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34 Avenue Road
London
NW8 6BU

Basement Impact Assessment Audit

For

London Borough of Camden

Project Number: 13693-75

Revision: F1

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1.0 NON-TECHNICAL SUMMARY

1.1. CampbellReith was instructed by London Borough of Camden, (LBC) to carry out an audit on the Basement Impact Assessment submitted as part of the Planning Submission documentation for the 34 Avenue Road, London NW8 6BU (planning reference 2022/2014/P). The basement is considered to fall within Category B as defined by the Terms of Reference.

1.2. The Audit reviewed the Basement Impact Assessment (BIA) for potential impact on land stability and local ground and surface water conditions arising from basement development in accordance with LBC's policies and technical procedures.

1.3. CampbellReith was able to access LBC's Planning Portal and gain access to the latest revision of submitted documentation and reviewed it against an agreed audit check list.

1.4. The BIA has been prepared by Geotechnical & Environmental Associates Ltd with supporting documents provided by engineers HRW and shh Architects and Interior Design. The qualifications of the authors of the BIA are in accordance with LBC guidance.

1.5. It is understood that the existing detached building is to be demolished and replaced with a new three-storey house over a larger footprint. The proposed building will include a single level basement to a depth of 4.00m below ground level (bgl) and a deeper swimming pool excavation to a depth of 6.00m bgl.

1.6. The BIA includes the majority of the information required from a desk study in line with the GSD Appendix G1.

1.7. A site investigation indicated that the ground conditions comprise Made Ground overlying the London Clay Formation. Groundwater was encountered within the Made Ground at 2.05m bgl. There will be no impacts to groundwater flow.

1.8. Interpretative geotechnical information has been provided in accordance with the LBC guidance, which also includes preliminary information in regard to the proposed piled foundations.

1.9. Outline temporary and permanent works structural information for the proposed basement is provided.

1.10. A ground movement assessment (GMA) indicates that adjacent buildings will sustain no more than Category 1 damage (Very Slight) in accordance with the Burland Scale.

1.11. The BIA confirms that structural monitoring will be undertaken during the works with trigger values adopted to control construction and mitigate impacts to adjacent structures and infrastructure. Asset protection criteria should be agreed with the relevant asset owners.

1.12. The site is within a Critical Drainage Area and proposals for attenuated drainage in accordance with best practice should be agreed with LBC and Thames Water. There will be no impacts to surface water flow.

1.13. The BIA meets the requirements of CPG Basements.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 19th August 2022 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 34 Avenue Road, London NW8 6BU, Camden Reference 2022/2014/P.

2.2. The Audit was carried out in accordance with the Terms of Reference set by LBC. It reviewed the Basement Impact Assessment for potential impact on land stability and local ground and surface water conditions arising from basement development.

2.3. A BIA is required for all planning applications with basements in Camden in general accordance with policies and technical procedures contained within:

- Guidance for Subterranean Development (GSD). Issue 01. November 2010. Ove Arup & Partners.
- Camden Planning Guidance (CPG): Basements. January 2021
- Camden Development Policy (DP) 27: Basements and Lightwells.
- Camden Development Policy (DP) 23: Water.
- The Local Plan (2017): Policy A5 (Basements).

2.4. The BIA should demonstrate that schemes:

a) maintain the structural stability of the building and neighbouring properties;

b) avoid adversely affecting drainage and run off or causing other damage to the water environment; and,

c) avoid cumulative impacts upon structural stability or the water environment in the local area;

and evaluate the impacts of the proposed basement considering the issues of hydrology, hydrogeology and land stability via the process described by the GSD and to make recommendations for the detailed design.

2.5. LBC's planning portal describes the proposal as: *"Demolition of the existing house and replacement with a two-storey dwellinghouse plus an attic floor, basement, landscaping, parking and associated works.*"

2.6. The planning portal confirmed the site lies within the Elsworthy Conservation Area; however, the site is not listed and there are no listed buildings present within the vicinity of the site.

2.7. CampbellReith accessed LBC's Planning Portal on 8th September 2022 and gained access to the following relevant documents for audit purposes:

- Ground Investigation & Basement Impact Assessment Report (ref J22076, Rev 2) dated May 2022 by Geotechnical & Environmental Associates Limited (GEA).
- Structural Engineer's Construction Method Statement (ref 2239) dated 5 May 2022 by engineersHRW.
- Basement Calculations (ref (0909)0004_PL01) dated May 2022 by shh Architects and Interior Design.
- Site Location Plan and existing and proposed plans and sections dated May 2022 by shh Architects and Interior Design with associated elevations by KinLand Design dated April 2022.
- Arboricultural Impact Assessment (ref SHH/32AVR/A1A/01a) dated 25 April 2022 by Landmark Trees.
- Design & Access Statement (ref PL01) dated May 2022 by shh Architects and Interior Design.
- Planning Statement dated May 2022 by hgh Consulting.

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	
Is data required by Cl.233 of the GSD presented?	Yes	
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	Yes	
Are suitable plans/maps included?	Yes	
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	Yes	
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 3.1.2 of the BIA. The historic River Tyburn flowed 15m west of the site and it is understood that this has been culverted to form part of the local surface water sewer. A Thames Water sewer is present beneath Avenue Road with an exclusion zone extending onto the site; however, the proposed development is set back such that it does not intersect the exclusion zone.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 3.1.1 of the BIA.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 3.1.3 of the BIA.
Is a conceptual model presented?	Yes	Section 7 of the BIA outlines a ground model for the site.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 4 of the BIA. Further assessment through ground investigation.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 4 of the BIA. Further assessment through ground investigation.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 4 of the BIA.
Is factual ground investigation data provided?	Yes	Section 5 of the BIA (site investigation undertaken 24 March 2022).
Is monitoring data presented?	Yes	Section 5.3 of the BIA. Groundwater was encountered in one borehole at a depth of 0.80m bgl (within the Made Ground). Further groundwater monitoring in another borehole encountered groundwater at 2.05m bgl in April 2022.
Is the ground investigation informed by a desk study?	Yes	Section 2 of the BIA.
Has a site walkover been undertaken?	Yes	
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	The BIA states that No. 30 Avenue Road (adjacent to the southeast) includes a partial lower ground floor level adjacent to the site boundary. No. 36 (beyond Radlett Place to the northwest) also has a lower ground floor level. No.1 Radlett Place (adjacent to the northeast) includes a large double level basement extending up to the site boundary which was developed around 2013.
Is a geotechnical interpretation presented?	Yes	Section 8 of the BIA with geotechnical test results provided within the Appendix.
Does the geotechnical interpretation include information on retaining wall design?	Yes	Section 8.1.1 of BIA.

Item	Yes/No/NA	Comment
Are reports on other investigations required by screening and scoping presented?	Yes	Arboricultural Impact Assessment Report, Ground Movement Assessment. Reference is made to a site-specific Flood Risk Assessment by Infrastruct CS Limited (dated April 2022) but this has not been provided for review.
Are baseline conditions described, based on the GSD?	Yes	
Do the baseline conditions consider adjacent or nearby basements?	Yes	
Is an Impact Assessment provided?	Yes	Section 13 of the BIA.
Are estimates of ground movement and structural impact presented?	Yes	Sections 9, 10 and 11 of the BIA.
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	Yes	
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	Section 14 of the BIA.
Has the need for monitoring during construction been considered?	Yes	Section 7.2 of the Structural Engineers Construction Method Statement and Section 11.2 of the BIA.
Have the residual (after mitigation) impacts been clearly identified?	Yes	
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	Yes	

Item	Yes/No/NA	Comment
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	A ground movement assessment (GMA) has been provided for review. No. 36 Avenue Road, No. 1 Radlett Place and No. 30 Avenue Road were considered and the results indicate that facades on these buildings will sustain no more than Category 1 damage (Very Slight) in accordance with the Burland Scale.
Are non-technical summaries provided?	Yes	

4.0 DISCUSSION

4.1. The BIA has been prepared by Geotechnical & Environmental Associates Ltd with supporting documents provided by engineersHRW and shh Architects and Interior Design. The qualifications of the authors of the BIA are in accordance with LBC guidance.

4.2. It is understood that the existing detached building is to be demolished and replaced with a new three-storey house over a larger footprint. The proposed building will include a single level basement to a depth of 4.00m below ground level (bgl) and a deeper swimming pool excavation to a depth of 6.00m bgl.

4.3. The BIA includes the majority of the information required from a desk study in line with the GSD Appendix G1. The presence of underground utility infrastructure across the site is confirmed within the Services Searches.

4.4. An intrusive site investigation was undertaken in March 2022 with subsequent groundwater monitoring of a borehole in April 2022. The investigation comprised 1 no. borehole to a maximum depth of 20.00m bgl and 4 no. boreholes to depths of between 1.80 and 3.10m bgl. A single groundwater monitoring standpipe was installed to a depth of 5.00m. The ground conditions comprise Made Ground (varying in thickness from 0.60m to 2.60m) overlying the London Clay Formation.

4.5. Groundwater was only encountered in one borehole during drilling at 0.80m bgl within the Made Ground. The BIA states that 'this shallow inflow is thought to be associated with a high proportion of surface water infiltrating into the shallow soils through the garden, rather than being representative of a shallow ground water table'. Subsequent groundwater monitoring in April 2022 recorded levels of 2.05 and 2.07m bgl. The London Clay is designated as Unproductive Strata and it is accepted that there will be no impact to groundwater flow due to the proposed basement.

4.6. The desk study states that the nearest 'lost' river is a tributary of the River Tyburn, which formerly flowed south from its source in the Belsize Park area, crossing to the western side of Avenue Road near Radlett Place, about 15m to the west of the site. The service plans obtained from Thames Water indicate that a combined sewer main runs along the centre of Avenue Road. It is known that many of the lost rivers have become part of London's sewer system, so it is considered likely that the River Tyburn and its tributary are now culverted within the sewer system.

4.7. As the BIA confirms, the site investigation did not establish the presence of alluvial deposits beneath the site, which would indicate any hydraulic continuity with saturated alluvial deposits associated with the Tyburn stream.

4.8. Interpretative geotechnical information has been provided in accordance with the GSD Appendix G3, which also includes preliminary information in regard to the proposed piled foundations.

4.9. The BIA states that 'inflows of perched water should be anticipated from within the Made Ground but any such inflows are likely to be relatively minor in nature and should be adequately dealt with through sump pumping'.

4.10. The Structural Engineers Construction Method Statement confirms that the basement will consist of contiguous piled perimeter walls. The superstructure is to be constructed as RC concrete frame.

4.11. A ground movement assessment (GMA) has been provided for review. No. 36 Avenue Road, No. 1 Radlett Place and No. 30 Avenue Road were considered to be within the zone of influence of the works and the results indicate that facades on these buildings will sustain no more than Damage Category 1 (Very Slight) in accordance with the Burland Scale.

4.12. Assessment of impacts to nearby utility infrastructure are not presented. An exclusion zone in relation to the Thames Water sewer encroaches onto the front part of site, although not within the proposed area of construction. Asset protection criteria should be agreed with the relevant asset owners.

4.13. The BIA confirms that structural monitoring will be undertaken during the works with trigger values adopted to control construction and mitigate impacts to adjacent structures and infrastructure.

4.14. It is understood that the proposed basement will marginally increase the proportion of hardstanding across the rear garden of the site. However, the BIA states that by adopting attenuation SUDS the potential impacts will be appropriately mitigated. The site is within a Critical Drainage Area and proposals for attenuated drainage in accordance with best practice should be agreed with LBC and Thames Water.

4.15. The Flood Risk Assessment referred to in the BIA (prepared by Infrastruct CS Limited (report ref 4890-AVEN-ICS-XX-RP-C-07.001, dated April 2022), has not been provided for review. The site is not listed as having suffered from surface water flooding in the 1975 flooding event. However, Avenue Road did suffer surface water flooding during the 2002 event. The site is shown on EA surface water flood maps as being in an area with a range of very low, low and medium risk from surface water flooding. As 4.14, the BIA confirms that by appropriately adopting attenuation SUDS, there will be no impact to surface water flows or increase in flood risk.

5.0 CONCLUSIONS

5.1. The qualifications of the authors of the BIA are in accordance with LBC guidance.

5.2. Geotechnical data and interpretative information are presented, as required by LBC guidance.

5.3. Outline temporary and permanent works structural information for the proposed basements are provided.

5.4. The GMA results indicate that facades on adjacent properties will sustain no more than Category 1 damage (Very Slight) in accordance with the Burland Scale.

5.5. Asset protection criteria should be agreed with the relevant asset owners.

5.6. The underlying London Clay is designated Unproductive Strata. There will be no impact to groundwater flow.

5.7. Attenuation SUDS will be adopted. There will be no impact to surface water flow.

5.8. The BIA meets the requirements of CPG Basements.

Appendix 1: Residents' Consultation Comments

None

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status/Response	Date closed out
1	Surface Water	Drainage proposals to be agreed with LBC and Thames Water, as 4.14, to mitigate changes in impermeable site area.	Note Only	Note Only

Appendix 3: Supplementary Supporting Documents

None

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