Reid Jones partnership

Consulting Civil & Structural Engineers

STRUCTURAL INSPECTION

OF

STONE BARN TO REAR OF 29 – 31 CHURCH STREET, RIBCHESTER

ON BEHALF OF

MR RUSSELL MILNES

September 2010
Project No 3093

Reid Jones Partnership Ltd
9 Orrell Road
Orrell
Wigan WN5 8EY
Tel 01942 216006
Fax 01942 216007

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1.0 INTRODUCTION

Reid Jones Partnership Ltd, consulting engineers, were requested by IWA Architects, acting on behalf of Mr Russell Milnes, to carry out a structural inspection of a detached stone barn to the rear of 29, 30 & 31 Church Street, Ribchester. Mr Milnes is the owner of 29 Church Street and also the barn, which has most recently been used for domestic storage purposes.

IWA Architects have prepared proposals to renovate 29 Church Street, which is grade 2 listed. Current proposals also involve construction of a single storey extension at the back of the property and a new detached double garage in the rear garden. Mr Milnes wishes to demolish the barn to improve access to the garage and further private car parking for No. 30 and No. 31. A structural inspection and assessment of the barn is required to accompany a planning application for demolition of the barn.

Mr John Reid BSc CEng MICE MIStructE of Reid Jones Partnership Ltd carried out the structural inspection on Monday 13 September 2010. Photographs are included within Appendix A.

The inspection was of a visual nature, and no opening up of the fabric of the building was carried out.

This report shall be for the sole use of Mr Milnes and his professional advisors and shall not be relied upon by any other party without the full written consent of Reid Jones Partnership Ltd.

2.0 DESCRIPTION

For orientation purposes, the front of the building faces north and contains the main entrance door.

The property is a stone-built two-storey barn or storage building **(photos 1&2)**, and appears to be around 200 years old.

The walls of the barn are of solid random stone masonry with dressed stone quoins at the external corners. Door and larger window openings, some of which have been built-up, are finished with dressed stone jambs, heads and cills.

The ground floor is of earth or cobbles, the first floor of timber joists and boarding, and the roof of timber purlins and rafters supporting a stone flag covering.

3.0 OBSERVATIONS

The following observations were made during the inspection of the property: -

Roof

- Large areas of the stone flag covering are missing or have been replaced by temporary polythene sheeting **(photo 3)**.
- Some timber rafters appear to be relatively new, and the remainder appear to be in reasonable condition.
- The rafters are supported on two timber purlins on each roof slope and a central ridge purlin. The purlins appear to be in reasonable condition, but with some damp staining where they bear onto the external walls **(photo 4)**.
- It would appear that the roof timbers are non-original items and that the roof structure has been replaced at least once during the life of the building.

First Floor

- The first floor is in very poor condition and was inspected from an opening in the east gable wall and from the ground floor below **(photo 5)**.
- Parts of the floor boarding have decayed and are missing.
- Most of the timber joists are decayed to some degree due to wet-rot and insect infestation. Most have deflected excessively, some have fractured and have been propped by steel sections.

Ground Floor

- The ground floor could not be inspected in detail due to the presence of stored material and general debris. It is constructed of earth or cobbles and appeared to be reasonably level.

Front Wall

- The wall contains the main entrance opening. The masonry above is supported on two steel channel-section beams, which seem to be in reasonable condition.
- A first floor window opening has been built up with stone masonry.
- The wall leans forward to a noticeable degree **(photo 6)**.
- There is a bulge outwards between the top of the ground floor entrance door and the in-filled first floor window cill.
- The masonry joints to the east of the first floor window are badly eroded, and water ingress has encouraged vegetation growth.

East Gable Wall

- A door opening near the front corner has been in-filled with stone. The stone jamb at the corner leans outwards to both the north and east and there are signs of separation between the original masonry and the more recent in-filling **(photos 1&7)**.
- The wall contains a central window opening at first floor. The stonework above is supported on timber lintels, which have decayed due to wet rot and insect infestation **(photo 8)**.
- Some bonding timbers have been built into the inside face of the wall at ground floor. These are decaying.
- One vertical crack of up to 10mm in width was noted at ground floor on the inside face of the wall.
- A number of large conifers have been planted immediately alongside the wall.
- The stonework is in reasonable condition and the wall is generally straight and vertical.

Rear Wall

- The wall shows a slight bulge outwards at around first floor level but is otherwise straight and vertical.

West Gable Wall

- It was not possible to view the outside face of this wall without entering the neighbouring property.
- Some minor vertical cracks were noted on the inside face of the wall at first floor.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The barn walls are at present in reasonable condition, requiring only localised re-building and repair. The roof needs to be stripped and replaced, though it may be possible to re-use some of the existing timbers. The first floor is in need of complete replacement.

Should the barn be retained as part of the renovation proposals, the following works are recommended:

- Removal of the stone roof covering. Inspection and replacement as necessary of the roof timbers. Replacement of the stone flagged covering.

- Complete replacement of the timber first floor.
- Possible construction of a new ground floor slab, depending on its anticipated future use.
- Replacement of decayed lintels and bonding timbers built into the stone walls with stone or concrete items.
- Rebuilding the stonework in the north-east corner where the door opening has been in-filled.
- Re-pointing of the external face of the stonework.
- Detailed inspection and anti-corrosion treatment of the steel lintels over the main front door opening.
- Stitching of all vertical cracks on the inside face of the walls.
- Ensuring that the front and rear walls are restrained against further outward bulging by the provision of sufficient ties between the walls and first floor.
- Removal of the trees close to the east gable.

Should the outward lean of the front wall be visually unacceptable, the wall would need to be taken down and re-built. It would however remain structurally stable in its present condition if the roof structure is replaced and it is tied to the new first floor as recommended above.

APPENDIX A

PHOTOGRAPHS

Photo 1 – View of Front of Barn

Photo 2 – View of Rear of Barn

Photo 3 –Roof Structure

Photo 4 – End of Typical Roof Purlin

Photo 5 – First Floor Showing Stored Material

Photo 6 – Leaning Front Wall

Photo 7 – In-Filled Opening in Gable Wall

Photo 8 – Decayed Timber Lintels in Gable Wall