

04. DESIGN.

Design Rationale

A rigorous design process has been undertaken and the following principles have helped inform the design rationale;

- 1. Create a new dwelling that meets the demands of 21st century living whilst safeguarding the future of the barn.
- 2. Sensitively reimagine the internal spaces of the barn to equip them for a unique form of modern day contemporary living,
- 3. Enhance the setting of the listed barn,
- 4. Draw inspiration from the site's rural and agricultural setting,
- 5. Draw inspiration from the architectural significance of the listed building and it's setting,
- 6. Ensure that any proposals scale and appearance is ancillary to the listed building,
- 7. Ensure that the original form of the listed building is clearly legible,
- 8. Ensure that any proposal appears subservient to the listed building,
- 9. Utilise materials that compliment and celebrate the host buildings,
- 10. Create a contemporary piece of architecture that compliments the vernacular of the listed building and sensitively differentiates old from new.



Site Analysis

The existing barn and it's various extensions is located towards the south west corner of the application site boundary. Its located tightly along the west boundary facing Dane End. The north boundary faces the neighbouring Holborn Farmhouse and addresses the shared driveway, a courtyard and yard area to the north. There are direct views from the barn towards the principal elevation of Holborn Farmhouse.

The barn has been added to incrementally over time in a utilitarian fashion, and as expected of agricultural usage. The condition of the various additions appear to be worse than the historic barn itself, despite the differing ages. Signs of repair work are present across the barn whereas in the adjoining structures there are minimal signs of change since they were built. The quality of these adjoining buildings has a negative impact on the appearance and setting of the historic barn. The more recent additions and adjoining structures are of significantly lower heritage value than the barn itself.

There are very few openings into the main barn. Views to the property are primarily from the west, along Dane End, where the west facing half hipped gable elevation of the barn and south west elevation of the stables building are most prominent. Glimpse views of the adjoining structures are also visible along Dane End whilst views of the south elevation are gained as you approach the site. Due to the proximity of private land to the north and east, and falls in topography these elevations are much more concealed. The general fall in topography is from north east (high) to south west (low). This is most noticeable from the north yard area and along Dane End road.

The principal elevation faces north west towards Holborn Farmhouse. The perpendicular additions of the stable and car port face both south west and north east gaining both morning and evening direct sunlight.

The vast majority of the site area is in concrete hard standing.



Site Analysis Diagram

Design & Access Statement.



Demolition

A detailed heritage report and impact assessment is enclosed as part of this application. Please refer to this document alongside the design and access statement and proposed drawings for a full description of the proposed works.

The proposal includes the demolition of the 3 non-original adjoining structures.

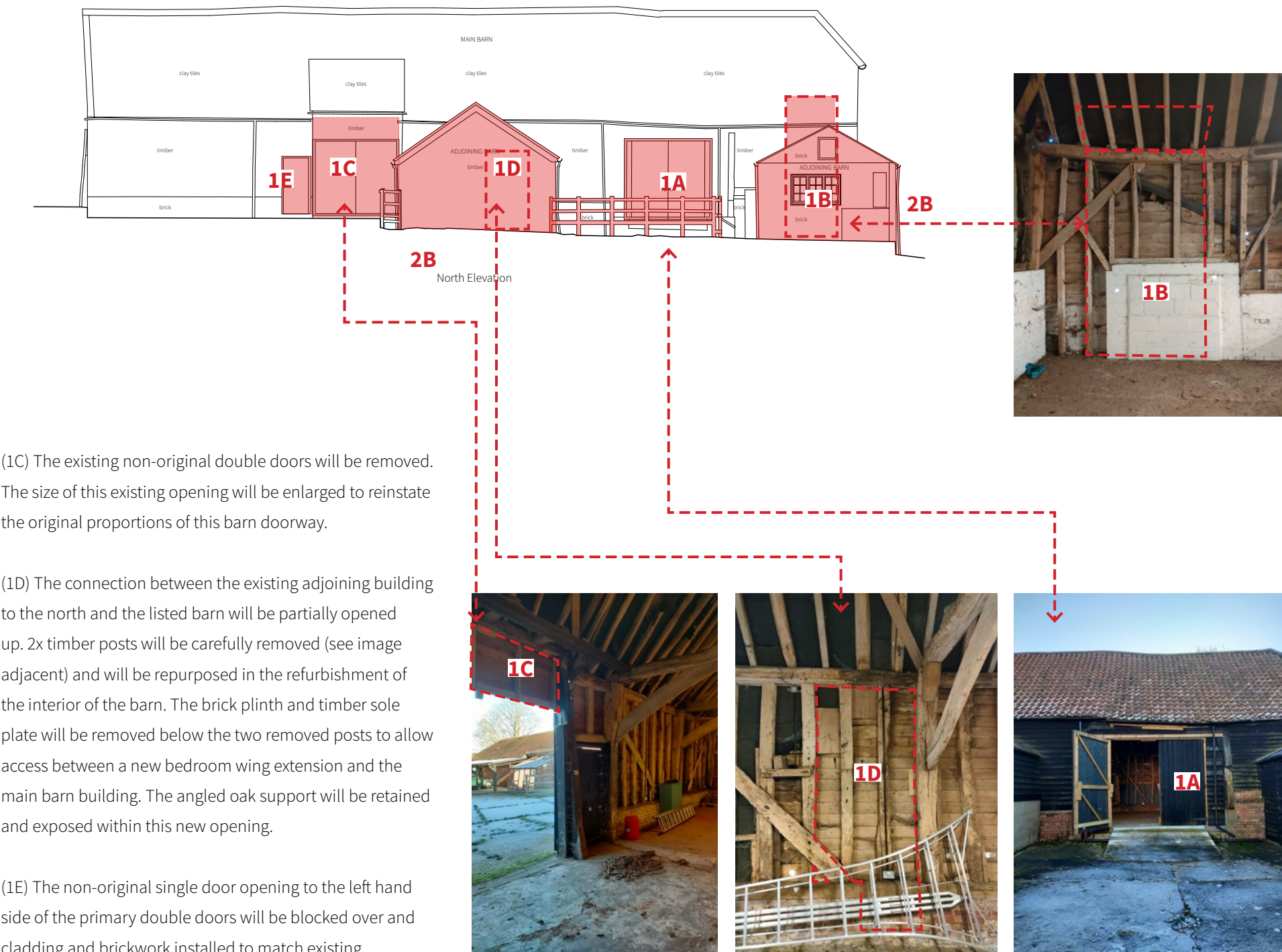
Selected areas of the listed barn have been identified to be carefully removed, these are identified in red on the proposed drawings and are listed across the drawings adjacent.

When a contractor is appointed to carry out the work, they will be asked to appoint a historic timber frame specialist to treat, repair and refurbish the timber frame across it's full extent. During these works, historical timbers will be retained and refurbished where ever possible. Where replacements are required due to structural performance, these will be replaced in oak timber using techniques to match the original timber frame.

North Elevation

(1A) The timber barn doors are removed (the barn doors are not original, photo adjacent). The timber frame is made good in materials and techniques to match original. The size of the existing opening is retained.

(1B) A new opening will be formed to link a replacement structure on the site of the stables with the main barn. The opening is formed in the 7th bay of the barn and replaces an area of concrete blockwork at ground level believed to have been installed when the adjoining stables structure was built. Above, the new opening will trim the existing frame to form a new opening using oak and techniques to match those used on the barns original construction. Salvaged oak will be re-sued in repair works elsewhere in the barn.



(1C) The existing non-original double doors will be removed. The size of this existing opening will be enlarged to reinstate the original proportions of this barn doorway.

(1D) The connection between the existing adjoining building to the north and the listed barn will be partially opened up. 2x timber posts will be carefully removed (see image adjacent) and will be repurposed in the refurbishment of the interior of the barn. The brick plinth and timber sole plate will be removed below the two removed posts to allow access between a new bedroom wing extension and the main barn building. The angled oak support will be retained and exposed within this new opening.

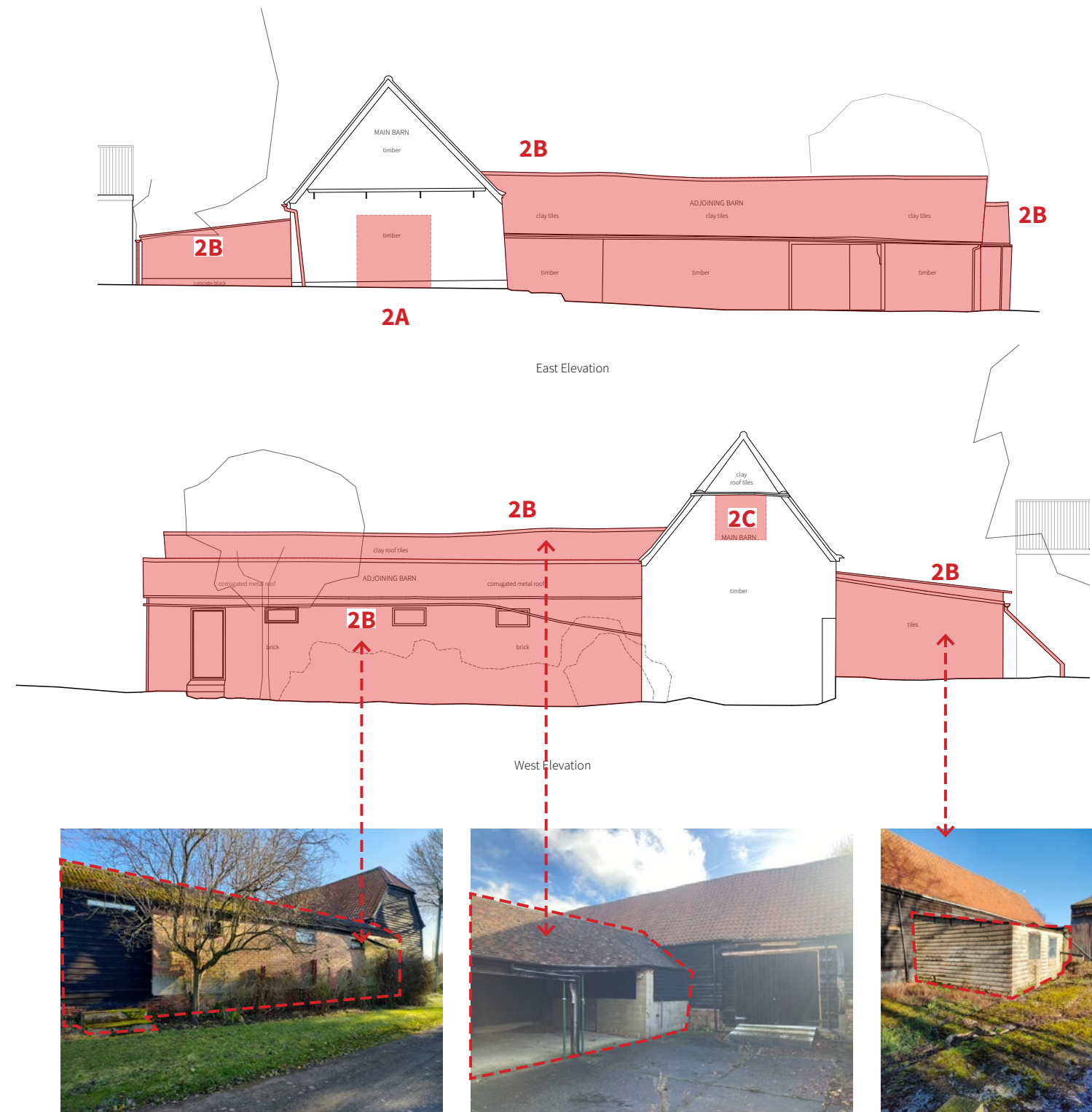
(1E) The non-original single door opening to the left hand side of the primary double doors will be blocked over and cladding and brickwork installed to match existing.

East & West Elevations

(2A) A new opening is formed in the east facing elevation of the barn. The new opening will house glazed double doors to provide access onto the new rear garden. Black painted timber shutters will be installed over the top of the new opening to provide the opportunity to return this gable end to its original blank state when desired.

(2B) Three adjoining structures are removed from around the listed barn. Each structure is non-original. Details of their historic value are included in the heritage report and impact assessment enclosed as part of this application. Careful reinstatement of original or replacement to match original materials are to be installed at the old junctions of the barn and the adjoining buildings where making-good and patching in is required as a result of removing the existing structures.

(2C) A new opening is formed in the gable end of the barn facing south west to bring light into a mezzanine level internally. The new opening will be formed in the external cladding only and will not cut into the existing timber frame. The timber frame will remain exposed on the internal side of the window.



South Elevation

(3A) A new opening is formed to the south elevation to form an internal link between a replacement structure on the south elevation and the main barn. The new opening is formed by carefully removing 1 timber post and using the existing angled oak support as a lintel for an internal doorway. The internal doorway will include the original post over the top so that when in it's closed position the timber frame remains visually how it is currently.

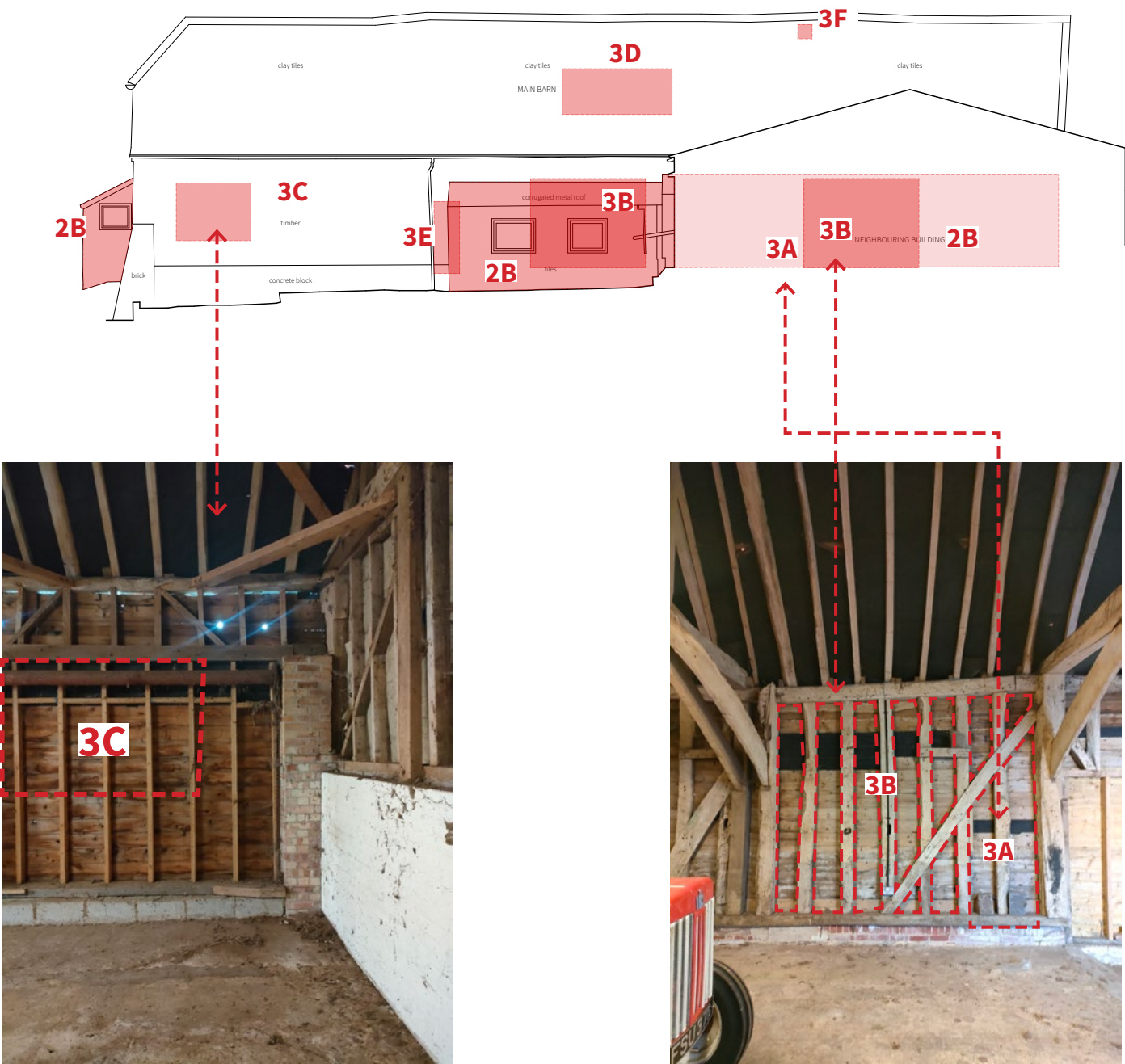
(3B) External cladding is removed from the south elevation where this is currently located behind the existing lean-to structure. Original boards will be reused in making good and repairs required elsewhere on the barn. The external boards are removed and replaced with a translucent panelling to provide acoustic insulation between the new adjoining structure and the barn, whilst allowing light to pass through the historic timber frame.

(3C) A new opening is formed in the south elevation to bring light into a guest bedroom. The existing walls in this location are non-original. Evidence of previous openings are present in this location. The works to create an opening in this location will consolidate the internal and external cladding in these locations.

(3D) A rooflight opening is formed in the southern roofslope to bring direct natural light into living spaces internally. The rooflight opening allows openings across the elevations to be kept to a minimum.

(3E) A new opening is formed in the south elevation for a singular doorway into the replacement lean-to addition.

(3F) A new opening is formed in the roof to provide access for a log burner flue and cowel.



Precedents

Adjacent are a selection of precedent images that have helped inform the design of the proposal.

They show examples of conversions and extensions to existing buildings with particular architectural merit, historical interest and sensitivity.

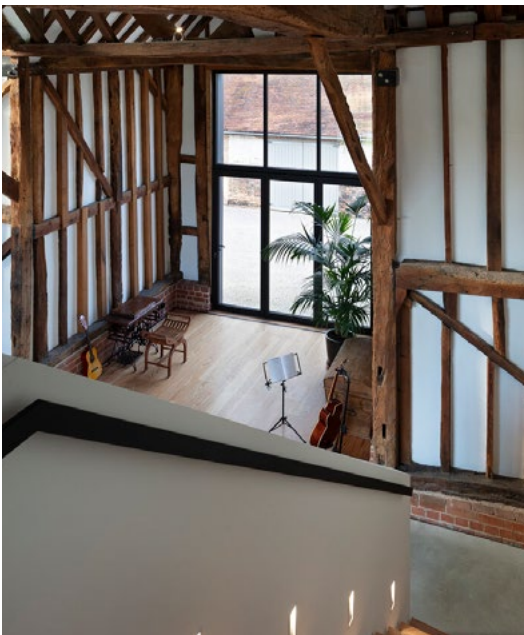
In a similar approach to the proposal, sensitively chosen materials and well considered architecture helps delineate old from new. Visual and physical connections to the listed building and the wider surroundings are combined with the reinforcement of a purposeful architectural language.



Volumes nestled into around existing structure. Hunts Green Barn by McLaren Excell



Exposing and insulating existing structure. Hunts Green Barn by McLaren Excell



Oxhey Hall Barn. By Fletcher Crane Architects



Use of translucent material. Oxhey Hall Barn. By Fletcher Crane Architects



Exposed historic structure within window openings at Holborn Farmhouse. By Will Gamble Architects



Large openings concealed by shutter style barn doors. Hunts Green Barn by McLaren Excell



Soft landscaping between buildings



Living space upstairs in 'roof space' with exposed structure Redhill Barn, Type Architects

Design & Access Statement.



Site Layout & Use

The proposal comprises of a converted barn, 2 no. replacement single storey structures and a 1.5 storey structure to provide a five bedroom single dwelling with associated landscaping, car port, refuse, and bike storage.

The site makes use of the existing access from the shared driveway and right of way at Holborn Farmhouse.

- A

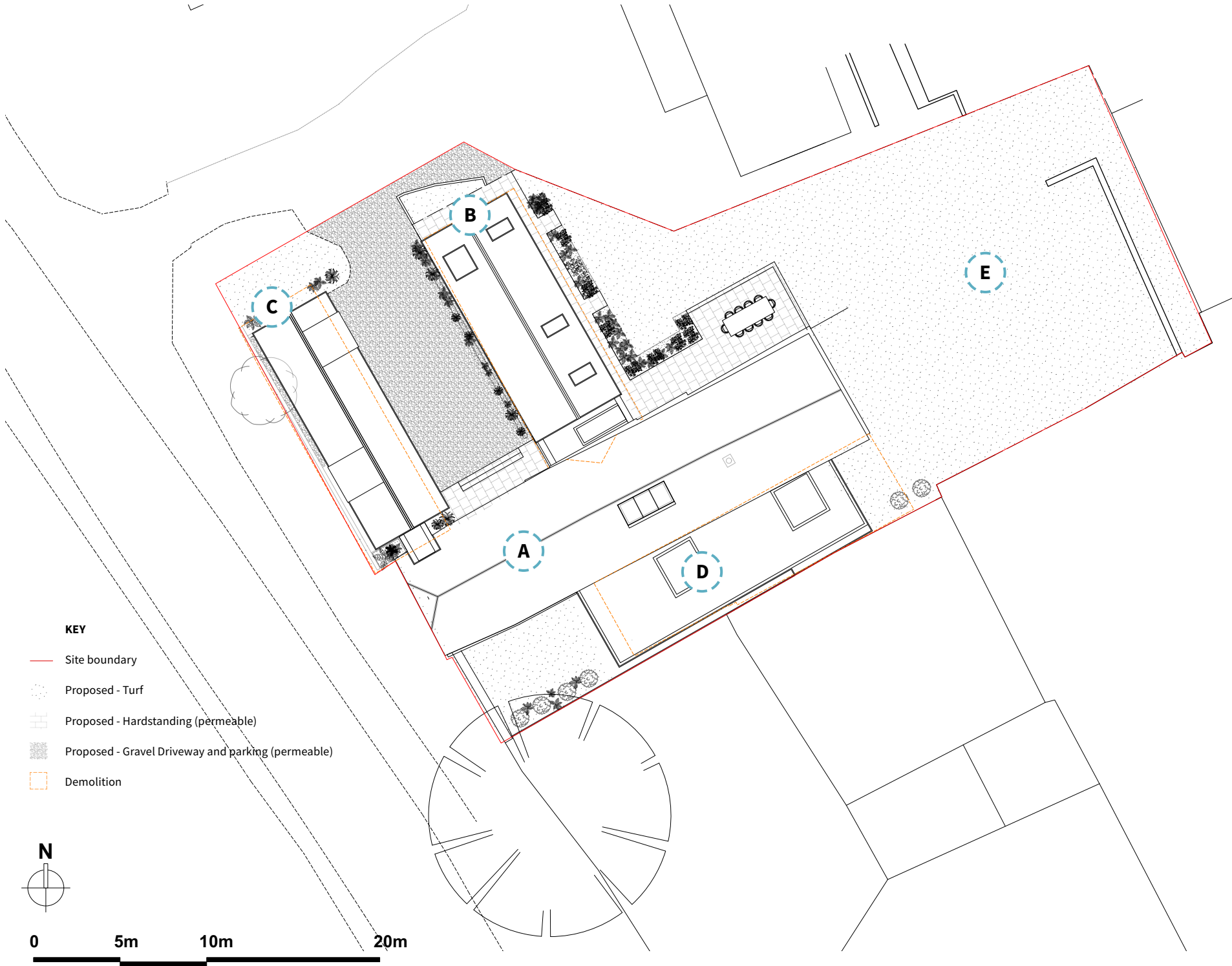
The Barn: The grade 2 listed barn is renovated to provide primary living accommodation
- B

The Bedroom Wing: A single storey addition occupies the footprint of the demolished single storey adjoining barn to the north and accommodates 3 bedrooms.
- C

The Carport: A 1.5 storey addition occupies the footprint of the existing stables structure, to the north west of the site. At ground floor a car port (including 3 parking spaces) is open on 2 sides and links to the existing courtyard area. Closest to the main barn, a new utility space and plant room is located with internal links to the main barn. At first floor, a master suite is accommodated.
- D

The Lean-to: A single storey addition occupies part of the footprint of the lean-to structure to the south of the site. This addition includes a study and gym also linked to the main barn internally.
- E

The existing areas of concreted hardstanding are removed and replaced with areas of structured planting, permeable paving, terrace and lawn.



The total existing footprint across the site is **448m²**

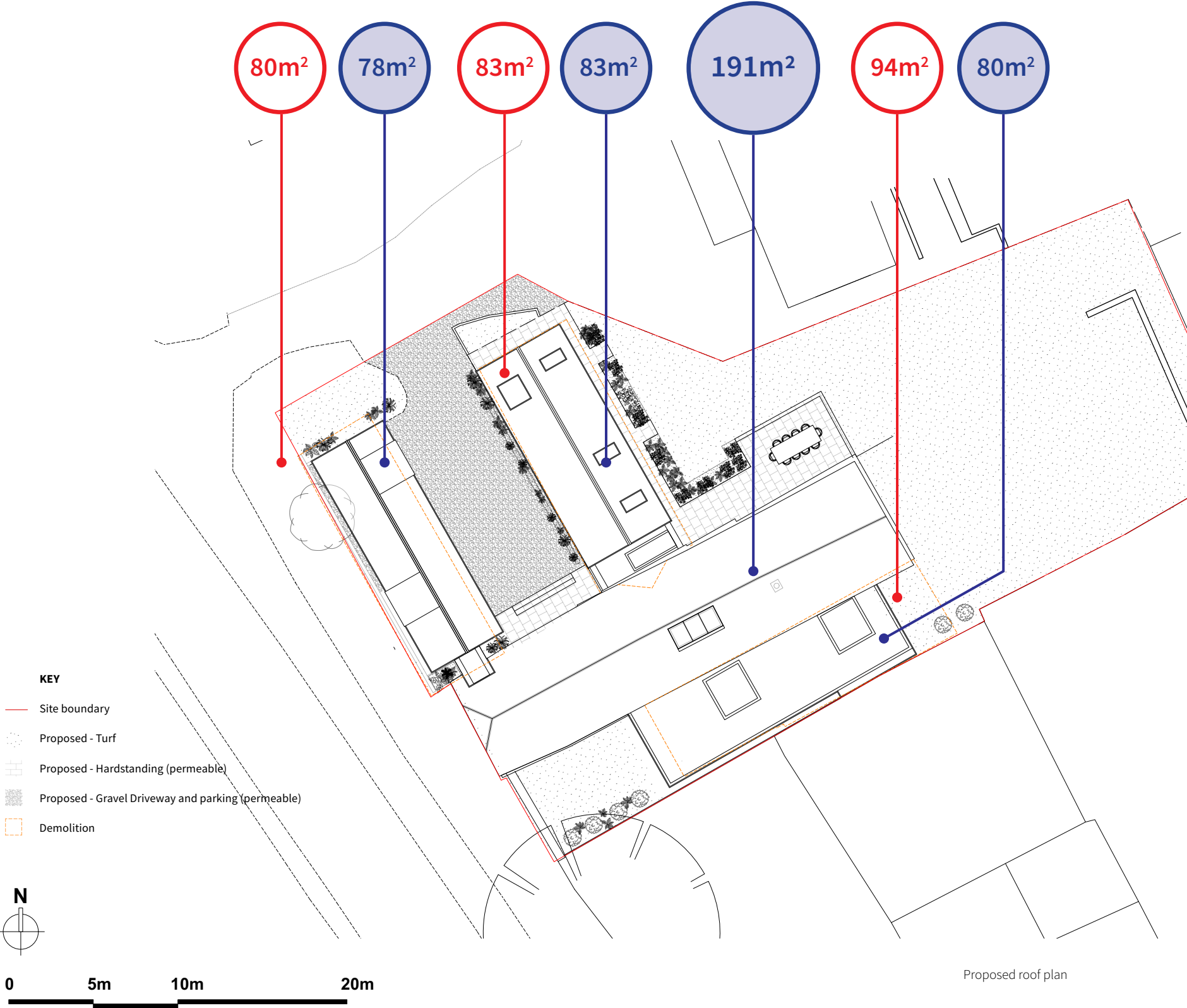
Three adjoining structures are to be demolished (**-94m², -80m², - 83m²**).

The footprint of the listed barn is **191m²** and is retained in full.

The footprint of the replacement extensions (included car port covered areas) is **+241m²**.

The total proposed footprint (including covered areas) for the property is **432m²**.

The net footprint across the entire site as a result of this application is a reduction of **16m²**.



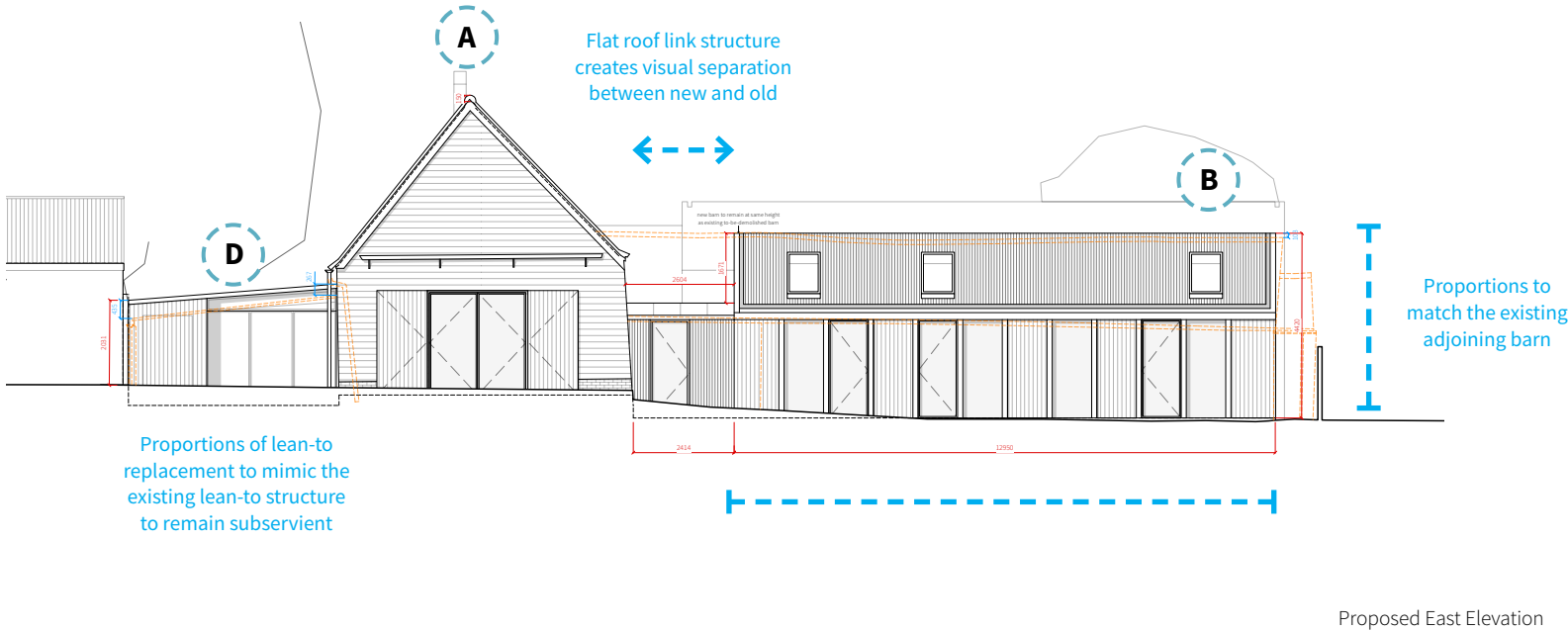
Massing, Scale and Height

A The Barn
The ridge of the barn is raised by 150mm to allow the roof structure to be insulated and refurbished. The irregular ridge line will be reinstated to retain its historic character.

Through careful replacement of adjoining structures and improvement of their connection to the original barn, the scale and massing of the listed building becomes more prominent on the site.

B The Bedroom Wing
The overall massing of the bedroom wing addition has been designed to be subservient to the host building and respectful to the conditions of the original farmstead.

The addition's ridge height is at the same level as the existing adjoining barn in this location. The addition is 4.5m in height, to the centre of the ridge along its north elevation. The addition features a dual pitched roof, to match the existing adjoining barn. The pitched roof is pulled c.2.5m from the listed barn to create a sensitive offset between old and new and allow the form of the barn to become more defined. The addition occupies the same footprint as the existing adjoining barn, matching it's length and width. The eaves height is raised by 150mm to allow suitable head height internally.



CThe Car Port

The car port addition is 1.5 storeys in height, making use of the dual pitched roof to provide additional accommodation at first floor whilst retaining a low eaves height externally.

From the south elevation, the car port addition encroaches no further toward Dane End than the existing stables building. The eaves height is 1.4m higher than the existing stables building, while adding an additional level of accommodation. The new eaves height is located 150mm above the existing stable buildings ridge height.

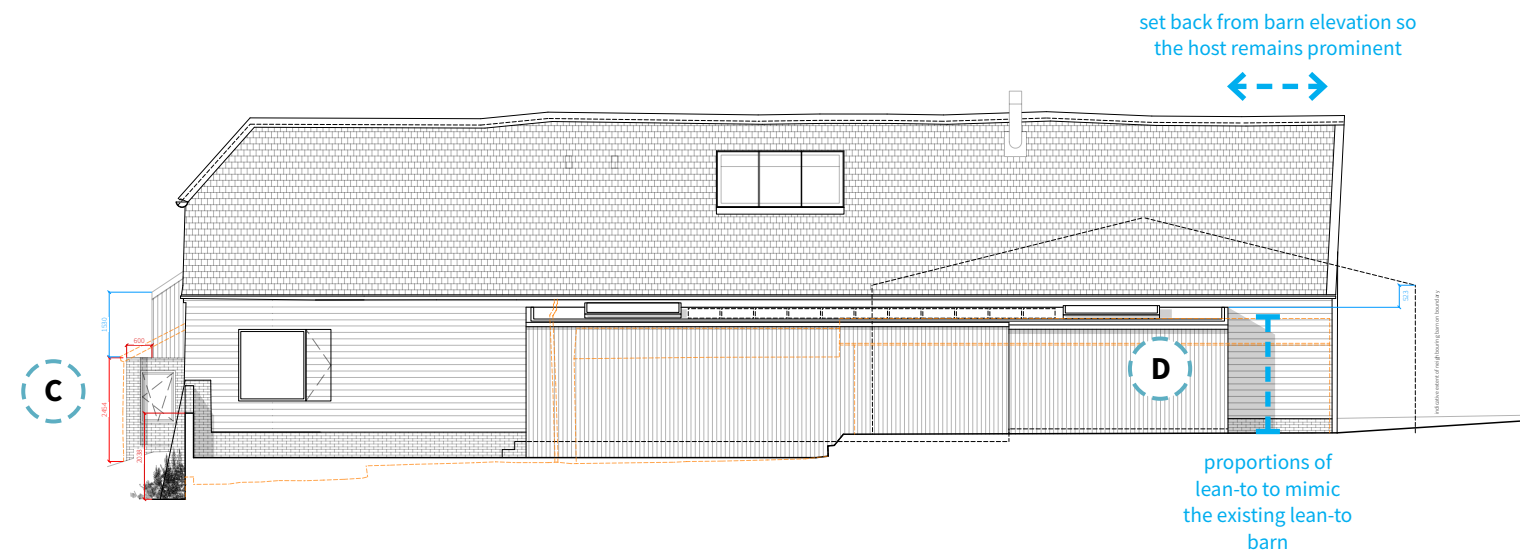
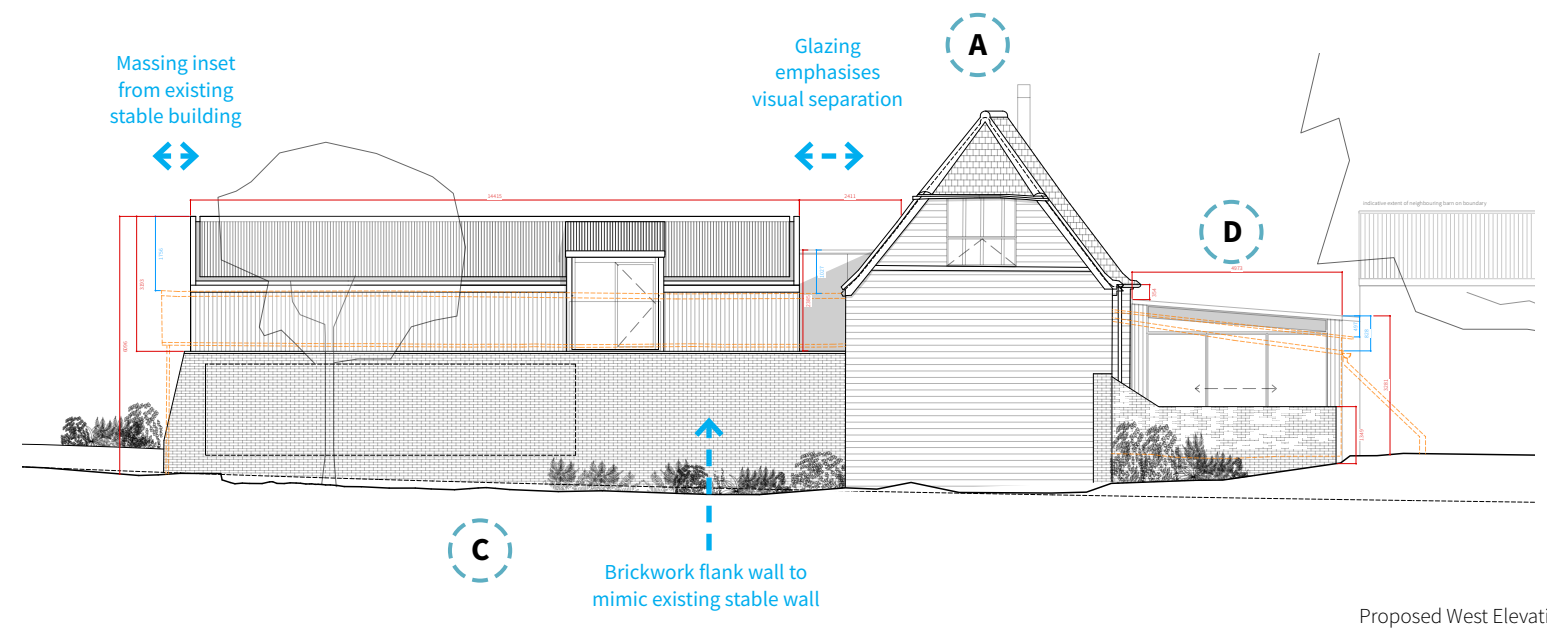
The ground floor of the car port structure, where it fronts on to Dane End, is inline with the existing buildings footprint. The brick wall shown is scaled to mimic the existing brickwork wall of the stables building currently in this location.

The first floor element of this structure is set back from the ground floor by 600mm to reduce its visual impact along Dane End and any encroachment on views of the gable end of the barn itself.

DThe Lean-to

The lean-to addition is located below the eaves height of the main barn to remain subservient to the host building. The overall height of the replacement building is 265mm higher at its ridge from the existing lean-to building in order to provide an insulated roof structure up to modern day building regulations while maintaining an adequate internal ceiling height.

The replacement building is set back from the east elevation of the original barn by c.2.5m to allow the barn to become more prominent on this frontage.



Appearance

Through the considered replacement of the existing dilapidated structures on the site, with high quality additions of architectural merit, the proposal improves the overall setting of the farm yard and the legibility of the historic barn.

The replacement structures are contemporary interpretations of the current structures found across the site. They are utilitarian in appearance, informed by the vernacular of ancillary agricultural buildings typically found within historic farm yard settings. This ensures that the character and setting of the listed barn and the adjacent farmhouse is retained.

Pitched roofs (both mono-pitched and dual-pitched) with rectangular arrangements in plan mimic the buildings that are being replaced whilst being sensitive to the agricultural courtyard setting of the farmstead. The appearance of the individual additions have similar characteristics in terms of materiality and form, but they are also varied in their articulation to help reflect the irregular pattern of development across the site.

To avoid the additions appearing too domesticated, door and window openings are proportionate to the overall scale of the barn whilst robust agricultural materials have been chosen.

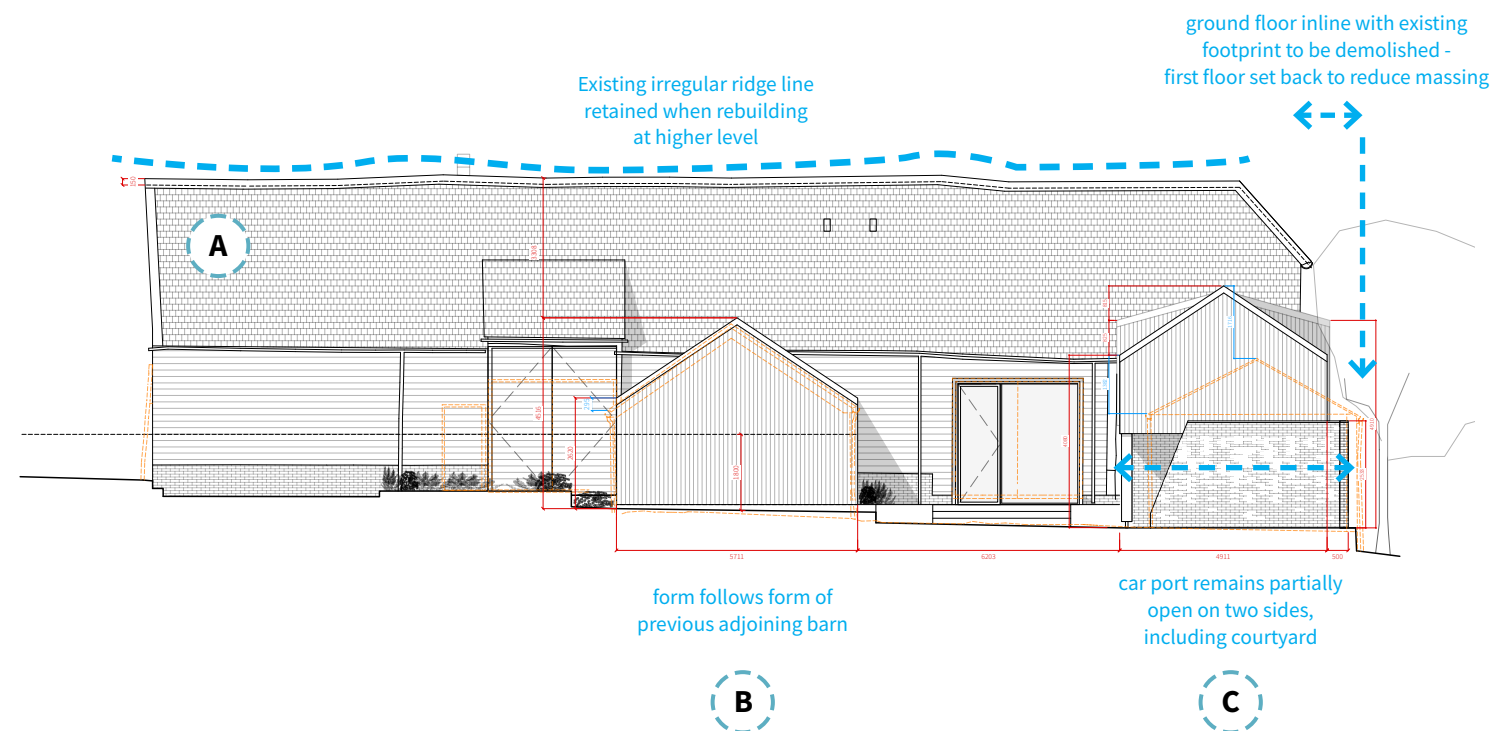


The Barn

Despite its conversion, the character and visual appearance of the barn has been retained. It remains the most prominent building within the farmstead, and the replacement ancillary buildings have helped reinforce this hierarchy even further.

Wherever possible, existing openings to the barn have been retained and where new openings have been introduced, they have been sized to suit the proportions of the existing openings to help retain its unique character, and non-domestic appearance. The number of new openings have been kept to a minimum to help achieve this.

The external envelope of the barn will be sensitively refurbished throughout using materials and techniques to match existing in order to safeguard its visual appearance – refer to ‘Works to Barn’ for more information.



Proposed North Elevation

Materiality

To ensure that the special architectural interest of the listed building is retained and enhanced a sensitive material palette has been chosen that is inspired by the site and it's surroundings. The existing site and it's various buildings hold a strong and characterful material palette. Proposed materials have been selected to respond to and enhance this palette.

All repair and refurbishment works to the existing walls, roofs, plinths and internal timber frame of the main barn will be finished in materials to match existing to ensure the existing character and architectural interest of the listed building is maintained.

The proposed additions will include black vertical timber cladding across the walls. The natural material will match the existing barn whilst offering a degree of contrast in the way that it has been applied. The use of vertical timber cladding rather than feather edge horizontal cladding (found on the barn) creates a more contemporary appearance ensuring that the listed host building remains prominent and clearly legible.

Black corrugated metal roofing is selected to clad the roofs of the proposed additions. This roof covering sits comfortably in an agricultural setting due to its utilitarian nature. The use of an alternative roofing material to the main barn helps create a separation between old and new. The darker sheet material on the proposed additions, in contrast to the traditional red tiles present on the listed barn and the adjacent listed Holborn Farmhouse reinforces a clear hierarchy across the site.

Slim, aluminium framed glazing maximises each of the proposed opening's level of transparency, bringing light into the floorplan and creating a lightweight appearance. Minimal frames will be selected to create non-obtrusive mullion layouts.

Material Swatches



Feather Edge Black Stained Timber Cladding

*Existing Walls
(Refurbished and replaced to match where required)*



Red Pantiles

*Existing Roofs
(Refurbished and replaced to match where required)*



Red Brickwork (bond to match existing)

*Existing Plinths
(Refurbished and replaced to match where required)*



Oak Frame

*Existing Frame
(Refurbished and replaced to match where required)*

The internal timber framing of the barn will be sandblasted by a timber preservation specialist and treated to protect it from further damage and improve it's longevity. Where possible, the historic timber frame will be exposed internally and in key locations within openings to celebrate it's craftsmanship.

Externally across the proposed additions, timber framing elements will be in a weathered finish to match the cladding material and appear immediately grounded in it's surroundings.



Black Vertical Timber Cladding

Proposed Walls



Black Corrugated Metal

Proposed Roofs



Black Timber Posts

External Timber Framing



Aluminium Framed Glazing

Proposed Windows & Doors



Sandblasted and treated Timber

Internal Timber Framing



Works to the Barn

The roof of the main barn will be raised by 150mm in order to insulate and waterproof the original timber structure which is to be retained and exposed internally. This work will ensure it's protection for the future.

The pantile roof tiles (which are not original and are in good condition) will be carefully removed and retained. Insulation and membranes will be installed and the tiles will be relaid. Where tiles are cracked or beyond repair, these will be replaced in reclaimed pantiles to match. The ridge tiles will be relaid to maintain the irregular ridge line of the barn to preserve this element of its historic character, where these of sufficient quality to be retained.

Where existing openings are prepared for glazing, these will be to the same proportions with original oak lintels retained unless otherwise stated in this report. A conservation style rooflight is accommodated within the south facing roof pitch to increase natural daylight internally, this will be trimmed within the existing timber frame. Where new timbers are required to trim the rooflight opening, these will be in oak to match existing.

The walls of the barn will be carefully stripped of black stained timber cladding. The cladding will be numbered, removed and refurbished where possible. Where replacement cladding is required this will be installed to match existing using techniques to match original. Whilst the cladding is removed, membranes and wood fibre insulation will be installed to the external walls to upgrade the thermal performance of the envelope. Natural materials will be used where possible, including clay based plasters to ensure the envelope remains breathable.



Internal view of bay 2 (south elevation),
Holborn Barn



Exposing and insulating existing structure. Hunts
Green Barn by McLaren Excell



Internal Layout

A Ground Floor - The Barn

The internal arrangement of the main living spaces responds to the individual bays through the barn from east to west. To the east, occupying bays 1 and 2 is the main living space which benefits from views on to the private garden.

Bay 3 accommodates the open plan dining area which lines through with the existing large opening in the north elevation.

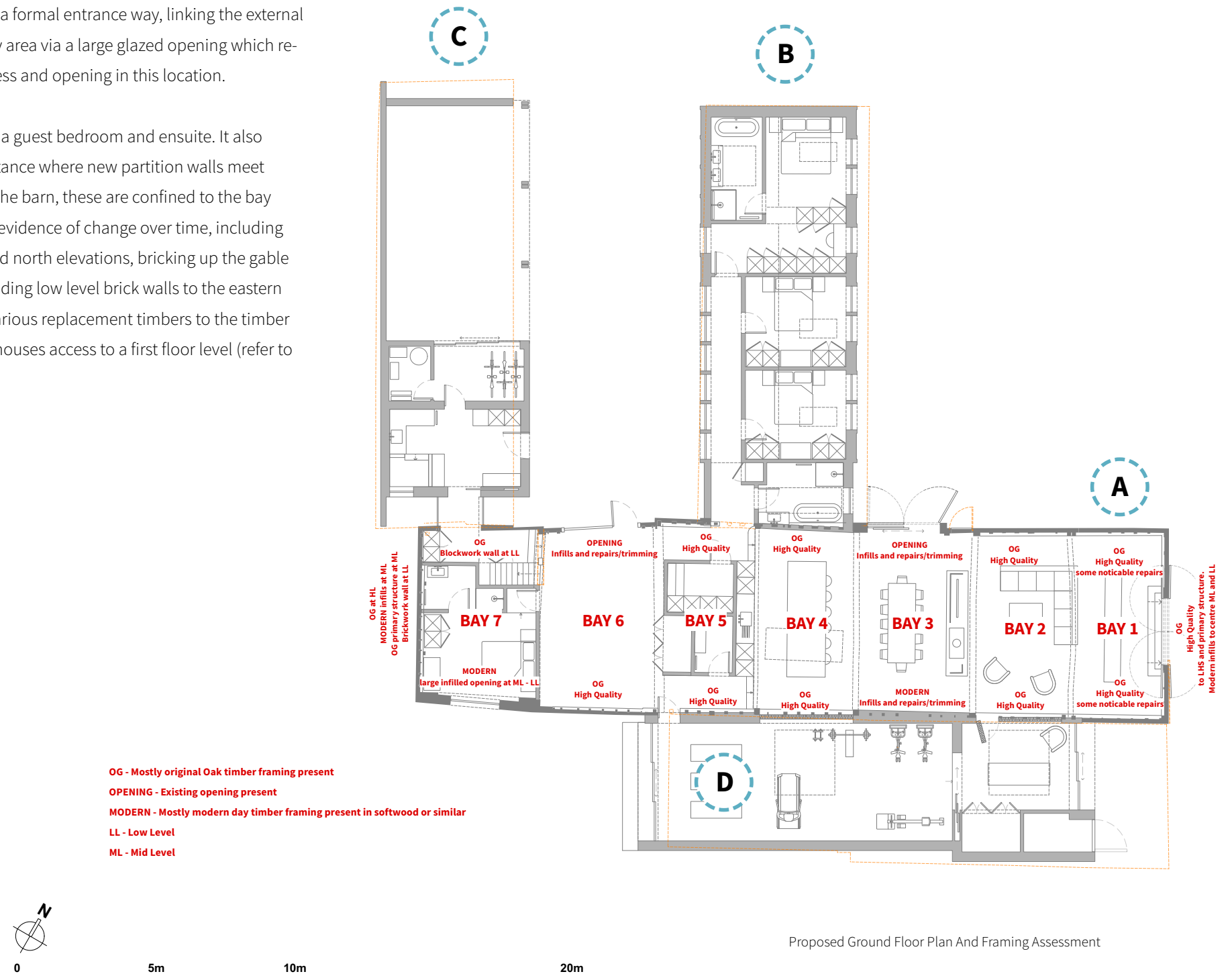
Bay 4 is occupied by a large kitchen which directs views down towards the end of the barn. Each of these open plan spaces are vaulted entirely to the barn's existing ridge and timber frame roof. This bay, in the south elevation is connected to the replacement lean-to structure. This connection will be via a concealed doorway, hidden within translucent polycarbonate panelling that sits behind the original exposed timber frame, screening the gym whilst exposing the timber structure.

Bay 5 is connected with the bedroom addition to the north and steps down at floor level into the next bay, following the changing floor levels of the existing barn.

Bay 5 houses a standalone partitioned module containing key services and supporting spaces; WC, main kitchen run, pantry and storage cupboards. The module is set in from all external walls to allow views down either side and ensure the perceived length of the original barn is not compromised. This module is located at the western end of the most historic part of the barn and therefore views from the kitchen run towards the garden are true of the original building's scale.

The 6th bay includes a formal entrance way, linking the external parking and driveway area via a large glazed opening which re-uses the existing access and opening in this location.

The 7th Bay includes a guest bedroom and ensuite. It also contains the only instance where new partition walls meet the external walls of the barn, these are confined to the bay that shows the most evidence of change over time, including blocking up south and north elevations, bricking up the gable end to half height, adding low level brick walls to the eastern end of the bay and various replacement timbers to the timber frame. This bay also houses access to a first floor level (refer to overleaf).



Design & Access Statement.

- B

Ground Floor - The Bedroom Wing

The nature of the addition allows for key services and supporting accommodation to be provided efficiently without interrupting the impressive internal spaces of the barn itself. The addition accommodates 3 bedrooms, an ensuite bathroom and a shared bathroom. The bedrooms are located to the east to benefit from morning sun and short ranging views onto the private garden from a private position in the plan. A glazed hallway space reduces the perceived scale of the building from the courtyard and helps separate private spaces from the larger family spaces.
- C

Ground Floor - Car Port

The car port structure is open sided on 2 sides to retain a sense of openness from the courtyard. The car port structure also accommodates a bin store, bike storage, plant room and secondary access to the property at ground floor.
- D

Ground Floor - Lean-to

The replacement lean-to structure accommodates a private study and gym space, accessible from the barn along the south elevation. The structure includes the provision of translucent panelling along the south side of the historic timber framed structure. Combined with rooflights in the new adjoining lean-to, this allows the structure of the barn to will be backlit naturally, creating an impressive feature in the barn and whilst celebrating the historic timber frame.



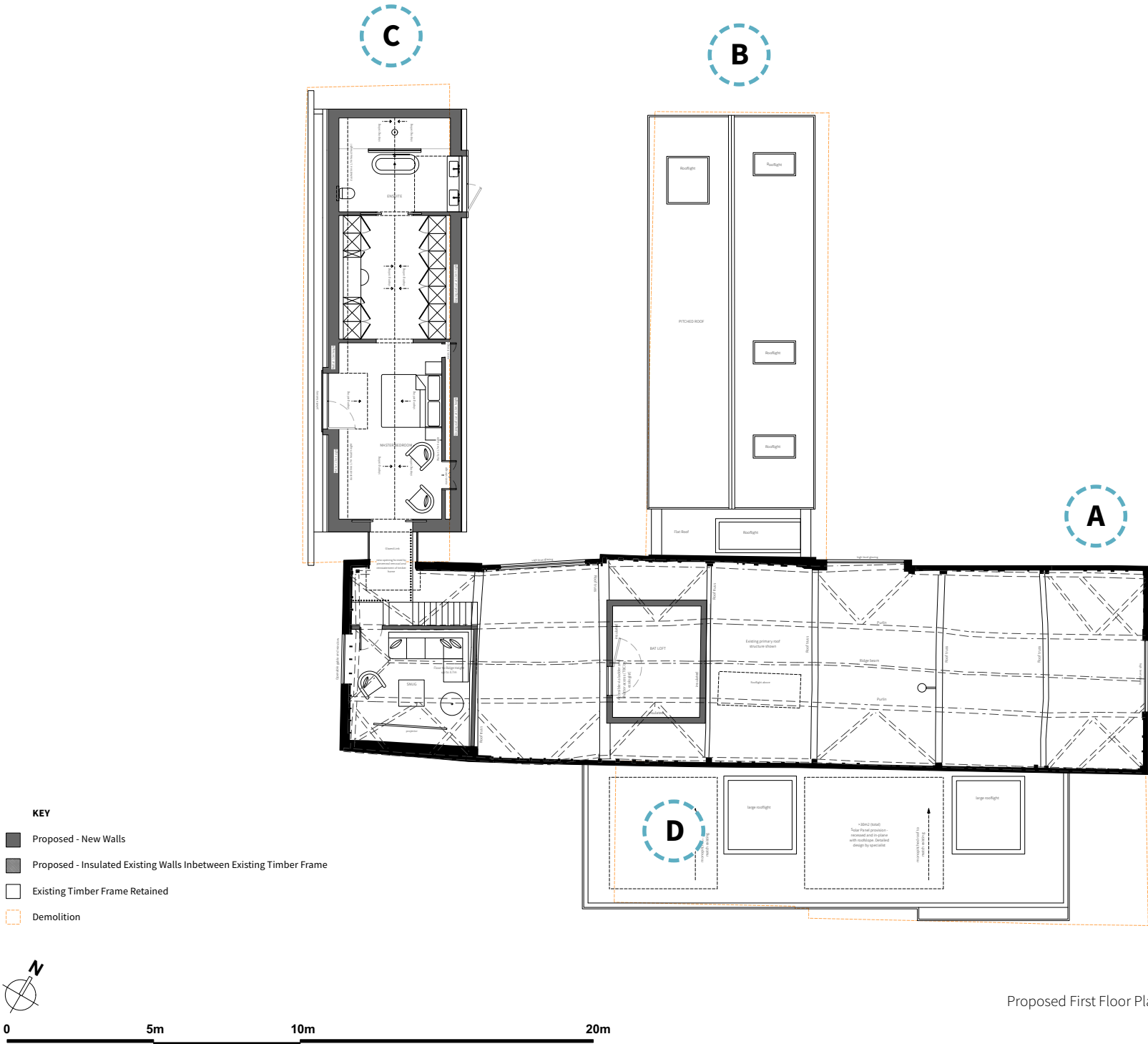
First Floor

There are two bays in the existing barn that include first floor levels. These accommodate a snug on the western end alongside access to the master suite at first floor. Central to the plan, above the 5th bay module, a bat hotel is housed with vented access to the roof structure to allow the ongoing protection of the protected species habitat.

Across the Car Port structure, accessed via new glazed link, a master bedroom suite is accommodated, including a bedroom, ensuite and walk in wardrobe. The first floor level includes a singular dormer opening on the west elevation and another on the east elevation.



Existing view of bay 7



Proposed First Floor Plan

