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106-108 Regents Park Road
NW1 8UG

Basement Impact Assessment
Audit

For

London Borough of Camden

Project Number: 12985-72
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 106-108 Regents Park Road, London, NW1 8UG (planning reference 2019/0194/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) authors hold suitable qualifications.

1.5. The basement proposal does not involve nor is adjacent to a listed building.

1.6. The proposed development comprises lowering the existing lower ground floor level and rear garden, erection of rear extensions at lower ground, ground and first floor levels, and partial front infill extension.

1.7. Site specific ground investigations indicate the presence of shallow Made Ground over London Clay.

1.8. Perched water was recorded during monitoring. However, the proposed development will not impact upon the wider hydrogeological environment.

1.9. It is proposed to use underpinning techniques to facilitate the development. Outline structural information has been provided. The underpinning sequence and proposed bearing pressures have been clarified in the updated submission.

1.10. The interpretative geotechnical assessment has been clarified in the updated submission, including provision of retaining wall design parameters. It has been confirmed that actual bearing pressures and bearing capacity based on the site investigation data form the basis of the stability assessments.

1.11. A Ground Movement Assessment has been undertaken. The damage to neighbours is assessed as being Category 1 (Very Slight) in accordance with the Burland Scale. This has been confirmed, considering the structural information and bearing pressures / settlements as 1.9 and 1.10.

1.12. Based on the GMA, very limited movements will impact the highway and underlying utilities. Asset protection criteria should be agreed with asset owners, as applicable.

1.13. A monitoring strategy is outlined, including targets locations and trigger values. The monitoring strategy should be adopted and agreed under the party Wall Act.

1.14. There will be a reduction of impermeable site area as a result of the proposed development. The proposed works will not impact the wider hydrological environment. A final drainage design should be agreed with LBC and Thames Water.

1.15. The site is within the Primrose Hill Local Flood Risk Zone. A Flood Risk Assessment has been undertaken and the site is classified as being at low risk of flooding. Standard flood risk mitigation measures should be adopted within the final design.

1.16. An outline construction programme has been presented in the updated submission.

1.17. Queries and requests for information are discussed in section 4 and summarised in appendix 2. Considering the updated submission, the BIA meets the requirements of CPG: Basements.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 1st August 2019 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 106-108 Regents Park Road, London, NW1 8UG planning reference 2019/0194/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. March 2018.
- 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;

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 *"Erection of rear extensions at lower ground, ground and first floor levels; partial front infill extension at lower ground floor level; lowering of floor level throughout; and other external changes including fenestration alterations and reinstatement of garden wall in association with reconfiguration of building into single dwelling house (5-bed) and two self-contained units (1x1-bed; 1x2-bed) (C3)".*

2.6. CampbellReith accessed LBC's Planning Portal on 15th August 2019 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment Report (BIA) by TWS, ref. 9439_SL_GB_BIA rev. 1.0, 14th June 2019.
- Planning Application Architectural Drawings consisting of:

  Existing Lower Ground Floor Plan, 1939 E-101
  Existing Ground Floor Plan, 1939 E-102
  Existing First and Second Floor Plan, 1939 E-103
  Existing Third Floor and Roof Plan, 1939 E-104
  Existing Front and Rear Elevation, 1939 E-111
  Existing Section AA, 1939 E-121
  Existing Section DD, 1939 E-122
  Proposed Lower Ground Floor Plan_rev A, 1939 P-201
  Proposed Ground Floor Plan_rev A, 1939 P-202
  Proposed Elevations_rev A, 1939 P-211
  Proposed Section AA_rev A, 1939 P-221
  Proposed Section BB_rev A, 1939 P-222
  Proposed Section CC_rev A, 1939 P-223
  Proposed Section DD_rev A, 1939 P-224
  Proposed Section EE_rev A, 1939 P-225

- Planning Comments and Consultation Responses.

2.7. CampbellReith was provided with the following relevant documents for audit purposes in September 2019:

- Addendum to Basement Impact Assessment Report (BIA) by TWS, ref. 9439_SL_GB_ADDENDUM_BIA rev. 1.0, 26th September June 2019.

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	Refer to section 1.3 of the BIA
Is data required by Cl.233 of the GSD presented?	Yes	Construction programme and utilities records provided in updated submission.
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	Yes	Information indicated in Section 2
Are suitable plan/maps included?	Yes	Refer to Appendix N 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	
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Answer to question 6 is incorrect. The proposed works are close to a tree. An arboricultural assessment was completed, refer to appendix O of the BIA.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Refer to section 1.19 of the BIA
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Refer to section 1.19 of the BIA
Is a conceptual model presented?	Yes	

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Refer to section 2 and appendix J of the BIA
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Refer to section 3 and appendix J of the BIA
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Refer to section 4
Is factual ground investigation data provided?	Yes	Refer to appendix L of the BIA
Is monitoring data presented?	Yes	Refer to section 3 of the BIA, appendix L
Is the ground investigation informed by a desk study?	Yes	
Has a site walkover been undertaken?	Yes	Refer to section 1.7 of the BIA
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	Refer to appendices E and F of the BIA
Is a geotechnical interpretation presented?	Yes	Insufficient; refer to Appendix G3 GSD
Does the geotechnical interpretation include information on retaining wall design?	Yes	Provided in updated submission.
Are reports on other investigations required by screening and scoping presented?	Yes	Ground movement and hydrogeological assessments in appendix J of the BIA, and arboricultural report in appendix O of the BIA
Are the baseline conditions described, based on the GSD?	Yes	Refer to section 1 of the BIA
Do the base line conditions consider adjacent or nearby basements?	Yes	

Item	Yes/No/NA	Comment
Is an Impact Assessment provided?	Yes	Ground movement and hydrogeological assessments in appendix J, arboricultural report in appendix O, and surface water appraisal in section 4 of the BIA
Are estimates of ground movement and structural impact presented?	Yes	Refer to appendix J of the BIA
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	Yes	Provided in updated submission.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	Provided in updated submission.
Has the need for monitoring during construction been considered?	Yes	Refer to appendix I
Have the residual (after mitigation) impacts been clearly identified?	Yes	Provided in updated submission.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	Provided in updated submission.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	Refer to section 4.0 of the BIA
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	Yes	Provided in updated submission.
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	Provided in updated submission.
Are non-technical summaries provided?	Yes	Executive Summary

4.0 DISCUSSION

4.1. The Basement Impact Assessment (BIA) has been carried out by engineering consultants Taylor Whalley Spyra (TWS). The Ground Movement Assessment (GMA) and hydrogeological assessment were produced by a geotechnical consultancy firm, Geotechnical Consulting Group (GCG). All individuals concerned in its production have suitable qualifications.

4.2. The basement proposal does not involve nor is adjacent to a listed building.

4.3. The proposed development comprises lowering the existing lower ground floor level and rear garden, erection of rear extensions at lower ground, ground and first floor levels, and partial front infill extension.

4.4. The proposed basement is not in the vicinity of any TFL infrastructure, water body or historic rivers. The BIA also identifies neighbouring basements and assumed foundation levels.

4.5. Site specific ground investigation has been carried out. The site investigation indicates that the ground conditions comprise Made Ground (to maximum 0.6m bgl) overlying weathered London Clay (proven to 7.0m bgl). Water was recorded within borehole installations during three monitoring visits between May and July 2019. This water was considered to be perched water within the Made Ground and / or a result of surface run-off.

4.6. Considering the existing depth of foundations, which penetrate the Made Ground and effectively block any perched water flow, and the classification of the London Clay as unproductive strata, the proposed development will not impact upon the wider hydrogeological environment. It is recommended that further groundwater monitoring is undertaken prior to final design and construction to inform temporary works strategies and ensure stability is maintained. As indicated in the hydrogeological assessment, all relevant structural elements should be designed taking into account hydrostatic pressures.

4.7. It is proposed to use underpinning techniques to facilitate the development. Outline structural information has been provided. The underpinning sequence has been clarified.

4.8. Although it is generally accepted that mass concrete underpinning in conjunction with a reinforced concrete slab, to resist horizontal loads, is adequate where the ground is being lowered 700mm, this was queried for the section next to the garage (drawing number BIA_03, sections C-C and D-D) and where the underpinning is proposed under a free-standing wall (drawing number BIA_03, sections F-F and G-G). In the updated submissions, the retained height of soils has been clarified and outline structural design provided to limit deflections in line with the GMA and discussions with the Party Wall Surveyors. The wall should be included within the monitoring strategy (as 4.1.4).

4.9. The proposed bearing pressures are clarified within the retaining wall calculations. GCG have confirmed the bearing pressures are consistent with the model adopted within their GMA.

4.10. A limited geotechnical interpretation was provided, updated to provide geotechnical information broadly in accordance with the requirements of Appendix G3 of the GSD, including retaining wall design parameters.

4.11. The GMA has been undertaken broadly in accordance with CIRIA C760 and the potential damage to the neighbouring structures was assessed. Whilst the CIRIA approach is intended for embedded retaining walls, it is accepted that the predicted ground movements are consistent with the range typically anticipated for underpinning techniques carried out with good control of workmanship.

4.12. The damage to neighbours is assessed as being Category 1 (Very Slight) in accordance with the Burland Scale. This has been confirmed by GCG, considering the updated structural information and bearing pressures / settlements.

4.13. Based on the GMA, very limited movements will impact the highway and underlying utilities. The updated submission indicates that known assets are beyond the zone of influence of the proposed works. Asset protection criteria should be agreed with asset owners, if applicable.

4.14. A monitoring strategy is outlined, including targets locations and trigger values. The monitoring strategy should be adopted and agreed under the party Wall Act.

4.15. There will be a reduction of $9m^2$ in impermeable area, as a result of the proposed development. The proposed works will not impact the wider hydrological environment. A final drainage design should be agreed with LBC and Thames Water.

4.16. The site is within the Primrose Hill Local Flood Risk Zone. A Flood Risk Assessment has been undertaken and the site is classified as being at low risk of flooding. Thames Water was consulted regarding sewer flooding and it was confirmed that there have been no incidents in the area. Standard flood risk mitigation measures should be adopted within the final design.

4.17. An arboricultural impact assessment was undertaken to estimate the impact of the proposal in regard to the existing tree to the front of 106 Regent's Park Road. It concluded that the potential impacts are not significant as long as suitable mitigation measures and supervision are put in place, as detailed in the report. Due to the position of the tree relative to existing structures and the proposed works, the presence of the tree should not impact upon the proposed foundations or the foundations of neighbouring structures.

4.18. An outline construction programme has been presented in the updated submission.

5.0 CONCLUSIONS

5.1. The BIA authors hold suitable qualifications.

5.2. Site specific ground investigations indicate the presence of shallow Made Ground over London Clay.

5.3. The proposed development will not impact upon the wider hydrogeological environment.

5.4. Structural and geotechnical information has been clarified, as detailed in Section 4.

5.5. Ground movements and consequential damage impacts have been confirmed as being a maximum of Category 1 (Very Slight).

5.6. A monitoring strategy is outlined, including targets locations and trigger values. The monitoring strategy should be adopted and agreed under the party Wall Act.

5.7. The proposed works will not impact the wider hydrological environment. A final drainage design should be agreed with LBC and Thames Water.

5.8. A Flood Risk Assessment has been undertaken and the site is classified as being at low risk of flooding. Standard flood risk mitigation measures should be adopted within the final design.

5.9. An outline construction programme has been presented.

5.10. Queries and requests for information are summarised in Appendix 2. Considering the updated submission, the BIA meets the requirements of CPG: Basements.

Appendix 1: Residents' Consultation Comments

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
Lubner	-	07.03.2019	No Basement Impact Assessment (BIA) was carried out.	The applicant produced a BIA. Report reference 9439_SL_GB_BIA, 14th June 2019. The current report is an audit of the BIA presented.
Simpson (Primrose Hill CAAC)	-	10.03.2019	1. Impact on existing structure foundations. 2. Impact on tree of number 106 garden.	Queries discussed in Section 4. An arboricultural report was produced which concluded that the impacts on the tree are negligible if the appropriate protective measures are put in place.
Greene	-	28.02.2019	Stability of surrounding properties; impact on groundwater levels; impact on tree (number 106 Garden)	Queries discussed in Section 4.
Jolles	110 Regents Park Road	08.03.2019	No Basement Impact Assessment (BIA) was carried out. Stability of surrounding properties; impact on groundwater levels; impact on tree (number 106 Garden)	The applicant produced a BIA. Report reference 9439_SL_GB_BIA, 14th June 2019. The current report is an audit to the BIA presented. Queries discussed in Section 4.

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	BIA	Utilities information should be provided.	Closed	October 2019
2	BIA	Outline construction programme should be provided.	Closed	October 2019
3	Land Stability	Structural information should be clarified as 4.7, 4.8 and 4.9.	Closed	October 2019
4	Land Stability	Geotechnical information should be clarified, as 4.10.	Closed	October 2019
5	Land Stability	The GMA should be reviewed and updated, as 4.12 and 4.13.	Closed	October 2019

Appendix 3: Supplementary Supporting Documents

None

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