



DESIGN APPROACH DOCUMENT

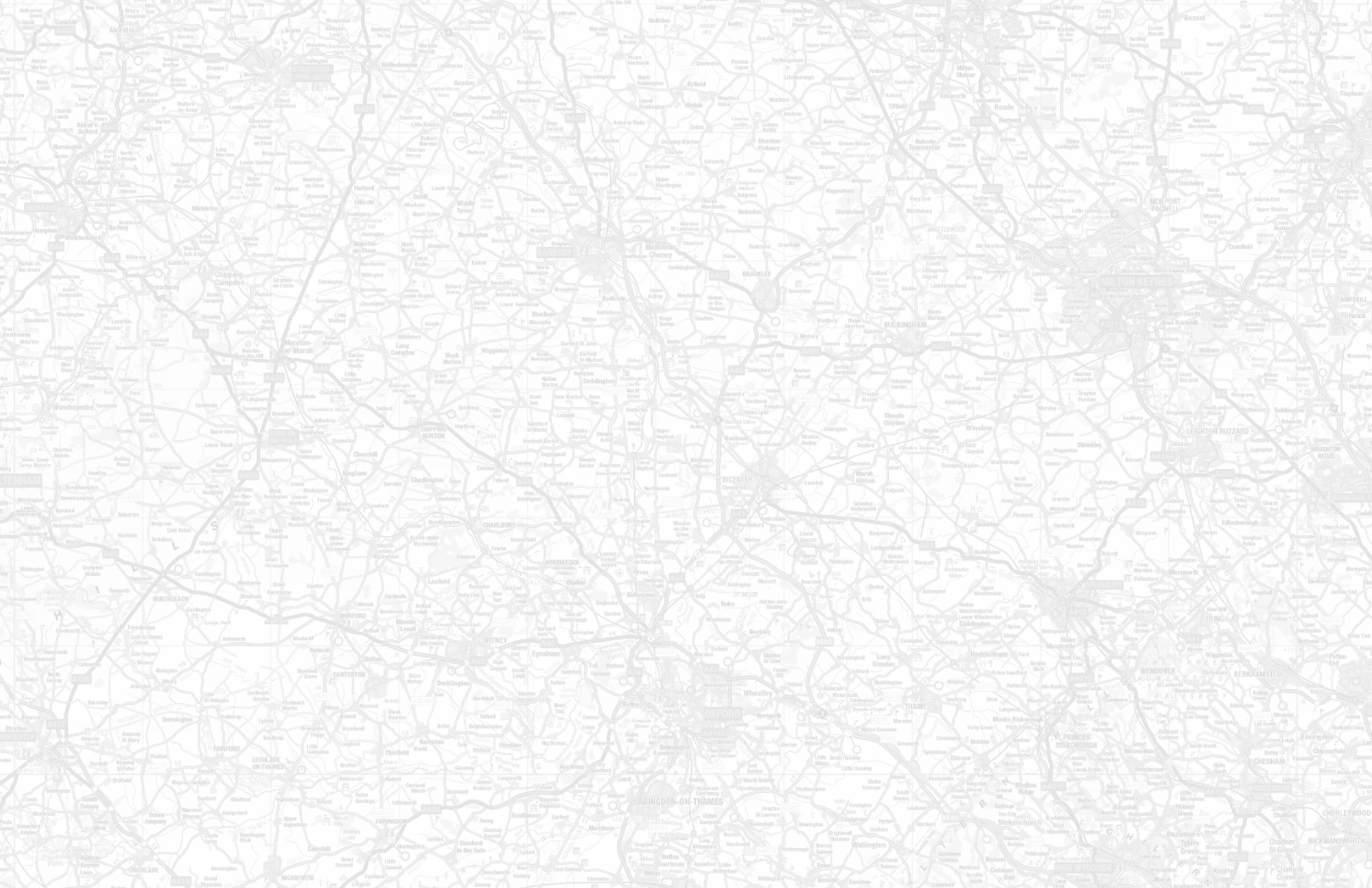
CENTRAL HUB

Document number 5.5B

Regulation 5 (2) (q)

MARCH 2026

1	Introduction to the Project	5	5	Approach to the Listed Barn	29
1.1	Purpose of this report		5.1	Current Condition Assessment	
1.2	Design Team		5.2	Structural Condition	
2	Introduction and Central Hub Site Analysis	9	5.3	Existing Condition 2022 - Drawings	
2.1	The Central Hub Site As Existing		5.4	Existing Condition - 2025 Drawings	
2.2	Planning Context		5.5	Key Risks to the Listed Barn	
2.3	Building Condition		5.6	Key Qualities of the Listed Barn	
2.4	Significance of Existing Buildings, Structures & Spaces		5.7	Design Approach: Adjacent Structures	
2.5	Landscape		5.8	Design Approach: Conservation Repair	
2.6	Condition Photographs, 2025		5.9	Design Approach: Sympathetic Augmentation	
3	Development Principles	17	5.10	Design Approach: Creative Re-Use	
3.1	Original Brief		5.11	Design Approach: Roof Options	
3.2	Wider Development Principles		5.12	Design Approach: Precedents	
4	Approach to the Central Hub	21	5.13	Design Approach: Floor Options	
4.1	Design Approach to The Central Hub Area		5.14	Design Approach: Listed Barn Proposal	
4.2	Forming the Heart of the Masterplan		6	Approach to Other Individual Buildings	51
4.3	Augmenting Active Travel Across The Site		6.1	Philosophy to Existing Buildings	
4.4	Creating Space for Relaxation and Leisure		6.2	Individual Building Details	
4.5	A Transition Zone for the Historic Structures		7	Conclusions	63
4.6	Enhancing Biodiversity		7.1	Conclusions	
4.7	Balancing Demolition, Heritage and Embodied Carbon		8	Appendix 1: List of Central Hub and Threshing Barn Architectural Drawings	67
4.8	Long Life, Loose Fit		9	Appendix 2: Structural Surveys	71
4.9	Demolition Site Plan				
4.10	Proposed Central Hub Area Plan				
4.11	Sustainability & Access Considerations				
4.12	Access Considerations				



SECTION 1

INTRODUCTION TO THE PROJECT



1. INTRODUCTION TO THE PROJECT

1.1. Purpose of This Report

- 1.1.1. Donald Insall Associates have been appointed as architects and conservation architects to assist with the design development of options for the Central Hub Area, as part of the wider development comprising the Oxfordshire Strategic Rail Freight Interchange (OxSRFI) development on land south of the Chiltern Main Line Railway and close to Junction 10 of the M40 in Oxfordshire.
- 1.1.2. The purpose of this document is to provide detailed proposals for the repair of the Grade II listed Threshing Barn, to establish design principles for the Central Hub area and to set out the appropriate approaches to the repair and re-use of the other existing historic buildings on the site, including existing farmstead and cottages, with identification of an optimum viable use to allow for their long term use and care.
- 1.1.3. The area this DAD covers is set out within the red boundary on the plan at Figure 1.
- 1.1.4. This document has been prepared alongside, and should be read in conjunction with, the preparation of the Development Proposals Design Approach Document, which sets out the approach to the OxSRFI as a whole.

1.2. Design Team

- 1.2.1. Donald Insall Associates have been appointed as architects and conservation architects to assist with the design development of options for the Central Hub Area, as part of the wider development comprising the Oxfordshire Strategic Rail Freight Interchange (OxSRFI) development on land south of the Chiltern Main Line Railway and close to Junction 10 of the M40 in Oxfordshire.

Marrons	Heritage Consultants
Oxalis Ltd	Planning Consultants
Michael Sparks Architects	Architects for Wider OxSRFI Scheme
Greenhatch Group	Topographic & Measured Building Surveyors
FPCR Environment and Design	Ecologists & Landscape Architects
Hurst Pierce + Malcolm	Structural Engineers
Hutton + Rostron	Specialist Timber Surveyors



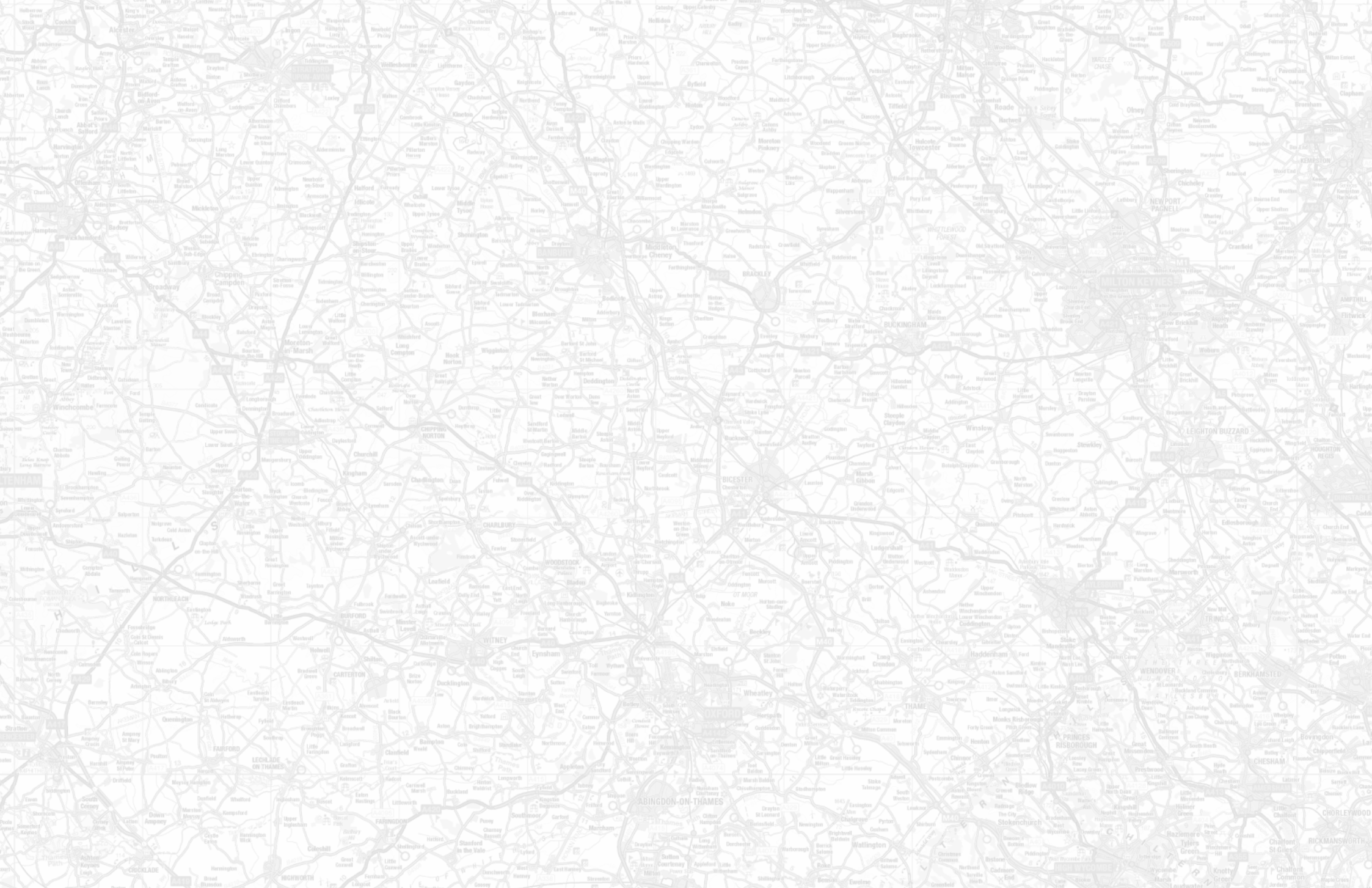
Fig 1. Indicative Overall Masterplan, with Central Hub site highlighted in red.



Fig 2. **Listed Barn, East Gable, March 2022**



Fig 3. **Ashgrove Cottages, Keystone, March 2022**



SECTION 2

INTRODUCTION AND CENTRAL HUB SITE ANALYSIS



2. INTRODUCTION AND CENTRAL HUB SITE ANALYSIS

2.1. The Central Hub Site As Existing

- 2.1.1. A Built Heritage Assessment of Significance [BHAS] document has been prepared [Document number 6.10D or Appendix 10.4] and it sets out a detailed description of the site and its significance, therefore where possible the same terminology is used in this document.
- 2.1.2. The BHAS concludes that the Ashgrove Farm farmstead, which forms the Central Hub site, has early-eighteenth century origins, having been one of the first outlying farmsteads built in Ardley parish following its enclosure.
- 2.1.3. The current range of buildings date from the early-mid eighteenth century to the mid-twentieth century and consist of the listed threshing barn, pigsties, stables and loose boxes, workshops, modern open barns, and a brick-built farmhouse, arranged loosely around a rectangular yard, with a pair of model cottages c.1870 situated a short distance to the east at the entrance from the B430.
- 2.1.4. The farmstead in its current form displays four distinct phases of development.
- The earliest phase is now represented only by the early to mid-eighteenth century listed threshing barn.
 - The second phase includes the earlier part of the farmhouse and stable block attached to the listed threshing barn, which lack distinct features for dating but appear in the 1839 Ardley tithe map.
 - At some point between 1839 and 1894, the latter part of the farmhouse, the workshop building, the southernmost stable block, and the pair of model cottages were constructed under the ownership of the Duke of Marlborough.
 - Finally, a number of large, modern agricultural buildings were erected during the twentieth century.
- 2.1.5. It is also worth noting that the site has continued to change throughout the twentieth and twenty first century as the use of the farm has switched from arable farming, through to livestock, to attempt to find an optimum viable use, meaning that a number of accretions from the twentieth century phase of development have already been removed from the site.
- 2.1.6. The brief for the conservation and re-use of this site is a key part of the proposed development to the OxSRFI.

2.2. Planning Context

- 2.2.1. The BHAS includes a detailed analysis of the heritage value of the Central Hub Area and this is therefore not repeated here.
- 2.2.2. However it is worth noting the one listed building on the site is the Listed Barn, with its Historic England Listing Description:
- BARN APPROXIMATELY 30 METRES NORTH OF ASHGROVE FARMHOUSE (NOT INCLUDED)*
- Listed: 26-Feb-1988*
- Barn. Early/mid C18. Coursed limestone rubble with wooden lintels; corrugated-sheet roof. 6-bay plan with opposed full-height doors in bay 3.*
- Other bays have blocked slits, there is a blocked lower doorway in bay 5, a pitching door in the right gable, and both gables have triangular vents. Bay one and both end walls have small inserted doorways. Interior: Trusses have tie beams, collars, and they support 2 rows of butt purlins.*
- (VCH: Oxfordshire, Vol VI, p8)*
- 2.2.3. It is also worth noting that the site has had an extensive recent planning history, reflecting that the declining viability of Ashgrove Farm as a going concern,
- 2.2.4. The most recent applications for Planning (16-01617-F) and Listed Building Consent (16-01618-LB) consented the conversion of the farm buildings, including the Listed Barn, to residential accommodation, however while a small number of foundations have been excavated, this scheme remains incomplete. Therefore, the principle that other uses need to be found for the historic farm buildings to ensure their ongoing upkeep and viability has been established.
- ### 2.3. Building Condition
- 2.3.1. An assessment of the Listed Barn's condition was undertaken by Hurst Pierce + Malcolm and Hutton and Rostron in early 2025.
- 2.3.2. A high level summary of the findings, which noted that the structural timber of the listed barn is in poor condition, but that the masonry can be rebuilt to go again, is outlined in Section 5.2, with the full reports included in Appendix II.
- 2.3.3. No formal assessment of the other building's condition has been made as part of this report, however it may be necessary to undertake more detailed condition surveys, opening up, site clearance and further investigations, post consent, in order to understand the methodologies required for their repair and adaptation.

2.4. Significance of Existing Buildings, Structures & Spaces

- 2.4.1. The BHAS Note sets out an assessment of significance of each of the existing Ashgrove Farmstead structures. This has informed which buildings are retained, and which are proposed to be removed.
- 2.4.2. The colour coding in the list to the right and Figures 4-5 overleaf identifies the buildings and their significance:

High Significance

Medium Significance

Low Significance

No Significance

1	Listed Threshing Barn	12	Stable Range
2	Pig Barn Range	13	Combination Barn
3	Boiler House	14	Dutch Barn
4	Lean To	15	Limestone Wall
5	Lean To	16	Barn Wall
6	Lean To	17	Ashgrove Cottage (W)
7	Lean To	18	Ashgrove Cottage (E)
8	Cow House Range	19	Modern Barn
9	Farmhouse	20	Modern Barn
10	Ashgrove Farm Outhouse	21	Modern Barn
11	Farmhouse Link Building	22	Modern Barn

2.5. Landscape

- 2.5.1. While the approach to the existing landscape is covered further in Section 4.1, it is important to note the ecological and biodiverse value of the existing mature landscape and trees around the Central Hub Area. Therefore, the approach is to retain the majority of the existing mature trees, and to augment the existing landscape with additional features to improve its biodiversity.

2. INTRODUCTION AND CENTRAL HUB SITE ANALYSIS

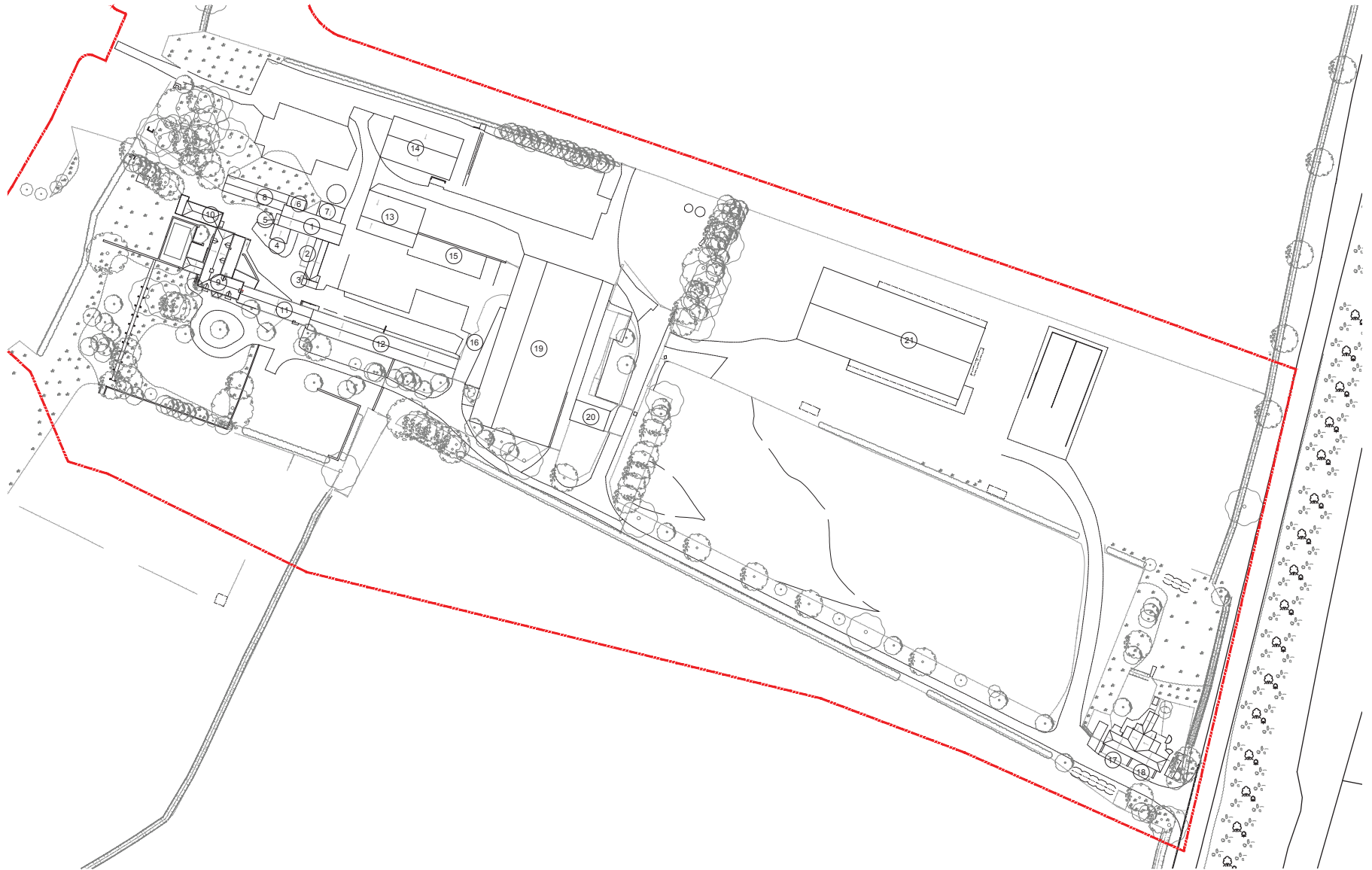


Fig 4. Site Plan, As Existing





Fig 5. **Site Plan, As Existing, with significance overlay** (high significance buildings in red, medium significance buildings in orange, low significance in green, and buildings with no significance in grey).



2. INTRODUCTION AND CENTRAL HUB SITE ANALYSIS

Condition Photographs, 2022



2. INTRODUCTION AND CENTRAL HUB SITE ANALYSIS

Condition Photographs, 2022





SECTION 3

DEVELOPMENT PRINCIPLES



3. DEVELOPMENT PRINCIPLES

3.1. Original Brief

- 3.1.1. The brief was to assist with the creative re-use of the Central Hub Area, as a key part of the overall OxSRFI scheme for management, training and communal facilities.
- 3.1.2. The series of uses were proposed to include (but not necessarily be limited to):
- Management offices and meeting rooms,
 - Education and Training facilities,
 - Event/dining space,
 - Storage,
 - Gym,
 - Crèche,
 - Courtyard seating,
 - Car parking,
 - Staff amenity / recreation,
 - Community garden and orchard relaxation and well-being areas,
 - Landscape & Estate Maintenance.
- 3.1.3. The proposed uses in the Central Hub Area will be complementary to the needs of staff and visitors to the OxSRFI scheme, together with management and maintenance functions, and will not be available to the general public.



Fig 7. Satellite View, from Google Maps

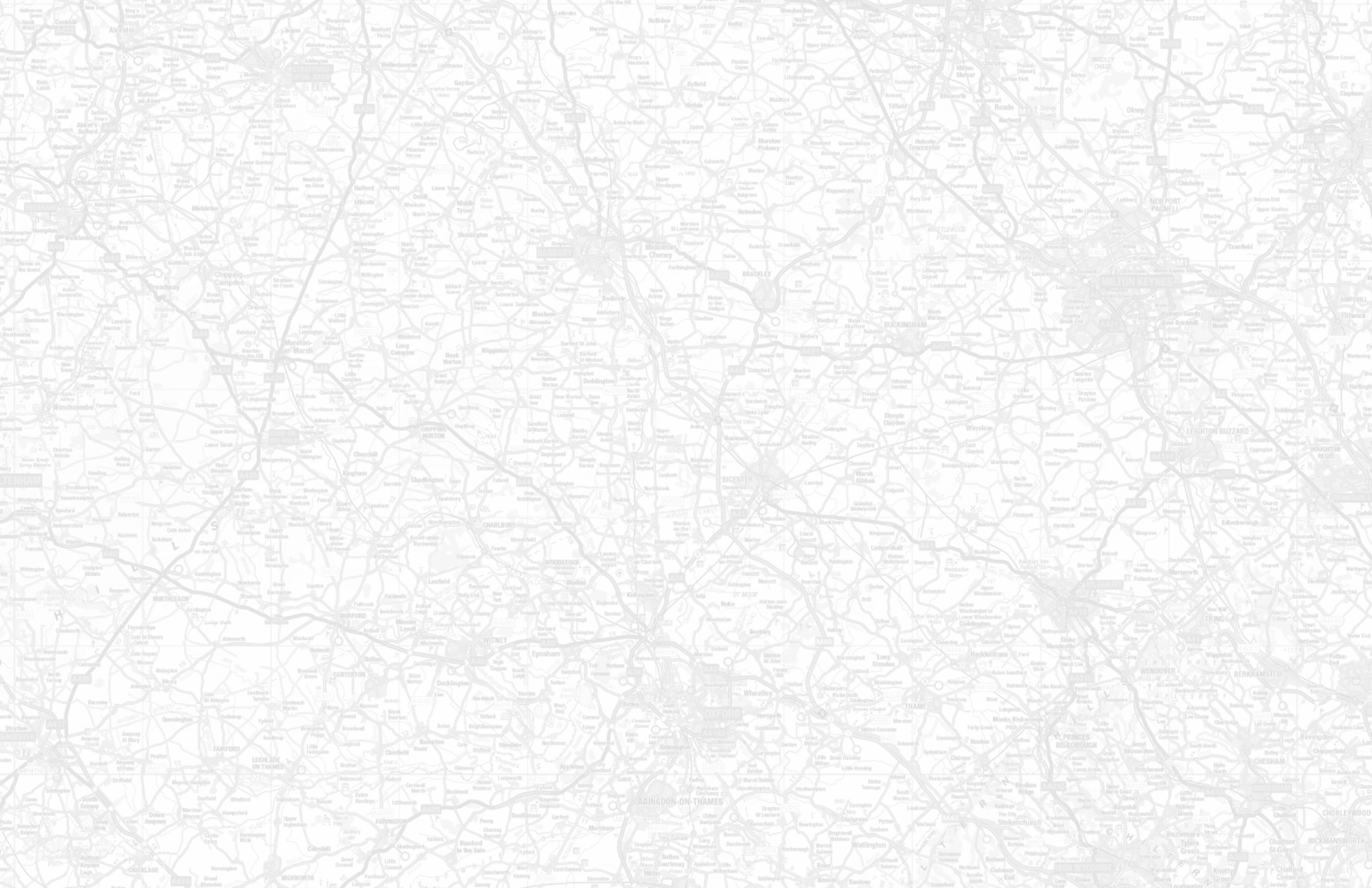
3.2. Wider Development Principles

3.2.1. The key theme behind the development of the proposals for the Central Hub site has been its role as a fundamental and integrated part of the OxSRFI scheme (Figure 8), which has resulted in the following strategies and benefits, which are explored across Section 4:

- Forming the Heart of the Masterplan,
- Augmenting Active Travel Across the Site,
- Creating Space for Relaxation and Leisure,
- Transition Zone for the Historic Structures,
- Enhancing Biodiversity,
- Balancing, Demolition Heritage and Embodied Carbon,
- Long Life, Loose Fit.



Fig 8. Indicative Overall Masterplan, with Central Hub site highlighted in red.



SECTION 4

APPROACH TO THE CENTRAL HUB



4. APPROACH TO THE CENTRAL HUB

4.1. Design Approach to The Central Hub Area

- 4.1.1. The overall design approach to the Central Hub Area has been to understand the significance and viability of the existing structures, as set out in Section 2, to allow the correct approach to their retention and demolition, as set out in Figure 9 overleaf.
- 4.1.2. This ensures that structures which are viable, or add to the sense of place or community are retained, and that the less significant or valuable modern structures are removed.
- 4.1.3. This extends to the landscape around the buildings: there are numerous redundant slabs, areas of hard standing and / or duplication of access routes across the site, once necessary as part of the site's previous use as a working farm, but now not required, can be removed, and the resulting space freed up and utilised to increase the setting, amenity or biodiversity of the site.
- 4.1.4. This takes the forms of a mix of hard and soft landscaping, with permeable hard landscaping focussed in the area between the farm buildings, and a variety of soft landscape offers proposed in the east portion of the site.
- 4.1.5. The wider strategies, as listed in Section 3.2, are explored in the following sections.

4.2. Forming the Heart of the Masterplan

- 4.2.1. While it is envisaged that each unit will be self sufficient in terms of welfare facilities for their own staff, the Central Hub site provides an opportunity for a hub in the heart of the OxSRFI site, providing space away from individual units for relaxation, leisure and to enhance the physical and mental wellbeing of staff across the site.
- 4.2.2. The Central Hub Area will also be the focus for site wide management and maintenance functions, training and other educational facilities for use by occupiers, their staff and visitors.

4.3. Augmenting Active Travel Across the Site

- 4.3.1. The approach to sustainable travel across the site ensures that the Central Hub will be at the intersection of pedestrian and cycle routes across the main site, and will have a bus stop immediately adjacent to it.
- 4.3.2. The proposed layout of the Central Hub site allows these routes to naturally find their way into the Hub. There is also a proposed separate, dedicated pedestrian and cycling route into the Hub from the main Estate Road. There is also the space within the Dutch Barn to house maintenance facilities for active travel measures (whether cycle hire, e-scooters or other means as they develop).

4.4. Creating Space for Relaxation and Leisure

- 4.4.1. This offering includes:
- The ability to host staff community events in the Listed Barn (re-purposed as a Welcome Centre),
 - Provision of a community cafe in the Farmhouse Link Building, addressing a quieter Inner Courtyard,
 - Given the extensive grounds around the Central Hub buildings, the community cafe also has the opportunity to undertake 'garden to kitchen' preparation of their catering offer, to help encourage a narrative of wellbeing,
 - A larger 'Events Courtyard' between the restored Stable Range and Combination barn provides south-facing space for outdoor activity and events,
 - The provision of changing rooms in the Stable Range and potential for informal and formal (MUGA) outdoor sports space,
 - The landscape around the Central Hub site is to be open to all to explore.

4.5. A Transition Zone for the Historic Structures

- 4.5.1. The Proposed Development necessarily includes a number of substantial warehouse units, and the approach to the Central Hub Area seeks to retain the screening and cohesiveness of the Central Hub buildings as a collection to enhance the design and place making for the OxSRFI scheme.
- 4.5.2. This has, in part, led to the decision to retain the existing Dutch Barn, to help transition in scale between the more historic buildings at Central Hub and its new neighbours.

4.6. Enhancing Biodiversity

- 4.6.1. The landscape/ecology approach is to retain and enhance the existing structural vegetation reinforced using a mix of native tree/shrub/hedgerow species and to compliment this with additional planting including tree line/hedgerow screening, fruit trees, wildlife pond, native flowering grassland and a kitchen garden.
- 4.6.2. These habitats will deliver a range of benefits to local fauna including foraging and shelter for a variety of invertebrates, amphibians, birds, and foraging bats.
- 4.6.3. As a piece of retained mature landscape, there is the opportunity to augment the existing trees, screening and landscape around the Central Hub area to not only enhance biodiversity, but to create a mixture of landscapes which provide amenity for users of the Hub and contribute to the overall appearance and landscape quality of the OxSRFI.

4.7 Balancing Demolition, Heritage and Embodied Carbon

- 4.7.1. A key driver from both a heritage and sustainability perspective is to retain as much of the existing historic fabric as possible.
- 4.7.2. This allows the history of the site to be much better understood, as well as delivering significant embodied carbon and whole life cycle energy savings versus demolishing all buildings and starting afresh.

4.8. Long Life, Loose Fit

- 4.8.1. Whilst the Central Hub Area Masterplan (Figure 10 overleaf) identifies possible uses for each building retained in the Central Hub Area, the key to ensuring their ongoing viability is, as befitted their working life as farm buildings, to promote a loose-fit approach to their fit-out and use.
- 4.8.2. This means that, as the OxSRFI matures and new uses are identified to help support its community, it is straightforward to re-fit the Central Hub buildings to their new uses, without affecting the historic building fabric.

4. APPROACH TO THE CENTRAL HUB

4.9. Demolition Site Plan

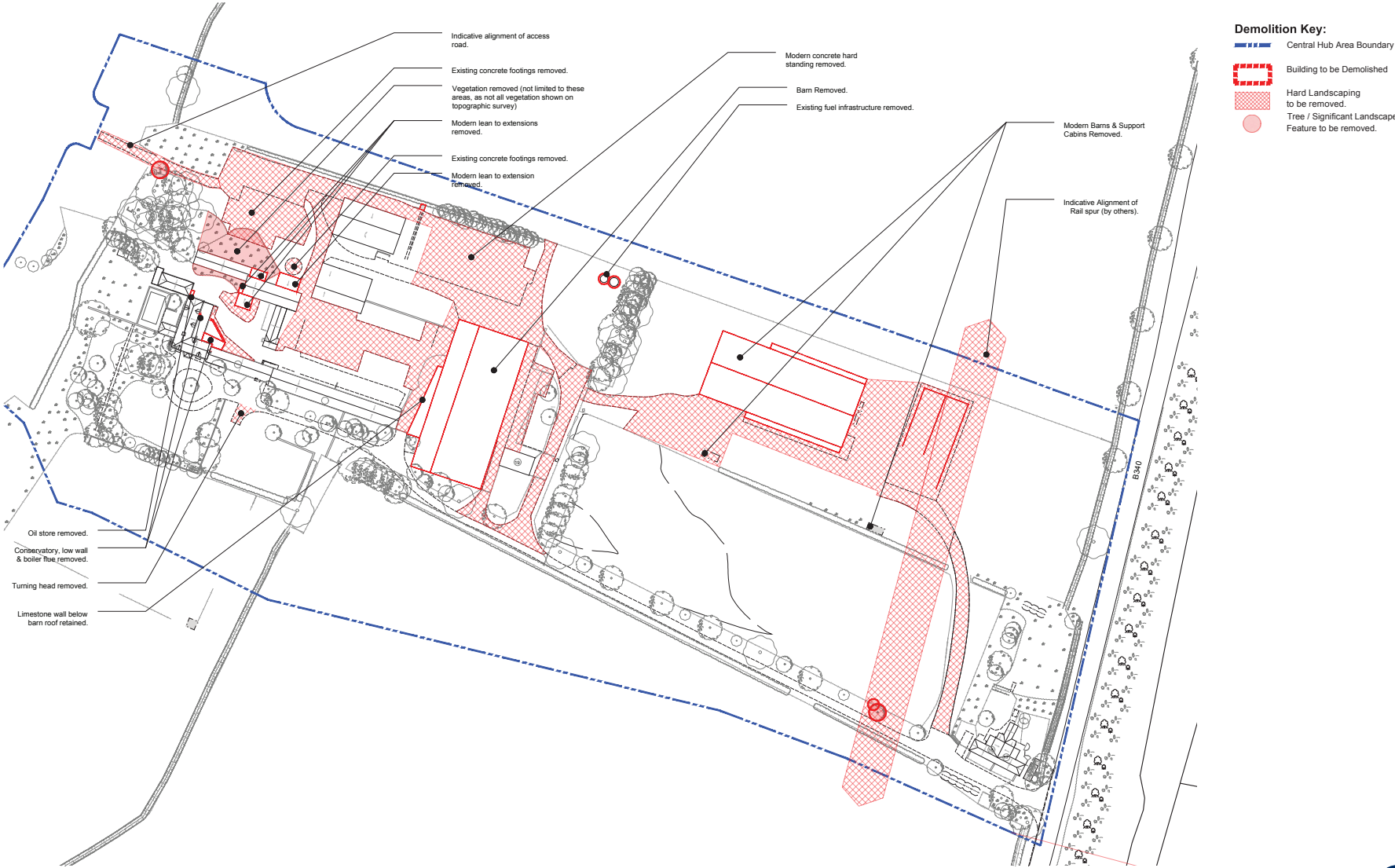


Fig 9. Demolition Plan. See also drawing 5000.



4.10. Proposed Central Hub Area Plan



Fig 10. Proposed Ashgrove Site Plan. See also drawing 4000.



4. APPROACH TO THE CENTRAL HUB

4.11. Sustainability & Access Considerations

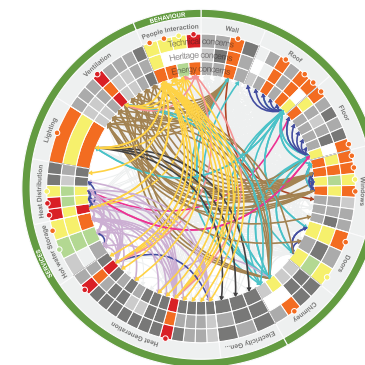
4.11.1. The following considerations should be taken into account for the development of the Central Hub Area:

- These are existing buildings, constructed using traditional load bearing masonry and from an era before energy efficiency was as much of a consideration as today.
- Therefore, while meaningful improvements in performance through targeted insulation and eliminating uncontrolled draughts are eminently possible, it is worth bearing in mind that these buildings are unlikely to meet a Building Regulation compliant level of U-Values or airtightness without negatively affecting heritage considerations, or inadvertently causing issues with interstitial condensation or insufficient ventilation, leading to poor air quality internally or mould growth.
- The best way to mitigate this is to carefully consider any such installations, using breathable insulations materials in a sparing manner, and undertake hygrothermal modelling prior to undertaking any construction activity to identify any problem areas.
- Underfloor heating is not likely to be permissible or possible in many spaces, either due to space constraints or to avoid loss of historic fabric,
- Ground conditions (bedrock close beneath current topsoil) are likely to preclude large -scale ground source heating installations, coupled to the existing buildings still likely requiring a high temperature heat source.
- Wind generation is unlikely to be permissible close to the Listed Barn,
- There are a number of south-facing roofs (see sun path analysis below), which could possibly (subject to structural and heritage considerations) accommodate PV or solar hot water installations,
- It should be possible to explore grey water storage and use for WC flushing and other secondary uses.
- The courtyard surfaces are planned to be permeable paving, to minimise the risks associated with surface water run off during storm events. A developed landscape scheme for each courtyard could also explore whether planting beds would provide aesthetic as well as practical benefits.

Each retained building will also benefit from a holistic analysis, such as the Sustainable Traditional Buildings Alliance (STBA) tool demonstrated in Figure 11.

Responsible Retrofit Guidance Wheel Report

STBA



Colour key

Concerns
 Minor concern Medium concern High concern Major concern
 Measure to measure linkages
 Measure options Thermal coherence Airtightness Human Health/Fabric Health Heating issues People issues
 Monitoring and maintenance Hidden services Electricity issues

Fig 11. Sample STBA Report

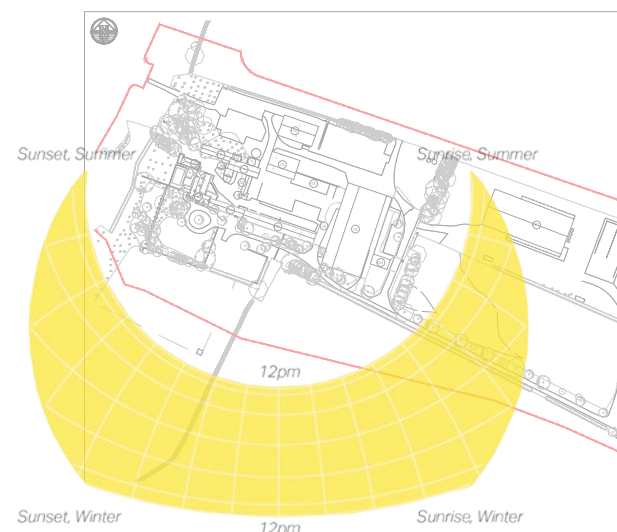


Fig 12. Sun Path Analysis Versus Existing Site Plan

4.12. Access Considerations

Central Hub Area

- 4.12.1. Primary access to the Central Hub will be via vehicular access from the main Estate Road to the North side of the Listed Barn, or pedestrian / cycle access to the South side.
- 4.12.2. Cycle parking is proposed to be located in front of the main Listed Barn, and throughout the main Courtyards, to suit the permeability of the site.
- 4.12.3. The proposed car park will provide in the order of 50 spaces. While the majority of the surface is planned to be a permeable gravel surface, to reduce the drainage loads caused by surface run-off, the front row of 10 space will be laid out in a permeable hard standing, to permit these to be used (wholly or in part) for accessible parking.
- 4.12.4. Electric Vehicle charging points and the associated infrastructure will be provided within the Car Park.
- 4.12.5. Access around the Central Hub site has been designed to ensure that the main walkways and courtyards are re-graded with gradients of 1:21 or shallower, greatly improving the overall accessibility to the Welcome Building and public areas of the site, without the need for handrails and other visual clutter.

Welcome Building

- 4.12.6. The Welcome Building is a single storey structure, with no steps or upper floors, so would therefore be fully accessible, with level thresholds at the junction between the external realm and new internal floor.
- 4.12.7. Given the listed nature of the Welcome Building, it is not proposed to have any WC facilities within this building itself, however it is envisaged that any future changing facilities in the long barn range would incorporate accessible changing and WCs as part of their offer.

Other Retained Buildings

- 4.12.8. Similarly, where possible, publicly accessible and staff facilities are being planned to be accessible.
- 4.12.9. It may be possible, for example, to provide platform lifts to the Farmhouse and to the Link building, which would permit the use of most of the first floor accommodation by all.
- 4.12.10. The retained buildings will therefore need to have individual access strategies developed as part of their refurbishment.
- 4.12.11. Ashgrove Cottages will retain their access from the B430. Given the small cellular nature of some of the existing spaces, any planned redevelopment will need to mitigate challenges faced by the current layout while being acceptable from a planning and heritage perspective.

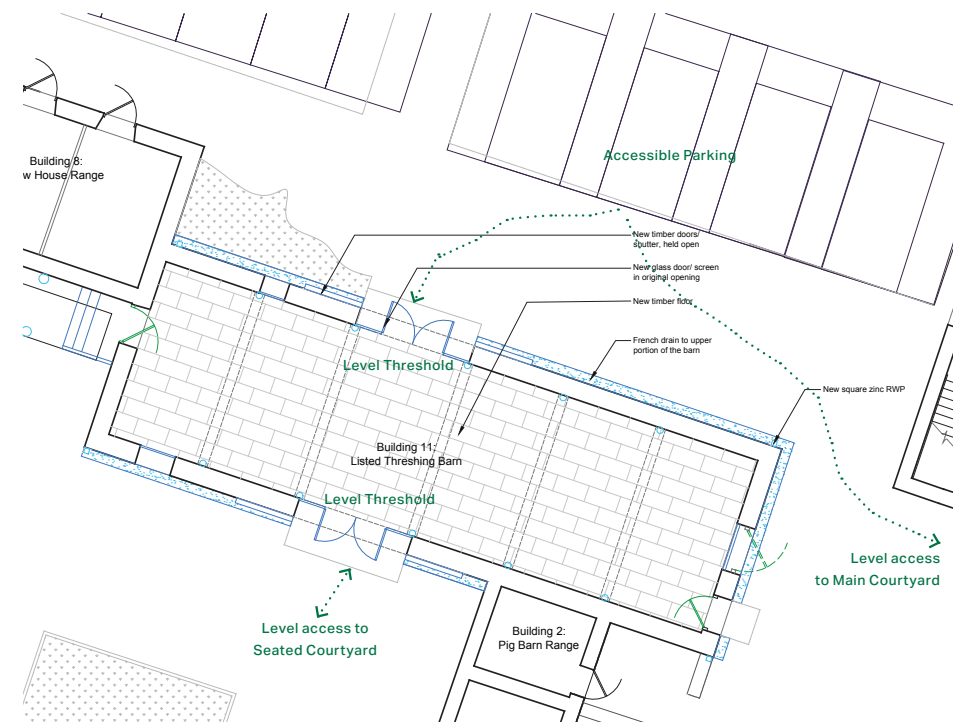
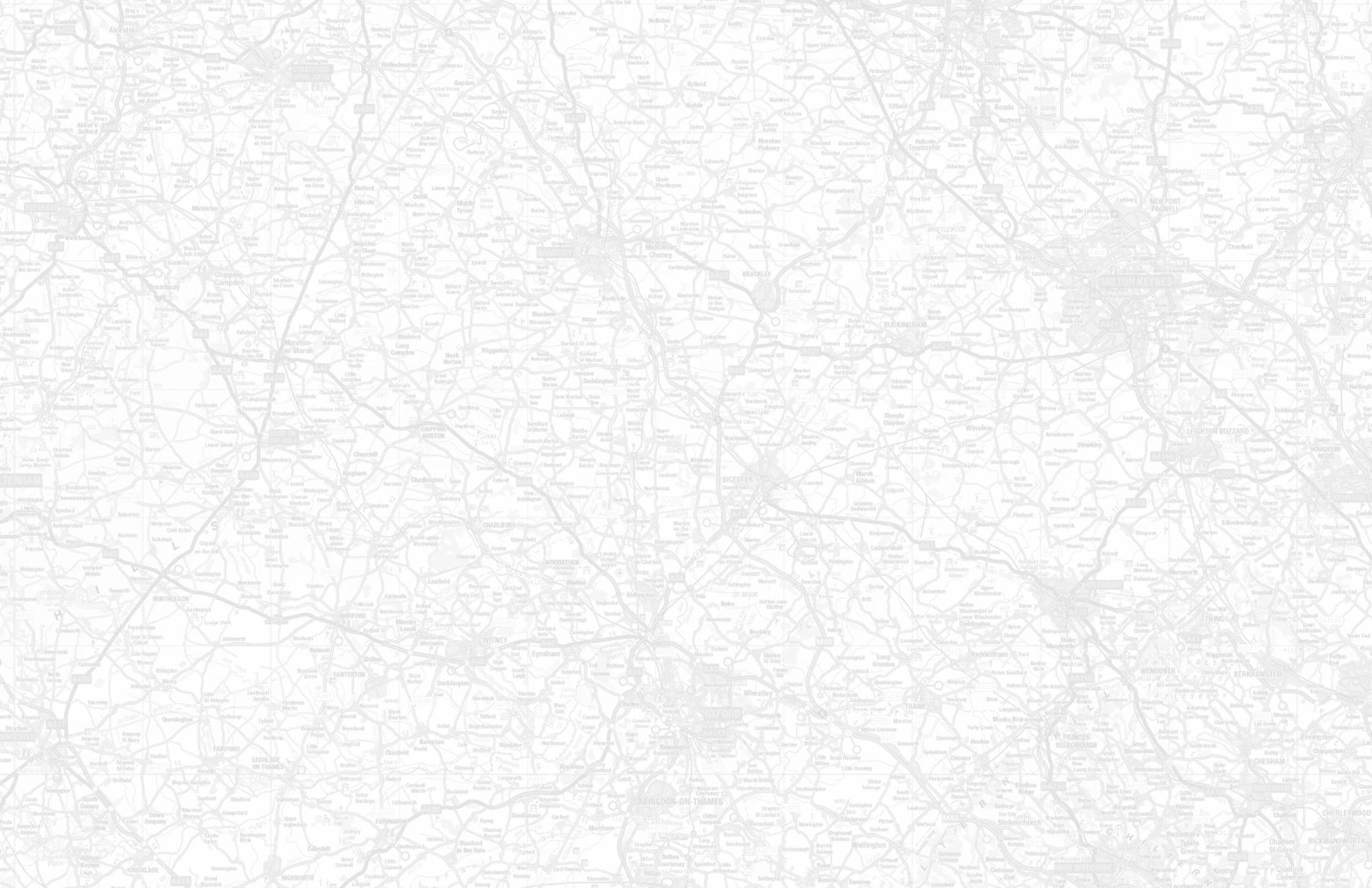


Fig 13. Access Overlaid with Proposed Ground Floor Plan.



SECTION 5

APPROACH TO THE LISTED BARN



5. APPROACH TO THE LISTED BARN

5.1. Current Condition Assessment

- 5.1.1. The listed barn is in a poor state of repair, with 4 of the 6 original bays, and 3 of the original 5 trusses, having collapsed into the barn interior. This also means that the top of the walls are open to weather, further accelerating the decay of these elements.
- 5.1.2. Other issues included the widespread loss of lime mortar pointing, and the loss of stonework from the roof - wall plate areas, as shown in Figure 14 below.
- 5.1.3. DIA were accompanied at this visit by a conservation accredited structural engineer and timber decay specialist, to assess the condition and viability of the remaining timber elements.

5. APPROACH TO THE LISTED BARN



Fig 14. North elevation of Listed Barn building March 2022



Fig 15. North elevation of Listed Barn building March 2025

5. APPROACH TO THE LISTED BARN

5.2. Structural Condition

- 5.2.1. In regards to structural considerations and salvageable material to the collapsed roof structures; Hutton + Rostron made a detailed inspection of all primary truss members as well as purlins. Their findings, detailed fully in the reports found in Appendix II, showed only a single purlin suitable for retention/salvage within the area of collapsed roof structures.
- 5.2.2. The primary reason for such extensive failure and unsuitability for salvage is the severe structural decay issues identified to most timbers. These had been exposed to wind/rain for many years even previous to their collapse due to the failed external roof envelope. Decay therefore was extensive.
- 5.2.3. Decay issues are also heightened by the fact that the majority of principal structural components were identified as being of elm (*ulmus procera*) and common rafters of Scots pine (*Pinus sylvestrus*), which both inherently have lower tolerances to decay organisms such as wet rot and wood-boring beetle infestation than oak timbers would be expected to have achieved in like circumstances.
- 5.2.4. Additionally, many timbers suffered from structural fractures and complete breaks during their collapse.
- 5.2.5. This means that the conservation strategy needs to be selected to best conserve remaining timber, rather than expecting that much of the existing material can be salvaged.
- 5.2.6. In addition to the timber issues, Hurst Pierce & Malcolm undertook a review of the masonry structures. Their observations, listed in the reports in Appendix II, were that while the core of the masonry walls of the Listed Barn remained substantially intact, considering the amount of sustained water ingress, that the top metres of the walls would benefit from dismantling and re-building. This would use the existing stone and fallen material which, due to the lack of activity in this area over the recent past, is expected to still be in situ, albeit concealed by vegetation. Therefore, a lot of original material can be re-used, with a widespread programme of re-pointing with a soft lime mortar required, to protect the adjacent stone, and allow the walls to gradually dry out.
- 5.2.7. Other structural considerations are that the barn is founded on very shallow foundations, likely without any form of perimeter drainage or DPC, and that the build up of ground levels to the eastern end of the barn are unlikely to be helping the existing walls, which are suffering with rising damp.
- 5.2.8. The existing wall plates and lintels to the main openings have all degraded to a point where these require replacement with new sections of timber to match the originals.
- 5.2.9. In regards to structural considerations and salvageable material to the collapsed roof structures; Hutton + Rostron made a detailed inspection of all primary truss members as well as purlins. Their findings showed only a single purlin suitable for retention/salvage within the area of collapsed roof structures.
- 5.2.10. The primary reason for such extensive failure and unsuitability for salvage is the severe structural decay issues identified to most timbers. These had been exposed to wind/rain for many years even previous to their collapse due to the failed external roof envelope. Decay therefore was extensive.
- 5.2.11. Please see the Hutton + Rostron and Hurst Pierce Malcolm reports appended in Appendix II to the rear of this document.

5. APPROACH TO THE LISTED BARN

5.3. Existing Condition 2022 - Drawings

Existing survey drawings 2022.

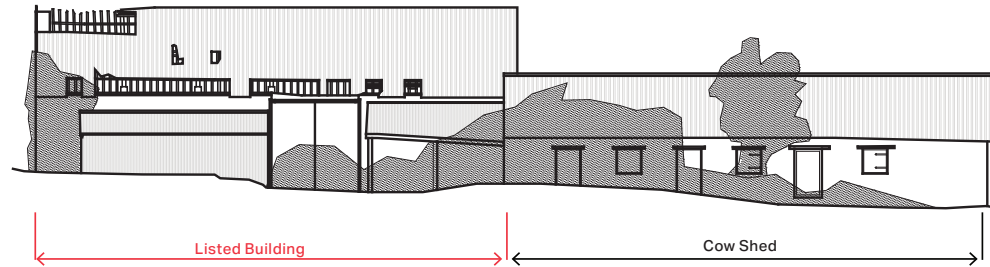


Fig 17. North Elevation, 2022

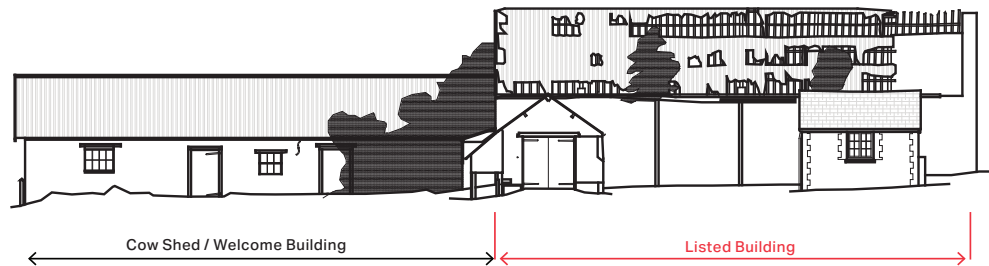


Fig 18. South Elevation, 2022

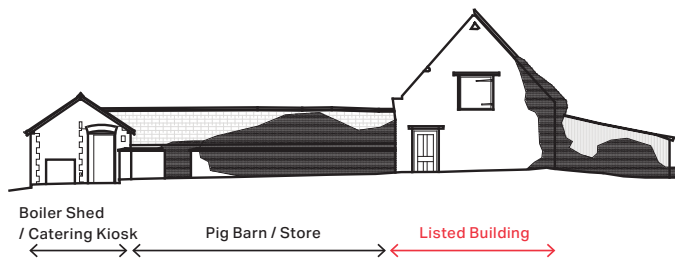


Fig 19. East Elevation, 2022

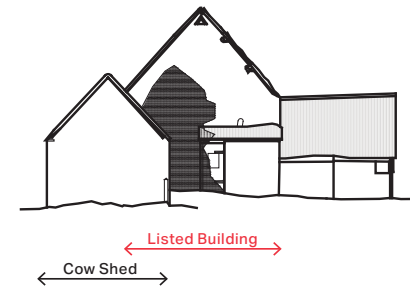


Fig 20. West Elevation, 2022

5.4. Existing Condition 2025 - Drawings

Edited survey drawings to show extent of remaining existing fabric visible in March 2025.

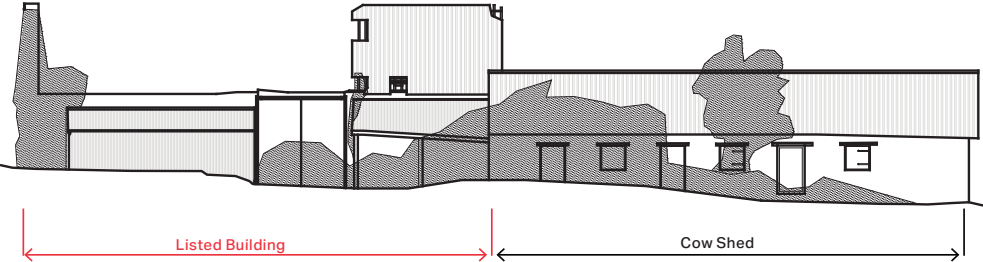


Fig 21. North Elevation, 2025

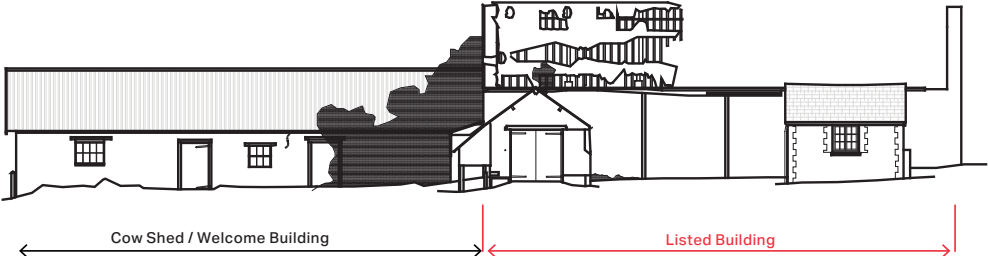


Fig 22. South Elevation, 2025

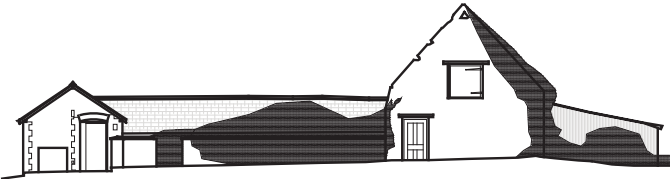


Fig 23. East Elevation, 2025

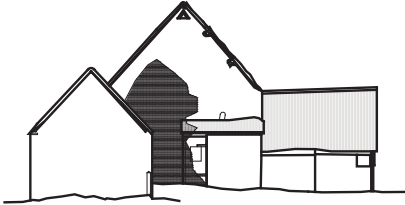


Fig 24. West Elevation, 2025

5. APPROACH TO THE LISTED BARN

5.5. Key Risks to the Listed Barn

5.5.1. The key risks to the listed structure, which require addressing as part of any design proposals, therefore remain (as per the structural condition surveys) as:

- Failing Primary roof structure, which is at risk of complete loss,
- Damp ingress, both from the top of walls (which are currently open to the elements) and from ground level (where the lack of DPC, and water falling both inside and outside the barn, means the base of walls are currently very damp),
- The external masonry is suffering from a lack of roof, with the inability of the walls to shed moisture resulting in the original soft lime mortar being washed out of joints, which is in turn accelerating the loss of stonework.

5.5.2. All of these risks need to be considered as part of any conservation strategy.



Fig 25. Existing Roof, March 2025



Fig 26. Existing Wall Bases, March 2025



Fig 27. Loose Stonework where mortar has been washed out, March 2025. The stone itself is not generally in bad condition, and can be consolidated and re-used.

5.6. Key Qualities of the Listed Barn

5.6.1. Qualities of the listed building, highlighted by DIA, the heritage consultants and the listing for the threshing barn, include:

- The Key View from the Courtyard (Figure 28),
- The singular barn form (Figure 29),
- The retention of existing materials, where salvageable (Figure 30)

5.6.2. These elements will be respected and celebrated through the design proposals.



Fig 28. **Key View** from Courtyard

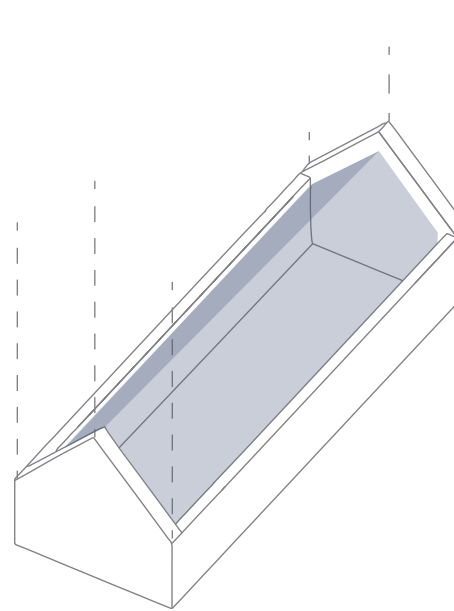


Fig 29. **Singular Barn Volume**

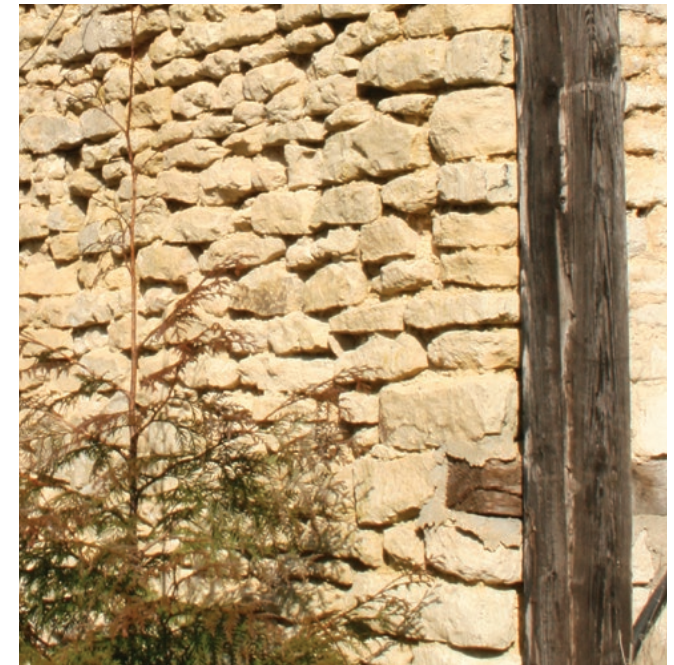


Fig 30. **Retaining Existing Materials**

5. APPROACH TO THE LISTED BARN

5.7. Design Approach: Adjacent Structures

- 5.7.1. The Listed Barn sits between and adjacent to other structures, consideration has been given whether these structure should be retained, removed or adapted to suit the conservation approach to the Listed Barn, as well as the wider re-use of the Central Hub site.
- 5.7.2. The following approach is being taken to help conserve and improve the setting of the Listed Barn.
1. Retain and repurpose existing adjacent cow barn as part of Welcome facility
 2. Remove redundant, poor quality, lean to structures
 3. Prioritise restoration of key farmyard views, by keeping new interventions on other facades
 4. Retain and repurpose existing adjacent pig barn and boiler shed for storage / catering kiosk to support the Welcome Centre.

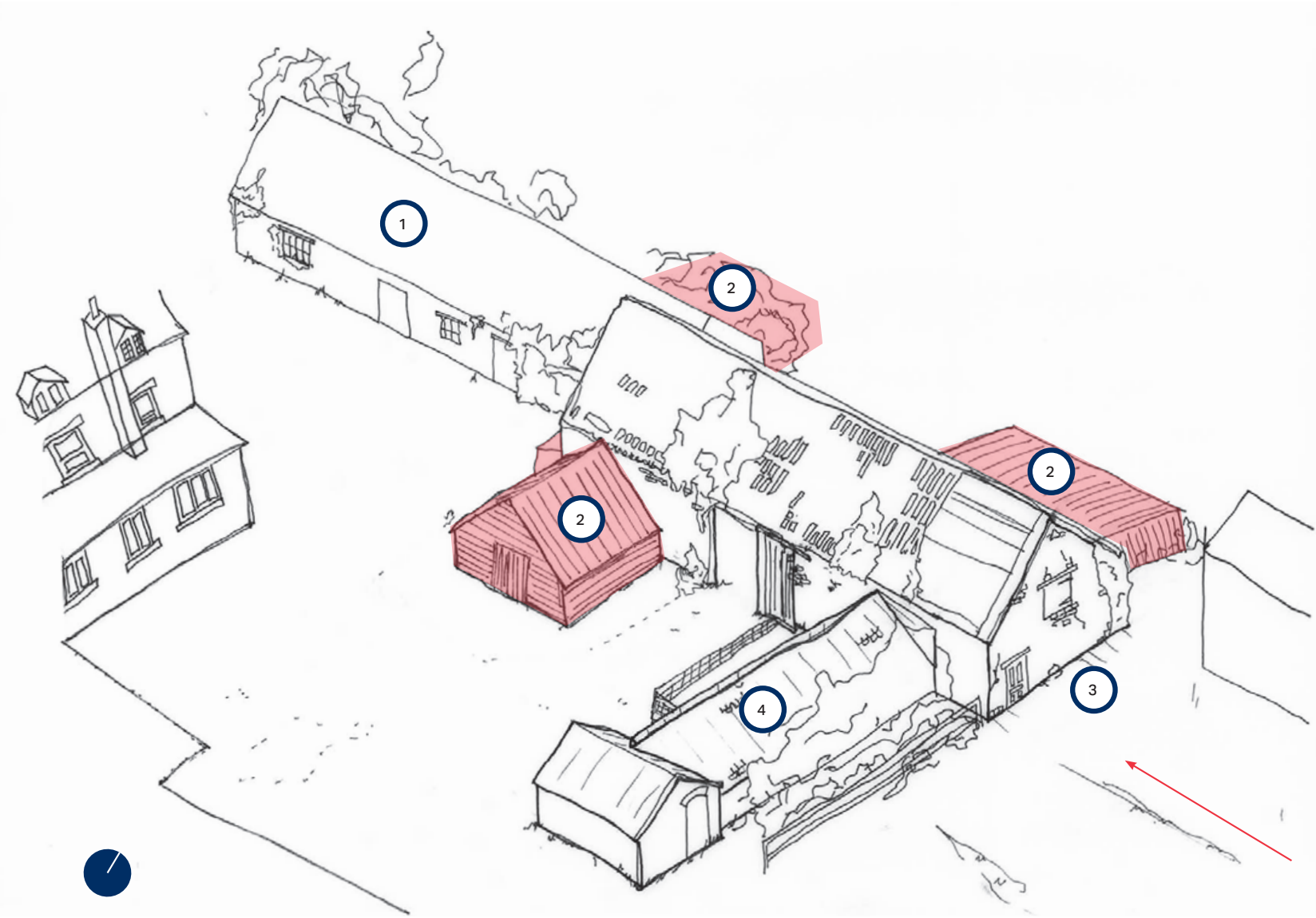


Fig 31. **Adjacent Structures** approach

5. APPROACH TO THE LISTED BARN

5.8. Design Approach: Conservation Repair

- 5.8.1. The Listed Barn also needs a holistic approach when it comes to considering how to conserve the remaining original fabric, while giving it a viable use as a building, rather than a ruin.
- 5.8.2. Four key elements to achieving this are set out below and in Figures 33-36 to the right

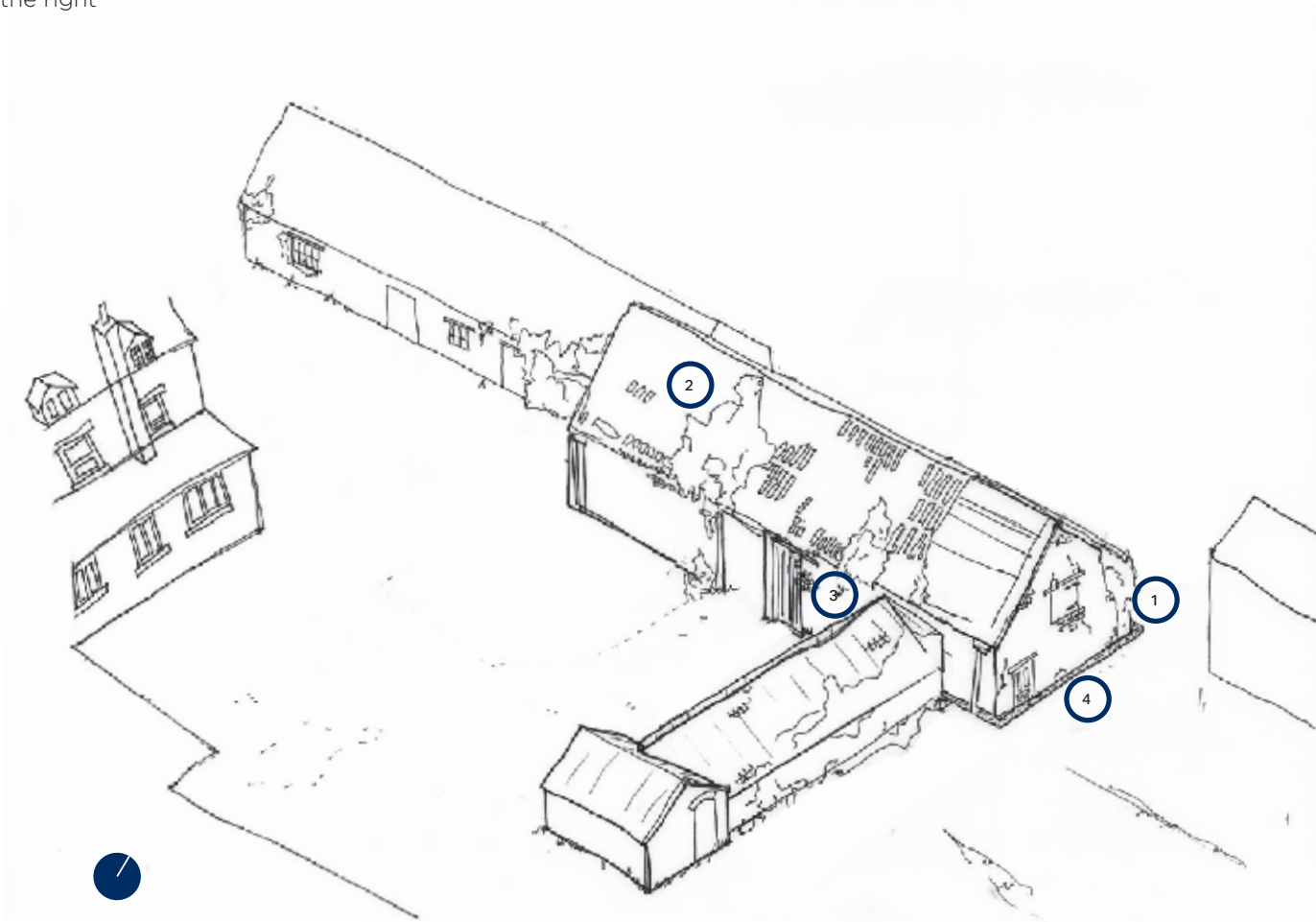


Fig 32. Conservation Repair Approach



Fig 33. (1) Overgrown planting to be removed



Fig 34. (2) Roof to be repaired - see design options



Fig 35. (3) Repair work and repainting to existing limestone walls



Fig 36. (4) Address damp ingress - landscape options considering soft margins or french drains to perimeter.

5.9. Design Approach: Sympathetic Augmentation

5.9.1. The Listed Barn and its setting will need to continue to adapt to provide a viable ongoing use, which includes the design moves set out in Figures 38-40 on this page.

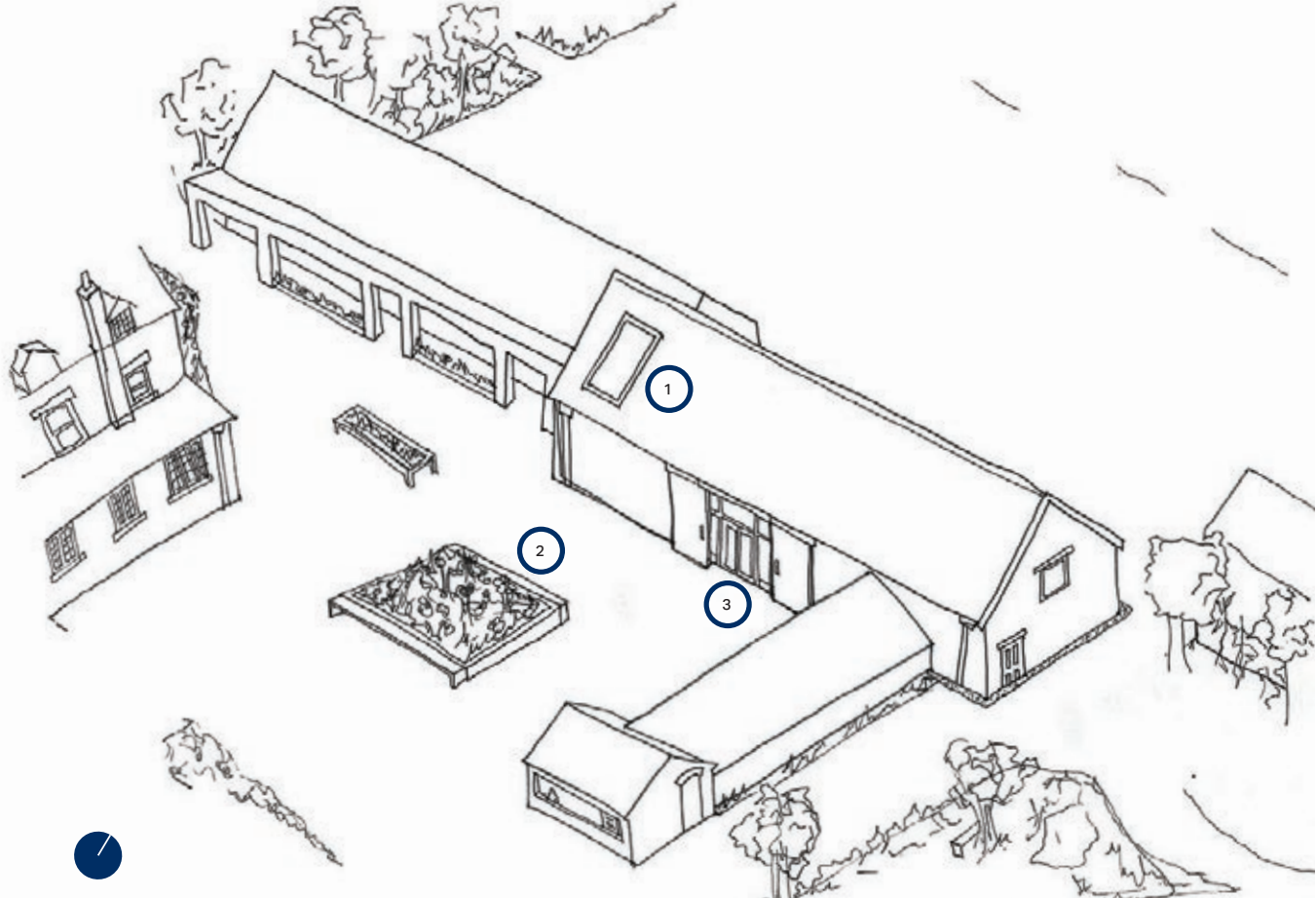


Fig 37. Sympathetic Augmentation approach



Fig 38. (1) Repaired Roof (see following review of design options)



Fig 39. (2) Landscaping and Rainwater management system is key to bedding the Listed Barn back into its setting



Fig 40. (3) Sympathetic Glazed windows and doors.

5. APPROACH TO THE LISTED BARN

5.10. Design Approach: Creative Re-Use

- 5.10.1. Finally, as a building, the current additions will need to be carefully considered, to permit the proposed use as a Welcome Centre, as set out in figures 41-44 on this page.



Fig 41. Floors need to be level enough to permit equal access and flexible use, but conserve the remains of the current and original floors.



Fig 42. Providing Level Access to both sides of the building is key



Fig 43. Increasing Daylight Internally will help with flexibility of use and reduce energy consumption.



Fig 44. Lighting, Heating and Power Provision still need to be provided, in as reversible a manner as possible.

5.11. Design Approach: Roof Options

5.11.1. With the roof being beyond viable repair, there are 3 options for its replacement:

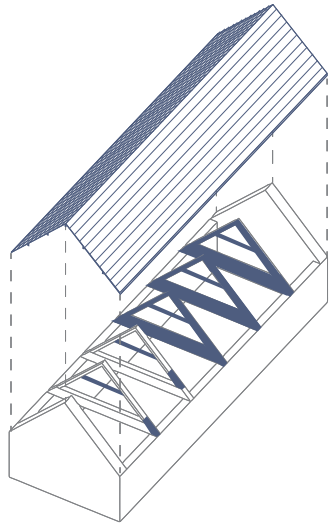


Fig 45. Roof Option 1: Conservation Led Replacement

Option 1 - Conservation Led Replacement

- 5.11.2. A conservation led approach to the roof is, following exploration by the Structural Engineer and timber decay expert, to repair the two remaining trusses, using material salvaged from the existing materials, and replace the other three missing trusses in a 'like for like' manner, before replacing the roof covering in a small format slate tile. This has the advantage of being 'true' to the current and historic roof form (a key factor of the barn's significance), but the level of damage means the amount of original structural roof timbers and joints able to be retained will be limited.
- 5.11.3. The quantity of new material however are felt to detract from the overall benefits of such a repair approach, so this has been discounted.

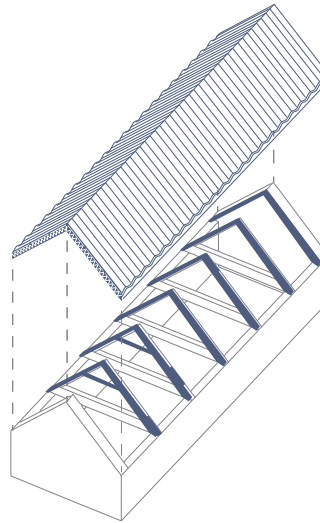


Fig 46. Roof Option 2: Retain & Sensitively Replace

Option 2 - Retain and Sensitively Replace

- 5.11.4. The majority of the primary structural timbers are beyond repair, a new secondary steel structure could be inserted alongside to both allow the remaining timbers to be stabilised and read in their original location, but the new structure fulfilling the necessary structural requirements of a new roof to maximise retention. This adds extra material at roof level, but is an acceptable compromise between retaining original material and maintaining a safe, weathertight external envelope, The roof covering itself can then be a new, insulated, hard metal roof to legibly tell the narrative of new elements installed to protect the rest of the barn below, while reducing its energy consumption.
- 5.11.5. This is the preferred option taken forward.

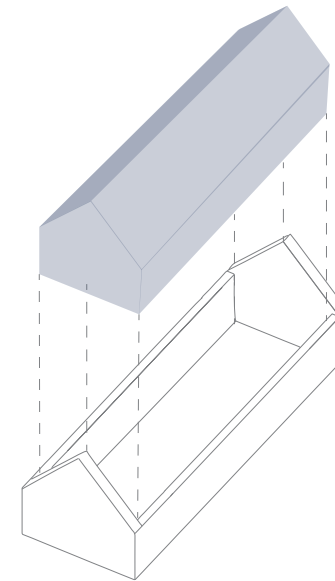


Fig 47. Roof Option 3: Stabilise Existing with Distinctively New Addition

Option 3 - Stabilise Existing with Distinctively New Addition

- 5.11.6. With two of the original trusses being potentially viable, the option of creating a whole new roof structure within the shell of the existing walls has high costs from both a heritage and economic perspective
- 5.11.7. This has been discounted as an option.

5. APPROACH TO THE LISTED BARN

5.12. Design Approach: Precedents



5.13. Design Approach: Floor Options

5.13.1. Similarly, the floor is not in a condition where it can be readily re-used for a public-facing role. There are 3 options to consider:

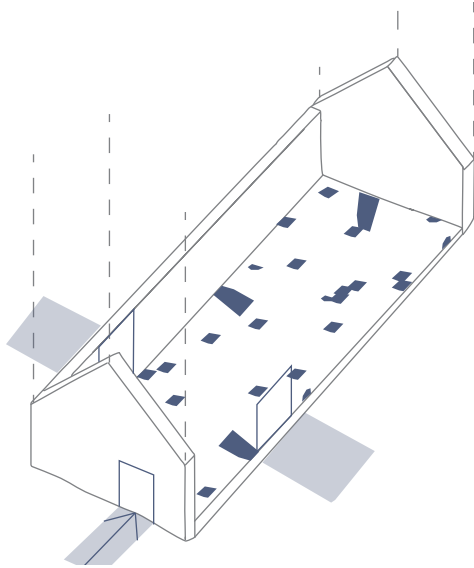


Fig 48. Floor Option 1: Repair



Option 1 - Repair

5.13.2. Try to make good the existing floor. This is unlikely however to achieve a level, safe floor, provides risks with water ingress, and also means that servicing any use of the barn is likely to be a tricky affair or result in unsightly surface run cables / services.

5.13.3. This option has therefore been discounted.

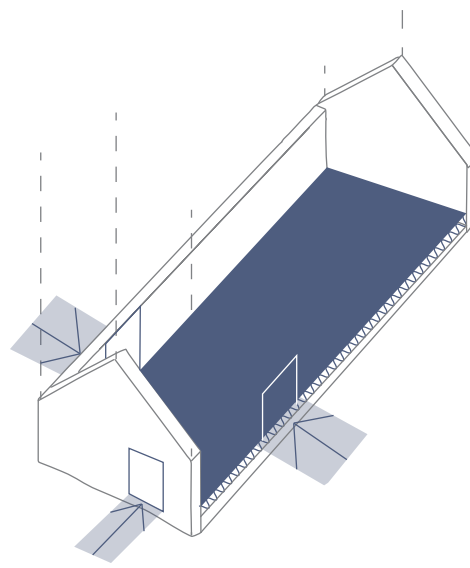


Fig 49. Floor Option 2: Re-lay Level



Option 2 - Relay Level

5.13.4. Lift the existing floor, insert a new breathable, insulated lime screed (using cellular glass foam or similar), service runs and underfloor heating. This would provide a representation of the original 'patina', albeit in an unoriginal form, which may be difficult to justify from a heritage perspective.

5.13.5. This option has therefore been discounted.

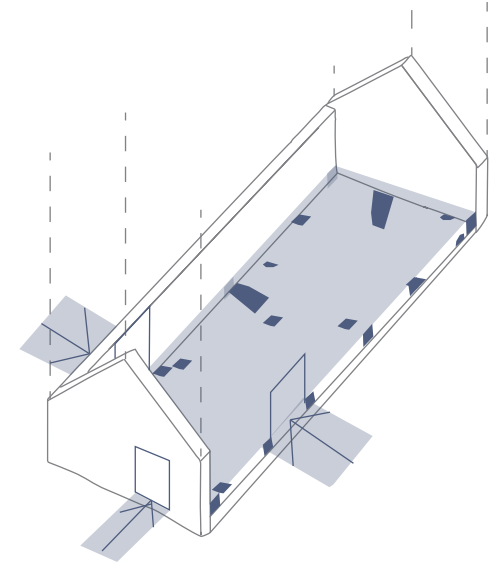


Fig 50. Floor Option 3: Sensitively Add New



Option 3 - Sensitively Add New

5.13.6. Insert a new 'floating'; timber floor. While this conceals the original finish, it ensures this floor remains intact, and that servicing a flexible Welcome or event space is much simpler without risking ongoing interventions to the significant fabric.

5.13.7. This option has been taken forward.

5. APPROACH TO THE LISTED BARN

5.14. Design Approach: Listed Barn Proposal

5.14.1. The overall proposal is set out in detail in the Threshing Barn Architectural application drawings which are submitted as part of the DCO. A list of the drawings and their relevant document numbers is set out at Appendix 1 to this document. These should be read alongside the general Central Hub plans, also listed at Appendix 1. These Application Drawings together with the artists' impressions in Figures 51, 55 and 56, draw together the design approached set out in this section, to provide an overall design narrative which conserves the remaining original features, but provides a creative interpretation of the barn's form to provide an ongoing viable use as a Welcome Centre, which would not be possible in its current configuration.

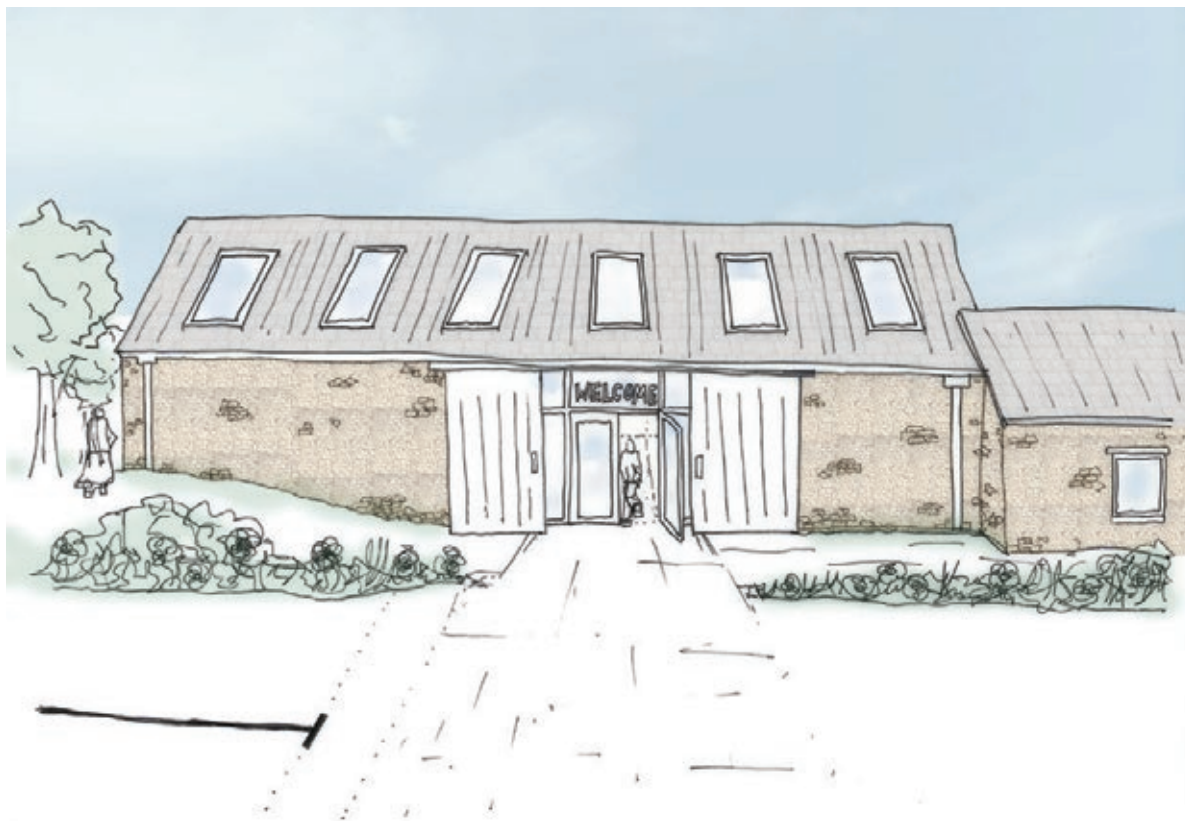


Fig 51. Artists Impression of North entrance from Car Park.



Fig 52. Rooflights to provide light to the space



Fig 53. Entrance Barn Doors to signify entrance when open but be able to be perceived as shut with large barn doors



Fig 54. Sensitive gutters - to prevent further water damage



Fig 55. **Listed Barn** from Seated Courtyard

5. APPROACH TO THE LISTED BARN



Fig 56. **Listed Barn** from Main Courtyard



SECTION 6

APPROACH TO OTHER INDIVIDUAL BUILDINGS



6. APPROACH TO OTHER INDIVIDUAL BUILDINGS

6.1. Philosophy to Existing Buildings

- 6.1.1. While responding to the particular constraints and context of the Listed Barn requires care to be taken in adapting the existing structure to suit new uses, this is not to say that the rest of the buildings in the Central Hub are without merit: there are many fine existing structures which, with a degree of conservation-led repair, can continue to thrive as part of the Central Hub Area.
- 6.1.2. The following section sets out the repairs to the most significant and / or viable structures which are felt to be necessary to provide the 'shell' for future use: the approach will aim to re-use the maximum possible existing fabric (for aesthetic, heritage and embodied energy related reasons), and to provide a series of spaces which are long life, and loose fit, to allow the Central Hub site to change agilely to suit the needs of the wider estate population. These are numbered in the plan in Figure 59, and shaded in green.
- 6.1.3. There are a number of more modern barn constructions which are earmarked for temporary use to house site accommodation, welfare or storage during the construction period for the wider estate, but would be demolished to provide space for the landscape improvements once they had served their function. Their modular nature may permit these to be dismantled and re-used on an alternative site, hence further preserving the energy embodied in their component parts.
- 6.1.4. Accretions and modern buildings of low value or flexibility are to be demolished.



Fig 57. **Modern Barn 19** sits partially on top of a historic wall 16 (due for retention). This may be suitable for dry storage of materials, or other equipment storage, during construction.



Fig 59. Site Plan, As Existing, with buildings to be restored in green, buildings which may have meantime uses in orange, and buildings to be removed in red.

6. APPROACH TO OTHER INDIVIDUAL BUILDINGS

6.2. Individual Building Details

Building 2: Pig Barn

6.2.1. This building is likely to require a small programme of repairs to benefit its planned use as a secure store for Management Staff cycles and other ancillary storage uses to benefit the use of the Events Courtyard. This will likely involve (but not necessarily be limited to):

- Once safe access is available, careful clearance of existing scrub from around the building, making sure to retain any fallen roof or masonry from the adjacent Listed Barn for review,
- Assessment of the existing roof covering and structure. It is anticipated that a proportion of new slates may be required, along with preventative maintenance such as re-bedding ridge and hip tiles, before providing new cast iron rainwater goods.
- Assessment of the existing masonry and lintels, including to the 'pens' in front of the building. It is anticipated that this will be a solid wall load bearing structure, which may require localised making good and repairs. Mortar and stone analysis will be required to ensure any repairs match the existing adjacent fabric, anticipated to be Cotswold limestone and a soft lime mortar.
- New doors will be required to the building, and new timber gates required to the 'pens' in front.
- Internal finishing will likely be limited to a limewash of internal walls, as these are 'working' spaces, but need to remain breathable.
- The condition of any flooring is unknown, therefore assume that a new flag stone floor will be required. Any setts or cobbles arising can be retained to repair historic floors elsewhere.
- Building service are likely to be limited to lighting and some small power, which could be surface mounted internally.

Building 3: Boiler Room

6.2.2. This building is likely to require a programme of repairs and alterations to benefit its planned use as a cafe servery. This will likely involve (but not necessarily be limited to):

- Assessment of the existing roof covering and structure. It is anticipated that a proportion of new slates may be required, along with preventative maintenance such as re-bedding ridge and hip tiles, before providing new cast iron rainwater goods.
- Assessment of the existing masonry and lintels. It is anticipated that this will be a solid wall load bearing structure, which may require localised making good and repairs. Mortar and stone analysis will be required to ensure any repairs match the existing adjacent fabric, anticipated to be Cotswold limestone, with hand made red brick to corner quoins and a soft lime mortar.
- At least one of the existing windows will need to be converted & its sill lowered to permit it to form a servery hatch.
- The existing door will need to be replaced.
- Internally, the existing floor and walls will need to be re-finished to benefit a catering use, with a tiled floor and walls installed.
- A full refit of services will be required to suit the proposed use.



Fig 60. Building 3: Boiler Room, March 2022

Building 4: Lean To

- 6.2.3. To be demolished. Masonry to adjacent Listed Barn to be made good as required.

Building 5: Lean To

- 6.2.4. To be demolished. Masonry to adjacent Listed Barn to be made good as required.

Building 6: Lean To

- 6.2.5. To be demolished. Masonry to adjacent Listed Barn to be made good as required.

Building 7: Lean To

- 6.2.6. To be demolished. Masonry to adjacent Listed Barn to be made good as required.

Building 8: Cow House Range

- 6.2.7. This building is likely to require an extensive programme of repairs to benefit its planned use as a kitchenette and events store for the

Listed Barn Welcome Centre. This will likely involve (but not necessarily be limited to):

- Once safe access is available, careful clearance of existing scrub from around the building, making sure to retain any fallen roof or masonry from the Cow House Range or adjacent Listed Barn for review,
- Assessment of the existing roof covering and structure. It is anticipated that a majority of new slates may be required, along with preventative maintenance such as re-bedding ridge and hip tiles, before providing new cast iron rainwater goods.
- Assessment of the existing masonry and lintels. It is anticipated that this will be a solid wall load bearing structure, which may require localised making good and repairs. Mortar and stone analysis will be required to ensure any repairs match the existing adjacent fabric, anticipated to be Cotswold limestone and a soft lime mortar.
- New doors will be required to the building, to match those being installed in the Listed Barn.
- New timber windows will be required in the North and South elevations, in a traditional style with slimline double glazing. New timber shutters will be required externally (in the event that existing ones can't be fixed).

- Internal finishing will likely be limited to a limewash of internal walls in store areas. A splashback may be needed in kitchenette areas, this should ideally be joinery mounted, to avoid need to true up existing walls. All walls to remain breathable.
- The condition of any flooring is unknown, therefore assume that an insulated limestone screed floor (including underfloor heating) and new flag stone floor will be required. Any setts or cobbles arising can be retained to repair historic floors elsewhere.
- A full refit of services will be required to suit the proposed use. Any extract or ventilation needs to be carefully planned to sit within existing openings, and may, for example, require facing timber louvres in place of a shutter.
- There are many interesting internal features, which would benefit from review and conservation prior to determining extent of internal fit out works.



Fig 61. **Building 8: Cow House Range, Interior, March 2022**

6. APPROACH TO OTHER INDIVIDUAL BUILDINGS

Building 9: Farmhouse

6.2.8. This building is likely to require a small programme of repairs to benefit its planned use as management offices. This will likely involve (but not necessarily be limited to):

- Removal of the existing life-expired conservatory, and associated WC, and porch to front elevation.
- Porch to be replaced with new accessible 'welcome' structure for serviced accommodation guests
- Removal of all existing services, which will enable the removal of the courtyard-facing boiler flue,
- Assessment of the existing roof covering and structure. It is anticipated that a proportion of new slates may be required, along with preventative maintenance such as re-bedding ridge and hip tiles, before providing new cast iron rainwater goods.
- Investigate roof space for insulation, using breathable materials such as wood fibre or lambswool.
- Assessment of the existing masonry and lintels. It is anticipated that this will be a solid wall load bearing structure, which may require localised making good and repairs. Mortar and brick / stone analysis will be required to ensure any repairs match the existing adjacent fabric, anticipated to be hand-made red brick and a soft lime mortar.
- Render to South elevation to be inspected to determine whether this is contemporary to the 19th Century remodelling of the farmhouse, or applied to mask earlier problems.
- Windows are likely to require refreshing throughout, where possible with slim line double glazing in place of single glazing,
- Generally planned to keep current layout, subject to fire and accessibility modifications to door openings and directions.
- Investigate remodelling of rear Hall / Boiler Room to suit (not believed to be original layout).
- Investigate the addition of an internal platform lift, notionally in the Dining Room space at Ground / Bathroom location at first floor level (subject to survey of existing fixtures and fittings, not inspected at time of writing),

- Run new services throughout. Plant relocated to basement or side extension rooms, to minimise space taken up in main house. A riser could be located by the fireplace to permit services to travel from the basement / side extensions to roof level.
- Depending on the proposed use and fire strategy, internal floors may require lifting to permit installation of acoustic insulation, services or fire pugging. Any such modifications to be checked carefully with the Structural Engineer.
- The second stair to the rear of the house may require remodelling to permit level access along the first floor corridor, and to provide a second means of access to the second floor space to permit its use. TBC.
- Internal finishing will likely be a refresh of existing finishes (again subject to survey of existing fixtures and fittings, not inspected at time of writing).
- The exact divide (or indeed connection) between the Farmhouse and Farmhouse Link will depend on exact use of buildings, and any fire strategy related issues between dissimilar uses. TBC during development of final building layouts.



Fig 62. Building 9: Ashgrove Farm House, Rear Elevations, March 2022

Building 10: Ashgrove Farm Outhouse

- 6.2.9. This building will require a substantial programme of repairs to benefit its potential use as a crèche. This will likely involve (but not necessarily be limited to):
- Removal of the end 'lean to' portion of the building, to restore the building to its original rectangular layout,
 - Removal of the fuel store to the east end of the building,
 - Removal of all existing services,
 - Assessment of the existing roof covering and structure. It is anticipated that a proportion of new slates may be required, along with preventative maintenance such as re-bedding ridge and hip tiles, before providing new cast iron rainwater goods.
 - Investigate roof space for insulation, using breathable materials such as wood fibre or lambswool.
 - Assessment of the existing masonry and lintels. It is anticipated that this will be a solid wall load bearing structure, which may require localised making good and repairs. Mortar and brick / stone analysis will be required to ensure any repairs match the existing adjacent fabric, anticipated to be hand-made red brick and a soft lime mortar.
 - Generally planned to keep current layout, subject to fire and accessibility modifications to door openings and directions.
 - Run new services throughout. Plant relocated to basement or side extension rooms, to minimise space taken up in main house. A riser could be located by the fireplace to permit services to travel from the basement / side extensions to roof level.
 - Internal finishing will likely be a refresh of existing finishes (again subject to survey of existing fixtures and fittings, not inspected at time of writing).

6. APPROACH TO OTHER INDIVIDUAL BUILDINGS

Building 11: Farmhouse Link Building

6.2.10. This building is likely to require a small programme of repairs to benefit its planned use as a cafe. This will likely involve (but not necessarily be limited to):

- Removal of all existing services,
- Assessment of the existing roof covering and structure. It is anticipated that a proportion of new slates may be required, along with preventative maintenance such as re-bedding ridge and hip tiles, before providing new cast iron rainwater goods.
- Investigate roof space for insulation, using breathable materials such as wood fibre or lambswool.
- Assessment of the existing masonry and lintels. It is anticipated that this will be a solid wall load bearing structure, which may require localised making good and repairs. Mortar and brick / stone analysis will be required to ensure any repairs match the existing adjacent fabric, anticipated to be hand-made red brick and a soft lime mortar.
- Windows are likely to require refreshing throughout, where possible with slim line double glazing in place of single glazing,
- Minor modifications to the internal layout, looking to remove the secondary timber stair from the East end of the building & insert a new staircase to the West end (to provide the necessary second means of escape from the first floor,
- Run new services throughout, preferably linked to plant from the Farmhouse basement, to increase efficiency.
- Depending on the proposed use and fire strategy, internal floors may require lifting to permit installation of acoustic insulation, services or fire pugging. Any such modifications to be checked carefully with the Structural Engineer.
- Internal finishing will likely be a refresh of existing finishes (again subject to survey of existing fixtures and fittings, not inspected at time of writing).
- The exact divide (or indeed connection) between the Farmhouse and Farmhouse Link will depend on exact use of buildings, and any fire strategy related issues between dissimilar uses. TBC during development of final building layouts.



Fig 63. **Building 11: Farmhouse Link, North Elevation, March 2022.**

Building 12: Stable Range

6.2.11. This building will require a substantial programme of repairs to benefit its planned use. This will likely involve (but not necessarily be limited to):

- Removal of all existing services,
- Assessment of the existing roof covering and structure. It is anticipated that a proportion of new slates may be required to the South elevation. The North elevation is currently a corrugated asbestos sheet, in a poor state of repair, therefore we would suggest this is removed, and replaced with a new slate roof to match the south side of the building. Preventative maintenance such as re-bedding ridge and hip tiles would form part of this work, before providing new cast iron rainwater goods to both sides of the Stable Range.
- Investigate roof space for insulation, using breathable materials such as wood fibre or lambswool.
- Assessment of the existing masonry and lintels. It is anticipated that this will be a solid wall load bearing structure, which may require localised making good and repairs. Mortar and brick / stone analysis will be required to ensure any repairs match the existing adjacent fabric, anticipated to be hand-made red brick and a soft lime mortar.
- Windows and doors are likely to require refreshing throughout, where possible with slim line double glazing in place of single glazing, External timber shutters may also be required, both for heritage and security reasons.
- Minor modifications to the internal layout, looking to remove pieces of modern partition, and sub-divide the east end of the barn (where its retained features would better accommodate partitions),
- Period features, most evident in the east end of the building, should be assessed for repair and retention.
- Run new services throughout, preferably linked to plant from the Farmhouse basement, to increase efficiency.
- Internal finishing will likely be a refresh of existing finishes (again subject to survey of existing fixtures and fittings, not inspected at time of writing).



Fig 64. **Building 12: Stable Range, Interior, March 2022.**

6. APPROACH TO OTHER INDIVIDUAL BUILDINGS

Building 13: Combination Barn

6.2.12. This building is likely to require a small programme of repairs to benefit its planned use as an Education & Training Hub for OxSRFI. This will likely involve (but not necessarily be limited to):

- Removal of all existing services,
- The existing roof is a relatively modern metal roof, so any works to this roof will likely be limited to cleaning, repairs where later lean to structures have been removed, and ensuing any holes or failures in the main roof pitches are repaired using compatible materials,
- Assessment of the existing masonry and lintels. It is anticipated that this will be a solid wall load bearing structure, which may require localised making good and repairs. Mortar analysis will be required to ensure any repairs match the existing adjacent fabric, anticipated to be local stone and a soft lime mortar.
- Several previous openings have been blocked up on the south side of the building (understood to have been undertaken when the adjacent land was converted into a large Cow Shed). These openings should either be re-opened, and new windows inserted, or made good in a stone coloured render to sit more sympathetically alongside the adjacent stone, while retaining the narrative of the building's ongoing adaptation. This will depend on the exact proposed use of the building.
- There are a number of steel beams which have been set in to the south elevation at high level. These may benefit from being carefully removed, and the openings infilled with local stone to match the existing walls, to prevent any future issues with corrosion,
- Windows are likely to require refreshing throughout, where possible with slim line double glazing in place of single glazing. This is particularly important to the current glazed screen in the pitching window to the west gable of the barn, as the current installation is unsafe.
- Doors are likely to require refreshing throughout, both for aesthetic and practical reasons,
- Period features throughout should be retained and repaired where necessary to ensure the history of the barn, while un-listed, can continue to be understood. These include the forge to the tool workshop, machinery in the main ground floor passage, and arrangement of lofts and ladders to the East end of the building,

- Minor modifications and repairs may be needed to the internal layout, particularly to the staircase and mezzanine floor inserted to the west end of the building, which do not presently meet Building Control requirements in terms of guarding
- Run new services throughout. A servicing strategy may be developed where less significant spaces in the Combination Barn may be used to house plant or services for the Listed Threshing Barn and adjacent ranges, to minimise the impact upon the more significant adjacent structures,
- Depending on the proposed use and fire strategy, internal floors may require lifting to permit strengthening, installation of acoustic insulation, services or fire pugging. Any such modifications to be checked carefully with the Structural Engineer.
- Internal finishing will likely be a refresh of existing finishes (again subject to survey of existing fixtures and fittings, not inspected at time of writing).



Fig 65. Building 13: Combination Barn, March 2022

Building 14: Dutch Barn

- 6.2.13. It is understood that the Dutch Barn is in relatively good condition, so the only works proposed would be external decoration in a dark green to help the building blend into its landscape, and any internal fit out needed to suit its proposed use.



Fig 66. Building 14: Dutch Barn, March 2022

Buildings 15 & 16: Limestone Wall & Barn Wall

- 6.2.14. Re-point using same lime mortar as existing (subject to mortar analysis).

Buildings 17 and 18: Ashgrove Cottages

- 6.2.15. This building is likely to require a moderate programme of repairs to benefit its planned use as Rail and Estate Management and other facilities for OxSRFI. This will likely involve (but not necessarily be limited to):
- Remove time expired conservatories. Investigate accessible lift option to one side of cottages in place of conservatory (noting that cellular layout may not in itself be accessible).
 - Investigate re-ordering interior so re-enter from front (as original), or if not feasible access wise, from one end of the current Living Room accommodation.
 - Investigate whether the cottages can be joined at ground and first floor level,
 - Removal of all existing services,

- Assessment of the existing roof covering and structure. It is anticipated that a proportion of new slates may be required, a long with preventative maintenance such as re-bedding ridge and hip tiles, before providing new cast iron rainwater goods.
- Investigate roof space for insulation, using breathable materials such as wood fibre or lambswool.
- Assessment of the existing masonry and lintels. It is anticipated that this will be a solid wall load bearing structure, which may require localised making good and repairs. Mortar and brick / stone analysis will be required to ensure any repairs match the existing adjacent fabric, anticipated to be hand-made red brick and a soft lime mortar. Replace time expired UPVC windows with triple glazed timber windows, and secondary glazing. Acoustic concerns.
- Fully renew services.

Building 19: Modern Barn

- 6.2.16. To be demolished.

Building 20: Modern Barn

- 6.2.17. Retained as Sports Equipment Store. Works are likely to be limited.

Building 21: Modern Barn

- 6.2.18. To be demolished.

Building 22: Modern Barn

- 6.2.19. To be demolished.



Fig 67. Buildings 16 and 17: Ashgrove Cottages, March 2022



Fig 68. Buildings 16 and 17: Ashgrove Cottages, March 2022



SECTION 7

CONCLUSIONS



7. CONCLUSIONS

7.1. Conclusions

- 7.1.1. The farm buildings in the Central Hub Area provide opportunities for creative re-use, to integrate with the function of the OxSRFI scheme and to support the conservation, repair and re-use of the historic Listed Barn and other buildings.
- 7.1.2. This is supported by a considered approach to rejuvenate the surrounding landscape, creating a number of different types of hard and soft landscape, to augment and complement the existing mature trees and vegetation.
- 7.1.3. The proposals to the Listed Barn show a sensitive approach to the remaining re-usable building fabric, and maintain the strong form of the barn, and improve its setting to allow it to become a celebrated object once more. The new interventions (new roof, floor and glazed doors) permit the building to flexibly accommodate a range of new uses, while ensuring the original fabric is repaired and kept dry.
- 7.1.4. This ensures a sustainable approach to the site, which conserves and retains as much of the existing historic fabric as possible. This allows the history of the site to be much better understood, as well as delivering significant embodied carbon and whole life cycle energy savings versus demolishing all buildings and starting afresh.
- 7.1.5. Repairs and alterations are likely to be required to all retained buildings on the site. While these buildings are not listed, they do form part of the setting and curtilage of the Listed Barn, so will need to be carefully considered as to not detract from its setting.
- 7.1.6. The uses shown to other buildings are flexible, and are likely to be developed as the needs of the wider site emerge, and the viability of the proposed uses can be confirmed.
- 7.1.7. It is considered that the proposals would, overall, preserve the special architectural and historic interest of the Grade II listed Barn in accordance with the statutory duties set out in Sections 16, 66 and 72(1) of the Planning (Listed Buildings and Conservation Areas) Act 1990.

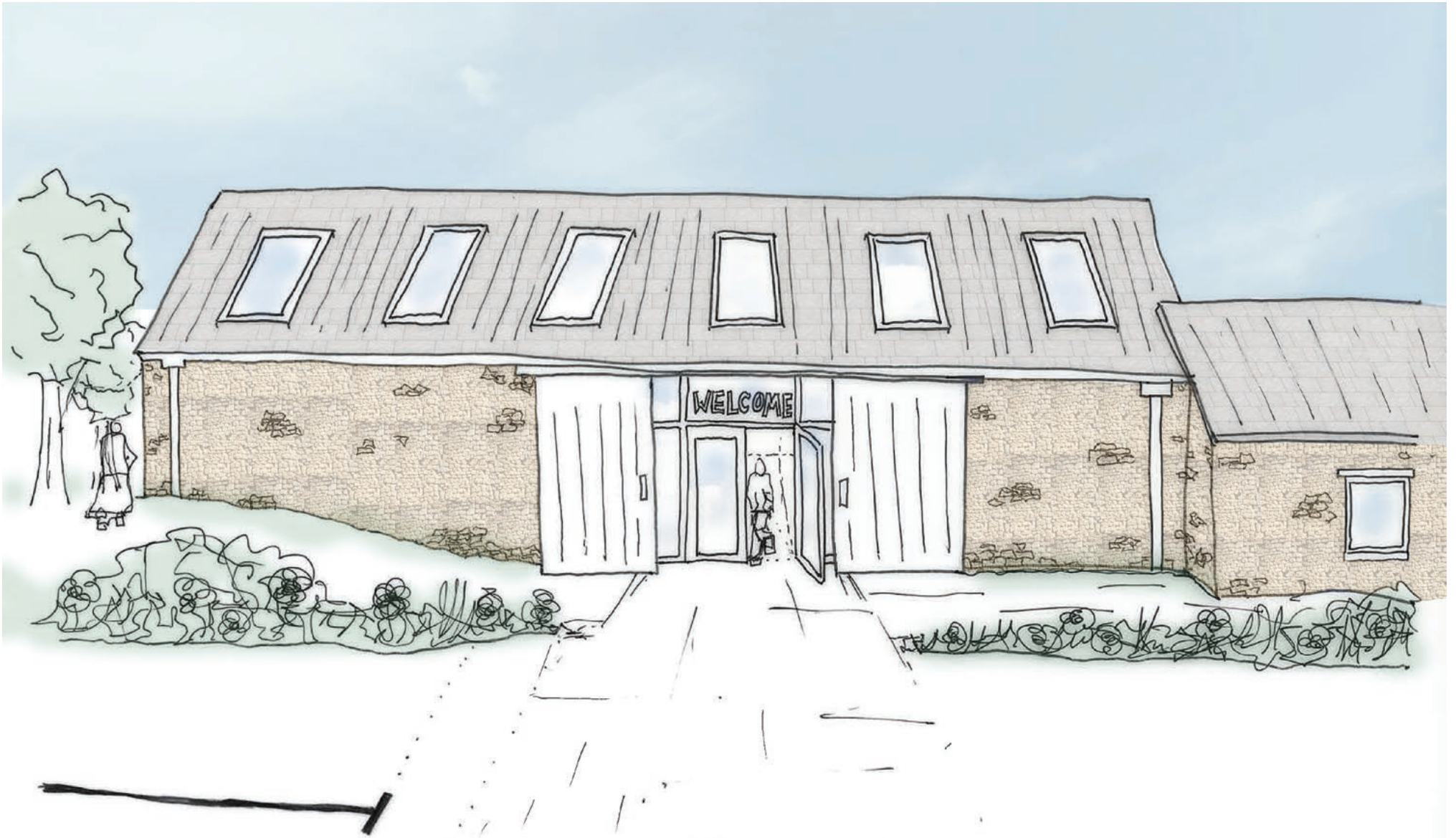


Fig 69. Artists Impression of North entrance from Car Park.



SECTION 8

APPENDIX 1: LIST OF CENTRAL HUB AND THRESHING BARN ARCHITECTURAL DRAWINGS





8. APPENDIX 1: LIST OF CENTRAL HUB AND THRESHING BARN ARCHITECTURAL DRAWINGS

Document_2.14A - OxSRFI-DIA-ZZ-ZZ-DR-A-01021_Existing Ground Floor Plan P01

Document_2.14B - OxSRFI-DIA-ZZ-ZZ-DR-A-01022_Existing Roof Floor Plan P01

Document_2.14C - OxSRFI-DIA-ZZ-ZZ-DR-A-01111_Long Section Existing P01

Document_2.14D - OxSRFI-DIA-ZZ-ZZ-DR-A-01112_Short Section Existing P01

Document_2.14E - OxSRFI-DIA-ZZ-ZZ-DR-A-01210_South Elevation Existing P01

Document_2.14F - OxSRFI-DIA-ZZ-ZZ-DR-A-01211_North Elevation Existing P01

Document_2.14G - OxSRFI-DIA-ZZ-ZZ-DR-A-01212_East Elevation Existing P01

Document_2.14H - OxSRFI-DIA-ZZ-ZZ-DR-A-01213_West Elevation Existing P01

Document_2.14I - OxSRFI-DIA-ZZ-ZZ-DR-A-02021_Ground Floor Proposed P01

Document_2.14J - OxSRFI-DIA-ZZ-ZZ-DR-A-02022_Proposed Roof Plan P01

Document_2.14K - OxSRFI-DIA-ZZ-ZZ-DR-A-02111_Long Section Proposed P02

Document_2.14L - OxSRFI-DIA-ZZ-ZZ-DR-A-02112_Short Section Proposed P01

Document_2.14M - OxSRFI-DIA-ZZ-ZZ-DR-A-02110_South Elevation Proposed P02

Document_2.14N - OxSRFI-DIA-ZZ-ZZ-DR-A-02211_North Elevation Proposed P02

Document_2.14O - OxSRFI-DIA-ZZ-ZZ-DR-A-02212_East Elevation Proposed P02

Document_2.14P - OxSRFI-DIA-ZZ-ZZ-DR-A-02213_West Elevation Proposed P02

Document_2.14Q - OxSRFI-DIA-ZZ-ZZ-DR-A-05001_Ground Floor Demolition Plan P01

Document_2.14R - OxSRFI-DIA-ZZ-ZZ-DR-A-05002_Roof Demolition Plan P01

Document_2.14S - OxSRFI-DIA-ZZ-ZZ-DR-A-05100_Fabric Removal Long Section P01

Document_2.14T - OxSRFI-DIA-ZZ-ZZ-DR-A-05101_Fabric Removal Short Section P01

Document_2.14U - OxSRFI-DIA-ZZ-ZZ-DR-A-05200_Fabric Removal North Elevation P01

Document_2.14V - OxSRFI-DIA-ZZ-ZZ-DR-A-05201_Fabric Removal South Elevation P01

Document_2.14W - OxSRFI-DIA-ZZ-ZZ-DR-A-05202_Fabric Removal East Elevation P01

Document_2.14X - OxSRFI-DIA-ZZ-ZZ-DR-A-05203_Fabric Removal West Elevation P01

Document_2.16A - OxSRFI-DIA-ZZ-ZZ-DR-A-01000_Central Hub Site Plan As Existing P02

Document_2.16B - OxSRFI-DIA-ZZ-ZZ-DR-A-04000_Central Hub Site Plan As Proposed P02

Document_2.17B - OxSRFI-DIA-ZZ-ZZ-DR-A-05000_Central Hub Demolition Plan P02



SECTION 9

APPENDIX 2: STRUCTURAL SURVEYS



ASHGROVE FARM

ROOF TIMBERS (PARTIALLY COLLAPSED) CONDITION INVESTIGATION

JOB NO. 163-27



DONALD INSALL ASSOCIATES

MARCH 2025

Prepared by:	Technical review by:	Administration by:
<i>Andrew Ellis BA(Hons) MSc</i>	-	<i>Carissa Barnett</i>

CONTENTS

1 Introduction

2 Executive summary

3 Observations and Recommendations

4 General recommendations

5 Limitations

Appendices

A Common decay organisms

B Health and Safety

C Photographs

D Plans

Hutton+Rostron (A SOCOTEC COMPANY)

Northgate Business Centre, 38-40 Northgate, Newark NG24 1EZ



1 INTRODUCTION

1.1 AUTHORITY AND REFERENCE

Hutton+Rostron carried out a preliminary timber decay and damp survey at Ashgrove Farm Barn on 27 March 2025 in accordance with instructions received from Chris Bell of Donald Insall Associates by email dated 26 March 2025 (15:19). Reference was made to drawings supplied by Donald Insall Associates, reference series OX.AFMS.01 for the identification of structures. For the purpose of orientation in this report, the building was taken as facing south

1.2 AIM

The aim of this investigation was to identify timber decay problems to the remaining standing and collapsed roof structures, and to make suitable remedial recommendations for their refurbishment/salvage as discussed in Appendices A, B, C & D

1.3 H+R STAFF ON SITE

[REDACTED]

1.4 PERSONNEL CONTACTED

[REDACTED]

[@insall-architects.co.uk](mailto:[REDACTED]@insall-architects.co.uk)>
[@hurstpm.co.uk](mailto:[REDACTED]@hurstpm.co.uk)

For limitations that apply to this report please see section 5

2 EXECUTIVE SUMMARY

2.1 OBSERVATIONS AND RECOMMENDATIONS

1 Standing and partially standing roof structures (Bays 1-3)

The remaining standing and partially standing roof structures comprised solely towards the west 3no. bays of the barn roof structure. Generally, roof timbers diminished in condition and quantity from west to east. Remaining timbers comprised of principal trusses 1, 2, truss 3 tie beam, 3-4no. purlin pairs and approximately ~23no. common rafter pairs. Approximately ~95 per cent of all investigated items featured structural decay issues, with all (100 per cent) principal elements (purlins, principal trusses and collars) identified as having some degree of structurally significant decay in one or more locations. The existing standing and partially standing roof structures had no provision for an external roof envelope of roof drainage at the time of investigation. Therefore, it is reasonable to assume that the existing condition will progressively deteriorate before action can be made to safeguard the property. Further collapse should therefore be anticipated and suitable safety precautions adopted

2 Collapsed roof structures (Bays 4-6)

Total collapse of roof structures forming the principal trusses and bay infill elements to the 3no. east bays had unfortunately occurred prior to H+Rs investigation. Generally, collapsed timbers worsened in condition from west to east, with remaining grounded timbers to bay 6 having reached advanced stages of disintegration. The remaining collapsed roof wreckage to bays 4-5 (and partial collapse to bay 3) were examined for remaining salvageable materials and to identify the previous structural composition of the lost roofscape. 100% of the principal truss elements were subject to extreme levels of decay. 1no. (of 16no.) purlin was identified as potentially suitable for salvage/re-use subject to suitable repair. No common truss or rafter plate timbers were deemed suitable for salvage/retention. Access to the ground areas beneath bays 3-6 was significantly hampered by roof wreckage, much of which remained highly vulnerable to further collapse/settlement during the later stages of structural decay of the larger half standing components

3 Lintels

Accessible lintels to the masonry gable-ends and to the longwall elevations were inspected and deep drilled/moisture probed to determine for their construction, condition and vulnerability to decay. Severe structural decay/partial collapse was identified to the both the inner and outer lintels to the south of bay 3 (the original threshing bay), as well as severe decay to the outer lintel to the north of bay 3. Structural decay was also identified to the east gable out lintel and to the north lintel to bay 2. In total 4no. of the 6no. remaining structural lintels featured some level of structurally significant decay

Recommendations

1 Standing and partially standing roof structures (Bays 1-3)

Structural Engineer to comment. In H+Rs opinion, and dependent upon available budget, and approval of the Conservation Authority/Design Team, the existing standing roofscape requires such considerable repairs that it renders it unsuitable/unsafe for retention in situ/as a standing structure. Provision should therefore be made for careful labelling, photo documentation and raising of the roofscape prior to removal and repair in a workshop environment by suitably qualified conservation carpenters. Subject to approval of the Structural Engineer, it should be anticipated that only ~25 per cent of the existing roof structures may be suitable for retention. No common rafter were deemed suitable for retention. All salvageable timbers should be projected as requiring some level of remedial attention via cutting back decayed sections to sound timber and scarfing in new pieces to a detail specified by the Structural Engineer and approved by H+R. See Plans and Photos for all identified structurally decayed and compromised timbers

2 Collapsed roof structures (Bays 4-6)

Structural Engineer to comment. In H+Rs opinion, all but 1no. collapsed purlin and potentially ~3-4no. raking struts to the collapsed bays were deemed unsalvageable due to their excessive decay margins. The identified 3-4no. salvageable timbers should be anticipated as requiring remedial attention via cutting back decayed sections to sound timber and scarfing in new pieces to a detail specified by the Structural Engineer and approved by H+R. See Plans and Photos for identified potentially salvageable materials

3 Lintels

Structural Engineer to comment. Allowance should be made for the repair/replacement to 4no. structurally decayed lintels in D40 class oak and to a specification by the Structural Engineer. Provisional allowance should also be made for the replacement to the 2no. east gable ground floor softwood lintels in more durable oak equivalents. See Plans and Photos for all identified structurally decayed and compromised lintels

3 OBSERVATIONS AND RECOMMENDATIONS

3.1 CONSTRUCTION

3.1.1 Roof structures

- 1 Arrangement: Remaining and collapsed roof components were assessed for their structural composition. The barn was of rectangular plan on an east-west axis. The roof profile was of pitched construction with full gables to the east and west. The roof was formed of 5no. principal trusses forming 6no. bays. Principal trusses were of basic A-frame construction and featured tie beams, upper collars and raking struts. Both north and south pitches featured 2no. pairs of in-line butt purlins. The ridge line was formed with an inserted ridge board which was supported at the principal trusses onto horizontal yoke members. The tie beams were supported onto the stone wall heads via intermediary short length timber pads set to the inside face of the wall. A continuous rafter plate sat on the external face of the wall and carried the common rafters' feet. The following structural components were identified and their approximate section sizes recorded;

Purlins ~140x180mm

Tie beams ~300x300mm

Principal rafters ~270x150mm

Common rafters ~20x70mm at 310mm centres (~11no per bay)

Ridge board ~150x25mm

Collars ~200x90mm

Root tile battens 50x50mm at 790mm

Rafter plate ~130x120mm

Tie beam pads ~100x150mm

Timber grounds (for threshing barn door fixings) ~100x150mm at 600mm centres

Yokes (support ridge boards) ~90x200mm

Bay 3 outer lintels ~300x160mm

Bay 3 inner lintels ~210x160mm

Raking struts ~145x60mm

- 2 Materials

No formal species identification was undertaken; however, representative timber components were inspected for their gross characteristics on-site via x10 magnification. Historic structural components were provisionally identified as being of hardwood, most likely a combination of Oak (*Quercus spp.*) and Elm (*Ulmus spp.*). Tie beams and principal rafters were apparently of elm and purlin members of oak. Common rafters were identified as softwood, most probably of European redwood, or more commonly referred to as Scots pine (*Pinus sylvestris*). There were a limited number of areas where previous repairs had been enacted, and for the most part these had utilised matching timbers (i.e. the collar to truss 1 was of oak)

- 3 History

Listing: The building has Grade II listed status (listing entry no. 1046879 reference <https://historicengland.org.uk/listing/the-list/list-entry/1046879?section=official-list-entry>). The barn was understood to date to the 18th century. Historic England details the following;

Barn. Early/mid C18. Coursed limestone rubble with wooden lintels; corrugated-sheet roof. 6-bay plan with opposed full-height doors in bay 3. Other bays have blocked slits, there is a blocked lower doorway in bay 5, a pitching door in the right gable, and both gables have triangular vents. Bay one and both end walls have small inserted

doorways. Interior: Trusses have tie beams, collars, and they support 2 rows of butt purlins. (VCH: Oxfordshire, Vol VI, p8)

Modern intervention: Despite significant failure/collapse to the larger proportion of the barns roof structures, there was substantial evidence of modern intervention to the roof structures. These apparently included for the wholesale replacement to the historic common rafters in ~20th century mechanised/sawmill converted softwood variants. The introduction of a softwood ridge board (when presumably the originally ridge line featured either bridle tenoned rafters and/or a ridge beam in-line to the expected vernacular of the date of construction). Additionally, it is probable that the surviving collars are remedial variations/introductions. Despite this, the remaining principal trusses and staggered in-line butt purlins appeared largely as per their original fabrication and a good record of a mid-18th agricultural 6 bay threshing barn. Of particular constructional note was the joint detailing between the in-line butt purlins to the principal rafter via inserted slip tenons plus ~1" recessed housings for the purlin shoulders. Additionally, the fact that the principal truss raking struts featured pegged tenons to the underside of the principal rafters but appeared to have only ever been butt jointed and nailed where they bore onto the tie beams, suggesting these were installed after the initial phase of assembly

3.2 WATER PENETRATION PROVIDING CONDITIONS FOR DECAY

3.2.1 Wind-driven rain

The roof had no provision for external roof coverings or for roof drainage goods at the time of investigation. Therefore, decayed and partially decayed timbers are highly probably to include for enlarged decayed margins (as recorded in this report) when refurbishment commences. In particular, collapsed timbers at ground level that do not benefit from increased ventilation pathways as the standing timbers have, are highly probably to worsen considerably

Temporary roofing: With utmost expediency, allowance should be made for providing effective temporary roofing, so as to minimise water penetration into structures beneath and promote drying down of the saturated timbers before and during proposed conservation and refurbishment works commence

3.3 TIMBER DECAY

3.3.1 Wood-boring insect infestation

There was significant evidence of advanced infestation and decay to both the heartwood and the sapwood bands of many of the existing timbers by wood-boring beetle in the past and present. This had included woodworm (*Anobium punctatum*) death watch (*Xestobium rufovillosum*) and weevil (*Pentarthrum huttoni*). Widespread active and historic wood-boring insect decay was apparently a combination of the prolonged exposure of the roof timber elements to inclement weather/driving rain ingress, as well as many of the timbers being fabricated from elm (*Ulmus minor*) which has inherently a significantly lower tolerance to attack by wood-boring infestation than say oak (*Quercus robur*) and even some softwoods such as European Redwood (*Pinus sylvestrus*) - which the common rafters were fabricated from. Therefore, oak, elm and pine timbers which exhibited flight holes in excess of ~20 per 100mm x 100mm were deemed structurally compromised from loss of section

No insecticidal or chemical remedial timber treatments are required, before, during or after refurbishment. It should be anticipated that remaining active, dormant and pupating larvae will continue to emerge from salvaged and re-used timbers for <5 years, even if they are suitably dried down. Allowance should be made for identified 'salvageable' decayed or partially decayed timbers with loss of section from (wood-boring infestation) exceeding ~25-40

per cent to be cut back to sound timber and scarf or partner repaired under the direction of the Structural Engineer and to a detail agreed with H+R. Areas of remaining vulnerable sapwood bands to historic timbers may also be removed in order to eliminate any potential habitat that may support future wood-boring insect activity

Retained historic timbers: Continued observation and recording of insect activity to retained historic oak and elm elements is advised with the use of pasted paper patches glued to the surface areas over historic flight holes in discrete locations with flower and water glue to show presence and quantity of recent flight emergence holes. Should wood-boring insect activity be present, they are likely to emerge within the summer months (May-September). When emergence holes become apparent, they should be individually ringed, tallied and dated annually so that a pattern of activity may be established and acted upon/monitored further. H+R can provide additional information and support if requested to do so

The use of organic-solvents (such as organoboron timber treatments), emulsion or paste may be considered (when roof coverings are re-installed), to be applied to the areas suspected of infestation. Smokes or dichlorvos strips may also be applied to vulnerable areas. Fly-traps (Including electric UV fly-traps) placed in the area will increase the odds of killing emerging adult beetles. Pheromone traps can also be used to catch emerging male beetles. It is also advised that the surrounding area is thoroughly cleaned and cleared of any unnecessary timber elements vulnerable to beetle infestation. In this instance H+R do not recommend the use of high temperature treatments. However, should it ever be deemed necessary, and under the direction of H+R, it is available from specialist companies where by the structure is heated at a consistent rate whilst additionally humidifying the inflowing air for a period of time to kill any active wood-boring insect infestation. See Thermo Lignum at <http://www.thermolignum.com> as specialists in this method of treatment to historic structures

3.3.2 Fungal decay

NB. For locations and extent of all accessible decayed timber elements, see the Drawings at Appendices D

No active or historic dry rot (*Serpula lacrymans*) was identified. However, there was substantial evidence of active wet rot decay to all remaining timbers due their high level of exposure to wind and rain at the time of investigation. Severity of wet rot decay varied from component to component and depended largely upon the level of exposure and the species vulnerability/decay tolerance. For instance, all (softwood) common rafters were at advanced stages of decay, however, larger section hardwood oak members such as purlins showed a greater resilience to wet rot issues despite no roof external envelope. Points of failure as a result of wet rot issues therefore manifested at reduced sections and weak spots including joint locations and where timbers met/embedded into damp masonry structures. All Identified structurally decayed standing timbers from wet rot decay are shown on Plans to Appendices

No chemical remedial timber treatments are required. Timbers deemed suitable for salvage and subject to structural decay or partially decayed should be repaired or replaced as directed by the Structural Engineer and all practical measures should be taken so as to minimise further water penetration before, during, and after proposed refurbishment. This will include for the introduction of a temporary scaffolded 'tin roof' with a dedicated roof drainage system for the duration of the planned refurbishment phase to the external envelope. See Plans and Photos for identified potentially salvageable materials

4 GENERAL RECOMMENDATIONS

All new and refurbishment detailing should be assessed for its effect on environmental and structural health. General principles are set out below. Special care is required when introducing new materials, moisture sources or heating and ventilation systems, for example air conditioning

4.1 ROOF AND SURFACE DRAINAGE

4.1.1 Maintenance

All guttering, hopperheads and outlets should be regularly checked and cleared to keep them free of debris, especially during the autumn months

4.1.2 Protection

Hopperheads, gutter outlets and ground gullies should be protected with metal mesh cages so as to prevent blockage and overflow. These should extend higher than the expected water level to reduce the tendency to block and should be easily removable to allow cleaning and maintenance

4.1.3 Overflows

Hopperheads, parapet gutter outlets and valley gutter outlets should be fitted with overflow pipes to drain water clear of the structure in case of blockage. These should be at a level below that at which water would overflow the roof flashings

4.1.4 Roof drainage calculations

Roof drainage calculations should be made to check the adequacy of gutters, drains and downpipes so that their capacities may be increased if necessary during refurbishment. H+R can carry out these calculations if required

4.1.5 Monitoring

The installation of an automatic monitoring and alarm system should be considered to give warning of blockage or overflow in the roof drainage system

4.1.6 Access

Safe and convenient access ladders, safety points and walkboards should be installed to all roof areas to allow proper inspection and maintenance

4.1.7 Pigeons

Feral pigeons should be controlled. H+R can give advice on this if necessary

4.2 VENTILATION

4.2.1 Structural voids

All structural voids within the building should be provided with adequate through ventilation so as to prevent moisture build-up. This must be done with regard to the applicable fire regulations

4.2.2 Chimneys

All chimneys not in use should be capped so as to minimise water ingress but so as to allow maximum ventilation of the flues. Flues should be cleared and cleaned to remove blockages. Fireplaces and chimney breasts should be opened or vented to allow through-ventilation of the flues. This prevents moisture build-up in the flues and helps interior ventilation by the stack effect

4.2.3 Bathrooms and kitchens

All bathrooms and kitchens should be fitted with adequate extractor fan systems. These should run for at least fifteen minutes after occupancy to prevent condensation. The installation of floor drains should be considered in these rooms in case of overflow

4.2.4 Roof spaces

All roof spaces, including flat roof areas and gutter soles, should be provided with adequate through-ventilation. This may occur via the gaps between slates in unsarked pitched roofs. However, flat roofs and pitched roofs with sarking or insulation will require the installation of vents through the roof surfaces or at the eaves and ridges. Insulation material in roof spaces should be kept clear of external walls, gutter soles or timbers in contact with damp or potentially damp masonry

4.2.5 Windows

Windows should be refurbished so as to allow easy and convenient opening and closing by occupants in order to encourage proper ventilation of the building. This is important both for environmental and structural health. Windows should be fitted with security locks so as to allow secure locking in a partially opened position

4.3 STRUCTURAL DETAILING

4.3.1 New timbers

New timbers should be isolated from any damp or potentially damp masonry with a damp proof material or ventilated air gap

4.3.2 Timber repairs

Structurally decayed timbers should be removed or cut back to sound timber unless required for aesthetic reasons. Timbers should then be partnered or spliced as in section 4.3.1 above. If steel plates or hangers are used, they should be detailed so as to allow sufficient ventilated air gaps and drainage to prevent moisture build-up due to condensation. No timber preservation or remedial treatments should be required

4.3.3 Paint finishes

Moisture vapour permeable or 'microporous' paint finishes should be preferred for internal and external surfaces and woodwork. This is especially important on window timbers. To take advantage of the properties of such paints, the complete removal of old alkyd paint systems is recommended. Health and Safety: Special precautions should be taken during surface preparation of pre 1960's paint surfaces as they may contain harmful lead or other toxic materials

5 LIMITATIONS

5.1 GENERAL

This survey was confined to the accessible structures. Concealed timbers and cavities have been investigated where necessary. The condition of concealed timbers may be deduced from the general condition and moisture content of the adjacent structure. Only demolition or exposure work can enable the condition of timber to be determined with certainty, and this destroys what it is intended to preserve. Specialist investigative techniques are therefore employed as aids to the surveyor. No such technique can be 100 per cent reliable, but their use allows deductions to be made about the most probable condition of materials at the time of examination. Structures were not examined in detail except as described in this report, and no liability can be accepted for defects that may exist in other parts of the building. We have not inspected any parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the property is free from defect or in the event that such part of the property is not free from defect it will not contaminate and/or affect any other part of the property. No formal investigation of moisture distribution was made

5.2 CDM

The sample remedial details and other recommendations in this report are included to advise and inform the design team appointed by the client. The contents of this report do not imply the adoption of the role of Principal Designer by H+R for the purposes of the Construction (Design and Management) (CDM) Regulations 2015

5.3 BUILDING SAFETY ACT AND BUILDING REGULATIONS

H+R should not be considered as a designer under the Building Safety Act 2022 or the Building Regulations as amended. The client and design team should ensure that appropriate arrangements have been made where the Building Regulations apply and that the appropriate duty holders are in place and applications are made for Building Regulations approval

5.4 FIRE SAFETY

H+R have not carried out any risk assessments, surveys, investigations or analysis of fire safety risk, including compartmentation and structural fire performance of materials. It is recommended that the client and design team seek the guidance of appropriately qualified fire engineers or fire risk assessors as applicable

5.5 PLANNING PERMISSION AND LISTED BUILDING CONSENT

Listed buildings have statutory protection and works or alterations that may include fabric removal, some repairs, extension and demolition will require listed building consent. It is the responsibility of the client to ensure listed building consent is obtained where this is necessary. Where works to any building, listed or otherwise, constitute development requiring planning permission it is the responsibility of the client to ensure planning permission is obtained where this is necessary

Appendix A

COMMON DECAY ORGANISMS

1 DRY ROT FUNGUS

- 1 Dry rot (*Serpula lacrymans*): Dry rot (*Serpula lacrymans*) belongs to the same group of fungi as most of the common mushrooms and toadstools. Reproduction is by means of spores which are produced in enormous numbers by the fleshy pancake-shaped fruiting body. These fruiting bodies generally only appear when the fungus is stressed or dying off. A well-established infestation may produce fruiting bodies more than one metre across and be accompanied by thick layers of rust-coloured spore dust. Each minute spore has an outer coat which affords it some protection against heat and desiccation, and germination has been achieved after a twenty-year latent period. Dry rot spores are ubiquitous and there is no domestic or natural environment entirely free of them. They can be found throughout the environment from high up in the jet stream to the middle of the countryside
- 2 Spores: These will germinate and grow in timber with a moisture content of between 20 and 30 per cent. The fine fungal thread (hypha) digests the cellulose and hemi cellulose fractions of the wood, but is unable to attack the structural linings. These remain as a brittle matrix which cracks into cubes under differential stresses. Cuboidal cracking is also a characteristic of many wet rots and does not automatically indicate the presence of dry rot
- 3 Fungal hyphae: These may clump together into a variety of structures known as mycelia which take various forms depending on the surrounding conditions. They may fill a humid cavity as a cotton wool-like mass, or grow across the surface of the timber, as a grey-white skin. Active dry rot has a fresh white or greyish appearance and smells strongly of mushrooms. Distinctive patches of lilac or canary yellow pigmentation are usually present
- 4 Some hyphae group together to form conducting strands: These have a fairly impervious outer layer rich in chitin, the major constituent of insect cuticle. The strands, which may reach a centimetre in thickness, are flexible when moist, becoming progressively more brittle as they dry out. Their main function is the conduction of nutrients, through or across inert non-nutrient materials (brickwork etc) to other timbers. Their relatively impervious outer layer, together with an unusual alkaline tolerance, allows them to survive in the mortar layers within masonry and walls. An infested area may be full of dry rot strands. The dry rot fungus may tolerate relatively lower moisture contents and, through this, and other quirks in its biology, is potentially capable of considerable destruction. Realisation of this potential, however, requires a narrow range of environmental conditions and, in practice, several factors restrict growth
- 5 Dry rot hyphae may attack timber: This would require a moisture content of about 18 per cent, although spores would not germinate under these conditions. This moisture content is still 5 to 10 per cent wetter than timber should be in a healthy domestic building, and indicates water penetration or, perhaps, faulty plumbing. There is no evidence that dry rot can 'wet up' timber to any appreciable extent under conditions expected in a healthy building, although this is often claimed. The fine attacking hyphae, unlike the coarse conducting strands, are susceptible to desiccation and dry wood may disperse moisture faster than it can be transported. This means they cannot move through dry masonry and wood or across ventilated cavities

- 6 Total breakdown of wood by fungus: This produces considerable quantities of water. It has been suggested that dry rot can sustain itself on this 'metabolic' water alone. However, in practice, external drying factors disperse the moisture so that favourable conditions can be maintained only in exceptional circumstances such as behind impermeable finishes or in sealed cavities
- 7 Optimal conditions for fungal decay: In order to thrive, dry rot requires a moisture content in timber in excess of 20 per cent, and a relative humidity above 95 per cent. Below these levels the fungus will cease to cause current decay problems. Temperature is also a strong regulating factor, and growth ceases at about 25°C, a temperature frequently exceeded in roof spaces, for example. Large radiators can be particularly lethal to dry rot and measurements of 30°C with 20 per cent relative humidity are not unusual in their immediate vicinity
- 8 Latency: Dry rot is attacked by many other decay organisms which cause particular damage when the fungus is under stress will eventually destroy it. However, under dry conditions, dead dry rot does not disappear. Strands may eventually darken and the fungal mats may lose their fresh appearance, becoming tinged with brown, and leathery or papery in texture. The decayed wood becomes powdery as it dries, shrinks and distorts, which can be the first sign of decay having occurred behind paint finishes

2 WET ROT FUNGUS

- 1 Species: Wet rot is caused by a number of basidiomycete fungi of which the most important are *Coniphora puteana* (cellar fungus), *Poria fungi*; *Fibroporia vaillantii*, *Poria placenta*, *Amyloporia xantha*, *Geophyllum trabeum*, *Phellinus contiguus*, *Donkiporia expansa*, *Pleurotus ostreatus*, *Asterostroma* and *Paxillus panuoides*
- 2 Damage: They attack both softwoods and hardwoods causing a darkening of the timber (brown rot) or bleaching (white rot)
- 3 Optimal conditions: Wet rot fungi usually occur in persistently damp conditions, needing an optimum moisture content of 50 to 60 per cent. Unlike dry rot, the conducting strands of wet rot fungi do not extend far from their nutrient wood, hence they cannot travel through masonry and brickwork. The fruiting bodies occur rarely in buildings
- 4 Unseen damage: Wet rot has been known to hollow-out giant beams
- 5 Common species: Wet rot *Coniphora puteana* is responsible for up to 90 per cent of wood decay within buildings but raises less concern than dry rot, possibly because it is more easily controlled by standard building techniques
- 6 Some wet rots are also called soft rots: This is because they destroy both cellulose and lignin, leaving the colour of the wood largely unaltered, but producing a soft felty or spongy texture. Soft rot is caused by *Chaetomium globosum* and a number of other fungi also found growing on wet wood in buildings

3 WOOD-BORING INSECTS

- 1 Lifecycle: The common furniture beetle (*Anobium punctatum*) has a life cycle consisting of four stages - egg, larva (which causes all the damage), pupa and adult. The eggs are laid in end grain or in existing flight holes and hatch in 4 to 5 weeks and the new larvae bore directly into the wood. The larvae feed and grow within the wood creating a network of tunnels closely packed with frass (small ellipsoidal pellets). The larvae are whitish,

curved, approximately 6mm in length and have well defined dark-brown jaws. When fully grown the larva excavates a small chamber and pupates producing a beetle after 6-8 weeks which bores through a thin layer of wood producing the characteristic emergence holes 1-2mm in diameter. Emergence usually occurs between May and August. The life cycle depends on the condition of the wood, the temperature and humidity. The life cycle usually takes a minimum of 3 years within buildings.

- 2 Attack of timbers: This is usually confined to the sapwood of softwoods and hardwoods but may occur in the heartwood in timbers such as beech, birch, spruce or in timbers modified by fungal decay. As sapwood only makes up a small cross section of the majority of structural timbers in older buildings, attack is often of little or no structural importance
- 3 History: In most instances of suspected attack, the infestation has died out long ago due to unfavourable environmental conditions. Careful checking is therefore required to establish that living woodworm are present
- 4 Optimal conditions: In cases of active infestation the environmental conditions are often marginal allowing the life cycle to continue but at a very slow rate. Small changes in the environmental conditions can tip the balance against insects. Woodworm attack is often very localised to small areas of high humidity or especially 'palatable' timber and further spread is highly unlikely
- 5 Deathwatch beetle: In the British Isles, death watch beetle (*Xestobium rufovillosum*) infestations occur most commonly in oak, probably because this wood used to be extensively employed in construction, but infestation can also occur in elm, walnut, chestnut, elder and beech. The life cycle is similar to that of the common furniture beetle but can take many years to complete from one year under experimental conditions, to ten years or more in a building. The hatched larvae wander over the surface of the timber before burrowing into it. When it is fully grown it pupates and changes into the adult beetle which does not emerge until the spring of the following year producing a 3mm diameter hole
- 6 Damage: In old buildings severe damage can be caused under favourable environmental conditions. Softwoods are occasionally infested where they are in close proximity to damp infected hardwood. Infestation is confined to fungal decayed or damp affected timbers. Many existing cases probably arose from the reuse of infected timbers from demolished buildings and from the use of unseasoned timbers used in their construction. Attack is not confined to the sapwood and often the heartwood is entirely consumed causing severe structural damage. Damage is most severe where ventilation is poor and where timbers are in contact with damp masonry
- 7 Death watch beetles are not active fliers: A localised attack of death watch will not automatically spread to the whole house and infest every timber in the building. Lowering of moisture contents of the timber in conjunction with careful observation to determine the level and extent of activity should provide control of the insects. Some severe cases may merit the use of local insecticide treatments as a first aid measure. However, the chemical must be targeted properly or large quantities of toxic pesticides will be used to little effect
- 8 Effect of timber moisture content: Woodworm and death watch beetle infestation will not flourish if the moisture content of timber is below about 14 to 15 per cent. The risk of infestation of insect attack is slight, in timbers with a moisture content at or below 14 per cent and the insect larvae will desiccate below about 12 per cent moisture content. The infestation will eventually die out if the timber moisture content is maintained below this. Healthy roof timbers should have a core moisture content of between 14 to 15 percent,

while suspended floor timbers should be between about 11 and 14 per cent. Installation of a central heating system may reduce these moisture contents to about 9 per cent particularly in exposed timbers

- 9 Investigation: It is absolutely necessary to recognise whether an insect infestation is 'active' or 'dead'. The presence of fresh frass (bore dust) in conjunction with damp timbers may be acceptable evidence of active infestation

Appendix B

HEALTH AND SAFETY RISK ASSESSMENT

HAZARD: Irritant dusts

Risk: disturbance of building material or debris by exposure works, cutting, drilling etc could produce airborne dusts which may be irritant to the skin, eyes, nose and respiratory system, and may be a health hazard if breathed in by workers or others in the area; particular hazards include the disturbance of mineral/glass fibre insulation and/or chemically contaminated dust (resulting from remedial timber treatments) in roof spaces or other voids, the disturbance of materials containing asbestos, especially in boiler rooms, flues and pipework installations and the disturbance or removal of faeces deposited by birds or animals

Reduce risk by: carrying out a COSHH assessment (the duty of the employer under the COSHH regulations) to determine the health risks and necessary measures to protect employees and others. This may include: correct identification of building materials, if possible before works commence (this may require research into record drawings/specifications for previous building refurbishments/repairs/refits; contacting HSE if the presence of asbestos is suspected; avoiding disturbance of hazardous materials; containment of dust within localised areas of the building by creating dust-proof envelopes; ventilation of working areas (may need to be mechanical and may need filtration for the retention of hazardous particulates); provision by employer and use by the operatives of personal protective clothing, goggles and breathing apparatus/masks suitable for the particular type of dust

HAZARD: Working in confined spaces

Risk: there may be a build-up of toxic gases (e.g. from chemical remedial treatments or from site contamination) or a depletion of oxygen in the atmosphere of a confined space; restricted working space may be awkward and lead to injuries; escape may be difficult, causing overexposure to adverse conditions or delay to medical treatment; communication with persons outside the confined space may be difficult

Reduce risk by: testing the atmosphere for toxic gases and if present, carrying out a COSHH assessment; providing a supply of fresh air into a confined space, if necessary; ensuring that work only proceeds with at least two persons - at no time should a person work alone in a confined space; ensuring that there are emergency procedures in place before work commences, for rescue from confined spaces

HAZARD: Collapse: renewal of lintels and beams

Risk: improperly sequenced works during the renewal of decayed roof trusses, rafters, joists or lintels could lead to collapse of structure causing injury to workers or others

Reduce risk by: specifying a correct sequence of propping, removal and replacement of structural members to maintain stability during refurbishment

HAZARD: Collapse: dangerous structures

Risk: unstable structures which are the result of decay, fire damage, impact damage or partial demolition, could collapse causing injury to workers or others

Reduce risk by: shoring up the structure to ensure its overall stability and prevent loose parts falling off; demolition of parts of an unstable structure which are not to be retained, but only if they are not of historical value and only with instruction from the Supervising Officer. Unstable structures should be made inaccessible to workers and others by means of barricades and warning notices until they have been stabilised/demolished. Barriers to comply with BS 6180:1995 Code of Practice for barriers in and about buildings

HAZARD: Electricity

Risk: of electrocution by cutting through electric cables

Reduce risk by: locating cables before excavation work or cutting into or drilling the existing building fabric, using a cable locator and cable plans, marking their position and taking precautions to avoid contact with them; supplying all portable tools and equipment with 110v transformers, not 240v; ensuring proper connections to equipment. All temporary electricity installations for construction sites should comply with BS 7375:1996

HAZARD: Falls from height (over 2 metres): scaffolding

Risk: undertaking inspections or carrying out work from inadequately designed or erected scaffolding could cause persons to fall or injure themselves or others below

Reduce risk by: use of properly designed and erected scaffold with adequate access; baseplates to uprights; adequate ledgers, braces, struts, ties; fully boarded platforms; guard rails and toe boards to prevent falls of more than 2 metres; frequent inspections of scaffold. Also personal protection such as safety harness and safety line. Scaffolding to comply with BS 5973:1993 Code of Practice for access and working scaffolds etc

HAZARD: Falls from height (over 2 metres): ladders

Risk: undertaking inspections or carrying out work from improperly positioned or inadequately secured ladders could cause persons to fall or injure themselves or others below

Reduce risk by: use of properly positioned ladders secured at the top, and which project at least 1.07 metres above any landing

HAZARD: Falls from height (over 2 metres): flat roof

Risk: inadequate edge protection can allow persons to fall off the edge of a flat roof or through openings or fragile roof coverings

Reduce risk by: installation of edge protection such as guard rails around the perimeter of flat roofs, and around openings or areas of fragile roof coverings within flat roofs; providing safe walkways, platforms, travelling gantries across fragile roofs. Barriers to comply with BS 6180:1995 Code of Practice for barriers in and about buildings

HAZARD: General

Risk: general accidents in the course of work such as cuts, impacts, muscular strains etc

Reduce risk by: providing first aid facilities; providing welfare facilities; providing personal protective equipment and ensuring that the workers use it; ensuring adequate lighting of all access areas and work areas; ensuring that emergency procedures are in place prior to site work commencing

Appendix C



Fig 1:

South elevation; showing a general overview to the barn. Note complete structural collapse to the east 3no. bays with partial collapse to the central bay. 2no. west bays remaining without an external roof envelope



Fig 2:

Bay 3; showing a general view looking east. Note complete structural collapse of the 3-4no. west bays with collapsed debris remaining and exposed to the elements



Fig 3:

Bay 1; showing a general view east of the remaining standing 2no. west bays. However, these were subject to severe structural decay issues and themselves deemed highly vulnerable to failure



Fig 4:

Bay 1, Truss 1; showing the south bearing end to the principal truss. Note complete structural loss of tie beam bearing end which bore onto the masonry wall head alongside the principal rafter and not jointed directly as conventional. This was the only evidence of this type of truss construction throughout the barn



Fig 5:

Bay 1, south eaves; showing a general view to the south eaves subject to total failure of the rafter plate and subsequent collapse/settlement of the rafter ends and wall head



Fig 6:

Bay 1, Truss 1; showing representative detail of the south lower purlin joint to the principal rafter via an inserted slip tenon. Slip tenon structurally decayed



Fig 7:

Bay 2, north eaves; showing representative view to the rafter plate at an historic joint location. Note structural decay identified to the rafter plate for its total remaining length between Bays 1, 2 and 3



Fig 8:

Truss 2; showing historic constructional detail of the chamfer stop to the principal truss tie beam being of lambs tongue variant (*cyma reversa*)



Fig 9:

Bay 6; showing a general view looking west



Fig 10:

Bay 6; showing view towards the lintels to the east gable doorway formed of 2no. oak primary external lintels with an inner oak packing lintel. All lintels were deep drilled and moisture probed. Structural decay detected the north bearing end to the outer lintel



Fig 11:

East gable; showing a general view towards the east gable subject to multiple defects. Including visible structural cracking, decayed external lintel, unstable/exposed wall heads and encroaching invasive ivy growth. Also note that the ground floor lintels were deep drilled and probed. No decay detected, however moisture contents elevated at ~16-19% and species identified as softwood which may not be suitable/robust enough for long term occupancy. Structural Engineer to comment



Fig 12:

North elevation; showing a general view towards the north facade



Fig 13:

Bay 6; showing remaining collapsed component identified as the north principal rafter. Item deemed unsuitable for retention/salvage due to excessive decay margins throughout. All primary collapsed roof components identified on-site via red spray paint



Fig 14:

Bay 6; showing representative constructional detail of a purlin joint formed via an inserted slip tenon pegged independently into the principal rafter as well as to the purlins. Also not purlins 'let-in' to the principal rafters for additional strength at the bearing end



Fig 15:

Bay 6; showing remaining collapsed component identified as principal truss tie beam 5. Item deemed unsuitable for retention/salvage due to excessive decay margins throughout



Fig 16:

Bay 2; showing remaining collapsed components identified as truss 2 raking struts. Note that the lower strut in the image might be suitable for retention subject to a suitable scarf repair to its bottom shoulder (indicated via red circle)



Fig 17:

Bay 3; showing remaining collapsed components identified as the north principal truss rafter and strut to truss 3. Items deemed unsuitable for retention/salvage due to excessive decay margins throughout



Fig 18:

Bay 3; showing remaining collapsed components identified as the south principal truss rafter. Item deemed unsuitable for retention/salvage due to excessive decay margins/total failure



Fig 19:

Bay 4; showing remaining collapsed components identified as the principal tie beam and the north principal truss rafter. Items deemed unsuitable for retention/salvage due to excessive decay margins throughout



Fig 20:

Bay 4; showing remaining collapsed component identified as the south (lower) purlin. Items deemed suitable for retention/salvage subject to scarf end repairs to receive new slip tenons



Fig 21:

Bay 4; showing remaining collapsed components identified as the north principal truss elements to truss 4. Note total structural failure of tie beam. Strut potentially suitable for salvage subject to scarf repairs to its bearing ends



Fig 22:

Bay 5; showing remaining collapsed components identified as the north principal truss rafter. Item deemed unsuitable for retention/salvage. However, note constructional detail of slip tenoned purlin joints with ~1" rebated housings to receive the purlin ends



Fig 23:

Bay 6; showing remaining collapsed trusses against the north internal elevation. All timbers remain exposed to wind and rain. Therefore material deemed salvageable at the time of survey are likely to increase proportionality in their respective decay margins unless removed and stored in a suitable environment



Fig 24:

Bay 6; showing a general view to collapsed members within bay 6 which was understood to have been the initial area of collapse. No timbers identified as suitable for salvage



Fig 25:

Bay 6; showing what appeared to be a later addition remedial strut at ground level. No timbers identified as suitable for salvage



Fig 26:

Bay 4; showing constructional detail of a principal truss joint to a purlin via a slip tenon with ~1" rebated housings to receive the purlin ends



Fig 27:

West gable; showing a general view towards the west gable internal face subject to multiple defects. Including structural decay to all 4no. Remaining historic purlin ends. However, no substantial or structurally significant cracking identified. Ground floor doorway lintel of mixed solid and timber construction (3no. Concrete precast lintels with a inner oak timber packing lintel). Timber lintel deep drilled and moisture probed. No significant decay detected. Timber moisture content stable at ~14 per cent robust enough for long term occupancy. Structural Engineer to comment



Fig 28:

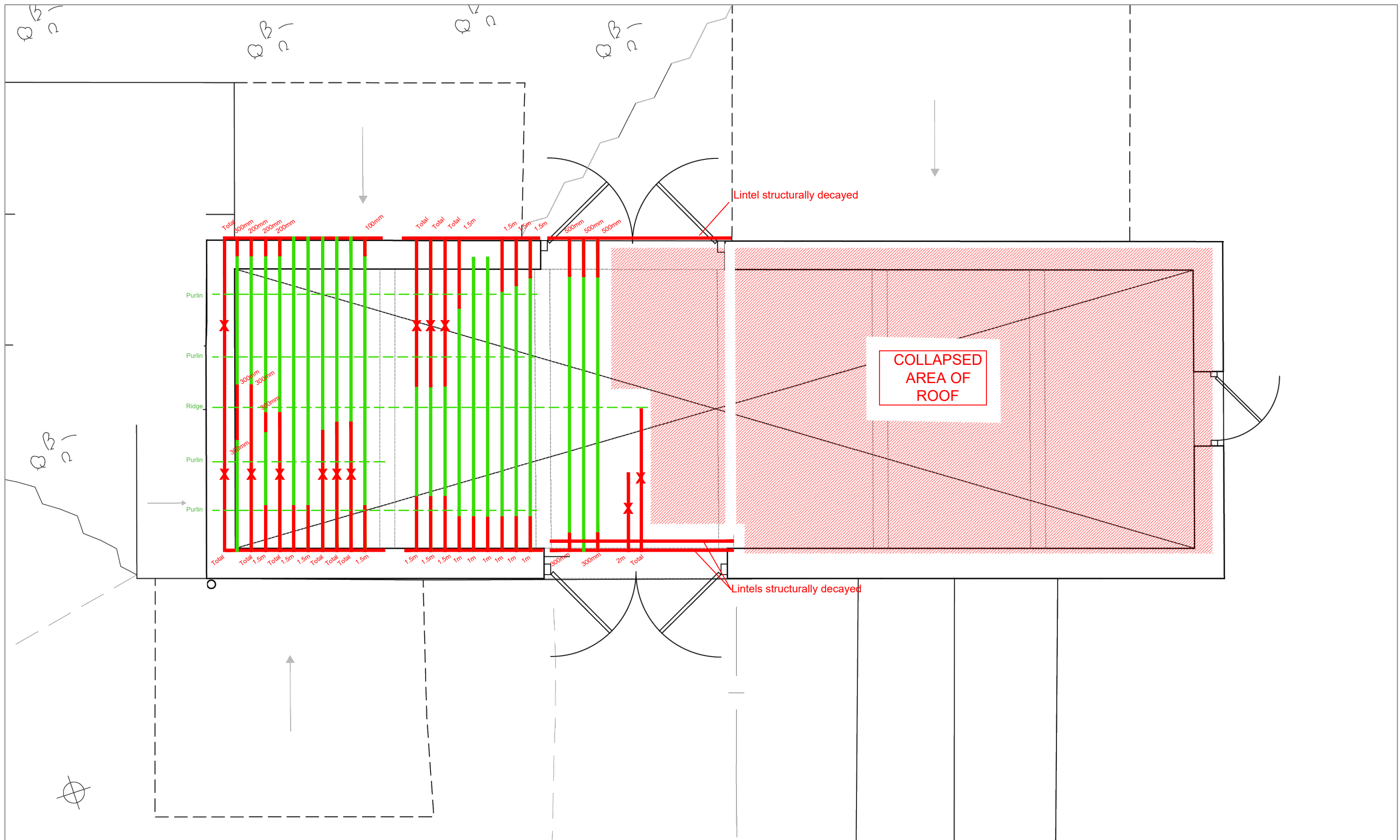
North elevation, Bay 2; showing structural decay detected to the north façade historic oak lintel



Fig 29:

North elevation, Bay 3; showing structural decay detected to the outermost north bay historic oak lintel. Inner lintel subject to partial decay only. However, deep moisture contents high enough to support the onset of active decay organisms

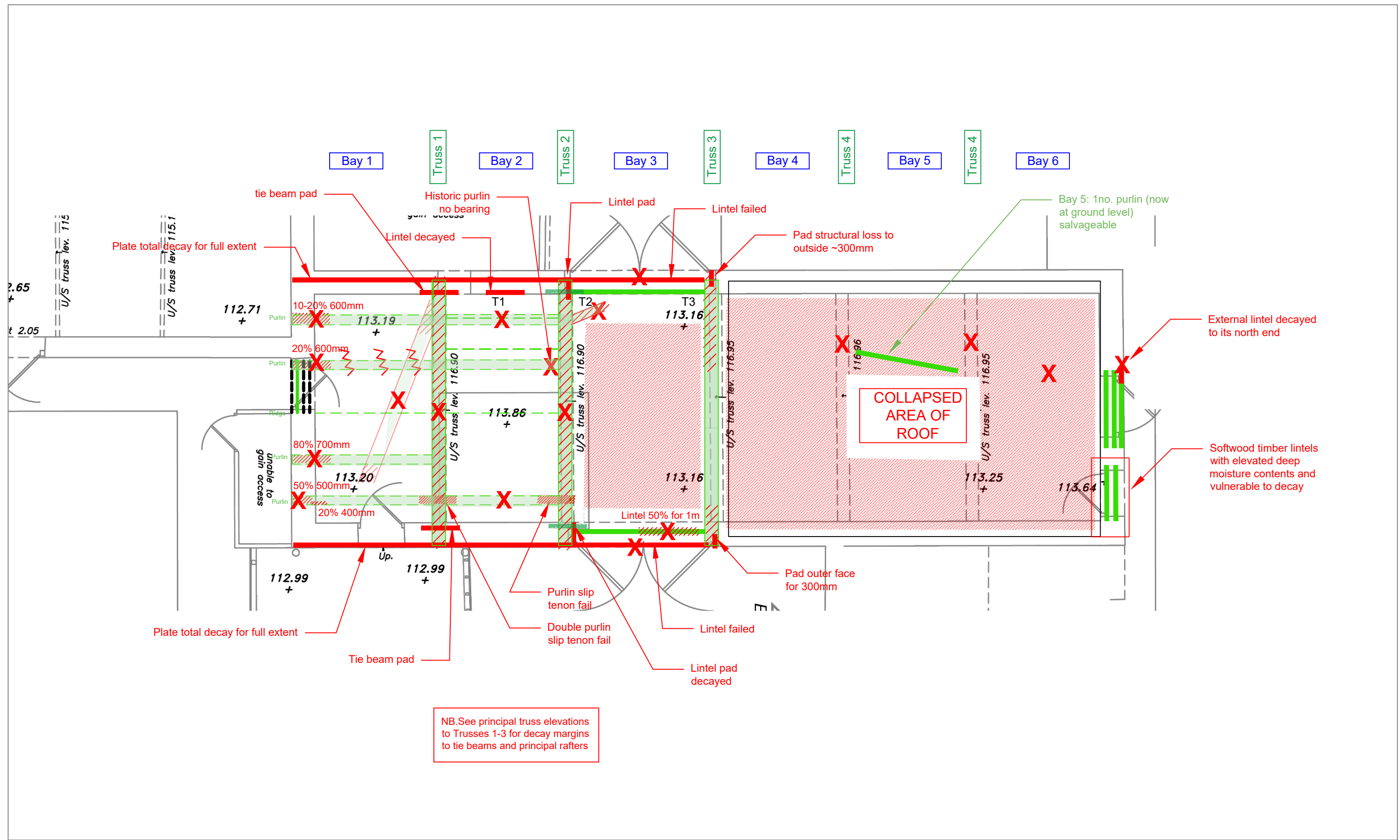
Appendix D



Ashgrove Farm - Common Rafters
Timber Condition Investigation
March 2025

Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Email: ei@handr.co.uk Web: www.handr.co.uk
 163-27 Report -Not to scale, all dimensions are approximate- © Copyright Hutton+Rostron 2025

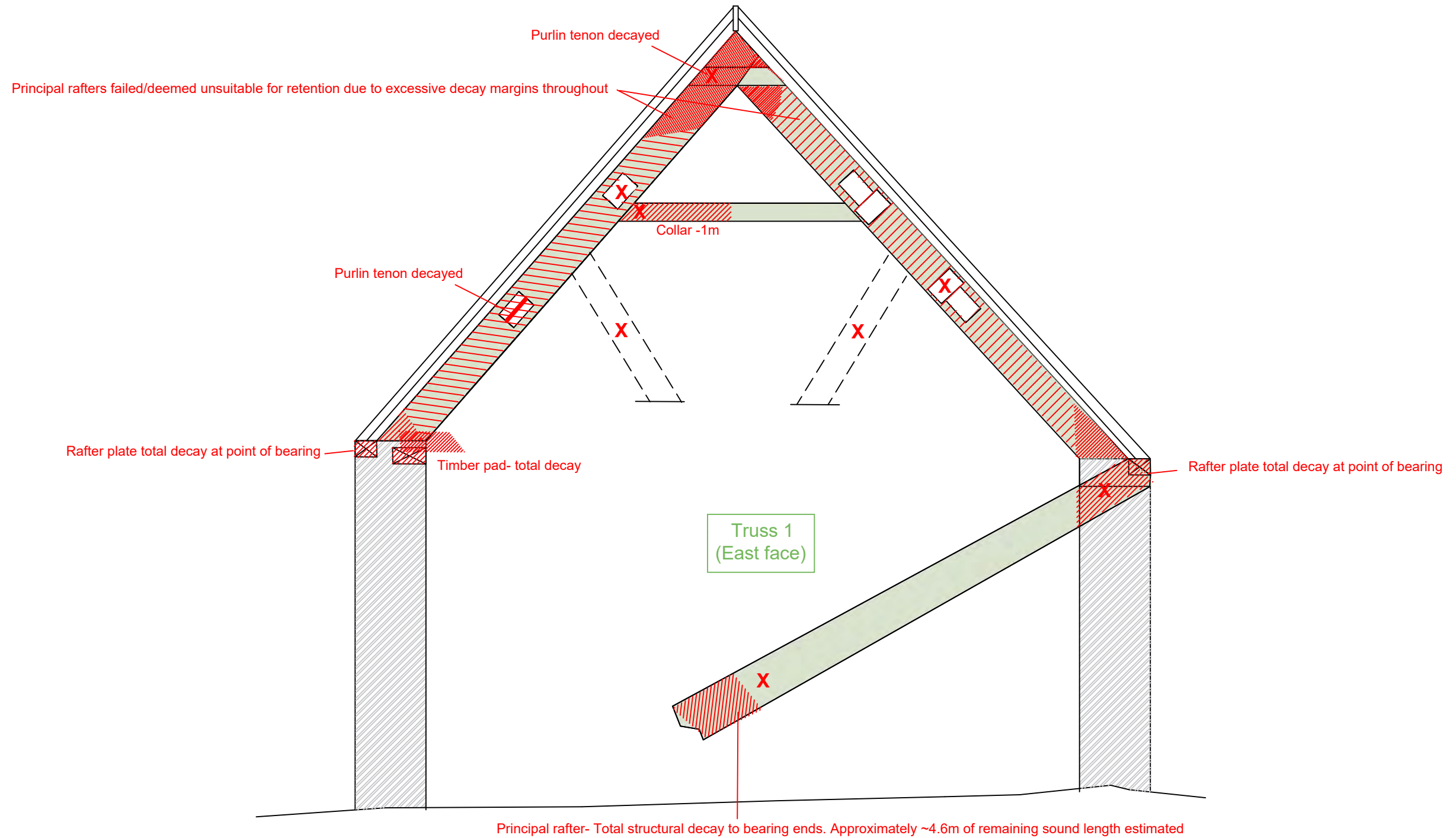
- Key:**
- Area subject to structurally significant timber decay
 - Area subject to partial timber decay
 - Structurally failed timber element/bearing end
 - Structurally decayed timber element
 - Approximate location of crack
 - Timber element
 - Structural engineer to comment

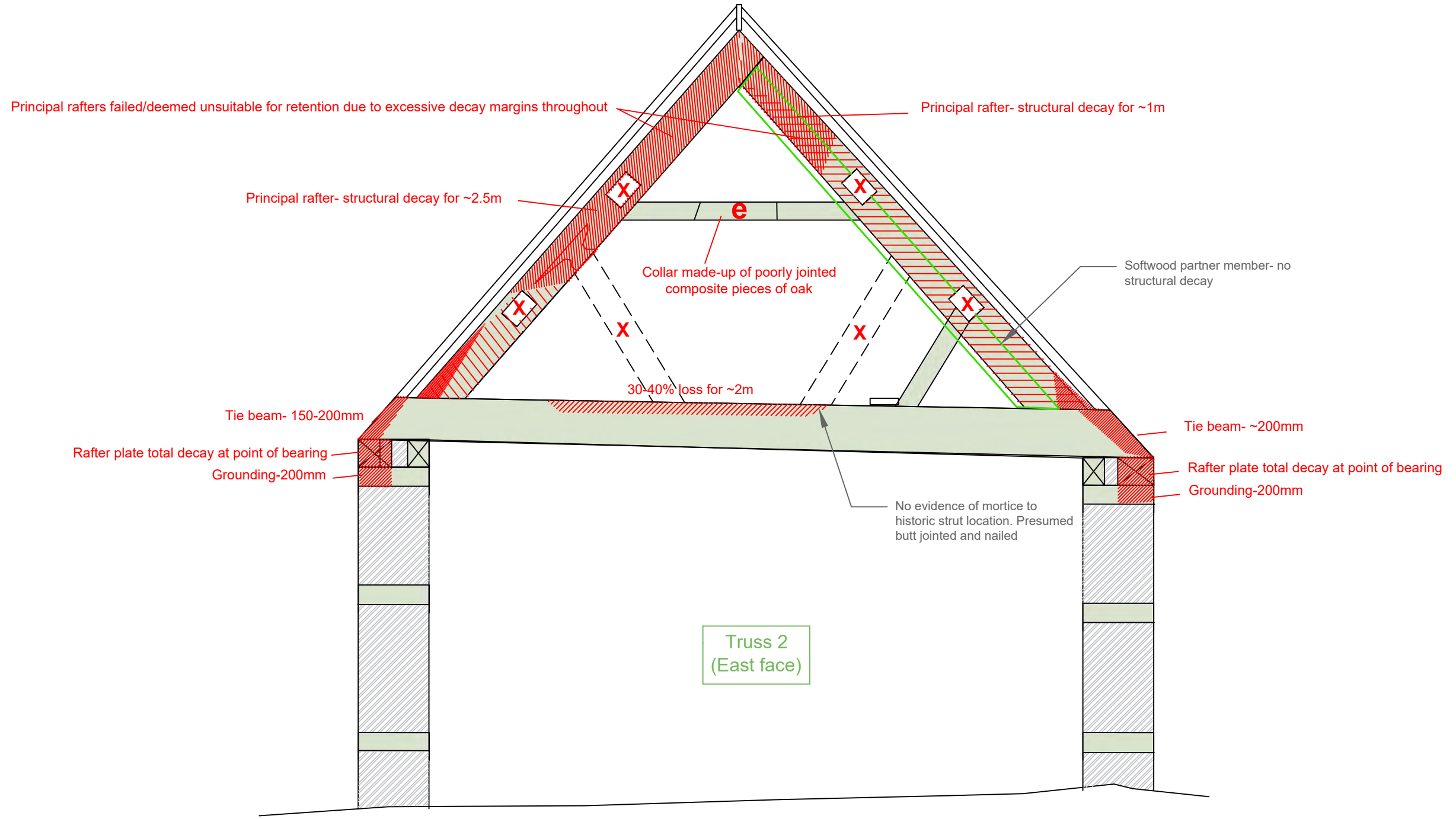


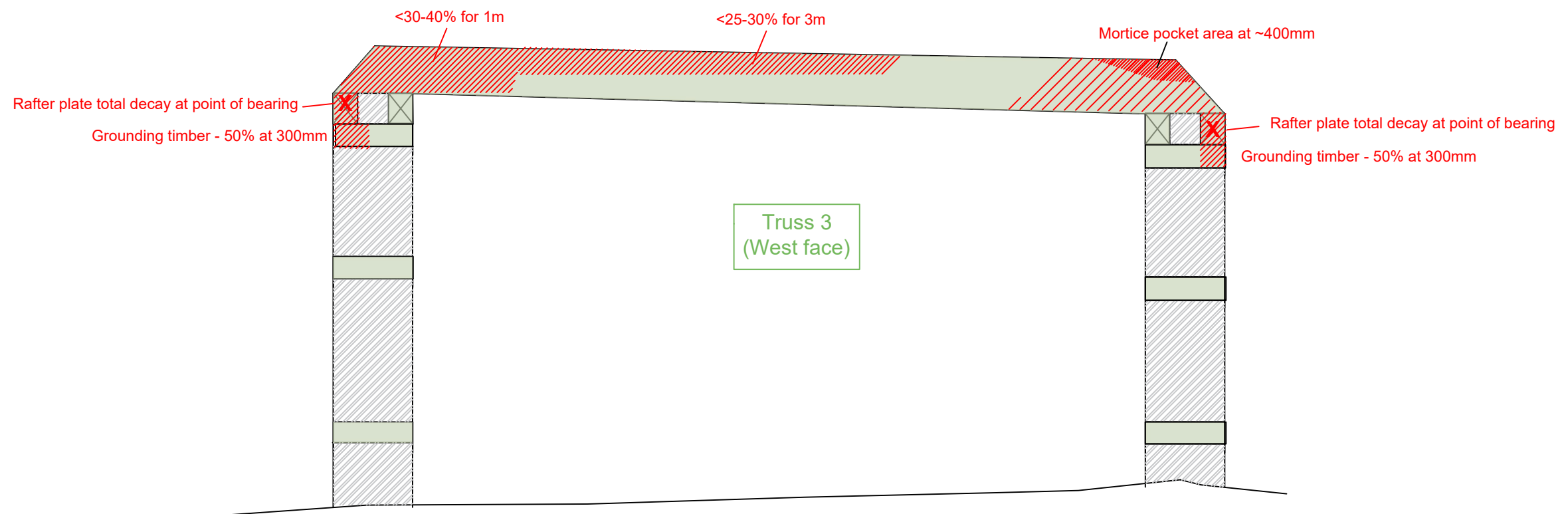
Ashgrove Farm - Primary Roof Timbers
 Timber Condition Investigation
 March 2025

Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Email: ei@handr.co.uk Web: www.handr.co.uk
 163-27 Report -Not to scale, all dimensions are approximate- © Copyright Hutton+Rostron 2025

- Key:**
- Area subject to structurally significant timber decay
 - Area subject to partial timber decay
 - Structurally failed timber element/bearing end
 - Structurally decayed timber element
 - Approximate location of crack
 - Timber element
 - Structural engineer to comment







26709 – Ashgrove Farm, Ardley - OxSRFI

Initial Structural Appraisal Report



Introduction:

Hurst Peirce + Malcolm LLP has been commissioned by Mountpark Ltd to undertake inspections of some existing farm structures, report on their condition and provide initial recommendations for repairs.

No intrusive investigations have been undertaken prior to preparation of this report. Any opinions given in this report may be subject to verification following exploratory works.

This report has been prepared on behalf of the parties noted above and shall not be relied upon by other parties.

Ashgrove Farm is located just outside the village of Ardley, near Bicester, Oxfordshire.

The farm contains a large number of buildings, both older and newer.

The primary focus of this inspection was the Grade II Listed threshing barn, along with the adjoining Cow House building.

According to the Listing, the barn dates from the early/mid-18th century.

No access was possible to the adjoining Pig Barns and Boiler House due to an overgrowth of vegetation.

Attached lean-to structures were also not inspected in detail.

Our inspection was undertaken on 27th March 2025, a cold but dry day.

Observations:

Listed Barn:

The barn has an approximate footprint of 20.0m x 6.5m. Height to eaves is approximately 3.0m with an approximate 45° duopitch roof.

At time of inspection, the barn has lost roughly two-thirds of its roof structure, with the remainder in a partial state of collapse.

The roof structure originally comprised five simple collar & strut hardwood timber trusses, supporting two lines of hardwood purlins on each slope.

Hutton + Rostron, timber specialist surveyors have undertaken a separate inspection of the remaining roof timbers, wall plates and lintels, so we will comment no further here.

The barn walls are constructed of coursed limestone rubble roughly 550mm thick (upper gables roughly 450mm thick) and would appear to be solid stone rather than rubble-cored (though this needs to be confirmed).

Timber lintels are present over openings, including the large threshing doors in both long elevations.

The original brick floor is visible in places, though mostly covered by soil, vegetation and timber debris.

Detailed viewing of the external wall faces was limited by attached buildings and extensive vegetation growth, however, where visible, original lime mortar bedding was generally either crumbly or lost to some depth into the wall face.

Wall tops have generally been quite badly affected by exposure to the weather (loose, frost damaged crumbling stone and lost mortar) and vegetation root penetration. The outer stonework has partially collapsed onto the lean-to roof (NE) and onto the pig barns roof (SE).

On the east gable wall, there is a fine diagonal crack above the high-level door opening and loose stonework at eaves level to the SE corner.

Similar loose stonework is present at eaves level to the SW corner.

Parts of the east and west gables have been heavily re-pointed out to the stone face, most likely with gauged or full-cement mortars.

Some stones have deep face erosion on the south elevation wall, mainly in the vicinity of the SW extension.

There are no obvious signs of foundation settlement/subsidence issues.

Internally, there are some long vertical/diagonal cracks in the west gable wall where the barn adjoins the cow house (NW corner) and also some vertical cracking near the SW corner, though none of significant width.

All that said, the main body of the barn walls are reasonably plumb, with no noticeably significant leaning, bowing or bulging.

Cow House:

Approx. footprint 20.0m x 5.0m. Similar coursed rubble limestone construction to the barn, but approx. 350mm thick walls, 2.0m height to eaves.

45° duopitch roof of softwood timber kingpost trusses supporting a single line of purlins.

Whilst the roof structure appears to be generally more intact (and probably not original), roof coverings are in very poor condition allowing weather into the tops of the walls, and there are more significant issues with the walls, and possibly the foundations.

Bedding mortar crumbling/lost and stone face erosion generally, similar to the Listed barn.

Vertical/diagonal cracking is visible in the west gable wall along with some masonry loss near ground level. The west section of the long south wall is leaning outwards.

There is also vertical/diagonal cracking to the internal cross wall and the east gable, where attached to the Listed barn.

There is an existing steel tie rod in front of the east gable wall, though this is sagging, so non-functional.

A vertical crack is present near the west end of the north long wall and there is a section of loose/missing stonework above a pair of doors near the middle of the north long wall.

The majority of existing timber lintels are bowing and appear to be rotten.

Discussion & Recommendations:

Listed barn:

Subject to the findings of the Hutton + Rostron investigation, it did appear to the writer that some of the timber roof structure could possibly be salvaged for reuse, or repaired, strengthened and reused, though most likely as part of a full dismantling and reconstruction rather than trying to repair insitu.

We would assume full replacement of existing timber wall plates and lintels is required.

The main body of the barn walls appear to be in fair structural condition, though at this stage we would allow for the top 1.0m of all the walls to require dismantling and reconstruction due to complete loss of mortar, loose & frost damaged stones and deep penetration of vegetation roots into the wall tops, though clearly, we would wish to limit disturbing otherwise sound masonry where we can.

It is also recommended that some formal horizontal tying is incorporated into the rebuilt roof structure at eaves level to increase the robustness of the north and south walls, along with introducing lateral ties between gable walls and the roof structure.

All the walls will need deep raking out and refilling of mortar joints in new lime mortar due to the crumbling/loss of existing mortar. This will need to be done one small area at a time.

Whilst no obvious foundation issues were noted, we recommend some trial pitting around the barn to determine form, depth and condition of foundation masonry, as well as profiling the founding soil strata.

The BGS database suggests the farm is underlain by weathered limestone at shallow depth. Heavily weathered limestone can exhibit similar shrinkable behaviours to clay, but usually less severe, so it would be good to know the soil properties here via some lab testing of samples.

Clearly the aim of any refurbishment would be to have a weathertight roof and guttering to discharge rainwater away from the building.

It would also be essential to lower any high external ground levels and create an external gravel margin, with French drains, if necessary, to protect the bases of the walls.

Cow house:

The observed patterns of wall cracking and the noted leaning are most likely to have been caused by roof spread prior to, and during, the collapse of the original roof. However, some foundation settlement, particularly at the west end, and possible differential settlement where the cow house adjoins the Listed barn, cannot be discounted.

We think it quite likely that the cow house walls may be founded at shallower depth than the Listed barn, possibly even within the frost-affected surface zone, so again some trial pitting is recommended to investigate.

The roof structure, assumed to be newer, appears to be generally in good shape, though some repairs at wall bearings may be required, along with likely replacement of wall plates and lintels.

Wall repair strategies will depend on whether foundation issues are discovered.


For and on behalf of **Hurst Peirce + Malcolm**

May 2025