CampbellReith
consulting engineers

Flat 1 , 5 Westbere Road
London NW2 3SP

Basement Impact Assessment
Audit

For

London Borough of Camden

Project Number: 12727-10
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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 Flat 1, 5 Westbere Road, London NW2 3SP (planning reference 2017/4257/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 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. The Basement Impact Assessment (BIA) has been carried out by Ashton Bennett, a firm of engineering geologists and environmental scientists. The input of a chartered civil or structural engineer with relevant experience of ground engineering should be demonstrated.

1.4. The proposed basement is a single storey construction formed by lowering an existing basement area beneath the building footprint by around 1000 mm from floor levels with a new lightwell being formed to the rear.

1.5. Outline construction methodology and structural engineering information including retaining wall calculations, temporary works sequencing / propping arrangements, and an indicative construction programme should be provided.

1.6. The BIA has identified that the site is likely to be underlain by London Clay. A site specific ground investigation should be provided plus interpretative geotechnical parameters sufficient to support outline design calculations and the ground movement assessment (GMA).

1.7. The screening and scoping sections in respect of land stability, hydrology and hydrogeology have been adequately completed but the resulting scoping, impact assessment and proposal of mitigation measures has not been undertaken.

1.8. A GMA has been undertaken. The GMA should be consistent with interpreted geotechnical parameters and the proposed structural scheme, and indicate damage to neighbouring structures can be maintained within Category 1 (Very Slight).

1.9. An outline monitoring strategy is provided. Trigger values should be based on the predictions of the GMA and ensure that a maximum of Category 1 damage is sustained to neighbours.

1.10. It is noted that non return valves and / or pumps are to be provided for the basement drainage appliances.

1.11. The BIA confirms there will be no change in impermeable site area due to the proposed development. It is accepted there will be no hydrological impacts.

1.12. Assuming the required site investigation confirms London Clay immediately below the site, hydrogeological impacts are not anticipated.

1.13. Queries and requests for information are discussed in Section 4 and summarised in Appendix 2. Until the additional information requested in provided, the BIA does not meet LBC's policy requirements.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 10th October 2017 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for Flat 1, 5 Westbere Road, London NW2 3SP, planning reference 2017/4257/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) 4: Basements and Lightwells.
- Camden Development Policy (DP) 27: Basements and Lightwells.
- Camden Development Policy (DP) 23: Water.
- Local Plan, 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;

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 Audit Instruction described the planning proposal as *"Excavation and extension of existing basement including formation of rear lightwell; erection of single storey rear extension (following removal of existing conservatory)*

The Audit Instruction also confirmed 5 Westbere Road is not a, nor is a neighbour, to listed buildings.

2.6. CampbellReith accessed LBC's Planning Portal on 7th November and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment Report (BIA) by Ashton Bennett, report MCS3314, September 2017
- Planning Application Drawings by Lacey and Saltykov Architects, consisting of;

  Site and Location Plans 1305-A-SP-01 and 02

  Existing and Proposed Plans 1305-A-GA-PL 01,02,11A,12A,21,22A

  Existing and Proposed Elevations 1305-A-EL 01A,02A

  Existing and Proposed Sections 1305-A-SC 01,02
- Design & Access Statement
- Planning Comments and Responses

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/ NA	Comment
Are BIA Author(s) credentials satisfactory?	No	For land stability, a suitably qualified author should be demonstrated.
Is data required by Cl.233 of the GSD presented?	No	No programme for the works or description of construction methods.
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	No	Construction methodology to be confirmed.
Are suitable plan/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	
Hydrogeology Screening Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	
Is a conceptual model presented?	Yes	Based on desk Study information; no site specific information.

Item	Yes/No/ NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	
Is factual ground investigation data provided?	No	No ground investigation has been carried out.
Is monitoring data presented?	No	No ground investigation has been carried out.
Is the ground investigation informed by a desk study?	n/a	No ground investigation has been carried out.
Has a site walkover been undertaken?	No	Site has only been assessed from the road and Google earth.
Is the presence/absence of adjacent or nearby basements confirmed?	No	No investigation into adjacent properties has been carried out.
Is a geotechnical interpretation presented?	No	No ground investigation has been carried out.
Does the geotechnical interpretation include information on retaining wall design?	No	No ground investigation, testing or indicative parameters have been provided.
Are reports on other investigations required by screening and scoping presented?	n/a	
Are the baseline conditions described, based on the GSD?	No	No information on neighbouring properties, existing foundations etc has been provided.

Item	Yes/No/ NA	Comment
Do the base line conditions consider adjacent or nearby basements?	No	No information on neighbouring properties, existing foundations etc has been provided.
Is an Impact Assessment provided?	No	Actions are noted in the scoping sections but are not carried through.
Are estimates of ground movement and structural impact presented?	Yes	However, GMA to be confirmed based on geotechnical parameters and structural scheme, considering movements along load bearing neighbouring walls within the zone of influence.
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	No	Whilst the scoping section has identified further actions, these do not appear to have been implemented to assess the impact.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	No	Brief comment has been made on excavation support but no details are provided.
Has the need for monitoring during construction been considered?]	Yes	Monitoring strategy trigger values should be reviewed following completion of GMA based on SI and confirmed structural scheme.
Have the residual (after mitigation) impacts been clearly identified?	No	
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	No	No geotechnical interpretation, structural calculations, drawings or structural method statement have been provided.
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?	No	No geotechnical interpretation, structural calculations, drawings or structural method statement have been provided.

Item	Yes/No/ NA	Comment
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	However, GMA to be confirmed based on geotechnical parameters and structural scheme, considering movements along load bearing neighbouring walls within the zone of influence.
Are non-technical summaries provided?	No	

4.0 DISCUSSION

4.1. The Basement Impact Assessment (BIA) has been carried out by Ashton Bennett, a firm of engineering geologists and environmental scientists. The input of a chartered civil or structural engineer with relevant experience of ground engineering should be demonstrated.

4.2. The proposed basement consists of a single storey construction formed by lowering an existing basement area at the rear half of the building footprint and along the stair corridor adjacent to the party wall line. The depth of the proposed basement excavation below existing appears to be in the order of 1,000mm to the finished floor level. An existing rear ground floor conservatory will be demolished and replaced with a new single storey extension. A lightwell is to be constructed to the rear.

4.3. No Structural Engineering report or Method Statement have been included in the BIA planning submission. Construction methodology information, including temporary works sequencing and propping, should be provided sufficient to demonstrate the basis of stability impact assessments.

4.4. No indicative construction programme for the works has been included in the BIA documentation.

4.5. The BIA has identified that the site is likely to be underlain by the London Clay Formation. However, site specific ground investigation should be undertaken to confirm this assumption, sufficient to demonstrate the basis of stability assessments and outline design.

4.6. The screening and scoping sections in respect of land stability, hydrology and hydrogeology have been adequately completed but the resulting impact assessment and mitigation measures have not been carried through, eg recommendations for plasticity tests, services searches and recording the depths of the foundations to the site and surrounding properties.

4.7. Interpretative geotechnical parameters should be presented, based on site specific ground investigation.

4.8. It is anticipated that some form of underpinning will be required to deepen the existing foundations to a suitable depth for the proposed basement excavation but, other than general comments in section 13.6 of the BIA, no detail has been provided.

4.9. Section 13.6 also refers to stiff temporary support required for excavations to maintain the stability of the surrounding structures but no detail has been provided. It further states that the design of the retaining walls for the new lightwell should be provided in a Structural Method Statement. This has not been provided.

4.10. No details of any structural support works to number 5 such as removal / installation of walls etc have been included to assess whether there are likely to be any structural stability issues within the building or to the neighbouring properties.

4.11. Notwithstanding the above, a Ground Movement Assessment (GMA) has been included in Appendix C of the BIA. The methodology adopted is partially adopted from CIRIA C580. It is noted that this guidance has been superseded by CIRIA C760 and is intended for use with embedded retaining walls, although it is accepted that the predicted ground movements are within the range typically anticipated for underpinning techniques carried out with good control of workmanship. The guidance, however, has only been partially adopted, and does not clearly demonstrate movements that may impact structural walls within the zone of influence. The assessment also relies upon the assumptions that retaining walls will be founded within stiff London Clay and be stiffly propped in the temporary and permanent case. If the ground floor is timber, than the permanent case should be considered as 'low stiffness'.

4.12. Once soil parameters and a temporary works schemes have been confirmed, the GMA should be revisited. The assessment should also include contour and deflection ratio plots.

4.13. An outline monitoring strategy is provided. Trigger values should be based on the predictions of the GMA and ensure that a maximum of Category 1 damage is sustained to neighbours.

4.14. It is noted that non return valves or pumps should be included for the waste water appliances to prevent flooding of the proposed basement and this is accepted.

4.15. The BIA confirms there will be no change in impermeable site area due to the proposed development. It is accepted there will be no hydrological impacts.

4.16. Assuming the required site investigation confirms London Clay immediately below the site, hydrogeological impacts are not anticipated.

4.17. Non-technical summaries should be provided with future BIA revisions.

5.0 CONCLUSIONS

5.1. The input of a chartered civil or structural engineer with relevant experience of ground engineering should be demonstrated for the land stability assessments.

5.2. The BIA has identified that the site is likely to be underlain by London Clay. A site specific ground investigation should be provided plus interpretative geotechnical parameters sufficient to support outline design calculations and the ground movement assessment (GMA).

5.3. The screening and scoping sections in respect of land stability, hydrology and hydrogeology have been adequately completed but the resulting scoping, impact assessment and proposal of mitigation measures has not been undertaken.

5.4. Outline construction methodology and structural engineering information including retaining wall calculations, temporary works sequencing / propping arrangements, and an indicative construction programme should be provided.

5.5. A GMA has been undertaken. The GMA should be consistent with interpreted geotechnical parameters and the proposed structural scheme, and indicate damage to neighbouring structures can be maintained within Category 1 (Very Slight).

5.6. An outline monitoring strategy is provided. Trigger values should be based on the predictions of the GMA and ensure that a maximum of Category 1 damage is sustained to neighbours.

5.7. It is noted that non return valves and / or pumps are to be provided for the basement drainage appliances

5.8. The BIA confirms there will be no change in impermeable site area due to the proposed development. It is accepted there will be no hydrological impacts.

5.9. Assuming the required site investigation confirms London Clay immediately below the site, hydrogeological impacts are not anticipated.

5.10. Queries and requests for further information are summarised in Appendix 2. Until the additional information requested has been provided, the BIA does not meet LBC's policy requirements.

Appendix 1: Residents' Consultation Comments

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
Sutherland Avenue Co-ownership Housing Association	3 Westbere Road, London NW2 3SP	13/10/2017	Concern about instability to their property and subsidence as a result of the works	Refer to section 4 of the audit

Appendix 2: Audit Query Tracker

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Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Desk Study	Outline construction programme to be provided	Open	
2	Land Stability	Outline construction methodology and structural engineering information including retaining wall calculations, temporary works sequencing / propping arrangements to be provided	Open	
3	Land stability	Site specific ground investigation to be provided	Open	
4	Land stability	Geotechnical interpretation to be provided	Open	
5	Land Stability	GMA to be re-assessed, considering comments of Section 4	Open	
6	Land Stability	An outline monitoring strategy is provided. Trigger values should be based on the predictions of the GMA and ensure that a maximum of Category 1 damage is sustained to neighbours.	Open	

Appendix 3: Supplementary Supporting Documents

None

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