CampbellReith
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Brill Place, London, NW1

Detailed Basement Construction Plan Review

For

London Borough of Camden

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1.0 INTRODUCTION

1.1. CampbellReith was instructed by London Borough of Camden (LBC) to undertake a review of the Detailed Basement Construction Plan (DBCP) submitted by WSP UK Ltd for Brill Place, Plot 7 Central Somers Town, planning reference 2019/5882/P and 2015/2704/P. The BCP is to address the relationship between Brill Place and the adjacent Francis Crick Institute (FCI) building as a stipulated requirement of the relevant Section 106 Agreement.

1.2. The Section 106 Agreement indicates the owner should appoint an independent suitably certified engineer (Basement Design Engineer) and an independent suitably qualified Acoustician to agree limiting vibration criteria with the FCI and details of the appointments to be agreed in advance with the council.

1.3. The Basement Design Engineer and the Acoustician are required in the Section 106 Agreement to formulate the Detailed Basement Construction Plan (DBCP) and it should include:

- Confirmation that the design plans have been undertaken in strict accordance with the terms of this agreement incorporating proper design and review input into the detailed design phase of the Development and ensuring that appropriately conservative modelling relating to the local ground conditions and local water environment and structural condition of the FCI and noise and vibration have been incorporated into the final design.

- Confirmation that the result of these appropriately conservative figures ensure that the Development will be undertaken without any impact on the structural integrity of the FCI beyond 'slight' with reference to the Burland Category of Damage and the noise and vibration impacts on the FCI will be kept to a minimum.

- Confirmation from the Basement Design Engineer and the Acoustician that the design plans have been undertaken in accordance with this Agreement, including a letter of professional certification confirming this and that the detailed measures set out in sub-clauses 2.47.2 (c) (i)-(ix) below have been incorporated correctly and appropriately and are sufficient in order to achieve the objectives of the Detailed Basement Construction Plan

  (i) Reasonable endeavours to access and prepare a detailed structural appraisal and condition survey of all the FCI to be undertaken by an independent suitably qualified and experienced chartered surveyor (and for details to be offered if this is not undertaken in full or part).

  (ii) A method statement detailing the proposed method of ensuring the safety and stability of the FCI throughout the Construction Phase including temporary works sequence drawings and assumptions with appropriate monitoring control risk assessment contingency measures and any other methodologies associated with the basement and the basement temporary works.

(iii) Detailed design modelling relating to the local ground conditions and local water environment and structural condition of and noise and vibration impacts on the FCI prepared by the Basement Design Engineer and the Acoustician for all elements of the groundworks and basement authorised by the Planning Permission together with specifications and supporting calculations for both the temporary and permanent basement construction works.

(iv) The Basement Design Engineer to be retained at the Property and the Acoustician to be engaged throughout the Construction Phase to inspect approve and undertake regular monitoring of both permanent and temporary basement construction works throughout their duration to ensure compliance with the plans and drawings as approved by the building control body.

(v) Measures to ensure the on-going maintenance and upkeep of the basement forming part of the Development and any and all associated drainage and/or ground water diversion measures order to maintain structural stability of the Property the FCI and the local water environment (surface and groundwater).

(vi) Measures to ensure ground water monitoring equipment shall be installed prior to Implementation and retained with monitoring continuing during the Construction Phase and not to terminate monitoring until the issue of the Certificate of Practical Completion (or other time agreed by the Council in writing).

(vii) Measures to limit vibration setting out the criteria for assessment (frequencies, accelerations etc.) and to ensure that those criteria are strictly complied with.

(viii) Amelioration and monitoring measures of construction traffic including procedures for co-ordinating vehicular movement with other development taking place in the vicinity and notifying the FCI and the owners and or occupiers of the residences and businesses in the locality in advance of major operations delivery schedules and amendments to normal traffic arrangements.

(ix) Preparation and agreement of a contingency plan with the FCI setting out measures to be undertaken to ensure minimisation of impact on the FCI in the event of any delays in completing the Development.

1.4. The Section 106 Agreement requires that:

- The Owner appoints a second independent suitably certified engineer (qualified in the fields of geotechnical and/or structural engineering) from a recognised relevant professional body having relevant experience of sub-ground level construction commensurate with the Development (the Certifying Engineer) and for details of the appointment of the Certifying Engineer to be submitted to the Council for written approval in advance.

- The Certifying Engineer reviews the design plans and offers a 2 page review report to the Council confirming the design plans have been formulated in strict accordance with the terms of this Agreement and have appropriately and correctly incorporated the provisions

of sub-clauses (1) – (9) above and are sufficient to achieve the objectives of the Detailed Basement Construction Plan AND should any omissions, errors or discrepancies be raised by the Certifying Engineer then these to be clearly outlined in the report and thereafter be raised directly with the Basement Design Engineer and Acoustician with a view to addressing these matters in the revised design plans.

- A letter of professional certification from the Certifying Engineer confirming that the Detailed Basement Construction Plan is approved from and has been formulated in strict accordance with the S106 agreement shall be submitted with the BCP.

1.5. The applicant is also required to meet the requirements of clause 2.47 (6) of the Section 106 Agreement and to answer any queries raised by LBC.

1.6. This report covers our review of the DBCP information submitted by WSP UK Ltd in response to the Section 106 Agreement, which comprises the following:

- Detailed Basement Construction Plan by WSP Rev 1 dated 21/02/2020 and listed Appendices A-O.

1.7. In response to revision D1 of CampbellReith's review of the DBCP issued in June 2020, updated documents were presented for review via email correspondence dated 10 August 2020

- Detailed Construction Plan by WSP Rev 2, dated 03/08/2020 and listed Appendices A – S
- Detailed Construction Plan by WSP Rev 3, dated 13/10/2020 and listed Appendices A – S

2.0 BASEMENT CONSTRUCTION PLAN REVIEW

The following information has been reviewed and found to comply with the requirements of the Section 106 Agreement where indicated below.

Condition Surveys	
• Plan drawing showing extent of condition surveys	x
• Photographic and descriptive record of existing conditions	x
• Condition Survey to be carried out by third party independent of the design and contractor team to be carried out prior to commencement of works.	x
GMA Report	
• Ground movement assessment using appropriately conservative modelling	✓
• Building damage assessment	✓
• Damage no worse than "Slight" according to Burland Category of Damage	✓
Movement Monitoring Proposals including drawings & specification to include:	
• The trigger and action levels for horizontal, vertical and tilt movements	✓
• Monitoring targets to be indicated on the elevation drawings	✓
• The monitoring frequency	✓
Temporary and Permanent works proposals	
• Method statement for basement works throughout construction phase including temporary works drawings, monitoring measures and contingency measures	✓
• Detailed design drawings for all elements of groundworks and basement with specifications and supporting calculations for temporary and permanent case	✓
• Measures for ongoing maintenance including groundwater monitoring and construction traffic	✓
• Measures to monitor and control noise and vibration during the construction phase.	✓
• Measures to monitor groundwater until issue of Practical Completion Certificate	x
Engineering review	
• Confirmation of suitably qualified Basement Design Engineer and Acoustician to formulate the BCP	✓
• Provision to retain the Basement Design Engineer and Acoustician throughout the Construction Phase	✓

• Details of review by suitably qualified and experienced engineer who is independent of the design team	✓
• Evidence of comments raised by certifying engineer on design and review of calculations	✓
• Evidence of an agreed contingency plan to limit impact of project delays	✓
• Report confirming BCP is in accordance with Section 106 agreement	✓

3.0 DISCUSSION

3.1. The following comments apply to the BCP for Plot 7 tower, Brill Place, London NW1.

3.2. The DBCP is written by WSP UK on behalf of Brill Place Ltd and confirms WSP are supplying Structural Engineering, Civil Engineering, Geotechnical Engineering and Acoustics, the Basement Engineer is confirmed as Rodolfo Giannini C.Eng. MIStructE who is a suitably qualified structural engineer; the Acoustician is named as Louise Beamish BSc, MIoA who is a suitably qualified Acoustician.

3.3. The FCI Constraints document within the Construction Management Plan gives criteria for noise and vibration it is noted these limits are agreed with the FCI.

3.4. Modelling of noise from construction appears to have been undertaken in line with the relevant British Standard, using noise data presented within that standard, for five different scenarios. The assessment assumes an imperforate hoarding around the site perimeter with a height of 2.4m.

3.5. A Ground Movement Assessment is contained within Appendix D of the DBCP the excavation was modelled via PLAXIS 2D and the predicted movements were used to assess the impact of the works on the FCI building. The GMA has confirmed the impact of Brill Place work on the FCI building as Category 0: Negligible; with reference to the Burland Category of Damage.

3.6. Section 1.4 of the DBCP confirms the designs have been reviewed by the Basement Design Engineer, and a letter of certification dated 02 March 2020 is included. Section 1.5 of the DBCP also confirms that a review by both the Acoustician and the Certifying Engineer is included.

3.7. With respect to the particular requirements of the Section 106 Agreement in clause 2.47.2 (c), we would note the following:

(i) The S106 agreement indicates reasonable endeavours to carry out condition surveys for the FCI building should be undertaken and the BCP. Appendix S details the proposals as agreed with the FCI.

(ii) Appendix L of the DBCP contains a detailed method statement and phasing of the temporary works proposed to construct the basement, a monitoring action plan is included in Appendix E.

(iii) The S106 Agreement requires detailed design modelling of noise and vibration impacts and structural calculations and detailed drawings for both the temporary and permanent basement construction. Appendix L contains the temporary works proposals and confirms prop loads, the embedded pile wall calculations are in Appendix K which is supported by a performance specification for the piled wall in Appendix J.

(iv) The S106 agreement indicates the Basement Design Engineer should be retained at the Property, and also requires the Acoustician to be retained throughout the construction phase.

(v) The DBCP contains reference to the hydrology, and the site investigations confirm that the local ground conditions as London Clay, therefore the basement is not expected to have any impact on the local water environment and stability of the FCI.

(vi) Groundwater monitoring was carried out as part of the site investigations in April and May 2019, however there appears to be no direct confirmation of continuing to monitor the groundwater throughout the construction phase as required by the S106 Agreement.

(vii) Details of the required noise and vibration monitoring have been provided in the documentation.

(viii) Monitoring and control of construction traffic is described in the Construction Management Plan this includes references to local residents, developments along with an estimate of vehicle numbers.

(ix) The S106 Agreement contains a requirement for an agreed contingency plan setting out measures to minimise the impact of any delays on the FCI building. This is addressed in section 11 of the DBCP which confirms mitigation strategies will be confirmed by Basement Design Engineer and submitted to the FCI in advance of any implementation.

3.8. The Certifying Engineer's report has been produced by Walsh Engineers and is included in Appendix R of the DBCP.

4.0 CONCLUSIONS

4.1. We are generally satisfied that the information provided within the Detailed Basement Construction Plan (7370-WSP-00-ZZ-RP-S-200800 rev 3) for our review complies with the requirements of CPG4 and the relevant clauses of the Section 106 Agreement.

4.2. The details of the Basement Design Engineer and Acoustician acting for WSP are contained in the DBCP are acceptable as suitably qualified.

4.3. It is accepted that the FCI Constraints document within the Construction Management Plan gives criteria for noise and vibration and these values appear to be reasonable.

4.4. The Ground Movement Assessment confirms the impact of the Brill Place work on the FCI building as Category 0: Negligible; with reference to the Burland Category of Damage, this is accepted.

4.5. It is accepted the designs have been reviewed by the Basement Design Engineer, and a letter of certification dated 02 March 2020 is included.

4.6. It is accepted the DBCP contains a detailed method statements and phasing of the temporary works proposed to construct the basement, along with a monitoring action plan.

4.7. Although the final design of the embedded pile wall is to be carried out by a specialist, it is accepted that the DBCP contains sufficient design calculations to demonstrate suitability for both the temporary and permanent basement construction.

4.8. The letter of certification confirms the Basement Design Engineer is to be retained throughout the Construction Phase to monitor the construction works.

4.9. The BCP confirms the local ground conditions as London Clay and it is accepted the basement is not expected to have any impact on the local water environment.

4.10. A number of measures to limit noise and vibration in relation to the FCI building are contained in the DBCP.

4.11. Monitoring and control of construction traffic is described in the Construction Management Plan.

4.12. The DBCP confirms the Acoustician has reviewed and certifies the design plans in accordance with the section 106 Agreement.

4.13. It is accepted the DBCP considers impacts of both noise and of vibration on the FCI building.

4.14. Details of the required noise and vibration monitoring limits agreed with the FCI are contained in Appendix P.

4.15. Details of agreed condition surveys for the FCI building are contained in Appendix S of the BCP.

4.16. The DBCP confirms the Basement Design Engineer and Acoustician are to be retained throughout the construction phase and the Design Engineer will be based on site as necessary.

4.17. It is accepted that the DBCP considers the local ground water environment and the design of the embedded piles is conservative and groundwater monitoring is therefore not proposed within the construction phase.

4.18. The DBCP confirms contingency measures are to be agreed with the Basement Design Engineer and the FCI to minimise the impact of any delays on the FCI building.

4.19. Details of a second independent Certifying Engineer and qualifications are confirmed in the Certifying Engineers report contained in Appendix R.

4.20. The Certifying Engineer's letter of certification following the independent design review is provided.

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