

Salt Cross Garden Village Area Action Plan (AAP)

Schedule of Proposed Modifications

Policy 2 – Net Zero Carbon Development

March 2025

1. Introduction

- 1.1 The future delivery of the proposed Garden Village – Salt Cross - north of the A40 near Eynsham (which was first identified in the West Oxfordshire Local Plan 2031) is to be guided by an Area Action Plan (AAP).
- 1.2 The AAP was formally submitted for examination on 10 February 2021 with hearing sessions held over a two-week period from 28 June – 8 July 2021.
- 1.3 Following public consultation on a number of proposed Main Modifications to the AAP in September 2022, the Inspector’s final report was received on 1 March 2023.
- 1.4 However, following a legal challenge, the Inspector’s report and proposed Main Modifications insofar as they relate to AAP Policy 2 – Net Zero Carbon Development, have been formally quashed.
- 1.5 As a result, the examination has been re-opened to re-consider Policy 2 in light of the legal challenge and the Government’s Local Energy Efficiency Standards Update in the Written Ministerial Statement (WMS) dated 13 December 2023.
- 1.6 To facilitate the examination process, the Council has commissioned updated evidence in relation to Policy 2 through a consultant team led by Etude. Drawing on the findings of their report ‘Policy 2 Net Zero Carbon Development Evidence Base – March 2025’ and the findings of other supporting evidence on viability and Sustainability Appraisal (SA) the District Council is proposing Further Main Modifications to Policy 2 which are accompanied by a series of Minor Additional Modifications to the supporting text of Policy 2.
- 1.7 These are set out in tabular form below. For ease of reference, new text proposed to be added is shown underlined and text which is proposed to be deleted is shown as ~~struck through~~.

Proposed Further Main Modifications (FMMs)

Modification Reference	Policy/Paragraph Reference	Main Modification
FMM1	Policy 2 – Net Zero Carbon Development	<p>Amend Policy 2 as follows:</p> <p>Proposals for development at Salt Cross will be required to demonstrate All <u>development at Salt Cross must achieve net zero operational carbon on-site through ultra-low energy fabric specification, low carbon technologies and on-site renewable energy generation. An energy strategy will be required with outline and detailed planning submissions, reconfirmed pre-commencement, validated pre-occupation and monitored post-completion demonstrating alignment with this policy.</u></p> <p><i>Building Fabric</i></p> <p>Proposals will need to use ultra-low energy fabric to achieve the KPI for Buildings <u>must meet a space heating demand of <15 – 20 kWh/m2.yr through ultra-low energy fabric, verified via predictive energy modelling at the detailed planning stage and monitored post-completion. demonstrated through predicted energy modelling. This should be carried out as part of any detailed planning submission, reconfirmed pre-commencement, validated pre-occupation and monitored post-completion.</u></p> <p><i>Overheating</i></p> <p>Thermal comfort must be considered from and the risk of overheating should be given full consideration in the earliest stages of design stages, prioritising passive cooling over mechanical systems. to ensure passive design measures are prioritised over the use of more energy intensive alternatives such as mechanical cooling. At the outline planning stage, mitigation should focus on orientation and massing. At the detailed planning stage, compliance with Part O of the Building Regulations (residential) and CIBSE TM52 (non-residential) must be demonstrated. overheating should be mitigated through appropriate orientation and massing and at the</p>

		<p>detailed planning stage, a modelling sample proportionate to development density will be required to demonstrate full compliance with CIBSE TM59 for residential and TM52 for non-residential development, addressing overheating in units considered at highest risk. Overheating calculations should be carried out as part of the detailed planning submission and reconfirmed pre-commencement.</p> <p><i>Energy Efficiency</i></p> <p>Energy budgets (EUI targets) must be demonstrated using predicted energy modelling. The following KPI targets will apply: <u>All buildings should achieve the following sector specific energy use intensity (EUI) targets:</u></p> <ul style="list-style-type: none"> - Residential <35 kwh/m2.yr - Office <70 55 kwh/m2.yr - Research labs <55 240 kwh/m2.yr* - Retail <80 kwh/m2.yr - Community space (e.g. health care) <100 kwh/m2.yr - Sports and Leisure <80 kwh/m2.yr - Schools <65 kwh/m2.yr <p><u>EUI targets for other uses (e.g. research labs, retail, community space, sports and leisure) will need to be discussed and agreed with the Council as part of any pre-application discussions, drawing on relevant sources including the Net Zero Carbon Buildings Standard.</u></p> <p><u>A validated predictive energy modelling approach (e.g., PHPP, CIBSE TM54) must be agreed with the District Council and applied consistently across building types.</u></p> <p>To ensure best practice, an accurate method of predictive energy modelling, agreed in consultation with the District Council, will be required for a cross-section of building typologies (e.g. using Passive House Planning Package PHPP or CIBSE TM45 or equivalent). This modelling should be carried out with the intention of meeting</p>
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		<p>the target EUIs as part of the detailed planning submission, be reconfirmed pre-commencement, validated pre-occupation and monitored post-completion.</p> <p><i>Fossil Fuels</i></p> <p>The development will be expected to <u>must</u> be fossil-fuel free. <u>No oil or natural gas should be used for space heating, hot water, or cooking.</u> Fossil fuels, such as oil and natural gas should not be used to provide space heating, hot water or used for cooking.</p> <p><i>Zero Operational Carbon Balance</i></p> <p><u>100% of the development's energy demand must be met through on-site renewable energy, such as solar PV. Where it can be shown that this is not technically feasible, it should be maximised on plot.</u> energy consumption required by buildings on site should be generated using on-site renewables, for example through Solar PV. The quantum of proposed renewable energy for the whole site (outline planning) and each phase (detailed planning) should be shown in kWh/yr. The amount of renewable energy should equal or exceed the total energy demand for the development in order to achieve net zero operational carbon as a whole.</p> <p>The energy strategy should state the total kWh/yr of energy consumption of the buildings on the site and the total kWh/yr of energy generation by renewables to show that the zero carbon operational balance is met. An explanation should be given as to how these figures have been calculated.</p> <p>Renewable energy contribution calculations should be carried out as part of the outline and detailed planning submissions, be reconfirmed pre-commencement, validated pre-occupation and monitored post-completion.</p> <p>A detailed low- and zero-carbon viability assessment should be carried out in support of the energy strategy detailing the selection of on-site low- and zero-carbon energy technologies.</p>
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		<p><i>Embodied carbon</i></p> <p>Development proposals will need to demonstrate attempts to reduce embodied carbon to meet the <u>upfront carbon limits of the UK Net Zero Carbon Buildings Standard (Building Life Cycle Stages A1 – A5), including substructure, superstructure, MEP, façade and internal finishes and excluding on-site renewables, following KPI:</u></p> <p><u>Embodied carbon calculations should be carried out as part of the outline and detailed planning submission with full lifecycle modelling encouraged.</u></p> <p>< 500 kg CO₂/m² Upfront embodied carbon emissions (Building Life Cycle Stages A1-A5). Includes Substructure, Superstructure, MEP, Facade & Internal Finishes. As part of the submission of any planning application, a report should be prepared which demonstrates the calculation of the expected upfront embodied carbon of buildings. Full lifecycle modelling is encouraged. Embodied carbon calculations should be carried out as part of the outline and detailed planning submission, be reconfirmed pre-commencement, and validated pre-occupation.</p> <p><i>Measurement and verification</i></p> <p><i><u>Energy Strategy, Monitoring and Verification</u></i></p> <p><u>An energy strategy must be submitted at the outline and detailed planning stages, reconfirmed pre-commencement and validated pre-occupation. It should demonstrate compliance with net-zero carbon objectives, detailing energy consumption and renewable energy generation.</u></p> <p><u>The energy strategy must specify:</u></p> <ul style="list-style-type: none"> - <u>Total energy demand (kWh/yr)</u> - <u>Total renewable energy generation (kWh/yr)</u> - <u>Calculation methodology</u>
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Proposed Minor Additional Modifications

Modification Reference	Policy/Paragraph Reference	Main Modification
MIN1	Paragraph 5.30	<p>Amend paragraph as follows:</p> <p>It is essential that we mitigate the impact of new development on climate change by addressing its 'carbon footprint'. In 2019, the UK committed to a legally binding target of net zero emissions by 2050. Reducing carbon emissions and supporting the transition to net zero, forms a central tenet of the NPPF, the Government's 25 Year Environment Plan and the Clean Growth Strategy.</p>
MIN2	Paragraph 5.32	<p>Amend paragraph as follows:</p> <p>Given the significant weight of this issue, in support of the AAP, the District Council commissioned a consultant team led by <u>Etude Elementa</u> to clarify and assess the implications associated with meeting net-zero carbon for new buildings at the garden village.</p>
MIN3	Paragraph 5.33	<p>Amend paragraph as follows:</p> <p>Their report¹ (hereafter the 'net-zero carbon report') <u>considers two main scenarios; the first a net zero carbon development scenario and second, a low carbon development scenario. adopts the industry consensus definition for zero carbon developed by LETI² reproduced at Figure 5.4. Key elements include the need for low energy use in new buildings and a low carbon energy supply with no use of fossil fuels for heating and hot water and opportunities for on-site renewable electricity maximised.</u></p>

¹ <https://www.westoxon.gov.uk/media/hdnjcnf/trajectory-for-net-zero-buildings-for-the-oxfordshire-garden-village.pdf> Policy 2 Net Zero Carbon Development Evidence Base (March 2025)

² <https://www.leti.london/>

Modification Reference	Policy/Paragraph Reference	Main Modification
MIN4	Figure 5.4	Delete
MIN5	Paragraph 5.34	<p>Amend paragraph as follows:</p> <p>The Under the net zero carbon development scenario, all development at Salt Cross would be required to achieve net zero operational carbon on-site through the use of high-performance building fabric, efficient heating and hot water systems and on-site renewable energy generation. This scenario is based on the use of defined energy use intensity (EUI) targets and space heating demand indicators with predictive energy modelling required to demonstrate compliance. net-zero carbon report considers four carbon scenarios including:</p> <ol style="list-style-type: none"> 1. Building Regulations compliance (current). 2. A minimum 35% on-site reduction in CO2 emissions over Building Regulations compliance (current) with carbon offset. 3. 75-80% carbon emission reductions with fossil fuel free heating and hot water in line with Government's early proposals for a Future Homes Standard. 4. Net-zero buildings.
MIN6	Paragraph 5.35	<p>Amend paragraph as follows:</p> <p>For each scenario, the report considers building fabric and specification, potential decentralised, heat network solutions, low- and zero-carbon energy technologies, viability and predicted annual running cost of energy to occupants. Under the second, low-carbon scenario, all buildings would be required to achieve at least a 100% carbon reduction improvement of their respective Target Emission Rate (TER).</p>
MIN7	Paragraph 5.36	<p>Amend paragraph as follows:</p> <p>Modelling was undertaken for a range of different development typologies using 12 different cases with varying fabric performance and systems. Predicted modelling was used to understand how these cases were then likely to perform in operation, supported by an assessment of both capital</p>

		cost and running costs to future occupants. The aim of this scenario would be to reduce the carbon emissions attributed to regulated energy uses in all buildings to zero, achieved through a combination of high-performance building fabric, efficient heating and hot water systems and on-site renewable energy generation. Policy compliance would be demonstrated through the use of Part L modelling – SAP for domestic buildings and the National Calculation Methodology – NCM for non-domestic buildings.
MIN8	Paragraph 5.37	The report demonstrates that both scenarios are technically feasible and have a relatively modest impact on costs (+6.1% for the zero carbon scenario and +7% for the low carbon scenario.) Importantly however, it demonstrates that the zero carbon scenario has a number of advantages, not least the fact that it takes account of unregulated energy use (i.e. the energy consumed by a building resulting from fixtures or appliances) which can account for 50% of energy in low-energy dwellings. concludes that scenario 4 – zero carbon be pursued as this is the only scenario that achieves the level of energy efficiency and low- and zero-carbon energy generation required to meet climate change targets. It is also the only scenario that aligns with the aspirations of the Council and local communities. If any other scenario is chosen, the report estimates that buildings within the development would need to undergo energy retrofit before 2050 at a cost of up to £80 million.
MIN9	Figure 5.5	Delete
MIN10	Paragraph 5.43	Amend paragraph as follows: The associated uplift in capital cost to achieve net-zero carbon development is estimated at <u>6.1% on top of the costs of a baseline home. 5-7% above current Approved Document Part L (ADL) 2013 Building Regulations.</u> The relative uplift in capital cost, over and above the current national benchmark, will reduce significantly over time, the closer we move to the proposed date for a Future Homes Standard (originally proposed by Government from 2025). The difference in capital cost between scenarios 3 and 4 is only marginal: a margin that is predicted to further reduce over time as green technologies evolve and design solutions become more commonplace in response to an increase in demand for higher standards.

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MIN11	Paragraph 5.44	<p>Amend paragraph as follows:</p> <p>The report concludes that in order to achieve net-zero carbon at Salt Cross, the energy use associated with the buildings must first be reduced as far as possible. ‘Ultra-low energy’ building fabric, designed to standards comparable to those achieved through Passivhaus, is recommended, with a view to ensuring that space heating demand for both residential and non-residential developments is less than 15 – <u>20</u> kWh/m².yr.</p>
MIN12	Paragraph 5.45	<p>Amend paragraph as follows:</p> <p>With improved building-fabric performance, comes the need to ensure appropriate levels of thermal comfort in order to avoid the risk of overheating. At the outline planning stage, broader overheating considerations will need to be addressed such as orientation, massing, passive-design considerations. At the detailed planning stage, overheating modelling will be required <u>to demonstrate compliance with Part O of the Building Regulations for residential uses and CIBSE TM52 for non-residential uses.</u> in line with Chartered Institution of Building Services Engineers (CIBSE) guidance to demonstrate that buildings are not at risk of overheating and are compliant with established standards including TM59 for residential and TM52 for non-residential.</p>
MIN13	Paragraph 5.46	<p>Amend paragraph as follows:</p> <p>In addition to the space heating standard outlined above, the net-zero carbon report provides <u>identifies a number of</u> Energy Use Intensity (EUI) targets – essentially a budget for how much energy different types of building are allowed to use annually, measured on a kWh/m².yr basis. <u>The recommended EUI targets for Salt Cross are as follows:</u></p> <ul style="list-style-type: none"> • <u>Residential: <35 kWh/m².yr</u> • <u>Office: <70 kWh/m².yr</u> • <u>Schools: <65 kWh/m².yr</u>

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MIN14	Paragraph 5.47	<p>Amend paragraph as follows:</p> <p><u>The recommended EUI targets for Salt Cross are shown in Figure 5.6. The report identifies that for other uses (e.g. research and development and retail) it is very challenging to predict energy use and as such, suggests that energy targets for such uses should be developed and agreed as part of any pre-application discussions with the Council. This is reflected in Policy 2.</u></p>
MIN15	Figure 5.6	Delete
MIN16	Figure 5.7	Amend to refer to Figure 5.4.
MIN17	Paragraph 5.50	<p>Amend paragraph as follows:</p> <p><u>The net-zero carbon report identifies the need for each building at Salt Cross to generate as much renewable energy as possible, the aim being to achieve a balance between predicted annual energy use and annual renewable energy generation. If this can't be achieved, then it must be achieved elsewhere on the site. considers the potential for on-site renewable energy and concludes that photovoltaic (PV) panels that generate electricity are likely to be the most appropriate form of renewable energy generation at Salt Cross and that between 70%-100% of the electricity demand at Salt Cross can be generated on the roofs of the buildings, depending on orientation and massing. If not all PV panels can be accommodated on roofs, the remainder of the energy required will need to be supplied via other means, such as PV installed on empty fields or on top of car parking canopies.</u></p>
MIN18	Paragraph 5.51	<p>Amend paragraph as follows:</p> <p><u>The report concludes that no buildings at Salt Cross should connect to the gas network, or more generally use fossil fuels on-site and must use low carbon heating systems (e.g. heat pumps). fossil fuels, such as oil and natural gas, should not be used to provide space heating, hot water or used for cooking in both residential and non-residential developments. A development cannot be zero carbon without eliminating the use of fossil fuels.</u></p>

Modification Reference	Policy/Paragraph Reference	Main Modification
MIN19	Paragraph 5.52	<p>Amend paragraph as follows:</p> <p>It also concludes that 100% of the energy consumption required by buildings on site can be generated using on-site renewables, for example through solar PV. This conclusion is supported by the Garden Village Energy Plan with energy modelling undertaken by the Energy & Power Group (University of Oxford) and EDF Energy R&D UK demonstrating that with roof top solar PV alone, sufficient capacity could be installed to meet the modelled energy demand for the development.</p>
MIN20	Paragraph 5.54	<p>Amend paragraph as follows:</p> <p>The net-zero carbon report <u>highlights the importance of reducing embodied carbon and suggests that development proposals should demonstrate attempts to reduce embodied carbon to meet the upfront carbon limits in the UK Net Zero Carbon Buildings Standard, with calculations to be carried out at the outline and detailed planning stages supported by full lifecycle modelling. recommends that embodied carbon calculations are carried in support of any outline and detailed planning submissions, reconfirmed pre-commencement and validated pre-occupation. The report identifies a specific target for upfront embodied carbon emissions for residential and non-residential buildings of <500 kg CO₂/m².</u></p>