

SUSTAINABILITY AND ENERGY CONSTRUCTION STATEMENT

Proposed residential development, land at Little Arundel, Holwell, Hertfordshire. SG5 3RX

Introduction

This statement has been prepared by Redshed Design Architects on behalf of the applicant to support a full planning application to North Hertfordshire District Council for the proposed residential development, comprising two detached dwelling houses on land to the rear of the property known as Little Arundel. The document will set out the energy and sustainable credentials of the scheme to demonstrate compliance with planning policy.

Design strategy

The proposed scheme comprises the construction of two detached properties on former garden land which is accessed directly from the highway. The principal aims and objectives that have been considered include the following:

- effective use of the site and its attributes
- resourceful construction techniques
- effective orientation of plots with regards to thermal gain and heat loss
- characteristics of fabric and materials
- methods of servicing the dwellings (heating, hot water, cooling, water efficiency)

Effective use of the site

The proposed scheme has been designed to maximise the site's resources and attributes. The plots have been located and set at a regular ground level that will ensure there is limited excavation resulting from a site strip normally associated with reducing ground levels, thus reducing the need for carting away and disposing off site. The remaining material will be assessed and utilised on site. The site will retain its existing access and will therefore limit disruption and further excavation and disposal of materials.

The site has a regular and practical shape which has assisted in the design, orientation and ecology by way of substantial gardens being available to each plot.

Resourceful construction techniques

Sustainable and responsible building is very much at the heart of many statutory obligations associated with the Building Regulations, many of which are based on targets concerning the energy required to construct, maintain and service buildings. The shape, orientation and construction techniques have been informed and designed to meet and to exceed the current Building Regulations where possible. The exact method of construction will be based on SAPs, water efficiency calculations, overheating calculations, elemental fabric U values, air tightness and ventilation. The detailed construction design should be based on utilising resourceful methods such as passive and built in features to minimize the reliance of mechanical and electrical installations and services.

Effective orientation

The site's physical characteristics both in terms of topography and orientation have been considered and exploited by way of designing dwellings that have been located and orientated to be able to take advantage of the solar energy potential as well as ensuring heat gain and overheating is limited. The position and size of glazing has been considered to assist in reaching compliance and efficiency, thus reducing the overall energy demand and consumption.

Characteristics of materials and fabric

The dwellings have been designed in a manner that provides the opportunity for sustainable construction options to be considered. The low level and simple nature of the design could be constructed from a timber frame type structure which together with the latest insulation products can achieve an enhanced air tightness and thermal efficiency, significantly lowering the overall energy demand. The performance of the external materials that make up the fabric is crucial and there are many practical options available to enhance the thermal performance and U values of the main elements of the buildings.

Methods of servicing

Much of sustainability is concerned with the energy required to service a building and ways in which this can be reduced or reused. The first approach should be to reduce heat loss and prevent energy waste, followed by embracing passive ventilation techniques. This can then be enhanced by utilising efficient and smart systems as well as employing renewable energy systems. The dwellings have been designed to enable them to be serviced by a range of current methods either individually or by a combination of systems such as Air / Ground Source and Solar PV.

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