

**REPORT on VISUAL STRUCTURAL INSPECTION**  
**STEEL FRAMED BARN**  
**AT**  
**TILHAM FARM**  
**BALTONSBOROUGH**  
**GLASTONBURY**



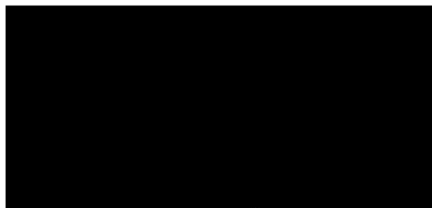
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**CLIENT**      Mr Robert Peto

**REF**            21-186



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## 1.0 Introduction

- 1.1 We are instructed by Mr R Peto to visit Tilham Farm and carry out a visual structural inspection of the steel framed barn, as shown below outlined in red and named as Barn B.
- 1.2 This report has been prepared solely for the benefit of the above named client. No liability is accepted to any third party.
- 1.3 A written report is to be provided giving the structural condition of the barn together with recommendations for structural remedial measures that may be required to provide for conversion to habitable accommodation.
- 1.4 The property was visited on 11<sup>th</sup> February 2022 and a visual inspection carried out. The weather during the visit was sunny and dry.



**Figure 1 – Site plan**

## 2.0 Scope of investigation

- 2.1 During our visit a condition survey was carried out and photographs taken. This report is based on notes taken from this visit without benefit of monitoring or previous knowledge of the building.
- 2.2 All external observations were made from ground level unless noted otherwise.
- 2.3 The majority of the structure was accessible and could be inspected. I believe this is a fair representation of the building, as a whole.
- 2.4 This inspection relates to 'Barn B' as located on figure 1. Other parts of the property were not inspected and do not form part of this report.
- 2.5 Dimensions, where given in the report, are approximate and taken using a tape measure. Where appropriate I have rounded figures up or down to be conservative in my assessments.
- 2.6 Trial pit excavations were carried out in strategic locations at each of the barns.
- 2.7 Underground drains, if present, were not examined.



Figure 2 - View from NE

### 3.0 Brief description of barn

- 3.1 The barn is located to the East of the farmhouse. It is a single storey building with a duo-pitch roof. The ridge runs east to west.
- 3.2 The building is of traditional steel portal frame construction. It comprises a central portion with a clear span approximately 17.5m. There are 'lean-to' elements to the north and south with clear spans of approximately 6.5m.
- 3.3 The roof is clad in corrugated sheet material, possibly asbestos. The roof cladding is supported by timber purlins spanning between the steel portal frames.
- 3.4 The walls generally comprise concrete block to 1.8m above ground level with a mixture of cladding (corrugated sheets and hit & miss timber boards) above the walls.
- 3.5 The floor comprises a concrete slab.



Figure 3 - View from NW

## 4.0 Findings of inspection

- 4.1 The structural fabric of the building i.e. steelwork, timber, masonry and concrete appear to be in good condition generally.
- 4.2 There are no visible significant (category 3 to 5) cracks to walls.
- 4.3 The floor slab is in good condition with no sign of movement or cracking. A core sample was taken, revealing 150mm thick concrete overlaying compacted hardcore.
- 4.4 Internally the visible steelwork appeared to be in good condition with no signs of significant corrosion or distortion.
- 4.5 The roof cladding was also in good condition, suggesting that excessive deflection of the timber purlins has not occurred.
- 4.6 The trial pit inspections revealed concrete pad foundations at the base of the stanchions, approximately 1m square (assuming symmetry about the centreline of stanchions) and formed approximately 650mm below ground level in to firm clay subsoil.
- 4.7 Experience of similar buildings suggests that the foundation size and depth will be consistent throughout.



Figure 4 - Internal view from NE



Figure 5 - Internal view from SE

## 5.0 Conclusions and recommendations

- 5.1 The barn appears to be in a suitable condition to be converted in to habitable accommodation.
- 5.2 Qualitative assessment of the existing primary structure suggests that it is adequate to support the loads resulting from the external (wall and roof) works associated with a conversion without significant or substantial improvement or repair.
- 5.3 The core sample through the slab demonstrates that it is adequate to support the loads associated with new internal load-bearing and non-load-bearing timber frame or even lightweight masonry walls.
- 5.4 Given that both trial pits revealed consistent results, it is reasonable to conclude that the remaining foundations are similar and therefore of adequate size and depth to support the existing and proposed loads and transfer them to the ground without the risk of excessive settlement occurring.
- 5.5 Significant but acceptable deflections will occur under full load and therefore finishes will need to be specified to accommodate such deflections. Alternatively, the new finishes can be supported by new, more rigid internal structure and kept isolated from the existing.
- 5.6 Load-bearing partition walls can be built on to the existing floor slab to support any additional load from new ceilings, services and insulation.

## Appendix A – classification of damage

It is common practice to categorise the structural significance of cracking damage in accordance with the classification given in Table 1 of Digest 251 produced by the Building Research Establishment.

<b>Classification</b>	<b>Description</b>	<b>Crack Width</b>
Category 0	Negligible	<0.1mm
Category 1	Very Slight	0.1<2mm
Category 2	Slight	2>5mm
Category 3	Moderate	5>15mm
Category 4	Severe	15>25mm
Category 5	Very Severe	>25mm

Extract from Table 1. BRE Digest 251

*Classification of damage based on crack widths*



## Appendix B – Trial pit location plan

### TP1

Approximately 1m square concrete pad foundation formed on to firm clay. Estimated allowable ground bearing pressure in excess of 100kPa.



### TP2

100mm thick concrete slab overlying made ground overlying approximately 1m square concrete pad foundation formed on to firm clay. Estimated allowable ground bearing pressure in excess of 100kPa.

