MARSH DESIGN LIMITED

STRUCTURAL DESIGN CONSULTANTS & SURVEY REPORTS

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STRUCTURAL APPRAISAL REPORT
DATE: 12th January 2024
REF: MDL – 9433

1. NAME OF CLIENT

Marie-Catherine Fraser
Jowett House Farms Limited

2. ADDRESS OF PROPERTY INSPECTED

Barns at Jowett Farm
Jowett House Lane
Cawthorne
Barnsley
S75 4AS

3. DATE OF INSPECTION

11th December 2023

4. PURPOSE OF INSPECTION

We have been instructed to undertake an appraisal of the structural condition of 2No. agricultural barns with a view to their future conversion into habitable dwellings under 'Class Q' planning guidelines.

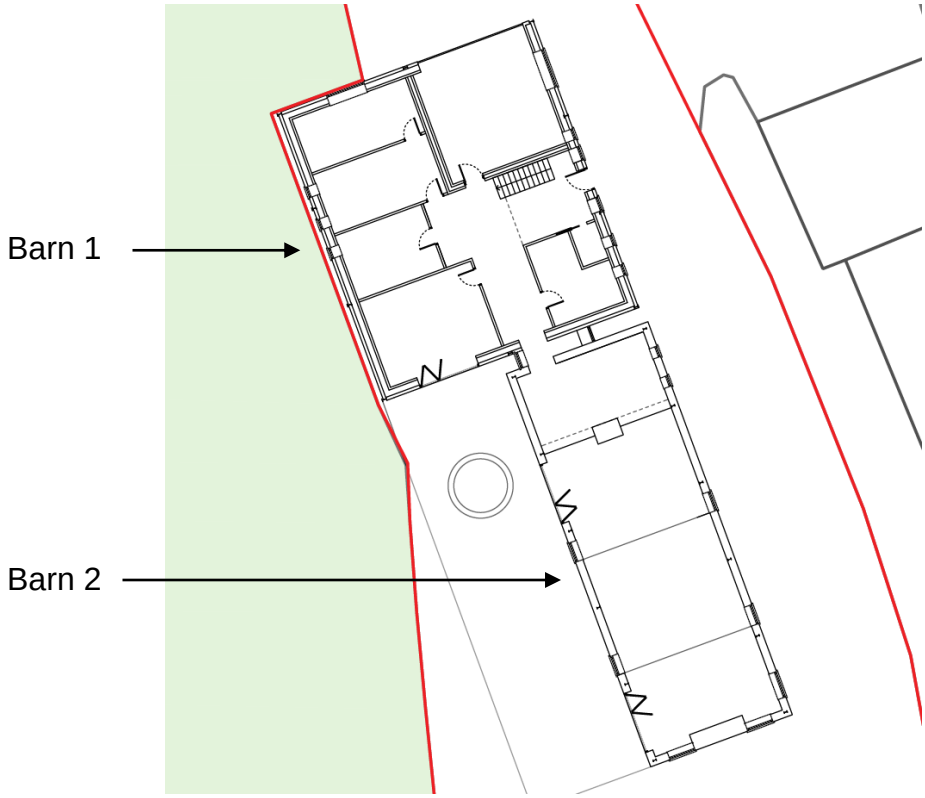
This structural report should be read in conjunction with the Davey Stone Architects proposed site plan drawing: JOW-Q-23-07.

5. TYPE OF INSPECTION

A visual inspection of the two barns was undertaken from accessible areas only. The report is a structural appraisal only, and not a full condition survey report.

6. DESCRIPTION, OBSERVATIONS AND COMMENTS

The 2No. barns at Jowett Farm vary in type, age and size. We refer to the Site Plan prepared by Davey Stone Architects, see extract below, to outline the location of each of the barns which have been numbered for our reporting purposes only.



Barn 1 – Steel Portal Framed Hay Barn

This hay barn building comprises of an individual single bay galvanised steel portal frame structure being approximately 13.3m long by 11.6m wide (internal dimensions).

The portal frame bays are at approximate 4.3m centres and the steel stanchions measured as 203x133x30 UB sections with the rafters measuring 178x12x019 UB sections. The height to eaves measured approximately 5.0m, with a height to the apex of the roof approximately 6.5m high.

We would estimate that the barn is approximately 30 years old.

Inspection of the main structural members confirmed that they were free from defect, with no evidence of distress, buckling or excessive deflection of the steelwork.

Since the structure has been galvanised, no surface corrosion was noted to the steelwork.

The main bolt fixings between the stanchion columns and roof rafters were all in a serviceable condition, with no structural defects noted.

The barns have substantial 300mm thick external blockwork walls to a height of 2.2m above ground level. Steel profiled cladding panels feature above the block work. The panels are supported on 170x80mm timber eaves beams and cladding rails.

The walls are all vertically plumb, with no structural movement or cracking defects being noted to the external masonry walls of the barn.

The roofs of the barn have a corrugated cement board covering supported on timber purlins spanning between the main steel frames. The timber purlins were measured to be approximately 170x80mm sections at approximately 1.2m centres.

Since it is proposed to replace the current roof covering, which weighs approximately 17 kg/m^2. it is our advice and recommendation that the roof covering is replaced with a more modern insulated Metrotile roof covering, which only weighs 18.7 kg/m^2. The proposed loading is very similar to the existing roof covering, and such a nominal increase does not warrant any structural concern.

At the time of our inspection, the foundations for the portal frame stanchions and walls could not be inspected. However, they do appear to be performing satisfactorily, with no subsidence or settlement defects noted. It is our opinion that they would be capable and structurally adequate to support a nominal increase in loading from the new proposed roof covering and any new internal timber frame walls.

The floor structure of the barn is a concrete slab construction.

The concrete slab was in a good structural condition with no movement or cracking defects in evidence. Currently used as hay barn and also used for vehicle (large tractors) access, we have no concerns over the strength of the concrete floor for the proposed change of use to a domestic dwelling.

There is no evidence of water ingress through the outer fabric of the walls, and as such we consider that, if it was to be retained, then the existing external fabric of the barn is suitable and capable of conversion.

Finally, there was no evidence of previous remedial repairs to any of the individual structural elements of the barn building.

Barn 2 – Steel Framed Barn

The second barn building comprises of an individual single bay steel frame structure being approximately 18.0m long by 6.0m wide (internal dimensions).

The steel frame bays are at approximate 3.6m centres and the steel stanchions measured as 150x79 RSJ sections. The roof structure is formed using steel angle trusses. The height to eaves measured approximately 4.2m, with a height to the apex of the roof approximately 5.2m high.

We would estimate that the barn is approximately 50 years old.

Inspection of the main structural members confirmed that they were free from major structural defect, with only minor evidence of distress,

No evidence of deteriorative surface corrosion was noted to the steelwork.

The main bolt fixings between the stanchion columns and roof rafters were all in a serviceable condition, with no structural defects noted. A single connection between the roof structure and steel stanchions has become disconnected, with only simple re-bolting or welding repairs being required in this location.

The barn is separated into separate pens with precast concrete wall panels which offer no stability to the main steel frame structure. These freestanding units can easily be removed as part of the renovation process.

The barn is clad to two sides with profiled steel cladding panels which are supported on 120x80mm timber eaves beams and cladding rails.

The roof of the barn has a profiled steel cladding covering supported on timber purlins spanning between the main steel roof trusses. The timber purlins were measured to be approximately 120x80mm sections at approximately 0.8m centres.

Since it is proposed to replace the current roof covering, which weighs approximately 20 kg/m^2. it is our advice and recommendation that the roof covering is replaced with a more modern insulated Metrotile roof covering, which only weighs 18.7 kg/m^2. The proposed loading is very similar to the existing roof covering, and such a nominal increase does not warrant any structural concern.

The foundations for the steel frame stanchions could be inspected.

The foundations are a minimum of 600x600x400mm deep concrete pads. They appear to be performing satisfactorily, with no subsidence or settlement defects noted.

It is our opinion that they would be capable and structurally adequate to support a nominal increase in loading from the new proposed roof covering and any new internal timber frame walls.

The floor structure of the barn is a partial concrete slab construction. Inspection of which was limited to do vegetation and debris within the barn.

The concrete slab is currently used as hay barn and also used for machinery storage and we have no concerns over the strength of the existing concrete floor for the proposed change of use to a domestic dwelling.

Where wall panels are present, there is no evidence of water ingress through the outer fabric of the walls, and as such we consider that, if it was to be retained, then the existing external fabric of the barn is suitable and capable of conversion.

Finally, there was no evidence of previous remedial repairs to any of the individual structural elements of the barn building, but as noted above, simple minor re-bolting or welding repairs will be required to one of the steel truss members.

7. CONCLUSIONS & RECOMMENDATIONS

Our inspection has confirmed that the 2No. barns are free from major structural defect or distress.

For the portal framed building, there is no evidence of excessive defections to the structural columns and beams and no evidence of vertical settlement or subsidence.

The foundations to the barns appear to be substantial and structurally adequate and we consider these to be suitable to support the nominal increase in loads from the proposed conversion into habitable dwellings.

The sizes of steelwork and timber members used in the construction of the barns are typical of sizes used in modern day construction, and we consider these to be adequate for their intended use.

In their current condition the barns are freestanding, standalone structures and they require no structural intervention to ensure their long term stability.

Any proposed alterations will not affect the structural stability and the proposed internal works will not be relied upon to provide any additional structural support to the existing buildings.

For barn No.2, only minor structural intervention to repair the defective connections between the roof structure and column.

No further structural intervention will be required to upgrade or strengthen the existing structures prior to their proposed conversion into a habitable dwelling.

The barn buildings appear to be of a significant age, and they were originally constructed in such a way that it could be used for many years to come.

As they currently stand, the barn buildings are in a sound and stable structural condition, and in our opinion, they can be deemed to be of a substantial and permanent construction suitable and capable for their proposed conversion into habitable dwellings.

8. LIMITATIONS

We have not inspected woodwork, damp proof membranes or other parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that any such part is free from defect.

We have not at this present time conducted any intrusive or destructive testing of the fabric of the property and we cannot confirm that the property is free from asbestos, high alumina cement (HCA) or reinforced autoclaved aerated concrete (RAAC) construction.

This report has been prepared for the sole benefit of Marie-Catherine Fraser, her professional advisors and the local planning authority.

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Yours faithfully,

D. Haigh B. Eng (Hons)
For and on behalf of
MARSH DESIGN LIMITED