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Structural Appraisal
Of
Barn Roof
Yew Tree Farm
Quadring Eaudyke
Lincs

Client: Lee and Stella Sutton

Date: July 3rd 2019

Engineer STEVEN KIDD BSc, CEng, FIStructE

1.0 Synopsis and Terms of Reference

Further to original structural appraisal the ivy having been striped back and the tiles removed a review of the roof timbers has been carried out in view of various leaks having caused wet rot to set in.

The following report address the viability of retaining the existing underlying timber structure.

It is based on a visual inspection of the roof structure, plus back calculations, to check compliance with current codes of practice ie will satisfy Building Regulations.

2.0 **Survey**

2.1 As indicated by photographs given in the appendices the existing barn roof is a traditional collar tied haunch made roof with rafters generally 100x50 rafters at 400 centres supported off 125x75 purlins back to principals of the same size. These support pantiles fixed to battens lathed out for plaster which has long disappeared.

2.2 **Condition of Wall Plate**

2.3 The wall plate has completely rotted away and must be replaced. (see photo in appendices).

2.4 Where rafters bear onto wall plate the ends have also rotted.

2.5 **Rafter/Purlin/Collar Arrangement**

2.6 As indicated in the photos the existing arrangement is traditional with high and low collars supporting purlins.

2.7 Whilst all have stood the "test of time" it should be understood modern day loadings will cause an increase in member sizes.

2.8 However the principle layout is considered satisfactory for stability as long as some noggins are introduced.

2.9 **Single Storey Section**

2.10 The section of single storey adjoining the high barn has been dilapidated for some years so all roof timber are rotten here.

3.0 **Conclusions and Recommendations**

3.1 From the evidence gained on site with removal of roof tiles and Ivy the exiting timber roofs require upgrading to modern standards.

3.2 It is proposed to upgrade the roof in a similar format-see appendices for Calculations and sketch layout.



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Appendices

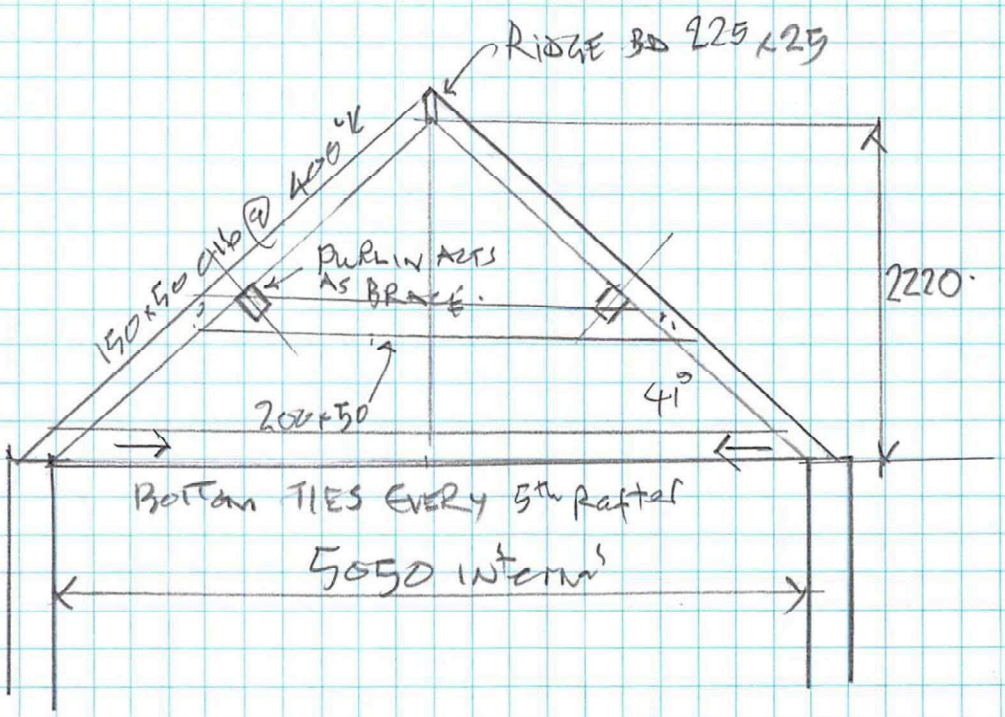
1. Photographs — later
2. New Roof Sketch and Calculations later

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YEW TREE FARM
Reading Earndyke
High Bawn Roof
SIZES.

Ref No.	18-0335
Sheet	ZERO
By	SK
Ckd.	
Date	02/07/2019

PROPOSED SECTION



Note rafters can span up to Apex without purlin so PURLIN AS EXISTING WILL BE ADEQUATE.

SUMMARY OF SIZES CALCULATED

(a) RAFTERS 150 x 50 C16 @ 400 c/c

(b) PURLIN 125 x 75 C16

(c) TIES : 200 x 50 C16