



Design Solutions Ltd

Consulting Structural & Building Engineers

STRUCTURAL ENGINEERS REPORT ON THE CONDITION OF 2 STOREY Grade II LISTED



Property

POND FARMHOUSE
STEEPLE CLAYDON
BUCKS

Client

CLAYDON ESTATES

Publish Date

11TH AUGUST 2023

Author

Mark Allen BEng (Hons) CEng MStructE

2 Courtyard Offices | Upper Aynho Grounds | Aynho | Oxfordshire | OX17 3AY

T: 01869 717711 or 01280 860761

W: www.abdesignsolutions.co.uk | E: info@abdesignsolutions.co.uk

Directors: Mark Allen MStructE | Matthew Barnes BEng (Hons) MEng

Company Registration No. 6056872

CONTENTS

1	BRIEF	3
2	LISTING	
3	DESCRIPTION	
4	OBSERVED DEFECTS	
5	GEOLOGY	
6	DRAINAGE	
7	CONCLUSIONS	
8	RECOMMENDATIONS	
9	PHOTOGRAPHS	

1 BRIEF

AB Design Solutions Ltd were appointed to provide a Structural Engineers report on the condition of Pond Farmhouse as part of a Listed building and Planning application to carry out repair work to the building. Pond farmhouse is currently uninhabited and repairs work is necessary to bring the building to a useable.

The listed building application number currently submitted is 23/02182/ALB.

This report is limited to elements of the structure described above only. However, when assessing the defect provided to us in the brief, services, timber decay, damp penetration, contamination and further defects may be referred to, but these are items that require further investigation by others.

This report is solely for the purposes of the client only and no other third parties.

There has been no opening up works involved in this investigation. No drains have been inspected. Hence, parts of the structure that were hidden, covered or otherwise inaccessible have not been inspected. We therefore cannot guarantee that any such parts are free from defect.

A visual inspection has been carried out only.

Electricals and Mechanic plant is beyond the scope of this report.

2 HISTORY AND LISTING

The Listing wording is as follows:-

Farmhouse. C17-C18 L-plan house of rubble stone, extended to E. in chequer brick mid-late C18, and in brick to N. late C18 and C19. Tiled roofs, brick chimneys flanking stone section. 2 storeys and attic. Stone section has N. front of 3 bays, C19 and C20 paired barred wooden casements, 3-light to ground floor right. Central upper window blocked. Later bay to left obscured by single storey extension at right-angles with similar 3-light casements. Rear has similar casements and 4-panel door in angle with flat wooden hood on minimal brackets.

Listing NGR: SP6967824775

3 DESCRIPTION

Pond farm house is 2 storey dwelling, with a single storey section to the Northern side of the building. There are 2 detached out buildings, a “garage” and a small brick shed.

The construction of the building is :

Roof: Plain clay tile roof covering on timber battens, and timber rafters with purlins and principal trusses. There was a mixture of lathe and plaster or plasterboard ceilings.

Walls: The two-storey part of the house had rubble filled limestone walls, with a solid brickwork extension to the eastern end. The single storey sections were one brickwork.

Floors: The ground floor had a mixture of ground bearing oversite slabs, flagstone floors, and timber floors. The first-floor construction was timber T&G boarding supported on joists, with Hardwood beams. Ceiling soffits were a mixture of plasterboard and lathe and plaster.

4 OBSERVATIONS

North Elevation (2 Storey)

There was a section of tiles towards the RH end of the elevation nearest the gable which appear to have been replaced. These appeared to be machine made smooth tile, whilst majority of roof was handmade, rough texture.

The gutters are plastic, supported on traditional galvanised gutter brackets. Much of the elevation was obscured by climbing creeper plants, etc. These did cover some window entirely.

The SVP is external.

The RH end of the gable, the snug window on the ground floor appears to have had a timber lintel replaced. This appears not to be level, and is lower nearest the gable end. The timber beam is straight and did not appear deflected or decayed. There has been some repointing over this opening and this cracking appears to have reopened.

The RH window to the first floor appears to be “out of square”. This is a sliding sash window. The sill appears to have dropped on the RH side of the window.

When stood far from the building (i.e. along the driveway) it appears the ridge line is not flat along its length, it appears to slope from a mid point between the chimneys downwards to the RH gable end.

There appears to be a bow outwards at eaves level when looking along the gutter line.

The gratings to the gullies beneath downpipes were blocked with leaves.

Dairy West Elevation, (single storey)

Much of this elevation was obscured by climbers extending up walls and across the roof slope.

What masonry was visible appeared to have been repointed. The timber casement window appeared to be quite decayed.

There were some large tanks which appear to be used as water butts adjacent to this wall.

Dairy North Elevation (single storey)

There is some frost damage to brickwork to the upper half of the triangular section of the gable end. The verge had been repointed and tiles re-bedded.

There was a small Beech tree growing very close to the gable/corner.

West Elevation (2 storey main house)

At ground level there have been some excavations, which appear to show this elevation has had some underpinning works. These are mass concrete trench fill type. There is a rainwater down pipe which appears to have a temporary connection to a sub terranean drainage system. The open excavations were had water laying in them at the time of inspection. The downpipe was not connected at eaves to the gutter outlet.

There is a brick panel at ground floor level, this has a timber beam and brick arch over. The timber had been rendered over but there was a hole away revealing the construction behind.

Either side of this brickwork panel there were vertical cracks extending from ground level to eaves.

The window above the brickwork panel had been partially boarded up.

The LH window to the gable end to the ground floor room, appeared to have a decayed timber lintel over, and triangular shaped cracking over the opening. The masonry over the opening bulged outwards within this triangle.

A section of roof tiles nearest the Southern gable appear to have replaced with a smooth plain clay tile.

There is a large stone buttress to the Southern gable. (see southern gable observations)

There is some bulging outwards at eaves level when looking along the gutter line.

Southern Gable

There is a large buttress to the western side of the elevation. There was a large crack between the buttress and the main elevation. This appears to be tapered and widest at the top. The buttress appears to be pulling away from the gable. There has been some excavation around the buttress to expose the foundations. It appears a land drain (Victorian clay pipe) runs beneath the buttress. This had been disturbed.

The upper part of the gable is constructed using a brickwork, this appeared to be a lower part of a chimney. (this is confirmed by internal inspections).

The upper part of the gable appeared to lean outwards, and the stonework verge projected outwards further than tiles above. There was some visible "dishing" to the gable elevation at approximately eaves level.

Southern Elevation (2 storey brick section)

Much of this elevation was obscured by creeping/climber plants.

The flat brick arch over the first-floor window appears to sag/deflect over the window. This brick arch has been repointed.

All of the visible brickwork had been repointed.

The rainwater downpipe was not connected to the gutter outlet.

The eastern end of the roof to this elevation has had the tiles replaced similar to other gables.

Eastern Elevation (front door)

The flat porch canopy is constructed of plywood and mineral felt was in a state of disrepair. Much of the stonework to this elevation has been repointed.

There were some large shrubs growing close to the building near the front door.

Eastern Gable and kitchen Porch

There were no obvious defects to this gable. There were some obsolete electrical bracketry and fixings at high level.

The porch appears to have had its leadwork removed where it abuts the gable.

There are some broken natural slates to the porch.

The modern glazed porch door has an external latch and padlock.

Dairy Eastern Elevation (single storey)

There has been some repointing to the brickwork, all of the elevation has been repointed.

The mortar fillet to the roof where it abuts the two-storey main house is no displaced or missing, and no longer appears effective.

The bottom row of tiles at eaves has been replaced with smooth machine-made tiles.

The window has no sill and lower portions of the window were decayed.

Small Brick Outhouse

Beyond the scope of this report. However, condition of roof and masonry was similar to the rest of the house, and it was in need of some attention/maintenance.

Garage

Beyond the scope of this report. This was timber clad, did seem to be in a serviceable condition. It was not inspected internally.

Forge/Tack rooms

The roof tiles near the gable had been replaced in a similar way to elsewhere. There were some rounded edge plain tiles to the dairy end of the building.

There appeared to be no obvious external structural defect. Condition was similar to rest of building, having had some repointing.

INTERNAL OBSERVATIONS

Roof Space Main House

There were several defects noted in the roof varying from structural to non-structural.

Non structural defects included daylight visible where there were broken or slipped plain tiles. There were also signs of water ingress to all the valleys, leading to some decay of timbers local to each valley.

Part of the roof had lathe and plaster to the underside of the rafters. Much of this was spalling, was cracked, and had the potential to hamper ventilation around the rafters. There was some temporary Acrow props to the upper collars in this area of roof.

The first area accessed from the stairs (Southern Section); it was quite noticeable the amount of subsidence that had occurred. The ceiling/2nd floor joists appeared to tilt or be a lot lower on the Northwestern Corner compared the rest of the roof space.

Where visible, common rafters appeared in reasonable condition, but much was obscured by lathe and plaster. We would expect that some rafters will require repair or partnering, or even replacement.

Externally some outward bulging was noted at eaves level. Some "pullout" was noted to tusk tenon joints where ceiling/ second floor joists were housed into a central beam.

The Western gable end had visible horizontal cracks to the bed joints. It was also noticed there had been some racking of the roof toward this gable. The horizontal cracks are likely to be "tension cracks".

The Southern Gable End had a chimney breast within the loft space, this has been reduced to below the roofline, and tiled over. The masonry to the part of the gable in the loft had horizontal and diagonal cracking. These are a combination vertical movement and tension cracks.

Forge/tack room and shed.

The roof is open with a purlin midspan of rafters. There have been some additional timbers added near to the gable end of the storeroom propping the purlins. There are signs of roof spread with some cracking, and walls leaning outwards at plate level. There is a large vertical crack between the side wall and internal partition. This is full height and is tapered. It is widest at eaves level. There is no sarking felt. In the forge/tack room there is some diagonal cracking noted in the side wall. It was also noted that the wall was poorly bonded. The purlins were unsupported where the roof is laid on the dairy roof and appear to have a

Dairy

There was ivy ingress into under the tiled roof. The roof has had a central section of ceiling joists removed between the two binders, but the outer parts still remain. There are some signs of local decay to timbers. The common rafters/Roof appeared to have “racked over “towards the gable end.

The upper part of the gable end is only ½ brick thick above purlin bearings. There was cracking to gable end noted. This was below the window, extending diagonally from floor to eaves on the RH side. There was a vertical crack between the store/side wall and gable end of the Dairy,

There is a flagstone floor, and this below the ground level externally. The below ground portion of brickwork and floor appeared damp. There were signs of dampness up to windowsill level in walls.

Kitchen

There were no obvious structural defects noted. The ceiling paint was hanging off the ceiling in sheets. There was dampness to the chimney breast behind the range cooker. Most walls and ceiling appeared to have surface mould.

Pantry

There were signs of dampness of rear wall.

Utility room

The dampness noted around the range to the kitchen was mirrored to the back of fireplace in the utility room. There was surface mould to modern plasterboard ceilings. There were flight holes of woodboring insects to timber beam (possible furniture beetle). This room has a modern tiled floor.

Passage/Hallway

There was some cracking to the plaster over the window in the external wall. The internal partition appears to be timber stud with brick infill (tbc).

Office/Study

There was dampness noted to the external wall, and window reveals. Surface mould was noted to ceiling, etc.

Lounge/Snug

The ceiling was paper lined, and is a modern plasterboard, it had surface mould to soffit.

There fireplace was full of twigs most likely from birds dropping them down the chimney. There was some minor cracking to the chimney breast above the fireplace. There were vertical cracks below the window to the gable end and to the side of the chimney breast.

Entrance Hall (adjacent to front door)

There was a modern tiled floor in this part of the hallway, some had lifted. There was some cracking noted to the window reveals, and below the window. There was cracking noted to the side of the front door. There was vertical cracking between the gable wall and the internal drawing room partition.

Drawing Room

The partition between the drawing room and the lounge, has been lined with studwork in the drawing room side.

The floor appears to be bowed up in the centre of the room, and slope downwards to the Southwest corner (between fireplace and Corner)

There was vertical cracks where the brick panel joins the stone masonry. This is a mirror of what had been repointed externally. There were signs of moisture ingress. There was some blockwork to the inside of the external wall in the cupboard adjacent to the fireplace. The fireplace surround was loose and leant against the chimney breast. There was some rubble within the fireplace. There was a hole in the lathe and plaster ceiling.

First Floor Rooms

Main Bedroom over Kitchen

A significant amount of surface was noted in this room and on objects in the room. The lathe and plaster ceiling was uneven with cracks and bumps.

There was some detritus that has come down the chimney. There was diagonal cracking to partition adjacent to chimney breast.

The en-suite door was out of square and it had dropped to one side. But does open. This door had quite low head height and is narrow.

There was vertical crack over the window and below, there was also diagonal cracking to the RH side of the window to the external wall.

Landing/Hallway

When exiting the main bedroom the door head was out of square, and the floor appeared to slope downwards away from the bedroom door.

2nd Bedroom

The back of the chimney breast appeared damp and surface mould was noted around the room.

Bathroom

The floor appeared to bulge. The door was out of square and appeared to have dropped on the hanging side.

3rd Bedroom (gable end, lilac painted walls)

There was some diagonal cracking noted above the chimney. There was diagonal cracking noted to the partition with the adjacent bedroom. There was a vertical cracking noted to the bathroom partitions adjacent to the light switch. The door is out of square and is lower on the hanging side.

Landing

There was a significant vertical crack adjacent to the stairs in the chimney breast/cupboard. This had been stuffed with newspaper and was approx 15-20mm wide. The string of the stair up to 2nd floor was missing or there was just a clear gap formed between stair and gable. Similar was noted to the stair down to ground floor.

4th Bedroom (over Drawing Room)

There was a hole in the lathe and plaster ceiling. There were some temporary acrow props propping the ceiling.

Wardrobe adjacent to the chimney breast, there was quite a bit of cracking noted to masonry in this cupboard to all walls. The vertical cracking in the external side wall was a continuation of cracking noted in Drawing room up to eaves. There was a timber plate within the masonry at approximately sill level. This was decayed. There was evidence of bulging outwards of the side wall, particularly just above first floor level.

4037-ABDS-MS-00-RPT-S-0001

1.08.2023

Page | 15

5 GEOLOGY

BGS borehole data show that nearby ground conditions adjacent to railway are grey or blue CLAY at least to a depth of around 87 feet. From local knowledge, this is unlikely to vary with that distance. Pond farmhouse is situated on the arc of clays, stretching from Dorset to The Wash, East Anglia , with upper layers known as the Peterborough member. This was excavated very locally to Pond farmhouse for brickmaking at Calvert.

This bed of clay when tested locally, to North Buckinghamshire typically yields results of Atterberg tests of “medium” shrink ability category in NHBC chapter 4.2.

Thus, will change volume relative to moisture content, and this can be influenced by trees and their demand for water.

Softening/ loss of bearing capacity can also be caused by a concentrated source of moisture.

Also, borehole records revealed that the farm had been and potential still is supplied by spring water from “Knowle Hill”. We do not know where any of this pipework may exist at the farmhouse, possibly in an outbuilding.

6 DRAINAGE

We are unsure of the rainwater drainage system at Pond farmhouse. However, there were signs of an underground system. Also, some of the excavations revealed Victorian land drains were close to the house, and some excavations had disturbed these beneath a modern buttress.

We would recommend that the underground system is reviewed especially as it is believed that soak aways have been used.

The ground conditions, even without carrying any percolation testing likely to be unsuitable for soakaways to be effective. Rainwater run off should be discharged to ditches or swales in the case of Pond Farm. Ineffective soakaways are a common cause of subsidence.

There were signs of temporary connections where excavations had been carried out, more permanent connections will be required in the long term.

We do not know the foul drainage situation, however this is likely to be via septic tank. This may require updating to suit the current Environment Agency General Binding Rules. However, this is not a priority for the EA to ensure all domestic systems are updated.

7 CONCLUSIONS

Pond farmhouse is a building that has been uninhabited for a short period, and this has had an effect on some of the condition of the property, especially with the surface mould that was noted throughout. However, it could be considered that some of the other defects led it to become unserviceable as a dwelling, as it is not been weather tight, damp, etc.

The weather tightness may have been caused by the visible signs of movement in the building. This has caused cracking and displacement to items such as the roof, leading to broken tiles, and large cracks which at least would have been drafty at the least.

However, there have been signs of maintenance as much of the masonry has been repointed in the past. Also, there appears to have been some underpinning work. Also, there a large buttress has been constructed at one end.

Inspections in the roof did reveal some significant defects, including decay to some structural elements, racking, pull out of timber joints, roof spread, vertical displacements, and cracking to masonry.

When walking around the property the vertical displacements were significant, as floors appear to tilt to one direction. (towards the Western elevation). This elevation appears to have had some mass concrete underpinning works to it. This had been exposed by some excavation and the trench was laid wet. There were interrupted drains and gutter not connected discharging into the trench.

Concentrated sources are one of the most common causes of vertical movement or subsidence of buildings. The concentrated outfall near the foundations of a building leads to softening of the bearing stratum. Thus, leading to a loss of bearing capacity, and resulting movement. Clay soils are sensitive to this, more so than sands, as the particle size of clays are so small, and the additional water holds the particles apart giving no interlock or bearing against each other. Hence, interrupted drains, leaky gutters, etc have a large effect on bearing stratum of footings. Shallow footings are more sensitive, also.

Trees and shrubs can have the opposite effect, where they are extracting moisture from the ground. Tall climbers, and trees near to the building draw moisture from the ground, and this causes a reduction in volume in shrinkable soils such as clays.

There are situations around the building where both shrinkage and softening are likely to be taking place, causing subsidence.

As well as the outside influences of trees and drainage there are structural defects that are require attention. Some of this is decay of timbers, loss of structural integrity of the geometry of the roof, racking of the roofs, and moisture ingress/ weathertightness.

The roof covering had been maintained, especially near to the verge of gables. However, there were large areas of the roof where daylight could be seen through the tiles. The rest of the roof was obscured by a lathe and plaster soffit. This also was fragile, with much of lime plaster loose from the lathes. Most likely due to moisture ingress.

The roofs were showing signs of roof spread, including the two and single storey sections. We suggest this as there was bowing noted at eaves level, and the pattern of cracking to masonry side walls.

The roofs in general will require recovering to ensure weather tightness, the lack of weather tightness has led to some decay of timbers, much of which is likely to be obscured. Hence there is likely to be a portion of rafters that require partnering or are just missing. There were also sign of decay to purlins were built in the wall. This decay is leading to a loss of structural adequacy for the function of the purlin and its ability to support the rafters. This can also add to the horizontal force placed upon the wall plate. There were largely concealed, but these act as beams spanning between gables/gables/principal trusses, etc. In some places this has been lost, we are unsure if this is through decay of member, or connections, or settlement of their supports. The amount of settlement was really clear to see in the roof space, this was over 100mm to the Western elevation.

However, it is clear that some repairs are necessary at wall plate level to timber members. It would not be feasible to reverse the vertical movement, only halt it.

Another significant roof defect, in both single storey and two storey parts, was racking. All roofs had shown signs of racking over, along the ridge line. This has shown up in defects with gables. Racking can be halted by adding diagonal bracing or sheathing to the roof. However, of some concerns were the gables in the 2-storey part, particularly the western and Southern gables. Tension cracks were seen in the Western gable, whilst large displacements externally were not noticeable, this may require investigation. This gable will require additional restraint by connecting to a braced roof slope, 2nd floor ceiling/ diaphragm, and positive connection to first floor.

The southern Gable, where there is a large buttress, also shows signs of leaning out, this could be seen in the internal cracking, and external displacements. This has moved, leaving the verge tiles behind allowing water to ingress into the centre of the wall. The upper section of this wall would require repair, and we would recommend rebuilding it. From the 2nd floor windowsill to ridge level.

The large buttress appears in effective. At present in is possibly having a negative effect on the gable wall, it can be seen “pulling away” from the building, as it is detached at the top of the buttress. It is quite a mass of masonry, that is a later addition to the building. It is also has moved away from the original building. This is also likely to be active.

We suggest it is active, as the excavations adjacent to the buttress revealed that there was a Victorian land drain that runs beneath it. This has been disturbed also. We therefore would recommend that the drain is diverted away from the buttress. Given the softening from the water discharging from the drainage system, we would also suggest that this buttress is underpinned to a depth where a suitable bearing capacity can be found, to prevent risk of further movement. This would have to be completed in several pits or sections, a minimum of 3 perhaps 4 sections.

Adjacent to the buttress to the side elevation these was significant movement and cracking to the side wall and deformations to the ground and first floors. A mixture of repairs were required here. We would recommend also further investigation into the condition of the timber beam over the brick panel. Currently this is rendered over. It appeared in good condition, but much was covered.

We do not believe further underpinning works are required, but certainly gutter repairs, down pipes, and an effective underground drainage system is required. This also applies to the whole building, along with management of trees, shrubs and climbing plants.

This elevation also had some bulging over the lounge window, and decay to the timber lintel. The decay of the timber lintel at its bearing (RH side, especially), has led to cracking and bulging of a triangle of masonry over. This will require replacement in a like for like way and rebuild masonry locally.

Internally this elevation will require crack repairs, including stitching with helifix bars and techniques. Also, decayed timber members should be removed, such as the timber plates built into the walls around the chimney breast at first floor and replaced with masonry.

The fire place / chimney breast also requires structural repair. This is now disused, we would suggest the removal of upper parts to remove load from structural elements below such as the bressummer beam that is concealed by plaster. This has had sleeper walls constructed to supported it approximately at third points along its span.

The floor in this room is hogging in the centre, and we would recommend lifting the boarding and checking condition of joists, and relaying. Also, improving the ventilation of the void beneath the joists to prevent any further decay. With few visible air bricks and solid ground bearing floors in neighbouring rooms ventilations is likely to be poor.

The dairy is part of the building which has some defects similar to elsewhere. This includes cracking to masonry walls, roof spread, racking to roof, gable repairs and dampness to walls and floor.

The floor of the dairy is a flagstone floor, this is also well below the external ground level, and there are little signs of any waterproofing. Whilst its current state may be suitable for a storeroom or cool room, it may not be suitable for residential accommodation without some upgrade. This can be done by adding a limecrete floor on glass beads for insulation. This would raise the level above the damp walls, and suitable linings could be added for thermal performance. Careful selection of techniques and systems can be used to eliminate dampness, allow the building to breathe, without the need to add injected damp courses etc.

However, if to the use is to be left as it is currently, then improvement of weather tightness, rainwater good and drainage, removal of trees, and repair of windows and doors, will improve the condition and make the room a suitable store which is likely to be much dryer. The current damp conditions are contributing to the steady decay of timbers in this room.

We therefore conclude that Pond farmhouse is in need of some repair, to make it habitable, there are some structural repairs required to do this, as well as many other non structural. The repairs required, would be traditional type repairs, including timber repairs, adding restraints, crack repairs to masonry, levelling of floors, lintel repairs, drainage repairs, etc.

All of the above are straight forward repairs, however there are a large number of them, to nearly all areas of the building. Thus making it quite expansive. However, if the repairs are carried out with the near future they will be of similar character of the existing construction, and this will keep the same load path, and character of the building. If left, they will not be self healing, it will lead to loss of historical structural fabric, and more engineered repairs. Thus, a potential to lose some of the character of the building,

8 RECOMMENDATIONS

Following the above conclusions, we have the following recommendations: we have separated them into the following sections:

2 Storey Roofs

- 1) We would recommend removing and refitting the tiled roof as there were lots of visible holes, and it did appear there was some water ingress. It would be prudent to install a sarking felt. This may need to be bat friendly, and an ecologist may should be consulted with regards to timings of the work.
- 2) When roof is strip carry out further investigation to condition of roof timbers. Replace, and decayed timbers in a like for like way. Repair any connections, bearings etc. Eliminate any roof spread or horizontal forces applied to walls.
- 3) Add diagonal bracing to roof, to prevent any further racking.
- 4) Rebuild upper section of Southern Gable. Add restraints to all gable walls this may involve adding restraint in a similar way to modern restraint straps at suitable intervals, at verge, ceiling, and the first-floor level.
- 5) It may be prudent to consider removal of some of lathe and plaster to underside of rafters for ventilation and or enable some repairs.
- 6) Repoint chimneys and install lead flashings to chimneys.
- 7) Ensure verges are weatherproof.
- 8) Ensure gutters are to correct falls, and ensure they are working correctly, and discharge to suitable outfalls.

Single Storey roofs

- 1) Remove creeper/ivy from roof externally and internally.
- 2) Remove and refit tiles, with sarking felt to ensure roof is weatherproof. Felt may be required to be bat friendly.
- 3) Bracing should be installed to prevent any further racking.
- 4) Check condition of wall plates and ensure connection to principle truss' is in good condition. May require some replacement, repairs.
- 5) Check rafter ends condition. Partner where required.
- 6) Install support to purlins off wall plate, in forge. Add tie (timber or steel rod) between wall plates adjacent to chimney in forge & Store.
- 7) Ensure verge at gable end of the dairy is weatherproof.
- 8) Add leadwork flashings/soakers to abutments of roofs/chimneys.

External Walls

- 1) Remove climbers, and self-set saplings, and manage shrubs/trees near to building.
- 2) Lintel repairs. Carry out lintel repairs and rebuild bowing masonry over lounge/snug window.
- 3) Southern Gable. Rebuilding works to upper part of gable in like for like way, ensuring both leaves tied together.
- 4) Some masonry repairs required where buttress joins Southern gable, to ensure stability and weatherproofing.
- 5) Crack stitching to cracks to Western elevation. Several require stitching.
- 6) Repointing generally, the build has been repointed with a cement-based mortar. Ideally this should be raked out and repointed with a soft lime mortar. However, this is a massive undertaking given the area. This is something to consider if budgets allow. However, where existing mortar joints are in poor condition these should be made weatherproof. A lime or NHL lime mortar should be used for new repointing works.
- 7) Underpinning works to buttress should be undertaken to ensure buttress is founded on suitable bearing stratum.

Drainage

- 1) All gutters should be cleaned, and repaired, or renewed with suitable downpipes.
- 2) All down pipes should be directed to suitable underground system. This should also have a suitable outfall. Soakaways would not be suitable given the ground type.
- 3) Remove tanks and water butts or ensure they have suitable overflow outlets to prevent overflow near to building.
- 4) Ensure existing/new external pathways have suitable surface water drainage system, ensuring run off is taken away from the building.

9 PHOTOGRAPHS



Southern Gable end, verge leaning outwards allowing water into the wall.



Huge Buttress tilting away from building. Excavations also laying with water.



Water laying around undermined buttress.



Cracking to Western elevation either side of masonry panel. Disconnected downpipe, Modern machine-made tiles near verge end.



Lintel failure to lounge window.



Large creeper/climber covering windows. Holding moisture against the building



Visible tilt to ridgeline from afar. Note downward slope on RHS towards Western chimney/gable.



Climbers over roof, adjacent saplings, and tanks.



Missing lead flashing to porch, and poor condition of mortar fillet at abutment.



Southern Gable in 2 storey section. Corbelled brickwork propping ridge.



Propping to collars in roof space



Propping roof space



Gap between string and wall, Southern gable



Holes in tiling in roof space.



Tension cracks to masonry, Western Gable



Vertical crack, ground to first floor stairwell (adjacent to southern gable)



Cracking in bedroom cupboard to Western elevation (adjacent to southern gable)



Propping to 2nd floor.



This photo doesn't show it clearly. But Main bedroom door out of Square, floors and door heads sloping. Also, walking uphill towards door.



Southern Gable fireplace in drawing room.



Floor bulging and dipping to Western elevation.



Inside the Dairy



Kitchen, dampness behind range, ceiling paint peeling.



Over spanning purlins in forge.



Roof spread to forge, cracking at vertical junctions of walls.



Storeroom with some additional ties and props to purlin bearings.



Storeroom roof externally, including mixture of tiles.