

**Basement Impact  
Assessment Audit**

93 Swain's Lane, London,  
N6 6PJ

For  
London Borough of Camden

Project No.  
14006-33

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## CONTENTS

1.0	NON-TECHNICAL SUMMARY .....	4
2.0	INTRODUCTION.....	5
3.0	BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST .....	7
4.0	DISCUSSION .....	11
5.0	CONCLUSIONS.....	13

## APPENDICES

Appendix 1	Consultation Responses.....	14
Appendix 2	Audit Query Tracker.....	15
Appendix 3	Supplementary Supporting Documents.....	17

## 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 Swain's Lane (planning reference 2023/3475/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 BIA authors have the required qualifications however it should be confirmed that the current revision of the CPG for Basements has been referred to.
- 1.5 The proposed development comprises the extension of the basement to cover the entire footprint of the existing building with an additional one-storey extension into the rear garden. No. 91 Swain's Lane is believed to already have a basement like that proposed for No.93.
- 1.6 The BIA has confirmed that the proposed basement will be founded within the Head Deposits and minor groundwater management may be required during the excavation as recommended in the BIA.
- 1.7 The land stability screening requires further justification to demonstrate the proposed basement will not significantly increase the differential depth to neighbouring foundations.
- 1.8 It is accepted the site is at very low or low risk of flooding from all the sources. An outline drainage and Sustainable Drainage Strategy has been presented which concludes the development will not increase the flood risk.
- 1.9 The basement will be constructed using excavation along the existing party walls and underpinning of the applicant's rear wall. Structural information is presented within the BIA detailing construction sequence and temporary works.
- 1.10 Geotechnical parameters for retaining walls and foundations are presented and are appropriately conservative.
- 1.11 The BIA should review the potential impact due to overburden removal as part of the basement excavation and, if neighbouring foundations are found to be at shallow depth, then an assessment of ground movement and building damage may be required. Potential impact due to tree removal should also be assessed.
- 1.12 A detailed monitoring strategy will need to be produced as part of the Party Wall negotiations.
- 1.13 It is accepted that the development will not impact on the wider hydrogeology and slope stability of the area.
- 1.14 It cannot be confirmed that the BIA complies with the requirements of CPG: Basements until the queries raised in Section 4 and summarised in Appendix 2 are addressed.

## 2.0 INTRODUCTION

2.1 CampbellReith was instructed by London Borough of Camden (LBC) on 15/09/2023 to carry out a Category B audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 93 Swain's Lane, London, N6 6PJ and Planning Reference No. 2023/3475/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

- Camden Local Plan 2017 - Policy A5 Basements.
- Camden Planning Guidance (CPG): Basements. January 2021.
- Guidance for Subterranean Development (GSD). Issue 01. November 2010. Ove Arup & Partners.
- Highgate Neighbourhood Plan 2017.

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 "Single storey rear extension at lower ground floor level (excavation into hillside); upper ground floor rear extension (above ground); new rooflights in existing single storey rear extension; new projecting rooflight on main roof; replacement of existing garage doors with glazing."

2.6 The Audit Instruction confirmed 93 Swain's Lane and all the neighbouring properties are not listed buildings.

2.7 CampbellReith accessed LBC's Planning Portal on 05/10/2023 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment including Outline Structural Proposal by Built Engineers Ltd, Ref 2119, v, unknown date.
- Factual Report by Ground engineering Ltd, ref. C15986, dated August 2023.

- Arboricultural Survey Impact Assessment & Method Statement Report by Marcus Foster Arboricultural Design & Consultancy, Ref. AIA/MF/0131/23, dated July 2023.
- Planning Application Drawings by LBMV:
  - Location Plan, dated November 2022, Dwg No. A1001
  - Existing Plans, Sections and Elevations (Dwg No A1002-A1009) and Proposed Sections, Plans and Elevations (Dwg A2001-A2011) dated November 2022

### 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	Within the Screening/Scoping sections. Construction methodology and sequence presented.
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?	No	Clarification on whether question 13 should be brought forward to scoping is required.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.1 of BIA.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.3 of BIA.
Is a conceptual model presented?	Yes	Section 5 and 6 of BIA.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	However, Question 13 may have to be brought forward to scoping.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 4 of BIA.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	NA	Section 4 of the BIA.
Is factual ground investigation data provided?	Yes	Appendix A and B of BIA.
Is monitoring data presented?	Yes	Appendix A of BIA.
Is the ground investigation informed by a desk study?	Yes	Section 3 and 6 of BIA.
Has a site walkover been undertaken?	Yes	Section 3.7 of the BIA.
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	See additional GI presented in Appendix B. Party walls to both No. 91 and No.95 are believed to extend to proposed basement level.
Is a geotechnical interpretation presented?	Yes	Appendix A of the BIA.
Does the geotechnical interpretation include information on retaining wall design?	Yes	As above.
Are reports on other investigations required by screening and scoping presented?	Yes	Ground Investigation, construction method statement, arboricultural report.



Item	Yes/No/NA	Comment
Are the baseline conditions described, based on the GSD?	Yes	
Do the base line conditions consider adjacent or nearby basements?	Yes	As above.
Is an Impact Assessment provided?	Yes	Section 4, 8, 10 and Appendix A of BIA.
Are estimates of ground movement and structural impact presented?	NA	Party walls are believed to be already founded at proposed basement level.
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	No	Land Stability screening to be reviewed.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	The BIA indicates detailed temporary propping proposal to be developed at a later stage with the appointed contractor. And movement monitoring proposal to be agreed as part of the Party Wall process.
Has the need for monitoring during construction been considered?	Yes	Section 9.1 of the BIA.
Have the residual (after mitigation) impacts been clearly identified?	Yes	Residual impact considered to be negligible.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	No	The BIA should consider the potential for: - reduction of bearing pressure on the existing foundation of the party wall to No. 95 due to excavation - impacts of tree removal - impact to the rear wall of No. 95 if this is found to be at shallow depth.

Item	Yes/No/NA	Comment
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?	No	As above.
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	No	And this should be demonstrated in the BIA.
Are non-technical summaries provided?	Yes	

## 4.0 DISCUSSION

- 4.1 The Basement Impact Assessment (BIA) has been carried out by Built Engineers with input from Ground Engineering and Fairhurst and the qualifications of the individuals concerned in its production are in line with the CPG for basements requirements. It is noted the BIA refers to a superseded revision of the CPG for basements. Confirmation is required that the correct version has been used to prepare the BIA.
- 4.2 The site is a rectangular parcel of land which contains a three-storey terraced house with a basement below the front of the property and with a rear garden extending to the north. The property is attached to No.91 and No 95 Swain's Lane to the west and east respectively.
- 4.3 The proposed development comprises the extension of the basement to cover the entire footprint of the existing building and construct an additional one-storey extension into part of the rear garden. No. 91 Swain's Lane is indicated to already have a basement similar to the one proposed for No.93.
- 4.4 From the site investigation, it is understood that both the party walls already extend into the rear garden and to a depth which is below the proposed basement formation such that underpinning will not be required below any party walls. However, underpinning will be required to the rear wall which is founded at shallow depth.
- 4.5 Screening and scoping assessments are presented and informed by desk study information. Most relevant figures/maps from the ARUP GSD and other guidance documents are referenced within the BIA to support responses to screening questions. However, question 13 of the land stability screening requires further justification to demonstrate the proposed basement will not significantly increase the differential depth with the rear wall of No. 95 Swain's Lane.
- 4.6 A ground investigation was undertaken in June 2023 and identified the site to be underlain by Made Ground to 2.00m below rear garden level. Below the Made Ground, Head Deposits and Bagshot Formation were found to a depth of 4.20m and 6.00m bgl respectively. The Claygate Member was found to the bottom of the exploratory hole, 15m bgl.
- 4.7 The BIA indicates the basement formation level is potentially within Made Ground associated with the construction of the deep party wall foundations and shows foundations being deepened to bear within the Head Deposits.
- 4.8 Groundwater was encountered during drilling at 10.00m bgl, and rising to 9.00m bgl; however no groundwater was recorded during two subsequent monitoring visits. Given the above, it is accepted the groundwater is below proposed formation level and, as such, there will not be any adverse effect on the local or wider hydrogeological environment. However, there is the potential for minor groundwater ingress during the excavation and the BIA recommends the use of traditional pumping to collect any water infiltration.

- 4.9 It is accepted the site is at very low or low risk of flooding from all sources. A minor change in hardstanding areas is proposed and the surface water rates will be generally unchanged from the existing. An outline drainage scheme is presented in the BIA indicating that a small scale soakaway may be feasible in the rear garden and that rainwater harvesting and permeable paving should be considered for attenuation and re-use of rainwater in the rear garden.
- 4.10 An outline structural proposal is provided detailing the sequential construction methodology. Excavation will progress from the rear wall of the existing basement going forward in 1m bays towards the rear garden and to the full length of the party walls. The rear wall of the property will be then underpinned following a 'hit and miss' sequence to construct a new RC retaining wall. The masonry party wall to No. 95 will become a retaining wall in the permanent condition. A new RC facing wall will be constructed to resist lateral earth pressure and it will be propped in all cases. Temporary works design will be the responsibility of the specialist contractor.
- 4.11 Considering the above, the BIA should review the potential following impacts:
- The removal of overburden as part of the basement excavation will cause a decrease in pressure over the existing party walls foundations which could potentially reduce the bearing resistance and lead to an asymmetric failure of the footing towards the excavated side as indicated in Appendix D of the Arup GSD.
  - It should be confirmed that the foundations to the rear of No. 95 extend to the depth of the proposed basement to demonstrate the underpinning of the rear wall of No. 93 will not increase the differential depth between the foundations to the two properties. Depending on the outcome, an assessment of ground movement and building damage to No 95 may be required to confirm damage occurring to that wall can be limited to no worse than Category 1 of the Burland Scale.
  - One tree will be felled as part of the proposals. As there is the potential for soils with shrink-swell potential (Head Deposits) to be present close to the surface, the BIA should determine whether the neighbouring properties (in particular rear wall of No. 95) will be impacted by the tree removal and, if so, provide an assessment on the damage predicted and indicate mitigation measures if needed.
- 4.12 Geotechnical parameters including those for retaining walls are presented in the ground investigation report and are appropriately conservative engineering values.
- 4.13 The BIA indicates that suitable movement monitoring of no. 93 Swain's Lane and immediately adjacent properties prior to, during and following the works will be Agreed via the Party Wall Award negotiations.
- 4.14 The site is wider hillside setting with slope angle locally in excess of 7°. Considering the setting of the area and proposed development, and ground and groundwater conditions, it is accepted the proposals will not induce any slope instability in the area.

## 5.0 CONCLUSIONS

- 5.1 The Basement Impact Assessment (BIA) has been carried out by individuals holding qualifications in line with the requirements of the CPG for Basements. Confirmation that the current revision of the CPG has been used in the assessment is required.
- 5.2 Question 13 of the land stability screening requires further justification to demonstrate the proposed basement will not significantly increase the differential depth with the rear wall of No. 95 Swain's Lane.
- 5.3 The BIA should review the potential impact due to overburden removal as part of the basement excavation and, if the foundations to the rear of No. 95 are found to be at shallow depth, then an assessment of ground movement and building damage to No 95 may be required.
- 5.4 An assessment of whether neighbouring foundation will be impacted by tree removal should be presented.
- 5.5 Outline proposals are provided for a movement monitoring strategy during construction. A detailed monitoring strategy will need to be produced as part of the Party Wall negotiations.
- 5.6 It is accepted the site is at very low or low risk of flooding from all the sources. The Camden SFRA indicates the site to be within a Critical Drainage Area. Surface water rates will be generally unchanged. An outline SuDS has been presented. The development will not increase flood risk.
- 5.7 No impact to the wider hydrogeological environment is expected.
- 5.8 No impact on slope stability of the site and wider area is expected.
- 5.9 It cannot be confirmed that the BIA complies with the requirements of CPG: Basements until the queries raised in Section 4 and summarised in Appendix 2 are addressed.

## Appendix 1

### Consultation Responses

None

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## **Appendix 2**

### **Audit Query Tracker**

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	BIA format	The BIA refers to a superseded revision of the CPG for basements. Confirmation that correct version used for assessment required.	Open – See Para 4.1.	
2	Land Stability	Further information required to confirm that Question 13 of the screening does not need to be brought forward to scoping and the impact assessed.  If the foundations to the rear of No. 95 are found to be at shallow depth, then an assessment of ground movement and building damage to No 95 may be required.	Open – See Para 4.5 & 4.11.	
3	Land Stability	Confirmation required that the removal of overburden will not lead to failure of the party wall footing as indicated in Appendix D of the Arup GSD.	Open – See Para 4.11.	
4	Land stability	Confirmation of whether neighbouring foundation will be impacted by tree removal should be presented with impact assessment and mitigation provided if necessary.	Open – See Section 4.11.	



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## Appendix 3

### Supplementary Supporting Documents

None

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