Simon Bastone Associates Ltd

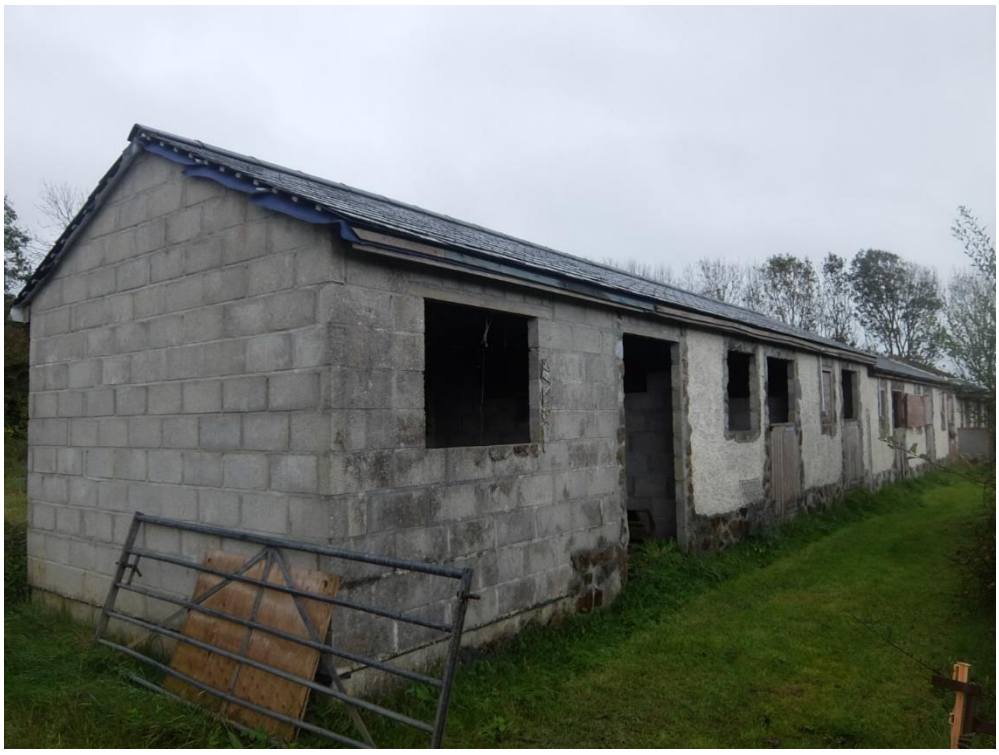
Consulting Civil and Structural Engineers

Structural Inspection

Inspection of Barn for Conversion at

Howard Farm Cottage
Howard Lane
Stratton
Bude
EX23 9TF

For Mrs Amanda Allen



Reference R181107/SI/00/Rev B

08 June 2021

Bishops Chambers
14 Cathedral Close, Exeter
Devon, EX1 1EZ
t: 01392 671616

1 INTRODUCTION

1.1 Scope of Investigation

1.1.1 I (Robert Thomson) have been instructed to produce this report for and on behalf of Simon Bastone Associates Ltd.

1.1.2 It is proposed to convert the Building into domestic accommodation. I have been instructed to prepare this report, highlighting any major structural defects with recommendations for remediation as appropriate. The purpose of the report is to support the planning application for the scheme.

1.1.3 I confirm that I have not been instructed to inspect any other parts of the structure.

1.1.4 I have not been instructed to inspect outbuildings, boundary walls etc.

1.1.5 My brief for this investigation is to carry out a visual inspection of the finishes of the structure and report on any relevant defects that could reasonably be observed within the limitations of the investigation outlined below.

1.1.6 We have not been asked to carry out an asbestos survey or a survey for toxic mould so we will not report on these items. Specialist consultants will be required for such inspections.

1.1.7 The word "significant" shall mean significant in relation to what we are reporting about only.

1.2 Limitations of the Investigation

1.2.1 Certain limitations apply to the inspection and this report. These limitations are detailed in my Letter of Appointment with Terms and Conditions of Engagement. Please ensure that these limitations are fully understood before relying on any information contained in this report.

1.2.2 We will inspect as much of surface areas as is practical, but will be under no obligation to inspect those areas of the structure that are covered, unexposed

or are not readily accessible. We are therefore unable to report that any such parts of the structure are free from defect.

1.3 Authorisation

1.3.1 The investigation on which this report is based was carried out in response to an email instruction from Peter Wonnacott, on behalf of the Client Mrs Amanda Allen, to proceed with the work.

1.4 Use of the Report

1.4.1 This report shall be for the private and confidential use of the Client for whom the report is undertaken, and shall not be reproduced or copied in any way in whole or in part or relied upon by third parties for any use without the express written permission of Simon Bastone Associates, the copyright owner. However, the report may be shown to other professional advisors such as Planners, Architects, Solicitors or sources of finance such as banks and building societies that may require knowledge of its recommendations for your benefit. It may not be passed to future purchasers or investors.

1.4.2 Also see our Letter of Appointment and Terms and Conditions of Engagement.

1.5 The Investigation and Weather

1.5.1 The investigation was undertaken by Robert Thomson, on behalf of Simon Bastone Associates Ltd. on 30th September 2020. The weather at the time of the survey was overcast following a period of heavy rainfall.

1.6 The Surveyor's Qualifications and Experience

1.6.1 I graduated from The University of Cape Town in 1983 BSc Civil Engineering and I am a fully qualified Chartered Engineer (CEng).

1.6.2 I have been a Member of the Institution of Structural Engineers (MIStructE), achieving chartered status, since 1995. I have worked in a senior position since then, which has provided me with extensive experience in the construction industry.

1.6.3 I have considerable experience in surveying both modern and older structures, including buildings of great historic interest. With a background of structural design, extensive knowledge of modern and historic construction techniques and the building regulations, this is the ideal experience to carry out this type of survey work.

1.7 Photographs

1.7.1 A photographic record was taken, which is held in my records, from which a selection is appended to this report. Photographs generally relate to the text in the preceding paragraph.

1.8 Descriptions

1.8.1 For the purpose of identification of parts of the structure, the front is taken to be the wall facing the access drive and the right or left hand side walls would be taken when looking towards the structure from the outside at the front.

1.8.2 Descriptions of individual walls or elevations are taken when looking at the wall from the relevant side.

2 CONSTRUCTION

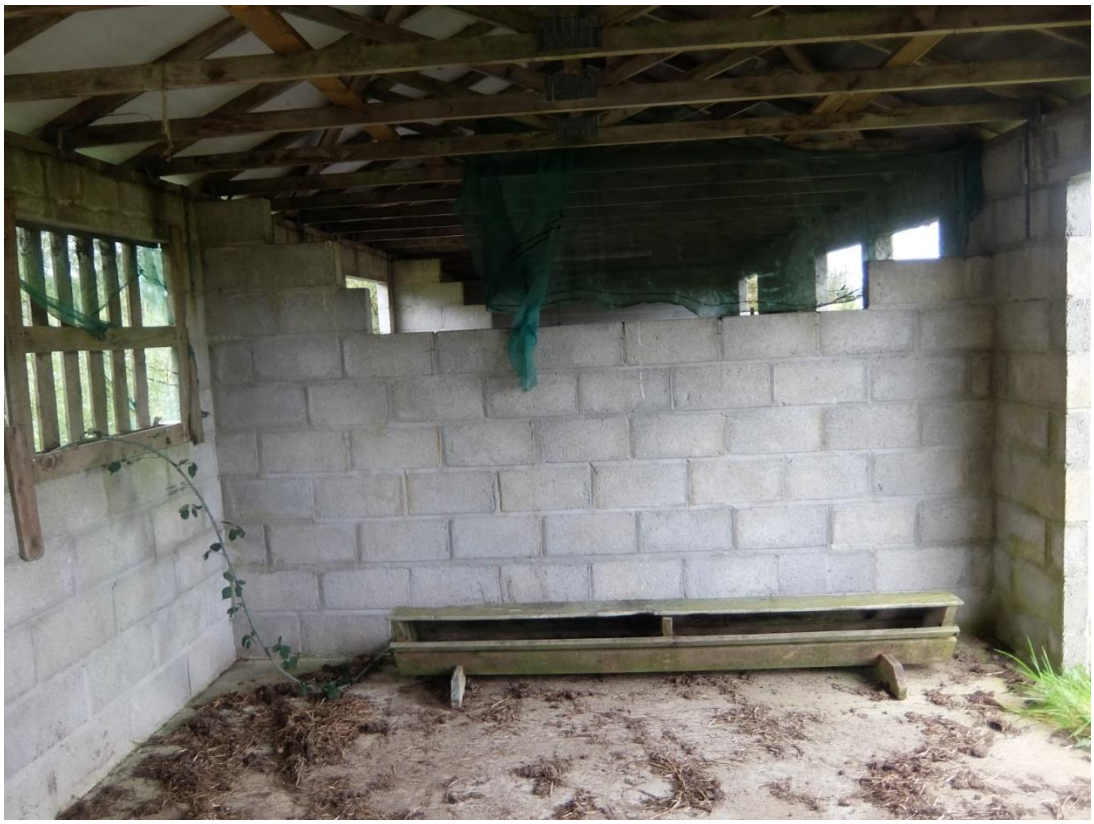
2.1 General Description

2.1.1 This is a blockwork masonry single storey duo-pitched roof building. There are gable walls to the front (facing the access drive) and rear elevations. The building is divided into nine bays (bay 1 to 9 from front to rear of overall building) sub-divided by blockwork masonry walls of various lengths used for livestock and storage. There are two steps in the ridge height.

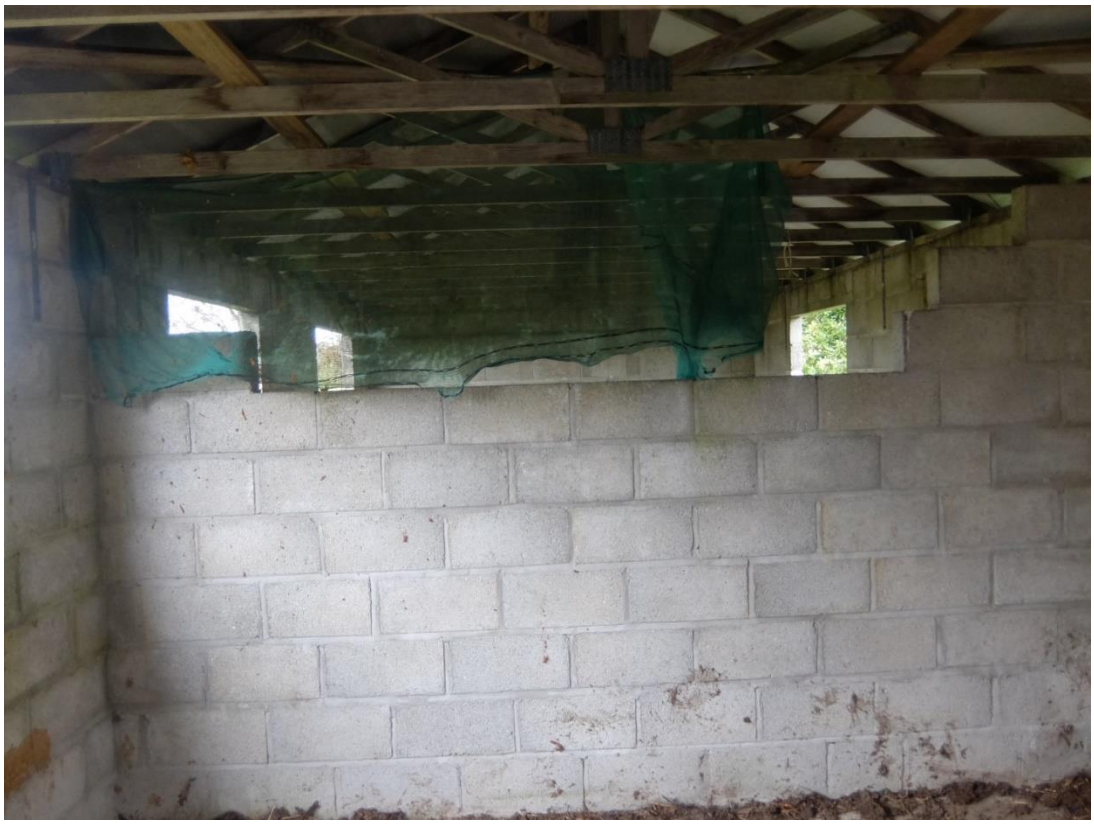
2.1.2 It is proposed to convert the last four bays within this application. The width between the side walls is approximately 3.8m. The first bay (bay 6) length is approximately 4.0m, the next two (bays 7 and 8) approximately 3.6m and the last one (bay 9) approximately 5.0m (see the planning drawings).

2.1.3 It is proposed to retain the attached structure to be used for storage.

2.1.4 The perimeter walls consist of blockwork masonry. There are concrete lintels over all openings.



Internal view within Bay 9 looking towards front



Internal view within Bay 8 looking towards rear

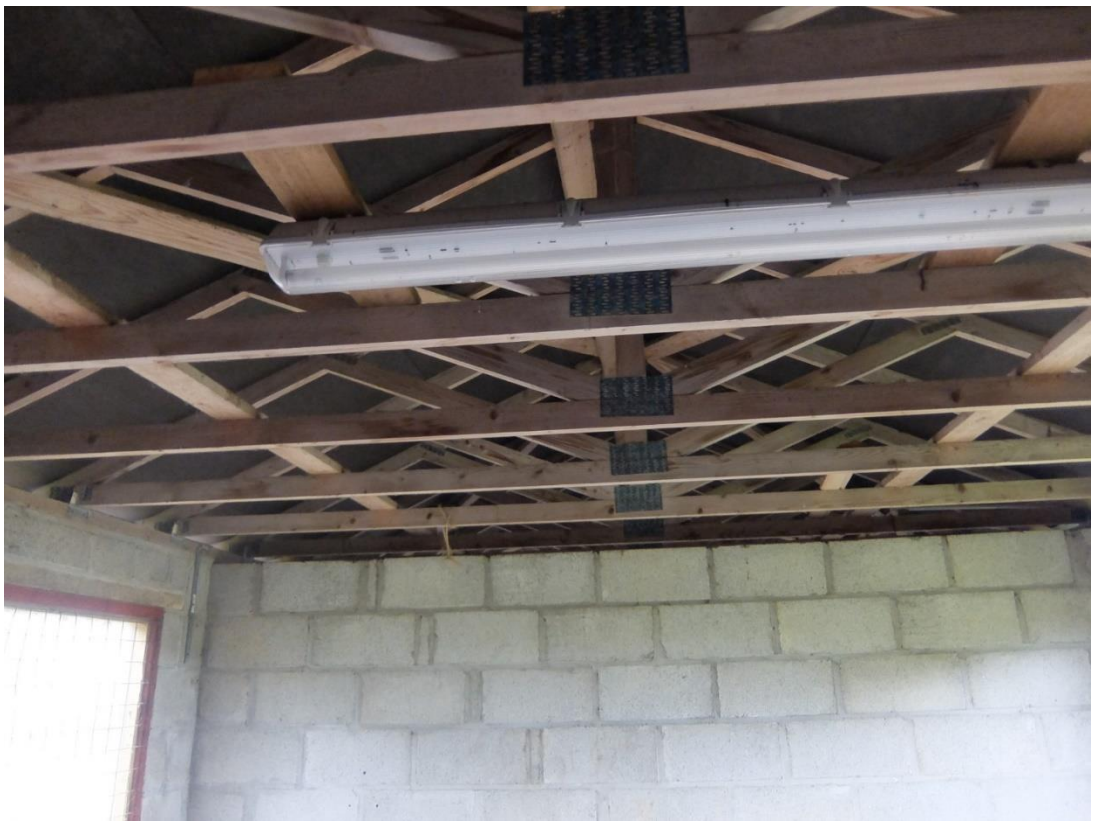
2.1.5 There is a ventilation opening and pedestrian door access to each bay within the left side wall. The first three bays are rendered externally with stone slips to the side of the openings. The last bay wall is fairfaced blockwork externally. The internal face is fairfaced (no finishes).

2.1.6 The rear gable wall and right side walls are fairfaced to both the external and internal faces. Within the right side wall there is a single ventilation opening to bays 6, 7 and 8 and two openings to bay 9.

2.1.7 The internal dividing wall between bays 5 and 6 continues up to eaves level. The dividing wall between bays 6 and 7 continues up to the verge with an upstand above roof level allowing for the step in the ridge height. The next two dividing walls continue up to eaves level at the junction with the side walls with a step down of three courses towards the centre of the building.

2.1.8 The roof structure consists of proprietary timber trusses (king post type) with all joints fixed together with pressed steel gangnail type plates. The trusses are at approximately 600mm centres (typical for a slate roof covering) supported by the left and right side walls on timber wallplates. There are vertical holding down straps fixing the timber wallplate to the masonry walls preventing uplift. There is timber bracing between the ceiling and rafter members of the trusses providing wind bracing, stability to the trusses and lateral restraint to the top of the walls.

2.1.9 There is a step up in the ridge line with the last three bays (bays 7, 8 and 9) covered with natural slate with a breather membrane below the battens. Bay 6 is covered with fibre cement slates with a membrane below the battens.

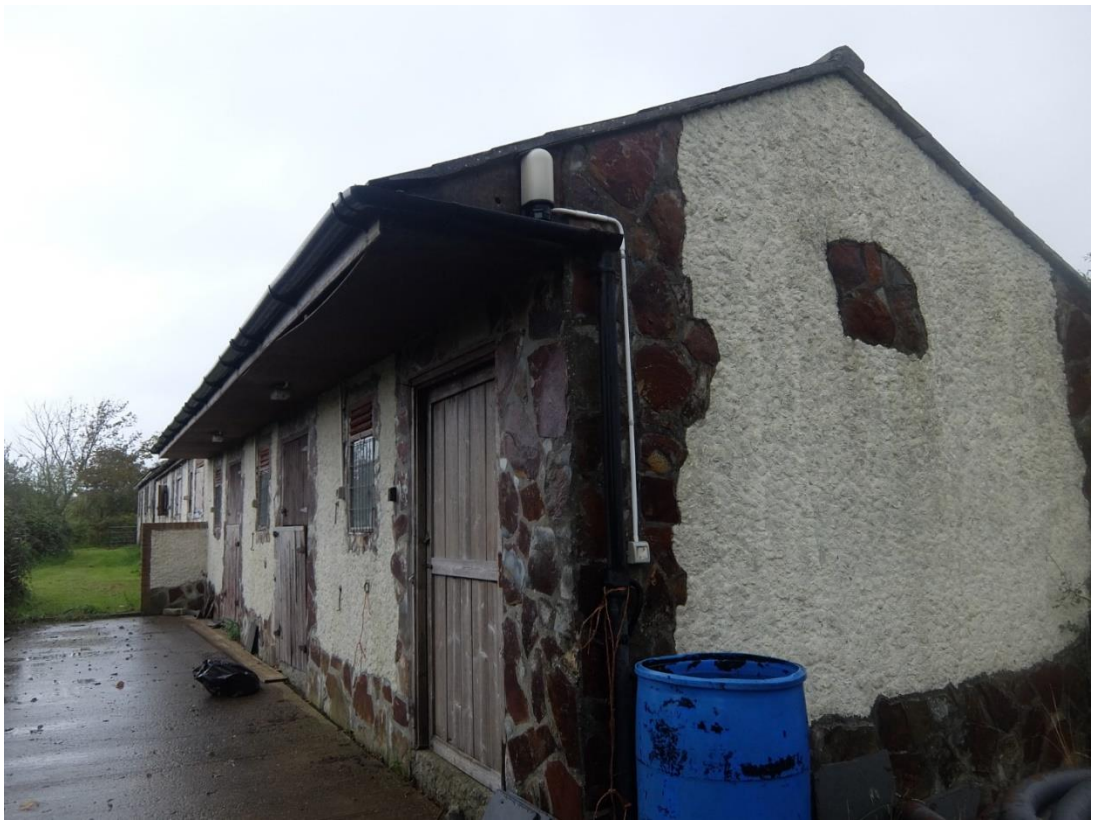


Roof structure showing trusses at close centres with lateral and diagonal wind bracing

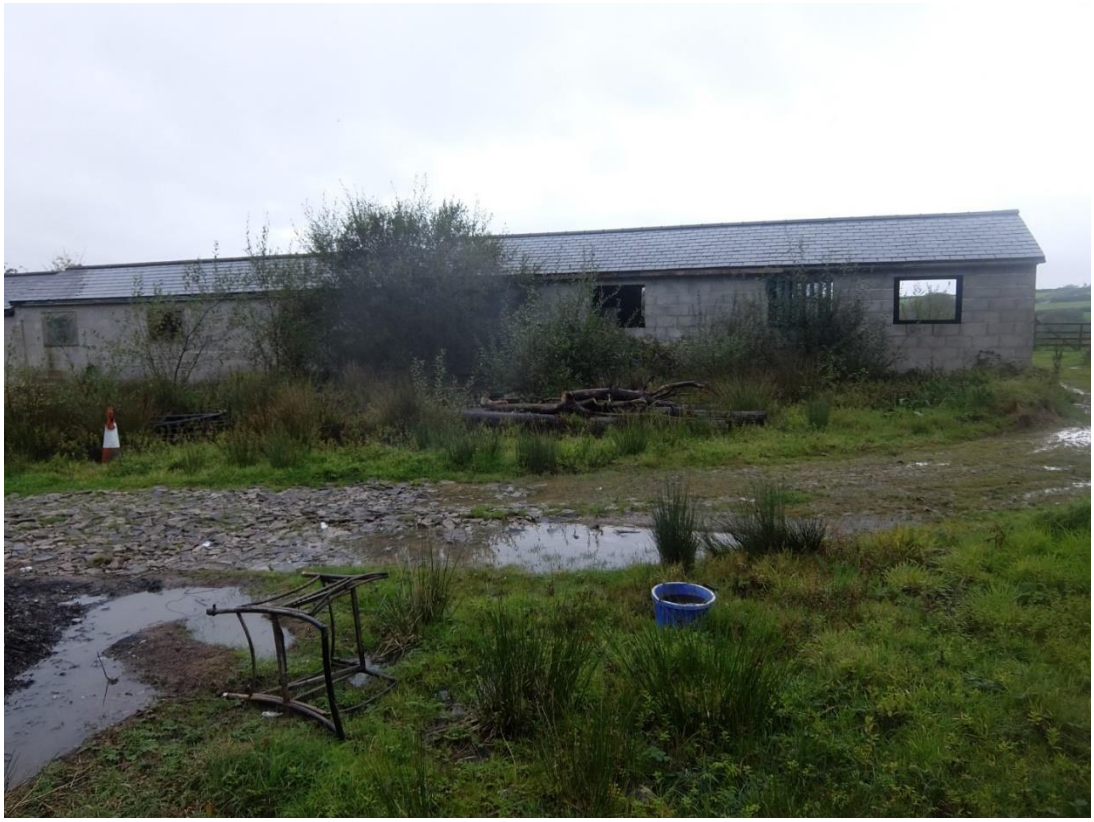
2.1.10 There is a ground bearing concrete slab within each bay poured between the perimeter and dividing walls. This indicates that the masonry walls are supported on concrete strip foundations and not off the slab.

2.2 Foundations

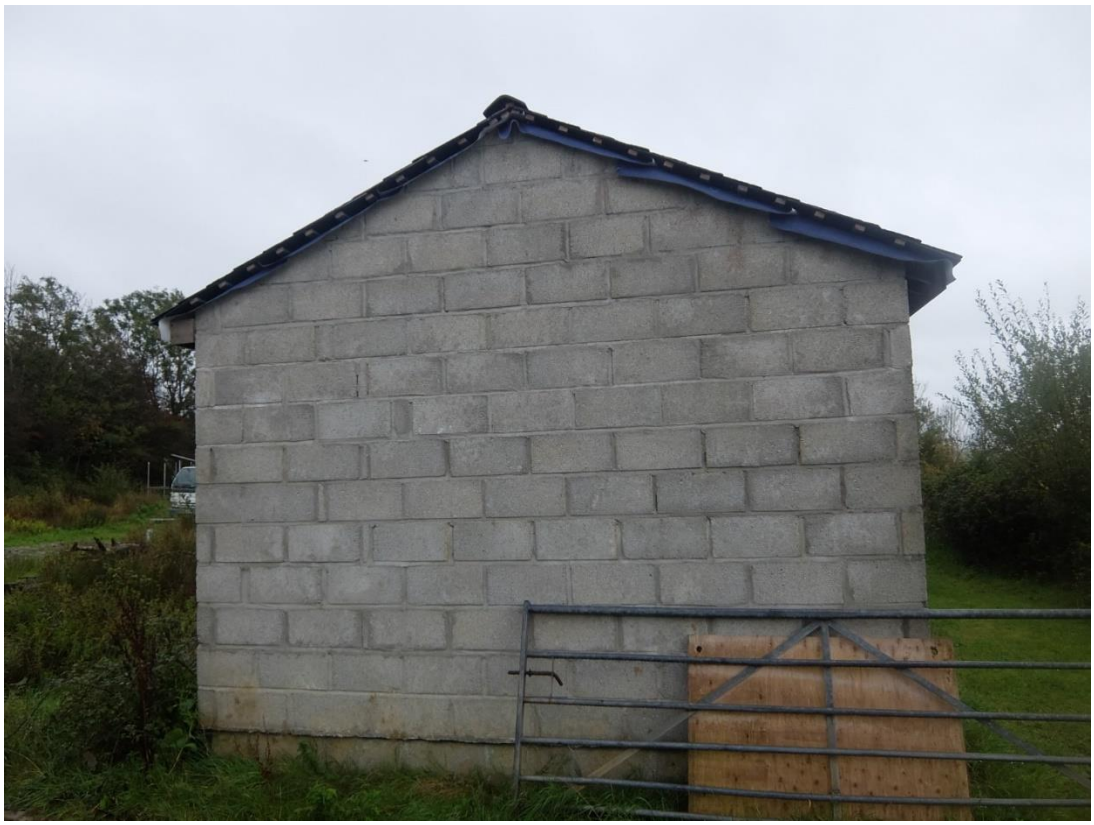
2.2.1 The foundations and the subsoils were not observed although generally for this form of construction where the masonry walls continue through the slab they are on strip foundations formed on an adequate bearing strata.



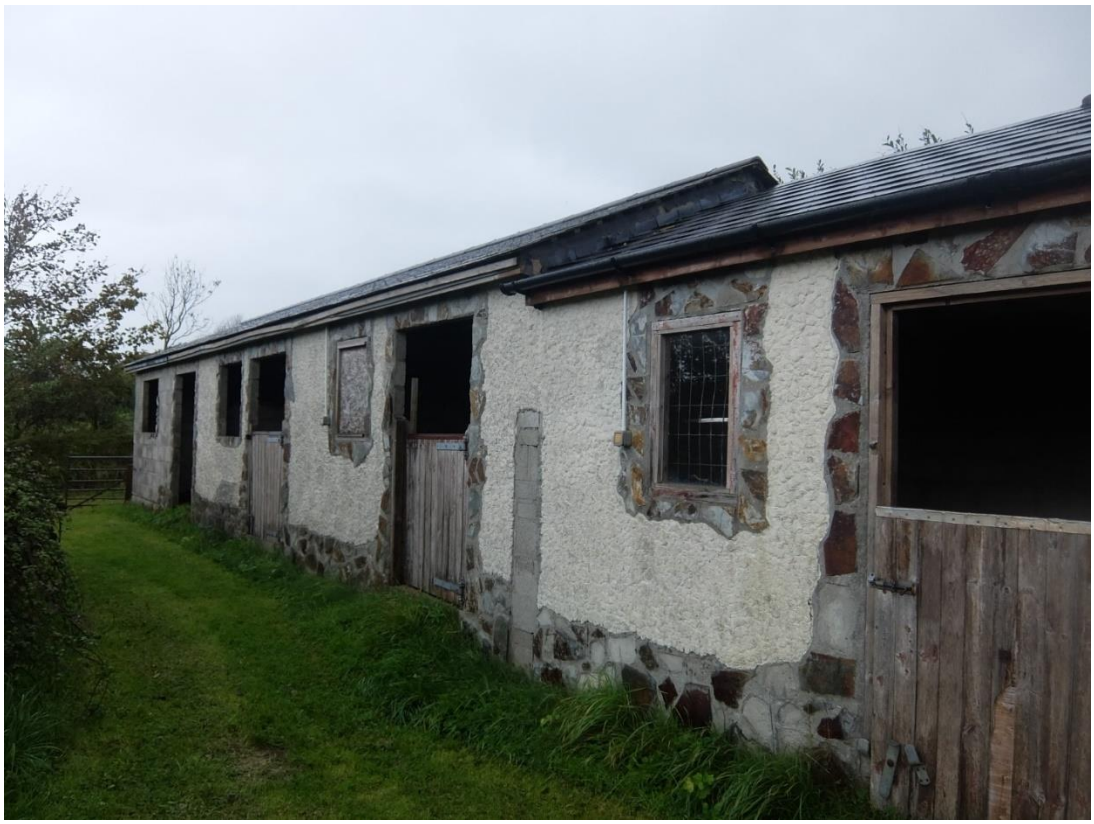
Front and left side elevations of whole building from attached storage bay side



Right side elevation included some of the attached storage bays



Rear elevation



Left side elevation

3 OBSERVATIONS, COMMENTS AND RECOMMENDATIONS

3.1 Superstructure

3.1.1 There is no visible evidence of crack damage within the blockwork indicative of recent or ongoing foundation settlement.

3.1.2 The planning drawings show that nearly all window and doors are to be formed within the existing openings. Where not required the existing opening are to be infilled with blockwork masonry.

3.1.3 The front door and side windows within the left side wall to bay 8 will be formed by removing the pier between the door and ventilation opening. The ventilation opening is to be extended down to floor level. The Architect's drawings show some minor variations to other openings that will not have a significant effect on the structural capacity of the retained structure. These minor alterations can be deemed to be reasonable building operations as required to complete the conversion.

3.1.4 Nearly all the internal dividing walls will be retained with just door/corridor width openings introduced to gain access between the internal rooms. The dividing wall within the living room is to be removed with the retention of piers to both side walls providing adequate buttressing to these walls.

3.1.5 The existing building is enclosed to all elevations. The eaves levels are relatively low with buttressing provided by the retained internal dividing walls and lateral restraint at eaves level by the roof structure. As there is no increase in lateral wind loading to the building, it could be deemed to satisfy Approved Document A of the Building Regulations.

3.2 Roof

3.2.1 The structural roof timbers are in a reasonable condition as is the roof covering with no signs of decay, or water ingress.

3.2.2 It is proposed to provide timber packers off the existing gangnail trusses to raise the ridge up within the central section of the building.

3.2.3 Extensions are proposed to the left side (West) elevation. At the intersection of the existing and new roof structures layboards will be installed to form the valleys.

3.2.4 The existing roof covering will need to be removed to allow the valleys and increase in ridge height to be completed with the existing slates reinstated.

3.2.5 It is proposed to reinstate and retain the existing roof covering. As there would be no increase in loading the existing roof structure would be deemed to satisfy Approved Document A of the Building Regulations.

3.3 Exterior walls

3.3.1 It is intended to line the perimeter walls with insulation to conform to Approved Document L of the Building Regulations.

3.3.2 The existing openings will be infilled with windows, doors or masonry which will be supported by the existing masonry walls and their foundations.

3.4 Foundations.

3.4.1 The existing foundations will be reused to support all the loads from the proposed conversion.

4 SUMMARY OF RECOMMENDATIONS

4.1.1 This is a summary of the conclusions and recommendations, full details of which are described in the observations, comments and recommendations section of this report.

4.2 Suitability of Barn for Conversion

4.2.1 It is my opinion that the main structure of the barn is in reasonable condition and suitable for conversion.

4.3 Feasibility of Proposals

4.3.1 The proposals involve little alteration to the existing structure.

4.3.2 The existing roof trusses are to be retained with packers introduced to increase the lower ridge height with layboards installed to form the valleys due to the intersection of the extension roofs. The existing slate roof covering will be reinstated or retained.