ELEMENT SUSTAINABILITY

CRUMPSALL COMMUNITY HALL, 2 SEYMOUR ROAD, MANCHESTER

ENVIRONMENTAL STANDARDS STATEMENT

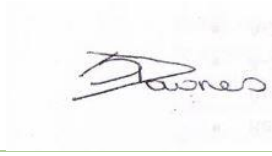
APRIL 2024

REF: 2023.150



ELEMENT SUSTAINABILITY – ISSUE NOTES

Project No:	2023.150
Title:	Crumpsall Community Hall, 2 Seymour Road, Manchester
Client:	Minhaj-ul-Quran International UK
Status:	Final

Version:	1.0	
Date:	April 2024	
Prepared by: 	Checked by: 	Approved by: 
Charles Atkins Sustainability Consultant	Stacey Downes Principal Sustainability Consultant	Laurie Wills Director

Version	Version Details	Date Issued	Issued by
0.0	Draft for client comment	30th April 2024	CA
1.0	Final Version	31st May 2024	LW

ELEMENT SUSTAINABILITY

phone: 01829 733 444

email: hello@elementsustainability.co.uk

www: www.elementsustanability.co.uk

© Report copyright of Element Sustainability Ltd.

Disclaimer

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

CONTENTS

1. Introduction 1
2. Development Proposals 2
   2.1 Development Site Description 2
   2.2 Development Proposals 2
3. Policy Review 6
   3.1 National Planning Policy 6
   3.2 Regional Planning Policy 11
      3.2.1 Places For Everyone 11
      3.2.2 PFE - Addendum to Manchester Core Strategy 9
   3.3 Local Planning Policy 6
      3.3.1 Manchester Core Strategy 6
   3.4 Manchester's Great Outdoors 16
   3.5 Climate Emergency 17
   3.6 Regulatory Framework 17
   3.7 Applicable Targets 18
4. Sustainability Statement 19
   4.1 Energy Performance 19
   4.2 Flood Risk and Surface Water Management 19
      4.2.1 Drainage Strategy 21
   4.3 Materials 21
   4.4 Water Efficiency 22
   4.5 Ecology and Biodiversity 22
   4.6 Waste Management 23
      4.6.1 Construction Waste 23
      4.6.2 Operational Waste 24
   4.7 Pollution 24
   4.8 Health and Wellbeing 25
   4.9 Transport 25
      4.9.1 Public transport 25
      4.9.2 Cycling and Walking 25
5. Energy Strategy 27
   5.1 First Principle – Reduce the Need For Energy 28
   5.2 Second Principle - Use Energy More Efficiently. 29
6. Proposed Renewable Energy Solution 31

6.1 Renewable Technology Feasibility 31
6.2 Third Principle – Supply energy from renewable sources. 33
6.2.1 Photovoltaic Array 33
6.2.2 Air Source Heat Pumps 34
6.3 Fourth Principle – All Electric Energy Strategy 35
6.3.1 Electric Panel Heaters 35
6.4 Decarbonisation 35
7. Carbon Dioxide Emissions Calculations 37
7.1 Regulated Energy Performance Calculations 37
7.1.1 Policy EN6 Domestic Carbon Dioxide (CO_2) Emissions Reduction Targets 37
8. Places for Everyone – Policy JP-S2 39
9. BREEAM Pre Assessment 41
9.1 Potential BREEAM Rating 42
10. Climate Change Emergency 43
11. Conclusion 44

1. INTRODUCTION

Element Sustainability has been commissioned by Minhaj-ul-Quran International UK to review the sustainability and energy performance of the proposed community hall development at 2 Seymour Road, Crumpsall.

The purpose of this statement is to summarise the relevant policy background and requirements of Manchester City Council and to demonstrate the ways in which the developer has addressed these aims through their proposals, ensuring all practicable measures have been taken to deliver a sustainable development at this site.

Details of the design attributes, specifications and characteristics of the scheme are appraised in order to demonstrate how the proposals contribute to sustainable development in Manchester and seek to mitigate the environmental impacts of the scheme, providing a sustainability appraisal in support of the planning application.

This report is intended to support the planning application for this development and therefore, establish an approach to the delivery of this scheme which meet the criteria outlined by the council that the developer commits to implement at the site.

2. DEVELOPMENT PROPOSALS

2.1 Development Site Description

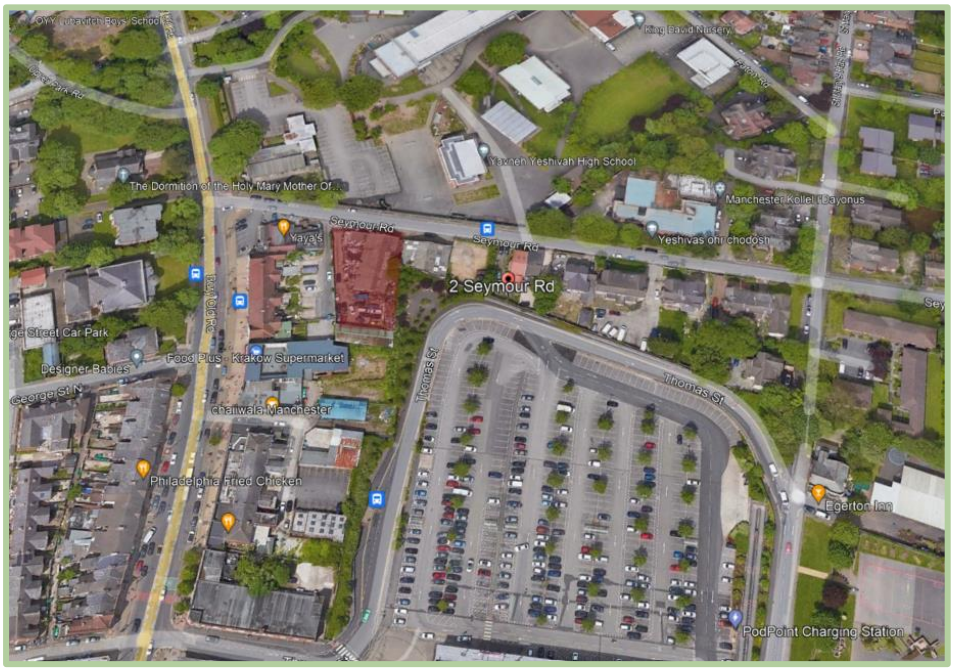
The proposed site lies within Crumpsall, north of Manchester City Centre, and currently comprises an MOT and mechanical centre.

Seymour Road runs parallel to the northern perimeter of the application site, which separates the site from King David School and Nursery. To the east of the site are residential properties and to the west and south is a mix of commercial and residential buildings.

The development plot is not within a designated conservation zone. However, it is within close proximity to the Crumpsall Lane Conservation Area Boundary.

The pre-development site is presented in Figure 2.1 below.

Figure 2.1 – Site Location Plan



2.2 Development Proposals

Planning approval is sought to erect a two storey, plus mezzanine, multi-purpose Community Hall. The facility will contain a shared workplace, prayer hall, classrooms, café, and recreational areas.

Figure 2.2 to 2.4 presents the proposed elevations and floor plans for the proposed development at 2 Seymour Road.

Figure 2.2 – North Elevation



Figure 2.3 – East Elevation



Figure 2.4 – Proposed Ground Floor



Figure 2.5 – Proposed First Floor



Figure 2.6 – Proposed Second Floor



3. POLICY REVIEW

3.1 National Planning Policy

The National Planning Policy Framework was revised in response to the Levelling-up and Regeneration Bill: reforms to national planning policy consultation on 19th December 2023 and sets out the government's planning policies for England and how these are expected to be applied.

The purpose of the planning system is to contribute to achieving sustainable development. The planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways, as set out below:

An economic role – 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 role – 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; and

An environmental role – to protect and enhance our natural, built and historic environment, including effectively using 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. 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.

3.2 Local Planning Policy

3.2.1 Manchester Core Strategy

Manchester's Core Strategy was adopted on the 11th July 2012 and remains the key document in the adopted Manchester Local Plan. It sets the out the long-term strategic policies for Manchester's future development and will form the framework that planning applications will be assessed against.

Policy EN 4 - Reducing CO_2 Emissions by Enabling Low and Zero Carbon Development: The council will seek to reduce fuel poverty and decouple growth in the economy, growth in CO_2 emissions, and rising fossil fuel prices, through the following actions:

Where possible new development and retrofit projects will be used as a mechanism to help improve energy efficiency and provide low and zero carbon energy supplies to existing buildings.

Where appropriate new development and retrofit projects will be required to connect to and / or make contributions to low or zero carbon energy schemes and / or to incorporate provision to enable future connection to any existing / potential decentralised energy schemes.

The use of building materials with low embodied carbon in new development and refurbishment schemes

Policy EN 5 - Strategic Areas for Low and Zero Carbon Decentralised Energy Infrastructure: Within Manchester it is considered that the following strategic areas, will have a major role to play in achieving an increase in the level of decentralised, low and zero carbon energy supplies available:

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

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

Policy EN 8 – Adaption to Climate Change requires all new development to be adaptable to climate change in terms of the design, layout, siting and function of both buildings and associated external spaces. In achieving developments which are adaptable to climate change developers should have regard to the following, although this is not an exhaustive list:

- Reduction in urban heat island effect using green infrastructure such as green roofs, green walls, increased tree cover and waterways; and,
- The need to control overheating of buildings through passive design; and

Developers will be permitted to use green infrastructure elements such as green roofs, green walls, street trees and waterways to contribute to compliance with CO_2 mitigation under Policy EN6, subject to sufficient evidence to quantify their contribution to compliance.

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

Policy EN14 – Flood Risk: The council requires developments to:

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

Policy EN15 – Biodiversity and Geological Conservation: The council will seek to maintain or enhance sites of biodiversity and geological value throughout the city.

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

- The Manchester Biodiversity Strategy, which provides further details of priority habitats within Manchester and opportunities for biodiversity enhancement including corridors such as the Mersey, Medlock and Irk River valleys, the canals and disused railway lines, and areas of managed greenspace particularly in parks;

- The Green Infrastructure Framework for Greater Manchester, which encompasses an ecological framework that seeks to guide and inform habitat creation and repair, including identifying large 'biodiversity opportunity areas' including the Moston Brook Corridor and Nutsford Vale;

    - Manchester's Climate Change Action Plan;
    - The Strategic Flood Risk Assessment (SFRA) for Manchester;
    - The River Basin Management Plan for the North West; and,
    - The Manchester Tree Strategy.

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

Policy EN16 – Air Quality: The Council will seek to improve the air quality within Manchester, and particularly within Air Quality Management Areas. Developers will be expected to take measures to minimise and mitigate the local impact of emissions from traffic generated by the development, as well as emissions created by the use of the development itself.

Policy EN17 – Water Quality: The council require:

- New developments to avoid any adverse impact on water quality, including during the construction phase, and wherever possible should seek to enhance water quality, both chemical and ecological.

Policy EN19 – Waste: The council will:

- Require all developers, including those of new waste management facilities within the district, to demonstrate the proposal's consistency with the principles of the waste hierarchy (prevention, reduction, re-use, recycling/composting, energy recovery, final disposal);

- Require all developers to submit a waste management plan to demonstrate how both construction and demolition waste will be minimised, and recycled on site wherever possible, and how the sustainable waste management needs of the end user will be met; and,

- Encourage communities to take responsibility for the waste they create through the provision of accessible facilities.

Policy DM1 – Development Management: All development should have regard to the following specific issues, for which more detailed guidance may be given within a supplementary planning document:

- Accessibility: buildings and neighbourhoods fully accessible to disabled people, access to new development by sustainable transport modes;
- Community safety and crime prevention;
- Design for health;

- Adequacy of internal accommodation and external amenity space;
- Refuse storage and collection;
- Effects relating to biodiversity, landscape, archaeological or built heritage;
- Green infrastructure including open space, both public and private;
- The use of alternatives to peat-based products in landscaping/gardens within development schemes;
- Flood risk and drainage and,
- Subject to scheme viability, developers will be required to demonstrate that new development incorporates sustainable construction techniques (In terms of energy targets this policy should be read alongside policy EN6 and the higher target will apply).

Policy T1 – Sustainable Transport: To deliver a sustainable, high quality, integrated transport system to encourage modal shift away from car travel to public transport, cycling and walking, to support the needs of residents and businesses and to prepare for carbon free modes of transport, the council will support proposals that:

- Improve choice by developing alternatives to the car;
- Facilitate modes of transport that reduce carbon emissions e.g by incorporating charging points for electric vehicles, subject to their appropriate design and location;
- Would reduce the negative impacts of road traffic, for example, congestion, air pollution and road accident casualties; and,
- Take account of the needs of road users according to a broad hierarchy consisting of, in order of priority:

    1. pedestrians and disabled people,
    2. cyclists, public transport,
    3. commercial access,
    4. general off peak traffic,
    5. general peak time traffic.

3.2.2 PFE - Addendum to Manchester Core Strategy

Following the adoption of the PfE document, the subsequent Core Strategy (CS) policies have been partially replaced by Places for Everyone (PfE) policies. Any part of the policy that is not replaced remains part of Manchester's Core Strategy.

CS Policy T1 Sustainable Transport: The following bullet point is what has been replaced:

- Take account of the needs of road users according to a broad hierarchy consisting of, in order of priority:

    - Pedestrians and disabled people
    - Cyclists, public transport,
    - Commercial access,
    - General off-peak traffic,
    - General peak time traffic.

    This policy was replaced by PfE Policy JP-CA1.

CS Policy EN4 Reducing CO_2 Emissions by Enabling Low and Zero Carbon Development: The following bullet point is what has been replaced:

- All development must follow the principle of the Energy Hierarchy.

  This policy was replaced by PfE Policy JP-S2.

CS Policy EN6 Target Framework for CO_2 Reductions from Low or Zero Carbon Energy Supplies: The following aspects of the policy have been replaced:

- The CO_2 emissions reduction targets and the target framework development locations

  This policy was replaced by PfE Policy JP-S2.

CS Policy EN8 Adaption to Climate Change: The following bullet point is what has been replaced:

- Minimisation of flood risk by appropriate siting, drainage, and treatment of surface areas to ensure rainwater permeability; and,
- The opportunity to provide linked and diverse green space to enhance natural habitats which will assist species adaptation.

  This policy was replaced by PfE Policies JP-S2, JP-S4 and JP-G8.

CS Policy EN14 Flood Risk: The following bullet point is what has been replaced:

- All new development should minimise surface water run-off, including through Sustainable Drainage Systems (SUDS) and the appropriate use of Green Infrastructure. Developers should have regard to the surface water run-off rates in the SFRA User Guide. In CDAs, evidence to justify the surface water run-off approach / rates will be required.

  This policy was replaced by PfE Policy JP-S4.

CS Policy EN15 Biodiversity and Geological Conservation: The following aspects of the policy have been replaced:

Development should wherever possible seek to maintain, enhance or restore existing geology.

This policy was replaced by PfE Policy JP-G8.

CS Policy EN17 Water Quality: The following bullet point is what has been replaced:

- Development should minimise surface water run-off from development and associated roads, and maximise the use of appropriate sustainable drainage systems, to minimise groundwater contamination, and to avoid pollutants reaching watercourses.

  Replaced by PfE Policy JP-S4

These elements of the above policies have therefore been removed from the previous Local Planning Policy section.

3.3 Regional Planning Policy

3.3.1 Places For Everyone

Places for Everyone is the joint development plan of nine Greater Manchester local authorities (Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford, and Wigan) dealing with strategic planning issues including jobs, homes, transport, and the natural environment.

All nine authorities adopted the PfE Plan on 21st March 2024. Therefore, this will now become part of the statutory development plan for each of the nine PfE authorities.

As a result, the following polices have been considered as part of the proposed development:

Policy JP-S1: Sustainable Development: To help tackle climate change, development should aim to maximise its economic, social and environmental benefits simultaneously, minimise its adverse impacts, utilise sustainable construction techniques and actively seek opportunities to secure net gains across each of the different objectives.

In bringing forward previously developed sites for development, particular attention will be paid to tackling land contamination and stability issues, ensuring that appropriate mitigation and remediation is implemented to enable sites to be brought back into use effectively.

Addressing Climate Change

Greater Manchester's Vision is to be at the forefront of action on climate change and to make its fair contribution to international commitments by becoming a carbon neutral city region by 2038.

To meet the carbon commitments, the following will be required:

- Be carbon neutral by 2038;
- Hold cumulative carbon dioxide emissions to within the council's carbon budget; and,
- Initiate a programme of mitigation to reduce emissions including by:
    - Significantly upscaling solar photovoltaic energy;
    - Reducing heat demand in homes;
    - Moving away from carbon intensive gas as the primary source of heat; and,
    - Increasing biofuel use.

- In supporting Greater Manchester's ambitions, climate change is a key theme running throughout the plan, rather than being reduced to a single policy, and it is only through this combination of actions that it can be properly addressed. In particular:
    - Methods to de-carbonise the city region through new and existing development, effective land management and through the provision of infrastructure and new technologies Policy JP-S2 'Carbon and Energy'; and,
    - The delivery of renewable and low carbon energy schemes Policy JP-S3 'Heat and Energy Networks'.

Carbon and Energy

- Meeting the 2038 carbon neutrality target will require a radical transformation across a range of sectors to drive carbon reduction. Within this, new development will have a critical role to play and all new homes and commercial/industrial buildings will need to achieve net zero carbon by 2028.

- It is expected that development in the plan area will apply a net zero carbon approach to operational emissions up until 2028, thereafter emissions in construction should be considered. Minimum carbon reduction targets will be set in line with the Future Homes Standard of 80% or until such a time this is superseded.

- From 2025, applicants will need to demonstrate carbon reductions have been maximised with an opportunity to offset any residual carbon to a carbon offset fund. The approach will be reviewed in line with future standards as they are introduced.

- By following the energy hierarchy, new development will need to achieve net zero carbon through the maximisation of on-site measures first. However, circumstances where a development has demonstrated that the hierarchy has been followed and there are no reasonable alternatives to meet the minimum carbon reductions, then payment to offset remaining emissions will also be required. Such payments should be expected to fund other carbon saving programmes within Greater Manchester to help meet the 5 Year Environment Plan targets.

Policy JP-S 2 – Carbon and Energy: The aim of delivering a carbon neutral Greater Manchester no later than 2038, with a dramatic reduction in greenhouse gas emissions, will be supported through a range of measures including:

- Promoting the use of life cycle cost and carbon assessment tools to ensure the long-term impacts from development can be captured;

- Taking a positive approach to renewable and low carbon energy schemes, particularly schemes that are led by, or meet the needs of local communities;

- An expectation that new development will, unless it can be demonstrated that it is not practicable or financially viable;

    - Be net zero carbon which applies:

        - From adoption – to regulated operational carbon emissions;

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

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

        - Minimise energy demand;
        - Maximise energy efficiency;
        - Use renewable energy;

- Use low carbon energy; and
- Utilise other energy sources.

- From 2025 any residual carbon emissions that cannot be fully mitigated onsite should be offset, in agreement with the relevant local planning authority, through a financial contribution to a carbon offset fund;

- As an interim measure, development should be consistent with the 2021 Part L Building Regulations unless superseded by changes to building regulations and/or national or local planning policies.

    - Where practicable, prioritise connection to a renewable energy/heating/cooling network in the first instance or a low carbon energy/heating/cooling network that is adaptable to non-fossil fuels at a later date; and,

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

- For non-residential developments, achieve at least BREEAM excellent standard (or equivalent) for the 'Ene 01 – reduction of energy use and carbon emissions' category rising to 'BREEAM outstanding' equivalent for ENE 01 from 2028;

- Include a detailed energy statement to demonstrate via site relevant evidence how the development has sought to maximize reductions in carbon emissions in line with relevant policy targets, including the minimisation of overheating risks and appropriate measures for post occupancy evaluation. Whole life cycle emissions should be considered where possible.

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

Policy JP-STRAT14 - A Sustainable and Integrated Transport Network: New development will have a significant role in delivering a sustainable and integrated transport network in order to reduce car dependency and increase levels of walking, cycling and public transport.

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

1. Delivery of renewable and low carbon energy schemes will be supported with particular emphasis on the use of decentralised energy networks in areas identified as "Heat and Energy Network Opportunity Areas". These have been identified where:

    a. Existing heat/energy networks are operational or have been commissioned;
    b. Sufficient density of existing heat demand occurs; and,
    c. Significant future development is proposed at the strategic development locations.

2. Within the identified "Heat and Energy Network Opportunity Areas", unless it can be demonstrated that there are more effective alternatives for minimising carbon emissions or such connection is not practicable or financially viable.

Policy JP-S4 - Flood Risk and the Water Environment: An integrated catchment-based approach will be taken to protect the quantity and quality of water bodies with reference to the North West River Basin Management Plan and managing flood risk, by:

- Working with natural processes and adopting a natural flood management approach to slow the speed of water drainage and intercept water pollutants;
- Locating and designing development so as to minimise the impacts of current and future flood risk, including retrofitting or relocating existing developments, infrastructure and places to increase resilience to flooding;
- Expecting developments to manage surface water runoff through sustainable drainage systems and as close to source as possible;
- Development should achieve greenfield run-off rates unless it is demonstrated to be impracticable; and,
- Ensuring that sustainable drainage systems:
    - Are designed to provide multifunctional benefits wherever possible, including for water quality, nature conservation and recreation;
    - Avoid adverse impacts on water quality and any possibility of discharging hazardous substances to ground;
    - Are delivered in a holistic and integrated manner, including on larger sites split into different phases; and
    - Are managed and maintained appropriately to ensure their proper functioning over the lifetime of the development.
- As a minimum, residential development should meet the mandatory water efficiency standard of 125 litres/person/day as set out in Building Regulations. District local plans may and should consider setting a tighter water efficiency standard of 110 litres/person/day where there is a clear local need with reference to national guidance on housing optional technical standards.

Policy JP-S6 - Resource Efficiency: The achievement of a circular economy and a zero-waste economy will play a key role in meeting Greater Manchester's ambition of becoming a leading green city region by 2038. The following measures will help achieve this:

- Development and implementation of the Zero Waste Strategy for Greater Manchester which promotes overall reduction in the level of waste produced and supports resource efficiency within the Plan area in order to gain the maximum value from the things we produce;
- Recognition of the role of existing infrastructure in managing our waste and protecting such facilities to ensure adequate waste management capacity is maintained; and
- Using sustainable design and construction techniques to reduce carbon emissions, adapt and future proof to the impact of climate change, reduce and recycle waste and minimise water use.

Policy JP-G2 – Green Infrastructure Network: A strategic approach will be taken to the protection, management and enhancement of Greater Manchester's Green Infrastructure in order to protect and enhance the ecosystem services which the Green Infrastructure Network provides, including flood management, climate change mitigation and adaptation.

Wherever practicable, opportunities to integrate new and existing green infrastructure into new development will be taken to protect, enhance and expand the green infrastructure network.

Policy JP-G6: Urban Green Space: To ensure there is an appropriate scale, type, quality and distribution of accessible urban green space that can support a high quality of life and other important green infrastructure functions:

- Existing urban green space will be protected and enhanced in balance with other considerations; and
- Developers and other stakeholders will be required to deliver new high quality urban green spaces.

Development should be designed to support the positive use of nearby green spaces, such as by offering a high-quality setting, providing natural surveillance, and facilitating easy access by walking and cycling.

Policy JP-G7 - Trees and Woodland: the aims and objectives of the Greater Manchester Tree and Woodland Strategy, aiming to significantly increase tree cover, protect and enhance woodland, and connect people to the trees and woodland around them.

This will be done through local planning and associated activities such as:

- Where development would result in the loss of existing trees, requiring replacement on the basis of two new trees for each tree lost, or other measures that would also result in a net enhancement in the character and quality of the treescape and biodiversity value in the local area, with a preference for on-site provision; and
- Protecting trees and woodland during the construction phase of development.

Policy JP-G8: A Net Enhancement of Biodiversity and Geodiversity: Through local planning and associated activities a net enhancement of biodiversity resources will be sought, including, where relevant, by:

- Increasing the quality, quantity, extent and diversity of habitats, particularly priority habitats identified in national or local biodiversity action plans and those that support priority species;
- Improving connections between habitats, to protect and enhance the provision of corridors, ecological networks (including Nature Recovery Networks) and steppingstones that enable the movement of species, especially as the climate changes;
- Enhancing the management of existing habitats, including through habitat restoration, avoiding habitat fragmentation and combating invasive species;
- Protecting sites designated for their nature conservation and/or geological importance, with the highest level of protection given to international and then national designations;
- Facilitating greater access to nature, particularly within urban areas;
- Supporting the development and implementation of the Great Manchester Wetlands Nature Recovery Network; and
- Safeguarding, restoring and sustainably managing our most valuable soil resources, tackling soil degradation/erosion and recovering soil fertility.

Development will be expected to:

- Follow the mitigation hierarchy of:
    - Avoiding significant harm to biodiversity, particularly where it is irreplaceable, through consideration of alternative sites with less harmful impacts, then
    - Adequately mitigating any harm to biodiversity, then
    - Adequately compensating for any remaining harm to biodiversity.

- Achieve a measurable net gain in biodiversity of no less than 10%; and,
- Development proposals should be informed by the findings and recommendations of the appropriate biodiversity/ecological assessment(s) in the PfE evidence base and/or any updated or appropriate biodiversity/ecological assessments submitted as part of the planning application process.

Policy JP-P1 - Sustainable Places: The aim is to become one of the most liveable city regions in the world, consisting of a series of beautiful, healthy and varied places, each having the following key attributes that all development, wherever appropriate, should be consistent with:

- Distinctive, with a clear identity that:
    - Conserves and enhances the natural environment, landscape features, historic environment and local history and culture;
    - Enables a clear understanding of how the place has developed; and
    - Respects and acknowledges the character and identity of the locality in terms of design, siting, size, scale and materials used.
- Resilient, capable of dealing with major environmental events;
- Adaptable, able to respond easily to varied and changing needs and technologies;
- Durable, being built to last and using robust materials that reflect local character, weather well and are easily maintained;
- Resource-efficient with:
    - A low carbon footprint;
    - Efficient use of land;
    - Minimised use of new materials; and,
    - High levels of recycling,
- Supported by critical infrastructure, such as energy, water and drainage and green spaces; and,
- Functional and convenient, enabling people and uses to act efficiently with minimal effort, and responding to needs relating to servicing, recycling facilities, refuse collection and storage.

3.4 Manchester's Great Outdoors

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

1. Improve the quality and function of existing green and blue Infrastructure, to maximise the benefits it delivers.

2. Use appropriate green and blue infrastructure as a key component of new developments to help create successful neighbourhoods and support the city's growth.

3. Improve connectivity and accessibility to green and blue infrastructure within the city and beyond.

4. Improve and promote a wider understanding and awareness of the benefits that green and blue infrastructure provides to residents, the economy and the local environment.

3.5 Climate Emergency

On 10th July 2019, a motion asking Manchester City Council (MCC) to formally declare a **climate emergency** was unanimously agreed. The motion declares that climate change is a serious risk to Manchester's future. Manchester is committed to embedding the issue as an integral part of council decision-making – making sure that all key decisions are taken with the city's target of becoming zero-carbon by 2038 in mind. The council has agreed the following:

- To deliver the 2038 zero carbon target and determine if an earlier target can be possible;
- Make climate breakdown and the environment an integral part of activity throughout the council, including all decision making, ensuring key decisions take into account the impact on achieving the zero-carbon target;
- Investigate and introduce measures to help reach domestic zero carbon levels, including addressing fuel poverty and retrofitting existing homes; and
- Investigate ways to ensure that future local plans place a mandatory requirement for all new development to be net zero carbon by the earliest possible date.

In March 2020 the Executive adopted the Manchester Climate Change Framework 2020-2025. The five-year framework sets out measures that MCC will take in order to reduce carbon emissions from its buildings, energy use and transport. Measures include retrofitting buildings to improve energy efficiency, increasing the use of electric vehicles, and seeking 100% renewable energy. Whilst this has also not been formally adopted into planning policy, it is a key consideration for future development proposals.

3.6 Regulatory Framework

Building Regulations, Part L - Conservation of Fuel and Power sets the compliance standards for energy demand and carbon dioxide emissions from buildings. Guidance on how to meet the requirements of this regulation is provided within a number of approved documents. The relevant document is referenced below:

Approved Document L - Volume 2: Buildings other than dwellings provides guidance on how to comply with Part L of Schedule 1 to the Building Regulations and the energy efficiency requirements for buildings other than dwellings.

The minimum energy performance requirements shall be approved and expressed in accordance with the methodology for:

- New buildings, in the form of target CO_2 emission rates;
- New buildings, in the form of target fabric efficiency rates; and,
- New buildings in the form of target primary energy rates.

3.7 Applicable Targets

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

Places for Everyone

- **Policy JP-S1:** Sustainable Development
- **Policy JP-S2:** Carbon & Energy
- **Policy JP-STRAT14:** A Sustainable and Integrated Transport Network
- **Policy JP-S3:** Heat and Energy Networks
- **Policy JP-S4:** Flood Risk and the Water Environment
- **Policy JP-S6:** Resource Efficiency
- **Policy JP-G2:** Green Infrastructure Network
- **Policy JP-G6:** Urban Green Space
- **Policy JP-G7:** Trees and Woodland
- **Policy JP-G8:** A Net Enhancement of Biodiversity and Geodiversity
- **Policy JP-P1** Sustainable Places

Manchester Core Strategy

- **Policy EN 4 -** Reducing CO_2 Emissions by Enabling Low and Zero Carbon Development
- **Policy EN 5 -** Strategic Areas for low and zero carbon decentralised energy infrastructure
- **Policy EN 6 -** Target Framework for CO_2 Reductions from Low or Zero
- **Policy EN 8** – Adaption to Climate Change
- **Policy EN9 -** Green Infrastructure
- **Policy EN14** – Flood Risk
- **Policy EN15** – Biodiversity and Geological Conservation
- **Policy EN16** – Air Quality
- **Policy EN19** – Waste
- **Policy DM1** – Development Management
- **Policy T1 -** Sustainable Transport

Guide to Development in Manchester, Supplementary Planning Document

Manchester City Council Climate Emergency Declaration

Building Regulations, Part L

- **Approved Document Volume 2**: Buildings other than Dwellings (2021 edition)

4. SUSTAINABILITY STATEMENT

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

4.1 Energy Performance

In order to limit energy demand and carbon dioxide (CO_2) emissions from the operation of the building, a number of design features will be integrated that will collectively contribute towards the emissions reduction target for the scheme.

Detailed measures are presented in Section 5 of this report, but in essence, the energy strategy proposed is an enhanced 'fabric led' solution coupled with the inclusion of an energy efficient servicing provision to maximise the buildings' performance.

The reduction in energy demand to meet the carbon reduction targets will be achieved through the following design measures and low carbon technology options:

- Improved thermal insulation;
- Low air permeability;
- Photovoltaic array:
- Efficient air source heat pumps; and,
- Low energy LED lighting.

These measures will secure the carbon reduction targets sought by the local planning authority and **Building Regulations Part L: Approved Document Volume 2 (2021 edition)**.

4.2 Flood Risk and Surface Water Management

Data obtained from the Environment Agency was used to determine which flood zone the site is located within and the potential flood risk to the proposed development.

Figure 4.1 below presents the latest Environment Agency (EA) Flood Zone Map data which demonstrates that the site is located wholly within Flood Zone 1, demonstrating a low probability of flooding from rivers.

Figure 4.1 – Environment Agency Flood Risk Zone Map

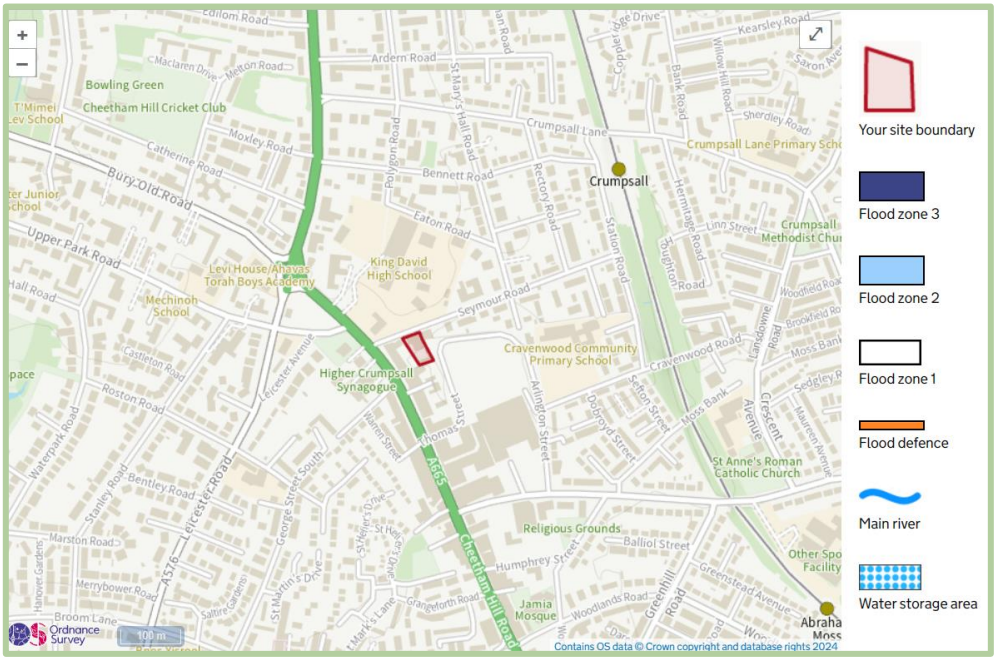
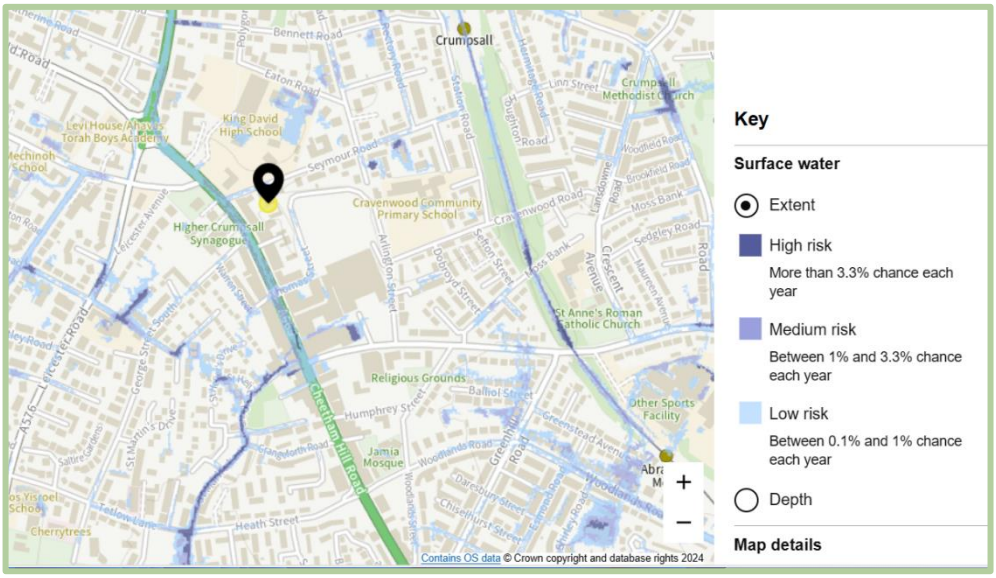


Figure 4.2 demonstrates that the area is at low risk from surface water flooding as well, with a chance of flooding of less than 0.1% each year.

Figure 4.2 – Extent of Flooding: Flood Risk from Surface Water



In accordance with **Policy EN14** the proposed development is not considered to be in an area at high risk of flooding.

4.2.1 Drainage Strategy

A sustainable drainage strategy has been produced by LK Consult Limited which outlines the following possible drainage solutions which will be utilised to manage any flood risk on site:

- The attenuation required for a one in thirty-year event, requires a storage volume of nineteen cubic metres and for the one in one-hundred-year event, a storage capacity of forty point one metres cube will be required from on-site storage as well as SuDS systems; and,

- The use of permeable paving may be viable dependant on the detailed design of the proposed development. If this drainage technique is considered to be feasible then it will reduce the requirement for attenuation as it will reduce the contributing impermeable area.

In accordance with **PfE Policy JP-S4 - Flood Risk and the Water Environment** the proposed development will seek to **manage surface water runoff through sustainable drainage systems and as close to source as possible.**

4.3 Materials

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

- The use of timber cladding louvres and a timber frame will benefit from carbon sequestration, which will aid in reducing the carbon emissions associated with the scheme. Carbon will be locked within the timber items causing a temporary period of negative carbon emissions. However, this only lasts while the building is in use;

- The proposed scheme prioritise sustainable design and construction techniques (e.g. timber frame) to reduce CO_2 emissions and to future proof and to adapt to the impacts of climate change in line with PfE policy JP-S6 Resource Efficiency;

- Materials with a low environmental impact throughout their life cycle will be prioritised. Plus, materials with associated Environmental Performance Declarations (EPDs) will be favoured;

- Materials will be sourced in accordance with a Sustainable Procurement Plan (SPP). A SPP includes sustainability aims, objectives and strategic targets to guide procurement activities;

- Responsibly sourced materials from suppliers operating an Environmental Management System and procuring timber verified by either the Forest Stewardship Council (FSC) or Programme for the Endorsement of Forest Certification standard (PEFC) will be prioritised;

- Material selection will be carefully considered to avoid the use of toxic materials, such as Volatile Organic Compounds (VOCs) and contribute towards creating a healthy indoor environment; and,

- Excavated material (such as soil and substructural elements) from construction works will be used, where practical, for landscaping purposes.

Local sourcing of construction materials where feasible and viable will minimise the impact of carbon dioxide emissions associated with the transportation of materials. In addition to this, **materials with low levels of embodied carbon will be prioritised in accordance with Core Strategy Policy EN4.**

4.4 Water Efficiency

The proposed development will be designed to reduce mains / potable water consumption and will include the following water efficient designs and equipment:

- A water efficiency strategy will be determined for the site and will include for the provision of 'A' rated appliances as a minimum;
- In order to reduce water demand, the sanitary fixtures will be specified to achieve a calculated daily consumption of <110 litres/person/day in line with PfE Policy JP-S4 - Flood Risk and the Water Environment;
- The scheme is targeting a 40% improvement over the BREEAM baseline specification. The baseline component specification is equivalent to the water efficiency of industry standard components, steered by the minimum levels required by the Water Supply (Water Fittings) Regulations (157) and Part G of the Building Regulations; and,
- A water meter on the mains water supply to the building will be specified to monitor and manage consumption.

Efficient water fixtures will be specified throughout the building such as low flow taps and dual flush WCs in order to reduce water consumption.

4.5 Ecology and Biodiversity

A Preliminary Roost Assessment and Ecological Walkover has been carried out by E3P Limited. This provides an assessment of the ecological features on site and, provides recommendations to enhance the ecological status of the proposed scheme. In addition to this landscape proposals have been provided and from both of these the following conclusions can be drawn:

- The proposed development will be exempt from a Biodiversity Metric calculation in line with the Environment Act (2021) due to the habitats on site being below the threshold of twenty-five square metres of habitat, or five linear meters of water courses or hedgerows.
- To increase the site's value for wildlife, bat and bird boxes could be integrated into the proposed development; and,
- A non-extensive green roof, including a rooftop garden/ allotment will be installed, which will lead to further ecological benefits on site.

Figures 4.3 and 4.4 present the proposed landscape plans for the scheme.

Figure 4.3 – Roof Terrace



4.6 Waste Management

4.6.1 Construction Waste

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

- Prior to commencement of the above ground construction phase, a site waste management plan (SWMP) will be produced by the developer to limit the on and off-site environmental impacts of construction:

- The SWMP will encompass:

    - Recycled and secondary; materials;
    - Waste reduction;
    - Waste segregation;
    - Waste recovery; and,
    - Waste disposal.

- This development will promote the minimisation of waste arising and seek to maximise the use of recycled materials in construction.

- The principal contractor will implement sound environmental management practices and consideration for neighbouring sites during their activities on-site.

In accordance with **EN19 – Waste** the **waste management plan** will be prepared to **demonstrate how both construction and demolition waste will be minimised, and recycled on site wherever possible**, and how the sustainable waste management needs of the end user will be met.

4.6.2 Operational Waste

The operational waste strategy for the scheme focuses on the segregation of waste at source, in order to maximise the potential for building users to recycle. All users will be informed on collection frequency, as well as guidance on local recycling facilities to assist with the management and storage of waste.

The proposed waste management strategy has been developed in compliance with the policies of Manchester City Council to optimise recycling rates:

- Waste will be segregated at source with the help of split bins to receive multiple streams of waste – general, recyclables and compost; and,
- Users will have their waste collected by the building management company and transferred to the designated refuse area, to be collected by refuse operators on the designated collection day.

The proposed development will be designed to be functional and convenient, **enabling people to act efficiently with minimal effort, and responding to needs relating to servicing, recycling facilities, refuse collection and storage** in accordance with **PfE Policy JP-P1.**

4.7 Pollution

To reduce the schemes impact on the surrounding communities and environments, the proposals will include the following:

- The external lighting strategy will be designed to reduce unnecessary light pollution through effective design, energy consumption and nuisance to neighbouring properties;
- Pollution Prevention Guidance will be adhered to in respects of air (dust) and water (ground and surface) pollution during the demolition and construction phase; and,
- Dust suppression measures will also be put in place as part of the Main Contractor's Environmental Management Plan, such that any potential risks to watercourses or the neighbouring properties are minimised.

The principal contractor will put measures in place to ensure that the surrounding area will not be polluted as a direct result of the activities on site during the construction phase.

4.8 Health and Wellbeing

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

- The roof top garden/ allotment will allow building users to interact with nature; and,
- The proposed design will create a close community allowing users to socialise and improving community engagement.

Good levels of natural day lighting will be achieved within the proposed development. This will provide a good quality of life for the building users and reduce the need for energy to light proposed development.

4.9 Transport

A Transport Statement and Travel Plan has been produced by SCP Transport Limited and a review of the most appropriate and sustainable modes of transport has been conducted, in order to assess the feasibility of each transport option available to the future occupiers of the proposed development. The conclusions that can be drawn from this appraisal are as follows:

4.9.1 Public transport

- The nearest bus stops are located on both sides of Bury Old Road, approximately ninety-nine metres west of the site;
- The nearest Metrolink stop is Crumpsall Metrolink Stop which is located approximately five hundred metres to the north-east of the site; and,
- Abraham Moss train station is a sixteen-minute walk away which is within one mile away.

4.9.2 Cycling and Walking

- Pedestrian and cycle access will be provided from the main entrance from Seymour Road at the north-west corner of the building;
- A drop off space is proposed to the west of the building with cycle parking proposed along the Seymour Road frontage;
- Five kilometres is considered to be a suitable distance to travel by bicycle. With that in mind, Crumpsall, Prestwich, Charlestown, Manchester City Centre and Blackley, amongst others, are located within this catchment area from the development site,
- Therefore, the application site is within an acceptable cycle distance of a range of areas and associated facilities, meaning it is a viable alternative to private car use for prospective residents of the site, particularly given that cycle parking is proposed;
- The site is also within acceptable walking distance of Cheetham Hill, Crumpsall and Sedgley Park, and numerous transport facilities;

- Overall, the site benefits from high levels of accessibility by foot, with Cheetham Hill only a short walk from the site, providing opportunities for shopping, leisure and recreation trips as well as other transport connections.

Due to the site's proximity to local amenities and the presence of public transport services within easy walking distance, **the site is considered to be well located to encourage trips to be made on foot, bicycle or via public transport.**

5. ENERGY STRATEGY

The energy strategy for this development prioritises an enhanced 'fabric led' solution coupled with 'full electric' servicing provision. An enhanced building fabric specification throughout the scheme allied to efficient servicing and controls will achieve compliance with the new build carbon dioxide emission reduction and primary energy targets stipulated by Building Regulation, Part L Approved Document Volume 2 (2021), Manchester's Core Strategy and the PfE policies.

The Energy Hierarchy (see Figure 5.1) provides a framework to guide energy policy and decision making to achieve practical and cost-effective carbon emission reductions. The energy hierarchy is built upon four principles:

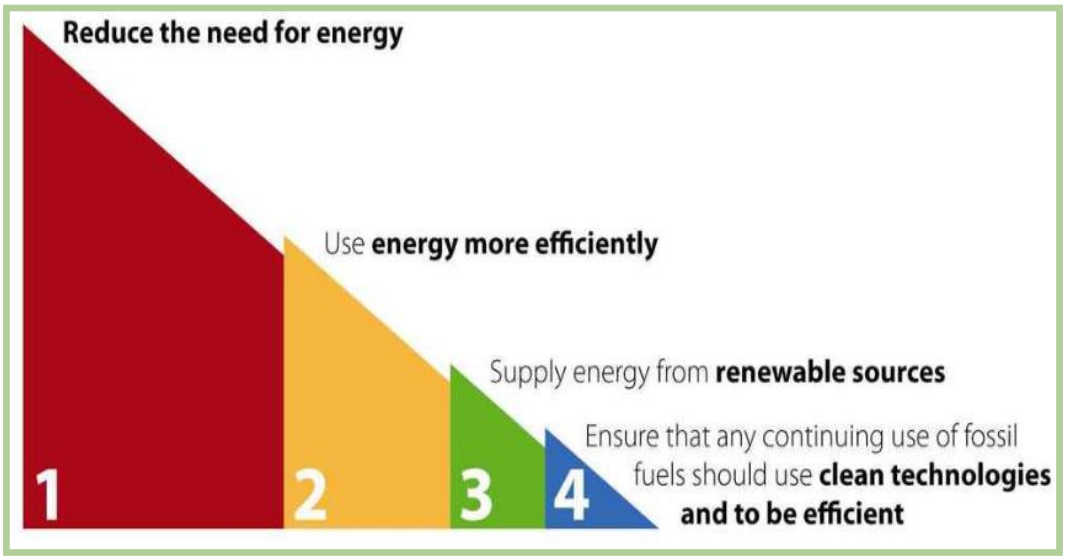
i. First Principle
   - Reduce the need for energy.

ii. Second Principle
   - Use energy more efficiently.

iii. Third Principle
   - Supply energy from renewable sources.

iv. Fourth Principle
   - Ensure that any continuing use of fossil fuels should use clean technologies and be efficient.

Figure 5.1 – The Energy Hierarchy



In accordance with Places for Everyone Policy JP-S2 – Carbon and Energy, the Energy Hierarchy has been used as a framework to guide this energy strategy to achieve practical and cost-effective carbon

emission reductions. It is intended that the construction, design and specification proposed for this scheme will deliver a development that is inherently efficient and cost-effective during occupation.

5.1 First Principle – Reduce the Need for Energy

The standard measurement of heat transfer through a given building material or construction type is the U-value (W/m^2K). The lower the U-value, the more slowly heat transfers and is lost out of a building. In buildings, heat loss generally occurs through the following main areas and elements of the construction:

- Ground Floor;
- External Walls;
- Roofs;
- Doors and windows;
- Thermal bridging; and,
- Uncontrolled ventilation.

This development will benefit from a material and design specification that is aligned with Building Regulation standards and includes numerous efficiency measures designed to reduce heat losses and minimise energy demand in accordance with the first principle of the energy hierarchy, including:

- ✓ High performance u - values;
- ✓ Reduced thermal bridge heat losses;
- ✓ Efficient form of construction; and,
- ✓ Low design air permeability target.

This 'fabric led' approach to minimising energy demand and associated carbon dioxide emissions through the performance of the thermal envelope is aligned with the first principle of the energy hierarchy, which states that reduction in energy demand should be achieved initially by energy efficiency.

The proposed material specification that will be incorporated throughout to limit heat loss and ensure efficient operation, this is presented in Table 5.1.

Table 5.1 – Proposed Fabric Specification

Item	Proposed Fabric Specification
Ground Floor	U= 0.18 W/m^2K
External wall	U=0.26 W/m^2K
Windows	U=1.60 W/m^2K
Roof	U=0.18 W/m^2K
Air Permeability	5.00 m3/h-m2 (@50Pa.)

The proposed design specification is in alignment with Part L Approved Document Volume 2 and demonstrates compliance against both the emission reduction and primary energy targets. However, further design considerations will be assessed as the design progresses through RIBA Stage 3 and 4.

This material specification and design will however provide the following benefits:

- **High performance thermal insulation** will ensure low U-values for all heat loss elements and will minimise heat loss through the building's thermal envelope;

- **Thermally efficient, 'A' rated, double glazed windows** will be specified with argon gas fill and low emissivity coatings to limit heat loss through the pane. Thermal breaks will be incorporated within the frames of the vision panels to further limit heat loss. The glazing g value will be specified to optimise beneficial solar gains but limit the propensity for the building to overheat; and,

- **Low air tightness** (design air permeability targeting 5.00m^3/hm^2) will minimise uncontrolled ventilation. This will reduce heat losses and provide high levels of occupant comfort.

This enhanced fabric specification will **deliver a Building Regulation, Part L Approved Document Volume 2 (2021) compliant scheme for all aspects of the proposed development**. It ensures an inherently energy efficient development, focussing upon limiting demand side reductions in accordance with the energy hierarchy.

5.2 Second Principle - Use Energy More Efficiently.

As per the second principle of the energy hierarchy, the operational efficiency of the development will be optimised via the use efficient mechanical and electrical systems.

The proposed building services that will be incorporated to ensure efficient servicing of the are presented in Table 5.2 below.

Table 5.2 – Proposed Mechanical and Electrical Specification

Item	Specification
Space Heating	ASHP (Split system) (Heating SEER: 5.0, Cooling SEER: 7.0) **Areas served:** Café, foyer, kitchen, prayer halls, shared workspaces, classroom and meeting rooms. **Controls:** Time and temperature.
	Electric panel heaters **Areas served:** Toilets and circulation areas. **Controls:** Time and temperature.
Ventilation	Mechanical extract to toilets and kitchen area.
Lighting	125lm/W (100% LED)
Water Heating	Provided by main heating source with storage tank. Cyl. storage loss – 1.60kWh/day
Renewable Technology	Photovoltaic array and ASHP system *_refer to Section 6 for further details*

The mechanical and electrical specification will provide the following benefits:

- **Low energy and LED lighting** - will be specified in order to maximise operational efficiencies and lifespan of the fittings. LEDs operate with an estimated energy efficiency of up to 90% when compared to traditional lighting and conventional light bulbs. This means that about c.90% of the electrical energy is converted to light, rather than wasted heat as in conventional bulbs.

- **Multi split heat pumps -** Air Source Heat Pumps (space heating) are a low carbon solution that are ideal for non-residential spaces. They are a highly efficient method of producing heat as ASHPs collect low-grade heat from the air to supply useful heat for space and water heating requirements by applying additional energy input (in the form of electricity).

- **Intermittent Extract Ventilation** will be specified, which will draw moisture laden, stale air out of the rooms and maintain a healthy living environment.

This mechanical and electrical specification **will deliver a Building Regulation Part L Approved Document Volume 2 (2021) compliant scheme** for all aspects of the proposed development.

6. PROPOSED RENEWABLE ENERGY SOLUTION

The enhanced fabric specification will be supplemented by renewable energy technology as part of the site wide energy strategy to optimise the on-site building emission rate reductions in accordance with Places for Everyone Policy JP-S2 and the Energy Hierarchy.

6.1 Renewable Technology Feasibility

An analysis of the most appropriate renewable energy options has been undertaken to ensure compliance with Building Regulation Part L.

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

- Solar hot water;
- Photovoltaics (PV);
- Wind;
- Air source heat pumps;
- Ground source heat pumps; and,
- Biomass heating.

A review of the development proposals and site location concludes that the photovoltaic panels (PV) are feasible for this scheme, as detailed below in Table 6.1.

It has been determined that the site is not located within a Heat and Energy Network Opportunity Area. However, the proposed energy strategy is a more effective alternative for minimising carbon emissions, which is also in line with the requirements of PfE Policy JP-S3 – Heat and Energy Networks. The scheme also incorporates air source heat pumps and photovoltaics, thereby aligning with PfE Policy JP-S1 which requires a significant upscaling of solar photovoltaic energy.

Table 6.1 – Renewable Technologies Review

Technology	Description	Advantages & Limitations	Feasibility
Solar Hot Water	Solar Hot Water utilises the energy in sunlight and diffuse daylight to heat water for use in buildings. The main component of any solar water heating system is the collector, which absorbs the radiant energy of the sun and converts it to heat energy.	✓ Low maintenance. ✓ Feasible for small scale developments. ✘ Panels ideally facing south at 30° tilt for optimum efficiency.	No - This technology is not considered to be a suitable option for this site as there is only a small hot water demand and these solar thermal technologies make only a relatively limited contribution to reducing the building's energy demand and carbon dioxide emissions. Furthermore, there are potential problems associated with routing the pipework through the building.

Technology	Description	Advantages & Limitations	Feasibility
Photovoltaics (PV)	Photovoltaic (PV) panels harness solar thermal energy and convert it into electricity which can then be used within a building. The panels may be roof or floor mounted and orientated in a southerly direction to enable this technology to operate efficiently.	✓ Low maintenance. ✓ Easy to integrate into buildings design. ✓ Cost of PV is constantly dropping. ✘ Panels ideally facing south at 30° tilt for optimum efficiency. ✘ Overshadowing will reduce performance. ✘ Can require significant roof space.	Yes – This technology is a viable option for this site with sufficient roof area to accommodate the proposed PV array.
Wind Turbines	Wind generation equipment harnesses the wind to turn a propeller and in doing so, drive an alternator to generate electricity. The turbines may be pole or roof mounted.	✓ Low maintenance. ✓ Excess electricity can be exported to the grid. ✓ Vertical Axis Turbines can operate at wind speeds as low as 2m/s. ✘ A wind speed of at least 6m/s is typically required for traditional turbines to operate efficiently. ✘ Visual and noise impact risk.	No – Wind turbines are considered unsuitable for this site due to a poor wind resource and lack of space to locate the turbines. Integrating these systems at height on the roof is not considered feasible due to the associated noise, vibration, and structural stresses upon the buildings. Furthermore, there are planning issues and perceived safety concerns with this technology.
Ground Source Heat Pumps	Ground source heat pumps collect low-grade heat from the ground to supply useful heat for space and water heating requirements. By applying additional energy input (in the form of electricity), it is possible to raise the temperature of the source heat to the temperature required.	✓ Highly tested and efficient technology ✓ Can be used for space and water heating. ✓ Lifespan of 20-25 years. ✘ Excavation works required for buried piping to be installed. ✘ Planning permission potentially required for installation.	No – This technology is considered unsuitable for this site due the prohibitive costs and technical constraint of installing boreholes. Plus, the proposed energy strategy will provide similar, if not better, carbon reductions.

Technology	Description	Advantages & Limitations	Feasibility
Air Source Heat Pump	Air source heat pumps collect low-grade heat from the air to supply useful heat for space and/or water heating requirements. They operate in the same way as a ground source heat pump, by applying additional energy input (in the form of electricity), it is possible to raise the temperature of the source heat to the temperature required.	✓ Can be used for space and water heating. ✓ Highly tested and efficient technology ✓ Low maintenance. ✓ Lifespan of 20-25 years. ✘ Reduced efficiency in cold conditions. ✘ Requires a unit on the outside of the building	Yes – The incorporation of ASHPs is a feasible option for this development. The proposed split system is a highly efficient option.
Biomass Heating	Biomass boilers typically burn wood chips or pellets as fuel to provide space heating and hot water.	✓ Almost a carbon neutral technology. ✘ Frequent and large fuel deliveries. ✘ Large fuel store required. ✘ Regular maintenance.	No – This technology is considered inappropriate for this type of development due to the need for a large fuel storage facility and frequent, large fuel deliveries combined with regular maintenance.

6.2 Third Principle – Supply energy from renewable sources.

6.2.1 Photovoltaic Array

Photovoltaic (PV) arrays have therefore been selected as an appropriate renewable energy technology to contribute to the CO_2 emission reduction target for the development. PV arrays are relatively straightforward to install, benefit from low maintenance costs and will reduce the operational cost of the building. The use of PV in general at this site would provide the following benefits:

- Reducing the buildings electrical energy grid load;
- Simple installation and commissioning;
- Low maintenance; and,
- Reliable, proven technology.

Proposed System Details –

- It is proposed that PV panels will be mounted horizontally on the flat roof in order to reduce the visual impact of the array[1]; and,
- It is assumed that the panels will have little or no shading and are also not ventilated.

[1] If the panels were to be orientated due south and at a thirty-degree incline, the number of panels and the kwp required can be reduced.

Table 6.2 presents the indicative PV capacity proposed for the scheme on the site to support Building Regulation Part L Approved Document Volume 2 compliance, plus ensuring alignment with the Places for Everyone policy criteria.

Table 6.2 – PV Capacity Requirement

Development	PV Specification (kWp)
Seymour Road	10.20

Land Use –

- There are no land use issues associated with PV technology at this site;
- The development has sufficient roof area to accommodate the PV arrays; and,
- The PV arrays can be installed as part of the roof system in order to minimise the visual impact.

Local Planning Issues –

- There are no planning policy issues associated with this technology and this type of technology is favoured under the PfE requirements.

Noise Issues –

- PV is silent in operation.

Whole life cost and lifecycle impact –

- Current installed costs for PV are approximately £1,500 / kWp installed.
- Additional costs throughout the system's thirty-year lifecycle are limited to:
  - Cleaning of the arrays; and,
  - Replacement of the DC / AC inverter unit which typically have a lifespan of around ten years.

6.2.2 Air Source Heat Pumps

The proposed split system that will serve this development will provides both space and water heating.

- This technology benefits from a low 'carbon footprint' due to the inherent efficiency of the heat pump process. It is a well-established technology with an anticipated long lifespan - with proper care they can be operational for up to twenty years;

- Omission of fossil fuel connection from the proposed scheme will enable the development to track the decarbonisations of the UK electricity grid over time and reduce operational carbon emissions as a consequence; and,

- There are no fuel storage issues associated with heat pumps.

ASHPs primarily consume grid mix electricity which is, in part (albeit diminishing) sourced from a mix of fossil fuels / LZC and nuclear. The inherent characteristics of the ASHP also ensures that fossil fuels are consumed efficiently, in accordance with 4th principle of energy hierarchy.

6.3 Fourth Principle – All Electric Energy Strategy

6.3.1 Electric Panel Heaters

Electric panel heaters which are to be used in the toilets and circulation zones are 100% efficient at the point of consumption. Thereby generating a reduced overheating potential. This is due to the fact that electric space heating delivers virtually instantaneous heating at the location it is required.

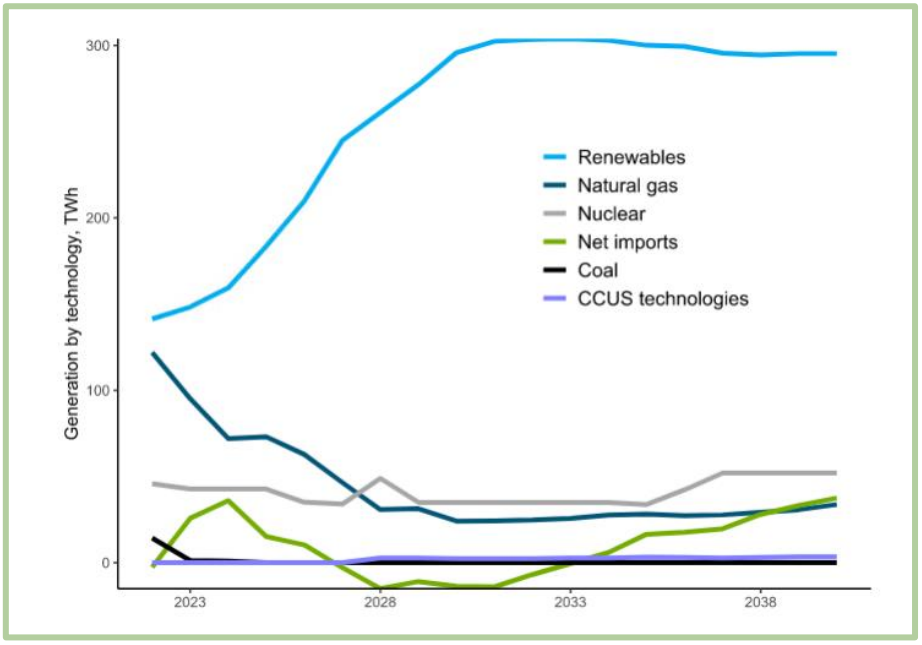
Therefore, this all-electric energy strategy which primarily consume grid mix electricity which is, in part sourced from a mix of fossil fuels / LZC and nuclear. The inherent characteristics of the ASHP and electric panel heaters ensures that fossil fuels are consumed efficiently, in accordance with 4th principle of energy hierarchy.

6.4 Decarbonisation

As the UK electricity grid's CO_2 footprint continues to improve, so too would the carbon dioxide emissions associated with the operational phase of the proposed scheme, which benefits from a 'full electric' energy strategy.

UK grid mix electricity carbon emissions will decrease significantly by 2035, with the carbon intensity of electricity generation falling by 93% between 2020 and 2035. This is due to the progressive shift away from fossil fuels as demonstrated in Figure 6.1.

Figure 6.1 - Electricity generation by Fuel Source, TWh



Source – BEIS, Energy and Emissions Projections (2022)

The energy strategy proposed for the scheme uses a combination of a ASHP split system, electric panel heaters and photovoltaics. These are highly efficient systems that utilise grid electricity to provide space heating.

The use of heat pumps will ensure that fossil fuels converted and distributed through the National Grid as electrical energy will be consumed cleanly and efficiently.

Electricity is now recognised as a less carbon-intensive fuel source than mains gas and other fossil fuels, which is only likely to improve as the percentage of electricity generation from renewable technologies increases.

Therefore, this will further support the schemes move towards operational net zero carbon in accordance with the Places for Everyone requirements.

7. CARBON DIOXIDE EMISSIONS CALCULATIONS

In order to demonstrate the environmental benefits associated with the energy strategy for the proposed development, a Simplified Building Energy Models (SBEM) Assessment has been conducted using Design Builder v7.2.0.032 software and assessed against SBEM V6.1.e in order to demonstrate compliance with Building Regulations, Part L 2021.

7.1 Regulated Energy Performance Calculations

Table 7.1 below presents a summary of the results, which show the Building Emission Rate (BER) and (regulated) energy demand performance associated with the proposed energy strategy for the building.

Table 7.1 – Calculated Regulated Building Emission Rates

	Seymour Rd
Building Emission Rate - BER ($kgCO_2/m^2/yr.$)	4.89
Building Target Emission Rate - TER ($kgCO_2/m^2/yr.$)	4.90
% BER Reduction over AD: Volume 2 (2021)	**0.20%**

Building Primary Energy Rate - BPER ($kWh/m^2/yr.$)	50.34
Building Target Primary Energy Rate TPER ($kWh/m^2/yr.$)	51.42
% DPER Reduction over AD: Volume 2 (2021)	**2.10%**

The development will incorporate an enhanced material specification along with high quality design and construction standards, in order to improve the energy efficiency of the building through a 'fabric led' energy strategy, allied to efficient mechanical and electrical systems.

This proposed material specification coupled with the proposed renewable technologies and building services will improve upon the minimum compliance under Building Regulations Part L Volume 2: Buildings other than dwellings (2021) primary energy target by 2.10%.

The proposed development **has the potential to secure a minimum carbon dioxide reduction rate of 0.20%,** thereby significantly improving upon current Part L Volume 2 (2021) requirements and the requirements stipulated **by Manchester City Council.**

7.1.1 Policy EN6 Domestic Carbon Dioxide (CO_2) Emissions Reduction Targets

The proposed energy strategy outlined throughout this energy statement is expected to achieve four ENE 01 Credits, in line with PfE Policy JP-S2 requirements.

The data files from the Stage 2 SBEM calculation have been loaded into BREEAM Projects and the triple metric energy performance has been verified which assesses the following:

- Building heating and cooling demand;
- Building Primary Energy Consumption; and,
- Total CO_2 emissions.

This is equivalent to the BREEAM Excellent standard for energy reduction.

The proposed development **has the potential to secure a minimum carbon dioxide reduction rate of 0.20% relative to the current Part L (2021) compliance criteria.**

8. PLACES FOR EVERYONE

Manchester City Council has now adopted the Places for Everyone Policies, which includes **Policy JP-S1- Sustainable Development and Policy JP-S 2 – Carbon and Energy.**

In support of this, the developer wishes to highlight the following measures that will form part of the energy strategy for this development:

- Materials with a low life cycle cost and embodied carbon will be prioritised where feasible to ensure the long-term impacts from the development can be minimised. In order to measure the environmental impacts of the scheme;

- The scheme has been calculated to achieve carbon emissions reduction required by the stringent Part L (2021 edition) building regulation compliance requirements;

- As stated in Sections 4 and 6, the proposed scheme has been designed in accordance with the principles of the energy hierarchy, which in order of importance seeks to:

    i. Minimise energy demand;
    ii. Maximise energy efficiency;
    iii. Use renewable energy;
    iv. Use low carbon energy;

- The proposed development has been assessed against the latest version of Part L Building Regulations (2021) – Approved Document Volume 2;

- It is the design team's preference not to connect to a heat network, as the proposed energy strategy is a more effective alternative for minimising carbon emissions, which is in line with the requirements of Policy EN 4 - Reducing CO_2 Emissions by Enabling Low and Zero Carbon Development. The scheme also favours ASHP and PV, thereby aligning with PfE Policy JP-S1 which requires a significant upscaling of solar photovoltaic energy.

- Policy JP S2 expects new developments to be net zero carbon by:

    - from adoption – to regulated operational carbon emissions; and

The proposed scheme will support a shift towards net zero carbon during operation. This will be achieved through:

1. The specification of air source heart pumps and photovoltaics, which are both highly efficient renewable technologies, will reduce the energy intensity of the hall in line with Part L (2021) of Building Regulations.

2. The fully electric energy strategy will also benefit further from the decarbonisation of the grid, which is expected to improve as the percentage of electricity generation from renewable technologies increases (see Figure 5.2).

3. Therefore, the operational CO_2 emissions associated with the proposed scheme are anticipated to decrease in line with these improvements.

4. The proposed energy strategy outlined throughout this energy statement is also expected to achieve four ENE 01 Credits, in line with PfE Policy JP-S2 requirements.

9. BREEAM PRE-ASSESSMENT

BREEAM UK New Construction V6 scheme is a performance-based assessment method and certification scheme for new non-domestic buildings. The primary aim of BREEAM UK New Construction is to mitigate the life cycle impact of new buildings on the environment in a robust and cost-effective manner. This is achieved through integration and the use of the scheme by clients and their project team at key stages in the design and construction process.

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

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

The BREEAM rating benchmarks for BREEAM UK new construction projects assessed using the 2018 version 6.1 of BREEAM are presented in Table 9.1 below.

Table 9.1 – BREEAM Rating Benchmarks

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

There are minimum standards associated with the BREEAM 'Very Good' standard in terms of the building's energy and emission performance. However, to ensure that performance against fundamental environmental issues is not over-looked in pursuit of a particular rating, BREEAM sets minimum standards of performance in key areas e.g. energy, water, materials etc.

A BREEAM 'Very Good' rating requires the following minimum performance standards, see Table 9.1.

Table 8.2 – Mandatory 'Very Good' Standards

BREEAM NC 2018 Issues	*Minimum Standards for BREEAM for 'Very Good' rating*
MAN 4: Commissioning and Handover	*One credit (commissioning-test schedule and responsibilities)*
MAN 4: Commissioning and Handover	*Criterion 11 (Building User Guide)*

ENE 2: Energy Monitoring	*One credit (First sub metering credit)*
WAT 1: Water Consumption	*One credit*
WAT 2: Water Monitoring	*Criterion 1 only*
MAT 3: Responsible Sourcing of Materials	*Criterion 1 only*

In addition to these mandatory 'Very Good' rating criteria, in accordance with the PfE guidance, non-residential developments are expected to achieve at least BREEAM 'Excellent' standard (or equivalent) for the 'Ene 01 – reduction of energy use and carbon emissions' category.

9.1 Potential BREEAM Rating

A BREEAM UK 2018 Non-Domestic New Construction (multi residential) BREEAM Pre-assessment has been prepared by a qualified, licensed BREEAM Accredited Professional. This determines the feasible credits and potential BREEAM rating for the scheme and demonstrates a commitment to the principles of good construction, design and sustainability.

Please see Appendices for full details of the pre-assessment report

Indicative BREEAM Score and Rating = 'Very Good'

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

The BREEAM Pre-assessment (presented in the Appendix of this Statement) shows that the buildings are expected to perform as follows:

- Indicative building BREEAM score = **62.87%** *(minimum required for BREEAM 'Very Good' = 55%)*
- Indicative BREEAM rating = Potential for **BREEAM 'Very Good' rating.**

Following an initial review of the proposals the BREEAM New Construction Pre-assessment report demonstrates that the proposed development is able, in principle, to meet all mandatory credit requirements and achieve an overall BREEAM 'Very Good' rating for the proposed scheme.

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

10. CLIMATE CHANGE EMERGENCY

On 10th July 2019, a motion asking Manchester City Council (MCC) to formally declare a climate emergency was unanimously agreed. In support of this, the developer wishes to highlight the following measures that will form part of the specification of this development:

- An energy strategy that exceeds Building Regulations, Part L Approved Document Volume 2 (2021), in relation to reducing carbon emissions and minimising energy consumption;

- The proposed strategy will also improve upon standards targeted within Core Strategy Policy EN6 which relates to Building Regulations Part L 2010.

- A site waste management plan (SWMP) will be produced by the developer to limit the on and off-site environmental impacts of construction waste.

- The development will be designed to incorporate features that will serve to reduce energy demand, and in turn, carbon emissions arising from access to the building:

    - ASHP Split systems;
    - Electric panel heaters; and,
    - LED lighting.

- The site is well located to encourage trips to be made on foot, by bike or via public transport. This is facilitated by:

    - The closest bus stops are located along Bury Old Road, approximately ninety-nine metres west of the site;
    - The nearest Metrolink stop is Crumpsall Metrolink Stop which is located approximately five hundred metres to the north-east of the site;
    - Abraham Moss train station is a sixteen-minute walk away which is within one mile away; and,
    - The incorporation cycle spaces.

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

11. CONCLUSION

This Statement has reviewed the sustainability performance of the proposed Seymour Road development against national and local planning policies. The conclusions that may be drawn from the review are as per the following:

Sustainability Performance –

- The scheme is expected to achieve a **BREEAM rating of 'Very Good'** with an expected score of 62.87%. This represents the top 25% of UK new non-domestic buildings (advanced good practice).

- The scheme will be specified with **efficient water fixtures and controls**. This will achieve a calculated daily consumption of **<110 litres/person/day in line with Policy JP-S4 - Flood Risk and the Water Environment.**

- This scheme **promotes access to sustainable modes of transport** which will contribute towards creating a highly connected and sustainable development in accordance with **Policy T1**.

- The site is in an area at low risk from flooding, with it being **located within a Flood Risk Zone 1** in accordance with **Policy EN14.**

- Waste arising during construction will be minimised through the **implementation of a Site Waste Management Plan (SWMP) in accordance with Policy EN19.** The SWMP will be used to ensure that there is adequate management, and that storage of construction waste takes place in line with the Council's policies. Opportunities for the possible recycling of construction from excavation works will also be considered.

- **A Refuse Management Strategy** has been developed to manage waste and recyclables from the operational phase of the development. Source segregation will encourage the individuals to recycle and **divert waste away from landfills in line with Policy JP-P1 - Sustainable Places**.

- **Materials with low environmental impact** will be selected and local suppliers will be prioritised where possible in accordance with **Policy EN4**.

Energy Strategy –

The scheme will be designed and specified in accordance with **the principles of the energy hierarchy** and improves upon the **carbon dioxide (CO_2) reduction targets and guidance set by Manchester City Council:**

- The proposed scheme will be compliant with building regulation Part L Volume 2 (2021).

- The proposed material and mechanical specification will **provide various benefits** including; **upgraded thermal insulation**, efficient mechanical servicing, and low energy lighting.

5. The proposed energy strategy outlined throughout this energy statement is also expected to **achieve four ENE 01 Credits, in line with PfE Policy JP-S2 requirements.**

- The scheme will integrate **efficient air source heat pumps and a photovoltaic array** in order to limit the carbon emissions arising from the scheme. This supports the trajectory towards a NZC building and benefits from the = continued decarbonisation of the grid.

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

- The **re-use of the piece of land** will provide a development that inherently supports **sustainable accommodation space with access to local amenities and sustainable modes of transport**. The reuse of the site is also an efficient use of land and resources;

- **Construction practices that minimise adverse impacts on the environment** will be adhered to including a waste management strategy to reduce the quantity of waste generated, and to increase re-use and recycling, a commitment will be made to minimise waste and pollution; and,

- **Improving upon the regulatory Part L compliance criteria** will assist in lessening the impact of this development on the environment by way of reducing carbon emissions.

In conclusion, the proposed development will deliver a quality development that accords with the guidance provided within Manchester Core Strategy as well as national planning and regulatory standards.

Appendix A – SBEM BRUKL

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

Project name

Seymour Road

As designed

Date: Mon Apr 29 11:45:22 2024

Administrative information

Building Details

Address: 2 Seymour Road, MANCHESTER, M8 5BG

Certifier details

Name: Charles Atkins

Telephone number: 01829 733 444

Address: 77 High Street, Tarvin, CH3 8JA

Certification tool

Calculation engine: SBEM

Calculation engine version: v6.1.e.0

Interface to calculation engine: DesignBuilder SBEM

Interface to calculation engine version: v7.2.0

BRUKL compliance module version: v6.1.e.1

Foundation area [m^2]: 308.49

The CO_2 emission and primary energy rates of the building must not exceed the targets

Target CO_2 emission rate (TER), $kgCO_2/m^2.annum$	4.9	
Building CO_2 emission rate (BER), $kgCO_2/m^2.annum$	4.89	
Target primary energy rate (TPER), $kWh_{PE}/m^2.annum$	51.42	
Building primary energy rate (BPER), $kWh_{PE}/m^2.annum$	50.34	
Do the building's emission and primary energy rates exceed the targets?	BER =< TER	BPER =< TPER

The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Fabric element	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	First surface with maximum value
Walls*	0.26	0.26	0.3	01 - Circulation 1_P_10
Floors	0.18	0.12	0.5	00 - Circulation_F_5
Pitched roofs	0.16	0.16	0.16	02 - Circulation_R_5
Flat roofs	0.18	0.18	0.18	01 - Circulation 1_R_4
Windows** and roof windows	1.6	1.45	2.18	02 - Circulation_G_6
Rooflights***	2.2	-	-	No external rooflights
Personnel doors^	1.6	1.6	1.6	00 - Storage_D_8
Vehicle access & similar large doors	1.3	-	-	No external vehicle access doors
High usage entrance doors	3	-	-	No external high usage entrance doors

$U_{a\text{-}Limit}$ = Limiting area-weighted average U-values [$W/(m^2K)$]

$U_{i\text{-}Calc}$ = Calculated maximum individual element U-values [$W/(m^2K)$]

$U_{a\text{-}Calc}$ = Calculated area-weighted average U-values [$W/(m^2K)$]

* Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.

** Display windows and similar glazing are excluded from the U-value check.

*** Values for rooflights refer to the horizontal position.

^ For fire doors, limiting U-value is 1.8 W/m^2K

NB: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air permeability	Limiting standard	This building
$m^3/(h.m^2)$ at 50 Pa	8	5

Appendix B – BREEAM Pre Assessment

ELEMENT SUSTAINABILITY

CRUMPSALL COMMUNITY HALL, 2 SEYMOUR ROAD, MANCHESTER

BREEAM NC 2018

PRE-ASSESSMENT REPORT



Contents

Executive Summary 2
BREEAM Methodology 2
Design Stage Review 2
Post Construction Stage Review 2
BREEAM Rating 3
Minimum Standards 3
RIBA Sensitive Credits 3

Executive Summary

Element Sustainability have been appointed by Iceni Projects to complete an assessment of the proposed development under the Building Research Establishment Environmental Assessment Methodology (BREEAM). This pre-assessment review report gives an indication of the expected BREEAM score and rating for the development that may be achieved when the final assessment is submitted to the Building Research Establishment (BRE), based on the information provided at this pre-assessment stage.

The proposed scheme comprises the construction of a community centre at 2 Seymour Road, Cheetham Hill, Manchester. The two-storey plus mezzanine facility will accommodate a shared workspace, prayer hall, classrooms, café and recreational areas along with ancillary use spaces.

BREEAM Methodology

The BREEAM UK New Construction 2018 scheme can be used to assess the environmental life cycle impacts of new non-domestic buildings at the design and construction stages. 'New Construction' is defined as development that results in a new standalone structure, or new extension to an existing structure, which will come into operation or use for the first time upon completion of the works.

A BREEAM pre-assessment report has been prepared by a qualified and licensed BREEAM Assessor to demonstrate the feasibility of achieving the desired BREEAM ratings for the new build scheme. The initial pre-assessment report details the possible strategies to be employed.

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

- BREEAM UK 2018 Non-Domestic New Construction (Non-Residential Institution: Community Centre)

Design Stage Review

Design specifications are assessed for each individual building, before construction begins. A rating is determined, and (subject to quality assurance) a Design Stage or Interim Certificate is awarded for each building. Registered assessors can apply for assessment of a site, compile and submit a design report for assessment and monitor the assessment status online.

Post Construction Stage Review

The Post Construction Stage (PCS) assessment confirms that buildings have either been built to the Design Stage specifications or to (documented) variations from the Design Stage. Variations must be reassessed so that new scores and BREEAM levels can be calculated for each affected building. Where a Design Stage assessment has been undertaken, it is used to inform the PCS assessment.

BREEAM Rating

A review of the current development proposals has been carried out against the BREEAM UK 2018 New Construction assessment methodology. It is anticipated that the scheme's design has the potential to score **62.87%** (minimum score level for BREEAM 'Very Good' rating is 55%), see Table 1.2 below.

The rating obtained by using this BREEAM Pre-Assessment is for guidance only. The predicted ratings may differ from those obtained through a formal assessment, which will be carried out by an appropriately licensed BREEAM assessor. Advice should be sought from a licensed assessor at an early stage in a project to ensure the estimated rating will be obtained.

Minimum Standards

The minimum standards for the BREEAM 'Very Good' rating are provided within Table 1.1 of this report and highlighted within Table 1.2. To achieve a particular level of performance the majority of BREEAM credits can be traded, i.e. non-compliance in one area can be off set through compliance in another to achieve the target BREEAM rating.

To ensure that performance against fundamental environmental issues is not overlooked in pursuit of a particular rating, BREEAM sets minimum standards of performance in key areas.

Table 1.1 - Minimum Standards

BREEAM NC 2018 Issues	Minimum Standards for BREEAM for 'Very Good' rating
MAN 4: Commissioning and Handover	One credit (commissioning-test schedule and responsibilities)
MAN 4: Commissioning and Handover	Criterion 11 (Building User Guide)
ENE 2: Energy Monitoring	One credit (First sub metering credit)
WAT 1: Water Consumption	One credit
WAT 2: Water Monitoring	Criterion 1 only
MAT 3: Responsible Sourcing of Materials	Criterion 1 only

RIBA Sensitive Credits

There are a number of BREEAM credits that need to be addressed at particular RIBA Stage.

Under BREEAM 2018 approximately 30% of the total credits available require actioning in RIBA Stage 2. Without these credits the 'Very Good' rating is not achievable.

These credits have been highlighted in blue within Table 1.2 below. A full outline of all the RIBA Stage sensitive credits is provided within Appendix A of this report.

Table 1.2 – Pre-Assessment Review

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Management						
Man 1 – Project Brief and Design						
Man 1a	**Stakeholder Consultation (Project Delivery)**	1	0	0.52%	Design Team	<u>Credit Not Targeted</u> **BREEAM Criteria:** **1)** Prior to completion of the **Concept Design**, the project delivery stakeholders meet to identify and define for each key phase of project delivery: 1.a Roles 1.b Responsibilities 1.c Contributions. Consider each one of the following items when defining roles, responsibilities and contributions for each key phase of the project: 2.a End user requirements 2.b Aims of the design and design strategy 2.c Particular installation and construction requirements or limitations 2.d Occupiers' budget and technical expertise in maintaining any proposed systems 2.e Maintainability and adaptability of the proposals 2.f Operational energy 2.g Requirements for the production of project and end user documentation 2.h Requirements for commissioning, training and aftercare support. **2)** The project team demonstrates how the project delivery stakeholders' contributions, and the consultation process outcomes influence the following: 3.a Initial Project Brief 3.b Project Execution Plan 3.c Communication Strategy

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						3.d Concept Design. **Design Stage Evidence:** - Copies of meeting minutes / construction programme / responsibilities schedule, relevant sections/clauses of the building contract. - Evidence demonstrating how the project delivery stakeholder contributions and the outcomes of the consultation process have influenced or changed the Initial Project Brief, Project Execution Plan, Communication Strategy, and Concept Design. **Post Construction Stage Evidence:** - As per Design Stage.
Man 1b	**Stakeholder Consultation (Third Party)**	1	0	0.52%	Design Team	<u>Credit Not Targeted</u> **BREEAM Criteria:** **1)** Prior to completion of the **Concept Design**, the design team consult with all interested parties **(for example actual or intended building users, representative consultation group from the existing community, existing partnerships and networks that have knowledge of existing buildings of the same type, potential users of shared facilities)** on matters that cover the minimum consultation content. <u>Minimum Consultation Content</u>: 1. Functionality, build quality and impact (including aesthetics). 2. Provision of appropriate internal and external facilities (for future building occupants and visitors or users). 3. Management and operational implications. 4. Maintenance resources implications. 5. Impacts on the local community, e.g. local traffic or transportation impact. 6. Opportunities for shared use of facilities and infrastructure with the community or appropriate stakeholders. 7. Compliance with statutory (national or local) consultation requirements. 8. Energy use and sustainability measures.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						9. Implementing principles and processes that deliver an inclusive and accessible design. **Design Stage Evidence:** - Consultation plan / meeting minutes / documentation **Post Construction Stage Evidence:** - As per Design Stage.
	Pre-requisite	-	-	-	Design Team	<u>Credit Not Targeted</u> **BREEAM Criteria:** The project team, including the client, formally agree strategic performance targets early in the design process, (with the support of the BREEAM AP).
Man 1c	**BREEAM AP (Concept Design)**	1	0	0.52%	BREEAM AP	<u>Credit Not Targeted</u> **BREEAM Criteria:** Involve a BREEAM AP in the project at an appropriate time and level to: a. Work with the project team, including the client, to consider the links between BREEAM issues and assist them in maximising the project's overall performance against BREEAM, from their appointment and throughout **Concept Design**. b. Monitor progress against the performance targets agreed throughout all stages after their appointment, where decisions critically impact BREEAM performance. c. Proactively identify risks and opportunities related to the achievement of the targets agreed. d. Provide feedback to the project team as appropriate, to support them in taking corrective actions and achieving their agreed performance targets. e. Monitor and, where relevant, coordinate the generation of appropriate

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						evidence by the project team. **Design Stage Evidence:** - Letter of instruction to BREEAM AP. - Meeting minutes / communication records / formal notes of conversations and other statements reporting on discussions related to performance targets and maximising performance. - BREEAM AP Report. **Post Construction Stage Evidence:** - As per Design Stage.
Man 1d	**BREEAM AP (Developed Design)**	1	0	0.52%	BREEAM AP	<u>Credit Not Targeted</u> **BREEAM Criteria:** Involve the BREEAM AP in the project at an appropriate time and level to: a. Work with the project team, including the client, to consider the links between BREEAM issues and to assist them in maximising the project's overall performance against BREEAM throughout **Developed Design**. b. Monitor progress against the performance targets agreed throughout all stages where decisions critically impact the specification and tendering process and the BREEAM performance. c. Proactively identify risks and opportunities related to the achievement of the targets agreed. d. Provide feedback to the project team as appropriate, to support them in taking corrective actions and achieving their agreed performance targets. e. Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team. **Design Stage Evidence:** - Letter of instruction to BREEAM AP.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- Meeting minutes / communication records / formal notes of conversations and other statements reporting on discussions related to performance targets and maximising performance. - BREEAM AP Report. **Post Construction Stage Evidence:** - As per Design Stage.
Man 2 - Life Cycle Cost and Service Life Planning						
Man 2a	**Elemental LCC**	2	0	0.52%	Cost Consultant	<u>Credit Not Targeted</u> **BREEAM Criteria:** **1)** A competent person (an individual with expertise or a recognised qualification) carries out an outline, entire asset LCC plan at Process Stage 2 (equivalent to **Concept Design**) together with any design options appraisals in line with Standardised method of life cycle costing for construction procurement' PD 156865: 2008. **The elemental LCC plan**: a. **Provides an indication of future replacement costs of building fabric and services over a period of analysis as required by the client (e.g. 20, 30, 50 or 60 years);** b. **Includes service life, maintenance and operation cost estimates.** The study period should ideally be agreed by the client, in line with the design life expectancy of the building. However, where the life expectancy of the building is not yet formally agreed (due to being at very early design stages), the default design life of 60 years should be used for modelling purposes (in line with the UK default). **2)** Demonstrate, using appropriate examples provided by the design team, 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.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Design Stage Evidence: - Elemental LCC Plan - Letter confirming how the Elemental LCC plan has influenced the building and system design and specification. **Post Construction Stage Evidence:** - As per Design Stage.
Man 2b	**Component LCC**	1	0	0.52%	Cost Consultant	<u>Credit Not Targeted</u> **BREEAM Criteria:** **1)** A competent person develops a component level LCC options appraisal by the end of Process Stage 4 (equivalent to **Technical Design** – RIBA Stage 4) in line with PD 156865: 2008. **The component level LCC includes (where present) replacement and maintenance costs associated with:** **a. Envelope, e.g. cladding, windows, or roofing** **b. Services, e.g. heat source, cooling source, or controls** **c. Finishes, e.g. walls, floors or ceilings** **d External spaces, e.g. alternative hard landscaping, boundary protection.** The Component level LCC option appraisal should review all of the above component types (where present). However, you do not need to consider every single example cited under each component; only a selection of those most likely to draw valued comparisons. This is to ensure that a wide range of options are considered and help focus the analysis on components which would benefit the most from appraisal. **2)** Demonstrate, using appropriate examples provided by the design team, how the component level LCC options appraisal has been used to influence

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						building and systems design and specification to minimise life cycle costs and maximise critical value. **Design Stage Evidence:** - Component LCC Plan - Letter confirming how the Component LCC plan has influenced the building and system design and specification. **Post Construction Stage Evidence:** - As per Design Stage.
Man 2c	**Capital Cost Reporting**	1	1	0.52%	Client or Project Manager	**BREEAM Criteria:** The capital cost to be reported for the refurbishment project £/m^2. **Design Stage Evidence:** - Letter of Commitment confirming predicted Capital Costs. **Post Construction Stage Evidence:** - Letter of Confirmation confirming final Capital Costs.
Man 3 - Responsible Construction Practices						
Man 3	**Timber Procurement (M)**	Pre-Req	Pre-Req	-	Main Contractor	**BREEAM Criteria:** Main contractor to ensure that all timber is legally harvested and trade timber. **Design Stage Evidence:** - Letter of Commitment confirming all timber will be legally harvested and traded timber. **Post Construction Stage Evidence:** - Copies of all relevant certificates or chain of custody evidence.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Man 3a	**Environmental Management**	1	1	0.52%	Main Contractor	**BREEAM Criteria:** **1)** All parties who at any stage manage the construction site (e.g. the principal contractor, the demolition contractor) operate an EMS covering their main operations. The EMS must be third party certified, to **ISO 14001:2015(10)**, EMAS (EU Eco-Management and Audit Scheme) or equivalent standard, or be in compliance with BS8555:2016. **2)** All parties who at any point manage the construction site (e.g. the principal contractor, the demolition contractor) implement best practice pollution prevention policies and procedures on site in accordance with Working at construction and demolition sites: **PPG6, Pollution Prevention Guidelines**. **Design Stage Evidence:** - Letter of Commitment. **Post Construction Stage Evidence:** - A copy of the principal contractors EMS/EMAS certificate or for BS 8555, evidence of their status, e.g. a copy of their phase 4 audit.
Man 3b	**Sustainability Champion**	1	1	0.52%	Sustainability Champion	**BREEAM Criteria:** Involve a BREEAM AP in the project at an appropriate time and level to: a. 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. b. Monitor construction progress against the performance targets agreed throughout all stages where decisions critically impact BREEAM performance. c. Proactively identify risks and opportunities related to the procurement and construction process and the achievement of the targets agreed.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						d. Provide feedback to the constructors and the project team as appropriate to support them in taking corrective actions and achieving their agreed performance targets. e. Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team and the provision to the assessor. **Design Stage Evidence:** - Letter of instruction to BREEAM AP. - Formal letter of Commitment. **Post Construction Stage Evidence:** - Meeting minutes / communication records / formal notes of conversations and other statements reporting on discussions related to performance targets and maximising performance. - BREEAM AP Report.
Man 3c	**Responsible Construction Management**	2	2	0.52%	Main Contractor	**BREEAM Criteria:** The Main Contractor to register with CCS and achieve a score of beyond compliance (>35) and confirm there is safe access in and around the buildings at the point of handover. **Design Stage Evidence:** - Letter of Commitment - Letter of Registration to CCS Scheme **Post Construction Stage Evidence:** - Final CCS Report
	Pre-requisite	-	-		Design Team	**BREEAM Criteria:** Assign responsibility to an individual for monitoring, recording and reporting energy use, water consumption and transportation data (where measured) resulting from all on-site construction processes (and dedicated off-site manufacturing) throughout the build programme.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						To ensure the robust collection of information, this individual must have the appropriate authority and responsibility to request and access the data required. Where appointed, the BREEAM AP could perform this role. **Design Stage Evidence:** Letter of Commitment **Post Construction Stage Evidence:** As per Design Stage.
Man 3d	**Monitoring of Construction site impacts (Energy and Water)**	1	1	0.52%	Main Contractor	**BREEAM Criteria:** <u>Energy Consumption</u> Main Contractor sets 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. Monitor and record data for the energy consumption described. Report the total carbon dioxide emissions (total kg CO_2/project value) from the construction process via BREEAM Projects. <u>Water Consumption</u> Set targets for the potable water consumption (m^3) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation. Monitor and record data for the potable water consumption. Use the collated data to report the total net water consumption (m^3), i.e. consumption minus any recycled water use from the construction process via BREEAM Projects. **Design Stage Evidence:** - Letter of Commitment

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Post Construction Stage Evidence: - Final monitoring and recording data
Man 3e	**Monitoring of Construction Site Impacts (Transport)**	1	1	0.52%	Main Contractor	**BREEAM Criteria:** Main Contractor sets targets for transportation movements and impacts resulting from delivery of the majority of construction materials to site and construction waste from site. As a minimum cover: 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: a.i. Materials used in major building elements (i.e. those defined in BREEAM issue Mat 01 Environmental impacts from construction products - Building life cycle assessment (LCA)). a.i. Ground works and landscaping materials. b. transportation of construction waste from the construction gate to waste disposal processing or recovery centre gate. This monitoring must cover the construction waste groups outlined in the project's resource management plan. Monitor and record data for the transportation movements as described above. Using the collated data, report separately for materials and waste, the total transport-related carbon dioxide emissions ($kgCO_2$-eq), plus total distance travelled (km) via BREEAM Projects (for the purposes of potential future BREEAM performance benchmarking). **Design Stage Evidence:** - Letter of Commitment **Post Construction Stage Evidence:** - Final monitoring and recording data

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Man 4 - Commissioning and Handover						
Man 4a MINIMUM STANDARD	Commissioning and testing schedule and responsibilities	1	1	0.52%	Client/ M&E	**BREEAM Criteria:** **1) Prepare a schedule of commissioning and testing. The schedule identifies and includes a suitable timescale for commissioning and re-commissioning of all complex and non-complex building services and control systems and for testing and inspecting building fabric.** The schedule identifies the appropriate standards for all commissioning activities to be conducted, where applicable, in accordance with: 2.a Current Building Regulations 2.b BSRIA guidelines (16) 2.c CIBSE guidelines (17) 2.d Other appropriate standards. **2)** Where a building management system (BMS) is specified: a. Carry out commissioning of air and water systems when all control devices are installed, wired and functional. b. Include physical measurements of room temperatures, off-coil temperatures and other key parameters, as appropriate, in commissioning results. c. The BMS or controls installation should be running in auto with satisfactory internal conditions prior to handover. d. All BMS schematics and graphics (if BMS is present) are fully installed and functional to user interface prior to handover. **3) Appoint an appropriate project team member to monitor and programme pre-commissioning, commissioning and testing.** Where necessary include re-commissioning activities on behalf of the client. **4) The principal contractor accounts for the commissioning and testing programme, responsibilities and criteria within their budget and the main programme of works.** Allow the required time to complete all commissioning and testing activities prior to handover.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Design Stage Evidence: - Letter of Commitment - Copy of Commissioning Schedule - Relevant sections / clauses of the building specification / contract - Copy of Programme of Works confirming commissioning has been accounted for. **Post Construction Stage Evidence:** - Copies of commissioning records / reports - Formal Letter of Confirmation listing systems commissioned in line with the Commissioning Schedule, along with details of the details of the standards/codes/Building Regulations that each system has been commissioned in accordance with. - Formal letter confirming the BMS commissioning procedures carried out in line with the BREEAM requirements.
Man 4b	**Commissioning – design and preparation**	1	1	0.52%	M&E	**BREEAM Criteria:** **1)** During the design stage, the client or the principal contractor appoints an appropriate individual with responsibility for: a. Undertaking design reviews and giving advice on suitability for ease of commissioning. b. Providing commissioning management input to construction programming and during installation stages. c. Management of commissioning, performance testing and handover or post-handover stages. **For buildings with complex building services and systems, this role needs to be carried out by a specialist commissioning manager (can either be a specialist from the same organisation as the Main Contractor, or a separate external instruction).** **Design Stage Evidence:** - Letter of Commitment - Relevant sections / clauses of the building specification / contract

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Post Construction Stage Evidence: - Copies of commissioning records / reports - Formal letter confirming the commissioning responsibilities carried out by the specialist commissioning manager, for all complex systems.
Man 4c	**Testing and inspecting building fabric**	1	0	0.52%	Main Contractor	<u>Credit Not Targeted</u> **BREEAM Criteria:** **1)** Achieve the 'Commissioning – Testing Schedule and responsibilities' credit. **2)** Complete post-construction testing and inspection to quality-assure the integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths (this is through **airtightness testing** and a **thermographic survey**). A suitably qualified professional undertakes the survey and testing in accordance with the appropriate standard. **3)** Rectify any defects identified during post-construction testing and inspection prior to building handover and close out. Any remedial work must meet the required performance characteristics for the building or element as defined at the design stage. **Design Stage Evidence:** - Letter of Commitment. **Post Construction Stage Evidence:** - Copy of the thermographic survey results and air tightness testing results and, where applicable, a formal letter to confirm the measures taken to rectify any defects.
Man 4d	**Handover**	1	1	0.52%	Design Team	**BREEAM Criteria:** **1)** Prior to handover, develop two building user guides for the following users: a: A non-technical user guide for distribution to the building occupiers.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						b: A technical user guide for the premises facilities managers. Draft copies will be developed and discussed with users first (where the building occupants are known) to ensure the guide is most appropriate and useful to potential users. **2)** Prepare two training schedules timed appropriately around handover and proposed occupation plans for the following users: a: A non-technical training schedule for the building occupiers. b: A technical training schedule for the premises facilities managers. **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and/or a formal letter of commitment confirming the requirement to develop two compliant Building User Guides. - Relevant sections/clauses of the building specification/contract and/or a formal letter of commitment confirming the requirement to develop two training schedules. **Post Construction Stage Evidence:** - Copy of the two BREEAM compliant Building User Guides required, covering the minimum BREEAM contents. - Formal letter confirming that the Building User Guide has been distributed to all building occupiers and premises managers. - Copy of the two training schedules required, covering the minimum BREEAM contents.
Man 5 – Aftercare						
Man 5a	**Aftercare Support**	1	1	0.52%	Developer	**BREEAM Criteria:** **1)** Provide aftercare support to the building occupiers through having in place operational infrastructure and resources. This includes as a minimum:

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						• A meeting between the aftercare support team or individual, and the building occupier or management team (prior to initial occupation, or as soon as possible thereafter) to: • Introduce the aftercare support available, including the content of the building user guide (where it exists) and training schedule. • Present key information about features of the building including the design intent and how to use the building to ensure it operates as efficiently and effectively as possible. • On-site facilities management training including: • A walkabout of the building **AND** • introduction to and familiarisation with the building systems, their controls and how to operate them in accordance with the design intent and operational demands. • Provide initial aftercare support for at least the first month of building occupation, e.g. weekly attendance on-site, to support building users and management (the level of frequency will depend on the complexity of the building and building operations). • Provide longer term aftercare support for occupiers for at least the first 12 months from occupation, e.g. a helpline, nominated individual or other appropriate system to support building users and management. **2)** Establish operational infrastructure and resources to coordinate the collection and monitoring of energy and water consumption data for a minimum of 12 months, once the building is substantially occupied. This facilitates analysis of discrepancies between actual and predicted performance, with a view to adjusting systems and user behaviours accordingly. **Design Stage Evidence:** - Letter of Commitment - Relevant sections / clauses of the building specification / contract

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Post Construction Stage Evidence: - Contract to provide compliant aftercare support and training. - Commissioning records, reports and letter of appointment.
Man 5b	**Commissioning - Implementation**	1	1	0.52%	M&E	**BREEAM Criteria:** **1)** Complete the following commissioning activities over a minimum 12-month period, once the building becomes substantially occupied. **Complex systems**: The specialist commissioning manager will: a. Identify changes made by the owner or operator that might have caused impaired or improved performance. b. Test all building services under full load conditions, i.e. heating equipment in mid-winter, cooling and ventilation equipment in mid-summer and under part load conditions (spring and autumn). c. Where applicable, carry out testing during periods of extreme (high or low) occupancy. d. Interview building occupants (where they are affected by the complex services) to identify problems or concerns regarding the effectiveness of the systems. e. Produce monthly reports comparing sub-metered energy performance to the predicted one. f. Identify inefficiencies and areas in need of improvement. g. Re-commission systems (following any work needed to serve revised loads) and incorporate any revisions in operating procedures into the operations and maintenance (O&M) manuals. **Simple systems** (naturally ventilated): The external consultant, aftercare team or facilities manager will: a. Review thermal comfort, ventilation, and lighting, at three, six and nine month intervals after initial occupation, either by measurement or occupant feedback. b. Identify deficiencies and areas in need of improvement.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						c. Re-commission systems and incorporate any relevant revisions in operating procedures into the O&M manuals. **Design Stage Evidence:** - Letter of Commitment - Relevant sections / clauses of the building specification / contract **Post Construction Stage Evidence:** - As per Design Stage.
Man 5c	**Post Occupancy Evaluation**	1	1	0.52%	End Occupier	<u>Credit Not Targeted</u> **BREEAM Criteria:** **1)** The client or building occupier commits to carry out a POE exercise (see Definitions on the facing page) one year after the building is substantially occupied. This gains comprehensive in-use performance feedback identifies gaps between design intent and in-use performance. The aim is to highlight any improvements or interventions that need to be made and to inform operational processes. **An independent party carries out the POE covering**: a. A review of the design intent and construction process (review of design, procurement, construction and handover processes). b. Feedback from a wide range of building users including facilities management on the design and environmental conditions of the building covering: i. Internal environmental conditions (light, noise, temperature, air quality) ii. Control, operation and maintenance iii. Facilities and amenities iv. Access and layout v. Energy and water consumption vi. Other relevant issues, where appropriate

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						2) The independent party provides a report with lessons learned to the client and building occupiers. **3)** The client or building occupier commits funds to pay for the POE in advance. **Design Stage Evidence:** - Letter of Commitment - Relevant sections / clauses of the building specification / contract **Post Construction Stage Evidence:** - Letter of appointment - Contract to provide POE exercise.
Health and Wellbeing						
Hea 1 - Visual Comfort						
Hea 1a	**Glare Control**	1	1	0.82%	Architect	**BREEAM Criteria:** **1)** Identify areas at risk of glare using a glare control assessment. The glare control assessment also justifies any areas deemed not at risk of glare. **2)** Where risk has been identified within a relevant building area, a glare control strategy issued to design out the potential for glare. The glare control strategy does not increase energy consumption used for lighting. This is achieved by: a. Maximising daylight levels in all weather, cloudy or sunny AND b. Ensuring the use or location of shading does not conflict with the operation of lighting control systems. **Definition**: Glare control - relevant building areas *For glare control include areas of the building where lighting and resultant glare could be problematic for users, e.g. those areas that have been designed to contain or use workstations, projector screens etc. and sports halls.* **Design Stage Evidence:**

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- Glare control assessment identifying areas at risk of glare and building form, layout and/or design measures implemented in order to design out potential glare in all relevant building areas. **Post Construction Stage Evidence:** - Formal letter confirming that the building has been constructed according to measures identified in the glare control assessment.
Hea 1b	**Daylighting**	2	0	0.82%	Daylight Consultant	<u>Credit Not Targeted</u> **BREEAM Criteria:** **1)** Daylighting criteria have been met: - **80% of building areas that are designed to be occupied for 30 minutes or more achieve a 2% Average Daylight Factor** **Definition:** Daylighting - relevant building areas *For the purpose of BREEAM, this is defined as areas within the building where good daylighting is considered to be of benefit to the building users (typically those areas occupied continuously for 30 minutes or more). This includes the* *following (where occupied continuously for 30 minutes or more) specifically stated because they are often omitted:* *1. Sports hall exercise spaces* *4. Kitchen and catering areas* *5. General communal areas* *6. Small offices (including those within multi-residential buildings)* *7. Meeting rooms (including those within multi-residential buildings)* *8. Leisure areas* *9. Any area that may involve close up work.* *However, this <u>excludes</u> the following (where present):* *Media, arts production, SEN sensory spaces, and other areas requiring strictly*

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						controlled acoustic or lighting conditions. **Design Stage Evidence:** - Daylighting Calculations **Post Construction Stage Evidence:** - Formal letter confirming that the building has been constructed according to measures identified in the Daylighting assessment.
Hea 1c	**View Out**	1	1	0.82%	Architect	**BREEAM Criteria:** **1) 95% of the floor area in 95% of spaces for each relevant building area (rooms designed to have desks / workstations are within 8m of an external wall which has a window which is at least 20% of the surrounding wall area.** Where the room depth is greater than 8m, the percentage of window opening must be at least the same as the values in Table 1.0 BS8206: Part 2. **Definition/Applicable Rooms:** BREEAM defines relevant building areas requiring a view out to include areas of the building where: 1. There are or will be workstations or benches or desks for building users. 2. Close work will be undertaken, or visual aids will be used. **Design Stage Evidence:** - View Out Calculations **Post Construction Stage Evidence:** - Formal letter confirming that the building has been constructed according to measures identified in the View Out calculations.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Hea 1d	**Internal and External Lighting**	1	1	0.82%	M&E	**BREEAM Criteria:** **1) Internal Lighting –** **Internal lighting in all relevant areas of the building is designed to provide illuminance (lux) levels and colouring rendering index in accordance with the SLL Code for Lighting 2012 and any other relevant industry standard.** Internal lighting should be appropriate to the tasks undertaken, accounting for building user concentration and comfort levels. **For areas where computer screens are regularly used, the lighting design complies with CIBSE Lighting Guide 7** sections 2.4, 2.13 to 2.15, 2.20, and 6.10 to 6.20. This gives recommendations highlighting: a. Limits to the luminance of the luminaires to avoid screen reflections. b. Any area where a surface is used to reflect light into a space, such as up-lighting, the recommendations refer to the luminance of the lit ceiling rather than the luminaire; a design team calculation is usually required to demonstrate this. c. Recommendations for direct lighting, ceiling illuminance, and average wall illuminance. **2) Zoning and Controls –** Internal lighting is zoned to allow for occupant control. Zoning is in accordance with the criteria below for relevant areas present within the building: - **In office areas, zones of no more than four workplaces** - **Workstations adjacent to windows or atria and other building areas separately zoned and controlled** - Seminar and lecture rooms: zoned for presentation and audience areas - Library spaces: separate zoning of stacks, reading and counter areas - Teaching space or demonstration area

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- Whiteboard or display screen - Auditoria: zoning of seating areas, circulation space and lectern area - Dining, restaurant, café areas: separate zoning of servery and seating or dining areas Exclusions from zoning and controls - The following internal areas are excluded from the lighting zone requirements: - Media and arts production spaces - Sports facilities (exercise spaces only, including hydrotherapy and physiotherapy areas). **3) External Lighting –** All external lighting located within the construction zone is designed in accordance with **BS 5489-1:2013 Lighting of roads and public amenity areas** and **BS EN 12464-2:2014 Light and lighting - Lighting of work places - Part 2: Outdoor work places**. **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and/or a formal letter - Design drawings demonstrating the internal and external lighting. **Post Construction Stage Evidence:** - Formal letter confirming that there have been no changes to the internal and external lighting design. - 'As built' drawings showing the internal lighting layout, zones and occupant controls as per the design stage. - BREEAM assessor's site inspection.
Hea 2 Indoor Air Quality						
Hea 2a	**Pre-requisite - Indoor Air Quality Plan**	Pre-req	Pre-req	-	Design Team/ Indoor Air Quality Specialist	**BREEAM Criteria:** **1)** A site-specific indoor air quality plan has been produced and implemented in accordance with the guidance in Guidance Note GN06 during the **design**

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						stages. The objective of the plan is to facilitate a process that leads to design, specification and installation decisions and actions that minimise indoor air pollution during occupation of the building. The indoor air quality plan must consider the following: a. Removal of contaminant sources b. Dilution and control of contaminant sources: c. Where present, consideration is given to the air quality requirements of specialist areas such as laboratories d. Procedures for pre-occupancy flush out e. Third party testing and analysis f. Maintaining good indoor air quality in-use. **Design Stage Evidence:** - Copy of Indoor Air Quality Plan. **Post Construction Stage Evidence:** - As per Design Stage.
Hea 2b	**Ventilation**	1	0	0.82%	M&E	**Credit Not Targeted** **BREEAM Criteria:** **1)** The building has been designed to minimise the indoor concentration and recirculation of pollutants in the building as follows: a. Provide fresh air into the building in accordance with the criteria of the relevant standard for ventilation. b. Ventilation pathways are designed to minimise the ingress and build-up of air pollutants inside the building. c. Where present, HVAC systems must incorporate suitable filtration to minimise external air pollution, as defined in BS EN16798-3:2017(45). The specified filters should achieve supply air classification of at least SUP 2.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						d. Areas of the building subject to large and unpredictable or variable occupancy patterns have carbon dioxide (CO_2) or air quality sensors specified and: i. In mechanically ventilated buildings or spaces: sensors are linked to the mechanical ventilation system and provide demand-controlled ventilation to the space. ii. In naturally ventilated buildings or spaces: sensors either have the ability to alert the building owner or manager when CO_2 levels exceed the recommended set point, or are linked to controls with the ability to adjust the quantity of fresh air, i.e. automatic opening windows or roof vents. **2)** For naturally ventilated or mixed mode buildings, the design demonstrates that the ventilation strategy provides adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates in accordance with CIBSE AM10. **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and design drawings demonstrating that fresh air into the building is designed in accordance with the criteria of the relevant standard for ventilation. **Post Construction Stage Evidence:** - Post completion confirmation that there has been no changes to the information provided at design stage. - ' As built' drawings at practical completion.
Hea 2c	**Volatile Organic Compounds (VOCs)**	2	1	0.82%	Design Team and Main Contractor	**BREEAM Criteria:** One credit Three out of the five product types meet the emission limits, testing requirements and any additional requirements listed in Table 5.11 of the BREEAM Technical Manual. Where wood-based products are not one of three

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						selected product types, all wood-based products used for internal fixtures and fittings must be tested and classified as formaldehyde E1 class as a minimum. Two Credits All the product types listed meet the emission limits, testing requirements and any additional requirements listed in Table 5.11 of the BREEAM Technical Manual. **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and/or a formal letter confirming the requirement for product types to meet the emission limits, testing requirements and any additional requirements listed in Table 5.11 of the BREEAM NC 2018 scheme guidance. **Post Construction Stage Evidence:** - Manufacturer's literature and/or a formal letter from the product manufacturer confirming compliance with the emission limits, testing requirements and any additional requirements listed in Table 5.11 of the BREEAM NC 2018 scheme guidance.
Hea 2d	**Volatile organic compound (VOC) emission levels (post construction)**	1	1	0.82%	Main Contractor/ Indoor Air Quality Specialist	**BREEAM Criteria:** **1)** The formaldehyde concentration in indoor air is measured post construction (but pre-occupancy) and does not exceed 100µg/m³ averaged over 30 minutes (World Health Organization guidelines for indoor air quality: Selected pollutants, 2010. **2)** The formaldehyde sampling and analysis is performed in accordance with ISO 16000-2 and ISO 16000-3. **3)** The total volatile organic compound (TVOC) concentration in indoor air is measured post construction (but pre-occupancy) and does not exceed 500µg/m³over 8 hours. **4)** The TVOC sampling and analysis is performed in accordance with ISO 16000-5 and ISO 16000-6 or ISO 16017-1.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						5) Where levels are found to exceed these limits, the project team confirms the measures that have, or will be, undertaken in accordance with the IAQ plan, to reduce the TVOC and formaldehyde levels to within the above limits. **6)** The measured concentration levels of formaldehyde (µg/m³) and TVOC (µg/m³) are reported, via the BREEAM Scoring and Reporting Tool. **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and/or a formal letter of commitment **Post Construction Stage Evidence:** - Copy of the VOC and formaldehyde testing report confirming emission levels that are compliant with the required standards. - Formal written confirmation of the measures taken, in accordance with the projects IAQ plan, to reduce the levels to within the stipulated limits (where applicable).
Hea 4 Thermal Comfort						
Hea 4a	**Thermal modelling**	1	1	0.82%	Thermal Modeller/M&E	**BREEAM Criteria:** **1)** Thermal modelling has been carried out using software in accordance with CIBSE AM11 Building Energy and Environmental Modelling during the **design stages**. **2) The software used to carry out the simulation at the detailed design stage provides full dynamic thermal analysis.** For smaller and more basic building designs with less complex heating or cooling systems, an alternative less complex means of analysis may be appropriate (such methodologies must still be in accordance with CIBSE AM11). **3)** The modelling demonstrates that: a. **For air-conditioned buildings, summer and winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in**

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						CIBSE Guide A Environmental design, Table 1.5; or other appropriate industry standard (where this sets a higher or more appropriate requirement/level for the building type). b. **For naturally ventilated/free running buildings**: i. **Winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design**, Table 1.5; or other appropriate industry standard (where this sets a higher or more appropriate requirement/level for the building type). ii. **The building is designed to limit the risk of overheating, in accordance with the adaptive comfort methodology outlined in CIBSE TM52: The limits of thermal comfort: avoiding overheating in European buildings.** **4) For air-conditioned buildings, the PMV (predicted mean vote) and PPD (predicted percentage of dissatisfied) indices based on the above modelling are reported via the BREEAM assessment scoring and reporting tool.** **Design Stage Evidence:** - Thermal Modelling Report - PMV (Predicted Mean Vote) and PPD (Predicted Percentage of Dissatisfied) indices based on the thermal modelling. **Post Construction Stage Evidence:** - Formal letter confirming that there have been no changes to the design since the thermal comfort assessment has been carried out, therefore equipment has been installed as per the design stage specification in order to achieve the design heating and cooling internal temperatures.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Hea 4b	**Designing for future thermal comfort**	1	1	0.82%	Thermal Modeller/M&E	**BREEAM Criteria:** **1)** The 'Thermal Modelling' criteria are achieved. **2)** The thermal modelling demonstrates that the relevant requirements are achieved for a projected climate change environment. Where this is not met, the project team demonstrates how the building has been adapted or designed to be easily adapted in future using passive design solutions in order to subsequently meet the requirements. **3)** For air-conditioned buildings, the PMV and PPD indices based on the above modelling are reported via the BREEAM assessment scoring and reporting tool. **Design Stage Evidence:** - Thermal Modelling Report - PMV (Predicted Mean Vote) and PPD (Predicted Percentage of Dissatisfied) indices based on the thermal modelling. **Post Construction Stage Evidence:** - Formal letter confirming that there have been no changes to the design since the thermal comfort assessment has been carried out, therefore equipment has been installed as per the design stage specification in order to achieve the design heating and cooling internal temperatures.
Hea 4c	**Thermal zoning and controls**	1	1	0.82%	Thermal Modeller/M&E	**BREEAM Criteria:** **1)** The 'Thermal Modelling' criteria are achieved. **2) The thermal modelling analysis has informed the temperature control strategy for the building and its users.** The strategy for proposed heating or cooling systems demonstrates that it has addressed the following: a. Zones within the building, and how the building services could efficiently and appropriately heat or cool these areas. For example, consider the

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						different requirements for the central core of a building compared with the external perimeter adjacent to the windows. b. The degree of occupant control required for these zones. This is based on discussions with the end user (or alternatively building type or use specific design guidance, case studies, feedback) and considers: i. User knowledge of building services. ii. Occupancy type, patterns and room functions (and therefore appropriate level of control required). iii. How the user is likely to operate or interact with the systems, e.g. are they likely to open windows, access thermostatic radiator valves (TRV) on radiators, change air-conditioning settings etc. iv. The user expectations (this may differ in the summer and winter) and degree of individual control (i.e. obtaining the balance between occupant preferences, for example some occupants like fresh air and others dislike draughts). c. How the proposed systems will interact with each other (where there is more than one system) and how this may affect the thermal comfort of the building occupants. d. The need or otherwise for an accessible building user actuated manual override for any automatic systems. **Design Stage Evidence:** - Copy of the temperature control strategy, covering the minimum content required by BREEAM, which has been influenced by the thermal modelling to demonstrate appropriate thermal zones and occupant controls. - Design drawings demonstrating the thermal zones and occupant controls within each occupied area of the building. **Post Construction Stage Evidence:** - Formal letter confirming that there have been no changes to the design stage since the thermal comfort assessment has been carried out.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Hea 5 - Acoustic Performance						
Hea 5a	**Performance Standard**	3	3	0.82%	Acoustician	**BREEAM Criteria:** **1)** During the **design stages** the building meets the appropriate acoustic performance standards and testing requirements for the acoustic principles of: a. Indoor ambient noise level b. Sound Insulation c. Room Acoustics COMMUNITY CENTRE SPECIFIC REQUIEMENTS: Indoor ambient noise levels - Achieve indoor ambient noise levels that comply with the design ranges given in Section 7 of BS8233:2014. Sound Insulation - The sound insulation between rooms and other occupied areas complies with the performance criteria given in Section 7 of BS8233:2014. Room Acoustics - Achieve the requirements relating to sound absorption and reverberation times, where applicable, set out in Section 7 of BS 8233:2014. **Design Stage Evidence:** - Acousticians report demonstrating compliance with appropriate acoustic performance standards and testing requirements for sound insulation, indoor ambient noise levels and room acoustics. - Relevant sections/clauses of the building specification/contract and/or a formal letter confirming that a programme of pre-completion testing will be carried out **Post Construction Stage Evidence:** - Acousticians' pre-completion testing report confirming that the requirements for sound insulation, indoor ambient noise levels and reverberation have been met. - Formal letter, where relevant, to confirm that all required remedial works have been carried out in accordance with the acousticians' recommendations.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Hea 6 - Safety and Security						
Hea 6a	**Consultation with ALO**	1	1	0.82%	Architect/ALO	**BREEAM Criteria:** **1)** 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. **2)** 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. **3)** 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. **Design Stage Evidence:** - Security Needs Assessment in line with BREEAM requirements. **Post Construction Stage Evidence:** - Formal letter confirming that the recommendations contained within the SNA have been incorporated within he building design (with examples).
Hea 07 – Safe and Healthy Surroundings						
Hea 7a	**Safe Access**	1	0	0.82%	Architect/Landscape Architect	**Credit Not Targeted** **BREEAM Criteria:** **1)** Where external site areas form part of the assessed development the following apply: **2) Dedicated and safe cycle paths are provided from the site entrance to any cycle storage and connect to offsite cycle paths where applicable.** **3) Dedicated and safe footpaths are provided on and around the site providing**

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						suitable links for the following: a. The site entrance to the building entrance. b. Car parks (where present) to the building entrance. c. The building to outdoor space. d. Connecting to off-site paths where applicable. 4) Pedestrian drop-off areas are designed off, or adjoining to, the access road and should provide direct access to other footpaths. 5) Where vehicle delivery access and drop-off areas form part of the assessed development, the following apply: Delivery areas are not accessed through general parking areas and do not cross or share the following: a. Pedestrian and cyclist paths. b. Outside amenity areas accessible to building users and general public. 6) There is a dedicated parking or waiting area for goods vehicles with appropriate separation from the manoeuvring area and staff and visitor car parking. 7) Parking and turning areas are designed for simple manoeuvring according to the type of delivery vehicle likely to access the site, thus avoiding the need for repeated shunting. Design Stage Evidence: - Design Drawings - Letter of Commitment Post Construction Stage Evidence: - 'As Built' Drawings - Letter of Confirmation - Site Inspection Report

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Hea 7b	**Outside Space**	1	1	0.82%	Architect/Landscape Architect	**BREEAM Criteria:** **1)** There is an outside space providing building users with an external amenity area. The outside space must: - be an outdoor landscaped area, for example a garden, balcony or terrace; the majority of the space should be open to the sky. - have appropriate seating areas and be non-smoking. - be located to ensure it is accessible to all building users and avoids areas that will have disturbances from sources of noise (e.g. building services, car parks, busy roads, delivery areas etc.). **Design Stage Evidence:** - Formal letter of commitment. - Design drawings demonstrating the provision of an outside space providing building users with an external amenity area. **Post Construction Stage Evidence:** - Formal letter of confirmation. - 'As Built' drawings demonstrating the provision of an outside space providing building users with an external amenity area.
Energy						
Ene 1 - Reduction of CO2 Emissions						
Ene 1a MINIMUM STANDARD	**Reduction of CO_2 Emissions**	9	4	0.76%	Energy Assessor	**BREEAM Criteria:** **1)** Calculate an Energy Performance Ratio for New Construction (EPR NC). The methodology for the EPR NC calculation considers three metrics of modelled building performance when determining the number of credits achieved for this issue. The three metrics are: 1. The building's heating and cooling energy demand 2. The building's primary energy consumption 3. The total resulting CO_2-eq emissions.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Design Stage Evidence: - A copy of the building regulations output document from the approved software. **Post Construction Stage Evidence:** - As per interim design stage., but with the output documents from the approved software reflecting performance at the as-built stage of analysis. This must account for any changes to the specification during construction and the measured air leakage rate, ductwork leakage and fan performances (as required by building regulations).
Ene 1b	**Prediction of operational energy consumption**	4	0	0.76%	Energy Assessor/Design Team	<u>Credit Not Targeted</u> **BREEAM Criteria:** **1)** Involve relevant members of the design team in an energy design workshop focusing on operational energy performance. **2)** Undertake additional energy modelling during the design and post-construction stage to generate predicted operational energy consumption figures. **3)** Report predicted energy consumption targets by end use, design assumptions and input data (with justifications). **4)** Carry out a risk assessment to highlight any significant design, technical, and process risks that should be monitored and managed throughout the construction and commissioning process. **Design Stage Evidence:** - Workshop minutes, agreed outcomes. - 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.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Post Construction Stage Evidence: - As per interim design stage. - Where changes to design assumptions and input data have occurred at postconstruction stage, the energy modelling should be re-run to take into account those changes.
Ene 2 - Energy Monitoring						
Ene 2a **MINIMUM STANDARD**	**Sub-metering of major energy consuming systems**	1	1	0.76%	M&E	**BREEAM Criteria:** **1) Install energy metering systems so that at least 90% of the estimated annual energy consumption of each fuel is assigned to the end-use categories.** **2)** Meter the energy consumption in buildings according to the total useful floor area: **If the area is greater than 1,000m², by end-use category with an appropriate energy monitoring and management system.** If the area is less than 1,000m², use either: - an energy monitoring and management system or - Separate accessible energy sub-meters with pulsed or other open protocol communication outputs, for future connection to an energy monitoring and management system. **3) Building users can identify the energy consuming end uses, for example through labelling or data outputs.** **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and design drawings demonstrating the proposed metering strategy. - Details of the energy monitoring and management system. - Formal written confirmation that the end energy consuming uses will be identifiable to the building users i.e. through labelling or data outputs.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Post Construction Stage Evidence: - 'As built' drawings confirming the installed metering strategy in line with the design stage specification. - BREEAM assessor's site inspection.
Ene 2b	**Sub-metering of high energy load and tenancy areas**	1	1	0.76%	M&E	**BREEAM Criteria:** **1)** Monitor a significant majority of the energy supply with: a. An accessible energy monitoring and management system for: a.i tenanted areas, or; a.ii relevant function areas or departments in single occupancy buildings. - Kitchens (excluding small staff kitchens and food technology rooms) - Computer suites - Workshops - Lecture halls - Conference rooms - Drama studios - Swimming pools - Sports halls - Process areas - Laboratories - High containment suites within laboratories - Controlled environment chambers - Animal accommodation areas - Data centres - IT work and study rooms, including IT-equipped library space and any space with provision of more than one computer terminal per 5m² **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and design drawings demonstrating the proposed metering strategy. - Details of the energy monitoring and management system.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- Formal written confirmation that the end energy consuming uses will be identifiable to the building users i.e. through labelling or data outputs. **Post Construction Stage Evidence:** - 'As built' drawings confirming the installed metering strategy in line with the design stage specification. - BREEAM assessor's site inspection.
Ene 3 - External Lighting						
Ene 3	**External Lighting**	1	1	0.76%	M&E	**BREEAM Criteria:** **1)** No external lighting (which includes lighting on the building, at entrances, or signs), **OR;** **2) The average initial luminous efficacy of the external light fittings within the construction zone is not less than 70 luminaire lumens per circuit Watt.** **External light fittings are automatically controlled for prevention of operation during daylight hours AND presence detection (unless not appropriate due to night time operations).** **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and design drawings - Manufacturer's datasheets confirming the lamp lumens and circuit Watt for each fitting, confirming an average luminous efficacy of not less than 70 lumens per circuit Watt. **Post Construction Stage Evidence:** - 'As built' drawings showing the number and type of installed external light fittings - Where changes have occurred since the design stage specification, please provide manufacturer's datasheets for the installed fittings confirming the lamp lumens and circuit Watt of each fitting.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- BREEAM assessor's site inspection.
Ene 4 - Low Carbon Design						
Ene 4a	**Passive Design Analysis**	1	1	0.76%	M&E / Energy Assessor	**BREEAM Criteria:** **1)** Achieve the first credit Hea 04 Thermal comfort: One credit - Thermal modelling to demonstrate that the building design delivers appropriate thermal comfort levels in occupied spaces. **2)** The project team analyses the proposed building design and development during **Concept Design** to identify opportunities for the implementation of passive design measures **3)** Implement passive design measures to reduce the total heating, cooling, mechanical ventilation, lighting loads and energy consumption in line with the passive design analysis findings. **4)** Quantify the reduced total energy demand and carbon dioxide (CO_2-eq) emissions resulting from the passive design measures. **Design Stage Evidence:** - Passive Design Analysis Report. - Results from a dynamic simulation model demonstrating the reduced energy demand and CO_2-eq emissions from the specified passive design measures. **Post Construction Stage Evidence:** - As per interim design stage.
Ene 4b	**Free Cooling**	1	0	0.76%	M&E / Energy Assessor	**Credit Not Targeted** **BREEAM Criteria:** **1)** Achieve the passive design analysis credit. **2)** Include a free cooling analysis in the passive design analysis.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						3) Identify opportunities for the implementation of free cooling solutions. **4)** The building is naturally ventilated or uses any combination of the free cooling strategies listed below: - Night-time cooling (which could include the use of a high exposed thermal mass) - Ground coupled air cooling - Displacement ventilation (not linked to any active cooling system) - Ground water cooling - Surface water cooling - Evaporative cooling, direct or indirect - Desiccant dehumidification and evaporative cooling, using waste heat - Absorption cooling, using waste heat.
Ene 4b	**LZC Technologies**	1	1	0.76%	M&E / Energy Assessor	**BREEAM Criteria:** **1)** An energy specialist completes a feasibility study (see Low and zero carbon feasibility study on the next page) by the end of **Concept Design**. **2)** Establish the most appropriate recognised local (on-site or near-site) low and zero carbon (LZC) energy sources for the building or development based on the feasibility study. **3)** Specify local LZC technologies for the building or development in line with the feasibility study recommendations. **4)** Quantify the reduced regulated carbon dioxide (CO_2-eq) emissions resulting from the feasibility study. **Design Stage Evidence:** - LZV Feasibility Report - Results from a dynamic simulation model demonstrating reductions in CO_2-eq emissions from the specified low and zero carbon technology.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Post Construction Stage Evidence: - As per interim design stage.
Ene 6 - Energy Efficient Transportation Systems						
Ene 6	**Lifts & Escalators**	2	2	0.76%	Lift Supplier	**BREEAM Criteria:** **Energy Consumption** For specified lifts, escalators or moving walks (transportation types): a. **Analyse the transportation demand and usage patterns for the building to determine the optimum number and size of lifts, escalators or moving walks.** b. **Calculate the energy consumption** in accordance with BS EN ISO 25745 Part 2 (132) or Part 3 (133) for one of the following: - least two options for each transportation type (e.g. for lifts, hydraulic, traction or machine room-less (MRL)) OR; - At least two options considering different system arrangements and control strategies. c. **Consider the use of regenerative drives**, subject to the requirements in Regenerative drives in the BREEAM manual. d. **Specify the transportation system with the lowest energy consumption.** **Energy Efficient Features** 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.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Design Stage Evidence: - Transportation analysis and/or calculations based on usage patterns for the building - Letter of Commitment **Post Construction Stage Evidence:** - Manufacturer's datasheet for the installed lift, in line with the design stage specification. - Post completion confirmation that there has been no changes to the information provided at design stage. - BREEAM Assessor's site inspection.
Ene 8 - Energy Efficient Equipment						
Ene 8	**Energy Efficient Equipment**	2	0	0.76%	M&E/End Occupier	<u>Credit Not Targeted</u> **BREEAM Criteria:** **1)** Identify the building's unregulated energy consuming loads. Estimate their contribution to the total annual unregulated energy consumption of the building, assuming a typical or standard specification. **2)** Identify the systems or processes that use a significant proportion of the total annual unregulated energy consumption of the building. **3)** Demonstrate a meaningful reduction in the total annual unregulated energy consumption of the building. Table 6.5 (within the BREEAM Technical) lists some examples of significant contributors to unregulated energy consumption, and the associated criteria. If additional significant contributors, not listed in the table, will be specified, the design team should justify how a meaningful reduction will be achieved for these contributors. **Estimating annual unregulated energy consumption** - A method should be used that estimates actual energy use, based on expected equipment loads and hours of operation. The energy uses may be estimated by using simple hand

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						calculations, or benchmark data, or by the methods described in CIBSE TM54: Evaluating operational energy performance of buildings at the design stage. **Design Stage Evidence:** - Energy Efficient Equipment Report - Product datasheets **Post Construction Stage Evidence:** - Manufacturer's datasheet for the installed equipment, in line with the design stage specification. - Post completion confirmation that there has been no changes to the information provided at design stage. - BREEAM Assessor's site inspection.
Transport						
Tra 1 - Transport assessment and travel plan						
Tra 1	**Transport assessment and travel plan**	2	2	0.83%	BREEAM Assessor	**BREEAM Criteria:** **1)** No later than **Concept Design** stage, undertake a site-specific transport assessment (or develop a travel statement) and draft travel plan, which can demonstrably be used to influence the site layout and built form. **2)** The site-specific travel assessment (or statement) shall cover as a minimum: a: If relevant, travel patterns and attitudes of existing building or site users towards cycling, walking and public transport, to identify relevant constraints and opportunities. b: Predicted travel patterns and transport impact of future building or site users. c: Current local environment for pedestrians and cyclists, accounting for any age-related requirements of occupants and visitors. d: Reporting of the number and type of existing accessible amenities, within 500m of the site.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						e: Disabled access accounting for varying levels and types of disability, including visual impairment. f: Calculation of the existing public transport Accessibility Index (AI), g: Current facilities for cyclists. **3) Following a transport assessment, a site-specific travel plan that provides a long-term management strategy which encourages more sustainable travel will be produced.** The travel plan includes measures to increase or improve more sustainable modes of transport and movement of people and goods during the building's operation. **Design Stage Evidence:** - Copy of the travel plan based on a site-specific travel survey/assessment - Formal letter to confirm that the recommendations of the travel plan will be implemented post construction and supported by the building's management in operation. **Post Construction Stage Evidence:** - Formal letter confirming that the travel plan will be implemented and supported by the building's management in operation. - BREEAM assessor's site inspection.
Tra 2 – Sustainable Transport Measures						
Tra 2	**Sustainable Transport Measures**	10	5	0.83%	BREEAM Assessor	**BREEAM Criteria:** **1)** Award credits according to the existing Accessible Index (AI) of the project, and the total number of points achieved for the options implemented. 1. The existing AI calculated in Tra 01 achieves ≥ 8. **2. Demonstrate an increase over existing accessibility / dedicated service.** 3. Provide a public transport information system in a publicly accessible area, to allow building users access to up-to-date information on the available public transport and transport infrastructure. This may

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						include signposting to public transport, cycling, walking infrastructure or local amenities. 6. Provide electric recharging stations of a minimum of 3kW for at least 10% of the total car parking capacity for the development. 7. Set up a car sharing group or facility. 8. Consult with local Authority, agree and implement one proposition. **9. Install compliant cycle storage spaces to meet the minimum levels.** **10. Provide at least two compliant cyclists' facilities for the building users: Showers, Changing facilities, Lockers or Drying spaces.** **11. At least three existing accessible amenities are present.** **12. Ensure a minimum of one new accessible amenity (eg access to outdoor open space), is provided.** **Design Stage Evidence:** - Provide evidence demonstrating the sustainable transport measures being implemented on site. - Design Stage drawings **Post Construction Stage Evidence:** - Post Construction Stage drawings - BREEAM assessor's site inspection.
Water						
Wat 1 - Water Consumption						
Wat 1 MINIMUM STANDARD	**Water Consumption**	5	3	0.77%	Architect/M&E	**BREEAM Criteria:** **1)** Use the BREEAM Wat 01 calculator to assess the efficiency of the domestic water-consuming components. **2)** Use the standard Wat 01 method to compare the water consumption (litres/person/day) for the assessed building against a baseline performance. **3)** Award BREEAM credits based upon the percentage improvement over baseline building water consumption. The efficiency of the following 'domestic scale' water-consuming components must be included in the assessment:

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- WCs - Urinals - Taps (wash hand basins and where specified kitchen taps and waste disposal unit) - Showers - Baths - Dishwashers (domestic and commercial sized) and - Washing machine (domestic and commercial or industrial sized) No. of BREEAM credits — % improvement 1 — 12.5% 2 — 25% **3 — 40%** 4 — 50% 5 — 55% 1 exemplary performance credit — 65% **Design Stage Evidence:** - A completed copy of the BREEAM Wat 01 calculator. - Product data sheets supporting the data used to complete the calculator tool. **Post Construction Stage Evidence:** - As per Design Stage.
Wat 2 - Water Monitoring						
Wat 2 **MINIMUM STANDARD**	**Water Monitoring**	1	1	0.77%	M&E	**BREEAM Criteria:** **1) Specify a water meter on the mains water supply to each building**. This includes instances where water is supplied via a borehole or other private source. **2)** For water-consuming plant or building areas consuming 10% or more of the building's total water demand:

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						a. Fit easily accessible sub-meters OR b. Install water monitoring equipment integral to the plant or area. **3)** For each meter (main and sub): a. Install a pulsed or other open protocol communication output AND b. Connect it to an appropriate utility monitoring and management system, e.g. a building management system (BMS), for the monitoring of water consumption. If there is no BMS system in operation at Post Construction stage, award credits provided that the system used enables connection when the BMS becomes operational. In buildings with swimming pools, or large water tanks and aquariums, fit separate sub-meters on the water supply of the above and any associated changing facilities (toilets, showers etc.) irrespective of their water consumption levels. **In buildings containing laboratories, fit a separate water meter on the water supply to any process or cooling loop for 'plumbed-in' laboratory process equipment, irrespective of their water consumption levels.** **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and design drawings - Letter of Commitment **Post Construction Stage Evidence:** - 'As built' drawings confirming the installation of a water meter on the mains water supply to the building. - Formal letter confirming that the water meter and sub-meters will be connected to the BMS. - BREEAM assessor's site inspection.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Wat 3 - Water Leak Detection and Prevention						
Wat 3a	**Leak detection system**	1	1	0.77%	M&E	**BREEAM Criteria:** **1) A leak detection system which is capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter is installed.** The leak detection system must be: a. A permanent automated water leak detection system that alerts the building occupants to the leak OR an inbuilt automated diagnostic procedure for detecting leaks is installed. b. Activated when the flow of water passing through the water meter/data logger is at a flow rate above a pre-set maximum for a pre-set period of time. c. Able to identify different flow and therefore leakage rates, e.g. continuous, high and/or low level, over set time periods. d. Programmable to suit the owner/occupiers' water consumption criteria. e. Where applicable, designed to avoid false alarms caused by normal operation of large water-consuming plant such as chillers. **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and design drawings confirming the specification of a water leak detection system - Letter of Commitment **Post Construction Stage Evidence:** - 'As built' drawings showing the installation of a BREEAM compliant water leak detection system. - BREEAM assessor's site inspection.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Wat 3b	**Flow Control Devices**	1	1	0.77%	M&E	**BREEAM Criteria:** Install flow control devices that regulate the water supply to each WC area or sanitary facility according to demand, in order to minimise undetected wastage and leaks from sanitary fittings and supply pipework. **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and design drawings confirming the specification of flow control devices that regulate the supply of water to each WC area/facility i.e. solenoid valves connected to PIR controls to ensure water is supplied only when needed and therefore prevent minor water leaks. **Post Construction Stage Evidence:** - 'As built' drawings showing the installation of solenoid valves connected to PIRs in each toilet facility. - BREEAM assessor's site inspection.
Materials						
Mat 1 Environmental impacts from construction products - Building life cycle assessment (LCA)						
Mat 1	**Environmental impacts from construction products - Building life cycle assessment (LCA)**	6	0	1.07%	Architect/Structural Engineer	<u>Credit Not Targeted</u> **BREEAM Criteria:** **1)** During the **Concept Design**, demonstrate the environmental performance of the building as follows: a. 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. b. Submit the Mat 01/02 Results Submission Tool to BRE at the end of **Concept Design**, and before planning permission is applied for (that includes external material or product specifications). **2)** During **Technical Design**, demonstrate the environmental performance of the building as follows:

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						a. 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. b. Submit the Mat 01/02 Results Submission Tool to BRE at the end of **Technical Design**. **Design Stage Evidence:** - LCA 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). **Post Construction Stage Evidence:** - As per Design Stage.
Mat 02 - Environmental impacts from construction products – Environmental Product Declarations (EPD)						
Mat 2	**Environmental impacts from construction products – (EPD)**	1	1	1.07%	Architect/Structural Engineer	**BREEAM Criteria:** Specify construction products with EPD that achieve a total EPD points score of at least 20, according to the Methodology in the BREEAM Technical Manual. **Design Stage Evidence:** - The Mat 01/02 Results Submission tool. - Copies of EPD certificates. **Post Construction Stage Evidence:** - As per Design Stage.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Mat 3 - Responsible Sourcing of Materials						
Mat 3a MINIMUM STANDARD	**Timber Procurement**	Pre-Req.	Pre-req.	-	Main Contractor	**BREEAM Criteria:** All timber used on site will be sourced in accordance with the UK Government's Timber Procurement Policy. **Design Stage Evidence:** - Letter of Commitment confirming all timber will be legally harvested and traded timber. **Post Construction Stage Evidence:** - Copies of all relevant certificates or chain of custody evidence.
Mat 3b	**Sustainable Procurement Plan**	1	1	1.07%	Main Contractor	**BREEAM Criteria:** **1)** A sustainable procurement plan must be used by the design team to guide specification towards sustainable construction products. The plan must: a. Be in place before **Concept Design**. b. Include sustainability aims, objectives and strategic targets to guide procurement activities. Note: targets do not need to be achieved for the credit to be awarded but justification must be provided for targets that are not achieved. c. Include a requirement for assessing the potential to procure construction products locally. There must be a policy to procure construction products locally where possible. d. Include details of procedures in place to check and verify the effective implementation of the sustainable procurement plan. **Design Stage Evidence:** - Copy of the sustainable procurement plan, which has been produced during Concept Design - Letter of Commitment **Post Construction Stage Evidence:** - As per Design Stage.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Mat 3c	**Major Building Elements**	3	2	1.07%	Main Contractor	**BREEAM Criteria:** Key building materials are responsibly sourced to reduce environmental and socio-economic impacts, as demonstrated through the specification of products with compliant Responsible Sourcing Certification (BES 6001, ISO 14001, FSC, PEFC). **Design Stage Evidence:** - Complete 'Mat 03' table. - Responsible sourcing certificates (i.e. ISO 14001, BES 6001 etc.) for each material comprising the applicable building elements. **Post Construction Stage Evidence:** - 'As built' drawings confirming the installation of materials for the applicable location and use categories as per the design stage. - Responsible sourcing certificates (i.e. ISO 14001, BES 6001 etc.) for each material comprising the applicable building elements.
Mat 5 - Designing for Robustness						
Mat 5	**Designing for Robustness**	1	1	1.07%	Architect	**BREEAM Criteria:** **Protecting vulnerable parts of the building from damage** **1)** The building incorporates suitable durability and protection measures or designed features/solutions to prevent damage to vulnerable parts of the internal and external building and landscaping elements. This must include, but is not necessarily limited to: a. Protection from the effects of high pedestrian traffic in main entrances, public areas and thoroughfares (corridors, lifts, stairs, doors etc.). b. Protection against any internal vehicular/trolley movement within 1m of the internal building fabric in storage, delivery, corridor and

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						kitchen areas. **Protecting exposed parts of the building from material degradation** **2)** Environmental factors have been identified that are relevant to the site location. **3)** Existing applicable building elements that are exposed to any relevant environmental factors have been identified. **4)** Existing applicable building elements have been surveyed have been assessed to identify impacts of material degradation effects including an assessment to grade the severity of any degradation effects. **5)** Design and specification measures have to be developed to repair and protect existing elements according to the severity of any degradation affects, to limit degradation. Where it is not feasible to implement measures to limit material degradation for existing elements, justification should be provided. **6)** Newly specified materials or newly constructed elements (e.g. a new external wall) within the scope of refurbishment or fit-out works incorporate appropriate design and specification measures to limit material degradation due to environmental factors. **Design Stage Evidence:** - Design drawings illustrating the vulnerable areas/parts of the building and the durability measures specified to reduce damage to the building's fabric or materials in case of accidental or malicious damage. - Evidence confirming the applicable building elements appropriate to the building and the environmental factors likely to cause material degradation effects in the identified applicable materials. - Relevant sections/clauses of the building specification/contract and/or design drawings confirming the elements/products achieving an appropriate quality or durability standard or design guide **Post Construction Stage Evidence:**

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- 'As built' drawings confirming the installation of protection measures in order to protect vulnerable areas in line with the design stage specification. - BREEAM assessor's site inspection.
Mat 6 – Material Efficiency						
Mat 6	**Material Efficiency**	1	0	1.07%	Design Team	<u>Credit Not Targeted</u> **BREEAM Criteria:** **1)** At the **Preparation and Brief** and **Concept Design** stages, set targets and report on opportunities and methods to optimise the use of materials. These must be done for each of the following stages. - Preparation and Brief - Concept Design - Developed Design - Technical Design - Construction. **2)** Develop and record the implementation of material efficiency, during: - Developed Design - Technical Design - Construction. **3)** Report the targets and actual material efficiencies achieved. **Design Stage Evidence:** - Details of targets, opportunities and methods reported during each RIBA Stage (1-5) to optimise the use of materials **Post Construction Stage Evidence:** - Details of material efficiency measures implemented during the Developed Design (RIBA Stage 3), Technical Design (RIBA Stage 4) and Construction (RIBA Stage 5).

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- Provide details of the targets and actual material efficiencies achieved.
Waste						
Wst 1 - Construction Waste Management						
Wst 1b	**Pre-Demolition Audit**	1	0	0.60%	Developer	<u>Credit Not Applicable</u> **BREEAM Criteria:** **1)** 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 pre-demolition audit must cover: - Identification and quantification of the key materials where present on the project - Potential applications and any related issues for the reuse and recycling of the key materials in accordance - with the waste hierarchy - Opportunities for reuse and recycling within the same development - Identification of local re-processors or recyclers for recycling of materials - Identification of overall recycling targets where appropriate - Identification of reuse targets where appropriate - Identification of overall landfill diversion rate for all key materials. **Design Stage Evidence:** - Pre-demolition Audit **Post Construction Stage Evidence:** - As per Design Stage

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Wst 1c	**Construction Resource Efficiency**	3	2	0.60%	Main Contractor	**BREEAM Criteria:** **1)** Prepare a compliant Resource Management Plan (RMP) covering: a. Non-hazardous waste materials(from on-site construction and dedicated off-site manufacture or fabrication, including demolition and excavation waste. b. Accurate data records on waste arisings and waste management routes. **2)** Meet or improve upon the benchmarks below for non-hazardous construction waste, excluding demolition and excavation waste. No. of BREEAM credits — Amount of waste generated per 100m² (GIFA) 1 — ≤13.3 m³ or ≤11.1 tonnes **2 — ≤7.5 m³ or ≤6.5 tonnes** 3 — ≤3.4 m³ or ≤3.2 tonnes 1 exemplary performance credit — ≤1.6 m³ or ≤1.9 tonnes **Design Stage Evidence:** - A copy of the Resource Management Plan. - Relevant sections/clauses of the building specification/contract and/or a formal letter **Post Construction Stage Evidence:** - Copy of the final compliant Resource Management Plan confirming the waste types (per waste group) generated on site relating to on site construction and dedicated off site manufacture/fabrication (excluding demolition and excavation waste).
Wst 1d	**Diversion of waste from Landfill**	1	1	0.60%	Main Contractor	**BREEAM Criteria:** **1)** Meet the diversion from landfill benchmarks for non-hazardous construction waste and demolition and excavation waste generated. Sort waste materials into separate key waste groups, either on-site or through a licensed contractor for recovery.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						<u>One Credit</u> Non-Demolition – 70% by Volume or 80% by tonnage Demolition – 80% by Volume or 90% by tonnage Excavation – N/A <u>Exemplary</u> Non-Demolition – 85% by Volume or 90% by tonnage Demolition – 85% by Volume or 95% by tonnage Excavation – 95% by Volume or 95% by tonnage **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and/or a formal letter confirming **Post Construction Stage Evidence:** - Copy of the final compliant Resource Management Plan confirming the waste generated on site.
Wst 2 -Use of recycled and sustainably sourced aggregates						
Wst 2	**Recycled Aggregates**	1	0	0.60%	Main Contractor/Structural Engineer	<u>Credit Not Targeted</u> **BREEAM Criteria:** - Identify all aggregate uses and types on the project - Determine the quantity in tonnes for each identified use and aggregate type. - Identify the region in which the aggregate source is located. - Calculate the distance in kilometres travelled by all aggregates by transport type Enter the information into the BREEAM Wst 02 calculator to calculate the Project Sustainable Aggregate points. **Design Stage Evidence:** - Copy of the 'Wst 02' Calculator

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- Documentary evidence supporting the data used to complete the 'Wst 02' Calculator **Post Construction Stage Evidence:** - As per Design Stage
Wst 3 - Recyclable Waste Storage						
Wst 3 MINIMUM STANDARD	**Recyclable Waste Storage**	1	1	0.60%	Architect/ building Owner	**BREEAM Criteria:** **1)** Dedicated space(s) is provided for the segregation and storage of operational recyclable waste volumes generated by the assessed building/unit, its occupant(s) and activities. This space must be: a. Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams b. Accessible to building occupants or facilities operators for the deposit of materials and collections by waste management contractors c. Of a capacity appropriate to the building type, size, number of units (if relevant) and predicted volumes of waste that will arise from daily/weekly operational activities and occupancy rates. For consistent and large amounts of operational waste generated, provide: a. Static waste compactors or balers; situated in a service area or dedicated waste management space. b. Vessels for composting suitable organic waste OR adequate spaces for storing segregated food waste and compostable organic material for collection and delivery to an alternative composting facility. c. A water outlet provided adjacent to or within the facility for cleaning and hygiene purposes where organic waste is to be stored or composted on site.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Design Stage Evidence: - Relevant sections/clauses of the building specification/contract and design drawings confirming the provision and scope of dedicated facilities (i.e. storage of recyclable waste streams, access arrangements, and capacity). **Post Construction Stage Evidence:** - 'As built' drawings showing the installed areas provided for the storage and segregation of recyclable waste and general waste, in line with the design stage specification. - BREEAM assessor's site inspection.
Wst 4 – Speculative Finishes						
Wst 4	**Speculative Finishes**	N/A	N/A	N/A	Architect	<u>Credit Not Applicable</u> **BREEAM Criteria:** **1)** For tenanted areas, where the future occupant is not known and carpets or other floor or ceiling finishes are installed, these must be limited to a show area only. **2)** Only install floor and ceiling finishes selected by the known occupant of a development. Alternatively, where only ceiling finishes and no carpets are installed, the building owner confirms that the first tenants will not be permitted to make substantial alterations to the ceiling finishes. **Design Stage Evidence:** - Letter of Commitment - Design Drawings **Post Construction Stage Evidence:** - Letter of Confirmation - 'As Fitted' drawings - BREEAM assessor's site inspection.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Wst 5 – Adaptability to Climate Change						
Wst 5	**Adaptability to Climate Change**	1	1	0.60%	Architect / Structural Engineer	**BREEAM Criteria:** **1)** Conduct a climate change adaptation strategy appraisal for structural and fabric resilience by the end of **Concept Design** (RIBA Stage 2 or equivalent), in accordance with the following approach: **2) Carry out a systematic (structural and fabric resilience specific) risk assessment to identify and evaluate the impact on the building over its projected life cycle from expected extreme weather conditions arising from climate change** and, where feasible, mitigate against these impacts. The assessment should cover the following stages: • Hazard identification • Hazard assessment • Risk estimation • Risk evaluation • Risk management. **3)** Develop recommendations or solutions based on the climate change adaptation strategy appraisal, before or during **Concept Design**, that aim to mitigate the identified impact. **4)** Provide an update during **Technical Design** demonstrating how the recommendations or solutions proposed at Concept Design have been implemented where practical and cost effective. Omissions have been justified in writing by the assessor **Design Stage Evidence:** - Copy of the climate change adaptation strategy appraisal, developed during Concept Design (RIBA Stage 2) - Provide an updated appraisal during Technical Design (RIBA Stage 4) **Post Construction Stage Evidence:** - As per Design Stage.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Wst 6 – Design for disassembly and adaptability						
Wst 6	**Functional Adaptability**	2	2	0.60%	Architect / Structural Engineer	**BREEAM Criteria:** **Design for Disassembly and Functional Adaptability – Recommendations** **1)** Conduct a study to explore the ease of disassembly and the functional adaptation potential of different design scenarios by the end of **Concept Design**. **2)** Develop recommendations or solutions based on the study during or prior to **Concept Design**, that aim to enable and facilitate disassembly and functional adaptation. **Disassembly and Functional Adaptability – Implementation** **3)** Provide an update, during Technical Design, on: a. How the recommendations or solutions proposed by Concept Design have been implemented where practical and cost effective. Omissions have been justified in writing to the assessor. b. Changes to the recommendations and solutions during the development of the Technical Design. **4)** Produce a building adaptability and disassembly guide to communicate the characteristics allowing functional adaptability and disassembly to prospective tenants. **Design Stage Evidence:** - Disassembly and functional adaptability study, implementation plan report, building adaptability and disassembly guide. **Post Construction Stage Evidence:** - As per Design Stage.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Land Use and Ecology						
Le 1 – Site Selection						
Le 1a	**Site Selection**	1	1	1.00%	Architect	**BREEAM Criteria:** Proposed development on a pre-developed site - At least 75% of the proposed development's footprint is on an area of land which has previously been occupied. **Design Stage Evidence:** - Design drawings, report and site photographs confirming: a. Type and duration of previous land use b. Area (m2) of previous land use c. Location and footprint (m2) of proposed development and temporary works. **Post Construction Stage Evidence:** - 'As built' drawings confirming that there have been no changes to the site layout building orientation.
Le1b	**Contaminated Land**	1	0	1.00%	Contaminated Land Specialist	**Credit Not Targeted** **BREEAM Criteria:** A contaminated land professional's site investigation, risk assessment and appraisal has deemed land within the site to be affected by contamination. The site investigation, risk assessment and appraisal have identified: - The degree of contamination - The contaminant sources or types - The options for remediating sources of contamination which present an unacceptable risk. The client or principal contractor confirms that remediation of the site will be carried out in accordance with the remediation strategy and its implementation plan as recommended by the contaminated land professional.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Design Stage Evidence: - Copy of remediation strategy and implementation plan **Post Construction Stage Evidence:** - Evidence to demonstrate the recommendations set out in the remediation strategy and implementation plan have been implemented.
LE 2 – Ecological Risks and Opportunities						
Le 2	**Pre-Requisite**	Pre-Req	Pre-Req	-	Ecologist / Design Team	**BREEAM Criteria:** The client or contractor confirms compliance is monitored against all relevant UK and EU or international legislation relating to the ecology of the site. **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN40 Document **Post Construction Stage Evidence:** - As per Design Stage.
Le 2a	**Survey and Evaluation**	1	1	1.00%	Ecologist / Design Team	**BREEAM Criteria:** **1)** A Suitably Qualified Ecologist (SQE) carries out a survey and evaluation for the site early enough to influence site preparation works, layout and, where necessary, strategic planning decisions (typically **Preparation and Brief** or **Concept Design** stage). The SQE's survey and evaluation determines the site's ecological baseline, including: a. Current and potential ecological value and condition of the site and related areas within the Zone of Influence. b. Direct and indirect risks to current ecological value from the project. c. Capacity and feasibility for enhancement of the site's ecological value and, where relevant, areas within the Zone of Influence.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Recommendations and data collected from the survey and evaluation are shared with appropriate project team members to influence decisions made for activities during site preparation, design and construction works, which can support ecological features. **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN40 Document **Post Construction Stage Evidence:** - As per Design Stage.
Le 2b	**Determining Ecological Outcomes**	1	1	1.00%	Ecologist / Design Team	**BREEAM Criteria:** **1)** Achieve the 'Survey and Evaluation' credit. **2)** 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, in line with the mitigation hierarchy of action: 1. Avoidance 2. Protection 3. Reduction or limitation of negative impacts 4. On site compensation and 5. Enhancement, considering the capacity and feasibility within the site, or where viable, offsite. **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN40 Document **Post Construction Stage Evidence:**

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- As per Design Stage.
LE 3 – Managing Impacts on Ecology						
Le 3	**Pre-Requisite**	Pre-Req	Pre-Req	-	Ecologist / Design Team / Contractor	**BREEAM Criteria:** Le 02's 'Survey and evaluation and Determining ecological outcomes' criteria have been achieved. **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN13 Document **Post Construction Stage Evidence:** - As per Design Stage.
Le 3a	**Planning and Measures on Site**	1	1	1.00%	Ecologist / Design Team / Contractor	**BREEAM Criteria:** **1)** 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 (typically **Concept Design** stage). **2)** 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). **3)** 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 LE02 Ecological risks and opportunities. **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN40 Document

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Post Construction Stage Evidence: - As per Design Stage.
Le 3b	**Managing Negative Impacts**	2	1	1.00%	Ecologist / Design Team / Contractor	**BREEAM Criteria:** **1)** Negative impacts from site preparation and construction works have been managed according to the mitigation hierarchy, in line with the SQE's recommendations and, either: a. No overall loss of ecological value has occurred (two credits). b. The loss of ecological value has been minimised (Minimising Loss) (one credit). **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN40 Document **Post Construction Stage Evidence:** - As per Design Stage.
LE 4 – Ecological Change and Enhancement						
Le 4	**Pre-Requisite**	Pre-Req	Pre-Req	-	Ecologist / Design Team / Main Contractor	**BREEAM Criteria:** **1)** Achieve the 'Managing Negative Impacts' credit. **2)** The client or contractor confirms compliance is monitored against all relevant UK, EU or international legislation relating to the ecology of the site. **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN40 Document **Post Construction Stage Evidence:** - As per Design Stage.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Le 4a	**Ecological Enhancement**	1	1	1.00%	Ecologist / Design Team / Main Contractor	**BREEAM Criteria:** **1)** Measures have been implemented that enhance ecological value, which are 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. Measures are implemented in the following order: a. On site, and where this is not feasible, b. Off site within the Zone of Influence. **2)** Data collated are analysed and where potentially valuable, provided to the local environmental records centres nearest to, or relevant for, the site. **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN40 Document **Post Construction Stage Evidence:** - As per Design Stage.
Le 4c	**Change and Enhancement of Ecology**	3	2	1.00%	Ecologist / Design Team / Main Contractor	**BREEAM Criteria:** **1)** 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. Credits are awarded in line with the Reward Scale table in GN36 where there are no residual impacts on protected sites or irreplaceable habitats. **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN40 Document

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Post Construction Stage Evidence: - As per Design Stage.
LE 5 - Long Term Ecology Management and Maintenance						
Le 5	**Pre-Requisite**	Pre-Req	Pre-Req	-	Ecologist/ Main Contractor	**BREEAM Criteria:** **1)** The client or contractor has confirmed that compliance is being monitored against all relevant UK, EU and international standards relating to the ecology of the site. **2)** Achieve the 'Managing Negative Impacts' credit. **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN40 Document **Post Construction Stage Evidence:** - As per Design Stage.
Le 5a	**Management and Maintenance Throughout the Project**	1	1	1.00%	Ecologist/ Main Contractor	**BREEAM Criteria:** **1)** 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. **2)** To ensure the optimal ecological outcomes agreed in Le 02 are met in-practice, these measures must monitor and review the effectiveness of the mitigation and enhancement measures in place for Le 03 & Le 04 to ensure they are implemented. **3)** 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. This should include detailed management and maintenance plans as required by

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						landscape and asset managers as well as relevant parts of the handover information for occupiers written in a format that encourages understanding and supportive behaviours. **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN40 Document **Post Construction Stage Evidence:** - As per Design Stage. - As-built evidence showing measures have been carried out in practice.
Le 5b	**Landscape and Ecology Management Plan**	1	1	1.00%	Ecologist/ Main Contractor	**BREEAM Criteria:** **1) A Landscape and Ecology Management Plan**, or equivalent, has been developed in accordance with BS 42020:2013 Section 11.1(213) covering at least the first five years after project completion as a minimum and including: a. Actions and responsibilities of relevant individuals prior to handover b. The ecological value and condition of the site at handover and how this is expected to develop and change over time c. Identification of opportunities for ongoing alignment with activities beyond the development project, which support the aims of BREEAM's Strategic Ecology Framework. d. Identification and guidance to trigger appropriate remedial actions to address previously unforeseen impacts e. Clearly defined and allocated roles and responsibilities for delivering the plan. **2)** The landscape and management plan or similar will be updated to support maintenance of the ecological value of the site. **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN40 Document

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Post Construction Stage Evidence: - As per Design Stage. - Copy of the Landscape and Ecology Management Plan.
Pollution						
Pol 1 – Impact of Refrigerants						
Pol 1	**Pre-Requisite**	Pre-Req	Pre-Req	-	M&E	**BREEAM Criteria:** All systems with electric compressors comply with the requirements of BS EN 378:2016(204) (parts 2 and 3). Refrigeration systems containing ammonia comply with the Institute of Refrigeration Ammonia Refrigeration Systems code of practice. **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract confirming that all refrigeration systems (with electric compressors) comply with the requirements **Post Construction Stage Evidence:** - Formal letter confirming that there have been no changes since the design stage. - BREEAM assessor's site inspection.
Pol 1a	**Impact of Refrigerants**	3	1	0.66%	M&E	**BREEAM Criteria:** <u>Three Credits</u> No refrigerant within the installed plant or systems. <u>Two Credits</u> The direct effect life cycle CO_2 equivalent emissions (DELC) of ≤100 CO_2-eq/kW. For systems which provide cooling and heating, the worst performing output based on the lower of kW cooling output and kW heating output is used to complete the calculation. OR

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						All refrigerants used have a global warming potential (GWP) ≤10. **<u>One Credit</u>** Systems using refrigerants have a DELC of ≤1000kgCO_2-eq/kW cooling and heating capacity. **Design Stage Evidence:** - Completed copy of the Pol 01 Calculator tool. - Documentary evidence supporting the data used to complete the calculator tool. **Post Construction Stage Evidence:** - As per interim design stage.
Pol 1b	**Leak Detection**	1	1	0.66%	M&E	**BREEAM Criteria:** All systems are hermetically sealed or only use environmentally benign refrigerants. OR Where the systems are not hermetically sealed systems have: a.i A permanent automated refrigerant leak detection system, that is robust and tested, and capable of continuously monitoring for leaks. OR a.ii An inbuilt automated diagnostic procedure for detecting leakage is enabled. In the event of a leak, the system must be capable of automatically responding and managing the remaining refrigerant charge to limit loss of refrigerant. **Design Stage Evidence:** - Letter of Confirmation - Manufacturers Literature

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Post Construction Stage Evidence: - Letter of Confirmation - Manufacturers Literature
Pol 2 – Local Air Quality						
Pol 2	**Local Air Quality**	2	2	0.66%	M&E	**BREEAM Criteria:** **Two Credits** **1)** All heating and hot water is supplied by non-combustion systems. For example, only powered by electricity. **OR;** Emissions from all installed combustion plant that provide space heating and domestic hot water do not exceed the levels as follows: Gas boiler = NOx 24 mg/kWh. **One Credit** Emissions from all installed combustion plant that provide space heating and domestic hot water do not exceed the levels as follows: Gas boiler = NOx 27 mg/kWh. **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract confirming - Product Data Sheets - Letter of Commitment **Post Construction Stage Evidence:** - Formal letter confirming that there have been no changes since the design stage. - BREEAM assessor's site inspection.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Pol 3 Surface Water Run-Off						
Pol 3	**Pre-Requisite**	Pre-Req	Pre-Req	-	Flood Risk Specialist	**BREEAM Criteria:** An appropriate consultant is appointed to carry out and demonstrate the development's compliance with all criteria. **Design Stage Evidence:** - Completed BREEAM GN13 Document **Post Construction Stage Evidence:** - As per Design Stage.
Pol 3a	**Flood Risk**	2	2	0.66%	Flood Risk Specialist	**BREEAM Criteria:** <u>Low Flood Risk – 2 Credits</u> **A site-specific flood risk assessment (FRA) confirms the development is in a flood zone that is defined as having a low annual probability of flooding.** The FRA takes all current and future sources of flooding into consideration. <u>Medium or High Flood Risk – 1 Credit</u> **A site-specific FRA confirms the development is in a flood zone that is defined as having a medium or high annual probability of flooding and is not in a functional floodplain.** The FRA must take all current and future sources of flooding into consideration. For smaller sites refer to Level of detail required in the FRA for smaller sites on page 340, which overrides criterion 2 above. To increase the resilience and resistance of the development to flooding, one of the following must be achieved: a. The ground level of the building and access to both the building and the site, are designed (or zoned) so they are at least 600 mm above the design flood level of the site's flood zone. b. The final design of the building and the wider site reflects the

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						recommendations made by an appropriate consultant in accordance with the hierarchy approach outlined in section 5 of BS8533:2017 (222). **Design Stage Evidence:** - Flood Risk Assessment **Post Construction Stage Evidence:** - Formal letter confirming that there have been no changes to the flood risk associated with the development site.
Pol 3	**Surface Water Run-Off**	Pre-Req	Pre-Req	-	Drainage Consultant	**BREEAM Criteria:** Surface water run-off design solutions must be bespoke, i.e. they must take account of the specific site requirements and natural or man-made environment of and surrounding the site. The priority levels detailed in the Methodology must be followed, with justification given by the appropriate consultant where water is allowed to leave the site. **Design Stage Evidence:** - Drainage Report - Completed BREEAM GN13 Document **Post Construction Stage Evidence:** - As per Design Stage.
Pol 3b	**Surface Water Run-off (Rate)**	1	1	0.66%	Drainage Consultant	**BREEAM Criteria:** **1)** For brownfield sites, drainage measures are specified so that the peak rate of run-off from the site to the watercourses (natural or municipal) shows a 30% improvement for the developed site compared with the predeveloped site. This should comply at the 1-year and 100-year return period events.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						2) For Greenfield sites, drainage measures are specified so that the peak rate of run-off from the site to the watercourses (natural or municipal) is no greater for the developed site than it was for the pre-development site. **This should comply at the 1-year and 100-year return period events.** **3)** Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified Sustainable Drainage Systems (SuDS) are in place. **4)** Calculations include an allowance for climate change. This should be made in accordance with current best practice planning guidance. **Design Stage Evidence:** - Drainage Report - Completed BREEAM GN13 Document **Post Construction Stage Evidence:** - Formal letter confirming that the drainage solutions assessed at the design stage have been implemented. - 'As built' drawings showing the impermeable areas pre and post development.
Pol 3c	**Surface Water Run-off (Volume)**	1	1	0.66%	Drainage Consultant	**BREEAM Criteria:** **1)** Flooding of property will not occur in the event of local drainage system failure (caused either by extreme rainfall or a lack of maintenance); **AND** **EITHER** **Drainage design measures are specified so that the post-development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed site's development. This must be for the 100-year 6-hour event, including an allowance for climate change.** Any additional predicted volume of run-off for this event is prevented from

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						leaving the site by using infiltration or other SuDS techniques. **OR** Justification from the appropriate consultant indicating why the above criteria cannot be achieved, i.e. where infiltration or other SuDS techniques are not technically viable options. Drainage design measures are specified so that the post-development peak rate of run-off is reduced to the limiting discharge. The limiting discharge is defined as the highest flowrate from the following options: a. The pre-development one-year peak flowrate b. The mean annual flowrate (Qbar) c. 2L/s/ha. **2)** For the one-year peak flowrate, the one-year return period event criterion applies. **3)** Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS are in place **For either option, above calculations must include an allowance for climate change; this should be made in accordance with current best practice planning guidance.** **Design Stage Evidence:** - Drainage Report - Completed BREEAM GN13 Document. **Post Construction Stage Evidence:** - Formal letter confirming that the drainage solutions assessed at the design stage have been implemented. - 'As built' drawings showing the impermeable areas pre and post development.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Pol 3d	**Minimising Watercourse Pollution**	1	0	0.66%	Drainage Consultant	<u>Credit Not Targeted</u> **BREEAM Criteria:** **1)** There is no discharge from the developed site for rainfall up to 5 mm (confirmed by the appropriate consultant). **2)** Areas with a low risk source of watercourse pollution, an appropriate level of pollution prevention treatment is provided, using appropriate SuDS techniques. **3)** Areas with a high risk of contamination or spillage of substances, such as petrol and oil, have separators (or an equivalent system) are installed in surface water drainage systems. **4)** Chemical or liquid gas storage areas have a means of containment fitted to the site drainage system (i.e. shut-off valves). This is to prevent the escape of chemicals to natural watercourses in the event of a spillage or bunding failure. **5)** All water pollution prevention systems have been designed and installed in accordance with the recommendations of documents such as the SuDS manual and other relevant industry best practice. They must be bespoke solutions taking account of the specific site requirements and natural or man-made environment of and surrounding the site. **6)** A comprehensive and up to date drainage plan of the site will be made available for the building or site occupiers. **7)** Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS must be in place. **8)** All external storage and delivery areas are designed and detailed in accordance with the current best practice planning guidance. **Design Stage Evidence:**

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- Drainage Report - Completed BREEAM GN13 Document. **Post Construction Stage Evidence:** - Formal letter confirming that the drainage solutions assessed at the design stage have been implemented. - 'As built' drawings showing the impermeable areas pre and post development.
Pol 4 – Reduction of Night-time Light Pollution						
Pol 4	**Reduction of Night-time Light Pollution**	1	1	0.66%	M&E	**BREEAM Criteria:** **1)** External lighting pollution has been eliminated through effective design that removes the need for external lighting. This does not adversely affect the safety and security of the site and its users. **OR**; **2) The external lighting strategy has been designed in compliance with Table 2 (and its accompanying notes) of the Institution of Lighting Professionals (ILP) Guidance notes for the reduction of obtrusive light, 2011.** **3) All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00.** **4)** If safety or security lighting is provided and will be used between 23:00 and 07:00, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP guidance notes. **5)** Where specified, illuminated advertisements are designed in compliance with ILP PLG05 The Brightness of Illuminated Advertisements. **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and/or a formal letter - Design Lighting Drawings

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Post Construction Stage Evidence: - Formal letter confirming that there has been no changes to the lighting design - 'As built' drawing showing the installed external light fittings, photocell and time clock, in line with the design stage specification. - BREEAM assessor's site inspection.
Pol 5 – Noise Attenuation						
Pol 5	**Noise Attenuation**	1	1	0.66%	Acoustician/M&E	**BREEAM Criteria:** **1)** There are no noise-sensitive areas within the assessed building or within 800 m radius of the assessed site. **OR;** **2)** Where there are noise-sensitive areas within the assessed building or noise-sensitive areas within 800 m radius of the assessed site, a noise impact assessment compliant with BS 4142:2014 is commissioned. Noise levels must be measured or determined for: - Existing background noise levels: at the nearest or most exposed noise-sensitive development to the proposed assessed site including existing plant on a building, where the assessed development is an extension to the building - Noise rating level from the assessed building. - The noise impact assessment must be carried out by a suitably qualified acoustic consultant. - **The noise level from the assessed building, as measured in the locality of the nearest or most exposed noise sensitive development, must be at least 5dB lower than the background noise throughout the day and night.** - If the noise sources from the assessed building are greater than the levels, measures have been installed to attenuate the noise at its source to a level where it will comply with the criterion. **Design Stage Evidence:**

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- Noise Impact Assessment **Post Construction Stage Evidence:** - Pre-Completion Noise Impact Assessment Report

APPENDIX A – RIBA SENSITIVE CREDITS

RIBA Sensitive Credits

There are a number of BREEAM credits that need to be addressed at particular RIBA Stage. These credits have been highlighted within Table 1.3 below.

Table 1.3 – RIBA Sensitive Credits

RIBA Stage 2 – Concept Design
Hea 06 – Safety and Security
Ene 4a – Passive Design Analysis
Ene 4b – LZC Technologies
Tra 1 – Transport Assessment and Travel Plan
Mat 3b – Enabling Sustainable Procurement
Wst 5a – Adaptation to Climate Change – Structural and Fabric Resilience
Wst 06a – Functional Adaptability
Le 02 – Ecological Risks and Opportunities
Le 03 – Managing Impacts on Ecology
Le 4 – Ecological Change and Enhancement
Le 5 – Long Term Ecology Management and Maintenance
RIBA Stage 3 – Developed Design
N/A
RIBA Stage 4 – Technical Design
Hea 05 – Acoustic Performance
RIBA Stage 5 – Manufacturing and Construction
Man 3b – Sustainability Champion