CampbellReith
consulting engineers

Land to the Rear of 222 Euston Road, Adjacent to 210 Euston Road, Fronting Stephenson Way London NW1 2DA

Basement Impact Assessment

For

London Borough of Camden

Project Number: 12727-91

Revision: D1

September 2018

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Document History and Status

Revision	Date	Purpose/Status	File Ref	Author	Check	Review
D1	September 2018	Comment	GHemb12727-91-100918-222-Euston Road-D1.docx	GK	GH	GK

Document Details

Last saved	10/09/2018 16:30
Path	GHemb12727-91-100918-222-Euston Road-D1.docx
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Project Number	12727-91
Project Name	222 Euston Road
Planning Reference	2018/2316/P

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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 222 Euston Road, London NW1 2DA (planning reference 2018/2316/P). The basement is considered to fall within Category C 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 Card Geotechnics Ltd. The qualifications of the authors are in accordance with LBC guidance.

1.5. The proposed development comprises erection of a seven-storey building plus basement for student accommodation and hotel use. The proposed basement sits within the footprint of the building. Between 2.6m to 3.85m of excavation is proposed.

1.6. The BIA includes Screening and Scoping assessments. The BIA identifies that site investigation and impact assessments will be required as part of detailed design, and have not been submitted for audit. These stages are required to be submitted as part of the BIA.

1.7. The BIA is based on ground and groundwater conditions assumed from the review of nearby site investigations. A site specific ground investigation is required.

1.8. The BIA identifies construction methodology options but does not confirm which methodologies will be used. In order to complete the BIA in accordance with LBC guidance, confirmed construction proposals need to be presented and potential impacts assessed.

1.9. Until site specific ground / groundwater conditions and foundation proposals are confirmed, it cannot be confirmed that there will be no impact to the wider hydrogeological environment.

1.10. The BIA states that the neighbouring properties all have single storey basements and therefore the differential depth to foundations will not substantially increase due to the proposed development. However, this has not been demonstrated.

1.11. Until site specific ground / groundwater conditions, formation levels and foundation proposals are confirmed, and a ground movement assessment is presented, it cannot be confirmed that

there will be no stability impacts to neighbouring buildings, highways, underground infrastructure or utilities.

1.12. The proposed development is within a mapped Critical Drainage Area. The Drainage Strategy recommends the attenuation of surface water. There will be no impacts to the wider hydrological environment.

1.13. The site is in an area at low to medium risk of surface water flooding. Flood risk mitigation measures should be proposed within the BIA.

1.14. An outline construction programme should be provided.

1.15. Queries and requests for information are discussed in Section 4 and summarised in Appendix 2. Until the additional information requested is provided, 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 11 July 2018 to carry out a Category C Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 222 Euston Road, London NW1 2DA, Camden Reference 2018/2316/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: *"Erection of a seven-storey building plus basement for student accommodation use (C2) (in term time) and hotel use (C1) (outside term time) with 78 rooms of accommodation on the upper floors with shared amenity space at*

ground and sixth floor level and terrace at 6th floor level fronting Stephenson Way. Retention of the vehicular easement from Stephenson Way to the rear of 222 Euston Road".

The planning portal also confirmed that neither the site nor neighbouring properties are listed buildings.

2.6. CampbellReith accessed LBC's Planning Portal in August 2018 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment Phase 1 – Screening and Scoping Report (ref CG/28583) dated May 2018 by Card Geotechnics Ltd.
- Existing and proposed elevations and plans dated March 2018 by TP Bennett Architects.
- Planning Statement dated May 2018 by TP Bennett Architects.
- Design and Access Statement dated May 2018 by TP Bennett Architects.
- Drainage Strategy (ref 181023/DS/MK/RS/01) dated April 2018 by Lanmor Consulting.

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?	No	Ground conditions and construction methodologies to be confirmed; proposed formation level to be confirmed; outline construction programme to be provided.
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	No	Formation levels to be confirmed; Construction methodologies to be confirmed.
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	Formation levels not confirmed; construction methodologies not confirmed; BIA states that any potential impacts will be mitigated at detail design stage but impacts and mitigation to be clearly identified through Screening / Scoping Assessment within BIA.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	Formation levels not confirmed; potential impact to groundwater flow not addressed due to sheet piling; BIA recommends site investigation and monitoring to confirm conditions.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	The site is identified as being within an area of low to medium flood risk from surface water but this has not been taking to Screening, assessed or further mitigation proposed.
Is a conceptual model presented?	Yes	Based on assumptions; to be confirmed.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA recommends site investigation and further assessment, which should be presented.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA recommends site investigation and further assessment, which should be presented.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	No	Flood risk mitigation has not been considered.
Is factual ground investigation data provided?	No	No site investigation has been carried out.
Is monitoring data presented?	No	No site investigation has been carried out.
Is the ground investigation informed by a desk study?	No	No site investigation has been carried out.
Has a site walkover been undertaken?	No	Comments in the BIA suggest that no site walkover has been undertaken.
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	The surrounding properties at 200 and 210 Euston Road, 152-156 North Gower Street and the UCL Farr Institute are stated to have basements.
Is a geotechnical interpretation presented?	No	
Does the geotechnical interpretation include information on retaining wall design?	No	

Item	Yes/No/NA	Comment
Are reports on other investigations required by screening and scoping presented?	No	Required: Site specific site investigation and groundwater monitoring; interpretative geotechnical information including retaining wall design parameters; construction methodology and outline permanent / temporary structural information; ground movement assessment; hydrogeological assessment; flood risk mitigation measures.
Are baseline conditions described, based on the GSD?	No	BIA is based on assumptions; confirmed conditions and proposals required to be assessed.
Do the base line conditions consider adjacent or nearby basements?	Yes	BIA is based on assumptions.
Is an Impact Assessment provided?	No	
Are estimates of ground movement and structural impact presented?	No	
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	No	Required: Site specific site investigation and groundwater monitoring; interpretative geotechnical information including retaining wall design parameters; construction methodology and outline permanent / temporary structural information; ground movement assessment; hydrogeological assessment; flood risk mitigation measures.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	No	BIA is based on assumptions.
Has the need for monitoring during construction been considered?	No	Should be considered, once conditions confirmed and assessments completed.
Have the residual (after mitigation) impacts been clearly identified?	No	Should be considered, once conditions confirmed and assessments completed.

Item	Yes/No/NA	Comment
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	No	Required: Site specific site investigation and groundwater monitoring; interpretative geotechnical information including retaining wall design parameters; construction methodology and outline permanent / temporary structural information; ground movement assessment.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	No	No impacts to hydrological environment; hydrogeological impacts not assessed.
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	No	Required: Site specific site investigation and groundwater monitoring; interpretative geotechnical information including retaining wall design parameters; construction methodology and outline permanent / temporary structural information; ground movement assessment; hydrogeological assessment; flood risk mitigation measures.
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	No	Ground movement assessment required.
Are non-technical summaries provided?	Yes	

4.0 DISCUSSION

4.1. The BIA has been prepared by Card Geotechnics Ltd. The qualifications of the authors are in accordance with LBC guidance.

4.2. The proposed development comprises erection of a seven-storey building plus basement for student accommodation use (C2) (in term time) and hotel use (C1) (outside term time) with 78 rooms of accommodation on the upper floors with shared amenity space at ground and sixth floor level and a terrace at 6th floor level fronting Stephenson Way. The vehicular easement from Stephenson Way to the rear of 222 Euston Road is retained. The proposed basement sits within the footprint of the building. Between 2.6m and 3.85m of excavation is proposed for a basement floor to ceiling height of approximately 3m.

4.3. It's noted that final formation levels and construction methodologies are not confirmed. The foundations and retaining walls may involve a raft, underpinning, sheet piling and / or contiguous piling. Confirmed formation levels and construction methodologies are required as part of the BIA.

4.4. The BIA includes Screening and Scoping assessments. The BIA identifies that site investigation and impact assessments will be required as part of detailed design, and have not been submitted for audit. These stages are required to be submitted as part of the BIA.

4.5. The BIA is based on ground and groundwater conditions assumed from the review of nearby site investigations. A site specific ground investigation is required. The nearby investigations are noted to provide a large range in expected depth / thickness of Made Ground and Lynch Hill Gravel, and the geological commentary indicates there could be a wide range of conditions expected within the Lynch Hill Gravel, including sand, gravel, clay and peat.

4.6. The Lynch Hill Gravel Member is a 'Secondary A Aquifer'. The BIA states that impacts to groundwater flow are expected to be negligible, based on formation level of the basement being above groundwater level and flow between / around contiguous piles. Given that the formation and groundwater level is not confirmed, and the scheme may involve sheet piling which could prevent groundwater flow, it cannot be confirmed that there will be no impact to the wider hydrogeological environment.

4.7. The development site is within 100m of the historical course of the River Fleet to the southeast. The BIA states that groundwater flow across the site is expected to be to the southeast.

4.8. The BIA should include interpretative geotechnical information, including suitable parameters for retaining wall design. Outline permanent and temporary structural information should be provided.

4.9. The BIA states that the neighbouring properties all have single storey basements and therefore the differential depth to foundations will not substantially increase due to the proposed development. However, this should be demonstrated with either the neighbouring structural records presented or through site investigation.

4.10. In addition to neighbouring buildings, it has been identified that there is LUL infrastructure and sewers in the vicinity of the site. Until site specific ground / groundwater conditions, formation levels and foundation proposals are confirmed, and a ground movement assessment is presented, it cannot be confirmed that there will be no stability impacts to neighbouring buildings, highways, underground infrastructure or utilities. A zone of influence should be indicated and all structures within that zone assessed for potential damage. Where applicable, third party asset owner should be approached to agree asset protection requirements.

4.11. A methodology and guidance for monitoring structural movements during construction is likely to be required.

4.12. The proposed development will not result in a change to impermeable site area. However, the site is within a mapped Critical Drainage Area. The Drainage Strategy recommends the attenuation of surface water flow to 3.7 l/s using an attenuation tank located below the basement floor level. The design and construction of this tank must be considered in the general basement construction methodology. Drainage from the development will discharge to the Thames Water combined sewer in Stephenson Way to the north. There will be no impacts to the wider hydrological environment. However, Thames Water and LBC will need to approve the final drainage design and off-site flow rates.

4.13. The site is in an area at low to medium risk of surface water flooding. This is identified in the Screening but no further assessment is presented. Appropriate assessment and flood risk mitigation measures should be proposed within the BIA.

4.14. An outline construction programme should be provided.

5.0 CONCLUSIONS

5.1. The qualifications of the authors are in accordance with LBC guidance.

5.2. The BIA is based on ground and groundwater conditions assumed from the review of nearby site investigations. A site specific ground investigation is required.

5.3. The BIA identifies construction methodology options but does not confirm which methodologies will be used. In order to complete the BIA in accordance with LBC guidance, confirmed construction proposals need to be presented and potential impacts assessed.

5.4. Until site specific ground / groundwater conditions, formation levels and foundation proposals are confirmed, it cannot be confirmed that there will be no impact to the wider hydrogeological environment.

5.5. Until site specific ground / groundwater conditions, formation levels and foundation proposals are confirmed, and a ground movement assessment is presented, it cannot be confirmed that there will be no stability impacts to neighbouring buildings, highways, underground infrastructure or utilities.

5.6. The proposed development will not result in a change to impermeable site area. A Drainage Strategy is presented. There will be no impact to the wider hydrological environment.

5.7. The site is in an area at low to medium risk of surface water flooding. Flood risk mitigation measures should be proposed within the BIA.

5.8. An outline construction programme should be provided.

5.9. Queries and requests for information are discussed are summarised in Appendix 2. Until the additional information requested is provided, 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	Confirm development proposals and construction methodologies, including levels and dimensions.	Open	
2	BIA	Confirm ground and groundwater conditions via site specific investigation and monitoring.	Open	
3	BIA	Provide interpretative geotechnical information, including retaining wall parameters.	Open	
4	Stability	Provide permanent and temporary structural information.	Open	
5	Stability	Demonstrate depth of adjacent basements / foundations, via records or investigation.	Open	
6	Stability	Undertake a ground movement and damage impact assessment. If applicable, demonstrate consultation with asset owners. Outline structural monitoring requirements.	Open	
7	Hydrogeology	Confirm hydrogeological impact assessment.	Open	
8	Hydrology	Confirm flood risk assessment and mitigation proposals.	Open	
9	BIA	Provide an outline construction programme.	Open	

Appendix 3: Supplementary Supporting Documents

None

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