



Diamond Wood & Shaw Limited

Structural Inspection

*Upper Pullins Farm
Stoke Lane
Higham on the Hill
Nuneaton
CV13 6FG*

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Client: *c/o Simon Cheshire Planning Limited*

Project: *Upper Pullins Farm
Stoke Lane
Higham on the Hill
Nuneaton
CV13 6FG*

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Fergus Shaw CEng FStructE MICE FFB
Diamond Wood and Shaw Limited

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1.0 Introduction

- 1.1 On the instructions of Simon Cheshire Planning Limited, I visited Upper Pullins Farm, Higham on the Hill on 27 October 2023.
- 1.2 A Planning application to Hinckley and Bosworth Borough Council, reference 23/00705/FUL, for a change of use of an existing barn to C3 dwelling house, has been rejected insofar as failure "... to demonstrate that the buildings (sic) are capable of conversion to residential use without significant rebuilding and alterations and the proposal would therefore result in unjustified new residential development in the countryside."
- 1.3 Specific reference is made to the Site Allocations and Development Management Policies (DPD) DM15 Redundant Rural Buildings, where proposed development for the re-use and/or adaptation of redundant or disused rural buildings will be supported where:
- b) The applicant has adequately demonstrated the building is in a structurally sound condition and is capable of conversion without significant rebuild or alteration
- 1.4 The purpose of my visit was to undertake a visual structural appraisal of the existing agricultural building, to determine the structural condition, and to assess the suitability for conversion into residential use to the extent necessary to satisfy the reasons for the refused application.
- 1.5 My inspection was limited to elements of the structure which were visible, exposed or to which access was available.

2.0 Description

- 2.1 The agricultural building lies to the east of Stoke Lane and is oriented on an approximately east-west axis [Figure 1]:



Figure 1

- 2.2 The construction of the building comprises a duo-pitched, steel portal-frame. The building has a clear internal span of approximately 7.5 m and an overall length of approximately 22.5 m comprising 5 No. equal bays. Height to eaves is approximately 4.5 m.
- 2.3 The roof covering comprises corrugated fibre-cement sheeting supported on timber purlins spanning between the primary structural steel frames.
- 2.4 The walls to the north, east and west elevations comprise concrete blockwork to a height of approximately 2.4 m built into the webs of the steel columns, with intermittent external stiffening piers, and with vertical profiled steel sheeting above the blockwork to eaves and verge levels spanning between horizontal timber rails.
- 2.5 4No. bays of the south elevation are open to a height of approximately 2.9 m. The south-western end bay is clad in timber to the same height as the blockwork. This end bay is separated from the remainder of the building by a blockwork cross-wall.
- 2.6 The ground floor comprises a concrete ground-bearing slab.

3.0 Observations

- 3.1 The overall structural condition of the building is good relative to age and exposure conditions.
- Roofs remain plane, and columns remain plumb with no evidence of vertical or lateral deflection.
- 3.2 There is surface rusting to the steel members, primarily at the base of the exposed columns, commensurate with the exposure conditions, and some of the columns are exhibiting very localised and minor de-lamination immediately above slab level. As a nominally pinned-base structure this defect is not having any detrimental effect to the lateral or longitudinal stability.
- 3.3 There is some minor lateral bowing to some of the timber purlins and rails.
- 3.4 No other structural defects were observed.

4.0 Proposals and Discussion

- 4.1 Outline proposals for the conversion works include maintaining the overall external appearance of a profiled sheet roof, profiled sheet upper level walls and lower level blockwork walls, and repeating this in the currently open bays of the south elevation, and to introduce windows and glazing.

Internal, proposals comprise structurally independent sub-division of the existing open area into rooms suitable for residential use.

- 4.2 In order to comply with thermal and acoustic requirements for a habitable dwelling, and since the existing roof sheeting may contain asbestos, it will be necessary to replace the roof covering. New roof coverings should be of similar weight to the existing sheeting.

Similarly, the upper wall level sheeting will need to be replaced.

- 4.3 The suitability and stability of the main steel frame is not dependent on any structural capabilities afforded by the sheeting.

The roof and wall sheeting elements constitute non-structural cladding and would ultimately require replacement as part of general building maintenance if the barn is to be maintained in its current form. Replacement of these elements does not constitute re-building.

- 4.4 The blockwork walls built into the columns are contributing to the longitudinal stability of the frame, but since it is the intention to retain these, there will be no effect on the frame stability. The overall lateral loading on the building will not be increased, so enclosing currently open-sided elevation will not adversely affect the lateral stability of the structural frame. This will, in fact, be enhanced by construction of internal blockwork walls.

- 4.5 Infilling the front elevation will result in construction of approximately 20% of the building walls, and approximately 10% of the full external envelope. Neither quantity is considered to be significant regarding alteration, and will be reasonably necessary to allow the building to function as a dwelling..

- 4.6 Vertical loading from proposed internal walls will be less than the former agricultural use, and the existing concrete slab is considered to be structurally adequate.

5.0 Conclusions

- 5.1 The steel portal-framed building 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 into a domestic dwelling.
- 5.2 All exposed steelwork will need to be thoroughly cleaned and painted to ensure long-term corrosion and fire resistance, and some localised repair works may be necessary to delaminated sections.
- 5.3 Any additional loading due to more robust cladding elements and insulation will be minimal, and the steel frame and foundations will remain suitable.
- 5.4 The proposed works to the exterior of the building primarily constitute replacement of non-structural cladding materials and their supports, rather than re-building, and no re-building or structural modification or strengthening works are required to primary structural elements.
- 5.5 The primary alteration to the appearance of the building will be to the front elevation where the currently open bays will need to be infilled. This is necessary for the building to perform as a dwelling, but is not significant with regard to the percentage of the external envelope.