

37 Heath Drive, London NW3
7SD

Basement Impact Assessment Audit

For
London Borough of Camden

Project No.
14006-66

Date
September 2024

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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 37 Heath Drive (planning reference 2023/5352/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 authors involved in the production of the BIA hold qualification that are in line with the requirements of CPG Basements.
- 1.5 The proposed development comprises the demolition of the existing structure and construction of a five-storey building with an extension to the existing basement to a depth of 2.8m bgl.
- 1.6 The previous queries in regard to the Screening assessment have been addressed, as required.
- 1.7 A site investigation was undertaken in April 2024 which confirmed that the underlying ground conditions comprise Made Ground overlying London Clay. No groundwater was encountered during the investigation. Infiltrating surface water was observed during monitoring and perched groundwater within Made Ground is anticipated during construction.
- 1.8 The baseline conditions for the BIA have been provided in the updated documents submitted.
- 1.9 It is accepted that the development will not impact the hydrogeology of the area.
- 1.10 It is accepted that the development will not affect the slope stability of the surrounding area.
- 1.11 A Flood Risk Assessment and Drainage Strategy has been presented. SuDS in the form of permeable paving and water butts will be incorporated into the development to increase the area of the site drained by infiltration. With the inclusion of appropriate mitigation measures it is accepted that the development will not impact the hydrology of the area. Drainage proposals should be agreed with LBC and Thames Water.
- 1.12 A Ground Movement Assessment (GMA) has been presented that considers the movements related to excavation and construction of the new basement in relation to 36 and 38 Heath Drive. A subsequent building damage assessment indicates the impact can be limited to Burland Category 1 (Very Slight).
- 1.13 Considering the updated documents submitted, 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 29/03/2024 to carry out a Category B audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 37 Heath Drive, London NW3 7SD and Planning Reference No. 2023/5352/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 "Demolition of existing building and erection of 5 storey building comprising 10 flats (2 x 2 bed, 6 x 3 bed, 2 x 4 bed) with one level of basement below comprising gym, yoga facilities, bicycle storage for 24 units, waste storage; 4 electric car parking spaces with charging points and landscaping in front."
- 2.6 The Audit Instruction confirmed the subject site is not a listed building, but the site is located within the Redington Frogna Conservation Area.
- 2.7 CampbellReith accessed LBC's Planning Portal on 17 and 29 April 2024 and gained access to the following relevant documents for audit purposes:
- Basement Impact Assessment by Jomas Associates, Ref P5381J2868/JRO, dated 30 August 2023.
 - Flood Risk Assessment and Drainage Strategy by Jomas Associates Ltd, Ref P5381J2868, dated 14 September 2023.

- Arboricultural Impact Assessment and Method Statement by Abbots Agricultural Advice, Ref SAL/KMA/11656a – REVISION 1, dated 2 November 2023.
- Existing plans, sections and elevations by Icelabz, dated May 2023.
- Proposed plans, sections and elevations, Ref H-37 by AIP Designs India, dated September 2023.
- Heritage and Townscape Assessment by Squire Heritage Consulting, dated 29 October 2023.
- Design and Access Statement by Taishi, Ref 37HD/2023.
- Planning consultation comments.

2.8 Following issue of the initial BIA audit, the following documents were provided for review between May and August 2024:

- Ground Investigation and Basement Impact Assessment for 37 Heath Drive, London, NW3 7SD by Jomas Associates, Ref P5381J2868/JRO, dated 14 May 2024.
- Ground Movement Assessment for 37 Heath Drive, London, NW3 7SD by Jomas Associates, Ref P5381J2868/JRO, dated 25 June 2024.
- Structural Calculations by William Attwell & Associates, Ref 2551, dated 31 May 2024.
- Construction Method Statement by William Attwell Associates, Ref 2552, dated May 2024.
- Ground Investigation and Basement Impact Assessment for 37 Heath Drive, London, NW3 7SD by Jomas Associates, Ref P5381J2868/JRO, dated 23 August 2024.
- Stage 1 & 2 Basement Impact Assessment (Screening & Scoping) Report for 37 Heath Drive, London, NW3 7SD, Ref P5381J2868/JRO, dated 23 August 2024.

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	The authors' qualifications meet the requirements of CPG Basements.
Is data required by Cl.233 of the GSD presented?	Yes	Provided in the updated submissions.
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	Yes	Provided in the updated submissions.
Are suitable plan/maps included?	Yes	Architectural drawings provided although appendices of BIA including historical maps and LBC map excerpts not provided.
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	Yes	Provided in the updated submissions.
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Provided in the updated submissions.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Provided in the updated submissions.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Provided in the updated submissions.
Is a conceptual model presented?	Yes	Provided in the updated submissions.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Provided in the updated submissions.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Provided in the updated submissions.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Provided in the updated submissions.
Is factual ground investigation data provided?	Yes	Ground investigation undertaken by Jomas Associates in April 2024 (Ref P5381J2868/JRO, dated 14 May 2024).
Is monitoring data presented?	Yes	Groundwater monitoring undertaken on two occasions (22nd and 30th April 2024) and results provided in Appendix 5 of Ground investigation report.
Is the ground investigation informed by a desk study?	Yes	Desk study provided in Sections 2, 3 and 4 of BIA.
Has a site walkover been undertaken?	Yes	As part of BIA by Jomas Associates on 22 August 2023.
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	The presence of adjacent basement is discussed.
Is a geotechnical interpretation presented?	Yes	Provided in the updated submissions.
Does the geotechnical interpretation include information on retaining wall design?	Yes	Provided in the updated submissions.
Are reports on other investigations required by screening and scoping presented?	Yes	Provided in the updated submissions.

Item	Yes/No/NA	Comment
Are the baseline conditions described, based on the GSD?	Yes	
Do the base line conditions consider adjacent or nearby basements?	Yes	
Is an Impact Assessment provided?	Yes	Provided in the updated submissions.
Are estimates of ground movement and structural impact presented?	Yes	Provided in the updated submissions.
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	Provided in the updated submissions.
Has the need for monitoring during construction been considered?	Yes	Provided in the updated submissions.
Have the residual (after mitigation) impacts been clearly identified?	Yes	Basement waterproofing discussed.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	Provided in the updated submissions.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	Provided in the updated submissions.
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	Provided in the updated submissions.
Are non-technical summaries provided?	Yes	Provided in the updated submissions.

4.0 DISCUSSION

- 4.1 The Basement Impact Assessment (BIA) has been prepared by Jomas Associates Ltd with supporting documents by Icelabz Architects and AIP Designs India. The authors' qualifications meet the requirements of CPG Basements.
- 4.2 The site comprises a detached residential building arranged over three storeys with a lower ground floor. The property fronts onto Heath Drive, with associated hardstanding driveway in the northwest of the site and rear patio area and a large private garden in the southeast of the site. The site is generally flat with an existing ground level of approximately +73.8mOD at the front of the property and +74.3mOD at the rear of the property. The subject site is not a listed building.
- 4.3 The proposed development comprises the demolition of the existing structure and construction of a five-storey building with an extension to the existing basement. The basement will extend to a depth of 2.8m below ground level (bgl).
- 4.4 Screening and Scoping assessments have been updated in the revised documents and previous queries have been addressed.
- 4.5 A site investigation was undertaken by Jomas Associates in April 2024 comprising three windowless sampler boreholes (including installation of monitoring wells) and one cable percussion borehole. The ground conditions comprise Made Ground (found to be deepest in the northwest of the site on the driveway; 1.8 to 1.9m thick) overlying London Clay (proven to depth). No groundwater was encountered during the investigation but during two return monitoring visits on 22nd and 30th April 2024 groundwater was recorded at levels between 1.66m and 2.84m bgl. The BIA states that "the groundwater reported from post drilling monitoring is considered to represent either surface water ingress that infiltrated the well space, or was possibly perched in the made ground, but was unable to drain through the impermeable London Clay Formation". It is understood that the basement excavation will extend directly into the London Clay.
- 4.6 The site is indicated to be underlain by the London Clay Formation, designated unproductive strata. The updated documents provide discussion on the proximity of 'lost' rivers. It is accepted that the basement will not have a significant impact to groundwater flow.
- 4.7 The updated documents provide suitable ground, groundwater, development, and construction information to consider the impacts of the proposed development as required by CPG: Basements.
- 4.8 It is accepted that the site is at low risk of surface water flooding (although the carriageway of Heath Drive is at medium risk of surface water flooding). The development will result in an increase in impermeable site area. A Flood Risk Assessment and Drainage Strategy has been presented. SuDS in the form of attenuated drainage with restricted off-site flows to sewers is proposed. With the inclusion of appropriate mitigation measures it is accepted that the development will not impact the hydrology of the area. Drainage proposals should be agreed with LBC and Thames Water.

- 4.9 A Ground Movement Assessment (GMA) has been presented and considers the movements related to excavation and construction of the new basement using PDisp and XDisp software.
- 4.10 The GMA has been used to inform a building damage assessment for the neighbouring structures at 36 and 38 Heath Drive. The damage impact assessment indicates the impact can be limited to Burland Category 1 (Very Slight).
- 4.11 Non-technical summaries have been provided within the updated documents.

5.0 CONCLUSIONS

- 5.1 The BIA has been undertaken by individuals who hold qualifications in accordance with CPG Basements.
- 5.2 The proposed development comprises the demolition of the existing structure and construction of a five-storey building with an extension to the existing basement to a depth of 2.8m bgl.
- 5.3 The previous queries in regard to the Screening assessment have been addressed, as required.
- 5.4 A site investigation was undertaken in April 2024 which confirmed that the underlying ground conditions comprise Made Ground overlying London Clay. No groundwater was encountered during the investigation. Infiltrating surface water was observed during monitoring and perched groundwater within Made Ground is anticipated during construction.
- 5.5 The baseline conditions for the BIA have been provided in the updated documents submitted.
- 5.6 It is accepted that the development will not impact the hydrogeology of the area.
- 5.7 It is accepted that the development will not affect the slope stability of the surrounding area.
- 5.8 A Flood Risk Assessment and Drainage Strategy has been presented. SuDS in the form of permeable paving and water butts will be incorporated into the development to increase the area of the site drained by infiltration. With the inclusion of appropriate mitigation measures it is accepted that the development will not impact the hydrology of the area. Drainage proposals should be agreed with LBC and Thames Water.
- 5.9 A Ground Movement Assessment (GMA) has been presented that considers the movements related to excavation and construction of the new basement in relation to 36 and 38 Heath Drive. A subsequent building damage assessment indicates the impact can be limited to Burland Category 1 (Very Slight).
- 5.10 Considering the updated documents submitted, 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

Residents' Consultation Comments

The following comments highlight those pertinent to the BIA:

Surname	Address	Date	Issue raised	Response
Ajay	Not provided	28 March 2024	"the addition of a substantial basement as outlined in the proposed plan raises concerns about increased flood risks and building hazards to neighbouring properties. The cumulative effect of numerous large basements in the vicinity has already been observed to contribute to significant subsidence issues, as evidenced by the challenges faced by Avenue Mansions. It is crucial to note that previous instances of major flooding in Hampstead and Highgate were attributed to the proliferation of large basements and the reduction of green spaces in the area. Therefore, approving another basement construction would only exacerbate these risks and compromise the safety and quality of life for residents".	Section 4 and Appendix 2
Redington Frogna Neighbourhood Forum	N/A	9 April 2024	"Excavation of a basement beneath this steeply sloping land would have a negative impact on slope stability, potentially causing a London clay landslip, as occurred to the rear of 264 Finchley Road. The proposed basement is in close proximity to the underground River Cannon / Westbourne and tributaries, where properties regularly flood with water and effluent. The topography, the presence of aquifers and clay subsoil all militate against any basement excavation".	Section 4 and Appendix 2

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Appendix 2

Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	BIA Format	It should be demonstrated that a chartered engineer (CEng MICE) has reviewed and approved the relevant assessments.	Closed	September 2024
2	BIA Format	Non-technical summaries.	Closed	September 2024
3	BIA Format	Additional baseline information for assessment and Conceptual Model to be provided.	Closed	September 2024
4	Screening	Assessments to be clarified and updated, with consequential investigation / assessment / mitigation etc provided, as required.	Closed	September 2024
5	Site investigation	Site investigation data and geotechnical interpretation required.	Closed	September 2024
6	Groundwater	Noting clarifications to Screening process; aquifer status; groundwater flow and cumulative impacts; groundwater control during construction; local hydrogeological studies to be referenced and investigated further, as required.	Closed	September 2024
7	Land Stability	Noting clarifications to Screening process; a ground movement assessment and damage assessment addressing both the excavation and construction methodology effects and identifying a zone of influence and assessment of all structures within the zone; construction methodology; structural information; foundation depths; monitoring proposals.	Closed	September 2024
8	Surface Water	Noting clarifications to Screening process; drainage proposals to be subsequently agreed with LBC and Thames Water.	Closed	September 2024

Appendix 3

Supplementary Supporting Documents

None

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