



White Shaw Farm
Heaton
Rushton Spencer
SK11 0SR

Mr S. Moss
Willoshaw Farm
Clouside
Congleton

19th Feb 2021

Re: Structural survey of Barns & Portal framed sheds at Willoshaw Farm, Cloudside, Congleton.

Dear Mr Moss,

Further to my site visit and inspection of the barn buildings and portal frame structures at the above property, I would report as follows:

The report concerns the barn buildings attached to the farm house immediately to the north and north east constructed from a mixture of natural stone, brick work and block work with traditional construction and tiled roof and the 2 portal framed structures further north across the farm yard.

The stone and masonry buildings are in relatively good condition given their age and apparent lack of maintenance over the years. The walls are relatively plumb, with no sign of subsidence or settlement, however, the lack of maintenance over the years has left its toll on some of the roof structures.

The roofs are finished with Staffordshire blue tiles, which is generally in fair condition with some broken and missing tiles particularly at the ridge of the brick work barn which has large sections of missing tiles, old style roofing felt is present in some locations, however this is in poor condition with numerous holes, and day light and gaps can be observed internally. The timber rafters are in reasonable condition with only very minor localised signs of rotten elements and distortion at the ends particularly.

The purlins and steel trusses appear to be in good condition generally, the purlins have suffered some lateral bowing and creep over the years, which has caused some minor roof spread. The steel trusses supporting the timber purlins have suffered minor surface corrosion.

Some of the timber floor structures, where present within the barns are unstable and rotten in places due to water ingress from the roof.

The walls to the main barns and buildings remain in good condition with only minor and localised issues. As discussed previously minor historic roof spread has caused the upper walls to bow out slightly, however, there is no evidence of any vertical settlement or movement.

The main barn walls do have numerous bows and undulations; however, this is considered normal for a structure of this age and type of construction and is not of structural concern.

Numerous steel beams were supporting the floor structure within the milking parlour, presumably to support the feed store above at this section of the barn.

The ground floor consisted generally of concrete, agricultural in nature, however, remains free from structural movement.

The rainwater gutters and downpipes were in reasonable condition however didn't appear to be connected directly to any underground drainage system.

The larger steel portal frame consisted of 2 rows of central columns breaking the span of the frame in to 3 spans with a timber mezzanine deck either side of a central corridor. Insitu concrete side walls were present between the external steel columns up to approx. 2m in height, timber purlins and side rails supported a corrugated cement board sheet cladding.

The smaller portal frame was clear span was a slightly lighter weight construction with similar timber purlins and side rails supporting a corrugated cement board sheet cladding.

Neither of the portal frames had any lateral longitudinal bracing apart from some small knee bracing to the smaller portal frame. The frames and structures in general were in good condition with only minor surface corrosion to the steel frames, all of the timbers appeared to be in good condition, there was no sign of lateral or vertical movement to any of the elements or structures.

In conclusion I would provide the following comments:

- 1) The odd rafter and tile battens may require strengthening or local replacement where the ends have rotted.
- 2) The roofs should be re-roofed with a modern membrane and insulation to meeting current building regulations and the cement sheet roof replaced with a tiled roof to match the main building.
- 3) The first-floor structure should be completely removed and replaced; any new floor structure should be sufficiently strapped to the external walls to meet current building regulations.
- 4) A replacement concrete ground floor structure, insulated to comply with current building regulations.
- 5) Rotten timber lintels require replacing as required.

In conclusion the barns and portal frame buildings are generally in good structural condition, the stone walls undulate laterally and vertically, however, this is considered normal for the age and style of construction. The buildings could be readily converted in to a habitable dwelling with minimal structural alterations.

I trust that the above is satisfactory, however, should you have any queries or require clarification, then please do not hesitate to contact me.

Yours sincerely

S. Naylor

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Photographs



General view of west elevation of barn



General view of eastern elevation



Typical internal view of stone barn showing timber purlins and steel truss.



Internal view of brick work barn showing missing tiles at the ridge



Small outrigger outbuilding in good structural condition.



Masonry barn structure showing surface corrosion to steel trusses.



General internal view of larger portal frame with minor surface corrosion



General internal view of smaller portal framed building with surface corrosion to steel elements.