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Basement Impact Assessment
Audit

For

London Borough of Camden

Project Number: 12727-06
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 93 Redington Road (planning reference 2017/4902/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 Basement Impact Assessment (BIA) was undertaken by RSA Geotechnics Ltd and the Structural Method Statement was prepared by Constructure Ltd. The authors' qualifications are in accordance with LBC guidance.

1.5. Reference material for the desk study and assessments has generally been presented in accordance with LBC guidance. An outline construction programme was produced on request, and is provided in the appendices to the BIA.

1.6. The RSA Geotechnical Investigation report and the accompanying BIA has confirmed that the proposed basement will be founded within the Bagshot Formation underlying the Made Ground.

1.7. Standing groundwater will not be encountered during construction of the proposed basement, although isolated seepages of perched water should be allowed for.

1.8. The basement construction is proposed to be carried out using underpinning beneath existing foundations with remaining walls to be constructed as reinforced concrete retaining walls formed in a hit and miss trench excavation sequence, with temporary propping.

1.9. Estimates of ground movement and damage impact are presented. Although not justified by calculation, due to the distance with the nearest neighbouring structure, the estimates are accepted as being representative of the scale, depth and methodology of construction. Damage to neighbours is predicted to be a maximum of Category 1 (Very Slight).

1.10. A monitoring proposal and trigger levels provided in the Structural Method Statement, dated August 2017, were noted as being slightly elevated when compared to theoretical movement limits to ensure damage impacts to masonry structures of Category 1 or less. These were reviewed in the Structural Method statement, dated November 2017, and acceptable trigger levels were provided.

1.11. It is accepted that the surrounding slopes to the development site are stable.

1.12. It is accepted that the development will not impact the wider hydrogeological environment.

1.13. The site is not in an area subject to flooding.

1.14. The structural method statement dated August 2017 stated that the proposed development will increase impermeable surface area by 15m^2, but this has been reviewed and the increase is limited to 4.2m^2. This is considered a negligible increase in impermeable surface area, in relation to the property as a whole, and surface water flows will not be significantly affected.

1.15. Queries and matters requiring further information or clarification are discussed in Section 4 and summarised in Appendix 2. Considering the revised information and assessments presented, the BIA meets the requirements of CPG4.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 20 September 2017 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 93 Redington Road, London NW3 7RR, Camden Reference 2017/4902/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.
- Camden Local Plan Adoption version dated June 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;

c) avoid cumulative impacts upon structural stability or the water environment in the local area, and;

d) 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 *"Extension to the existing basement, the addition of a skylight in the rear garden and the replacement of the existing UPVC windows with timber windows"*

2.6. CampbellReith accessed LBC's Planning Portal on 13 November 2017 and gained access to the following relevant documents for audit purposes:

- Ground Investigation Report Number 14826SI- RSA Geotechnics Ltd, dated August 2017, which includes as a part of the appendices
  - the Landmark Envirocheck Data search, dated 14 July 2017;
  - Landmark Ordnance Survey Map Extracts;
  - Flood screening report datasheet, dated 14 July 2017;
  - Basement Impact Assessment, dated August 2017;
  - and Basement Construction Phasing Plan.
- Structural Method Statement to accompany BIA, dated August 2017
- Planning Application Drawings- Formation Architects, consisting of
  - Existing Plans (Drawing No. 6610-D1100, 6610-D1101, 6610-D1102, 6610-D1103, 6610-D1050 and 6610-D1199);
  - Existing Elevations (Drawing No. 6610-D1701, 6610-D1702 and 6610-D1703);
  - Existing Sections (Drawing No. 6610-D1500-1, 6610-D1501-1, 6610-D1502-1);
  - Proposed Plans (Drawing No. 6610-D4050, 6610-D4100, 6610-D4101, 6610-D4102, 6610-D4103, 6610-D4199);
  - Proposed Elevations (Drawing No. 6610-D4700, 6610-D4701);
  - Proposed Sections (Drawing No. 6610-D4500, 6610-D4501, 6610-D4502);
  - Site Location Map (Drawing No. 6610-D1002).
- Design and Access statement- Formation Architects, dated August 2017
- Planning Comments and Online Response

2.7. Additional Information was received on 13th of November 2017 and 22nd of November 2017 in response to the queries raised in the initial BIA audit report, as follows:

- Construction Programme, dated 10th November 2017
- Site plan hardscaping, dated 10th November 2017
- Structural Method Statement , dated November 2017

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	
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	Updated in revised submissions.
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	Updated in revised submissions.
Is factual ground investigation data provided?	Yes	
Is monitoring data presented?	Yes	
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?	No	However, no cumulative hydrogeological impacts identified. Adjacent basement would improve stability assessment.
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	Updated in revised submissions.
Are the baseline conditions described, based on the GSD?	No	Neighbouring properties' foundation details are not presented.
Do the base line conditions consider adjacent or nearby basements?	No	However, no cumulative hydrogeological impacts identified. Adjacent basement would improve stability assessment.

Item	Yes/No/NA	Comment
Is an Impact Assessment provided?	Yes	Updated in revised submissions.
Are estimates of ground movement and structural impact presented?	Yes	However, detailed analysis has not been provided.
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	Yes	Updated in revised submissions.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	Updated in revised submissions.
Has the need for monitoring during construction been considered?	Yes	Updated in revised submissions.
Have the residual (after mitigation) impacts been clearly identified?	NA	
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	Updated in revised submissions.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	Updated in revised submissions.
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	Revised structural monitoring strategy was reviewed and the damage impacts are within Category 1.
Are non-technical summaries provided?	Yes	

4.0 DISCUSSION

4.1. The Geotechnical Investigation was undertaken by RSA Geotechnics Ltd and the individuals involved are all Fellows of the Geological society, with one individual being a Chartered Geologist. The BIA for surface flow and flooding issues were undertaken by a consultant hydrogeologist who is a member of the British Hydrogeological Society and Chartered Institute of Water and Environmental Management.

4.2. The Structural Method Statement was prepared by Constructure Ltd, with the individual involved being a Chartered Engineer and a Member of the Institute of Structural Engineers.

4.3. It is noted that some responses are inconsistent between reports. In these instances, references to the planning drawings have been made and the current proposed basement layout has been considered representative.

4.4. The proposed basement shall be an extension to the existing basement and will extend under the rear garden by 3m.

4.5. Reference material for the desk study and assessments has generally been presented in accordance with LBC guidance. An outline construction programme was provided on request.

4.6. The Geotechnical Investigation conducted on the site has identified that the ground conditions comprise Made Ground of approximately 0.2m, underlain by the Bagshot Formation to approximately 11m below ground level (bgl), comprised of sand with interbedded clay. Groundwater was not encountered during the investigation or subsequent monitoring of the main borehole standpipe. Shallow, perched water may be encountered during excavations and seepages should be allowed for. On one occasion water was monitored within a shallow standpipe.

4.7. The BIA indicates that there may be the beginnings of a watercourse nearby, as indicated in the 'Lost Rivers of London' maps. But this has been shown not to lie within the site of the proposed basement and is likely to be downslope of the site. The construction will not have an impact on the wider hydrogeology of the area, any other watercourses, springs or the Hampstead Heath Pond Chain catchment area.

4.8. The basement construction is proposed to be carried out using underpinning beneath existing foundations with remaining walls to be constructed as reinforced concrete retaining walls formed in a hit and miss trench excavation sequence, with temporary propping.

4.9. Details are not provided regarding the neighbouring structures' depth of foundations or whether they have basements. However, as no hydrogeological impacts are predicted, it is accepted there can be no cumulative hydrogeological impacts, even if one of the neighbouring structures

contains a basement. It is also accepted that any stability impacts predicted for neighbours are likely to be improved if basements are present.

4.10. No detailed assessment of vertical and horizontal ground movements has been produced, but discussion and qualitative estimates are provided. Although not justified by calculation, due to the distance with the nearest neighbouring structure, the estimates are accepted as being representative of the scale, depth and methodology of construction. Damage to neighbours is predicted to be a maximum of Category 1 (Very Slight).

4.11. A monitoring proposal and trigger levels was provided in the Structural Method Statement, dated August 2017. The trigger levels were noted as being slightly elevated when compared to theoretical movement limits to ensure damage impacts to masonry structures of Category 1 or less. This was later revised in the Structural method statement, dated November 2017, and was found to be satisfactory.

4.12. It is accepted that there are no slope stability concerns regarding the proposed development and it is not in an area prone to flooding.

4.13. The structural method statement dated August 2017 stated that the proposed development will increase impermeable surface area by 15m^2, but this has been reviewed and the increase is limited to 4.2m^2. This is considered a negligible increase in impermeable surface area, in relation to the property as a whole, and surface water flows will not be significantly affected.

5.0 CONCLUSIONS

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

5.2. The GI report has confirmed that the proposed basement will be founded within the Bagshot Formation and will not be below the level of standing groundwater.

5.3. The permanent and temporary works are described in appropriate detail. An outline construction programme was provided on request.

5.4. Qualitative estimates of ground movement are presented, which are considered appropriate considering the distance to the nearest neighbouring structure. Damage to neighbours is predicted to be a maximum of Category 1 (Very Slight).

5.5. A monitoring proposal and trigger levels have been provided. The trigger levels ensures impacts of Category 1 or less.

5.6. It is accepted that the surrounding slopes to the development site are stable.

5.7. It is accepted that the development will not impact the wider hydrogeological environment.

5.8. The site is not in an area subject to flooding.

5.9. The scheme will cause a very small increase in impermeable site area and there will be no impact to the wider hydrological environment.

5.10. Queries and matters requiring further information or clarification are summarised in Appendix 2. The previously requested information and assessments were presented and the BIA meets the requirements of CPG4.

Appendix 1: Residents' Consultation Comments

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
Lough, Janice	95 Redington Road NW3 7RR	16/09/2017	Objection to construction, due to the impact the water displaced from the excavation may have on the nearby garden and buildings.	The proposed development will not cause hydrogeological impacts.

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Structural Monitoring Strategy	The monitoring strategy trigger levels should be reviewed in order to ensure damage impacts of a maximum Burland Category 1 (Very Slight) to neighbours.	Closed	November 2017
2	SUDS Assessment	A SUDS assessment in line with CPG4 3.51 should be presented.	Closed	November 2017
3	Outline construction programme	An outline construction programme should be provided.	Closed	November 2017

Appendix 3: Supplementary Supporting Documents

Structural Method Statement by Constructure dated November 2017

Outline Construction Programme dated November 2017

Ground Investigation report by RSA Geotechnics, dated August 2017

Site Location plan, dated August 2017

Online response, dated September 2017

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