JAW

Chalk Lane Hotel, Epsom

Sustainability Statement

21st November 2017

Prepared by: Jess James

JAWSustainability

Contents

1 Introduction

This report is in support of a planning application for the conversion and extension of the existing buildings of the Chalk Lane Hotel, Epsom into twenty one apartments with associated parking and amenity space. The hotel is listed Grade II and is within the Chalk Lane Conservation Area, an established residential area on the edge of the green belt. The hotel currently has 25 guest rooms, restaurant and event venue. Burlington Developments London Ltd are proposing this conversion on behalf of the owners.

Figure 1-1 Proposed development

This report summarises the sustainable design and construction measures that have been incorporated into the project in order to meet the sustainability requirements of the borough of Epsom.

Within the listed building, 11 flats will be created, with a further 10 flats, units 5-7, 11-13 and 15-18 created as part of the extension work. The focus of this strategy is predominantly the new build elements, as this existing building is constrained by its listed nature.

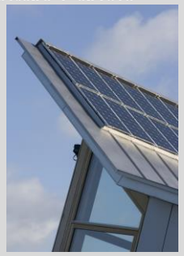
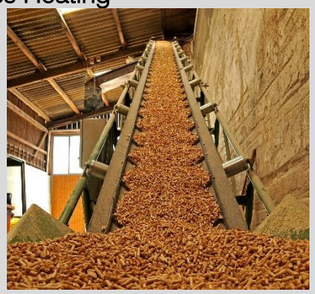
2 Policy

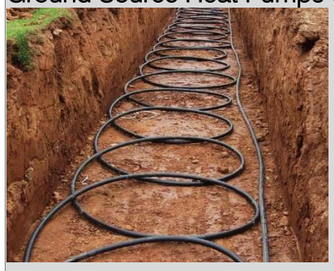
2.1 Epsom & Ewell Borough Council Core Strategy

Core Strategy Policy CS6

Proposals for development should result in a sustainable environment and reduce, or have a neutral impact upon, pollution and climate change. The Council will expect proposals to demonstrate how sustainable construction and design can be incorporated to improve the energy efficiency of development - both new build and conversion. In order to conserve natural resources, minimise waste and encourage recycling, the Council will ensure that new development:

- minimises the use of energy in the scheme by using an appropriate layout, building design and orientation
- minimises the emission of pollutants, including noise, water and light pollution, into the wider environment
- has no adverse effects on water quality, and helps reduce potential water consumption, for example by the use of water conservation and recycling measures and by minimising off-site water discharge by using methods such as sustainable urban drainage
- avoids increasing the risk of, or from, flooding;
- minimises the energy requirements of construction, for example by using sustainable construction technologies and encouraging the recycling of materials
- encourages the use of renewable energy by the incorporation of production facilities within the design of the scheme
- incorporates waste management processes, for example for the recycling of water and waste. The waste hierarchy (Reduce-Reuse-Recycle-Recover- Dispose) should be applied to all stages of development design, construction and final operation.

LZC Technologies	Description	Noise	Visual impact	Internal Space	External Space	Capital Cost	Maintenance	Feasibility	
Solar Thermal Collectors 	Solar thermal collectors can be used to provide hot water using the irradiation from the sun. They can generally provide approx. 50% of the hot water demand	🟢	🟡	🟢	🟡	🔴	🟡	Due to the listed nature of the building, solar panels cannot be installed on any of the buildings, even those that are new, due to the listed setting.	×
Solar Photovoltaic Panels 	Solar PV panels generate electricity from the sun's energy. They should be installed within 90° of due south ideally at a 30° angle. The electricity can be used to supply the landlords load.	🟢	🟡	🟢	🟡	🟡	🟡	Due to the listed nature of the building, solar panels cannot be installed on any of the buildings, even those that are new, due to the listed setting.	×
Biomass Heating 	Solid, liquid or gaseous fuels derived from plant material can provide boiler heat for space and water heating A biomass boiler would supplement a standard gas heating system so some of the cost may be offset through money saved on using smaller traditional boilers reliability of fuel access/supply can be a problem	🟡	🟢	🔴	🟡	🔴	🔴	Biomass is not considered feasible for this development due to issues with fuel storage, access for delivery vehicles and local NO_x emissions	×

Wind Turbines 	Vertical and horizontal axis wind turbines enable electricity to be generated using the power within the wind Not suitable for urban environments due to low wind conditions and obstructions	🔴	🔴	🟢	🔴	🔴	🟡	This development is in an urban environment and so a wind turbine will not generate much energy	×
Ground Source Heat Pumps (GSHP) 	Utilising horizontal loops or vertical boreholes, GSHP make use of the grounds almost constant temperature to provide heating and/or cooling using a heat exchanger connected to a space/water heating delivery system Optimum efficiency with underfloor heating systems	🟡	🟢	🟡	🟡	🔴	🟡	GSHP are not a feasible technology for the site since there is not enough external space available for installation of boreholes	×
Air Source Heat Pumps (ASHP) 	Air Source Heat Pumps extract latent energy from the external air in a manner similar to ground source heat pumps Optimum efficiency with underfloor heating systems	🟡	🟡	🟡	🟡	🟡	🟡	The use of ASHP is technically feasible for the development but is discounted due to noise issues and locating the unsightly units	×

3.3 Materials and Waste

The proposals make use of the existing building, which significantly reduces the environmental impact, through the reuse of existing materials in place of new ones which have a high embodied energy associated with them.

Insulating materials will be specified to maximise thermal performance whilst still paying attention to the environmental impact of the materials used. The use low embodied energy products will be further investigated.

Responsible sourcing will also be pursued. All timber used on site during the construction phase and within the building will be from legal sources. Where possible, FSC or equivalent timber will be used. Sourcing of other materials will include products where the manufacturer employs an environmental management system such as ISO 14001 or BES 6001. Where possible, materials will be sourced locally.

Non-toxic materials will be used wherever possible, including the specification of products with low VOC content in line with European testing standards.

All the building elements will achieve high ratings on the BRE Green Guide to Specification. Materials will be specified to have a low embodied energy, taking into account whole life cycle analysis.

A Site Waste Management Plan (SWMP) will be produced for the site, which will include a pre-demolition audit to determine how to maximise the recovery of materials from the demolition stage for subsequent high-grade/value applications

3.4 Water efficiency

Water fittings will be specified with the following or similar flow rates to meet the target water consumption of 105 l/p/day:

- Wash basin taps - 3 l/min
- Showers - 10 l/min
- Dishwasher - 1.1 l/place setting
- Washing machine - 7 l/kg load
- WC – 6/4 litre dual flush
- Kitchen taps - 5 l/min

A water meters will be installed to encourage residents to limit their consumption.

3.5 Nature Conservation and Biodiversity

The site is occupied by an existing commercial development. The existing site is considered to be of negligible ecological value. Measures will be taken during construction to minimise impact on ecology by timing works appropriately and following best practice guidance.

3.6 Climate Change Adaptation

Tackling Increased Temperature and Drought

The impact of solar gains has been incorporated into the SAP analysis for compliance with Part L and the risk of solar overheating has been concluded to be low for the development.

Windows will incorporate low emissivity coatings to reduce solar gain, and overhangs are built to some of the windows. Other than mandatory ventilation to meet AD Part F, the development utilises mechanical ventilation along with openable windows.

Flooding

Surface water drainage strategies will ensure that the peak and volume of surface water run-off rates will not be increased due to the development, as set out in the Surface Water Drainage Strategy produced by RMA Environmental. The site is in flood zone 1 so the building is not at risk of flooding.

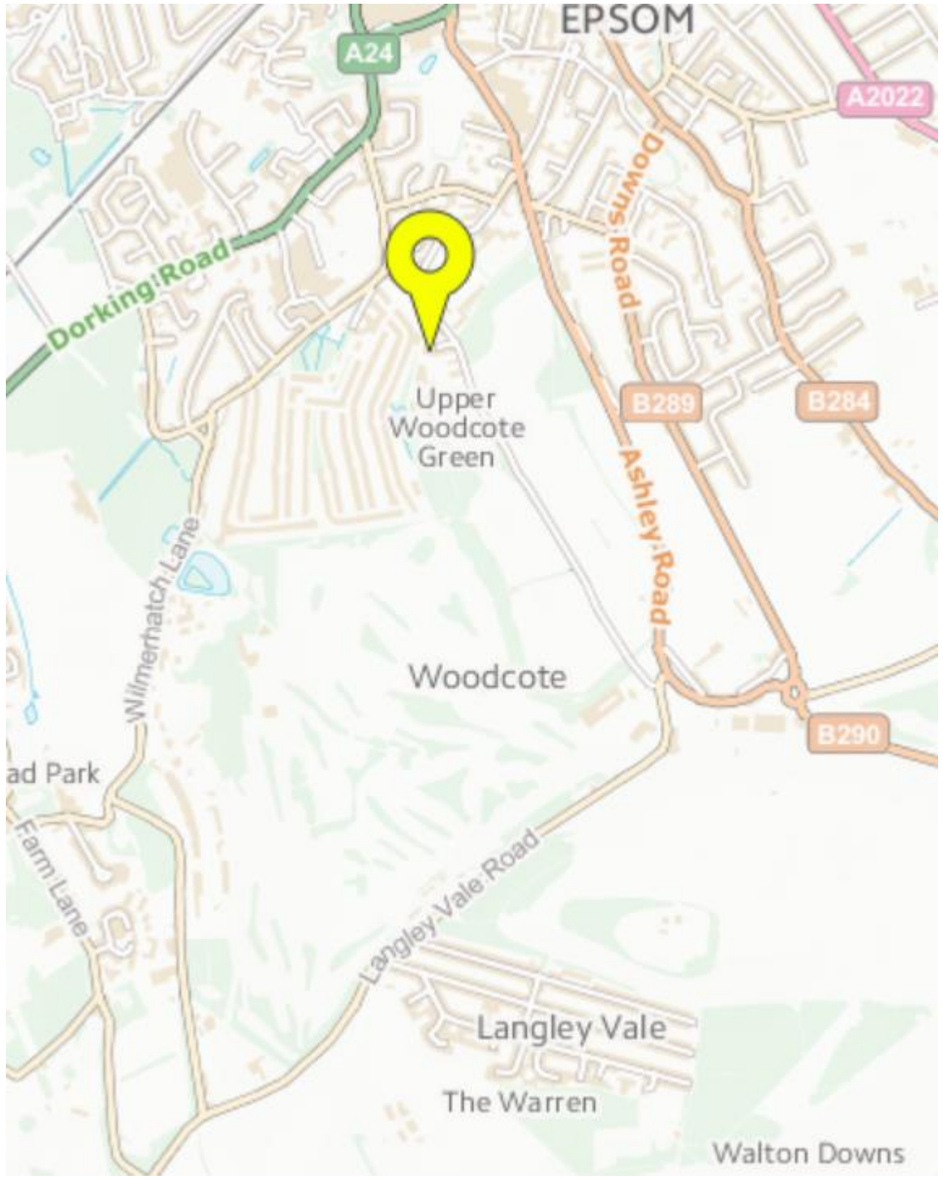


Figure 3-1 St. Chalk Lane Hotel Flood Risk Map

3.7 Pollution Management

Air Quality

The construction site will be managed in such a way that the environmental impact is minimised. This includes following best practice policies for dust pollution by using dust sheets, covering skips and damping down where appropriate.

The contractor will be enrolled on the Considerate Constructors Scheme.

Effective wheel/body washing facilities to be provided and used as necessary also spraying areas with water to dampen down dust when conditions dictate. Use of road sweepers whenever the need for road cleaning arises and sheeting of vehicles carrying waste materials of-site.

Plant and machinery

All plant and equipment installed in the development will be appropriately sized and selected for efficiency in order to reduce greenhouse gas emissions.

New high efficiency combi gas boilers will be installed in each flat, which will be specified to have a low NO_x emission value.

All equipment will be frequently maintained to ensure it continues to run efficiently and cleanly.

Insulating materials and heating systems will be specified to keep pollutants to a minimum. Boilers will have low NOx (Nitrous Oxides) emissions and insulation will have a low Global Warming Potential (GWP).

Noise

The development will comply with Building Regulations Part E, providing a good level of sound insulation between dwellings. All windows are to be specified as high efficiency double glazing to minimise the transmission of noise between the property and surrounding area.

Light Pollution

100% of the proposed lighting will be provided by low energy light fittings specified to have a luminous efficacy greater than 40 lm/W. All external lighting will be adequately controlled to ensure that spaces are only lit out of daylight hours and when the area is occupied. As the proposed building use is residential; there will be no illuminated signage or uplighting incorporated. The proposed dwelling is in a highly urbanised location, and therefore will not significantly contribute to increasing the effects of light pollution.

4 Conclusion

The development follows the energy hierarchy, incorporating passive design measures and energy efficient equipment. The development employs an efficient building fabric, including new insulation to the existing walls and highly efficient replacement glazing, efficient gas heating and heat recovery ventilation to maximise carbon savings for the site. The proposed works will significantly reduce energy use over the existing building. Measures are also incorporated to minimise pollution and reduce water use. The energy strategy has been developed to be the most appropriate for the site, following the energy hierarchy and making an 8.7% improvement over Part L for the new residential units. This represents the best possible improvement for the scheme as all reasonable endeavours have been made by the design team. A very efficient building fabric is specified, along with efficient services. Renewable technologies are not feasible due to site constraints. The saving achieved is therefore the maximum possible without severely compromising the heritage asset.

The figures within this report are based on preliminary analysis only and further detailed studies will be required at the detailed design stage before specifying any of the proposed systems.