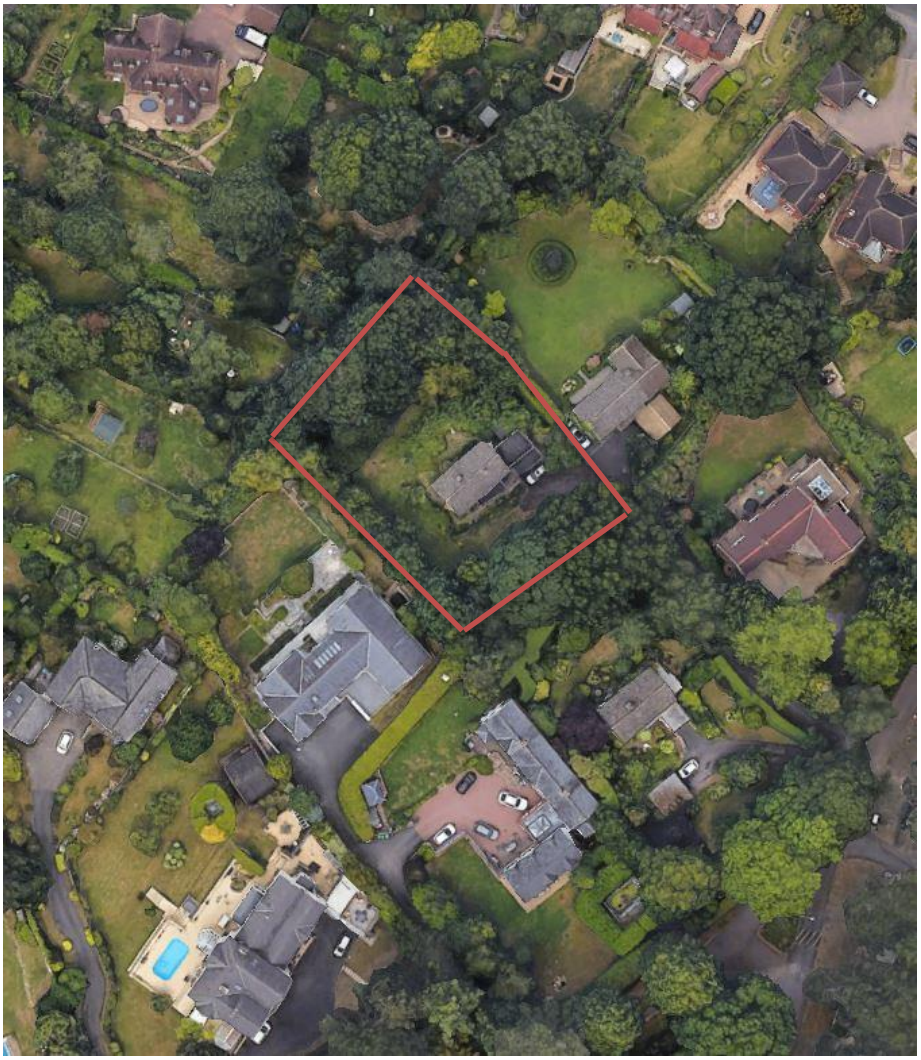
Sustainability Statement

Proposed residential development at
Beggars Roost, Stanley Road, Battledown
Cheltenham



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1.0	**Energy efficiency**
1.1	Have you maximised opportunities for natural solar gain and natural ventilation and minimised overheating risk through passive design and attention to building location, orientation and form?
1.2	*Yes.* *The orientation of the building is fixed by the nature of the plot; however, a compact and efficiently optimized design is proposed with principal glazed areas restricted to the southeast and northwest facing façades. The northwest facing openings make best use of available direct daylight and outlook from the site whilst minimising the impact of solar gain.* *A number of openings benefit from external louvres to provide shading and permit secure openings behind for natural ventilation.* *To prevent overheating, unprotected glazed areas on the south facing façade are limited to between 20-30% of the surface area.* *Good levels of natural ventilation will be provided via trickle ventilation to all habitable spaces, and via opening lights to provide purge ventilation. Openings on both the south and north elevations ensure good levels of natural cross ventilation through the home.* *Mechanical ventilation with heat recovery can add to the efficiency of the dwelling throughout the year when opening windows is less desirable.*
1.3	Have you designed the fabric of the building to be ultra-low in energy demand, achieving KPIs for space heating demand (kWh/m2/yr) and energy use intensity (kWh/m2/yr)?
1.4	*The fabric of the building will fully comply with the requirements of the up-dated Building Regulations July 2022. The revised Building Regulations promote a 'fabric led' approach to technical design and detailing. The thermal efficiency of fabric elements is greatly improved, as are improved requirements in respect of thermal bridging and air leakage.* *The energy a building uses throughout the year can be assessed in relation to the space heating, water heating and on site green energy production. This can be measured by calculation as a design stage SAP calculation generally produced as a part of a detailed design for Building Regulations. This permits development of proposals in relation to achieving target values for a low energy house.*
2.0	**Low Carbon Heat**
2.1	Will the building be fossil-fuel free with low-carbon heat source independent of the gas network?

2.2	*No. This is yet to be determined as the Building Regulations permit various means of compliance which include energy efficient boilers and various alternatives such as heat pumps. A final solution will be developed at technical design stage.* *It is however proposed that a solar PV array will be provided to either assist in compliance should a gas boiler be considered, or to off-set the higher electrical running costs of alternative technologies such as an air source heat pump*
3.0	**Renewable Energy**
3.1	Has the design and shape of the roof been optimised for maximum output of a photovoltaic array? Does the building achieve a net zero-operational carbon balance and deliver 100% of its entire predicted energy consumption using renewables on-site?
3.2	*The proposed house has a flat roof and is orientated to face within 40deg. of south; it is therefore suitable for the siting of solar panels.* *Although the building is to be highly energy efficient, designed to limit heat loss and air leakage, and be fitted with low energy lighting and fittings, potentially incorporate technologies such as mechanical ventilation with heat recovery and waste water heat recovery; it is highly unlikely that it will be possible to achieve net zero operational carbon balance on this, stand-alone property on a compact town-centre site.*
4.0	**Water**
4.1	For dwellings: have water-efficiency measures been incorporated and will fixtures and fittings be specified to achieve water consumption of less than 105l/p/d?
4.2	*Yes.* *The house will be fitted with low water use fittings and appliances, including taps, baths, showers, and toilets. The washing machine and dishwasher will be low water use.*
5.0	**Transport & Travel**
5.1	Reduced travel: Have you made provision for home working in residential buildings?
5.2	*Yes.* *The house has been designed to exceed the requirements of the Nationally Described Space Standards which provide adequate room sizes within dwellings. Each of the bedrooms exceeds the minimum requirements and allows room for a desk or table space. It is proposed that bedroom 5 is also suitable for use as a designated home office.*

5.3	Is shared mobility encouraged within your transport plans for nondomestic buildings?
5.4	*N/A*
5.5	Active travel: Have you enabled sustainable travel choices with connections for cycling, walking and public transport, providing cycle parking and facilities to levels that sufficiently meets the needs of building occupants irrespective of age or ability?
5.6	*Private off road parking is proposed within a garage and secure hard standing.* *The site is situated in a sustainable location approximately a 20-25 minute walk to the town centre; with a full range of everyday services, facilities, work and education opportunities all readily accessible on foot or by cycle.* *The garage has been oversized to allow it to provide secure cycle storage; this is accessible without going through the building, and benefits from good natural surveillance.*
5.7	Low-carbon transport infrastructure: Have you provided active charging infrastructure for electric vehicles, meeting standards and sufficient for the needs of building occupants?
5.8	*A secure external socket will be provided to assist in the charging of electric cycles, mopeds or other mobility aids without entering the building.*
6.0	**Prevention of Flooding**
6.1	Have you carried out a flood risk assessment to ensure your development avoids areas at high risk of flooding?
6.2	*The application site is in Flood Zone 1 so there is no need for an FRA*
6.3	Have measures to reduce flood risk been included in your proposals and are these designed using nature-based solutions and methods of sustainable urban drainage?
6.4	*All hard surfaced areas will be permeable and rainwater collected wherever possible.*
7.0	**Ecology & Biodiversity**
7.1	Do you know what ecology and biodiversity are on your site and beyond it, and have you taken steps to both preserve what is already there and enhance ecological value in the future?
7.2	*The site has limited value in terms of ecology and biodiversity. No protected species or habitats have been identified within or immediately adjacent to the site.*

8.0	**Embodied Carbon**
8.1	Have you minimised embodied carbon in the design of the building and in the selection of materials for its construction?
8.2	*The proposed dwelling has been carefully configured to provide a highly efficient built form, therefore the extent of concrete use in foundations. Accommodation within the limited footprint is provided over three floors similar to the immediately adjacent houses and others in the vicinity, all to maximise the gifa / footprint ratio.* *The majority of main structural and facing building materials are to be either category 1 Timber, or 2 Masonry.* *Masonry has a higher initial carbon input than timber, but has significant advantages in respect of* *a/ thermal mass – providing thermal stability and limiting sudden heat losses or gains within the structure.* *b/ structural stability.* *c/ adaptability – easily adaptable in future to suit occupants changing needs.* *d/ longevity – provides a building shell that will be long lasting and easily maintainable. e/ high quality ground floor construction.* *Significant elements of the building will be timber, including upper floors, partitions, roof structures, stairs and finishes. All timber elements will be from certified sources. Timber internal partitions allow a degree of flexibility internally to suit changing needs of occupants.* *Limited elements will be in steel including structural beams and lintels etc., and some external cladding. Clad elements are used for their strength and limited weight where projecting or in over-build locations.* *A high quality aluminium window system is proposed to limit heat loss, maximise glazed areas and light ingress through low profile sections, and reduce maintenance.* *For aesthetic and finishing reasons it is unlikely that internal surfaces will be self-finishing* *The building is a bespoke structure and structural engineering will enable the design to be as efficient as possible.* *Materials chosen as above are readily recyclable at end of life cycle.*

8.3	Do your assessments of embodied carbon meet LETI targets and take full account of all construction elements including substructure, superstructure, mechanical, electrical and plumbing, products and finishes?
8.4	*This will be dealt with at the Building Regulations stage of this project.*
9.0	**Waste**
9.1	Do you provide adequate space, both inside and outside the building, for waste recycling and storage?
9.2	*Yes. A dedicated area for refuse and recycling storage is provided to the rear of the dwelling as indicated on submitted plans, all to accord with the Local Authority's requirements and collection regime; and, the requirements of the Building Regulations. There is level access to the side of the building to allow waste containers to be presented at the front of the property for collection.* *Internally dedicated bin and recycling storage will be incorporated within the kitchen design.*
9.3	Have you incorporated targets and site management processes to minimise water consumption through construction, and minimise and recycle waste, reducing waste going to landfill?
9.4	*This is to be discussed with the contractor when they have been appointed. The intention however is for separate storage containers to be available on site to aid the collection of recyclable and non-recyclable items.*