



Hubbard Associates Limited

consulting civil & structural engineers

**STRUCTURAL
CONDITION SURVEY
AT
EASTFIELD FARM
EASTFIELD LANE
THURGOLAND**

**DATE : SEPTEMBER 2012
REF : 1427/DRH/WARHURST**



1.0 INTRODUCTION

2.0 LOCATION PLAN

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1.0 INTRODUCTION

Following instruction our structural engineer visited on 21 September 2012 to carry out a structural condition survey on a number of barns with a view to converting to residential accommodation.

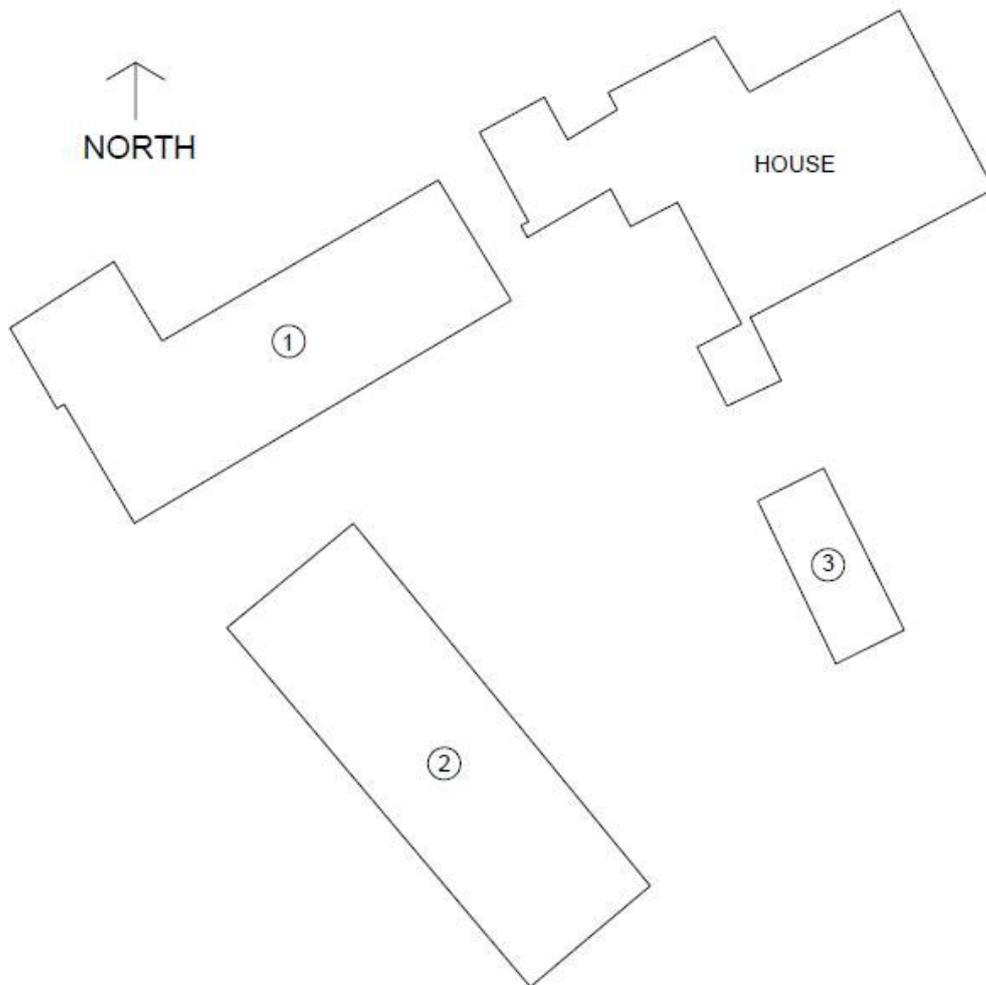
We have not inspected woodwork or other parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the property is free from defect.

Our findings and recommendations are based on the condition of the building at the time of the survey.

Structural calculations have not been prepared to determine the adequacy of structural members.



2.0 LOCATION PLAN





3.0 OBSERVATIONS & RECOMMENDATIONS

Refer to the section 2.0 for location of each of the barns.

Barn 1

This barn is single storey with stone walls and a sheeted roof.

Roof

The roof covering to the main section of this barn is cement sheeting supported by timber rafters, purlins and a number of king post trusses. The timber members appear to be in good condition and can remain.

At one location the purlins are supported on steel rafters instead of a king post truss (See photo 1). These steel rafters are corroded and also appear to be undersized if the roof covering is to be changed to tiles/slates. It is thought that these steel rafters will be removed and changed to a king post truss to match.

The roof covering to the north western area of this barn is metal sheeting supported on timber purlins and rafters. The timber members are inadequate to support a new modern insulated roof; the timber members will therefore need to be replaced.

External Walls

The external walls are approximately 450mm thick and are thought to comprise of an inner and outer leaf of stone with a rubble filled cavity.

The walls appear to be vertical and no significant cracking/movement was noted.

In certain areas the stone is heavily weathered and will need to be partially rebuilt (See photos 2 and 3). The mortar is also worn and will need to be repointed throughout.

A section of stone is missing to the south western gable wall (See photo 4). This will need to be rebuilt.

Internal Walls

The internal blockwork wall between the larger area with the milking pit and the smaller milk storage area has been added at a more recent time. It is assumed that this will be removed for the proposed scheme.



Lintels

The lintels are generally stone to the outer leaf and timber to the inner leaf. The stone lintels can remain however the timber lintels will need to be replaced.

Ground Floor

The ground floor is ground bearing concrete. The floor slab is unlikely to comply with modern requirements and will need to be replaced with an insulated floor slab.

A pit is located to the centre of this barn; this pit will need to be infilled.

Foundations

Due to the age of the building the walls are likely to be built directly on the ground with a nominal amount of corbelling or stone slabs below ground level. No significant settlement was noted to suggest they are inadequate.

Barn 2

This barn is part two storeys with stone walls and a slated roof.

Roof

The roof covering to this barn is slates supported by timber rafters, purlins and a number of double howe type king post trusses. The timber members appear to be in good condition and can remain.

A number of slates are loose and will need to be re-seated.

The concrete flashing at eaves and verge level are worn and will need to be replaced.

External Walls

The external walls are approximately 450mm thick and are thought to comprise of an inner and outer leaf of stone with a rubble filled cavity.

The walls appear to be vertical and no significant cracking/movement was noted.

In certain areas the stone is heavily weathered and will need to be partially rebuilt (See photos 5, 6 & 7 and 8). The mortar is also worn and will need to be repointed throughout.



Internal Walls

The internal wall adjacent to the staircase is approximately 215mm solid brickwork and is taken up to first floor joists level. No significant movement was noted.

Lintels

The lintels are generally stone to the outer leaf and timber to the inner leaf. The stone lintels can remain however the timber lintels will need to be replaced.

The timber lintel over the large opening to the north east elevation is worn and we suggest it is replaced.

Ground Floor

The ground floor is ground bearing concrete and stone slabs. The floor slab is unlikely to comply with modern requirements and will need to be replaced with an insulated floor slab.

First Floor

The first floor is constructed in timber floor boarding on floor joists and beams. The floor boarding is worn and will need to be replaced. The timber floor joists and beams appear to be acceptable and can remain. A number of steel props support the timber floor beam; these will need to remain in place to support the timber beams and will also require wire brushing and re-priming.

The staircase to the first floor is part stone and part concrete. The timber section of this staircase will need to be replaced.

Foundations

Due to the age of the building the walls are likely to be built directly on the ground with a nominal amount of corbelling or stone slabs below ground level. No significant settlement was noted to suggest they are inadequate.



Barn 3

This barn is two storeys with stone walls and a stone tiled roof.

Roof

The roof covering to this barn is stone tiles supported by timber rafters and purlins. The purlins are supported on brick piers. The timber members appear to be in good condition and can remain.

A number of tiles are missing/loose and will need to be re-seated.

External Walls

The external walls are approximately 450mm thick and are thought to comprise of an inner and outer leaf of stone with a rubble filled cavity.

The walls appear to be vertical and no significant cracking/movement was noted.

The mortar is worn and will need to be repointed throughout.

Internal Walls

The internal walls between the ground floor rooms are brickwork. The walls appear to be acceptable and can remain.

Lintels

The lintels are generally stone to the outer leaf and timber to the inner leaf. The stone lintels can remain however the timber lintels will need to be replaced.

Ground Floor

The ground floor is ground bearing concrete. The floor slab is unlikely to comply with modern requirements and will need to be replaced with an insulated floor slab.

First Floor

The first floor is constructed with concrete screed on timber laths on floor joists. The timber floor joists appear to be acceptable and can remain. The screed and lath may need to be replaced subject to the intended use of the first floor.



Foundations

Due to the age of the building the walls are likely to be built directly on the ground with a nominal amount of corbelling or stone slabs below ground level. No significant settlement was noted to suggest they are inadequate.



4.0 CONCLUSIONS

In addition to any normal works required to convert agricultural buildings to residential use (eg. New Insulated ground floors, DPM, DPC, wall/roof insulation, windows/doors etc) the building will require the structural work carried out as noted in section 3.0 of this report.

The building is in good condition and considered suitable for conversion to residential use.



5.0 PHOTOGRAPHS



PHOTO 1 (STEEL RAFTER FRAME TO BARN 1)



PHOTO 2 (WEATHERED STONE TO BARN 1 SOUTH EAST ELEVATION)



PHOTO 3 (WEATHERED STONE TO BARN 1 NORTH EAST ELEVATION)



PHOTO 4 (MISSING STONE TO BARN 1 SOUTH WEST ELEVATION)



PHOTO 5 (WEATHERED STONE TO BARN 2 SOUTH WEST ELEVATION)



PHOTO 6 (WEATHERED STONE TO BARN 2 SOUTH EAST ELEVATION)



PHOTO 7 (WEATHERED STONE TO BARN 2 NORTH EAST ELEVATION)



PHOTO 8 (WEATHERED STONE TO NORTH EAST ELEVATION)