JCP STRUCTURAL AND CIVIL ENGINEERS

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Unit 7, Boscombe Centre, Mills Way,
Amesbury, Wiltshire, SP4 7SD

Our Ref: 16296/KAR/RPT01
Date: 21st July 2023

Mr & Mrs T Collins
Sharcott Manor
Sharcott Drove
East Sharcott
Wiltshire
SN9 5PA

Dear Mr & Mrs Collins

Re: Outbuilding, Sharcott Manor, East Sharcott



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We were instructed by you to visit the premises, undertake a visual inspection of the building and provide an assessment of its structural condition and the feasibility of conversion for habitable use. The inspection was to serve as an update form our original condition survey, undertaken in March 2021, which forms the basis of this report.

We only measured the building in the area which could have an effect upon reported defects. Parts of the structure, which were covered, unexposed or inaccessible, were not inspected. We are therefore unable to report that any such part of the property is free from defect. No measurements were taken for damp penetration or timber decay. Drains and services have not been inspected.

This report is prepared for the sole benefit of the client and we have no liability or duty to any other parties in respect of the contents or opinions expressed.

An initial inspection, without exploratory cutting away or the provision or use of special access equipment was carried out on Wednesday 10th March 2021. At the time of inspection, the property was in use for storage of general garden items and the weather was overcast and wet.

A further inspection was carried out on 15th June 2023. At the time of inspection, the property was in partial use for light storage of general garden items and the weather was sunny and warm. Much of the internal space had been cleared since our previous survey, allowing for inspection of areas previously inaccessible.

The building is in a poor condition throughout and will require extensive reconstruction to enable its proposed habitable use. These works would include, but are not limited to:

- Removal and replacement of the entire floor structure
- Removal and replacement of the entire roof structure
- Underpinning of all structural internal and external walls
- Removal and reconstruction of the internal and external walls

1. Description

The building is a single storey outbuilding, detached from the main dwelling. It comprises a five-bay structure with brickwork internal and external walls; the roof is of cut-timber construction with hipped ends, under a Welsh slate covering.

In the central and largest of the five bays, the original roof construction has been adapted to incorporate a central flat-roof dormer to each elevation.

Floors throughout generally comprise solid concrete, ground-bearing slabs of unknown thickness; assumed to be unreinforced.

The building is situated to the west of the main dwelling, separated from it via a cobbled courtyard. The site is generally level, although the finished floor level sits approximately 250mm elevated from that of the main dwelling. A study of geological mapping data of the area indicates the underlying strata to be a bedrock of Upper Greensand Formation with no recorded superficial deposits.

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2. Observations

In the interests of clarity, 2021 observations will be indicated in italics; 2023 observations will be clearly denoted and parenthesised, [thusly].

External inspection

Foundations

Trial holes in two locations confirmed the absence of any consequential foundation. The external brickwork appeared to have been constructed directly on subsoil, approximately 150mm below external ground level. No evidence of suitable bedrock bearing strata was encountered in either of the trial holes inspected. [2023 – The foundations were not exposed at the time of inspection.]

External walls

The external masonry walls were generally in poor condition throughout. No evidence of a damp proof course was observed and the low-level masonry was suffering effects due to long-standing damp penetration. This was evidenced by extensive damp staining, loose or missing mortar and spalling of the brick faces, which was particularly severe throughout courses at and below ground level, but was seen to extend approximately 800mm above external ground level. [2023 - The external walls remained generally in a similar condition to that seen at the time of previous inspection. Previously reported defects, e.g., cracking and brickwork spalling, appeared to have been subject to minor/moderate degradation throughout and was seen to extend to approximately 1050mm above ground level in some areas.]

The North elevation has been rendered to approximately 450mm above ground level, presumably in an attempt to repair and protect this section of brickwork from further damage. It would appear that a non-porous cementitious render has been used, which is an inappropriate material for repair of this otherwise lime-pointed building and is likely to have further contributed to deterioration of the wall behind. The rendered finish was itself seen to have cracked. [2023 - Cracking to the rendered plinth has widened and the render looked to have delaminated from the brick face in areas. A stepped crack was observed below the cill of the north-west window, seeming to be consistent with failure/movement of a brick-arch lintel beneath, and with outward movement of the flank wall as seen elsewhere throughout the building.]

At the South-west corner of the building, a vertical crack was observed at the junction between the external walls. The crack extended from eaves level to approximately 400mm above ground level and measured approximately 35mm at its widest point; classifying under BRE (Building Research Establishment) guidance as Category 5 structural damage, requiring rebuilding. The crack would appear to correspond with some outward movement of the timber hips, which will be described later in this report. [2023 - Externally, the South-west corner was overgrown with vegetation, preventing inspection of the previously reported defect.]

In the area immediately adjacent to this crack, the flank was partially obscured by an external tank but where visible the masonry appeared to be in poor condition, with extensive areas of deeply eroded pointing. Some evidence of historical repointing was evident; again, appearing to have been carried out using a cementitious material.

[2023 - A vertical crack beneath the window to the South elevation appeared to have widened approximately 1-2mm since previous inspection.]

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Throughout the West elevation a number of voids were observed to isolated bricks; the pattern of damage would perhaps indicate previous connection of an external element, since removed.

To the South of the dormer in the West elevation, a large vine plant appeared to have established root within the brickwork itself, at low level.

On all elevations, the brickwork and pointing material above 1.2m appeared to be generally in a reasonable condition externally; however, throughout both of East and West long walls, the masonry had moved laterally, such that the top section was leaning outward by >30mm at eaves. [2023 - The East and West walls appeared to be largely in a similar condition to that seen at the time of the previous inspection, with limited perceptible progressive movement at eaves. The exception to this was through the southern and western walls of the southern end bay, which appeared to have suffered further lateral movement, up to approximately 5mm from previously recorded.]

Roof

[2023 – Viewed externally, the roof structure appeared to be in a similar condition to that seen at the time of previous inspection, with no significant deterioration perceptible. The collapsed roof area over the Northern end bay remained incomplete, with temporary protective covering.]

The North end of the roof had suffered partial collapse and the slate covering was missing throughout approximately two thirds of the hip-end. The area had been covered with sheeting as a temporary weatherproofing measure.

The hips at both ends of the building showed signs of distortion that suggested an outward movement of the roof structure at eaves level.

Through the centre section of the roof in the area of the dormers, the ridge line was distinctly bowed, suggesting significant deflection of the roof structure.

Ancillaries
The plastic rainwater gutters were largely distorted and not providing effective drainage.

Throughout the building, timber doors, window casements, soffits and facias were significantly decayed, largely beyond serviceability and/or repair. [2023 – The timber fixtures were noted to have suffered further material degradation, in line with what might be anticipated for the period lapsed.]

Internal inspection

External walls
A vertical crack extended from eaves level in the South-East corner of the building. The crack measured approximately 25mm at eaves level, tapering to approximately 15mm wide around 1m below. The crack appeared to extend further toward ground level, but was largely obscured from view below this level. This crack may be classified under BRE guidance as Category 4/5 damage, requiring partial or full reconstruction. [2023 – Some further opening up of this defect was noted,

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approximately 2-5mm in width. The crack appeared also to have progressed vertically extending approximately 50mm in a downward direction.]

Immediately adjacent to this corner, diagonal cracking was noted in the masonry to the East wall, extending from eaves level to meet the corner with the South wall at approximately 1m below. [2023 – This diagonal crack was noted to have widened to a degree corresponding with the adjacent vertical crack (as noted above), consistent with progressive outward movement of the wall at eaves level.]

At the South-West corner, a severe crack was observed that corresponded with that seen externally. The crack measured approximately 30mm at eaves and was consistent in width throughout the height of the wall before tapering toward floor level. The section of masonry adjacent to this corner in the West wall was in very poor condition; brickwork was very damp and heavily spalled and the pointing was severely eroded. A number of timber elements were embedded within this masonry panel; all of which appeared to be damp and decaying.

Beneath the window in the South Elevation, a vertical crack was observed, measuring approximately 12mm in width at the top and tapering to 0mm at floor level. This crack may be classified under BRE guidance as Category 3 damage, requiring masonry repair; however, due to the general poor condition of the masonry in this area it is likely that full reconstruction of the panel will be necessary. [2023 – This vertical crack was seen to have expanded approximately 3-6mm at the head throughout its length, since previous inspection.]

[2023 - Within the southern end bay, the internal space had been cleared since previous inspection, revealing low level brickwork to be in a poor condition, with areas of surface spalling and eroded joints, to a level approximately 1050mm above floor level.]

Throughout the building, the masonry at low level (to approx. 800mm above floor level) was seen to be in poor condition, with varying degrees of damp, spalled brickwork and eroded or absent mortar joints. At high level, the masonry was seen to lean outward by up to 35mm throughout both of the long elevations. [2023 - The walls appeared to be generally in a similar condition to that seen at the time of the previous inspection, with minor/moderate degradation of the masonry observed. Movement previously seen at eaves level appeared to have suffered moderate progression, evidenced largely by worsening of the cracking between flank walls and internal partitions, but also seen to be visibly out-of-plumb in some areas]

In the northern bay, redundant openings in each of the external walls had poorly executed brickwork infill. A number of timber elements were embedded within the East and West walls, suffering varying levels of decay.

<u>Internal walls</u>
The five bays are divided by solid brickwork walls spanning between the East and West flank walls. In all but the northern-most internal wall, vertical cracks were noted at their junction with the flank walls. The pattern of cracking was similar throughout, with cracks extending from up to 35mm width at eaves level, diminishing to approximately 1-1.2m below eaves. These defects are consistent

with lateral spread of the roof structure at eaves causing the top section of the flank walls to move laterally. Tying and buttressing action of the dividing walls has been compromised, leaving the East

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and West external walls laterally unsupported. [2023 – Lateral movement of the flank walls appeared to have suffered moderate progression since previous inspection, resulting in further separation from the internal diving partitions.]

All of the internal walls showed extensive signs of damp to the lower 800mm, with significant spalling of brickwork and eroded/missing mortar joints. In a number of areas, spalling was so severe that damage extended approximately half a brick deep. [2023 - Generally, the condition of the masonry was seen to be in a similar condition to that seen previously, with minor/moderate degradation observed.]

Roof

The southern-most and central bays were timber clad to the underside, and so the condition of the timber rafters could not be inspected. However, deformation of the structure was evidenced by movement of the cladding in a number of areas. In the southern bay, it was apparent that the timber hips had moved laterally at eaves level, pulling away from the wall plates in both of the flank walls. In the central bay, the ridge appeared to have deflected and the timber cladding had parted, suggesting outward movement.

Where exposed, the timber rafters appeared to be poor quality timber and undersized; in a number of areas, they appeared to have deflected laterally in the longitudinal direction.

In the intermediate bays the purlins appeared undersized, had suffered deflection and were in some cases no longer properly supported over the internal walls. In the central (longest) bay, the purlins were significantly undersized for their span (approximately 4.2m).

In the end bays, the purlins appeared adequately sized for their spans, but in most cases were either decayed or had suffered splitting. In the northern-most bay, approximately half of the roof covering to the hip-end was missing. The area had been temporarily covered to provide protection from the elements; however, the timbers throughout this bay were extensively very damp and suffering significant levels of decay. [2023] The material condition of a number of purlins appeared to have deteriorated since previous inspection; splitting of overstressed members was seen to be progressive. In particular, the eastern purlin within the end bay to the south, appeared likely to be approaching the point of failure.]

Floors

The concrete slabs appeared to be in reasonable condition throughout; however, it may be assumed that no insulation or damp proofing system is incorporated in to the existing make-up.

[2023 – Clearance of the southern end bay had revealed a previously concealed a hatch within the floor, accessing a pit running along the South elevation, adjacent the south-east corner. The base of the pit was obscured by rubble/debris; however, it could be ascertained that it extended at least 1200mm below floor level.

In the northern end bay, concrete/masonry plinths with concrete slab capping were seen at each corner of the end elevation. Given their correspondence with previously infilled, low-level (appearing to extend below ground level) openings in the external wall, and the pit arrangement at

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the opposite end of the building, it is a rational assumption that the concrete slabs similar voids below floor level.]

3. Conclusions

The key structural concerns are as follows:

The defects observed throughout the building suggest that significant horizontal movement of the roof has occurred. The roof timbers are undersized, have deflected and are suffering decay in a number of areas due to moisture ingress.

The internal and external walls have suffered severely at low level due to ingress of damp and subsequent freeze/thaw effects. Above mid-height, the external walls have been subject to horizontal forces from the roof structure and are leaning in an outward direction. Connection between the internal and external walls has failed and the external walls are no longer laterally supported or tied.

The building lacks footings and walls are founded at very shallow level on subsoil above the suitable bearing strata.

In order to accomplish the approved scheme, or indeed merely to bring the building back in to a serviceable condition, a number of remedial efforts will be necessary:

1 Foundations

The external walls of the building should be carefully underpinned using an appropriate designed staged scheme, to bear in the Greensand bearing strata. Internal walls should also be underpinned, unless a suitable alternative method of support and restraint can be designed.

Area affected – New underpinning to 100% of masonry walls

2 Roof Structure

The existing roof structure will require full removal and replacement with a new timber structure, designed to provide adequate restraint at eaves level.

Area affected – 100% of roof structure to be reconstructed

3 Internal walls

All internal walls require full reconstruction of their lower section, approximately 800mm from floor level. A suitable damp proof course should be incorporated throughout.

It is understood that most of the internal walls are proposed to be removed in the approved scheme and the latest application.

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Any retained internal walls would also require full reconstruction on safety grounds. Temporary support of the limited areas of reasonable masonry at higher level, would not be safe as the internal walls are separated from the external walls and therefore have no tying/restraint action.

Area affected: 100% of internal walls to be reconstructed

4 External walls

All external walls require full reconstruction of their lower sections (approximately 800mm from floor level) due to material failure. All external masonry throughout the North and South end bays (end and flank elevations) will require full height reconstruction, on a suitable, engineered foundation structure. A suitable damp proof course should be incorporated throughout.

Upper areas of masonry to the long elevations (approximately 900mm from eaves level) require full reconstruction due to excessive movement and should be suitably tied to the new roof structure and internal cross-walls or alternative method of restraint.

More than 80% of the external walls would require reconstruction due to material failure and movement and the remainder would require reconstruction on safety grounds. Temporary support of the limited areas of reasonable masonry at higher level, would not be safe as the external walls are separated from the internal walls and therefore have no tying/restraint action.

Area affected: 100% of external walls to be reconstructed

5 Floors

The existing concrete floor slabs appear to be in a serviceable condition; however, to achieve the proposals outlined in the approved scheme they will require removal and installation of an insulated floor structure, incorporating an appropriately detailed damp proofing system.

Area affected: 100% of floor slab to be reconstructed

Recommendations

The structural integrity of the building is significantly compromised and will continue to deteriorate over time.

There are a few small panels of brickwork in reasonable condition which could be retained however temporary support for these limited areas of masonry would not be possible and therefore reconstruction would in practice be required throughout.

Total reconstruction would be required, whether to bring the building back in to a serviceable condition for utility use, or for the proposed scheme to be realised.

It is our opinion that the existing building is irremediable for conversion into habitable use and recommend that the existing structure is considered for demolition and reconstruction.

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Trusting that this provides you with sufficient information for your needs but if you have any queries or require further clarification, please do not hesitate to contact us.

Yours sincerely

Kate Rogers
Managing Director

Eric Ojjerro
Director