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53 Elsworthy Road, London NW3 3BS

Basement Impact Assessment Audit

For

London Borough of Camden

Project Number: 12336-70
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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 53 Elsworthy Road, London, NW3 3BS (planning reference 2016/2251/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 new basement is proposed under the rear two-thirds of the property with a small lightwell in the back garden. The BIA has confirmed that the proposed basement will be founded within London Clay, with founding levels between 2.5m below ground level at the rear and 3.5m below ground level at the front due to the fall across the site. An assessment of the likely heave pressures is required, including any mitigation measures.

1.6. Although a construction sequence and the reinforced concrete retaining wall and slab design is presented, an indicative temporary works propping proposal is requested.

1.7. Ground water was not encountered during the site investigation, and is unlikely to be encountered during basement foundation excavation. Mitigation measures should still be proposed in the unlikely event of water being encountered.

1.8. The adjoining property, 53A Elsworthy Road, is founded at the same depth as the proposed basement, so it is accepted that it should not be affected by any ground movements associated with the excavations. A basic Ground Movement Assessment (GMA) was performed for 51 Elsworthy Road that lies just east of the property, with damage determined as negligible (Burland Category 0). Monitoring and condition surveys will still be required to comply with the Party Wall process.

1.9. It is accepted that the surrounding slopes to the development site are stable.

1.10. 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.

1.11. 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 7 June 2016 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 53 Elsworthy Road, London, NW3 3BS.

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 *"Excavation of single storey basement; erection of rear extension; infill of entrance porch to side excavation; replacement of rear ground floor window with door."*

The Audit Instruction also confirmed that the basement proposal does not involve a listed building nor does the site neighbour any listed buildings.

2.6. CampbellReith accessed LBC's Planning Portal on 29 June 2016 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment (Structural Report) dated April 2016 by Michael Chester & Partners,
- Basement Impact Assessment (Hydrogeological Report) dated April 2016 by JH Groundwater Ltd
- Planning Design and Access Statement undated by Webb Architects Limited,
- Planning Application Drawings by Webb Architects Limited consisting of:

  Location Plan

  Site Plan

  Existing Plans

  Proposed Plans

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	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 and supplementary drawings.
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 Structural Report Section 2.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	BIA Hydrogeological Report Section 2.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	BIA Hydrogeological Report Section 3.
Is a conceptual model presented?	Yes	BIA Hydrogeological Report Section 4.
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA Structural Report Section 3.

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA Hydrogeological Report Section 5.1.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA Hydrogeological Report Section 5.2.
Is factual ground investigation data provided?	Yes	Ground investigation conducted by S Chick Investigations in September 2013.
Is monitoring data presented?	No	Groundwater not encountered during investigation, although no evidence of monitoring is presented.
Is the ground investigation informed by a desk study?	Yes	BIA Structural Report Section 4.
Has a site walkover been undertaken?	Yes	BIA Structural Report Section 4.
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	BIA Structural Report Section 5.
Is a geotechnical interpretation presented?	Yes	BIA Structural Report Appendix D.
Does the geotechnical interpretation include information on retaining wall design?	Yes	BIA Structural Report Appendix D.
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	
Do the base line conditions consider adjacent or nearby basements?	Yes	
Is an Impact Assessment provided?	Yes	BIA Structural Report Section 5.

Item	Yes/No/NA	Comment
Are estimates of ground movement and structural impact presented?	Yes	BIA Structural Report Section 5.
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?	NA	BIA Structural Report Section 5.
Has the need for monitoring during construction been considered?	Yes	Although considered, the recommendation is that it is not necessary. BIA Structural Report Section 5.11.
Have the residual (after mitigation) impacts been clearly identified?	NA	
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 Hydrogeological Report.
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 Structural Report Section 5.
Are non-technical summaries provided?	No	

4.0 DISCUSSION

4.1. The Basement Impact Assessment (BIA) has been carried out by a team engineering and geology consultants, Michael Chester & Partners and JH Groundwater Limited, and the individuals concerned in its production have suitable qualifications.

4.2. The existing building is a three-storey house, with a small single-storey conservatory to the rear. Planning permission has already been obtained to build a small extension at the rear. The new basement is proposed under the rear two-thirds of the property with a small lightwell in the back garden. The adjoining property, 53A Elsworthy Road recently constructed a lower ground floor (Camden reference: 2013/7018/P) with no adverse effects recorded in any structures, or effect on the hydrology and geology of the area.

4.3. Michael Chester & Partners' report indicates that the proposed basement will need to be underpinned, with retaining structures extended out into the rear to form the lightwell. This is an acceptable methodology using established techniques. This technique was also used for the adjacent basement with no negative impacts.

4.4. A construction sequence is presented in Appendix C of the MCP report, and the reinforced concrete retaining wall and slab design is presented in Appendix D. Further to this information, an indicative temporary works propping proposal is requested.

4.5. It is noted that the ground investigation was completed in September 2013, and was specific to 53A Elsworthy Road. From this investigation, Made Ground was found to vary in thickness across the site between 1.0m and 1.5m, underlain by London Clay. As proposed founding levels vary between 2.5m and 3.5m below ground level, due to the fall across the site, the basement will be founded in London Clay. An assessment of the likely heave pressures is required, including any mitigation measures.

4.6. The adjoining property, 53A Elsworthy Road, is founded at the same depth as the proposed basement, so it is accepted that it should not be affected by ground movements associated with the excavations, provided the underpinning is carried out to a good level of workmanship.

4.7. A basic Ground Movement Assessment (GMA) was performed for 51 Elsworthy Road that lies just east of the property, with damage determined as negligible (Burland Category 0). Monitoring and condition surveys will still be required to comply with Party Wall Process.

4.8. The BIA has shown that the surrounding slopes to the development are stable.

4.9. The proposed basement will result in a small increase in impermeable area of some $37m^2$ at the rear of the property. As a result, it is acknowledged that there will be a small change to the

amount, timing and quality of surface water runoff. The proposed mitigation measure, in the form of a green roof, is considered acceptable to offset the impacts of the development.

4.10. Groundwater was not encountered during the site investigation, conducted to a depth of 5.0m. Available geological information also indicates that there is no aquifer beneath the site. During the excavation and construction of the adjoining basement, small amounts of water were encountered but none that caused structural concerns. It is thus accepted that risks due to groundwater are low, although mitigation measures should still be proposed in the unlikely event of water being encountered. There are no significant groundwater flows to be affected by this development.

4.11. In the design of the retaining wall, groundwater level is assumed at 850mm below ground level to accommodate future rise in groundwater level. This assumption and the adopted soil parameters are accepted as reasonable.

4.12. A small Magnolia tree is to be removed at the rear of the property, located at least 5m away from the neighbour's flank wall. It is accepted that its removal will have no structural implication for the neighbouring property.

4.13. 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.

4.14. 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 firms 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 underpinning beneath existing walls to support the basement retaining structures. This is an acceptable methodology using established techniques, as demonstrated with the construction of the adjoining basement at 53A Elsworthy Road. An indicative temporary works propping proposal is requested.

5.3. Drawings indicating the construction sequence, including temporary works, and retaining wall and basement slab design have been presented in the BIA and are considered acceptable.

5.4. It is unlikely that the ground water table will be encountered during basement foundation excavation. Mitigation measures should still be proposed in the unlikely event of water being encountered.

5.5. The basic Ground Movement Assessment conducted indicated damage to neighbouring properties to be Burland Category 0, or negligible.

5.6. No proposals are provided for a movement monitoring strategy during excavation and construction. Monitoring and condition surveys will still be 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. The provision for SUDS, in the form of a green roof, is an acceptable measure to mitigate the small increase in impermeable area.

Appendix 1: Residents' Consultation Comments

None

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Stability	Mitigation measures required should groundwater be encountered to be discussed.	Open	
2	Stability	Indicative temporary works propping proposal.	Open	
3	Stability	Assessment required, and mitigation of, likely heave pressures	Open	
4	Stability	Condition surveys to satisfy the Party Wall Process to be discussed.	Open	

Appendix 3: Supplementary Supporting Documents

None

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