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Structural and Architectural Technicians

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23 September 2014

KEH/CRB/sep/1126

Dear Sir,

Re: **Proposed Conversion of Existing Barn into Habitable
One Bedroom Cottage Accommodation – Sack Lane, Lidsey**

In accordance with your instructions received through our mutual client, Mr. J. Langmead, I did on Thursday, 18th September 2014 attend the above site and carried out a survey and inspection of the existing barn with regard to its structural capabilities for the proposed conversion to a habitable dwelling, all as generally indicated on your architectural drawing nos. 2014/04/01-03 inclusive.

My survey and inspection was carried out in dry weather conditions and only the structural aspects of the existing construction were inspected and are reported on hereunder.

GENERAL INTRODUCTION

The existing barn is a detached building rectangular in shape with solid masonry walls supporting a slate covered pitched roof with timber clad gable ends.

There are three existing large openings in the west elevation, two of which have feature brick arches over. All details are as generally indicated on the aforementioned architect's drawings. We are respectfully informed that this building is not Listed.

SITE INSPECTION

Masonry Walls and Foundations

The existing masonry walls were measured as being 13.5" solid construction in a mixture of flint work, stone and brickwork.

C.R. BARROW
Director

K.E. HILTON, C. Eng., M.I. Struct. E., F.F.B.
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The foundations were not exposed but it is assumed they consist of a corbelled detail in either stone or brick down to an approximate depth of 450mm below ground level. It is likely that they are founded on firm shingly clay.

The walls were seen to be in good line and level with no eaves roof spread. There was no evidence of any subsidence, settlement or heave and there was no evidence of any major structural cracking.

Externally, there was some evidence of mortar fatigue, particularly around the feature brickwork to the existing main openings.

Ground Floor

The existing ground floor was of compacted earth approximately level with the external ground level. This will require reducing to support a new ground floor slab construction.

Pitched Roof

The existing pitched roof construction consists of a slate covering on timber battens on roofing felt on pitched rafters at 400 centres supported on wall plates and ceiling joists with noggins in mid span. Diagonal timber bracing has also been incorporated within the roof plane of the rafters.

The wall plate construction has been suitably strapped down to the inside face of the existing masonry walls with galvanised mild steel straps.

CONCLUSION AND RECOMMENDATIONS

The existing construction of foundations, masonry walling and pitched roof are considered structurally acceptable for usage in the proposed conversion to a habitable dwelling providing that the following items of construction are attended to during the renovation and reconstruction work and these are listed hereunder:-

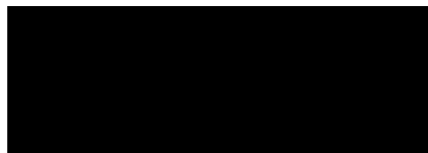
1. The vegetation growth which exists around all elevations should be completely removed.
2. The existing ground floor area internally of the building should be reduced in level to allow the construction of a new ground floor slab arrangement consisting of a minimum of 150mm hard core base with 1200 gauge polythene dpm membrane over turned up the inside face of the existing masonry walls. This to receive a new minimum 150mm thick concrete ground floor slab with thickened toes around the internal perimeter to support the new internal timber stud work. The slab should be reinforced with one layer of A393 mesh reinforcement. The slab to receive insulation and screeded finish to architect's specification and achieve the required 'U' value. Non load bearing internal timber or block partition walling may be constructed directly off the reinforced concrete slab.

The new finished ground floor level should be at least 150mm above the external ground level.

3. The internal masonry walls should receive three coats of 'Synthaproof' up to a minimum height of 600mm above floor level.
4. Internally around the perimeter of the existing masonry walls and built off the thickened reinforced concrete slab an internal stud wall should be constructed with sole and header plates and noggins in mid height. The stud work should be suitably insulated and finished to architect's specification and to conform with 'U' value requirements.

5. The existing timber pitched roof construction should receive additional horizontal ties at approximately 2M centres fixed across the existing rafters at approximately mid height position.
6. New insulation should be fixed between and over the existing ceiling joists to architect's specification and to achieve the required 'U' value.
7. New window openings should have new precast concrete lintels over to support existing masonry. The new brick arch opening should be constructed to match the existing.
8. Externally, the masonry walling and flint work may require repointing and repair in some isolated areas.

I trust that the details given above are self-explanatory and will be of assistance with your planning application. However, if you have any queries please do not hesitate to contact me.



K.E. HILTON

C. ENG., M.I. Struct. E., F.F.B.