PRICE & MYERS

Glebe House
15 Fitzroy Mews, London W1

Structural Report In Support of Planning Application

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Date	Revision	Notes/Amendments/Issue Purpose
March 2021	1	For Information
March 2021	2	Planning Issue

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Note:

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1 Introduction

Price & Myers visited Glebe House on behalf of Earlspring Property Investments Limited on the 18th February 2021. The purpose of the inspection was to review the existing construction and consider how an additional storey could be added to the building.

Access was gained to one flat on the top existing, fourth floor, one flat on third floor, the plantroom space above the lift shaft and part of the lower ground floor adjacent to the stairs. The inspection was limited to what could be seen without the removal of any finishes.

Glebe house is understood to have been built in the 1970s and is located on the west side of Fitzroy Mews and the east side of Cleveland Street.

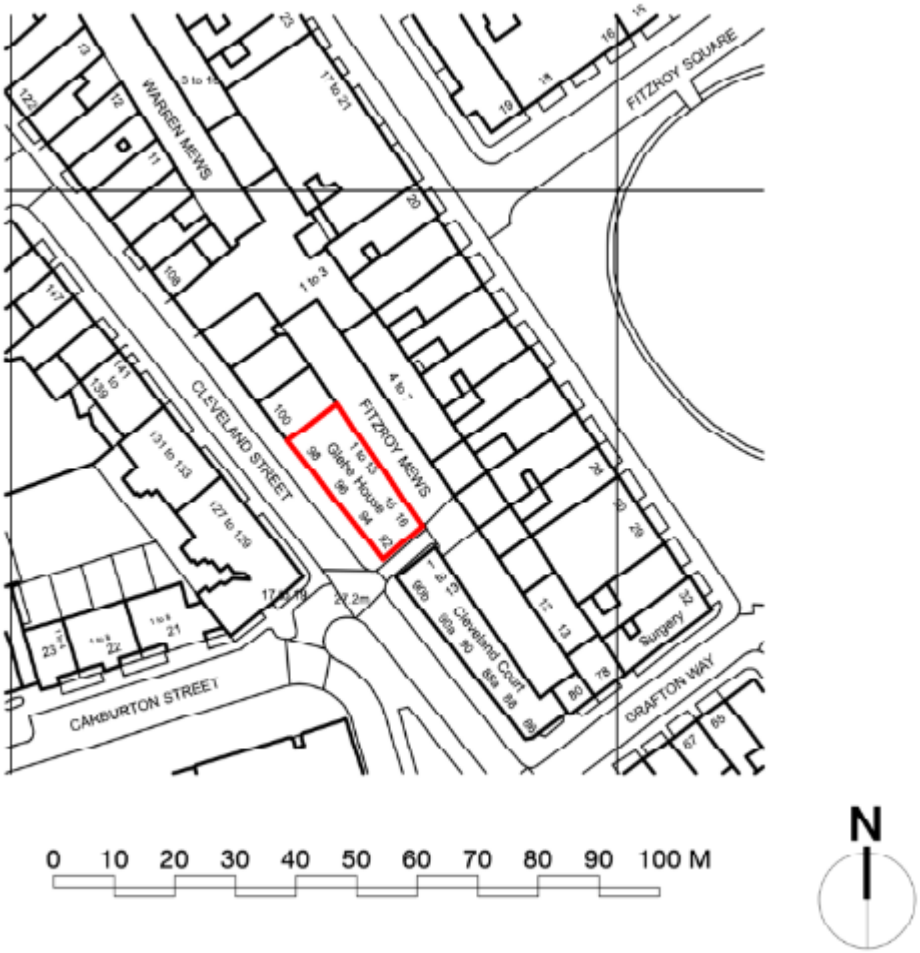

Figure 1: Site Location Plan

The Victoria line underground tunnels coming westbound out of Warren Street station pass under Fitzroy Mews; initial enquires with London Underground reveal that it is the deeper tunnel that passes under Glebe House, see appendix B.

The BGS website shows that the site is underlain by the Lynch Hill gravels, above London Clay. The nearest available public boreholes suggest the gravel thickness is about 2m above the clay.

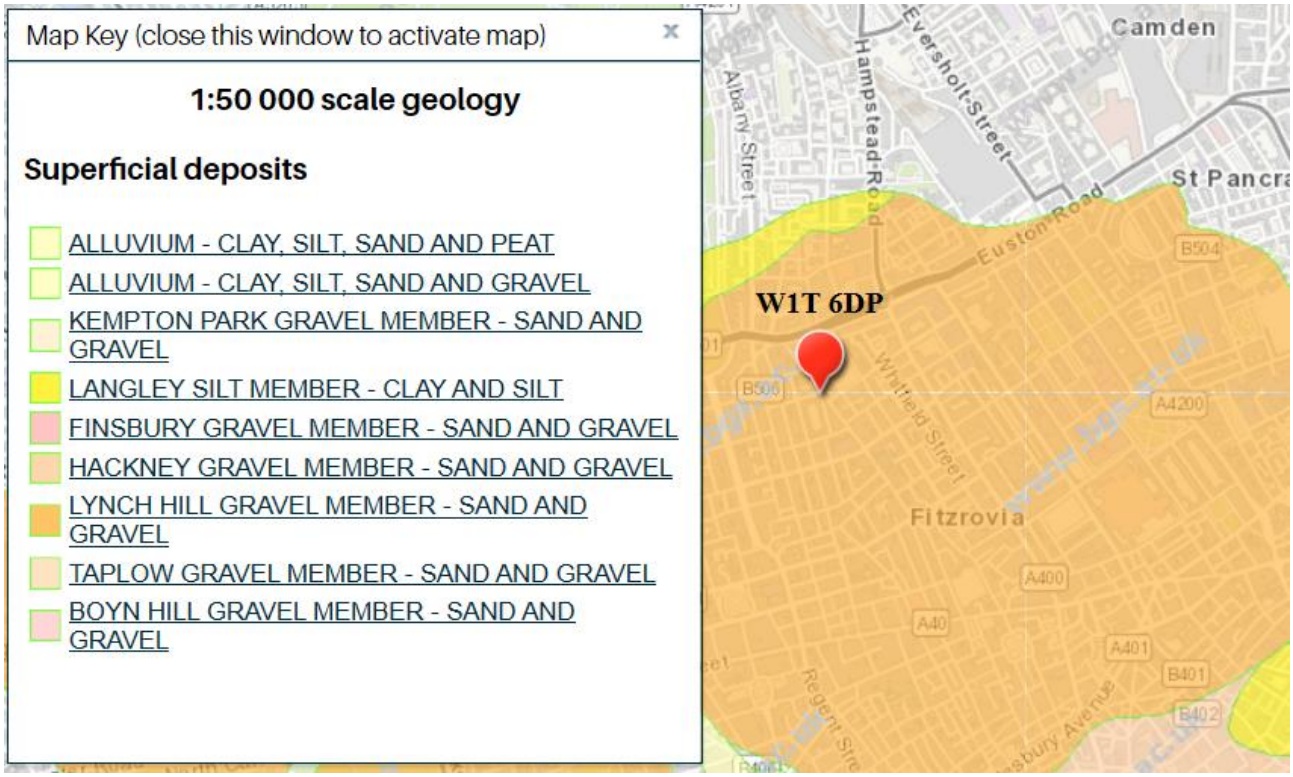

Figure 2: Site Geological data

2 Existing Building

Glebe House has four shop units at street level on Cleveland street with some mezzanine areas within these units as the ground level is lower in Glebe Mews than in Cleveland street. Ground level falls from Cleveland Street into the Mews and the Mews then slopes down to the north. See photos 1 to 3. At floors one to four there are four flats on each floor, two each side of the central lift and stair access core. On the top floor there are two flats one each side of the core. The existing layouts show solid party walls between the flats, that align with the walls between the ground floor shop units.

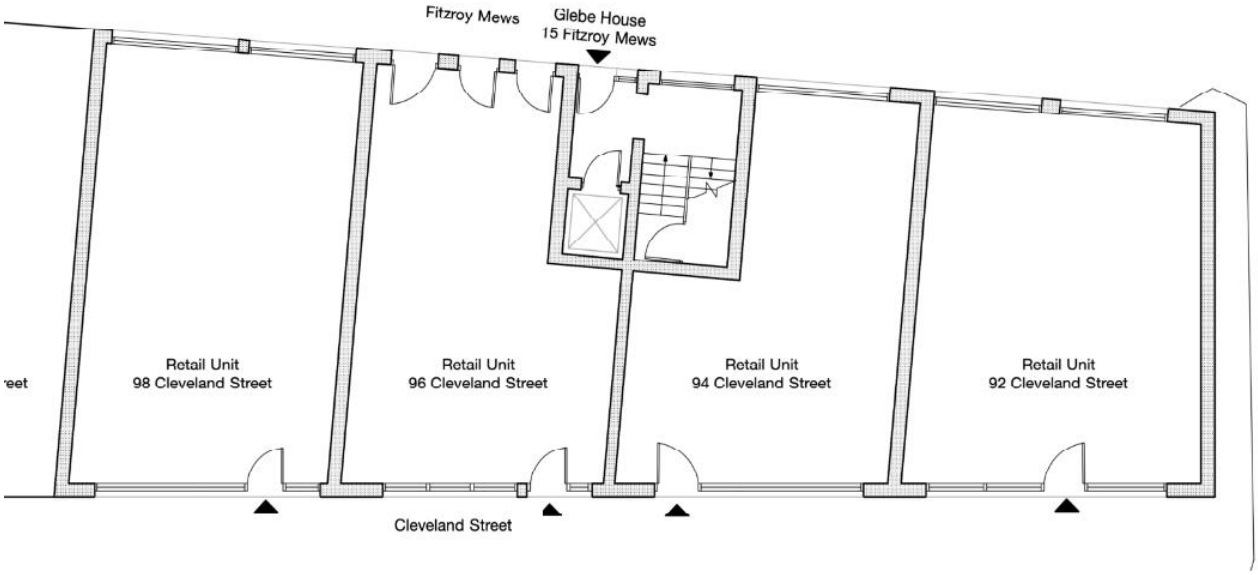

Figure 3: Ground Floor Plan

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The building is brick clad on the lower floors with what appears to be a continuous band of concrete at first floor between the shops and the flats. The top floor flats are clad in a lightweight material on the inset east and west elevations, see photo 5.

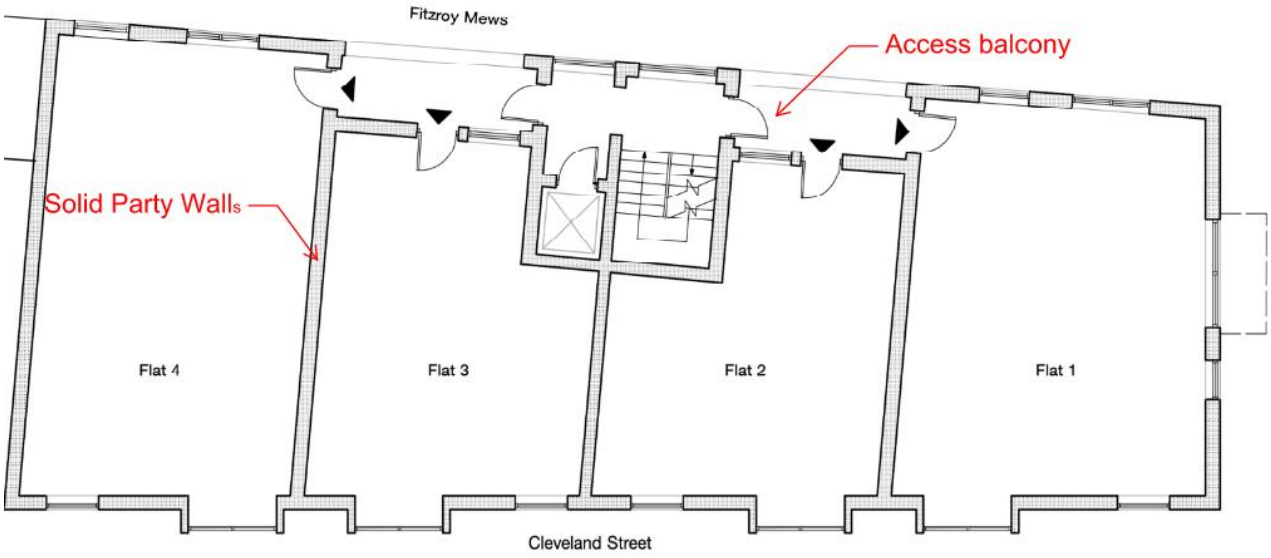


Figure 4; Typical Floor, First

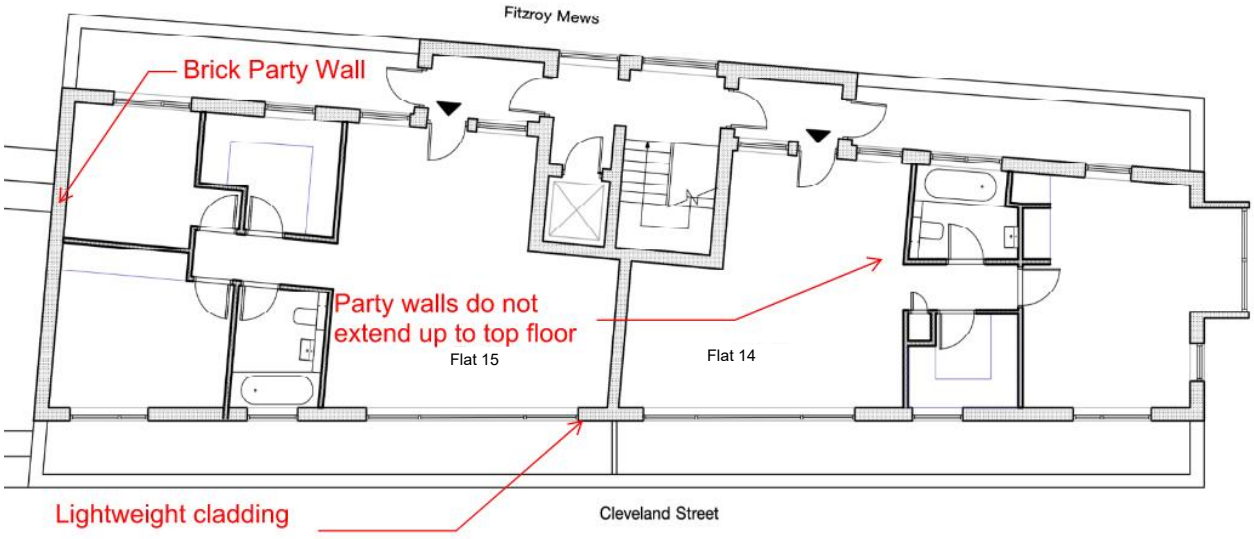


Figure 5: Existing Fourth Floor

The structure is expected to be a concrete frame with reinforced concrete floors and staircase; possibly with solid loadbearing brick party walls. There is evidence for this assumption from the structure that is visible in the rooftop lift motor room and the undercroft, see photos 6 & 7; and as what could be concrete slabs are exposed on the north elevation, see photo 4.

The lift does not serve the fourth floor and it is possible therefore that this floor is an addition to the original building, although the end elevations suggest otherwise, see photo 4. The structure of this floor is however different to the lower floors and the roof to this level must be spanning onto the lightweight facades which are then supported on structure spanning between the main loadbearing party walls under.

The typical floors are assumed to have concrete floors spanning between the party walls. Within the lift plant room the upper roof is formed using woodwool slabs, see photo 6.

3 Proposed Extension

Outline Structural Design

The proposed new floor is to be set back from the Cleveland Street elevation but not on the Fitzroy Mews elevation. To minimise disruption to the existing building tenants, especially on the top floor, it is proposed that the new floor will be built over the existing structure. This avoids the need to consider any support from the existing lightweight enclosures so that support is taken from the solid existing frame at fourth floor or within the lift and stair core.

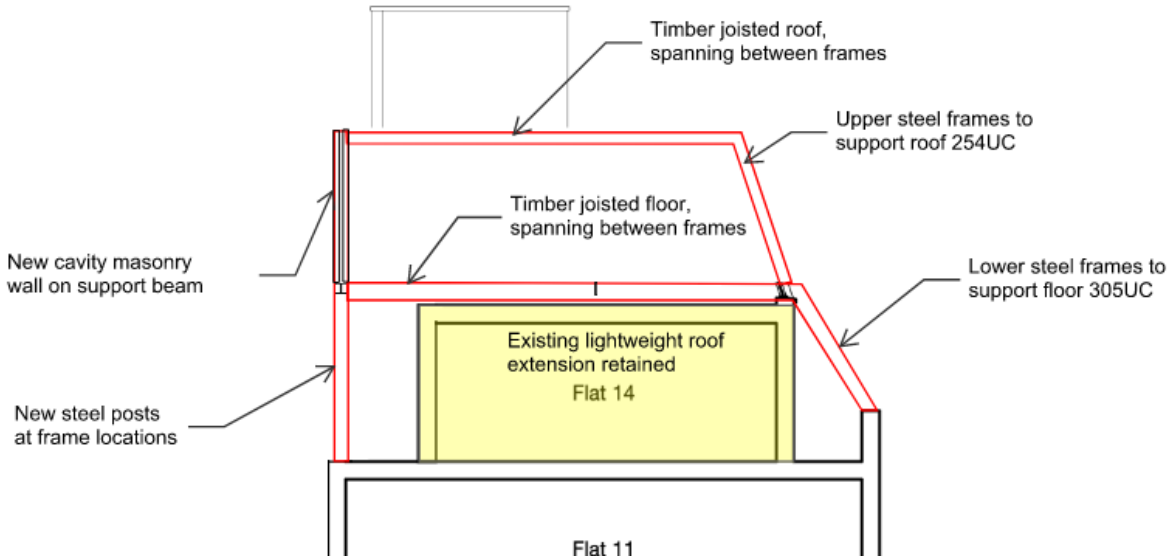


Figure 6: Roof Extension Outline Scheme

As shown in figure 5, a portal steel frame will be used to span over the existing structure to form the new fifth floor and provide stability to the extension, with a secondary frame above to support the new roof. These frames are supported by columns in the Fitzroy Mews elevation that also support the steel required to support this new elevation.

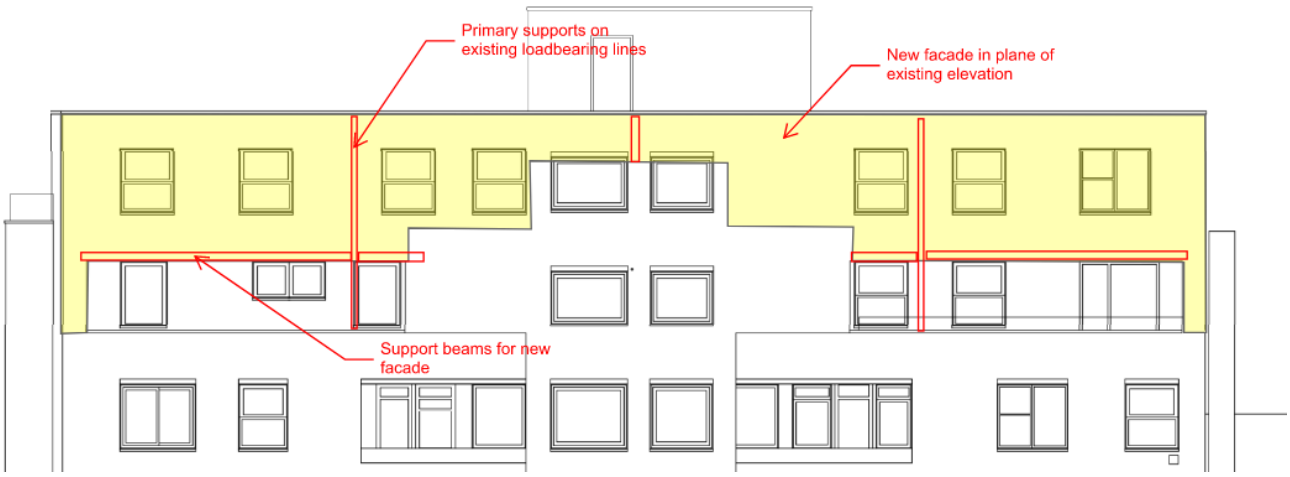


Figure 7; Proposed Fitzroy Mews Elevation

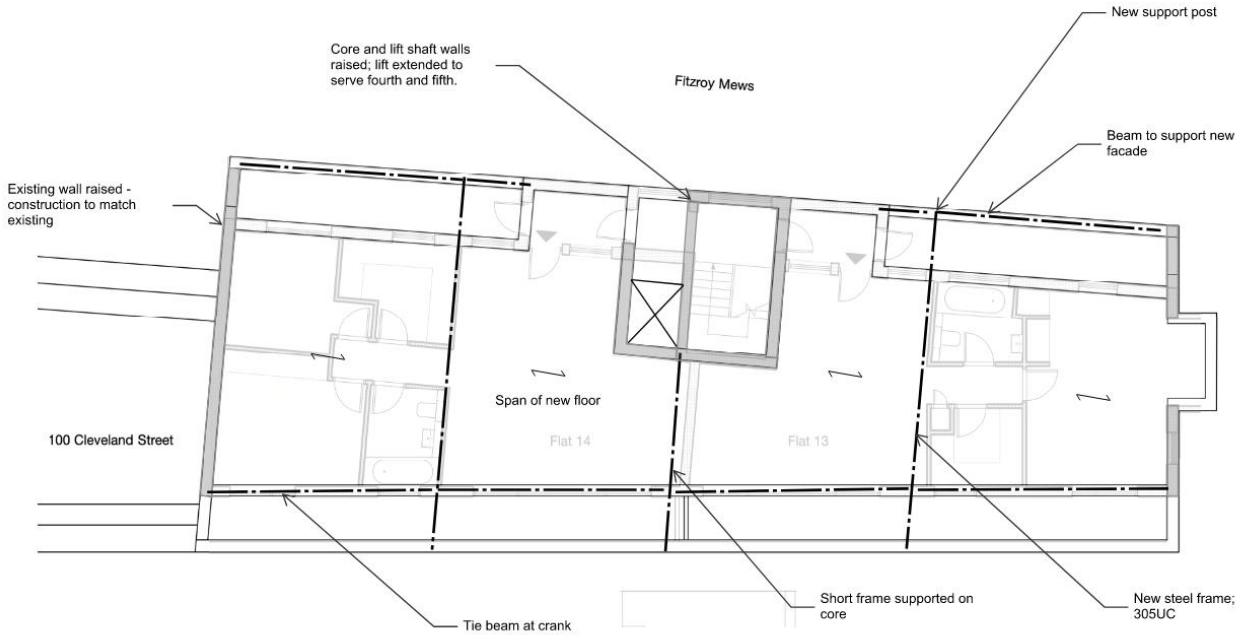


Figure 8; Proposed New Fifth Floor Structure

The new structure will have timbers floors and roof with a lightweight membrane covering to minimise the loads added to the existing structure. The lift and stair enclosure are extended up to the new roof level, and beyond as needed to allow the lift to serve fifth floor, and support any “pop-up” in roof level around the core. It is assumed that the north and south facades will be raised in brickwork, probably matching the existing.

Loading and Support on Existing Structure

Calculations show that the new floor adds a total of no more than 10% of load to the existing building foundations, based on reasonable and conservative allowances for existing loads. This is considered an acceptable increase. Support of the new steel structure on the existing concrete slab at fourth floor will be onto the existing concrete slab; and baseplates will be detailed to suit. On the Fitzroy Mews

façade a further check of the capacity of the piers supporting this load will be carried out during the RIBA stage 4 design.

It is expected that the proposed change in load to the building above the London Transport tunnel will need to be agreed with TfL. The increase in loads are only modest and no unloading of the tunnel is proposed so it is expected that this will not be a technical problem.

Stability and Robustness

In the east-west direction the building has five shear walls, three internal and the two mainly solid flank walls, providing stability and clearly will not be impacted by the addition of some lateral wind load from the proposed increase in building height. In the north-south direction there is little stability provided by the existing facades due to the shop front openings at ground floor on Cleveland Street and the number of doors within the Fitzroy Mews elevation. It is expected that the lift shaft, which is to be extended to the new roof level provides stability in this direction and this will be checked in detail during the RIBA stage 4 design; the increase in load is modest as the building is quite narrow.

The building is currently five stories high and so it is anticipated that it will be compliant with the Building Regulations part A3 requirement for robustness to meet consequence class 2b. The addition of one extra floor does not alter the consequence class and the new structure will incorporate the required vertical and horizontal ties to ensure that the new frame meets the requirements for consequence class 2b.

4 Conclusions

It appears structurally feasible to add one extra floor of flats to the existing Glebe House building. This new floor will be designed to bridge over the existing roof structure of the fourth floor flats and to take support only from known points of vertical support within the existing structure.

Appendix A
Photographs

Photograph 1: Cleveland Street Elevation

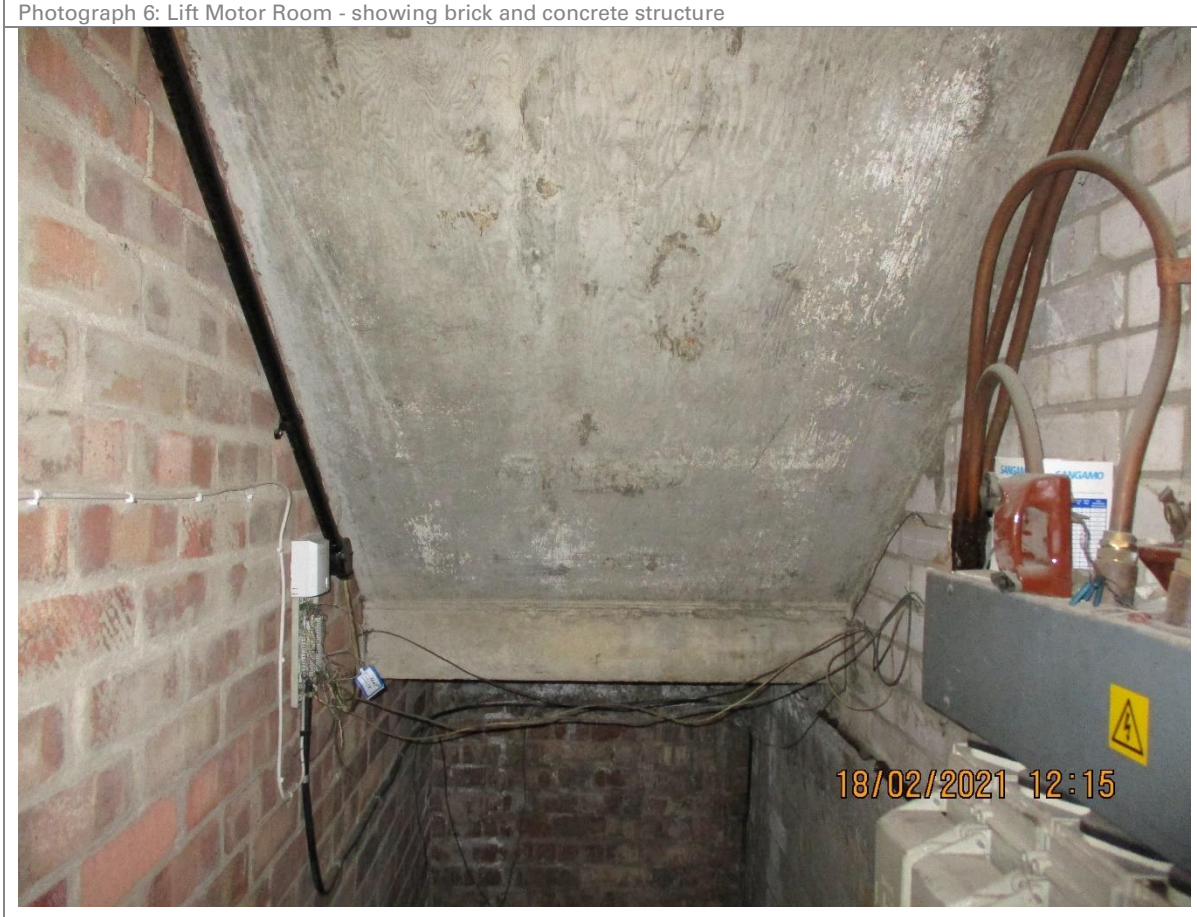
Photograph 2: Fitzroy Mews Elevation - note slope

Photograph 3: South Elevation - note slope

Photograph 4: North elevation - note slab levels

Photograph 5: Top Floor east & west elevations

Photograph 6: Lift Motor Room - showing brick and concrete structure



Photograph 7: Undercroft showing brick and concrete construction

Appendix B
Transport for London Record Information

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MAYOR OF LONDON

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Date: February 2021
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