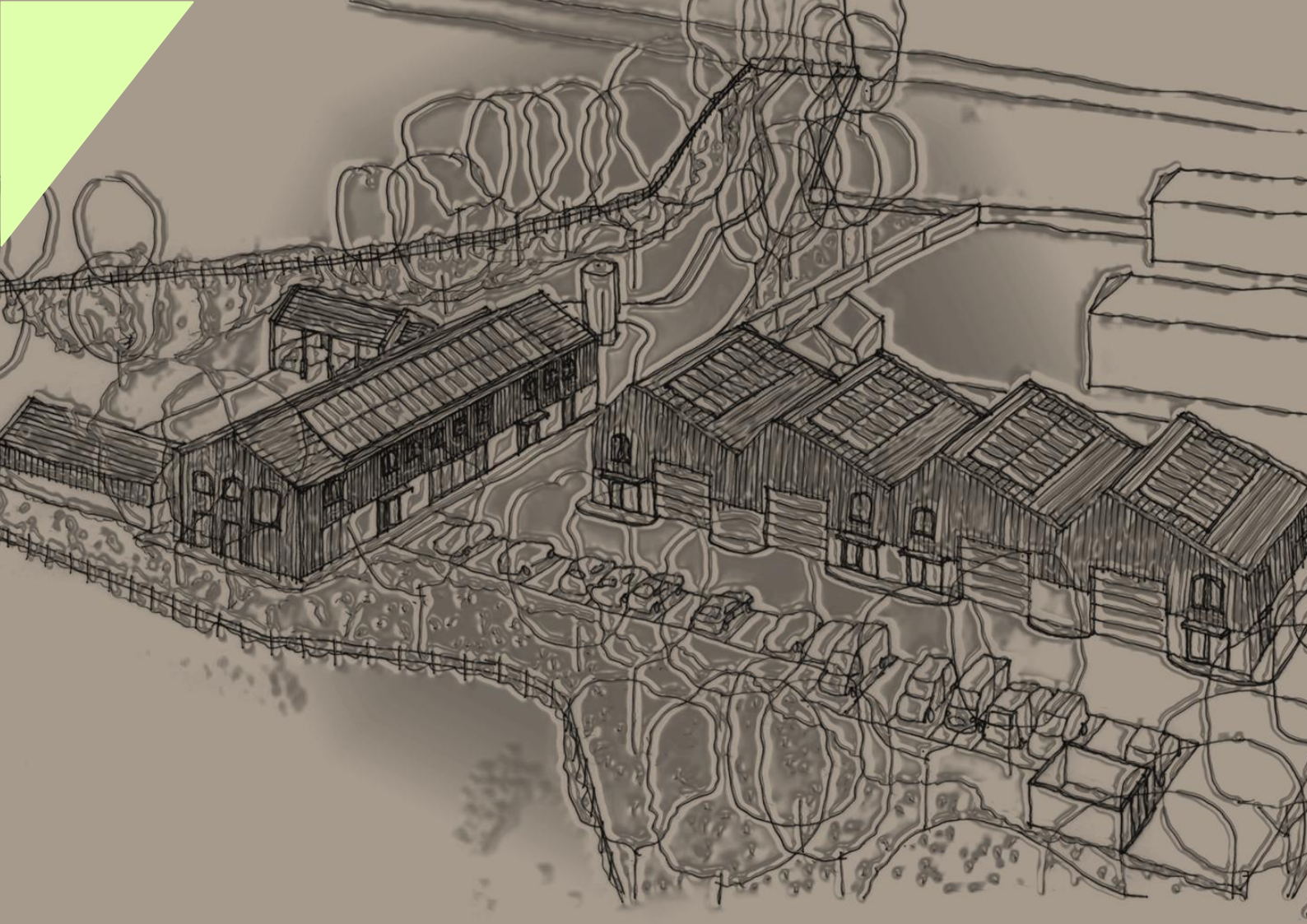




Upper Seagry Sustainable Energy Strategy for planning

Prepared For: Thala Family Investments Ltd

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Revision Record

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Table of Contents

1. Introduction..... 5

1.1. Background & The Proposed Development..... 5

2. Planning Policy..... 6

2.1. Wiltshire Local Development Plan Policy..... 6

2.2. National Plan..... 8

3. Outline Approach 9

3.1 Whole Building Approach 9

3.2 Energy hierarchy..... 9

3.3 Proposed Energy Approach..... 10

3.4 Sustainable Construction 15

3.5 Conclusion..... 16

Executive Summary

Sustainable Construction Services (SCS) have been appointed to produce this energy approach statement in support of the planning application of the proposed development.

This development includes the erection of building comprising 4No. flexible B8 storage and distribution and/or Class E(g) Commercial, Business and Service units and erection of building for mixed agricultural and equestrian workshop, storage and estate office and stables, all following demolition of existing B8 storage building and site remediation, together with associated parking, servicing, drainage, infrastructure, biodiversity net gain and landscaping and alterations to existing vehicular access

The site is located adjacent the village of Upper Seagry which falls under the jurisdiction of the Wiltshire Council and her planning policies.

This report reflects the response received through the Pre-Application Enquiry process and subsequent discussions, on how the development aims to meet the requirements of Wiltshire Council and her policies. This specifically focuses on the requirements of the primarily adopted Policy CP41: Sustainable Construction and Low Carbon Energy, and touches on some elements of the other policies while not particularly going into details.

The design will follow the Energy Hierarchy, demonstrating a first fabric approach to reducing CO₂ emissions, and improving energy efficiency. It will establish the baseline for Policy compliance before demonstrating how the proposed design offers a reduction over this baseline. In addition, low carbon technologies have been considered where appropriate.

The design team will ensure that the CO₂ emissions savings are maximised using a fabric first approach, supported by energy saving features and on-site renewable energy technologies.

Fabric specification and building services will be completed in line with Part L volume 2 of the Building Regulations 2021 incorporating 2023 amendments to reduce the energy consumption and carbon emissions and taking into consideration of renewable technologies to reduce the CO₂ emissions associated with the development.

Once the project progress into the next stages, Part L modelling will be completed to ensure that the proposed design achieves Part L compliance.

1. Introduction

1.1. Background & The Proposed Development

Sustainable Construction Services (SCS) have been appointed to produce this energy approach statement in support of the planning application of the proposed development. The site is located adjacent the village of Upper Seagry which falls under the jurisdiction of the Wiltshire Council and her planning policies.

This development includes the erection of building comprising 4No. flexible B8 storage and distribution and/or Class E(g) Commercial, Business and Service units and erection of building for mixed agricultural and equestrian workshop, storage and estate office and stables, all following demolition of existing B8 storage building and site remediation, together with associated parking, servicing, drainage, infrastructure, biodiversity net gain and landscaping and alterations to existing vehicular access



Figure 1: Proposed Site Plan

2. Planning Policy

2.1. Wiltshire Local Development Plan Policy

The following policies from the Wiltshire Core Strategy (WCS) have been deemed relevant for this project.

- Core Policy 1 Settlement Strategy;
- Core Policy 2 Delivery Strategy;
- Core Policy 10 Chippenham Community Area;
- Core Policy 34: Additional employment land;
- Core Policy 41 Sustainable Construction and Low Carbon Energy;
- Core Policy 50 Biodiversity and Geodiversity;
- Core Policy 51 Landscape;
- Core Policy 57 Ensuring High Quality Design and Place Shaping;
- Core Policy 58 Ensuring conservation of the historic environment;
- Core Policy 60 Sustainable Transport;
- Core Policy 61 Transport and Development;
- Core Policy 62 Development Impacts on the Transport Network;
- Core Policy 63 Transport Strategies;
- Core Policy 64 Demand Management;
- Core Policy 67 Flood Risk

Other relevant SPDs and general guidance;

- The Seagry Neighbourhood Plan
- The SPDs from the various surrounding towns e.g., Salisbury District Council SPD.

This document, however, primarily focuses on how the development aims to meet the requirements of CP41: Sustainable Construction and Low Carbon Energy, and will invariably touch on some elements of the other policies while not particularly going into details.

Wiltshire Core Strategy: Core Policy 41

Sustainable construction and low-carbon energy

Climate change adaptation

New development, building conversions, refurbishments and extensions will be encouraged to incorporate design measures to reduce energy demand. Development will be well insulated and designed to take advantage of natural light and heat from the sun and use natural air movement for ventilation, whilst maximising cooling in the summer.

Sustainable construction

New homes (excluding extensions and conversions) will be required to achieve at least Level 4 (in full) of the Code for Sustainable Homes.

Conversions of property to residential use will not be permitted unless BREEAM's Homes "Very Good" standards are achieved.

All non-residential development will be required to achieve the relevant BREEAM "Very Good" standards, rising to the relevant BREEAM "Excellent" standards from 2019.

Existing buildings

Retrofitting measures to improve the energy performance of existing buildings will be encouraged in accordance with the following hierarchy:

- i. Reduce energy consumption through energy efficiency measures
- ii. Use renewable or low-carbon energy from a local/district source
- iii. Use building-integrated renewable or low-carbon technologies.

Opportunities should be sought to facilitate carbon reduction through retrofitting at whole street or neighbourhood scales to reduce individual costs, improve viability and support coordinated programmes for improvement.

Renewable and low-carbon energy

All proposals for major development will be required to submit a Sustainable Energy Strategy alongside the planning application outlining the low-carbon strategy for the proposal.

In all cases, including those listed above, proposals relating to historic buildings, listed buildings and buildings within conservation areas and world heritage sites should ensure that appropriate sensitive approaches and materials are used.

Safeguarding of the significance of heritage assets should be in accordance with appropriate national policy and established best practice.

In all cases the impact of these requirements on the viability of development will be taken into consideration.

2.2. National Plan

Local Planning Authorities are encouraged under the National Planning Policy Framework, *paragraph 163 to 165* (Part L to Building Regulations 2010 approved on 15th June 2022), to incorporate strategies to ensure future developments “avoid increased vulnerability to the range of impacts arising from climate change” and “help increase the use and supply of renewable and low carbon energy”.

Furthermore, section 14 of the NPPF discusses “how the challenges of climate change, flooding and coastal change will be approached through planning and development” and this report briefly talks about strategies to combat these.

The following section of this report outlines the principles of the energy hierarchy, and how this approach has been adopted within this development, to meet both National and Local Policy requirements.

3. Outline Approach

3.1 Whole Building Approach

A 'whole building approach' seeks the best balance between saving energy, maintaining a healthy indoor environment and sustaining heritage significance, all by understanding the building in its context.

Because opportunities and constraints vary widely depending on context, the optimum solution in one case might be quite different in another, even though the buildings appear very similar.

Therefore, the 'whole building approach' is site-specific and takes into account all the factors affecting energy use.

It ensures improvements are suitable, proportionate, timely, well-integrated, properly coordinated, effective and sustainable. It also helps to highlight and resolve uncertainties, reconcile conflicting aims, and manage the risks of unintended consequences.

This approach guides and contextualizes the energy hierarchy adopted as outlined in the next sections.

3.2 Energy hierarchy

The development will follow the outlined strategy of the Energy Hierarchy, as is shown below in Figure 2.

The design will follow the Energy Hierarchy, demonstrating a first fabric approach to reducing CO₂ emissions, and improving energy efficiency. It will establish the baseline for Policy compliance before demonstrating how the proposed design offers a reduction over this baseline. In addition, low carbon technologies have been considered where appropriate.

The first step will be to minimise energy use wherever possible through the use of an efficient building fabric.

Following this, the focus will then turn to building services performance.

Finally, on-site low and zero carbon technologies will be considered to reduce CO₂ emissions further.

This approach will be adopted as it makes sense both in terms of conservation of energy and commercial viability.

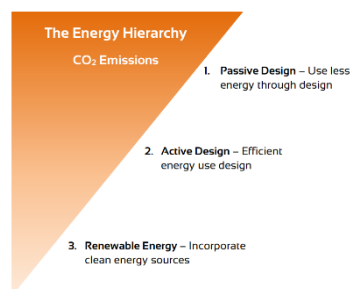


Figure 2: The Energy Hierarchy

3.3 Proposed Energy Approach

3.3.1 Fabric Efficiency

To ensure compliance with Part L Volume 2 of the Building Regulations 2021 edition incorporating 2023 amendments and improve energy efficiency of building operation, fabric performance will be designed to achieve at least the limiting values as per section 4 (Volume 2) of Building Regulation. This includes the external walls, roof and floor in addition to the glazing and internal elements of the fabric.

Below, in table 1 is a summary of the Part L requirements regarding the fabric elements.

Fabric Element	Non-domestic
	Limiting U - Value (W/m ² K)
Roof	0.16
Wall	0.26
Floor	0.18
Windows	1.60
Roof windows	1.60
Roof Lights	2.20
Opaque Doors	1.80
Air Permeability	8.0 m ³ / (h·m ²)@50Pa

Table 1: Building fabric Part L requirements

Within a building in operation, heat loss after the fabric, is through air permeability (i.e. leaks). This will be minimised with continuity of insulation where reasonably possible and taking care when carrying out work to reduce unwanted heat loss through air infiltration. Unnecessary holes such as unsealed penetrations for pipework, will be filled to ensure gaps are minimised.

This will ensure that heat losses through draughts are minimised as far as practically possible and validated through as-built air permeability testing.

3.3.2 Passive Measures

Factors such as orientation and site placement will be taken into consideration wherever possible to further reduce energy demand, following the principles of passive design.

Glazing with a solar transmittance value (g-value) which enables a balance to be struck between beneficial winter solar gain and unwanted solar gain in the summer will be beneficial to reduce energy consumption from heating system.

Natural ventilation and cross ventilation through windows will be the predominant strategy. This will allow air exchange to further reduce overheating potential. This also reduces the need to consider mechanical cooling systems which will reduce the energy consumption and emissions.

The proposal includes a large area of external shading from trees around the site. Deciduous trees lose leaves in winter allowing sunlight to warm homes naturally and will block direct sunlight, lowering indoor temperatures and reducing the need for cooling during summertime.

Site Layout and Orientation

The overall site layout has been designed to respond to solar orientation and building use.

Block A, which houses workshop, storage, and office spaces, has its longer sides north-south facing. This orientation minimizes unwanted solar gain in high-occupancy and heat-sensitive areas, such as workshops, while maximizing daylight and passive solar gain through carefully positioned southern and eastern glazing.

Block B, the mixed use warehouse / Class E (g) building, is oriented with its longer sides facing east-west. This configuration reduces direct solar exposure on the building's longest elevations, which helps to limit heat gain in the structure.

Window Size and Positioning

Glazing strategies have been tailored to the function and thermal needs of each building.

Block A features south- and east-facing windows to enhance natural daylighting in offices and work areas, reducing reliance on artificial lighting. North-facing windows and entry points are minimized to reduce heat loss while still providing functional access and some diffuse daylight.

Block B includes limited glazing. East-facing translucent panels allow diffused natural light to penetrate the interior without introducing excessive solar heat or compromising privacy and security. Window openings are minimized to retain internal thermal stability.

Roof Design and Solar Integration

Both buildings incorporate roof designs that support sustainable energy strategies.

Block A features a pitched gable roof, with the south-facing slope designed specifically to accommodate photovoltaic (PV) panels. This orientation maximizes solar exposure and energy generation potential throughout the year. North-facing rooflights are included to provide additional daylighting to deeper internal areas, reducing the need for artificial lighting without introducing significant solar gain.

Block B is designed with a saw-tooth roof profile. The vertical or steeply sloped elements of this form are aligned to optimize north-facing rooflights, which admit diffuse natural light into the warehouse while avoiding direct solar gain. This supports a consistent internal environment suitable for this building typology and reduces the need for artificial lighting during daylight hours.

3.3.3 Active Measures

In addition to building fabric, the building services (i.e. plumbing and heating) will have an impact on the energy consumption and carbon emissions.

The services that provide thermal and visual comfort conditions are most efficient when they are accurately sized to match the load that they need to provide. Therefore, both the efficiency of the items of equipment and their level of control will be carefully selected to maximise the overall CO₂ emissions performance.

These systems have the potential to emit large quantities of CO₂ and it is therefore important to choose energy efficient systems when choosing which systems to install.

It is proposed Air Source Heat Pumps will handle space heating. heating will be provided via an Air Source Heat Pump (ASHP). This system is classified as low carbon because every unit of electricity consumed, three or four units of heat energy are typically generated (dependant on atmospheric conditions and equipment used).

Heating controls are also fundamental to optimise the usage of energy. Central heating controls will help to manage timing schedules allowing the user to set on and off schedules based on their needs. Also, local thermostat will optimise the heating uses and reduce the energy consumption and carbon emissions.

Hot water will be provided via an electric instantaneous system, thus tending to the expected low water consumption on the site while sanitary fittings with low flow rates will be adopted to help control water consumption.

To reduce the consumption of potable water for sanitary use, water efficiency components and water recycling systems will be considered. Water fittings with a low flow rate will reduce the potable water use and help to conserve stretched water reserves at time of shortage.

Rainwater harvesting will be evaluated to reduce mains water use, supporting sustainable water management for irrigation and possibly non-potable uses. A joint surface water storage and attenuation tank is being considered for this purpose.

Provision of an appropriate energy monitoring such as smart meters will allow control of energy usage and optimise the performance of the property to save energy.

Lighting can also have a significant impact on the energy efficiency of the buildings.

Low energy lighting will be used as much as possible throughout the development. LED lighting has a high luminous efficacy that could be between 100-150 lm/w which will provide an energy reduction.

Where appropriate, proximity (PIR) and daylighting sensors will be provided to ensure that artificial lighting is not in operation when spaces are unoccupied or enough daylight is provided into the spaces.

Office equipment will be energy-efficient and appropriately sized to minimise energy use and associated carbon emissions. Smart controls and zoning will ensure optimal usage, reducing unnecessary energy consumption.

3.3.4 Additional Sustainability Measures

The estate aims to be largely self-sustaining through low carbon heating systems, efficient lighting, smart energy controls, and water-saving measures, ensuring long-term environmental and operational sustainability.

Sustainable landscaping will incorporate native, drought-resistant species requiring minimal irrigation. Planting will contribute to local biodiversity and reduce the need for artificial watering.

The development will deliver measurable biodiversity net gain through enhanced habitats, native planting, and ecological design. Green corridors and diverse planting strategies will support local wildlife and ecosystem resilience.

The proposal includes a large area of external shading from trees around the site. Deciduous trees lose leaves in winter allowing sunlight to warm homes naturally and will block direct sunlight, lowering indoor temperatures and reducing the need for cooling during summertime.

To reduce the transport impact, sustainable transport will be promoted. Existing public transport information will be made available for staff and building users and car sharing scheme will be promoted for staff to reduce carbon emissions from transport.

Secure bike storage will be provided to encourage low-carbon commuting and reduce transport-related emissions, supporting active and sustainable travel options.

EV chargers – equating to 20% of the total parking provision – are being considered for this scheme. This would translate to 2Nos. 7kw chargers serving x4 bays including 1no. accessible bay.

Where possible, locally sourced materials will be prioritised to reduce transportation emissions and support the local economy, aligning with low-carbon construction goals.

The use of timber harvested from the site will promote material circularity, reduces transport emissions, and support sustainable construction practices.

Implementation of operational waste management to encourage the recycling of operational waste, with the provision of sufficient storage areas within the building to reflect the recyclable waste streams that are generated and then collected by the local waste authority. This makes it as clear and convenient as possible for the building users to separate waste at source and encourage the reduction of waste to landfill.

3.3.5 Renewable Technologies

Photovoltaic (PV) panels utilise the sun's energy to produce direct current electricity via semiconducting materials that absorb solar radiation. There are a number of different PV types including monocrystalline, polycrystalline, amorphous silicon (thin film) and hybrid panels. These panels are either mounted directly into a roof or form an integral part of the roof façade.

In order to gain the most out of these panels in the UK the optimum position is tilted at 30° facing south. They can either be mounted flat on a pitched roof or independently tilted on a flat roof.

One of the key benefits of this technology is almost maintenance free as there are no moving parts. Once installed PV will typically operate for 20+ years without needing any significant maintenance regime. During this period of operation the output from the PV cells will be relatively constant. Maintenance is normally limited to annual cleaning of panels, although there is a degree of self-cleaning by virtue of the panel tilt. The inverter may need to be replaced during the lifespan of the installation.

Commercial solar panels have a power rating typically between 250W to 500W per panel which can produce substantial amounts of electricity providing significant reductions in energy combustion and emissions. The efficiency of these system depends on factors such as location, angle and orientation, temperature and shading.

The PV provision will be adequate designed to maximise CO₂ reductions.

As a future consideration, solar energy storage will allow a higher proportion of the annual solar energy yield to be used on site, rather than being exported to the national grid, therefore providing higher savings on electrical utility costs.

This may be advantageous, as the batteries can fill during daylight hours when generation exceeds usage, so this can be used during hours of darkness instead of drawing from the grid.

However, it must be considered that while the solar PV lifespan may be 20 years, storage batteries are generally only expected to operate efficiently for 10 years, so a replacement cost would need to be allowed for.

3.4 Sustainable Construction

As part of the planning policy, there is a mention of targeting the BREEAM certification. However, the project team have queried this and the Planning Officer in the Pre-Application response has confirmed that this is an aspiration rather than a requirement. The Project Team (in discussion with the applicant) consider that a formal BREEAM certification is not financial or practically realistic on this project as achieving a formal BREEAM rating would require specific design features, materials, and technologies and professional appointments to follow the formal certification.

The principles of sustainable construction as required by BREEAM will however be explored by the design team in the upcoming stages to find key opportunities for this development during design. These will include reducing potable water consumption using water storage and harvesting, efficient fittings, supply of sustainable materials, energy efficiency improvements, promotion of sustainable transport and minimising the ecological impact and prevention of pollution from the proposed building.

Building services energy consumption will be minimised using air source heat pumps, advanced controls, energy efficient lighting and natural ventilation where possible. Also, appropriate metering to monitor energy consumption during occupation and lighting controls to reduce the energy consumption will be implemented.

Therefore, the project team propose to follow a BREEAM aspiration approach instead a formal BREEAM certification.

3.5 Conclusion

The design team will ensure that the CO2 emissions savings are maximised using a fabric first approach, supported by energy saving features and on-site renewable energy technologies.

Fabric specification and building services will be completed in line with Part L volume 2 of the Building Regulations 2021 incorporating 2023 amendments to reduce the energy consumption and carbon emissions and taking into consideration of renewable technologies to reduce the CO2 emissions associated with the development.

Once the project progress into the next stages, Part L modelling will be completed to ensure that the proposed design achieves Part L compliance.