CampbellReith
consulting engineers

# 156 Goldhurst Terrace
# London NW6 3HP

## Basement Impact Assessment
## Audit

For

London Borough of Camden

Project Number: 12066-20
Revision: D1

August 2015

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## Document History and Status

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## Document Details

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| Project Partner | E M Brown, BSc MSc CGeol FGS |
| Project Number | 12066-20 |
| Project Name | 156 Goldhurst Terrace, London NW6 3HP |
| Planning Reference | 2014/6787/P |

## Contents



## 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 156 Goldhurst Terrace, London NW6 3HP (planning reference 2014/6787/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 review it against an agreed audit check list.

1.4. The BIA has confirmed that the proposed basement will be located partly within the London Clay and that the surrounding slopes are stable.

1.5. It is accepted that groundwater will not be affected by the excavation and mitigation measures should effectively control potential variations to the groundwater regime.

1.6. The proposed basement will be excavated and constructed utilising established techniques.

1.7. Although the proposed development is in an area flooded in 1975 and 2002, it is accepted that the risk of surface water flooding is low.

1.8. Anticipated wall deflections are missing from Appendix C of this BIA and the category of damage to adjacent properties requires to be confirmed.

1.9. The adjacent properties are to be monitored during construction and some repairs are anticipated.

## 2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 8th July 2015 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 156 Goldhurst Terrace, Camden Reference 2014/6787/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. The planning proposal is for a 3.3m deep basement beneath a terraced building for domestic use.

2.6. It is not thought that the basement proposal involves a listed building or that the site neighbours listed buildings.

2.7. CampbellReith accessed LBC's Planning Portal on 8th July 2015 and gained access to the following relevant documents for audit purposes:

- Basement Construction Methodology by Croft Structural Engineers
- Thames Water sewer flooding enquiry
- Basement Impact Assessment – surface water and groundwater by ESI
- Ground Investigation Report by Ground and Water
- Drawings;

  Existing site plan

  Existing location plan

  Existing basement plan

  Existing ground floor plan

  Existing section A-A

  Existing section B-B

  Proposed basement plan

  Proposed ground floor plan

  Proposed section A-A

  Proposed section B-B.

## 3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

| Item | Yes/No/NA | Comment |
|---|---|---|
| Are BIA Author(s) credentials satisfactory? | No | The author of the Croft report is not identified. The authors of the ESI and Ground and Water reports are suitably qualified. |
| Is data required by Cl.233 of the GSD presented? | Yes | Basement construction methodology. |
| Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology? | Yes | Basement construction methodology. |
| Are suitable plan/maps included? | Yes | Basement construction methodology and supplementary drawings. |
| 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:<br>Have appropriate data sources been consulted?<br>Is justification provided for 'No' answers? | Yes | Basement construction methodology Section 2. |
| Hydrogeology Screening:<br>Have appropriate data sources been consulted?<br>Is justification provided for 'No' answers? | Yes | BIA Surface water and groundwater Section 2. |
| Hydrology Screening:<br>Have appropriate data sources been consulted?<br>Is justification provided for 'No' answers? | Yes | BIA Surface water and groundwater Section 2. |
| Is a conceptual model presented? | Yes | For flooding and groundwater: BIA Surface water and groundwater Section 4. For basement design: Basement Construction Methodology Appendix E |
| Land Stability Scoping Provided?<br>Is scoping consistent with screening outcome? | Yes | Basement Construction Methodology Section 4. |

| Item | Yes/No/NA | Comment |
|---|---|---|
| Hydrogeology Scoping Provided?<br>Is scoping consistent with screening outcome? | Yes | BIA Surface water and groundwater Section 3. |
| Hydrology Scoping Provided?<br>Is scoping consistent with screening outcome? | Yes | BIA Surface water and groundwater Section 3. |
| Is factual ground investigation data provided? | Yes | Ground investigation report. |
| Is monitoring data presented? | Yes | Groundwater monitoring in the Ground Investigation report. |
| Is the ground investigation informed by a desk study? | Yes | |
| Has a site walkover been undertaken? | Yes | Basement construction methodology Section 5.<br>Ground Investigation Report Section 3. |
| Is the presence/absence of adjacent or nearby basements confirmed? | No | |
| Is a geotechnical interpretation presented? | Yes | Ground investigation report. |
| Does the geotechnical interpretation include information on retaining wall design? | Yes | Ground investigation report Section 6.5. |
| Are reports on other investigations required by screening and scoping presented? | Yes | BIA Surface water and groundwater.<br>Thames Water Sewer Flooding enquiry. |
| Are baseline conditions described, based on the GSD? | Yes | |
| Do the base line conditions consider adjacent or nearby basements? | NA | |
| Is an Impact Assessment provided? | Yes | Basement construction methodology Section 10. |

| Item | Yes/No/NA | Comment |
|---|---|---|
| Are estimates of ground movement and structural impact presented? | Yes | Basement construction methodology Section 10 states that wall deflections are presented in Appendix C but these cannot be located. It is not known whether heave and settlement of underpins have been considered. |
| 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 | It is proposed that underpins act as cantilevers with no temporary propping. A ground movement assessment has not been provided. |
| Has the need for monitoring during construction been considered? | Yes | Basement construction methodology Section 10. |
| Have the residual (after mitigation) impacts been clearly identified? | Yes | Potential groundwater inflow in to the excavations for underpinning. |
| Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure been maintained? | No | |
| 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 | Not demonstrated |
| Does report state that damage to surrounding buildings will be no worse than Burland Category 2? | Yes | Basement construction methodology Section 10, however, no ground movement assessment provided. |
| Are non-technical summaries provided? | No | |

## 4.0 DISCUSSION

4.1. The BIA has been carried out by Croft Structural Engineers; the author's details and qualifications are not provided. A further BIA considering hydrogeology and hydrology has been prepared by specialists with suitable qualifications.

4.2. The proposed basement will generally be excavated in sequenced underpinning panels to a depth of 3m to form L- shaped retaining walls. Section 10 of the BIA notes that wall deflections are presented in Appendix C but these have not been located. The BIA variously states that damage to neighbours' properties will be negligible or slight. A ground movement assessment is required to confirm that ground movements and resulting building damage are within acceptable limits.

4.3. The BIA appears to be contradictory stating that the basement will be within London Clay and also stating that the basement will be within the Claygate Beds. With reference to the ground investigation report it is acknowledged that the basement will be founded within Head Deposits overlying the London Clay.

4.4. It is accepted that the groundwater detected during monitoring may represent a perched groundwater table. Suitable mitigation measures should be implemented if groundwater ingress is encountered. No reference has been made to nearby basements, however, in the absence of significant groundwater flows, the assumption of the absence of basements is conservative.

4.5. The BIA has shown that the surrounding slopes to the development are stable and the structure sufficiently remote from existing trees.

4.6. The BIA includes an assessment of whether the development is likely to be affected by surface water flooding, given that the area was previously flooded in 1975 and 2002. The BIA states that there is a low risk of surface water flooding and that the previous flooding events were associated with sewer flooding. Thames Water have confirmed that there have been no sewer related flooding events at the site. The flooding risk is accepted as being low.

4.7. The BIA refers to a ground movement assessment which is not provided. Figures presented, based upon previous experience of the proposed combined underpinning and basement wall system indicated that damage will be no worse than Burland Category 2, however, the ground movement and building damage assessment should be presented to allow this to be validated. Some damage to the neighbouring properties is anticipated and it is considered necessary to instigate a movement monitoring regime on the adjacent properties during construction.

## 5.0 CONCLUSIONS

5.1. The BIA has been carried out by Croft Structural Engineers, but the author's details are not provided. These are required to complete the audit.

5.2. The proposed basement will generally be excavated in sequenced panels underpinning to form cantilever L-retaining walls. It should be demonstrated that ground movement and building damage can be restricted to acceptable limits without the use of temporary props.

5.3. The basement will be founded within Head Deposits overlying the London Clay and will not have a significant impact on groundwater flows.

5.4. Suitable mitigation measures should be implemented if groundwater ingress is encountered during excavation of the underpinning panels.

5.5. The BIA has shown that the surrounding slopes to the development are stable.

5.6. The BIA states that there is a low risk of surface water flooding and that the previous flooding events were associated with sewer flooding. Thames Water have confirmed that there have been no sewer related flooding events at the site. The BIA – surface water and groundwater – states that the peak run off from the site will remain unchanged.

5.7. The BIA contains a limited Ground Movement Assessment based upon previous experience of the proposed combined underpinning and basement wall system and this should be validated by the provision of a more detailed assessment considering ground movements due to the installation of the underpins, excavation and settlement of the new foundations. Some damage to the neighbouring properties is anticipated and it is considered necessary to instigate a movement monitoring regime on the adjacent properties during construction.

# Appendix 1: Residents' Consultation Comments

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Residents' Consultation Comments

| Surname | Address | Date | Issue raised | Response |
|---|---|---|---|---|
| Papp | 26 Aberdare Gardens | 20/01/15 | Risk of flooding | See BIA Surface and Groundwater report which concludes there is a low risk of surface water flooding |
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# Appendix 2: Audit Query Tracker

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Audit Query Tracker

| Query No | Subject | Query | Status | Date closed out |
|---|---|---|---|---|
| 1 | Author qualifications | Croft Structural Engineers should provide these. | To be provided | |
| 2 | Stability | Ground movement and building damage assessment not presented. | To be provided | |
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# Appendix 3: Supplementary Supporting Documents

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