PRICE&MYERS

REPORT

# Canal Cottage, Thrupp

## Structural Inspection Report


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Job Number: 26242

| Date | Version | Notes/Amendments/Issue Purpose |
|---|---|---|
| July 2018 | 1 | For Information |
| September 2018 | 2 | For Information |

## Note:



## Contents

# 1 Introduction

Price & Myers visited Canal Cottage in Thrupp on behalf of Dr Ian Wylie and Professor Sian Griffiths, on 17th October 2017 with Peter Preston of Manifest Design Studios. The purpose of the inspection was to advise on the structural condition of the existing roof structure and comment on works required for conversion to habitable space. The inspection was limited to what could be seen without the removal of any finishes.

Price & Myers carried out an earlier initial inspection on 22nd May 2017 and issued a record of this inspection by letter on 27th July 2017.

# 2 Description of Existing Structure

1 Canal Yard is a grade 2 listed traditional stone workers cottage and mill and is set at the end of a group of 3 terraced cottages beside the canal in Thrupp in Oxfordshire. The Historic England listing states that the cottage originally dates from the early 17th century with 19th and 20th century remodelling. Walls are in coursed limestone rubble with some significant later brickwork infill around the openings for the original mill wheel. Floors are timber joists supported on timber bridging beams. The roof is thatched.

The roof structure is of 3 bays with two principal timber collar tie trusses supporting purlins and common rafters and bounded by brick and stone gable walls at each end. Many of the original common rafters are fir poles supporting traditional battens and thatch. The roof structure has been extensively strengthened.

# 3 Observations

Roof structure
The original purlins have failed and split in several places and some of the original fir pole rafters have failed and have badly deformed. However this has been strengthened in the recent past with a series of new modern C24 softwood purlins and props installed in a triangulated manner.

The strengthening works have introduced additional purlins to prop the long spanning fir pole common rafters. The new purlins are braced back to the original purlins using modern 100mm x 50mm C24 softwood timber struts. The principal collar trusses are strengthened with additional collars and a series of triangulated softwood struts. This work appears to be adequate although of a rather unorthodox nature.

Attic floor structure
The attic floor appeared generally sound. 100mm x 75mm (4" x 3") timber ceiling joists span approximately 2.6m at 380mm centres (15") and are supported off the timber cross walls at first floor level.

# 4 Discussions

Condition of existing roof structure
The original thatched roof has been added to and is now perhaps heavier than was originally intended. The original fir pole rafters are still in place and these are now insufficiently sized to support the weight of the current thatched roof, and in some areas have already ruptured and failed.

Some strengthening works will be needed during conversion of the attic space. The modern softwood bracing should be removed and the original split purlins and rafters repaired and strengthened.

Additional structure will be required including new 200 x 125mm softwood purlins to break down the span of the fir pole common rafters to allow the historic timberwork to remain in place. The fir pole rafters will be enhanced by installation of new 75 x 50mm C24 rafters beside the existing pole rafters. Exiting historic timberwork will remain in place.

This will be developed further in the next phase of design works and detailed sections drawn up.

Suitability of existing floor for increased loading
It is intended to refurbish the attic to habitable space. Building Regulations specify an imposed design load of 1.5 kN/$m^2$ for habitable rooms in single dwellings which is often more than the original structure was built for. Calculations suggest that although the existing 100 x 75mm timber ceiling joists are strong enough, deflections would be excessive. The floor can however be strengthened by adding new 100 x 50mm C24 joists between the existing joists to enhance the stiffness of the existing floor joists to within allowable deflection limits.

# 5 Conclusions

The existing roof structure is adequate at the moment. The recent roof strengthening works are unorthodox although are satisfactory. However the opportunity should be made to repair the historic timberwork in a more permanent manner during the conversion works.

# Appendix A

## Sketches

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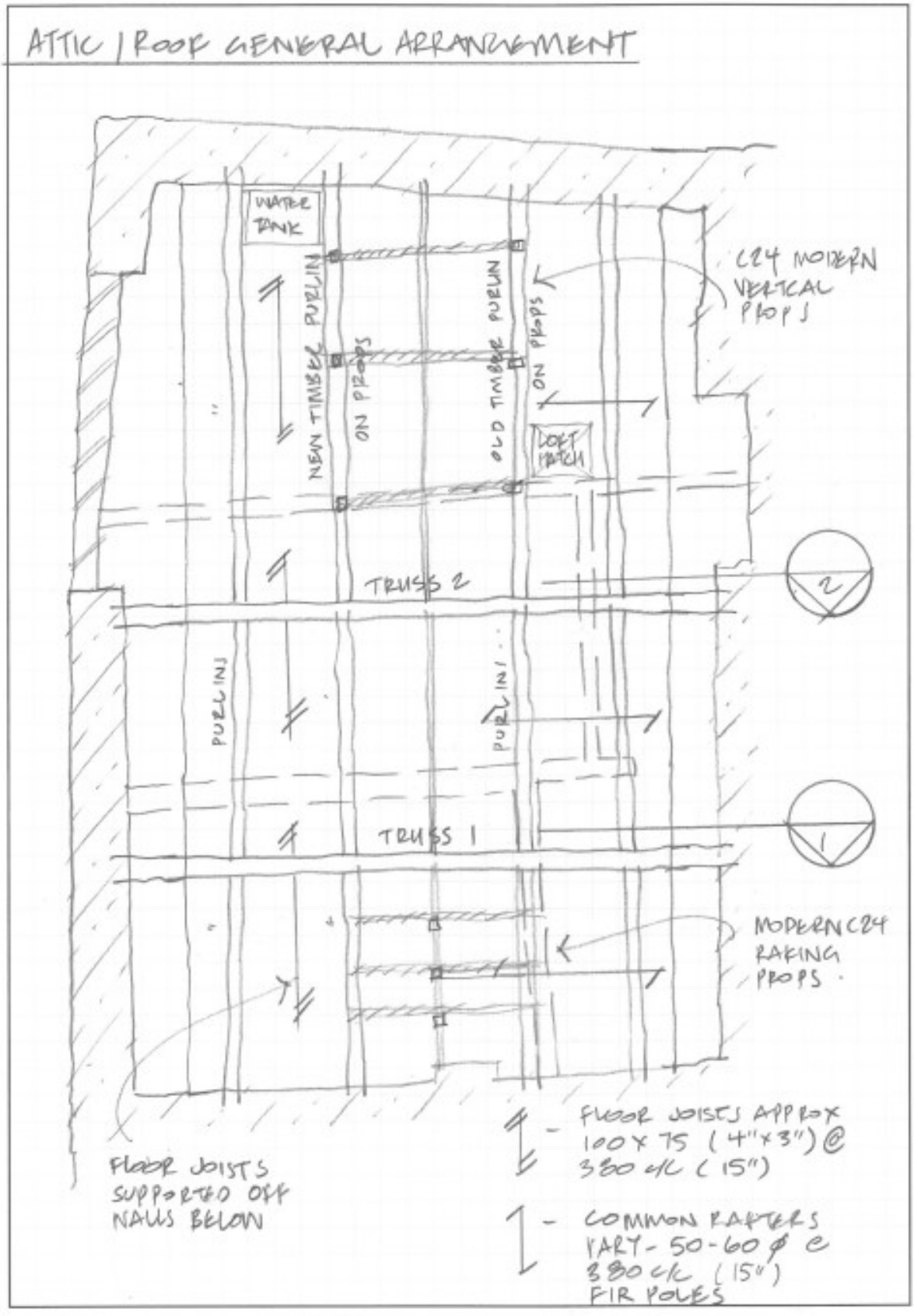
Job No 26242 Page SK1 Ver
Date JULY'13 Eng MW Chd
Job CANAL COTTAGE, THRUPP



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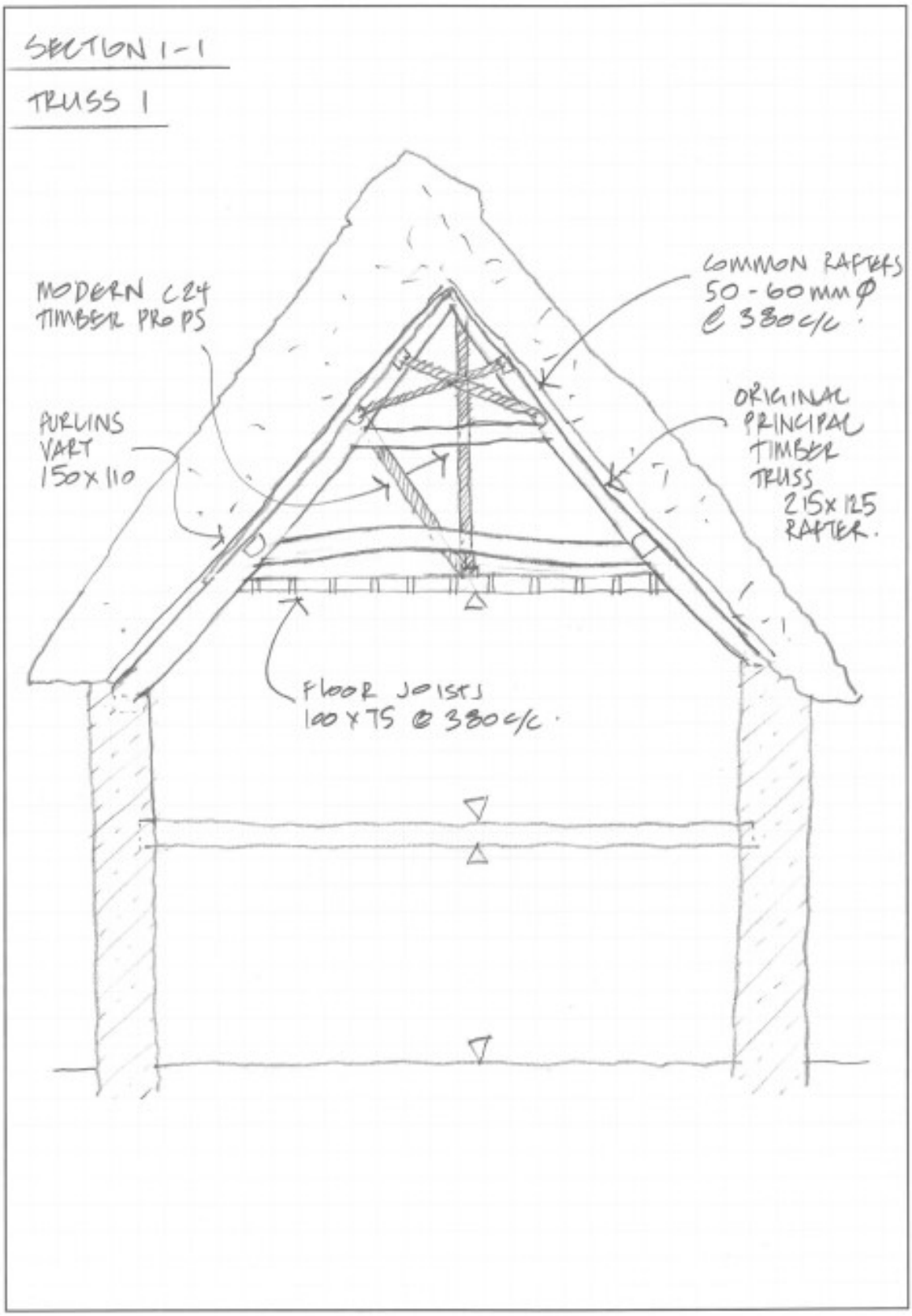

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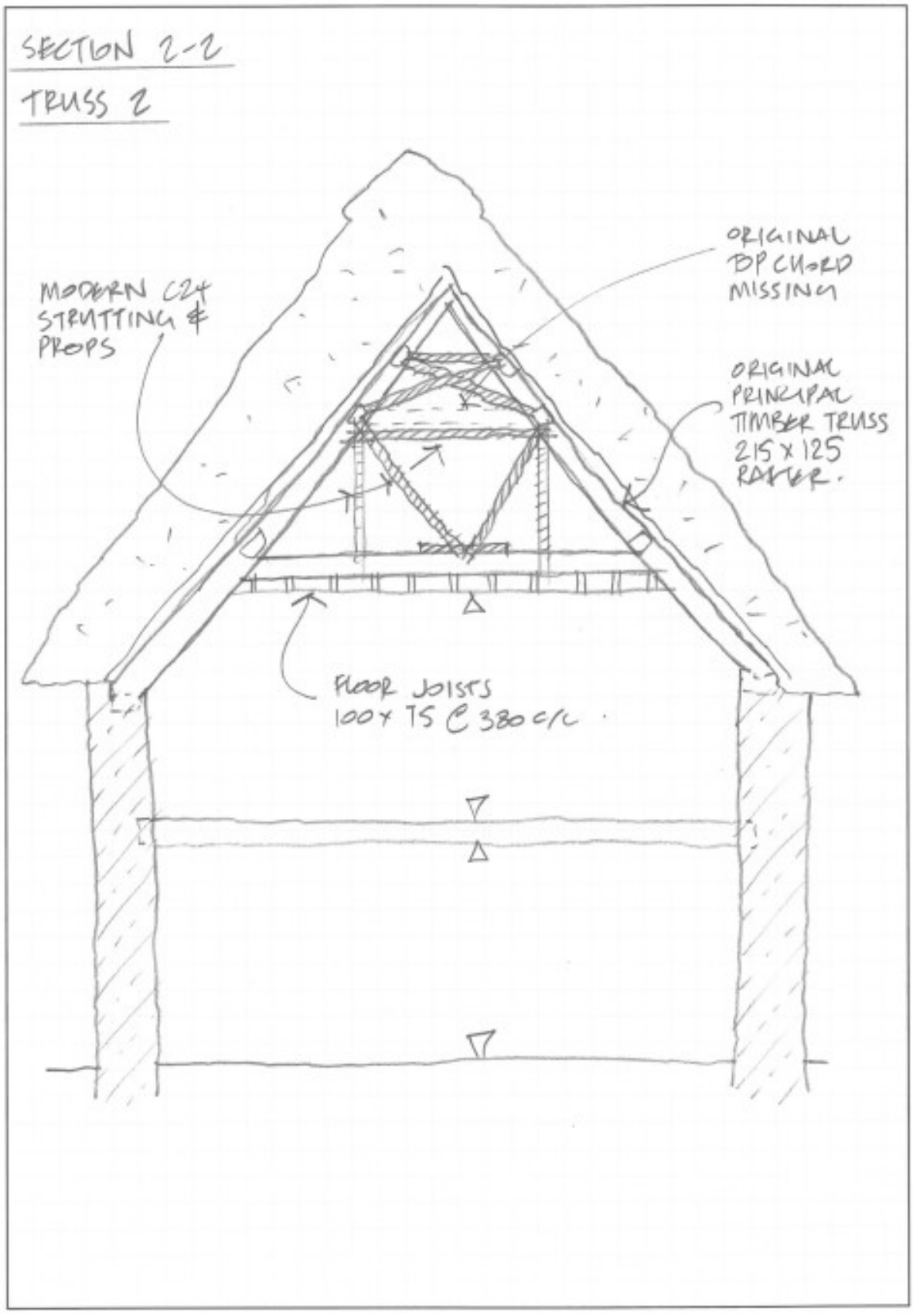
Job No 26242 Page SK3 Ver
Date JULY '18 Eng MW Chd
Job CANAL COTTAGE, THRLIPP



# Appendix B

## Photographs

Photograph 1 - Original collar tie trusses and modern C24 strengthening props and purlins

Photograph 2 - Modern C24 purlins an props support fir pole rafters

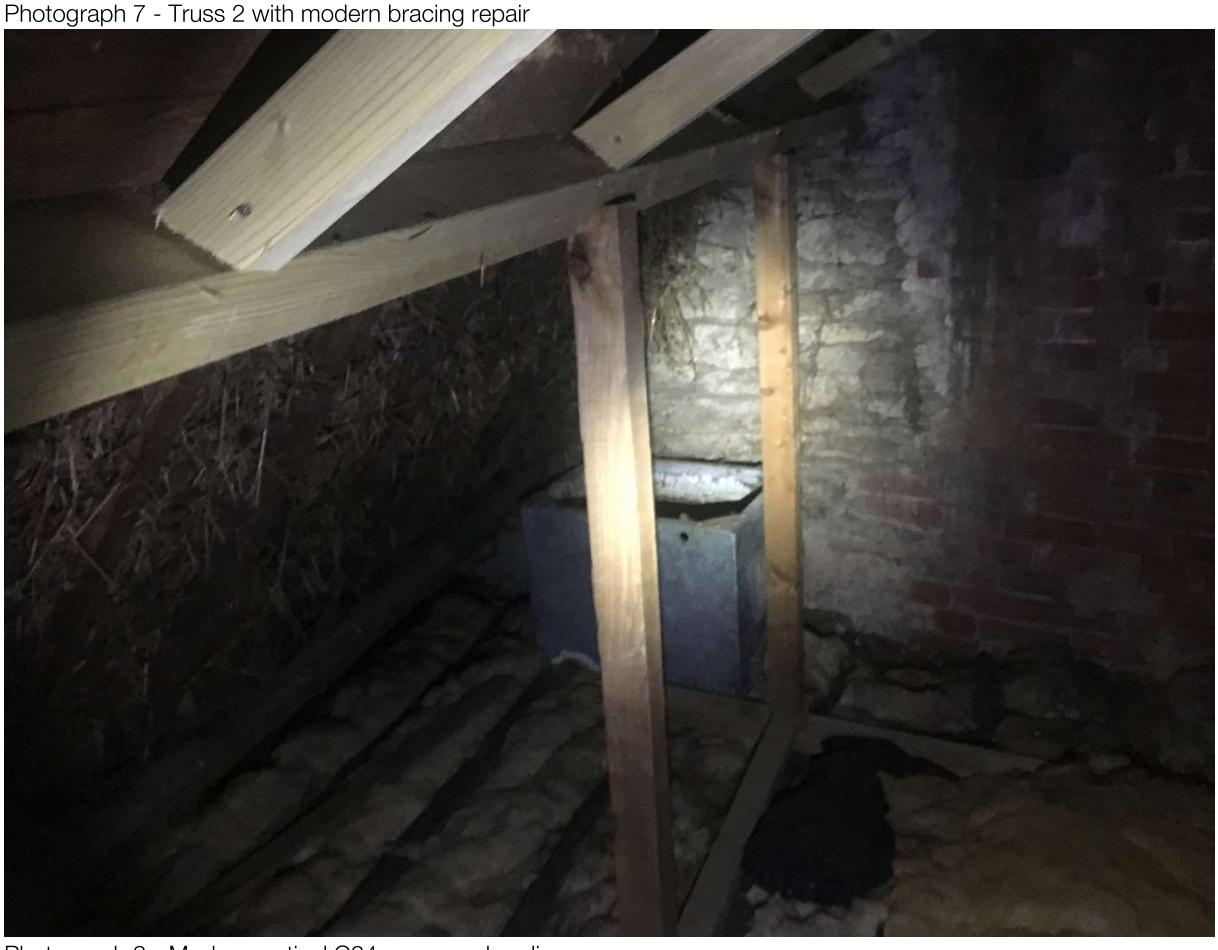
Photograph 3 - Truss 2 with modern bracing repair

Photograph 4 - Modern C24 purlins and props

Photograph 5 - Truss 1 with modern C24 props beyond

Photograph 6 - Modern C24 props

Photograph 7 - Truss 2 with modern bracing repair



Photograph 8 - Modern vertical C24 props and purlin

Photograph 9 - 4" x 3" attic floor joists bear onto walls below