CampbellReith
consulting engineers

193 Leighton Road
London, NW5 2RD

Basement Impact Assessment Audit

For

London Borough of Camden

Project Number: 12336-76

Revision: F1

April 2017

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Project Name	193 Leighton Road
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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 submitted as part of the Planning Submission documentation for 193 Leighton Road, NW5 2RD (Camden Planning reference 2016/2175/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 BIA was undertaken by Geotechnical & Environmental Associates (GEA) and the individuals involved have suitable qualifications.

1.5. The BIA was undertaken by Geotechnical & Environmental Associates (GEA) and the individuals involved have suitable qualifications.

1.6. The proposal is for the demolition of the existing garage and the construction of a two storey extension, which is indicated to have planning permission, over a basement.

1.7. The basement is to be constructed by a combination of reinforced concrete underpinning and reinforced concrete walls undertaken in an underpinning sequence.

1.8. The ground investigation indicates the basement will be founded in the London Clay. Groundwater was monitored within the proposed basement depth, however, it is stated that any inflows could be dealt with by sump pumping.

1.9. The absence of basements beneath the neighbouring properties has not explicitly confirmed and the foundation depths have been assumed. This should be investigated as part of a planning condition prior to construction.

1.10. The screening exercise did not identify that the site is in an area which previously flooded. This issue has been subsequently addressed in an email from GEA with mitigation proposed.

1.11. Contradictory information is given on the distance to the roadway although the BIA proposes mitigation to ensure stability is maintained.

1.12. Negligible damage is predicted for the neighbouring properties although this is based on assumptions on the foundation depths and building heights.

1.13. An outline monitoring proposal with trigger values which is considered to be adequate is included.

1.14. An indicative works programme has been submitted. A detailed programme should be provided by the contractor at a later date.

1.15. It is stated in the BIA that there will be no increase in impermeable area therefore the surface water flow regime and volume will be unchanged.

1.16. It is accepted that there are no slope stability, ground water or any other surface water concerns regarding the proposed development.

1.17. It is accepted the BIA has largely considered the potential impacts and proposes sufficient mitigation. The assumptions made on the neighbouring property foundation depths should be confirmed through investigation as a condition of planning with the conclusions of the ground movement assessment confirmed.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 27 June 2016 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 193 Leighton Road, NW5 2RD (Camden Planning reference 2016/2175/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;

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 *"Construction of basement underneath the side extension."*

2.6. The Audit Instruction also confirmed 193 Leighton Road is not listed, nor is it a neighbour to a listed building.

2.7. CampbellReith accessed LBC's Planning Portal on 8 July 2016 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment (BIA): Geotechnical & Environmental Associates (GEA) dated April 2016
- Design and Access statement: undated
- Sam Stork Associates Planning Application Drawings consisting of

  Location Plan

  Existing Plans

  Proposed Plans

  Existing Sections

  Proposed Sections

  Existing Elevations

  Proposed Elevations

2.8. Consultation comments were forwarded to CampbellReith by the Planning Officer. Four out of these are pertinent to the BIA and are addressed in Appendix 1.

2.9. Following the initial audit, supplementary information was received by email between December 2016 and March 2017 in response to the queries. These are as follows:

- Basement Impact Assessment (BIA): Geotechnical & Environmental Associates (GEA) dated March 2017
- Indicative works programme
- Proposed construction sequence
- Proposed underpinning bay sequence
- Pdisp tabular input and output
- Xdisp tabular input and output
- GEA email responses received on 15 March and 1 April 2017.

2.10. Due to file size, only the works programme and the email responses from GEA received on 15 March and 1 April 2017 are included in Appendix 3.

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	See Audit paragraph 4.1.
Is data required by Cl.233 of the GSD presented?	Yes	Revised BIA and supplementary documents which includes an outline works duration.
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	Yes	As above.
Are suitable plan/maps included?	No	Arup GSD and Camden SFRA map extracts could be included (see Audit paragraph 4.5).
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	No	As above.
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Relevant Arup GSD map extracts referenced but not included.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	Justification not given for all the 'No' answers and relevant Arup GSD map extracts not referenced or included (see Audit paragraph 4.5). However, responses are correct.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	Relevant Arup GSD maps, EA and Camden SFRA maps referenced but not included. Response to Q6 is incorrect, however, the issue was subsequently addressed in an email (see Audit paragraphs 4.5 and 4.7).
Is a conceptual model presented?	Yes	Not strictly a conceptual model, however, ground conditions and groundwater levels from monitoring presented in Section 6 of revised BIA.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 4.1 of revised BIA although contradictory information is given on the distance to the public highway in different sections of the report (see Audit paragraph 4.12).
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	N/A	No issues identified.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	No	No issues identified although one issue should have been carried forward from the screening. This issue has been subsequently addressed (see Audit paragraph 4.7)
Is factual ground investigation data provided?	Yes	Appendix A of revised BIA.
Is monitoring data presented?	Yes	Section 6.3 of revised BIA.
Is the ground investigation informed by a desk study?	Yes	Desk study information included in BIA and it is assumed this informed the ground investigation.
Has a site walkover been undertaken?	Yes	References to site walkover in Section 13.2.1 of the revised BIA.
Is the presence/absence of adjacent or nearby basements confirmed?	No	Not explicitly confirmed. Foundation depths assumed for the purposes of ground movement assessment (see Audit paragraph 4.11).
Is a geotechnical interpretation presented?	Yes	Section 9 of the BIA.
Does the geotechnical interpretation include information on retaining wall design?	Yes	Although horizontal modulus values (Eh or E'h) not included.

Item	Yes/No/NA	Comment
Are reports on other investigations required by screening and scoping presented?	Yes	Ground investigation report now included.
Are the baseline conditions described, based on the GSD?	Yes	Ground investigation now undertaken.
Do the base line conditions consider adjacent or nearby basements?	Yes	Considered and basements assumed to be absent in revised BIA. Foundation depths need to be confirmed prior to construction.
Is an Impact Assessment provided?	Yes	Section 13 of revised BIA.
Are estimates of ground movement and structural impact presented?	Yes	Section 11 of the BIA although this is based on assumptions which should be clarified upon further investigation prior to construction (see Audit paragraph 4.9 and 4.14)
Is the Impact Assessment appropriate to the matters identified by the screening and scoping?	Yes	Section 13 of the revised BIA.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	Yes revised BIA.
Has the need for monitoring during construction been considered?	Yes	Outline proposal presented.
Have the residual (after mitigation) impacts been clearly identified?	N/A	None identified.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	Revised BIA although this is based on assumptions made on the depth of the existing foundations (see Audit paragraphs 4.9 and 4.14)
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	BIA.
Has the scheme avoided cumulative impacts upon structural stability	Yes	As above.

Item	Yes/No/NA	Comment
or the water environment in the local area?		
Does report state that damage to surrounding buildings will be no worse than Burland Category 2?	Yes	Negligible (Category 0) damage predicted.
Are non-technical summaries provided?	No	Not provided.

4.0 DISCUSSION

4.1. The Basement Impact Assessment (BIA) has been carried out by Geotechnical & Environmental Associates (GEA) and the individuals concerned in its production have CEng MICE, CGeol FGS and CEnv CWEM qualifications.

4.2. The site comprises a two storey semi-detached building with a single storey garage to the rear of the front driveway in the northeastern corner of the site. The proposal is for the demolition of the existing garage and the construction of a two storey extension over a basement. It is indicated in the Design and Access statement and Architects' drawings that planning permission has already been obtained for the extension and the current application is for the inclusion of a basement beneath this extension.

4.3. The basement was indicated to be constructed by mass concrete underpinning to a depth of about 3m, however, there was no construction sequence in the text. An underpinning bay sequence was not presented nor were there sketches to indicate each stage of the construction including any temporary propping. Additionally, the remaining walls to the basement other than the flank wall to the house cannot be underpinned and it was requested some form of retaining wall for these be indicated.

4.4. The revised BIA and supplementary documents indicate the basement is to extend to 4m depth and will be constructed by a combination of reinforced concrete underpinning and reinforced concrete walls undertaken in an underpinning sequence. Structural calculations, an underpinning bay sequence and sketches indicating the construction sequence with temporary propping have now been provided.

4.5. Although it is evident that a thorough screening process has been undertaken, the BIA could be improved by including the relevant map extracts from the Arup GSD and Camden Strategic Flood Risk Management Assessment identifying the site location on each map are included. These extracts would help to support statements made in the BIA screening process. Additionally, justification or reference to the Arup GSD data was not given for two of the 'No' responses to the Hydrogeology screening questions. It is however accepted the responses are valid.

4.6. A 'No' response was given to Question 1b of the Hydrogeology screening which relates to whether or not the basement will extend beneath the water table. Whilst it is accepted that the London Clay is an unproductive stratum, the justification ignores the potential for perched water to exist within the Made Ground which may require mitigation measures such as dewatering during construction. This issue was however addressed in the latter sections of the revised BIA.

4.7. A 'No' response was given to Question 6 of the Hydrology screening which relates to whether or not the site is in an area at risk from flooding. The justification includes a reference to Figure 3ii of the Camden SFRA, however, this figure shows that Leighton Road flooded in 1975, as it does on Figure 15 of the Arup GSD. This issue has subsequently been addressed in an email from GEA received on 15 March 2017 (Appendix 3) which states that a chartered hydrologist has assessed this risk to be low. Additionally, the BIA recommends a positive pump device to be installed as mitigation against this risk.

4.8. The sequence of strata presented in the initial BIA was from a previous investigation undertaken by GEA at c.50m away. It was stated in Section 4.1 of the BIA that a ground investigation is required, however, '*this could be dealt with by way of a conditional planning consent'.* It was stated in the initial audit report that a suitable ground investigation establishing the sequence and depth of strata and groundwater levels was required to establish the potential impacts arising out of the basement proposals and allow appropriate mitigation to be proposed.

4.9. A site specific ground investigation has now been undertaken and this is included in the revised BIA. A single borehole to 15m depth and three dynamic sampler holes to shallow depth were undertaken which encountered Made Ground to a maximum depth of 1.50m over London Clay which is described as soft to firm up to 4m depth when it was indicated to be stiff. Trial pits were not undertaken to determine the depth of the foundations to the existing building on the site, the boundary wall and the neighbouring property foundations.

4.10. Groundwater was monitored at 2.85m bgl which is within the basement depth. It is stated that whilst groundwater may be encountered, the anticipated inflows are likely to be minimal and could be adequately dealt with by sump pumping.

4.11. The presence or absence of basements beneath the neighbouring properties has not explicitly confirmed. It is stated in Section 11 of the revised BIA that basements are not considered to be present with the likely foundation depths assumed to be at 0.30m depth.

4.12. The table within Section 4.1 of the BIA indicates that the proposed basement is over 5m away from the roadway, however, it is stated in Section 13 that the excavation will extend to within 5m of the pathway/highway. Whilst this is contradictory, the BIA recommends that a retention system needs to be adopted to maintain the stability of the excavation throughout.

4.13. It was stated in the Design and Access statement that the basement will have minimal impact on the house or on its neighbours, however, no supporting information was included or referenced. A ground movement assessment was not included in the initial submission nor was there an indication of the anticipated damage categories for the neighbouring properties. It was stated '*ground movements should typically remain within the range of 2 to 5mm following*

completion of the works and provided that they are installed by a reputable and experienced contractor' and that *this could be dealt with by way of conditional planning consent'.* This was not accepted and it was stated in the initial audit that a ground movement assessment with supporting analysis included should be undertaken at this stage as it formed an integral part of the impact assessment and needs to be completed at this stage.

4.14. A ground movement assessment has been undertaken and is included in Section 10 of the revised BIA. Oasys Pdisp has been used to predict vertical movement (heave) as a result of the 4m excavation. Whilst the Young's Modulus value for the Made Ground is not conservative, this is not considered to be significant. The analysis predicts up to 7mm short term heave in the centre of the excavation, reducing to maximum 5mm at the edge. The BIA recommends the basement floor slab to be designed taking into account these movements.

4.15. Oasys Xdisp was used to assess the horizontal and vertical movements behind the wall due to the underpinning and excavation. The underpinning has been modelled as 'installation of a planar diaphragm wall'. As stated above, the foundation depths of the neighbouring properties have been assumed as well as the height of the buildings used in the assessment. Category 0 (Negligible) damage is predicted for 191 Leighton Road and 55 Brecknock Road. This needs to be confirmed once the information on the neighbouring properties is clarified through investigation.

4.16. An outline monitoring proposal with trigger values is included in Section 11.2 of the revised BIA.

4.17. An indicative works programme has been submitted and this is included in Appendix 3.

4.18. It is stated in the BIA that there will be no increase in impermeable area therefore the surface water flow regime and volume will be unchanged.

4.19. It is accepted that there are no slope stability, ground water or any other surface water concerns regarding the proposed development.

5.0 CONCLUSIONS

5.1. The BIA was undertaken by Geotechnical & Environmental Associates (GEA) and the individuals involved have suitable qualifications.

5.2. The proposal is for the demolition of an existing garage and the construction of a two storey extension which was previously approved over a basement extending to 4m depth.

5.3. The basement is to be constructed by a combination of reinforced concrete underpinning and reinforced concrete walls undertaken in an underpinning sequence. Structural calculations, underpinning bay sequence and sketches indicating the construction sequence with temporary propping are provided.

5.4. The ground investigation encountered Made Ground to a maximum depth of 1.50m over London Clay. Groundwater was monitored at 2.85m which is within the basement depth, however, it is stated that any inflows could be dealt with by sump pumping.

5.5. The absence of basements beneath the neighbouring properties has not explicitly confirmed and the foundation depths have been assumed. This should be investigated as part of a planning condition prior to construction to confirm the viability of the proposed construction method.

5.6. The screening exercise did not identify that the site is in an area which previously flooded. This issue has been subsequently addressed in an email from GEA with mitigation proposed.

5.7. Contradictory information is given on the distance to the roadway although the BIA recommends a retention system to ensure stability is maintained.

5.8. A ground movement assessment is included in the revised BIA. Oasys Pdisp has been used to predict vertical movements as a result of the excavation with Oasys Xdisp used for the horizontal and vertical movements due to underpinning and excavation in front of the underpins.

5.9. Category 0 (Negligible) damage is predicted for the neighbouring properties although this was based on assumptions on the foundation depths and building heights. These should be investigated prior to construction as part of a planning condition with the conclusions of the ground movement assessment confirmed.

5.10. An outline monitoring proposal with trigger values which is considered to be adequate is included.

5.11. An indicative works programme has been submitted. A detailed programme should be provided by the contractor at a later date.

5.12. It is stated in the BIA that there will be no increase in impermeable area therefore the surface water flow regime and volume will be unchanged.

5.13. It is accepted that there are no slope stability, ground water or any other surface water concerns regarding the proposed development.

Appendix 1: Residents' Consultation Comments

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
Shaw	57 Brecknock Road N7 0BX	undated	Damage to trees within garden which is adjacent to rear of 193 Leighton Road Concerns about water table Drainage and sewage and concerns about flooding .	BIA Section 3.1.2 states proposed basement depth will be beyond zone which trees could be affected. See Audit paragraph 4.10. See Audit paragraphs 4.7 and 4.17.
Tucker (owners of 55B Brecknock Road)	107 Gillespie Road N5 1LR	21/06/16	Queries Design and Access statement conclusion that proposal will have no impact on the neighbouring properties.	GMA undertaken in revised BIA. See Audit paragraphs 4.14 and 4.15.
Walker	55A Brecknock Road Tufnell Park	20/06/16	No ground investigation or ground movement assessment to determine impacts on neighbouring properties.	Ground investigation undertaken. See Audit paragraphs 4.9 and 4.10.
Corbello	55D Brecknock Place	22/06/16	Assurance through risk assessments to ensure construction will not cause damage to neighbouring properties.	GMA undertaken in revised BIA. See Audit paragraphs 4.14 and 4.15.

Appendix 2: Audit Query Tracker

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Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	BIA format	Works programme not included.	Closed – Outline programme provided.	07/04/17
2	BIA format/ Stability/Hydrogeology	No site specific ground investigation to confirm sequence of strata and groundwater level. Trial pits not undertaken to determine depth of the foundations to be underpinned.	Closed – site specific ground investigation with groundwater monitoring undertaken. To be investigated as part of a planning condition.	07/04/17 N/A
3	Hydrogeology/Stability	Temporary dewatering measures not considered.	Closed – Section 1 and 9 of revised BIA.	13/01/17
4	Hydrology	Screening did not identify that the site is located in an area which previously flooded	Closed – addressed in email response (Appendix 3)	07/04/17
5	Stability	Presence or absence of basement beneath neighbouring properties not confirmed and foundations depths not determined. Shallow foundations have been assumed.	Closed – Section 3 of revised BIA states neighbouring properties do not comprise basement. As above. To be investigated.	13/01/17
6	Stability	Proposed construction methodology and sequence not sufficiently detailed. No construction sequence sketches, underpinning bay sequence or temporary works proposal.	Closed – proposed construction methodology now detailed, with sketches indicating sequence included together with indicative design of the retaining walls. Remaining queries verbally clarified by Price and Myers.	02/03/17
7	Stability	Ground movement assessment (GMA) insufficient.	Closed – GMA now undertaken with full input and output of software used provided. Clarification provided on queries on contour plots by email and	07/04/17

			verbal communication. Conclusions of GMA to be confirmed following investigation to confirm foundation depths.	N/A
8	Stability	Contradictory information on the distance to roadway.	Closed – contradictions still in report but mitigation measure included.	13/01/2017
9	Stability	Movement monitoring proposal not provided.	Closed – Outline proposal provided.	07/04/17

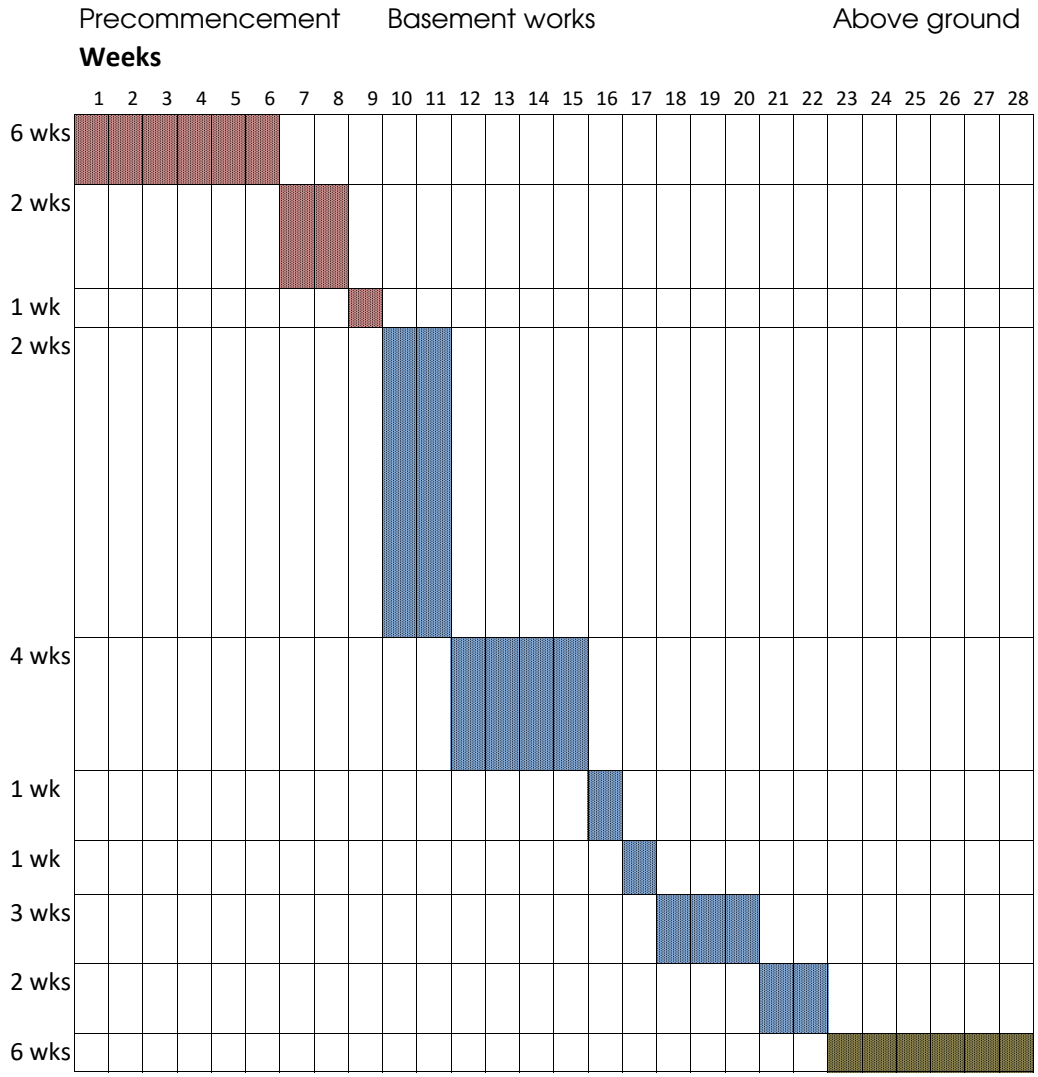
Appendix 3: Supplementary Supporting Documents

Indicative works programme
GEA email response received on 15 March 2017
GEA email response received on 1 April 2017

193 Leighton Road

Proposed Programme of Works for Basement Construction

1	Carry out further trial excavations to provide detailed groundwater conditions.	6 wks
2	Contractor appointed and required to provide details of how they intend to control groundwater and provide detailed design of temporary works to the approval of the structural engineer.	2 wks
3	Set up hoarding in neighbours garden.	1 wk
4	Excavate 1m wide hole against and under existing house wall foundation. Provide temporary lateral restraint to sides of excavation. Install reinforcement cage in base of hole, with dowel bars hammered into ground on either side, and cast base slab. Install reinforcement cage below foundations with dowel bars hammered into the ground on either side, and cast vertical wall. Drypack top of wall to underside of exsiting foundations. Backfill hole in compacted layers. Continue construction of underpins in sequence indicated on the structural engineer's drawings.	2 wks
5	Construct the rest of the basement perimeter retaining walls in a similar fashion as outlined in 4, excavating and casting the base slab and wall element before backfilling the holes with compacted material.	4 wks
6	Partial excavation to install high level temporary propping – as per engineers sketch SK07 P1.	1 wk
7	Excavate to top of underpin bases to install low level temporary propping.	1 wk
8	Complete excavation to formation level and cast slab reinforced into pins, remove low level props once slab has gone off.	3 wks
9	Cast basement ground floor slab (to be tied into the tops of the underpins), remove high level props once slab has gone off.	2 wks
10	Build superstructure once basement RC box complete	6 wks
	Total	28 wks



RE: 193 Leighton Road - BIA Queries 12336-76
Jack Deaney
to:
GrahamKite@campbellreith.com, Jones, Evelyn
15/03/2017 14:21
Cc:
Sam Stork, Steve Branch, "camdenaudit@campbellreith.com"
Hide Details
From: Jack Deaney <Jack@gea-ltd.co.uk>
To: "GrahamKite@campbellreith.com" <GrahamKite@campbellreith.com>, "Jones, Evelyn" <Evelyn.Jones@camden.gov.uk>
Cc: Sam Stork <sam@samstork.com>, Steve Branch <Steve@gea-ltd.co.uk>, "camdenaudit@campbellreith.com" <camdenaudit@campbellreith.com>
History: This message has been forwarded.

Hi Graham,

Thank you for your responses.

Re Point 7: The plots only show 191 Leighton Road only as 193 Leighton Road (the site) was not deemed to be a sensitive structure. I've extended the northern and southern facades of 191 Leighton Road slightly as these were not fully shown on the drawings I was supplied.

Point 4: We have acknowledged the possibility of sewer flood risk by stating a positive pumped device will be installed. We have referred to the SFRA which shows a very low risk to the site and so feel we have identified the risks and mitigation options based on that risk – which is very low. I've been contact with our hydrologist (Rupert Evans MSc CEnv CWEM MCIWEM AIEMA) who assisted us with the report about the queries you've raised and we feel we've met the requirements of this assessment.

Point 9: We will amend the monitoring regime to reflect your requirements. Moving forward on other sites, if an assessment has predicted Category 0 Negligible, in accordance with recommendations outlined in CPG4, is it reasonable to suggest that monitoring is in fact not needed?

Point 2: Our Client would like this to be left as a condition.

Kind regards,

Jack

From: GrahamKite@campbellreith.com [mailto:GrahamKite@campbellreith.com]
Sent: 09 March 2017 11:23
To: Jack Deaney <Jack@gea-ltd.co.uk>; Jones, Evelyn <Evelyn.Jones@camden.gov.uk>
Cc: Sam Stork <sam@samstork.com>; Steve Branch <Steve@gea-ltd.co.uk>; camdenaudit@campbellreith.com
Subject: Fw: 193 Leighton Road - BIA Queries 12336-76

Hi Jack / Evelyn

Further to your ongoing discussions with Fatima, please see our comments below.

Regards

Graham Kite

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----- Forwarded by Fatima Drammeh/CRH on 08/03/2017 14:16 -----

From: Jack Deaney <Jack@gea-ltd.co.uk>
To: "FatimaDrammeh@campbellreith.com" <FatimaDrammeh@campbellreith.com>
Cc: Sam Stork <sam@samstork.com>, Steve Branch <Steve@gea-ltd.co.uk>
Date: 08/03/2017 13:55
Subject: 193 Leighton Road - BIA Queries

Hi Fatima,

I've been asked by our Client, Sam Stork, to approach you regarding the outstanding issues with the above BIA and GMA.

Point 2: Site specific ground investigation did not include trial pits – As mentioned in the report we had assumed that the foundation depth of the surrounding properties was at 1.0 m. In order to remain conservative we have reassessed the foundation depths at 0.3 m depth as this is deemed the very shallowest at which the foundations might be founded given the age of the properties. I have attached the tabular outputs (csv files), as the plots do not change, and as you can see the surrounding BDC remain 0 Negligible.

We accept your point that assuming shallow foundations should make the damage assessment conservative. However, the comment was aimed at the feasibility of underpinning foundations if you are unaware of the foundation depth. There is a requirement to undertake site investigation appropriate to the proposed development, so this is a key point. We also acknowledge that gaining access to undertake SI in some circumstances is not possible, in which case we would recommend to LBC that the works are undertaken prior to construction to confirm design assumptions and that this is secured by a condition of planning.

Point 4: The BIA does state that the site is within an area of Very Low Risk to surface water flooding. The fact that Leighton Road flooded in 1975 is irrelevant as Qu 6 of the screening does not ask whether or not the site is an area which has previously flooded, but instead asks whether the site is in an area at risk of surface water flooding based on the specified documents outlined in CPG4, to which we state *"Camden Flood Risk Management Strategy dated 2013, together with Figures 3ii, 4e, 5a and 5b of the SFRA dated 2014, and Environment Agency online flood maps show that the site has a very low flooding risk from surface water, sewers, reservoirs (and other artificial sources), groundwater and fluvial/tidal watercourses. In accordance with paragraph 5.11 of the CPG a positive pumped device will be installed in the basement in order to further protect the site from sewer flooding. The BIA indicates that the water table will be located sufficiently below the floor of the basement. The site is located within the Critical Drainage Area number GROUP3-003, but is not in a Local Flood Risk Zone, as identified in the Camden SWMP and Updated SFRA Figure 6/Rev 2.".* A very low risk area is defined as an area with a chance of flooding less than 1 in 1000 years and is the lowest surface water flood risk category. Therefore, no further remediation or FRA is needed. As I am sure you are aware, the roads that flooded previously were listed in earlier versions of CPG4 but not in the current version and the question has been updated.

We acknowledge what the Environment Agency data indicates, although it goes on to say that the site is in Critical Drainage Area and flood risk assessment should be applied . The point of the BIA is to identify risks and impacts and to assess and mitigate appropriately. We disagree with your statement that the fact that street flooded in 1975 is irrelevant. The 2014 SFRA is still a listed reference to inform the BIA as stated within CPG4, and Leighton Road is indicated as having a flood risk related to sewer surcharging. What we are looking for is an acknowledgement of this and then your 'reasonably conservative' assessment of why this is / is not applicable to your particular development, and mitigation measures proposed where relevant.

Point 7: I have amended the plots to be consistent with each other and attached. Please note that the eastern wall of the 191 neighbour is modelled it is just masked by the grid lines. Can you make this very clear please. The plots presented do not appear to represent the development.

Point 9: Trigger values outline proposal not appropriate. These should be less than the predicted movements to ensure contingencies are put in place before maximum movement for predicted damage category is reached. – The monitoring proposal we outlined does not allow for movements to exceed those in which any property will enter the unacceptable damage category (2) slight. Green has been set at the predicted movements which show the surrounding properties to be within Cat 0. The Amber limit has been set at the point in which the acceptable Category 1 is realised, the red limit is set at the point at which the amber limit is equivalent to two-thirds of the red value, therefore all the walls will remain in Cat (1) thus not allowing movements to reach the unacceptable damage category (2) slight. Effectively there is an allowance of an extra 1/3 of total movement before Cat (2) is realised.

This approach is not accepted. The BIA is meant to identify the impact of the development on the surrounding environment, and if planning is granted it is on the basis of what has been presented in the BIA. The BIA states that damage impacts will be Negligible, and therefore the monitoring regime should be intended to limit the damage to Negligible. If you do not believe Negligible damage can be achieved then you need to revise your assessments. However, bear in mind the requirements of CPG4 3.27.

If you have any queries, please don't hesitate to call.

Kind regards,

Jack

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RE: 193 Leighton Road, London

Jack Deaney to: FatimaDrammeh@campbellreith.com 01/04/2017 10:51
Cc: James Stevenson, Sam Stork, Steve Branch, "Jones, Evelyn" , "camdenaudit@campbellreith.com"

Hi Fatima,

We've updated the monitoring proposal in Section 11.2. The footprint of the neighbouring building has been extended to be more representative of its actual footprint, this can be seen in the appended plots in Appendix B. The query on flood risk has been addressed over emails to yourself and Graham.

The client would like the excavation of the Trial Pits to be added as a condition of the planning application.

If you have any queries, please don't hesitate to call,

Kind regards,

Jack

-----Original Message-----
From: FatimaDrammeh@campbellreith.com [
mailto:FatimaDrammeh@campbellreith.com]
Sent: 31 March 2017 16:33
To: Jack Deaney <Jack@gea-ltd.co.uk>
Cc: James Stevenson <JStevenson@pricemyers.com>; Sam Stork <sam@samstork.com>; Steve Branch <Steve@gea-ltd.co.uk>; Jones, Evelyn <Evelyn.Jones@camden.gov.uk>; camdenaudit@campbellreith.com
Subject: Re: 193 Leighton Road, London

Thanks Jack. Are you able to highlight in the report or summarise in an email where the queries have been addressed please? This would expedite what would hopefully be the final audit to close out all the queries.

Kind regards
Fatima Drammeh
Senior Geotechnical Engineer

(Embedded image moved to file: pic64233.jpg)

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From: Jack Deaney <Jack@gea-ltd.co.uk>
To: "FatimaDrammeh@campbellreith.com" <FatimaDrammeh@campbellreith.com>, "GrahamKite@campbellreith.com" <GrahamKite@campbellreith.com>
Cc: Sam Stork <sam@samstork.com>, Steve Branch <Steve@gea-ltd.co.uk>, "James Stevenson" <JStevenson@pricemyers.com>
Date: 31/03/2017 15:55
Subject: 193 Leighton Road, London

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