



CONSULTING ENGINEERS LTD

**STRUCTURAL ASSESSMENT
OF
BARN 2 BRIMSOLE FARM
MEOPHAM**

CLIENT: MR THOMPSON

AGENT: DHA PLANNING

ARCHITECT: OPEN ARCHITECTURE

DATE: OCT 2023

BARN 2 - BRIMSOLE FARM



1.0 **BRIEF**

We have been requested by the Client to carry out a structural appraisal of the existing building so as to establish its potential for conversion into a domestic dwelling. This report is primarily intended for ancillary information to be read in conjunction with the planning documents and does not constitute a full summary for Building Regulation purposes.

2.0 **EXPERIENCE**

Trevor Cossey has over 40 years of experience as a structural engineer and has carried out structural assessments and surveys of both new and historic buildings throughout the South East. Throughout his career he has concentrated on work associated with building conversions and upgrades and brings a sympathetic approach to his work with older structures. Trevor's qualifications are as follows: BSC (Hons) C Eng. MStructE.

3.0 **DESCRIPTION**

The barn is a single-storey, steel-framed structure under a curved roof. The frames are on a 4.5 metre grid and support the roof and walls. With reference to the geological map of the area, ground conditions should comprise clay with flints which is favourable for foundation support.

4.0 **FINDINGS**

For ease of reference each item of the building will be considered in turn and salient points noted in relation to condition and possible need for repair.

4.1 **ROOF**



The roof is of a corrugated fibre cement-cured sheeting carried by steel angle purlins on a 1200mm grid which in turn span on to the main frame. The condition of the sheeting and purlins is considered acceptable but in any proposed conversion works it is recommended that the purlins are upgraded to accommodate the increase in roof load.

4.2 SIDE WALLS

The steel frame provides the main support to the walls which comprise a mixture of concrete blocks at low level and plastic and fibre cement sheeting to all elevations. Steel cladding rails spanning between the frames provide rigidity to the walls. This general installation is acceptable but, in a few locations, some minor upgrading will be required but only to a nominal extent.

4.3 MAIN FRAME

On grids 1, 2, and 3 steel frames are present comprising 178 x 122 UB19 columns and curved roof trusses formed from steel angles to form a bow-strung arrangement. They are on a 4.5 metre grid and clear span 7 metres. The condition of the steelwork is generally satisfactory but at the junction of the columns and ground floor some corrosion is present and local repairs will be required.

From preliminary analysis the frames/truss would appear to be of acceptable strength to carry the existing roof load but it is recommended that some upgrading to the trusses is carried out in the future to enable the proposed increase in roof load to be accommodated.

4.4 GROUND FLOOR

At present there is a substantial concrete slab in place which can be retained or overcast to suit.

4.5 FOUNDATIONS



At present no trial holes have been formed but from visual inspection there is no evidence of structural movement associated with foundation issues which is encouraging on such an old building. However, it is recommended that in due course the existing foundations are accurately assessed and a suitable specification produced for any upgrading works considered necessary.

4.6 MEZZANINE FLOOR

Consideration is being given to a lightweight mezzanine floor comprising of timber joists, steel beams all carried by discreet box section columns. The structure can be made fully independent from the existing structure and the new columns carried off the existing slab. However, some attachment to the existing structure could be achieved if required from a planning point of view. The existing columns, both internal and external have adequate capacity to accommodate additional load.

5.0 METHOD STATEMENT

In any proposed conversion it is anticipated that a suitably experienced contractor who has prior experience of similar conversions is engaged. The method statement will be produced by the contractor but approved by all interested parties. The fundamental approach to a project of this nature is to ensure the temporary and long term stability of the buildings while the work is underway. The need for temporary supports, suitable sequences of work, and consideration of the existing building elements is paramount. The project will be a team effort to achieve a successful outcome and the present involved parties are suitably qualified to achieve this end.

6.0 CONCLUSIONS AND RECOMMENDATIONS



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As previously stated, the purpose of this report was to establish whether the existing building could be converted for domestic use and qualify such conclusions with details of general repair. From our observations we are of the opinion that the proposed conversion is a viable undertaking and that the building is sound and not in need of major reconstruction and can remain standing as existing throughout the construction process. The drawings produced to date, including the existing and proposed layouts can be considered as a logical and sympathetic use of a redundant farm building without involving any major or substantial reconstruction works. As with any scheme of this nature certain elements of the work will be required to meet the building regulation requirements, but these will be primarily concerned with finishes and insulations. The primary structure of the building may be retained without any upgrading.

Trevor Cossey BSc (Hons) C Eng. MIStructE