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May 2018

STRUCTURAL FEASIBILITY REPORT

On

EXISTING BARNS

At

TOP BARN FARM
SIBFORD GOWER

For

EXECUTORS OF THE LATE KEITH SABIN

ENGINUITY
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1.0 Instructions and Limitations

1.1 Instructions were received from you requesting a detailed structural appraisal and report on the structural feasibility of converting existing farm buildings at Top Barn Farm, Sibford Gower as part of a planning application process.

1.2 Initially, our survey was to be visual only, without damage. Our report is limited to the inspection of visible elements of the structure. No inspections have been made of woodwork, damp proof membranes or other parts of the structure which were covered, unexposed or inaccessible and we are therefore unable to report that such part is free from defect.

1.4 This report is prepared for the information, benefit and use of Executors of The Late Keith Sabin and any liability of Ian Harban Consulting Engineers to any third party, whether in contract or in tort, is specifically excluded. Any third party finding themselves in possession of this report may not rely upon it without first obtaining the written authority of Ian Harban Consulting Engineers.

1.5 RHS refers to the right hand side of the building when viewed from the road.

1.6 LHS refers to the left hand side of the building when viewed from the road.

2.0 Description and History

2.1 The existing barns are three separate building one single storey brick, one single storey stone and one concrete portal.

2.2 The proposed conversion will form three units one to each of the buildings.

2.3 Little is known about the history of the buildings save they have been used as a farm storage building in the recent past and there is no evidence of a previous differing use.

3.0 Inspection

3.1 First inspection was made by I G Harban on 23 April 2018.

3.2 The buildings were inspected from ground level internally and externally.

4.0 Observations

4.1 Concrete Portal Barn

4.1.1 Roof

4.1.1.1 The barn is a portal concrete building with profiled cement fibre roofing sheeting supported on concrete portal frames. A lean-to structure is attached to one side.

4.1.2 Walls

4.1.2.1 The walls are also profile cement fibre cladding also supported on concrete sheeting rails.

4.1.3 Floor

4.1.3.1 The floor is agricultural concrete. A blockwork dwarf wall is located at the perimeter of the building.

4.2 Brick Barn

4.2.1 Roof

4.2.1.1 The roof again comprises profiled cement fibre sheeting supported on steel angle purlins and steel trusses, supported on the brick walls.

4.2.2 Walls

4.2.2.1 The walls are of solid brick, with cart openings at mid point along each of the long elevations. There was no evidence of structural distress.

4.2.3 Floor

4.2.3.1 The floor is of agricultural standard.

4.3 Stone Faced Barn

4.3.1 Roof

4.3.1.1 Again, profiled sheet forms the roof, supported on timber framed structure. There was no evidence of distress to the frame.

4.3.2 Walls

4.3.2.1 The walls are both stone and block. Cracking was noted to LHS gable (when viewed from the road).

4.3.3 Floor

4.3.3.1 The floor is of agricultural standard.

5.0 Discussion and Proposals

5.1 Concrete Portal Barn

5.1.1 Roof

5.1.1.1 The roof covering is likely to be replaced with a similar lightweight sheet material. The purlins and frame have been supporting lightweight loads since construction with no evidence of distress.

5.1.2 Walls

5.1.2.1 The wall cladding is also likely to be lightweight and again existing sheeting rails have been performing satisfactorily since construction. The dwarf wall at the perimeter will also provide vertical support to the walls.

5.1.3 Floor

5.1.3.1 The concrete ground floor could be overlaid with new floor to allow incorporation of a new dpc and insulation or the old floor removed and new floor cast.

5.1.4 Possible New First Floor

5.1.4.1 If it is intended to form a new first floor, this will be possible using a new floor arrangement of posts and beams, similar to a mezzanine type structure. This will not affect or require modification to the existing structure.

5.2 Brick Barn

5.2.1 Roof

5.2.1.1 The roof covering is likely to be replaced with a similar lightweight sheet material. The purlins and frame have been supporting lightweight loads since construction with no evidence of distress.

5.2.2 Walls

5.2.2.1 Existing brick walls are in sound condition with very minor evidence/slight movement to the LHS. New loadings will not vary from existing and no structural concern is raised.

5.2.3 Floor

5.2.3.1 The existing floor will probably need to be removed and a new floor added. This will allow introduction of dpm and insulation but again is not structurally of concern.

5.3 Stone Faced Barn

5.3.1 Roof

5.3.1.1 As with the other two barns this existing barn roof will require replacement with a lightweight new roof. Again the existing roof structure has performed well and should be suitable for re-use.

5.3.2 Walls

5.3.2.1 Cracking is noted predominately to the LHS & RHS gable, with the movement indicative of downward movement of the front elevation which is built off an historic stone wall. Ground levels internally are also higher than will be required and therefore levels internally will need to be underpinned, but this will address the evidence of movement and ground level reduction requirements.

5.3.3 Ground

5.3.3.1 As noted above the ground level will need to be lowered initially under new floor will be required. This will allow the introduction of dmp and insulation.

6.0 Conclusions

6.1 Concrete Portal Barn

6.1.1 The conversion of the barn is entirely feasible with no significant alterations to existing structure. A new floor can be insulated without modification of the existing barn.

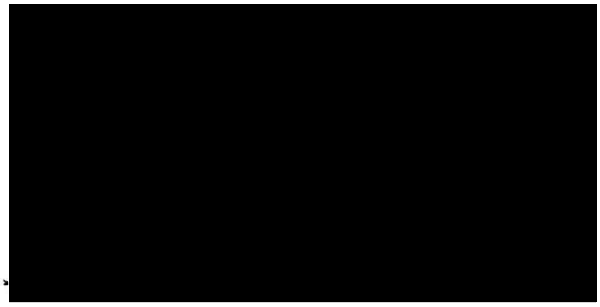
6.2 Brick Barn

6.2.1 Again, the conversion of the barn is entirely feasible without significant attention to the structure. Some tying of the cracked brickwork is recommended to re-establish in the wall. There is sufficient headroom with the beam to allow new floor to be formed without the need to undermine the existing foundations, so underpinning is not necessary.

6.3 Stone Faced Barn

6.3.1 The conversion of the stone faced barn is entirely feasible. Some localised masonry repairs will be necessary and underpinning of the front wall will probably be required due to lower floor levels.

6.4 Therefore, I am of the opinion that the structural works necessary to convert this building from Agricultural use to residential are no more onerous than are usually required as part of Barn Conversion works and substantial reconstruction or structural enhancement, addition or enhancement is not required.



Ian Harban M Eng C Eng MICE MIStructE
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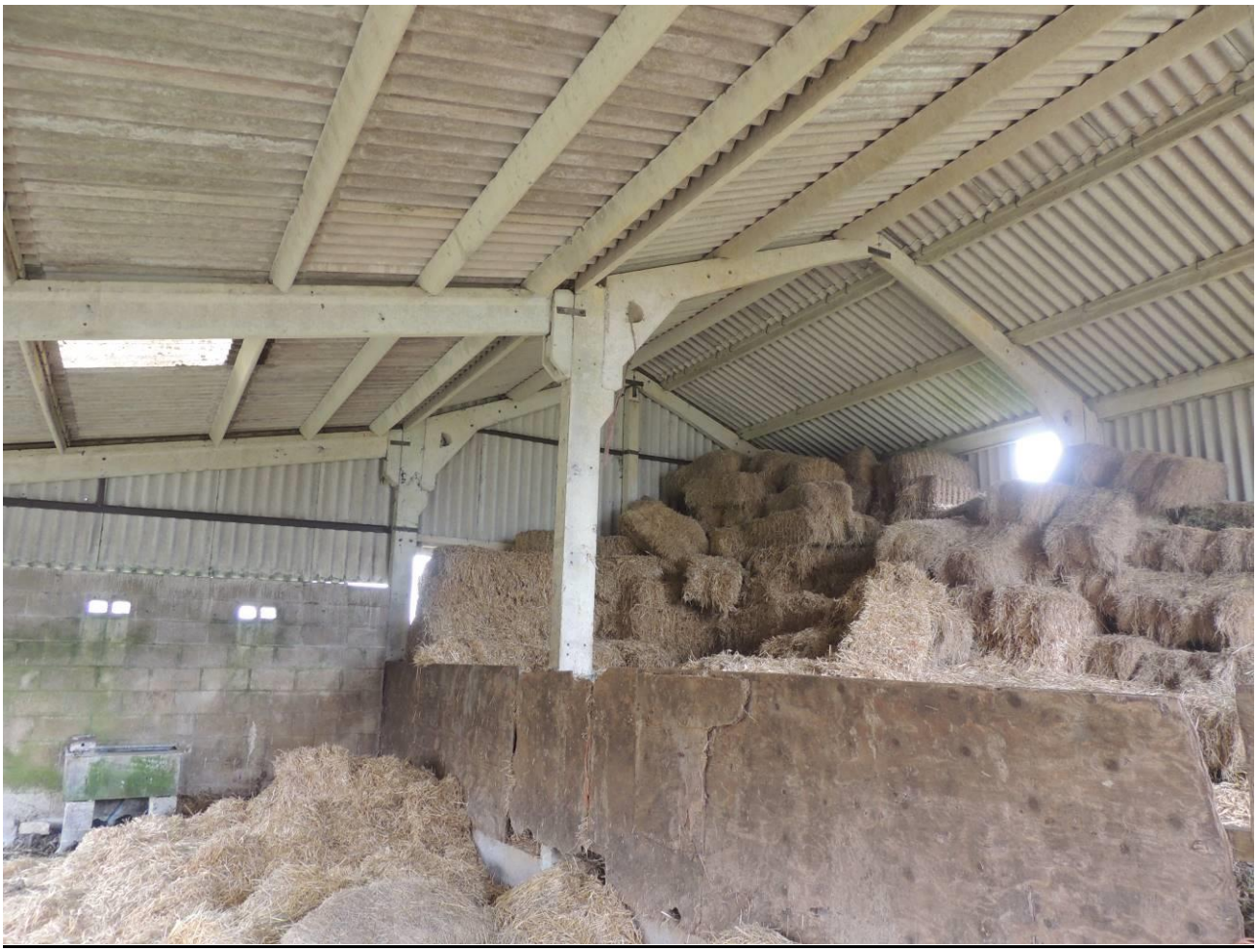
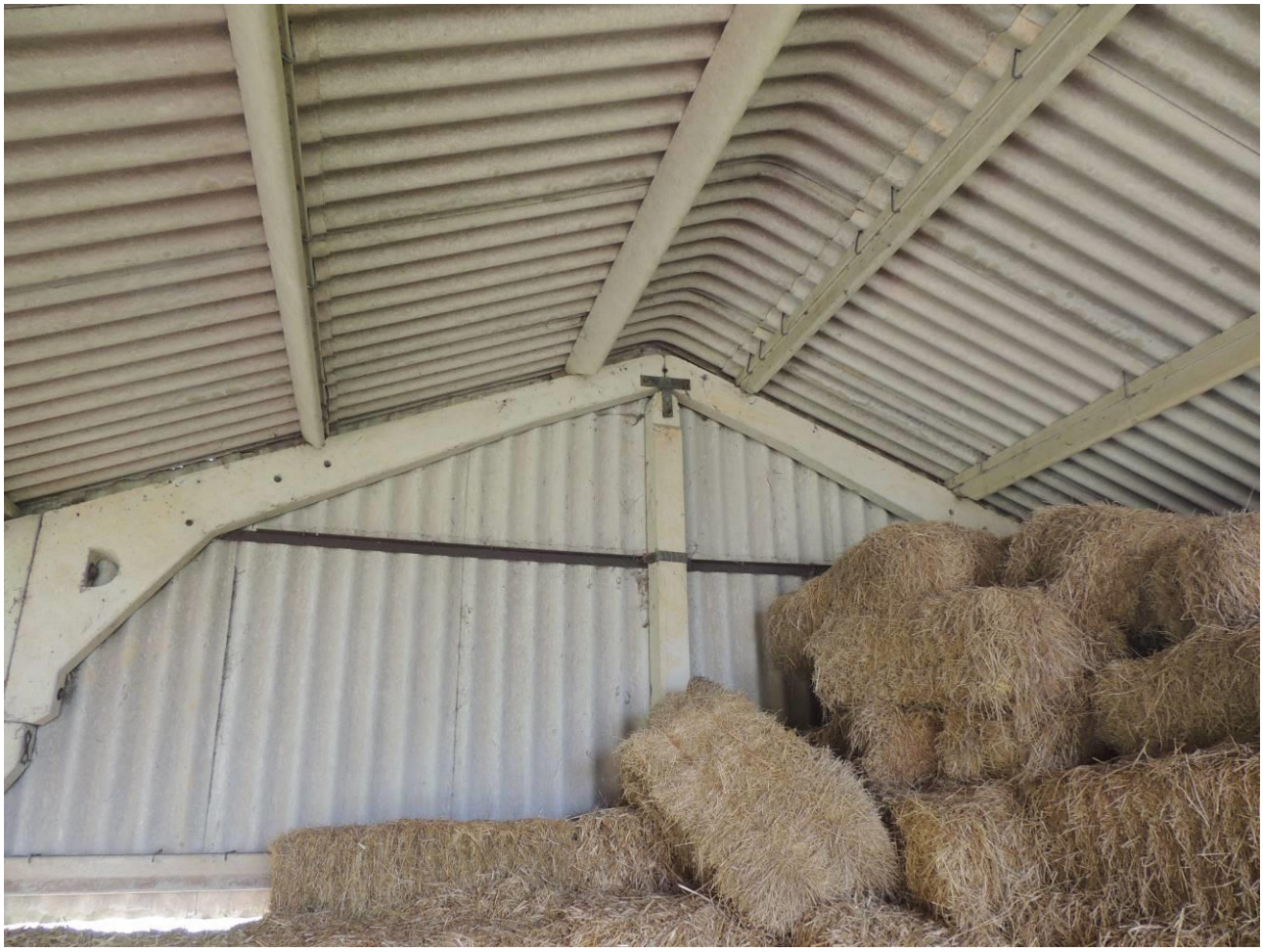
APPENDIX A

General Photographs

Concrete Portal Barn

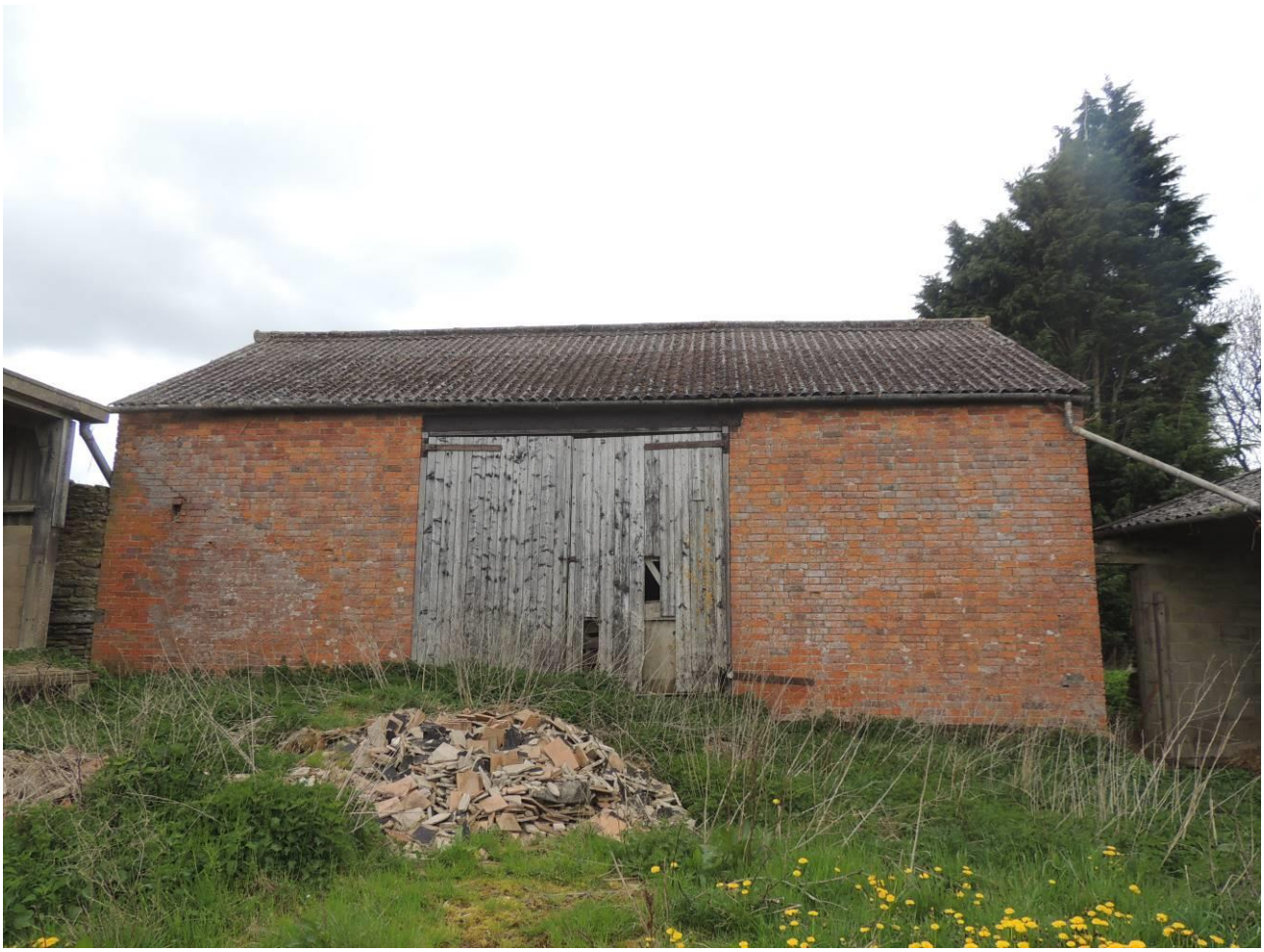


Photograph No. One



Photograph No. Two

Brick Barn



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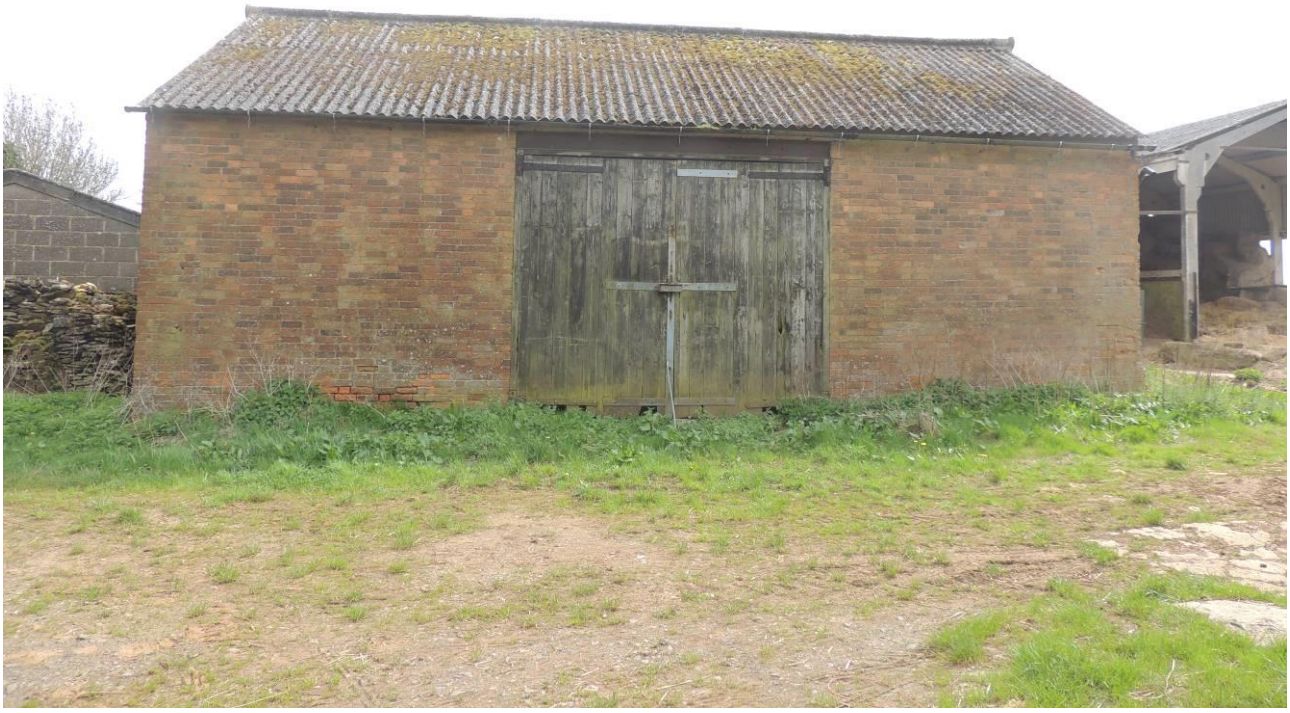

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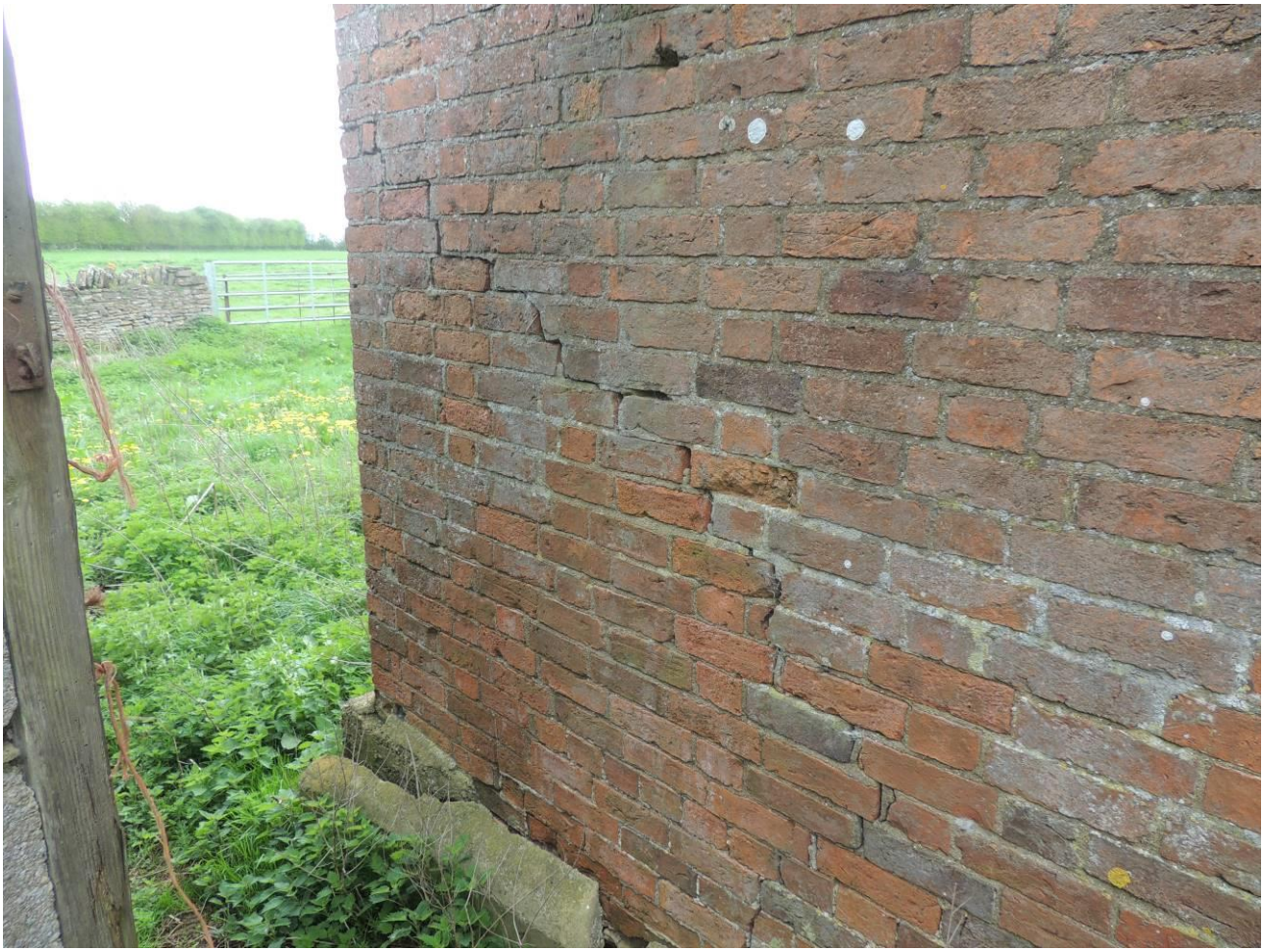

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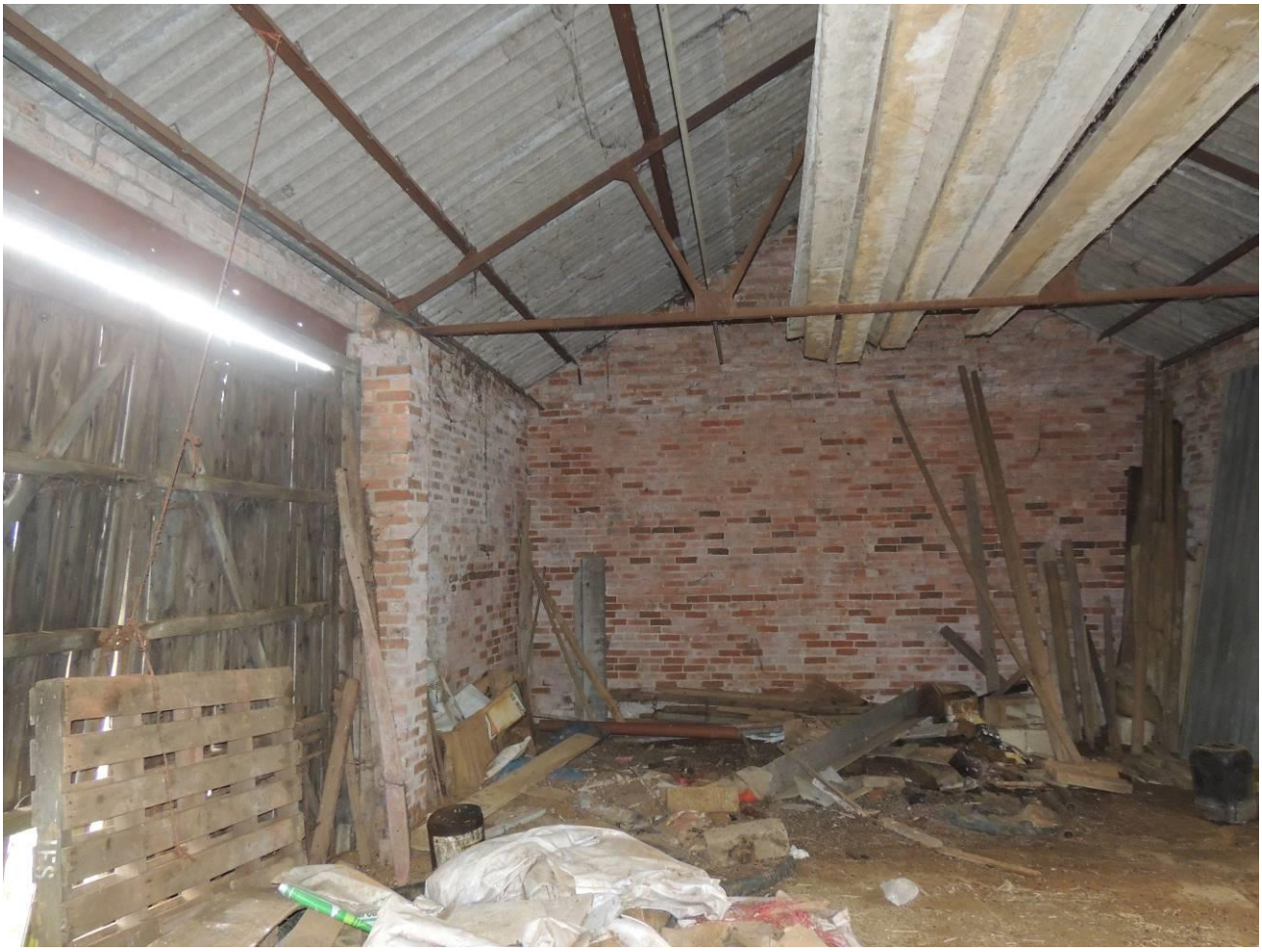

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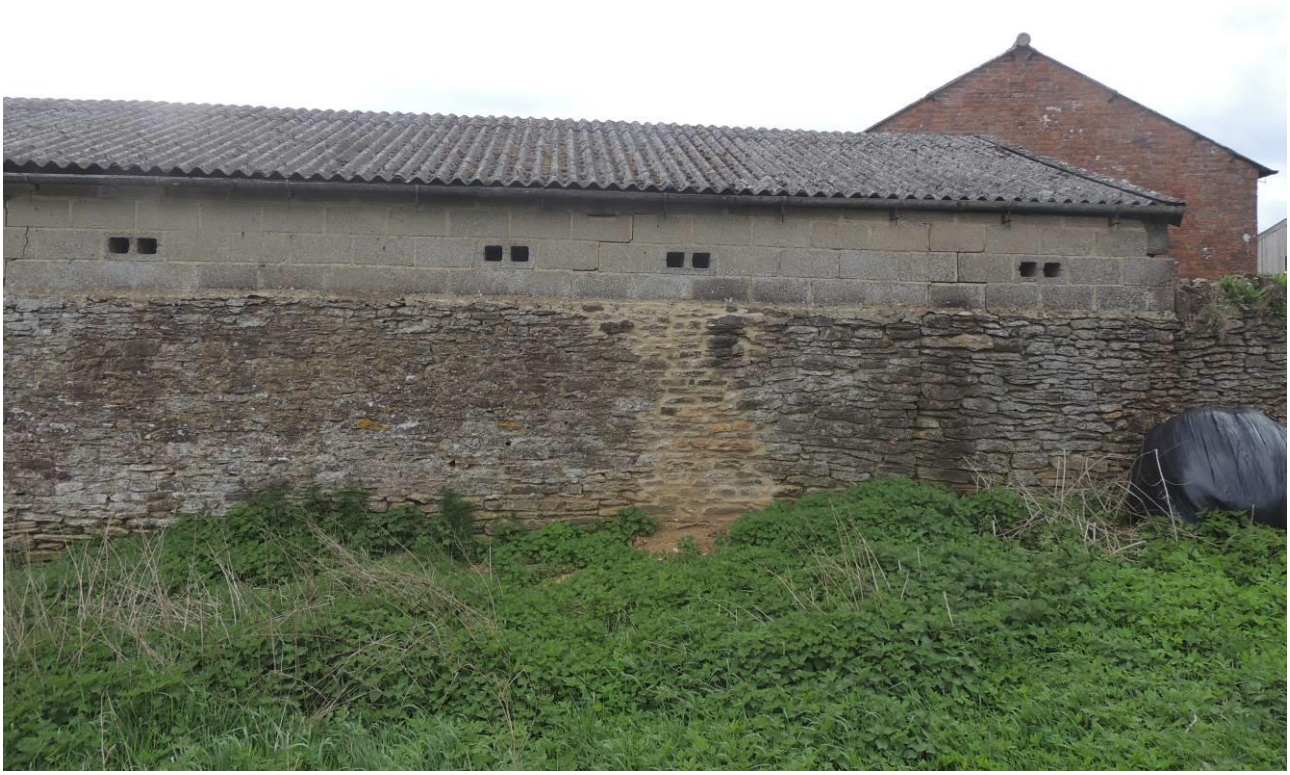
Stone Faced Barn



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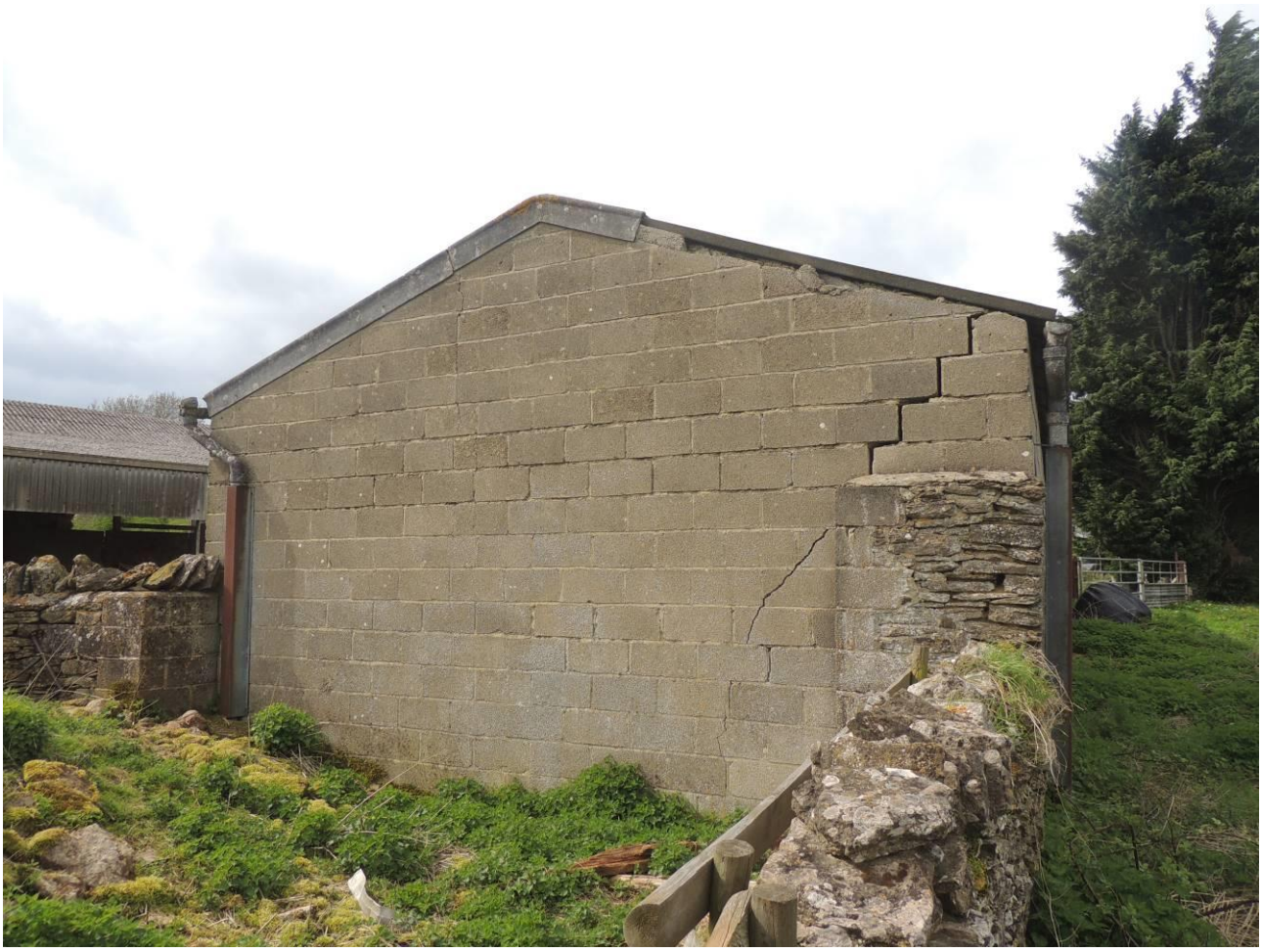

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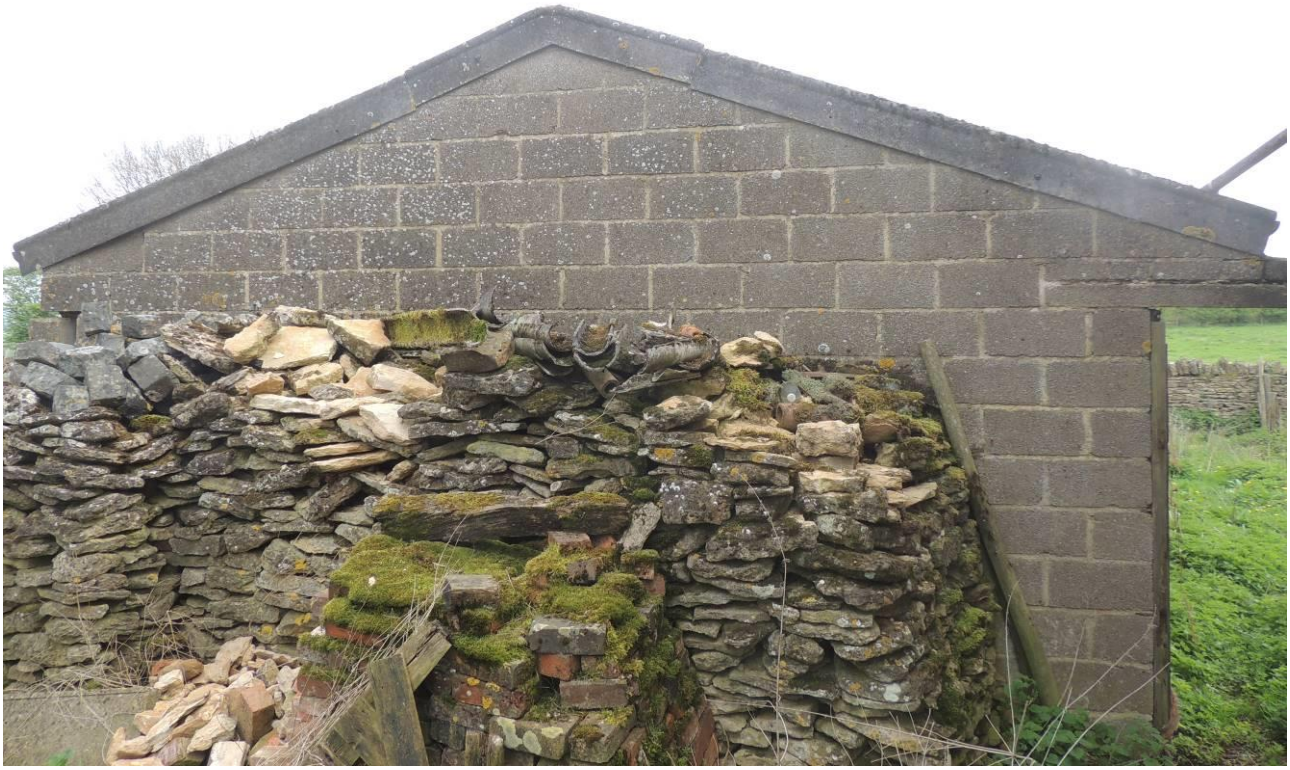

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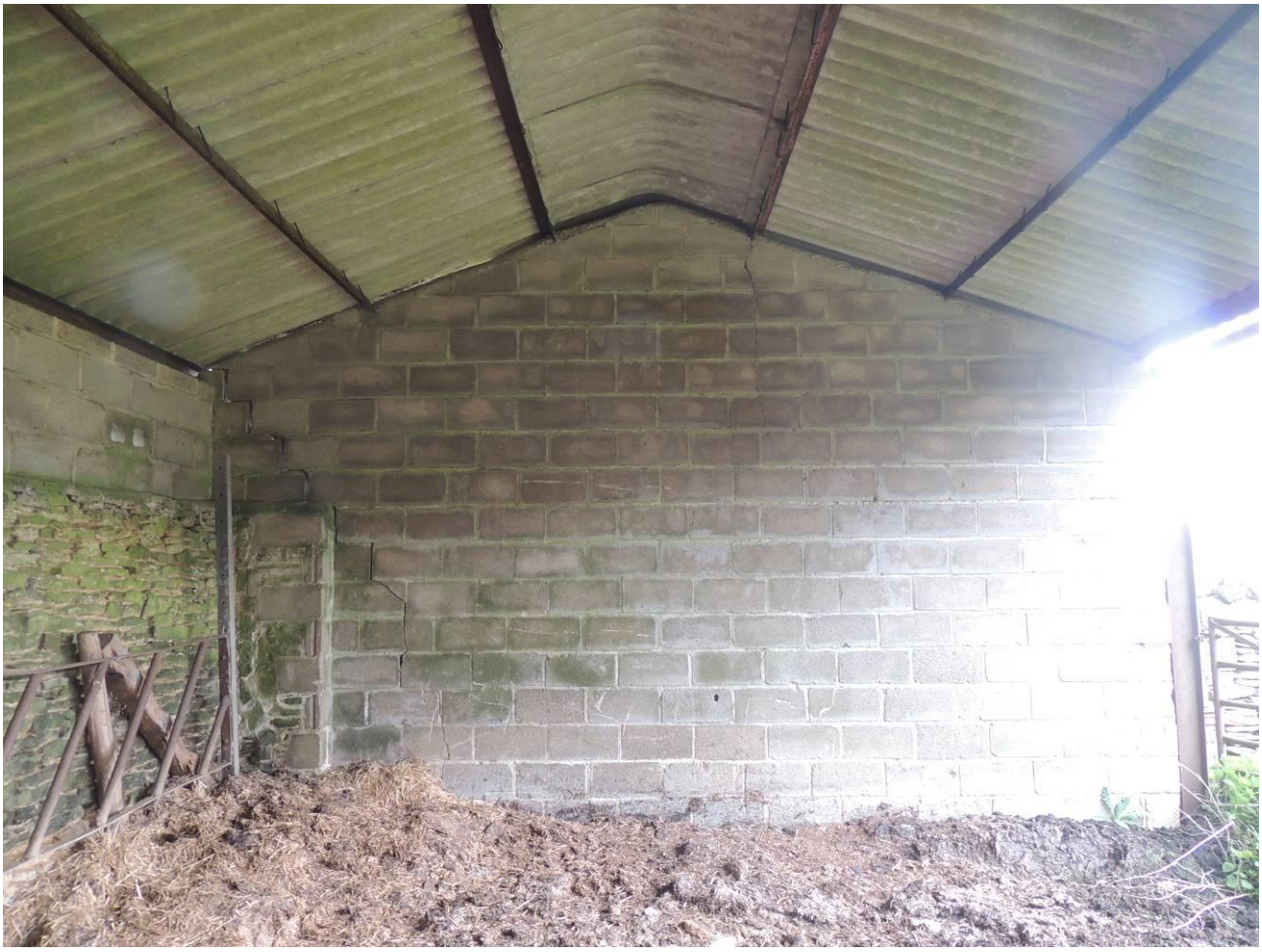

Photograph No. Eleven

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