



Mowbray Phase 1 Area 4
Land North of Horsham

Energy & Sustainability Statement

May 2026

Key Features of the Proposals

Highly energy efficient properties, adopting a 'fabric first' approach

Heat pumps for heating and hot water

Renewable energy generation via photovoltaic panels

Low carbon
development from the outset

A secure and identified trajectory to net zero emissions over time

100%
of properties with associated parking to have a dedicated EV charging point

25%
estimated reduction in potable water use against the national average

100%
of properties to have the infrastructure to support gigabit-capable connections

Adapted to future changes in the climate

The sustainable approach described within this Statement demonstrates that the proposals align with the relevant policies of the Horsham District Planning Framework, creating a zero-carbon ready development which is adapted to future changes in the climate.

Contents

1	Introduction	4
1.1	This Statement	4
1.2	Site Description	5
1.3	Description of Development	5
2	Sustainability Policy Review	7
2.1	National Policies and Regulations	7
2.2	Local Planning Policy	10
3	Zero-Carbon Ready Homes	13
3.1	Introduction	13
3.2	The Energy Hierarchy	14
3.3	Be Lean: Use Less Energy	14
3.4	Be Clean: Supply Energy Efficiently	16
3.5	Be Green: Use Renewable Energy Sources	17
3.6	Solar Photovoltaics	18
3.7	Control Systems	18
3.8	Building Energy Performance	19
4	Water Efficiency	20
4.1	The Water Hierarchy	20
4.2	Water Reduction Measures	21
5	Climate Resilience and Adaptation	24
5.1	Introduction	24
5.2	Reducing Overheating Risk Through Design	24
5.3	The Multiple Benefits of Open Space and Vegetation	25
5.4	Managing Water in a Changing Climate	25
6	Reducing Carbon Emissions from Transport	26
6.1	Accessibility	26
6.2	Sustainable Transport	26
6.3	Provision of Electric Vehicle Charging Points	27
6.4	Provision of Fibre to the Premises	27
7	Materials and Sustainable Waste Management	28
7.1	Introduction	28
7.2	The Waste Hierarchy	28
7.3	Sustainable Building Materials	29
7.4	Sustainable Waste Management	29
8	Summary	31

1 Introduction

1.1 This Statement

1.1.1 This *Energy & Sustainability Statement* supports the Reserved Matters application for the proposed development at Mowbray Phase 1 Area 4, Land North of Horsham. It has been commissioned by Bellway Homes Ltd (the Applicant) to demonstrate how the proposals address environmental sustainability, with a focus on climate change mitigation and adaptation.

1.1.2 The site is part of the wider Land North of Horsham strategic site (now known as the Mowbray Development Site) which was granted outline consent in March 2018 as follows:

Outline planning application with all matters reserved except access for a mixed use strategic development to include housing (up to 2,750 dwellings), business park (up to 46,450m²), retail, community centre, leisure facilities, education facilities, public open space, landscaping and related infrastructure (Application Reference DC/16/1677).

1.1.3 This Statement has been written to demonstrate that the proposed development will meet the requirements of Policies 35, 36 and 37 of the *Horsham District Planning Framework (2015)* and that it will also achieve the Future Homes Standard should it apply at the point of construction:

Sustainable Energy

- The buildings will be 'zero-carbon ready', and will be futureproofed to become operationally zero carbon over time;
- High fabric standards for thermal efficiency will be specified;
- There will be no natural gas connection to the proposed development;
- Energy demand will be met from low and zero carbon sources.

Domestic Water Efficiency

- Domestic water use will be reduced compared to a standard development through the adoption of water efficient fixtures and fittings.

Climate Resilience and Adaptation

- The development designs will anticipate future changes in the climate;
- Overheating risk will be reduced through passive design measures as required by Approved Document O;
- Open space and landscaping will provide multiple benefits;
- Surface water will be managed with the integration of SuDS.

Reducing Carbon Emissions from Transport

- Electric vehicle charging infrastructure will be incorporated in line with the requirements of Approved Document S;
- Gigabit-ready infrastructure will be installed as required by Approved Document R.

Materials and Sustainable Waste Management

- The adoption of sustainable design and construction principles will reduce the environmental impact of the development;
- Construction and operational waste will be managed according to the principles of the Waste Hierarchy, with a focus on waste prevention, re-use and recycling.

1.1.4 The recommendations provided are described in as much detail as is possible at this stage in the planning process. Where specifics are not available, the overall approach and design standards have been set out to ensure that the sustainable quality of construction remains high throughout the lifetime of the development.

1.2 Site Description

1.2.1 The proposed site is situated to the north of the town of Horsham. It currently comprises an agricultural field with boundary trees and hedgerows to the south, east and west. An area of trees to the northeast of the site is categorised as ancient woodland.

1.2.2 The site is bound by agricultural land to the north, new residential development to the east, agricultural land to the south and Old Holbrook and an existing dwelling (Rapelands Farm) to the west.

1.2.3 The site is part of the wider *Land North of Horsham* strategic site (now known as the Mowbray Development Site) which is allocated within the Horsham District Planning Framework for development under Policies SD1 – SD9. Under the outline consent, the area subject to this application is referred to as 'Reserved Matters Area 4 (RM Area 4)' and it is to the northwest of Phase 1 of the strategic site.

1.3 Description of Development

1.3.1 The application has the following description of development:

Reserved matters application (internal access, appearance, landscaping, layout and scale) pursuant to Condition 5 of Outline Planning Permission reference DC/16/1677 for Phase 1 RM Area 4 comprising 82 (C3 Use) residential units, car and cycle parking, new landscaping, drainage, access and internal roads and associated infrastructure.

1.3.2 The following image shows the Site Layout:



Figure 1: Site Layout (MDD Architecture & Urban Design)

2 Sustainability Policy Review

2.1 National Policies and Regulations

The National Planning Policy Framework (December 2024)

2.1.1 The NPPF Section 2 states that the purpose of the planning system is to contribute to the achievement of sustainable development, and it includes three overarching objectives 'to be pursued in mutually supportive ways':

- An economic objective, contributing to a strong, responsive and competitive economy;
- A social objective, supporting vibrant and healthy communities and;
- An environmental objective, protecting and enhancing our natural, built and historic environment.

2.1.2 As such, the NPPF at its heart contains a 'presumption in favour of sustainable development'. Emphasising the need to achieve well designed places, the NPPF states that "*Good design is a key aspect of sustainable development, creates better places in which to live and work and helps make development acceptable to communities*".

2.1.3 The NPPF sets out a number of principles which should underpin both plan-making and decision-taking, and of which many are particularly relevant to this document. In this context, planning should:

- Promote healthy and inclusive places that encourage social interaction, enhance healthy lifestyles, and which are safe and accessible;
- Seek to secure a high-quality of design and a good standard of amenity for occupants;
- Support the transition to a low-carbon future, avoid increased vulnerability to climate change impacts, take account of flood risk and coastal change and seek to reduce greenhouse gas emissions. Plans should include a positive strategy to help increase the use and supply of renewable and low carbon energy;
- Help conserve and enhance the natural environment, achieve net gains in biodiversity and reduce the impact of all forms of pollution;
- Plan and manage development to make full use of public transport, walking and cycling, and take into account the need to ensure an adequate provision of spaces for charging plug-in and other ultra-low emission vehicles;
- Support the expansion of electronic communications networks, including next generation mobile technology (such as 5G) and full fibre broadband connections, which are seen as essential for economic growth and social wellbeing.

The Climate Change Act

- 2.1.4 The Climate Change Act 2008 is the basis for the UK's approach for tackling and responding to climate change. It commits the UK government to reducing greenhouse gas emissions by at least 100% of 1990 levels by 2050.

Building Regulations

- 2.1.5 *Approved Document L, Conservation of Fuel and Power, Volume 1: Dwellings (2021)* came into force in June 2022. It sets out the Building Regulation standards for energy performance in new developments, placing a greater emphasis on reducing primary energy use, in addition to achieving carbon and fabric efficiency targets, compared to the previous standards. The tightening of fabric energy efficiency standards, air tightness and carbon performance targets are accompanied by updated calculation and modelling requirements within the compliance mechanism (SAP10.2 for dwellings).
- 2.1.6 *Approved Document F, Ventilation, Volume 1: Dwellings* details requirements for ventilation in domestic properties to ensure that increased air tightness (as required by the updates to Approved Document L) does not impact on internal air quality.
- 2.1.7 *Approved Document O: Overheating* has been put into place to limit overheating risk in new residential buildings. It expands on the provision in the previous Part L and requires the use of passive methods where feasible. Compliance can be demonstrated through a prescriptive or thermal simulation compliance path.
- 2.1.8 *Approved Document S: Infrastructure for Charging Electric Vehicles (December 2021)* details regulations for the installation of electric vehicle charging points and cable routes. Requirement S1 from Part S of Schedule 1 and regulation 44D of the Building Regulations states that every new home with an associated parking space must have access to an EV charging point.
- 2.1.9 Water efficiency targets for new dwellings are driven by *Approved Document G: Sanitation, Hot Water Safety and Water Efficiency (2015)*. Within a domestic setting, the requirement is to limit water use to either 125 litres per person per day or, if required by the planning permission, an enhanced standard of 110 litres per person per day.

The Future Homes and Building Standard

- 2.1.10 On 24 March 2026, regulations were laid in Parliament to amend the Building Regulations 2010 and the Building (Registered Building Control Approvers etc.) (England) Regulations in order to implement the Future Homes and Buildings Standards. Updated Approved Documents, which provide the statutory guidance accompanying the Building Regulations, were also published.
- 2.1.11 The Future Homes and Buildings Standards will make sure that new homes and non-domestic buildings are future-proofed with low carbon heating and high levels of energy efficiency. Homes and buildings constructed to these standards will not require retrofitting to become zero carbon in use once the electricity grid is fully decarbonised.

- 2.1.12 The regulations and amended guidance will come into force on 24 March 2027 (for non-higher-risk building work) followed by a 12 month transition period. For such building work to be completed to the *current* Part L (2021) standards, relevant Building Regulations documents will need to be submitted to the relevant authority by 24 March 2027 and construction will need to commence by 24 March 2028 (unless other transitional provisions apply).
- 2.1.13 An updated version of the Standard Assessment Procedure (SAP), known as SAP 10.3, will soon be available as an approved calculation methodology to demonstrate compliance with the FHS.
- 2.1.14 It is then expected that the new Home Energy Model (HEM) will be available as an approved calculation methodology later in 2026. Once HEM is approved, it will be possible to use either HEM or SAP 10.3 to demonstrate compliance with the FHS during a 'dual running' period of approximately 24 months, after which the SAP will be phased out.

2.2 Local Planning Policy

Horsham District Planning Framework (Adopted 2015)

- 2.2.1 The *Horsham District Planning Framework* (2015) (HDPF) sets out the planning strategy for Horsham district (outside of the South Downs National Park) for the years up to 2031. It is part of the Local Plan for the district and forms the main basis for assessment in planning terms.
- 2.2.2 Policy extracts from the HDPF which are of particular relevance to this document include the following:

Policy	Extract
33	Development Principles In order to conserve and enhance the natural and built environment developments shall be required to: (...) 7. Ensure buildings and spaces are orientated to gain maximum benefit from sunlight and passive solar energy, unless this conflicts with the character of the surrounding townscape, landscape or topography (...) 8. Incorporate where appropriate convenient, safe and visually attractive areas for the parking of vehicles and cycles, and the storage of bins/recycling facilities without dominating the development or its surroundings; (...)
35	Strategic Policy: Climate Change Development will be supported where it makes a clear contribution to mitigating and adapting to the impacts of climate change and to meeting the district's carbon reduction targets as set out in the Council's Acting Together on Climate Change Strategy 2009: Measures which should be used to mitigate the effects of climate change include; 1. Reduced energy use in construction; 2. Improved energy efficiency in new developments, including influencing the behaviour of occupants to reduce energy use; 3. The use of decentralised, renewable and low carbon energy supply systems; 4. The use of patterns of development which reduce the need to travel, encourage walking and cycling and include good accessibility to public transport and other forms of sustainable transport; and 5. Measures which reduce the amount of biodegradable waste sent to landfill. Development must be designed so that it can adapt to the impacts of climate change, reducing vulnerability, particularly in terms of flood risk, water supply and changes to the district's landscape. Developments should adapt to climate change using the following measures: 1. Provision of appropriate flood storage capacity in new building development; 2. Use of green infrastructure and dual use SuDS to help absorb heat, reduce surface water runoff, provide flood storage capacity and assist habitat migration; 3. Use of measures which promote the conservation of water and/or greywater recycling; and 4. Use of site layout, design measures and construction techniques that provide resilience to climate change (opportunities for natural ventilation and solar gain). If it is not possible to incorporate the adaption and mitigation measures proposed, an explanation should be provided as to why this is the case.
36	Strategic Policy: Appropriate Energy Use Energy hierarchy All development will be required to contribute to clean, efficient energy in Horsham based on the following hierarchy: 1. Lean – use less energy – e.g. through demand reduction 2. Clean – supply energy efficiently – e.g. through heat networks 3. Green – use renewable energy sources District Heating and Cooling Commercial and residential developments in Heat Priority Areas or the strategic development locations will be expected to connect to district heating networks where they exist using the following hierarchy, or incorporate the necessary infrastructure for connection to future network.

Policy	Extract
	Development should demonstrate that the heating and cooling systems have been selected in accordance with the following heating and cooling hierarchy; 1. Connection to existing (C)CHP distribution networks 2. Site wide renewable (C)CHP 3. Site wide gas-fired (C)CHP 4. Site wide renewable community heating/cooling 5. Site wide gas-fired community heating/cooling 6. Individual building renewable heating 7. Individual building heating, with the exception of electric heating All (C)CHP must be of a scale and operated to maximise the potential for carbon reduction. Where site-wide (C)CHP is proposed, consideration must be given to extending the network to adjacent sites. Energy Statements All applications for residential or commercial development must include an Energy Statement demonstrating and quantifying how the development will comply with the Energy Hierarchy. Developments in Heat Priority Areas and strategic developments should demonstrate and quantify how the development will comply with the heating and cooling hierarchy. Horsham District Council will work proactively with applicants on major developments to ensure these requirements are met. (...).
37	Sustainable Construction Proposals must seek to improve the sustainability of development. To deliver sustainable design, development should incorporate the following measures where appropriate according to the type of development and location: 1. Maximise energy efficiency and integrate the use of decentralised, renewable and low carbon energy; 2. Limit water use to 110 litres/person/day; 3. Use design measures to minimise vulnerability to flooding and heatwave events; 4. Be designed to encourage the use of natural lighting and ventilation; 5. Be designed to encourage walking, cycling, cycle storage and accessibility to sustainable forms of transport; 6. Minimise construction and demolition waste and utilise recycled and low-impact materials; 7. Be flexible to allow future modification of use or layout, facilitating future adaptation, refurbishment and retrofitting; 8. Incorporate measures which enhance the biodiversity value of development. All new development will be required to provide satisfactory arrangements for the storage of refuse and recyclable materials as an integral part of design. New homes and workplaces should include the provision of high-speed broadband access and enable provision of future technologies where available.

West Sussex County Council Guidance on Parking at New Developments (September 2020)

- 2.2.3 This document sets out requirements for electric vehicle charging on new developments. However, the advice given has been superseded by Approved Document S.

Rusper Neighbourhood Plan 2018-2031 (Made November 2020)

2.2.4 The Rusper Neighbourhood Plan forms part of the development plan for the parish. It includes the following policy of relevance to this Statement:

Policy	Extract
RUS3	Design Proposals for new development, including extensions to existing buildings, must be of the highest design standards, and will be required to reflect the character and scale of surrounding buildings. Proposals should satisfactorily take into account: (...) vi. The achievement of current heat insulation standards; vii. The achievement of current noise insulation standards; viii. The provision of features (including renewable energy) that lead to low or zero carbon dioxide emissions, such as solar panels and air or ground source heat pumps; (...) Proposals will be expected to make the fullest contribution to minimising carbon dioxide emissions and make efficient use of natural resources (including water), by making the most of natural systems to reduce vulnerability to climate change impacts over the lifetime of the development. Planning applications must demonstrate through a written statement how the delivery of sustainable design standards are integral to the development. As a minimum, development will be expected, subject to viability, to achieve the standards required by the National Model Design Code including space standards or subsequent national requirements.

Additional Planning Policy Documents and Commitments

2.2.5 Further guidance exists relating to transport, parking, flood risk and ecology. These are covered in more detail in the other reports accompanying this submission. This Statement does however refer to the outputs of these reports where relevant to give a rounded picture of the approach to sustainable design and construction issues.

3 Zero-Carbon Ready Homes

3.1 Introduction

- 3.1.1 This section describes the design principles which will be applied at the proposed development to ensure that it will meet the requirements of HDPF Policies 35, 36 and 37. It also sets out how the designs will achieve the Future Homes Standard should it apply (as discussed in Section 2, the regulations and amended guidance will come into force on 24 March 2027 (for non-higher-risk building work) followed by a 12 month transition period):
- The development will be 'zero carbon ready', and will be futureproofed to become operationally zero carbon over time as the Grid decarbonises;
 - Space heating demand will be reduced by:
 - Balancing solar gain against overheating risk;
 - Applying 'fabric first' principles and adopting a highly efficient thermal specification.
 - Operational energy use will be reduced by:
 - Installing high efficiency lighting and appliances;
 - Installing low carbon air source heat pumps.
 - Energy will be generated on site via roof integrated solar photovoltaic panels.
- 3.1.2 An illustrative thermal specification for the proposed properties is presented in Section 3.8. This will be refined once energy calculations have been completed to ensure compliance with the required regulatory framework.

3.2 The Energy Hierarchy

- 3.2.1 The Energy Hierarchy underpins the entire approach to building performance for this development, thus prioritising a reduction in the demand for energy as far as possible through thermally efficient, easily controlled, well designed and oriented buildings. This is in line with the requirements of HDPF Policy 36:

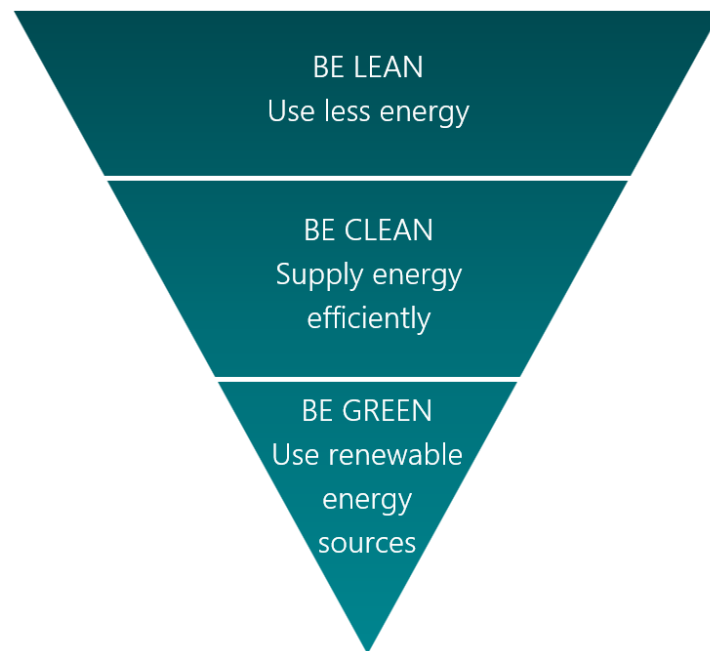


Figure 2: The Energy Hierarchy

3.3 Be Lean: Use Less Energy

Orientation and Passive Solar Design

- 3.3.1 The proposed layout of the site has been developed with respect to identified spatial, topological and visual constraints, all of which need to be carefully considered.
- 3.3.2 Within these parameters, a large proportion of the units have a southerly orientation. This will ensure that these dwellings are able to benefit from the heat and light of the sun during the day, thus reducing the requirement to use fuels to perform the same function.
- 3.3.3 However, there is a balance to be struck between maximising solar gain and the risk of overheating. Section 6 of this Statement discusses approaches to addressing and managing this risk which align with the requirements of Building Regulations Approved Document O.

Thermal Insulation

- 3.3.4 A 'fabric first' approach to building specification will be established, ensuring the building envelope of each dwelling (including the wall, roof, floor, glazing and doors) will be highly energy efficient, minimising energy demand and increasing comfort.
- 3.3.5 Illustrative u-values for different thermal elements are provided in Table 1 in Section 3.8.

Thermal Bridging

- 3.3.6 Construction detailing in respect of insulation will seek to minimise the creation of thermal bridges which can have a significant impact on heat loss and thermal bypass.
- 3.3.7 Approved Document L (2021) includes best practice guidance and requirements for ensuring continuity of insulation, and 'Thermal Bridging Option 2' within that document is one recommended route to ensuring heat losses through thermal bridging are minimised.

Air Tightness

- 3.3.8 The air tightness of a building is important in reducing heat loss and in the prevention of draughts. The current target for the development will be to ensure that the properties are built with a design air permeability level of less than $5\text{m}^3/\text{m}^2@50\text{Pa}$.
- 3.3.9 This will help reduce the size of the required heating systems, thus reducing energy use and carbon emissions. Other benefits include the reduction in the risk of interstitial condensation, improving the buildings' lifespan and reducing sound transmission through the building structure.

Ventilation

- 3.3.10 The drive for air tightness will need to be matched by correctly designed ventilation. This is vital for healthy, comfortable buildings as it dilutes and removes pollutants that can accumulate in a closed space. Excessive moisture in particular can otherwise be a significant problem.
- 3.3.11 The houses and the flats/maisonettes at the proposed development will benefit from natural ventilation via openable windows. This will enable rapid purges of air to maintain good levels of internal air quality when required.
- 3.3.12 It may also be necessary for the properties to include a form of mechanical extract ventilation to ensure adequate and controlled ventilation if the as-designed air permeability is less than $5\text{m}^3/\text{m}^2@50\text{Pa}$, in line with the requirements of Approved Document F.
- 3.3.13 The final choice of system will be dependent on detailed recommendations from the Applicant's M&E consultant and will be designed in line with the requirements of Approved Document F.

Lighting, Fixtures and Fittings

- 3.3.14 All internal and external fixed electric lighting will be highly efficient to minimise lifetime energy use and associated emissions.
- 3.3.15 All appliances where installed will be high efficiency, further minimising the use of both electricity and hot water. There will be space in all gardens for clothes drying to discourage the use of tumble dryers.
- 3.3.16 Taps and shower fixtures and fittings that reduce hot water consumption with low and/or aerated flows will be specified; more detail in relation to potable water management is provided in Section 4.

3.4 Be Clean: Supply Energy Efficiently

- 3.4.1 The decision regarding heating and hot water supply for the development has been considered in line with the requirements of Policy 36 of the HDPF which requires a hierarchy of heating solutions to be considered:
 - Desk top research has established that there are no existing or planned district heating networks in the vicinity. It will therefore not be possible to connect to existing infrastructure.
 - Decentralised district heating is not considered viable for this site for the following reasons:
 - The infrastructure costs required would be disproportionately high for a low density development;
 - Technical viability of a decentralised system is compromised given the exclusively domestic nature of the proposals, the relatively low heat demand from a small number of highly thermal efficient dwellings and the associated heat profiles this generates.
- 3.4.2 It is therefore clear that installing a new, or linking to an existing, heat network would not be viable. The Applicant is instead looking to low carbon and renewable options for energy supply and heating at this development.

3.5 Be Green: Use Renewable Energy Sources

Low Carbon Air Source Heat Pumps

- 3.5.1 Following a high-level analysis of heat demand and carbon impacts, air source heat pumps have been selected as the most suitable option for space and water heating for houses at this development. High quality, well installed ASHP units using lower flow temperatures in efficient buildings can deliver a Seasonal Coefficient of Performance (SCOP) which exceeds 320%. This reduces operational costs for occupiers and significantly decreases carbon emissions when compared to gas or direct electric alternatives.
- 3.5.2 The heat pump solution will address HDPF Policy 37 which requires low / renewable energy to be incorporated into developments where appropriate. It will also ensure the homes are 'zero-carbon ready', setting the development on a trajectory to net zero emissions: the rapid expansion in renewable and low carbon energy supply within the Grid in recent years means that Grid electricity is considerably cleaner per unit than natural gas, and will continue to decarbonise over time:

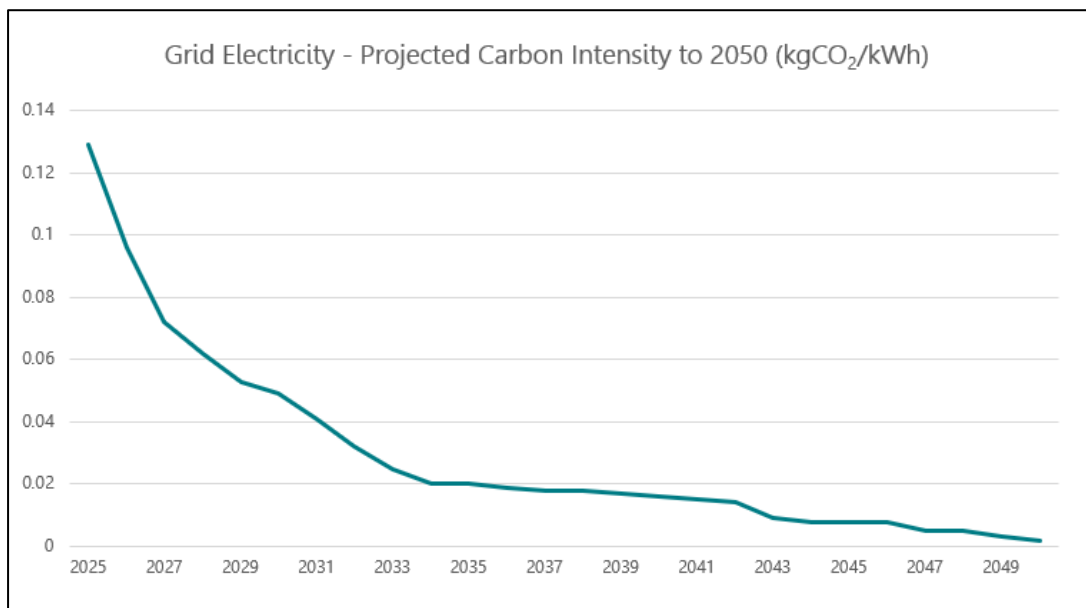


Figure 3: Projected Grid Decarbonisation
(Source: UK Government Green Book, Supplementary Guidance, November 2023)

- 3.5.3 It is currently proposed that the flats/maisonettes are fitted with an Arostor heat pump driven hot water system, alongside direct electric space heating, due to space constraints.
- 3.5.4 However, this option will be switched to a full heat pump driven system which also provides space heating, such as an exhaust air heat pump, should this be required by the Future Homes Standard. Exhaust air heat pumps combine the efficient operation of a heat pump, providing space heating and hot water, with a dwelling's ventilation system. They are particularly suitable for thermally efficient new build flats and small homes, and they do not require space for the external air handling unit.

3.6 Solar Photovoltaics

- 3.6.1 Roof integrated solar photovoltaic (PV) panels will be installed to complement the heat pump solution where required by regulations.
- 3.6.2 The orientation of the properties and the available roof space supports the installation of the panels. Where southerly oriented roof spaces are not available, then east/west panel systems are also viable and can enable a more even flow of energy throughout the day.
- 3.6.3 The quantity and layout of the solar PV to be installed at each property will be determined once site and plot specific energy compliance calculations have been completed.

3.7 Control Systems

- 3.7.1 The dwellings will feature smart controls to help future residents control their energy use and maximise the efficiency of their heating systems. This is likely to include time and temperature zoned control for the heat pump systems. Clear and straightforward user guides will be provided to incoming residents as part of their welcome packs.

3.8 Building Energy Performance

- 3.8.1 The recent announcement confirming the arrival of the Future Homes Standard and the changes to Building Regulations has confirmed the timing and overall approach needed for compliance. It is still however too early to provide detailed energy compliance calculations, pending the launch of SAP10.3 and the Home Energy Model. It is therefore not possible to provide a final thermal specification for the dwellings.
- 3.8.2 Instead, Table 1 below provides illustrative levels of performance for the different building elements for the proposed development. This has been compiled using the Applicant's current Construction Specification and assumed standards required under the Future Homes Standard:

Element Type	Illustrative Specification for the Proposed Development
Roof / Sloped Roof	0.09 W/(m ² .K)
Flat Roof	0.11 W/(m ² .K)
External walls	0.18 W/(m ² .K)
Ground floor	0.11 W/(m ² .K)
Glazing	1.3 W/(m ² .K) G-value >0.71
Rooflights	1.1 W/(m ² .K) (Triple glazed, Low E glass)
Doors	1.0 W/(m ² .K)
Air permeability	5.0m ³ /m ² /hour@50Pa or less
Ventilation system	Natural ventilation with continuous mechanical extract in kitchens/bathrooms. Exhaust air heat pump units in flats/maisonettes to provide whole house mechanical ventilation with heat recovery.
Heating system	Air source heat pump in houses. Arostor heat pump hot water and direct electric space heating OR Exhaust air heat pump unit in flats/maisonettes.
Photovoltaic system	High efficiency panels on appropriate roof spaces.

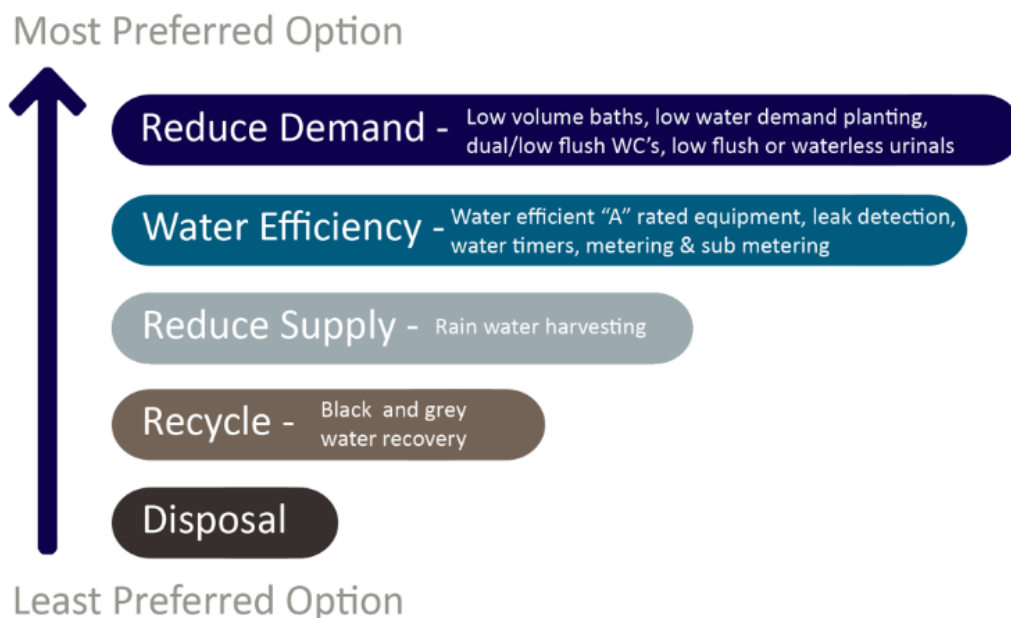
Table 1: Summary of Proposed U-Values and Specifications (Indicative)

- 3.8.3 This specification will be refined and adapted as the application proceeds to ensure that each housetype and the development as a whole complies with the planning and regulatory framework in place at the point of determination.
- 3.8.4 At this point, energy performance calculations will be completed to demonstrate compliance with the required standards.

4 Water Efficiency

4.1 The Water Hierarchy

- 4.1.1 Water efficiency becomes increasingly important in a changing climate with diminishing water resources.
- 4.1.2 HDPF Policy 37 includes a specific target for all new residential developments to limit water use to 110 litres per person per day (l/p/d). This matches the enhanced standard described within Building Regulations Approved Document G.
- 4.1.3 By way of comparison, the national average for water consumption is around 143 l/p/d.
- 4.1.4 In order to achieve the 110l/p/d target, the management of water at the proposed development will follow the principles of the Water Hierarchy:



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Figure 4: The Water Hierarchy

4.2 Water Reduction Measures

- 4.2.1 Water efficient fixtures, fittings and appliances are installed as standard across all of the Applicant's developments to ensure that the target daily water use does not exceed 110 l/p/d, in line with prevailing regulatory standards.
- 4.2.2 The following table is an illustrative schedule which is included in the Applicant's current Construction Specification:

Measure	Unit	Performance (Illustrative)
Showers	Litres per minute	8
Taps (WC)	Litres per minute	3
Taps (Washing)	Litres per minute	4
Taps (Kitchen)	Litres per minute	6
Bath	Litre capacity to overflow	155
WC	Litres per flush	6/3

Table 2: Illustrative Water Specification

- 4.2.3 While the actual specification varies at each development, example Approved Document G Water Consumption Calculation Sheets for two of the Applicant's standard housetypes are provided overleaf to demonstrate the impact of the Applicant's approach in each case.
- 4.2.4 The final specification to be applied at this development will be confirmed at construction design stage, at which point the Approved Document G Water Calculator will be used to demonstrate that it will meet the required standard.

Category 'A' House Type Water Efficiency Calculation

Installation Type	Unit of Measure	Capacity/Flow rate (1)	Use Factor (2)	Fixed use (litres/person/day) (3)	Litres/person/day = [(1)x(2)] + (3) (4)
WC (single flush)	Flush Volume (litres)		4.42	0.00	0
WC (dual flush)	Full flush Volume (litres)	6	1.46	0.00	8.76
	Part flush Volume (litres)	3	2.96	0.00	8.88
WC (multiple fittings)	Average effective flushing Volume (litres)		4.42	0.00	0
Taps (excluding kitchen/utility room taps)	Flow rate (litres/min)	4.00	1.58	1.58	7.90
Bath (where shower also present)	Capacity to overflow (litres)	155.00	0.11	0.00	17.05
Shower (where bath also present)	Flow Rate (litres / minute)	6.00	4.37	0.00	26.22
Bath Only	Capacity to overflow (litres)		0.50	0.00	0
Shower Only	Flow Rate (litres/minute)		5.60	0.00	0
Kitchen/Utility room sink taps	Flow rate (litres/minute)	6.00	0.44	10.36	13.00
Washing Machine	(Litres/kg dry load)	8.17	2.1	0.00	17.157
Dishwasher	(Litres/place setting)	1.25	3.6	0.00	4.5
Waste disposal unit	(Litres/use)	☐ Present	3.08	0.00	0
Water Softener	(Litres/person/day)		1.00	0.00	0
(5)	Total Calculated use (litres/person/day) =SUM(column 4)				103.47
(6)	Contribution from greywater (litres/person/day)				0
(7)	Contribution from rainwater (litres/person/day)				0
(8)	Normalisation factor				0.91
(9)	Total internal water consumption = [(5)-(6)-(7)]x(8) (litres/person/day)				94.15
(10)	External water use				5.0
(11)	Total water consumption (Building Regulation 17.K) = (9) + (10) (litres/person/day)				99.2

Installation Type	Make/Model (mandatory)	Litres/Person/Day
WC (dual flush)	Roca Basic Tank with AG valve (under window) 3/6 litre flush (A8901212A0)	17.64
Taps	Bristan - PISA Chrome Mixer (PS BAS C) + Bristan Flow Restrictor (ECO Tap4)	7.90
Baths (shower(s) present)	Roca Oslo Acrylic Bath 155 litre capacity (Z247998500)	17.05
Showers (bath(s) present)	Mira Minimal EV + 6l/m Flow Restrictor Supplied with product (1.1943.001)	26.22
Kitchen Taps	Leisure - Aquaspace Single Lever Tap Chrome (TAQPACE40CM) + Bristan Flow Restrictor (Eco Tap6)	13.00
Washing Machines		17.157
Dishwasher		4.5



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Figure 5: Illustrative Water Efficiency Calculation – Category A Housetype

Category 'M' House Type Water Efficiency Calculation

Installation Type	Unit of Measure	Capacity/Flow rate (1)	Use Factor (2)	Fixed use (litres/person/day) (3)	Litres/person/day = [(1)x(2)] + (3) (4)
WC (single flush)	Flush Volume (litres)		4.42	0.00	0
WC (dual flush)	Full flush Volume (litres)	6	1.46	0.00	8.76
	Part flush Volume (litres)	3	2.96	0.00	8.88
WC (multiple fittings)	Average effective flushing Volume (litres)		4.42	0.00	0
Taps (excluding kitchen/utility room taps)	Flow rate (litres/min)	3.75	1.58	1.58	7.51
Bath (where shower also present)	Capacity to overflow (litres)	155.00	0.11	0.00	17.05
Shower (where bath also present)	Flow Rate (litres / minute)	8.00	4.37	0.00	34.96
Bath Only	Capacity to overflow (litres)		0.50	0.00	0
Shower Only	Flow Rate (litres/minute)		5.60	0.00	0
Kitchen/Utility room sink taps	Flow rate (litres/minute)	6.00	0.44	10.36	13.00
Washing Machine	(Litres/kg dry load)	8.17	2.1	0.00	17.157
Dishwasher	(Litres/place setting)	1.25	3.6	0.00	4.5
Waste disposal unit	(Litres/use)	☐ Present	3.08	0.00	0
Water Softener	(Litres/person/day)		1.00	0.00	0
(5)	Total Calculated use (litres/person/day) = SUM(column 4)				111.82
(6)	Contribution from greywater (litres/person/day)				0
(7)	Contribution from rainwater (litres/person/day)				0
(8)	Normalisation factor				0.91
(9)	Total internal water consumption = [(5)-(6)-(7)]x(8) (litres/person/day)				101.75
(10)	External water use				5.0
(11)	Total water consumption (Building Regulation 17.K) = (9)+(10) (litres/person/day)				106.8

Installation Type	Make/Model (mandatory)	Litres/Person/Day
WC (dual flush)	Roca Basin Tank with AG valve (under window) 3/6 litre flush (A8901212A0)	17.64
Taps	Cloaks - Bristan - PISA Chrome Small Mixer (PS SMBAS C) + Bristan Flow Restrictor (ECO Tap3) / Basin - Bristan - PISA Chrome Mixer (PS BAS C) + Bristan Flow Restrictor (ECO Tap4)	7.51
Baths (shower(s) present)	Roca Oslo Acrylic Bath 155 litre capacity (Z247998500)	17.05
Showers (bath(s) present)	Mira Minimal EV (1.1943.001) + Bristan Flow Restrictor (ECO SHW 08)	34.96
Kitchen Taps	Leisure - Aquapace Single Lever Tap Chrome (TAQPACE40CM) + Bristan Flow Restrictor (ECO Tap6)	13.00
Washing Machines		17.157
Dishwasher		4.5



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Figure 6: Illustrative Water Efficiency Calculation – Category M Housetype

5 Climate Resilience and Adaptation

5.1 Introduction

- 5.1.1 The ability of the development to adapt to anticipated future changes in the climate is an important aspect of its longevity, and ultimate habitability. The principle of adaptation applies to both the built and external environment, and indeed how they interact.
- 5.1.2 This section details how the Applicant is addressing the challenges of climate resilience and adaptation at the proposed development in line with the requirements of HDPF Policy 35.

5.2 Reducing Overheating Risk Through Design

- 5.2.1 The risk of overheating living spaces is of increasing concern, given predictions of future climate. Approved Document O details requirements for mitigating this risk and methods for demonstrating compliance, including the use of either a compliance checklist or the *CIBSE Guide TM59 Design Methodology for the Assessment of Overheating Risk in Homes* (CIBSE, June 2017).
- 5.2.2 Overheating analysis will be undertaken for all the properties on the site to provide a robust, evidence-based approach to inform design.
- 5.2.3 Acceptable strategies for reducing any overheating risk as described in Approved Document O focus on passive design features and include:
- Limiting solar gains:
 - Fixed shading devices such as shutters, external blinds, overhangs or awnings;
 - Glazing design including size, orientation, glass g-value and depth of window reveal;
 - Shading provided by adjacent permanent structures.
 - Removing excess heat:
 - Opening windows and ideally cross ventilation;
 - Ventilation louvres in external walls;
 - A mechanical ventilation system;
 - A mechanical cooling system as a last resort.

5.3 The Multiple Benefits of Open Space and Vegetation

- 5.3.1 The landscape strategy for the site includes retaining the majority of the mature trees and hedgerows around the site boundaries and enhancing them with new planting. Areas of greenspace along the eastern boundary will include areas of grassland and scattered tree planting while attenuation basins to the south will provide opportunities for wetland marginal species.
- 5.3.2 This approach will provide multiple benefits in a changing climate:
- The retained trees and those planted as part of the landscape design will together provide shading in the summer months, reducing heat gain into dwellings and therefore reducing the need for mechanical cooling;
 - Trees throughout the site will also help maintain a comfortable external environment in hot periods by providing shading in gardens and shared spaces;
 - The areas of greenspace and planting throughout the site will reduce any urban heat island effect;
 - The trees, hedges and shrubs will contribute to the reduction of wind speeds, improving comfort levels by reducing air infiltration (draughts) into buildings on windier days;
 - Vegetation sequesters carbon dioxide and improves air quality through dry deposition of gases (including NO_x, SO_x, PM₁₀ and O₃).
- 5.3.3 The required 10% net gain will be achieved through a combination of on-site enhancements and off-site measures. The Ecological Assessment should be referred to for full details.

5.4 Managing Water in a Changing Climate

- 5.4.1 Any new development on a previously undeveloped site will inevitably increase the amount of hard standing (roofs, roads, pavements) and therefore the amount of surface water run-off. Furthermore, rainfall levels in 20-30 years' time are expected to be very different to current levels, not necessarily in annual total volume, but with respect to the rainfall distribution throughout the year and the number of heavy downpours and storm events.
- 5.4.2 The integration of different SuDs features into the landscape layout will therefore be pivotal in its development, in order to enable the necessary storage volumes associated with a 1 in 100 year storm event, plus a 40% allowance for the impacts of climate change.
- 5.4.3 The accompanying Flood Risk Assessment (FRA) provides further details in relation to the level of flood risk and the management of surface water flows at the site including the integration of SuDS into the development. This should be referred to for full details.

6 Reducing Carbon Emissions from Transport

6.1 Accessibility

- 6.1.1 Accessibility is a key aspect of sustainability and is described as such in the NPPF. Any new development needs to have easy to use, safe and obvious links into the surrounding community to prevent isolation and disconnection, to encourage the use of existing amenities and to facilitate commuting.
- 6.1.2 The proposed development is in an accessible location in terms of both its proximity to the existing community in and around Horsham, and the facilities which will be delivered as part of the wider Mowbray Strategic Site, which include:
- The new Bohunt Horsham School provides nursery, primary and secondary provision;
 - The Village Centre in the Mowbray strategic site will include a proposed supermarket and a range of smaller shops and community facilities such as a new community centre, library, meeting rooms and a sports hall;
 - A new sports hub will deliver football pitches, cricket facilities, multi-use games area and a pavilion;
 - The strategic site will also deliver 500,000sqft of new employment space, providing opportunities for local employments and business growth.

6.2 Sustainable Transport

- 6.2.1 The site is well situated to make the most of existing pedestrian provision, road networks and public transport routes, including those delivered as part of the wider strategic site.
- 6.2.2 Bus Route 71 provides an hourly service between Mowbray Village and Horsham Bus Station, facilitating onward travel to a range of destinations.
- 6.2.3 There are regular train services from Horsham Railway Station to Gatwick, London stations and the south coast.
- 6.2.4 To encourage cycling, all the proposed properties will include a secure and weatherproof means of cycle storage in line with local policy requirements.
- 6.2.5 The draft Travel Plan for the development encourages modal shift away from private vehicles towards more sustainable forms of travel. The Plan outlines a number of measures including the production of a Travel Information Pack for residents to inform and promote public transport, walking and cycling, and the promotion of local car share databases to reduce car journeys from the site.

6.3 Provision of Electric Vehicle Charging Points

- 6.3.1 The power network will be designed and managed to provide the level of EV charging infrastructure required by Approved Document S. This will include a dedicated EV charging point for every dwelling with associated parking.

6.4 Provision of Fibre to the Premises

- 6.4.1 The availability of high-quality, reliable broadband infrastructure is increasingly viewed as critical to the functioning of a development and its continued attractiveness to incoming residents.
- 6.4.2 Indeed, such provision can facilitate better home working, enabling clear video calling and effective file sharing, which can contribute to a reduction in commuting.
- 6.4.3 Better quality, reliable internet connections for all have wider social ramifications too – reducing the risk of exclusion, a lack of access to services (which are increasingly internet based) and enabling people to better connect with society as a whole.
- 6.4.4 The provision at the development will align with Approved Document R Volume 1 (2022 Edition) which sets out requirements to ensure that, during construction, new homes are installed with the fastest broadband connections available within a cost cap. Where a gigabit-capable connection is not possible within the defined cost cap, it requires that new homes are future-proofed with physical infrastructure to support gigabit-capable connections when they become available.

7 Materials and Sustainable Waste Management

7.1 Introduction

- 7.1.1 HDPF Policy 35 states that developers should adopt measures which reduce the amount of biodegradable waste sent to landfill, while Policy 37 requires proposals to minimise construction waste and utilise recycled and low-impact materials.
- 7.1.2 This section therefore discusses how the construction design process will include a focus on sustainable building materials, and how construction and operational waste will be managed at the proposed development.

7.2 The Waste Hierarchy

- 7.2.1 Waste generation, storage, treatment and disposal will be managed in accordance with the Waste Hierarchy in line with local policy requirements:

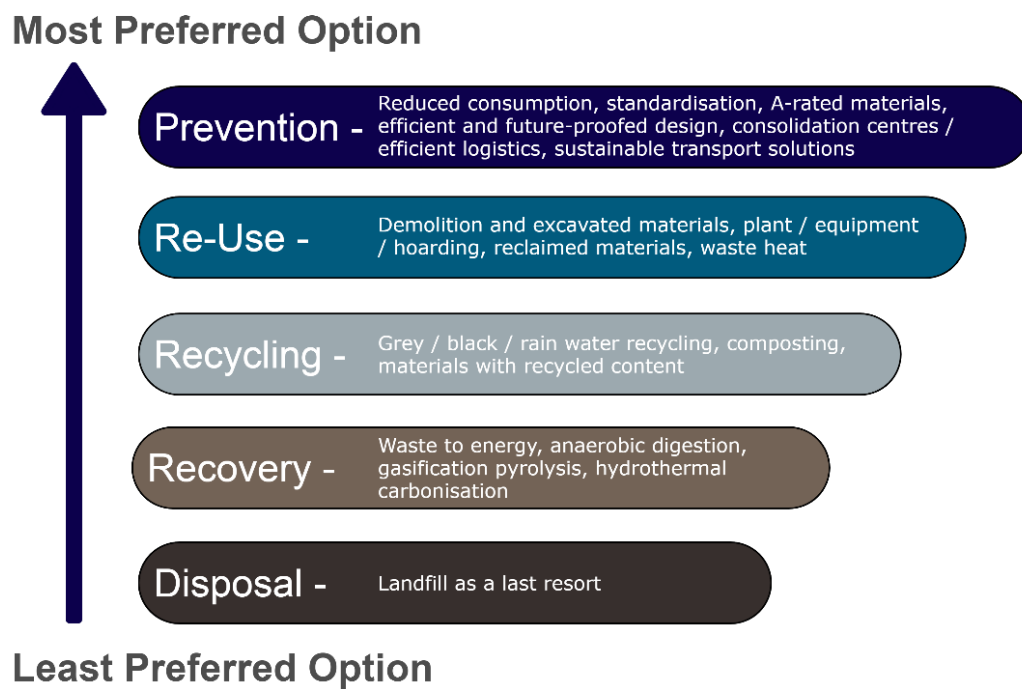


Figure 7: The Waste Hierarchy

7.3 Sustainable Building Materials

- 7.3.1 Materials to be used on the development will be sourced using suppliers that have recognised environmentally focused accreditations and management systems such as ISO:14001. Materials with low embodied carbon will be prioritised, all timber will be sustainably sourced with full FSC or PEFC accreditation, and materials derived from recycled or reused products will be specified where appropriate.
- 7.3.2 Local suppliers of materials will be used where viable, and the homes will be designed with a palette of materials that is both appropriate and in keeping with the local architectural vernacular. As such the form of construction will not require the use of unusual materials, those with significant environmental impact or those that require significant off-site processing and development before use on site.

7.4 Sustainable Waste Management

Construction Waste

- 7.4.1 Waste will be sustainably managed throughout the development process.
- 7.4.2 During the design stage, opportunities for the on-site reuse of materials arising from site clearance and preparations will be identified. For example, the detailed design of gardens and other outdoor spaces will take account of retained soils to ensure they can be incorporated into the site.
- 7.4.3 Where earth moving activity is needed, excavated materials will be retained on site where possible and, during the process of movement of that material, any storage will follow best practice guidelines to reduce loss to the weather and/or erosion.
- 7.4.4 A Waste Management Plan (WMP) will be produced ready for the construction stage which will require all contractors to implement strict waste management processes on site, including:
- Identifying a key individual responsible for the delivery of the WMP;
 - Providing site induction and training to all staff;
 - Obtaining all appropriate licences/permits from contractors to confirm contractual requirements;
 - Identifying waste streams, planning for their management and setting targets for waste reduction;
 - Identifying suitable locations for the efficient separation and storage of waste prior to removal from site to encourage higher levels of recycling;
 - Identifying opportunities for the on-site reuse of materials
 - Re-using scaffolding, hoarding and other such materials on subsequent construction projects;
 - Measuring and reporting waste disposal, reuse and recycling.

- 7.4.5 The WMP will be a live document that will be updated throughout the design and construction process to reflect and respond to progress on site.

Operational Waste

- 7.4.6 Property occupants will be encouraged to manage waste sustainably and this has been considered in the development design. For example, the houses will have a private rear garden area with direct external access to provide sufficient space for bins and composting facilities, keeping waste storage away from the public domain. Discrete refuse collection points will also be provided along any shared private drives in line with regulations.
- 7.4.7 Facilities will be easy to access and will be designed in line with the collection regime of the council.

8 Summary

- 8.1.1 This *Energy & Sustainability Statement* describes how the proposed residential development at Mowbray Phase 1 Area 4, Land North of Horsham incorporates sustainable design and construction principles to create a 'zero-carbon ready' development. It has been commissioned by Bellway Homes Ltd (the Applicant).
- 8.1.2 Throughout the Statement, national and local planning policy objectives and standards have been addressed to demonstrate the Applicant's commitment to these issues.
- 8.1.3 In particular, the Statement provides as much detail as is possible at this stage in the planning process to demonstrate compliance with related policies from the *Horsham District Planning Framework (2015)* and current Building Regulations whilst looking ahead to the emerging Future Homes Standard:
- The development will be 'zero-carbon ready' in line with emerging requirements of the Future Homes Standard;
 - There will be no natural gas connection to the site;
 - The dwellings will be highly energy efficient, adopting a fabric first approach. They will be orientated to maximise solar gain where possible;
 - Heating and hot water will be supplied via low carbon heat pumps;
 - Solar photovoltaic panels will be installed where required by the Future Homes Standard;
 - The development will employ a combination of highly efficient fixtures, fittings and appliances to reduce domestic water use to achieve the 110 l/p/d target;
 - The development will be designed to adapt to a changed climate:
 - Overheating will be managed through a combination of passive design features and mechanical ventilation;
 - The retention of existing trees and additional planting will provide more comfortable microclimates in warmer weather;
 - The landscape design will provide multi-functional benefits, supporting biodiversity and enhancing the overall aesthetic;
 - Surface water will be managed via the integration of SuDS into the development;
 - Electric vehicle charging points will be provided in line with Approved Document S requirements;
 - Construction and operational waste will be managed according to the principles of the Waste Hierarchy with a focus on waste prevention, re-use and recycling.
- 8.1.4 As the wider regulatory environment develops, the approach proposed will be kept under review to ensure continued compliance throughout the latter planning phases and as construction progresses.

Completed on behalf of:

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