

52 Aberdare Gardens,  
London, NW6 3QD

Basement Impact Assessment  
Audit

For  
London Borough of Camden

Project Number: 13693-56  
Revision: F1

September 2022

Campbell Reith Hill LLP  
15 Bermondsey Square  
London  
SE1 3UN

T: +44 (0)20 7340 1700  
E: [london@campbellreith.com](mailto:london@campbellreith.com)  
W: [www.campbellreith.com](http://www.campbellreith.com)

### Document History and Status

Revision	Date	Purpose/Status	File Ref	Author	Check	Review
D1	June 2022	Comment	AAkb-13693-56-080622-52 Aberdare Gardens-D1.doc	AA	KB	KB
F1	September 2022	Planning	AAkb-13693-56-230922-52 Aberdare Gardens-F1.doc	AA	NS	NS

This document has been prepared in accordance with the scope of Campbell Reith Hill LLP's (CampbellReith) appointment with its client and is subject to the terms of the appointment. It is addressed to and for the sole use and reliance of CampbellReith's client. CampbellReith accepts no liability for any use of this document other than by its client and only for the purposes, stated in the document, for which it was prepared and provided. No person other than the client may copy (in whole or in part) use or rely on the contents of this document, without the prior written permission of Campbell Reith Hill LLP. Any advice, opinions, or recommendations within this document should be read and relied upon only in the context of the document as a whole. The contents of this document are not to be construed as providing legal, business or tax advice or opinion.

© Campbell Reith Hill LLP 2022

### Document Details

Last saved	23/09/2022 14:22
Author	Ansaff Ashraff, B.Eng.
Project Partner	E M Brown, BSc MSc CGeol FGS
Project Number	13693-56
Project Name	52 Aberdare Gardens, London NW6 3QD
Planning Reference	2021/6286/P

Contents

1.0 Non-technical summary ..... 1

2.0 Introduction ..... 2

3.0 Basement Impact Assessment Audit Check List..... 4

4.0 Discussion ..... 7

5.0 Conclusions ..... 9

Appendix

- Appendix 1: Consultation Responses
- Appendix 2: Audit Query Tracker
- Appendix 3: Supplementary Supporting Documents

## 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 basement extension at 52 Aberdare Gardens, London, NW6 3QD (planning reference 2021/6286/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 has been carried out by individuals who possess suitable qualifications as per CPG: Basements 2021.
- 1.5. The proposal includes the extension of an existing below ground crawl space to form a single storey basement beneath the building footprint with lightwells to the front and rear, formed by reinforced concrete underpins.
- 1.6. The basement will extend to a depth of c.3.50m bgl and be founded within the London Clay Formation.
- 1.7. Screening questions in hydrology and hydrogeology sections regarding hard surfaced areas have been reviewed and updated to maintain consistency.
- 1.8. Land stability screening Question 8 now accounts for the presence of a lost river located c. 60m south, and Question 6 accounts for trees being felled as part of the development.
- 1.9. The site is within a Critical Drainage Area and the Goldhurst Flood Risk Zone. Clarification is provided on the proposed attenuation storage.
- 1.10. Outline temporary works plan and structural load takedowns are provided. Discrepancies in the drawings regarding the width of underpin sections and number of stages of underpinning are clarified.
- 1.11. Ground Movement Assessment (GMA) has been undertaken. It is updated to consider Nos. 54, 50 and the pedestrian footpath. Additional movements due to excavation are considered within the assessment and resulting Damage is within Category 1.
- 1.12. Considering the additional information provided, it can be confirmed that the BIA complies with the requirements of CPG Basements.

## 2.0 INTRODUCTION

- 2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 9<sup>th</sup> May 2022 to carry out a Category B audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 52 Aberdare Gardens London NW6 3QD and Planning References 2021/6286/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 *"Amalgamation of 3 dwellings to 2 dwellings; creation of basement extension; alterations to existing single storey rear extension to include new roof terrace above, alterations to fenestration, alterations to front boundary treatment, removal and replacement of trees, installation of condenser in rear garden, and installation of solar panels to the roof."*
- 2.6. The Audit Instruction confirmed 52 Aberdare Gardens neither involves, nor is a neighbour to, listed buildings.

2.7. CampbellReith accessed LBC's Planning Portal on 20/05/2022 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment Report (BIA) by PJCE, Revision 1, dated December 2021 (ref: J2630).
- Basement Impact Assessment Report by Paddock geo engineering, Issue 1, dated 19<sup>th</sup> November 2021, (ref: P21 - 302bia)
- Basement construction methodology and temporary works by Flood Engineering dated 22<sup>nd</sup> November 2021 (ref:211119).
- Basement Construction Sequence drawings by Flood Engineering:
  - Sheet 1, drawing no. 100, rev P01, dated 07 December 2021.
  - Sheet 3, drawing no. 102, rev P01, dated 07 December 2021.
  - Sheet 3, drawing no. 103, rev P01, dated 07 December 2021
- Proposed Plans by Hudson+Madigan, dated 6<sup>th</sup> September 2021. (ref:HM120)
- Existing Plans by lime green associates, dated 27<sup>th</sup> July 2021
- Arboricultural Survey & Impact Assessment by Marcus Foster dated December 2021. (ref: AIA/MF/0153/21)
- Design & Access Statement by Hudson+Madigan, dated 23<sup>rd</sup> December 2021.

2.8. After issuing the revision D1 of this report, CampbellReith received and reviewed the following documents for audit purposes:

- Basement Impact Assessment Report (BIA) by PJCE, Revision 2, dated July 2022 (ref: J2630).
- Basement Impact Assessment Report by Paddock geo engineering, Issue 2, dated 21<sup>st</sup> December 2021, (ref: P21 - 302bia)
- GMA hand calculations by PJCE, dated 26<sup>th</sup> July 2022

### 3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	
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 3.3 of Paddock BIA. Responses to Question 6 and 8 is updated.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 3.2 of Paddock BIA. Reviewed and updated.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 3.1 of Paddock BIA. Reviewed and updated.
Is a conceptual model presented?	Yes	
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 4.1 of Paddock BIA
Hydrogeology Scoping Provided?	Yes	Section 4.1 of Paddock BIA.

Item	Yes/No/NA	Comment
Is scoping consistent with screening outcome?		
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	
Is factual ground investigation data provided?	Yes	Section 5.2 of Paddock BIA
Is monitoring data presented?	Yes	Section 5.3 of Paddock BIA
Is the ground investigation informed by a desk study?	Yes	Section 2.0 of Paddock BIA
Has a site walkover been undertaken?	Yes	
Is the presence/absence of adjacent or nearby basements confirmed?	No	
Is a geotechnical interpretation presented?	Yes	Section 5.6 of Paddock BIA
Does the geotechnical interpretation include information on retaining wall design?	Yes	Section 5.6.3 of Paddock BIA
Are reports on other investigations required by screening and scoping presented?	Yes	A SUDS strategy and Arboricultural Survey are provided
Are the baseline conditions described, based on the GSD?	Yes	
Do the base line conditions consider adjacent or nearby basements?	No	
Is an Impact Assessment provided?	Yes	Section 6.0 of Paddock BIA. Based on updated screening and scoping for hydrology and hydrogeology.
Are estimates of ground movement and structural impact presented?	Yes	Section 4.0 of PJCE BIA report, further assessment is provided and is satisfactory.



Item	Yes/No/NA	Comment
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	Yes	As above.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	Temporary works plan provided.
Has the need for monitoring during construction been considered?	Yes	Outline Movement Monitoring plan provided in Appendix D of PJCE BIA.
Have the residual (after mitigation) impacts been clearly identified?	Yes	Screening exercises are reviewed and updated.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	GMA updated to consider neighbouring properties No. 54 and No.50.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	Clarification relating to the drainage strategy is provided.
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	Yes	
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	GMA updated to consider neighbouring properties No.54 and No.50. Corresponding damage limited within Cat 1
Are non-technical summaries provided?	No	However, introduction and Executive Summary are clearly written.

## 4.0 DISCUSSION

- 4.1. The Basement Impact Assessment (BIA) has been carried out by individuals who possess suitable qualifications as per CPG: Basements 2021.
- 4.2. The Structural Assessment of the proposed basement is included within the PJCE BIA report.
- 4.3. The site is occupied by a three-storey residential building with an existing lower ground crawl space with a head height of c. 1.5m. The Design & Access Statement identified that 52 Aberdare Gardens is located in the South Hampstead Conservation Area and the property is neither listed, nor does it adjoin any listed buildings.
- 4.4. The proposed basement works comprise extending the existing below ground crawl space to form a single storey basement beneath the entire building footprint and the formation of lightwells at the rear and front of the property. The basement will be formed by a reinforced concrete underpins constructed in a traditional hit and miss underpinning sequence.
- 4.5. Desk study information and a screening assessment are presented in the Paddock BIA.
- 4.6. A ground investigation comprised 2 window sample boreholes to 6m bgl and 6 trial pits to a maximum dept of 1.85m bgl. The investigation confirms that the ground conditions comprise Made Ground to c.1.50m below ground level (bgl), underlain by the London Clay Formation to depth. It is confirmed the basement will be founded within the London Clay Formation to a depth of 3.50m bgl.
- 4.7. Groundwater was not encountered during the investigation, but subsequent groundwater monitoring carried out, indicate shallow groundwater at c. 1.5m depth in WS1. The report concludes that this water may be perched water within the Made Ground and surface water infiltrated into the monitoring well, and not representative of a ground water table within the unproductive London Clay Formation.
- 4.8. Questions 3 and 4 of the hydrology and hydrogeology screening respectively are clarified with regards to change in hard surfaced/paved areas onsite. The BIA has shown that although the development is close to the lost River Westbourne located c.60m south, it will not impact on the wider hydrogeology of the area.
- 4.9. Question 6 of the hydrology screening identifies the site to be within a Critical Drainage Area and the Goldhurst Local Flood Risk zone. Appropriate figures from the SFRA are consulted, indicating that the site is in a region with very low flood risk from surface waters, reservoirs, groundwater, and fluvial/tidal watercourses.
- 4.10. A Sustainable Drainage Systems Strategy (SDS) is presented in Appendix E of the PJCE BIA. Surface water run-off will be discharged into the combined sewer using a control chamber to limit outflows to 2L/s. The location of the proposed attenuation storage to control discharge is

shown within Appendix H, drawing L2630-C-52-700. The permeable pavement contains the storage subbase below and the gravel forms the temporary attenuation for surface water runoff.

- 4.11. The screening assessment for land stability identifies the site to be within a highway or pedestrian footpath and that the proposed development will result in differential foundation depths; these are taken forward to scoping. Trees will be felled as part of the proposed development, according to the arboricultural survey report, and Question 6 is revised to reflect this, and the impact is assessed appropriately in accordance to NHBC guidance. Question 8 is reviewed to acknowledge the presence of the lost river and the impact assessed appropriately.
- 4.12. The basement will be constructed as reinforced concrete underpins beneath the existing masonry walls, with the underpins running along the party wall with No. 52/54 bearing into mass concrete foundations of approximately the same width as the existing corbelled wall foundations. In the permanent case the underpinning will be supported by a reinforced concrete basement floor slab at the base and a metal ground floor deck at the top. Appendix B and C of the PJCE BIA contain an outline temporary propping scheme and structural load takedowns, respectively.
- 4.13. The inconsistency in the maximum width of underpinnings between drawings Nos. L2630-S-20-0090 and L2630 S-08-010 is clarified and corrected to be consistent.
- 4.14. Ground Movement and Building Damage Assessment (GMA) is undertaken in Section 4.0 of the PJICE BIA report. The assessments are updated to reconsider the wall of No. 50, party wall of 52/54 and the public pavement. The GMA uses the methodology presented in CIRIA C760 to predict the magnitude of ground movements arising from the basement excavation and then adds 5mm in both the horizontal and vertical direction to account for settlement of the underpins during construction. Whilst the CIRIA approach is intended for embedded retaining walls, it is accepted that the ground movements predicted using this method are within the range typically anticipated for underpinning techniques carried out with good control of workmanship.
- 4.15. The GMA is updated to include walls perpendicular to the excavations, which are considered to be the critical sections.
- 4.16. The maximum excavation depth considered in the GMA is 2m, which reflects the presence of the crawl space below ground. Hand calculations are presented and the deflection ratio predicted along the wall length is considered to be a conservative estimation. The resulting damage is limited within Category 1 of the Burland Scale.
- 4.17. Proposals are provided for a preliminary movement monitoring strategy during construction is provided within Appendix D of PJCE Report.

## 5.0 CONCLUSIONS

- 5.1. The BIA has been carried out by individuals who possess suitable qualifications.
- 5.2. The proposal includes extending the existing below ground crawl space to form a single storey basement beneath the building footprint with lightwells to the front and rear, formed by reinforced concrete underpins.
- 5.3. The basement will extend to a depth of c.3.50m bgl and be founded within the London Clay Formation.
- 5.4. Groundwater monitoring has been undertaken and shallow groundwater was recorded at the front of property due to perched water.
- 5.5. Screening questions in hydrology and hydrogeology regarding hard surfaced areas are reviewed and updated to maintain consistency.
- 5.6. Land Stability screening Question 8 accounts for the lost river, and Question 6 accounts for trees being felled as part of the development.
- 5.7. The site is within a Critical Drainage Area and the Goldhurst Flood Risk Zone. Clarification is provided on the proposed attenuation storage.
- 5.8. Outline temporary works plan and structural load takedowns are provided. Discrepancies in the drawings regarding the width of underpin sections and number of stages of underpinning are clarified
- 5.9. Ground Movement Assessment (GMA) has been undertaken. It is updated to consider Nos. 54, 50 and the pedestrian footpath. Additional movements due to excavation are considered within the assessment and resulting Damage is within Category 1.
- 5.10. It can be confirmed that the BIA complies with the requirements of CPG Basements.

## Appendix 1: Consultation Responses

None

## Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Hydrogeology and Hydrology	Screening assessments to be updated regarding paved/hard surfaces	Closed	August 2022
2	Hydrology	Clarification is required for some elements of the drainage and surface water mitigation proposals.	Closed	August 2022
3	Land Stability	Question 6 and 8 of the screening should be updated and the impacts assessed appropriately.	Closed	September 2022
4	Structural Drawings	The underpinning construction sequence should be presented consistently between all documents and drawings. Clarification of whether the underpinning will be formed in one or two lifts is also required.	Closed	July 2022
5	GMA	GMA to be updated with comments in Section 4.0 and a damage assessment to be carried out for No. 50 and pedestrian footpath.	Closed	September 2022
6	Land Stability	Monitoring proposals to be updated along with GMA	Closed	August 2022

## Appendix 3: Supplementary Supporting Documents

None



---

## London

15 Bermondsey Square  
London  
SE1 3UN

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

## Birmingham

Chantry House  
High Street, Coleshill  
Birmingham B46 3BP

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

## Surrey

Raven House  
29 Linkfield Lane, Redhill  
Surrey RH1 1SS

T: +44 (0)1737 784 500  
E: [surrey@campbellreith.com](mailto:surrey@campbellreith.com)

## Manchester

No. 1 Marsden Street  
Manchester  
M2 1HW

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

## Bristol

Unit 5.03,  
HERE,  
470 Bath Road,  
Bristol BS4 3AP

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

Campbell Reith Hill LLP. Registered in England & Wales. Limited Liability Partnership No OC300082  
A list of Members is available at our Registered Office at: 15 Bermondsey Square, London, SE1 3UN  
VAT No 974 8892 43