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Basement Impact Assessment Audit

Car Park adj to Harrington Square, London, NW1 2JL

For
London Borough of Camden

Project No.
14006-36

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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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Project Partner	E M Brown, BSc MSc CGeol FGS
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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 Car Park adj to Harrington Square (planning reference 2023/3824/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 Although the BIA authors do not hold qualifications required from the CPG Basement for the hydrogeology assessment, the assessment presented in the BIA is accepted.

1.5 Screening and scoping assessments are presented and informed by desk study information. However, land stability screening and impact assessment to be revised to consider proposed tree removal.

1.6 A ground investigation was undertaken in June 2023 and confirmed the basement will be founded within the London Clay.

1.7 There is the potential for minor groundwater ingress during the excavation and the BIA recommends the use of traditional pumping to collect any water infiltration. It is accepted that there will no significant impact to the wider hydrogeological environment.

1.8 It is accepted the site is at very low or low risk of flooding from all the sources. An outline drainage scheme is presented in the BIA indicating that surface water attenuation will be provided. The development will not increase flood risk.

1.9 A Ground Movement Assessment (GMA) was undertaken, however, additional clarification/information is required to demonstrate damages to neighbouring buildings occurring due to the proposed basement will be within the limits set by the council.

1.10 An additional GMA has been conducted to determine the impact of the proposed works on the LU Northern Line assets present to the west of the site. Review of that assessment is outside the scope of this report.

1.11 The BIA indicates that suitable movement monitoring will be developed and implemented during construction to assess the performance of retaining walls and control movement occurring to neighbouring buildings.

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

2.0 INTRODUCTION

2.1 CampbellReith was instructed by London Borough of Camden (LBC) on 12 October 2023 to carry out a Category B audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for a car park adjacent to Harrington Square, London, NW1 2JL and Planning Reference No. 2023/3824/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.
- Somers Town Neighbourhood Plan.

2.4 The BIA should demonstrate that schemes:

a) maintain the structural stability of the building and neighbouring properties;

b) avoid adversely affecting drainage and run off or causing other damage to the water environment;

c) avoid cumulative impacts upon structural stability or the water environment in the local area;

and evaluate the impacts of the proposed basement considering the issues of hydrology, hydrogeology and land stability via the process described by the GSD and to make recommendations for the detailed design.

2.5 LBC's Audit Instruction described the planning proposal as *"Development of the existing vacant car park involving erection of a five storey plus basement block of flats to provide 11 residential dwellings and associated works (for the purposes of consultation the unit mix would be: 2 x 1 bed, 3 x 2 bed, 6 x 3 bed)".*

2.6 The Audit Instruction confirmed the car park and neighbouring properties are not listed buildings.

2.7 CampbellReith accessed LBC's Planning Portal on 16 October 2023 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment by A-squared Studio Ltd, Ref 2874-A2S-XX-XX-RP-Y-0003-02, dated September 2023.
- Ground Movement Assessment by A-squared Studio Ltd, Ref 2874-A2S-XX-XX-RP-Y-0002-02, dated September 2023

- Phase I Geo-Environmental Assessment Report by Renaissance Associates Ltd, Ref HAR-REN-00-XX-RP-C-0003, Rev 00, dated March 2023.
- Flood Risk Assessment by Renaissance Associates Ltd, Ref HSC-REN-XX-XX-RP-C-0001, Rev P03, dated June 2023.
- Outline Drainage Strategy by Renaissance Associates Ltd, Ref HSC-REN-XX-XX-RP-C-0002, Rev P01, dated May 2023.
- Tree Survey by tree:fabrik, Ref TF1228, draft, dated November 2022.
- Factual Report by A2 Site Investigation, ref. 33023-A2SI-XX-XX-RP-X-0001-01, dated June 2023.
- Planning Application Drawings by Studio Power:
  - Location Plan, dated May 2023, Dwg No. 0010-SP-XX-XX-DR-A-0210
  - Existing Context Elevation and South Elevation (Dwg No 0010-SP-XX-XX-DR-A-0550, dated February 2022)
  - Proposed Plans (Dwg 0010-SP-XX-XX-DR-A-300 to 302 dated October 2022 and June 2023), Section (Dwg 0010-SP-XX-XX-DR-A-200 dated December 2022) and Elevations (Dwg 0010-SP-XX-XX-DR-A-500 to 503 dated March 2023)
- Structural drawings by Renaissance Associates Ltd:
  - Basement Plan (Dwg HSC-REN-XX-B1-DR-S-01080 P04)
  - Foundation Plan (Dwg HSC-REN-XX-B1-DR-S-01090 P04)
  - Section A-A (Dwg HSC-REN-XX-ZZ-SK-S-02100 P02)
  - Section B-B (Dwg HSC-REN-XX-ZZ-SK-S-02101 P02)

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	No	Authors do not hold a CGeol qualification. However the assessment presented no hydrogeology is accepted.
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	Within the Screening/Scoping sections. Construction methodology/engineer statement presented.
Are suitable plan/maps included?	Yes	
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	Yes	
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	Section 4.2 of BIA. Question 6 should be brought forward to scoping.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.1 of BIA.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.3 of BIA.
Is a conceptual model presented?	Yes	Section 4 of the BIA and factual report.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 5 of the BIA. However question 6 of the screening should be included in the scoping.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	NA	No potential impacts identified in the screening.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	NA	As above.
Is factual ground investigation data provided?	Yes	Ground investigation factual report by A-squared Studio.
Is monitoring data presented?	NA	Groundwater was not encountered during the site investigation and monitoring was not undertaken.
Is the ground investigation informed by a desk study?	Yes	Phase I Geo-Environmental Assessment Report by Renaissance.
Has a site walkover been undertaken?	Yes	As part of the desktop study.
Is the presence/absence of adjacent or nearby basements confirmed?	No	However assumptions made in the BIA are considered conservative.
Is a geotechnical interpretation presented?	Yes	Section 4 of the BIA.
Does the geotechnical interpretation include information on retaining wall design?	Yes	As above.
Are reports/information on other investigations required by screening and scoping presented?	Yes	Ground Investigation, construction method statement, FRA.

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?	No	However, the assumptions made in the BIA are considered conservative.
Is an Impact Assessment provided?	Yes	Section 9 of BIA.
Are estimates of ground movement and structural impact presented?	Yes	A ground movement assessment has been presented.
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	No	Impact due to tree removal to be assessed.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	Section 8.2 of the BIA.
Has the need for monitoring during construction been considered?	Yes	Section 8.3 of the BIA.
Have the residual (after mitigation) impacts been clearly identified?	Yes	Residual impact considered to be negligible.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	No	Additional clarification/information on the GMA is required.
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	As above.

Item	Yes/No/NA	Comment
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	However, further clarification is required.
Are non-technical summaries provided?	Yes	

4.0 DISCUSSION

4.1 The Basement Impact Assessment (BIA) has been prepared by A-Squared. The authors do not hold a CGeol qualification as required by CPG Basements for the hydrogeology assessment. However, given the environmental setting of the site and the location of the proposed basement, the hydrogeological assessment presented in the BIA is accepted.

4.2 The site is located at the land adjacent to Hurdwick House, Harrington Square, Camden. The site area is approximately 0.05 ha and is currently occupied by a private car park, containing hard and soft landscaping. The site is generally flat with an existing external ground level of approximately +24.0m OD.

4.3 The site is bounded by a residential apartment building to the south-east (Hurdwick House), Harrington Square Road to the south-west, and terraced housing to the north-west (1-5 Hurdwick Place) and north-east. The presence/absence of any neighbouring basement has not been confirmed. However assumptions made in the impact assessment on this regard are conservative.

4.4 The proposed development comprises the demolition of the car park and the construction of a multi-storey residential building including a single-storey basement across the southern portion of the building footprint. The building will be supported on piles and the basement excavation will be supported by reinforced concrete retaining walls and temporary sheet piles with the potential for some areas to be formed with open cut where feasible.

4.5 Screening and scoping assessments are presented and informed by desk 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. From the proposed drawings it is understood 2 trees will be removed from the north-western corner of the site. Question 6 of the land stability screening should therefore be brought forward to scoping and the impact assessed.

4.6 A ground investigation was undertaken in June 2023 and identified the site to be underlain by Made Ground to 2.50m bgl. Below the Made Ground, London Clay was found to the maximum depth of the exploratory holes, 25m bgl. It is accepted the basement will be founded within the London Clay.

4.7 Groundwater was not encountered during drilling and subsequent monitoring visits. Therefore, it is accepted the groundwater is below proposed formation level and, as such, there will not be any adverse effect on the wider hydrogeological environment. However, there is the potential for minor groundwater ingress during the excavation and the BIA recommends the use of traditional pumping to collect any water infiltration.

4.8 The Flood Risk Assessment (FRA) indicates the site is located in Flood Zone 1 and the risk of flooding from all the sources is considered to be very low or low. No change in hardstanding areas is proposed. An outline drainage scheme is presented in the BIA indicating that surface water attenuation will be provided by a combination of geo-cellular storage tanks and a blue/green roof system. Surface water will discharge into a Thames Water combined sewer at an agreed discharge rate, subject to agreement with Thames Water and local flood risk management team.

4.9 It is proposed at this stage to construct the basements using temporary sheet piling to form cast in situ reinforced concrete retaining walls with the potential for some areas of open-cut where feasible. Structural drawings indicate allowance for localised reinforced concrete wall and underpinning of adjacent party wall foundation (to No. 5 Hurdwick Place) should be made to avoid surcharge from the piling rig.

4.10 Standard means and methods of excavation are expected to be suitable to excavate the basement, based upon the anticipated ground conditions. The basement excavation will be restrained by new cast in situ reinforced concrete walls and temporary sheet pile walls. Temporary works design will be the responsibility of the specialist contractor. If any amendments to the structural proposal will be made, then the GMA may need to be revised accordingly.

4.11 Geotechnical parameters including those for retaining walls are presented in the ground investigation report and are accepted as conservative engineering values.

4.12 A Ground Movement Assessment (GMA) was undertaken in accordance with CIRIA C760 guidance to determine category of damages occurring to neighbouring buildings. The following assumptions were made in the GMA:

- Neighbouring buildings within the zone of influence of the basement are 5 Hurdwick Place and Hurdwick House)
- Foundations of neighbouring buildings to be at surface;
- Excavation to be supported by means of temporary propping;
- Installation of contiguous bored piled wall CIRIA C760 curves applied along the full perimeter of the basement.

4.13 The GMA indicates damages to neighbouring buildings occurring due to the proposed basement are no more than Category 1 of the Burland Scale, which is within the limit set by the council. However clarification on the following items is required:

- As installation of temporary sheet piles is proposed, the GMA should determine whether their removal may impact the stability of neighbouring buildings.
- The GMA should assess the impact of underpinning of the party wall to No. 5 Hurdwick Place.
- As the BIA screening indicates the presence of highway/pedestrian right of way the GMA should include an assessment on those pieces of infrastructure.

- Impact of tree removal (as discussed in paragraph 4.5) on neighbouring foundation to be included in the GMA.

4.14 An additional GMA has been conducted to determine the impact of the proposed works on the LU Northern Line assets present to the west of the site. Review of that assessment and of any other on underground infrastructure that may be present on or close to site is outside the scope of this report.

4.15 The BIA indicates that suitable movement monitoring will be developed and implemented during construction to assess the performance of the earth retention system.

5.0 CONCLUSIONS

5.1 The BIA authors do not hold qualifications required from the CPG Basement for the hydrogeology assessment. However, the assessment presented in the BIA is accepted.

5.2 Screening and scoping assessments are presented and informed by desk study information. The land stability screening should be revised to include an assessment on tree removal in relation to neighbouring foundations.

5.3 A ground investigation was undertaken in June 2023. It is accepted the basement will be founded within the London Clay.

5.4 Groundwater was not encountered during the site investigation. However, there is the potential for minor groundwater ingress during the excavation and the BIA recommends the use of traditional pumping to collect any water infiltration.

5.5 It is accepted that there will be no significant impact to the wider hydrogeological environment.

5.6 It is accepted the site is at very low or low risk of flooding from all the sources. An outline drainage scheme is presented in the BIA indicating that surface water attenuation will be provided. The development will not increase flood risk.

5.7 The GMA indicates damages to neighbouring buildings occurring due to the proposed basement are within the limit set by the council. However, clarification on additional items is required as detailed in Section 4.

5.8 It is noted the structural methods and sequence (including temporary works design) are still under development at this stage. If any amendments to the structural proposal will be made, then the GMA may need to be revised accordingly.

5.9 An additional GMA has been conducted to determine the impact of the proposed works on the LU Northern Line assets present to the west of the site. Review of that assessment is outside the scope of this report.

5.10 The BIA indicates that suitable movement monitoring will be developed and implemented during construction to assess the performance of the earth retention system.

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

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Appendix 1

Consultation Responses

None

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Appendix 2

Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Land Stability	Question 6 of the screening should be brought forward to scoping and the impact assessed.	Open – Section 4.5.	
2	Land Stability	The GMA should be revised to consider removal of temporary sheet piled wall, impact of underpinning of a party wall to neighbouring foundations, assessment on highway/pedestrian right of way within the zone of influence of the basement, impact due to tree removal.	Open – Section 4.13.	
3	Land stability	The structural methods and sequence (including temporary works design) are stated to be still under development at this stage. If any amendments to the structural proposal will be made, then the GMA may need to be revised accordingly.	Note only	N/A
4	BIA format	The authors of the BIA do not hold the CGeol qualification as required by CPG Basements. However hydrogeological assessment is accepted.	Note only	N/A

CampbellReith
consulting engineers

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

Bristol

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

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

Manchester

No. 1 Marsden Street
Manchester
M2 1HW

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