

IC / PS / 13838 / 20  
7 December 2020

Mr M Harris  
Chare Head Farmhouse  
Main Street  
Acomb  
Hexham  
Northumberland  
NE46 4PL

**Building report regarding structural condition of the single-storey barn.  
Chare Head Farmhouse, Main Street, Acomb, Hexham Northumberland NE46 4PL**

**1.0 Introduction**

- 1.1 On the instructions received from Mr M Harris, the single-storey stone barn, which is attached to the left hand gable elevation of Chare Head Farmhouse, Acomb was inspected by Mr I Crawford of Crawford Higgins Associates Limited on Friday 27<sup>th</sup> November 2020. At the time of inspection, the weather was warm and dry.
- 1.2 Mr Harris is the owner of Chare Head Farmhouse. A single storey barn which was originally constructed for agricultural use, is attached to the left hand gable elevation of the main farmhouse. This barn is presently used by the client as an external storage facility.
- 1.3 Napper Architects Limited have been instructed by Mr Harris to produce a design for converting the single-storey barn into a single dwelling for the purpose of full time rental or as short/long term holiday accommodation. The Architect has produced a scheme which includes retention of the external walls. A concrete raft foundation is to be constructed within the barn to support a new timber framework structure, which will provide accommodation at ground and first floor level. A new roof structure is to be constructed above the second-storey which will include a slate roof covering.
- 1.4 Crawford Higgins Associates Limited were instructed by Mr Harris to consider the structural condition of the existing barn and to determine if this structure is suitable for retention and conversion in accordance with the architect's proposals.

## **2.0 The Survey**

### **2.1 General description**

- 2.1.1 The external walls to the single-storey barn are of solid stone construction, which were measured at a thickness of 500 mm. A single pedestrian door is located on the front elevation which faces the public highway. The rear elevation includes a large vehicular access door, a single pedestrian door and a window opening.

The pitched roof structure consists of four collared trusses which span between the front and rear elevations of the single-storey barn. These trusses support a central ridge beam and two timber purlins per slope, which in turn support common rafters beneath a slate roof covering.

- 2.1.2 The floor structure mainly consists of the original earth and cobble floor, which includes a central drainage gully. Part of the floor has been finished with a modern concrete slab.

### **2.2 External walls**

- 2.2.1 A visual inspection of the external and internal wall surfaces recorded no evidence of any significant crack damage or distortions. We carried out a simple distortion survey of the external walls using a 1 metre builder's level. This exercise identified that the external walls were in a plumb condition. There was no evidence of any downwards movement, which may have indicated a subsidence problem and we did not identify any lateral movement which can sometimes be caused by delamination of the facing stone from the central rubble fill. For this reason, we are generally satisfied that the external walls are in a sound and stable condition.
- 2.2.2 The mortar pointing to the external and internal elevations was in an old and eroded condition. As a consequence of this, we identified evidence of loose and slightly distorted facing stones in localised areas.
- 2.2.3 Timber beams are located above the large vehicular entrance door on the rear elevation. The timber beams are in poor condition due to water leakage from the slate roof covering. Due to excessive wet rot, the beams will need to be removed and renewed. The small section of stone directly above the beams will need to be removed and renewed.
- 2.2.4 The stone lintels directly above the pedestrian door openings on the front and rear elevations are in good condition. The timber backing lintels to these door openings are in poor condition due to timber decay. Replacement of the timber lintels is recommended, which could cause some disturbance of the surrounding stone work.

2.2.5 The stone lintel directly above the single window opening on the rear elevation has cracked in the centre. This downwards movement has caused disturbance of the facing stone between the window opening and the underside of the roof. A new stone lintel will need to be installed, which will necessitate rebuilding of the stonework directly above the window.

### **2.3 Roof structure and covering**

2.3.1 The slate roof covering is in poor condition. Our survey recorded evidence of loose missing and broken slates in localised areas. In addition, there was no gutters or downpipes to the front and rear elevations of the property.

2.3.2 Due to defects of the slate roof covering and the absence of gutters and downpipes, water ingress into the barn has caused significant timber decay to the timber roof structure. This situation has resulted in structural movement of the timber sections, which would account for the evidence of significant distortions across the surface of the slate roof covering.

### **2.4 Floor structure**

2.4.1 As outlined above, the floor within the outbuilding is of part concrete and part earth/cobble construction. This floor is functional as an external storage facility, although it will not be suitable for retention as part of the proposed conversion scheme.

## **3.0 Opinion**

3.1 Our detailed survey of the external walls recorded no evidence of any significant crack damage or distortions. In the circumstances, we are satisfied that external walls are in a sound and stable condition. The external walls are suitable for retention as part of the conversion scheme, which has been prepared by Napper Architect. General repair and minor rebuilding work is recommended in localised areas, which is summarised below:

- a) We would recommend replacement of any loose or missing facing stone to the external and internal elevations.
- b) Prior to excavation of the floor and removal of the roof, we would recommend that the external and internal surface of the stone walls should be raked out and repointed with a lime based mortar. It is important that this work is carried out to strengthen the walls and to prevent any disturbance of the stones during the proposed conversion project.

- c) The existing timber and stone beams/lintels above the vehicular access door on the rear elevation and the small rear window should be removed and renewed. The small sections of facing stonework above both these beams will need to be carefully removed and rebuilt as part of this process.
- d) The left hand gable elevation of the single-storey barn includes the remains of a previous building, which has been demolished. The top section of the gable wall is in a loose and deteriorated condition. General repair and partial rebuilding to the top section of the left hand elevation is recommended.

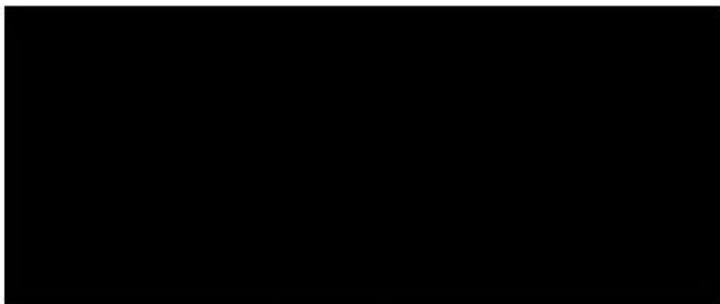
### 3.2

The existing roof structure to the barn is in poor condition due to timber decay, which has been caused by water ingress over previous years. The existing slate roof covering would have been in need of replacement. Given the poor condition of the roof, significant repair or complete replacement of the structural timbers would have been necessary prior to replacement of the slate covering. We understand that the architects are proposing retention of the existing roof timbers for reuse as part of the new roof structure above the raised second-storey structure. This would seem to be

### 3.3

a reasonable proposal.

As part of the proposed conversion scheme, the architect has recommended the construction of an internal timber framework construction, which will extend into a second-storey structure and this will support a new roof structure at higher level. This timber framework structure is to be supported of a new concrete raft foundation which will be constructed within the footprint of the existing barn. During excavation of the existing floor, it will be necessary to monitor the depth of the existing stone foundations to ensure that the proposed excavation work for the new raft foundation does not undermine the existing foundations to the single-storey barn. If issues of this nature are encountered during the construction phase, it may be necessary to carry out localised underpinning of the foundations prior to construction of the new raft foundation. Due to the good condition of the existing walls, work of this nature should not result in any instability problems so long as the external walls are repaired and repointed prior to any future excavation works.



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