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14 Rosecroft Avenue
London, NW3 7QB

Basement Impact Assessment Audit

For

London Borough of Camden

Project Number: 12336-38
Revision: F1

June 2016

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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 14 Rosecroft Avenue, London NW3 7QB (planning reference 2016/0712/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 credentials of the author are not in line with CPG4, however, it is accepted that the conclusions of the BIA are appropriate.

1.5. The original BIA had not been informed by a desk study in line with GSD Appendix G1, however, information was provided subsequently.

1.6. The BIA states that the basement walls will be formed by RC underpinning. The structural information indicates construction sequence, temporary works requirements and recommendations for contractors. Measure to address the potential for encountering perched groundwater during construction should be agreed with the party wall surveyor.

1.7. It was requested that foundation levels should be presented as elevations AOD for clarity and to be consistent with the structural drawings. A cross section has been presented to provide this information.

1.8. Longer term groundwater monitoring should be carried out to establish a baseline and / or proven in advance of construction by the contractor. It is recommended that this is agreed with the party wall surveyor.

1.9. The slopes at the front of the property and the proximity to the public highway have been addressed within the revised BIA.

1.10. A conceptual model and geotechnical interpretation broadly in line with CPG4 were provided in the revised BIA and GMA.

1.11. A GMA has confirmed that damage to adjacent structures is not predicted to exceed Burland Category 0. This is accepted provided that the structures are in sound condition, that stiff

propping is installed during construction, and workmanship is well controlled. A monitoring and condition inspection regime should be agreed with the party wall surveyor.

1.12. The BIA has confirmed that there are no cumulative impacts to the hydrological and hydrogeological environment.

1.13. Although some matters remain to be agreed with the party wall surveyor, it is accepted that the revised BIA and supporting documents adequately identify the potential impacts arising out of the basement proposals and describe suitable mitigation.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 24 February 2016 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 14 Rosecroft Avenue, London NW3 7QB, Camden Reference 2016/0712/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) 4: Basements and Lightwells.
- Camden Development Policy (DP) 27: Basements and Lightwells.
- Camden Development Policy (DP) 23: Water.

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 Audit Instruction described the planning proposal as "*Conversion of existing 3 x self-contained (2 x 2Bed & 1 x 3Bed) flats into 2 x 3Bed self-contained flats, the enlargement of the existing basement under the footprint of the building with lightwells to the front and rear elevations and minor alterations to the front and rear façade*".

2.6. CampbellReith accessed LBC's Planning Portal on 24 March 2016 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment, Issue 1 dated February 2016 by Vincent & Rymill.
- Ground Investigation Report dated March 2016 by Ground and Water Limited.
- Construction Management Plan dated March 2016 by B&G Construction.
- Temporary Works Sequence and Preliminary Structural Calculations dated February 2016 by Vincent & Rymill.
- Existing and Proposed Ground Floor and Lower Ground Floor Layout Plans and Sections, including Underpinning Layout Plans and Sections, dated February 2016 by Vincent & Rymill.
- Location Plan, Site Plan, Existing and Proposed Plans, Elevations and Sections dated February 2016 by 5d Ltd.
- Tree Survey, Aboricultural Impact Assessment and Tree Protection Plan dated 8 February 2016 by Martin Dobson Associates.

2.7. Additional information was provided on 3 June 2016:

- Basement Impact Assessment, Issue 2, dated February 2016 by Vincent & Rymill.
- Ground Movement Assessment, ref GWPR1540, dated 23 May 2016 by Ground & Water Ltd.

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	No	The author's qualifications are not in accordance with CPG4 guidelines.
Is data required by Cl.233 of the GSD presented?	Yes	A desk study in line with the GSD Appendix G1 has not been provided in response to initial audit.
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	Yes	An outline structural methodology addressing temporary and permanent works is included. Contingency plans for encountering perched water during construction provided in supplementary information.
Are suitable plan/maps included?	Yes	Historical maps provided 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	Historical maps provided as above.
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Revised BIA Section 2 and Ground Investigation Report.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	BIA Section 2 and Ground Investigation Report.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	BIA Section 2
Is a conceptual model presented?	Yes	

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Presented in revised BIA.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA Section 3.
Is factual ground investigation data provided?	Yes	Ground and Water Ltd report.
Is monitoring data presented?	Yes	Only 1 round of groundwater monitoring is presented.
Is the ground investigation informed by a desk study?	Yes	Desk study provided in revised BIA.
Has a site walkover been undertaken?	No	Not discussed within the BIA.
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	No adjacent basement structures are reported.
Is a geotechnical interpretation presented?	Yes	
Does the geotechnical interpretation include information on retaining wall design?	Yes	BIA Section 6 and structural calculations.
Are reports on other investigations required by screening and scoping presented?	Yes	Desk study and ground movement assessment have been provided subsequent to initial audit.
Are baseline conditions described, based on the GSD?	Yes	
Do the base line conditions consider adjacent or nearby basements?	Yes	

Item	Yes/No/NA	Comment
Is an Impact Assessment provided?	Yes	BIA Section 4
Are estimates of ground movement and structural impact presented?	Yes	BIA Section 7 and separate GMA.
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	Yes	Revised BIA.
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	BIA Section 3. Movement monitoring via survey discussed and reflected in CMP.
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	Ground movement assessment calculations provided. Nearby basements and assets (tunnels / utilities etc) referenced.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	There appears to be little change in impermeable site area as a result of the proposed development.
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 2?	Yes	Ground movement assessment calculations should be provided.
Are non-technical summaries provided?	Yes	

4.0 DISCUSSION

4.1. The Basement Impact Assessment (BIA) consists of a site investigation and the main assessment report, which includes structural methodology statement that addresses aspects of temporary and permanent structural design works. Whilst the author is an experienced chartered engineer, his qualifications are not in line with the requirements of CPG4.

4.2. The original BIA was not informed by a desk study in line with GSD Appendix G1, however, desk study information was provided in response to the initial audit.

4.3. The BIA identifies existing foundations to be formed within the Claygate Member, which is not consistent with the ground conditions identified in the Ground Investigation Report. This discrepancy has been rectified in the revised BIA.

4.4. It was requested that foundation levels were presented as elevations AOD for clarity and to be consistent with the structural drawings. A site section in the BIA provides this information.

4.5. The BIA indicates that the proposed development will be constructed within a Secondary 'A' Aquifer. Groundwater levels should be presented as elevations AOD. The BIA text and the Ground Investigation Report state different groundwater levels below ground level, which varies across the site.

4.6. The monitoring data suggests that the groundwater level is approximately 2.5m below the proposed basement slab, however only one round of monitoring has been undertaken. Ideally longer term groundwater monitoring should be carried out to establish a baseline and / or proven in advance of construction by the contractor. This may be agreed with the party wall surveyor.

4.7. The structural method statement does not address contingency actions for perched groundwater being encountered during construction. It is recommended that these are agreed with the party wall surveyor. In the longer term, drained cavities will be provided in the permanent basement structure.

4.8. The BIA does not present a geotechnical interpretation including long term and short term strength and stiffness parameters. These will be required for detailed design.

4.9. The proposed development will not substantially alter the existing proportion of hard surfaces and paved areas and therefore there is likely to be a negligible impact on the quantity of local rainfall entering the existing sewer system.

4.10. The sloping area to the front of the property is shown in the site sketch in the revised BIA. It is acknowledged that the site is not within an area identified by Arup as having slopes greater than 7 degrees.

4.11. A cross section confirms the between the proposed construction activities and the public highway to be 6m. It is accepted that the basement excavation will have no potential impact.

4.12. The BIA and GMA state that negligible damage (Burland Category 0) will be experienced by No 14 Rosecroft Avenue and surrounding structures. This assumes that they are in sound condition and stiff propping is adopted during the temporary works.

5.0 CONCLUSIONS

5.1. The credentials of the author are not in line with CPG4, however, it is accepted that the conclusions of the BIA are appropriate.

5.2. The original BIA had not been informed by a desk study in line with GSD Appendix G1, however, suitable information was provided subsequently.

5.3. The BIA states that the basement walls will be formed by RC underpinning. The structural information indicates construction sequence, temporary works requirements and recommendations for contractors. Measures to address the potential for encountering perched groundwater during construction should be agreed with the party wall surveyor.

5.4. It was requested that foundation levels should be presented as elevations AOD for clarity and to be consistent with the structural drawings. A cross section has been presented to provide this information.

5.5. Longer term groundwater monitoring should be carried out to establish a baseline and / or proven in advance of construction by the contractor. It is recommended that this is agreed with the party wall surveyor.

5.6. The slopes at the front of the property and the proximity to the public highway have been addressed within the revised BIA.

5.7. A conceptual model and geotechnical interpretation broadly in line with CPG4 were provided in the revised BIA and GMA.

5.8. A GMA has confirmed that damage to adjacent structures is not predicted to exceed Burland Category 0. This is accepted provided that the structures are in sound condition, that stiff propping is installed during construction and workmanship is well controlled. A monitoring and condition inspection regime should be agreed with the party wall surveyor.

5.9. The BIA has confirmed that there are no cumulative impacts to the hydrological and hydrogeological environment.

5.10. Although some matters remain to be agreed with the party wall surveyor, it is accepted that the revised BIA and supporting documents adequately identify the potential impacts arising out of the basement proposals and describe suitable mitigation.

Appendix 1: Residents' Consultation Comments

None

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status/Response	Date closed out
1	Author's qualifications	The author's credentials in line with CPG4 (CEng MICE and CGeol FGS) have not been substantiated.	Open – however BIA conclusions are accepted.	-
2	BIA	A desk study in accordance with the GSD Appendix G1 has not been provided for the proposed development e.g. historical land use review, infrastructure / utility asset review etc.	Closed	13.06.16
3	Hydrogeology	Only 1 round of groundwater monitoring has been undertaken. The baseline should be confirmed by longer term monitoring and / or by the contractor in advance of the works.	Closed	TBC by contractor
4	Hydrogeology	Cumulative effects should be considered once nearby basements identified.	Closed	13.06.16
5	Land Stability / Hydrogeology / Hydrology	Non-technical summaries should be provided in line with CPG4.	Closed	13.06.16
6	Hydrogeology / Land stability	Foundation formations and groundwater levels should be presented as elevations AOD for clarity and consistency.	Closed	13.06.16
7	Land Stability	The slope to the front of the property has not been assessed as part of the BIA.	Closed	13.06.16
8	Land Stability	The proximity of the proposed development with the public highway has not been established or potential impacts discussed. From plans provided the front light well construction appears to be in the region of 5m from the highway.	Closed	13.06.16

9	Land Stability	Geotechnical interpretation to be provided.	Closed	13.06.16
10	Land Stability	Ground movement calculations should be provided for review. Nearby basements should be identified. A zone of influence should be identified. The presence or absence of nearby Listed structures should be identified.	Closed	13.06.16

Appendix 3: Supplementary Supporting Documents

None

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