

Sustainability and Energy Statement

Land at Denham's Corner, Horton Heath

June 2025



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Client

Southern Strategic Land LLP

Turley Reference

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1. Introduction

This Sustainability Statement has been prepared to demonstrate the sustainability strategy for the development proposals at Land at Denham's Corner, North of Snakemoor Lane, Horton Heath.

1.1 Introduction

This Sustainability Statement has been prepared by Turley Sustainability & ESG, on behalf of Southern Strategic Land LLP ('the applicant' hereafter), to support an outline planning application to Eastleigh Borough Council for a proposed development at land at Denham's Corner, North of Snakemoor, Horton Heath. 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 approximately 3km from the edge of the city of Southampton with Horton Heath and Fair Oak being the nearest villages to the site. The 9.05ha site currently comprises modified grassland, lowland mixed deciduous woodland, purple moor grass and rush pastures, woodland and forest, hedgerow, artificial unvegetated unsealed surface, and bramble scrub.

1.3 Proposed Development

The proposed development is for up to 150 dwellings with associated vehicular and pedestrian access, landscaping and infrastructure. The proposals also include area of public open space

with a Local Area of Play (LAP), incorporation of Sustainable Urban Drainage Systems (SuDS) into the design, and the provision of a sustainable transport hub to help facilitate connectivity and access the wider area.

The description of development is as follows:

"Construction of up to 150 dwellings including 40% affordable housing, sustainable travel hub including parcel lockers and electric vehicle charging points for visitors, with associated vehicular access off Snakemoor Lane, a shared pedestrian and cycle access off Snakemoor Lane, a shared pedestrian and cycle access off Botley Road, associated infrastructure, public open space and play area, hard and soft landscaping, boundary treatments, sustainable urban drainage systems and provision for biodiversity net gain."

Figure 1 overleaf shows the proposed site plan of the proposed 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 provides detail of the sustainability and energy strategy of the proposed development, in line with local Planning Policy. **Chapter 4** provides an overall summary of the proposals.

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 layout (Corstorphine & Wright)



2. Policy Context

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

2.1 Introduction

This chapter sets out the planning policy context relating to sustainable design and construction at the national and local authority level.

2.2 National Policy

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

2.2.1 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 8 outlines the environmental objective of the Framework which includes mitigating and adapting to climate change and moving to a low carbon economy.

Paragraph 161 similarly confirms that the planning system should support the transition to a low carbon future in a changing climate, including providing support to proposals which contribute to radical reductions in greenhouse gas emissions and encourage the reuse of existing resources, as well as the development of low carbon energy.

Paragraph 164 expects new development to be planned for in ways that avoid increased vulnerability to the range of impacts arising from climate change, ensuring that suitable adaptation measures are provided where development is located in a vulnerable area.

Paragraph 166 of the Framework states that new development should:

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

Paragraph 167 states that LPAs should prioritise supporting energy efficiency and low-carbon heating improvements, such as installing heat pumps and solar panels, for both domestic and non-domestic buildings.

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 protection².

Figure 2: UN Sustainable Development Goals



¹ [UK Government | NPPF](#)

² [UN Sustainable Development Goals](#)

2.2.2 Planning Practice Guidance

Planning Practice Guidance (PPG) provides further advice on various planning issues associated with development, including those linked to sustainability and renewable energy and underpins the policies within the NPPF.

PPG is a material consideration in planning decisions and should generally be followed unless there are clear reasons not to do so. It sets out how local authorities should include policies that protect the local environment and strategies to mitigate and adapt to climate change and supports developments that are functional and adaptable for the future.

2.2.3 National Design Guide

The National Design Guide published in October 2019 and is based on the national planning policy practice guidance and objective for good design as set out in the NPPF. The Guide introduces ten characteristics of well-designed places which work together to create developments Character and Community, while positively addressing environmental issues affecting climate.

2.2.4 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.

Periodic updates to these national regulations will drive energy efficiency and carbon reduction improvements.

In 2022, the Building Regulations were updated as an interim step towards part of the roadmap to the 'full' Future Homes and Buildings Standards, which are anticipated to come into effect in 2025. The regulations aim to deliver buildings that are of a higher quality, with lower energy bills and reduce GHG emissions by around 30% for new homes and 27% for non-domestic buildings.

The 2025 Future Homes Standard (FHS) and Future Buildings Standard (FBS) consultation was published in December 2023 which requires homes to achieve a 75% carbon reduction beyond Part L 2013, removing the use of fossil fuel and requiring increased fabric efficiency and use of low carbon renewable energy generation.

As of 15th June 2022, Building Regulations Part S and Part O were introduced to set out requirements for electric vehicle charging and better assess overheating.

Part S sets out guidance for electric vehicle (EV) charging infrastructure and specifies that car parks with more than 10 spaces include at least one active EV charge point, with cabling to the remaining 20% of spaces.

Part O sets out requirements for mitigating overheating, specifying that residential developments must limit unwanted solar gains in the summer and provide means to remove heat. Compliance with Part O can be demonstrated using two methods to demonstrate the risk of overheating from rising summer temperatures has been mitigated:

- Following a simplified prescribed glazing and free area ratio; or,
- Use of a Dynamic Simulation Modelling.

2.2.5 Environment Act 2021

The Environment Act 2021³ aims to improve air and water quality, protect wildlife, increase recycling and reduce plastic waste.

The Environment Act explicitly makes Biodiversity Net Gain (BNG) a condition of planning permission, requiring all new developments in England for 10 or more homes to provide a 10% BNG, with the same rules applying to small sites from April 2024.

³ [Environment Act 2021](#)

2.3 Local Planning Policy

2.3.1 Eastleigh Borough Local Plan (2016-2036)⁴

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 Denham's Corner are noted below.

Policy S1 Delivering sustainable development – requires that new development in the Borough should have regard to the potential impacts of climate change, and the need to limit greenhouse gas emissions 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; 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; maintain, enhance, extend and connect the natural habitats within and landscape value of the Borough, extending natural habitats into new and existing development to achieve an environmental net gain.

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 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 – requires all new build residential development to achieve a 19% improvement in predicted carbon emissions, compared with the building regulations standard current at the time, through increased energy efficiency of the building fabric, and a predicted mains water consumption of no more than 110l/p/d.

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 – requires all development to be designed to adapt to the predicted climate change impacts for the Borough. Measures include:

- incorporate sustainable drainage systems 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

⁴ <https://www.eastleigh.gov.uk/media/11806/to-be-published-final-local-plan-april-2022-v4.pdf>

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; and
- 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 – states new development will only be permitted if it incorporates SuDS. On sites within 100m of the River Itchen SAC (Special Area of Conservation), SuDS schemes should include at least three forms of naturalised filtration. SuDS schemes should:

- be designed and monitored in accordance with the CIRIA C753 SuDs Manual or equivalent national or local guidance;
- manage surface water runoff as close to its source as possible;
- ensure that discharge rates are reduced as far as possible and that on greenfield sites these

should at least mirror greenfield rates before development;

- be provided as part of any application for outline or full planning permission;
- where discharge is to a wetland or wet woodland habitat, flows off site must mirror the natural hydrological pathways;
- include clear arrangements for their whole life management and maintenance.

Policy DM11 Nature conservation – seeks a net gain of biodiversity on all development sites 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.

2.3.2 Climate Emergency

Eastleigh Borough Council has declared a climate change and environmental emergency. 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)⁵ 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.

2.3.3 Eastleigh Validation Checklist⁶

A Sustainability Statement is required for all developments involving the provision of new dwellings. 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.

2.3.4 Environmentally sustainable development SPD⁷

The Council's Environmentally Sustainable Development SPD, adopted in 2009, sets out requirements in relation to rainwater harvesting,

⁵ <https://www.eastleigh.gov.uk/media/6355/climate-change-and-environmental-emergency-strategy-2020-2030.pdf>

⁶ <https://www.eastleigh.gov.uk/media/14224/local-validation-checklist-temp-apr24.pdf>

⁷ <https://www.eastleigh.gov.uk/planning-and-building/planning-policy-and-implementation/planning-policy-guidance/supplementary-planning-documents>

surface water runoff, passive design, carbon reductions, zero/low carbon technologies, green roofs, and trees.

2.4 Planning Policy Summary

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

The recently adopted 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. Although the Council has already noted that "the 19% carbon reduction set out in Policy DM2" no longer applies as a result of the introduction of Building Regulation Part L 2021.

Nationally, changes to the Building Regulations as a result of the FHS and FBS will require development to further reduce carbon emissions over time, with homes needing to achieve a 31% carbon reduction from June 2022 and at least 75% from 2025. The Government's December 2023 consultation confirms that homes which meet the 2025 FHS will be Net Zero Ready.

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

3. Sustainability and Energy Strategy

This section summarises the sustainability strategy for the proposed development on Land at Denham's Corner.

This section of the report outlines the sustainability strategy for the proposed development, demonstrating how the development responds to both national and local planning policy, including the NPPF, where appropriate incorporating responses to the Council's Local Plan requirements.

In this context the sustainable design commitments are set out under the following headings which reflect the themes of the NPPF.

Building a Strong and Competitive Economy – Demonstrating the developments social and economic benefits.

Sustainable Location and Transport – Demonstrating the sustainable location of the proposed development and setting out how the development aims to enhance sustainable transport.

Promoting Healthy Communities – Including details of how the development will promote health and wellbeing.

Meeting the Challenge of Climate Change – Demonstrating how the development will deliver low carbon housing which is resilient to the effects of climate change. Supporting the Council's Core Strategy policies for energy conservation and adapting to climate change.

Conserving and Enhancing the Natural Environment – Setting out how the development will protect and enhance the natural environment and minimise potential pollution impacts.

Sustainable Resources – Setting out how the development will reduce construction waste and put in place measures to reuse and recycle waste through construction and operation, helping minimise the use of resources.

3.1 Building a Strong and Competitive Economy

The proposed development will contribute to positive economic growth for the area through construction and occupation of the proposed sustainable new homes, supporting the aims of the NPPF.

Construction - The economic benefits of construction are well known with considerable direct and indirect positive impacts resulting from new residential and non-residential construction.

A study by the Confederation of British Industries (CBI) demonstrates that construction projects have a significant benefit on the local and wider economy. The report concludes that for every £1 of construction expenditure £2.84 is injected into the economy.

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

Occupation – Further positive economic impacts of the proposed development resulting from the occupation of new homes and related increase in local population are noted as follows:

- The construction of up to 150 new homes will increase the population resulting in local benefits through the demand for goods and services;
- The development of new homes will provide an increase in Council Tax revenue helping support local Council services; and

- The increase in local population will also help support local facilities, groups and stores helping promote the vitality of Eastleigh and beyond.

The proposed development will help support the local community with the delivery of new homes, including 40% affordable housing, and areas of public open space comprising a mix of natural green space and informal recreation including play.

3.2 Sustainable Location and Transport

A Transport Assessment has been prepared by DTA Transport Planning Consultants, summarising the existing conditions in the vicinity of the Site, the accessibility of the Site relative to local facilities and services and outlining the development proposals for the Site in line with the requirements of the Council's **Policy S1 Delivering Sustainable Development**.

This section of the report provides a summary of the sustainable access and transport measures available and incorporated into the development.

The site is located within walking distance of Horton Heath and is approximately 6.4km to the south-east of Eastleigh and 8.8km north-east of Southampton. The site is bounded by the B3354 Botley Road to the west and Snakemoor Lane to the south, leading into the B3342 Bubb Lane.

Walking/Cycling Access – Footway provision is available within close proximity of the site on B3354 Botley Road, B3342 Bubb Lane and Durley Brook Road.

Public Right of Way paths 085/719/1 and 069/15/1 are located along the north and east boundary of the site, with various other PRow paths in the local area.

As part of the development proposals, pedestrian and cycle access will be granted via a separate point on Botley Road and will deliver a 30m shared footway / cycleway in addition to a new Puffin crossing on Botley Road. This will connect to the existing secondary route 339.2 (medium-usage) as

defined in **Eastleigh Local Cycling and Walking Infrastructure Plan**⁸, enhancing the walking/cycling access from the site to nearby amenities including the bus stop.

National Cycle Route 23 is accessible approximately 5km to the west of the site near Southampton Airport Parkway railway station. This route provides connections to Southampton if followed south and Winchester if followed north.

Cycle storage will be provided for each dwelling to encourage active travel.

Bus Services – The nearest bus stops are located within 200m of the site access at the B3354/ B3342/ Snakemoor Lane roundabout. Bus stops are located on the B3354 Botley Road and Snakemoor Lane arms of this roundabout providing services 3 and 49 with journeys to Southampton, Eastleigh, Bishops Waltham and Hedge End Park.

In addition to these, services 606 and 649 are available for students to travel to Barton Peveril College and Swanmore Technology College.

Rail Services – Hedge End Railway Station is located approximately 1.25km south of the site.

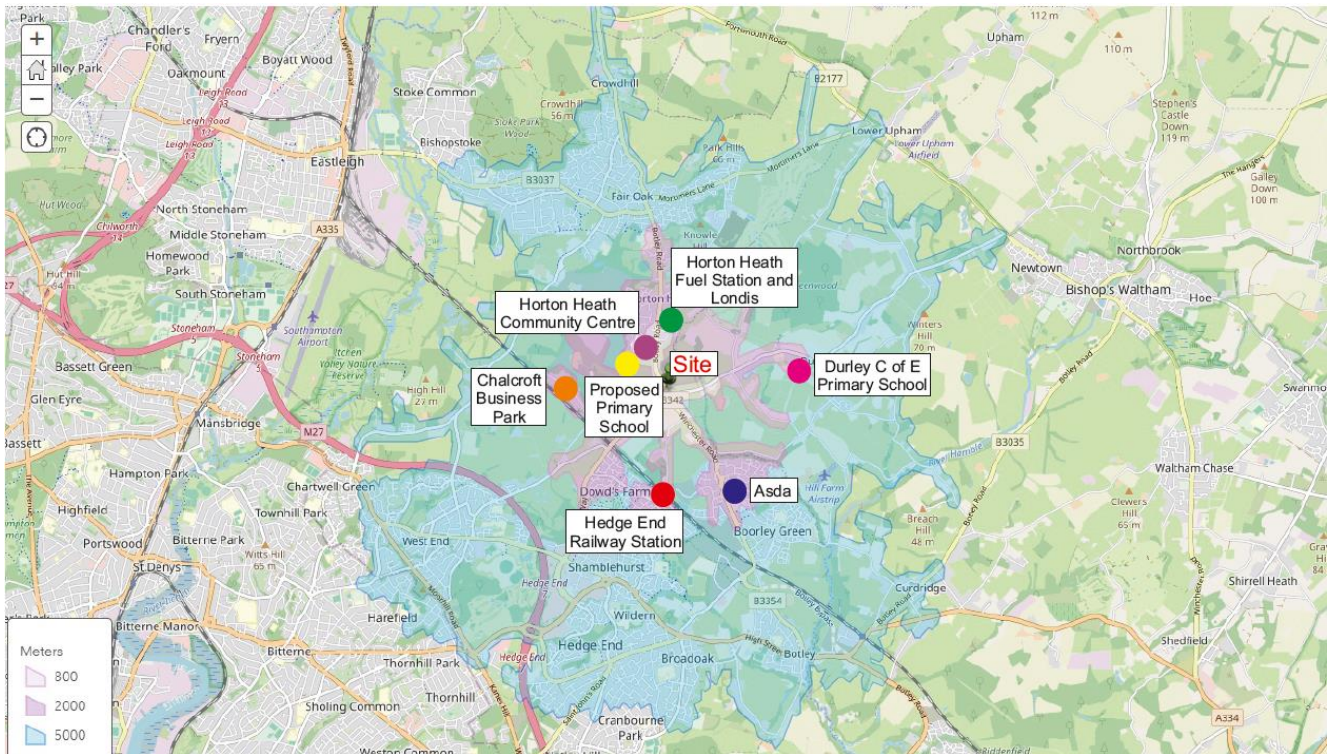
The station benefits from 54 sheltered cycle storage spaces, which are protected by CCTV, and 96 car parking spaces, with 4 accessible spaces available, ticket machines and waiting rooms. The station provides hourly rail services to London Waterloo and Portsmouth Harbour via South Western Railway.

Local Services and Amenities – There are an extensive range of services and facilities to support residents within Horton Heath, which is approximately 18 minutes' walk from the Site. Local amenities include shops, schools, Horton Heath Community Centre, pharmacy, dental and medical facilities.

Figure 3 below shows the accessibility of the site to key amenities in the area.

⁸ [Eastleigh Local Cycling Walking Infrastructure Plan](#)

Figure 3: Amenities map (DTA)



Sustainable Transport Hub – A sustainable transport hub with public, shared active travel modes will be provided in a well-connected, central part of the development and will facilitate connectivity to the surrounding transport network and amenities within neighbouring settlements, such as Horton Heath. It will be located close to the pedestrian and cycle route connecting to Botley Road and will include the following:

- An area for shared transport services such as cycle hire, care share, and EV charging points;
- Support for active travel including cycle parking and a space for periodic bike maintenance workshops;
- A public space with greenery, seating and shelter;
- Local information including bus timetables, walking maps and notice boards; and
- Parcel lockers.

These measures will enable users of the development to prioritise more sustainable modes of transport, such as active travel, in line with **Policy S1 Delivering sustainable development**.

A Framework Travel Plan has been developed to support and encourage the uptake of active and public transport modes. It includes a package of potential measures to promote and encourage sustainable modes of travel.

Electric Vehicles – Electric vehicles charging points will be provided in line with Part S of the Building Regulations.

More detailed information on transportation issues and targets is contained in the Transport Assessment and Travel Plan that accompany the planning application.

3.3 Promoting Healthy Communities

Creating a high-quality development that promotes health and wellbeing for residents and visitors is a key aim of the scheme. In this context the design has been developed to enhance the health and wellbeing of the residents.

To promote healthy communities, key elements include:

- A mix of dwellings in size and type with 40% affordable housing.

- In line with the requirements of the Council's **Policy S9 Green Infrastructure**, the proposals include areas of public open space with a Local Area of Play (LAP) in the central greenspace.
- The landscaping has been designed to reflect the characteristics of woodland, including the provision of street trees and tree clusters to reflect the woodland characteristics.
- Creation of a network of pedestrian routes through and around the development, providing connections with greenspace and to routes beyond the site, allowing access to bus stops and neighbouring settlements.
- Provision of greenspaces to incorporate SuDS features.
- Provision of a sustainable transport hub with public, shared active travel modes to facilitate connectivity to the surrounding transport network.

In addition, the design of the homes considered measures to improve internal living environments including:

- Maximisation of natural daylight in occupied areas such as bedrooms and lounges; and
- Utilisation of materials and services that have low emission rates and pollutants.

More information on how the development has incorporated healthy living opportunities is contained within the DAS which accompanies the planning application.

3.4 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 the UK 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.

In 2023 the Government published the next stage of the FHS and FBS consultation which will require homes to reduce carbon emissions by 75% beyond Part L 2013. The Government has confirmed that from 2025 no fossil fuels will be used, and new homes will be Net Zero Ready.

The Council's 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 outline the key climate change mitigation and adaptation measures considered appropriate for this development based on the latest national guidance.

3.4.1 Mitigating Climate Change – Reducing carbon emissions

Reducing Construction Stage Emissions

As the energy efficiency of buildings improves through the introduction of new building standards the construction stage emissions become increasingly significant.

The embodied carbon of development can be reduced through measures including:

- Use of biofuels in site vehicles which has a lower emissions factor than diesel;
- Use of hydrogen or electric site vehicles and equipment;
- Use of temporary energy storage systems;
- Requiring the contractors to purchase renewable energy;
- Use of renewable energy generating systems such as PV cells on construction buildings.
- Lean design to minimise materials use;
- Use of natural materials which sequester carbon such as timber;

- Specification of low carbon materials, for example steel and concrete with recycled materials content;
- Use of local supplies and labour where feasible; and
- The use of Modern Methods of Construction (MMC) including off-site prefabrication of building elements.

In support of the Council's Local Plan and the Future Homes Standard, consideration is being given to measures to reduce the embodied carbon of buildings through ongoing detailed design and material specification.

Reducing Operational Carbon Emissions

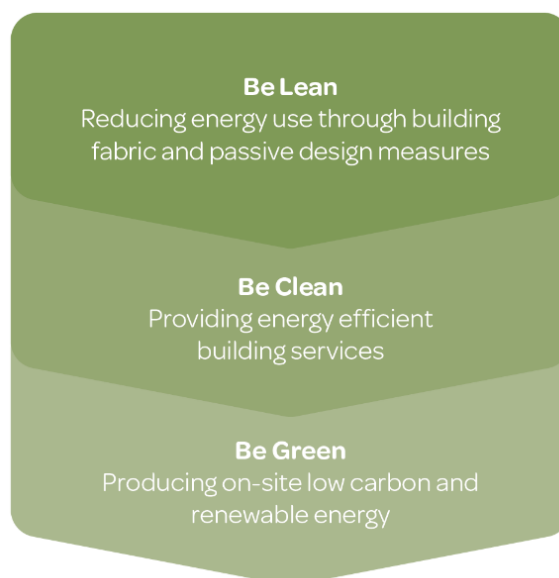
Developing energy efficient, low carbon buildings is a key objective of national policy and the recent updates to the Building Regulations to support the reduction of energy demand through efficient building design to reduce carbon emissions. The Council's Core Strategy promotes increasing local renewable energy generation and increasing the energy efficiency of homes.

The FHS Consultation released in December 2023 anticipates homes achieving a 75% carbon reduction beyond Part L 2013, delivering Zero Carbon Ready homes. The FHS has not yet had final confirmation of the details and therefore the requirements are not confirmed. The proposed development will target the upcoming FHS, or the Building Regulations in place at the time of construction.

This section sets out a route to compliance with the anticipated FHS, in this context the proposed dwellings will be designed in accordance with the energy hierarchy, as shown in **Figure 4**, 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 4: The Energy Hierarchy



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

3.4.1.1 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) rather than the much shorter lifespan (around 25 years) of a renewable energy technology;
- 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. Achieving carbon savings from renewable energy technologies require education, awareness and often, behavioural changes from occupants.

The design of homes at Land at Denham's Corner will therefore aim to exceed the requirements of the current Part L 2021 Building Regulations, targeting the requirements of FHS or relevant regulations at the time of construction, through enhanced u-values and air tightness. This will reduce the energy demand of the homes, consequently reducing carbon emissions.

Energy Efficiency Measures – In addition to consideration of an enhanced fabric specification the following measures to reduce energy use and carbon emissions have been considered in the design of the development and individual homes, this includes:

- Design to promote passive solar gains, maximise natural daylight, sunlight and ventilation;
- Design which aims to optimise natural daylight;
- Incorporating high efficiency lighting targeting 100% of all light fittings as low energy lighting;
- Use of high efficiency heating systems appropriate to the building use to reduce energy consumption; and
- Where appropriate, specification of high energy efficient equipment will be provided that use less energy and water.

Through these measures it is anticipated the development will significantly reduce energy demand and carbon emissions.

3.4.1.2 Be Clean – Efficient Energy

The next stage of the Energy Hierarchy is the efficient supply of heat and energy. This means connecting into an existing District Heating Network (referred to as "DHN" hereafter) where possible or providing an on-site communal heat network or individual systems.

District Heating – District Heating Networks 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.

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

CHP and DHN are therefore unlikely to be incorporated, as carbon emissions associated with electricity are expected to continue to reduce as the grid decarbonises, leading to greater savings in carbon emissions over the lifetime of the development.

The application of CHP and DHN is more appropriate for non-domestic buildings with high heat demands or very dense development. Small scale, thermally efficient new housing developments do not have sufficient thermal demand to justify a heat network. The heat is better provided via heat pump systems.

In this context the provision of a heat network is not proposed at this Site.

3.4.1.3 Be Green – Low Carbon Renewable Energy

The final stage of the energy hierarchy is the generation of on-site low carbon renewable energy. The Government's FHS consultation indicates that from 2025 homes and buildings are likely to make use of Heat Pumps to deliver heating and hot water with Solar PV included to provide on-site energy generation.

A short review of potential low carbon renewable energy technologies which may be suitable for inclusion in homes design have been completed below.

Solar Photovoltaics (PV) - Solar photovoltaic (PV) systems generate zero carbon electricity from sunlight and are well suited to dwellings with unobstructed

roof space. Excess power is exported to the grid or can be harnessed using battery storage. Maintenance requirements are typically minimal. The 2023 FHS consultation sets out options for including Solar PV on all new buildings. Where the site layout allows, homes have been orientated to provide south facing roof spaces to maximise the potential for renewable energy generation.

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 given the need to ensure anti-freeze in the pipework is topped up every few years. They can be a highly cost-effective technology particularly where mains gas supplies are not available, however in energy efficient new homes their benefit can be limited.

Heat Pumps - Heat pumps provide low carbon heat sourced either from the ground (Ground Source Heat Pumps) or air (Air Source Heat Pumps (ASHPs)). This type of system is suited to thermally efficient buildings. They require main 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.

The 2023 FHS consultation indicates that heat pumps will be the primary choice for delivering low carbon heat.

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 is not considered appropriate for the development.

Low Carbon Renewable Energy Summary – As part of an all-electric strategy the development will incorporate ASHPs to provide low carbon heating and hot water as well as the installation of Solar PV for electricity generation.

3.4.1.4 Summary

In summary, the proposed buildings will be designed to exceed the requirements of Part L 2021, targeting the requirements at the FHS, or relevant regulations at the time of construction, through a range of fabric and energy efficiency measures, as well as low carbon renewable energy technology. This will likely be achieved through;

- Enhanced building u-values and air tightness;
- Use of a range of energy efficiency measures, such as WWHR and low energy lighting;
- Use of low carbon heating, including ASHP to provide low carbon heating;
- Use of solar PV to generate electricity.

This FHS strategy will deliver all-electric homes with residents able to purchase certified renewable electricity and live net zero.

Table 1 shows the estimated operational carbon emissions from the proposed development which meets the FHS requirements. This is based on indicative SAP information for a limited number of the proposed building types, individual building types, specification and performance will vary.

Table 1: Estimated Regulated operational CO₂ emissions*

	Carbon emissions (tonnes CO ₂ /yr)
Part L 2021	170
Expected Future Homes Standard	11
Emissions reduction	159
% reduction	>63%

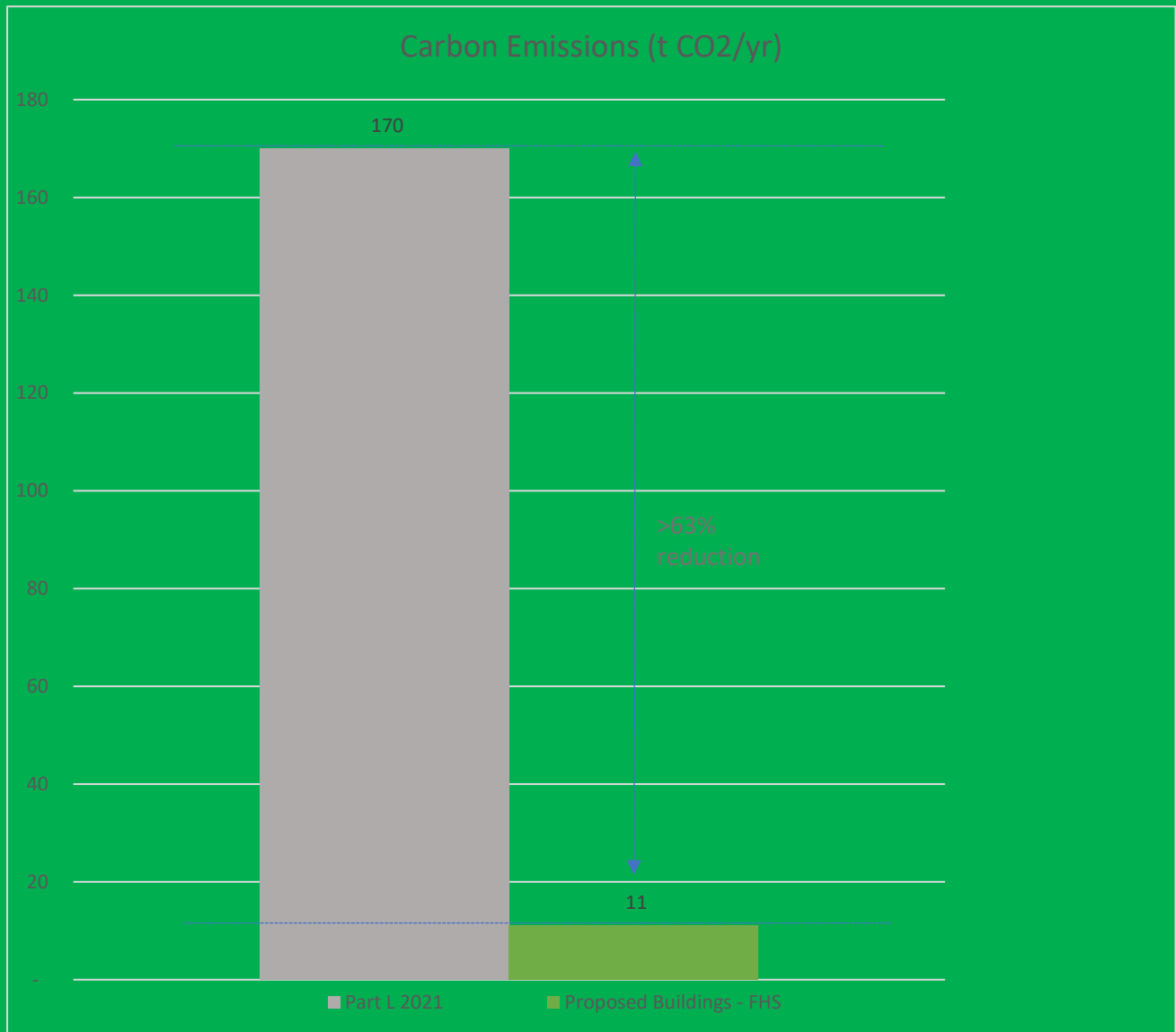
**Based on indicative carbon calculations at Outline stage. More detailed energy modelling will be completed in the case that the application progresses to reserved matters stage.*

Figure 5 shows the estimated operational emissions compared to homes built to the current standard and proposed 2025 FHS standard to deliver **Net Zero Ready** homes.

The final specification of homes, including details of fabric specification, energy efficiency measures and low carbon renewable energy installed will be subject to the detailed design of individual homes and results of the FHS consultation.

What are the projected CO₂ emissions of Land at Denham's Corner?

The graph below shows the estimated carbon emissions of the proposed development at Land at Denham's Corner demonstrating how homes will exceed the requirements of Part L 2021.



3.4.2 Climate Change Adaptation

To ensure the proposed development is resilient to the effects of climate change, in accordance with **Policy S1** *Delivering sustainable development*, it will incorporate a number of key design measures in response to the climate predictions set out in the UKCP18 projections.

The Independent Assessment of UK Climate Risk (June 2021)⁹ 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.

This section identifies key measures which will be incorporated into the design of new buildings and the proposed development to adapt to climate change.

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 homes 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; and
- Where appropriate, water efficient equipment.

Through the use of these measures new homes will target a water consumption rate of 110 l/p/d in line with the requirements of the Local Plan **Policy DM2** *Environmentally sustainable development*.

Flood Risk and Drainage

Flood Risk Assessment (FRA) and Surface Water Drainage Strategy has been prepared by SLR Consulting Limited to review the potential risk of flooding to the site and measures to manage surface

water, supporting the requirements of NPPF and Council's **Policy DM5** and **DM6**.

The site is almost entirely within Flood Zone 1, with a very small area falling into Flood Zone 2 and 3. However as all built development will be located within Flood Zone 1, the risk of fluvial flooding is assessed to be low.

The flood risks of the site from other sources including surface water, groundwater and sewers have all been assessed and considered low.

The drainage system will be designed to discharge surface water runoff following the below hierarchy:

- Into the ground (infiltration);
- To a surface water body (e.g. ditch, watercourse, river);
- To a surface water sewer, highway drain, or another drainage system.

A ground testing was undertaken and found the ground conditions to be unsuitable for infiltration. Therefore, the drainage strategy will involve discharging to an existing ditch on the east site boundary. The strategy has been designed to accommodate the 1 in 100-year storm event including a 45% allowance for climate change, with two attenuation basins and conveyance swales. Additional SuDS features including permeable paving, rain gardens and tree pits can be included at the detailed design stage to provide additional pre-treatment for run-off to the attenuation basin.

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

Overheating

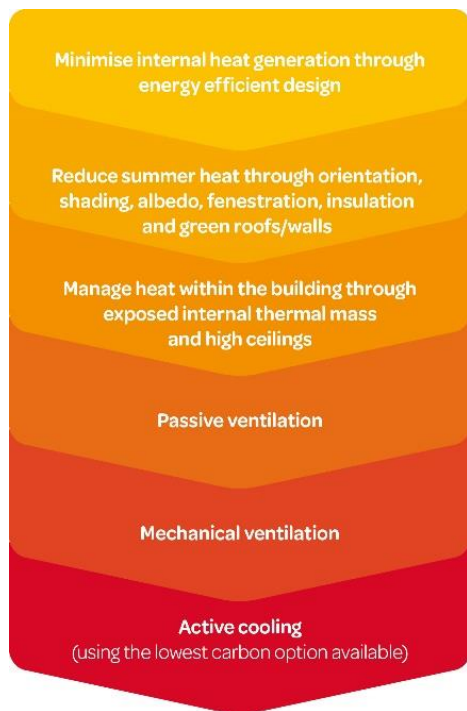
With increasing summer temperatures there is an increasing risk of overheating in buildings which could adversely affect building occupants and users.

The development will be designed in accordance with the cooling hierarchy, as shown in **Figure 6**, which aims to reduce any potential overheating in buildings through minimising heat generation first,

⁹ [CCC | Advice to the Government for CCRA3](#)

followed by the consideration of passive cooling measures, and finally the use of active cooling using the lowest carbon option.

Figure 6: Cooling Hierarchy



Incorporating the cooling hierarchy into the design process means buildings will be better equipped to manage their cooling needs and to adapt to and mitigate climate change, while also minimising the carbon emissions associated with reducing overheating risk.

An Overheating Assessment in line with the requirements of Part O of the Building Regulations will be undertaken as part of the ongoing detailed design of individual homes.

3.5 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 the impact of the development and enhance Site biodiversity, as well as incorporate measures to reduce pollution from the Site.

3.5.1 Ecology

Ecosupport have provided an Ecological Impact Assessment (EclA) for the site. Ecological surveys and subsequent Phase II survey work was undertaken to inform the EclA at Denham's Corner and identify any important ecological features affected by the proposed development.

The Site has been subject to detailed surveys confirming that it comprises modified grassland, lowland mixed deciduous woodland, purple moor grass and rush pastures, woodland and forest, hedgerow, artificial unvegetated unsealed surface, and bramble scrub.

The site supports a number of species including reptiles, bats, dormice, breeding/nesting birds and badgers.

A number of mitigation and enhancement measures have been proposed in line with **Policy S1 Delivering sustainable development**.

Mitigation Measures

The following mitigation measures are proposed:

- Sensitive lighting to be utilised to protect foraging and commuting bats;
- Retention of dark corridors, ancient woodland, trees and hedgerows;
- Creation of a 20m buffer zone to protect rare bat species;
- Passive dispersal / push and strim for reptiles;
- Vegetation clearance to be carried out outside the bird nesting season;
- Creation of a 30m buffer zone around the main badger sett location and any open excavations or pipework are checked and covered / capped overnight;
- Translocation of rush pasture; and
- Creation of a 20m buffer zone to the north, east and west of the site to protect the SINCS.

Enhancement Measures

The following enhancement measures are proposed:

- Creation of neutral grassland for bat roosting, foraging and commuting;
- Enhancement of mixed scrub;

- Planting of new trees and creation of two ponds;
- Provision of bat boxes and bat bricks;
- Creation of two wood-based hibernacula habitat for slowworm;
- Installation of Swift bricks into new dwellings and erection of eight bird nest boxes within the woodland;
- Incorporation of Hedgehog Highways within garden fences of the properties; and
- New landscape planting to incorporate native species and include a mixture of flowering plants, trees and shrubs.

A Biodiversity Net Gain Assessment has been undertaken by Ecosupport and confirms that the Green Infrastructure has been designed to deliver a 10% net gain in biodiversity in line with **Policy S1 Delivering sustainable development** and **Policy DM11 Nature conservation**.

3.5.2 Pollution

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

Water – Throughout construction, water quality will be maintained by the following measures:

- Reduce erosion and run-off by minimising land disturbance and leaving vegetation cover where possible;
- Cover skips and trucks loaded with construction materials and continually damp down with low levels of water;
- Use non-toxic paints, solvents and other hazardous materials wherever possible; and
- Segregate, tightly cover and monitor toxic substances to prevent spills and possible site contamination.

Sustainable Materials – 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.

To further enhance the development a number of additional measures will be incorporated into new homes to minimise pollution, including:

- The use of key internal finishes and fittings which comply with best practice emissions levels of Volatile Organic Compounds (VOCs) and other substances;
- Where appropriate, the use of low NOx emission boilers, further reducing the impact of the development; and
- Specification of low Global Warming Potential (GWP) and zero Ozone Depleting Potential (ODP) insulation materials.

In addition, the development will aim to use a range of sustainable materials and design features and will make use of;

- Sustainable timber from FSC (or equivalent) sources; and
- Low carbon materials.

3.6 Sustainable Resources

Materials

A key benefit of using sustainable and natural materials, and incorporating material efficiency into new development, is reducing carbon emissions. 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.

Where possible, materials will be procured locally, to reduce carbon emissions associated with the transport of materials, in line with **Policy DM2 Environmentally sustainable development**.

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.

3.7 Waste Management

The development at Land at Denham's Corner will help protect natural resources through the management of waste through construction and operation.

Waste will be managed in accordance with waste hierarchy, which prioritises waste prevention, followed by re-use, recycling, then energy recovery and disposal as a last resort (as set out in **Figure 7**).

Figure 7 The Waste Hierarchy (The Waste Framework Directive)



Construction Waste Management

Prior to the construction phase a Construction Environmental Management Plan (CEMP) will be developed to ensure the use of measures to minimise waste during the construction phases of the development, in line with **Policy S1 Delivering sustainable development**, including the use of a scheme for recycling/disposing of waste arising from 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.

Operational Waste Management

In accordance with the principles of the waste hierarchy the development will make provision for the storage of non-recyclable waste and recyclable waste including dedicated storage for waste in new homes to encourage residents to recycle waste materials in accordance with **Policy S1 Delivering sustainable development**.

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 any kerbside recycling services.

4. Conclusion

This Sustainability and Energy Statement has been prepared to demonstrate how the proposed development responds positively to national and local sustainable policy requirements.

The proposed development relates to Land at Denham's Corner. It will be designed to respond positively to national and local plan policy incorporating measures to deliver social and economic benefits, while also protecting and enhancing the environment where possible. This includes the consideration of measures to mitigate and adapt to the effects of climate change.

The key sustainability measures incorporated at this stage 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:

- Construction of up to 150 homes providing economic benefits and opportunities for local people;
- Homes designed to create healthy living environments with a mix of dwellings in size and type, including 40% affordable housing units;
- Provision of areas of public open space with a Local Area of Play (LAP); and

- A development in a sustainable location with multiple sustainable and active travel options.

Environmental Protection and Enhancement – Through a range of design measures the development aims to protect and enhance the local environment, including:

- Homes designed to make use of sustainable materials to reduce environmental impacts of construction;
- Development designed to prioritise sustainable and active modes of transport, including bus and rail travel, walking and cycling;
- Provision of measures to protect on-site ecology and enhancement measures to deliver at least a 10% biodiversity net gain in line with **Policy DM11 Nature conservation**, which also helps reduce the impact of climate change on site habitats; and
- 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 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:

- A design which has considered the embodied carbon associated with construction materials, and selected sustainable products where possible to reduce environmental impacts of construction;
- Homes designed to be all-electric, targeting the requirements of the FHS or the current Building Regulations at the time of construction, through a range of fabric,

energy efficiency and low carbon renewable energy which will allow residents to live net zero through the purchase of certified renewable electricity;

- Specification of water efficient fittings to reduce water consumption to 110 litres per person per day in line with the Council's **Policy DM2** *Environmentally sustainable development*;
- Reduced emissions associated with private car travel though development in a sustainable location with access to pedestrian and cycle networks, public transport and amenities, as well as installation of EV charging points and the provision of a sustainable transport hub within the development to facilitate active travel;
- The development is located predominantly in flood zone 1 and will include a range of SuDS measures to manage surface water designed to accommodate a 1 in 100 year event including a 45% allowance for climate change; and
- Homes designed in accordance with Building Regulations Part O to mitigate overheating.

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