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56 Platt's Lane, London NW3 7NT

Basement Impact Assessment Audit

For

London Borough of Camden

Project Number: 12985-64

Revision: D1

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Appendix

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 (BIA) submitted as part of the Planning Submission documentation for 56 Platt's Lane, London NW3 7NT, Camden Reference 2019/4795/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 BIA has been prepared by SRB Structures with supporting documents prepared by Land Science. The authors' qualifications for the hydrogeological assessment have not been demonstrated to be in accordance with LBC requirements.

1.5. The site currently comprises a three-storey dwelling with a small parking area and soft landscaping at the front and a terraced hillside garden to the rear. The proposed development involves the construction of a single storey basement beneath the existing footprint of the house. The basement is proposed to be formed by underpinning techniques with a raft slab, and the retaining walls are to act as free standing cantilevers.

1.6. The BIA includes a desk study and screening assessments. These should be reviewed and clarified, as Section 4, and a scoping assessment provided.

1.7. A limited site investigation was undertaken by Land Science in January 2018 which identified Made Ground underlain by the Claygate Formation. Interpretative geotechnical information in accordance with LBC guidance should be provided and the contractor should confirm insitu shear strength / density of the soils at formation level.

1.8. Water seepage was recorded during drilling. The result of the return monitoring should be clarified. The impact to the wider hydrogeological environment should be confirmed by a Chartered Hydrogeologist. Groundwater monitoring is recommended to inform the temporary works strategy.

1.9. An outline construction programme has been provided.

1.10. A ground movement assessment (GMA) should be provided to assess the damage impact on all structures within the zone of influence, in accordance with the Burland Scale. The GMA should

confirm impacts to the highway and infrastructure assets, with utility and infrastructure information provided for reference.

1.11. The site is classified as at very low risk of surface water flooding. However, Platt's Lane flooded in both 1975 and 2002. The requirements for flood risk mitigation should be considered and confirmed.

1.12. The proposed scheme will not increase the proportion of impermeable site area. There will be no impact to the wider hydrological environment.

1.13. Discussion and requests for further information are presented in Section 4 and summarised in Appendix 2. Until the information requested is presented, the BIA does not meet the criteria of CPG: Basements.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 2nd July 2019 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 56 Platt's Lane, London NW3 7NT, Camden Reference 2018/4795/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): 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: "*Creation of new basement storey to provide additional habitable accommodation, with new side lightwell plus associated windows and metal grille and with lowered front garden plus associated windows to front elevation*."

The planning portal also confirmed the site lies within the Redington Frognal Conservation Area. The site is not listed and neither are the adjacent buildings.

2.6. CampbellReith accessed LBC's Planning Portal on 12th July 2019 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment dated April 2019 by SRB Structures including:
  - Existing and Proposed Plans, Elevations and Section drawings dated April 2017 by Studio 136 Architects and further drawings by Amirilan Design Ltd dated January 2019.
  - Geotechnical Ground Investigation (ref LS 3267) dated 26 February 2018 by Land Science.
  - Proposal for Basement Extension (including Structural Design) dated August 2018 by SR Brunswick.
  - Thames Water Asset Location Search dated 29 January 2019.
- Consultation responses.

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	No	SR Brunswick has the appropriate qualifications (CEng FICE) in relation to hydrological and land stability assessment. Hydrogeological assessment should be undertaken by a CGeol FGS.
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	However, slope angle at the site unclear from site description and screening assessment responses.
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?	No	BIA report, Section 5.2. Responses in respect of slope angles and relative foundation depths to be reviewed and confirmed (ref audit Section 4).
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	BIA report, Section 5.1. The screening responses require further justification as described in Section 4.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	BIA report, Section 5.3. The screening assessment requires review and confirmation as described in Section 4.
Is a conceptual model presented?	No	This should indicate the proposed development in the context of the existing site conditions and adjacent structures, highlighting any potential impacts.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	No	No scoping section provided within the BIA report. The scoping discussion should identify the potential impacts of the site being located on a slope, the differential foundation depths and the need for further assessment. Noted that BIA sections 1.2 and 4.0 indicate that slopes have been considered within the structural design strategy.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	No	No Scoping section provided within the BIA report. Assessment to be undertaken, as required, by CGeol FGS.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	No	Not provided, although it is noted there is no change in the permeable / impermeable site ratio.
Is factual ground investigation data provided?	Yes	BIA report, Appendix C.
Is monitoring data presented?	Yes	BIA report, Appendix C, Section 4.3. One return visit – result to be clarified.
Is the ground investigation informed by a desk study?	Yes	BIA report, Appendix C, Sections 2 and 3.
Has a site walkover been undertaken?	Yes	
Is the presence/absence of adjacent or nearby basements confirmed?	No	No assessment of the presence/absence of adjacent or nearby basements has been undertaken.
Is a geotechnical interpretation presented?	Yes	BIA report, Appendix C, Section 5.
Does the geotechnical interpretation include information on retaining wall design?	No	BIA report, Appendix D, Section 3. Retaining wall design parameters adopted in structural calculations not presented in geotechnical assessment of site investigation.

Item	Yes/No/NA	Comment
Are reports on other investigations required by screening and scoping presented?	No	No arboricultural assessment provided (recommended within the Geotechnical Ground Investigation, Section 5.2). No Ground Movement Assessment provided.
Are baseline conditions described, based on the GSD?	No	Groundwater assessment to be clarified.
Do the base line conditions consider adjacent or nearby basements?	No	
Is an Impact Assessment provided?	No	Ground movement assessment & hydrogeological environment impact assessment to be provided.
Are estimates of ground movement and structural impact presented?	No	Noted that the 'maximum deflection at road level is to be less than 15mm'.
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	No	Ground movement assessment & hydrogeological environment impact assessment to be provided.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	No	Ground movement & hydrogeological environment, as applicable.
Has the need for monitoring during construction been considered?	No	It stated that monitoring should be undertaken but no details provided, see Section 4.
Have the residual (after mitigation) impacts been clearly identified?	No	Ground movement & hydrogeological environment, as applicable.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	No	Ground movement assessment required.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	No	Hydrogeological assessment to be confirmed.

Item	Yes/No/NA	Comment
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	No	A ground movement assessment is required which should assess the impact on all the structures within the zone of influence. Hydrogeological assessment to be confirmed.
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	No	No ground movement assessment / damage impact assessment provided.
Are non-technical summaries provided?	Yes	

4.0 DISCUSSION

4.1. The BIA has been prepared by SRB Structures with supporting documents prepared by Land Science. The authors' qualifications for the hydrogeological assessment have not been demonstrated to be in accordance with LBC requirements. A chartered hydrogeologist (CGeol FGS) should confirm the assessment presented in the BIA.

4.2. The site currently comprises a three-storey dwelling with a small parking area and soft landscaping at the front (west) and a terraced hillside garden to the rear (east). The proposed development involves the construction of a single storey basement beneath the existing footprint of the house. The new basement will be founded at approximately 3.50 metres below the existing ground floor level. Its noted that there is a change in elevation of nearly 7m between the rear and front gardens. The BIA states that 'the site is located on a west-facing hillside, which slopes very steeply'.

4.3. The property is bounded by 54 Platt's Lane to the west and 1 Telegraph Hill to the east. No information regarding basements at either of these properties has been included within the BIA report.

4.4. A desk study has been undertaken. However, the LBC Guidance for Subterranean Development (GSD) slope indicator mapping and Strategic Flood Risk Assessment (SFRA) do not appear to have been consulted. Additionally, mapped historic springs and wells within 100m of the site have not been identified. The surface water screening assessment should be revised and a conceptual model provided which indicates the proposed development in the context of the existing site conditions (ground / groundwater / slopes) and adjacent structures (foundation levels / utilities), highlighting any potential impacts.

4.5. The land stability screening states there are no slopes greater than 7 degrees on or in the vicinity of the site. This contradicts the description of the site with its change in elevation from east to west, and the GSD slope indicator mapping. Slopes and potential impacts should be confirmed.

4.6. The land stability screening, question 13, also states that the proposed development will not significantly increase the differential depth of foundations relative to neighbouring properties. It appears that no assessment of neighbouring properties has been undertaken and this response should be justified.

4.7. The land stability screening questions 1, 4, 8, 10 and 13 (slope angle at the site; slope angle in wider area; location of local springlines; presence of groundwater; differential depth of foundations) should be reviewed and further assessment undertaken, as required.

4.8. The hydrogeological screening questions 1a, 1b and 2 (in relation to the presence of an underlying aquifer; whether groundwater will be encountered by the proposed basement; the presence of watercourses or springlines) should be reviewed and further assessment undertaken, as required.

4.9. Scoping assessments have not been presented to confirm where additional surveys and / or assessments are required from the screening exercise.

4.10. A limited site investigation was undertaken by Land Science in January 2018 comprising two window sampling boreholes drilled to a depth of 2.00m and 5.00m below ground level (bgl), and a dynamic probe hole to 5.00m bgl at the location of WS2. The investigation identified Made Ground underlain by the Claygate Formation. The investigation report states that the dynamic probing results only indicate relative insitu strength / density of the soils. Therefore the interpreted strength / density of the soils should be confirmed by the contractor in advance of any works to ensure minimum design requirements are met at formation level.

4.11. Its stated in the investigation report and the BIA that a water seepage was recorded during drilling at the base of WS2 at 3.92m bgl but that no groundwater was encountered during the one return monitoring visit. However, the borehole logs and monitoring record indicates groundwater at 3.92m bgl one week after the boreholes were drilled. Further monitoring should be undertaken to clarify the groundwater conditions, to inform the temporary works strategy and the hydrogeological assessment. As noted in paragraph 4.1, the hydrogeological assessment should be undertaken by a chartered hydrogeologist.

4.12. Interpretative geotechnical information is not consistently presented. The investigation report provides a bearing capacity and the structural calculations indicate retaining wall parameters, although they are stated as being assumed. A geotechnical interpretation containing a suitable assessment of soil parameters in accordance with the GSD Appendix G3 should be provided. Further to paragraph 4.10, it is noted that the investigation is limited and that should be reflected by the assumption of conservative parameters.

4.13. The basement is proposed to be formed by underpinning techniques to a depth of 3.50m bgl with a raft slab. The retaining walls are to act as free standing cantilevers in the permanent case, with traditional hit and miss sequencing and propping adopted for the temporary works. Calculations indicate walls will deflect in the order of 10mm. However, further to 4.11, appropriate soil appropriate soil parameters should be confirmed. Additionally, mitigation in consideration of managing groundwater during underpinning to maintain stability should be stated.

4.14. An outline construction programme has been provided.

4.15. No ground movement analysis (GMA) has been presented for review and therefore there is no information on the indicative zone of influence of the development. The presence or absence of

other nearby basements, underground structures or listed buildings within that zone should be confirmed. A GMA should be provided which should address both the excavation and construction methodology effects and assess the potential damage impact on all of the structures within the zone of influence, in accordance with the Burland Scale. The GMA should confirm impacts to the highway and infrastructure assets, with utility and infrastructure information provided for reference.

4.16. Its noted that deflections to the highway are stated to be limited to no more than 15mm.

4.17. The BIA states that a monitoring strategy will be developed. An outline methodology and guidance for monitoring structural movements during construction based on the GMA should be provided to ensure construction is controlled and impacts are limited to those predicted.

4.18. Platt's Lane was subject to surface water flooding in 1975 and 2002, although this was not identified in the BIA. The site is not located within a Critical Drainage Area nor within a Local Flood Risk Zone. The final development levels should be stated and requirements for food risk mitigation should be considered and confirmed.

4.19. The proposed scheme will not increase the proportion of impermeable site area. It is accepted there will be no impact to the wider hydrological environment.

4.20. Queries and matters requiring further information or clarification are summarised in Appendix 2.

5.0 CONCLUSIONS

5.1. The hydrogeological assessment should be undertaken by a chartered hydrogeologist.

5.2. The screening assessments should be reviewed, as described in Section 4, and further assessment undertaken, as required.

5.3. Interpretative geotechnical parameters should be provided.

5.4. Further groundwater monitoring should be undertaken to confirm the hydrogeological assessment and inform the temporary works strategy.

5.5. The contractor should confirm insitu strength / density of the soils at formation level meet the minimum design requirements.

5.6. An outline construction programme has been provided.

5.7. A Ground Movement Assessment is required, as detailed in Section 4.

5.8. The proposed development will not impact the wider hydrological environment.

5.9. Flood risk mitigation measures should be confirmed.

5.10. Requests for further information are summarised in Appendix 2. Until the information requested is presented, the BIA does not meet the criteria of CPG: Basements.

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 / Hydrogeology	Hydrogeological assessment to be undertaken by CGeol FGS.	Open	
2	BIA	Screening assessments to be reviewed and confirmed; Conceptual Site Model to be provided; Scoping / further investigation / impact assessments to be undertaken, as required.	Open	
3	Hydrogeology / Land Stability	The groundwater monitoring result to be clarified. Further groundwater monitoring (to inform the temporary works strategy) is recommended. Note: further monitoring may be required for the hydrogeological assessment, to be determined.	Open	
4	Land Stability	Insitu shear strength of the soils at formation level should be confirmed by the Contractor to ensure minimum design requirements.	Note Only	N/A
5	Land Stability	Interpretative geotechnical assessment to be presented at GSD Appendix G3.	Open	
6	Land Stability	A ground movement assessment should be provided which should address both the excavation and construction methodology effects. It should also identify a zone of influence and assess all structures within the zone.	Open	
7	Land Stability	GMA to include assessment of highway and infrastructure assets, as applicable.	Open	
8	Hydrology	Platt's Lane flooded in both 1975 and 2002. The requirements for flood risk mitigation should be considered and confirmed.	Open	

Appendix 3: Supplementary Supporting Documents

None

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