



## **Pownall Avenue, Bramhall, Stockport**

### ENERGY STATEMENT

Construction of a private residential family dwelling landscaping.

Prepared by Cartwright & Gross Architects for Mr & Mrs Porter – December 2023

The client team has aspirations to create an energy efficient and high-quality dwelling for modern family living. The project will adopt a fabric first approach to detailed design and construction; furthermore, it will consider sustainable technology and energy efficient appliances. This approach will strive to ensure a cost-effective and comfortable environment for occupants.

The design approach for the development is to embed sustainability into the heart of the development through a range of design measures based on the 'Be Lean, Be Clean, Be Green' design hierarchy.

#### 1. Be Lean

*A reduction in energy use as a result of passive design and energy efficiency*

#### 2. Be Clean

*A focus on supplying energy to the development through efficient means*

#### 3. Be Green

*The installation of renewable technologies to meet energy demand where possible*

Measures will include:

1. Enhanced building fabric to meet Building Regulation ADL1A 2023 update
2. Enhanced air tightness and thermal bridging.
3. Efficient system 3 mechanical extract ventilation system
4. Thermostatically controlled spaces
5. Efficient lighting strategy primarily using CFL or LED type fittings.
6. The integration of renewable technologies based on the above measures

The above approach will be adopted and reviewed at detailed design stage, with a specialist consultant to establish the most efficient and sustainable way to meet the latest SAP 10 (10.2) requirements.

### **Cartwright & Gross Chartered Architects**

Cartwright & Gross Limited – Registered Office: The Golden Lion, 89 Middle Hillgate, Stockport, SK1 3EH  
Tel: 0161 480 1119 Company No. 8327335 VAT No. 204 5883 12

## 1. Site

The site is located at 17 Pownall Avenue, Bramhall, Stockport

## 2. Availability of services at the site

The site is located in a built up area, and had gas, electricity and water to site.

## 3. Targets

Create energy efficient and high-quality living for family living.

Adopt a fabric first approach to detailed design and construction

Review of sustainable technology and energy efficient appliances.

All detailed design will be in accordance with current building regulations including the new 2023 amended Part L

## 4. Energy and Design Considerations

### a) Building Performance Standards

All elements of the building envelope will incorporate high performance insulation to ensure that the load for space heating is reduced below that of a notional Building Regulations (Part L1B) compliant design. The proposed U-Values to be achieved for the relevant elements of construction are summarised in the below;

	New Building Best Starting Point (fabric only)	Existing Building Refurbishment
External Walls	0.18	N/A
Windows	1.2	N/A
Glazed Doors	1.2	N/A
Roof	0.11	N/A
Floors	0.13	N/A

### (b) Air tightness

Air tightness will be targeted to achieve a robust rate of <math>5\text{m}^3/\text{hr}/\text{m}^2</math>, and will be tested as part of Building Regulation compliance.

### (c) Energy Efficient Lighting and Appliances

The Proposed Development will make use of low energy lighting throughout the development. Communal areas with PIR sensors.

(100%) in-line with BRE methodology and in excess of Building Regulation requirements. Where fitted, minimum 'A' or 'A+' rated household appliances would be specified and advice on their efficient use will also be provided to occupants in Home User Guides Based on the BRE calculation methodology such measures are expected to reduce electrical demand by up to 10%

### (d) High efficiency heating and hot water

Space heating for the rooms will incorporate thermostatic controls.

Hot water and heating supply to the development will be established through the new SAP assessment. Our recent experiences are that this will be supplemented or fully provided through renewable energy.

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## 5. Low & Zero Carbon Technologies

Various energy efficient technologies have been considered for the development and the findings are summarised in the table below;

Technology	Technical Feasibility	Carbon Savings	Estimated costs	Financial Viability
Solar PV panels	The orientation of the building will likely make PV installation unviable.	Further in detail assessment required based on available area and orientation		
Wind Energy		To be technically feasible local wind speeds need to be a minimum of 5m/s therefore this site is not feasible for wind.	Not assessed	Not assessed
Micro Hydro Energy		Not assessed	Not assessed	Not assessed
District Heating	Stockport Council informed that there are no existing or planned district heating networks to facilitate connection at this stage.	Not assessed	Not assessed	Not assessed
Ground Source Heat Pumps	Not sufficient land to connect to	Not assessed	Not assessed	Not assessed
Air Source Heat Pumps	ASHP: potential connection	Further in detail required in line with SAP assessment		
Biomass	A Smoke Control Zone appropriate biomass pellet boiler to service a traditional wet heating system is considered unsuitable because the large storage space required for the fuel would render this option impractical. Furthermore, the on-site management of the purchasing, storage and feeding of fuel to the boiler is onerous and requires the daily presence of suitable qualified personnel, which would be wholly impractical.	Not assessed	Not assessed	Not assessed

### Summary:

The proposed scheme will result in a highly sustainable and energy efficient development, adopting a fabric first approach; incorporating design SAP advice at an early stage, and ensuring that the building retains energy and requires less heating.

The site is located in an accessible location close to Bramhall Village. It is well within walking and cycling distance of all the centres services.

The proposal effectively and efficiently reuses “brownfield” land equating to a one for one dwelling.

Whilst many Low & Zero Carbon Technologies are not suitable to be adopted. There is an aspiration to explore the integration Air source heat pumps within the scheme. This will be reviewed further at detailed design stage.

Green roofs along with sustainable drainage are incorporated within the proposals.

The proposal includes an EV charge point and cycle storage facilities within the design.

In general, the proposal will:

- Redevelop previously developed land promoting a more effective use of the site.
- Create a modern energy efficient new home, helping support a low carbon future.
- Minimise impacts on ecology.
- Maximise opportunities to replant new good quality landscaping and trees at the site.
- Employ a sustainable drainage system so as not to contribute to flooding in the area.
- Provide high-quality design and materials.

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