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REPORT

Grove End House

Structural Engineer's Report

Contents

Prepared by: **Ben Scott**
Job Number: **25012**

Date	Version	Notes / Amendments / Issue Purpose
Nov 2016	1	For Information

1 The Site

Grove End House is located on Grove End, North of Chetwynd Road in the London Borough of Camden. It is a Grade II listed 3-storey mansion block with semi-basement spaces below.

The mansion block measures approximately 14m by 11m and is made from traditional brick and timber construction. The external walls are solid brick and there is also a central internal solid brick spine wall that runs along the long axis of the building. All brick walls are at least 215mm thick. The floors are timber joists with wooden floorboards to the top.

The proposed structural alterations to the mansion block will be isolated to the second floor. Opening up works have been carried out to the second floor with timber beam and joist spans and directions recorded. These will be used in conjunction with the proposed works.

2 Ground Conditions

Publicly available borehole records from the British Geological Survey show that the local ground conditions are London Clay.

3 Proposed Structure

Substructure and Foundations

Any additional loading to the existing strip foundations will be limited to an increase of 10%. No works are therefore proposed to the existing foundations of the mansion block.

Superstructure

It is possible that local strengthening work will be required to the existing second floor structure. This may include doubling up existing timber beams or joists. Any new structure to the second floor will be inserted from above, without disrupting the ceiling at high level first floor. New structural loads will be distributed onto the external brick walls or the internal brick spine wall.

The existing roof structure will be replaced with a new third floor structure made predominantly from timber joists spanning onto the existing brick walls and new steel beams. All loads will be distributed onto the external brick walls or the internal brick spine wall and will be managed such that stresses are minimised to mitigate damage to the building.

The new roof structure will be a plywood stressed skin roof. It will be supported on lightweight steel columns supported off the new third floor structure.

4 Design Criteria

Codes and Standards

The design of the structure will be carried out in accordance with the following codes of practice:

Loading	BS6399 Parts 1 - 3
Steelwork	BS5950
Masonry	BS5628
Timber	BS5268
Balustrades	BS6180

Loadings

The design imposed loads are as follows:

Domestic Floor	1.5 KN/m^2
Roof	0.75 kN/m^2
Lightweight partitions	1.0 kN/m^2

5 Assumed Sequence of Construction

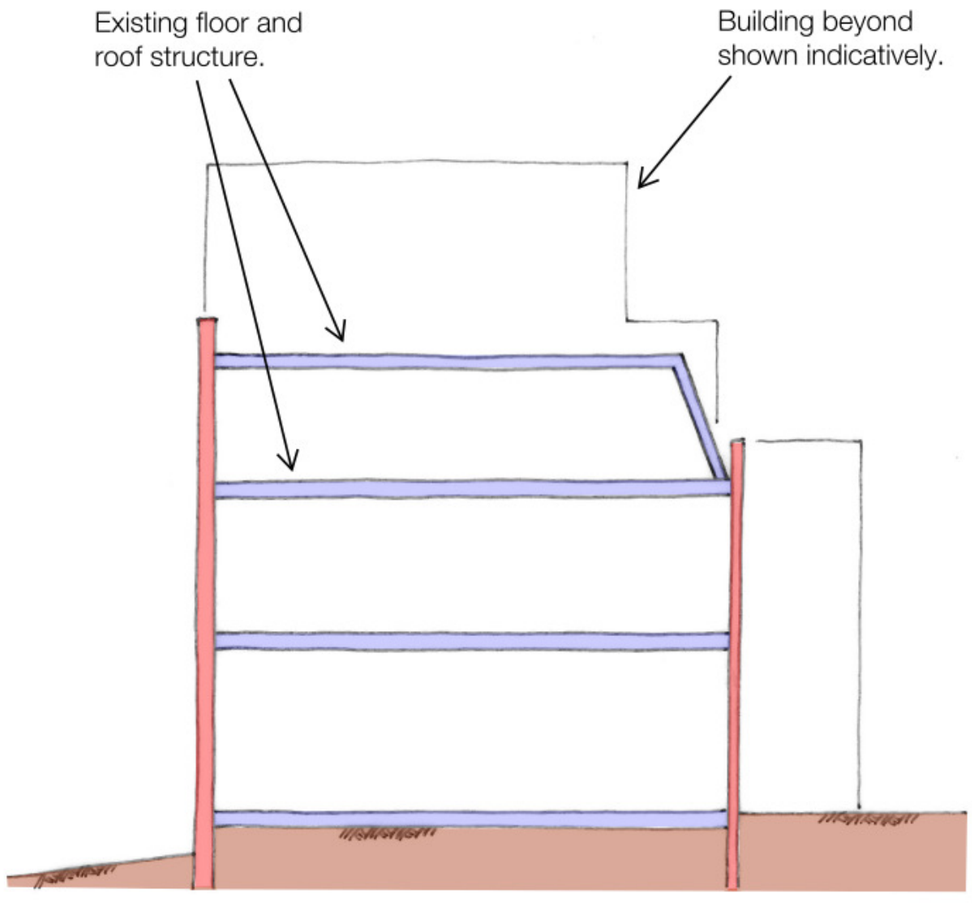
An assumed sequence of construction has been illustrated on the next 2 pages.

Stage 1	The existing structure will be understood as much as practically possible before the design is finalised.
Stage 2	The building will be covered with a full roof scaffold to provide protection from the weather during the building work. The existing roof structure will be removed and temporary waterproofing provided to the top of the second floor if necessary. Temporary works will also be installed where required, in particular to the front South West facing wall.
Stage 3	The new structure will be built on top of the second floor to provide a new third floor structure. The plywood stressed skin roof will be pre-fabricated off site in sections, lifted into position and fixed into place. At some point during this stage, the existing South West facing second floor windows will be propped with new brick header lintels built above them.
Stage 4	Works completed and roof scaffold removed.

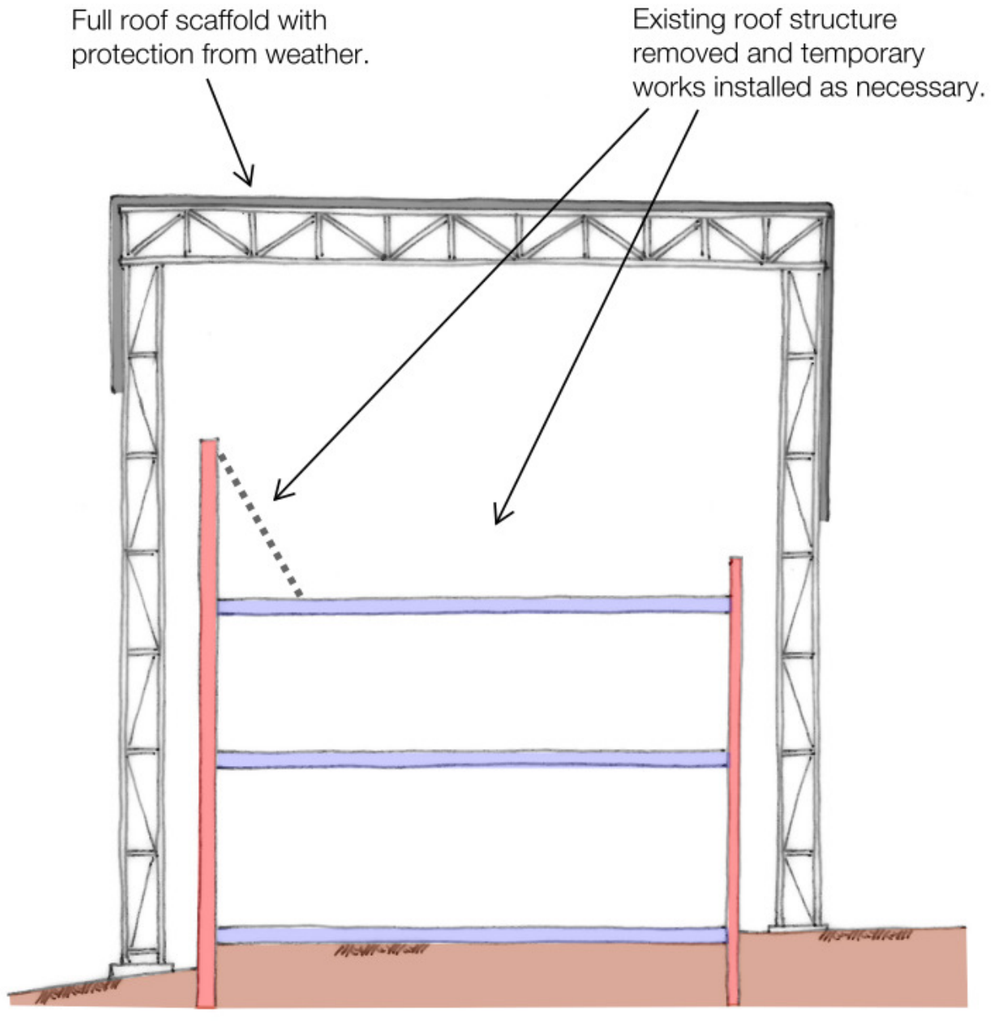
37 Alfred Place London WC1E 7DP 020 7631 5128 mail@pricemyers.com www.pricemyers.com

5 Assumed Sequence of Construction

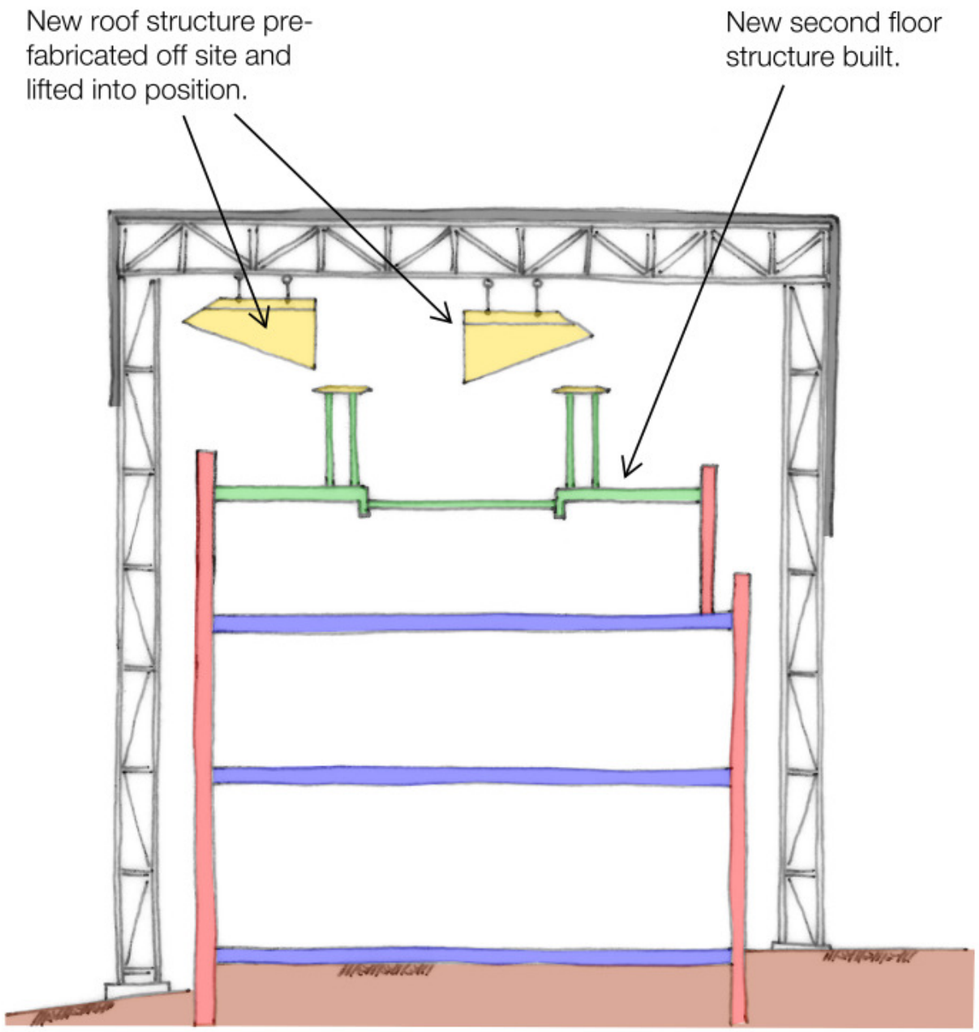
Stage 1 – Existing Structure



Stage 2 – Full roof scaffold and removal of existing roof structure



Stage 3 – New second floor structure and roof supports



Stage 4 – New roof built and scaffolding removed