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Basement Impact Assessment Audit

100 Chalk Farm Road, London, NW1 8EH

For
London Borough of Camden

Project No.
14921-10

Date
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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 100 Chalk Farm Road, London, NW1 8EH (planning reference 2024/5446/P). The basement is considered to fall within Category C as defined by the Terms of Reference. This application is an amendment to a previous application under reference 2024/0479/P which was granted planning approval in November 2024.

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 has been prepared by a well-known firm of engineering consultants using individuals who possess suitable qualifications.

1.5 The proposed basement neighbours a Grade II listed building (the Roundhouse Theatre) and is within a Tier II archaeological priority area.

1.6 The re-development of the site involves the demolition of the existing buildings, replacing them with two new high-rise blocks from six- to twelve-storeys containing student accommodation, affordable homes, and commercial space.

1.7 The BIA assumes the site comprises a cover of Made Ground to 3.5m over London Clay. The BIA assumes groundwater to be some 9m below ground level (bgl).

1.8 It is accepted that the proposed development will not adversely impact the hydrology of the area.

1.9 The BIA indicates that the wall will be contiguous with pile lengths of up to 12m. These details should be confirmed as part of a Basement Construction Plan (BCP).

1.10 Several GMAs have been carried out to assess the impact to the assets in proximity to the proposed basement of which include the following: the Northern Line; the Northern Line tunnels; and, Lee Tunnel. These GMAs have been assessed separately by the asset owners. GMAs carried out on the neighbouring structures; Roundhouse Theatre; Juniper Crescent (no. 1 to 22); and Chalk Farm Road (no. 63 to 86) predict a maximum Burland Category 0 (negligible) is predicted. The assumptions made in the assessment should be confirmed within a BCP.

1.11 Based on the information provided, it can be confirmed that the BIA complies with the requirements of CPG: Basements subject to the satisfactory completion of a Basement Construction Plan.

2.0 INTRODUCTION

2.1 CampbellReith was instructed by London Borough of Camden (LBC) on 9th January 2024 to carry out a Category C audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 100 Chalk Farm Road, London, NW1 8EH (reference 2024/5446/P). This application is an amendment to a previous application under reference 2024/0479/P which was granted planning approval in November 2024. The BIA submitted as part of this previous application was audited by CampbellReith in April 2024 (ref. RAkb14006-46-250424-100 Chalk Road F1).

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 "*Demolition of existing buildings and redevelopment of the site to provide two new buildings of between 6-12 storeys: one containing affordable homes (Class C3) and one (with three cylindrical volumes) containing purpose-built student accommodation with associated amenity and ancillary space (Sui Generis), a ground floor commercial space (Class E) together with public realm, access, plant installation, and other associated works*."

2.6 The Audit Instruction confirms 100 Chalk Farm Road is neighbour to a Grade II listed building and in a Tier II archaeological priority area.

2.7 CampbellReith accessed LBC's Planning Portal on 10th January 2024 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment Report (BIA) issued by Milvum dated November 2024, ref. MES/2411/REG049, rev. 01 (excluding appendices).
- Drawings by DSDHA including:
  - Basement Floor Plan Proposed, ref. 356_P20.099, rev. P1, dated December 2024
  - Context Elevations, reference 356_P30.104, dated July 2024
  - Proposed PBSA Section AA, ref. 365_P40.110, rev. P1, dated December 2024
  - Proposed PBSA Section BB, ref. 365_P40.111, rev. P1, dated December 2024
  - Proposed PBSA Section CC, ref. 365_P40.112, rev. P1, dated December 2024
  - Proposed PBSA Section DD, ref. CHALF-RYD-DR-A-PB-356_P40.113, rev. P1, dated December 2024
  - Proposed AH Section EE, ref. 365_P40.120, rev. P1, dated December 2024
  - Proposed AH Section FF, ref. 365_P40.121, rev. P1, dated December 2024
- Planning Covering Letter from Regal Chalk Farm Ltd, dated 4th December 2024

2.8 A full copy of the Basement Impact Assessment Report (including the appendices) was provided by email to CampbellReith on 14th January 2025. These included:

- Drainage Strategy Report produce by HDR Consulting dated November 2024, ref. CHALF-HDR-RP-C-YY-XX-016, rev. P01
- Ground Movement Assessment Impacts Relating to Network Rail North London Line produced by Milvum dated September 2024, ref. MES/2409/REG046, rev. 1
- Ground Movement Assessment Impacts Relating to Northern Line Underground Railway Tunnels produced by Milvum dated September 2024, ref. MES/2409/REG045, rev. 1
- Assessment of Impact of Enabling and Main Works on TWUL Assets produced by Geotechnical Consulting Group (GCG) dated October 2024, ref. HDR Consulting Limited 100 Chalk Farm Road, London NW1 8EH, rev. 3.
- Ground Movement Assessment Impacts Relating to the Roundhouse produced by Milvum dated September 2024, ref. MES/2409/REG045, rev. 1

2.9 A copy of the most recent ground investigation report was provided via email to CampbellReith on 20th January 2025.

- Geotechnical Design Report produce by Geo-Environmental Services Ltd dated August 2024, ref. GE22556/GDR/JUL24, rev. 3.0.

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	Section 2.2 of the BIA report
Is data required by Cl.233 of the GSD presented?	No	These details should be confirmed as part of the Basement Construction Plan.
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?	No	These details should be confirmed as part of the Basement Construction Plan.
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 4.0 of the BIA report.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.0 of the BIA report.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.0 of the BIA report.
Is a conceptual model presented?	Yes	Section 6.0 of the BIA report
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 5.0 of the BIA report

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 5.0 of the BIA report
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 5.0 of the BIA report
Is factual ground investigation data provided?	Yes	A copy of the report was provided via email
Is monitoring data presented?	Yes	
Is the ground investigation informed by a desk study?	Yes	
Has a site walkover been undertaken?	Yes	
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	
Is a geotechnical interpretation presented?	Yes	
Does the geotechnical interpretation include information on retaining wall design?	Yes	Section 6.0 of the BIA report
Are reports on other investigations required by screening and scoping presented?	Yes	
Are the baseline conditions described, based on the GSD?	Yes	
Do the baseline conditions consider adjacent or nearby basements?	Yes	
Is an Impact Assessment provided?	Yes	Section 9.0 of the BIA report

Item	Yes/No/NA	Comment
Are estimates of ground movement and structural impact presented?	Yes	Provided in Section 8.0 and Appendices 3-6 of the BIA report
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	Yes	However, the Basement Construction Plan should confirm the assumptions made as part of the assessment remain valid.
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	
Have the residual (after mitigation) impacts been clearly identified?	Yes	
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	However, the Basement Construction Plan should confirm the assumptions made as part of the assessment remain valid.
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	
Are non-technical summaries provided?	Yes	

4.0 DISCUSSION

4.1 The Basement Impact Assessment (BIA) has been carried out by engineering consultants Milvum and the individuals concerned in its production have suitable qualifications.

4.2 The application is an amendment of a previous application (ref. 2024/5446/P) which was granted planning permission in November 2024. The BIA for the previous application was carried out by Pell Frischmann and was audited in April 2024. This updated BIA states that the previously accepted reports have been relied upon where relevant. This includes the Desktop Study, Flood Risk Assessment and Ground Investigation.

4.3 The BIA states the amendments to the basement from the original approved application are minimal however, does not provide any details of the changes considered in the updated assessment. It is noted that the proposed basement layout presented in the drawings provided in Appendix 1 of the BIA report (dated August 2024) differs to those included in the planning portal (dated December 2024). The changes to the basement layout must be provided as part of the Basement Construction Plan (BCP).

4.4 The LBC Instruction to proceed with the audit identified that the proposed basement neighbours a Grade II listed building, the Roundhouse Theatre and is within a Tier II archaeological priority area. The previous BIA application (ref. 2024/5446/P) highlighted that the site is also adjacent to other Grade II listed features including a cattle trough and a drinking fountain. The site is within the Regents Canal Conservation Area.

4.5 The site currently houses several office blocks ranging from one to five-storeys and a two-storey carpark. The ground slopes downwards from south to north falling from 33.00m OD to 28.50m OD.

4.6 The re-development proposals involve the demolition of the existing buildings, replacing them with two new high-rise blocks from six- to twelve-storeys containing student accommodation affordable homes and commercial space. The proposed finish floor level of the basement is reported to be 24.50m OD with a formation level at 23.80m. The BIA confirms that the development will be supported by a piled foundation and retaining walls will be formed by contiguous piling.

4.7 The BIA report notes that a ground investigation confirms the site is underlain by London Clay and is a suitable bearing stratum for the proposed development. A ground model is presented in Section 6.0. The model assumes ground level to be at 33m OD and the sequence of strata to comprise 3.50m of Made Ground over London Clay. The retaining wall calculations provided in Section 6.0 adopt a groundwater level at 23.80m OD (c. 9.20m bgl) however, groundwater monitoring provided in the ground investigation report (produce by Geo-Environmental Services Ltd) shows groundwater to be between 1.15m and 4.84m bgl. Clarification from the engineer confirms this is believed to relate to localised perched water within the Made Ground cover.

4.8 Screening tables are included in Section 4.0 of the BIA and confirm the following:

- The site is underlain by London Clay which is classified as an unproductive aquifer and has a risk of shrink swell subsidence.
- The proposed basement will extend beneath the water table.
- The development neighbours land including railway cuttings with a slope greater than 7 degrees.
- The proposed basement is within 5m of a highway and will significantly increase the differential depth of foundations relative to the neighbouring properties.
- The site is within the exclusion zone of Thames Water's Lee Tunnel, Network Rail lines and London Underground lines.
- The proposed development will not alter the existing surface water run off or increase the area of hardstanding.

4.9 The items identified with a response of 'yes' have been carried through to scoping, presented in Section 5.0 of the BIA report. The scoping responses confirm the following:

- The foundations are at sufficient depth that they will not be impacted by shrink swell subsidence.
- Due to the low permeability of the London Clay, no continuous groundwater body is likely to be present and water will be limited to perched water within the Made Ground or local seepages in the London Clay.
- Site investigation is required to allow detailed foundation design and delineate the presence of perched groundwater.
- The proposed basement will significantly increase the differential depth of foundations relative to neighbouring properties and is within 5m of a highway and other assets/ exclusion zones therefore a Ground Movement Assessment is required.

4.10 The BIA confirms that the site is at a low risk of flooding and a drainage strategy, produced by HDR Consulting Ltd, has been approved by Thames Water. It is accepted that the proposed development will not adversely impact the hydrology of the area.

4.11 The BIA confirms that shallow levels of perched groundwater have been monitored within the Made Ground overlying the London Clay and notes that the perched groundwater does not represent a continuous aquifer, so no impacts to the local or wider hydrogeology are anticipated. The BIA states that, nevertheless, groundwater control methods may be required to be employed during the construction process.

4.12 Geotechnical parameters are provided in Section 6.0 of the ground investigation report. The values provided are accepted to be reasonably conservative for the anticipated ground conditions.

4.13 The BIA suggests that the retaining walls will comprise contiguous piled walls. The piles will be 12m in length along the western and eastern boundaries and 15m to 17m along the southern boundary adjacent to the national rail boundary. The plans provided in Appendix 1 show that the southern wall will comprise a secant piled wall, clarification on the proposed embedded wall construction must be provided within the BCP.

4.14 Section 2.0 of the BIA outlines a high-level construction sequence which includes the following:

- Demolition of the existing structures.
- Installation of the piled retaining walls from current ground level and casting of the capping beams
- Installation of the bearing piles.
- Installation of the temporary propping at 28.50m OD followed by excavation of the basement to 23.80m OD (adding additional props where required).
- Casting of the raft slabs and liner walls followed by the ground floor slab.
- Removal of the temporary props and construction of the cores and super-structure.

4.15 It is noted that the Structural Engineering Report by Pell Frischmann (submitted as part of the original application ref. 2024/5446/P) confirms that driven or percussive piles are not permitted within 15m of the London Underground tunnel.

4.16 Five separate ground movement assessments have been carried out to assess the impacts to the following assets:

- Network Rail (Northern Line)
- London Underground (Northern Line tunnels)
- Thames Water (Lee Tunnel and other assets)
- Roundhouse Theatre
- Juniper Crescent (no. 1 to 22) and Chalk Farm Road (no. 63 to 86).

4.17 The GMAs undertaken to assess the impacts to the following assets; Northern Line; Northern Line tunnels; and, Lee Tunnel, have been reviewed by the relevant asset owners.

4.18 The GMAs carried out on the neighbouring structures; Roundhouse Theatre; Juniper Crescent (no. 1 to 22); and, Chalk Farm Road (no. 63 to 86) have been carried out by Milvum following the CIRIA C760 guidance and were completed using Oasys programmes PDisp and XDisp.

4.19 The GMA for the Roundhouse Theatre is presented in Appendix 6 of the BIA report. The assessment predicts ground movements from pile installation by applying the curves for installation of a contiguous piled wall and excavation in front of the walls. The piles are assumed to be 12m in length with a retained height of 5m. The GMA for the properties along Juniper Crescent and Chalk Road (provided in Section 8.0 of the BIA) also applies curves for the installation of a contiguous piled wall and excavation in front of the walls

4.20 The conclusions of the assessment predicts that damage to neighbouring structures can be limited to Burland Category 0 (negligible).

4.21 The Milvum GMA provided in Section 8.0 states the following:

- The proposed embedded piled retaining walls are not designed for axial loading.
- The bearing piles will be installed at ground level (prior to the basement excavation) helping to mitigate against significant heave.

4.22 The above assumptions should be confirmed within the BCP. Following completion of the detailed design, should these assumptions not be valid additional assessment will likely be required.

4.23 With the exception of the Network Rail GMA, it has been assumed that all the retained walls will be constructed as contiguous piled walls. Additionally, the pile lengths of the southern boundary are stated to have been modelled at 15m however, the BIA report suggests the piles may range between 15m to 17m. Clarification on the type of embedded wall along the southern boundary and the pile lengths will need to be confirmed as part of the BCP.

4.24 Structural movement monitoring is recommended in Section 9.0 of the BIA to include, precise levelling, reflective survey targets or other appropriate instrumentation. This will be agreed under the Party Wall Act and as part of any asset protection agreements required.

5.0 CONCLUSIONS

5.1 The BIA has been carried out by engineering consultants Milvum; the individuals concerned in its production demonstrate that they hold suitable qualifications in accordance with the CPG Basements.

5.2 This BIA is part of an amendment to a previous application (ref. 2024/5446/P) which was granted planning permission in November 2024. This BIA has relied upon previously agreed assessments where relevant.

5.3 The proposed basement neighbours a Grade II listed building (the Roundhouse Theatre) and is within a Tier II archaeological priority area.

5.4 The re-development of the site involves the demolition of the existing buildings, replacing them with two new high-rise blocks from six- to twelve-storeys containing student accommodation, affordable homes, and commercial space. The proposed finish floor level of the basement is reported to be 24.50m OD with a formation level at 23.80m.

5.5 The ground model presented in the BIA comprises a cover of Made Ground to 3.5m over London Clay. The ground model assumes groundwater to be some 9m bgl however, monitoring records suggests perched water within the Made Ground may be present.

5.6 It is accepted that the proposed development will not adversely impact the hydrology of the area.

5.7 The screening and scoping confirm that whilst perched water has been encountered in the Made Ground this does not present a continuous aquifer, and the London Clay is classified as an unproductive aquifer.

5.8 The BIA report suggests that the embedded retaining wall will comprise a contiguous piled wall with lengths of 12m increasing to 15m to 17m along the southern boundary. These details should be confirmed as part of the Basement Construction Plan (BCP).

5.9 Several GMAs have been carried out to assess the impact to the assets in proximity to the proposed basement of which include the following; the Northern Line; the Northern Line tunnels; and, Lee Tunnel. These GMAs have been assessed separately by the asset owners. GMAs carried out on the neighbouring structures; Roundhouse Theatre; Juniper Crescent (no. 1 to 22); and Chalk Farm Road (no. 63 to 86) predict a maximum Burland Category 0 (negligible) is predicted. The assumptions made in the assessment should be confirmed within a BCP.

5.10 Structural movement monitoring is recommended in the BIA to include, precise levelling, reflective survey targets or other appropriate instrumentation. This will be agreed under the Party Wall Act and as part of any asset protection agreements required.

5.11 It can be confirmed that the BIA complies with the requirements of CPG: Basements, subject to the satisfactory completion of a Basement Construction Plan.

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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
Note Only	Construction information	It is recommended that a Basement Construction Plan is provided as part of the application. Should any of the assumptions made in the BIA not be valid following issue of the BCP, additional assessment will likely be required.	NA	NA

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Appendix 3

Supplementary Supporting Documents

None

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