

Our Ref: PM/5291

20th March 2023

Mr G Stevens
Anthony Hicks
Jessamine Farm
Old Romney
Kent. TN29 9SG

Dear Graham,

RE: NURSTEAD HALL, NURSTEAD LANE, LONGFIELD HILL

We write with reference to our recent site visit to the above property.

The purpose of the visit was to inspect a few areas of structural concern to the building. These were as follows;

- Item 1 – Bulge to North Elevation External Wall
- Item 2 – Kitchen Beam Connection
- Item 3 – Lounge Chimney
- Item 4 – First Floor Chimney Breast
- Item 5 – Possible Replacement Roof Dormer to South Elevation
- Item 6 – Second floor Beam Connection Immediately Adjacent West Chimney
- Item 7 – Over deflected Roof Purlin with Fracture to West End of Building

No other areas of the property were inspected in detail.

With regard to the remedial works, and as the property is Listed, we have indicated strengthening works only where we consider them to be absolutely necessary and have applied the principles of minimum intervention and generally utilised steel plates to enable as much of the historic fabric as possible to be retained. The steel plate repairs are also completely reversible.

We summarise the repair works as follows;

Item 1 – Bulge to North Elevation External Wall

This wall was found to be bowing out significantly adjacent to the kitchen windows at just above first floor level (see plate 1 at the rear of this report). An inspection of the oak frame internally local to this bulge found all timbers to be in reasonable condition, with all joints looking fairly tight and reasonably level. A small inspection hole had been formed externally which revealed that the render has become completely detached from the oak framework behind, leaving a gap of up to 100mm. The lathes were also found to be loose. The small

area of studwork that could be seen externally generally looked in reasonable condition, although the first floor soleplate appeared to contain a small fracture (see plate 2).

It is therefore clear that the bond between the render and oak frame behind has been completely lost which will require the render finishes to be removed and re-applied. The slight fracture to the soleplate should be reinforced with a 600mm long x 100mm deep x 8mm thick steel strap coach screwed to the outer face of the plate.

Elsewhere around the property, the render was seen to be loose and has become detached from the oak framework behind, so these areas should be investigated further but we feel that it is likely that large areas of render will require replacement.

As discussed on site, an incoming overhead power cable is located in close proximity to the works, so a method statement will be required to ensure this is adequately isolated/protected. Specialist advice should be sought.

Item 2 – Kitchen Beam Connection

This connection is between a primary and secondary floor beam that has opened slightly (see plate 3). A tenon could be seen entering into the supporting beam and, although there is no evidence to suggest that the tenon is failing, it is also not possible to comment on its condition and adequacy as the vast majority of it can't be seen. We would therefore recommend that the joint is nominally strengthened by installing 100x100x8mm thick x 150mm deep angle cleats to both sides of the supported beam and fixed each leg with 2No.M12 coach screws.

Item 3 – Lounge (West) Chimney

A 200mm deep oak bressummer is present that spans over the open fireplace (see plate 4). As shown in the photo, a diagonal crack has opened up above the bressummer. This is likely to be due to shrinkage of the oak beam, together with deflection caused by the weight of masonry above. The timber beam appeared to be in sound condition although its inside face could not be seen due to a fire guard.

We would therefore recommend that the cracked section of brickwork is strengthened by installing 4No. rows of stainless steel heli-bars at 150mm vertical centres for the entire panel length (see also plate 4) and re-pointed with lime mortar to match the composition of the existing.

Item 4 – First Floor (West) Chimney Breast

This again contains some cracking above the timber bressummer, although the cracking in this instance is only hairline in nature. We would still recommend that this is strengthened by installing 3No rows of stainless steel heli-bars at 225mm vertical centres for the entire panel length (see plate 5) and re-pointed with lime mortar to match the composition of the existing. The mortar is loose in places to the other faces of this stack so local re-pointing will be required.

A section of brickwork below the bressummer has been previously infilled and this has become very loose and will require re-bedding.

Item 5 – Possible Replacement Roof Dormer to South Elevation

We understand that it is proposed to construct a replacement dormer. The dormer is currently supported on the eaves wall plate, which contains a joint immediately below. As before, it is difficult to comment on the condition of the joint as the majority is concealed, so we would recommend that a small panel of the modern plasterboard below the beam is removed to ensure that the beam is adequately supported by the studwork frame below.

Once the roof finishes are removed, the trimming rafters beneath the dormer cheeks should be checked for adequacy.

Item 6 – Second floor Beam Connection Immediately Adjacent (West) Chimney

This connection is between a primary and secondary floor beam that has opened up. A tenon could be seen entering into the supporting beam and, although there is no evidence to suggest that the tenon is failing, it is also not possible to comment on its condition and adequacy as the vast majority of it can't be seen. As with the kitchen beam, we would recommend that the joint is nominally strengthened by installing 120x120x8mm thick x 150mm deep angle cleats to both sides of the supported beam and fixed each leg with 2No.M12 coach screws. As this joint has opened up more than the kitchen beam, we would also recommend that a strap is added to the top of both beams which will require the local removal of some floor boards above. Refer to plate 8 at the very rear of this report for sketch detail.

Item 7 – Over deflected Roof Purlin with fracture to West End of Building

This purlin is located within the second-floor attic room of the property (see plate 6). The purlin spans approximately 3.4metres between the west elevation gable wall and a large collar. The purlin has a fracture along its length (see plate 7).

Although the purlin is over-deflected, collars are present at a slightly higher level (as shown in plate 6) which will relieve the purlin of some weight. Due to the fracture, we would however recommend that a steel plate (8mm thick), profiled to suit the shape of the purlin is added and fixed alongside with coach screws at 400mm centres in order to regain its integrity.

Whilst walking around the property, it was also noted that the top of the west elevation gable wall projects out from the verge, which is enabling water to penetrate behind the render. This area will need further investigation when an access scaffold is installed and is likely to require some sections of render to be removed to check the condition of the oak framework behind. The verge detail will however need to be modified in any event to ensure the roof line projects behind the face of the wall in order to protect the top of the wall from water ingress.

We trust the above is in order, but please let me know if you have any queries.

Yours sincerely

A handwritten signature in black ink, appearing to read 'P. Molineux'. The signature is fluid and cursive, with a prominent 'P' and a long, sweeping underline.

PAUL MOLINEUX



Plate 1 – Bulge to North Wall



Plate 2 – Slight Fracture to First Floor Soleplate



Plate 3 – Slight Opening of Joint Between Kitchen Beams

Cracking through masonry

Indicates Proposed 4No. courses of Heli-bar repairs.



Plate 4 – Cracking Above Lounge Fireplace Bressummer

Indicates Proposed 3No. courses of Heli-bar repairs.



Plate 5 – Slight Cracking Above First Floor Fireplace Bressummer and Loose Infill Masonry



Plate 6 – Bowed Purlin to Second Floor Loft Room



Plate 7 – Fracture to Second Floor Loft Room Purlin



PAUL MOLINEUX ASSOCIATES
Consulting Structural Engineers

Project:

NURSTEAD HALL

Job No:

5291

By:

PM

Date:

MAR 23

Sheet No:

X1

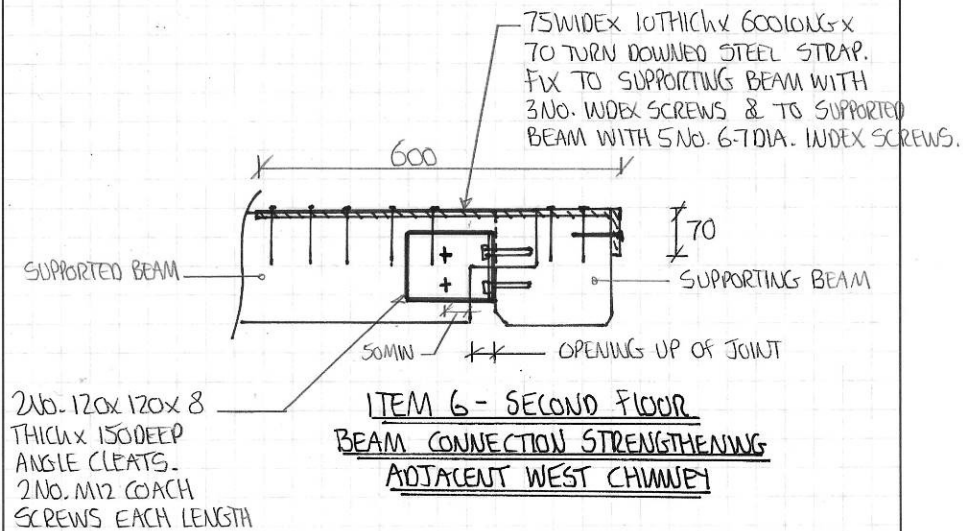


Plate 8 – Sketch Showing Angle Strengthening Detail