

207 Sumatra Road
NW6 1PF

Basement Impact Assessment
Audit

For
London Borough of Camden

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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 207 Sumatra Road, London (planning reference 2018/0029/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 Soarboard Ltd and the author's qualifications generally conform with Camden requirements.
- 1.5. The structural proposals comprise underpinning of existing Party Wall foundations and the construction of front and rear lightwells, using the same methodology.
- 1.6. It is recommended that a site specific investigation is undertaken to confirm the founding soil stratum for the new foundations, expose the existing foundations and assess the groundwater conditions.
- 1.7. The BIA reports that any damage that may occur due to development proposals is anticipated to be no worse than Category 1 (very slight). Calculations demonstrating estimated ground movements will be required to support this assumption.
- 1.8. Whilst monitoring of significant cracks in Party Walls is suggested in the BIA, a more robust movement monitoring strategy will be required to be included as part of the assessment.
- 1.9. Evidence of consultation with Network Rail, with regards to the rail line running adjacent to the site, should be provided demonstrating whether or not they have an interest in the area.
- 1.10. It is accepted that the development proposals will not impact on the wider hydrogeology of the area and there are no slope stability concerns at the site.
- 1.11. Given the above, it cannot be confirmed that the proposals conform with the requirements of CPG Basements. A number of requests for additional information is provided in Appendix 2 of this audit.

2.0 INTRODUCTION

- 2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 18 May 2018 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 207 Sumatra Road, London NW6 1PF, 2018/0029/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 Basements. March 2018.
 - Camden Development Policy (DP) 27: Basements and Lightwells.
 - Camden Development Policy (DP) 23: Water.
 - Local Plan 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;
 - c) avoid cumulative impacts upon structural stability or the water environment in the local area, and;
 - d) 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 to provide depth to basement floor level beneath footprint of existing dwelling". The Audit Instruction also confirmed that the development involved, or was a neighbour to, listed buildings.
- 2.6. CampbellReith accessed LBC's Planning Portal on 3rd August 2018 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment Report (BIA)
- Construction Method Statement
- Planning Application Drawings consisting of:
 - Location Plan
 - Existing Plans
 - Proposed Plans
- Design & Access Statement
- Detailed Specification for Basement Extension

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	Although the author appears to be a Chartered Engineer with ICE, no evidence of his experience in engineering geology has been provided.
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	Limited information has been provided on site hydrogeology and geology.
Are suitable plan/maps included?	No	Maps found Camden SFRA and GSD by Arup do not appear to have been consulted. Reference has not been made to the "Lost Rivers of London" map by Burton.
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	Yes	Only applicable to those maps that have been included in the BIA.
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	GSD maps not consulted
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Although Camden SFRA and GSD maps have not been consulted, maps available on Geological Society's online resource.
Is a conceptual model presented?	Yes	Historic borehole data relating to nearby sites has been referenced.
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA Ch. 3.3.

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA Ch. 3.2
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA Ch. 3.2
Is factual ground investigation data provided?	Yes	Limited information based on data relating to historic boreholes undertaken in the vicinity to site.
Is monitoring data presented?	No	A site investigation has not been carried out.
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?	No	No information relating to neighbouring basements has been included in the BIA.
Is a geotechnical interpretation presented?	No	
Does the geotechnical interpretation include information on retaining wall design?	No	
Are reports on other investigations required by screening and scoping presented?	No	
Are the baseline conditions described, based on the GSD?	Yes	Limited information provided on soil conditions and wider area hydrogeology. No information provided on existing foundations
Do the base line conditions consider adjacent or nearby basements?	No	No information on adjacent/nearby basements presented
Is an Impact Assessment provided?	Yes	
Are estimates of ground movement and structural impact presented?	No	
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	Yes	

Item	Yes/No/NA	Comment
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	No	
Has the need for monitoring during construction been considered?	Yes	Monitoring mentioned in BIA Ch. 10.
Have the residual (after mitigation) impacts been clearly identified?	N/A	
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	No	
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	
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 1?	Yes	BIA ch. 4.5
Are non-technical summaries provided?	No	

4.0 DISCUSSION

- 4.1. The Basement Impact Assessment (BIA) has been carried out by Soarboard Ltd. The author's credentials indicate that he is Chartered Engineer and is a member of the Institution of Civil Engineers. Whilst no evidence, demonstrating the author's experience in hydrogeology, has been provided in the BIA, it is accepted that the site hydrogeology is unlikely to be affected by the proposals as these are of relatively small scale.
- 4.2. The LBC Instruction to proceed with the audit identified that the basement proposal neither involves nor neighbours a listed building.
- 4.3. The redevelopment proposals include plans to extend and lower the existing single storey basement and construction of front and rear lightwells.
- 4.4. It is noted that the proposals are informed by a desktop study and no ground investigation has been carried out. The BIA includes historic borehole data available on the British Geological Survey online portal. It is noted that the historic ground investigation, referenced in the BIA, were carried out at sites located approximately 300m from the proposed development in 1950s. The BIA does not interpret the historic borehole data in sufficient detail and does not identify the thickness of the Made Ground. However, it discusses the likely formation encountered, based on this data, and confirms that London Clay is the main formation likely to be encountered on site. It also states that no lenses of silt or gravel were documented in the top 8m.
- 4.5. The BIA discusses groundwater and concludes "the difficulties of working in ground that could be subject to excessive water penetration, soil instability and, thus weakening the platform for construction is completely absent here". This is arguable, as no form of ground investigation was carried out on site to demonstrate this. Therefore, a site specific investigation, will need to be undertaken to ascertain the depth and condition of existing foundations as well as soil and groundwater conditions. This would also allow confirmation of the founding soil stratum for the proposed underpinning, which is anticipated to be London Clay.
- 4.6. The engineering proposals involve the "excavation to provide additional depth to basement floor level beneath footprint of existing dwelling" and construction of front and rear lightwells. "Hit and miss" underpinning, approximately 1.4m deep, is proposed to be adopted throughout. It is noted that the sequence of underpinning is described in the Construction Method Statement. The engineering drawings indicated a new basement slab, 250mm in thickness, and the BIA confirmed that the underpins would be designed as "reinforced concrete cantilevers" with a minimum thickness of 200mm. The basement construction assume appropriate propping of walls and excavated sections at all times during construction and this should be implemented. It is recommended that the drawings are amended to indicate underpins numbered according to

the “hit and miss” sequence described in the method statement and not sequentially. Outline calculations demonstrating the structural feasibility of the main retaining elements is required.

- 4.7. It is noted that groundwater inflows may be encountered during excavation and an allowance for appropriate measures to deal with these is recommended. The BIA confirmed that the basement slab would be designed for uplift due to hydrostatic pressure and to span between the walls.
- 4.8. The BIA has not included a detailed assessment of the subterranean flow but the screening stage identified that there will be no impact on the site hydrogeology due to basement proposals and this is accepted.
- 4.9. A quantitative assessment demonstrating anticipated ground movement during construction has not been carried out. Whilst it is acknowledged that the lowering of foundations using underpinning may not cause significant ground movement given good workmanship, an indication of anticipated ground movements and substantiated damage category is required to demonstrate stability of the surrounding properties, highway, and buried services adjacent to the proposed basement.
- 4.10. The BIA discusses the anticipated damage to neighbouring properties due to basement construction and confirmed this would likely fall within Damage Category 0 (negligible), based on the author’s experience. However, the BIA also suggests that the worst damage that may be caused by the basement proposals would, however, be within Damage Category 1 (very slight). Consistency is required between the submitted documentation.
- 4.11. The BIA discusses the additional area of hardstanding due to development proposals. The report confirmed that there would be a 4% increase in area of hardstanding at the rear garden and approx. 50% at the front garden. However, the additional impermeable due to front lightwell construction amounts to approximately 3m², according to the BIA. Therefore, it is accepted that the increase in surface water runoff due to additional impermeable area is insignificant; however, approval from Thames Water or other stakeholders may be required.
- 4.12. The BIA discusses movement monitoring of neighbouring structures and indicates that significant cracks with a width greater than 3mm should be assessed. However, it is unclear whether the BIA refers to existing or new cracks that may form. Additional information referring to movement of neighbouring structures, trigger levels, and frequency of recording should be included in the monitoring strategy.
- 4.13. The assessment confirmed that the site is not located in an area subject to risk of flooding. This conclusion is supported by maps showing the site in context of flood risk due to rivers, surface

water and reservoirs. Although Camden SFRA and GSD have not been consulted, it is accepted that the development has a low risk of flooding.

- 4.14. The BIA discusses information on slopes on and around the site. It states in ch. 1.2 that “the site has a pronounced slope down from the front of the property towards the west” but also confirms in ch. 3.3 that the site does not include slopes greater than 7°. With reference to slope angle maps, available in GSD, it is accepted that there are no slopes greater than 7°.
- 4.15. It is noted that the rail line, located in close proximity to site, has not been considered by the BIA. Evidence will be required of correspondence with Network Rail to demonstrate if they, or any other utility operators, have an interest in safeguarding the proposal.

5.0 CONCLUSIONS

- 5.1. The BIA has been carried out by Soarboard Ltd. The author's credentials are considered to be satisfactory for the purposes of this BIA.
- 5.2. It has been confirmed that the development does not involve any listed buildings.
- 5.3. The redevelopment proposals include plans to extend and lower the existing single storey basement and construction of front and rear lightwells.
- 5.4. Additional interpretation of the borehole data referenced in the BIA is to be provided by the author (e.g. estimates of bearing capacity, general anticipated behaviour both in the short and long term).
- 5.5. Site specific investigation is required to confirm the soil conditions and expose the Party Wall foundations.
- 5.6. Outline calculations demonstrating design feasibility of the main retaining elements will be required.
- 5.7. Although the BIA reports that groundwater inflows are not anticipated during basement construction, it may be prudent that contingency measures are allowed for to deal with these.
- 5.8. Calculations demonstrating estimated ground movements due to development proposals will be required to support the BIA's conclusions on the Damage Category and demonstrate stability of highway and any buried services.
- 5.9. The BIA confirmed that the increase in surface water discharge due to development proposals is anticipated to be insignificant and this is accepted.
- 5.10. Additional information will be required to be included in the proposals for the movement monitoring strategy.
- 5.11. It is accepted that the development is unlikely to impact on the wider hydrogeology of the area and is not in an area subject to flooding.
- 5.12. It is accepted that there no site slope stability concerns.
- 5.13. Evidence of corresponding with Network Rail will be required demonstrating whether or not the operator has an interest in the development proposals, with reference to the existing rail line running adjacent to the site.

Appendix 1: Residents' Consultation Comments

None

207 Sumatra Road, NW6 1PF
BIA – Audit

Residents' Consultation Comments

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Stability	Calculations relating to the design of the main retaining elements will be required (e.g. retaining wall design, estimated horizontal movements demonstrating stability of public highway and any buried services).	Open	
2	Stability	Appropriate site specific investigation will be required to ascertain thickness of made ground, general site conditions and level of Party Wall foundations.	Open	
3	Stability	Evidence of correspondence will be required to demonstrate whether or not Network Rail have an interest in the development proposals.	Open	

Appendix 3: Supplementary Supporting Documents

None

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