

Sustainability Statement

Land East of Chickenhall Lane, Eastleigh

December 2024



Turley
Sustainability
and ESG

Contents

Contents 2

1. Introduction 3

2. Policy Context..... 5

3. BREEAM Strategy 9

4. Sustainability Strategy..... 13

5. Conclusion 23

Appendix 1 – BREEAM Pre-assessment 25

Appendix 2 –Energy Modelling 26

Client
Highwood Ventures 7 Limited

Turley Reference
00799

Document Status
Final

Date
December 2024

1. Introduction

This Sustainability Statement has been prepared to demonstrate the sustainability strategy for the development proposals at Land east of Chickenhall Lane, Eastleigh.

1.1 Introduction

This Sustainability Statement has been prepared by Turley Sustainability & ESG, on behalf of Highwood Ventures 7 Limited ('the applicant' hereafter), to support a detailed planning application to Eastleigh Borough Council for a proposed development at land east of Chickenhall Lane. This Statement provides detail of the various measures incorporated into the development proposals to ensure suitable levels of sustainability performance in accordance with local and national planning policy.

1.2 Site Context

The site is located on the eastern edge of the town of Eastleigh in Hampshire, approximately 500m from the town centre. The 0.6ha site currently consists of grassed fields and areas of hard standing with existing 'container' style structures located towards the western boundary.

The site is bound to the north by the B3037 Bishopstoke Road which links Eastleigh with Bishopstoke and Fair Oak, and to the west by Chickenhall Lane, which serves a large area of industrial and employment uses located in Barton Park and other Industrial Estates located to the west of Chickenhall Lane.

The southern site boundary is open and runs through a medium-sized grazing field. The eastern boundary is defined by the Barton River (a tributary of River Itchen). The flood zone extents align with the eastern and southern boundaries of the site. The planning application's red line is positioned outside of Flood Zones 2 and 3.

1.3 Proposed Development

The proposed development is a three-storey L-shaped care home with 70 bedrooms, including day space, back-of-house operations and services area. Additional landscaping and tree planting are proposed to enhance biodiversity and provide screening along the southern boundary. Car parking and cycle parking are also included in the development proposals.

Figure 1 overleaf shows the proposed site plan of the development.

1.4 Document Structure

Chapter 2 of this report provides an overview of relevant national and local legislation, planning policy and guidance.

Chapter 3 reports the approach taken by the team in relation to the BREEAM strategy.

Chapter 4 provides detail of the sustainability and energy strategy of the proposed development, in line with local Planning Policy, and **Chapter 5** provides an overall summary.

The appendices to this document contain the BREEAM Pre-assessment, and energy modelling.

Please note, the terms "carbon", carbon dioxide (CO₂)" and "greenhouse gas (GHG)" are used interchangeably in this statement depending on the terminology of referenced documents.

Figure 1: Proposed Site Plan (Source: Harris Irwin Architects)



2. Policy Context

This chapter provides an overview of the relevant sustainability planning policy and guidance from a national and local perspective.

2.1 National Policy

This section sets out a summary of current national guidance and policy in relation to sustainable development.

2.1.1 National Planning Policy Framework

The National Planning Policy Framework¹ (NPPF) provides a framework for the development of locally prepared plans and the government's planning policies for England and how these are expected to be applied.

Paragraph 7 of the NPPF states that: 'the purpose of the planning system is to contribute to the achievement of sustainable development'.

To deliver sustainable development, the planning system must perform three distinct objectives, aligned to the pillars of sustainability, which must not be taken in isolation and should be pursued jointly:



An **economic** objective to contributing to building a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure.



A **social** objective supporting strong, vibrant and healthy communities, and by creating a high-quality built environment, with accessible local services that reflect the community's needs and support its health, social and cultural well-being.



An **environmental** objective contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy.

These objectives are key to the development of plans and the NPPF sets out a number of key themes for consideration which guide the preparation of local plans and policies, ensuring the delivery of sustainable development. The NPPF recognises the role planning has to play in support of the UK's pursuit of the United Nations Sustainable Development Goals (UNSDGs) (**Figure 2**) which address social progress, economic wellbeing and environmental protection.

¹ [UK Government | NPPF](#)

Figure 2: UN Sustainable Development Goals



2.1.2 Building Regulations

Whilst not planning policy, the Building Regulations (and specifically Approved Document Part L: Conservation of Fuel and Power) set out the requirements for energy and carbon performance in new buildings.

Part L, Conservation of Fuel and Power - On 15th June 2022, the Building Regulations were updated as an interim step towards part of the roadmap to the 'full' Future Homes and Buildings Standard, which comes into effect in 2025.

In December 2023 the Government published the 2025 Future Homes Standard (FHS) and Future Buildings Standard (FBS) consultation. The standard, which is expected to come into force in 2025, will require homes and buildings to achieve a c.75-80% reduction in carbon emissions beyond Part L 2013. Homes and buildings will be 'zero-carbon ready', meaning that they will need no retrofitting to produce zero carbon emissions as the electricity grid decarbonises.

Part S, Infrastructure for Charging Electric Vehicles

Part S sets out guidance for electric vehicle (EV) charging infrastructure. For new non-residential buildings with over 10 parking spaces, at least 1 charge point must be provided, with cable routes to the remaining 20% of spaces.

Part O, Overheating - Part O sets out new requirements for mitigating overheating in residential buildings, specifying that residential developments must limit unwanted solar gains in the summer and provide means to remove heat.

2.2 Local Planning Policy

2.2.1 Eastleigh Borough Local Plan (2016-2036)²

The Eastleigh Borough Local Plan (2016-2036) was adopted in April 2022. It sets out the policies and plans to guide future development to 2036 and will be used to determine planning applications in the Borough. The key sustainability policies relevant to the proposed development at land east of Chickenhall Lane are noted below.

Policy S1 Delivering sustainable development – All new development in the Borough should:

- Have regard to the potential impacts of climate change, and the need to limit greenhouse gas emissions including through carbon sequestration and by promoting measures to design buildings and spaces which are adaptable to predicted climate change, and restrict development in areas at risk from flooding, minimise energy use and encourage the generation of renewable energy, and by minimising emissions from motorised transport, industrial activity, and domestic uses.
- Minimise the need to travel longer distances, and, where travel is necessary, prioritise more sustainable forms of transport, such as active travel, other alternatives to car use, or a combination of active travel and other alternatives to car use.
- Use resources wisely and minimise the generation of waste in the construction, occupation and use of buildings.

Policy S9 Green Infrastructure – Through new development and other initiatives, the council will seek to achieve the provision, retention and/or enhancement of the following forms of multi-functional green infrastructure, including provision of:

- Green infrastructure incorporated into all new development with multifunctional spaces

² [Eastleigh Borough Local Plan](#)

connected by primary, secondary and tertiary green links.

- Interconnected urban green infrastructure within the fine grain of existing and new development including green, cycle ways, paths and linkages between community facilities and open spaces to link community facilities.

Policy DM2 Environmentally sustainable development – Development (other than C3 Use Class) over 500 sqm of floorspace measured externally should achieve BREEAM ‘excellent’ (or equivalent) or BREEAM ‘very good’ plus ‘passivhaus’ certification including a 15% improvement in predicted carbon emissions, compared with the building regulations current at the time, through low or zero carbon energy generation. In addition, where practical and viable:

- Incorporate energy-efficient passive design principles, the best use of natural daylight and natural ventilation systems wherever possible.
- Connect to any existing near or adjacent low carbon local energy network.
- Use recycled, low embodied carbon, low environmental impact and locally sourced materials in construction.
- Be designed with sufficient flexibility to enable the life of the building to be extended by re-use for other purposes.

Policy DM3 Adaptation to climate change – All development should be designed to adapt to the predicted climate change impacts for the Borough. Measures include:

- Incorporate sustainable drainage systems (SuDS) as part of an integrated SuDS strategy and as part of the landscape framework for the site including green open space and green roofs where appropriate.
- Adopt a cooling strategy which can include cooling through generous green infrastructure and trees, areas of shade, water cooling, building design and orientation, ‘cool roofs’ or

green roofs and green walls, porous cool pavements.

- Relieve water stress by reducing residential mains water consumption, installing water efficient appliances, fittings and leak detection devices; installing rainwater harvesting and grey water recycling; and adopting drought resistant landscape design and planting.

Policy DM5 Managing flood risk – Development will only be permitted within the areas at risk of flooding provided that:

- It meets the sequential and exception test (where required) as outlined in Government guidance.
- A site-specific flood risk assessment demonstrates that the development, including the access, will be safe without increasing flooding elsewhere, and where possible, will reduce flood risk overall.
- The scheme incorporates flood protection, flood resilience and resistance measures appropriate to the character and biodiversity of the area and the specific requirements of the site and where appropriate takes advantage of opportunities to utilise natural flood management techniques.
- Appropriate flood warning and evacuation plans are in place.
- New site drainage systems are designed taking account of events which exceed the normal design standard.

Policy DM6 Sustainable surface water management and watercourse management – New development will only be permitted if it incorporates SuDS. Additional requirements are needed for sites within 100m of the River Itchen SAC (Special Area of Conservation), including at least three forms of naturalised filtration.

Policy DM11 Nature conservation – A net gain of biodiversity on all development sites should be sought through the protection, enhancement and connection of existing and provision of new habitats

and features of nature conservation interest compatible with the native biodiversity characteristics of the Borough, having regard to local geodiversity and soils.

2.2.2 Climate Emergency

Eastleigh Borough Council declared a climate change and environmental emergency in 2019. The declaration sets out its aim to be carbon neutral by 2025 and to support communities and businesses across the Borough to achieve carbon neutrality by 2030. To reaffirm its commitment on this issue, the council have produced a Climate and Environment Emergency Strategy (2020-2030)³ which sets out progress to date, baseline assessment and the strategy that the council is taking to meet these targets in all aspects of development.

2.2.3 Eastleigh Validation Checklist⁴

A Sustainability Statement is required for all developments involving the provision of new dwellings, and for all non-residential and multi-residential developments above 500sqm of floor space measured externally. The statement should demonstrate how the proposed development complies with the sustainability principles and requirements as set out in the Council's adopted planning policies.

2.3 Planning Policy Summary

Local and national policy aims to ensure the delivery of sustainable and well-designed buildings which mitigate and adapt to the impacts of climate change.

The Local Plan requires development to consider a range of sustainable design measures, including sustainable design and resource management, green infrastructure, SuDS, energy efficient and low carbon buildings, water efficiency, and enhancing biodiversity. This demonstrates the borough's commitment to the creation of sustainable new developments. Furthermore, development must demonstrate sustainability credentials through

achievement of a BREEAM 'Excellent' rating where technically feasible and viable.

Latest national planning policy and guidance confirms the Government's approach to sustainable development is being driven through the updates to the Building Regulations to ensure that new buildings are well designed and reduce emissions in line with the UK's national carbon targets.

The following sections of this Sustainability Statement set out the sustainability measures incorporated into the design of the development to ensure the delivery of a sustainable development and address the requirements of local policy.

³ [Eastleigh Climate Change and Environmental Emergency Strategy](#)

⁴ [Eastleigh Validation Checklist](#)

3. BREEAM Strategy

3.1 Introduction

Policy DM2 of the Eastleigh Borough Local Plan requires all development other than use class C3 over 500m² to achieve a BREEAM 'Excellent' rating, unless this is not technically feasible, or viable.

This Chapter sets out the BREEAM strategy proposed for the care home.

3.2 BREEAM

BREEAM is the world's leading sustainability assessment tool for new buildings. The scheme is operated by the Building Research Establishment (BRE) and includes a range of criteria against which the sustainability performance of new buildings is assessed.



BREEAM UK New Construction Version 6.1 standard (multi-residential), launched in 2022, is the current scheme applicable to the proposed development.

3.3 BREEAM Strategy

Turley Sustainability (BREEAM Advisory Professional and Licenced Assessor) has undertaken a pre-assessment of the building (see **Appendix 1**) using the New Construction V6.1 'multi-residential' methodology. Turley has extensive experience providing early-stage guidance and certifying several multi-residential buildings, including care homes.

The results of the pre-assessment and workshops with the team demonstrate that a maximum score of 73.73% is achievable, which would deliver an 'Excellent' rating with a buffer over the 70% required. **Table 1** shows the maximum credits achievable within in each section, and overall as per the results of the pre-assessment. It should be noted that the route to BREEAM compliance, as set out in the pre-assessment, is subject to change during ongoing detailed design and construction.

Table 1: BREEAM Pre-assessment Results

Category	Percentage Targeted
Management	9.43%
Health & Wellbeing	7.37%
Energy	10.91%
Transport	7.50%
Water	4.67%
Materials	12.86%
Waste	6.00%
Land Use & Ecology	7.00%
Pollution	6.00%
Exemplary	2.00%
Score	73.73% (Excellent)

A summary of credits targeted within each category for the pre-assessment, and the value that meeting the criteria brings to the development, is discussed in the following sections. A full breakdown of each credit targeted is provided within **Appendix 1**.

3.3.1 Management

The management category encourages the adoption of sustainable management practices in connection with design, construction, commissioning, handover and aftercare.

The credits within this category are awarded to project and design teams who consider and incorporate sustainability measures, involving key stakeholders from project brief through to occupation.



Sustainability practices targeted include life cycle costing, seasonal commissioning, consideration of construction site impacts, and post occupancy evaluation.

3.3.2 Health and Wellbeing

The Health and Wellbeing category of the BREEAM schemes has been aligned with the 'WELL' Standard, bringing the comfort of building occupiers to the forefront of the design.

Overheating within buildings is likely to be a significant effect of climate change and therefore an assessment has been undertaken to assess overheating in current and future scenarios.

The indoor air quality, visual comfort, thermal comfort, acoustic performance, security and safety of the development proposal will also be considered to ensure a comfortable, high quality living environment for the residents and staff.

3.3.3 Energy

The Energy category encourages the specification and design of energy efficient solutions, systems and equipment. The credit requirements support

the reduction of carbon emissions throughout the operational phase of the development proposal. Further detail on the energy strategy is provided within **Section 4.5**.

Unregulated energy will be reduced through careful specification of large energy consuming systems such as lifts.

Energy modelling will be undertaken for a number of operational scenarios to reduce the performance gap between 'as designed' and 'in use' energy performance. Furthermore, extensive sub-metering will allow the building user to monitor energy performance to establish possible efficiencies during operation.

3.3.4 Transport

A Transport Statement has been produced to assess the effect of the development on local transport infrastructure. A Travel Plan has also been produced to communicate proposed sustainable transport measures to reduce private car travel to and from site and increase the uptake of sustainable and active modes of travel.

Credits are awarded on the basis of number of transport options available to the site pre-development and as a result of the development.

As discussed further in **Section 4.3**, the care home is in a highly accessible location, and there is excellent pedestrian infrastructure within the vicinity of the site. Sustainable transport measures are proposed to enhance this, including the provision of cycle parking in line with local policy guidance, and EV charging points to 10% of the parking spaces (equivalent to three).

3.3.5 Water

The aim of the Water category is to reduce the consumption of internal and external potable water over the lifetime of the building and minimising losses through leakage.

The detailed design and specification will confirm the final measures incorporated to reduce internal

water usage, which will be monitored through water meters and a leak detection system.

3.3.6 Materials

The Materials category encourages development to take a 'whole life cycle' approach to construction products, considering impacts of the supply chain from raw material, to end-of-life.

At concept design, a life cycle assessment (LCA) of the development's superstructure (external walls, frame, roof etc.), substructure and hard landscaping was undertaken, to model the environmental impact, including carbon emissions, associated with construction and materials. An options appraisal has also undertaken to identify carbon 'hotspots', and measures which could reduce these emissions. Further details on measures considered to reduce embodied carbon are provided within **Section 4.7**.

To reduce material wastage associated with maintenance and replacement, protection measures will be incorporated into the detailed design to protect from damage that may arise from residents, patients, staff and visitors, such as protecting internal areas from trolley movement, pedestrian traffic or external areas from parking and/or delivery vehicles.

The design team will also consider the effect of environmental factors such as water ingress, solar radiation and temperature variation on the building.

Manufacturers with responsible sourcing accreditation, for example, BES6001, ISO14001, FSC and CARES certification will be prioritised during construction.

3.3.7 Waste

The Waste category encourages the reduction of waste associated with construction methods through measures implemented during the design and on-site management. The category also rewards design measures encouraging the building users to recycle waste during building operation.

The proposed development will minimise construction and operational waste in line with the measures set out within the waste (**Section 4.7**) of this report.

Additionally, the design is flexible and adaptable to climate change, and refurbishment to reduce the environmental impacts of excess material usage and waste in the future.

3.3.8 Land Use and Ecology

The aim of the Land Use and Ecology category is to encourage sustainable land use, habitat protection and creation and improvement of long-term biodiversity.

As discussed further within **Section 4.6**, an Ecological Appraisal has been completed to set out mitigation and enhancement measures for the proposed development.

3.3.9 Pollution

The aim of the Pollution category is to address the prevention and control of pollution and surface water run-off associated with the building's location and use.

Pollution issues covered within the credit requirements include light, noise, flooding and emissions to air, land and water.

An all-electric building services strategy will be specified to limit any adverse impact on local air quality.

Furthermore, pollution impacts associated with light and noise will be reduced and managed appropriately.

An FRA has been undertaken which identifies any risks to the development, and appropriate mitigation measures in line with the drainage hierarchy (**Section 4.5**).

Mitigation measures are being incorporated into the design to ensure surface water run-off is appropriately managed.

3.4 Summary

The above section summarises the credits targeted by the proposed development to achieve an 'Excellent' rating. The credits targeted equate to a score of circa **73.73%** which would achieve the required scores within a significant margin of safety.

It should be noted that this Sustainability Statement does not guarantee the award of these credits and may not reflect the final route to achieve the required BREEAM ratings. Credits may be removed and replaced with others which may be more viable over the course of the design and construction.

4. Sustainability Strategy

4.1 Introduction

This section of the report outlines the sustainability strategy for the proposed development at Chickenhall Lane, demonstrating how the proposed care home responds to both national and local planning policy, including the NPPF.

4.1.1 Sustainability at Highwood Ventures 7 Limited

The Applicant is a proactive developer and aim to ensure that key sustainability issues such as climate resilience, social responsibility and wider environmental impacts are addressed within their developments.

Care home facilities are intrinsically complex buildings, which must balance environmental impacts with the comfort, health and wellbeing of staff, visitors and residents.

Although this Sustainability Statement focuses on the environmental pillar of sustainability, social and economic benefits have also been highlighted and are presented within the following sections:

- Building a Strong and Competitive Economy
- Promoting Sustainable Transport
- Promoting Healthy Communities
- Meeting the Challenge of Climate Change
- Conserving and Enhancing the Natural Environment
- Sustainable Resources

4.2 Building a Strong and Competitive Economy

The proposed development will contribute to positive economic growth for the borough through construction and occupation of the proposed care home, supporting the aims of the NPPF.

Construction – The economic benefits of construction are well known with considerable direct and indirect positive impacts.

A study by the Confederation of British Industries (CBI) in February 2020⁵ demonstrates that construction projects have a significant benefit on the local and wider economy. The report concludes that for every £1 of construction expenditure £2.92 is injected into the economy.

The construction of the care home will therefore provide opportunities for local employment as well as increased revenue locally for materials, services and goods.

Occupation – The construction of a 70-bed care home will increase the population resulting in local benefits through the demand for goods and services. Furthermore, the increase in local population will also help support local facilities, groups and stores helping promote the vitality of the local area and beyond.

4.3 Promoting Sustainable Transport

A Transport Statement has been prepared by Paul Basham Associates. This section summarises the existing conditions in the vicinity of the site, the accessibility of the site relative to local facilities and services and outlines the development proposal for the site.

⁵ [Fine margins - delivering financial sustainability in UK construction | CBI](#)

4.3.1 Local Environment

The site is located along Chickenhall Lane, approximately 500m east of Eastleigh town centre and currently comprises undeveloped land. The site is bound to the east by the River Barton, to the west by Chickenhall Lane, to the north by Bishopstoke Road and to the south by further undeveloped land.

Local Services and Amenities – The site is situated within walking/cycling distance of several local amenities and services in the local area. The following amenities are within a 15-minute walk:

- Supermarket - Tesco Express
- Bank - HSBC
- GP – Eastleigh Health Centre
- Dentist – MyDentist
- Gym – Anytime Fitness
- Pharmacy – Boots

Walking/Cycling Services – There is very good pedestrian infrastructure within the vicinity of the site, including continuous and well-lit footways along the western side of Chickenhall Lane. On the eastern side, a footway exists north of the access, set back from the carriageway edge by a grassed verge. Additionally, a shared cycleway/footway is present along the southern side of Bishopstoke Road that measures approximately 3m wide, with dropped kerbs and tactile paving at appropriate locations. A Public Rights of Way (PRoW) is located east to the proposed site which provide further pedestrian opportunities.

National Cycle Route 24 runs east of the proposed site through Eastleigh town centre, joining onto route 23 which goes north towards Winchester and south towards Southampton.

Bus Services – The nearest bus stop to the site is the ‘Recreation Ground’ bus stop located approximately 330m east of the site. The stop is served by the Bluestar number 2 bus, which operates four times per hour to Southampton City from Monday to Saturday, and twice per hour on Sunday. The Bluestar number 3 bus is also available, providing an

hourly service between Southampton City Centre and Eastleigh from Monday to Sunday. More details on the bus services available to the site can be found in the Transport Statement which accompanies the planning application.

Rail Services – The site is also located approximately 550m east of Eastleigh train station, which is operated by South Western Railway. Eastleigh train station provides direct services to Winchester (9 minutes), Southampton Central (13 minutes) Portsmouth Harbour (47 minutes) and Salisbury (50 minutes).

4.3.2 Sustainable Transport Measures

As part of the development proposals, measures to enhance and encourage sustainable transport include:

Walking/Cycling Services – The proposed development will align with the Eastleigh Borough Council Residential Parking Standards SPD⁶ which provides guidance on cycle parking provision at care homes. The proposed development will therefore provide storage space for 1 bicycle space per 10 staff, and 1 bicycle space per 10 beds, encouraging this mode of active travel to and from the site. Cycle storage will meet BREEAM requirements, including being covered, well-lit, and visible from the care home.

EV Charging – Electric vehicle charging provision will be provided in line with BREEAM standards, equivalent to 10% of parking spaces. Therefore, three of the proposed parking bays will be supplied with the necessary EV infrastructure, encouraging EV uptake and reducing local transport-related emissions.

4.3.3 Summary

There is a good range of amenities and services within walking distance of the proposed site, meaning it provides an excellent opportunity to create a sustainable development. Given the accessibility of the site with the nature of the development, existing pedestrian network and bus

⁶ [Eastleigh Council Residential Parking Standards SPD](#)

services, the site can currently be considered to be a good location to produce a sustainable development.

4.4 Promoting Healthy Communities

Creating a high-quality development that promotes health and wellbeing for residents, staff and visitors is a key aim of the scheme in line with UN SDG 3 Good Health and Wellbeing. In this context the design has been developed to enhance the health and wellbeing of the residents.

Key elements of the care home to suit the needs of the residents include:

- A safe and secure environment.
- Specialist design to support the living experience and care of the residents, and function of the carers.
- Individual bedrooms with accessible ensembles.

A variety of amenities are provided to the care home residents, including day-spaces, cafe, cinema, and hair salon.

A key health and wellbeing offering of the care home is the provision of extensive garden areas. The building is positioned parallel to the western boundary line, maximising garden spaces to the south and creating a courtyard garden to the east. Day spaces have been positioned in the southwest corner to provide views out onto the landscaped gardens, with additional day spaces offering views into the rear garden and towards the trees and river.

In addition, the design of the care home has incorporated measures to improve internal living environments including maximisation of natural daylight in occupied areas such as bedrooms and lounges.

The scheme is targeting a BREEAM 'Excellent' rating, with a number of credits in the Health and Wellbeing section, supporting healthy communities.

4.5 Meeting the Challenge of Climate Change

One of the main challenges facing the UK and new development is the need to mitigate and adapt to a changing climate. The Government is committed to tackling climate change and in 2019 set out an ambition to extend the UK Carbon reduction target to reduce carbon emissions by 100% by 2050.

Climate change will cause Eastleigh to become warmer, winters will become wetter, and summers will become drier. Adapting to this changing climate will impact on the design, construction, location, cost and operation of all new buildings in the next few decades. One of the NPPF's core planning principles is for development to consider climate change adaptation and mitigation during the planning process.

The council's recently adopted Local Plan supports the government's objectives for sustainable development reducing energy use and carbon dioxide emissions, adapting to, and mitigating the effects of climate change.

In this context the following sections outlines the key climate change mitigation and adaptation measures considered appropriate for this development based on the latest national guidance.

4.5.1 Mitigating Climate Change

Developing energy efficient, low carbon buildings is a key objective of national policy and recent changes to the Building Regulations, supporting the reduction of energy demand through efficient building design to reduce carbon emissions.

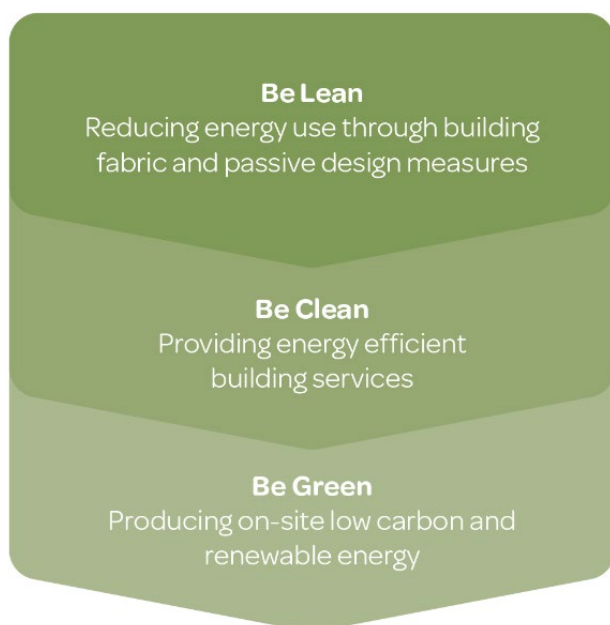
A key aspect of the future regulations is related to the continuing decarbonisation of the national electricity network. The phasing out of coal fired power stations and increasing generation of energy from renewable sources is rapidly reducing the carbon intensity of the electricity network.

Through decarbonisation of the national electricity grid and introduction of SAP10 carbon factors within updated Building Regulations, electric

heating systems are expected to deliver a higher carbon saving than gas alternatives.

The proposed care home has been designed in accordance with the Energy Hierarchy, as shown in **Figure 3**, which aims to reduce energy demand through passive design measures and a fabric first approach before utilising low carbon energy and the production of on-site renewable energy.

Figure 3: The Energy Hierarchy



The following sections set out the measures included to deliver an energy efficient, low carbon development.

Be Lean – Reducing Energy Use

Central to the delivery of low carbon and energy efficient buildings is the 'Fabric First' principle which recognises the most effective way of minimising carbon emissions is to reduce the demand for heat and power through a well-insulated, energy efficient building fabric and services.

Reducing the primary energy demand of a building through the use of an efficient fabric and services is widely regarded as best practice and is therefore the first and most important step to reducing carbon emissions.

This 'fabric first' approach has a number of distinct benefits including:

- Carbon savings delivered are 'locked-in' for the lifetime of the building (60 years or more).
- Virtually no maintenance and/or replacement costs to maintain carbon reductions through improved fabric.
- No reliance on an occupier's behaviour to deliver carbon reductions.

The development will be required to meet Part L 2021, which requires a 27% reduction in carbon emissions beyond previous regulation (Part L 2013).

A range of measures will be implemented to reduce energy use and carbon emissions, in line with **Policy DM2** of the Eastleigh Borough Local Plan.

Furthermore, in line with BREEAM credit issue Ene 04, a Passive Design Analysis (PDA) has been undertaken by Harniss Consulting Ltd ('Harniss'). The PDA outlines several measures which have been incorporated into the design of the building, as follows:

- Specification of thermal insulation and air permeability standards which exceed the minimum standards contained within Part L 2021.
- Specification of glazing with an appropriate g-value to reduce overheating from solar gain whilst allowing natural daylight.
- Mechanical Ventilation Heat Recovery (MVHR) incorporated throughout the care home.
- Automatic lighting controls used throughout, where appropriate for care i.e. proximity infrared used throughout in en-suites, bathrooms, stores, etc. timeclocks utilised for corridor night-time setback.

Be Clean – Efficient Energy

The next stage of the energy hierarchy is the provision of energy efficiently, i.e. from a decentralised energy system such as a Heat Network.

District Heating Networks (DHN) comprise a centralised heat generator, typically a gas fired Combined Heat and Power (CHP) engine. CHP systems generate electricity and waste heat which can be fed into a network of insulated pipes which deliver low carbon heat to buildings to provide heating and hot water via individual heat transfer units. There are no known heat networks in the vicinity of the proposed development.

As summarised earlier, the continued decarbonisation of the national electricity network and anticipated changes to the Building Regulations mean that the carbon emission benefits of traditional CHP systems will diminish during their life cycle.

A DHN requires significant infrastructure and would need to be retrofitted in future to meet the government's net zero goals and phasing out of fossil fuels. Furthermore, there are no DHNs local to the site.

CHP and DHN therefore will not be incorporated into the development in favour of an all-electric building services strategy to align with Eastleigh's and the UK's net zero goals.

Be Green – Low Carbon Renewable Energy

The final stage of the Energy Hierarchy is the generation of on-site low carbon and/or renewable energy to provide a further reduction in carbon emissions.

An initial review of potential low carbon renewable energy technologies has been completed and summarised below.

Wind Turbines

Wind turbines have been ruled out for this development due to the lack of wind speed modelled in the area and potential disruption to neighbouring properties.

Small Scale Hydro Power

Hydroelectric power is the generation of electric power from the movement of water. A hydroelectric facility requires a dependable flow of

water and a reasonable height for the water to fall. Due to the lack of suitable nearby watercourses, this option has been discounted.

Biomass

Biomass provides useable heat from a range of solid fuels including wood and straw. The installation of a biomass boiler, flue and associated fuel store require significant space and regular deliveries and is therefore not considered appropriate for the development.

Solar Photovoltaics (PV)

Solar photovoltaic (PV) systems generate zero carbon electricity from sunlight and are well suited to buildings with unobstructed south-east to south-west facing roof space. Excess power is exported to the grid or can be harnessed using battery storage. Maintenance requirements are typically minimal.

Solar PV is considered suitable for the care home and 200sqm of PV array will be incorporated into the design to reduce carbon emissions.

Solar Thermal

Solar thermal systems generate zero carbon hot water from sunlight in a similar manner to Solar PV. They require insulated tanks to store the hot water and have greater maintenance demands than solar PV. This technology is likely to be feasible for the care home, however roof space may be better suited to solar PV which can meet a consistent electricity demand and require less maintenance.

Heat Pumps

Heat pumps provide low carbon heat sourced either from the ground, (ground source heat pumps, GSHPs), water (water source heat pumps, WSHPs) or air (air source heat pumps, ASHPs). They require mains electricity to operate but typically generate at around three units of heat for every unit of electricity that is consumed. Because the heat generated is at a lower temperature than that produced by a gas boiler, heat pumps typically require underfloor heating or over-sized radiators to ensure the heat is distributed efficiently.

GSHP - Due to the high capital cost associated with the boreholes for GSHP, this technology is not considered viable.

WSHP - There is no suitable watercourse nearby, therefore this technology is not considered feasible.

ASHP – The relatively minimal maintenance, efficiency and capital cost of an ASHP system means that it is suitable for incorporation into the care home’s energy strategy. The heat pumps will draw from grid electricity and deliver ongoing carbon savings due to the increasing amount of renewable in the UK power generation mix.

ASHPs will therefore be incorporated to serve space heating and hot water generation.

Be Green – Summary

The energy strategy for the proposed development is ongoing, however the applicant commits to incorporating low and zero carbon energy to meet a portion of the development’s energy demand by use of ASHPs and installation of Solar PV.

Energy and Carbon Reduction Summary

Table 2 demonstrates the anticipated operational performance of the development, taken from energy modelling completed by Harniss (**Appendix 2**).

The modelling undertaken demonstrates that an improvement over Part L 2021 of 17.34% in the care home is possible, based on an energy strategy which prioritises passive design, and incorporates low and zero carbon technologies, subject to the ongoing feasibility study at detailed design. This result demonstrates that the development will be highly efficient and significantly reduce carbon emissions during operation.

These results also meet the mandatory energy performance rating to achieve BREEAM ‘Excellent’.

Table 2: Energy Modelling Results

Target Emission Rate (TER) kgCO ₂ /m ² /year	Building Emission Rate (BER) kgCO ₂ /m ² /year	% Reduction in Carbon Emissions
9.69	8.01	17.34%

4.5.2 Climate Change Adaptation

To ensure the proposed development is resilient to the effects of climate change it will incorporate key design measures in response to the climate predictions set out in the UK Met Office projections.

The Independent Assessment of UK Climate Risk (June 2021)⁷ identifies key risks associated with the effects of climate change. In relation to the built environment and the proposed development, these include reduced summer water availability, increased winter rainfall, and increased summer temperatures. For BREEAM credit issue Wst 05, a Climate Change Adaptation Appraisal has been carried out to identify how these risks could impact the development.

This section identifies key measures which will be incorporated into the design of new buildings and the proposed development to adapt to climate change, in line with **Policy DM3**.

Water Efficiency

Potable water is an increasingly important natural resource and with the majority of the UK classed as being in an area of moderate or severe water stress the conservation of water is becoming a more significant sustainability metric.

The care home will aim to reduce water consumption through a range of water efficiency measures such as:

- Reduced flush WCs
- Low flow fittings such as taps and showers

⁷ [CCC | Advice to the Government for CCRA3](#)

- Kitchen / catering equipment with reduced water usage.

The care home is targeting two credits under BREEAM Wat 01 'Water Consumption', which equates to a 25% reduction in water consumption over the baseline set by the BRE.

Flood Risk and Drainage

An FRA and drainage Strategy Report has been undertaken to assess existing conditions and infrastructure of the site. According to the report, the site is located entirely within Flood Zone 1 but borders Flood 2 and 3 due to its proximity to River Itchen (**Figure 4**).

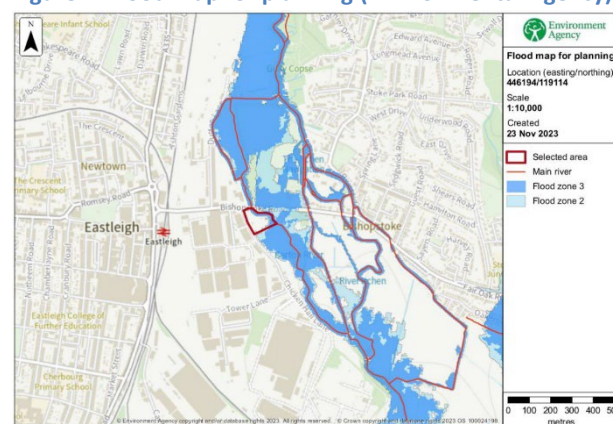
In line with Policy DM6, the following drainage hierarchy has been used:

- Infiltration / Re-use
- Discharge to Watercourse
- Discharge to Surface Water Sewer
- Discharge to Combined Sewer

As discharge to ground via infiltration is not possible due to high groundwater levels, the method selected for this site would be discharging to nearby watercourse. The site will aim to discharge as close as possible to greenfield runoff rates, with a minimum rate of 2.0l/s agreed upon with the local authority.

The site will utilise raingardens, french drains, permeable paving and an outfall swale to provide storage and treatment to the runoff. These forms of SuDS also contribute to the overall biodiversity and amenity space onsite. Attenuation will be provided via the permeable paving, providing circa 125m³ of storage. This attenuation allows for restriction of flows from site for storms up to and including 1 in 100-years with a 45% climate change allowance.

Figure 4: Flood map for planning (Environmental Agency)



Further information on the site's flood risk and the proposed surface water management system can be viewed in the accompanying Drainage Strategy.

Overheating

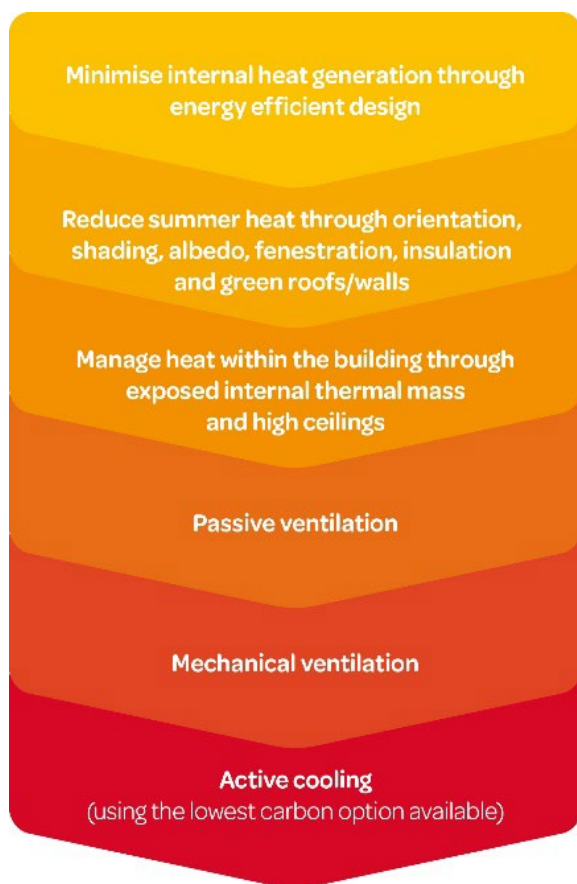
With rising summer temperatures there is an increasing risk of overheating in buildings which could adversely affect building occupants and users, particularly in care home environments where residents are likely to be vulnerable to extreme temperatures.

Three Hea 04 Thermal Comfort credits are targeted within the BREEAM pre-assessment. These credits require dynamic thermal modelling for current and future climate scenarios, to assess how the care home may be affected by overheating.

To inform initial Concept Design, an Overheating Study has been undertaken by Harniss. The study confirms that most of the building passed the assessment without any additional provisions needed. With additional ventilation, reduced window g-value and some active cooling, the full building was able to pass both the CIBSE TM52 and TM59 assessments.

The proposed care home has considered the cooling hierarchy, as shown in **Figure 5** to prioritise occupant comfort and reduce carbon emissions.

Figure 5: Cooling Hierarchy



4.6 Conserving and Enhancing the Natural Environment

The proposed development will incorporate measures to support and enhance the environment through consideration of the existing site ecology, including measures to mitigate any impacts, and enhance site biodiversity, as well as incorporate measures to reduce pollution from the site.

4.6.1 Ecology

An Ecological Impact Appraisal has been prepared by FPCR to establish the ecological status of the site and the impact of the proposed development.

Current Site Conditions

Ecology surveys have found the site to be comprised of modified grassland, other neutral grassland managed by regular cutting bounded by hedgerows, introduced shrubs and trees.

The habitats on site are considered to have potential to support great crested newt, reptiles, bats, hazel dormouse, breeding birds, riparian mammals, and hedgehogs.

Mitigation Measures

To protect the site habitats and species, and wider area, a range of intrinsic mitigation measures have been proposed and recommended, including:

- Surface water treatment is engineered into the site design to ensure water draining from the proposed site carpark and building roofs is clean upon entry into the River Barton. A soft engineered swale is proposed between the drain headwall and River Barton to ensure habitat is maintained along the bank edge.
- The River Barton is enhanced by reducing encroachment of the current bank edge that is intensively managed. Willow/alder scrub planting is proposed to further enhance this buffer zone between the river and site.
- The areas of main ecological importance, the hedges and mature trees, will be largely retained and, where appropriate, enhanced through removal of invasive cherry laurel and planting of new trees and scrub.
- Areas of retained other neutral grassland will have additional forb species sown into the sward. These will be placed into a favourable management regime to maintain the condition and value to protected species including reptiles and bats.
- Bat corridors are retained along boundary features with no built environment encroaching into these other than where access is proposed on the western site boundary. These are placed in sensitive lighting schemes to maintain bat use.

Enhancement Measures

Several ecological enhancements have been proposed, which would improve the quality of the site for native flora and fauna. These enhancement measures include:

- A willow/alder scrub buffer to be planted along the Barton River edge where habitat is currently managed as modified grassland, reducing encroachment and creating additional habitat for protected species including water vole and otter.
- Retained grassland and scrub areas will be managed to maintain a foraging resource for bats at the site.
- Site boundary hedgerows will be enhanced through additional planting to increase diversity and structure. These will be maintained to allow mature trees to establish where not currently present to further enhance their value to bats.
- A total of seven bat boxes will be integrated into the care home structure on the northern, eastern and southern aspects.
- Offsite grassland and scrub are created with some retained areas enhanced.
- Two hibernacula features will be created to the south of the site.
- Six swift bricks will be integrated into the care home building.
- Proposed enhancement planting across the site that benefit hedgehogs by increasing the extent of foraging and rest habitat overall.

The assessment has demonstrated that following mitigation measures, all residual effects on the applicant site are not significant.

4.6.2 Pollution

The proposed development will aim to minimise any negative impacts on the natural environment considering the impacts of water use, and air quality.

Throughout construction, negative impacts will be minimised by adhering to a CEMP which will set out pollution prevention measures.

4.7 Sustainable Resources

4.7.1 Materials

Increasingly stringent energy efficiency and operational carbon regulations means that embodied carbon is proportionately an increased contribution to climate change. Finding ways to reduce embodied carbon associated with new development is therefore becoming increasingly important.

As part of the BREEAM strategy, an LCA of the building's superstructure, substructure and hard landscaping has been undertaken.

LCA is an evaluation of the environmental effects of a product, service or process over its entire life cycle. The assessment considers all the steps that lead from raw material to manufactured product, including extraction of the materials, energy consumption, manufacture, transportation, use, recycling, and final disposal or end of life. The assessment was undertaken using 'One Click LCA' software to estimate embodied carbon of various design scenarios.

The following measures based have been chosen to reduce the embodied carbon associated with the development:

- Exposed multi stock brick as main material
- Timber cladding

As demonstrated above, the development proposes the use of natural resources where possible, including timber and brickwork. Brick is a sustainable and relatively low carbon material selection due to its durability and lack of maintenance / replacement required throughout a building's lifetime. Furthermore, brick is entirely recyclable. Where possible, the bricks will be procured locally.

Timber is also a natural material which requires limited processing during manufacturer, and will contribute to sequestration over its lifetime.

During detailed design, the LCA will be revisited to consider further measures to reduce construction carbon. At this stage, the supply chain will be further progressed and options open to the team will be better known. Such measures could include incorporation of by-product materials such as ground-granulated blast-furnace slag (GGBS) as a cement alternative within the foundations, slab and frame of the building. Furthermore, concrete and brick paving products with reduced embodied carbon may be available and will be considered.

Where possible, materials will be procured locally, to reduce carbon emissions associated with the transport of materials.

The development specification will also prioritise responsible supply chains such as those who hold FSC and BES6001 certification.

Insulation materials containing substances known to contribute to stratospheric ozone depletion or with the potential to contribute to global warming will not be used. Natural insulation materials such as mineral wool, rock wool or cork board will be considered as they are amongst the lowest Global Warming Potential (GWP) rating.

4.7.2 Construction Waste Management

Prior to the construction phase a CEMP will be developed to ensure the use of measures to minimise waste during the construction phases of

the development, including the use of a scheme for recycling/disposing of waste arising from demolition and construction works.

The reduction, reuse and recycling of construction waste is to be prioritised through measures such as avoidance of over-ordering, supervision of deliveries, use of secure materials storage facilities and reuse of materials onsite where feasible.

In addition, the development will be registered with the Considerate Constructors Scheme and achieve certification against the Code of Considerate Practice.

4.7.3 Operational Waste Management

The development will make provision for the storage of non-recyclable waste and recyclable waste including a dedicated external refuse store for the care home.

Full consideration will be given to the council's waste management infrastructure and services to ensure that the occupiers have the necessary infrastructure to participate in local recycling services.

The BREEAM Wst 03 Operational Waste credit is targeted, this credit requires adequate storage provision for general, recyclable and food waste.

5. Conclusion

This Sustainability Statement has been prepared to demonstrate how the proposed care home at Chickenhall Lane responds positively to national and local sustainable policy requirements.

The key sustainability measures incorporated at this stage and further measures to be considered during the detailed design of the proposed development have been set out within previous chapters and are summarised below.

Social and Economic Benefits

The development aims to provide a range of social and economic benefits to both new and existing residents, through:

- Provision of a high-quality residential care home to support those in the local area who require it.
- Support to the local community through increased jobs and population.
- Incorporation of sustainable transport measures to encourage active travel in the form of walking and cycling, through provision of cycle storage and facilities.
- Provision of a Travel Plan to provide staff with sustainable and safe transport options.
- Provision of a healthy and comfortable indoor and outdoor environment in line with the requirements of BREEAM Health and Wellbeing.

Environmental Protection and Enhancement

Through a range of design measures the development aims to protect and enhance the local environment. The following measures align with Local Plan Policies S9, DM2, DM6, and DM11, including:

- To help limit air pollution, EV infrastructure will be supplied to 10% of the proposed parking bays, in line with BREEAM requirements, and ASHP's will be incorporated to serve space heating and hot water generation.
- Provision of biodiversity enhancement measures to provide multi-functional benefits including support to protected species, climate resilience and recreation.
- Provision of measures through construction and operation of the site to reduce pollution, minimise waste and encourage recycling.

Mitigating and Adapting to Climate Change

In recognition of the climate emergency and local policies relating to climate change (predominantly Policies S1, DM2, and DM3), the development will incorporate a range of measures to reduce carbon emissions, mitigate the effects of climate change, and to ensure the long-term resilience of the development to the effects of climate change. Measures include:

- Targeting a BREEAM Excellent rating.
- Use of passive design measures, ASHPs, and solar PV to reduce grid energy demand, helping mitigate the effects of climate change and reducing carbon emissions by circa 17% over Part L 2021.
- Reduced emissions associated with private car travel through development in a sustainable location, with access to public transport and amenities, and provision of cycle storage.
- Encouraging electric vehicle uptake by providing three EV charging spaces, equivalent to 10% provision.
- A design which has considered the embodied carbon associated with construction materials and selected sustainable products where

possible to reduce environmental impacts of construction.

- A design which reduces the risk of overheating at current and future climate scenarios.
- Targeting two credits under BREEAM Wat 01 by reducing flow rates, flush volumes, and specifying water efficient kitchen equipment.
- Development in Flood Zone 1, and incorporation of SuDS including raingardens, french drains, permeable paving and swales to ensure that post development surface water-run off is managed up to 1-in-100 year storm events with a 45% allowance for climate change.

Highwood Ventures 7 Limited is committed to the delivery of a sustainable, high quality care home, which provides economic and social benefits; protects and enhances the environment and mitigates and adapts to the effects of climate change.

Appendix 1 – BREEAM Pre-assessment



Chickenhall Lane (Highwood)

BREEAM New Construction V6.1 (Multi-Residential - Care Home)

December 2024

Key

Minimum Standard for Excellent Rating
Credit not targeted

TARGET (>70%)	73.73%	Excellent			
General Comments					Strategy
Credit Summary BREEAM V6.1: Multi-Residential				Credit Ref.	Credits Available Excellent Target
MANAGEMENT					
Credit Value 0.52%	Project Brief and Design	Project Delivery Planning	Man 01	1	1
		Stakeholder Consultation		1	1
		BREEAM Advisory Professional (Concept Design)		1	1
		BREEAM Advisory Professional (Developed Design)		1	1

	Life Cycle Costing (LCC) and Service Life Planning	Elemental Life Cycle Cost	Man 02	2	0
		Component Life Cycle Cost		1	1
		Capital Cost Reporting		1	1
	Responsible Construction Practices	Legally harvested and traded timber - Pre-requisite	Man 03	-	Y
		Environmental Management		1	0
		Sustainability Champion		1	1
		Responsible Construction Management (1 credit mandatory)		2	2
		Monitoring of Construction Site Impacts		1	1
		Monitoring of Construction Site Impacts		1	1
	Commissioning and Handover	Commissioning and Testing Schedule and Responsibilities	Man 04	1	1
		Commissioning Building Services		1	1
		Testing and Inspecting Building Fabric		1	1
		Handover (Building User Guide mandatory)		1	1
	Aftercare	Aftercare Support	Man 05	1	1
		Commissioning - Implementation		1	1
		Post Occupancy Evaluation		1	1
Section Credit Total				21	18
Weighted Section Total				11%	9.43%

HEALTH & WELLBEING					
Credit Value 0.74%	Visual Comfort	Glare control	Hea 01	1	1
		Daylight factors		2	0
		View Out		1	1
		Internal and External Lighting Levels		1	1
	Indoor Air Quality	Indoor Air Quality Pre-Requisite	Hea 02	-	Y
		Ventilation		1	0
		Emissions from Construction Products		2	0
		Post Construction Indoor Air Quality Management		1	1

	Thermal Comfort	Thermal modelling	Hea 04	1	1
		Adaptability for projected climate change scenario		1	1
		Thermal Zoning and Controls		1	1
	Acoustic Performance	Sound Insulation	Hea 05	2	0
		Indoor Ambient Noise Levels		1	1
		Room Acoustics		1	1
	Security		Hea 06	1	0
	Safe and Healthy Surroundings	Safe access	Hea 07	1	0
		Outside Space		1	1
Section Credit Total				19	10
Weighted Section Total				14%	7.37%

ENERGY					
Credit Value 0.73%	Reduction of Energy Use and Carbon Emissions	Energy Performance Ratio	Ene 01	9	5
		Prediction of Operational Energy Consumption		4	4
	Energy Monitoring	Sub-metering End-Use Categories	Ene 02	1	1
		Sub-metering of High Energy Load and Tenancy Areas			0
	External Lighting		Ene 03	1	1
	Low Carbon Design	Passive Design Analysis (PDA)	Ene 04	1	1
		Free Cooling		1	0
		Low and Zero Carbon Feasibility Study		1	1
	Energy Efficient Transportation Systems	Energy Consumption	Ene 06	1	1
		Energy Efficient Features		1	1
Section Credit Total				22	15
Weighted Section Total				16%	10.91%
TRANSPORT					
Credit Value 0.83%	Transport Assessment and Travel Plan		Tra 01	2	2
	Sustainable Transport Measures		Tra 02	10	7
Section Credit Total				12	9
Weighted Section Total				10.0%	7.50%

WATER					
Credit Value 0.78%	Water Consumption (1 credit mandatory)		Wat 01	5	2
	Water Monitoring		Wat 02	1	1
	Water Leak Detection & Prevention	Leak Detection System	Wat 03	1	1
		Flow Control Devices		1	1
	Water Efficient Equipment		Wat 04	1	1
Section Credit Total				9	6
Weighted Section Total				7%	4.67%
MATERIALS					
Credit Value 1.07%	Environmental Impacts from Construction Products - Building Life Cycle Assessment (LCA)		Mat 01	7	7
	Environmental Impacts from Construction Products - Environmental Product Declarations (EPD)		Mat 02	1	1
	Responsible Sourcing of Construction Products	Pre-requisite - Legal and Sustainable Timber	Mat 03	-	Y
		Enabling Sustainable Procurement		1	1
		Measuring Responsible Sourcing		3	2
	Insulation	Embodied Impact	Mat 04	0	
	Designing for Durability and Resilience		Mat 05	1	1
	Material Efficiency		Mat 06	1	0
Section Credit Total				14	12
Weighted Section Total				15.0%	12.86%
WASTE					
Credit Value		Pre-Demolition Audit		0	0

Credit Value 0.67%	Construction Waste Management	Construction Resource Efficiency	Wst 01	3	1
		Diversion of Resources from Landfill		1	1
	Use of Recycled and Sustainably Sourced Aggregates		Wst 02	1	0
	Operational Waste		Wst 03	1	1
	Speculative Floor Finishes		Wst 04	0	
	Adaptation to Climate Change		Wst 05	1	1
	Design for Disassembly and Adaptability		Wst 06	2	2
Section Credit Total				9	6
Weighted Section Total				6.0%	6.0%
LAND USE & ECOLOGY					
Credit Value 1.00%	Site Selection	Previously Developed Land	LE 01	1	0
		Contaminated Land		1	0
	Ecological Risks and Opportunities	Survey and evaluation	LE 02	1	1
		Determining Ecological Outcomes		1	1
	Managing Negative Impacts on Ecology	Prerequisite - Ecological risks and Opportunities	LE 03	-	Y
		Planning and Measures On-site		1	1
		Managing Negative Impacts		2	1

	Ecological Change and Enhancement	Prerequisite - Managing Negative Impacts on Ecology	LE 04	-	Y
		Ecological Enhancement		1	1
		Change and Enhancement of Ecology		3	0
	Long Term Ecological Management and Maintenance	Prerequisite - Statutory obligations, planning and site implementation	LE 05	-	Y
		Management and maintenance throughout the project		1	1
		Landscape and ecology management plan		1	1
					0
Section Credit Total				13	7
Weighted Section Total				13%	7.00%

POLLUTION					
Credit Value 0.67%	Impact of Refrigerants	Prerequisite	Pol 01	-	Y
		Impact of Refrigerants		2	1
		Leak Detection		1	1
	Local Air Quality		Pol 02	2	2
	Surface Water Run Off	Low Flood Risk	Pol 03	2	1
		Surface Water Run-Off - Rate		1	1
		Surface water Run-Off - Volume		1	1
		Minimise watercourse pollution		1	0
	Reduction of Night Time Light Pollution		Pol 04	1	1
	Reduction of Noise Pollution		Pol 05	1	1
Section Credit Total				12	9
Weighted Section Total				8%	6.00%

Appendix 2 –Energy Modelling

Project name

As designed

Date: Tue Dec 03 10:04:38 2024

Administrative information

Building Details

Address:

Certifier details

Name:

Telephone number:

Address: , ,

Certification tool

Calculation engine: TAS

Calculation engine version: "v9.5.6"

Interface to calculation engine: TAS

Interface to calculation engine version: v9.5.6

BRUKL compliance module version: v6.1.e.0

Foundation area [m²]: 1036.99The CO₂ emission and primary energy rates of the building must not exceed the targets

Target CO ₂ emission rate (TER), kgCO ₂ /m ² annum	9.69
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	8.01
Target primary energy rate (TPER), kWh _{PE} /m ² annum	105.47
Building primary energy rate (BPER), kWh _{PE} /m ² annum	86.14
Do the building's emission and primary energy rates exceed the targets?	BER ≤ TER BPER ≤ TPER

The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Fabric element	U _{a-Limit}	U _{a-Calc}	U _{i-Calc}	First surface with maximum value
Walls*	0.26	0.19	0.19	External Wall
Floors	0.18	0.13	0.13	Ground Floor
Pitched roofs	0.16	0.11	0.11	Roof
Flat roofs	0.18	-	-	No flat roofs in project
Windows** and roof windows	1.6	0.97	1.14	EW.03-3400X2110
Rooflights***	2.2	-	-	No rooflights in project
Personnel doors^	1.6	-	-	No personnel doors in project
Vehicle access & similar large doors	1.3	-	-	No vehicle access or similar large doors in project
High usage entrance doors	3	-	-	No high usage entrance doors in project

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

* 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.

*** Values for rooflights refer to the horizontal position.

^ For fire doors, limiting U-value is 1.8 W/m²K

NB: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air permeability	Limiting standard	This building
m ³ /(h.m ²) at 50 Pa	8	5

Building services

For details on the standard values listed below, system-specific guidance, and additional regulatory requirements, refer to the Approved Documents.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	NO
Whole building electric power factor achieved by power factor correction	<0.9

1- Rad Heat/Nat Vent

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	-	-	-	-
Standard value	2.5*	N/A	N/A	N/A	N/A
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.					

2- Rad Heat/Extract (79 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	-	-	-	-
Standard value	2.5*	N/A	N/A	N/A	N/A
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.					

3- Rad Heat/Mech Vent (30 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	-	-	-	0.8
Standard value	2.5*	N/A	N/A	N/A	N/A
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.					

4- VRF/Mech Vent (13 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	4.5	-	-	0.8
Standard value	0.93*	3	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES
* Standard shown is for gas single boiler systems <=2 MW output and overall for multi-boiler systems. For single boiler systems >2 MW or any individual boiler in a multi-boiler system, limiting efficiency is 0.88.					

5- VRF/Extract (3 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0	4.5	-	-	-
Standard value	N/A	3	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

6- VRF/Nat Vent (02-Chef 1)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	4.5	-	-	-
Standard value	0.93*	3	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES
* Standard shown is for gas single boiler systems <=2 MW output and overall for multi-boiler systems. For single boiler systems >2 MW or any individual boiler in a multi-boiler system, limiting efficiency is 0.88.					

7- VRF/Nat Vent (00-Comms 1)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0	-	-	-	-
Standard value	N/A	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

8- Kitchen (2 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	-	-	-	-
Standard value	2.5*	N/A	N/A	N/A	N/A
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.					

1- HWS

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	3.5	0
Standard value	0.91	N/A

Zone-level mechanical ventilation, exhaust, and terminal units

ID	System type in the Approved Documents
A	Local supply or extract ventilation units
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 balanced supply and extract ventilation system
E	Local balanced supply and extract ventilation units
F	Other local ventilation units
G	Fan assisted terminal variable air volume units
H	Fan coil units
I	Kitchen extract with the fan remote from the zone and a grease filter
NB: Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.	

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	2.3	2	0.5	0.5	0.4	1	Zone	Standard	
00-Ensuites 1	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Ensuites 2	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Ensuites 3	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Ensuites 4	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Ensuites 5	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Ensuites 6	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Ensuites 7	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Ensuites 8	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Ensuites 9	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Ensuites 10	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Ensuites 11	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Ensuites 12	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Ensuites 13	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Ensuites 14	0.2	-	-	-	-	-	-	-	-	-	N/A	

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	2.3	2	0.5	0.5	0.4	1	Zone	Standard	
00-Ensuites 15	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Ensuites 16	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Ensuites 17	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Ensuites 18	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Ensuites 19	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Ensuites 20	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Ensuites 21	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Lounge/Dining 1	-	-	-	1.2	-	-	-	-	-	-	N/A	
00-Dining 1	-	-	-	1.2	-	-	-	-	-	-	N/A	
00-Ciculation 1	-	-	-	1.2	-	-	-	-	-	-	N/A	
00-Ciculation 2	-	-	-	1.2	-	-	-	-	-	-	N/A	
00-Ciculation 3	-	-	-	1.2	-	-	-	-	-	-	N/A	
00-Ciculation 4	-	-	-	1.2	-	-	-	-	-	-	N/A	
00-Ciculation 5	-	-	-	1.2	-	-	-	-	-	-	N/A	
00-Ciculation 6	-	-	-	1.2	-	-	-	-	-	-	N/A	
00-Ciculation 7	-	-	-	1.2	-	-	-	-	-	-	N/A	
00-Dayspace 1	-	-	-	1.2	-	-	-	-	-	-	N/A	
00-W.C 1	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Nurse 1	-	-	-	1.2	-	-	-	-	-	-	N/A	
00-Assisted Bath 1	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Drugs 1	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Visitor W.C 1	0.2	-	-	-	-	-	-	-	-	-	N/A	
00-Hair/Beauty 1	-	-	-	1.2	-	-	-	-	-	-	N/A	
00-Cafe 1	-	-	-	1.2	-	-	-	-	-	-	N/A	
00-Ensuites 22	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 1	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 2	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 3	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 4	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 5	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 6	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 7	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 8	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 9	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 10	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 11	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 12	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 13	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 14	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 15	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 16	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 17	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 18	0.2	-	-	-	-	-	-	-	-	-	N/A	

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	2.3	2	0.5	0.5	0.4	1	Zone	Standard	
01-Ensuites 19	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 20	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 21	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 22	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 23	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Ensuites 24	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Dayspace 1	-	-	-	1.2	-	-	-	-	-	-	N/A	
01-W.C 1	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Dining 1	-	-	-	1.2	-	-	-	-	-	-	N/A	
01-Circulations 1	-	-	-	1.2	-	-	-	-	-	-	N/A	
01-Circulations 2	-	-	-	1.2	-	-	-	-	-	-	N/A	
01-Circulations 3	-	-	-	1.2	-	-	-	-	-	-	N/A	
01-Circulations 4	-	-	-	1.2	-	-	-	-	-	-	N/A	
01-Circulations 5	-	-	-	1.2	-	-	-	-	-	-	N/A	
01-Circulations 6	-	-	-	1.2	-	-	-	-	-	-	N/A	
01-Circulations 7	-	-	-	1.2	-	-	-	-	-	-	N/A	
01-Circulations 8	-	-	-	1.2	-	-	-	-	-	-	N/A	
01-Assisted Bath 1	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Nurse 1	-	-	-	1.2	-	-	-	-	-	-	N/A	
01-Sluice 1	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Drugs 1	0.2	-	-	-	-	-	-	-	-	-	N/A	
01-Training 1	-	-	-	1.2	-	-	-	-	-	-	N/A	
01-Staffroom 1	-	-	-	1.2	-	-	-	-	-	-	N/A	
01-Activity Room 1	-	-	-	1.2	-	-	-	-	-	-	N/A	
01-Laundry 1	-	-	-	1.2	-	-	-	-	-	-	N/A	
02-Ensuites 1	0.2	-	-	-	-	-	-	-	-	-	N/A	
02-Ensuites 2	0.2	-	-	-	-	-	-	-	-	-	N/A	
02-Ensuites 3	0.2	-	-	-	-	-	-	-	-	-	N/A	
02-Ensuites 4	0.2	-	-	-	-	-	-	-	-	-	N/A	
02-Ensuites 5	0.2	-	-	-	-	-	-	-	-	-	N/A	
02-Ensuites 6	0.2	-	-	-	-	-	-	-	-	-	N/A	
02-Ensuites 7	0.2	-	-	-	-	-	-	-	-	-	N/A	
02-Ensuites 8	0.2	-	-	-	-	-	-	-	-	-	N/A	
02-Ensuites 9	0.2	-	-	-	-	-	-	-	-	-	N/A	
02-Ensuites 10	0.2	-	-	-	-	-	-	-	-	-	N/A	
02-Ensuites 11	0.2	-	-	-	-	-	-	-	-	-	N/A	
02-Ensuites 12	0.2	-	-	-	-	-	-	-	-	-	N/A	
02-Ensuites 13	0.2	-	-	-	-	-	-	-	-	-	N/A	
02-Ensuites 14	0.2	-	-	-	-	-	-	-	-	-	N/A	
02-Ensuites 15	0.2	-	-	-	-	-	-	-	-	-	N/A	
02-Ensuites 16	0.2	-	-	-	-	-	-	-	-	-	N/A	
02-Ensuites 17	0.2	-	-	-	-	-	-	-	-	-	N/A	
02-Ensuites 18	0.2	-	-	-	-	-	-	-	-	-	N/A	

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	2.3	2	0.5	0.5	0.4	1	Zone	Standard
02-Ensuites 19		0.2	-	-	-	-	-	-	-	-	-	N/A
02-Ensuites 20		0.2	-	-	-	-	-	-	-	-	-	N/A
02-Ensuites 21		0.2	-	-	-	-	-	-	-	-	-	N/A
02-Ensuites 22		0.2	-	-	-	-	-	-	-	-	-	N/A
02-Ensuites 23		0.2	-	-	-	-	-	-	-	-	-	N/A
02-Ensuites 24		0.2	-	-	-	-	-	-	-	-	-	N/A
02-Sluice 1		0.2	-	-	-	-	-	-	-	-	-	N/A
02-Circulation 1		-	-	-	1.2	-	-	-	-	-	-	N/A
02-Circulation 2		-	-	-	1.2	-	-	-	-	-	-	N/A
02-Circulation 3		-	-	-	1.2	-	-	-	-	-	-	N/A
02-Circulation 4		-	-	-	1.2	-	-	-	-	-	-	N/A
02-Circulation 5		-	-	-	1.2	-	-	-	-	-	-	N/A
02-Circulation 6		-	-	-	1.2	-	-	-	-	-	-	N/A
02-Circulation 7		-	-	-	1.2	-	-	-	-	-	-	N/A
02-Circulation 8		-	-	-	1.2	-	-	-	-	-	-	N/A
02-Drugs 1		0.2	-	-	-	-	-	-	-	-	-	N/A
02-Nurse 1		-	-	-	1.2	-	-	-	-	-	-	N/A
02-Dry Store 1		-	-	1	-	-	-	-	-	-	-	N/A
02-Male Change 1		-	-	-	1.2	-	-	-	-	-	-	N/A
02-Female Change 1		-	-	-	1.2	-	-	-	-	-	-	N/A
02-Cinema 1		-	-	-	1.2	-	-	-	-	-	-	N/A
02-Lounge 1		-	-	-	1.2	-	-	-	-	-	-	N/A
02-Dayspace 1		-	-	-	1.2	-	-	-	-	-	-	N/A
02-Dining 1		-	-	-	1.2	-	-	-	-	-	-	N/A
02-W.C 1		0.2	-	-	-	-	-	-	-	-	-	N/A
02-Kitchen 1		-	-	1	-	-	-	-	-	-	-	N/A
02-Assisted Bath 1		0.2	-	-	-	-	-	-	-	-	-	N/A

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m²]
	Standard value	95	80	0.3
00-Bedrooms 1		95	-	-
00-Bedrooms 2		95	-	-
00-Bedrooms 3		95	-	-
00-Bedrooms 4		95	-	-
00-Bedrooms 5		95	-	-
00-Bedrooms 6		95	-	-
00-Bedrooms 7		95	-	-
00-Bedrooms 8		95	-	-
00-Bedrooms 9		95	-	-
00-Bedrooms 10		95	-	-
00-Bedrooms 11		95	-	-
00-Bedrooms 12		95	-	-

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m ²]
	Standard value	95	80	0.3
00-Bedrooms 13		95	-	-
00-Bedrooms 14		95	-	-
00-Bedrooms 15		95	-	-
00-Bedrooms 16		95	-	-
00-Bedrooms 17		95	-	-
00-Bedrooms 18		95	-	-
00-Bedrooms 19		95	-	-
00-Bedrooms 20		95	-	-
00-Bedrooms 21		95	-	-
00-Ensuites 1		95	-	-
00-Ensuites 2		95	-	-
00-Ensuites 3		95	-	-
00-Ensuites 4		95	-	-
00-Ensuites 5		95	-	-
00-Ensuites 6		95	-	-
00-Ensuites 7		95	-	-
00-Ensuites 8		95	-	-
00-Ensuites 9		95	-	-
00-Ensuites 10		95	-	-
00-Ensuites 11		95	-	-
00-Ensuites 12		95	-	-
00-Ensuites 13		95	-	-
00-Ensuites 14		95	-	-
00-Ensuites 15		95	-	-
00-Ensuites 16		95	-	-
00-Ensuites 17		95	-	-
00-Ensuites 18		95	-	-
00-Ensuites 19		95	-	-
00-Ensuites 20		95	-	-
00-Ensuites 21		95	-	-
00-Lounge/Dining 1		95	-	-
00-Dining 1		95	-	-
00-Ciculation 1		95	-	-
00-Ciculation 2		95	-	-
00-Ciculation 3		95	-	-
00-Ciculation 4		95	-	-
00-Ciculation 5		95	-	-
00-Ciculation 6		95	-	-
00-Ciculation 7		95	-	-
00-CL.Store 1		95	-	-
00-Store 1		95	-	-
00-Store 2		95	-	-
00-Store 3		95	-	-

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m ²]
	Standard value	95	80	0.3
00-Store 4		95	-	-
00-Dayspace 1		95	-	-
00-W.C 1		95	-	-
00-Stairs 1		95	-	-
00-Stairs 2		95	-	-
00-Nurse 1		95	-	-
00-Assisted Bath 1		95	-	-
00-Drugs 1		95	-	-
00-Visitor W.C 1		95	-	-
00-Office 1		95	-	-
00-Office 2		95	-	-
00-Hair/Beauty 1		95	-	-
00-Lobby 1		95	-	-
00-Plant 1		95	-	-
00-Cafe 1		95	-	-
00-Comms 1		95	-	-
00-Bedrooms 22		95	-	-
00-Ensuites 22		95	-	-
01-Bedrooms 1		95	-	-
01-Bedrooms 2		95	-	-
01-Bedrooms 3		95	-	-
01-Bedrooms 4		95	-	-
01-Bedrooms 5		95	-	-
01-Bedrooms 6		95	-	-
01-Bedrooms 7		95	-	-
01-Bedrooms 8		95	-	-
01-Bedrooms 9		95	-	-
01-Bedrooms 10		95	-	-
01-Bedrooms 11		95	-	-
01-Bedrooms 12		95	-	-
01-Bedrooms 13		95	-	-
01-Bedrooms 14		95	-	-
01-Bedrooms 15		95	-	-
01-Bedrooms 16		95	-	-
01-Bedrooms 17		95	-	-
01-Bedrooms 18		95	-	-
01-Bedrooms 19		95	-	-
01-Bedrooms 20		95	-	-
01-Bedrooms 21		95	-	-
01-Bedrooms 22		95	-	-
01-Bedrooms 23		95	-	-
01-Bedrooms 24		95	-	-
01-Ensuites 1		95	-	-

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m²]
	Standard value	95	80	0.3
01-Ensuites 2		95	-	-
01-Ensuites 3		95	-	-
01-Ensuites 4		95	-	-
01-Ensuites 5		95	-	-
01-Ensuites 6		95	-	-
01-Ensuites 7		95	-	-
01-Ensuites 8		95	-	-
01-Ensuites 9		95	-	-
01-Ensuites 10		95	-	-
01-Ensuites 11		95	-	-
01-Ensuites 12		95	-	-
01-Ensuites 13		95	-	-
01-Ensuites 14		95	-	-
01-Ensuites 15		95	-	-
01-Ensuites 16		95	-	-
01-Ensuites 17		95	-	-
01-Ensuites 18		95	-	-
01-Ensuites 19		95	-	-
01-Ensuites 20		95	-	-
01-Ensuites 21		95	-	-
01-Ensuites 22		95	-	-
01-Ensuites 23		95	-	-
01-Ensuites 24		95	-	-
01-Dayspace 1		95	-	-
01-W.C 1		95	-	-
01-Dining 1		95	-	-
01-Circulations 1		95	-	-
01-Circulations 2		95	-	-
01-Circulations 3		95	-	-
01-Circulations 4		95	-	-
01-Circulations 5		95	-	-
01-Circulations 6		95	-	-
01-Circulations 7		95	-	-
01-Circulations 8		95	-	-
01-Assisted Bath 1		95	-	-
01-Nurse 1		95	-	-
01-Sluice 1		95	-	-
01-CL.Store 1		95	-	-
01-Store 1		95	-	-
01-Store 2		95	-	-
01-Store 3		95	-	-
01-Drugs 1		95	-	-
01-Training 1		95	-	-

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m ²]
	Standard value	95	80	0.3
01-Staffroom 1		95	-	-
01-Mt.Store 1		95	-	-
01-Activity Room 1		95	-	-
01-Laundry 1		95	-	-
01-Staircases 1		95	-	-
01-Staircases 2		95	-	-
02-Bedrooms 1		95	-	-
02-Bedrooms 2		95	-	-
02-Bedrooms 3		95	-	-
02-Bedrooms 4		95	-	-
02-Bedrooms 5		95	-	-
02-Bedrooms 6		95	-	-
02-Bedrooms 7		95	-	-
02-Bedrooms 8		95	-	-
02-Bedrooms 9		95	-	-
02-Bedrooms 10		95	-	-
02-Bedrooms 11		95	-	-
02-Bedrooms 12		95	-	-
02-Bedrooms 13		95	-	-
02-Bedrooms 14		95	-	-
02-Bedrooms 15		95	-	-
02-Bedrooms 16		95	-	-
02-Bedrooms 17		95	-	-
02-Bedrooms 18		95	-	-
02-Bedrooms 19		95	-	-
02-Bedrooms 20		95	-	-
02-Bedrooms 21		95	-	-
02-Bedrooms 22		95	-	-
02-Bedrooms 23		95	-	-
02-Bedrooms 24		95	-	-
02-Ensuites 1		95	-	-
02-Ensuites 2		95	-	-
02-Ensuites 3		95	-	-
02-Ensuites 4		95	-	-
02-Ensuites 5		95	-	-
02-Ensuites 6		95	-	-
02-Ensuites 7		95	-	-
02-Ensuites 8		95	-	-
02-Ensuites 9		95	-	-
02-Ensuites 10		95	-	-
02-Ensuites 11		95	-	-
02-Ensuites 12		95	-	-
02-Ensuites 13		95	-	-

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m ²]
	Standard value	95	80	0.3
02-Ensuites 14		95	-	-
02-Ensuites 15		95	-	-
02-Ensuites 16		95	-	-
02-Ensuites 17		95	-	-
02-Ensuites 18		95	-	-
02-Ensuites 19		95	-	-
02-Ensuites 20		95	-	-
02-Ensuites 21		95	-	-
02-Ensuites 22		95	-	-
02-Ensuites 23		95	-	-
02-Ensuites 24		95	-	-
02-Sluice 1		95	-	-
02-Cl.Store 1		95	-	-
02-Store 1		95	-	-
02-Store 2		95	-	-
02-Store 3		95	-	-
02-Ciculation 1		95	-	-
02-Ciculation 2		95	-	-
02-Ciculation 3		95	-	-
02-Ciculation 4		95	-	-
02-Ciculation 5		95	-	-
02-Ciculation 6		95	-	-
02-Ciculation 7		95	-	-
02-Ciculation 8		95	-	-
02-Drugs 1		95	-	-
02-Nurse 1		95	-	-
02-Chef 1		95	-	-
02-Dry Store 1		95	-	-
02-Male Change 1		95	-	-
02-Female Change 1		95	-	-
02-Cinema 1		95	-	-
02-Lounge 1		95	-	-
02-Dayspace 1		95	-	-
02-Cold Store 1		95	-	-
02-Stairs 1		95	-	-
02-Stairs 2		95	-	-
02-Dining 1		95	-	-
02-W.C 1		95	-	-
02-Kitchen 1		95	-	-
02-Assisted Bath 1		95	-	-

The spaces in the building should have appropriate passive control measures to limit solar gains in summer

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
00-Bedrooms 1	N/A	N/A
00-Bedrooms 2	N/A	N/A
00-Bedrooms 3	N/A	N/A
00-Bedrooms 4	N/A	N/A
00-Bedrooms 5	N/A	N/A
00-Bedrooms 6	N/A	N/A
00-Bedrooms 7	N/A	N/A
00-Bedrooms 8	N/A	N/A
00-Bedrooms 9	N/A	N/A
00-Bedrooms 10	N/A	N/A
00-Bedrooms 11	N/A	N/A
00-Bedrooms 12	N/A	N/A
00-Bedrooms 13	N/A	N/A
00-Bedrooms 14	N/A	N/A
00-Bedrooms 15	N/A	N/A
00-Bedrooms 16	N/A	N/A
00-Bedrooms 17	N/A	N/A
00-Bedrooms 18	N/A	N/A
00-Bedrooms 19	N/A	N/A
00-Bedrooms 20	N/A	N/A
00-Bedrooms 21	N/A	N/A
00-Lounge/Dining 1	N/A	N/A
00-Dining 1	N/A	N/A
00-Dayspace 1	N/A	N/A
00-Nurse 1	N/A	N/A
00-Drugs 1	N/A	N/A
00-Office 1	N/A	N/A
00-Office 2	N/A	N/A
00-Hair/Beauty 1	N/A	N/A
00-Cafe 1	N/A	N/A
00-Bedrooms 22	N/A	N/A
01-Bedrooms 1	N/A	N/A
01-Bedrooms 2	N/A	N/A
01-Bedrooms 3	N/A	N/A
01-Bedrooms 4	N/A	N/A
01-Bedrooms 5	N/A	N/A
01-Bedrooms 6	N/A	N/A
01-Bedrooms 7	N/A	N/A
01-Bedrooms 8	N/A	N/A
01-Bedrooms 9	N/A	N/A
01-Bedrooms 10	N/A	N/A
01-Bedrooms 11	N/A	N/A
01-Bedrooms 12	N/A	N/A
01-Bedrooms 13	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
01-Bedrooms 14	N/A	N/A
01-Bedrooms 15	N/A	N/A
01-Bedrooms 16	N/A	N/A
01-Bedrooms 17	N/A	N/A
01-Bedrooms 18	N/A	N/A
01-Bedrooms 19	N/A	N/A
01-Bedrooms 20	N/A	N/A
01-Bedrooms 21	N/A	N/A
01-Bedrooms 22	N/A	N/A
01-Bedrooms 23	N/A	N/A
01-Bedrooms 24	N/A	N/A
01-Dayspace 1	N/A	N/A
01-Dining 1	N/A	N/A
01-Nurse 1	N/A	N/A
01-Drugs 1	N/A	N/A
01-Training 1	N/A	N/A
01-Staffroom 1	N/A	N/A
01-Activity Room 1	N/A	N/A
01-Laundry 1	N/A	N/A
02-Bedrooms 1	N/A	N/A
02-Bedrooms 2	N/A	N/A
02-Bedrooms 3	N/A	N/A
02-Bedrooms 4	N/A	N/A
02-Bedrooms 5	N/A	N/A
02-Bedrooms 6	N/A	N/A
02-Bedrooms 7	N/A	N/A
02-Bedrooms 8	N/A	N/A
02-Bedrooms 9	N/A	N/A
02-Bedrooms 10	N/A	N/A
02-Bedrooms 11	N/A	N/A
02-Bedrooms 12	N/A	N/A
02-Bedrooms 13	N/A	N/A
02-Bedrooms 14	N/A	N/A
02-Bedrooms 15	N/A	N/A
02-Bedrooms 16	N/A	N/A
02-Bedrooms 17	N/A	N/A
02-Bedrooms 18	N/A	N/A
02-Bedrooms 19	N/A	N/A
02-Bedrooms 20	N/A	N/A
02-Bedrooms 21	N/A	N/A
02-Bedrooms 22	N/A	N/A
02-Bedrooms 23	N/A	N/A
02-Bedrooms 24	N/A	N/A
02-Drugs 1	N/A	N/A
02-Nurse 1	N/A	N/A
02-Chef 1	N/A	N/A
02-Cinema 1	N/A	N/A
02-Lounge 1	N/A	N/A
02-Dayspace 1	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
02-Dining 1	N/A	N/A

Regulation 25A: Consideration of high efficiency alternative energy systems

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

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m ²]	3154	3154
External area [m ²]	4082	4082
Weather	SOU	SOU
Infiltration [m ³ /hm ² @ 50Pa]	5	3
Average conductance [W/K]	993	1302
Average U-value [W/m ² K]	0.24	0.32
Alpha value* [%]	32.71	17.71

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

Building Use

% Area Building Type

Retail/Financial and Professional Services
 Restaurants and Cafes/Drinking Establishments/Takeaways
 Offices and Workshop Businesses
 General Industrial and Special Industrial Groups
 Storage or Distribution
 Hotels

100 Residential Institutions: Hospitals and Care Homes

Residential Institutions: Residential Schools
 Residential Institutions: Universities and Colleges
 Secure Residential Institutions
 Residential Spaces
 Non-residential Institutions: Community/Day Centre
 Non-residential Institutions: Libraries, Museums, and Galleries
 Non-residential Institutions: Education
 Non-residential Institutions: Primary Health Care Building
 Non-residential Institutions: Crown and County Courts
 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	4.77	4.71
Cooling	9.83	12.1
Auxiliary	14.9	12.5
Lighting	14.92	11.1
Hot water	24.93	31.05
Equipment*	94.1	94.1
TOTAL **	69.36	71.45

* Energy used by equipment does not count towards the total for consumption or 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	12.88	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>12.88</i>	<i>0</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	227.74	248.8
Primary energy [kWh _{PE} /m ²]	86.14	105.47
Total emissions [kg/m ²]	8.01	9.69

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 SSEFF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Central heating using water: floor heating, [HS] ASHP, [HFT] Electricity, [CFT] Electricity									
Actual	69.3	0	5.8	0	3	3.32	0	3.5	0
Notional	47.8	0	5	0	1.8	2.64	0	----	----
[ST] Central heating using water: floor heating, [HS] ASHP, [HFT] Electricity, [CFT] Electricity									
Actual	145.9	0	12.2	0	10.4	3.32	0	3.5	0
Notional	98.2	0	10.3	0	14.9	2.64	0	----	----
[ST] Central heating using water: floor heating, [HS] ASHP, [HFT] Electricity, [CFT] Electricity									
Actual	58.9	0	4.9	0	17.3	3.32	0	3.5	0
Notional	58.4	0	6.2	0	23.1	2.64	0	----	----
[ST] Central heating using water: floor heating, [HS] LTHW boiler, [HFT] Electricity, [CFT] Electricity									
Actual	0.4	908.4	0	56.1	27.4	3.32	4.5	3.5	4.5
Notional	0.3	1092.4	0	69	18.4	2.64	4.4	----	----
[ST] Variable refrigerant flow, [HS] LTHW boiler, [HFT] Electricity, [CFT] Electricity									
Actual	0	300.6	0	18.6	0	0	4.5	0	4.5
Notional	0	354.6	0	22.4	0	0	4.4	----	----
[ST] Split or multi-split system, [HS] LTHW boiler, [HFT] Electricity, [CFT] Electricity									
Actual	0.4	1063.7	0	65.7	0	3.32	4.5	3.5	4.5
Notional	0	1332	0	84.1	0	0	4.4	----	----
[ST] Central heating using water: floor heating, [HS] ASHP, [HFT] Electricity, [CFT] Electricity									
Actual	0.3	0	0	0	325.1	3.32	0	3.5	0
Notional	0.2	0	0	0	130.7	2.64	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

Turley Birmingham

9 Colmore Row,
Birmingham
B3 2BJ

T 0121 233 0902

