

8a Hampstead Hill Gardens  
London, NW3 2PL

Basement Impact Assessment  
Audit

For  
London Borough of Camden

Project Number: 13693-33  
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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 8a Hampstead Hill Gardens (planning reference 2021/5750/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 (BIA) 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 comprises demolition of the existing garage unit followed by the construction of a two-storey building including a single storey basement.
- 1.5. The qualifications of the individuals involved in the BIA are in accordance with LBC guidance.
- 1.6. Revised Architectural drawings are fully dimensioned.
- 1.7. Screening and scoping assessments are presented, supported by desk study information.
- 1.8. Factual site investigation records are presented and indicate that the proposed basement will be founded in the London Clay.
- 1.9. The BIA indicates that there will be no impact to the wider hydrogeological environment and hydrological environment.
- 1.10. The Ground Movement Assessment (GMA) confirms that the anticipated damage from the proposed redevelopment will be within LBC's policy criteria and can be limited to Burland Category 1 (Very Slight).
- 1.11. The revised BIA presents an outline monitoring strategy to ensure movements are limited to those predicted.
- 1.12. Considering the additional information presented, it can be confirmed that the BIA complies with the requirements of Camden Planning Guidance: Basements.

## 2.0 INTRODUCTION

- 2.1. CampbellReith was instructed by London Borough of Camden (LBC) on the 12<sup>th</sup> of January 2022 to carry out a Category B audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 8a Hampstead Hill Gardens, London, NW3 2PL, planning reference 2021/5750/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 *"Single storey rear extension, with basement below (including car lift and parking), garden roof terrace above and single storey link to main dwelling, to replace existing single storey garage building; 3rd floor front extension to main dwelling; creation of 4th floor roof terrace on roof of main dwelling, including access thereto; external alterations to front of main dwelling, including re-pointed brickwork, new timber doors, window and cladding and replacement of garage doors with fenestration; creation of garden to front to replace driveway parking"*.

2.6. CampbellReith accessed LBC's Planning Portal on the 24<sup>th</sup> of January 2022 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment Report by Soiltechnics, ref: STT5321-R01 Rev D, dated November 2021.
- Structural Method Statement and Drainage Strategy by Price & Myers LLP, Rev 02, dated November 2021.
- Construction/ Demolition Management Plan by SM Planning, dated 18 November 2021.
- Design and Access Statement by Hayhurst & Co Architects, dated November 2021.
- Existing architectural drawings, plans and sections by Hayhurst & Co Architects, dated November 2021.
- Proposed architectural drawings, plans and sections by Hayhurst & Co Architects, dated November 2021.
- Arboricultural Report by Simon Pryce Arboriculture, ref: 21/061, dated 19 September 2021.
- Tree Survey Plans by Simon Pryce Arboriculture, ref: 21/061, undated.
- Planning Consultation Responses as detailed in Appendix 1.

2.7. Subsequent to the initial audit report, CampbellReith gained access to the following relevant documents:

- Basement Impact Assessment Report by Soiltechnics, ref: STT5321-R01 Rev G, dated July 2022.
- Existing architectural drawings, plans and sections by Hayhurst & Co Architects, dated June 2021.
- Proposed architectural drawings, plans and sections by Hayhurst & Co Architects, dated June 2021.
- Structural Method Statement and Drainage Strategy by Price & Myers LLP, Rev 05, dated April 2022.
- Ground Investigation Report by Soiltechnics, ref: STT5321-G01 Rev 0, dated June 2021.
- Structural Method Statement and Drainage Strategy by Price & Myers LLP, Rev 07, dated August 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	Sections 7 & 8 of the BIA and Sections 4 & 5 of the Structural Method Statement and Drainage Strategy.
Are suitable plan/maps included?	Yes	All maps to support screening are included in the BIA.
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	Yes	Levels and dimensions are included in the revised architectural drawings.
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.3 of the BIA.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.2 of the BIA.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.4 of the BIA.
Is a conceptual model presented?	Yes	Section 6.3 of the BIA.
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Sections 5.2 and 5.3 of the BIA.

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	NA	No items were carried to scoping.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	NA	No items were carried to scoping.
Is factual ground investigation data provided?	Yes	Section 6 of the BIA and Ground Investigation Report.
Is monitoring data presented?	Yes	Section 6.3 of the Ground Investigation Report.
Is the ground investigation informed by a desk study?	Yes	Section 3 of the BIA.
Has a site walkover been undertaken?	Yes	Section 8.5.3 of the Ground Investigation Report
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	Section 6.4 of the BIA.
Is a geotechnical interpretation presented?	Yes	Section 7 of the BIA. Laboratory tests results used to derive the geotechnical parameters are provided in the Ground Investigation Report.
Does the geotechnical interpretation include information on retaining wall design?	Yes	Section 7 of the BIA. Revised structural calculations are presented, geotechnical parameters adopted are accepted.
Are reports on other investigations required by screening and scoping presented?	Yes	Structural Method Statement and Drainage Strategy, GMA and Arboricultural Report are provided.
Are the baseline conditions described, based on the GSD?	Yes	
Do the base line conditions consider adjacent or nearby basements?	Yes	Section 6.4 of the BIA.
Is an Impact Assessment provided?	Yes	Section 8 of the BIA



Item	Yes/No/NA	Comment
Are estimates of ground movement and structural impact presented?	Yes	Section 7.3 of the BIA. GMA provided; results accepted.
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	Yes	
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	Section 8 of the BIA. Sections 6.1, 8 and 9 of the Structural Method Statement and Drainage Strategy.
Has the need for monitoring during construction been considered?	Yes	Movement monitoring has been suggested in section 6.1 of the Structural Method Statement.
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 will be maintained?	Yes	Section 7.3 of the BIA. Revised GMA provided; results accepted.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	Sections 8 and 9 of the Structural Method Statement and Drainage Strategy.
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	Yes	As above.
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	Section 7.3 of the BIA. Revised GMA provided; results accepted.
Are non-technical summaries provided?	Yes	Non-Technical Summary section of the BIA.

## 4.0 DISCUSSION

- 4.1. The Basement Impact Assessment (BIA) has been carried out by Soiltechnics and the individuals concerned in its production have suitable qualifications.
- 4.2. The LBC Instruction to proceed with the audit identified that the basement proposal is close to 4 Hampstead Hill Gardens and 2 Hampstead Hill Gardens (to the rear / west), designated as Grade II Listed buildings.
- 4.3. The site comprises the existing residential property (No. 8a Hampstead Hill Gardens) which is part of a four-storey building. The site also includes a large single storey garage unit at lower ground floor level to the rear of the existing property and associated hardstanding. The garage has retaining walls at the rear and partly along the return walls next to the neighbouring properties 6 and 10 Hampstead Hill Gardens.
- 4.4. The proposed development comprises demolition of the existing single storey reinforced concrete garage building, followed by the construction of a two-storey building including a single storey basement. The basement will be constructed in the existing footprint, with a new living space created on the ground floor and the roof serving as terrace with planted areas. The proposed basement will be founded within the London Clay Formation.
- 4.5. Revised architectural drawings are fully dimensioned and accepted.
- 4.6. It is understood that 10 Hampstead Hill Gardens has a lower ground floor. However, the footprint extent is not known. The BIA indicates that considering the age and the size of 8 Hampstead Hill Gardens the foundations could be placed at circa 1.00m below ground level (bgl), although this has not been proven.
- 4.7. 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.
- 4.8. A ground investigation was undertaken in April 2021. Ground conditions comprise Made Ground overlying Head Deposits and the London Clay Formation. Groundwater was encountered during the site investigation, within the Head Deposits. Post fieldwork monitoring recorded groundwater at a depth of circa 2.50m bgl. The borehole logs, laboratory tests results and monitoring data are presented in the Ground Investigation Report.
- 4.9. The BIA states that groundwater flow rates will be relatively minimal given the predominantly clayey nature of the soil. Localised pumping will be implemented to deal with perched water during construction of the basement, if needed. It is accepted that there will be no significant impact to the wider hydrogeological environment.

- 4.10. The site is at low to medium risk of flooding from surface water. The BIA indicates the proposed development will not result in an increase in hardstanding areas. The possibility of implementing SuDS at the site was assessed and a green roof is being included in the development, which will reduce runoff rates. In addition, an attenuation tank is proposed to store surface water before discharging into the combined sewer on Hampstead Hill Gardens. It is accepted that the proposed development will not increase the risk of flooding or impact the hydrology of the area.
- 4.11. The Structural Method Statement (SMS) indicates the proposed construction will adopt an underpinning technique to construct reinforced concrete L-shaped retaining walls around the perimeter of the basement. Reinforced concrete slabs will prop the walls in the permanent case, with temporary propping adopted during construction. The L-shaped retaining walls will be founded on London Clay. Based on the SMS it is understood that the underpins will be installed in two stages.
- 4.12. The geotechnical parameters adopted in the basement design and ground movement calculations are presented in the BIA, Section 4. The geotechnical testing is presented in the Ground Investigation Report and verifies the parameters adopted.
- 4.13. A Ground Movement Assessment (GMA) has been undertaken to determine ground movements and consequential damage to neighbouring properties. XDisp has been used to estimate the ground movements induced by basement excavation using the movement profile curves presented within the CIRIA C760 Report or user specified movement profiles. In the revised GMA, settlement beneath the neighbouring properties No 8 and 10 Hampstead Hill Gardens have been assessed in PDisp. The calculated displacements have been imported into XDisp and combined with estimated ground movements due to excavation and wall installation to determine a worst-case assessment.
- 4.14. The results of the Damage Impact Assessment currently indicate damage to neighbouring properties will not exceed Burland Category 1 (Very Slight). Nevertheless, the neighbouring properties will be subject to monitoring with appropriate trigger levels and control measures prior to commencement of works.
- 4.15. An outline monitoring proposal has been presented in the SMS, including suggested monitoring point locations considering the nearby properties, all action trigger values will be agreed as part of the party wall agreement to ensure the max amount of permissible movement does not exceed Burland Category 1.
- 4.16. It is noted that various types of infrastructure are present nearby the site including Thames Water sewers and a Network Rail tunnel. This GMA currently addresses neighbouring buildings

only and the owners of the infrastructure may require separate assessments to satisfy their requirements.

- 4.17. The London Clay has been identified to be susceptible to shrink/swell subsidence. The BIA mentioned that the proposed basement foundations will extend below the depth of susceptibility. In addition, as no trees are proposed to be removed, no impact on neighbouring foundations is anticipated.

## 5.0 CONCLUSIONS

- 5.1. The qualifications of the individuals involved in the BIA are in accordance with LBC guidance.
- 5.2. Revised Architectural drawings are fully dimensioned.
- 5.3. Screening and scoping assessments are presented, supported by desk study information.
- 5.4. Factual site investigation records are presented and indicate that the proposed basement will be founded in the London Clay.
- 5.5. The BIA indicates that there will be no impact to the wider hydrogeological environment and hydrological environment.
- 5.6. The Ground Movement Assessment (GMA) confirms that the anticipated damage from the proposed redevelopment will be within LBC's policy criteria and can be limited to Burland Category 1 (Very Slight).
- 5.7. The revised BIA and Structural Method Statement present an outline monitoring strategy to ensure movements are limited to those predicted.
- 5.8. Considering the additional information presented, it can be confirmed that the BIA complies with the requirements of Camden Planning Guidance: Basements.

## Appendix 1: Residents' Consultation Comment

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
Audrey Mandella; Chair of Hampstead Hill Gardens Residents' Association	Hampstead Hill Gardens	09/01/2022	Potential damage to surrounding properties; the proposed basement work would take place in close proximity to 6, 8 and 10 Hampstead Hill Gardens.	Section 4
			Potential flooding risk; the site is in a known area of moderate surface water flood risk. Summer 2021, homes surrounding 8 Hampstead Hill Gardens experienced flooding in their or/and inside their properties.	Section 4
Alan Fowle representing the Residents of 8 Hampstead Hill Gardens	8 Hampstead Hill Gardens	07/01/2022	Damage to 8 Hampstead Hill Gardens building foundation and structure.	Section 4
			Foundations of adjacent properties assumed to be 1m bgl.	Section 4
The Heath & Hampstead Society	Redacted	07/01/2022	Ground Movements caused by the excavation.	Section 4
			Changes to groundwater flow.	Section 4
			The proposed basement borders Grade II listed building. The deep basement would threaten the structural stability of the listed building.	Section 4
Michael Carter	2a Hampstead Hill Gardens	08/01/2022	Impacts of basement redevelopment on drainage and flooding risk.	Section 4

## Appendix 2: Audit Query Tracker



Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	BIA	Architectural drawings should be updated to report levels and dimensions.	Closed – Section 4.5	06/04/2022
2	BIA	Factual SI information to be provided.	Closed – Section 4.8	06/04/2022
3	Land Stability	The geotechnical parameters proposed in the BIA should be adopted consistently in the structural calculations.	Closed – Section 4.12	06/04/2022
4	Land Stability	GMA should be reviewed and clarified, as required. Clarification on the number of underpinning stages to be presented.	Closed – Sections 4.13 to 4.16	04/08/2022

## Appendix 3: Supplementary Supporting Documents

None

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