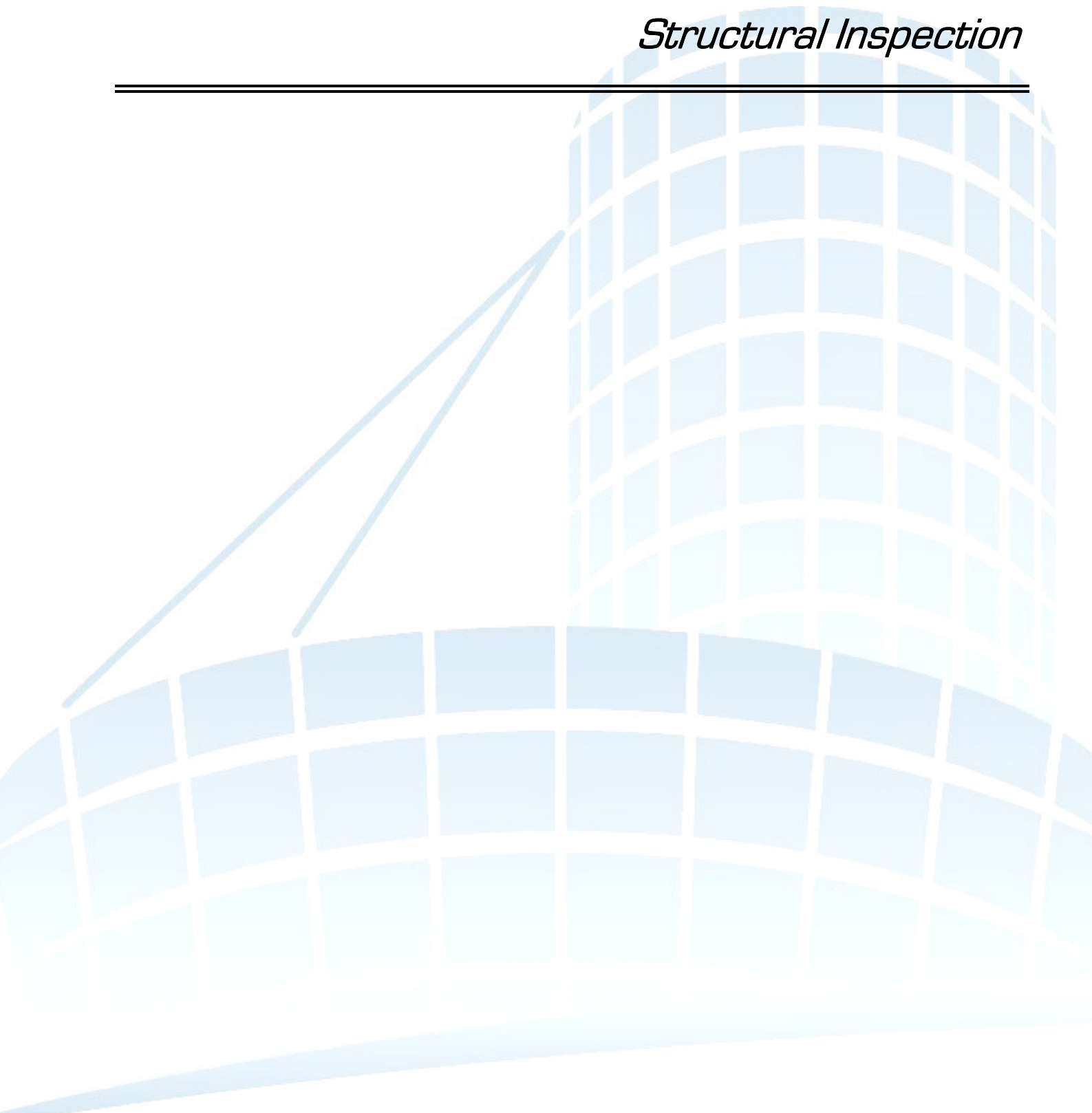




Diamond Wood & Shaw Limited

Structural Inspection



Structural Inspection

Client: **G & J Turner**

Project: **Manor House Farm
45 Main Street
Carlton
CV13 0BZ**

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Engineer:



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1.0 Introduction

- 1.1 Further to instructions I visited manor House Farm, Carlton on 8 February 2023.
- 1.2 The purpose of my visit was to undertake a visual structural inspection of the property, to identify the possible causes of the visible damage and to advise on appropriate remedial repair solutions.
- 1.3 My inspection was limited to elements of the structure which were visible, exposed or to which access was available. I did not inspect woodwork or any other part of the structure which was not visible or inaccessible and I am unable, therefore, to advise that any such part is free from defect.

2.0 Description

- 2.1 Manor Farm House is located to the north side of Main Street on an approximately north-south axis, and is primarily rectangular on plan but with an orthogonal wing projecting from the eastern-facing elevation. [Figure 1]



Figure 1

- 2.2 The house is a Grade II listed traditional building constructed with duo-pitched, tiled roofs supported on masonry walls.
- The original house is constructed with random stone external walls, with later extensions to the front, rear and right-hand side constructed in solid brickwork.
- 2.3 The roof and upper floors are of timber construction

3.0 Observations and Discussion

- 3.1 The house is suffering from general signs of aging commensurate with the construction and exposure conditions, together with a general lack of maintenance.

An external inspection identified a number of structural defects, although the majority of these were not reflected internally.

- 3.2 The south-facing gable wall appears to have been increased in height, and there is some cracking and a discontinuity of coursing at the interface. There is also stepped diagonal cracking extending from the top, left-hand corner of the first floor arched lintel. [Photograph 1]



Photograph 1

- 3.3 There is a further vertical crack in this gable wall extending from the bottom, right-hand corner of the first floor window to the top right-hand corner of an infilled former ground floor window. [Photograph 2]



Photograph 2

- 3.4 There is bulging of the eastern-facing side wall of the front extension at first floor level

- 3.5 There is a stepped diagonal crack above the front door in the single-storey lean-to entrance.

[Photograph 3]



Photograph 3

- 3.6 There is extensive weathering of the eastern-facing gable to the projecting wing, with a number of random bricks suffering from a significant loss of cross-section due to repeated frost damage.

- 3.7 The eastern-facing side wall of the rear brickwork extension is suffering from low level erosion of mortar joints, and cracking above the ground floor window due to failure of the brick arch lintel. [Photograph 4]



Photograph 4

- 3.8 There is a nearly full-height crack in the north-facing gable wall due to inadequate brick bonding and discontinuity of coursing. [Photograph 5]



Photograph 5

- 3.9 There is a single-storey lean-to structure attached to the north-west corner of the main house which appears to be a later addition to the rear extension, and is suffering from severe damage:

- Separation cracking of brickwork at the north-west corner [Photograph 6]
- Multiple cracking and distortion over the door in the western-facing wall [Photograph 7]
- Stepped diagonal cracking in the south-facing wall. [Photograph 8]
- Separation of the south-facing gable wall adjoining the main house. [Photograph 9]

This damage is believed to be associated with foundation subsidence resulting in rotation away from the main house.



Photograph 6



Photograph 7



Photograph 8



Photograph 9

3.10 There is significant cracking and distortion of the brickwork above the ground floor door to the western-facing wall of the front extension due to failure of the brick arch lintel.

[Photograph 10]

This damage is also visible internally. [Photograph 11]



Photograph 10



Photograph 11

4.0 Conclusions and Recommendations

- 4.1 The majority of the observed damage is external and the result of age and exposure, brick arch lintel failure and a general lack of maintenance, and is, therefore, repairable.
- 4.2 With regard to type of repair and rectification, damage can generally be categorised as MODERATE in accordance with the Institution of Structural Engineers publication 'Subsidence of low-rise buildings', with crack widths not exceeding approximately 5mm, or SERIOUS where crack widths up to 15mm are encountered.
- 4.3 Consequently, for the damage identified in Photographs 1 -5 it is recommended that the cracks are repaired using a crack stitching technique, involving raking out the mortar joints and inserting resin-bonded helical reinforcing bars into every third bed-joint before re-pointing. The small area of brickwork and brick arch to the eastern-facing side wall of the rear brickwork extension, [Photograph 4], will probably benefit from being taken down and re-built, especially since this section is likely to collapse when the window is replaced.
- 4.4 Due to the severity and extensive damage to the section of wall above the ground floor door to the western-facing wall of the front extension, [Photograph 10], this section should be taken down and re-built.
- 4.5 The single-storey lean-to structure attached to the north-western corner is potentially in a dangerous condition and should be taken down and re-built if required, on a new foundation although this only currently forms an external store and is not part of the habitable accommodation.
- 4.6 The section of bulging wall, [Section 3.4], should be strapped to the first floor joists as part of any refurbishment
- 4.7 It is further recommended that all exposed timbers are inspected and treated by a timber specialist for rotting and infestation