

**Structural Condition Survey for  
Faccenda Farms Ltd, Lower Farm,  
Hillesden, Buckingham, MK18 4BY**

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By: Will Orr

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## **1.0 INTRODUCTION**

- 1.1 Conisbee visited Lower Farm, Hillesden, Buckingham, MK18 4BY on 17<sup>th</sup> July 2023 on the instruction of Bidwells LLP on behalf of Faccenda Farms Ltd to inspect the structural condition of an existing concrete portal frame grain store building.
- 1.2 Will Orr of Conisbee attended site and undertook a visual external and internal inspection of the existing structure. This report summarizes the findings and is intended to support a Class Q submission for conversion of the barn into residential dwellings.
- 1.3 Whilst our investigation work has been taken far enough to satisfy the requirements of the brief, it has, of necessity, not been exhaustive. The findings cannot therefore be warranted to apply to areas of the building not inspected or investigated.
- 1.4 The purpose of this inspection and report is in a surveying capacity only; as such Conisbee have not undertaken any calculations or numerical analysis of the existing structure in order to assess it's viability for the proposed redevelopment.
- 1.5 This report is intended for the use of the client, Bidwells LLP, and no liability can be accepted for use by any third party.

## **2.0 PROPERTY TYPE, CONSTRUCTION & CONTEXT**

- 2.1 The existing building is located at grid reference SP 69566 29542 (latitude 51.960022, longitude -0.98899752).
- 2.2 The existing building is a single storey agricultural barn currently used as a grain store with a central dividing wall in infill blockwork spanning between central columns.
- 2.3 Existing structure is concrete portal framing; form and appearance of the construction indicate it might have been built circa 1960-1980s. The duo-pitch roof ridge line is off-set forming a larger, taller internal area to the east, and a smaller taller internal space to the west with independent roller shutter doors on the south elevation.
- 2.4 Geological information from the British Geological Survey indicate variable superficial deposits in the area, with likely Alluvium local to the site, including clay, silt, sand and gravel. Bedrock geology is recorded as Peterborough Member – Mudstone.

- 2.5 The ground floor slab is likely ground bearing, columns are likely supported on shallow concrete pad foundations.
- 2.6 No proposed redevelopment architectural plans have been provided to Conisbee for context of the Class Q submission at the time of this report writing.

### 3.0 OBSERVATIONS

- 3.1 Roof deck is in corrugated asbestos cement sheeting, similarly high level cladding to west, north and east elevations is in the same. High level cladding to the south elevation is corrugated steel sheeting (photos 5.1–5.6).
- 3.2 Concrete columns visible externally at low level, head connections visible popping through the high level cladding (photo 5.4).
- 3.3 Low-level cladding to all elevations is in corrugated steel sheeting, spanning between tapered steel cantilever posts with bases cast through the slab edge / ground beam. This acts as a retaining wall for internal grain storage (photo 5.7).
- 3.4 Possible asbestos to guttering and downpipes (photo 5.8).
- 3.5 Precast concrete purlins support the roof sheeting (photo 5.13).
- 3.6 Haunched bolted connections join the portalised framing elements at the eaves and one side of the central column line (photos 5.14-5.16).
- 3.7 The framing of the smaller west area appears to be a lean-to against the taller complete portal frame of the larger barn area to the east. A simple steel plated bolted connection joins the lean-to rafter to the taller portal rafter (photo 5.16).
- 3.8 A simple steel plated bolted connection also joins the taller portal rafters at the ridge (photo 5.17).
- 3.9 Possible cracking to one ridge bolted connection (photo 5.18).
- 3.10 Cracking to assumed ground bearing slab (photo 5.19).
- 3.11 Movement and cracking to blockwork dividing wall (photo 5.20).
- 3.12 Cracking to north elevation gable column externally at low level (photo 5.21).

#### 4.0 CONCLUSIONS & RECOMMENDATIONS

- 4.1 Overall the grain store structure is in very good condition and appears to be suitable to convert into residential units as proposed, provided that the designer considers the following items.
- 4.2 Stability in the east-west direction is achieved through portal action of the primary framing. Stability in the north-south direction is less clear – likely utilising diaphragm action of the cladding, purlins and rails. Depending on proposed alterations, the designer should seek to satisfy stability designs in this direction, and consider the introduction of braced bays if required.
- 4.3 Primary framing connections should be inspected closely to check for any degradation of bolts or concrete elements (ref item 3.9). Basic checks should also be undertaken to ensure sufficient capacity of these connections (refer items 3.6-3.8).
- 4.4 A Refurbishment & Demolition asbestos survey will be required and potential asbestos containing material removed (refer items 3.1 and 3.4). Replacement roofing materials should be no heavier than the existing, otherwise strengthening might be required of existing roof structure.
- 4.5 A surface water drainage chamber was visible to the west elevation – consideration should be made for alterations and introduction of a foul drainage system.
- 4.6 Localised repairs should be made to cracked areas of the ground floor slab, introduction of additional joints with tolerance for movement should be considered (ref item 3.10).
- 4.7 If central blockwork wall is to be retained, localised patch repairs are required to cracked and moved areas; introduction of soft joints to primary framing should be considered to avoid further cracking (ref item 3.11).
- 4.8 Localised concrete repair required to north gable column externally at low level (ref item 5.21).

5.0 PHOTOS

5.1 View of barn, SE corner



5.2 South elevation



5.3 East elevation



5.4 North elevation



5.5 West elevation



5.6 High level cladding in corrugated asbestos cement sheet



5.7 Steel cladding at low level with tapered support struts with bases cast through concrete edge beam / slab edge – assumed to act as retaining walling for internal grain storage.



5.8 Possible asbestos guttering and downpipes





5.9 Steel cladding to south elevation, structural steel trimming in red at roller shutter doors



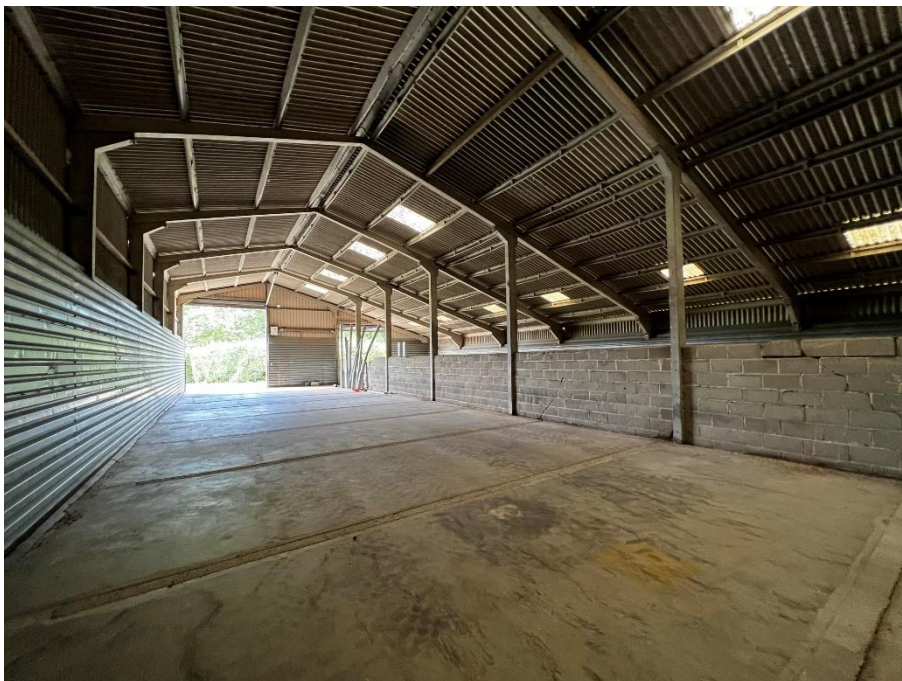
5.10 Barn internal – precast concrete portal frames spans the larger, taller area to a central column with dividing low level wall line



5.11 Barn internal – precast portal concrete frame lean-to framing supports the lower, smaller barn area roof; steel plated connection to shared central column



5.12 Barn internal view from NE corner



5.13 Corrugated asbestos cement roof sheeting spanning between precast concrete purlins



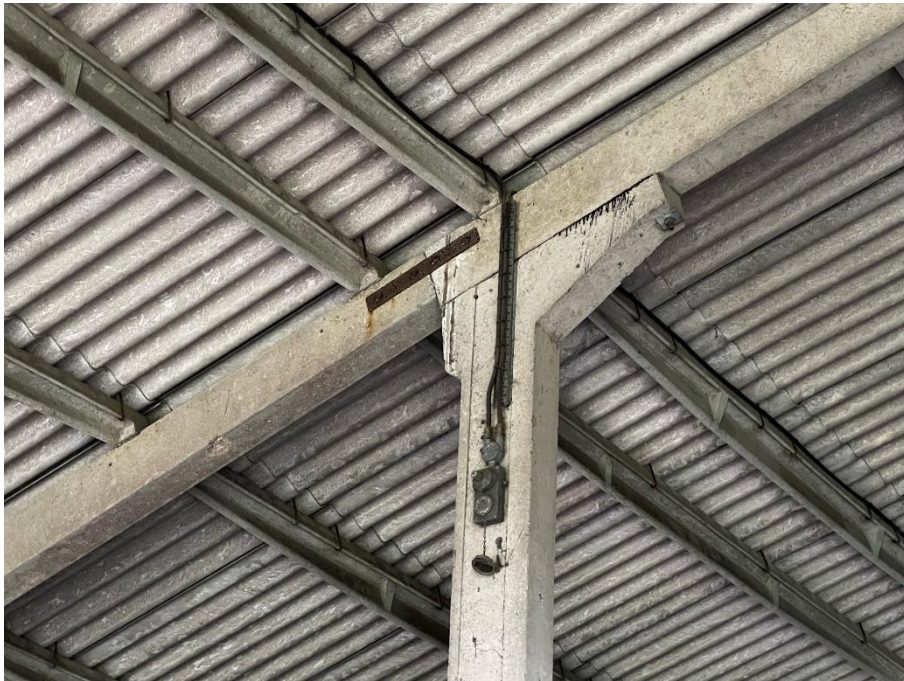
5.14 Portal bolted haunched eaves connection at west elevation



5.15 Portal bolted haunched connection to east elevation, timber cladding rails, steel corrugated sheeting retaining wall at low level



5.16 Central column line head connection



5.17 Ridge line bolted connection



5.18 Ridge line connection – possible cracking



5.19 Cracking to ground bearing slab



5.20 Movement and cracking to internal blockwork dividing wall



5.21 Cracking to gable column on north elevation at low level



***Further photos were taken, and are available on request.***