



**ELEMENT
SUSTAINABILITY**

VICTORIA HOUSE, ANCOATS, MANCHESTER

ENVIRONMENTAL STANDARDS AND ENERGY STATEMENT

APRIL 2020

REF: 2018.098



ELEMENT SUSTAINABILITY – ISSUE NOTES

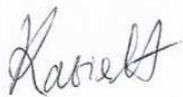
Project No: 2018.098

Title: Environmental Standards and Energy Statement

Site: Victoria House, Manchester

Client: Forshaw Land and Property Group

Status: Final Issue

Version:	3		
Date:	8 th April		
Prepared by:	Checked by:	Prepared and approved by:	
			
Stacey Downes Senior Sustainability consultant	Katie Hodgkiss Sustainability Consultant	Laurie Wills Director	

Version	Version Details	Date Issued	Issued by
1.0	Draft for comment	16 th November 2018	SD
2.0	Updated following scheme change amendments	13 th February 2020	SO
3.0	Updated following changes to policy	4 th April 2020	KH



**ELEMENT
SUSTAINABILITY**

phone: 01829 733 444

email: hello@elementsustainability.co.uk

© Report copyright of Element Sustainability Ltd.

www: [www: www.elementsustainability.co.uk](http://www.elementsustainability.co.uk)

Disclaimer

This report has been prepared for the sole use of the client, showing reasonable skill and care, for the intended purposes as stated in the agreement under which this work was completed. It is not intended for and should not be relied upon by any third party. Any such party relies on this report at their own risk. No part of this report may be copied or duplicated without the express permission of Element Sustainability Ltd. and the party for whom it was prepared.



ELEMENT SUSTAINABILITY

CONTENTS

1. Introduction.....	1
2. Development Proposals	2
2.1 Development Site Description	2
2.2 Development Proposals.....	2
3. Policy Review	5
3.1 Local Planning Policy	5
3.1.1 Manchester Core Strategy	5
3.1.2 Guide to Development in Manchester, Supplementary Planning Document	6
3.1.3 Manchester Residential Quality Guidance.....	6
3.1.4 Manchester's Great Outdoors	16
3.1.5 Climate Emergency	16
3.2 Emerging Policies.....	18
3.3 National Planning Policy	19
3.4 Regulatory Framework	20
3.4.1 Building Regulations.....	20
3.4.2 BREEAM.....	21
4. Environmental Performance.....	23
4.1 Energy.....	23
4.1.1 Energy Efficiency Strategy.....	23
4.1.2 General Principles	25
4.2 Water	25
4.3 Resource Management and Pollution	25
4.3.1 Efficient Use of Land	25
4.3.2 Pollution Control	26
4.3.3 Materials	26
4.4 Surface Water Run-off.....	26
4.4.1 Flood Risk	26
4.4.2 On Site Surface Water Management	27
4.5 Waste Management.....	27
4.5.1 Construction Waste	27
4.5.2 Domestic Waste	28
4.6 Health and Wellbeing	28
4.7 Construction Management	28
4.8 Biodiversity.....	29
4.8.1 General Principles	29



4.9 Transport	29
4.10 Manchester City Councils Green and Blue Infrastructure Strategy	31
5. BREEAM Assessment (Non-Domestic).....	32
5.1 BREEAM Assessment Classification	32
5.2 BREEAM Credit Award Review	32
5.2.1 Management.....	32
5.2.2 Commissioning and Handover –	33
5.2.3 Health and Wellbeing.....	33
5.2.4 Energy	33
5.2.5 Transport.....	34
5.2.6 Water	34
5.2.7 Materials	34
5.2.8 Waste	35
5.2.9 Biodiversity.....	36
5.2.10 Pollution	36
5.2.11 Potential BREEAM Score and Rating.....	37
5.2.12 Minimum ‘Very Good’ standards.....	37
6. Energy Strategy.....	39
6.1 Local Planning Policies.....	39
6.2 Renewable Energy Feasibility	39
6.3 Build Fabric and Thermal Performance	40
6.3.1 Build Fabric and Thermal Performance	40
6.4 Building Services.....	42
6.5 Rationale	42
6.5.1 Residential Heating Strategy Benefits.....	43
7. Emissions Performance Calculations.....	44
7.1.1 Regulated Energy Demand and Emission Calculations.....	44
7.1.2 Emissions Reduction Targets	45
7.1.3 Energy Calculation Results	45
7.1.4 Revised Carbon Factors.....	46
8. Energy Hierarchy.....	48
9. Climate Change Emergency.....	50
10. Conclusion	53
Appendix A – SAP, Building Regulations Compliance for Multiple Dwellings	
Appendix B – BREEAM Pre-Assessment	



1. INTRODUCTION

Element Sustainability has been commissioned by Forshaw Land and Property Group to review the sustainability performance of the proposed development at Victoria House, Ancoats, Manchester.

The purpose of this Statement is to summarise the relevant policy background and requirements of Manchester City Council and demonstrate the ways in which Forshaw Land and Property Group have addressed these aims through their proposals. Ensuring all practicable measures have been taken in order to deliver a sustainable development at this Site.

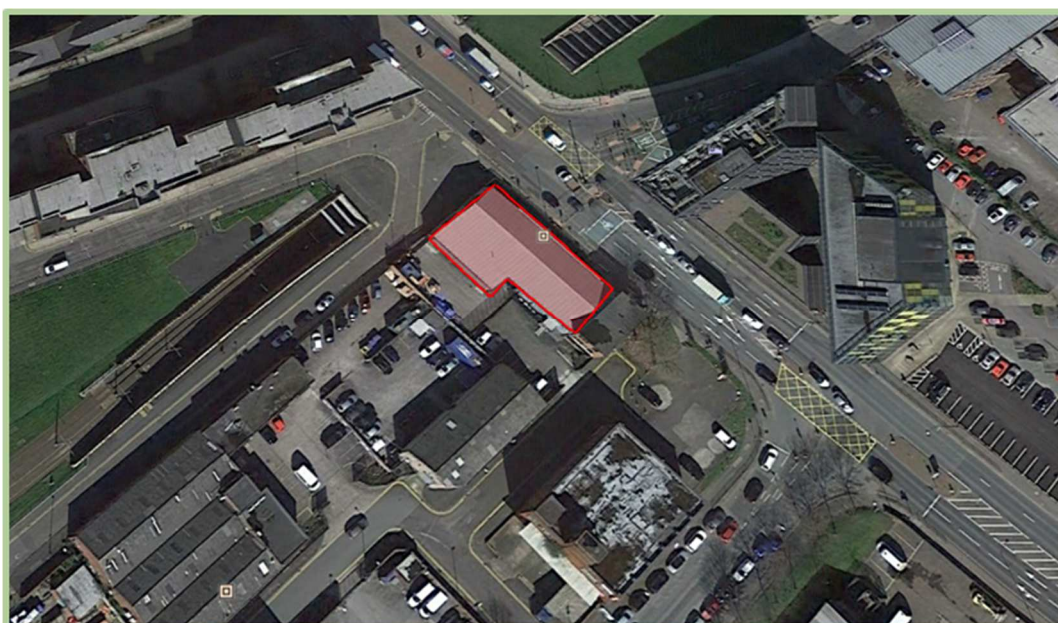
This statement reviews the sustainable design features and appraises the energy strategy of the proposed development at the site. The potential BREEAM UK New Construction 2018 rating for the non-domestic areas of the scheme is also reviewed. Details of the design attributes, specifications and characteristics of the scheme are appraised in order to demonstrate how the proposals contribute to sustainable development in Manchester and seek to mitigate the environmental impacts of the scheme.

2. DEVELOPMENT PROPOSALS

2.1 Development Site Description

The proposed development site is currently occupied by a safety deposit centre which will be demolished as part of the proposed scheme (See Figure 2.1). The site boundaries are formed by Great Ancoats Street to the north east, Longacre Street to the north west, Epworth Street to the south east and existing building and hardstanding areas to the south west.

Figure 2.1 – Pre-development Site



2.2 Development Proposals

The proposed development will comprise one hundred and seventy-seven apartments across twenty-four storeys with amenity/ancillary space for residents including a residential garden (located at the lower levels of the towers). One retail unit occupies the ground floor with a floor area of 161m² (See Table 2.1).

Table 2.1 – Residential Accommodation Schedule

Dwelling Types	Number of Units
1 Bed Apartments	59
2 Bed Apartments	113
3 Bed Apartments	5
Retail Unit	161 m ²

The typical floor plans and elevations are presented in Figure 2.2 to 2.5.



Figure 2.2 – Proposed Site Plan, Ground Floor Layout

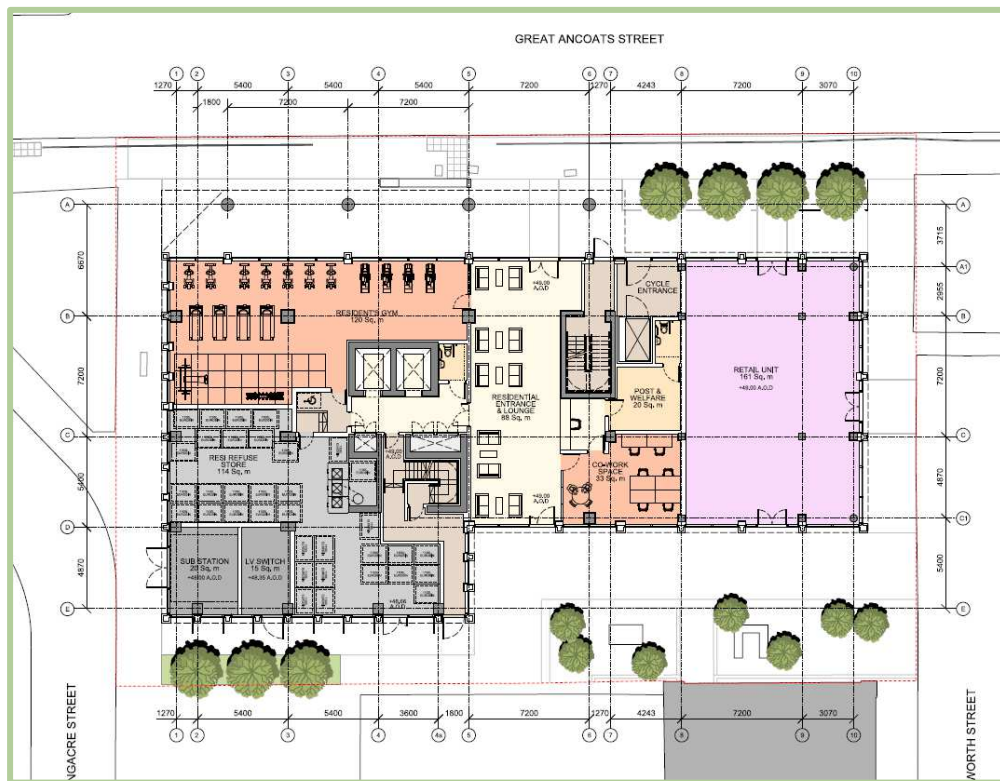


Figure 2.3 – Proposed Typical Floor Layout (Floors 3-8)

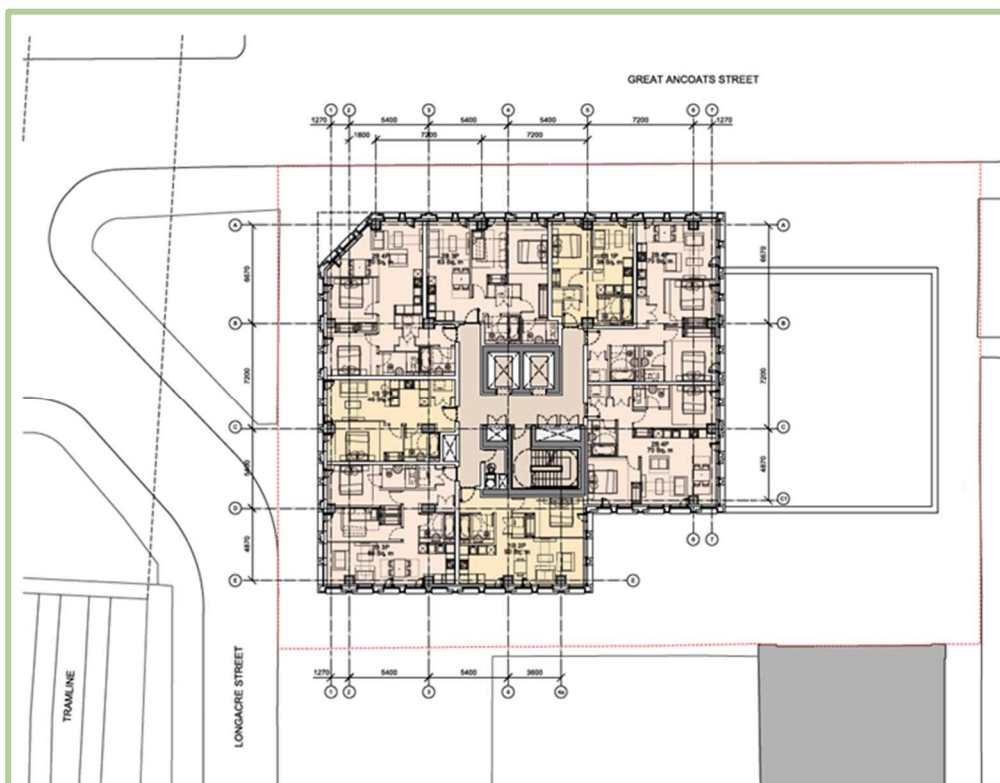
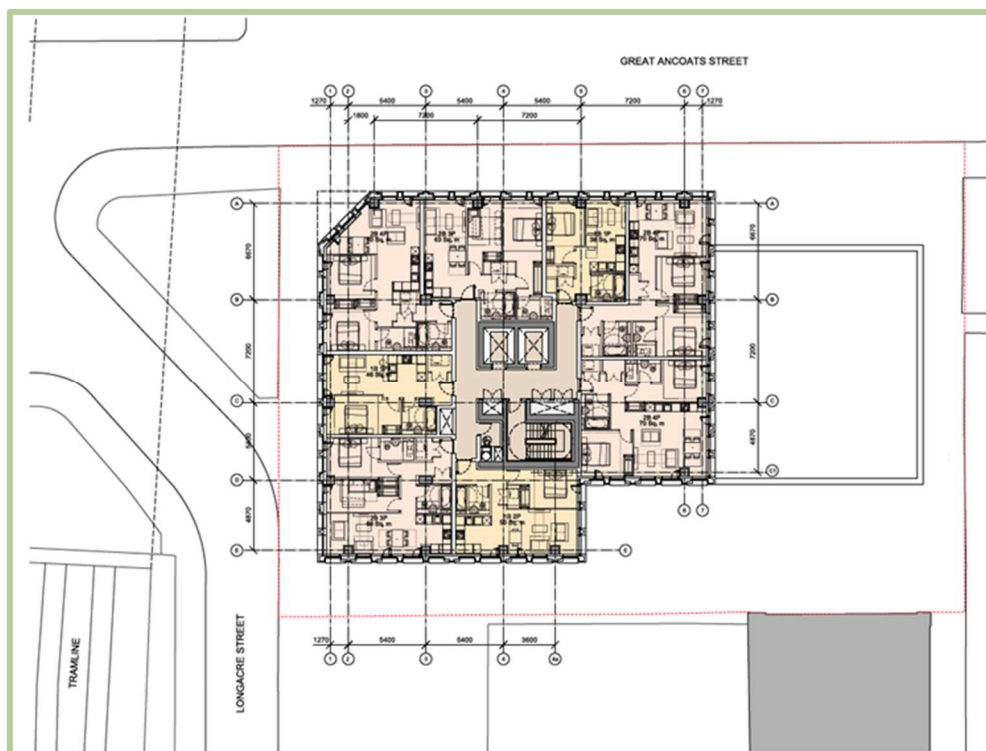
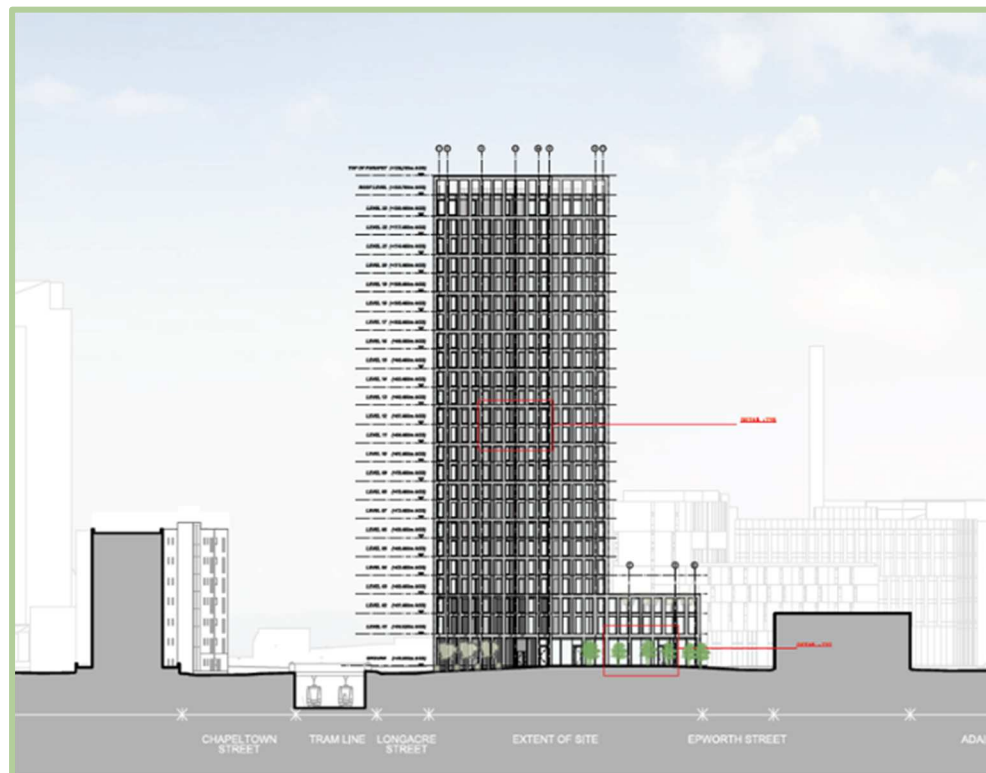


Figure 2.4 – Proposed Typical Layout (Floors 9-18)*Figure 2.5 – Victoria House – South West Elevation*

3. POLICY REVIEW

3.1 Local Planning Policy

3.1.1 Manchester Core Strategy

Manchester's Core Strategy (CS) was adopted on 11th July 2012 and is the key Development Plan Document in the Local Development Framework (LDF).

CS Policy DM 1 - Development Management requires all development to have regard to a number of development principles. Subject to scheme viability, developers will be required to demonstrate that new non-domestic development to achieve a BREEAM Rating of 'Very Good' or for domestic development to achieve the Code for Sustainable Homes standard¹.

CS Policy EN 4 - Reducing CO₂ Emissions by Enabling Low and Zero Carbon Development requires all development to 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; and,
- To meet residual energy requirements through the use of low or zero carbon energy generating technologies.

CS Policy EN 6 - Target Framework For CO₂ Reductions From Low or Zero Carbon Energy Supplies requires applications for residential development of 10 or more units and all other development over 1,000m² to meet, as a minimum, the targets shown in the tables below, unless unviable.

Table 3.1 – Policy EN6 CO₂ Emissions Reduction Targets; Domestic

Target	% Minimum Requirements
Target One: Network development area	CHP/District heating anchor or connection or where not feasible a 15% increase on Part L 2010
Target Two: Electricity intense buildings	+15% increase on Part L 2010
Target Three: Micro generation area	+15% increase on Part L 2010

The proposed development is located within a Target 3: Micro Generation Area and must comply with Part L (2013).

¹ On the 25th March 2015 the Government issued a Written Ministerial Statement setting out the conclusion of the Housing Standards Review. The statement set out a new policy on the application of technical housing standards that applied immediately to all local planning authorities and qualifying bodies. This had a direct effect on the application of existing Code policies, and the setting of new Code policies. The Government elected to remove the Code for Sustainable Homes and incorporate new additional optional Building Regulations on water and access, and a new national space standard.



The emission reductions targeted within policy EN6 relate to Building Regulation Part L 2010. As a consequence of the reduction in emission rates required by current building regulations (Part L 2013) relative to Part L 2010, the revised equivalent target CO₂ emission reductions for the residential and non-domestic elements of this scheme are presented below:

- Residential - 9% dwelling emission rate reduction over Part L 2013; and,
- Non-domestic - 6% dwelling emission rate reduction over Part L 2013.

Further details of the building regulation requirements are provided in the section below.

3.1.2 Guide to Development in Manchester, Supplementary Planning Document

The 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 SPD was adopted on 11th April 2007 and supports and enhances the ongoing shaping of the City by providing a set of reasoned principles which will guide developers, designers and residents. These principles include a number of environmental standards, and includes the following categories which are identified in the SPD:

- Energy efficiency;
- Renewable energy;
- Environmental design;
- Water management and weather resilience;
- Waste management;
- Construction management;
- Biodiversity; and,
- Waterways.

3.1.3 Manchester Residential Quality Guidance

This document provides guidance for building new build dwellings in Manchester. The residential quality guidance demands design excellence in all new housing built in the city, set minimum space standards, and ensure high environmental standards. The guidance includes the following nine components:

Make it Manchester – developers must understand the city’s unique character, heritage old and new, density and scale in various parts of the city and appreciate how new homes will fit in to what’s already there.

Make it bring people together – new homes must encourage a sense of community and neighbourliness, offering a mix of tenures to promote a mix of people.

Make it animate streets and spaces – understand the relationship between new homes and its environment and create public space.

Make it easy to get around - make sure developments have good transport links, along with good walking and cycling provision.

Make work with the landscape – development should improve the connection with the local environment with improved biodiversity, as well as greening and water schemes.



Make it practical – dealing with waste, car parking, bike storage and visitors should be made as easy as possible.

Make it future proof – design must anticipate the impacts of climate change and extreme weather with efficient design and adaptability.

Make it a home – sufficient space, natural light, privacy and storage are essential for people to settle down and flourish.

Make it happen – ensuring proposals are delivered, to a high quality, with high design standards and high sustainability.

3.1.4 Manchester's Great Outdoors

A **Green and Blue Infrastructure Strategy for Manchester** aims to invest to date in the city's Green and Blue infrastructure over the next 10 years (by 2025). Four objectives have been established to enable the vision to be achieved:

1. Improve the quality and function of existing green and blue Infrastructure, to maximise the benefits it delivers.
2. Use appropriate green and blue infrastructure as a key component of new developments to help create successful neighbourhoods and support the city's growth.
3. Improve connectivity and accessibility to green and blue infrastructure within the city and beyond.
4. Improve and promote a wider understanding and awareness of the benefits that green and blue infrastructure provides to residents, the economy and the local environment.

3.1.5 Climate Emergency

A **Climate Emergency** was declared by Manchester City Council on the 10th July 2019 in response to the findings of the Intergovernmental Panel on Climate Change (IPCC) report. The City Council believe that there is serious risk to Manchester's people of climate change affecting economic, social and environmental well-being, supply chains – including food security, financial systems and local weather, among many others. Therefore, the target for becoming a zero-carbon city has been accelerated by 12 years, setting 2038 as the new target for the city. The council has agreed the following:

- To deliver the 2038 target and determine if an earlier target can be possible.
- Encourage involvement in all wards by April 2020 through meetings as part of the Our Manchester strategy.
- Review all policies, processes and procedures to ensure the council can become carbon neutral. Present an action plan by March 2020 detailing how the city can stay within its carbon budget.
- Make climate breakdown and the environment, an integral part of activity throughout the council, including all decision making, ensuring key decisions take into account the impact on achieving the zero-carbon target.



- Investigate measures to ensure future procurement is carbon neutral. Increase the percentage of social value with an additional environmental element.
- Work with suppliers to green their supply chains and support local production.
- Investigate and introduce measures to help reach domestic zero carbon levels including addressing fuel poverty and retrofitting existing homes.
- Investigate ways to ensure that future local plans place a mandatory requirement for all new development to be net zero carbon by the earliest possible date.

Manchester Climate change Framework 2020 – 25 is Manchester's high-level strategy for meeting their commitment on climate change that builds on the **Draft Manchester Zero Carbon Framework 2020-38**, which was published in February 2019 and Manchester City Council's declaration of a climate emergency in July 2019. This was endorsed by MCC at the Executive meeting in March 2020 and will develop over the next five years, in line with changes in policy, climate science, rate of progress and other factors. The framework has set out four objectives to facilitate this:

Objective 1 – Staying within our carbon budgets. This involves taking action in following relevant areas:

- Direct CO₂ emissions: staying within our 15 million tonne carbon budget for 2018-2100, including reducing the CO₂ emitted from our homes, workplaces and ground transport by at least 50% during 2020-25.
- Indirect CO₂ emissions: understanding and taking action on the things that we consume and which generate greenhouse gases through their production, transportation and disposal.

Objective 2 – Climate adaptation and resilience will require the adaption of the city's buildings, infrastructure and natural environment to the changing climate and increasing the climate resilience of our residents and organisations. This includes:

- Increase the amount of urban green infrastructure cover, aiming for a 10% increase by 2038 from 2018 levels, in line with the Greater Manchester aim.
- Respond to these risks by incorporating adaptation and resilience within our plans and strategies, and acting to make necessary changes to our buildings, infrastructure and our natural environment.

Objective 3 – Health and wellbeing aims to improve the health and wellbeing of everyone in Manchester through actions that also contribute to our objectives for CO₂ reduction and adaption and resilience:

- Adapt the city's built and natural environment and prepare our residents to become more resilient to these changes. Increasing the amount and quality of green space to enable residents to benefit from the improved physical and mental health that will come as a result.
- Improving the energy efficiency of the city's homes and providing access to affordable, secure supplies of renewable energy are essential help get 38,000 Manchester households out of fuel poverty.

Objective 4 – Inclusive, zero carbon and climate resilient economy looks to ensure that Manchester establishes an inclusive, zero carbon and climate resilient economy where everyone can benefit from playing an active role in decarbonising and adapting the city to the changing climate.



Priority Areas

Six priority areas have been established in order to help meet the above objectives and include:

1. Buildings (existing and new)
2. Renewable energy
3. Transport and flying
4. Food
5. The things we buy and throw away
6. Green infrastructure and nature-based solutions

Urgent Actions Identified to Help Meet the Commitments:

- New Buildings – To ensure that new developments in the city don't eat into the limited carbon budgets and add to the already significant retrofit challenge. Developments need to be built and operated to zero carbon standards as soon as possible.
 - The ideal way to do this is through UK Government *establishing a national zero carbon definition* and methodology for its implementation, and for Manchester City Council to implement this standard as quickly as possible through the local planning system.
 - This should include applying zero carbon standards to all developments where the Council has additional influence, with a view to all new development needing *to be zero carbon from 2023 at the latest*.
- Renewable Energy – The National Grid has been decarbonising in recent years; we need this to continue but at an accelerated rate, with a view to being fully decarbonised as soon as possible.
 - At least 50% of all homes should have the equivalent of 16m² of solar PV panels by 2024.
- Gas – The following actions are needed to help reduce the reliance on natural gas:
 - Improve the energy efficiency of our buildings as far as possible to reduce our demand for gas.
 - Replace our natural gas-based heating systems with renewable energy-based heating technologies as soon as possible.
 - Work with Government to ensure that moving to electricity-based heating systems is affordable and doesn't push even more people into fuel poverty.

3.2 Emerging Policies

The Greater Manchester Spatial Framework 2019 (Draft) will set out how Greater Manchester should develop up until 2037 and is currently on hold. However, it contains the following relevant emerging policies:

Policy GM-S 2 Carbon and Energy aims to deliver a carbon neutral Greater Manchester no later than 2038, with a dramatic reduction in greenhouse gas emissions. There is an expectation that new development will:



- a) Be zero net carbon from 2038 by following the energy hierarchy (with any residual carbon emissions offset), which in order of importance seeks to:
 - I. Minimise energy demand;
 - II. Maximise energy efficiency;
 - III. Utilise renewable energy;
 - IV. Utilise low carbon energy; and
 - V. Utilise other energy sources.

With an interim requirement that all new dwellings should seek a 19% carbon reduction against Part L of the 2013 Building Regulations.

- b) Incorporate adequate electric vehicle charging points to meet likely long-term demand;
- c) Where practicable, connect to a renewable/low carbon heat and energy network;
- d) Achieve a minimum 20% reduction in carbon emissions (based on the dwelling emission or building missions rates) through the use of on Site or nearby renewable and / or low carbon technologies; and,
- e) Include a carbon assessment to demonstrate how the design and layout of the development sought to maximise reductions in whole life CO₂ equivalent carbon emissions.

3.3 National Planning Policy

In addition to the local planning policies, the National Planning Policy Framework 2018 is a material consideration. The National Planning Policy Framework (amended June 2019) replaces all previous PPSs and PPGs.

The NPPF states that the planning system should play an active role in guiding development to sustainable solutions. There are three dimensions to sustainable development, as stated within the NPPF: economic, social and environmental. These dimensions give rise to the need for the planning system to perform a number of roles:

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 a high quality built environment, with accessible local services that reflect the community's needs and support its health, social and cultural well-being; and

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, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy.

These roles should not be undertaken in isolation, because they are mutually dependent. Economic growth can secure higher social and environmental standards, and well-designed buildings and places



can improve the lives of people and communities. Therefore, to achieve sustainable development, economic, social and environmental gains should be sought jointly and simultaneously through the planning system.

Pursuing sustainable development requires careful attention to viability and costs in plan-making and decision-taking. To ensure viability, the costs of any requirements likely to be applied to development, such as requirements for affordable housing, standards, infrastructure contributions or other requirements should, when taking account of the normal cost of development and mitigation, enable the development to be deliverable. At the heart of the National Planning Policy Framework is a presumption in favour of sustainable development - for decision-taking this means approving development proposals that accord with the development plan without delay.

3.4 Regulatory Framework

3.4.1 Building Regulations

Building Regulations, Part L - Conservation of Fuel and Power sets the compliance standards for energy demand and carbon dioxide emissions from buildings.

Approved Document L1A addresses the conservation of fuel and power in new dwellings. The proposed development is registered against Building Regulations, Part L (2013) which requires all newly constructed dwellings need to comply with 5 criteria set out in Approved Document L1A unless exempted through the transitional provisions:

- I. The predicted rate of carbon dioxide emissions from the dwelling (the Dwellings Emission Rate DER) is not greater than the Target Emissions Rate (TER). Additionally, the Dwelling Fabric Energy Efficiency (DFEE) is not greater than the Target Fabric Energy Efficiency (TFEE);
- II. The performance of the building fabric and fixed building services should be no worse than the design limits set out in Table 2 of the Approved Document;
- III. The dwelling has appropriate passive control measures to limit the effect of solar gains on indoor temperatures in summer;
- IV. The performance of the dwelling as built, is consistent with the DER, including Site checking that the air permeability is within reasonable limits; and
- V. The necessary provisions for energy efficient operation of the dwelling are put in place including operating and maintenance instructions aimed at achieving economy in the use of fuel and power in a way that householders can understand.

Approved Document L2A addresses the conservation of fuel and power in new non-domestic buildings. The proposed development will also be registered against Building Regulations, Part L (2013) which requires all newly constructed buildings to comply with the 5 criteria set out in Approved Document L2A:

- I. Achievement of an acceptable Building CO₂ Emission Rate. i.e. the BER is less than the TER (target emission rate for a notional building);
- II. Limits on design flexibility – including U-values, air permeability, air handling plant efficiency, duct leakage, insulation, lighting system efficiency;



- III. Limiting solar gains in summer;
- IV. Construction quality and commissioning - The BER must be recalculated as constructed; and
- V. Provision of information - Information must be provided to the building operator.

The Future Homes Standard seeks to introduce an uplift in standards for Part L of the Building Regulations for new buildings, anticipated in October 2020 with the intention of making new homes more energy efficient and to future-proof them in readiness for low carbon heating systems.

SAP 10 revised carbon factors for grid-mix electricity reflect the improved status of the UK grid that has significantly decarbonised since the last update of Part L in April 2014. In July 2018 the Government published updated carbon emission factors (SAP 10) demonstrating this. These new emission factors will however not be incorporated into Part L of the Building Regulations until the Government has consulted on new Building Regulations.

3.4.2 BREEAM

BREEAM (Building Research Establishment's Environmental Assessment Method) is the world's leading and most widely used environmental assessment method for buildings.

BREEAM UK New Construction scheme is a performance-based assessment method and certification scheme for new non-domestic buildings. The primary aim of BREEAM UK New Construction is to mitigate the life cycle impact of new buildings on the environment in a robust and cost-effective manner. This is achieved through integration and the use of the scheme by clients and their project team at key stages in the design and construction process.

The building's performance is assessed under a number of categories, including:

- Energy;
- Water;
- Transport;
- Materials;
- Land Use;
- Pollution;
- Health and wellbeing;
- Management;

The BREEAM rating benchmarks for BREEAM UK new construction projects assessed using the 2018 version of BREEAM are presented in Table 3.1.



Table 3.1 – BREEAM Rating Benchmarks

BREEAM Rating	% Score Required
Outstanding	≥ 85
Excellent	≥ 70
Very Good	≥ 55
Good	≥ 45
Pass	≥ 30

There are no minimum standards associated with the BREEAM 'Very Good' standard in terms of the building's energy and emission performance. However, to ensure that performance against fundamental environmental issues are not over-looked in pursuit of a particular rating, BREEAM sets minimum standards of performance in key areas e.g. energy, water, materials etc. A BREEAM 'Very Good' rating requires the following minimum performance standards, see Table 3.2.

Table 3.2 – Minimum 'Very Good' Standards

Minimum Standards for BREEAM for 'Very Good' rating	Credits
ENE 02: Energy Monitoring	One credit (First sub metering credit)
Man 04: Commissioning and Handover	One credit
Man 04: Building User Guide	One credit
WAT 01: Water Consumption	One credit
WAT 02: Water Monitoring	Criterion 1 only
MAT 03: Responsible Sourcing of Materials	Criterion 1 only

The target BREEAM rating for this scheme is BREEAM 'Very Good' (refer to Section 5). This broadly represents the top 25% of UK new non-domestic buildings (advanced good practice).



4. ENVIRONMENTAL PERFORMANCE

This section provides an appraisal of the development proposals and details the specific approach, design features and specifications which will contribute to reducing the environmental impact of the proposed development. This section outlines those commitments that have been made by Renaker Build Ltd. to ensure this proposed development contributes to sustainable development, meets the council's current planning policies and examines the following categories identified in the Guide to Development in Manchester, Supplementary Planning Document (SPD):

- Energy efficiency;
- Renewable energy;
- Environmental design;
- Water management and weather resilience;
- Waste management;
- Construction management;
- Biodiversity; and,
- Waterways.

The key specifications, Site characteristics and design measures of the proposed development are considered below. They will mitigate the environmental impact of the scheme throughout both the construction stage and the future occupation of the development.

4.1 Energy

In order to limit energy demand and carbon dioxide (CO₂) emissions from the operation of the new apartments, the following design features will be integrated within the scheme to enable the occupants to lead a low impact lifestyle:

4.1.1 Energy Efficiency Strategy

Energy Strategy -

- The proposed approach to emissions reduction for the new build apartments will be through a fabric led energy strategy, in accordance with the principles of the energy hierarchy;
- The energy efficiency of the new build apartments and common areas will be improved through the application of a significantly enhanced material specification, exceeding Approved Document L1A (2013) criteria;
- The specification of the build fabric will be optimised to benefit from solar gain whilst mitigating the propensity to overheat. This will be achieved through a balance of high-performance u-values, very low air permeability, ventilation strategy and solar control to the glazing;
- The enhanced material specification will be supplemented with efficient mechanical and electrical systems, incorporating mechanical ventilation with heat recovery; and,
- The proposed heating strategy for the building will be provided by a high efficiency, full electric system to meet the limited energy loads generated by the apartments.



Further details of the proposed approach to reducing the energy demand and associated carbon dioxide emissions of these apartments and non-domestic areas are presented in the Sections 5 (Energy Strategy) and Section 6 (Climate Emergency).

4.1.2 General Principles

- Provision of A and A+ rated white goods (where applicable);
- Provision of EU energy efficiency labelling scheme details to assist in the purchasing of energy efficient white goods;
- Heat recovery systems dwelling to maintain a healthy living environment;
- Space and equipment provided for drying of clothes;
- 100% low energy and/or LED internal lighting;
- All external space lighting to be provided by dedicated energy efficient fittings and controls;
- The provision of one hundred and seventy-seven cycle storage spaces (1 space per apartment) to encourage the use of sustainable modes of transport;

4.2 Water

The apartments will be designed to reduce mains/potable water consumption and will include water efficient devices and equipment.

- A water efficiency strategy will be determined for the development. This will include 'A' rated appliances (where provided);
- Specification of efficient water fixtures throughout the scheme (low flow taps and showers, dual flush WCs and low volume baths); and,
- In order to reduce the demand, the sanitary fixtures will be specified to achieve a calculated daily consumption of <125litres/person/day.

4.3 Resource Management and Pollution

4.3.1 Efficient Use of Land

- The Victoria House proposals include for the redevelopment of a previously developed, brown field site as promoted by national and local planning policy; and,
- The redevelopment represents an efficient use of land with a large accommodation density of one hundred and seventy-seven units and retail space on approximately 0.1356 hectare site.



4.3.2 Pollution Control

To reduce emissions of gases with high global warming potential (GWP) and nitrogen oxide (NOx) into the atmosphere, the new build dwellings will be specified with:

- Insulating materials that have a GWP of less than 5 will be specified throughout the development to reduce the construction phase impact of this scheme upon climate change;
- Pollution Prevention Guidance will be adhered to in respects of air (dust) and water (ground and surface) pollution during the demolition and construction phase;
- External light fittings will be controlled through a time switch, or daylight sensor, to prevent operation during daylight hours to limit the impact of artificial lighting for the developments residents and surrounding environment; and,
- The impact of sound associated with the occupied development will be mitigated by the design and specification of the dwellings. Sound insulation will be specified to achieve Building Regulation Part E compliance standard (this will be verified by pre-completion testing). This will reduce the impact of sound pollution for the occupants within adjoining dwellings and the surrounding area.

4.3.3 Materials

This development will contribute towards making more efficient use of non-renewable material resources and to reducing the lifecycle impact of materials used in construction. This is demonstrated by the selection of:

- Materials with low environmental impact throughout their lifecycle;
- Materials responsibly sourced from suppliers operating an Environmental Management System or procuring timber from FSC and PEFC sources, for example will be prioritised; and,
- Consideration will be given to local sourcing of construction materials where feasible and viable, which will minimise the impact of carbon dioxide emissions associated with the transportation of materials.

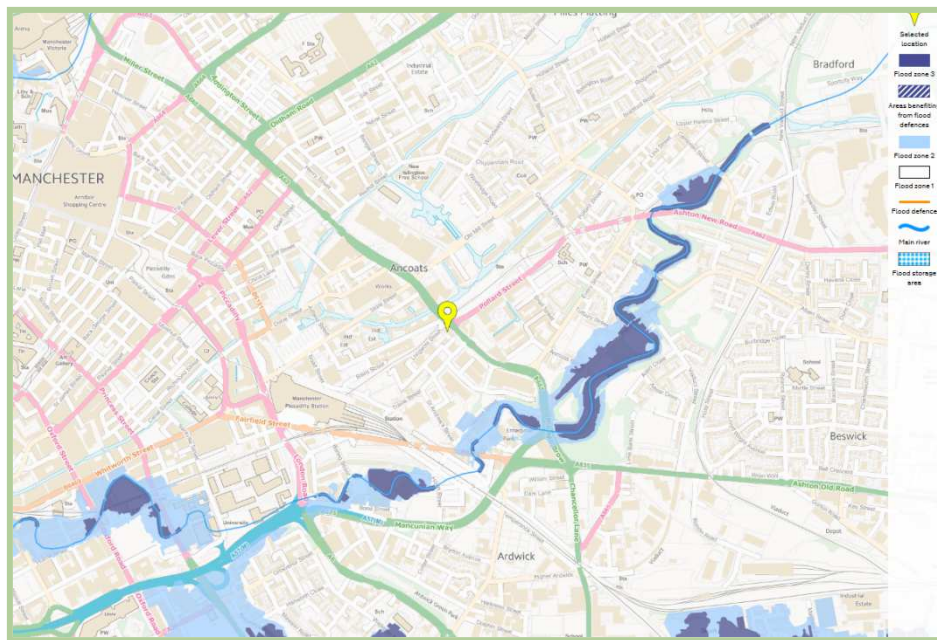
4.4 Surface Water Run-off

4.4.1 Flood Risk

The proposed development benefits from being located in a low flood risk zone. Data provided on the Environment Agency website confirms the development has a low probability of flooding and lies within Zone 1 (see Figure 4.1).



Figure 4.1 – Flood Risk Map



4.4.2 On Site Surface Water Management

- The pre-developed site comprises an existing building and as a consequence consists of 100% impermeable surfacing;
- The peak rate of discharge will be reduced through the provision of flow control techniques and surface water attenuation. The volume of surface water run-off will be no greater than existing conditions; and,
- The target discharge rate will be 50% less than the existing conditions. The volume of surface water run-off will be limited such that the development will not result in an increased discharge from the site. The development will be designed to ensure that run off from a 1 in 100-year flood event level (plus an allowance for climate change) is managed so as to not damage property.

4.5 Waste Management

4.5.1 Construction Waste

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

- Prior to commencement of the above ground construction phase, 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 detail:
 - Recycled and secondary materials;
 - Waste reduction;



- o Waste segregation;
 - o Waste recovery; and,
 - o Waste disposal.
- A site waste management plan will identify opportunities to minimise waste generation and divert at least 85% of construction waste from landfill; and,
- This scheme will promote the minimisation of waste in site development and seek to maximise the use of recycled materials in construction.

4.5.2 Domestic Waste

- The dwellings will provide infrastructure and facilities that meet the need of the residents for segregated storage, thereby optimising the ability to recycle waste. Communal bin storage provision will enable residents and building users to make full use of Local Authority recycling services;
- A waste management strategy will be developed, ensuring that adequate sized bin storage areas for each residential tower are provided, access for collection personnel and vehicles has been established and other aspects of waste management is designed into the development at an early stage of the design. The strategy allows for storage of recyclable materials in order to optimise the recycling rates achieved by Manchester City Council.

4.6 Health and Wellbeing

To enable the occupants of the proposed development to lead lower impact lifestyles and enhance their quality of life, the following measures will be delivered at the proposed development:

- Good levels of natural day lighting will be achieved within the dwellings. This will provide a good quality of life for the occupants and reduce the need for energy to light the dwellings;
- A landscaped communal outdoor space at the second floor level will form part of the design; and,
- All dwellings will comply with the Manchester Residential Quality Guidance to ensure that all dwellings are of a sufficient size and provide more flexibility and comfort for the future occupants.

4.7 Construction Management

In order to minimise the impact of the development during construction and operation whilst providing a safe place to live, the proposals include for the following provision:

- This scheme will comply with Secure by Design criteria; and,
- Construction site impacts will be minimised and best practice policies will be adopted in respect of air and water pollution.



4.8 Biodiversity

Penny Anderson Associates Limited have carried out a Phase 1 Habitat and Bat Survey of the Proposed Development in November 2018.

4.8.1 General Principles

- The Bat Survey concluded that no further survey or mitigation measures are required in relation to bats and their roosts.
- This brown field site has low ecological value in its current state and the proposed development has the opportunity to increase biodiversity. Potential enhancement measures identified area as follows:
 - Use of native or wildlife friendly tree, shrub and herbaceous species in any landscape planting, for example, inclusion of species which provide nectar for invertebrates or berries to provide a food source for birds;
 - Inclusion of green or brown roof or green walls to increase the range of opportunities for establishment of plants or other substrates, e.g. gravel garden, to provide foraging and nesting opportunities for bird and invertebrate species;
 - Inclusion of a range of bird boxes to accommodate typical urban bird species; and,
 - Inclusion of integrated or external bat roost feature such as bat slates, tiles and bricks or bat boxes to increase opportunities for roosting bats, coupled with a suitable lighting strategy to avoid unnecessary lighting of roost features.
- This scheme represents efficient use of land resources with a very high density residential development of one hundred and seventy-seven units being accommodated within a relatively small land footprint.
- The planting provision will be designed to provide an enhancement to both the ecological and aesthetic value of the Site. Post development landscape planting will be selected to improve and strengthen the ecological value of the site.

4.9 Transport

The proposed development is a highly sustainable location in terms of transport connections with basic facilities all within easy walking distance of the site.

Transport Links -

- The site benefits from excellent sustainable access opportunities and is well connected by existing walking and cycling routes to key trip attractors. bus, Metrolink and train can also be used to easily access the site;
 - Bus – The nearest bus stops are located along Great Ancoats Street which are approximately under 110m walk from the site. These provide regular services into the city centre and Ashton-Under-Lyne.



- Rail – The nearest railway station is Manchester Piccadilly which is approximately 750m to the south west of the development site. The station provides services to Blackpool North; Huddersfield, Leeds, Buxton, Liverpool Lime Street, Wigan North Western, Bolton, Wigan, Walkden, Newcastle, Southport and London Euston.
- Metrolink - The nearest Metrolink station is the New Islington tram stop which is within walking distance from the site at approximately 450m.
- Free Metro Shuttle Bus – The nearest Metro Shuttle bus stop is located at Manchester Piccadilly station approximately 750m away. The service provides a link to all the cities train stations and numerous city centre locations.
- The proposed layout and proposed cycle storage provision acknowledge the excellent sustainable location of the site and also current car ownership levels of residents in Manchester city centre; and,
- Numerous measures are included to enhance cycle and pedestrian facilities and access to and from the site. The proposals include the provision of one hundred and seventy-seven cycle storage spaces on the first floor.

Framework Travel Plan -

To further enhance the sustainable credentials of the proposal the Site is underpinned by a Framework Travel Plan.

- This plan seeks to promote existing transport routes, complement the sustainable location of the Site and meet the needs of future residents and visitors; and,
- Cycle storage will be provided in communal stores for the dwellings cycle parking provision is in line with the Council's minimum standards.

Local Amenity Access -

- Residents are able to walk to local amenities and shops; and,
- The site benefits from very good links to local amenity space and recreational facilities, such as:
 - Recreational Space – The River Medlock is located to the east of the site (approximately 700m) and New Islington Fields are located 130m to the north of the site;
 - Education – Manchester Metropolitan University and Manchester University are located within 2km of the site;
 - Local Amenities – There are a range of retail and leisure facilities located within close proximity of the site and city centre attraction can be easily reached via public transport nodes and by foot.

Disability Access -

- Disabled access provision within the scheme itself will be in accordance with Building Regulation, Part M criteria as far as possible; and,
- Lift access will be provided within the apartment tower to all floors.



4.10 Manchester City Councils Green and Blue Infrastructure Strategy

The Ashton Canal runs close to the development site providing an attractive setting for apartments and associated amenities. This will provide an opportunity to encourage access to part of the city centre's Blue Infrastructure.

The development will include both a green roof and residential garden. The green roof and residential garden will provide a number of environmental benefits, such as improved air quality, whilst also creating an aesthetically enhanced environment and improving occupant's general wellbeing.

The formation of vertical greenery within the development will be a key component helping to create successful neighbourhoods and support the city's growth.

Pollution Prevention Guidance will be adhered to by the main contractor in respects to air (dust) and water (ground and surface) pollution during the demolition and construction phase to prevent any degradation of existing Blue Infrastructure. Pollution prevention measures may include, but are not limited to the following:

- Bunded tanks;
- Oil-water separators; and
- Gully traps



5. BREEAM ASSESSMENT (NON-DOMESTIC)

A BREEAM UK New Construction 2018 (shell only) Pre-Assessment report has been prepared by a qualified BREEAM Assessor. This is to determine the feasible credits and potential BREEAM rating for the non-domestic retail space for the Victoria House development and demonstrates a commitment to the principles of good construction, design and sustainability.

5.1 BREEAM Assessment Classification

The BREEAM assessment methodology applicable to this development is as follows:

- BREEAM 2018 UK Non-Domestic New Construction Pre-Assessment (commercial building: retail) - shell only;

In reviewing and assessing the feasibility of the BREEAM credit award and the overall BREEAM performance of this scheme, constraints arising from the nature of the proposed development site and location have been considered. All credits allocated within this BREEAM Pre-Assessment will require further technical verification from the design team during the formal Design Stage and Post Construction BREEAM assessment.

5.2 BREEAM Credit Award Review

An overview of the BREEAM credit award for each issue is presented below. The BREEAM 2018 New Construction Pre-Assessment report is presented within Appendix B of this document and contains a full commentary on the individual credit award and specification requirements.

5.2.1 Management

Project Brief and Design –

- Stakeholder consultation covering project delivery and relevant third parties.

Life Cycle Cost and Service Life Planning –

- Reporting the capital cost of the building to promote economic sustainability.

Construction Site Impacts –

- All timber and timber-based products used on the project will be 'legally harvested and traded timber';
- The principal contractor will demonstrate sound environmental management practices and consideration for neighbours across their activities on-site; and,
- Site related energy and water impacts are monitored and reported to ensure ongoing compliance during the Construction, Handover and Close Out stages and to improve awareness and understanding for future projects. Construction site impacts will be minimised as follows:
 - o Monitor, report and set targets for carbon dioxide or energy arising from site activities;



- o Monitor, report and set targets for water consumption arising from site activities; and,
- o Monitor and record data from the transport movements and impacts resulting from delivery of construction materials to site and construction waste from site.

5.2.2 Commissioning and Handover –

The provision of the following processes and handover guidance will be provided to encourage a planned handover and commissioning process which will reflect the needs of the building occupants:

- Schedule of commissioning including optimal timescales and appropriate testing and commissioning of all building services systems and building fabric in line with best practice;
- Inspecting, testing, identifying and rectifying defects via an appropriate method; and,
- Provision of a non-technical Building User Guide timed appropriately around handover and proposed occupation.

5.2.3 Health and Wellbeing

Visual Comfort –

- Internal and external lighting systems are designed to avoid flicker and provide appropriate illuminance (lux) levels to ensure best practice in visual performance and comfort for building occupants.; and,
- The external lighting strategy will be designed to reduce unnecessary light pollution, energy consumption and nuisance to neighbouring properties;

Acoustic Performance –

- The building will meet appropriate acoustic performance standards and testing requirements in relation to sound insulation, indoor ambient noise level and reverberation times. This is to ensure the building's acoustic performance including sound insulation meet the appropriate standards for its purpose.

Safety and Security –

- Secure By Design - Security needs will be understood and taken into account in the design and specification. To encourage effective measures that promote safe and secure use and access to and from the building.

5.2.4 Energy

Reduction of CO₂ Emissions –

- The proposed approach to emissions reduction at this site will be through a fabric led energy strategy and efficient servicing, in accordance with the principles of the Energy Hierarchy;



- The scheme will accord with current building regulation Part L, 2A criteria in accordance with the current local planning policies and the BREEAM mandatory 'very good' rating requirement.

External Lighting –

- All new external light fittings, where provided, within the construction zone will be dedicated low energy; and,
- External light fittings will be controlled through a time switch, or daylight sensor, to prevent operation during daylight hours.

5.2.5 Transport

- As previously discussed in Section 4.1.10 of this statement, The proposed development is a highly sustainable location in terms of transport connections with basic facilities and amenities all within easy walking distance of the site; and,
- A site-specific travel plan based on the needs of the site will be undertaken to promote sustainable reductions in transport burdens.

5.2.6 Water

Water Consumption and Monitoring –

- A water efficiency strategy will be determined for the site. This will include 'A' rated appliances;
- The buildings will be specified with efficient water fixtures and controls. This will result in a reduction in water consumption (litres/person/day); The mandatory minimum criteria for the BREEAM 'Very Good' rating will be achieved and a potential improvement targeted, which is a 40% improvement over the set BRE water consumption baseline;
- Leak detection would be incorporated, leakage especially in the case of water can be a drain on the resource and particularly difficult to establish without data collection; and,
- A water meter on the mains water supply to the building will be specified to monitor and manage consumption and sub- metered to tenant areas.

5.2.7 Materials

This development will contribute towards making more efficient use of non-renewable material resources and to reducing the lifecycle impact of materials used in construction. This is demonstrated by the selection of:

Materials Lifecycle Impacts –

- Materials with a low environmental impact throughout their lifecycle will be specified. The BRE's Green Guide to specification will be consulted to optimise the material selection and their associated environmental performance and life cycle impact;



Responsible Sourcing of Materials –

- All timber used on the project will be responsibly sourced in accordance with the UK Government's Timber Procurement Policy (FSC sourced timber, for example);
- Materials will be selected which have a low environmental impact throughout their life cycle;
- Suppliers and manufacturers who operate Environmental Management Systems will be prioritised;
- Responsible sourcing of materials will be managed by the contractor. All timber used within the development will be responsibly sourced, verified by the FSC or PEFC standard; and,
- Consideration will be given to local sourcing of construction materials where feasible.

Insulation –

- The use of thermal insulation which has a low embodied environmental impact relative to its thermal properties will be specified throughout the development to reduce the construction phase impact of this scheme upon climate change.

Designing for Robustness –

- Adequate protection will be provided for exposed elements of the building and landscaped areas, therefore minimising the frequency of replacement materials.

Material Efficiency –

- Opportunities will be identified, and appropriate measures investigated and implemented, to optimise the use of materials in building design, procurement, construction, maintenance and end of life.

5.2.8 Waste

Construction Waste –

Prior to commencement of the construction phase, a Construction Resource Management Plan will be produced by the developer to limit the on and off-site environmental impacts of construction. The waste management strategy will also include the following:

- Pre-demolition audit will be completed of all existing buildings, structures or hard surfaces within the scope of the development site will be undertaken. This promotes resource efficiency via the effective management and reduction of construction waste.
- Procedures to reduce construction waste related to on-site construction and off-site manufacture/fabrication; and,
- Diverting non-hazardous construction (on-site and dedicated off-site manufacture/fabrication), demolition and excavation waste (where applicable) generated by the project from landfill.



Operational Waste –

- Provision of suitable space and facilities to allow for segregation and storage of operational recyclable waste volumes generated by the building occupant(s) and activities will optimise recycling rates.

Adaptation to Climate Change –

- A climate change adaptation strategy appraisal will be carried out for structural and fabric resilience to encourage consideration and implementation of measures that will mitigate the impact of more extreme weather conditions arising from climate change over the lifespan of the building.

Functional Adaptability –

- A building-specific functional adaptation strategy will be undertaken by the design team, which includes recommendations for measures to be incorporated to facilitate future adaptation.

5.2.9 Biodiversity

Selection and Ecological Value of the Site –

- The proposed development is located on a previously occupied site;
- The land within the construction zone has been confirmed to be of low ecological value;

Minimising Impact on Existing Site Ecology and Enhancement –

- There will be no negative impact on the ecological value of the Site;
- Advice and recommendations will be sought from the suitably qualified; and,
- Any planting provision will be designed to provide an enhancement to both the ecological and aesthetic value of the site.

For further details on the proposed landscaping plan and ecological enhancement see Section 4.8.

2.10 Pollution

Surface Water Management –

- The development site is located within Flood Risk Zone 1, low annual probability of flooding (see Section 4.4.1 Figure 4.1); and,
- The volume of surface water run-off will be limited such that the development will not result in an increased discharge from the Site and the peak rate of discharge will be reduced through the provision of flow control techniques and surface water attenuation.



Reduction of night time light pollution –

- The external lighting strategy will be designed to reduce unnecessary light pollution through effective design, energy consumption and nuisance to neighbouring properties.

Reduction of noise pollution –

- Measures to reduce the likelihood of disturbance arising as a result of noise from fixed installations on the development.

5.2.11 Potential BREEAM Score and Rating

Working alongside the qualified BREEAM assessor, the technical design team has reviewed the individual credit criteria and award of credits within the Pre-Assessment in order to optimise the building's BREEAM performance. All credits allocated within this BREEAM Pre-Assessment will require further technical verification and additional feasibility assessment during the formal Design Stage and Post Construction BREEAM assessment.

The BREEAM (shell only) Pre-Assessment (presented in the Appendix B of this Statement) shows that the building is expected to perform as follows:

- Indicative building BREEAM score = **56.78% (minimum required = 55% for BREEAM Very Good)**

Indicative BREEAM rating = Potential for **BREEAM 'Very Good' rating.**

5.2.12 Minimum 'Very Good' standards

Following an initial review of the proposals the BREEAM New Construction Pre-Assessment report demonstrates that the new non-domestic retail space in the building are able, in principle, to meet all mandatory credit requirements (see Table 5.1) and achieve an overall BREEAM Very Good rating.

Note that a number of assumptions have been made within this initial appraisal process which will require confirmation by means of further technical input during the formal assessment, once the design and specifications are finalised. The approach to achieving the target BREEAM rating may therefore, be subject to change further into the development cycle.

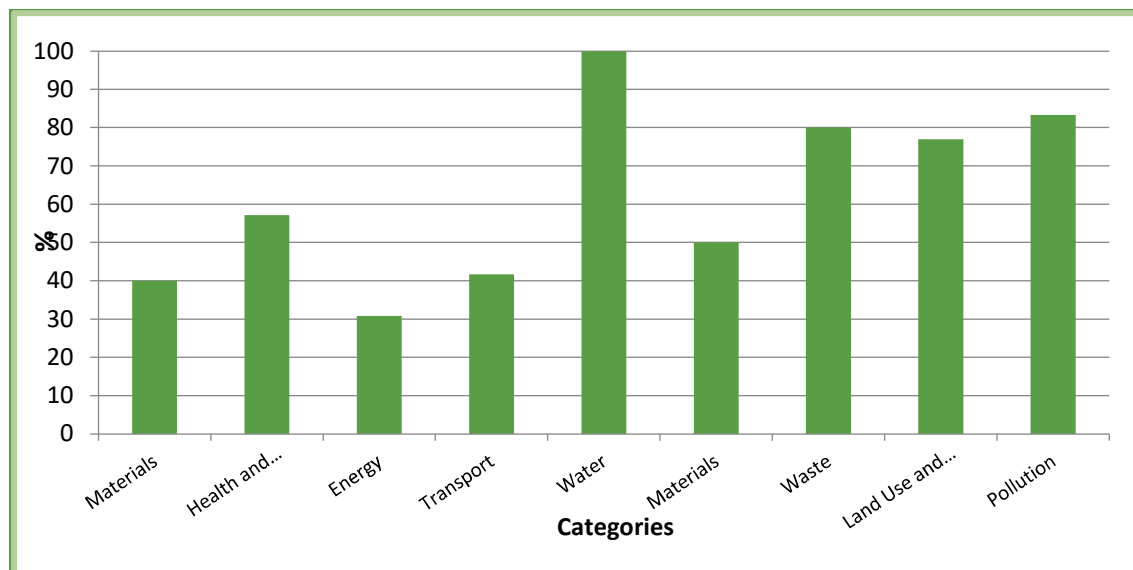
Table 5.1 – Minimum Standards Achieved

Minimum Standards for BREEAM for 'Very Good' rating	Achieved
ENE 02: Energy Monitoring	not applicable to Shell only assessments
WAT 01: Water Consumption	not applicable to Shell only assessments
Man 04: Commissioning and Handover	not applicable to Shell only assessments
Man 04 Building User Guide	✓
WAT 02: Water Monitoring	✓
MAT 03: Responsible Sourcing of Materials	✓



Figure 5.1 shows the estimated relative performance in each of the BREEAM New Construction environmental sections of sustainability.

Figure 5.1 - Sustainability Performance Overview (Retail)



6. ENERGY STRATEGY

Details of the proposed energy strategy for the Victoria House development, which incorporates an enhanced 'fabric led' solution throughout the development combined with efficient servicing and controls will achieve compliance with the rigorous emission reduction and fabric energy efficiency targets stipulated by Building Regulation, Part L1A (2013).

6.1 Local Planning Policies

Manchester's Core Strategy (CS) includes the following relevant policies:

CS Policy EN 4 - Reducing CO₂ Emissions by Enabling Low and Zero Carbon Development requires all development to 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; and,
- To meet residual energy requirements through the use of low or zero carbon energy generating technologies.

CS Policy EN 6 - Target Framework For CO₂ Reductions From Low or Zero Carbon Energy Supplies includes emission reductions targets which relate to Building Regulation Part L 2010. As a consequence of the reduction in emission rates required by current building regulations (Part L 2013) relative to Part L 2010, the revised equivalent target CO₂ emission reductions for the residential elements of this scheme are now deemed to be - 9% dwelling emission rate reduction over Part L 2013.

6.2 Renewable Energy Feasibility

A number of renewable energy technologies have been considered for this site, including:

- Solar Hot Water;
- Photovoltaics (PV);
- Wind;
- Heat Pumps; and
- Biomass heating.

A review of the Victoria House proposals and site location concludes that none of these options are feasible for this development, as detailed below:

✗ **Solar Hot Water** utilises the energy in sunlight and diffuse daylight to heat water for use in buildings. The main component of any solar water heating system is the collector, which absorbs the radiant energy of the sun and converts it to heat energy. This technology is not considered to be a feasible option for this site because, there is limited available roof space to accommodate this technology and these solar thermal technologies make only a relatively limited contribution to reducing the building's energy demand and carbon dioxide emissions. Furthermore, there are potential problems associated with routing the pipework through the apartments.



✖ **Photovoltaics (PV)** panels harness solar thermal energy and convert it into electricity which can then be used within a building. The panels are typically orientated in a southerly direction in tilted arrays, thereby enabling this technology to operate efficiently. This technology is not however considered to be a feasible option for this site as a consequence of limited roof area for PV array installation.

✖ **Wind Turbines** are considered unsuitable for this site due to a poor wind resource and lack of space to locate the turbines at the lower levels of the scheme. Integrating these systems at height on the top floor of the towers is not considered feasible due the associated noise, vibration, visual and structural stresses upon the building. Furthermore, there are potential planning issues and perceived safety concerns with this technology.

✖ **Ground Source Heat Pumps** collect low-grade heat from the ground to supply useful heat for space and water heating requirements. By applying additional energy input (in the form of electricity), it is possible to raise the temperature of the source heat to the temperature required. Such technology is considered unsuitable for this site due to an insufficient area (based upon the proposed densities) to install a horizontal ground collector and the prohibitive costs and technical constraint of installing vertical boreholes.

✖ **Air Source Heat Pumps** extracts heat from the outside air to supply useful heat for space and water heating requirements. By applying additional energy input (in the form of electricity), it is possible to raise the temperature of the source heat to the temperature required. Such technology is potentially technically feasible for this site however, the capital costs of installing this would prove unviable in the residential element of the scheme.

✖ **Biomass heating** would be capable of delivering the target CO₂ emission reductions but are considered inappropriate for this type of development and location due to the requirement for a large fuel store and the high NO_x emissions associated with biomass combustion, typically rendering these systems technically unfeasible for city centre locations.

6.3 Build Fabric and Thermal Performance

In buildings, heat loss generally occurs through the following main areas and elements of the construction:

- Ground Floor;
- External Walls;
- Roofs;
- Doors and windows;
- Thermal bridging (heat loss through construction joints); and
- Uncontrolled ventilation.

The standard measurement of heat transfer through a given building material or construction type is the U-value (W/m²K). The lower the U-value, the more slowly heat transfers and is lost out of a building.

6.3.1 Build Fabric and Thermal Performance

The residential towers will be of concrete frame construction combined with a pre-cast external cladding system. The proposed material specification that will be incorporated to limit heat loss and ensure efficient operation of the dwellings is presented in Table 6.1.



Table 6.1 – Proposed Dwelling Specification

Construction Element	Specification
Exposed Floor	U=0.12 W/m ² K
External Wall	U=0.16W/m ² K
Roof	U=0.14 W/m ² K
Design Air Permeability	3.0m ³ /hm ² (@50Pa.)
Cold Bridging	Measures to limit cold bridging will be applied throughout the design (default value of $\gamma=0.15$ applied in SAP)

This material specification and design will deliver a Part L1A compliant solution and will provide the following benefits:

- **High performance thermal insulation** will ensure low U-values for all heat loss elements. Energy demand for space heating will be significantly reduced through the provision of an effective thermal envelope. A thermally efficient facade system will minimise heat loss through the building's thermal envelope;
- **Thermally efficient, 'A' rated, double glazed windows** will be specified with low emissivity coatings to limit heat loss through the pane. Thermal breaks will be incorporated within the frame to further limit heat loss. The glazing g value will be specified to optimise beneficial solar gains but limit the propensity for the dwellings to overheat;
- **Glazing Ratio** - The proposed development has taken a 'fabric first' approach to reducing energy demand and CO₂ emissions. An early focus of the design-team will be the amount of glazing, and how this relates to the total external wall area (i.e. the glazing ratio). The glazing ratio is an important metric to drive efficiency, whilst carefully balancing design and daylight / sunlight requirements. Through experience of calculating the energy performance of similar developments, the design-team is advised at concept stage that glazing ratio should generally target c.48% glazing provision.
- **Thermal mass** (associated with this type of concrete frame construction) helps stabilise the internal temperature and provides a largely self-regulating environment, reducing the risk of overheating and the need for mechanical cooling in summer. Furthermore, this daily cycle of absorbing and releasing heat continues a year-round basis and can reduce the energy needed to keep a building warm during the heating season. This works through the ability of thermal mass to capture and recycle heat solar and incidental heat gains;
- **Very low air tightness** will minimise uncontrolled ventilation. This will reduce heat losses and provide high levels of occupant comfort;
- **Attention to cold bridging junctions** including the provision of insulation and thermal breaks to limit heat transfer; and,
- **Efficient Form** - apartments are an inherently efficient form of construction, both in terms of the materials required to build the dwellings and the ongoing heat energy demand. This is a result of relatively low areas of external heat loss elements associated with such layouts which enhance the energy efficiency of the dwellings and guarantees low energy demand throughout their occupation.



6.4 Building Services

The proposed mechanical and electrical specification that will be incorporated to ensure efficient servicing of the dwellings is presented in Table 6.2.

Table 6.2 – Proposed Mechanical and Electrical Specification

Item	Specification
Ventilation	High efficiency MVHR
Lighting	100% 'Low E'
Space Heating	Electric panel heaters
Heating Control	Programmer and thermostat
Water Heating	High efficiency immersion heater
Lighting	100% Low Energy and LED

This mechanical and electrical specification will deliver a Building Regulation Part L1A (2013) compliant scheme and will provide the following benefits:

- **Mechanical ventilation with heat recovery (MVHR)** systems will be specified in each dwelling to maintain a healthy living environment and further reduce the heat losses and the energy demand of the apartments.

The smaller units will be specified with cooker hood MVHR units to aide with space planning within the dwellings. The proposed MVHR system can recover up to 92% of heat from the extracted stale air from the dwelling by using a counter flow heat exchanger which 'pre-heats' cool incoming, fresh air. The outgoing and incoming air pass next to each other, but do not mix. The design air permeability of 3.0m³/hm² (@50Pa.) for these dwellings will minimise uncontrolled ventilation and ensure that the majority of the expelled stale air will pass across the heat exchanger, thereby boosting the energy reduction potential of these systems;

- **Low energy and LED lighting** will be specified throughout both the residential and non-domestic elements of the development in order to maximise operational efficiencies and lifespan of the fittings. LEDs operate with an estimated energy efficiency of up to 90% when compared to traditional lighting and conventional light bulbs. This means that about c.90% of the electrical energy is converted to light, rather than wasted heat as in conventional bulbs;
- **High efficiency hot water storage** will be specified with immersion cylinders providing low standing losses to reduce energy demand from the systems. To further limit energy demand for hot water, dwellings would be provided with water-efficient fixtures and fittings, to limit overall water consumption to <125 litres per person per day.

6.5 Rationale

The combined energy strategy will provide a number of benefits in terms of energy efficiency, deliverability and viability of the Victoria House scheme as a whole. The advantages of the proposed full electric servicing option for the residential towers are reviewed below.



6.5.1 Residential Heating Strategy Benefits

- The residential towers will exceed the current (stringent) Building Regulation Part L 2013 criteria in terms of dwelling emission rate and fabric energy efficiency;
- These systems will also ensure high levels of occupant comfort coupled with low heating energy bills;
- There will be no local emissions associated with the proposed electric heating strategy;
- Electrical panel heating generates a reduced overheating potential – electric space heating delivers virtually instantaneous heating at the location it is required. Unlike a ‘wet system’ associated with communal gas boilers which inherently have a long lag time for the heat to be generated and then dissipated when no longer needed. This lag time can lead to the dwellings overheating as the hot water remains in the radiators for a considerable time after the heat demand is required;
- A fully electric heating system also negates the need for mid-tower height plant rooms, as pumping water to the upper storeys of the building requires the introduction of mid-height plant rooms to boost the water pressure;
- A fully electric heating system is much more cost effective in terms of installation than communal gas and requires much lower maintenance. This will therefore keep service charges down for the building’s occupants; and,
- Electric heating as proposed for the Victoria House dwellings is 100% efficient at the point of consumption. The UK government is committed to reducing the country’s emissions and has legislated to do so within the Climate Change Act. As the UK’s electricity grid becomes less carbon intense over time the carbon emissions associated with full electric heating will become less.



7. EMISSIONS PERFORMANCE CALCULATIONS

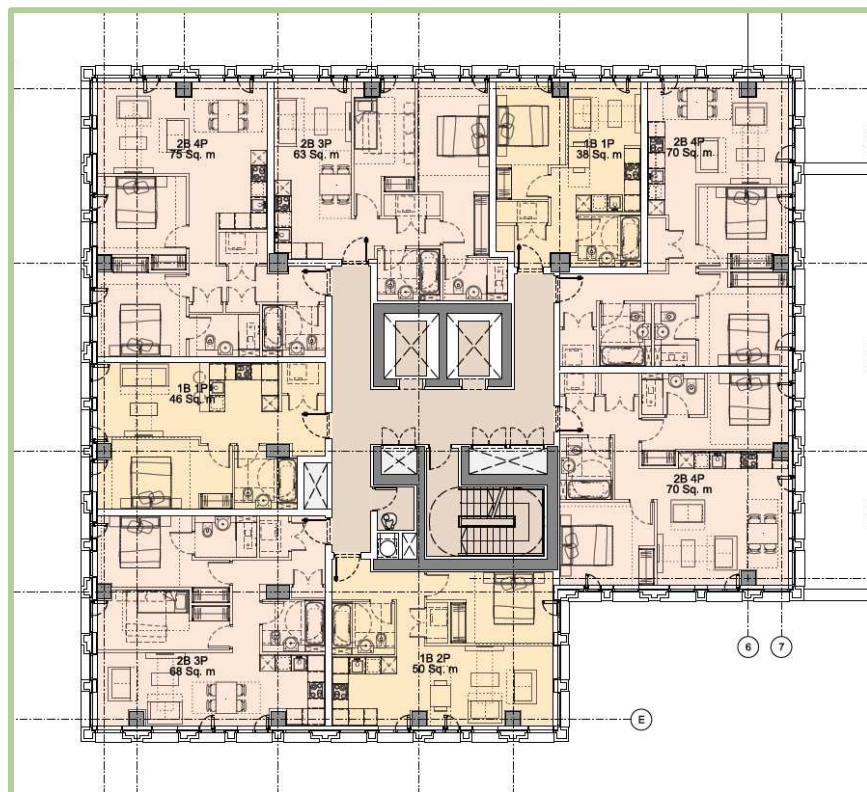
In order to demonstrate the environmental benefits associated with the 'fabric led' specification to energy demand and emission reduction at the site, SAP software has been used to generate representative energy demand models the dwellings.

7.1.1 Regulated Energy Demand and Emission Calculations

SAP 2012 software calculates the regulated energy demand of the dwellings and associated carbon dioxide emissions, in accordance with the requirements of Building Regulation, Part L1A (2013) that this development will be constructed in compliance with. These calculations determine the regulated energy demand and dwelling emission rate reductions achieved by the enhanced material specification and efficient mechanical and electrical servicing.

Approved SAP software (NHER Plan Assessor v6.3.4) has been used to generate energy demand models for representative dwellings within the scheme (see Appendix A for details). Representative SAP models have been calculated for the eight apartments that are present on levels nine to eighteen of Tower 1. These units have been selected for assessment as they constitute a typical group of dwellings within the scheme and are representative of the entire development in terms of their size, layout and orientation (see Figure 7.1).

Figure 7.1 – Representative Dwelling Sample, Levels 9 - 18



7.1.2 Emissions Reduction Targets

Manchester City Council's Core Strategy policy EN6 targets a 15% carbon dioxide emission rate reduction over Building Regulation Part L (2010).

The 2013 revision to Part L of the Building Regulations includes a 6% improvement on the 2010 Part L targets for housing over Part L 2010 criteria. Domestic and non-domestic buildings are therefore achieving a 6% or 9% emission respectively over Part L 2010 emission rate criteria by virtue of simply complying with the current (Part L 2013) regulatory standards which the scheme has been designed to exceed. Manchester City Council have confirmed that, accounting for the uplift in building regulation criteria, their revised Core Strategy policy EN6 targets above Part L 2013 now require a 9% improvement on the (current) 2013 Part L1A targets for housing.

The calculated emission rate reduction over Part L1A 2013 are presented in Table 7.1. The proposed Victoria House development has therefore been demonstrated to provide an improvement beyond the Part L (2013) compliance standard.

7.1.3 Energy Calculation Results

The dwelling emissions and thermal envelope energy efficiency performance associated with the proposed 'fabric led' specification are presented in Tables 7.1 and 7.2.

Table 7.1 – Calculated Regulated Dwelling Emission Rate

Dwelling DER (kgCO ₂ /m ² /yr.)	19.36
Dwelling TER (kgCO ₂ /m ² /yr.)	20.91
% DER Reduction over Part L 2013	7.4

The representative calculations demonstrate that the dwelling emission rate (DER) reduction for the residential element of the scheme is expected to be 7.4% better than the Part L1A 2013 compliance standard.

Table 7.2 – Calculated Fabric Energy Efficiency²

Dwelling DFEE (kWh/m ² /yr.)	25.4
Dwelling TFEE (kWh/m ² /yr.)	30.0
% FEE Reduction over Part L 2013	15.3

The representative calculations demonstrate that the dwelling fabric energy efficiency (DFEE) reduction for the residential element of the scheme provides a 15% improvement over the Part L 2013 compliance standard as a consequence of the aforementioned enhanced fabric specifications.

² DFEE is an acronym of Dwelling Fabric Energy Efficiency (kWh/m²/year).

TFEE is an acronym of Target Fabric Energy Efficiency (kWh/m²/year)



7.1.4 Revised Carbon Factors

SAP 10 will be used to demonstrate compliance with the forthcoming iteration of Building Regulation Part L. The current carbon factors applied in SAP 2012 for electricity are out of date, so these new factors better reflect the decarbonised status of the UK's electricity grid, as presented in Table 7.3

Table 7.3 - Carbon Factors for Grid Electricity

Fuel	Software Version	Fuel Carbon Factor (kgCO ₂ /kWh)
Natural Gas	SAP 2012 (current)	0.216
	SAP 10 (revised)	0.210
Grid Electricity	SAP 2012 (current)	0.519
	SAP 10 (revised)	0.233

- It can be seen that the revised carbon factors to be applied in the forthcoming SAP 10 software are c.45% lower than the out-of-date factors currently being applied for building regulation compliance purposes.
- Grid mix electricity has now been calculated to be less than 10% more carbon intense than natural gas whereas the previous carbon factors show electricity to be more than twice as carbon intense as natural gas.
- It should be noted that the use of the SAP 10 emission factors in this context is for demonstrating performance against planning policy targets only and, as such, is separate to Building Regulation compliance. Applications should therefore ensure that compliance with Building Regulations is maintained.

To ensure that the assessment of new developments better reflects the actual carbon emissions associated with their expected operation, the latest carbon emission factors, derived from the SAP 10 may be applied to these results, using the outputs from current compliance calculations which are then manually converted for the revised SAP 10 CO₂ factors.

In addition to the building regulation compliance calculations (which are completed with current versions of the approved energy assessment software) we have provided a separate set of manual calculations which apply these reduced SAP 10 emission factors for grid electricity to the residential energy model results, which are not currently taken into account by Part L of the building regulations.

Table 5.7 – Calculated Regulated Dwelling Emission Rates – SAP 2012 & SAP 10 Data

	SAP 2012 Data	SAP 10 Data
Dwelling DER (kgCO ₂ /m ² /yr.)	19.36	8.70



Applying the revised carbon factors to the building's Dwelling Emission Rate (DER) shows that the 'full electric' energy strategy proposed for the dwellings will actually provide a DER of 8.70kgCO₂/m².

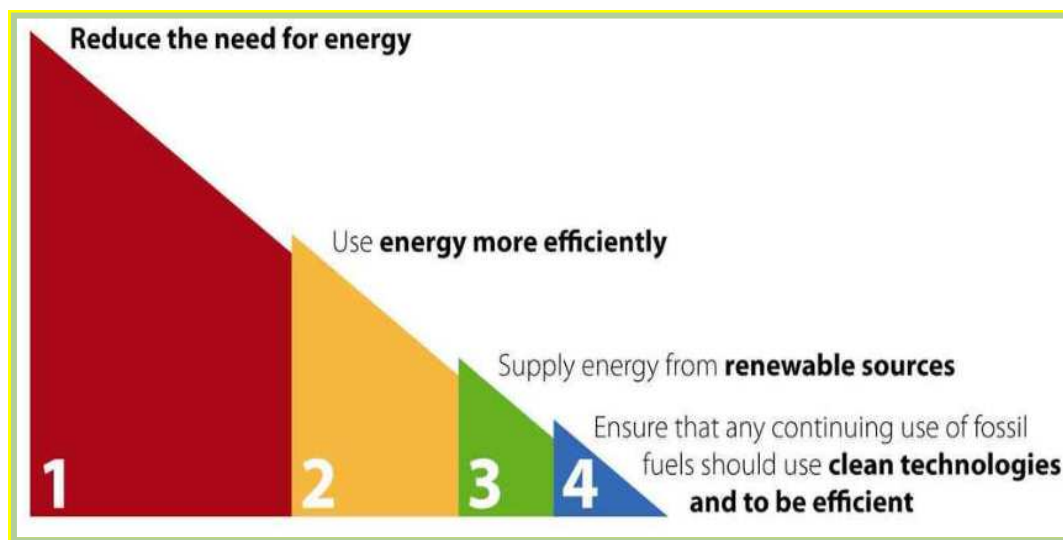
In line with the MCC Climate Change Framework, this development has been proven to take maximum advantage of the decarbonating status of the electricity grid with its full electric heating strategy. This is a suitable steppingstone towards zero-carbon standards whilst the UK government establish a national zero carbon definition and methodology for near-future implementation.



8. ENERGY HIERARCHY

As discussed in the previous sections of this report, the scheme will incorporate an enhanced material specification along with high quality design and construction standards to improve the energy efficiency of the whole building through a 'fabric led' energy strategy. The construction, design and specification proposed for this scheme will deliver buildings that are inherently efficient and cost-effective during occupation. The Energy Hierarchy provides a framework to guide energy policy and decision making to achieve practical and cost-effective carbon emission reductions. The hierarchy prioritises such demand-side activities to reduce wastage and improve efficiency (see Figure 8.1).

Figure 8.1 – The Energy Hierarchy



First Principle

The following efficiency measures are designed to reduce heat losses and minimise energy demand:

- This 'fabric led' approach to minimising energy demand and associated carbon dioxide emissions is aligned with the first principle of the energy hierarchy which states that reduction in energy demand should be achieved initially by energy efficiency.
- The buildings will be constructed with a material and design specification which far exceeds minimum Building Regulation standards and includes numerous efficiency measures designed to reduce heat losses and minimise energy demand.
- The design air permeability target for the residential units is $3\text{m}^3/\text{hm}^2$ (@50Pa.). This low air permeability target will assist to limit the heat loss through the structure of the building.
- The g value within the building will be optimised to control solar gain in the summer months And allow beneficial gains in the winter season so as to minimise the overheating risk and limit the heating energy demand within the properties.

This approach to minimising energy demand and associated carbon dioxide emissions is aligned with the first principle of the energy hierarchy which states that reduction in energy demand should be achieved initially by energy efficiency.



Second Principle

The mechanical ventilation with heat recovery systems will also capture much of the heat from the extracted air from these properties. Additionally, the proposed 100% low energy and LED lighting provision and sophisticated control systems for the space and water heating will also ensure that energy consumed by the dwellings, retail and leisure areas is used efficiently, as per the second principle of the Energy Hierarchy.

- All apartments will benefit from high efficiency MVHR that will recover 'waste' heat from the extracted stale air;
- Heating systems will be provided with zonal, programmable thermostatic controls would allow occupants to control zones within their dwellings independently for maximum flexibility;
- Hot water will be separately programmable and high efficiency cylinders with low standing losses will be specified;
- 100% LED provision and sophisticated control systems. Photocell and automatic presence control of the lighting will be specified in order to further improve the efficiency of the lighting system within the communal zones.
- Furthermore, the building is designed to not require active cooling.

This strategy therefore accords with the second principle of the energy hierarchy.

Third Principle

It is not deemed to be necessary to incorporate low carbon, renewable and/or decentralised energy technologies within this development as the Building Regulation Part L 2013 emissions and fabric energy efficiency criteria will be met solely through efficient servicing and a high specification thermal envelope.

Fourth Principle

The space and water heating demand of the scheme will be met electric panel and immersion heaters (100% efficient). This will ensure that fossil fuels consumed for heating purposes will be burnt cleanly and efficiently.

The development proposals are therefore, aligned with the energy hierarchy promoted within the Manchester Guide to Development and Core Strategy Policy EN 4.

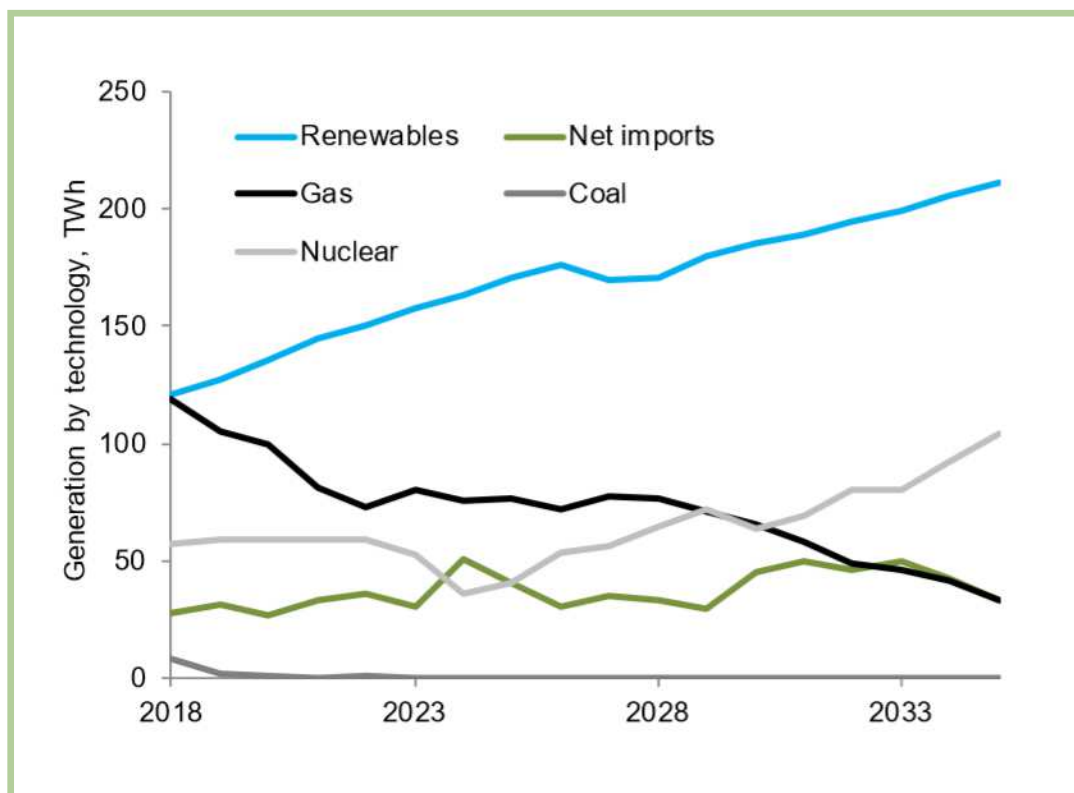


9. CLIMATE CHANGE EMERGENCY

A Climate Emergency was declared by Manchester City Council on 10th July 2019, with a target to make Manchester carbon neutral by 2038. In support of this, the developer wishes to highlight the following measures that will form part of the specification of this development:

- An energy strategy that delivers the current Core Strategy carbon dioxide emission reduction and renewable energy generation targets;
 - A commitment is made to achieving a significant improvement in the dwelling emission rate reduction relative to the current Part L1A (2013) compliance standard;
 - The low carbon share of electricity generation is projected to rise from 22% in 2010 to 65% in 2020. As the UK electricity grid CO₂ footprint continues to reduce (see Figure 7.1 sourced from BEIS Energy and Emissions Projections 2018), so too will the carbon dioxide emissions associated with this 'fully electric' building services energy strategy.
 - This would not be the case if the building were heated from fossil fuels (for example, gas boilers and/or CHP).

Figure 7.1 - Energy and Emissions Projections 2018 (BEIS)



- Calculations to demonstrate the benefits associated with decarbonisation of the grid have been prepared (see Section 7.1.4), with specific reference to the revised SAP10 carbon factors. This proves that the fully electric strategy will improve upon



Manchester's GMSF emerging policy, interim emissions target of -19% relative to Part L 2013;

- In securing compliance with the current, stringent building regulation Part L targets, a commitment is made to construct a high quality, energy efficient thermal envelope thereby minimising demand side energy loads – in accordance with the principles of the energy hierarchy; and,
 - Furthermore, 'full electric' strategies supply electric on demand, are 100% efficient and only uses what is required.
- Unregulated energy demand (that is, the energy demand associated with 'plug in' appliances and cooking) typically accounts for over half of the total carbon dioxide emissions from modern residential developments such as this. To limit this:
 - The integrated white goods will have as a minimum an A+ energy rating; and,
 - A welcome pack will be provided to all residents to encourage selection of green energy providers to enable them to make informed decisions.
- There is a fine balance between the solar gain, overheating calculations which require an element of heat loss, to prevent overheating, and energy models that require heat insulation to achieve compliance with, at times, conflicting building compliance targets. In essence, there is therefore a limit to fabric enhancements such as increased insulation and improved air tightness as this yields a higher overheating risk and as a consequence, the building would generate increased cooling loads.
 - These components of the building design are not symbiotic however, the design of this development balances both requirements and incorporates a building specification intended to avoid cooling requirement and the associated wasted energy in producing cooled air. Measures beyond building regulation requirements have been applied to quantify the overheating risk:
 - The glazing proportions, ventilation system and solar control glazing are designed to optimise solar gains within the building yet limit the propensity to overheat. Thus, these dwellings do not require active cooling which further limits the energy demand of the development.
- It is anticipated that more severe, short term weather events such as extreme flooding, storms, droughts and heat waves will become more frequent. The Committee on Climate Change has estimated that mortality rates arising from overheating could rise from 2,000 per year in 2015 to 7,000 per year by the 2050s. This development will be resilient to potential climate change effects such as urban heating and heat waves in the following ways:
 - Evapotranspiration from the planting and green roofs will help to mitigate the urban heat island effect.
- The development will demonstrate further resilience to potential climate change effects through the management of surface water:



- This system will be designed such that the total peak run-off rates from the site will be reduced through the provision of flow control techniques and surface water attenuation. The volume of surface water run-off will be no greater than existing conditions; and,
 - The system will also be designed to withstand a 1 in a 100-year storm event plus a 40% allowance for climate change.
- Waste is a misuse of natural resources and also contributes a large proportion of the UK's carbon footprint;
 - Waste minimisation during construction will reduce materials demand, thereby reducing the building's embodied carbon footprint; and,
 - During occupation, the building will benefit from recycling facilities to enable the local authority waste reduction targets, diverting more materials away from landfill and reducing the occupants' carbon footprint further
- The Site's location will enable a low carbon, sustainable lifestyles. Located minutes away from several major railway stations, the residents have the option to utilise various sustainable modes of transport. This is facilitated by:
 - Basic infrastructure provided for future connections such as secure cycle storage on Site
 - Travel options, including local access to transport nodes for bus and Metrolink;
 - Local amenities are within easy walking distance of the site, enabling residents to live local with a reduced need to travel; and,
 - Home working options are supported by the generous apartment dimensions and good levels of natural daylighting.
- The buildings are designed to incorporate features that will serve to reduce energy demand, and in turn, carbon emissions arising from access to the dwellings:
 - The lighting provision within the common areas will include active sensors; and,
 - The fit-out specification of the dwellings will seek to minimise water demand. Water efficiency measures (such as dual flush toilets, flow restrictors and reduced volume baths) will limit potable water demand. This will reduce water heating energy loads and also cut the process energy required to supply clean drinking water.

These commitments, in combination, seek to work towards the carbon reduction target of no more than 1.5°C global temperature increase and assist Manchester City Council in meeting their Climate Change Emergency objectives.



10. CONCLUSION

The Statement has reviewed the environmental performance of the proposed development site at Victoria House in Manchester against national and local policies. The material specification has also been reviewed and servicing strategy for the scheme and the building (carbon dioxide) emission rates for the various uses throughout the development have also been calculated.

Energy Strategy –

Compliance with the key criteria of the Manchester Core Strategy have been achieved by the proposed energy strategy while taking MCC's declaration of a Climate Emergency into consideration. These are as follows:

- Minimising the impacts of climate change is a key element of the proposed design. The proposed energy strategy will incorporate an enhanced 'fabric led' material specification, along with high quality design and construction standards to improve the energy efficiency of the buildings.
- These proposals will deliver a scheme that is inherently efficient and cost-effective during occupation. As a consequence of the decarbonised status of the UK's electricity grid, the actual emissions are 45% lower than the current out-of-date carbon factors used for building regulation compliance purposes. In line with the MCC Climate Change Framework, this development has been proven to take maximum advantage of the decarbonating status of the electricity grid with its full electric heating strategy.
- The development will be designed and specified in accordance with the principles of the energy hierarchy in line with the adopted Core Strategy Policy EN 4.
- The proposed scheme has been demonstrated to a significantly improve upon the current stringent Part L1A (2013) compliance standard;
 - The dwelling emission rate (DER) reduction for the residential element of the scheme is c.7% over Part L 2013 through fabric measures based upon representative SAP calculations; and,
 - The dwelling fabric energy efficiency (DFEE) reduction for the residential element of the scheme is 15% over Part L 2013 through enhanced fabric measures.

Environmental Performance -

The key issues of Manchester City Council's Supplementary Planning Document (Environmental Standards) in accordance with the Core Strategy Policy DM 1 have been achieved by the proposals while taking Manchester's declaration of a Climate Emergency into consideration. These are as follows:

- The proposed development will be designed in accordance with the BREEAM criteria and achieve the required 'Very Good' rating. This represents 'good practice' for new non-domestic buildings in the UK and as detailed in Section 5, the scheme is expected to perform well in all areas of the assessments.



- Water management for the development will align with the regulatory standard specified to achieve a calculated daily consumption of <125litres/person/day through the specification of efficient water fixtures.
- Minimising the impacts of climate change is a key element of the proposed design. The proposed energy strategy will incorporate an enhanced 'fabric led' material specification, along with high quality design and construction standards to improve the energy efficiency of the buildings. These proposals will deliver a scheme that is inherently efficient and cost effective during occupation and that accords with the adopted Core Strategy Policy EN 4, EN6 and the Supplementary Planning Document (SPD) criteria.
- The development site is located within Flood Zone 1. The site drainage strategy will be designed to manage the surface water runoff to ensure that the peak rate and volume of surface water run-off will be no greater post-development than pre-development with a target discharge rate of 50% less than the existing conditions.
- Waste arising during construction and occupation/operation will be minimised. A site waste management plan will be adopted during construction. The dwellings will be provided with waste facilities and a comprehensive waste management plan for the site will accord with the local authority recycling scheme. The provision of suitable space and facilities will allow the commercial and leisure facilities to segregate and store operational recyclable waste.
- Construction site management procedures will minimise adverse impacts on the environment and control pollution generated during the construction phase. These include a waste management strategy to reduce the quantity of waste generated, and to increase re-use and recycling of materials. A commitment will be made to minimise waste and pollution.
- The planting provision will be designed to provide an enhancement to the aesthetic value of the site and also planting will be selected to improve the biodiversity and strengthen the ecological value of the site.
- Materials are proposed to be responsibly sourced, materials with low environmental impact will be selected and local suppliers will be prioritised. In combination this procurement strategy will minimise and conserve energy associated with transportation and waste generation. This meets the council's objectives in addressing the recently declared Climate Emergency.

Furthermore, the proposals accord with the aims of the National Planning Policy Framework, as follows:

- The proposal comprises a large accommodation density within the development and in addition, commercial unit and amenity space are also incorporated within the scheme. The proposal includes the redevelopment of a previously developed Site and represents a very efficient use of land;
- Construction practices that minimise adverse impacts on the environment will be adhered to including a waste management strategy to reduce the quantity of waste generated, and to increase re-use and recycling, a commitment will be made to minimise waste and pollution; and,
- Exceeding the regulatory compliance criteria (Part L1A) will assist in mitigating the impact of climate change and its environmental impact.



In conclusion, the proposals reviewed within this statement for the scheme at Victoria House, Manchester will deliver a high-quality development that accords with the guidance provided within the Manchester City Councils adopted policies.



Appendix A – SAP Data



This report checks compliance against criterion 1 of the Building Regulations where there are multiple dwellings in the same building. Where a building contains more than one dwelling (such as in a terrace of houses or in a block of flats), compliance with the Building Regulations is achieved if:

a) EITHER every individual dwelling has a DER/DFEE that is no greater than its corresponding TER/TFEE

b) OR the average DER/DFEE is no greater than the average TER/TFEE.

The average DER, TER, DFEE and TFEE are all calculated in the same way, using the floor-area-weighted average of all the individual DERs, TERs, DFEEs and TFEEs. Block averaging is permitted only across multiple dwelling in a single building, NOT across multiple buildings on a site.

The formula used is as follows (using the TER as an example):

$$\{(TER_1 \times \text{Floor area}_1) + (TER_2 \times \text{Floor area}_2) + \dots + (TER_i \times \text{Floor area}_i)\} \div \{\text{Floor area}_1 + \text{Floor area}_2 + \dots + \text{Floor area}_i\}$$

Assessor name	Mr Laurie Wills	Assessor number	3906
		Created	21/11/2018

Results							
URN	Version	Address	Floor Area (m ²)	DER	TER	DFEE	TFEE
victoria House 18 7	1	18 7 Victoria House	75.00	17.63	19.51	23.4	27.1
Victoria House 18 6	1	18 6 Victoria House	69.00	19.93	19.73	25.7	27.2
Victoria House 18 5	1	18 5 Victoria House	50.00	23.48	22.73	29.4	28.3
Victoria House 18 4	1	18 4 Victoria House	71.00	20.35	19.67	28.0	27.8
Victoria House 18 3	1	18 3 Victoria House	71.00	20.55	20.80	28.6	31.5
Victoria House 18 2	1	18 2 Victoria House	61.00	19.48	21.01	24.0	27.4
Victoria House 18 1	1	18 1 Victoria House	91.00	20.04	20.06	30.9	34.8

Multiple dwelling DER = 20.06

Multiple dwelling TER = 20.37

CO₂ Compliance = PASS

Overall Compliance = PASS

Multiple dwelling DFEE = 27.2

Multiple dwelling TFEE = 29.5

FEE Compliance = PASS

Appendix B – BREEAM New Construction 2018 Pre-Assessment



Assessment report: Victoria House - Retail

Site name: Victoria House

Client name:

Date: 9/11/2018

Assessment ref: 2018.098

Assessment details

Assessment references

Registration number:	2018.098	Date created:	9/11/2018
Created by:	Stacey Downes {Element Sustainability Ltd}		
Architect name:	x		
Developer name:	x		
Property owner	x		

Site details

Site name:	Victoria House
Address:	Victoria Street
Town:	Manchester
County:	
Post code:	
Country:	United Kingdom

Certificate details

The certificate will have the name of the architect (if entered above) and the name of the developer (from above).

Any other names to appear on the certificate are listed below:

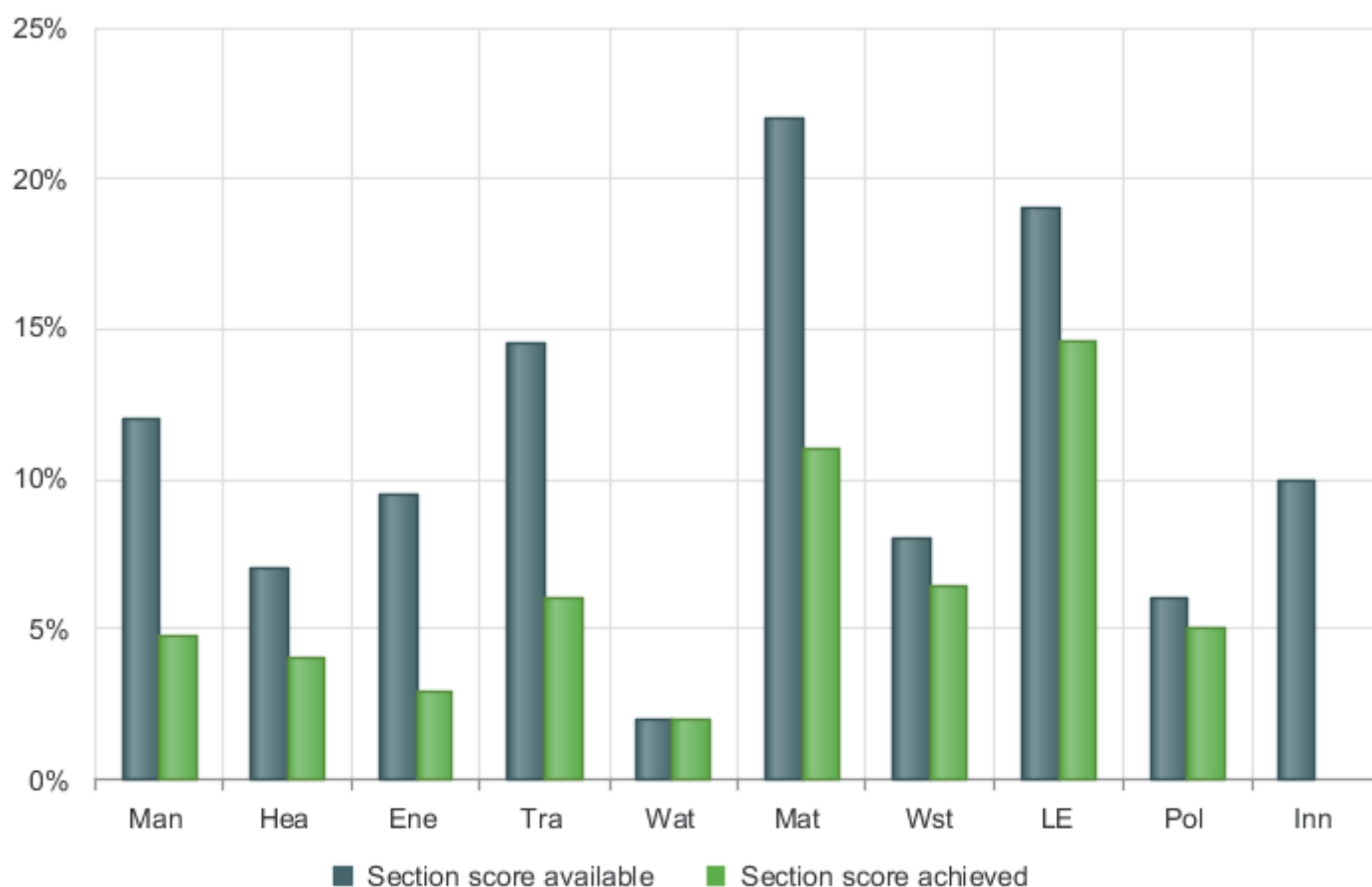
Name	Label
------	-------

BREEAM rating

BREEAM Rating

	Credits available	Credits achieved	% Credits achieved	Weighting	Category score
Man	15.0	6.0	40.00%	12.00%	4.80%
Hea	7.0	4.0	57.14%	7.00%	4.00%
Ene	13.0	4.0	30.77%	9.50%	2.92%
Tra	12.0	5.0	41.67%	14.50%	6.04%
Wat	2.0	2.0	100.00%	2.00%	2.00%
Mat	14.0	7.0	50.00%	22.00%	11.00%
Wst	10.0	8.0	80.00%	8.00%	6.40%
LE	13.0	10.0	76.92%	19.00%	14.61%
Pol	6.0	5.0	83.33%	6.00%	5.00%
Inn	10.0	0.0	0.00%	10.00%	0.00%
Total	102.0	51.0	50.00%	-	56.78%
Rating	-	-	-	-	Very Good

Performance by environmental category



Issue scores

Please Note: X means the exemplary credit for the relevant issue

Management

Man01	Man02	Man03	Man04	Man05
Project Brief and design	Life cycle cost and service life planning	Responsible construction practices	Commissioning and handover	Aftercare
1 / 4	1 / 4	3 / 6 X: 0 / 1	1 / 1	N/A

Health and Wellbeing

Hea01	Hea02	Hea04	Hea05	Hea06	Hea07
Visual comfort	Indoor air quality	Thermal comfort	Acoustic performance	Security	Safe and Healthy Surroundings
2 / 4 X: 0 / 1	N/A	N/A	1 / 1	1 / 1 X: 0 / 1	0 / 1

Energy

Ene01	Ene02	Ene03	Ene04	Ene05	Ene06	Ene07	Ene08
Reduction of energy use and carbon emissions	Energy monitoring	External lighting	Low carbon design	Energy efficient cold storage	Energy efficient transportation systems	Energy efficient laboratory systems	Energy efficient equipment
3 / 9	N/A	1 / 1	0 / 3	N/A	N/A	N/A	N/A

Transport

Tra01	Tra02
Transport assessment and travel plan	Sustainable transport measures
2 / 2	3 / 10

Water

Wat01	Wat02	Wat03	Wat04
Water consumption	Water monitoring	Water leak detection	Water efficient equipment
N/A	1 / 1	1 / 1	N/A

Materials

Mat01	Mat02	Mat03	Mat05	Mat06
Life cycle impacts	Environmental impacts from construction products	Responsible sourcing	Designing for durability and resilience	Material efficiency
2 / 7 X: 0 / 2	1 / 1	2 / 4 X: 0 / 1	1 / 1	1 / 1

Waste

Wst01	Wst02	Wst03	Wst04	Wst05	Wst06
Construction waste management	Use of recycled and sustainably sourced aggregates	Operational waste	Speculative finishes (Offices only)	Adaptation to climate change	Design for disassembly and adaptability
5 / 5 X: 0 / 1	0 / 1 X: 0 / 1	1 / 1	N/A	1 / 1	1 / 2

Land use and ecology

LE01	LE02	LE03	LE04	LE05
Site selection	Identifying and understanding the risks and opportunities for the site	Managing negative impacts on ecology	Change and enhancement of ecological value	Long term impact on biodiversity
1 / 2	2 / 2 X: 0 / 1	3 / 3	2 / 4 X: 0 / 1	2 / 2

Pollution

Pol01	Pol02	Pol03	Pol04	Pol05
Impact of refrigerants	Local air quality	Flood risk management and reducing surface water run-off	Reduction of Night Time Light Pollution	Noise attenuation
N/A	N/A	4 / 5	1 / 1	N/A

Innovation

Inn01
Innovation

Initial details

Victoria Street

Initial details

Technical manual issue number : Issue 1.0

Project scope : Shell only

Building type (main description) : Retail

Sub-group : Shop or shopping centre

Assessment stage :

Building floor area (GIA) : 350 m²

Building floor area (NIFA) : 350 m²

Is the building designed to be untreated? : No

Building services - heating system type : Other type of heating system

Building services - cooling system type : Comfort cooling

Are commercial or industrial-sized refrigeration and storage systems specified? : No

Are building user lifts present? : No

Are building user escalators or moving walks present? : No

Are laboratories present? : No

Are there fume cupboard(s) and/or other containment devices present? : No

Are there any water demands present other than those assessed in Wat 01? : No

Does the building have external areas within the boundary of the assessed development? : No

Are there statutory requirements, or other issues outside of the control of the project, that impact the ability to provide outdoor space : No

Are there any systems specified that contribute to the unregulated energy load? : No

Are the Post-occupancy stage credits targeted in Ene 01 issue? : No

Category assessment

Management | Man

Man 01 Project Brief and design

To optimise final building design through recognising and encouraging an integrated design process and robust stakeholder engagement.

Site : Victoria Street

ASSESSMENT CRITERIA

Project delivery planning :	Yes
Stakeholder consultation (interested parties) :	No
Prerequisite: Have the client and the contractor formally agreed performance targets? :	Yes
BREEAM Advisory Professional (Concept Design) :	No

Credits awarded : 1

Comments :

Project Delivery (1no. credit) - Identify variation in stakeholder needs, so maximising benefits and acceptability of the project in operation to users and those affected by it. Enhanced project team integration and efficiency.

Man 02 Life cycle cost and service life planning

To promote the business case for sustainable buildings and to deliver whole life value by encouraging the use of life cycle costing to improve design, specification, through-life maintenance and operation.

Site : Victoria Street

ASSESSMENT CRITERIA

Elemental LCC :	No
Component level LCC options appraisal :	No
Capital cost reporting :	Yes
Capital cost of the project :	1111 Â£k/m ²

Credits awarded : 1

Comments :

Capital Cost to be reported (1no. credit) - Capital cost reporting provides invaluable feedback into the design process improving future design decisions and helping to reinforce the business case for more sustainable buildings.

Man 03 Responsible construction practices

To recognise and encourage construction sites which are managed in an environmentally and socially considerate, responsible and accountable manner.

Site : Victoria Street

ASSESSMENT CRITERIA

Prerequisite: Are all timber and timber-based products used during the construction process of the project 'legally harvested and traded timber'? :	Yes
Environmental management :	Yes
Prerequisite: Have the client and the contractor formally agreed performance targets? :	No

Responsible construction management :	2
Monitoring of construction site impacts :	Yes
Utility consumption :	Yes
Transport of construction materials and waste :	Yes
Exemplary level criteria - Responsible construction management :	No

KEY PERFORMANCE INDICATORS: CONSTRUCTION SITE ENERGY USE

Energy consumption (total) - site processes :

Energy consumption (intensity) - site processes :

Distance (total) - materials transport to site :

Distance (total) - waste transport from site :

KEY PERFORMANCE INDICATORS: CONSTRUCTION SITE GREENHOUSE GAS EMISSIONS

Process greenhouse gas emissions (total) - site processes :

Carbon dioxide emissions (intensity) - site processes :

Carbon dioxide emissions (total) - materials transport to site :

Carbon dioxide emissions (total) - waste transport from site :

Carbon dioxide emissions (intensity) - materials transport to site :

Carbon dioxide emissions (intensity) - waste transport from site :

KEY PERFORMANCE INDICATORS: CONSTRUCTION SITE USE OF POTABLE WATER RESOURCES:

Use of potable water resource (total) - site processes :

Use of potable water resource (intensity) - site processes :

Credits awarded : 3

Comments :

- Pre-req - All timber and timber-based products used during the construction process of the project are 'legally harvested and traded timber'.
- EMS (1no. credits) - All parties who at any stage manage the construction site (e.g. the principal contractor, the demolition contractor) operate an EMS covering their main operations (ISO 14001).
- Responsible construction management (2no. credits)
- Monitoring of construction site impacts - Energy, water and transportation of waste and materials (2no. credits)

Man 04 Commissioning and handover

To encourage a properly planned handover and commissioning process that reflects the needs of the building occupants.

Site : Victoria Street

ASSESSMENT CRITERIA

Testing and inspecting building fabric :	Yes
--	-----

Credits awarded : 1

Comments :

Complete post-construction testing and inspection to quality-assure the integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths (this is through airtightness testing and a thermographic survey). A suitably qualified professional undertakes the survey and testing in accordance with the appropriate standard - (1no. credits).

Man 05 Aftercare

To ensure the building operates in accordance with the design intent and operational demands, through providing aftercare to the building owner and occupants during the first year of occupation.

Site : Victoria Street

ASSESSMENT CRITERIA - N/A

Hea 01 Visual comfort

To encourage best practice in visual performance and comfort by ensuring daylighting, artificial lighting and occupant controls are considered.

Site : Victoria Street

ASSESSMENT CRITERIA

Daylighting (building type dependent) :	0
View Out :	Yes
External lighting for Shell and core, and Shell only assessments :	Yes

Credits awarded : 2

Comments :

View Out - 95% of the floor area in 95% of spaces for each relevant building area is within 8 m of an external wall. The external wall has a window or permanent opening that provides an adequate view out. The window or opening must be >= 20% of the surrounding wall area. Where the room depth is greater than 8 m, compliance is only possible where the percentage of window or opening is the same as, or greater than, the values in Table 1.0 of BS 8206: part 2.

External Lighting - All external lighting located within the construction zone is specified in accordance with BS 5489-1:2013 Code for the practice for the design of road lighting. Lighting of roads and public amenity areas and BS EN 12464-2:2014 Light and lighting - Lighting of work places - Part 2: Outdoor work places. External lighting should provide illuminance levels that enable users to perform outdoor visual tasks efficiently and accurately, especially during the night.

Hea 02 Indoor air quality

To encourage and support healthy internal environments with good indoor air quality.

Site : Victoria Street

ASSESSMENT CRITERIA - N/A

Hea 04 Thermal comfort

To ensure the building is capable of providing an appropriate level of thermal comfort.

Site : Victoria Street

ASSESSMENT CRITERIA - N/A

Hea 05 Acoustic performance

To ensure the building is capable of providing an appropriate acoustic environment to provide comfort for building users.

Site : Victoria Street

ASSESSMENT CRITERIA

Criteria performance requirements or SQA bespoke requirements? :	Criteria performance requirements
Indoor ambient noise level :	Yes

Credits awarded : 1

Comments :

Shell Only Assessments - Assessment of the Indoor Ambient Noise Levels - Alternative means of compliance
The basic built form has a large impact on the acoustic performance of the building and would be outside the control of the tenant. A suitably qualified acoustician (SQA) must carry out a quantifiable assessment of the specification of the build form, construction and any external factors likely to affect the indoor ambient noise levels. The SQA must then confirm the developer's works will enable a future tenant utilising a typical fit-out and specification to meet the levels required to demonstrate compliance.

Hea 06 Security

To encourage the planning and implementation of effective measures that provide an appropriate level of security to the building and site.

Site : Victoria Street

ASSESSMENT CRITERIA

Security of site and building : Yes

Exemplary level criteria : No

Credits awarded : 1

Comments :

Secure By Design - A Suitably Qualified Security Specialist (SQSS) conducts an evidence-based Security Needs Assessment (SNA) during or prior to Concept Design (RIBA Stage 2 or equivalent). The purpose of the SNA will be to identify attributes of the proposal, site and surroundings which may influence the approach to security for the development . The SQSS develops a set of security controls and recommendations for incorporation into the proposals. Those controls and recommendations shall directly relate to the threats and assets identified in the preceding SNA. The controls and recommendations shall be incorporated into proposals and implemented in the as-built development.

Hea 07 Safe and Healthy Surroundings

To encourage the provision of safe access around the site and outdoor space that enhances the wellbeing of building users. .

Site : Victoria Street

ASSESSMENT CRITERIA

Outside Space : No

Credits awarded : 0

Comments :

No outdoor Space associated with the retail spaces.

Ene 01 Reduction of energy use and carbon emissions

To minimise operational energy demand, primary energy consumption and CO₂ emissions.

Site : Victoria Street

ASSESSMENT CRITERIA

Country :	England
Actual building energy demand :	180 MJ/m ² yr
Notional building energy demand :	210 MJ/m ² yr
Actual building primary energy consumption :	
Notional building primary energy consumption :	
Actual building CO ₂ -eq emissions (BER) :	
Notional building CO ₂ -eq emissions (TER) :	

BUILDING SCORE

Total BREEAM credits achieved :	3.0
Heating and cooling demand energy performance ratio (EPR _{dem}) :	0.337
Primary consumption energy performance ratio (EPR _{pc}) :	0.0
CO ₂ -eq energy performance ratio (EPR _{co2-eq}) :	0.0
Overall building energy performance ratio (EPR _{nc}) :	0.337
% improvement BER/TER :	0.0 %

ASSESSMENT CRITERIA (EXEMPLARY CREDITS)

Zero net CO ₂ -eq emissions :	No
--	----

Credits awarded : 3

Comments :

3no. credits awarded - Requires a performance improvement progressively better than the relevant national building regulations compliant standard - To be confirmed by Design Stage SBEM Model.

Ene 02 Energy monitoring

To encourage the installation of energy sub-metering that facilitates the monitoring of operational energy consumption. To enable managers and consultants post-handover to compare actual performance with targets in order to inform ongoing management and help in reducing the performance gap.

Site : Victoria Street

ASSESSMENT CRITERIA - N/A

Ene 03 External lighting

To reduce energy consumption through the specification of energy efficient light fittings for external areas of the development.

Site : Victoria Street

ASSESSMENT CRITERIA

External lighting has been designed out? : Yes

Credits awarded : 1

Comments :

External light fittings within the construction zone to include:

a Average initial luminous efficacy of not less than 70 luminaire lumens per circuit Watt.

b Automatic control to prevent operation during daylight hours

c Presence detection in areas of intermittent pedestrian traffic.

Ene 04 Low carbon design

To encourage the adoption of design measures, which reduce building energy consumption and associated carbon emissions and minimise reliance on active building services systems.

Site : Victoria Street

ASSESSMENT CRITERIA

Passive design analysis : No

Free cooling : No

Low and zero carbon technologies : No

KPI

Total on-site and/or near-site LZC energy generation :

Expected energy demand and CO₂-eq emissions reduction resulting from passive design measures :

Expected energy demand and CO₂-eq emissions reduction resulting from passive design measures as a percentage :

Expected reduction in CO₂-eq emissions resulting from the LZC technologies :

Expected reduction in CO₂-eq emissions resulting from the LZC technologies as a percentage :

Credits awarded : 0

Comments :

Credit Not Sought

Ene 05 Energy efficient cold storage

To encourage the installation of energy efficient refrigeration systems, in order to reduce operational greenhouse gas emissions resulting from the system's energy use.

Site : Victoria Street

ASSESSMENT CRITERIA - N/A

Ene 06 Energy efficient transportation systems

To encourage the specification of energy efficient transport systems within buildings.

Site : Victoria Street

ASSESSMENT CRITERIA - N/A

Ene 07 Energy efficient laboratory systems

To encourage laboratory areas that are designed to minimise their operational energy consumption and associated CO2 emission

Site : Victoria Street

ASSESSMENT CRITERIA - N/A

Ene 08 Energy efficient equipment

To encourage installation of energy efficient equipment to ensure optimum performance and energy savings in operation

Site : Victoria Street

ASSESSMENT CRITERIA - N/A

Tra 01 Transport assessment and travel plan

To reward awareness of existing local transport and identify improvements to make it more sustainable.

Site : Victoria Street

ASSESSMENT CRITERIA

Travel plan :	Yes
---------------	-----

Credits awarded : 2

Comments :

Travel Plan to be prepared as part of the Feasibility Stage - Recognising developments in proximity to good public transport networks, thereby helping to reduce transport-related pollution and congestion.

Tra 02 Sustainable transport measures

To maximise the potential for local public, private and active transport through provision of sustainable transport measures appropriate to the site.

Site : Victoria Street

ASSESSMENT CRITERIA

Prerequisite :	Yes
Location type (based on existing AI) :	AI <25
Number of points achieved overall :	3

Credits awarded : 3

Comments :

Recognising developments in close proximity of, and accessible to, local amenities which are likely to be frequently required and used by building occupants.

3 credits awarded for the following:

- An AI greater than 8 (1 point)
- Install compliant cycle storage spaces (1 point)
- At least three existing accessible amenities are present (1 point)

Wat 01 Water consumption

To reduce the consumption of potable water for sanitary use in new buildings through the use of water efficient components and water recycling systems.

Site : Victoria Street

ASSESSMENT CRITERIA - N/A

Wat 02 Water monitoring

To reduce the consumption of potable water in new buildings through the effective management and monitoring of water consumption.

Site : Victoria Street

ASSESSMENT CRITERIA

Water meter on the mains water supply to each building : Yes

Pulsed output or other open protocol communication output and BMS connection : Yes

Credits awarded : 1

Comments :

The specification of a pulsed output water meters to allow for management and monitoring of water use in the building. This encourages reductions in water use by identifying areas of high usage and investigating potential causes.

Wat 03 Water leak detection

To reduce the consumption of potable water in new buildings through minimising wastage due to water leaks.

Site : Victoria Street

ASSESSMENT CRITERIA

Leak detection system : Yes

Credits awarded : 1

Comments :

Specification of a leak detection systems capable of detecting a major water leak on the mains water supply

Wat 04 Water efficient equipment

To reduce water consumption for uses not assessed under Wat 01 by encouraging specification of water efficient equipment.

Site : Victoria Street

ASSESSMENT CRITERIA - N/A

Mat 01 Life cycle impacts

To reduce the burden on the environment from construction products by recognising and encouraging measures to optimise construction product consumption efficiency and the selection of products with a low environmental impact (including embodied carbon), over the life cycle of the building.

Site : Victoria Street

ASSESSMENT CRITERIA

Total Mat 01 credits achieved - taken from the Mat 01/02 Results Submission Tool :	2
Total Exemplary credits achieved - taken from the Mat 01/02 Results Submission Tool :	0

Credits awarded : 2

Comments :

Credits targeted on the reducing buildings' environmental life cycle impacts through conducting Life Cycle Assessment and integrating its outcomes in the design decision-making process.

Mat 02 Environmental impacts from construction products

To encourage availability of robust and comparable data on the impacts of construction products through the provision of EPD.

Site : Victoria Street

ASSESSMENT CRITERIA

Mat 02 credit achieved - Taken from the Mat 01/02 Results Submission Tool. :	1
--	---

Credits awarded : 1

Comments :

Credit awarded to encourage availability of robust and comparable data on the impacts of construction products by rewarding the specification of products with environmental products declarations.

Mat 03 Responsible sourcing

To facilitate the selection of products that involve lower levels of negative environmental, economic and social impact across their supply chain including extraction, processing and manufacture.

Site : Victoria Street

ASSESSMENT CRITERIA

Prerequisite: All timber and timber based products are 'Legally harvested and traded timber' :	Yes
Has the enabling sustainable procurement credit been achieved? :	Yes
Percentage of available for percentage of RSM points achieved :	18 %

Credits awarded : 2

Comments :

Credits awarded to Recognising and encouraging responsible sourcing of construction products. This includes the source of products and the intermediary companies processing and transporting the product to site.

Mat 05 Designing for durability and resilience

To reduce the need to repair and replace materials resulting from damage to exposed elements of the building and landscape.

Site : Victoria Street

ASSESSMENT CRITERIA

Protecting vulnerable parts of the building from damage and exposed parts of the building from material degradation : Yes

Credits awarded : 1

Comments :

Credits awarded where it has been designed if to avoid the following:

- Avoid unnecessary cost and material use resulting from the need to repair and replace damaged elements as a result of operational wear and tear.

- Â Minimise costs and disruption resulting from environmental degradation to building elements as a result of avoidable weathering and changes to climatic conditions over time.

Mat 06 Material efficiency

To avoid unnecessary materials use arising from over specification without compromising structural stability, durability or the service life of the building.

Site : Victoria Street

ASSESSMENT CRITERIA

Material optimisation measures investigated and implemented at all relevant stages : Yes

Credits awarded : 1

Wst 01 Construction waste management

To reduce construction waste by encouraging reuse, recovery and best practice waste management practices to minimise waste going to landfill.

Site : Victoria Street

ASSESSMENT CRITERIA

Is demolition occurring under the developer's ownership for the purpose of enabling the assessed development? :	Yes
Pre-demolition audit :	Yes
Compliant Resource Management Plan :	Yes
Have waste materials been sorted into separate key waste groups? :	Yes
Exemplary level criteria :	No

KPI

Measure/units for the data being reported :	m ³
Non-hazardous construction waste (excluding demolition/excavation) - fill in to award 'Construction resource efficiency' credits :	3.2 m3/100m2
Total non-hazardous construction waste generated :	1 m3
Non-hazardous non-demolition construction waste diverted from landfill - fill in to award diversion from landfill credit :	80 %
Total non-hazardous non-demolition construction waste diverted from landfill :	80 m3
Non-hazardous demolition waste diverted from landfill - fill in to award diversion from landfill credit :	80 %
Total non-hazardous demolition waste generated :	0 m3
Total non-hazardous demolition waste to disposal :	0 m3
Non-hazardous excavation waste diverted from landfill - fill in to award credit :	85 %
Material for reuse :	0 m3
Material for recycling :	0 m3
Material for energy recovery :	0 m3
Hazardous waste to disposal :	0 m3

Credits awarded : 5

Comments :

Credits awarded on the resource efficiency through developing a pre-demolition audit and a Resource Management Plan, maximising the recovery of material during demolition and diverting non-hazardous waste from landfill.

Wst 02 Use of recycled and sustainably sourced aggregates

To encourage the use of more sustainably sourced aggregates, encourage reuse where appropriate and avoid waste and pollution arising from disposal of demolition and other forms of waste.

Site : Victoria Street

ASSESSMENT CRITERIA

Is demolition occurring under the developer's ownership for the purpose of enabling the assessed development? :	Yes
Pre-requisite: pre-demolition audit :	Yes

Projects Sustainable Aggregate points :

0

KPI

Total quantity of aggregate :

% of high - grade aggregate that is recycled/ secondary aggregate by application :

Credits awarded : 0

Comments :

Credit Not Sought

Wst 03 Operational waste

To encourage the recycling of operational waste through the provision of dedicated storage facilities and space.

Site : Victoria Street

ASSESSMENT CRITERIA

Compliant recycling and non-recyclable waste storage allocated : Yes

Static waste compactor(s) or baler(s) : N/A

Vessel(s) for composting suitable organic waste and water outlet : N/A

Credits awarded : 1

Comments :

Credit awarded for the provision of space and facilities to divert of operational waste form landfill through the provision of space and facilities allowing the segregation and storage of recyclable waste.

Wst 04 Speculative finishes (Offices only)

To minimise the wastage associated with the installation of floor and ceiling finishes in lettable areas in speculative buildings where tenants have not been involved in their selection.

Site : Victoria Street

ASSESSMENT CRITERIA - N/A

Wst 05 Adaptation to climate change

To minimise the future need of carrying out works to adapt the building to take account of more extreme weather changes resulting from climate change and changing weather patterns.

Site : Victoria Street

ASSESSMENT CRITERIA

Resilience of structure, fabric, building services and renewables installation : Yes

Credits awarded : 1

Wst 06 Design for disassembly and adaptability

To avoid unnecessary materials use, cost and disruption arising from the need for future adaptation works as a result of changing functional demands and to maximise the ability to reclaim and reuse materials at final demolition in line with the principles of a circular economy.

Site : Victoria Street

ASSESSMENT CRITERIA

Design for disassembly and functional adaptability - recommendations :	Yes
Disassembly and functional adaptability - implementation :	No

Credits awarded : 1

Comments :

1 credit - Conduct a study to explore the ease of disassembly and the functional adaptation potential of different design scenarios by the end of Concept Design. Develop recommendations or solutions based on the study, during or prior to Concept Design, that aim to enable and facilitate disassembly and functional adaptation.

LE 01 Site selection

To encourage the use of previously occupied or contaminated land and avoid land which has not been previously disturbed.

Site : Victoria Street

ASSESSMENT CRITERIA

Percentage of proposed development's footprint on previously occupied land: :	100 %
Contaminated land :	No

Credits awarded : 1

Comments :

1 credits - At least 75% of the land on which the new building will be sited must meet the definition of 'previously occupied'

LE 02 Identifying and understanding the risks and opportunities for the site

To determine the ecological baseline and zone of influence of the site and identify risks and opportunities for achieving optimum outcomes.

Site : Victoria Street

ASSESSMENT CRITERIA

Prerequisite - Assessment route selection :	Route 2
Prerequisite - The client or contractor confirms monitoring of compliance with all Relevant UK and EU or international legislation :	Yes
Survey and Evaluation :	Yes
Determining the ecological outcomes of the site :	Yes
Exemplary level - Determining the ecological outcomes of the site :	No

Credits awarded : 2

Comments :

2no. credits awarded for the the determination of the ecological baseline and zone of influence of the site and identify risks and opportunities for achieving optimum outcomes.

LE 03 Managing negative impacts on ecology

To avoid, or limit as far as possible, negative impacts on the ecology of the site and its zone of influence arising as a result of the project.

Site : Victoria Street

ASSESSMENT CRITERIA

Which assessment route is being followed? :	Route 2
Prerequisite - Identification and understanding the risks and opportunities for the site :	Yes
Planning, liaison and implementation :	Yes
Managing negative impacts of the project :	2

Credits awarded : 3

Comments :

Credits awarded for the avoidance, or limit as far as possible, negative impacts on the ecology of the site and its zone of influence arising as a result of the project.

LE 04 Change and enhancement of ecological value

To enhance the ecological value of the site and areas within its zone of influence in support of local, regional and national priorities.

Site : Victoria Street

ASSESSMENT CRITERIA

Which assessment route is being followed? :	Route 2
Prerequisite - Identification and understanding the risks and opportunities for the site :	Yes
Liaison, implementation and data (Route 2 only) :	Yes
Change and enhancement of ecology (route 2 only) :	1

Credits awarded : 2

Comments :

Credit awarded for potential enhancement the ecological value of the site and areas within its zone of influence in support of local, regional and national priorities.

LE 05 Long term impact on biodiversity

To secure ongoing monitoring, management and maintenance of the site and, its habitats ecological features to ensure intended outcomes are realised for the long term.

Site : Victoria Street

ASSESSMENT CRITERIA

Which assessment route is being followed? :	Route 2
Prerequisite - Roles and responsibilities, implementation, statutory obligations :	Yes
Liaison, monitoring implementation, evolving management and maintenance solutions :	Yes
Landscape and management plan :	Yes

Credits awarded : 2

Comments :

- Roles and responsibilities, implementation and statutory obligations (prerequisite)
 Â Planning, liaison, data, monitoring and review, management and maintenance
 Â Landscape and management plan.

Pol 01 Impact of refrigerants

To reduce the level of greenhouse gas emissions arising from the leakage of refrigerants from building systems.

Site : Victoria Street

ASSESSMENT CRITERIA - N/A

Pol 02 Local air quality

To contribute to a reduction in local air pollution through the use of low emission combustion appliances in the building.

Site : Victoria Street

ASSESSMENT CRITERIA - N/A

Pol 03 Flood risk management and reducing surface water run-off

To avoid, reduce and delay the discharge of rainfall to public sewers and watercourses, thereby minimising the risk and impact of localised flooding on and off-site, watercourse pollution and other environmental damage.

Site : Victoria Street

ASSESSMENT CRITERIA

Prerequisite: Has an appropriate consultant demonstrated and confirmed the development's compliance with all sought credits? : Yes

Has a site-specific flood risk assessment been conducted? : Yes

Annual probability of flooding : Low

Has the pre-requisite for the Surface Water Run-Off credits been achieved? : Yes

Has the Surface Water Run-Off - Rate credit been achieved? : Yes

Has the Surface Water Run-Off - Volume credit been achieved? : Yes

Minimising watercourse pollution : No

Credits awarded : 4

Comments :

2no. credits - A site-specific flood risk assessment (FRA) confirms the development is in a flood zone that is defined as having a low annual probability of flooding.

1no. credits - Drainage measures are specified so that the peak rate of run-off from the site to the watercourses (natural or municipal) shows a 30% improvement for the developed site compared with the pre-developed site. This should comply at the 1-year and 100-year return period events.

1no. credit - Drainage design measures are specified so that the post-development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed site's development. This must be for the 100-year 6-hour event, including an allowance for climate change.

Pol 04 Reduction of Night Time Light Pollution

To ensure that external lighting is concentrated in the appropriate areas and that upward lighting is minimised, reducing unnecessary light pollution, energy consumption and nuisance to neighbouring properties.

Site : Victoria Street

ASSESSMENT CRITERIA

External lighting has been designed out? :

No

Does external lighting meet all relevant criteria? :

Yes

Credits awarded : 1

Comments :

All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00.

If safety or security lighting is provided and will be used between 23:00 and 07:00, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP guidance notes.

Illuminated advertisements are designed in compliance with ILP PLG05 The Brightness of Illuminated Advertisements.

Pol 05 Noise attenuation

To reduce the likelihood of noise arising from fixed installations on the new development affecting nearby noise-sensitive buildings.

Site : Victoria Street

ASSESSMENT CRITERIA - N/A

Inn 01 Innovation

To support innovation within the construction industry through the recognition of sustainability related benefits which are not rewarded by standard BREEAM issues.

Site : Victoria Street

ASSESSMENT CRITERIA

Number of 'approved' innovation credits achieved? :	0
---	---

Credits awarded : 0