

**Basement Impact  
Assessment Audit**

Flat A 17  
Chesterford Gardens,  
London, NW3 7DD

For  
London Borough of Camden

Project No.  
14006-15

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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 Flat A 17 Chesterford Gardens, London NW3 7DD (planning reference 2022/4911/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 (BIA) 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. Updated information was also provided separately as described in Section 2.0.
- 1.4 The Basement Impact Assessment (BIA) has been carried out by Cooper Associates. The individuals concerned in its production do not fully meet the qualification requirements of CPG: Basements, however the screening exercise has been completed correctly. LBC have confirmed that, for this application, the qualifications of the authors may be accepted.
- 1.5 The updated BIA considered the Neighbourhood Plan for Redington and Frognal.
- 1.6 The proposed scheme involves extending the existing basement. The new basement area will be supported by a reinforced concrete retaining wall formed using underpinning techniques in a hit and miss sequence. The external wall will be underpinned where necessary. It is reported that the new foundations will bear on the Claygate Member.
- 1.7 The screening, scoping assessments have been updated in the revised BIA with reference to appropriate sources of information.
- 1.8 It is accepted there will be no impacts to surface water flow.
- 1.9 It is accepted there are no specific or cumulative impacts to subterranean flows.
- 1.10 Additional information has been provided to justify the proposed retaining wall and foundation design and their performance. The proposals are presented consistently across the various documents that make up the BIA.
- 1.11 It has been confirmed that potential damage to both Nos 17 and 19 Chesterford Gardens has been considered. The BIA predicts that damage can be limited to no worse than Burland Category 1.
- 1.12 It is 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 14/06/2023 to carry out a Category B audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for Flat A 17 Chesterford Gardens, London, NW3 7DD (Planning Reference No. 2022/4911/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.
- Redington and Frognaal Neighbourhood Plan

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 "Extension of existing basement and installation of new low level window on side elevation."

2.6 The Audit Instruction confirmed Flat A 17 Chesterford Gardens did not involve, nor was a neighbour to any listed buildings.

2.7 CampbellReith accessed LBC's Planning Portal on 15/06/2023 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment by Cooper Associates, dated May 2023, Ref No. CA6669, Rev. A
- Basement Structural Report by Cooper Associates titled "Consideration of requirement for a Basement Impact Assessment", dated March 2023, Ref No. CA6669, Rev. A

- Design and Access Statement by Edward Rutherfoord Architect, dated 14<sup>th</sup> October 2022, Ref No. – unknown, Rev – unknown
- Planning Application Drawings by Edward Rutherfoord Architect:
  - Site Location Plan, dated December 2021, Drg No. CFG/PL/100
  - Existing Plans by Edward Rutherfoord Architect:
    - (i) Basement floor Plan, dated March 2022, Drg No. CFG/PL/09
    - (ii) Ground floor Plan, dated December 2021, Drg No. CFG/PL/01
    - (iii) South Elevation, dated December 2021, Drg No. CFG/PL/04
    - (iv) Section AA, dated December 2021, Drg No. CFG/PL/07
  - Proposed Plans by Edward Rutherfoord Architect:
    - (i) Basement floor Plan, dated March 2022, Drg No. CFG/PL/90
    - (ii) Ground floor Plan, dated March 2021, Drg No. CFG/PL/91
    - (iii) South Elevation, dated December 2021, Drg No. CFG/PL/94
    - (iv) Section AA, dated December 2021, Drg No. CFG/PL/97
- Site Photographs by Edward Rutherfoord Architect, dated October 2022, Drg No. CFG/PL/101
- Structural Details Basement Drawing by Cooper Associates dated February 2023, Drg No. - CA6669/B01.
- Consultation responses.

2.8 Following the issue of CampbellReith's initial audit report, further information was submitted in response to the queries raised as follows:

- Basement Impact Assessment by Cooper Associates, dated July 2023, Ref No. CA6669, Rev. B
- Structural Details Basement Drawing by Cooper Associates dated February 2023, Drg No. - CA6669/B01. Rev. A
- Basement calculations, ref CA6669, Rev B, dated 3 November 2023.

### 3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	No	Authors do not have satisfactory qualifications for Hydrogeology and Land Stability.
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?	No	Maps for flooding and surface water features are not consulted.
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	No	
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	Section 4.2 of BIA. Questions 7, 8 and 13 should be reviewed.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	Section 4.1 of BIA. Question 2 to be reviewed following reference to appropriate maps.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	Section 4.3 of BIA Response to Question 6 does not refer to all recommended maps and data sources.



Item	Yes/No/NA	Comment
Is a conceptual model presented?	No	No conceptual model is provided.
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	No	None provided
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	No	None provided
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Although not all data sources for surface water flooding were consulted, it is accepted that the proposed development will not impact surface water flows.
Is factual ground investigation data provided?	No	Trial pits undertaken; however no quantitative information on soil properties established.
Is monitoring data presented?	No	No monitoring undertaken.
Is the ground investigation informed by a desk study?	No	Desk study provided is not complete and does not consider surface and subterranean water features.
Has a site walkover been undertaken?	Yes	Refer site photographs by Edward Rutherfoord Architects.
Is the presence/absence of adjacent or nearby basements confirmed?	No	
Is a geotechnical interpretation presented?	No	
Does the geotechnical interpretation include information on retaining wall design?	No	No design parameters are provided for retaining walls



Item	Yes/No/NA	Comment
Are reports on other investigations required by screening and scoping presented?	No	To be confirmed on completion of screening and scoping exercises.
Are the baseline conditions described, based on the GSD?	No	As above
Do the base line conditions consider adjacent or nearby basements?	No	
Is an Impact Assessment provided?	Yes	
Are estimates of ground movement and structural impact presented?	No	Not provided.
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	Yes	It requires to be confirmed that impact assessment is adequate.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	No	To be confirmed on completion of screening exercises.
Has the need for monitoring during construction been considered?	Yes	Section 5.0 of BIA.
Have the residual (after mitigation) impacts been clearly identified?	No	
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	No	Further justification for structural scheme and performance required.

Item	Yes/No/NA	Comment
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	No	Screening and scoping exercise does not consider subterranean water features.
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	No	As above.
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	No justification provided.
Are non-technical summaries provided?	Yes	Section 7.0 of BIA.

## 4.0 DISCUSSION

- 4.1 The Basement Impact Assessment (BIA) has been carried out by Cooper Associates. One of the individuals involved in its production holds a CEng MICE qualification. Input from an individual holding the CGeol qualification has not been provided. LBC have confirmed that, in this instance, the qualifications of the BIA authors can be accepted.
- 4.2 The BIA has been updated to make reference to the Neighbourhood Plan for the Redington and Frognaal area.
- 4.3 The Design & Access Statement confirms that 17 Chesterford Gardens is not a listed building.
- 4.4 The proposed scheme comprises the enlarging the existing basement beneath a portion of the building footprint. The basement floor level will be unchanged but the underside of the new basement slab will be 200mm deeper than the existing. To construct the new basement space, a short length of the external wall will be underpinned and new retaining walls constructed using underpinning techniques in a hit and miss sequence.
- 4.5 The structural and architectural plans and sections include partial dimensions sufficient to allow the extent of the new basement to be understood.
- 4.6 Responses to the hydrogeology and land stability screening questions concerning the proximity of the site to a watercourse, well or potential spring line have been updated with reference to the relevant maps from the ARUP Guidance for Subterranean Development report and Neighbourhood Plan.
- 4.7 Question 7 of the Land Stability screening exercise relates to subsidence in the local area. A number of planning consultation responses refer to historic underpinning of the applicant's property and other properties. Further information has been provided in the screening section of the updated BIA to justify the conclusion that there is no shrink-swell subsidence risk associated with the basement proposals. Q13 relates to adjacent neighbouring properties. Despite not identifying the increase in differential founding depths, a ground movement and building damage assessment provided in the revised basement calculations pack considers the impacts to the other flats at No 17 Chesterford Gardens and to No 19 Chesterford Gardens.
- 4.8 The surface water screening does not consider all the sources of information necessary to complete the response to Q6. However, it is noted that the basement proposals will not impact surface water flows.
- 4.9 The Redington and Frognaal Neighbourhood Plan encourages applicants to consider impacts to and from basements within 20m or 4 times the basement depth (whichever is greater) in the scoping exercise and impact assessment. The BIA has been updated to consider the presence of any basements in the vicinity of the host property. It is accepted that the proposed basement will not alter the local or wider hydrogeological regime.
- 4.10 The BIA does not include a scoping exercise or impact assessment, however it is acknowledged that some of the detail provided in the screening table in Section 4 of the BIA includes these stages of assessment. The impact assessment has been updated in line with the updated screening assessment.

- 4.11 Section 3.8 of the BIA indicates that three trial pits have been undertaken to confirm ground and groundwater conditions. No quantitative information regarding soil properties has been provided. The underpins will be founded on top of the Claygate Member. Revision B of calculations demonstrate that the proposed foundation loads do not exceed existing load.
- 4.12 A construction sequence methodology is outlined in Section 5.0 and 6.0. The revised BIA and calculations include a structural load takedown and outline designs for the retaining walls. Discrepancies between the BIA and structural drawings with respect to the extent of underpinning have been resolved and the temporary works are described.
- 4.13 The revised basement calculations consider the impacts on ground movement on the flank wall and two internal walls of No 17 Chesterfield Gardens and state that damage may be restricted to no worse than Burland Category 1.
- 4.14 Proposals are outlined for a movement monitoring strategy during excavation and construction activities.

## 5.0 CONCLUSIONS

- 5.1 The Basement Impact Assessment (BIA) has been carried out by Cooper Associates. The individuals concerned in its production do not fully meet the qualification requirements of CPG: Basements, however the screening exercise has been completed correctly. LBC have confirmed that, for this application, the qualifications of the authors may be accepted. The updated BIA considered the Neighbourhood Plan for Redington and Frognal.
- 5.2 The proposed scheme involves extending the existing basement. The new basement area will be supported by a reinforced concrete retaining wall formed using underpinning techniques in a hit and miss sequence. The external wall will be underpinned where necessary.
- 5.3 Limited desk study information is presented to inform the screening assessment. The screening, scoping assessments have been updated in the revised BIA with reference to the maps presented in the Arup Guidance for Subterranean Development report other Camden planning guidance and local information provided by neighbours. The impact assessment is appropriate to the completed screening exercise.
- 5.4 It is accepted there will be no impacts to surface water flow.
- 5.5 It is reported that the new foundations will bear on the Claygate Member. Three trial pits have been undertaken which appear to confirm this. No groundwater was encountered. It is accepted there are no specific or cumulative impacts to subterranean flows.
- 5.6 Additional information has been provided to justify the proposed retaining wall and foundation design and their performance. Contradictory information that was presented regarding the extent of underpinning in the original documents has been updated and the proposals are presented consistently.
- 5.7 Further justification for the building damage assessment and it has been confirmed that both Nos 17 and 19 Chesterford Gardens have been considered. The BIA predicts that damage can be limited to no worse than Burland Category 1.
- 5.8 It is confirmed that the BIA complies with the requirements of CPG: Basements.

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## Appendix 1

### **Consultation Responses**

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
Markus	Unknown	27/11/2022	Subsidence, structural damage and ground movement	Addressed in updated BIA and basement calculations.
Odemis	Unknown	12/12/2022	Historic underpinning and subsidence issues	Addressed in updated BIA and basement calculations.
Hughes	Unknown	12/12/2023	Historic underpinning and subsidence issues	Addressed in updated BIA and basement calculations.



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## **Appendix 2**

### **Audit Query Tracker**

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	BIA Format	Authors do not have qualifications as per CPG Basements	Closed	07/09/2023
2	BIA Format	BIA does not refer to Neighbourhood Plan	Closed	03/08/2023
3	Screening	Screening questions to be reviewed and updated or further justification provided. Impact assessments to be provided/updated where necessary.	Closed	03/08/2023
4	Land Stability	Further justification required for adequacy of bearing stratum and performance of proposed foundations and retaining walls.	Closed	06/11/2023
5	Land Stability	Retaining wall geometry and underpinning should be presented consistently.	Closed	06/11/2023
6	Land Stability	Justification required to support damage assessment for neighbouring properties and confirmation that all neighbouring properties have been considered.	Closed	03/08/2023

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## Appendix 3

### Supplementary Supporting Documents

None

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