

**9 Maresfield Gardens,
London, NW3 5SJ**

**Basement Impact Assessment
Audit**

For

London Borough of Camden

Project Number: 12066-95
Revision: D1

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 9 Maresfield Gardens, London, NW3 5SJ (planning reference 2016/4136/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 Basement Impact Assessment (BIA) has been prepared by firms of engineering consultants using individuals who possess suitable qualifications.
- 1.5. The lower ground extension comprises the installation of the new reinforced concrete and brickwork walls and slab to be undertaken as underpinning works in a phased sequence. Outline structural calculations for the basement retaining wall, basement slab and foundations are required to demonstrate the viability of the proposals.
- 1.6. The BIA has confirmed that the proposed basement will be founded within London Clay. An indicative assessment of the likely heave pressures is required, including any associated mitigation measures.
- 1.7. It is unlikely that the ground water table will be encountered during basement foundation excavation, although mitigation measures are proposed in the unlikely event of water being encountered.
- 1.8. Measures are proposed to offset the impacts of the increase in impermeable area, and these are considered acceptable.
- 1.9. The Ground Movement Assessment conducted indicated damage to neighbouring properties to be Burland Category 1, or slight. Monitoring and condition surveys have been proposed and are required to comply with Party Wall Process.
- 1.10. It is accepted that the surrounding slopes to the development site are stable.
- 1.11. It is accepted that the development will not impact on the wider hydrogeology of the area and is not in an area subject to flooding.

- 1.12. Queries and requests for further information are summarised in Section 4 and Appendix 2.

2.0 INTRODUCTION

- 2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 5 August 2016 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 9 Maresfield Gardens, London, NW3 5SJ.
- 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 "Lateral extension of existing semi-basement to create four new dwellings comprising 1x 2 bed and 3x 1 bed units. Ground floor rear extension to allow rearrangement of existing dwellings to provide 2x 3 bed units with rear balcony/terrace and staircases".
- 2.6. The Audit Instruction also confirmed that the basement proposal does not involve a listed building nor does the site neighbour any listed buildings.

2.7. CampbellReith accessed LBC's Planning Portal on 7 September 2016 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment Report (BIA) dated 18 July 2016 by Taylor Whalley Spyra,
- Construction Management Plan (CMP) dated July 2016 by Price & Myers,
- CPG2 Report dated July 2016 by Doyle,
- Heritage Statement dated July 2016 by Doyle,
- Planning Design and Access Statement dated July 2016 by Doyle,
- Arboricultural Report dated 24 June 2016 by ACS (TREES) Consulting,
- Daylight and Sunlight Report dated 12 May 2016 by Stinton Jones Consulting Engineers, and,
- Planning application drawings by AS Studio Architectural Services consisting of:
 - Existing Plans (dated September 2015)
 - Proposed Plans (dated May 2016)

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	CEng, no Hydrogeologist/Hydrologist credentials provided.
Is data required by Cl.233 of the GSD presented?	Yes	BIA.
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	Yes	BIA.
Are suitable plan/maps included?	Yes	BIA Appendices.
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	Summarised in BIA Section 1.17 (Figure 4).
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Summarised in BIA Section 1.17 (Figure 3).
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Summarised in BIA Section 1.17 (Figure 5).
Is a conceptual model presented?	Yes	BIA and BIA Appendix E.
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	N/A	No issues identified during screening stage.

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA Sections 3 and 4.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA Sections 3 and 4
Is factual ground investigation data provided?	Yes	BIA Appendix E.
Is monitoring data presented?	Yes	Presented in BIA Appendix E and discussed in BIA.
Is the ground investigation informed by a desk study?	Yes	BIA Section 6.
Has a site walkover been undertaken?	Yes	BIA Section 2. TWS are also working on a site at present adjacent to 9 Maresfield Gardens.
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	BIA Appendix C and K.
Is a geotechnical interpretation presented?	Yes	BIA and Appendix E.
Does the geotechnical interpretation include information on retaining wall design?	No	See BIA Section 1.6 and 2.16.
Are reports on other investigations required by screening and scoping presented?	Yes	Site investigation included within BIA.
Are the baseline conditions described, based on the GSD?	Yes	BIA.
Do the base line conditions consider adjacent or nearby basements?	Yes	BIA.
Is an Impact Assessment provided?	Yes	BIA and BIA Appendix J and K.
Are estimates of ground movement and structural impact presented?	Yes	BIA Section 2 and BIA Appendix K.

Item	Yes/No/NA	Comment
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	Yes	
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	BIA.
Has the need for monitoring during construction been considered?	Yes	BIA Section 2.
Have the residual (after mitigation) impacts been clearly identified?	Yes	BIA Section 7.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	BIA Sections 3, 4 and 5.
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 2?	Yes	BIA Section 2.
Are non-technical summaries provided?	Yes	Executive Summary in BIA.

4.0 DISCUSSION

- 4.1. The Basement Impact Assessment (BIA) has been carried out by Taylor Whalley Sprya (TWS) comprising Chartered Civil and Structural Engineers, and the individuals concerned in its production have suitable qualifications. Although no evidence is provided that the BIA was assessed by a competent Hydrologist or Hydrogeologist, CampbellReith is of the opinion that adequate consideration of the surface and groundwater flows has been conducted.
- 4.2. The existing property is located at 9 Maresfield Gardens and consists of the main house which is four storeys and set back from Maresfield Gardens. The rear of the property has a lower ground floor. The Client is proposing to refurbish the existing structure and extend the rear lower ground floor under the whole of the building and construct a rear extension.
- 4.3. The BIA has identified that the existing on site ground conditions comprise 400mm of Made Ground underlain by stiff brown/yellow London Clay.
- 4.4. The proposed works will involve the removal of existing mass concrete footings and the installation of reinforced concrete (RC) retaining walls along the front and side boundaries and the installation of a new RC lower ground floor slab with the existing building solid brickwork walls being extended down and supported on the new lower ground floor slab. The installation of the new RC and brickwork walls and slab are to be undertaken as underpinning works in a phased sequence. This is an acceptable methodology using established techniques.
- 4.5. A structural appraisal is presented in Section 2 of the BIA and a construction sequence is provided in Appendix C. An indicative temporary works propping proposal is presented in Appendix D. A detailed retaining wall design is not presented, although the BIA acknowledges that the detailed analysis and design will be undertaken as part of the party wall stage. Outline structural calculations for the basement retaining wall, basement slab and foundations are required to demonstrate the viability of the proposals, including soil properties and assumed water levels.
- 4.6. It is accepted that the basement will be founded in London Clay. The BIA acknowledges that a review of uplift will be undertaken to the lower ground floor slab during the detailed design stage. As per above, an indicative assessment of the likely heave pressures is required, including any associated mitigation measures.
- 4.7. A Ground Movement Assessment (GMA) was performed for the most critical adjacent structure, 7 Maresfield Gardens, that lies just south of the property, with damage determined as slight (Burland Category 1). Monitoring and condition surveys are proposed to comply with Party Wall Process.

- 4.8. It is agreed that condition surveys of the neighbouring properties should be commissioned and a programme of monitoring the adjoining structures should be established before the work starts.
- 4.9. The proposed basement will result in an increase in impermeable area of some 126m² at the rear of the property. As a result, measures are proposed to offset the impacts of the development. It is proposed to increase the onsite water storage subject to the requirements suggested by M&E Consultants. Details are provided within the BIA and relevant appendices, and this is considered acceptable.
- 4.10. Seepage was encountered during the site investigation in the Made Ground at the rear of the property, although groundwater was not encountered during the investigation. Mitigation measures are proposed in the unlikely event of water being encountered. It is therefore accepted that there are no significant groundwater flows to be affected by this development.
- 4.11. The BIA has shown that the surrounding slopes to the development are stable.
- 4.12. It is accepted that the proposed basement will not have an impact on surrounding roads or pedestrian walkways as the extension is to the rear of the property. Additionally, no railway tunnels are known to pass below or close to the site.
- 4.13. It is acknowledged that no trees are proposed to be removed as a result of the development.
- 4.14. It is accepted that the site is not located within the catchment area of the Hampstead Heath pond chain.
- 4.15. It is accepted that the site has no risk of groundwater or fluvial flooding and has no past history of flooding.

5.0 CONCLUSIONS

- 5.1. The BIA has been carried out by a firm of engineering consultants using individuals who possess suitable qualifications.
- 5.2. The BIA has confirmed that the proposed basement will be founded within London Clay, with the installation of the new RC and brickwork walls and slab are to be undertaken as underpinning works in a phased sequence. This is an acceptable methodology using established techniques.
- 5.3. Drawings indicating the construction sequence, including temporary propping works, have been presented in the BIA and are considered acceptable. Retaining wall and basement slab designs are not presented at this stage of the application process. Outline structural calculations for the basement retaining wall, basement slab and foundations are required to demonstrate the viability of the proposals. An assessment of the likely heave pressures is required, including any mitigation measures.
- 5.4. It is unlikely that the ground water table will be encountered during basement foundation excavation, although mitigation measures are proposed in the unlikely event of water being encountered.
- 5.5. Measures are proposed to offset the impacts of the increase in impermeable area, and these are considered acceptable.
- 5.6. The Ground Movement Assessment conducted indicated damage to neighbouring properties to be Burland Category 1, or Slight. Monitoring and condition surveys have been proposed and are required to comply with Party Wall Process.
- 5.7. It is accepted that the surrounding slopes to the development site are stable.
- 5.8. It is accepted that the development will not impact on the wider hydrogeology of the area and is not in an area subject to flooding.

Appendix 1: Residents' Consultation Comments

None

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Stability	Outline structural calculations for the basement retaining wall, basement slab and foundations are required to demonstrate the viability of the proposals, including indicative heave pressures.	Open	

Appendix 3: Supplementary Supporting Documents

None

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