

## **Sustainability Statement**

**Site:** The Walled Garden, Ower

**Proposal:** Single storey rear and side extension

**Date:** 3/29/22

**Details of how the Proposal reduces carbon emissions and incorporates measures to reduce its contribution to climate change:**

### **1. Making the most efficient use of land, buildings and natural resources including site layout and building design.**

Guidance: Energy consumption can be significantly reduced through the location of development, site layout and building design, the type of materials used, the use of existing and new resources and the efficient management of the construction process.

This single storey rear and side extension will allow for greater access to the outside space from the existing house. By removing part of the existing external wall on the rear elevation we can push light and solar gains into the main core of the house. The building will be constructed of highly insulated timber frame with solar reflective triple glazing to ensure the space does not overheat.

### **2. Energy Hierarchy\***

Guidance: Level 1 – Reduce the need for energy; Level 2 – Using energy more efficiently; Level 3 – Supplying energy efficiently; Level 4 – Use low carbon and renewable energy. There are opportunities in all types of development to use low carbon and renewable energy sources, however what is appropriate will depend on the physical nature of the building, its site characteristics and the surrounding landscape.

The construction of the extension will adhere to Level 2 within the guidance provided

### **3. Minimising Flood Risk\*\***

Guidance: Directing development away from flood risk areas, reducing overall risk from flooding within the National Park and areas outside it, upstream and downstream.

According to the government flood risk assessment website the site is within a 'very low risk' area for rivers and surface water.

The proposed extension will have sufficient drainage incorporated from the roof and any hard paving areas externally. All of which will run to new soakways designed in accordance with the building regulations, and by a civil engineer.

### **4. Carbon Reductions**

Guidance: Consideration of means of reducing carbon emissions for the development. Seeking to take every opportunity to reduce carbon and build sustainably.

The building will be timber framed construction with timber cladding which will reduce the amount of carbon required for the new construction. The timber frame structure will be highly insulated to reduce demands on the existing heating system. Solar gains will be minimised with high performance solar reflective glazing to reduce overheating but also to reduce heat loss in the winter.

### **5. Water Efficiency.**

Guidance: Water conservation methods include ensuring that the design of buildings and their surrounding landscape maximises water efficiency and minimises water wastage; identifying opportunities to use water more efficiently during the construction of the development; designing surface water drainage systems to take into account future changes in rainfall.

Any new sanitary appliances will meet Part G of the Building Regulations.

Surface water drainage will be designed by a civil engineer to comply with Building Regulations.

## \*Energy Hierarchy

### **Level 1 – Reduce the need for energy**

The energy hierarchy places great emphasis on Integrated Passive Design. Key methods include:

- *Orientation* – making best use of high summer sun angles & low winter sun angles on southern exposures;
- *Thermal mass* – to store heat in the winter and act as a heat sink for cooling in the summer;
- *Natural ventilation* – designing controlled flows through buildings for cooling;
- *Zoning* – to allow different thermal requirements to be compartmentalised.

### **Level 2 – Using energy more efficiently**

Using energy more efficiently means not wasting energy or using more than is required. The following potential energy efficiency measures should be considered:

- High levels of insulation.
- Utilising appropriate forms of glazing
- Installing heating controls.
- Using energy efficient heating and heat recovery systems.
- Adding draught strips on doors, windows & letter boxes.
- Fitting chimney balloons.
- Installing zoned low energy lighting and presence sensors.
- Replacing doors in existing buildings.
- Upgrading to a high efficiency condensing boiler
- Adding a sun pipe/tunnel

### **Level 3 – Supplying energy efficiently**

Supplying energy efficiently refers to connecting to existing low carbon heat networks. Connection to, or development of, a mini district heating network can be a carbon efficient means of energy supply.

### **Level 4 – Use low carbon and renewable energy**

Once the energy needs of a new building have been minimised through design, consideration needs to be given as to how the remaining energy needs can be met through:

- Heat pumps: ground source heat pumps and air source heat pumps.
- Wood burning stoves/biomass boilers.
- Solar thermal/hot water panels.
- Solar photovoltaic/electric panels.
- Hydro power, small scale water turbines.
- Anaerobic digesters.

\*\*Minimising Flood Risk

Sustainable Urban Drainage Systems (SuDS) remove water quickly and efficiently and should be included in the original design and layout of a proposal wherever possible. The approach used will differ with each application and the circumstances of each site.