Officers' Meadow, Shenfield

Sustainability Statement

On behalf of

croudacehomes

Project Ref: 33313522900 | Rev: 03 | Date: September 2023

Registered Office: Buckingham Court Kingsmead Business Park, London Road, High Wycombe, Buckinghamshire, HP11 1JU
Office Address: 101 Victoria Street, Bristol, BS1 6PU T: +44 (0)117 929 9677 E: Bristolvictoriastreet@stantec.com

Document Control Sheet

Project Name: **Officers' Meadow, Shenfield**
Project Ref: **33313522900**
Report Title: **Sustainability Statement**
Doc Ref: **Final**
Date: **September 2023**

Revision	Date	Description	Prepared	Reviewed	Approved
00	August 2023	Draft	LS	RS	MM
01	August 2023	Issued for client review	LS	RS	MM
02	August 2023	Updated technical reports and client comments	LS	RS	RS
03	September 2023	Final	LS	RS	LW
For and on behalf of Stantec UK Limited					

Contents

Figures

Tables

Appendices

EXECUTIVE SUMMARY

This Sustainability Statement outlines how the Development at Officers' Meadow, Shenfield demonstrates sustainability in line with national planning policy and guidance, and the adopted Brentwood Local Plan (BLP) 2016 – 2033. The Sustainability Statement recognises that Officers' Meadow, Shenfield will be designed with key aspects of sustainable development as central to both the design and construction phases.

This Sustainability Statement demonstrates that the Development is compliant with the policies of the BLP and in line with the principles set out in the national planning policy and supporting Planning Practice Guidance (PPG). The Development at Officers' Meadow, Shenfield responds to the objectives of the BLP and contributes towards a sustainable lifestyle by providing opportunities for a balanced community, healthy lifestyle opportunities, efficient transport options as well as efficient homes and low carbon energy.

Table 1 summarises the key sustainability features incorporated to the Development, categorised by aspect as set out in the BLP.

Table 1: Key Sustainability Features by Aspect

Climate Change Adaptation
▪ Green infrastructure features, integrated with Sustainable Drainage Systems (SuDS) to manage rainfall, water flow and the impacts of more extreme temperatures ▪ Water management features deployed through the Flood Risk and Drainage Strategy to manage increased and varying patterns of rainfall ▪ Dwelling design features to minimise overheating risk, improve thermal comfort and increase energy efficiency
Carbon Reduction and Climate Mitigation
▪ Demand for energy reduced through fabric efficiency measures, reducing associated carbon emissions ▪ Energy supply delivered through low and zero carbon technologies ▪ Measures to increase active travel and reduce travel by private car to minimise emissions associated with transport
Biodiversity and Ecology
▪ Landscape-led masterplan incorporating a walkable neighbourhood with a network of multi-functional and biodiverse landscapes ▪ Green spaces and landscape features provide amenity space and play, supporting and enabling community cohesion, active lifestyles, and wellbeing ▪ Retention and enhancement of habitats for flora and fauna
Light, water, noise, and air pollution
▪ Mitigation through design to minimise light pollution ▪ Buffers provided to protect watercourses ▪ Dwellings powered by electricity, with no point of use emissions from gas combustion ▪ Construction phase pollution risks managed through a Construction Environmental Management Plan
Sustainable Travel, Mobility, Accessibility and Connectivity
▪ Promotion of a low traffic neighbourhood with priority given to walking, wheeling, and cycling ▪ All homes provided with a 7-kW electric vehicle charging point as standard ▪ Connection to an efficient network of pedestrian and cycle routes that connect the Development with Shenfield local centre
Health And Wellbeing, including Provision of Open Space
▪ Provision of accessible open space with areas of play space, informal space, and amenity areas ▪ Design of landscape features, travel routes and open space encourages active and healthy lifestyles
Culture, Heritage, and the quality Of Built Form

▪ The Development's design adopts to the principles of the Essex Design Guide, respecting the character and appearance of the area
Water Management
▪ Water consumption designed to achieve the 105 litres per person per day, in exceedance of current Building Standards
Flood Risk and Surface Water Management
▪ Features to manage fluvial and surface water flood risk will convey, collect, store and treat water on Site ▪ SuDS features integrated with landscape and ecology features to provide habitats, enhance biodiversity and deliver amenity value
Site Waste Management
▪ Construction Phase Site Waste Management will be managed and monitored, with targets for reuse and recycling
Use of Materials
▪ Use of high-quality materials throughout the development, with materials assessed for low embodied carbon impact ▪ Local materials used where possible to reduce associated transportation impacts

1 INTRODUCTION

1.1.1 This Sustainability Statement has been prepared by Stantec on behalf of Croudace Homes Ltd ('the Applicant') in support of a hybrid planning application to Brentwood Borough Council (BBC), consisting of full planning permission for the development of up to 344 dwellings, including 35% affordable housing, public open space and associated landscaping, drainage, and highways infrastructure (the 'Development') and outline planning permission for safeguarded land for education.

1.1.2 Officers' Meadow, Shenfield (the 'Site') forms part of the Strategic Site R03 'Land North of Shenfield' allocated in the adopted Brentwood Local Plan[1] (BLP).

1.1.3 This Sustainability Statement demonstrates how the Development aims to avoid increased vulnerability to the impacts of climate change through resilient and sustainable design. The Statement sets out the design approaches and solutions that are incorporated into the construction and operation phases of the Development, demonstrating compliance with the BLP as well as national policy.

1.1.4 The Development provides positive social, economic, and environmental outcomes for the local area, with consideration given to how the Development will be resilient to future environmental and societal changes, whilst responding to the need for residential dwellings. It is commonly understood that aspects of sustainable development are inter-related and can be broadly categorised as relating to carbon reduction, climate change mitigation and adaptation, landscape, biodiversity and ecology, transport and mobility, health and wellbeing, culture and heritage, water management, flood risk, landscaping and biodiversity and resource and material efficiency. These aspects align with those set out in the BLP.

1.2 Site Context and Description

1.2.1 The Site is located within the administrative boundary of Brentwood. Located to the north of Shenfield, the Site is approximately a 20-minute walk and a 10-minute cycle to Shenfield Town Centre.

1.2.2 The Site is bound to the north west by Chelmsford Road and its associated dwellings. Beyond Chelmsford Road lies the A12 (dual carriageway) and open farmland. The south eastern boundary of the Site is delineated by Ancient Woodland, an area of undesignated woodland and a railway line, beyond which lies additional areas of woodland, residential development, and further farmland. The Site is constrained by Ancient Woodland, a TPO tree belt to the north west of the Site and a Critical Drainage Area. A Grade II listed milestone is situated to the north of the Site.

1.2.3 The Site forms part of the Strategic Site 'Land North of Shenfield' allocated in the BLP under Policy R03 and is the largest parcel of land at 21.32 Hectares. The Masterplan Development Principles Document (approved July 2023) provides a comprehensive masterplan and phasing strategy for the Strategic Site

[1] Brentwood Local Plan 2016-2033. Available from https://www.brentwood.gov.uk/sites/default/files/documents/20124/533660/Brentwood+Local+Plan+2016-2033+Adopted+March+2022.pdf

R03, ensuring a consistent and efficient vision across the constituent land parcels. This report draws on the principles set out in the Masterplan Development Principles Document where appropriate.

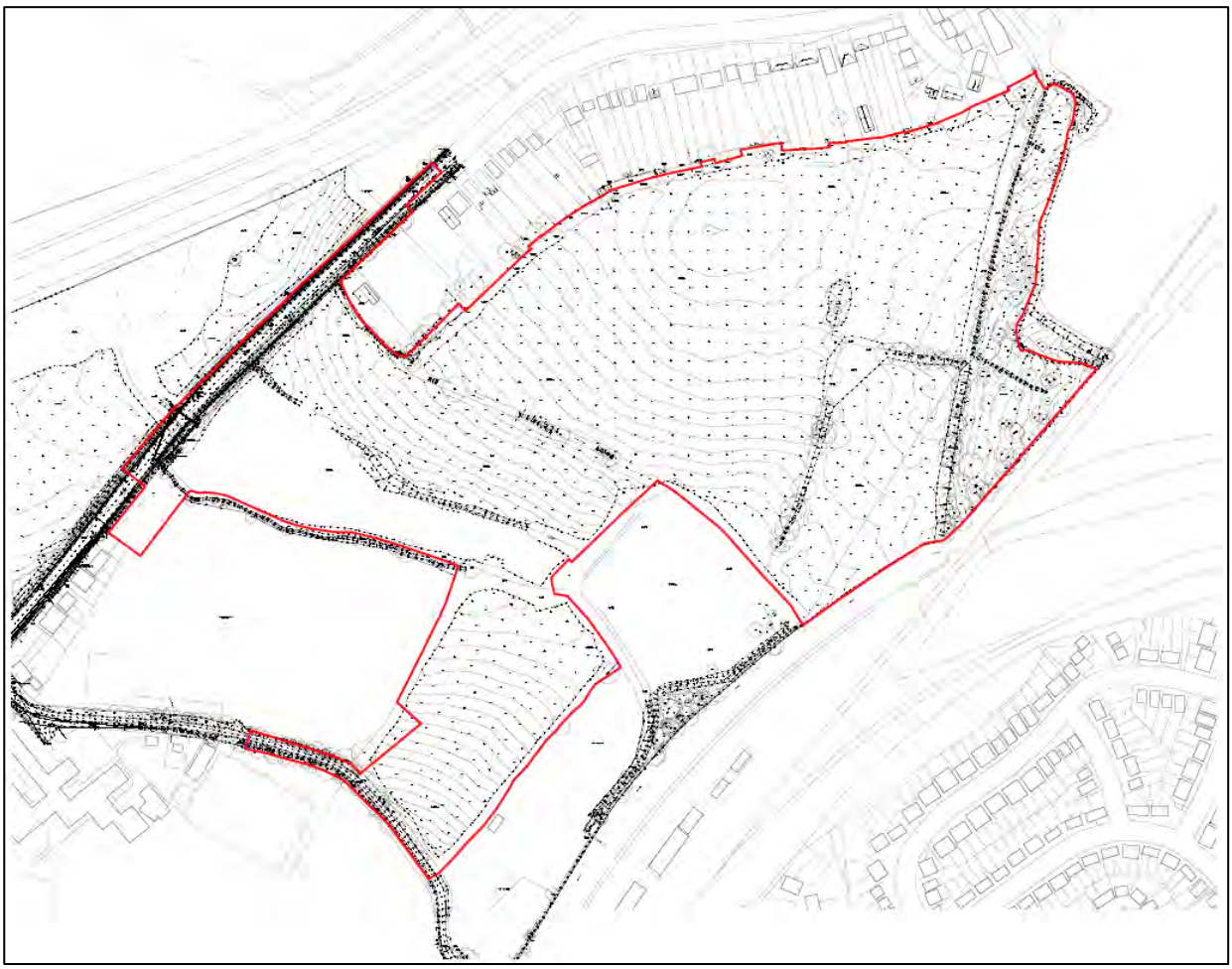


Figure 1.1 Red Line Boundary Plan

1.3 Development Description

1.3.1 The Development will comprise up to 344 dwellings, including 35% affordable housing, safeguarded land for a 2FE primary school and early years facility, public open space and associated landscaping, drainage, and highways infrastructure. 18 dwellings within the Development will be custom-build. A Proposed Site Layout is available at Appendix A.

1.4 Applicant Details

1.4.1 Croudace Homes Limited are an established regional residential developer. Providing homes throughout the South East, Croudace have developed a Sustainability Framework aligned to the UN Sustainable Development Goals[2] (UN SDGs) which set outs aims and objectives for sustainability, including a commitment to achieve net zero operational carbon emissions by 2030. Croudace commit

[2] UN Sustainable Development Goals. Available from https://www.undp.org/sustainable-development-goals

that all new housing schemes will satisfy the standards set out in the Building for a Healthy Life Standard[3].

1.4.2 In 2022[4] the Applicant established a set of operational sustainability targets and associated metrics aligned to the United Nations Sustainability Development Goals and the work of the Future Homes Hub[5]. These include:

- providing for a 10% improvement in biodiversity net gain (BNG) on all sites by the end of 2023;
- complying with the Building for Healthy Life Standard on all new schemes;
- eliminating single-use plastics and reducing the amount of waste sent to landfill;
- designing new homes with a water usage of less than 105 litres per person per day;
- delivering high-quality homes that are zero carbon ready and sustainable by 2025;
- creating places and developments that are consistently low carbon, nature rich, resilient, healthy and well designed by 2025;
- introducing production methods that are net zero and sustainable by 2050, with interim targets for 2025 and 2030;
- managing and operating the business with the objective to be net zero by 2050, with a 50% reduction in emissions by 2030; and
- constructing all new homes in line with the Future Homes Standard by 2027.

1.4.3 Building for a Healthy Life (BHL) Standard is a design tool for creating places that are better for people and nature. Organised around the topics of Integrated Neighbourhoods, Distinctive Places and Streets for All, the tool sets out 12 considerations that are used to guide the design development process.

1.5 Purpose of the Report

1.5.1 This Sustainability Statement has been produced to detail the proposed aspirations for the Development, and to describe the goals it aims to achieve. This Statement responds to the requirements of the adopted Local Plan and national legislation, and demonstrates how the proposals address environmental sustainability, with a focus on carbon reduction, climate change adaptation and resilience.

1.5.2 Sustainable development focuses on enabling a way of life that can be sustained into the future. The Brundtland definition[6] is the most common:

> *"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."*

[3] Building for a Healthy Life Standard. Available from https://www.udg.org.uk/publications/othermanuals/building-healthy-life

[4] Croudace Homes Sustainability Targets. Available from https://www.croudacehomes.co.uk/Rebrand

[5] Future Homes Hub. Available from https://www.futurehomes.org.uk/

[6] United Nations. 1987. Report of the World Commission on Environment and Development. Our Common Future (Brundtland Report).

1.5.3 Sustainable development is a key theme of the National Planning Policy Framework[7] (NPPF) which states that the purpose of the planning system is to contribute to the achievement of sustainable development. The NPPF encourages the transition to a low carbon future within a changing climate and for development to take a 'proactive approach to mitigating and adapting to climate change'. See Section 2.

1.5.4 The premise of the Sustainability Statement is that sustainability and sustainable development is multi-faceted, and they interface with all aspects of day-to-day life. Importantly, the climate change mitigation and adaptation measures that will be set out are deliverable and can be reviewed and adapted over time to suit the future circumstances and priorities.

1.5.5 The Statement is standalone in nature and complements other technical reports, drawing together policy themes, objectives, and requirements. Requirements are assessed against key national and local policy objectives, whilst recognising the importance of maintaining flexibility given the evolving nature of sustainability and climate change policy.

[7] National Planning Policy Framework. Available from https://www.gov.uk/government/publications/national-planning-policy-framework--2

2 Legislative and Policy Context

2.1 Overview

2.1.1 This section summaries the key national regulations and local policies that affect the proposed project.

2.2 Policy Context

2.2.1 A summary of the key policies relevant to the Statement are outlined below, with a comprehensive summary provided at Appendix A. This summary includes all policies which interface with climate change and health and wellbeing, given their extensive breadth and scope. This policy context includes those at the national level, such as the National Planning Policy Framework (NPPF). The Brentwood Local Plan was adopted in March 2022 and will guide development within the District to 2033.

2.2.2 Prior to June 2023, Brentwood Borough Council had an aim to be carbon neutral within its own activity and borough-wide by 2040. Their Environment Strategy 2022 – 2025[8] sets out how the council will achieve their carbon neutrality aims. In June 2023, the Council declared a climate emergency and amended the commitment to achieve net zero carbon emissions for its own estate by 2030, and by 2050 for the Brentwood Borough area.

2.2.3 The vision and structure of the BLP covers the economic, social, and environmental aspects of sustainability that the Development will need to consider, and by which this Sustainability Statement will be assessed against in Table 4.1.

2.3 National Context

2.3.1 The UK Government has acknowledged that climate change is a threat to our way of life and the natural world. It has also acknowledged that a "green recovery" from the coronavirus pandemic is an opportunity for the UK to boost economic growth, reduce inequality and improve our environment as well as helping to mitigate the effects of climate change. Quantitative targets have been set for reducing greenhouse gas (GHG) emissions in primary legislation, which is summarised below.

Climate Change Act 2008 and 2019 Amendment (Net Zero)

2.3.2 The Climate Change Act (2008) sets a legally binding target for reducing greenhouse gas (GHG) emissions, in particular carbon dioxide (CO2), by at least 80% (on 1990 levels) by the year 2050 in the UK, and a requirement that domestic emissions are reduced by no less than 3% each year.

2.3.3 In setting these targets, the Act established the Committee for Climate Change (CCC), which is responsible for setting binding interim targets for the Government over five-year periods. In May 2019, the CCC recommend a new emissions target for the UK: a 100% reduction ('net zero') in greenhouse

[8] Brentwood Borough Council Environment Strategy 2022 – 2025. Available from https://www.brentwood.gov.uk/sites/default/files/documents/20124/233253/Environment+Strategy+2022-2025.pdf

gases by 2050. This change in legislation mandating a 100% reduction in CO2 emissions by 2050 was approved by the House of Commons on 24th June 2019 and the House of Lords on 26th June 2019[9].

National Planning Policy Framework and Planning Practice Guidance

2.3.4 The National Planning Policy Framework[10] (NPPF) which was revised in July 2021 requires developments to "take a proactive approach to mitigating and adapting to climate change." Section 14 of the NPPF 'Meeting the challenge of climate change, flooding and coastal change' emphasises the planning system's pivotal role in sustainable development through "minimising vulnerability and improve resilience to the impacts of climate change". Paragraph 149 of the NPPF states:

> *"Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures. Policies should support appropriate measures to ensure the future resilience of communities and infrastructure to climate change impacts, such as providing space for physical protection measures, or making provision for the possible future relocation of vulnerable development and infrastructure."*

2.3.5 National Planning Practice Guidance[11] (PPG) was published in June 2014 and recognises that the planning system can "increase resilience to climate change impact through the location, mix and design of development". The guidance advises how to identify suitable mitigation and adaptation measures in the planning process to address the impacts of climate change.

2.3.6 Paragraph 005 of the PPG puts forwards recommendations for Local Planning Authorities to consider:

- Identifying no or low-cost responses to climate risks that also deliver other benefits, such as green infrastructure (GI) that improves adaptation, biodiversity, and amenity
- Building in flexibility to allow future adaptation if it is needed, such as setting back new development from rivers so that it does not make it harder to improve flood defences in the future
- The potential vulnerability of a development to climate change risk over its whole lifetime

2.4 Local Context

Brentwood Local Plan

2.4.1 A detailed summary of the relevant BLP Policies is included in Appendix B. The key Policies of the BLP are as follows:

- Policy BE01 Carbon Reduction and Renewable Energy
- Policy BE02 Water Efficiency and Management

[9] The Climate Change Act 2008 (2050 Target Amendment) Order 2019. Available from https://www.legislation.gov.uk/ukdsi/2019/9780111187654
[10] National Planning Policy Framework. Available from https://www.gov.uk/government/publications/national-planning-policy-framework--2
[11] National Planning Policy Guidance. Available from https://www.gov.uk/government/collections/planning-practice-guidance

- Policy BE03 Establishing Low Carbon and Renewable Infrastructure Network
- Policy BE04 Managing Heat Risk
- Policy BE05 Sustainable Drainage and
- Policy BE09 Sustainable Means of Travel and Walkable Streets
- Policy BE11 Electric and Low Emission Vehicles
- Policy BE14 Creating Successful Places
- Policy NE01 Protecting and Enhancing the Natural Environment
- Policy NE02 Green and Blue Infrastructure
- Policy NE03 Trees, Woodlands, and Hedgerows
- Policy NE06 Allotments and Community Food Growing Space
- Policy NE08 Air Quality
- Policy NE09 Flood Risk

3 METHODOLOGY

3.1 Sustainability Statement

3.1.1 This Sustainability Statement outlines how the BLP policies will be followed in the Development, organised by key sustainability aspects. The aspects are organised in accordance with the categorisation set out in the BLP as the basis for Sustainability Statements.

3.1.2 This Statement considers these key aspects and assesses them against key national and local policy objectives. It is critical that the strategy is kept flexible given the unknowns associated with projecting far ahead into the future.

3.1.3 Objectives have been set for the Development for each of the themes listed in Section 4. These objectives relate the design and construction of the Development.

4 SUSTAINABILITY STATEMENT

4.1 Overview

4.1.1 This section sets out the approach taken to each aspect of sustainability and how this will be achieved, to deliver a scheme that is compliant with national and local Planning Policy.

4.1.2 The location, layout and initial design means that the Development will take a holistic approach towards sustainability. This approach includes:

- A landscape-led masterplan creating a place that develops a walkable neighbourhood and provides a network of multi-functional and biodiverse landscapes;
- Deployment of an electric-led energy strategy where all heating demand is met by low carbon technology enabling an easy transition to Net Zero operation in line with the Future Homes Standard and the UK's trajectory to Net Zero Carbon by 2050;
- Passive design measures such as glazing with solar shading, openable windows and cross ventilation will be used wherever possible, to prevent overheating and avoid excessive requirements for heating and cooling.
- A transport strategy which promotes a low traffic neighbourhood giving priority to pedestrians and cyclists. The need for private car will be lessened, whilst all homes will be provided with a 7-kW electric vehicle charging point as standard, and shared charging points for all flat units;
- A contribution to the supply of housing, including 35% affordable housing which will assist in addressing housing need in the area;
- Connection to an efficient network of pedestrian and cycle routes that connect the Development with the local centre at Shenfield, nearby schools, bus stops and train stations;
- Provision of policy compliant open space provision including areas of play space and informal recreation;
- Provision of safeguarded land for a 2FE primary school; and
- Use of high-quality materials throughout the Development.

4.2 Adaptation to Climate Change

4.2.1 Climate change adaptation focusses on ensuring that the Development is designed and delivered in a way that is future-proofed and adaptable to future climatic predictions. The latest UK Climate Projections (UKCP18[12]) predict that it is likely that the Site will experience warmer, wetter, winters, hotter and drier summers, and an increased frequency of extreme weather events (in particular flooding). Therefore, design measures have been proposed that address these issues, taking into consideration:

- Future adaptation

[12] UK Climate Projections (UKCP). Available from https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/index

- Maintenance
- Disruption

Design Commitments

4.2.2 The Development incorporates a range of design measures which enable adaptation to the effects of climate change. These are explored in relevant sections throughout the Statement and include:

- GI features, integrated with Sustainable Drainage Systems (SuDS) as appropriate to manage rainfall, water flow and impacts of more extreme temperatures (see Section 4.4);
- Water management features deployed through the flood and drainage strategy to manage increased and varying patterns of rainfall (see Section 4.9); and
- Dwelling design features to minimise overheating risk, improve thermal comfort and increase energy efficiency. These include passive design features (for example glazing design, cross ventilation, and installation of mechanical ventilation). At Design Stage, a detailed overheating assessment will be carried out to show compliance with Approved Document O: Overheating (2021)[13].

4.3 Carbon Reduction and Climate Change Mitigation

4.3.1 The emission of greenhouse gases is the primary cause of climate change. Most emissions are derived from energy production. Other significant emission sources are industrial processes and agriculture.

4.3.2 The volume of greenhouse gas emissions is increasing the global temperature and triggering more extreme weather patterns. The Paris Agreement sets out an international agreement to reduce greenhouse gas emissions to zero by 2050 – a measure that is aimed at limiting global warming to 1.5°C.

4.3.3 Through the Climate Change Act 2008, the UK Government has set a target to significantly reduce UK greenhouse gas emissions by 2050 – a reduction of at least 100% of 1990 levels. An interim target has been set for a 78% reduction by 2035.

4.3.4 The concept of climate change mitigation is centred around reducing the greenhouse gas emissions attributable to the proposed Development, both during construction and operation phases. A reduction in emissions supports a pathway to net zero in 2050 as required by UK legislation.

Design Commitments

4.3.5 The Development will incorporate a range of measures to reduce the carbon emissions that arise from its operation, principally through reducing energy demand for heat, light, and transportation. The Energy Strategy[14] for the Development, submitted with the planning application, adopts the nationally recognised Energy Hierarchy.

[13] Approved Document O (2021). Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1057374/ADO.pdf

[14] Officers' Meadow, Shenfield Energy Strategy (Final), Stantec UK

4.3.6 The fabric efficiency of the proposed dwellings has been designed to reducing heat and energy demands, with high levels of insulation and low levels of air permeability. The fabric specification exceeds the fabric standards of the Building Regulations Approved Document: Part L (2021).

4.3.7 The proposed heating strategy adopts an electric-only approach for heat and power in all dwellings, with no gas installed to the Site. This includes the use of Air Source Heat Pumps (ASHPs) which are anticipated to become a primary heating strategy in line with the Future Homes Standard (expected to be introduced in 2025)[15].

4.3.8 Solar photovoltaic (PV) panels will be provided on dwellings, with Solar PV sized to achieve the requirements of BBC Policy BE01 whereby development must provide a minimum of 10% of the predicted energy needs from renewable energy.

4.3.9 The electric only strategy will allow the Development to achieve net zero emissions in operation at the point at which the UK electricity grid is decarbonised.

4.3.10 Fixtures, fittings, and appliances to dwellings will be specified to maximise energy efficiency. All light fittings will be energy efficient, with LED fittings installed for spot lighting. Taps and showers that reduce hot water consumption, with low and/or aerated flows will be specified.

4.3.11 Smart meters and control systems will be installed to enable residents to minimise their energy bills and to monitor consumption. User guides will be provided to ensure that occupants have sufficient information to operate and maintain the installed systems. Smart meters will be installed in line with regulations and supplier requirements.

4.3.12 At a Site-wide level, measures will be introduced to encourage active travel, including walking, wheeling, and cycling, to reduce the emissions associated with transport.

4.3.13 Further details on the predicted energy demands and associated carbon emissions are available in the Energy Strategy report.

4.4 Landscape, Biodiversity and Ecology

4.4.1 Consideration of biodiversity and ecology are key factors in environmental protection, enhancement, and restoration. Preserving and enhancing areas of landscape and open space support healthy habitats for flora and fauna and provide multi-functional environmental and social value benefits. The Development is taking a landscape-led approach, which will maximise the multi-functional nature of these benefits, including improvements in air quality, reducing noise, water management, and benefits to physical and mental health and wellbeing.

[15] The Future Homes Standard (FHS) targets the delivery of new "zero carbon ready" building standards in 2025, this standard is defined as one that enables buildings to become zero carbon without the need for retrofit once the power grid achieves zero carbon supply in 2035.

4.4.2 Several protected species have been identified on the Site. Appropriate mitigation measures have been set out in the Ecological Appraisal to minimise risk of harm to protected species, alongside compensatory measures where appropriate.

4.4.3 In terms of microclimate, the extensive areas of greenspace and planting will limit the contribution to any heat island effect that could otherwise result from development. New and retained trees and hedgerows will provide shading during the summer months, reducing ground surface temperature and heat gain into dwellings and decreasing the need for mechanical cooling. Trees throughout the Site will help maintain a comfortable and attractive environment.

Design Commitment

4.4.4 The Development prioritises a landscape-led approach, integrating and enhancing existing landscape assets and providing a range of open space, formal recreation areas, and landscaped SuDS features.

4.4.5 The Development will provide approximately 11 Hectares of open space, with green spaces and landscape features also providing amenity space, supporting, and enabling community cohesion, active lifestyles, and wellbeing. Open spaces will include a wetland area with habitat enhancement, and a timber boardwalk extending across a planted attenuation basin.

4.4.6 The landscape features focus on a mix of native and ornamental tree, shrub, and herbaceous planting. New native species-rich hedgerow planting will be created where no habitat connections currently exist, for example along the northern boundary and along the railway embankment.

4.4.7 SuDS basins will be designed with native planting. Two basins will include permanently wet features with marginal planting to support biodiverse habitats. Trees and hedges can contribute to a reduction in wind speeds, improving comfort levels and reducing air infiltration to buildings on windier days.

4.4.8 A 15m landscape buffer will be created adjacent to the ancient woodland at Arnold's Wood. The buffer zone will include semi-natural habitats, for example grass land or native scrub. Adjacent sites which are part of the Strategic Site will also include landscape features which can be accessed from the Site.

4.4.9 Measures set out in the Ecological Appraisal detail protection measures for specific species of fauna during pre-commencements works and the construction phase. Measures are also set out for the implementation of habitat provision to support species in the completed Development.

4.4.10 The landscape approach will also result in a BNG through the protection, enhancement and creation of new habitats and landscape features, with a forecast BNG of more than 10%. In addition, the provision of features to provide habitats, including bird boxes, bat boxes, log piles, nectar sources and hedgehog infrastructure support biodiversity. The Ecological Appraisal should be referred to for full details.

4.5 Noise, Water, Light and Air Pollution

4.5.1 Noise pollution will be in line with residential use therefore levels of noise are expected to be limited. Construction phase noise impacts will be managed through a Construction Environmental Management Plan (CEMP), including management of the hours of operation as required for the area.

Design Commitment

4.5.2 Measures to safeguard the existing Shenfield watercourse (crossing the site in an east to west direction) include the implementation of an undeveloped buffer around the watercourse. During the construction phase, safeguards will be implemented to mitigate against pollution impacts, including appropriate siting and storage of fuel, refilling equipment, and machinery. Spill kits and associated materials will be made available, with appropriate training given to staff.

4.5.3 SuDS design will include sustainable mechanisms for removing silt and ensuing the filtration and storage of surface water before release to water courses.

4.5.4 Light-spill on to retained and newly created habitat will be minimised in accordance with good practice guidance, to reduce potential impacts on light-sensitive and nocturnal fauna. This will include the incorporation of light exclusion zones, light barriers/screening, and directionality.

4.5.5 In terms of air quality, the Site is not located within an Air Quality Management Area. Dwellings will be all-electric, and therefore no emissions will arise from the use of domestic gas boilers. Construction phase air quality impacts will be mitigated through dust control and abatement measures, secured through a CEMP.

4.6 Transport, Mobility and Accessibility

4.6.1 The Development will incorporate measures to reduce single person car journeys, including through car sharing and provision of public transport information points. A Travel Plan will be developed to include targets for modal shift, including incentives to encourage use of public transport, walking, and cycling. It is anticipated that measures will include a car club or car share scheme to provide realistic alternatives to single occupancy vehicle use.

4.6.2 The Site is well located in terms of public transport access. Several bus stops are located within 600m of the Site, and Shenfield train station is within walking distance (located approx. 2km from Site). The Development proposes two new bus stops on Chelmsford Road, and the relocation of two existing bus stops to improve accessibility.

4.6.3 Walking and cycling connections will be provided throughout the Site with dedicated footways and cycleways on the main routes through the Site. Connections for pedestrians and cyclists will be provided to the existing cycling network on Chelmsford Road, and a new connection towards Alexander Lane. Connection from Alexander Lane to Shenfield Station will be provided as part of the wider masterplan for the Strategic Site (allocation R03).

Design Commitment

4.6.4 Electric vehicle (EV) charging will be provided in line with Approved Part S of the Building Regulations, whereby dwellings with an associated parking space will have access to an EV charging point with at least a 7kW output.

4.6.5 Where there are more associated parking spaces than dwellings in a building, cable routes will be provided to any associated spaces which do not have an EV charging point. This will allow easy installation of a charging point at a later date, if required.

4.7 Health And Wellbeing, including Provision of Open Space

4.7.1 The Site offers opportunities for healthy and active lifestyles through optimising its location, landscape features and integrated GI. Safe and attractive routes will encourage residents to choose to walk, cycle or use public transport rather than private vehicles.

4.7.2 The Development Framework for the wider site allocation incorporates the 10 characteristics as set out in the National Design Guide[16], which informs the focus for health and wellbeing, including the creation of active and walkable neighbourhoods, access to green and open spaces.

4.7.3 Informal open spaces, in particular around the Critical Drainage Area[17], will provide additional areas of landscaping, enhanced by appropriate planting to provide a variety of spaces and provide ecological diversity.

Design Commitment

4.7.4 Formal open spaces will be provided through the inclusion of two play areas (a Neighbourhood Equipped Area for Play, or NEAP and Local Equipped Area for Play, or LEAP) and multifunctional green space. Spaces will be designed to encourage social interaction and active lifestyles.

4.7.5 The provision of GI is integral to the design and layout of the Development. Open spaces are strategically located both towards the centre of the development, and at its edges, ensuring that all users and residents can conveniently access open spaces.

4.7.6 Quality of homes, with thermal performance at the forefront, ensures that homes are efficient to heat and remain comfortable and free of cold spots.

4.7.7 Open and public spaces will be fronted by dwellings to permit natural surveillance and informal supervision.

[16] National Design Guide. Available from https://www.gov.uk/government/publications/national-design-guide

[17] A Critical Drainage Area (CDA) is a discrete geographic area (usually a hydrological catchment) where multiple or interlinked sources of flood risk cause flooding during a severe rainfall event thereby affecting people, property, or local infrastructure.

4.7.8 The use of landscape links, landscape buffers and informal and formal recreation will ensure residents have easy access throughout the Site.

4.8 Culture, Heritage, and the quality Of Built Form

4.8.1 The Site is not located in a Conservation Area, and there are no Listed Buildings or Heritage Records applicable. The proposed development would not therefore have a detrimental impact on any known heritage assets.

Design Commitment

4.8.2 The Development's design adopts to the principles of the Essex Design Guide and has been designed to respect the character and appearance of the area. Full information on these aspects can be found in the Design and Access Statement.

4.9 Water Management

4.9.1 Managing water is crucial to prevent overextraction and pollution of ground and surface water bodies. Water is a resource that is being and will continue to be affected by the changing climate with hotter, drier summer, warmer wetter winters, and an increased frequency of extreme weather events.

Water Efficiency

4.9.2 A large proportion of water consumption in a domestic setting is used for washing and WC flushing.

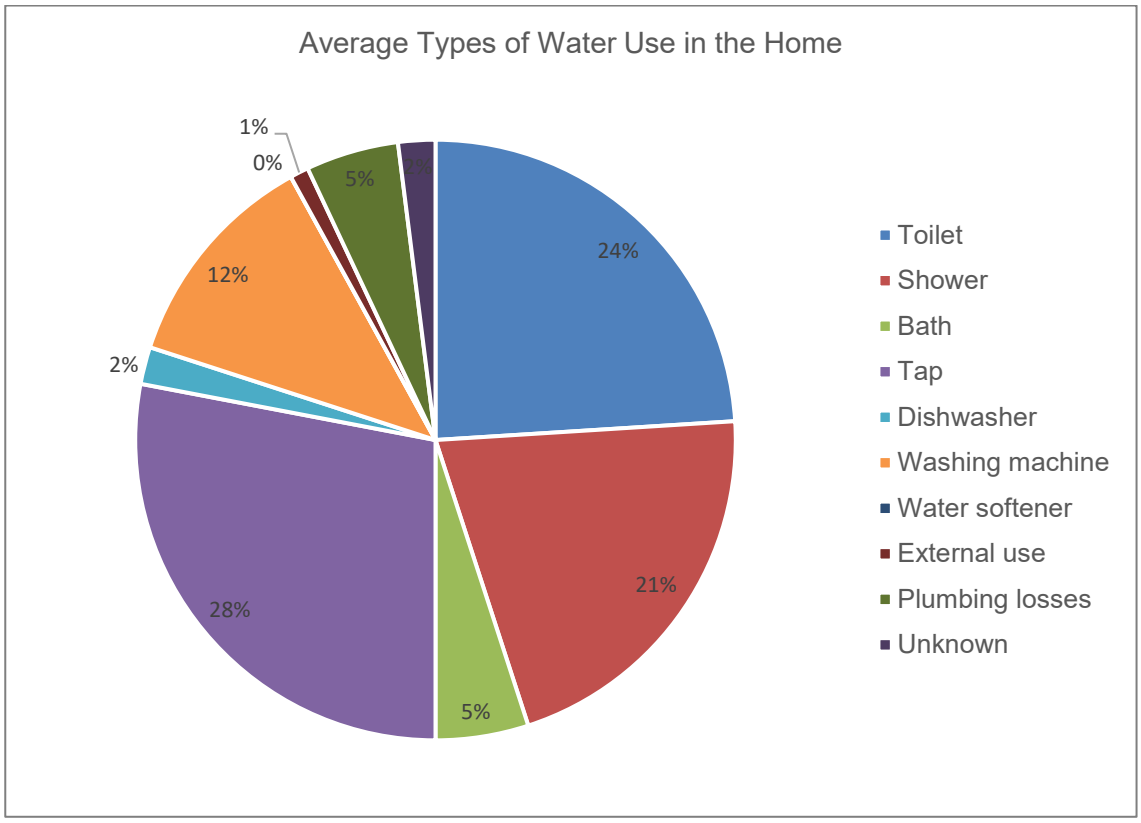


Figure 4.1: Average Types of Water Use in the Home[18]

4.9.3 Water consumption will be designed to achieve the 105 litres per person per day, per the Applicant's standard design, in exceedance of current Building Regulations. Demand will be minimised by, for example, specifying low flow showers.

Flood Risk and Surface Water Management

4.9.4 New development on a previously undeveloped site will increase the amount of hard standing (for example roofs, roads, and pavements) and therefore increase the amount of surface water run-off. In addition, rainfall levels and patterns are predicted to change during the lifetime of the Development. The Development will be designed to comply with the requirements set out in the NPPF, including requirements to be adaptable and resilient to climate change impacts over the Development's lifetime.

4.9.5 In regards Fluvial Flood Risk, most of the Site is in Flood Zone 1, with an area adjacent to the Shenfield watercourse falling within Flood Zones 2 and 3. The Site also contains a Critical Drainage Area.

4.9.6 For Surface Water Flood Risk, the Development site is mostly at very low risk, with a lower-lying area along the Shenfield watercourse at a low, medium, and high risk of surface water flooding.

4.9.7 There is a significant overlap between fluvial and surface water flood risks, which will be managed by the same mitigation measures.

Design Commitment

4.9.8 To manage the identified impacts of the Development, measures have been incorporated into the masterplan. These include location of residential dwellings, specification of finished floor levels, and safe access to the Development during storm events.

4.9.9 Risk of surface water flooding from runoff generated by the proposed development will be managed by Surface Water Drainage Strategy, including SuDS. The Strategy is designed so that flooding does not occur on any part of the site for all events up to 1 in 30 years, and flooding does not occur in any dwelling for all events up to 1 in 100 years, plus a 45% climate change allowance.

4.9.10 SuDS features have been designed to take account of groundwater conditions. In addition, details have been set out for the construction phase and for maintenance and operation, to ensure that the features perform effectively over the Development's lifetime. The Flood Risk Assessment and Drainage Strategy should be referred to for full details.

4.9.11 Finished floor levels of the dwellings will be designed to safely route overland flows away from buildings to use natural flow paths such as public open spaces and parking areas to manage overland flows.

[18] UKWIR (2016) Available from https://www.ofwat.gov.uk/wp-content/uploads/2018/05/The-long-term-potential-for-deep-reductions-in-household-water-demand-report-by-Artesia-Consulting.pdf

4.10 Waste Management

4.10.1 The Waste Regulations[19] set a range of targets designed to achieve a more sustainable approach to waste minimisation and management. A key principle is to reduce the amount of waste created, through waste minimisation practices, before ensuring best practice waste management to collect, process and dispose safely of waste.

4.10.2 Waste generation, storage, treatment, and disposal before, during and after construction and during operation will be managed in accordance with the waste hierarchy and circular economy principles.

Design Commitment

4.10.3 The Applicant will encourage occupants to manage waste sustainably, with design features that enable waste minimisation. For example, houses will be provided with integrated bins to manage recycling streams within the dwelling prior to transfer to external storage. Facilities will be easy to access and designed in line with the BBC requirements.

4.10.4 Construction Phase waste management is discussed at Section 4.12.

4.11 Use Of Materials

4.11.1 Efficient and effective use of materials supports carbon reduction and climate mitigation through reducing the impact of materials, and associated waste.

4.11.2 Materials, also known as resources, which are no longer suitable for use, reuse or recycling drop down the Resource Hierarchy and become waste. See Figure 4.2. The Development will seek to incorporate a series of measures to converse material resources, and to manage waste safely and effectively.

[19] The Waste (England and Wales) Regulations 2011. Available from https://www.legislation.gov.uk/uksi/2011/988/contents/made

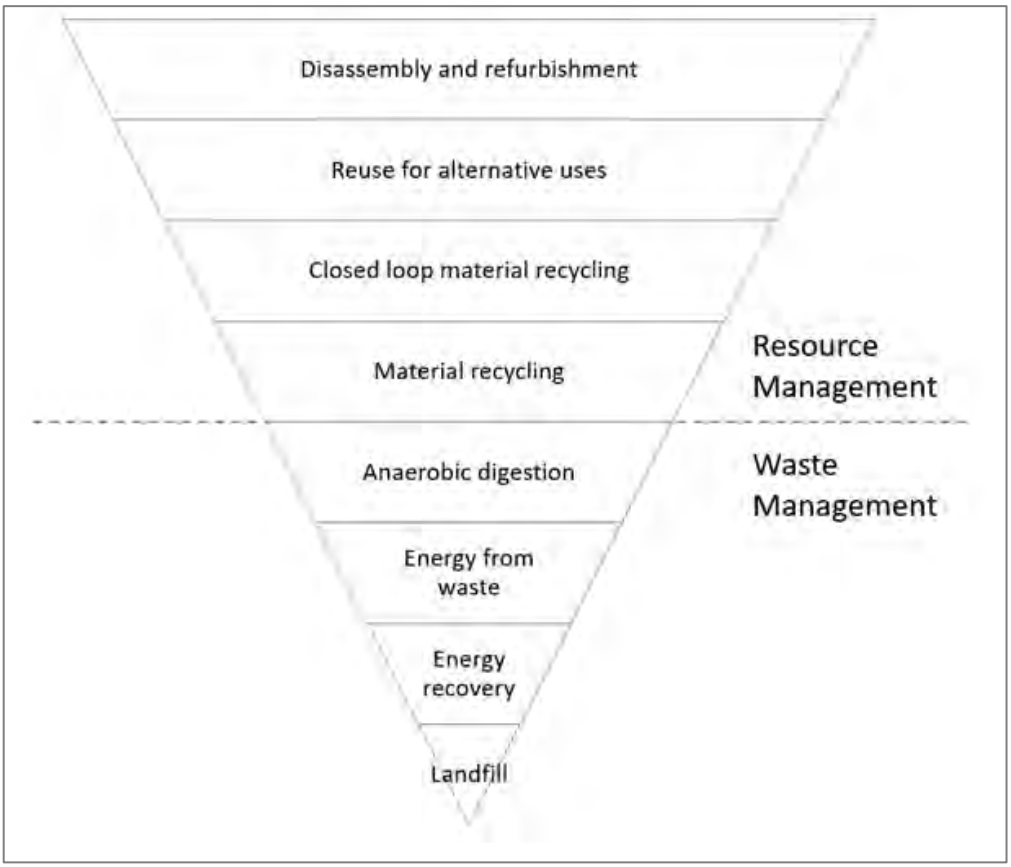


Figure 4.2: The Resource Hierarchy

4.11.3 The extraction, manufacture, processing, and transportation of raw materials all contribute to the embodied carbon of building materials. Embodied carbon refers to the 'up front' emissions associated with the production and construction stages, and also includes the 'in use' stage and 'end of life' stage. Sourcing of materials is a key consideration in selecting materials efficiently and minimising embodied carbon.

Design Commitment

4.11.4 Measures that will be taken to ensure a responsible approach to material selection include:

- Specification of materials with recycled, reused, or secondary content where possible;
- Low carbon concrete mixes will be specified where appropriate;
- Materials will be selected from local sources and supplies where possible, to reduce transportation impacts;
- Materials with flexible/adaptable/replaceable systems will be specified, to enable the replacement of a single component where possible, rather than the entire product;
- Products and components will be mechanically fixed where possible, to enable demounting and reuse or recycling;
- Where possible, all timber will be sourced in line with sustainable sourcing certifications such as Forestry Stewardship Council (FSC);

- Designing for durability and flexibility, e.g., avoiding composite materials which are harder to deconstruct, designing fixings that can be disassembled, and using standard products; and
- Peat-free compost will be specified and used in all new landscaping schemes.

4.12 Construction Phase Management

4.12.1 A range of measures will be implemented during the construction phase to monitor and manage the impacts of construction phase activities. A CEMP will be developed to identify, communicate, and monitor environmental management during construction activities.

Carbon Reduction

4.12.2 All plant supplied by Croudace, and associated groundworks contractors, is operated using Hydrotreated Vegetable Oil (HVO) fuel, an alternative fuel which generates reduced carbon emissions and tailpipe particulates compared to traditional diesel fuel.

4.12.3 Temporary site power will be supplied by green energy tariffs, where possible. Solar PV panels will be installed to site accommodation where feasible to provide an on-site source of renewable power.

Resource Efficiency

4.12.4 Utilities supplied to site (water and electricity) will be metered to enable monitoring of consumption, to set targets for reduction and to enable early detection of leaks or similar issues.

Land, Water, Air and Noise Pollution

4.12.5 An assessment will be undertaken to determine potential sources of pollution during the construction phase, and sensitive receptors. Management measures will be determined in accordance with the aspects and impacts process and appropriate monitoring and management actions will be implemented. Section 4.5 describes measures that will be taken to mitigate pollution risks for air quality, noise and watercourses.

4.12.6 All construction lighting, within 15m of the watercourse, wooded belts, hedgerows, woodland and ponds will be stopped before dusk to reduce disruption wildlife using and inhabiting the canal. Lights elsewhere on site will be baffled, and face away from the watercourse and woodland.

Travel and Transport

4.12.7 Where possible, suppliers and subcontractors will be selected based on their proximity to site, reducing the distances travelled by workers and supply vehicles.

Use of Materials

4.12.8 Where possible, local materials such as aggregates will be specified to reduce transportation distances.

Waste Management and Minimisation

4.12.9 All contractors, including supply chain subcontractors, will be required to adhere to strict waste minimisation and management processes. A Construction Phase Waste Management Plan will be developed to:

- Set out roles and responsibilities for the Site Waste Management Plan
- Provide site induction and training to all staff
- Identify waste streams, plan for their management, and set targets for reduction
- Identify suitable locations for efficient separation and storage of waste prior to removal from site
- Identify opportunities for the on-site reuse of materials including excavated materials
- Manage and monitor the appointment of licenced Waste Management Contractors

Table 4.1 Brentwood Borough Council Local Plan Policies and Key Recommendations

Policy Name	Objective	Key Recommendations	Compliant with National Policy?	Compliant with the Local Plan?
Policy BE01: Carbon Reduction and Renewable Energy	Achieve at least a 10% reduction in carbon dioxide emissions above the requirement of Part L Building Regulations Where possible, provide a minimum of 10% of the predicted energy demand from renewable energy Provide a calculation of energy demand and CO_2e emissions covered by Building Regulations and for unregulated emissions Set out how the development is future proofed to achieve zero carbon on site emissions by 2050	▪ The Energy Strategy demonstrates that the Development will achieve a 64% improvement in carbon dioxide emissions over Part L (2021) Building Regulations ▪ The Development will incorporate 243 kW of Solar PV throughout the Site, to deliver the required 10% of energy demand from renewable energy ▪ The Energy Strategy demonstrates the achievement of net zero emissions in operation once the UK electricity grid decarbonises ▪ During the construction phase, Croudace will provide solar PV to construction site accommodation for onsite usage, where possible	Yes	Yes
Policy BE02: Water Efficiency and Management	Achieve limits of 110 litres per person per day (PPPD) Provision of more substantial water management measures such as rain/grey water harvesting Incorporate measures including smart metering, water saving and recycling to reduce consumption and maximise future proofing Demonstrate adequate capacity in the sewerage network	▪ Croudace standard design approach is to achieve water usage of 105 litres PPPD ▪ Provision of low consumption fixtures and fittings to dwellings ▪ Anglian Water have confirmed that connection can be made to the public foul water sewer ▪ The proposed foul water drainage strategy incorporates a pumping station to the southern part of the Site	Yes	Yes
Policy BE03: Establishing Low Carbon and Renewable Infrastructure Network	Consider innovative approaches to the construction of low carbon homes, with sustainable use of resources and high energy efficiency levels Demonstrate that the heating and cooling systems have been selected according to the heat hierarchy	▪ The Energy Strategy sets out principles for fabric efficiency to minimise energy demand ▪ Systems have been assessed for their suitability to provide residential heating and hot water demand and are in line with the anticipated requirements of the Future Homes Standard	Yes	Yes

Policy Name	Objective	Key Recommendations	Compliant with National Policy?	Compliant with the Local Plan?
Policy BE04: Managing Heat Risk	Minimise internal heat gain and overheating risk through passive design measures and material selection Demonstrate mitigation of overheating risk and reliance on air conditioning through energy efficient deign, heat reduction design measures, management of thermal mass, maximising passive ventilation, and provision of mechanical ventilation of active cooling where necessary	▪ At Detailed Design Stage, an overheating assessment will be carried out to show compliance with Approved Document Part O ▪ Passive design measures that have been incorporated are detailed in the Energy Strategy	Yes	Yes
Policy BE05: Sustainable Drainage	Incorporate SuDS for management of surface water and resulting water quality, with associated long-term management and maintenance plan Provide an individually designed scheme for mitigation of site-specific issues arising from the Critical Drainage Area designation Achieve a greenfield run-off rate Inclusion of permeable surfaces	▪ Masterplan measures to manage flood include the use of SuDS features, designed to account for groundwater conditions ▪ Infiltration modelling indicates that the volume of run-off will exceed the greenfield run-off rate; the proposed surface water drainage strategy will collect, convey, and attenuate runoff from all areas being made impermeable by the Development before discharge into the watercourse	Yes	Yes
Policy BE09 Sustainable Means of Travel and Walkable Streets	Prioritise sustainable modes of transport, promote accessibility and integration with wider community. Priority for walking, wheeling, and cycling Provision of community transport measures promoting car pools, car sharing, voluntary community buses and cycle schemes	▪ Routes for walking, wheeling, and cycling will be provided through the Development, and to link with adjacent routes ▪ The Travel Plan will set out soft measures to encourage modal shift to more sustainable transport options	Yes	Yes
Policy BE11 Electric and Low Emission Vehicles	Maximise the provision of electric vehicle charging infrastructure, including space to provide them in the future	▪ EV charging will be provided with one 7 kW output facility per dwelling	Yes	Yes

Policy Name	Objective	Key Recommendations	Compliant with National Policy?	Compliant with the Local Plan?
Policy BE14: Creating Successful Places	Meet high design standards, with buildings, places and spaces that can adapt to changing requirements Promote active lifestyles Integrate features that enhance the natural environment including planting, green roofs, and nature based sustainable drainage Incorporate tree lined streets and mitigate the impact of air, noise, vibration, and light pollution	▪ Routes for walking, wheeling, and cycling will be provided through the Development, and to link with adjacent routes ▪ The Travel Plan will set out soft measures to encourage modal shift ▪ Tree lined streets, and the retention of trees on site where possible contributes to an environment with aesthetic appeal and where trees mitigate air pollution, noise and wind speed whilst providing habitats ▪ Range of public spaces accessible within a 400m radius, providing access to residents within approximately 5 minutes' walk	Yes	Yes
NE01 Protecting and Enhancing the Natural Environment	Efficient use of natural resources, securing BNG (where possible)	▪ The Development will deliver a BNG in excess of 10% ▪ Existing trees will be protected where possible ▪ A 15m buffer zone will be located adjacent to the ancient woodland at Arnold's Wood ▪ Provision of approximately 11 Ha green space across the site	Yes	Yes
NE02 Green and Blue Infrastructure	Maximise opportunities to enhance or restore existing green blue infrastructure provision, and/or create new provision that connects to the wider network Ensure no adverse impact on the functioning or water quality. Incorporate adequate buffer zone(s) as necessary	▪ SuDS basins will be designed with native planting. Two basins will include permanently wet features with marginal planting ▪ Flood mitigation measures and SuDS attenuation features are located adjacent to open spaces, maximising opportunities for habitat retention and creation	Yes	Yes
NE03 Trees, Woodlands, Hedgerows	Seek to retain trees, woodlands, and hedgerows where they contribute to the environment and/or have a significant amenity value	▪ Existing trees will be protected where possible ▪ The designated Veteran Tree is protected and incorporated into design details ▪ New planting will comprise native species of trees and shrubs, including fruit and nut bearing species	Yes	Yes
NE06 Allotments and Community Food Growing Space	Provision of areas for personal and food growing areas, where possible	▪ Where possible, areas of food growing will be incorporated to gardens	Yes	Yes

Policy Name	Objective	Key Recommendations	Compliant with National Policy?	Compliant with the Local Plan?
NE08 Air Quality	Meet local air quality standards and identify opportunities to improve air quality or mitigate local exceedances Provision of Air Quality Impact Assessment	▪ During the construction phase, all Croudace-supplied and Groundworker plant will operate using alternative fuels (HVO fuel) which significantly reduces the carbon emissions on site	Yes	Yes
NE09 Flood Risk	Provision of site-specific Flood Risk Assessment	▪ Flood Risk Assessment and Drainage Strategy produced and submitted as part of the hybrid planning application	Yes	Yes

5 SUMMARY

5.1.1 This Sustainability Statement outlines how the Development demonstrates sustainability, aligned to the requirements of national policy and the BLP. This Statement takes a holistic view of sustainable development and in particular focuses on the aspects of carbon reduction, climate change mitigation and adaptation, landscape, biodiversity and ecology, transport and mobility, health and wellbeing, culture and heritage, water management, flood risk, landscaping and biodiversity and resource and material efficiency. This is to ensure that the Development is futureproofed, adaptable and resilient to future environmental and societal challenges.

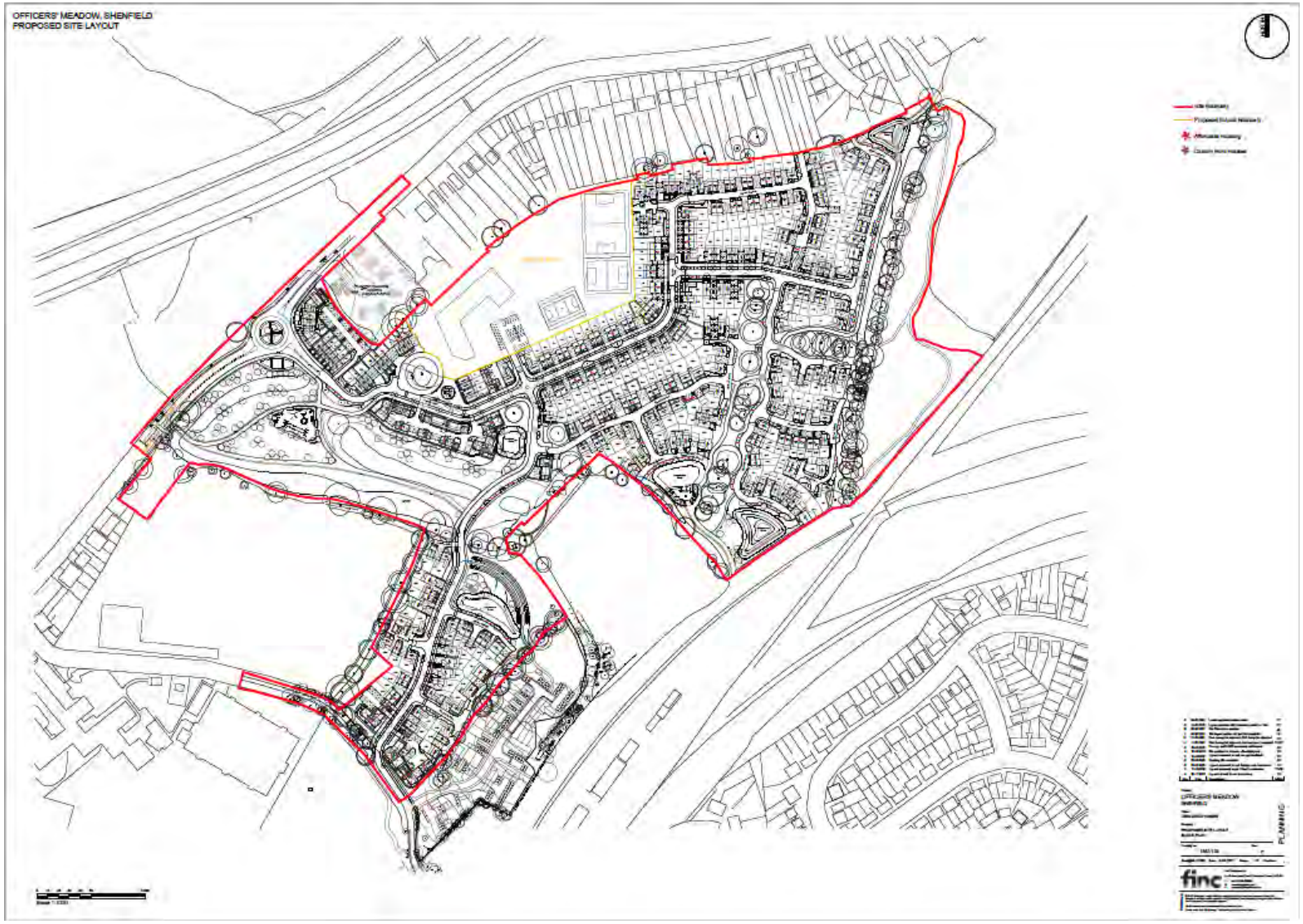
5.1.2 An analysis has been carried out in Section 4 of this Statement with regard these themes identified above, and the Statement has been undertaken in conjunction with the priorities for the BLP, and the National Planning Policy Framework, which focus on a healthy lifestyle, housing, the environment and strengthening communities.

5.1.3 The Energy Strategy for the Development deploys an electric-led approach, with the use of low and zero carbon technologies which will reduce energy consumptions and associated carbon emissions.

5.1.4 In Table 4.1, the Statement demonstrates that the Development is compliant with BBC requirements as defined by the BLP.

5.1.5 The Development at Officers' Meadow, Shenfield responds to the objectives of the BLP and contributes towards a sustainable lifestyle by providing opportunities for a balanced community, healthy lifestyle opportunities, efficient transport options as well as efficient homes and low carbon energy.

Appendix A Proposed Site Layout



Appendix B Policy and Legislative Context

B.1 Introduction

B.1.1 This appendix of the Strategy provides an overview of the policy and legislative context in respect of Officers' Meadow, Shenfield.

5.2 National Policy Context

National Planning Policy Framework[20]

B.1.2 The revised NPPF published in July 2021 identifies the key principles in relation to health that local planning authorities should consider. In particular Chapter 8 of the revised NPPF 'Promoting healthy and safe communities' states that decisions should aim to achieve the following key features to a healthy and safe community:

"promote social interaction, including opportunities for meetings between people who might not otherwise come into contact with each other – for example through mixed-use development, strong neighbourhood centre, street layouts that allow for easy pedestrian and cycle connections within and between neighbourhoods, and active street frontages;

are safe and accessible, so that crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion – for example through the use of clear and legible pedestrian routes, and high quality public space, which encourage the active and continual use of public areas; and

enable and support healthy lifestyles, especially where this would address identified local health and well-being needs – for example through the provision of safe and accessible green infrastructure, sports facilities, local shops, access to healthier food, allotments and layouts that encourage walking and cycling."

B.1.3 The revised NPPF also includes other chapters relevant to the Strategy that are appropriately referenced in the report.

The Clean Growth Strategy[21]

B.1.4 In October 2017, the UK Government published its Clean Growth Strategy (CGS) setting out ambitious policies and proposals, through to 2032 and beyond, to reduce emissions across the economy and promote clean growth. The CGS provides an 'ambitious' blueprint for Britain's low carbon future, outlining how investment in green energy goes hand–in–hand with economic growth and industrial, commercial and residential strategies. Core to the strategy are actions that will cut emissions, increase efficiency and lower the amount consumers and business spent on energy. The CGS sets out actions for the six key areas that together are responsible for 100% of the UK's carbon emissions. These are:

[20] National Planning Policy Framework, July 2021. Available from https://www.gov.uk/government/publications/national-planning-policy-framework--2

[21] Clean Growth Strategy, October 2017. Available from https://www.gov.uk/government/publications/clean-growth-strategy

- Improving business and industry efficiency (25% of UK emissions): Improving business and industry efficiency, improving energy productivity and commercial building standards, delivering industrial energy efficiency, investing in industrial innovation;

- Accelerating the shift to low-carbon transport (24% of UK emissions): Accelerating the shift to low – carbon transport, supporting the take – up of ultra – low emission vehicles, developing electric vehicle charging network, shifting freight from road to rail and innovation in Connected and Autonomous Vehicles and electric batteries;

- Improving our homes (13% of UK emissions): Improving our homes, upgrading energy efficiency across a million homes, strengthening building standards, rolling out heat networks, phasing out of high carbon heating;

- Enhancing the benefits and value of our natural resources (15% of UK emissions): Enhancing the benefits and value of our natural resources, supporting agriculture, a new network of forests, zero avoidable waste by 2050, managing emissions from landfill;

- Leading the public sector (2% of UK emissions): Leading in the public sector, setting a voluntary 30 percent public sector carbon reduction target by 2020 and funding for energy efficiency improvements in England; and

- Delivering clean, smart, flexible power (21% of UK emissions): Delivering clean, smart, flexible power, phasing – out of coal, developing new ways of balancing the grid through electricity storage and demand response.

25 Year Environment Plan[22] and the Environment Act[23]

B.1.5 Building on the proposals set out in the CGS, the UK outlined its plans to improve the environment in 'A Green Future: Our 25 Year Plan to Improve the Environment' (2018). The 25 Year Environment Plan was published in January 2018 and sets out the UK's approach to deliver on our ambition to leave our environment in a better state than we inherited, and to fully seize the opportunities of clean growth. At a glance, the key proponents of the 25 Year Plan are:

- Embedding an 'environment net gain' principle for development, including housing and infrastructure: reforming developer contributions and tariffs to limit environmental damage and secure investment in natural capital.

- Clean Air: meeting legally binding targets to reduce emissions of five damaging air pollutants; this should halve the effects of air pollution on health by 2030 and maintaining the continuous improvement in industrial emissions by building on existing good practice and the successful regulatory framework.

- Reducing the risks of harm from environmental hazards: We will reduce the risk of harm to people, the environment and the economy from natural hazards including flooding, drought and coastal erosion.

- Increasing resource efficiency and reducing pollution and waste: achieving zero avoidable waste by 2050 and eliminating avoidable plastic waste by 2042 and reducing food chain emissions and wastage as well as improving the management of residual waste.

- Using resources from nature more sustainably and efficiently: ensure that resources from nature, such as timber, are used more sustainably and efficiently.

[22] 25 Year Environment Plan, last updated October 2021. Available from https://www.gov.uk/government/publications/25-year-environment-plan

[23] Environment Act 2021. Available from https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted

- Enhancing beauty, heritage and engagement with the natural environment: making sure that there are high quality, accessible, natural spaces close to where people live and work, particularly in urban areas, and encouraging more people to spend time in them to benefit their health and wellbeing.
- Mitigating and adapting to climate change: Take all possible action to mitigate climate change, while adapting to reduce its impact.

B.1.6 The Environment Act became law in 2021 and sets long-term targets in respect of any matter which relates to:

- The natural environment, or
- People's enjoyment of the natural environment

B.1.7 The priority areas within the Act are:

- Air quality;
- Water;
- Biodiversity; and
- Resource efficiency and waste reduction.

Planning Practice Guidance[24]

B.1.8 The PPG on climate change (Paragraph 007) also recognises that every area will have different challenges and opportunities for reducing carbon emissions from new development such as homes, businesses, energy, transport and agricultural related development:

- Robust evaluation of future emissions will require consideration of different emission sources, likely trends taking into account requirements set in national legislation, and a range of development scenarios;
- The distribution of new development and the potential for servicing sites through sustainable transport solutions, are particularly important considerations that affect transport emissions; and
- Different sectors may have different options for mitigation. For example, measures for reducing emissions in agricultural related development include anaerobic digestion, improve slurry and manure storage and improvements to buildings. In more energy intensive sectors, energy efficiency and generation of renewable energy can make a significant contribution to emissions reduction.

B.1.9 Further detailed guidance is also provided with regards to specific considerations for climate change. For example, the PPG companion document to the NPPF sets out the required approach to climate change for the assessment of flood risk. It provides recommendations for sensitivity ranges and allowances for future increases in rainfall, sea levels, river flows and tidal effects such as wind speed and wave height. For example, paragraphs 155 and 156 of the NPPF state:

> *"Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its*

[24] National Planning Policy Framework. Available from https://www.gov.uk/government/publications/national-planning-policy-framework--2

lifetime without increasing flood risk elsewhere. Strategic policies should be informed by a strategic flood risk assessment and should manage flood risk from all sources. They should consider cumulative impacts in, or affecting, local areas susceptible to flooding, and take account of advice from the Environment Agency and other relevant flood risk management authorities, such as lead local flood authorities and internal drainage boards."

5.3 Local Policy Context

Brentwood Local Plan 2016 – 2033

B.1.10 The Brentwood Local Plan25 (BLP) was adopted in March 2022. The BLP has four strategic objectives which capture the Borough's key priorities. These are:

- SO1: Manage growth sustainably
- SO2: Deliver a healthy and resilient built environment
- SO3: Deliver sustainable communities with diverse economic and social-cultural opportunities for all
- SO4: Deliver a [sic] beautiful, biodiverse, clean and functional natural environment

B.1.11 The Policies within the BLP require that appropriate consideration is given to addressing climate change. This is expected to include both climate change mitigation measures to reduce the impacts of human activities, such as energy and resource efficiency, renewable technologies, pollution reduction and promotion of sustainable travel, and climate change adaptation measures. Adaptation and resilience measures will include mitigating the urban heat island effect, ensuring developments are adaptable and resilient against long term stresses and extreme weather events, and the enhancement of biodiversity. Developments should also consider resource management, through density of development, and efficient resource consumption.

B.1.12 The following specific policies apply to the Site.

Policy BE01 Carbon Reduction and Renewable Energy

Carbon Reduction and Construction Standards

Development should meet the minimum standards of sustainable construction and carbon reduction as set out below:

a) All major development will be required to achieve at least a 10% reduction in carbon dioxide emissions above the requirements of Part L Building Regulations; and

b) Alternative construction standards, such as LEEDs or Passivhaus, will be supported where they are broadly in line with the standards required by the Policy.

1. Renewable Energy

[25] Brentwood Local Plan 2016 – 2033 https://www.brentwood.gov.uk/adopted-local-plan

Wherever possible, major development will be required to provide a minimum of 10% of the predicted energy demand from renewable energy. Where on-site provision of renewable technologies is not appropriate, or where it is clearly demonstrated that the above target cannot be fully achieved on-site, any shortfall should be addressed through:

a) Contributions agreed through Section 106 or Community Infrastructure Levy (CIL) funding. These funds will be used for energy efficiency, energy generation initiatives or other measure(s) required to offset the environmental impact of the development; or

b) off-site provision, provided that an alternative proposal is identified, and the measures can be secured.

2. Major development proposals should be accompanied by a Sustainability Statement outlining their approach to the following issues:

    a) adaptation to climate change;

    b) carbon reduction, including a calculation of energy demand and CO_2e emissions covered by Building Regulations and a separate energy demand and emissions calculation for any other parts of the development, including plant or equipment (i.e. unregulated emissions);

    c) water management;

    d) site waste management;

    e) use of materials;

The Sustainability Statement should also address how the proposals meet all other policies relating to sustainability throughout the plan, including:

    a) Biodiversity and ecology

    b) Land, water, noise and air pollution

    c) Transport, mobility and access

    d) Health and wellbeing, including provision of open space

    e) Culture, heritage, and the quality of built form, including efficient use of land

3. Where it is not possible to meet these standards, applicants must demonstrate compelling reasons and provide evidence as to why achieving the sustainability standards would not be technically feasible or economically viable.

As allowed by the Planning and Energy Act (2008), the BLP requires an onsite reduction of at least 10% energy efficiency beyond the baseline of Part L. Proposals should also explain how the site has been futureproofed to achieve zero carbon on-site emissions by 2050.

Policy BE02 Water Efficiency and Management

Water Efficiency

1. Development should incorporate water conservation measures and meet the minimum standards for water efficiency:

    a) New residential development will be required to achieve limits of 110 litres per person per days

    b) New non-residential development is expected to meet BREEAM 'Excellent' for Wat 01.

    c) Major developments and high or intense water use developments are expected to provide more substantial water management measures such as rain/grey water harvesting.

Waste Water and Sewage

2. Development Proposals should:

    a) Seek to improve the water environment and demonstrate that adequate wastewater infrastructure capacity is provided

    b) Ensure that misconnections between foul and surface water and networks are eliminated and not easily created through future building alterations

    c) Incorporate measures such as smart metering, water saving and recycling, including retrofitting and rain/grey water harvesting, to help achieve lower water consumption rates and to maximise future proofing.

    3. Applications will need to demonstrate that the sewerage network has adequate capacity both on and off-site to serve the development and to assess the need to contribute to any additional connections for the development to prevent flooding or pollution of land and water courses. Where sewerage capacity is identified as insufficient, development will only be permitted if it is demonstrated that improvements will be completed prior to occupation of the development

Policy BE03 Establishing Low Carbon and Renewable Infrastructure Network

Renewable energy infrastructure

1. Innovative approaches to the installation and/or construction of energy generation facilities or low carbon homes which demonstrate sustainable use of resources and high energy efficiency levels will be supported.

2. New development will be expected to demonstrate that the heating and cooling systems have been selected according to the following heat hierarchy:

    i. connection to existing CHP/CCHP distribution network;

    ii. site-wide renewable CHP/CCHP;

    iii. site-wide gas-fired CHP/CCHP;

    iv. site-wide renewable community heating/cooling;

    v. site-wide gas-fired community heating/cooling;

    vi. individual building renewable heating

Policy BE04 Managing Heat Risk

1. All development proposals should minimise internal heat gain and overheating risk through design, layout, building orientation and use of appropriate materials.

2. Major development proposals should demonstrate how they will reduce the potential for overheating and reliance on air conditioning systems by:

   i. Minimising internal heat generation through energy efficient design

   ii. Reducing the amount of heat entering a building through orientation, shading, albedo, fenestration, insulation and use of green roofs and walls.

   iii. Managing heat within a building through exposed internal thermal mass and high ceilings

   iv. Maximising passive ventilation and

   v. Where necessary, providing mechanical ventilation and active cooling systems

Best practice guidance should be used for the assessment and mitigation of overheating risk in new developments, in particular the following guidance from The Chartered Institution of Buildings Services Engineers (CIBSE):

TM59: Design Methodology for the Assessment of Overheating Risk in homes (for residential developments) and TM52: The Limits of Thermal Comfort: Avoiding Overheating in European Buildings (for non-domestic developments)

Policy BE05 Sustainable Drainage

1. Developments should incorporate Sustainable Drainage Systems (SuDS) for the disposal of surface water to avoid an increase in surface water flood risk, or adverse impact in water quality.

2. Development within areas identified as a Critical Drainage Area should optimise the use of SuDS by providing an individually designed mitigation scheme to address the site-specific issues and risk by way of a Flood Risk Assessment. This could be provided as part of a Drainage Strategy and must address issues highlighted in the Surface Water Management Plan, where relevant.

3. As a major development, the development must achieve a greenfield runoff rate, with the technical approach justified in the Drainage Strategy.

4. Major development is required to submit a surface water Drainage Strategy and a Flood Risk Assessment. The Drainage Strategy must include a SuDS Management Plan setting out long term management and maintenance arrangements.

5. SuDS will be required to meet the following design criteria:

   a) The design must follow an index-based approach when managing water quality. Implementation in line with the updated CIRIA SuDS Manual is required. Source control techniques such as green roofs, permeable paving and swales should be used so that rainfall runoff in events up to 5mm does not leave the site.

   b) SuDS should be sensitively designed and integrated into the Green and Blue Infrastructure to create high quality open space and landscaped public realm, in line with Policy NE02 (Green and Blue Infrastructure).

c) Maximise opportunities for biodiversity net gain

d) Improve the quality of water discharges and be used in conjunction with water use efficiency measures

e) Function effectively over the lifetime of the development

f) The preferred hierarchy of managing surface water drainage from any development is through infiltration measures, then attenuation and discharge to watercourses, and if these cannot be met, through discharge to surface water only sewers

g) Having regards to the Essex County Council SuDS Design Guide 202026, or as amended.

6. When discharging surface water to a public sewer, developers are required to provide evidence that capacity exists in the public sewerage network, in line with policy requirements BE02 Water Efficiency and Management.

7. Development proposals should be designed to include permeable surfaces wherever possible. Proposals for impermeable paving, including on small surfaces such as front gardens and driveways, will be strongly resisted unless it can be suitable demonstrated that this is not technically feasible or appropriate.

Policy BE09 Sustainable Means of Travel and Walkable Streets

Sustainable modes of transport should be prioritised in new developments to promote accessibility and integration with the wider community and existing networks. Priority should be given to cycle and pedestrian movements and access to public transport.

Proposals should provide the following sustainable measures as appropriate:

Pedestrian, cycle, public transport and where appropriate, bridleway connections within development sites and to the wider area, including key destinations.

The creation of safe, secure, well connected and attractive layouts which minimise the conflicts between traffic, cyclists and pedestrians, and allow good accessibility for passenger transport within sites, and between sites and adjacent areas. Where appropriate, improve areas where passenger transport, pedestrian or cycle movement is difficult or dangerous.

The provision of community transport measures promoting car pools, car sharing, voluntary community buses, cycle schemes

Safeguarding existing and proposed routes for walking, cycling, and public transport, from development that would prejudice their continued use and/or development; and

Any development requiring a new road or road access, walking and cycling facilities and public transport, will be required to have regard to the adopted County Council Development Management Policies, in order to assess

[26] The Sustainable Drainage Systems Design Guide for Essex. Available at: https://www.essexdesignguide.co.uk/suds/

the impact of development in terms of highway safety and capacity for both access to the proposed development and the wider highway network.

Policy BE11 Electric and Low Emission Vehicles

Proposals should wherever possible maximise the opportunity of occupiers and visitors to use electric and low emission vehicles, and maximise the provision of electric vehicle charging infrastructure, including the space required to provide them in the future.

Policy BE14 Creating Successful Places

Proposals will be required to meet high design standards and deliver safe, inclusive, attractive and accessible places. Proposals should:

Sustainable buildings, places and spaces that can adapt to changing social, technological, economic, environmental and climate conditions.

Create permeable, accessible and multifunctional streets and places that promote active lifestyles

Integrate and enhance the natural environment including features which will endure for the life of the development, including planting, green roofs and walls, and nature based sustainable drainage.

New streets should be tree-lined where applicable, and opportunities taken to incorporate trees elsewhere in developments, sensitively incorporate parking and functional needs, and mitigate the impact of air, noise, vibration and light pollution from internal and external sources.

NE01 Protecting and Enhancing the Natural Environment

Development proposals will use natural resources prudently and protect and enhance the natural environment. Where possible, a net gain in biodiversity should be secured and proposals should avoid negative impacts on biodiversity, geodiversity, habitats and species.

NE02 Green and Blue Infrastructure

New development is expected to maximise opportunities to enhance or restore existing green blue infrastructure (GBI) provision and/or create new provision on site that connects to the wider GBI network.

Development sites containing or adjacent to a water course or water body are required to ensure there is no adverse impact on the functioning or water quality. An adequate undeveloped buffer zone should be applied as necessary to mitigate flood risk (in line with Policy NE09) and support SuDS (in line with Policy BE05).

Appropriate specification and maintenance plans for the lifespan of the development should be provided.

NE03 Trees, Woodlands, Hedgerows

Where possible and practicable, proposals should seek to retain existing trees, woodlands and hedgerows where they make a positive contribute to the landscape and/or biodiversity, or which have significant amenity value.

NE06 Allotments and Community Food Growing Space

Provision of areas for personal and community gardening and food growing will be favourably considered.

NE08 Air Quality

Development is required to meet local air quality standards and identify opportunities to improve air quality or mitigate local exceedances and impacts to acceptable and safe levels. Development proposals must demonstrate that they will not:

- Compromise the achievement of compliance targets within Air Quality Management Areas (AQMAs).
- Create new exceedance areas; and
- Create unacceptable risk of high levels of exposure to poor air quality, particularly where development is near to, or promotes land uses to be used by those particularly vulnerable to poor air quality (such as children and older adults).

Exposure to existing poor air quality should be minimised through design, and appropriate provision made to improve local air quality conditions through design solutions and measures to the indoor and outdoor environment. The positioning, layout and design of proposals for new build developments and community infrastructure (indoor and outdoor) that are likely to be used by large volumes of people on a daily basis, especially by vulnerable groups, should be considered. Community infrastructure should, where possible incorporate appropriate buffer zones to prevent or minimise exposure to air pollution sources.

An Air Quality Impact Assessment is required as part of any planning application for major developments. The individual and cumulative impact on air quality should be considered. Proposals that do not meet policy requirements for air quality and new exceedance areas will resisted unless it is demonstrated that adverse impacts can be mitigated to an acceptable level. Mitigation should be provided on site unless it can be demonstrated that it is inappropriate and that off-site provision will deliver equivalent or wider benefits.

NE09 Flood Risk

New development will be required to avoid areas of flood risk by applying the Sequential and, where necessary, the Exception Tests in accordance with national policy and guidance.

A site-specific Flood Risk Assessment must assess all sources of flooding, demonstrating how flood risk will be managed over the development's lifetime, taking climate change into account. A site-specific FRA is required in line with national policy guidance, for the following types of development:

a) all new development greater than 1 ha in size in Flood Zone 1

b) all development within a Critical Drainage Area

c) all new development (including minor development and change of use) in flood zones 2 and 3

d) new development or a change of use to a more vulnerable class which may be subject to other sources of flooding

Where proposals satisfy the Sequential and Exception Tests, design proposals should ensure that:

a) the most vulnerable land uses are located in areas within the Site that are at lowest risk of flooding;

b) development will be safe for its lifetime taking account of the vulnerability of its users,

c) flood risk will not increase elsewhere;

d) development would not constrain the natural function of the flood plain, either by impeding flow or reducing storage capacity;

e) development is constructed so as to remain operational even at times of flood through resistant and resilient design;

f) appropriate mitigation measures are incorporated to address any residual flood risk safely, including safe access and egress for all likely users of the development;

g) where necessary incorporate flood resistant and flood resilient design measures such that, in the event of a flood, the development could be quickly brought back into use without significant refurbishment;

h) incorporate sustainable drainage systems in line with Policy BE05 Sustainable Drainage, unless there is clear evidence that this would be inappropriate;

i) where possible, the development will reduce flood risk overall.

j) safe access and escape routes are included where appropriate, as part of an agreed Emergency Response Plan, where required

Where the site is additionally located within a Critical Drainage Area (CDA), development should minimise and mitigate surface water runoff in line with Policy BE05 Sustainable Drainage.

Note, the Validation Requirements Checklist for planning does not include a Sustainability Statement but this is included in the Local Plan Policy requirements.