

Design, Access & Heritage Statement

522-CDH-01-XX-RP-A-30000

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INTRODUCTION

This Design, Access and Heritage Statement is to support the application for Planning and Listed Building Consent to refurbish and extend the existing Grade II Listed dwelling of Strange Hall South, Walton Lane, Strange Farm.

The proposals are to demolish a late 20th century potting shed and construct small extensions to the rear and side of the house, to rationalise circulation by relocating the staircase and changing the main entrance, to add a bedroom and ensuite to the loft, facilitated by insulation, new skylights in the roof and the removal of trusses only where necessary, to replace single-glazed windows with like-for-like double-glazing, to replace a single-glazed lean-to with double-glazing, to remove modern ceilings concealing the historic structure, and to make the garage habitable. As per the National Planning Policy Framework (NPPF, Paragraph 189), this statement describes the asset to a level of detail commensurate with the heritage value, scale and extent of proposed works.

These changes are driven by the desire to give the house a more independent look, to resolve the disjointed feeling of the dwelling from previous piecemeal additions and an arbitrary dividing of the original 14th century house, all while emphasising its historical fabric and language. The applicant wishes to future-proof the home for a varying occupancy, to bring in more light, and to enable contemporary living, while respecting the building's architectural history and scale.

The heritage officer, Owen Broadway has been consulted and has visited the property previously, after submitting a draft of this document in a pre-planning application. Ecologists were commissioned to verify if there were protected species on site. Their reports have been commissioned and are submitted with the application.

Discussions highlighted the building's roots in the Middle Ages, and consequent heritage value of specific building elements themselves, such as the hearth, rather than, for example the building's formal composition or any Georgian symmetry in the plan.

This document is intended to help meet the planning obligations mandated under Section 66 of the Planning (Listed Buildings and Conservation Areas) Act 1990. This section imposes a responsibility on the local planning authority to consider, with "special regard [...] the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses". Additionally, this report should be taken into account by the local planning authority when assessing the proposal's impact upon the heritage asset according to Paragraph 190 of the NPPF.

For the design of the proposed scheme, the following documents were consulted and taken into consideration:

- The National Policy Framework
- Chichester Harbour AONB
Planning Guidelines for Chichester Harbour Management Plan 2019-2024
State of the AONB Report
- Chichester Planning Authorities
Chichester Local Plan: key Policies 2014-2029
- West Sussex Life 2014
Chapter 4 Housing
Chapter 7 Environment
- Bosham Parish Neighbourhood Plan
- Natural England and DEFR Corporate report
- Areas of Outstanding natural beauty: natural England's role
- Heritage Coasts: protecting undeveloped coasts NE353

1. Site

1. Site

1.1 Bosham



LOCATION

Strange Hall South is situated in the coastal village and Parish of Bosham within Chichester District, falling within the settlement policy area as defined by the Chichester Local Plan Policies Map. Located to the east of Bosham's historic centre, within the former hamlet of Walton, the site falls inside the Chichester Harbour Area of Outstanding Natural Beauty (AONB).

Of the 10 special qualities of the AONB set out by the *Chichester Harbour Management plan 2019*, perhaps the most relevant to the site are:

“The particularly strong historic environment and heritage assets.”

“The very special sense of peace and tranquillity, largely engendered by the gentle way the AONB is used and closeness to nature that is experienced.” (p.10)

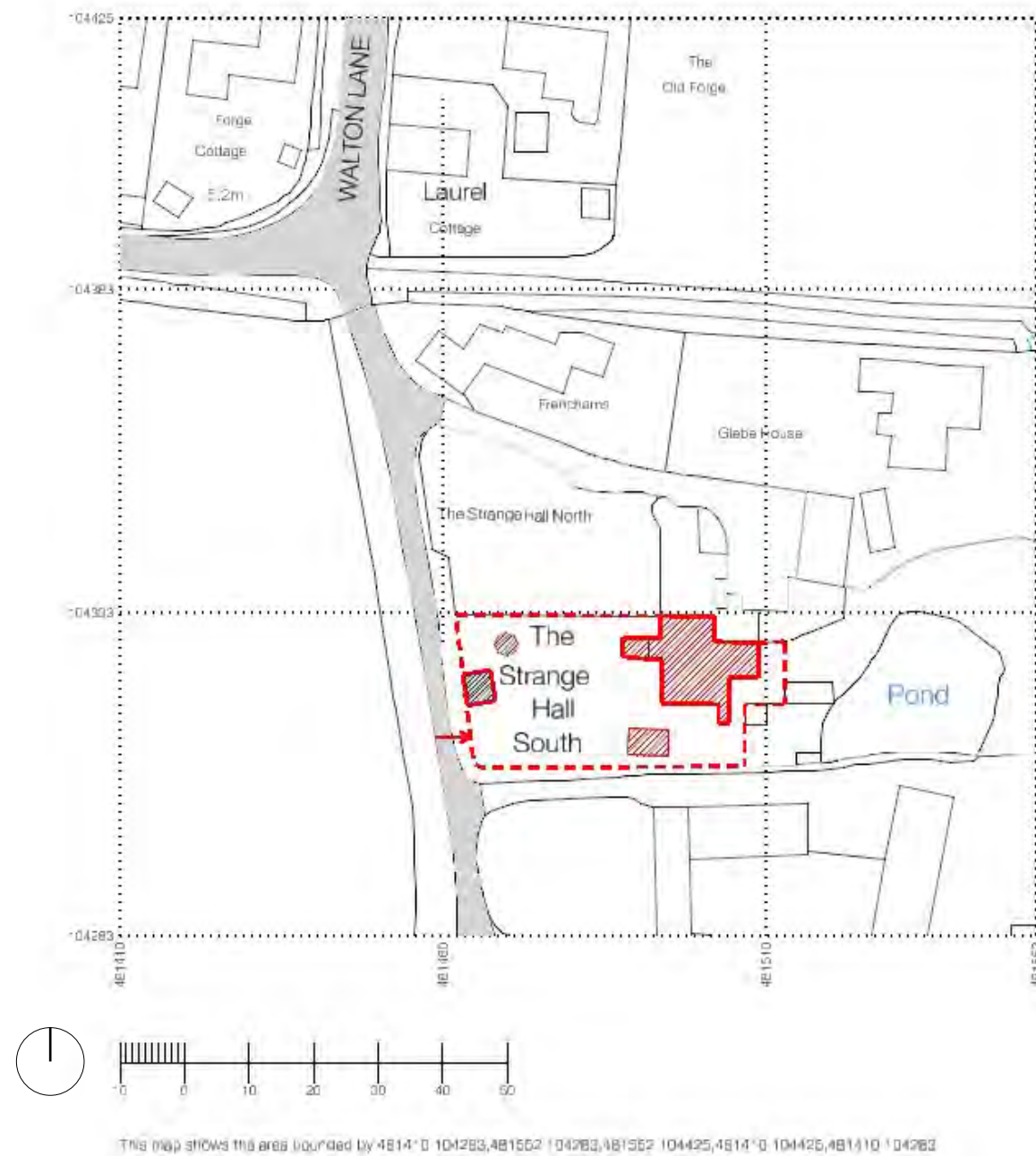
Site

Chichester Harbour AONB



1. Site

1.2 Strange Hall South



SITE DESCRIPTION

The plot comprises an oblong, which is cut off with a brick wall at the south east where the property of Strange Hall North wraps around the property. Strange Hall South is orientated with its primary façade and porch facing the access road and garden to the west. The roofscape is clay tiled, with red brick walls, and white side-hung windows. A fully glazed conservatory is joined to the south façade.

A two-meter close-boarded fence forms the western boundary, with a gate through which the site is accessed. A gravel path leads from the gate to the house and informal parking spaces. To the south the building borders to the road to the barns which is owned and maintained by the farmer, Richard Strange. The north boundary is a woven fence and brick wall, with leafy planting along its extent. The wall to the east is, just like the internal boundaries the result of a seemingly random division between Strange Hall North and South.

The property boundary runs through the property horizontally as vertically. The space above the current kitchen belongs to Strange Hall North and comprises a flying freehold.

1. Site

1.3 Access



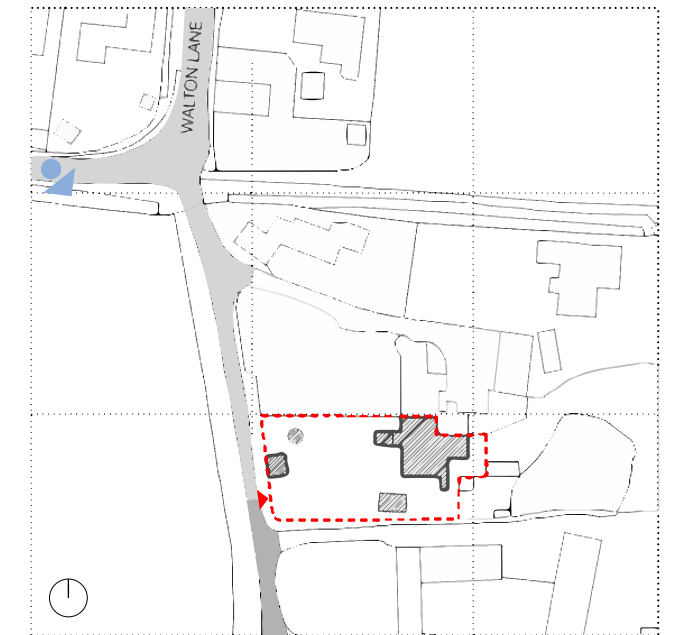
Street view from Walton Lane

ACCESS

Strange Hall South is located on a private road that belongs to Strange Farm that springs from the bend in Walton Lane, which itself joins the A259 to the north.

In addition to the surrounding trees, this location off Walton Lane lends the site a degree of privacy, with minimal visibility from the road. The access road is quiet, with only farm traffic.

There is an additional track in the neighbouring plot, which could be used by construction vehicles if needed.



View location

2. History & Analysis

2. History & Analysis

2.1 The Original House



Image from 1933 from a sales brochure

CURRENT SITUATION

The house is a three bedroom, 279 m² grade II listed house with original features from the 16th century. The house has been added to and changed over the years and is located on the southern part of Strange Hall. The property was divided into Strange Hall North and South in the last century which has had an impact on the circulation and the proportions of the rooms. A 3D survey revealed the original oak roof structure that will need to be incorporated in the new proposal. The house has many rooms but the current circulation makes them difficult to use and results in some of the rooms lacking natural light.

BRIEF

The new proposal looks at updating the use of the house while maintaining and enhancing its character. The house should be such that it fits family (young adults, children and elderly) as well as friends and can grow with the client over time (envisaging space for a lift in due course for example, alongside provisions for grandchildren). Kitchen, living, dining should form the heart of the house and current utilities should be updated as the house is in need of general maintenance. The relation to Strange Hall North also needs to improve. The proposal also looks at using the loft space for an extra bedroom and bathroom for family use. All new additions should respect the scale and character of the house, much of which has been lost through piecemeal extension and ill-considered renovations.

2. History & Analysis

2.2 Changes Over Time



CHANGES OVER TIME

Strange Hall South has expanded over time and sections have been added and removed.

For example a tower was removed and a new roof was built over the original roof structure (resulting in a double roof structure). A new drawing room was added which is now part of Strange Hall North as well as several outbuildings and garages.

16th-17th century

Late 19th century

1934

1968

Late 20th century

Strange Hall North



Strange Hall South

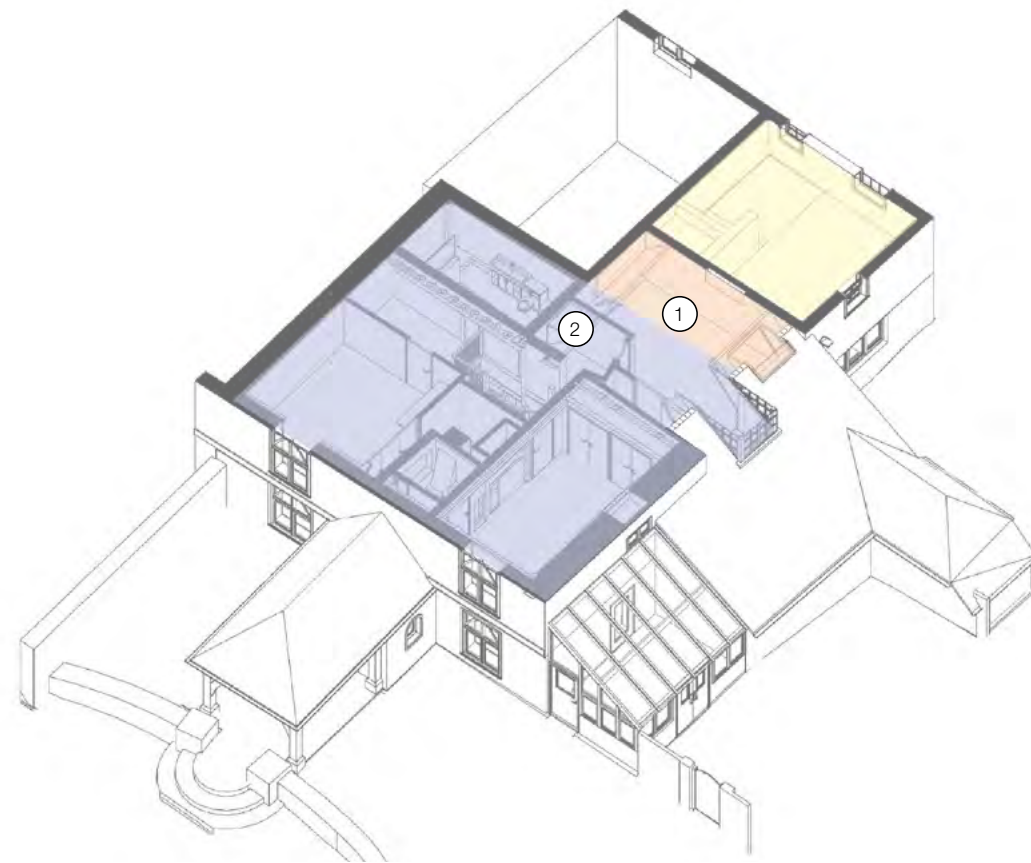
Client: Helen Taylor-Slade
Address: Walton Lane, Strange Farm PO18 8QB

20 Schubert Road, London, SW15 2QS
078903627426
info@catjadehaas.com

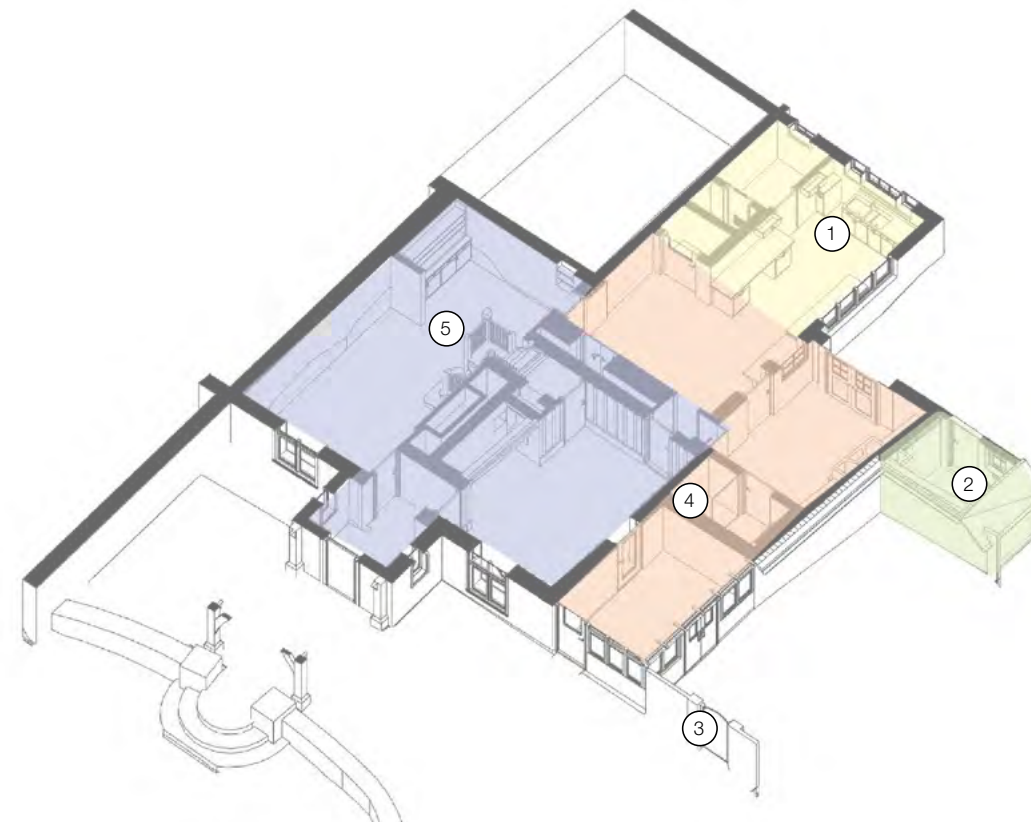
Catja de Haas
Architects

2. History & Analysis

2.3 Observations



First floor



Ground floor

FIRST LEVEL

- ① False ceiling restricts high ceilings and hides original structure
- ② Small, compartmentalised spaces

GROUND LEVEL

- ① Existing kitchen at back of house
- ② Potting shed
- ③ Terrace wall
- ④ Restricted circulation in current layout
- ⑤ Current stairs make circulation around house difficult

16th-17th century

Late 19th century

1934

1968

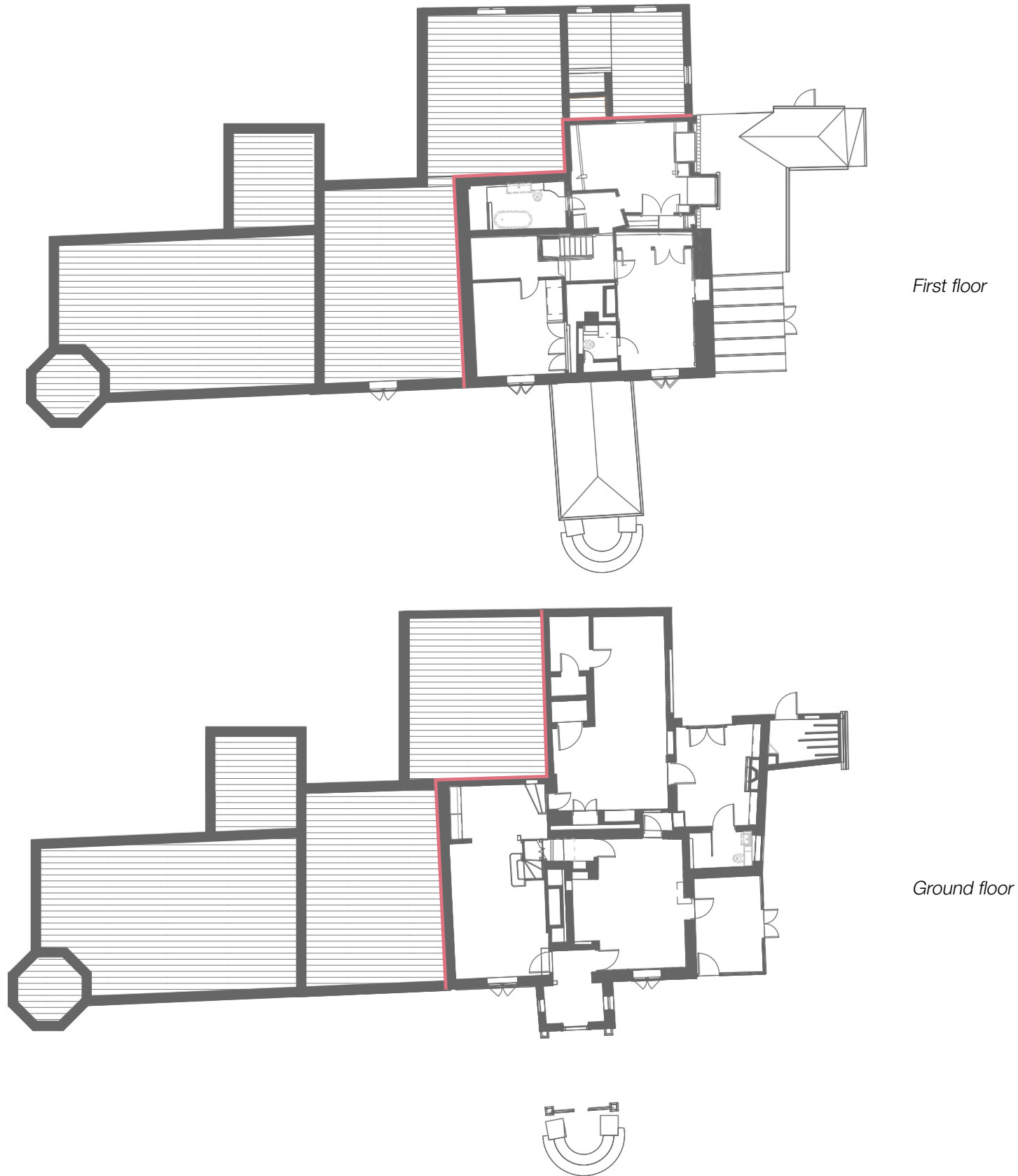
Late 20th century

Strange Hall North



2. History & Analysis

2.4 Relationship with Strange Hall North



STRANGE HALL NORTH

In the 1930s Strange Hall was divided into a North and South hall. The boundary runs not only in plan, but also in section, over the floor of the two houses.

The separation wall is not well insulated (where it exists at all) and is possibly a fire hazard. Fumes traverse the boundary and the lightwell that separates the properties hosts the sewage pipes and their exact location is unclear

Strange Hall South

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20 Schubert Road, London, SW15 2QS
078903627426
info@catjadehaas.com

Catja de Haas
Architects

3. Existing Features

3. Existing Features

3.1 Photographs of Current Situation



①



②



③



④

EXISTING EXTERIOR

- ① View of primary, West facade from garden
- ② South gable end, glazed conservatory and pointed windows
- ③ View North of kitchen window beyond potting shed
- ④ Garden wall to South of site, looking East

3. Existing Features

3.1 Photographs of Current Situation



①



②



③



④

EXISTING INTERIOR

Ground level

- ① Original 16th century room with fireplace, to be preserved as all original features.
- ② Kitchen is too low and disorienting to use.
- ③ Living room is dominated by the stairs and is difficult to use. The timber of the 19th century stairs clashes with the original timber.
- ④

3. Existing Features

3.1 Photographs of Current Situation



①



②



③



④

EXISTING INTERIOR

First Floor

- ① First Floor landing
- ② First Floor bedroom.
- ③ Master bedroom. Ceiling masks the original structure.
- ④ First floor bedroom: Ceiling can be removed to expose original structure.

4. Design Strategy

4. Design Strategy

4.1 Design & Access Summary

USE

Strange Hall South will remain a residence occupied by a single household.

The proposed side-extension aims to improve and increase kitchen and dining spaces, while the rear-extension introduces a utility room. The additional bedroom is for family use. The garage conversion would serve as a ground floor stand-alone bedroom, garden office or granny flat for ailing parents.

AMOUNT

The side-extension would see a 7m² potting shed demolished to be replaced with 10m² of living/dining space, for a net change of 3m². The rear-extension would add a further 7m² beyond this.

These are modest changes, especially when viewed against the 175m² existing ground floor plan.

LAYOUT

The position of the side-extension to the south means it is largely sheltered from view by the existing garden wall. Its location allows the creation of a cohesive living/dining space off the kitchen, suited to contemporary living.

The rear-extension is hidden against the east boundary with Strange Hall North, entirely concealed from public view.

These locations are also less historically sensitive, respectively plugging into the late 19th and 20th century wings rather than directly into the original medieval house.

APPEARANCE

The visual impact of the additional spaces is minimised by the extensions' single-storey heights, which are subservient to the principal building. Visually the side-extension continues the roof form of the late 19th century addition, neatly squaring off the plan, previously interrupted by the late 20th century potting shed.

The idea is to reuse the bricks from the potting shed as well as other reclaimed bricks from the property, which reference its former life as the home of a brick factory owner. Large portions of glazing will provide a high-end contemporary feel, forming an extension of the existing glass house that at once give the property a more modern look while not increasing the myriad shapes and materials of which the house already consists.

ACCESS

The current circulation is lopsided and the current entrance disorienting. The conservatory door will be reconfigured to become the main entrance, providing a clear view to the kitchen and back patio. The existing listed front door is solid, limiting light entering the West. This will be rehung, allowing it to open out into the porch, with a secondary, glazed door fitted behind.

The revised stair layout will allow the room of the previous stairs to be brought back to a usable space and rationalise the circulation: enabling access to the kitchen, and reinstating a circular route that links the spaces. The stairs also open up views from the ground floor to the loft, where the exposed existing rafters are visible.

4. Design Strategy

4.2 Preliminary Sketches



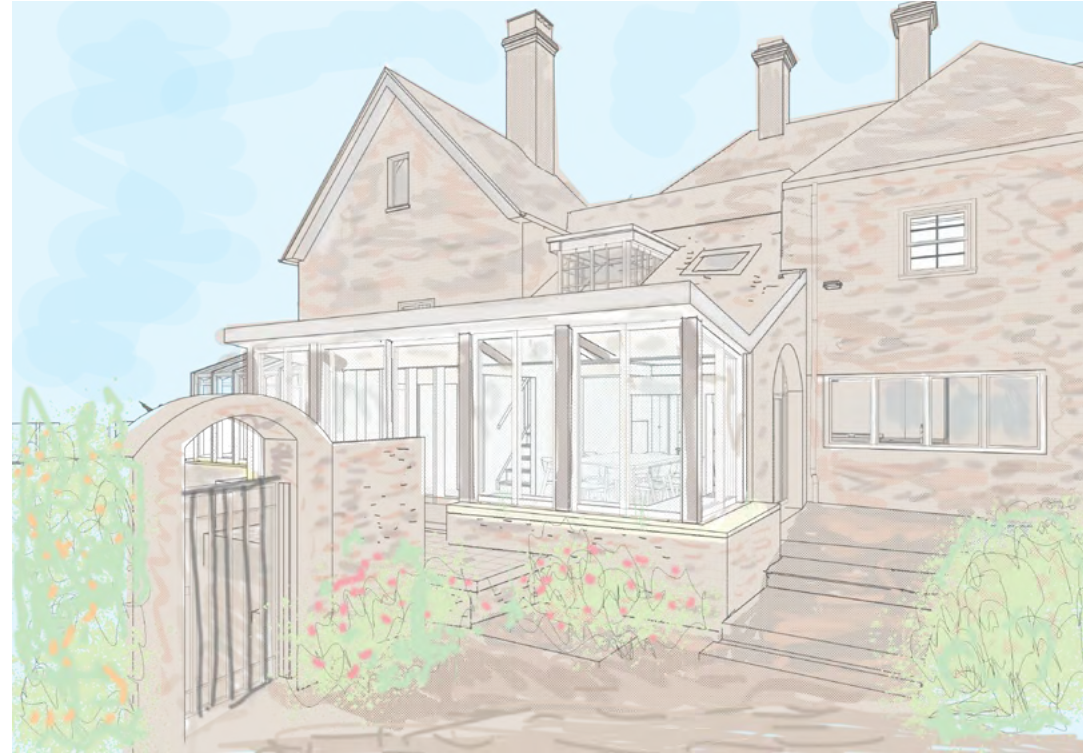
Reconfigured entrance through conservatory



Proposed approach

4. Design Strategy

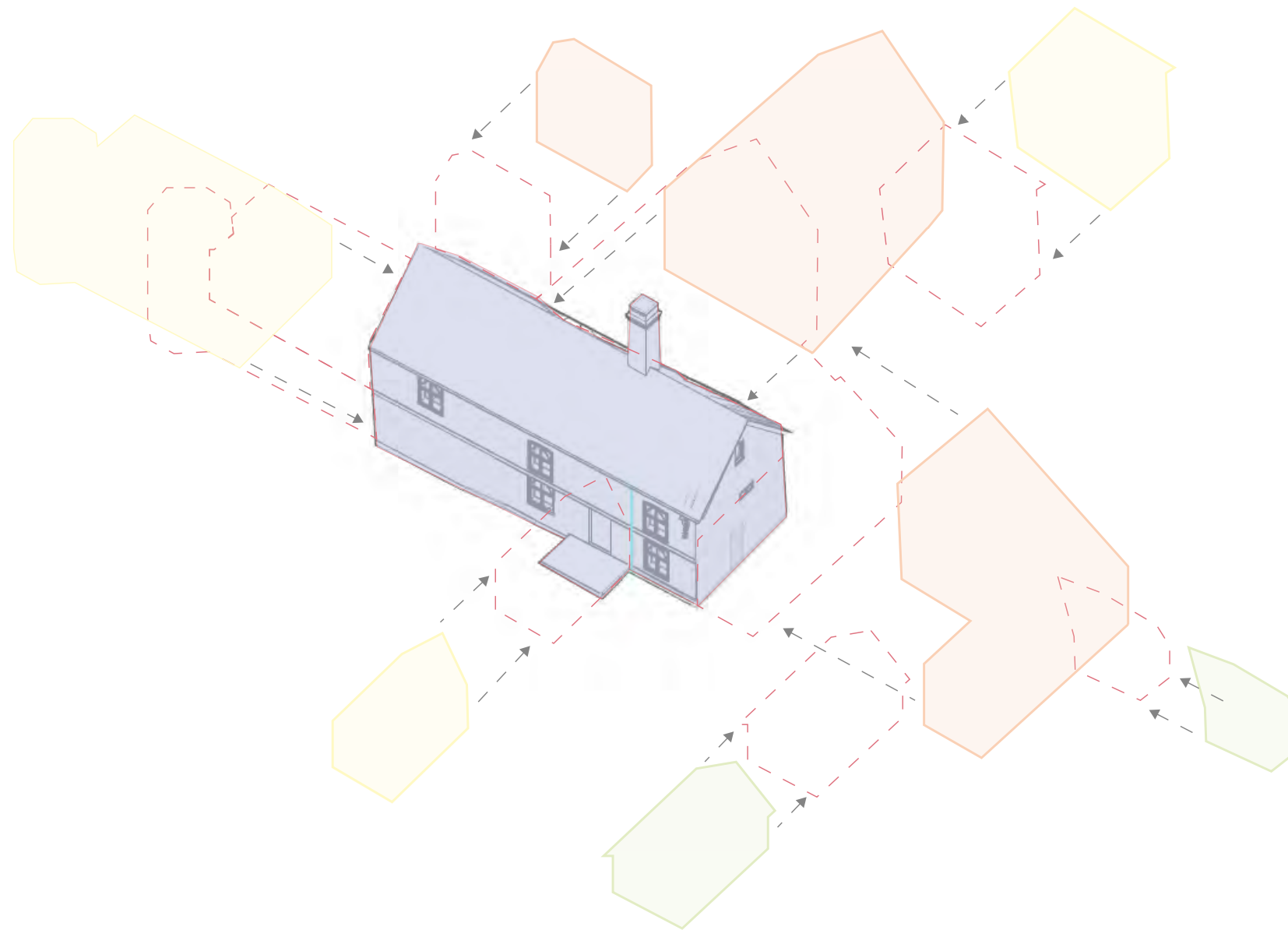
4.2 Preliminary Sketches



Proposed side-extension

4. Design Strategy

4.3 Strange Hall's History Visualised



ADDITIONS OVER TIME

Each extension has been added the same way: plugged-in to the existing building, adding a new roof each time.

16th-17th century

Late 19th century

1934

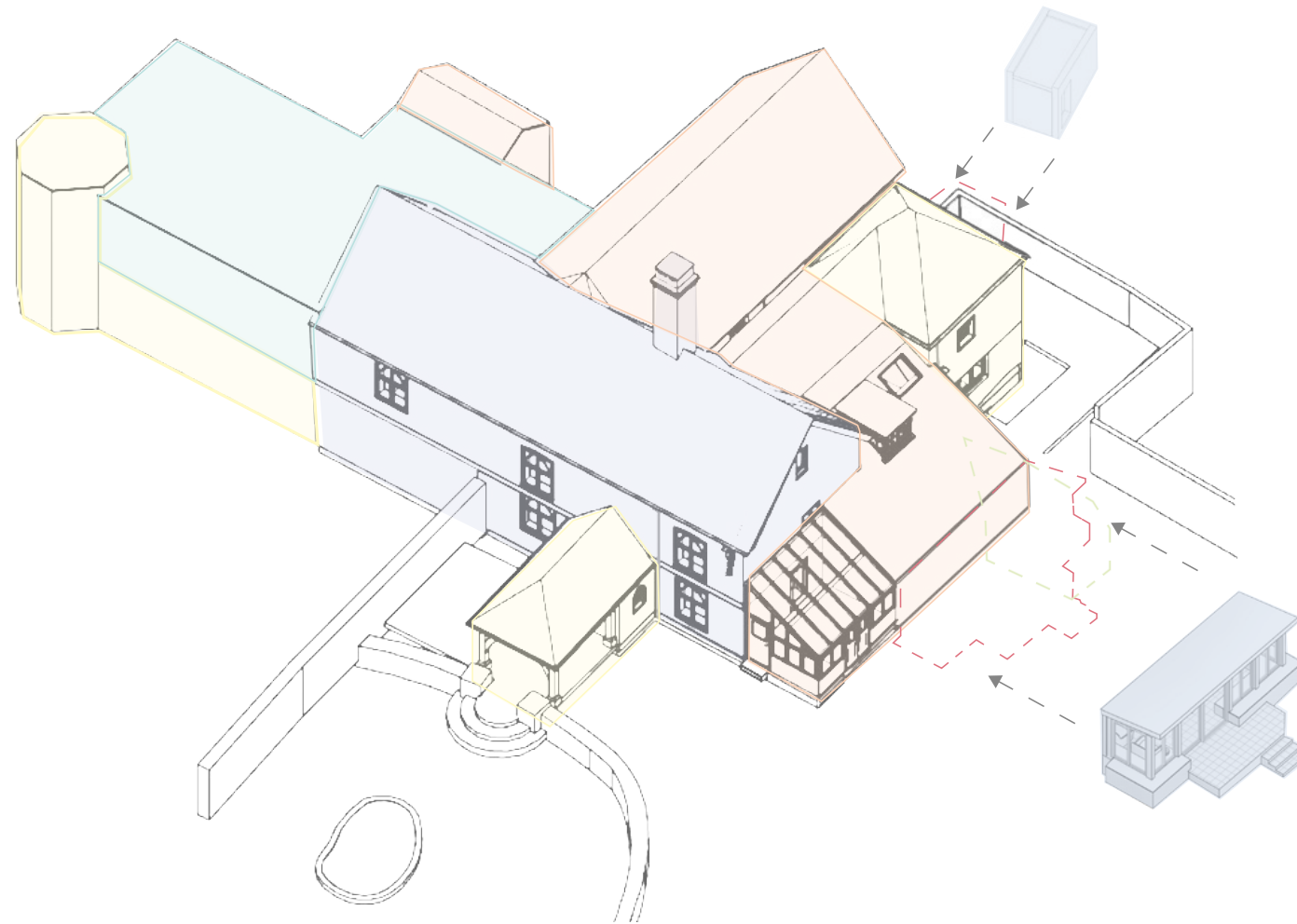
1968

Late 20th century



4. Design Strategy

4.4 The Proposal Visualised



THE PROPOSAL IN RELATION TO HISTORIC ADDITIONS

We feel that the proposed living/dining and utilities extensions continues this tradition of 'plugging in' new buildings.

Their massing is modest, making up less than 10% of the ground floor footprint of the existing building. The location to the side and rear (south and east) of the house minimises the visual impact of the addition.

Demolition of the potting shed would be required to enable this, which was likely built in the late 20th Century is one of the newest additions, and of least heritage value.

16th-17th century

Late 19th century

1934

1968

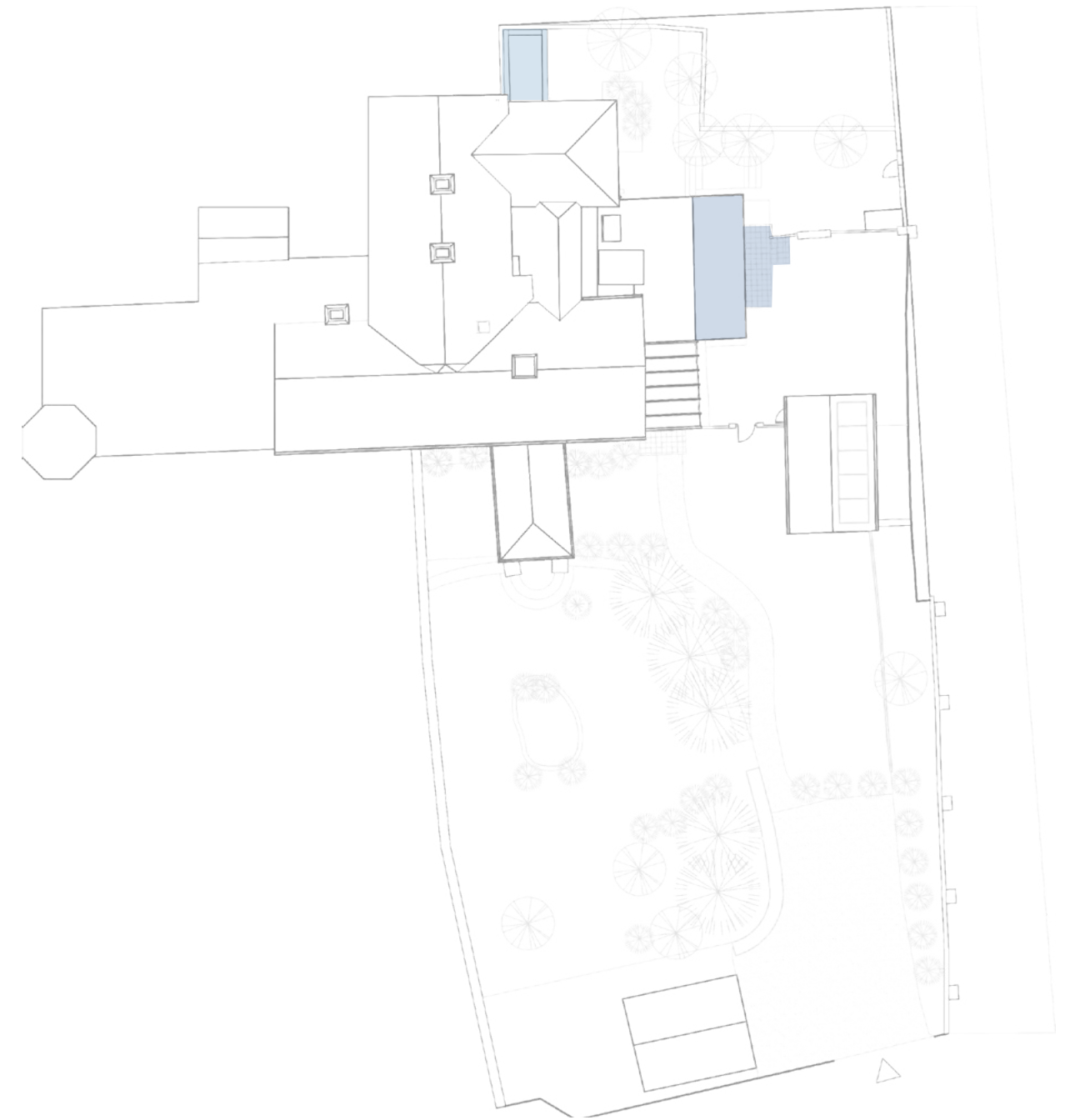
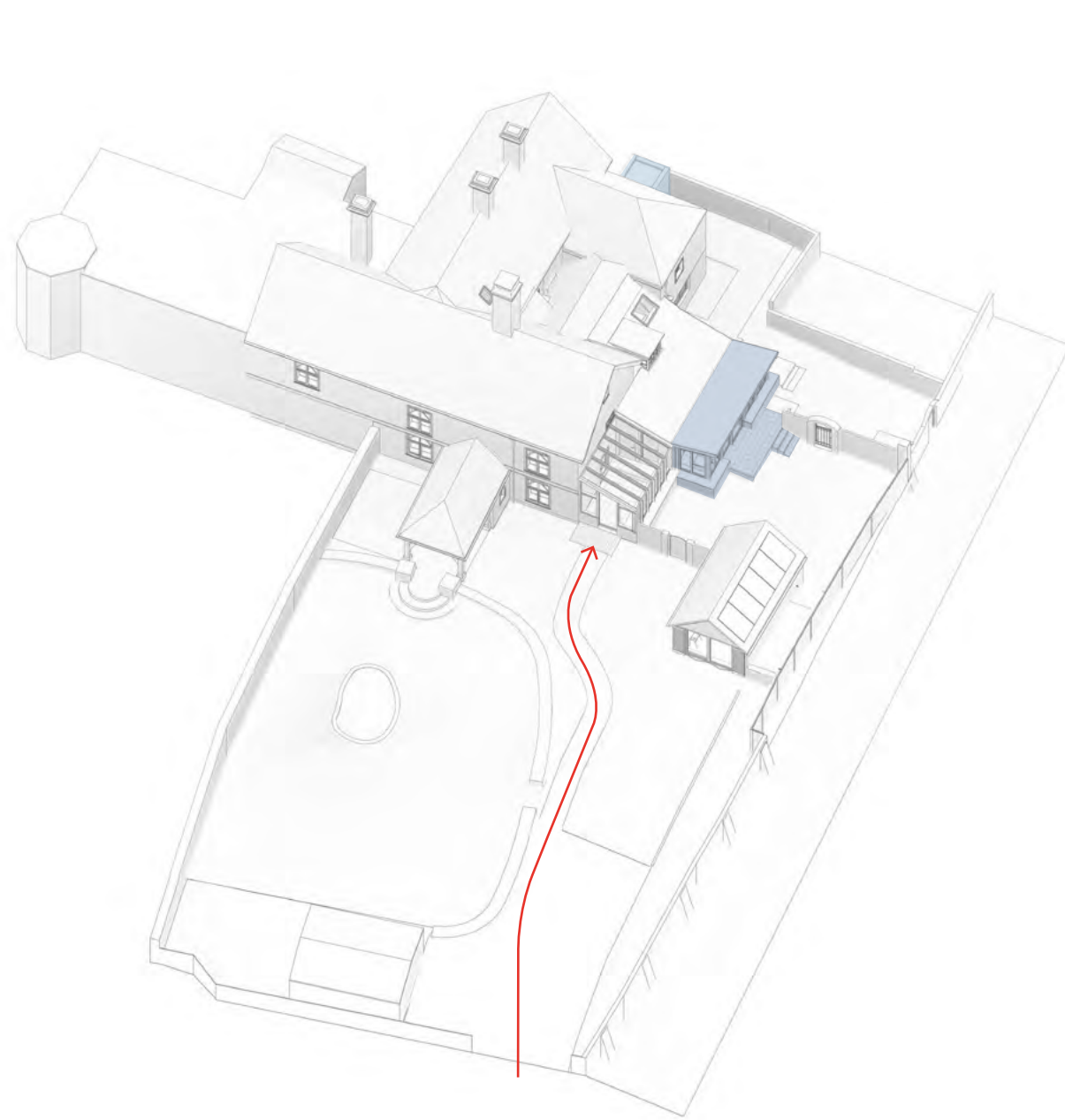
Late 20th century

New extension



4. Design Strategy

4.5 The Proposal in Context & New Entrance



Entrance

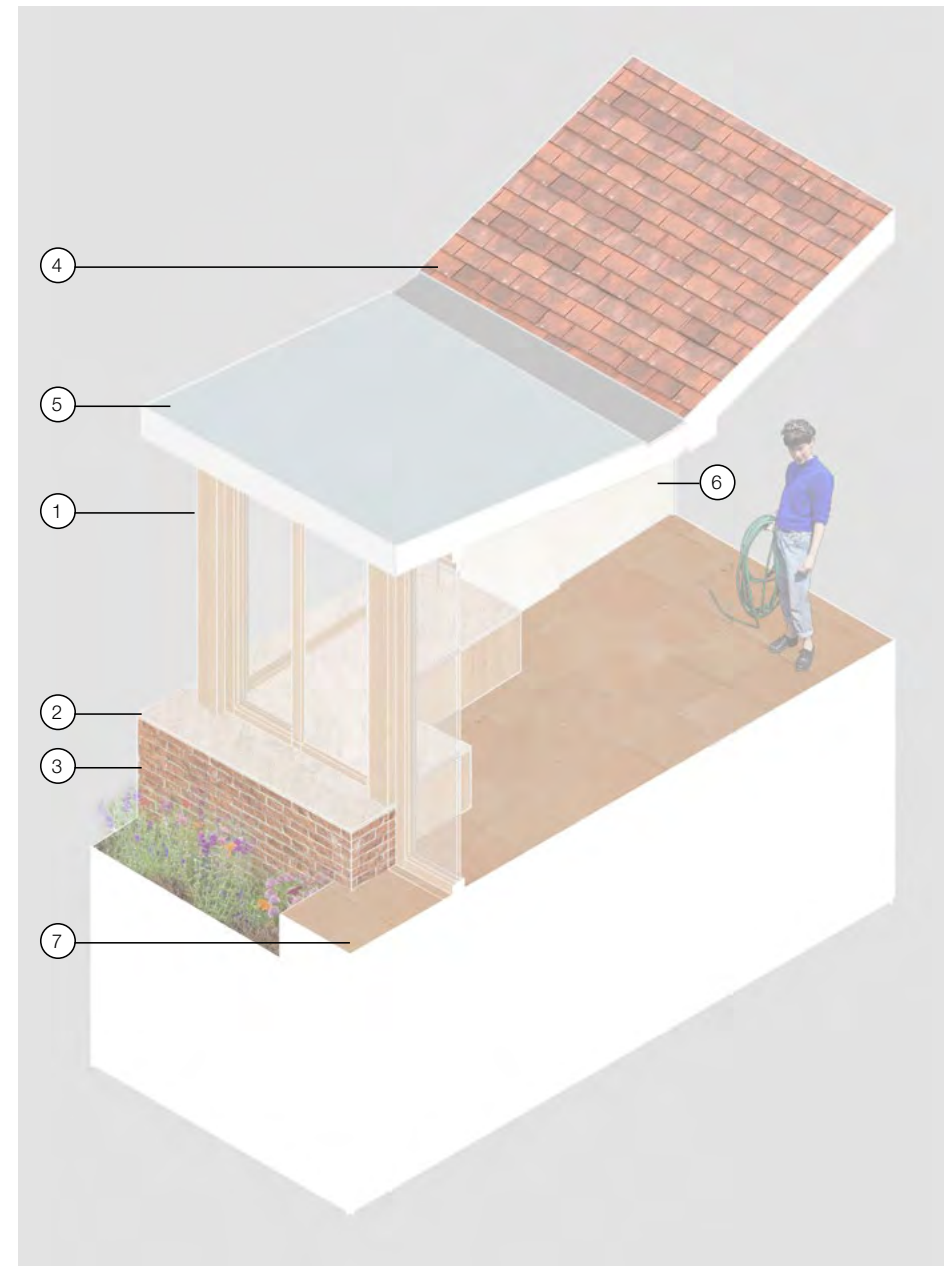
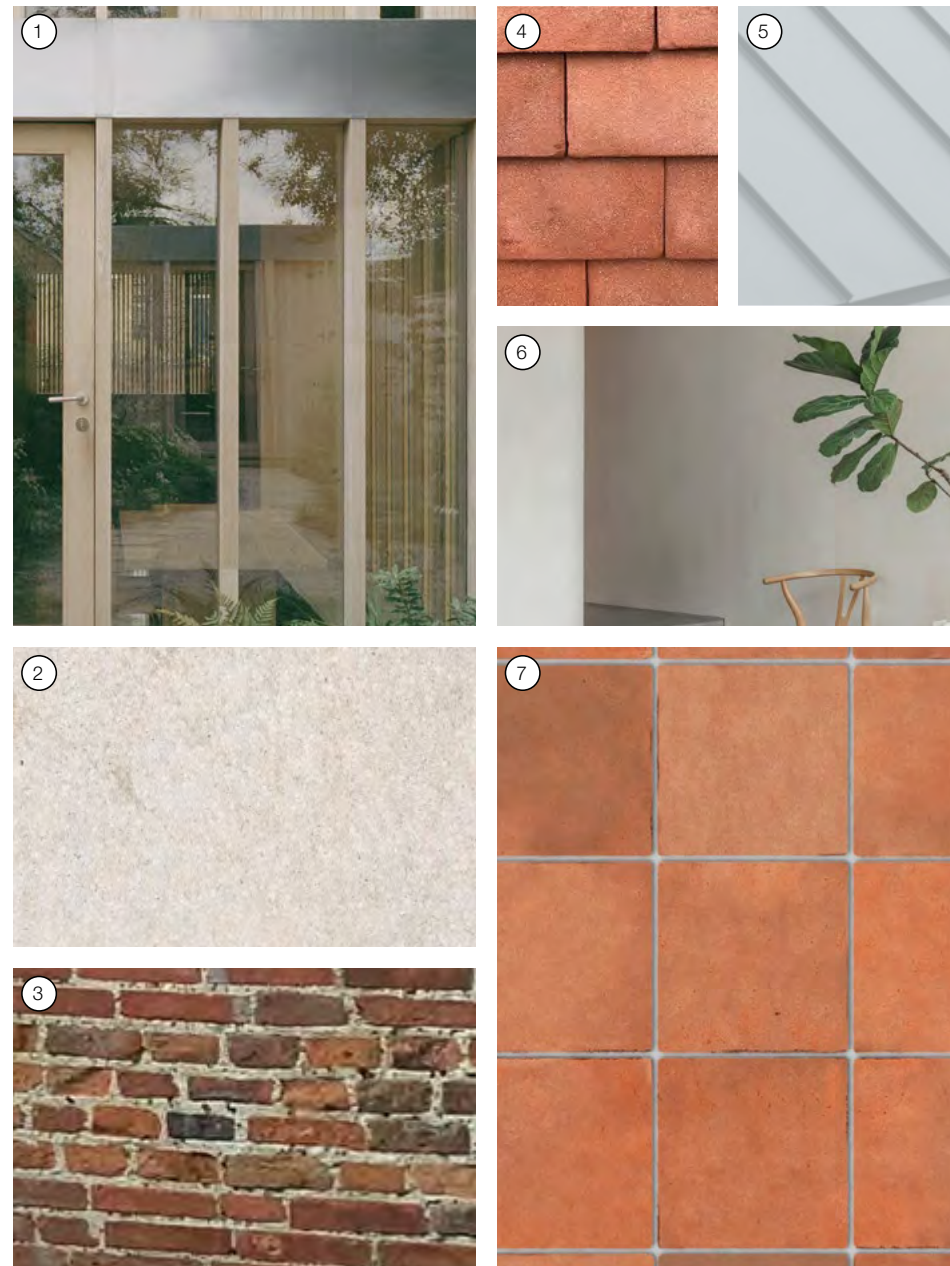


New Extensions



4. Design Strategy

4.6 Proposed Material Palette



SIDE-EXTENSION MATERIALITY

The material palette has been selected with sustainability in mind, and sensitivity towards the existing context.

As far as possible existing bricks will be retained and reused, alongside terracotta floor tiles to reference the existing, which run from inside to outside.

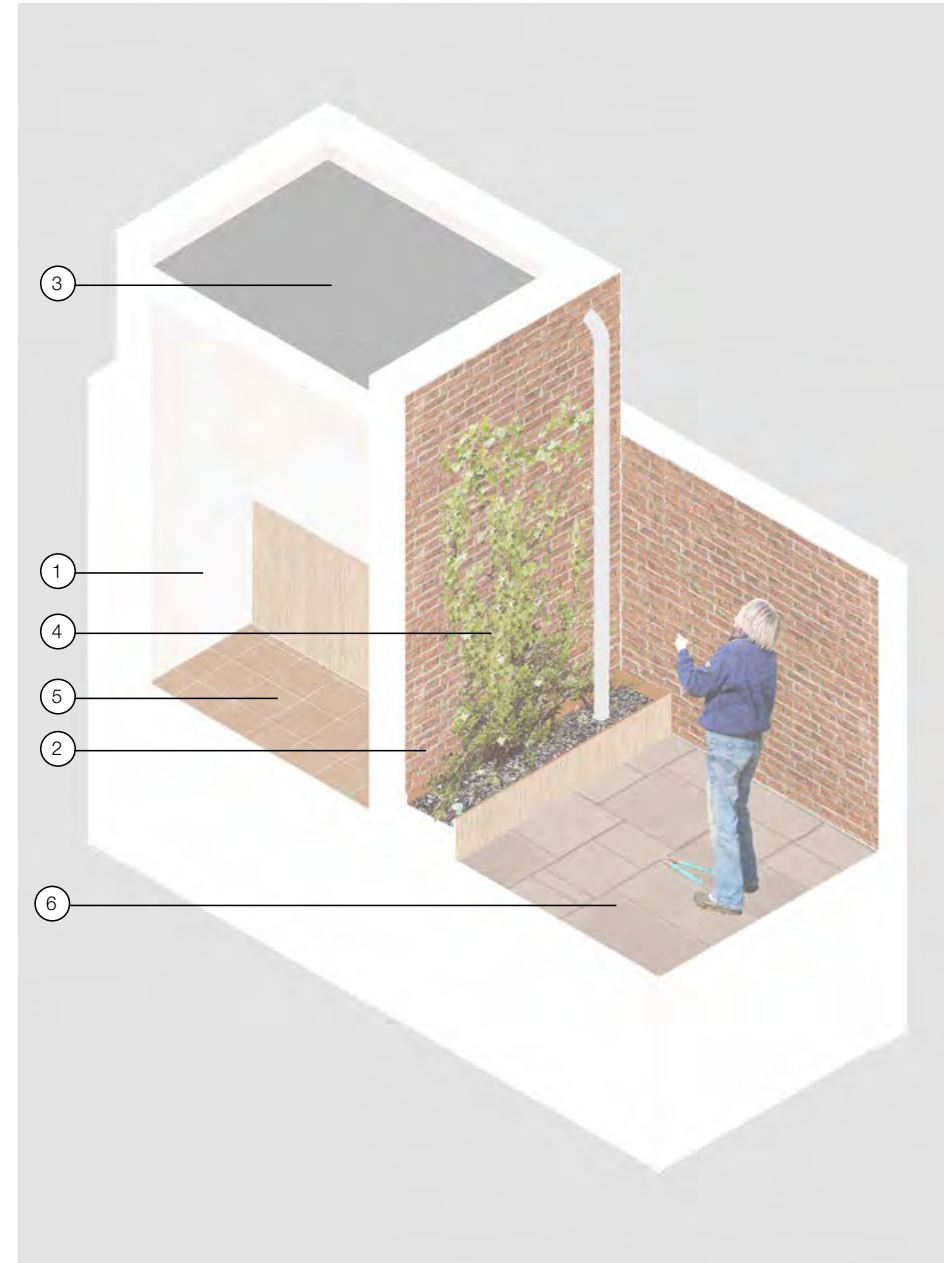
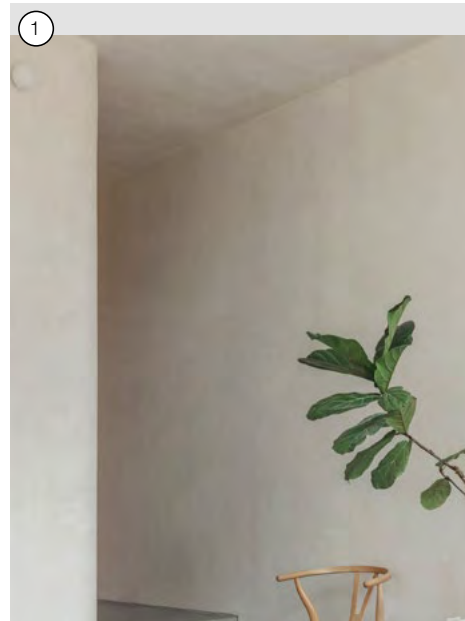
The resulting warm, reddish colours will be complemented and softened by oak structure and windows, and lime render internally.

New roofing will match the existing clay tiles where the gradient permits, with a metal covering to the new butterfly roof - this surface will not be visible from the ground.

- ① Oak frame windows & metal fascia
- ② Limestone sill
- ③ Reclaimed existing bricks
- ④ Heritage clay tiles to match existing
- ⑤ Standing seam metal roof
- ⑥ Lime render
- ⑦ Teracotta/quarry tiles

4. Design Strategy

4.6 Proposed Material Palette



REAR-EXTENSION MATERIALITY

The material palette has been selected with sustainability in mind, and sensitivity towards to the existing context.

As far as possible existing bricks will be retained and reused, alongside terracotta floor tiles to reference the existing, which run from inside to outside.

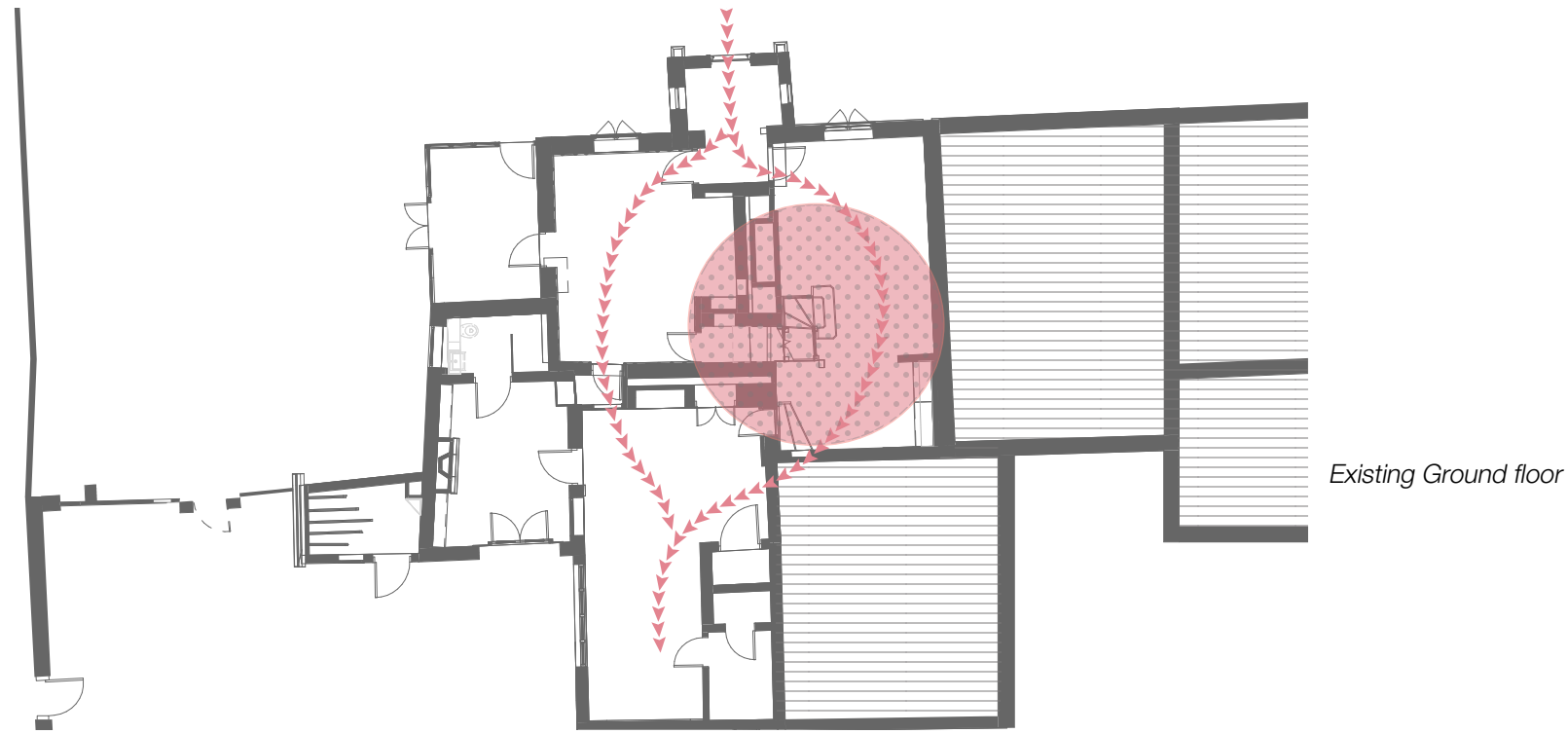
The resulting warm, reddish colours will be complemented and softened by a glazed oak door, and lime render internally.

A new EPDM flat roof could drain into planters, further softening the facade.

- ① Lime render
- ② Reclaimed existing bricks
- ③ Membrane roofing
- ④ Climbing plants
- ⑤ Terracotta/quarry tiles
- ⑥ Existing pavers

4. Design Strategy

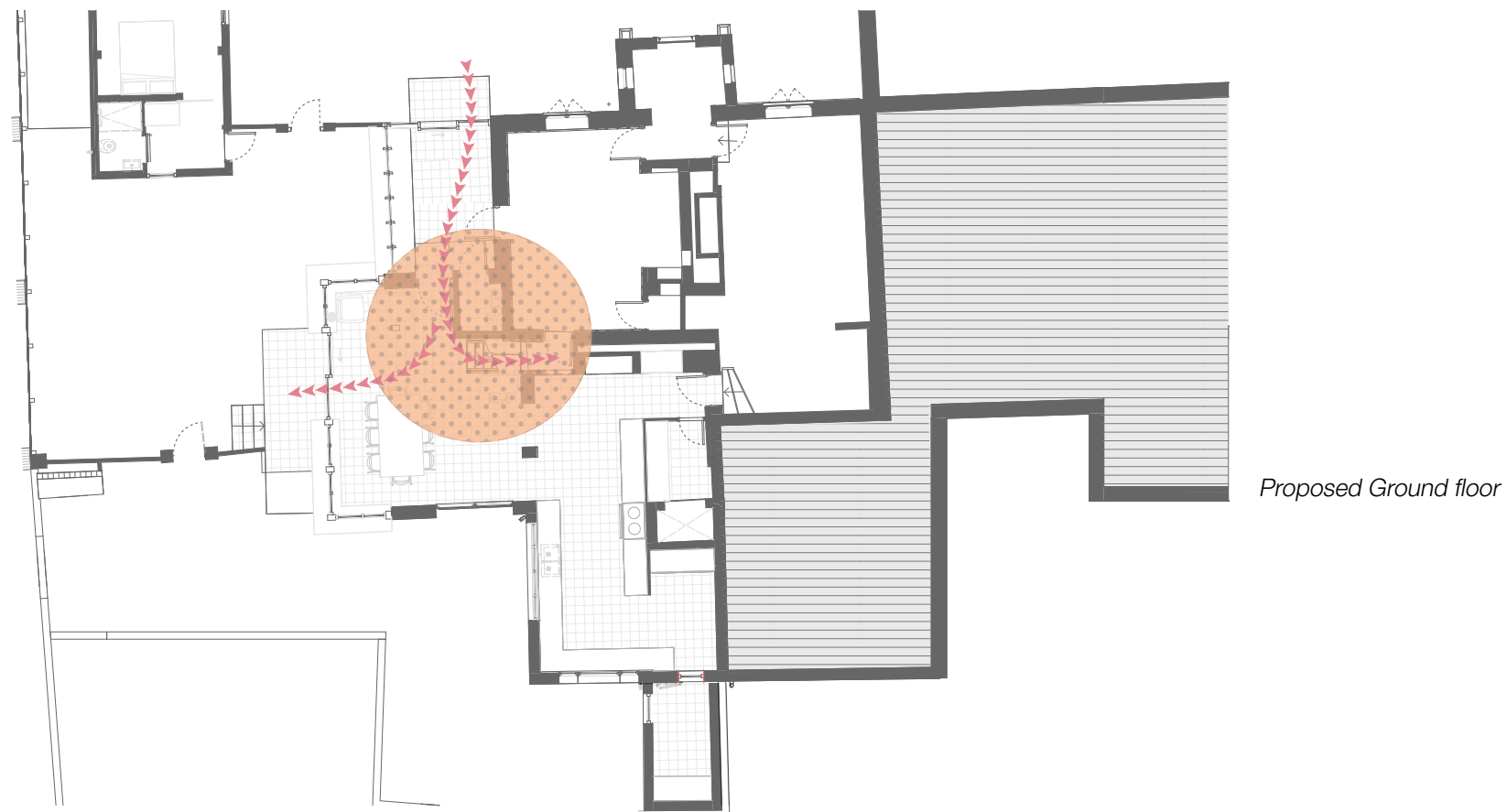
4.7 Ground Floor Circulation



CIRCULATION: EXISTING AND PROPOSED

Strange Hall South retains the original circulation from when the house was still joined with Strange Hall North. In the old house, the circulation and entrance are in the centre and there is a passage from room to room around the core. As the stairs are still in the same location, but the room in which the stairs are situated is half its original size, the whole room is overtaken by circulation.

The kitchen, usually situated close to the entrance is far away and has no visual connection to the entrance.



Circulation path



Centre created around the stairs. Currently cuts theoretically into Strange Hall North.

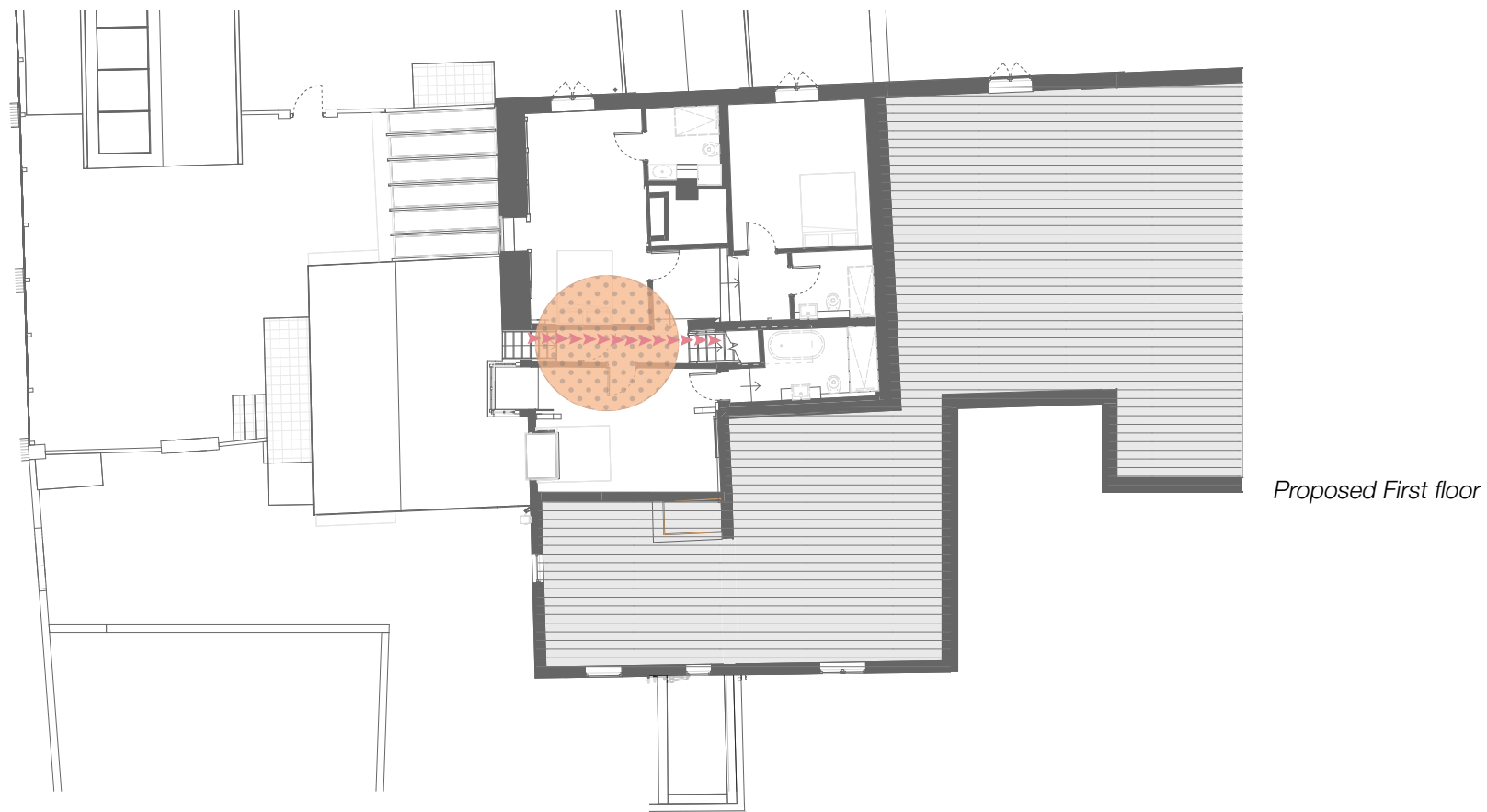
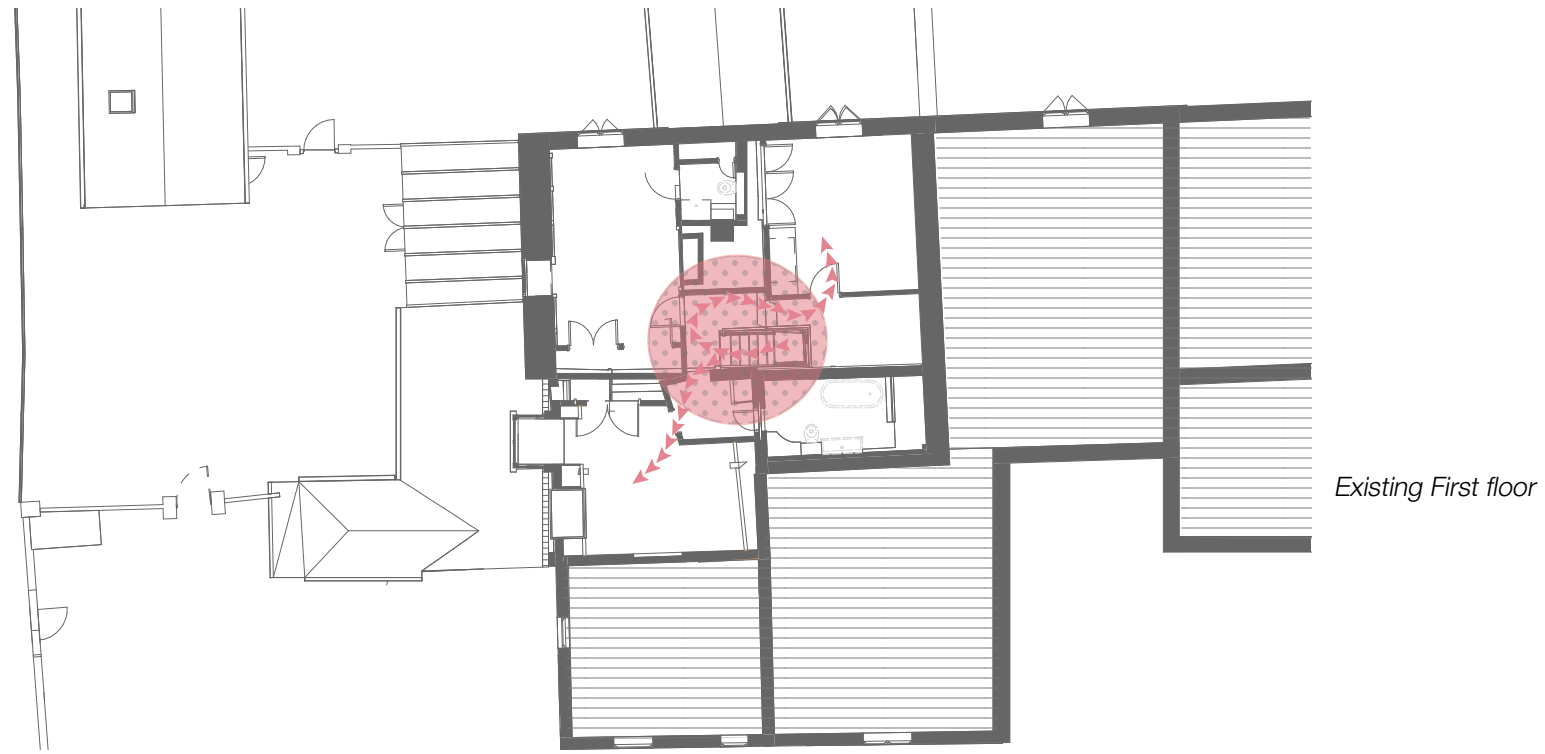


Proposed focal area of circulation



4. Design Strategy

4.8 First Floor Circulation



CIRCULATION: EXISTING AND PROPOSED

The adjacent diagrams show how the revised stair location would rebalance the plan.



Circulation path



Centre created around the stairs.
Currently cuts theoretically into
Strange Hall North.

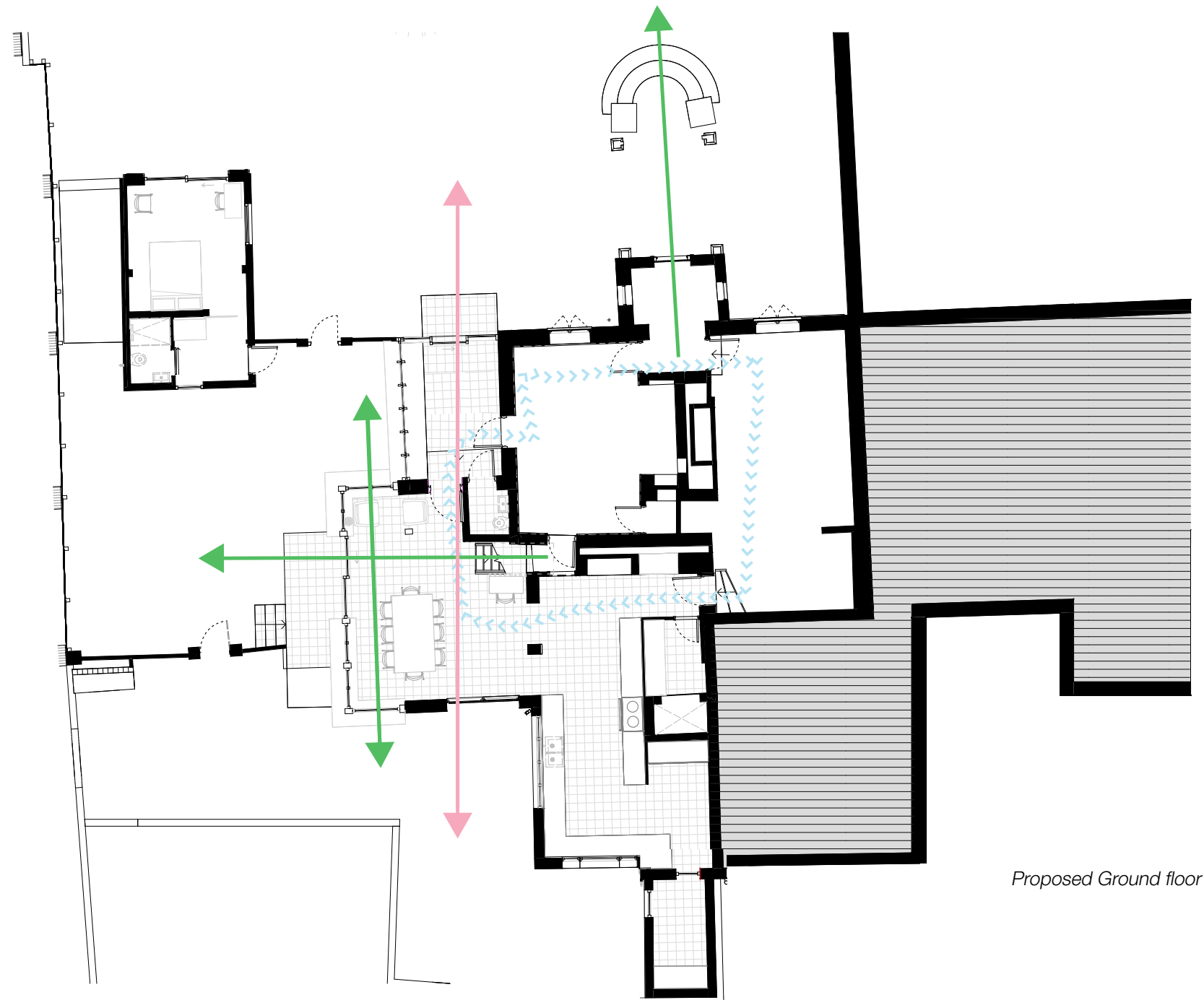


Proposed focal area of circulation



4. Design Strategy

4.9 Sight Lines & Circulation







SIGHTLINES

By re-establishing the primary East-West Axis of the existing building, the scheme seeks to make the most of long sightlines across the site.

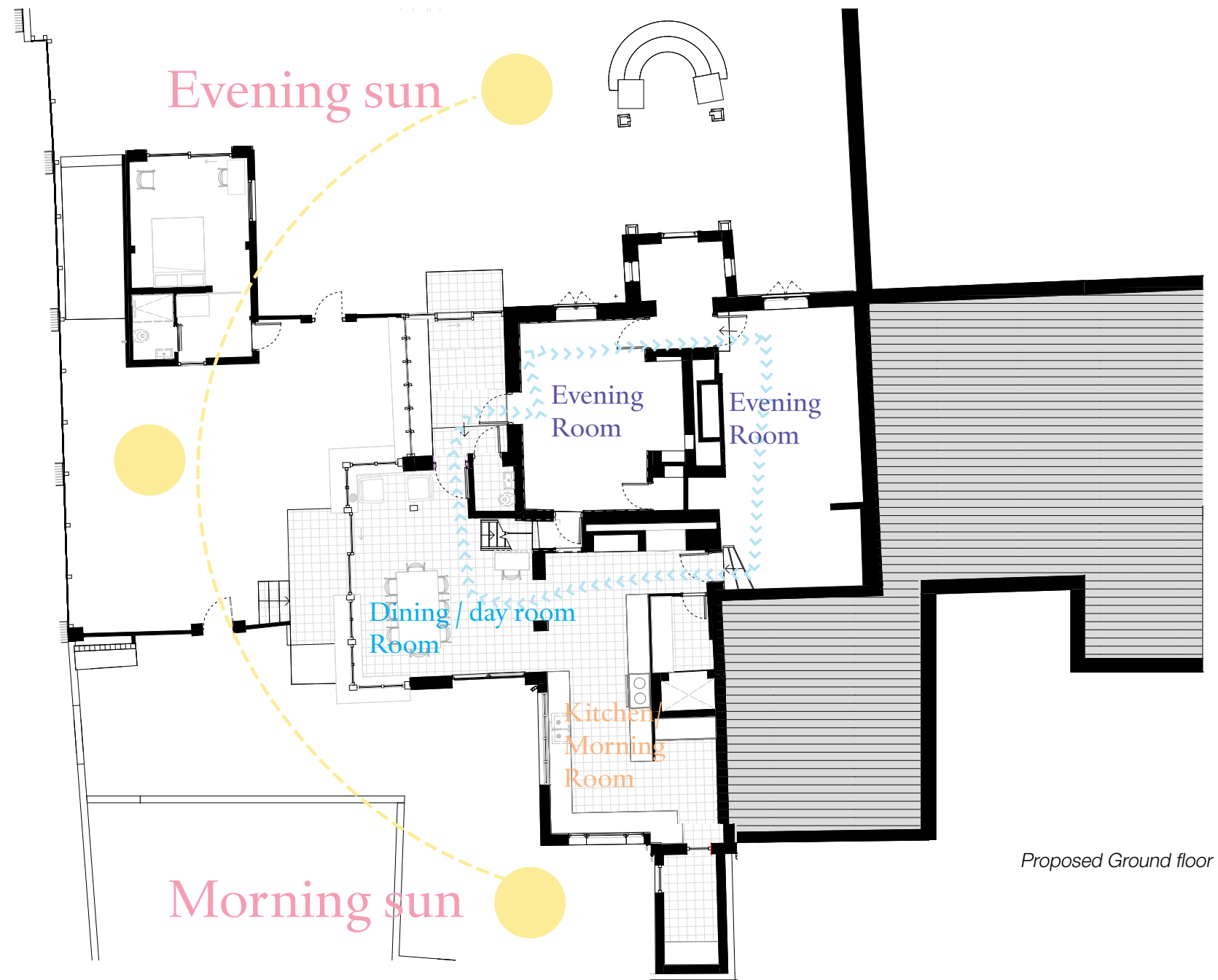
In the proposal, the rooms become four, more uniformly proportioned spaces, interconnected by a loop of circulation.

Sightlines are opened into the garden and through the house. In particular the revised staircase creates new opportunities to see all the way through the house to the original timber roof structure.

-  Sight lines through the house and garden 
-  Circulation and sightlines through the house
-  Restoring the loop on the ground floor between the rooms. Use changes during the day

4. Design Strategy

4.10 Sun Path



SUNLIGHT

This proposal follows the tradition of the English country house, whose plan responds to the sunpath. Here rooms' programmes are allocated to follow the path of the sun throughout the day, with breakfast in the east, living in the south, and evening spaces to the north and west.

The new side-extension would relocate the living/dining space to the south, making the most of the sunlight during the day.



5. Heritage Statement

5. Heritage Statement

5.1 The Asset



THE ASSET

Strange Hall South comprises half of a Grade II listed house and various outbuildings set within a garden. These outbuildings include a late 20th century brick garage, timber summer house approved under Application No. 14/03850/DOM in 2015, and a log cabin approved under 16/01649/DOM.

The main house likely dates back as far as the Middle Ages, but was split into two semi-detached homes in the 1930s: Strange Hall North, and Strange Hall South. It has seen multiple ad hoc alterations and extensions throughout its history, as documented previously in the Design and Access Statement, the earliest of which dates from the late 19th Century.

Angela Bromley Martin's *Bosham: a village by the sea* identifies the house's origins as two "timber framed open hall cottages about five feet apart". The first of these was constructed around 1350 as a single room around a central fireplace. The building's situation away from the village is attributed to the Black Death, during which isolation reduced risk of contagion. The first residents were bordars, modest farmers allowed on the land by a lord of the manor in exchange for work.

5. Heritage Statement

5.2 Context



SURROUNDINGS

The asset is not within a conservation area, although it does sit within the Chichester Harbour Area of Outstanding Natural Beauty.

The scheme lies in the historic coastal village of Bosham, a half hour walk from the quay. While the street address is the residential Walton Lane, access is off a farm road that springs from a bend in the Lane. This cul-de-sac is only used by farm traffic. The leafy surroundings mean that the building is largely invisible from Walton Lane itself.

Bosham receives a number of mentions in Nairn and Pevsner's Sussex volume of *The Buildings of England*, starting with its appearance in the Bayeux Tapestry as Harold's point of departure to Normandy in 1064. In particular the area is described as having the intricacy of a Cornish Village albeit with a "softer Sussex colour scheme [of] flint, brick, tile, and tile-hanging".

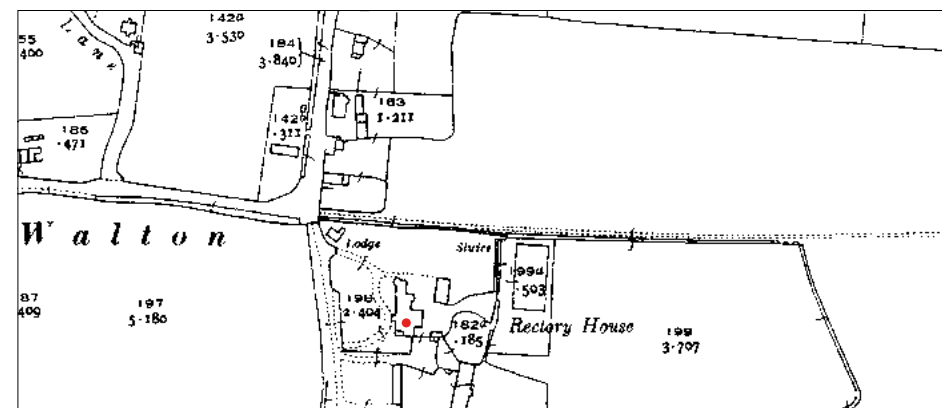
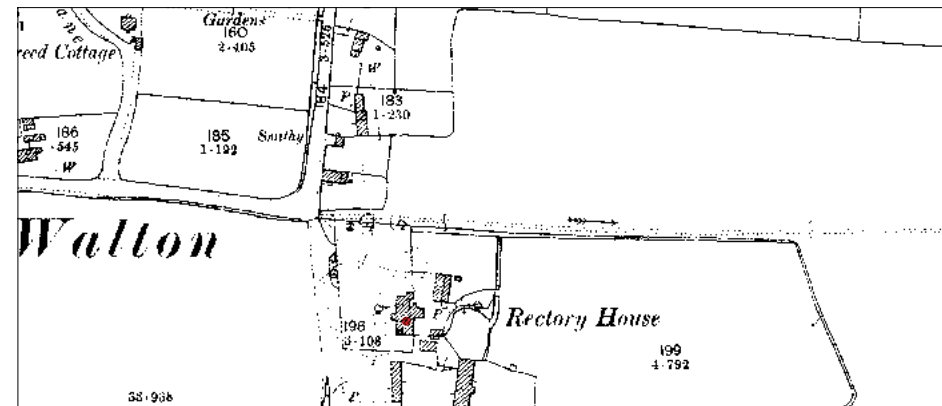
More broadly Bosham's plan is described as "delightful", "a dead end between two inlets of the sea. The very tip is a field, Quay Meadow, and the village extends NE from it, turning its face out to the harbour (a road along the edge which is flooded with high tide) whilst its real everyday axis is a very narrow lane (High Street) at the back. Boats everywhere and a smart place to be [...]"

5. Heritage Statement

5.3 Cartographic Record



Yeakell and Gardner's Map of Sussex, 1778-1783



OS County series 1875, 1898 & 1932 (from top)

HISTORIC MAPS

The house appears on the earliest map of the area Yeakell and Gardner's Map of Sussex 1778-1783, among a cluster of buildings that no longer stand.

Later maps from the 19th Century are sufficiently detailed to reveal the cruciform plan, including the current porch. These show the house accessed from a single path entering from the North West of the site, and creating a formal, symmetrical turning ellipse in line with the axis of the primary entrance. This was subsequently dissolved along with the introduction of a second entrance to the South West. These also capture the addition of extensions, particularly to the sides and rear of the house.

These maps bear the property's previous name Rectory House, which was changed following its purchase around 1927 by the Strange family of Strange Farm, within which the property sits.

5. Heritage Statement

5.4 Planning History

PLANNING HISTORY

Garden shed in front garden.
Ref. No: 16/01649/DOM | Status: Permit

New log cabin in front garden.
Ref. No: 15/03121/DOM | Status: Application
Withdrawn

Discharge of Condition 4 of planning
permission BO/15/00948/LBC - material
samples re: new garden wall to front
elevation.
Ref. No: 15/01757/DOC | Status: Discharge
of Conditions

New garden wall to front elevation.
Ref. No: 15/00948/LBC | Status: Permit

Erection of a professionally built
summerhouse in garden.
Ref. No: 14/03850/DOM | Status: Permit

New ground floor window to side elevation
and revised fenestration to conservatory
along front elevation.
Ref. No: 14/02963/LBC | Status: Permit

5. Heritage Statement

5.5 Existing Architecture



West facade porch and pointed window



Brick infill to the South facade

EXTERIOR

Strange Hall South's exterior is constructed from red brick, with a brick string-course and lintels to the 19th century front façade. The rear features a mixture of brick and oak lintels, which have succumbed to wet rot. The walls evidence a patchwork of repairs over time, with gable alterations where the roof has been raised. As highlighted by the listing entry, the primary elevation houses four pointed gothic casement windows. Throughout windows are single glazed.

LISTING

Features detailed in the building's listing (shared with Strange House North) are an "Early C19 front to a C17 [sic.] building. Two storeys. Six windows. Red brick, partly refaced with tile-hanging. Tiled roof. Octagonal turret at north end. Pointed Gothic casement windows."

5. Heritage Statement

5.5 Existing Architecture



Ceiling joists above the South fireplace



Carpenters marks on wood panelling (top) and above the South fireplace (bottom)

INTERIOR

Fireplace: As previously suggested, this dates from as early as the 15th century, with the original house built around the fireplace. The panelling and fireplace surround bear witches and carpenters' marks supporting the idea that this part is even older than estimated previously. Carpenters' marks are roman numerals carved into the wood's surface to help identify each element during assembly.

The tarred oak in the loft would also suggest that the house was originally built around the fire place as a medieval hall.

5. Heritage Statement

5.5 Existing Architecture



Double roof structure



19th Century timber stair

INTERIOR

Timber frame: The roof is constructed from hardwood timbers, with later softwood alterations forming a second, raised structural skin where the roof has been elevated. Throughout the house, oak beams are exposed to varying degrees.

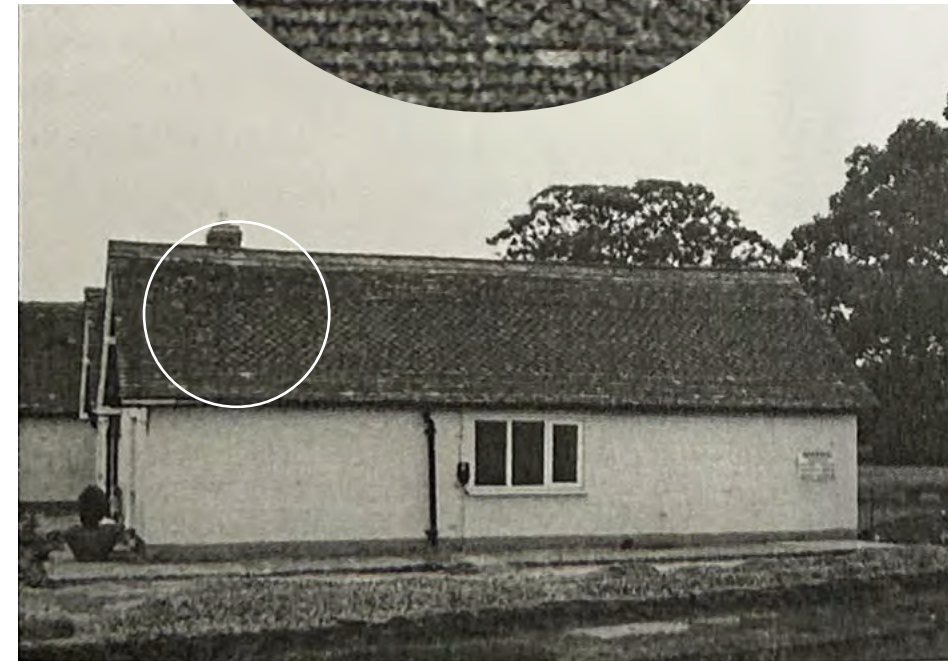
Stair: The central staircase is accessed off a living room, and is constructed from hardwood, likely oak. This stair was introduced in the 19th century, prior to the division of Strange Hall North and South. Its grand scale dominates the space, and clashes with the original timber structure.

5. Heritage Statement

5.6 Material Context



Top - brick hearth at Strange Hall South
Above - a brick at Carmelite Convent Chichester, marked AC for Alfred Cheesman



Decorative roof detail of the nearby former Cheesman Brickworks

BRICK HISTORY

Prior to 1927, the house was owned by the Cheesman family, yeoman farmers. They owned a nearby kiln, producing bricks and tiles, connecting the house to Sussex's rich history of brickmaking.

5. Heritage Statement

5.7 Impact - Demolition & Replacement



The piecemeal nature of previous alterations lends opportunities to re-establish and celebrate elements of the original building.

DEMOLITION & REPLACEMENT:

Stairs – The proposed would seek to demolish the current 19th century staircase. In addition to rationalising the plan, this would provide greater legibility to the adjacent fireplace, one of the building’s oldest elements. In their current location, the bulky stairs impede circulation through the ground floor, and are more a remnant of the Great Hall, than the medieval building.

Ceilings – There are modern ceilings in the first floor bedrooms, which mask and detract from the original structure. The proposal would see these removed to reveal the historic fabric.

Window replacement – These have been extensively repaired but are now at the end of their lifespan. In any case they are already replacements, which is evident from the much older windows in Strange Hall North. To be constructed like-for-like with regard to appearance, but to modern regulations to improve thermal performance, in conjunction with appropriate measures where necessary to mitigate changes to humidity.

5. Heritage Statement

5.7 Impact - Demolition & Replacement



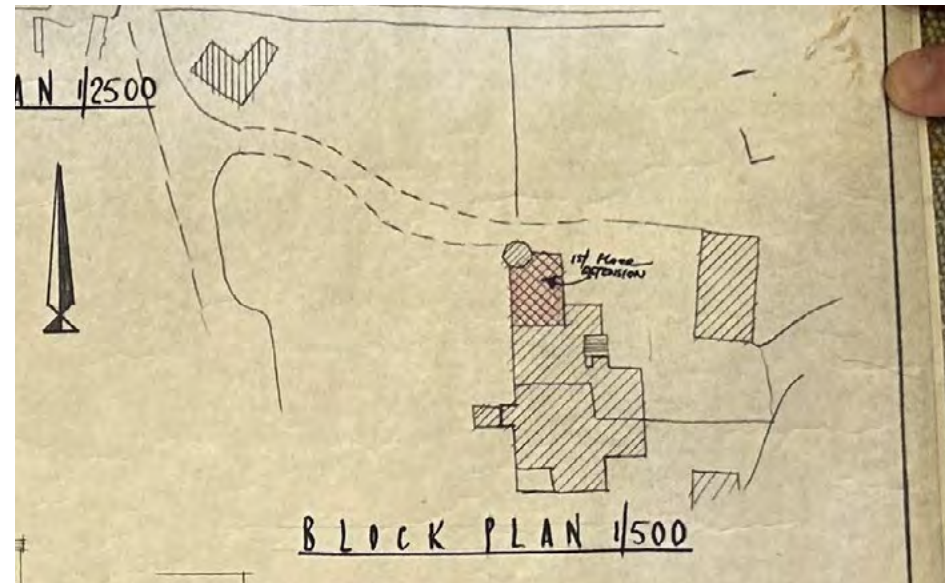
Roof trusses - During strip out, existing structure will be retained as far as possible, although some trusses will likely have to be removed or adapted to enable the inhabitation of the loft.

5. Heritage Statement

5.7 Impact - Demolition & Replacement



Potting shed – Likely one of the house's newest additions, and of limited architectural value. Demolishing the potting shed and the adjoining late C19th wall would enable the side-extension.



A photo from 1933 seems to show the chimney continuing down below where one would expect to see the shed starting.

A later planning application from 1968 does not show the shed, offering further clues to its provenance.

5. Heritage Statement

5.8 Impact - Construction



IMPACT CONSTRUCTION:

The extensions are single-storey additions, whose modest massing and situation to the side and rear are subservient to the house, at under 10% of the existing ground floor area, and 22% of the south façade elevation. This is far below limits set by *Planning Guidelines for Chichester Harbour AONB*: with “maximum increases of 50% to the footprint of the property and 25% to the elevations where these are visible in the wider landscape”.^(p.6)

Here it should be noted that the proposal would be minimally visible to the public if at all, even from the drive. Even so the medieval context is one where the key elements being retained hold historical significance, more so than the composition of the whole.

Throughout, materials have been chosen in line with the *Planning Guidelines for Chichester Harbour AONB* to be “locally distinctive, complement local vernacular and are appropriate to their landscape setting”.^(p.7)

Existing bricks will be used as far as possible for the brick facing, to be inherently sustainable and sympathetic towards the existing façade. This will also draw explicit reference to the previous owners’ connection to Sussex brickmaking.

Roofing slates where the extension meets the existing are chosen to innocuously blend in, rather than stand out from the existing. Skylights are required to make the loft habitable, and have been carefully positioned to be away from the primary elevation, so as to have the least visual impact. These are similarly sized to the skylight already in the neighbour’s side of the house.

The reconfiguration of the central stair will create opportunities for long views through to the original roof, allow the extension into the loft, and rationalise the circulation to make the existing and proposed living spaces more functional.

Additional insulation and lime-render is proposed internally, in particular to make the loft habitable. This will be breathable to avoid compromising the existing structure, and rafters will be exposed as far as possible, so as to retain the legibility of the building’s history.

6. Appendix

5. Appendix

6.1 Structural Statement

FOSTER STRUCTURES

721 : STRANGE HALL,
BOSHAM

ALTERATIONS TO EXISTING HOUSE :
STRUCTURAL STATEMENT

0. INTRODUCTION

The following document outlines the structural approach for the alterations and extensions to the existing house know as Strange Hall South set off Walton Lane in Bosham.

2. EXISTING BUILDING

Strange Hall South is a two storey grade II listed house with original features which date from the 16th century. The original building has been significantly altered and extended multiple times and within the last century was subdivided into Strange Hall North and Strange Hall South.

The subdivision of the property has impacted on the circulation and proportion of the rooms and the proposed alterations are aimed at improving the circulation within the property and improving the functionality of the property.

It appears that at some point the main roof over the original two storey party of the house has been raised and a new pitched roof constructed over the original roof which has been left within the existing loft space and encased by the new higher level roof.

Access is also possible from the main loft space into higher level lofts which are understood to once have been part of an access to a small tower (now removed) above the original roof.

2. PROPOSED ALTERATIONS

At ground floor level it is proposed to convert the existing single storey freestanding garage to a new habitable space, however the main works at ground floor level will involve the construction of a new single storey side extension which will help accommodate a more coherent living space and a new staircase access up to first floor level. The new extension will have a duo-pitched roof which will join with the existing pitched roof to the side of the house.

The remaining works at ground floor are relatively minor and include the removal of the existing staircase, some alterations to existing openings and the removal of some (potentially loadbearing) walls at ground floor level within the more modern extension to the rear of the property.

At first floor level the existing stair opening will be infilled and new trimming installed to allow the new ground to first floor stair to rise up through the floor. A new staircase will also be installed to facilitate the access into the main loft space. In association with these works there will also be minor re-configuration of some existing internal walls.

Within the loft space, part of the existing ceiling will be removed to allow the lower original roof structure to be exposed. Part of the loft space (where a 'platform' floor already exists) will also be converted to habitable use with the reconfiguration of some of the existing walls in the higher level loft space to accommodate a new bathroom.

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FOSTER STRUCTURES

3. STRUCTURAL WORKS

The current house clearly comprises an extensively altered original building which has been extended & re-configured multiple times over an extended period.

Structurally the building comprises timber joisted upper floors which are supported by a mix of external loadbearing masonry walls and internal (probably mostly timber framed) walls and posts. Given the extensive history of alterations it is likely that some internal elements which may not have originally been intended to support floor or roof loads are now supporting some loading. It would also appear that much of the previous alteration (particularly within the existing loft spaces) has been carried out in a largely un-planned and ad hoc way.

The proposed structural works would be carried out in a way which minimised the impact on the existing structure and as much as possible retained the existing loadpaths where possible. The new structural interventions are intended to be respectful of the existing structure and the approach would be to retain and strengthen existing structural elements where feasible rather than introducing new elements.

It is anticipated that much of the proposed structural alterations to the existing fabric would be carried out in timber (replicating the existing structure) which would minimise the embodied carbon of the new elements and reduce the environmental impact of the proposed works.

Where new loadings are introduced to the existing building (such as in parts of the loft space) the impact of the new loading on the existing retained elements will be considered at all levels – including down to foundation level.

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5. Appendix

6.2 Sustainability Statement

Sustainable Energy Statement
Strange Hill South, Bosham

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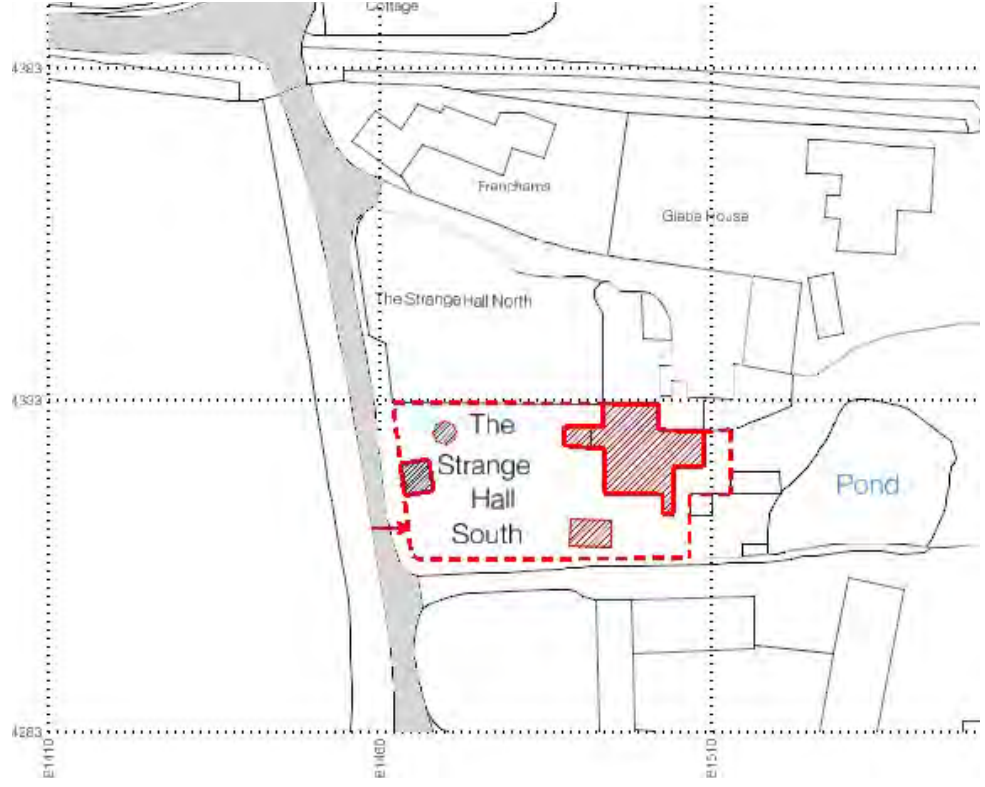
1.0 INTRODUCTION

Strange Hall South is a semidetached Grade II listed residence in Bosham, West Sussex. It is proposed that the property is to be refurbished and remodelled which requires both planning and listed building consent.

This Sustainable Energy Statement has therefore been provided as part of the planning and listed building application to indicate the proposals for sustainability improvements that will be incorporated as part of the refurbishment and remodelling.

2.0 SITE DESCRIPTION

The image below shows the property with the site boundary highlighted in red.



The map shows a site plan with several buildings and a pond. The buildings are labeled: Cottage, Frenchmans, Glass House, The Strange Hall North, The Strange Hall South, and Pond. The site boundary for The Strange Hall South is highlighted in red. The map also shows a road and a path. The coordinates 4303 and 4283 are marked on the left side of the map.

Sustainable Energy Statement
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3.0 PLANNING POLICY

This section explores some of the relevant policies which set out carbon and energy emission reductions for this project to consider and adopt.

KYOTO PROTOCOL (1997)

The Kyoto Protocol, first signed in 1997, was a landmark international agreement for member states to commit to legally binding emission reduction by set dates.

In the United Kingdom, their first commitment was to reduce emission 12.5% against relative levels in 1990. This later led to the Climate Change Act within the UK, that sets a commitment to reduce 34% by 2020 and Net Zero by 2050 compared to the relative levels in 1990.

As the Kyoto Protocol was due to expire 2020, it was replaced by the Conference of Parties statement (COP21) held in Paris 2015. In this, commitments were made to limit global temperature rises; the targets and methods for achieving them have continually been updated, most recently at COP28 in Dubai.

NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

The NPPF sets out planning policies for England and Wales and how these are expected to be applied. In determining planning applications, local planning authorities should expect new developments to:

- Comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and
- Take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.

CHICHESTER DISTRICT COUNCIL LOCAL PLAN

The Chichester District Local Plan which guides planning policy does not directly set requirements for sustainability or carbon reduction measures as part of the planning approval requirements, however sustainable development is part of its ethos.

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As stated above local planning does not specifically require sustainable measures to be incorporated beyond building regulations, however it is the clients preference to incorporate sustainable measures wherever possible.

THE ENERGY HIERARCHY

The Energy Hierarchy has long since been adopted as best practice when designing and reviewing energy efficiency and carbon reduction in both new and existing buildings.

The hierarchy is “be lean, be clean, be green”; in other words, designers should reduce demand by adopting fabric first principles, use energy as efficiently as possible and then after this, where possible integrate renewable technologies:

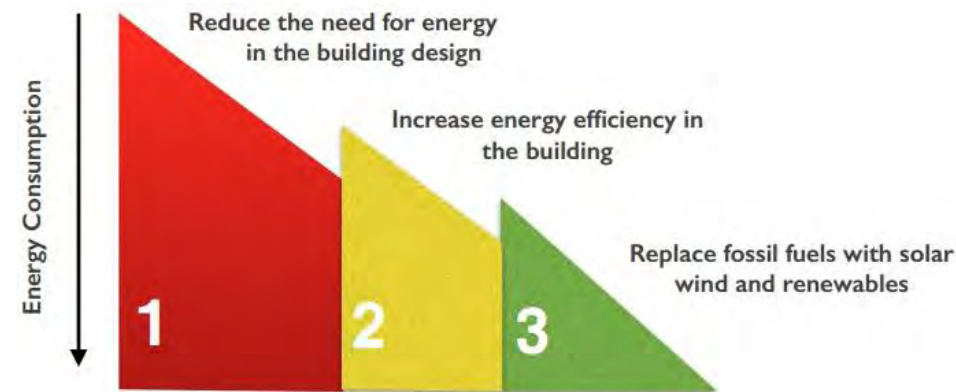


Figure 2.1: The Energy Hierarchy

Each of these steps is explained in more detail below.

4.1 BE LEAN: USE LESS ENERGY

A. FABRIC IMPROVEMENT

As the house is a listed building, building regulations for energy efficiency do not need to be adhered to. However improving the U values for the building fabric wherever possible is to be considered, this includes insulation within the roof, new double glazed windows and all new parts forming the extension to be built to modern building regulation standards. Note: all of these proposals will be undertaken with specialist Listed Building advice to ensure suitability with the existing building structures.

B. VENTILATION

Mechanical ventilation with heat recovery, (MVHR) can provide a more energy efficient solution, this uses supply ventilation distributed to living and sleeping areas with extract being taken from wet spaces, the heat is recovered from the extract and transferred into the supply. However, due to the existing structure of the building, incorporating the ductwork required for heat recovery would be very difficult.

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The property is located in a small rural village with lower than average pollution, this therefore lends itself to a natural ventilation solution via openable windows and doors, with local extract ventilation provided to sanitary accommodation and kitchens to maintain air quality.

This is a simple, comparatively low energy and low carbon solution.

C. HEATING

The property is currently provided for heating and hot water from an old inefficient and unreliable gas fired boiler. Alternative heating solutions will be reviewed later in this document; however they would be difficult to incorporate due to the high fabric loss of the property and significant pipework and heat emitter modifications required.

If gas is to be used as the heat source, then a new high efficiency condensing boiler would be used which could reduce carbon emissions by up to 25% against the existing boiler.

D. LIGHTING

Significant advances have been made with LED lighting technology and typically LED's will use only 15% of the energy compared to incandescent or halogen fittings.

Therefore, low energy LED lighting will be used throughout the property.

E. WATER USAGE

Reducing water usage, particularly hot water, can have significant energy savings; therefore, when selecting sanitaryware for kitchen and bathrooms consideration will be given to water usage as well as the aesthetic. Modern showers particularly can use significant volumes so these need careful consideration. Low flow taps for basins can provide significant savings and WCs should be low volume dual flush.



Rainwater harvesting could be considered for garden irrigation. This utilises either an above ground or below ground tank that collects and stores rainfall from the roofs. Either gravity or an integral pump allows the water to be connected to hose outlets for hand or automatic irrigation. Due to the installation costs for below ground tanks, a financial payback would never be realised and carbon savings are minimal. However low cost above ground tanks can offer a low energy cost effective solution.

We would not recommend rainwater harvesting for toilet flushing / washing machine filling as this would require a secondary pumped water system within the property which would also never achieve a payback and provide minimal carbon savings. Also, although filtered, the harvested water is not as clean as

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mains water leading to dirt build up within WC pans and possible maintenance issues with connected equipment.

Heat reclaim systems are now available for shower drains, these extract the heat from the shower wastewater and transfer it to the cold main feeding the shower. These systems can provide some energy savings, however within a property of this type with minimal floor voids they would be very difficult to incorporate and unlikely to provide any significant energy or cost savings as typically payback periods are between 30 to 40 years.

F. BE CLEAN: SUPPLY ENERGY EFFICIENTLY

Once energy consumption has been minimised, the priority is to use local low carbon or decentralised energy sources. The premise of this is to supply energy more efficiently before looking to decarbonise the ultimate source. As such, this part of the energy hierarchy tends to focus on assessing the feasibility of district or development scale solutions.

However, as we are only considering a single dwelling and with no local heat network therefore this step is not available for Strange Hall South.

G. BE GREEN: USE RENEWABLE ENERGY

Following application of the lean and clean principles, the next stage is to review options to further reduce the use of grid supplied electricity and gas with their associated carbon emissions. Therefore, options for suitable low and zero carbon technologies can be reviewed.

H. PHOTOVOLTAIC POWER GENERATION

The installation of Photovoltaic Panels (PV's) would allow the property to utilise the sun's energy to generate clean, on-site renewable energy. The existing garage has a section of south facing roof that could accommodate PV panels whilst having minimal visual impact against the listed property. PV panels will therefore be considered.



I. PV BATTERY STORAGE

PV panels generate electricity during daylight hours and the property will have a base load of electricity, fridges, pumps, etc however there could be occasions when more electricity is generated than used internally. This over capacity can be sold back to the grid, for which payment is improving; an alternative is to install a battery system which can store unused electricity that would normally be fed back



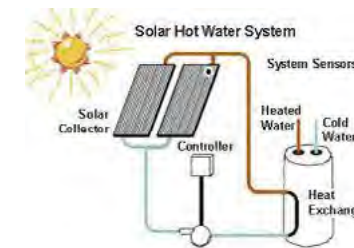
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to the grid for use by the household when required, typically lighting and car charging overnight.

At present this technology is relatively expensive and as the PV installation will be relatively small there is unlikely to be significant spare capacity for battery storage and the financial payback is likely to be significant. Battery storage is therefore unlikely to be used however will remain a consideration for the project.

J. SOLAR WATER GENERATION



Solar Water Heating uses the sun's energy to produce typically 50% of a property's hot water demand. The existing garage roof space is minimal and would be better used to install PV panels on.

Solar hot water systems can have issues with overheating if the hot water is not used especially during the summer months. For these reasons we do not believe solar hot water is suitable for Strange Hall South.

K. COMBINED HEATING AND POWER

Combined heating and power [CHP] units use a gas engine to generate both heat and electricity. This on-site generated electricity does not have the system losses inherent with grid supplied electricity and by using the heat creates a very carbon efficient heat and electricity generation system. Micro-CHP systems are available for smaller applications such as large houses; however this technology is more commonly used for commercial or large scale multi-residential schemes.



To make full use of the system efficiencies both the electrical and heat energy generated by the CHP must be used. CHPs operate best, when there is a steady and constant heat demand, for the gas engine to run efficiently. As Strange Hall South does not have a sufficient base load the integration of CHP is not considered suitable.

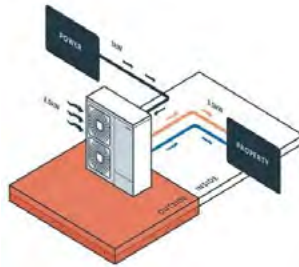
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L. AIR SOURCE HEAT PUMPS



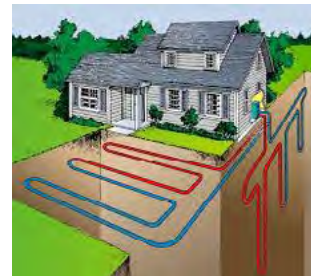
Air Sources Heat Pumps (ASHP's) efficiently extract energy from the air via an external unit and transfer it into water for heating and hot water generation. To operate efficiently, ASHP's deliver water at 55°C, this is temperature is ideal for underfloor heating and can also be used for radiators, although these will need to be larger than typical for a higher temperature system.

ASHP's do generate noise, which in quiet rural setting of this property could create an issue particularly with the relatively close proximity of neighbours, therefore careful consideration needs to be given to its location. Due to the high heat losses from the property, the difficulty in providing sufficient heat from a low temperature heat source and possible noise issues. Although technically achievable, ASHP's are not ideal for this property and are unlikely to be incorporated.



M. GROUND SOURCE HEAT PUMPS

Ground Source Heat Pumps (GSHP's) efficiently extract energy from the ground and transfer it into water for heating and hot water generation. The ground arrays for GSHP's can be either horizontal or vertical. Horizontal arrays are typically buried 1.5m to 2.0m and require significant areas of open ground, vertical arrays are set within 100-130m deep boreholes typically spaced 6-7m apart and require significantly less area of open ground.



As the heat pump equipment is normally located internally and all external pipework is buried, GSHP's have no external visual or noise issues.

The house does have front and rear gardens; however they are well established and have significant trees therefor insufficient free ground is not available for a ground source installation.

Due to the lack of suitable external space GSHP's are not considered suitable for Strange Hall South.

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N. WIND TURBINES



Wind turbines use wind energy to generate electricity. They are best suited to rural open areas as they require a steady wind, and they generate noise. Although the site benefits from a rural location, noise and visual impact would make planning permission for a wide turbine very unlikely. Therefore Wind Turbines are not

considered suitable for Strange Hall South.

O. BIOMASS BOILERS

A biomass boiler plant can provide very low carbon energy using wood chip or wood pellet as a fuel. As the fuel utilises wood/or other biomass products that would otherwise be burnt. So the net increase in carbon would be zero, this fuel type is also from a replenishable source.



However, biomass boilers require significant monitoring and daily maintenance to operate efficiently and reliably. Because of this they are often unreliable and difficult to obtain well qualified engineers to service and keep clean. Therefore it is considered that biomass boilers are not suitable for Strange Hall South.

5.0 CONCLUSION

By using the Be Lean, Be Clean, Be Green it has been identified that the following sustainable approaches should be incorporated as part of the refurbishment of Strange Hall South where possible within the constraints of the listed building consent.

- Improvement of the existing building fabric, including roof insulation and new double glazed windows.
- All new building fabric components to be constructed to current building regulation standards for thermal transmittance as a minimum.
- LED lighting throughout
- Low flow sanitaryware
- Photovoltaic panels on the garage roof
- Possible inclusion of battery storage
- New high efficiency condensing gas fired boiler
- Above ground rainwater harvesting