CampbellReith
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20 Crediton Hill

NW6 1HP

Basement Impact Assessment Audit

For

London Borough of Camden

Project Number: 12727-81
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 20 Crediton Hill, London, NW6 1HP (planning reference 2018/1012/P). The basement is considered to fall within Category A 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 Basement Impact Assessment (BIA) and supplementary information has been produced by those holding suitable qualifications.

1.5. The proposed development involves the formation of a single storey basement under the existing building.

1.6. The proposed basement structure is to be constructed from reinforced concrete underpin retaining walls and basement slab using common basement construction methods.

1.7. A site specific ground investigation has been conducted including recording ground water levels, along with relevant analysis of the soil properties.

1.8. The geology consists of previously worked ground overlaying Clay.

1.9. The basement is not anticipated to be located below the ground water level.

1.10. It has been concluded that the wider ground water environment will not be significantly impacted by the proposed basement.

1.11. Outline structural calculations proving the feasibility of the proposal have been produced.

1.12. An outline draft construction programme has been provided.

1.13. It has been demonstrated that the proposal will limit damage to the neighbouring properties to no greater than Burland Category 0.

1.14. Camden Hydrogeological and Hydrological Study information provided confirms the property is at a low risk of surface flooding.

1.15. The permeable area of the site will be increasing.

1.16. Information regarding the location of public transportation assets is provided.

1.17. An outline movement monitoring strategy of the neighbouring buildings has been provided.

1.18. It has been demonstrated that the proposal adheres to the requirements of CPG Basements and other Camden Planning Policy.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 9th May 2018 to carry out a Category A Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 20 Crediton Hill, NW6 1HP, reference 2018/1012/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.
- 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;

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 *"Provision of a new basement extension below existing rear single-storey premises, minor amendments to rear ground floor, formation of new landscaped patio garden."*

The Audit Instruction also confirmed that 20 Crediton Hill was not, or was not a neighbour to, listed buildings.

2.6. CampbellReith accessed LBC's Planning Portal on 13th June 2018 and gained access to the following relevant documents for audit purposes:

- (24.) - (PL) - 20 CHILL - BIA REV 04 MES_1611_PMA_002(2)
- (25.) - (PL) - 20 CHILL - BIA AUDIT - 27.04.2017 - REPLIES LISTED - 10.02.2017 - Copy(2)
- (26.) - (PL) - ABBEY PYNFORD STRUCTURAL ASSESSMENT - GA20037-L2-ks-2(2)
- (27.) - (PL) - 20 CHILL - SOIL INVESTIGATION LOGS - C13941(2)
- (14.) - (PL) - 20 CHILL - CONSTRUCTION METHOD IN SECTION - (30-B)(2)
- (5.) - (PL) - CONSTRUCTION METHOD FOR NEW LWR.GR.FLOOR PLAN - (03-3.)(2)
- (22.) - (PL) - 20 CHILL - DESIGN AND ACCESS STATEMENT - (3.) - UP-RATED - 02.02.2018(2)
- Plan, section and elevation drawings showing existing and proposed structure.
- Residents consultation comments.
- Further additional supporting documents:
  - 20 CHILL - SUBMISSION OF ADDITIONAL POINTS AS IN BIA AUDIT - CAMDEN - ...
  - 20 CHill - BIA Explanatory Comments - 02.
  - 20 CHill - BIA Explanatory Comments - 04.
  - 20 CHill - BIA Explanatory Notes - 03.
  - 20 Credition Hill, London NW6 - Outline STRUCTURAl Calculations – BIA
  - 20 Crediton Hill NW6 - BIA RPORT - SUPPORTI NG Structural GA Drawings - ...
  - VISUAL OF EXISTING PREMISES - 20 CHill-V-01 - For explanatory undrestand...

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	Refer title page of 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	
Are suitable plan/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?	Yes	A justification statement is generally provided for 'no' answers
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	A justification statement is generally provided for 'no' answers
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	A justification statement is generally provided for 'no' answers
Is a conceptual model presented?	Yes	
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Refer section 5.0 of the BIA
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Refer section 5.0 of the BIA

Item	Yes/No/NA	Comment
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	No	No items from screening to carry forward to scoping
Is factual ground investigation data provided?	Yes	
Is monitoring data presented?	Yes	One repeat monitoring visit was carried out
Is the ground investigation informed by a desk study?	Yes	Section 3 of the BIA
Has a site walkover been undertaken?	Yes	Section 2.2 of the BIA
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	
Is a geotechnical interpretation presented?	Yes	
Does the geotechnical interpretation include information on retaining wall design?	Yes	
Are reports on other investigations required by screening and scoping presented?	Yes	Arboriculture report
Are the baseline conditions described, based on the GSD?	Yes	
Do the base line conditions consider adjacent or nearby basements?	Yes	Neighbouring basements over 15m away. Garage basement on same site less than 6m away.
Is an Impact Assessment provided?	No	
Are estimates of ground movement and structural impact presented?	No	Mention is made of the GMA in the BIA. However not available on the portal.
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	N/A	
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	No need for mitigation.

Item	Yes/No/NA	Comment
Has the need for monitoring during construction been considered?	Yes	Movement monitoring of the neighbouring structures has been proposed.
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?	Yes	
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	Drainage design yet to be finalised.
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	Yes	Drainage design yet to be finalised.
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	Category 0 stated. Supporting information/data required.
Are non-technical summaries provided?	Yes	

4.0 DISCUSSION

4.1. The Basement Impact Assessment (BIA) has been carried out by a well-known firm of Geotechnical consultants, Milvum, and the individuals concerned in its production have suitable qualifications.

4.2. Construction contractors, Abbey Pynford have produced a statement outlining the design assumptions and construction approach for the basement and the stability of the building.

4.3. The existing property is a detached residential single storey building constructed of masonry walls and timber floors.

4.4. The proposed development involves the creation of a single storey basement under the existing single storey building.

4.5. A site specific ground investigation was conducted, comprising one borehole to a depth of 10mbgl. Recording of ground water in the borehole was conducted during the initial visit and during one repeat monitoring visit.

4.6. The ground model consists of a layer of Made Ground to depths of 1.75mbgl overlaying London Clay to depth.

4.7. The basement structure is proposed to be approximately 3.0m deep and constructed from L shaped cantilever RC retaining walls constructed in an underpin sequence. A RC basement slab provides lateral support to the base of the retaining walls in the permanent case. The structural statement indicates that the top of the walls are to be at least partially restrained by the existing steel floor structure. Propping of the walls against the central soil mound in the temporary case is noted in the structural statement.

4.8. The existing foundations that appear to be reinforced concrete are to be retained. . It is assumed the retained foundations are capable of resisting the lateral earth pressures in the permanent condition as the backfill currently in place will be removed to create the basement space and will no longer provide a counter pressure on the foundations.

4.9. An interpretive geotechnical statement has been produced that provides geotechnical design parameters for retaining walls based on the site specific site investigations. A recommendation is made that retaining walls are designed for groundwater pressures in accordance with good design practise.

4.10. A ground movement assessment calculating a damage category for the neighbouring properties has not been produced. However a fair assertion is made that the closest neighbouring properties are greater than 15m away and fall out of the zone of influence. This assertion is

based on CIRIA C760 which indicates a zone of influence of up to 4x excavation depth. Based on this a Burland category of 0 is predicted which appears reasonable.

4.11. A Construction management programme outlining the proposed works covering key phases and approximate durations has been submitted.

4.12. The ground investigation report shows the site to lie within unproductive strata and outside of any Source Protection Zone. No groundwater was observed during the drilling process or subsequently in one follow up monitoring visit. The BIA makes a reasonable assessment that the basement is unlikely to be constructed below the ground water level.

4.13. The made ground acts as a slightly porous medium for the migration of water while the London Clay Formation acts as a barrier to ground water migration. As a result, perched water is likely to be encountered especially after rains. Mention is made that temporary site drainage will be provided.

4.14. A flood risk assessment is not provided as part of the BIA. However the BIA makes reference to Camden Hydrogeological and Hydrological Study (CHHS) maps to indicate that the property is not located on or near a street that is known to have flooded. An environment agency map is provided that shows the property to be located in an area of very low surface flood risk.

4.15. The removal of 75m^2 of hard standing forecourt will increase the permeable area on site. The basement works themselves will not result in an increase in hardstanding area.

4.16. A public access register map is provided that shows no public transport assets in the immediate vicinity of the site.

4.17. Monitoring of the boundary wall and neighbouring garages has been proposed during the basement works. A specification for movement monitoring is to be incorporated in the final construction scheme. It is accepted that monitoring will be carried out in accordance with good practise principles.

4.18. It can be confirmed that the proposal adheres to the requirements of CPG Basements.

5.0 CONCLUSIONS

5.1. The Basement Impact Assessment (BIA) and supplementary report been carried out by a well-known firm of engineering consultants, and the individuals concerned in its production have suitable qualifications.

5.2. The proposed development involves the creation of a basement to occupy the entirety of the footprint of the existing building.

5.3. The basement structure is proposed to be RC retaining wall underpins with a RC basement slab..

5.4. A site specific ground investigation was conducted, comprising one borehole and ground water monitoring.

5.5. The site geology consists of up to 1.75m of Made Ground, overlaying London Clay Formation.

5.6. Ground water was not recorded during the initial visit or the subsequent return visit. It is unlikely the basement will be founded below the ground water level. Perched water is likely to be encountered and mitigation measures during construction are proposed.

5.7. Appropriate temporary works have been proposed with propping provided to the RC retaining walls during construction, local dewatering will be used to control the flow of ground water in the temporary case.

5.8. An appropriate geotechnical interpretation has been produced with engineering properties of the soil for use in the design of the RC retaining walls and basement slab provided. Outline structural calculations have not been provided for the basement slab and wall structure. These are to be provided.

5.9. An outline draft construction programme has been produced for the proposal.

5.10. A ground movement assessment has not been produced However the neighbouring properties are at sufficient distances from the site to fall outside of the zone of influence of the basement works.

5.11. The site is in an area of Very Low risk from river and coastal flooding and is at Very Low risk of flooding from surface water.

5.12. The permeable area of the site will be increasing with the proposed works. This will have a small positive effect on water attenuation from site.

5.13. Camden Hydrogeological and Hydrological Study maps are provided which show no public transportation asset within the immediate vicinity of the site.

5.14. A movement monitoring strategy of the neighbouring buildings has been proposed.

5.15. It has been demonstrated that the proposal adheres to the requirements of CPG Basements and other Camden planning policy.

Appendix 1: Residents' Consultation Comments

Residents' Consultation Comments

Where similar queries have been raised more than once they have only been listed once

Surname	Address	Date	Issue raised	Response
Moore	Not provided	07/06/2018	Land instability.	Stability of the building and the slope will be maintained provided the existing retained foundations are proven to resist lateral earth pressures. See section 4.8
Harmer	Hampstead Cricket Club	06/06/2018	Drainage and flood risk	The site is located in an area of very low flood risk. See section 4.14

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Stability	Calculations justifying the feasibility of the proposal to be submitted. See section 4.7	Closed	16/08/2018
2	Stability	Outline of strengthening works/calculations proving existing foundations can resist lateral earth pressure. See section 4.8	Closed	16/08/2018
3	Programme	Construction management programme to be provided. See section 4.11	Closed	16/08/2018

Appendix 3: Supplementary Supporting Documents

None

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