REPORT

GREEN FARM
BARN CONDITION SURVEY

Green Farm
Bendish

30th October 2018

Job No. 4557

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1. INTRODUCTION

1.1 This, grade II listed, barn is part of the property known as Green Farm in Bendish, Hertfordshire. The current owner (Mr Paul Cleworth) Proposes to convert the barn into a small office with reception and meeting room. The new internal structure will be self-supporting with the barn providing and external shell only.

1.2 This condition report was carried out in order to highlight any deficiencies in the barn structure as it stands so that any remedial works can be carried out as part of the overall conversion.

1.3 A survey was carried out on 15th October 2018 by I Poppy BSc(Hon) CEng MIStruct E and S Johnson BEng.

2. DESCRIPTION OF GREEN FARM BARNS

2.1 The barns are believed to be of Oak construction and measure approximately 16m x 7m on plan, 2.5m to eaves and 5.75m to ridge. The timber framework has been infilled with red brickwork subsequent to its original construction.

2.2 As would be expected with a structure of this age modifications have been made over time.

2.3 Adjacent to the original barns a new (c15yr) timber car port has been constructed. It is proposed to convert the roof space to a hobby room if this is structurally feasible.

2.4 A dimensional ‘Laser scan’ survey has been carried out by others and has been used as the basis for defect location layouts in this report.

2.5 Two trial pits have been excavated on the North-West and South-West elevations in order to inspect any foundations present

3. OBSERVATIONS

3.1 The condition of the barn varies quite considerably but is generally as would be expected with a timber structure of this age.

3.2 A full list of defects can be found in the table in appendix A.

3.3 Generally the lack of a sole plate or DPC on top of the brick plinth has allowed moisture to rise from ground level and, through capillary action, rise up the vertical timber members via the end grain. Many of these have then rotted or become soft particularly at their base.

3.4 The exposed 'red brick' infill panels are absorbent and have soaked up moisture over the years and transferred this moisture to many of the timber elements. This will continue to happen in the future unless the brickwork is allowed to dry and an adequate waterproofing system is applied.

3.5 Many of the timber members have sign of woodworm. Some of this may be historic and not live. However an appropriate insecticide treatment will be required in order to ensure the longevity of the structure.

3.6 The proposed layout utilises the area to the right of the entrance to the barn. Here there are two low truss booms 1.75m above existing floor level (Photograph G1). To make use of this area these will need to be raised and it is likely that a complete new frame will be required with members designed to restrict horizontal thrusts to the supporting walls.

3.7 The trial pits were examined and were as follows:

TP1 – South-West. Brick plinth extended 220mm above slab level and continued 150mm below founding on 270mm flint before reaching clay/flint formation (Photograph TP1).

TP2 – North-West. Concrete upstand 330mm above slab level continuing 150mm below founding on 440mm flint on clay formation (Photograph TP2).

3.8 The roof of the barn area to the right of the entrance was quite difficult to access but the main Purlins have been spliced and the scarf joints have opened up.

3.9 The newer, carport, was inspected and the ceiling rafters measured so that their ability to be used for accommodation can be checked at the design stage of the project. The rear gutter is blocked with leaves and pine needles and requires clearing to prevent damp issues in the future.

4. DISCUSSION

4.1 Whilst the building is in a condition to be expected for its age there are a number of items that will require attention to enable it to be used as proposed. The brick infill will continue to absorb moisture and transmit this to the timber members unless these can be dried and sealed. Timber members will need treating for woodworm and Rot and where necessary rotten areas removed and repaired or replaced.

4.2 The South-West section of the barn has no rainwater guttering. This has allowed water to run off the edge of the roof and down the walls and also to penetrate the ground immediately adjacent the barn. This has in fact resulted in a slight depression in the ground along the rear elevation. Consideration should be given to adding gutters in order to reduce future continued damp issues.

4.3 It is proposed to remove the existing concrete slab due to its unevenness. This is to be replaced with a new slab which will also support the new internal

mezzanine floor. Id doing this care will be required not to undermine the existing ‘Shallow’ footings.

4.4 Consideration should be given to the installation of a sole plate or DPM around the building to prevent damp rising up the timber members.

5. RECOMMENDATIONS AND CONCLUSIONS

5.1 Remove soft and rotten sections of timber and repair

5.2 Repair Split timbers and open joints

5.3 Provide DPM/Sole plate

5.4 Provide new frame where existing boom is low

5.5 Treat all timber for woodworm

5.6 Waterproof external façade

5.7 Clear/repair gutters

5.8 All above should be carried out by a contractor who specialises in remedial work to a barn of this kind.

5.9 It is considered that the barn could remain in a stable condition for possibly 20years. However, once the proposed alterations have been carried out it will be very difficult to carry out any required repairs and therefore it is recommended that remedial works are carried out prior to the alteration works.

6. LIMITATIONS

6.1 This survey is a visual inspection and findings represent the condition at the time of inspection. Access was in some areas difficult resulting in some items being viewed from a distance.

6.2 This report is confidential and provided solely for the client named above. No liability is accepted to any other parties who must rely on this report at their own risk.

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Unit 14 Weston Barns
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SG4 7AX

7. APPENDIX A – Table of defects

DEFECT NO.	LOCATION	DESCRIPTION	RECOMMENDATION	PHOTO NO.
01	Elevation 16	Sign of woodworm	Treat timber	P01
02	Elevation 16	Sign of woodworm	Treat timber	P02
03	Elevation 16	No sole plate	Provide sole plate	P03
04	Elevation 16	Sign of woodworm	Treat timber	P04
05	Elevation 16	Outer layer soft	Remove affected timber to sound material and treat	P05
06	Elevation 14	Split in vertical member	Rake out split and treat timber	P06
07	Elevation 14	Bottom 50mm of vertical member rotten	Cut out rotten timber and replace. May require installation of sole plate along elevation	P07
08	Elevation 14	Generally firm with some flaking and evidence of woodworm	Remove loose material and treat timber	P08
09	Elevation 14	End 400mm 0f horizontal rotten.	Cut back 600mm (to sound timber. Provide new section tenoned into vertical and scarf jointed to remaining section	P09
10	Elevation 14	End 300mm of rafter soft.	Remove soft material back to sound timber. Replace end or rafter if removal of soft material is significant	P10
11	Elevation 14	Bottom half of rafter rotten	Cut out rotten section and replace	P11
12	Elevation 14	Bottom 400mm soft	Remove soft material and replace if excessive.	P12
13	Elevation 14	No sole plate	Consider installing sole plate	P13
14	Elevation 13	Soft bottom of vertical with evidence of woodworm	Remove soft material and treat timber	P14

15	Elevation 13	Bottom boom of truss rotten for approx. 400mm and cracked	Replace section and strap to preserve integrity of truss.	P15
16	Elevation 13	Horizontal split in member.	Strap timber together	P16
17	Elevation 13	Connection detail for new members	For information only	P17
18	Elevation 13	Top 50mm of member rotten	Remove rotten material and replace	P18
19	Elevation 13A	Soft half of section	Remove soft material and replace if excessive.	P19
20	Elevation 13A	Section of rafter support rotten	Cut out rotten section and replace	P20
21	Elevation 13A	Rafter and beam split	Replace sections	P21
22	Elevation 10	Vegetation growing through from outside	Remove vegetation	P22
23	Elevation 10	Top of member soft	Remove soft material	P23
24	Elevation 10	Rotten under connection	Prop truss prior to replacing rotten material	P24
25	Elevation 11	Horizontal rafter support rotten much of length	Consider replacement	P25
26	Elevation 1	Rotten sole plate	Replace or inject	P26
27	Elevation 1	Vertical rotten at base	Replace rotten section	P27
28	Elevation 1	Vertical rotten at base	Replace rotten section	P28
29	Elevation 4	Vertical rotten full length	Remove rotten material and replace (possibly replace complete member)	P29
30	Elevation 4	Bottom half of horizontal rotten/Soft	Remove soft material and replace if excessive.	P30
31	Elevation 4	Corner post rotten and soft for much of length	Replace post	P31
32	Elevation 2	Corner post rotten in parts.	Consider replacing post	P32
33	Elevation 3	Sole plate soft with some rot at base of vertical	Cut out rotten material and replace	P33

34	Elevation 3	Vertical soft at base	Remove soft material	P34
35	Elevation 3	Vertical rotten at base	Remove rotten material and replace	P35
36	Elevation 3	Vertical rotten at base	Remove rotten material and replace	P36
37	Roof	Main purlin splice separated	Strap splice together	P37
38	Rear elevation (3)	Gutter full of debris	Clear gutter	P38
39	Front Elevation (1)	Downpipe missing	Replace downpipe	P39

8. APPENDIX B – Defect Photographs



P01



P02



P03



P04



P05



P06



P07



P08



P09



P10



P11



P12



P13



P14



P15



P16



P17



P18



P19



P20



P21



P22



P23



P24



P25



P26



P27



P28



P29



P30



P31



P32



P33



P34



P35



P36



P37



P38



P39

9. APPENDIX C – General Photographs



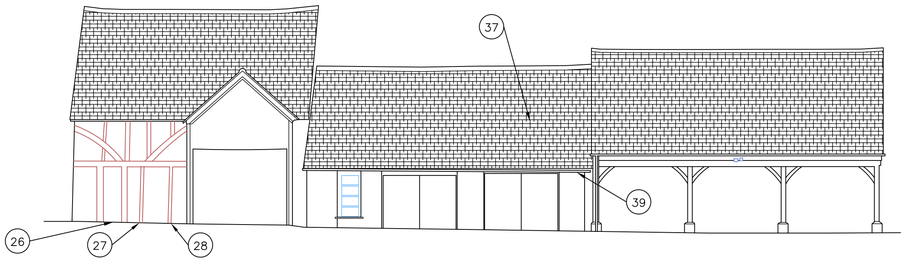
TP1



TP2


15/OCT/2018

10. APPENDIX D – Defect Location Drawing



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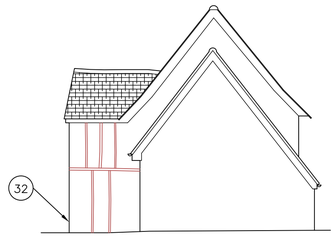
Elevation 1.



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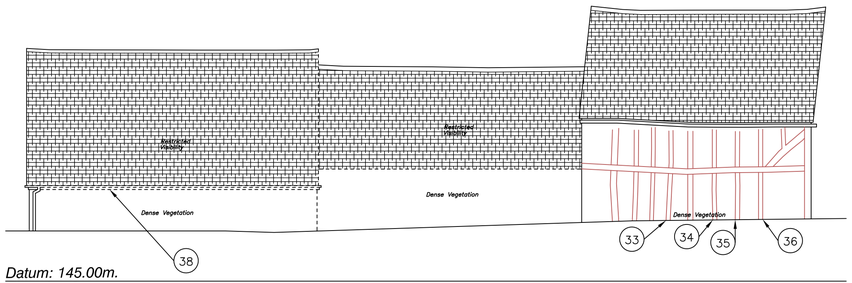

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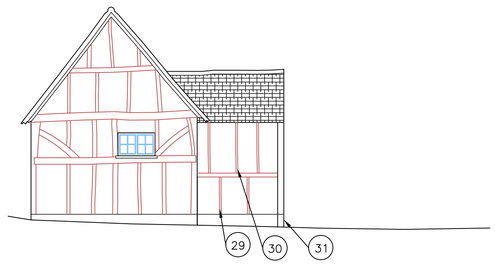

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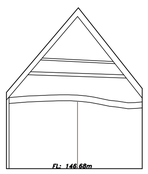

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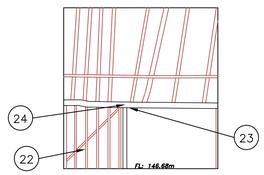
Int. Ele. 9



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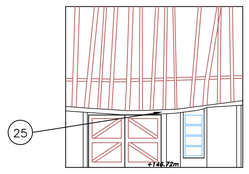

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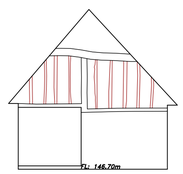

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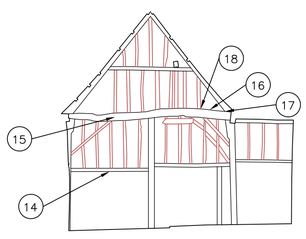

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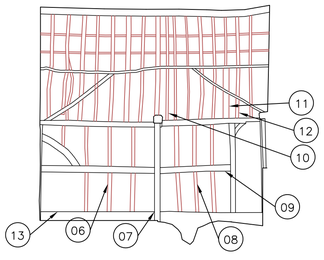

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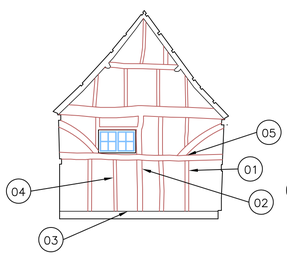

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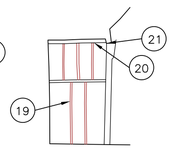

Int. Ele. 13A

Rev.	Revisions	By	Chk	Date

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Project:
Green Farm
Bendish

Drawing Title:
Defect Locations

Date:	Scale: 1:100
Drawn: IP	Chkd:
Original Size A1	

Job No.	Dwg No.	Rev.
4557	100	0

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