

16 Rosecroft Avenue,
London, NW3 7QB

Basement Impact Assessment
Audit

For
London Borough of Camden

Project Number: 12727-99

Revision: F1

January 2019

Campbell Reith Hill LLP
Friars Bridge Court
41-45 Blackfriars Road
London
SE1 8NZ

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	October 2018	Comment	GKemb12727-99-231018-16 Rosecroft Avenue-D1.docx	GK	EMB	EMB
F1	January 2019	Planning	GKemb12727-99-210119-16 Rosecroft Avenue-F1.docx	GK	EMB	EMB

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 2018

Document Details

Last saved	21/01/2019 12:43
Path	GKemb12727-99-210119-16 Rosecroft Avenue-F1.docx
Author	G Kite, BSc MSc DIC FGS
Project Partner	E M Brown, BSc MSc CGeol FGS
Project Number	12727-99
Project Name	16 Rosecroft Avenue
Planning Reference	2018/3211/P

Contents

1.0	Non-Technical Summary	1
2.0	Introduction	3
3.0	Basement Impact Assessment Audit Check List.....	5
4.0	Discussion	9
5.0	Conclusions	12

Appendix

- Appendix 1: Residents' Consultation Comments
- 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 16 Rosecroft Avenue, London NW3 7QB (planning reference 2018/3211/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 site comprises a three-storey semi-detached residential property set in a slope with a lower ground floor garage. The proposed development comprises the excavation of a basement beneath the entire footprint of the ground floor including the construction of lightwells.
- 1.5. The BIA has been prepared by Ground & Water with supporting documents prepared by Vincent & Rymill. The authors' qualifications are in accordance with LBC guidance.
- 1.6. A desk study broadly in accordance with LBC guidance is presented. In the revised submissions, the conceptual model has included elevation data to clarify the proposals.
- 1.7. The site investigation identified varying thickness of Made Ground underlain by the Bagshot Formation overlying the Claygate Member of the London Clay Formation.
- 1.8. The monitoring data suggests that the basement will encounter groundwater. Groundwater control measures are recommended by the BIA to ensure stability during construction. It is accepted that the proposed development will not impact the wider hydrogeological environment.
- 1.9. The proposed basement will be constructed at the same depth as the basement recently formed at the adjoining property, 14 Rosecroft Avenue. Structural calculations and retaining wall design are provided for review along with sequencing and propping information.
- 1.10. A Ground Movement Assessment (GMA) is presented that considers the movements relating to the proposed basement construction and the impacts to neighbouring structures. Whilst queries remain on the assessment, the ground movements and consequent damage impacts presented within the revised submissions are accepted, indicating a maximum of Burland Category 1 damage (Very Slight).

- 1.11. The arboricultural report notes that the proposals require the removal of a tree. Considering the revised submissions, it is accepted that this should not impact the proposed development or neighbouring structures.
- 1.12. It is accepted that the site is at very low risk of flooding.
- 1.13. In the revised submissions, the change in impermeable site area is presented consistently. The development will increase the impermeable site area and the BIA indicates a SUDS strategy will be adopted. The final drainage design should be agreed with Thames Water and LBC to ensure that off-site discharge flows will be attenuated in accordance with LBC guidance.
- 1.14. In the revised submissions, an outline construction programme has been presented.
- 1.15. In the revised submissions, non-technical summaries are presented.
- 1.16. Queries and matters requiring further information or clarification are discussed in Section 4 and summarised in Appendix 2. Considering the revised submissions presented, the BIA meets the criteria of CPG Basements.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 13 August 2018 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 16 Rosecroft Avenue, London NW3 7QB, Camden Reference 2018/3211/P. Existing and proposed drawings were uploaded on to Camden's website on 24 September 2018.

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:

- Guidance for Subterranean Development (GSD). Issue 01. November 2010. Ove Arup & Partners.
- Camden Planning Guidance: Basements
- Camden Development Policy (DP) 27: Basements and Lightwells.
- Camden Development Policy (DP) 23: Water.
- The Local Plan (2017): Policy A5 (Basements).

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; and,
- 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 planning portal describes the proposal as: *"Excavation for a basement extension under the footprint of the building with front and rear light-wells, erection of a rear ground floor extension and minor alterations to the external façade all associated with the use as a residential dwelling (Class C3)."*

The site lies within Redington Froggnal Conservation Area but the building is not a listed building. The property adjacent to the north of the site (18 Rosecroft Avenue) is a Grade II listed building.

2.6. CampbellReith accessed LBC's Planning Portal on 3 and 24 September 2018 and gained access to the following relevant documents for audit purposes:

- Ground Investigation and Basement Impact Assessment Report (ref GWPR2630 16 Rosecroft Avenue) dated July 2018 by Ground & Water Ltd.
- Structural design, Construction Sequence and Temporary Works (ref Issue 1) dated June 2018 by Vincent & Rymill.
- Drawings by 5D Architects Ltd dated June 2018: Plans for existing lower ground floor, ground floor, first floor, second floor and roof, sections and elevations and a site location plan
- Drawings by 5D Architects Ltd dated June and September 2018: Plans for proposed lower ground floor, ground floor, first floor, second floor, roof plan, sections and elevations.
- Tree survey, Arboricultural Impact Assessment and Tree protection plan (ref K71) dated 11th June 2018 by Martin Dobson Associates.
- Design and Access Statement, Rev A, dated 21 September 2018 (no author details).
- Construction Management Plan (ref Rev A) dated June 2018 by G&S Construction Engineering Limited.

2.7. CampbellReith received several iterations of BIA documents between November 2018 and January 2019. The following relevant documents have been reviewed for audit purposes, with the most recent revisions considered to supersede previously submitted documents:

- Ground Investigation and Basement Impact Assessment Report (ref GWPR2630 V3.01 16 Rosecroft Avenue) dated December 2018 by Ground & Water Ltd.
- Structural design, Construction Sequence and Temporary Works (ref Issue 4) dated December 2018 by Vincent & Rymill.
- Outline Construction Programme received November 2018.

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	Outline construction programme presented; Exploratory hole locations and levels provided; development elevations provided.
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 plans/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	BIA Report, Section 3.1.1. Arboricultural report says a tree to be removed.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	BIA Report, Section 3.1.1.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	BIA Report, Section 3.1.1.

Item	Yes/No/NA	Comment
Is a conceptual model presented?	Yes	Conceptual model updated to include elevation data.
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA Report, Section 3.2. However, removal of tree to be considered.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA Report, Section 3.2.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA Report, Section 3.2.
Is factual ground investigation data provided?	Yes	BIA Report, Sections 4 and 5. Exploratory hole locations and levels to be provided.
Is monitoring data presented?	Yes	BIA Report, Section 5.4.
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	The adjoining property (14 Rosecroft Avenue) has a recently developed basement which is at the same depth as the proposed basement at 16 Rosecroft Avenue. No. 18 was noted to not have an existing basement. It is not known whether No. 12 has a basement (BIA Report, Section 7.1).
Is a geotechnical interpretation presented?	Yes	BIA Report, Section 6.
Does the geotechnical interpretation include information on retaining wall design?	Yes	BIA Report, Section 7.4. Retaining wall design has not been provided.

Item	Yes/No/NA	Comment
Are reports on other investigations required by screening and scoping presented?	Yes	An Arboricultural Assessment is provided.
Are baseline conditions described, based on the GSD?	Yes	Conceptual model updated to include elevations.
Do the base line conditions consider adjacent or nearby basements?	Yes	
Is an Impact Assessment provided?	Yes	BIA Report, Section 7.10.
Are estimates of ground movement and structural impact presented?	Yes	BIA Report, Section 7.6. Revised GMA accepted.
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	Yes	Conclusions of revised GMA accepted; SUDs strategy accepted subject to final design; no arboricultural impacts on stability.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	Conclusions of revised GMA accepted; SUDs strategy accepted subject to final design; no arboricultural impacts on stability.
Has the need for monitoring during construction been considered?	Yes	Appendix 4 of the Vincent & Rymill report.
Have the residual (after mitigation) impacts been clearly identified?	Yes	Conclusions of revised GMA accepted; SUDs strategy accepted subject to final design; no arboricultural impacts on stability.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	Conclusions of revised GMA accepted; no arboricultural impacts on stability.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	SUDs strategy accepted subject to final design.

Item	Yes/No/NA	Comment
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	Yes	Conclusions of revised GMA accepted; SUDs strategy accepted subject to final design; no arboricultural impacts on stability.
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	Conclusions of revised GMA accepted.
Are non-technical summaries provided?	Yes	Non-technical summaries presented in revised submissions.

4.0 DISCUSSION

- 4.1. The BIA has been prepared by Ground & Water with supporting documents provided by Vincent & Rymill. The authors' qualifications are in accordance with CPG guidelines.
- 4.2. The site comprises a three-storey semi-detached residential property set in a slope with a lower ground floor garage beneath the front of the site with a sloping concrete driveway. The proposed development comprises the excavation of a basement beneath the entire footprint of the ground floor including the construction of lightwells and a single storey rear extension. The basement will be excavated approximately 3.40m below existing ground floor level. The retaining wall foundations of the basement are to be formed approximately 2.00m below driveway level (floor level of front garage) and 4.20m below patio level (at the rear).
- 4.3. The site investigation and BIA have been informed by a desk study broadly in accordance with the GSD Appendices G1 and G2. Queries were raised in the original Audit in regards to: the location plan and levels for the exploratory holes; provision of a conceptual site model to clarify the proposals in relation to the ground and groundwater conditions and neighbouring structures. In the revised submissions, these have now been presented.
- 4.4. Interpretative geotechnical information broadly in accordance with the GSD Appendix G3 is presented.
- 4.5. The site investigation identified varying thickness of Made Ground underlain by the Bagshot Formation overlying the Claygate Member of the London Clay Formation. Groundwater was monitored on two occasions during May and June 2018. The highest groundwater level recorded was 3.70m bgl in WS2, stated to be located at the rear of the property. The proposed basement development is indicated to be at a depth of 4.20m below ground level (bgl) at this location and is likely to encounter groundwater. The BIA states that the structural design will need to take into account the potential for the retaining walls at the rear to encounter groundwater, to consider dewatering to safely facilitate the construction and consider the potential buoyancy effects of groundwater in final design.
- 4.6. It is recommended that seasonal groundwater levels should be considered and further monitoring undertaken, as required.
- 4.7. The BIA has identified that the assumed course of the 'lost' River Westbourne runs adjacent to the east of the site. In addition, historical maps indicated a pond in the southwestern corner of the site prior to the site's development, and a well 90m northwest (incorrectly identified as northeast in the BIA) of the site. However, considering the nature of the underlying and surrounding ground conditions, groundwater flow below and around the proposed basement is possible and it is accepted there will be no impact to the wider hydrogeological environment.

- 4.8. It is understood that the proposed basement will be constructed at the same depth as the basement recently formed at the adjoining property, 14 Rosecroft Avenue, and that the Party Wall between the properties is already underpinned, which will form the basement wall on that side of the development. Structural calculations and retaining wall design are provided for review along with sequencing and propping information.
- 4.9. A Ground Movement Assessment (GMA) was presented but a number of queries were raised in the original Audit in regards to presenting a consistent, reasonably conservative assessment. The revised GMA considers the movements relating to the proposed basement construction and the effect on nearby properties, 18 and 12 Rosecroft Avenue. The GMA considers both construction related movements and settlement of the foundation. Whilst queries remain with respect to the assessment, the GMA is considered to be representative of the ground movements likely to be generated utilising underpinning within the ground conditions present on site. Considering the basement proposals at this property, the consequent damage to neighbours of a maximum of Burland Category 1 (Very Slight) is considered feasible, assuming good workmanship. It is noted that the closest excavations to 18 Rosecroft Avenue (the lightwell) has now reduced in depth, and that the Party Wall with 14 Rosecroft Avenue is already underpinned to the full depth of proposed construction. Impacts to the highway and underlying utilities have been assessed as negligible, which is consistent with the ground movements predicted.
- 4.10. It is noted that structural monitoring during the works is proposed, including trigger levels which should control construction works to maintain damage to neighbouring structures within Category 1 (Very Slight). A monitoring scheme should be adopted during construction.
- 4.11. The arboricultural report notes that the proposals require the removal of a tree from the rear garden. Considering the revised submissions, it is accepted that this should not impact the proposed development or neighbouring structures.
- 4.12. The current Environment Agency and Camden SFRA data indicate that the site is at “very low” risk of flooding from surface water. Rosecroft Avenue did not flood in 1975 or 2002, is not located within a Critical Drainage Area and is not in a flood risk area for reservoir flooding.
- 4.13. The original BIA documents inconsistently described the increase in the impermeable site due to the development. In the revised submissions, the change in impermeable site area is presented consistently. The development will increase the impermeable site area by approximately 47m² and the BIA indicates a SUDS strategy will be adopted. The final drainage design should be agreed with Thames Water and LBC to ensure that off-site discharge flows will be attenuated in accordance with LBC guidance.
- 4.14. In the revised submissions, an outline construction programme is presented.

- 4.15. In the revised submissions, non-technical summaries are provided, in accordance with CPG Basements and Policy A5 (Basements).

5.0 CONCLUSIONS

- 5.1. The qualifications of the authors are in accordance with LBC requirements.
- 5.2. In the revised submissions, the conceptual model has included elevation data to clarify the proposals.
- 5.3. A site investigation and interpretative geotechnical information is presented.
- 5.4. Groundwater has been encountered on site and the proposed basement development is likely to encounter groundwater. There will be no impact to the wider hydrogeological environment.
- 5.5. A construction methodology, structural scheme and temporary works sequences are presented. The proposed basement will be constructed at the same depth as the basement recently formed at the adjacent 14 Rosecroft Avenue.
- 5.6. Whilst queries remain on the assessment, the ground movements and consequent damage impacts presented within the revised submissions are accepted, indicating a maximum of Burland Category 1 damage (Very Slight).
- 5.7. An outline for structural monitoring is presented, which should be adopted during construction.
- 5.8. The impact of the removal of a tree from the rear garden has been considered in the revised BIA and will not impact upon stability.
- 5.9. It is accepted that the site is at very low risk of flooding.
- 5.10. In the revised submissions, the change in impermeable site area is presented consistently. The BIA indicates a SUDS strategy will be adopted. The final drainage design should be agreed with Thames Water and LBC.
- 5.11. In the revised submissions, an outline construction programme is presented.
- 5.12. In the revised submissions, non-technical summaries are presented.
- 5.13. Queries and matters requiring further information or clarification are summarised in Appendix 2. Considering the revised submissions, the requirements of CPG Basements have been met.

Appendix 1: Residents' Consultation Comments

None

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status/Response	Date closed out
1	BIA	An outline construction programme should be presented.	Closed	November 2018
2	BIA	A conceptual site model clearly indicating anticipated ground / groundwater conditions in relation to the proposed development to be presented. Levels of the exploratory holes and a location plan to be provided.	Closed	January 2019
3	BIA	Non-technical summaries to be presented.	Closed	November 2018
4	Land Stability	GMA to be reviewed and clarified in accordance with comments in Section 4.	Closed	January 2019
5	Land Stability	Impact assessment to be extended to include tree removal	Closed	November 2018
6	Land Stability	Retaining wall design to be provided.	Closed	November 2018
7	Hydrology	SUDS strategy sufficient to demonstrate that off-site discharge flows will be attenuated in accordance with LBC guidance to be presented.	Closed	January 2019

Appendix 3: Supplementary Supporting Documents

None

London

Friars Bridge Court
41- 45 Blackfriars Road
London, SE1 8NZ

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

Surrey

Raven House
29 Linkfield Lane, Redhill
Surrey RH1 1SS

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

Manchester

No. 1 Marsden Street
Manchester
M2 1HW

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

Bristol

Wessex House
Pixash Lane, Keynsham
Bristol BS31 1TP

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

UAE

Office 705, Warsan Building
Hessa Street (East)
PO Box 28064, Dubai, UAE

T: +971 4 453 4735
E: uae@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: Friars Bridge Court, 41- 45 Blackfriars Road, London SE1 8NZ
VAT No 974 8892 43