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Basement Impact Assessment Audit

Flat A 31 Belsize Crescent, London NW3 5QY

For
London Borough of Camden

Project No.
14006-04

Date
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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 submitted as part of the Planning Submission documentation for 31A Belsize Crescent, London, NW3 5QY (planning reference 2021/3159/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 Basement Impact Assessment (BIA) has been carried out by engineering consultants Create Consultants and the individuals concerned in its production have suitable qualifications.

1.5 The proposed basement construction will involve removal of the existing floor slab followed by underpinning of the existing walls. The excavation of the extension will involve reducing levels up to 1.20m below the existing floor level. A new monolithic slab will be cast connecting the new walls.

1.6 A ground investigation, comprising a single borehole, has been undertaken to confirm the ground conditions. The proposed basement will be founded in London Clay Formation.

1.7 It is accepted that the proposed basement will not have an impact on the hydrology or hydrogeology of the area.

1.8 The land stability screening and scoping responses have been updated to consider the listed building and buried utilities in proximity to site.

1.9 The Ground Movement Assessment (GMA) has been updated and it is accepted that the proposed basement will not have an impact in excess of Burland Category 1 (Very Slight) on surrounding structures.

1.10 An Approval in Principle may be required for the proposed development due to its proximity to the highway.

1.11 Based on the revised submission it is confirmed that the BIA complies with the requirements of CPG: Basements and the Principles for Audit set out in the Basement Impact Assessment (BIA) Audit Service Terms of Reference & Audit Process.

2.0 INTRODUCTION

2.1 CampbellReith was instructed by London Borough of Camden (LBC) on 17th March 2023 to carry out a Category B audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 31A Belsize Crescent, London, NW3 5QY, reference 2021/3159/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 "utilisation of existing vault, lowering of the floor level and modification of the existing doors to the rear of the property."

2.6 The Audit Instruction confirmed 31 Belsize Crescent involved, or was a neighbour to, listed buildings stating, "Grade II Listed building opposite – no 24 Belsize Crescent (building, walls and gate piers)".

2.7 CampbellReith accessed LBC's Planning Portal on 22nd March 2023 and gained access to the following relevant documents for audit purposes:

- Design and Access Statement issued by p-ad architects in June 2021.
- Planning Application Drawings issued by p-ad architects consisting of:
  - Existing Site Plan (7335/01 Rev B)
  - Existing Plans (7335/02 Rev B)
  - Existing Elevations (7335/03 Rev B)

- Existing Elevations Section AA (7335/04 Rev B)
- Proposed Plan (7335/05 Rev B)
- Proposed Elevations (7335/07 Rev B)
- Proposed Section AA (7335/08 Rev B)
- OS Location Plan (7335/LP Rev B)

- Heritage Statement issued by p-ad architects in June 2021.
- Photo Sheet issued by p-ad architects. Reference 7335/PH Rev B.

2.7.2 To address the queries raised in the D1 audit, the following document was provided to CampbellReith on 19th September 2024:

- Basement Impact Assessment by Create Consulting Engineers Ltd, reference AW/VL/P22-2633/02, revision F, dated 17 September 2024

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	Section 1.0 of the BIA
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 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	Section 4.0 of the BIA
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.0 of the BIA
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.0 of the BIA
Is a conceptual model presented?	Yes	Section 6.0 of the BIA
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 5.0 of the BIA
Hydrogeology Scoping Provided?	Yes	No items brought forward.

Item	Yes/No/NA	Comment
Is scoping consistent with screening outcome?		
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	No items brought forward.
Is factual ground investigation data provided?	Yes	Section 6.0 of the BIA
Is monitoring data presented?	Yes	Section 6.0 of the BIA
Is the ground investigation informed by a desk study?	Yes	
Has a site walkover been undertaken?	Yes	
Is the presence/ absence of adjacent or nearby basements confirmed?	Yes	Section 7.0 of the BIA.
Is a geotechnical interpretation presented?	Yes	Section 6.0 of the BIA
Does the geotechnical interpretation include information on retaining wall design?	Yes	Section 6.0 of the BIA
Are reports on other investigations required by screening and scoping presented?	Yes	Flood Risk Assessment and Drainage Strategy included in the BIA appendices. Technical Note included regarding the Network Rail Asset.
Are the baseline conditions described, based on the GSD?	Yes	Further details provided in the updated BIA.
Do the base line conditions consider adjacent or nearby basements?	N/A	No nearby basements identified.
Is an Impact Assessment provided?	Yes	Section 6.0 of the BIA and Appendix C.
Are estimates of ground movement and structural impact presented?	Yes	Appendix F of the BIA.

Item	Yes/No/NA	Comment
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	Monitoring plan to be confirmed.
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	Although, an Approval in Principle may be required.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	Flood Risk Assessment included in BIA appendices.
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	Yes	
Does the report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	
Are non-technical summaries provided?	Yes	

4.0 DISCUSSION

4.1 The Basement Impact Assessment (BIA) has been carried out by Create Consultants and the individuals concerned in its production have suitable qualifications as required by CPG Basements.

4.2 The construction methodology and engineering statements were also produced by Create Consultant and are included in Section 7.0 of the BIA.

4.3 The LBC instruction to proceed with the audit identified that the basement proposal is situated opposite a Grade II listed building (24 Belsize Crescent).

4.4 The proposed basement consists of re-developing an existing vault at the front of the house by lowering the floor level and modification of the existing doors to the rear of the property. The floor within the vault will be lowered by c. 0.90m with the maximum excavation depth assumed to be 1.20m. The footprint of the basement extends below access steps (leading up to the ground floor of the existing property) and the pavement adjacent to Belsize Crescent.

4.5 The statutory utility plans have been provided for the site.

4.6 A ground investigation, comprising a single borehole has been carried out in the front garden of the host property. The borehole encountered a thin cover of Made Ground to 1.40m bgl over firm to stiff clay of the weathered London Clay Formation. Subsequent monitoring of the borehole did not record any presence of groundwater.

4.7 Geotechnical parameters are included in Section 6.0 of the BIA. The parameters provided, namely the effective cohesion (c'), are not considered to be suitable however, the allowable bearing pressure of 198kPa stated in the report is accepted to be appropriate for the ground conditions encountered.

4.8 Clarification has been provided on the screening responses and it is accepted that the proposed basement will not have an impact on the hydrogeology or hydrology of the area.

4.9 The slope stability screening in Section 4 of the BIA identifies that the shallowest stratum at the site is London Clay. The screening also confirms that the site is within 5m of a highway. The screening responses have been updated to consider the listed building situated in proximity to the site and the presence of buried services beneath the highway. These items have been brought through to scoping and a Ground Movement Assessment has been undertaken.

4.10 The BIA screening recognises the site is directly above the route of a Network Rail tunnel. Correspondence with the Network Rail Asset Protection team is included within Appendix G and a Technical Note within Appendix H of the BIA. Additional assessments may be required by the asset owner but is beyond the scope of this audit.

4.11 The construction methodology and engineering statements report that the walls of the existing basement comprise solid brick. The foundations are anticipated to comprise brick corbel footings however, this is yet to be confirmed.

4.12 It is indicated in the revised BIA that the construction method will comprise the removal of the existing floor slab and construction of new concrete walls by underpinning. A new monolithic floor slab will then be cast connecting the walls. The proposed construction method also includes underpinning to be carried out directly beneath the pavement running along Belsize Crescent.

4.13 The revised BIA has been updated to confirm that temporary props will be used during the basement construction to help minimise movements. The design of the temporary works will be the responsibility of the Contractor.

4.14 A Ground Movement Assessment has been carried out following guidance from CIRIA C760. The GMA assumes 5mm movement both horizontally and vertically, will be generated through the underpinning process. Paragraph 6.22 of the BIA suggests that the 5mm vertical and horizontal movement value has been determined by LBC; it should be noted that this value is based on industry experience and is considered to meet the requirements of the BIA to use cautious or moderately conservative values and assumptions.

4.15 The GMA determines that the main property is outside the zone of influence and thus negligible movements are anticipated. The impact to neighbouring structures will therefore not exceed Burland Category 1 (Very Slight). 5mm vertical and horizontal movement is estimated beneath the pavement.

4.16 It is accepted that the proposed basement will not cause adverse impacts to the land stability of the surrounding structures. However, an Agreement in Principle may be required for the works beneath the pavement. Impacts to any neighbouring utilities should be confirmed with the asset owners.

4.17 The BIA recommends that regular monitoring is carried out during the construction phase.

5.0 CONCLUSIONS

5.1 The Basement Impact Assessment (BIA) has been carried out by engineering consultants Create Consultants and the individuals concerned in its production have suitable qualifications.

5.2 The proposed basement construction will involve removal of the existing floor slab followed by underpinning of the existing walls. The excavation of the extension will involve reducing levels up to 1.20m below the existing floor level. A new monolithic slab will be cast connecting the new walls.

5.3 A ground investigation, comprising a single borehole, has been undertaken to confirm the ground conditions. The proposed basement will be founded in London Clay Formation.

5.4 It is accepted that the proposed basement will not have an impact on the hydrology or hydrogeology of the area.

5.5 The land stability screening and scoping responses have been updated to consider the listed building and buried utilities in proximity to site.

5.6 The Ground Movement Assessment (GMA) has been updated and it is accepted that the proposed basement will not have an impact in excess of Burland Category 1 (Very Slight) on surrounding structures.

5.7 The BIA suggests that the 5mm vertical and horizontal movement induced by underpinning has been determined by LBC, however this value is based on industry experience and is considered to meet the requirements of the BIA to use cautious or moderately conservative values and assumptions.

5.8 An Approval in Principle may be required for the proposed development due to the proximity of the works to the highway.

5.9 It is confirmed that the BIA complies with the requirements of CPG: Basements and the Principles for Audit set out in the Basement Impact Assessment (BIA) Audit Service Terms of Reference & Audit Process.

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Appendix 1

Consultation Responses

None

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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	Site Investigation	A site investigation should be carried out to provide development of a suitable ground model and groundwater regime.	Closed	December 2023
2	Geological Interpretation	Geological interpretation should be provided based on the findings of the ground investigation.	Closed	December 2023
3	Land stability	Following findings of the ground investigation, update the land stability screening responses and, where required, bring through to scoping.	Closed	December 2023
4	Land stability	Clarify the slopes present within the area to ensure consistent throughout BIA. If required, bring through to scoping.	Closed	December 2023
5	Land stability	Clarify the presence of trees to ensure consistent throughout BIA. If required, bring through to scoping.	Closed	December 2023
6	Land stability	Provide utility plans and confirm presence/ absence of buried utilities in proximity to the development.	Closed	December 2023
7	Hydrogeology	Update screening responses following findings of the ground investigation and, if required, bring through to scoping.	Closed	December 2023
8	Construction Sequence	Provide anticipated loading and demonstrate suitable ground conditions present for the proposed foundation levels.	Closed	September 2024
9	Construction Sequence	Provide further details of the proposed construction sequence for the basement specifically dealing with the restricted access and temporary support measures beneath the pavement.	Closed	September 2024
10	Construction Sequence	If required following the findings of a ground investigation, provide measures for the potential of water ingress during the construction.	Closed	December 2023

Query No	Subject	Query	Status	Date closed out
11	Ground Movement Assessment	Update the GMA in line with industry experience to assume a minimum of 5mm for the vertical and horizontal movements caused by the underpinning of the existing walls.	Closed	May 2024
12	Ground Movement Assessment	The impact of the proposed basement to the pavement, highway, utilities and structures should be included within the GMA.	Closed	May 2024

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Appendix 3

Supplementary Supporting Documents

None

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