DAEDALUS ENVIRONMENTAL

Land East of Knowle Lane
Cranleigh

Energy and Sustainability Statement

January 2023

Key Features of the Proposals

Highly energy efficient, climate adaptable, sympathetically designed homes

35-45%
estimated reduction in regulated carbon emissions against Building Regulations 2013 standards

Low carbon
development from the outset

A reduction in household energy bills when compared against a standard development

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%
reduction in potable water use against the national average

100%
of properties to have fibre-to-the-home enabled

100%
of properties to have secure and weatherproof cycle storage

The sustainable approach described within this Statement demonstrates that the proposals align with the policies of the Waverley Borough Local Plan, creating a low carbon development which is adapted to future changes in the climate.

Contents

1 Introduction

1.1 This Statement

1.1.1 This *Energy & Sustainability Statement* supports the outline planning application for the proposed development of up to 162 dwellings on land east of Knowle Lane, Cranleigh. It has been commissioned by Gleeson Land (the Applicant) to demonstrate how the proposals address environmental sustainability, with a focus on climate change mitigation and adaptation.

1.1.2 The policy framework encouraging sustainable new development is comprehensive at both a national and local level. This Statement responds to existing policy, including the *Waverley Borough Local Plan Part 1: Strategic Policies and Site*s (2018) and the Saved Policies of the *Waverley Borough Local Plan 2002*, whilst looking ahead to the emerging *Waverley Borough Local Plan Part 2: Site Allocations and Development Management Policies* and the proposed Future Homes Standard.

1.1.3 In particular, this Statement demonstrates how the proposals meet the requirements of policies CC1 and CC2 of the Local Plan Part 1:

- Carbon emissions will be dramatically reduced by applying uplifts to Building Regulation requirements for thermal efficiency;
- Energy demand will be met from low carbon sources;
- High levels of water efficiency will be achieved through considered design;
- The development will anticipate future changes in the climate:
    - Overheating risk will be reduced through passive design measures;
    - Open space and landscaping will provide multiple benefits;
    - Surface water will be managed with the integration of SuDS.
- Carbon emissions from transport will be reduced by incorporating electric vehicle charging and integrating the development with existing pedestrian, cycling and public transport infrastructure;
- The development will apply sustainable design principles, including waste management and the use of re-used or recycled materials during construction.

1.1.4 The recommendations provided are described in as much detail as is possible at this outline planning stage. Where specifics have not been possible, the overall approach and design standards have been laid 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 11.7ha site is situated to the south of the main centre of Cranleigh, adjoining the built up area of the village. The site was previously part of Coldharbour Farm and comprises three distinct areas:

- An area of managed grassland bordered by hedgerow which is to the north of West Barn, with Snoxhall Fields to the east and Cranleigh FC to the north;
- An area of managed grassland with existing vehicular access from Knowle Lane, situated between Coldharbour Farm and West Barn to the north and Stable Cottage and Coach House Cottage to the south;
- A former Christmas tree planting site, bordered by mature trees, which wraps around the existing buildings at Stable Cottage.

1.3 Description of Development

1.3.1 The outline planning application has the following description of development:

Outline planning application (with all matters reserved except means of access) for up to 3 phases of residential development of up to 162 dwellings (including 30% affordable dwellings) including the creation of new vehicular access, pedestrian and cycle accesses, parking spaces, public open space, biodiversity enhancement, landscape planting, surface water attenuation, associated infrastructure and other associated works.

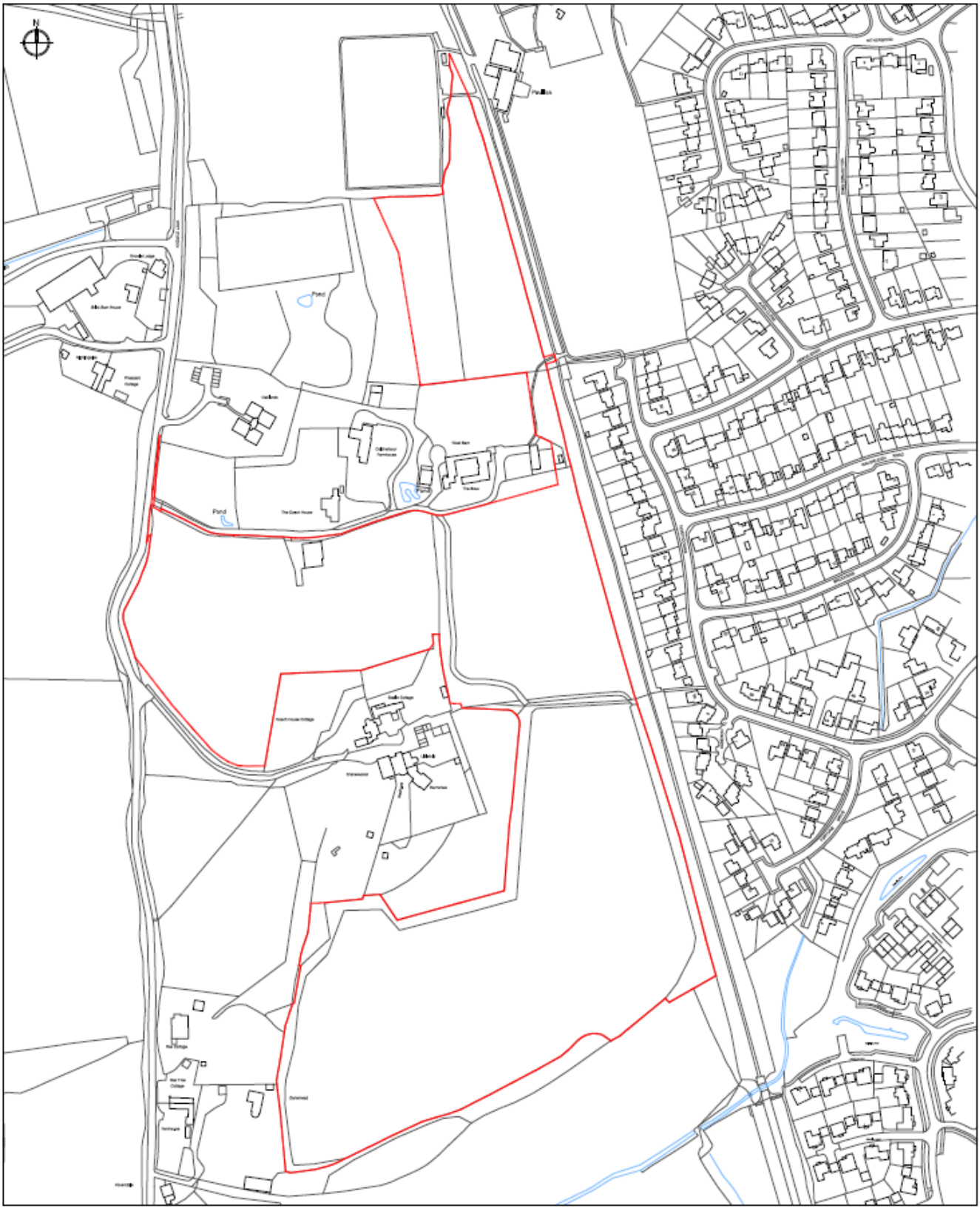

Figure 1: Site Location Plan (Richards Urban Design Ltd)

Figure 2: Illustrative Masterplan (Richards Urban Design Ltd)

2 Sustainability Policy Review

2.1 National Planning Policy

The National Planning Policy Framework 2021 (NPPF)

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

- An economic role, contributing to a strong, responsive, competitive economy;
- A social role, supporting vibrant and healthy communities and;
- An environmental role, 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 for dealing with more sustainable forms of energy and, in particular, renewable sources;
- 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 emerging changes in, and requirements of, the transport industry around electric vehicles and other ultra low emission vehicles;
- Support the expansion of high quality communications networks which are seen as integral to economic growth and wellbeing (for example the application of full fibre connections to the building).

National Energy Policy

2.1.4 The Climate Change Act 2008 is the basis for the UK's approach for tackling and responding to climate change. It originally set a binding target to reduce the UK's carbon emissions by at least 80% in 2050 from 1990 levels. In June 2019, this target was replaced with achieving net zero emissions by 2050.

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 new 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 the increased air tightness (as required by the updates to Part L) does not impact on internal air quality.

2.1.7 These documents have been joined by the new *Approved Document O: Overheating* which 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 These Building Regulation updates are designed to act as achievable 'stepping stones' to the more rigorous Future Homes Standard which is due to come into force in 2025. The Standard, which is currently in development, is part of the Government's strategy for achieving its 2050 target set under the updated Climate Change Act. Under the proposed new Future Homes Standard, an average home will have 75 – 80% fewer carbon emissions than one built to the Building Regulation 2013 requirements.

2.1.9 A further addition to the Building Regulations, the *Approved Document S: Infrastructure for Charging Electric Vehicles (December 2021)* details new 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.

National Water Policy

2.1.10 Water efficiency targets are driven by Part G of the Building Regulations 2015 which pertain to sanitation, hot water safety and water efficiency.

2.1.11 Within a domestic setting, the requirement is to limit water use to either 125 litres per person per day (l/p/d) or, if required by the planning permission, an enhanced standard of 110 l/p/d.

2.2 Local Planning Policy

Waverley Borough Local Plan Part 1: Strategic Policies and Sites (February 2018)

2.2.1 The *Local Plan Part 1: Strategic Policies and Sites* (LPP1) sets out the key objectives and overarching planning policies to guide new development in the borough up to 2032. It forms the main basis for assessment in planning terms, alongside saved policies from the Local Plan 2002, which will be retained until the adoption of Local Plan Part 2 (see below).

2.2.2 The LPP1 policies which are of particular relevance to this Statement are as follows:

Policy	Extract
ST1	Sustainable Transport The Council will work in partnership with Surrey County Council, neighbouring authorities, transport providers and other key stakeholders to ensure that development schemes: 1. are located where opportunities for sustainable transport modes can be maximised(…); 2. make the necessary contributions to the improvement of existing, and provision of new, transport schemes that lead to improvements in accessibility and give priority to the needs of pedestrians, cyclists, users of public transport, car sharers and users of low and ultra low emission vehicles; 3. include measures to encourage non-car use such as on-site cycle parking; (…)
CC1	Climate Change Development will be supported where it contributes to mitigating and adapting to the impacts of climate change, including measures that – 1. use renewable and low carbon energy supply systems; 2. provide appropriate flood storage capacity; 3. address issues of flood risk through the application of Policy CC4; 4. provide high standards of sustainable design and construction with built-in resilience to climate change (e.g. from flood risk, storms, higher temperatures and drought); or 5. use green infrastructure and SuDS to help absorb heat, reduce surface water runoff and support habitat networks.
CC2	Sustainable Construction and Design The Council will seek to promote sustainable patterns of development and reduce the level of greenhouse gas emissions by: 1. ensuring all new development, including residential extensions, include measures to minimise energy and water use through its design, layout, landscape and orientation; 2. encouraging the use of natural lighting and ventilation; 3. being designed to encourage walking, cycling and access to sustainable forms of transport; 4. building at higher densities where appropriate and supporting mixed-use development; 5. incorporating measures that protect and, where possible, enhance the biodiversity value of the development; 6. minimising construction and demolition waste and promoting the reuse and recycling of building materials; or 7. requiring the design of new development to facilitate the recycling and composting of waste; 8. ensuring that new dwellings shall meet the requirement of 110 litres of water per person per day; and 9. requiring that all new buildings are provided with the highest available speed broadband infrastructure.
CC4	Flood Risk Management In order to reduce the overall and local risk of flooding in the Borough: (…) 2. Sustainable drainage systems (SuDS) will be required on major developments (10 or more dwellings or equivalent) and encouraged for smaller schemes.

Climate Change and Sustainability Supplementary Planning Document (October 2022)

2.2.3 This Supplementary Planning Document (SPD) supports the current Waverley Borough LPP1, and it has been developed as part of the Council's response to the climate emergency.

2.2.4 It provides guidance on the implementation of the LPP1 polices relevant to climate change and sustainability, and introduces new requirements including the need to consider these policies at the earliest stage in the planning process.

2.2.5 The design for this development has been guided by the advice contained within the SPD, and the Climate Change and Sustainability Checklist has been completed and is included in Appendix B.

Waverley Borough Council Local Plan (Adopted 2002) Saved Policies

2.2.6 The Local Plan 2002 is in the process of being replaced. However, until the formal adoption of the Local Plan Part 2 (see below), the following 'Saved Policies' from the Local Plan 2002 will sit alongside the LPP1 to form part of the Development Plan for the area:

Policy	Extract
D1	Environmental Implications of Development. The Council will have regard to the environmental implications of development and will promote and encourage enhancement of the environment. Development will not be permitted where it would result in material detriment to the environment by virtue of: - (...) (e) potential pollution of air, land or water, including that arising from light pollution and from the storage and use of hazardous substances; (...)
D4	Design and Layout The Council will seek to ensure that development is of a high quality design which integrates well with the site and complements its surroundings. In particular development should: - (...) (...) (f) incorporate landscape design suitable to the site and character of the area, of a high standard and with adequate space and safeguards for long-term management; (...) (h) provide safe access for pedestrians and road users and, where appropriate, servicing facilities and parking for motor vehicles and bicycles. (...)
M5	Provision for Cyclists The Council, in conjunction with the County Council and other organisations, will seek to improve conditions for cyclists through the following measures:- (...) requiring new development to provide cycle parking facilities in accordance with the adopted standards; (...)

Waverley Borough Local Plan Part 2: Site Allocations and Development Management Policies

2.2.7 The Council are in the process of preparing the *Local Plan Part 2: Site Allocations and Development Management Policies* (LPP2) document. It is anticipated that the LPP2 will be adopted in late 2022 at which point it will replace the 'Saved Policies' from the Local Plan 2002.

2.2.8 The LPP2 was submitted for examination in December 2021 and modifications have since been made as published in document *LPP2/CD1/26 Updated Schedule of Proposed Modifications (Version 3)*. Draft policy DM2 (as amended) is of particular relevance to this Statement and, while it is not yet formally adopted, it is included here for information:

Draft Policy	Extract
DM2	Energy Efficiency To improve energy efficiency and reduce carbon emissions in the Borough: a) All development should seek to maximise energy efficiency and reduce carbon emissions through its design, structure, orientation and positioning, landscaping and relevant technology. b) Development proposals for new dwellings and/or conversions which create new dwellings must provide an energy statement demonstrating how emissions savings have been maximised at each stage of the energy hierarchy towards achieving minimal carbon emissions. c) Subject to compliance with other relevant policies, the Council will support proposals which seek to achieve a reduction in carbon emissions against the Target Emission Rate (TER) in the 2021 Part L of the Building Regulations or zero carbon development. This should be evidenced by submission of a draft Dwelling Emission Rate (DER). There are four stages of the energy hierarchy: Stage 1 – Reduce the need for energy – examples include integrated passive design, orientation of buildings, solar gain, using local sustainable materials, natural ventilation and airtightness Stage 2 – Use energy more efficiently – examples include insulation, glazing, heating system & controls lighting and heat recovery systems Stage 3 – Supply energy efficiently – for example through connection to existing low carbon heat networks Stage 4 – Use low carbon and renewable energy – examples include district heating, solar thermal, solar photovoltaic, hydro, biomass and heat pumps A final DER calculation cannot be undertaken until the dwelling(s) has been constructed, however a draft DER can be calculated based on plans and specification for the new dwelling(s) prior to a planning application being submitted.

Surrey County Council Vehicle, Cycle and Electric Vehicle Parking Guidance for New Development (November 2021)

2.2.9 This guidance documents sets out recommended electric vehicle (EV) charging requirements for new residential developments within Surrey as follows:

Residential Development	EV Charging Requirement	Charge Point Specification	Power Requirement
Houses	1 fast charge socket per house	7kW Mode 3 with Type 2 Connector	230v AC 32 Amp Single Phase dedicated supply
Flats/Apartments	1 fast charge socket per flat (allocated and unallocated spaces)	7kW Mode 3 with Type 2 Connector	230v AC 32 Amp Single Phase dedicated supply

2.2.10 The Guidance recognises that EV charging is a developing technology and states that the County Council will seek to ensure that connection points are installed in line with emerging technical requirements and standards.

Additional Planning Policy Documents and Commitments

2.2.11 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 Low Carbon Energy Demand and Supply

3.1.1 This section describes how the proposed development will balance solar gain against overheating risk, explains how energy use will be minimised through efficient construction detailing and outlines the preferred low carbon solution to meet on-site energy demand.

3.1.2 The hierarchy of solutions proposed will set the new development on a pathway to zero emissions over time, aligning it to wider national and local aspirations in the battle to address climate change. Furthermore, it will ensure that the development comfortably achieves the requirements of LPP1, including the guidance contained within the Climate Change and Sustainability SPD, and the new Approved Document L of the Building Regulations.

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 Climate Change and Sustainability SPD and the emerging requirements of the draft LPP2.

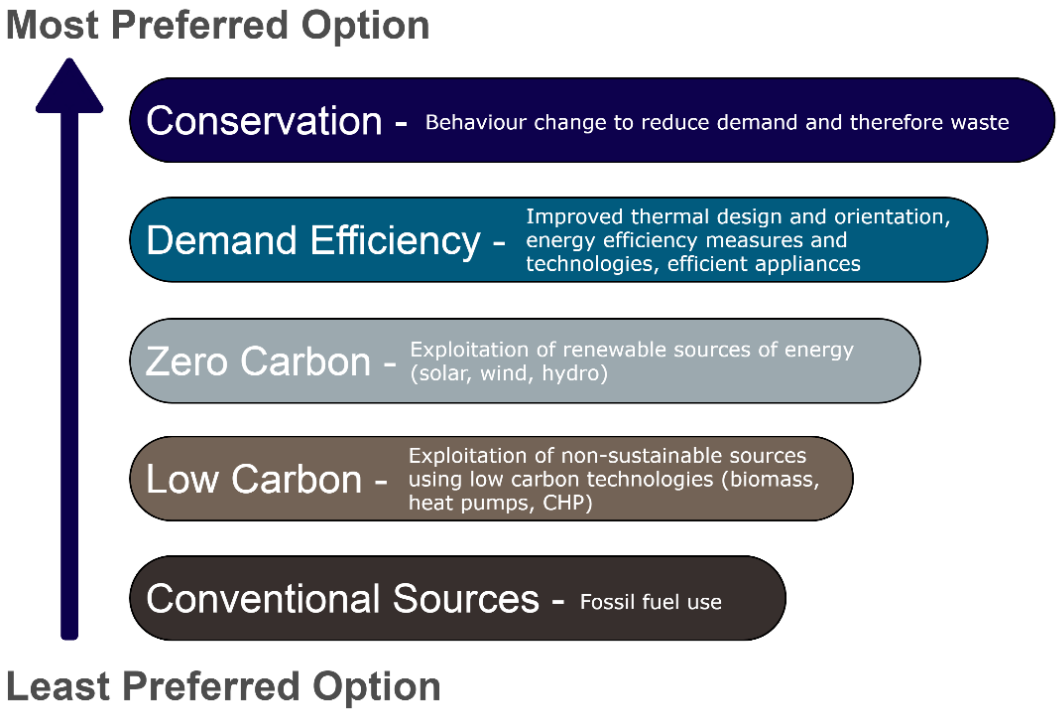

Figure 3: The Energy Hierarchy

3.3 Site Layout - Orientation, Passive Solar Design and Daylighting

3.3.1 The orientation of properties, along with the size and location of the glazing and the extent of overshading, plays an important part in energy performance. Improving a building's orientation so that the main living spaces benefit from the heat and light of the Sun can reduce the requirement to use fuels to perform the same function. This reduces costs, energy use and associated carbon emissions.

3.3.2 Ideally buildings should have a southerly orientation, so that they benefit from the Sun during the middle portion of the day without suffering from potential overheating later in the afternoon. This also helps to ensure that the buildings still benefit as much as possible from sunlight during the winter when the Sun's path is shortened.

3.3.3 Larger areas of glazing on the southern façade with smaller areas on the northern side have the combined effect of maximising light gain and minimising heat loss:

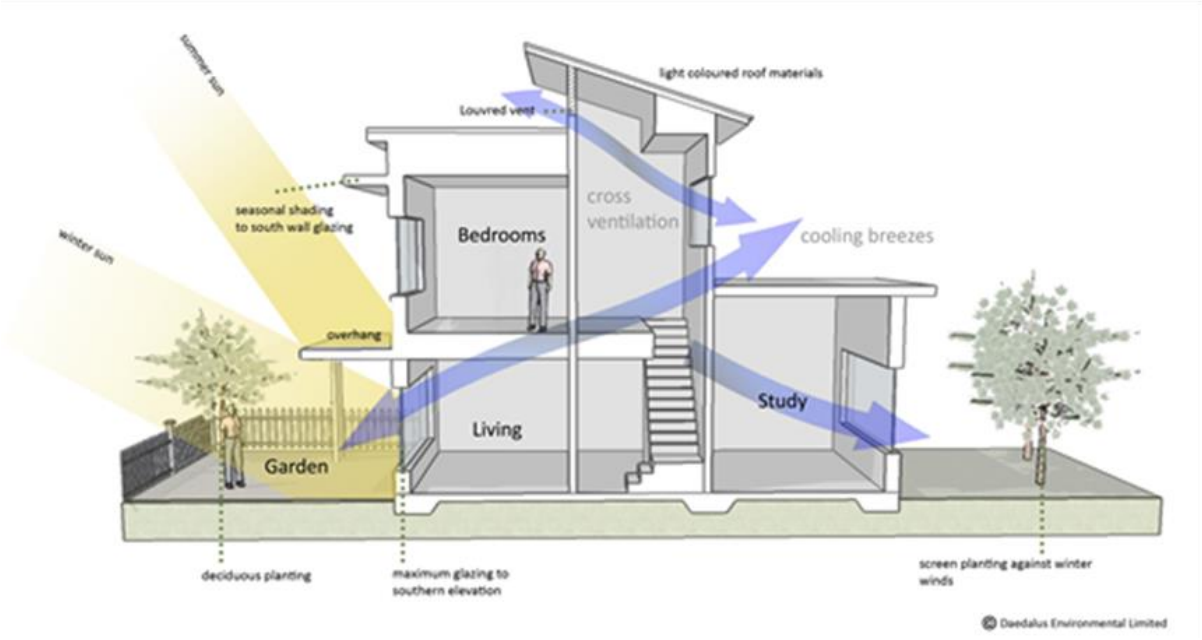

Figure 4: Principles of Building Orientation in Managing Solar Gain

3.3.4 However, there is a balance to be struck between maximising solar gain and the risk of overheating. Section 5 of this Statement discusses approaches to addressing and managing this risk which align with the requirements of the new Approved Document O.

3.3.5 The illustrative layout of the site has been developed with respect to identified topological and visual constraints. Within these parameters, many of the properties will benefit from a southerly orientation in line with the requirements of policy CC2 of the LPP1 and the Climate Change and Sustainability SPD guidance. Furthermore, the relatively low density of the development will ensure appropriate spaces around dwellings, reducing overshadowing.

3.4 Energy Efficient Building Envelope

Thermal Elements

3.4.1 A 'fabric first' approach to building specification will be established, ensuring the property envelope will be highly energy efficient, minimising energy demand and increasing comfort. To facilitate this, the individual elements (wall, roof and floor) will be thermally efficient and there will be a focus on ensuring air-tightness through high quality construction. Thermal bridges will be minimised through the application of design details and products (such as insulated lintels) that provide continuous insulation.

3.4.2 Indicative u-values for different thermal elements are given in Table 1 in section 3.7.

Ventilation and Air Tightness

3.4.3 The air tightness of a building is important in reducing heat loss and in the prevention of draughts. The target for the development will be to ensure the domestic properties are built with an air permeability level of $5m^3/m^2$@50Pa or less. This will help reduce the size of the required heating system thus reducing energy use and carbon emissions. Other benefits include the reduction in the risk of interstitial condensation, improving the building's lifespan and reducing sound transmission through the structure.

3.4.4 The drive for air tightness will need to be matched by correctly designed ventilation. This is vital for healthy, comfortable buildings as it removes or dilutes pollutants that can accumulate in a closed space. Excessive moisture in particular can be a significant problem.

3.4.5 It is the intention that this development will benefit from natural ventilation through cross ventilation via openable, double glazed windows. This will enable rapid purges of air and good levels of internal air quality. There may also be the need to implement a high efficiency continuous mechanical extract system to ensure that ventilation does not become an issue, with particular focus on mechanical extract ventilation from bathrooms and kitchens.

3.5 Space and Water Heating

3.5.1 The UK is moving towards the electrification of the heating system. This fact is reinforced by recent changes to the Building Regulations and the expectation that, from 2025, no new gas connections will be permitted under the Future Homes Standard.

3.5.2 One option that the Applicant is investigating that anticipates this change is the installation of low carbon air source heat pumps (ASHPs) for space and water heating in all properties, with time and temperature zone control, weather compensation and thermostatic radiator valves (should radiators be fitted rather than underfloor heating in upstairs rooms). The highly efficient nature of the proposed properties would complement the low temperature output of heat pump technology.

3.5.3 Policy CC1 of the LPP1 and the Climate Change and Sustainability SPD encourage the use of renewable and low carbon energy supply systems on new developments and this option would align with this requirement.

3.5.4 Using heat pumps would also set the development on a trajectory to net zero emissions over time: 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.

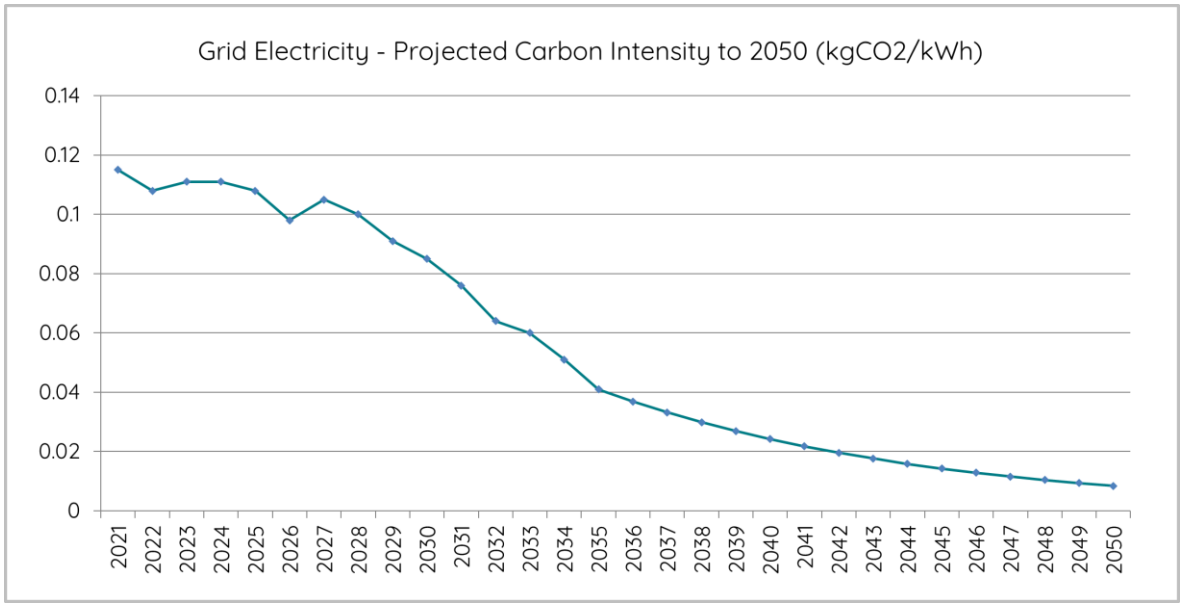

Figure 5: Projected Grid Decarbonisation

3.5.5 Other alternative technologies will be considered as part of any Reserved Matters planning application and, should the ASHP solution be substituted, the Applicant will ensure that the carbon performance of the dwellings continues to meet Building Regulation requirements.

3.6 Lighting, Fixtures and Fittings

3.6.1 Further energy savings will be made by maximising the efficiency of appliances, lighting, fixtures and fittings.

3.6.2 All electric lighting will be energy efficient, and any spot lighting (for example within kitchens and bathrooms) will be provided using dedicated LED fittings.

3.6.3 All appliances where installed will be high efficiency, further minimising the use of both electricity and hot water. Moreover, where these are not installed, they will be provided to incoming residents within the list of optional extras. All properties will have access to outdoor space suitable for clothes drying to discourage the use of tumble dryers.

3.6.4 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.

3.6.5 In addition to the internal lighting, all street lighting and other street furniture will use LED technologies to further minimise lifetime energy use and associated emissions.

3.6.6 A further option that could be explored is the installation of Waste Water Heat Recovery units (WWHR) in those dwellings that can accommodate them. WWHR enables heat recovery from the waste water produced in bathrooms via baths or showers. The heat recovered is used to pre-warm water to the heat pump, and thus reduce the amount of energy needed to provide hot water for use within the property. The impact is a further reduction in energy use.

3.7 Building Energy Performance

3.7.1 Table 1 below provides an indication of the proposed levels of performance for the different building elements to be applied at the proposed development. This has been compiled by applying the good practice specification for a dwelling built with a heat pump as described in Appendix D of the new *Approved Document L – Conservation of Fuel and Power Volume 1: Dwellings (December 2021):*

Element Type	Limiting U-Values for New Fabric Elements and Air Permeability in New Dwellings		Indicative Target U-Value for Proposed Development (W/m^2K)
	Building Regulations 2013 Maximum (W/m^2K)	Building Regulations 2021 Maximum (W/m^2K)	
Roof / Sloped Roof	0.20	0.16	0.11
External walls	0.30	0.26	0.18
Party walls		0.20	0.00 (filled and sealed)
Ground floor	0.25	0.18	0.13
Glazing / doors	2.00	1.6	1.2
Factor			**Detail**
Thermal bridging	Y-value < 0.15	Y-value < 0.20 (default)	Bespoke construction details individually calculated
Air permeability	$10m^3/m^2$/hour@50Pa	$8.0m^3/m^2$/hour@50Pa	$5m^3/m^2$/hour@50Pa
Heating controls	Programmer, TRVs and room stats	Time and temperature zone control + TRVs	Time and temperature zone controls, TRVs + weather compensation

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

3.7.2 Smart meters will be installed in each property in line with regulations and supplier requirements.

3.7.3 As shown in the table, the indicative specification for the proposed development exceeds both the minimum performance standards of the Building Regulations 2013 and the updated Building Regulations 2021.

3.7.4 Indeed, if combined with high quality ASHPs, this approach could provide an approximate reduction in carbon emissions of between 35% and 45% compared to a traditional development built to the Building Regulations 2013 and would therefore comfortably achieve the requirements of the new Building Regulations from June 2022.

3.7.5 The actual specifications for the individual building elements and data in relation to performance and emissions will be confirmed later in the planning process once detailed house types and building designs are finalised.

4 Water Efficiency

4.1 The Water Hierarchy

4.1.1 Water efficiency becomes increasingly important in a changing climate with diminishing water resources. Indeed, Cranleigh is classified as being in an area of severe water stress and its water zone is highly vulnerable to climate change.

4.1.2 LPP1 policy CC2 includes a specific target for all new residential developments to achieve a water efficiency equivalent of 110 litres per person per day (l/p/d). The national average for water consumption is around 143 l/p/d.

4.1.3 Water efficiency targets are also driven by the higher standards described within Approved Document G of the Building Regulations which pertain to sanitation, hot water safety and water efficiency. The enhanced target in section 2b (see section 2) matches the council's target.

4.1.4 In order to achieve this target, the management of water on the proposed development will follow the principles of the Water Hierarchy:

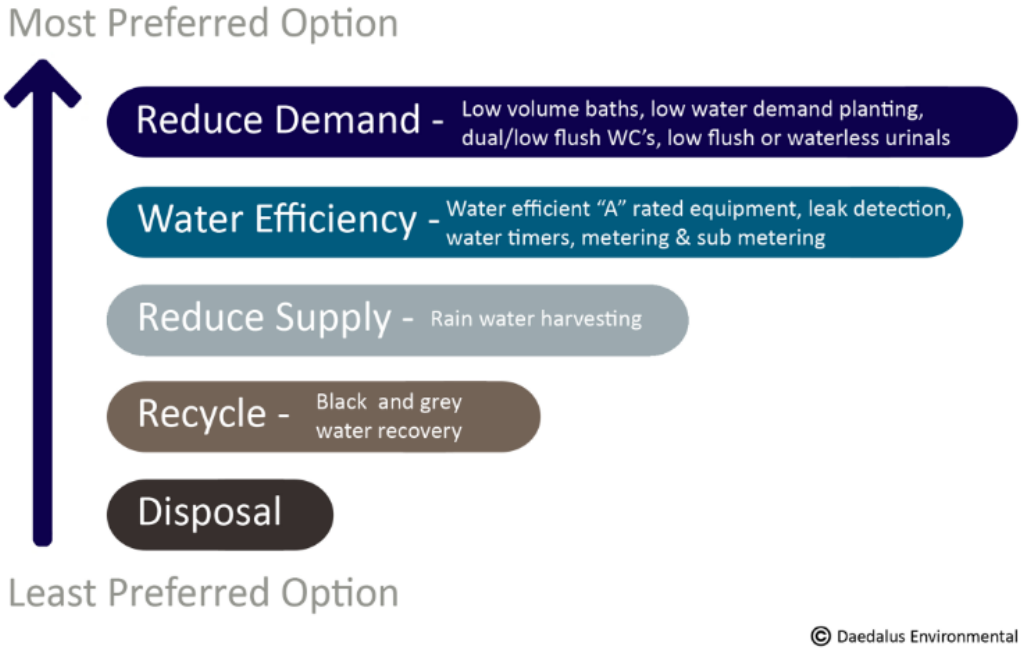

Figure 6: The Water Hierarchy

4.2 Water Reduction Measures

4.2.1 A large proportion of the potable water consumed in a domestic setting is used for washing (personal and clothes) and WC flushing:

Figure 7: Domestic Water Consumption by End Use

4.2.2 Considerable savings can therefore be made by specifying water efficient fixtures, fittings and appliances along with rainwater recycling (water butts) so that daily water use will not exceed the 110 l/p/d target. The following table is an illustrative list of specifications which typically achieve this standard:

	Measure	Unit	Performance / Specification
1	Showers	Litres per minute	10
2	Aerated taps	Litres per minute	3
3	Kitchen sink taps	Litres per minute	4
4	Bath	Litre capacity to overflow	140
5	WC	Litres per flush	4 / 2.6 (dual flush)
6	Washing machine	Litres per kg dry load	7
7	Dishwasher	Litres per place setting	1.08

Table 2: Illustrative Water Specifications

4.2.3 The final specification will be confirmed at detailed design stage, at which point the accredited calculation methodology for Approved Document G can be used to demonstrate that it will meet the required target.

5 Climate Resilience and Adaptation

5.1 Adapting to the Future

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 climate resilience and adaptation on the proposed development in line with the requirements of policies CC1 and CC2 of the LPP1.

5.2 Reducing Overheating Risk Through Design

5.2.1 The risk of the overheating of living spaces is of increasing concern, given our knowledge of future climate. The new *Approved Document O: Overheating* which came into effect in June 2022 details requirements for mitigating the risk of overheating and methods for demonstrating compliance including the use of a compliance checklist or the CIBSE Guide TM59 Design Methodology for the Assessment of Overheating Risk in Homes (CIBSE, June 2017).

5.2.2 When using the CIBSE model for homes which are predominantly naturally ventilated, compliance is based on passing both of the following two criteria:

> *(a) For living rooms, kitchens and bedrooms: the number of hours during which ΔT is greater than or equal to one degree (K) during the period May to September inclusive shall not be more than 3 percent of occupied hours. (CIBSE TM52 Criterion 1: Hours of exceedance).*
> *b) For bedrooms only: to guarantee comfort during the sleeping hours the operative temperature in the bedroom from 10 pm to 7 am shall not exceed 26°C for more than 1% of annual hours. (Note: 1% of the annual hours between 22:00 and 07:00 for bedrooms is 32 hours, so 33 or more hours above 26 °C will be recorded as a fail). The third criterion sets an absolute maximum daily temperature for a room, beyond which the level of overheating is unacceptable.*
>
> *(CIBSE, 2017)*

[ΔTis defined as the difference between the actual operative temperature in the room at any time and the limiting maximum acceptable temperature, rounded to the nearest whole degree].

5.2.3 As the specification for this site is developed further, 'TM59 compliant' tests could be undertaken where necessary to ensure the risk of overheating is minimised. In order to provide a more robust analysis, and in the context of a changing climate, the use of a 'future weather' file may also help ensure that we can be more certain of the impact in the future, and the resulting efficacy of the solutions put forward where any overheating risk exists.

5.2.4 Acceptable strategies for reducing overheating risk 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 proposals for the site include extensive areas of natural green space, wildflower grassed areas and drainage basins and swales with associated wetland habitats. Many of the existing mature trees and hedgerows on the site boundaries will be retained, and additional tree, hedge and scrub planting will take place around the boundaries and throughout the site.

5.3.2 This landscape led approach, which is described in more detail in the Design and Access Statement and the Landscape Strategy, will provide multiple benefits in a changing climate. From a microclimatic perspective, the trees around the southern and western edges of the residential area will provide shading in the summer, reducing heat gain into dwellings and therefore decreasing the need for mechanical cooling. The trees throughout the site will also help maintain a comfortable external environment by providing shading in gardens and shared spaces.

5.3.3 The trees and hedgerows will also contribute to the reduction of wind speeds, improving comfort levels and reducing air infiltration into buildings on windier days.

5.3.4 Furthermore, trees and hedgerows act as 'carbon sinks' and improve air quality through dry deposition of gases (including NO_x, SO_X, PM10 and O_3) whilst also helping reduce levels of ambient noise.

5.3.5 The landscape led approach will also result in biodiversity gains through habitat creation and ecosystem improvement. The Ecological Appraisal for the site should be referred to for full details in this regard.

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. Consideration should also be given to design features such as increased diameter guttering and downpipes to cope with additional intensity of storm water, reducing the risk of backing up.

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 proposed development, including the integration of a SuDS solution in the north-eastern part of the site, open swales along road edges where possible and permeable surfaces where appropriate. The FRA should be referred to for full details in this regard.

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 facilities and to facilitate commuting. Policy ST1 of the LPP1 reinforces this, encouraging development to be located where opportunities for public transport can be maximised.

6.1.2 The proposed site is in a very accessible location, being within walking distance to the extensive range of facilities and services found in Cranleigh village centre. These include supermarkets, shops, cafes and restaurants, a health centre and leisure centre. There is also a range of community facilities and clubs including the village hall, community centre, Arts Centre and cricket, rugby, bowling and football clubs.

6.1.3 Cranleigh village has three primary schools, a mixed secondary school and an independent prep and senior boarding school.

6.1.4 Light industrials estates on the outskirts of the village including Astra House Business Centre, Manfield Park and Littlemead Industrial Estate, provide local employment opportunities.

6.2 Sustainable Transport

6.2.1 Policies ST1 and CC2 of the LPP1 and saved policies D4 and M5 of the Local Plan 2002 encourage development to be designed to encourage walking, cycling and access to sustainable forms of transport.

6.2.2 The Transport Assessment which accompanies this application demonstrates that the site is well situated to make the most of existing road networks and public rights of way, including the Downs Link path which runs along the eastern boundary of the site into the village.

6.2.3 There is good public transport in the vicinity, with regular bus services running from the nearby bus stops (approximately 700m from the centre of the site) to and from nearby towns and villages including Guildford, Horsham and Ewhurst. The number 63 bus provides links to the railway stations in Guildford and Horsham.

6.2.4 While final designs will be detailed later in the planning process, all the proposed properties will include a secure and weatherproof means of cycle storage. For example, some of the houses will have garages and those that do not can have sheds provided, while any apartments will have access to a secure communal cycle store.

6.3 Provision of Electric Vehicle Charging Points

6.3.1 Increasingly, energy and transport systems are becoming interlinked as the nation transitions from the use of petrol and diesel vehicles to zero emission solutions based around electric charging.

6.3.2 Crucially therefore, there is a need to provide charging infrastructure to support this wholesale shift to cleaner vehicle technology and this is supported by policy: the *Surrey County Council Vehicle, Cycle and Electric Vehicle Parking Guidance for New Development (November 2021)* provides guidance on the levels of electric vehicle (EV) charging points required in new residential development (see section 2).

6.3.3 Furthermore, the new Approved Document S of the Building Regulations described in section 2 sets out the comprehensive standards and detailed specifications required at new residential development from June 2022.

6.3.4 The Applicant will therefore design and manage the power network to provide the level of EV charging infrastructure required by Approved Document S. To this end, each dwelling with associated parking will have EV charging infrastructure installed:

- Dwellings with associated parking spaces are required to have access to an EV charging point which will need to have a minimum nominal output of 7kW and be fitted with a universal socket;
- Cable routes for EV charging points should be installed in any associated spaces which do not have an EV charging point, where there are more associated parking spaces than dwellings in a building;
- However, Approved Document S specifies that where the connection cost is greater than £3600 per EV charge point connection (on a site like this where multiple new dwellings are planned, an average connection cost may be used), the maximum number of EV charge points should be installed before the extra grid connection costs exceed £3600 per EV charge point connection. The remaining spaces should have cable routes.

6.3.5 Approved Document S should be referred to for full details including installation requirements, the cost cap and standards for charging points and cable routes.

6.3.6 The actual charging provision to be installed on the proposed site will be investigated at Reserved Matters once the layout is fixed and prices for installation options can be fully explored, in line with Approved Document S.

6.4 Provision of Fibre to the Premises

6.4.1 The availability of high quality broadband infrastructure is increasingly viewed as critical to the functioning of a development and its continued attractiveness to incoming residents. Indeed, policy CC2 of the LPP1 includes a requirement for all new buildings to be provided with the highest available speed broadband infrastructure.

6.4.2 Superfast Fibre is already available to properties in the vicinity of Knowle Lane, supporting speeds of up to 80Mbps. Fibre is therefore likely to be available and, at the formal detailed design stage, a design proposal can be procured for this provision.

6.4.3 Fibre connections provide a far better user experience that the average connection in the UK, and enable a transition to a more sustainable future including:

- The ability to operate smart devices in the home without a risk of insufficient bandwidth, and with zero buffering;
- Crystal clear video calling, web-conferencing and file sharing that facilitates better home working;
- High speed streaming capability on multiple devices, for different family members, simultaneously;
- Enhanced audio quality for users of VoIP and PBX, business class phone systems that use internet connection;
- The ability to operate automated services, payments and billing;
- Improved reliability and reduced susceptibility to inclement weather including storms;
- Potentially symmetrical plans –allowing identical upload and download speeds;
- Improved reliability in providing the best possible access to a business's hosted services and cloud-based applications.

6.4.4 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.

7 Embodied Carbon, Materials and Waste Management

7.1 The Waste Hierarchy

7.1.1 Waste generation, storage, treatment and disposal before, during and after construction will be managed in accordance with the Waste Hierarchy. This is in line with the LPP1 policy CC2 which requires that construction and demolition waste is minimised, that the reuse and recycling of building materials is promoted, and that the design of new developments should facilitate the recycling and composting of operational waste:

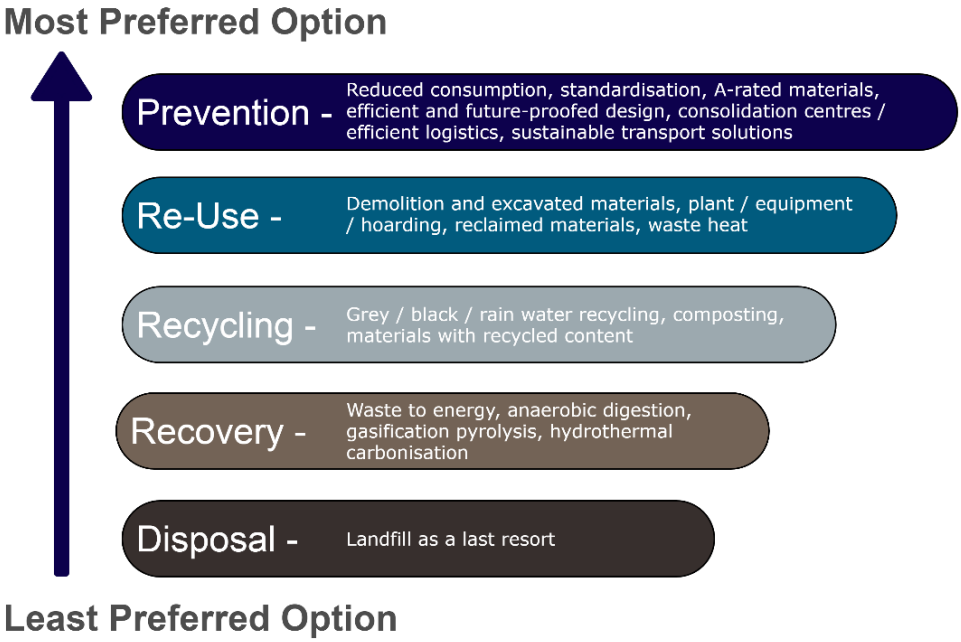

Figure 8: The Waste Hierarchy

7.2 Embodied Carbon

7.2.1 The method of construction for a residential development can have major ramifications in terms of embodied carbon. Embodied carbon refers to the 'upfront' emissions associated with building construction, including the extraction and processing of materials and the energy and water consumption in the production, assembly, and construction of the building. It also includes the 'in-use' stage (e.g. maintenance, replacement), and the 'end of life' stage (demolition, disassembly, and disposal of any parts of product or building) and any transportation.

7.2.2 While operational emissions from residential buildings have reduced as a result of tightening standards, the relative contribution of embodied emissions has increased. Indeed, the Royal Institute of Chartered Surveyors (RICS) estimates that the embodied carbon of homes now accounts for around 69% of the emissions over the lifetime of the dwelling.

7.2.3 Approaches to reducing embodied carbon can range from careful selection of sustainable building materials (see section 7.4 below) to adopting certain forms of Modern Methods of Construction (MMC). The latter option also has the potential to accelerate construction speed and enhance long term quality and reliability of homes.

7.2.4 As this an outline application, housetypes and designs are not currently available. However, a whole life cycle assessment can be completed as part of a Reserved Matters application if required. This will measure the embodied and operational emissions likely as a result of the proposed development, and will enable a practical and pragmatic approach to material choices on this development.

7.2.5 Should a whole life cycle assessment be required, the RICS Professional Statement on Whole Life Carbon (RICS, 2017) provides the default methodology for whole life carbon assessment in the UK, and is endorsed by the RIBA, CIBSE, IStructE and many other organisations. It has also been used as the basis of the Greater London Authority's requirement of embodied carbon assessment and reporting for all referable schemes as part of the New London Plan.

7.3 Future Flexibility

7.3.1 As this is an outline application, the site layout and housetypes for this development have not been fixed. However, later in the design process the Applicant will be able to consider the flexibility and adaptability of the dwellings, ensuring they can be reconfigured over time to suit resident needs. By designing homes in this way from the outset ensures building longevity and minimises the need for extensive refurbishment which has implications for waste minimisation and whole life carbon.

7.3.2 For example, flexible internal spaces such as downstairs reception rooms that can become bedrooms, bedrooms that can become offices or garages that can be simply converted into additional living spaces all mean a house can adapt to the residents' changing needs.

7.4 Sustainable Building Materials

7.4.1 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.

7.4.2 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.

7.5 Waste Management

Construction Waste

7.5.1 The Applicant recognises that waste needs to be sustainably managed and requires all contractors to adhere to strict management processes for waste on site. A Waste Management Plan will be developed and implemented for the development and will:

- Identify a lead person responsible for the Waste Management Plan delivery;
- Provide site induction and training to all staff;
- Identify waste streams, plan for their management and set targets for waste reduction;
- Identify suitable locations for the efficient separation and storage of waste prior to removal from site to encourage higher levels of recycling;
- Identify opportunities for the on-site reuse of materials including excavated materials;
- Re-use scaffolding, hoarding and other such materials on subsequent construction projects.

7.5.2 Where waste must be removed from the site, the Applicant will only appoint licenced waste management contractors with a proven track record of delivering high levels of recycling as a matter of course. In addition, it will be a requirement that any contractor operating on the site commits to the Considerate Constructors Scheme and aims to achieve best practice under assessment. This will help further minimise the impact on the surrounding area and neighbours to the site.

Operational Waste

7.5.3 The Applicant will encourage property occupants to manage waste sustainably, and this has been considered during the design of the development.

7.5.4 For example, houses will have a private rear garden area with direct external access while apartments will have communal waste storage facilities. These features will provide sufficient space for bins and composting facilities, keeping waste storage away from the public domain.

7.5.5 The illustrative site layout has been designed to accommodate reduce vehicles, and swept path analysis has been completed to ensure that a refuse vehicle and emergency vehicles will be able to manoeuvre safely within the site.

7.5.6 Internally, the dwellings will be provided with integrated bins to manage different recycling streams prior to storage outside. Facilities will be easy to access and will be designed in line with the collection regime of the council.

8 Conclusions and Recommendations

8.1.1 This *Energy & Sustainability Statement* describes how the proposed residential development on land east of Knowle Lane, Cranleigh incorporates sustainable design and construction principles with a focus on climate change mitigation and adaptation. It has been commissioned by Gleeson Land (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 outline planning stage to demonstrate compliance with policies CC1 and CC2 of the *Waverley Borough Local Plan Part 1: Strategic Policies and Sites (2018):*

- Homes will be highly energy efficient, adopting a fabric first approach and with specifications above current Building Regulations for insulation detailing. They will be orientated to maximise solar gain where possible;
- Heating and hot water will be supplied using highly efficient systems, for example low carbon air source heat pumps. This will be reviewed and fixed later in the design process;
- 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;
- Buildings will be designed and specified to adapt to a changed climate: overheating will be managed through good design; 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 increased biodiversity and enhancing the overall aesthetic;
- Electric vehicle charging points will be provided to every property with associated parking in line with policy 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 A summary of the recommendations made in order to achieve policy requirements are provided in Appendix A.

8.1.5 As the planning and development process progresses, and as the wider regulatory environment develops, the approach proposed will be kept under review. The final design solution and associated detail can be provided at the Reserved Matters stage.

8.1.6 It can be concluded that the proposals for the development maximise the site's assets and layout in relation to sustainable design, creating an attractive, environmentally sound development.

9 Appendix A – Key Recommendations

Section		Policies Addressed	Key Recommendations
3	Low Carbon Energy Demand and Supply	LPP1 CC1, CC2 Local Plan 2002 D1	- Follow the priorities of the Energy Hierarchy - Ensure building orientation is such that dwellings maximise solar gain as far as possible - Air permeability levels should be 5m3/m2@50Pa or less - Minimise energy consumption with a highly efficient building envelope - Install energy efficient lighting and appliances - Investigate the installation of low carbon air source heat pumps as one option for space and water heating - Consider WWHR for properties where feasible
4	Water Efficiency	LPP1 CC2	- Specify fixtures, appliances and fittings that reduce potable water use including aerated taps, low/dual flush WCs, low capacity baths - Provide opportunities for rainwater recycling i.e. rainwater butts
5	Climate Resilience and Adaptation	LPP1 NE1, CC1, CC2, CC4 Local Plan 2002 D4	- Control overheating risk by applying requirements of the new Approved Document O: Overheating where overheating is identified an as issue - Include street trees, shrubbery and open spaces on the site. - Incorporate SuDS into the site design to manage surface water drainage as recommended in the FRA
6	Reducing Carbon Emissions from Transport	LPP1 ST1, CC2 Local Plan 2002 D4, M5	- Provide individual EV charging points to all properties with associated parking in line with the requirements of Approved Document S - Provide cycle parking in line with local policy requirements - Investigate providing Fibre-to-the-Property
7	Materials and Waste Management	LPP1 CC2 Local Plan 2002 D4	- Follow the priorities of the Waste Hierarchy - Source materials from suppliers with environmental accreditations, using local suppliers where possible - Ensure contractors implement strict waste management processes and commit to Considerate Constructor Scheme - Consider opportunistic on-site reuse of materials where feasible - Provide sufficient and accessible bin storage to facilitate waste management and recycling

10 Appendix B – Climate Change and Sustainability Checklist

Relevant Local Plan Policy	Topic	Measures	Has this been considered in the planning application submission? (Yes/No/not Applicable) If No or Not Applicable please state reasons for this	If Yes, please signpost to relevant information within planning application submission
Minimising energy use in new developments (Chapter 2)				
CC1: Climate Change CC2: Sustainable Construction and Design CC3: Renewable Energy Development	Energy Hierarchy	Adherence to the energy hierarchy.	Yes	Section 3.2 of this Energy & Sustainability Statement.
		Others (please state): Fabric First Approach	Yes	Section 3.3, 3.4 and 3.7 of this Energy & Sustainability Statement.
	Energy Efficiency measures	Demonstrate what energy efficiency measures are included in the planning application for the development (double glazing, EV charging points, etc.).	Yes	Section 3 (specifically sections 3.4, 3.6 and 3.7) and section 6 (specifically 6.3) of this Energy & Sustainability Statement.
		State what renewable and/or low carbon energy generation technologies are included.	Yes	Section 3.5 of this Energy & Sustainability Statement.
		Demonstrate that low energy internal and external lighting (e.g. LED lightbulbs) is provided.	Yes	Section 3.6 of this Energy & Sustainability Statement.
		Draught proofing (strips on doors, proofing of floors).	Not applicable on new build properties.	N/A
		Heating systems and controls (heat pumps, solar hot water panels, etc.).	Yes	Section 3.5, section 3.7 (Table 1) of this Energy & Sustainability Statement.
		Heat recovery systems.	Yes	Section 3.6.6
		Connection to existing low carbon heat network.	Not applicable as there are no existing heat networks in the vicinity.	N/A

		A+++ standard white goods and boiler, smart meters	Yes	Section 3.6, section 3.7.2 of this Energy & Sustainability Statement.
		Cavity wall insulation, loft, and roof insulation, under floor insulation.	Yes	Section 3.4, section 3.7 (Table 1) of this Energy & Sustainability Statement.
		Other (please state):		
Sustainable site layout, landscaping, and orientation of buildings				
CC1: Climate Change CC2: Sustainable Construction and Design CC4: Flood Risk Management NE1: Biodiversity and Geological Conservation NE2: Green and Blue Infrastructure	Design, layout, landscape, and orientation	Plot and dwelling orientation to optimise solar gain.	Yes	Section 3.3 of this Energy & Sustainability Statement.
		Window positioning to optimise solar gain.	Yes	Section 3.3 (specifically 3.3.3) and section 5.2 of this Energy & Sustainability Statement.
	Overheating	Demonstrate how the development will provide natural shading to avoid overheating	Yes	Section 5.3 of this Energy & Sustainability Statement; Design and Access Statement.
	Fabric First measures	Ventilation systems are energy efficient and adequate to the size and function of a room.	Yes	Section 3.4.3 - 3.4.5 of this Energy & Sustainability Statement.
		Use of natural ventilation	Yes	Section 3.4.5 of this Energy & Sustainability Statement.
		Insulation of floors and loft areas.	Yes	Section 3.4 and 3.7 of this Energy & Sustainability Statement.
		High-capacity gutters.	Yes	Section 5.4.2 of this Energy & Sustainability Statement; Flood Risk Assessment.
		Space provided for outdoor drying	Yes	Section 3.6.3 of this Energy & Sustainability Statement; Design and Access Statement.
	Embodied carbon	Re-use of existing buildings	Not applicable as no existing buildings on the proposed development site.	N/A
		Use of materials with the lowest embodied carbon possible.	Yes	Section 7.2 and section 7.4 of this Energy & Sustainability Statement.

		Re-use of materials from the development site and use reclaimed or recycled materials.	Yes	Section 7.2 and section 7.4.1 of this Energy & Sustainability Statement.
		Use of local sustainable materials.	Yes	Section 7.4 of this Energy & Sustainability Statement.
	Green and blue infrastructure	Protect and enhance existing green and blue infrastructure, such as green spaces and watercourses.	Yes	Section 5.3 of this Energy & Sustainability Statement; Design and Access Statement; Ecological Appraisal.
		Demonstrate how selected green infrastructure will enable cooling of the building.	Yes	Section 5.3 of this Energy & Sustainability Statement; Design and Access Statement; Illustrative Landscape Strategy Plan.
		Reinstate areas of floodplains and riverside meadows, restoring the natural course of rivers.	Not applicable to this application	
		Ensure that any new green and blue infrastructure is connected to the wider habitat network.	Yes	Design and Access Statement; Landscape and Visual Impact Assessment; Ecological Appraisal.
		Long term maintenance of green and blue infrastructure.	Exact details of the landscape proposals (mitigation, enhancements and long-term maintenance) will be submitted at detailed reserved matters stage and agreed with the Local Authority, prior to the implementation of the proposals.	Design and Access Statement.
		Provide food growing spaces.	Yes	Design and Access Statement demonstrates the gardens are suitable for food growing, and the site is next to existing allotments.
		Integrate green infrastructure into parking design.	Yes	Design and Access Statement; Landscape Strategy.
		Other (please state):		

	SuDS	Achieve greenfield run-off rates and manage surface water run-off as close to its source as possible, in line with the drainage hierarchy.	Yes	Flood Risk Assessment and Drainage Strategy.
		Demonstrate how the drainage hierarchy has been considered.	Yes	Flood Risk Assessment and Drainage Strategy.
		Use of blue roofs and rainwater harvesting including private and communal rainwater collection and reuse points/water butts.	Yes	Section 4.2.2 of this Energy & Sustainability Statement.
		Use of soakaways.	Yes	Flood Risk Assessment and Drainage Strategy.
		Use of landscape features - swales, wetlands, raingardens.	Yes	Flood Risk Assessment and Drainage Strategy.
		Use of natural water courses (unless not appropriate).	Not appropriate at this development site	N/A
		Other (please state):		
	Biodiversity Net Gain	Specify how BNG principles have been applied to the development.	Yes	Ecological Appraisal.
		Existing and new green infrastructure links with the wider green infrastructure network.	Yes	Design and Access Statement; Landscape and Visual Impact Assessment; Ecological Appraisal.
		Demonstrate how biodiversity has been enhanced at the site.	Yes	Ecological Appraisal.
Climate change resilience and adaptation				
CC1: Climate Change CC4: Flood Risk Management	Flood risk	Demonstrate that development is located away from a river and floodplains.	Yes	Flood Risk Assessment and Drainage Strategy.
		Provide a site-specific flood risk assessment.	Yes	Flood Risk Assessment and Drainage Strategy.

		Describe measures taken to minimise flood risk.	Yes	Flood Risk Assessment and Drainage Strategy.
		Demonstrate how the development is flood resistant.	Yes	Flood Risk Assessment and Drainage Strategy.
		Demonstrate what permeable surfaces will be implemented.	Yes	Flood Risk Assessment and Drainage Strategy.
		Provide a Landscape Management Plan (for large-scale sites).	Exact details of the landscape proposals (mitigation, enhancements and long-term management) will be submitted at detailed reserved matters stage and agreed with the Local Authority, prior to the implementation of the proposals	Design and Access Statement.
		Integrate flood risk solutions (e.g. safeguarding land for flood risk management, designing off-site works required to protect and support development).	Yes	Flood Risk Assessment and Drainage Strategy.
		Other (please specify):		
Use of sustainable resources and materials and sustainable management of waste				
CC1: Climate Change CC2: Sustainable Construction and Design	Waste management	Provide a Site Waste Management Plan.	Yes	Section 7.5 of this Energy & Sustainability Statement.
		Provide facilities for waste sorting and recycling.	Yes	Section 7.5 of this Energy & Sustainability Statement.
		Provide facilities for food waste and garden waste composting.	Yes	Section 7.5.3-7.5.6 of this Energy & Sustainability Statement.
	Re-use of materials	Re-use materials derived from any on-site demolition.	Not applicable as no demolition required at this proposed site.	N/A

	Modular design and circular economy principles	Use of modular prefabricated parts.	Yes	Section 7.2 of this Energy & Sustainability Statement.
		Demonstrate how construction and operational waste will be managed.	Yes	Section 7 (specifically section 7.5) of this Energy & Sustainability Statement.
	Circular economy	Demonstrate how the planned development conserved resources, increased resources efficiency, and adhered to sustainable sourcing of materials.	Yes	Section 7 of this Energy & Sustainability Statement.
		Demonstrate how the development prevented premature demolishment of existing buildings.	Not applicable as no demolition required at this proposed site	N/A
		Demonstrate how the whole lifecycle of the building has been considered.	Yes	Section 7.2 and 7.3 of this Energy & Sustainability Statement.
Water efficiency				
CC2: Sustainable Construction and Design	Water efficiency measures	Demonstrate how the development minimises the water use through installation of efficient appliances (A+++ white goods and boilers).	Yes	Section 4 of this Energy & Sustainability Statement.
		Demonstrate how greywater recycling has been integrated.	Not considered for this site as water efficiency is achieved via high efficiency appliances, fixtures and fittings plus rainwater recycling (water butts).	N/A
		Demonstrate how rainwater harvesting has been integrated.	Yes (water butts)	Section 4 of this Energy & Sustainability Statement.
Design to encourage use of sustainable forms of transport				
ST1: Sustainable Transport	Reducing the need to travel	Development is accessible and provides an access to local facilities (concept of 15-minutes neighbourhood).	Yes	Section 6.2.1 of this Energy & Sustainability Statement; Transport Assessment.

		Provides a hub for remote working.	Homeworking will be facilitated by ensuring the provision of FTTP.	Section 6.4 of this Energy & Sustainability Statement.
		A Delivery and Servicing Plan (for major developments).	This will be agreed as part of a planning condition so has not been included at this stage.	N/A
		Provide segregated active travel routes within the development and connections to wider networks.	Yes	Transport Assessment; Design and Access Statement.
		Provided cycle and walking paths are safe, secure, visible, and convenient.	Yes	Transport Assessment; Design and Access Statement.
		Provision of cycle parking exceeds the minimum parking standard set out within the Council's Parking Guidelines document.	As this is an outline application, the masterplan is not fixed. However, cycle parking provision will meet the required standards.	Transport Assessment; Design and Access Statement.
		Charging stations for e-bikes are provided.	No, these are not currently featured in the design of the site.	N/A
		Development is within 5 minutes (400m) walk of the nearest bus stop with frequent and multiple bus services.	Nearest bus stops are approx. 700m from the site with regular services to nearby towns and villages.	Section 6.2 of this Energy & Sustainability Statement; Transport Assessment.
		Large development is located within 10 minutes (800m) walk from a railway station.	The nearest train stations are located in Guildford and Horsham and can be accessed via the number 63 bus service if required.	Section 6.2 of this Energy & Sustainability Statement; Transport Assessment.
		Provide a Travel Plan (in accordance with the SCC Travel Plan Good Practice Guide).	Yes	Transport Assessment.
		Provides a car club scheme.	This is not currently a feature of the illustrative masterplan but can be included later in the design process if judged appropriate.	N/A
		Development is mixed-use.	No	N/A
		Residential development design aligns with the Surrey Design Guide and LTP4.	Yes	Design and Access Statement.

Completed on behalf of:

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