

NXQ

Lever Street, Manchester

Environmental Standards Statement

Revision P01, 01.03.2024



Howells

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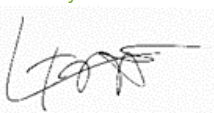
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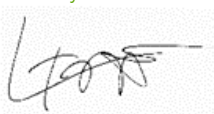
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Contents

Executive Summary	4
1 Introduction	6
1.1 Proposed Development	6
1.2 Purpose of This Report	6
2 Planning Policy	7
2.1 National Planning Policy Framework (December 2023)	7
2.2 Manchester Local Development Framework - Core Strategy (July 2012)	7
2.3 Manchester Supplementary Planning Guidance (April 2007)	7
3 Environmental Standards Statement	8
3.1 Energy Efficiency	8
3.2 Renewable Energy	10
3.3 Environmental Design	11
3.4 Water Management and Weather Resilience	11
3.5 Waste Management	12
3.6 Construction Management	13
3.7 Embodied Carbon	14
3.8 Biodiversity	15
3.9 Waterways	15
4 Summary	16
Appendices	17

Executive Summary

Sustainability is a fundamental aspect of the NXQ Building with the proposals developing towards net zero carbon, circular economy, biodiversity enhancement, health & wellbeing and green travel infrastructure. The repurposing of the existing buildings (where possible) over demolition also follows national campaigns for the repurposing and refurbishment of existing buildings over demolition where possible. By implementing the environmental standards outlined within this report, the NXQ Building will provide a productive, healthy and enjoyable space for people that treads lightly on the planet.

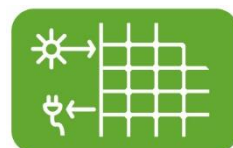
The proposal is for full planning application for part-retention, conversion and extension of existing buildings; selective demolition; the erection of a ground floor + 17 storey building comprising new office space (Use Class E) with ground floor reception area and ancillary uses; supporting infrastructure and ancillary facilities, roof top plant, and landscaping. The site is located on the land bound by Lever Street, Great Ancoats Street, Little Lever Street and Houldsworth Street, Manchester (Grid reference: X: 384725 Y: 398587)

This Environmental Standards Statement (ESS) provides a response to the various sustainability and environmental planning policies of the Manchester Local Development Framework Core Strategy (Development Plan Document Adopted 11th July 2012). This includes following the guidance set out within the Manchester Supplementary Planning Guidance (Adopted April 2007) which requires all planning applications to provide an ESS and provide a response to the following key headings.



ENERGY EFFICIENCY

The developments energy strategy will deliver a high performance building that exceeds current building regulation (Part L 2021) energy and carbon performance by up to 15%. This is being achieved through the application of an energy hierarchy process that reduces energy demand through enhanced fabric performance, followed by the application of highly efficient systems and renewable technologies. This performance exceeds the requirements of Policy EN6 of the Manchester Core Strategy.



RENEWABLE ENERGY

A 100m² photovoltaic array is proposed to deliver 17 MWh of renewable energy for the building. In addition, Air Source Heat Pumps are also proposed to deliver low carbon heating (both space and hot water) to the building in accordance the UK Government Heat and Buildings Strategy. These technologies have been specifically selected following a Low and Zero Carbon Technology (LZCGT) feasibility study. This renewable energy strategy complies with the requirements of Policy EN6 of the Manchester Core Strategy.



ENVIRONMENTAL DESIGN

The project is targeting BREEAM Excellent certification which exceeds the requirements of Policy DM 1 of the Manchester Core Strategy. By assessing and certifying the project against BREEAM, the development will be designed to have a positive response against a multitude of performance metrics including biodiversity, health & wellbeing, pollution & waste minimisation, embodied carbon and responsible construction.



WATER MANAGEMENT & WEATHER RESILIANCE

The project is respectful to the city's water courses and groundwater sources with a series of measures applied to manage both waters discharged and consumed by the building. This includes the incorporation of SUDS within the landscaping design with attention also applied to manage peak and volume run off into the local sewer network (including an allowance for climate change). Water consumed by the building will also be minimised through the application of low consuming fittings, appliances, and landscaping. Water monitoring and control devices will also be specified to manage and reduce water consumption in operation.



WASTE MANAGEMENT

Operational waste arising from the building will be minimised through the development and adoption of a building specific waste management plan. This will include advice on waste reduction and circular economy strategies to assist tenants reduce their waste generation. To maximise recycling of operational waste, dedicated recycling bin provisions are proposed based on the anticipated volume of waste arising from the building's occupants. The bin areas have also been specifically located for ease of access for both building occupants and refuse collection.



CONSTRUCTION MANAGEMENT

Circular economy is a fundamental aspect of the building design with the re-use and repurposing of existing buildings reducing the embodied carbon of the proposed development by 550 Tonnes (equivalent to over 500 flights from London to New York). For buildings and structures being demolished, a pre-demolition audit will be undertaken to optimise material recovery, re-use and recycling. New materials will be specifically selected to reduce the new buildings upfront embodied carbon while also being durable and resilient to reduce maintenance and replacement over the life cycle of the building. Environmentally responsible materials will also be specified that have a minimal impact on the plant and people. Pollution arising from the construction process will also be minimised through responsible construction practices.



BIODIVERSITY

A site ecological appraisal has been completed to identify any existing wildlife and wildlife habitats and protection measures to be undertaken to protect and sustain existing wildlife as part of the new development. This includes the integration of bird and bat boxes within the proposed building and green roof areas and landscaping to provide foraging for native species. The incorporation of trees and planting within the new courtyard and terraces aim to enhance the biodiversity of the site while also providing people with the intrinsic connection that humans have with nature (i.e. biophilic design).

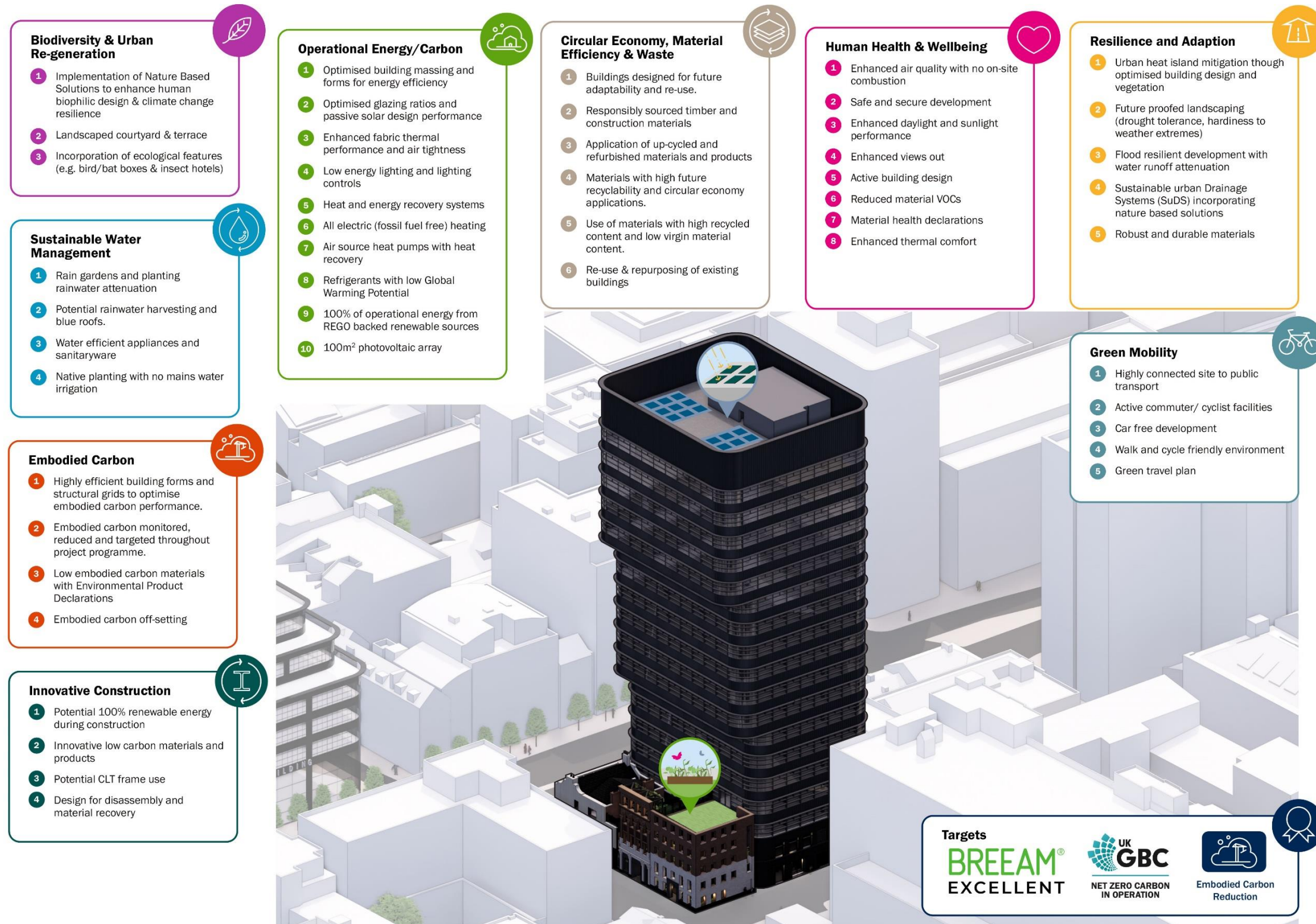


WATERWAYS

The NXQ Building is not located within close proximity to the cities waterways and as such has minimal opportunities to enhance the public access, environmental conditions and management of these assets. The development is however committed to the protection of local watercourses by applying Nature Based Solution (NBS) to manage water run off from the building and also implementing water course pollution prevention measures during the construction phases of the project.

The creation of a new building that responds to the climate emergency and nature crisis is at the forefront of the NXQ Building design with the proposals responding to all of the environmental design standards set out in the Core Strategy and Supplementary Guidance. A summary of the buildings environmental strategy is provided within the graphic below.

Figure 1.1 NXQ Building Environmental Strategy



1 Introduction

The world is in a climate emergency and in response to this the UK Government has set a legally binding target to be Net Zero Carbon economy by 2050. Similarly, Manchester City Council have set targets to be a carbon neutral city by 2038. To achieve these goals, new developments must respond to the climate emergency and implement measures that reduce carbon impact both in construction and operation, minimise pollution impact, and enhance ecology and the wellness of people.

It is for these reasons why sustainability is a fundamental aspect of the proposed NXQ Building development, where all the above aspects are embedded within the project brief and building design.

1.1 Proposed Development

The development proposals is for full planning application for part-retention, conversion and extension of existing buildings; selective demolition; the erection of a ground floor + 17 storey building comprising new office space (Use Class E) with ground floor reception area and ancillary uses; supporting infrastructure and ancillary facilities, roof top plant, and landscaping. The site is located on the land bound by Lever Street, Great Ancoats Street, Little Lever Street and Houldsworth Street, Manchester (Grid reference: X: 384725 Y: 398587) as illustrated in Figure 1.1

The proposed NXQ Building consists of a Grade 'A' office building with a total floor area of 19,736 m² (212,438 sqft) extended across 17 floors with approximately 19,089 m² (205,474 sqft) of office space. The building includes a reception courtyard and hall, amenity/café area, creative hub, flexible workspace and cycle storage, with changing facilities within the basement.

The project also has industry leading sustainability ambitions including BREEAM Excellent, Net Zero Carbon in Operation and A rated Energy Performance Certificate. This document describes how the design strives to meet its benchmarking ambitions and regulatory compliance requirements.

1.2 Purpose of This Report

This report presents environmental strategy for the proposed NXQ Building in support of its planning application. In particular, this report responds to the environmental standards set out within the Manchester Local Development Framework Core Strategy (Development Plan Document Adopted 11th July 2012) and the guidance set out within the Manchester Supplementary Planning Guidance (Adopted April 2007).

The developments BREEAM Pre-assessment has also been provided within this report as requested by Manchester City Council planning department.

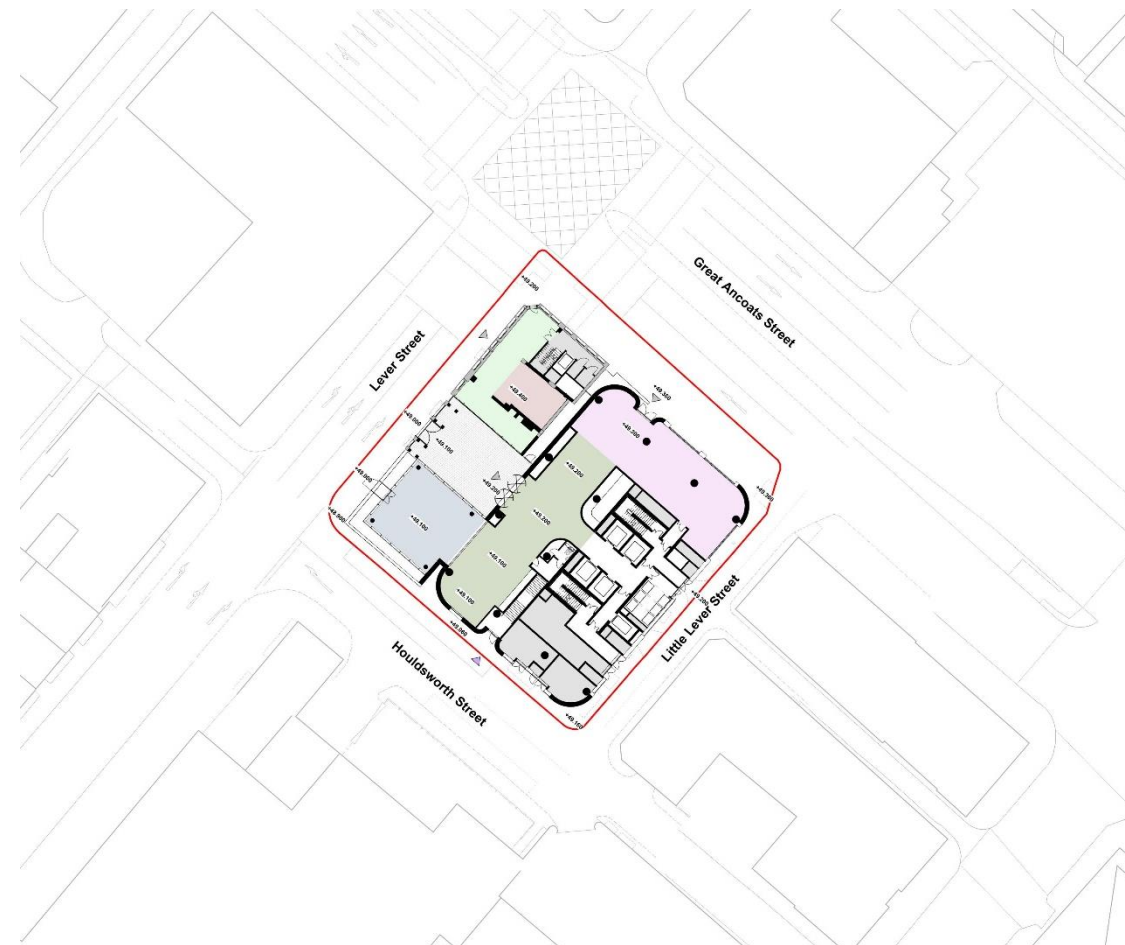


Figure 1.1 NXQ Building Site Location

2 Planning Policy

In response to the climate and environmental emergency, national and local planning policy has placed sustainability at the heart of all new development proposals to provide the needs of people within the means of the living planet. This includes a just transition to Net Zero Carbon (NZC) while also delivering against the United Nations Sustainable Development Goals as well as our national outcomes.

Manchester City Council recognise the importance of sustainable development and as such have planning policies that set specific requirements for new developments to achieve to enhance the local environment and mitigate against climate change, loss of habitat and environmental impact.

2.1 National Planning Policy Framework (December 2023)

The National Planning Policy Framework (NPPF) is a key part of the Government's reforms to make the planning system less complex and more accessible, protect the environment, and promote sustainable development. It sets out the Government's planning policies for England and how these are expected to be applied. The NPPF replaces the previous suite of national Planning Policy Statements, Planning Policy Guidance Notes, and some Circulars, except PPS10 (Waste).

NPPF outlines the strategic policies that relate to achieving sustainable development (Section 2 of NPPF) by applying the following three overarching objectives:

an economic objective – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure.

a social objective – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering well-designed, beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being.

an environmental objective – to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

These objectives should be delivered through the preparation and implementation of plans and the application of the policies in this Framework; they are not criteria against which every decision can or should be judged. Planning policies and decisions should play an active role in guiding development towards sustainable solutions, but in doing so should take local circumstances into account, to reflect the character, needs and opportunities of each area.

2.2 Manchester Local Development Framework - Core Strategy (July 2012)

The Adopted Local Plan sets out the Council's vision and strategy for the area until 2027. The Core Strategy is the principal strategic document within the Local Plan. An adopted Supplementary Planning Document (SPD) that expands on the Local Plan's requirements is the Guide to Development in Manchester.

Manchester has set an ambitious target to become zero carbon by 2038, with new developments to achieve zero carbon by 2038. A short-term target is not included in the current policy. However, it is expected that new developments will support the Council's vision by incorporating net zero carbon measures to reduce the whole life carbon of developments (including embodied and operational carbon). The current adopted plan also sets out various planning policies that relate to ecology enhancement and protection, watercourse pollution, green/ active travel, air pollution and waste. These policies include the following:

- Policy EN4 Reducing CO2 Emissions by Enabling Low and Zero Carbon Development.
- Policy EN5 Strategic Areas for low and zero carbon decentralised energy infrastructure.
- Policy EN6 Target Framework for CO2 reductions from low or zero carbon energy supplies.

- Policy EN 7 Energy Infrastructure opportunities.
- Policy EN 8 Adaptation to Climate Change.
- Policy EN 9 Green Infrastructure.
- Policy EN 14 Flood Risk.
- Policy EN 15 Biodiversity and Geological Conservation.
- Policy EN 16 Air Quality.
- Policy EN 17 Water Quality.
- Policy EN 19 Waste.

New developments are required to respond to the environmental planning policies above with the provision of an Environmental Standards Statement provided in accordance with Manchester Supplementary Planning Guidance (Adopted April 2007).

2.3 Manchester Supplementary Planning Guidance (April 2007)

Guide to Development in Manchester Supplementary Planning Document and Planning Guidance (Adopted April 2007) is a three part document that provides support and guidance with regards to understanding the objectives of the planning policies within the Core Strategy and how developments are to respond to them. The three parts consist of:

- Part 1 - Supplementary Planning Document.
- Part 2 - Guidance.
- Part 3 - Implementation.

Within Part 1, it is a requirement for new applications to submit an Environmental Standards Statement (ESS) which is to be separate from the developments Design and Access Statement. The ESS is to set out how the submitted proposal will achieve the environmental standards set out within the Core Strategy and the supplementary guidance. Applicants are to respond to the following key environmental headings:

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

In addition to the above, the developments BREEAM Pre-assessment is also to be provided outlining the targeted credits and overall score/ certification sought.

This EES and BREEAM Pre-assessment aims to respond to the requirements of Part 1 of the Supplementary Planning Document.

3 Environmental Standards Statement

This section of the report provides a response to the environmental standards of the supplementary planning guidance under the 9 sustainability headings. The corresponding BREEAM Pre-assessment is also provided within the Appendix of this report that outlines the credits targeted to achieve Excellent certification.

3.1 Energy Efficiency

An energy hierarchy process (as illustrated in Figure 3.2) has been applied in the design development aiming to initially minimise building energy demands through passive design measures, followed by application of energy efficient systems with the opportunity of renewable technologies then considered.

The buildings energy performance has been tested and informed from the project outset with early-stage analysis completed to inform the building massing and glazing ratios. The purpose of this analysis is to achieve a balance between daylight, useful solar gain and energy performance. An iterative process of optimising the buildings fabric performance has been completed as illustrated in Figure 3.1 below.

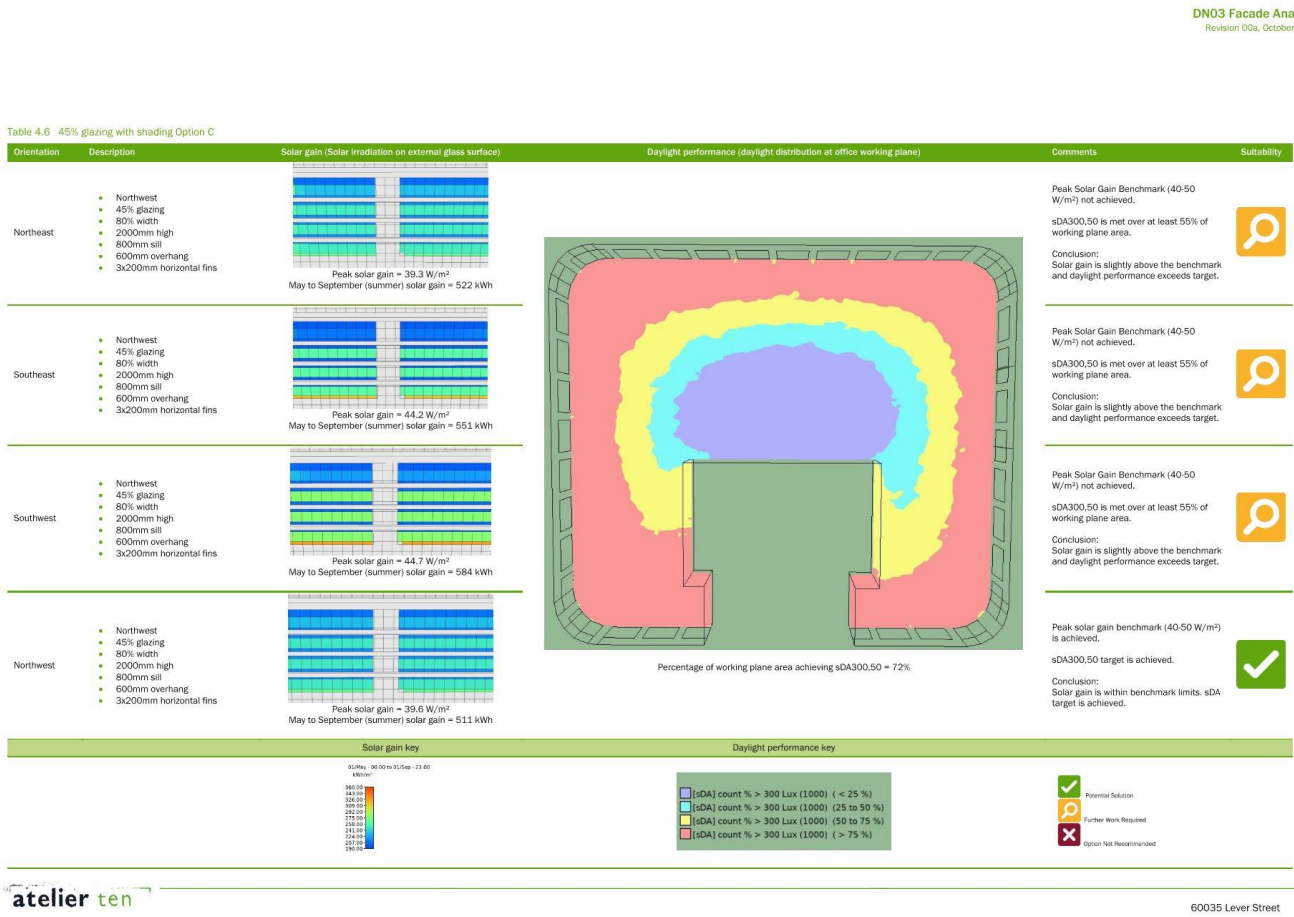


Figure 3.1 Excerpt from NXQ Façade Analysis Report

Following Manchester's Local Development Plan, the proposed development aims to minimise CO2 emissions to the atmosphere arising from the operations of and within the building. The following energy hierarchy (by Policy EN 6 of the Core Strategy) has been applied to the design strategy of the development to minimise CO2 emissions:

1. Minimising energy consumption through passive design measures
2. Supplying energy efficiently through active systems & plant
3. Maximising energy generation from on-site Low and Zero Carbon Generation Technologies (LZCT) energy sources

The three principles outlined above have been applied sequentially and systematically in developing the proposal. These are illustrated in the following sections.

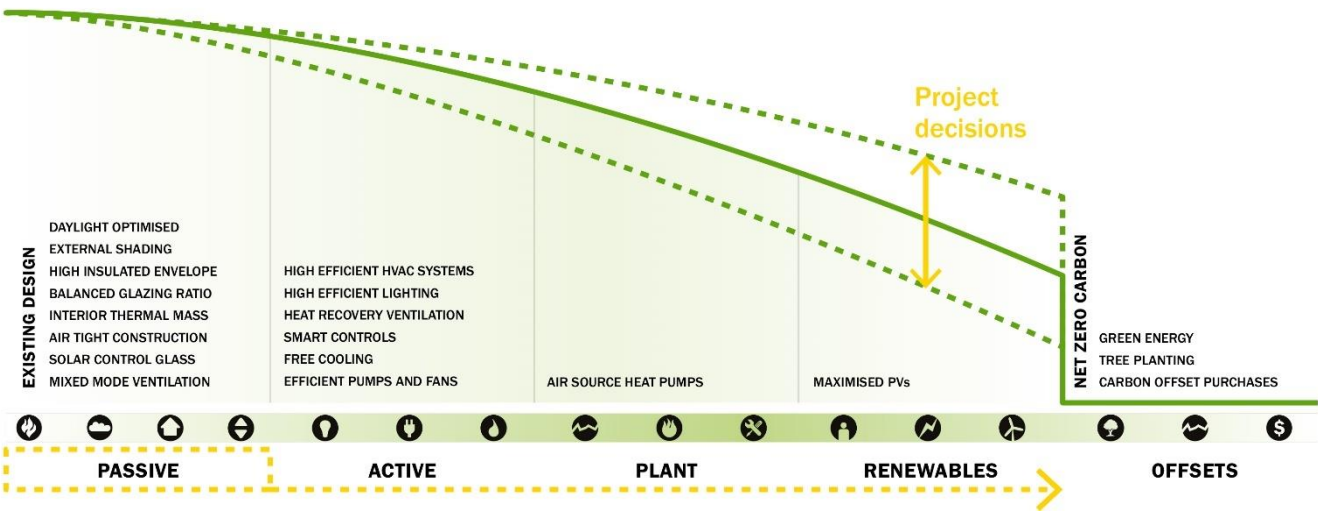


Figure 3.2 NQX Building Energy Hierarchy Process

3.1.1 Passive Design Measures

The energy-efficient building design of the proposed development will minimise the need for energy in operation while maximising the comfort of users during the lifetime of the building. Integrating passive design principles will enable the building to be less reliant on HVAC systems and minimise dependence on artificial lighting, taking advantage of natural energy flows to maintain visual and thermal comfort.

Several measures have been implemented to limit heat losses across the building envelope. These include highly efficient built form and high levels of insulation and airtightness. Solar control glass has been implemented to help minimise solar heat gains and reduce the energy required for cooling. Daylight into the building has been maximised through the specification of glazing with a high visible light transmittance. The performances go significantly beyond building regulations compliance and have applied the latest innovative insulation and glazing products to reduce the building heat demand.

3.1.2 Energy Efficient Systems

Services that exceed compliance with Part L 2021 have been specified. Services will include energy-efficient lighting systems, controls, and efficient HVAC and DHW plant and equipment.

Details of the systems applied are provided in Table 3.2, which includes the performance of ASHP chillers, heat recovery ventilation, lighting, and controls. The latest innovative technologies have been applied within the energy model to reduce energy consumption and CO2 emissions to ensure the building uses energy as efficiently and cleanly as possible.

3.1.3 Low Carbon Technologies

A low carbon and renewable technology feasibility study has been completed that concluded that heat pumps and photovoltaics are the best suited technologies for the proposed development.

By implementing the proposed energy strategy, the building exceeds the compliance against the current building regulations (Part L) by up to 15% as illustrated in Table 3.1. This exceeds the requirements of Planning Policy EN6 and allows 6 credits to be achieved under the BREEAM Ene 01 Issue (minimum 4 credits required for Excellent).

It can therefore be concluded that the energy strategy proposals for the NXQ Building achieve the aims and objectives set out under the Energy Efficiency heading of the Manchester Supplementary Planning Guidance (Adopted April 2007).

Table 3.1 Energy Modelling Results

Metric	Results
HVAC System	HVRF
Renewables	ASHP & ~100m2 PV
BER kgCO2/m2	2.73
TER kgCO2/m2	3.12
% BER/TER Betterment over Part L 2021	13.9%
BPER kWh/m2	29.58
TPER kWh/m2	34.13
% BPER/TPER Betterment over Part L 2021	15.4%
BREEAM Ene01 Credits achieved	6
Part L 2021 Compliance Achieved	
15% pass over Part L 2010 (Policy EN 6)	
Prerequisite for BREEAM Excellent Achieved (min. 4 credits)	

Table 3.2 NXQ Building Fabric and Energy Performances

Element or System	Modelled Parameter/Performance
Fabric Thermal Performance	
External Wall U-Value	<ul style="list-style-type: none">0.13 W/m2K for solid walls and solid curtain wall panels1.30 W/m2K for insulated glazed curtain wall panels adjacent to core/WC areas
Floor U-Value	<ul style="list-style-type: none">0.10 W/m2K
Roof U-Value	<ul style="list-style-type: none">0.10 W/m2K
Glazing U-value (incl. frame)	1.30 W/m2K
Building Air Permeability	<ul style="list-style-type: none">3 m3/h-m2 @ 50Pa
Glazing Performance	
Glazing g-value	<ul style="list-style-type: none">0.35
Glazing Light Transmittance	<ul style="list-style-type: none">70%
HVAC	
Hybrid VRF system	<ul style="list-style-type: none">UK NCM type = Variable refrigerant flowSCoP = 3.50Heat recovery = 80%EER = 3.30, SEER = 6.01UK NCM air supply mechanism = Centralised balanced A/C or mech vent systemSFP = 1.6W/l/sDemand controlled ventilation with CO2 sensors and fan speed control to all office and business lounge areas
Electric Panel Heaters	<ul style="list-style-type: none">UK NCM type = Other local room heater - unfannedSCoP = 1.00Heat recovery = 76% for WCsUK NCM air supply mechanism = Centralised balanced A/C or mech vent systemPump type = Variable speed differential sensor across the pumpSFP = 1.6W/l/s
Domestic Hot Water	
Domestic Hot Water	<ul style="list-style-type: none">General: Electric instantaneousShower block fed by ASHP. System properties: SCoP = 3.2 1400l storage with 50mm insulation thickness 60m hot water pipework loop length 10 W/m average pipework losses
Lighting	
Luminaire efficacy	<ul style="list-style-type: none">Average = 120lm/circuit WDisplay lighting = 90 lm/circuit W
Lighting controls	<ul style="list-style-type: none">PIR and applied to circulation, toilets, showers, and internal office spacesDaylight dimming applied to officesManual switching to plant rooms and reception
LZC	
Photovoltaic (PV) panels	<ul style="list-style-type: none">100 m² panel area, 22.6% panel efficiency, south orientation
ASHP	<ul style="list-style-type: none">Part of HVRF with efficiencies as per HVAC properties
Miscellaneous	
BMS	<ul style="list-style-type: none">Automatic monitoring and targeting of energy consumption with alarms for 'out-of-range' values applied to HVAC plant and lighting
Power factor correction	<ul style="list-style-type: none">Power factor correction bonus has not been applied

3.2 Renewable Energy

Following a Low and Zero Carbon Technology feasibility study (as outlined in the supporting Energy Statement), 100m² of photovoltaic panels are proposed to deliver 17 MWh/annum of renewable electricity to the building. In addition, the feasibility study identified that Air Source Heat Pumps (ASHP) are a suitable low carbon technology to deliver low carbon space and domestic hot water heating to the building. By adopting this all-electric heating strategy, the building will be able to achieve Net Zero Carbon in operation as the national grid decarbonises (expected to be decarbonised by 2035). This is in accordance with the UK Heat and Buildings Strategy and Future Building Standard that aims to decarbonise homes, commercial, industrial and public sector buildings by 2050.

Through the analysis of suitable low carbon and renewable technologies, combined with address the national objective of all-electric buildings that take benefit of the decarbonisation of the national grid, it can be concluded that compliance with Policy EN4 and EN6 is achieved. This is further demonstrated with the area of PV being maximised on the buildings roof to optimise the available renewable energy yield and as such achieves compliance with the requirements of the Manchester Supplementary Planning Guidance (Adopted April 2007).

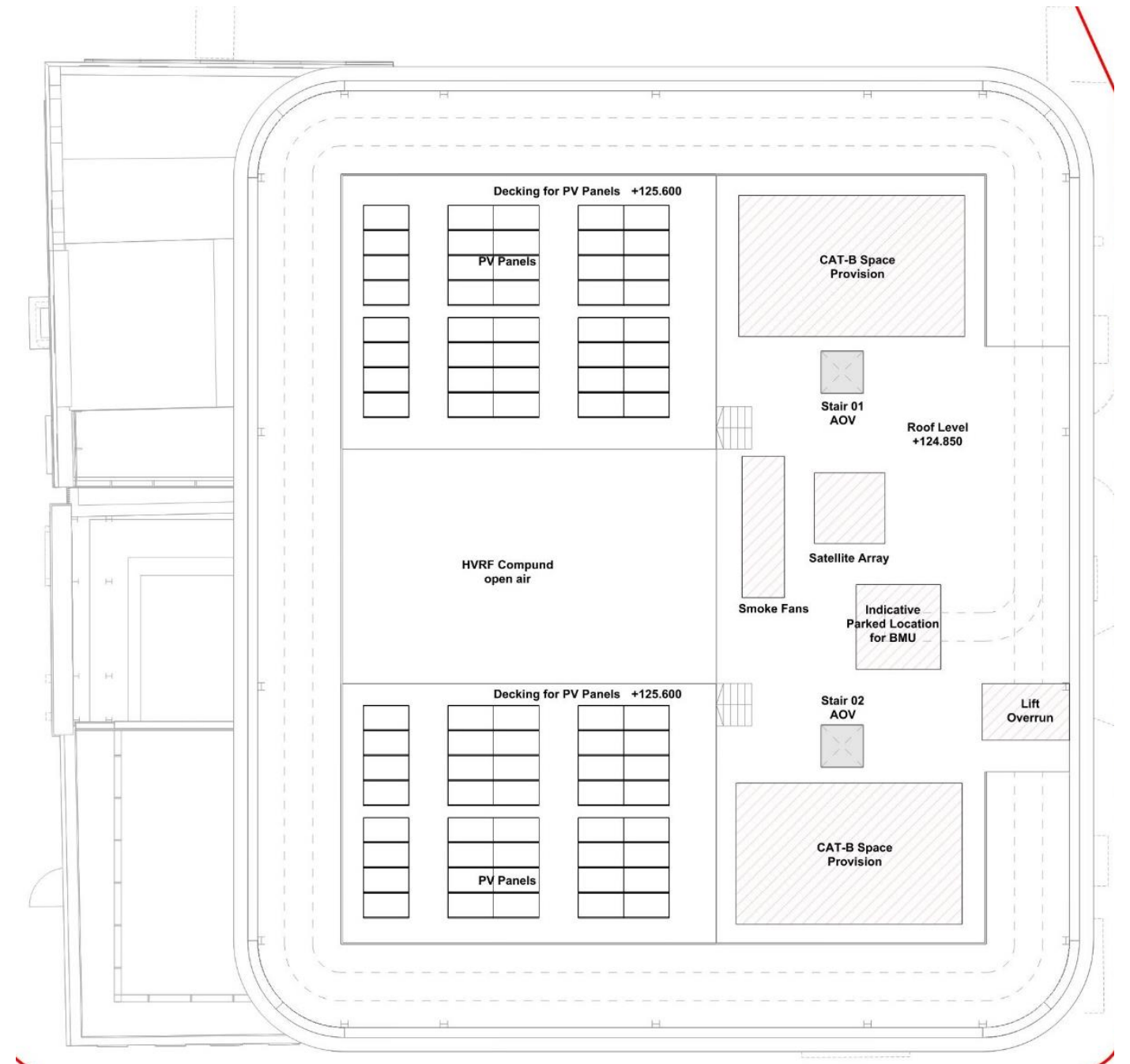


Figure 3.4 Proposed Roof Mounted Photovoltaic Array at the NXQ Building

Air to Water Heat Pump

1 PROJECT APPLICATION

Roof mounted units, sit outside and inside the building. The heat pump sits outside, with the heating and cooling unit along with the stored hot water sitting inside the building

2 MODULAR SYSTEM

Roof mounted air to water heat pump unit

Hot water tank

Heating/cooling unit

3 SCHEMATIC

Ambient temperatures

Heating down to -20°C

Cooling up to 43°C

Hot water heating to 75°C

Heating up to 80°C

Cooling down to 5°C

Discharge

Liquid

Suction

Heat pump

H₂O

Hot water pipe work serves basins and showers

Figure 3.3 Air Source Heat Pump System

3.3 Environmental Design

The NXQ Building aims to achieve a high standard of sustainable design, procurement and construction and as such is targeting BREEAM Excellent certification. A BREEAM Pre-assessment has been completed for the building which illustrates that a BREEAM score of 75.6% can be achieved (70% required for Excellent) including all mandatory standards.

A copy of the BREEAM Pre-assessment is provided with Appendices of this report that includes the BREEAM hitlist/ tracker that identifies the credits targeted.

With the Manchester Supplementary Planning Guidance requiring BREEAM Very Good, it can be concluded that the NXQ proposals exceed the requirements of DM1 and the corresponding supplementary guidance.

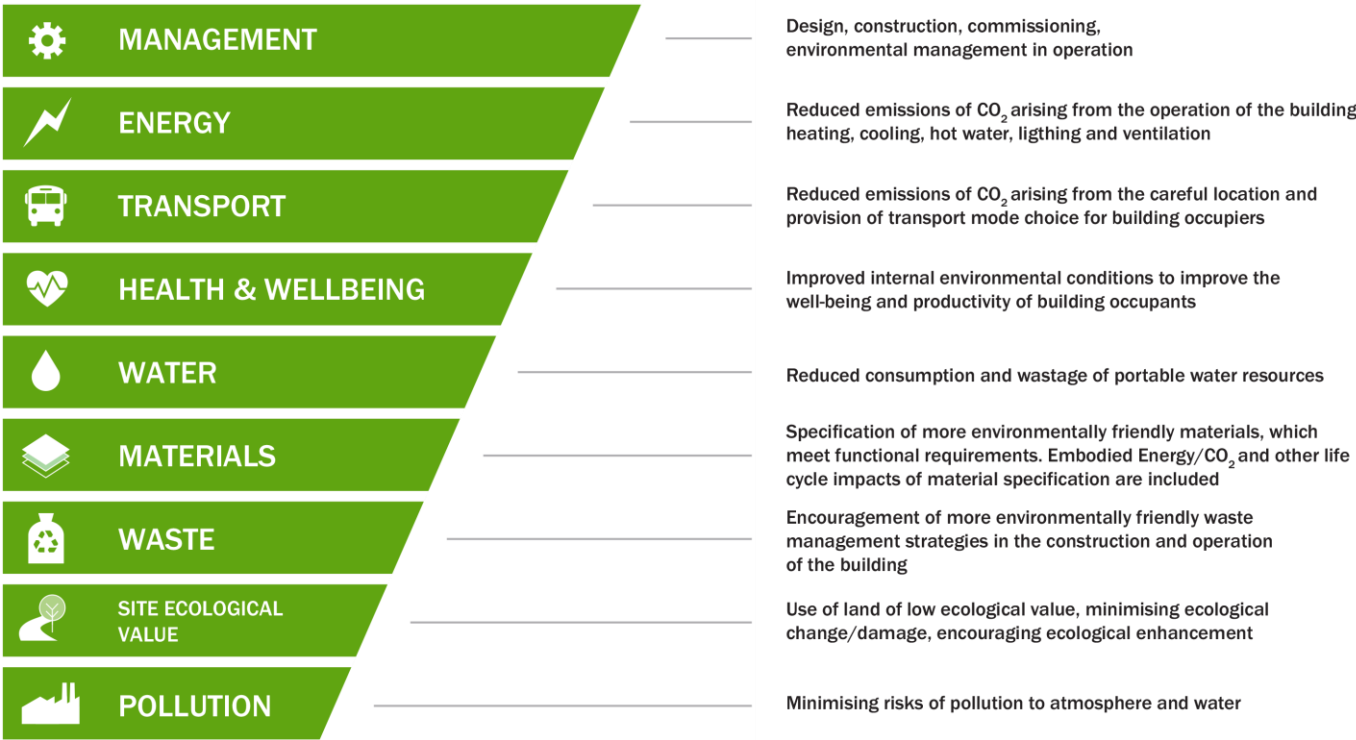


Figure 3.5 Scope of BREEAM Assessment (BREEAM Issues)

3.4 Water Management and Weather Resilience

In addition to the creation of a high-quality environment for people, the building has been designed to be resilient to the effects of climate change and extreme weather conditions. This includes designing and testing the building under warm weather conditions to ensure that thermal comfort within the building can be maintained. Similarly, the buildings fabric will be designed to ensure it can provide a robust barrier to high levels of rain/ snow fall, wind driven rain, high wind speeds as well as high and low external temperatures. This will be delivered through robust construction detailing and materials. The key focus of the buildings climate change resilience will be to protect people, the environment, continuity of business and the asset.

The proposal aims to deliver climate resilience through Nature Based Solutions (NBS) such as planting and green roof areas which also have benefits in terms of energy saving, noise reduction, biodiversity enhancement and asset value increase as illustrated in the UK GBC NBS research below.

Figure 3.6 UK GBC Nature Based Solution (Green Roof and Soft Landscaping)

Green Roof - Vegetation growing on any structure's horizontal surface

Common alternative terms: Living Roof, eco-roof, roof garden, brown roofs, green-blue roofs, biodiverse roofs



6.7%
Total energy savings for the space directly below the green roof



11db
Noise reduction by an extensive green roof



6.9%
Uplift to property value by an accessible green roof



Average CAPEX installation cost (£ per m²)		Average OPEX maintenance cost (£ per m²yr)	
£126 extensive green roof	£176 intensive green roof	£6 extensive green roof	£11 intensive green roof

Trees - Trees located within the site boundary

SuDS-enabled Trees - Trees combined with a sustainable drainage system



30–50%
Increased restaurant patronage



3 °C
Air temperature reduction



5.5kg
Carbon sequestered per tree annually



Average CAPEX installation cost (£ per m²)		Average OPEX maintenance cost (£ per m²yr)	
£248 per tree	£7,477 SuDS-enabled street trees	£0.12 per tree	

Sustainable Drainage Systems (SUDs) will be incorporated in the proposal. They will include raingarden, landscaped green roof to the office building, as well as permeable paving.

Measures to protect people and the building from flood risk will be implemented within the designs, including allowance for climate change impacts. To minimise the impact on the sewer network arising from the buildings drainage requirements, surface water peak and volume run off will be managed on-site through the reduction in hard standing and the introduction of permeable and planted areas.

Nature Based Solutions such as green roofs are proposed to provide a natural way to mitigate impact rather than resorting to technologies that add embodied carbon to the building.

In addition to stormwater and flood risk management, the development will minimise the consumption of potable water in sanitary and landscape irrigation applications following the zero water process outlined in Figure 3.7 below.

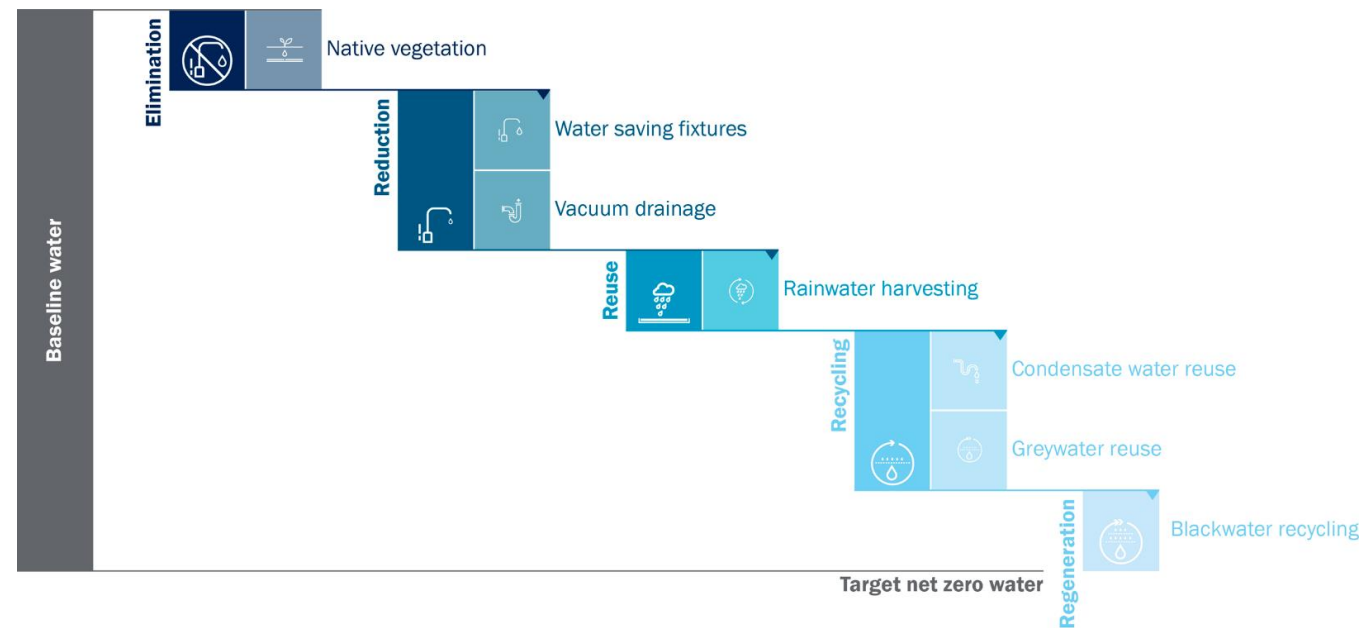


Figure 3.7 Water Consumption Reduction Strategy

This includes the use of native vegetation and soft landscaping that can thrive without the need for automatic irrigation systems. Low water use fixtures and fittings will be installed in the development. Fittings, such as flow restrictors will be fitted in taps and shower heads. WCs will be provided with dual flush cisterns and fitted with delayed action inlet valves.

To achieve 3-4 credits under the BREEAM Wat 01 Issue, sanitaryware flow rates shall be limited to the following:

- WC - Flush volume 3.75L
- WHB taps - 5l/min
- Showers - 6L/min
- Baths - 140 litres
- Urinal - 2l/bowl/hour
- Kitchenette tap - 6l/min
- Kitchen taps - pre-rinse nozzle - 7.3l/min
- Domestic sized dishwashers - 12 l/cycle
- Domestic sized washing machines - 40 litres/use
- Commercial sized dishwashers - 5l/rack
- Commercial sized washing machines - 7.5l/kg.

The opportunities for rainwater harvesting/ grey water reuse and recycling will be investigated at the next design stages to minimise potable water use in sanitary applications. This includes the opportunity to collect and utilise the condensate water generated from the buildings fan coil units.

The buildings public health systems will also include leak detection systems that will automatically notify any water leaks within the building. Automatic shut off valves will also be installed to prevent the unnecessary use of water such as taps being left on. The building will also include a building management and monitoring system that will record and monitor the buildings water consumption, allowing issues to be identified and remedial actions to reduce consumptions to be implemented.

By implementing these water management and weather resilience strategies, the proposed NXQ Building achieves the aims and objectives of the Manchester Supplementary Planning Guidance (Adopted April 2007).

3.5 Waste Management

Reducing the operational waste generated from the buildings occupants is a key objective of the projects sustainability strategy. To achieve this, the provision of suitable infrastructure along with building occupant education materials will be provided.

In terms of infrastructure the buildings refuse storage will be located within the ground floor with dedicated access onto Little Lever Street for ease of access for refuse collection. This refuse location is also convenient for the buildings users with the store accessed directly from the ground floor lift lobby. Within the refuse store there will be 6 No. 1100 Chamberlain bins providing both recycling waste and general waste storage. This bin provision has been calculated based on anticipated waste generated from each building occupant and a 2 week collection frequency. To reduce the frequency of bin collections and to allow for more efficient storage a pin press compactor is also proposed.

The bins will be clearly labelled to allow for on-site waste segregation for key waste types (e.g. cardboard, plastic, metals etc.) to reduce the risk of recyclable waste going to landfill and off-site waste segregation.

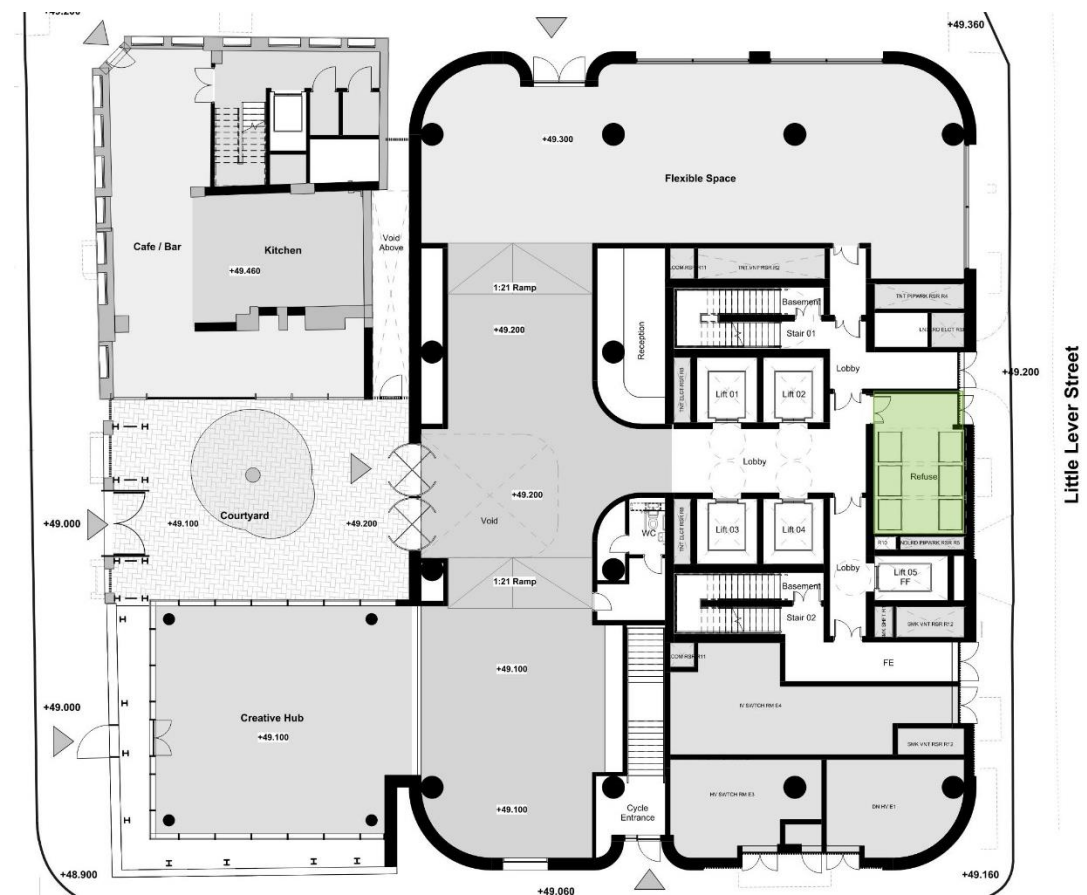


Figure 3.8 The NXQ Building Refuse Storage Area (Highlighted in Green)

Although suitable waste storage provisions are proposed, a key strategy to reduce operational waste will be in education materials to building occupants. A building specific waste management plan will be developed that will give advice and guidance to tenants on measures that they can adopt within their operations to reduce waste, optimise the opportunities to re-use materials and implement circular economy principles. Details of the buildings waste storage provisions and management strategy will also be provided to all tenants within a Building User Guide.

By providing dedicated recyclable waste storage along with education materials and a site waste manage plan, the NXQ Building implements the guidance set out within the Manchester Supplementary Planning Guidance (Adopted April 2007).

3.6 Construction Management

Net Zero Carbon and circular economy features high on the agenda at national and local levels. To assist the construction industry to deliver Net Zero Carbon buildings, there are several industry guidelines, frameworks and assessment methodologies published by LETI, UK GBC and RIBA that provide a road map to assessing quantifying and target setting whole life carbon performance of buildings.

LETI, UKGBC and RIBA all refer to Whole Life Carbon (WLC) of buildings which considers the carbon emissions associated with embodied carbon (i.e. the carbon that is inherent in the manufacture, construction, and maintenance of the building fabric) and operational carbon (i.e. carbon associated with energy consumption of the building in its operation). WLC therefore are emissions resulting from the construction and use of a building over its entire life, including its demolition and disposal.

To reduce a buildings WLC, it is vital that circular economy principles and low carbon measures are implemented at the earliest stages of design and continually quantified and optimised against benchmark targets. This is the approach that is being applied at The NXQ Building, where the evaluation and re-evaluation of key strategies have been applied to the design process as illustrated in the graphic below.

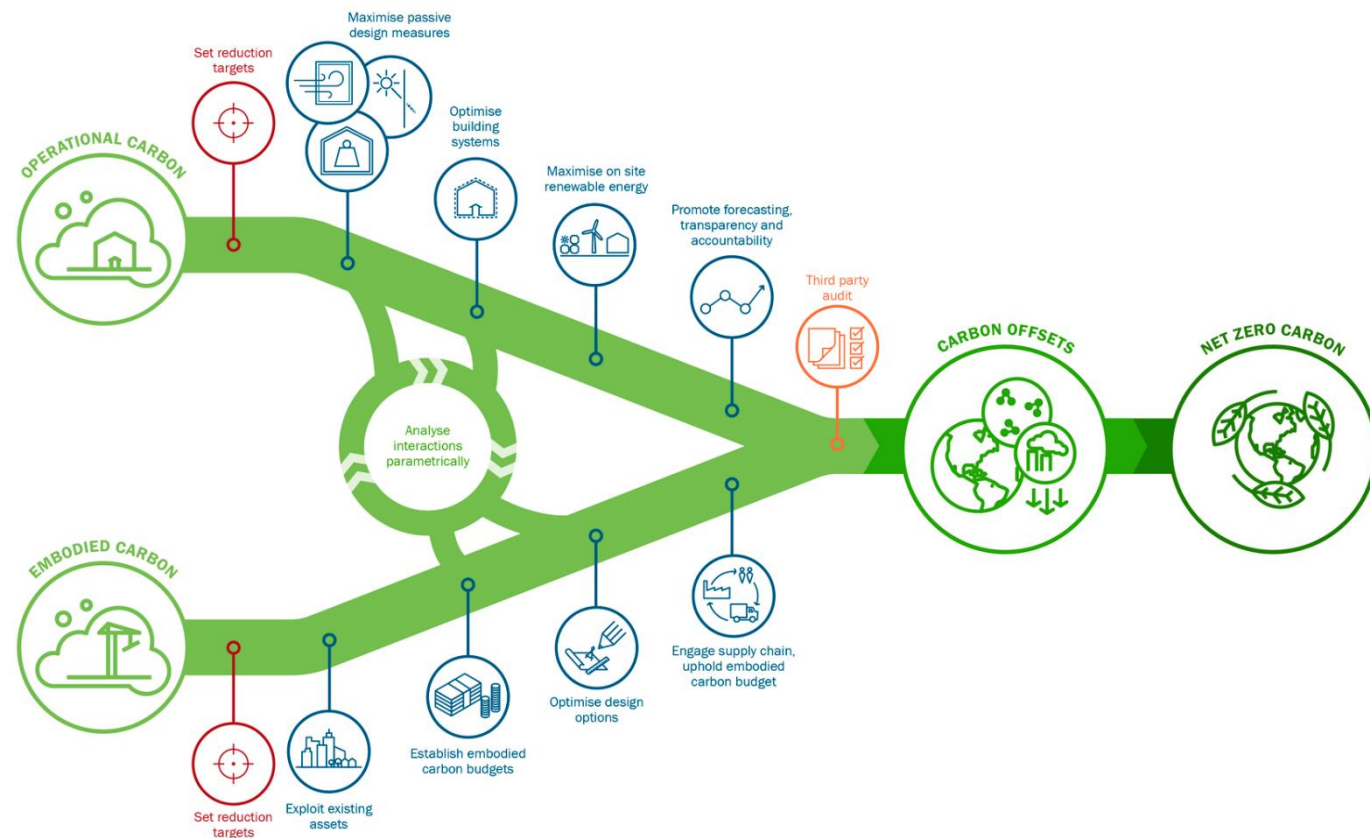


Figure 3.9 The NXQ Building Net Zero Carbon Strategy

These strategies and measures have and will continue to be implemented in the design, construction and operation of the The NXQ building to deliver a site that responds to the climate emergency and follows the UK's trajectory to net zero carbon in accordance with the Paris Agreement 1.5°C science-based targets.

3.6.1 Circular Economy

With annual global extraction of primary materials set to triple by 2050 and global waste also on pace to triple by 2100, there needs to be a fundamental shift in the way resources are consumed with a move away from a linear 'take - make - dispose' model to a circular model that re-uses, repairs, re-manufactures and recycles materials. This includes designing buildings for future re-use and adaptability to extend the life cycle of an asset and reduce the quantum of buildings that will be demolished in the future. Eventually when a build does come to the end of its lifecycle and is to be deconstructed, it is important that the building has been designed for ease of disassembly so that the materials can be recovered and re-used/ up-cycled for use in new construction projects. This allows the de-constructed building to become a material bank for new construction projects within the city and the wider UK construction industry.

To respond to need for society and the construction industry to move towards a circular model, measures that will allow the future retrofit, refurbishment, repurposing, and re-use of the NXQ Building proposals have been implemented to extend the life cycle of the asset. This includes, applying a regular construction grid that allows a wide range of retro-fit options to be explored such as conversion to residential, student accommodation, hotel & leisure, academia as well as various forms of office spaces. By providing a central core also allows for ease of re-purposing to an alternative use with the buildings primary access being from a central area that can be extended out into the perimeter of the building to suit the alternative building use. Similarly, the central core also allows the buildings services strategy to be easily rise through the building and be distributed at each floor to suit the alternative accommodation type. Generous floor to ceiling heights offers a wide range of future building use types to be accommodated. Finally, the building form, massing and structural solution allows the opportunity for vertical extension of the building that further future proofs the asset to provide additional floor space and accommodation.

The opportunities for disassembly have also been explored as part of the buildings design evolution. This is being achieved through the buildings stick curtain wall system that can easily deconstructed and disassembled for material recovery and potential re-use. Similarly material recovery and circular economy will be explored in more detail in the building services systems and fit out elements with engagement with manufacturers who provide circular solutions for their services and products.

In terms of the existing buildings that are to be demolished, a pre-demolition audit will be undertaken to identify the end use of materials with preference to re-use, repurposing, and up-cycling. Where this is not possible, materials will be recycled and diverted from landfill as far as possible.

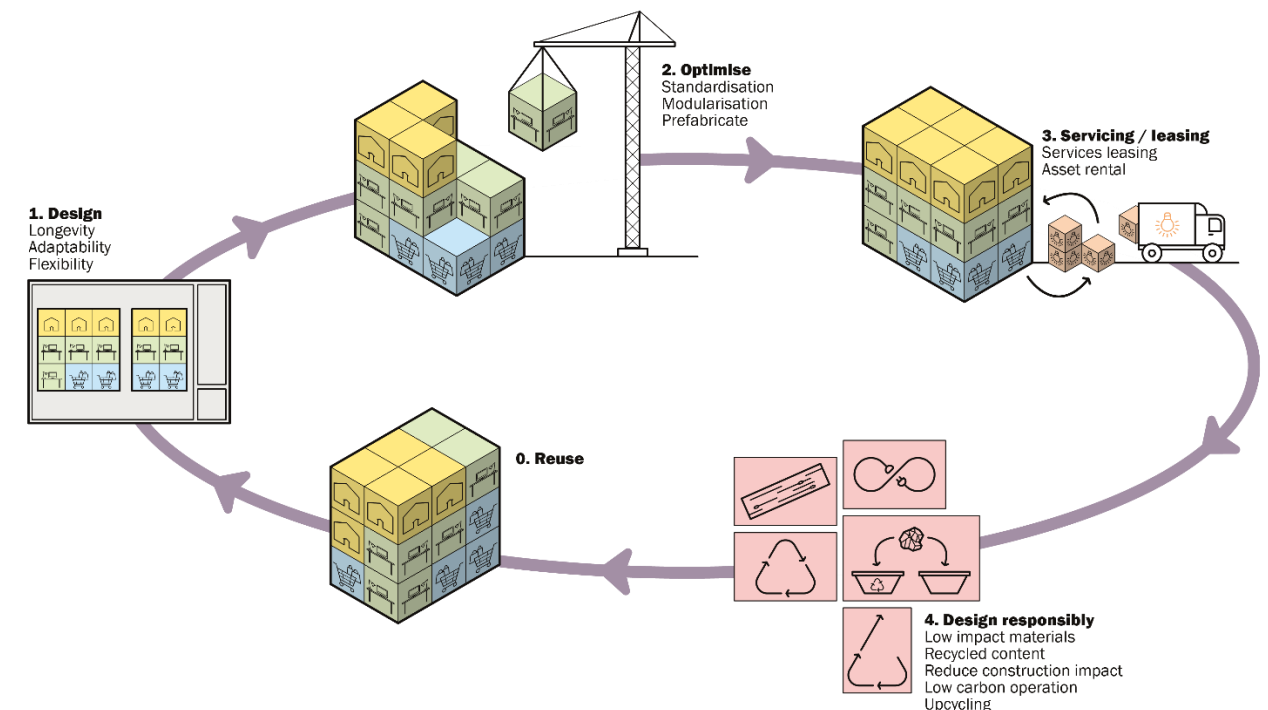


Figure 3.10 The NXQ Building Circular Economy Strategy

3.7 Embodied Carbon

The Embodied Carbon of a building is equivalent carbon emissions resulting from the materials, construction, operation, and disposal of a building as illustrated in the figure below.



Figure 3.11 Scope of Embodied Carbon

A buildings embodied carbon is measured and quantified in terms of kgCO2e/ m² (GIA). It is calculated by completing a Life Cycle Assessment (LCA) which calculates the total embodied carbon by considering the areas, volumes and tonnages of materials against predefined embodied carbon factors for typical construction products (e.g. concrete, steel, timber etc.). The total embodied carbon is then divided by the floor area of the building to provide an embodied carbon performance figure which is benchmarked against industry guide, such as LETI.

The UK GBC NZC Framework requires developments to assess, quantify and minimise construction embodied carbon throughout the design and construction process. This involves implementing embodied carbon reduction measures and strategies within the building design, such as building light, building low carbon, building for the future and setting embodied carbon targets in-line with industry guidance.

The NXQ Building development aims to implement the measures and recommendations of industry guidance to reduce the embodied carbon impact of the development. This includes designing, procuring, and constructing the building through measures such as building light, building low carbon, and building for the future as outlined in the adjacent Table. Whole life embodied carbon modelling has been undertaken to inform the building design and material selections with the aim reduce the assets carbon emissions over its life cycle. Such measures include the use of materials with a low embodied carbon footprint, high recycled content, and products that hold Environmental Product Declarations (EPDs) that confirms their carbon and environmental performance. This has been quantified and optimised through Life Cycle Analysis (LCA) modelling which will continue to be applied throughout the design and construction of the building with performance benchmarked against industry best practice for embodied carbon and whole life carbon.

Table 3.3 The NXQ Building Embodied Carbon Strategy

	<p>The building has been designed to minimise the structural loadings, such as minimising long spans and large cantilever building form and massing. Opportunities to design lean have been implemented such as focusing of passive design to reduce building services along with careful glazing fenestration to reduce secondary steel work requirements. The building forms have also been designed with a low building form factor that demonstrates efficient design in terms of both operational energy and embodied carbon reduction/ material efficiency.</p>
Build light	<p>A fundamental feature of the building is to re-purpose and re-use the existing buildings on Lever Street and incorporating within the floor area of the proposed building. This has the effect of reducing the embodied carbon through the re-use of existing structures with an estimated 550 Tonnes of carbon mitigated from the construction of the new building.</p>
	<p>Locally sourced new materials will be specified and procured to minimise transport emissions to and from site. Also, ground works will be retained on site as far as possible to reduce the embodied and environmental impact of removing earth off site. Modular construction will be applied where possible to minimise waste and avoid the un-necessary use of materials. Site emissions will be reduced as far as possible through prioritising where possible electricity for site equipment.</p>
Build wise	
	<p>The use of low embodied carbon materials will be minimised throughout the design, procurement and construction of the building. This will involve identifying and focusing on the inherently high carbon emission materials such as steel and concrete and maximising the recycle content and low emission solutions for these materials as far as possible. The opportunities to apply natural materials such as timber as a replacement to steel will be investigated through embodied carbon calculations. A material passport will also be implemented that will set the environmental and embodied carbon performances of materials used in the construction of the building and landscaping.</p>
Build low carbon	
	<p>The proposed building has been designed with flexibility and future adaptation in mind. Measures include applying a regular structural grid and developing risers and plant space to facilitate adaption. Durable and resilience materials will also be specified to minimise the embodied carbon impact of maintenance and replacement over the lifetime of the buildings and landscaping. Finally, measure to facilitate the ease of future disassembly at the end of the building life cycle will be developed. This will aim to maximise the recycling, reclaim and re-use potential of the materials in line with the circular economy principles.</p>
Build for the future	
	<p>The buildings embodied carbon performance will be assessed against the BREEAM Mat 01 (Life Cycle Analysis) issue, including benchmarking against the BREEAM embodied carbon target for offices. To measure and quantify performance against this target, embodied carbon Life Cycle Assessment calculations (LCA) will be completed at each RIBA Stage. These calculations will not only quantify performance against the BREEAM target, but also include option appraisals that identify solutions and strategies that reduce the carbon impact of the overall development.</p>
Set targets	

3.7.1 Site Environmental Management Procedures

During the construction phases of the project, the contractor will be obligated to implement site environmental management procedures with regards to pollution minimisation (air, water, noise and light pollution), resource efficiency (energy, water and transport emissions) as well as responsible construction practices. The principle contractor will be obligated to implement the following as part of their contract.

Contractor will set targets for the site energy consumption in kWh (and where relevant, litres of fuel used) as a result of the use of construction plant, equipment (mobile and fixed) and site accommodation. Set targets for the potable water consumption (m³) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation. Set targets for transportation movements and impacts resulting from delivery of the majority of construction materials to site and construction waste from site.

Contractor shall implement the following construction site impact measures. To ensure robust collection of energy, water and transport consumption data, the project site manager (or other relevant person) shall be assigned to oversee the monitoring, recording and reporting duties.

- Energy consumption – Energy consumed from the use of construction plant, equipment (mobile and fixed) and site accommodation necessary for completion of all construction processes will be monitored with targets set. The data collected will be provided to the BREEAM Assessor in the following forms; total kWh and kWh/project value and total kgCO2eq and kgCO2eq/project value.
- Water consumption – Water consumed from the use of construction plant, equipment (mobile and fixed) and site accommodation necessary for completion of all construction processes will be monitored with targets set. The data collected will be provided to the BREEAM Assessor in the following forms; potable water consumed in m3 (minus any recycled water) and m³/£100k.
- Transport of construction materials and waste – Transportation (fuel consumptions, distances etc.) of deliveries to the site and waste removed from the site will be monitored. This will include
 - a. Transportation of materials from the point of supply to the building site, including any transport, intermediate storage and point of supply. Monitor as a minimum: materials used in major building elements, ground works and landscaping materials.
 - b. Transport of construction waste from the construction gate to the waste disposal processing/ recovery centre gate. This will include the monitoring of the key waste groups as outlined in the projects resource management plan.

The data will be provided to the BREEAM Assessor in terms of the total fuel consumption (litres), total carbon dioxide emissions (kgCO2 eq), plus total distance travelled (km) for both deliveries and waste separately.

Contractor shall also comply with the following requirements:

- Timber Procurement – All timber used on the project (including site timber) will be sourced in accordance with the UK Government’s Timber Procurement Policy. All timber will be legal and from a sustainable source.
- Construction Site Management – operate under a valid ISO 14001 Certification
- Watercourse and dust pollution –implement best practice pollution prevention policies and procedures on-site in accordance with Pollution Prevention Guidelines, Working at construction and demolition-sites: PPG6
- Responsible Construction Practices –register project against the Considerate Constructors Scheme (2013 Code of Considerate Practice) achieve an overall score of 40 or more and a minimum score of 7 achieved in each of the 5 section.
- Sustainability Champion –appoint certified construction sustainability champion (e.g. BREEAM AP or BRE Site sustainability Manager Membership Scheme) to monitor BREEAM compliance throughout the construction, handover and close out stages of the project. The Sustainability Champion shall work with the project team, including the client, to consider the links between BREEAM issues and assist them in achieving and if possible, going beyond the design intent, to maximise the project’s performance against the agreed performance targets throughout the Construction, Handover and Close Out stages. Monitor construction progress against the BREEAM performance targets agreed throughout all stages where decisions critically impact BREEAM performance. Proactively identify risks and opportunities related to the procurement and construction process and the achievement of the targets agreed. Provide feedback to the constructors and the project team as appropriate, to support them in taking corrective actions and achieving their agreed performance targets. Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team and the provision to the assessor.

To reduce waste arising from the construction process and to minimise waste diverted to landfill, the principle contractor will be obligated to implement a site waste management plan and achieve specific resource efficiency benchmarks as per the requirements below.

The contractor will complete a pre-demolition audit of any existing buildings, structures or hard surfaces being considered for demolition. This must be used to determine whether refurbishment or reuse is feasible and, in the case of demolition, to maximise the recovery of material for subsequent high grade or value applications. The audit must cover the content of Pre-demolition audit scope and be carried out at Concept Design stage by a competent person. prior to strip-out or demolition works. It should guide the design, consider materials for

reuse and set targets for waste management and engage all contractors in the process of maximising high grade reuse and recycling opportunities

The contractor shall compare actual waste arisings and waste management routes used with those forecast and investigate significant deviations from planned targets.

The Contractor implement a BREEAM compliant Resource and Site Waste Management Plan as per the requirements of the Relevant Definitions Section of the Wst 1 Issue, in the BREEAM 2018 New Construction Manual. The Resource Management plan should make reference to the pre-demolition audit. In addition, the contractor shall achieve the following waste resource efficiency benchmarks:

- Non-hazardous construction waste resource efficiency benchmark of 3.4 m3/100m² gross internal floor area (or 3.2 tonnes/100m²)
- Non-hazardous construction waste diverted from landfill of 70% volume (or 80% tonnage)

By implementing the above construction management strategies and procedures, it can be concluded that the NXQ Building development implements the guidance set out within the Manchester Supplementary Planning Guidance (Adopted April 2007).

3.8 Biodiversity

A site ecological appraisal has been completed to identify any existing wildlife and wildlife habitats and protection measures to be undertaken to protect and sustain existing wildlife as part of the new development. The appraisal has identified a high potential for roosting bats within the existing buildings and potential for breeding birds. As such the ecological appraisal recommends that further surveys are undertaken prior to works at appropriate times of the year.

As such the ecological appraisal recommends the inclusion of bird and bat boxes within the proposed scheme which will be implemented in the designs. This includes the use of native fruiting/ flowering species within the soft landscaping proposals which will be implemented to support post-completion foraging.

The landscape proposals aim to introduce urban greening to this area of the city through street level planting and trees as well as landscaped terraces. The development is exempt from Biodiversity Net Gain (BNG) as no habitats are present on-site and therefore falls under the following BNG exemption ‘Developments impacting habitat of an area below a threshold of 25 m², or 5 m of linear habitats, such as water courses or hedgerows’. Please refer to the ecology report for further information.

A Biodiversity enhancement over the current baseline position is being targeted (assessed under the BREEAM methodology) which will be delivered through the incorporation of native planting that provide habitats for wildlife and nature to flourish.

Similarly, the landscaping proposals aim to provide building occupants with a connection to nature with planting selected to reflect the changing of seasons and the visual and smell senses that this provides.

By protecting and enhancing existing site ecology, the soft landscaping proposals of the NXQ building implements Manchester Supplementary Planning Guidance (Adopted April 2007).

3.9 Waterways

The NXQ Building is not located within close proximity to the cities waterways and as such has minimal opportunities to enhance the public access, environmental conditions and management of these assets. The development is however committed to the protection of local watercourses by applying Nature Based Solution (NBS) to manage water run off from the building and also implementing water course pollution prevention measures during the construction phases of the project. This is detailed within the responses to the water and construction management headings above.

4 Summary

The world is in a climate emergency and in response to this the UK Government has set a legally binding target to be Net Zero Carbon economy by 2050. Similarly, Manchester City Council have set targets to be a carbon neutral city by 2038. To achieve these goals, new developments must respond to the climate emergency and implement measures that reduce carbon impact both in construction and operation, minimise pollution impact, and enhance ecology and the wellness of people.

It is for these reasons why sustainability is a fundamental aspect of the proposed NXQ Building development, where all the above aspects are embedded within the project brief and building design.

Sustainability is a fundamental aspect of the NXQ Building with the proposals developing towards net zero carbon, circular economy, biodiversity enhancement, health & wellbeing and green travel infrastructure. The repurposing of the existing buildings over demolition also follows national campaigns for the repurposing and refurbishment of existing buildings over demolition where possible. By implementing the environmental standards outlined within this report, the NXQ Building will provide a productive, healthy and enjoyable space for people that treads lightly on the planet.

This Environmental Standards Statement presents the measures and strategies that have, and will continue, to be implemented in the design, procurement and construction of the NXQ Building against the 9 headings of the Manchester Supplementary Planning Guidance (Adopted April 2007). A key strategy of delivering a highly sustainable building is the implementation of assessing the building against the BREEAM environmental benchmarking scheme, with Excellent certification target.

As illustrated in this report, the proposals implement all of the 9 environmental headings of the supplementary guidance, while also responding to the national net zero carbon strategies and circular economy objectives to deliver a truly sustainable development.

Appendices

Appendix A BREEAM Pre-assessment

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BREEAM Pre-assessment

NXQ Building
Revision 00, February 2024

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Contents

Executive summary		4
1	Introduction	5
1.1	Introduction	5
1.2	Project BREEAM Target	5
1.3	BREEAM 2018	5
1.4	BREEAM Benchmarks & Minimum Requirements	6
2	BREEAM Pre-Assessment	7
2.1	Target score	7
2.2	BREEAM Early Stage actions	7
2.3	Potential credits	8
3	Summary	9
Appendices		10

Executive summary

The NXQ Building office development aims to achieve a high standard of sustainable design and construction and is thus targeting BREEAM Excellent certification.

This BREEAM Pre-assessment outlines the BREEAM credits to achieve Excellent with an overall targeted score of 75.6%. This is subject to achieving the credits outlined in this report.

This report presents a BREEAM Pre-Assessment for the proposed NXQ Building office. The development will be assessed against the current revision of the BREEAM 2018 New Construction scheme as a Shell and Core Office.

The development is targeting a BREEAM Excellent and as such, this report provides a pre-assessment of the development against the BREEAM criteria and identifies the key sustainability measures and strategies required to secure this certification.

By implementing the measures outlined within this report, Atelier Ten calculate that an Excellent rating with an overall BREEAM score of 75.5% can be accomplished, provided the early stage actions and appointments outlined in this report are achieved. A margin of at least 5% over the 70% required is recommended, potential credits have been highlighted for inclusion to increase the margin.

The pre-assessment presented in this report outlines credit ownership, along with a summary the applicable BREEAM credit criteria. The early stage actions have also been highlighted.

A BREEAM workshop will be held in due course with the developer and design team to review the pre-assessment and agree the credits that have been targeted.

1 Introduction

1.1 Introduction

BREEAM is arguably the most recognised environmental benchmarking scheme applied in the UK Construction Sector with over 600,013 buildings certified since its inception in 1990. The scheme can be applied to both refurbishment and new construction developments.

The scheme provides a system to measure the environmental impact of any construction project on a simple single scale of PASS to OUTSTANDING. This simple rating draws together a comprehensive environmental assessment process that considers the following aspects of construction: management; energy; transport; health and well-being; water; materials; land use; the ecological value; and pollution.

Under each sustainability heading, there are a range of specific sustainability criteria where compliance results in credits being awarded. The overall BREEAM certification level is based on the number of credits achieved, where the more credits awarded, the higher the overall BREEAM certification achieved.

1.2 Project BREEAM Target

The development is targeting a BREEAM Excellent rating. To accomplish this rating, an overall BREEAM assessment score of at least 70% must be achieved including minimum standards.

In order to secure an Excellent rating, Atelier Ten recommend that a score of at least 75% is targeted to allow for potential credit loss during the further design and construction stages of the project.

The development will be assessed against the BREEAM UK 2018 New Construction Scheme as a Shell and Core Office.

1.3 BREEAM 2018

BREEAM UK 2018 scheme was launched in March 2018 to supersede the BREEAM 2014 scheme. This scheme aims to further push UK construction sustainability agenda with more onerous criteria and standards. In addition, BREEAM 2018 aims to align with other benchmarking schemes that have emerged focused around healthy buildings, particularly the WELL Building Standard. With the progression of building standard energy regulations in England the V6 version of the 2018 manual has been released and projects going forward in England must comply with this. Under BREEAM 2018, the assessment and verification process remain the same as with 2014 scheme. Similarly, it is essential that early stage involvement and buy-in from the design team, contractor and client are achieved. This is of importance since the BREEAM assessment is a continuous process throughout the life cycle of a project with key milestones and outputs required for credit compliance. The BREEAM timeline below illustrates the BREEAM involvement throughout the RIBA stages.

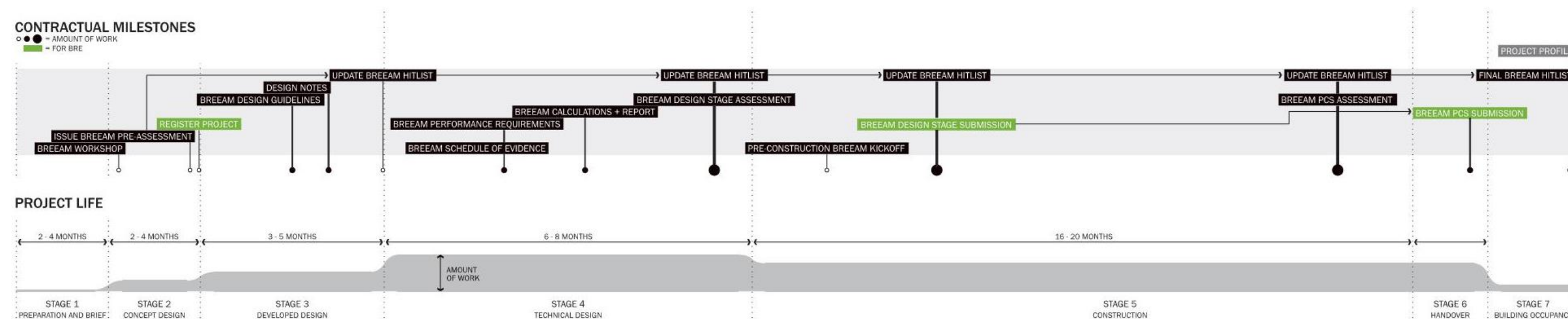


Figure 1: Project Life and Contractual Milestones

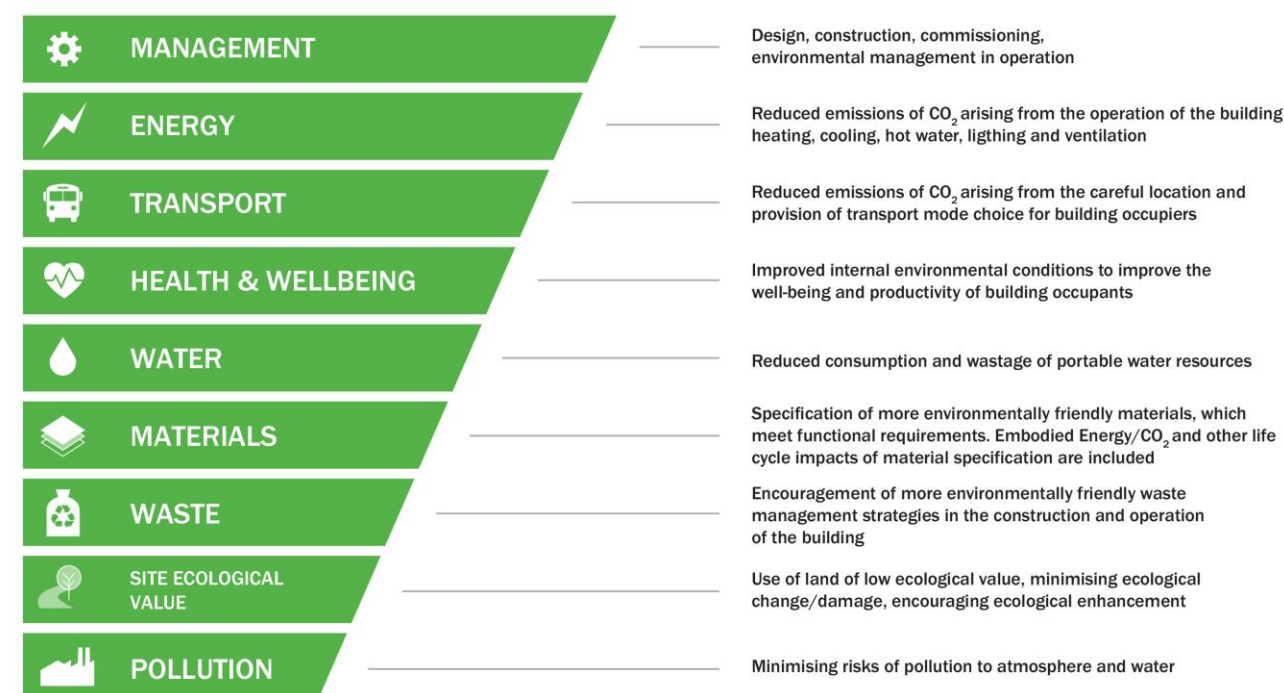


Figure 1.2 Scope of BREEAM Assessment Issues

1.4 BREEAM Benchmarks & Minimum Requirements

The BREEAM ratings require a percentage level as well as compliance with certain minimum requirements. Higher ratings require more minimum standards. The minimum requirements to achieve Excellent and Outstanding ratings are listed in Table 1.1.

The percentage scores for each certification level are as follows:

- Outstanding ≥ 85%
- Excellent ≥ 70%
- Very Good ≥ 55%
- Good ≥ 45%
- Pass ≥ 30%

Table 1.1 BREEAM Minimum Standards

Credit	Summary of Criteria	Excellent	Outstanding
Man 03	1 Responsible Construction management credit for Excellent 2 Responsible Construction management credits for Outstanding		
Man 04	1 credit for commissioning test schedule and responsibilities		
Man 04	Building User Guides for building user and facilities manager		
Man 05	1 credit for commissioning implementation		
Ene 01	Building energy performance significantly better than building regulation requirements. 4 credits for Excellent 6 credits for Outstanding		
Ene 02	1 credit for submetering.		
Wat 01	Water consumption reduction on BRE baseline 1 credit for Excellent 2 credits for Outstanding		
Wat 02	Specify a water meter on the mains water supply to each building.		
Mat 03	100% of timber and timber-based products used on the project are 'Legal' and 'Sustainable' as per the UK Government's Timber Procurement Policy.		
Wst 01	1 credit to be achieved for Outstanding.		
Wst 03	Installation of dedicated recyclable waste storage space		

2 BREEAM Pre-Assessment

2.1 Target score

This section of the report presents a summary of the BREEAM Pre-assessment of the NXQ Building office development against the BREEAM 2018 New Construction Scheme as a Shell and Core Office.

All BREEAM credits available to the project have been considered and are outlined fully in Appendix 1. Where credits have not been targeted, validation has been provided within the comment's column of Appendix 1.

Table 2.1 below demonstrates the number of credits currently targeted in each section of the BREEAM assessment and how many credits are available. Credits have been chosen based on a desk top analysis of the site and the proposed drawings available at this time.

Following the design teams review of the selected credits a BREEAM pre-assessment workshop should take place between the assessor and the design team to discuss the BREEAM requirements and agree on the targeted credits and preferred score.

Table 2.1 Pre-assessment summary

Section	No. Credits Available	No. Credits Targeted	Percentage Credits Targeted	Section Score
Management	18	14	77.78%	8.56%
Health & Wellbeing	11	8	72.73%	5.82%
Energy	21	13	61.90%	8.67%
Transport	12	11	91.67%	10.54%
Water	9	7	77.78%	5.44%
Materials	14	9	64.29%	11.25%
Waste	11	10	90.91%	6.36%
Land Use & Ecology	13	9	69.23%	10.38%
Pollution	12	10	83.33%	7.50%
Innovation / Exemplary	10	1	10.00%	1.00%
Total	131	92	70.23%	75.52%

2.2 BREEAM Early Stage actions

Several of the BREEAM Issues include time critical actions that must be completed before credits can be secured.

Table 2.2 summarises the BREEAM credits that have early stage actions (up to RIBA Stage 2) that must be undertaken to secure the BREEAM Excellent rating. Further information and specific credit criteria can be found within the relevant sections of the BREEAM 2018 V6 New Construction Manual.

The following appointments are required to achieve the current targeted credits:

- Acoustician to assess against Hea 05 & Pol 05
- Embodied Carbon Consultant - Mat 01
- Security Consultant
- Ecologist
- Transport Consultant
- Flood consultant

Table 2.2 Early stage actions

BREEAM Issue		Requirement	Responsibility
Man 01	Project brief and design - Stakeholder consultation	Action: Sustainability brief is developed.	Developer/ Architect/ Client
		Action: The roles, responsibilities and contributions of the client and design team to be confirmed within a responsibility matrix for all RIBA Stages.	
		Action: Consultation with relevant stakeholders, organisations and bodies must be undertaken during preparation of the brief. Consultation plan to be developed with feedback provided back to stakeholders and design influenced as a result of consultation.	
Hea 01	Visual comfort - View out	Action: Early analysis should be completed to determine if it will be achievable.	Architect
Hea 05	Acoustic Performance	Appointment: Acoustician to be appointed to consult on the design	Project Manager
Hea 06	Safety and Security	Appointment: Suitably Qualified Security Specialist to complete an evidence based Security Needs Assessment during or prior to Concept Design	Project Manager/ Architect
Ene 04	Low Carbon Design - Passive Design	Action: project team carries out an analysis of the existing building fabric, form, site location and outline scheme design to influence decisions made during the Concept Design stage and identifies opportunities for the implementation of passive design solutions and retrofit measures that reduce demands for energy consuming building services.	MEP Energy Consultant
	Low Carbon Design - Low and Zero Carbon Technologies	Action: An energy specialist completes a low and zero carbon technology feasibility study by the end of Concept Design	MEP Energy Consultant
Tra 01	Travel Plan	Appointment: A transport consultant completes a Travel assessment and travel plan for the development during concept design.	Transport Consultant
Mat 01	Life Cycle Assessment	Action: Completion of Stage 2 Life Cycle Assessment and Options Appraisal with upload of Results Submission Tool to BRE pre-planning.	Life Cycle Analysis Consultant
Mat 06	Material efficiency	Action: Material efficiency strategy started. Set targets and report on opportunities and methods to optimise the use of materials, develop and record the implementation of material efficiency and report the targets and actual material efficiencies achieved. Review Table 9.15 for guidance.	Structural Engineer/ Developer/ Architect
Wst 01	Project waste management - Pre-refurbishment audit	Action: a pre-refurbishment audit of all existing buildings, structures or hard surfaces within the scope of the refurbishment or fit-out zone is completed during concept design prior to any strip out or demolition works.	Project Manager
Wst 05	Adaptation to climate change	Action: Design team to complete an Adaption to Climate Change strategy appraisal on the structural & fabric resilience over the lifetime of the building.	Architect/ Structural & Civil & MEP
Wst 06	Functional adaptability	Action: Design team to complete a functional adaption strategy that considers measures to be incorporated into building design to allow potential future functional change of the building use.	Architect/ Structural & Civil & MEP
LE 02	Protection of ecological features	Appointment: Ecologist is appointed to assess the existing ecological value of the site and advise any protection measures required.	Project manager
LE 05	Long term impact on biodiversity	Appointment: Ecologist is appointed prior to commencement of activities on-site and they confirm that all relevant UK and EU legislation relating to the protection and enhancement of ecology has been complied with during the refurbishment or fit-out process	Project manager

2.3 Potential credits

Within the full pre-assessment in Appendix A some potential credits have been identified for possible inclusion in the assessment. These credits are either tentative until further investigated or can involve additional fee's which may not yet have been considered and accounted for in the cost plan. Table 2.3 below lists the potential credits and their percentage worth to increase the score. Atelier Ten advise that a 5% margin is allowed for in the target score to better ensure the preferred BREEAM rating is achieved.

Table 2.3 Potential Credits

BREEAM Issue		Number of credits	Summary of requirement	Percentage worth each (%)
Man 02	Life Cycle Cost	3	Life Cycle Costing reports and Options Appraisal at Stage 2 and Stage 4	0.61
Ene 01	Reduction of Energy Use and Carbon Emissions	Additional 5	Calculate an Energy Performance Ratio for New Constructions (EPRNC) using BREEAM's Ene 01 calculator	0.67 (each)
Ene 04	Low Carbon design - Free cooling	1	During concept design an analysis of free cooling and identifies opportunities for the implementation of free cooling solutions	0.71
LE 01	Contaminated Land	1	Contaminated land investigation by a contaminated land specialist and remediation.	1.16
TOTAL				5.83

3 Summary

This report presents the results from a BREEAM pre-assessment for the NXQ Building office development against the BREEAM 2018 New Construction Scheme as a Shell and Core Office

The results from the pre- assessment demonstrate that a BREEAM Excellent rating could be achieved with an overall score of 75.52% being attained. This is a margin of 5.52% over the required 70% for Excellent.

A BREEAM workshop will be held in due course with the developer and design team to review the pre-assessment and agree the credits that have been targeted. It is expected that the design team will review the targeted credits in the pre-assessment and advise if any are not achievable and suggest alternative credits which can be included.

A margin of 5% is recommended to mitigate against any credits lost throughout the design process. Potential credits have been indicated in the pre-assessment should the team wish to increase the score.

There are several early-stage actions that must be completed in order to secure credits, these have been outlined within this report. Similarly, there are specialist consultants required such as an acoustician and transport consultant and their cost implications should be considered early.

Appendices

Appendix A BREEAM Hit List

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Credit Information			Target Rating	EXCELLENT	75.6%					
Credits Available	Credits Targeted	Potential Credit	Credit Issue	Title	Mandatory Credits	Summary of criteria	Schedule of Evidence	Stage required	Comments	Responsible
			For full details of credit compliance requirements, refer to the BREEAM 2018 Scheme Document (manual), which takes precedence to this document							
18	15	3	Management							
4	4	0	Man 01: Project Brief and Design	Project Delivery Planning	N/A	1 credit - Project Delivery Planning - Prior to completion of the Concept Design, the project delivery stakeholders meet to identify and define each key phase of project delivery. The project team demonstrates how the project delivery stakeholders' contributions and the consultation process outcomes influenced the design	Letters Meeting Minutes/ Agendas PAC report Roles and responsibilities matrix Pre-planning report Demonstration of feedback to stakeholders (quarterly meetings and monthly newsletter etc) Employer's Requirements Stage 2 Report Stage 4 report AP appointment letter or contract Document to confirm BREEAM target rating AP reports	Stage 2	Criteria often covered within RIBA Stage of Work reports All items in criteria 2 must be demonstrated	Architect Client Project manager
				Stakeholder Consultation		1 credit - Stakeholder Consultation - Prior to completion of the Concept Design, the design team consult with all interested parties on matters that cover the minimum consultation content. Prior to completion of the detailed design all interested parties give and receive consultation feedback.		Stage 2/4	Minimum consultation content provided in manual.	
				BREEAM Advisory Professional (AP)		Prerequisite for BREEAM AP credits - The project team, including the client, formally agree strategic performance targets early in the design process (with the support of the BREEAM AP where appointed).		Stage 2	BREEAM AP is an additional appointment Target rating must be achieved.	Client
						1 credit - BREEAM AP (Concept Design) - Involve an AP in the project at the appropriate time and level.		Stage 3/4		BREEAM AP
						1 credit - BREEAM AP (Developed Design) - Involve an AP in the project at the appropriate time and level.				
4	1	3	Man 02: Life Cycle Cost and Service Life Planning	Elemental Life Cycle Cost (LCC)	N/A	2 credits - Elemental Life Cycle Cost - <u>At RIBA Stage 2</u> - An elemental life cycle cost (LCC) analysis	Elemental LCC plan. Design documents to demonstrate, how the elemental LCC plan has been used to influence building and systems design and specification to minimise life cycle costs and maximise critical value.	Stage 2	Elemental analysis required at early stages	Project Manager
				Component Level Life Options Appraisal		1 credit - Component Life Cycle Cost - <u>At RIBA Stage 4</u> - a component level LCC analysis. The results of the analysis and consideration of LCC have been implemented. 				

				Capital Cost Reporting		1 credit - Capital Cost Reporting - Report the capital cost for the building in pounds per m2	Email or letter or report stating the Predicted capital cost at end of technical design. A revised figure can be submitted at post construction.	Stage 4		
6	6	0	Man 03: Responsible Construction Practices	Prerequisite - Legally Harvested and Traded Timber	1 credit = Very Good 1 credit = Excellent 1 credit = Outstanding	Prerequisite: All timber to be 'legally harvested and traded timber'	Letter confirming that all timber will be legally harvested and traded timber. Letter confirming the targeted CCS score and construction site impact targets. EMS Certificate. Employer's Requirements.	Stage 3/4	BREEAM requirements to be included within Employer Requirements Exemplarily level credit targeted for CCS. Score over 40 required - being checked Site BREEAM AP to be appointed	Project Manager Contractors reqs
				Environmental Management		1 credit - Environmental Management: The principal contractor operates an EMS and practices pollution prevention policies and procedures on-site				
				BREEAM Advisory Professional (AP) (site)		1 credit - BREEAM AP (site) - Involve a BREEAM AP in the project at an appropriate time and level.				
				Responsible Construction Management		1 credit - Responsible Construction Management: Appoint a sustainability champion during construction				
				Monitoring of Construction Site Impacts		1 credit: a CCS score between 25 and 34 2 credits: a CCS score between 35 and 39 Monitor, record, report & target: 1 credit: Energy and water consumption 1 credit: Transport (construction materials & waste)				
4	4	0	Man 04: Commissioning and Handover	Commissioning - testing schedule and responsibilities	Criterion 11 = Very Good, Excellent and Outstanding	1 credit - Commissioning - testing schedule and responsibilities: Commissioning programme, roles and responsibilities	Commissioning Programme, Evidence confirming commissioning roles and responsibilities. Confirmation on Thermographic survey Confirmation regarding BUG's and training schedules Employer's Requirements	Stage 3/4	BREEAM requirements to be included within Employer Requirements Ensure all criteria are in the spec - A10	Project Manager Contractors reqs Architect
				Commissioning - design and preparation		1 credit - Commissioning - design and preparation: Commissioning manager appointed during design stage to undertake design reviews, provide commissioning management and performance testing input				
				Testing and inspecting building fabric		1 credit - Testing and inspecting building fabric: Thermographic survey and/or airtightness test and inspection				
				Handover		1 credit - Handover: Building User Guide and building occupiers/premises managers training schedule				
Man section sub totals				9%						

11	9	2	Health & Well Being							
4	3	1	Hea 01: Visual Comfort	Control of glare from sunlight	N/A	1 credit: Glare control strategy	Drawings and specification demonstrating the proposed glare control strategy.	Stage 4		Architect
				Daylighting		2 credits (building type dependent): Achieve specified average DF requirement	Daylighting report outlining all required criteria Documents/ calculations demonstrating Room depth criteria	Stage 2		A10 Architect
				View out		1 credit: Achieve view out requirements Relevant building areas are within 8m of an external wall which has a window or permanent opening, and the window or opening is ≥20% of the surrounding wall area	Drawings demonstrating workstations and applicable areas and provision of windows Window to wall ratio calculations	Stage 4		Architect
				Internal and External Lighting		1 credit: External lighting design & zoning to comply with BS5489-1:2013+ BS EN 12464-2:2014)	Design drawings Specification Lighting Schedule	Stage 4		Electrical Spec to include lighting compliance Shell and core assessment internal lighting criteria not applicable. A10
2	2	0	Hea 04: Thermal Comfort	Thermal Modelling	N/A	1 credit: Thermal modelling as per CIBSE AM11, compliance with “time out of range” (TOR) metric requirements and overheating limits	Thermal Modelling Report Design drawings Specification	Stage 4		Thermal modelling to be completed to determine thermal comfort performance with sized heating/ cooling systems
				Design for future thermal comfort		1 credit: Thermal comfort criteria for the projected climate change environment		Stage 4		Thermal modelling to be completed to determine thermal comfort performance with sized heating/ cooling systems under a climate change condition
				Thermal Zoning and Control - 1 credit		1 credit: above criteria is met and the proposed heating/cooling strategy to address certain criteria regarding fit for purpose, controls and interoperability between systems		Stage 4		N/A
1	1		Hea 05: Acoustic Performance	Indoor Ambient Noise Level - 1 credit	N/A	1 credit: The building to meet appropriate standards and testing requirements for indoor ambient sound levels	SLRs appointment to carry out pre-completion testing. SLR's Report	Stage 3/4		Client Project Manager

1	1	0	Hea 06: Security	Security of Site and Building	N/A	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 .	Meeting minutes or email correspondence to demonstrate Security Needs Assessment was completed by Suitably Qualified Security Specialist at appropriate time. SQSS report outlining recommendations Design drawings and specification demonstrating incorporation of the recommendations into the design. If a recommendation is not taken on board evidence can be provided to justify this.	Stage 2	Architect
						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.		Stage 3/4	
						The controls and recommendations shall be incorporated into proposals and implemented in the as-built development. Any deviation from those controls and recommendations shall be justified and agreed with the SQSS.			
2	2	0	Hea 07: Safe and Healthy Surroundings	Safe Access	N/A	1 credit: Ensure safe access to and safe movement around the site and facilitate the activities that can have physical, mental and social benefits for occupants aiding staff retention.	Drawings demonstrating safe access for pedestrians and cyclists to the building from vehicles		Landscape Architect
				Outside Space		1 credit: Add to the desirability of the building helping to increase its value and appeal to occupants and neighbours.	Drawings confirming location of external terraces		
Hea section sub totals				6.5%					

21	15	5	Energy							
13	8	5	Ene 01: Reduction of Energy Use and Carbon Emissions	Energy Performance	4 credits = Excellent 6 credits = Outstanding	Up to 9 credits: Calculate an Energy Performance Ratio for New Constructions (EPR _{NC}) using BREEAM's Ene 01 calculator starting at: 1 credit: EPR _{NC} = 0.1 4 credits: EPR _{NC} = 0.4 = <u>Excellent</u> . 6 credits: EPR _{NC} = 0.6 = <u>Outstanding</u> . 9 credits: EPR _{NC} = 0.90 AND zero net regulated CO ₂ emissions	A copy of the Building Regulations Output Document from the approved software.	Stage 4	4 credits achievable if CIBSE TM54 analysis completed	A10
				Prediction of operational energy consumption		Pre-requisite: Prior to completion of the Concept Design, relevant members of the design team hold a preliminary design workshop focusing on operational energy performance.	Workshop minutes, agreed outcomes.	Stage 4		
						4 credits: Undertake additional energy modelling and risk assessment during the design and post-construction stage to generate predicted operational energy consumption figures and risks that should be monitored.	Operational energy model in accordance with CIBSE TM54 Predicted energy consumption values, design assumptions, input data and risk assessments reported as detailed in the Energy Prediction and Post-occupancy guidance available from the BREEAM website. Confirmation of suitably qualified energy modeller's qualifications and experience.	Stage 4		
2	2	0	Ene 02: Energy Monitoring	Sub-metering of end-use categories	1 credit= Very Good, Excellent and Outstanding	1 credit: Energy metering systems for 90% of the estimated annual energy consumption of each fuel End-use categories include: 1. Space heating 2. Domestic hot water heating 3. Humidification* 4. Cooling* 5. Ventilation, i.e. fans (major)* 6. Pumps 7. Lighting 8. Small power 9. Renewable or low carbon systems (separately) 10. Controls 11. Other major energy consuming systems or plant	Calculation to demonstrate 90% of the estimated annual energy consumption Specification Metering schematic Metering schedule Specification confirming the proposed BMS.	Stage 4	Must demonstrate that 90% of energy use is monitored appropriately.	A10
				Sub-metering of high energy load and tenancy areas		1 credit: Metering to monitor energy use from tenanted areas or relevant function areas or departments in single occupancy buildings		Stage 4		
				Energy monitoring - <u>Sub-metering of high energy load and tenancy areas</u>		1 credit: Energy sub-meters with pulsed output for future tenants				
1	1	0	Ene 03: External Lighting	External lighting	N/A	1 credit: Energy-efficient external lighting with not less than 70 luminaire lumens per circuit watt is specified and all light fittings are controlled for the presence of daylight, and occupancy in areas of intermittent pedestrian traffic.	Drawings demonstrating the external lighting controls Specification detailing the external lighting luminous efficacy.	Stage 4	Anticipated that external lighting will comply	A10

3	2		Ene 04: Low Carbon Design	Passive Design	N/A	1 credit: Implement passive design measures	Passive design analysis Results from a dynamic simulation model demonstrating the reduced energy demand and CO ₂ -eq emissions from the specified passive design measures. Specification detailing the passive design measures.	Stage 2	Passive design analysis to be undertaken and % improvement demonstrated	A10
				1 credit: Implement free cooling analysis		Results from a dynamic simulation model and other used methods demonstrating that the free cooling strategy can meet the building's cooling demand.				
				Low or Zero Carbon technologies		1 credit: LZC Feasibility study by end of Concept Design	Drawings demonstrating the location of the LZCs. LZC Study. Results from a dynamic simulation model demonstrating reductions in CO ₂ -eq emissions from the specified low and zero carbon technology.	Stage 2		
2	2	0	Ene 06: Energy Efficient Transportation Systems	Energy Consumption	N/A	1 credit: Analysis of transport demand, usage and lifts. Calculate the energy consumption in accordance with BS EN ISO 25745 Part 2 or Part 3 for different options and arrangements	Lift Traffic Analysis Lift specification	Stage 3/4	Lift traffic and energy analysis to be completed with energy saving features (e.g. re-gen drives, stand by mode etc) installed	A10
				Energy Efficient Features		1 credit: Specify the following three energy efficient features for each lift: a: A standby condition for off-peak periods b: The lift car lighting and display lighting provides an average luminous efficacy across all fittings in the car of > 70 luminaire lumens per circuit Watt c: Use of a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor. Specify regenerative drives where their use is demonstrated to save energy.		Stage 4		
Ene section sub totals				10%						

12	6	6	Transport							
2	2	0	Tra 01:Transport Assessment and Travel Plan	Travel Plan	N/A	2 credits: During the feasibility stages, develop a travel plan based on a site-specific travel assessment or statement.	Site specific Transport assessment Travel Plan Meeting minutes, emails or letter to demonstrate occupiers involvement in the travel plan and support of the travel plan.	Stage 2	Transport assessment & travel plan to be undertaken by transport consultant	Transport consultant Client
10	4	6	Tra 02: Sustainable Transport Measures (10 credits)	Sustainable Transport Measures	N/A	10 credits: Identify sustainable transport measures and award credits according to the Accessible Index AI of the project, and the total number of points achieved for the options implemented.	Evidence required dependant on criteria being targeted Cycle storage - Design plans and specification Amenities - plan with locations and distances Parking - design drawing Car sharing - Building user policy Public Transport - correspondence Tra 01 calculator Public Transport service timetables and node locations.	Stage 4	Anticipated that 6 credits can be achieved due to high public transport accessibility of the site Public transport -1 Cycle storage - 1 Cyclist facilities - 1 Live public transport point - 1 EV charging for 10% parking - 1 Amenities - shop, cash, gym, park walkway (viaduct) - 1.	Architect Transport Consultant Assessor
Tra section sub totals				6%						

8	6	2	Water							
5	3	2	Wat 01: Water Consumption (5 credits + 1 Exemplary)	Water consumption	1 credit = Good 1 credit = Excellent 2 credits = Outstanding	Up to 5 credits: Improvement over baseline case: 1 credit: 12.5% 2 credits: 25% 3 credits: 40% 4 credits: 50% 5 credits: 55%	Specification detailing the sanitary wear and flow rates, flush volumes etc for as a minimum: – WCs – Wash-hand basin taps – Showers – Urinals – Kitchen taps: kitchenette If dishwashers are to be included information will also be required. See Table 8.3 in manual for guidance. Drawings demonstrating the location of the sanitary ware. Wat 01 Calculator. Require areas for the following to get output from calculator OFFICES *Office areas - Cellular or open plan office space, including staff kitchen where present/adjacent and reception areas. Exclude meeting rooms, visitor waiting or circulation areas. *Staff canteen dining area - Seating dining areas that accompany a permanently staffed kitchen preparing food for consumption on the premises. (excluded small un-staffed kitchens used by office staff to re-heat food, make tea etc.) *Fitness suite/gym (with changing facility and showers) - a fitness suite or gym that is part of the office building/ development and used by the buildings employee's only Confirmation regarding number of sanitary ware.	Stage 4	3 credits targeted for 40% water reduction on BRE baseline 3 credits - the following flow rates and flush volumes are recommended to achieve 3 credits – WCs 3.75L – Wash-hand basin taps - 5l/min – Showers - 6l/min – Urinals - 2 l/bowl/hour – Kitchen taps: kitchenette - 6l/min - Kitchen taps, pre-rinse nozzle - 7.30l/min If dishwashers included their water usage is to be included.	Architect
1	1	0	Wat 02: Water Monitoring (1 credit)	Water meter	Criterion 1	1 credit: Specifying a water meter, with pulsed output, on the mains water supply to each building (including borehole or other source). Water-consuming plant or building areas, (with 10% or more of the total water demand) fitted with sub meters or water monitoring equipment.	Drawings demonstrating the location of the water meters and sub meters. Specification confirming water meters have pulsed output and are connected to BMS.	Stage 4	Pulsed water meter linked to BMS to be installed High use areas to be submetered	A10
2	2	0	Wat 03: Water Leak Detection	Leak Detection Systems	N/A	1 credit: A compliant leak detection system is specified or installed on the building's water supply.	Drawings demonstrating the location of flow control devices. Specification detailing the water leak detection system.	Stage 4	Leak detection system to be installed	A10
				Flow Control Devices		1 credit: Flow control devices are fitted to each WC area/facility according to demand.			Solenoid valves linked to PIR sensors to be installed on cold water services to WC blocks	
0	0	0	Wat 04: Water Efficient Equipment (1 credit)	Water efficient equipment	N/A	1 credit: Identify all unregulated water demands and mitigate/reduce the demand through good practice design or specification.	Where there is no water demand from uses other than domestic-scale, sanitary use components in the building, this issue is not applicable.		Irrigation for terrace TBC	QS (Employer's Requirements)
Wat section sub totals				5.3%						

14	11	3	Materials							
7	5	2	Mat 01: Environmental Impacts from Construction Products - Building Life Cycle Assessment (LCA)	Life cycle impacts	N/A	Up to 6 credits: Carry out a building LCA on of the superstructure design using either the BREEAM Simplified Building LCA tool or an IMPACT Compliant LCA tool according to the methodology. Submit the Mat 01/02 Results Submission Tool to BRE at the end of Technical Design. Option appraisal during Concept Design. Carry out building LCA options appraisal of 2 to 4 significantly different superstructure design options. Integrate the LCA options appraisal activity within the wider design decision-making process. Record this in an options appraisal summary document. Options appraisal during Technical Design Carry out building LCA options appraisal of 2 to 3 significantly different superstructure design options (based on the selected Concept Design option and as applicable to the Technical Design stage. One credit – Substructure and hard landscaping options appraisal during Concept Design Carry out building LCA options appraisal of a combined total of at least six significantly different substructure or hard landscaping design options	Mat 01/02 Results Submission Tool The options appraisal summary document Evidence that the LCA options appraisal summary document has been received by the design team and client (meeting minutes, letter of acknowledgement) Evidence of how the LCA design options have informed the design decision-making process (e.g. meeting minutes, documented design development showing how the LCA options have affected the design) The LCA options appraisal summary document includes substructure and hard landscaping according to the criteria.	Stage 2 and Stage 4	A10 to complete	A10

1	1	0	Mat 02: Environmental Impacts from Construction Products - Environmental Product Declarations (EPD)	Specification of products with a recognised environmental product declaration (EPD)	N/A	1 credit: Specify construction products with EPD that achieve a total EPD points score of at least 20.	Environmental Product Declarations (EPD's) for construction products specified in the design. Specification to detail products in the design Roughly 15-20 products needed to achieve credit. Mat 02 calculator	Stage 3/4	Construction materials (i.e. concrete, glass, gypsum, metal, stone and aggregates) to hold a EPD Mat 02 calculator to be completed. Specification to detail what materials to have EPD.	Architect Structural engineer Landscape Architect
4	3	1	Mat 03 (Responsible Sourcing of construction products	Pre-requisite	Criterion 1 only	Pre-requisite: Confirmation that all timber used on the project is sourced in accordance with the UK Government's Timber Procurement Policy.	Specification extract detailing 100% of timber and timber-based products used on the project are 'Legal' and 'Sustainable' as per the UK Government's Timber Procurement Policy.	Stage 4	Plan must be in place at concept design	Architect Structural Engineer Landscape Architect Assessor
				Enabling Sustainable Procurement		1 credit: The principal contractor sources materials in accordance with a documented sustainable procurement plan.	Sustainable procurement plan	Stage 2		
				Measuring responsible sourcing		Up to 3 credits: Based on the achieved Responsible Sourcing of Materials (RSM) points: 1 credit: RSM point = 10% 2 credits: RSM point = 20% 3 credits: RSM point = 30%	Specification extracts for materials in the superstructure, internal finishes, substructure and hardscaping. Specification must detail environmental management system certification level. Or specific product specified and the affiliated certificate is also provided. If route 2 being followed quantity of material in m3 or Kg to be provided. 20% of available points to be achieved for 2 credits. Two routes for compliance can be followed: Route 1 does not require quantities to be entered. Consequently it is less accurate and may result in a lower credit score than Route 2. It may be the case that across an assessment there will be a combination of routes for products. For example, Route 1 may be used for the 'timber or timber-based' category and Route 2 for the 'metal' category. Only one route may be used per materials category. Completed copy of the Mat 03 Calculator tool	Stage 4		
1	1	0	Mat 05: Designing for Durability and Resilience	Designing for durability and resilience	N/A	1 credit: Protect vulnerable parts of the building from damage and exposed parts of the building from material degradation	Specification extracts and design drawings detailing protection measures incorporated into the building's design and construction to reduce damage to the building's fabric or materials in case of accidental or malicious damage occurring. Specification extracts and design drawings detailing how key exposed building elements have been designed and specified to limit long and short term degradation due to environmental factors. Manual outlines applicable standards which should be adhered to. Design documents to demonstrate access to the roof and façade for cost-effective cleaning, replacement and repair. Design documents to demonstrate how the roof and façade have been designed to prevent water damage, ingress and detrimental ponding.	Stage 4	Risk assessment into material degradation to be completed by Architect, MEP and structural engineer	Architect Structural Engineer
1	1	0	Mat 06: Material Efficiency	Material efficiency	N/A	1 credit: Identify and implement measures at each RIBA stage to optimise the use of materials in building design, procurement, construction, maintenance and end of life.	Technical note and calculations confirming estimated construction waste at each RIBA Stage of project Targets and opportunities to be reported	All stages	Project Material Efficiency Strategy to be undertaken (See Table 9.15 of the BREEAM 2018 Manual)	Design team
Mat section sub totals				13.8%						

10	9	1	Waste							
4	3	1	Wst 01: Construction Waste Management	Pre-demolition audit	1 credit = Outstanding	1 credit: Complete a pre-demolition audit of any existing buildings, structures or hard surfaces being considered for demolition.	Resource Management Plan and/ or letter of commitment	Pre-demolition	Requirements to be included within the employer requirements 1 credits targeted for resource efficiency	Contractors reqs
				Construction resource efficiency		Up to 3 credits: RMP + pre-demolition audit + the amount of non-hazardous on-site/off-site construction waste (m³/100m² or tonnes/100m²) generated: 1 credit: 13.3 / 11.1 2 credits: 7.5 / 6.5 3 credits: 3.4 / 3.2				
				Diversion of resources from landfill		1 credit: Divert from landfill (volume or tonnage) Demolition = 80%/90% Non-demolition = 70%/ 80%				

1	1	0	Wst 02: Use of Recycled and Sustainably Sourced Aggregates (1 credit + 1 Exemplary)	Recycled aggregates	N/A	<p>If demolition occurs on site, to encourage the reuse of site-won material on site, complete a pre-demolition audit of any existing buildings, structures or hard surfaces.</p> <p>Identify all aggregate uses and types on the project see Table 10.5 and Table 10.6. Determine the quantity in tonnes for each identified use and aggregate type.</p> <p>Identify the region in which the aggregate source is located. Calculate the distance in kilometres travelled by all aggregates by transport type.</p> <p>Enter the information into the BREEAM Wst 02 calculator to calculate the Project Sustainable Aggregate points.</p>	<p>Pre-demolition audit</p> <p>A completed copy of the Wst 02 calculator.</p> <p>Documentary evidence supporting the data used to complete the Wst 02 Calculator tool.</p>			Structural engineer
1	1	0	Wst 03: Operational Waste	Operational waste	1 credit = Excellent 1 credit = Outstanding	<p>Design drawings and/or specification extracts to confirm the following</p> <ul style="list-style-type: none"> - size of the general waste storage area - size of recyclable waste storage area - the waste labels for these areas - Location of waste store with distance and safe route for building occupants - How waste store is accessed by waste collectors - location for storing organic waste - provision of water outlet for cleaning organic waste bin <p>Correspondence to demonstrate stores are an appropriate size for the expected amount of waste. Or demonstration in line with BREEAM guidance.</p>	<p>Drawing demonstrating the location of the waste storage area.</p> <p>Specification confirming that the waste storage area will be clearly labelled, appropriately sized and accessible to building occupants.</p>	Stage 4		Architect
1	1	0	Wst 04: Speculative Finishes	Speculative floor and ceiling finishes	N/A	<p>Office buildings only:</p> <p>Where the future occupant is unknown: Carpets, other floor finishes and ceiling finishes have been installed in a show area only (<25% of the net lettable floor area) OR Where the building is developed for a specific occupant: the occupant selects the specified floor and ceiling finishes.</p>	Letter for developer confirming compliance with BREEAM criteria	Stage 4	Letter for developer confirming compliance with BREEAM criteria	Architect Client Developer
1	1	0	Wst 05:Adaption to Climate Change	Resilience of structure, fabric, building services and renewables installation	N/A	<p>1 credit: Climate change adaptation strategy appraisal for building services, renewables, structural and fabric resiliency at <u>RIBA Stage 2</u>.</p>	Climate Change Adaption Strategy	Stage 2	<p>Climate change risk strategy to be developed by design team and mitigation measures implemented</p> <p>Exemplary level credit targeted</p>	Architect Structural Engineer A10

2	2	0	Wst 06:Design for Disassembly and Adaptability	Design for disassembly and functional adaptability - recommendations	N/A	1 credit: Conduct a study to explore the ease of disassembly and the functional adaption potential of different design scenarios by the end of Concept Design.	Functional Adaption Strategy Disassembly and functional adaptability study, Study should contain recommendations that aim to enable and facilitate disassembly and functional adaptation. Updated Disassembly and functional adaptability study reflecting technical design, Implementation plan report Building adaptability and disassembly guide.	Stage 2	Technical note confirming measures for ease to adapt for potential future building use (i.e. material change of use) to be developed. Note to be updated at Technical Design Stage	Architect Structural Engineer
				Disassembly and functional adaptability - implementation		1 credit: Provide an update during Technical Design on how the recommendations or solutions proposed by Concept Design have been implemented where practical and cost effective and information on any changes to the recommendations and solution during the development of the Technical Design. Produce a building adaptability and disassembly guide to communicate the characteristics allowing functional adaptability and disassembly to prospective tenants.				
				Wst section sub totals 6.3%						

13	10	3	Land Use & Ecology							
2	1	1	LE 01: Site Selection	Site selection - <u>Previously occupied land</u>	N/A	1 credit: 75% footprint on previously developed land	Site plans demonstrating previous land use. If not all the land was hardstanding we will need calculations to demonstrate at least 75% of the land was hardstanding and the development is located on this area.	Stage 4		Landscape Architect
				Site selection - <u>Contaminated land</u>		1 credit: Contaminated land investigation by a contaminated land specialist and remediation.		Stage 4		
2	2	0	LE 02: Identifying and Understanding the Risks and Opportunities for the Project	Survey and Evaluation	N/A	1 credit: Suitably Qualified Ecologist (SQE) carries out a survey and evaluation at appropriate time of the year and before any works begin on site..	SQE report or Ecology Assessment Reporting Template Meeting minutes or email correspondence to demonstrate there was collaboration between design team and stakeholders to identify the optimal ecological outcomes for the site at concept design.	Stage 2	Ecologist to be appointed at RIBA Stage 2 to advise on ecological protection and enhancement Comprehensive route to be followed Ecologist to advise if exemplary level credit achievable. PEA report provided. Survey completed March 2022	Ecologist Landscape Architect Client
				Determining the ecological outcomes for the site		1 credit: The project team liaise and collaborate with representative stakeholders early enough to influence key planning decisions (typically Concept Design stage), to: .a Identify the optimal ecological outcomes for the site. .b Identify, appraise and select measures to meet the optimal ecological outcomes for the site (criterion 7.a), in line with the mitigation hierarchy of action, according to the route being used.				

3	3	0	LE 03: Managing Negative Impacts on Ecology	Planning and measures on site		1 credit: Further planning to avoid and manage negative ecological impacts on-site is carried out early enough to influence the concept design and design brief as well as site preparation planning. On-site measures for managing negative ecological impacts during site preparation and construction are implemented in-practice (e.g. mitigation measures to protect existing ecological features). Criteria 2-3 are based on input from the project team in collaboration with representative stakeholders and data collated as part of the 'Determining ecological outcomes' in LE 02 Ecological risks and opportunities.	SQE report or Ecology Assessment Reporting Template Meeting minutes or email correspondence to demonstrate there was collaboration between design team and stakeholders to outline plans to avoid and manage negative ecological impacts on-site. Statement of confirmation that on-site measures for managing negative ecological impacts during site preparation and construction will be implemented in-practice.	Stage 2/4	Ecologist to be appointed at RIBA Stage 2 to advise on ecological protection and enhancement Comprehensive route to be followed Expected negative impacts to mean no overall loss	Ecologist Landscape Architect
				Minimising negative impacts on ecology	N/A	2 credits : Negative impacts from site preparation and construction works are managed according to the mitigation hierarchy) and no overall loss (see Definitions) of ecological value has occurred.	Statement of confirmation that negative impacts from site preparation and construction works will ben managed according to the mitigation hierarchy, in line with the SQE's recommendations.	Stage 4		
4	2	2	LE 04: Change and Enhancement of Ecological Value (4 credits)	Pre-requisite - Managing negative impacts on ecology	N/A	Pre-requisite: LE 03 has been achieved and the client confirms compliance is monitored against all relevant UK, EU or international legislation relating to the ecology of the site.	The client contractor confirms compliance is monitored against all relevant UK, EU or international legislation relating to the ecology of the site.	Stage 3/4	Ecologist to be appointed at RIBA Stage 2 to advise on ecological protection and enhancement Comprehensive route to be followed Not expected to be a large increase in ecological value. Ecologist and landscape Architect to advise.	Ecologist Landscape Architect
				Ecological enhancement		1 credit: The project team liaising and collaborating with representative stakeholders, taking into consideration data collated and shared, have implemented solutions and measures based on recommendations from recognised 'local' ecological expertise, specialist input and guidance to inform the adoption of locally relevant ecological solutions and measures which enhance the site.	SQE report or Ecology Assessment Reporting Template Planting plan and specification to demonstrate measures have been implemented that enhance ecological value, based on input from the project team and SQE in collaboration with representative stakeholders and data collated as part of the 'Determining ecological outcomes' in LE 02.	Stage 3/4		
				Change and enhancement of ecology		3 credits: Up to three credits are awarded based on the change in ecological value occurring as a result of the project. This must be calculated in accordance with the process set out in GN36 - BREEAM, CEEQUAL and HQM Ecology Calculation Methodology – Route 2.	Calculation in line with GN36 - BREEAM, CEEQUAL and HQM Ecology Calculation Methodology – Route 2 to confirm increase in ecological value. Planting plan outlining species which informed the ecology calculator	Stage 3/4		
2	2	0	LE 05:Long Term Ecology Management and Maintenance	Long term impact on ecology management and maintenance		1 credit: Measures have been implemented to manage and maintain ecology throughout the project. These measures are based on input from the project team in collaboration with representative stakeholders and data collated as part of the 'Determining ecological outcomes' in LE 02 . A section on Ecology and Biodiversity has been included as part of the tenant or building owner information supplied, to inform the owner or occupant of local ecological features, value and biodiversity on or near the site.	The client confirms that compliance is being monitored against all relevant UK, EU and international standards relating to the ecology of the site. Statement confirming measures to be implemented to manage and maintain ecology throughout the project. In line with design team and stakeholders collaboration. SQE report or Ecology Assessment Reporting Template Statement or confirmation a section on Ecology and Biodiversity will be included as part of the tenant or building owner information supplied, to inform the owner or occupant of local ecological features, value and biodiversity on or near the site.	Stage 4	Ecologist to be appointed at RIBA Stage 2 to advise on ecological protection and enhancement and recommendations for site mitigation measures to be implemented	Ecologist Landscape Architect Client
					N/A	1 credit: Landscape and Ecology Management Plan, or equivalent, has been developed in accordance with BS 42020:2013 Section 11.1(206) covering at least the first five years after project completion as a minimum. The landscape and management plan or similar will be updated to support maintenance of the ecological value of the site.	A Landscape and Ecology Management Plan Confirmation landscape and management plan or similar will be updated to support maintenance of the ecological value of the site Letter of commitment. Employer's Requirements.	Stage 4		
LE section sub totals				12%						

12	7	3	Pollution								
3	1	1	Pol 01: Impact of Refrigerants	No refrigerant use	N/A	3 credits: No refrigerants.	Completed Pol 01 calculator to demonstrate Systems using refrigerants have a DELC of ≤1000kgCO ₂ -eq/kW cooling and heating capacity Specification or manufacturer information outlining refrigerant cooling and heating capacity to populate calculator Manufacturer's literature confirming the refrigerant charge of the system. Specification confirming use of system.	Stage 4		A10	
				Pre-requisite		Pre-requisite: All systems comply with the requirements of BS EN EN 378: 2016. 2 credits: Refrigerants have Direct Effect Life Cycle CO ₂ equivalent emissions (DEL _C CO _{2e}) of ≤100 kgCO _{2e} /kW cooling/heating capacity OR GWP ≤ 10. OR 1 credit: Refrigerants have Direct Effect Life Cycle CO ₂ equivalent emissions (DEL _C CO _{2e}) of ≤1000 kgCO _{2e} /kW cooling/heating capacity.					
				Leak Detection		1 credit: Leak detection system & automatic pump down. OR All systems are hermetically sealed		Specification			Stage 4
2	2	0	Pol 02:Local Air Quality	Local air quality	N/A	Up to 2 credits: All heating and hot water is supplied by non-combustion systems OR alternatively; Emissions from all installed combustion plant that provide space heating and domestic hot water do not exceed the levels set in the BREEAM manual	Heating, Cooling & DHW drawings and specification	Stage 4	Credit can be achieved if building is all electric (i.e. electricity is fuel source for heating, cooling and domestic hot water). Or if connected to a district heating network.	A10	
5	2	2	Pol 03: Flood and Surface Water Management	Pre-requisite	N/A	Pre-requisite: An appropriate consultant is appointed to carry out and demonstrate the development's compliance with all criteria.	Flood Risk Assessment. Design plans or specification outlining either of the following: The ground level of the building and access to both the building and the site, are designed so they are at least 600 mm above the design flood level of the site's flood zone. OR The final design of the building and the wider site reflects the recommendations made by an appropriate consultant in accordance with the hierarchy approach outlined in section 5 of BS 8533:2017. Drainage report detailing the following: -Calculation results for the pre-and post development peak rate of run-off -Information showing the proposed drainage solution, system failure flood flow routes, potential flood ponding levels and ground floor levels -Calculation results for the pre- and post development volume of run-off -Calculation results for the limiting discharge -Calculations should make an allowance for climate change	Stage 2	2 credits targeted for surface water run-off	Structural Engineer	
				Surface water run-off - <u>Flood resilience</u>		2 credits: FRA confirming low risk zone. OR 1 credit: FRA confirming medium or high risk zone (not within the Functional Floodplain). Increase the resilience and resistance to flooding by raising ground floor levels or reflecting measures in BS8533:2011.					
				Surface water run-off - <u>Surface water run-off</u>		1 credit: Peak rate of run-off no greater than the pre-developed site. 1 credit: Flooding will not occur if local drainage system fails AND SUD techniques.		Stage 3/4			
				Surface water run-off - <u>Minimising watercourse pollution</u>		1 credit: SUDs or source control systems		Documents to confirm Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified Sustainable Drainage Systems (SuDS) are in place. SuDs specification			Not targeted Engineer to confirm if criteria 17 is achievable.
1	1	0	Pol 04: Reduction of Night Time Light Pollution	Reduction of night time light pollution	N/A	1 credit: External lighting design in line with ILP Guidance notes for the reduction of obtrusive light, 2011. Daylight cut-off for general external lighting.	Drawings demonstrating the external lighting and controls. Specification confirming external lighting types and their compliance.	Stage 4	Light pollution statement to be provided	A10	
1	1	0	Pol 05: Reduction of Noise Pollution	Reduction of noise pollution	N/A	1 credit: Either no noise-sensitive areas or buildings within 800m radius OR noise impact assessment in compliance with BS 4142 by a suitably qualified SLR, along with any remediations.	SLRs Report. Drawings demonstrating the building and proximity to noise sensitive areas.	Stage 4	Acoustic report on external background noise levels pre and post development to be provided	Client	
Pol section sub totals				5%							

10	2	7	Innovation							
1	1	0	Inn 1	Man 03: Responsible construction practices	N/A	1 credit: CCS score of 40 or more	Employer Requirements	Stage 4	Requirements to be included within employer requirements for exemplary performance under the CCS	Contractor
0	0	0	Inn 2	Hea 01: Visual comfort - Exemplary performance	N/A	1 credit: Achieve exemplary level daylight thresholds dependent on building types.	Calculations demonstrating exemplary levels of daylighting		Unlikely to achieve exemplary daylight levels due to office shape and glazing areas	
1	0	0	Inn 4	Hea 06: Security	N/A	A compliant risk based security rating scheme has been used. The performance against the scheme has been confirmed by independent assessment and verification.	SABRE certification	Stage 2		Architect
1	0	1	Inn 5	Ene 01: Reduction of Energy Use and Carbon Emissions	N/A	Up to 5 credits: Based on the percentage of 'regulated' operational energy consumption generated by carbon neutral on-site or near-site sources 1 credit: 10% 2 credits: 20% 3 credits: 50% 4 credits: 80% 5 credits: >100%	Building not targeting zero carbon		Unlikely this can be achieved without substantial renewable contribution	
1	0	1	Inn 6	Wat 01: Water Consumption	N/A	1 credit: 65% improvement over baseline case.	RWH or GWR to provide majority of water consumption for non-potable uses		RWH or GWR required to achieve credit	
2	0	2	Inn 7	Mat 01: Environmental Impacts from Construction Products - Building Life Cycle Assessment (LCA)	N/A	1 credit: Core building services options appraisal during Concept Design 1 credit: LCA and LCC alignment 1 credit: Third party verification A suitably qualified third party either carries out the building LCA work or verifies the building LCA work, and produces a report describing how they have checked the building LCA work	Whole life cycle carbon assessment (IMPACT modelling) unlikely to be implemented		Third party verification credit may be achievable	
1	0	1	Inn 8	Mat 03- Responsible sourcing of materials- Exemplary performance	N/A	1 Exemplary RSM point = 70%	Unlikely that all specified materials will comply with responsible sourcing requirements		Unlikely to achieve this without significant constraints applied to material selections	
1	0	1	Inn 9	Wst 01- Construction waste management- Exemplary performance	N/A	1 credit: Amount of non-hazardous on-site/off-site construction waste (m ³ /100m ² or tonnes/100m ²) generated = 1.6 /1.9 Divert from landfill (volume or tonnage) Demolition = 85%/95% Non-demolition = 95%/95% Key waste groups identified for diversion at pre-construction stage RMP	Unlikely to be achieved		Contractors unlikely to achieve this level of waste minimisation	
1	0	1	Inn 10	Wst 02 - Use of Recycled and Sustainably Sourced Aggregates	N/A	Significant use (35%) of recycled or secondary aggregates in 'high-grade' building aggregate uses. % of high-grade aggregate specified per application must meet the minimum levels. Elements not meeting the minimum should be considered as primary aggregate when calculating the total high grade aggregate specified. Secondary aggregate must be transported within 30 km by road transport.	Unlikely to be achieved		Unlikely to achieve this due to BREEAM requirements for recycled aggregates by end use and requirement to use local suppliers	
1	1	0	Inn 11	Wst 05 - Adaption to climate change- Exemplary performance	N/A	1 credit: Above + Hea 04 criterion 6 + 6 credits under Ene 01 + passive design analysis credit under Ene 04 + 3 credits under Wat 01 + Mat 05 criterion 2 + 1 credit under Flood risk and 2 credits under Surface water run-off within Pol 03	Credit dependant upon compliance with all BREEAM criteria. Not targeted but will be assessed	Stage 4		Design team