

85 CAMDEN MEWS LONDON NW1 9BU

SECTION 106 CERTIFYING ENGINEER CHECKING REPORT

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DESIGN TEAM

ARCHITECT = CULLINAN STUDIO

PERMANENT WORKS ENGINEER = AXIOM STRUCTURES

TEMPORARY WORKS DESIGNER = AXIOM STRUCTURES

	Signature:	Issued / Checked
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1.0 Executive Summary

Following the review of the basement design of 85 Camden Mews, it is confirmed that the basement has been designed in accordance with the relevant codes of practice. Comments raised during review of the structural calculations have been incorporated.

The information received forming the “Detailed Basement Construction” plan is in accordance with the Section 106 Agreement.

2.0 Introduction

This report aims to review and check the design of a new basement in accordance with the Section 106 agreement for the planning condition of 85 Camden Mews, NW1 9BU, London, dated 6th January 2017.

This report will also check if provisions for the sub-clauses (see Table 1 in section 3.0) referenced in the S106 agreement have been incorporated for the “Detailed Basement Construction” plan.

As part of the S106 agreement, it is stated that a “Basement Design Engineer” is to be appointed by the owner and is to be qualified by a recognised relevant professional body having relevant experience. It is confirmed Andrzej Plocieniak MStructE CEng from Axiom Structures Limited has been appointed and will be retained throughout the construction phase by the owner.

Furthermore, it is required that the owner is to appoint a second independent qualified “Certifying Engineer” who is to review the basement structural design in accordance with the S106 agreement and if all aspects of the “Detailed Basement Construction” plan have been correctly considered accordingly.

It is confirmed that Kai Cheong (Ryan) Lee MStructE CEng from Axiom Structures has been appointed as the “Certifying Engineer”.

For the review process, the following information has been received by the “Certifying Engineer”:

- Structural drawings and calculations by the “Basement Design Engineer”
- Architectural plans by Cullinan Studio
- Envisaged construction sequence and temporary works drawings by the “Basement Design Engineer”
- Construction Management Plan and drawings by Clive Winstanley (Construction Planning Associates).

3.0 Structural Design Check

The proposed basement structure has been designed as RC underpins which resists the lateral earth pressures and surcharge loads as well as underpinning the existing masonry walls to transfer vertical loads into the ground. Structural drawings and a calculation package have been provided by the “Basement Design Engineer”.

From review of the calculation package, the assumptions stated are:

- RC underpins are typically designed as simply support retaining walls with temporary propping provide the top restraint to the retaining structure.
- “At rest” condition has been assumed where the no lateral movement is expected in the wall which in turn results in the worst case lateral earth pressures.
- Groundwater level assumed to be 1m below ground level in wall design.
- The assumptions appear to be reasonable and are typical of a basement design for residential buildings.
- Detailed load takedowns for neighbouring foundations have been taken down as well as allowance for future vertical extension as requested by neighbours.

4.0 Detailed Basement Construction Plan

As set out in the Section 106 agreement, the sub-clauses as outlined in Table 1 below are to be considered as part of the Detailed Basement Construction Plan. The information provided for each sub-clause has also been outlined in Table 1.

Sub - Clause	Description	Information Provided
(i)	<i>The Owner to appoint an independent suitably certified engineer (qualified in the fields of geotechnical and or structural engineering) from a recognized relevant professional body having relevant experience of sub-ground level construction commensurate with the Development ("the Basement Design Engineer") AND for details of the appointment to be submitted to the Council too written approval such approval not be unreasonably withheld or delayed (and the Owner to confirm that any change in Basement Design Engineer during the Construction Phase with the Council in advance).</i>	It is confirmed that the "Basement Design Engineer" will be retained by the client throughout construction to monitor the permanent works. The temporary works will be reviewed by temporary works designer. Temporary works are to be monitored by a temporary works co-ordinator and supervisor as part of contractor's team.
(ii)	<i>The Basement Design Engineer to formulate the appropriate plan to fulfil the requirements of the Detailed Construction Basement Plan and at all times to ensure the following:</i>	
	<i>a) That the design plans have been undertaken in accordance with the terms of this Agreement incorporating proper design and review input into the detailed design phase of the Development and enduring that appropriate conservative modelling relating to the local ground conditions and local water environment and structural condition of Neighbouring Properties have been incorporated into the final design; and</i>	Extensive investigation and analysis have been carried out by specialist geotechnical engineers.
	<i>b) That the result of these appropriately conservative figures ensure that the Development will be undertaken without any impact on the structural integrity of the Neighbouring Properties beyond "Slight" with reference to the Burland Category of Damage, and</i>	
	<i>c) That the Development Design Engineer having confirmed that the design plans have been undertaken in accordance with this Agreement and includes a letter of professional certification confirming this and that the detailed measures set out in sub-clauses (1)-(7) below have been incorporated correctly and appropriately and are sufficient in order to achieve the objectives of the Detailed Basement Construction Plan;</i>	
	<i>1. Reasonable endeavours to access and prepare a detailed structural appraisal and conditions survey of all the Neighbouring</i>	Provided as part of the Party Wall process

	<i>Properties 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);</i>	
	<i>2. A method statement detailing the proposed method of ensuring the safety and stability of Neighbouring Properties 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;</i>	Temporary works drawings and method statement by Axiom Structures (TW-400 etc)
	<i>3. Detailed design drawings incorporating conservative modelling relating to the local ground conditions and local water environment and structural condition of Neighbouring Properties prepared by the Basement Design Engineer 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;</i>	Structural drawings and calculations by Axiom Structures
	<i>4. The Basement Design Engineer to be retained throughout the Construction Phase to inspect approve and undertaking regular monitoring of both permanent and temporary basement construction works throughout their duration and to ensure compliance with the plans and drawings as approved by the building control body;</i>	It is confirmed that the "Basement Design Engineer" will be retained by the client throughout construction to monitor the permanent works. The temporary works will be monitored by a temporary works co-ordinator and supervisor from the contractor
	<i>5. Measure 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 Neighbouring Properties and the local water environment (surface and groundwater);</i>	Permanent below ground drainage design and drawing has been provided by Axiom Structures for the new basement. From review, the stability of the property is not expected to be impacted.
	<i>6. 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); and,</i>	It is understood that from a previous Site Investigation, stand pipes were placed in the boreholes and it is intended to have these monitored by a Site Investigation contractor during Construction
	<i>7. 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 owners and or occupier of the</i>	Construction Management Plan provided by Clive Winstanley (Construction Planning Associates)

	<i>residencies and businesses in the locality in advance of major operations delivery schedules and amendments to normal traffic arrangements.</i>	

Table 1 – Detailed Basement Construction Plan Sub-Clauses