

BARNS AT MUSGROVE FARM,
DUNKESWELL,
DEVON.
EX14 4RR.

REPORT ON THE STRUCTURAL CONDITION
OF THE EXISTING BARNS AND
THEIR SUITABILITY FOR CONVERSION

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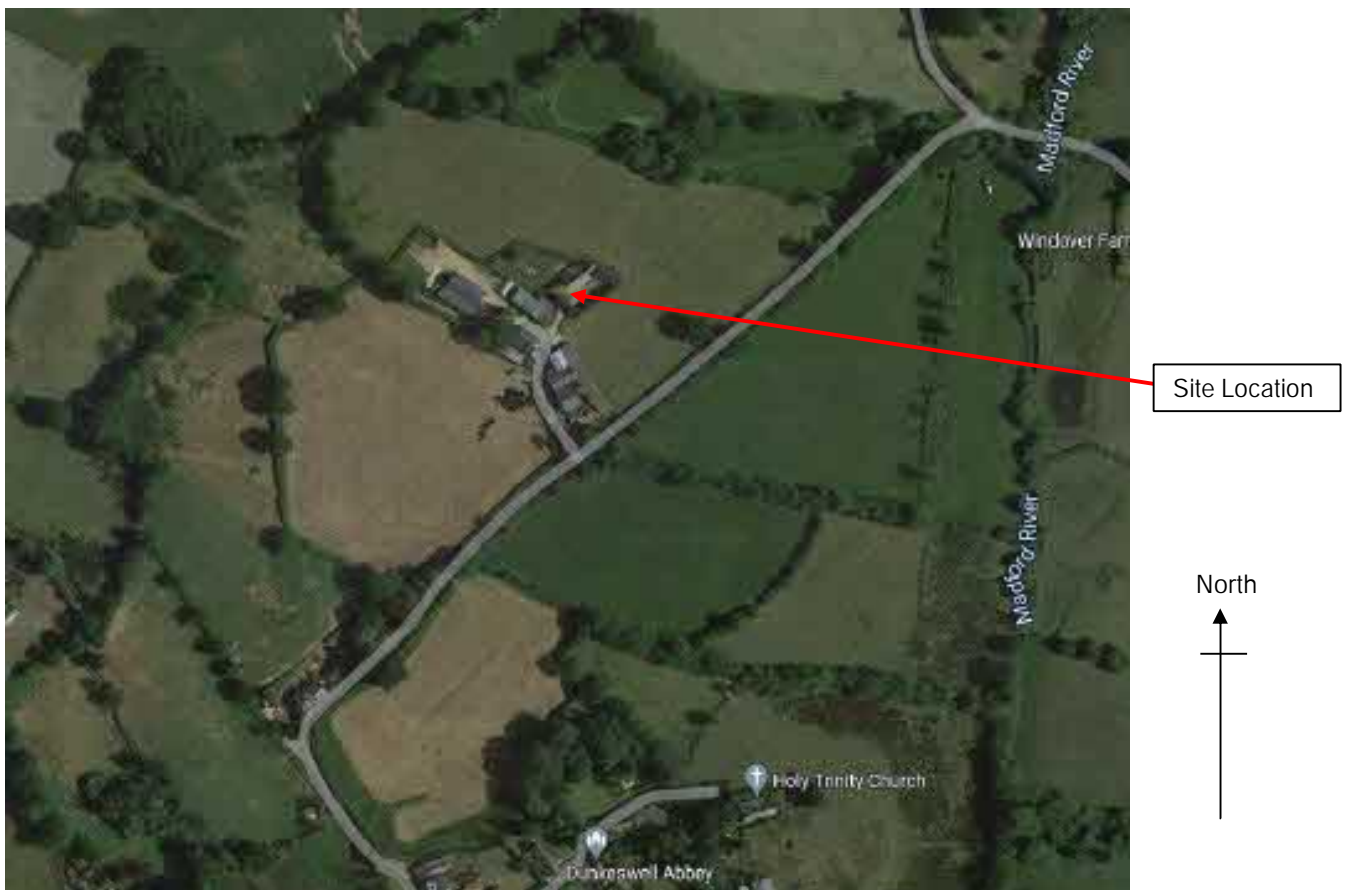
1.0 INTRODUCTION

This report has been requested by Mr & Mrs Bott who are the owners of the property. This report is confidential to this client and no liability of any kind whatsoever is given to any third party who may obtain copies of this report directly or indirectly.

The purpose of this report is to provide a document that can be presented by the owners in support of a planning application to the local authority. This report relates only to the structural condition of the barns. No other aspects of other buildings have been inspected or are commented upon. Drawings of the existing barns have been provided by Keith Farmer Building Services and extracts are included in this report.

This report is solely under the jurisdiction of English Law.

The location is as shown below:-



2.0 LIMITS OF INSPECTION

This report has been compiled using visual inspection only of the inside and outside of the barns. No excavations of the foundations or intrusive surveys were undertaken. A close inspection of the upper surface of the roofs was not undertaken.

We have not undertaken a thorough inspection of all timbering and thus are unable to confirm whether these are free from defects, deterioration or infestation.

The foundations could not be inspected. Most of the first floor areas were not safe for close inspection.

The inspection took place on 16th September 2022. At the time of inspection the weather was sunny and about 18^o C.

3.0 GENERAL DESCRIPTION OF THE BARN

The barns which are the subject of this report are outlined in red below.

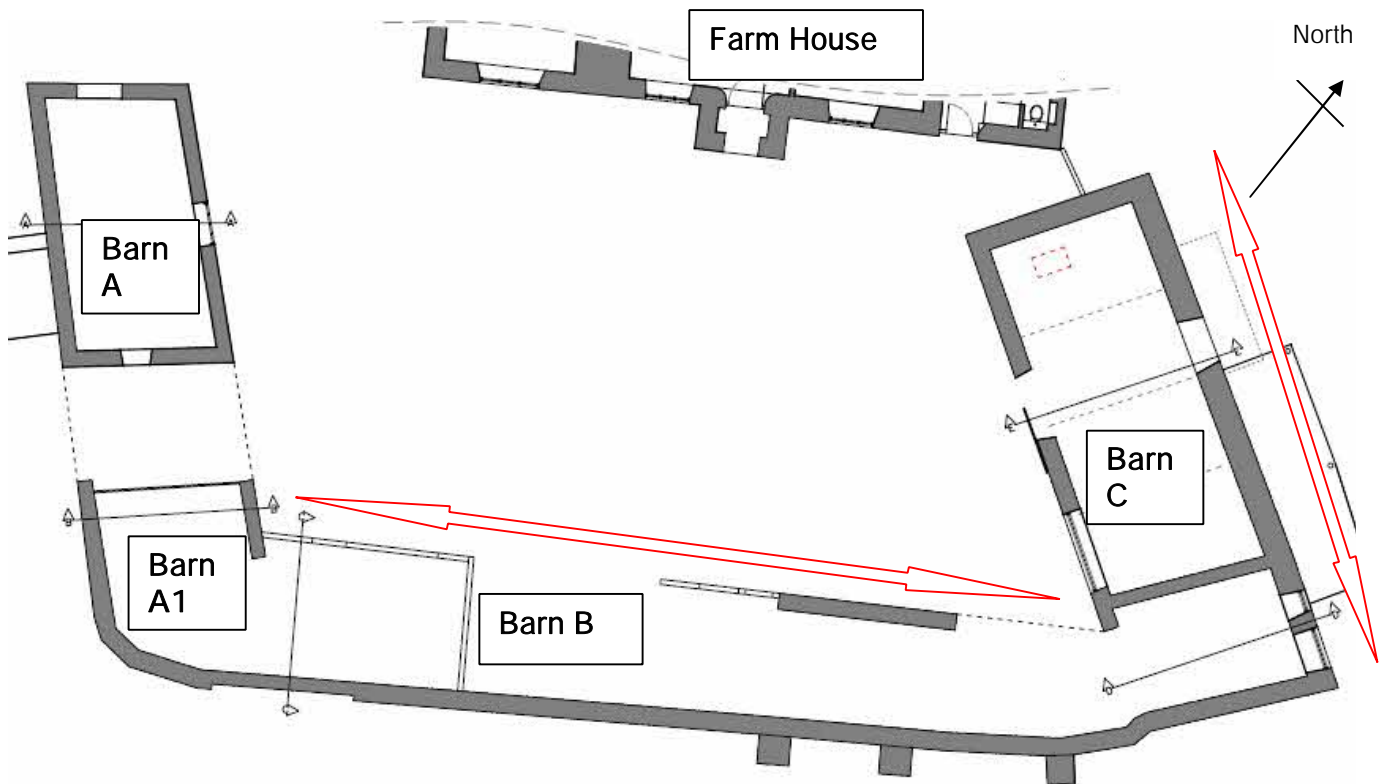


The barns are on ground that slopes down towards the south. They appear on Ordnance Survey maps in 1888 and are thus at least 130 years old. Apart from some re-pointing and the replacement of the original thatched roofs with corrugated iron sheeting they are virtually unchanged since original construction. Most

of the timber has some signs of beetle infestation and general deterioration in some degree. They are set around a courtyard and the farm house and the barns are all grade 2 listed.

4.0 BARNs OUTLINE

The following sketch indicates the layout and annotates the barns for the purpose of report identification.



The barns are currently empty and disused.

The following descriptions describe the barns as three separate units. The court yard face is taken as being the front elevation in all cases.

Barn A

4.1 Front Wall-North East

The front wall is 450mm thick stone but the top 900mm height cob. The stone work is in good condition and has been re-pointed at some time. The external face has been rendered from the first floor level to the eaves to give weather protection. In the middle of the wall is a timber access door. As with most of the timber in the barns, it shows some deterioration.

4.2 North West Wall

The north west wall is also stone with a central first floor 1.3m square access which has been boarded up. The timber lintels are in poor condition. There may originally have been a first floor in this area which has now disappeared. The eastern corner of this wall has some significant cracking internally and externally indicating some settlement and re-building of this corner with new foundations is recommended. The upper spandrel is in corrugated iron sheeting on timber frame work.

4.3 South West Wall

This wall is also in stone work but some of the stone work is loose around the adjoining perpendicular garden wall. It also bows out some 150mm from the main wall line. Re-pointing or re-building is required here for long term stability. There is a projecting timber beam, which supports the first floor internally, the end of which is deteriorating. Alongside this wall is a small stream.

4.4 South East Wall

This wall abuts the access arch into the court yard. It is in stone which has been re-pointed and is in good condition. There is a small access hatch at low level and a large opening at first floor level. The hatch has two stone lintels but these are heavily weathered. The upper opening has the reveals partially re-built in brick work to support the roof purlins.

4.5 Internal Walls

There are no internal walls.

4.6 Roof

The roof is covered in corrugated iron sheeting which is painted black externally. In general it is in reasonable condition but there are some small areas of corrosion and the external face has a patina of rust. The sheeting is supported on three purlins of various sizes from 100mm by 100mm to 175mm by 175mm which helps give the uneven external appearance of the corrugated iron sheeting. The purlins are supported on two roof trusses. The rafters are rough cut timbers approximately 175mm by 175mm and the mid level ties are timber scantlings. The connection between the tie and rafter appears to be by wire nails. The feet of the trusses bear upon timber wall plates and then onto the cob or stone wall. There is a 250mm by 150mm eaves beam over the archway entrance.

4.7 Ground Floor

The floor is concrete but it slopes from north to south. It is in satisfactory condition.

4.8 First Floor

There is a first floor in the southern section of the barn. The floor boards are supported by 100mm by 40mm floor joists and these are supported by 175mm by 175mm timber cross beams and by half round

215mm joists. An additional timber posts has been provided to support the central section of floor. All of this timber is in poor condition.

Barn A1

This barn is a continuation of barn A south of the entrance arch. It is very similar to barn A.

4.9 South East Wall

This wall is also in stone work and is good condition. The top 300/400m is in cob and has round timber spreaders under the ends of the truss rafters. It also supports the end of one of the floor beams at the southern end of the wall.

4.10 South West Wall

The south west wall is in stone up to eaves level and in good condition. The reveal by the entrance arch has been completely re-built in red brick work to support the roof truss above and the eaves beams over the entrance arch. The top of the wall slopes significantly towards the south to the lower eaves level of Barn B.

4.11 South East Wall

The south east wall is stone in good condition and has a red brickwork quoin at the eastern end indicating that barns A1 and B may have been built at different times.

There is a small drainage hole at the southern corner of this barn.

4.12 Internal Walls

There is an internal timber wall adjacent to the arch way. This has a 160mm by 100m oak beam at the top supported by three 125mm by 100mm oak posts. This wall supports the floor above.

4.13 First Floor

The floor has 20mm thick boarding supported by 100mm by 70mm floor joists. The floor joists are supported by a 270mm by 150mm cross beam with side ledgers supporting the floor joists. At the south wall the floor joists are built into the stone wall. This floor is a more recent addition and is in satisfactory condition.

4.14 Roof

The roof is similar to barn A but here is a diagonal corner truss supported on a diagonal timber bearer at the wall.

4.14 Ground Floor

The floor is concrete and in satisfactory condition but it slopes from north to south to the drainage hole in the south corner.

Barn B

This barn is a continuation of barn A1 to the south west. It is very similar to barns A and A1 but has a lower height due to the sloping ridge from barn A1.

4.15 South East Wall

This wall is in stone work with a varying height up to approximately 3.5m. At the western end the top of the wall has some cob to a height of some 600mm. In this area the wall leans outwards being out of plumb up to about 10 degrees. This section of wall would benefit from some re-building.

At the eastern end the wall also leans outwards but there are three external stone buttresses to provide additional support. There are some significant diagonal cracks at the top of the wall at this end up to some 20mm wide.

4.16 Front Wall - North West Wall

Most of this side of the barn is open save for timber framing supported on vertical posts and two railway sleepers. The section of wall that is in stone work has a cob topping. There is some damage to the wall and loose stones centrally. The trusses bear upon round timber logs and these in turn bear upon the cob wall.

4.17 Internal Walls

Internal walls are only part height and are formed in timber stud work and boarding and have previously presumably acted as animal pens.

4.18 Roof

The roof is similar to barn A and A1 but here is a hipped end at the eastern end. There is a hole in the roof at this end due to deterioration of the corrugated iron sheeting.

4.19 Ground Floor

Only a small area of the barn has a concrete floor, the rest being earth.

Barn C

4.20 South East Wall

This wall is in stone work and in satisfactory condition. It supports the floor joists spanning north to south. At first floor level there is a small window.

4.21 North East Wall

This wall is stone up to some 600mm from the eaves where it turns into cob. In general it is in satisfactory condition. Near the middle is a small access which has been partially blocked up in 215mm thick dense concrete block work. This access gave entrance to a small lean-to type room with brick work and corrugated iron walls. There is some loose stone work to the main wall at a lower level.

There is a small window in the southern part of this elevation and an external vertical crack approximately 50mm wide at the southern end off the wall.

There is a small external shelter supported on telegraph poles. This has a corrugated iron lean-to roof.

4.22 Front Wall - South West Wall

This stone wall is in good condition and has been re-pointed throughout. The top 400mm is cob at the northern end. At the southern end a new timber window and galvanised steel lintels have been inserted. The area around the window has been re-built in concrete block work. Above the main full height timber barn doors is a 300mm by 150mm timber lintel to support the roof.

4.23 North West Wall

The north-west wall is stone to first floor level and then cob to eaves level. The spandrel end is in corrugated iron sheeting.

4.24 Internal Walls

The internal wall at the southern end of barn C is in 450mm thick stone work, however there is a 50mm vertical separation from the front wall, indicating previous movement.

4.25 Roof

The roof has had the original trusses replaced with new 200*50mm principal rafters and four 100mm by 50mm purlins on each side. The lower ties are 150mm by 50mm. The roof structure is in satisfactory condition and would not need replacing at this stage.

4.26 Ground Floor

The main barn area has a concrete floor in satisfactory condition but it slopes from north to south. The southern end section has a concrete and earth floor that is in poor condition.

4.27 First Floor

The first floor to the southern section of this barn has 20mm floor boards supported by floor joists of varying dimensions from 100mm by 75mm to 150mm by 150mm. It is in reasonable condition but some of the boards have signs of decay.

5.0 CONVERSION PROPOSALS

The conversion of these barns to habitable accommodation will require similar measures throughout. Insulated floors and walls will be required, some stone work repair and underpinning and new roof structures to most of the barns. A new roof covering will be required to replace the corrugated iron sheeting which is ending the end of its life.

Compliance with current Building Regulations will be necessary although the choice of external materials will be influenced by the need to preserve the historic nature of the grade 2 listed barns.

Barns A, A1 and C are capable of being converted into two storey structure albeit with limited headroom towards the eaves.

6.0 SUMMARY

These barns are capable of being converted to residential accommodation. The existing structures have stood for a large number of years and have shown that they are capable of withstanding the wind and snow loads likely to occur. Conversion to residential accommodation is beneficial to prevent further deterioration and eventual collapse of these barns.

7.0 PHOTOGRAPHS

Photo 1 –Side View –South West



Photo 2- South East View



Photo 3 –Courtyard View –Looking West



Photo 4 –South View



Photo 5 –Roof View



Photo 6 –Floor View



Photo 7 –South Corner Roof



Photo 8 –Southern Roof



Photo 9 – North Eastern Wall



Photo 10- South Eastern Wall



Photo 11- South Eastern Wall



Photo 12 – North Western Wall



B.J. E. Lamb
19.9.2022