



Department for Environment and Community Services

Memorandum to: David Stockdale

from: Mark Letcher

Date: 03-06-2021

Your Reference: P21/03344/F

Email: Mark.leitcher@southglos.gov.uk

Response from Environmental Policy and Climate Change Team

Site: Land South Of Badminton Road Old Sodbury South Gloucestershire BS37 6LU.

Proposal: Erection of 35 no. dwellings with garages and associated works.

Comments

Fabric-first approach:

- The Energy Statement (20-04-2021) states that '*We have considered a fabric-first approach as the priority solution for the Development*', however, comparing the Baseline specification (page 6) and the 'Fabric-first' design specification (page 11) this doesn't appear to be the case.
- The U-values for the following elements are worse (i.e. higher) under the proposed 'Fabric-first' approach than the 'Baseline': Ground-floor, external wall, sloping roof, flat roof.
 - The 'Fabric-first' approach only exceeds the Baseline for the insulated roof (at ceiling), and doors.
- We regard an improvement in energy efficiency (against Building Regulations) of at least 10% as evidence of good design and a fabric-first approach.
- The design should be reviewed with the objective of improving energy efficiency by at least 10%.

Reduction in energy demand and residual emissions:

- The reduction in energy demand and residual emissions should be set out using Energy Table 1 in the guidance here: <https://beta.southglos.gov.uk/wp-content/uploads/Energy-in-Planning-Applications-V6-18072019-web.pdf>

- As the proposed scheme is on a greenfield site it will be required to achieve a 20% reduction in residual emissions calculated as per the guidance above.

Ventilation

- The proposed air permeability of $5\text{m}^3/\text{m}^2.\text{hr}$ @ 50Pa is supported. I would encourage air permeability to be reduced further to $3\text{m}^3/\text{m}^2.\text{hr}$ @ 50Pa and the specification of whole house ventilation with heat recovery to reduce ventilation heat losses and help to maintain internal air quality year-round.

Heating and hot water strategy:

- The proposal to install gas boilers complies with current policy. Nonetheless, the specification is very disappointing given the forthcoming ban on gas boilers in new homes in 2025, and the urgent need to transition to zero carbon heating.
- The installation of gas boilers would mean that each dwelling will, within 5 to 10 years of construction, require a retrofit to some form of renewable heating, including (where combination boilers have been installed) reconfiguration of the interior to create space for a domestic hot water cylinder.
- Currie and Brown¹ estimate the average cost of retrofitting a heat pump to be circa £9,000 per unit. In addition to the cost and disruption of retrofitting, the impact on the fabric, and air tightness of the dwellings is likely to be greater than if heat pumps are specified and installed from the outset. I strongly encourage the applicant to review the energy strategy and specify renewable heating.
- Individual air source heat pumps, ground source heat pumps with communal ground array, and hybrid air and water to water source heat pumps should all be considered.
- Please note SAP10 carbon factors can be applied when considering compliance with PSP6.

PV

- Final details of the PV system should be confirmed prior to commencement, including the specification, distribution (shown on drawings), peak output and annual energy yield (kWh/annum).
- We encourage roof-mounted PV to be maximised according to available, unshaded roof area of appropriate orientation to avoid the need to retrofit additional PV post construction.

Overheating

- Given projected increases in average and peak summer temperatures during the design life of the scheme (assumed to be 60 years), the Energy Statement should show that dwellings will not be liable to overheating under current and future climate scenarios.
 - I recommend that this is demonstrated using dynamic thermal modelling of dwellings likely to be a greatest risk, with the risk assessed using a recognised methodology such as CIBSE TM59 or approved equivalent.
 - The assessment should be made against current (2020), and future weather files (2050 and 2080). Where fails are identified the design should be amended to include suitable mitigation measures.

¹ <https://www.theccc.org.uk/wp-content/uploads/2019/07/The-costs-and-benefits-of-tighter-standards-for-new-buildings-Currie-Brown-and-AECOM.pdf> Section 5.3

- We encourage the use of fixed and moveable shading and green/blue infrastructure to provide seasonal shading and cooler external spaces.

EV charging infrastructure

- Details of electric vehicle charge points should be included in the Energy Statement.
- The applicant is encouraged to meet SGC's emerging policy on EV charging and provide one charge point per dwelling or in 20% of the spaces (whichever is greater) with passive provision (ducting and cabling) to enable charge points to be added to the remaining spaces.
- Charge points should have a minimum power output of 7kW.
- Please confirm that the power supply to the site is sufficient to meet the requirement from a heat pump in each unit and 100% EV charging provision.

I have had a look at the applicant's response (in your e-mail below) to my previous comments.

I also have listed the issues which remain outstanding below. And I have suggested conditions which could be applied, should the appeal go in favour of the applicant.

You'll also see a few general comments at the bottom which you may want to include in your report.

After today I will be out until 13th but Nicola will be back on 11th if you have questions.

I have also asked Chris Rose to contact you if he has anything further to add to the suggested condition on EV charging.

Issues still to be resolved:

Outstanding issue	Suggested resolution
Presentation of PSP carbon compliance calculations. In order to determine whether the proposal meets SGC policies (specifically PSP6) these need to be presented in the format set out in Energy Table 1 in the SGC guidance.	By condition. Please see below.
Provide further details of air source heat pumps to be installed including emitters, domestic hot water storage and controls	By condition. Please see below.
Demonstrate resilience to overheating	By condition. Please see suggested condition below which references the methodology in Part O of the Building Regulations.
Provide further details of EV charging provision	By condition. Please see suggested wording below.

Suggested conditions

Revised Energy Statement

Prior to commencement the Energy Statement (dated 11th November 2021) shall be revised and provided to the local planning authority for approval. The revised statement shall set out full details of the air source heat pumps to be installed in each dwelling including the specification, output capacity (kW), and details of the heat distribution system (emitters), domestic hot water storage and

heating controls. Thereafter the scheme shall be completed in accordance with the details in the revised energy statement.

Reason

To demonstrate compliance with policies CS1 and PSP6.

Calculations demonstrating compliance with PSP6

Prior to commencement the applicant shall provide calculations showing the reduction in energy demand and CO₂ emissions for this scheme, as a result of the specification of energy efficiency and renewable energy generation measures. The calculations shall be presented using Energy Table 1 in the SGC guidance [David – link here if needed:

<https://beta.southglos.gov.uk/static/f64e0a9ef3980cd90a0177fb917d9e2e/Energy-in-Planning-Applications-V6-18072019-web.pdf>] and demonstrate that the scheme achieves a reduction in

residual emissions of at least 20% in accordance with the methodology set out in the guidance.

Reason

To provide assurance that the reduction in residual emissions required under policy PSP6 has been achieved.

Climate adaptation and resilience to overheating

Prior to commencement the applicant shall provide thermal analysis showing that the development will not be liable to overheating. The analysis shall use the methodology set out in Section 2:

Dynamic thermal modelling of Approved Document O, 2021 edition, Building Regulations 2010.

Where the analysis shows that one or more dwellings are liable to overheating suitable mitigation measures shall be incorporated into the design and a revised Energy Statement describing these provided to the local planning authority for approval. Thereafter, the scheme shall be constructed in accordance with the revised Energy Statement.

Reason

To provide assurance that the scheme will not be liable to overheating in light of projected changes in the local climate as a consequence of global heating.

EV charging provision

Prior to commencement details of charging provision for electric vehicle shall be provided to the local planning authority for approval. These shall include drawings showing the exact location of charge points, and the specification of the cabling/charge points.

Reason

To provide assurance that the scheme is capable of supporting the transition to electric vehicles.

General comments

- The original proposal was for this scheme to have gas boilers. The revised Energy Statement (November 2021) amended this to air source heat pumps which we support.
- As discussed above there are a number of issues to be resolved. Ordinarily, we would expect to do this prior to approval of the application.
- The scheme has the *potential* to meet SGC policy requirements (PSP 6 and CS1). However, prior to clarification on outstanding issues including the energy calculations, it is not possible to say whether the scheme *as presented* complies with SGC policies.

End.

I hope this gives you enough information for your report.

With regards,

Mark.