



Structural Appraisal

Stubbins House
Stubbins Lane
Catteral

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Date: 17th May 2017

Reference: 3079-17

Directors: D.G. Taylor • D. J. Ormes

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1.0 TERMS OF REFERENCE

This report has been prepared at the request of Mr. & Mrs. Thompson, the owners of the above property.

The inspection was carried out on Wednesday 17th May 2017.

2.0 PURPOSE OF REPORT

The purpose of the report is to inspect and comment on the overall structural condition of the barn.

The report is limited to the structural elements of the barn only and is not intended as a detailed condition report on the barn as a whole. We have not inspected the drainage system, electrical or gas installations and are therefore unable to confirm that these are in satisfactory condition.

We advise you that this report is an appraisal only and not a full structural survey. We have not inspected the woodwork or other parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the property is free from defect.

3.0 INTRODUCTION

The barn is located within the grounds of Stubbins House. Stubbins House is located to the South of Stubbins Lane, Catteral, Preston. This report is applicable to the barn only, see existing site plan sketch sheet SK01 for further details.

This report is required in respect of a planning application for change of use of the existing barn into residential accommodation.

The barn has a North to South orientation with the front elevation (Wall 1) facing approximately due East. For wall reference numbers see Layout Plan, Sketch Sheet SK02.

4.0 DESCRIPTION

The barn is rectangular in plan, approximately 24m long by 8.5m wide with a maximum height to eaves level in the order of 5m. The central section of barn is two storey with a single story section to both North and South elevations. See photographs in Appendix.

There are a number of blockwork/timber framed mono pitched out buildings attached to the West elevation/Wall 4 of the barn. These buildings are to be removed as part of the proposed works and therefore are omitted them from this report.

The external walls of the barn are approximately 450mm thick in regular coursed natural stone. There are stone quoins to all external corners of the barn and to the window and door jambs. The windows and doors have natural stone heads and cills.

There are clay vent pipes at eaves level to all elevations of the barn. These vent pipes are also evident internally in the internal brick cross walls to the two single storey sections.

The windows and door openings have stone lintels to the outer leaf with timber lintels to the inner leaf.

There are 5 doors openings including a large central barn door in the East elevation, with various door and window openings in the side elevations.

The two storey central section of the barn has a duo pitch roof clad in fibre cement sheeting. This section of roof consists of softwood rafters supported off softwood purlins (approximately 100mm x 250mm). There are 2 purlins per slope and 2 ridge boards to the apex of the roof. The purlins are supported at third points by 2 king post roof trusses which span the full width of the building.

The single storey sections of the barn to the North and South elevations have mono pitched roofs of traditional purlin and rafter construction clad with Welsh blue slates. There are 3 purlins (approximately 100mm x 225mm) which are supported at mid span by a brick cross wall.

The two storey central section of the barn is generally open plan from ground floor up to roof level. There is a hay loft area to the right hand side of this section of the barn, below which is a small work room. The hayloft floor is formed from softwood joists which are supported off three number timber beams. See Sketch Sheet SK02, for further details of the internal layout.

The two single storey end sections of the barn are open plan from ground floor up to roof level. However, there is a small area in the South section which has been infilled with joists and boards spanning between two support beams to form a timber mezzanine type storage area.

The two single storey sections of barn have concrete slab floors shaped to suit their current use. The two storey section of the barn has an earth/cobble floor, an inspection of which was limited due to storage of hay within this area.

5.0 STRUCTURAL APPRAISAL

5.1 Wall 1

We note minor loss of vertical alignment to the left hand side of the large barn door opening, due to past movement of the foundations. The movement is not excessive and there are no visual signs to indicate any recent movement.

Overall the wall has satisfactory vertical alignment and is in a sound structural condition.

5.2 Wall 2

The East side stone window surround and the immediately surrounding stonework has suffered from outward movement, particularly noticeable at eaves height and caused from past roof spread.

We note minor cracking to the right hand side corner of the wall, consistent with past differential settlement of the foundations. The cracking is not excessive and there are no visual signs to indicate any recent movement.

5.3 Wall 3

We note slight loss of vertical alignment to the stone window jambs. However, the loss of alignment is not excessive and the wall overall has reasonable vertical alignment.

5.4 Wall 4

The wall has a slightly undulating vertical and horizontal profile. Although slightly undulating the wall has reasonable horizontal and vertical alignment and is in satisfactory structural condition.

5.5 Roof

Externally when viewed from ground level the roof, although slightly undulating, has reasonable horizontal alignment.

Internally the timber roof members appeared to be in satisfactory structural condition with no undue deflections noted.

5.6 Floors

The solid floors to all sections of the barn appeared to be in satisfactory structural condition and adequate for their current use.

6.0 DISCUSSION AND RECOMMENDATIONS

Except for the pronounced loss of alignment in wall 2 the walls of the barn are considered to be in sound structural condition, requiring minor remedial works only.

The minor cracks to the right hand side of Wall 2 should be raked out with a mechanical grinder, wedged and packed with cementitious mortar and repointed.

The window and small section of surrounding stonework to Wall 2 has suffered from outward movement in the past. We would therefore recommend that this section of wall is taken down and rebuilt to correct alignment.

We understand that the existing roof of the two storey section of the barn is to be taken off and replaced with new, although the kingpost trusses are being retained. We recommend that prior to removal of the roof, all the walls are stabilised with a braced scaffold to prevent the possible collapse of the walls during the alterations to the building and possible high wind conditions.

7.0 GENERAL COMMENTS

It is normal practice in buildings of this type to construct an internal leaf of concrete block to all external perimeter walls. This has the advantage of strengthening the existing walls, providing a cavity for weather proofing and allowing the walls to be insulated in accordance with current building regulations.

We would not recommend that any additional loads are placed on the existing stone/brick walls due to the age of the barn. As such the new inner blockwork leaf can be used to support any internal first floor construction proposed as part of the conversion scheme.

We anticipate that the new inner leaf and any additional internal load bearing walls will be built off new concrete foundations, in accordance with current building regulations.

Care should be taken in the formation of any new door and window openings in the external walls in order not to destabilise the walls during construction.

It is essential that any changes to the structure are checked and approved by a qualified Chartered Structural Engineer in order to ensure the continuing stability of the existing structure. Any new works must be designed in accordance with British Standard codes of practice and current building regulations.

Where existing timbers are to be retained or re-used these should be inspected by a specialist contractor for beetle and wood rot and treated in accordance with specialist recommendations.

Providing the above recommendations are carried out, we see no reason why the existing barn should not be converted to residential accommodation.

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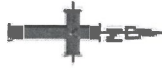
Telephone: 01257 249882

Appendix A

SK01 – Existing Site Plan
SK02 – Layout Plan



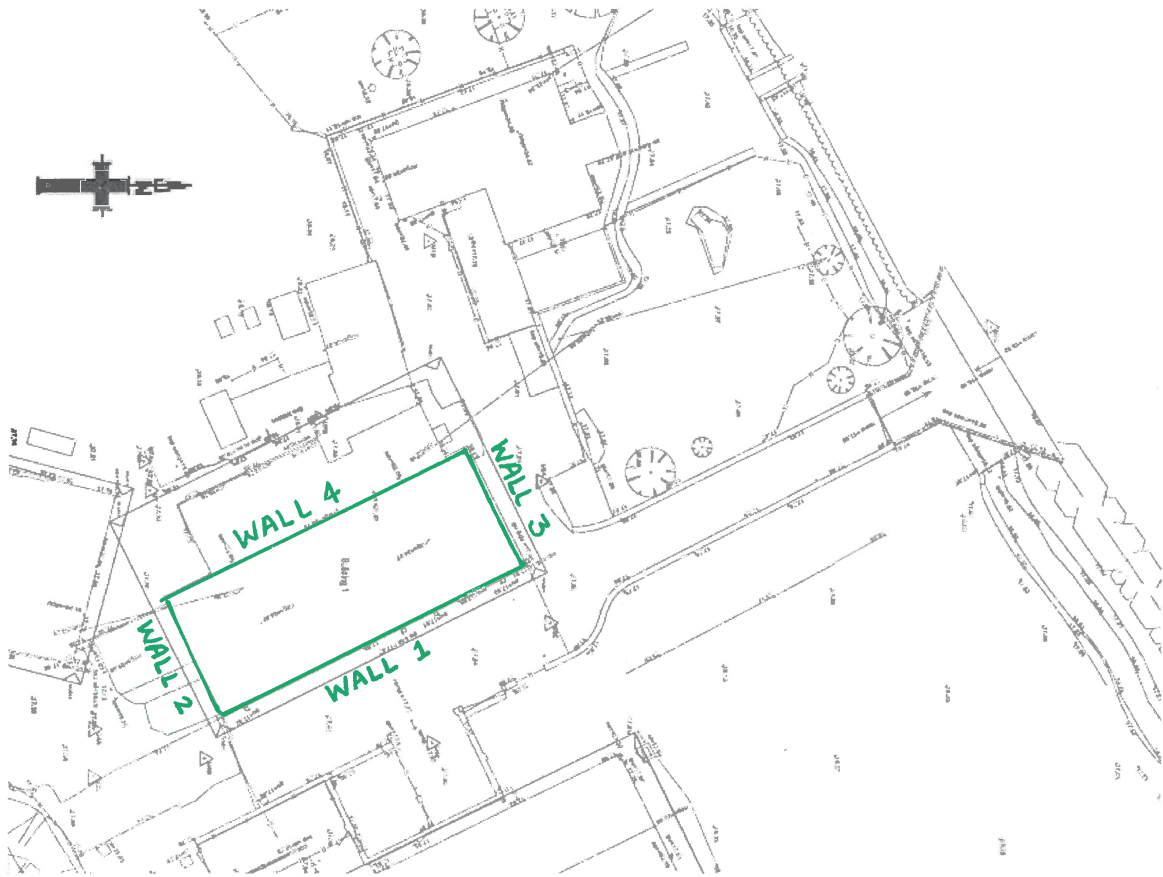
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Section		EXISTING SITE PLAN		Sheet no./rev.		SK01	
Calc. by	Date	Chk'd by	Date	App'd by	Date		
SB	17-05-17						



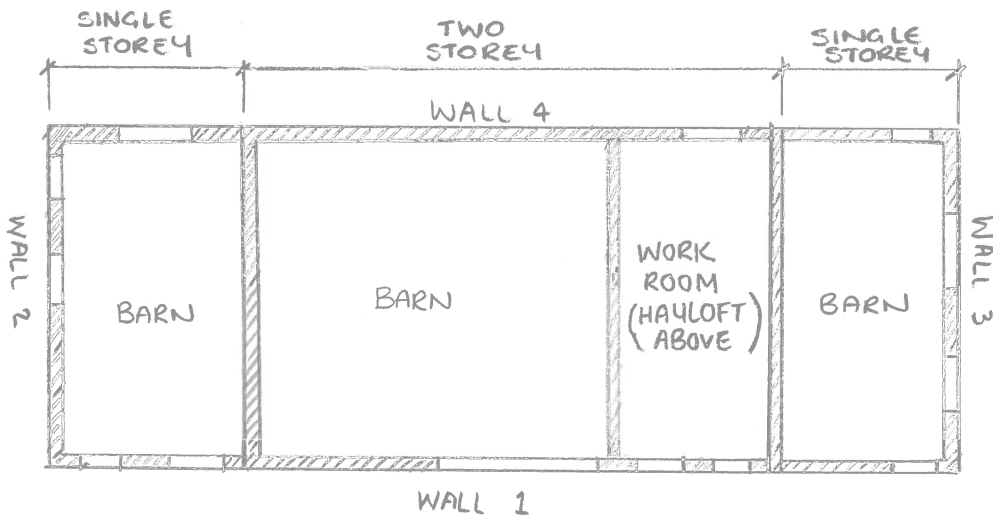
EXISTING SITE PLAN
(Not to scale)



Project INSPECTION - STUBBINS LANE			Job Ref. 3079-17		
Section LAYOUT PLAN			Sheet no./rev. SK02		
Calc. by SB	Date 17-05-17	Chk'd by	Date	App'd by	Date



WALL REFERENCE PLAN
(Not to scale)



GENERAL LAYOUT PLAN
(Not to Scale)

Appendix B

Photographs



Elevation - Wall 1



Elevation – Wall 2



Elevation – Wall 3



Elevation – Wall 4
(Lean to block work/sheeted building omitted from this report)



Single storey section to South



Single storey section to North



Wall 4 – Block/timber clad outbuilding omitted from this report



Roof profile from Wall 1



Roof profile from Wall 4



Internal – Single storey section – North elevation/Wall 3



Internal – Single storey section – North elevation/Wall 3



Internal – Work room (hay loft above)



Internal – Hay loft above work room – two storey section



Internal – two storey section



Internal – two storey section – showing king post truss and sheeted roof



Internal – Single storey section – South elevation/Wall 2
Boarded area forming mezzanine type storage above



Internal – Single storey section – South elevation/Wall 2
Traditional purlin and rafter construction clad with slate



View of Wall 4 from within outbuildings



View of Wall 4 from within outbuildings



Minor cracking to right hand side – Wall 2



Minor cracking right hand side – Wall 2



Outward movement to window and surrounding stone – Wall 2