

Padnell Grange - Structural Condition Survey

Structural Appraisal Report

Ref: 251363/J Ham

Approved By: N Nicholls

Date: 05 Jan 2026

Status: For Information

Version: 1.1

1.0 INTRODUCTION

- 1.1 Conisbee has been appointed by Stonebond Properties (Guildford) Limited and The Borrow Foundation to assess the current structural condition of two buildings on the Padnell Grange Site in Waterlooville, Hampshire. The two buildings concerned are the farmhouse and one particular barn among the various agricultural buildings. The other buildings on the site are excluded from the scope of this report.
- 1.2 James Ham of Conisbee attended site to carry out a visual inspection on 5th December 2025. Inspections of the barn were carried out from ground level externally and internally. The house was inspected externally from ground level on all sides and all rooms were inspected internally, along with the three roof voids accessible by trap doors. The garage building to the rear of the house was not inspected. No opening up work was carried out.
- 1.3 This report is intended for the use of our client, Stonebond Properties (Guildford) Limited and The Borrow Foundation, and no liability can be accepted for use by any third party. Furthermore whilst this investigation 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.

2.0 PROPERTY TYPE, CONSTRUCTION & CONTEXT

- 2.1 Padnell Grange is a former farm which comprises of a number of buildings accumulated during its development since approximately the mid-Nineteenth Century. Most of the buildings are not considered to be of historical significance and are expected to be demolished for the redevelopment of the site. The two buildings that have been identified as of potential interest are the farmhouse and the Nineteenth Century barn. These buildings are identified in the site plan provided in Figure 1 overleaf.
- 2.2 The house is thought to originally date from the second half of the Nineteenth Century and since then there have been numerous phases of additions. The main body of the house was extended by about two thirds in a single phase of works thought to date from the late Twentieth Century. There are several phases of construction to the rear addition as it appears it was progressively extended. An insensitive portico has been added to the front of the building.
- 2.3 The house is of traditional construction with load bearing masonry walls. The floors are formed with suspended timber joists. The joists typically span between the perimeter walls and a central timber beam. The roof is of cut timber construction.

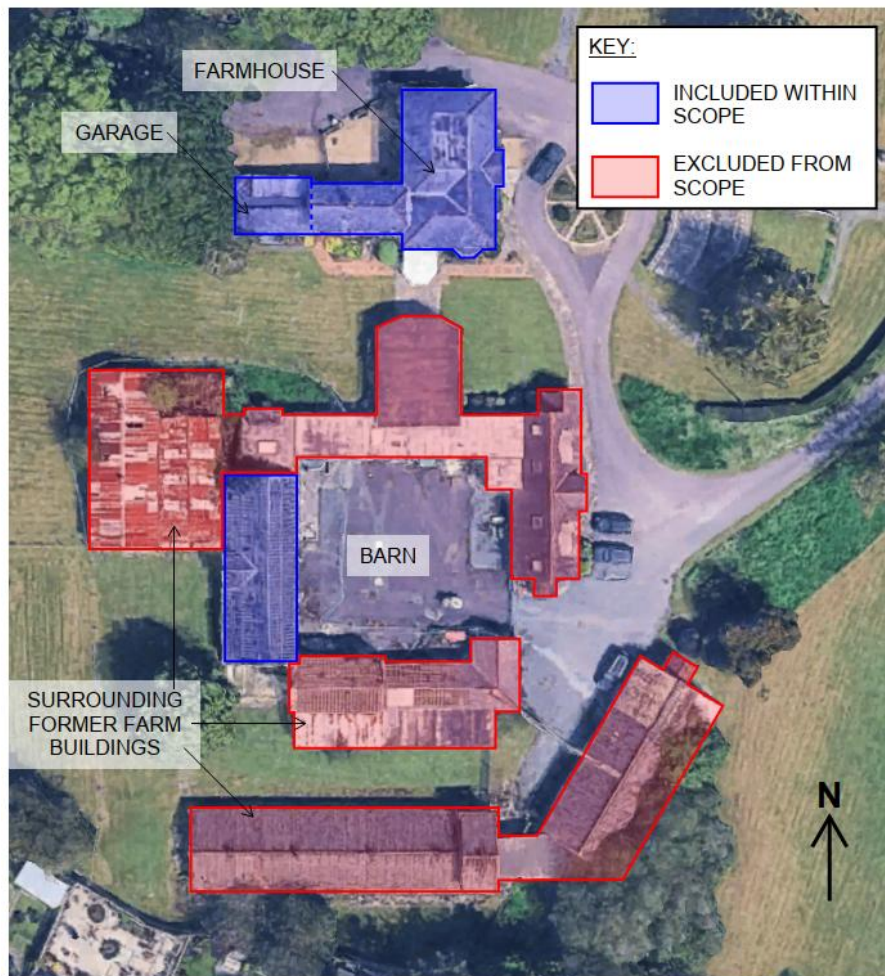


Figure 1 – Site plan.

- 2.4 The barn is largely a timber frame building with some masonry walls, thought to date from an unknown point during the Nineteenth Century. There are a number of adjoining buildings surrounding the barn which seem to have been built later. The barn appears to have been progressively altered over time. Roof finishes were removed upon the recommendation of a surveyor or structural engineer due the poor structural condition of the building.
- 2.5 The local ground conditions are on the boundary between types of Bedrock, London Clay and Head (clay, sand, silt and gravel). The buildings appear to be more on the London Clay bedrock, though the boundaries shown on the maps may not be that precise and there may be some ambiguity on the boundary. There are no superficial deposits.

3.0 OBSERVATIONS

3.1 The House:

- 3.1.1 The house is a large building of several parts (see Photographs 1 to 5 and Appendices A, B and C). The main body comprises the original extents of the house and the late Twentieth Century addition to the north. There is a small rear addition to the west, to the rear of the site. The rear addition appears to comprise an older single storey phase, as far as the roof level chimney, with a first floor added later. There is a further extension to the rear (west) which appears to be have been initially a single storey addition, with the first floor added later.
- 3.1.2 External elevations are generally faced with flint, with brick quoins to the corners and to the openings. The brick and flint detailing across the front elevation appears generally uniform which seems to indicate wholesale repointing with a cement based mortar, and possibly with some localised repair. There is some variation in the detailing of the flintwork, with some areas using more uniformly sized stones and others using smaller chips between large stone, which may indicate phases of construction or repairs.
- 3.1.3 The openings in the front elevation of older phase are formed with good quality rubbed brick flat arches, suggesting originality. The openings in the extension are also formed with rubbed brick flat arches but the mortar joints are wider, indicating they are a modern reproduction.
- 3.1.4 A decorative portico has been added to the front elevation (see Photograph 1). The mock stone columns appear to be made of fibreglass and the whole assembly is thought to be a late Twentieth Century addition. The pediment over the portico has a slate tiled roof which is dressed into the main roof, indicating a minor extension of the roof structure.
- 3.1.5 The north and west elevations of the extension (to the main body of the house) are formed with a similar knapped flint, edged with brick quoins (see Photographs 2 and 3). The mortar appears to be cement based. There are curved bay windows formed in timber. There is a wide sliding door to the rear/west elevation at ground level, within the extension. It appears the opening is formed with a steel beam.
- 3.1.6 The south elevation of the main body is a flint and brickwork wall of older construction, but again repointed with a cement based mortar (see Photograph 5). A large opening has been formed to connect the conservatory to the original house. It is assumed that this is formed with a steel beam to support the original flank wall. The bay window to the front ground floor reception room appears to be of a more historic form, possibly dating from the original construction. The bressummer beam forming the opening to the bay window is likely to be formed with timber.

- 3.1.7 The former front door opening has been converted to a window, and the former right hand window of the original three-bay façade has been made into the front door, to make the façade balanced over the original house and the extension combined. The former load bearing wall between the original entrance hallway and the front south reception room has been removed to enlarge the latter. The former north front reception room is now the entrance hall. It appears that there was a chimney breast in the former internal wall between the two north rooms at ground and first floors. This chimney breast appears to have been completely removed, including the stack above.
- 3.1.8 There is a cellar which was dry at the time of inspection (see Photographs 6 and 7). There are timbers supporting the ground floor above (see Photograph 7), of which some are incongruous and appear to be additional support provided later.
- 3.1.9 The ground floor plaster ceiling in the original extent of the main body of the house has been raised to expose the original timber structure of the first floor, with plaster finishes set within the timber elements (see Photographs 8 to 11). The layout of the floor structure has been recorded along with the load bearing walls in Appendices A and B.
- 3.1.10 Within the main body extension the ceiling to the front room is finished with flush plasterboard and the exposed timbers in the rear room appear to be cosmetic (see Photograph 12). There are open joints between the timber joists and the central beam indicating that it is decorative to reflect the appearance of the older parts of the house (see Photograph 13).
- 3.1.11 The ceilings at first floor level are generally flush plaster finishes, concealing the structural layout. The ceiling over the first floor landing and the stair has been treated similarly to the ground floor, exposing the original timber structure (see Photograph 14). The timber beam supporting the roof level valley above is visible. A load bearing wall appears to have been removed a first floor level, with a downstand beam in its place (see Photograph 15). The has merged the front south room with the former hallway.
- 3.1.12 The master bedroom occupies the whole first floor area of the extension. An impression in the carpet appears to indicate the floorboards, from which the first floor structure may be inferred (see Photograph 16)
- 3.1.13 The main roof void was accessed via a trap door at the junction between the original extents of the house and the extension. The structural arrangement was largely exposed for inspection and the findings are summarised in Appendix C. The inspection was limited by the heavy accumulation of insulation which covered the ceiling joists and obstructed access into the southern end of the ceiling void.

- 3.1.14 The appearance of the timbers appears consistent over the original house and the extension, suggesting the roof may have been entirely rebuilt at the time of the extension (see Photographs 17 and 18). The rafters are formed with a single spanning timber from eaves to the ridge, whereas an intermediate purlin is more usual in roofs of this type and age. Ties perpendicular to the ceiling joists appear to have been provided to resist lateral spread of the hipped roof (see Photograph 19).
- 3.1.15 The former north aspect of the original roof has been removed to form the main extension. The extension roof is hipped with a flat area in the centre, at the original ridge level. The flat roof joists are supported by struts bearing in the centre of the roof void. There is a water tank located in the centre of the roof void.
- 3.1.16 The capped chimney stack is visible within the roof void but is no longer visible externally. The alterations required to the roof structure to close up over the chimney stack opening may have influenced the wholesale renewal of the roof.
- 3.1.17 There are deposits on the surface of the timbers which may be surface mould growth resulting from poor ventilation of the roof void.
- 3.1.18 The ground floor of the rear addition is formed with flint and brick walls. It appears the original extent was as far as the existing chimney stack. At some stage the ground floor was extended to the west in brick and flint construction. The first floor extensions are faced with pebbledash, so appear to be later. Initially the first floor appears to have been built as far as the earlier ground floor phase below and the chimney stack, and later extended to bridge over an external passage to bear on the end wall of the garage building (see Photograph 4).
- 3.1.19 The roof structure in the voids of the rear addition is exposed for inspection. The roof structure is typical cut timber construction of purlins, rafters and struts. The phasing of construction is expressed in the appearance of the timber. The section as far as the gable wall with the chimney stack is older (see Photographs 20 and 21). Within the void of the later construction the former external pebbledash finishes can be seen on the gable wall (see Photograph 22), and the timber and gable end is of a more modern appearance (see Photograph 23). There were no visible defects and no sign of structural inadequacy.

3.2 The Barn:

- 3.2.1 The barn is in a very poor structural condition (see Photographs 24 to 27). The timber frame has become highly saturated since the removal of the roof finishes, however it is thought that the decay results from water ingress over a longer period of time due to deterioration of the external envelope. Due to limited access, accumulation of vegetation and concealed defects, it is not possible to list every defect in detail. The following summary is provided of the most significant defects.
- 3.2.2 There is significant decay where the east elevation timber studs meet the sole plate (see Photograph 28). The damage is not necessarily directly visible. At a sample selection of mortice and tenon connections a screw driver could easily be pushed into the timber.
- 3.2.3 At the east elevation the dwarf wall appears to have been faced up with render and the sole plate cannot be seen. It is assumed to be beneath the render. Such encapsulation of timber in render or other non-breathable materials tends to result in decay of the timber as the moisture becomes trapped.
- 3.2.4 The external timber stud walls are partly infilled with masonry (see Photographs 24, 25 and 27). To the north blockwork has been erected outside the timber frame and it is assumed to be part of the adjacent flat roof building. Brickwork has been erected inside the timber frame at the south elevation. There is diagonal cracking in the south elevation (see Photograph 29), indicating some movement in the brickwork which is likely to result from shallow foundations and the shrinkable clay ground conditions.
- 3.2.5 The brick and flint west elevation appears original, along with the return to the south elevation. There is some minor separation of the flint wall and the corner brick quoin (see Photograph 30).
- 3.2.6 There is evidence of insect attack in the timber studs (see Photograph 31). There is no evidence of significant loss of section as a result. The distribution suggests that it may have been an insect which favours sapwood and that the damage is relatively superficial.
- 3.2.7 Large windows have been installed in the east elevation, with two to the south side of the large door and one to the north. The timber studs were not adequately trimmed out to form a window opening (see Photograph 32). There is a shallow sill, no timber to form a head to an opening and the side studs have not been strengthened.

- 3.2.8 There is an internal frame formed with timber posts supporting longitudinal (north-south) and transverse (east-west) timber beams. The frame comprises five bays, of which the centre bay houses doors to the east and west. There are diagonal braces between the posts and the beams. In one location towards the south end a diagonal brace has failed at the lower connection (see Photograph 33). This appears to result from severe decay of the post into which the brace was fixed. The affected post appears to be weakened by decay and is no longer straight. The post has split above the failed connection and the transverse beam has displaced to the east, resulting in some distortion of the east elevation (see Photograph 34).
- 3.2.9 There are some open joints in the timber frame, indicating possible decay and weakness in the connections.
- 3.2.10 There are struts bearing on the transverse timber beams and supporting longitudinal purlins. The purlins support the main roof rafters at midspan. The connections between the struts and the purlins all appear intact from ground level but could not be inspected close-up for decay. The rafters of the two main roof aspects appear in better condition but could not be inspected close up for decay.
- 3.2.11 The eaves level at the west elevation is lower than at the east elevation. The roof can be considered in three parts: the main roof east and west aspects; and the lower west aspect which spans from the longitudinal timber beams to the top of the lower flint and brick wall. The rafters of the lower west aspect of the roof are in a very poor condition with widespread timber decay with many missing and incomplete sections of rafters.
- 3.2.12 There is an intersecting gable over the door in the west elevation which forms a break in the lower rafters and partly bears on the upper rafters. The gable is severely decayed and its shape is significantly distorted (see Photographs 25 and 35). The cheeks of the gable are in very poor condition and some elements are missing.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Summary:

4.1.1 The Padnell Grange farmhouse is in an adequate structural condition, however the original extents of the house have been extensively modified and extended. The alterations are not sympathetic to the original form of construction. The original cellar, most loadbearing walls at ground and first floor levels, and the timber first floor structure remain. The load bearing walls have been significantly altered, with some removed and large openings formed. For the building to be retained a detailed structural review would be required, according to the proposed usage, and some elements may require strengthening, such as the roof which appears to have been replaced in its entirety.

4.1.2 The historic barn is in a very poor structural condition with evidence of widespread timber decay and structural instability. Significant alterations have been made to the barn during the development of the farm. If the building were retained it is likely that a large amount of the original structural timber would require replacement.

4.2 The House

4.3 The farmhouse is in an adequate structural condition for a building of its type and age. There have been multiple extensions to the house. An attempt has been made to replicate the original visual style but the detailing and use of materials is insensitive. The original load bearing walls of the house can be identified internally and the first floor timber structure remains reasonably intact. The roof appears to have been renewed to cover both the original house and the extension, with a minimalist cut timber structure.

4.4 The external walls are generally faced with flint stone, in the traditional style, with brick quoin details to the external corners and door and window apertures. It is difficult to discern the original extents of the flintwork relative to the extensions and the tone of the brickwork appears consistent. The mortar generally appears to be of a similar appearance across the building. Therefore it is likely that there has been significant repointing and/or rebuilding of the external envelope with a modern mortar, resulting in the more uniform appearance.

- 4.5 The external walls are relatively thick, measuring approximately 360mm in most parts of the building. This is likely to comprise a whole brick (9 inches or 215mm) structural core to the wall with the remainder of the wall formed with the flint facing, as was common at the time of construction. In the extension walls are of a similar thickness, possibly comprising 215mm solid brickwork or blockwork faced with flint. In such flint faced construction the flint is typically restrained by steel ties or cramps into the brick/block inner wall. There are no significant visual defects in the external walls to indicate structural inadequacy or defects associated with this type of construction, such as bulging or delamination of the flint, and rust staining from embedded steel ties.
- 4.6 The walls of the rear addition appear to be similarly formed. The final first floor extension may be formed with cavity walls as indicated by the blockwork inner end of the later gable. There are no defects visible in the external walls of the rear addition.
- 4.7 The portico on the front of the building is an insensitive addition thought to date from the late Twentieth Century. It does not form a significant part of the structure and could be removed. Some making good would be required where the assembly is fixed into the front elevation. The main roof would require minor works to remove the intersecting gable and patch in slate tiles.
- 4.8 Internal and external walls have been heavily modified within the main body of the original house. A number of large openings have been formed to provide openings into extensions. These are assumed to be formed with steel beams, though the details are concealed. There is no indication of inadequacy, such as disturbance of finishes, but if the building were to be re-used the details of the alterations should be checked for their adequacy under the proposed future use of the building. The wall and chimney breast between two original north rooms has been removed entirely. There may be some steelwork in the position of the former wall to support the first floor and roof structures. Non-load bearing internal partitions are indicated on the plans in the Appendices.
- 4.9 In any refurbishment of the building all load bearing walls will remain significant. If any wall requires alteration, structural engineering input will be required to investigate the loading upon the wall and the existing construction details, and design engineered alteration works accordingly. When dealing with historic buildings, and particularly those which have been extensively adapted, there is a significant risk of uncovering structural details which do not conform to current standards. The existing timber roof structure over the main body of the house indicates that the Twentieth Century alterations were carried out in a minimalist way. A full structural review would be required at the start of the design process.

- 4.10 The internal timber first floor construction of the original house appears to be little altered from the original construction, other than by exposing the timbers. The timber elements were all dry and in a good structural condition.
- 4.11 The first floor structure of the extension to the main body of the house could not be confirmed. There is an impression of floor boards in the master bedroom carpet which suggests the boards span from side to side of the house. The supporting joists may therefore span from front to back. This is consistent with an intermediate bearing on the internal walls forming the toilet and cupboard between the dining and living rooms, as shown in Appendix B. Greater confidence in the arrangement would require confirmation by investigations to expose the joists. There are no visible defects to indicate that the floor structure is inadequate.
- 4.12 The first floor of the rear addition is assumed to be formed with timber joists spanning perpendicular to its gable wall. There are no visible defects.
- 4.13 The roof of the main house does not appear to be original construction. The rafters span from the eaves to the ridge without intermediate support which is unusual for older buildings. The roof over the main extension is formed of rafters spanning between the eaves and the flat roof at the centre. The flat roof is supported partly by axial load in the rafters and partly by internal struts bearing in the centre of the roof. There is also a water tank in the centre of the roof void. The second floor ceiling joists span from front to back, which is a long span for timber joists. The water tank, struts and joists indicate that there may be a central line of support formed by more substantial structure, such as a steel beam, spanning from the flank wall of the extension to the original flank wall. Although the timber roof structure over the main body of the house is minimally built, there are no indications of inadequacy or defects. To meet modern design standards, the roof structure would likely require strengthening.
- 4.14 The possible mould growth on timber elements in the main roof void could indicate poor ventilation.
- 4.15 The roof to the rear addition appears to be in an adequate structural condition.
- 4.16 The cellar appears to be dry and there were no apparent structural defects.
- 4.17 The Barn
- 4.18 The barn is in a poor structural condition with areas of severe structural defects. The entire timber frame is exposed to the elements and saturated by rainwater. Low level areas of decay could be directly inspected but it is anticipated there is significant timber decay at high level which may not be visible.

- 4.19 The main defects confirmed include the timber sole plates on the east elevation, the damaged timber framing (with the defecting bracing and split post), the lower west roof pitch and the intersecting gable over the west door. Propping should be considered where the timber frame is damaged as this is a significant weakness in the building.
- 4.20 It appears that significant structural timber repair work would be required for the barn structure to be retained. It is possible that very little of the original timber structure would be retained and very little, if any, can be retained from the lower west roof pitch and the intersecting gable. Due to limited access not all areas could be thoroughly inspected for this report. Specialist investigations would be required by organisations such as TRADA to confirm the full extent of decay, however the structure would require making safe before any further investigations.
- 4.21 The timber frame connections are typically formed with mortice and tenon connections. At the timber sole plates this admits water to the centre of the timber, where it is trapped, resulting in decay. Replacement of sole plates and the lower part of timber studs would be required. Although not confirmed, it is likely that other mortice and tenon connections are water traps and have been weakened by localised decay.
- 4.22 The failure of the diagonal bracing element appears to be related to the poor condition of the timber post in this location. This has in turn split the top of the post and compromised the geometry of the building. The building should be regarded as unsafe in this condition and requires lateral restraint and propping with temporary works.
- 4.23 There have been numerous alterations during the service life of the barn, as other buildings have enclosed upon it and to form windows. The masonry infill may be providing some stability in the current degraded condition. If any retention were considered the infill masonry should be removed. Other historic alterations, such as the window openings, would require making good and strengthening.
- 4.24 The evidence of insect infestation is likely to be historic and the pattern of penetrations does not indicate that it has resulted in significant weakening. To confirm this, investigations would be required to expose the inner condition of the timber, revealing evidence of recent infestation and the depth of penetration.

5.0 PHOTOGRAPHS



Photograph 1 – Front/east elevation of farmhouse. Left hand three bays are the original façade and the two right hand bays are the extension.



Photograph 2 – Flank/north elevation of farmhouse extension.



Photograph 3 – Rear/west elevation of extension and north flank wall of rear addition.



Photograph 4 – South flank wall of rear addition.



Photograph 5 – South flank wall of original house.



Photograph 6 – Cellar room. Left hand timbers appear to be later additions.



Photograph 7 – Brick arch below load bearing wall providing entrance passage to cellar.



Photograph 8 – Exposed ceiling joists in current ground floor entrance hall (former front room).



Photograph 9 – Exposed ceiling joists in current family room.



Photograph 10 – Exposed ceiling joists in original hallway. Wall to right hand side removed and supporting beam assumed to have been installed and boxed with cosmetic timber.



Photograph 11 – Ceiling joists exposed in ground floor south room.



Photograph 12 – Exposed joists over ground floor rear room in extension thought to be cosmetic.



Photograph 13 – Open joints in timber indicates shallow connection of cosmetic joists.



Photograph 14 – Timber beam to valley in original roof layout exposed at top of stair over first floor landing.



Photograph 15 – Former load bearing wall removed in first floor bedroom and replaced with a downstand beam.



Photograph 16 – Master bedroom occupies full first floor area of extension. Impressions in carpet indicate boards and span of joists.



Photograph 17 – Junction of original construction and extension in roof void. Right hand timbers appear to be replacement roof to the original layout. The flat roof to the left is a reconfiguration of the roof for the extension.



Photograph 18 – Struts support the flat roof over the extension.



Photograph 19 – Ties over the joists appear to be lateral restraint to the hipped roof to mitigate roof spread.



Photograph 20 – Hipped end of east end of rear addition.



Photograph 21 – Chimney stack within east roof void of rear addition.



Photograph 22 – Former external pebble dash wall of rear addition in western roof void.



Photograph 23 – Later construction to west gable of western roof void of rear addition.



Photograph 24 – General view of barn structure looking to north.



Photograph 25 – General view of barn structure looking to south. Note detached diagonal brace.



Photograph 26 – West elevation of barn. Note ivy coloured flint wall, degraded lower roof pitch and intersecting gable over western door.



Photograph 27 – South elevation of barn with brickwork infill inside timber frame.



Photograph 28 – Timber decay in mortice and tenon joists at sole plate of east elevation.



Photograph 29 – Cracking of brickwork infill wall to south elevation.



Photograph 30 – Cracking of brickwork infill wall to south elevation (left hand side) and minor separation of brick and flint of original wall to right hand side.



Photograph 31 – Insect infestation of timber studs at north elevation.



Photograph 32 – Large window openings former in east elevation without adequate timber framing. East elevation displaced by failure of timber structure shown in Photograph 34.



Photograph 33 – Severe damage to timber frame including failed diagonal brace, and severely degraded and split timber post.

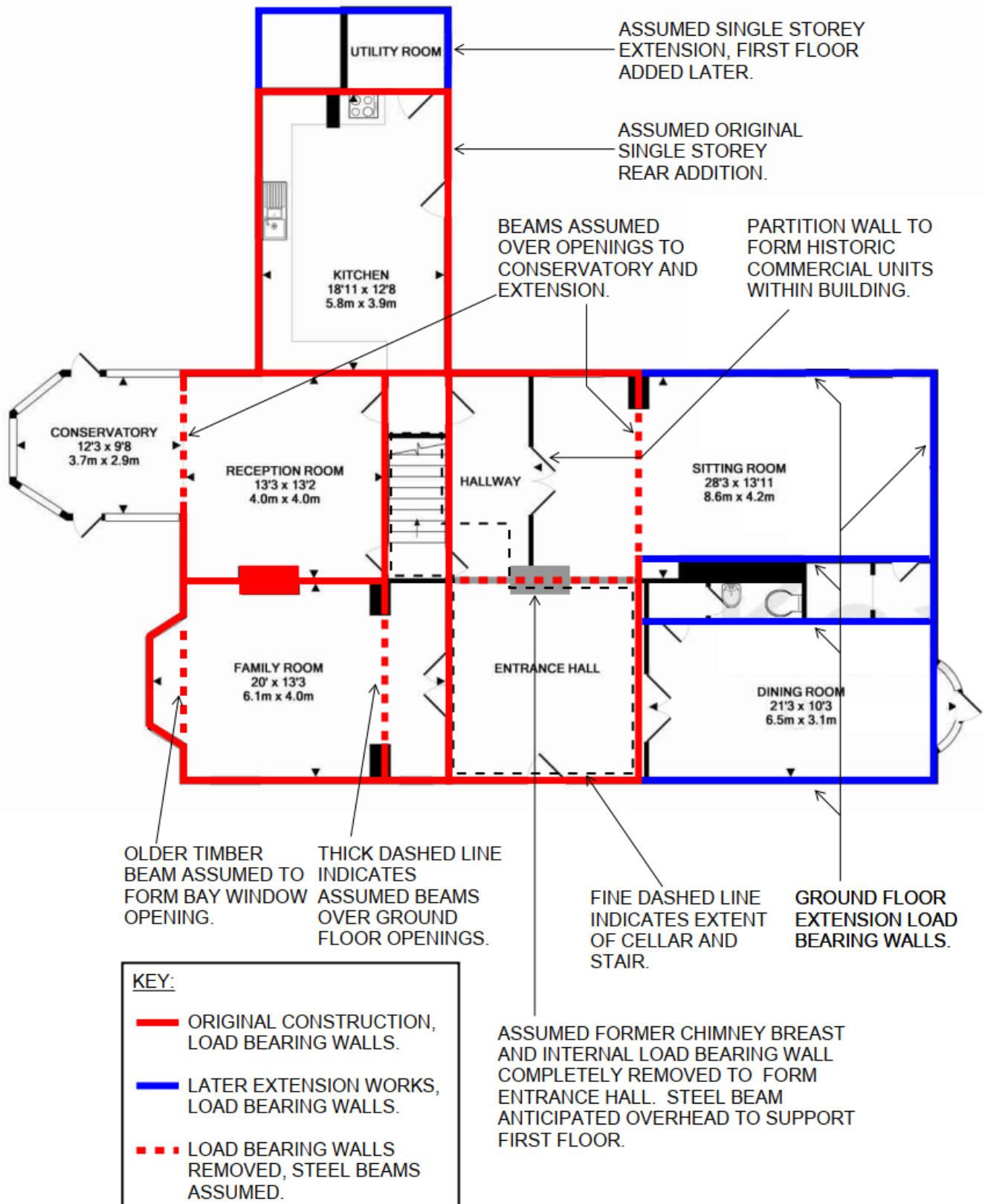


Photograph 34 – External view corresponding with Photograph 32.

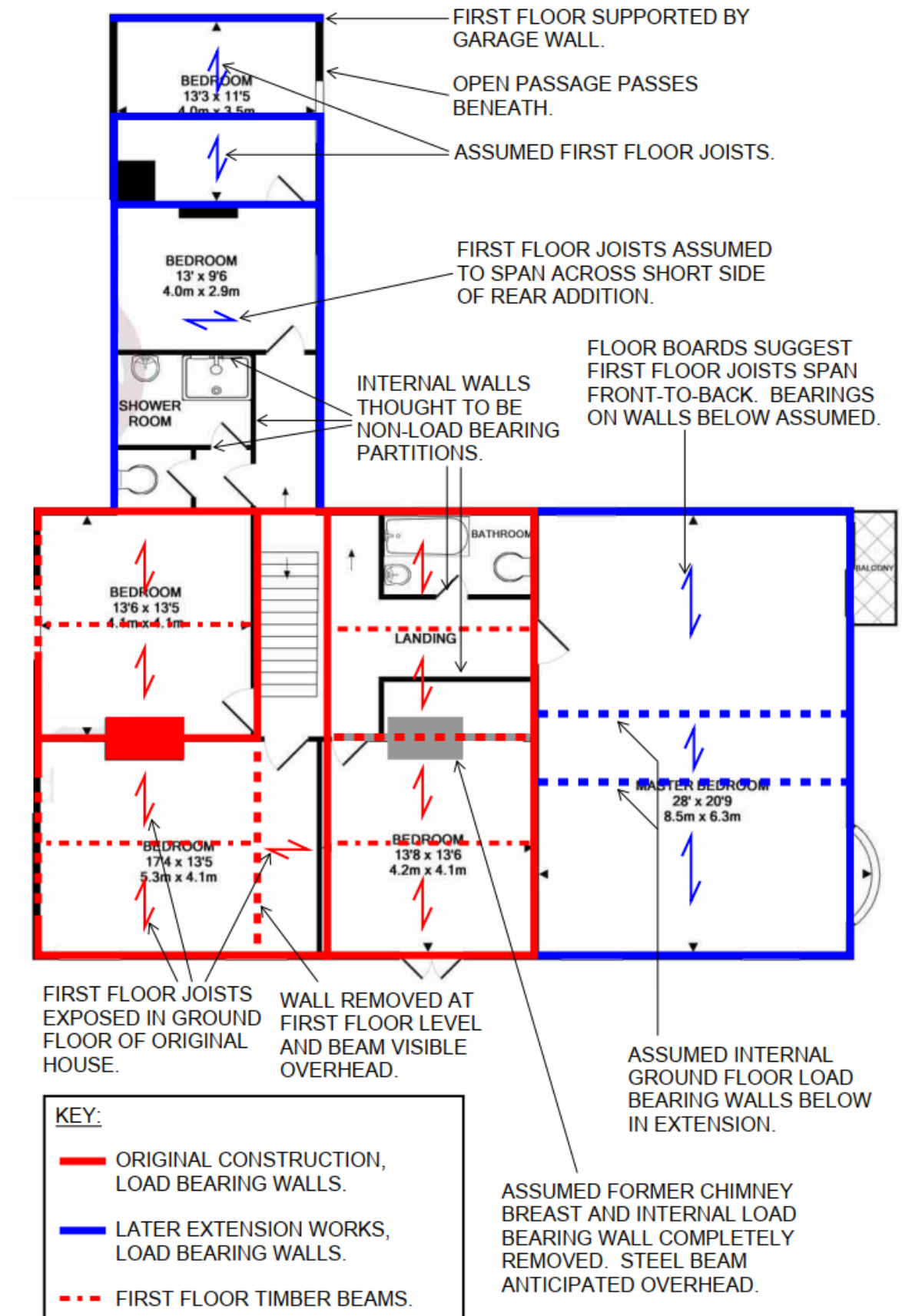


Photograph 35 – Severe decay and missing elements to cheek of intersecting gable.

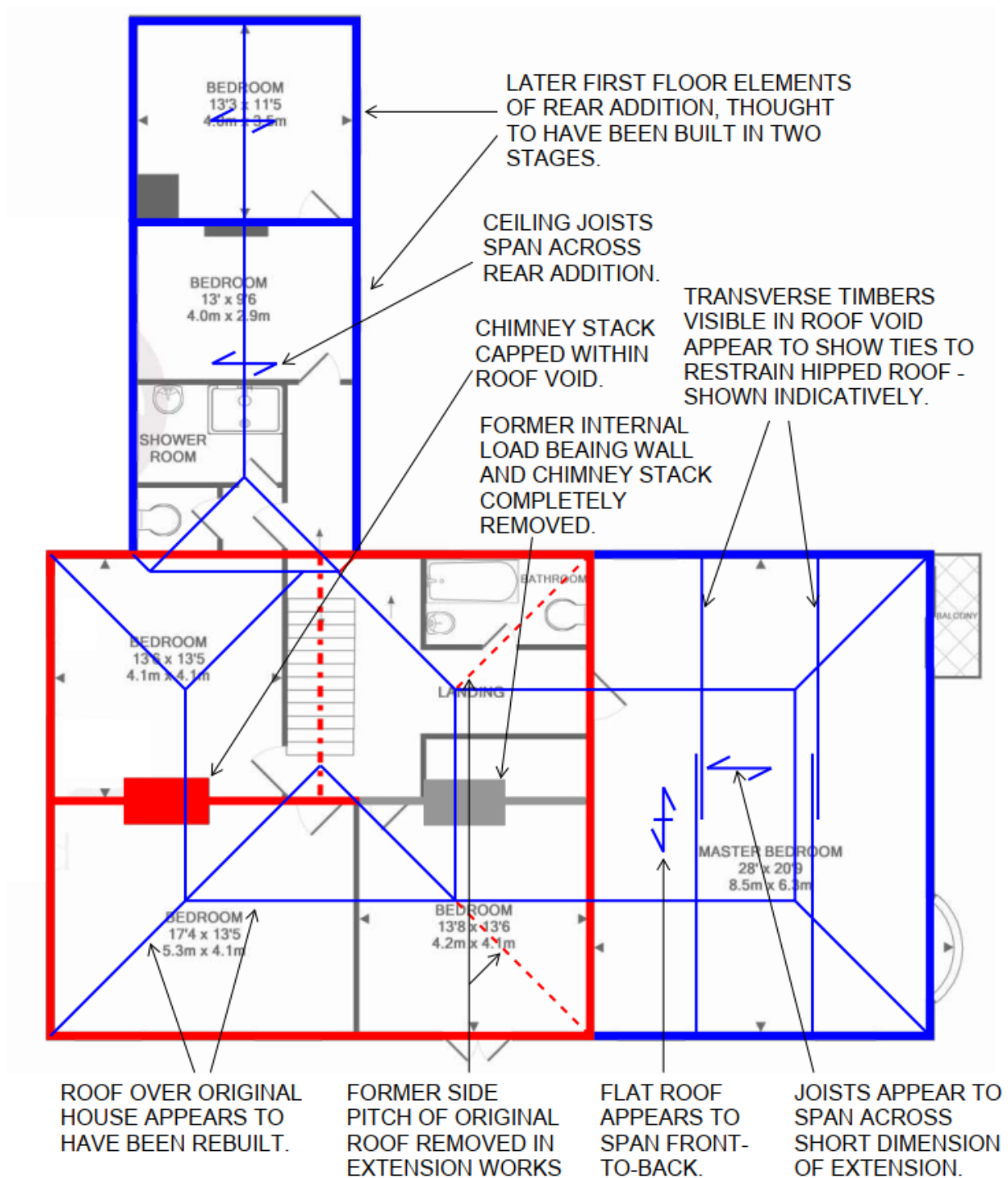
APPENDIX A – GROUND FLOOR PLAN OF FARMHOUSE



APPENDIX B – FIRST FLOOR PLAN OF FARMHOUSE



APPENDIX C – ROOF PLAN OF FARMHOUSE



NOTES:

- RAFTER SPANS NOT SHOWN FOR CLARITY.

- CEILING JOISTS WITHIN ORIGINAL HOUSE OBSCURED BY LARGE AMOUNTS OF INSULATION.

KEY:

- ORIGINAL CONSTRUCTION.
- LATER EXTENSION WORKS.
- ROOF LEVEL TIMBER BEAM.
- ↙↘ HIPPED ROOF RIDGES AND VALLIES.