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Basement Impact Assessment Audit

15 Howitt Road, London, NW3 4LT

For
London Borough of Camden

Project No.
14006-20

Date
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CONTENTS

APPENDICES

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 (BIA) submitted as part of the Planning Submission documentation for 15 Howitt Road, London, NW3 4LT (planning reference 2023/2261/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 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 and associated reports have been carried out by individuals who possess suitable qualifications in line with CPG: Basements.

1.5 The BIA references current guidance.

1.6 The proposed development comprises the excavation of a single storey height basement beneath the existing building footprint, incorporating the existing basement area, and extending to the front of the building to form a lightwell and partly to the rear below the garden area. The SAS BIA indicates the basement to be approximately 2.50m deep.

1.7 The BIA and GMA now refer to current Architects drawings.

1.8 Screening and scoping assessments are presented and are informed by desk study information.

1.9 A ground investigation has been carried out and groundwater monitoring undertaken. Any perched water encountered during construction is to be pumped from sumps.

1.10 The BIA has confirmed that the proposed basement will be founded within the London Clay.

1.11 Proposed retaining wall design parameters as well as dimensions and bearing pressures beneath underpins and pad foundations have now been provided. Clarification has now been provided as to what is proposed to support lowering of the ground floor to form the sunken rear garden/patio along the boundary with 17 Howitt Road.

1.12 The results of the Building Damage Assessment indicate that damage to neighbouring properties can be limited to no worse than Burland Category 1 (very slight).

1.13 The SMS has now been updated to reflect the findings of the BIA with regards to predicted damage to neighbouring buildings.

1.14 A monitoring strategy is be developed at design stage with appropriate trigger levels to be defined and agreed with the Party Wall Surveyors.

1.15 It is accepted that the development will not impact slope stability or the wider hydrogeology of the area and is not in an area subject to flooding.

1.16 The updated BIA complies with the requirements of CPG: Basements.

2.0 INTRODUCTION

2.1 CampbellReith was instructed by London Borough of Camden (LBC) on 4th July 2023 to carry out a Category B audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 15 Howitt Road, London, NW3 4LT, planning reference 2023/2261/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

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

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 *"Change of Use from HMO (Sui Generis) to 2no. self contained flats (C3), erection of rear dormer and single storey ground floor rear extension, enlargement of basement, creation of front and rear lightwells and associated works".*

2.6 The Audit Instruction confirmed 15 Howitt Road neither is, nor is a neighbour to, listed buildings.

2.7 CampbellReith accessed LBC's Planning Portal on 7th July 2023 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment (BIA) by Site Analytical Services Ltd. (SAS), ref. SAS 23/36419-2, Revision 0, Version V1.0-3/21 dated March 2023.
- Geotechnical Desk Study by Site Analytical Services Ltd. (SAS), ref. SAS 23/36419, Revision 0, Version V1.0 dated March 2023.
- Structural Methodology Statement (SMS) by Halsteads, ref. 19131 dated April 2023.

- Planning Application Drawings by Jane Duncan Architects consisting of:
  - Existing Plans, Elevations and Sections (IHR-226_PL010, 011, 101, 102, 111, 120 and 121 dated March 2023, no revision).
  - Proposed Plans, Elevations and Sections (IHR-226_PL200, 201, 202, 203, 211, 220 and 221 dated March 2023, no revision).
  - Design & Access Statement dated May 2023.

2.8 Subsequent to the initial audit report, CampbellReith gained access to the following relevant documents to address the queries raised in Appendix 2:

- Basement Impact Assessment (BIA) by Site Analytical Services Ltd. (SAS), ref. SAS 23/36419-2, Revision 1, Version V1.0-3/21 dated August 2023.
- Structural Methodology Statement (SMS) by Halsteads, ref. 19131 Rev A dated September 2023.

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	Section 2.3 of BIA.
Is data required by Cl.233 of the GSD presented?	Yes	BIA.
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	Yes	BIA and SMS.
Are suitable plan/maps included?	Yes	BIA.
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	Yes	BIA and SMS.
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 3.9 of BIA.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 3.9 of BIA.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 3.9 of BIA.
Is a conceptual model presented?	Yes	Section 6 of BIA.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 4 of BIA.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 4 of BIA.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 4 of BIA.
Is factual ground investigation data provided?	Yes	Appendix B of BIA.
Is monitoring data presented?	Yes	Appendix B of BIA.
Is the ground investigation informed by a desk study?	Yes	
Has a site walkover been undertaken?	Yes	Section 3.2 of BIA.
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	Section 3.9 of BIA.
Is a geotechnical interpretation presented?	Yes	Section 6 of BIA.
Does the geotechnical interpretation include information on retaining wall design?	Yes	Section 6 of BIA.
Are reports on other investigations required by screening and scoping presented?	No	Not required.
Are the baseline conditions described, based on the GSD?	Yes	

Item	Yes/No/NA	Comment
Do the base line conditions consider adjacent or nearby basements?	Yes	
Is an Impact Assessment provided?	Yes	Section 6.6 of BIA.
Are estimates of ground movement and structural impact presented?	Yes	Section 6.6 of BIA.
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	Yes	
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	
Has the need for monitoring during construction been considered?	Yes	Section 7.3 of 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	Section 7.4 of BIA. However, GMA to be reviewed.
Are non-technical summaries provided?	Yes	Throughout BIA.

4.0 DISCUSSION

4.1 The Basement Impact Assessment (BIA) undertaken by Site Analytical Services (SAS) has now been prepared by individuals with qualifications in line with the requirements of CPG: Basements.

4.2 The BIA now refers to the latest Camden Planning Guidance, CPG: Basements (2021).

4.3 The site comprises a three storey terraced house with a small 2.10m deep cellar at the front left hand corner of the property, and a small front garden and slightly larger rear garden. Ground floor level is approximately 68m AOD.

4.4 The proposed development comprises the excavation of a single storey height basement beneath the existing building footprint, incorporating the existing basement area, and extending to the front of the building to form a lightwell and partly to the rear below the garden area. The SAS BIA indicates the basement to be approximately 2.50m deep with a slab level of 65.50m AOD.

4.5 The BIA and the Ground Movement Assessment (GMA) undertaken by Curtins contained therein now refer to current Architects drawings.

4.6 Screening and scoping assessments are presented and are informed by desk study information.

4.7 A ground investigation was carried out by SAS in February 2023 which revealed ground conditions to comprise Made Ground from surface up to 1.30m below ground level (bgl) underlain by the London Clay Formation. Groundwater was monitored at 7.34m bgl at the base of an installation, which was concluded to be surface water trapped in the standpipe. Foundation inspection pits revealed existing foundations to comprise corbelled brickwork extending to between 0.50m and 1.20m bgl.

4.8 Whilst groundwater is not expected, the BIA recommends measures to deal with perched water as a precaution.

4.9 Geotechnical interpretation is provided in the BIA, including appropriately conservative retaining wall parameters.

4.10 The Structural Methodology Statement (SMS) by Halsteads states the basement walls will be designed as reinforced concrete cantilever retaining walls, formed using traditional hit and miss underpinning, propped in the temporary condition, allowing for hydrostatic pressures from ground level. Locally, mass concrete underpinning will be adopted beneath the existing basement cellar. Structural loads are to be supported on conventional strip foundations and internal pad footings, with a suspended basement slab. Confirmation has now been provided of proposed retaining wall design parameters as well as dimensions and proposed bearing pressures beneath underpins and pad foundations. Clarification has now been provided as to what is proposed to support lowering of the ground floor to form the sunken rear garden/patio along the boundary with 17 Howitt Road.

4.11 A GMA has been undertaken to demonstrate that ground movements resulting from the basement construction and associated impact on neighbouring properties will be within LBC's policy requirements, namely 13 and 17 Howitt Road and Holmefield Court. Neighbouring properties have conservatively been assumed to be founded at ground level. The impact on the adjacent highway has also been assessed.

4.12 Ground movements due to underpinning and excavation have been modelled using OASYS PDisp and XDisp software. Whilst XDisp is intended for use with embedded retaining walls, it is accepted that it may predict ground movements in the order of those anticipated for underpinning. The results of the Building Damage Assessment indicate that damage to neighbouring properties can be limited to no worse than Burland Category 1 (very slight).

4.13 The SMS now refers to a maximum level of cracking as fine (Category 1 – very slight) which aligns with the BIA.

4.14 The BIA and SMS state that a monitoring strategy will be developed at design stage with appropriate trigger levels to be defined and agreed with the Party Wall Surveyors.

4.15 There will be a small decrease in impermeable area on site of 1.71% which is reported to be negligible.

5.0 CONCLUSIONS

5.1 The BIA and associated reports have now been carried out by individuals who possess suitable qualifications in line with CPG: Basements.

5.2 The BIA now references current guidance.

5.3 The proposed development comprises the excavation of a single storey height basement beneath the existing building footprint, incorporating the existing basement area, and extending to the front of the building to form a lightwell and partly to the rear below the garden area. The SAS BIA indicates the basement to be approximately 2.50m deep with a slab level of 65.50m AOD.

5.4 The BIA and GMA now refer to current Architects drawings.

5.5 Screening and scoping assessments are presented and are informed by desk study information.

5.6 A ground investigation has been carried out and groundwater monitoring undertaken. Any perched water encountered during construction is to be pumped from sumps.

5.7 The BIA has confirmed that the proposed basement will be founded within the London Clay Formation.

5.8 Proposed retaining wall design parameters as well as dimensions and bearing pressures beneath underpins and pad foundations have now been provided. Clarification has now been provided as to what is proposed to support lowering of the ground floor to form the sunken rear garden/patio along the boundary with 17 Howitt Road.

5.9 The results of the Building Damage Assessment indicate that damage to neighbouring properties can be limited to no worse than Burland Category 1 (very slight).

5.10 The SMS has now been updated to reflect the findings of the BIA.

5.11 A monitoring strategy is be developed at design stage with appropriate trigger levels to be defined and agreed with the Party Wall Surveyors.

5.12 It is accepted that the development will not impact slope stability or the wider hydrogeology of the area and is not in an area subject to flooding.

5.13 The updated BIA complies with the requirements of CPG: Basements.

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Appendix 1

Consultation Responses

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Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
Eliad	17C Howitt Road	11/07/23	Risk to stability of neighbouring properties, namely 13 and 17 Howitt Road.	Sections 4.10 to 4.14.

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Appendix 2

Audit Query Tracker

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Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	BIA	Evidence required authors possess the required qualifications in CPG.	Closed. Section 4.1.	06/10/23
2	BIA	BIA to reference current Camden Planning Guidance on Basements.	Closed. Section 4.2.	06/10/23
3	BIA	BIA and GMA to be updated to refer to current Architects drawings.	Closed. Section 4.5.	06/10/23
4	Land Stability	Proposed retaining wall design parameters as well as dimensions and bearing pressures beneath underpins and pad foundations to be provided in SMS.	Closed. Section 4.10.	06/10/23
5	Land Stability	Clarification required as to what is proposed to support lowering of the ground floor to form the sunken rear garden/patio along the boundary with 17 Howitt Road.	Closed. Section 4.10.	06/10/23
6	Land Stability	GMA to be updated with comments in Section 4.	Closed. Section 4.12.	06/10/23
7	Land Stability	SMS to be updated to reflect findings of BIA with regards to anticipated building damage.	Closed. Section 4.13.	06/10/23

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Appendix 3

Supplementary Supporting Documents

None

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