

1.0 Introduction

SLP Consultants were appointed by Mrs Donna Vann via an email dated 1st September 2023 to carry out a visual inspection of a two-storey barn at Red House Farm, Ratcliffe Culey. I understand that a planning application has been made for the conversion of the building to a domestic residence. Therefore, the purpose of my inspection was to assess the overall structural condition of the barn and its suitability for conversion. My inspection of the barn was carried out on Friday 8th September 2023 at 10.00 am and this report has been written to convey my findings.

During my inspection I took a number of photographs of parts of the existing barn. Copies of some of these photographs are included at the rear of this report in Appendix A to assist in clarifying some of the points mentioned. Please note that I have not inspected parts of the barn, which were covered, hidden or otherwise unexposed and therefore I am unable to confirm that such parts are free from defect. Also, this report is on parts of the structure only and is not intended to give or imply any form of financial valuation of the property.

2.0 Description of Barn

The barn is a two-storey, load bearing masonry, structure approximately 15 metres long by 5 metres wide. *(Photographs 1 & 2)* The roof is double pitched across the narrower dimension with roof slopes of approximately 45° and is supported on traditional timber rafters and purlins, which are in turn supported by approximately 225mm wide solid brickwork load bearing walls. There are two full height 225mm wide solid brickwork crosswalls at approximately 5 metre centres, which divide the building into three, approximately equal, areas on plan. These walls are built up to the underside of the roof and are used to support the roof purlins. The 1st floors are constructed from traditional timber floor boards supported on exposed timber joists and timber beams with no ceilings in place. The ground floors are constructed in rough uneven concrete ground bearing slabs, which incorporate a number of small steps.

3.0 Details of Inspection

The following is a list of defects or other items I noted during my visual inspection of the barn, which I consider worthy of mention.

- 3.1 As I approached the barn, I immediately noted that significant areas of the roof tiles were missing, thus exposing the roof and 1st floor timbers to the weather. *(Photograph 3)* It appeared that the deterioration of the roof finishes had been occurring for a number of years. Due to the lack of adequate roof covering the roof and 1st floor timbers were found to be very damp with what appeared to be varying degrees of wet rot present. *(Photographs 4, 5, 6 & 7)* Significant loss of cross section was also noted to some of the roof purlins most probably as a result of insect infestation. *(Photograph 8)*
- 3.2 Also viewing the barn externally I noted significant bowing of the tops of the front and rear external load bearing walls in the area located between the south east gable wall and the nearest internal, cross wall. *(Photographs 9 & 10)* In the same section of the barn I estimated that the ridge line of the pitched roof had dropped by approximately

150mm to 200mm in the area midway between these two walls. *(Photograph 11)* Using a plumb bob I established that the tops of the front and rear walls are bowing out of plumb by up to 200mm, *(Photograph 12)*, and that the problem occurs to varying degrees along the entire length of the external walls to the front and rear elevations.

- 3.3 Prior to my inspection, I requested that two trial holes were excavated adjacent to sections of the main load bearing walls to expose the bottom of their foundations. *(Photographs 13 & 14)* One trial hole was located next to the South East gable wall and the other was located next to the North East (rear), wall of the barn. In both cases the bottom of the foundation was established to be approximately 600mm to 650mm below external ground level. No concrete foundation is present, however, the width of the 225mm wide load bearing walls is increased to approximately 440mm for the bottom 3 or 4 courses of brickwork. Whilst inspecting the foundations I also noted that the sub-soil appeared to be mainly clay materials.
- 3.4 Varying degrees of loose and missing lime mortar joints together with frost damaged bricks are present throughout all of the load bearing walls. However, by far the worst of these areas was found on the outside face of the north west gable wall. *(Photographs 15 & 16)*
- 3.5 Timber lintels are present above the majority of the door and window openings, including the double door located on the southwest (front), elevation. *(Photograph 11)* However, there is also a brick arch lintel located over another large doorway on the same elevation. *(Photograph 17)* Varying degrees of mortar joint and brickwork cracking is present above the majority of these openings.
- 3.6 As mentioned previously, the ground floor slabs are very uneven and appear to be constructed using relatively weak concrete. Bearing in mind the previous use of the building, I anticipate that no damp proof membrane will be present beneath the slabs and that they will be relatively thin with no reinforcement or thermal insulation present.
- 3.7 Whilst inspecting the barn I found no evidence of subsidence movement and apart from the bowing external walls mentioned previously all other walls were found to be relatively plumb.

4.0 **Conclusions and Recommendations**

The following conclusions and recommendations will be listed in the same order as the items in Section 3 of this report for ease of cross reference, and are as follows:

- 4.1 In my opinion the lack of adequate roof covering to the barn for an extended period of time has resulted in significant deterioration of the roof and floor timbers. This is to an extent where I believe that the majority of these members will need to be replaced. However, before doing so I recommend that a detailed timber survey should be carried out to assess the extent of insect infestation, wet rot and dry rot, particularly to the members with large cross sectional dimensions. Recommendations should then be given to list the members, which are to be allowed to dry out, treated and reused.