

27 Gladys Road, West Hampstead,
London NW6

Basement Impact Assessment
Audit

For
London Borough of Camden

Project Number: 12466-58

Revision: D1

April 2017

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Document History and Status

Revision	Date	Purpose/Status	File Ref	Author	Check	Review
D1	April 2017	Comment	AFLemb 12466-58- 130417-27 Gladys Road- D1.docx	AFL	GK	AJM

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Document Details

Last saved	13/04/2017 13:06
Path	AFLemb 12466-58-130417-27 Gladys Road-D1.docx
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Project Number	12466-58
Project Name	27 Gladys Road
Planning Reference	2017/0467/P

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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 27 Gladys Road, West Hampstead, London NW6 (planning reference 2017/0467/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 proposed development involves the excavation of the existing basement to lower the floor by 0.8m and excavation of a basement lightwell under the front garden, with associated replacement of the front boundary wall and erection of a bin store. The proposal also includes the erection of single storey rear and side infill extension, enlargement of the first floor window of rear closet wing and a loft conversion involving the installation of a rear dormer extension, 2 x front rooflights and creation of a roof terrace above the two storey closet wing enclosed by new balustrade.
- 1.5. This development contains multiple elements. For the avoidance of doubt, this audit is only concerned with the area of the proposed basement, lightwell and the area within the proposed basement's zone of influence.
- 1.6. The BIA has been prepared by Constructure Structural Designers with supporting documents prepared by Shake the Sky Interior Design. The authors' qualifications are not stated in the report, and are therefore not in accordance the requirements of CPG4.
- 1.7. Information within the BIA is broadly in line with the aspects recommended of a desk study although no information on the site's history or potential contamination issues is presented, as recommended within the GSD Appendix G1.
- 1.8. The BIA states that the site lies directly on designated unproductive strata, the London Clay. Groundwater was not detected in trial pits which were left open for a period of 8 weeks. As the excavations will be <1m below the existing foundations, this is considered sufficient information on potential groundwater for the purposes of the proposal.
- 1.9. The BIA identified a former tributary of the Westbourne that flowed some 100m to the west of the site. It is understood that this was culverted in the late nineteenth century. No superficial

deposits are anticipated at the site and the BIA makes no mention of the potential for superficial deposits, which, if found, may have hydrogeological or stability impacts.

- 1.10. The site investigation identified Made Ground overlying 'sandy clay soil', which is referred to in the report text as the London Clay Formation. Groundwater was not encountered during the investigation or subsequent visits. It is therefore concluded that planning to mitigate potential groundwater flow in the temporary and permanent cases is not required.
- 1.11. The BIA states that the site has not been identified as having the potential for flooding and Environment Agency data indicate a low surface water flood risk on site. No Flood Risk Assessment is required.
- 1.12. Currently the drainage system falls under gravity from the rear garden to the main sewer in Gladys Road, which will be continued in this scheme. No increase in foul water or surface water from the site is anticipated as a result of the development, and the hard and soft permeable areas will remain similar to existing, so the existing flow and infiltration volumes will remain unchanged.
- 1.13. Indicative underpinning lengths and diameters have been provided for the proposed basement retaining walls and under party walls. Outline construction drawings have been presented for the underpinning sequence. The BIA states that temporary works design will be carried out by others but an indicative temporary works solution is requested. Cantilever retaining walls are proposed at the lightwell site and drawings show construction of a washroom at basement level adjacent to the proposed lightwell at the front of the house, although no design details are provided. Insufficient geotechnical interpretation has been presented. Design parameters in line with guidance provided within the GSD Appendix G3 should be provided for review.
- 1.14. The front of the property is close to a public boundary, and a front retaining wall is proposed. Design details for this structure are required.
- 1.15. A conceptual site model has not been presented which identifies ground and groundwater conditions, extent and form of the proposed basement, proximity of sensitive buildings and infrastructure, and annotated identifying potential risks, impacts and mitigation measures. However, a description of the groundwater flow impact has been given in the report which is deemed suitable in this case.
- 1.16. The BIA states that a ground movement assessment (GMA) is not required as a result of information provided at the slope stability screening stage. A damage impact assessment for buildings within the zone of influence has been presented based on CIRIA C580. Damage Category 1 (Very Slight) is predicted for all buildings. Suitable structural monitoring proposals

are outlined, during construction. In line with CPG4, where Category 1 damage is identified additional contingency mitigation measures should be proposed.

- 1.17. Queries and matters requiring further information or clarification are discussed in Section 4 and summarised in Appendix 2. Until the additional information requested has been provided it is not possible to assess whether the requirements of CPG4 have been met.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 15 March 2017 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 27 Gladys Road, West Hampstead, London NW6, Camden Reference 2017/0467/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: "Excavation of existing basement to lower floor by 0.8m and excavation of basement and lightwell under front garden. Replacement front boundary wall and erection of bin store. Erection of single storey rear and side infill extension. Enlargement of first floor window of rear closet wing. Loft conversion involving installation of rear dormer extension, 2 x front rooflights and creation of roof terrace above two storey closet wing enclosed by new balustrade."

2.6. CampbellReith accessed LBC's Planning Portal on 20 March 2017 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment of 27 Gladys Road (ref 1587) dated March 2017 by Constructure Structural Designers.
- Basement Impact Assessment Appendices of 27 Gladys Road (ref 1587) dated March 2017 by Constructure.
- Existing Plans, Elevations and Sections dated December 2016 by Shake the Sky Interior Design.
- Proposed plans, elevations and sections dated March 2017 by Shake the Sky Interior Design.
- Comments and objections to the proposed development from local residents.

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	No	No details of authors accreditation provided.
Is data required by Cl.233 of the GSD presented?	No	Information within the BIA is broadly in line with information required of a desk study as detailed in GSD Appendix G1, although no mention is made of the sites history, amongst other things.
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	Yes	Adequate descriptions are given in the report text.
Are suitable plans/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 limited number of data sources have been quoted. No geotechnical descriptions of the founding stratum are provided.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	However, consideration of the potential for superficial deposits at the site with associated groundwater flow has been omitted.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	Environment Agency flood data / Camden Local Flood Risk Zones not referenced. FRA not required.
Is a conceptual model presented?	No	Conceptual site model not presented although sufficient detail is provided in the report text.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Scoping states that no GMA is required.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	A detailed Flood Risk Assessment is not required.
Is factual ground investigation data provided?	Yes	GI data is provided but logs and descriptions are not in format required in GSD Appendix G3.
Is monitoring data presented?	Yes	Monitoring in the form of visits to open trial pits over an 8 week period found the excavations to remain dry. This is deemed sufficient information given the development proposal.
Is the ground investigation informed by a desk study?	Yes	Desk study information is contained within the BIA report but omits reference to the site's history and possible contamination issues as per GSD Appendix G1. Desk Study information is also contained in the planning application Covering Letter.
Has a site walkover been undertaken?	No	No reference to a site walkover is made in the report.
Is the presence/absence of adjacent or nearby basements confirmed?	No	The report does not mention the presence or absence of basements at the adjacent properties, although the Covering Letter with the planning application mentions a similar lightwell to the front at the adjacent no. 29 Gladys Road.
Is a geotechnical interpretation presented?	No	No geotechnical assessment of encountered or anticipated ground conditions is provided. Design parameters in line with GSD Appendix G3 not presented.

Item	Yes/No/NA	Comment
Does the geotechnical interpretation include information on retaining wall design?	No	Retaining wall design is not provided.
Are reports on other investigations required by screening and scoping presented?	No	Flood Risk Assessment not required.
Are baseline conditions described, based on the GSD?	No	Descriptive logs as per Appendix 2 of the GSD are not provided.
Do the base line conditions consider adjacent or nearby basements?	No	No mention is made of adjacent basements or the likely impact of this development on them.
Is an Impact Assessment provided?	Yes	
Are estimates of ground movement and structural impact presented?	No	
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	No	The BIA does not acknowledge the potential impacts should the presence of superficial deposits be encountered relating to the former tributary of the Westbourne.
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	A description of the proposed monitoring regime during construction is included in the BIA.
Have the residual (after mitigation) impacts been clearly identified?	No	Residual impacts not identified.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	No	

Item	Yes/No/NA	Comment
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	An adequate Drainage Strategy is presented.
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	No	Geotechnical parameters to be provided. Impact on water environment has been addressed sufficiently.
Does report state that damage to surrounding buildings will be no worse than Burland Category 2?	Yes	
Are non-technical summaries provided?	No	However, the BIA is written so as to be understandable.

4.0 DISCUSSION

- 4.1. The proposed development involves the excavation of the existing basement to lower the floor by 0.8m and excavation of a basement lightwell under the front garden, with associated replacement of the front boundary wall and erection of a bin store. The proposal also includes erection of a single storey rear and side infill extension, enlargement of the first floor window of rear closet wing and a loft conversion involving the installation of a rear dormer extension, 2 x front rooflights and creation of a roof terrace above the two storey closet wing enclosed by new balustrade.
- 4.2. This development contains multiple elements. For the avoidance of doubt, this audit is only concerned with the area of the proposed basement, lightwell and the area within the proposed basement's zone of influence.
- 4.3. The BIA has been prepared by Constructure Structural Designers with supporting documents prepared by Shake the Sky Interior Design. The authors' qualifications are not stated in the report, and are therefore not in accordance the requirements of CPG4.
- 4.4. Information within the BIA is broadly in line with the aspects recommended of a desk study although no information on the site's history or potential contamination issues is presented, as recommended within the GSD Appendix G1.
- 4.5. The BIA states that the site lies on Made Ground overlying designated unproductive strata, the London Clay. The London Clay is identified as the bearing formation for the proposed foundations. Groundwater was not detected in trial pits which were left open for a period of 8 weeks. As the excavations will be <1m below the existing foundations, this is considered sufficient information on potential groundwater for the purposes of the proposal.
- 4.6. The BIA identified a former tributary of the Westbourne that flowed some 100m to the west of the site. It is understood that this was culverted in the late nineteenth century. No superficial deposits are anticipated at the site and the BIA makes no mention of the potential for superficial deposits, which, if found, may have hydrogeological or stability impacts. The 'sandy clay' encountered in the foundation inspection pits could be either alluvial or lacustrine derived, and therefore engineers descriptive logs are required.
- 4.7. The site investigation identified Made Ground overlying 'sandy clay soil', which is referred to in the report text as the London Clay Formation. Groundwater was not encountered during the investigation or subsequent visits. It is therefore concluded that planning to mitigate potential groundwater flow in the temporary and permanent cases is not required.

- 4.8. The BIA states that the site has not been identified as having the potential for flooding and Environment Agency data indicate a low surface water flood risk on site. No Flood Risk Assessment is required.
- 4.9. A conceptual site model has not been presented which identifies ground and groundwater conditions, extent and form of the proposed basement, proximity of sensitive buildings and infrastructure, and annotated identifying potential risks, impacts and mitigation measures. However, a description of the groundwater flow impact has been given in the report which is deemed suitable in this case.
- 4.10. The BIA states that the site has not been identified as having the potential for flooding, and as such no Flood Risk Assessment is required.
- 4.11. Currently the drainage system falls under gravity from the rear garden to the main sewer in Gladys Road, which will be continued in this scheme. No increase in foul water or surface water from the site is anticipated as a result of the development, and the hard and soft permeable areas will remain similar to existing, so the existing flow and infiltration volumes will remain unchanged.
- 4.12. Indicative underpinning lengths and diameters have been provided for the proposed basement retaining walls and under party walls. Outline construction drawings have been presented for the underpinning sequence. The BIA states that temporary works design will be carried out by others, however an indicative temporary works solution is requested. Cantilever retaining walls are proposed at the lightwell site and drawings show construction of a washroom at basement level adjacent to the proposed lightwell at the front of the house, although no design details are provided. Insufficient geotechnical interpretation has been presented. Design parameters in line with guidance provided within the GSD Appendix G3 should be provided for review.
- 4.13. The front of the property is close to a public boundary, and a front retaining wall is proposed. Design details for this structure are required.
- 4.14. The BIA states that a ground movement assessment (GMA) is not required as a result of information provided at the slope stability screening stage. A damage impact assessment for buildings within the zone of influence has been presented based on CIRIA C580. Damage Category 1 (Very Slight) is predicted for all buildings. Suitable structural monitoring proposals are outlined, during construction. In line with CPG4, where Category 1 damage is identified additional contingency mitigation measures should be proposed.
- 4.15. Queries and matters requiring further information or clarification are discussed in Section 4 and summarised in Appendix 2.

5.0 CONCLUSIONS

- 5.1. The proposed scheme involves deepening the existing basement by 0.8m, excavation of a lightwell and basement bathroom at the front of the property, with associated replacement of the front boundary wall and erection of bin store. The proposal also includes erection of single storey rear and side infill extension, enlargement of the first floor window of rear closet wing and a loft conversion involving the installation of a rear dormer extension, 2 x front rooflights and creation of a roof terrace above the two storey closet wing enclosed by new balustrade. For the avoidance of doubt, this audit is only concerned with the area of the proposed basement and the area within the proposed basement's zone of influence.
- 5.2. The BIA has been prepared by Constructure Structural Designers with supporting documents prepared by Shake the Sky Interior Design. The authors' qualifications are not stated in the report, and are therefore not in accordance the requirements of CPG4.
- 5.3. Information within the BIA is broadly in line with the aspects recommended of a desk study although no information on the sites history or potential contamination issues is presented, as recommended within the GSD Appendix G1.
- 5.4. The BIA states that the site lies on Made Ground overlying designated unproductive strata, the London Clay. The London Clay is identified as the bearing formation for the proposed foundations. Groundwater was not detected in trial pits which were left open for a period of 8 weeks. As the excavations will be <1m below the existing foundations, this is considered sufficient information on potential groundwater for the purposes of the proposal. It is therefore concluded that planning to mitigate potential groundwater flow in the temporary and permanent cases is not required.
- 5.5. The BIA identified a former tributary of the Westbourne that flowed some 100m to the west of the site. It is understood that this was culverted in the late nineteenth century. No superficial deposits are anticipated at the site and the BIA makes no mention of the potential for superficial deposits, which, if found, may have hydrogeological or stability impacts. The 'sandy clay' encountered in the foundation inspection pits could be either alluvial or lacustrine derived, and therefore engineers descriptive logs are required.
- 5.6. The BIA states that the site has not been identified as having the potential for flooding and Environment Agency data indicate a low surface water flood risk on site. No Flood Risk Assessment is required.
- 5.7. A conceptual site model has not been presented. However, a description of the groundwater flow impact has been given in the report which is deemed suitable in this case.

- 5.8. No increase in foul water or surface water from the site is anticipated as a result of the development, and the hard and soft permeable areas will remain similar to existing, so the existing flow and infiltration volumes will remain unchanged.
- 5.9. Indicative underpinning lengths and diameters have been provided for the proposed basement retaining walls and under party walls. Outline construction drawings have been presented for the underpinning sequence. The BIA states that temporary works design will be carried out by others but an indicative temporary works solution is requested. Cantilever retaining walls are proposed at the lightwell site and drawings show construction of a washroom at basement level adjacent to the proposed lightwell at the front of the house, although no design details are provided. Insufficient geotechnical interpretation has been presented. Design parameters in line with guidance provided within the GSD Appendix G3 should be provided for review.
- 5.10. The front of the property is close to a public boundary, and a front retaining wall is proposed. Design details for this structure are required.
- 5.11. A damage impact assessment for buildings within the zone of influence has been presented based on CIRIA C580. Damage Category 1 (Very Slight) is predicted for all buildings. Suitable structural monitoring proposals are outlined, during construction. In line with CPG4, where Category 1 damage is identified additional contingency mitigation measures should be proposed.
- 5.12. Queries and matters requiring further information or clarification are summarised in Appendix 2. Until the additional information requested has been provided it is not possible to assess whether the requirements of CPG4 have been met.

Appendix 1: Residents' Consultation Comments

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
Elizabeth Davies	29 Gladys Road NW6 2PU	05 March 2017	Particularly concerned about removal of spine walls at the basement level and the resulting extra load added to the party wall, particularly when the extra level of a loft conversion and rood terrace is included. Absence of detail regarding the nature of the Special Foundations and how this will be achieved. Concerned about potential differential movement in her own property in relation to the extensive underpinning of the party wall, given that, in the case of her property, it will just be on one side.	See 4.12 to 4.14

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status/Response	Date closed out
1	BIA	Authors Qualifications	Open – BIA needs to detail relevant qualifications of its authors as per CPG4.	
2	BIA	Desk Study Information	Open – existing desk study information should be augmented as per guidance given in GSD Appendix 1, to include history of site, neighbouring properties including likelihood of basements, a site walkover survey etc.	
3	BIA	Impact Mitigation Measures	Open – In response to damage assessment and BIA, best practise / requirements to mitigate impacts and contingency measures should be provided.	
4	Hydrogeology / Land Stability	Presence of former tributary of Westbourne 100m of the property.	Open – identified 'sandy clay soil' is consistent with either alluvial / reworked or London Clay material in trial pits. Engineers descriptive logs should be provided. Consideration should be given to potential impacts, mitigation measures and contingency actions should superficial deposits be identified.	
5	BIA	Ground Conditions	Detailed ground conditions and their implications should be provided along with engineers descriptive logs for the Ground Investigation undertaken, as per GSD Appendix G2.	
6	Land Stability	Geotechnical Parameters	Open – Geotechnical design parameters should be presented in line with the GSD Appendix G3.	
7	Land Stability	Retaining wall design	Open – Further clarification is required regarding the design of the various retaining walls together with an indicative temporary works solution.	

Appendix 3: Supplementary Supporting Documents

None

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