

MEMORANDUM

From:	Úna Haran, Lead Sustainability Planning Officer		
Service	WBC Sustainability	App No:	242653
Address:	Hogwood Farm, Sheerlands Road, Arborfield, Wokingham, RG40 4QY.		
Proposal:	Full application for the proposed erection of 48 residential dwellings with associated access, internal roads, parking, landscaping, drainage and cycle storage.		
Type of Development:	Major Dwellings (10+)		
Site Visit Made:	No		

Summary Of Recommendations

- ☐ No comment
- ☐ No objection
- ☒ No objection subject to conditions (and reasons) **stated below**
- ☐ Request further information before determination as **stated below**
- ☐ Objection due to the reason(s) **stated below**

Comments On Proposal

1. Context

- 1.1. Application 242653 relates to a parcel adjoining Parcel 15 of development at Hogwood Farm (outline approval 181194) of which Parcels 14 and 15 including Sports Hub facilities are currently under construction (reserved matters approval 220175).

2. Response to evidence submitted.

- 2.1. Since application 242653 deals with development of 48 new homes, a detailed sustainability statement is required per the Wokingham Borough Council Sustainable Design and Construction Supplementary Planning Document 2010.¹
- 2.2. The following comments are based on the information provided in the Energy Strategy Statement prepared by consultants Briary Energy on behalf of Cala Homes alongside the Design and Access Statement authored by Omega Architects and associated drawings.
- 2.3. This note specifically examines the application's approach to LDF policies on sustainable development, energy including any provision of renewables

¹ Wokingham Borough Council. 'Sustainable Design and Construction Supplementary Planning Document'. 2010. p.10

on site, and water use.

3. Response to WBC Core Strategy Policy CP1

3.1. *“12) Contribute towards the goal of reaching zero-carbon developments as soon as possible by:”*

3.1.1. *“a) Including appropriate on-site renewable energy features; and”*

3.1.2. *“b) Minimising energy and water consumption by measures including the use of appropriate layout and orientation, building form, design and construction, and design to take account of microclimate so as to minimise carbon dioxide emissions through giving careful consideration to how all aspects of development form.”*

3.2. Renewable energy and low carbon technology. The Energy Strategy Statement states that an overall 66.72% reduction in emissions is predicted relative to the baseline of the cumulative TERs for the homes based on gas being the primary heating fuel. ²

3.3. Of this, 7.9% is delivered through fabric performance improvements leading to smaller fixed power loads, with the remainder due to use of air-source heat-pumps (ASHP) to provide heating to all homes when compared with a baseline of notional buildings heated by gas boilers.³

3.3.1. The model of ASHP to be used is not included in the Energy Strategy Statement, and it is not known whether they will provide domestic hot water alone (with space heating demand met by electric heating) or in combination with space heating. The capability for reverse operation (cooling) is not mentioned.

3.3.2. Baseline emissions for the development including a notional reduction for low and zero carbon technologies amounts to 61,391 kgCO₂ yearly. Modelled emissions based on the ASHP strategy and fabric improvements are stated as 20,408 kgCO₂ per year – a difference of 66.72% or around 97,792kWh.⁴

3.3.3. The proposals for the use of ASHP reduce regulated emissions associated with the development appear feasible and represent a positive response to compliance with Policy CP1 12) a).

3.4. Passive design measures

3.4.1. Glazing

² Briary Energy, Energy Strategy Statement, Parcel 16 Hogwood Farm, Finchampstead, 2024. P.18

³ Ibid. P.18

⁴ Ibid. P.18

- 3.4.1.1.1. No CIBSE TM52 analysis is provided therefore the design will be appraised for potential overheating risk through Part O of the Building Regulations only. These regulations provide limits on the amount of hours during which a space is permitted to exceed maximum temperatures for indoor thermal comfort. The comments on potential risks and mitigating factors for overheating provided in this note do not seek to anticipate the outcome of Part O analysis but rather to identify the degree to which passive design measures have been implemented as part of the overall approach to operational energy demand reduction.
- 3.4.1.1.2. No calculated glazing ratios are provided, however the Energy Strategy Statement notes that passive design measures should be used in accordance the first step on the energy hierarchy – Be Lean.⁵ No sun-path studies are provided therefore the following analysis is based on inspection of the drawings provided.
- 3.4.1.2. Around 75% of the homes are oriented on a NW-SE axis with 16 of the proposed homes facing either due North or Northwest and 19 facing due Southeast. A South facing aspect will reduce energy demand from habitable rooms when balanced with appropriate vertical shading. While orientation is mentioned in the Energy Strategy Statement as a passive design measure that should be implemented, it has not driven the design of the masterplan. The feasibility study for solar hot water included in the Energy Strategy Statement notes that one of the reasons solar hot water is not proposed is that it is unsuitable for poorly oriented buildings.
- 3.4.1.3. In general the proposed house types do not appear overglazed, with the exception of some full-length glazing to rear elevations (for example of the Blackthorn house type) which may impact summer comfort since no vertical shading is proposed.
- 3.4.1.3.1. The lack of consideration to solar orientation and glazing arrangement is detrimental to the sustainability of the scheme and represents a missed opportunity to reduce energy demand.
- 3.4.1.4. G values of glazing are not provided so no comment can be made on solar transmittance of glass.
- 3.4.2. Passive ventilation. Some opportunities for cross ventilation are shown in some master bedrooms and living areas. Of all of the 450 habitable rooms (not counting stairwells, utility rooms, airing cupboards and hallways), less than 20% benefit from possible cross ventilation.
- 3.4.3. Heat loss form factor. In general the homes are relatively simple in form, albeit some of the larger types (Rowan and Magnolia for example) include bay windows and dormers which present opportunities for unintentional heat loss through junctions. Simple and attached forms such as that of the Blackthorn house type are beneficial to the building performance and helps to mitigate the risk of an energy performance gap caused by heat loss through cold bridges in a complex architectural form.

3.4.4. The need to minimise thermal bridging is noted in the Energy Strategy Statement.⁶

3.4.5. Thermal mass. This is not mentioned in the Energy Strategy Statement and the construction type is not confirmed however it is noted that Cala have used timber frames on some homes in adjacent parcels. DER worksheets are not provided so thermal mass parameters (TMPs) used in modelling the energy performance of the homes are not known. For information: the heaviest buildings, for example those containing a lot of masonry, can have TMPs around 500 kJ/m², while a very lightweight timber framed building could have a TMP only 1/10 of that value. A TMP of 250 kJ/m²K indicates a medium level of thermal mass. In the absence of further details of the materials specification, it is not possible to assess the placement of heavier components to be able to tell to what degree they may assist with mitigation of overheating risk or maintaining stable internal temperatures.

3.4.6. The use of timber framing despite providing less thermal mass, can have an overall positive impact on the sustainability of a development due to lower embodied emissions and facilitation of rapid construction. In the absence of information relating to construction type and materials strategy, no comment can be given on the relative merits of the proposed materials.

3.4.7. Thermal performance of building elements (dwellings).

Building element	Unit	Part L 2021 limiting value	Best practice value	Proposed Specification (maximum)
External wall	W/m ² .K	0.26	0.12	0.22
Roof	W/m ² .K	0.16	0.10	0.16
Floor	W/m ² .K	0.18	0.10	1.50
Vertical windows	W/m ² .K	1.60	0.80	1.30
Air permeability	m ³ /h.m ³ @ 50 Pa	8.0	<1.0	4.0

3.4.7.1. The proposed thermal performance of building elements is within the legal limits set in Part L of the Building regulations. Improvements over the limiting values are not significant enough to approach best practice and could be more ambitious.

3.5. Active building systems. Extract ventilation will be used for smaller rooms and bathrooms without windows. This will be more efficient than the compliance limit.⁷ All homes will be supplied with air-source heat pumps.

⁵ Briary Energy, Energy Strategy Statement, Parcel 16 Hogwood Farm, Finchampstead, 2024. P.5

⁶ Ibid. P.6

⁷ Ibid. P.7

- 3.5.1. All lighting is to be specified as low-energy lighting, exceeding the compliance minimum of 75%. This positively contributes to the sustainability of the development.
- 3.6. Whole life impacts. No mention of consideration given to reduction of whole life impacts through materials specification or construction methodology is made in the Energy Strategy Statement. A lack of consideration of the embodied impacts of development is a missed opportunity to contribute to the sustainability of the proposals.
4. Response to WBC MDD Local Plan Policy CC04
- 4.1. The commitment to deliver a reduction in regulated operational GHG emissions of 66.72% for the development overall through the use of ASHP and fabric improvements confers a significant benefit and is favourably viewed.
- 4.1.1. Application of the standard condition ensuring that the provision for onsite renewable energy is delivered at the level described is recommended.
- 4.2. No water efficiency calculation for new dwellings is provided, demonstrating how the maximum domestic consumption rate of 105 L per capita per day required to comply with MDD Policy CC04 might be achieved.
- 4.3. Information on water efficiency measures taken to comply with policy CC04 are not present in the application materials, therefore a condition is required to secure compliance with this part of MDD Policy CC04.
5. Conclusion
- 5.1. In summary, the Sustainability and Energy Statement and its appendices show that an acceptable approach to sustainable development is taken.
- 5.2. The level of operational energy displacement through the use of on-site renewable and carbon technologies is a particular benefit of this scheme.
- 5.3. No objection is raised to approval of this application subject to the below conditions.

Conditions & Reasons (if required)

Domestic water consumption

Prior to the commencement of development, a scheme achieving a maximum domestic water consumption of 105L per capita per day for the residential portion of the scheme shall be submitted to and approved in writing by the local planning authority. The approved scheme shall be implemented before the development is first occupied and shall remain operational for the lifetime of the development.

*Reason: To ensure developments contribute to sustainable development.
Relevant policy: NPPF Section 14 (Meeting the Challenge of Climate Change, Flooding and Coastal Change), WBC Climate Emergency Action Plan, Core Strategy policy CP1, Managing Development Delivery Local Plan policy CC04 & the Sustainable Design and Construction Supplementary Planning Document.*

On-site renewables

Prior to the commencement of development, a scheme for achieving a 10% reduction in the predicted carbon emissions arising from operation of the development through the use of decentralised renewable and/or low carbon sources (as defined in the glossary of Planning Policy Statement: Planning and Climate Change (December 2007) or any subsequent version) shall be submitted to and approved in writing by the local planning authority. The minimum 10% reduction shall be achieved in addition to the levels of reduction in carbon emissions required through the Building Regulations in force at the time of the submission of planning application. The approved scheme shall be implemented before the development is first occupied and shall remain operational for the lifetime of the development.

Reason: To ensure developments contribute to sustainable development in accordance with NPPF Section 14 (Meeting the Challenge of Climate Change, Flooding and Coastal Change), WBC Climate Emergency Action Plan, Core Strategy policy CP1, MDDL policy CC05 & the Sustainable Design and Construction Supplementary Planning Document.

Date:

13.12.2024

Signed:



Úna Haran
BSc (Hons), MArch
Lead Sustainability Planning
Officer