

59 Croftdown Road,
London NW5 1EL

Basement Impact Assessment
Audit

For
London Borough of Camden

Project Number: 12336-96

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September 2016

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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 59 Croftdown Road, NW5 1EL (planning reference 2016/3596/P). The basement is considered to fall within Category A 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 was undertaken by Momentum Structural Engineers and the checker has a CEng IStructE qualification. Evidence is required to demonstrate the author has some expertise in engineering geology with respect to the land stability assessment. Despite no input from individuals with C.Geol and CWEM or CEng MICE qualifications with respect to hydrogeology and hydrology respectively, the proposals are modest and it is considered these issues have largely been assessed correctly.
- 1.5. The proposal is for the extension of an existing basement beneath the rear of the house both in plan and depth.
- 1.6. The proposal is not sufficiently detailed and a description of the construction methodology and sequence is requested together with sketches to illustrate each stage of the excavation and construction with any temporary propping indicated.
- 1.7. No site specific ground investigation has been undertaken to determine the sequence and depth of strata, the groundwater level or the depth of the foundations to be underpinned and it is requested that this is undertaken to confirm the viability of the proposals. The investigation should be informed by a desk study.
- 1.8. Confirmation is requested on whether the immediate neighbouring property, No.57, contains a basement.
- 1.9. The scoping to Question 1b of the Hydrogeology screening ignores the potential for perched water to exist within the Made Ground which may require mitigation measures such as dewatering during construction.
- 1.10. The screening exercise did not identify that the site is adjacent to an area which previously flooded. The BIA should be updated to consider the potential impact.

- 1.11. It is requested that the anticipated movements (vertical and horizontal movements from the excavation and underpinning and heave movements from the excavation) be estimated and predicted damage categories for the neighbouring properties included. The potential impact to the roadway and any utilities running beneath it should also be included.
- 1.12. An outline monitoring proposal has not been provided and this is requested. Details and trigger levels should be agreed as part of the Party Wall award.
- 1.13. An outline works programme is not included and this is requested. A detailed programme should be prepared by the appointed Contractor in due course.
- 1.14. It is accepted that there are no slope stability concerns, wider hydrogeological issues or any other surface water considerations with the exception of the potential flood risk discussed above regarding the proposed development.
- 1.15. Queries and requests for clarification are described in Section 4 and summarised in Appendix 2.

2.0 INTRODUCTION

- 2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 11 August 2016 to carry out a Category A Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 59 Croftdown Road, Camden Planning Reference 2016/3596/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
- Guidance for Subterranean Development (GSD). Issue 01. November 2010. Ove Arup & Partners.
 - Camden Planning Guidance (CPG) 4: Basements and Lightwells.
 - Camden Development Policy (DP) 27: Basements and Lightwells.
 - Camden Development Policy (DP) 23: Water.
- 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 *"Single storey rear extension with basement below; and replacement outbuilding for use ancillary to main building."*
- 2.6. The Audit instruction confirmed that the basement proposals does not involve a listed building or neighboured a listed building but the submitted Design and Access Statement indicated that the property made a positive contribution to the Dartmouth Park Conservation Area.

2.7. CampbellReith accessed LBC's Planning Portal on 26 August 2016 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment (BIA) dated march 2016 by Momentum
- Desktop Study dated March 2016 by Groundsure
- Design and Access Statement dated June 2016 by Amos Goldreich
- Architectural Floor Plans, Elevations and Sections, Existing and Proposed, nos 087/101, 102, 200, 201, 202, 300 dated June 2016 by Amos Goldreich

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	No	See Audit paragraph 4.1.
Is data required by Cl.233 of the GSD presented?	No	Proposal not sufficiently detailed (see Audit paragraph 4.3).
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	No	Proposal not sufficiently detailed (see Audit paragraph 4.3).
Are suitable plan/maps included?	No	Map extracts not provided (see Audit paragraph 4.4).
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	No	No relevant maps provided (see Audit paragraph 4.4).
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	No relevant maps are referenced or included (see Audit paragraph 4.4).
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	No relevant maps are referenced or included (see Audit paragraphs 4.4 and 4.5).
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	No relevant maps are referenced or included (see Audit paragraphs 4.4 and 4.6).
Is a conceptual model presented?	No	Site specific investigation not undertaken.
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	No	BIA Section 3.0 but issues not considered to be appropriately addressed without a ground investigation.

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	No	Scoping for the issue identified considered inadequate (see Audit paragraph 4.5).
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	No	No issues identified although one issue should have been carried forward from screening (see Audit paragraph 4.6).
Is factual ground investigation data provided?	No	Site specific ground investigation not undertaken.
Is monitoring data presented?	No	Site specific ground investigation not undertaken.
Is the ground investigation informed by a desk study?	No	Desk study not presented and ground investigation not undertaken.
Has a site walkover been undertaken?	No	Not stated although Section 1 of the BIA describes the property.
Is the presence/absence of adjacent or nearby basements confirmed?	No	No indication provided (see Audit paragraph 4.9).
Is a geotechnical interpretation presented?	No	Ground investigation not undertaken.
Does the geotechnical interpretation include information on retaining wall design?	N/A	Ground investigation not undertaken.
Are reports on other investigations required by screening and scoping presented?	No	None identified although a ground investigation should be undertaken.
Are the baseline conditions described, based on the GSD?	No	Proposal not sufficiently detailed and baseline conditions in accordance with the Arup GSD not presented.
Do the base line conditions consider adjacent or nearby basements?	No	Presence of basements not mentioned.
Is an Impact Assessment provided?	N/A	BIA not undertaken beyond screening and scoping.

Item	Yes/No/NA	Comment
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?	N/A	Impact assessment not provided.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	No	BIA states no adverse effects from basement construction. This has not been demonstrated.
Has the need for monitoring during construction been considered?	No	Not considered.
Have the residual (after mitigation) impacts been clearly identified?	N/A	No impacts identified.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	No	Not demonstrated (see Audit paragraph 4.10).
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	No	Not demonstrated.
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	No	Not demonstrated.
Does report state that damage to surrounding buildings will be no worse than Burland Category 2?	No	Not stated.
Are non-technical summaries provided?	No	Not provided.

4.0 DISCUSSION

- 4.1. The Basement Impact Assessment (BIA) has been carried out by Momentum Structural Engineers and the checker has a CEng MStructE qualification, however, no proof of expertise in engineering geology is provided with respect to the land stability assessment. The production of a BIA also required input from a Hydrogeologist with a CGeol. qualification with respect to the appraisal of groundwater flow and a Chartered Hydrologist or Chartered Civil Engineer specialising in flood risk management and surface water drainage. Whilst this does not appear to be the case, the proposals are modest and this issue could be addressed once further information on a few items is received as discussed below.
- 4.2. The site comprises a three storey semi-detached building which has an existing partial basement below the rear half of its ground floor footprint. This will be lowered by 0.50m, to increase the floor to ceiling height, and extended below a new single storey rear extension by 2.30m within the rear garden.
- 4.3. It is stated in the BIA that the existing masonry walls '*may require underpinning*' although details are not provided. There is no indication of the proposed construction methodology for the basement extension retaining walls. A construction sequence or an indicative bay sequence is not provided. A trial pit adjacent to the party wall to indicate existing foundations has not been undertaken. A statement is made in the BIA that temporary works may be required during although no indicative solution is provided.
- 4.4. Although it is evident that a thorough screening process has been largely undertaken, it would be beneficial if relevant Arup GSD and Camden Strategic Flood Risk Management Assessment maps are referenced and extracts identifying the site location on each map are included. These extracts would help to support statements made in the BIA screening process.
- 4.5. A 'Unknown' response is given to Question 1b of the Hydrogeology screening which relates to whether or not the basement will extend beneath the water table. This was carried forward to scoping, however, this issue is not considered to be appropriately addressed. No ground investigation has been undertaken to establish the groundwater table. Whilst the London Clay is an unproductive stratum, the scoping ignores the potential for perched water to exist within any Made Ground which may require mitigation measures such as dewatering during construction.
- 4.6. An 'Unknown' response is given to Question 6 of the Hydrology screening, however, this was not appropriately addressed. The BIA makes no assessment on whether the development is likely to be affected by surface water flooding, given that it is adjacent to a Local Flood Risk Zone. York Rise and Woodsome Road were flooded in the 1975 event and lie immediately south of the development site. It is possible that any basement construction, however minimal, will impact on the sensitive hydrogeology of the area and surrounding properties.

- 4.7. It is stated in the BIA that there will be no increase in impermeable area therefore the surface water flow regime and volume will be unchanged.
- 4.8. No desk study or intrusive ground investigation has been carried out. A suitable ground investigation establishing the sequence and depth of the strata and groundwater levels is required to confirm the adequacy of the proposed construction methodology, identify the depth of the foundations being underpinned, the potential impacts arising from the basement proposals and to allow appropriate mitigation to be proposed.
- 4.9. No indication is provided whether an existing basement exists below the adjacent property, No. 57 Croftdown Road.
- 4.10. Once a revised BIA has been submitted and an assessment of below ground soils provided, it may be acceptable to confirm that it is unnecessary to develop the BIA beyond screening and scoping. However, no assessment of movements resulting from underpinning and extension retaining wall construction has currently been made. Potential vertical and horizontal movements from the underpinning and excavation together with heave movements from the excavation should be considered and any resultant damage clearly assessed.
- 4.11. It is stated in the land stability screening that the proposed development extends to the back of the pavement, however, the impacts to the pavement and any utilities running beneath it are not discussed.
- 4.12. The BIA does not consider movement monitoring of the neighbouring properties.
- 4.13. A works programme has not been provided as required by Cl. 233 of the Arup GSD.
- 4.14. It is accepted that there are no slope stability concerns, wider hydrogeological issues or any other surface water considerations regarding the proposed development.

5.0 CONCLUSIONS

- 5.1. The BIA was undertaken by Momentum Structural Engineers and the checker has a CEng IStructE qualification. Evidence is required to demonstrate the author has some expertise in engineering geology with respect to the land stability assessment. Despite no input from individuals with C.Geol and CWEM or CEng MICE qualifications with respect to hydrogeology and hydrology respectively, the proposals are modest and it is considered these issues have largely been assessed correctly.
- 5.2. The proposal is for the extension of an existing basement beneath the rear of the house both in plan and depth.
- 5.3. The proposal is not sufficiently detailed and a description of the construction methodology and sequence is requested together with sketches to illustrate each stage of the excavation and construction with any temporary propping indicated.
- 5.4. No site specific ground investigation has been undertaken to determine the sequence and depth of strata, the groundwater level or the depth of the foundations to be underpinned and it is requested that this is undertaken to confirm the viability of the proposals. The investigation should be informed by a desk study.
- 5.5. Confirmation is requested on whether the immediate neighbouring property, No.57, contains a basement.
- 5.6. The scoping to Question 1b of the Hydrogeology screening ignores the potential for perched water to exist within the Made Ground which may require mitigation measures such as dewatering during construction.
- 5.7. The screening exercise did not identify that the site is adjacent to an area which previously flooded. The BIA should be updated to consider the potential impact.
- 5.8. It is requested that the anticipated movements (vertical and horizontal movements from the excavation and underpinning and heave movements from the excavation) be estimated and predicted damage categories for the neighbouring properties included. The potential impact to the roadway and any utilities running beneath it should also be included.
- 5.9. An outline monitoring proposal has not been provided and this is requested. Details and trigger levels may be agreed as part of the Party Wall award.
- 5.10. An outline works programme is not included and this is requested. A detailed programme should be prepared by the appointed Contractor in due course.

- 5.11. It is accepted that there are no slope stability concerns, wider hydrogeological issues or any other surface water considerations with the exception of the potential flood risk discussed above regarding the proposed development.

Appendix 1: Residents' Consultation Comments

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
Willmott	Not provided	N/A	Adjacency to original course of River Fleet and Flood Risk Area	BIA states the 'Lost River' is located at c.150m away. See Audit paragraph 4.6.
Bradfield	DPCAAC	N/A	Adjacency to original course of River Fleet	BIA states the 'Lost River' is located at c.150m away.

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	BIA format	BIA author qualifications	Open – Evidence to demonstrate author has some expertise in engineering geology.	
2	BIA format	Works programme not provided.	Open – Outline duration to be provided.	
3	BIA format/Stability/ Hydrogeology	No site specific ground investigation to confirm sequence of strata and groundwater level.	Open – Site specific ground investigation informed by desk study with groundwater monitoring to be undertaken.	
4	Hydrogeology/Stability	Temporary dewatering measures not considered.	Open – To be considered once ground investigation is undertaken and groundwater level is established.	
5	Hydrology	Screening did not identify that the site is located in an area which previously flooded.	Open – To be considered and addressed as necessary.	
6	Stability	Presence or absence of basement neighbouring properties not discussed in BIA text and foundations depths not determined.	Open – Presence or absence of basements to be beneath adjacent properties to be confirmed.	
7	Stability	Proposed construction methodology not sufficiently detailed. No construction sequence, inadequate sketches and no temporary works proposal.	Open – Construction sequence to be described in the text with sketches illustrating each stage and temporary works indicated if required.	
8	Stability	Ground movement assessment (GMA) not provided.	Open – To be provided as necessary.	
9	Stability	Movement monitoring proposal not provided.	Open – Outline proposal to be provided. Details and trigger levels to be agreed as part of Part Wall award.	

Appendix 3: Supplementary Supporting Documents

None

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