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Basement Impact Assessment Audit

Frognal House, 99 Frognal, London NW3 6XR

For
London Borough of Camden

Project No.
14006-57

Date
October 2024

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APPENDICES

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 Frognal House, 99 Frognal, London NW3 6XR (planning reference 2024/0030/P and 2024/0176/L). The basement is considered to fall within Category C 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 LBC instruction to proceed indicates that both the original mansion block on the site and the neighbouring building at 103 Frognal are designated as Grade II listed buildings.

1.5 The proposed development comprises restoring the original mansion building in the eastern part of the site and replacing the existing extension with a wider one to two-storey extension and a basement, featuring an indoor swimming pool/sauna and constructed using a secant pile retaining wall. Additionally, the proposal includes demolishing the current garage and adjacent vegetable patch in the northeastern corner, to be replaced by two one-storey homes. Underpinning of the adjacent boundary walls is proposed to facilitate construction in the northeast of the site.

1.6 The qualifications of the individuals involved in the BIA are in accordance with LBC policy.

1.7 Screening and scoping assessments are presented, supported by desk study information. Baseline groundwater conditions have been confirmed.

1.8 A site investigation has been undertaken indicating that Made Ground is underlain by the Bagshot Formation and the Claygate Member of the London Clay.

1.9 A hydrogeological assessment is presented. It is accepted that the development will not significantly impact the hydrogeology of the area. A Flood Risk Assessment is also presented and concludes there will be no adverse impact to hydrology.

1.10 Clarifications have been provided regarding the excavation and underpinning sequence of the homes at the north-eastern corner of the site and the maximum excavation depth of the basement.

1.11 As trees are proposed to be removed, an assessment of the impact to neighbouring foundations is presented and demonstrates that they will not be impacted by tree removal.

1.12 It is accepted that the development will not have a significant impact on the stability of the surrounding area.

1.13 Geotechnical design parameters are provided and accepted.

1.14 The Ground Movement Assessment (GMA) has been revised in line with the comments raised in the previous revision of this audit. The corresponding Building Damage Assessment indicates damage to neighbouring buildings will not exceed Category 1 (Very slight).

1.15 The northern boundary wall, a small section of the southern boundary wall, and some walls of the host building are anticipated to potentially experience Category 2 (Slight) damage. This has been discussed with Camden planning officer and it has been agreed that, for this application, the assessed outcome is acceptable.

1.16 The GMA indicates that a movement monitoring scheme is to be adopted to ensure that movements generated are maintained within predicted limits.

1.17 It is confirmed that the BIA complies with the requirements of CPG: Basements and the Principles for Audit set out in the Basement Impact Assessment (BIA) Audit Service Terms of Reference & Audit Process.

2.0 INTRODUCTION

2.1 CampbellReith was instructed by London Borough of Camden (LBC) on 19 February 2024 to carry out a Category C audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for Frognal House, 99 Frognal, London, NW3 6XR and Planning Reference 2024/0030/P and 2024/0176/L.

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.
- Hampstead Neighbourhood Plan

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 *"Change of use of convent (Sui Generis) to create four residential units (C3), demolition of existing extension and erection of a part one part two storey extension with green roof. Erection of roof extension with roof terrace and railings. Excavation of basement with entrance, conversion of garage, new bin and bike stores, hard and soft landscaping and alterations to fenestrations of the main house. Internal alterations to main house."*

2.6 The LBC Instruction to proceed with the audit confirms that the original mansion block on the site is a Grade II listed building. Additionally, the neighbouring building at 103 Frognal is also designated as a Grade II listed building.

2.7 CampbellReith accessed LBC's Planning Portal on 26 February 2024 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment by A2 Site Investigation Limited, Ref.: 32923-A2SI-XX-XX-RP-Y-0005-01, Revision 01 dated 31 October 2023.
- Phase I Desk Study by A2 Site Investigation Limited (presented as Appendix A of the BIA), Ref.: 32923-A2SI-XX-XX-RP-Y-0001-02, Revision 01 dated 31 October 2023.
- Factual Report by A2 Site Investigation Limited (presented as Appendix B of the BIA), Ref.: 32923-A2SI-XX-XX-RP-X-0002-02, Revision 02 dated 31 October 2023.
- Building Damage Ground Movement Assessment by A2 Site Investigation Limited (presented as Appendix D of the BIA), Ref.: 32923-A2SI-XX-XX-RP-Y-0004-01, Revision 01 dated 31 October 2023.
- Interpretive Report by A2 Site Investigation Limited, Ref.: 32923-A2SI-XX-XX-RP-Y-0003-02, Revision 02 dated 31 October 2023.
- Arboricultural Impact Assessment and Method Statement by Simon Pryce Arboriculture, Ref.: 21/109 AMS dated 1 November 2023.
- Structural Overview and Design Criteria by Structure Workshop, Ref.: 23020.R01.P2, dated 30 November 2023.
- Basement Construction Structural Report by Structure Workshop, Ref.: 23020.R02.P2, dated 30 November 2023.
- Existing architectural drawings by Hayhurst & Co Architects.
- Proposed architectural drawings by Hayhurst & Co Architects.

2.8 Subsequent to the queries raised in the D1 revision of this report, CampbellReith were provided with the following relevant documents:

- Flood Risk Assessment and Drainage Strategy by Civilstix, ref. 1-664, rev D, dated 24 July 2024.
- Basement Impact Assessment by A2 Site Investigation Limited, Ref.: 32923-A2SI-XX-XX-RP-Y-0005-01, Revision 01 dated 31 October 2023.
- Planning consultation responses.

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	See page 2 of the BIA. The revised BIA demonstrates that the authors possess the qualifications required by CPG Basements.
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	
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?	Yes	Section 4.2 of the BIA.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.1 of the BIA.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.3 of the BIA.
Is a conceptual model presented?	Yes	Section 6 and 8.1 of the BIA and Section 3 of the GMA.
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Sections 5.3 and 5.4 of the BIA.

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Sections 5.1 and 5.2 of the BIA. Section 7.1 of the revised BIA.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 5.2 of the BIA.
Is factual ground investigation data provided?	Yes	Factual Report - Appendix B of the BIA.
Is monitoring data presented?	Yes	Section 10 of the Factual Report – Appendix B of the BIA. Additional groundwater monitoring – Appendix E of the revised BIA.
Is the ground investigation informed by a desk study?	Yes	Phase I Desk Study - Appendix A of the BIA.
Has a site walkover been undertaken?	Yes	Section 2.2 of the Phase I Desk Study Report – Appendix A of the BIA.
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	Section 8.1.1 of the BIA. Neighbouring buildings are assumed to be founded near the surface.
Is a geotechnical interpretation presented?	Yes	Section 5.2 of the Interpretive Report.
Does the geotechnical interpretation include information on retaining wall design?	Yes	Section 5.2 of the Interpretive Report.
Are reports on other investigations required by screening and scoping presented?	Yes	Arboricultural Impact Assessment, Ground Investigation Factual report, Basement Construction Structural Report and ground movement assessment.
Are the baseline conditions described, based on the GSD?	Yes	

Item	Yes/No/NA	Comment
Do the baseline conditions consider adjacent or nearby basements?	Yes	Section 8.1.1 of the BIA. Neighbouring buildings are assumed to be founded near the surface.
Is an Impact Assessment provided?	Yes	Section 5 and Section 8 of the BIA. Section 4 of the GMA. Hydrogeological assessment is now presented.
Are estimates of ground movement and structural impact presented?	Yes	Sections 4 and 5 of the GMA.
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	Yes	The hydrogeological assessment is now presented and the land stability assessment has been updated.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	Section 8.3 of the BIA.
Has the need for monitoring during construction been considered?	Yes	Section 8.3 of the BIA and 5.2 of the GMA.
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	
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	Hydrogeological assessment has been included in the BIA.
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	Yes	See above.
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	However, the northern boundary wall a small section of the southern boundary wall and some of the host building are

Item	Yes/No/NA	Comment
		anticipated to experience Category 2 damage that, in this instance, can be accepted.
Are non-technical summaries provided?	Yes	Section 1 of the BIA.

4.0 DISCUSSION

4.1 The Basement Impact Assessment (BIA) has been carried out by A2 Site Investigation Limited. The revised BIA submission demonstrates that the individuals concerned in its production have suitable qualifications that meet the requirements of CPG.

4.2 The LBC Instruction to proceed with the audit specifies that the original mansion block on the site is a Grade II listed building. Additionally, the neighbouring building at 103 Frognal is also designated as a Grade II listed building.

4.3 The site comprises a three-storey house, originally a mansion block, situated in the eastern portion of the site. A large L-shaped two-storey extension built in the 1970's, extends to the north and west from the mansion building. A private domestic garage with associated driveway occupies the northeastern corner of the site, and a garden is present on the western side of the site. The site is bounded by brick boundary walls on all sides, which are to be retained as part of the proposed scheme. Two small existing basements are present; one below the extension where it joins the north side of the mansion building, and one below the northeast corner of the original mansion building.

4.4 The proposed development involves restoring the original mansion building in the eastern half of the site and adding a new mansard roof. The existing extension will be demolished and replaced by a wider one to two storey extension with a single basement level. The footprint of the proposed basement will be similar to that of the existing extension building and will include an indoor swimming pool/sauna with associated facilities. The maximum depth is identified as 6.80m below ground level (bgl) in the pool area (104.12mOD). It is proposed to construct this basement using a secant pile retaining wall.

4.5 Additionally, the proposed development includes demolishing the existing garage in the northeastern corner of the site and removing the adjacent vegetable patch to the west of the garages, which sits at a higher elevation. In their place, two one-storey homes will be constructed at the same location, accessed from the same lower level as the existing garage (110.65mOD). All new structures will be supported by bearing pile foundations, although the retaining walls in the northeast section of the site, referred to as 'the Garage Houses' will be constructed using underpinning techniques.

4.6 The BIA states that the construction plan entails demolishing the existing extension building to make way for a new basement. Soil anchoring will reinforce the northern boundary brick wall and existing retaining walls to mitigate ground movements. Secant piled perimeter walls and foundations for the new extension will be installed concurrently with basement construction using a top-down sequence. Once the Garage Houses are built, props will be removed, enabling demolition of the remaining extension building and excavation between the existing building and the Garage Houses in the northeast. Sheet piles are to be installed where the proposed extension building extends beyond the existing retaining walls.

4.7 The two proposed Garage Houses in the northeastern corner of the site will be cut into the slope so that they are at a similar ground level to the original mansion building. They will be formed using underpinning with internal temporary lateral propping, planned to be carried out in two lifts. The revised BIA submission confirms that the garden party walls and internal garden walls will be underpinned to 200mm below the proposed formation levels of 110.57mOD and 109.80mOD. The maximum underpin depth will be 3.66m in the northwest corner, with a typical underpin depth at 2.00m to 3.00m bgl. The construction sequence for the garage houses is presented in the revised Structural Engineers Basement Construction Sequence in Appendix C.

4.8 Section 2.4 of the revised BIA submission confirms that the maximum depth of excavation is 6.80m bgl, including the services zone.

4.9 Screening and scoping assessments are presented by desktop study information. Most of the relevant figures/maps from the appropriate guidance documents are referenced within the BIA to support responses to screening questions.

4.10 The BIA noted that most of the site features slopes not exceeding 7 degrees, as the existing garden is divided into two levels by the 1970s extension. However, a section of the driveway leading to 99A Frognal, located south of the site, has a slope of 9.5 degrees, limited to the width of the driveway and bordered by brick landscape retaining walls on each side. Overall, the existing site is situated on a gentle slope with a gradient of less than 7 degrees.

4.11 The revised BIA submission assessed the impact of removing trees 15, 17, 21, 32, and 35 on neighbouring properties. It determined that the zones of influence of trees 15, 17, 21, and 35 do not overlap with neighbouring property footprints. Tree 32, a growing planter, is adjacent to the neighbouring garden party wall with a 400mm deep footing founded in granular Bagshot Formation. The BIA states that the removal of this tree will not impact the main property. The ground level in this area of the site is proposed to be raised as part of the main site works using granular fill. Consequently, they anticipate that the impact of removing this tree on the adjacent boundary wall will be low and recommend that the wall be inspected at regular intervals following the tree removal to check for visual signs of disturbance and deterioration.

4.12 The BIA states that the site has a very low risk of flooding due to surface water. The desk study indicates that the site is located in Flood Zone 1 and has a low probability of flooding.

4.13 The BIA identifies the proposals will result in an increase in hardstanding areas. A Flood Risk Assessment and Drainage Strategy (FRA) report has been provided as part of the revised submission. It concludes that the proposed development aim to reduce the risk from surface water and groundwater flooding from low risk to very low risk. The final drainage strategy will need to be reviewed by the local lead flood authority and public sewer owner.

4.14 A site investigation was conducted in June 2023 to inform the basement design. The investigation comprised 3 cable percussion boreholes to 20.60m bgl, 1 dynamic sampler borehole to 5.00m bgl, 18 hand-dug trial pits to 1.50m bgl, and 2 California Bearing Ratio tests. The ground investigation revealed Made Ground to a depth of 1.20m bgl, followed by the Bagshot Formation to 9.20m bgl, and the Claygate Member of the London Clay Formation

to the maximum depth of the borehole. Additionally, 8 trial pits were undertaken in April 2024 after the initial BIA submission to determine the depth of the existing footings around the existing Garage House.

4.15 The BIA states that groundwater was encountered between 106.74m to 109.99mOD and is considered to be perched water above the Claygate member of the London Clay Formation and within the Bagshot Formation. The BIA identifies that the Bagshot Formation is designated a Secondary Aquifer, as is the underlying Claygate Member. Notably, BH01 terminated at 20.60m bgl due to significant ground water inflows inhibiting progress. Additional groundwater monitoring was undertaken after the initial BIA submission between 24th April and 8th May 2024, with groundwater levels recorded between 107.26mOD and 110.46mOD.

4.16 A Hydrogeological Impact Assessment was undertaken as part of the revised BIA using two-dimensional finite element (FE) simulations in Plaxis 2D to determine the impact of the proposed development on the locally hydrogeological regime. It assumes that the new basement construction will create a groundwater cut-off through the Made Ground and Bagshot Formation but does not account for the site's varying topography, deeming this acceptable due to the water table being deeper than 2m bgl. The groundwater level is modelled at 110.5mOD in the west portion and at 107.5mOD in the eastern portion. The findings show a 0.60m increase in groundwater head adjacent to the basement's western edge and a 0.90m decrease on the eastern side near the re-entrant corner.

4.17 The BIA concludes that the increase in groundwater head is mostly within the site footprint and will not result in surface level flooding. It recommends a watching brief of materials encountered during the excavation works given the variability of the Bagshot Formation and Claygate Member on site.

4.18 Geotechnical parameters including those for retaining walls are presented in the interpretative report and are considered to be appropriately conservative engineering values.

4.19 A Ground Movement Assessment (GMA) and damage assessment are provided to demonstrate that ground movements and consequential damage to neighbouring properties will be within the LBC's policy requirements.

4.20 The impacts of the various stages of construction have been assessed in the GMA on the basis of two alternative methods: evaluating the effects of unloading/overburden removal using PDisp and simulating the excavation induced ground movements using empirical CIRIA curves in XDisp. In the latter case, a propped retaining wall solution (during the temporary works stage) has been considered, using the CIRIA C760 ground movement curves for high stiffness walls in stiff clay.

4.21 The GMA has been refined to address the queries raised in the D1 audit as follows:

- The GMA report originally indicated that installation movements for the basement retaining walls were modelled using the contiguous pile wall installation curve from CIRIA C760, with a subsequent 50% reduction based on a paper by Ball & Langdon (2014) that considers a single case study in the centre of London. The updated GMA includes a sensitivity analysis considering the change to secant wall installation

movements from the installation of a contiguous pile wall and without the previously imposed reduction.

- The basement excavation ground movements have been estimated using the CIRIA C760 excavation in front of a high stiffness wall curves, assuming a basement excavation to 6.80m bgl.
- To construct the Garage Houses in the northeast, excavation down to the level of the mansion house is proposed, along with two lifts of underpinning. The impacts associated with the construction of the Garage Houses have been accounted for in the GMA and impacts on neighbouring buildings assessed.
- PDisp and XDisp software input and output data have been supplied. A plan showing the locations of the structures assessed is also presented.

4.22 Outline retaining wall calculations have been presented as part of the revised BIA. The lateral geotechnical stability analysis involves assessing the ultimate and serviceability limit state (ULS and SLS) performance of the 450mm diameter secant pile wall for the retention of the proposed basement extension in accordance with Eurocode 7 using WALLAP. The BIA indicates that a pile toe level of 100mOD is required to support 216kN in the northwest corner of the basement, and a pile toe of 102mOD is required along all other alignments. A toe level of 100mOD has been modelled in the GMA to capture a conservative upper bound wall install movement.

4.23 The results of the Building Damage Assessment indicate damage to neighbouring buildings will not exceed Burland Category 1 (Very slight).

4.24 The assessment identified potential Category 2 (Slight) damage for the northern boundary wall, a small section of the southern boundary wall and some of the Grade II listed mansion block on site. It is noted that Category 2 damage is aesthetic damage as opposed to structural damage.

4.25 Following discussions with the Camden planning officer it has been agreed that for this application the predicted Category 2 damage to these structures can be considered acceptable. This is due to the boundary walls not being inhabited structures and the listed building being in the ownership of the applicant. As such, this application is considered to comply with both the CPG for Basements and the Hampstead Neighbourhood Plan.

4.26 Whilst not associated with the proposed basement development, the construction sequence includes anchoring existing retaining walls. These anchors will extend beyond the site boundary and should be addressed in the Party Wall Agreement.

4.27 The GMA states that it will be supplemented by a project-specific monitoring regime and Action Plan, which will delineate lines of responsibility, trigger levels in accordance with those presented in this GMA and appropriate mitigation measures. These have not been provided as part of the BIA and will be developed at a later stage and agreed as part of Party Wall negotiations.

5.0 CONCLUSIONS

5.1 The qualifications of the individuals involved in the BIA are in accordance with LBC guidance.

5.2 The LBC instruction to proceed indicates that both the original mansion block on the site and the neighbouring building at 103 Frognal are designated as Grade II listed buildings.

5.3 The proposed development comprises restoring the original mansion building in the eastern part of the site and replacing the existing extension with a wider one to two-storey extension and a basement, featuring an indoor swimming pool/sauna and constructed using a secant pile retaining wall. Additionally, the proposal includes demolishing the current garage and adjacent vegetable patch in the northeastern corner, to be replaced by two one-storey homes. Underpinning of the adjacent boundary walls is proposed to facilitate construction in the northeast of the site.

5.4 Screening and scoping assessments are presented, supported by desk study information, baseline groundwater conditions have been confirmed.

5.5 A site investigation has been undertaken indicating that Made Ground is underlain by the Bagshot Formation and the Claygate Member of the London Clay.

5.6 Further consideration of the hydrogeological regime, the impact on underpinned construction and basement excavation, are now presented in the BIA, as detailed in Section 4.

5.7 It can be confirmed that the development will not have a significant impact on the hydrogeology and hydrology of the area.

5.8 Confirmation of the excavation depth and underpinning sequence for the Garage Houses in the northeast of the site has been provided.

5.9 The maximum excavation depth of the basement has been confirmed, along with confirmation on the embedded retaining wall techniques to be employed.

5.10 Geotechnical design parameters are provided and accepted.

5.11 As trees are proposed to be removed, a qualitative assessment has been presented in the BIA to confirm that neighbouring foundations will not be impacted by tree removal.

5.12 It is accepted that the development will not have a significant impact on the stability of the surrounding area.

5.13 The Ground Movement Assessment (GMA) has been amended and considers ground movements arising from the development. The corresponding building damage assessment indicates damage to neighbouring buildings will not exceed Category 1 (Very slight).

5.14 The northern boundary wall, short section of the southern wall and some of the host building are anticipated to experience Category 2 damage. This has been discussed with Camden planning officer and it has been agreed that, for this application, the assessed outcomes are acceptable.

5.15 The GMA indicates that a movement monitoring scheme is to be adopted to ensure that movements generated are maintained within predicted limits.

5.16 It is confirmed that the BIA complies with the requirements of CPG: Basements and the Principles for Audit set out in the Basement Impact Assessment (BIA) Audit Service Terms of Reference & Audit Process.

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Appendix 1

Consultation Responses

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
The Heights and Frognal Mansion	97 Frognal	Unknown	Soil stability Structural stability Surface water flooding	See Section 4.11, 4.12, 4.19 - 4.27
Teresita Cutting	Flat 10, 97 Frognal	19/08/24	Soil stability Structural stability Surface water flooding	See Section 4.11, 4.12, 4.19 - 4.27
Vassilis Couvaras	The Heights, 97 Frognal	29/08/24	Structural concern	See Section 4.19 - 4.27
Phil Falato	The Heights, 97 Frognal	24/08/24	Soil stability Structural stability Surface water flooding	See Section 4.11, 4.12, 4.19 - 4.27
Dominic Burke	The Heights, 97 Frognal	14/08/24	Soil stability Structural stability Surface water flooding	See Section 4.11, 4.12, 4.19 - 4.27
Philip Harlow	Flat 3, 97 Frognal	15/08/24	Structural stability	See Section 4.19 - 4.27

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Appendix 2

Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	BIA	The qualifications of the individuals involved in the production of the BIA should be demonstrated to be in accordance with LBC guidance	Closed	June 2024
2	Land Stability	Clarifications regarding the excavation and underpinning sequence of the Garage Houses in the northeast corner of the site are requested.	Closed	October 2024
3	Land Stability	Clarification regarding the maximum excavation depth of the basement is required.	Closed	June 2024
4	Hydrogeology	Further assessment of the groundwater conditions, impacts and mitigation measures are requested.	Closed	October 2024
5	Land Stability	Ground Movement Assessment and Damage Impact Assessment to be reviewed following the comments provided in Section 4 and consideration of the two lifts of underpinning.	Closed	October 2024
6	Land Stability	Assessment of impact of tree removal on neighbouring properties is requested.	Closed	June 2024

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Appendix 3

Supplementary Supporting Documents

None

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