

Structural Inspection Building 1

Client: ***Root 2 Lean Limited***

Project: ***Red House Farm
39 Main Road
Ratcliffe Culey
Atherstone
CV9 3NY***

Project No: ***24-21204***

Document No: ***0-030***

Issue: ***1***

Date: ***September 2024***

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1.0 Introduction

- 1.1 Further to instructions, I visited Red House Farm, Ratcliffe Culey on 10 July 2024 in order to undertake a visual structural inspection of an existing agricultural building.
- 1.2 My brief was to undertake a visual structural appraisal to determine the condition of the existing building, and to form an opinion on their suitability for future conversion for residential use in accordance with the Class Q of the Town and Country Planning (General Permitted Development) (England) Order 2015.
- 1.3 My inspection was limited to elements of the structure which were visible, exposed or to which access was available.

2.0 Description

2.1 Building 1 is located to the rear of the farm complex. [Figure 1]

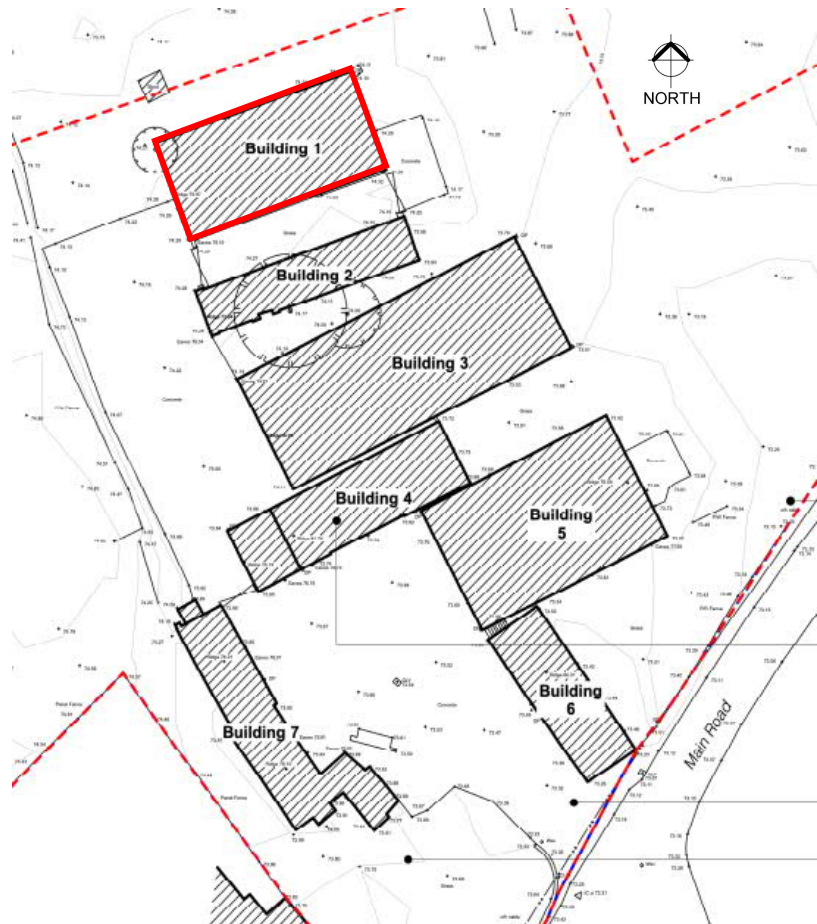


Figure 1

2.2 Building 1 is approximately 9m wide x 18m long with a height to eaves of 4.0m

2.3 The main superstructure comprises a “Tyler” system-built pre-cast concrete portal frame / 3-pinned arch formed of 4No. equal bays, and is single-storey with a corrugated, fibre-cement, duo-pitched roof supported on pre-cast concrete purlins and eaves beams.

2.4 The walls are a combination of 215 mm thick dado-height concrete blockwork and corrugated fibre-cement cladding above.

The south-facing elevation is open-sided below the high level sheeting, with a low, solid brickwork wall.

There is steel sliding door in each gable wall

2.5 The ground floor comprises a cast *in situ* concrete ground bearing slab

3.0 Observations

- 3.1 The corrugated sheeting is damaged in places and there is water staining to some of the clockwork due to prolonged run-off.
- 3.2 The main frames are in good condition, despite being exposed along one side. There is no evidence of damage to the concrete elements, and the frames remain vertical and plumb and without deflection or evidence of racking.
- 3.3 There is some surface rusting to secondary steel angle members framing the gable cladding
- 3.4 Localised spalling and superficial rusting of embedded reinforcement was noted at low level to two concrete columns.

4.0 Discussion and Conclusions

- 4.1 It is proposed to convert the existing building into residential accommodation utilising the primary structural elements. No new structural elements are required.
- 4.2 It is proposed to replace roof sheeting for which an insulated panel or similar lightweight system will be required to maintain the self-weight to approximately the same as the existing. No defects were observed to the concrete purlins but a close inspection should be made to ensure there has been no damage to the reduced section at the bearings on the portal frames if they are to be retained. Alternatively, replacement lightweight cold-formed sections could be adopted.
- 4.3 It is proposed to clad the walls at high level with a lightweight timber system. There was no damage to the blockwork at lower level, and it is proposed to over-clad this with brick slips. This work will not require any additional structural elements, and any nominal additional load will be able to be accommodated by the existing foundations.
- 4.4 The spalled concrete to the base of two of the columns is not affecting the overall structural stability, but will need to be repaired as part of any permanent conversion works.
- 4.5 There is no evidence of defect associated with foundation movement.
- 4.6 The concrete portal framed / 3-pinned arch structure is considered to be structurally suitable and sufficiently robust and strong enough, subject to building operations reasonably necessary, for conversion from use as an agricultural building to a use as a domestic dwelling.