

This City

Postal Street, Manchester

Environmental Standards & Energy Statement

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1.0 Introduction

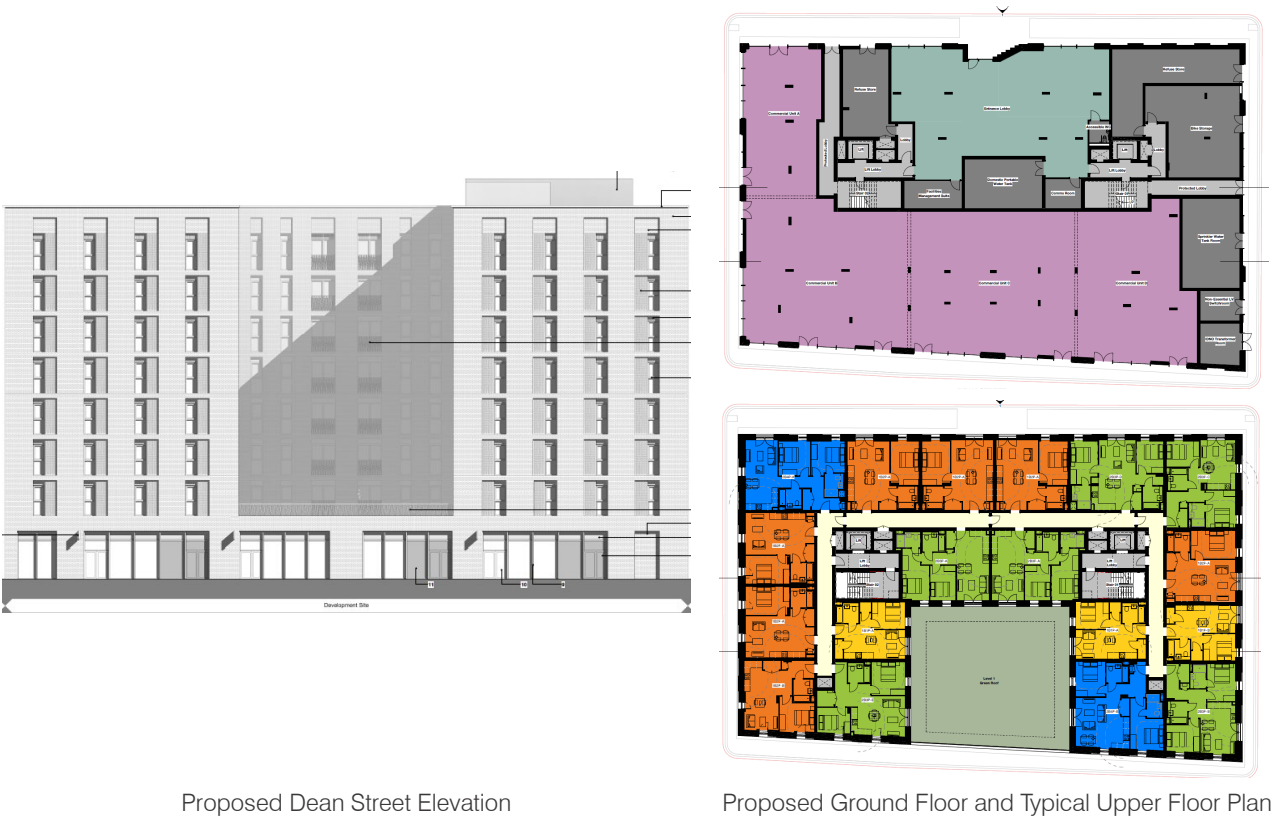
This Environmental Standards & Energy Statement has been prepared to support the planning application for the proposed Postal Street residential development located on Postal Street within the Northern Quarter of Manchester City Centre.

This statement demonstrates how the Postal Street development will incorporate sustainable design principles to reduce the development’s energy consumption, carbon emissions and overall contribution to climate change in accordance with the local environmental and sustainability policy requirements, including those of Manchester City Council (MCC) and the Greater Manchester Combined Authority (GMCA).

1.1 Project Description

The City Council Development comprises the erection of a residential apartment building (Use Class C3a), of 8 storeys; together with ground floor commercial units (Use Class E), cycle parking provision, and other associated works.

The site of Postal Street is situated within the Northern Quarter, an inner-city neighbourhood located within Manchester City Centre, sitting within the Piccadilly Ward. The site is bounded by Postal Street to the east, Newton Street to the north, Faraday Street to the west and Dean Street to the south.



1.2 Planning Policy

The following statutory requirements, separated by their national, regional and local relevance, have been identified as key policy drivers and considered during the development of this statement. Further details regarding the specific policies relevant to energy and sustainability are provided in Appendix 1.

Policy Reference	
National	National Planning Policy Framework (December 2024)
Regional	Greater Manchester Combined Authority Places for Everyone Joint Development Plan (adopted March 2024)
	Manchester Core Strategy 2012-2027 (adopted July 2012)
Local	A Guide to Development in Manchester: Supplementary Planning Document (adopted April 2007)

A principal factor of the local energy and sustainability policy requirements that apply to the development is the Greater Manchester ambition to become a carbon neutral city-region by 2038, following the declaration of a Climate Emergency by MCC and GMCA in July 2019. A primary element of achieving this target is to set out a pathway for new developments to be net zero carbon by 2028 at the latest. Policies within the Places for Everyone Joint Development Plan (PfE) and the Manchester Core Strategy support the delivery of a carbon neutral Manchester by encouraging a range of measures that contribute to reducing greenhouse gas emissions from new developments in the area.

1.3 Environmental Standards

The Environmental Standards set out within The Guide to Development in Manchester Supplementary Planning Document (SPD) reinforces the GMCA ambition to become carbon neutral and sets targets that new developments must adhere to. New developments are expected to demonstrate compliance with the Environmental Standards and contribute to its objectives to secure long-term economic growth; adapt to a changing environment and maintain and improve the quality of life essential to the residents, businesses and users of Manchester. The Environmental Standards are intended to deliver achievable and financially viable approaches to furthering all aspects of sustainability within the city and cover the following themes:

- Energy Efficiency
- Renewable Energy
- Environmental Design
- Water Management and Weather Resilience
- Waste Management
- Construction Management
- Biodiversity

In line with the aspects listed, the following sections of this statement will demonstrate how Postal Street will comply with the Environmental Standards set out in the Guide to Development in Manchester SPD and its approach to all aspects of sustainability. Section 2.0 Energy and Carbon of this statement demonstrates how Postal Street will comply with the Environmental Standards pertaining to both energy efficiency and renewable energy due to the significant overlap in approach and in line with the Energy Hierarchy. As such, Section 2.0 will comprise the Energy Statement aspect of this statement and consider the use of sustainable and low carbon design principles to maximise efficiency and minimise carbon emissions in accordance with the requirements of the Manchester Core Strategy. Further details on how the proposed development complies with Policies JP-S2 and JP-S3 of the PfE are outlined in the Energy & Carbon Statement submitted as part of this planning application.

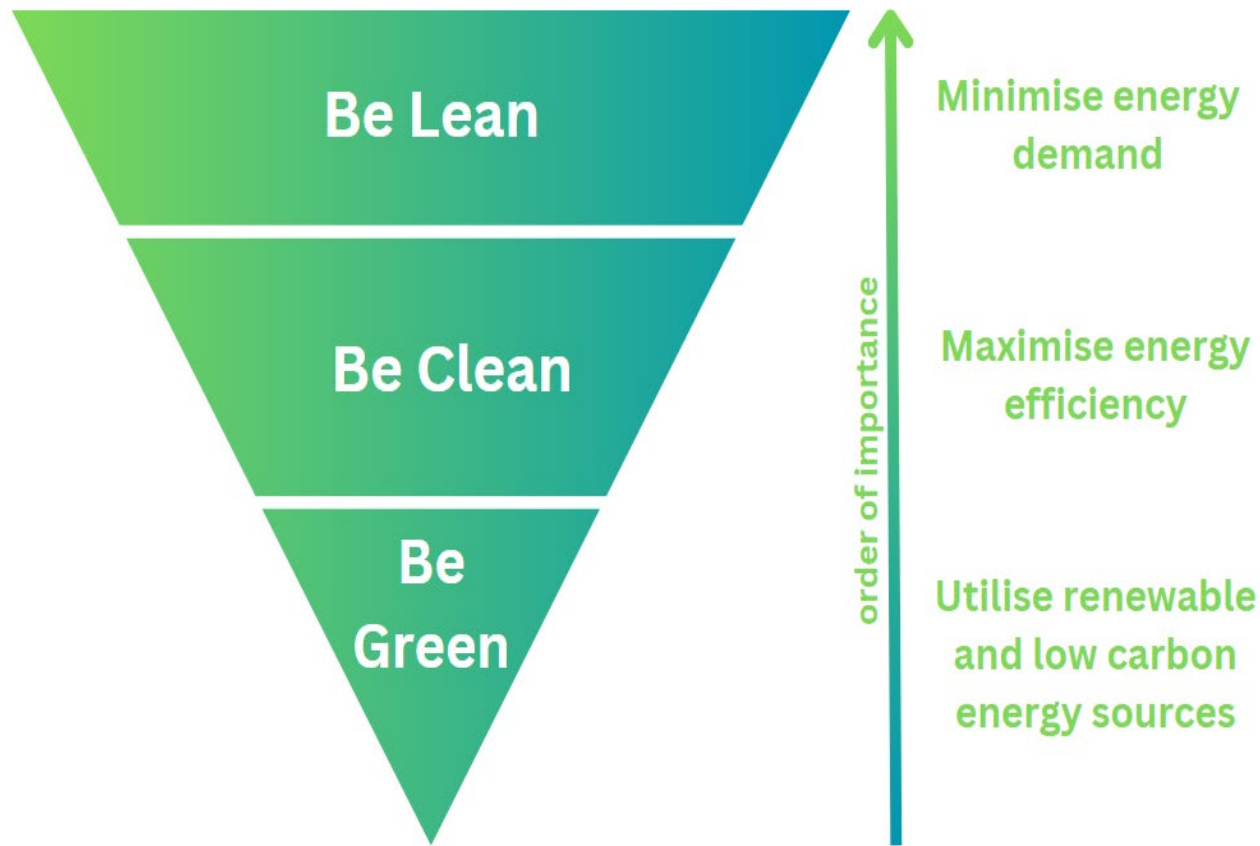
2.0 Energy and Carbon

In accordance with the Environmental Standards set for energy efficiency and renewable energy in new developments, this section demonstrates how the design of Postal Street seeks to maximise reductions in carbon emissions by applying low carbon design principles and considering low and zero carbon technologies following the energy hierarchy, which in order of importance seeks to:

- i. Minimise energy demand;
- ii. Maximise energy efficiency;
- iii. Use renewable energy;
- iv. Use low carbon energy; and
- v. Utilise other energy sources.

For the purposes of this statement, the industry-recognised energy hierarchy has been applied using the following approach to reduce operational energy and greenhouse gas emissions:

- 1. Be lean: use less energy and manage demand during operation.
- 2. Be clean: supply energy efficiently to reduce demand and minimise waste.
- 3. Be green: maximise opportunities for utilising renewable energy by producing, storing and using renewable energy on-site.



The table below summarises the low carbon design principles that have been considered in the design of Postal Street to apply the energy hierarchy. Each low carbon design principle has been considered in the following sections of this statement to determine its viability and to enable an informed decision as to whether it would be beneficial to the development. The findings within the statement are subject to review at the next stage of design.

Passive Design	High Efficiency Systems	Low and Zero Carbon Technologies
Building Orientation	Energy Efficient Lighting	District Heat Network
Building Fabric	Mechanical Ventilation Incorporating Heat Recovery	Wind
Air Permeability	Low Consumption Sanitary Fittings	Hydropower
Daylighting		Heat Pumps
		Combined Heat and Power (CHP)
		Biomass
		Photovoltaics and Battery Storage
		Solar Thermal Water Heating

Policy JP-S2 Carbon and Energy

Policy JP-S2: Carbon and Energy of the PfE sets out the measures required to deliver a carbon neutral Manchester no later than 2038 through a dramatic reduction in greenhouse gas emissions, setting carbon and energy demand reduction targets for new developments. Postal Street has been designed to comply with the “2025-onwards” requirements of Policy JP-S2 where practicable and financially viable.

It is therefore understood that the design of Postal Street must be consistent with the 2021 Part L Building Regulations; work towards achieving net zero regulated operational carbon emissions; minimise unregulated carbon emissions; and consider the requirement to offset any residual carbon that cannot be fully mitigated on-site.

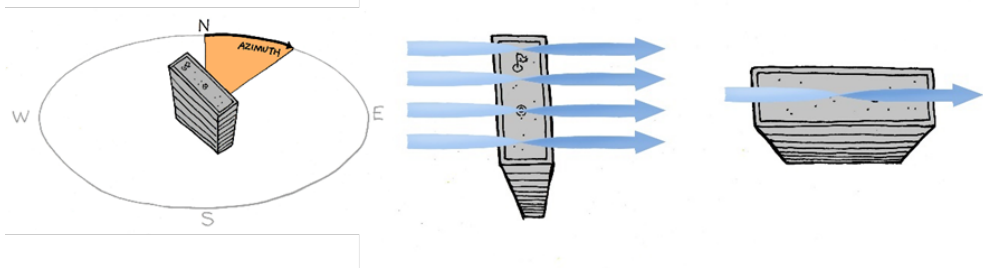
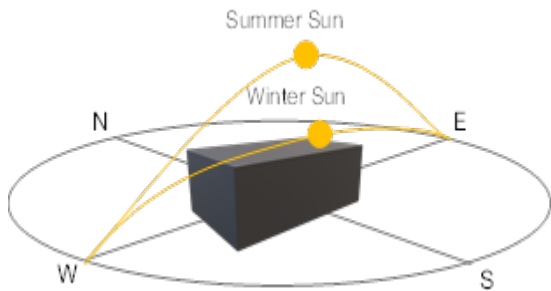
In accordance with Section 5.d of Policy JP-S2, this statement demonstrates how Postal Street will achieve the relevant energy demand reduction targets for space heat demand, hot water energy demand, and renewable energy generation by applying the principles of the energy hierarchy.

2.1 Passive Design

Passive design considers the natural movement of heat, air and light to make building layout, fabric and form decisions that can reduce or remove the mechanical cooling, heating, ventilation and lighting demand for the building. Incorporation of passive design measures into the design of Postal Street therefore achieves the first tier of the energy hierarchy by reducing overall building energy consumption (be lean).

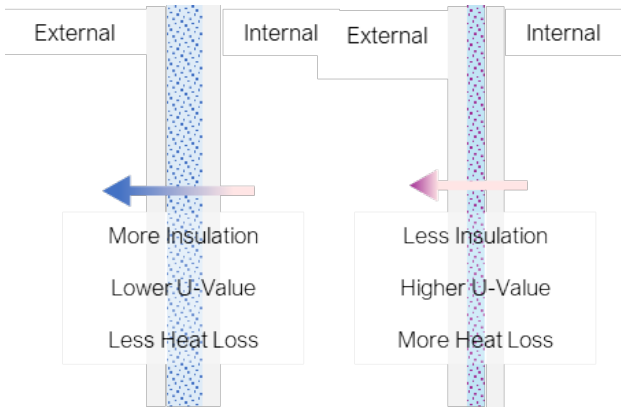
2.1.1 Building Orientation

- Building and room orientation can have an impact on the energy consumption of a building. Effective orientation of a building can reduce its heating and cooling demand by utilising the passive energy from the sun.
- Depending on the needs of the building, rooms that are used more regularly and typically require more heating should be located on the south side of the building, where possible, to benefit from increased solar heat gains and minimise heating demand.
- Buildings can also be oriented to maximise the passive energy benefits of cooling breezes in hot weather and shelter from undesirable winds in cold weather by utilising natural ventilation. Orienting a building so that its shorter axis aligns with the prevailing wind will generally provide the maximum natural ventilation benefits. By doing so, the building will benefit from increased passive ventilation during hot weather, reducing its cooling demand and lowering the exposure to cold winds, therefore reducing heating demand. Maximising the passive energy from natural ventilation requires an in-depth understanding of the local climate and direction of prevailing winds to determine which winds to take advantage of and which to avoid.
- Postal Street has been oriented to maximise the benefits of passive design whilst making the most of the available GIFA on the development site.



2.1.2 Building Fabric

- U-values quantify the rate of heat transfer through a structure; the lower the U-value, the less heat is lost through the structure. Building fabric choices determine the U-value of the building element, for example, using more insulation will reduce heat loss through the element, therefore reducing the energy required to maintain thermal comfort. Part L of the Building Regulations sets limiting values for U-values for new and existing buildings, with the latest provided in the 2021 edition.



- As part of the Environmental Standards set for energy efficiency and Policy EN4 of the Manchester Core Strategy, there is a requirement for new build developments to minimise reliance on energy-using equipment for heating, cooling, lighting as a measure to reduce CO₂ emissions. This can be achieved by improving the U-values of building materials and exceeding the minimum standards required by the Building Regulations.

LIMITING U-VALUES IN NEW DWELLINGS (W/m2K)			
	Minimum Part L (2021 Edition)	Notional Part L (2021 Edition)	Postal Street
Roof	0.16	0.11	0.11
Wall	0.26	0.18	0.15
Floor	0.18	0.13	0.12
Windows	1.60	1.20	0.80

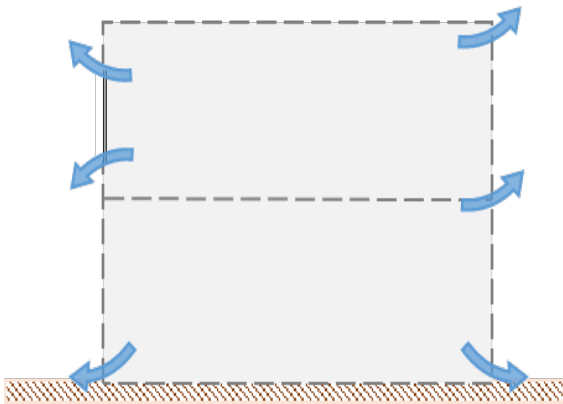
- Postal Street has been designed using a fabric first approach to improve the performance of the building envelope and ensure that the proposed development will comply with, and exceed the standards set by Part L 2021. Based on the above U-values achieved for Postal Street at the early, pre-planning stage, the fabric energy efficiency has been calculated and the percentage improvement over the current 2021 Part L shown below.

FABRIC ENERGY EFFICIENCY SAP RESULTS		
TFEE (kWh/m ² .year)	DFEE (kWh/m ² .year)	% Improvement
20.66	14.23	31.21

- Postal Street has achieved an initial 31.21% improvement over the fabric energy efficiency requirements of Part L 2021, demonstrating the effective implementation of passive design measures.

2.1.3 Air Permeability

- Building airtightness is the resistance to air leakage through the external building envelope. Reducing the air leakage in a building also improves the energy performance by reducing heating demand.
- Air leakage in buildings generally occurs at junctions between building elements, the wall and window and door frames, electrical equipment, and other building penetrations. Part L of the Building Regulations sets limiting values for air permeability. The lower the air permeability, the more airtight the building.



AIRTIGHTNESS IN NEW DWELLINGS (m³/hm²) at 50 Pa			
	Minimum Part L (2021 Edition)	Notional Part L (2021 Edition)	Postal Street
Air Permeability	8.0	5.0	2.5

2.1.4 Daylighting

- Providing natural daylighting to a building minimises the use of artificial lighting and therefore reduces lighting loads and energy consumption. Natural daylighting also provides both physical and mental health and wellbeing benefits to the occupants of a building and has been linked to increased mood and productivity.
- It is important to consider that there is a balance between maximising daylight but not providing so many glazed areas that the risk of summer overheating, increased glare and building fabric U-values and airtightness are compromised.
- The design of Postal Street considers opportunities to maximise the natural daylight available and reduce overshadowing from surrounding buildings. Through design development, the massing of Postal Street has been re-orientated to present the U-shaped building face and private courtyard towards Dean Street, facing south-east, thereby maximising the daylight available on the development plot.



PASSIVE MEASURES CONSIDERED VIABLE

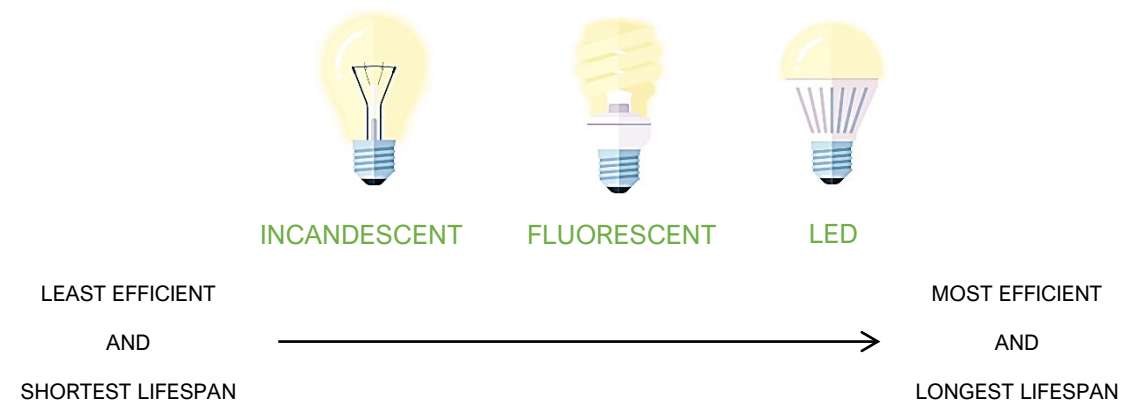
INCORPORATED INTO DESIGN WHERE POSSIBLE

2.2 High Efficiency Systems

This section explores the integration of high-efficiency systems within Postal Street to further reduce energy consumption and minimise wasted resources, thereby demonstrating how tier two of the energy hierarchy has been applied (be clean). Both water and energy efficient systems have been considered in the design of Postal Street to maximise overall resource efficiency in line with the scope of this statement.

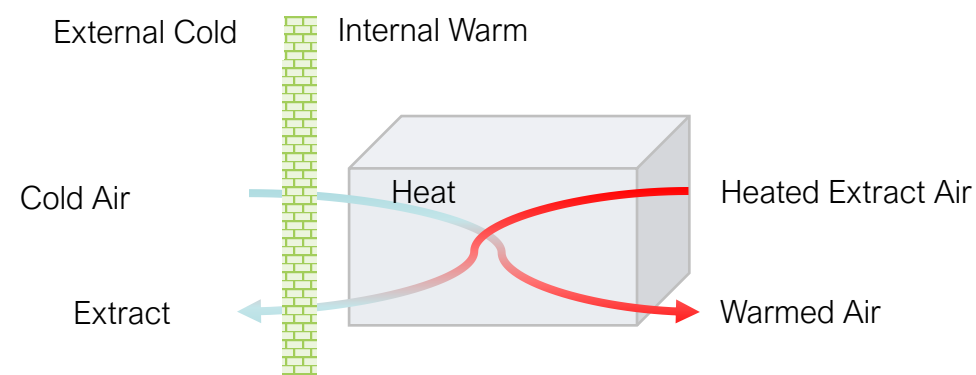
2.2.1 Energy Efficient Lighting

- LED lighting is highly efficient, using approximately 75-80% less energy than incandescent bulbs, converting 80-90% of energy into useful light and lasting up to 25 times longer. When compared to other forms of lighting such as fluorescent lighting, LEDs have a higher lighting efficacy, provide full brightness instantly and last longer. Therefore, the use of LED lighting reduces the need to replace bulbs as frequently and minimises the energy wasted as heat. As such, LED lighting will be incorporated into the design where possible.
- Automatic lighting controls such as passive infrared (PIR) controls that detect motion by measuring changes in infrared radiation emitted by warm bodies will be utilised in areas such as corridors to prevent unnecessary light usage during unoccupied periods, further reducing wasted energy.



2.2.2 Mechanical Ventilation Incorporating Heat Recovery

- Heat recovery systems utilise heat extracted from inside heated spaces to warm the incoming external air. This minimises the space heating demand and makes more efficient use of the energy consumed to heat internal spaces, reducing operational energy and its associated carbon impact.
- All mechanical supply and extract ventilation units will be designed to include heat recovery.



2.2.3 Low Water Consuming Sanitary Fittings

- The UK's water resources are under growing pressure due to rising consumption, with the average person estimated to use approximately 140 litres per day. This, combined with more frequent and intense weather events such as droughts and less predictable rainfall due to climate change, is leading to water shortages and water scarcity becoming an increasingly tangible threat.
- Part G of the Building Regulations sets a minimum standard for water efficiency in new dwellings, as the maximum consumption of potable water is set at 125 litres per person per day.
- The production of potable water itself demands significant quantities of energy attributable to its processing and distribution, with the embodied carbon associated with potable water equating to 0.34 grams of CO₂e per litre. Reducing water consumption in the UK is therefore crucial to protecting water security and decreasing operational carbon emissions associated with its use.
- It is important to reduce water consumption and waste where possible through flow control and sanitaryware specification with optimised flow rates. Efficient sanitary fittings such as low-flow showers and faucet aerators can provide significant water savings and will be incorporated into the development to conserve water by reducing demand, and associated operational costs, whilst maintaining a hygienic and high-quality experience for occupants in line with the Environmental Standards set for energy efficiency.



2.3 Low and Zero Carbon Technologies

In line with Policies JP-S2, EN4 and EN6, the following low and zero carbon technologies have been considered for use within Postal Street. The following pages will assess the viability of each technology and demonstrate how opportunities to utilise renewable and low carbon energy sources have been maximised, consistent with tier three of the energy hierarchy (be green).

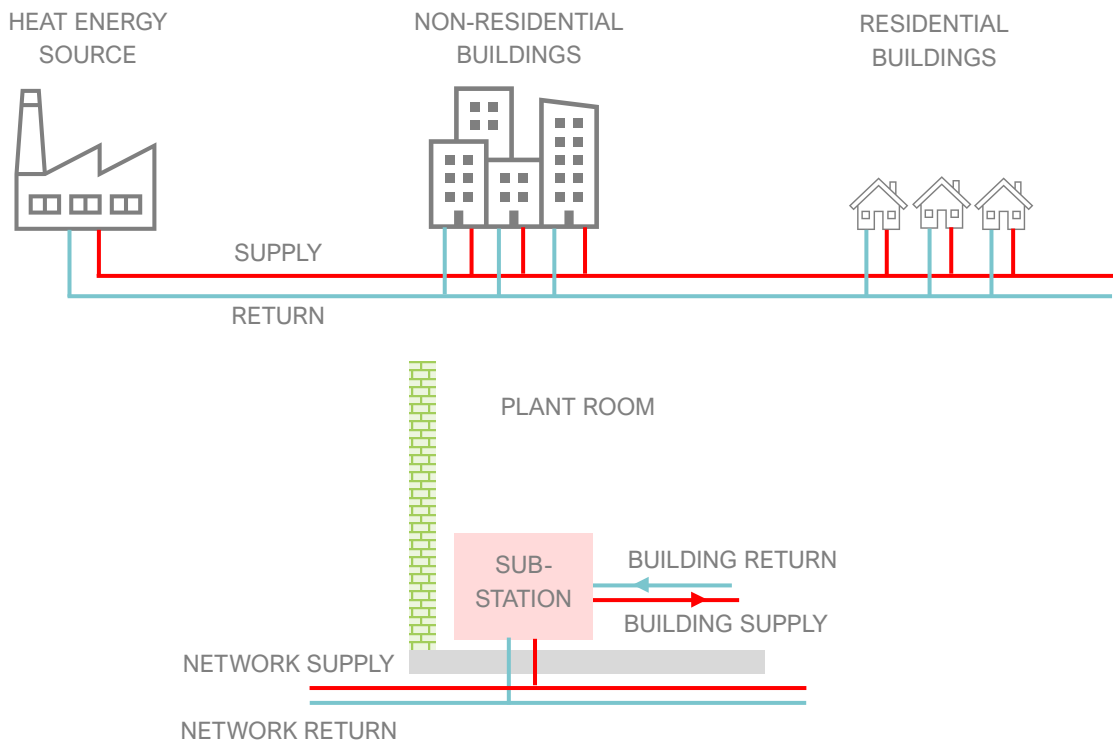
- District Heat Network
- Wind
- Air Source Heat Pumps (ASHPs)
- Ground Source Heat Pumps (GSHPs)
- Biomass Heating
- Combined Heat and Power (CHP)
- Photovoltaics and Battery Storage
- Solar Thermal Water Heating

The table below summarises the viability of each LZC technology and whether there are any available funding schemes.

Low and Zero Carbon Technologies		Viability	Available Schemes and Incentives
District Heat Network		NO	Green Heat Network Fund – support for construction of new low and zero carbon heat networks, and the retrofitting/expansion of existing networks. Open to organisations in the public, private and third sectors in England.
Wind		NO	Smart Export Guarantee available as of January 2020 - Tariff not guaranteed.
Heat Pumps	Air Source	YES	None
	Ground Source	NO	None
Biomass		NO	None
Combined Heat and Power		NO	Smart Export Guarantee available as of January 2020 – Tariff not guaranteed.
Photovoltaics and Battery Storage	Photovoltaics	YES	Smart Export Guarantee available as of January 2020 - Tariff not guaranteed.
	Battery Storage	NO	None
Solar Thermal Water Heating		NO	None

2.3.1 District Heat Network

- District heat networks use the heat energy generated from a centralised energy centre and redistributes it to buildings via a network of pipes, removing the need for individual boilers or heaters in each of the connected buildings.
- The heating network is typically comprised of the following components:
 - Heat energy source/energy centre
 - Primary pipeline network that distributes the heat
 - Heat exchanger substations located within/local to the building
 - Heat Interface Units (HIU) located within individual dwellings
 - A secondary piped network that utilises the heat to provide hot water and heating to building users



- Typical centralised heat energy sources include power stations, energy from waste plant, geothermal, or CHP. Renewable sources such as heat pumps, solar thermal and solar PV are now also commonplace in 4th & 5th generation District Heating Systems.
- District heat networks are most effective in high density urban areas as a low carbon heating option as they offer a communal solution to providing heat to homes and businesses by capturing or generating heat locally.
- As district heat networks often operate using waste energy and renewable sources, they are classified as a low carbon technology that is integral to meeting net zero targets.
- District heat networks can supply both hot water and heating to a building as well as deliver cooling.

ADVANTAGES	DISADVANTAGES
Utilises heat energy that would typically be wasted.	Heat energy may come from sources using fossil fuels.
Tends to be more efficient than using individual boilers.	Works best in densely populated areas.
Space saving as HIUs take up less space than a typical boiler, meaning more available floor space in each dwelling.	Lack of availability for local connections to a district heat network.
Long-term savings on maintenance and repair compared to individual gas boilers as maintenance is focussed on the central plant.	

DISTRICT HEAT NETWORK – SUMMARY TABLE

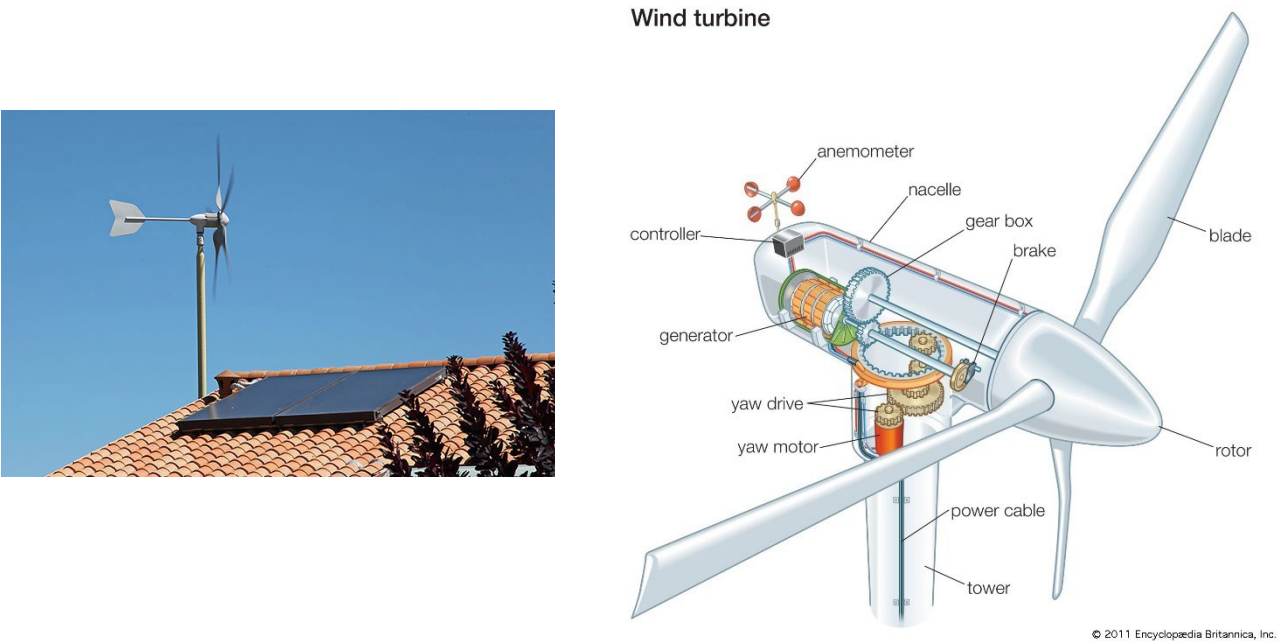
Appropriateness of Technology for the site/system viability	There are no known existing or planned heat/energy networks within 500m of the proposed development that would provide a viable connection point. In accordance with the requirements of Policies JP-S2 and JP-S3 of the PfE, the feasibility of a district heat network connection is considered in further detail within the Energy & Carbon Statement.
Lifetime and Payback	Lifetime: Long term - Project-dependant. Payback: Long term - Not calculated as the system is not viable.
Land Use	Most of the land use is associated with the local energy centre and underground pipework which are off-site. Plant-containing substation would be located internally; however, it is not considered that the land use would be significantly different to that of a conventional boiler system.
Noise	Plant noise attenuation requirements would have to be reviewed by the acoustic consultant and attenuation included within the design and installation as necessary to prevent noise egress. However, this does not need to be considered further, as the system is not deemed viable.
Carbon Savings	Dependant on the source of heating. CHP powered heat and steam average 0.17965 kgCO ₂ e / kWh.

DISTRICT HEAT NETWORK NOT CONSIDERED VIABLE

NOT PROPOSED TO BE INCORPORATED INTO SCHEME

2.3.2 Wind Power

- Wind turbines harness the kinetic energy of the wind and convert it into electricity. The rotation of propeller-like blades around a rotor rotates the drive shaft, which then turns the generator, producing renewable electricity.
- Wind turbines are available in various sizes and outputs from a few hundred Watts output of smaller “micro” battery charging systems used in boats and homes, up to the largest 13-Megawatt turbines connected to the National Grid which can be as tall as 260m with 107m-long blades. However, this output is only achieved for the time that the wind is at its optimum level. As an approximate guide a good wind site will provide an average of 30% of the rated capacity of the turbine.
- Wind turbines generally operate at wind speeds between 7-56 mph, with the maximum efficiency achieved at approximately 18 mph and maximum output at 27 mph.
- Wind turbines can be standalone, supplying one or a very small number of buildings, or they can be clustered together in larger numbers to form part of a wind farm which are often located offshore.
- Standalone, off-grid systems incorporate batteries to store the electricity generated by the turbine, an extra controller is required to ensure the batteries do not become over or under-charged. The controller diverts the electricity produced by the turbine to other electrical appliances when the batteries are fully charged (for example space and or water heaters).
- Grid connected systems do not incorporate batteries and require a controller and inverter to ensure that electricity is produced at a quality acceptable to the grid. Surplus electricity can be exported back to the electricity grid via an export meter and sold back to the electricity supply company.
- Small variations in wind speed can produce large changes in energy output. Wind speed increases with height and it is essential that the knowledge of the local wind resource is comprehensive to maximise the potential of the turbine.
- In general, wind turbines should be located in areas where the mean annual wind speed is greater than 4.5 m/s to consistently meet the cut-in speed of a small-scale wind turbine. Other factors that affect wind turbine feasibility include site suitability, regulatory requirements and stakeholder engagement.



WIND POWER NOT CONSIDERED VIABLE

NOT PROPOSED TO BE INCORPORATED INTO SCHEME

ADVANTAGES	DISADVANTAGES
Zero carbon electricity.	Visual impact including shadow flicker, would therefore require planning approval.
Is possible to produce electricity at large outputs.	Noise generation.
	Small variations in wind speed can produce large changes in energy output.

WIND POWER – SUMMARY TABLE	
Appropriateness of Technology for the site/system viability	Whilst the electricity generated by wind turbines could be utilised within the building to reduce the consumption of grid electricity, the estimated wind speeds do not meet the minimum annual wind speed required to consistently reach the cut-in speed for anything larger than small-scale turbines. The output of a small-scale turbine would not significantly contribute to the energy demand of the building.
	Wind Speeds <i>estimates from NOABL data</i> • At 10m above ground level 4.5 m/s • At 25m above ground level 5.3 m/s • At 45m above ground level 5.9 m/s Wind speed data for Postal Street, Manchester (53.48250511, -2.23161249) (Source: NOABL wind map)
	In addition, due to the urban location of the proposed development, it is considered that the impacts associated with wind turbines including noise, shadow flicker, vibrations, topple distance, air traffic safety, and visual dominance would be unacceptable; therefore, it is considered non-viable.
Lifetime and Payback	Lifetime: 20 years. Payback: Not calculated as system is not viable
Land Use	There is little available open space on which wind turbine(s) could be located within the development area. Turbines would have to be located on the land dedicated for green spaces which could have an adverse effect on building users. Since the system is not considered viable, this dilemma is not considered.
Noise	Noise attenuation requirements to be reviewed by the acoustic consultant and attenuation included within the design and installation as necessary. However, this does not need to be considered further, as the system is not deemed viable
Carbon Savings	Estimated carbon savings not calculated due to system being considered as non-viable.

2.3.3 Heat Pumps

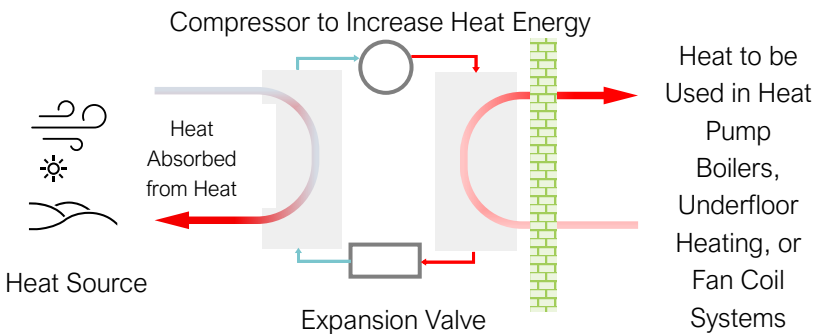
- Heat pumps extract thermal energy from a variety of renewable sources, including the air, earth, or water.
- The thermal energy extracted is upgraded to a higher, more useful temperature. Heat pumps supply more useful energy than they consume (often 2.5 times, up to a maximum of 5 times greater output than input) making them highly efficient. Heat pumps rely on electrical input only; and as such, the use of heat pumps reduces the consumption of fossil fuels and subsequently reduces operational carbon emissions.

2.3.3.1 Air Source Heat Pumps

- Air source heat pumps can extract considerable amounts of energy from the air and operate at high efficiency, even at low temperatures. However, efficiency decreases with temperature therefore they are best placed in regions with a temperate climate such as the UK.

Outside Temperature (°C)	Typical Coefficient of Performance (COP)
15	4.3
10	3.9
0	2.9
-5	2.5

- The air source heat pump system consists of a compressor and a carefully matched evaporator coil and heat exchanger.
- The heat transfer medium within heat pumps is a refrigerant which circulates within the system. Typical refrigerants used include R410a, R32, R407C, which have a boiling point as low as minus 40°C and evaporate into gas when absorbing heat from the outside air. This gas is then compressed, increasing its thermal energy, and raising its temperature to around 75°C. This is then used to heat internal spaces and/or generate lower temperature hot water.
- Space heating using an air source heat pump is usually provided through underfloor heating, utilising heat pump boilers located internally, or by heating the air using fan coil systems.
- The heat pump cycle is (in some cases) reversible, allowing for the provision of space cooling i.e., the circulating refrigerant liquid evaporates when absorbing heat from the air within the building, and expels it into the atmosphere via air-cooled condensers.



ADVANTAGES	DISADVANTAGES
Low capital cost.	Increased use of refrigerant gas may increase fugitive emissions.
Proven technology.	Increased plant space requirements.
High efficiency.	Medium running costs.
Proven technology.	Medium/high maintenance costs.
	Only considered zero carbon in heating mode with a 100% renewable electricity tariff.

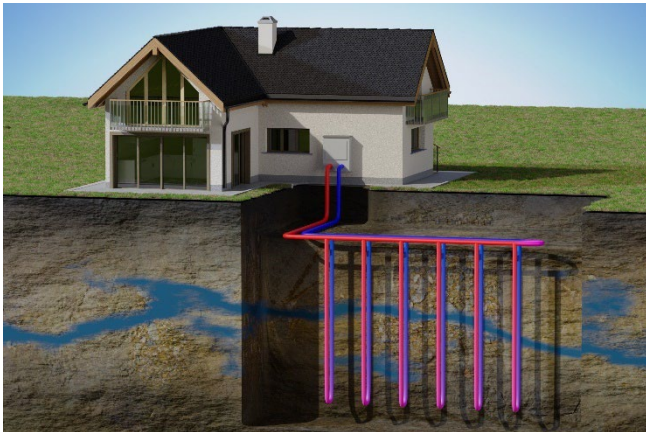
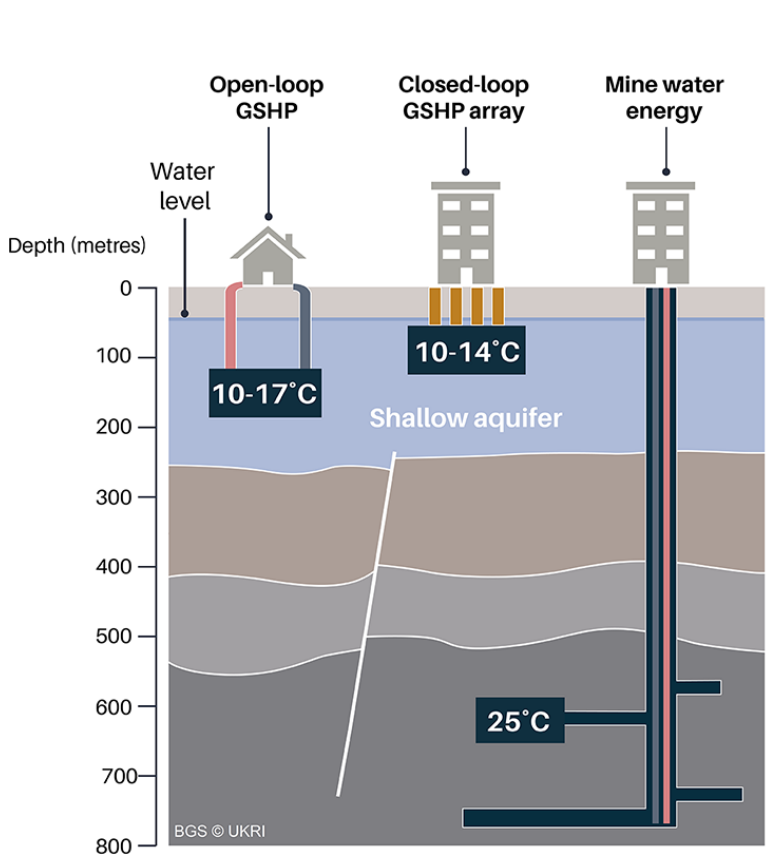
AIR SOURCE HEAT PUMP – SUMMARY TABLE

Appropriateness of Technology for the site/system viability	An ASHP system can provide hot water, heating and comfort cooling with a high efficiency and low capital cost and does not rely on the use of fossil fuels, minimising air pollution. As a result, installing air source heat pumps to provide hot water is deemed viable, and will be considered for some areas of the proposed development.
Lifetime and Payback	Lifetime: 15 – 20 years. Payback: No Payback.
Land Use	External condensers would require significant plant space on the building rooftop therefore it is not considered viable to install a centralised system large enough to meet the heating and hot water demand for the whole building alone. Individual heat pump units can be installed in apartments to provide hot water however; this would take up a considerable amount of internal cupboard space and would need to be factored into apartment layouts and space planning.
Noise	Noise attenuation requirements to be reviewed by the acoustic consultant and attenuation included within the design and installation as necessary to prevent unacceptable noise egress.
Carbon Savings	Dependant on the mix of renewables used to generate the electricity used. Grid electricity emissions factor of 0.20705 kg CO ₂ e/kWh (UK GHG Conversion Factors 2024).

AIR SOURCE HEAT PUMP CONSIDERED VIABLE
TO BE CONSIDERED FURTHER AS DESIGN DEVELOPS

2.3.3.2 Ground Source Heat Pumps

- Ground source heat pumps (GSHPs) can provide space heating and hot water by utilising a low-grade heat resource (10 to 25°C) and extracting geothermal energy that is stored in shallow subsurface depths of up to 500m. Heat can be extracted from soil, rocks, aquifers and flooded mines.
- This is achieved by circulating water mixed with antifreeze through a collector pipework system.
- The temperature of the earth at one meter below ground level remains stable throughout the year, at approximately 9 - 12°C, depending on geographical location and soil type. This means that there is a consistent source of heat during cold periods that is at a higher temperature than the outside air and therefore requires less electricity to upgrade it to useful heat when compared to ASHP. For this reason, GSHP are considered to be more efficient than ASHP.
- GSHPs are highly efficient by up to 400%; for every kW used to power the heat pump; 3 to 4kW of energy is extracted from the ground.
- A GSHP installation typically consists of a heat pump, ground collector (either a vertical borehole or horizontal array); a manifold; circulation pumps to move the energy around the system; various automatic and manual valves; an expansion vessel; a buffer tank to store the energy; a hot water cylinder for heating domestic hot water; and a control system. In larger residential systems, each dwelling may have its own heat interface unit (HIU).
- As heat is provided at a lower temperature than other forms of heating, it is best suited to underfloor heating applications.



GROUND SOURCE HEAT PUMP NOT CONSIDERED VIABLE

NOT PROPOSED TO BE INCORPORATED INTO SCHEME

ADVANTAGES	DISADVANTAGES
High efficiency.	Space required for the closed collector pipework system.
Can provide cooling.	Suitability of internal heat emitters.
Low maintenance and repair costs.	High capital cost.
	Piling or bores would be required on site.

GROUND SOURCE HEAT PUMP – SUMMARY TABLE

Appropriateness of Technology for the site/system viability	Comparative to ASHPs; there are significantly higher capital costs associated with GSHPs due to the extensive groundwork required to lay the underground pipes. Due to its central location in an urban area, the site of the proposed development is also restricted in terms of available space that can be used to locate the vertical boreholes or horizontal arrays. For these reasons, an ASHP solution is deemed preferable over a GSHP and therefore a GSHP is not considered further.
Lifetime and Payback	Lifetime: 25 years + Payback: Not calculated as the system is not viable.
Land Use	Minimal land use is required for geothermal boreholes. Horizontal arrays require substantial external space for installation.
Noise	No noise issues other than those associated with the construction of the GSHP system.
Carbon Savings	Not calculated due to system being considered as non-viable.

2.3.4 Biomass Heating

- Biomass is also known as biofuel or bioenergy; it is obtained from organic matter, either directly from plants or indirectly from industrial, commercial, domestic, or agricultural products such as logs, wood chips, pellets, etc.
- For safety and cost reasons, biomass boilers should be sized to meet a base load, with gas or oil boilers as a back-up.
- The biomass boiler has a startup period of 10-20 minutes before it can achieve the desired heating output, compared to 30 seconds to 5 minutes for a gas-fired boiler.
- Boiler efficiency is highest and pollutant emissions lowest during long periods of steady state operation close to the maximum output for the boiler and heat storage provision enables the boiler to operate at lower temperatures over a longer burning time, which is more sustainable. Frequent on/off cycling of the boiler produces the worst emissions and lowest efficiencies.
- The use of biomass is generally classed as a 'carbon-neutral' process because the carbon dioxide released during the generation of electricity is balanced by that absorbed by plants during their growth. However, this is only true when the fuels are procured responsibly and there are additional concerns over emissions of particulates and nitrogen oxides which are detrimental to human health.
- Other factors impact the sustainability of biomass such as, use of fertiliser, and the emissions from harvesting and transportation of fuels.
- Biomass fuel prices vary depending on availability and the quantity of fuel purchased and must be stored in large quantities on-site, requiring sufficient fuel storage area.
- Outside access to the plant room and storage is important for handling the delivered fuel, which should be appropriate to its means of transportation.
- Flue arrangements are more onerous than those for gas or oil boilers; access will also be required for frequent servicing and ash removal.



ADVANTAGES	DISADVANTAGES
Considered a carbon neutral energy source.	Although deemed 'carbon neutral', there are still other emissions associated with biomass such as, particulates, sulphur dioxide and nitrogen oxides.
Fuel costs are cheaper than gas.	Biomass is cheaper than gas, however, there are generally higher running costs.
	High capital cost.
	Increased space requirements for plant and storage of biomass fuel.
	Noise issues associated with biomass fuel delivery.
	Reliability of biomass heating plant.
	Increased transportation emissions if the fuel is not sourced locally.

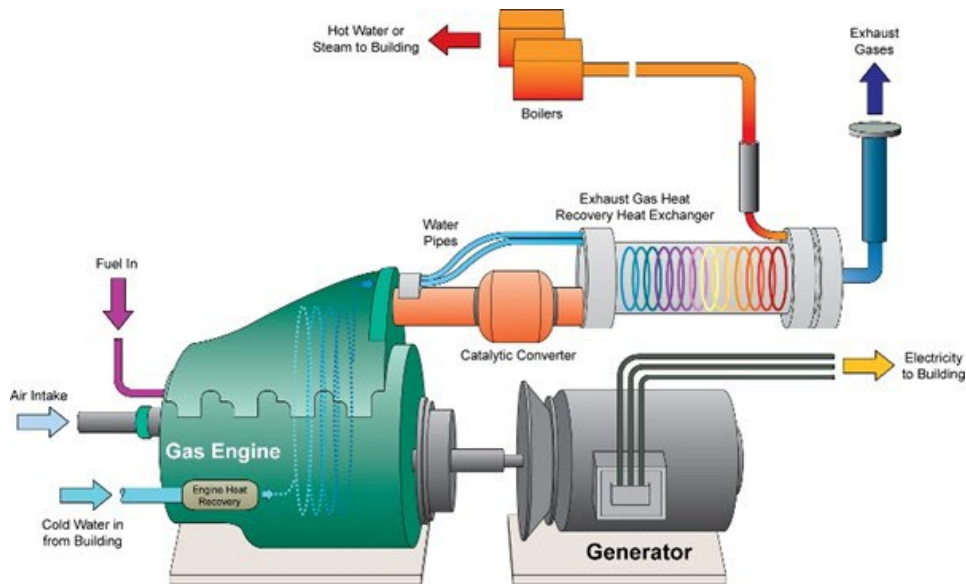
BIOMASS – SUMMARY TABLE	
Appropriateness of Technology for the site/system viability	Biomass boilers could be utilised to heat the building, however, although biomass can be deemed carbon neutral, there are other emissions associated with burning biomass such as particulate matter which contribute significantly to air pollution and are detrimental to human health. The negative impacts of these pollutants are greatest in areas where atmospheric pollutant concentrations are already high due to emissions from other sources; for example, in large cities or in areas close to major roads. Due to the urban location of the proposed development, it is considered that a biomass boiler would have a negative impact on local air quality, contradicting the aims of the Environmental Standards and limiting the carbon emissions reductions possible. As such, an ASHP solution is deemed preferable over biomass heating and biomass heating is not considered further.
Lifetime and Payback	Lifetime: 15 – 20 years. Payback: Not calculated as the system is not viable.
Land Use	Biomass boiler plant and the associated fuel storage can be accommodated internally or externally depending on the availability of space.
Noise	Possible issue associated with the delivery of the biomass fuel. However, this does not need to be considered further, as the system is not deemed viable
Carbon Savings	Not calculated due to system being considered as non-viable.

BIOMASS NOT CONSIDERED VIABLE

NOT PROPOSED TO BE INCORPORATED INTO SCHEME

2.3.5 Combined Heat and Power

- A CHP uses a gas or oil-fired engine to drive a generator which produces electricity. Heat from the engine block, oil cooler and exhaust are absorbed into a coolant which is then used as a heat source within the building, thereby simultaneously generating heat and electricity from one source of combustion.
- CHP or ‘cogeneration’ is not considered a “sustainable energy”, but it is a highly energy efficient system, operating at over 80% efficiency, that makes use of waste heat from the production of electricity. The use of a CHP can reduce carbon emissions by up to 30% when compared to the separate means of conventional heat and electricity generation via a boiler and power station.
- The reuse of heat as a byproduct of electricity generation that would otherwise be wasted applies circular economy principles.
- The ratio of electricity to heat production is in the region of 1 unit of electricity to 2 units of heat, though this may vary between different manufacturers of combined heat and power units. For a CHP system that operates using a gas turbine with heat recovery boiler, the ratio of recovered heat to power generated is 1:6:1.
- In order to maintain its efficiency, there must be a constant demand for the heat produced, throughout the year.
- For residential developments, a micro-CHP can be utilised which typically have a ratio of about 6:1 for heat and electricity generation.
- Some CHP systems can be “hydrogen ready” when installed so that they would be able to easily switch to using hydrogen as a fuel source, once hydrogen production and distribution infrastructure becomes operational in the UK. Hydrogen does not emit any potent greenhouse gases when combusted, only water vapour.



ADVANTAGES	DISADVANTAGES
High efficiency.	Constant heat load requirement.
Can be hydrogen ready.	Plant size and location (noise and vibration).
Generation of electricity on-site reduces transmission and distribution losses.	High capital cost.
	Increased maintenance requirements.

COMBINED HEAT AND POWER – SUMMARY TABLE

Appropriateness of Technology for the site/system viability	A CHP system in the proposed development would require the combustion of fossil fuels, which would contribute to local air pollution and be a barrier to achieving net zero regulated operational carbon emissions as per Policy JP-S2 Carbon and Energy. As such, and in accordance with the energy hierarchy, an ASHP is considered to be more effective at minimising carbon emissions over a CHP system which is therefore not considered further.
Lifetime and Payback	Lifetime: 15 years. Payback: In excess of 20 years due to lack of constant heat demand and reduced operating period.
Land Use	A micro-CHP can be accommodated internally.
Noise	Noise attenuation requirements to be reviewed by the acoustic consultant and attenuation included within the design and installation as necessary to prevent noise egress. However, this does not need to be considered further, as the system is not deemed viable.
Carbon Savings	Not calculated due to system being considered as non-viable.

COMBINED HEAT AND POWER NOT CONSIDERED VIABLE

NOT PROPOSED TO BE INCORPORATED INTO SCHEME

2.3.6 Photovoltaics (PV) and Battery Storage

- Photovoltaics convert solar energy into electricity, which can then be used to power ordinary electrical equipment such as household appliances, computers, and lighting.
- PVs output in DC therefore an inverter is needed to deliver power to the building or export it to the grid which requires AC. Plant that uses DC current can be procured to reduce efficiency losses associated with the inverter.
- Any number of solar PV modules can be connected to give the desired electrical output, depending on the available space.
- The optimal positioning for PV panels is south facing, at a pitch of 35°, which can produce approximately 150kWh/yr/m² PV of DC electrical energy or 110kWh/yr/m² PV of AC electrical energy. East or west facing panels provide approximately 80% of that yielded from a south facing panel.
- Solar tracking panels are systems that use sensors and actuators to orient the panels towards the sun throughout the day as its position in the sky changes, maximising the electricity generation and increasing the output by 10-45% depending on the type of tracking system. Tracking systems can also add extra weight and cost to a solar installation.
- Solar PV technology is constantly evolving and improving, with current panel types operating at 15-20% efficiency. The most efficient solar panels in the UK have an efficiency of 24% however achieving maximum efficiency is dependent on environmental variables such as cloud cover, hours of daylight and shading which can significantly reduce outputs. Shading is an especially important consideration in urban areas where a development can be overshadowed by surrounding buildings.
- PV systems can be incorporated in various ways: on sloped roofs, on flat roofs, in facades, atria, and shading devices. Modules can be mounted using frames or incorporated into the building fabric; for example, PV roof tiles are available which can be fitted in place of standard tiles.



ADVANTAGES	DISADVANTAGES
Electricity generated without producing greenhouse emissions.	Large external area required to locate PV panels.
Electricity can be sold back to the grid during periods of low demand within the building.	PV panels will have a visual impact and would require planning approval.
No moving parts so minimal maintenance and low maintenance costs.	Glint and glare effects.
Mature technology.	
Capital cost has reduced in recent years.	
Unlikely to create any noise nuisance.	

PHOTOVOLTAICS – SUMMARY TABLE	
Appropriateness of Technology for the site/system viability	Solar PV can be easily integrated and used alongside other LZC technologies. A PV installation would require the installation of fixed building services to make the best use of this technology. On-site generation of renewable electricity contributes to reducing operational carbon emissions in accordance with Policies JP-S2, EN4 and EN6. One challenge for the integration of PV is that a significant amount of the roof area may be required to house building services plant and other equipment therefore there may be substantially less available roof space on which solar panels could be installed. In accordance with Policy JP-S2, the opportunities for on-site electricity generation from solar technologies can still be prioritised and maximised by installing panels on the usable roof area. As a result, PV is seen as being viable.
Lifetime and Payback	Lifetime: 25 years. Payback: Subject to calculation at next design stage.
Land Use	Often installed at roof level at an incline of 15 - 45° and south facing. Structural loading may require uplift to accommodate the increased load.
Noise	Not anticipated to be an issue with this type of system.
Carbon Savings	Grid electricity: 0.20705 kgCO ₂ e/kWh (UK GHG Conversion Factors 2024).

PHOTOVOLTAICS CONSIDERED VIABLE

TO BE CONSIDERED FURTHER AS DESIGN DEVELOPS

2.3.7 Battery Storage

- Battery storage systems enable surplus electricity generated on-site from a PV (or wind) system to be stored and released back into the system when it is needed – this is often referred to as ‘peak shaving’ and reduces the reliance on grid electricity.
- In grid-scale battery storage systems, surplus electricity generated during summer would ideally be stored and used to shift summer generation into winter months to account for seasonal variations in renewable energy generation. However, lithium-ion battery systems which are typical of smaller-scale systems benefit from a daily discharge cycle to aid in battery life.
- As such, a battery storage system could be used to store excess electricity generated during the peak of the day and utilise it in the evenings. This would reduce the need to import grid electricity in the evenings which is likely generated by more carbon-intensive sources and reduces the pressure on the grid when country-wide electricity demand is highest.



- The main factors which impact the electrical consumption data and determine the practicality of a battery storage system within the proposed development are listed below.

REDUCING CONSUMPTION	INCREASING CONSUMPTION
More efficient lighting and lighting control.	Transfer heating from gas fire to electric.
Reduced area / more efficient use of space.	Provision of battery charging for cars.
More efficient equipment.	Increased demand / use of existing under-utilised spaces.

ADVANTAGES	DISADVANTAGES
Stored energy can be utilised when the cost/unit of grid electricity is at its highest, offering an operational cost saving.	High capital expenditure.
No moving parts so minimal maintenance and low maintenance costs.	Plant space requirements / area for batteries.
	Relatively new technology in construction applications.
	Potential issues surrounding heat generation & fire safety implications.

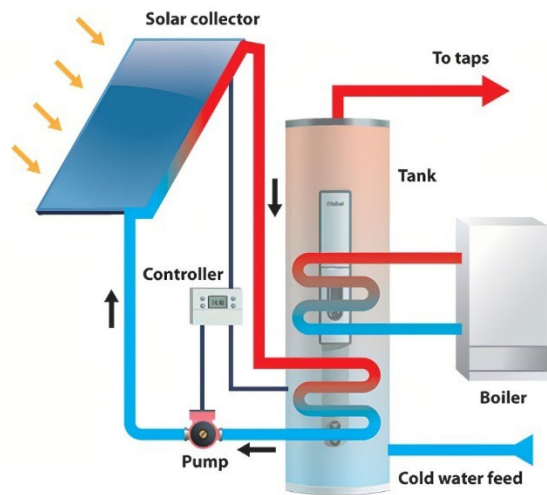
BATTERY STORAGE – SUMMARY TABLE	
Appropriateness of Technology for the site/system viability	Although solar PV is being considered further, battery storage may not be a viable option as the amount of electricity generated by the PV is likely not sufficient to meet the peak load demand of the building. Therefore, there is not likely to be any surplus electricity during peak generation, reducing the practicality of a battery system. Other considerations include the wiring of the PV system, as there may be surplus electricity if it only serves the landlord's areas. At periods where there may be surplus electricity, this can instead be exported back to the grid and contribute to larger low carbon energy schemes in accordance with Policy EN4 of the Manchester Core Strategy, enabling other buildings to use zero carbon electricity.
Lifetime and Payback	Lifetime: Varies considerably depending upon how the technology is used (approx. 10 – 15 years based on lithium-ion batteries). Payback: TBC.
Land Use	Space required to accommodate battery storage units and associated plant is dependent upon storage capacity.
Noise	Low.
Carbon Savings	Relative upon end usage. Energy storage systems do not produce any emissions during operation.

BATTERY STORAGE NOT CONSIDERED VIABLE

NOT PROPOSED TO BE INCORPORATED INTO SCHEME

2.3.8 Solar Thermal Water Heating

- Solar thermal utilises radiant heat from the sun to provide domestic hot water. It works by using thermal energy to heat an energy-absorbing media comprised of water or a water/glycol mixture, that is pumped through a solar absorbing panel usually located on the roof. The heated media is then pumped through a heat exchanger, typically to heat hot water within a storage cylinder.
- The hot water demand requirements of the building served, and size of the hot water storage vessel have a significant effect on the viability of a solar water heating system.
- The major applications for this type of system are associated with the generation of low-grade hot water, often in the range of 30°C – 50°C, depending on the geographical location of the installation.
- There are two main options when considering solar water heating. These are either flat plate (approximately 30% efficient) or evacuated tube systems (approximately 40% efficient).
- The collector uses a refrigerant as the transfer media; this allows for higher-grade heat energy to be produced, typically 50°C – 70°C in summer.
- An evacuated solar heat pipe collector works throughout the day, but the heat it generates needs to be removed and used immediately, as long stagnation will damage collectors permanently.
- Performance is directly related to the amount of light directed to the panel. Peak irradiation is achieved using south facing panels at 45° inclination. Solar thermal panels are not recommended to be installed at less than 20° incline.
- It is possible to make the system independent by using photovoltaics to power the circulation pump or designing the manifold below the heat exchanger to eliminate the pump.



ADVANTAGES	DISADVANTAGES
More efficient than use of Solar PV.	Large external area required to locate solar panels.
Unlikely to create any noise nuisance.	Solar panels will have a visual impact and would require planning approval.
	Relatively high capital expenditure.
	Constant hot water demand is required throughout the year.
	Hot water storage plant space required local to the solar panels.

SOLAR THERMAL WATER HEATING – SUMMARY TABLE	
Appropriateness of Technology for the site/system viability	The hot water generated by solar collectors could be utilised for domestic usage within the development. However, due to the predicted high demand for hot water from the proposed development, and limited available roof space for panels, it is considered that solar thermal would not be a viable option to supply sufficient volumes of hot water alone and that solar PV would be a more effective way to reduce operational carbon emissions. Solar PV also has longer lifespans and more versatility in the uses of the electricity generated and is therefore deemed preferable and solar thermal is not considered further.
Lifetime and Payback	Lifetime: 20 years. Payback: Not calculated as system is not viable.
Land Use	Solar collectors generally installed at roof level, south facing at an incline of 30 - 45°.
Noise	Not an issue with this type of system.
Carbon Savings	Not calculated due to system being considered as non-viable.

SOLAR THERMAL WATER HEATING NOT CONSIDERED VIABLE

NOT PROPOSED TO BE INCORPORATED INTO SCHEME

2.4 Energy and Carbon Policy Requirements

Postal Street has been designed with consideration to the limits/targets set for a building's energy demand and carbon emissions in accordance with the Environmental Standards set by the Guide to Development in Manchester SPD. The low carbon design principles have been applied to maximise energy efficiency and minimise carbon emissions in line with the requirements of Policy JP-S2 of the PfE and Policy EN6 of the Manchester Core Strategy. Compliance with the limits and targets set out in the listed policies is demonstrated below.

2.4.1 Energy Efficiency

The Environmental Standards relating to energy efficiency require that building CO₂ emissions are reduced by at least 25% over the requirements of the current Building Regulations, which at the time of adoption was the 2006 Part L Building Regulations.

Additionally, it has been identified that the site of the proposed development is within a 'Target 1: Network Development Area' of Manchester in line with the criteria provided by Policy EN6 of the Manchester Core Strategy.

"Target 1 Network development areas: Locations where the proximity of new and existing buildings, the mix of uses and density of development provide the right conditions to support district heating (and cooling)."

As such, there is a requirement for domestic developments to utilise CHP or district heating technologies OR demonstrate a 15% improvement on the estimated building carbon emissions compared to the requirements of the 2010 Part L Building Regulations.

Postal Street will adhere to the current 2021 Part L Building Regulations; exceeding them where practicable as demonstrated below; thereby also exceeding the 25% and 15% improvement targets over the 2006 and 2010 Part L Building Regulations, respectively.

POSTAL STREET SAP RESULTS PART L 2021*		
TER (kgCO ₂ /m ²)	DER (kgCO ₂ /m ²)	% Improvement
12.53	3.36	73.20
TFEE (kWh/m ² /yr)	DFEE (kWh/m ² /yr)	% Improvement
20.66	14.23	31.21
TPER (kWh/m ² /yr)	DPER (kWh/m ² /yr)	% Improvement
68.02	37.91	44.27

*Preliminary SAP results based on the design information available at the time.

As demonstrated above, Postal Street meets the Environmental Standards for energy efficiency and far exceeds the minimum standards for carbon emissions and primary energy consumption set by the 2021 Part L by 73.20% and 44.27%, respectively. This has been achieved by applying the principles of the energy hierarchy in accordance with Policy JP-S2 of the PfE and opting for an all-electric energy strategy to avoid the use of fossil fuels.

The emissions from unregulated energy use have been considered in the development of this statement, describing energy used by fixtures and appliances not limited by the Building Regulations. An operational energy modelling exercise has been carried out at this early design stage, which estimates the total operational energy consumption of the apartments within the proposed development to gain a better understanding of future energy use and carbon emissions. Unregulated energy emissions are challenging to reduce due to the lack of control over building occupants' energy consumption; however, opportunities to purchase electricity from a 100% renewable energy supplier could be explored to minimise unregulated energy emissions in line with Policy JP-S2.

The space heating demand, hot water energy demand and renewable energy generation targets within Policy JP-S2 have been considered and achieved, as shown in the table below.

POLICY JP-S2 ENERGY DEMAND REDUCTION TARGETS			
	Space Heating Demand	Hot Water Energy Demand	Renewable Energy Generation
Target (2025-onwards)	15 kWh/m2	20% energy demand reduction in the total heat required for water heating	Photovoltaic installation: 40% of available roof area
Postal Street (average)	<15 kWh/m2*	>20%	40% of available roof area**

*As calculated in SAP, this value represents the block area weighted average for the space heating requirement found in box 99.

**Full extent of PV array is subject to structural and cost considerations.

2.4.2 Renewable Energy

The Environmental Standards for renewable energy state that developers should aim for 20% of the final site energy demand to be met by on-site renewable energy technologies.

Of the technologies considered; the most suitable for incorporation into the development are photovoltaics and air source heat pumps. Implementation and to what extent will be confirmed during design development.

The feasibility of connecting to a district heat network has been assessed in the Energy & Carbon Statement, in line with the requirements of Policy JP-S3 of the PfE and Policy EN6 of the Manchester Core Strategy. It concludes that connecting to a district heat network is not a viable option for the development as there are currently no projects locally that are powered by renewable sources for which a connection to is considered beneficial. There are also more cost-effective low carbon technologies that can reduce operational carbon emissions over the option of a communal heat network, due to Postal Street's all electric design.

The other renewable energy technologies investigated are not considered to be viable options due to the development's location, space limitations, fiscal restraints, and technology payback period.

By applying the energy hierarchy to the design of Postal Street and minimising energy consumption; maximising energy efficiency; and utilising low carbon technologies, it is estimated that 11.5% of the annual energy demand of the residential aspects of the development only (i.e. apartments and landlord's areas) will be met by solar PV. These figures have been calculated in accordance with the TM54 methodology and consider both the predicted regulated and unregulated energy loads.

Further information on the proposed development's renewable energy balance is provided in the Energy & Carbon Statement.

3.0 Environmental Design

The Environmental Standards relating to environmental design require that residential developments demonstrate their energy efficiency by achieving at least a three-star sustainability rating using the Code for Sustainable Homes. At the time of the SPD’s adoption in 2007, the Code for Sustainable Homes was a voluntary assessment method for rating and certifying the environmental performance of new homes in the United Kingdom; launched by the Department for Communities and Local Government in December 2006 and managed by BRE Global. It has since been withdrawn by the government in April 2015 following a technical housing standards review therefore an alternative approach to demonstrating the commitment to environmental design has been considered.

Whilst the proposed development is not seeking certification through schemes such as the Code for Sustainable Homes, or similar, to reduce design and construction costs in line with the primary target of providing affordable housing; environmental design principles have still been adopted. As per previous sections, the development has considered the energy hierarchy to maximise energy efficiency and minimise operational carbon emissions, exceeding the requirements of the current 2021 Part L Building Regulations. Maximising energy efficiency through environmentally conscious design will also decrease operational running costs for the landlord and occupants of the building.

3.1 Low Carbon Design

Further to reducing operational carbon emissions as far as practicably feasible, the design of Postal Street has also sought to consider and reduce the embodied carbon associated with its construction and building materials. This will reduce the building’s whole-life carbon impacts which account for both operational and embodied carbon.

A whole life carbon assessment has been carried out by AtkinsRéalis, which uses early-stage design information and material quantities to estimate the life cycle embodied carbon associated with the proposed development’s ‘upfront’, ‘in-use’ and ‘end-of-life’ emissions, which consider separately the building’s construction and production of materials; in-use maintenance, repair or replacement of materials; and the eventual deconstruction and disposal of building materials.

Embodied carbon can be reduced by designing a building to utilise re-used and re-cycled materials and ensuring it can be disassembled at its end of life in accordance with circular economy principles. Postal Street has been designed to consider the GMCA Net Zero Design Guidance target metrics for domestic/residential buildings, published in 2025, to demonstrate the commitment to best practice low carbon design as shown below.

	GMCA Target	Postal Street
Upfront Embodied Carbon (kgCO ₂ e/m ²)	≤600	711.5

3.2 Sustainable Transport

Transportation is the UK’s largest emitting sector, attributable for 29% of total domestic greenhouse gas emissions in 2023. Cars specifically contributed to 54% of the total domestic transport emissions, equating to 60.2 MtCO₂e and is therefore an area targeted for decarbonisation.

Postal Street will adhere to the Hierarchy of Sustainable Transport where possible as part of its approach to environmental design to minimise the carbon emissions associated with transportation to and from the proposed development and encourage the use of more sustainable and less polluting modes of transport.

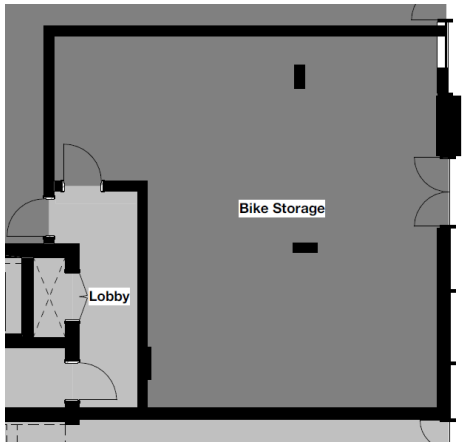
Due to its city centre location, there is a very high degree of access to public transport, bus, tram and rail. Further information on the current provision of public transport and the proposed sustainable transportation measures is provided in the Framework Sustainable Travel Plan submitted as part of this planning application.

3.2.1 Electric Vehicle Charging

- Electric vehicle charge points provide the facility for building users to charge their private electric or plug-in hybrid vehicles.
- The provision of EV charge points would encourage building users to consider alternative low carbon fuelled vehicles, promoting low carbon emission transport, and minimising the impact of the development on local air quality.
- Postal Street will not include any vehicle parking therefore no EV charging spaces will be incorporated in its design. The absence of parking provision acts as a disincentive for building users to rely on the use of a vehicle and reduces car dependency as parking a private vehicle elsewhere may require substantial daily expense. It instead encourages building users to consider using other modes of transportation such as walking, cycling or public transport which reduces air pollutant emissions and does not contribute to local traffic and congestion in accordance with Policy JP-C8 of the PFE.

3.2.2 Cycle Storage

- A dedicated cycle storage area will be incorporated into the design of the proposed development to provide building users with convenient sustainable transport options and contribute to reducing the carbon emissions associated with travel to and from the development.
- This will encourage users to choose active travel, contributing to improving local air quality and promoting health and wellbeing.
- Well-lit, secure cycle storage spaces will be available on the ground floor of the development.



4.0 Water Management and Weather Resilience

The Environmental Standards pertaining to water management and weather resilience require that new developments manage water in an environmentally effective way. The proposed development seeks to manage water and improve weather resilience by increasing water efficiency; reducing surface water run-off from the site; and mitigating future flood risk due to climate change.

4.1 Water Efficiency

As per Section 2.2, the design of Postal Street has sought to maximise efficiency in terms of both its energy and water use to minimise operational carbon and reduce its contribution to the increased pressure on the UK's water resources.

Water efficient systems and sanitary fittings will be implemented to manage water demand such as low-flow showers and faucet aerators which can provide significant water savings by reducing demand, and associated operational costs, whilst maintaining a hygienic and high-quality experience for occupants.



4.2 SuDS Integration

A SuDS strategy for surface water drainage has been developed by Heyne Tillet Steel to manage the effects of surface water runoff from the site. The overarching intention of the surface water drainage strategy is to incorporate SuDS into the fabric of the building, giving priority to SuDS features that provide multi-functional benefits by providing biodiversity and amenity value alongside improving water quality and managing water quantity. SuDS features that provide elements of rainwater re-use have been considered with the aim to reduce demand on the wider public supply network.

Proposed SuDS features comprise blue and blue/green roofs wherever feasible; these are proposed across the majority of roof levels where flat surfaces provide the ability to attenuate surface water at the source. Use of green infrastructure and multifunctional SuDS will be maximised to avoid the inclusion of below-ground piped systems and underground attenuation tanks as far as practicably feasible.

The implementation of the proposed SuDS features will support the external drainage system and ensure the site has sufficient drainage to reduce the burden of runoff on the local sewer system and reduce the risk of pollution and flooding in accordance with the Environmental Standards.



4.3 Flood Risk Assessment

A Flood Risk Assessment (FRA) has been carried out by Heyne Tillet Steel to determine the risk of flooding for the development site. The FRA confirms that the site is predominantly in Flood Zone 1, with a very low risk of flooding of river or sea flooding and at a low risk of sewer and groundwater flooding.

A small area of the site is located within Flood Zone 1 for flooding from surface water and overland flows with an annual probability of flooding between 1 in 1000 (0.1%) and 1 in 100 (1%) as evidenced by flooding which occurs on the site of the existing car parking areas through a flow path that extends from Dean Street. It is considered that the risk of surface water flooding will be mitigated by the proposed SuDS and drainage strategy which will maintain existing pavement cross falls away from building thresholds and ensure protection in both low risk and exceedance events. It is concluded that the overall flood risk to the site is low.

As stated in the SuDS strategy submitted as part of this planning application, and in accordance with Environment Agency guidance, developments with a lifetime beyond 2100 must be designed so that there is no increase in flood risk elsewhere and the development will be safe from surface water flooding in a 1% annual exceedance probability event (1 in 100 year) for the period of 2061 to 2125. As such, the SuDS strategy utilises blue roofs to attenuate a 1 in 100 year + 45% climate change peak storm event, demonstrating how future flood risk has been accounted for.

It is considered that the SuDS strategy will ensure that Postal Street includes sufficient design measures to manage surface water run-off from the site to decrease the level of pollution entering the City's watercourses in an environmentally effective way that increases the site's resilience towards the future effects of climate change.



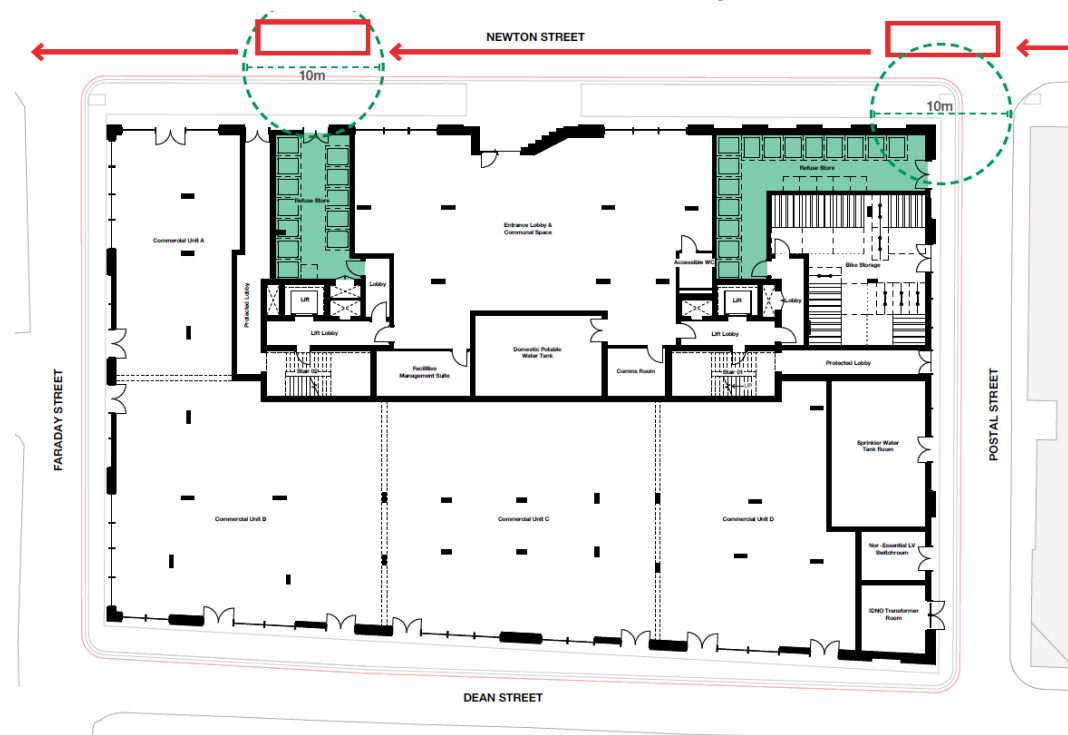
Indicative Proposed Drainage Schematic.

5.0 Waste Management

The Environmental Standards set for waste management require that developments consider how waste produced in the building will be disposed of or recycled.

5.1 Waste Management Strategy

A Waste Management and Servicing Strategy has been included in the Design and Access Statement prepared by Hawkins Brown and submitted as part of this planning application, which demonstrates how waste management has been considered in the design of Postal Street. The Waste Management Strategy states that there will be two refuse stores located on the ground floor and accessed directly from the lift lobbies by residents. The building management company will ensure that bins are rotated for access and to organise/move bins for collection. As refuse vehicles travel down Newton Street, the entrances to both refuse stores fall within a 10m radius of the vehicles as shown in the drawing below.



The refuse stores have been designed for waste to be separated into four waste streams (general refuse, pulvable recycling, comingled recycling, and food waste), all of which are accessible by residents in the drop-off store. The commercial unit refuse strategy will be determined by its future use at a later date, but an area allowance has been provisioned for on a basis of waste storage capabilities for retail use (500 litres per 100m² gross floor area with 50% capacity retained for recycling).

It is considered that the refuse provision in the proposed development exceeds that required by MCC GD04 – Waste Management Strategy for New Developments, which stipulates a minimum of 0.43m² per unit.

As demonstrated, the Waste Management Strategy ensures the proposed development will include sufficient design measures to effectively manage and dispose of waste including adequately sized bin storage areas and access for waste collection crews and vehicles.

6.0 Construction Management

The Environmental Standards relating to construction management encourage new developments to prepare a site waste management plan to reduce the quantity of waste generated during construction and increase opportunities for re-use and recycling of existing structures and building materials; prioritise the use of environmentally friendly materials; and manage adverse environmental impacts that may arise during the construction phase.

6.1 Site Waste Management

A Framework Construction Management Plan has been prepared by AtkinsRéalis and submitted as part of this planning application submission, which includes further details on the approach towards managing site waste during the construction phase of the proposed development.

In order to reduce the need for waste disposal, it is stated that the contractor(s) will minimise the generation and environmental impacts of waste arising during the works and shall maximise opportunities for the re-use and recovery of wastes. All waste is to be managed in line with environmental legislation and will be taken onto the highway by a licensed waste carrier under a waste transfer note and disposed of at a licensed facility, preferably a waste transfer station, to maximise recycling opportunities. The management and disposal of waste generated by this contract will be managed in accordance with the contractor's Waste Management Procedure and recorded in the Site Waste Management Plan. Other waste generated on the project will be taken off-site with skips managed by the contractor, who will seek to employ a local waste management company, and they will be responsible for delivering, exchanging and removing skip containers from site when required.

6.2 Mitigating Construction and Site-Related Environmental Impacts

The Framework Construction Management Plan demonstrates the commitment to manage and control any adverse environmental impacts that may arise during construction and ensure that the construction process is managed with environmental and social considerations in mind.

It is stated that measures will be put in place to minimise all forms of pollution arising from the works and will be managed via the appointed contractor(s) specific procedures within their management system. The contractor shall adopt good construction management practices that will reduce the risks of accidental discharge of pollutants into watercourses or groundwater.

Dust suppression techniques will be adopted at all times in accordance with task-specific method statements. Water suppression will be used when cutting masonry and concrete products, dampening down will be employed externally if vehicles are causing dust to be drawn from external surfaces or in high winds and extraction will be used when cutting timber and the like during construction.

As demonstrated, the Framework Construction Management Plan will ensure that the construction of Postal Street and site is managed in an environmentally conscious way.

7.0 Biodiversity

The Environmental Standards relating to biodiversity state that developers must contribute to Manchester's Biodiversity Strategy which has since been replaced by the Manchester Biodiversity Strategy and Action Plan following MCC's support of the Edinburgh Declaration, an international commitment that recognises concerns about global biodiversity loss, and the need for a new Global Biodiversity Framework. New developments are required to take full account of their effect on biodiversity.

7.1 Ecological Baseline

An Ecological Assessment has been undertaken by LUC to identify any ecological features present on site and the potential negative impacts the proposed development may cause. The assessment concludes that there are currently no ecological features on site as it is made up of hardstanding only. It is considered that there are no existing species or habitats on the site to be protected or retained and therefore the development would not contribute to a loss of biodiversity.

7.2 Ecological Enhancement

The site of Postal Street is not required to provide a net gain of biodiversity as it does not meet the size threshold and has a low ecological baseline.

Ecological enhancement of the site will still be sought despite constraints relating to building shape and site layout. Landscaping will be included on the roof at the centre of the building on the first floor; with options to incorporate a green roof being considered.

The proposed green roof will comprise ornamental and native species planting that include evergreen, shrubs and grasses plus herbaceous perennials and bulbs to provide seasonal interest and increase the ecological value of the site to birds and invertebrates.

Ecological enhancement through the measures described can provide a range of environmental benefits that are especially pertinent on urban sites, including improved air quality, stormwater management, enhanced biodiversity and reduction in the urban heat island effect.

It is expected that the design of Postal Street has considered the potential adverse effects on biodiversity from its construction and has sought to retain existing ecological features where possible and provide an additional net gain of biodiversity in line with the Manchester Biodiversity Strategy and Action Plan.



8.0 Conclusion

This Environmental Standards & Energy Statement demonstrates how the sustainable design principles have been considered and implemented within the design of Postal Street in accordance with the local energy and climate change policy requirements, including those of Manchester City Council and the Greater Manchester Combined Authority.

8.1 Local Planning Requirements

Policies EN4 and EN6 of the Manchester Core Strategy (adopted July 2012) and the Environmental Standards set by the Guide to Development in Manchester: Supplementary Planning Document have been considered as part of this statement.

The energy hierarchy has been applied, and the 2021 Part L Building Regulations will be adhered to in order to reduce operational energy demand and associated carbon emissions, exceeding the requirements of Policy EN4 and EN6.

Compliance with the Environmental Standards has been achieved and exceeded where possible as summarised below:

- Energy Efficiency: Postal Street will adhere to the current 2021 Part L Building Regulations; exceeding them where practicable, thereby also exceeding the 25% improvement target over the 2006 Part L Building Regulations.
- Renewable Energy: By applying the energy hierarchy to the design of Postal Street and considering the viability of utilising low carbon technologies, it is estimated that 11.5% of the annual energy demand of the residential aspects of the development only (i.e. apartments and landlord's areas) will be met by solar PV.
- Environmental Design: Whilst the proposed development is not seeking certification through schemes such as the Code for Sustainable Homes, environmental design principles have still been adopted including low embodied carbon design and sustainable transport.
- Water Management and Weather Resilience: The proposed development seeks to manage water and improve weather resilience by increasing water efficiency; reducing surface water run-off from the site; and mitigating future flood risk through the inclusion of water-efficient fittings and systems, and the implementation of a SuDS strategy.
- Waste Management: A Waste Management and Servicing Strategy has been prepared to consider how waste produced by the building will be disposed of or recycled. Sufficient refuse storage is provided at ground floor for the anticipated number of building occupants including convenient access for waste collection crews and vehicles.
- Construction Management: A Framework Construction Management Plan has been prepared to manage adverse environmental impacts that may arise during the construction phase including the generation of site waste.
- Biodiversity: The site of Postal Street is not required to provide a net gain of biodiversity as it does not meet the size threshold and has a low ecological baseline. Ecological enhancement will be achieved through landscaping that incorporates planting and a blue/green roof to provide an additional net gain of biodiversity in line with the Manchester Biodiversity Strategy and Action Plan.

8.2 Regional Planning Requirements

Policies JP-S2 and JP-S3 of the Greater Manchester Combined Authority Places for Everyone plan (adopted 2024) have been considered in this statement.

The energy hierarchy has been applied to demonstrate how the proposed development will seek to minimise energy demands; maximise efficiency; and utilise low and zero carbon technologies in accordance with Policy JP-S2. A fabric first approach to improving the performance of the building envelope has been applied using the 2021 'notional building' as the target for the construction of the development to ensure that the development is consistent with the 2021 Part L Building Regulations, exceeding them where possible. The space heating demand, hot water energy demand and renewable energy generation targets within Policy JP-S2 have been considered and achieved, as shown in the table below.

POLICY JP-S2 ENERGY DEMAND REDUCTION TARGETS			
	Space Heating Demand	Hot Water Energy Demand	Renewable Energy Generation
Target (2025-onwards)	15 kWh/m2	20% energy demand reduction in the total heat required for water heating	Photovoltaic installation: 40% of available roof area
Postal Street (average)	< 15 kWh/m2*	>20%	40% of available roof area**

*As calculated in SAP, this value represents the block area weighted average for the space heating requirement found in box 99.

**Subject to structural and cost considerations.

Regulated and unregulated carbon emissions have been calculated and minimised as far as practicable and financially viable and significant carbon savings have been demonstrated. The operational carbon emissions from Postal Street will continue to decrease towards net zero as the UK grid continues to decarbonise based on its all-electric energy strategy. It is considered that the inclusion of photovoltaics and air source heat pumps into the design of Postal Street will contribute towards mitigating residual operational carbon emissions in the interim and support the delivery of a carbon neutral Greater Manchester no later than 2038.

Appendix 1 – Planning Policies

1.0 National Policy

1.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF) (December 2024 revision) sets out the government's planning policies for England and guidance on how these are expected to be applied. The NPPF states that the purpose of the planning system is to contribute to the achievement of sustainable development, which is defined as meeting the needs of the present without compromising the ability of future generations to meet their own needs. This includes the provision of homes, commercial development and supporting infrastructure in a sustainable manner.

Section 2 describes the three overarching objectives of the NPPF that are intended to be pursued in mutually supportive ways and delivered through the preparation of plans and application of the policies within the Framework. These are:

- a) An economic objective – to help build a strong, responsive and competitive economy;
- b) A social objective – to support strong, vibrant and healthy communities; and;
- c) An environmental objective – to protect and enhance our natural, built and historic environment.

To facilitate the advancement of sustainable development in a positive way, paragraph 10 states that at the heart of the NPPF is a presumption in favour of sustainable development for plans and decisions.

The NPPF supports the transition to a low-carbon future in a changing climate, taking full account of flood risk and coastal change. It aims to help shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure.

Section 14 outlines the energy and climate change policies and states that plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures. New development should be planned for in ways that:

- a) Avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure; and;
- b) Can help to reduce greenhouse gas emissions, such as through its location, orientation and design. Any local requirements for the sustainability of buildings should reflect the Government's policy for national technical standards.

To help increase the use and supply of renewable and low carbon energy and heat, plans should:

- a) Provide a positive strategy for energy from these sources, which maximises the potential for suitable development, and their future re-powering and life extension, while ensuring that adverse impacts are addressed appropriately (including cumulative landscape and visual impacts);
- b) Consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and;
- c) Identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.

When determining planning applications, the NPPF states that local planning authorities should expect new development to:

- a) comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and;
- b) take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.

When determining planning applications for renewable and low carbon development, local planning authorities should:

- a) not require applicants to demonstrate the overall need for renewable or low carbon energy, and recognise that even small-scale projects provide a valuable contribution to significantly cutting greenhouse gas emissions;
- b) approve the application if its impacts are (or can be made) acceptable⁵⁸. Once suitable areas for renewable and low carbon energy have been identified in plans, local planning authorities should expect subsequent applications for commercial scale projects outside these areas to demonstrate that the proposed location meets the criteria used in identifying suitable areas; and;
- c) in the case of applications for the repowering and life-extension of existing renewable sites, give significant weight to the benefits of utilising an established site, and approve the proposal if its impacts are or can be made acceptable.

Section 9 of the NPPF outlines the sustainable transport policies supports and encourages transport issues to be considered from the earliest stages of plan-making and development proposals.

The NPPF states that applications for development should:

- a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;
- b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;
- c) create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;
- d) allow for the efficient delivery of goods, and access by service and emergency vehicles; and;
- e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.

2.0 Regional Policy

2.1 Places for Everyone

The Places for Everyone (PfE) plan was formally adopted in March 2024 and forms part of a suite of documents that comprise the Manchester Local Plan. The PfE was prepared by the Greater Manchester Combined Authority (GMCA) and sets out the long-term plan for jobs, new homes and sustainable growth across nine of Manchester’s Metropolitan Districts including Salford.

The policies within the PfE plan aim to support the delivery of a carbon neutral Greater Manchester by 2038, following the declaration of a Climate Emergency in July 2019 by the GMCA by encouraging a range of measures that contribute to reducing greenhouse gas emissions from new development in the area.

Objective 7: Playing our part in ensuring that Greater Manchester is a more resilient and carbon neutral city-region states that the GMCA will:

- Promote carbon neutrality of new development by 2028;
- Promote sustainable patterns of development that minimise the need to travel and contribute to cleaner air;
- Locate and design development to reduce car dependency;
- Facilitate provision of infrastructure for cleaner vehicles;
- Improve energy efficiency and the generation of renewable and low carbon energy.

Policy JP-S1: Sustainable Development

Policy JP-S1: Sustainable Development states that development should aim to maximise its economic, social and environmental benefits simultaneously, and minimise its adverse impacts, to help tackle climate change. Preference will be given to using previously developed (brownfield) land and vacant buildings to meet development needs. In bringing forward previously developed sites for development, particular attention will be paid to tackling land contamination and stability issues, ensuring that appropriate mitigation and remediation is implemented to enable sites to be brought back into use effectively.

Policy JP-S2: Carbon and Energy

Policy JP-S2: Carbon and Energy aims to support the delivery of a carbon neutral Greater Manchester no later than 2038 through a range of measures including:

1. Promoting the retrofitting of existing buildings with measures to improve energy efficiency and generate renewable and low carbon energy, heating and cooling;
2. Promoting the use of life cycle cost and carbon assessment tools to ensure the long-term impacts from development can be captured;
3. Taking a positive approach to renewable and low carbon energy schemes, particularly schemes that are led by, or meet the needs of local communities;
4. Increasing the range of nature-based solutions including carbon sequestration through the restoration of peat-based habitats, woodland management, tree-planting and natural flood management techniques;

Policy JP-S2 states that there is an expectation that new developments will unless it can be demonstrated that it is not practicable or financially viable;

- a) 'Be net zero carbon which applies:
- from adoption– to regulated operational carbon emissions;
 - from 2028 - to all emissions 'in construction'.

From 2025 development should also calculate and minimise carbon emissions from unregulated emissions alongside regulated emissions.

Development proposals should set out how this has been achieved in an energy statement in accordance with the energy hierarchy, which in order of importance seeks to:

- i. Minimise energy demand;
- ii. Maximise energy efficiency;
- iii. User renewable energy;
- iv. Use low carbon energy; and
- v. Utilise other energy sources.

From 2025 any residual carbon emissions that cannot be fully mitigated on-site should be offset, in agreement with the relevant local planning authority through a financial contribution to a carbon offset fund. As an interim measure, development should be consistent with the 2022 Part L Building Regulations unless superseded by changes to building regulations and/or national or local planning policies.

- b) Incorporate adequate electric vehicle charging points, in line with Part S of the Building Regulations, unless superseded by relevant Local Plan policies, to future proof for the likely long-term demand, taking account of the potential maximum energy demand for the site;
- c) Where practicable, prioritise connection to a renewable energy/heating/cooling network in the first instance or a low carbon energy/heating/cooling network that is adaptable to non-fossil fuels at a later date;
- d) In residential developments, achieve energy demand reductions in terms of space heat demand; hot water energy demand and the delivery of on-site renewable energy generation, in accordance with Table 5.1.

Table 5.1 Best Practice Thresholds for Reducing Energy Demand and Onsite Renewable Energy Generation within residential developments

-	Space Heat Demand ²⁵	Hot Water Energy Demand ²⁶	Renewable Energy Generation Targets
2021 - 2025	Houses (30kWh/m2) Flats (25kWh/m2)	20% energy demand reduction in the total heat required for water heating	*Photovoltaic installation: 20% ground floorspace
2025 - onwards	Houses (20kWh/m2) Flats (15kWh/m2)	^20% energy demand reduction in the total heat required for water heating	*Photovoltaic installation: 40% ground floorspace
*Ground floorspace used as a proxy for available roof area.	-	-	-
^will need to be reviewed with Future Homes Standard 2025 to determine if savings already embedded.	-	-	-

For renewable energy generation priority should be given to PV installation where technically feasible, alternative technologies will be appropriate where the equivalent generation is evidenced.

- e) For non-residential developments, achieve at least BREEAM excellent standard (or equivalent) for the 'Ene 01 – reduction of energy use and carbon emissions' category rising to 'BREEAM outstanding' equivalent for ENE 01 from 2028.
- f) Include a detailed energy statement to demonstrate via site relevant evidence how the development has sought to maximize reductions in carbon emissions in line with relevant policy targets, including the minimisation of overheating risks and appropriate measures for post occupancy evaluation. Whole life cycle emissions should be considered where possible.

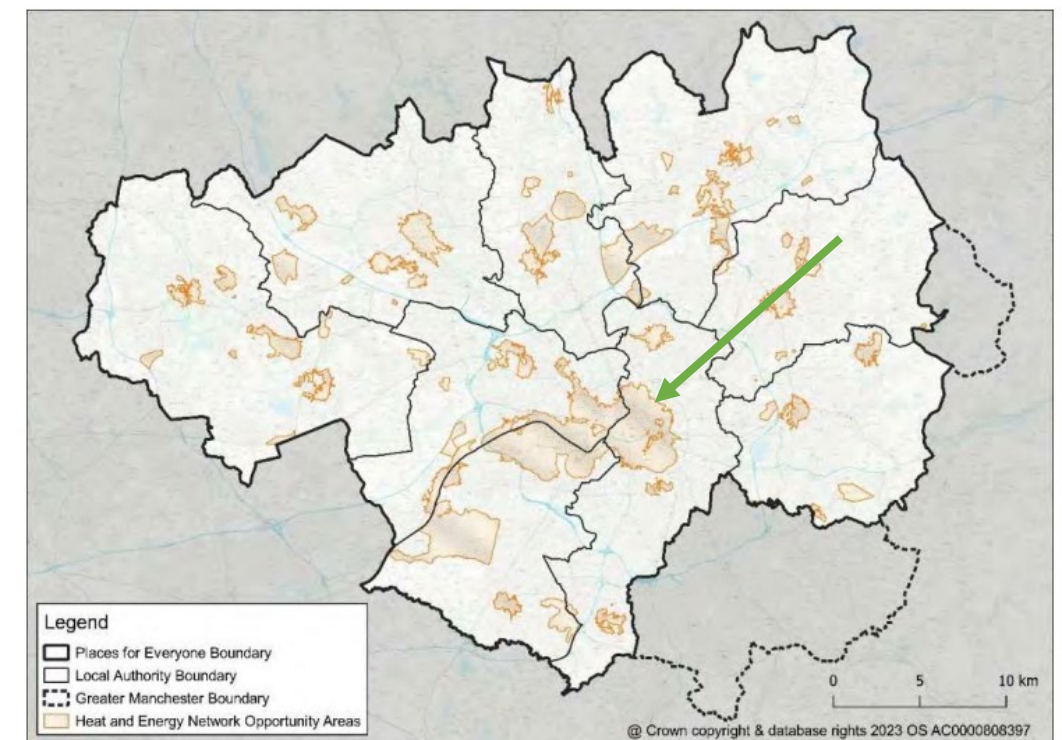
Districts may set out specific carbon emission reduction and energy demand targets within Local Plans.

Policy JP-S3: Heat and Energy Networks

Policy JP-S3: Heat and Energy Networks states that the provision of decentralised energy infrastructure is critical to the delivery of our objectives for low carbon growth, carbon reductions and an increase in local energy generation. The following measures will help to achieve this:

1. Delivery of renewable and low carbon energy schemes will be supported with particular emphasis on the use of decentralised energy networks in areas identified as "Heat and Energy Network Opportunity Areas". These have been identified where:
 - a. Existing heat/energy networks are operational or have been commissioned;
 - b. Proposals for new heat networks/energy networks are being progressed, or future opportunities have been identified in city-region master planning;
 - c. Sufficient density of existing heat demand occurs; and d. Significant future development is proposed at the strategic development locations.
 - d. Significant future development is proposed at the strategic development locations.
2. Within the identified "Heat and Energy Network Opportunity Areas", unless it can be demonstrated that there are more effective alternatives for minimising carbon emissions or such connection is not practicable or financially viable, it is expected that:
 - a. New residential developments that are '10 dwellings or more' or other developments over 1,000 m2 floorspace shall:
 - i. Connect to an existing or planned heat/energy network or be designed to enable future connection (where within 500m of such a network); and/or
 - ii. Install a site-wide or communal heat/energy network solution.
 - b. An expectation that new industrial development will demonstrate that opportunities for using waste heat locally have been fully examined, and included in proposals;
 - c. An expectation that where publicly owned buildings and assets adjoin new major development sites, opportunities for these buildings and assets to connect to site-wide proposals will be considered; and
 - d. An expectation that any site-wide networks will be designed so as to enable future expansion to adjoining buildings or assets as appropriate.

Figure 5.1 Heat and Energy Network Opportunity Areas



3.0 Local Policy

3.1 Manchester Core Strategy

Manchester City Council's Core Strategy (2012-2027) was adopted in July 2012 and comprises the key document in the Manchester Local Plan. Following the recent adoption of GMCA's PfE by Manchester City Council, the Core Strategy was updated in March 2024. It sets out the long term strategic policies for Manchester's future development and forms the framework that planning applications will be assessed against. The following policies from the Core Strategy have been replaced by Policy JP-S2 of the PfE however will still be considered within this Statement.

Policy EN4 Reducing CO2 Emissions by Enabling Low and Zero Carbon Development

The Council will seek to reduce fuel poverty and decouple growth in the economy, growth in CO2 emissions, and rising fossil fuel prices, through the following actions:

- All development must follow the principle of the Energy Hierarchy, being designed:
 - to reduce the need for energy through design features that provide passive heating, natural lighting and cooling
 - to reduce the need for energy through energy efficient features such as improved insulation and glazing
 - to meet residual energy requirements through the use of low or zero carbon energy generating technologies
- Wherever possible new development and retrofit projects, including energy generation plant, must be located and designed in a manner that allows advantage to be taken of opportunities for low and zero carbon energy supplies.
- Where possible new development and retrofit projects will be used as a mechanism to help improve energy efficiency and provide low and zero carbon energy supplies to existing buildings.
- Where appropriate new development and retrofit projects will be required to connect to and/or make contributions to low or zero carbon energy schemes and/or to incorporate provision to enable future connection to any existing / potential decentralised energy schemes.
- The use of building materials with low embodied carbon in new development and refurbishment schemes.

Policy EN6 Target Framework for CO2 Reductions from Low or Zero Carbon Energy Supplies

Applications for residential development of 10 or more units and all other development over 1,000 sq m will be expected as a minimum to meet the target shown in Tables 12.1 or 12.2, unless this can be shown not to be viable. This should be demonstrated through an energy statement, submitted as part of the Design and Access Statement. Such a statement will be expected to set out the projected regulated energy demand and associated CO2 emissions for all phases of the development.

Developments smaller than the above threshold, but involving the erection of a building or substantial improvement to an existing building will also be expected to meet the minimum target, where viable, but will not be expected to submit an energy statement.

The target framework relates to three broad development locations and their potential for low and zero carbon, decentralised energy. The areas are defined as follows:

- Target 1 Network development areas: Locations where the proximity of new and existing buildings, the mix of uses and density of development provide the right conditions to support district heating (and cooling).
- Target 2 Electricity intense areas: Locations where the predominant building type has an all-electric fit-out such as retail units and leisure complexes.
- Target 3 Micro-generation areas: Locations where lower densities and a fragmented mix of uses tend to mean that only building scale solutions are practical.

Domestic CO ₂ emissions reduction targets	
Table 12.1	
Target	% Minimum requirement
Target 1: Network development area	CHP/district heating anchor or connection or where not feasible a 15% increase on Part L 2010
Target 2: Electricity intense buildings	+15% increase on Part L 2010
Target 3: Micro generation area	+15%increase on Part L 2010
Non-domestic CO ₂ emissions reduction targets	
Table 12.2	
Target	% Minimum requirement
Target 1: Network development area	CHP/district heating anchor or connection or where not feasible, a 15% increase on Part L 2010
Target 2: Electricity intense buildings (Applies to commercial uses with a high proportion of emissions from electricity use (>45 kg CO2/m2))	+10%increase on Part L 2010
Target 3: Micro generation area	+15% increase on Part L 2010

Where the CO2 emissions reduction required under any future revision to Part L of the building regulations becomes greater than the '% Minimum requirement', the reduction required under building regulations would apply.

Where the Council identifies an 'allowable solution', for example within an energy proposals plan, that would produce higher carbon reductions at no extra cost than that of achieving the '% Minimum requirement' (or required under building regulations if greater) the higher percentage reduction will be required. The cost comparison is based on the cost of incorporating the 'allowable solution' at design stage.

The energy statement will be required to be submitted at the outset of any proposed development (outline application or before). Developers will be permitted to use green infrastructure elements such as green roofs, green walls, street trees and waterways to contribute to compliance with CO2 mitigation, subject to the energy statement incorporating evidence such as modelling to demonstrate compliance.

3.2 A Guide to Development in Manchester

The Guide to Development in Manchester was formally adopted by Manchester City Council in April 2007 and acts as a Supplementary Planning Document and Planning Guidance that reflects the growing recognition of the importance of attractive, well-designed, well-maintained neighbourhoods in supporting sustainable development and 'neighbourliness'. The Guide aims to support and enhance the ongoing shaping of the City by providing a set of reasoned principles that can guide developers, designers and residents to the sort of development that is wanted in Manchester.

The Guide sets out a number of Environmental Standards that are expected to be achieved by developers and demonstrated within an Environmental Standards Statement.

The 'UDP' discussed in the following Environmental Standards refers to the Manchester's Unitary Development Plan (UDP) which was adopted by in July 1995. The UDP provided the guidelines for all development in Manchester and provided the frameworks from which to base decisions about planning applications on, however was superseded by the adoption of Manchester's Core Strategy in 2012 and subsequent policies within the PfE.

Energy Efficiency

Part 1 Policy E1.5 encourages high standards of energy efficiency in new development. In the Environmental Standards Statement, developers should show how they have considered the steps necessary to reduce energy demand at the earliest stages of design. Developers should aim to reduce CO2 emissions by at least 25% more than the requirements of the current Building Regulations, which at present are Building Regulations: Approved Document L (2006) – 'Conservation of Fuel and Power.' The following design principles will assist developers in achieving energy efficiency targets:

- Minimise reliance on energy-using equipment for heating, cooling, lighting and natural ventilation
- Position trees and soft landscaping on and around the development and within buildings to provide natural shading, insulation and air conditioning
- Integrate energy efficient micro-generation and community heating schemes, such as combined heat and power (CHP)
- Site layout and building design principles should maximise the capture and use of daylight and passive solar energy, whilst avoiding excessive solar gain in summer
- Specify energy and water efficient appliances and systems.

Renewable Energy

To reduce energy demand and the harmful impact of using energy from non-renewables, in line with UDP Part 1 Policy E1.5, developers should aim for at least 20% of final site energy demand to be met by on-site renewable energy technologies. Renewable energy targets can be achieved more readily by undertaking the measures suggested above to reduce the total energy demand of the building. It is possible to produce developments that use 50% and even 100% energy from renewable sources. To achieve this, developers should:

- Assess opportunities for integrating small and large scale renewable energy generation systems (i) to improve the energy security of occupants and the neighbourhood, including siting of energy generation businesses on-site and export of surplus energy
- Use a mix of technologies to help generation patterns match demand Investigate energy generation opportunities before designing building envelopes or fixing their location, to optimise utilisation of wind, solar and geothermal resources
- Consider final energy demand rather than building energy consumption in the selection and sizing of generation equipment
- Explore opportunities to tackle waste and energy issues collectively through use of anaerobic digesters linked to CHPs (Combined Heat and Power devices)
- Consider private wire networks as an alternative to grid connection and availability charges on larger developments.

Environmental Design

Developers must demonstrate energy efficiency in line with UDP Part 1 Policy E1.5. For residential developments, this should be through the use of the Department for Communities and Local Government's 'Code for Sustainable Homes'. (In the short-term, compliance is voluntary but home builders are encouraged to follow the principles set out in the Code because the Government is considering making assessment under Code standards mandatory in the future). This Code builds on and replaces the EcoHomes system. Any developer in the process of achieving an EcoHomes assessment should discuss the transition to the Code for Sustainability with the relevant planning case officer. Whilst the City Council considers that new homes should achieve at least a three star sustainability rating under the Code for Sustainable Homes, developers should be aware that the Government target is for new homes to have a six star rating under the Code by 2016. The City Council would expect developers to be working towards meeting this six star rating. However, using alternative modelling tools that enable the developer to exceed the requirements of the Code is also encouraged.

To demonstrate energy efficiency in non-residential developments, the City Council would encourage developers to use the Building Research Establishment Environmental Assessment Method (BREEAM) which is used to assess environmental performance. Developments should be achieving a design and post-construction rating of "very good." However, using alternative modelling tools that enable the developer to exceed the requirements of BREEAM is also encouraged.

Water Management and Weather Resilience

UDP Part 1 Policy E1.3 states that the Council will promote measures to decrease the level of pollution in the City's watercourses, and groundwater sources. UDP Development Control Policy DC21.1 refers to development not normally being permitted where it would be at risk from flooding or increase the risk of flooding elsewhere. The environmental standards statement should therefore show how water is to be managed in the most environmentally effective way.

- New developments and the conversion of existing properties can both result in the removal of areas of soakaway, which can result in high volumes of surface water run-off, burdening the local sewer system and increasing pollution and the risk of flooding. Sustainable drainage systems (SUDS) should be included, and the amount of hard surfacing minimised, for example by providing on site capture and soakaway of all rainwater on site. Examples of SUDS options would include, rainwater harvesting systems, pervious surfaces, green roofs, filter drains, filter strips, swales, infiltration devices, bio-retention areas, basins, ponds and wetland. The use of gardens as a surface water management resource should not be underestimated.
- Localised flooding incidents are becoming increasingly frequent and problematic as we see the effects of climate change taking hold across the UK. Developers will be expected to prepare a Flood Risk Assessment for proposals in an area of identified flood risk.
- *New developments should seek to use water efficiently, through specification of water efficient devices and through the use of rainwater harvesting and grey water recycling.*

Waste Management

UDP Development Control Policy DC27.1 sets out how the City Council will deal with applications for development involving the disposal or recycling of waste materials. All development is likely to involve the production of waste to a greater or lesser extent. Greater emphasis is now being placed on the importance of the reduction and recycling of waste at source (PPS10). Developers will be increasingly required to consider how this issue will be tackled on-site.

All developments should have a waste management strategy included in the Environmental Standards Statement. This will ensure that adequately sized bin storage areas, access for collection crews and vehicles, and other aspects of waste management are designed into the development at the earliest stage.

Construction Management

UDP Part 1 Policy E1.6 requires the building materials used in new development and refurbishment schemes to be environmentally friendly wherever possible, and encourages the use of recycled building materials, which is also energy efficient. Site waste management plans should, therefore, be implemented to reduce the quantity of waste generated, and to increase re-use and recycling. Opportunities for reuse of existing structures should be explored, and where this is not appropriate, materials should be reused on site and incorporated into the new design where practicable. Materials that are environmentally friendly, of low embodied energy, locally sourced, and can be recycled or reclaimed when the building comes to the end of its life should be prioritised. Materials that contain environmentally damaging chemicals should be avoided.

In addition, activities carried out during the construction of new developments have the potential to cause significant environmental impact. In order to avoid such impacts, it is important that appropriate measures are put in place to manage and control the waste generated, the amount of water and energy used, and any potential releases to water, land and air. Use of the Considerate Constructor scheme is recommended.

Biodiversity

UDP Part 1 Policies E2.3 and E2.4 require the protection of wildlife, wildlife habitats, and where possible, the creation of new nature reserves and features which will sustain wildlife. Part 1 Policy E2.6 states that the City Council wishes to prevent the loss of existing trees. Developers will need to contribute to Manchester's Biodiversity Strategy by demonstrating in their Environment Standards Statement how they have taken full account of the effect of their proposed development on biodiversity. This should highlight how existing species and habitats would be protected and how the proposed development would enhance the ecological value of the site. Mature trees and hedges should be retained on site wherever possible. Where this is not possible, developers will be expected to agree an appropriate scheme for replanting with the Development Control case officers.

Developments should result in no net loss in overall biodiversity value and maximise opportunities to meet and exceed our target to achieve a 10% net increase in tree cover across new developments. In exceptional cases, where planting is unachievable on site, permission may be granted to plant elsewhere in the City to ensure no overall net loss in tree resources. Existing green links across the site should be maintained and the opportunity taken to create new links as appropriate. Landscaping and new planting should include species appropriate for the proposed development that will encourage wildlife. Full plans should be included in the report showing retained, enhanced and new ecological features, the number of on-site trees pre and post development, and a 5 year management plan. Wood and wood products should come from Forest Stewardship Council sources. Tropical hardwoods should be avoided.

Waterways

The waterways are a major asset for the City and provide significant opportunities to raise perceptions and economic values through links to regeneration, the environment and transportation. This is recognised in UDP Part 1 Policies E1.3 which seeks to promote measures to reduce pollution in the City's watercourses and E3.4 which sees the waterways as an important part of a recreational network where measures will be taken to improve access and protect and enhance wildlife. Developers working in close proximity to the City's waterways should demonstrate, in line with the above mentioned UDP Policies and Manchester's Waterways Strategy, how public access, environment and management will be enhanced. Developers should landscape to ensure that site run-off and blown waste does not enter watercourses, even during extreme weather conditions.

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