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Mr. & Mrs. Tiley,
12 River Road,
LITTLEHAMPTON,
West Sussex.
BN17 5BN

02 September 2014

KEH/CRB/sep/1068

Dear Mr. & Mrs. Tiley,

**Re: Structural Survey and Report of Two Storey Outbuildings Attached to the Rear
North Elevation of the Main Property 12 River Road, Littlehampton, BN17 5BN.**

In accordance with your instructions received through your architect, Mr. Wayne Gander, we did on Tuesday, 19th August 2014 carry out a survey and inspection of the above and report to you hereunder our findings, comments and recommendations as to the structural suitability of the existing building for the proposed conversion to a habitable studio/office, all in accordance with the architect's drawings and specification.

Our survey was carried out in dry weather conditions and only the structural aspects of the building were examined and are reported on hereunder.

For location purposes it is assumed that the storage building faces due north.

INTRODUCTION

The existing main property is a large two storey semi-detached dwelling fronting River Road.

We are respectfully informed that the existing property, together with the storage outbuilding, is a Grade II Listed property dating back to its original construction in 1792.

No areas of the existing main property are involved in the survey or the proposed alteration and renovation work.

C.R. BARROW
Director

K.E. HILTON, C. Eng., M.I. Struct. E., F.F.B.
Consultant (Tel: 07968-333140)

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The two storey storage extension is rectangular in plan shape with an overall width of approximately 2.7M and a length of approximately 11.5M. It has an internal height of approximately 4.2M from the lower ground floor slab level to underside of sloping flat roof.

All details of the existing layout and proposed layout can be seen by referring to the architect's drawing nos. 01 & 02.

SITE SURVEY AND INSPECTION

Foundations

The existing foundations were not exposed to the main external walls but it is suspected that these consist of a continuation of the existing flint walls down onto a corbeled flint or brick foundation at a level slightly below the existing ground floor level.

Ground Floor Slab

The ground floor slab consisted of brick paviors at a level of approximately 350mm below ground level. This level increased to approximately 600mm in the boiler room area.

The general condition of the brick paviors was considered good, although uneven in places, and there was no evidence of any rising damp through the ground floor areas or sub-basement walling.

External Walling

The external walls were constructed in solid flint work measuring approximately 300mm thick. These walls were constructed to a height of approximately 2.2M and incorporated door and window openings, all of which had timber lintels over.

It is thought that these walls were constructed at the same time as the original main property and were roofed over at that time.

The extension of the walling in single skin face brickwork with internal piers supporting the flat roof was most likely constructed at a later date to provide additional headroom and the introduction of the mezzanine floor areas.

The general condition of all walling was considered to be generally satisfactory and it is noted that the walls were in good line and level with no major cracking, subsidence, settlement or heave.

In the north elevation at the junction of the flint walling with the face brickwork was a timber plate in poor condition and this should be removed and replaced.

Internal Walling

The internal wall between the boiler room and storage area is to remain and is accepted as being in reasonable condition.

The low level flint walling to the north end is to be removed in its entirety and the floor area made good as required.

First Floor Area

An existing timber staircase leads up to the first floor mezzanine area over the boiler room. This consisted of timber joists spanning between the main walls and covered in timber boarding. The joist size should be checked for adequacy and it is thought that the existing flooring would be removed and replaced.

The first floor area to the north end of the storage building had been removed and only a couple of existing timber beams remained in position. These are to be removed.

Lean-To Flat Roof

It is evident that the existing flat roof had recently been removed and replaced with new construction consisting 4 x 2 rafters spanning onto wall plates with boarding and three layer felt roof covering over. Its general condition was accepted as satisfactory, although the size of the flat roof joists should be checked for adequacy. There was no evidence of any eaves roof spread to the existing walling.

CONCLUSION AND RECOMMENDATIONS

It is considered, without going into unnecessary detail, that the general structural aspects of foundations, walling, flooring and flat roof construction are structurally acceptable for the proposed conversion and renovation work providing that the following items are attended to during the building works, and these are listed hereunder:-

1. The flat roof joists to be checked for adequacy.
2. Where new roof lights are introduced the joists each side and trimming joists should be doubled up.
3. The existing timber wall plate should be adequately strapped down to the inside face of the existing brick walling with 20 x 5 galvanised mild steel straps at maximum 2M centres for a length of 1.5M.
4. The new stud walling construction above first floor built between existing piers should be supported on new sole plate bedded in sand and cement together with new header plate. Stainless steel angle ties should be fixed in mid height and screwed back to inside face of face brickwork. This detail to ensure adequate stability of walling above first floor.
5. Existing timber floor joists over existing boiler room to be checked for adequacy. If existing joists remain these should be treated against insect infestation and covered in fire-line boarding to provide required fire resistance.
6. New floor joists to be secured with joist hangers onto timber wall plate secured to existing flint walling with continuous plate suitably bolted with resin anchors into existing walling.
7. Doubled up joists should be provided to trim staircase well.
8. Existing wall plate in north elevation to be carefully cut out and replaced with face brickwork to match existing.
9. Existing timber lintels over window and door openings to be examined and checked for adequacy. Any replacements should be confirmed with Building Control who may require new precast concrete lintels. This may allow, if required, the door headrooms to be slightly increased.
10. The boiler room area of walling and flooring remains unaltered.

11. The remaining ground floor area should be treated with a damp proof membrane either three coats 'Synthaproof' or 1200 gauge polythene sheet with edges turned up the perimeter wall to at least ground floor level and turned in to existing masonry. New flooring then laid to architect's specification to give required thermal value.
12. Some isolated small areas of external flint and brickwork may require repair and repointing.

I trust that the above satisfactorily addresses the structural integrity of the above building.

Yours sincerely,



K.E. HILTON

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