CampbellReith
consulting engineers

1 St John's Wood Park
London, NW8 6QS

Basement Impact Assessment
Audit

For

London Borough of Camden

Project Number: 12985-25
Revision: D1

December 2018

Campbell Reith Hill LLP
Friars Bridge Court
41-45 Blackfriars Road
London
SE1 8NZ

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

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Author	N Simonini, Bsc MSc FGS
Project Partner	E M Brown, BSc MSc CGeol FGS
Project Number	12985-25
Project Name	1 St John's Wood Park
Planning Reference	2018/4763/P

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Appendix

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 (BIA) submitted as part of the Planning Submission documentation for 1 St John's Wood Park (Camden planning reference 2018/4763/P). The basement is considered to fall within Category B as defined by the Terms of Reference.

1.2. The Audit reviewed the BIA 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 proposed development is understood to comprise the construction of a new building with a single storey basement. The maximum excavation depth is anticipated to be c. 6.00m bgl.

1.5. A site investigation was carried in 2015 and accumulation of groundwater has been recorded during the groundwater monitoring visits. The BIA considered the potential for groundwater ingress during the excavation and indicated adequate mitigation measures.

1.6. The proposal involves the construction of a retaining wall to allow for the excavation. A foundation depth of 13.25m below ground level have been proposed for the retaining wall. However preliminary pile calculations to verify this assumption, are not presented in the BIA and are requested.

1.7. Geotechnical parameters for retaining wall design, presumed ground bearing resistance and preliminary estimation of clay's heave due to the excavation are presented in the BIA.

1.8. A ground movement assessment (GMA) has been produced and is contained in Appendix G of the BIA. However a full assessment including all the neighbouring properties is not presented in the BIA and is requested. Further, according to Camden Planning Guidance (CPG Basements 2018), the damage category predicted to neighbouring properties is not acceptable. As such, amendments and appropriate mitigation measures should be considered and presented in the BIA.

1.9. It is accepted that the percentage of hardstanding areas will not increase as result of the proposed development. According to the Thames Water response, mitigation measures against the potential for a surface water flooding are presented in the BIA. However, it is noted that Thames Water and all the other assets owners should be consulted for all structures and utilities in the vicinity of the proposed development as part of the planning application.

1.10. The basement will be founded within the London Clay, and it has been confirmed that no groundwater was discovered other than perched water. It is therefore accepted that the risk of disruption to the wider groundwater environment is negligible.

1.11. It is accepted that there are no slope stability concerns regarding the basement development.

1.12. Queries and requests for information are summarised in Appendix 2. Until the additional information requested is provided, the BIA does not meet the requirements of the Camden Planning Guidance.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 1 St John's Wood Park, London, NW8 6QS (Reference: 2018/4763/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 Basements. March 2018.
- Camden Development Policy (DP) 27: Basements and Lightwells.
- Camden Development Policy (DP) 23: Water.
- Local Plan Policy A5 Basements.

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 *"Redevelopment of former garage site to form 6 storey (plus basement) residential block containing 9no. units (3 x 4 bed duplexes, 3 x 3 bed flats, 3 x 2 bed flats) (Use Class C3), with associated amenity space, cycle store, plant, and waste storage."*

2.6. The audit instruction also confirmed that the proposal does not involve, or is neighbour to, any listed building.

2.7. CampbellReith accessed LBC's Planning Portal on 26 November 2018 and gained access to the following relevant documents for audit purposes. The relevant information includes:

- Basement Impact Assessment (BIA) by Ridge and Partners LLP – October 2018 including:
  - Hydrogeology and Land Stability Report by Maund Geo-Consulting, Appendix A – December 2015
  - Ground Investigation Report by Ground and Water Ltd, Appendix B – December 2015
  - Existing Survey Drawings, Appendix D
  - Proposed development Drawings by Ridge and Partners LLP, Appendix E – August 2018
  - Structural Engineer's Statement and Calculations by Ridge and Partners LLP, Appendix F - September 2018
  - Ground Movement and Damage Impact Assessment by Ridge and Partners LLP, Appendix G – October 2018
  - Ground Movement Monitoring by Ridge and Partners LLP, Appendix H
  - Construction Method Statement by Ridge and Partners LLP, Appendix I
  - Utility and Infrastructure Consultations, Appendix J
  - Thames Water Sewer Proposed Diversion, Appendix L
  - Drainage Strategy by Ridge and Partners LLP, Appendix M

- Construction Management Plan by Ridge and Partners Ltd – October 2018
- Maccreanor Lavington Architects Planning Application drawings:
  - Proposed Basement Plan (MLUK-673-A-P-XX-1199)
  - Proposed Basement Plan Access (MLUK-673-A-P-XX-4129)
  - Proposed Lower Ground Floor (MLUK-673-A-P-XX-5002)
  - Existing Site Plan (MLUK-673-A-P-XX-0110)
  - Proposed Site Plan (MLUK-673-A-P-XX-0120)
  - Existing Elevations (MLUK-673-A-P-XX-0310
  - Proposed Elevations (MLUK-673-A-P-XX-0320)
  - Proposed Cross Sections (MLUK-673-A-P-XX-2200/1-R01)
  - Landscaping Strategy Sections (MLUK-673-A-P-XX-4001)

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	
Are suitable plan/maps included?	Yes	Structural drawings and architect's plans. When not directly included, maps from the Camden Geological, Hydrogeological and Hydrological Study are referenced in the BIA.
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	Justification has been provided for no answers. Refer to Section 4.2 and Appendix A of the BIA.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Justification has been provided for no answers. Refer to Section 4.1 and Appendix A of the BIA.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Justification has been provided for no answers. Refer to Section 4.3 of the BIA.
Is a conceptual model presented?	Yes	BIA Section 8.1.
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	A scoping comment has been produced for each potential impact identified by screening.

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	A scoping comment has been produced for each potential impact identified by screening.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	A scoping comment has been produced for each potential impact identified by screening.
Is factual ground investigation data provided?	Yes	Appendix B of the BIA.
Is monitoring data presented?	Yes	Appendix A of the BIA.
Is the ground investigation informed by a desk study?	Yes	Section 3 of the BIA.
Has a site walkover been undertaken?	Yes	A site walkover is mentioned in Section 6.2 of the BIA.
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	Considering there is not any previous basement application from neighbouring properties, these have been assumed to not have any basement.
Is a geotechnical interpretation presented?	Yes	Appendix A of the BIA.
Does the geotechnical interpretation include information on retaining wall design?	Yes	
Are reports on other investigations required by screening and scoping presented?	NA	
Are the baseline conditions described, based on the GSD?	Yes	
Do the base line conditions consider adjacent or nearby basements?	Yes	See above.
Is an Impact Assessment provided?	Yes	Section 8 of the BIA.
Are estimates of ground movement and structural impact presented?	Yes	Appendix F and G of the BIA.

Item	Yes/No/NA	Comment
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	Yes	All the matters identified in the screening and scoping are adequately assessed in the impact assessment.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	No	Appropriate mitigation measures should be presented after the revision of the GMA.
Has the need for monitoring during construction been considered?	Yes	A structural monitoring report has been included in Appendix H.
Have the residual (after mitigation) impacts been clearly identified?	No	Residual impacts should be presented after the revision of the GMA.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	No	GMA should be revised considering ground movements occurring at all the neighbouring properties within the zone of influence of the basement construction.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	The drainage has been improved through the production of a SuDS.
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	No	As above.
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	No	Burland Category 2 is stated in the GMA which is not acceptable according to the CPG for basements.
Are non-technical summaries provided?	No	A non-technical summary is required according to Section 4.6 of the CPG for basements.

4.0 DISCUSSION

4.1. The Basement Impact Assessment (BIA) was undertaken by Ridge and Partners LLP and Maund Geo-Consulting and the individuals concerned in its production hold suitable qualifications required by the CPG Basements 2018.

4.2. The LBC Instruction to proceed with the audit identified that the basement proposal neither involves, nor is neighbouring to, a listed building.

4.3. The site comprises an approximately rectangular shaped parcel of unoccupied land. To the south a private access road cuts the site approximately in the W-E direction, whilst to the north a concrete hardstanding represents the footprint of a line of garages previously demolished.

4.4. The proposed development is understood to comprise the construction of a new building with a single storey basement approximately 19m long west to east and 12m wide north to south. Referring to structural drawings presented in Appendix F of the BIA, the maximum excavation depth is anticipated to be c. 6.00m bgl.

4.5. Based on searches of planning applications on Camden Council's the BIA states that no basements are present below any of the neighbouring properties and that further investigation into the foundations of the adjacent properties will be undertaken during the detailed design phase.

4.6. A ground investigation undertaken by Ground and Water Ltd in July 2015 identified Made Ground to a maximum depth of 1.10m bgl underlain by the London Clay Formation which was proven to 12.50m bgl in borehole BH1. Although groundwater was not encountered during the ground investigation, three standpipes were installed and during seven monitoring visits, groundwater was recorded between 0.49 and 1.63m bgl in BH1, above the proposed basement level. The BIA concluded those levels can represent an accumulation of perched groundwater accumulating in the standpipes and ruled out groundwater as a potential issue. However, the BIA considered the potential for groundwater ingress during the excavation and indicated adequate mitigation measures.

4.7. The proposal involves the construction of a contiguous piled retaining wall to allow for the basement excavation. The piles will be propped at the capping beam level in the temporary case after an initial dig of 1.50m bgl, whilst the proposed ground floor slab will prop the wall in the permanent condition. A foundation depth of 13.25m bgl have been proposed for the retaining wall.

4.8. Geotechnical parameters for retaining wall design, the presumed ground bearing resistance and a preliminary estimation of clay's heave due to the excavation are presented in Appendix A of the BIA.

4.9. The basement slab will provide a permanent prop at the base of the excavation and it is understood that it will be suspended between internal columns and the piled retaining wall and hydrostatic pressure has been considered in the slab design.

4.10. A ground movement assessment (GMA) has been produced and is contained in Appendix G of the BIA. The BIA states that all structures and properties (including buildings tunnels and retaining walls) within the zone of influence of the basement have been assessed in the GMA. However, only one damage category determination is presented in the BIA and the output of any other assessment is not presented in the BIA and is requested.

4.11. In the calculation presented for ground movements due to pile installation, both horizontal and vertical movements are estimated assuming a wall depth of 6.0m bgl although this has been indicated to be 13.25m bgl. The excavation depth should be considered for ground movements due to excavation in front of the wall and the calculations need to be re-checked. This should be amended and the GMA should be updated and refer to CIRIA C760 and not to CIRIA C580 as the latter has been superseded.

4.12. Referring to the Burland Scale, a category damage of 2 (Slight) is indicated for neighbouring properties by the GMA. According to CPG Basements 2018 a damage category to neighbouring properties no higher than Burland Scale 1 (Very Slight) is acceptable. As such, amendments and appropriate mitigation measures should be considered.

4.13. A ground movement monitoring report has been presented in Appendix H considering the impact of the proposed works on neighbouring structure. Trigger levels have been specified to a maximum of 10mm for vertical movements and 9mm for horizontal movements. Although the values indicated are considered reasonable, the monitoring strategy should be agreed with the Party Wall at the detailed stage of design.

4.14. The BIA states that the neighbouring land to the west is registered to be developed with the inclusion of basements below new residential buildings such that a potential for combined impacts should be considered. The BIA confirms co-ordination with the neighbouring developers will be maintained during the detailed design and construction stages to ensure that any combined impacts are controlled and kept within acceptable limits.

4.15. A construction management plan has been produced that describes in adequate detail how the project can be undertaken while minimising disturbance to the local neighbourhood. Mitigation measures have been suggested where disturbance is inevitable. A works program with project duration has also been provided. However, non-technical summaries should be included in the BIA.

4.16. It is accepted that the percentage of hardstanding areas will not increase as result of the proposed development. A SuDS has been included in Appendix M, with the aim to improve the drainage of

the site. According to the Thames Water response, mitigation measures against the potential for a surface water flooding (such as gullies, storage tank and non-return valve) are presented in the BIA. However, it is noted that Thames Water should be consulted on the water surface strategy as part of the planning application. Consultation with other asset owners including London Underground should be undertaken for all structures and utilities in the vicinity of the proposed development.

4.17. The basement will be founded within the London Clay, and it has been confirmed that no groundwater was discovered other than perched water. It is therefore accepted that the risk of disruption to the wider groundwater environment is negligible.

4.18. It is accepted that there are no slope stability concerns regarding the proposed development.

5.0 CONCLUSIONS

5.1. The qualifications of the individuals involved in the BIA meet Camden Planning Guidance requirements. However, non-technical summaries should be presented in the BIA.

5.2. The proposed development is understood to comprise the construction of a new building with a single storey basement. The maximum excavation depth is anticipated to be c. 6.00m bgl.

5.3. A site investigation was carried in 2015 and accumulation of perched groundwater has been recorded during the groundwater monitoring visits. The BIA considered the potential for groundwater ingress during the excavation and indicated adequate mitigation measures.

5.4. The proposal involves the construction of a contiguous piled retaining wall to allow for the basement excavation. A foundation depth of 13.25m bgl have been proposed for the retaining wall.

5.5. Geotechnical parameters for retaining wall design, presumed ground bearing resistance and preliminary estimation of clay's heave due to the excavation are presented in the BIA.

5.6. A ground movement assessment (GMA) has been produced and is contained in Appendix G of the BIA. However, only one damage category determination is presented in the BIA and the output of any other assessment is not presented in the BIA and is requested. The GMA should be updated and refer to CIRIA C760 and not to CIRIA C580 as the latter has been entirely superseded by the former.

5.7. Referring to the Burland Scale, a category damage of 2 (Slight) is indicated for neighbouring properties by the GMA. According to CPG Basements 2018, this is not acceptable. As such, amendments and appropriate mitigation measures should be considered and presented in the BIA.

5.8. It is accepted that the percentage of hardstanding areas will not increase as result of the proposed development. According to the Thames Water response, mitigation measures against the potential for a surface water flooding are presented in the BIA. However, it is noted that Thames Water and all the other assets owners should be consulted for all structures and utilities in the vicinity of the proposed development.

5.9. The basement will be founded within the London Clay, and it has been confirmed that no groundwater was discovered other than perched water. It is therefore accepted that the risk of disruption to the wider groundwater environment is negligible.

5.10. It is accepted that there are no slope stability concerns regarding the basement development.

5.11. Queries and requests for information are summarised in Appendix 2. Until the additional information requested is provided, the BIA does not meet the requirements of the Camden Planning Guidance.

Appendix 1: Residents' Consultation Comments

Thames Water response – See Section 4.16 and Appendix 3

Appendix 2: Audit Query Tracker

Audit Query Tracker*

Query No	Subject	Query	Status	Date closed out
1	BIA format	Non-technical summaries should be provided in the BIA.	Open – See Section 4.15.	
2	Ground movement assessment	Damage category is requested for all the neighbouring structure within the influence of the proposed basement construction. The foundation depth should be considered for ground movements due to pile installation and the calculations need to be re-checked. Proper mitigation measures and estimation of residual impacts should also be presented in the BIA. The GMA should be updated and refer to CIRIA C760 and not to CIRIA C580.	Open – See Section 4.10 – 4.12.	

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Appendix 3: Supplementary Supporting Documents

Thames Water response.pdf

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----- Message from "BCTAdmin@thameswater.co.uk" <BCTAdmin@thameswater.co.uk> on Tue, 23 Oct 2018 07:50:10 +0000 -----

To: Planning <Planning@camden.gov.uk>

Subject: Informative Only Planning Application - 2018/4763/P

London Borough of Camden Our DTS Ref: 99611
Camden Town Hall Your Ref: 2018/4763/P
Argyle Street
Euston Road
London
WC1H 8EQ

23 October 2018

Dear Sir/Madam

Re: LAND ADJACENT 1, ST. JOHNS WOOD PARK, LONDON, NW8 6QS

WASTE COMMENT
Thames Water requests that the Applicant should incorporate within their proposal, protection to the property by installing a positive pumped device (or equivalent reflecting technological advances) to avoid the risk of backflow at a later date, on the assumption that the sewerage network may surcharge to ground level during storm conditions. Fitting only a non-return valve could result in flooding to the property should there be prolonged surcharge in the public sewer. If as part of the basement development there is a proposal to discharge ground water to the public network, this would require a Groundwater Risk Management Permit from Thames Water. Any discharge made without a permit is deemed illegal and may result in prosecution under the provisions of the Water Industry Act 1991. We would expect the developer to demonstrate what measures he will undertake to minimise groundwater discharges into the public sewer. Permit enquiries should be directed to Thames Water's Risk Management Team by telephoning 02035779483 or by emailing wwqriskmanagement@thameswater.co.uk. Application forms should be completed on line via www.thameswater.co.uk/wastewaterquality

There are public sewers crossing or close to your development. If you're planning significant work near our sewers, it's important that you minimize the risk of damage. We'll need to check that your development doesn't reduce capacity, limit repair or maintenance activities, or inhibit the services we provide in any other way. The applicant is advised to read our guide working near or diverting our pipes.
https://developers.thameswater.co.uk/Developing-a-large-site/Planning-your-development/Working-near-or-diverting-our-pipes.

With regard to surface water drainage, Thames Water would advise that if the developer follows the sequential approach to the disposal of surface water we would have no objection. Where the developer proposes to discharge to a public sewer, prior approval from Thames Water Developer Services will be required. Should you require further information please refer to our website.
https://developers.thameswater.co.uk/Developing-a-large-site/Apply-and-pay-for-services/Wastewater-services

The proposed development is located within 15m of our underground waste water assets and as such we would like the following informative attached to any approval granted. The proposed development is located within 15m of Thames Waters underground assets, as such the development could cause the assets to fail if appropriate measures are not taken. Please read our guide 'working near our assets' to ensure your workings are in line with the necessary processes you need to follow if you're considering working above or near our pipes or other [Suspicious URL detected]. Should you require further information please contact Thames Water. Email: developer.services@thameswater.co.uk Phone: 0800 009 3921 (Monday to Friday, 8am to 5pm) Write to: Thames Water Developer Services, Clearwater Court, Vastern Road, Reading, Berkshire RG1 8DB

Thames Water would advise that with regard to waste water network and waste water process infrastructure capacity, we would not have any objection to the above planning application, based on the information provided

WATER COMMENT
On the basis of information provided, Thames Water would advise that with regard to water network and water treatment infrastructure capacity, we would not have any objection to the above planning application. Thames Water recommends the following informative be attached to this planning permission. Thames Water will aim to provide customers with a minimum pressure of 10m head (approx 1 bar) and a flow rate of 9 litres/minute at the point where it leaves Thames Waters pipes. The developer should take account of this minimum pressure in the design of the proposed development.

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Yours faithfully
Development Planning Department

Development Planning,
Thames Water,
Maple Lodge STW,
Denham Way,
Rickmansworth,
WD3 9SQ
Tel:020 3577 9998
Email: devcon.team@thameswater.co.uk

London

Friars Bridge Court
41- 45 Blackfriars Road
London, SE1 8NZ

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

Wessex House
Pixash Lane, Keynsham
Bristol BS31 1TP

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

UAE

Office 705, Warsan Building
Hessa Street (East)
PO Box 28064, Dubai, UAE

T: +971 4 453 4735
E: uae@campbellreith.com