



Sustainability Statement

Bracken Knoll, Courtenay Avenue, London

Report Details

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Executive Summary

Ariva Renewables Ltd has been commissioned by the client to provide a sustainability statement for the proposed works at Bracken Knoll on Courtenay Avenue, London.

This statement outlines ways in which the proposed works are looking to integrate energy efficient methods, materials and appliances while also exploring how sustainable design and construction will be implemented throughout.

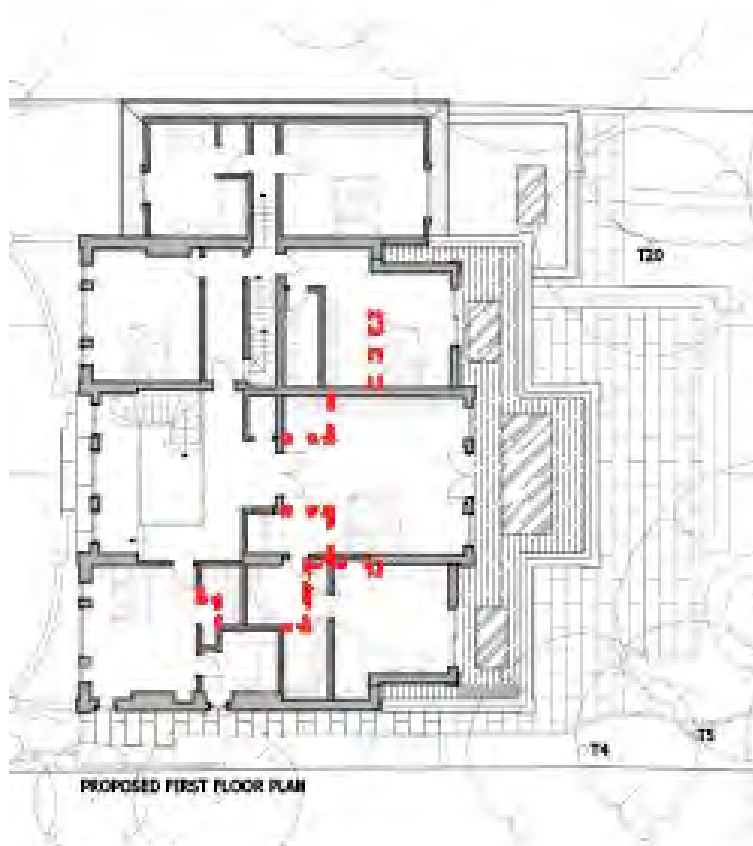
The proposed works will far exceed the requirements of energy efficiency set out in Building Regulation Part L 2021 by following best practice and adopting a whole house and fabric first approach to energy reduction while utilising on site energy generation to achieve an A rated EPC and a dwelling which is low cost to run and has high levels of thermal comfort and indoor air quality.

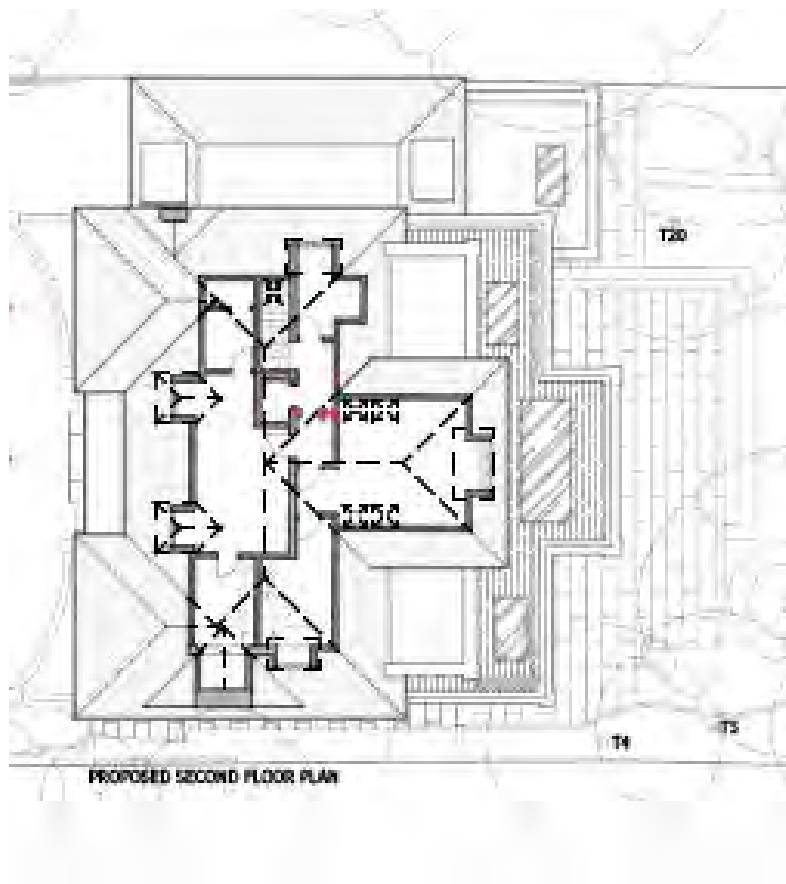
Site Details

The current dwelling has a gross internal area of approx. 500m²



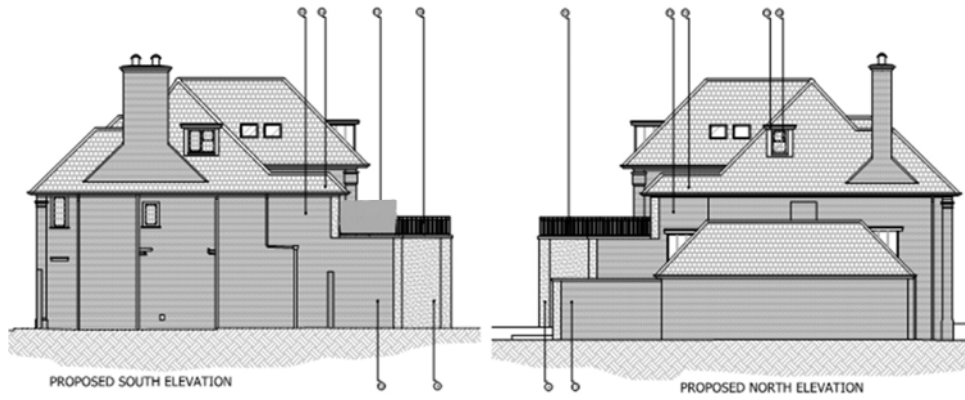
Images 1&2: Existing Dwelling





Images 3-5: Proposed Floor Plans





Images 6-9: Proposed Elevations

Policy & Design Context

The design of the dwelling includes measures to reduce carbon emissions from energy use in accordance with the following energy hierarchy:

1. Reduce energy demand
2. Improve energy efficiency
3. Installation of on-site renewables, low and zero carbon technologies
4. Allowable solutions (offsetting carbon emissions)

This hierarchy has been followed throughout the dwelling design and for all advice given to the client in regards to energy strategies and sustainable construction.



Energy Efficient Fabric Design

A fabric first approach has been used to ensure the dwelling performs above the standards set in UK Building Regulations Part L1 and brings the dwelling beyond the expected standard of a new build home.

Energy efficiency measures which will be included in the final specification of the dwelling are:

High Levels of Insulation

Additional insulation has been added to heat loss elements to ensure they perform above and beyond minimum U-value standards. Existing and new elements are expected to meet the following standards:

Walls:	0.18W/m ² K
Roofs:	0.13W/m ² K
Floors:	0.11W/m ² K
Windows and Doors:	1.10W/m ² K

Enhanced Thermal Bridging Detailing

Thermal bridging details have been improved throughout the dwelling to minimise cold bridging and reduce air leakage. Each detail has been carefully considered to ensure energy loss is reduced.

Air Tightness

An air tightness strategy will be followed throughout the build to ensure that heat loss is kept to a minimum. A target of 3.00 m³/h/m² will be set however lower figures are expected to be achieved.

100% Low Energy Lighting

Lighting will be low energy LED fittings throughout the development. A minimum efficacy of 80 lumens/watt will be achieved, which exceeds minimum standards in Part L 2021.

A Rated Appliances

All installed appliances will be A rated as a minimum to ensure a reduced energy demand alongside reducing any excess internal heat gains in the summer months.

Low Carbon Heating, Hot Water & Cooling Design

The heating and hot water system will be designed in order to be low carbon and will benefit from additional on site energy generation. This will allow the heating system to become zero carbon overtime as the national energy grid decarbonises.

Heating and hot water will be provided via two air source heat pumps and two hot water cylinders. Glazing will be designed to ensure a balance between solar gain in the winter and heat reduction in summer months.

Ventilation Design

Ventilation will be through natural means in summer months by provision of opening windows which provide high levels of cross ventilation. In winter months ventilation will be provided by a high performance mechanical ventilation system with heat recovery (MVHR). This system can also operate in summer months through use of the summer bypass mode in order to provide increased air flow where needed.

The Airflow DV145 are the proposed units which feature a heat recovery level of 90% leading to a further reduction in heat demand in winter months.



Water Efficiency

The dwelling will be fitted with dual flush toilets, high efficiency showers and low flow taps (or flow restrictors if needed/preferred by the client) in order to achieve an a maximum of 110 litres water consumption per person per day. This exceeds the minimum standards of 125 litres per person per day and meets enhanced local policies to aid in water use reduction.

The following specification will be achieved as a minimum:

Table 2.2 Maximum fittings consumption optional requirement level	
Water fitting	Maximum consumption
WC	4/2.6 litres dual flush
Shower	8 l/min
Bath	170 litres
Basin taps	5 l/min
Sink taps	6 l/min
Dishwasher	1.25 l/place setting
Washing machine	8.17 l/kilogram