Structural Conditional Report

For

Existing Barn at,

Holly Hall Lane, Green Moor

Prepared for:
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1.0 Introduction

A planning application has been submitted to convert the existing barn and adjoining stable building into habitable living accommodation. The following report has been commissioned to assess the suitability of the structure for the proposed change of use.

The structure is a detached stone built barn and is situated in the corner of a field adjacent to Holly Hall Lane. There is a small detached stone outbuilding which is to be included in the conversion proposals.

This report is a structural assessment of the existing construction and condition of the buildings and defines the viability for the proposed change of use. The comments presented in this report are based on the findings from the visual site inspection, carried out by Design IT, no intrusive investigation or testing was carried out during the visit.

2.0 Inspection Survey

A survey was carried out on the 8th March 2013 and consisted of a visual inspection of the entire structure. Access was available to all internal and external areas. At the time of the visit the buildings were let for use as stabling. At the time of the survey it was raining.

Reference in the report to front, rear, right hand side (RHS) and left hand side (LHS) are as viewed facing towards Holly Hall Lane from within the field.

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For plans of the proposed change of use refer to all relevant architects details.

3.0 Building Construction

3.1 The buildings comprise the main barn with adjoining stable building. All buildings are of natural coursed stone construction. The main barn has a duo pitched roof with natural stone slate tiles. The roof to the rear slope continues down over a rear lean-to section. The adjoining stable has a mono pitch roof with natural stone slate tiles.

3.2 Access to the both the stable and the barn are from the front elevation. The frontage to the barn and stable is paved. Ground levels around the buildings vary, with the ground sloping up from the front elevation towards the road. The side elevation to the stable and the rear elevations to the barn and the stable are retaining.

3.3. The stable comprises a single room with open roof construction divided internally into 2 compartments. The main barn has 2 rooms at ground floor with and additional room to the rear. There is an existing 1st floor to main barn, which covers approx ¾ of the main barn footprint.

4.0 Inspection Details

4.1 Elevations – Stable

4.1.1 The front elevation comprises a single door and window and is slightly stepped back from the front elevation to the barn. Wall construction is generally in sound condition and perpendicular. The wall adjoining the main barn is of stack bond construction and does not appear to be tied in to the wall of the barn.

4.1.2 Lintels above the door and window are of timber and are decayed. The head of the door lintel is only approx. 2m above the finish floor level.

4.1.3 The roof construction was viewed from the ground. The front section is very uneven and the gutter, along the front elevation is over grown and appears rotten. The mid section of the roof appears to have sagged. There are no flashings where the roof butts up to the gable of the main barn.

4.1.4 The left hand side elevation appears sound and perpendicular. There are a number of sections where bed joints require repointing.

4.1.5 The rear elevation appears to have a number of settlement cracks to the bed joints adjacent to the small window. There are also a number of open vertical cracks to the stone work which is not coursed. This could be due to settlement. There is a large amount of ivy growth covering half of the elevation preventing clear inspection.

4.1.6 The ridge to the rear elevation is approximately 2.7m above ground level, which suggests that the rear wall retains approximately 800mm of material.

4.2 Elevations – Barn

4.2.1 The front elevation comprises an mid entrance door and a loft hatch at 1st floor level directly above. There is significant ivy growth over the elevation preventing clear inspection.

4.2.2 The door lintel is formed of stone, which appears weathered.

4.2.3 The wall to LHS low corner shows signs of settlement cracking to the bed joints.

4.2.4 The lean to type room off the rear elevation extends proud of the adjoining stable structure. The raised ground level from the back of the stable extends to the gable of the rear room. A small section of the gable apex wall is visible.

4.2.5 The side gable appears generally of sound construction, with a few areas which require repointing.

4.2.6 The rear to the lean to is almost completely below ground and covered in vegetation. Due to the abundance of vegetation growth it is difficult to determine if there has been any structural movement.

4.2.7 The roof structure extends down from the roof to main barn. There is a clear line where the pitch angle changes slightly. The roof tiles are very uneven and many are broken. At the eaves the roof is almost at ground level and is suffering from the volume of vegetation growth.

4.2.8 The roof to the main barn can also be viewed from this location. In the main the roof appears sound but there are clear signs of sagging to the ridge and to the slope.

4.2.9 The LHS gable can be viewed via access through the steel gate into the adjacent field to the barn. The wall appears to be weathered and there are signs of settlement to the lower section of wall. There are a number of cracks to the bed joints mid way along the elevation and on the corner to the front elevation. There would also appear to be some patch stone work infill panel construction, possibly to brick up a previous doorway. The stonework in this RHS lower section would also appear to have settled with bed joints on a tilt.

4.2.10 The out building is a single storey stone built structure which is located up against the wall to Holly Hall Lane. The construction would appear to be of dry walled build, with one wall actually the boundary wall to the road. The roof is flat and comprises solid York stone slabs spanning across the walls. Sections of the walls have open bed joints, suggesting signs of ground movement.

4.2.11 There is no floor construction, just a dirt floor.

4.3 Internal - Stable

4.3.1 The open roof structure comprises jack rafters supported on a single timber purlin. The timber purlin appears to be suffering from decay at each of the supports. A number of rafters would also appear to have suffered from water damage. The internal area is relatively dry but at the time of the visit water ingress due to the rain was evident to the rear eaves line.

4.3.2 The rear wall is also very damp where this is retaining the external ground level.

4.3.3 The low level of the eaves construction on the front elevation may be an issue for the proposed conversion, and will depend on the proposal for the new floor construction. The existing floors are solid but will require insulating in addition to waterproofing.

4.3.4 All walls are uninsulated.

4.4 Internal - Main Barn

4.4.1 The main barn comprises 2 ground floor areas. These are currently used for storage. There is a first floor, the structure of which is visible. The first floor is over ¾ of the footprint of the main barn.

4.4.2 The first floor structure is of large timber support beams, spanning across the width of the barn, supporting timber joists and timber floor deck. The main beams have reduced sections at the supports and have a number of cracks along their length. Some of the 1st floor structure appears damp and is probably decayed. A timber specialist should be consulted to assess the timbers for integrity. The headroom may also be an issue depending on the proposal for the ground floor construction.

4.4.3 From the ground floor the roof construction can be viewed. This comprises timber purlins supporting jack rafters. There is 1 purlin to the front and 2 purlins to the rear slope. All purlins would appear to have water damage, with all exhibiting signs of excessive deflection at mid span.

4.4.5 Damaged roof tiles have caused openings in the roof exposing some timbers to the elements and allowing water ingress. This is also likely to have caused water damage to the first floor construction.

4.4.6 The gable to the LHS has a large bulge in the stone construction. This is approximately 4m², and has many open joints. We would suggest that this section is unstable and should be taken down and re built. The lack of stability is down to the there being no 1st floor to provide effective restraint.

4.4.7 The room off the rear is used as another store. This area is in a poor condition. There has been significant water ingress and at the time of the visit water was evident running down the inner dividing wall and dripping from the roof. This has effected the integrity of the roof timbers and support purlin along with the internal door lintel.

4.4.8 The walls in places appear to be of dry wall construction. The rear wall, which is retaining, appears out of line, with some displaced bed joints.

4.4.9 All walls the barn and rear room are uninsulated.

5.0 Conclusions / Recommendations

From the visual inspection carried on the 8th March 2013, there are a number of areas of the existing structures which require treatment prior to making the buildings habitable. These being:

1. The replacement of all the roof structures and making water tight to all sections. Including replacing lintels.
2. Rebuilding the left hand gable to remove the section of unstable wall.
3. Re grading of the ground levels around the buildings, or waterproofing to the rear of the walls if levels are to remain as is.
4. The taking down and rebuilding of the rear lean to room off the main barn.
5. Replacement of structural elements to the existing 1st floor in the main barn.
6. Repointing to the facades
7. Installing brick ties to create an effective bond between the stable and main barn.

We would suggest that the existing structures will have no suitable foundations. There are signs of settlement around the buildings, therefore we suggest under pinning is required to some sections of the building to ensure long term stability. This is likely to be to the LHS corner of the front elevation to the main barn and the LHS gable. Underpinning may also be a requisite to strengthen existing foundations where new 1st floors are proposed, and to avoid differential settlement.

In this regard we would suggest that, due to the relative small size of the existing structures, carrying out extensive remedial works on the buildings as they stand is an uneconomical option,

as there would be little of the existing structure remaining. In addition if underpinning is carried out this would potentially result in issues relating to obtaining building insurance, creating a long term problem.

The detached out building suffers from similar issues and requires suitable foundations plus the dry wall construction is structurally inadequate. The roof will require waterproofing, and a new floor slab. The concern is that with one of the walls being the dry stone wall to Holly Hall Lane, new separate support walls should be provided isolating the structure from the boundary wall.

The above defined points are items to make the existing buildings structurally sound, and do not consider the issues involved in insulating the current structure to make it habitable and to satisfy building regulations.

We would suggest that a more cost effective approach, with out potentially long term structural and cost issues, would be to demolish all structures and rebuild to suit current building regulation requirements.

Signed : Ian R Thorpe ..... Date : 14th March 2013

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