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29 St Albans Road
London, NW5 1RG

Basement Impact Assessment
Audit

For

London Borough of Camden

Project Number: 12985-18
Revision: D1

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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 (BIA) submitted as part of the Planning Submission documentation for 38 Glenloch Road (planning reference 2018/1377/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 qualifications of the individuals involved in the BIA meet Camden Planning Guidance requirements.

1.5. The structural proposal is not considered to provide enough detail of the construction works to the existing structure. Information with respect to the extension is accepted as adequate.

1.6. The BIA recommends the proposed slab to be suspended. A suspended slab will increase the load on the existing foundation. The proposals should be updated to provide clarification on this.

1.7. Dependent on the demonstration that the solution is feasible and confirmation of any further structural works that are required, a ground movement and building damage assessment may be necessary. Mitigation measures should also be incorporated in the scheme if required. If a GMA is necessary, an outline monitoring proposal with trigger levels should be presented in the BIA.

1.8. Whilst a utilities survey is normally required to allow an assessment of the potential impact of the proposals to be undertaken, it is accepted that it is not necessary in this case. It is also accepted that an outline construction programme is not required for this scheme.

1.9. A FRA is presented in the BIA. This concludes a residual risk of surface water flooding remains, but the levels on site will provide protection to the building. It also confirms the development will not have an adverse impact on surrounding sites and the drainage infrastructure.

1.10. It is accepted that there will be no impact on the local and wider hydrogeological environment caused by the proposed development.

1.11. It is accepted that there are not any slope stability concerns regarding the proposed development.

1.12. Queries and requests for information are summarised in Appendix 2. Until the additional information and further assessments requested are presented, the BIA does not meet the requirements of the Camden Planning Guidance.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 10 October 2018 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 29 St Albans Road, London NW5 1RG (Reference: 2018/1377/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: Basements 2018.
- Camden Development Policy (DP) 27: Basements and Lightwells.
- Camden Development Policy (DP) 23: Water.
- 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;

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 *"Rear infill extension and aluminium framed glazing to the rear elevation (following demolition of the existing rear conservatory), alterations to the rear patio and internal floor level, alterations to existing rear dormer to provide an inset balcony and glass doors, alterations to doors and windows on the side elevations and boundary treatment to single dwelling house (Class C3) [part-retrospective]."*

2.6. The audit instruction also confirmed that the proposal does not involve any listed building.

2.7. CampbellReith accessed LBC's Planning Portal on 30 October 2018 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment (Redacted) by Fairhurst (ref: 127026), dated 28/08/2018.
- Domus Devon Ltd Planning Application drawings:
  - Existing plans, sections and elevations (references not available)
  - Proposed plans, sections and elevations (PR-A1.03, PR-A1.01 SandT PE1). Not all the drawing references are available.
- Design and Access Statement prepared with assistance from Domus Devon Ltd dated March 2018.
- Lead Local Flood Authority comments dated 21/06/2018.

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	All the authors and checkers hold qualifications requested from Camden CPG.
Is data required by Cl.233 of the GSD presented?	No	A work programme for construction is not presented. Construction method are not clearly presented.
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	See Figures Section in the BIA and in the FRA (Appendix C of the BIA).
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	Yes	The relevant area of study for each of the project aspect is shown in sufficient detail.
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Data sources are presented in the BIA. Justification is provided for 'No' answers. See Section 4 of the BIA.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Data sources are presented in the BIA. Justification is provided for 'No' answers. See Section 4 of the BIA.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Data sources are presented in the BIA. Justification is provided for 'No' answers. See Section 4 of the BIA.
Is a conceptual model presented?	Yes	A conceptual model has been described in Section 3.0 of the BIA.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	The scoping reflects the screening outcomes. See Section 5 of the BIA.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	The scoping reflects the screening outcomes. See Section 5 of the BIA.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	The scoping reflects the screening outcomes. See Section 5 of the BIA.
Is factual ground investigation data provided?	Yes	A site specific ground investigation is reported in Section 6.0 and Appendix D of the BIA.
Is monitoring data presented?	Yes	Section 6.3 of the BIA.
Is the ground investigation informed by a desk study?	Yes	Section 3.0 of the BIA.
Has a site walkover been undertaken?	Yes	Section 2.3 of the BIA.
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	It is stated that the adjacent 27 St Albans Road does not have a basement.
Is a geotechnical interpretation presented?	Yes	Section 7.1 of the BIA.
Does the geotechnical interpretation include information on retaining wall design?	Yes	See above.
Are reports on other investigations required by screening and scoping presented?	Yes	A Flood Risk Assessment (FRA) is presented in Appendix C.
Are the baseline conditions described, based on the GSD?	No	A utilities search is not presented.
Do the base line conditions consider adjacent or nearby basements?	NA	Adjacent property stated to not have a basement.

Item	Yes/No/NA	Comment
Is an Impact Assessment provided?	Yes	Section 8.0 of the BIA.
Are estimates of ground movement and structural impact presented?	No	Settlement calculations for foundations to the extension have been presented in Section 7.4 and presented in Appendix E and F. However, any ground movements resulting from excavation adjacent to the party wall have not been considered. Details of the structural proposal are also missing.
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	No	Impacts due to ground lowering have not been considered (Section 8.0).
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	No	Mitigation of clay heave potential has been considered (Section 8.0). However mitigation regarding any structural impacts during construction has not been considered.
Has the need for monitoring during construction been considered?	No	Further groundwater monitoring is recommended (Section 8.4). The BIA states that ground movement monitoring is not considered necessary, however this should be confirmed after the assessment is revisited.
Have the residual (after mitigation) impacts been clearly identified?	No	Refer to audit Section 4.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	No	Ground movements due to ground lowering have not been considered. Structural stability of the building after ground lowering has not been demonstrated.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	Section 8.3 of the BIA.
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	No	As above.
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	No	The BIA states the lowering of the floor will not impact the party wall. However this has not been demonstrated and the potential for damage occurring to surrounding buildings is not considered.
Are non-technical summaries provided?	Yes	

4.0 DISCUSSION

4.1. The Basement Impact Assessment (BIA) was undertaken by Fairhurst and the individuals involved hold the qualifications required by the CPG Basements 2018.

4.2. The site is located at 29 St Albans Road in Highgate, North London and comprises a semi-detached 20th century three storey residential property with front and rear garden areas. It is proposed to demolish the rear conservatory and to lower the ground floor at the rear of the property by approximately 0.60m to a level of c. 53.30m AOD. There is no basement proposed as part of this project.

4.3. A ground investigation undertaken by Ian Farmer Associates (IFA) identified Made Ground to a maximum depth of 2.40m bgl (50.55m AOD) underlain by Superficial Head which was proven to 3.60m bgl (49.85m AOD). The London Clay Formation is then indicated at depth. Groundwater was encountered during the drilling of one of the two boreholes at a depth of 3.00m bgl (49.95m AOD). During one monitoring visit after groundworks, groundwater was monitored to be at 51.00m AOD which is below the proposed excavation level.

4.4. The BIA states: '*It would be prudent to continue monitoring the existing standpipe for as long as possible in order to determine equilibrium level and the extent of any seasonal variations'.*

4.5. Two foundation inspection pits (TP01 and TP02) were undertaken at the rear of the property as part of the site investigation. Foundations depths were found to be at depth of 0.90m bgl and 1.30m bgl. Referring to this, the BIA states that the party wall existing between the applicant property and 27 Albans Road will not suffer any detrimental effects due to construction activities because its foundations were found to be deeper than the proposed excavation level. The BIA does not mention the condition of the foundation and the quality of its materials and does not specify if trimming of the existing foundation to the party wall is proposed. It does not consider the impact on the bearing resistance of the foundation formation from the ground lowering and any resultant settlement. It should be confirmed that the existing foundation can be used as a retaining wall without any other structural work. The structural proposal should be then updated.

4.6. The BIA states that the installation of two pad footings are proposed at the south-eastern and southern corners of the property. It is understood that these have been constructed and the engineer has confirmed they bear on natural soils and below any Made Ground.

4.7. The site is reported to be in area of moderate risk from shrink-swell clays. The site investigation confirmed the London Clay to have a moderate to high volume change potential. The BIA states that the proposed floor slabs may have to be suspended and should incorporate either underfloor voids or suitable depths of compressible material in accordance with NHBC

requirements. It should be noted that Made Ground was found to be up to 2.40m bgl and this may also require the slab to be suspended. A suspended slab will increase the load on the existing foundation and may require to be supported on the existing and new foundations. The proposals should be updated to provide clarification on this.

4.8. Given the scale of the proposal and existing foundation levels, the BIA does not consider a full ground movement assessment to be necessary for the development. However, if remains to be demonstrated that the solution is feasible and that further structural works are not required. Dependent on the outcome of the further clarification, a ground movement assessment may be required to estimate the severity of any potential damage to the applicant's property, the party wall and other neighbouring properties according to the Burland Scale. Mitigation measures should also be incorporated in the scheme where shown to be necessary.

4.9. Settlement of the new foundations has been evaluated with the use of a software (Settle 3D), which indicated a maximum settlement of 6mm. Geotechnical parameters used in the model are considered reasonably conservative. A monitoring proposal is not considered necessary in the BIA. Whilst this is accepted with respect to the new foundations, this to be confirmed for the existing walls once the further assessment described above has been completed.

4.10. A utilities search to help in describing baseline conditions does not appear to have been undertaken. Whilst this is normally required to allow an assessment of the potential impact of the proposals to be undertaken it is accepted that it is not necessary in this case due to the limited extent of the works. It is also accepted that an outline construction programme is not required for this scheme.

4.11. A FRA is presented in the BIA. This concludes the development is at a low fluvial and marine flood risk and that a residual risk of surface water flooding remains, but the levels on site will provide protection to the building. A SuDS evaluation is also included in the FRA as requested by the Lead Local Flood Authority to demonstrate the development will not pose additional strain on adjoining sites or the existing drainage infrastructure.

4.12. It is accepted that there will not any increase in the impermeable area of the site and consequent additional strain on existing drainage infrastructure. It is accepted that there will be no impact on the wider hydrogeological environment caused by the proposed development.

4.13. It is accepted that there are not any slope stability concerns regarding the proposed development.

4.14. Queries and requests are described in Section 4 and summarised in Appendix 2.

5.0 CONCLUSIONS

5.1. The qualifications of the individuals involved in the BIA meet Camden Planning Guidance requirements.

5.2. The structural proposal is not considered to provide enough detail of the construction works and should be updated with respect to the existing foundation condition, the impact of the proposals on the bearing stratum, the potential for settlement and whether the existing foundations can be used as a retaining wall without any other structural work. Information with respect to the extension is accepted as adequate.

5.3. The BIA recommends the proposed slab to be suspended. A suspended slab will increase the load on the existing foundation. The proposals should be updated to provide clarification on this.

5.4. Dependent on the demonstration that the solution is feasible and confirmation of any further structural works that are required, a ground movement and building damage assessment may be necessary. Mitigation measures should also be incorporated in the scheme if required. If a GMA is necessary, an outline monitoring proposal with trigger levels should be presented in the BIA.

5.5. Whilst a utilities survey is normally required to allow an assessment of the potential impact of the proposals to be undertaken, it is accepted that it is not necessary in this case. It is also accepted that an outline construction programme is not required for this scheme.

5.6. An FRA is presented in the BIA. This concludes a residual risk of surface water flooding remains, but the levels on site will provide protection to the building. It also confirms the development will not have an adversely impact on surrounding sites and the drainage infrastructure.

5.7. It is accepted that there will be no impact on the local and wider hydrogeological environment caused by the proposed development.

5.8. It is accepted that there are not any slope stability concerns regarding the proposed development.

5.9. Queries and requests for information are summarised in Appendix 2. Until the additional information and further assessments requested are presented, the BIA does not meet the requirements of the Camden Planning Guidance.

Appendix 1: Residents' Consultation Comments

None

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Structural stability and structural proposal	Evidence should be provided that the existing foundations can be used as a retaining wall and provide adequate bearing resistance without any other structural work. Floor slab proposals to be confirmed.	Open – See audit paragraph 4.5 – 4.8.	
2	Ground movement assessment	Dependent on the above assessment, a GMA should be carried out and any necessary mitigation measures considered.	Open – See audit paragraph 4.8.	
3	Monitoring outline proposal	If a GMA is required, outline proposal should be presented.	Open – See audit paragraph 4.9.	

Appendix 3: Supplementary Supporting Documents

None

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