

CONSULTING CIVIL, STRUCTURAL,
HIGHWAY AND TRANSPORTATION ENGINEERS

GCA



Structural Appraisal

of

**Mill Hook Farm
17 Winslow Road
Granborough
Buckinghamshire
MK18 3NJ**

for

Ben Betts

Ref: 8759

Date: 28th October 2020



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Structural Appraisal

Mill Hook Farm, 17 Winslow Road, Granborough, Buckinghamshire, MK18 3NJ

1. INTRODUCTION

101. We were instructed by Dr Ben Betts to undertake an inspection of the rear left part of the property comprising a timber framed structure dating perhaps from around the 1700s.
102. We were requested to report on any apparent defects, giving an opinion as to cause and structural significance, together with recommendations for further investigations if required, or where appropriate suggest in outline only the scope of any necessary remedial works, including general advice about the likely effects and need to treat any nearby trees and vegetation where it could affect the structure.
103. We have not investigated the presence of asbestos and all other non-structural elements or biohazards, including the presence of invasive non-native plants, nor have we inspected the electrical and mechanical installations and our inspection of the property will only check for visual evidence of damp.
104. External inspection of the building has been carried out from ground level by visual and optical sighting and without special access arrangements we cannot confirm that obscured parts are free from defect.
105. The internal inspection has been made within the limits of ready accessibility and it is not normal practice to lift floor coverings or floorboards, remove panels or plaster, or move heavier items of furniture. Consequently we have not been able to inspect woodwork or any other parts of the structure which are covered, unexposed or inaccessible and it is neither implied nor should it be construed that other parts are free from defect or that they have not suffered from insect or chemical attack.
106. Roof spaces will be visually inspected on a “head and shoulders basis” from the loft hatch where in the surveyor’s opinion access is reasonably and safely available via a standard surveyor’s 3 metre ladder from directly within the confines of the subject property. Insulation and personal effects will not be moved. If an internal inspection of the roof space has been specifically requested access must be possible from a hatch at least 700 x 550mm, and if blanket insulation covers the main timbers and ceiling joints, to avoid damage, crawl boards will need to be in place.
107. Our inspection of the drains has been limited to the raising, where possible, of visible inspection chamber covers.
108. This report does not constitute a Homebuyers Report, Valuation or Schedule of Refurbishment, and the lack of specific reference to any structural elements, materials or type of construction does not infer compliance with the current British Standards, Codes of Practice, or Building Regulations, and enquiries to the Local Authority have not been made.

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109. The inspecting Engineer has not investigated the extraction of minerals and we recommend that the appropriate searches be made.
 110. The property and site have not been tested for any form of contamination, pollution or any other environmental impairment, including the presence of invasive non-native plants, and we are unable to make any comment in this regard.
 111. Whilst we have used all reasonable skill and care in preparing this report, it should be appreciated that we cannot offer any guarantee that the property will be free from future defects or that existing ones will not suffer from further deterioration.
 112. All observations are referenced as left or right hand as though observed from outside the front of the property viewing towards the front elevation, and all internal observations in the unlit or dark spaces were made with the aid of a hand held torch light.

2. GENERAL OBSERVATIONS

201. The property surveyed is a grade II listed building, with parts dating from the 17th century.

202. The property has been constructed in a number of phases with brick infill of the original timber framed parts and new brick masonry construction to the right hand side.

203. The part of the building which formed the focus of our brief is to the rear left and comprises a two storey structure with a timber frame and brick infill [Right, 1].

204. It has a plain clay tiled duo-pitched roof and is located to the rear left of the front range of the building.

205. There are two small brick lean-to extensions to the front right side and an extension slightly over 2m long to the rear.



3. EXTERNAL OBSERVATIONS

Left Elevation

301. The left elevation of the part of the building surveyed has a visible timber frame with a number of phases of brick infill [Right, 1].



302. The wall was leaning outwards by perhaps 300mm over its height.

303. The upper panels appear slightly newer than the lower panels but there have been several phases of brick construction.

304. Cementitious mortar had been used in the past to repoint the masonry, leading to blowing of the brickwork faces, particularly to the upper panels and the front lower panel.

305. In a number of locations, iron or steel straps have been installed. The most recent of these [Right, 2] appears to have been installed in the last 20 years and is located at the interface with the front part of the building.



306. We understand that work has been undertaken in the last 12 months comprising the following:

a. Rendering of the lower masonry part of the wall immediately above ground level.

b. The installation of brick bearers below the vertical timbers where bearings to these have been lost at the base.

c. Repointing in a soft lime mortar at the interface of timbers and brick masonry.

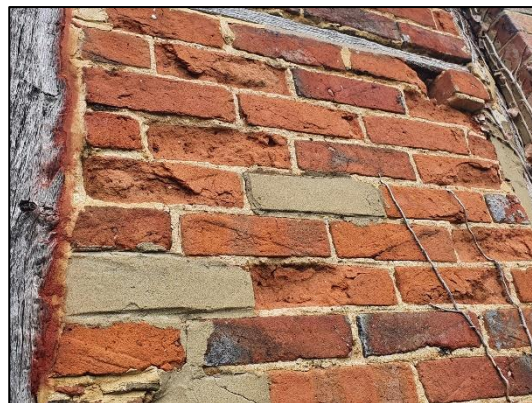
d. The removal of tiles which covered the wall plate at the base of the wall, to expose a rotted sole plate [Right, 3]

307. At the time of our inspection the sole plate had lost approximately half of its cross-section.

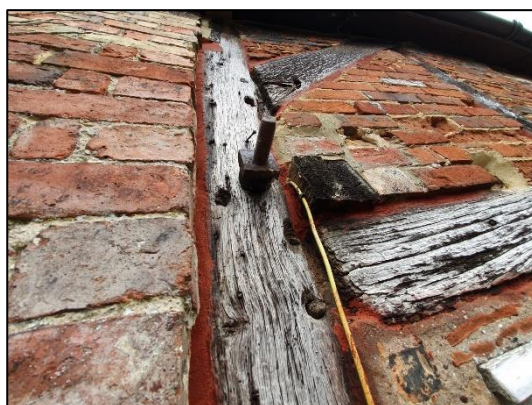


308. The timbers above the sole plate appeared to be in generally adequate condition although there had been distortion and cracking of the timber around the mid-height at the interface of horizontal and vertical members in the centre of the wall.

309. Delaminating brickwork [Right, 1].



310. Historic repairs [Right, 2]:



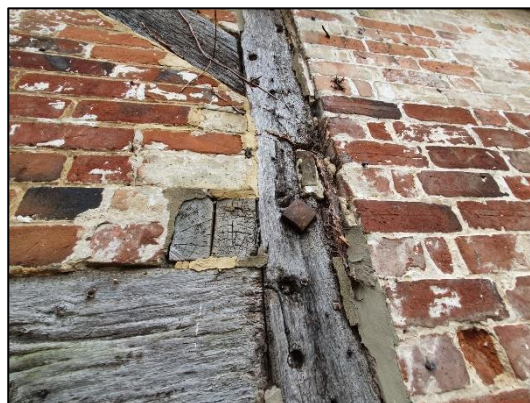
Rear Elevation

311. The rear elevation appeared to be in adequate condition, and is thought to be significantly more recent than the rest of the outrigger, comprising a much later extension.

Right Elevation

312. The right elevation was largely hidden by the construction of lean-to structures but where visible appeared to be in adequate condition.

313. The lower parts of the wall had been repointed with what appeared to be a cementitious mortar and the head of a large coach bolt was present at the interface with the extension [Right, 3] but there were no indications of significant structural defect.



4. INTERNAL OBSERVATIONS

Ground Floor – Left Elevation

401. The timber at the base of the left elevation [Right, 1] appeared dry to the touch although the timber pegs could be easily removed indicating the ends to have rotted.
402. There was cuboidal cracking [Right, 2] along the length of the bearing timber and the internal plaster appeared to have blown in the middle section.
403. Cracking was present around the middle part of the wall which appeared to be the reopening of old cracking which had previously been filled.
404. The timber visible immediately below ceiling level had signs of significant insect attack and longitudinal cracking along the grain with some cuboidal cracking at the front interface with the soffit of the stair bulkhead.
405. There was horizontal cracking consistent with approximately 1mm of outward lateral movement at the interface of the rear part of the original section of the building and the rear extension.
406. There was a vertical crack indicating outward lateral movement of 1mm [Right, 3].
407. There was a horizontal crack along the interface of the ceiling timber and wall indicating slight outward horizontal movement of perhaps 0.5mm.



Rear and Right Elevation

408. There were no signs of significant defect to the rear and right elevations although hairline cracking was present at the interface of walls and ceiling.

First Floor

409. The first floor over the timber framed section of the outrigger sloped down significantly towards the rear left.
410. The extension at the rear had a slight but significant slope to the left.

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411. The left elevation had hairline cracking in a number of locations consistent with the distortion visible on the outside of the wall but this did not appear to have progressed significantly in the last 12 months although hairline cracking did appear to have reopened at the top of the stairs.
412. The leftward lean of the left wall had opened up a gap between the floor and wall, through which some apparent displacement of joists was visible [Right, 1].



5. **CONCLUSIONS**

- 501. There is significant distortion to the left hand side of the structure with vertical settlement and horizontal outward displacement of the wall.
- 502. There has been significant rot of the timber wall plate at the base of the wall, most likely exacerbated by the presence of tiles above preventing the timber drying out following wet weather.
- 503. The repairs recently undertaken to the wall are consistent with good conservation practice and should significantly reduce the ongoing deterioration of the wall.
- 504. There is some evidence of progressive movement with possibly 1mm of lateral displacement over the last 12 months although this cannot be confirmed as records of the presence of the cracks were not taken at the time of occupation of the property following purchase.

6. RECOMMENDATIONS

601. The works undertaken to date are consistent with good conservation practice and are thought likely to reduce future deterioration of the structure.
602. Given the possibility of ongoing movement the area should be monitored in the short-term by repairing the visible internal cracks at the front and rear of the left elevation and monitoring for ongoing cracking. The use of a brittle, breathable filler material is recommended in order that movement is clearly visible.
603. The floorboards in the first floor above the leaning wall should be lifted to allow an inspection of the joist bearings, and any significant displacement advised to GCA.
604. Future action may be necessary to prevent significant lateral movement of the wall which could include the installation of stainless steel ties to restore full fixity of the first floor plate to the wall.
605. The rotting of the outer face of the sole plate may be exacerbating the outward lean, and hardwood packers could be introduced to reduce the risks of further rotation.
606. Keeping the sole plate dry will be critical to maintaining its life, and periodic inspections should be made during wet weather to determine whether water is being effectively shed away from the wall.
607. A review of the structure should be undertaken in 12 months time following this period of monitoring.

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File Ref: 8759
Date: 9th November, 2020

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