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STRUCTURAL APPRAISAL

OF

3NR. OUTBUILDINGS

AT

FOULSYKE FARM, FYLINGDALES nr. WHITBY

FOR

MR & MRS BRYARS

Prepared by

NYM/NIPA

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**STRUCTURAL APPRAISAL  
OF  
3NR. REDUNDANT OUTBUILDINGS  
AT  
FOULSYKE FARM, FYLINGDALES, NORTH YORKSHIRE  
FOR  
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**1.0 BRIEF:-**

This report has been prepared on the instruction of Mr Bryars. The report is required to provide supporting information regarding a planning application to convert 3nr. redundant outbuildings into holiday cottages.

The objective of this report is:-

- to provide a general appraisal of the current structural status of the outbuilding.
- to comment on the structural implications, if any, of the proposed change of use.

This report is NOT a full structural specification for carrying out the works.

We have not inspected the 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.

Dimensions noted in this report are rough visual estimates for identification purposes only. No actual measurements have been taken at the site.

**2.0 INTRODUCTION:-**

The outbuildings that are the subject of this report are the stone built buildings situated several metres to the south of the main farmhouse at Fouslyke Farm.

The buildings are long single storey style stable/looseboxes, some with hay lofts over, which have no doubt had a variety of uses in their long history.

**2.1 Grid Reference:-**

The Ordnance Survey grid reference is NZ 913 / 024.

**2.2 Date of Visit:-**

The site was visited for the purpose of this report on the 6<sup>th</sup> October 2004.

**2.3 Weather:-**

The weather was mild, windy and damp. There have been some significant periods of wet and windy weather recently. The last 12 months have been quite wet locally.

**2.4 Topography:-**

The site is situated close to the North East coast of the North York Moors National Park.

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The land slopes moderately down towards the south and east and is approximately 190 metres above sea level.

We would describe the buildings as being isolated and exposed to inclement weather, particularly from the North Sea.

Vegetation around the building is minimal, comprising rough grass or tracks.

#### 2.5 Geology:-

The British Geological Survey one-inch series sheet 44 indicates that the subsoil should comprise Shale and Sandstone beds of the Lower Oolite series.

At this stage no subsoil investigations have been carried out.

### 3.0 GENERAL:-

#### 3.1 Type of Building:-

Although we would describe the buildings as traditional long single storey style stone built outbuilding, we note that approximately 50% are effectively 2 storey utilising a hay loft/tack area.

Walls are of solid stone construction typically 225mm thick.

The traditional timber purlin roofs are covered with clay pantiles, although a substantial section of unit 1 is covered with corrugated sheeting. We believe the corrugated sheeting will have been a relatively recent alteration. The roof on unit 2 is missing.

#### 3.2 Overall Stability:-

Overall stability is generally provided by the external masonry walls. The internal cross-walls will provide additional lateral stability.

In this particular instance it is likely that the recent sheeting of the roof has provided some very effective bracing to a traditional roof that would have had a tendency for lateral spread at the eaves.

#### 3.3 Past Alterations:-

Past alterations appear to have been minimal.

Corrugated roof sheeting has probably replaced the clay pantile coverings to part of unit 1. A lean-to section was probably added to the south of unit 1 PA relatively recently.

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#### 4.0 OBSERVATIONS:-

Where appropriate we have classified the visible signs of damage/movement to the building in accordance with Building Research Establishment digest no. 251 (BRE 251) "Assessment of damage to low-rise buildings". The digest has six categories '0' (negligible) to '5' (very severe).

All dimensions quoted in this report are approximate for identification purposes only.

#### 4.1 Unit 1:-

Unit 1 is located on the Eastern side of the courtyard of outbuildings. It is a long and relatively high single storey outbuilding comprising 3 main sections: a pantiled covered building to the north, a taller central unit covered with corrugated sheeting and a small lean-to element to the south. Overall the building covers an area approximately 20 x 7 metres in plan.

#### 4.1.1 Unit 1 – East Elevation:-

This elevation is approximately 20 metres long. The land slopes gently down towards the South by approximately 1 metre over the 20m length of the building. Height to eaves is approximately 3 metres of the North end and 4 metres at the South end.

Masonry comprises large format covered sandstone, typically 225mm thick solid single leaf construction. It is likely that walls may have been thicker when originally constructed, but if they have been altered, it was a very long time ago.

On this elevation there are two main openings for stable doors, a redundant window opening to the lean-to section, and at least 4 nr. ventilation slots to the main walling.

Between the pantiled covered section to the North and the sheet covered central section, the masonry is tooth jointed. There is some lateral displacement of the masonry across this joint suggesting to us that there may have been some lateral spread of the roof timbers to the northern section. The movement will have occurred slowly over a very long period of time and did not give us cause for very serious concern. A new roof structure and general refurbishment works should introduce improved structure to stabilise the existing masonry.

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Masonry to the lean-to section is a smaller format and was probably a much later addition.

Overall, although there are small undulations in line and level of the masonry to this building, there did not appear to be any evidence of significant foundation movement to cause us serious concern.

#### 4.1.2 Unit 1 – North Elevation:-

This elevation is approximately 7 metres long x 3 metres height to eaves, the roof pitch is approximately 45 degrees to a central ridge. Masonry is large format coursed sandstone of solid construction, with stone tabling to the verge.

There is at least one (probably two) ventilation slots at ground floor level.

At high level there is a single window (access hatch) opening.

Although the masonry shows some weathering and is in need of re-pointing, there is very little evidence of structural movement to cause us concern.

#### 4.1.3 Unit 1 – West Elevation:-

The overall proportions for this elevation mirror those noted above for the East elevation.

On this elevation there are 3 main door openings, (one to each building section). There is also a window opening to the Southern lean-to section and a hay-loft access hatch over the central door. In addition there are at least 5 nr. ventilation slots, (one may have been altered for farm machinery).

The ground level does not slope as much as noted for the East elevation.

Masonry shows signs of dampness and weathering, but does not indicate to us evidence of significant movement to cause us serious concern. As noted earlier, there is some lateral displacement of the masonry at the central vertical joint indicating slight spread of the roof to the Northern section.

#### 4.1.4 Unit 1 – Southern Elevations:-

Overall proportions are similar to those noted for the Northern gable wall.

The main Southern gable wall is hidden by the Southern lean-to.

Generally masonry was in need of re-pointing and quite minor repairs, but did not indicate to us evidence of significant movement to cause us serious concern.

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#### 4.1.5 Unit 1 – General:-

There is some evidence of lateral spread of the roof to the Northern section. The central section has probably been stabilised in recent years by the recent covering with corrugated sheeting.

We will be recommending that timber roof structure and other joinery items should be replaced. A replacement roof structure should incorporate insulation, roofing felt (breathable type), and lead flashings etc with new rain water goods.

In accordance with BRE 251 we would classify the visible evidence of damage/movement on this unit as category 3 (moderate) for which the digest remarks "...these cracks require some opening up and can be patched by a mason. ...Repointing of external brickwork and possibly a small amount of brickwork to be replaced...".

#### 4.2 Unit 2:-

This unit is located on the Western side of the main courtyard area. It covers an area of approximately 16 x 7 metres. The building is a redundant farm outbuilding, whose roof has completely collapsed a long time ago. The main external walls are effectively intact.

##### 4.2.1 Unit 2 -- East Elevation:-

This elevation faces the main courtyard area. It is approximately 16 metres long x 2.3 metres to eaves level.

Masonry is large format coursed sandstone approximately 225mm thick, solid, single leaf construction. It is possible that external walls were originally of thicker construction, but this would have been a very long time ago.

There are two main door openings, 2 nr. window openings and 2 nr: ventilation slots.

Although joinery items have completely deteriorated, masonry was effectively complete and did not show evidence of significant past movement to cause us serious concern. There is some minor evidence of slight lateral spread at the eaves due to deterioration of the roof a long time in the past.

Masonry is in need of general re-pointing and the top two courses should be carefully re-laid.

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##### 4.2.2 Unit 2 -- North Elevation:-

This elevation is complete and intact up to eaves level, however, the upper roof spandrel panel is missing.

Generally the remaining masonry did not indicate to us evidence of significant movement to the walling. Clearly the complete deterioration of the roof structure has left exposed masonry vulnerable to weathering etc.

The top two courses at eaves level will need re-laying and the spandrel panel needs re-building to match the existing South elevation.

#### 4.2.3 Unit 2 – West Elevation:-

Proportions for this elevation are similar to those noted for the East elevation.

There are two main door openings and 2 nr. ventilation slots.

High level masonry over the Northern door opening has collapsed. There is some evidence of minor damage to the central section.

We will be recommending that a 5 metre length of walling around the Northern door should be re-built, along with the top two eaves courses and general re-pointing.

#### 4.2.4 Unit 2 – South Elevation:-

Despite there being some slender masonry exposed to severe winds, this wall is complete including most of the tabling verge.

Coursing visually appears reasonably level, there is some horizontal undulations due to effects of the weather.

This wall is in need of re-pointing with some tidying up of the verge work.

#### 4.2.5 Unit 2 – General:-

Internally the area is overgrown with weeds etc.

The main internal partition is still standing up to eaves level.

The roof structure has clearly collapsed a long time ago leaving the remaining masonry very exposed to inclement weather.

Although there has been some relatively minor lateral spread of the masonry at eaves level and despite being so exposed to the weather, the walling is reasonably complete and in a repairable state.

All joinery items have effectively deteriorated or collapsed and need replacing.

In accordance with BRE 251 we would classify the visible evidence of damage on this elevation as category 4 (severe) for which the digest remarks "...*Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows.... walls leaning or bulging... ..*".

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4.3 Unit 3:-

Unit 3 is a small, but substantially built garage/tractor shed/workshop.

The building is located just to the West of the main farmyard and covers an area of approximately 6 x 7 metres.

The building is effectively complete. A clay pantile roof covers solid sandstone walls.

4.3.1 Unit 3 – East Elevation:-

This elevation is approximately 6 metres long x 2.3 metres to eaves level. The roof slopes at 45 degrees to a central ridge-line. There is stone tabling to the verge.

There is one main vehicle entrance opening at ground floor level and a smaller window opening at high level in the spandrel panel.

Masonry is large format coursed sandstone of solid single leaf construction.

There is a large timber lintel over the main ground floor opening. Deterioration of this timber lintel has resulted in some small movements of the masonry over this, especially to the South. We will be recommending that the South pier be rebuilt and that the lintel is replaced with a more suitable steel or concrete type faced with stone, (or timber).

4.3.2 Unit 3 – North Elevation:-

This wall is approximately 7 metres long x 2 metres to eaves.

Although the roof structure is in place, a large percentage of the tiles have fallen off due to deterioration with age and weathering.

There is some evidence of lateral spread of the masonry at eaves level, due to the gradual deterioration of the timber roof structure.

Coursing appears reasonably level and the minor lateral movement at eaves level did not give us cause for very serious concern.

4.3.3 Unit 3 – West Elevation:-

Overall proportion are as for the East elevation.

There are not any significant openings in the wall.

Masonry would benefit from re-pointing, but is otherwise in reasonable condition.

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#### 4.3.4 Unit 3 - South Elevation:-

Notes and remarks for this elevation are as already recorded for the North elevation.

In accordance with BRE 251 we would classify the visible evidence of damage on this elevation as category 2 (slight) for which the digest remarks "...some external pointing required to ensure weathertightness. Doors and windows may stick slightly....".

### 5.0 CONCLUSIONS:-

Units 1 & 3 are effectively complete and intact. Unit 2 is a substantial building which has a collapsed roof structure. Masonry work to unit 2 is however substantially complete.

Taking into account the age and past use of the building, we would describe the essential structures as being in a reasonably repairable condition.

Timberwork generally needs replacing and, in some locations, is inherently flimsy.

Sheeting to the roof of part of unit 1 has probably stabilised this area of roof structure in recent years.

The buildings have stocky proportions with few and modest openings and, therefore, overall stability characteristics may be described as inherently good.

The proposed domestic use of the building is unlikely to produce loadings in excess of those that the building has already been subjected to.

### 6.0 RECOMMENDATIONS:-

#### 6.1 Roof:-

- Roof structure to be replaced and to incorporate:
  - tanalised battens on roofing felt (breathable type).
  - deeper common rafters to provide space for insulation/ventilation etc.
  - all rafters should either be tied to ceiling joists at eaves level or purlins should be designed by a Chartered Structural Engineer.
  - new flashings and an overhaul/replacement of rainwater goods.

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#### 6.2 Walls:-

- Externally rake out all joints to a depth of 15mm and re-point with a mortar no stronger than 1:2:9 cement:lime:sand.

- Install suitable dpc course e.g. chemical injection system by a specialist contractor able to provide an appropriate guarantee.
- Timber lintels to be replaced with pre-cast concrete type.
- Walls – Unit 2:
  - Re-lay top two courses East, West and North elevation.
  - Re-build approximately 5m length of walling West elevation adjacent Northern door.
  - Rebuild upper section of north gable wall to match southern gable.
- Walls – Unit 3:
  - Replace main lintel with steel or concrete faced with stone.
  - Re-build south-side East elevation.

### 6.3 Floors:-

- Replace existing rough floors with new concrete slab on dpm on hardcore bed.

Signed for  
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