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Basement Impact Assessment
Audit

For

London Borough of Camden

Project Number: 13398-79
Revision: F1

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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 submitted as part of the Planning Submission documentation for 25 John's Mews, WC1N 2NZ (planning reference 2020/5883/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 (BIA) 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 proposed works comprise the lateral extension and deepening of the existing part basement to cover the entire footprint of the building. The proposed finished floor level will be at 19.40mAOD. A maximum excavation depth of c. 3.60m bgl is anticipated.

1.5. The qualifications of the individuals involved in the BIA are in accordance with LBC guidance.

1.6. Screening and scoping assessments are presented, supported by a site walkover and desk study information.

1.7. The existing and proposed basement floor level and associated maximum excavation depth have been confirmed in the BIA.

1.8. Geotechnical parameters to inform design have been presented.

1.9. The BIA presented an outline monitoring strategy to ensure movements are limited to those predicted.

1.10. It is accepted that there will be no adverse impact on the hydrology and hydrogeology of the area.

1.11. The Ground Movement Assessment (GMA) indicates that the anticipated damage from the basement excavation will be within LBC's policy criteria. Separate consultation with Thames Water may be required due to the presence of a sewer in the vicinity.

1.12. Queries and requests for information are summarised in Appendix 2. Considering the additional information presented, the BIA meets the requirements of Camden Planning Guidance: Basements.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 26 January 2021 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 25 John's Mews, London WC1N 2NZ, Camden Reference 2020/5883/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:

- 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 "*Forming a new single storey basement extension*."

2.6. The Audit Instruction confirmed applicant's property and neighbouring properties are listed (Grade II).

2.7. CampbellReith accessed LBC's Planning Portal on 11th February 2021 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment (rev. 01), dated December 2020, by Ross & Partners;
- Site Investigation Report (ref.: C14983), dated December 2020 by Ground Engineering Ltd (Appendix 4 of the BIA);
- Ground Movement Assessment (rev.: 00), dated November 2020, by A-Squared Studio.

- Planning Application Drawings consisting of Location Plan, Existing Plans and Sections, Proposed Plans and Sections dated December 2020 by Smith C-H Architects.

2.8. CampbellReith issued an initial audit report on 24/02/2021 (NSemb13398-79-240221-25 John's Mews-D1) with comments on the above BIA documents.

2.9. In response to the initial audit report and following email exchanges between 30/04/2021 and 02/06/2021, CampbellReith received the revised Basement Impact Assessment (rev. 002 dated 2nd June 2021).

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	Section 2.1 of the BIA.
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	Section 2.3 of the BIA.
Are suitable plan/maps included?	Yes	A utility survey is presented in the revised BIA.
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	Yes	Updated in the revised submission, as above.
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.2 of the revised BIA.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.1 of the revised BIA.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.3 of the BIA.
Is a conceptual model presented?	Yes	Section 6.0 of the BIA.
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 5 of the BIA.

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 5 of the BIA.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 5 of the BIA.
Is factual ground investigation data provided?	Yes	
Is monitoring data presented?	Yes	Section 6.2.2 of the BIA.
Is the ground investigation informed by a desk study?	Yes	Section 3 of the BIA and GI report.
Has a site walkover been undertaken?	Yes	Section 4.1 of the revised BIA.
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	Neighbouring properties within the zone of influence of the basement are confirmed to have basements.
Is a geotechnical interpretation presented?	Yes	Ground model and parameters are now realigned to those revealed by the ground investigation. Updated in the revised BIA.
Does the geotechnical interpretation include information on retaining wall design?	Yes	As above. Outline retaining wall design has been revised.
Are reports on other investigations required by screening and scoping presented?	Yes	Site investigation report presented.
Are the baseline conditions described, based on the GSD?	Yes	Baseline conditions now consider the presence of the utilities in the vicinity of the site.
Do the base line conditions consider adjacent or nearby basements?	Yes	

Item	Yes/No/NA	Comment
Is an Impact Assessment provided?	Yes	Section 8 of the BIA.
Are estimates of ground movement and structural impact presented?	Yes	See Ground Movement Assessment (GMA) in the BIA.
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	If Made Ground is encountered locally then excavations would be required to extend to the Lynch Hill Gravels. Section 4.1 and 4.4 of the BIA. Updated in revised submission.
Has the need for monitoring during construction been considered?	Yes	Section 7.4 of the BIA.
Have the residual (after mitigation) impacts been clearly identified?	Yes	The BIA concludes that residual impacts will be negligible.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	All the walls of No.25 have been included in the damage assessment and any impact to nearby footpath/highways has been assessed. Refer to Section 4.0 of the GMA.
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	As above.
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	Updated in the revised submission.
Are non-technical summaries provided?	Yes	Section 1 of the BIA.

4.0 DISCUSSION

4.1. The BIA was undertaken by Ross & Partners Ltd with contributions from Ground Engineering Ltd, and A-Squared Studio. The qualifications of the authors are in line with those requested by LBC guidance.

4.2. The site is at the corner between John's Mews and Northington Street. The entire footprint of the site is currently occupied by a two storey red brick mews building. There is an existing part basement which is sloping and presently used as a cellar beneath part of the house. Architect's drawings show the basement floor level at 22.67mAOD to the west and at 20.12mAOD to the east.

4.3. The proposed works comprise the lateral extension and deepening of the existing part basement to cover the entire footprint of the building. The proposed finished floor level will be at 19.40mAOD. The maximum excavation depth will be c. 3.60m bgl.

4.4. The LBC instruction to proceed with the audit confirmed that both applicant's property and neighbouring properties are Grade II listed. It is noted that a 'Listed Building Consent' will likely be required in accordance with CPG Basements. Immediately to the south is 27 John's Mews, a listed dwelling house which obtained planning permission for a single basement extension in 2019. To the east is 13 Northington Street, which is also understood to have a basement.

4.5. Screening and scoping assessments are presented and informed by desktop study information. Most of the relevant figures/maps from the Arup GSD and other guidance documents are referenced within the BIA to support responses to the screening questions. It is confirmed in the BIA that a site walkover was undertaken.

4.6. A site investigation was carried out in January 2020 to inform the basement design. A total of one window sample borehole (WS1) and two foundation inspection pits (TP1, TP2) were completed. The ground investigation encountered Made Ground to a depth of 3.90m bgl in WS1 and in excess of 4.00m bgl in TP2. Deposits of the Lynch Hill Gravel locally underlie the Made Ground to a depth of 5.80m bgl and are in turn underlain by the London Clay which was proven to the base of the borehole, to a depth of 6.05m bgl.

4.7. The BIA states that if deep Made Ground is encountered locally the excavations will be locally deepened to ensure bearing on natural ground. If any excavation is required to extend to below the water table surface then the area will be very closely supported and carefully dewatered to ensure adequate support to the excavation at all times.

4.8. Groundwater was encountered during drilling of the borehole at c. 4.20m bgl and was monitored between 3.46 and 3.60m bgl during return visits. The monitored groundwater levels are at or

slightly above the proposed formation level. The BIA states that groundwater control measures will be required and that localised dewatering may be required to deal with groundwater ingress into the excavation. The BIA states little or no rise in groundwater level will be caused by the proposed development, considering the cumulative effects of surrounding nearby basements. The BIA concludes that there will be no impact on the local and wider hydrogeological environment and this is accepted.

4.9. The site comprises hardstanding and built up areas and will remain the same post-development. It is not located within a critical drainage area. The site is at very low risk from flooding from all potential sources.

4.10. An outline construction sequence is presented in Section 7.2 of the BIA and in Appendix 2. It is proposed to construct the new basement using traditional reinforced concrete underpinning following a typical 'hit and miss' sequence. The BIA confirmed that temporary propping is proposed in the short term and that the new retaining walls will not be cantilevered at any stage. As the excavation will be undertaken within granular material, which may collapse during the excavation sacrificial trench sheet is proposed to provide the required support.

4.11. Geotechnical parameters to inform settlement, retaining wall calculations and foundation design have been presented in the BIA. The parameters, including a bearing capacity value, have been updated according to the amendments of the ground model and are considered reasonable.

4.12. A Ground Movement Assessment (GMA) has been undertaken to demonstrate that ground movements and consequential damage to neighbouring properties will be within LBC's policy requirements. As the applicant's property is a listed building all the walls of No.25 John's Mews have also been assessed and the results presented in the GMA.

4.13. Ground movements due to underpinning and consequent excavation have been modelled in the GMA by applying the CIRIA C760 curves. Ground movements due to underpin installation have been estimated by using CIRIA C760 estimates for the installation of a planar diaphragm wall. Ground movements caused by heave and the application of the new building loads at the new formation level have been also considered in the analysis. The GMA assumption for the adoption of a 'stiff' clay has been justified in the revised BIA.

4.14. According to the GMA, the maximum anticipated Damage Category will be 1 'very slight' for all buildings considered. Maximum vertical and horizontal displacements of less than 10mm and 20mm are predicted by the GMA for the adjacent highways/footpaths to the north and west of the site respectively, concluding that the impact will be within acceptable limits. A Thames Water utilities asset plan appended in the BIA, shows a 1067x635mm sewer running along Northington Street. Consultation with Thames Water is recommended and a separate assessment on ground movement and potential impact on the sewer due to the proposed development may be required,

however, this is outside the remit of this audit.

4.15. It is confirmed in the GMA that a ground movements monitoring regime will be implemented throughout construction of the basement, in accordance with current guidance.

4.16. It is accepted that there are will be no slope stability concerns regarding the proposed development assuming good workmanship during construction and the recommendations of the BIA and the GMA are adhered to.

5.0 CONCLUSIONS

5.1. The qualifications of the individuals involved in the BIA are in accordance with LBC guidance.

5.2. Screening and scoping assessments are presented, supported by desk study information.

5.3. The site investigation indicates the proposed basement will be founded in the Lynch Hill Gravel. However, Made Ground may be encountered at formation level and the BIA indicates measures to deal with such an issue. Clarification on the ground model adopted in the BIA and GMA has been presented.

5.4. The BIA confirmed that there will be no adverse impact on the hydrogeological environment.

5.5. It is accepted that there will be no impact on surface water from the proposed development.

5.6. Geotechnical parameters to inform settlement, retaining wall calculations and foundation design have been presented in the BIA.

5.7. A Ground Movement Assessment (GMA) has been undertaken. The analysis confirms that the anticipated damage from the basement excavation will be within LBC's policy criteria. It is accepted that there are will be no slope stability concerns regarding the proposed development.

5.8. A services survey is presented in the BIA indicating the presence of a sewer in the vicinity. Consultation with Thames Water is recommended. A separate assessment on ground movement and potential impact on the adjacent sewer due to the proposed development may be required but this is outside the remit of this audit.

5.9. The BIA presented an outline monitoring strategy to ensure movements are limited to those predicted.

5.10. Queries and requests for information are summarised in Appendix 2. Considering the additional information presented, the BIA meets the requirements of Camden Planning Guidance: Basements.

Appendix 1: Residents’ Consultation Comments

Pertinent to the BIA

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
Perrone	13 Northington Street	12/02/2021	Structural stability	A ground movement assessment has been undertaken and the results indicate that anticipated structural damage will be within LBC's criteria - See Section 4.14 of this audit

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	BIA format	A services survey should be presented in the BIA and any potential impact on utilities in the vicinity should be assessed.	Closed – See 4.14.	July 2021
2	BIA format	There is the potential for the proposed basement to extend beneath the water table surface. The screening sections should be updated accordingly.	Closed – See 4.5.	July 2021
3	BIA format	The BIA should clarify whether a site walkover was undertaken.	Closed – See 4.5.	July 2021
4	Land stability	There is the potential for Made Ground to be encountered at formation level. The BIA should clearly state how is proposed to deal with this potential issue.	Closed – See 4.7.	July 2021
5	Land Stability	There is a discrepancy between the BIA, the GMA and the ground investigation report on the ground model and on geotechnical parameters adopted.	Closed – See 4.11.	July 2021
6	Land stability	The GMA shall include the potential impact on adjacent footpaths/highways. As the applicant's property is a listed building all walls of No.25 should be assessed.	Closed – See 4.12 and 4.14.	July 2021
7	Land Stability	The GMA should provide justification for the 'stiff' consistency adopted.	Closed – See 4.13.	July 2021
8	BIA format	A 'Listed Building Consent' will likely be required in accordance with CPG Basements.	Note Only	July 2021
9	Land Stability	A sewer is present in the vicinity of the proposed basement. Consultation with the asset owner is recommended and a separate assessment on ground movements and potential impact may be required.	Note Only	July 2021

Appendix 3: Supplementary Supporting Documents

None

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