
ANDREW MARCHAM & Co.

Chartered Structural Engineers

Our Ref:- 16/342A/AWM/kb

Date:- 25th July 2016

Mr J & Mrs L Martin
Monnington House
Station Road
Credenhill
Hereford
HR4 7DW

Dear Mr & Mrs Martin,

Re:- Redundant Hop Barn, Lower Castleton, Ocle Pychard, Hereford, HR1 3RF

I refer to instructions conveyed in connection with your proposed purchase of the freehold interest in the above property with particular regard to obtaining Planning Consent for conversion of the existing Hop Barn to form additional residential accommodation. In this respect, a report of my findings and recommendations is as follows:-

Preamble The property as a whole comprises a substantial three storey residential building originally constructed in 1724 but which has been substantially upgraded in more recent times. The section of property currently under consideration is the redundant Hop Barn buildings which are attached to the right side of the main building.

The object of my involvement is to provide an independent appraisal as to the structural feasibility or otherwise of converting the existing buildings to form the proposed residential accommodation as required by the Local Authority Planning Department. The scope of this report therefore is confined accordingly and should not be construed as a comprehensive survey including the condition of other unrelated items.

My appraisal took the form of an internal and external visual inspection carried out during dry sunny weather conditions on the 27th June 2016. However, I have also had sight of a previous Structural Engineer's Report prepared in June 2011 together with a copy of the proposal drawings prepared by Warren Benbow, Architects. At this stage, trial pits have not been excavated to expose foundations although from my knowledge of the local geology, subsoil conditions beneath the site will comprise a red very sandy clay of low Plasticity Index underlain at depth by Marl or Sandstone rock.

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Redundant Hop Barn, Lower Castleton, Ocle Pychard, Hereford, HR1 3RF

External

Notes

The Hop Barn basically comprises a large two storey barn the left side of which has already been converted to form part of the main house accommodation. Attached at the rear right side of the main barn are two circular hop kilns approximately 4.0m diameter. My inspection was carried out from ground level around the perimeter of the buildings where access is possible and for the purposes of this report, any notes made are with the walls described handed facing the front entrance elevation. Notes made on a particular wall however, are described handed facing the elevation in question.

The front wall basically comprises solid natural stone masonry (rubble fill) to ground floor ceiling level above which is a traditional vertical and horizontal timber framework with in-fill brick panels. Stonework to the lower storey height is generally in good order and whilst some displacement can be seen, this appears to be longstanding and non progressive following earlier introduction of a longitudinal tie-rod. Timber lintels over the door and window openings also appear generally serviceable with no ongoing deflection present.

The timber framed section of front wall has suffered much inward and outward displacement over the years which in turn has resulted in displacement to the in-fill brick panels. Much of this most likely relates to an earlier problem of thrust from the roof framework although again, the movement is clearly longstanding and individual timbers are generally serviceable subject of course to specialist inspection to eradicate any ongoing rot or beetle. The in-fill brick panels however would best be taken out and reinstated with benefit of stainless steel fixings back to the main framework.

The right flank wall is a gable elevation comprising solid natural stone masonry (rubble fill) over the lower storey height reverting to 225mm thick brick masonry above with a horizontal timber at wall-plate level. Outward displacement has occurred in the panel of masonry between the ground and first floor window openings with open cracking present in the masonry. General renovation will be required and the timber posts on each side need to be strapped back to the masonry.

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The rear wall is of a similar form to the front basically comprising a combination of fair faced brick and stone masonry to ground floor ceiling level with a vertical and horizontal timber framework above including in-fill brick panels. The timber framed elements are in good order and quite serviceable in the long term with far less displacement present than that at the front of the building. Again however, the in-fill brick panels would best be taken out and reinstated with stainless steel ties.

The hop kilns are formed in solid 225mm thick brick masonry extending to barn roof eaves level although traditional slate clad conical roof framework above. Both of the kiln buildings are in a reasonable state of structural repair although some open fractures can be seen at low level with a further fracture running vertically in the brickwork at the rear of the building. The vertical fracture most likely relates to former use of the kiln building and stitch bonding repairs are required. Low level cracking has occurred to inappropriate formation of small openings which can again be repaired with stitch bonding.

The roof over the main barn spans to a central ridge between the front and rear walls under a slate covering. Noticeable displacement can be seen particularly to the front slope although much of this relates to deflection of the purlins with high points formed at truss locations and at the gable ends. The roof to the kilns is also slate clad generally in need of renovation.

Internal Notes

The main barn is basically formed into two open-plan areas separated by an internal natural stone division wall with large door opening. The walls at this level are generally in good order with no ongoing displacement present although there is a need for some stitch repair to cracking to masonry around the window opening in the right flank wall.

First floor construction basically comprises a series of substantial down-stand timber beams spanning front to rear with the joists spanning from side to side. All timbers will require specialist treatment to eradicate any ongoing rot or beetle although the main beams are clearly of very substantial proportions and quite adequate to support normal domestic loading.

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The roof over the main barn comprises a traditional arrangement of rafters supported by timber purlins spanning from side to side with intermediate support from a series of timber trusses spanning front to rear. There are two longitudinal purlins to each roof slope in a good state of repair although some of the knee braces are missing from two of the trusses and the truss on the far right side is currently propped off the floor deck. Roof timbers to the kilns were inspected from ground level and appear generally serviceable subject to general renovation. Most of the original timber floor members however are no longer present and reinstatement is required.

The Bothy The Bothy basically comprises a timber frame supporting a lean-to roof arrangement and it would seem that most other parts of the structure have been removed in the past.

A brick area is present on the far right side under a corrugated asbestos cement roof covering the walls to which could be incorporated in a conversion scheme.

Insofar as The Bothy is concerned, the rear wall could be brought back to vertical alignment and retained although the roof would need to be replaced.

Discussion Of

Findings Internal and external wall masonry over the lower storey height of the main barn is in a sound and serviceable structural condition albeit with a need for local repair where cracking has occurred. In particular, the walls exhibit no evidence to indicate any progressive movement at foundation level and I would not anticipate the need for underpinning to original foundations. This also applies to the solid brick masonry of the kilns and the main vertical fracture visible internally is considered longstanding which can be made good by stitch bonding repair.

The timber framed elements of the main barn have suffered much displacement in the past which clearly relates to inappropriate alterations to the roof framework which has caused a substantial transfer of thrust. Some of the trusses have been partly repaired in the past although such work is incomplete and all such elements need to be restored back to their original configuration. The vertical and horizontal timber elements to both the front and rear walls are generally serviceable but should be returned to a near vertical position in the course of general renovation with taking out and reinstatement of the in-fill brickwork in the normal way.

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The first floor deck is generally serviceable in the main barn with particular regard to the substantial main beams which are considered adequate for normal domestic loading. All timbers however will need to be inspected and treated by a specialist with regard to any ongoing rot or beetle.

Concluding

Remarks

The main barn and attached kilns are in a sound and serviceable structural condition with no evidence to indicate any **progressive** lateral, vertical or foundation related movement in the main load bearing fabric of the buildings.

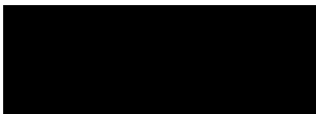
The building as a whole is of much age and inevitably, deterioration has occurred over the years and inappropriate alterations carried out in the past have resulted in much lateral displacement particularly to the timber framing of the front and rear walls. I would therefore recommend that a detailed set of calculations and drawings are prepared by a Structural Engineer as part of the general renovation process which will need to include specific details for permanent lateral restraint.

In view of findings and subject to general repair work, I consider that the main barn and kiln buildings are quite capable of conversion to form the proposed residential accommodation without need of major demolition and subsequent rebuilding.

This report is for your private and confidential use together with any other party directly involved in the Planning Application. The report therefore should not be used or relied upon by any other third party without prior written consent from Andrew Marcham & Co.

I trust the above is self explanatory and sufficient to the purpose for which the report was commissioned however please do not hesitate to contact me without delay should any clarification be required.

Yours Sincerely,



Andrew Marcham
C.Eng.M.I.Struct.E.