



STRUCTURAL APPRAISAL REPORT

Cocklick End Farm, Slaidburn

for

United Utilities Property Services

Job No.11866

March 2012

Rev.03

Structural Appraisal

Cocklick End Farm, Slaidburn

1. INTRODUCTION

Booth King Partnership Limited was instructed by United Utilities Property Services to carry out an inspection and prepare a report on the structure of the Cocklick End Farm, Slaidburn, Nr. Clitheroe.

The aim of the inspection was to determine the overall/generic condition of the main loadbearing elements of the property in order to:

- confirm its suitability for restoration
- advise if any major repair work is required.

2. SCOPE

The inspection was limited specifically to a non-intrusive, visual inspection of exposed and readily accessible, structural, load-bearing elements. Except where noted, external works, perimeter walls and/or fences were not inspected. No opening up works were carried out and no samples were taken for testing. We have not specifically inspected for infestation or rot, as this is specialist work, however, where we have noticed evidence of such, we have recommended further investigations.

In addition, unless specifically noted, the inspection did not cover drainage items, rain water systems, finishes, electrical or plumbing installations or any other aspect which is not part of the load-bearing structure.

3 INFORMATION AVAILABLE

We are advised that the property is not Listed.

4. THE INSPECTION

The survey work was carried out during a three-hour visit to the building on Thursday 21 March 2012. The weather at the time of the inspection was dry and sunny.

Opening-up or digging of trial holes was not carried out. Foundations were not inspected. Samples were not taken for chemical or strength testing.

The inspection of the outside of the building was done from ground level. Long ladders or staging were not available to allow a closer inspection of the roof or perimeter walls at high level.

Internal inspection was limited to the barn as the house was completely secured with steel plates to all windows and doors.

Cocklick End Farm, Slaidburn

Lighting levels in the buildings were limited. No electrical lighting was available

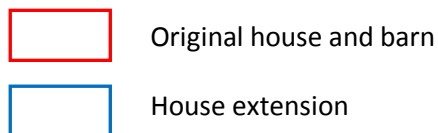
A number of photographs, in digital format, were taken. These are available for inspection at the Ramsbottom office of Booth King Partnership Limited.

5. FINDINGS

5.1 BUILDING FORM, STRUCTURE AND USAGE

The building consisted of a large barn with attached house. The date stone on the barn door gave 1827. For the purpose of this report the orientation of the building is taken as north/south with the barn to the north.

The original property appears to have consisted of a large barn with a small attached house attached. At a later date an additional house has been added to the southern end of the property.



The property is constructed in natural stone with a timber roof support York stone slates or Welsh slates.

5.2 CONDITION AND OBSERVATIONS OF STRUCTURAL ELEMENTS

5.2.1 GENERAL OBSERVATIONS

It is understood that the property has been unoccupied for a considerable period (possibly 60 years) during which time the barn has been used for farming purposes only.

The house has been unoccupied and all windows and doors have been sealed with galvanized steel sheeting screwed and plugged to the stone window set.

The barn is open and partially occupied with agricultural machinery.

The original stonework is roughly coursed with lime mortar and there are feature stone quoins to all corners externally.

The building was generally noted to be level and vertical with no significant signs of settlement resulting in deformation or cracking of the primary structural walls.

The stonework of the walls is generally in poor condition with very limited maintenance in the form of re-pointing being observed. As such the mortar is the original lime mortar and has suffered significant weathering particularly in the upper reaches due to water run-off from the roof (there are no gutters throughout the property)

5.2.2 DETAILED OBSERVATIONS

The following detailed observations were recorded :

- South gable - sand/cement render with exposed quoins. Render loss over large area coincident with the chimney. Large tree at approx. 8m. off south west corner.
- East elevation - large barn doorway with shallow stone arch over. No indications of movement in arch stones. Small door to right appears to have been lowered.
- East elevation vertical joint between original and extended house. Joint is unbonded and has opened by approx. 8mm throughout its height. The original construction was unbonded externally.
- North gable - small windows at ground floor and very small air vent opening above (typically 200mm square). Beehive slot to northeast corner. Large stone slabs at high level stepping up to north west corner not visible internally, ie. not through stones. At roof level there are coping stones which were generally intact but had signs of movement and loss of mortar.
- West elevation – at two levels within the barn there are through courses of stone flags (visible internally). These are potential areas of water penetration.
- West elevation window and door at ground floor of original house have been infilled with stone.
- West elevation vertical joint between original and extended house. Joint is bonded in two locations only externally and has opened by approx. 5mm throughout its height.
- East roof - stone flag roof to extended house has completely collapsed with failure of timber purlins. Chimney to south gable appeared in reasonable condition.

- East roof - slate roof of barn has been replaced with Welsh slate in the upper reaches. The lower, original area of the barn roof has extensive slate damage including missing slates, cracked and broken slates, slipped slates and localized patch repairs using Welsh slate.
- West roof - barn roof generally in poor condition with considerable slate displacement. The roof of the original house appeared to have been re-slatted and was generally in good condition. The roof of the extended house was noted to be at the point of collapse with significant sagging and movement.
- Internal - mistal. Constructed in timber at ground floor with timber 1st floor over. Timber structure generally in poor condition with timber rot and wood worm damage. 1st floor joists built into gable wall - possible decay within bearing. Floor boards very poor condition. Floor is raised concrete slab within the cow stalls and the remaining area was buried under manure.
- Internal - room to left of barn door. The 1st floor within this space has been removed. The roof has numerous holes with signs of long term water penetration. This has resulted in considerable weathering of the stone walls and some areas of decay in the timber rafters. The floor is constructed as stone cobbles. The windows were noted to have no lintels internally and the surrounding stonework was generally supported by the window framing.
- Internally – main barn. Walls generally in sound condition with no signs of movement and minimal cracking. The corners were noted to be poorly bounded and the vertical joint was generally open. It is noted however that the outer corners have substantial quoins. A small number of through stones were noted to be projecting internally. The stonework to the top of the walls was generally loose around the rafter ends.
- Internally – main barn. The roof consisted of timber rafters on timber purlins supported off primary timber trusses. The primary trusses and purlins were observed to be in generally very good condition however the end supports built into the external stonework should be checked for decay. The rafters were generally in sound condition except in areas local to missing slates in which some decay and rafter failure has occurred. The roof has no felt and some areas of back pointing with lime mortar were noted.
- Internally – main barn. The floor of the barn was noted to be stone cobbles in the entrance area with stone flags internally where it was possible to inspect. The barn floor was generally covered in soil and waste.

6. INTERPRETATION AND COMMENTS ON SIGNIFICANT OBSERVATIONS

6.1 BUILDING HISTORY.

No documentary evidence was made available however the date stone over the barn door 1827. To the south end of the property an additional house has been added.

6.2 STRUCTURAL ISSUES RELEVANT TO CONVERSION

The primary stone loadbearing walls of the property are in generally sound condition with no significant signs of settlement, lean or cracking being observed.

Externally the stonework generally suffers from significant weathering with the resulting loss of mortar. This is particularly prevalent in the upper reaches due to water run-off from the roof (there are no gutters) and at the lower level due to rising damp.

Internally the walls are generally sound condition with only those areas which have been subject to long term water penetration being heavily weathered.

The roof of the later house extension has partially failed with collapse of the eastern slope and partial collapse of the west.

The roof timbers of the barn area generally in sound condition where visible.

The floors throughout the internal areas inspected were either stone cobbles, stone flags or soil and will require replacing.

7. CONCLUSIONS AND RECOMMENDATIONS

This report has described the findings of our visual structural inspection of the Cocklick End Farm. Some areas, as noted within the body of the report, were not available for inspection.

Our impression is that the original building was solidly built and exhibits few faults relating to its original construction or from modifications which have taken place throughout the building's life. However there are problems arising from the lack of occupancy, the unchecked ingress of water at roof level and the general lack of maintenance for a considerable number of years.

This has lead to partial collapse of the roof of the later house extension and this must be assumed to extend to the 1st floor structure.

Within the barn the building is effectively single storey and all remaining 1st floor timber structures will require replacement.

Detailed inspection for rot and infestation is outside the scope of this report, and we recommend that a specialist be instructed to inspect, report and advise on those areas of timber to be retained, with particular attention to the ends of roof timber trusses, purlins and rafters at positions where they are built into the perimeter walls.

Our conclusion is that the building suitable for refurbishment and possible conversion of the barn subject to Planning. The defects noted should be rectified as part of the proposed modification works. The key works required are as follows :

1. Reconstruction of the roof of the extension house including all timber elements, ie. purlins and rafters.
2. Whilst access was not available it should be assumed that 1st floor of the extension house will require reconstruction including all timber elements, ie. beams and joists.
3. Re-slating of the entire roof area in York stone slates with new battens and roofing felt. This will include partial replacement of rafters where decay is present and replacement of an estimated 75% percent of the slates.
4. Inspection and testing of the timber supports as noted and treatment of all retained timber. The timber within the house should be particularly inspected for dry rot and if found this should be fully removed and the masonry and remaining timber should be suitably treated.
5. The replacement of existing stone and cobble floors with a concrete slab with damp proof membrane and insulation.
6. Localised repairs to the stone walls and complete re-pointing externally and internally.
7. Replacement of all internal timber lintels with stone or precast concrete
8. Tying of the vertical joints between the original house and the later extension using stainless steel bed joint reinforcement.
9. The installation of a proprietary damp-proofing system to the external walls.

It is noted that the sealing of the windows and doors of the house with galvanized steel sheeting may have contributed significantly to the timber decay and roof failure observed. Due to the lack of ventilation the water penetration at roof level cannot escape and the conditions for timber rot, in particular dry rot, are created.

It was also noted that the property appears to have no mains services, ie. water, drainage and electricity and this will require further investigations.

8. INTERNAL INSPECTION

Further to the inspection undertaken in March 2012 Booth King Partnership Limited was instructed by United Utilities Property Services to return to the property to carry out an internal inspection of those areas which had been inaccessible due to security steel plates to the windows and doors.

The aim of the inspection was to determine the overall/generic condition of the main loadbearing elements of these areas of the property in order to:

- confirm its suitability for restoration
- advise if any major repair work is required.

8.1 SCOPE

The inspection was limited specifically to a non-intrusive, visual inspection of exposed and readily accessible, structural, load-bearing elements. Opening up and access to the first floor windows and eaves level were provided by AP Bolton Builders and Contractors. No samples were taken for testing.

8.2 THE INSPECTION

The survey work was carried out during a three-hour visit to the building on Monday 28 May 2012. The weather at the time of the inspection was dry and sunny.

Opening-up or digging of trial holes was not carried out. Foundations were not inspected. Samples were not taken for chemical or strength testing.

The inspection of the inside of the remaining areas of the building was undertaken from ground level internally, from access scaffolding externally via the first floor windows and via ladder access to eaves level.

8.3 FINDINGS

BUILDING FORM, STRUCTURE AND USAGE

For the purpose of this report the layout of the building as inspected is as follows :

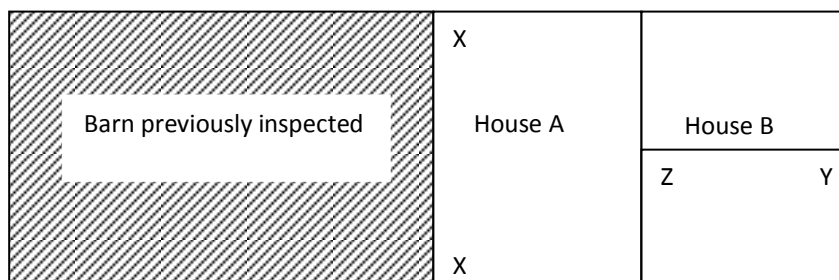


Figure 1

CONDITION AND OBSERVATIONS OF STRUCTURAL ELEMENTS

8.3.1 GENERAL OBSERVATIONS

The date stone on the barn door had previously indicated the date of the building to be 1827. On removal of the security sheeting the lintel of house B indicated that this pre-dates the house and barn at 1727.

8.3.2 DETAILED OBSERVATIONS

The following detailed observations were recorded :

House A

- This area of the building was open over two storeys with the first floor timber structure having been removed deliberately some years ago.
- Window to east façade at 1st floor stone infill.
- Timber roof intact but significant timber decay in the bottom tie of the roof truss and in a number of rafters.
- A number of slipped or missing roof slates. The roof was without felt and the slates had mortar backing to the joints
- Timber lintel over window heavy woodworm damage.
- Vertical cracks noted throughout the wall between houses A and B. Generally the cracks emanated from the purlin positions (see Fig 2)

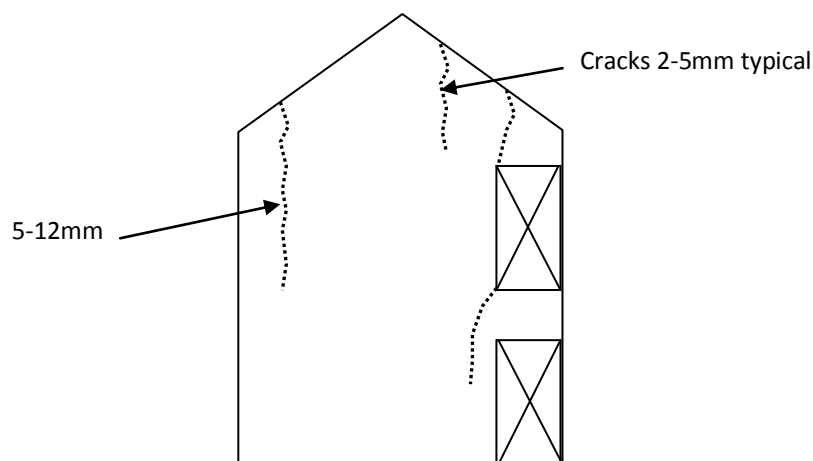


Figure 2

- Vertical cracks throughout full height of wall between house A and the barn to each corner indicating lack of bonding between walls (X in Fig. 1)

House B

- This house was divided into two rooms at ground and 1st floor levels by a masonry wall
- Vertical crack throughout full height of wall between houses A and B to each corner indicating lack of bonding between walls (Y in Fig. 1)

- Vertical crack throughout full height of wall between internal masonry wall and the gable wall indicating lack of bonding between walls (Z in Fig. 1)
- Vertical crack throughout full height of wall between internal masonry wall and the wall between houses A and B indicating lack of bonding between walls
- Vertical cracks throughout full height of wall between external walls at the interface of house A and B indicating lack of bonding between walls (previously noted externally)
- All timber lintels were noted to have significant woodworm and timber rot damage
- Stone flagged floor
- Roof of east side of roof has partially collapsed resulting in the collapse of the 1st floor structure such that the room at ground floor level is completely filled with debris and could not be entered
- Limited access to 1st floor due to instability and decay of timber staircase
- As observed from a ladder at eaves level the west side of the roof was noted to be at the point of failure with the primary ridge purlin having failed.
- As observed from a ladder at eaves level the walls of the east half of the house were partially collapsed in the upper reaches and the chimney was noted to have open joints and some displacement of the stonework.

8.4 INTERPRETATION AND COMMENTS ON SIGNIFICANT OBSERVATIONS

8.5 STRUCTURAL ISSUES RELEVANT TO CONVERSION

The 1st floor structures and roof timbers of both houses have either failed or have a level of deterioration such that continued partial collapse is inevitable.

8.6 CONCLUSIONS AND RECOMMENDATIONS

As noted in sections 1 - 7 these areas of the building are in considerably poorer condition with collapse of some areas of the roof and 1st floor timber structures.

The remaining areas of roof and floors are in a poor structural condition and further collapse of the roof is imminent with the effect of probable collapse of the remaining area of 1st floor due to the impact of debris.

Our conclusion is that the walls of these areas of the building are suitable for use in the re-construction with the following remedial works :

- 1 Rake out and repoint all masonry.

- 2 Repairs to all cracks including the installation of proprietary stainless steel reinforcement ties across the cracks at 400mm centres vertically, ie. Helifix reinforcement or similar
- 3 Replacement of all timber lintels with stone or precast concrete to the external walls. The internal wall lintels may be replaced in timber.
- 4 Tying of the vertical joints between the houses using stainless steel bed joint reinforcement.
- 5 Tying of the vertical joints between house A and the barn using stainless steel bed joint reinforcement.
- 6 Tying of the vertical joints between internal partition wall of house B and the gable wall using stainless steel bed joint reinforcement.
- 7 Take down and re-build the chimney
- 8 Re-pairs to the top of the walls at eaves and gable to repair partial collapse due to roof failure and weathering
- 9 Replacement of all internal timber lintels with stone or precast concrete
- 10 The installation of a proprietary damp-proofing system to all walls.

In addition to these repairs the houses will require :

1. Re-construction of the timber roof including re-slating of the entire roof area in York stone slates with new battens and roofing felt.
2. Re-construction of the timber 1st floor throughout.
3. Replacement of the stone flagged floor with a concrete floor with DPM and insulation
4. Localised repairs to the stone walls and complete re-pointing externally and internally.

9. DISCLAIMER

This report is for the use of United Utilities Property Services in connection with this appointment and the benefit is not to be extended to any third party without the written permission of Booth King Partnership Ltd.

The opinions expressed are based purely on the conditions as readily seen and our interpretation of the evidence does not benefit from long-term observation. Our inspection has only covered the major aspects of the structure that it was possible to inspect.

We have not 'broken out' to determine the condition of those parts of the structure which are covered, unexposed or inaccessible and are therefore unable to report that any such part is free from defect.

A detailed inspection of the structure has not been carried out for rot and infestation nor has the structure been fully checked for dampness. This is specialist work and is not within the scope of this investigation and report.

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APPENDIX 1 - PHOTOGRAPHS

Cocklick End Farm, Slaidburn



Collapsed roof of later extension to house



Cracks in wall between houses A and B
emanating from the purlin support positions



Cracks in wall between houses A and B
emanating from the purlin support positions



Cracks in wall between houses A and B
emanating from the purlin support positions



Cracks in wall between houses A and B
emanating from the purlin support positions



Infilled window to east elevation



Typical weathering at high level



General condition of barn roof - east slope



Collapsed roof of later extension to house



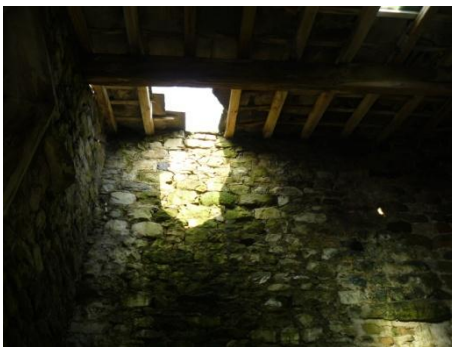
Vertical joint between original house and later extension – noted limited bonding



Barn roof - note truss in sound condition



Internal stonework deterioration in barn room to left of main door - note no lintels



Internal stonework deterioration in barn room to left of main door



Timber decay in mistal 1st floor



Typical weathering at high level



General condition of barn roof - east slope

Cocklick End Farm, Slaidburn