



12th March 2024

Our ref: SMS/24022

Please quote our reference when replying

Smart Group Services,
Riverbridge House,
Fetcham Grove,
Leatherhead,
Surrey,
KT22 9AD
United Kingdom

By E-mail: will.mckenzie@smartgroupservices.com

Dear Mr Mckenzie,

RE: CONVERSION OF PIG BARN AT BOWERS FARM, SO51 6EH

Further to your request to carry out an inspection of the pig barn, I report as follows.

1.0 Introduction

- 1.1 The inspection was carried out by Susannah Stewart of Alexander Associates, on 13th February 2024. The weather was raining at the time of the inspection.
- 1.2 The property is an old pig barn, now only housing firewood and goats.
- 1.3 The original date of construction of the property is not known. It is likely that it has been altered through the years to suit the required usage.

2.0 Description

- 2.1 The 'pig barn' is composed of a central one and a half storey original structure, to which single storey lean-to structures have been added to each side and the rear (Figs 1 & 2).
- 2.2 **CENTRAL SECTION:** The central section is 5.6m wide x 4.7m long with two garage doors to the front elevation (Fig 3). The walls to the side and rear appear to be 215mm solid brick, which have been clad with timber to the first floor front elevation. Brick piers appear to have been added to the two rear corners and to support a central timber beam, which supports the floor joists over (Figs 4 & 5). The roof is timber pitched rafters clad with slates, supported on purlins strutted off the first floor joists (Fig 6).
- 2.3 **WEST SIDE LEAN-TO (Fig 7):** The lean-to is composed of two rooms with an overall dimension of 2.42m wide x 4.64m long (Fig 8). The roof is slates on 50x100 @ 450mm c/c timber rafters at roughly 19° pitch. The external walls appear to be 280mm thick cavity with brick inner and outer leaves. One large window is present to the side (Fig 9) and a door to the front. The rear room is only 1.23m long and has small window to the side. The bricks are blackened internally to this room. The floor construction is unknown, but has a concrete finish.



- 2.4 EAST SIDE LEAN-TO: The East lean-to is composed of one room with an internal dimension of 2.49m wide x 4.72m long (Figs 11-14). The roof is slates on 50x100 timber rafters, with a central purlin 50x100. The external walls appear to be 215mm thick solid brick walls. One large window is present to the side and a door to the rear. The floor construction is unknown, but has a concrete finish.
- 2.5 SOUTH/REAR LEAN-TO: the rear lean-to is 5.53m long x 3.25m wide (Figs 15-18). The roof is corrugated sheeting, probably cement based, which could therefore have an asbestos content. These sheets are supported on 50x100 timber rafters, which are lapped over a single 75x100 timber purlin. The walls appear to be 215mm solid brick. The rear wall has two long windows with two doors to each end. A door gives access to an additional lean-to on the southwest of the building (Figs 18 & 19).
- 2.6 SOUTHWEST LEAN-TO: This small area is 2.34m wide x 2.51m long (Figs 19 & 20). The roof is composed of corrugated metal sheeting which is not supported by any structure. The side wall is 215mm solid brick. The rear wall is brick partial height with a full length window over.

3.0 Condition

- 3.1 CENTRAL SECTION: The structure of the central section appears to be in good condition. The rafters and joists appear to be in very good condition, and appear to be relatively modern. The purlins do appear to have deflected, likely due to the inadequate propping arrangements. The timber beam supporting the floor joists seems to be modern, as are the masonry piers which support it. It was difficult to fully inspect the condition of the walls internally due to the presence of logs being stored, but generally no concerns were noted.
- 3.2 WEST LEAN-TO: The rafters and internal walls to this area appear to be quite modern, and are generally in good condition. It is possible that the inner leaf has been added to this area at a later date than the external leaf, therefore the presence of wall ties should be confirmed. A crack is present internally to the pier on the right hand side of the window (Fig 21). Externally the masonry is covered with ivy in this area (Fig 22). The external timber, including wall plates on the outer leaf, fascia boards and window frames, are all in poor condition due to exposure to the elements (Fig 21-23). The side wall to the South West lean-to was toothed in every 4th brick when it was added. A crack is present at the bottom of the wall at this joint (Fig 24) likely due to differential shrinkage between the newer and older masonry. A gap is present at the vertical joint between the rear wall of the west lean-to and the central section wall (Fig. 25) likely due to inadequate tying.
- 3.3 EAST LEAN-TO: The rafters and purlin are rotten at the south east corner of the roof due to water ingress (Figs 12 & 26). The timber lintel over the doorway into the lean-to is also rotten from the same water leak. This has led to cracking within the masonry above the lintel (Fig 27).
- 3.4 SOUTH/REAR LEAN-TO: The rafters and purlin appear to be in good condition. The roof sheeting is in good condition, however, it should be noted that this may contain asbestos which has implications for its removal. Cracking is present to the masonry over the main door entrance indicating that the timber lintel is inadequate.



4.0 STRUCTURAL CONCLUSIONS AND RECOMMENDATIONS

- 4.1 Roof Structure: Calculations will have to be carried out on the existing timber rafters and purlins to ensure they can support the proposed roof build-up.
- 4.2 Walls: The walls are generally either 100 brick/100 brick cavity or 215 brick solid walls. They are generally sound and able to be retained. The rotten and failed lintels should be replaced and the associated cracking repaired. The vertical joints between perpendicular walls may require strengthening with remedial ties and a polysulphide mastic
- 4.3 First floor: The first floor structure within the central section is in good condition. Calculations will have to be carried out to confirm that the timber joists and central support beam are able to support the proposed loading
- 4.4 Foundations: The foundations to the structure were not exposed, however, there is no evidence of movement to the walls due to foundation movement so it is likely that they are adequate.
- 4.5 Ground floor: The existing ground floor structure is unknown, therefore if it is to be retained it will have to be investigated. Alternatively, a new ground floor slab with insulation could be laid.

If you have any queries regarding this report, please do not hesitate to contact me.

Yours sincerely


SUSANNAH STEWART
BEng(Hons) CEng MICE

Encs: Photographs



Fig 1 North/Front Elevation of Pig Barn



Fig 2 South/Rear elevation of pig barn



Fig 3 Central section –North/Front elevation



Fig 4 Central section



Fig 5 Central Section –Front inside view



Fig 6 Central Section –First floor and roof



Fig 7 West elevation showing lean-to



Fig 8 Internal view of rear of West lean-to



Fig 9 Internal view of rear of West lean-to



Fig 10 Front elevation of West lean-to



Fig 11 Side elevation of East lean-to



Fig 12 Rear elevation of East lean-to



Fig 13 Internal view of front wall of East lean-to



Fig 14 Internal view of rear wall of East lean-to



Fig 15 East side elevation of Rear lean-to



Fig 16 Rear elevation of Rear lean-to



Fig 17 Internal view of Rear lean-to

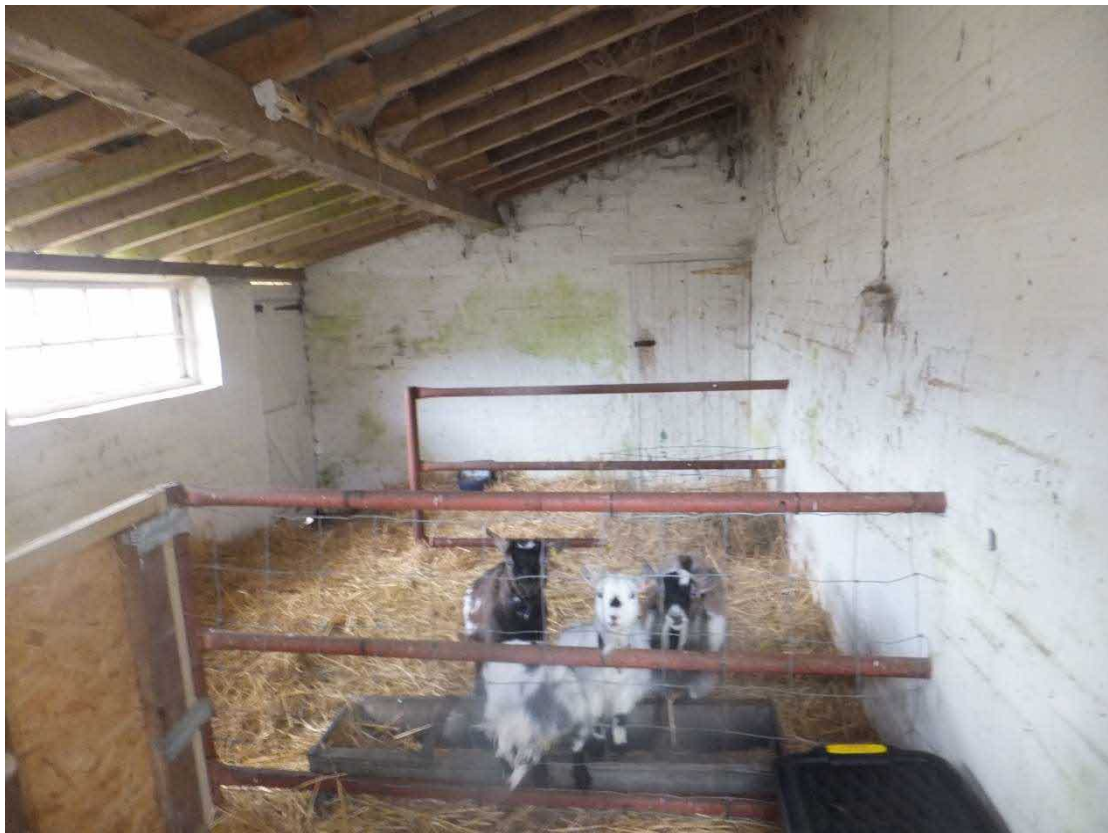


Fig 18 Internal view of Rear lean-to



Fig 19 Rear elevation of Southwest lean-to



Fig 20 Internal view of Southwest lean-to –showing doorway to Rear lean-to



Fig 21 West lean-to –cracking to inner leaf



Fig 22 West lean-to –external view



Fig 23 West lean-to –external view



Fig 24 West lean-to –cracking to base of wall



Fig 25 West lean-to –gapping to wall between west lean-to & central section



Fig 26 East lean-to –rotten purlin and corner of roof



Fig 27 East lean-to –rotten purlin and crack to masonry over lintel

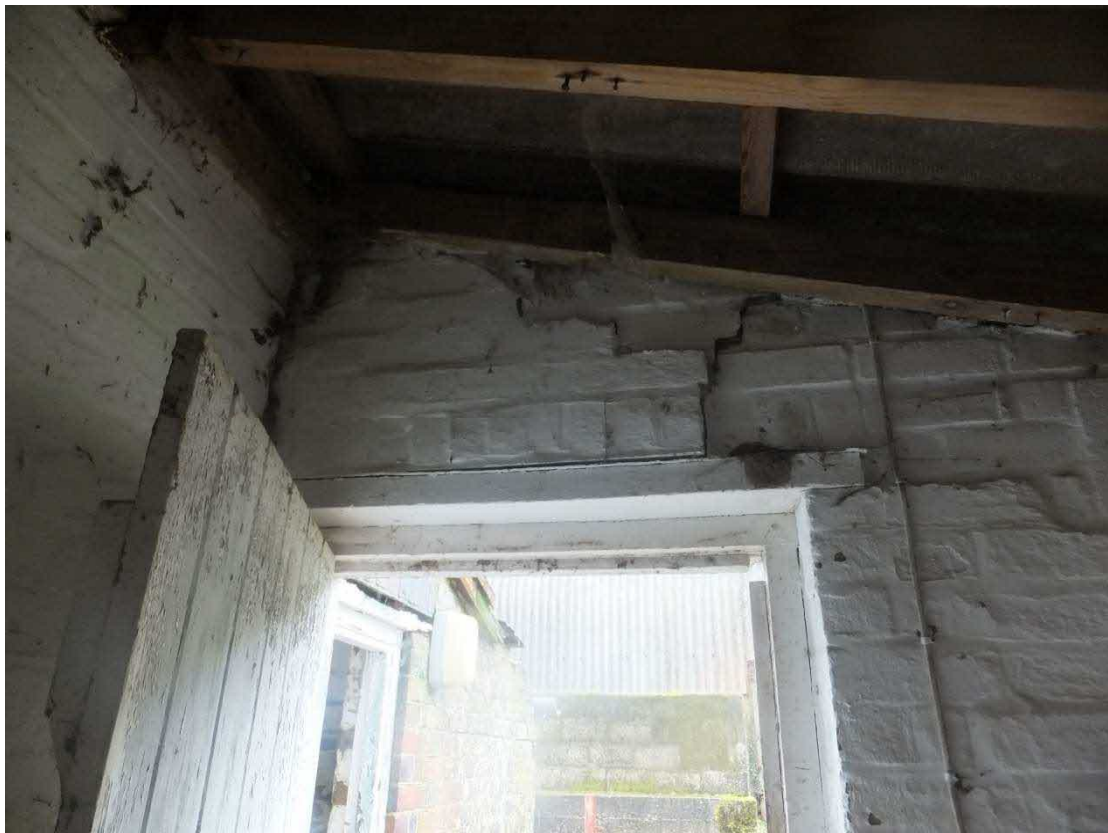


Fig 28 South lean-to –crack to masonry over lintel