

**4/4A Wadham Gardens
London NW3 3DP**

**Basement Impact Assessment
Audit**

For

London Borough of Camden

Project Number: 12066-27
Rev: 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 4/4A Wadham Gardens, London NW3 3DP (planning reference 2015/2513/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 review it against an agreed audit check list.
- 1.4. It has been confirmed that the development site does not involve a listed building, nor is it in the neighbourhood of listed buildings.
- 1.5. The proposed basement is an extension of a basement that has already obtained planning permission. The proposed basement will be smaller in plan area but deeper.
- 1.6. The BIA has confirmed that the proposed basement will be located within the London Clay and that the surrounding slopes are stable.
- 1.7. There is ongoing groundwater monitoring which will confirm the proposed design and construction method to permit excavation of the basement.
- 1.8. The proposed basement will be excavated and constructed utilising established techniques.
- 1.9. It is accepted that the risk of surface water flooding is low.
- 1.10. It is accepted that due to the low permeability London Clay there will be no significant impact on groundwater flow.
- 1.11. The BIA indicates that the proposed basement extends beneath the existing hard standing and so it is accepted that it will not significantly alter the existing surface water drainage conditions.
- 1.12. The ground movement assessment provided indicates that damage to the adjacent properties will be Burland Category 2 or less.
- 1.13. It is considered that the BIA has adequately identified the potential impacts from the proposed basement construction and includes appropriate mitigation measures.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 27th July 2015 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 4/4A Wadham Gardens, Camden Reference 2015/2513/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 the "*Extension under front garden area with installation of underground parking lift*". Planning consent has previously been provided for a new basement beneath the property, and the proposed basement is an extension to this basement.

The Audit Instruction also confirmed that the basement proposals did not involve a listed building nor does the site neighbour listed buildings.

2.6. CampbellReith accessed LBC's Planning Portal on 27th July 2015 and gained access to the following relevant documents for audit purposes:

- Structural engineering report and subterranean construction method statement
- Basement Impact Assessment
- Ground investigation report
- Ground movement assessment
- Drawings;
 - Location plan drawing
 - Existing layout drawings
 - Proposed layout drawings
 - Basement plan drawing
 - Section A-A drawing.

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	A Chartered Geologist was not involved in the preparation of the BIA, however, the hydrogeology has been correctly interpreted.
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	Structural Engineering report and BIA
Are suitable plan/maps included?	Yes	BIA and drawings.
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	BIA Section 2.6
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	BIA Section 2.6
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Structural engineering report Section 2.2 states that there is a very low risk of surface flooding so no flood risk assessment has been carried out
Is a conceptual model presented?	Yes	Report on Phase 2 Ground Investigation.
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA Section 5.0

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA Section 4.0
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	No	Structural engineering report Section 2.2 states that there is a very low risk of surface flooding so no flood risk assessment has been carried out
Is factual ground investigation data provided?	Yes	Ground investigation report
Is monitoring data presented?	Yes	Groundwater monitoring in the Ground investigation report Appendix B
Is the ground investigation informed by a desk study?	Yes	BIA Section 2.0
Has a site walkover been undertaken?	Yes	BIA Section 2.4
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	Beneath No 4 and No 6 Wadham Gardens
Is a geotechnical interpretation presented?	Yes	Ground investigation report
Does the geotechnical interpretation include information on retaining wall design?	Yes	Ground investigation report Section 5.5.1
Are reports on other investigations required by screening and scoping presented?	Yes	Site investigation report and Ground Movement Assessment
Are baseline conditions described, based on the GSD?	Yes	
Do the base line conditions consider adjacent or nearby basements?	Yes	
Is an Impact Assessment provided?	Yes	Ground Movement Assessment

Item	Yes/No/NA	Comment
Are estimates of ground movement and structural impact presented?	Yes	Ground Movement Assessment
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	Yes	
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	Temporary propping is described in the Structural engineering report Appendix A. Groundwater monitoring is described in the Ground investigation report Appendix B.
Has the need for monitoring during construction been considered?	Yes	Weekly visits to site are proposed by the Structural Engineer
Have the residual (after mitigation) impacts been clearly identified?	Yes	
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure been maintained?	Yes	
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	
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	It is observed that a high soil stiffness value has been used in the Ground Movement Assessment ($E_u=1550C_u$ and $E'=1240C_u$).
Are non-technical summaries provided?	Yes	Structural engineering report

4.0 DISCUSSION

- 4.1. The BIA has been carried out by an established firm of structural engineers, Elliott Wood, who have employed the services of Site Analytical Services and Applied Geotechnical Engineering to supplement the work needed to form the BIA. The authors and/or reviewers from all of these organisations have suitable engineering qualifications. There is no evidence that the assessment of impacts on subterranean flow were considered by a Chartered Geologist, however the hydrogeology has been correctly interpreted.
- 4.2. The proposed basement will generally be excavated with the sides supported by reinforced concrete underpins, each of which will be constructed in a particular sequence. The need for temporary propping is identified to help control ground movements and so limit damage to any neighbouring properties. This is an acceptable methodology using established techniques.
- 4.3. The proposed basement is an extension of a basement that has already obtained planning permission. The proposed basement extension is smaller in plan area but will be deeper.
- 4.4. The BIA has confirmed that the proposed basement will be located within the London Clay and that the surrounding slopes are stable.
- 4.5. There is ongoing groundwater monitoring which will confirm the proposed design and construction method to permit excavation of the basement. The monitoring is to confirm that the groundwater encountered in the ground investigation is perched and not representative of the main groundwater table.
- 4.6. There is no flood risk assessment but based upon the Structural Engineering Report it is accepted that the risk of surface water flooding is low.
- 4.7. It is accepted that due to the low permeability London Clay there will be no significant impact by the proposed basement on groundwater flow.
- 4.8. The BIA indicates that the proposed basement extends beneath the existing hard standing and so it is accepted that it will not significantly alter the existing surface water drainage conditions.
- 4.9. The Ground Movement Assessment provided indicates that damage to the adjacent properties will be category 2 or less. It is observed that a high soil stiffness value has been used in the Ground Movement Assessment ($E_u=1550C_u$ and $E' = 1240C_u$). It is suggested that the authors of the Ground Movement Assessment justify to the Party Wall Surveyor these values for all of the construction contributors to ground movements on this project.

5.0 CONCLUSIONS

- 5.1. The BIA has been carried out by established organisations. Although a Chartered Geologist did not prepare the subterranean flow assessment, the hydrogeology has been correctly interpreted.
- 5.2. The proposed basement will generally be excavated with the sides supported by propped reinforced concrete underpins. This is an acceptable methodology using established techniques.
- 5.3. The proposed basement is an extension of a basement that has already obtained planning permission. The proposed basement will be deeper.
- 5.4. The BIA has confirmed that the proposed basement will be located within the London Clay and that the surrounding slopes are stable.
- 5.5. There is ongoing groundwater monitoring which will confirm the proposed design and construction method to permit excavation of the basement.
- 5.6. It is accepted that the risk of surface water flooding is low.
- 5.7. It is accepted that due to the low permeability London Clay there will be no significant impact on groundwater flow.
- 5.8. The BIA indicates that the proposed basement extends beneath the existing hard standing and so it is accepted that it will not significantly alter the existing surface water drainage conditions.
- 5.9. The ground movement assessment provided indicates that damage to the adjacent properties will be category 2 or less. It is suggested that the authors of the Ground Movement Assessment justify to the Party Wall Surveyor the values of soil stiffness used in the analysis.

Appendix 1: Residents' Consultation Comments

None

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Stability	Justification of soil parameters used in Ground Movement Assessment.	To be justified to Party Wall Surveyor	N/A

Appendix 3: Supplementary Supporting Documents

None