

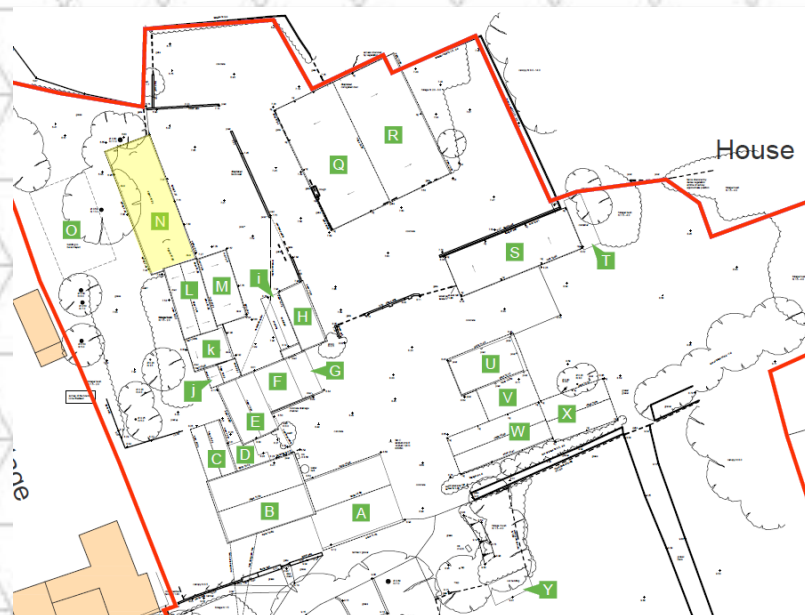
# **BARN N**

## **Report on a Visual Inspection of Proposed Barn Conversions Under Permitted Development (Class Q) at Rose Farm, Shapwick Road Westhay, Glastonbury, BA6 9TU for the T W Willcox Will Trust**

BASED ON A LIMITED VISUAL INSPECTION

- Version 2
- 26 September 2022

**MBE REF-MBE-2021-025-Rose Farm Barns – N – v2**



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## Contents

<b>1.</b>	<b>Introduction</b>	<b>3</b>
<b>2.</b>	<b>Report Limitations</b>	<b>4</b>
<b>3.</b>	<b>Observations</b>	<b>5</b>
<b>3.1</b>	<b>Weather Conditions and Survey Details</b>	<b>5</b>
<b>3.2</b>	<b>Description of the Property</b>	<b>5</b>
<b>3.3</b>	<b>Documents Reviewed, The Site and Use.</b>	<b>6</b>
<b>3.4</b>	<b>Ground Conditions and Foundations</b>	<b>7</b>
<b>3.5</b>	<b>Structural Movement, Damage and Other Possible Defects</b>	<b>7</b>
<b>4.</b>	<b>Discussion</b>	<b>8</b>
<b>4.1</b>	<b>Movement and Damage</b>	<b>8</b>
<b>5.</b>	<b>Conclusions</b>	<b>10</b>
<b>5.1</b>	<b>Conversion of Barn N</b>	<b>10</b>
<b>6.</b>	<b>Recommendations for Further Works</b>	<b>11</b>
<b>6.1</b>	<b>Trees, Vegetation</b>	<b>11</b>
<b>6.2</b>	<b>Drainage</b>	<b>11</b>
<b>6.3</b>	<b>Site Investigation / Further Surveys</b>	<b>11</b>
<b>6.4</b>	<b>Superstructure Repairs Barn N</b>	<b>11</b>
<b>Appendix A</b>	<b>Photographic Record</b>	<b>13</b>
<b>Appendix B</b>	<b>Figure 1</b>	<b>37</b>
<b>Appendix C</b>	<b>Limitations</b>	<b>39</b>



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## 1. Introduction

- 1.1 MBE Limited was instructed by the client Mr Alan Willcox on behalf of the T W Willcox Will Trust (by email dated 20/06/2022, to conduct a visual inspection of the existing agricultural barn properties (Barn N) and to prepare a structural report on the nature of construction, suitability for incorporation within the conversion and general condition of the visible structure.
- 1.2 The inspection of a total of six barns (Barns K, L, M, N, Q, R and S) was undertaken. Refer to the Architect's drawings for the location of each barn and the proposed arrangements. This report concerns Barn N only.
- 1.3 It is proposed to convert the existing agricultural building to a domestic residence under Class Q of the Town and Country Planning (General Permitted Development) (England) Order 2015 (Amended).
- 1.4 This report relates to the proposed conversion of the existing agricultural buildings into residential accommodation based on visual inspection, from floor level, of Barn N at Rose Farm, Shapwick Road, Westhay, Glastonbury, BA6 9TU.
- 1.5 An inspection was undertaken in order to understand the structural form that was visible at the property. Our inspection was undertaken from ground level only with the aid of binoculars and a camera where necessary.
- 1.6 The report is based on a visual inspection undertaken on 12/08/2022 from 10:00. A limited number of photographs were taken as shown in Appendix A and an approximate sketch of the existing arrangement is provided on Figure 1 in Appendix B.
- 1.7 This report should be read in conjunction with the Architect's drawings.
- 1.8 This report is written with reference to the published guidance notes relating to building operations allowed under the change to residential use:

Class Q part (b) covers the design and exterior of the building; as such this report does not consider the internal works. Internal alterations are deemed to be covered within the legislation which allows necessary works in order for the building to function as a dwelling. The updated guidance, issued in June 2018, confirms that some structural works are allowable and the internal works are not generally development. The government guidance states:

"The right permits building operations which are reasonably necessary to convert the building, which may include those which would affect the external appearance of the building and would otherwise require planning permission. This includes the installation or replacement of windows, doors, roofs, exterior walls, water, drainage, electricity, gas or other services to the extent reasonably necessary for the building to function as a dwelling house; and partial demolition to the extent reasonably necessary to carry out these building operations".

Source: <https://www.gov.uk/guidance/when-is-permission-required>

- 1.9 This report uses the guidance of BRE Digest 366 Part 2 in terms of assessing the general condition of the building in relation to the proposed future use as a dwelling.



## 2. Report Limitations

- 2.1 The report is based on a limited visual inspection from floor level of the visible elements of the existing general condition of the structure and a cursory inspection of the grounds from floor level.
- 2.2 It is a condition of this report that we have not inspected the foundations or other parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that such parts of the wall are free from defect.
- 2.3 Also, the inspection was restricted to a walk over of the grounds around and alongside the property from ground level. A full clear view of the structure was restricted in some places by vegetation, a spoil heap to the northern end of the building and old finishes. Access to the foundations was not possible at the time of the visit and the roof was too high to access fully and safely, so no clear view of the entire roof structure could be obtained.
- 2.4 The report is confined to structural aspects only and should not be construed as a comprehensive building survey.
- 2.5 No non destructive or destructive tests or samples were taken at the time of the visit. No as built records were made available or known to exist and there was no means to inspect or review the right hand side elevation, since access was physically not possible at the time of the inspection.
- 2.6 Comments contained within this report are strictly limited to, and based solely on, the visual inspection, record drawings and record photographs, as well as our understanding of similar structures, built using similar materials and techniques of a similar age.
- 2.7 It is assumed that all the load bearing elements are supported off a similar foundation (based on the existing trial hole information) taken to the same formation level into competent materials.
- 2.8 Further investigations are recommended, as outlined in Section 6.0 of this report.
- 2.9 This report shall be for the private and confidential use of the client only and shall not be reproduced in whole or in part or relied upon by third parties for any use whatsoever without the expressed written authority of MBE Limited.
- 2.10 This report does not guarantee that any works carried out in the past have been executed in accordance with the statutory and mandatory regulations, British Standards, Codes of Practice or the like current at that time. Refer to Appendix C for a full explanation of the limitations of this report.



### 3. Observations

#### 3.1 Weather Conditions and Survey Details

- 3.1.1 The inspection was conducted on 12<sup>th</sup> August 2022 from 10:00 am. The weather was extremely dry and sunny with clear skies. Visibility was very good.
- 3.1.2 The inspection was conducted by Matthew Andrew Bennett BEng (Hons) CEng MIStructE, Director in charge of MBE Limited Consulting Engineers.
- 3.1.3 Visible areas of the property were viewed from ground floor level and a limited digital photographic record is provided in Appendix A (Photos 1 - 24). For reference purposes, the front and rear elevations are shown in Photos 1 and 3 in Appendix A. The external elevations are shown on Photos 1 - 5 and Photo 12 in Appendix A. The existing arrangement of the property is illustrated on plan in Figure 1 in Appendix B.

#### 3.2 Description of the Property

- 3.2.1 The property is located at National Grid Reference: ST4333642369
- 3.2.2 The subject barn (Barn N) comprises traditional solid brickwork walls, two bricks thick, with a curved profile corrugated tin roof. Barn N adjoins and is tagged onto Barn L to the south. Barn L is the subject of a separate report.
- 3.2.3 Barn N is approximately 6.3 m wide by 18.25 m long overall on plan. Barn N measures roughly 2.10 to 2.3 m high to the underside of the existing roof beams at the eaves and measures roughly 3.65 m from ground floor level to the underside of the crown of the roof sheets. The internal arrangement of Barn N is shown on photos 6 – 11 and 13 - 24 in Appendix A.
- 3.2.4 Support of the curved roof is given by a pair of purlins that span from the north gable wall to meet the gable wall to Barn L and are propped by a series of raking props that are supported by intermediate roof beams set at eaves level. The beams that prop the roof span from the west to the east elevations and are supported by a substantial wall plate along the perimeter masonry walls.
- 3.2.5 The main compartment of Barn N is open-plan.
- 3.2.6 Lateral stability of the barn is thought to be afforded by the combined moment resistance of the opposing west and east walls acting as cantilevers and by the rigidity of the external shear walls. The roof however is not in a stable form.
- 3.2.7 The ground floor to Barn N appears to be a mixture of a failed (cracked and displaced) concrete slab that is cast upon the ground and compacted earth. There is a pair of cattle pens at either side of the building; one bank of pens runs along the entire west elevation and the other is in the north east corner (roughly 6m x 1.75m on plan). Each cattle pen is set onto concrete plinths that protrude above the general ground level. The floor probably has no effective damp proof membrane. The floor is also covered in mud and vegetation.
- 3.2.8 The envelope has no thermal value and will need to be upgraded by the inclusion of a suitable lining internally.



### 3.3 Documents Reviewed, The Site and Use.

3.3.1 The following documents were reviewed:-

- The BGS website.
- Some photos of the property (see Appendix A).
- The Local Authority Planning Portal.
- Google Maps.
- National Library of Scotland - Ordnance Survey (OS) maps online [www.maps.nls.uk](http://www.maps.nls.uk)

3.3.2 From a review of the historic OS maps available online it is evident that the land was developed and established as a working farm by the 1800's. Now there is a collection of approximately 21 buildings that form the property known as Rose Farm.

3.3.3 Shapwick Road is located to the south and the River Brue (and local drainage ditches / Rhynes) are located to the north.

3.3.4 The barns are bounded by fields to the north and dwellings to the west. The site is bounded to the south by a former camp site field.

3.3.5 The buildings are accessed via a narrow lane to the south from Shapwick Road that connects to the main concrete yard slab, from which the buildings are accessed.

3.3.6 The property is aligned such that the ridge line of Barn N is approximately in a north-south direction.

3.3.7 The general topography is such that finished ground levels around the subject barn vary between 7.50 m to 6.90 m adjacent the building facade and the surrounding ground levels appear to generally gently slope downwards from south to north. The ground floor level of Barn N varies between 7.07 m to 7.50 m. At the northern end the ground floor is slightly higher than the surrounding ground levels.

3.3.8 To the west and the north of the barn building there is a large hedgerow and series of trees that are within influencing distance. A pair of self seeded trees are right against the north west corner of the building and their canopies extend over the roof of the property.

3.3.9 The barn building was unoccupied at the time of the inspection.

3.3.10 The building appears to have been used as a cattle sheds and feed storage and is proposed to be converted to be used as a residential property.



### 3.4 Ground Conditions and Foundations

- 3.4.1 There is no original Site Investigation (SI) Report or “as built” records available to review.
- 3.4.2 The BGS website has no borehole records within 100m of the site. Borehole records in the area generally indicate that the underlying geology should be alluvium deposits overlying clays of the Blue Lias and Charmouth Mudstone Formations.
- 3.4.3 Weathered soils near the surface are likely to comprise a veneer of topsoil over soft to firm blue, grey or brown silty clays, possibly interbedded with bands of fibrous peat. The clays are likely to have some plasticity rendering them susceptible to changes in volume with changes in moisture content, with the potential to either shrink or swell. These soils can also soften when wet. The soils are expected to stiffen at some depth into weathered mudstones / shales.
- 3.4.4 Presumed safe ground bearing pressures in the order of 50 - 75 kN/m<sup>2</sup> would be anticipated at 1.0m depth, to be confirmed by further ground investigations.
- 3.4.5 An intrusive site investigation is required to prove the prevalent ground conditions and aid in the design / specification of foundations / foundation repairs.
- 3.4.6 The water table is expected to be below the depth of conventional foundations but further investigations would be required to confirm the requirements for the management of ground water during construction (whether sump / pumping or similar would be needed).

### 3.5 Structural Movement, Damage and Other Possible Defects

- 3.5.1 The structural arrangement of the barns and primary damage is illustrated on Figure 1 in Appendix B.
- 3.5.2 There is movement to the roof and supporting timbers are generally showing signs of insect attack and timber decay.
- 3.5.3 The means by which the roof is presently being supported is not a stable / robust system and is at risk of collapse because the system relies on the integrity of the corrugated roof and the fixings applied to the purlins to give lateral restraint to the purlins and their raking supports.
- 3.5.4 Unfortunately large sections of the corrugated roof have corroded and some panels of roof decking are missing. Furthermore the spacing of the purlins exceeds the spanning capacity of the corrugated roof profile; depending on the actual profile used in the roof, sheeting of this type would normally be supported at a closer spacing than the c3.3m distance between the two lines of existing support.
- 3.5.5 Furthermore the roof beams carrying the propped purlins are deflecting (sagging) excessively, in the region 80mm in magnitude.
- 3.5.6 The result of the excessive roof deflection has seemingly placed a large outward thrust on sections of the west and east walls where the roof beams are bearing, which appears to have lead to the perimeter walls leaning / bowing outwardly by a significant amount (estimated >30mm).
- 3.5.7 There is also evidence of foundation related movement linked to Barn L, where stepped tapered cracking has occurred to the south west corner to track across the facade of Barn N where the external wall meets Barn L (see Photos 5, 11 and 12 in Appendix A). The movement is reflected internally and extends from ground level, with cracks generally being wider at the top. The south west section of wall has parted from the junction with Barn L.
- 3.5.8 The crack widths to the external walls of the barn are no wider than 5-10 mm and are notably reflected both internally and externally (occurring in similar locations through the walls). The magnitude of the crack damage would be categorised as being Category 3 (serious) in accordance with Table 1, of the Building Research Establishment Digest 251<sup>(1)</sup>, which describes the damage in buildings by crack width.





- 3.5.9 A significant portion of the north gable, the east and the west elevation is overgrown with vegetation / climbers that have established and damaged the roof and the masonry. The vegetation has damaged the masonry around the north west corner. The trees adjacent the building could also be potentially damaging the foundations.
- 3.5.10 The masonry adjacent the bearing of a roof beam and timber lintel has locally failed (see Photos 3 and 20 in Appendix A)
- 3.5.11 Dampness is rising through the walls and this has led to the loss of some internal render (see Photos 13 and 14 in Appendix A).
- 3.5.12 Generally, around the perimeter of the lowest 1m or so of wall, the brickwork walls require re-pointing and the insertion of an effective damp proof course.
- 3.5.13 Furthermore the perimeter walls have no movement joints so the solid brickwork walls could be potentially susceptible to thermal movements (cracking in the west / east facades) once enclosed as a habitable building.
- 3.5.14 The envelope has no thermal value and will need to be upgraded by the inclusion of a suitable lining internally.

## **4. Discussion**

### **4.1 Movement and Damage**

- 4.1.1 The roof structure has sagged and the primary beams have seemingly pushed out the perimeter walls. However, the matter could be suitably addressed by incorporating internal wind posts / moment frames that can be mechanically tied to the perimeter walls to restore lateral stability. Similarly new internal walls to suit the internal arrangement of the proposed conversion could be tied / strapped to the perimeter walls to achieve lateral stability.
- 4.1.2 The vertical loads from the single storey roof will be commensurate with the existing condition and as such, based on the assumption the property will be sub-divided into rooms (or braced as described above), it should be feasible to retain most of the load bearing walls and reused. As the masonry walls are of substantial construction this would appear feasible subject to digging trial holes to prove the foundations are adequate.
- 4.1.3 The roof structure has failed and is presently unstable. Generally the purlins and the primary beams will require strengthening and some lines of additional purlins or roof support frames with a system of bracing will be required to stabilize the roof. The roof sheets are inadequate and will require replacement entirely. The load paths for the roof strengthening works can be replicated.
- 4.1.4 The south west corner of the property has suffered from foundation related movement linked to Barn L (see separate report).
- 4.1.5 Lias Clays form a belt crossing England extending from Yorkshire to the Dorset coast. It also extends into South Wales. Usually blue, white or grey the Lias clays comprise a compact argillaceous (clayey) limestone or cement stone dating back to the Jurassic era. These clays are known to typically have medium to high shrinkage/swelling potential <sup>(1/2)</sup>, and can be particularly problematic in the presence of vegetation.
- 4.1.6 The pattern of damage around the south west part of the barn is evident of foundation related movement that has resulted in cracking around the external walls, extending from ground level, which is broadly wider at the top and narrower at the bottom. This damage is probably due to subsidence.
- 4.1.7 It is suspected that the clutch of trees and the substantial hedgerow that are located within influencing distance of the western elevation of the barn have adversely affected the moisture content of the suspected clayey sub-soils.
- 4.1.8 The tree / shrub roots have most likely taken moisture from the clays and consequently the clays have dried and shrunk causing the south west corner to drop.



4.1.9 It appears as though the cracking around the property is no wider than 5 – 10mm. The magnitude of the crack damage would be categorised as being Category 3 (“serious”) in accordance with Table 1, of the Building Research Establishment Digest 251<sup>(3)</sup>, which describes the damage in buildings by crack width.

Category 0	"negligible"	< 0.1mm
Category 1	"fine"	0.1 - 1mm
Category 2	"moderate"	>1 but < 5mm
<b>Category 3</b>	<b>"serious"</b>	<b>&gt;5 but &lt; 15mm</b>
Category 4	"severe"	>15 but < 25mm
Category 5	"very severe"	>25 mm

**Extract from Table 1, B.R.E. Digest 251**

**Classification of damage based on crack widths.**

- 4.1.10 There is a slight concern that ongoing movement can be triggered by tree roots from the significant trees located around the property. It was noted that the grounds were not maintained; with varied species of hedgerow and trees having established themselves and potentially within influencing distance. It is possible that the various trees and shrubs around the western elevations have now reached a point where they may be affecting the sub-soils too. Only further investigations and monitoring will prove that the movements to the west elevation have ceased or are progressive.
- 4.1.11 Judging by the general magnitude of the crack damage and the age of the property the movement is probably occurring at a very slow rate.
- 4.1.12 The existing walls have no thermal value and it is intended to line the perimeter walls with an insulated panel or construction to conform to Approved Document L of the Building Regulations.
- 4.1.13 It is intended to form new openings for glazing as required to comply with the requirements for natural daylight for habitable rooms. These new openings will be located, as far as possible to avoid the primary structural elements (roof beam supports or return wall buttresses).
- 4.1.14 The existing ground floor construction would need to be improved or replaced with a suitable DPM and floor insulation.
- 4.1.15 Where the elevations are to be filled in the external cladding will either be detailed to be supported off the existing foundations or off the ground slab. The details will be undertaken at Building Regulations stage (technical design), but it is envisaged that a lightweight cladding (possibly composite cladding, SIPs panels or timber frame panels) will be used, either hung off the existing columns or bearing on a thickening set into the perimeter of the new ground bearing slab construction.



## 5. Conclusions

### 5.1 Conversion of Barn N

- 5.1.1 The superstructure of the property is generally regarded to be in the form of a load bearing masonry structure. The external walls are a solid brickwork construction approximately 215mm thick with no movement joints.
- 5.1.2 The existing walls to the building are of a robust form of construction and though leaning it should be possible to incorporate new sub-dividing internal walls or elements of steel frame to restrain the perimeter walls.
- 5.1.3 It is reasonable to expect the conversion to include a new ground floor and sub-dividing internal partitions to be added. On this basis the perimeter walls may be stabilised without a need to build new perimeter foundations.
- 5.1.4 The proposed conversion could feasibly be constructed in either timber frame or traditional masonry form of construction, with some elements of steel frame to facilitate the internal alterations necessary to create a new dwelling.
- 5.1.5 The primary foundations are likely to be of a size that is sufficiently adequate to carry the proposed loads roof loads that will flow from the conversion.
- 5.1.6 Whilst the barn is generally noted to be in need of some repairs, in the context of the conversion scheme that is proposed, by inspection of the primary walls, the general proportions, rigidity of the masonry and from my practical experience, in my opinion, it is feasible to convert the existing barn and retain the primary walls and foundations for the support of the proposed conversion (subject to a scheme of repairs and backlog maintenance). The roof however will require strengthening and repair or renewal. The roof cladding is not acceptable and will need to be wholly replaced.
- 5.1.7 It should be noted that the above reasoning is only based on the visible evidence and anecdotal evidence, available at the time of the initial inspection and is not supported by an intrusive site investigation and/or backed up by a reliable intrusive site investigation to support the above technical hypothesis.



## 6. Recommendations for Further Works

### 6.1 Trees, Vegetation

- 6.1.1 Remove the nearby trees and hedgerows. Maintain the vegetation and restrict planting / use low water demanding species of shrubs / trees that will be outside the influencing distance of the property. That is keep trees away by at least a distance equivalent or greater than their height (e.g. 3m tree greater than 3m from the dwelling).

### 6.2 Drainage

- 6.2.1 The site will require a drainage strategy / flood risk assessment commensurate with the flood risk attributed to this site.
- 6.2.2 A drainage / infrastructure engineer should be engaged to investigate sustainable methods to provide drainage to the site to meet current standards and local planning policy guidelines.

### 6.3 Site Investigation / Further Surveys

- 6.3.1 The timbers in some areas are exposed to dampness and appear to be under attack from wood boring insects. A specialist timber survey should be undertaken to investigate the timbers prior to converting the building. The specialist should also assess the loss of section and timber strength of the existing roof beams to Barn M to inform a scheme of repair / strengthening.
- 6.3.2 In order to successfully develop the site and reduce risks in the ground a professional site investigation should be undertaken in order to determine the ground profiles at depth, assess the degree of contamination present (if any) and define geotechnical and environmental parameters for the site going forward.
- 6.3.3 The existing foundations should be further investigated to verify their actual construction (type / detail / depth / thickness) and condition of the substructure masonry inspected prior to construction.
- 6.3.4 The fabric may contain Asbestos containing materials which should be checked / identified as part of a specialist survey (e.g. refurbishment/demolition survey). All asbestos waste is subject to Schedule 2 of The Control of Asbestos Regulations 2012. More information on handling potentially asbestos containing sheets can be found on the Health and Safety Executive's [website](#).
- 6.3.5 Underground utilities should ideally be located / surveyed and mapped on the topographical survey for the site.

### 6.4 Superstructure Repairs Barn N

- 6.4.1 The damage in the main barn is generally restricted to the roof and local areas of damage to the facade (as noted on Figure 1 in Appendix B).
- 6.4.2 The existing roof support beams are sagging too much and are inadequate to support additional loads (due to plastered finishes or other superimposed dead loads) and should either be strengthened (with fitch plates and the like) or replaced with new trusses / beams to replicate the existing load paths.
- 6.4.3 Additional lines of purlins to carry the roof cladding will be required but these may be propped off of the existing beams (strengthened) so the load paths are replicated. The roof should also be stiffened with a new system of bracing / sheathing.
- 6.4.4 External wall panels have to resist both vertical load and lateral load. On this basis the structural integrity of the south west section of wall (where it abuts Barn L) should be fully restored using masonry reinforcement (Helifix bars or equivalent) in accordance with paragraphs 6.4.5 to 6.4.7. Similar repairs may be used where the wall is cracked through the whole section.
- 6.4.5 Where cracks have occurred across the elevations, sufficient masonry units should be removed to allow examination of the wall for the full height of the crack. Where cracking is detected to the inner face of the solid wall (either in alignment with the external cracking or to the left or the right of the crack), then the crack should be fully exposed for its' full height and repaired from the inside.



- 6.4.6 Cracked joints should be chased out to depths of c50mm and c 6 – 8 mm diameter stainless steel threaded bars (Helifix or similar) inserted with at least 225 mm of the bar placed either side of the crack (450 mm long bars). The joints should then be re-pointed with “Helibond” mortar or equivalent.
- 6.4.7 Loose fragments of masonry in the wall should be appropriately cut out and new sections sensitively inserted and fixed to the parent masonry in order to maintain the bond. Any cracked joints shall be raked out and re-pointed with “Helibond” mortar or equivalent (grade III, hydraulic lime based mortar).
- 6.4.8 Where the masonry has locally failed at beam bearings and has displaced (near the north gable) the wall should be locally taken down and reconstructed.
- 6.4.9 Decayed timber should be removed and replaced. It is likely that the existing beams and purlins will require strengthening (insertion of new sections alongside the existing) or replacement (due to the extent of insect attack and their lack of stiffness).
- 6.4.10 Due to the length of the west and east elevations it is prudent to allow for the creation of movement joints in the masonry which must be integrated with sub-dividing walls or new wind moment frames to laterally restrain the leaning wall panels.
- 6.4.11 The roof should ideally drain to gutters that feed into down pipes that should discharge into a dedicated drain and not release water onto the ground near the outside walls of the barn.

#### References

- [1] Ddriscoll R. (1983) “Influence of Vegetation on Clays” Geotechnique. Vol. 33.
- [2] Table 1, Chapter 4.2, Para. 2.3 of N.H.B.C. Standards, 1986.
- [3] BRE. Assessment of damage in low-rise buildings. BRE Digest 251. Garston, IHS BRE Press, 1995.



## Appendix A Photographic Record



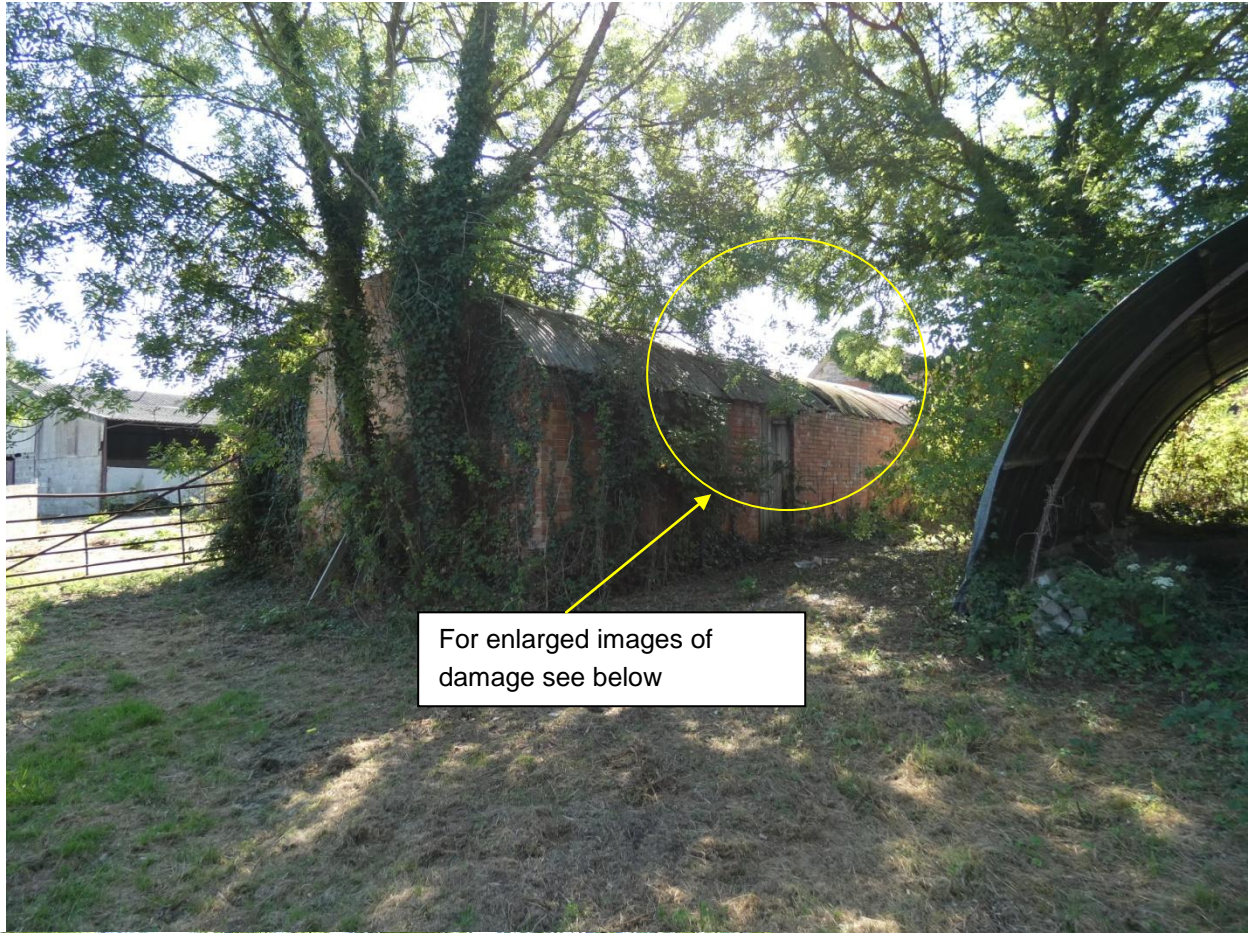
For enlarged images of entrance see below



Photo 1 – East elevation (front) – Viewed from yard



Photo 2 – North gable (right hand side) – Looking south



For enlarged images of damage see below



Photo 3 – West (rear) elevation – Viewed from rear right hand side looking south east





Photo 4 – West (rear) elevation – Viewed from rear left hand side looking east



For enlarged images of damage see below



Photo 5 – South west corner – Stair stepped cracking



Photo 6 – Interior view – South east corner looking toward north west corner



Photo 7 – Interior view – South west corner looking toward north east corner



Photo 8 – Interior view – North east corner looking toward south west corner



Photo 9 – Interior view – North west corner looking toward south east corner



Photo 10 – Interior view – Damaged / missing roof sheets and sagging beams



Photo 11 – Interior view – Internal partition - Viewed front toward rear - Inset haunch view





Photo 12 – Exterior view – South east corner cracking around door against Barn L



Photo 13 – Interior view – East elevation - Entrance near south east corner



Photo 14 – Interior view – East elevation – Continued from Photo 13



Photo 15 – Interior view – East elevation – Continued from Photo 14



Photo 16 – Interior view – East elevation – Continued from Photo 15



Photo 17 – Interior view – East elevation – Continued from Photo 16



Photo 18 – Interior view – North gable



Photo 19 – Interior view – West elevation – North west corner





Photo 20 – Interior view – West elevation – Continued from Photo 19



Photo 21 – Interior view – West elevation – Continued from Photo 20



Photo 22 – Interior view – West elevation – Continued from Photo 21



Photo 23 – Interior view – West elevation – Continued from Photo 22



Photo 24 – Interior view – West elevation – Continued from Photo 23



## Appendix B Figure 1





## Appendix C Limitations

1. The purpose of the report is to apprise the client of the feasibility of converting the existing barn building into a dwelling, from a structural engineering perspective.
2. In accomplishing this purpose, a visual inspection of the barn was done. The inspection was limited because no uncovering or physical testing or intrusive ground investigation had been undertaken and the structural fabric was not fully exposed.
3. The diagnosis of the movement or damage is subject to further investigation(s) where required.
4. Reference in this report to the left and the right-hand means the follow:-
  - a) Reference to the whole property when facing the front.
  - b) References to individual walls or elements, when facing the appropriate side of the wall or element.
5. We were authorised to confine our attention to structural matters and this document should not be construed as a comprehensive survey or cost / budget report. Special reference is made to the following:-
  - a) It was not possible to observe the foundations. The foundations to the main property were not inspected and we have referred to the work of others.
  - b) No opening up was done.
  - c) No non destructive or destructive tests or samples were taken at the time of the visit. As such the fabric was not tested or assessed (e.g. steel for loss of section due to corrosion).
  - d) Existing records were not made available to show the layout of the building so all information is based on approximate measurements and what was visible. A limited photographic record was made.
  - e) At the time of the visual inspection, vegetation was growing against the wall which prevented inspection of some areas of the fabric.
  - f) Non-structural elements, such as windows, door joinery, fascias and soffits and the like were not inspected.
  - g) The main property has not been inspected for building faults related to roof coverings, rainwater systems (gutters and rwps), gulleys/sumps/pumps, drains or other defects. No CCTV survey was done.
  - h) In particular, we have not inspected or carried out physical testing on electrical, heating or plumbing installations, below ground drainage runs, or above ground drainage runs, either internally or externally.
  - i) Fences were not inspected.
  - j) We have not inspected timber nor any other part of the structural fabric that was covered, concealed, or inaccessible, and we are therefore unable to report that any such part of the property is free from defect.
6. Comments contained within this report therefore are strictly limited to, and based solely on, the visual evidence that is documented and our understanding of similar structures, built using similar materials and techniques of a similar age.
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