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Survey at:

Rowden Abbey (Timber barn)

Winslow

Bromyard

HR7 4LS

For:

Mr E. Warrender

Date: 1st June 2020

Author:

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1.0 Brief

1.1 In accordance with instructions conveyed by Mr Warrender we have undertaken a survey at Barn at Rowden Abbey in connection with assessing the structural adequacy of the barn.

1.2 Our appraisal took the form of a single visual inspection carried out during dry and sunny weather conditions on 1st June 2020.

1.3 The object of our involvement is to make a structural appraisal of the building with particular regard to its structural condition therefore the scope of this report is confined accordingly and should not be construed as comprehensive survey including the survey of unrelated matters.

1.4 We have not inspected parts of the property that are covered, unexposed, or otherwise visually inaccessible and therefore cannot comment on these matters.

1.5 Our inspection was carried out from ground level and around the perimeter of the property or from adjacent public land. Any notes are made with the walls described handed facing the front but notes on a particular wall are described facing the elevation in question.

1.6 We would advise that no physical or specialist testing has been undertaken for example to determine the presence of Asbestos or High Alumina Cement.

1.7 Cracking is classified in terms of visual damage in accordance with I Struct E Assessment and we include the following table for your information.

Category of damage	Approximate crack width (mm)	Definition
0	Up to 0.1	Hairline
1	0.2-2	Fine
2	2 to 5	Moderate
3	5 to 15	Serious
4	15 to 25	Severe
5	Greater than 25	Very Severe

2.0 Location

The barn is verified as a traditional timber frame listed barn with a pitched roof located in the gardens of Rowden Abbey in open countryside occupying a sloping driveway.

To the rear of the barn there is a lean-to extension in stone construction.

The barn faces south.

3.0 Description

Attached to the north elevation of the barn is a lean to building which has a stone wall to the east and north elevation with lime pointing. See photograph below.

The lean to has concrete block wall to the west elevation with a timber frame gable above. The south elevation is the timber frame wall of the main barn. See photograph below.

The main barn comprises of a stone dwarf wall approximately 800mm in height and descends to 300mm on the east elevation. Above the stone dwarf wall is a sole plate and traditional frame.

The barn is a traditional timber frame barn that is heavily listed as a result of the disproportionate loading of the clay roof on the south side and the lighter corrugated sheet roof on the north side which has caused the roof to spread and the building has listed.

The main barn comprises of six timber frames and five bays with a central drift way in the centre of the barn. See photograph below.

The timber frame comprises of a truss supported by three columns which extend to the sole plate on the external walls and the centre column is supported off the internal walls which are supported on a timber wall plate and brick dwarf wall either side of the drift way. The other two bays have their central column supported off a large timber beam.

The timber studs vary in size but are spaced at approximately 1m centres. Where visible most of the studs have become detached from the sole plate.

The internal timber frame to the first and last bays are supported off a timber beam.

It was noted many alterations have been undertaken including the introduction of steel windows on the south elevation which have also added to the structural issues relating to the barn. See photographs below. See photographs below.

Inspection notes

South elevation

The south elevation is badly listed.

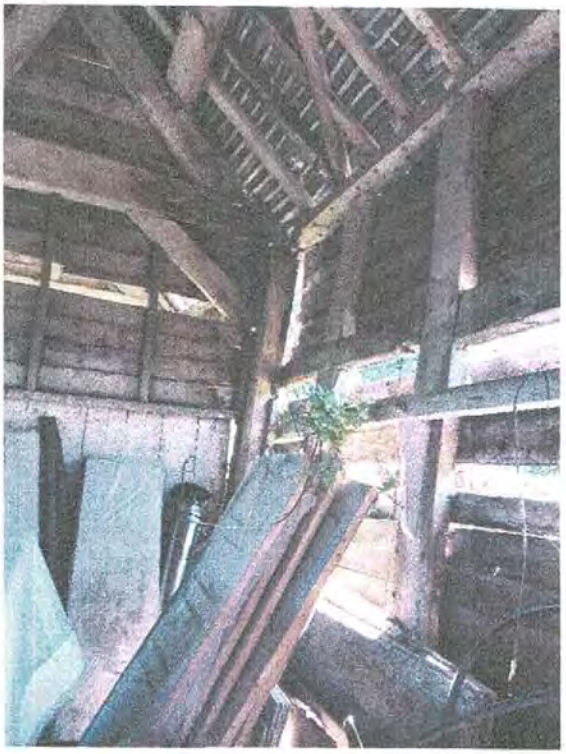
The timber frame is clad with timber and a number of sections are loose or missing and require replacement.

We were unable to assess the sole plate in some of the sections due to stored items, but where visible the sole plate exhibits wet rot deterioration and large sections need to be spliced or replaced. See photograph below.

A number of the studs and rails exhibit wet rot particularly on the joints on the eastern bay.

The remainder of the joints in the other section appears to be in reasonably good condition. See photographs below.

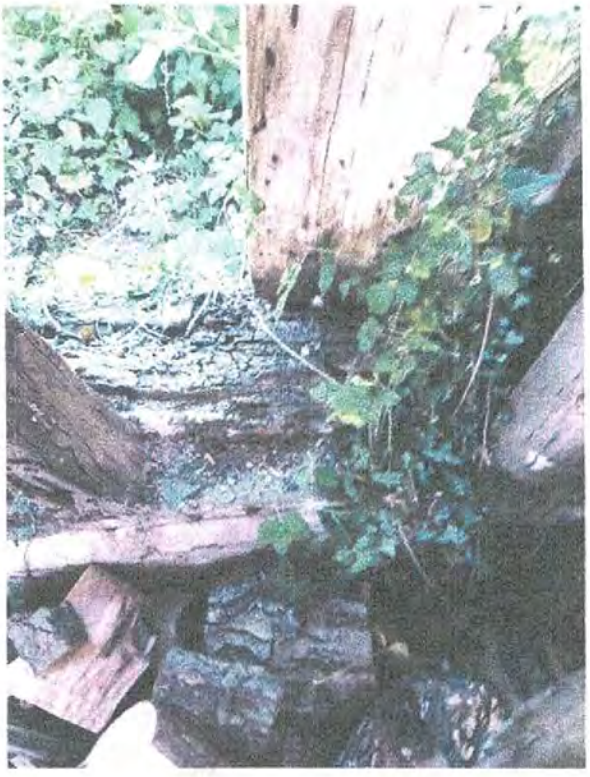
The frame at eaves level between bays one and two has a defective joist and this requires further investigation, but you must envisage a repair. See photograph below.



North Elevation

The north elevation comprises of timber cladding and lattice timber to the higher rails as seen internally off the plate attached. See photograph below.

In the first bay the sole plate is rotten and needs replacing and consequently the studs will need a splicing into the new connection. See photographs below.



In the second bay the timber cladding requires replacement. The sole plate needs replacing and the base of all the columns in bay two also needs a splice repair. See photographs below.

The rails exhibit wet rot in the lower section, and these also require replacing. See photographs below.

The third frame from the east which form the left-hand side facing of the drift way exhibits wet rot at its base and also requires a splice connection to repair or significant replacement.

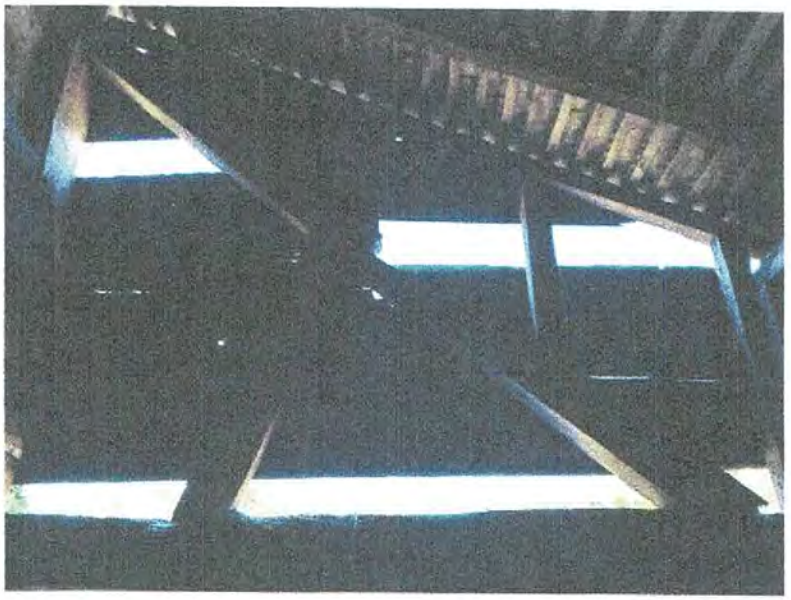
The remaining timbers have been protected and appear to be in reasonably good condition to bays 3,4 and 5. The photograph below shows the poor state and condition of the wall as a whole and the listing/lateral movement in the wall making the wall structurally unstable.

West Elevation

To the west elevation some of the cladding is missing and requires replacing. See photograph below.

The sole plate, columns and rails appear to be in reasonably good condition.

The timber frame to the lean to also appear to be in reasonably good condition. Albeit some of the timber cladding is missing. See photographs below.



Some wet rot deterioration can be seen in the wall plate over the concrete block but appear to be structurally sound.

East Elevation

The east elevation is heavily covered in vegetation , mainly Honeysuckle which prevented a detailed inspection if the timber cladding. See photograph below.

Internally the cladding appears to be in reasonably good condition and so does the timber frame as far as we could ascertain. However, we emphasise that a detailed inspection could not be undertaken. See photographs below.

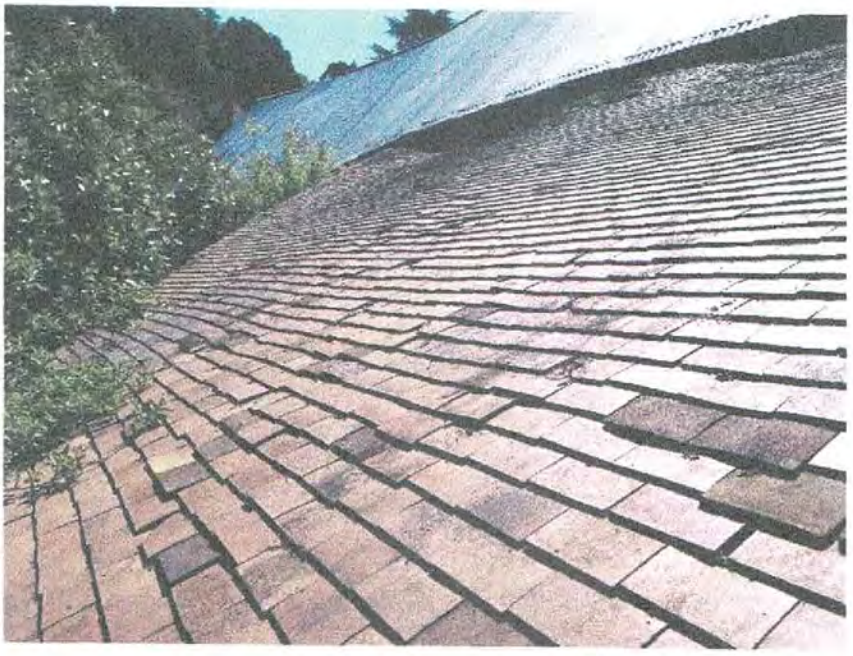
The east elevation lean to is of stone construction but we did not have any access due to heavy vegetation. See photographs below.

Roof

The external roof on the south side the roof is lined in plain clay tiles and to the right hand side facing there is a large area of tiles which are missing which has caused deflection to the rafter beneath. See photograph below.

On the north side the plain clay tiles have been removed and replaced with corrugated metal and the unequal weight has caused distortion to the roof coverings. These should be removes and replaced using the same materials as both sides. See photograph below.

The lean-to roof is lined in plain clay tiles and evidence of undulations in the roof and slipped tiles are evident. See photographs below.



The joint between the main barn roof and the lean-to roof is poor and does not appear to have to appropriate flashing. See photograph below.

The end rafter on the west elevation of the lean to has suffered wet rot and requires replacing.

Internal

Floor

The floor is of stone slab construction the thickness of which could not be determined but has carried agricultural barn load which are well in excess of the imposed loads for residential use. Hence, we are confident the floor can accommodate a residential load.

The floor needs to be removed and reconstructed using 100mm of a breathable material such as limecrete. All to meet current day Building Regulations.

Walls

Internal walls to bays 1,2 and 4, 5 are timber frame with various timber sizes some of which are timber clad. These are supported from timber beams spanning north to south. See photograph below.

Some timber studs have been removed such as to the right-hand side facing of the drift way where the brick dwarf wall has also been removed, these need to be replaced. See photograph below.

First floor

There is a first floor over bay one, but this was inaccessible to carry out a detailed inspection. However, the floor joists span between the purlin and the internal beam and overlaid by floorboards.

A number of the joists and floorboards exhibit wet rot and require replacing. See photograph below.

Internal roof

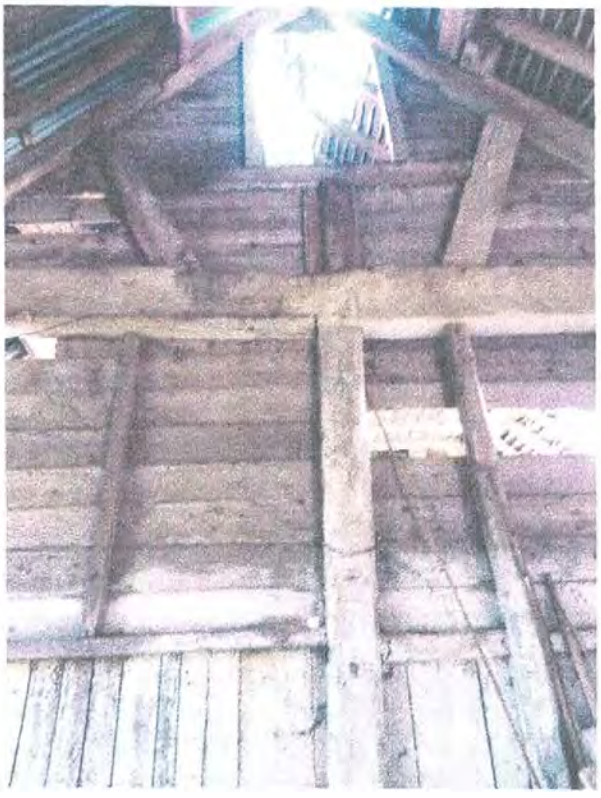
The lean-to roof comprises of 65 x 95mm rafters at approximately 450mm centres spanning approximately 1.9m supported on two purlins 75 x 225mm. The purlins span approximately 4.2m and supported from a 75 x 275mm timber beam extending from the main barn to the wall on the west elevation which is supported by a central timer column 175 x 175mm. See photographs below.

Timber plates support the lean-to rafters on the main barn and a timber plate is bolted in studs to the main barn but in places this has become damaged and the rafters are canterleving from the lower purlin. The structural integrity of the roof is compromised and requires attention.

The wall plate on the north elevation appears to have suffered isolated areas of beetle infestation and wet rot deterioration but is performing adequately.

The roof to the main barn comprises of 75 x 100mm rafters at 400mm centres supported off two purlins and a ridge beam of various sizes which span between the timber frames of the structure.

The purlins are supported on trusses and it was noted that the principle rafter on the north elevation on the fourth frame and on the north elevation on the second frame has a structural split. All the remaining roof appears to be in reasonably good condition some damage was noted to the rafters where tiles were missing. See photographs on the next page.



Rainwater goods

The rainwater goods are in severe need of replacement since large sections are missing and the sections that remain are in poor condition.

Conclusion

The barn has suffered severe structural damage not helped by the disproportionate load on the roof with different materials used on the south and north elevations.

Much of the timber frame is weak, damaged and structurally compromised. The presence of stored items hindered a detailed inspection in some areas.

We recommend the roof covering be removed and the stored items taken out of the building so a more detailed timber by timber examination can be undertaken. Drawings could possibly be produced indicating damaged, replacement, repair types and sound timbers.

The barn is badly listed and is in poor structural condition requiring urgent attention to prevent further damage and structural deterioration.

Signed

Eur.Ing.Paul Smith, DipHI, BEng(Hons), MSc, C.Eng, C.Build E, FCABE, FCIOB, MICE, MCMI, MCIHT.

Date 4/6/20