full' BIA are as identified by LBHW (and we have prepared many such BIAs ourselves), only the 'groundwater flow (hydrogeology)' item is relevant to our hydrogeological BIA. For the other two items:
   - Surface water flow and flooding: See CSI's Flood Risk Assessment (Ref: FRA/3369 Rev.2, October 2012).
   - Ground stability: See CSI's Ground Stability Report (Ref: GSR/3369 Rev.2, October 2012).

Sections 3.1.2 and 3.1.3 are therefore irrelevant to LBHW's review of our Hydrogeology BIA.

C. Section 3.1.1.a is correct, the site is underlain by the Claygate Member aquifer (to depths of 3.9-4.4m at least), but reference to the borehole logs would have shown LBHW that the strata encountered in the three boreholes are predominantly clays with only laminations of silt and fine sand (laminae are defined in BS5930 as being less than 20mm thick). While the CFA drilling method used for these boreholes does not permit accurate identification of individual laminae or thin beds of silt/sand, the water strikes within these strata had been proven (on a site adjacent to this site on Elm Walk) to be a good guide to the level of thicker laminae/thin beds of silt/sand in these strata (see also Comment L below).

D. Section 3.1.1.b selectively reports the risks identified in the first part of paragraph 7.3.5 of the hydrogeological BIA, but not our conclusion in the second part which stated "*However the pressure reduction is unlikely to exceed that which will have occurred naturally during past fluctuations of groundwater levels and it is anticipated that there will be little or no pressure reduction beneath the foundations to No.1 Elm Walk which are estimated to be about 9m from the proposed basement.*" This opinion remains valid; see also Comment O below.

E. Section 3.1.1.c: There are no springs in the vicinity of the site and no watercourses that we are aware of which are likely to be affected. In the unlikely event that locally concentrated flow is encountered, sufficient possibly to give rise to changes in the groundwater regimes in sites around this property, then a groundwater bypass could be installed, subject to formal design once the geometry of the more permeable soil unit is known.

F. Section 3.1.1.d: No increase in discharge of surface water to the ground would be acceptable. Instead, any increase in hard surfacing should be mitigated by the use of one of the various methods of temporary interception storage in order avoid any increase in run-off to the mains drainage system.

G. Section 4, second paragraph: There is nothing in Barnet's 2013 SPDs which is relevant to the hydrogeological impact of the proposed basement, so there was no need to reference those SPDs.

H. Section 4, third paragraph: Once again, structural matters were considered in our Ground Stability Report, which LBHW appear to have largely ignored even though it was listed in their report as "Information Examined".

I. Section 4, paragraphs 4 to 6: A swimming pool was previously proposed so it is misleading of LBHW to suggest that "an additional level of basement has been added". Increasing the depth of the basement below the base of the clays with laminations of silt/sand, which was recorded at 94.3-94.55m AOD, will have no significant additional hydrogeological impact because the clays below that level are expected to have very low permeabilities and hence no significant groundwater flow.

J. The remaining paragraphs 7 to 14 of Section 4 provide a reasonable summary of the findings in our Hydrogeological BIA.

K. Section 5.1: We would welcome, and have lobbied some Councils for, planning policies in London boroughs which require ground engineering experts to be involved throughout the construction of basements, but at present none of the boroughs have such a policy. As a result, the role of ground

engineering experts remains advisory, providing recommendation for implementation by the structural engineers who typically have responsibility for the construction of the basement shell. Structural engineering input was provided for the original scheme by Fidler Associates, and is understood to have been provided for the current scheme by Hennerton. Once again, the impact of structural aspects of the scheme was considered in our Ground Stability Report.

L. Section 5.2: LBHW have overlooked the advice in paragraph 6.2 of our report, that the findings of the three boreholes on this site provided corroboration of two previous investigations on an adjacent site in Elm Walk. The first investigation by SLR Consulting used a CFA rig. Our subsequent investigation used a 'windowless' sampling rig in order to study the geology in more detail; the findings were similar to those from the investigation at 6 Beechworth, and found permeable layers at or close to the levels of the water strikes in SLR's boreholes. Thus, we are confident that the geological map is wrong and that there is no Bagshot Formation strata beneath this site, and hence do not consider that there is any need for further ground investigation.

M. The list of components "expected in a good BIA" has been lifted from Camden's audit system and is not universally applicable; some aspects are concerned purely with report formatting and other non-technical matters (eg: consultation with neighbours), and the list omits other aspects which we now include in 'full' BIAs. The scope of BIAs has evolved since the original suite of documents were prepared for this basement in 2012, but we remain of the view that the submitted hydrogeological BIA covers adequately the groundwater issues associated with this basement.

N. Section 5.3: A long-section from the watershed to the Leg of Mutton Pond will add nothing to our understanding of the groundwater regime on and immediately around this site. We have a series of groundwater readings from three triangulated boreholes which gave a flow direction that is consistent with the topography and the expected flow towards the valley and the Leg of Mutton pond. This is far more detailed than for many similar basement schemes.

O. The rigorous analysis of ground movements recommended in our Ground Stability Report concerned the magnitudes of base heave beneath the basement slab(s) in Section 7.2 of that report, not the 'Ground movements alongside the basement' in Section 7.1, so would not be relevant to potential movements affecting neighbouring properties. The closest point between this basement and the surrounding houses is at the southern corner of House A/1's basement, which will be approximately 9.4m from the northern corner of the single-storey section of No.1 Elm Walk (note, this is corner to corner, which reduces the potential impact on the neighbouring building). The closest approach of House A/1 to the main part of No.1 Elm Walk will be a separation of about 14.6m between the lightwell on the south side House A/1. While data published in CIRIA C580 could be used to predict the magnitude of likely displacements (if any) beneath No.1 Elm Walk, at these separations we are confident that provided the bored pile walls are constructed in accordance with best practice there is very unlikely to be any discernible movement or damage to No.1 Elm Walk.

P. Section 5.5: Please refer to the appointed Structural Engineer.

Q. Section 5.6: Unfortunately all three standpipes have already been destroyed.

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'Ground breaking Services'

Conclusions:

The report considered by LBHW was purely a hydrogeological BIA; other reports by ourselves and others provided most of the information which LBHW state was missing from the hydrogeological BIA. We remain of the opinion that the scope of the ground investigation was sufficient for the proposed scheme, especially considering our prior knowledge of an adjacent site, and no further ground investigation is required. The construction sequence and methodology have been provided by others and, while a more detailed ground movement analysis could be undertaken, we are confident that it would predict no significant damage to the nearest neighbouring property (No.1 Elm Walk).

Please contact us if you require clarification of any aspect of these matters.

Yours sincerely