

Address: Broadgate Hall

Job Number: 220274

Date: 6th of September 2022



Structural Appraisal of Barn Building

at:

**Broadgate Hall
Hollington
Staffordshire
ST10 4HU**

Client:

**Jennifer Priestley & Robert Burns
Broadgate Hall
Hollington
Stoke on Trent
Staffordshire
ST10 4HU**

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1.0 INTRODUCTION

- 1.1 C2C Consulting Engineers Ltd were instructed by Ellis Hillman Architects on behalf of Jennifer Priestley and Robert Burns to carry out a structural inspection of the detached part single/part two storey brick building in the grounds of the existing barns at Broadgate Hall, Hollington, Staffs, ST10 4HU.
- 1.2 Our Engineer visited the site on Wednesday the 6th of April 2022 to carry out this inspection.
- 1.3 The detached barn, a former agricultural building is currently vacant and is not currently used for any activities.
- 1.4 The inspection comprised a general, visual examination of the exposed accessible surfaces and areas of the property. We have not examined the woodwork, foundations, various surfaces and other parts of the buildings structure and fabric concealed at the time of inspection and we are, therefore, unable to comment on the condition of such areas. We have not consulted with the Local Authority or other statutory bodies.

2.0 GENERAL DESCRIPTION

- 2.1 The former barn building is accessed along a farm track and is set some distance from main road within a former agricultural setting.
- 2.2 The barn is laid out in a straight run which is predominately single storey and of brick construction, however there is a small section of two storey construction.
- 2.3 There is evidence that the barn was once part of a larger barn which had a similar sized building (single storey) running perpendicular with the current barn.
- 2.4 The topography of the site is such that the adjacent ground levels fall in a Southerly to South Easterly direction.
- 2.5 The building is set to a mixture of concrete hard standing to the rear and soft landscaping across the front.

3.0 OBSERVATIONS

- 3.1 The building is constructed in brickwork and the barns have a tiled pitched roof.
- 3.2 The walls throughout the barn are generally of consistent construction and external walls are a minimum of 350mm thick, with some areas within the two-storey element circa 450mm.
- 3.3 The joists to the first-floor area seem in generally good condition. There is no current stair access to this area.

- 3.4 There is clear evidence from the inspections that this barn formed part of a much larger barn, and had multiple extensions, single storey in nature, attached or forming part of it. These would be a similar sized run of single storey construction which ran perpendicular to the current barn.
 - 3.5 The ground levels within the barn are somewhat consistent with some small areas of level change which are common with the former use. The existing floor looks in good structural condition, however, would need improvement to meet current standards.
 - 3.6 The external levels have been raised significantly on the north side of the barn, such that the wall has become low level retaining and doorways have had to be reduced in height. The external ground level drops away from the building to the south of the barn. Some landscape regrading would be required as part of the renovation works.
 - 3.7 Most openings within the barn are of consistent size and detail. Generally external doorways are approximately 1200mm wide and 2000mm high throughout. Generally, window openings are 1200mm by 1000mm to the barn.
 - 3.8 Most openings have some form of detailed header brickwork to the lintels. These are generally in good condition and show no signs of significant movement.
 - 3.9 There is no gutter installed along any of the elevations, and the underside of the tiles can be seen. In still conditions the runoff would appear to drop clear of the face of the brickwork due to the overhang.
 - 3.10 The wall has generally been roughly repointed in relatively recent times, though as there is some shaling of brickwork at low level, the repointing is inconsistent. Some areas may require replacement.
 - 3.11 There are some minor areas of cracking within bricks, though no signs of wholesale movement of the walls.
 - 3.12 The existing timber A frames trusses are generally in good condition and supporting the tiled roofs to barn. There are no obvious signs of sagging to the roof and the ridgeline is generally straight.
- 4.0 CONCLUSIONS AND RECOMMENDATIONS
- 4.1 From the observations made it would appear that no ongoing settlement or subsidence was noted to the barn buildings. However, the barns are historic structures and have suffered from some settlement and deterioration in the past, not uncommon in buildings of this age that are built normally on spread brick foundations.
 - 4.2 This form of construction predates the use of movement joints, hence some cracking of brickworks due to thermal stresses often occurs in elevations, though due to proportions of the panel and the restraint behind, is normally not a structural concern.

- 4.3 The walls are generally 350mm construction with some additional buttresses around arch doorways. The thickness of the wall generally compensates for some of the poorer qualities of old bricks and with restraint from the roof and internal wall the shell of the building generally can provide a long-term stable structure.
- 4.4 The gable end of the leg that clearly formed part of the larger extension and has been subsequently modified and amended. Consideration should be given to this area being rebuilt.
- 4.5 The other areas of the building showed local deterioration to sections of brickwork and lintels as described in the body of the report but are generally in a reasonable stable condition and capable of subdivision to bedrooms, whilst maintaining the structural form largely as constructed.
- 4.6 External masonry in general requires repointing with localised areas of weathered /spalled brickwork being made good with the necessary crack repairs being undertaken. There are small areas of selected brickwork within the existing walls that should be replaced as part of the renovations, as well as smaller openings which would require infilling with similar brickwork.
- 4.7 The barn has pitched tiled roofs which would require stripping to allow the roof construction to be brought up to standard and to address deterioration of the battens and some of the rafter members. Though some strengthening work to the existing trusses and roof purlins maybe required, it is envisaged that many of these could be reused. Further inspections of all timber is advised by timber specialists to establish whether any damage has been caused due to insect infestation and/ or damp with any recommendations being undertaken accordingly.
- 4.8 It is envisaged that new floor slabs will be required in the barn. The excavations to replace the slabs may expose the spread brick footings. This is common in conversions of building of this type, and providing the design of new floor slab does not undermine the existing spread brick footing, the replacement of floor slabs will not pose a problem to the stability.
- 4.9 Should areas of spread brick footing prove to be defective where exposed, particularly where the building has been extended on the part of the Southern extension, then local underpinning works may be required to provide stability of the walls.
- 4.10 As part of any conversion works, it may be necessary to install new internal walls either non loadbearing stud or new block walls to provide zones for additional insulation and damp proofing. It would be envisaged that where block walls are of one storey height, the new floor slabs could be detailed and constructed to provide the support to these walls, though the slabs would require to be suitably reinforced.
- 4.11 The works should include formalisations of lintels above all apertures. Removal of timber lintels and other timber elements within wall structure where applicable,
- 4.12 Allowance should be made for the introduction of new rainwater goods and formalisations of drainage on site.

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- 4.13 Some landscape regrading would be required as part of the renovation works to suite proposed ground levels and use.
- 4.14 Not withstanding the points above, the building is of substantial construction and given its former use and age is in a generally good state of condition and is structurally sound. C2C Consulting Engineers are satisfied that the structure is sufficiently robust and entirely suitable for conversion providing the remedial works as detailed above are incorporated into the schedule works.

Yours Sincerely

A handwritten signature in black ink, appearing to read 'Tim Wright'.

Tim Wright

Associate Director

BEng.(Hons) IEng AMIStructE

For and on behalf of C2C Consulting Engineers Ltd

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Standard Scope and Limitations

This report has been prepared to provide guidance on the structural condition of the property.

We have only inspected and reported upon the defects within the property, as instructed by the client.

The report is based upon a visual inspection of those areas of the property that were readily accessible at the time of the inspection. It is not normal practice to remove internal finishes, lift carpets or move furniture etc. As such, comments cannot be made on those parts of the structure that were inaccessible or hidden from view at the time of the inspection.

We have limited our report to the most important aspects as stated in the text. The report does not provide a checklist of all repairs and improvements that might be desirable.

Our inspection did not include:-

1. The excavations of any trial holes to establish the depth of foundations and bearing strata.
2. Inspection of non-structural items such as doors, door frames, windows, floor, wall and ceiling finishes, other than where they are relevant to structural movement.
3. We have not inspected any services such as electric, gas, water and drainage.
4. We have not inspected those parts of the structure, which were covered, unexposed or inaccessible and we are therefore unable to report that such parts of the property are free from defect.

This report is for the private and confidential use of the client for whom it is prepared.