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Flat A 19 Camden Park Road, London NW1 9AX

Basement Impact Assessment Audit

For

London Borough of Camden

Project Number: 13398-59
Revision: F1

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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 Flat A, 19 Camden Park Road, London NW1 9AX (planning reference 2019/1458/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 individuals who possess suitable qualifications.

1.5. It is proposed to construct the basement using underpinning techniques.

1.6. The proposed basement will be founded within London Clay and significant groundwater flow is unlikely to be encountered during basement excavation.

1.7. Soil parameters for retaining wall design have been provided.

1.8. It is accepted that the development will not impact the hydrogeology or slope stability of the area.

1.9. Based on the attenuation measures proposed it is accepted that the development will not have a significant impact on the hydrology of the area.

1.10. A ground movement assessment has been carried out and indicates that damage to neighbouring properties will not exceed Burland Category 1 (Very Slight) which is in accordance with LBC policy.

1.11. Utility data is now provided.

1.12. A Structural Monitoring Plan is provided.

1.13. Based on the revised submission it can be confirmed that the BIA complies with the requirements of CPG: Basements.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 2 November 2020 to carry out a Category B audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for Flat A, 19 Camden Park Road, London NW1 9AX.

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:

- Camden Local Plan 2017 - Policy A5 Basements.
- Camden Planning Guidance: Basements. March 2018
- Guidance for Subterranean Development (GSD). Issue 01. November 2010. Ove Arup & Partners.

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 *"Erection of a single storey rear extension to the lower ground floor flat."*

2.6. The Audit Instruction confirmed that the site neither involves, nor is a neighbour to, listed buildings.

2.7. CampbellReith accessed LBC's Planning Portal on 23 October 2020 and gained access to the following relevant documents for audit purposes:

- Desk Study & Preliminary Basement Impact Assessment (Screening & Scoping) Report by Jomas Associates Ltd, ref. P1675J1537/SRC, version 1.1, dated 15 November 2019.

- Ground Investigation and Basement Impact Assessment Report by Jomas Associates Ltd, ref. P1675J1537/SRC, version 1.1, dated 1 October 2020.
- Construction Method Statement by Mint Structures, ref. M19128/LS, revision B, dated October 2020.
- Design and Access Statement by Jas Bhalla Architects, dated December 2018.
- Planning application drawings by Jas Bhalla Architects, comprising a site plan, location plan, existing and proposed plans and elevations (all dated 20/12/18), existing and proposed Sections A and B (rev A, dated 20/12/18) and Section C (rev B, dated 13/05/19).

2.8. The following additional documents were provided to CampbellReith in March 2021 in response to the queries raised in Appendix 2 of the initial (version D1) audit report:

- Construction Method Statement by Mint Structures, ref. M19128/LS, revision C, dated February 2021.
- Flood Risk Assessment and SUDS Strategy by Jomas Associates Ltd, ref. P1675J1537, version 2.0 dated 20 February 2021.
- Ground Investigation and Basement Impact Assessment Report by Jomas Associates Ltd, ref. P1675J1537/SRC, version 2.0, dated 17 February 2021.
- Ground Movement Assessment by Jomas Associates Ltd, ref. P1675J1537/SC, status: first issue, dated 21 December 2020.
- Utility Assessment by Jomas Associates Ltd, ref. P1675J1537, version 1.0 dated 10 February 2021.

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	
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	Yes	
Are suitable plan/maps included?	Yes	In the Appendices of the Preliminary BIA
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	
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	
Is a conceptual model presented?	Yes	
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	However, further detail of the attenuation measures to be used is required.
Is factual ground investigation data provided?	Yes	
Is monitoring data presented?	No	No post-ground investigation groundwater monitoring has been undertaken.
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?	Yes	Adjoining properties observed to also have lower ground levels.
Is a geotechnical interpretation presented?	Yes	Presented in the Ground Movement Assessment (GMA)
Does the geotechnical interpretation include information on retaining wall design?	Yes	Presented in the GMA
Are reports on other investigations required by screening and scoping presented?	Yes	BIA recommends that a tree survey be undertaken. A Drainage Strategy has been provided as part of the revised submission.
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	
Are estimates of ground movement and structural impact presented?	Yes	Provided as part of the revised submission.

Item	Yes/No/NA	Comment
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	Yes	
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	
Has the need for monitoring during construction been considered?	Yes	
Have the residual (after mitigation) impacts been clearly identified?	Yes	
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	
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	Included in the revised BIA submission.
Are non-technical summaries provided?	Yes	

4.0 DISCUSSION

4.1. The Basement Impact Assessment (BIA) has been carried out by individuals who have suitable qualifications.

4.2. The LBC Instruction to proceed with the audit identified that the basement proposal neither involves a listed building, nor is adjacent to listed buildings. The Design & Access Statement (DAS) indicates the site is within the Camden Square Conservation Area.

4.3. The proposed basement consists of a single storey extension of the existing lower ground floor level of the property. The extension is the full width of the property and extends c. 1m further into the rear garden from the existing lower ground floor level. It is proposed to construct a garden area at lower ground floor level, which is proposed to extend a further 4m into the rear garden from the rear wall of the new extension. It is proposed to form the basement using underpinning techniques, and the maximum excavation depth is given as 1.50m.

4.4. A site investigation was undertaken in the rear garden of the property and indicates ground conditions comprise Made Ground with London Clay below. Made Ground was encountered to a depth of 0.45m from lower ground floor level. Deeper Made Ground was encountered in TP3 to at least 1.2m depth. This location was carried out at garden level adjacent to the existing house and garden wall.

4.5. The revised BIA now includes characteristic soil parameters for the Made Ground and London Clay. These are presented in Section 5.13, in Table 5.5 of the report.

4.6. The London Clay Formation has been identified as an “unproductive aquifer” comprising high plasticity clay. No groundwater was encountered during the ground investigation. No post-ground investigation monitoring was carried out, however the BIA indicates that any groundwater encountered during construction may be readily dealt with using conventional pumping. It is accepted that the development will not impact the hydrogeology of the area.

4.7. The BIA indicates that the development will increase the impermeable surface area at the site by 27m^2 and that the site lies within a Critical Drainage Area. Table 4.2 of the Preliminary BIA indicates that SUDS will be required for the site, which is likely to include attenuation before releasing surface water to the existing sewer network. The revised submission includes a Flood Risk Assessment and SUDS Strategy, which provides details of the proposed attenuation measures to be incorporated into the development to store excess run-off and limit surface water output from the site to 2l/s, in line with LBC policy. Based on the proposed attenuation measures it is accepted that the site will not impact the hydrology of the area.

4.8. The BIA recommends that a tree survey be carried out to identify the location, species and height of all trees on and near the development. Photographs on page 8 of the DAS show a tree to be present within the garden of the site or adjacent property. The BIA identifies that the London Clay has a high volume change potential and that foundations and heave protection requirements should be designed in accordance with NHBC guidelines.

4.9. The BIA confirms that the site and surrounding area do not contain significant slopes and that the development will not increase the slopes at the site. As such it is accepted that the proposed development will not impact the slope stability of the surrounding area.

4.10. The Construction Method Statement (CMS) indicates that the underpinning will adopt a 'hit and miss' sequence of installation, with bays not exceeding 1m wide, and an indicative underpinning sequence is presented in the appended drawing TW1. The excavation at the rear of the proposed basement, adjacent to the garden of the property, will be constructed as one single bay.

4.11. The CMS indicates that excavations deeper than 1.2m will be shored at all times and that the excavation face will be lined with a permanent sacrificial shuttering. It is indicated that a central earth mass will be retained during underpinning to enable local shoring of pins as underpinning progresses.

4.12. The construction method is presented consistently in the revised submission documents and reference to the use of piles is no longer included.

4.13. Structural calculations provided in the CMS assume a retaining wall height of 1.5m, of which 0.45m is the base element of the wall. Drawings TW1 and TW2, presented in the appendix of the revised CMS, suggest a heel will be included in the retaining wall design. The structural calculations for the retaining wall include a 150mm long heel in the design. The use of a heel extending into the neighbouring properties should be considered as part of any party wall agreements.

4.14. Section 6 of the BIA discusses ground movements associated with the development, with reference to CIRIA C580. Although CIRIA C580 has been superseded by CIRIA C760, it is acknowledged that the information referenced with respect to damage category is the same in both documents.

4.15. The revised submission includes a Ground Movement Assessment (GMA) for the proposed development. The GMA considers movements arising from the excavation of the basement and the construction of the underpins/retaining walls. The impact that the predicted ground movements will have on surrounding buildings and party walls has been assessed. It is noted

that the CMS presented in Appendix 1 of the GMA has been superseded by the version (revision C) provided as part of the revised submission.

4.16. Section 6.6.2 of the BIA suggests that it is generally good practise to limit damage to Category 2 (Slight). It should be noted that LBC policy requires damage to buildings to be limited to Category 1 (Very Slight) for basement developments. The GMA provided as part of the revised submission indicates that damage to neighbouring structures will not exceed Burland Category 1 (Very Slight).

4.17. Utility data is now provided.

4.18. The BIA recommends that an inspection of the property should be undertaken prior to starting works, and a watching brief and monitoring of the building be undertaken during construction. A Suggested Structural Monitoring Plan is presented within the CMS and provides recommended trigger levels for movement monitoring. The trigger level values have been revised since the previous report and should be agreed as part of any party wall award.

5.0 CONCLUSIONS

5.1. The BIA has been carried out by individuals who possess suitable qualifications.

5.2. It is proposed to construct the basement using underpinning techniques in a 'hit and miss' sequence.

5.3. The BIA has confirmed that the proposed basement will be founded within London Clay and that groundwater is unlikely to be encountered during basement foundation excavation.

5.4. Soil parameters for retaining wall design have now been provided based on the site specific ground investigation data.

5.5. It is accepted that the development will not impact the hydrogeology or slope stability of the area.

5.6. Based on the attenuation measures proposed it is accepted that the development will not have a significant impact on the hydrology of the area.

5.7. A ground movement assessment has been carried out and indicates that damage to neighbouring structures will not exceed Burland Category 1 (Very Slight).

5.8. The BIA recommends that an inspection of the property should be undertaken prior to starting works, and a watching brief and monitoring of the building be undertaken during construction. The CMS presents a Suggested Structural Monitoring Plan and the recommended trigger level values should be agreed as part of any party wall awards.

5.9. Based on the revised submission it can be confirmed that the BIA complies with the requirements of CPG: Basements.

Appendix 1: Residents' Consultation Comments

None pertinent to the BIA

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Stability	Soil parameters for retaining wall design should be provided based on the site specific ground investigation data, and used consistently in associated retaining wall calculations.	Closed	18/03/2021
2	Hydrology	Further detail of the attenuation measures to be used should be provided.	Closed	18/03/2021
3	Stability	The construction method proposed should be presented consistently.	Closed	18/03/2021
4	Stability	Further clarification of the use of a retaining wall heel should be provided.	Closed	18/03/2021
5	Stability	A ground movement assessment, potential structural impact and mitigation measures, if required, are not included in the BIA and are requested.	Closed	07/04/2021
6	Stability	The trigger values for the movement monitoring strategy should be informed by the ground movement assessment once completed.	Closed	18/03/2021
7	Stability	Utility data should be provided.	Closed	18/03/2021

Appendix 3: Supplementary Supporting Documents

None

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