

**207 Goldhurst Terrace  
London NW6 3ER**

**Basement Impact Assessment  
Audit**

For  
London Borough of Camden

Project Number: 12066-47  
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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 207 Goldhurst Terrace, London NW6 3ER (planning reference 2015/4370/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 and experience of the authors of the BIA and Structural Strategy Report (SSR) require further clarification to comply with requirements of CPG4.
- 1.5. The BIA has confirmed that the proposed basement will be founded within the London Clay.
- 1.6. It is likely that the ground water table will be encountered during basement foundation excavation. The area flooded in 1975 and 2002 and it is understood a Thames Water relief sewer has been constructed locally; this has not been identified in the BIA. From our limited investigations it is not clear if this sewer is under the site.
- 1.7. No site specific ground movement analysis or classification of potential damage to adjacent structures has been presented for review.
- 1.8. Monitoring of adjacent structures is noted however no trigger levels for action are noted.
- 1.9. It is accepted that the surrounding slopes to the development site are stable.
- 1.10. It is accepted that the development will not impact on the wider hydrogeology of the area as then London Clay is identified as unproductive strata.
- 1.11. References to Camden GSD figures are given in the scoping but no specific site extracts are contained to justify answers.
- 1.12. Queries and requirements for clarification resulting from this audit are discussed in Section 4 and are summarised in Appendix 2.

## 2.0 INTRODUCTION

- 2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 02 September 2015 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 207 Goldhurst Terrace, Camden Reference 2015/4370/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
- Guidance for Subterranean Development (GSD). Issue 01. November 2010. Ove Arup & Partners.
  - Camden Planning Guidance (CPG) 4: Basements and Lightwells.
  - Camden Development Policy (DP) 27: Basements and Lightwells.
  - Camden Development Policy (DP) 23: Water.
- 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; and,
  - 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 "Excavation of basement with lightwells to the front and rear of the building (Use Class C3)."
- 2.6. CampbellReith accessed LBC's Planning Portal on 23 September 2015 and gained access to the following relevant documents for audit purposes:
- Construction Management Plan (pro forma) FT Architects

- Basement Impact Assessment June 2015 Vincent & Rymill
- Structural Calculations Vincent & Rymill
- Architect's Floor Plans Existing and Proposed FT Architects
- Structural Basement Plans and Sections Vincent & Rymill

2.7. A site specific Ground Investigation Report was received by email on 28 September this is also included in the review.

### 3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	NO	The qualifications authors of the BIA and the ground investigation require clarification.
Is data required by Cl.233 of the GSD presented?	NO	
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	YES	BIA
Are suitable plan/maps included?	YES	Architects and Engineers
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	YES	Architects and Engineers drawings
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	NO	Screening appears appropriate however justification details for Q1 not included. Q14 regarding tunnels needs to confirm TW Sewer
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	NO	Screening appears appropriate however justification details for Q1 – Q3 not included.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	NO	Screening appears appropriate however justification details for Q3, Q4, Q5, Q8, Q10 and Q11.
Is a conceptual model presented?	YES	Ground Investigation Report
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	YES	Subject to comments on screening above

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	YES	Subject to comments on screening above
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	YES	Subject to comments on screening above
Is factual ground investigation data provided?	YES	Ground Investigation Report
Is monitoring data presented?	NO	
Is the ground investigation informed by a desk study?	NO	No desk top study confirmed in Ground Investigation Report
Has a site walkover been undertaken?	YES	Site walk over noted in Ground Investigation Report
Is the presence/absence of adjacent or nearby basements confirmed?	NO	Basements at 203 and 211 noted in comments received
Is a geotechnical interpretation presented?	YES	Section 6 of Ground Investigation Report
Does the geotechnical interpretation include information on retaining wall design?	YES	Section 6 of Ground Investigation Report
Are reports on other investigations required by screening and scoping presented?	YES	Arboricultural Report
Are baseline conditions described, based on the GSD?	YES	
Do the base line conditions consider adjacent or nearby basements?	NO	No basements noted
Is an Impact Assessment provided?	YES	Section 4 BIA
Are estimates of ground movement and structural impact presented?	NO	Not included



Item	Yes/No/NA	Comment
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	YES	
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	NO	
Has the need for monitoring during construction been considered?	YES	BIA Scoping but not in construction sequence and no detailed proposal submitted
Have the residual (after mitigation) impacts been clearly identified?	NO	
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	NO	No estimation of ground movement contained in submission
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 2?	NO	No confirmation of building damage provided
Are non-technical summaries provided?	NO	Not considered necessary

## 4.0 DISCUSSION

- 4.1. The Basement Impact Assessment (BIA) has been carried out by a firm of engineering consultants Vincent & Rymill the author is noted as a chartered structural engineer; however no proof of expertise in engineering geology has been provided as required by CPG4. The BIA report is not countersigned by a reviewer.
- 4.2. The Geotechnical sections of the report have been carried out by Ground & Water Ltd but the individual's qualifications are not noted as CGeol as required by CPG4.
- 4.3. The BIA makes reference to Camden GSD maps and guidance documents used for the screening, we would expect the relevant figures to be included to justify the statements given within this section. The BIA only contains an extract from Fig 4 from the GSD however this appears to refer to another property.
- 4.4. It is accepted that there are no slope stability concerns regarding the proposed development. The site has previously flooded in 1975 and 2002 however it is understood a flood relief sewer has now been constructed and the area now can be considered as not prone to flooding.
- 4.5. The proposed basement consists of a single storey construction formed beneath the footprint of a three storey terraced house. The depth of excavation appears to be around 4.3m below the existing garden level. The proposed structural solution for the basement walls is to sequentially cast reinforced concrete walls in an underpinning sequence. This is recognised as a suitable form of construction.
- 4.6. The ground investigation has identified that the basement will be constructed in the London Clay proven to a depth of 10.45m bgl.
- 4.7. Q 14 of the Land Stability Screening indicates that no tunnels exist under the site. A Thames Water storm relief tunnel is known to be in the local area; an in-house search could not determine if this passes beneath the site and this should be further investigated to confirm its location.
- 4.8. The BIA confirms any movement of the party walls will be monitored during construction, but no control threshold levels for action are indicated. Furthermore within the BIA or the Ground Investigation there is no estimation of expected horizontal or vertical ground movements in order to determine the degree of damage to the party walls that might be expected.
- 4.9. Basement retaining walls are noted in the BIA as propped in the temporary condition and a detail of the propping should be included for review. The structural design of the retaining wall

appears not to be consistent with the BIA note; the wall appears to be designed as a cantilever adopting different soil parameters from that noted in the ground investigation.

- 4.10. The structural calculations for the retaining wall indicate a 400 deep base, the drawings indicate a 350mm deep base, and the reinforcement quantities for the stem do not appear to be consistent with the design.
- 4.11. The Construction Method Statement and the Construction Sequence are brief documents and require further development.

## 5.0 CONCLUSIONS

- 5.1. The qualifications of the individual authors of the BIA and SSR and reviewers need further justification.
- 5.2. The BIA has confirmed that the proposed basement will be founded within the London Clay which is classed as unproductive strata.
- 5.3. The Construction Method Statement and Construction Sequence require to be developed further. For example, it is likely that the ground water table will be encountered during basement foundation excavation.
- 5.4. The basement is to be constructed adopting traditional reinforced concrete walls formed in an underpinning sequence. This is considered an appropriate solution however the calculations contain discrepancies.
- 5.5. No analysis has been undertaken of horizontal and vertical ground movements and this should be carried out to determine the extent of any potential damage to the adjoining properties.
- 5.6. No proposals are provided for a movement monitoring strategy during excavation and construction.
- 5.7. It is accepted that the surrounding slopes to the development site are stable.
- 5.8. It is accepted that the development will not impact on the wider hydrogeology of the area as the basement is to be founded in London Clay.
- 5.9. The site has previously flooded in 1975 and 2002, however it is understood a Thames Water relief sewer has been constructed to protect the area from further flooding. The sewer location needs to be confirmed as of the BIA scoping.

## **Appendix 1: Resident's Consultation Comments**

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
Neil	205 Goldhurst Terrace	01/09/15	Adjacent basements-ground stability Thames Water Sewer	Refer 4.5-4.6, 4.8-4.10 Refer to 4.7
Wood	219 Goldhurst Terrace	14/09/15	Damage to adjacent properties Thames Water Sewer	Refer 4.5-4.6, 4.8-4.10 Refer to 4.7
Kay	205 Goldhurst Terrace	10/09/2015	Adjacent basements-ground stability	Refer 4.5-4.6, 4.8-4.10
205 Goldhurst Terrace Management Company		?	Thames Water Sewer  Adjacent basements-ground stability Building damage	Refer to 4.7  Refer 4.5-4.6, 4.8-4.10 Refer to 4.7

## **Appendix 2: Audit Query Tracker**

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Qualifications	Clarify qualifications for ground investigation author in line with CPG4 requirements	Open	
2	Qualifications	Demonstrate BIA author experience in ground engineering in line with CPG4 requirements	Open	
3	Surface Water Flow	Confirm location of Thames Water relief sewer	Open	
4	Stability	Provide vertical and horizontal ground movement estimation	Open	
5	Stability	Provide classification of potential damage to adjacent structures	Open	
6	Scoping	Provide site specific extracts from GSD figures justifying stage 1 scoping	Open	
7	Stability	Provide amended calculation for retaining wall	Open	
8	Stability	Provide construction sequence plans and develop Construction Method Statement. Resolve discrepancies between BIA and CSM	Open	



### **Appendix 3: Supplementary Supporting Documents**

None