

**The Unicorn,
227 Camden Road
London, NW1 9AA**

Basement Impact Assessment

For
London Borough of Camden

Project No.
13693-99

Revision
D1

Date
February 2023

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DOCUMENT HISTORY AND STATUS

Revision	Date	Purpose/ Status	File Ref	Author	Check	Review
D1	20/02/2023	Draft	MEgk_13693-99 - 200223 - The Unicorn 227 Camden Road D1.docx	ME	GK	GK

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Document Details

Last Saved	20/02/2023 15:01
Author	M Elias, BEng MSc GMICE
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Project Number	13693-99
Project Name	The Unicorn, 227 Camden Road London, NW1 9AA
Revision	D1
Planning Reference	2022/4514/P
File Ref	MEgk_13693-99 - 200223 - The Unicorn 227 Camden Road D1.docx

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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 The Unicorn, 227 Camden Road, London NW1 9AA (planning reference 2022/4514/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 individuals involved in the BIA are in accordance with LBC guidance.
- 1.5 Screening and scoping assessments are provided, supported by desk study information.
- 1.6 Groundwater is unlikely to be encountered during construction. Any perched water or seepages should be adequately controlled using conventional methods such as sump pumping. There should be no impact on groundwater flow.
- 1.7 The proposed basement will be constructed using underpinning techniques and contiguous piled wall. Clarification regarding temporary propping, underpinning methodology and the length of contiguous piles is requested.
- 1.8 Geotechnical parameters are provided.
- 1.9 There is no increase in impermeable site area. A SuDs Strategy has been presented to ensure that the surface water run-off will be managed in accordance with LBC's guidance. There should be no impact to surface water flow or increase in flood risk.
- 1.10 The Ground Movement Assessment (GMA) and Building Damage Assessment should be reviewed, and further information provided as described in Section 4.
- 1.11 The BIA indicated that a movement monitoring scheme is to be adopted to ensure that the movements generated are maintained within predicted limits.
- 1.12 Queries and requests for information are summarised in Appendix 2. Until clarifications requested are presented, the BIA does not meet the requirements of Camden planning Guidance: Basements.

2.0 INTRODUCTION

2.1 CampbellReith was instructed by London Borough of Camden (LBC) on 20 January 2023 to carry out a Category B audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for The Unicorn 227 Camden Road, London, NW1 9AA.

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.
- Neighbourhood Plan – Kentish Town

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.

2.4 LBC's Audit Instruction described the planning proposal as "*Redevelopment of existing former public house / live music venue (Sui Generis) and ancillary residential accommodation above – including enlargement of existing basement, 1st and 2nd floor extensions (fronting Camden Road and Brecknock Road) and creation of mansard roof above existing building, and associated works – in association with the re-provision of public house / live music venue (Sui Generis) at ground and basement levels (fronting onto Camden Road and Brecknock Road); creation of new flexible Class E floorspace at ground and basement levels (fronting onto Brecknock Road); and the creation of self-contained flats (Class C3) on the upper floors, accessed from Brecknock Road [for the purpose of consultation: 7x flats (2x 1-bed, 2x 2-bed, 3x 3-bed); 304.3 sqm of public house / live music venue floorspace; 374.3 sqm of flexible Class E floorspace].*"

2.5 The Camden Planning Portal indicates that the site is not a listed building and is not located within a Conservation Area.

2.6 CampbellReith accessed LBC's Planning Portal 6th February 2022 and gained access to the following relevant documents for audit purposes:

- Desk Study, Basement Impact & Ground Movement Assessment Report by GEA, ref: J22050 Rev 0, dated 24 June 2022;
- Construction Method Statement by Conisbee, ref: 190527/C Drake Rev 2, dated 14 July 2022;
- Sustainable Drainage Assessment by GeoSmart ref: 76397R2 dated 25 May 2022;
- Draft Construction Management Plan by CA Caneparo Associates dated 13 June 2022;
- Architectural Drawings by Child Graddon Lewis, project ref: P17-183:
 - Existing Site Location plan, ref: CGL-XX-00-DR-A-010100
 - Existing Elevation A-A Camden Road, ref: CGL-XX-XX-DR-A-020220
 - Existing Basement and Ground Floor, ref: CGL-XX-XX-DR-A-010110.
 - Existing First and Second Floor, ref: CGL-XX-XX-DR-A-010111.
 - Existing Roof Plan, ref: CGL-XX-XX-DR-A-010112.
 - Existing Elevations B-B & C-C, ref: CGL-XX-XX-DR-A-020221.
 - Proposed Basement and Ground Floor, ref: CGL-XX-XX-DR-A-050210 rev D, dated 26 August 2022.
 - Proposed First and Second Floor, ref: CGL-XX-XX-DR-A-050211 rev A, dated 09 August 2022.
 - Proposed Section D, ref: CGL-XX-SE-DR-A-06022 rev A, dated 09 August 2022.
 - Proposed Elevation A-A Camden Road, ref: CGL-XX-EL-DR-A-060220 rev A, dated 09 August 2022.
 - Proposed Elevations B-B and C-C, ref: CGL-XX-EL-DR-A-060221 rev A, dated 09 August 2022.
 - Proposed Third Floor and Rood, ref: CGL-XX-XX-DR-A-050212 ref A, dated 09 August 2022

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	Section 1.3.2 of the BIA.
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?	No	Underpinning methodology, length of contiguous piles and proposed propping arrangements to be confirmed.
Are suitable plan/maps included?	Yes	All maps to support screening are referenced 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	
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 3.1.2 of the BIA.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 3.1.1 of the BIA.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 3.1.3 of the BIA.
Is a conceptual model presented?	Yes	Sections 7 of the BIA.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 4.1 of the BIA.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	NA	No items were carried over to scoping.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	NA	No items were carried over to scoping.
Is factual ground investigation data provided?	Yes	Section 4 of the BIA.
Is monitoring data presented?	Yes	Section 5.3 of the BIA.
Is the ground investigation informed by a desk study?	Yes	Section 2.0 of the BIA.
Has a site walkover been undertaken?	Yes	Section 2.1 of the BIA.
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	Section 2.1.1 of the BIA.
Is a geotechnical interpretation presented?	Yes	Section 7.2 of the BIA.
Does the geotechnical interpretation include information on retaining wall design?	Yes	Section 8.1.1 of the BIA.
Are reports on other investigations required by screening and scoping presented?	Yes	Ground Investigation Report, Thames Water asset location search, Construction Method Statement, Draft Construction Management Plan, and Sustainable Drainage Assessment.

Item	Yes/No/NA	Comment
Are the baseline conditions described, based on the GSD?	Yes	
Do the base line conditions consider adjacent or nearby basements?	Yes	Section 2.1.1 of the BIA.
Is an Impact Assessment provided?	Yes	Section 13 of the BIA.
Are estimates of ground movement and structural impact presented?	Yes	Part 3 - Section 9 of the BIA.
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	Yes	Section 13.0 of the BIA.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	
Has the need for monitoring during construction been considered?	Yes	Section 11.2 of the BIA. The precise monitoring strategy will be developed at a later stage, and it will be subject to discussions and agreements with the owners of the adjacent properties and structures.
Have the residual (after mitigation) impacts been clearly identified?	Yes	However, subject to GMA revision.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	Sections 9.0 to 11.0 of the BIA. GMA provided; Clarifications requested.

Item	Yes/No/NA	Comment
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	No	Subject to confirmation of structural arrangements and any required revision to GMA.
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	Section 11.0 of the BIA. GMA provided; Clarifications requested.
Are non-technical summaries provided?	Yes	Executive Summary of the BIA.

4.0 DISCUSSION

- 4.1 The Basement Impact Assessment (BIA) has been carried out by engineering consultants Geotechnical & Environmental Associates (GEA) and the authors have suitable qualifications.
- 4.2 The site fronts onto Camden Road to the southeast and Brecknock Road to the northeast and is bounded by a three-storey end of terrace property to the northwest. The eastern part of the site is occupied by a former three-storey public house, with a single storey extension that extends across the western part of the site. A small yard area is present to the rear of the extension on the north-western part of the site, which is accessed from Camden Road by a private roadway, whilst the south-eastern part of the site comprises an area of hardstanding formerly used for external seating. A basement is present beneath the former public house on the eastern part of the site, extending to a depth of approximately 1.8 m.
- 4.3 The proposed development comprises the deepening of the existing basement on the south-eastern part of the site by 1.1m, with up to 3.0m of excavation for the new basement area beneath the adjoining retail unit on the north-western part of the site. Seven new residential units are to be located from the first to the third floors; within the upper storeys, a new mansard extension and a new infill extension will adjoin from the existing terrace adjacent to the site. The basement retaining walls will be formed through a combination of contiguous bored piled walls and localised underpinning.
- 4.4 Screening and scoping assessments are presented and informed by desk study information. Most relevant figures/maps and other guidance documents are referenced within the BIA to support responses to the screening assessment.
- 4.5 A site investigation was undertaken at the site location. A single open drive sampler borehole was advanced to a depth of 9.0m within the external seating area on the south-eastern part of the site, which was then extended by continuous SPT to refusal at a depth of 10.8m. A single window sampler borehole and two hand-augers were completed within the footprint of the existing building. The site works encountered a variable thickness of Made Ground overlying the London Clay Formation proved to a maximum depth of sampling of 9.0m (39.4mOD).
- 4.6 Groundwater seepage was recorded in the starter pit for Borehole No 4, towards the base of the Made Ground at a depth of 0.62 m (45.88 m OD). As no inflows were recorded in any of the other exploratory locations, the BIA states that this was likely to represent an isolated pocket of perched water sitting on top of the underlying London Clay. Standpipes were installed to a depth of 5.0 m (43.4 m OD) and 3.0 m (45.5 m OD) in Borehole Nos 1 and 2, respectively, which were found to be dry during subsequent monitoring.
- 4.7 The BIA states that groundwater is unlikely to be encountered within the basement excavation. Shallow seepages may be encountered from within the Made Ground, particularly in the vicinity of any existing foundations, However, such inflows are unlikely to be prolonged, or of significant volume, and should be adequately controlled using conventional methods such as sump pumping.

- 4.8 The BIA states that the site has a very low risk of flooding from all sources, and the proposed development will not result in an increase in hardstanding areas. A SuDs Strategy has been presented to ensure that the surface water run-off will be managed in accordance with LBC's guidance. The site is not suitable for attenuation drainage and off-site drainage to sewers will be maintained at the lowest practicable flow rates, in accordance with best practice. A green roof is proposed to be installed by the client which will attenuate a portion of runoff from the site.
- 4.9 The geotechnical parameters adopted in the retaining wall calculations, foundation design and ground movement assessment (GMA) are presented in the BIA.
- 4.10 Structural information including a proposed construction sequence for the basement is presented in the Construction Method Statement (CMS). The basement excavation is proposed to be formed using a contiguous piled wall and underpinning along the elevations up against existing structures. The underpinning will take place in a hit and miss sequence and in two stages. The piles will extend into the London Clay. The CMS states that basement walls will be designed to cantilever to avoid the need for temporary propping at ground level.
- 4.11 The BIA states in section 9.2.1 that the new retaining walls will not be cantilevered at any stage during the construction process, whilst the CMS states (as 4.11) that temporary propping will not need to be adopted. Clarification is requested regarding the use of temporary propping, with the CMS and/or GMA updated as required.
- 4.12 A GMA has been undertaken to demonstrate that ground movements and consequential damage to neighbouring properties will be within LBC's policy requirements. The X-Disp and P-Disp programs have been used to predict ground movements likely to arise from the construction of the proposed basement. This includes the heave/settlement of the ground and the lateral movement of soil behind the proposed retaining walls. The following points require further clarification or revision:
- A minimum embedment equivalent to the retained height has been assumed, such that a toe depth of 6.0m bgl (c. 42.5 mOD) has been adopted to calculate ground movements as result of pile installation. It should be clarified whether the embedded retaining wall is accepting any axial load (which the structural drawings suggest) and if so, outline bearing capacity calculations are required to support assumptions regarding the pile length. Pile lengths should be updated and the GMA revised, as required.
 - The CMS states that two lifts of underpinning will be undertaken at 18 Brecknock Road, which is deeper than the 1m underpin height described in section 10.3.1. Ground movements resulting from the two lifts of underpinning should be considered in the GMA.
 - High stiffness CIRIA curves have been adopted in the GMA based on the use of temporary propping. If no temporary propping will be used, the ground movement assessment will need to be updated to reflect the construction sequence to be adopted on site.

- 4.13 The results of the Building Damage Assessment currently indicate that the damage to neighbouring properties will not exceed Burland Category 1 (Very Slight); however, the GMA requires further consideration and revision in line with the points raised above.
- 4.14 The BIA recommends monitoring of ground movements to be undertaken to ensure the movements remain within acceptable limits and to enable mitigation to be effectively implemented in the event of trigger values for movement being exceeded. The structures to be monitored during the construction stages should include the existing building and neighbouring structures. Condition surveys of the existing structures should be carried out before, during and after the proposed works. The precise monitoring strategy will be developed at a later stage.
- 4.15 Third party asset protection criteria (e.g. for Thames Water assets) should be agreed directly with the asset owner.

5.0 CONCLUSIONS

- 5.1 The qualifications of the individuals involved in the BIA are in accordance with LBC guidance.
- 5.2 Screening and scoping assessments are provided, supported by desk study information.
- 5.3 There should be no impact on groundwater flow.
- 5.4 The proposed basement will be constructed using underpinning techniques and a contiguous piled wall. Clarification of the proposed construction techniques is required, as detailed in Section 4.
- 5.5 Geotechnical parameters are provided.
- 5.6 There should be no impact to surface water flow or increase in flood risk.
- 5.7 The Ground Movement Assessment (GMA) and Building Damage Assessment should be reviewed with reference to the construction methodology and structural proposal clarifications requested in Section 4.
- 5.8 A movement monitoring scheme is to be adopted to ensure that the movements and consequential impacts generated are maintained within predicted limits.
- 5.9 Queries and requests for information are summarised in Appendix 2. Until clarifications requested are presented, the BIA does not meet the requirements of Camden planning Guidance: Basements.


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Appendix 1

Consultation Responses

None



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Residents' Consultation Comments

Residents' consultation comments presented are related to issues outside the scope of this BIA.

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Appendix 2

Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Land Stability	Clarification is requested regarding the use of temporary propping, underpinning methodology and length of contiguous piles.	Open – See Section 4.10 – 4.12	
2	Land Stability	GMA to be reviewed and updated as required.	Open – See Section 4.12	

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Appendix 3

Supplementary Supporting Documents

None

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