

329-333 Kentish Town Road
London, NW5 2TJ

Basement Impact Assessment
Audit

For
London Borough of Camden

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Campbell Reith Hill LLP
15 Bermondsey Square
London
SE1 3UN

T: +44 (0)20 7340 1700
E: london@campbellreith.com
W: www.campbellreith.com

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Author	Ansaff Ashraff, B.Eng
Project Partner	E M Brown, BSc MSc CGeol FGS
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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 329-333 Kentish Town Road NW5 2TJ (planning reference 2021/1470/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 BIA was prepared by Entuitive with a Ground Movement Assessment by Card Geotechnics Limited and supported with a Flood Risk Assessment by Herrington Consulting Ltd. The authors and reviewers hold the professional qualifications specified in LBC's guidance.
- 1.5. The BIA has confirmed that the proposed basement will be founded within London Clay. This is not an aquifer. It is likely that the ground water table will not be encountered, however perched water is recorded.
- 1.6. It is accepted that the development will not impact on the wider hydrology of the area and is not in an area subject to flooding. The BIA does consider the impacts to stability and hydrogeology from the River Fleet which runs close to the site.
- 1.7. Mass concrete underpinning is to take place and a construction methodology for the proposed temporary and permanent works is presented. Structural engineering information as required by the Basements CPG is presented.
- 1.8. The BIA expects damage to within Burland Category 1 to neighbouring properties. An assessment of likely vertical building movement is presented, but further clarification is required with respect to horizontal movement to justify the predicted damage category.
- 1.9. Proposals are provided for a monitoring strategy in accordance with the Party Wall Act. The monitoring criteria should be reviewed against the updated GMA and confirmation provided that the trigger levels provide sufficient mitigation to limit damage to Burland Category 1.
- 1.10. 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 05/07/21 to carry out a Category B audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 329-333 Kentish Town Road London NW5 2TJ and Planning Reference 2021/1470/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 "Partial lowering of the existing basement." . Although not entirely stated in the planning proposal, the existing basement to be lowered up to nearly 1m to achieve a new minimum head height from new finished floor to the underside of the lowest existing beam.

The Audit Instruction confirmed neither 329-333 Kentish Town Road involves, or is a neighbour to, any listed buildings.

2.6. CampbellReith accessed LBC's Planning Portal on 07/07/2021 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment Report (BIA) by Entuitive, Rev D dated April 2021, along with the associated appendices:
 - Appendix A – Structural Drawings
 - Appendix B – Architectural Drawings
 - Appendix C – Desk Study References
 - Appendix D – Ground Engineering Limited Soil Investigation Report
- Architects General Arrangement Plans & Sections, Rev D dated March 2021:
- Flood Risk and SuDS Assessment by Herrington Consulting, Rev 1 dated March 2021.
- Planning, design and access statement by Savills, v2 dated April 2021

2.7. Further to the issue of the initial audit report, CampbellReith was provided with the following further/revised information:

- Basement Impact Assessment Report (BIA) by Entuitive, Rev E dated September 2021, along with the associated appendices:
 - Appendix A – Structural Drawings
 - Appendix B – Architectural Drawings
 - Appendix C – Desk Study References
 - Appendix D – Ground Engineering Limited Soil Investigation Report and Card Geotechnics Ltd. Ground Movement Assessment
- Flood Risk and SuDS Assessment by Herrington Consulting, Rev 2 dated September 2021.

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	
Is data required by Cl.233 of the GSD presented?	Yes	
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	Yes	See Section 7.2 of the BIA
Are suitable plan/maps included?	Yes	The assessment is supported by suitable plan/maps.
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 4.1 of the BIA
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4 of the BIA
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.2 of the BIA
Is a conceptual model presented?	Yes	
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Consideration given to increase in differential founding depth.

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Revised BIA considers proximity of River Fleet.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Despite no anticipated impacts, a Flood Risk Assessment by Herrington Consulting is presented.
Is factual ground investigation data provided?	Yes	Refer to report by Engineering Limited in Appendix D of the BIA.
Is monitoring data presented?	No	
Is the ground investigation informed by a desk study?	Yes	Refer to Appendix C of the BIA.
Has a site walkover been undertaken?	Yes	Refer to Section 2.2 of the BIA.
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	Refer section 2.3 of the BIA.
Is a geotechnical interpretation presented?	Yes	Refer to section 7.2 and Appendix D of the BIA.
Does the geotechnical interpretation include information on retaining wall design?	Yes	Refer to Appendix D of the BIA.
Are reports on other investigations required by screening and scoping presented?	Yes	Site Investigation Report and Construction Methodology presented. Flood Risk and SuDS Assessment also provided.
Are the baseline conditions described, based on the GSD?	Yes	A desk study has been undertaken in the BIA, a Ground Investigation Report with basic geotechnical parameters, and details of proposed and existing structures are presented.
Do the base line conditions consider adjacent or nearby basements?	Yes	Refer to Section 2.3 (Impact on Adjacent Structures and Services)
Is an Impact Assessment provided?	Yes	A preliminary impact assessment is provided and the monitoring strategy need to be confirmed through a party wall process, prior to construction.

Item	Yes/No/NA	Comment
Are estimates of ground movement and structural impact presented?	Yes	BIA notes that damage to neighbouring properties can be limited to Burland Category 1.
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	No	Ground movement assessment to be updated with horizontal movements.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	Refer to Section 7.4 of the BIA.
Has the need for monitoring during construction been considered?	Yes	An indicative monitoring strategy is presented in Section 7.4 of the BIA.
Have the residual (after mitigation) impacts been clearly identified?	No	To be confirmed with updated GMA.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	Section 7.3 of the BIA with reference to Appendix E.
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	
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	CGL report states damage limited to Burland Category 1 for vertical movements only but no horizontal movements assessed.
Are non-technical summaries provided?	Yes	

4.0 DISCUSSION

- 4.1. The Basement Impact Assessment (BIA) has been carried out by Entuitive and accompanied by a Ground Movement Assessment prepared by Card Geotechnics Limited and the authors have the qualifications required for Hydrogeology and Land Stability. The Flood Risk Assessment and SuDS Strategy Report was prepared by Herrington Consulting. The qualifications of the individuals involved in its production, and their proof of expertise in hydrology are acceptable as per CPG Basements.
- 4.2. The LBC Instruction to proceed with the audit identified that the basement proposal at 329-333 Kentish Town Road is not listed, nor does it lie within a Conservation Area, as mentioned in the Planning, design and access statement prepared by Savills.
- 4.3. The terraced building is 3-storeys above ground to the front and reduces to 1-storey at the rear. A basement runs beneath the entire site and there is a nominal division between 329-331 and 333 Kentish Town Road at the upper levels. The proposed works include the lowering of the majority of the basement. The structural basement slab will be lowered in the range of 560mm and 930mm. As a result of this, mass concrete underpinning is required to the affected existing foundations, with excavation up to 1.30m required to form new deepened foundations.
- 4.4. It is stated that the proposed basement will be founded on London Clay. The ground investigation has identified that the site is underlain by Made Ground up to a maximum depth of 0.30m below the basement slab, followed by stiff weathered London Clay. Perched water was recorded in London Clay at a depth of 1.00m below basement slab and the BIA notes the need to exclude it from excavations during construction. The BIA indicates that surrounding walls to the site are supported on concrete strip footings confirmed via trial pits.
- 4.5. With respect to surface water, the screening exercise has identified the proposed development will not lead to a change in the hardstanding area on site and that the site is located in Flood Zone 1. It is noted that the site is within a Critical Drainage Area. A Flood Risk Assessment and SuDS Strategy Report has been provided which concludes that surface water flows off site will not change and the proposed development will not raise the risk of flooding in the surrounding area.
- 4.6. With respect to subterranean flows, whilst the site is not underlain by an aquifer, the scoping exercise has considered impacts from the proximity of the former course of the River Fleet. The site is located within a broad valley with high ground to the east, west, and north, according to CGL's Ground Movement Assessment Report, and the historic river fleet is 300m west of the site. The BIA notes that the railway cutting to the north would act as a drain for groundwater flowing from higher elevations.

- 4.7. Section 7 of the BIA discusses in depth the proposals to construct the basement using mass concrete underpinning for party walls in the range of 560mm and 1320mm depth. Retaining walls will be constructed to south west corner and eastern side of the basement to accommodate new and existing staircases to higher levels.
- 4.8. A comprehensive construction methodology defining the permanent and temporary works to be done is outlined in depth and illustrated with drawings in Appendix A. The perimeter walls and underpins are to be laterally propped, allowing basement excavation and reinforced concrete basement slab and retaining walls to be constructed. The BIA requires that the contractor is to provide a method statement before commencing construction.
- 4.9. The GMA includes a structural loading plan, although the western wall of the basement shows point loads rather than line loads. CGL produced a cautious evaluation for line loads ranging from 147kN/m to 283kN/m. The existing slab level differential between the northern and southern parts of the site is considered. A PDisp assessment considers immediate and long term settlement and shows that the drained condition has maximum settlement displacement, owing mostly to high point load within the square pad underpins. Additional settlement due to the construction of the underpinns is estimated to be 5mm in the analysis.
- 4.10. For damage assessment, the GMA defines four critical sections of the building's perimeter that are supported by strip foundations. These include the street level footpath and neighbouring structures adjacent to the development.
- 4.11. The GMA states horizontal movement would be 'negligible' and no assessment is provided. Justification for the horizontal movement assessment is required to show the permitted damage category would not exceed Burland category 1.
- 4.12. Section 7.4 of the BIA suggests a structural monitoring strategy to control the works and impacts to neighbouring structures and includes a movement monitoring procedure. The monitoring criteria imply that a total movement in excess of 5mm is cause for high alert; this is less than the predicted movement. This strategy further notes the structural engineer should be notified of any movement greater than 2mm. Considering the usual tolerances associated with monitoring and likelihood of these triggers being reached, mitigation measures to prevent damage exceeding Burland Category 1 should be presented.

5.0 CONCLUSIONS

- 5.1. Evidence of the involvement in the BIA of professionals with the required qualifications is presented.
- 5.2. The BIA has confirmed that the proposed basement will be of single storey, built within London Clay and overlain by a thin layer of made ground.
- 5.3. Perched water was encountered within the London Clay. It is likely that the ground water table will not be encountered during excavations due to the presence of London Clay.
- 5.4. The depths of adjacent foundations have been revealed via trial pitting. There are no adjacent basements in the site vicinity a confirmed through historical planning applications.
- 5.5. Screening sections for the hydrogeology, land stability and hydrology were included in the BIA. These were supported by desk study information and a site walkover.
- 5.6. The site is not considered to present a risk to groundwater levels and is unlikely to be affected by the route of the historic River Fleet.
- 5.7. It is accepted that the development will not impact surface flow and flooding and is in a low risk of flooding.
- 5.8. There will be mass concrete underpinning to accommodate a significant increase in differential founding depths, and a construction methodology for the proposed temporary and permanent works are presented.
- 5.9. The GMA predicts Burland Category 1 damage to neighbouring properties based on vertical ground movements. However, no horizontal movement predictions are made in order to justify the prediction of Category 1.
- 5.10. Proposals are provided for a movement monitoring strategy during excavation and construction. However, trigger levels should be reviewed with the updated ground movement assessment and mitigation measures described.
- 5.11. Queries and requests for further information are summarised in Appendix 2. Until these are addressed the BIA does not meet the requirements of CPG: 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	Evidence of input into BIA by appropriately qualified professionals required (refer to CPG Basements 2021).	Closed	20/09/2021
2	Hydrogeology and land stability	Proximity of River Fleet and impacts on land stability and subterranean flow need to be assessed.	Closed	20/09/2021
3	Land stability	Horizontal movements to be assessed to prove damage is within Burland damage category 1.	Open	
4	Land stability	Monitoring criteria should be reviewed with input from a GMA.	Open	
5	Land stability	Structural engineering information to be provided as described in Basement Impact Assessments: Defining the scope of Engineering input - Guidance note 1v0	Closed	20/09/2021

Appendix 3: Supplementary Supporting Documents

None

London

15 Bermondsey Square
London
SE1 3UN

T: +44 (0)20 7340 1700
E: london@campbellreith.com

Birmingham

Chantry House
High Street, Coleshill
Birmingham B46 3BP

T: +44 (0)1675 467 484
E: birmingham@campbellreith.com

Surrey

Raven House
29 Linkfield Lane, Redhill
Surrey RH1 1SS

T: +44 (0)1737 784 500
E: surrey@campbellreith.com

Manchester

No. 1 Marsden Street
Manchester
M2 1HW

T: +44 (0)161 819 3060
E: manchester@campbellreith.com

Bristol

Unit 5.03,
HERE,
470 Bath Road,
Bristol BS4 3AP

T: +44 (0)117 916 1066
E: bristol@campbellreith.com

Campbell Reith Hill LLP. Registered in England & Wales. Limited Liability Partnership No OC300082
A list of Members is available at our Registered Office at: 15 Bermondsey Square, London, SE1 3UN
VAT No 974 8892 43