



FAO Mr & Mrs Vickers
Mulsford Farm
Mulsford, Sarn
Malpas
Cheshire
SY14 7LP
08.12.2021

Dear Mr & Mrs Vickers,

Mulsford Farm, Malpas SY14 7LP – Structural Condition Report

Please find enclosed a copy of the structural condition report for the existing barn building which is to be converted to a habitable dwelling at Mulsford Farm in Malpas.

I trust the attached report is satisfactory, however, please do not hesitate to contact me if you have any queries.

I look forward to hearing from you in the future.

Regards

Gareth Kimber

Gareth Kimber

BEng MStructE
Director

STRUCTURAL CONDITION REPORT FOR THE

PROPOSED BARN CONVERSION PROJECT

1.0 TERMS OF REFERENCE

A visual survey of the existing barn structure was undertaken on Wednesday 3rd November 2021 to carry out a visual assessment of the existing barn building to assess its suitability for conversion to a dwelling.

The survey comprised of a non intrusive visual inspection of the barn in isolation from the other buildings on the site. However the inspection did not include a visual and or intrusive inspection of the following items listed below at this time:

1. An internal inspection of any structural elements or superstructure.
2. A moisture or timber survey.
3. A cavity wall tie inspection.
4. An inspection of roof coverings, rainwater goods or flashings.
5. An inspection of decorations and finishes, except where damaged due to failure of structural elements.
6. An inspection of areas covered, unexposed or inaccessible.

The recommendations given in this report relate to matters defined by the Terms of Reference and do not address other possible defects, which may exist outside the scope of this report.

2.0 EXECUTIVE SUMMARY

GWK Structural Solutions we requested to undertake a structural condition survey of part of the existing barn outbuildings on the farm in order to assess it's suitability for conversion to a dwelling.

In conclusion, it is our opinion that the existing barn is suitable for conversion subject to the items listed in Section 5.0 being investigated in more detail at the appropriate time.

3.0 INTRODUCTION

GWK Structural Solutions we requested to undertake a structural condition survey of part of the existing barn outbuildings on the farm in order to assess it's suitability for conversion to a dwelling.

The existing barn is a two storey building currently used for storage of materials and equipment on the Ground Floor and empty on the First Floor. Historically the barn would been used for animal care at Ground Floor and to storage materials at First Floor.



Aerial Image of Mulsford Farm

4.0 OBSERVATIONS

4.1 Roof Structure

The existing duo pitch roof construction comprises of traditional slate roof tiles supported by soft timber rafters supported by a single oak purlin on each pitch. The oak purlins span between loadbearing masonry walls at the north end of the barn and oak trusses at the south end of the barn.

Refer to the attached Photographs P.03 to P.08 in Appendix A.

The roof timbers appear to be in good condition given the age of the property and in a reasonable state of repair. In general there were no signs of any prolonged moisture issues or visual evidence of wet or dry rot to the roof structure.

The roof to the north end of the barn does not have any roofing membrane below the slate tiles, however on the south end of the barn there is a roof membrane present although its condition is unknown.

No design verification calculations have been undertaken at this time to establish whether the existing rafters, purlins or trusses would comply with current building regulations.

4.2 First Floor

The existing first floor construction comprises of timber floor boards spanning between timber joists.

At the north end of the barn the timber joists span between steel beams which in turn span between the external walls. In this area the joists are underdrawn by a ceiling with the construction material unknown. Refer to the attached Photographs P.09 to P.10 in Appendix A.

The exposed steel beams have surface corrosion visible but generally appear to be in reasonable condition.

At the south end of the barn the timber joists span directly between the external walls and there are no steel beams present. Refer to the attached Photographs P.11 to P.12 in Appendix A.

No design verification calculations have been undertaken at this time to establish whether the existing timber joists or steel beams would comply with current building regulations.

4.3 Ground Floor

The existing ground floor construction comprises of a concrete slab of which the thickness is unknown. Running down the centre of the barn is a lowered section presumably used for animal welfare in the past.

Refer to Photographs P.09 & P.10 in Appendix A.

There were no specific signs of deterioration or structural movement in the existing concrete floor.

It is unlikely that, due to the age and usage of the barn, that there will be a damp proof membrane or insulation present beneath the concrete slab.

4.4 Walls

The external walls to the barn are typically 215mm thick solid brickwork with a mixture of timber and concrete lintels above window and door openings.

It is unknown at this time whether a damp proof membrane is present in the walls above external ground level.

The external exposed face of the existing brickwork can be seen to have weathered which is not unusual given the exposed rural location, however it is generally in reasonable condition. There are areas of the external wall which have been rebuilt around window and door openings for example.

The mortar bed joints to the external walls can be seen to have weathered which is not unusual given the exposed rural location, however they are generally in reasonable condition.

Refer to Photographs P.01, P02 & P.13 in Appendix A.

The verticality of the external walls is good however there is evidence of bowing at eaves level with the most likely cause lateral load spread due to the roof not having veiling ties.

At the first floor there are signs that the brickwork cross walls are not effectively tied into the external walls with movement evident.

There is evidence of localised bowing and movement where the telecoms overhead lines have been secured back to the external wall on the south elevation. Refer to Photograph P.13 in Appendix A.



It is unknown at this time whether the existing walls have stepped brickwork footings or a more traditional concrete strip footing of some size and depth. This would need to be confirmed by undertaking a series of trial pits and recording the findings.

5.0 RECOMMENDATIONS

Further to our visual inspection it is our opinion that the following items are considered should the proposed conversion move to the next phase.

1. The external walls should be effectively tied to the first floor structure using restraint straps.
2. The external walls should be effectively tied to the roof structure at eaves level using restraint straps.
3. The adequacy of the existing first floor structure should, at the appropriate time, be verified to confirm that it complies with current building regulations.
4. The adequacy of the existing roof structure should, at the appropriate time, be verified to confirm that it complies with current building regulations.
5. All timber lintels will need to be replaced.
6. All external walls should be repointed.
7. All brickwork cross walls should be either rebuilt so that they are toothed into the external walls or effectively tied to them with restraint straps.
8. The existing footings should be exposed so that their depth/size can be recorded and then verified to ensure they comply with current building regulations.

In conclusion, it is our opinion that the existing barn is suitable for conversion subject to the above items being investigated in more detail at the appropriate time.

The report was written on behalf of GWK Structural Solutions Limited.

Gareth Kimber

Gareth Kimber

BEng MStructE
Director

APPENDIX A - PHOTOGRAPHS



Photograph P.01



Photograph P.02



Photograph P.03



Photograph P.04



Photograph P.05



Photograph P.06



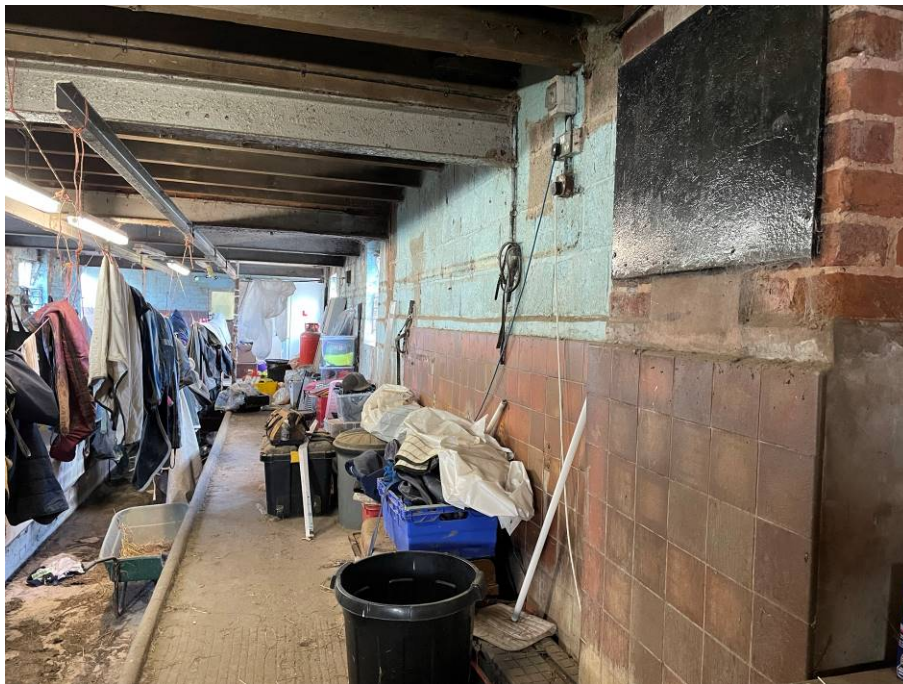
Photograph P.07



Photograph P.08



Photograph P.09



Photograph P.10



Photograph P.11



Photograph P.12



Photograph P.13