

124 St Pancras Way, London,
NW1 9NB

**Basement Impact
Assessment Audit**

For
London Borough of Camden

Project No.
14006-41

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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 124 St Pancras Way, London, NW1 9NB (planning reference 2023/3554/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 authors are broadly in accordance with the requirements of CPG: Basements.
- 1.5 Screening and scoping assessments are presented and informed by desk study information.
- 1.6 A ground investigation was undertaken which confirmed the presence of London Clay at proposed basement formation level. The London Clay is considered a suitable founding stratum.
- 1.7 Groundwater monitoring indicates that perched water may be present on site. The BIA confirms any groundwater inflow into the excavation can be managed by localised sump pumps. It is accepted there will not be any adverse impact on the local and wider groundwater environment.
- 1.8 The site is not known to be at risk of flooding. The BIA notes that the rear garden is already paved and hardstanding areas will not increase as part of the proposals. Therefore, no additional impact assessment is considered necessary.
- 1.9 A ground movement and category damage assessment for neighbouring No 122 and 126 St Pancras Way is presented. The applicant's property is now included in the assessment as it is also a listed building. The category of damage anticipated is within the limits set by the Camden Planning Guidance for basements (no worse than Burland Category 1).
- 1.10 It can be confirmed that the BIA complies with the requirements of CPG: Basements as the query raised in Section 4 and Appendix 2 has been addressed.

2.0 INTRODUCTION

2.1 CampbellReith was instructed by London Borough of Camden (LBC) on 14/11/2023 to carry out a Category B audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 124 St Pancras Way, NW1 9NB Planning Application Number 2023/3554/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.

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 *"Demolition of existing lower and upper ground floor rear extensions (bathroom and storage) and construction of a new basement with 2 x lightwells within the rear garden, new full-width lower ground floor rear extension with excavated patio, and part-width ground floor rear extension; internal alterations to reconfigure the spatial distribution between the existing two dwellings."*

2.6 The Audit Instruction confirmed 124 St Pancras Way is listed and is a neighbour to listed buildings.

2.7 CampbellReith accessed LBC's Planning Portal on 23/11/2023 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment by Maund Geo-Consulting, Ref MGC-131-BIA-V2, dated July 2023
- Design & Access Statement by Scenario Architecture, dated August 2023

- Construction Method Statement by Baker Chatterton, Ref J416-S-RP-001, Rev. 01 dated: 18/07/2023
- Planning Application Drawings consisting of:
 - Location Plan
 - Existing Plans
 - Demolition Plans
 - Proposed Plans – Propose Basement Floor (ref. PR-A1.01), Proposed Lower Ground Floor Plan (ref. PR-A1.02), Proposed Sections (ref. PR-A3.01), Proposed Sections (ref. PR-A3.02 & DETAIL D-01 Green Roof PR-A4.01).
- Planning Consultation Responses

2.8 CampbellReith issued the D1 version of this audit in December 2023. The following additional information was received from the applicant in response to D1 audit queries.

- Basement Impact Assessment by Maund Geo-Consulting, Ref MGC-131-BIA-V3, dated January 2024
- Response to CRH queries: Section 4 and Appendix 2, Ref Response to CR queries 124 St Pancras Way, dated 10 January 2024

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	Data required by Cl.233 of the GSD is presented in BIA report.
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	Yes	Appendix A - (Proposed Basement plan Drawing No: PR-A1.01, Proposed Lower Ground plan PR-A1.02), Appendix B (Drawing No: J416-BC-SK-3201 (Sections) and Temporary Works Drawing No: J416-BC-SK-4000
Are suitable plan/maps included?	Yes	See BIA Fig 2.1, Fig 3.2 & Fig 5.1
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	See BIA Section 4.4 Screening
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	See BIA Section 4.2 Screening
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	See BIA Section 4.6 Screening
Is a conceptual model presented?	Yes	See Figure 5.1 of BIA
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	See Section 5, Table 5.2 Summary of Scoping Requirements – Land Stability

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	NA	No items brought forward to scoping
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	NA	No items brought forward to scoping
Is factual ground investigation data provided?	Yes	See Appendix C: Ground Investigation Factual Information
Is monitoring data presented?	Yes	See Section 11 Monitoring Strategy
Is the ground investigation informed by a desk study?	Yes	See BIA Section 3 Desk Study
Has a site walkover been undertaken?	Yes	Site walkover was undertaken by Baker and Chatterton Structural Design on 05/06/2023
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	BIA confirmed that property shares party walls with neighbouring properties No. 122 & 126 which have similar existing lower ground floors (founded at approx. 1.60m bgl)
Is a geotechnical interpretation presented?	Yes	See BIA Section 7 - Ground and Groundwater Conditions
Does the geotechnical interpretation include information on retaining wall design?	Yes	See BIA Table 7.3 - Geotechnical Design Parameters
Are reports on other investigations required by screening and scoping presented?	NA	No additional reports required
Are the baseline conditions described, based on the GSD?	Yes	Relevant information is presented in the BIA

Item	Yes/No/NA	Comment
Do the base line conditions consider adjacent or nearby basements?	Yes	BIA confirmed that property shares party walls with neighbouring properties No. 122 & 126 which have similar existing lower ground floor (founded at approx. 1.60m bgl)
Is an Impact Assessment provided?	Yes	Section 8, 9 and 10 of the BIA
Are estimates of ground movement and structural impact presented?	Yes	GMA is provided in Section 8. Damage category for neighbouring building Nos. 122 and 126 St. Pancras Way and host property 124 St. Pancras Way is provided.
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	Yes	GMA (Section 8) is updated with new figures (Fig. 8.1 to 8.6) to clarify queries in section 4.11 - 4.14 of BIA audit (revision D1).
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	See Section 5 - Scoping
Has the need for monitoring during construction been considered?	Yes	See Section 11 of the BIA and 6.4 of BCSD report
Have the residual (after mitigation) impacts been clearly identified?	Yes	GMA (Section 8) is updated with new figures (Fig. 8.1 to 8.6) to clarify queries in section 4.11 - 4.14 of BIA audit (version D1). Residual impacts are considered negligible.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	GMA to assess impacts on applicant's property is provided in the updated BIA.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	The rear of the property is already paved and BIA confirmed that there is no change in hardstanding areas. No extra run-off was identified as part of the screening and scoping stage.

Item	Yes/No/NA	Comment
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	Yes	As above, GMA to assess impacts on applicant's property is provided.
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	GMA (Section 8) is updated with new figures (Fig. 8.1 to 8.6) to clarify queries in section 4.11 - 4.14 of BIA audit (version D1). Both neighbouring and applicant's property will be no worse than Cat.1.
Are non-technical summaries provided?	Yes	Non-Technical Summary is presented in page 1 of the BIA

4.0 DISCUSSION

- 4.1 The Basement Impact Assessment (BIA) has been carried out by engineering consultants Maund Geo-Consulting supported by structural engineers Baker Chatterton. The qualifications of the authors are broadly in accordance with the requirements of CPG: Basements.
- 4.2 The Construction Method Statement (CMS) has been produced by Baker Chatterton Structural Design. The Design and Access Statement states that 124 St Pancras Way is situated within the Jeffery's Street Conservation Area.
- 4.3 The audit identified that the applicant property and Nos. 108 to 132 St Pancras Way are all Grade II listed. No. 124 St Pancras Way is a mid-terraced property likely to have been constructed in the Victorian age. The property has an existing lower ground floor below the footprint of the house and part of the rear garden which is paved and raised from the lower ground floor level. The BIA states that review of local planning applications suggests that both neighbouring Nos. 122 and 126 St Pancras Way have similar lower ground floors. It is understood No.126 is owned by the applicant.
- 4.4 The proposals include the extension of the existing lower ground floor about 6.50m from the main building into the rear garden to provide space for a sunken patio and the construction of a new basement level below the lower ground floor that extends into the rear garden by 4.30m. An excavation of between 2.70m and 3.90m from the lower ground floor is proposed for the basement. Beyond the extension, the garden is being lowered by c. 1.60m. The area of the proposed basement is 14.23m². It is proposed to construct the new lower ground floor extension and basement retaining walls using underpinning techniques.
- 4.5 A site walkover and ground investigation (GI) was undertaken in March 2017 by CGL Ltd. The GI included 6 trial pits and one window sampler hole which indicate the site to be underlain by Made Ground to a maximum depth of 1m bgl which is in turn underlain by Head Deposits to around 2m bgl. Below the Head Deposits, the London Clay was encountered to the maximum depth of the site investigation (8.45m bgl).
- 4.6 No groundwater strikes were recorded during drilling. However, groundwater was found at 1.86m bgl during a monitoring visit on 15/03/2017. Subsequent monitoring on 31/03/2017 indicated that groundwater was present at a depth of 1.21m (27.70m AOD). The BIA suggests that the water encountered is localised perched water rather than an actual groundwater body.
- 4.7 The BIA indicates that, due to the combination of relatively low infiltration rate of groundwater (10-8m/s) and the presence of London Clay, which is considered to be an unproductive stratum, the proposed basement will not have a significant impact on the local groundwater flow. However, the BIA indicates the potential need for groundwater control during the basement excavation and recommends the detailed design of any water control measures to be undertaken by the temporary works contractor.

- 4.8 The BIA indicates that rear garden is currently paved and there will be no change in hard surfaced/paved external area. The site is not shown to be at risk of flooding from any source. A drawing (Ref. DETAIL D-01 Green Roof PR-A4.01) presented in the BIA suggests that the lower ground floor extension will have a green roof. It is noted that the final drainage design and strategy will require approval from the lead local flood authority.
- 4.9 The CMS includes a construction methodology which indicates a typical 'hit and miss' underpinning sequence will be used to support the existing structural walls and lower the levels. A basement construction sequence and outline temporary works proposals indicate temporary propping will be required to restrain the existing masonry party walls at lower ground floor level as well as the proposed basement retaining walls. Outline retaining wall calculations are also presented in the CMS.
- 4.10 Geotechnical parameters including those for retaining walls are presented in the ground investigation report and reported in the BIA as cautious estimate of characteristic values in accordance with relevant guidance. Those parameters have been adopted in the outline structural calculations.
- 4.11 The Ground Movement Assessment (GMA) was undertaken using commercial software OASYS PDisp and following the guidance provided in CIRIA Special Publication 200 and CIRIA C760. The GMA considers ground movements due to the excavation, loadings from the new structure and deflection from underpin installation and construction. The BIA author has updated the GMA and provided the following clarifications on the queries raised by the initial audit:
- The GMA now shows variable depths across the site based on the proposed architectural drawings. It also confirms the maximum excavation depth as c. 3.90m bgl.
 - The BIA has been amended to show 30m AOD as the ground level and this value is also used in the GMA.
 - Unloading due to excavation has been refined to reflect the variable depths of the excavation. For example, the front part of the excavation is set to 26.08m AOD (2.70m bgl), the rear part of the basement is now set to 26.08m AOD (3.92m bgl) and the depth of patio lightwell area is now 1.86m bgl (28.14m AOD). These elevations are used in the PDisp heave calculations.
 - The critical displacement lines have been redrawn through the zones of greatest movement.
 - The GMA confirms displacements to neighbouring foundations have been calculated at neighbouring foundation levels as reported in the SI factual report.
 - The elevation of the 'rigid layer' for the PDisp model is amended and now assumed at 10mAOD.

- The vertical deflections profile has been updated to reflect zero deflection at 3.5 x the excavation depth in underpin construction system. Although the maximum deflection is incorrectly estimated, the values assumed in the analysis are accepted.
- 4.12 The GMA is updated to include Damage Assessment Category for 124 St Pancras Way. Damage Assessment Categories for all properties (including No. 122 and 126 St. Pancras Way) are now presented in the updated BIA.
- 4.13 The GMA indicates that the short-term movements will be principally heave from the excavation while long term movements will take into account both further heave and loading from structure. These movements have been summed up in the GMA and considered to be the 'worst case' scenario.
- 4.14 For both adjacent properties No. 122 and 126 St. Pancras Way, and the applicant property No. 124 St Pancras Way, the damage category is determined to be between 0 and 1 of Burland Scale which is acceptable under LBC planning guidance.
- 4.15 Both the BIA and the CMS include an outline monitoring strategy which indicates that a detailed strategy will be implemented to observe and control ground movements during construction and in accordance with the Party Wall Awards. A pre-condition survey is recommended on all adjacent properties. A traffic light monitoring with trigger levels will be adopted and the system will operate in accordance with 'Observational Method' as defined in CIRIA Report 185.

5.0 CONCLUSIONS

- 5.1 The qualifications of the authors are broadly in accordance with the requirements of CPG: Basements.
- 5.2 Screening and scoping assessments are presented and informed by desk study information.
- 5.3 A ground investigation was undertaken in January 2017 indicating that London Clay is present at proposed formation level.
- 5.4 Perched groundwater may be present above formation level and the BIA suggests it can be managed by locally excavated sumps subject to final groundwater control measures being designed and implemented by the temporary works contractor.
- 5.5 The site is not known to be at risk from flooding. The BIA confirms that there will be no increase in hardstanding area and a green roof is proposed for part of the lower ground floor extension. It is noted that the final drainage design and strategy will require approval from the lead local flood authority.
- 5.6 The BIA states that there are no adverse impacts to the water environment.
- 5.7 The BIA uses cautious estimates of geotechnical parameters including those for the retaining wall. A CMS including preliminary structural calculations is presented.
- 5.8 The GMA has been updated with figures and written explanation to clarify how the impact is assessed for neighbouring properties. The GMA also addresses queries raised in the previous BIA audit. The applicant's property is now included in the analysis as it is a listed building.
- 5.9 Both the BIA and the CMS include an outline monitoring strategy which indicates that a detailed strategy will be implemented to observe and control ground movements during construction and in accordance with the Party Wall Awards.
- 5.10 Considering the additional information presented, it can be confirmed that the BIA complies with the requirements of CPG: Basements as the query raised in previous version of the BIA audit has been addressed.

Appendix 1

Consultation Responses

None

Appendix 2

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Land stability	Further clarification/information on the GMA is required.	Closed - See Sections 4.11 to 4.15.	23/01/2024

Appendix 3

Supplementary Supporting Documents

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