

RED BANK OUTLINE APPLICATION

Environmental Standards Statement

April 2023



Far East
Consortium

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Introduction

Background and development description

This Environmental Standards Statement (ESS) has been prepared by WSP on behalf of Far East Consortium International Limited (FEC) in support of a proposed residential-led mixed-use development on land at Red Bank, Victoria North, Manchester. The proposed development is located on an area of land to the northeast of Victoria Station, north of Dantzic Street, and to the south of Red Bank Road. It is immediately adjacent to Manchester City Centre and is referred to as 'Red Bank Neighbourhood'

Joint Venture Partnership

In April 2017, Manchester City Council (MCC) appointed FEC as its Joint Venture investment and delivery partner, to accelerate the delivery of the Victoria North opportunity. This appointment was the conclusion of an international marketing exercise that commenced in April 2016. Since making this appointment, in February 2019, MCC approved the Northern Gateway Strategic Regeneration Framework (SRF), which provides an updated vision, core objectives and development framework to guide the regeneration of Northern Gateway (now known as Victoria North) with a focus on the provision of housing and supporting infrastructure investment.

FEC's Masterplan for Red Bank and New Town

Maccleanor Lavington Architects and Schulz Plus Grasso Urban Designers have been commissioned by the FEC to produce a cohesive Illustrative Masterplan for Red Bank. The Illustrative Masterplan is based on a series of site wide strategies including a Sustainability Strategy. The overarching vision

for Red Bank is to create a community through the development of thriving neighbourhoods which will provide new homes for a diverse mix of people, alongside the long-term infrastructure to help these communities to develop sustainability.

FEC's Outline Planning Application

This ESS is submitted in support of an outline planning application, with all matters reserved, which relates to the majority of the development plots within the Masterplan area. The outline application proposes:

- Up to 3,250 residential units (Use Class C2 and C3);
- Up to 6,300m² GIA non-residential development (across uses E, F and Sui Generis);
- Up to 3,250m² GIA clubhouse residential amenity buildings;
- Up to 3,250m² GIA health centre uses (Use Class E);
- Up to 2,750m² GIA primary school use (Use Class F1(a));
- Car parking and cycle storage provision, comprising 1 cycle parking space per dwelling (up to 3,250) and 12% car parking provision.

The outline application boundary, demarcated on the Location Plan in **Error! Reference source not found.**, covers 10.29 hectares (25.41 acres). The Site itself is made up of 12 plots (RB01-04, RB05A/B/C, RB06-07, RB12B, RB16-17).

FEC's Full Planning Application

Concurrently to the outline application's submission, a separate but interrelated full planning application is being submitted by FEC for residential led buildings on three plots of land to the south of Dantzic Street and north of the railway viaduct known as plots NT02, NT03 and NT04. This residential scheme will

provide a total of 1,551 apartments and will be supported by a resident's amenity space within a 'clubhouse', together with flexible non-residential uses at lower levels. The full application site relates to the remainder of the development plots within the Masterplan area and is 2.7

Purpose of the ESS

This Statement provides details of the various measures incorporated into the development proposed by the outline planning application to ensure suitable levels of sustainability performance in accordance with local and national planning policy. It should be read alongside supporting documents including (but not limited to) the Design and Access Statement, Supporting Planning Statement, and Sustainability Statement.

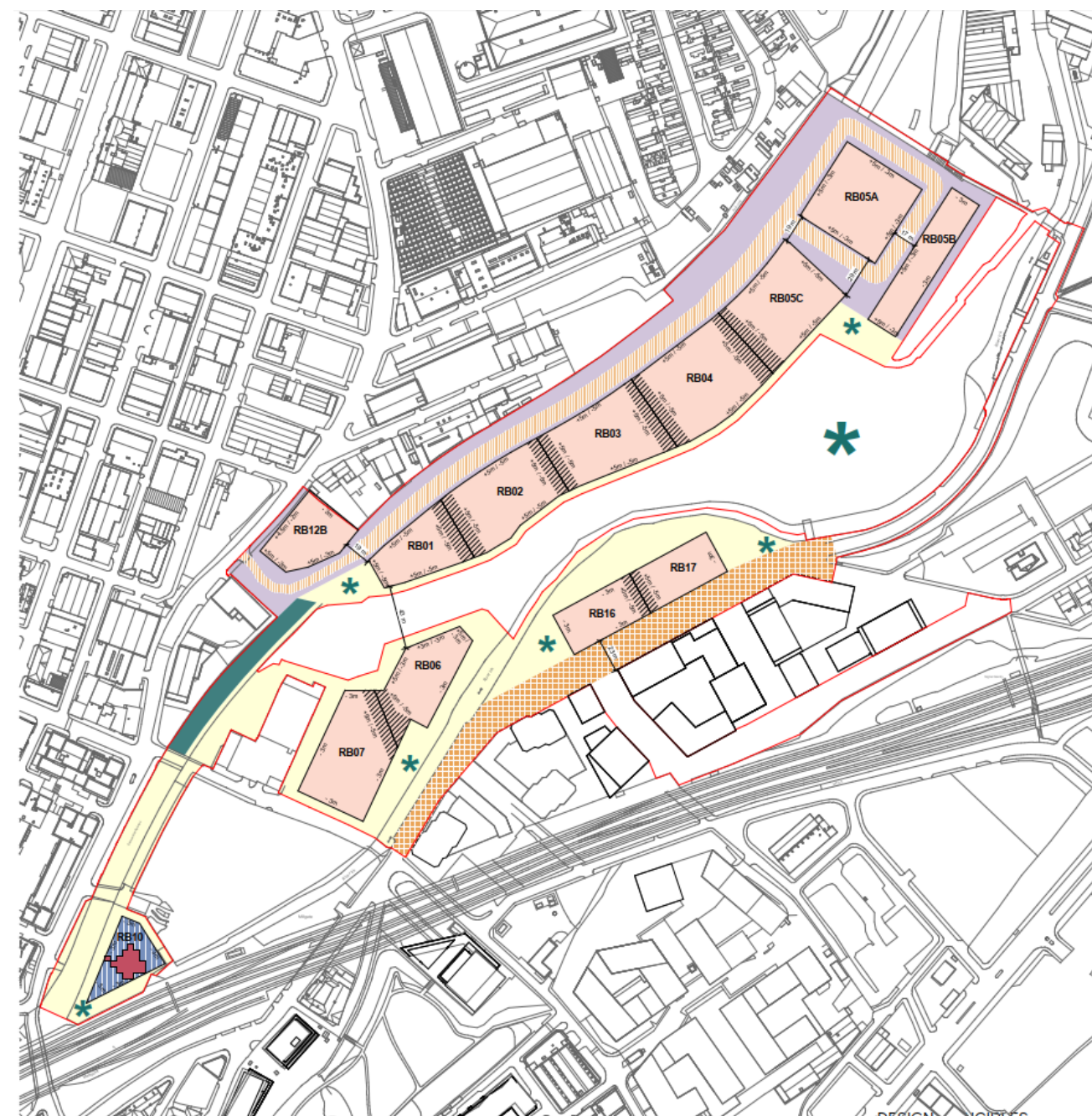


Figure 1- Outline application plan

Policy and Guidance Context

This chapter provides an overview of national and local sustainability planning policy and guidance that is relevant to Red Bank.

NATIONAL POLICY

This section provides a summary of current national guidance and policy in relation to sustainable development.

The National Policy Framework (NPPF)

The NPPF document¹ (revised in July 2021) provides a framework for the development of locally prepared plans, establishes the government's planning policies for England, and describes how these are expected to be applied.

Paragraph 7 of the NPPF states that: 'the purpose of the planning system is to contribute to the achievement of sustainable development'. Paragraph 8 explains that, to deliver sustainable development, the planning system has three overarching objectives which are interdependent and must be pursued in mutually supportive ways.

The July 2021 update to the NPPF recognises the role planning must play in support of the UK's pursuit of the United Nations Sustainable Development Goals (UNSDGs) which address social progress, economic wellbeing and environmental protection.



An economic role – contributing to building a strong, responsive, and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth and innovation; and by identifying and coordinating development requirements, including the provision of infrastructure.



A social role – supporting strong, vibrant, and healthy communities, by providing the supply of housing required to meet the needs of present and future generations; and by creating beautiful and safe places, with accessible local services that reflect communities' needs and support its health, social and cultural well-being.



An environmental role – contributing to protecting and enhancing our natural, built, and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, eliminate waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy.

¹ UK Government, National Planning Policy Framework, [National Planning Policy Framework - GOV.UK \(www.gov.uk\)](https://www.gov.uk/national-planning-policy-framework)

Planning Practice Guidance

Planning Practice Guidance²(PPG) provides advice on various planning issues associated with development, including those linked to sustainability and renewable energy, and underpins the policies within the NPPF.

PPG is a material consideration in planning decisions and should be followed unless there are clear reasons not to. It sets out how local authorities should implement policies that protect the local environment and adopt strategies to mitigate and adapt to climate change and supports developments that are functional and adaptable for the future.

The March 2019 PPG update confirmed that local authorities have the option to set technical requirements exceeding the minimum requirements of the Building Regulations in respect of access, water, and space, where sufficient evidence is produced to justify the target.

National Design Guide

The National Design Guide³ is based on the national planning policy practice guidance and objectives for good design, as set out in the NPPF. The Guide introduces ten characteristics of well-designed places which work together to create developments of 'Character and Community', whilst positively addressing environmental issues affecting climate.

² Planning Practice Guidance, [UK Government, 'Planning Practice Guidance', 2016](#)

³ National Design Guide, [UK Government, 'National Design Guide', 2019](#)

⁴ UK Government, Climate Change Act, [Climate Change Act 2008 \(legislation.gov.uk\)](#)

Climate Change Act

The Climate Change Act 2008⁴ (2050 Target Amendment) sets legally binding targets to reduce carbon dioxide emissions in the UK by 100% by 2050 from 1990 levels. It also established an independent body, the Committee on Climate Change, to advise the Government on the level of each carbon budget. The Committee also reports to Parliament on progress made on reducing emissions.

The Act introduced carbon budgets which put legally binding limits on the amount of greenhouse gases the UK can emit over a five-year period. Five carbon budgets were put into law that run up to 2032 which require a 57% reduction by this time. The UK government has now also enshrined a new target in law to cut emissions by 78% by 2035, setting also the sixth carbon budget for the period 2033-37.

Building Regulation's Part L: Conservation of Fuel and Power

The Building Regulations Part L⁵ governs the conservation of fuel and power in both new construction and refurbishment of the England and Wales building stock. Compliance with the Building Regulations is a regulatory requirement for all new developments. Carbon emissions of a development comparative to compliance with Part L is a key performance indicator for achieving carbon targets. The new Building Regulations which came into effect from 15 June 2022, comprise five new Approved Documents, including

⁵ UK Government, Conservation of Fuel and Power, [Conservation of fuel and power: Approved Document L - GOV.UK \(www.gov.uk\)](#)

uplifts to Part L (fuel and power) and Part F (ventilation), and will have a marked impact on new and existing buildings.

Building Regulations, Part O – Overheating

Building Regulations Part O⁶ – Overheating sets the compliance standards for overheating in buildings. Guidance on how to meet the requirements of this regulation is provided within Approved Document O. The relevant document is referenced below:

Approved Document O addresses overheating in new dwellings. Part O (2021) requires all newly constructed dwellings to comply with the O1: Overheating Mitigation requirements. The aim of requirement O1 is to protect the health and welfare of occupants of the building by reducing the occurrence of high indoor temperatures. O1 is met by designing and constructing buildings to achieve both of the following:

- a) Limiting unwanted solar gains in summer; and
- b) Providing an adequate means of removing excess heat from the indoor environment.

Compliance with requirement O1 can be demonstrated by using one of the following methods:

- a) The simplified method for limiting solar gains and providing a means of removing excess heat, as set out in Section 1 of the Approved Document; and
- b) The dynamic thermal modelling method, as set out in Section 2 in the Approved Document.

⁶ UK Government, Overheating, [Overheating: Approved Document O - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/overheating-approved-document-o)

LOCAL POLICY

Local Plan Review: Manchester Core Strategy 2012 to 2027⁷

Manchester Core Strategy 2012-2027 Development Plan (2012) is the key document in the Manchester Local Plan. It sets out the long-term strategic policies for Manchester's future development and forms the framework against which planning applications are assessed. The following Core Strategy policies are of greatest relevance to sustainable development and the focus of this Statement.

Policy EN4: Reducing CO₂ emissions by enabling low and zero carbon development. Development should be designed in accordance with the energy hierarchy to reduce energy demand through active and passive design measures, meeting residual requirements using zero carbon, renewable energy technologies. Developments are encouraged to consider the following principles:

- Locate and design in a manner that allows advantage to be taken of opportunities for low and zero carbon energy supplies where possible.
- Where possible new development and retrofit projects will be used as a mechanism to help improve the energy efficiency, and where possible provide low and zero carbon energy to existing buildings.
- Where appropriate, new development and retrofit projects are encouraged to connect to and/or make commitments to low or zero carbon energy schemes and/or to incorporate provision to enable future connection to any existing/potential decentralised energy networks.

⁷ Manchester City Council, Core Strategy 2012-2017, [Core Strategy 2012-2017](https://www.manchester.gov.uk/core-strategy-2012-2017), [Core Strategy 2012-2027](https://www.manchester.gov.uk/core-strategy-2012-2027) | [Core Strategy 2012-2027](https://www.manchester.gov.uk/core-strategy-2012-2027) | [Manchester City Council](https://www.manchester.gov.uk/core-strategy-2012-2027)

CS Policy EN 5: Strategic areas for low and zero carbon decentralised energy infrastructure. Within Manchester it is considered that the following strategic areas will play a major role in achieving an increase in the level of decentralised, low and zero carbon energy supplies available:

- The Regional Centre, which also includes the Oxford Road Corridor and Eastlands;
- District centres and associated major development sites;
- Airport Strategic Site;
- Strategic housing location; and,
- Strategic employment locations.

Within these areas, new development, regeneration and retrofit projects will be expected to provide more detailed proposals for decentralised low and zero carbon energy infrastructure in the form of energy proposals plans.

Policy EN6: Target framework for CO₂ reductions from low or zero carbon energy supplies – applications for developments over 10 dwellings, or 1,000m² floor area, are expected to meet sustainability targets which vary depending on the scale of the development, where feasible.

Development that meets the criteria above is required to be accompanied by an energy statement which sets out the projected regulated energy demand and associated carbon emissions, and how the following targets will be met.

Development below the thresholds is expected to meet the targets but does not need to have an accompanying energy statement.

For the purpose of this policy, development is split into three target categories:

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

Table 1 provides an overview of current targets for domestic typologies.

Table 1- Policy EN6 Domestic CO₂ Emissions Reduction Target

Target	% Minimum Requirements
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

To demonstrate compliance with these energy targets, an Energy Assessment is required to be submitted as part of planning. Developers are permitted to use green infrastructure elements to contribute to the carbon reduction requirements, provided adequate evidence of their respective contributions is clearly provided.

Policy EN8: Adaptation to Climate Change – all new development is expected to be adaptable to climate change and developments should have consideration of adaptation measures including:

- Minimising flood risk through sustainable drainage systems.
- Reducing the urban heat island effect through green infrastructure.
- Minimising overheating through passive design.
- The opportunity to provide linked and diverse green space to enhance natural habitats which will assist species adaptation.

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 under Policy EN6, subject to sufficient evidence to quantify their contribution to compliance.

CS Policy EN9: Green Infrastructure - new development will be expected to maintain existing green infrastructure in terms of its quantity, quality, and multiple functions. Where the opportunity arises, and in accordance with current green infrastructure strategies, the Council will encourage developers to enhance the quality and quantity of green infrastructure, improve the performance of its functions and create and improve linkages to, and between, areas of green infrastructure. Where the benefits of a proposed development are considered to outweigh the loss of an existing element of green infrastructure, the developer will be required to demonstrate how this loss will be mitigated in terms of quantity, quality, function, and future management.

Policy DM1: Development Management – all new development should address a range of sustainability issues including site location, accessibility, waste management, biodiversity and flood risk, as well as incorporating sustainable construction techniques, which includes the application of BREEAM. New development should address the following specific issues:

- Appropriate siting, layout, scale, form, massing, materials, and detail.

- Impact on the surrounding areas in terms of the design, scale, and appearance of the proposed development.
- Development should be in keeping with the character of the surrounding area.
- Buildings and neighbourhoods should be fully accessible to disabled people and be accessible by sustainable transport modes.
- Design for health.
- Refuse storage and collection.

Policy CC5: Transport – developers should work to ensure that all users are able to access development by sustainable means, especially taking account of times when developments are likely to be busiest.

Policy EN 14: Flood Risk – development should be directed away from sites at the greatest risk of flooding, and towards sites with little or no risk of flooding; this should take account of all sources of flooding identified in the Manchester-Salford-Trafford Strategic Flood Risk Assessment (SFRA).

All new development should minimise surface water run-off, including through the provision of sustainable drainage systems (SUDS) and the appropriate use of green infrastructure. Developers should disclose the surface water run-off rates in the Strategic Flood Risk Assessment (SFRA) User Guide. In critical drainage areas, evidence to justify the surface water run-off approach / rates will be required.

CS Policy EN15: Biodiversity and Geological Conservation - the Council will seek to maintain or enhance sites of biodiversity and geological value throughout the city.

Developers will be expected to identify and implement reasonable opportunities to enhance, restore or create new biodiversity, either on-site or adjacent to the site, contributing to linkages between valuable or potentially valuable habitat areas where appropriate, with reference to:

- The Manchester Biodiversity Strategy, which provides further details of priority habitats within Manchester and opportunities for biodiversity enhancement including corridors such as the Mersey, Medlock and Irk River valleys, the canals and disused railway lines, and areas of managed greenspace particularly in parks;
- The Green Infrastructure Framework for Greater Manchester, which encompasses an ecological framework that seeks to guide and inform habitat creation and repair, including identifying large 'biodiversity opportunity areas' such as the Moston Brook Corridor and Nutsford Vale;
- Manchester's Climate Change Action Plan;
- The Strategic Flood Risk Assessment (SFRA) for Manchester;
- The River Basin Management Plan for the North West; and,
- The Manchester Tree Strategy.

Any adverse impacts on biodiversity will need to be justified against the wider benefits of the proposal and assessed against other Local Development Framework policies. Where adverse impacts are unavoidable, developers will be required to provide appropriate mitigation and/or compensation. Development should, wherever possible, seek to maintain, enhance, or restore existing geology.

Policy EN 17: Water Quality – development should avoid adverse impact on water quality, including during the construction phase, and minimise surface run-off.

Policy EN 19: Waste – require all developers, including those of new waste management facilities within the district, to demonstrate proposals' consistency with the principles of the waste hierarchy (prevention, reduction, re-use, recycling/composting, energy recovery, final disposal);

- Require all developers to submit a waste management plan to demonstrate how both construction and demolition waste will be minimised, and recycled on site wherever possible, and how the sustainable waste management needs of the end user will be met; and
- Encourage communities to take responsibility for the waste they create through the provision of accessible facilities

LOCAL GUIDANCE

Zero Carbon Manchester- Manchester City Council Climate Change Action Plan 2020-2025

The Climate Change Action Plan (CCAP) of the Manchester City Council⁸ has a target to reduce direct emissions of CO₂ by 50% over the five-year period up to 2025. To achieve this, the Council aims to reduce its emissions by 13% every year, for five years. The CCAP sets a carbon budget of 119,917 tonnes of CO₂ for the five-year period of 2020-25, calculated using science-based targets. The Action Plan also details the activities that will have to be undertaken, developed, and investigated further over the next five years to ensure the successful transition to being a zero-carbon city by 2038.

Although the Plan includes investment in green and blue infrastructure to increase carbon storage and sequestration, reaching zero carbon will not include offsetting the emissions. The ambition has been informed by the SCATTER project (Setting City and Area Targets and Trajectories for Emissions Reductions), which is a model that helps cities set zero carbon targets from their buildings, energy, and transport.

Guide to Development in Manchester, Supplementary Planning Document

Manchester's Core Strategy requires that all new residential developments should accord with the design guidance set out in the Supplementary Planning Documents (SPD).

The 'Guide to Development in Manchester' SPD⁹, adopted on 11 April 2007, supports and enhances the ongoing shaping of the city by providing a set of reasoned principles which will guide developers, designers, and residents. Its role is to inform the ongoing development of the city over the next decade by highlighting its many and varied existing qualities and describing how they can be enhanced in the future.

Places for Everyone

Until December 2020 a joint development plan document of the ten Greater Manchester local authorities was being prepared, known as the Greater Manchester Spatial Framework (GMSF).

However, progression of the GMSF ceased following the decision by Stockport Council to withdraw. Instead, a joint committee formed by the nine other boroughs has been formed to prepare 'Places for Everyone' (PfE), a joint development plan for jobs, new homes and sustainable growth across these boroughs.

Places for Everyone: Publication Plan5 was published in July 2021, with a period for representations taking place between 9th August and 3rd October

⁸ Manchester City council, Climate Change Action Plan 2020-2025, [Final MCC Climate Change Action Plan 2020-25.pdf \(manchester.gov.uk\)](https://www.manchester.gov.uk/media/2020-25.pdf)

⁹ Manchester City Council, Guide to Development in Manchester, [Guide to Development in Manchester - Supplementary Planning Document and guidance | Manchester City Council](https://www.manchester.gov.uk/media/2007-08-11-SPD-Guide-to-Development-in-Manchester-Supplementary-Planning-Documents.pdf)

2021. The Greater Manchester Combined Authority submitted the plan to the Secretary of State for examination on 14th February 2022. The examination hearings concerning the plan were to commence on Tuesday 1 November 2022. They are expected to run until Thursday 30 March 2023.

PfE sets out a number of ambitious sustainability policies, accounting for climate mitigation and adaptation, social value, economic growth and the natural environment.

Policies include a requirement for new commercial development to achieve at least BREEAM 'Excellent' standard for the Ene 01 Reduction of Energy Use and Carbon emissions credit issue, rising to Outstanding' from 2038.

Development will be expected to adopt a net zero carbon approach to operational carbon up to 2028 and incorporate construction carbon from then onwards. However, the practicalities of this policy including carbon calculation method and offset payments have not been fully confirmed yet.

Development should also achieve a net gain in biodiversity of at least 10%.

The policies within PfE are not considered further within this statement, due to its current stage of publication. However, the aspiration of Greater Manchester to become net zero carbon by 2038 is supported by the Applicants.

Northern Gateway Strategic Regeneration Framework (SRF)

In February 2019 MCC approved a Strategic Regeneration Framework (SRF)¹⁰ for Northern Gateway (now known as Victoria North) which sets out a series of principles and a “big picture” plan to guide the future development of this area over the next 15 to 20 years. Red Bank is one of seven neighbourhoods identified within this Framework. The SRF area covers approximately 155 hectares (ha) to the north of Manchester city centre between Victoria Station, NOMA and the Northern Quarter in the south-west, and Queens Park and the intermediate ring road (Queens Road) to the north-east. The eight Core objectives for the Northern Gateway are:

1. A unique and high-quality residential-led regeneration scheme;
2. A varied network of high-quality green streets and public open spaces;
3. Manchester's unique city river park;
4. Build on the best of what is there;
5. Improve connectivity across the northern gateway and beyond;
6. Create new gateways to and from the city centre;
7. Promote truly sustainable places; and
8. Foster the emergence of local retail and service hubs.

¹⁰ Manchester City Council, Northern Gateway Strategic Regeneration Framework, [SRF Appendix 5.pdf](https://manchester.gov.uk/srf-appendix-5.pdf) (manchester.gov.uk)

Applicable targets

Based upon a review of relevant planning policy requirements, legislative drivers, and client priorities, the following list provides a brief precis of the key criteria that should be targeted for the proposal:

Manchester Core Strategy

- CS Policy EN 4 – Reducing CO₂ Emissions;
- CS Policy EN 5 - Strategic Areas for low and zero carbon decentralised energy infrastructure;
- CS Policy EN 6 – Target Framework for CO₂ Reductions from Low or Zero Carbon Energy Supplies;
- CS Policy EN 8 – Adaptation to Climate Change;
- CS Policy EN9 – Green Infrastructure
- CS Policy EN14 – Flood Risk
- CS Policy EN15 – Biodiversity & Geological Conservation
- CS Policy EN19 – Waste
- CS Policy DM1 – Development Management

Building Regulations: Part L

- Approved Document Volume 1 (2021 edition)
- Approved Document Volume 2 (2021 edition)

The following chapter details the approach proposed to address these policy requirements. The targets mentioned in the chapter should be viewed as benchmarks that Red Bank will aspire to meet, and exceed where possible, through various design interventions and optimisation. Achievement of certain targets may also be influenced by financial viability at detailed

application stage, in accordance with adopted Core strategy Policies DM1 and EN6.

Energy

This section provides an appraisal of the development proposals and details the approach, design features and specifications which will contribute to reducing the environmental impact of this scheme. This section outlines the commitments that have been made to ensure this scheme contributes to sustainable development and meets the council's policy aims.

Policy and Targets

All new buildings constructed in the UK must meet the minimum requirements of the UK Building Regulations. Specifically, with regards to energy and carbon compliance, all buildings must meet the Building Regulations Part L 'Target Emission Rate' (TER) requirements for the Part L revision which is applicable at the time of initial construction works for each developmental phase.

The residential components of the Proposed Development will be assessed against Approved Document L1 (AD L1) which relates to new build residential buildings and all the non-residential components will be assessed against Approved Document L2 (AD L2) relating to new build non-residential buildings.

It should be noted that this application is proposed in outline and will be built out in several phases. Detailed applications, and associated sustainability and energy commitments, will be submitted for each phase pursuant to the outline planning permission. Upon commencement of construction, building regulations consent will be required which will meet the relevant standards and regulations in place at that time.

Energy Improvements

Outline parameters are proposed as part of the outline application. Detailed applications, pursuant to outline planning permission, will propose the detailed design of the buildings for each phase. This detail design will consider the 'lean, clean, green' approach to low carbon design, as per the figure below.

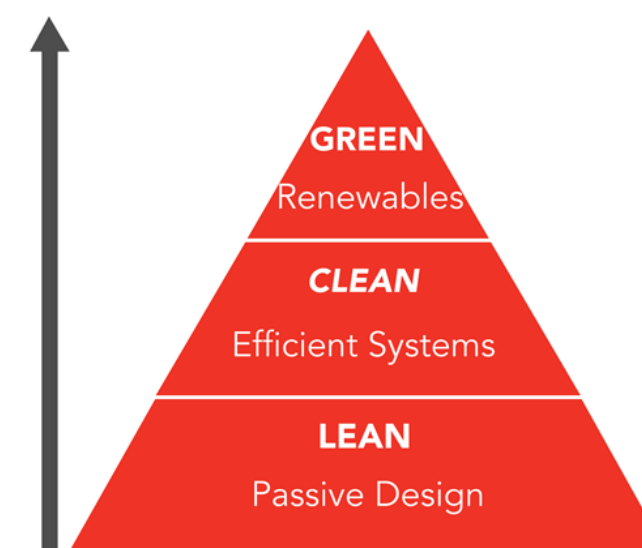


Figure 2- Approach to low carbon design

The following design features have been used to achieve CO₂ savings

Be Lean:

- High levels of fabric insulation on new elements
- Window replacement

Be Clean:

- LED lighting
- High efficiency ASHP (i.e., air source heat pump) technology
- High efficiency ventilation heat recovery (75%)

Be Green:

- Photovoltaic (PV) panels
- De-gasification of the building services

It has been agreed that the whole of the Proposed Development will be fully electrified with heating provided by heat pumps and all car parking spaces to provide electric vehicle (EV) charging facilities (20% active and 80% passive infrastructure for future connection).

The construction of development within the Outline application is expected to commence Q1 2025 and conclude in 2032. Therefore, it is likely that applicable Building Regulations and relevant best practice guidance will advance significantly over this time, aligning with Net Zero aspirations set out by RIBA, LETI, RICS and the UKGBC.

Each Red Bank development phase will, at a minimum, achieve the mandatory requirements applicable when the design and construction commences. The ambition is to exceed minimum requirements where possible and meet evolving and ambitious best practice guidance such as RIBA 2030 and LETI targets.

A rectangular massing model was constructed to represent the typical apartment size with an area of 70m2 around a central core to undertake a sensitivity analysis.

A list of assumptions for this analysis is outlined in **Error! Reference source not found.**3. Parameters that have been assumed to be constant as part of this analysis include; unregulated loads, hot water loads within the apartments as the massing and passive design measures will not directly influence them and adiabatic party walls/floors as all adjacent apartments have been assumed to be occupied with the heating on.

	Sim 1	Sim 2	Sim 3	Sim 4	Sim 5	Sim 6	Sim 7	Sim 8	Sim 9	Sim 10	Sim 11
Business as usual (Baseline Notional Part-L 2013)	Reduce Power Demand	Reduce Lighting Demand	Reduce Hot Water Demand	Improve Wall U-value	Improve Window U-Value	Improve Air Tightness	Add Heat Recovery	Add Shading	Reduce Glazing Ratio (0.4)	Further Reduce Glazing Ratio (0.2)	

Loads

Occupancy Density	m2/p	35									
Equipment Load	W	530					305				
Lighting Load	W/m2	2					1.5				
Infiltration Rate	m3/h/m2@50pa	4					1				
Background Ventilation Rate	l/s/m2	0									
Occupancy Ventilation	l/s/p	10									
Recirculation Ventilation	l/s/m2	0									

Controls

Cooling SP	C	26									
Cooling SB	C	n/a									
Heating SP	C	19									
Heating SB	C	5									

Glazing Ratio

Glazing Ratio (N)	%	60%					40%				
Glazing Ratio (W)	%	60%					40%				
Glazing Ratio (S)	%	60%					40%				
Glazing Ratio (E)	%	60%					40%				

Material Properties

Domestic L1A											
Glazing U-value	W/m2.k	1.5					1.2				
Glazing G-value	-	0.4									
Wall U-value	W/m2.k	0.18					0.15				
Floor U-value	W/m2.k	0.13									
Roof U-value	W/m2.k	0.13									

Material Properties

Non-domestic L2A											
Glazing U-value	W/m2.k	2.2					1.3				
Glazing G-value	-	0.3					1				
Wall U-value	W/m2.k	0.35					0.18				
Floor U-value	W/m2.k	0.25					0.15				
Roof U-value	W/m2.k	0.25					0.15				

Mechanical System

MVHR Efficiency		0%					80%				
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Figure 3- List of assumptions

The preliminary energy and carbon analysis shows that introducing passive design measures and MEP system improvements, can ensure the Development is delivered in line with current and expected energy use intensity (EUI) requirements. The current analysis is limited by the parameters that have remained fixed as part of this exercise as they are not directly affected by changes and improvements to the building massing, passive design measures and the MEP systems analysed (as part of the MEP technical note).

Water Efficiency

The Proposed Development will be designed to minimise water usage and impact on urban drainage. Water supplied to the Proposed Development will not give rise to significant adverse effects to the environment (particularly designated sites of European importance for nature conservation) as control and leak detection will be installed where appropriate. The Proposed Development will be designed to minimise water use through the following approaches.

WATER CONSERVATION

The Proposed Development employs best practice regarding water conservation and will have reduced mains water demand compared with typical building performance. Proposed water saving methods include:

- Water efficient sanitary fittings, such as low flush WC's and low flow taps, and showers with flow regulators shall be installed.
- Fittings specified will provide a reduction over a notional building of at least 25%.

MANAGING WATER USE

- Pulsed output water meters will be installed and connected to the BMS to allow monitoring of water consumption.

LEAK DETECTION AND PREVENTION

- A leak detection system which can detect a major water leak on the mains water supply within the building, and between the building and the utilities water meter, will be installed.

WATER USE DURING CONSTRUCTION

Water consumption targets will be set for the construction site and usage will be monitored.

Flood Management

A flood risk assessment was undertaken for outline application plots.

Minimum ground floor heights were used in this assessment for RB10, RB06, RB07, RB16 and RB17. Flood mitigation details are shown in Figure 4.

The majority of RB10's ground floor is removed from the flood zone as defined in parameter plan P1.

Possible level active frontage without freeboard is possible on part of RB06.

The remainder of the site would require raised ground floors or resilient measures. Possible level active frontage without freeboard is possible on RB16 and RB17.



Drawing key:

- Possible level active frontage without freeboard
- FFLs above the public realm, requiring raised ground floors or resilient measures. In the case of RB10 open-sided temporary market uses are proposed at ground.

Figure 4- Flood mitigation details for each plot

The FEC Baseline Model represents the existing flood risk to the site from the River Irk. This model shows that plots NT02- NT04 are within the extents of Flood Zone 3a and Flood Zone 2 or the 1 in 100-year and the 1000-year event flood.

Lighting

Dynamic lighting will provide for variation of colour temperature and intensity according to pre-programmed time and seasonal settings. For example, warmer and less intense later at night. The system also considers sunrise & sunset timings, ambient light conditions, dust or mist factor at the location, enabling the streetlights to adapt their daytime schedule and light output in response to daily and seasonal changes.

Wildlife friendly lighting will be introduced to reduce the negative impact lighting has on nocturnal species. Utilising a reduced spectrum of light minimises disturbance on animals whilst still providing safe lighting for humans. Dark zones within the park will provide areas of complete darkness where nocturnal animals can seek refuge and forage undisturbed.

The lighting strategy reflects the objectives of the Institute of Lighting Professionals (ILP) guidance documents, 'Guidance Note 1 for the reduction of obtrusive light 2021'¹¹ and 'Guidance Note 8 Bats and artificial lighting'¹². Figure 5 provides an overview of the sitewide lighting strategy for Outline Application plots.

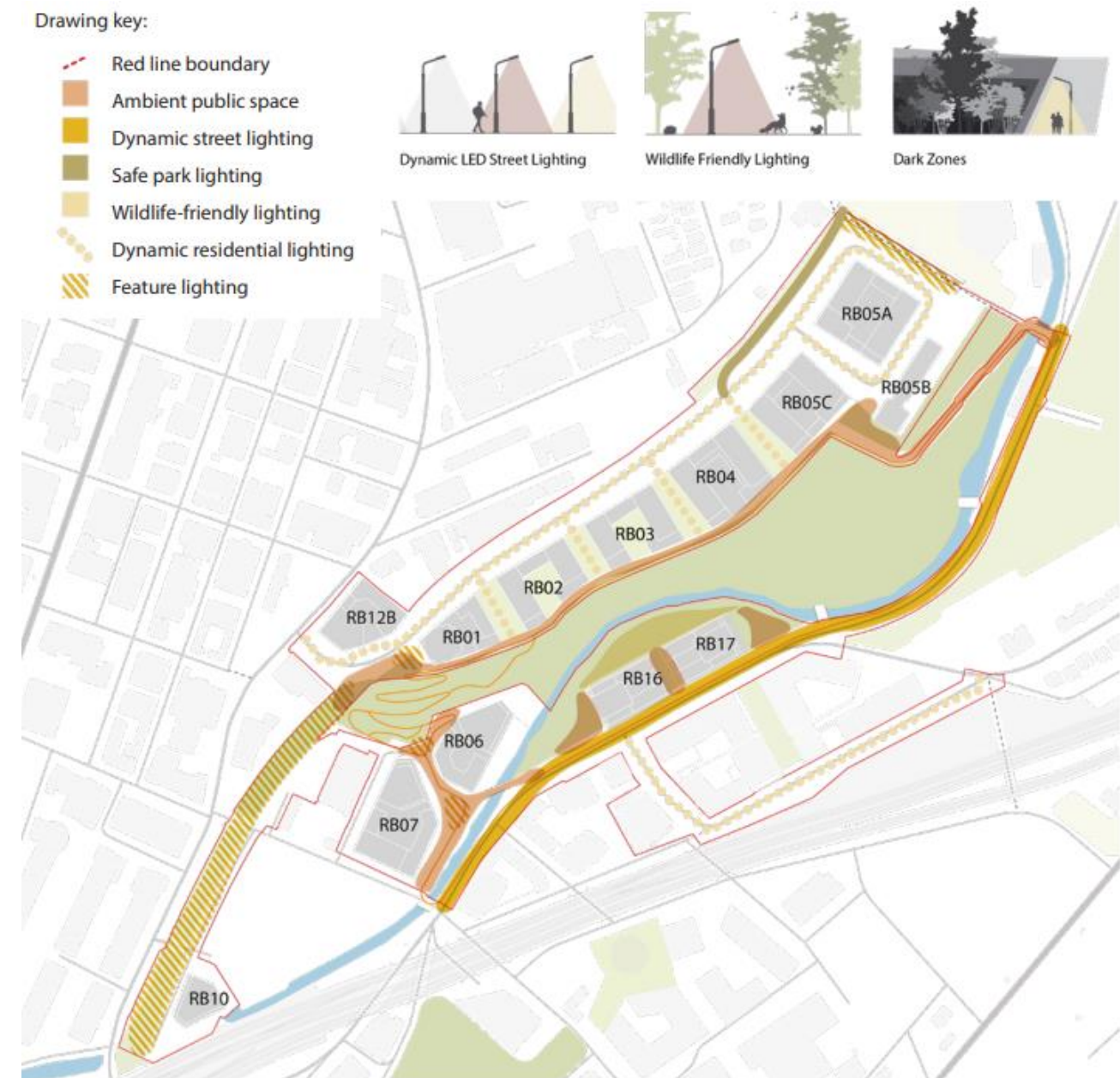


Figure 5- Sitewide lighting strategy

¹¹ [ILP, 'Guidance Note 1 for the reduction of obtrusive light 2021'](#)

¹² [ILP, 'Guidance note 8 bats and artificial lighting'](#)

Waste Management

Construction Waste

Best practice techniques to prevent and minimise waste during the design and construction phases of the Proposed Development will be adopted, as follows:

- A site waste management plan (SWMP) will be produced by the developer to limit the on and off-site environmental impacts of construction. The SWMP will encourage the implementation of the waste hierarchy of prevention, and detail the following:
 - Recycled and secondary materials;
 - Waste reduction;
 - Waste segregation;
 - Waste recovery; and,
 - Waste disposal.
- This scheme will promote the minimisation of waste arising in site development and seek to maximise the use of recycled materials in construction;
- A target of 90% of waste to be diverted away from landfill will be established for the construction phase of the development; and
- The SWMP will identify opportunities to minimise waste generation and divert construction waste from landfill.

Operational Waste

The operational waste strategy for the scheme will focus on the segregation of waste at source to maximise the potential for residents and visitors to recycle. All residents will receive guidance on recycling, and health and safety practices related to the management and storage of waste.

Materials

The Proposed Development will contribute towards more efficient use of non-renewable material resources and to reducing the lifecycle impact of materials used in construction. This is demonstrated by the adoption of the following approaches.:

- Low carbon construction methods and materials with low embodied carbon levels throughout their whole lifecycle will be prioritised where possible;
- Responsibly sourced materials from suppliers operating an Environmental Management System, or procuring timber verified by either the Forest Stewardship Council (FSC) or Programme for the Endorsement of Forest Certification standard (PEFC);
- Local sourcing of construction materials where feasible and viable, which will minimise the impact of carbon dioxide emissions associated with the transportation of materials;
- Material selection within the buildings will be carefully considered to avoid the use of toxic materials, such as Volatile Organic Compounds (VOCs) and contribute towards creating a healthy indoor environment; and,
- Robust materials such as sandstone setts pavers will be utilised for hard landscaping therefore, minimising the frequency of replacement and maximising materials optimisation and extending replacement intervals.

Ecology

St Catherine's Wood is a crucial habitat for small mammals and birds, and the River Irk is a habitat for *Ardea cinerea* (Heron). Although the adjacent shrubs have been identified as having low-biodiversity value (predominantly overgrown scrub), they provide a valuable corridor for small mammals moving through the site.

The Biodiversity Net Gain (BNG) calculations for the Red Bank neighbourhood have been completed. Offsite woodland has been identified where enhancements can be made to ensure 10% net gain is met.

The site will be viewed as a multi-layered mosaic of habitats. Whilst there is a net-loss of terrestrial biodiversity units (due to proposed building works), there is an overall increase in habitat types - 7 more than what currently exists on site, and it will be beneficial for catering to a wide variety of species.



Figure 6- proposed BNG strategy

Planting strategy themes:

The planting strategy for the site has been broken down into a series of themes. These themes will be applied to the different character areas throughout the Red Bank development, each responding to localised requirements of the surrounding area and contributing to biodiversity improvements across the site.

Key themes include:

- **Wildlife friendly** - specific species have been selected to enhance local wildlife, responding to recommendations in the ecology report.
- **Edible & productive** - weaving edible species through planting palettes, opportunities for foraging and cultivation take different forms including productive gardens, edible planting trails, and foraging routes.
- **Resilience** - the urban environment needs to become more resilient to climate change and other associated environmental issues, including pollution, extreme temperature, flooding and drought. Selecting species to enhance environmental resilient is crucial for sustainability and longevity.
- **Landscape character** - we drew inspiration from the existing landscape character through species selection whilst offering new landscape character types. This offers a more untamed representation of nature whilst diversifying the current landscape character of the site.

Planting strategy Character Areas:

Planting across the site has been separated into 11 categories illustrated in Figure 7.



Figure 7- Planting strategy Character Areas

Transport

A mobility hub is proposed within the outline planning application area, which could include facilities such as a delivery consolidation hub, cycle parking, e-cycle and e-scooter charging, cycle and scooter maintenance and a community café facility.

Electric vehicle parking will be provided at 20% initially, with passive provision for the remaining 80% of parking spaces to be enabled as and when demand from residents and visitors requires it.

Accessible parking for all uses (residential and non-residential) will be provided at or above the relevant local standards. Cycle parking across the outline elements will be provided at a standard of 1 space per dwelling for residents. These will follow best practice principles of being secure and sheltered whilst remaining convenient for every-day use, thus encouraging cycling as a travel mode of choice.

As a result of both the highly accessible location of the site and the various measures set out above, which will further encourage non-car travel, it is considered that the overall parking provision for residents within the site should accord with the principles originally set out in the Northern Gateway SRF.

Across the Outline Application area, this results in an overall provision of parking at a 10% ratio (i.e., one parking space per 10 dwellings totalling to 325 car parking spaces). Individual plots will have lower or higher ratios depending upon the type of dwellings within each plot.

This level of provision will encourage a reduced level of car ownership amongst residents, further encouraging the use of active travel and public transport as the travel modes of choice.

The Outline Application is aligned with the 'Streets for All' vision to enable walking, cycling and public transport use, through placing walking and cycling at the heart of the movement strategy and reducing the dominance of vehicles on key routes including Dantzic Street and the Plateau Avenue.

Specific ways in which the on-site infrastructure is encouraging active travel include:

- All onsite street design being to a 20mph speed limit;
- Carriageway widths being minimised to 5.5m except where a larger width is needed specifically to facilitate delivery / refuse / emergency vehicles or buses;
- Kerb radii and junction geometry being kept as tight as practical to minimise the widths of pedestrian crossing points;
- Use of planting, street furniture and materials to soften the appearance of the streets and encourage active travel use and reinforce the streets as a place to use and dwell rather than a place to simply travel through;
- Footways above minimum width requirements set out in LTN1/20;
- Cycling accommodated within the street where possible, or with segregated facilities along key routes such as Dantzic Street.
- Segregated cycle facilities designed to LTN1/20 standards



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