



Edward Turney
Warlands Farm
Warlands Lane
Isle of Wight
PO30 4NQ

25th March 2024

By email only

Dear Edward,

S1603: Warlands Farm, Shalfleet; Specific Defect Survey

Instruction

Further to your recent instruction I write to confirm comments made during inspection of the Main Barn at Warlands Farm.

Limitations

As this was not a full building survey other defects may exist and not observed or commented upon including minor localised structural defects. We have not inspected woodwork or other parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the property is free from defect.

Although during our inspection I may have referred to other defects that should not be taken as an exhaustive list of other such defects or that the inspection is a full building survey.

The inspection was an inspection of the barn only, undertaken from external ground level and internal floor level.

Inspection

An inspection was undertaken on 10th July 2023 on a bright sunny day.

The Farmhouse was centred on the northern boundary along the Warlands Lane of the relatively flat site, with the barns to the east of the farmhouse forming a large courtyard.

The main stone barn, orientated between east and west gables, was to the east of the farmhouse and offset south from the southern elevation; the piggery, with a north gable against the road formed the western side of the farmyard with the house entrance between the southern gable of the piggery

and main barn; the stables were adjacent the vehicular entrance in the north-east corner of the site and against a track down the eastern boundary.

Main Stone Barn

The main stone barn had a duo-pitched corrugated iron roof between east and west gables and a separate lean-to garage space was against the western gable.

The main front and rear elevations had two full height wide openings through the barn so that the stone walls on plan formed a C at each end with a straight mid-section of walls between the openings.

Four queen principal trusses had bearings onto the opening reveals supporting two lines of purlins, with diagonal bracing to the top pair, between the gables and trusses with exposed rafters and battens to the roof covering.

A metal repair had been installed to the bottom chord of the intermediate principal trusses which had completely split through mid-span.

Internally there were cracks to the stone walls as follows:

- Historic repointing of the vertical cracks through the centre of the eastern gable through the high-level opening (any previous first floor structures were absent).
- Loose stone under the higher rear purlin bearing into the eastern gable; other purlin bearings to the gables also suggesting movement of the gables.
- A diagonal crack from the ground in the front elevation up to eaves level against the eastern gable.
- A vertical crack alongside the previous repointed crack against the opening reveal to rear elevation return to the eastern gable.
- A vertical crack to the south-west corner nearest the trees and pond with additional vertical cracks each side.
- An infilled window and personnel door to the central front elevation stone section and infilled window opposite to the central rear elevation.
- A crack below the reveal to the infilled window to the western gable adjacent the front elevation.

The ground floor was a concrete slab.

Off the south-west corner were Hawthorne and Ash trees between the barn and a dried-out pond with Bullrushes against a low internal site boundary wall

to the formal Farmhouse Garden. A Willow was present further from the Barn than the pond.

The eastern gable, the centre and eastern end wall panels of the rear and southern elevation were predominantly covered with ivy with other stone walls partially covered with ivy. Most cracks exposed internally were concealed by external ivy growth.

Geomorphology

The British Geological Survey indicates the site to be underlain by Hamstead Member consisting of predominantly red, green, and grey clays, silts, and sands.

The west boundary of the site, away from the buildings, was clipped by an area of superficial River Terrace deposits of gravel, sand, silt, and clay.

There was a pond to the south-east corner of the main stone barn which was dry at the time of our inspection but noted on the estate agent details as full to grass level.

Traditional buildings usually have shallow depth of footings and where these are into clay subsoils are susceptible to seasonal movement which although reasonably well accommodated in lime mortar-based construction can cause cosmetic distortion and cracking as the clay volume changes between dry summers and wet winters, especially where recent years have seen more extreme climatic changes.

However, where changes in the ground moisture content is exacerbated by water demand from trees and vegetation, or excess water from failed surface water or foul drainage, this can lead to progressive movement.

This often results in cracks occurring especially where there is a lack of lateral restraint between roofs, wall and floors and general robustness.

Discussion

The Farmhouse and Main Stone Barn were made Listed Buildings in 1994 with separate Grade II listings.

Barn Grade II Listing dated 1994

Barn. Probably late C18. Built of stone rubble with roof now covered in corrugated iron. 2 cart entrances. 5 bay barn with roof having 2 tiers of through purlins. Included for group value.

Note that some remedial works will not be considered “like for like” repairs and therefore might need Listed Building Consent prior to proceeding.

The Barn shows some evidence of recent differential movement; however, this is often the case considering the age and traditional nature of the buildings. Therefore, it is prudent to consider the cause of such movement and resultant cracks and deformations.

There were multiple cracks, both historic and more recent; most of these will be due to cosmetic seasonal differential movement across formation under the Barn.

However, a few indicated some outwards rotation of the gables together with lateral movement between the walls and purlins. These will require monitoring and if movement is found to be ongoing then a remedial scheme, potentially including crack stitching and underpinning will need to be undertaken.

Near the south-east corner of the Main Barn was a pond, which was near dry at time of our inspection but was full when photographed for Hose Rhodes Dickson's sales brochure; the effect of this, combined with the trees between the barn and pond on the ground moisture content is the likely cause of movement at the corner.

The split principal truss bottom chord has been historically repaired with the cause of such an unusual break unknown. Other localised defects due to wood boring insect and decay due to water ingress will have been present and not visible from ground level.

The ivy will need to be removed from the walls with any localised stone wall defects made good with appropriate stone and lime mortar.

The trees between the pond and Barn should be incrementally reduced over three years.

To improve the robustness of the barn, additional vertical and lateral strapping will need to be provided between the roof structure and stone walls, as well as ensuring above and below ground surface water drainage efficiently takes water away from the ground surrounding the barn.

Should the barn be converted to include an insertion of a first floor this can be used to improve the lateral restraint of the walls.

You have provided us a copy of MODH Design's proposals for the conversion of the Barn.

In terms of fenestration, the proposals for the most part use the existing openings or previously blocked up openings. other than extending a small central window on the southern elevation down to create a narrow slot window to ground level and adding a few small roof lights.

Localised strengthening will be necessary around the proposed slot window.

It is noted the intention is to replace the corrugated iron roof covering with slate and therefore although the cut timber roof structure will have supported a heavier roof covering in the past, design checks will be needed to the rafters, purlins, and the principal queen post trusses.

Localised strengthening of the roof structure might be necessary, and this can be combined with provision of lateral restraint to the stone walls.

The proposals include some sub-division of the ground floor space and the addition of partial first floor rooms.

The ground floor level will need to be set to avoid the floor make-up undermining the formation of the stone walls and will need to support the new timber frame to the first floors independently of the stone walls.

The first-floor bedrooms created within each end bay, against the gables, give an opportunity to provide enhanced lateral restraint to the existing stone walls that have been noted as out of plumb (not measured).

Recommendations

Undertake all recommendations in the Tombleson Report.

Ensure Listed Building Consent is obtained for all repairs and alterations that are not “like for like” in terms of materials and details.

Subject to intrusive investigation, detailed design, and specification as appropriate undertake the following remedial works:

Cut ivy away for two foot, 600mm, around the base of the main barn and once that has died back remove any remaining ivy from the walls and treat the ivy at the base with an approved herbicide.

Inspect the exposed walls, seek Structural Engineer’s advice on any cracks encountered and allow to repoint the barn in a NHL3.5 lime-based mortar, selecting sands and grits to suit existing mortar joints.

Install crack monitors to the cracks adjacent the north-east and south-west corners of the main barn and monitor monthly and continue for six months

after drainage and tree works are complete. Allow to provide remedial repairs, including crack stitching once any movement is arrested.

Install vertical and lateral strapping details between the main barn roof structure and stone walls.

Within the main stone barn undertake repair to timbers subject to wood boring insect attack or decay due to localised water ingress. Ensure the purlin bearings are fully bearing into the gables and the gables are laterally restrained to the roof structure.

Ensure all above ground drainage systems are free of debris and check line and level are effective in discharging roof drainage. Ensure any water butts overflow back into the downpipe and not into the ground.

Locate all underground foul and surface water drainage on and adjacent the site and record locations of all drainage runs, manholes etc on a site plan for future reference.

Undertake a camera survey of the underground drainage and undertake any remedial works as necessary.

Ensure the rainwater pipes are connected via an accessible gully to underground drainage to either a soakaway or mains drainage, in accordance with current Building Regulations to ensure excess water is rapidly discharged away from the buildings.

Subject to any necessary consent under Tree Preservation Orders or Conservation Area, if applicable, undertake crown reduction of trees near the Farmhouse and Barns, control the growth of the trees and shrubs near the buildings annually thereafter. Gradually reduce the size of trees closest to the Farmhouse and Barns over three years.

Undertake trial pits to confirm depth and nature of footings to the stone walls to enable ground floor level to be set.

New floor make-up to avoid undermining existing walls with reinforced concrete slab across trench footings across the barn and with slab cantilevering against the gables.

Independently support new first floor on, and provide lateral restraint within, inserted timber frame to the existing stone walls.

Conclusion

The main stone barn was sufficiently in a reasonable structural condition to be suitable for conversion into a new dwelling and thereby the Listed Building secures a use to support its long-term conservation.

In addition to drainage and tree works it will require localised remedial works such as strengthening, such as purlin bearings to the gables and repairs to localised timber defects.

If you require any clarification, then please do not hesitate to contact me.

Yours Sincerely

John Sutton B.Eng (Hons)
Director