CampbellReith
consulting engineers

Lethaby Building
Former Cochrane Theatre
12-42 Southampton Row & 1-4 Red Lion Square
(Former Central St Martins College)
London, WC1B 4AF

Basement Impact Assessment
Audit

For

London Borough of Camden

Project Number: 13398-32
Revision: D1

September 2020

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Project Partner	E M Brown BSc MSc CGeol FGS
Project Number	13398-32
Project Name	Former Central St Martins College, London, WC1B 4AF
Planning Reference	2020/2470/P

Contents

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 Lethaby Building, Former Cochrane Theatre, 12-42 Southampton Row & 1-4 Red Lion Square (Former University Of Westminster Central St Martins College Campus), London, WC1B (planning reference 2020/2470/P). The basement is considered to fall within Category C 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 Basement Impact Assessment (BIA) has been carried out by individuals with suitable qualifications.

1.5. The scope of the development includes a three-level basement with proposed average depth to formation level of approximately 22m below ground level (bgl).

1.6. Screening and scoping assessments have been undertaken in accordance with CPG Basements.

1.7. Limited ground investigation has been undertaken. Additional investigation should be undertaken and presented during a Basement Construction Plan (BCP) stage, to confirm the BIA assumptions and assessment and inform the detailed design of the proposed scheme.

1.8. The BIA concluded that the impacts to the adjacent properties, slopes and infrastructure are limited and will be mitigated within policy criteria as part of design development.

1.9. Separate ground movement assessments (GMA) have been undertaken for the infrastructure and utilities surrounding the site. The asset protection teams of these third parties will be engaged or have been engaged already by the applicant's consultants under a separate process, in order to satisfy their requirements in terms of acceptable ground movement and potential impacts.

1.10. Outline structural proposals and calculations for the proposed underpinning and secant pile wall have been presented.

1.11. The impact on groundwater flow will be very low. The groundwater assessment shall be refined after additional site-specific ground investigation and groundwater monitoring is undertaken

and reported during the BCP stage. Minor groundwater inflows anticipated during construction will be dealt with locally by sump pumping.

1.12. Additional ground investigation, a project-specific performance specification, design details, a monitoring strategy, an action plan and refined mitigation measures shall be presented within a BCP to confirm the BIA assumptions and results and to ensure that the anticipated ground movements presented in the GMA are not exceeded.

1.13. A minor decrease of the impermeable areas is proposed for the subject development. The development is not anticipated to impact the hydrological environment.

1.14. It can be confirmed that the BIA complies with the requirements of CPG Basements.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 10th June 2020 to carry out a Category C audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for Lethaby Building, Former Cochrane Theatre, 12-42 Southampton Row & 1-4 Red Lion Square (Former University Of Westminster Central St Martins College Campus), London, WC1B (planning reference 2020/2470/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

- Camden Local Plan 2017 - Policy A5 Basements.
- Camden Planning Guidance: Basements. March 2018.
- Guidance for Subterranean Development (GSD). Issue 01. November 2010. Ove Arup & Partners.

2.4. The BIA should demonstrate that schemes:

a) maintain the structural stability of the building and neighbouring properties;

b) avoid adversely affecting drainage and run off or causing other damage to the water environment;

c) avoid cumulative impacts upon structural stability or the water environment in the local area;

and evaluate the impacts of the proposed basement considering the issues of hydrology, hydrogeology and land stability via the process described by the GSD and to make recommendations for the detailed design.

2.5. LBC's Audit Instruction described the planning proposal as *"External alterations and internal refurbishment to the Grade II* Lethaby Building and the partial demolition and extensions of the existing buildings to create a new hotel facility (Use Class C1). Flexible ground floor and basements uses including retail uses (Use Class A1/A3/A4), office (Use Class B1), and a range of D1 / D2 / C1 uses including exhibition hall, lecture hall, screening room, spa and swimming pool. Creation of a new stand-alone block and re-instatement of former Orange Street which leads diagonally north-westwards from Red Lion Square. The block will provide a cultural use (Use Class D1 / A1) at ground and first floor level and residential (Use Class C3) above,*

together with associated highway improvements, public realm, landscaping, cycling parking, bin storage and other associated works".

The Audit Instruction confirmed that the application site contains the Grade II* listed Lethaby Building. Also, there are adjacent listed buildings, including the subterranean Kingsway Tram substation (Grade II) and 8-10 Southampton Row (Grade II).

2.6. CampbellReith accessed LBC's Planning Portal on 23rd June and 21st July 2020 and gained access to the following relevant documents for audit purposes:

- "Basement Impact Assessment", A-squared Studio Engineers Ltd, Ref. No.: 1129-A2S-XX-XX-RP-Y-0002-04, Rev.04, May 2020;
- "Geotechnical and Geoenvironmental Desk Study Report", A-squared Studio Engineers Ltd, Ref. No.: 1129-A2S-XX-XX-RP-Y-0001-02, Rev.02, 15 May 2020 – Attached as Appendix B in the BIA;
- "Structural Report", Heyne Tillett Steel. Job No.: 2300, Rev.04, 15 May 2020;
- "Design and Access Statement", Orms Designers and Architects, Ref. No.: GSM-ORM-XX-XX-RP-A-32001, P02, 18 May 2020;
- "Planning Statement", Gerald Eve LLP, May 2020;
- "Flood Risk Assessment and SuDS Strategy Report", Heyne Tillett Steel, Job No.: 2300, Rev.04, 15 May 2020;
- "Arboricultural Report & Impact Assessment", Crown Consultants, Ref. No.:10078, 17 April 2020;
- Planning Application Drawings, Orms Designers and Architects, as follows:
    - Existing Basement 01 Plan, Ground Floor Plan, Sections, P02, 20/4/2020;
    - Proposed Basement 01 / 02 / 03 / 01 Mezzanine / 03 Mezzanine Plans, Ground Floor Plan, Sections AA / BB / CC / DD, P02, 20/4/2020;
    - Proposed Theobalds Building Mezzanine Basement 01 Floor Plan, Ground Floor Plan, Sections AA / BB, 20/4/2020.

2.7. CampbellReith raised, via email on 24th July 2020 (attached in Appendix 3), a number of queries on the above relevant documents.

2.8. In response to the queries raised above, the following revised report was received from the applicant's engineers, via LBC, on 14th August 2020:

- "Basement Impact Assessment", A-squared Studio Engineers Ltd, Ref. No.: 1129-A2S-XX-XX-RP-Y-0002-05, Rev.05, August 2020.

2.9. CampbellReith raised, via email on 28th August 2020 (attached in Appendix 3), additional queries on the BIA Rev.05.

2.10. In response to the queries raised above, the following revised report was received from the applicant's engineers, via LBC, on 3rd September 2020:

- "Basement Impact Assessment", A-squared Studio Engineers Ltd, Ref. No.: 1129-A2S-XX-XX-RP-Y-0002-06, Rev.06, September 2020 - Referenced as BIA report in this audit.

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	
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	Refer to Section 4.2 of the BIA report.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Refer to Section 4.1 of the BIA report.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Refer to Section 4.3 of the BIA report. No impacts presented.
Is a conceptual model presented?	Yes	Refer to Sections 6 and 9.1 of the BIA report.
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Refer to Sections 5.2, 5.3 and 5.4 of the BIA report.

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Refer to Section 5.1 of the BIA report.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	N/A	No impacts raised during screening.
Is factual ground investigation data provided?	Yes	Refer to Appendix D of the BIA report. However, additional ground investigation will be required post-planning as discussed in Section 4 of this audit.
Is monitoring data presented?	Yes	However, only limited groundwater monitoring data are presented in Appendix D of the BIA report. Additional ground investigation will be required post-planning as discussed in Section 4 of this audit.
Is the ground investigation informed by a desk study?	Yes	There is a separate desk study attached in Appendix B of the BIA report.
Has a site walkover been undertaken?	Yes	
Is the presence/absence of adjacent or nearby basements confirmed?	No	In the BIA report it is stated that no information was available regarding neighbouring basements. However, the on-site structures do not share party walls with any third parties and details of the existing basements on-site at Lethaby & Lion buildings are presented. The buildings included in the Ground Movement Assessment (GMA) are assumed to be founded at ground surface and this is a moderately conservative assumption.
Is a geotechnical interpretation presented?	Yes	Refer to Section 3 of the GMA (Appendix E of the BIA report).

Item	Yes/No/NA	Comment
Does the geotechnical interpretation include information on retaining wall design?	Yes	As above.
Are reports on other investigations required by screening and scoping presented?	Yes	A Ground Movement Assessment (GMA) report is presented in Appendix E of the BIA. A Flood Risk Assessment and SuDS Strategy report is presented separately. An Arboricultural Report is presented separately. An outline hydrogeological assessment is presented in Section 7.8 of the BIA report.
Are the baseline conditions described, based on the GSD?	Yes	
Do the base line conditions consider adjacent or nearby basements?	Yes	The nearby buildings included in the GMA are assumed to be founded at ground surface.
Is an Impact Assessment provided?	Yes	Refer to Section 9 of the BIA report.
Are estimates of ground movement and structural impact presented?	Yes	Refer to the GMA in Appendix E of the BIA report.
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	Yes	
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	Refer to Sections 5 and 8 for the proposed mitigation methods and construction controls. The mitigation methods will be further refined and presented within a Basement Construction Plan (BCP).

Item	Yes/No/NA	Comment
Has the need for monitoring during construction been considered?	Yes	Refer to Section 8.3.6. of the BIA. The monitoring strategy will be further refined and presented within a BCP.
Have the residual (after mitigation) impacts been clearly identified?	Yes	Refer to Section 9 of the BIA report.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	Refer to Section 9 of the BIA report.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	Yes	
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	Refer to Sections 8.2.9. and 9.2.2. of the BIA report.
Are non-technical summaries provided?	Yes	Refer to Section 1 of the BIA report.

4.0 DISCUSSION

4.1. The Basement Impact Assessment (BIA) has been carried out by 'A-squared Studio Engineers Ltd'. The BIA includes a Ground Movement Assessment (GMA) in Appendix E and an outline Hydrogeological Assessment in Section 7.8. The BIA has been prepared by individuals with suitable qualifications.

4.2. The site is located within the London Borough of Camden, bound by Southampton Row to the west, Theobalds Road to the north, Drake Street (A40) and Red Lion Square to the east, and Fisher Street to the south. The western part of the site is located within the Kingsway Conservation Area and lies opposite the Bloomsbury Conservation Area, which surrounds the entire site. The site is currently occupied by five distinct buildings; the six-storey Lethaby building to the west, which is a Grade II* listed building, the thirteen-storey Red Lion building to the east, the four-storey Cochrane Theatre to the north, the three-storey Central St Martins bridge link and the Innovation Centre to the south. The existing ground level is at c. +25m OD. A single level basement with average depth to formation level of approximately 4m bgl (+21m OD) is present underneath the existing structures and occupies the majority of the site's footprint.

4.3. The site is surrounded typically by five to ten storey commercial, residential and office buildings in all directions. Some of the neighbouring buildings are Grade II listed and are located as close as 10m to the subject site. Adjacent infrastructure includes Crossrail 1 tunnels and a shaft to the immediate south, LUL tunnels (Piccadilly Line), Kingsway Tram tunnel and utility tunnels on either side of the latter to the west. Thames Water and other utilities surround the site. A Post Office Tunnel runs beneath Theobalds Road to the north.

4.4. The main scope of the proposed development includes the refurbishment of Lethaby building to provide hotel space, extensions to the Red Lion building, construction of a new building to the north (Theobalds building) and new basement levels. The Cochrane Theatre, the Innovation Centre and the Link Bridge buildings will be demolished. Most of Lethaby building and a 1960's tower will be retained. The basement of Lethaby building will be retained. Underneath the remainder of the site, the existing basement will be deepened into a three-level basement with proposed average depth to formation level of approximately 22m bgl (+3m OD).

4.5. According to the BIA report, the proposed basement excavation will be supported by a combination of two to three stages of mass concrete underpins installed in a sequential hit-and-miss process with permeation grouting along the western boundary where the excavation interfaces with the Lethaby building. The feasibility of permeation grouting has been confirmed by the BIA report (Section 2.6.9.). A secant pile wall is proposed around the remaining excavation perimeter along the northern, eastern and southern boundaries. The bulk excavation

and construction of permanent works will take place following the installation of all retention systems including multi-level temporary props/shoring utilising a bottom-up methodology.

4.6. Screening and scoping assessments have been undertaken in accordance with CPG Basements and are included in Sections 4 and 5 of the BIA report.

4.7. Limited ground investigation was undertaken on-site comprising one 15m deep cable percussive borehole, 10 no foundation inspection pits and 8 no window sampler boreholes. The ground investigation encountered Made Ground over Lynch Hill Gravel to 7m bgl (+18m OD) over London Clay at depth. The groundwater table was encountered at c. 6m bgl (+19m OD) within the Lynch Hill Gravel. According to nearby historical BGS boreholes, the top of the Lambeth Group and Thanet Sand Formation is anticipated at 24m bgl (+1m OD) and 43m bgl (-18m OD), respectively.

4.8. The need for additional investigation is discussed in Sections 6.1.1 and 6.1.13 of the BIA report. The additional investigation will be undertaken and presented within a Basement Construction Plan (BCP), as agreed with LBC (refer to email attached in Appendix 3 dated 27th July 2020), in order to confirm the BIA assumptions and assessment and inform the detailed design of the proposed scheme.

4.9. A ground movement assessment (GMA) was undertaken using industry standard software (PDisp, XDisp) and the CIRIA C760 methodology, with the modifications discussed below, for both the proposed secant pile wall and underpinning works. Whilst the CIRIA approach is intended for embedded retaining walls, it is accepted that the predicted ground movements are within the range typically anticipated for underpinning techniques carried out with good control of workmanship.

4.10. The GMA considered the ground conditions, the facades of the neighbouring buildings and the on-site Lethaby building, the proposed structural loads, the wall installation methodology, the bulk excavation works and the heave and settlement of London Clay due to unloading / loading redistribution, in the short and the long term. A moderately conservative ground model and parameters have been adopted by the GMA, based on site-specific investigation results and BGS historical borehole records.

4.11. The CIRIA C760 ground movement curves adopted in the GMA for the installation of secant piles were reduced to 50%. According to the BIA this was made in accordance with information from a technical paper published by Ball & Langdon in 2014. However, it is noted that this paper refers to contiguous pile wall installation effects on ground movements, not secant pile walls and this should be taken into account during the BCP stage as discussed below. Further, the CIRIA C760 ground movement curves adopted in the GMA for the excavation in front of the underpinned walls have been reduced to 65% with the assumption that the excavation will be

heavily propped to limit ground movements during the excavation. The installation effects and resulting movements for the underpinning works have not been reduced. Due to the above modifications to the CIRIA C760 methodology, special precautions in terms of design details, monitoring strategy, action plans and mitigation measures shall be put in place, and presented within a BCP, to ensure that construction ground movements are kept within the GMA predictions as further discussed below.

4.12. The GMA and the building damage assessment concludes that the potential damage to neighbouring buildings and the on-site Lethaby building, will not be greater than Category 1 'Very Slight' of Burland scale. This level of damage is within the acceptable limits of CPG Basements.

4.13. According to the GMA, maximum ground movements of 30mm are anticipated in the surrounding footpaths and highways. Allowance for making good of any cracking to adjacent pavement surfaces, if required, is recommended in the BIA report (Section 5.3.13). It has been confirmed (Section 5.3.14) that the applicant's consultants are in the process of seeking Approval in Principle from LBC's highway protection team.

4.14. According to the BIA (Section 7), separate GMA's have been undertaken for the infrastructure and utilities surrounding the site, with the results indicating that ground movements will be within the acceptable limits of the respective asset owners. The assumptions, calculations and results of these GMA's were not presented within the BIA report and therefore were not audited. The BIA report confirmed that the asset protection teams of these third parties will be engaged or have been engaged already under a separate process in order to satisfy any special requirements they might have in terms of acceptable ground movement and potential impacts.

4.15. Overall, the BIA concluded that the impacts to the adjacent properties, slopes and infrastructure will be limited to within policy criteria and will be mitigated during design development.

4.16. Outline structural proposals and calculations for the proposed underpinning and secant pile wall are presented in appendices F and G of the BIA report.

4.17. A full groundwater cut-off system is proposed via the secant pile wall, permeation grouting and underpinning works. A preliminary groundwater assessment presented in the BIA report (Section 7.8) indicated that any damming effect will be minimal, resulting in heave movements and settlements of less than 2mm; however, no calculations were presented. The BIA concluded that the impact on groundwater flow will be very low. The above groundwater analysis and assessment shall be refined after additional site-specific ground investigation and groundwater monitoring is undertaken and presented during the BCP stage, as recommended in Section 7.8.6 of the BIA report and further discussed below. The BIA report (Section 8.3.4)

suggested that any minor groundwater inflows anticipated during construction will be dealt with locally by sump pumping.

4.18. A detailed monitoring strategy is proposed in the BIA report (Section 8.3.6) to control construction works and keep movements and potential damage within the predicted tolerances. This shall be developed and presented within a BCP, as discussed below.

4.19. Additional ground investigation, a project-specific performance specification, design details, a monitoring strategy, an action plan and refined mitigation measures shall be presented within a BCP to confirm the BIA assumptions and results and to ensure that the anticipated ground movements presented in the GMA are not exceeded. Details of temporary works should be developed and presented in the BCP, in order to ensure structural stability is maintained throughout construction.

4.20. During the design of the temporary and permanent works the deflection performance criteria for all design elements should be derived on the basis of the results presented in the GMA to ensure that the damage classification of Category 1, 'Very Slight', is not breached, as recommended in the BIA report.

4.21. A minor decrease of the impermeable areas is proposed for the subject development. The Flood Risk Assessment (FRA) and SuDS Strategy Report indicated that the site is located within a Critical Drainage Area (Group 3_005). Further, the site is located within the low risk Flood Zone 1 and is not located in an area being at risk from reservoir flooding. The risk from groundwater flooding is considered low, however, the presence of groundwater within the Lynch Hill Gravel should be considered in the design. Publicly available data (gov.uk / Environment Agency) indicate that for some external areas of the site, there is a medium risk of flooding from surface water. According to the FRA report, there have been no incidents of internal or external sewer flooding within the WC1B 4 postcode.

4.22. For the Lethaby Building, the surface water drainage is proposed by the FRA to be discharged with no attenuation, as per the existing strategy, due to its listed nature and associated structural and heritage constraints. Blue roofs with restricted outlets are proposed for the remaining site in order to reduce the surface water run-off.

4.23. According to the FRA report, foul water drainage from ground floor level and above is proposed to be discharged by gravity to the existing outfalls to the Thames Water sewers. The basement is proposed to be pumped to high level before connection to the above ground drainage and discharging by gravity. Evidence in the form of correspondence that the proposed surface and foul water strategy has been agreed with Thames Water is provided in Appendix G of the FRA.

It is accepted that the surface water flood risk due to the proposed development will be low. The development is not anticipated to impact the wider hydrological environment.

5.0 CONCLUSIONS

5.1. The Basement Impact Assessment (BIA) has been carried out by individuals with suitable qualifications.

5.2. The scope of the development includes a three-level basement with proposed average depth to formation level of approximately 22m bgl.

5.3. The proposed basement excavation will be supported by a combination of mass concrete underpins with permeation grouting along the western boundary and a secant pile wall around the remaining excavation perimeter. Multi-level temporary propping will be utilised.

5.4. Screening and scoping assessments have been undertaken in accordance with CPG Basements.

5.5. Limited ground investigation has been undertaken. Additional investigation shall be undertaken and presented during a Basement Construction Plan (BCP) stage, in order to confirm the BIA assumptions and assessment and inform the detailed design for the proposed scheme.

5.6. The BIA concluded that the impacts to the adjacent properties, slopes and infrastructure will be limited and will be mitigated within policy criteria as part of design development.

5.7. Separate GMAs have been undertaken for the infrastructure and utilities surrounding the site, to be assessed by the relevant third party asset protection teams.

5.8. Outline structural proposals and calculations for the proposed underpinning and secant pile wall have been presented.

5.9. The impact on groundwater flow will be very low. Further assessment will be presented during the BCP stage.

5.10. Additional ground investigation, a project-specific performance specification, design details, a monitoring strategy, an action plan and refined mitigation measures shall be presented within a BCP.

5.11. The development is not anticipated to impact the hydrological environment.

5.12. It can be confirmed that the BIA complies with the requirements of CPG Basements.

Appendix 1: Residents' Consultation Comments

None

Appendix 2: Audit Query Tracker

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Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	General	Limited ground investigation data are currently available. Short borehole data and draft investigation logs are only available. The full GI report, including groundwater monitoring readings, is missing and is requested. Deeper investigation data adequate for the proposed works is required in order to inform the Basement Impact Assessment.	Closed	14/08/2020
2	Hydrogeology	A site-specific hydrogeological assessment is requested based on groundwater monitoring data. The assessment should discuss any potential flow under and around the site and how this might be affected by the proposed works. Any impact and mitigation measures should be stated including those for any groundwater controls may be needed during construction.	Closed	14/08/2020
3	Stability	The feasibility of the proposed permeation grouting and underpinning for Lethaby building is not proved by the BIA and further assessment is requested. A feasible scheme should be proposed and the impacts clearly demonstrated.	Closed	14/08/2020
4	Stability	Outline temporary works plans and structural calculations for the proposed underpinning are not presented and are requested. An indicative scheme should be presented and impacts assessed.	Closed	03/9/2020
5	Stability	An indicative scheme should be presented for the proposed perimeter secant piled wall and impacts assessed.	Closed	03/9/2020
6	Stability	The Ground Movement Assessment (GMA) has been carried out for buildings in the vicinity adopting CIRIA C760 using PDisp & XDisp software. The input (parameters, model, and assumptions) & output (results) of the software used were not provided and are requested. The buildings were assumed to be founded on the ground surface with the presence of basements or any relevant details of the surrounding buildings being unknown.	Closed	03/9/2020
7	Stability	The GMA should consider the potential impact to the on-site listed Lethaby building.	Closed	14/08/2020
8	Stability	The reduction of ground movements to 65% of those predicted by CIRIA C760 due to excavation in front of the underpinned walls should be justified in the GMA.	Closed	14/08/2020

9	Stability	The depth of the perimeter secant pile wall considered in the GMA is not stated and is requested.	Closed	14/08/2020
10	Stability	According to the GMA, the structural elements of buildings 1FS, 3FS and 25P fall within Category 0. However, these structural elements are located very close to the proposed basement and it is requested that the GMA assumptions and outcome is rechecked.	Closed	14/08/2020
11	Stability	Anticipated ground movements (vertical and horizontal) contour plans for both the short and long term are requested to be presented in the GMA.	Closed	03/9/2020
12	Stability	There is a general comment about “appropriate ground movement monitoring” (paragraph 5.2.12 of the BIA) to be implemented but project-specific trigger levels and contingency measures associated to the results of the GMA are not presented and are requested.	Closed	14/08/2020
13	Stability	The potential impact to the Kingsway Tram tunnel situated to the west of the site and to adjacent highways and pathways should be considered in the GMA.	Closed	03/9/2020
14	Stability	The GMA does not present the assessment results of potential damage to Crossrail (south), LUL (west), Post Office (north) tunnels (and shaft for Crossrail) and to other utilities surrounding the site, saying that the asset protection teams of these parties will be engaged (Thames Water, Post Office, electricity, gas, telecom etc.) or have been engaged already (Crossrail, LUL) under a separate process.	Note	-
15	Stability	Screening question No. 6 (stability) regarding felling of trees needs correction. Three No. Category B and 1 No. Category C trees are proposed to be felled to allow access to the piling rig during construction. This needs to be taken to scoping although it is acknowledged that no problems of heave or settlement are anticipated due to the generally gravelly Made Ground and River Terrace Deposits being present near the ground surface subject to confirmation by a site-specific ground investigation.	Closed	14/08/2020

16	Stability	Screening question No. 13 (stability) needs rephrasing as it implies that the proposed basement will be extended below the existing Lethaby building. Something not supported by the architectural drawings.	Closed	14/08/2020
		New queries for the revised BIA dated 14/08/2020		
17		There is a reference for a sheet pile wall 23m deep in Section 2.1, p.3 of 20, of the GMA Report (Appendix E of the BIA). A clarification is required about this proposed wall along with outline plans and structural calculations.	Closed	03/9/2020

Appendix 3: Supplementary Supporting Documents

CampbellReith's email dated 24/07/2020 (with attached query tracker)

LBC's email dated 27/07/2020 (acceptance of BCP stage)

CampbellReith's email dated 28/08/2020 (further audit comments)

RE: St Martins College BIA audit_Query tracker and teleconference
Christos Botsialas to: Farrant, Ben 24/07/2020 17:06
Cc: "camdenaudit@campbellreith.com", "LizBrown@campbellreith.com"

1 Attachment

Query tracker_Former St Martins College_BIA.pdf

Hi Ben,

We note the agent's preference to resolve matters after planning permission is granted by means of a BCP. We assume that Camden is satisfied with that approach. Please confirm that this is the case.

Myself and Liz will be available for a teleconference with the author and checkers of the BIA report on Wednesday 29 July 2020 at 12 noon time. Please confirm this is convenient and let us know about the teleconference arrangements.

Further, please find attached a query tracker with the additional note that it is our opinion that the red coloured queries should be closed pre-planning to prove the feasibility of the proposed scheme and satisfy the CPG Basements.

(See attached file: Query tracker_Former St Martins College_BIA.pdf)

I hope this is all clear but if not please do not hesitate to ask.

Best regards,

Christos Botsialas
Associate

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www.campbellreith.com

"Farrant, Ben" ---24/07/2020 12:11:35---Hi Christos Apologies for the delay. Speaking to the agent it's looking as though closing out the ma

From: "Farrant, Ben" <Ben.Farrant@camden.gov.uk>
To: "ChristosBotsialas@campbellreith.com" <ChristosBotsialas@campbellreith.com>
Cc: "camdenaudit@campbellreith.com" <camdenaudit@campbellreith.com>, "LizBrown@campbellreith.com" <LizBrown@campbellreith.com>, "Sam Ling" <SLing@hts.uk.com>
Date: 24/07/2020 12:11
Subject: RE: St Martins College BIA audit_Draft audit findings and way forward

Lethaby Building, London, WC1B 4AF
BIA – Audit

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Audit Query Tracker (24/07/2020)

Query No	Subject	Query	Status	Date closed out
1	General	Limited ground investigation data are currently available. Short borehole data and draft investigation logs are only available. The full GI report, including groundwater monitoring readings, is missing and is requested. Deeper investigation data adequated for the proposed works is required in order to inform the Basement Impact Assessment.	Open	
2	Hydrogeology	A site-specific hydrogeological assessment is requested based on groundwater monitoring data. The assessment should discuss any potential flow under and around the site and how this might be affected by the proposed works. Any impact and mitigation measures should be stated including those for any groundwater controls may be needed during construction.	Open	
3	Stability	The feasibility of the proposed permeation grouting and underpinning for Lethaby building is not proved by the BIA and further assessment is requested. A feasible scheme should be proposed and the impacts clearly demonstrated.	Open	
4	Stability	Outline temporary works plans and structural calculations for the proposed underpinning are not presented and are requested. An indicative scheme should be presented and impacts assessed.	Open	
5	Stability	An indicative scheme should be presented for the proposed perimeter secant piled wall and impacts assessed.	Open	
6	Stability	The Ground Movement Assessment (GMA) has been carried out for buildings in the vicinity adopting CIRIA C760 using PDisp & XDisp software. The input (parameters, model, and assumptions) & output (results) of the software used were not provided and are requested. The buildings were assumed to be founded on the ground surface with the presence of basements or any relevant details of the surrounding buildings being unknown.	Open	
7	Stability	The GMA should consider the potential impact to the on-site listed Lethaby building.	Open	
8	Stability	The reduction of ground movements to 65% of those predicted by CIRIA C760 due to excavation in front of the underpinned walls should be justified in the GMA.	Open	

9	Stability	The depth of the perimeter secant piled wall considered in the GMA is not stated and is requested.	Open	
10	Stability	According to the GMA, the structural elements of buildings 1FS, 3FS and 25P fall within Category 0. However, these structural elements are located very close to the proposed basement and it is requested that the GMA assumptions and outcome is rechecked.	Open	
11	Stability	Anticipated ground movements (vertical and horizontal) contour plans for both the short and long term are requested to be presented in the GMA.	Open	
12	Stability	There is a general comment about "appropriate ground movement monitoring" (paragraph 5.2.12 of the BIA) to be implemented but project-specific trigger levels and contingency measures associated to the results of the GMA are not presented and are requested.	Open	
13	Stability	The potential impact to the Kingsway Tram tunnel situated to the west of the site and to adjacent highways and pathways should be considered in the GMA.	Open	
14	Stability	The GMA does not present the assessment results of potential damage to Crossrail (south), LUL (west), Post Office (north) tunnels (and shaft for Crossrail) and to other utilities surrounding the site, saying that the asset protection teams of these parties will be engaged (Thames Water, Post Office, electricity, gas, telecom etc.) or have been engaged already (Crossrail, LUL) under a separate process.	Note	
15	Stability	Screening question No. 6 (stability) regarding felling of trees needs correction. Three No. Category B and 1 No. Category C trees are proposed to be felled to allow access to the piling rig during construction. This needs to be taken to scoping although it is acknowledged that no problems of heave or settlement are anticipated due to the generally gravelly Made Ground and River Terrace Deposits being present near the ground surface subject to confirmation by a site-specific ground investigation.	Open	
16	Stability	Screening question No. 13 (stability) needs rephrasing as it implies that the proposed basement will be extended below the existing Lethaby building. Something not supported by the architectural drawings.	Open	

RE: St Martins College BIA audit_Query tracker and teleconference
Farrant, Ben to: ChristosBotsialas@campbellreith.com 27/07/2020 12:51
Cc: "camdenaudit@campbellreith.com", "LizBrown@campbellreith.com", "Sam Ling"
History:
This message has been replied to.

1 Attachment

Query tracker_Former St Martins College_BIA.pdf

Good afternoon Christos

I can confirm that Camden are happy for the matters to be closed out by BCP secured by S106 if you're satisfied with that approach. I know we're keen for a quick turnaround so I think the BCP makes the most sense.

I have cc'd in the agent's BIA specialist to fast-track matters. Would you like me to set up the meeting for this **Wed 29th at 12:00** (via MS Teams) or are you happy to arrange this amongst yourselves? I'm happy to attend the meeting if you think it would be beneficial though equally I'm aware that I wouldn't add much and am happy for you to have the meeting separately.

Kind regards
Ben
--
Ben Farrant
Senior Planner

The majority of Council staff are now working at home through remote, secure access to our systems. Where possible please now communicate with us by telephone or email. We have limited staff in our offices to deal with post, but as most staff are homeworking due to the current situation with COVID-19, electronic communications will mean we can respond quickly.

From: ChristosBotsialas@campbellreith.com <ChristosBotsialas@campbellreith.com>
Sent: 24 July 2020 17:07
To: Farrant, Ben <Ben.Farrant@camden.gov.uk>
Cc: camdenaudit@campbellreith.com; LizBrown@campbellreith.com
Subject: RE: St Martins College BIA audit_Query tracker and teleconference

[EXTERNAL EMAIL] Beware – This email originated outside Camden Council and may be malicious Please take extra care with any links, attachments, requests to take action or for you to verify your password etc. Please note there have been reports of emails purporting to be about Covid 19 being used as cover for scams so extra vigilance is required.

Hi Ben,

We note the agent's preference to resolve matters after planning permission is granted by means of a BCP. We assume that Camden is satisfied with that approach. Please confirm that this is the case.

Myself and Liz will be available for a teleconference with the author and checkers of the BIA report on Wednesday 29 July 2020 at 12 noon time. Please confirm this is convenient and let us know about the teleconference arrangements.

Further, please find attached a query tracker with the additional note that it is our opinion that the red coloured queries should be closed pre-planning to prove the feasibility of the proposed scheme and satisfy the CPG Basements.

I hope this is all clear but if not please do not hesitate to ask.

Former Saint Martins College_Revised BIA Audit comments
Christos Botsialas to: Sam Ling 28/08/2020 15:00
Cc: Camden Audit, Liz Brown, "Farrant, Ben", alex.nikolic, "Paul Smith", "Sabrina Buensuceso", "Susan Mantle"

Hi Sam,

As promised, please see below our comments for the revised BIA report:

- In the structural calculations the base of the underpins is shown within Lambeth Group, however, according to the ground model adopted the underpins will likely be terminated within London Clay – a clarification/amendment is required. Also, the effective friction angle (29°) adopted for London Clay in the structural calculations, for the underpins and secant pile wall, should be justified.
- The input and output of PDisp software is still missing and is requested.
- Contour plans of ground movements have been presented in the revised BIA in Section 4 of the GMA (Appendix E of the BIA). It should be clarified though, whether Figures 4.7 & 4.8 refer to the results of PDisp analysis (currently shown as XDisp results).
- The potential impact to the adjacent highways and paths is not presented in the revised BIA and is requested. According to the contour plans presented in the GMA, up to 30mm of ground movement is anticipated in adjacent pathways and highways. Mitigation measures may be required and should be discussed in the BIA as necessary.
- There is a reference for a sheet pile wall 23m deep in Section 2.1, p.3 of 20, of the GMA Report (Appendix E of the BIA). A clarification is required about this proposed wall along with outline plans and structural calculations, as may be required.

Going forward could you please update the BIA report to take into account the above audit comments **by midday Wednesday next week** (2 September 2020)?

Then assuming that there will be no further queries, we will issue our final audit report the w/c 7 September 2020. As agreed with yourselves and Camden, more work will be required during a Basement Construction Plan stage to confirm the assumptions and refine the assessment of the subject BIA.

Best regards,

Christos Botsialas
Associate

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----- Forwarded by Christos Botsialas/CRH on 28/08/2020 10:34 -----

From: Christos Botsialas/CRH
To: "Sam Ling" <SLing@hts.uk.com>
Cc: "alex.nikolic@a2-studio.com" <alex.nikolic@a2-studio.com>, "Farrant, Ben" <Ben.Farrant@camden.gov.uk>, "camdenaudit@campbellreith.com" <camdenaudit@campbellreith.com>, "LizBrown@campbellreith.com" <LizBrown@campbellreith.com>, "Paul Smith" <paul.smith@a2-studio.com>, "'Sabrina Buensuceso'" <sabrina.buensuceso@a2-studio.com>, "Susan Mantle" <SMantle@hts.uk.com>

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