Ridge Farm Barns and out building

Structural Condition Report

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64 Jersey Street,
Manchester.
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Project No. 2077
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Appendix A

Site photographs

1.0 Introduction

Scott Hughes Design were commissioned by Stuart Wilson to undertake an inspection of the structural condition of the barns and rear building to Ridge Farm, Chapel en le Frith, Derbyshire

The buildings are currently unoccupied and uninhabitable. The scope of the commission was to carry out a visual only survey of the property to identify any major structural issues which may require attention, and to make recommendations on any further survey work or repairs which may be required.

The survey conclusions are purely our opinion on the condition of the property based on the walk around visual survey. We can only report on structural defects which were visible at the time of the inspection and which in our opinion materially affect the structural integrity of the property.

We have used all reasonable skill and care in carrying out the inspections and preparing this report but we can not guarantee that the property will be free from future structural defects or that existing ones will not suffer from future deterioration.

2.0 The site

The site inspection was of 2 buildings: the barns to the left of the driveway as Ridge Farm is approached, and a 2 storey farm building to the rear of Ridge Farm (accessed off the rear garden)

Both buildings are uninhabited and used for farm equipment, storage and animals. They are of brick and stone construction with concrete filler joist floors (similar construction to that found in the farm house building). Some steel lintels are also present. The roof structures is generally timber purlins and rafters off internal walls although the rear building has king post trusses.

3.0 General Observations – Barn building

Refer to attached drawing for location of areas:

A) EXTERNAL ELEVATIONS (refer drg SK/01)

1) Steel lintel over barn door badly corroded with high % loss – needs replacing (figs 1,2,3)
2) Stone cills cracked – need repair or replace
3) Roof sags by some 200mm – see internal note number 3) – (fig 5)
4) Base of wall needs rebuilding – bricks missing
5) Some minor cracks / signs of building settlement – general repair / making good required
6) External timbers show some signs of deterioration – timber survey required
7) Generally all external elevations need repointing
8) Drainage survey required

B) INTERNAL OBSERVATIONS (refer drg SK/02)

1) Ends of 75 by 75 filler joists exposed – these voids should be filled to protect joists (fig 8)
2) Movement cracks at wall corner with some separation – steel ties required to stitch corner together (fig 7)
3) 220 by 110 timber purlin sagging by up to 200mm. Design check indicates this purlin to be well undersized and over stressed (fig 19,20)
4) Subsidence cracks visible near corner of wall – area appears to have subsided by circa 2 to 3 inches – probably historic
5) Large area of damp penetration (fig 9)
6) Large crack in walls running vertically – appears to be some settlement in corner of wall (fig 16)
7) Crack over doorway – wall movement. Will require steel straps to stitch together (fig 15)
8) 140 by 120 steel supporting 600 high wall plus floor. Beam shows visible deflection. Design check shows this steel to be undersized (fig 12,23)
9) Damp penetration to corner – standing water on floor (fig 10)
10) 280 by 110 timber – visible signs of deflection. Design check shows this timber to be undersized
11) Some steel corrosion on beam over – needs brushing back and protecting (fig 14)

4.0 Discussion – Barn building

Following our visual only inspection of this property, we conclude that the property is generally in sound condition although a few structural issues have been identified. In summary these issues are as follows:

(see drg SK/03 illustrating remedial works required)

- Steel lintel over barn door needs replacing
- Steel beams in general needs rubbing back and protecting
- Some settlement in one area identified on plan. This specific area should be investigated with possible minor underpin works required
- Where roof sag is occurring, the purlins have been checked for structural adequacy and deemed to be well undersized (overstressed) and predicted deflections through calculation accord with the magnitude of deflection evident on site. These timbers need replacing.
- Structural steel beam identified on plan is undersized and showing signs of excessive deflection. Needs replacing of strengthening.
- Some cracking (loss of bond) has occurred at a number of corners – these areas will need steel straps to tie areas together
- Damp penetration into lower ground is extensive in areas and will need addressing as part of the conversion works

5.0 General Observations – rear out building

Refer to attached drawing for location of areas:

A) EXTERNAL ELEVATIONS (refer SK04)

- Cracking to lintel to front of building (fig 24)
- Settlement crack on front elevation – probably historic (fig 25)
- Generally needs repointing
- Not all elevations accessible due to overgrowth, but building seems to be in sound condtion with not major signs of distress

B) INTERNAL (refer drg SK/05)

- King post truss supports to roof look in reasonable condition but timber survey is recommended (fig 26)
- Crack across filler joist floor to first floor – runs parallel with filler joists. Not reflected on soffit. Suggest repaired at first floor level (fig 27)
- Settlement crack over lintel to lower level. Needs tie to stitch together (fig 28)
- External crack to front elevation is reflected internally
- Central steel supporting first floor (4800 span) has been checked for structural adequacy and found to be undersized (deflection evident on site)

6.0 Discussion – Rear out building

(see SK06 illustrating remedial required)
Following our visual only inspection of this property, we conclude that the property is generally in sound condition although a few structural issues have been identified. In summary these issues are as follows:

- Some minor settlement cracks but probably historic and not likely to recur.
- One number steel support beam is undersized and needs replacing
- Timber survey needed to roof structure
- General repointing and brick work repairs

7.0 Summary (Sk03 and SK06)

Refer to the following remedial works drgs for a summary of works identified in this survey. In summary the buildings are both in general sound structural condition and considered as suitable for conversion. However the following points in particular should be noted.

- Some elements of structure were found to be inadequate. These were identified on site as showing excessive deflections and confirmed as inadequate through structural checks
- Some minor settlement has occurred on both buildings. There is one area of the barns which may need further investigation (trial pits)
- Timber surveys needed
- Drainage surveys needed
- General repointed and repairs needed

Fig 1) corrosion of lintel bearing

fig 2) lintel bearing area

Fig 3) lintel needs replacing

fig 4) damage due to lintel

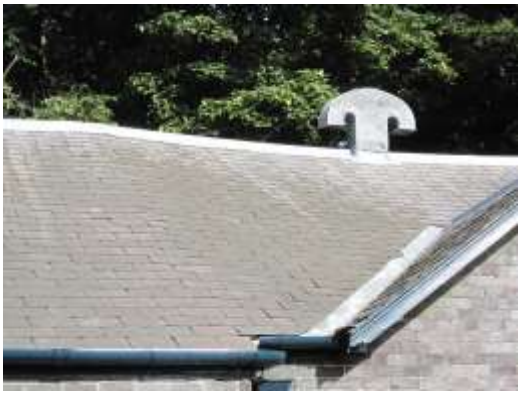

Fig 5) roof sag

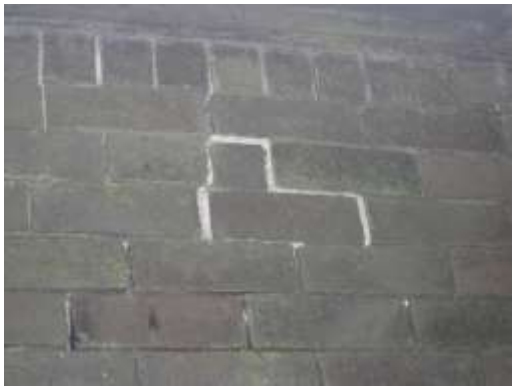

fig 6) general repointing

Fig 7) separation at corner

fig 8) filler joist floors

Fig 9) damp penetration

fig 10) roof construction

Fig 11) roof over lower barn

fig 12) undersized steel- sag

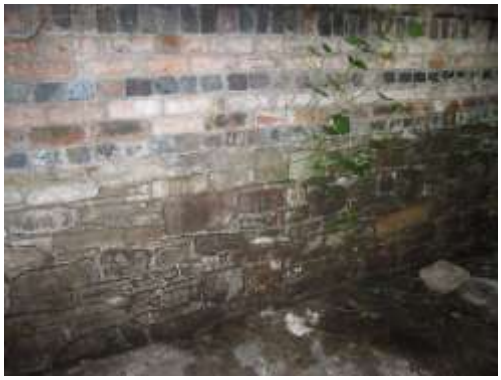

Fig 13) settlement

fig 14) surface rusting

Fig 15) crack over door

Fig 16) settlement cracks

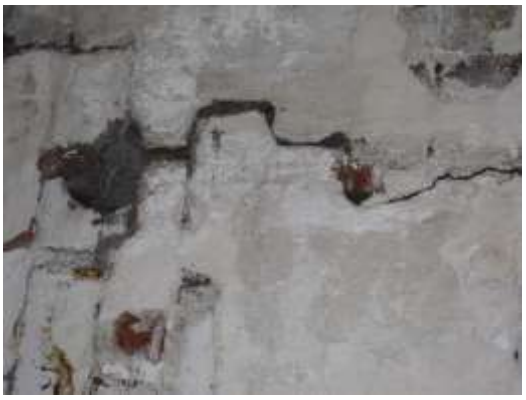

Fig 17) settlement cracks

fig 18) damp penetration

Fig 19) undersized purlin

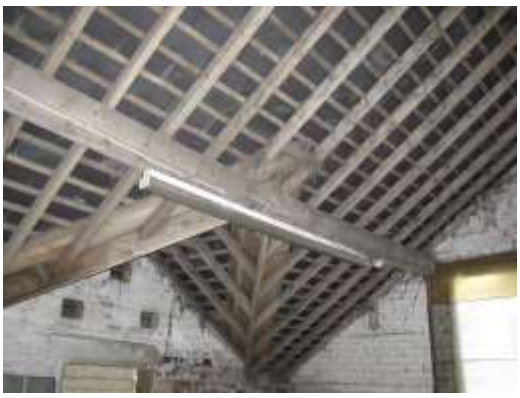

fig 20) undersized purlin

Fig 21) settlement crack

Fig 22) settlement crack

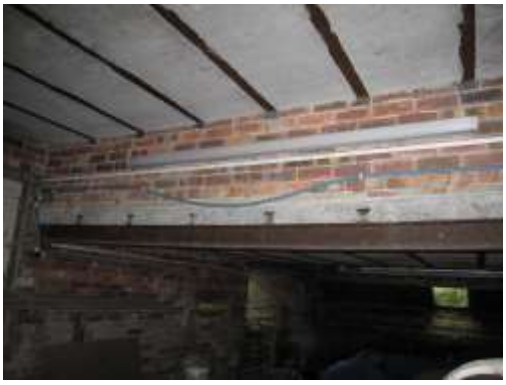

Fig 23) undersized beam

fig 24) cracked lintel

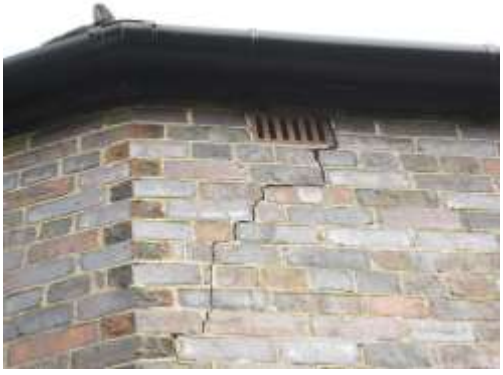

Fig 25) movement at corner

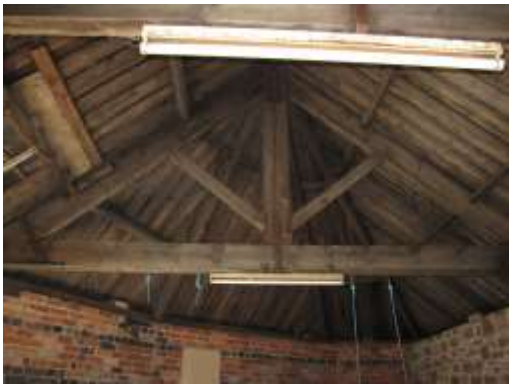

fig 26) king post truss

Fig 27) first floor crack in slab

fig 28) corner crack

Fig 29) settlement around door

scott hughes

Calculation	Page no.	rev.

Project Title	Ridge Rear building	Job number	968
Element		Date	
		Designer	

Member

Result