

STRUCTURAL APPRAISAL

TO

AGRICULTURAL UNIT

MILL FARM

GRATTON LANE

ENDON

STAFFORDSHIRE

N8513

NOVEMBER 2024

H . M . C H A M B E R S & P A R T N E R S

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**STRUCTURAL APPRAISAL TO AGRICULTURAL UNIT, MILL FARM
GRATTON LANE, ENDON, STAFFORDSHIRE**

1.00 Introduction

- 1.01 Following a request from Nicole Williamson, an engineer from H. M. Chambers & Partners attended the above agricultural unit to undertake a structural inspection of the unit.
- 1.02 The object of the site visit was to examine the existing barn and offer an opinion and comments relating to the structural condition and acceptability of the structure for conversion to residential accommodation.
- 1.03 A detailed survey has not been undertaken and therefore, comments contained within the report are in general terms only, although the inspection was considered sufficient to formulate an opinion regarding the present condition and to offer recommendations.
- 1.04 We have not inspected timber or parts of the structure, which were covered, unexposed or inaccessible and are, therefore, unable to report that any such part of the property is free from defect.

2.00 General

- 2.01 The building comprised a steelwork portal framed mono-pitched roof building with timber purlins and side rails supporting a profiled steel plastisol coated roof sheeting and cladding. A blockwork dado wall was provided to the full perimeter of the structure extending to a height of approximately 600mm. A single-storey timber framed mono-pitched roof structure abutted the left-hand side elevation of the building.
- 2.02 It was noted that a watercourse ran parallel to the rear elevation of the building and several mature trees were in close proximity to the building.

3.00 **External Inspection**

3.01 **Front Elevation**

An inspection of the exterior of the front elevation revealed two dominant openings fitted with roller shutter doors with no evidence of damage noted to the cladding elements.

3.02 **Right-Hand Side Elevation**

An inspection of the right-hand side elevation revealed no evidence of damage or movement of a structural nature.

3.03 **Left-Hand Side Elevation**

An inspection of the left-hand side elevation revealed no evidence of damage or movement of a structural nature to the timber framed structure.

3.04 **Rear Elevation**

An inspection of the rear elevation revealed no evidence of damage or movement of a structural nature.

4.00 **Internal Inspection**

4.01 **Ground Floor**

An inspection of the interior of the building revealed no evidence of movement or distortion of the steelwork frame, blockwork dado wall or supporting timber members. It was evident that whilst lateral wind bracing had been provided to the roof structure no lateral bracing had been provided to the side elevations.

It was also noted that a concrete floor had been provided to a part of the building with a section of the floor comprising exposed hardcore.

5.00 **Foul & Surface Water Drainage**

5.01 It was evident that the surface water collected from the building discharged directly into the adjacent water course. It was also noted that pipework was evident within the building to accommodate the discharge of foul water, however, the below ground drainage system associated with the pipework was not determined.

6.00 **Vegetation**

- 6.01 It was noted that mature trees lay in close proximity to the structure with several of the branches overhanging the roof to the building.

7.00 **Conclusions**

- 7.01 Following an examination of the structure it was evident that the building was suitable for conversion to habitable accommodation and that the structure was considered adequate to support the proposed replacement cladding. It will, however, be necessary to undertake some additional measures to ensure the future integrity and stability of the structure.
- 7.02 It was noted that lateral bracing had not been provided to the side walls of the building and whilst a low-level blockwork wall afforded a degree of lateral restraint it is recommended that lateral stability is introduced to the structure, which may be provided by the proposed replacement cladding, to transfer the lateral wind forces to the foundations.
- 7.03 It was also noted that low-level blockwork walls were provided to the perimeter of the building and whilst no evidence of lateral movement was evident it is recommended that any ground to the external face of the wall is removed to preclude lateral penetration of moisture to the building.
- 7.04 It was apparent that the concrete floor construction did not extend to the full area of the building it is recommended, therefore, that an approved floor construction is provided and that a damp proof membrane and insulation is introduced in accordance with the requirements of the Building Regulations Act.
- 7.05 It will also be required to upgrade the insulation qualities of the roof and wall constructions to ensure the minimum thermal requirements specified under the Building Regulations Act are provided which may be effected by the proposed replacement cladding.
- 7.06 With regard to the surface water drainage of the building it should be ensured that the necessary permissions required to allow the discharge of surface water directly into the water course has been obtained.
- 7.07 The discharge of foul water from the building is to be in accordance with the requirements of the Building Regulations Act.

8.00 **Recommendations**

8.01 It is recommended the following remedial works are undertaken:-

- i) It is recommended that lateral bracing is introduced to the side walls of the building, which may take the form of the proposed cladding, to transfer the lateral wind forces into the foundations.
- ii) Remove earth from outer face of low-level blockwork walls to prevent lateral damp ingress and ensure requisite “U” value is achieved, as specified under the Building Regulations Act.
- iii) Following our inspection, it was not possible to determine the integrity or construction of the existing concrete ground floor to the building and in view of the unknown nature of the floor it is recommended that an overlay is provided to the floor incorporating a damp proof membrane and insulation to conform to the requirements of the Building Regulations Act.
- iv) Provide concrete ground floor construction to the areas of the floor presently stoned incorporating a damp proof membrane and insulation to conform to the requirements of the Building Regulations Act.
- v) Ensure the thermal qualities of the roof and side walls of the building are compliant with the requirements of the Building Regulations Act.
- vi) Obtain assurance that permission to discharge surface water from the building directly into the water course has been obtained.
- vii) Ensure the foul drainage system serving the building discharges into an approval below ground drainage system.