SUSTAINABILITY & ENERGY STATEMENT

LAND SOUTH OF BURLEIGH LANE

CRAWLEY DOWN

VERSION 02

DECEMBER 2025

SCIENCE BEHIND THE DESIGN

Company Registration No: 10354408

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PROJECT NAME: Land South of Burleigh Lane Crawley Down

PROJECT REFERENCE: X303

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01	04.12.2025	First Issue	SH	DB
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1 INTRODUCTION

XDA Consulting Ltd has been appointed by BKJS Developments Ltd. to undertake a Sustainability and Energy assessment for the proposed residential development at Land south of Burleigh Lane Crawley Down (herein referred to as the "Proposed Development"). The purpose of this report is to support the planning application for the Proposed Development and demonstrate how the sustainable design measures embedded into the scheme meet sustainability and energy principles in accordance with regional and national planning policy, and the specific requirements of Mid Sussex planning authority.

This report has been compiled with input from the following members of project design team and consultants undertaking work in support of the planning application:

- Developer – BKJS Developments Ltd.
- Planning Consultant – DMH Stallard LLP
- Architect – ABIR Architects
- Landscape Designer – Nicholas Dexter Landscape Design
- Drainage and Flood Risk – Civil Engineering Partnership
- Transport Consultant – Reeves Transport Planning
- Ecologist – The Ecology Partnership

This report has been prepared in accordance with the requirements of the Mid Sussex District Plan and includes the key themes of energy and carbon performance, water efficiency, flood risk and SuDS, biodiversity and ecological enhancement, sustainable transport measures, materials, waste and circular economy considerations and climate change adaptation and resilience.

2 PROJECT DESCIPTION

The Proposed Development is described in the outline planning application as follows: *"Outline application for planning permission with all matters reserved except for access from Burleigh Lane, for the erection of up to eight self-build / custom build dwellings, drainage and ancillary works*".

3 PLANNING POLICY

This section provides an overview of the key national and local planning policies relating to sustainability and energy which are relevant to the project.

3.1 NATIONAL POLICY – THE NPPF

The National Planning Policy Framework (NPPF), updated December 2024 sets out the government's planning policies for England and how these are expected to be applied and states that:

The purpose of the planning system is to contribute to the achievement of sustainable development. At a very high level, the objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways:

- Economic
- Social
- Environmental

So that sustainable development is pursued in a positive way, at the heart of the Framework is a presumption in favour of sustainable development.

3.2 LOCAL POLICY

3.2.1 Mid Sussex District Plan (2014–2031)

The Mid Sussex District Plan (2014–2031) sets out the strategic vision, policies and proposals for sustainable growth within the district. Adopted in March 2018, It aims to guide development to meet housing, economic, environmental and social needs, while ensuring climate change mitigation, biodiversity protection, flood risk management, water efficiency, and sustainable transport are addressed. All development proposals must demonstrate how they comply with relevant District Plan policies. The following key policies are relevant to sustainability for this development:

3.2.1.1 DP21 – Transport

Development will be required to support the objectives of the West Sussex Transport Plan 2011-2026, which are:

- A high-quality transport network that promotes a competitive and prosperous economy;
- A resilient transport network that complements the built and natural environment whilst reducing carbon emissions over time;
- Access to services, employment and housing; and
- A transport network that feels, and is, safer and healthier to use.

To meet these objectives, decisions on development proposals will take account of whether:

- The scheme is sustainably located to minimise the need for travel noting there might be circumstances where development needs to be located in the countryside, such as rural economic uses.
- Appropriate opportunities to facilitate and promote the increased use of alternative means of transport to the private car, such as the provision of, and access to, safe and convenient routes for walking, cycling and public transport, including suitable facilities for secure and safe cycle parking, have been fully explored and taken up;
- The scheme is designed to adoptable standards, or other standards as agreed by the Local Planning Authority, including road widths and size of garages;
- The scheme provides adequate car parking for the proposed development taking into account the accessibility of the development, the type, mix and use of the development and the availability and opportunities for public transport; and with the relevant Neighbourhood Plan where applicable;
- Development which generates significant amounts of movement is supported by a Transport Assessment/ Statement and a Travel Plan that is effective and demonstrably deliverable including setting out how schemes will be funded;
- Development which generates significant amounts of movement is supported by a Transport Assessment/ Statement and a Travel Plan that is effective and demonstrably deliverable including setting out how schemes will be funded;
- The scheme provides appropriate mitigation to support new development on the local and strategic road network, including the transport network outside of the district, secured where necessary through appropriate legal agreements;
- The scheme avoids severe additional traffic congestion, individually or cumulatively, taking account of any proposed mitigation;
- The scheme protects the safety of road users and pedestrians; and
- The scheme does not harm the special qualities of the South Downs National Park or the High Weald Area of Outstanding Natural Beauty through its transport impacts.

Where practical and viable, developments should be located and designed to incorporate facilities for charging plug-in and other ultra-low emission vehicles.

Neighbourhood Plans can set local standards for car parking provision provided that it is based upon evidence that provides clear and compelling justification for doing so.

3.2.1.2 DP38 – Biodiversity

Biodiversity will be protected and enhanced by ensuring development:

- Contributes and takes opportunities to improve, enhance, manage and restore biodiversity and green infrastructure, so that there is a net gain in biodiversity, including through creating new designated sites and locally relevant habitats, and incorporating biodiversity features within developments; and
- Protects existing biodiversity, so that there is no net loss of biodiversity. Appropriate measures should be taken to avoid and reduce disturbance to sensitive habitats and species. Unavoidable damage to biodiversity must be offset through ecological enhancements and mitigation measures (or compensation measures in exceptional circumstances); and
- Minimises habitat and species fragmentation and maximises opportunities to enhance and restore ecological corridors to connect natural habitats and increase coherence and resilience; and
- Promotes the restoration, management and expansion of priority habitats in the District; and
- Avoids damage to, protects and enhances the special characteristics of internationally designated Special Protection Areas, Special Areas of Conservation; nationally designated Sites of Special Scientific Interest, Areas of Outstanding Natural Beauty; and locally designated Sites of Nature Conservation Importance, Local Nature Reserves and Ancient Woodland or to other areas identified as being of nature conservation or geological interest, including wildlife corridors, aged or veteran trees, Biodiversity Opportunity Areas, and Nature Improvement Areas.

Designated sites will be given protection and appropriate weight according to their importance and the contribution they make to wider ecological networks.

Valued soils will be protected and enhanced, including the best and most versatile agricultural land, and development should not contribute to unacceptable levels of soil pollution.

Geodiversity will be protected by ensuring development prevents harm to geological conservation interests, and where possible, enhances such interests. Geological conservation interests include Regionally Important Geological and Geomorphological Sites.

3.2.1.3 DP39 – Sustainable Design and Construction

The DP39 strategic objectives are to promote development that makes the best use of resources and increases the sustainability of communities within Mid Sussex, and its ability to adapt to climate change.

All development proposals must seek to improve the sustainability of development and should where appropriate and feasible according to the type and size of development and location, incorporate the following measures:

- Minimise energy use through the design and layout of the scheme including through the use of natural lighting and ventilation;
- networks where viable and feasible;

- Use renewable sources of energy;
- Explore opportunities for efficient energy supply through the use of communal heating Maximise efficient use of resources, including minimising waste and maximising recycling/ re-use of materials through both construction and occupation;
- Limit water use to 110 litres/person/day in accordance with Policy DP42: Water Infrastructure and the Water Environment;
- Demonstrate how the risks associated with future climate change have been planned for as part of the layout of the scheme and design of its buildings to ensure its longer term resilience

3.2.1.4 DP41 – Flood Risk and Drainage

The DP41 strategic objectives are to promote development that makes the best use of resources and increases the sustainability of communities within Mid Sussex, and its ability to adapt to climate change; and to support sustainable communities which are safe, healthy and inclusive.

Proposals for development will need to follow a sequential risk-based approach, ensure development is safe across its lifetime and not increase the risk of flooding elsewhere. The District Council's Strategic Flood Risk Assessment (SFRA) should be used to identify areas at present and future flood risk from a range of sources including fluvial (rivers and streams), surface water (pluvial), groundwater, infrastructure and reservoirs. Particular attention will be paid to those areas of the District that have experienced flooding in the past and proposals for development should seek to reduce the risk of flooding by achieving a reduction from existing run-off rates.

Sustainable Drainage Systems (SuDS) should be implemented in all new developments of 10 dwellings or more, or equivalent non-residential or mixed development unless demonstrated to be inappropriate, to avoid any increase in flood risk and protect surface and ground water quality. Arrangements for the long term maintenance and management of SuDS should also be identified. For the redevelopment of brownfield sites, any surface water draining to the foul sewer must be disconnected and managed through SuDS following the remediation of any previously contaminated land. SuDS should be sensitively designed and located to promote improved biodiversity, an enhanced landscape and good quality spaces that improve public amenities in the area, where possible. The preferred hierarchy of managing surface water drainage from any development is:

- 1. Infiltration Measures
- 2. Attenuation and discharge to watercourses; and if these cannot be met:
- 3. Discharge to surface water only sewers.

3.2.1.5 DP42: Water Infrastructure and Water Environment

The DP42 strategic objectives are to promote development that makes the best use of resources and increases the sustainability of communities within Mid Sussex, and its ability to adapt to climate change; and to ensure that development is accompanied by the necessary infrastructure in the right place at the right time that supports development and sustainable communities. This includes the provision of efficient and sustainable transport networks.

New development proposals must be in accordance with the objectives of the Water Framework Directive, and accord with the findings of the Gatwick Sub Region Water Cycle Study with respect to water quality, water supply and wastewater treatment and consequently the optional requirement under Building Regulations – Part G applies to all new residential development in the district.

Development must meet the following water consumption standards:

Residential units should meet a water consumption standard of 110 litres per person per day (including external water use);

Development proposals which increase the demand for off-site service infrastructure will be permitted where the applicant can demonstrate;

- that sufficient capacity already exists off-site for foul and surface water provision. Where capacity off-site is not available, plans must set out how appropriate infrastructure improvements approved by the statutory undertaker will be completed ahead of the development's occupation; and
- that there is adequate water supply to serve the development.

Development should connect to a public sewage treatment works. If this is not feasible, proposals should be supported by sufficient information to understand the potential implications for the water.

The development or expansion of water supply or sewerage/sewage treatment facilities will normally be permitted, either where needed to serve existing or proposed new development, or in the interests of long term water supply and waste water management, provided that the need for such facilities outweighs any adverse land use or environmental impacts and that any such adverse impact is minimised.

4 ENERGY AND CARBON PERFORMANCE

4.1 POLICY

- Strategic Policy DP39: - Sustainable Design and Construction

4.2 REQUIREMENT

- Minimise energy use through the design and layout of the scheme including through the use of natural lighting and ventilation;
- Use renewable sources of energy;
- Explore opportunities for efficient energy supply through the use of communal heating networks where viable and feasible;
- Maximise efficient use of resources, including minimising waste and maximising recycling/ re-use of materials through both construction and occupation;

4.3 DESIGN RESPONSE

Energy modelling for the development has been undertaken and the carbon dioxide (CO_2) emissions performance for the Proposed Development has been assessed against Part L 2021.

Whilst we acknowledge that the scheme is submitted in outline, the building designs are targeting the following low U-values and air permeability, as detailed in Table 4.1, to significantly reduce the heating requirement. A natural ventilation strategy will also be utilised to avoid the need for mechanical ventilation and cooling. The scheme will also incorporate energy efficient LED lighting. These passive design measures result in an energy efficient development.

ELEMENT	U-VALUES (W/m²K)	BUILDING REGULATIONS (AD L1) LIMITING FABRIC PARAMETERS (W/m²K)
WALLS external wall	0.18	0.26
PARTY WALL wall between flats	fully filled and sealed	0.20
FLOOR exposed floor	0.12	0.18
Entrance Door	1.4	2.0
ROOF roof (ceiling, cold roof)	0.12	0.16
GLAZING (high spec double glazing) window/glazing including frame glazed doors including frame g-value ≤ 0.6	1.4	2.0
Air permeability (m^3/m^2/hr at 50 Pa)	3.0	10.0

Table 4.1 Building fabric performance (area weighted)

The scheme will include on-site green technology through provision of air source heat pumps to provide heating and hot water to the dwellings . The passive, "Be Lean" energy efficiency measures incorporated achieve a sufficient reduction in carbon emissions to mitigate the need for additional green technologies such as photovoltaic panels.

In summary, the proposed energy efficiency measures that have been implemented in the scheme are summarised below:

- Efficient fabric thermal performance
- Natural ventilation
- Provision of LED light fittings
- Provision of renewable energy:
    - air source heat pumps systems for heating and hot water

These energy efficiency measures achieve an overall 66.5% carbon emissions reduction as illustrated in Figure 4.1.

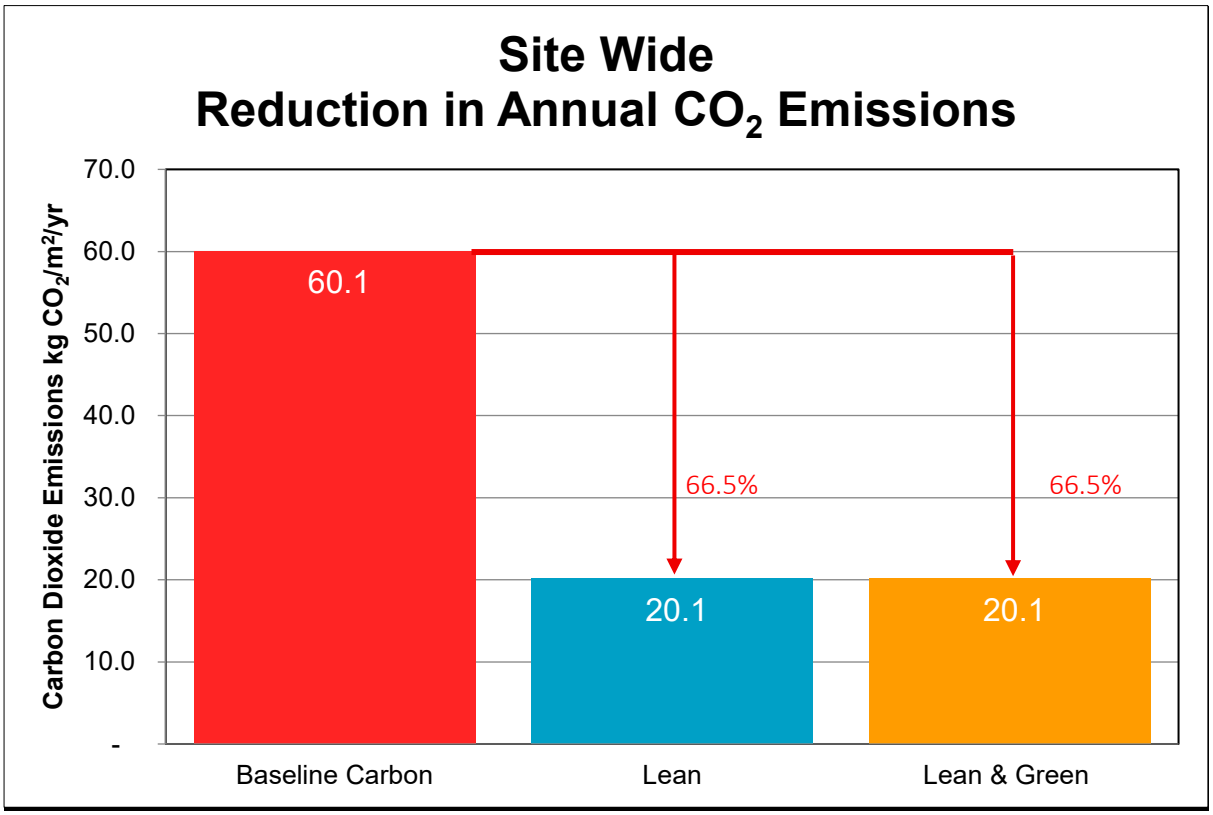

Figure 4.1 Illustration of CO_2 reduction achieved for the Proposed Development

5 WATER EFFICIENCY

5.1 POLICY

- Strategic policy DP42: Water Infrastructure and Water Environment

5.2 DESIGN RESPONSE

The Proposed Development incorporates a range of measures to reduce potable water consumption and promote responsible water use throughout the buildings. The design philosophy prioritises efficiency, behavioural reduction of demand, and integration of systems that support long-term sustainability.

The Proposed Development will utilise water-efficient fittings and appliances that minimise unnecessary consumption while maintaining user comfort and functionality. Efficient taps, showers, WC units, and white goods will be selected to ensure overall demand is significantly reduced compared with standard installations. These systems support compliance with relevant UK water efficiency guidance and align with Mid Sussex District Council's sustainability objectives.

Surface water management has also been considered as part of the overall water strategy. Sustainable Drainage Systems (SuDS) will be integrated to attenuate runoff, enhance infiltration where feasible, and improve the ecological value of the site. These measures help to reduce pressure on local water infrastructure while supporting climate resilience.

Through these combined actions, the development demonstrates a proactive commitment to conserving water resources, reducing environmental impact, and contributing to sustainable growth within Mid Sussex District Council

6 FLOOD RISK AND SUDS

6.1 POLICY

- Strategic policy DP41: Flood Risk and Drainage

6.2 DESIGN RESPONSE

The Civil Engineering Practice (CEP) have undertaken a Flood Risk Assessment of the site in accordance with the National Planning Policy Framework. The FRA identifies the Proposed Development is located in Flood Zone 1 and is at the lowest risk of flooding from tidal, fluvial, or ground water sources.

The Proposed Development will incorporate a Sustainable Drainage System which will discharge surface water at a suitably restricted rate to the watercourses adjacent to the

northern and southern site boundaries and provide storage for all storm return periods up to and including the 1 in 100 year rainfall event with an allowance for climate change.

Full drainage proposals will be confirmed at the detailed design stage following further site investigation and testing. The design will adhere to the surface water management hierarchy:

- Infiltration measures
- Attenuation and discharge to watercourses, where infiltration is not achievable
- Discharge to surface water sewers only, where neither of the above options is feasible

An infiltration-based drainage system will be implemented if site conditions allow. However, initial assessments indicate that the predominantly clay geology is unlikely to provide adequate permeability to support infiltration. As a result, the drainage strategy is expected to focus on attenuation and on-site storage to manage surface water run-off and reduce discharge rates leaving the site.

The drainage strategy for the Proposed Development will incorporate measures to mitigate impacts to others as a result of water management on site. This includes minimisation of run-off leaving the site during heavy rainfall with an allowance for a rainfall intensity increase of 45%, sufficient treatment of water leaving the site to mitigate pollution risk and a discharge rate from the site equivalent to the pre-development rate.

Collectively, these measures ensure that the development will not increase flood risk on-site or in surrounding areas. The proposed SuDS features also provide potential for wider environmental benefits, including biodiversity enhancement, improved water quality, and support for climate change adaptation, aligning with the sustainability objectives of Mid Sussex District Council.

6.3 ADDITIONAL INFORMATION

Additional information can be found in the following reports submitted in support of the application:

- Flood Risk Assessment

7 BIODIVERSITY AND ECOLOGICAL ENHANCEMENT

7.1 POLICY

- Strategic Policy DP38: Biodiversity

7.2 DESIGN RESPONSE

An ecological appraisal and Biodiversity Net Gain (BNG) assessment of the Proposed Development has been undertaken by The Ecology Partnership. The site does not fall within or immediately adjacent to any statutory designated areas; however, it lies within the zone of influence of the Ashdown Forest SPA/SAC. Other than potential recreational pressure, no significant effects on this internationally designated site are anticipated. The development will also not give rise to impacts on any non-statutory sites within the wider landscape.

The scheme has been designed to retain and protect areas of priority woodland habitat through the use of protective fencing and an appropriate maintenance buffer. Two small sections of woodland will be removed to enable access, and this will be offset through on-site scrub planting. Given the modest scale of the site and the very limited extent of habitat removal proposed, residual impacts on priority habitats are expected to be minimal. The majority of the site comprises mown neutral grassland of low ecological value, and its loss will result in only site-level effects.

Two trees identified as having potential to support roosting bats will be fully retained within the development layout. Protective measures, as advised by the project arboriculturist, will be implemented during construction to ensure these trees are safeguarded. The layout and lighting design have also been developed to avoid illumination of potential roost features, incorporating a sensitive lighting strategy that maintains dark corridors to protect bat foraging and commuting routes.

Ecological surveys have confirmed the likely absence of reptiles and dormice. Precautionary checks for hedgehogs will be undertaken prior to the removal of scrub, and any clearance of vegetation suitable for nesting birds will take place outside the breeding season. A Biodiversity Net Gain assessment has been completed and identifies that 4.36 habitat units will be required to deliver a 10% net gain. Detailed landscape proposals will be progressed at the next design stage and will include biodiversity enhancements.

7.3 ADDITIONAL INFORMATION

Additional information can be found in the following reports submitted in support of the application:

- Preliminary Ecological Appraisal
- Biodiversity Net Gain Assessment

8 SUSTAINABLE TRANSPORT MEASURES

8.1 POLICY

- Strategic Policy DP21 – Transport

8.2 DESIGN RESPONSE

A Transport Report has been prepared by Reeves Transport Planning, demonstrating that the Proposed Development aligns with the requirements of the National Planning Policy Framework (NPPF), the Mid Sussex District Plan, and the West Sussex Transport Plan.

The assessment of transport and traffic impacts concludes that the development will have a minimal effect on the performance of the existing road network and is unlikely to give rise to any adverse impacts.

The site is well connected for a rural development, with direct links to local railway stations via nearby bus services, providing convenient opportunities for sustainable travel. National Cycle Route 21 also passes through Crawley Down, offering direct connections to East Grinstead and Three Bridges railway stations. In addition, the site is close to local amenities, including a health centre, grocery shop, post office, and small eateries. Collectively, these facilities support viable alternatives to private car use.

The scheme will provide up to three car parking spaces per dwelling, slightly above policy requirements, together with safe and secure on-plot cycle storage. As a result, the development will not lead to overspill parking on nearby lanes and will encourage the use of cycles.

A collision risk assessment has been undertaken and confirms that there are no inherent safety concerns associated with the site's rural context. The proposed access arrangements provide adequate visibility, and the scheme includes upgraded passing bays that will benefit all users of Burleigh Lane.

Overall, the Proposed Development will not result in an unacceptable impact on highway safety or a severe impact on highway capacity. The transport strategy is fully aligned with both local and national policy requirements.

8.3 ADDITIONAL INFORMATION

Additional information can be found in the following reports submitted in support of the application:

- Transport report

9 MATERIALS, WASTE AND CIRCULAR ECONOMY

9.1 POLICY

- Strategic Policy DP39 - Sustainable Design and Construction.

9.2 DESIGN RESPONSE

The Proposed Development will minimise environmental impact through the responsible selection of materials, efficient construction practices, and the application of circular economy principles in line with Mid Sussex District Plan policy The scheme prioritises the use of sustainably sourced and low-impact construction materials, including those with recognised environmental certification and recycled content where appropriate, to reduce embodied carbon and support long-term durability. Local sourcing will be encouraged wherever feasible to limit transportation emissions and strengthen the regional supply chain.

During the construction phase, waste reduction will be managed through a Construction Environmental Management Plan or equivalent procedure to ensure that materials are used efficiently and waste is minimised. This will include careful ordering of materials to avoid surplus, segregation of waste streams to maximise recycling and recovery, and the reuse of site-won materials where practicable. Any residual waste will be disposed of responsibly in accordance with local and national requirements.

Long-term operational waste management has also been considered to ensure that future occupants can easily separate and store waste and recycling in accordance with Mid Sussex District Council collection requirements. Sufficient and well positioned storage areas will be provided to encourage high recycling rates and reduce reliance on residual waste disposal. The overall strategy ensures that material efficiency, waste minimisation, and responsible resource management are embedded throughout the life cycle of the development, contributing to a more sustainable and environmentally responsible scheme that accords with local and national policy expectations.

10 CLIMATE CHANGE ADAPTATION AND RESILIENCE

10.1 POLICY

- Strategic Policy DP39: - Sustainable Design and Construction
- Strategic policy DP41: - Flood Risk and Drainage
- Strategic policy DP42: - Water Infrastructure and Water Environment

10.2 DESIGN RESPONSE

The Proposed Development has been designed to incorporate a range of climate change adaptation measures that strengthen long-term resilience and ensure compliance with the sustainability objectives of Mid Sussex District Council and the NPPF's requirements to mitigate and adapt to climate change. The scheme responds proactively to anticipated future climatic conditions, including warmer temperatures, more frequent extreme weather events, and increased rainfall intensity.

A fabric-first approach has been adopted to improve energy efficiency, reduce heat loss, and provide stable internal temperatures throughout the year. Building materials and construction methods will be selected where feasible to enhance durability and resilience, reducing the lifecycle impacts of the development and ensuring buildings remain fit for purpose under future climate scenarios.

Water management and flood resilience form a central component of the climate adaptation strategy. Sustainable Drainage Systems (SuDS), attenuation features, and robust surface water management measures ensure the development can accommodate increased rainfall intensities, including allowances for projected climate change. These systems mitigate flood risk both on-site and downstream and help maintain water quality, supporting the objectives of District Plan Policies DP41 and DP42.

Green infrastructure and ecological enhancements also play a role in increasing resilience. Native planting, habitat improvements, and the retention of key landscape features contribute to shade provision, reduce heat-island effects, and support biodiversity adaptation in response to changing climatic conditions. These measures collectively improve the site's ecological robustness and contribute to wider environmental networks within Mid Sussex.

The scheme's climate adaptation and resilience measures ensure it remains environmentally responsible, cost-effective, and liveable under future climate conditions. Through the combined approach to water, energy, ecology, and construction design, the development aligns with both local and national policy expectations and contributes positively to Mid Sussex District Council's wider climate change objectives.

11 CONCLUSION

The Proposed Development has been designed to deliver a sustainable and environmentally responsible scheme that aligns with the policies of the Mid Sussex District Plan, the National Planning Policy Framework, and relevant West Sussex guidance. The Part L assessment demonstrates that the scheme can achieve a 66.5% reduction in carbon emissions through passive design measures, including high-performance building fabric, energy-efficient lighting, use of natural ventilation, and the installation of air source heat pumps. Alongside this, the development incorporates water-efficient systems, robust flood risk and SuDS measures, biodiversity protection and enhancement, sustainable transport provision, and the responsible sourcing and use of materials. This comprehensive approach supports climate resilience, reduces environmental impact, and ensures long-term sustainability. Collectively, these measures demonstrate that the scheme contributes positively to district-wide environmental objectives and will deliver benefits for future occupants and the surrounding area.