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Report 434

BAILEY HALL BARN,
HURST GREEN,
CLITHEROE
LANCASHIRE

REPORT

on an appraisal of the structural condition of the Barn and surrounding outbuildings at Bailey Hall, Hurst Green on behalf of:

Mr J.Holt

20th April 2012

BAILEY HALL BARN, HURST GREEN, CLITHEROE LANCASHIRE

REPORT

on an appraisal of the structural condition of the Barn and surrounding outbuildings at Bailey Hall, Hurst Green:

1.0 INTRODUCTION

1.1 The Barn and surrounding outbuildings at Bailey Hall are to be converted to form housing. My instructions, given to me by Susan Amaku of Woodhall Planning and Conservation on behalf of Mr. Holt, were to visit the site, make investigations as necessary, assess the general structural condition of the buildings, advise on the feasibility of the proposed alterations and prepare a structural report recording my findings and making recommendations for any remedial works required, to be included in the application for Planning Permission.

1.2 This report deals with the Barn, a grade II listed building, the two adjoining shippons, the calf house, the store and cart shed. The existing buildings are shown on Woodhall Planning and Conservation's drawings nos.2647.01.100a, & 01.101 - .01.105, and the proposed alterations on drawing 2647.01 sk3. I have seen copies of these drawings and make reference where appropriate to them in this report. Reduced copies of the ground and first floor layouts (drawing 2647.01.100a) are included on sheets 3 & 4 of this report.

1.3 The buildings are generally empty at present, except for some limited storage. A single visit was made on the 20th March to inspect the buildings from wherever safe access was possible. The weather was dry, bright and cold and had been dry for some time. This inspection was thorough enough to establish the general character and state of the structure of the buildings, so that an assessment of the overall structural condition could be made. However detailed investigations into the precise condition of individual structural elements were not made and I cannot comment on the structural adequacy of those parts of the structure that are covered or otherwise hidden from view.

1.4 The Barn and outbuildings stand on land sloping down to the east, to the southwest of Hurst Green, at about 90m above sea level. There is a band of trees in the valley to the northeast but the buildings are surrounded by pastureland and there are no trees or shrubs of any significance nearby.

1.5 No investigations into the foundations of the buildings or ground conditions below them have been made but the underlying ground is likely to be of glacial origin overlying sandstone bedrock.

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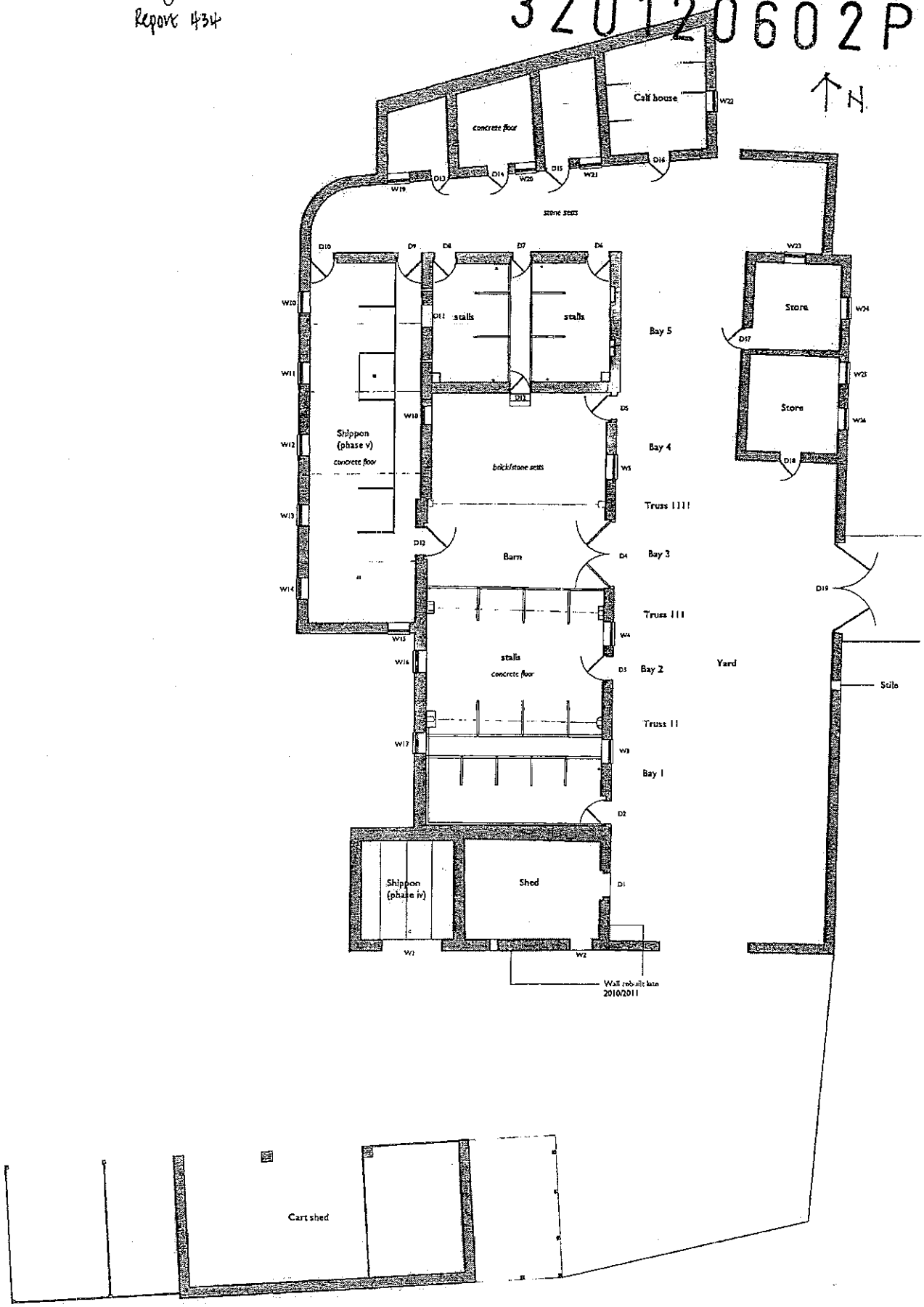

BAILEY HALL BARN - Ground Floor Plan

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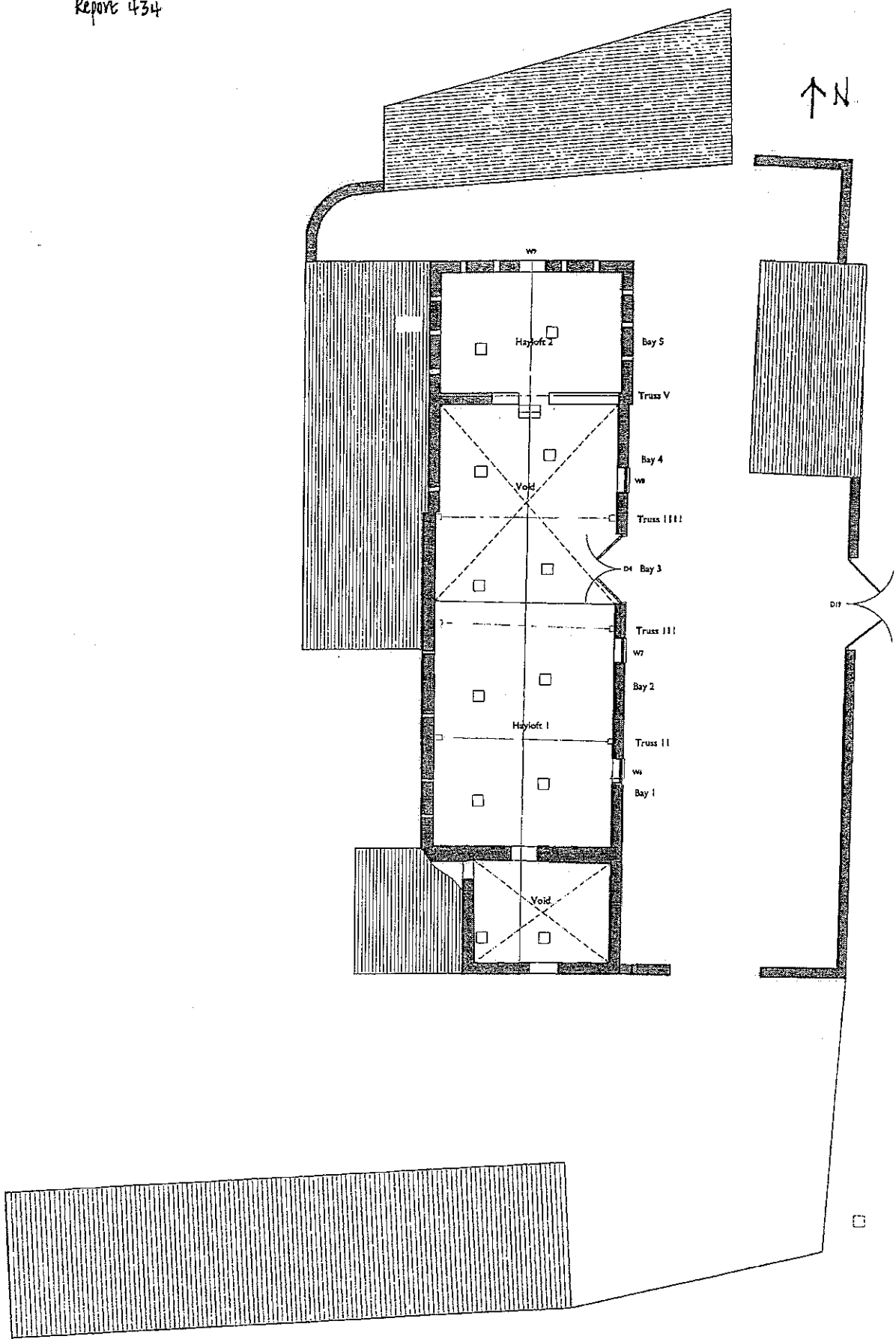

BAILEY HALL BARN - First Floor Plan

2.0 NOTES ON STRUCTURAL CONDITION

The Barn

2.1 The Barn was, I understand, originally a 16th century timber frame building, running north-south, that has been altered and extended extensively. It now has solid masonry walls added in the 18th and 19th centuries, rudimentary loft floors and a slate roof. The roof has been renewed but the primary roof structure appears to be original and there are three cruck frames and a king post truss remaining. The loft floors are more recent.

Roof

2.2 The roof is primarily of slate but there are three courses of stone slate above the eaves on the west side. It is carried on battens on single span timber rafters, between 50 and 75mm wide and 100mm deep at centres varying from 310 to 470mm, supported on five purlins and the east and west walls. The purlins vary in size but are up to 250mm square, and span a maximum of 4.8m between the north and south walls, the three cruck frames and the truss. The ridge purlin is butt jointed on the frames / truss, the other four purlins are lap-jointed over the truss and additional principal rafters on the backs of the cruck frames. The frames and the truss are of substantial timber construction, in the case of the frames cut from a whole tree.

2.3 The ridgeline is relatively straight and true and sags only slightly between the trusses and frames. The slopes on both the east and west sides are reasonably plane and show no sign of excessive sagging.

There are a few missing slates but no evidence of any significant water ingress.

2.4 The rafters could not be inspected closely except at the eaves from the floor of the south loft. Generally they appear to be in good condition except at eaves level on the west side in Bay 2, where some are split and some affected by past rot. In Bays 1 and 2 the wall plate on the west side is in poor condition or missing; on the east side it remains and appears to be generally sound. In Bays 3, 4 & 5 the wallplate was too high to be inspected.

2.5 The purlins are of robust construction and are lapped unusually the same way on each truss / frame with the south end of one purlin always above the north end of the other. The upper purlin on the east side of Bay 5 appears to be different and may well be a replacement. Some but not all of them have braces back to the timber frame. In Bay 1 on the west side there is a loose brace resting on top of the lower purlin. The purlins are not all straight and in particular the upper purlin on the west side of Bay 2 is severely distorted. The braces remain in place and it was probably this shape when first installed.

The purlins show no sign of any significant deflection or inherent structural defect and appear to be in reasonable condition

Cruck Frames

2.6 The cruck frames consist of two curved timber blades cut from a suitably shaped tree, jointed at the apex and restrained with two collars, one just below the apex and a second roughly 5.1m above ground level. There are lower collars but these do not run across the frame and may have been cut out in the past. The frames do not follow the profile of the roof and additional principal rafters, behind and above the blades, were included in the original construction to carry the purlins on each slope.

2.7 Each blade of the frames is up to 250mm wide x 500mm deep, tapering down in depth as it runs into the roof. The collars are let into the south side of the blades in all cases, with simple lap joints, reducing the effective size of the timber. The timbers forming the blades have drying shakes and splits but otherwise appear to be in good condition and show no evidence of any structural distress.

2.8 The frames spring from raised plinths, of at least three course of stone roughly 800mm high, projecting from the wall. The feet of the blades are built into the external wall by about 250mm except on the west side of frame 4 which does not appear to be built in at all on the south face as the wall steps outwards at this point

The foot of the blade on the east side of frame 2 has a marked slope down to the north. The stone plinth has been rendered with cement, or may have been replaced with concrete and there are no signs that the base has slipped sideways in the recent past. There are what appear to be two bolts in the face of the post and it is possible that it has been "bolted" back to the wall. Further investigation is required to ensure its continued stability.

The foot of the blade on the east side of frame 3 is twisted to the north and sits on the edge of the plinth, with the top stone displaced to the north as well. Again it appears to be stable and there is no sign of recent movement but it should be checked for its long-term stability.

The plinth supporting the foot of the west blade of frame 4 has tilted over to the south by about 110mm, the timber projects beyond the stone by 25mm and the top stone has a slope of at least 80mm down to the south There is a gap of 80mm between the timber and the wall to the north The wall to the north follows the tilt of the plinth but there is a gap of 25mm between the two suggesting that there has been movement since the wall was built There is no evidence of any recent movement but this situation is clearly not stable and strengthening works involving tying the timber / plinth back to the wall will be required

The other three plinths appear to be reasonably plumb and stable, though the cruck blades are not vertical (see section 2 9) In view of the condition of the others though it makes sense to treat them all similarly and ensure that they are well restrained

2 9 All three frames have a noticeable lean to the south The overall lean was not measured but it appears to be reasonably consistent, though the timbers are not straight The lean recorded over the 900mm length of a spirit level, above and below the hayloft floor, suggests that the total lean will be somewhere in the order of 450mm over the full height of the frames (nominally 6 5m from the plinth)

The south wall has recently been rebuilt and is plumb, but the north wall and the roof show no sign of this sway movement, and it is likely therefore that this lean developed before the walls were built and the roof renewed

Other than the purlin braces there is no formal bracing within the roof construction The frames would have been cut reasonably accurately when first built but the timbers will have been green and subsequent drying shrinkage will have allowed some sway movement to occur This movement will have tightened up the purlin braces, which would have provided some restraint against further movement, along with the walls and the general rigidity of all the timber connections in the roof

Further shrinkage will occur when the house is occupied and heated, loosening the connections Measures involving additional bracing in the form of straps on the underside of the rafters will probably be required to ensure that further sway does not occur

Truss 5

2.10 This is a traditional king post truss built using substantial timbers, originally on timber posts with knee braces between the posts and tiebeam. The west side is now supported on the internal cross wall but on the east the top half of the post, partially embedded in the wall, the brace and a 600mm length of the floor beam remain.

The truss appears to be adequate but the principal rafter on the east side is noticeably bent under the lower purlins and possibly split. Further investigation is required to ensure it is adequate. No particular remedial works are anticipated but if necessary steel plates could be added to strengthen the principal rafter, or struts inserted off the tiebeam.

The embedded post can be seen on the face of the wall. It stops just short of the top of the floor beam with a jagged end and appears to be rotten. There is a void in the wall below and the post cannot be seen. The support of the post is questionable; further investigations are required and remedial works will probably be necessary, in the form of masonry infill to ensure the long-term stability of the remains of the post and the truss.

Hayloft Floors

2.11 The two hayloft floors consist of timber boards on substantial timber joists at between 1.5 and 2.1m centres on 75mm diameter steel posts, many of which are heavily corroded and some of which have failed.

These floors are sufficient for inspection purposes only and will have to be removed and replaced with new floors complying with current regulations for dwelling houses.

Walls

2.12 The barn walls are of solid masonry construction with two skins of gritstone and presumably a rubble filled core, nominally about 500mm thick, 4m tall to the eaves and 7m on the gable. There is no projecting plinth at or above ground level and no investigations of the foundations have been made. Originally the walls would have been built using lime but they have been extensively repointed with cement-based mortars. External lintels are of stone, internally they are of timber and there are odd pieces of timber built into the internal face of the walls.

2.13 The east wall is a long straight wall with four doors, six windows, six slit windows, a large barn opening and a slight step outwards of 150mm at truss 5 between Bays 4 & 5. The south end has recently been rebuilt because of impact damage, I understand. There are a few minor defects:

- Cracks around the windows.
- The vertical stone reveals to the second door from the south have moved slightly and there is a tapering gap between the reveal stone and the wall on the north side
- The stone lintel over the third door slopes down slightly to the south and the reveal stone is fractured where an old bolt has corroded and expanded.

The wall is generally plumb except for Bay 4 where there is a noticeable outwards belly in the wall as a whole, showing both internally and externally. Associated with this there is an old roughly vertical fracture, adjacent to the east wall, right through the internal cross wall below truss 5.

At the north end in Bay 5 there are a number of fine vertical cracks in the external face of the wall, running up to and above the slit windows. Internally there are four cracks, three between the slit windows and one adjacent to truss 5. These are far more pronounced at between 5 and 15mm wide. They appear to be old but the fine cracks in the re-pointed external face suggest that they have either re-appeared, as cracks tend to do, or that the movement is continuing. The floor in the stalls at the north end is about 700mm below the floor level in the Barn; the cracks in the inner skin in Bay 5 peter out in this part of the wall below the hayloft floor.

The minor defects recorded above are probably the result of some minor settlement of the wall over the years. They are not of major structural significance and can be simply made good installing a few ties etc as necessary.

The belly in the wall in bay 4 and the fracture in the cross wall are probably caused by settlement and rotation of the footings of the east wall. Despite the belly the wall remains stable and is in no immediate danger of collapse. The footings however need to be checked and some underpinning of at least Bay 4 may well be required. In the proposed scheme there is to be a new floor in Bay 4 and it would be beneficial if ties back to the west wall were installed within the depth of the floor. Ties back to the cross wall across the fracture would also be of benefit.

The cause of the cracking in Bay 5 is not so readily explained. The pattern of the cracking is not typical of those normally generated by settlement but the fact that they peter out towards the base of the wall suggests that settlement may well have occurred. They are too large and at too close a spacing to be solely the result of movement due to moisture and thermal changes in the wall itself. The stonework is poorly bonded and this will have been a contributory factor but not the primary cause. It is possible that the core of the wall is made up of materials rich in sulphates that react with mortar when wet, causing the core to expand and "stretch" the inner and outer stone skins. Samples of the core would need to be taken and tested in a laboratory for sulphate content to confirm if this is the case, but keeping the wall dry would resolve this problem. Investigation of the footings is required and some underpinning may be necessary.

2.14 The north wall is just over 8m to the top of the gable; there is a vertical joint above the lintel over door D9, where the wall has been extended. It has a slight outwards belly and has been repointed on various occasions, some obviously quite recently. There is a short fine crack on the external face running up through some of the most recent repointing from the west side of the east door to the level of the slit windows. Internally there are two more pronounced cracks between 5 and 10mm wide running up from the level of the loft floor to the level of window W9.

The most likely cause of the cracking in the north wall is settlement, probably towards the east end of the wall, exacerbated by moisture and thermal movements and some underpinning may be required

2.15 The west wall of the Barn, now partly internal is essentially the same as the east wall, with a matching 150mm step inwards but at truss 4 between Bays 3 & 4. At the south end it acts as a retaining wall. At the north end above the hayloft floor there are three cracks running more or less vertically upwards, above the top south slit window, between the middle two windows (12mm) and for the full height floor to eaves adjacent to the north wall (maximum 20mm). These are all old and show no sign of any recent movement. The other side of the wall could not be readily inspected so it is not clear if these cracks run through the full width of the wall.

The cracks are similar to those in the east wall and there may have been some settlement in the past. Again the footings should be checked and underpinned if too narrow or too shallow.

2.16 The south wall of the Barn, now internal, is similar in construction to the north wall, but not quite as tall. Timber remnants of the head of the truss can be seen in the north face of the wall above the top two purlins. There are four vertical cracks running up to the purlins on the south face of the wall. One of these cracks, to the east of the first floor opening, runs through the wall and can be seen on the north face. They are all clearly old and there is no evidence of any recent movement.

These cracks are similar to those in the north wall, namely some settlement associated with moisture and thermal movements within the wall. As it is internal the wall is no longer subject to significant changes in its moisture content that external walls can be and as such further movement is considered unlikely. The footings of the east wall should be checked and if necessary underpinned and the cracks in the south wall repaired by installing threaded stainless bars in the mortar joints across the cracks.

South Shippon and Shed

2.17 The roof is of slate with stone slates on the bottom half of the west slope and of similar construction to the Barn consisting of rafters on nominally 225mm square timber purlins spanning between the Barn wall and the south wall. There are a few missing slates and the ridge dips slightly between the walls, but otherwise the roof appears to be reasonably sound.

2.18 The south wall and the return on the east side back to the door opening were, I understand, seriously damaged by vehicle impact and have been rebuilt recently. An old crack can still be seen above the north side of the door opening in the east wall at the junction with the rebuilt wall. The wall around the west side is a retaining wall and appears to be sound. There is an old crack through the internal wall running up to the head of the wall adjacent to the rebuilt south wall; this can be seen at ground level on the west side and above the low level bulge, in the face of the wall on the east side, running up to the top of the wall.

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The crack running up through the internal wall is likely to be the result of settlement of the original south wall, which was probably not in good condition prior to being damaged. The land slopes down from the field to the west of the building and the ground to the south of the west end of the wall was very wet at the time of my inspection despite the dry weather. This will undoubtedly have increased the risk of settlement, but can probably be cured by good drainage. Assuming that the south wall has been rebuilt on sound foundations there should be little or no further movement across the crack in the internal wall, and it can be made good by installing threaded stainless bars in the mortar joints across the crack. If this has not already been done a check should be made on the footings of the original part of the south wall in the southwest corner and some underpinning may be required.

2.19 Above the Shippon there is a loft floor consisting of timber boards on three joists at about 2m centres carried on the internal wall and the lowest of the purlins. Such a floor is suitable for light storage only. In the Shed there is a timber framework supporting joists again at approximately 2m centres but only a few boards. The central beam is split on the line of a mortice for a post that is no longer there and cannot be relied upon to carry more than a nominal load. There is to be a first floor bedroom in the proposed scheme and a new floor will be required.

West Shippon

2.20 The West Shippon was added as a single-storey lean-to extension to the west wall of the Barn. The roof is predominantly of stone slate but there are 8 courses of slate at the top where it runs into the barn roof. The slates are carried on rafters and four sawn purlins (between 100 & 135mm x 225mm deep) spanning up to 3.8m between the gable walls and four mono-pitch trusses consisting of 130 x 290mm tiebeams and 100 x 290mm principal rafters, all probably pitch pine. There are quite a few broken / slipped slates and some of the purlins show signs of sagging down the slope.

The principal rafter on the second truss from the north shows signs of rot where it bears on the beam, and this needs to be investigated but otherwise the roof appears to be adequate, though the purlins may need strengthening to take the increased loads when plasterboard etc are added.

2.21 The three external walls are of the same construction as the Barn, roughly 500mm thick. The south and west walls retain the ground in the field, which is generally at eaves level but slopes down to the window cills of the west wall at about 1.3m above floor level. The walls are very damp but otherwise appear to be in reasonable condition. There is a vertical joint between the north walls of the Shippon and the Barn, with only the lintels over the door opening bonded into the Barn wall. As such the lintels carry considerably more load that they would be required to, if the wall was fully bonded across the joint; despite this there is no sign of any movement in the joint or other obvious structural problem with the walls.

The Calf House

2.22 The Calf House is a long narrow single-storey building split into four sheds. The roof is duo-pitched and consists of slate with a stone ridge on rafters and purlins spanning between the two gable walls and the dividing walls. There are a number of holes in the slate roofing particularly on the north slope and some missing ridge stones. The purlins are wet and some show signs of rot, some severe. In the east shed there are four purlins that have a noticeable sag and are clearly are too undersize for the span.

The timbers need to be checked for rot and repaired as necessary and the purlins at the east end will need to be strengthened to take the increased loads.

2.23 The walls are of the same construction as the Barn, with the north wall, the west wall and the circular wall between the West Shippon and the Calf House retaining the ground in the field on the west and north sides; 1.8m at the west end reducing to 0.7m at the east end. The survey suggests that the west half of the north wall is slightly thicker than the other walls.

The retaining walls are very damp but show no sign of structural distress, nor is there any sign of significant movement due to settlement in the other walls.

The East Store

2.24 The East Store is a single storey building running north-south with a central dividing wall. The northern half is a storeroom and the southern half a stable at present. The slate roof is carried on rafters on 100 x 160mm timber purlins spanning between the gable and internal walls. The ridge has a noticeable dip between the supporting walls and the purlins can be seen to sag. There are a number of missing slates but no evidence of serious rot was observed.

The purlins in general are undersize for the spans and will need to be strengthened.

2.25 The walls are the same as those in the Barn, but slightly thinner and are lime washed internally. The external walls show no signs of significant cracking. There is a vertical crack at the junction of the crosswall and the east wall running up two thirds of the height to the eaves and then running diagonally up through the crosswall itself. This crack can be seen on both sides of the crosswall. There is a much less marked vertical crack at the other end of the crosswall at the junction with the west wall. There is a similar vertical crack internally at the junction of the two external walls in the southwest corner; externally the mortar is much eroded on the corner by water running off the roof but there is no sign of cracking on the external face.

The cracking in the crosswall suggests that there has been some slight settlement of this wall, particularly adjacent to the external wall on the east side. There also may have been a little settlement in the southwest corner, possibly caused by the gully on the corner, which may be cracked, or the water simply running down off the roof. In both cases there are no signs of any recent movement and it may well have ceased. It is worth making a check on the condition of the footings and underpinning them if found to be too shallow or narrow.

The Cart Shed

2.26 The original cart shed had three bays and is open on the north side, with two single stone pillars between the bays; the three external walls are made up of two gritstone skins between 400 and 450mm thick. There are three further bays, one on the east and two on the west side, consisting of timber posts, boarded at the west end but open to the east.

2.27 The roof over the whole building is of corrugated iron on purlins and is in poor condition. It will have to be replaced, renewing the structure to carry a slate roof.

2.28 There is a vertical fracture in the original west wall of the shed; it is about 20mm wide, clearly very old and probably the result of some settlement but shows no sign of any recent movement. The south wall is a retaining wall, supporting the ground in the field; at the west end there is a pronounced fracture stepping up vertically through the mortar joints. Again this is old but is probably the result of past settlement.

The footings need to be checked out particularly along the west wall and at the southwest corner and some underpinning may be required.

2.29 The timber bays at both ends of the stone shed, are not in good condition and if required will need to be rebuilt entirely.

3.0 ASSESSMENT

The Barn

3.1 The roof structure consists of rafters on purlins spanning between the gable walls, the three remaining cruck frames and truss 5. The rafters and purlins could not be inspected closely except at the eaves from the floor of the south loft. There are problems with the rafters and wallplate at eaves level on the west side in Bays 1 & 2, but otherwise the rafters appear to be adequate and suitable for the proposed conversion. The purlins are of substantial construction and though not necessarily straight show no sign of any significant deflection or inherent structural defect and appear to be in reasonable condition. When the roof is stripped the timbers will need to be examined for local areas of rot / insect infestation.

3.2 There are three cruck frames and each frame is cut from a single tree, split down the middle and adapted in this case with additional principal rafters taking the purlins, to suit the profile of the tree. They are seated on stone plinths about 800mm above ground level. There are braces between the purlins and frames. Originally the walls would have been timber framed tied into the cruck frames, but the timber blades are now partially built into the external walls.

The timber blades are a unique shape; they have drying shakes and splits but otherwise appear to be in good condition and show no sign of any structural distress.

3.3 The base of the east blade of frame 2 slopes down to the north and of frame 3 is twisted to the north and right on the edge of the plinth, with the top stone displaced to the north. There are no signs of any recent movement either of the timbers on the plinths or the plinths themselves, and they appear to be stable. Further investigations should be made to ensure that they remain stable and it is likely that ties back to the wall will be required.

The plinth supporting the west blade of frame 4 has tilted over to the south by about 110mm, the timber projects beyond the stone and the top stone of the plinth has a pronounced slope down to the south. There is a large gap between the timber and the wall to the north. The wall to the north follows the tilt of the plinth but a gap has developed between the two suggesting that there has been movement since the wall was built. There is no evidence of any recent movement but this situation is clearly not stable. Strengthening works involving tying the timber / plinth back to the wall with stainless steel rods resin anchored into the wall or propping the plinth / timber on the south side with timber / masonry will be required

The other three plinths show no sign of significant movement and appear to be reasonably plumb and stable. All three frames, however, have a marked lean to the south. The lean was not measured; the timbers are not straight but the lean appears consistent and is estimated to be 450mm. In view of the lean and the condition of three of the bases and plinths it makes sense to treat them all similarly and ensure that they are well restrained.

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3.4 The cruck frames have all had a tiebeam removed in the past. These frames are substantial enough to cope with the changes in the way the loads are carried but this does involve a large increase in the outwards horizontal thrust at the foot of the frame, in this case at the top of the plinths. As explained above there are problems at plinth level and to reduce the loads these ties should be reinstated. Alternatively modern steel tierods could be installed within the depth of the new first floor. In the proposed scheme frame 2 can readily be treated in this way. The floor stops short of frames 3 and 4, but the frames could be anchored back to the walls and ties inserted in the floor to restrain the walls.

3.5 The south wall has recently been rebuilt and is plumb, but the north wall and the roof show no sign of this lean / sway to the south, and it is likely that it developed before the walls were built and the roof renewed.

Other than the purlin braces there is no formal bracing within the roof construction. The frames would have been cut reasonably accurately when first built but the timbers will have been green and subsequent drying shrinkage will have loosened the connections and allowed some sway movement to occur. This movement will have tightened up the purlin braces, which would have provided some restraint against further movement, along with the walls and the general rigidity of all the timber connections in the roof.

When the building is occupied and heated the timbers will dry out further and there is likely to be more sway. Measures to control this sway should be implemented. These would involve additional bracing as straps on the underside of the rafters, bracing behind any wall lining that may be installed or ties back to the walls.

3.6 Truss 5 appears to be adequate but the principal rafter on the east side needs to be checked as it is possibly split and it may be necessary to strengthen it with steel plates bolted to the sides.

The embedded post, supporting truss 5 in the east wall, appears to be rotten just below the old floor beam. The support of the post cannot be relied upon; some opening up is required to get a better view. It is likely that masonry infill at least will be required.

3.7 Both Hayloft floors are totally unsuitable for use in housing and will have to be removed and replaced with new floors complying with current regulations for dwelling houses.

3.8 The walls of the barn are of two skins of gritstone about 500mm thick, built in lime but extensively repointed with cement mortar. External lintels are of stone and internal ones timber. There are isolated timbers built into the internal face of the walls.

3.9 The east wall is generally plumb except for a marked outwards belly in Bay 4. There is also an old roughly vertical fracture, adjacent to the east wall, right through the internal cross wall below truss 5. These are most likely the result of settlement and rotation of the footings of the east wall. The wall remains stable and is in no immediate danger of collapse. The footings need to be checked and some underpinning of at least Bay 4 may well be required. It would be beneficial if ties back to the west wall within the depth of the new floor and ties back to the cross wall across the fracture were installed.

3.10 The cracks on the internal face of the east, north and west walls in Bay 5 are all essentially the same, running up more or less vertically around and between the slit windows. Externally the walls have been repointed but on the east face they have re-appeared.

The pattern of these cracks is not typical of those normally generated by settlement but the fact that they peter out towards the base of the wall suggests that there may have been some settlement. They are too large and at too close a spacing to be solely the result of movement due to moisture and thermal changes in the wall itself. The stonework is poorly bonded and this will have been a contributory factor but not the primary cause.

It is possible that the core of the wall is made up of materials rich in sulphates that react with mortar when wet, causing the core to expand and "stretch" the inner and outer stone skins. Samples would have to be tested in a laboratory for sulphate content to confirm if this is the case, but keeping the wall dry would resolve this problem and in my view such tests are not justified.

The walls show no evidence of serious instability but in view of the amount of work proposed in converting the buildings the footings should be inspected and some underpinning may be found to be necessary.

3.11 The cracks in the south wall of the barn are very similar to those in the north wall, and probably caused by settlement associated with moisture and thermal movements within the wall. As it is now internal the wall is no longer subject to the changes in moisture content that external walls are and as such further significant movement is considered unlikely. The footings of the east wall should be checked and if necessary underpinned and the cracks in the south wall repaired by installing threaded stainless bars in the mortar joints across the cracks.

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The South Shippon

3 12 The construction of the south shippon is essentially the same as the barn except that the purlins are supported directly on the walls The south wall has been rebuilt but large cracks in the old east wall and the internal wall adjacent to the rebuilt sections can still be seen These cracks are likely to be the result of past settlement of the original south wall, which was probably not in good condition prior to being damaged The ground to the south was very wet at the time of my inspection despite the dry weather This will undoubtedly have increased the risk of settlement, but can probably be cured by good drainage.

The south wall should have been rebuilt on sound foundations There should be little further movement across these cracks, and they can be made good by installing threaded stainless bars in the mortar joints across them The footings of the original part of the south wall in the southwest corner should be inspected and some underpinning may be required.

3.13 The loft floor above the Shippon is suitable for light storage only In the Shed the remaining timber framework is unreliable and will have to be replaced.

The West Shippon

3.14 The west shippon is a lean-to extension with a slate roof and gritstone walls The roof consists of sawn timber purlins on mono-pitch trusses The purlins are probably undersize for the spans involved and may need to be strengthened especially as the loads will be increased There is rot in the foot of the principal rafter on the second truss from the north This needs to be examined and repaired as necessary.

3 15 The walls are very wet as they retain the ground to the south and west but show no sign of structural problems The vertical joint at the junction with the barn wall on the north means that the lintels carry considerably more load than normal Despite this there is no sign of any movement in the joint or other obvious structural problem with the walls.

The Calf House

3 16 The calf house is a long narrow tapering single storey building The roof is of slate on sawn timber purlins spanning between the gritstone walls The roof is in poor condition and some of the timbers including the purlins are rotten Further examination is required once work starts The purlins at the east end are undersize and will need to be strengthened to take the increased loads.

3 17 The walls are again very damp as they retain the ground to the north and west but appear to be adequate

The East Store

3.18 The east store is a single storey building with a central dividing wall. The roof is of slate on sawn timber purlins spanning between the stone walls. The purlins in general are undersize for the spans and will need to be strengthened.

3.19 The cracks in the dividing wall suggests that there has been some slight settlement of this wall, particularly adjacent to the external wall on the east side. There also may have been a little settlement in the southwest corner, possibly caused by the gully on the corner, which may be cracked, or by the water simply running down off the roof. The footings should be inspected and underpinned if found to be too shallow or narrow

The Cart Shed

3.20 The original cart shed had three bays with stone walls and has been extended to the east and west with timber. Presumably the original roof would have been of slate but it is now of corrugated steel on purlins and is in poor condition. It will have to be replaced, renewing the structure to carry a slate roof. The timber bays at both ends are in poor condition and will need to be rebuilt

3.21 There are substantial old cracks in the original west wall and at the west end of the south wall. They show no sign of recent movement but it is worth checking the footings and some underpinning may be required

General

3.22 The buildings are generally in relatively good condition, with the timberwork in the barn almost as good as new. There are a few inherent structural defects, particularly the bracing and restraint for the cruck frames, but these can be dealt with simply, as described above, using modern techniques that are not excessively intrusive.

3.23 Water penetration is always a problem in old buildings and some roof timbers particularly in the calf house have suffered as a result. These are not major structural problems but when the roof is renewed all timbers should be examined and any defects made good. Similarly many of the gutters are missing and need to be replaced.

3.24 There is evidence of settlement in quite a few of the walls and inspection of the footings is required all round. Some underpinning will be necessary. This is a standard solution for dealing with settlement and whilst being labour intensive is not likely to be a major structural difficulty. Where appropriate the walls can be tied back within the depth of the first floor. If external pattress plates are not desired it should be possible to grout anchors into the walls so that they cannot readily be seen on the external face. The cracks generally can be repaired with reinforcing rods embedded in the mortar, or where more severe resin grouted in holes bored down the length of the wall.

3201206 02 P

3 25 A number of the walls retain the ground of the surrounding fields and are very damp as a result. They appear to be adequate structurally but care will be needed to ensure that water penetration does not become an issue, possibly by inserting drains externally at the base of the walls.

3.26 The stone lintels in all the buildings appear to be in sound condition, the timber lintels likewise. Some of the latter have deflected under the weight of stonework. All timber lintels need to be inspected once the works are underway to ensure that they are adequate

3 27 Once converted to houses the building will be heated and will dry out further. Both the walls and timbers will shrink as a result and cracks will reappear. These should settle down in due course but it could take a few years

3.28 The buildings do not suffer from any major structural defects but more a lack of maintenance. There has been some settlement in the walls and movement within the timber work but in my opinion providing the works listed above are completed in a proper manner there is no doubt that the buildings can be converted satisfactorily without resorting to extensive rebuilding of the external fabric.

DAC Wood

20th April 2012

3/2012/0602P

RIBBLE VALLEY
BOROUGH COUNCIL

This form should accompany all planning applications for change of use of rural buildings to dwellings

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1. GUIDELINES FOR THE PREPARATION OF THE CONVERSION ASSESSMENT AND METHOD STATEMENT

GENERAL NOTES

In the preparation of the conversion assessment and method statement, consideration should be given to the following observations:

Roof Structures

The removal of roof structures has a great influence on the overall stability of the walls, the removal of the roof therefore increases the risk of damage and/or failure of part or whole of the existing structural elements

Removal of the roof structure should only be considered when works to stabilise the existing walls have been completed and following a full risk assessment identifying all precautions to be taken during these operations

Walling Materials

The assessment of existing structures where the wall construction is that of random stone requires special consideration This type of wall generally relies on the mass of that wall and its material for load sharing qualities and structural integrity; alterations to walls and in particular the insertion of new openings, their size and location/method of installation has considerable bearing on their future ability to sustain loading conditions

The Council's design requirements in general seek to reduce to a minimum the number of new openings In order to sustain the future viability that is to retain those parts of the existing structure, openings should, therefore, be kept as small as is practical, the number of new openings in each elevation should be decided with sensitivity having regard to the integrity of the structure.

Details should also be given of the nature, source and method of integration of any new materials to be used both for repair and reconstruction

Building over existing structure

Building on top of existing structures should be avoided, the design scheme should always aim to utilise the existing structure with the minimum effect and alteration

Building on top of the existing structure by increasing the height of the existing walls can cause failure of the existing structure or its foundations Furthermore the new wall is likely to be constructed in modern materials over masonry construction; the mixing of differential materials can itself cause serious problems in the life cycle of that structure

External features

The proximity of watercourses, trees, and external services should always be taken into account in the conversion assessment

General advice

It is further recommended that conversion works should only be carried out by a competent person with knowledge and experience in conversion work Those carrying out the works should hold the necessary insurances including for financial loss

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Works should always be carried out following good practice following an identified sequence, incorporating adequate precautions so as not to prejudice or weaken any part or whole of the existing structure.

Those responsible for carrying out conversion operations should take the responsibility to consult with the local authority where there is any doubt with regard to any part of demolition or part of the repair process or indeed when an unknown defect presents itself.

2. CONVERSION ASSESSMENT

The conversion assessment must draw together all the elements in the conversion/construction process (having regard to the condition of the existing structure), which have an influence on the stability and/or integrity of the structure

The assessment must be distinctive and specific to that project

The report should follow this general format and headings; the space between the headings is mainly indicative; you may wish to expand or extend the information provided under a particular heading

Site/Location Address

Bailey Hall Barn, Hurst Green, Lancashire

Ordnance Survey Grid Reference
Easting: 367784 Northing: 437335

CONDITION OF EXISTING STRUCTURAL ELEMENTS

List the condition/type of construction/materials of each structural element separately, along with your intentions to alter/repair/extend or demolish elements in connection with this conversion

A. Roofs;

Condition of existing roof/roofs:

Including the type of construction and roof covering, condition of trusses, purlins and rafters The degree of attack by wood - boring insects should be assessed together with remedial measures

Please refer to Structural Appraisal undertaken by DAC Wood

Continue on next page/

Structural Engineer and Brief Statement of Condition undertaken by Woodhall Planing and Conservation

Roofs;

Alteration/repair/removal:

Carefully remove roof covering and salvage slates for re-use. Repair / strengthen roof structure in accordance with Structural Engineer's appraisal. Re-slate roof incorporating insulation etc. For details please refer to WPC drawing no's:

2647 -01 -001B

2647 -01 -003A

2647 -01 -004A

B. **Walls;**

Condition of existing walls:

Including type of construction and materials; list each elevation separately eg north, south, etc in conjunction with the accompanying plans

Any defects (ie cracks and bulges etc) should be clearly identified and marked on the accompanying plans

Walls significantly out of plumb also need identifying together with an assessment of their effect on the overall integrity of the structure The method of repairing defects should be fully specified in the paragraphs below

Please refer to the Structural Appraisal undertaken by DAC Wood Structural Engineer and Brief Statement of Condition undertaken by Woodhall Planning and Conservation.

Continue on next page/

320120602P

C. **Walls;**

Alteration/repair/extension or demolition:

Indicate type of construction and materials

List each elevation in sequence eg north, south, etc in accordance with the accompanying plans

The formation of each new or altered opening should be assessed having due regard to the size and position of the opening with respect to the overall structural integrity of the building

For details of all new openings please refer to the latest revision of the following WPC Repair and Alteration drawing:

2647-01-200

Continue on next page/

Continue on next page/

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D. **Details of demolition work;**

Total wall area , measured externally

Total wall area to be demolished

% of walls demolished

(refer to guidance notes on method of calculation)

E. **Walls;**

Formation of internal lining walls:

Indicate if it is the intention for new walls to provide additional support to the existing structure.

Continue on next page/

D. Walls;

Formation of internal lining walls:

Indicate if it is the intention for new walls to provide additional support to the existing structure

No. For details of the proposed works please refer to the latest revision of WPC drawing no's:

2647 -01 -001

2647 -01 -003

2647 -01 -004

Continue on next page/

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E. Floors;

Existing/proposed floors:

Include construction materials and relationship to internal and external ground levels, also relationship to depth of existing and proposed foundations

Identify where upper floors are to be used to provide additional support to the existing structure

For details of the proposed and existing floors please refer to the latest revision of WPC drawing no's:

2647 -01 -001

2647 -01 -003

2647 -01 -004

In addition, for details of the condition of the existing floors please refer to the Structural Appraisal undertaken by DAC Wood Structural Engineer.

Continue on next page/

F. **Ground works;**

Identify all external or internal ground works which may require alteration and the effect on the existing structure and the conversion process. These should include:

Foundations:

Including any remedial works ie underpinning or retaining walls

The assessment should consider the level of the existing foundations in relation to existing and proposed ground floor and external levels

Any proposal to reduce external levels should identify how adequate cover is to be maintained to the foundations

All underpinning to be undertaken in accordance with the Structural Appraisal undertaken by DAC Wood Structural Engineer.

Continue on next page/

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Services:

Identify all service excavations in close proximity likely to affect the existing structure. Include existing/proposed drainage arrangements

For details of proposed drainage arrangements and services please refer to the latest revision of the following drawings:

2647-01-001

G. Other factors;

Include all other features which you feel either have a bearing on the structural conversion assessment and/or should be brought to the attention of the developer Including:

- Assumptions made which must be proven by further investigation.
- Items which require specific cross reference to the method statement

N/A

Continue on next page/

3. METHOD STATEMENT

The method statement must demonstrate that works will be carried out in such a manner, following an identified sequence, incorporating adequate precautions, so as not to prejudice or weaken any part or whole of the existing structure

Where parts of the structure have been identified for demolition, those demolition processes to form part of this method statement

The assessment must be distinctive and specific to that project

The report should follow this general format and headings, the space provided between the headings is merely indicative; you may wish to expand on the extent of information provided under a particular heading

Site/Location Address

Bailey Hall Barn, Hurst Green, Lancashire

Ordnance Survey Grid Reference

Easting: 367784 Northing: 437335

Continue on next page/

3201206O2P

A. Initial Procedures;

Identify the initial procedures which must be carried out prior to any works commencing on site

This to include; notifications and familiarisation with the site conditions and construction elements Areas of the building which are to be retained and those which are to be demolished

Please refer to the Structural Appraisal undertaken by DAC Wood Structural Engineer and the Design and Access Statement.

B. Initial Precautions;

Indicate clearly all walls and other structural elements to be propped and/or provided with raking shores Itemise the full extent of those operations and the method to be employed; the location of props and shores to be marked on the accompanying plans and elevations

Please refer to the Structural Appraisal undertaken by DAC Wood Structural Engineer.

Continue on next page/

C. Sequence of Works;

Clearly identify the sequence in which the works are to be carried out; including the precautions to be taken This should be carried out having regard to the interaction of structural elements and operational procedures

Particular reference should be made to works which require independent support measures ie the formation of openings in the existing structure Where necessary make reference to the accompanying plans and elevations
Sequence as follows:

Please refer to the Structural Appraisal undertaken by DAC Wood

Structural Engineer.

Continue on next page/

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D. **Special Considerations;**

Demolitions

Clearly identify the areas of the existing structure which are to be removed in part or whole, these areas to be marked on the accompanying plans and elevations (areas to be removed edged red on the plan and elevation)

Make clear distinction where walls are being repaired ie parts of walls being removed for defective areas and where lengths of the walls full height are being demolished

The method statement should include these parts of the demolition by each structural element ie south facing wall, and shall include all necessary precautions to restrain and support the remaining structure during the course of these works

N/A

Continue on next page/

E. General

Attention should be drawn to all items of work which, although not identified specifically within the sequence of works, may have a bearing upon or influencing factor within the conversion process.

N/A

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WILDLIFE SURVEY FOR BATS AND OWLS

Bailey Hall
Hurst Green
Blackburn
Lancs

Denis Lambert
Wildlife Survey
Spout Farm, Preston Road
Longridge, Preston, Lancashire. PR3 3BE
Tel: **01772 783322** Mob: **07813 140682**
E-mail: denis@wildlifesurvey.co.uk
www.wildlifesurvey.co.uk

BAT AND OWL SURVEY & REPORT

Commissioned By:

Mr J Holt

Address:

Grindlestone House
Dutton
Preston
PR3 3XY

Tel No:

01254 878342

Instruction Method:

Verbal

Bat Survey Address;

Bailey Hall
Hurst Green
Blackburn
Lancs

Visit Date/Time:

5th July 2012 @ 20.00hrs

Weather Conditions:

Rain stopped at 21.00 hours, no breeze and a temperature of 10^0C.

Document Reference:

1440

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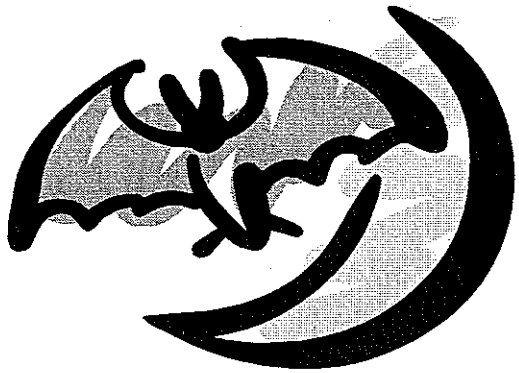

BAT SURVEY & REPORT

Survey Brief

1. To inspect buildings, assess the value of the site for bats, and compile a report prior to a Planning Application being submitted.

2. The report will identify if bats have ever used the buildings at any time, or not as the case may be.

3. If bats have used the buildings, assess the importance of the site for bats and bat conservation.

Limitations of the report

1. The aim of the survey is to prove use by bats, but does not guarantee their absence.

2. Surveys undertaken when bats are hibernating, may have to be re-assessed during summer months when bats are most active.

3. External walls and internal rooms are inspected from ground level only. Roof voids, attics and lofts will only be inspected when safe access is possible. Building's whose structure is unsafe in any way, will only be inspected from a safe distance with the use of a pair of binoculars.

4. A bat detector will be used in all cases but daytime visits may only produce limited success. When buildings are inspected during winter months, a bat detector will have very limited results.

5. Buildings with no signs of bats on the date of the survey may be used by individuals or small numbers of bats, in subsequent weeks, months or years.

6. Thorough inspection should reveal whether bats have been present during previous years. Small bats, e.g. pipistrelles, leave evidence of occupation in small inaccessible crevices which may be extremely difficult to detect if the bats are not present when the survey is being conducted.

BAT SURVEY & REPORT

Objectives of the report:

1. To thoroughly inspect all buildings, and record any findings indicating the presence or absence of bats.

2. To make recommendations when the presence of bats are found.

Survey Guidelines

This survey follows guidelines recommended by the Bat Conservation Trust (BCT Bat Surveys, Good Practice Guidelines, 2007) and Natural England (Survey objectives, methods and standards- Bat Mitigation Guidelines, 2004) and JNCC Bat Workers Manual.

Survey Methods

The purpose of the survey is to look for evidence confirming that bats use, or have used the buildings for resting, feeding, roosting or winter hibernacula, or not as the case may be.

Evidence of use will include the following;

1 Presence of live or dead bats.
2 Bat droppings.
3 Moth and inset wings and remains.
4 Faint scratch marks on roof timbers.
5 Grease staining marks on roof timbers.
6 Odour of bats.

Evening Surveys

For evening surveys, an ultra-sound receiver is used, tuned to different frequencies to pick up the noises emitted by flying bats.

Bat emergence time may start half an hour before sunset, to one hour after. Fine tuning the 'bat detector' can be a very accurate way of identifying the presence of bats emerging from roof areas where human access is limited or impossible.

Time spent on suitable evenings, will confirm or not the presence of bats, and bat species identification should be possible if bats are present.

Surveying Equipment

Re-chargeable torches, one at 1 million, the other at ½ million candlepower,
10 x 43 Hawke binoculars,
Bat box 'duet 'bat detector,
Petzl headlamp torches.
A variety of folding aluminium ladders.
Telescopic inspection mirrors, large and small.

Bat detection methods

The size of the site or the complexity of the buildings may make daytime searches for bats very difficult. Subsequently, the detection of the presence of bats is undertaken by night visits and relies on the use of a bat detector, an instrument that picks up the ultra-sound emitted by bats, converting it into a sound audible to the human ear. Species may be identified by the frequency on which they 'transmit' and by the sonar graph of their sounds.

Evening surveys

Any survey is reliant on the scope and depth of the information sourced. In an attempt to obtain more detail, an evening survey may be conducted around the site or buildings. To give greater coverage and scope, the survey is normally conducted by two persons. Ultra-sound bat detectors were used at varying frequencies throughout the duration of the survey, to pick up noises emitted by bats.

Analysis of results

Dependent on the results indicated by the bat detector, further inspection of the site may be required within the buildings to confirm any findings. Negative results from the bat detector will only indicate that bats are not present at the time of the survey.

Bat habits

Bats frequently use trees and building for feeding. Insects are found at all sites, and their presence attracts bats, which may travel up to five kilometres or more, to feast in insect rich habitat. The presence of feeding bats does not indicate that the roost is close by, and this survey is undertaken to establish whether bats use any of the structures on the site as a roost.

Adverse weather

Adverse weather conditions affect the ability to collect data on night visits. Cold nights, strong wind and heavy rain may prevent bats from flying, and numbers of insects may be likewise very limited. Subsequent visits should provide sufficient data and prove positive or negative results.

Risk Assessment

The level of probability that Bats are using the property is calculated on the evidence found.

Low risk:
No evidence of use by bats was found.

Medium risk:
Implies that the presence or use by Bats has been identified, and the building is probably used as a feeding site.

High risk:
Identifies that Bats use the property, droppings are found and a roost is confirmed or suspected, even if bats are not present at the time of the survey.

BAT SURVEY & REPORT

External Survey Results

	YES	NO
Property type		
Barn:	✓	
Extension:	✓	
Other:		✓

Comments: The barn is a two storey building.

Construction		
Stone	✓	
Brick		✓
Other:		✓
Bat Access Places	✓	

Comments: Most of the stonework is extremely well maintained with few gaps in the mortar. There are however several access places for bats into the stonework. Open doorways and windows gives free access to any flying creatures.

Roof		
Slate	✓	
Stone	✓	
Other:		✓
Bat Access Places	✓	

Comments: The lower half of the roof to the rear is covered with stone, the remainder is covered with slate

Bat Signs		
Bats seen		✓
Droppings		✓
Bat Detector Results		✓

Comments: The evening had been raining prior to my arrival, washing away evidence of bats and a despite a careful search, could find no clues or evidence of bats use.

External Conclusions:

No signs of bat use could be found.

Risk Assessment: Low

BAT SURVEY & REPORT 3201206 02 P

Internal Survey Results

Is the building lived In?: The building is used for storage.

Construction

	YES	NO
Stone	✓	
Brick		✓
Other/plaster:		✓
Bat Access Places	✓	

Comments: The building is a crooked barn, with much timber used in the construction of the roof. Timber joints and beams could not be examined safety without a climbing harness and ropes.

Roof space, attic or loft

Beams	✓	
Cracks in beams		✓
Under felt		✓
Bat Access Places	✓	

Comments; There is no lining to the underside of the roof making visual inspection straight forward

Bat signs

Bats seen		✓
Droppings	✓	
Bat Detector Results		✓
Staining on beams		✓
Moth + insect wings present		✓
Suspect summer roost		✓
Suspect winter hibernacula		✓

Comments: A careful search could find no signs of bats occupying or using the structure as a bat roost. A single bat dropping was found on the dust cover of a car.

Internal Conclusions:

No signs or evidence of bats or the presence of a roost could be found,

A survey at bat emergence time should give more details of bat use at the barn.

Risk Assessment: Low

BAT EMERGENCE SURVEY & REPORT

Date; 5th July 2012

Start Time: 21.00 hours

End Time: 22.30 hours

Weather:

Heavy showers during the early evening cleared by 21.00 hours, and gave a fine night. There was no breeze but the night was warm with a temperature of 16.5^{0}C.

Bat Suitability Evening:

The evening was a good evening for foraging bats with many flying insects and moths observed both inside and outside the buildings.

Survey Details:

The survey was conducted by two persons, both using 'bat detectors' set at 45Khz. The bat detectors were occasionally tuned to 55Khz to allow for different species of bat sonar. Continuous observation of the barn was achieved by each surveyor being positioned at each gable end.

Survey Findings:

At 21.35 hrs, a pipistrelle bat flew onto the site from the south and proceeded to fly and forage inside the building. It left the building by the main door and flew south at 21.50 hrs.

A second pipistrelle followed at 21.57 hrs following the same flight path and proceeded to forage inside the building, leaving at 22.03 hrs.

Fine tuning of the bat detector confirmed the species to be Common Pipistrelle, echo locating on 45 Khz.

Both bats were seen at 22.15 hrs foraging around the building before leaving the site at 22.24 hrs.

No bats were seen or detected emerging from the barn under observation.

Evaluation of the Survey Results:

The survey found evidence of bats using the barn for feeding and foraging.

There was no evidence of any bats emerging from the building.

Risk Assessment:

Low.

BAT SURVEY & REPORT

3/2012/0602/P

SURVEY SUMMARY

Proposed Development

The proposal is to convert the barn to residential use

Site Description

The building is now used for storage. The property is situated on a southerly facing hillside, with the farmhouse and other farm buildings nearby.
The farm is surrounded by agricultural land with mature hardwood woodland to the east.

Survey Results

The survey found a single bat dropping inside the barn. The evening survey at bat emergence time observed two pipistrelle bats flying onto the site and feeding inside the building.
No bats emerged from the barn under observation.

Importance of the Site

The survey found that the barn had no special wildlife importance

Conclusions

Bats do not use the building as a roost site.

Risk Assessment

Low

Mitigation and Enhancement

No special mitigation or wildlife enhancement is required.

Timing of works

Work may be undertaken at any time.

Author: Denis Lambert

Signed: *Denis Lambert*

Dated: *5th July 2012*

SURVEYOR'S DETAILS

Denis Lambert is a registered and licensed Bat Warden No. 20110680 for Natural England, since 1981. Dedicated to conservation and environmental issues, he has been a keen bird watcher and mammal specialist all his life and was involved with the formation of the Lancashire Badger Group and acted as its chairman for ten years. Working as a qualified arborist (tree surgeon) he has been actively involved in protecting many species of flora and fauna over the years. Richard Bowden, a retired ex-licensed Bat Warden assists with surveillance where two persons are needed.

BAT SURVEY & REPORT

Bats and the Law

It may not be possible to determine whether the building is used as a maternity roost or just a resting place, but the fact that bat activity has been recorded, means that any work that disturbs or impacts on the colony within the buildings will require a license. Additional survey work may be necessary, especially in the evenings or early morning to determine the exact extent of use by bats and the access points that are used. Deliberate disturbance during the breeding season, the exclusion of bats and the destruction of a bat roost is now a criminal offence under the Conservation (Natural Habitats &c.)(Amendment) Regulations 2007. The onus lies on the applicant to satisfy him/her that no offence will be committed if and when the development goes ahead.

Natural England now advises, *"Operations to known breeding sites should be timed to avoid the months of June, July and August if possible, the best times for building or re-roofing operations are spring and autumn".*

How to proceed when bats are found

Depending on the extent of the proposed works, a license may be required before any work can start. If the work does not impact on the bats in any way, ie, bats are not present and the habitat and access points are not being affected, then the work may probably be done without a licence. Each site has different requirements and Natural England have the final say.

When European Protected Species are present and the works cannot be done at a time when they are absent, as a licensed bat person, I can apply on your behalf for a licence to enable the works to proceed. The granting of a license is not guaranteed, but when the application is a matter of health and public safety and supporting mitigation enhances the habitat for continued use by bats, there is a good likelihood that the license will be approved. Natural England requires a minimum six weeks to process any licence application. Mitigation will include detailed information for the retention, enhancement and preservation of the population of European Protected Species in the locality.

General recommendations:

Being aware of how bats move from site to site, and the possibility that bats may occur in any building, the following points should help developers.

1. Bats may use buildings at any time of the year for feeding or refuge.
2. Work to the roof should be undertaken when bats are free flying, generally early March to late November.
3. Care must be taken when removing existing roof beams and associated stonework.
4. During completion of roof works, bat access points may be built into the new structure.
5. Pointing of walls should not be carried out between mid-November to early March to avoid entombing bats, which may be hibernating within.
6. If any timber treatment is carried out, only chemicals safe for bats should be used. Any new timber used should be treated using the CCA method (Copper, Chrome Arsenic), which is safe for bats.

I shall be available to advise and oversee the above points at any time, if requested.

Should bats be found, work must cease immediately in that area and then please contact: **Denis Lambert** on **01772 783322 or 07813 140682** for advice.

BARN OWL SURVEY & REPORT

3201206 02P

Survey Brief:

To inspect buildings, assess the value of the site for barn owls, and compile a report prior to a Planning Application being submitted.

The report will identify if barn owls have ever used the buildings at any time, or not as the case may be. Barn owls are protected under the Wildlife and Countryside Act 1981, Habitats and Species Regulations 1994 and Countryside & Rights of Way Act, 2000.

Objectives of the report:

To thoroughly inspect all buildings and record any findings that may indicating the presence of barn owls.

To make recommendations when the presence of barn owls is found.

Limitations of the report:

External walls and internal rooms are inspected from ground level only.

Roof voids, attics and lofts will only be inspected when safe access is possible.

Building's whose structure is unsafe in any way, will only be inspected from a safe distance with the use of a pair of binoculars.

Survey Details

The purpose of the survey is to look for evidence that barn owls use, or have used the buildings for resting, feeding or nesting, or not, as the case may be.

Evidence of use by owls will include the following;

White streaks down roof timbers and walls
Barn owl pellets, new and old
Barn owl feathers
Signs of nest
Access for barn owls

SURVEYING EQUIPMENT

Re-chargeable torches, one at 1 million, the other at ½ million candlepower,
10 x 43 Hawke binoculars,
Petzl headlamp torches.
A variety of folding aluminium ladders.

Survey Methods

The buildings were inspected, looking for signs of use by barn owls, as mentioned above, using ladders for access and torch and binoculars when required.

BARN OWL SURVEY & REPORT

Site description:

The building was part of a working farm with many access points suitable for barn owls to enter the structure. Agricultural land surrounds the farm, which is sited on a south facing hillside with mature woodland to the east.

Survey results

		YES	NO
External:	White streaks down roof timbers + walls		✓
	Owl pellets		✓
Internal:	White streaks down walls		✓
	Owl pellets new		✓
	Owl pellets old		✓
	Owl feathers		✓
	Signs of nest		✓
	Access for owls		✓

Comments:

No evidence of barn owls could be found.

Importance of the site

The site has no special wildlife importance.

Conclusion:

Barn owls do not use the building.

Recommendations:

There are no recommendations necessary.

Author: Denis Lambert

Signed: *Denis Lambert*

Dated: *5th July 2012*

SURVEYOR'S DETAILS

Denis Lambert is a registered and licensed Bat Warden No. 20110680 for Natural England, since 1981. Dedicated to conservation and environmental issues, he has been a keen bird watcher and mammal specialist all his life and was involved with the formation of the Lancashire Badger Group and acted as its chairman for ten years. Working as a qualified arborist (tree surgeon) he has been actively involved in protecting many species of flora and fauna over the years. Richard Bowden, a retired ex-licensed Bat Warden assists with surveillance where two persons are needed.