

Our Ref: 220435/NCW

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01 April 2022

Ms S Jones
Birka Carr Farm
Risplith
Ripon
Harrogate HG4 3EY

Dear Ms Jones

Re: BIRKA CARR FARM, RISPLITH, RIPON HG4 3EY; BARN CONVERSION

Thank you for the recent instruction through Elaine Graham to inspect the outbuilding at Birka Carr Farm and report on the structural feasibility of converting this to habitable accommodation.

We confirm that our Mr Nick Wheeler visited the property on Tuesday, 15 March 2022 and met Anthony Graham, as well as yourself and your husband, to discuss the proposals and inspect the building. The weather at the time was dry, sunny and cool with a light wind.

This report is based on a visual inspection only with no opening up or exploratory works carried out except for five trial holes excavated around the perimeter walls of the building.

1.0 BACKGROUND INFORMATION

- 1.1 We understand that you purchased the property in mid-December 2021 and that the previous owners had lived there for around 25 years.
- 1.2 Prior to our inspection we received a copy of Elaine Graham's Trial Hole Plan drawing number J 18 04 EG 22.
- 1.3 The outbuilding has been used in the past as a store in association with the main house. It is proposed to convert the building for habitable accommodation linked to the main house. No plans have yet been drawn up for the possible usage of the building.
- 1.4 As part of the conversion works, loading to the roof will be increased to allow for insulation, finishes and services.

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1.0 BACKGROUND INFORMATION

- 1.5 Floor levels will be raised to allow for insulation, a ground bearing concrete slab and finishes and to provide a level surface.
- 1.6 Several photographs were taken during the inspection and some of these are included in **Appendix A** of this report for reference. A sketch plan has been produced to show the location of the trial holes, their details, and comparative ground levels. A copy has been included as **Appendix B** of this report for reference.

2.0 DESCRIPTION OF BUILDING

- 2.1 The outbuilding is a single storey store with solid stone outer walls and pitched, slate covered roof with gable ends.
- 2.2 The roof is formed from timber King post trusses that span from side wall to side wall. Timber purlins are supported on the two gable end walls and intermediate trusses, with timber rafters spanning between the outer walls and onto the purlins.
- 2.3 The roof construction is “balanced”. This means that there is no ridge beam, but the rafters meet at a timber ridge board and the loads are transferred from each rafter to its opposite number.
- 2.4 The external walls are approximately 450mm thick, assumed to be solid stonework. There is a stone wall dividing the main building from the smaller store at the South end of the building.
- 2.5 Lintels over door and window openings are a mix of timber, stone and concrete.
- 2.6 The floor is a mix of stone flags and ground bearing concrete construction laid to a fall and with several channels to assist water run-off.
- 2.7 The external ground slopes down from the South to the North, with a more pronounced gradient at the North end.

3.0 OBSERVATIONS

- 3.1 The stone walls are generally plumb with no excessive bulging or bowing evident. They are either built off foundation stones at varying depths off the sandstone subgrade or built directly off the sandstone with no wider foundation stones.
- 3.2 The roof slates have been back pointed. There is no roofing felt or insulation and the rafters support the light slate covering only.

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3.0 OBSERVATIONS

- 3.3 Some of the rafters appear to be relatively new and are assumed to replace the originals. Many of the older rafters appear to be formed from tree branches or small tree trunks that have not been regularised into standard profiles.
- 3.4 In keeping with the rafters, some of the purlins appear to be relatively new and are assumed to replace the originals. The older purlins are deformed, being bent and of irregular sections. It is possible that they are tree branches or small tree trunks.
- 3.5 The King post trusses are generally not level, and several have been badly affected by wood boring insects. Some have been strengthened in the past by the addition and/or replacement of timbers.

4.0 DISCUSSION AND RECOMMENDATIONS

- 4.1 To convert the building into habitable accommodation it will be necessary to cover the roof with new slates or tiles incorporating insulation and plasterboard to form an open roof. With the additional loads, the existing rafters and purlins could not be proved to be adequate and would need to be replaced.
- 4.2 The existing trusses are not level and have distorted and damaged timber members due to attack by wood boring insects. With inconsistent and irregular section sizes, it would not be possible to prove their adequacy for the increased loadings to be applied.
- 4.3 Due to the need to replace the roof timbers, it may prove cost effective to remove the roof entirely and use modern timber trusses supported on new and level timber wallplates. This may necessitate the need to raise the tops of the walls to provide the level surface required.
- 4.4 Alternatively, if an open roof similar to the existing is desired, new King post trusses could be made with traditional timber rafters and purlins to imitate the current construction.
- 4.5 The timber beams and lintels over openings are in varying condition; some being affected by rot and/or wood boring insects. It is advisable to replace these with proprietary reinforced concrete or galvanised steel lintels.
- 4.6 A new floor is required to form a level surface and to comply with current regulations for insulation and damp prevention. This will result in the top surface of the floor being raised in some areas and may require lifting the roof to accommodate this.
- 4.7 When excavating for the new floor, it is recommended that the existing stone walls are not undermined.

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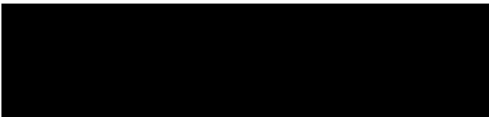
4.0 DISCUSSION AND RECOMMENDATIONS

- 4.8 It is not considered necessary to underpin the existing stone walls. This is because they are built off the sandstone subgrade and have shown no indication of movement since construction. Underpinning would involve cutting out stone to replace it with concrete with no overall benefit in ground bearing.

We trust the above meets with your approval, however, should you wish to discuss matters further, please do not hesitate to contact the writer.

Yours sincerely

SMITHERS PURSLOW



NICK WHEELER BSc (Hons) CEng MStructE MICE
Chartered Engineer

cc Elaine Graham – Elaine Graham Limited
elaine@elainegrahamltd.co.uk

Enc Appendix A – Photographic Plates
Appendix B – Sketch Plan