CampbellReith
consulting engineers

Basement Impact Assessment Audit

Garages at 14a Hampstead Hill Gardens, London NW3 2PL

For
London Borough of Camden

Project No.
14006-62

Date
March 2025

Campbell Reith Hill LLP
15 Bermondsey Square
London
SE1 3UN

T: +44 (0)20 7340 1700
E: london@campbellreith.com
W: www.campbellreith.com

DOCUMENT HISTORY AND STATUS

Revision	Date	Purpose/ Status	File Ref	Author	Check	Review
D1	April 2024	For comment	GKkb14006-62-120424-14a Hampstead Hill Gardens-D1	GK	HS	GK
F1	March 2025	For Planning	GKkb14006-62-170325-14a Hampstead Hill Gardens-F1	GK	HS	GK

Document Details

Last Saved	18/03/2025 08:39
Author	G Kite, BSc MSc DIC FGS
Project Partner	E M Brown, BSc MSc CGeol FGS
Project Number	14006-62
Project Name	Basement Impact Assessment Audit
Revision	F1
Planning Reference	2023/3816/P
File Ref	14006-62-170325-14a Hampstead Hill Gardens-F1.docx

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 submitted as part of the Planning Submission documentation for the Garages at 14a Hampstead Hill Gardens, London NW3 2PL (planning reference 2023/3816/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. A revised set of documents were subsequently provided in July and October 2024 and January and February 2025.

1.4 The proposed development comprises the demolition of the existing garages followed by the construction of a two-storey building with accommodation in the roof plus single storey basement. The BIA assumes that the foundations will be constructed at a depth of circa 4.50m below ground level (bgl).

1.5 The revised BIA indicates that the proposed basement will be founded within the London Clay, which is confirmed in the structural information. The queries with the original geotechnical assessment have been clarified in the revised submission.

1.6 Additional baseline data to inform the assessment was requested, as detailed in Section 4. The basement will be constructed using underpinning style excavation techniques. Structural drawings and outline construction methodology have been provided for review. The structural queries have been clarified in the revised submission.

1.7 The proposed development will increase the impermeable area on site, which will increase the surface water run-off rate for the site. Drainage, in the form of filter strips, filter drains and permeable paving are incorporated into the development as mitigation.

1.8 A Ground Movement Assessment has been presented, which indicates neighbouring structures will sustain a maximum of Burland Category 1 damage (Very Slight) due to the proposed construction works. Based on the revised submission, the assessment is accepted.

1.9 There is an existing railway tunnel situated beneath the site with the tunnel crown understood to be situated approximately 14m below current site ground level. The proposed building has the potential to result in an increased stress on the existing Network Rail tunnel. Network Rail have been contacted and a Basic Asset Protection Agreement has been signed.

1.10 Considering the revised submission, the BIA meets the requirements of CPG Basements.

2.0 INTRODUCTION

2.1 CampbellReith was instructed by London Borough of Camden (LBC) on 20th March 2024 to carry out a Category B audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for Garages at 14a Hampstead Hill Gardens, London NW3 2PL (Planning Reference: 2023/3816/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 residential garages. Erection of two-storey (plus basement and loft level) detached dwellinghouse. Associated front garden works and landscaping."*

2.6 The Audit Instruction confirmed the subject site is not a listed building. The nearest listed buildings are located 50m west at No. 2, 2A and 4 Hampstead Hill Gardens which are Grade II listed buildings. The site is located within the Hampstead Conservation Area.

2.7 CampbellReith accessed LBC's Planning Portal on 28 March 2024 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment, Ref ST5506-BIA, Revision C by Soiltechnics Ltd, dated September 2023.
- Ground Investigation Report, Ref ST55062-G01, Revision D by Soiltechnics Ltd, dated September 2023.

- Flood Risk Assessment and Drainage Strategy Report, Ref 28806, Revision 1 by Price & Myers, dated August 2023.
- Existing and proposed plans, sections and elevations, Ref 2112 by Echlin Architects, dated December 2019 and June and December 2020.
- Structural Monitoring Specification, ref 28806 by Price & Myers, dated June 2023.
- Design and Access Statement by Echlin Architects, dated June 2023.
- Townscape and Heritage Appraisal by The Heritage Practice dated August 2023.
- Planning consultation comments.

2.8 Following issue of the initial BIA, the following documents were provided to CampbellReith for review:

- Basement Impact Assessment, Ref ST5506-BIA, Revision D by Soiltechnics Ltd, dated October 2024.
- Basement Impact Assessment, Ref ST5506-BIA, Revision E by Soiltechnics Ltd, dated February 2025.
- Flood Risk Assessment and Drainage Strategy Report, Ref 28806, Revision 3 by Price & Myers, dated September 2024.
- Construction Method Statement, Ref 28806, Revision 6 by Price & Myers, dated September 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	
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	BIA, Townscape and Heritage Appraisal and architectural drawings.
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	Yes	Utility infrastructure maps provided.
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.3 of BIA. Further clarification / assessment: 10, 13 and 14.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.2 of BIA. The BIA states the impermeable site area will increase.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.4 of BIA.
Is a conceptual model presented?	Yes	Ground investigation report.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 5 of BIA.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Increase in impermeable area brought forward to scoping and investigated within the Flood Risk Assessment (section 5 of BIA).
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Investigated within the Flood Risk Assessment.
Is factual ground investigation data provided?	Yes	Ground Investigation Report by Soiltechnics Ltd.
Is monitoring data presented?	Yes	Groundwater monitoring provided in Section 6.3.3 of Ground Investigation Report.
Is the ground investigation informed by a desk study?	Yes	Section 3 of Ground Investigation Report.
Has a site walkover been undertaken?	Yes	As part of Ground Investigation Report in October 2020.
Is the presence/absence of adjacent or nearby basements confirmed?	No	Section 6.4.1 of BIA states the main dwellings at Nos. 12 and 14 Hampstead Hill Gardens have lower ground floors and it is estimated that the foundations for those buildings are at approximately 2.5m below ground level.
Is a geotechnical interpretation presented?	Yes	Section 7 of the Ground Investigation Report. Revised in updated submissions.
Does the geotechnical interpretation include information on retaining wall design?	Yes	Revised in updated submissions.

Item	Yes/No/NA	Comment
Are reports on other investigations required by screening and scoping presented?	Yes	Flood Risk Assessment and Ground Movement Assessment.
Are the baseline conditions described, based on the GSD?	Yes	Revised submissions.
Do the base line conditions consider adjacent or nearby basements?	Yes	Assumptions have been made on the adjacent basements.
Is an Impact Assessment provided?	Yes	Section 8 of BIA.
Are estimates of ground movement and structural impact presented?	Yes	GMA includes estimates of ground movement. To be updated following review of requested clarifications.
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	Yes	Revised submissions
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	Revised submissions
Has the need for monitoring during construction been considered?	Yes	Structural Monitoring Specification by Price & Myers. To be reviewed and updated as required once clarifications / assessment provided.
Have the residual (after mitigation) impacts been clearly identified?	Yes	Revised submissions
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	Revised submissions

Item	Yes/No/NA	Comment
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	Revised submissions
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	Outline structural information provided, noting that proposed foundation bearing pressures are inconsistent with geotechnical assessment. This should be reviewed and updated and GMA conclusions confirmed.
Are non-technical summaries provided?	Yes	Non-technical summary provided for BIA.

4.0 DISCUSSION

4.1 The Basement Impact Assessment (BIA) has been prepared by Soiltechnics Ltd with supporting documents provided by Price & Myers and Echlin Architects. The qualifications of the authors of the BIA are in accordance with LBC guidance.

4.2 The site comprises an area approximately 8m wide by 34m long and currently houses two garages. Hard landscaping at the front of the site provides vehicular access to the garages via a dropped kerb and a garden is present to the rear of the garages. Number 12 Hampstead Gardens (three storey semi-detached building with lower ground floor) borders the site to the northwest, Hampstead Gardens carriageway borders the site to the northeast, Number 14 Hampstead Gardens (three storey semi-detached building with lower ground floor) borders the site to the southeast and the rear garden of Number 10 Rosslyn Hill borders the site to the southwest. The site is generally flat with an existing ground level of approximately +72.0mOD.

4.3 The subject site is not a listed building, and the nearest listed buildings are located 50m west at No. 2, 2A and 4 Hampstead Hill Gardens (Grade II listed). The site is located within the Hampstead Conservation Area.

4.4 The proposed development comprises the demolition of the existing garages followed by the construction of a two-storey building with accommodation in the roof and a single storey basement. The proposed construction will adopt an 'hit and miss' underpinning style excavation sequence to construct reinforced concrete L shaped retaining walls around the perimeter of the basement. The BIA assumes that the foundations will be constructed on the London Clay at a depth of circa 4.50m below ground level (bgl).

4.5 Screening assessments are presented and informed by desk study information.

4.6 The baseline conditions for the BIA are generally in accordance with the outline structural drawings (sequencing, propping, permanent and temporary works) and construction method statement. The updated BIA has been revised so that geotechnical and structural proposals are consistent.

4.7 A conceptual model is provided in the Ground Investigation report which is generally in accordance with the updated structural information provided.

4.8 A ground investigation was undertaken in October 2020 by Soiltechnics Ltd which identified the site to be underlain by Made Ground overlying Head Deposits comprising brown grey slightly gravelly silty clay, with gravels comprising fine shell and flint (maximum depth of 4.3m bgl) overlying the London Clay Formation (to the base of the exploratory holes to a maximum depth of 6.0m bgl). The structural information requested confirms foundations will be formed within the London Clay.

4.9 Interpretative geotechnical information has been provided. The queries with the original geotechnical assessment have been clarified in the revised submission.

4.10 Groundwater inflows were observed in WS01 at 3.00m bgl. The BIA conjectured that WS01 was positioned to the edge of an excavation for a drainage run, with Made Ground encountered to 2.80m bgl. Return monitoring visits recorded groundwater between 2.18m and 2.46m bgl at WS01. A standpipe was installed in WS03 with water observed between 2.22m and 3.20m bgl during return visits. The BIA assumed this represents a slight seepage from discreet permeable strata within overlying Made Ground or Head deposits. The BIA concludes that the soils under the site are, in general, considered to be effectively impermeable and unlikely to contain significant perched/ponded water resources.

4.11 The proposed basement is likely to encounter perched water. The BIA report states that groundwater flow rates are anticipated to be relatively minimal given the clayey nature of materials encountered and therefore groundwater flows encountered during construction, if any, will be collected via a sump and suitably discharged.

4.12 Reference to appropriate long term basement waterproofing and flood risk mitigation to be adopted has been provided in the CMS and Flood Risk Assessment and Drainage Strategy.

4.13 Drainage, in the form of filter strips, filter drains and permeable paving are incorporated into the proposed development along with a hydrobrake to control off-site discharge flows. Drainage proposals should be agreed with LBC and Thames Water.

4.14 A Ground Movement Assessment (GMA) is presented in Section 7.3 and Appendix E of the BIA. The results of the assessment indicate that a maximum of Burland Category 1 damage (Very Slight) will be sustained. Based on the revised submission, the assessment is accepted.

4.15 There is an existing railway tunnel situated beneath the site (Overland rail tunnel between Finchley Road & Frognal station and Hampstead Heath station) with the tunnel crown understood to be situated approximately 14m below current site ground level. The proposed building has the potential to result in an increased stress on the existing Network Rail tunnel. The Construction Method Statement states that Network Rail has been contacted and a Basic Asset Protection Agreement has been signed to allow the site investigation to be undertaken safely. Detailed geotechnical analysis of the scheme to determine the strains on the tunnel structure during the construction process, and in the final permanent state, as well as surveying and monitoring before and during the works will be required. Network Rail have agreed that this work should be carried out during the next, detailed design, phases of the project if planning approval is granted.

4.16 A Structural Monitoring Specification has been provided.

5.0 CONCLUSIONS

5.1 The BIA authors hold appropriate qualifications.

5.2 The BIA indicates that the proposed basement will be founded within the London Clay.

5.3 The queries with the original geotechnical assessment have been clarified in the revised submission.

5.4 Structural drawings and outline construction methodology have been provided for review. The structural queries have been clarified in the revised submission.

5.5 A Ground Movement Assessment (GMA) has been presented. Considering the revised submissions, the assessment is accepted.

5.6 There is an existing railway tunnel situated beneath the site. Network Rail have been contacted and a Basic Asset Protection Agreement has been signed.

5.7 The proposed development will increase the impermeable area on site. Drainage, in the form of filter strips, filter drains and permeable paving are incorporated into the development as mitigation.

5.8 Considering the revised submission, the BIA meets the requirements of CPG Basements.

CampbellReith
consulting engineers

Appendix 1

Consultation Responses

CampbellReith
consulting engineers

Residents' Consultation Comments

The following comments highlight those pertinent to the BIA.

Surname	Address	Date	Issue raised	Response
Williams	Not provided	23 February 2024	"Having looked through the Flood Risk Assessment document, I continue to be concerned about the risk of flooding, given that this is projected to increase".	Section 4 and Appendix 2 (further responses required)
Audrey Mandela for Hampstead Hill Gardens Residents' Association		13 February 2024	"Possible risk of flooding: this development would likely create a greater risk of flooding for surrounding homes as more hard surfaces are introduced where previously water could drain away. This problem of rain run-off has already been increased by the relatively new and unauthorised basement construction at number 14, and as mentioned in previous objections there has been flooding at no. 12 recently during heavy rains. In fact, it would appear that the BIA calculation provided with this application don't take into account the basement construction at 14. Further, the applicant's BIA states they found groundwater at 3 meters. It should be clear that a basement at this site would severely limit groundwater flow and should be rejected based on Camden's Basement policies. Risk of ground movement: the creation of a basement creates a serious risk of ground movement in an area where this is already an issue. The applicant's own BIA states: "Construction of the proposed basement will cause ground movements that have the potential to cause damage to existing neighbouring structures." The planned basement would be much too close to number 12, which would undoubtedly see damage and movement from the work. Other homes in the area are very familiar with ground movement on the hill. This project would almost certainly exacerbate the issue.	Section 4 and Appendix 2 (further responses required)

Surname	Address	Date	Issue raised	Response
			Risk to the Hampstead Tunnel: The proposed property would sit directly above the Hampstead Tunnel. The application does not contain an audit by Campbell Reith that would allow a more technical assessment of the proposed basement works by Network Rail as part of this consultation. The applicant's BIA states: "It should be noted that Network Rail would not permit a borehole extending beyond 6 m unless the existing tunnel was surveyed." It seems reckless to build a large concrete box directly above this tunnel when Network Rail will not even allow a borehole. Further, a number of homes that currently sit above the tunnel have been plagued by noise and vibration from the London Overground trains and goods trains that make use of the rail line. Adding another structure above the line could make the noise and vibration worse for neighbouring properties if the sound and vibration bounce off another structure rather than dissipating."	

CampbellReith
consulting engineers

Appendix 2

Audit Query Tracker

CampbellReith
consulting engineers

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	BIA Format	Non-technical summaries.	Closed – partially provided in BIA and partially by simple statements within the structural information.	August 2024
2	BIA Format	Additional baseline information for assessment and Conceptual Model to be provided.	Closed – updated structural information consistent with assumed conceptual model previously presented.	August 2024
3	Screening	Assessments to be clarified and updated, with consequential investigation / assessment / mitigation etc provided, as required.	Closed	March 2025
4	Groundwater	Noting clarifications to Screening process; aquifer status; groundwater flow and cumulative impacts; groundwater control during construction.	Closed	March 2025
5	Land Stability	Noting clarifications to Screening process; construction methodology; structural information; foundation depths; Consultation Responses; GMA; monitoring proposals; geotechnical parameters.	Closed	March 2025
6	Surface Water	Noting clarifications to Screening process; increased surface water run-off rate for the site; assessment and mitigation proposals required; drainage proposals to be subsequently agreed with LBC and Thames Water.	Closed	August 2024

CampbellReith
consulting engineers

Appendix 3

Supplementary Supporting Documents

None

London

15 Bermondsey Square
London
SE1 3UN

T: +44 (0)20 7340 1700
E: london@campbellreith.com

Birmingham

Chantry House
High Street, Coleshill
Birmingham B46 3BP

T: +44 (0)1675 467 484
E: birmingham@campbellreith.com

Bristol

Unit 5.03
HERE
470 Bath Road
Bristol BS4 3AP

T: +44 (0)117 916 1066
E: bristol@campbellreith.com

Manchester

10 Chapel Walks
Manchester
M2 1HL

T: +44 (0)161 819 3060
E: manchester@campbellreith.com