

## Structural Engineering Note on Proposed Vertical Extension

### Introduction

We have been appointed by our client, Audeo Property Ventures (APV), to review the structural engineering feasibility of the proposed two storey vertical extension of Lytton Court, Barter Street, WC1A 2AH, and set out our proposed design approach for the next stages.

Our understanding of the existing structure is based on observations from our site visits on 7 May, 24 May, and 23 October 2024, as well as the results of our in-house desktop study. During our visits we had general access to the communal spaces within the building and the storerooms at basement level. On the 24 May, we additionally had access to one of the third-floor flats. No intrusive investigations of the structure or the foundations have been undertaken as part of our input.

Our structural engineering comments relate to the proposed scheme by Rodic Davidson Architects, shown on their general arrangement drawings received 29 January 2025.

### Existing Structure

Lytton Court is a four-storey building with a single-storey basement beneath. It was constructed in the early 1990s. The primary structure consists of a reinforced concrete (RC) frame, with RC columns supporting RC floor slabs. The basement is also of a reinforced concrete construction, with RC walls and an RC floor slab. The available geological maps indicate that the ground conditions below the site comprise approximately 5.5 to 6 metres of Lynch Hill Gravels (sands and gravels with lenses of clay and silt) overlying the London Clay bedrock. Given this geology, the building foundations are likely to be either spread pad foundations bearing on gravels or RC piles extending into the London Clay.

To the east side of the building is a ground-floor passageway providing vehicular access to a carpark at the rear of the building. The passageway, which runs roughly north-south, is bounded by No.16 Barter Street (a 19th-century, three-storey terrace house with a basement) to the east and Lytton Court to the west. Lytton Court spans over the passageway at the first and second floors. Along the site boundary, a line of RC columns supports the floors above. The basement to Lytton Court does not extend below the passageway. The remaining boundaries to the site are Hogarth House to the south and a pedestrian route linking Barter St and High Holborn/New Oxford St to the west.

### Proposed Structure

The proposal comprises the addition of a two-storey vertical extension over the four-storey portion of Lytton Court. The extension is to contain new residential apartments. Access to the new levels will be provided by extending the existing staircase and lift shaft. To facilitate the proposed extension, the existing roof structure will be carefully dismantled.

The proposed fourth floor is to have a footprint broadly similar to the existing third floor below. It is to be clad in brickwork. The elevation of the fifth floor is to be set back from the primary elevation lines and will be integrated into a new mansard roof. Private terraces are to be provided to each of the new apartments. The roof is to have a lightweight sedum finish.

It is currently anticipated that the structure of the extension will be formed with a new primary hot rolled steel frame supported on the existing RC frame below. The new floors and roof are to be suspended timber to help limit the weight of the new structure.

The proposals result in a net increase in the total weight of the building and an increase of the stability loads the building needs to resist. From our preliminary review of the existing structure the proposals are feasible, but it is expected that works shall be required to increase the load capacity of both the RC frame and foundations. At the next design stage, localised opening-up investigations are to be undertaken to confirm the arrangement of the existing RC frame. Trial pit investigations are also to be completed to expose the arrangement and nature of the



existing foundations. This will allow the design of the proposed strengthening to the existing building to be developed.

It is proposed to explore options to prefabricate elements of the new structure, including items such as roof and wall panels, to help simplify the works on site and improve the quality of the workmanship.

[Info@structuralassembly.co.uk](mailto:Info@structuralassembly.co.uk)

Issued: **30 January 2025**

Revision: **P01**

Our Project No.: **0016**

Prepared by: **RW**

This document is for the sole use of the person or organisation for whom it has been prepared under the terms of appointment. Unless and to the extent allowed for under the terms of appointment this document should not be copied or used or relied upon on whole or in part by third parties for any purpose whatsoever. Structural Assembly Ltd does not accept any loss or damage arising from unauthorised use of this report.

Structural Assembly Ltd is a Private Limited Company registered in England and Wales No.: 14023517  
Correspondence Address: 52 Foundling Court, The Brunswick Centre, London, WC1N 1AN  
Registered Office Address: 124 City Road, London, EC1V 2NX

