

MEMORANDUM

From:	Úna Haran, Lead Sustainability Planning Officer		
Service	WBC Sustainability	App No:	250735
Address:	Land to the north of School Road, Arborfield Cross.		
Proposal:	Outline application for the proposed residential development of up to 70 dwellings together with associated access, landscaping, open space and associated works. (All matters reserved except for means of access.)		
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. Response to evidence submitted.

1.1. Since outline application 250735 deals with development of up to 70 new homes, information is required to demonstrate how the scheme will comply with WBC planning policy on sustainability and energy.

1.1.1. This requirement is set out in the WBC Sustainable Design and Construction Supplementary Planning Document (SPD).¹ It should be noted however that It should be noted that the SPD dates from 2010 and makes reference to the South East Plan: *"Design and Access Statement to set out framework to show how the proposal will achieve the requirements of Policy NRM11 of the South East Plan. Best estimates of energy use at outline application stage will be acceptable."*

1.1.2. The South East Plan was withdrawn in 2013² and its policies covering Sustainability and Energy superseded by those contained in the WBC

¹ Wokingham Borough Council. 'Sustainable Design and Construction Supplementary Planning Document'. 2010. p.11

² Excluding saved policies not affecting sustainability planning issues.

Managing Development Delivery (MDD) Local Plan which was adopted in 2014. Consequently, applications must now show how they will comply with WBC's policies on sustainable design and construction. This means that at outline stage for a major residential scheme, in addition to outlining how the scheme will comply with the sustainability requirements of Policy CP1 of the WBC Core Strategy 2010, the Design and Access or Sustainability & Energy Statement must show how the scheme will comply with:

1.1.2.1. MDD CC04 part 1, (a) (as clarified by the WBC Climate Change Interim Policy Position Statement, 2022 (CCIPPS)). This policy encourages schemes to aim for the expected carbon reduction levels of the full future homes standard prior to the standard taking effect (expected in 2025).

1.1.2.2. MDD CC04 part 1 (b) (as clarified by the CCIPPS) - requires water consumption of 110L per person per day including a 5L external water allowance.

1.1.2.3. MDD CC05 part 2 (as clarified by the CCIPPS) - requires 10% carbon reduction relative to Target Emission Rates (TERs) arising from the version of the Building Regulations extant at time of full planning or reserved matters application.

1.2. The following comments are based on the information provided in the Energy Strategy prepared by consultants Energist alongside the Design and Access Statement authored by Marrons³.

1.3. This note specifically examines the application's approach to LDF policies on sustainable development, energy including any provision of renewables on site, and water use.

2. Response to WBC Core Strategy Policy CP1

2.1. *"12) Contribute towards the goal of reaching zero-carbon developments as soon as possible by:"*

2.1.1. *"a) Including appropriate on-site renewable energy features; and"*

2.1.2. *"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."*

2.2. Renewable energy and low carbon technology. The Energy Strategy states that solar thermal, photovoltaic panels (PVPs) and air source heat pumps (ASHP) have all been identified as feasible for the proposed development.⁴

2.2.1. At outline stage individual ASHPs for each home are proposed, with the

³ Marrons for Croudace Homes, Design & Access Statement, Land North of School Road, Arborfield Cross, Wokingham 2025.

⁴ Energist for Croudace Homes, Energy Strategy, Land North of School Road, Arborfield Cross, 2025. P.15

possibility that PVPs could be added at detailed design stage if necessary.⁵

2.2.2. Baseline emissions (cumulative TER AD L 2021) are calculated as 67,600 kg CO₂ for development.

2.2.3. Through a combination of fabric performance improvements, passive design measures and the addition of ASHP, a total reduction of 19,070 kg CO₂ (36%) for the development is modelled.⁶

2.2.4. No reference is made to any energy storage capacity.

2.2.5. The Energy Strategy notes that *"The proposed fabric constructions will be a 'passive' measure however and will improve upon the requirements of Part L1 Volume 1 (2021) of the Building Regulations."*⁷

2.2.6. Fabric performance improvements over the AD L 2021 limits are provided.

2.2.7. The following table compares the proposed specification with compliance and best practice values:

Building element	Unit	Part 2021 limiting value	Best practice value	Proposed value
External wall	W/m2.K	0.26	0.12	0.17
Roof	W/m2.K	0.16	0.10	0.11-0.18
Floor	W/m2.K	0.18	0.10	0.11
Vertical windows	W/m2.K	1.60	0.80	1.3
Air permeability	m3/h.m3 @ 50 Pa	8.0	<1y.0	3.5

3. Response to WBC MDD Local Plan Policy CC04 and CC05

3.1. The proposed reduction of 36% cumulative DER vs cumulative TER exceeds the requirements of Policy CC04.

3.1.1. Application of the standard condition ensuring carbon reduction measures are specified at detailed design stage in accordance with the details supplied in the Energy Strategy is recommended.

3.2. Appendix 4 of the Energy Strategy provides water efficiency calculations which show that 105.43 L per person per day is feasible. This level of water use is sufficient to comply with Policy CC04.

3.2.1. The below table compared proposed, typical and best practice flow rates for common appliances:

Fitting type	Non low-flow consumption	Best practice consumption	Proposed consumption
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⁵ Energist for Croudace Homes, Energy Strategy, Land North of School Road, Arborfield Cross, 2025. P.15

⁶ Ibid. P.16

⁷ Ibid. P.14

WC	5 - 9 L	< 4 L	2.6 – 4 L
Shower	13 L / minute	6 L / minute	8 L / minute
Handwash basin taps	8 L / minute	2 L / minute	5.4 L / minute
Sink taps	10 L / minute	4 L / minute	6 L / minute
Dishwasher	1.25 L / place setting	< 0.7 L / place setting	1.3 L / place setting
Washing machine	14 L / kg	6 L / kg	8.2 L / kg

3.2.2. This specification shows positive improvements over the maximum policy compliant water consumption, with some fixtures achieving best practice water efficiency.

3.2.3. Application of the standard condition ensuring water efficiency measures are specified at detailed design stage in accordance with the details supplied in the Energy Strategy is recommended.

4. Conclusion

4.1. The application materials show a feasible strategy for achieving policy compliant levels of operational emissions reductions and water efficiency.

4.2. No objection is raised to this application subject to application of the conditions suggested below.

Appendix: Best practice measures for sustainable major development

1. To comply with Policy CP1 of the Core Strategy, proposals must demonstrate that durable and adaptable buildings are to be delivered, with appropriate on-site renewables and a design-led approach to reducing whole-life carbon emissions through high standards of fabric performance and consideration of construction materials and methods. Evidence of how the energy hierarchy has been followed should be provided, along with details of emissions reductions and other benefits achieved at each stage (Be Lean, Be Clean, Be Green, Be Seen).
2. On site renewable energy generation should be considered from the outset – maximising opportunities for effective generation and storage will have a bearing on the masterplanning and massing of the development.
3. Heat networks and opportunities for community energy should be considered carefully in the feasibility studies.
4. If proposed, capacity for energy storage and demand side response controls will be viewed as a significant benefit due to their contribution to energy resilience which is a key climate adaptation priority in Wokingham.

5. At full or reserved matters application stage, the full details of specification of such schemes will be required including generative and storage capacity, location of plant and maintenance strategy.
6. The location, scale and nature of proposed renewable and low carbon technologies must be shown on any plans, elevations, sections and illustrative views provided with the application/s.
7. Sustainability and Energy Statements should show how the proposed scheme for renewable or low carbon technologies was selected and what if any impact this had on iterative masterplanning, massing and building design.
8. To comply with Part 12 (b) of Policy CP1, development must show how passive design principles have been implemented at all scales to reduce resource consumption. Measures to consider include the following:
 - 8.1. Glazing – glazing ratios and arrangements must consider overheating risk.
 - 8.2. In general: the size of glazing provided should be considered in relation to the size of the internal space it serves – small rooms with large glazed areas will be at increased risk of overheating, however a deep plan with minimal glazing will not benefit from sufficient natural lighting.
 - 8.3. Horizontal glazing will perform better than vertical, and full height glazing should be avoided (an upstand of at least 800mm is recommended).
 - 8.4. Openable windows should be prioritised to assist with the passive ventilation strategy. Cross-ventilation should be provided wherever possible.
 - 8.5. G-values should be considered to balance solar transmittance (a value of 0.3-0.4 is recommended).
 - 8.6. Glazing orientation has a significant impact on energy use and overheating risk: East and West facing rooms are susceptible to overheating due to low-angle sunlight in the morning and evening - cross-ventilation is especially important in East and West facing rooms. Shading should be provided above South-facing windows to protect from high-angle summer sunlight while allowing low-angle winter light to enter. Best practice for UK glazing ratios: 25% on the Southern elevation, up to 20% on Eastern/Western elevations, as little as possible on the Northern elevation.
 - 8.7. Provision of a daylight strategy and/or site analysis showing consideration of sun path and shading will be positively viewed.
 - 8.8. Passive cooling through natural ventilation, effective deployment of thermal mass, solar shading, consideration of albedo in external spaces and appropriate landscaping will be assessed at application stage.
 - 8.9. The best schemes will balance high airtightness with optimised passive ventilation and energy efficient mechanical ventilation with heat recovery (MVHR).

- 8.10. To counter overheating risk, the cooling hierarchy should be followed. Mechanical ventilation with heat recovery used to complement natural ventilation as necessary.
- 8.11. CIBSE methodologies for thermal comfort modelling are recommended as a more thorough alternative to the modelling provided through Part O of the Building regulations. Use of TM52 and/or TM59 analysis will be seen to confer significant benefit at application stage.
- 8.12. In general, higher densities and simple forms will lead to the most energy efficient buildings. Homes should aim to have a Heat Loss Form Factor (HLFF) of 1.5 or lower, however this can be much lower (around 0.5) for some apartment designs.
- 8.13. A low HLFF will have a significant impact in terms of operational energy demand. Simple roof forms and attached units should be used wherever possible.
- 8.14. Formally efficient buildings which are appropriate in scale and avoid excessive glazing will also have reduced embodied carbon compared with larger or more complex alternatives.
- 8.15. The following tables illustrate limiting and best practice values for building fabric performance. Proposals should target best practice wherever possible.

Building element	Unit	Part L 2021 limiting value	Best practice value
External wall	W/m ² .K	0.26	0.12
Party wall	W/m ² .K	0.20	0.10
Roof	W/m ² .K	0.16	0.10
Floor	W/m ² .K	0.18	0.10
Vertical windows	W/m ² .K	1.60	0.80
Rooflights	W/m ² .K	2.20	1.00
Doors	W/m ² .K	1.60	1.00
Air permeability	m ³ /h.m ³ @ 50 Pa	8.0	<1.0
G value of glass	absolute	none	0.4 – 0.3

Table 1: fabric performance standards for dwellings

Building element	Unit	Part L 2021 limiting value	Best practice value
External wall	W/m ² .K	0.26	0.12
Roof (pitched)	W/m ² .K	0.16	0.10

Roof (flat)	W/m2.K	0.18	0.10
Floor	W/m2.K	0.18	0.10
Vertical windows	W/m2.K	1.60	0.80
Rooflights	W/m2.K	2.20	1.00
Doors	W/m2.K	1.60	0.80
Vehicle doors	W/m2.K	1.30	0.80
Air permeability	m3/h.m3 @ 50 Pa	8.0	<1.0
G value of glass	absolute	none	0.4 – 0.3

Table 2: fabric performance standards for buildings other than dwellings

Fitting type	Non low-flow consumption	Best practice consumption
WC	5 - 9 L	< 4 L
Shower	13 L / minute	6 L / minute
Handwash basin taps	8 L / minute	2 L / minute
Sink taps	10 L / minute	4 L / minute
Dishwasher	1.25 L / place setting	< 0.7 L / place setting
Washing machine	14 L / kg	6 L / kg

Table 3: best practice water efficiency for common fixtures

9. Whole Life Impacts should be considered in the Energy and Sustainability

Statement. Issues to address include:

- 9.1.1. use of any resources existing on site,
- 9.1.2. reducing the need for demolition and excavation,
- 9.1.3. specification of local, recycled, biogenic and low-carbon materials,
- 9.1.4. any commitment to specify insulants with a Global Warming Potential (GWP) no greater than a target value for example 5,
- 9.1.5. 1.9.5. any commitment to specify materials and products having an Environmental Product Declaration (EPD).
- 9.1.6. Whole Life Carbon Assessment is strongly recommended and if proposed will be viewed as a significant benefit of the scheme. If WLCA is to be undertaken for any part of the scheme, the scope should be clearly defined in the Energy and Sustainability Statement, as well as any target for whole life

carbon per area. The monitoring and compliance framework should be explained.

10. General: all targets, frameworks and certifications intended for the scheme should be highlighted within the Energy and Sustainability Statement. It should be clear what the goals are, and how progress towards these and compliance/ongoing performance will be monitored. Use of independently assessed certifications such as Passivhaus are strongly encouraged and will be viewed as a significant benefit if proposed.

11. General: Energy and Sustainability Statements must explain how the proposals approach both climate change adaptation and mitigation.

11.1. Climate change adaptation information should make reference to local current and projected climate hazards relevant to the site, which in Wokingham will include water stress and high summer temperatures.

11.2. Climate change adaptation measures should include reduction in operational energy demand, provision of energy storage, reduction in operational water demand, provision of water harvesting or recycling equipment, buildings which are resilient to overheating risk through passive design measures and planting schemes which are suitable for current and future conditions on site for example.

11.3. The mitigation section should demonstrate how both embodied and operational emissions arising from the proposed development will be reduced and mitigated.

. Site planning recommendations

12.1. Where proposals include the demolition of an existing building, a Whole Life Carbon Assessment is strongly recommended. A pre-demolition audit can be used to identify any materials or structures which can be reused on site to reduce embodied emissions.

12.2. Applicants are encouraged to consider whether more sustainable outcomes could be achieved through more efficient use of the land – i.e. higher density (50 or more dwellings per hectare) development over a smaller footprint.

Conditions & Reasons (if required)

Domestic water consumption

Prior to the commencement of development, a scheme achieving a maximum domestic water consumption of 110L per capita per day (including 5L allowance for external water) 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.

Low and zero-carbon technology

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, MDDLDP policy CC05 & the Sustainable Design and Construction Supplementary Planning Document.

Date:

22.04.2025

Signed:



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