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Basement Impact Assessment Audit

135-149 Shaftesbury Avenue, London WC2H 8AH

For
London Borough of Camden

Project No.
14006-68

Date
May 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 135-149 Shaftsbury Avenue, London, WC2H 8AH (2024/0993/P). 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 checklist.

1.4 The Basement Impact Assessment (BIA) and Structural Report (SR) have been carried out by engineering consultants Pell Frischmann (PF) and the qualifications of the individuals concerned in its production are in line with the CPG for basements requirements.

1.5 The host building is Grade II listed.

1.6 The proposed development involves the demolition of the internal structure, leaving the facade and existing basement retaining walls in place. The basement will be extended along two sides at existing basement level, and deepened by 8.80m resulting in a basement extending to 16.50m below ground level (bgl). Within the footprint of the base slab an additional 3.40m will be excavated to accommodate sprinkler tanks. The scheme also includes the construction of an additional five floors to the above ground structure.

1.7 A historical ground investigation comprising a single borehole encountered Made Ground to 3.50m bgl underlain by Lynch Hill Gravel to 4.70m bgl. Firm to stiff clays of the London Clay Formation were recorded between 4.70m and 34.40m bgl overlying very stiff clays of the Lambeth Group.

1.8 The existing basement extends through the Lynch Hill Gravels and is founded within the London Clay Formation.

1.9 Groundwater monitoring recorded groundwater to be present near the upper boundary of the London Clay. This has been interpreted to be water perched within the Lynch Hill Gravel and overlying Made Ground.

1.10 The hydrology and hydrogeology screening contains some contradictions; the responses should be reviewed to ensure they are presented consistently throughout, with consideration given to the updated Camden SFRA, issued in January 2024, and the impact from the proposed extension of the shallowest basement level.

1.11 Three potential construction methods have been considered for the proposed basement. Options 01 and 02 both include the installation of an embedded retaining wall and Option 03 includes underpinning the existing basement walls.

1.12 No outline structural calculations have been provided to demonstrate the proposed retaining wall solutions are suitable for the proposed basement; these are requested.

1.13 The geotechnical parameters have been provided and are accepted; however, it is noted that a possible typographical error is present within Table 2 of the BIA. It is recommended that this is reviewed, and clarification provided.

1.14 A Ground Movement Assessment (GMA) has been undertaken as part of the impact assessment. Confirmation of how the basement extension below the pavements along Shaftsbury Avenue and New Compton Street has been considered in the model is requested. Consideration of the host building facade within the damage assessment is also requested.

1.15 A damage category assessment has been undertaken and concludes that the impact to neighbouring structures will not exceed Burland Category 1 (Very Slight). However, confirmation of how the anticipated ground movements have been used to complete the building damage assessment is requested.

1.16 Monitoring strategies are proposed and the BIA writes that party wall agreements will be obtained prior to the commencement of the works.

1.17 The GMA report highlights that additional information is required to allow detailed assessment. This should form part of a Basement Construction Plan along with confirmation of the proposed temporary and permanent works.

1.18 It cannot be confirmed that the BIA complies with the requirements of CPG: Basements until the queries raised in Section 4 and Appendix 2 are addressed.

2.0 INTRODUCTION

2.1 CampbellReith was instructed by London Borough of Camden (LBC) on 19th April 2024 to carry out a Category C audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 135-149 Shaftsbury Avenue, London, WC2H 8AH (2024/0993/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 "Part demolition, restoration and refurbishment of the existing Grade II listed building, roof extension, and excavation of basement space, to provide a theatre at lower levels, with ancillary restaurant / bar space (Sui Generis) at ground floor level; and hotel (Class C1) at upper levels; provision of ancillary cycle parking, servicing and rooftop plant, and other associated works."

2.6 The Audit Instruction confirmed 135-149 Shaftsbury is a Grade II listed buildings.

2.7 CampbellReith accessed LBC's Planning Portal on 14th May 2024 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment issued by Pell Frischmann in January 2024, ref. 105465-PF-ZZ-XX-RP-C-0005-P03.
- Design & Access Statement issued by SPPARC, ref. 2111-SPP-ST-XX-DS-A-XX-6001.
- Structural Report issued by Pell Frischmann in January 2024, ref. 105465-PEF-ZZ-XX-RP-S-007-P02.

- Flood Risk Assessment issued by Pell Frischmann in January 2024, ref. 105465-PEF-ZZ-XX-RP-YE-000010-S2-P04_FRA
- Sustainable Urban Drainage report issued by Pell Frischmann in March 2024, ref. 105465-PEF-ZZ-XX-DR-RP-000001.
- Schedule of works: Listed Buildings issued by SPPARC, ref. 2111-SPP-ST-XX-DS-A-XX-6002.
- Various existing and proposed drawings issued by SPPARC.
- Planning consultation comments.

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	Section 1.4 of the BIA.
Is data required by Cl.233 of the GSD presented?	No	Outline structural calculations are not provided.
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	However, consideration to the historic map provided by Covent Garden Community Association (provided in Appendix 3) and the figures provided in Level 1 SFRA report issued in January 2024 should be provided.
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?	No	Contradictions in the screening responses should be reviewed. Figures provided in the Camden Level 1 SFRA report dated January 2024 should be considered in the assessment.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	Consideration to the historic map provided by Covent Garden Community Association (provided in Appendix 3) and the figures provided in the Camden Level 1 SFRA report dated January 2024 should be consulted.

Item	Yes/No/NA	Comment
Is a conceptual model presented?	Yes	Section 6.4 of the BIA.
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 5 of the BIA.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	However, this may need to be updated following review of screening responses.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	However, this may need to be updated following review of screening responses.
Is factual ground investigation data provided?	Yes	Appendix B of the BIA.
Is monitoring data presented?	Yes	The results from two visits are presented on the borehole log.
Is the ground investigation informed by a desk study?	Yes	
Has a site walkover been undertaken?	Yes	Section 2.2 of the Desk Study report (Appendix A of the BIA).
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	Table 6 of the GMA.
Is a geotechnical interpretation presented?	Yes	Section 2 of the GMA.
Does the geotechnical interpretation include information on retaining wall design?	Yes	Section 2 of the GMA.
Are reports on other investigations required by screening and scoping presented?	Yes	A Flood Risk Assessment is provided in Appendix F of the BIA.
Are the baseline conditions described, based on the GSD?	Yes	Section 1 of the GMA.

Item	Yes/No/NA	Comment
Do the baseline conditions consider adjacent or nearby basements?	Yes	Section 1 of the GMA.
Is an Impact Assessment provided?	Yes	Section 7 of the BIA.
Are estimates of ground movement and structural impact presented?	Yes	Section 6 of the BIA however, anticipated movements of the host building and highways should be provided.
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	Yes	However, further clarifications are required as outlined in Section 4.0.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	Table 20 of the GMA.
Has the need for monitoring during construction been considered?	Yes	
Have the residual (after mitigation) impacts been clearly identified?	Yes	However, the ground model and GMA should be reviewed following site-specific ground investigation being completed. This should form part of the Basement Construction Plan.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	However, further clarifications are required as outlined in Section 4.0.
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	However, this should be reviewed following the comments in Section 4.0 being addressed.
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	However, this should be reviewed following the comments in Section 4.0 being addressed.

Item	Yes/No/NA	Comment
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 engineering consultants Pell Frischmann (PF) and the qualifications of the individuals concerned in its production are in line with the CPG for basements requirements.

4.2 The Structural Report (SR) has also been undertaken by PF.

4.3 The LBC Instruction to proceed with the audit confirms that 135-149 Shaftsbury Avenue is a Grade II listed building.

4.4 The site currently houses a six-storey structure with two levels of basement below, supported by reinforced concrete (RC) retaining walls. The depth to the base of the existing basement is 7.70m below ground level (bgl).

4.5 The property is bounded by roads on all sides with the nearest neighbouring properties situated approximately 5m from the site boundary.

4.6 The proposed development involves the demolition of the internal structure, leaving the facade and basement retaining walls in place. The basement will be extended laterally on two sides and deepened, adding an additional two basement levels. The base of the proposed basement will be 16.50m bgl, some 8.80m below the base of the existing basement. The BIA confirms that, within the footprint of the proposed basement slab, an additional 3.40m will be excavated to accommodate sprinkler tanks. The scheme also includes the construction of an additional five floors to the above ground structure resulting in an eleven-storey building with a four-level basement.

4.7 A ground investigation was undertaken at the site by Geotechnical & Environmental Associates Limited (GEA) in 2017 which comprised a single borehole to 35.00m bgl situated on the northwest side of the building. The borehole was carried out at ground level and recorded Made Ground to 3.50m bgl underlain by Lynch Hill Gravel to 4.70m bgl. Firm to stiff clays of the London Clay Formation were recorded between 4.70m and 34.40m bgl, with very stiff clays of the Lambeth Group below this.

4.8 The BIA identifies that the existing basement extends through the Lynch Hill Gravels and is founded within the London Clay Formation. The proposed basement extension will also be founded within the London Clay.

4.9 Groundwater monitoring of the GEA borehole was undertaken on two occasions in November 2017 and recorded groundwater to be present near the upper boundary of the London Clay. This has been interpreted to be water held within the Lynch Hill Gravel and overlying Made Ground.

4.10 Screening and scoping assessments are presented and informed by desktop 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.

4.11 The hydrology and hydrogeology screening responses state that the site is not directly underlain by an aquifer. This contradicts the responses provided in the Land Stability screening that states that the site is underlain by the Lynch Hill Gravels (which is a secondary A aquifer). The responses should be reviewed and presented consistently throughout the BIA.

4.12 No change in hardstanding areas is proposed and the surface water rates will be generally unchanged from the existing conditions. A Flood Risk Assessment (FRA) suggests that the site is in a Flood Zone 1 area and the risk of flooding from all sources is low. The FRA references the figures provided in the Camden SFRA from 2014, however, an updated report is available (Level 1 SFRA 2024, dated January 2024) and includes a figure showing the site to be in an area where properties below ground level are susceptible to groundwater flooding. This should be reviewed and included within the assessment. In addition, correspondence from the Covent Garden Community Association has provided an extract of a historical map from 1534 (included in Appendix 3) suggesting a watercourse previously existed in proximity to the site. This should be considered in relation to the proposed extension of the uppermost basement level.

4.13 The screening indicates that the proposed basement will not extend beneath the water table surface. It is accepted that the existing basement extends through Lynch Hill Gravels in which groundwater is assumed to be present. However, consideration of the two areas where the shallowest basement level will be extended laterally below the adjacent roads is requested.

4.14 It is identified that the proposed basement is within 5m of a highway and that the basement will significantly increase the differential depth of foundations relative to neighbouring properties.

4.15 The BIA discusses three potential proposals to construct the basement; these include:

- Option 01: construct a separate embedded wall (secant or contiguous) offset from the base of the existing basement wall.
- Option 02: construct a hybrid embedded wall (secant or contiguous) offset from the base of the existing basement wall that is dowelled into the existing retaining wall.
- Option 03: underpin the existing basement walls with mass concrete and construct an internal liner wall with RC.

4.16 Outline construction sequences for Options 01 & 02 and Option 03 are provided in section 7.4 of the BIA.

4.17 The SR suggests that Option 03 is the preferred method as this would allow a larger basement footprint. The proposed underpinning is indicated to be carried out by constructing 1.80m wide sections installed using a traditional hit and miss sequence. The pins would be 2.60m in height and 2.00m thick. Four levels of underpinning will be required to reach the full depth of the proposed basement. The underpinning would be done in three phases at each level as described in 7.2.2 of the BIA.

4.18 It is noted that industry best practice suggests underpins should be limited to between 1.00m and 1.50m wide and thus further justification for 1.80m wide underpin sections is requested.

4.19 Options 01 and 02 involve construction of an embedded retaining wall (secant or contiguous) with piles to a maximum depth of 25m from the base of the existing basement.

4.20 No outline structural calculations have been provided to demonstrate that the proposed basement retaining wall solutions would be sufficient to support the development. These are requested.

4.21 Section 3.0 of the Ground Movement Assessment (GMA) report (in Appendix G of the BIA) indicates that the basement foundation will comprise a raft. The formation level has been assumed to be at 18.30m bgl to accommodate up to 1.80m of slab excavation. It also confirms that the excavation for the sprinkler tank slab will be some 6m from the basement edge and formed of 350mm thick walls and base slab. The report writes that the slab design will need to consider the effects of heave and, strip foundations to balance the heave and bearing pressures, or a suspended slab, may be required.

4.22 Detailed temporary works design will be the responsibility of the contractor; however, outline designs within the BIA suggest three levels of temporary propping will be used to support the new basement during construction with additional props also installed within the existing basement to maintain stability following demolition of the floor slabs. A schematic of this is included in Figure 8 of the BIA.

4.23 The geotechnical parameters, including those for retaining walls, are summarised in Table 2 of the BIA and further discussed in the GMA. It is noted that the effective friction angle of the London Clay shown in Table 2 is much lower than would typically be applied to this stratum and contradicts the value provided in 2.4.3 of the GMA; it is possible this is a typographical error however, clarification is required.

4.24 A Ground Movement Assessment (GMA) has been undertaken to demonstrate that ground movements resulting from the basement construction and associated impact on neighbouring properties will be within LBC's policy requirements.

4.25 Detailed numerical analysis was undertaken using the commercial software Plaxis 3D and following the guidance provided in CIRIA C760. Two models have been developed, the first models the anticipated ground movements from the construction of an embedded retaining wall (Option 01 & 02) and the second modelling ground movements resulting from underpinning (Option 03).

4.26 Shallow foundations have been assumed for all neighbouring buildings where the type of foundation and/or the presence of a basement is unknown. The GMA states that the basement is approximately 25m from a Crossrail tunnel, outside the safeguarding limits and thus, the piling works do not require consultation with Crossrail. The report also identifies that several buried utilities are in proximity to the proposed basement. These include a low-pressure gas main, a fibre optics cable and, Thames Water main and foul sewer pipes. It is understood that these will be assess separately and agreed with the asset owners.

4.27 A preliminary analysis to estimate ground movements from the installation of a contiguous piled retaining wall resulted in anticipated settlements in the magnitude of 6mm. This preliminary analysis uses reduced curves taken from a paper by Ball & Langdon (2014), which is based on a single case study with particular controls adopted for the installation and excavation sequence and monitoring. The adoption of reduced installation movements is not considered to represent a cautious or moderately conservative approach (as required by LBC guidance). It is requested that the GMA considering a piled basement wall be revised in line with CIRIA C760 to confirm the approach can be undertaken without resulting in an unacceptable impact to sensitive structures.

4.28 Ground movements due to excavation of the basement have been considered, including heave. It is outlined within the GMA that the heave will be confined to the base of the excavation.

4.29 It is noted that the ground movement modelling for Options 01 & 02 assumes the installation of a contiguous embedded retaining wall (instead of a secant wall) with a pile spacing of 750mm and maximum pile length of 25m.

4.30 The methodology used to model the underpinning is discussed in section 6.4.4 of the GMA. The magnitude of movement predicted is within the expected range for the proposed four lifts of underpinning.

4.31 A loading of 330kPa (excluding self-weight) is suggested for the basement raft foundation. The existing building has also been applied as a surcharge across the base of the existing basement level at 60kPa.

4.32 For construction Options 01 & 02 the model outputs indicate up to 60mm of wall movement at the base of the basement excavation in the short-term conditions following the wall installation and excavation of the basement. For construction Option 02 (underpinning) the model outputs suggest up to 50mm of wall movement at the base of the basement excavation in the short-term conditions. Both models suggest heave in the magnitude of 170mm beneath the basement and long-term movements are anticipated to continue for over 20 years following the completion of the basement construction.

4.33 It is unclear how the proposed basement extensions directly beneath Shaftsbury Avenue and New Compton Street (shown in drawing 2111-SPP-ST-ZZ-DR-A-26-2002) has been modelled within the GMA. Clarification should be provided and the impacts to the highway should be clearly assessed.

4.34 The assessment does not include consideration of the host building. As it is Grade II listed, consideration of the impact of the proposed basement to the host building facade is required.

4.35 Table 19 of the GMA summarises the ground movements associated with each of the walls for which a damage category has been calculated. It is unclear which construction method the calculations have been based on. It is requested that the impacts from both potential construction methods are presented clearly.

4.36 The results of the Building Damage Assessment indicate that damage to neighbouring properties can be limited to no worse than Burland Category 1 (very slight), as summarised in Table 19 of the GMA and the subsequent graphs. However, the graphs showing the damage category all have very low values for the horizontal strain, which is plotted as a percentage. It is requested that a table summarising the vertical deflection ratios and horizontal strains calculated for each wall is provided for clarity and to support the damage category assessment.

4.37 It is indicated within Table 20 of the GMA report that the following information is required:

- Detailed site-specific ground investigation
- Clarification of the development geometry and application of load to the ground
- Clarification on geometry and structural capacity of existing retained theatre footings, retained walls etc.
- Modelled stiffness of either the piled wall or underpinning solution
- Further development of temporary propping arrangements, ground deflections dependent on temporary prop stiffness.

4.38 As the above elements may have change the outcome of the Basement Impact Assessment, this information should be submitted as part of a Basement Construction Plan (BCP).

4.39 Third party risks will largely be mitigated by party wall agreements and monitoring. A structural monitoring strategy is outlined in the BIA comprising vibration and displacement monitoring with baseline readings being collected at least two weeks prior to the commencement of the works. The monitoring strategy will be detailed in a Monitoring Specification which is yet to be finalised.

5.0 CONCLUSIONS

5.1 The Basement Impact Assessment (BIA) and Structural Report (SR) have been carried out by engineering consultants Pell Frischmann (PF) and the qualifications of the individuals concerned in its production are in line with the CPG for basements requirements.

5.2 The host building is Grade II listed.

5.3 The site currently houses a six-storey structure with two levels of basement below, supported by reinforced concrete (RC) retaining walls. The depth to the base of the existing basement is 7.70m below ground level (bgl).

5.4 The proposed development involves the demolition of the internal structure, leaving the facade and existing basement retaining walls in place. The basement will be extended along two sides at existing basement level, and will be deepened by 8.80m resulting in a basement extending to 16.50m bgl. Within the footprint of the base slab an additional 3.40m will be excavated to accommodate sprinkler tanks. The scheme also includes the construction of an additional five floors to the above ground structure.

5.5 A historical ground investigation comprising a single borehole encountered Made Ground to 3.50m bgl underlain by Lynch Hill Gravel to 4.70m bgl. Firm to stiff clays of the London Clay Formation were recorded between 4.70m and 34.40m bgl overlying very stiff clays of the Lambeth Group.

5.6 The existing basement extends through the Lynch Hill Gravels and is founded within the London Clay Formation.

5.7 Groundwater monitoring recorded groundwater to be present near the upper boundary of the London Clay. This has been interpreted to be water perched within the Lynch Hill Gravel and overlying Made Ground.

5.8 The hydrology and hydrogeology screening contains some contradictions; the responses should be reviewed to ensure they are presented consistently throughout, with consideration given to the updated Camden SFRA, issued in January 2024, and the impact from the proposed extension of the shallowest basement level.

5.9 Three potential construction methods have been considered for the proposed basement. Options 01 and 02 both include the installation of an embedded retaining wall and Option 03 includes the construction of a reinforced concrete retaining wall by underpinning the existing basement.

5.10 No outline structural calculations have been provided to demonstrate the proposed retaining wall solutions are suitable for the proposed basement. These are requested.

5.11 The geotechnical parameters have been provided and are accepted; however, it is noted that a possible typographical error is present within Table 2 of the BIA. It is recommended that this is reviewed and clarification provided.

5.12 A Ground Movement Assessment (GMA) has been undertaken using numerical modelling. Confirmation of how the basement extension below the pavements along Shaftsbury Avenue and New Compton Street has been considered in the model is requested. Consideration of the host building facade within the damage assessment is requested.

5.13 A damage category assessment has been undertaken and concludes that the impact to neighbouring structures will not exceed Burland Category 1 (Very Slight). However, confirmation of how the anticipated ground movements have been used to complete the building damage assessment is requested.

5.14 Monitoring strategies are proposed and the BIA writes that party wall agreements will be obtained prior to the commencement of the works.

5.15 The GMA report highlights that additional information is required to allow detailed assessment. This should form part of a Basement Construction Plan along with confirmation of the proposed temporary and permanent works.

5.16 It cannot be confirmed that the BIA complies with the requirements of CPG: Basements until the queries raised in Section 4 and Appendix 2 are addressed.

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Appendix 1

Consultation Responses

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
Theatres Trust	N/A	10/04/2024	Concerns raised on the outward extension beneath the highways.	Clarification of how this part of the basement extension has been considered in the Ground Movement Assessment is requested.
Scrutton	Unknown	21/04/2024	Subsidence to neighbouring buildings.	A Ground Movement Assessment has been carried out as part of the Basement Impact Assessment and has been queried in this audit.
Deans	Unknown	21/04/2024	Damage to the listed building.	This has been queried as part of this audit.
Wilkinson	Unknown	22/04/2024	Impacts to the neighbouring properties caused by the basement construction.	A Ground Movement Assessment has been carried out as part of the Basement Impact Assessment and has been queried in this audit.
Geddes	Unknown	22/04/2024	Adverse impact to the utilities including drainage.	A Flood Risk Assessment has been undertaken for the site to assess the risk of flooding. It is assumed Thames Water will review the proposal.
Cohen	Uknown	22/04/2024	Impacts to the neighbouring properties caused by the basement construction.	A Ground Movement Assessment has been carried out as part of the Basement Impact Assessment and has been queried in this audit.
Harrie	Unknown	27/04/2024	Impacts to the neighbouring properties caused by the basement construction. Possibly water course beneath the site.	A Ground Movement Assessment has been carried out as part of the Basement Impact Assessment. Consideration of this should be included in the BIA.
Albery	Unknown	28/04/2024	Adverse impacts to the risk of flooding.	A Flood Risk Assessment has been undertaken for the site to assess the risk of flooding.
Murray	Tower Court	01/05/2024	Impacts to the neighbouring properties caused by the basement construction	A Ground Movement Assessment has been carried out as part of the Basement Impact Assessment and has been queried in this audit.

Surname	Address	Date	Issue raised	Response
Palm-Gold	Pendrell House	05/05/2024	Possible tunnel running beneath St Giles Passage. Underground watercourse or river.	The BIA confirms the Crossrail tunnel is 26m from the northern corner of site and infrastructure consultations are included in Appendix D. Consideration of this has been requested by this audit.
Peppard	Unknown	05/05/2024	Possibly water course beneath the site.	Consideration of this has been requested by this audit.
Ahmed	Unknown	11/05/2024	Damage to neighbouring buildings	A Ground Movement Assessment has been carried out as part of the Basement Impact Assessment and has been queried in this audit.

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Appendix 2

Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Hydrology and Hydrogeology	The responses provided in the screening tables should be reviewed to ensure they are correct and consistent throughout.	Open – 4.11	
2	Hydrology and Hydrogeology	The figures provided in the Camden Level 1 SFRA 2024 document and historical map extract (included in Appendix 3) should be considered.	Open – 4.12	
3	Subterranean flow	Provide clarification of the groundwater regime within the London Clay.	Open – 4.13	
4	Land stability	Provide further justification for the 1.8m underpin width to be used.	Open – 4.18	
5	Land stability	Outline retaining wall calculations are requested.	Open – 4.20	
6	Geotechnical Parameters	Table 2 of the BIA and Table 3 of the GMA should be for consistency with the parameters provided in Section 2.4 of the GMA report.	Open – 4.23	
7	Ground Movement Assessment	Provide clarification of how the basement extension directly beneath the highways has been modelled. Include consideration of the anticipated impacts to the highways and the host building facade.	Open – 4.33 to 4.34	
8	Ground Movement Assessment	It is requested that a table summarising the vertical deflection ratios and horizontal strains calculated for each wall are provided for clarity and to support the damage category assessment	Open – 4.35 to 4.36	

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Appendix 3

Supplementary Supporting Documents

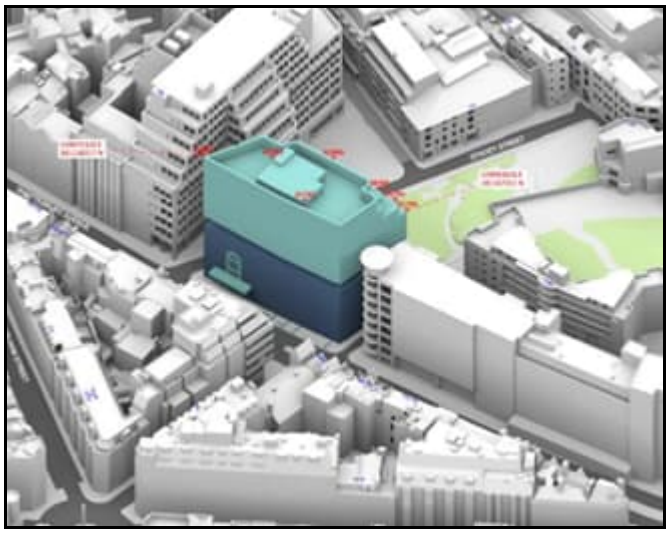
Historical Map Extract provided by
Covent Garden Community Association

Dear Alex,

I'm not sure if you were around for the planning appeal for the current Odeon site at 135 Shaftesbury Avenue in 2020-21. But here at Covent Garden Community Association (CGCA) we were heavily involved as the amenity society for the area, with our volunteers taking weeks off work and many local people appearing as witnesses. Your counsel felt that it was essential to show the strength of local feeling, which I think we managed to do. So, of course, the current proposals by Yoo Capital are, once again, of great concern to us.

We have 3 requests, if you don't mind:

1. We are struggling to find a drawing amongst the papers that shows the impact on the streetscape / views on Shaftesbury Avenue of the proposed extension relative to its neighbour at number 125. 125 Shaftesbury Avenue is not a pretty sight, but its upper floors are stepped back on the Shaftesbury Avenue side in a way that the proposals for 135 are not, so the views along Shaftesbury Avenue are better than they might otherwise be as you can only see the ground and upper 5 floors. The best indication of this that we can see is in the Daylight, Sunlight and Overshadowing Report as shown in a snip below.



Would you be able to ask the applicant to supply a relevant drawing, please? Or, if we have missed it, can you let us know where to find it?

The view on page 64 of the D&A statement, as shown in a snip below, is, I am afraid, rather misleading; it implies that 135 Shaftesbury Avenue is set back, which it isn't; the buildings are in-line. (And why do the night-time mock-ups always look so much more flattering than the daylight ones?!)

2. Is there any record in Camden's archives of the water courses or wells running under this site? A local historian sent us the Newton recreated map for 1534 which implies that a water course ran under the Odeon site with a pool there or nearby, as shown in the snip below.

Notwithstanding paragraph 4.1 of applicant's Basement Impact Assessment, which says that "the nearest surface water feature is 786 m to the southeast of the site", given the proposal to dig out a 3rd and 4th basement, it would be good to know if there is anything further down. A well was found close to this site underneath 4 Flitcroft Street during a recent redevelopment, and neighbours tell me that they are still having problems with water in the basement there. This is not surprising as the 12th century hospital is likely to have been built near at least one good water source.

3. Finally, have you been able to do a site visit with a) the Phoenix Garden and b) residents, to point out impacts, yet? If not, could we arrange something please?

With good wishes,
Amanda.

[redacted]

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