



Civil & Structural  
Chartered Engineers

Hems Court, Longbrook Street  
Exeter, Devon, EX4 6AP  
T. 01392 421600  
sands@sands-consultants.co.uk  
www.sands-consultants.co.uk

Mr. Daniel Lewis  
Pylemoor Farm  
Washfield  
Tiverton  
Devon  
EX16 9RF

28<sup>th</sup> July 2022

Our ref: CA/2022204  
Your ref:

Dear Sir,

**Re: STRUCTURAL SURVEY APPRAISAL OF STONE BARN AT PYLEMOOR FARM, WASHFIELD, TIVERTON, EX16 9RF.**

Sands were instructed by Mr. Daniel Lewis, to carry out a structural assessment of a stone barn that is potentially the subject of a Class Q planning application for conversion into residential accommodation. This report is written in support of that application, and as such, is intended to be a structural overview of the condition of the barn (and not a full structural defect survey). A survey visit was undertaken on Wednesday 27<sup>th</sup> July 2022. The weather at the time of the survey was sunny, but in the preceding days it had been showery. The report is not based upon any Architectural drawings.

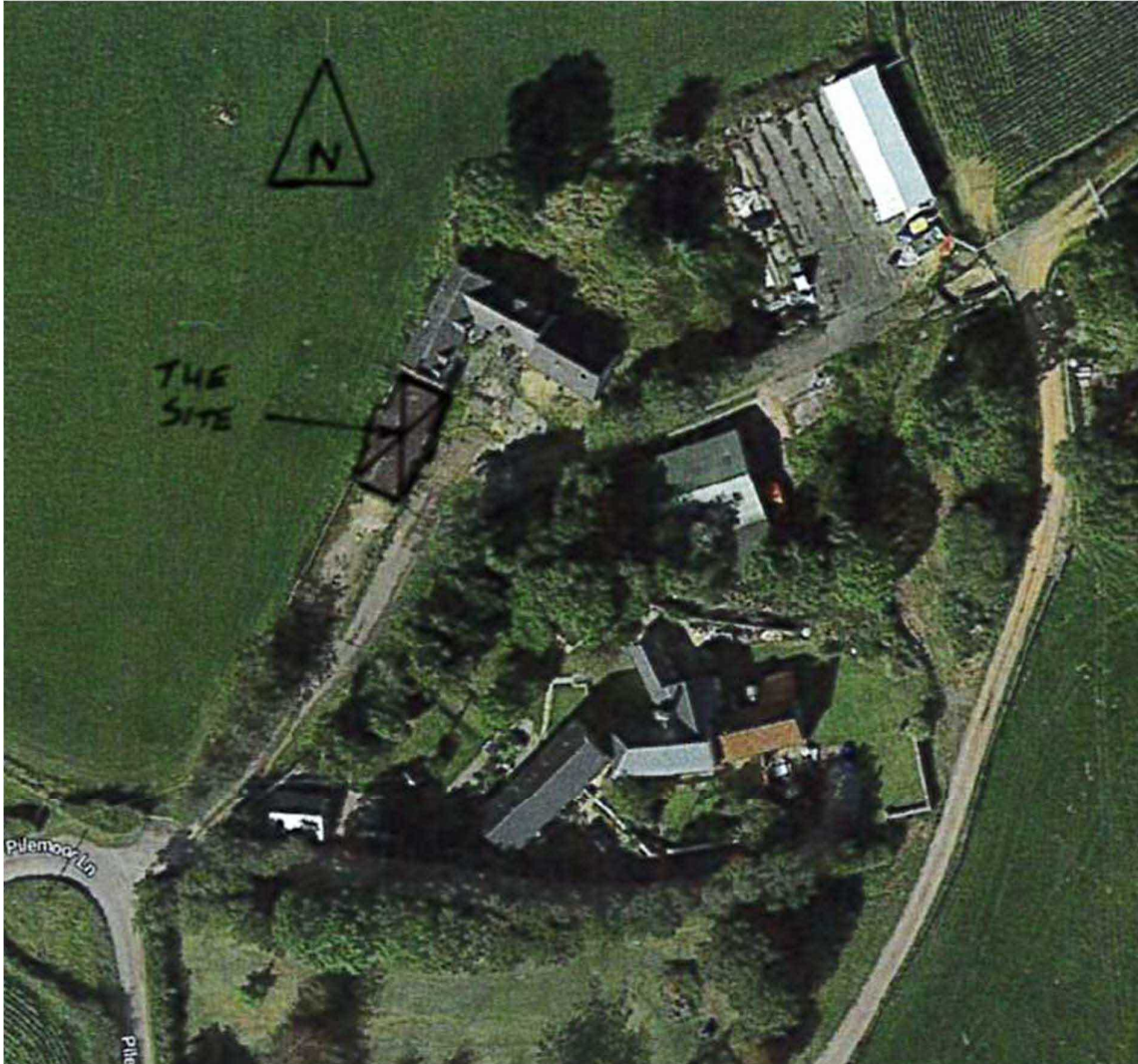
**Attention is drawn to the following notes, which should be read in conjunction with this report.**

1. Please note that this report is based on information obtained at the time of the investigation and that this Practice cannot be held responsible for any items, which were obscured, inaccessible, hidden from view or unobserved at the time of the visit. This Practice reserves the right to alter or amend any of the conclusions or recommendations of this report if any further information should come to light.
2. This appraisal has been prepared for Mr Daniel Lewis only and no responsibility to any third party is accepted for all or any part of this appraisal in connection with the building.
3. Sands Consultants accept no responsibility for the consequences of any decisions that may be taken not to act on any specific and reasonable advice presented within this report.



## Introduction

For the purposes of this report please refer to the site plan below, identifying the building surveyed. Sands carried out a structural assessment of the building to determine the structural condition and suitability for conversion into residential accommodation –required as part of the planning application process.



Site Location (Google Earth)

Typical photographs of the barn are included at the end of this letter report.

## Comments

Overall, the plan size of the barn is approx. 21 x 56 ft (6.4 x 16.8 m). The barn appears to have been in constant use and is well maintained. We estimated the barn to be circa 100 years old. It formed a semi-detached L shaped building overall, with the L shaped part having already been converted to an occupied domestic dwelling.

External elevations are predominantly of natural stone masonry with some concrete blockwork at blocked up openings. When measured using a 1.2m long spirit level the walls were generally straight and vertical and the corners square, The walls appeared in reasonable condition. On the East and West side elevations, at mid length were full height, 8 ft wide (2.4 m) openings, with external stone piers on either side, from floor slab to eaves [approximately 12 ft (3.6 m)]. On the East side the opening contained double doors while on the West side it contained a dwarf blockwork wall and translucent sheeting. On the East side the ground sloped down, from the south-east corner to the north-east corner, where external ground level was about 37 inches (950 mm) below the barn's floor slab. The walls were measured as 19 inches (480 mm) thick, as were the piers. There was no readily apparent evidence to suggest an issue with either ground movement or ongoing settlement of the walls.

The roof covering was formed by natural slates on timber battens. There were localised areas where replacement slates had been fitted. A ridge tile was missing and on the west side areas along the verge had been made weather-tight with timber sheets. Gutters were missing as were most downpipes. The roof coverings were assessed as being in generally satisfactory condition with only local areas requiring attention.

The roof structure comprised bolted timber trusses of a scissor truss type with two lines of equally spaced timber purlins between ridge and eaves supporting timber purlins. The roof pitch was estimated to be 40 degrees with the six trusses spaced at about 8 ft (2.4 m) centres. The trusses were in very good condition with no readily apparent evidence of undue distress or deformation. The purlins were in good condition and of an appropriate size, as were the rafters. There was some evidence of deflection of the purlins, but this was considered to be within tolerance for the respective spans. At the south elevation the purlins extended through the wall and there was evidence of decay and loss of section to their ends.

It was our opinion that the roof structure was not contemporaneous with the walls, however it appeared to be of significant age and was not, in our opinion, of recent construction. Overall, the roof structure was in good condition and suitable for retention.

The ground floor of the barn comprised a concrete ground bearing slab. The slab was in good condition with no readily apparent cracking that would suggest ongoing settlement or ground movement.

## Summary

The stone masonry walls, and timber roof trusses can be retained as they were found to be in good, sound condition; there are no concerns over the structural adequacy or stability of the barn.

The existing purlins, rafters and tiling battens could also be retained. We note that, if required, it would be relatively simple to carry out minor repairs / replacement of damaged or decayed timber members.

Most of the slates could be retained. Minor repairs to the slate roof to ensure continued weather-tightness and restoration of the rainwater goods are advisable.

Subject to ensuring adequate headroom, it may be possible to introduce a new first floor. We would recommend that any new structure be independently supported by either internal walls or frame. This would require new internal foundations taken through the existing floor slab.

## Typical Schedule of Proposed Building Works

1. Retain the existing roof and slates throughout, subject to any repair/replacement as deemed necessary once works commence on site.
2. A damp-proof membrane will be added to the underside of the existing tiling battens and insulation inserted between the existing rafters to ensure compliance with current UK building regulations.
3. Dry line the building internally with plasterboard and bonded insulation to meet the U values required for new dwellings in accordance with Part L of the building regulations.
4. Windows will be inserted into new interventions which will be in high thermally efficient UPVC with argon filled units.
5. All new internal partitions and ceilings will require appropriately positioned flexible movement joints and finishes where they interact with the existing structure. Internal walls will be constructed in non-loadbearing timber studwork which will be constructed directly off the floor slab.
6. Any new areas of external wall are to be self-supporting timber frame.
7. All new walls, both internal and external are to be self-supporting and non-load bearing. The existing masonry walls are to continue to act as the main load bearing structure.
8. Existing concrete floors will be overlaid with an insulation, damp proof membrane and screed, to be laid to new levels to meet the requirements of building regulations.

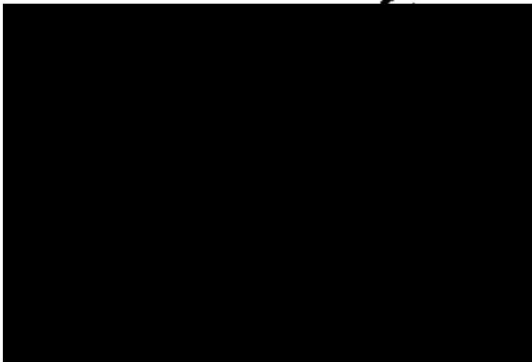
## **Conclusion**

It is entirely possible to retain and utilise the existing building structure and fabric; thus, ensuring that the works are indeed a conversion and not tantamount to a new build.

The existing stone walls, timber trusses, purlins, rafters, and tiling battens can be retained and would form the main load bearing elements of any conversion. Any Architectural proposals for the building suggest that there should be no real change to the walls or roof structure and therefore no significant increase in loading to the existing structure.

The building, in our opinion, is structurally sound and capable of conversion without the need for significant building or strengthening work.

Yours sincerely



Colin Appleton  
BSc(Hons) CEng MICE  
**PRINCIPAL STRUCTURAL ENGINEER**

Photographic Attachments



Photograph 1 View From Site Entrance



Photograph 2 View From South-West



Photograph 3 Side (East) Elevation



Photograph 4 Gable (South) Elevation



Photograph 5 Side (West) Elevation



Photograph 6 North-East Corner Elevation





Photograph 7 Internal View Looking South



Photograph 8 Internal View Looking North



Photograph 9 Internal View of Roof



Photograph 10 Internal View of Floor