

247 Tottenham Court Road  
London  
W1T 7HH  
Basement Impact Assessment  
Audit

For  
London Borough of Camden

Project Number: 13398-43  
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### Document History and Status

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### Document Details

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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 247 Tottenham Court Road, W1T 7HH (planning reference 2020/3583/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 (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. Details of the site layout and proposed development are given in paragraphs 4.3 and 4.4.
- 1.5. The qualifications of the individuals involved in the BIA are not presented and are required.
- 1.6. The BIA references superseded LBC guidance and should be reviewed in accordance with Camden Planning Guidance: Basements.
- 1.7. Screening and scoping assessments are not presented in the BIA and are required, in accordance with LBC guidance.
- 1.8. A site investigation from a neighbouring site has been presented in the BIA and a ground model has been derived from that. In order to confirm ground conditions, it is recommended that a site investigation is undertaken and reported within a Basement Construction Plan (BCP).
- 1.9. The BIA should confirm that there will be no impact on the hydrogeological environment.
- 1.10. It is proposed to implement a sustainable urban drainage system (SuDS) to ensure that the proposed development does not increase off-site drainage flows from surface water. The final drainage design should be approved by LBC and Thames Water.
- 1.11. It is accepted that the site is at low risk from flooding from rivers, seas and reservoirs and from surface water flooding, and will not increase the risk of flooding to neighbouring structures.
- 1.12. Geotechnical parameters have been presented and are considered reasonably conservative, subject to confirmation by future site investigation (as 1.8). As a raft foundation is one of the foundation options considered in the BIA, a value for the allowable bearing capacity at formation level should be indicated in the BIA.
- 1.13. The GMA and damage assessment should be revised according to Sections 4.13 to 4.15 of this

audit. This includes review of the analysis method and estimation of ground movements for nearby infrastructure.

- 1.14. It is accepted that there will be no slope stability concerns regarding the proposed development, subject to completion of Screening.
- 1.15. Non-technical summaries to be presented with any revisions of the BIA.
- 1.16. Queries and requests for information are summarised in Appendix 2. Until the additional information and further assessments 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 14 August 2020 to carry out a Category C Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 247 Tottenham Road, London W1T 7HH, Camden Reference 2020/3583/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: Basements. March 2018.
  - Guidance for Subterranean Development (GSD). Issue 01. November 2010. Ove Arup & Partners.
- 2.4. The BIA should demonstrate that schemes:
- a) maintain the structural stability of the building and neighbouring properties;
  - b) avoid adversely affecting drainage and run off or causing other damage to the water environment;
  - c) avoid cumulative impacts upon structural stability or the water environment in the local area,
- and evaluate the impacts of the proposed basement considering the issues of hydrology, hydrogeology and land stability via the process described by the GSD and to make recommendations for the detailed design.
- 2.5. LBC's Audit Instruction described the planning proposal as "*Demolition of 247 Tottenham Court Road, 3 Bayley Street, 1 Morwell Street, 2-3 Morwell Street and 4 Morwell Street and the erection of a mixed use office led development comprising ground plus five storey building for office (Class B1) use, flexible uses at ground and basement (Class A1/A2/A3/B1/D1/D2), residential (Class C3) use, basement excavation, provision of roof terraces, roof level plant equipment and enclosures, cycle parking, public realm and other associated works.*"
- 2.6. The Audit Instruction confirmed applicant's property and neighbouring properties are not listed.
- 2.7. CampbellReith accessed LBC's Planning Portal on 20th September 2020 and gained access to the following relevant documents for audit purposes:
- Basement Impact Assessment Report (ref.: 4190), dated July 2020, by AKT II Ltd;
  - Drainage Assessment Report (ref.: 4190), dated July 2020, by AKT II Ltd;

- Existing and proposed plans, elevations and sections by Stiff + Trevillion Architects Ltd.

### 3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	No	Credentials are not presented.
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	See Sections 2 and 3 of the BIA.
Are suitable plan/maps included?	Yes	The assessment is supported by suitable plan/maps. Architect's drawings, OS maps, Envirocheck report and utilities map are presented in the report.
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?	No	Although information on land stability is presented in the report, this should be presented following the flowchart of the Arup report (Appendix E3) as required by the Camden Planning Guidance.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	Although information on groundwater flow is presented in the report, this should be presented following the flowchart of the Arup report (Appendix E2) as required by the Camden Planning Guidance.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	Although information on surface water flow and flooding is presented in the report, this should be presented following the flowchart of the Arup report (Appendix E1) as required by the Camden Planning Guidance.
Is a conceptual model presented?	Yes	However it is based on non site-specific ground investigation.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	No	Scoping should be presented based on the relevant issues identified in the initial screening stage.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	No	As above.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	No	As above.
Is factual ground investigation data provided?	Yes	Section 4 of the BIA. However, site investigation recommended to be undertaken and reported within a BCP.
Is monitoring data presented?	Yes	Section 4.2.2 of the BIA. However, site investigation recommended to be undertaken and reported within a BCP.
Is the ground investigation informed by a desk study?	Yes	Information presented in Section 2 of the BIA.
Has a site walkover been undertaken?	No	Unspecified.
Is the presence/absence of adjacent or nearby basements confirmed?	No	This is not clearly specified in the BIA (See Section 8.4 and 8.5).
Is a geotechnical interpretation presented?	Yes	Soil Consultants report in Appendix 3 of the BIA and Ground Movement Assessment in Appendix 7 of the BIA. Recommended to be confirmed within a BCP following further site investigation.
Does the geotechnical interpretation include information on retaining wall design?	Yes	As above.
Are reports on other investigations required by screening and scoping presented?	N/A	Screening and scoping section are not included in the BIA.
Are the baseline conditions described, based on the GSD?	Yes	

Item	Yes/No/NA	Comment
Do the base line conditions consider adjacent or nearby basements?	Yes	However, foundation details of neighbouring foundations are only assumed.
Is an Impact Assessment provided?	Yes	Section 11 of the BIA. However, it should be updated after screening and scoping sections have been produced.
Are estimates of ground movement and structural impact presented?	Yes	Appendix 7 of the BIA. However, to be reviewed as Section 4.
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	N/A	Screening and scoping are not presented in the BIA.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	No	To be reviewed after completion of screening and scoping sections.
Has the need for monitoring during construction been considered?	Yes	Section 8.8 of the BIA.
Have the residual (after mitigation) impacts been clearly identified?	No	To be reviewed after completion of screening and scoping sections.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	No	The GMA should be reviewed.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	See AKT II Drainage Assessment. However this may require review at a later stage.
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	No	As above.
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	Appendix 7 of the BIA. However, the GMA should be reviewed.
Are non-technical summaries provided?	No	

## 4.0 DISCUSSION

- 4.1. The BIA was undertaken by AKT II Ltd. The authors' qualifications are not reported and should be indicated in the BIA to be in accordance with LBC guidance.
- 4.2. The BIA references superseded LBC guidance and should be reviewed in accordance with Camden Planning Guidance: Basements.
- 4.3. The site is currently occupied by five different buildings, i.e. 247 Tottenham Court Road, 3 Bayley Street, 1 Morwell Street, 2-3 Morwell Street and 4 Morwell Street. The buildings cover a total area of c. 1,896m<sup>2</sup> and are a mix of offices, retail and residential use. It is understood that a single level basement to a depth of c. 3.50m below ground level (bgl) is present beneath most of the site.
- 4.4. The proposed development comprises a multi-storey building of mixed use. An extension of the existing basement to c. 5.00m bgl has been assumed for most of the site with an additional level of basement to c. 10.00m bgl proposed for the eastern corner towards Morwell Street.
- 4.5. The LBC Instruction to proceed with the audit identified that the applicant's property is not listed and that the basement proposal does not neighbour any listed buildings. However, the BIA confirmed that 28-39 Morwell Street and 6-10 Bayley Street are Grade I and II listed buildings. Details of neighbouring foundations have been assumed in the BIA but have not been confirmed.
- 4.6. Although desktop study information is presented, screening and scoping assessments are not presented in the BIA and are required in accordance with Section 4 of the Camden Planning Guidance: Basements and Appendix E1 to E3 of the GSD. Until these sections are completed, it cannot be confirmed if the proposed development will impact land stability or the hydrogeological and hydrological environments.
- 4.7. A site investigation has not been undertaken yet. Anticipated ground conditions have been assumed based on desktop study information, historic boreholes and factual ground investigation data for nearby sites. A ground investigation undertaken by Soil Consultant in November 2014 for 251-258 Tottenham Road and 1 Bedford Avenue is presented in Appendix 3 of the BIA. The ground investigation indicates Made Ground underlain by the Lynch Hill Gravel Formation to a level of c. 19.50m AOD. The London Clay Formation underlies the Lynch Hill Gravel and is proven to a depth of c. 2.50m AOD. The Lambeth Group is then indicated at depth.
- 4.8. Groundwater was encountered and monitored within the granular layers of the Lynch Hill Gravel. The BIA states that due to limited available information, the ground profile within the site must be assessed at a later stage by means of a ground investigation to confirm actual ground conditions. It is recommended that a site investigation is undertaken and reported within a

Basement Construction Plan (BCP). However, the BIA should clearly state if the basement construction will have any impact on the wider hydrogeological environment.

- 4.9. It is accepted that impermeable areas on site will remain the same as existing and subsequently surface water run-off from the site is unlikely to increase as part of the proposed development. A Drainage Assessment has been presented. The report states that it is proposed to implement a sustainable urban drainage system (SuDS) to ensure the off-site drainage flow rates from surface water do not increase post development.
- 4.10. It is accepted that the site is at low risk from flooding from rivers, seas and reservoirs and from surface water flooding. It is noted that the final drainage design should be approved by Thames Water and by the Lead Local Flood Authority.
- 4.11. According to the BIA, the sequence of works will comprise the installation of a secant piled wall to support the basement excavation. Mini-piles or embedded sheet piled walls are proposed to allow the excavation of the deeper basement level. A level of temporary propping will be provided at each permanent floor/diaphragm level as a minimum during construction.
- 4.12. Geotechnical parameters to inform settlement, retaining wall calculations and foundation design have been presented in Soil Consultants report and Ground Movement Assessment. The parameters are considered reasonably conservative. However, the geotechnical interpretation is based on non site specific factual data and should be confirmed by a site specific ground investigation and included within a BCP. As a raft foundation is one of the foundation options considered in the BIA, a value for the allowable bearing capacity at formation level should be indicated in the BIA.
- 4.13. A preliminary Ground Movement Assessment (GMA) has been undertaken to demonstrate that ground movements and consequential damage to neighbouring properties will be within LBC's policy requirements. Analysis of horizontal and vertical ground movements has been undertaken utilising industry standard software (PDisp and XDisp) and analysed basement construction in both the short and long term. Assumptions made in the analysis regarding depth of neighbouring properties foundations are conservative. However, ground movements due to pile installation and excavation curves presented in CIRIA C760 have been halved in the GMA as suggested by a paper from Ball et al. It is noted that the paper relates to a very particular conditions with stringent controls. Unless further sequencing, propping and methodology detail is provided, it is not reasonably conservative to assume it will be applicable in this case. As a site specific ground investigation has yet to be undertaken and the structural proposal refined, and the GMA is still at a preliminary stage, the GMA should be reviewed and updated to reflect a reasonably conservative case (e.g. adopting the CIRIA C760 methodology).
- 4.14. The BIA indicates that the predictions of ground movement based on the GMA should be checked

by monitoring of adjacent properties and structures and states that a movement monitoring strategy will be developed at a later stage.

- 4.15. A survey plan showing the location of the underground infrastructure within the zone of influence of the basement is presented in the BIA. Two London Underground Northern Line tunnels run at close proximity to the west boundary of the site at an elevation of c. 1.20m AOD. It is understood that preliminary consultation with the asset owner is ongoing and that an assessment on how the proposed development will impact the tunnels will be carried out separately. The GMA should assess the damage occurring at any remaining infrastructure, including sewers, footpaths and highways, within the zone of influence of the basement. It should be noted that asset protection criteria will need to be agreed with each asset owner, as required.
- 4.16. It is accepted that there are no slope stability concerns regarding the proposed development, subject to the completion of Screening.
- 4.17. Non-technical summaries to be presented with any revisions of the BIA.

## 5.0 CONCLUSIONS

- 5.1. The qualifications of the individuals involved in the BIA are not presented and are required.
- 5.2. The BIA references superseded LBC guidance and should be reviewed in accordance with Camden Planning Guidance: Basements.
- 5.3. Screening and scoping assessments are required before any conclusions regarding impacts to land stability and the hydrogeological and hydrological environments can be accepted.
- 5.4. A site investigation from a neighbouring site has been presented in the BIA. It is recommended that a site investigation is undertaken and reported within a BCP.
- 5.5. The BIA should confirm that there will be no adverse impact on the hydrogeological environment.
- 5.6. It is proposed to implement a sustainable urban drainage system (SuDS) to ensure the surface water rates do not increase post development.
- 5.7. It is accepted that the site is at low risk from flooding from rivers, seas and reservoirs and from surface water flooding.
- 5.8. Geotechnical parameters have been presented which should be confirmed following further site investigation and reported within a BCP.
- 5.9. A raft foundation is one of the foundation options considered in the BIA. A value for the allowable bearing capacity at formation level should be indicated in the BIA.
- 5.10. The GMA and damage assessment should be revised according to Sections 4.13 – 4.15. This includes review of the analysis method and estimation of ground movements for nearby infrastructure.
- 5.11. It is accepted that there will be no slope stability concerns regarding the proposed development, subject to completion of Screening.
- 5.12. Non-technical summaries to be presented with any revisions of the BIA.
- 5.13. Queries and requests for information are summarised in Appendix 2. Until the additional information and further assessments requested are presented, the BIA does not meet the requirements of Camden Planning Guidance: Basements.

## Appendix 1: Residents' Consultation Comments

None

## Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	BIA format	The authors' qualifications should be indicated and be compliant with Camden Planning Guidance: Basements.	Open – See Section 4.1.	
2	BIA format	Screening and scoping assessments are not presented in the BIA and are required.	Open – See Section 4.6.	
3	BIA format	An indication of the allowable bearing capacity for a raft foundation should be included in the report.	Open – See Section 4.12.	
4	BIA format	Non-technical summaries to be presented with any revisions of the BIA.	Open – See 4.16	
5	Land stability	It is recommended that a site investigation is undertaken and reported within a Basement Construction Plan (BCP). This should include review of geotechnical parameters adopted.	-	BCP Recommended.
6	Land stability	The GMA should be reviewed and updated in line with the comments in Section 4.	Open – See Sections 4.13. – 4.15.	

## Appendix 3: Supplementary Supporting Documents

None

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