Atelier Architecture + Design Ltd

Uxbridge United Welfare Trusts



30 NEW LIFETIME HOME COMPLIANT ALMSHOUSE SHELTERED APARTMENTS FOR UXBRIDGE UNITED WELFARE TRUST

WOODBRIDGE HOUSE
NEW WINDSOR STREET
UXBRIDGE
MIDDLESEX
UB8 2TY

DESIGN & ACCESS STATEMENT // APRIL 2016

PREPARED BY ATELIER ARCHITECTURE & DESIGN LTD

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INTRODUCTION

1.0

1.1 Project Information

SITE

Woodbridge House
New Windsor Street
Uxbridge
UB8 2TY

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NOTE:

This Design & Access Statement needs to be read in conjunction with the following documents:

- Planning Statement - Urban & Rural Planning Solutions
- Heritage Report - Alan Baxter Ltd
- Proposed Planning application drawings - Atelier Architecture & Design
- Existing Building Survey drawings - KND Surveys

1.2 UXBRIDGE UNITED WELFARE TRUST

HISTORY

Uxbridge United Welfare Trust is a historically important institution in Uxbridge providing almshouses for the community of Uxbridge since the 1720s. Historical research amplified in the Heritage Statement has identified at least three of the Trust's former almshouse locations in Uxbridge, namely in the Lynch, Chapel Street and Kingham Road prior to construction of Woodbridge House in 1906/7. All the trust's sites were located in central locations within the developing town of Uxbridge. The current almshouses occupy Woodbridge House and were built on the yard of an old drill hall for former barracks.

AIMS & MISSION STATEMENT

The trust maintains and improves the living conditions of the community within the Almshouses, and maximises the assistance available to those in need within the area of benefit.

WHAT THE TRUST DOES

The Trust has two functions:-

a)To operate and maintain its Almshouses

b)To give charitable and educational grants to those in need in the area of the Old Urban Borough of Uxbridge





HOW THE EXISTING BUILDING AFFECTS THE TRUST'S PROVISIONS

- There is no availability for disabled persons
- The bedsit accommodation means residents feel discouraged from receiving guests
- There are no facilities for couples as the current bedsit accommodation is too small
- The heating system has been upgraded at various stages following extension and alteration of the existing building. It is not reliable and complete replacement is not financially viable under the present circumstances
- Due to the aged fabric of the building, including poor insulation values, dampness is prevalent, especially in the winter months. This is not conducive for elderly residents' health, and despite reasonable efforts it has not been possible to upgrade the quality of the internal living environment
- There are no means of accessing the first floor apartments except by narrow and steep stone steps. Even relatively mobile residents have difficulty with these
- The existing circulation is neither compliant nor welcoming; the corridors are too narrow, and in the case of the glazed conservatory are too hot in summer and too cold in winter
- As a result of the above, The Trust consider they are no longer able to offer adequate accommodation to those in need

1.3 DESIGN OBJECTIVES





Our objectives for the Uxbridge United Welfare Trust Almshouses have been meticulously thought out to comply with our design standards and those of the Lifetime Homes, the London Plan, and the HAPPI standard. The Almshouse redevelopment offers an opportunity to make a difference to the lives of the people of Uxbridge and we aim to achieve this by following our objectives listed below.

1. CONTEXT

The existing building, Woodbridge House, is locally listed and falls in the Rockingham Conservation Area. We believe it is essential to consider carefully the impact of our proposals on the neighbours and the wider character and fabric of the conservation area

2. LIVING SPACE

We want to allow generous and flexible living spaces that fit the needs of the residents Including provision for receiving guests. We aim to provide ample natural light and an area of personal outdoor space for every resident.

3. CIRCULATION AND ACCESSIBILITY

Circulation and accessibility are key, each floor will be wheelchair accessible and the circulation space will allow adequate room for wheelchair turning circles and natural light, avoiding internal corridors.

4. SOCIAL COMMUNITY

A social life is a key aspect of elderly living. We want to encourage a sense of community through the implementation of community hubs, active outdoor space and architecture that promotes social interaction. A readily accessible multi-purpose hall/café, a central south facing landscaped courtyard with seating, and sheltered walkways are all designed around the community and to discourage isolation.

5. CARE AWARE DESIGN

We aim to design our almshouses to be able to cope and assist with any future medical care needed and any potential emergencies.

6. THE NATURAL ENVIRONMENT

Green space and accessible high quality external amenity will be a key element of the project. We have found well designed outdoor space and landscaping can really improve the resident's living experience.

7. SENSE OF PLACE

Uxbridge has a fascinating heritage and local history. Our design aims to echo elements of the architectural nuances and aesthetic of Uxbridge while achieving the trust'sobjectives and encouraging evolution of urban fabric through modern interpretation.

8. SUSTAINABILITY

Sustainability is a key element in today`s built environment; it can improve the energy efficiency, the internal environment and reduce heating costs. We aim to produce an environmentally high performing building which will reduce the running costs of the residents and improve their quality of living.

1.4 SITE PHOTOS













TOP:

Left: Site Entrace
Centre: Courtyard - North West Corner
Rigth: Courtyard - Centre

BOTTOM:

Left: Newland House
Centre: One of the several narrow leftover spaces between the rear projections
Rigth: Courtyard - Noth East Corner

SITE CONTEXT

2.0

2.1 SITE LOCATION



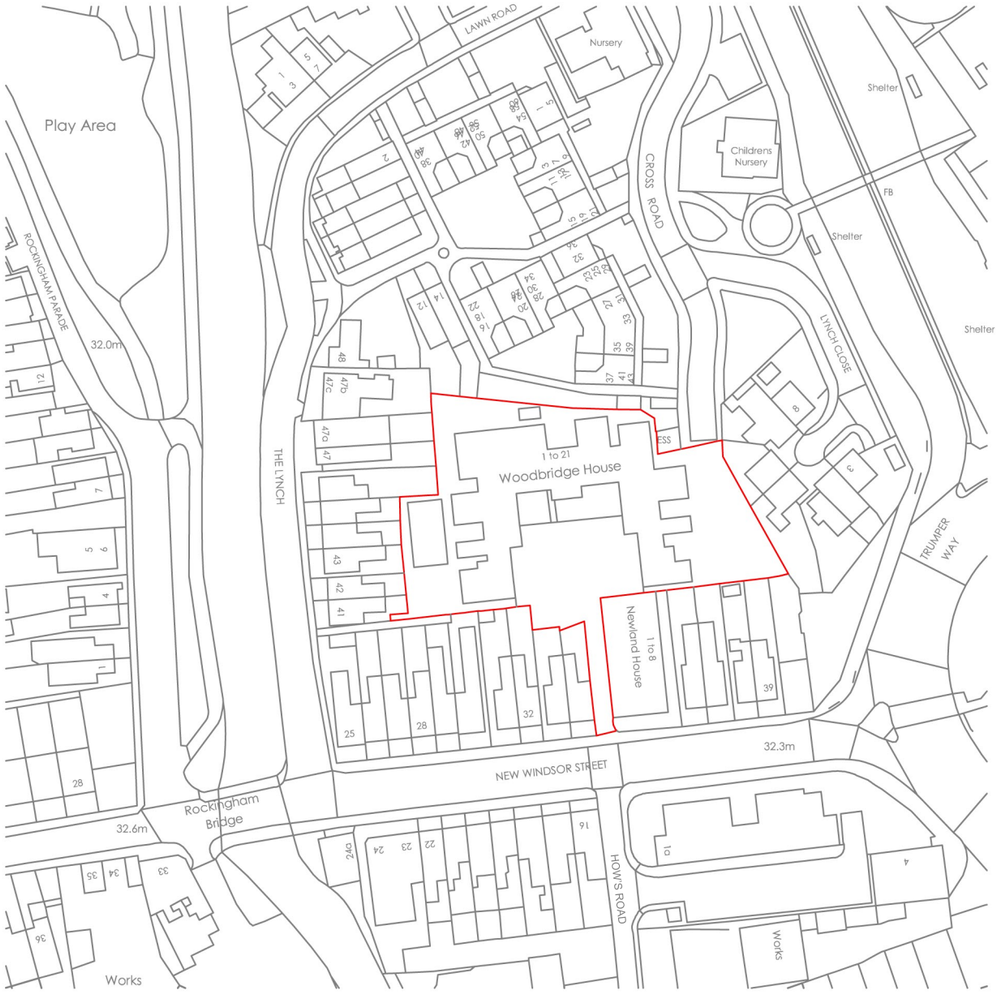
2.2 SITE DESCRIPTION

The site is located to the west of Uxbridge town centre within the Rockingham Conservation Area. The conservation area is bounded by the Oxford Road and Trumper Way to the east, Rockingham Parade to the west, Fassnidge Park to the north and Wellington Road to the south.

The area is characterised by tightly developed workers' housing, the River Fray and the open spaces to the north and south, which provide an attractive, green setting to the area.

Woodbridge house is situated in a confined site with residential properties flanking all sides. To the north is a 1970's 3 storey multiple dwelling apartment estate, to the west is the Lynch cottages situated at the heart of the Rockingham conservation area and to the south and east are more houses also situated within this conservation area.

Further west of the properties located on the site boundary, is the Oxford Road which distinguishes the boundary with the modern town centre.



Location Plan @ 1:1250

2.3 SITE FEATURES & CHARACTERISTICS

Rockingham Bridge Conservation Area is an area of special significance marking the historic urban/rural fringe between the 20th century town centre and the river frontage and former open landscape beyond.

The area is characterised by tightly knit terraces of workers' housing. They generally use a combination of two bricks, a lighter London stock for general massing and a red "Chiltern-type" brick for emphasis of form. The combination of brick types and the use of patterned brickwork provides local architectural identity.

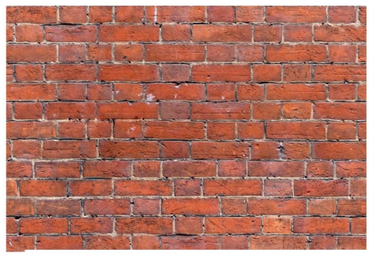


New Windsor Street Elevation









Red Brick



Yellow Brick



Mixed Combination



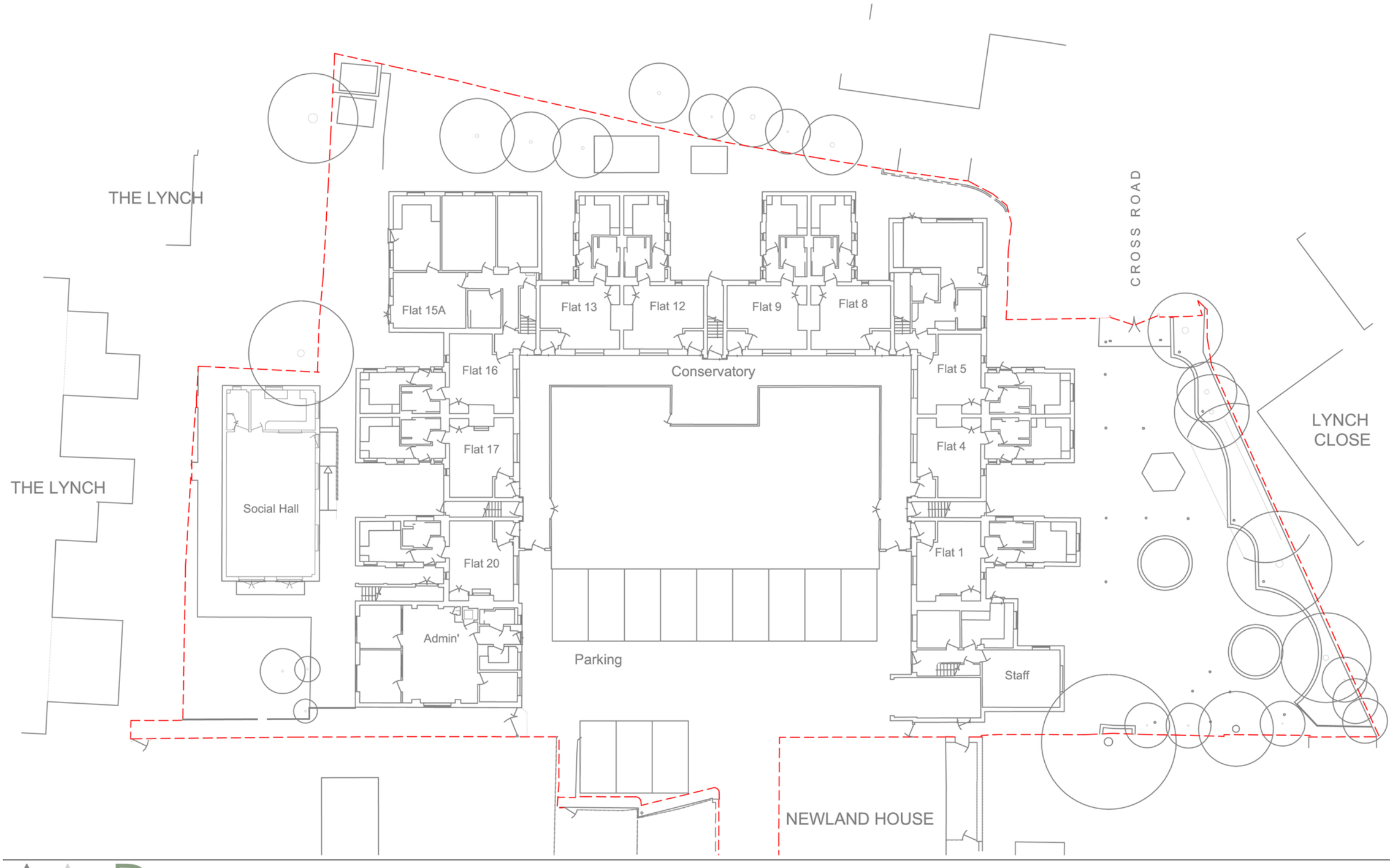




Local Brick Type Investigation

2.4 THE SITE

The site of Woodbridge House is unique, an enclosed and defined area of ground which is similar in character to a precinct around a cathedral, church, or college.
The central south facing courtyard, enclosed setting and narrow entrance offer a good aspect from within the development and a half hidden view from the street to an unexpected quiet courtyard. The full impact of this has been marred in recent times by the unfortunate addition of a modern conservatory, and by the use of the courtyard as a carpark.



2.5 WOODBRIDGE HOUSE

The existing building was designed by the local architect William Lionel Eves (1867 – 1950). The 'cottage style terrace' design was based on a bedsit module, and is an example of Edwardian Arts and Crafts, that may have found inspiration in some coincidental designs for Hampstead Garden Suburb demonstrating features such as regular steep roofs, dominant and ornate chimney stacks, the pairing of dormers which break the eaves line, timber framing in the gables, arrangement around planned open spaces and ornate brick banding. The principal public view is of the south elevation.



Existing South Elevation

2.6 SITE ANALYSIS - CONSTRAINTS DIAGRAM

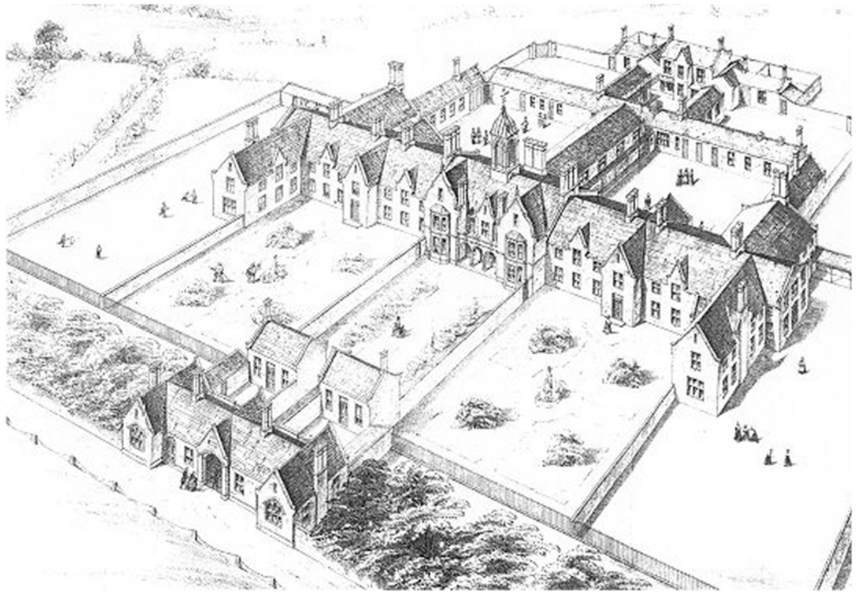


2.7 HISTORICAL ANALYSIS - ALMSHOUSES

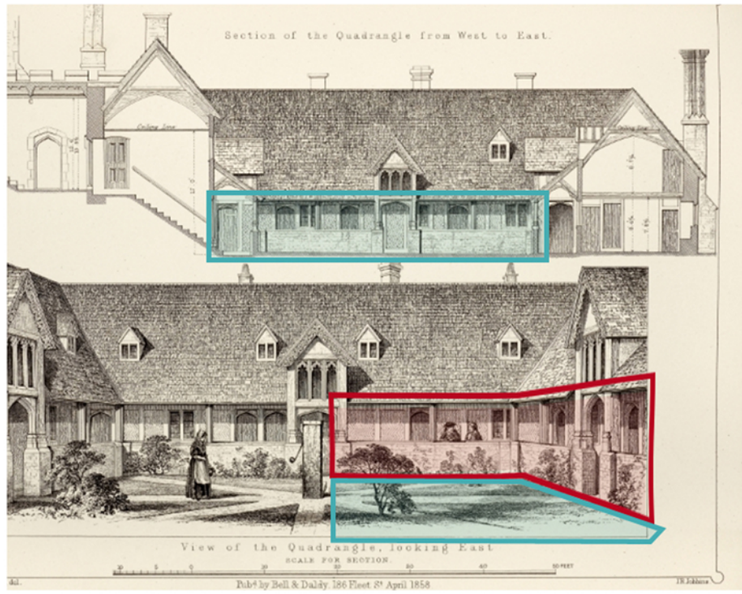
The history of the almshouse stretches back to the 10th century, and although they vary in shape and size they often include the architectural features of a gatehouse, courtyard and cloistered walkway.

We want to use this as a foundation for our design; these elements will bring a historical nuance as well as an improved modern day environment.

The cloistered walkways offer a naturally ventilated semi open space and the courtyard becomes an outdoor social hub of the building.



Model Poorhouse Plan for Town Parishes, 1847

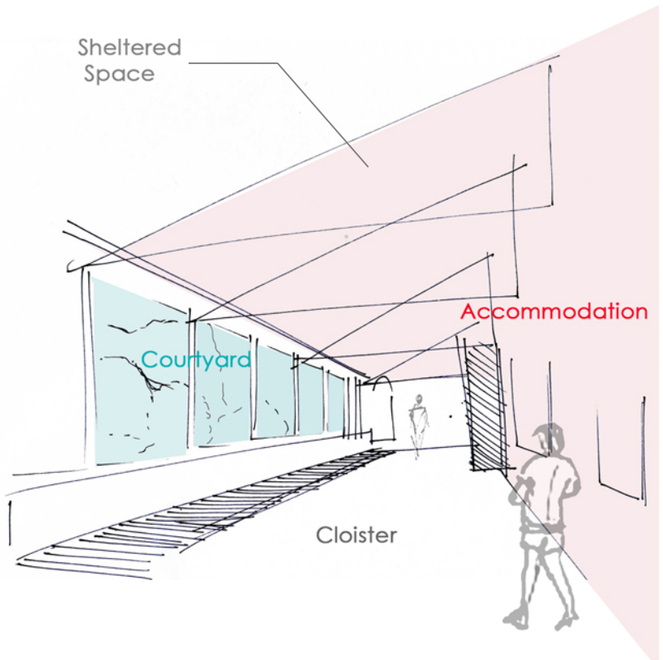


Ewelme Hospital, Oxfordshire

Gatehouse Entrance

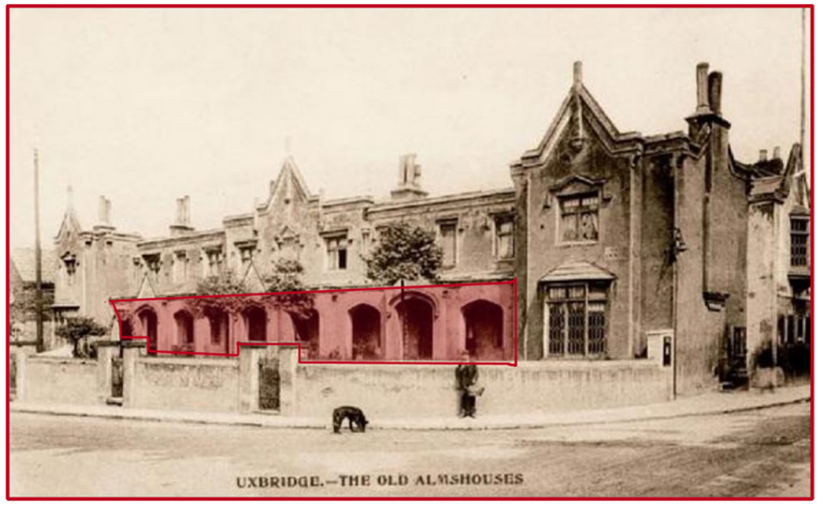
Courtyard Space

Cloistered Walkways





Bede Houses, Lincolnshire



The Old Almshouses, Uxbridge (1845)

2.8 SITE EVALUATION

EXISTING BUILDING

We acknowledge the existing building has some charm and fine features, however the almshouses are not fit for purpose. The existing bedsits present narrow modules which are reflected on the front elevation in the narrow gable roof forms and on the rear in the tightly knit rear projections. The projections leave narrow unusable spaces between them.

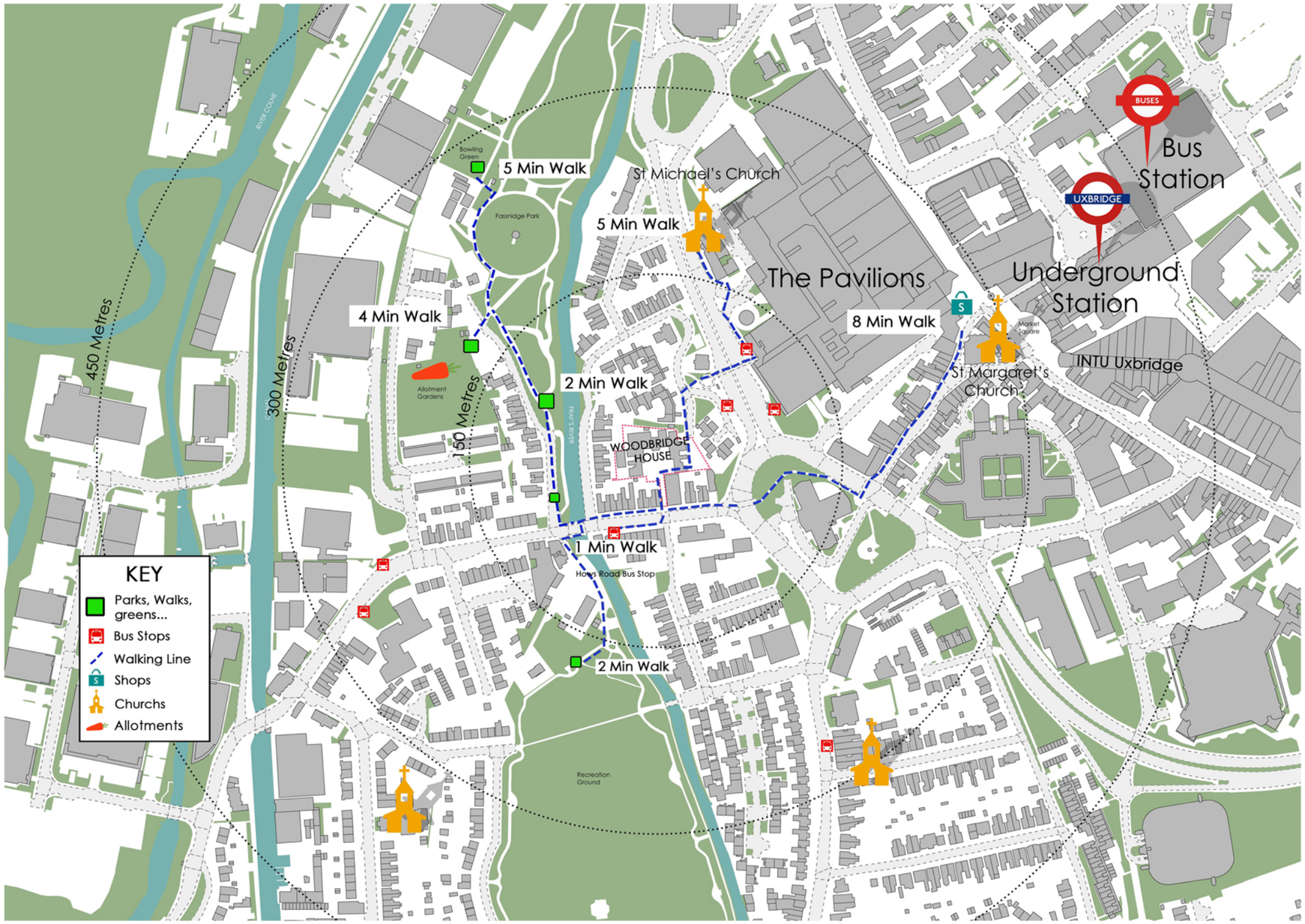
The resultant internal and external spaces provide inadequate modern spaces for elderly living and provide an inefficient use of space on the site. The site has evolved over time to address changing social requirements and modern building standards however the limit of what can be achieved with the existing building form and fabric has now been reached.

Some of the defects are illustrated in the following:

9.0 Appendix
A. Report of Deficiencies (AA+D)
B. Inspection Report (Brasier Freeth)

We have also explored at length adapting and extending the existing building. The problem we have faced is that the bedsit module presents limitations in how you can extend it. You can combine two bedsits into one, but this is not the most efficient use of space and you end up with larger units than required and with a smaller number than needed.

The results of our Building Conversion drawing study are enclosed in:
9.0 Appendix C.



SITE

On the other hand the site location is ideal for almshouses and sheltered housing. When mobility is an issue for elderly residents it is vital that key locations are within easy reach so they can still remain a part of the Uxbridge community. Woodbridge House is perfectly situated for this purpose: although the site has the character of an enclosed "precinct", the key transport link of the bus stop is only a stone's throw across the road. The local parks, river frontage, bowling greens, allotments and Market Square are little more than a few minutes' walk or a short bus ride.

CONCEPT & DEVELOPMENT

3.0

3.1 ARCHITECTURAL STRATEGY

The design is 'contextual': the proposals aim to preserve and enhance the pristine qualities of the site including the contribution the existing almshouses make to the local conservation area and the social fabric of Uxbridge.

The following have always been key drivers for the design:

- To maintain a comparable footprint to the existing building with a south facing courtyard in an enclosed setting

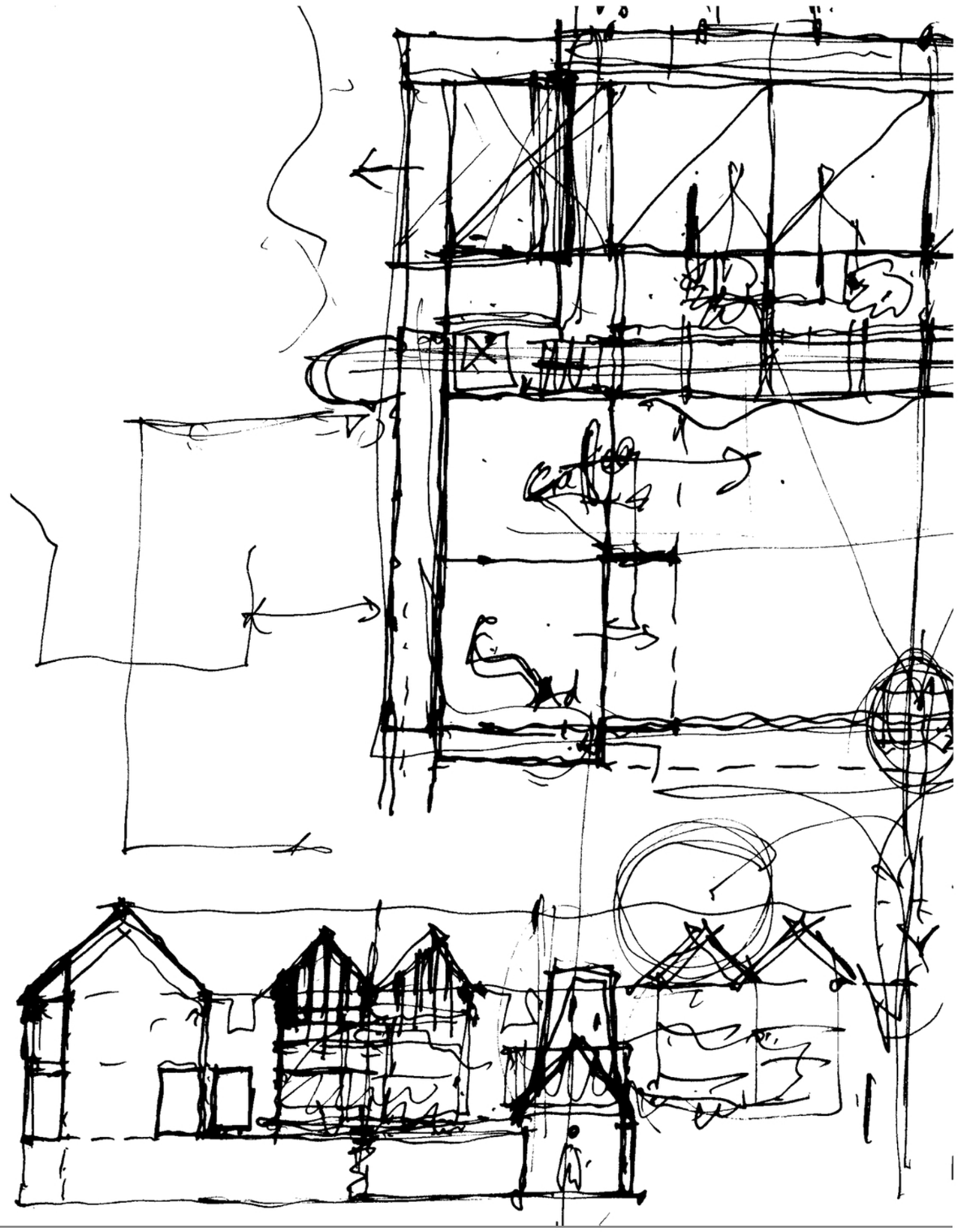
- To maintain and enhance a respectful presence, sensitive to the neighbours and the character and local grain of the conservation area

- To provide modern lifetime home compliant sheltered flats for the elderly that meet the Uxbridge Welfare Trust's growing demand for elderly living units

- To increase the distance to neighbouring properties in the Lynch to the west

- To enhance the views into the central courtyard and re-establish pedestrian ownership without vehicle access

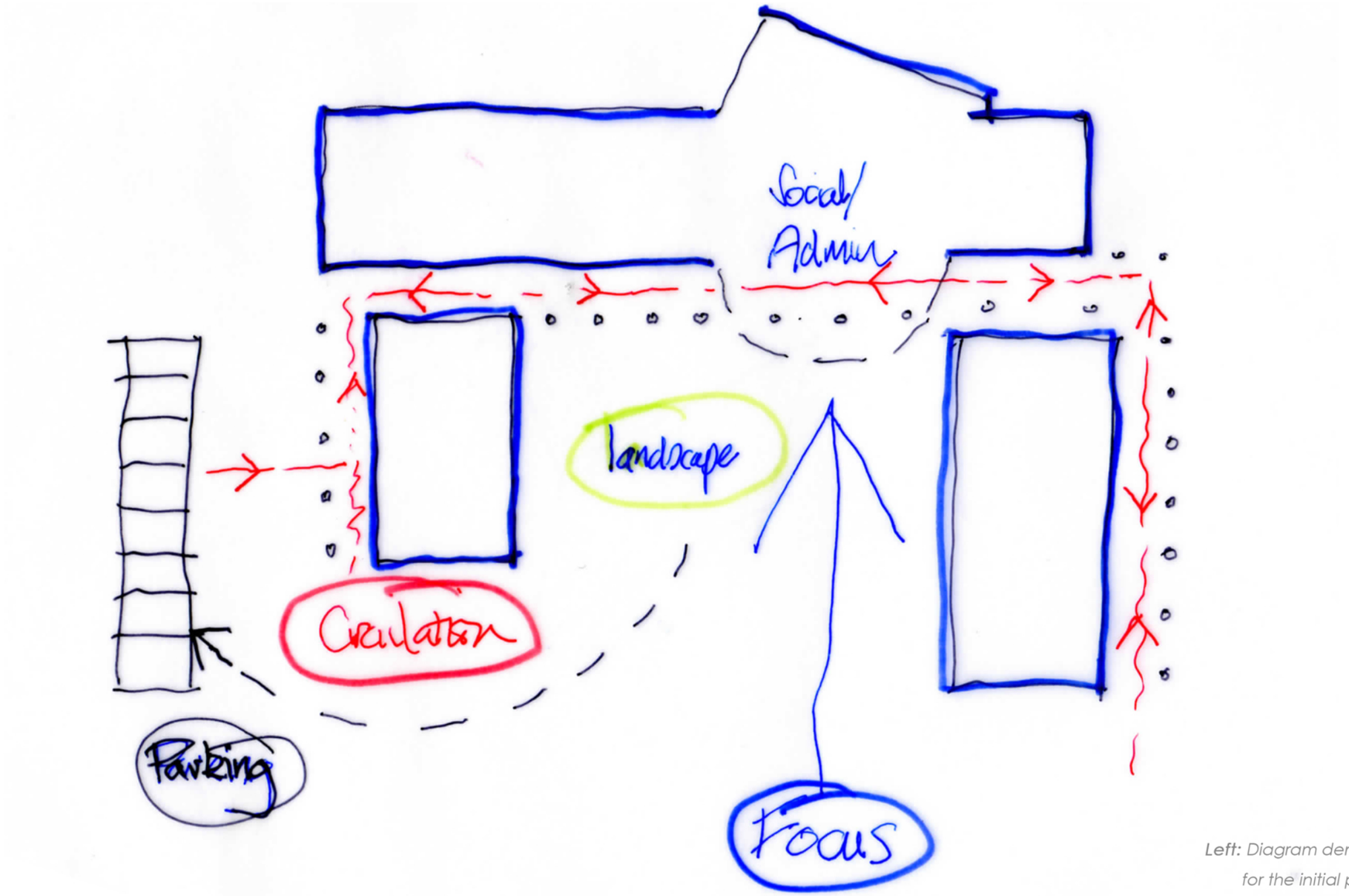
- To restore a green landscape in the courtyard and to maintain the existing mature trees and private gardens to the east



3.2 PRE - APPLICATION CONCEPT

'SPATIAL EFFICENCY'

- To create 3 wings around a central landscaped courtyard
- To create ease of accessibility to all areas of the site as spatially efficient as possible
- To create a focal point in the Social / Admin' wing terminating the view from the street
- To move the parking out of the courtyard to the west boundary, providing more distance to the adjoining properties in the Lynch



Left: Diagram demonstrating the strategy for the initial pre-application concept

3.3 EVALUATION OF PRE-APPLICATION & NEW CONCEPT

PRE - APPLICATION CONCEPT

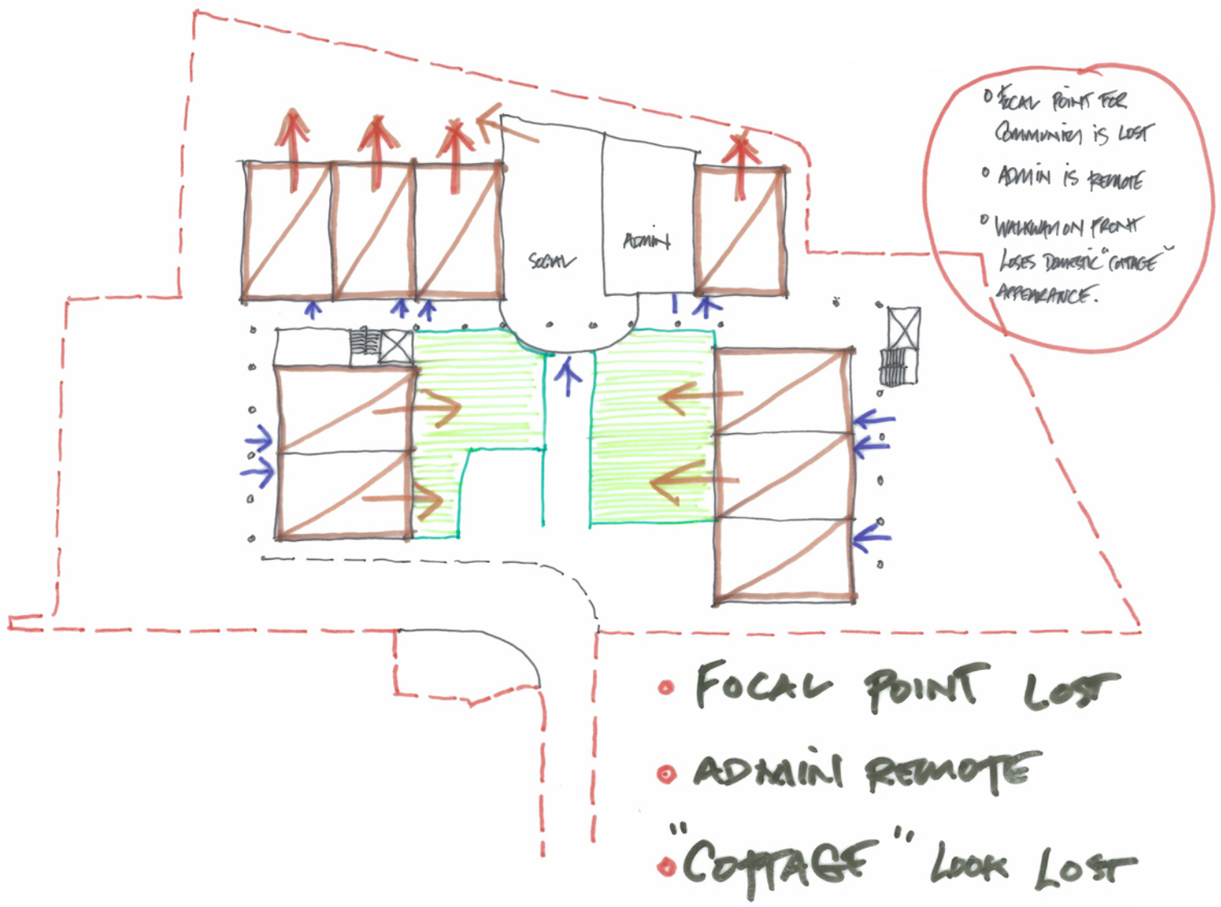
'Spatial efficiency'

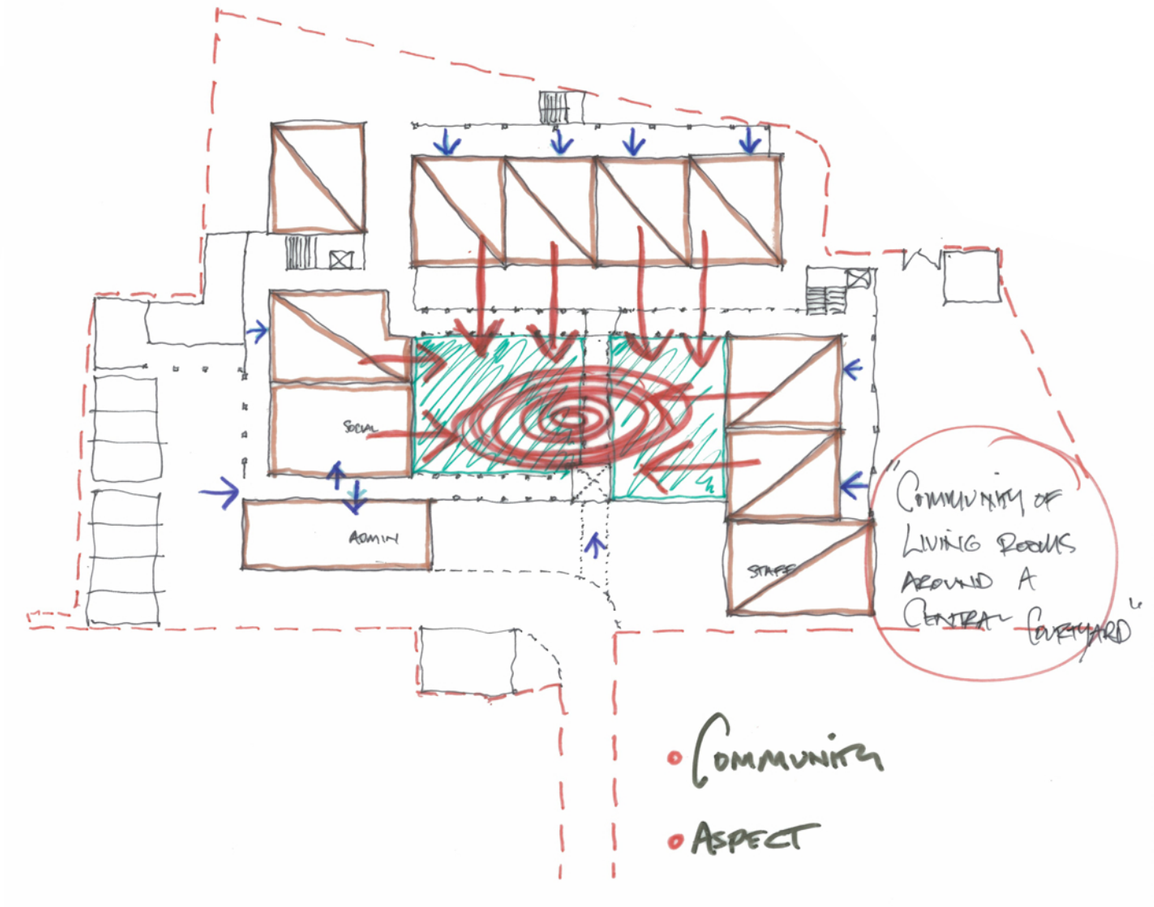
- A shared focal point for the community is lost
- Administration is remote from the entrance to the site and car park
- The sheltered walkway on the front elevation compromises the "cottage appearance" of the courtyard

NEW CONCEPT

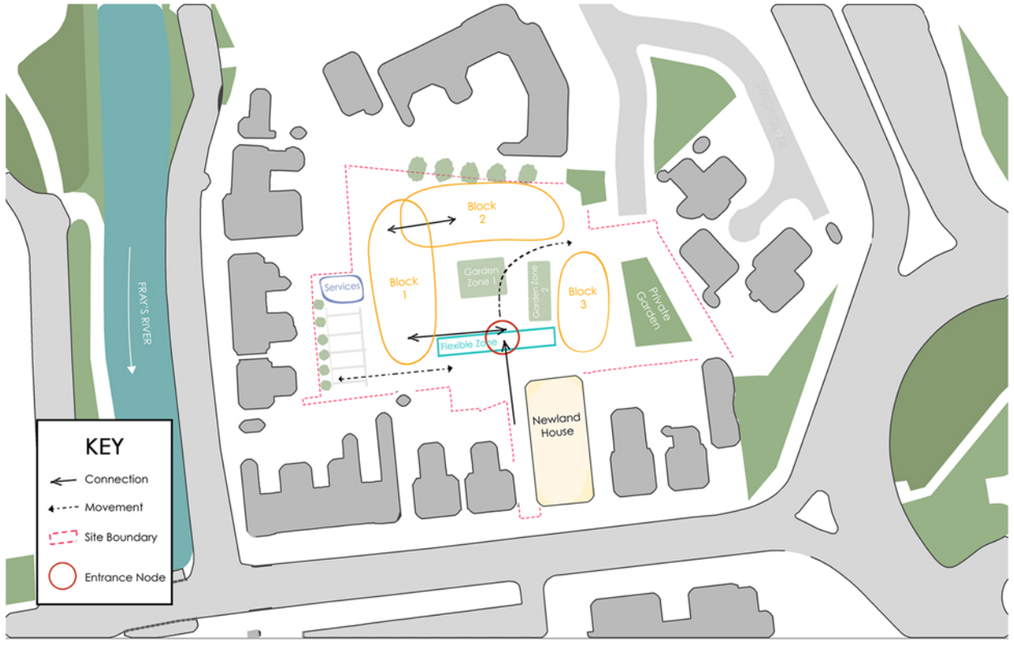
'A community of living rooms around a central courtyard, a precinct suitable for sheltered living'

- To provide a community focus
- To design all living spaces facing the courtyard
- To define the courtyard with a cloistered walkway and gatehouse entrance on the south / open side
- To celebrate the visually unexpected delight of an intriguing half hidden glimpse into a courtyard from the street
- To create a regular gabled roof form with pairing of dormers that break the eaves line and recall the existing building

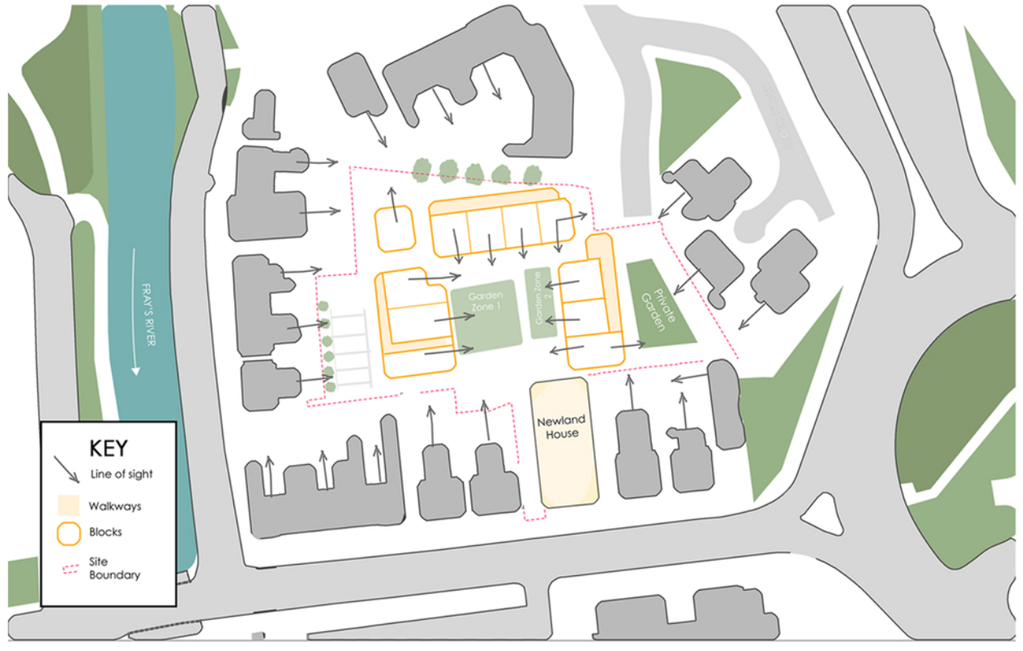




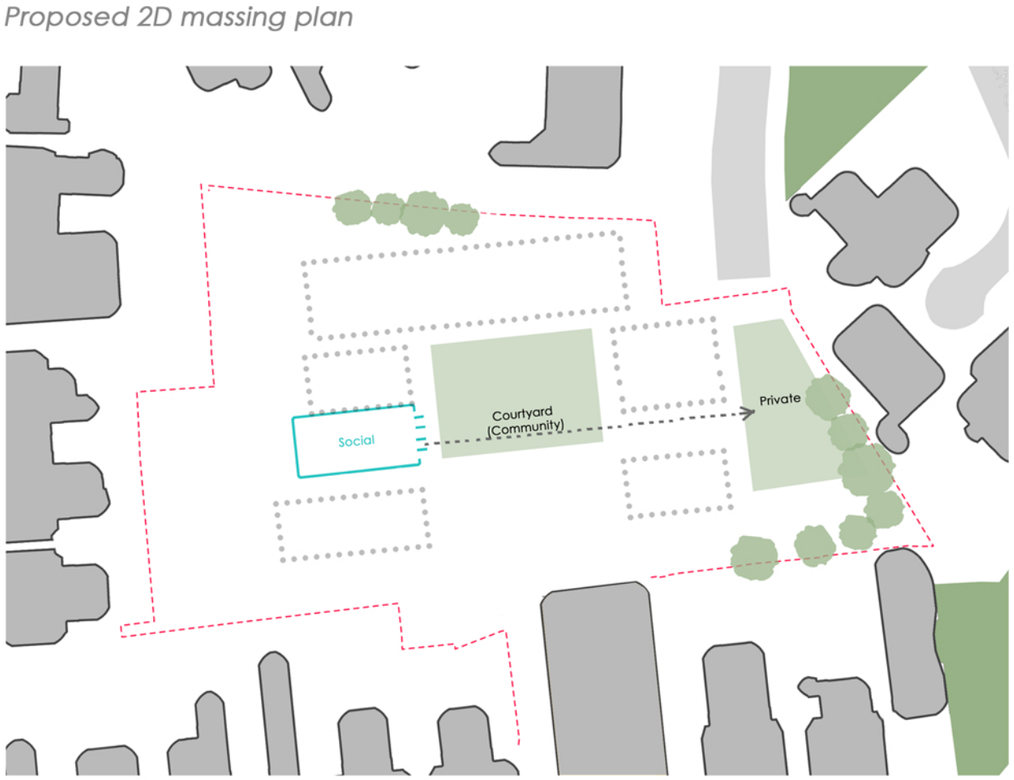
3.4 FORM DEVELOPMENT



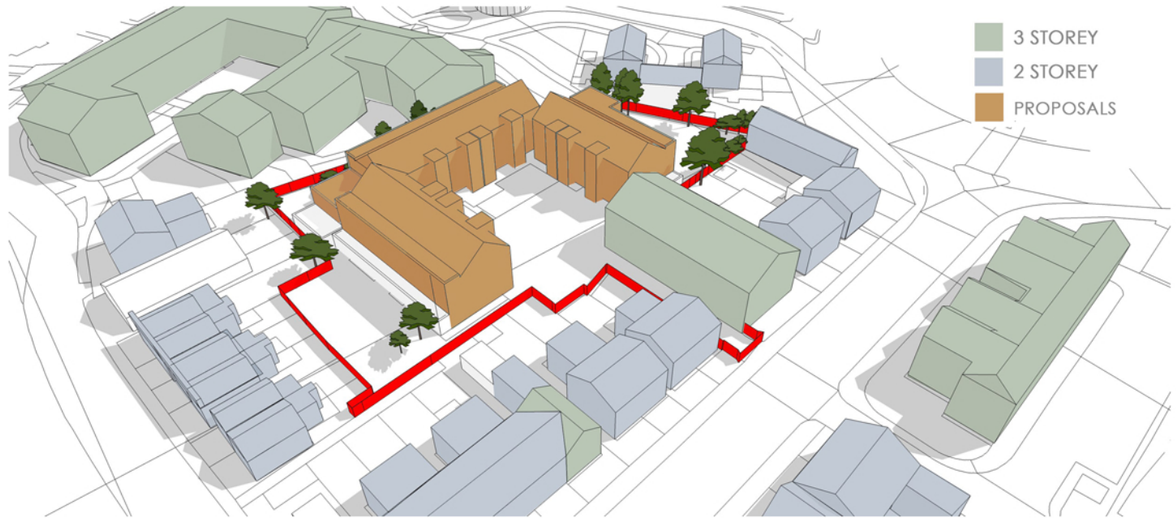
Proposed 2D massing plan



Proposed Outlook and Spatial Arrangement

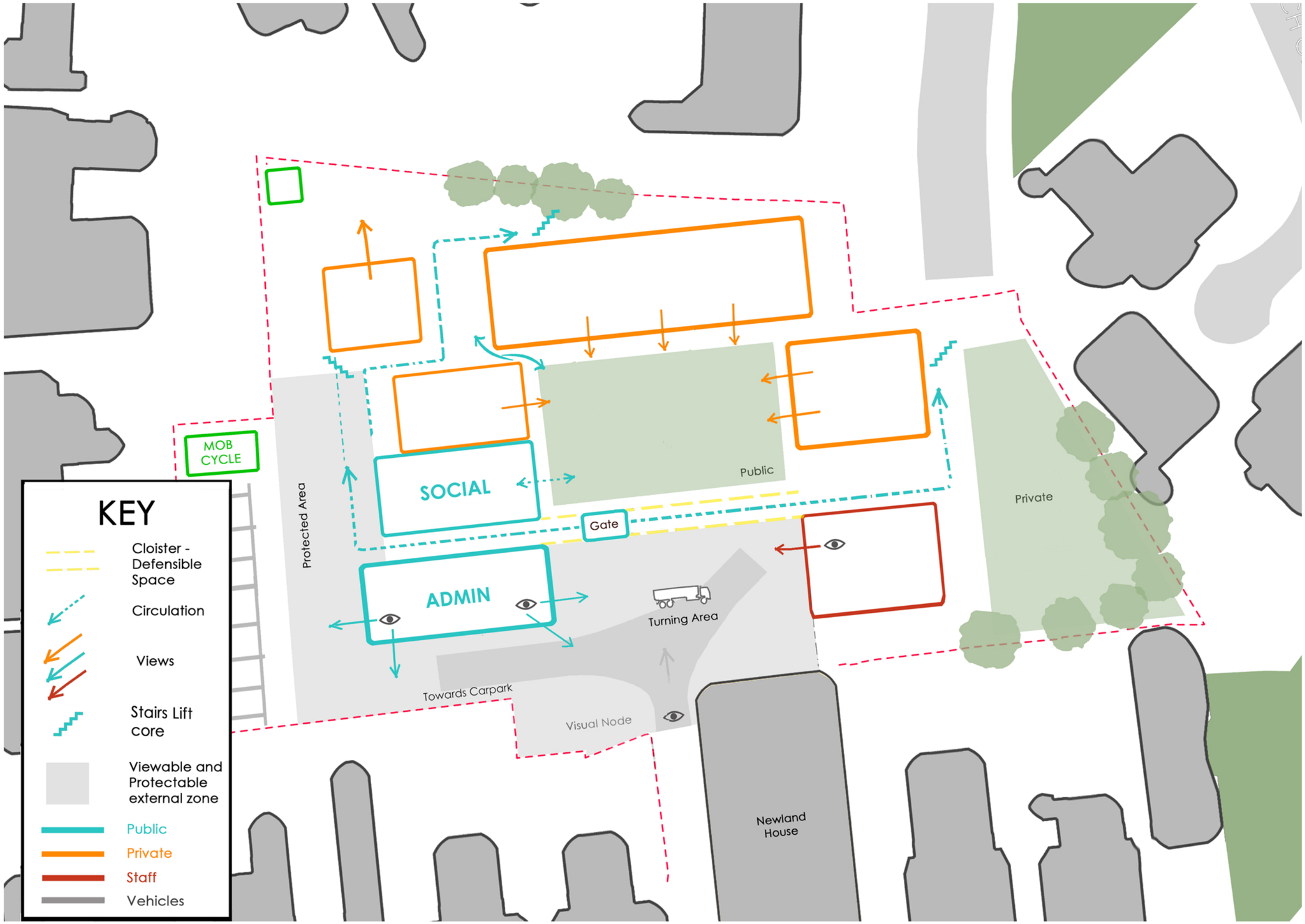


Proposed social (community) spaces



Proposed 3D Massing Perspective

3.5 PROPOSAL SPATIAL FLOW DIAGRAM



3.61 DESIGN FEATURES

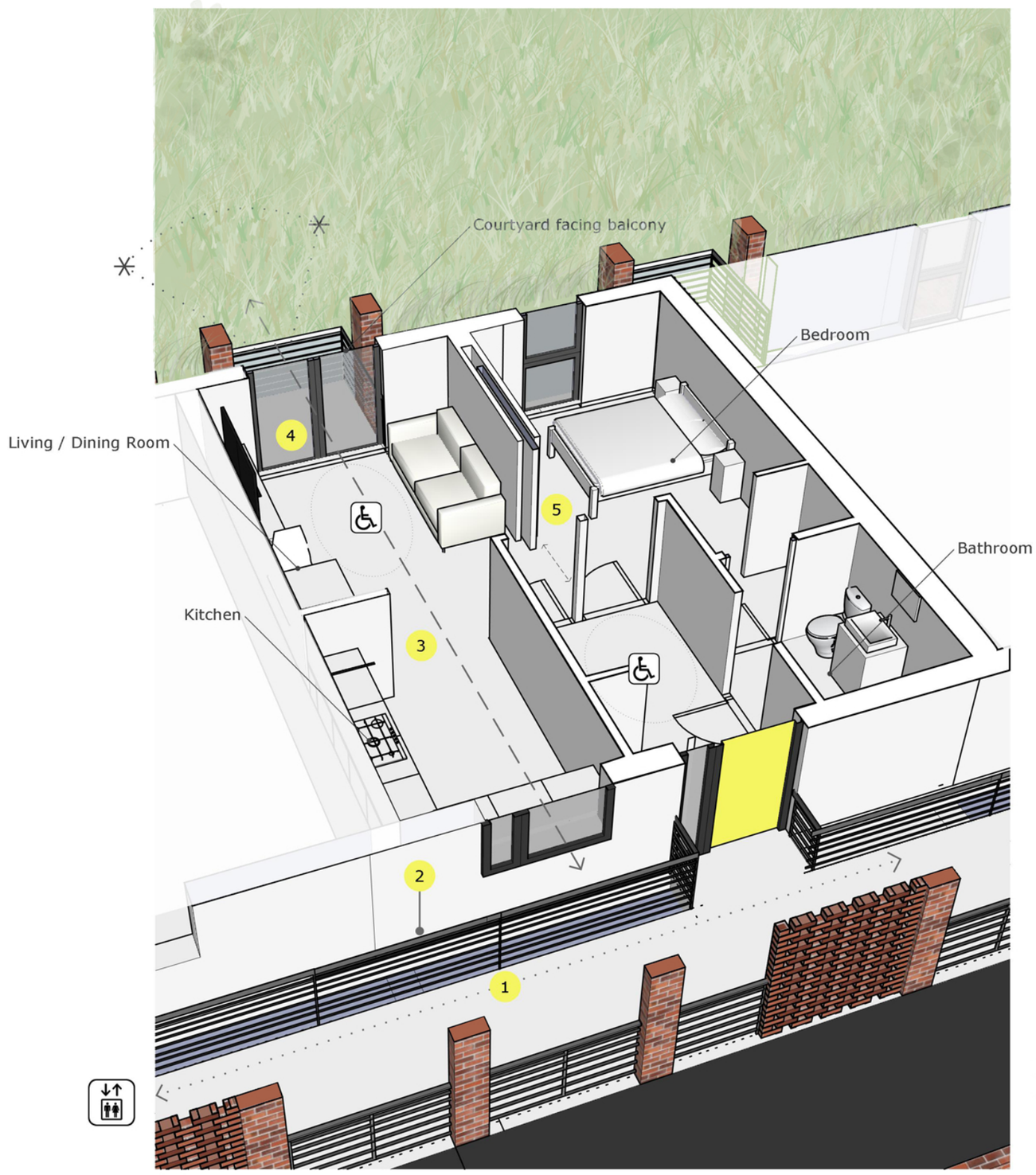
APARTMENT PERSPECTIVE

The flats are designed as dual aspect, wheelchair accessible, and lifetime home compliant units with living spaces facing the courtyard, and bathroom, kitchen and hall facing the sheltered walkway.

The kitchen, dining and living spaces are open plan, while a sliding partition between the bedroom and living spaces allow these spaces to be combined. This is an advantage for residents if they become bed ridden and still desire social interaction.

Access is from the sheltered walkway at the rear. The bedrooms and living spaces have views of the courtyard, while the hall, bathroom and kitchen receive daylight and have controlled views across the sheltered walkway.

All the units have their own external amenity accessed from the living space looking onto the courtyard, on the ground floor this is in the form a patio and on the upper floors it is a balcony.

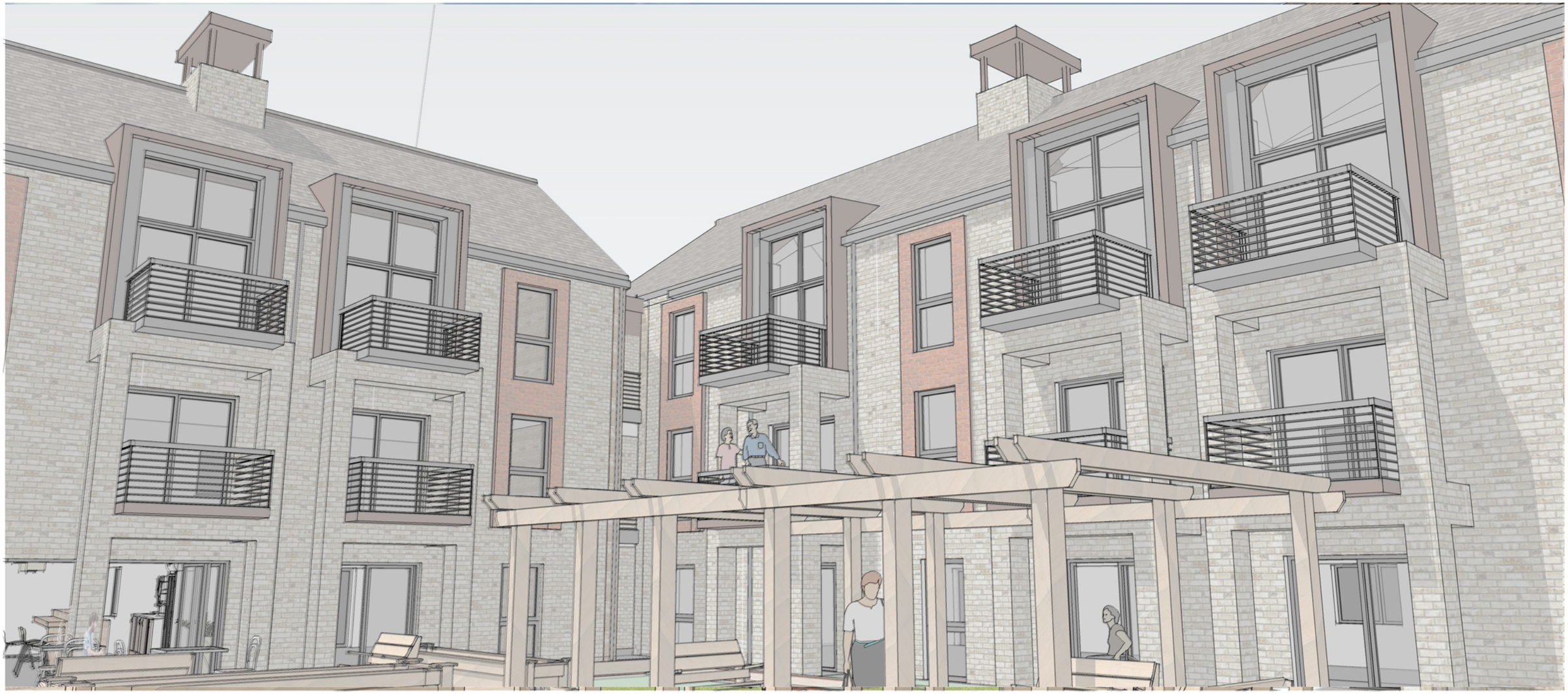


1. Circulation Cloister
2. Light well
3. Dual Aspect Flat
4. Level Threshold
5. Sliding partition between living and bedroom

3.62 DESIGN FEATURES

DORMER PAIRING

This is a notable feature of the existing building as identified in Section 2.0. For our proposals we have adopted a modern interpretation of arts and crafts vernacular with zinc clad boxes that punctuate the eaves line. The vertical form of the dormer is continued to the ground in the balconies and external brick frames that project into the courtyard.



3.63 DESIGN FEATURES

SHELTERED CIRCULATION

This allows a sheltered and efficient means of circulating around the building. It supports a social function with residents able to remain 'in touch' with other residents passing by their kitchen window if they choose. It encourages cross ventilation through the units and helps to draw light into the building through the provision of light wells.



3.64 DESIGN FEATURES

GATEHOUSE ENTRANCE & CLOISTER

This provides a historical reference to almshouse design as identified in Section 2.0. It defines the private threshold of the almshouses as the gated entrance to the inner courtyard.



3.65 DESIGN FEATURES

COURTYARD

The courtyard of the existing almshouse is an underused empty space lacking life and disrupted by the carpark adjacent it. Our scheme brings back the courtyard as a pleasant communal area easily accesable from all areas of the scheme and with a variance of spaces to use including benches, gardens, a cafe and a water feature.



3.66 DESIGN FEATURES

CAFE

The cafe is to be designed as a lightweight room which will sit lightly on the ground and aim to maximise views through landscaped areas. The cafe is planned to be as flexible as possible with movable furnitures to allow a large number of uses. The cafe is proposed to feel open, light and modern, rather than stuffy and institutional, to be attractive to a range of age groups.



THE PROPOSAL

4.0

4.11 PROPOSED GROUND FLOOR PLAN



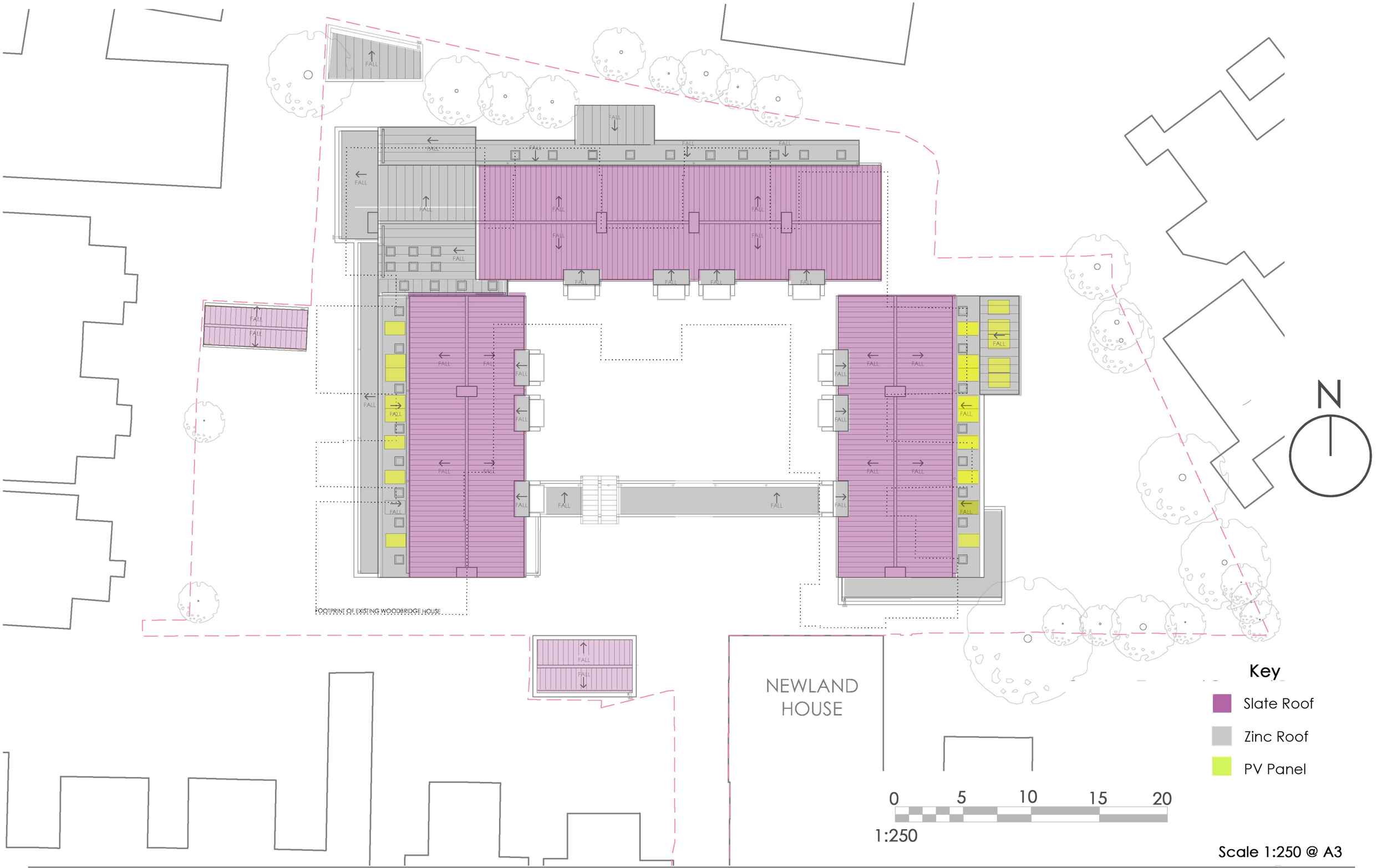
4.12 PROPOSED 1ST FLOOR PLAN



4.13 PROPOSED SECOND FLOOR PLAN



4.14 PROPOSED ROOF PLAN



Scale 1:250 @ A3

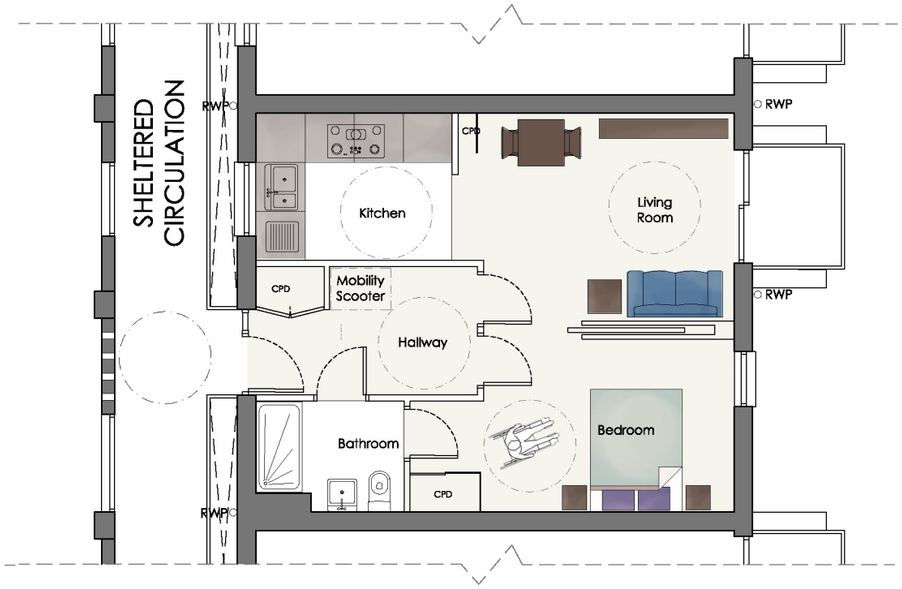
4.2 STANDARD FLAT LAYOUTS

0 1 2 3 4 5M

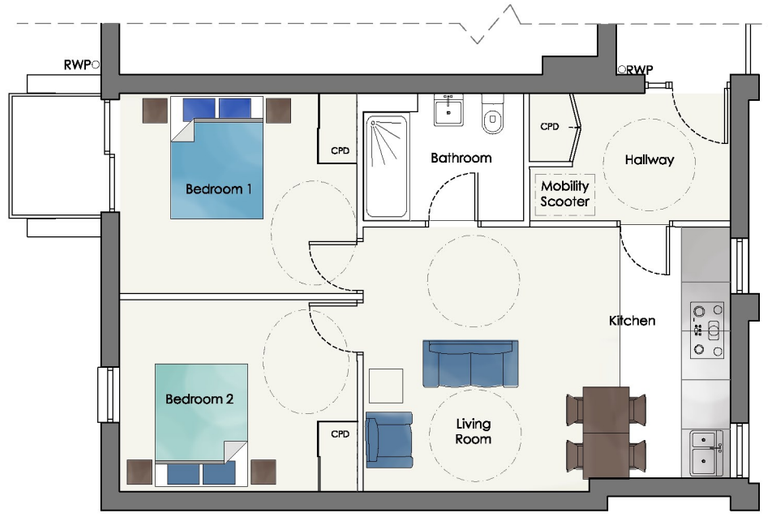
1:100



1 Bed Bespoke Flat



1 Bed Module Flat



2 Bed Staff Flat

Scale 1:100 @ A3

4.31 PROPOSED ELEVATIONS



PROPOSED SOUTH ELEVATION - SOUTH WING AA



PROPOSED SOUTH ELEVATION - FRONT BB

MATERIAL SCHEDULE

Walls: light grey/brown brick, red brick
Dormers: red/brown and grey standing seam zinc
Pitched roofs: grey slate, grey standing seam zinc
Mansard and flat roof: grey standing seam zinc
Door and windows: grey powder coated aluminium
Chimneys: light grey/brown brick
with red/brown zinc capping
Balustrades: grey powder coated steel
Rainwater goods: grey powder coated aluminium
Cloister wall (low): grey/brown brick
Cloister post: red/brown zinc
Cloister roof: red/brown standing seam zinc
Drive surface: tarmac
Car park surface: red brick paving
External landscape: see Landscape
Architect's plans
Gates: timber ledged and braced with metal frame
Boundary fence: new timber close boarded
fence to match existing
PV Frame: grey anodised aluminium
PV Rail: grey powder coated aluminium
PV Panel: high transmission, low iron, tempered
glass with mono-crystalline cells

0 1 2 3 4 5 10m
1:200 @ A3

N



4.32 PROPOSED ELEVATIONS



PROPOSED WEST ELEVATION - EAST WING GG

0 1 2 3 4 5 10m

1:200 @ A3



PROPOSED WEST ELEVATION - WEST WING HH

All first floor and second floor windows on this elevation in opaque glass



4.33 PROPOSED ELEVATIONS



PROPOSED EAST ELEVATION - WEST WING EE

0 1 2 3 4 5 10m

1:200 @ A3



PROPOSED EAST ELEVATION - EAST WING FF

N



4.34 PROPOSED SECTIONS



PROPOSED NORTH ELEVATION - SOUTH WING CC

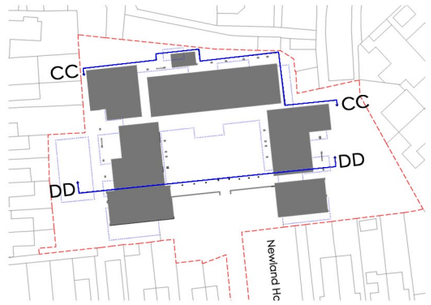
0 1 2 3 4 5 10m

1:200 @ A3



PROPOSED SECTION DD





4.4 PROPOSED ANCILLARY BUILDINGS

MATERIAL SCHEDULE

Walls: light grey/brown brick

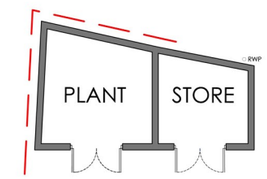
Pitched roofs: grey slate

Flat roof: grey standing seam zinc

Doors: timber ledged and braced with metal frame

Rainwater goods: grey powder coated aluminium

PLANT ROOM





North



South

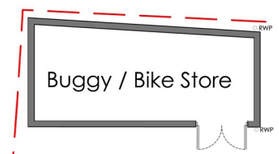


East



West

BUGGY & BIKE STORE





North



South

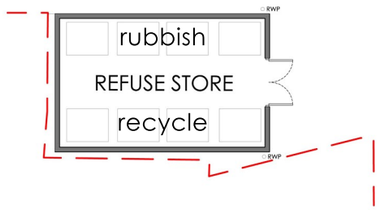


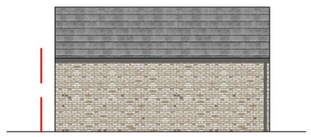
East



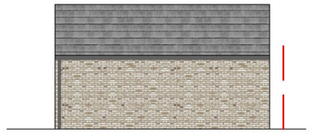
West

REFUSE STORE





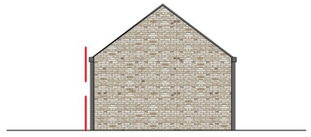
North



South



East



West

4.51 VISUALISATIONS OF PROPOSAL



PRIVATE RESIDENT'S GARDEN AND EAST WING

4.52 VISUALISATIONS OF PROPOSAL



COURTYARD GARDEN & CLOISTER

4.53 VISUALISATIONS OF PROPOSAL



PARKING & ENTRANCE TO ADMIN

4.61VIEW STUDY

VIEW 1 - NEW WINDSOR STREET (SITE ENTRANCE)



EXISTING



PROPOSED



4.62 VIEW STUDY

VIEW 2 - THE LYNCH



EXISTING



PROPOSED



4.63 VIEW STUDY

VIEW 3 - SITE BOUNDARY OF 3 STOREY RESISENTIAL BLOCK NEAR CROSS ROAD



EXISTING



PROPOSED



4.64 VIEW STUDY

VIEW 4 - CROSS ROAD (ESSENTIAL SERVICES ENTRANCE)



EXISTING



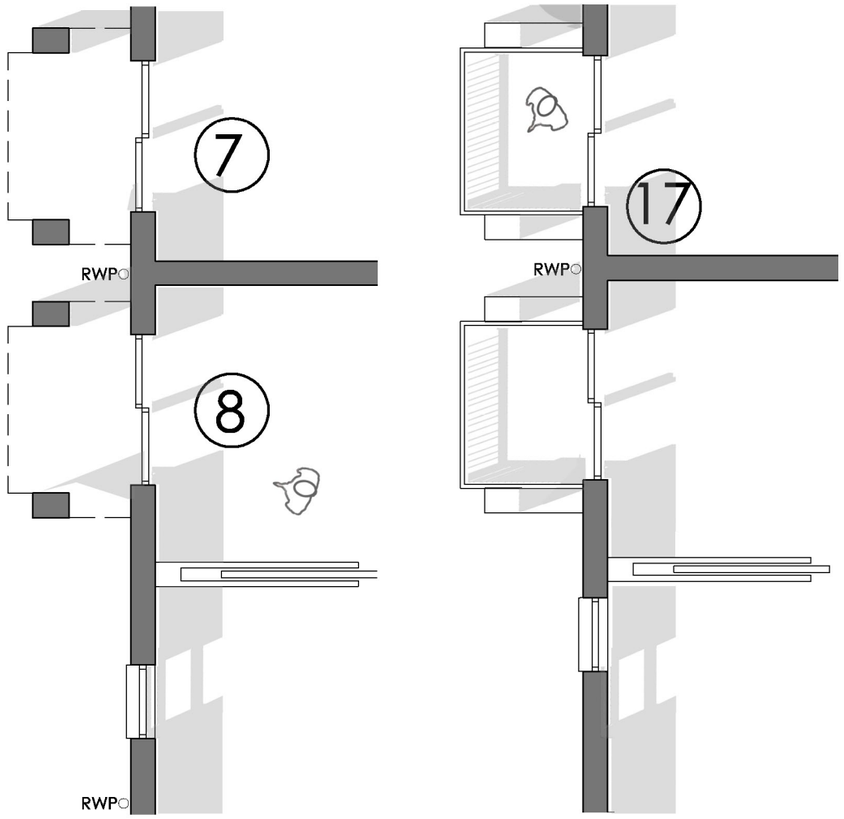
PROPOSED



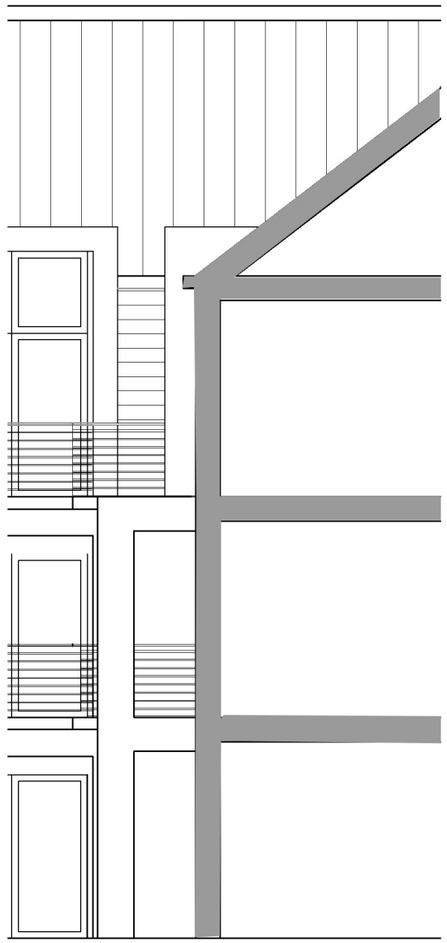
4.7 Rendered Panel



1:75 Part Elevation



1:75 Part Plan



1:75 Part Section

4.8 MATERIAL PALETTE

LIGHT BRICK

Wienerberger, Marziale



TBS Mystique

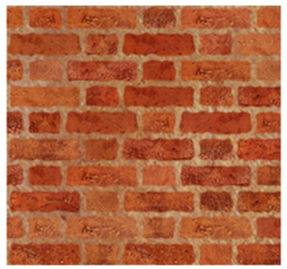




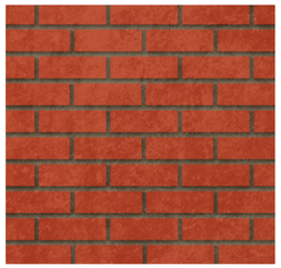


RED BRICK

Ciltern brick



Lichield brick







ROOF AND CLADDING

Grey slate



VM Zinc Brun/Brown



LANDSCAPE (Expanded futher in 5.2)

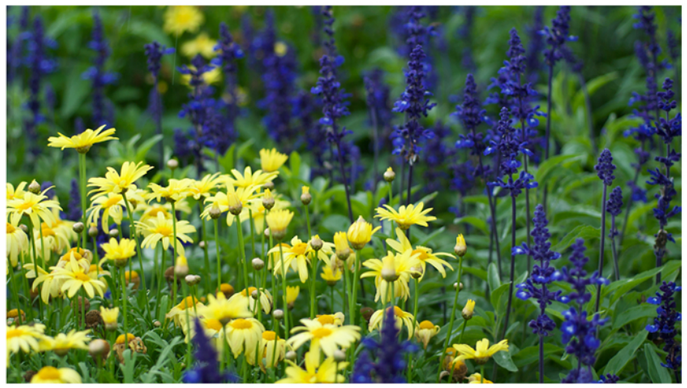
amelanchier trees



Climbing Plants



Mixed Flower bed areas



RAILING AND WINDOW

Railing with horizontal balustrade



Aluminium window frame

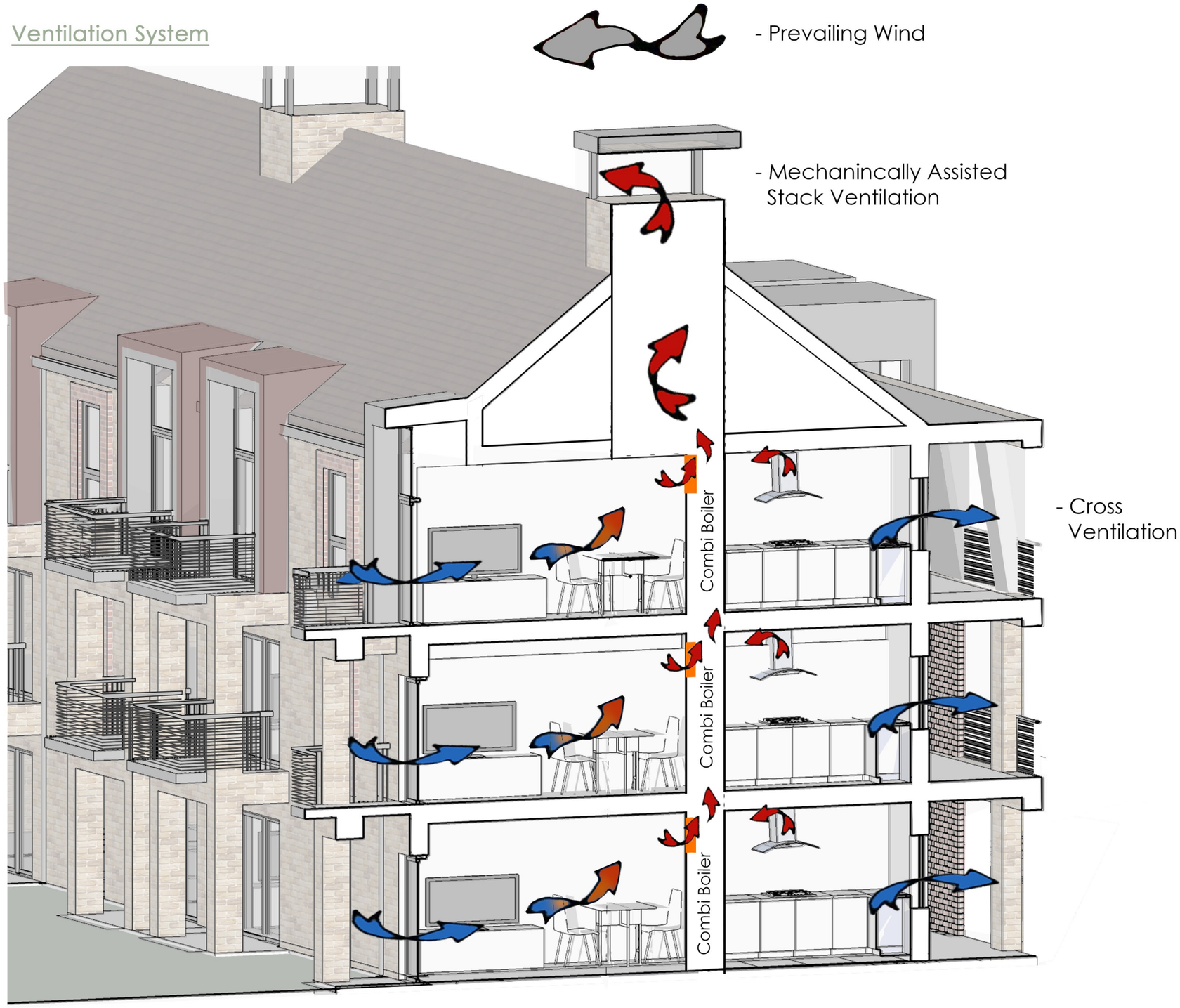


SUPPLEMENTARY DESIGN

3.0

5.11 Ventilation Strategies

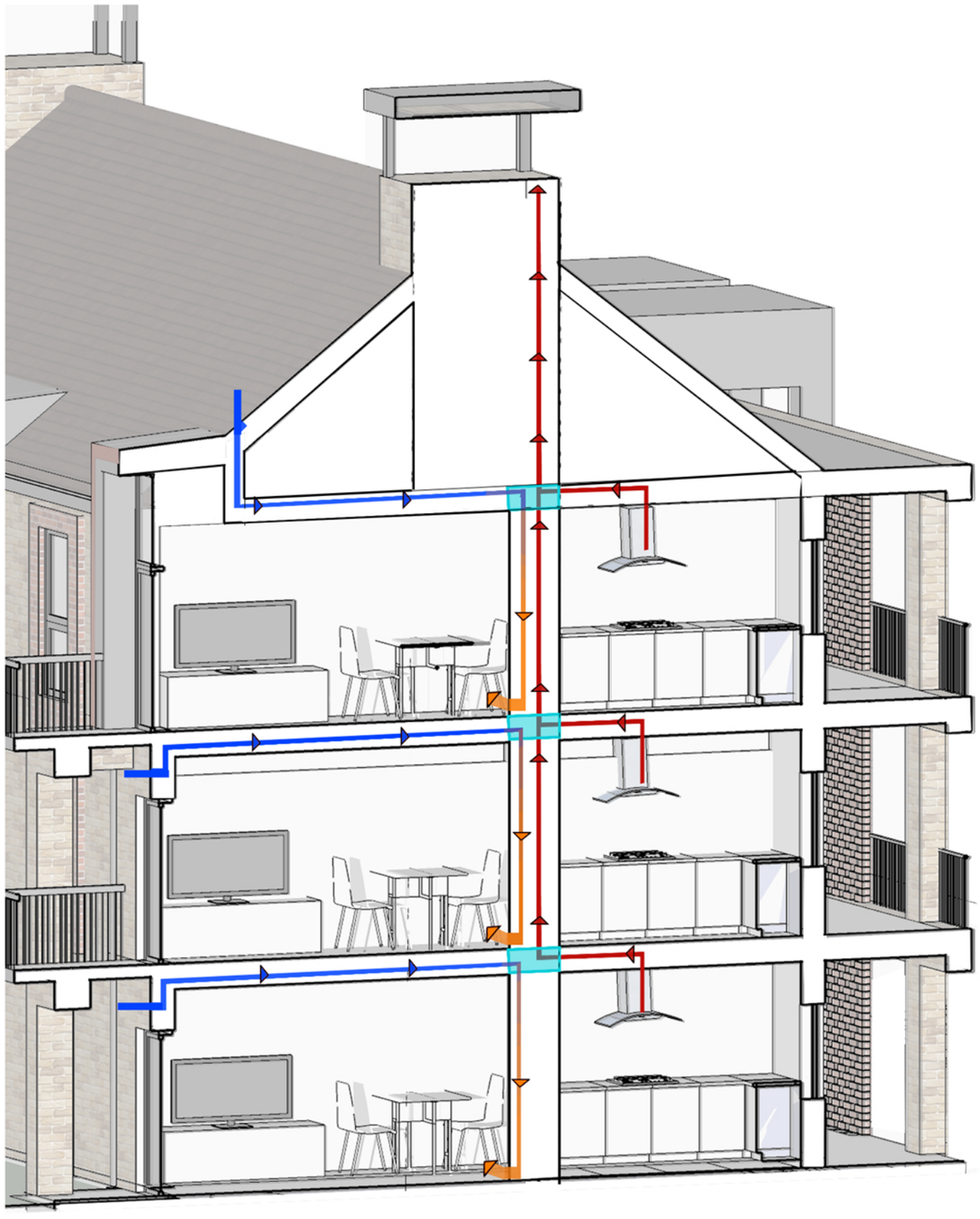
Ventilation System



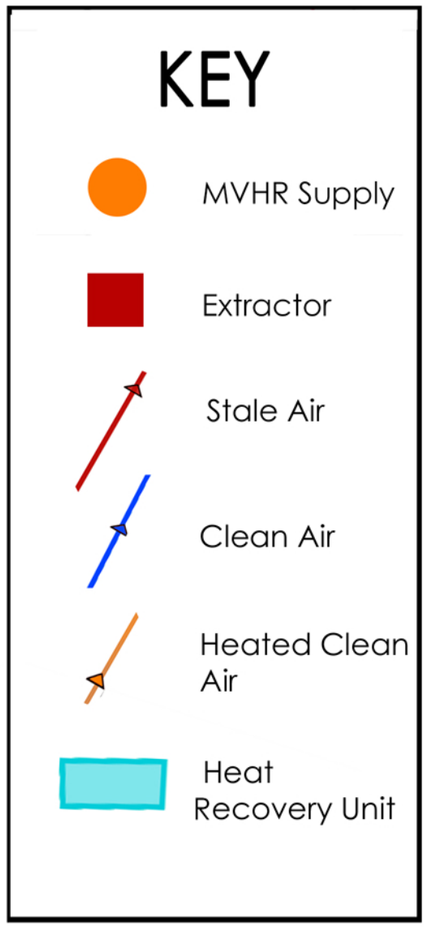
The rooms will be ventilated using two strategies: mechanically assisted stack ventilation and passive ventilation. The mechanically assisted stack ventilation will direct hot stale air up the core of the building and out through the chimney creating a stack effect drawing fresh air into the building through vents or openings. The passive ventilation will draw air through openings within the apartment allowing air to naturally ventilate the flat

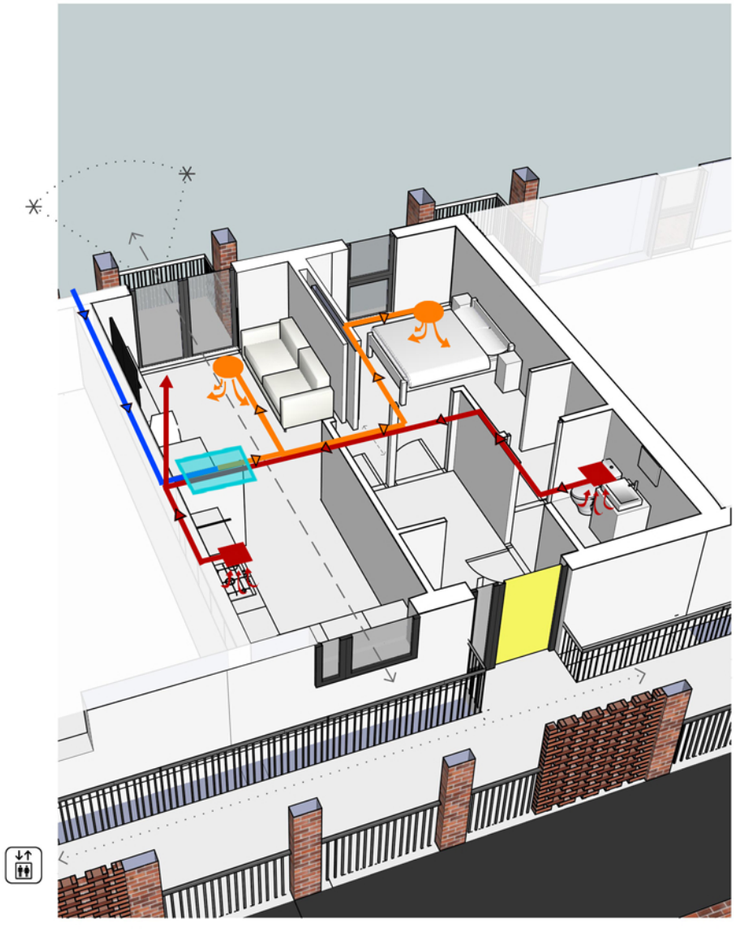
5.12 Heat Recovery

Mechanical Ventilation Heat Recovery system

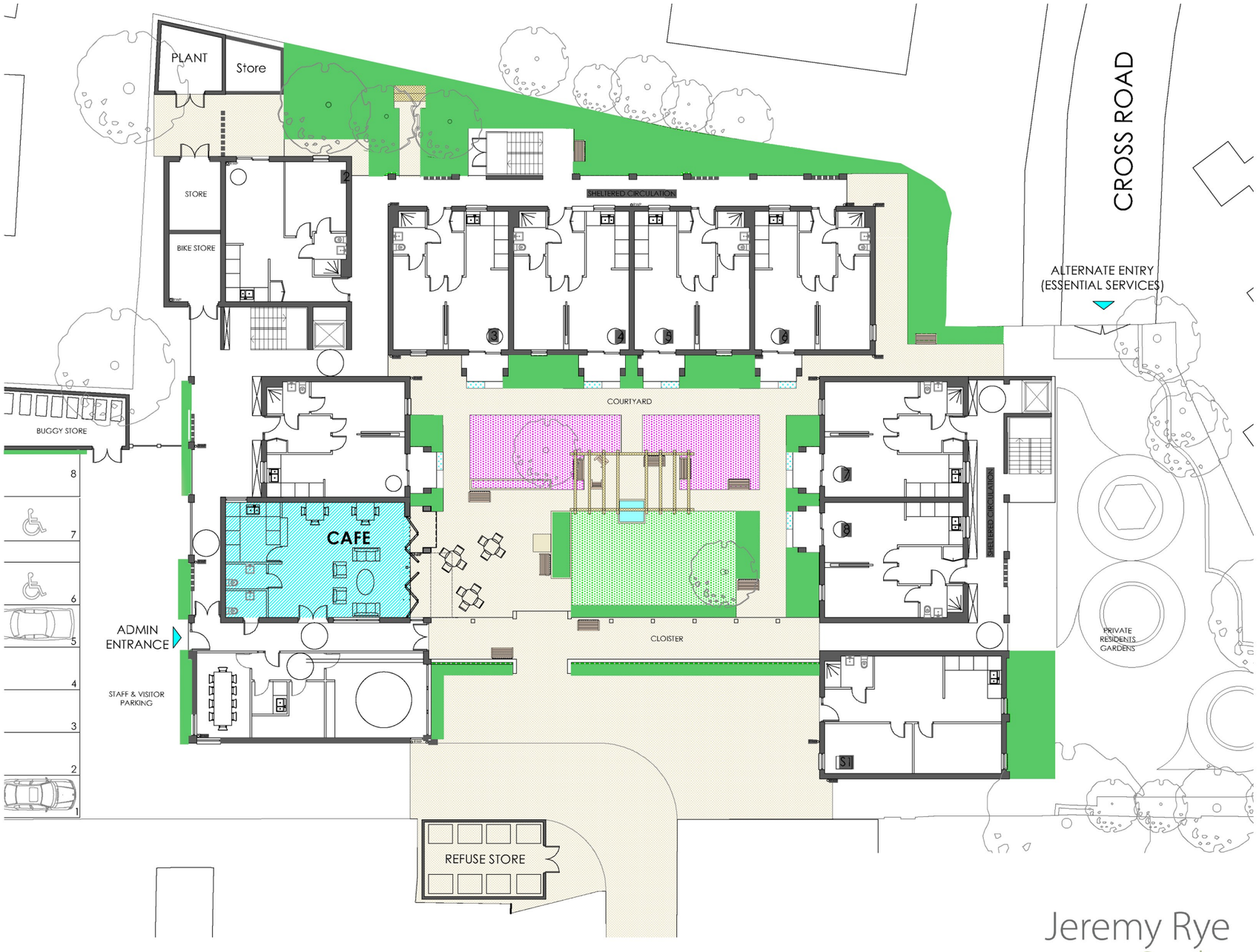


Using a heat recovery system will allow the building to be heated up in a more economical and environmentally friendly manner. The stale outgoing air extracted from rooms like the kitchen and bathroom will pass through a heat recovery unit. This will exhange the heat between the warm stale air and the cold fresh incoming air. The heat recovery system is able to recover up to 95% of the heat that would have otherwise be lost.





5.21 LANDSCAPE DESIGN



Jeremy Rye
Studio

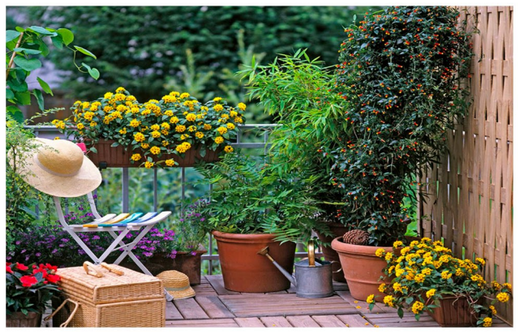
A Garden

This place will be a garden rather than a courtyard or quadrangle. It will be the focus of all the movement and activity that goes on in the estate and as such needs to feel like it is a place that delights whatever you do there; Overlook it, walk through, spend time in it.

It is a garden but it still needs to fulfil very definite functions that will allow all the residents to enjoy it in the most productive manner. It needs to be accessible and so the paths are all level and wide enough to take wheelchairs and people walking with them. There is a perimeter route around the garden but there are also many ways to cross an perambulate in a circular fashion. In being able to do this there are lots of places where one can sit, look and talk. These have been carefully sited so that they do not intrude into the ground floor apartments.

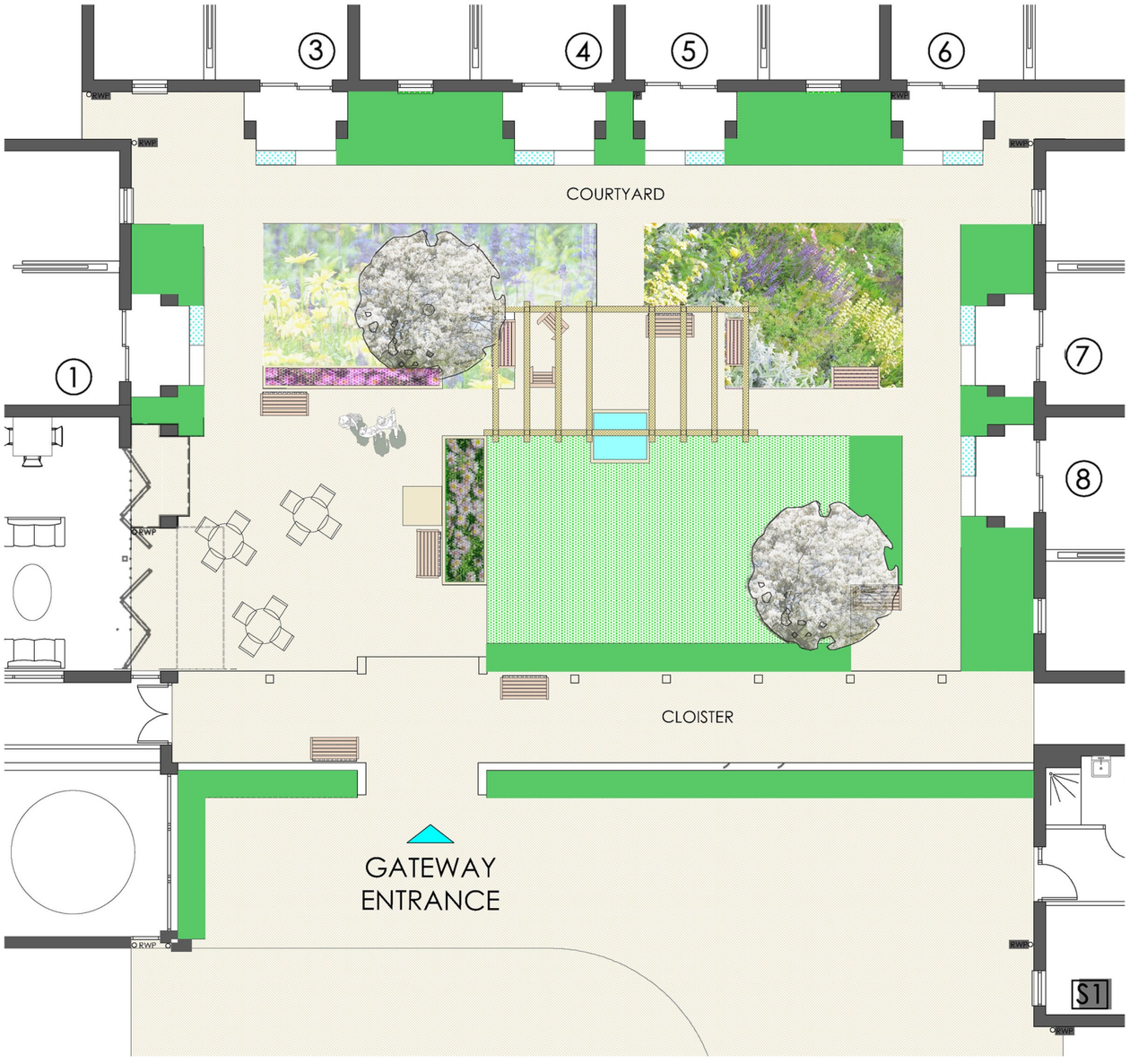


comfortable benches to rest and relax



private planting areas for residents own use

5.22 LANDSCAPE DESIGN



Jeremy Rye
Studio

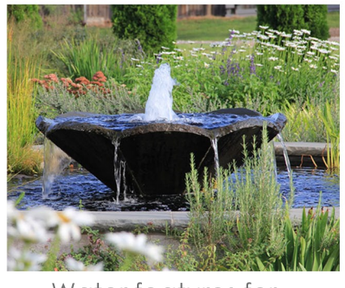
A Landscape With a Sense of Place

The design includes a main terrace that links the cafe and the entrance gateway so that most residents will pass through this area on their way to and from their apartments giving a place for meeting, conversation and interaction. There is a more retired terrace under a planted pergola for shade, with seating and a water feature to provide a quiet bubble of water rather than moving water. The main cafe terrace has raised planting beds that will not only help to contain the terrace but also provide an opportunity for residents with limited mobility to smell the scents of the flowers and to have a closer contact with them.

There is also a place for a sculpture that may link into the one close to Uxbridge Underground station of the mother, child and dog. This sculpture has captured many of the local residents, who remember photographing their grand children sitting on the dog.

The ground floor apartments are protected from visual intrusion by the provision of planting either side of their own private terrace and a small raised planter that can be maintained by the occupant or by the general maintenance regime as required.

Planting is at the garden's heart. We have looked to provide a number of different forms of planting, from the vibrant coloured beds with a wide variety of colours and scents to the more mixed planting that surrounds the lawn and is used to divide the ground floor apartment private terraces. This will still have colour and scent but provide more of an all year round interest.



Water features for relaxation and bird bathing

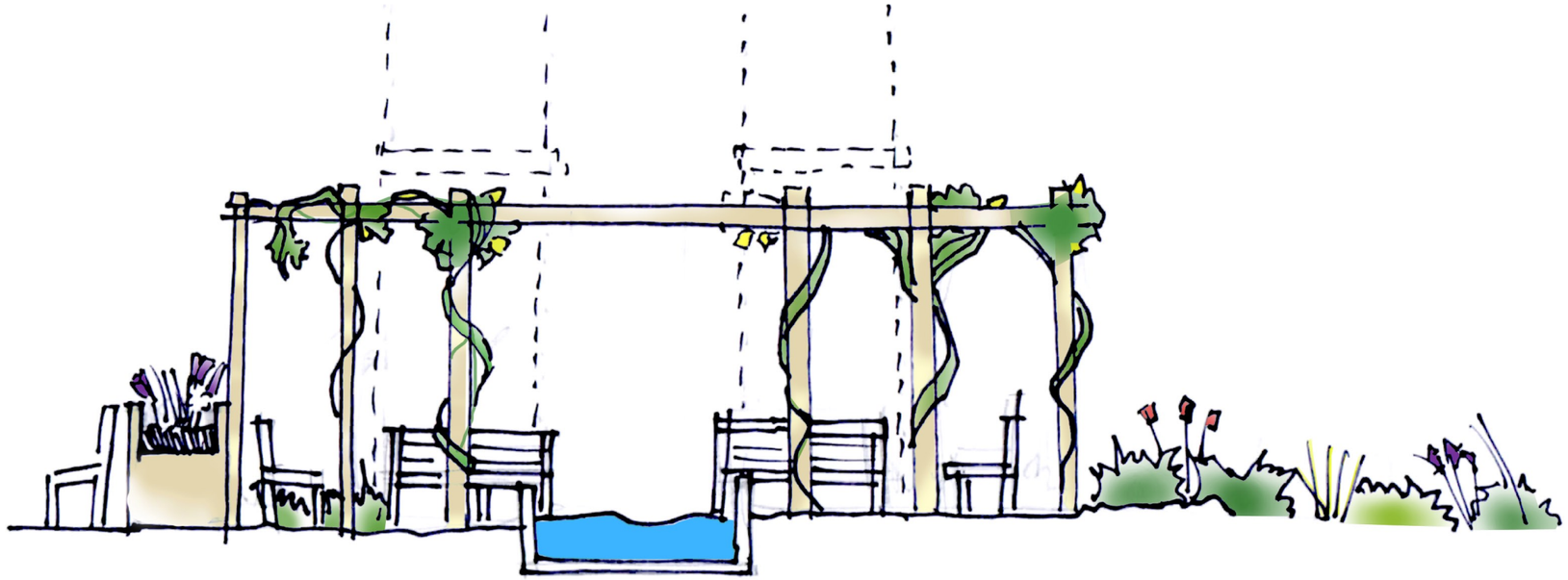


Mixed growth of vegetation



Variety of colour and smells

5.23 LANDSCAPE DESIGN



Our Landscape Principles

It is also important to give some clean green space, such as a lawn, to allow visiting children to play and also any potential resident activities such as short croquet to take place. To give some sense of vertical planting there are locations for two trees - multi stemmed Amelanchiers, that are suitable for small gardens and will provide both spring and autumn colour. They are also great trees to put lights in for some winter sparkle!

When designing gardens for almshouses it is important to consider a number of items to ensure it is successful and appreciated by the residents these are listed below and we feel have thoughtfully inspired our design.

1) The outdoor space should look like a garden.
2) It needs to provide a clear and simple layout viewable from the garden entry with both circular and figure of eight movement patterns.
3) It needs to provide destination points such as pergolas.
4) Provide choice in seating, routes and destinations.
5) Relate to the culture and attitudes of the residents.
6) Simple recreational amenity of grass.
7) Provide an attraction to younger visiting grandchildren.



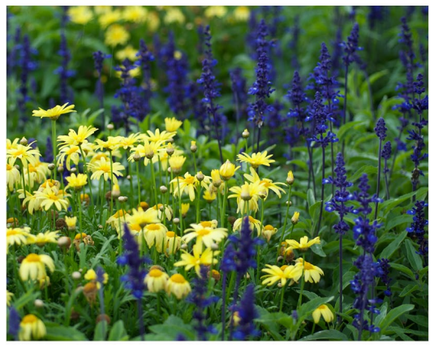
providing spring and autumn colour



Amelanchier trees



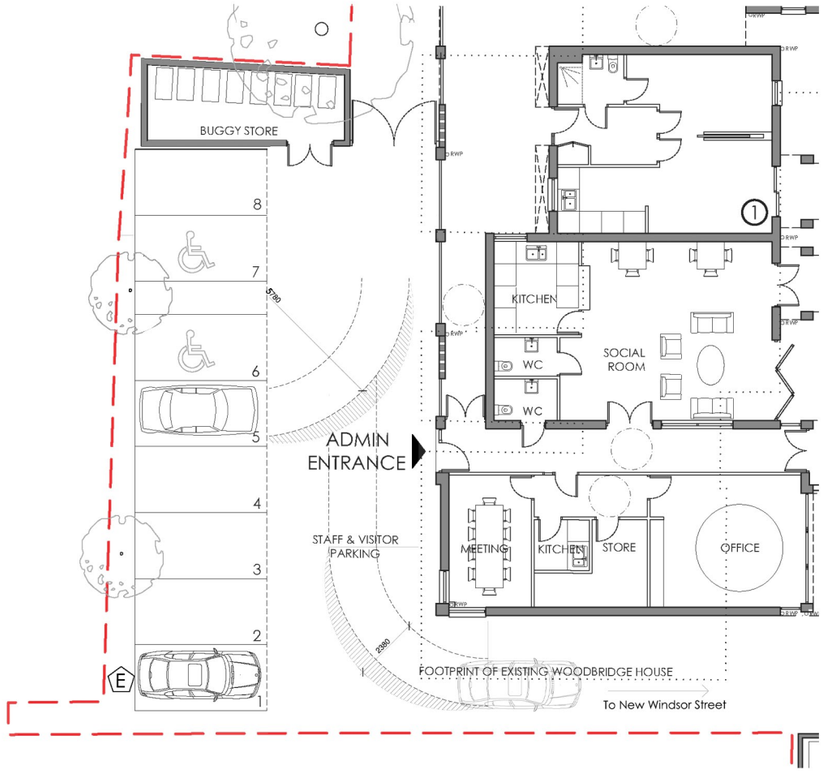
timber pergola with climbing plants



raised growing bed areas

Jeremy Rye Studio

5.3 VEHICULAR DESIGN



PARKING PROVISIONS

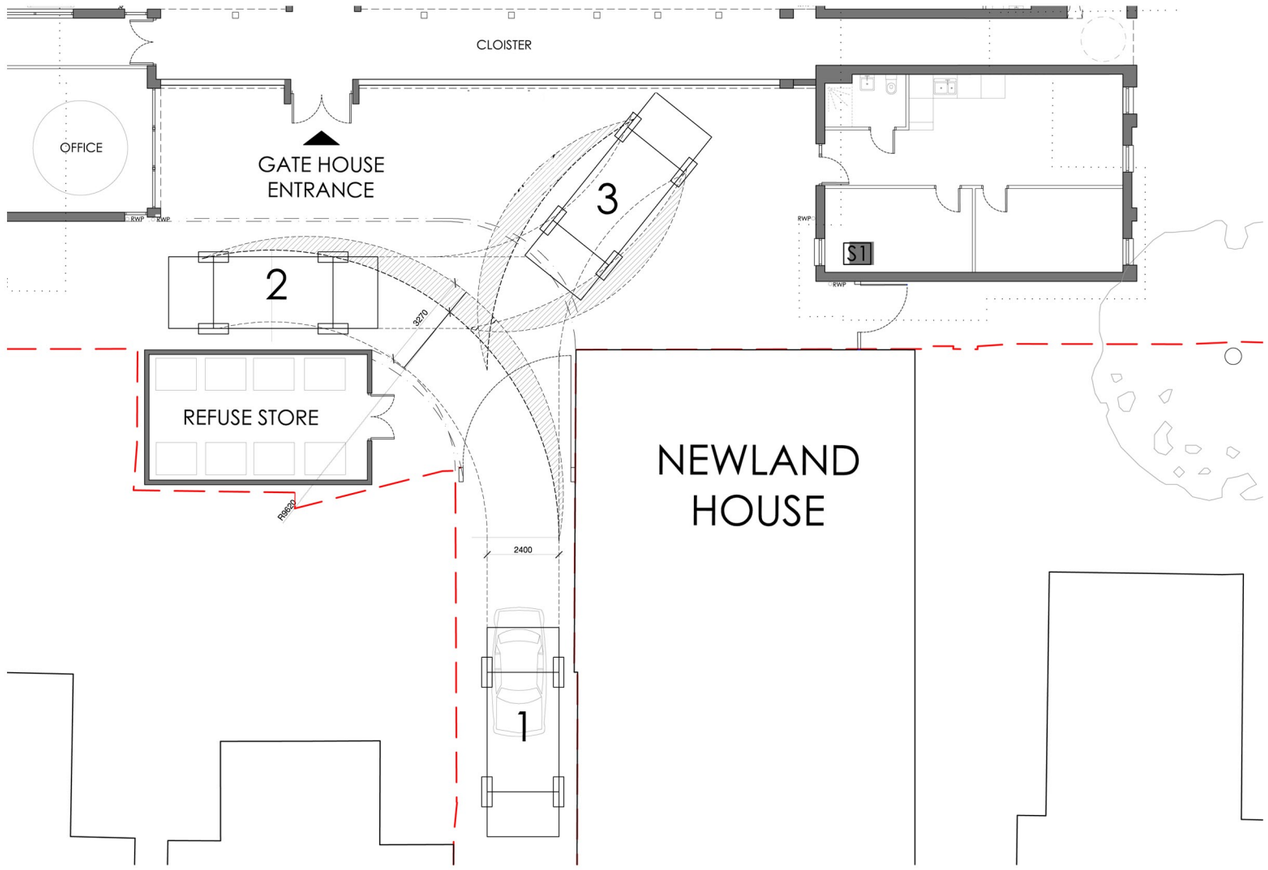
Provision is made for 8 no. parking bays including 2 no. disabled and 1 no. electrical charging point.

These bays are exclusively for staff and carers as residents are not allowed to own cars.

Lockable storage is also provided for 10 bicycles and 8 mobility scooters.

REFUSE COLLECTION

The courtyard provides a turning circle for a 11m3 refuse lorry as required by the local authority. The location of the turning circle matches the existing conditon of the refuse lorry turning as is the location of the refuse store.



5.41 SHADOW ANALYSIS

WINTER SOLSTICE (DECEMBER)

This study uses block models to illustrate the shading generated by the existing and proposed buildings in the four seasons of the year. The modelling was done using TRIMBLE SKETCHUP PRO

The Winter Solstice has a maximum solar altitude of 15.1° and a solar azimuth range between -133.5° and 133.0°

Both the proposed and existing developments have similar overshadowing. The new proposal generally conforms to the overall massing and ridge height of the existing building and therefore the shading extent is comparable.

9AM

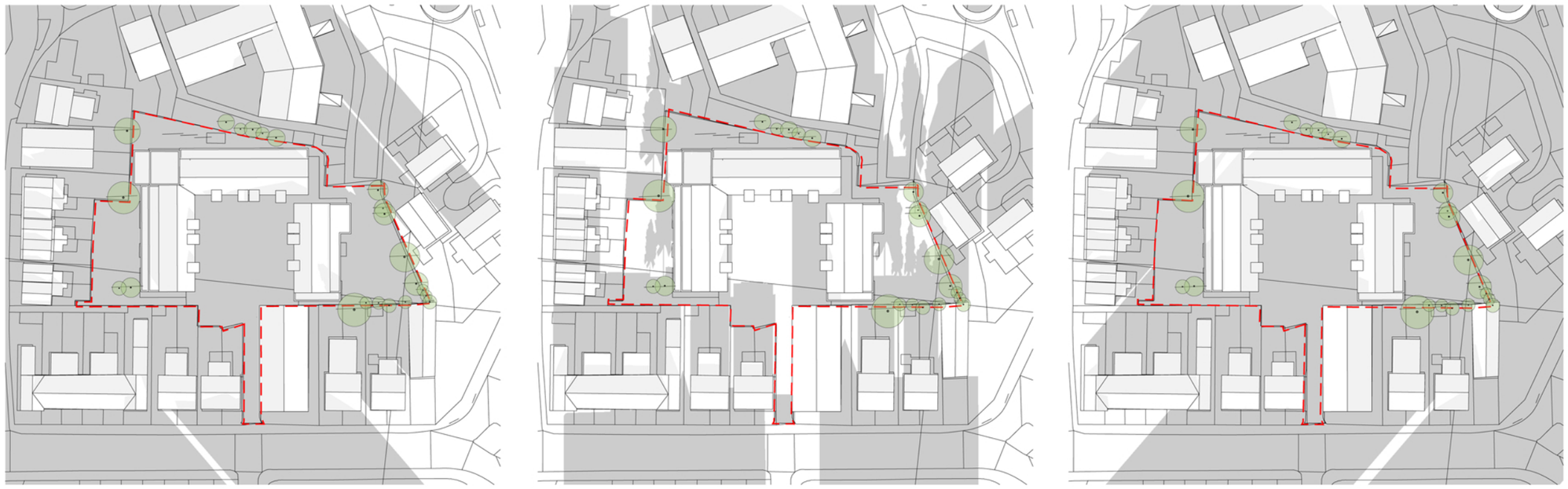
12PM

3PM

EXISTING



PROPOSED



5.42 SHADOW ANALYSIS

SPRING EQUINOX (MARCH)

The Spring Equinox has a maximum solar altitude of 31.6° and a solar azimuth range between -103.1° and 103.1°

9AM

12PM

3PM

EXISTING



PROPOSED



5.43 SHADOW ANALYSIS

SUMMER SOLSTICE (JUNE)

The Summer Solstice has a maximum solar altitude of 61.8° and a solar azimuth range between -54.0° and 51.1°

9AM

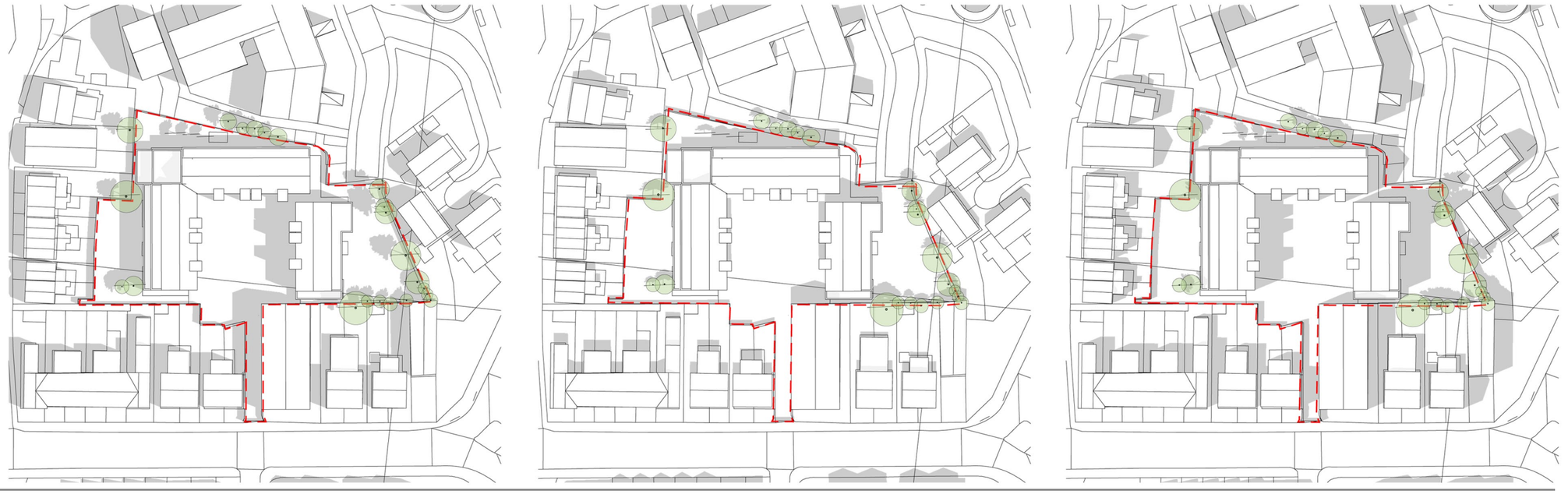
12PM

3PM

EXISTING



PROPOSED



5.44 SHADOW ANALYSIS

AUTUMN EQUINOX (SEPTEMBER)

The Autumn Equinox has a maximum solar altitude of 40.4° and a solar azimuth range between -88.3° and 89.5°

9AM

12PM

3PM

EXISTING



PROPOSED



5.5 DAYLIGHT FACTOR

A Daylight Study has been carried out in relation to the surrounding areas of the site. The analysis looks at the existing and proposed design to determine overshadowing concerns, VSC (Vertical Sky Component) variance as well as the daylight factor of glazed facades.

Using Autodesk's ECOTECT a simulation between the two massing conditions indicated that the proposed development will not have an impact on the daylight, sunlight or overshadowing characteristics of surrounding buildings compared with the existing site conditions.

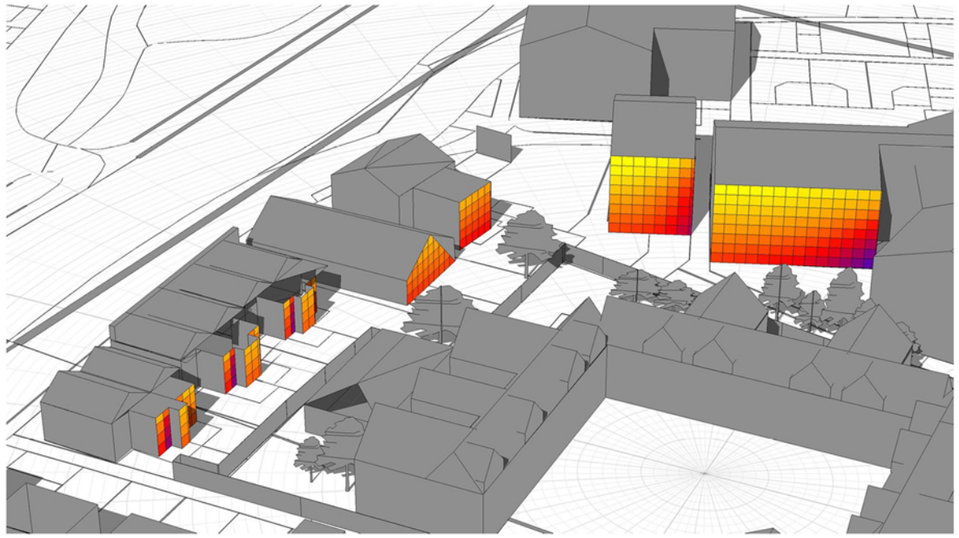
The overshadowing to the dwelling east of the site, no.5 & 6 Lynch Close has been investigated. It was found the periods of overshadowing were small and no more so than the existing condition. The proposed housing scheme is well configured for natural light of internal spaces of the schemes. The individual flats being dual aspect and overlooking a generous courtyard that meets the VSC requirements.

The exact numbers and calculations for this simulation can be found in the appendix.

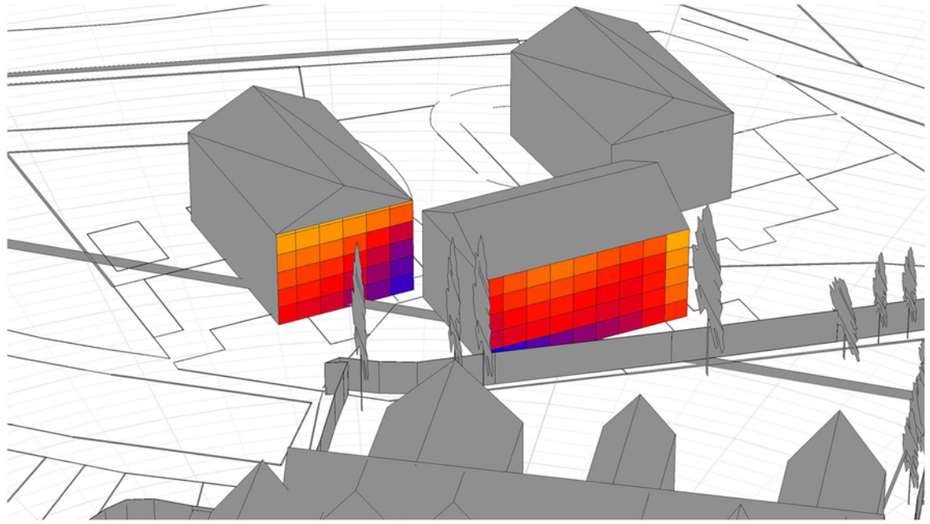
The Houses and apartment blocks to the west and north respectively of the new development were unaffected by the new proposal.

The dwellings to the east of the site in Lynch Close also have insignificant changes in daylight factor when comparing the proposed and existing conditions.

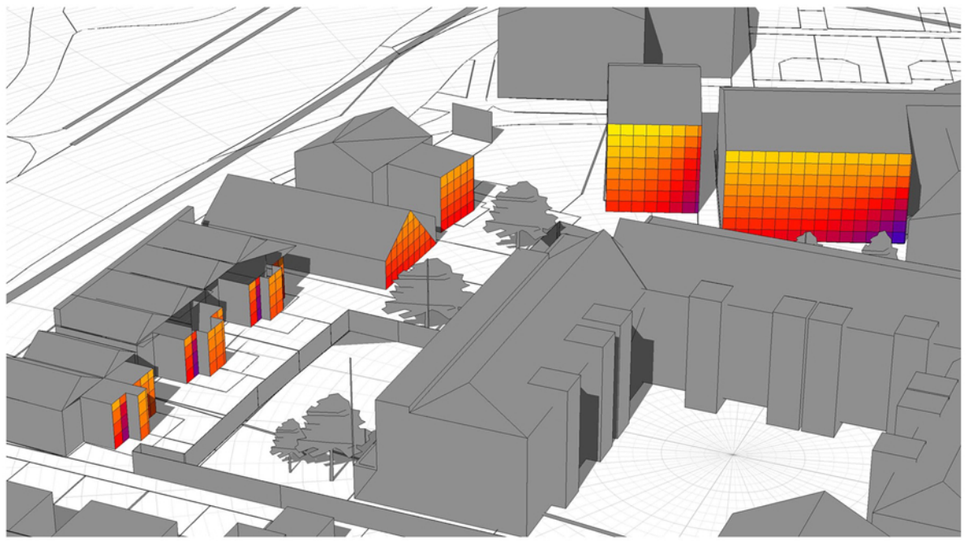
EXISTING - THE LYNCH



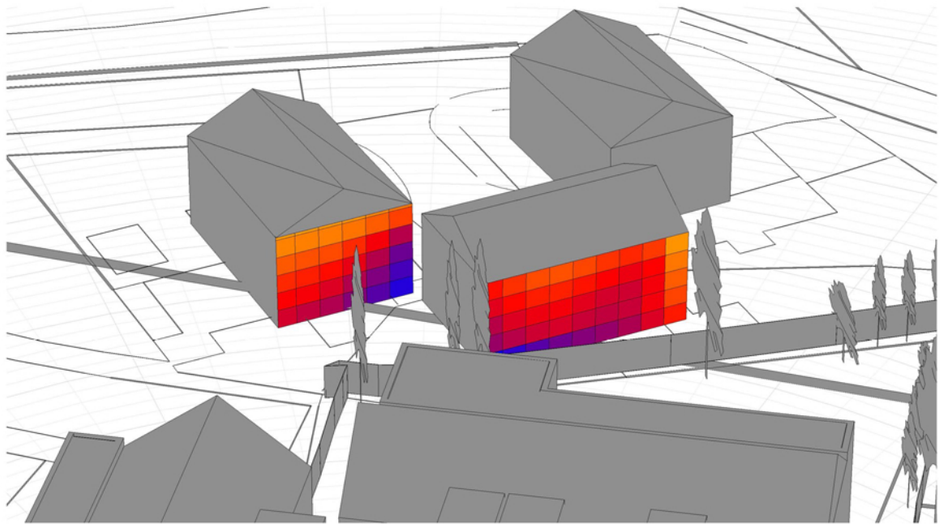
EXISTING - LYNCH CLOSE



PROPOSED - THE LYNCH

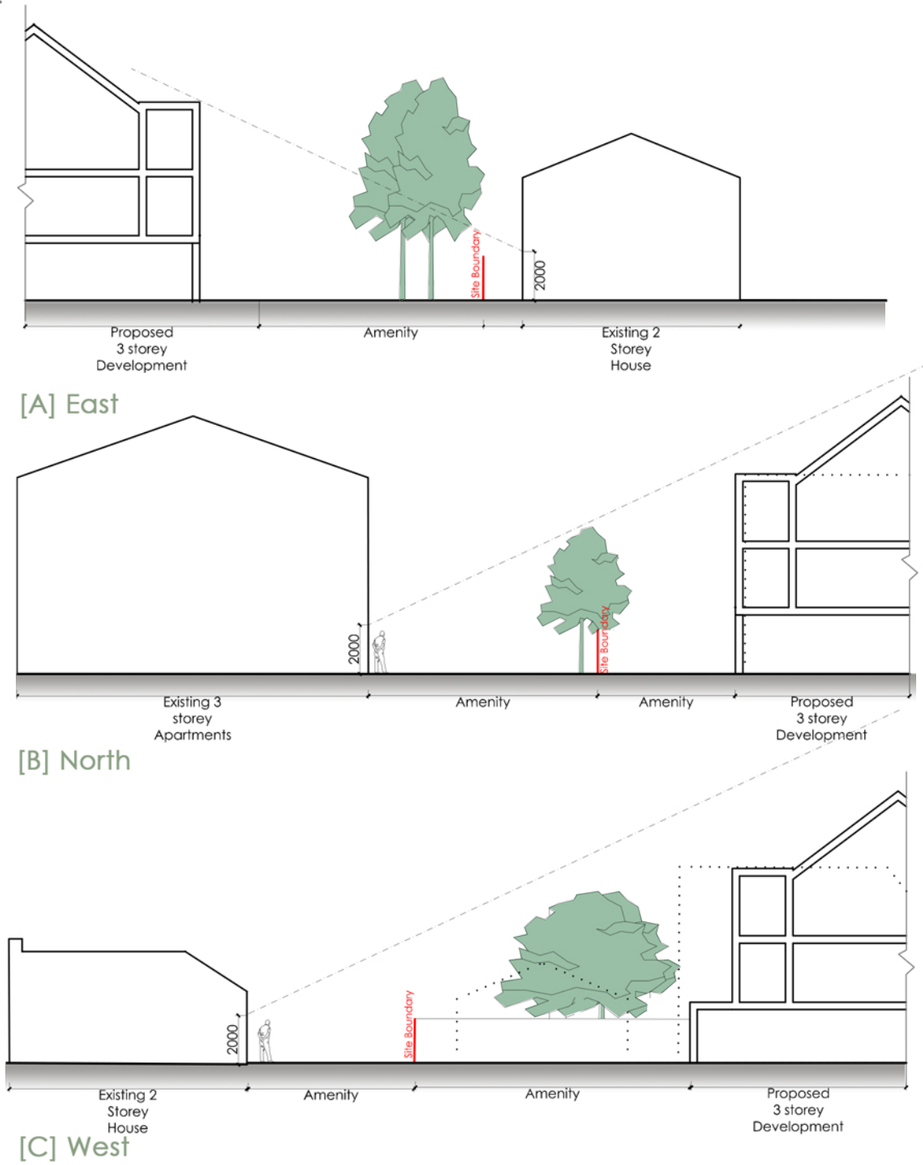


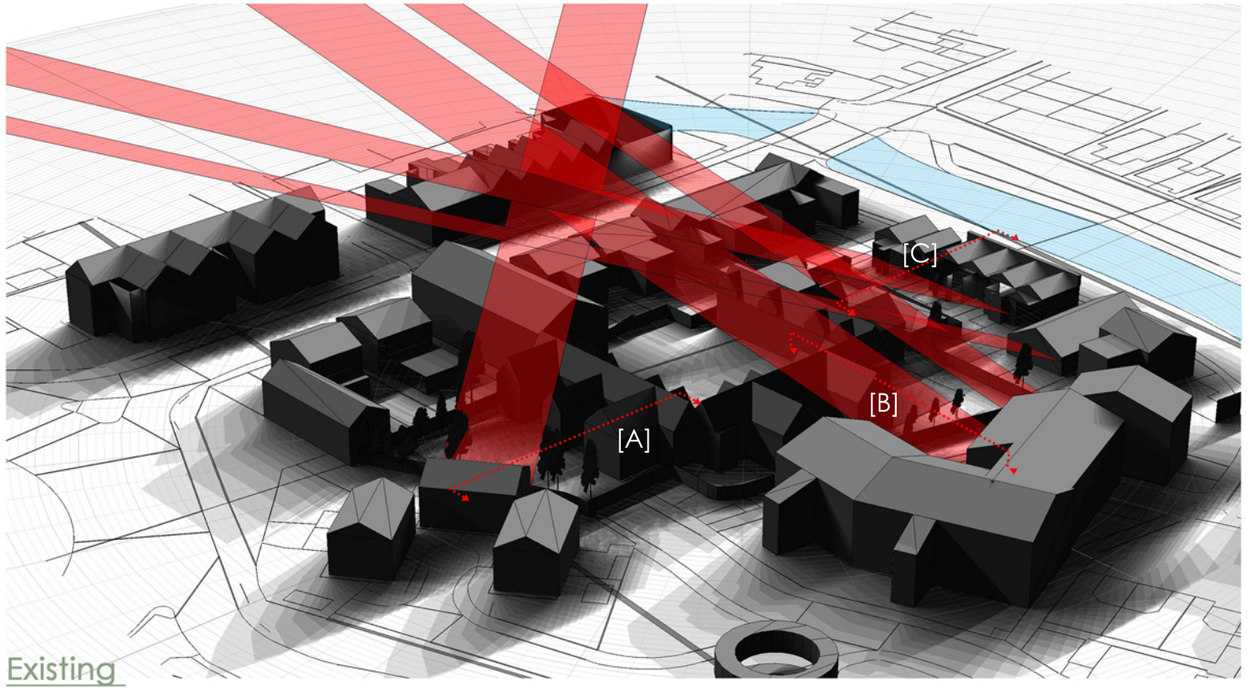
PROPOSED - LYNCH CLOSE



5.6 VERTICAL SKY COMPONENT

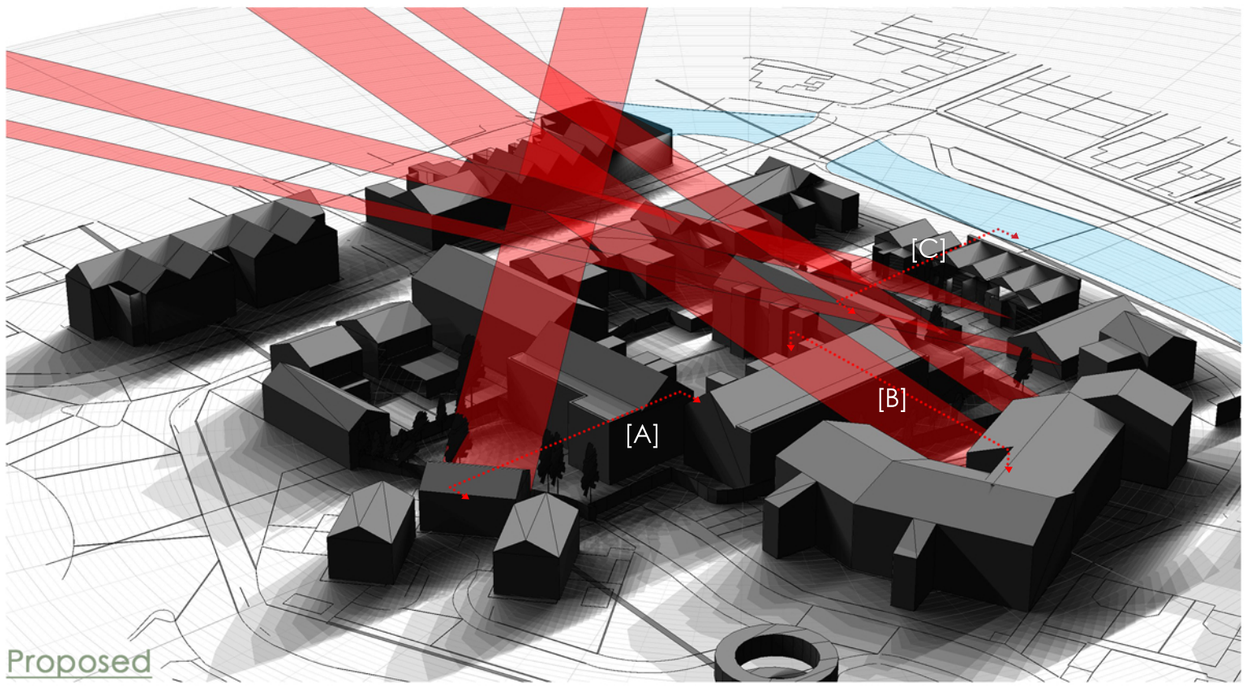
The Vertical Sky Component is a measure of the amount of skylight incident on a vertical plane (it is the Sky Factor on a Vertical Plane). It is most commonly applied to the light incident at the centre of a window and in this sense is a measure of the potential for good daylighting. This simple test is used to determine whether a building breaches a particular vertical angle taken from a specific reference point. Since the site is an existing development the calculation for right of light is done along the building façade of the adjacent surrounding building stock. In this case an angle of 25° will be used with a minimum VSC of 17%. The Extruded Plane represents the line of light. Where and if it intersects through the proposed building, compared with the exiting condition it is considered a breach of right to light.





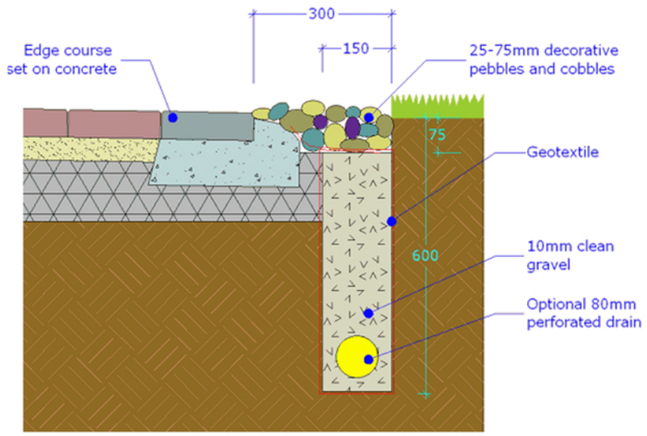
Existing

The red planes indicate the Vertical Sky Component with a 25° degree angle from the adjacent facades. Neither the existing nor the proposed conditions impose on right of light .As none of the planes projected from the neighbouring buildings intersect with the building mass there is no breach to the VSC and the design conforms to right of light concerns.



Proposed

5.7 SUSTAINABILITY & ENVIRONMENTAL STATEMENT









The building layout optimises passive environmental features and minimises wastage. The buildings are oriented and rooms designed to optimise daylight penetration and minimise heat loss reducing the energy load requirements for heating, lighting and ventilation systems. All units are laid out as dual aspect. The sheltered walkways have a combination of openings, windows, light wells and perforated brick screens to maximise daylight in these areas. Natural cross ventilation is provided with openable windows on opposite sides of the units, namely onto the courtyard at the front and the sheltered walkways at the rear which are partially open to the elements

The core strategy will be to provide a highly efficient envelope with high levels of airtightness and thermal performance that are designed to achieve 21% carbon reduction over the 2013 Building Regulations and provide that 7.5% of the site's carbon emissions are offset by onsite renewables (excluding heat recovery) See Table 2 Environmental Economics Energy Report Appendix E. Photovoltaic panels for electricity (these have been sensitively located on the flat roofs of the east and west walkway so that they will not be visible or harm the appearance of the conservation area), air source heat pump for the café and mechanical ventilation heat recovery (MVHR) for each individual apartment limit the development's reliance on fossil fuel technologies and provide occupants with high quality 'green' homes which require little technical knowledge or interface to operate successfully

Each apartment will be provided with water conservation measures to make efficient use of potable water to meet every day needs, aiming to meet the London Plan target of 105 litres or less, per head per day (LP policy 5.15 B). Sustainable drainage (SUDS) is proposed beneath areas of hard landscaping to help attenuate rainwater runoff. The surface water management accounts for future climate change projections matching the existing attenuation rates such that the development does not impose additional load to the local drainage network. Where possible rainwater harvesting will be used to assist irrigation of the garden areas

The use of recycled or responsibly sourced and sustainably manufactured building materials for the main elements ensures materials are locally sourced wherever practicable and that most key construction materials are specified to have a low environmental impact throughout their life cycle

The site is constructed with an effective waste management strategy, making efficient use of materials as well as recycling >85% of the waste arising through the construction process. Every unit is provided with waste recycling facilities to encourage and enable residents to recycle their municipal waste with various bins and recycle their kitchen compost waste in green bins for the garden areas

The landscaping strategy provides an integration of local ecological features and seeks to enhance any existing wildlife through the planting of native species of trees and shrubs. The proposals provide a 36% increase in green space compared to the existing site

For further information please see 5.0 Supplementary Design – Ventilation & Landscape Design; 7.0 Consultations - Energy Assessment by Environmental Economics; 9.0 Appendix E Environmental Economics Full Report

PLANNING HISTORY

6.0

6.1 PLANNING HISTORY

This application follows two pre-application submissions including drawings and reports under the same reference 20590/PRC2014/80, one on 18 August 2014, followed by a meeting at the Council Offices on Thursday 09 October 2014 and a resubmission of revised documents on 04 August 2015 with meetings at the Council offices on 05 and 13 October 2015, followed by further drawing work submitted on 22 October 2015 and an exchange of several emails with the planning officer Mr E. Laughton.

Pre-Application 1 - 20590/PRC2014/80 – 18/08/2014

After concluding retention and conversion of the existing building was not viable for the Trust we developed our early design ideas for a 34 unit development, with a view to maximising accommodation on the site including, 20no. almshouses, 2no. staff and 12no. sheltered apartments to be rented to the over 60s.

This required exploring additional storeys and making more efficient use of space. The two side wings were three storeys and the main wing was four storeys. As with all our designs the proposal adopted the same morphology as Woodbridge House - a three sided ' precinct' development with a south facing central courtyard, with no part of the proposed building located closer to the site boundary than existing. We proposed sheltered walkways for circulation on all levels and two centralised lift cores.

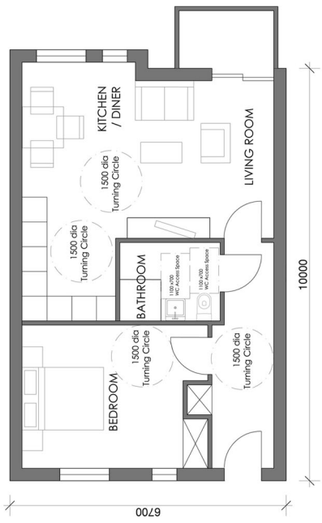
For maximum efficiency to link the circulation corridors of the three wings we placed them at the rear of the side wings and the front of the main wing. It was not till much later that we discovered an alternative superior layout. We explored flat layouts with bedrooms facing rear and living rooms facing front or vice versa depending on the wing to exploit dual aspect living.

LPA Response to Pre-Application1

While no ' formal' response was provided by the LPA a meeting was held with four officers including Matt Kolaszewski Planning officer, and Mark Price Conservation officer. The council' s general view was a presumption against demolition of the locally listed building in a conservation area but that if we wanted to go down the redevelopment route we would need a robust heritage argument demonstrating that the benefits outweigh the harm.

We were able to establish the need for additional and revised documentation in the form of:

- Heritage Impact Assessment
- Building Inspection report demonstrating the Woodbridge House is not fit for almshouses or for conversion to almshouse flats
- Design amendments, including omission of 4th storey and articulation of roofs
- Pre-application Planning Analysis amendments.





Right:
Selection of images
from pre-app 1;
flat plan
rendered front elevation
daylight section



6.2 PLANNING HISTORY

Pre-Application 2 resubmission- 20590/PRC2014/80 – 04/08/2015 and LPA response

This resubmission followed the earlier pre-application enquiry (August 2014) which was deferred pending the inclusion of additional documentation and revised design considerations.

a)Heritage Statement by Alan Baxter Ltd Heritage Consultants

b)Building inspection report by Brasier Freeth Surveyors
(exploring the inadequacy of the existing building to provide facilities for modern almshouse accommodation and the viability for the existing building to be converted to meet modern almshouse standards) in Appendix B

c)to reduce the height of the reception wing to 3 storeys (thereby reducing the total number of Units from 34 to 30)

d)to introduce dormers to the reception wing to help break up and articulate the roof form







Above: selection of images for pre-app 2;
proposed gf plan, rendered front elevation & visualisation of courtyard

6.3 PLANNING HISTORY

LPA Response to Pre-Application 2

At our first meeting following the resubmission we were not able to reach agreement between the views of the conservation officer Ms C. Baker and the heritage adviser Ms K. Wedd of Alan Baxter, the latter holding the view that demolition of Woodbridge House would cause less than substantial harm to the conservation area and that the public benefit outweighed the harm.

It was also clear the LPA officers had not reviewed the correct documents. This provoked a frustrated response from one of the trustees of the Welfare Trust. Head of Planning James Rodger suggested reconvening when people had had the chance to prepare and to hold a 'drawing workshop' where the architect could explore possible extension / conversion options in the presence of the LPA.

Conservation Officer's response

This included a commentary on Alan Baxter's Heritage Statement and an appraisal of Woodbridge House. Ms C. Baker concludes:
It is maintained that the loss of Woodbridge House would cause substantial harm to the designated heritage asset, and that these sections [Sections NPPF132 & 133 see below] do not apply.

NPPF paragraph 132 –"When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset' s conservation. The more important the asset the greater the weight should be. . .

NPPF paragraph 133 –"Where a proposed development will lead to substantial harm to or total loss of significance of a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:

The nature of the heritage asset prevents all reasonable uses of the site
- *"No viable use of the heritage asset itself can be found. . .that will enable its conservation*
- *Conservation by grant-funding or some form of charitable or public ownership is demonstrably not possible and the harm or loss is outweighed by the benefit of bringing the site back into use."*

Planning Officer' s responses

Mr E. Laughton provided written responses after the two meetings in October 2015 over four emails commenting and advising on various planning matters for the purposes of clarity of this Design & Access Statement we will comment only on design matters.

29 October 2015

Design:
..the external glazed corridors at second floor would be visible as an obtrusive feature.... and introduce overlooking.
...consistency of roof slopes will be important...
...corridor at the front would provide a bulky and over busy elevation...features on front elevation which provide verticality...and break eaves line (are desired)
timber for balconies, corridors and louvres would be out of keeping with Victorian workers housing

02 December 2015

Design/Overlooking:
Whilst the walkways would not represent habitable space, it is important that adjacent properties are not overlooked or have a 'fear of overlooking'. Much like how an external roof terrace may not represent a habitable room, the walkway would create an opportunity or perceived opportunity for overlooking. It is important that the impact on the amenity of adjacent occupiers of any new development is given careful consideration.

Amenity:
In terms of outlook onto cloisters, I note your reference to London Plan (2015) Policy 3.5. In particular I believe the following text may be particularly relevant:

'The design of all new dwellings should also take account of factors relating to 'arrival' at the building and the ' home as a place of retreat' , have adequately sized rooms and convenient and efficient room layouts, meet the changing needs of Londoners over their lifetime..'

6.4 PLANNING HISTORY

The intention behind the pre-application advice text was a concern as to whether you had justified the proposed layout given amenity concerns and addressed the above text. I note your additional clarification and would add that any examples of recent London developments with a similar type of layout would also assist officers with this issue.

The Council will review any information submitted with a future application in support of the design approach for these units. We would not wish to refuse a planning application for this reason if there is a robust justification for the layout; nonetheless we know that the amenity of future occupiers of housing development is a big concern to the Planning Committee.

In summary we would wish you to provide as a robust an argument as possible to help explain why the Council should not object to such a layout."

INVESTIGATION INTO CONVERSION OR RE-USE

Following the first meeting in October 2015 we prepared a number of possible floor plans illustrating possible ways to convert and extend the existing building. We then discussed these with the planning, conservation, access officers and head of planning. A summary of our drawing work is found in Building Conversion drawing study Appendix C. The conclusion we reached was that it is not viable to retain the existing building for modern almshouse use.

ARCHITECT'S RESPONSE TO PRE-APPLICATION COMMENTS

We reviewed and developed the design in a number of ways, including the following significant changes, identified as the **New Concept** in 3.0:

- *repositioned the sheltered walkway for the main wing onto the rear elevation*
- *relocated the administrative offices and the social function hall adjoining the car park*
- *created a formal cloister and 'gate house' at the south entrance to the courtyard*
- *maintained simplicity in the form and consistency of roof slope on the courtyard elevations with twinning of dormers to break the eaves line*
- *simplified the materials palette*

In terms of our response on heritage we believe that the proposals are justifiable based on NPPF paragraphs. 138 and 133 or 134, which advise how to treat the loss of a building which makes a positive contribution to the significance of the conservation area.

Consultations

7.0

7.11 Public Consultation

Introduction

This Section comprises the Statement of Community Involvement. It demonstrates the proactive stance of the applicant to involve local people and neighbours in the design evolution and measures undertaken to mitigate concerns expressed at the Public Consultation event. This has been an active attempt to ensure the scheme does not negatively impact on the local area and to try and include within it features and characteristics that contribute to the neighbourhood and its heritage assets. The following A1 presentation boards were displayed:

1

EXISTING PLACE


Site Location




Street Elevation

EXISTING BUILDING



HOW THE EXISTING BUILDING AFFECTS THE TRUST'S PROVISION

-There is NO availability for disabled persons.

- The bedsit accommodation means residents feel DISCOURAGED from receiving guests.

-There are no facilities for couples as the current accommodation is TOO SMALL.

-The Heating system. It is NOT RELIABLE and complete replacement is not financially viable under the present circumstances.

-Due to the aged fabric the building has POOR INSULATION values.

-DAMPNESS is prevalent, not good for elderly residents' health.

-There are NO means of accessing the first floor apartments except by narrow and STEEP stone steps.

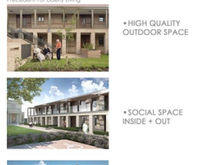
-The existing corridors is neither compliant nor welcoming; too NARROW, and in the case of the glazed conservatory are too hot in summer and too cold in winter

As a result of the above, The Trust consider they are longer able to offer accommodation to those in need

2

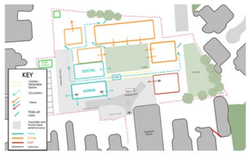
CONCEPT

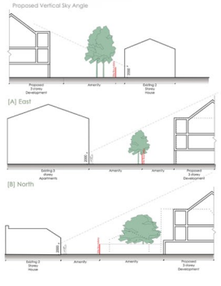












3

CURRENT IDEAS



Proposed Ground Floor Plan


View From North Wing Looking South


View From New Windsor Street


View From Cross Road


View From Froy's River bank

4

CURRENT IDEAS


Dormer pairing
Linked to existing building form


Cloister and Gatehouse perspective
Face of Site + Formal Entrance


Sheltered walkway section & perspective
Sheltered circulation linking whole site

5

EXISTING PERIMETER

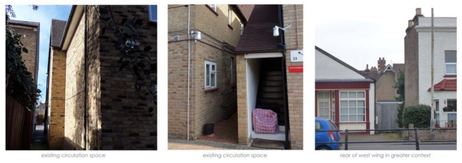

existing rear view of north wing view


Existing rear view of north west junction


Existing rear view of north west junction (in greater context)


Existing view of the rear west wing


Existing junction of the west and north wing


existing circulation space
existing circulation space
rear of west wing in greater context

6

PERIMETER PROPOSALS


Rear of North Wing


Rear of North Wing


Rear of East Wing

7

LANDSCAPE DESIGN





"This place will be a garden rather than a courtyard or quadrangle. It will be the focus of all the movement and activity that goes on in the estate and as such needs to feel like it is a place that delights whatever you do there; Overlook it, walk through, spend time in it."

Jeremy Rye Studio



7.12 Public Consultation

Public consultation event

The public consultation event was held on Tuesday 02 February 2016 in the social hall at Woodbridge House. Some 250 homes were leafleted and those invited including residents of Woodbridge House, neighbours, local ward councillors, the local MP and members of the professional team. The event was visited by approximately 50 people, seven of whom raised objections and 35 signatures were received in support. A mixture of positive comments in support and negative comments with objections were received. The list below includes all the objections recorded and a selection of comments supporting the proposals. The main concerns were the impact of the increased height and the potential for increase in pressure for parking. The objections have resulted in significant reconfigurations most notably on the proposed rear elevations and particularly the west elevation to the car park



Local residents' comments and Design Review Panel Responses

The neighbourhood was represented by residents of Woodbridge House, occupants of various adjacent homes including 43, 45A, 45B, 46 the Lynch; 23 Cross Road; Flats in Lawn Road; 28, 36, 38 and 39 New Windsor Street including two apartments from Newland House. The comments and the Design Review Panel responses are as follows:



1. Having viewed the plans for the new development and spoken with a number of people involved with the project I am happy to lend my support for the plans. I spoke with some of the existing residents who confirmed all the residents support the project

2. Line of sight is affected, causing a loss in the amount of viewable skyline

"The design review panel commented the proposed extra storey does cause a loss in the amount of viewable skyline in part, however to reduce this impact the proposed footprint on the first floor is set 2.4m inside the existing rear projecting gables on the west elevation, and the proposed roofs at these points are no higher than the ridges of the existing rear projecting gables. The pitched roof is the only element of the proposals which is higher than the existing ridge heights and the proposed ridges are set back from the boundaries"

3. The rear elevations look industrial and horrible. Not in keeping with the local conservation area aesthetic

"The rear elevations house the sheltered walkways that provide access to the apartments. They also provide a buffer zone to the neighbouring properties and restrict overlooking. We have spent time refining the rear elevations to balance 3 storeys of sheltered walkway with the local 'cottage-style terrace vernacular'. Following the public consultation we have further reconfigured and refined the design of the rear elevations as follows, a) to provide a more light weight appearance of the 3rd storey by introducing zinc cladding to replace the brick material expression, and by stepping back the angle of the roof; and, b) by introducing a more playful and less rigid pattern of fenestration / opening across the rear elevations."



4. It is clear that the buildings are in need of updating and therefore I am not surprised that the residents can't wait for the work to begin

7.13 Public Consultation

5. The View Studies are inaccurate and deceiving

"The View Studies are based on site photographs taken from specific identifiable locations on the ground. We have modelled the proposal accurately based on our scaled drawings in plan, elevation, model and then positioned the camera point at eye level (1.6m) at the same location in the model as on the ground."

6. The daylight study is disputed

"The daylight factor is not reduced by the proposals. This is due to the depth of shadow cast by the angle of the sun striking the existing rear projecting gables and the fact that the footprint of the existing rear projecting gables projects closer to the boundary than the proposed footprint. The Daylight Study was conducted in ECOTECT and SKETCH-UP PROFESSIONAL and the full findings are published in Section 5 and the Appendix."

7. I'm looking forward to a modern flat without dangerous stairs to climb and without having to sleep in my living room

8. We need heating systems that we can control and washing facilities in our flats so we don't have to wait for the communal facilities to become available. I support these proposals

9. What is floor area increase?
"168%
Existing floor areas: 1653m²
Proposed floor areas: 2780m²"

10. We don't want a locally listed building to be demolished

"While we regret the need to demolish a locally listed building the existing building is not fit for purpose and is not viable for conversion. We consider the public benefit of the proposals will outweigh the harm caused"

11. We have to do something to ensure the site can continue to be used in the 21c

12. More respectful change wanted: it should be 2 storeys not 3

"Although Woodbridge is only 2 storeys there are a number of 3 storey structures adjoining the site, namely the block of flats in Cross Rd to the north, Newland House to the south east, no. 30 New Windsor Street and on the other side of New Windsor Street, William Court. The need for an additional storey to meet the accommodation demand is pressing. The site is set back from the adjoining streets, New Windsor, Cross Road and the Lynch and as a result the proposals are not overbearing on the street scene. As for 2 above we have refined the design of the 3rd storey with a more lightweight appearance by introducing zinc cladding to replace the brick material expression, and by stepping back the angle of the roof"







7.14 Public Consultation

13. After carefully examining the plans this design appears well resolved and respects the neighbours

14. More respectful design that recalls the historical form of the existing building

"We have resisted pastiche imitations of a historical style instead preferring a modern interpretation of vernacular form including such features as pairing of dormers that breaks the eaves line and definition of window surround with distinctive brick, both of which recall the existing building. The conservation area is predominantly Victorian workers terraces and brick is the dominant material. Woodbridge House is based on an arts and crafts design for Hampstead Garden Suburb including an expression of brick/render and dark stained timber with narrow pairing of gables. Woodbridge House is no more in keeping with workers terraces than a 21c building and both Woodbridge House and the current proposals represent products of their time."

15. Soften gardening on the rear (west elevation), it used to be a nice garden can it not be kept?

"Following these comments we have softened the edges of the rear parking area with 2no trees and green walls to the buggy store, the office, walkway and the boundary fence. Location of the car park on the west boundary preserves the integrity of the central courtyard and maintains a buffer zone between the houses on the Lynch and the proposed west elevation."

16. I was at the Consultation for the first session during which I spoke to ten or so local residents. Upon realising that the present 1906 Almshouse is no longer fit for purpose, meaning that we cannot any longer take in persons in need of that type of accommodation, they were all – apart from some minor matters – in agreement that the proposed building project has considerable merit

17. Car park right next to neighbour's garden – emissions from cars problems

"The car park use is slight. Deliveries, refuse vehicles and dropping off will be contained at the gate house entrance in the main courtyard"

18. Problems during the construction: Sound, sight, dust

"There will be inevitable disruption, however the contractor will adopt the "Considerate Contractors Scheme" in accordance with the London Plan code of conduct to minimise inconvenience, disruption, noise and pollution"

19. The UUWT Charity Scheme incorporates the fact that an Almshouse is a Scheme requirement and we have no option but to build a replacement facility, albeit that we will be replacing a locally listed building

20. Accommodating couples will impose more on local resources

"Provision of new apartments for couples will not be the norm, it is more that the Trust intends to provide for those-in-need and this includes couples who fall in this bracket"

21. Continuity of sheltered housing on the site is preferred and the council should make this a condition

"The site is ideally appointed for sheltered housing being an enclosed precinct with proximity to a myriad of amenities that support elderly living. Furthermore in our view the sheltered housing use contributes to the heritage significance of the site and surrounding conservation area; these proposals represent the fourth iteration of almshouses in the UUWT's history"

7.15 Public Consultation

22. More cars on the street not wanted: The Council should limit the parking on the site by condition

"The residents will not be permitted to use cars. Any additional parking will be from visitors and carers for which the council can impose a condition to limit parking in the street"

23. The existing pedestrian gate in the south west corner of the site should be accommodated

"this gate and the access will be retained and our site plan has benn adopted to reflect this"

24. I also attended a consultation with a resident of the flats in Lawn Road backing onto Woodbridge House; he has concerns about the height of the new development but his concerns were all answered to his satisfaction by the architects and he signed the petition in support of the development









7.21 ACCESS STATEMENT

Aperis Building Consultancy
Simon P Turton BSc MRICS NRAC Consultant
Director - Aperis Building Consultancy Ltd

(extracts from the Access Statement, full report is in 9.0 Appendix F)

Introduction

"The intention is that the Access Statement will clearly illustrate what measures have been taken and what will be implemented to ensure that the building and associated areas can be enjoyed by everyone and that dignified access is available to the facilities and residential accommodation that will be provided…

Accessibility around the original site and within the original Almshouses is poor. Numerous features prevent wheelchair users and people with mobility impairments from utilising the dwellings and associated spaces and result in residents' needs being compromised. The nature of the buildings mean that they are incapable of large scale alteration and small scale adaptations are all that is possible. Accordingly, the existing Almshouses are not fit for continued use and are unsustainable from an inclusivity perspective. They do not contribute to independent living and do not meet occupier aspirations and needs

Suitable accommodation can only be provided by complete redevelopment and the provision of a new building; the future needs of the residents cannot be met within the existing building arrangements…

The design process will seek to utilise criteria that will enable UUWT to meet its obligations and provide suitable housing and facilities to deliver quality housing that caters for an aging population, who may have different requirements, disabilities and needs. This will include the application of Best Practice design guidance and the adoption of the minimum standards as set out in the Approved Document to Part M of the Building Regulations (ADM) and the 16 criteria set out in the Lifetime Homes Standards (LTHS). The aim is to ensure that all designs adopted have been reasonably considered and that the reasonable requirements of the applicable design standards are met…

Above all, the aim of the project is to provide universal access and dwellings that meet homeowner aspirations, cater for their changing needs as they age and allow for independent and healthier living through the provision of suitable and adaptable dwellings…"

7.22 ACCESS STATEMENT

Overall approach

"The Uxbridge United Welfare Trust (UUWT) will meet with its obligations under the Equality Act 2010 whilst also complying with the requirements of Approved Document M of the Building Regulations (ADM), relating to the works being undertaken; ADM is considered to be the minimum requirement in respect of access provision. However, UUWT will therefore seek to exceed minimum standards wherever practicable and possible to do so. Accordingly the guidance and recommendations given in Lifetime Homes Standards (LTHS) is also referenced and adopted, along with current best practice guidance to ensure that the context and location of the buildings, their environments and the use are considered fully. This approach will be adopted across all dwellings and areas of the building and its site…"

Technical standards

"In the case of the Almshouses project, the design process has adopted Lifetime Homes standards as a minimum requirement and as such, will meet M4(1) regarding Visitable dwellings and the majority of the requirements of M4(2) will by virtue of the design meeting LTHS also be met. Enhancements will be included as necessary to ensure that M4(2) is met across all areas. The design is however adaptable in its current form and should, with minor changes, be able to meet M4(3), either as adaptable or wheelchair dwelling/s. The facilities and the physical space provided will therefore allow for, with minor adaptation and without the need for structural alteration, wheelchair use to be accommodated.."

Lifetime Homes Criteria

"The Lifetime Homes Standard seeks to enable 'general needs' housing to provide, either from the outset or through simple and cost-effective adaptation, design solutions that meet the existing and changing needs of diverse households. Housing that is designed to the Lifetime Homes Standard (LTHS) will be convenient for most occupants, including some (but not all) wheelchair users and disabled visitors, without the necessity for substantial alterations.

The design adopted has been developed to accord to the current LTHS design criteria (July 2010) and the 16 criteria have been integrated into the design so that all areas will be met.

The design process has been built on a philosophy of providing universal access. The aim of the design team has been to ensure that all aspects of accessibility are considered at the most appropriate time and that the process of dealing with the physical aspects of the built environment allows integration into management procedures for the future running of the facility.."

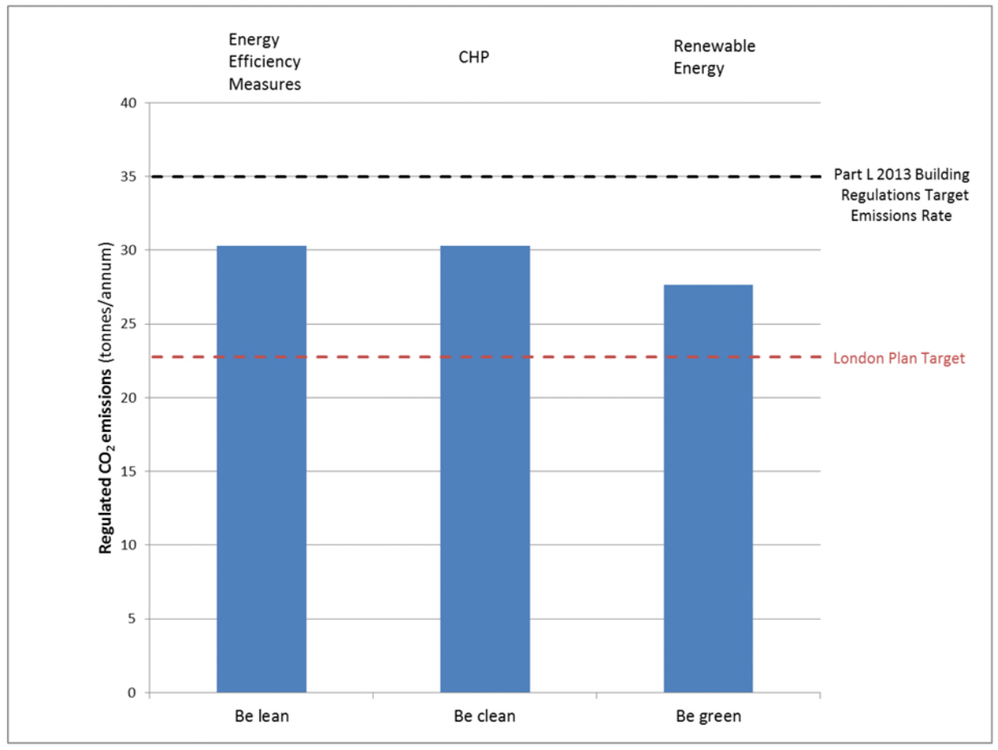
7.3 LONDON PLAN ENERGY REPORT

A London Plan Compliant Energy Report was prepared by Michael Woodbridge BSc (Hons) Energy Consultant for the proposed scheme. The full report can be found in Appendix E, however the main points are listed below.

Key Information

"The main objective of the assessment is to indicate the performance of the development in relation to Policy 5.2B, which sets an objective of reducing carbon emissions resulting from regulated energy use by 35% in comparison to the 2013 Building Regulations."

Figure 1: Carbon Emissions from the Energy Hierarchy



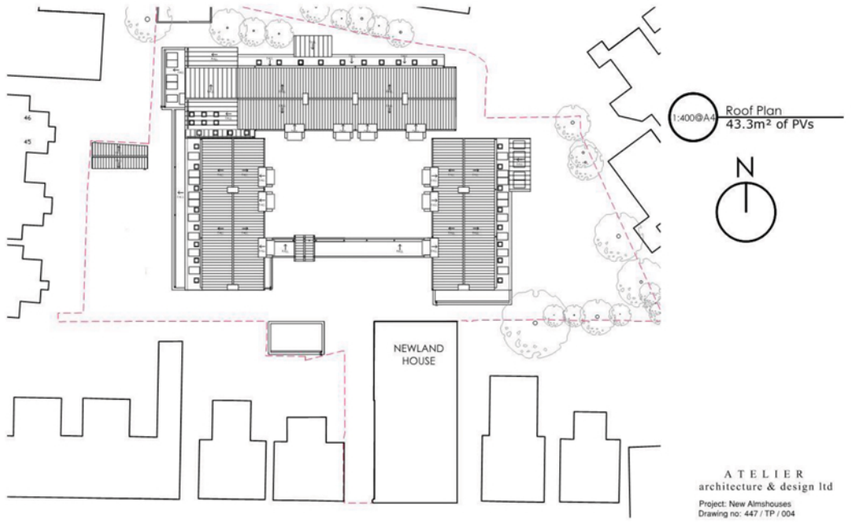
"The development achieves a reduction of 21% beyond Building Regulations Part L 2013."

"The client has adopted the good design principles endorsed and promoted by The Zero Carbon Hub, the construction industries' key advisors and partners with the Governments Communities and Local Government Department. This guidance follows the general good principles of energy efficiency as the industry moves towards zero carbon. The principles are illustrated in Figure 4 below."

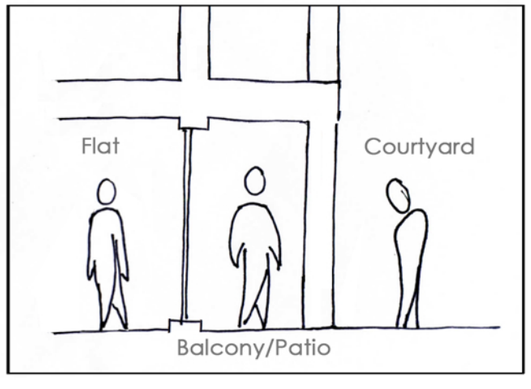
"5.3 Policy 5.2 A section 3 – Be green: use renewable energy
This report does not seek to compare the various types of renewable energy systems. Uxbridge United Welfare Trust are fully committed to adopting suitable renewable energy technologies where technically feasible. However in this instance there exists a conflict between the energy requirements and the heritage aspects of the site. After adopting a high end fabric specification with very little room for further improvements, the development would require approximately 15kWp worth of PV panels to meet the full 35% reduction. Assuming standard PV specs this would mean 60 panels, each with an area of 2m2. This would lead to the roofs being completely full with panels, negatively affecting the visual aspects of the conservation area, "

"the client has proposed a reduced schedule, which demonstrates their commitment to providing renewable energy whilst also respecting the heritage assets of the area as provided for in London Plan Policy 5.2E. These panels would not be visible from the surrounding area. The arrangement is displayed below in Figure 8."

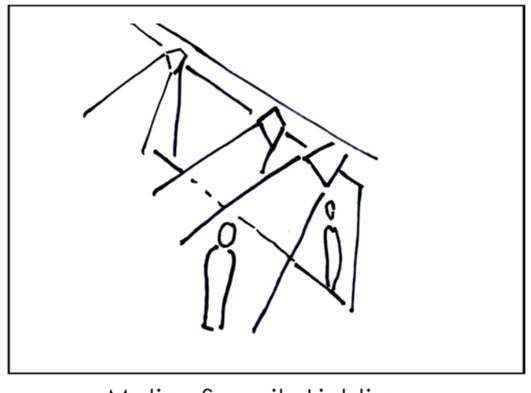
Figure 8: 7kWp Proposal – Low Visibility



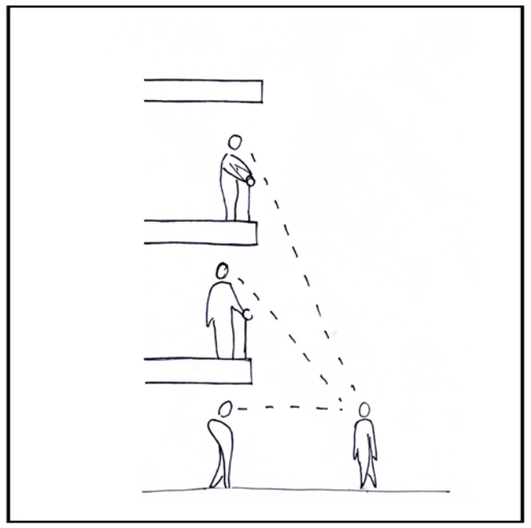
7.4 Secure by Design



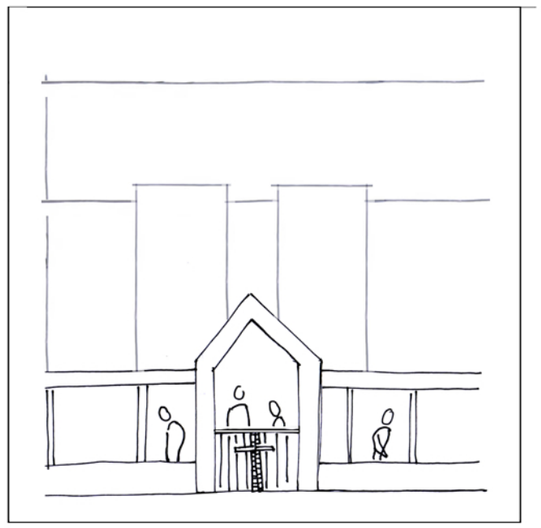
Defensible Space



Motion Security Lighting



Informal Surveillance



Front Door Protected by Boundary

Consultation

Secure by Design ideals have been taken into consideration throughout the design process. We have also been in consultation with the Designing out Crime officer Ray Goodlett to assess the scheme and address the key crime prevention solutions. (Full Report in Appendix)

The key principles we have taken into consideration are:

Ray.Goodlett@met.pnn.police.uk
Designing Out Crime Officer
Ruislip Police Station
The Oaks, Ruislip,
TP C&S North West
0208 733 3703

Natural Surveillance

Every apartment will have a view onto the courtyard space making the space very visible. The cloistered walkways in our design allow for informal surveillance and activity around the outside of the building, making all areas of the site exposed to observable zones.
The main entrance to the site is fronted by two administrative buildings on either side allowing them to oversee people leaving and entering the site.

Site Boundaries

The gate house and perimeter wall in front of the courtyard creates a barrier between the public and private space. The wall and gatehouse is also a circulation space, so it will be informally patrolled by the residents. Any entrances along the perimeter will also be gated and secure.

Circulation in and around the site.

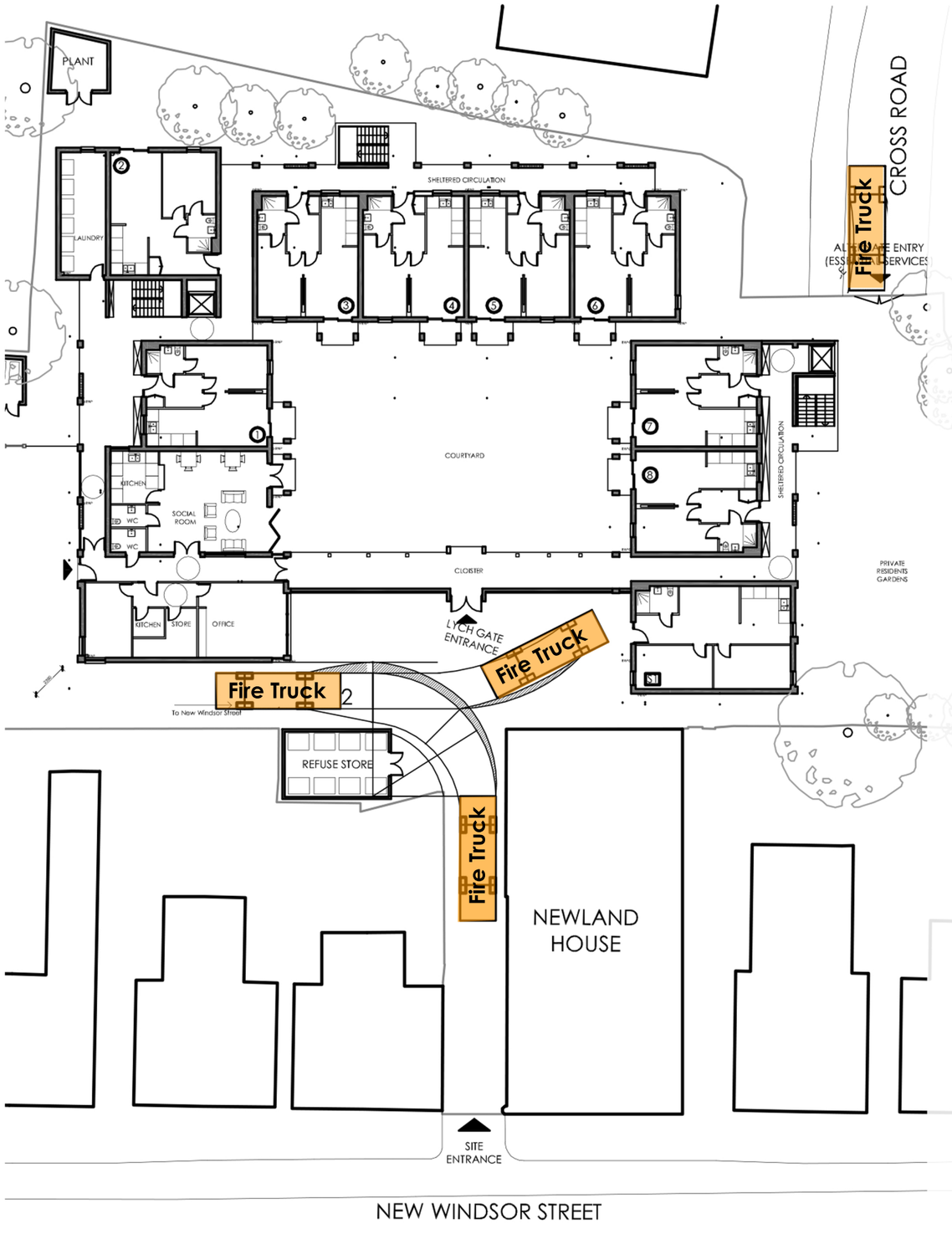
All of the buildings entrances will be well lit, and other perimeter space will have motion security lighting and appropriate signage to deter any potential criminals.
The ancillary storage buildings will also have motion lighting.

Alarms and Lighting

"Consideration should be given to a 24 hour monitored help alarm system. This maybe controlled by the Duty house manager and or an alarm-receiving centre."

"1.1 Lighting should be carefully co-ordinated, so that potential areas of risk are adequately covered. A good lighting scheme will help to deter intruders and reduce the fear of crime."

7.5 Fire Strategy



Fire vehicle Access

The plan on the left shows the accessibility of our site to fire trucks, following regulations fire vehicle access has been made available to 50% of the perimeter of the building using the routes on our plan.

Fire Saftey Planning Report - Key Extracts.

We have enlisted a fire officer to review our scheme in terms of fire saftey in the event of emergencies and the followig points represent some of the key extracts from the report. The full document can be found in Appendix G.

Mike Wilkins - Senior Fire Engineer
IEng, MIFireE, MEPS, ACIBSE
info@fcs-live.com
FCS-Live Ltd, 3 Liberty House,
The Enterprise Centre,
Greenham Business Park,
Newbury Berkshire RG19 6HS
T: 0845 8333 930
www.fcs-live.com

"The fire alarm should be linked to a central monitoring point or alarm receiving centre, so that the person in charge can informed of a fire within a flat"

"the windows for the flats will be set high enough in the wall to allow a crawl space below the window to allow residents to pass the incident"

"Door sets are to be designed and installed in accordance with BS 476: Part 22"

"All stair enclosures should give a minimum of 60 minutes' protection"
"The dividing floor between the floor levels should give a minimum of 60 minutes' fire protection"

"The dividing wall between different occupants and different usage area should give a minimum of 60 minutes' fire protection."

"The potential risk of external fire spread is limited to as low as is reasonably practicable and therefore could be considered acceptable"

The proposal is that all stairs and lift shafts are to be protected by protected shafts. Therefore, the stairs/shafts will be constructed with 60-minute fire resistant construction"

7.61 REVIEW AGAINST HAPPI RECOMMENDATIONS



In 2009 report by the Housing our Aged Population Panel for Innovation set out ten principles for design of housing for older people as guidance. Below is a review of the proposal against these guidelines.

1. "The new homes should have generous space standards... with flexible layouts."

The space standards as set out in the London Plan for a one bedroom apartment is 50m² and our proposal meets this requirement. The design promotes flexibility with access available from living room to bedroom via a sliding door as well as two forms of access to the bathroom.

2. "Care is taken in designing the homes and shared spaces, with the placement, size and detail of windows, and to ensure plenty of natural light and to allow light into circulation spaces."

It was a priority in the proposal that all apartments are dual aspect. All bedrooms and living rooms have floor to ceiling glazed areas to provide generous daylight, in fact 28 out of the 30 apartments have their habitable rooms facing a south facing courtyard.

3. "Building layouts maximise natural light and ventilation by avoiding long internal corridors and single aspect flats, and apartments have balconies, patios or terraces with enough space for tables and chairs as well as plants."

The circulation for the proposal is sheltered circulation and not enclosed to maximise daylight. Even on the west side of the site where overlooking is a risk, the use of skylight and light wells encourages natural daylight to flood the corridors.

All apartments facing the courtyard on higher levels have their own balconies where there is ample space for two chairs, a table and planters. On the ground floor, all apartments in the courtyard have direct access to the landscaped garden as well as the 'sheltered' space underneath the balcony above as their own personal space.

The two apartments in the north west corner face north however have almost exclusive access to the external amenity in this space as well as access to the landscaped gardens.



7.62 REVIEW AGAINST HAPPI RECOMMENDATIONS



4. "The implementation of measures to ensure adaptability, homes are to be designed to be care ready"

The building will be wired with integral wiring to enable the installation of equipment and smart / assistive technologies in the future.

Spaces such as admin room and social rooms are designed for adaptability for various functions and group sizes.

5. "Building layout promoting circulation areas as shared spaces encouraging interaction and supporting independance."

The sheltered circulation is seen as more of a street in a 'village' environment than simply a corridor. Wide areas with light wells are blended with kitchen windows opening into this space. The windows are protected by the light wells to allow privacy but encourage social interaction.

6. "In all but the smallest developments, social space is available for the residence to meet with facilities designed to support an appropriate range of activities."

The social room is at the heart of the courtyard with all residents having access through sheltered circulation to this space. Outside visitors can also easily access this space which is adjacent to the parking an admin area. The key feature of the social room is the ability to open up into the courtyard which will not only make the space larger, but will notify all residence of what is going on.

7. "In thought of public realm, design measures ensure homes engage positively with the street and natural environment is nurtured."

The existing courtyard form is prevalant in this design however with the introduction of a lych gate and a green courtyard, the relationship with the street is much stronger. The green courtyard is an echo back to the orginial form of the site before it became a car park.
The amount of external amenity provided exceeds the requirement of the London Plan and the mature trees on the east site boundary will be protected and added to create an inviting and beautiful private garden.

8. "Homes are energy-efficient and well insulated, but also well ventilated and able to avoid overheating."

We have been working closely with an environmental consultant to develop passive forms of heating and ventilating. Vent cowls are used to prevent apartments from over heating.

9. "Adequate storage is available outside the home together with provision for cycles and mobility aids."

All apartments have ample internal storage in the apartment landings but also secure cycle and mobility scooter stores which can be accessed directly off the car park.

10. "Shared external surfaces, such as home zones', that give priority to pedestrians rather than cars."

The use of the lych gate and sheltered circulation on the west side provides a safe circulation core seperating vehicles from pedestrian routes.

Conclusions

8.0

SUMMARY AND CONCLUSION

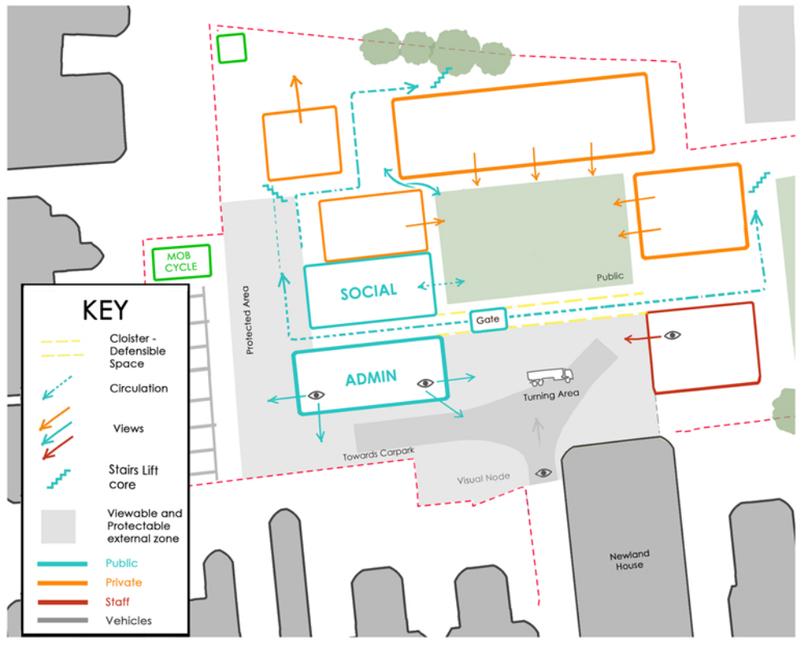
8.1 SUMMARY

The proposed development for which planning permission is sought has evolved gradually over 24 months. It has involved many meetings with the Uxbridge Welfare Trust trustees, Local Authority planning, conservation, access and landscape officers, various consultants and local residents. A public consultation event was held on Tuesday 02 February 2016 preceded by an announcement in the Local Uxbridge Gazette and by written invitations distributed to 240 properties closest to the site.

This Design & Access Statement gives a broad and detailed response to the architectural context of the proposals including; history and aims of the Uxbridge United Welfare Trust and how the existing building affects the trust's provision; description of the existing building and its' site; brief analysis and description of Almshouse typology; development of an architectural strategy including exploration of two concepts for rebuilding the almshouses and an exploration into alternatives for modification and re-use of the existing building; and an explanation of how the final proposals have been reached; full presentation of the proposals including plans, elevations and 3D visualisations; analysis of Supplementary Design including: Ventilation, Landscape, Vehicular,Daylight, Environmental; description of planning history, including two pre-application enquiries and their subsequent meetings and email responses; description of specialist consultations, including: Public Consultation; Accessibility; Energy & Sustainability; Design Out Crime; Fire and HAPPI.

The Planning Statement and Heritage Statement provide additional detailed descriptions and summaries.







SUMMARY AND CONCLUSION

8.21 CONCLUSION

The thorough exploration of the potential to modify and extend the existing building in order to provide an adequate standard of modern almshouses accommodation concluded that redevelopment is the only viable option. While the Trust acknowledges the Council's presumption against demolition of the locally-listed Woodbridge House, it is the continuation of a process of periodic replacement and improvement stretching back many decades, to ensure that the Trust continues to be able to meet its charitable objectives. The Trust has gone to considerable efforts to prolong the life and practical use of the existing Woodbridge House through a programme of extension and refurbishment over the years and is now satisfied that any further significant improvements to the existing structures would neither be practical nor viable. Further works to the buildings would reduce the number of units and erode the building's present character.

The real heritage value of the site is not the built fabric of Woodbridge House itself but its 'precinct' setting — a location ideally suited to older residents' needs that is close to the town centre — and its almshouse function which supports the character of the conservation are, the local community and the wider social fabric of Uxbridge. While some harm will arise from the loss of the existing Woodbridge House, the social and charitable function of the site will be preserved and enhanced: expressed through a new building that pays homage to the former layout and quiet precinct character in an improved setting. The Trust will provide a significant public benefit in supplementing elderly persons' housing provision in the Borough, and this outweighs the limited harm arising from the redevelopment of the existing buildings.

The proposals will conserve and enhance the qualities of the existing site including physical setting and the contribution that the existing almshouses make to the conservation area and the social fabric of Uxbridge. The proposals represent a building of high quality and design standards, incorporating the best available thinking to meet the needs of older people both now and in the future. The scheme is well related in scale and layout to the site and its surroundings resulting in an enhanced environment to that which currently exists. It will also be a positive addition to the streetscape; it will be read as 'of our time' while also responding to the sensitivities of the adjacent buildings and characteristics of the conservation area in terms of materials, massing, building lines and architectural rhythms.

The qualities of the proposals are summarised below:

- Provides a greater number of modern lifetime home compliant sheltered flats for older people in the community that meet the Uxbridge Welfare Trust's growing demand for elderly living units

- Provides high quality and attractive accommodation for older people: a community of living spaces around a central courtyard, a precinct suitable for 'sheltered living'

- Provides dual aspect living where 28 out of 30no the units have a living room and a bedroom facing the courtyard

- Provides a building form that responds to the constraints of the site, while respecting the existing qualities within the surrounding context in terms of scale, massing and materials

- Provides enhanced views from all bedrooms, living spaces and kitchens

SUMMARY AND CONCLUSION

8.22 CONCLUSION (continued)

- Provides a balance of privacy and enhanced natural light to the sheltered walkways on the rear which have been integrated into the elevations through the use of brickwork, appropriately scaled openings and perforated brick screens providing light and privacy. Light wells from the roof provide additional daylight.

- Perpetuates the quiet 'precinct character' inherent in the present building layout in terms of form and function; maintaining a close similarity in building footprint and preserving the south facing courtyard in an enclosed setting while increasing the distance to neighbouring properties in the Lynch

- Does not overshadow adjoining properties or cause harm to their amenity

- Enhances the street view into the central courtyard and re-establishes pedestrian ownership, displacing vehicle parking to a more discrete location

- Provides varied amenity spaces appropriate for the recreational needs of residents, staff and visitors now and in the future; and an integrated landscaping scheme that reinforces the form of the proposals and enhances the visual amenity value of the locality. The landscape design includes restoring a green landscape in the courtyard and maintaining the existing mature trees and private gardens to the east

- Is adequately serviced without harming the amenities of neighbours or creating highways hazards

- Provides a secure environment with convenient but passively controlled access

- Provides an appropriate and innovative solution for the site including a regular gabled roof form with pairing of dormers that break the eaves line and recall the existing building. However rather than adopting a pastiche response we propose a modern interpretation of vernacular with modern zinc clad dormers sitting in the main pitched roof form

- Provides high quality materials in the external envelope

- Provides a sensitive environmental solution achieving 21% carbon reduction on 2013 Building Regulation while respecting the sepcial character of the Conservation Area

Appendix

9.0

A - Report of Deficiencies

Atelier Architecture + Design

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Hertfordshire
HP23 6AF
t: 01442 828201
e: info@atelier-architects.co.uk

28th July 2014

Report of deficiencies for Woodbridge House

Lack of suitability for other users:

1. The site is an enclosed precinct with landscaping that supports a quiet residential community and limited parking facilities. It is well suited for sheltered accommodation where vehicular use is limited, it is not well suited for standard residential or commercial use where additional parking spaces would be required to take over the green spaces
2. The layout of the existing buildings with small bedsits would require completely gutting the interiors and altering the room layouts to convert to either standard residential flats or commercial spaces.

General deficiencies of Woodbridge House for modern sheltered accommodation:

- There is no level access to flats
- The staircases are too steep and treads too shallow
- Bedsits provide no private bedroom separated from the living area
- The lobbies and service corridors of each bedsit are too narrow for wheelchair use
- The 'crenelated' form of each wing provides an awkward leftover space that is too confined to provide useable external space. This space is wasted
- The glazed cloister overheats in summer and loses heat in winter. It results in "Sick Building Syndrome" an uncomfortable space to be in at any time of year and alienates the residents.
- The Environmental performance of the fabric falls well below the current building regulations ie:
  The U value is high. The wall construction is uninsulated and with a nominal 50mm cavity. There are condensation problems in winter where warm air condenses on the inside surface of cool external walls. Heating bills in winter are high
- The existing building layout does not provide enough quality outdoor space for the residents
- The external entrance courtyard is used almost exclusively for parking and for the glazed
  cloister that does not perform environmentally as outlined above

Analysis of deficiencies in relation to the Building Regulations and Lifetime Homes

Non-compliance with the Building Regulations:
(the fabric of the wall, roof and floor of the building do not meet the current Building Regulations)

It would not be possible to alter and retrofit the existing building to meet the Building Regulations. The following areas are deficient:

> Part B Fire safety; Part E Resistance to the passage of sound; Part F Ventilation; Part J Combustion appliances and fuel storage systems; Part K Protection from falling, collision and impact; Part L Conservation of fuel and power; Part M Access to and use of buildings; Part N Glazing, safety in relation to impact, opening and cleaning; Part P Electrical safety.

Of particular note is the "*significant hazard of falls associated with stairs and steps which is clearly an issue for the occupiers of the First Floor flats. The most vulnerable group for this hazard is those over 60, and all these tenants will be over that age … This produces a Category 2 hazard. Also we believe the only way to remedy the defect would be the demolition of the building as you have already made what changes are possible to the staircases*"

Neil Stubbings, Deputy Director, Social Care, Health & Housing, London Borough of Hillingdon.

Non-compliance with Lifetime Home criteria:
(the following Lifetime Home Criteria are not met in the existing building)

> 2 – Approach to dwelling from parking: The distance from the car parking space to the dwelling entrance (or relevant block entrance or lift core), should be kept to a minimum and be level or gently sloping. The distance from visitors parking to relevant entrances should be as short as practicable and be level or gently sloping.

3 – Approach to all entrances: The approach to all entrances should preferably be level or gently sloping (not exceeding 1:60)

4 - All entrances should: a) Be illuminated b) Have level access over the threshold; and c) Have effective clear opening widths and nibs as specified below. In addition, main entrances should also: d) Have adequate weather protection e) Have a level external landing.

5a – Communal Stairs: Principal access stairs should provide easy access in accordance with the specification below, regardless of whether or not a lift is provided.

- *Uniform rise not exceeding 170mm.*
- *Uniform going not less than 250mm.*
- *Handrails that extend 300mm beyond the top and bottom.*
- *Handrails height 900mm from each nosing.*
- *Step nosings distinguishable through contrasting brightness.*

EXISTING

DEFICIENCIES REPORT
[E.03]

Atelier Architecture + Design

REPRESENTING:
UXBRIDGE UNITED WELFARE TRUST
WOODBRIDGE HOUSE
NEW WINDSOR STREET
UXBRIDGE
UB8 2TY

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INSPECTION AND REPORT

IN RESPECT OF

Modernising The Alms Accommodation

At

Woodbridge House
New Windsor Street
Uxbridge
UB8 2TY

PREPARED FOR:

Uxbridge United Welfare Trusts

DATE OF INSPECTION

6th March 2015

Our ref: TJ/ldi/14253

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Hertfordshire
HP23 6AF

Dear Sirs

WOODBRIDGE HOUSE, NEW WINDSOR STREET, UXBRIDGE, UB8 2TY

I write to confirm that in response to your written instructions I have inspected the above property.

Briefly, this report is not intended to be a building survey (structural survey) but it is a report by a suitably qualified Chartered Surveyor who has inspected the subject property with a view to considering the prospects of modernising the existing accommodation rather than carrying out wholesale redevelopment.

1.0 Location

The subject property is situated in a cul-de-sac on the Northern side of New Windsor Street, approximately 0.2km/0.1miles South West of Uxbridge town centre.

The immediate surrounding area is residential in nature, although the Mall Pavilions covered shopping centre is only a short walk away, as is Uxbridge mainline railway station.

An Ordnance Survey Extract with my understanding of the site boundaries, marked in red, is included in Appendix 1.

A Location Plan is included in Appendix 2.

2.0 Description

The subject property comprises a "U-shaped" two storey building incorporating 20 bedsit flats which are used as Alms houses (privately supported housing providing accommodation to the needy).

The building was constructed in 1906 and modernised, according to the information on the outside of the building, in 1985.

Hemel Hempstead Watford Welwyn Garden City
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RICS

A separate detached building has been constructed on the Western area of the site and this is used as kitchens, together with a communal dining room.

The sole means of vehicular and pedestrian access is via a driveway which runs between 34 New Windsor Street and a converted former Wesleyan Chapel known as "Newlands House".

There is a tarmac surfaced courtyard area to the front which is partly surfaced with hard standing and includes 11 designated car parking spaces, 3 of which are adjacent to the front boundary and 8 of which are located directly in front of the building.

There is an area of communal garden to the front and the property has a walkway running around the perimeter of the main building.

Formal gardens are situated adjacent to the Eastern boundary.

The site as a whole has an area of 0.67 acres / 0.27 hectares.

Measurements were scaled from the Ordnance Survey Extract.

3.0 Construction

The construction of the two buildings present upon the site can briefly be summarised as follows:-

3.1 Main Building

A detached two storey building with a variety of single and two storey projections.

- Walls are solid rather than cavity construction finished externally in facing brickwork and painted render beneath a steep pitched plain tiled roof.
- Floors are a mixture of solid and timber suspended construction.
- Windows are plastic framed double glazed replacements.

At some stage in the past a glazed walkway has been added at ground floor level linking up the various flat doorways.

3.2 Kitchen/Dining Room

A detached single storey building with walls of cavity construction finished externally in facing brickwork beneath a pitched tiled roof.

The floor is of solid construction and windows are plastic framed double glazed.

3.3 Configuration of a Typical Bedsit Flat

Individual flats are configured as follows:-

Entrance Hall
Living Room/Bedroom
Lobby
Shower Room
Kitchen

Typical gross internal floor area is: 20 sq.m./215 sq.ft.

Measurements were taken on site.

Ground floor flats typically have their own entrances whilst access to the first floor flats is shared with two flats each using the same staircase.

3.4 Communal Areas

In addition to the separate dining room/kitchen facility within the main building, there are communal facilities for the shared use of the residents.

These include:-

- Washing Room
- TV Lounge

4.0 Construction Difficulties

The existing building has various obvious inherent difficulties which hamper its use as residential accommodation for the elderly.

Those difficulties fall into two categories, being those which affect the buildings as a whole and those which affect the individual flats.

4.1 Existing Building Issues

- The conservatory type arrangement which joins up the various entrance doors is a very basic structure with walls of minimal width. Such walls have limited thermal qualities and are particularly susceptible to damp.
- The conservatory structure is a single storey addition on the front elevation, it does not address the access to the first floor flats which is via steep staircases and a two storey glazed addition would not provide a practical solution.
- The conservatory roof comprises wired glazed panels on timber supports. The glazing has cracks in various places.
- The conservatory walls themselves have suffered cracking and structural movement, most likely due to the lack of provision for expansion and the use of minimal foundations.
- The 90° junctions are also problem areas where provision for disposal of rainwater is inadequate.

- The conservatory has plastic rainwater fittings; however, many were blocked with vegetation.
- The windows are double glazed; however, the vacuum seals are broken and as a result large panes of glass have misted up.
- The main roof is a steep pitched design which incorporates metallic snow guards which presumably were installed to prevent snow falling onto the conservatory or indeed the residents below.
- The building operates using a communal heating system, comprising two independent boilers. Flats have radiators which are served by surface pipework. Surface pipework is sub-standard and will be noisy in operation.
- There are no passenger lifts within the building.
- The laundry room has two sections, one of which is effectively a walkway through to the residents lounge. Walkways need to be kept clear of trip hazards.
- The wash hand basin in the laundry room is high off the floor and looks like it was a specialist fitment for hairdressing.
- The residents lounge is too small in relation to the number of residents and would only be suitable for 6 persons maximum at any one time.

4.2 The Individual Bedsit Flats

- The ground floor flats suffer from a lack of natural light by virtue of the conservatory arrangement on the front elevation.
- The ground floor window sills are 1.08m above the floor at sill level which means there is also limited visibility from sitting level looking out of the window.
- Glazing in the internal doors within the flats is non-safety glass.
- Flats incorporate a shower room. The main door to the shower room opens inwards and as a result greatly reduces the room for manoeuvrability within the shower room itself. The distance between the corner of the wash hand basin and the corner of the wall was only 60cm.
- Each flat has a separate kitchen. The kitchens are of a very basic specification and have not been designed with any form of lack of mobility or disability in mind. The kitchen worktops are approximately 92cm above floor level and there are a limited number of wall mounted cupboards which are set at normal height.
- Each kitchen incorporates a standalone oven with a hob above. The ovens are situated at floor rather than eye level which gives rise to operating difficulties and safety issues.
- Internal doorways within the flat are not sufficient width to allow passage of a wheelchair. A typical door opening is 73cm wide.
- The design is such that there are chimney breasts within the bed sitting room. I assume each incorporated a fireplace when the properties were built. Chimney breasts are vented, as is required; however, there will be draughts as a result.
- The front door handle and indeed the door handles within the flat are not specialist fittings and as such they would not be suitable for use by anybody with impaired movement.
- Access to the first floor flat is by means of a solid staircase. The staircase is steep and the tread widths are only typically 20cm.

4.3 Overview

Overall, the existing building issues and difficulties highlighted in respect of the design of the individual bedsits are such that it is clear the existing building is not fit for Alms housing.

This factor having been established, I have gone on to examine the prospects of modernising the existing Alms accommodation.

5.0 Consideration of the ways of in which the existing structure could be upgraded in order to address the difficulties highlighted

The following solutions have been considered:-

- Replacement of the existing conservatory with a two storey addition on the front elevation
- Conversion of the existing bedsits into one bedroom apartments

Potentially both modifications could be carried out at the same time.

Both have been considered in more detail below.

5.1 Replacement of the existing conservatory with a two storey addition on the front elevation

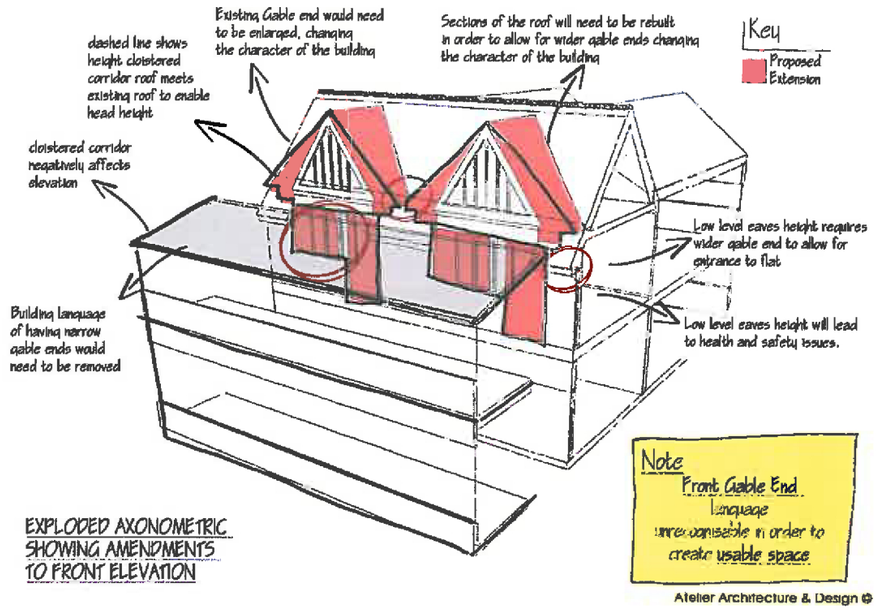
I have considered both the merits and de-merits of this potential modification.

Merits

- Replacing the existing conservatory with a new two storey addition would address the access difficulties affecting the first floor flats.
- The new addition could potentially incorporate passenger lifts.

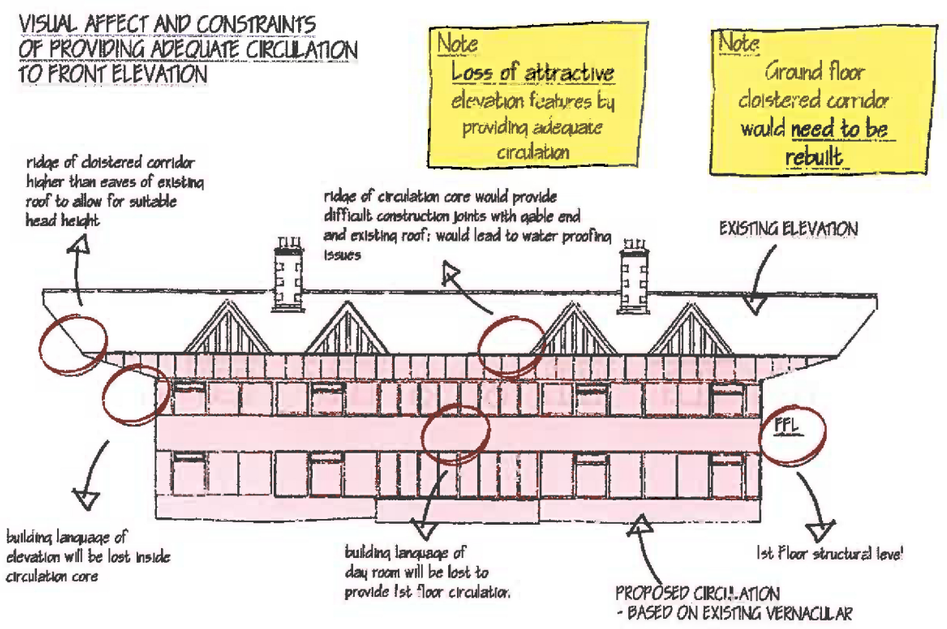
De-merits

- The front elevation would be drastically changed as a result. The building language of the front elevation would be lost in the addition which would in effect be a circulation core on the exterior of the building.



- The existing gables which give the building its character would need to be enlarged to allow entrance to the flats at first floor level. The roof modifications would lead to water proofing issues and ongoing maintenance issues.

- Passenger lifts to serve just a single floor in a building would be a costly addition.

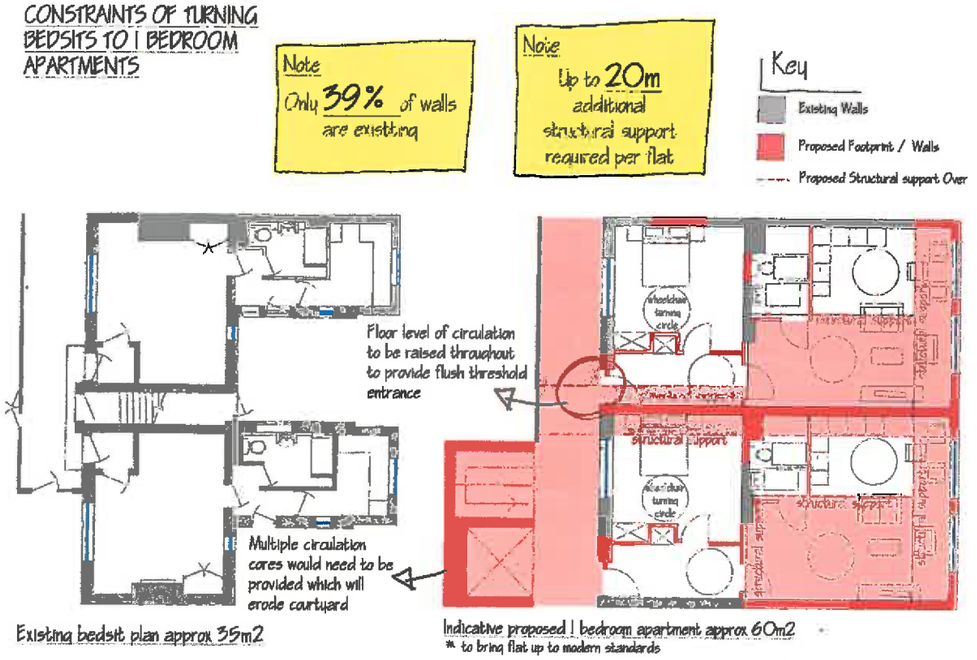


5.2 Conversion of the existing bedsits into one bedroom apartments

I have considered both the merits and de-merits of this potential modification.

Merits

- The various internal design issues could be attended to by adding extensions to each flat which would create an internal hall, a separate bedroom and a separate living/dining room in each flat.

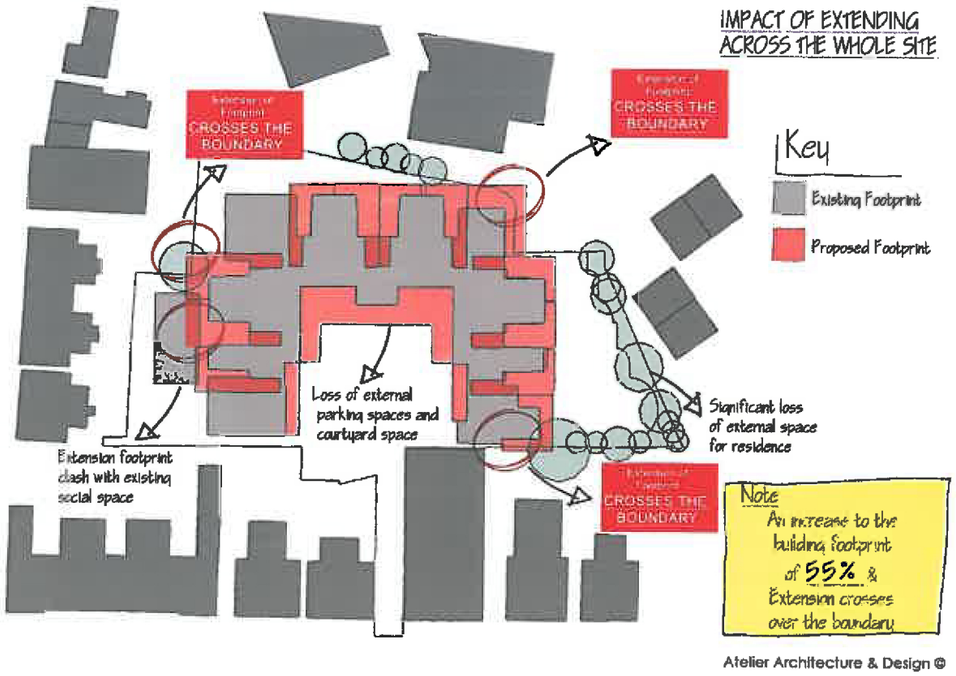


- Each flat would have a larger floor area.

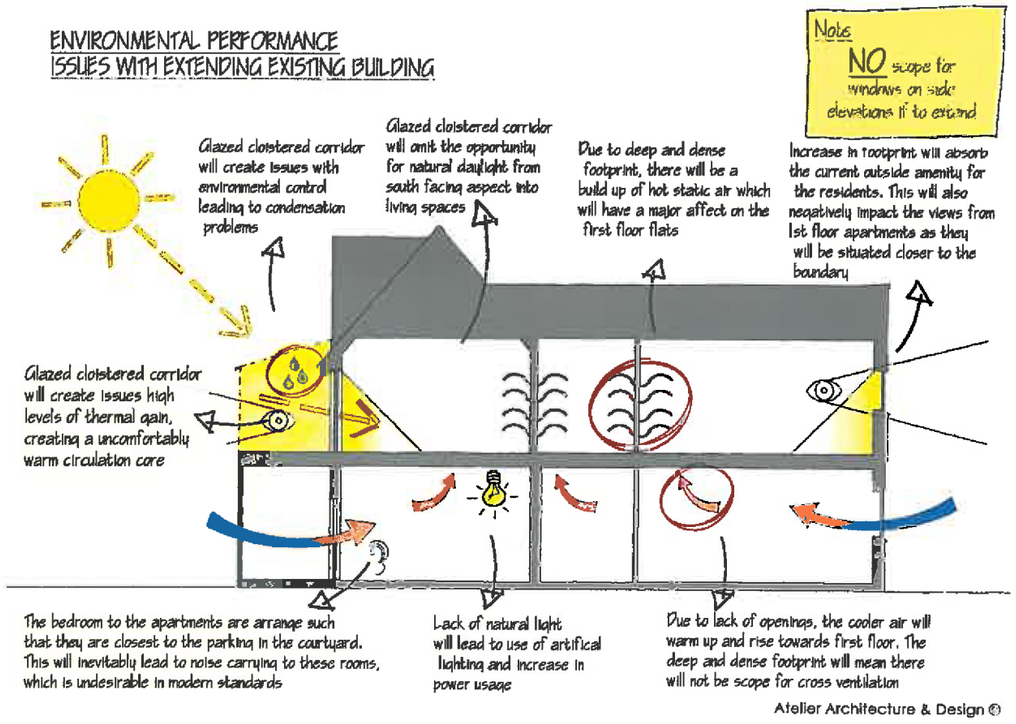
De-merits

- The alterations would require the removal of main structural walls which would require major structural works.

- The extended building would require a much larger footprint than the existing. If the flats were increased to a size of 60 sq.m. each, I estimate the building footprint would increase by 55%. The existing site is not of sufficient size to incorporate such an extension.



- The extended building would give rise to environmental performance issues such as reduced natural light, increased use of artificial light and lack of windows (openings).



5.3 Overview

Modernisation of the existing building would involve major construction works and the resultant product would be defective in many ways by virtue of the need to incorporate the existing structure.

6.0 Conclusion

The property is well located for its use, being within a level walking distance of Uxbridge town centre and its mainline railway station.

However, I am of the opinion that the design of the existing building has many flaws and in particular it is not fit for purpose, either in its existing state as Alms housing or for conversion and refurbishment to modern Alms flats.

Particular difficulties **are:-**

- Difficult access to first floor flats due to steep stairs
- Poor insulation
- Lack of wheelchair access
- Lack of provision to lifts
- Lack of natural day light
- Poor flat designs

I have considered the ways in which the building could be modified in order to address these difficulties but I conclude, on balance, that any modifications would be intrusive and would produce a building with greatly reduced architectural qualities which would be difficult to contain within the constraints of the site.

I trust that this report, which comprises our observations in the light of the proposed redevelopment of the site, is adequate for your purposes and it only remains for me to thank you for your kind instruction in this matter.

Yours faithfully

TIMOTHY J JONES DIP VEM MRICS MEWI
For and on Behalf of Brasier Freeth LLP
Email: tim.jones@brasierfreeth.com

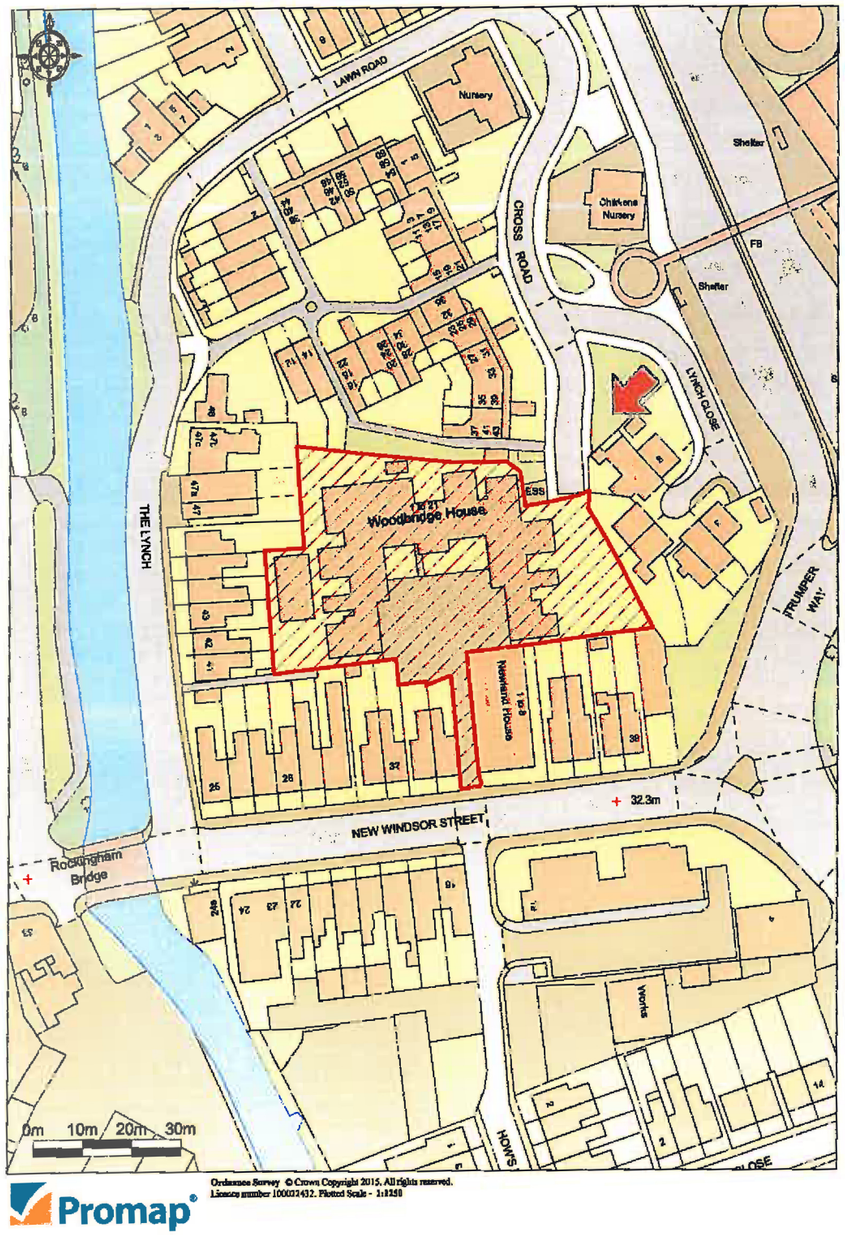
Appendices:-

Appendix 1 – Ordnance Survey Extract
Appendix 2 – Location Plan
Appendix 3 – Photographs
Appendix 4 – Tim Jones' Curriculum Vitae

Appendix 1

Ordnance Survey Extract

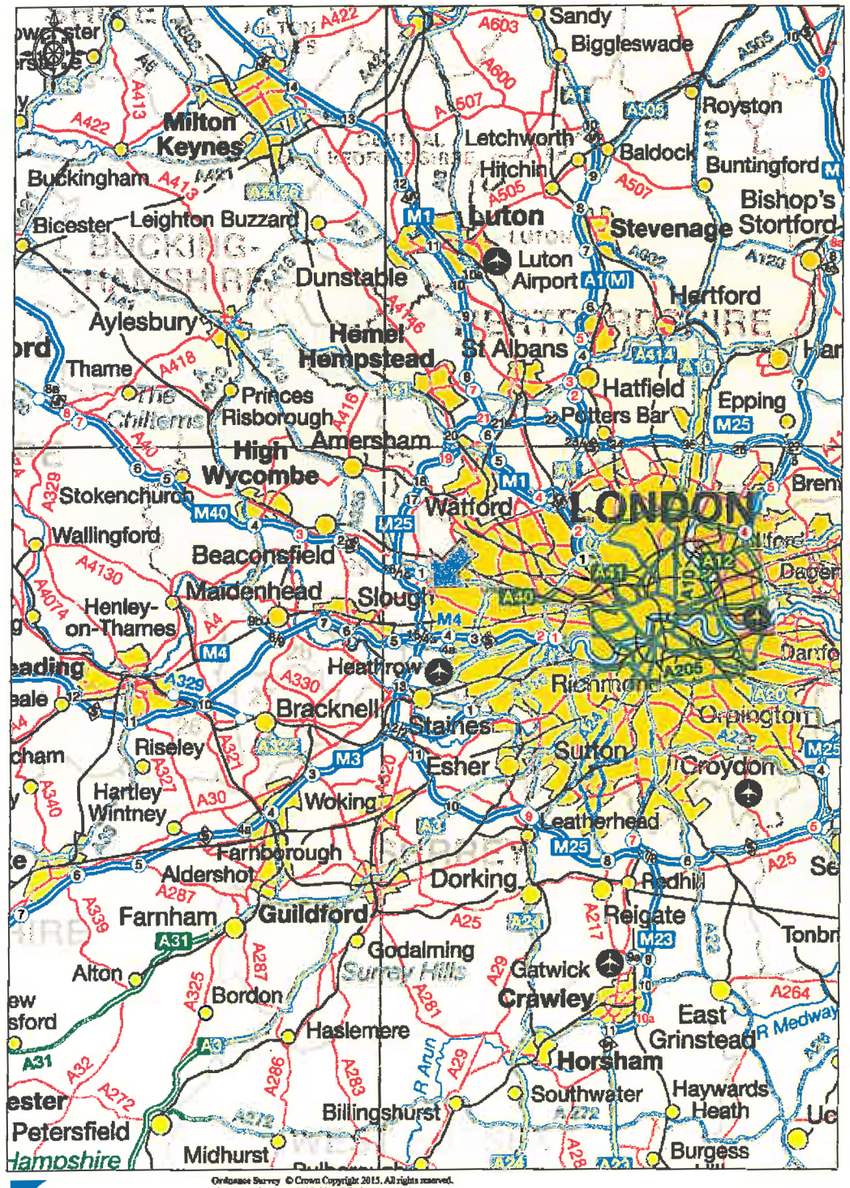
Woodbridge House, New Windsor Street, Uxbridge, UB8 2TY



Appendix 2

Location Plan

Woodbridge House, New Windsor Street, Uxbridge, UB8 2TY



Ordnance Survey © Crown Copyright 2015. All rights reserved.
Licence number 100022432. Plotted Scale - 1:700000

Appendix 3

Photographs

Woodbridge House
New Windsor Street
Uxbridge
UB8 2TY



Front Elevation



Entrance from New Windsor Street



Communal Gardens



Covered Walkway



Glazed Walkway Roof



Entrance to First Floor Flats



Entrance to Ground & First Floor Flats



Flat Bedsitting Room



Flat Kitchen



Flat Lobby



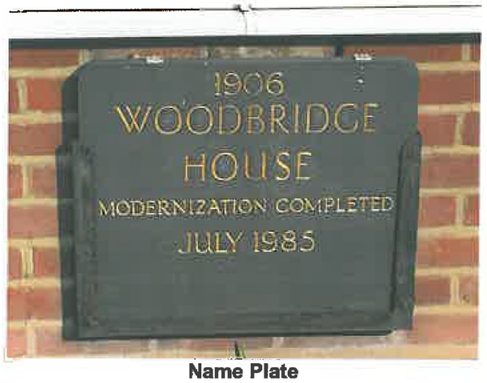
Flat Shower Room



Doors Opening Inwards



Limited Movement Space



Name Plate

B - Inspection Report



High Kitchen Worktops



Kitchen & Dining Room Building



Laundry Room



Loose Pointing & Low Damp Proof Course



Rear Elevation



Shared Staircase to First Floor



Surface Pipework



Vented Former Fireplace

Appendix 4

Tim Jones' Curriculum Vitae

brasier freeth
CHARTERED SURVEYORS

CURRICULUM VITAE

Tim Jones Dip VEM MRICS MEWI, Partner
Brasier Freeth LLP
The Courtyard
77-79 Marlowes
Hemel Hempstead
Hertfordshire, HP1 1LF

Tel: 07796990909
Email: tim.jones@brasierfreeth.com

PROFESSIONAL QUALIFICATIONS

- MRICS Practising Chartered Surveyor (Member Number 1124566)
- Diploma in Valuation & Estate Management (University of the West of England)
- A Member of the Royal Institution of Chartered Surveyors (prior to this a Member of the Professional Society of Valuers & Auctioneers (ISVA))
- Registered Valuer
- Member of the Expert Witness Institute

PRESENT POSITION

An Equity Partner - Professional Services Department of Brasier Freeth LLP.

Employed in my present position with Brasier Freeth LLP since the merger between Brasier Harris Surveyors and Freeth Melhuish LLP which took place on 1st June 2008.

Prior to this I was an equity partner in Freeth Melhuish LLP, having worked for Freeth Melhuish since October 1996.

NATURE OF PRACTICE

Brasier Freeth LLP is a firm of consultant Chartered Surveyors and Commercial Estate Agents with offices in Hemel Hempstead, Welwyn Garden City and Watford.

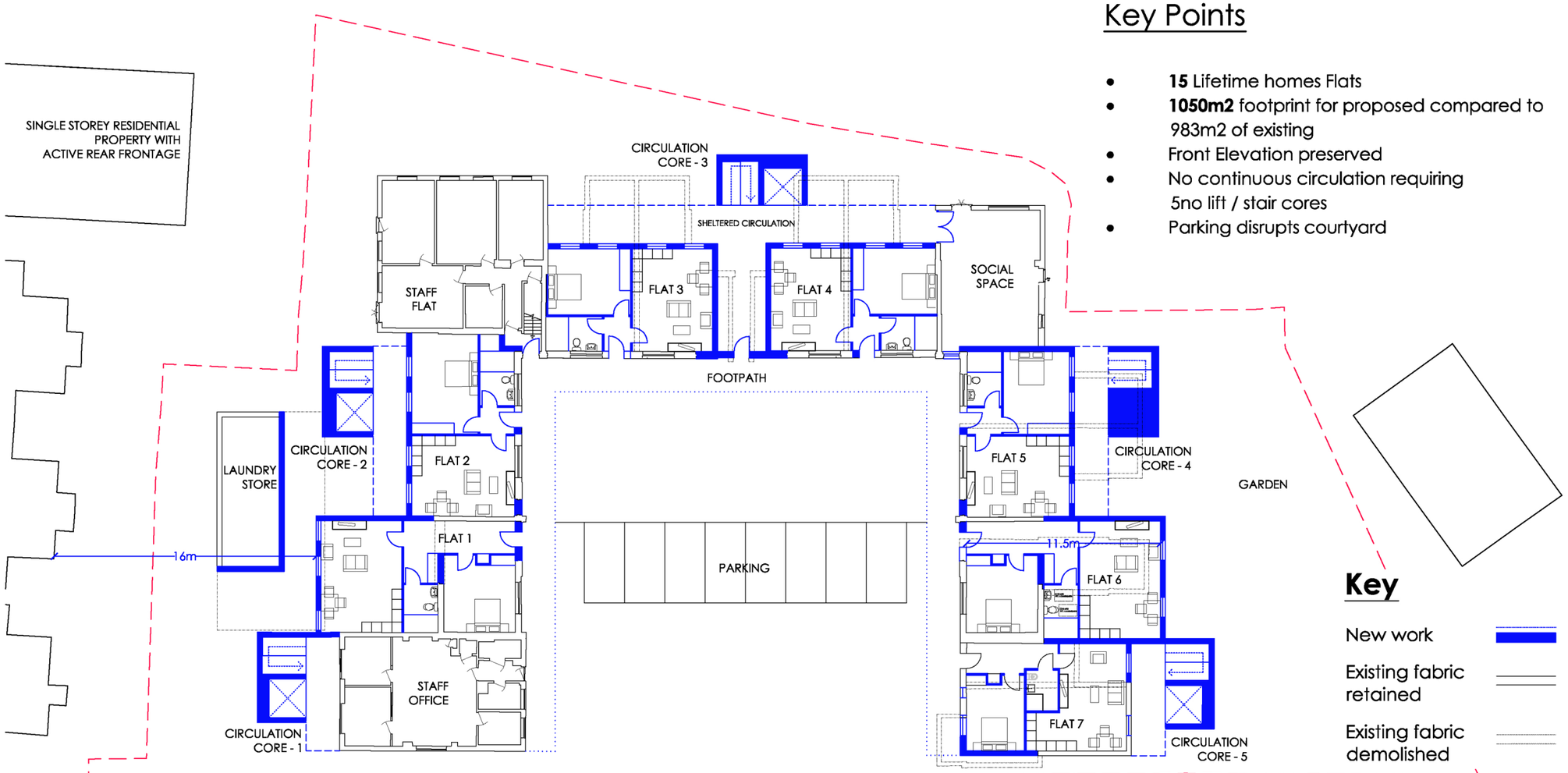
EXPERIENCE

Worked in the local property market since 1984 initially as an Estate Agent dealing with residential property sales and valuations. Later as a Chartered Surveyor dealing with residential development appraisals and commercial valuations on a wide variety of properties for lending institutions, private companies, local authorities and private individuals.

Provide loan security valuations for NatWest Bank, The Royal Bank of Scotland, HSBC Bank, Coutts Bank, Handelsbanken, Lloyds Bank and The Bank of Scotland.

Professional Services Department.

C - Building Conversion Study



Key Points

- **15** Lifetime homes Flats
- **1050m2** footprint for proposed compared to 983m2 of existing
- Front Elevation preserved
- No continuous circulation requiring 5no lift / stair cores
- Parking disrupts courtyard

Key

- New work
- Existing fabric retained
- Existing fabric demolished

OPTION 1

retain loadbearing elements

Benefits

- All Life time home flats
- Retention of front elevation

Challenges

- Only provides 15 flats
- 5 Circulation cores required
- No continous sheltered circulation
- Car park disrupts courtyard
- Cost & Construction mobility issues with protection of front facade
- Loss of external amenity

1

	Impact	
Flats	✕	*Maximum of 15 flats*
Cost	✕	*Approx 45% increase in budget; facade retention, underpinning, etc*
Heritage	✓	*Retention of Front Elevation*
Amenity	✕	*Reduction on external landscaping*
Site Mobility	✕	*Risk of propping elevation*
Circulation	✕	*No continous circulation*
Views	✕	*Views towards car park*
Lifetime Homes	✓	*Internal Flat layout only N.B not access*
Structural	✕	*Facade retention - leads to removal of all structural elements*
Daylight	✓	*Dual Aspect*
Ventilation	✓	*Dual Aspect*
Car Park	✓	*In courtyard*

1050m2 Prop GF footprint - 15 + 1 units
983m2 Ext GF footprint - 20 + 2 units

OPTION 1: loadbearing

Drawing:
Alteration and Extension Proposals of Woodbridge House

AA+D
Atelier Architecture + Design Ltd
Akeman Business Park, 81 - 82 Akeman Street
Tring, Herts, HP23 6AF
T: 01442 828201 E: info@atelier-architects.co.uk
www.atelier-architects.co.uk

Project:
United Uxbridge Welfare Trust
Woodbridge House
New Windsor Street
Uxbridge
UB8 2TY

Drawing:
Alteration and Extension Proposals of Woodbridge House
Option 2 - Front rooms
447/TP/Refurb/001

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C - Building Conversion Study



Key Points

- **16** Lifetime homes Flats
- **1155m2** footprint for proposed compared to 983m2 of existing
- Front Elevation **preserved**
- **No** continous circulation
- Courtyard remains parking

Key

- New work
- Existing fabric retained
- Existing fabric demolished

OPTION 2

retain front rooms

Benefits

- All Life time home flats
- Retention of front elevation

Challenges

- Only provides 16 flats
- Grounds for planning refusal on east & west side of site
- No continous sheltered circulation
- Car park disrupts courtyard
- Cost & Construction mobility issues with protection of front facade
- Loss of external amenity
- Staff office space reduced

2

	Impact	
Flats	✗	*Maximum of 16 Flats*
Cost	✗	*Approx 45% increase in budget; facade retention, underpinning, etc*
Heritage	✓	*Retention of Front Elevation*
Amenity	✗	*Reduction on external landscaping*
Site Mobility	✗	*Risk of propping elevation*
Circulation	✗	*No continous circulation*
Views	✗	*Views towards car park*
Lifetime Homes	✓	*Internal Flat layout only* *N.B not access*
Structural	✗	*Requires steel frame; link to mobility issues*
Daylight	✓	*Dual Aspect*
Ventilation	✓	*Dual Aspect*
Car Park	✓	*In courtyard*

1155m2 Prop GF footprint - 16 + 1 units
983m2 Ext GF footprint - 20 + 2 units

OPTION 2: front rooms

Drawing:
Alteration and Extension Proposals of Woodbridge House

AA+D
Atelier Architecture + Design Ltd
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Tring, Herts, HP23 6AF
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New Windsor Street
Uxbridge
UB8 2TY

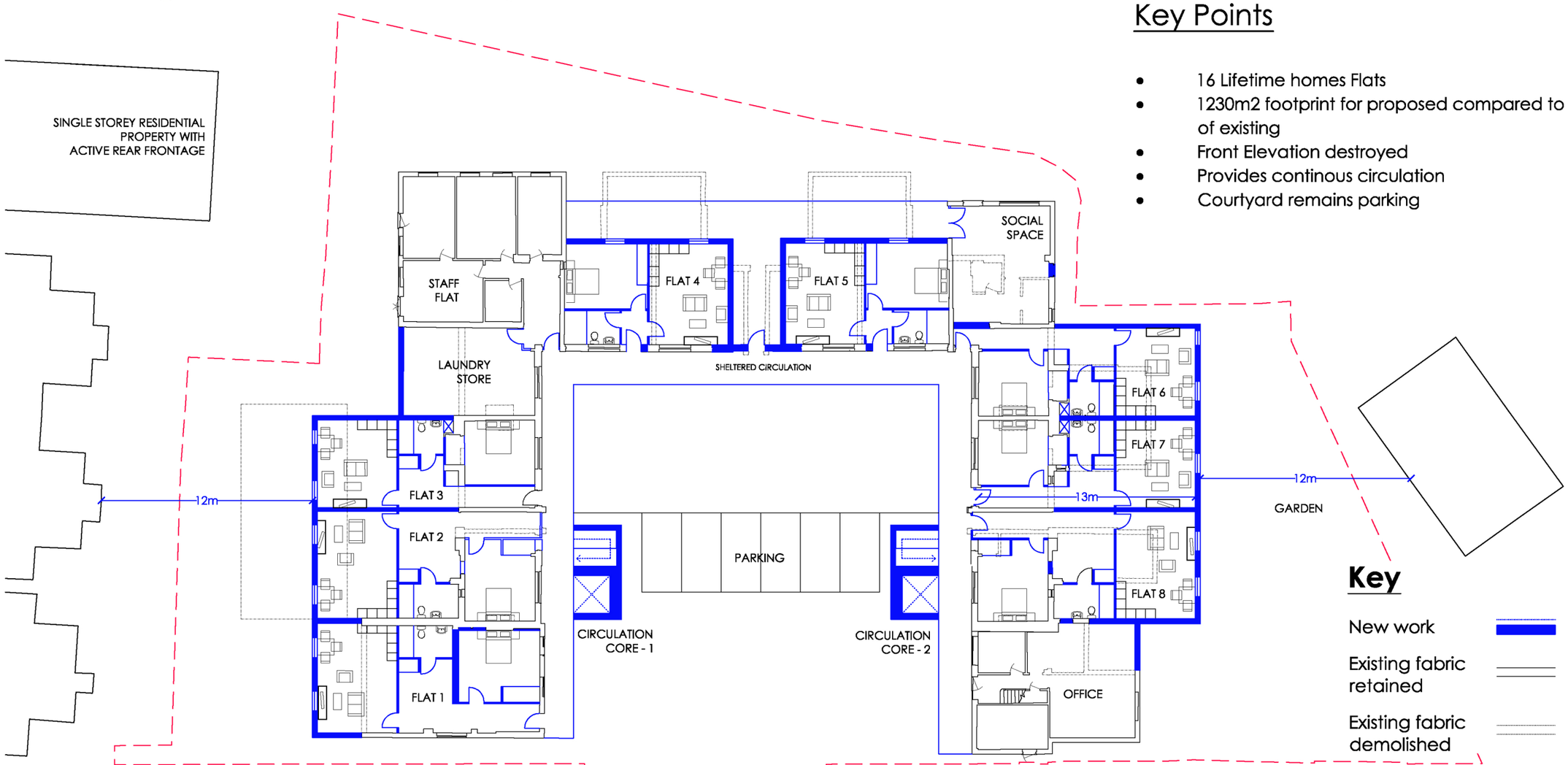
Drawing:
Alteration and Extension Proposals of Woodbridge House
Option 2 - Front Rooms
447/TP/Refurb/002

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C - Building Conversion Study

Key Points

- 16 Lifetime homes Flats
- 1230m2 footprint for proposed compared to 983m2 of existing
- Front Elevation destroyed
- Provides continous circulation
- Courtyard remains parking



Key

- New work
- Existing fabric retained
- Existing fabric demolished

OPTION 3
circulation

Benefits

- All Life time home flats
- Continous sheltered circulation

Challenges

- Only provides 16 flats
- Grounds for planning refusal on east & west side of site
- Car park & Circulation disrupts courtyard
- Cost & Construction mobility issues with protection of front facade
- Loss of external amenity
- Staff office space reduced

3

	Impact	
Flats	✗	*Maximum of 16 flats*
Cost	✗	*Approx 45% increase in budget; facade retention, underpinning, etc*
Heritage	✗	*Retention of Front Elevation*
Amenity	✗	*Reduction on external landscaping*
Site Mobility	✗	*Risk of propping elevation*
Circulation	✓	*Continous circulation*
Views	✗	*Views towards car park*
Lifetime Homes	✓	*Internal Flat layout only N.B not access*
Structural	✗	*Requires steel frame; link to mobility issues*
Daylight	✓	*Dual Aspect*
Ventilation	✓	*Dual Aspect*
Car Park	✓	*In courtyard*

1230m2 Prop GF footprint - 16 + 1 units
983m2 Ext GF footprint - 20 + 2 units

OPTION 3: circulation

Drawing:
Alteration and Extension Proposals of Woodbridge House

AA+D
Atelier Architecture + Design Ltd
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www.atelier-architects.co.uk

Project:
United Uxbridge Welfare Trust
Woodbridge House
New Windsor Street
Uxbridge
UB8 2TY

Drawing:
Alteration and Extension Proposals of Woodbridge House
Option 3 - Circulation
447/TP/Refurb/003

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C - Building Conversion Study



Key Points

- 19 Flats - 9 of which are bedsits
- 1200m2 footprint for proposed compared to 983m2 of existing
- Front Elevation preserved
- No continous circulation
- Courtyard remains parking

Key

- New work
- Existing fabric retained
- Existing fabric demolished

OPTION 4

Mixed units: bedsits/flats

Benefits

- Preservation of front elevation

Challenges

- Grounds for planning refusal on east & west side of site - outlook amenity / privacy
- Only provides 19 flats - 9 of which are bedsits
- Car park disrupts courtyard
- Cost & Construction mobility issues with protection of front facade
- No continous sheltered circulation
- Loss of external amenity - garden to east
- Staff office space reduced
- Very small social space
- Access to the rear of the central bank is narrow and not wheelchair accessible

4

	Impact	
Flats	✗	*Maximum of 19 flats*
Cost	✗	*Approx 45% increase in budget; facade retention, underpinning, etc*
Heritage	✓	*Retention of Front Elevation*
Amenity	✗	*Reduction on external landscaping*
Site Mobility	✗	*Risk of propping elevation*
Circulation	✗	*Continous circulation*
Views	✗	*Views towards car park*
Lifetime Homes	✗	*Internal Flat layout only N.B not access*
Structural	✗	*Requires steel frame; link to mobility issues*
Daylight	✗	*Dual Aspect*
Ventilation	✗	*Dual Aspect*
Car Park	✓	*In courtyard*

1200m2 Prop GF footprint - 16 + 1 units
983m2 Ext GF footprint - 20 + 2 units

OPTION 4: mixed units

Drawing:
Alteration and Extension Proposals of Woodbridge House

AA+
Atelier Architecture + Design Ltd
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www.atelier-architects.co.uk

Project:
United Uxbridge Welfare Trust
Woodbridge House
New Windsor Street
Uxbridge
UB8 2TY

Drawing:
Alteration and Extension Proposals of Woodbridge House
Option 4 - Mixed units - bedsits & flats
447/TP/Refurb/004

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D – Report: Sky Component Analysis

Description: Lists sky component attribute changes for model objects.

Model: C:\Users\Steve\Desktop\Light analysis.eco

Sky Component Analysis

OBJECT ID	BEFORE (%SC)	AFTER (%SC)	LOSS (%SC)	REDUCTION (%)	PASS or FAIL
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4244	33.30%	32.00%	1.30%	96.10%	PASS
4245	34.90%	33.60%	1.30%	96.30%	PASS
4246	36.40%	35.20%	1.20%	96.80%	PASS
4247	37.80%	36.30%	1.50%	96.00%	PASS
4248	38.70%	37.60%	1.20%	97.00%	PASS
4249	28.20%	26.60%	1.50%	94.60%	PASS
4250	29.60%	28.10%	1.50%	95.00%	PASS
4251	31.20%	29.70%	1.50%	95.10%	PASS
4252	32.50%	31.20%	1.30%	96.00%	PASS
4253	34.00%	32.70%	1.30%	96.10%	PASS
4254	35.70%	34.50%	1.20%	96.50%	PASS
4255	37.30%	35.80%	1.50%	96.00%	PASS
4256	38.50%	37.20%	1.30%	96.70%	PASS
4257	27.10%	25.40%	1.70%	93.60%	PASS
4258	28.50%	27.00%	1.50%	94.80%	PASS
4259	29.90%	28.30%	1.60%	94.70%	PASS
4260	31.30%	29.90%	1.40%	95.60%	PASS
4261	32.90%	31.40%	1.50%	95.40%	PASS
4262	34.60%	33.30%	1.30%	96.10%	PASS
4263	36.40%	34.80%	1.60%	95.50%	PASS
4264	38.10%	36.70%	1.40%	96.40%	PASS
4265	25.40%	23.70%	1.70%	93.30%	PASS
4266	26.50%	24.80%	1.70%	93.70%	PASS
4267	28.00%	26.40%	1.60%	94.40%	PASS
4268	29.40%	28.00%	1.40%	95.30%	PASS
4269	31.00%	29.50%	1.50%	95.10%	PASS
4270	33.00%	31.50%	1.50%	95.60%	PASS
4271	35.00%	33.40%	1.60%	95.40%	PASS
4272	37.10%	35.70%	1.30%	96.40%	PASS
4273	23.30%	21.50%	1.80%	92.10%	PASS
4274	24.30%	22.50%	1.80%	92.70%	PASS
4275	25.40%	24.00%	1.40%	94.40%	PASS
4276	26.60%	25.40%	1.20%	95.40%	PASS
4277	28.20%	26.70%	1.50%	94.80%	PASS
4278	30.20%	28.80%	1.30%	95.60%	PASS
4279	32.60%	31.20%	1.50%	95.50%	PASS
4280	35.20%	33.90%	1.30%	96.20%	PASS
4281	21.50%	19.80%	1.70%	92.10%	PASS
4282	22.50%	20.90%	1.60%	92.80%	PASS
4283	23.40%	22.10%	1.40%	94.20%	PASS
4284	24.50%	23.30%	1.20%	95.20%	PASS
4285	26.00%	24.60%	1.30%	94.80%	PASS
4286	27.50%	26.30%	1.20%	95.50%	PASS
4287	30.00%	28.80%	1.30%	95.80%	PASS
4288	33.20%	32.00%	1.20%	96.50%	PASS
4289	26.80%	26.30%	0.50%	98.10%	PASS
4290	28.60%	28.00%	0.60%	97.90%	PASS
4291	30.70%	30.00%	0.70%	97.60%	PASS
4292	32.60%	32.00%	0.60%	98.00%	PASS
4293	34.50%	33.80%	0.70%	98.00%	PASS
4294	26.70%	26.40%	0.30%	98.70%	PASS
4295	28.70%	28.20%	0.40%	98.50%	PASS
4296	30.60%	30.20%	0.40%	98.60%	PASS
4297	32.40%	31.90%	0.50%	98.50%	PASS
4298	34.40%	33.70%	0.70%	98.10%	PASS
4299	26.50%	26.20%	0.20%	99.10%	PASS
4300	28.60%	28.20%	0.40%	98.80%	PASS
4301	30.30%	29.90%	0.40%	98.60%	PASS
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4304	26.10%	25.90%	0.20%	99.40%	PASS
4305	28.20%	27.90%	0.30%	99.10%	PASS
4306	30.20%	29.60%	0.50%	98.30%	PASS
4307	31.80%	31.60%	0.20%	99.20%	PASS
4308	33.90%	33.40%	0.50%	98.50%	PASS
4309	26.30%	26.10%	0.20%	99.30%	PASS
4310	28.10%	27.70%	0.40%	98.70%	PASS
4311	30.10%	29.60%	0.40%	98.60%	PASS
4312	31.70%	31.40%	0.30%	99.00%	PASS
4313	33.60%	33.10%	0.60%	98.30%	PASS
4314	26.00%	25.80%	0.30%	98.90%	PASS
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4316	29.90%	29.50%	0.50%	98.50%	PASS
4317	31.50%	31.10%	0.30%	98.90%	PASS
4318	33.50%	32.80%	0.70%	98.00%	PASS
4319	26.80%	26.30%	0.50%	98.20%	PASS
4320	29.30%	29.00%	0.40%	98.70%	PASS
4321	31.80%	31.20%	0.60%	98.20%	PASS
4322	34.80%	34.20%	0.60%	98.40%	PASS
4323	20.50%	20.40%	0.10%	99.70%	PASS
4324	22.10%	22.10%	0.00%	99.80%	PASS
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4327	22.30%	21.70%	0.60%	97.10%	PASS
4328	23.50%	22.80%	0.70%	97.20%	PASS
4329	25.70%	24.70%	1.00%	96.10%	PASS
4330	32.00%	31.10%	0.90%	97.10%	PASS
4331	29.00%	28.40%	0.70%	97.70%	PASS
4332	30.60%	29.80%	0.80%	97.20%	PASS
4333	32.60%	31.60%	1.00%	97.00%	PASS
4334	35.10%	34.10%	1.00%	97.30%	PASS
4335	30.30%	29.60%	0.70%	97.50%	PASS
4336	32.00%	31.00%	1.00%	97.00%	PASS
4337	33.70%	32.70%	1.00%	96.90%	PASS
4338	35.20%	34.20%	1.00%	97.20%	PASS
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4340	32.90%	32.10%	0.80%	97.70%	PASS
4341	34.10%	33.30%	0.80%	97.60%	PASS
4342	35.10%	34.20%	1.00%	97.30%	PASS
4343	30.80%	30.30%	0.40%	98.60%	PASS
4344	32.80%	32.10%	0.70%	97.90%	PASS
4345	33.90%	33.20%	0.80%	97.70%	PASS
4346	35.10%	34.10%	1.00%	97.10%	PASS
4347	23.00%	21.90%	1.00%	95.60%	PASS
4348	24.50%	23.30%	1.30%	94.80%	PASS
4349	26.40%	25.30%	1.10%	95.80%	PASS
4350	31.30%	30.10%	1.20%	96.20%	PASS
4351	28.10%	27.00%	1.00%	96.30%	PASS
4352	30.10%	28.80%	1.30%	95.60%	PASS
4353	32.20%	31.10%	1.20%	96.40%	PASS
4354	33.90%	32.60%	1.30%	96.20%	PASS
4355	30.70%	29.60%	1.10%	96.50%	PASS
4356	32.20%	31.00%	1.20%	96.30%	PASS
4357	33.70%	32.40%	1.30%	96.20%	PASS
4358	34.60%	33.20%	1.50%	95.80%	PASS
4359	30.50%	29.50%	0.90%	96.90%	PASS
4360	31.90%	30.80%	1.10%	96.50%	PASS
4361	33.70%	32.40%	1.30%	96.20%	PASS
4362	34.60%	33.20%	1.50%	95.80%	PASS
4363	30.50%	29.60%	0.90%	97.00%	PASS
4364	32.00%	30.70%	1.30%	95.90%	PASS
4365	33.80%	32.30%	1.50%	95.50%	PASS
4366	34.80%	33.20%	1.60%	95.40%	PASS
4367	28.10%	26.90%	1.20%	95.70%	PASS
4368	29.50%	28.10%	1.30%	95.40%	PASS
4369	31.70%	30.20%	1.50%	95.20%	PASS
4370	34.50%	33.10%	1.50%	95.70%	PASS
4371	20.00%	19.00%	0.90%	95.30%	PASS
4372	21.00%	19.90%	1.10%	94.80%	PASS
4373	22.70%	21.40%	1.30%	94.30%	PASS
4374	28.60%	27.30%	1.40%	95.30%	PASS
4375	22.20%	21.10%	1.10%	95.10%	PASS

4376	23.50%	22.20%	1.30%	94.30%	PASS
4377	25.60%	24.20%	1.40%	94.50%	PASS
4378	31.90%	30.70%	1.20%	96.20%	PASS
4379	28.10%	26.60%	1.40%	94.90%	PASS
4380	29.60%	28.30%	1.20%	95.90%	PASS
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4382	34.60%	33.20%	1.40%	95.90%	PASS
4383	30.50%	29.60%	0.80%	97.30%	PASS
4384	32.20%	30.70%	1.50%	95.40%	PASS
4385	33.80%	32.30%	1.50%	95.70%	PASS
4386	34.90%	33.30%	1.60%	95.50%	PASS
4387	30.50%	29.60%	0.90%	97.00%	PASS
4388	32.10%	30.70%	1.30%	95.80%	PASS
4389	33.70%	32.20%	1.50%	95.60%	PASS
4390	34.80%	33.30%	1.60%	95.40%	PASS
4391	30.40%	29.60%	0.80%	97.20%	PASS
4392	32.20%	30.80%	1.50%	95.40%	PASS
4393	33.70%	32.20%	1.50%	95.60%	PASS
4394	34.60%	33.20%	1.50%	95.80%	PASS
4395	26.90%	26.00%	1.00%	96.40%	PASS
4396	28.80%	27.50%	1.30%	95.50%	PASS
4397	31.30%	29.80%	1.60%	95.00%	PASS
4398	34.50%	33.20%	1.30%	96.30%	PASS
4399	19.80%	18.90%	0.90%	95.50%	PASS
4400	20.80%	19.90%	1.00%	95.30%	PASS
4401	22.70%	21.60%	1.10%	95.20%	PASS
4402	29.10%	28.20%	0.90%	96.80%	PASS
4403	28.30%	26.10%	2.20%	92.30%	PASS
4404	30.20%	27.90%	2.30%	92.30%	PASS
4405	32.00%	30.00%	2.00%	93.80%	PASS
4406	32.60%	30.90%	1.70%	94.70%	PASS
4407	28.80%	26.50%	2.20%	92.20%	PASS
4408	30.50%	28.20%	2.30%	92.40%	PASS
4409	32.00%	30.20%	1.80%	94.20%	PASS
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4412	30.70%	28.70%	2.00%	93.50%	PASS
4413	32.00%	30.20%	1.80%	94.30%	PASS
4414	33.60%	32.00%	1.60%	95.10%	PASS
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4416	29.00%	27.00%	1.90%	93.40%	PASS
4417	30.90%	28.90%	1.90%	93.80%	PASS
4418	32.20%	30.50%	1.60%	94.90%	PASS
4419	33.80%	32.20%	1.60%	95.30%	PASS
4420	34.80%	33.50%	1.30%	96.10%	PASS
4421	29.00%	27.40%	1.50%	94.70%	PASS
4422	30.80%	29.30%	1.50%	95.00%	PASS
4423	32.40%	31.00%	1.40%	95.60%	PASS
4424	33.80%	32.30%	1.50%	95.60%	PASS
4425	35.10%	33.90%	1.20%	96.60%	PASS
4426	29.10%	27.50%	1.60%	94.60%	PASS
4427	31.00%	29.50%	1.60%	94.90%	PASS
4428	32.30%	31.10%	1.20%	96.20%	PASS
4429	34.00%	32.60%	1.40%	96.00%	PASS
4430	34.80%	33.70%	1.10%	96.90%	PASS
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4432	31.30%	29.80%	1.50%	95.20%	PASS
4433	32.60%	31.30%	1.30%	96.00%	PASS
4434	33.50%	32.10%	1.40%	96.00%	PASS
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4438	28.40%	27.10%	1.30%	95.50%	PASS
4439	29.60%	28.30%	1.20%	95.80%	PASS
4440	27.50%	26.00%	1.50%	94.70%	PASS
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4442	35.00%	33.90%	1.10%	96.80%	PASS
4443	33.30%	32.00%	1.20%	96.30%	PASS
4444	34.10%	32.90%	1.20%	96.40%	PASS
4445	34.90%	33.70%	1.20%	96.60%	PASS
4446	31.60%	30.50%	1.10%	96.40%	PASS
4447	32.80%	31.60%	1.20%	96.40%	PASS
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4458	31.80%	30.50%	1.20%	96.10%	PASS
4459	32.90%	31.90%	1.00%	96.90%	PASS
4460	34.40%	33.40%	1.10%	96.90%	PASS
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4462	26.60%	25.30%	1.30%	95.20%	PASS
4463	26.90%	25.40%	1.50%	94.40%	PASS
4464	27.20%	26.00%	1.20%	95.60%	PASS
4465	29.90%	28.70%	1.20%	96.10%	PASS
4466	22.40%	21.80%	0.70%	97.10%	PASS
4467	24.50%	23.10%	1.40%	94.10%	PASS
4468	25.10%	23.40%	1.60%	93.50%	PASS
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4471	21.20%	20.60%	0.60%	97.20%	PASS
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4473	25.40%	23.70%	1.70%	93.40%	PASS
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4479	28.50%	26.80%	1.70%	94.00%	PASS
4480	30.90%	29.40%	1.40%	95.30%	PASS
4481	19.20%	18.80%	0.40%	98.00%	PASS
4482	25.50%	23.90%	1.70%	93.50%	PASS
4483	27.10%	25.40%	1.70%	93.70%	PASS
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4485	31.40%	29.90%	1.50%	95.30%	PASS
4486	17.60%	17.50%	0.10%	99.40%	PASS
4487	25.20%	23.40%	1.80%	92.70%	PASS
4488	26.90%	25.00%	1.80%	93.20%	PASS
4489	29.10%	27.40%	1.70%	94.10%	PASS
4490	31.00%	29.70%	1.30%	95.70%	PASS
4491	15.50%	15.50%	0.00%	99.90%	PASS
4492	24.50%	22.30%	2.30%	90.70%	PASS
4493	25.80%	24.20%	1.60%	93.70%	PASS
4494	27.90%	26.20%	1.80%	93.70%	PASS
4495	29.70%	28.30%	1.40%	95.20%	PASS
4496	13.10%	13.10%	0.00%	100.00%	PASS
4497	23.10%	20.70%	2.40%	89.70%	PASS
4498	23.90%	22.30%	1.60%	93.40%	PASS
4499	26.00%	24.40%	1.50%	94.10%	PASS
4500	27.80%	26.50%	1.30%	95.30%	PASS
4501	30.80%	30.60%	0.20%	99.30%	PASS
4502	32.40%	32.30%	0.10%	99.70%	PASS
4503	33.80%	33.70%	0.10%	99.70%	PASS
4504	35.20%	35.00%	0.20%	99.50%	PASS
4505	36.60%	36.20%	0.30%	99.10%	PASS
4506	29.90%	29.70%	0.20%	99.40%	PASS
4507	31.60%	31.50%	0.10%	99.70%	PASS
4508	33.10%	33.10%	0.00%	99.90%	PASS
4509	34.80%	34.60%	0.20%	99.30%	PASS
4510	36.40%	36.10%	0.30%	99.20%	PASS





environmental economics



London Plan Compliant Energy Report

Woodbridge House, Uxbridge

Client: Uxbridge United Welfare Trust
Author: Michael Woodbridge





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Revision History

Rev	Date	Purpose	Signed	Approved
1	5th February 2016	First issue		

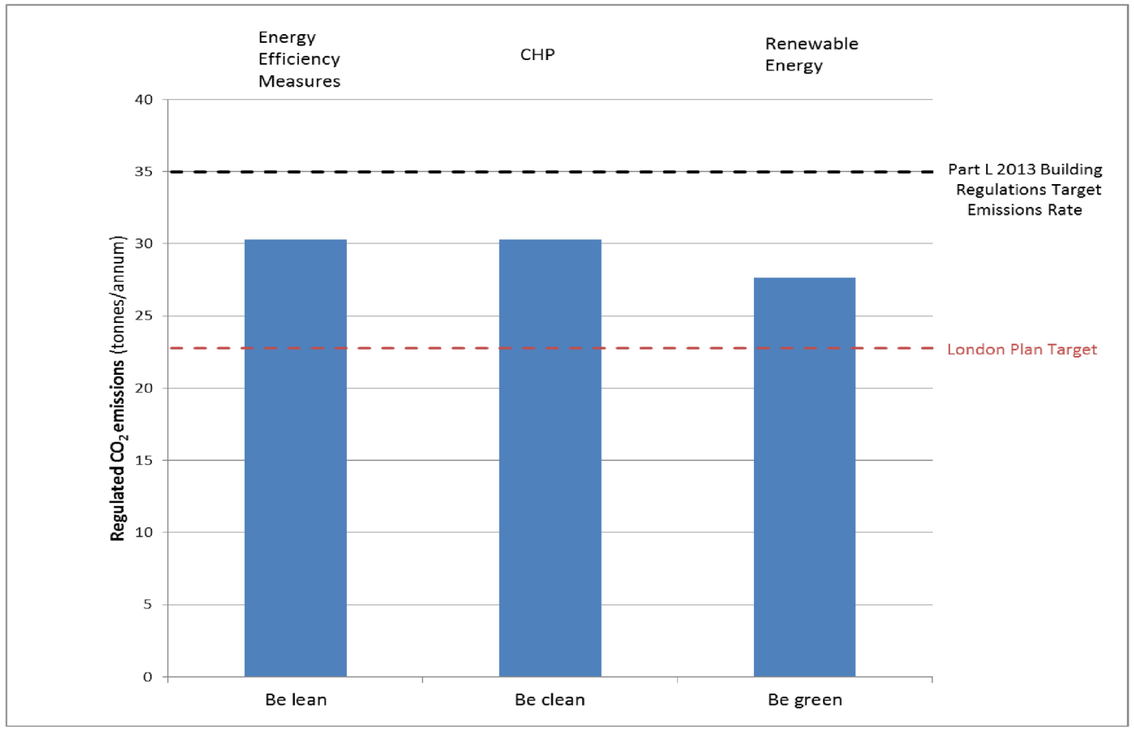
1. Executive Summary

This Energy Assessment has been prepared by Environmental Economics Ltd on behalf of Uxbridge United Welfare Trust to support a planning application for a proposed development at Woodbridge House, Uxbridge. The Assessment is presented with reference to the requirements set out in the London Plan 2015 (LP2015), and is formatted to enable easy reference to the main criteria set out in Chapter 5 of the LP2015.

Additional guidance has been obtained from the April 2015 publication "Energy Planning – GLA Guidance on preparing energy assessments" published by the Greater London Authority (GLA).

The main objective of the assessment is to indicate the performance of the development in relation to Policy 5.2B, which sets an objective of reducing carbon emissions resulting from regulated energy use by 35% in comparison to the 2013 Building Regulations.

Figure 1: Carbon Emissions from the Energy Hierarchy



The development achieves a reduction of 21% beyond Building Regulations Part L 2013.

Energy Report – Woodbridge House, Uxbridge

Table 1: Carbon Emissions after each stage of the Energy Hierarchy

	Carbon dioxide emissions (Tonnes CO_2 per annum)	
	Regulated	Unregulated
Baseline: Part L 2013 if the Building Regulations Compliant Development	34.99	31.68
After energy demand reduction	30.31	31.68
After CHP	30.31	31.68
After renewable energy	27.66	31.68

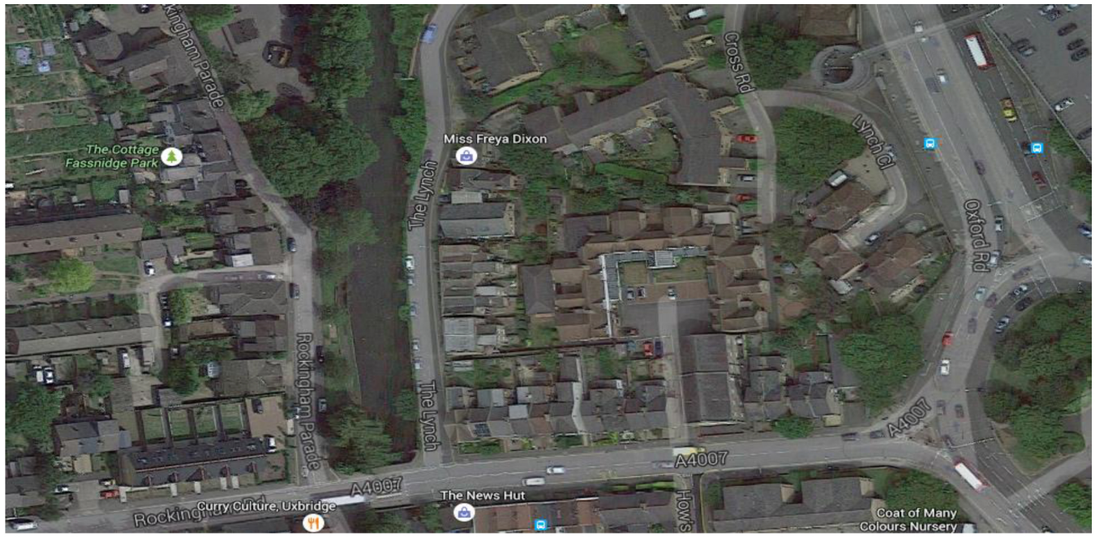
Table 2: Regulated carbon dioxide savings from each stage of the Energy Hierarchy

	Regulated Carbon dioxide savings	
	(Tonnes CO_2 per annum)	(%)
Savings from energy demand reduction	4.69	13.39
Savings from CHP	0.00	0.00
Savings from renewable energy	2.64	7.56
Total Cumulative Savings	**7.33**	**21%**
Total Target Savings	**12.25**	**35%**
Annual Surplus	**-4.92**	

2. Introduction

The Woodbridge House site is located in West London in the borough of Hillingdon. It lies within a predominantly residential area. The immediate vicinity is shown in Figure 2 below.

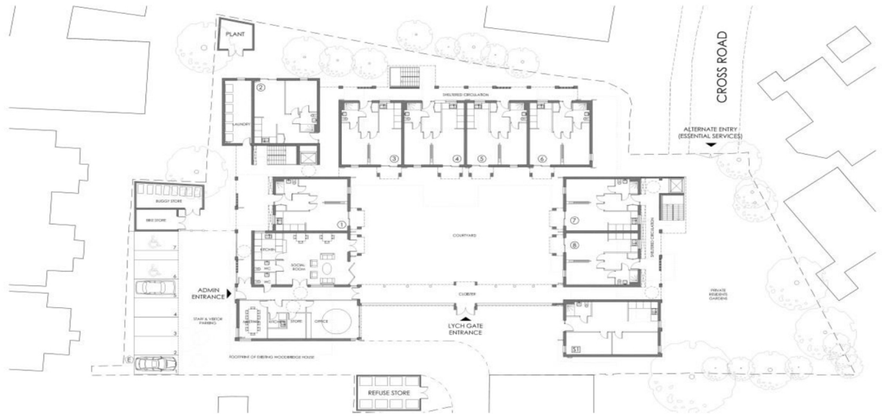
Figure 2: Location



The client proposes a mixed use development, consisting of 30 dwellings and a communal café area. The domestic aspect contains a range of apartments. The proposed site layout is shown in Figure 3.

Energy Report – Woodbridge House, Uxbridge

Figure 3: Site Layout



Being over 10 dwellings the proposed development is classified as a "Major Development" (LP2015 Annex Six Glossary) and therefore a detailed energy assessment has been carried out.

For the domestic dwellings, this report undertakes an energy demand analysis using a UK Government accredited SAP2012 software tool. The energy demand is converted into carbon emissions within the software tool, and the resulting site wide carbon emissions are calculated.

For the non-domestic areas the assessment is undertaken using iSBEM (the government's formal tool for assessing non-domestic buildings) which produces the standard "Target Emission Rate" (TER) and "Building Emission Rate" (BER) results (the assessment of the communal café area is shown in Appendix D).

As required by the LP2015 the incremental effects of energy efficiency measures and then the LZC features are identified and tabulated.

3. Planning Requirements

The development is required to comply with the technical requirements set out on the London Pan 2015. The individual criteria are set out below (taken directly from LP2015 Chapter 5):

Policy 5.2 MINIMISING CARBON DIOXIDE EMISSIONS

A. Development proposals should make the fullest contribution to minimising carbon dioxide emissions in accordance with the following energy hierarchy:

   1. Be lean: use less energy
   2. Be clean: supply energy efficiently
   3. Be green: use renewable energy

B. The Mayor will work with boroughs and developers to ensure that major developments meet the following targets for carbon dioxide emissions reduction in buildings. These targets are expressed as minimum improvements over the Target Emission Rate (TER) outlined in the national Building Regulations leading to zero carbon residential buildings from 2016 and zero carbon non-domestic buildings from 2019.

C. Major development proposals should include a detailed energy assessment to demonstrate how the targets for carbon dioxide emissions reduction outlined above are to be met within the framework of the energy hierarchy.

D. As a minimum, energy assessments should include the following details:
   a. calculation of the energy demand and carbon dioxide emissions covered by the Building Regulations and, separately, the energy demand and carbon dioxide emissions from any other part of the development, including plant or equipment, that are not covered by the Building Regulations (see paragraph 5.22) at each stage of the energy hierarchy
   b. proposals to reduce carbon dioxide emissions through the energy efficient design of the site, buildings and services
   c. proposals to further reduce carbon dioxide emissions through the use of decentralised energy where feasible, such as district heating and cooling and combined heat and power (CHP)
   d. proposals to further reduce carbon dioxide emissions through the use of on-site renewable energy technologies.

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E. The carbon dioxide reduction targets should be met on site. Where it is clearly demonstrated that the specific targets cannot be fully achieved on-site, any shortfall may be provided off-site or through a cash in lieu contribution to the relevant borough to be ring-fenced to secure delivery of carbon dioxide savings elsewhere.

4. Energy Efficiency Assessment

4.1 Assessment Methodology

Environmental Economics have modelled the proposed dwellings using NHER Plan Assessor software. The software provides a number of outputs which can be used to assess and compare the improvements from any number of build specifications in terms of:

1. *Building regulations compliance*
2. *Energy usage per year (kWh/annum)*
3. *Carbon emissions as a measure of building regulations compliance ($kgCO_2 m^2$/year)*
4. *Energy costs per year (£/annum)*
5. *More detailed breakdowns by end use (space heating, water heating, cooking, lighting, appliances)*
6. *Effective air change rate*

Each of these outputs can be used in different ways to analyse the performance of the dwelling. For this project the requirement as set out in the previous section relates to a reduction in CO_2 emissions.

The analysis, therefore, evaluated the CO_2 emissions rate per year for each of the properties on site. The total CO_2 emissions rate for each property is based upon the regulated energy use for:

1. *Space heating*
2. *Water heating*
3. *Electricity for pumps and fans*
4. *Electricity for lighting*

The energy calculation for the space and water heating, as well as the electricity for pumps, fans and lighting were all assessed using the Standard Assessment Procedure 2012 (SAP) through the Plan Assessor software. Example SAP worksheets can be found in Appendix C.

For reporting purposes the unregulated emissions are also required. For this purpose the additional energy demand from such unregulated items (being cooking, electrical appliances and other small power items) has been calculated using SAP2012 Appendix L (which utilises the BREDEM energy model).

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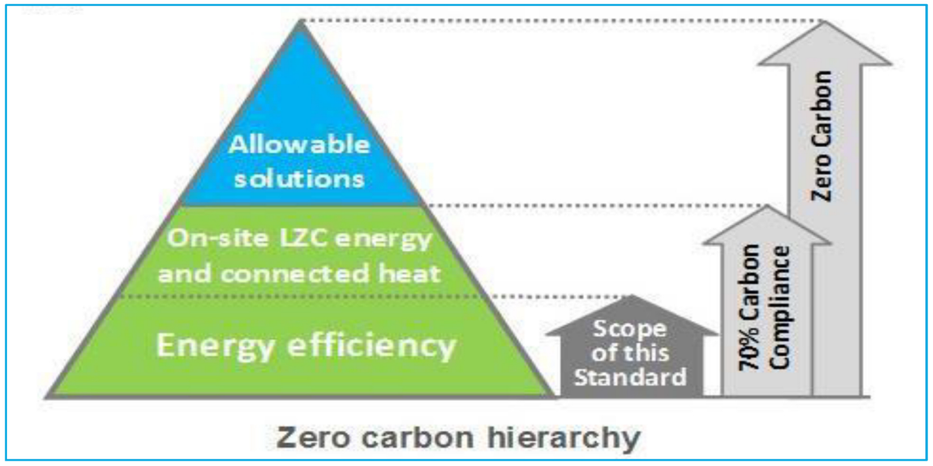
5. Design Philosophy

5.1. Policy 5.2 A section 1 – Be lean: use less energy

In order to reduce energy demand, Uxbridge United Welfare Trust have upgraded numerous elements of the build specification.

The client has adopted the good design principles endorsed and promoted by The Zero Carbon Hub, the construction industries' key advisors and partners with the Governments Communities and Local Government Department. This guidance follows the general good principles of energy efficiency as the industry moves towards zero carbon. The principles are illustrated in Figure 4 below.

Figure 4



Zero carbon hierarchy

In order to reduce the residual carbon emissions a number of improvements were made to the standard material and product specification.

The fabric of the buildings was improved from basic compliance with Part L 2013 to an enhanced specification. These fabric improvements reduce the energy demand resulting from normal occupation of a property. Changes to the U-Value of external elements are shown in Table 3 below.

Table 3: Fabric Specifications

Element	Minimum Standard	Enhanced Specification
-	W/m^2k	W/m^2k
Walls	0.30	0.13
Roof	0.20	0.11-0.16
Floors	0.25	0.09
Doors	2.00	1.1
Glazing	2.00	1.36
Air Permeability	10 m^3/hm^2	4.00 m^3/hm^2

5.2. Policy 5.2 A section 2 – Be clean: supply energy efficiently (Reference Policy 5.6 – Decentralised Energy in Development Proposals)

The GLA "Energy Planning" document provides guidance relating to the required hierarchical approach that should be followed when selecting energy systems, referring to Policy 5.6 of the LP2015 – Decentralised energy in development proposals.

The hierarchy can be summarised thus:

1. Connection to existing heating or cooling networks;
2. Site wide CHP network
3. Communal heating and cooling

5.2.1 Connection to existing heating or cooling networks (existing and planned networks)

As required by the LP2015 the authors have made reference to the London Heat Map to ascertain the potential connection to existing or planned district heating schemes.

Utilising the interactive search opportunities, all potential sources of heat have been selected:

1. Major energy loads
2. Major energy supply plants
3. Networks
4. Opportunities

The resulting heat map is reproduced in full in Figure 5 on the following page. As can be seen the surrounding area has been identified as having the potential for a heat network system.

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Figure 5: Heat Map



According to the London Borough of Hillingdon Heat Mapping Study, there potential has been recoginsed, however no firm plans exist. This is shown in Figure 6 below. According to section 9.2 of the London Heat Network Manual, the development therefore falls under Case A, described thusly:

"Case A: where an EMP identifies the feasibility of an area-wide heat network but no firm plans exist as to who will build the network or by when."

Figure 6: London Borough of Hillingdon Heat Mapping Study

Heat Mapping Study

6-1: Key district heating opportunities in LB Hillingdon

Opportunity reference	DE Opportunity	Priority	Notes	Barriers	Next Steps	Key dates	Key contacts
		Low, medium, high	Outline description of scheme	Barriers to delivery	In terms of LA facilitation of progress	(if action is not taken will the project be delayed)	
1	Uxbridge town centre and Brunel University	High	Includes clusters ranked 1st and 2nd in quantitative analysis	Major roads making installation of DH problematic Large scale of scheme - high capital cost Development risk Uncertainty surrounding energy centre location	Open discussions between LB Hillingdon and the University - Potential to form a heat supply steering group from interested parties.	Timing dictated primarily by development timeframes	Ian Thynne LB Hillingdon No information available for developers Brunel University

The same section then goes on to describe how the development will be required to make allowances for a potential future connection to any heat network that is developed, as follows:

• A space reservation could be provided for the heat exchanger, or it could be planned that the heat exchanger replaces a heat-only boiler at time of making the connection to the heat network.
• Provision should be made in the building fabric to facilitate future heat network connections.
• External buried pipe work routes should be safeguarded to a nearby road way or similar location here connection to the main heat network would be made.

These aspects will be taken into account once the technical design commences post planning.

5.2.2 Site Wide Heat Networks (including CHP)

Combined Heat and Power networks can be appropriate and desirable in situations where there is a large background demand for heat energy across a wide time period. In such cases the central plan benefits from a steady requirement for heat energy and as such can be sized with modular CHP/boiler plant. An example of such a development would be a mixed use development which includes leisure/commercial/hotels and domestic housing. In this example there would be a "base load" for heat energy which could justify the investment in an energy centre.

According to the GLA guidance, small to medium sized developments containing fewer than 500 dwellings are not recommended to install CHP. The small base load would lead to an excess of electricity which would need to be exported to the grid. However this can be time consuming and offers little economic benefit, as many energy service companies are not interested in smaller scale electricity sales and those that are offer low unit prices. In some instances this can lead to CHP being installed but not utilised due to the administrative burden.

For the reasons stated above it is clear that CHP is not a viable option for this development and as such will not be used.

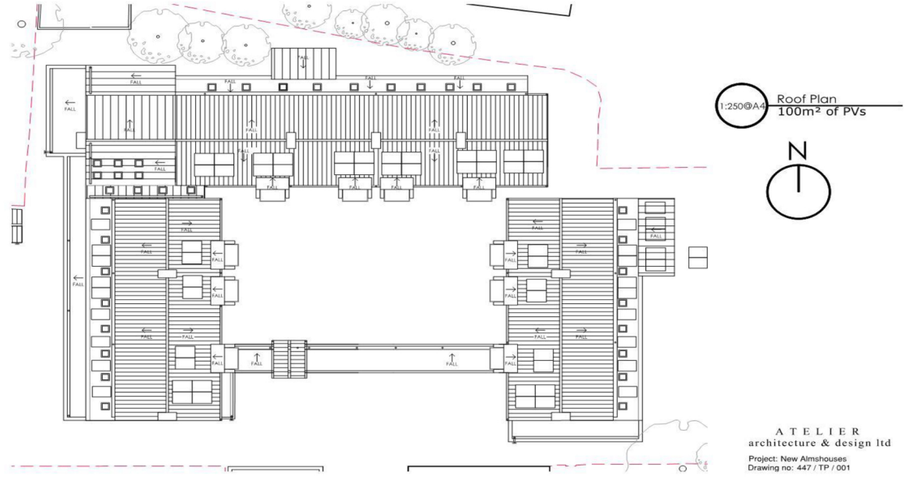
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5.3 Policy 5.2 A section 3 – Be green: use renewable energy (Reference Policy 5.7 – Renewable Energy)

This report does not seek to compare the various types of renewable energy systems.

Uxbridge United Welfare Trust are fully committed to adopting suitable renewable energy technologies where technically feasible. However in this instance there exists a conflict between the energy requirements and the heritage aspects of the site. After adopting a high end fabric spec with very little room for further improvements, the development would require approximately 15kWp worth of PV panels to meet the full 35% reduction. Assuming standard PV specs this would mean 60 panels, each with an area of 2m^2. This would lead to the roofs being completely full with panels, negatively affecting the visual aspects of the conservation area, as shown in Figure 7 below.

Figure 7: 15kWp Proposal – High Visibility



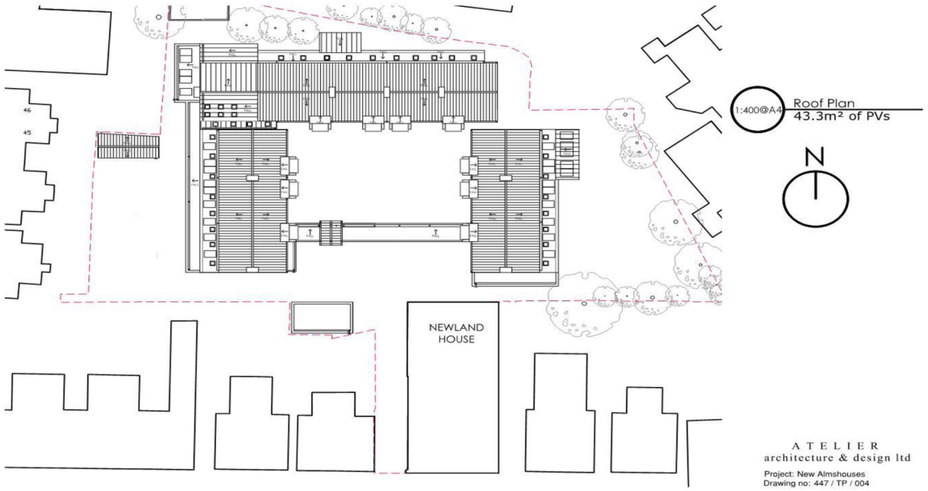
Many of these panels would be highly visible from the surrounding area. Following advice from Historic England, exemption from energy requirements can be sought when the appearance of a building would adversely affect heritage assets, as follows:

"Building Regulations Compliance: Listed Buildings and Other Heritage Assets
Part L: Energy Conservation
One part of the Regulations deals with the conservation of fuel and power (Part L as described in the Approved Documents).

Listed buildings, buildings within a conservation area or scheduled monument are exempt from compliance with the energy efficiency requirements of this part to the extent that the requirements would unacceptably alter the character or appearance of such buildings (i.e. would be harmful to their significance in NPPF terms)"

With the above in mind the client has proposed a reduced schedule, which demonstrates their commitment to providing renewable energy whilst also respecting the heritage assets of the area. These panels would not be visible from the surrounding area. The arrangement is displayed below in Figure 8.

Figure 8: 7kWp Proposal – Low Visibility



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6. Results

The table presented in Appendix A shows the proposed PV schedule for the site. The table presented in Appendix B shows the total modelled carbon emissions across the site.

The annual emissions rate for the baseline TER is 35.0tonnes CO_2/Annum. Therefore in order to meet the planning requirement a saving of at least 12.3tonnes CO_2/Annum needs to be achieved.

The annual emissions rate for the site after all improvements have been made is 27.6tonnes CO_2/Annum, which achieves a 7.3tonnesCO_2/Annum reduction or a 21.0 % reduction across the site.

Approved for Release

Date: 05/02/2016

E - LDP Energy Report

Appendix A

Client:	**Uxbridge United Welfare Trust**
Project:	**Woodbridge House, Uxbridge**
Report:	**PV Schedule**

Location	Orientation	PV (kWp)	Carbon Savings ($kgCO_2/yr$)
Store Roofs	West	1.25	472.1
East Walkway	East	3.50	1321.8
West Walkway	West	2.25	849.8
	Total Carbon Savings ($kgCO_2/yr$)		2644

Notes
#1: Carbon savings as calculated by NHER Plan Assessor

Note: The PV schedule shown is indicative and may be changed. Carbon savings are dependent on the total kWp installed, not the number of individual installations. Therefore the schedule may be altered without reducing the carbon savings as long as the total installed capacity remains the same for same orientation.

Energy Report – Woodbridge House, Uxbridge

Appendix B

Client:	**Uxbridge United Welfare Trust**
Project:	**Woodbridge House, Uxbridge**
Report:	**Carbon Reduction**

House Type	Standard Regulatory Model Emissions Rate ($kgCO_2/m^2.yr$)#1	Improved Model Emissions Rate ($kgCO_2/m^2.yr$)#2	Improvement over Regulatory Model (%)	SAP Floor Area (m^2)	Number of Plots	Total Carbon Emissions from Improved Model ($kgCO_2/yr$)
GF Flat End	20.35	16.97	16.6%	51	7	6,023
GF Flat Mid	18.99	16.00	15.7%	51	3	2,434
MF Flat End	17.99	14.99	16.7%	51	5	3,800
MF Flat Mid	16.68	14.01	16.0%	51	4	2,841
TF Flat End	19.89	16.98	14.6%	51	7	6,026
TF Flat Mid	18.81	15.97	15.1%	51	4	3,239
Non-domestic	39.90	39.10	2.0%	152	1	5,943
	Additional Carbon Savings from PV (see Appendix A for details) =					-2,644
				Total	**31**	**27,662**

Floor Area Weighted Average Improvement (%)	20.9%

Notes
#1: Based upon Target CO_2 Emission Rate calculation detailed in Section 1 of Building Regulations Part L 2013
#2: Calculated as DER CO_2 emissions

Appendix C

Sap Worksheet
Design - Draft

NHER

This design submission has been carried out using Approved SAP software. It has been prepared from plans and specifications and may not reflect the property as constructed.

Assessor name	Mr Michael Woodbridge	Assessor number	9636
Client		Last modified	03/02/2016
Address	GF Flat, Uxbridge, UB8		

1. Overall dwelling dimensions

		Area (m²)		Average storey height (m)		Volume (m³)	
Lowest occupied		50.70	(1a) x	2.31	(2a) =	117.12	(3a)
Total floor area	(1a) + (1b) + (1c) + (1d)...(1n) =	50.70	(4)				
Dwelling volume					(3a) + (3b) + (3c) + (3d)...(3n) =	117.12	(5)

2. Ventilation rate

		m³ per hour		
Number of chimneys	0	x 40 =	0	(6a)
Number of open flues	0	x 20 =	0	(6b)
Number of intermittent fans	0	x 10 =	0	(7a)
Number of passive vents	0	x 10 =	0	(7b)
Number of flueless gas fires	0	x 40 =	0	(7c)

		Air changes per hour	
Infiltration due to chimneys, flues, fans, PSVs	(6a) + (6b) + (7a) + (7b) + (7c) = 0	÷ (5) =	0.00 (8)

If a pressurisation test has been carried out or is intended, proceed to (17), otherwise continue from (9) to (16)

Air permeability value, q50, expressed in cubic metres per hour per square metre of envelope area		4.00 (17)
If based on air permeability value, then (18) = [(17) ÷ 20] + (8), otherwise (18) = (16)		0.20 (18)
Number of sides on which the dwelling is sheltered		2 (19)
Shelter factor	1 - [0.075 x (19)] =	0.85 (20)
Infiltration rate incorporating shelter factor	(18) x (20) =	0.17 (21)

Infiltration rate modified for monthly wind speed:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Monthly average wind speed from Table U2	5.10	5.00	4.90	4.40	4.30	3.80	3.80	3.70	4.00	4.30	4.50	4.70	(22)
Wind factor (22)m ÷ 4	1.28	1.25	1.23	1.10	1.08	0.95	0.95	0.93	1.00	1.08	1.13	1.18	(22a)
Adjusted infiltration rate (allowing for shelter and wind factor) (21) x (22a)m	0.22	0.21	0.21	0.19	0.18	0.16	0.16	0.16	0.17	0.18	0.19	0.20	(22b)

Calculate effective air change rate for the applicable case:

If mechanical ventilation: air change rate through system	0.50	(23a)
If balanced with heat recovery: efficiency in % allowing for in-use factor from Table 4h	75.65	(23c)

a) If balanced mechanical ventilation with heat recovery (MVHR) (22b)m + (23b) x [1 - (23c) ÷ 100]

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	0.34	0.33	0.33	0.31	0.30	0.28	0.28	0.28	0.29	0.30	0.31	0.32	(24a)

Effective air change rate - enter (24a) or (24b) or (24c) or (24d) in (25)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	0.34	0.33	0.33	0.31	0.30	0.28	0.28	0.28	0.29	0.30	0.31	0.32	(25)

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3. Heat losses and heat loss parameter

Element	Gross area, m²	Openings m²	Net area A, m²		U-value W/m²K		A x U W/K	κ-value, kJ/m².K	A x κ, kJ/K	
Window			7.80	x	1.29	=	10.06			(27)
Door			2.12	x	1.10	=	2.33			(26)
Ground floor			50.70	x	0.09	=	4.56			(28a)
External wall			38.13	x	0.13	=	4.96			(29a)
Party wall			18.02	x	0.00	=	0.00			(32)
Total area of external elements ∑A, m²			98.75							(31)

Fabric heat loss, W/K = ∑(A x U)	(26)...(30) + (32) =	21.91 (33)
Heat capacity Cm = ∑(A x κ)	(28)...(30) + (32) + (32a)...(32e) =	N/A (34)
Thermal mass parameter (TMP) in kJ/m²K		250.00 (35)
Thermal bridges: ∑(L x Ψ) calculated using Appendix K		9.45 (36)
Total fabric heat loss	(33) + (36) =	31.36 (37)

Ventilation heat loss calculated monthly 0.33 x (25)m x (5)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
13.08	12.92	12.75	11.93	11.77	10.95	10.95	10.78	11.28	11.77	12.10	12.43	(38)

Heat transfer coefficient, W/K (37)m + (38)m

44.44	44.28	44.11	43.29	43.13	42.31	42.31	42.14	42.64	43.13	43.46	43.79	

Average = ∑(39)1...12/12 = 43.25 (39)

Heat loss parameter (HLP), W/m²K (39)m ÷ (4)

0.88	0.87	0.87	0.85	0.85	0.83	0.83	0.83	0.84	0.85	0.86	0.86	

Average = ∑(40)1...12/12 = 0.85 (40)

Number of days in month (Table 1a)

31.00	28.00	31.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00	(40)

4. Water heating energy requirement

Assumed occupancy, N	1.71	(42)
Annual average hot water usage in litres per day Vd,average = (25 x N) + 36	74.83	(43)

Hot water usage in litres per day for each month Vd,m = factor from Table 1c x (43)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
82.31	79.32	76.33	73.33	70.34	67.35	67.35	70.34	73.33	76.33	79.32	82.31	

∑(44)1...12 = 897.96 (44)

Energy content of hot water used = 4.18 x Vd,m x nm x Tm/3600 kWh/month (see Tables 1b, 1c 1d)

122.07	106.76	110.17	96.05	92.16	79.53	73.69	84.56	85.57	99.73	108.86	118.22	

∑(45)1...12 = 1177.36 (45)

Distribution loss 0.15 x (45)m

18.31	16.01	16.53	14.41	13.82	11.93	11.05	12.68	12.84	14.96	16.33	17.73	(46)

Water storage loss calculated for each month (55) x (41)m

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(56)

If the vessel contains dedicated solar storage or dedicated WWHRS (56)m x [(47) - Vs] ÷ (47), else (56)

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(57)

Primary circuit loss for each month from Table 3

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(59)

Combi loss for each month from Table 3a, 3b or 3c

25.65	23.07	25.39	24.40	25.09	24.14	24.86	25.01	24.28	25.27	24.65	25.60	(61)

Total heat required for water heating calculated for each month 0.85 x (45)m + (46)m + (57)m + (59)m + (61)m

147.72	129.83	135.56	120.45	117.25	103.67	98.55	109.57	109.86	125.00	133.51	143.82	(62)

Solar DHW input calculated using Appendix G or Appendix H

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(63)

Output from water heater for each month (kWh/month) (62)m + (63)m

147.72	129.83	135.56	120.45	117.25	103.67	98.55	109.57	109.86	125.00	133.51	143.82

∑(64)1...12 = 1474.79 (64)

Heat gains from water heating (kWh/month) 0.25 × [0.85 × (45)m + (61)m] + 0.8 × [(46)m + (57)m + (59)m]

47.00	41.27	42.98	38.04	36.92	32.48	30.72	34.37	34.52	39.48	42.36	45.71	(65)

5. Internal gains

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Metabolic gains (Table 5)	102.64	102.64	102.64	102.64	102.64	102.64	102.64	102.64	102.64	102.64	102.64	102.64	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5	34.93	31.03	25.23	19.10	14.28	12.06	13.03	16.93	22.73	28.86	33.68	35.90	(67)
Appliance gains (calculated in Appendix L, equation L13 or L13a), also see Table 5	222.47	224.77	218.96	206.57	190.94	176.25	166.43	164.12	169.94	182.32	197.96	212.65	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5	46.98	46.98	46.98	46.98	46.98	46.98	46.98	46.98	46.98	46.98	46.98	46.98	(69)
Pump and fan gains (Table 5a)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	(70)
Losses e.g. evaporation (Table 5)	-68.43	-68.43	-68.43	-68.43	-68.43	-68.43	-68.43	-68.43	-68.43	-68.43	-68.43	-68.43	(71)
Water heating gains (Table 5)	63.17	61.41	57.77	52.83	49.62	45.11	41.29	46.20	47.95	53.06	58.83	61.43	(72)
Total internal gains (66)m + (67)m + (68)m + (69)m + (70)m + (71)m + (72)m	404.76	401.40	386.15	362.69	339.03	317.60	304.93	311.44	324.81	348.43	374.66	394.18	(73)

6. Solar gains

	Access factor Table 6d		Area m²		Solar flux W/m²		g specific data or Table 6b		FF specific data or Table 6c		Gains W	
East	0.77	x	2.18	x	19.64	x 0.9 x	0.74	x	0.70	=	15.37	(76)
North	0.77	x	1.76	x	10.63	x 0.9 x	0.74	x	0.70	=	6.72	(74)
West	0.77	x	3.86	x	19.64	x 0.9 x	0.74	x	0.70	=	27.21	(80)

Solar gains in watts ∑(74)m...(82)m

49.30	96.14	159.01	235.12	292.41	301.55	286.16	242.71	185.79	114.13	61.38	40.62	(83)

Total gains - internal and solar (73)m + (83)m

454.06	497.54	545.15	597.82	631.44	619.15	591.09	554.15	510.59	462.56	436.04	434.80	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1(°C) 21.00 (85)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation factor for gains for living area n1,m (see Table 9a)	0.98	0.97	0.92	0.80	0.62	0.44	0.31	0.35	0.57	0.85	0.96	0.99	(86)
Mean internal temp of living area T1 (steps 3 to 7 in Table 9c)	20.42	20.55	20.73	20.91	20.98	21.00	21.00	21.00	20.99	20.89	20.64	20.40	(87)
Temperature during heating periods in the rest of dwelling from Table 9, Th2(°C)	20.19	20.19	20.19	20.21	20.21	20.22	20.22	20.23	20.22	20.21	20.20	20.20	(88)

Utilisation factor for gains for rest of dwelling n2,m

0.98	0.96	0.90	0.77	0.57	0.38	0.26	0.29	0.51	0.81	0.95	0.98	(89)

Mean internal temperature in the rest of dwelling T2 (follow steps 3 to 7 in Table 9c)

19.44	19.62	19.87	20.12	20.20	20.22	20.22	20.23	20.21	20.10	19.76	19.41	(90)

Living area fraction — Living area ÷ (4) = 0.45 (91)

Mean internal temperature for the whole dwelling fLA x T1 +(1 - fLA) x T2

19.88	20.04	20.26	20.48	20.55	20.57	20.57	20.57	20.56	20.46	20.16	19.86	(92)

Apply adjustment to the mean internal temperature from Table 4e where appropriate

19.73	19.89	20.11	20.33	20.40	20.42	20.42	20.42	20.41	20.31	20.01	19.71	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation factor for gains, ηm	0.97	0.95	0.90	0.77	0.59	0.40	0.27	0.31	0.52	0.82	0.95	0.98	(94)
Useful gains, ηmGm, W (94)m x (84)m	441.95	474.43	491.38	461.13	369.83	245.98	161.73	169.57	267.24	378.78	413.12	425.26	(95)
Monthly average external temperature from Table U1	4.30	4.90	6.50	8.90	11.70	14.60	16.60	16.40	14.10	10.60	7.10	4.20	(96)
Heat loss rate for mean internal temperature, Lm, W [(39)m x [(93)m - (96)m]	685.81	663.56	600.44	494.62	375.27	246.33	161.76	169.62	269.23	418.68	560.86	679.05	(97)
Space heating requirement, kWh/month 0.024 x [(97)m - (95)m] x (41)m	181.43	127.09	81.14	24.11	4.05	0.00	0.00	0.00	0.00	29.69	106.38	188.82	

∑(98)1...5, 10...12 = 742.70 (98)

Space heating requirement kWh/m²/year (98) ÷ (4) = 14.65 (99)

9a. Energy requirements - individual heating systems including micro-CHP

Space heating

Fraction of space heat from secondary/supplementary system (table 11)	0.00	(201)
Fraction of space heat from main system(s) — 1 - (201) =	1.00	(202)
Fraction of space heat from main system 2	0.00	(202)
Fraction of total space heat from main system 1 — (202) x [1- (203)] =	1.00	(204)
Fraction of total space heat from main system 2 — (202) x (203) =	0.00	(205)
Efficiency of main system 1 (%)	89.80	(206)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating fuel (main system 1), kWh/month	202.04	141.53	90.35	26.85	4.51	0.00	0.00	0.00	0.00	33.06	118.46	210.26	

∑(211)1...5, 10...12 = 827.06 (211)

Water heating

Efficiency of water heater	88.66	88.52	88.22	87.71	87.38	87.30	87.30	87.30	87.30	87.77	88.39	88.70	(217)
Water heating fuel, kWh/month	166.61	146.67	153.66	137.33	134.19	118.75	112.89	125.51	125.84	142.42	151.05	162.13	

∑(219a)1...12 = 1677.05 (219)

Annual totals

Space heating fuel - main system 1	827.06	
Water heating fuel	1677.05	
Electricity for pumps, fans and electric keep-hot (Table 4f)		
mechanical ventilation fans - balanced, extract or positive input from outside	108.95	(230a)
central heating pump or water pump within warm air heating unit	30.00	(230c)

E - LDP Energy Report

boiler flue fan			45.00			(230e)
Total electricity for the above, kWh/year					183.95	(231)
Electricity for lighting (Appendix L)					246.77	(232)
Total delivered energy for all uses				(211)...(221) + (231) + (232)...(237b) =	2934.83	(238)

10a. Fuel costs - individual heating systems including micro-CHP

	Fuel kWh/year		Fuel price		Fuel cost £/year	
Space heating - main system 1	827.06	x	3.48	x 0.01 =	28.78	(240)
Water heating	1677.05	x	3.48	x 0.01 =	58.36	(247)
Pumps and fans	183.95	x	13.19	x 0.01 =	24.26	(249)
Electricity for lighting	246.77	x	13.19	x 0.01 =	32.55	(250)
Additional standing charges					120.00	(251)
Total energy cost				(240)...(242) + (245)...(254) =	263.95	(255)

11a. SAP rating - individual heating systems including micro-CHP

Energy cost deflator (Table 12)	0.42	(256)
Energy cost factor (ECF)	1.16	(257)
SAP value	83.84	
SAP rating (section 13)	84	(258)
SAP band	B	

12a. CO_2 emissions - individual heating systems including micro-CHP

	Energy kWh/year		Emission factor kg CO_2/kWh		Emissions kg CO_2/year	
Space heating - main system 1	827.06	x	0.22	=	178.65	(261)
Water heating	1677.05	x	0.22	=	362.24	(264)
Space and water heating			(261) + (262) + (263) + (264) =		540.89	(265)
Pumps and fans	183.95	x	0.52	=	95.47	(267)
Electricity for lighting	246.77	x	0.52	=	128.07	(268)
Total CO_2, kg/year			(265)...(271) =		764.43	(272)
Dwelling CO_2 emission rate			(272) ÷ (4) =		15.08	(273)
EI value					89.30	
EI rating (section 14)					89	(274)
EI band					B	

13a. Primary energy - individual heating systems including micro-CHP

	Energy kWh/year		Primary factor		Primary Energy kWh/year	
Space heating - main system 1	827.06	x	1.22	=	1009.02	(261)
Water heating	1677.05	x	1.22	=	2046.00	(264)
Space and water heating			(261) + (262) + (263) + (264) =		3055.02	(265)
Pumps and fans	183.95	x	3.07	=	564.72	(267)
Electricity for lighting	246.77	x	3.07	=	757.59	(268)
Primary energy kWh/year					4377.33	(272)
Dwelling primary energy rate kWh/m2/year					86.34	(273)

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Appendix D

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2013

Project name

Project name? As designed

Date: Wed Feb 03 11:41:49 2016

Administrative information

Building Details

Address: New Almhouses, Uxbridge United Welfare Trust, New Windsor Street, London, UB8 2TY

Certification tool

Calculation engine: SBEM

Calculation engine version: v5.2.g.3

Interface to calculation engine: iSBEM

Interface to calculation engine version: v5.2.g

BRUKL compliance check version: v5.2.g.3

Owner Details

Name: Information not provided by the user

Telephone number: Information not provided by the user

Address: Information not provided by the user, London, Information not provided by the user

Certifier details

Name: Zacharias Sifakis

Telephone number: 01582 544250

Address: 8 Cardiff Road, Luton, LU1 1PP

Criterion 1: The calculated CO_2 emission rate for the building should not exceed the target

CO_2 emission rate from the notional building, kgCO_2/m².annum	39.9
Target CO_2 emission rate (TER), kgCO_2/m².annum	39.9
Building CO_2 emission rate (BER), kgCO_2/m².annum	39.1
Are emissions from the building less than or equal to the target?	BER =< TER
Are as built details the same as used in the BER calculations?	Separate submission

Criterion 2: The performance of the building fabric and the building services should achieve reasonable overall standards of energy efficiency

lues not achieving standards in the Non-Domestic Building Services Compliance Guide and Part L are displayed in red.

Building fabric

Element	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	Surface where the maximum value occurs*
Wall**	0.35	0.13	0.13	Z1 Office/s
Floor	0.25	0.12	0.38	Z4 Meeting/ci
Roof	0.25	0.16	0.16	Z1 Office/c
Windows***, roof windows, and rooflights	2.2	1.36	1.36	W Office S
Personnel doors	2.2	-	-	"No external personnel doors"
Vehicle access & similar large doors	1.5	-	-	"No external vehicle access doors"
High usage entrance doors	3.5	-	-	"No external high usage entrance doors"

$U_{a\text{-}Limit}$ = Limiting area-weighted average U-values [W/(m²K)]
$U_{a\text{-}Calc}$ = Calculated area-weighted average U-values [W/(m²K)] $U_{i\text{-}Calc}$ = Calculated maximum individual element U-values [W/(m²K)]

* There might be more than one surface where the maximum U-value occurs.
** Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.
*** Display windows and similar glazing are excluded from the U-value check.
N.B.: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air Permeability	Worst acceptable standard	This building
m³/(h.m²) at 50 Pa	10	5

E - LDP Energy Report

Building services

The standard values listed below are minimum values for efficiencies and maximum values for SFPs. Refer to the Non-Domestic Building Services Compliance Guide for details.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	YES
Whole building electric power factor achieved by power factor correction	>0.95

1- ASHP

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	-	-	1.35	0.9
Standard value	2.5*	N/A	N/A	1.5^	0.5
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps. For types <=12 kW output, refer to EN 14825 for limiting standards.

^ Allowed SFP may be increased by the amounts specified in the Non-Domestic Building Services Compliance Guide if the system includes additional components as listed in the Guide.

1- Default HWS

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	Hot water provided by HVAC system	-
Standard value	N/A	N/A

Local mechanical ventilation, exhaust, and terminal units

ID	System type in Non-domestic Building Services Compliance Guide
A	Local supply or extract ventilation units serving a single area
B	Zonal supply system where the fan is remote from the zone
C	Zonal extract system where the fan is remote from the zone
D	Zonal supply and extract ventilation units serving a single room or zone with heating and heat recovery
E	Local supply and extract ventilation system serving a single area with heating and heat recovery
F	Other local ventilation units
G	Fan-assisted terminal VAV unit
H	Fan coil units
I	Zonal extract system where the fan is remote from the zone with grease filter

Zone name	SFP [W/(l/s)]									HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I		
Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
Z1 Office	-	-	-	-	-	-	-	-	-	-	N/A
Z2 Store	-	-	-	-	-	-	-	-	-	-	N/A
Z3 Kitchen	-	-	-	-	-	-	-	-	-	-	N/A
Z4 Meeting	-	-	-	-	-	-	-	-	-	-	N/A
Z5 Corridor	-	-	-	-	-	-	-	-	-	-	N/A
Z6 WCs	-	-	-	-	-	-	-	-	-	-	N/A
Z7 Social Room/Café	-	-	-	-	-	-	-	-	-	-	N/A
Z8 Kitchen/Café	-	-	-	-	-	-	-	-	-	-	N/A

"LENI calculation for lighting energy provided in a separate submission."

Energy Report – Woodbridge House, Uxbridge

Criterion 3: The spaces in the building should have appropriate passive control measures to limit solar gains

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Z1 Office	NO (-52.8%)	NO
Z4 Meeting	NO (-30.7%)	NO
Z7 Social Room/Café	NO (-54.3%)	NO

Criterion 4: The performance of the building, as built, should be consistent with the calculated BER

Separate submission

Criterion 5: The necessary provisions for enabling energy-efficient operation of the building should be in place

Separate submission

EPBD (Recast): Consideration of alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	NO

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Area [m²]	151.9	151.9
External area [m²]	302	302
Weather	LON	LON
Infiltration [m³/hm²@ 50Pa]	5	5
Average conductance [W/K]	83.28	121.22
Average U-value [W/m²K]	0.28	0.4
Alpha value* [%]	10.69	19.86

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area	Building Type
	A1/A2 Retail/Financial and Professional services
100	**A3/A4/A5 Restaurants and Cafes/Drinking Est./Takeaways**
	B1 Offices and Workshop businesses
	B2 to B7 General Industrial and Special Industrial Groups
	B8 Storage or Distribution
	C1 Hotels
	C2 Residential Inst.: Hospitals and Care Homes
	C2 Residential Inst.: Residential schools
	C2 Residential Inst.: Universities and colleges
	C2A Secure Residential Inst.
	Residential spaces
	D1 Non-residential Inst.: Community/Day Centre
	D1 Non-residential Inst.: Libraries, Museums, and Galleries
	D1 Non-residential Inst.: Education
	D1 Non-residential Inst.: Primary Health Care Building
	D1 Non-residential Inst.: Crown and County Courts
	D2 General Assembly and Leisure, Night Clubs and Theatres
	Others: Passenger terminals
	Others: Emergency services
	Others: Miscellaneous 24hr activities
	Others: Car Parks 24 hrs
	Others - Stand alone utility block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	1.1	5.63
Cooling	0	0
Auxiliary	26.43	20.67
Lighting	37.62	36.68
Hot water	12.19	15.81
Equipment*	79.2	79.2
TOTAL**	**77.34**	**78.78**

* Energy used by equipment does not count towards the total for calculating emissions.
** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	0	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m²]	319.74	342.2
Primary energy* [kWh/m²]	231.5	235.82
Total emissions [kg/m²]	39.1	39.9

* Primary energy is net of any electrical energy displaced by CHP generators, if applicable.

Energy Report – Woodbridge House, Uxbridge

HVAC Systems Performance

System Type	Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEEF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Central heating using air distribution, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity									
Actual	15.4	304.4	1.1	0	26.4	3.89	0	3.5	0
Notional	49.3	292.9	5.6	0	20.7	2.43	0	----	----

Key to terms

Heat dem [MJ/m2]	= Heating energy demand
Cool dem [MJ/m2]	= Cooling energy demand
Heat con [kWh/m2]	= Heating energy consumption
Cool con [kWh/m2]	= Cooling energy consumption
Aux con [kWh/m2]	= Auxiliary energy consumption
Heat SSEFF	= Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER	= Cooling system seasonal energy efficiency ratio
Heat gen SSEFF	= Heating generator seasonal efficiency
Cool gen SSEER	= Cooling generator seasonal energy efficiency ratio
ST	= System type
HS	= Heat source
HFT	= Heating fuel type
CFT	= Cooling fuel type

Key Features

The BCO can give particular attention to items with specifications that are better than typically expected.

Building fabric

Element	$U_{i\text{-}Typ}$	$U_{i\text{-}Min}$	Surface where the minimum value occurs*
Wall	0.23	0.13	Z1 Office/s
Floor	0.2	0.06	Z7 Social Room/Café/f
Roof	0.15	0.16	Z1 Office/c
Windows, roof windows, and rooflights	1.5	1.36	W Office S
Personnel doors	1.5	-	"No external personnel doors"
Vehicle access & similar large doors	1.5	-	"No external vehicle access doors"
High usage entrance doors	1.5	-	"No external high usage entrance doors"

$U_{i\text{-}Typ}$ = Typical individual element U-values [W/(m²K)] $U_{i\text{-}Min}$ = Minimum individual element U-values [W/(m²K)]
* There might be more than one surface where the minimum U-value occurs.

Air Permeability	Typical value	This building
m³/(h.m²) at 50 Pa	5	5

Aperis

New Almshouses
Uxbridge United Welfare Trust
New Windsor Street
Uxbridge

Access Statement

Prepared For

Atelier Architecture and Design

February 2016

Version 1.0

Aperis Building Consultancy Limited
21 Willesley Road
Ashby de la Zouch
LE65 2QA
01530 229235

RICS
Company Registration Number: 7809284
Registered in England and Wales
Regulated by the RICS

1.00 Introduction

a. This Access Statement has been developed to define and illustrate the strategy, principles and objectives utilised as part of the redevelopment proposed to the Almshouse site at New Windsor Street, Uxbridge. It will include the principles adopted in respect of the design, how the areas will be utilised and what measures have been implemented to achieve inclusive use and how the works have been detailed and implemented to meet the reasonable requirements of Part M to the Building Regulations (ADM) and Lifetime Homes Standards (LTHS).

b. The redevelopment of the site is split into two phases: the demolition of the existing buildings, and, the construction of the new Almshouses. The statement relates purely to the works being undertaken relating to the construction of the new building/s and the immediate surrounding area (the site).

c. The intention is that the Access Statement will clearly illustrate what measures have been taken and what will be implemented to ensure that the building and associated areas can be enjoyed by everyone and that dignified access is available to the facilities and residential accommodation that will be provided.

d. The project is committed to the provision of facilities on an inclusive basis and will accordingly seek to provide a safe and accessible environment for residents, visitors and users of the building and its facilities. In achieving this aim, it is recognised that there are constraints that are imposed by the location and the nature of the site, which have required careful consideration at all levels. The aim therefore of this statement is to demonstrate that all aspects of accessibility have been considered to achieve a coordinated and inclusive approach to the design.

e. In the application of the strategy and policy outlined in this statement, particular regard will be given to preventing discrimination against disabled people, although the intention is to create a universally accessible environment. In addressing the particular requirements of disabled people, the following definition of disability will be used, namely: -

> "A physical or mental impairment that has a substantial and long term affect on a person's ability to perform normal, day-to-day activities."

Accordingly, the focus of any works will not just concentrate upon the physical environment but consideration of sensory issues and perception of spaces will have equal bearing.

f. To ensure that this occurs, this Access Statement has been developed through a process of on-going review to ensure that appropriate and reasonable solutions are implemented and maintained, with suitable information provided as part of the on-going process for the detailed design stages and ultimately, the future use and operation of the site and its buildings.

g. This Access Statement has been prepared by:

Simon Turton BSc MRICS NRAC Consultant of Aperis Building Consultancy Limited.

1.1 The Equality Act

a. The Uxbridge United Welfare Trust (UUWT) recognises it has obligations under the Equality Act 2010 which requires organisations and those delivering public to show 'due regard to the need to:

- eliminate unlawful discrimination, harassment, victimisation; and

- advance equality of opportunity.

This involves 'removing or minimising disadvantages suffered by people, taking steps to meet the needs of people from equality groups, and encouraging participation and involvement of people from equality groups.

b. The design process will seek to utilise criteria that will enable UUWT to meet its obligations and provide suitable housing and facilities to deliver quality housing that caters for an aging population, who may have different requirements, disabilities and needs. This will include the application of Best Practice design guidance and the adoption of the minimum standards as set out in the Approved Document to Part M of the Building Regulations (ADM) and the 16 criteria set out in the Lifetime Homes Standards (LTHS). The aim is to ensure that all designs adopted have been reasonably considered and that the reasonable requirements of the applicable design standards are met.

c. Above all, the aim of the project is to provide universal access and dwellings that meet homeowner aspirations, cater for their changing needs as they age and allow for independent and healthier living through the provision of suitable and adaptable dwellings.

1.2 Access Provision

a. In order to complete a successful development and to ensure that the site has a long term, sustainable future, the access provisions need to reflect the varied needs of those people who will live in the dwellings as well as those that will visit and use the site and its building/s. The standards and criteria referred to in this Statement will be utilised to ensure that the access provisions are suited to the nature of the site and achieve the best levels of access and use possible for a wide range of future occupiers and users of the site.

b. Good access provision is essential to the success of the project as a whole and has formed an important aspect of the design process and will continue to do so through the detailed design, construction and occupation phases of the development.

2.0 Overall Approach

a. The Uxbridge United Welfare Trust (UUWT) will meet with its obligations under the Equality Act 2010 whilst also complying with the requirements of Approved Document M of the Building Regulations (ADM), relating to the works being undertaken; ADM is considered to be the minimum requirement in respect of access provision. However, UUWT will therefore seek to exceed minimum standards wherever practicable and possible to do so. Accordingly the guidance and recommendations given in Lifetime Homes Standards (LTHS) is also referenced and adopted, along with current best practice guidance to ensure that the context and location of the buildings, their environments and the use are considered fully. This approach will be adopted across all dwellings and areas of the building and its site.

b. The process of determining the design and detailing of the project has sought to meet the vision as described above to provide a facility that meets the highest standards possible in terms of accessibility and use. In order to achieve this, inclusive design principles have been utilised wherever practicable.

c. Inclusive Design places people at the centre of the overall process of design. Good design will provide for and meet the needs of the whole population and should consider fully and seek to remove the physical barriers that can segregate and lead to exclusion. In the process of designing and managing inclusively, the barriers and difficulties experienced by non-disabled people and disabled people alike will be overcome. Everyone will benefit from an accessible and inclusive environment and it is the intention of UUWT to provide a facility that can be enjoyed and used by everyone.

d. The process that has been adopted is that which was established by the Commission for Architecture and the Built Environment's (CABE). Inclusive design is seen as a process to ensure that its interventions within the built environment do not result in the exclusion and discrimination of any particular group of people. Inclusive design is based on the premise that the built environment should be designed, built and managed so that it does not discriminate against or disable the individual.

e. Inclusive design is about:

- creating an environment that everyone can use
- removing the barriers that create separation and special treatment
- enabling everyone to participate equally and independently in everyday activities.

Inclusive design:

- places people at the heart of the design process
- acknowledges diversity and difference
- offers choice where a single design solution cannot accommodate all users
- provides for flexibility in use
- provides buildings and environments that are convenient and enjoyable to use for everyone

f. By following the five CABE principles you should end up with a development that is:

- Inclusive so everyone can use it safely, easily and with dignity
- Responsive taking account of what people say they need and want
- Flexible so different people can use it in different ways
- Convenient so everyone can use it without too much effort or separation
- Accommodating for all people, regardless of their age, gender, mobility, ethnicity or circumstances
- Welcoming with no disabled barriers that might exclude some people
- Realistic offering more than one solution to help balance everyone's needs and recognising that one solution may not work for all.

g. At the heart of inclusive design is the Social Model of disability, upon which the principles adopted at UUWT have been based. The social model of disability states that people are not disabled by virtue of having an impairment, but by barriers in the physical and social environment. A social model approach prioritises the identification of those barriers, in order to recommend ways in which to remove those barriers, or to design without the introduction of barriers, so that people with impairments are not disabled by them.

h. Taking a social model approach (ie understanding the barriers that disabled people experience and what their access needs are) provides a route to ensuring full participation. This approach is also driving the management strategies and policies that will be put into operation throughout the life and process of the project.

3.0 Technical Standards

a. The works proposed are covered by varying technical standards and guidance that will all dictate, in certain circumstances, what needs to be included in the design, whilst other guidance may not be mandatory. The UUWT project is seeking to balance applicable Statutory Requirements with achieving Best Practice and the principles of Inclusive Design, as outlined above. It is important to note that technical standards are continuing to be developed and that there is no single authoritative document that can act as a single source. Accordingly, several documents and sources of technical guidance have been used.

b. The primary standards being utilised are:

c. **Building Regulations**

Building Regulations provide the standards, detailed within the Approved Documents that need to be met in order to receive consent for qualifying building works. Compliance with the Building Regulations is necessary and enforceable by the Local Authority. The regulations apply to most new buildings and many alterations of existing buildings in England and Wales, whether domestic, commercial or industrial and as such will apply to the UUWT project. They are intended as the minimum acceptable standards of building and construction.

The legislation covers both the technical standards that need to be met and the procedures that need to be followed. The key part of Building Regulations that supports accessibility to and within buildings is the Approved Document to Part M - Access to and Use of Buildings (ADM). ADM was revised in 2004, 2010 and amended further in 2015.

d. Any projects applying for approval after October 2015 will need to meet the design requirements laid down within the 2015 version of the Approved Document. The document is now in two volumes:

- Access to and use of buildings - Volume 1: Dwellings
- Access to and use of buildings - Volume 2: Buildings other than dwellings

e. The 2015 edition of Volume 1 introduces three different types of dwellings:

- Category 1 – Visitable dwellings.
- Category 2 – Accessible and adaptable dwellings.
- Category 3 – Wheelchair user dwellings.

The guidance provided in Volume 1 is only applicable to new dwellings and dwellings undergoing material alterations. Extensions to dwellings are not covered. It provides guidance for compliance with the requirements of M4(1), M4(2) and M4(3) of Schedule 1 of the Building Regulations. Volume 1 will therefore apply to the development.

f. **Requirement M4(1): Category 1 – Visitable dwellings**

Compliance with this requirement is achieved when a new dwelling makes reasonable provision for most people, which includes wheelchair users to access and enter the dwelling, and access habitable rooms and sanitary facilities on the entrance level.

g. **Requirement M4(2): Category 2 – Accessible and adaptable dwellings**

This requirement is met when a new dwelling provides reasonable provision for most people to access the dwelling and includes features that make it suitable for a range of potential occupants, including older people, individuals with reduced mobility and some wheelchair users.

h. **Requirement M4(3): Category 3 – Wheelchair user dwellings**

This requirement is achieved when a new dwelling provides reasonable provisions for a wheelchair user to live in the dwelling and have the ability to use any outdoor space, parking and communal facilities. The section is further split into two separate requirements, one for wheelchair adaptable dwellings and one for wheelchair accessible dwellings.

i. Approved Document M Volume 2 provides guidance for compliance with the requirements of M1, M2, M3 of Schedule 1 to the Building Regulations.

It is applicable to:

- A newly constructed non-domestic building.

- The extension or material alteration of an existing non-domestic building.
- The change of use of an existing building or part of an existing building to a hotel or boarding house, institution, public building or shop.

The requirements of M1 – M3 will be achieved when reasonable provision is made to ensure that buildings are accessible and usable and that individuals, regardless of their age, gender or disability are able to, '...gain access to buildings and to gain access within buildings and use their facilities, both as visitors and as people who live and work in them.'

j. Common areas in mixed use developments containing both domestic and non-domestic functions (such as those within this project) should meet the requirements for non-domestic buildings contained in Volume 2 and as such are relevant to this development.

k. In the case of the Almshouses project, the design process has adopted Lifetime Homes standards as a minimum requirement and as such, will meet M4(1) regarding Visitable dwellings and the majority of the requirements of M4(2) will by virtue of the design meeting LTHS also be met. Enhancements will be included as necessary to ensure that M4(2) is met across all areas.

l. The design is however adaptable in its current form and should, with minor changes, be able to meet M4(3), either as adaptable or wheelchair dwelling/s. The facilities and the physical space provided will therefore allow for, with minor adaptation and without the need for structural alteration, wheelchair use to be accommodated.

m. In respect of Volume 2, the requirements will apply to the non-dwelling use areas, namely the staff accommodation and areas not associated directly with the dwellings. The principles outlined above will be applied equally to the common areas, particularly where they are also covered by LTHS, and by the nature of the design process adopted, will also meet Volume 2 requirements where applicable.

4.0 Lifetime Homes Criterion

a. The Lifetime Homes Standard seeks to enable 'general needs' housing to provide, either from the outset or through simple and cost-effective adaptation, design solutions that meet the existing and changing needs of diverse households. Housing that is designed to the Lifetime Homes Standard will be convenient for most occupants, including some (but not all) wheelchair users and disabled visitors, without the necessity for substantial alterations.

b. The 16 Lifetime Homes design criteria make up the technical standards that need to be met to classify as a "Lifetime Home". The 16 criteria cover both internal and external aspects of a dwelling or a communal group of dwellings. The standards set are intended to be minimum standards that if achieved will provide access and flexibility for a wide and diverse range of users.

c. The design adopted has been developed to accord to the current design criteria (July 2010) and the 16 criteria have been integrated into the design so that all areas will be met.

d. The design process has been built on a philosophy of providing universal access. The aim of the design team has been to ensure that all aspects of accessibility are considered at the most appropriate time and that the process of dealing with the physical aspects of the built environment allows integration into management procedures for the future running of the facility.

e. Accessibility around the original site and within the original Almshouses was poor. Numerous features prevented wheelchair users and people with mobility impairments from utilising the dwellings and associated spaces and resulted in residents' needs being compromised. The nature of the buildings meant that they were incapable of large scale alteration and small scale adaptations were all that was possible. Accordingly, the existing Almshouses are not

fit for continued use and are unsustainable from an inclusivity perspective. They do not contribute to independent living and do not meet occupier aspirations and needs.

f. Suitable accommodation can only be provided by complete redevelopment and the provision of new a new building; the future needs of the residents cannot be met within the existing building arrangements.

g. To facilitate access and use of the site and buildings, the following considerations relative to Lifetime Homes have been made:

LTH1a Parking

No individual parking provided due to the nature of the Almshouse accommodation and the nature of the proposed residents

LTH1b Communal or Shared Parking

Parking will be communal, although the majority will be utilised by staff and visitors. Suitable provision for designated spaces will be provided. The size of the site is also not suited to wholesale parking provision.

LTH2 Approach to Dwelling

The approach routes will all be level or gently sloping. Covered approaches are also provided by the cloister and the internal circulation routes to the dwellings. There will be no level changes within the circulation routes internally.

All circulation routes will be 1500mm in width.

A facility to drop off close to the entrances to the building will also be provided.

LTH3 Approach to all Entrances

The approach routes will all be level or gently sloping. Covered approaches are also provided by the cloister and the internal circulation routes to the dwellings. There will be no level changes within the approach routes internally.

LTH4 Entrances

The proposed design and covered approach routes will ensure that each dwelling entrance has the required level access, level landing and weather protection. The approaches will also facilitate a fully lit approach route and level transition from the circulation space to the interior of the individual dwellings.

The entrance doors will meet the requirements of LTH as a minimum, but the proposed structural openings will facilitate the integration of doors up to the required 850mm clear as stated in M4(3) through simple substitution of the door and side screen, making future adaptation possible.

LTH5 Communal Stairs and Lifts

Stairwells and lifts will be provided to meet the required standards. Two stairwells will be provided along with 2 lifts, providing alternative routes and methods of vertical circulation to suit all requirements. The lifts will serve all floors.

LTH6 Internal Doorways and Hallways

The proposed layout and arrangement of the dwellings will achieve the requirements of LTH6. The nature of the construction will also permit alteration to accommodate wider doors without structural alteration.

LTH7 Circulation Space

The dwellings have been designed to permit the required circulation space internally within the rooms and accommodation provided.

Access Statement – New Almshouses,
UUWT, New Windsor Street, Uxbridge

Aperis

The kitchens have arrangements that allow adaptation and the provision of adaptable units and worktops. The space provided allows suitable circulation space around and between the units and worktops, with direct connection to the primary eating location and living space.

LTH8 Entrance Level Living Space

All dwellings are single level.

LTH9 Entrance Level Bed Space

All dwellings are single level.

LTH10 Entrance Level WC and Shower drainage

All dwellings are single level (see LTH14).

LTH11 WC and Bathroom Walls

The wall construction will be robust.

LTH12 Stairs and through floor lift

All dwellings are single level.

LTH13 Potential for Fitting of Hoists

The ceiling/soffit construction will be robust so that the dwellings can accommodate a future hoist between the bed space and the bathroom.

LTH14 Bathrooms

The bathrooms within the dwellings have been sized and arranged to ensure that the space standards required by LTH14 can be met. This includes the option for fitting a bath or a level access shower, with facility for both being accommodated (initially or at a later date). Residents will be able to fit out the bathrooms to suit their needs and to adapt the bathrooms in the future with minimal alteration, including the conversion to a wet room. In addition, the bathrooms have been provided with a direct door connection to the bedroom, achieving the enhanced good practice requirement within LTH14.

LTH15 Glazing and Window Handle Heights

The fenestration arrangements will allow viewing from the living room, with window controls positioned to be reachable by wheelchair users.

LTH16 Location of Service Controls

The design and detailing of the service installations will meet the required heights and positions.

5.0 Means of escape

a. The means of escape provisions within the buildings and surrounding areas will take into account the nature of the buildings, their features and the structure to ensure that suitable escape routes are provided and that fire separation is afforded. In principle, the escape provisions will follow an evacuation strategy basis that will be determined in accordance with Building Regulations and owing to the nature of the site, the buildings and the restrictions imposed, reference will also be made to BS9999:2009 in order to formulate the egress strategies and the management systems that will be required in addition to, and in parallel with, the physical means that will be integrated.

b. The Fire Evacuation Strategy will form part of the Fire Safety Risk Assessment that will be undertaken as part of the occupation and use of the buildings. Each occupied area will need to be considered in light of its occupier, the nature of the use and the approach adopted by the Responsible Person.

c. The Fire Safety Risk Assessment (FRA) will be undertaken and will follow the requirements as laid down in The Regulatory Reform (Fire Safety) Order 2005, which covers general fire safety in England and Wales. The FRA will be undertaken by the occupier of the premises (the responsible person) taking into account the physical nature of the premises and processes undertaken; the nature of the occupation and the use of the premises will also have bearing on the FRA. To provide sufficient information to allow the FRA to be collated, details of the building, any physical attributes included and fire precautions measures provided as part of the building will be provided to the occupier to equip them with the information required for them to complete the FRA at a later date.

Fire Safety Planning Report

Client Name: New Alms Houses
Property: Uxbridge United Welfare Trust
New Windsor Street
UB8 2TY

Document Reference:

Project Number:

Quality Assurance – Approval Status

This document has been prepared and checked in accordance with the company QMS.

Issue	Date	Prepared by	Validated by	Approved by	Comments
Outline Draft					
Second Review					
Third Review					
Final Draft	11/01/16	Mike Wilkins	AC	AC	Issued to Client
Issue					

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To aid with complying this report the following drawings have been submitted to FCS-Live from:
Atiller Architects and Design Ltd
Akeman Business Park
81 – 82 Akeman Street
Tring, Herts
HP23 6AF

Drawing Number: 447/TP/000; Drawing title: Ground Floor and Site Plan
Drawing Number: 447/TP/001; Drawing title: First Floor Plan
Drawing Number: 447/TP/002; Drawing title: Second Floor Plan
Drawing Number: 447/TP/004; Drawing title: Roof Plan
Drawing Number: 447/TP/005; Drawing title: South Elevations
Drawing Number: 447/TP/006; Drawing title: North Elevations
Drawing Number: 447/TP/007; Drawing title: East Elevations
Drawing Number: 447/TP/008; Drawing title: West Elevations
Drawing Number: 447/TP/009; Drawing title: Cross Sections

It should be noted that All Drawings are labelled as Preliminary

This report refers only to the Ground, first and second floor levels of the building.
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Regulations:

1. The principal objective of this report is to assist in demonstrating to the local planning authority that the premises will comply with the requirements of Approved Document B - Volume 2, Buildings other than Dwelling houses (2006 Edition incorporating the 2007, 2010 and 2013 amendments) (ADB) of the Building Regulations 2010 as amended in 2011, the Regulatory Reform (Fire Safety) Order 2005.

2. This report is subject to the requirements of The Building Regulations 2010 as amended in 2011 and if the recommendations of this document are implemented, the premises should satisfy the current requirements with regard to fire safety.

3. The premises will be subject to the requirements of the Regulatory Reform (Fire Safety) Order 2005 (FSO). This legislation requires a suitable and sufficient fire risk assessment to be carried out to ensure the safety of people in and around the building in the event of fire.

4. A series of statutory guidance documents were produced by the Secretary of State under Article 50 of the FSO to assist responsible persons in demonstrating compliance with the relevant requirements of the legislation.

5. In accordance with ADB Volume 2, Table D1, unless otherwise informed, the building will be of Purpose Group 2(a); that is; Residential (Institutional)

6. It should be remembered that this report is not a fire risk assessment but will provide some of the information required by the competent person who has been appointed to complete this work on behalf of the Responsible Person.

7. It must be ensured that a suitable and sufficient fire risk assessment is in place for the building and in addition, is updated on a regular basis throughout the construction phase.

8. It must be ensured that upon occupation, a suitable and sufficient fire risk assessment of the common areas of the building is completed by the Landlord/Managing Agent to satisfy legislative requirements.

9. The principle objective of the Building Regulations 2010 as amended in 2011 is to ensure the health and safety of persons both in and around a building.

   A series of guidance documents were produced by the Department of Communities and Local Government (DCLG) to assist architects and engineers in demonstrating compliance with the relevant requirements of the Building Regulations. These are termed 'Approved Documents' and offer assistance on the different sections of the Regulations. Approved Document B provides broad guidance to assist in compliance with the Functional Requirements regarding how the fire safety aspects can be fulfilled.

10. Approved Document B details the 'Functional Requirements' for demonstrating an acceptable standard of fire protection within the structure. These Functional Requirements address the following areas:

- B1: Means of Warning and Escape
- B2: Internal Fire Spread (Linings)
- B3: Internal Fire Spread (Structure)
- B4: External Fire Spread
- B5: Access and Facilities for the Fire and Rescue Service

It is important to understand that Approved Document B is intended for guidance purposes only and its recommendations are only intended to provide a method of achieving the functional requirements of the Building Regulations.

Alternative Approaches

11. BS 9999: 2008: Code of Practice for Fire Safety in the Design, Management and use of Buildings.
This code of practice supersedes a number of guidance documents in the BS 5588 series and can allow a more flexible approach to fire safety design through use of a structured approach to risk based design, allowing designers to take account of varying physical and human factors.
This standard contains four main sections that influence fire safety measures, as follows:

- Fire safety management;
- Means of escape provisions;
- Structural protection of means of escape facilities and the structural stability of the building in the event of a fire; and
- Provision of access and facilities for firefighting.

12. The primary objective of this fire report is to secure reasonable standards of safety for people in or about the premises in the event of a fire. Principally, this report is intended to:

- Provide early warning and appropriate means of escape, capable of being safely and effectively used at all material times;
- Inhibit the spread of fire within the building by the materials or products used in lining any partition, wall, ceiling or other internal surface;

- Provide structural stability for a realistic period by appropriate separation, compartmentation and the prevention of fire spread in concealed spaces;
- Adequately resist the spread of fire between buildings via the roof or external walls with regard to the height, use and position of the building.
- Provide reasonable facilities to assist fire-fighters in the protection of life and to enable fire appliances to gain access to the building; and
- Assist the Responsible Person to discharge their responsibilities with regard to fire safety in the premises and ensure effective management of fire safety within the premises.

13. Where sheltered housing is provided it is recommended that the fire alarm system should be linked to a central monitoring point or alarm receiving centre, so that the person in charge can be informed of a fire within a flat or the receiving centre can alert the emergency services when an alarm is received.
The building will therefore be provided with the following fire protection systems:

- A Category L3 fire detection system in accordance with BS 5839: Part 1, 2013
- A single addressable system may be installed that allows common areas and individual flats to be identified in the event of an incident
- A manual means of giving warning (via call points) system in accordance with BS 5839: part 1, 2013; Common areas only
- Emergency escape lighting in accordance with BS 5266: Part 1, 2011
- Appropriate escape route signage in accordance with BS 5499: Part 4, 2000 and other miscellaneous fire safety signage in accordance with BS 5499: Part 5, 2002
- Portable fire-fighting equipment to be provided throughout the building appropriate to the risk installed and maintained in accordance with BS 5306: Parts 8, 2012 and 3, 2009
- The building does not appear to be of appropriate height or size; Floor area of any one storey in the building or any one storey in a compartment Greater than 2000m^2, to require the installation of a sprinkler system.

14. Design for escape

The provision for escape from flats within this design fall under both requirements of Approved Document B - Volume 2, Buildings other than Dwelling houses (2006 Edition incorporating the 2007, 2010 and 2013 amendments) with accommodation floors on ground level, not more than 4.5m above the ground level and a floor more than 4.5meters above ground level.
The requirement for the travel distance allowed within dwellings is that; a maximum travel distance, measured from the furthest corner of the flat to the entrance door or a hall leading onto an entrance door is 9 metres
For the majority of dwelling the requirements are that the maximum travel distance of 9 meters is met as the travel distance is below this distance.
Other requirements of Approved Document B include that all habitable rooms exit onto a hall leading to the entrance or other suitable exit such as a suitable window or door. Due to the proposed design for the majority of the dwelling both of these conditions are met. However flat 2 and flat S1 both have an open plan arrangement with means of escape from the bedrooms of these flats being via the habitable living room which includes the open

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kitchen area. Within flat 2 there is a single bedroom and within flat S1 there are 2 bedrooms. All bedrooms access the main entrance via the open plan area. Within both flats the travel distance from the bedroom doors to the main entrance is below the maximum 9m with the single bedroom in flat 2 and the rear bedroom in flat S1 also having an openable window that complies with the requirements of Approved Document B. Flat S1 also has a bedroom without any external window. However this bedroom door is closer to the entrance door, there are also additional patio type exit doors in the open plan area. It is also proposed that smoke detection/ heat detection be installed in all flats to give early warning of any incident. The same single bedroom situation also applies to flat 12 which is situated on the first floor of the building. However Approved Document B allows for this situation as long as the bedroom is provided with an openable window. The design also provides a very short travel distance between the bedroom door and the entrance door and will provide smoke detection/heat detection within the flat to provide early warning of an incident.

The remainder of the flats on the Ground, first and second floors all have a hall leading to the main entrance door however with the proposed sliding doors set between the open living/kitchen accommodation and sleeping accommodation.

Sliding door sets do not provide any fire resistance time in the event of an incident within the flat
Additional provisions, as already stated, such as smoke detection/heat detection within each flat will required.

The general principle to be followed when designing facilities for means of escape is that any person confronted by an outbreak of fire within a building can turn away from it and make a safe escape. In order to avoid occupants being trapped by fire or smoke, there should be alternative escape routes from all parts of the building. Although both the West wing and the North wing of the buildings are connected at first and second levels by an open access balcony. The locations of the 2 stairs have resulted in both wings having a dead end situation for those flats at the end of each corridor. However, as the balconies appear to be open to the elements along one side of the balconies there are no issues with the means of escape being effected by an incident as residents will be able to pass any issues in an open environment. Additionally the windows for the flats will be set high enough in the wall to allow a crawl space below the window to allow residents to pass the incident.

With a building such as the East wing with only a single direction of escape which is again accessed via open balconies on the first and second floors the dead end situation is not an issue as the residents will again be able to pass any incident within a dwelling in an open environment. Additionally the windows for the flats will be set high enough in the wall to allow a crawl space below the window to allow residents to pass the incident.

Consideration for disabled access and egress must also be considered. The recommendations within the Approved Document M – Access to and use of buildings (2004 Edition incorporating 2010 amendments) (ADM) of the Building Regulations 2010 as amended in 2011 must be complied with.

15. Fire resisting door sets

Door sets are to be designed and installed in accordance with BS 476: Part 22 and the tolerances and guidance outlined in the manufacturer's instructions supplied with each door set.
Fire doors are to be provided with three fire resistant hinges (BS EN 1935), door handles that comply with BS EN 1906 Annex C and locks to BS EN 12209, due to their intended high-use durable dual in-tumescent heat strip/cold smoke seals along the door edges and suitable, positive action self-closing devices (BS EN 1154), as required.
The proposed sliding door sets between the living/kitchen area and sleeping area are not considered to be fire resisting and self-closing.

16. Floor and wall compartments.

The spread of fire within a building can be restricted by sub-dividing it into compartments separated from one another by walls and/or floors of fire-resisting construction. The object is twofold:

- To prevent rapid fire spread which could trap occupants of the building; and
- To reduce the chance of fires becoming large, on the basis that large fires are more dangerous, not only to occupants and fire and rescue service personnel, but also to people in the vicinity of the building.

Compartmentation is complementary to provisions made in Sections 2 to 5 of Approved Document B, for the protection of escape routes and to provisions made in Sections 12 to 14 of Approved Document B, against the spread of fire between flats and means of escape provisions.

Every compartment wall and compartment floor should:

- Form a complete barrier to fire between the compartments they separate; and
- Have the appropriate fire resistance.

Due to the proposed height and size of the buildings the following conditions will apply:

All stair enclosure should give a minimum of 60 minutes' protection.
The dividing floor between the floor levels should give a minimum of 60 minutes' fire protection
The dividing wall between different occupants and different usage area should give a minimum of 60 minutes' fire protection.
The entrance halls within the flats should give a minimum of 30 minutes' fire protection

17. Elements of Structure

The elements of structure should inherently possess sufficient fire resistance.

The resistance of any proposed element of structure should be not less than that required for any element which it supports and in no case less than 60 minutes' fire resistance.

- Structural frame, column or beam;
- Loadbearing wall; and
- Floor.

As the building is to be used for residential purposes, all floors are to be constructed as compartment floors to achieve 60 minutes' fire resistance.

18. External Fire Spread

The development of the new building will require the space separation between this building and the existing building opposite to be considered.

Notwithstanding this, it is considered that with the compartmentation described in this report and with the implementation of the fire safety measures described in this document, the potential risk of external fire spread is limited to as low as is reasonably practicable and therefore could be considered acceptable.

In addition, to date, the construction of the roof coverings has not been made available. It must be ensured that all roof coverings are in compliance with Table 16 of Approved Document B.

The notional boundary between the separate purpose groups is known however the heights of the adjacent buildings and the proposed method of construction of the Arms Houses has not yet been made available. Therefore, the effect of the new construction elements will have to be considered before an initial recommendation outlined in this report can be reasonably assume that a fully involved fire will not spread between compartments and that the requirements for space separation are considered to be acceptable.

It should also be noted that the construction of the building will be some form of fire rated material such as brick work. The design allows for openings in the brick work for windows and patio doors. As these can be calculated as a % of the overall façade the requirements for the space separation is reduced in direct correlation to the % of the openings.

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The methodology used to determine the space separation requirements is that set out in Building Research Establishment Report 187 External Fire Spread: Building Separation and Boundary Distances. Whilst not outlined in detail within Approved Document B, Volume 2, this method is an accepted approach for determining the space separation requirement between buildings when assessing suitability of building design for section B4 of the Building Regulations.

19. Access and Facilities for the Fire and Rescue Service

a. *Access to the Building*

This is a new building and the access arrangements are set out in section 16 of Approved Document B.

The building is classified as a low rise building without a basement and therefore the requirements should be that access for fire brigade vehicles is provided to all elevation allowing the brigade vehicles to get close to facilitate access

Therefore, vehicle access should be available to 50% of the perimeter of the building on the existing highways, with suitable doors giving access into the premises.

b. Access within the Building

The proposal is to that all stairs and lift shafts are to be protected by protected shafts. Therefore, the stairs/shafts will be constructed with 60-minute fire resistant construction (loadbearing capacity, integrity and insulation) with the following provisions:

As the building can be classified as a low rise building access should also be available via ladders external to the building.

20. The following factors have not been considered as part of this report but should be included into the full fire strategy and fire risk assessment when they are completed.

- Floor space factor.
- Internal fire rating of internal wall, ceiling and floor linings.
- Floor coverings.
- Load bearing elements of the structure.
- Firefighting facilities
- Fire safety procedures
- Fire safety information, fire safety training and fire safety manuals

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Secured by Design
Sheltered Accommodation

In addition to the Secured by Design New Homes standard, the following points are considered necessary and must be included within the development:

1 - Lighting

1.1 Lighting should be carefully co-ordinated, so that potential areas of risk are adequately covered. A Good lighting scheme will help to deter intruders and reduce the fear of crime. It is a prerequisite that the following areas are included in the lighting scheme:-

- Main site access
- Car parking areas
- All footpaths and associated areas to main building
- Main commercial entrance door
- Other commercial access door/fire exit doors

1.2 All lighting must be switched automatically, e.g.

- Photo electric cell
- Time Switch
- Passive infra red

2 - Gates (vehicular)

There should be consultation with the ALO/CPDA about the need for lockable gates to parking areas/garages. If gates are required then the following need to be considered:-

- Lockable facility
- Anti-lift hinges
- At least same height as surrounding fences
- Should be constructed so as to deter ingress/egress from under or over the gate
- Access control will be required where appropriate
- Sighting should be such as to avoid congestion on the adjoining highway
- Good design of gates can be used to enhance the aesthetic quality of the development

3 - Main Communal Entrance Door

- Door sets should comply with section 7 in the new homes document
- Access control with visual or audio verification ideally linked to each individual unit. This Capability must be extended to the wardens office and clear usage instructions must be provided
- Electronic door locking release by withdrawal or magnetic release Secured by Design
- Automatic door closer
- The internal lobby access door locking release to be part of the master suited system with a door closer

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4 - Other Commercial Access Doors (excluding fire doors)

- Solid core construction 44mm thickness (same physical requirements as above)
- Hinge bolts to be fitted to all outward opening final exit doors
- The locking system to any remaining doors to be agreed with the local ALO/CPDA on a site specific basis
- Louvered doors may require fine mesh screens and must have at least one mortice deadlock to be BS3621/98.

5 - Final Communal Fire Exit Doors

- These should comply BS 476 and must comply with fire regulations
- Doors must be devoid of any external furniture
- Escape devices used on the door must be strong enough to keep intruders out while allowing occupants of the building to escape. Escape hardware which is fitted to such doors must comply with the British and European standard
- BSEN1125 (for panic hardware) and BSEN 179 (for emergency exit devices)
- Panic push bar or similar locking system
- A door alarm must be fitted and be linked to an alarm panel, either monitored by house manager or central monitoring system
- Appropriate signage to warn of alarmed door

6 - Unit Front Door

- This should comply with the requirement for front doors in the New Homes document
- Mortice lock to BS3621/98 and/or rim night latch
- Multi-point locking with three or more deadlocks may be an alternative
- A patented master suited locking system that is registered to the developer or site owner
- Entry by key only

7 - Alarms

Consideration should be given to a 24 hour monitored help alarm system. This maybe controlled by the Duty house manager and or an alarm-receiving centre.

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