

Seaforth Land
20-23 Greville Street, London

Sustainability Statement
for
20-23 Greville Street, London



MLM.
Group

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Appendix A - BREEAM Pre-Assessments

1 Introduction

MLM Consulting Engineers Ltd have been appointed to prepare a Sustainability Statement on behalf of Seaforth Land in support of a planning application for the proposed development at 20-23 Greville Street, London (the 'proposed development').

The proposed site currently comprises of a five storey office building with basement and plant room at roof level. The proposed development involves the change of use of existing Class B1 at ground floor, basement and first floor levels to Class A1/A3 uses; demolition of existing fifth floor plant room and construction of rooftop extension at fifth and mezzanine floor level for Class B1 use, rear infill extension to all floors for Class B1 use, external alterations including new façade and glazing, and associated works.

The purpose of this report is to assess the sustainability performance of the proposed development against relevant local, regional and national policy requirements and demonstrate how these are addressed through the implementation of appropriate design and construction practices.

The following planning policy and construction guidance documentation has been considered in detail in the preparation of this Sustainability Statement:

- The National Planning Policy Framework, Department of Communities and Local Government (CLG), 2012;
- The London Plan, The Spatial Development Strategy for London Consolidated with alterations since 2011, Greater London Authority (GLA), 2016;
- Sustainable Design and Construction, The London Plan Supplementary Planning Guidance, GLA, 2014;
- Camden Local Plan, London Borough of Camden, 2017;
- Camden Planning Guidance – Sustainability CPG 3, London Borough of Camden, 2015.

This Sustainability Statement has been prepared using information included in a number of documents that either form part of or are submitted in support of the planning application for the proposed development. The sustainability measures described herein have been developed in consultation with members of the project's design and consultant team.

- This report takes into account the special character of the proposed development and defines the broad approach that will be implemented in order for the development to meet the required policy criteria. The specific details and assumptions set out within this Sustainability Statement will be tested and reviewed throughout the detailed design, build and operational phases of the proposed development.
- The remainder of this document is structured as follows:
 - Section 2 provides an overview of the site's context and the Proposed Development;
 - Section 3 outlines the planning policy context;
 - Section 4 sets out the assessment methodology;
 - Section 5 presents the sustainability assessment and details the sustainability features of the Proposed Development;
 - Section 6 presents the conclusions;
 - Appendix A includes preliminary BREEAM assessments.

2 Overview of the Proposed Development

The proposed development is located within London Borough of Camden and the specific address is 20-23 Greville Street, London EC1N 8SS. The building is situated between Bleeding Heart Yard, Greville Street and Saffron Hill. The site is located in the Hatton Garden Conservation Area, whose varied townscape reflects the area's rich history and in particular, its association with the jewellery trade. This corner of the Conservation Area comprises mostly Victorian and 20th century commercial buildings and former warehouse, between 4-8 storeys in height, with some smaller buildings characterising the more intimate scale of the yard.

The site is occupied by an existing late 70s office building of five storeys with a basement and small plant room at roof level. The building presents a blank monolithic tinted glass and brick façade to Greville Street, with no active frontage and an unobtrusive entrance accessed by steps.

The proposed development involves the change of use of existing Class B1 at ground floor, basement and first floor levels to Class A1/A3 uses; demolition of existing fifth floor plant room and construction of rooftop extension at fifth and mezzanine floor level for Class B1 use, rear infill extension to all floors for Class B1 use, external alterations including new façade and glazing, and associated works.

3 Planning Policy Context

Rising international and national aspirations on sustainability have led to the strengthening of national planning policies and building control processes that contribute to the Government's long-term commitment to support sustainable development. To ensure compliance with relevant sustainability and wider targets and requirements, the following key policies and documents have been reviewed within the context of the proposed development.

3.1 National Planning Policy Framework (CLG, 2012)

The National Planning Policy Framework, 2012, sets out the Government's planning policies for England and how these are expected to be applied. It must be taken into account in the preparation of local and neighbourhood plans, and is a material consideration in planning decisions. The document presents a series of policies that constitute the Government's view of what sustainable development in England means in practice for the planning system. At the heart of the National Planning Policy Framework is a presumption in favour of sustainable development. Policies in Local Plans should follow the approach of the presumption in favour of sustainable development so that it is clear that development which is sustainable can be approved without delay.

3.2 Regional Planning Policy

3.2.1 The London Plan (GLA, 2016)

The London Plan establishes policy over the next 20 – 25 years, and retains the fundamental objective of accommodating London's population and economic growth through sustainable development. The Mayor's vision is for London to excel among global cities, expanding opportunities for all its people and enterprises, achieving the highest environmental standards and quality of life and leading the world in its approach to tackling the urban challenges of the 21st century, particularly that of climate change.

The latest London Plan was published in March 2016 and consolidates all the alterations to the London Plan since 2011. The plan sets out various issues that European and national legislation requires to be considered along with other requirements of planning law and Government planning policy and guidance. The plan also considers Integrated Impact and Habitats Regulations Assessments and comments received during the consultation and engagement process the recommendations of the Panel that conducted the Examination in Public.

In terms of Climate Change Mitigation, the London Plan includes a strategic target to achieve an overall reduction in London's CO₂ emissions of 60% by 2025 (Policy 5.1). In the planning context, the Mayor expects that all new development will fully contribute towards the reduction of CO₂ emissions and this will be achieved through the application of Policy 5.2: Minimising CO₂ emissions.

Specifically, Policy 5.2 (A) requires developments to make the fullest contribution to minimising emissions of CO₂ in accordance with the energy hierarchy:

- Be lean: using less energy (Policy 5.3);
- Be clean: Supplying energy efficiently, in particular by prioritising decentralised energy generation (Policy 5.5 and 5.6); and
- Be green: Using renewable energy (Policy 5.7).

The following are targets for CO₂ emissions reduction, which all major developments are expected to meet (Policy 5.2 (B)):

Year	Improvement on 2010 Building Regulations	
	Residential buildings:	Non-domestic buildings:
2010-2013	25% (CSH Level 4)	25%
2013-2016	40%	40%
2016-2019	Zero Carbon	As per building regulations requirements
2019-2031		Zero Carbon

CO₂ emissions targets should be met on-site and where this is not fully feasible, any shortfall may be provided off-site or through a cash-in-lieu contribution to the relevant borough (Policy 5.2 (E)).

Policy 5.3: Sustainable Design and Construction, seeks to ensure future developments meet the highest standards of sustainable design and construction including construction and operation, and ensure that they are considered at the beginning of the design process. Major development proposals should meet the minimum standards outlined in the Mayor’s SPG and this should be clearly demonstrated within a Design and Access statement. Policy 5.4: Retrofitting applies the principles in Policy 5.3 to existing building stock where retrofit opportunities arise. This policy seeks to reduce carbon dioxide emissions, improve the efficiency of resource use (such as water) and minimise the generation of pollution and waste from existing building stock.

Policy 5.5 Decentralised Energy Networks, prioritises the development of decentralised heating and cooling networks at the development and area wide levels, while Policy 5.6: Decentralised Energy in Development Proposals (A) requires development proposals to evaluate the feasibility of CHP systems, and where a new CHP system is appropriate, also examine opportunities to extend the system beyond the site boundary to adjacent sites.

Policy 5.7: Renewable Energy expects that within the framework of the Energy Hierarchy, major development proposals will provide a reduction in CO₂ emissions through the use of on-site renewable energy generation. The London Plan also includes a presumption that all major development proposals will seek to reduce CO₂ emissions by at least 20% through the use of on-site renewable energy generation.

Policy 5.8 Innovative Energy Technologies supports the use of alternative energy technologies (e.g. the uptake of electric and hydrogen fuel cell vehicles, hydrogen supply and distribution infrastructure and the uptake of advanced conversion technologies such as anaerobic digestion, gasification and pyrolysis).

Policy 5.9: Overheating and Cooling expects major development proposals to reduce potential overheating and reliance on air conditioning systems and demonstrate this in accordance with the recommended cooling hierarchy.

Urban Greening is promoted through Policy 5.10, as a means to contribute to the adaptation to, and reduction of, the effects of climate change. Development proposals are expected to integrate green infrastructure such as tree planting, green roofs and walls, and soft landscaping. Major development proposals should be designed to include roof, wall and site planting, especially green roofs and walls where feasible (Policy 5.11).

Relevant to flood risk and drainage, the London Plan states that development proposals must comply with the flood risk assessment and management requirements set out in the National Planning Policy Framework, 2012 (Policy 5.12), and utilise sustainable urban drainage systems (SUDS) unless there are practical reasons for not doing so (Policy 5.13). The aim should be to achieve Greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible in line with the recommended drainage hierarchy.

Adequate wastewater infrastructure capacity should be available in tandem with development (Policy 5.14) that should minimise the use of mains water (Policy 5.15). In addition suitable waste and recycling storage facilities should be provided in all new developments (Policy 5.17).

3.2.2 Sustainable Design and Construction, Supplementary Planning Guidance (GLA, 2014)

In April 2014 the Mayor published the Sustainable Design and Construction Supplementary Planning Guidance (SPG) to provide guidance to developers. This SPG details the Mayor's standards, covering a wide range of sustainability measures that major developments are expected and encouraged to meet.

The SPG provides guidance on how to achieve the London Plan objectives effectively, supporting the Mayor's aims for growth, including the delivery of housing and infrastructure. It relates to the implementation of London Plan Policy 5.3, but also a range of policies on sustainability as well as those that aim to create a pleasant environment to live in. It also builds on the policies set out in the National Planning Policy Framework, providing specific advice for London.

Notably, the SPG responds to the introduction of the new Building Regulations Approved Document L (ADL) 2013, which requires an overall 6% reduction in CO₂ emissions from new residential buildings and an overall 9% reduction in CO₂ emissions from new non-residential buildings compared to ADL of the Building Regulations 2010. To avoid complexity and extra costs for developers, the Mayor adopted a flat CO₂ improvement target beyond ADL 2013 of 35% for both residential and non-residential developments. This target replaces the previous targets set out under the London Plan Policy 5.2 (B) against ADL 2010.

The SPG sets out a series of Mayor's Priorities, which the Mayor seeks developers to address in all development proposals, and a series Mayor's Best Practice ambitions, which the Mayor strongly encourages be delivered in the appropriate developments.

The Priorities and Best Practice ambitions are organised in the following sections:

- Resource management – land (including basements and lightwells and local food growing), site layout and building design, energy and carbon dioxide emissions, water efficiency, materials (including reuse of waste), nature conservation and biodiversity;
- Climate change adaptation – overheating, heat and drought resistant planting, resilient foundations, urban greening, trees, surface water flooding, flooding and risk management; and
- Pollution management – contaminated land, air pollution, noise pollution, light pollution, water pollution (surface and waste water treatment).

Whilst the guidance in the SPG should be followed to ensure the design enables the fullest contribution to sustainable design and construction objectives, it needs to be tailored to cater for the specific characteristics of each development.

3.2.3 Other Regional Policy Documents

The London Plan and Sustainability SPG are supplemented by a series of regional policy documents that provide further and more detailed guidance relevant to the various aspects of sustainable development, including detailed guidance on preparing energy assessments, strategic guidance on climate change mitigation, as well as policies relevant to environmental impacts associated with the built environment.

3.3 Local Planning Policy

3.3.1 Camden Local Plan (Camden, 2017)

The Camden Local Plan sets out the Council's planning policies and replaces the Core Strategy and Development Policies planning documents (adopted in 2010). It ensures that Camden continues to have robust, effective and up to-date planning policies that respond to changing circumstances and the borough's unique characteristics and contribute to delivering the Camden Plan and other local priorities. The Local Plan will cover the period from 2016-2031.

The Local Plan is a key document in Camden's development plan, which the name is given to the group of documents that set out the Council's planning policies. Other documents in Camden's development plan includes Camden Site Allocations, Fitzrovia Area Action Plan, Euston Area Plan, Fortune Green & West Hampstead and Kentish Town Neighbourhood Plans, Local Plan Policies Map and North London Waste Plan. Camden's Local Plan and other development plans need to be in general conformity with the London Plan (and approved alterations).

The Local Plan is a key delivery mechanism for the Camden Plan and other Council strategies including the Joint Health and Wellbeing Strategy. Key Council objectives are to:

- Provide democratic and strategic leadership fit for changing times;
- Develop new solutions with partners to reduce inequalities and improve the physical and mental health and wellbeing of local residents;
- Create conditions for and harnessing the benefits of economic growth;
- Invest in our communities to ensure sustainable neighbourhoods; and
- Deliver value for money services by getting it right first time.

The Council aims to tackle the causes of climate change in the borough by ensuring developments use less energy and assess the feasibility of decentralised energy and renewable energy technologies. Any new development in Camden has the potential to increase carbon dioxide emissions in the borough. To achieve local, and support national, carbon dioxide reduction targets, it is crucial that planning policy limits carbon dioxide emissions from new development wherever possible and supports sensitive energy efficiency improvements to existing buildings.

Specifically, *Policy CC1 Climate change mitigation* states that all developments are required to minimise the effects of climate change and encourage all developments to meet the highest feasible environmental standards that are financially viable during construction and occupation. The council will:

- promote zero carbon development and require all development to reduce carbon dioxide emissions through following the steps in the energy hierarchy;
- require all major development to demonstrate how London Plan targets for carbon dioxide emissions have been met;
- ensure that the location of development and mix of land uses minimise the need to travel by car and help to support decentralised energy networks;
- support and encourage sensitive energy efficiency improvements to existing buildings;
- require all proposals that involve substantial demolition to demonstrate that it is not possible to retain and improve the existing building; and
- Expect all developments to optimise resource efficiency.

For decentralised energy networks, the council will promote decentralised energy by:

- working with local organisations and developers to implement decentralised energy networks in the parts of Camden most likely to support them;
- protecting existing decentralised energy networks and safeguarding potential network routes; and
- Requiring all major developments to assess the feasibility of connecting to an existing decentralised energy network, or where this is not possible establishing a new network.

To ensure that the Council can monitor the effectiveness of renewable and low carbon technologies, major developments will be required to install appropriate monitoring equipment.

Policy CC2 Adapting to climate change require developments to be resilient to climate change. All development should adopt appropriate climate change adaptation measures such as:

- the protection of existing green spaces and promoting new appropriate green infrastructure;
- not increasing, and wherever possible reducing, surface water runoff through increasing permeable surfaces and use of Sustainable Drainage Systems;
- incorporating bio-diverse roofs, combination green and blue roofs and green walls where appropriate; and
- Measures to reduce the impact of urban and dwelling overheating, including application of the cooling hierarchy.

Any development involving 5 or more residential units or 500 sqm or more of any additional floor space is required to demonstrate the above in a Sustainability Statement.

The Council will promote and measure sustainable design and construction by:

- ensuring development schemes demonstrate how adaptation measures and sustainable development principles have been incorporated into the design and proposed implementation;
- encourage new build residential development to use the Home Quality Mark and Passivhaus design standards;
- encouraging conversions and extensions of 500 sqm of residential floor space or above or five or more dwellings to achieve “excellent” in BREEAM domestic refurbishment; and
- Expecting non-domestic developments of 500 sqm of floor space or above to achieve “excellent” in BREEAM assessments and encouraging zero carbon in new development from 2019.

Policy CC3 Water and flooding seeks to ensure that development does not increase flood risk and reduces the risk of flooding where possible. The developments will be required to:

- incorporate water efficiency measures;
- avoid harm to the water environment and improve water quality;
- consider the impact of development in areas at risk of flooding (including drainage);
- incorporate flood resilient measures in areas prone to flooding;
- utilise Sustainable Drainage Systems (SuDS) in line with the drainage hierarchy to achieve a greenfield run-off rate where feasible; and
- Not locate vulnerable development in flood-prone areas.

Policy CC5 Waste seeks to make Camden a low waste borough through the following:

- aim to reduce the amount of waste produced in the borough and increase recycling and the reuse of materials to meet the London Plan targets of 50% of household waste recycled/composted by 2020 and aspiring to achieve 60% by 2031;
- deal with North London's waste by working with our partner boroughs in North London to produce a Waste Plan, which will ensure that sufficient land is allocated to manage the amount of waste apportioned to the area in the London Plan;
- safeguard Camden's existing waste site at Regis Road unless a suitable compensatory waste site is provided that replaces the maximum throughput achievable at the existing site; and
- Make sure that developments include facilities for the storage and collection of waste and recycling.

3.3.2 Camden Planning Guidance – Sustainability CPG 3 (Camden, 2015)

Camden Planning Guidance (CPG) supports the policies in the Local Development Framework (LDF). This guidance is therefore consistent with the Core Strategy and the Development Policies, and forms a Supplementary Planning Document (SPD) which is an additional "material consideration" in planning decisions.

The Council adopted CPG3 Sustainability on 6 April 2011 following statutory consultation. This guidance provides information on ways to achieve carbon reductions and more sustainable developments. It also highlights the Council's requirements and guidelines which support the relevant Local Development Framework (LDF) policies.

The Sustainability SPG provides detailed guidance on energy statements including the energy hierarchy, water efficiency, sustainable use of materials, sustainability assessment tools such as BREEAM, green roofs, brown roofs and green walls, flooding, climate change adaptation, biodiversity and urban food growing.

4 Assessment Methodology

This Sustainability Statement has been structured around the GLA's and Camden Council's sustainable development aims and objectives, and demonstrates the sustainability features included into the Proposed Development.

Specifically, the Proposed Development has been assessed against the following topics, as these are listed in the London Plan and the Mayor of London Sustainable Design and Construction SPG:

- Land, Site Layout and Building Design;
- Energy, Carbon Dioxide Emissions and Renewable Energy;
- Water Efficiency;
- Materials and Waste;
- Adapting to Climate change and greening the city;
- Pollution Management – Noise, Water, Air and Light; and
- Sustainable Transport.

The following sections detail the sustainability credentials of the Proposed Development, against the above topics.

Furthermore, preliminary BREEAM assessments were undertaken for the two components of the proposed development - the retail change of use (refurbishment) and the office use (which incorporates new build and refurbishment elements). The BREEAM methodology assesses developments on the basis of credits for a set of performance criteria covering issues such as energy, water, materials, waste, pollution, health and well-being, management, and ecology.

These assessments demonstrate that whilst all reasonable endeavours have been used to achieve a BREEAM rating of 'Excellent', the scheme is only able to attain 'Very Good' rating. A BREEAM pre-assessment carried out during the design development aimed at establishing a strategy for achieving this target and ensured that it is in accordance with the guidance given in Camden Local Plan Policy CC2.

The pre-assessment summary is presented in Appendix A of this report, while the overall BREEAM strategy for achieving the development targets is outlined in the following sections of this report, indicating the contribution of each design measure to the overall sustainability performance of the scheme.

The sustainability measures described in this Sustainability Statement and preliminary BREEAM were developed in consultation with members of the project team.

5 Sustainability Assessment

5.1 Land, Site Layout and Building Design

The existing building is five storeys which comprises of Class B1 floor space, with a sixth set back storey, which houses the plant of the building. Internally, floors were originally organised to be used as open plan offices at all levels accessed by a central stair and lift core with WCs and a central riser. The main entrance is located in the north-east corner fronting Greville Street stepped away from street level through glazed doors to the central reception and main stairwell. To the rear, car parking spaces and M+E equipment are located on Bleeding Heart Yard without any acoustic or visual screening. Accordingly, the proposed development seeks to change the use of existing Class B1 at ground floor, basement and first floor levels to Class A1/A3 uses; demolition of existing fifth floor plant room and construction of rooftop extension at fifth and mezzanine floor level for Class B1 use, rear infill extension to all floors for Class B1 use, external alterations including new façade and glazing, and associated works. Therefore, in line with the Mayor's Priorities as these are set out in the Sustainable Design and Construction SPG and the London Plan, the proposed development will utilise land that has been previously developed.

The proposed design is a skilful interplay of the contemporary and historic. The key design feature is a new façade which mimics the massing and architectural articulation of 19th century buildings that previously occupied the site. This façade will be constructed from patinated metal in a dark brown, bronze colour, which will be perforated to give a degree of transparency that allows the existing building to be glimpsed, suggesting a connection between past and present.

In terms of the relationship to surrounding context, the design transforms entirely the relationship of the building to the streetscape. The façade is designed to provoke curiosity between past and present, and the opening up of the building through retail uses gives the public an opportunity to enter and interact directly with the building. The proposals also transform an unsightly and neglected aspect facing into Bleeding Heart Yard, with a new lobby entrance for the offices and a colonnaded restaurant terrace that provides public space. The traditional working character of the yard is reflected in the elevation design.

The proposals increase the height of the building by one storey, in a sloping mansard form. This is considered appropriate as it recreates the scale of the 19th century buildings that previously stood on the site, re-establishing a historic roofline with dormers and central keystone. The actual roof extension is constructed in cross-laminated timber (CLT), set behind the patinated metal façade. This massing increase can be accommodated within the local townscape without detracting from the key local views up and down Greville Street, and particularly by retaining the prominence of the Grade II-listed 25 Farringdon Road with its distinctive roofline and corner turret. Given the historic precedent for the changes proposed, the massing approach is considered acceptable and consistent with London Plan Policy 5.3 and 5.4.

Furthermore, an archaeological assessment ('Archaeological Report', January 2018, MOLA) has been carried out for the site to assess the impact on buried heritage assets (archaeological remains). The assessment has found that the site has a low potential to contain remains from earlier periods. The site does not contain any nationally designated (protected) heritage assets, such as scheduled monuments, listed buildings or registered parks and gardens. The site is within the Hatton Garden Conservation Area and within the London Suburbs Archaeological Priority Area (APA), as defined by the London Borough of Camden. Archaeological survival is likely to be high in the south-west of the site, outside the footprint of the existing lower ground floor. Beneath the existing lower ground floor, the survival potential is likely to be very low. In view of the limited archaeological potential, it is not considered that further investigation will be required.

The Historic Building Report ('Historic Building Report', January 2018, Donald Insall Associates) has concluded that overall the proposals would preserve the significance of the designated and non-designated heritage assets and, by their skilful dialogue between old and new, would conserve and indeed enhance the character of this historic and architecturally dynamic part of the borough. Furthermore, the scheme offers further public benefits which would outweigh any perceived 'less than substantial harm'. As such, it is an example of an appropriate and indeed innovative new development in a conservation area as required by the NPPF.

The building is surrounded by historic buildings in close proximity, which accommodate a diverse mix of residential and commercial uses, including offices, workshops, restaurants and retail uses.

A Daylight and Sunlight assessment ('Daylight and Sunlight Report', December 2017, GL Hearn) has been carried out to analyse the effect of the proposed rear and roof extensions at the proposed development on the daylight and sunlight amenity to the neighbouring residential properties. The analysis demonstrates that the proposed development would have a negligible impact on the daylight and sunlight amenity received to the neighbouring properties. This is in accordance with the guidance given in Camden and London Plan planning policies.

5.2 Energy, Carbon Dioxide Emissions and Renewable Energy

The Energy Strategy for the Proposed Development (Energy Statement for Planning, December 2017, MLM) is structured in accordance with London Borough of Camden's Energy Hierarchy and Policy 5.2 of the London Plan; Be Lean, Be Clean, Be Green. Emphasis has been placed on maximising energy demand reduction for the building and reducing carbon emissions.

The proposed development is broken down into two commercial units. The energy and carbon data for the proposed development have been estimated using approved software compliant with the Building Regulations Approved Document L (ADL) 2A 2013 for the offices part of the development and the Building Regulations Approved Document L (ADL) 2B 2013 for the retail part of the development. The baseline for the Office and the Retail/Restaurant has been taken from the Building Emission Rate (BER) worksheet of the SBEM model based on the minimum fabric values and fixed services as outlined in Approved Document Part L2A and Part L2B 2013.

In line with the requirements of the national, regional and local planning policies, ADL of the Building Regulations and current best practice, the following energy strategy was proposed for both the commercial parts of the development:

- The incorporation of energy efficiency and passive design measures ('Be Lean'), bring savings in regulated CO₂ emissions of approximately 18.08% over the baseline. The key passive design and energy efficiency measures integrated in the proposed development will include:
 - Improved U-values of the new and existing thermal elements (wall, floor and roof) and controlled fittings (windows) compliant with the Building Regulations Part L2A 2013 and Part L2B 2013 requirements for new offices and existing offices and retail/restaurant respectively;
 - Careful design and construction monitoring to create a reasonably air tight building;
 - Natural ventilation for both the office and retail spaces as the main source of ventilation;
 - Low energy lighting systems where viable;
 - Split system VRF and Air Source Heat Pumps (ASHP) for space heating for the office and retail/restaurant space while cooling by the ASHP for these spaces;
 - Domestic hot water by instantaneous electric at 100% efficiency for the office element and the retail area. The restaurant to be served with an instantaneous gas-fired water heater for the domestic hot water at 95% efficiency.

- The potential for connection to an existing communal heating network was also investigated and was not considered viable at this time even though a heating network exists nearby. This is due to the nature of the development as they have an irregular usage pattern and low heat and water demand incompatible with using a District Heating network. It is also not possible to incorporate an onsite CHP (Combined Heat and Power) into the scheme as the proposed development's base load will be on the lower side with peak and troughs throughout the occupied period and hence is not suitable for such technology. The 'Be Clean' carbon emission results are therefore identical to carbon emissions obtained at the 'Be Lean' stage.
- The installation of on-site renewable technologies, such as Photovoltaic Panels (PVs) and Air Source Heat Pumps, have been identified as feasible for the development. Initial calculations suggest that the office element of the site will be connected to 2.16 kWp PV supply. Air source heat pumps is proposed for the office and the retail/restaurant elements with individual systems for each unit. The condenser will be located externally. The incorporation of the PV systems and Air Source Heat Pumps ('Be Green') will allow the development to achieve an overall carbon savings of 15.16% against the 'Be Clean' stage.

The energy hierarchy indicates an overall projected carbon reduction of 42.63% will be achieved by efficient building design and construction along with the use of renewable energy generation. This is in line with the requirements of the Building Regulations (2013) and the London Borough of Camden's Policy CC1 and the London Plan's requirements for Climate Change Mitigation and Adaption and Sustainable Design and Construction.

5.3 Water Efficiency

The design of the proposed development will aim to minimise internal potable water consumption. This will be achieved through the specification of low-flow sanitary fittings such as dual flush toilets, low flow taps and showers.

Furthermore, a water meter with a pulsed output will be installed on the mains supply to all buildings to ensure water consumption can be monitored and managed and therefore encourage reductions in water consumption. A leak detection systems will also be integrated into the water metering, employing trend analysis with an audible signal when a leak is detected, to reduce the impact of water leaks that would otherwise go undetected.

Implementation of these measures could provide significant reductions in the water use from the proposed development and will reduce the short-term impact on water supply resources in the area in line with the London plan and Local Plan Policy CC3.

5.4 Materials and Waste

5.4.1 Materials

The selection and application of the materials comprising the proposed development will respect the scale and setting of the surroundings. On that basis, the materials will be suitable and robust, with durable long-life properties. Suitable durability and protection measures or design features/solutions will be incorporated to prevent damage to the vulnerable parts or exposed elements of the building and surrounding streetscape, therefore minimising the frequency of replacement and maximising materials optimisation.

Wherever feasible, materials employed in key building elements (roof, external walls, internal walls, etc.) and hard landscaping will be selected in line with the Green Guide to Specification with a low environmental impact (including embodied carbon) over the full life cycle of the building. In addition, the contractor will opt for products with Environmental Product Declaration.

The proposal will aim at sourcing materials from responsible sources, for example through suppliers who participate in responsible sourcing schemes such as the BRE BES 6001:2008 Responsible Sourcing Standard. Where timber products are used, they will be obtained from sustainable sources, either Forest Stewardship Council or Programme for the Enforcement of Forestry Certification approved sources.

All thermal insulation products used in the building (i.e. external walls, ground floor, roof and building services insulation which includes any insulation required for any water pipes and storage systems) will have a low embodied impact relative to their thermal properties, as determined by the Green Guide to Specification ratings. Furthermore, where feasible, thermal insulation products used in the building will be responsibly sourced.

5.4.2 Waste

The proposed development will provide easily accessible waste and recycling facilities during the construction and operational phases as per Policy CC5 of Camden Local Plan and Policy 5.17 of the London plan to minimise and manage waste.

A Site Waste Management Plan (SWMP) will be developed for the proposed scheme to identify the types and quantities of waste produced during every stage of demolition and construction. The SWMP will be produced before on-site works begin and will look into the opportunities to minimise and reduce waste generation, such as:

- Agreements with material suppliers to reduce the amount of packaging or to participate in a packaging take back scheme;
- Implementation of a 'just in time' material delivery system to avoid materials being stockpiled on-site for long periods of time, increasing the risk of their damage and disposal as waste;
- Attention to material quantity requirements to avoid over ordering and generation of wasted materials;
- Reuse of materials on-site wherever feasible,
- Segregation of waste at source where practical; and
- Reuse and recycling of materials off-site where reuse on-site is not practical (e.g. through use of an off-site waste segregation facility and re-sale for direct reuse or reprocessing).

Where possible, materials needed for the construction process will be obtained firstly from re-use and recycling schemes before seeking fresh material.

Throughout the design and construction phases of the proposed development emphasis will be on pre-assembly and pre-fabrication of elements, wherever practicable, to minimise on-site waste and improve quality.

Once the proposed development is operational, recycling and composting opportunities will be maximised for the good management of waste through the provision of sufficient internal and external space. Specifically a dedicated external area will be provided for each residence located towards the front of the site to evade any noise generated from the frequency of use of this area and its servicing as well as the requirements of the serving operator to pick up the materials.

5.5 Adapting to Climate Change and Greening the City

The proposed development has been designed to adapt to and mitigate for the effects of climate change through passive design, including improved insulation with enhanced U-values. Additionally, the implementation of high efficiency lighting and low and zero carbon technologies will supply energy at a reduced carbon cost. Refer to the 'Energy, Carbon Dioxide Emissions and Renewable Energy' section above for more details.

The building will be constructed to a high standard to ensure its durability and will be designed to provide for flexibility of uses during their projected operational life. To encourage non-carbon based transport, secure, safe and weather-proof cycle parking spaces will be provided.

The Site is identified to lie within the Flood Zone 1, as detailed in drainage strategy ('Sustainable Drainage Strategy', December 2017, Webb Yates). It is therefore within an area of very low risk of flooding from surface water and rivers. The development is appropriate in accordance with the "flood risk vulnerability and flood zone compatibility" table from the government guidance documents on flood risk.

The proposed new build drainage scheme will provide a betterment to the existing run off values in compliance with Camden's Local Plan Policies CC2 and CC3 and the London Plan Policy 5.13. Due to existing site constraints and unknown structural conditions it is proposed to keep the existing internal and below ground drainage system as close to the existing state as possible with new connections for new restaurant demises.

In accordance with the National Planning Policy Framework (NPPF) 2012, the effects of climate change are included within the assessment to reduce future flood risk. The entire site lies on a plot of approximately 550m² and the site area remains unchanged. There is a 0% reduction in the total impermeable areas between existing and proposed. It is proposed that the outfall associated with the plan extended building area is attenuated through the inclusion of a green roof.

The mitigated discharge rates assumes the proposed green roof is completely saturated and uses attenuation principles to limit the discharge to 1l/s. In reality lower flow rates are achievable but may increase the risk of blockages and increase maintenance costs. The green roof design will also act as a treatment process. The proposed limiting discharge rate is based on WADE product: restricted flow roof outlet and can also be achieved by a throttled outlet.

5.6 Pollution Management – Noise, Water, Air and Light

The proposed development, where relevant, will be designed so that it does not reflect noise, including through the careful choice of materials. A noise survey assessment ('Planning Noise Survey Report', January 2018, Sandy Brown) has been carried out to determine the existing background sound levels in the area and to set appropriate plant noise limits in line with the requirements of the London Borough of Camden.

Based on the requirements of the London Borough of Camden and on the results of the noise survey, all plant will be designed such that the cumulative noise level at 1 m from the worst affected windows of the nearby noise sensitive premises does not exceed the limits detailed in the survey report.

The noise assessment has also concluded that based on the proposed A1 / A3 units' layouts and reasonable assumptions on the operation, cumulative noise breakout levels from these units are not expected to exceed the acceptable limits at any time.

Plant for the retail/restaurant uses will be housed within the roof below the parapet level, and details will be submitted for approval via condition prior to occupation of the units, including any acoustic mitigation required to protect neighbouring amenity. These measures comply with London Plan and Local Plan policies for protecting amenity.

Relevant to water pollution, no significant effects to water resources are expected to occur throughout the demolition and construction phases, provided that standard mitigation measures are applied. Where possible, the development will incorporate a surface water drainage strategy designed to cope with the heaviest of rainfall expected over the buildings lifetime (i.e. around 100 years for residential development) and providing on-site attenuation measures with controlled discharge to the adjacent Thames Water sewer.

During construction works emissions to air may be associated with road traffic movements (deliveries and movement of building materials), construction plant and vehicles, and construction dust. Therefore, a series of mitigation measures would be implemented, as appropriate, as part of the Environmental Management Plan that will be produced. The Environmental Management Plan will include details of proposed dust monitoring during construction works, along with measures for controlling other emissions to the environment from the works. These measures would represent industry good-practice for controlling emissions from construction sites. For example, construction dust will be controlled through the application of a series of industry accepted measures.

The proposed development will aim to ensure that external lighting (including security lighting, where necessary) is concentrated in the appropriate areas and that upward lighting is minimised, reducing unnecessary light pollution, energy consumption and nuisance to neighbouring properties. The lighting will be energy efficient and 'Dark Sky' compliant, thereby not causing obtrusive light pollution, glare or spillage.

5.7 Sustainable Transport

A transport assessment and travel plan has been prepared for the site (Transport Assessment, January 2018, Caneparo Associates and Framework employee Travel Plan, January 2018, Caneparo Associates) in support of the planning application. The assessment has concluded that the proposed extension and refurbishment will not result in a material impact in highways and transportation terms.

The Site is located within a highly accessible London location, achieving a PTAL rating of 6b, the highest score possible. As such the majority of trips associated with the proposals can be expected to be made by sustainable modes of travel. As part of the core of the Travel Plan, physical and management measures, mentioned below, will be implemented to include awareness initiatives and infrastructure provision.

The proposed development will not provide any off-street parking, removing the existing 3 spaces on-site which is therefore considered a benefit in terms of sustainability. The development can therefore be considered 'car-free' as there will not be any other spaces available for employees or visitors of the development. A number of disabled parking spaces are located within the immediate vicinity of the Site.

Cycle parking will be provided at lower ground floor level in accordance with local policy standards. The provision will offer secure, sheltered and accessible cycle parking facilities for employees and office visitors. The building will be provided with shower, lockers and changing facilities. An accessible cycle parking space is included within the store capable of accommodating a "recumbent / cargo" style bicycle. Long-stay cycle parking for the retail units will be provided internally to each of the units, where appropriate.

Deliveries, including refuse collection, will continue to make use of Bleeding Heart Yard for servicing, as per the existing situation, as well as the new loading bay on Greville Street and yellow line restrictions on Saffron Hill for large deliveries. Swept path analysis highlights that this arrangement is achievable.

All employees of the development, will be given information about the Travel Plan and travel options in the form of an induction pack. The health benefits of walking and cycling are to be promoted through things such as Walk to Work Week, which usually falls in the month of May. Dedicated Travel Notice Boards will be installed at key locations within the Site such as near the employee entrance to the office block. The Information Point will be at the Site from the outset and will display material designed to promote not only sustainable travel modes such as public transport, walking and cycling but also details of the Travel Plan itself and the contact details of the Travel Plan Coordinator.

Provision for people with disabilities has been built into the design of the building. Initiatives / design features / measures presented in the development include disabled toilets, wheelchair accessible lifts with accessible floors and refuge points on stairs.

The Site's existing public transport facilities and access to walking and cycling routes combined with the absence of general car parking provision will maximise the sustainability of the Site in accordance with local, regional and national policy and will promote a sustainable form of development.

6 Conclusion

This Sustainability Statement assesses the proposed development against relevant sustainability standards as well as sustainability policies aims and objectives. The key beneficial impacts of the scheme in relation to sustainability can be summarised as follows:

- Use of previously built-on land;
- Provision of high quality scheme in an area with excellent access to public transport;
- Provision of residences visually integrated in the surroundings;
- A projected carbon reduction of 42.63% over the baseline is predicted. This will be achieved by efficient building design and with the use of renewable energy generation;
- Good practice environmental design, including good daylight and acoustics
- Provision of water efficient sanitary ware;
- Minimisation of impact on biodiversity and provision of ecological enhancements ;
- Maximisation of recycling and implementation of the best practicable environmental options for non-recyclable residual waste;
- Provision of safe, waterproof bicycle storage;
- Implementation of a travel plan; and
- Adherence to sustainable construction site management practices including:
 - Sourcing timber from reclaimed, reused or responsible sources;
 - Developing and implementing a Site Waste Management Plan (SWMP); and
 - Reducing environmental impacts of the construction site.

The sustainability strategy described in this report sets out the proposed measures and commitments that have been and will continue to be incorporated into the design development process, the construction and operation of the buildings in order to optimise its environmental performance and result to a scheme that can be designed, constructed and operated in a sustainable way.

Appendix A - BREEAM Pre-Assessments

Seaforth Land

20-23 Greville Street

BREEAM

Pre-assessment Tracker & Action List for Retail
Refurbishment



MLM.

Group

Notice

This document and its contents have been prepared and intended solely for Seaforth Land information and use in relation to Greville Street.

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Project: Greville Street
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Revision	Status	Description	Author	Checked/Approved	Date
0	P	Pre-assessment	Clare Hardy	Lilian Martins	21/12/17
1	P	Pre-assessment Progress	Clare Hardy	Cat Clarkson	16/01/18

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1 Introduction

This report has been prepared by MLM Consulting Engineers Ltd Sustainability Group and provides guidance to the design team in relation to the BREEAM UK Non-Domestic Refurbishment SD 216: 1.1 - 2014 requirements for the refurbishment at 20-23 Greville Street, London, EC1N 8SS. The report is based upon information obtained at the design team meeting held on 16 October 2017.

Part 1 and Part 2 of the scheme are only applicable to the build.

The proposals involve the retention and refurbishment of an existing office building comprising 3,643 sqm (gia) of floorspace to provide a new mixed use building comprising:
Change of use of existing Class B1 at ground floor, basement and first floor levels to Class A1/A3 use; demolition of existing fifth floor plant room and construction of rooftop extension at fifth and mezzanine floor level for Class B1 use, rear infill extension to all floors for Class B1 use, external alterations including new façade and glazing, and associated works.

The building is not noted as historic.

Heating and cooling systems for the Retail units are via a VRF system and natural ventilation is proposed. DHW is point of use and a gas boiler is only specified for the restaurant unit.

There is no associated landscaping and it is to be confirmed if planting is feasible on the roof areas.

Note the refurbished A1/A3 units are assessed under this assessment.

1.1 What is BREEAM?

This guidance report is based on the issued by the BRE. As with all schemes under the BREEAM umbrella the assessment seeks to minimise the adverse effects of new and existing buildings on the environment at global and local scales, whilst promoting healthy indoor conditions for the occupants. The environmental implications of any building are assessed at the design stage, and compared with good practice by independent assessors.

BREEAM establishes a set of categories under which specific credit requirements are grouped. These are:

- Management
- Health and Wellbeing
- Energy
- Transport
- Water
- Materials
- Waste
- Land Use and Ecology
- Pollution

Within each category there are a number of credits which the design team can choose from to achieve the desired rating. It should be noted that there will be certain minimum requirements that must be achieved depending on the BREEAM rating required. Building designs are compared against the credit criteria by registered assessors and credits awarded where the criteria have been met. An overall rating of the building's performance is given using the terms; Pass, Good, Very Good, Excellent or Outstanding. The rating is determined from the number of credits achieved in each of the categories, which are then weighted (i.e. credits multiplied by environmental weighting factor) to provide an overall score.

This report is for advice only. This report outlines the overall performance of the development and provides a written and tabulated summary that should be used as a quick reference guide. For full details of the credit criteria refer to the BRE website www.breeam.org where copies of the assessor manuals are available for download. The final rating achieved in a certified assessment will be dependent on the provision of acceptable information as evidence that the compliance requirements of the credits have been met. Such evidence could be in the form of marked-up drawings, specification clauses, manufacturers' literature and project specific documents or reports.

1.2 Scoring and Rating Assessed Buildings

The BREEAM rating benchmarks for new construction projects assessed using the 2014 version of BREEAM are as follows:

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

1.3 Minimum Standards

The BREEAM categories contain a number of environmental issues which reflect the choices available when procuring, designing and constructing a building.

Each category has a set number of 'credits' available and these credits are awarded where the building demonstrates that it complies with the requirements set by BREEAM.

1.4 Assessment Scope

The BREEAM UK Refurbishment and Fit-out scheme provides a modular framework split up into four separate parts, that are assessed according to the scope of work of the project, with each part defining a set of individual measures and associated criteria that each project is assessed against. This allows projects to be assessed against the parts that are within the scope of influence of the project, while also ensuring that similar project types are assessed against a comparable set of criteria.

The following assessment scope provides details of when it may be appropriate to conduct an assessment against each part, depending on the nature of the refurbishment or fit-out works that are being carried out. It should be noted that currently, a client can choose which parts they wish to gain certification against and this choice is not limited by the scope of a project. This is to provide flexibility recognising that a project may be doing work that is within the scope of an assessment part (e.g. upgrading part of the core services), but due to economic, technical or other factors may not be at a level that is compliant with BREEAM. In these situations, clients can choose to omit certain assessment parts, however the certificate will clearly highlight the parts that a project has been certificated against and clients and others must make the scope of the assessment clear in any published material or claims made which reference BREEAM e.g. a BREEAM Refurbishment and Fit-out 'Excellent' rating against Part 4.

Part 1: Fabric and Structure

A Part 1 assessment may be appropriate where a refurbishment project includes one or more of the following alterations to the building fabric and where the area to be renovated is greater than 50 per cent of the surface of the individual element or 25 per cent of the total building envelope:

- Building façade: where the external façade of the buildings is being upgraded/refurbished such as new cladding, rendering, façade system, internal dry lining etc.
- Roof: where a new roof is being installed or where significant changes are being made to the roof structure or the replacement/refurbishment of roof coverings.
- Windows: where changes are being made to the windows such as replacement, upgrade/refurbishment of existing windows with new glazing or the specification of secondary glazing.

Note: A minor change to the building fabric (e.g. local upgrading of an external wall) below the above thresholds would not require a Part 1 assessment to be included, although it may be carried out in order to assess the overall performance of the building fabric.

Part 2: Core Services

A Part 2 assessment may be appropriate where at least two of the following are being installed or upgraded to a level that requires compliance with the Building Regulations Compliance Guide:

- Central air handling unit
- Heating boiler
- More than 50% of heat distribution
- Chiller plant
- More than 50% of chiller distribution
- Water services (sanitary fittings in core)
- Building management system
- Community heating system (e.g. CCHP)
- Low and zero carbon technologies.

Note: Where works comprise of 'like for like' component replacements e.g. a fan motor of an air handling unit a Part 2 assessment may not be appropriate although it may still be carried out in order to assess the performance of the core services.

Definition of core services

Core services are defined as services that supply multiple areas and/or tenants and will generally be centralised plant.

Part 3: Local Services

A Part 3 assessment may be appropriate where at least two of the following fixed local building services are being installed or upgraded e.g. a replacement or new installation of local heating/cooling units.

- Replacement of more than 50% of light fittings, system and controls
- Upgrade of zone controls
- Local ventilation
- Local heating units (including sources not connected to core services)
- Local cooling units (including sources not connected to core services)
- Point of use water heaters.

Note: If there is a requirement to replace a component of a local service as part of the refurbishment or fit-out and that component is a direct replacement then a Part 3 assessment may not be appropriate, though may still be carried out in order to assess the performance of local services. Examples of component replacements include new lamps within existing fittings, circulation pumps or individual heat emitters and valves.

Definition of local services

Local services are defined as services that supply a specific area and may connect into the distribution systems from the core services within the tenanted area.

Part 4: Interior Design

A Part 4 assessment may be appropriate where the refurbishment or fit-out works involve changes to the layout and/or redecoration of the refurbishment or fit-out area. including:

Remodelling/changes to interior spaces including two or more of the following:

- Wall coverings (alterations to at least 50% by area)
- Floor coverings (alterations to at least 50% by area)
- Ceiling covering or systems (alterations to at least 50% by area)
- Partitions (alterations to at least 50% by area)
- Raised floor system (alterations to at least 50% by area)
- Furniture and fittings e.g. office furniture, retail display furniture and fittings etc. (alterations to at least 50% by area)

AND at least one of the following:

- Sanitary fittings e.g. tea/coffee points, kitchenette and washrooms (alterations to at least 50% of fittings)
- Equipment e.g. Office equipment, display lighting, display chillers/freezers (alterations to at least 50% of equipment)
- Local electrical installations e.g. sub-metering

Part 4 is broadly in line with a Category B fit-out and where the fit-out works also include changes or additions to local services, a Part 3 assessment may also be relevant.

1.5 Minimum Standards and BREEAM Ratings

The following outlines the minimum standards to meet specific ratings:

BREEAM Issue	BREEAM Rating / Minimum no. of credits				
	Pass	Good	Very Good	Excellent	Outstanding
Man 03: Responsible construction practices	None	None	None	One credit (Considerate Construction)	Two credits (Considerate Construction)
Man 04: Commissioning and handover	None	None	None	Criterion 9 (Building User Guide)	Criterion 9 (Building User Guide)
Man 05: Aftercare	None	None	None	Part 2 and 3 only: One credit (Seasonal commissioning)	Part 2 and 3 only: One credit (Seasonal commissioning)
Ene 01: Reduction of energy use and carbon emissions	None	None	None	Parts 1,2,3 and 4 (Full assessments): Six credits, varies for other assessment types	Parts 1,2,3 and 4 (Full assessments): Ten credits, varies for other assessment types
Ene 02: Energy monitoring	None	None	Part 2, 3 and 4: One credit (First sub-metering credit)	Part 2, 3 and 4: One credit (First sub-metering credit)	Part 2, 3 and 4: One credit (First sub-metering credit)
Wat 01: Water consumption	None	One credit (Where applicable)	One credit (Where applicable)	One credit (Where applicable)	Two credits (Where applicable)
Wat 02: Water monitoring	None	Part 2: Criterion 1 only	Part 2: Criterion 1 only	Part 2: Criterion 1 only	Part 2: Criterion 1 only
Mat 03: Responsible sourcing of materials	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only
Wst 01: Construction waste management	None	None	None	None	One credit
Wst 03: Operational waste	None	None	None	One credit	One credit

1.6 Innovation Credits

Innovation credits provide recognition for designs which innovate in the field on sustainable performance, above and beyond the level that is currently recognised and rewarded by standard BREEAM issues. There are two ways in which BREEAM awards 'Innovation Credits':

The first is by meeting Exemplary Performance criteria defined within an existing BREEAM issue i.e. going beyond the standard BREEAM assessment criteria and therefore best practice.

The second is where an application is made to BRE Global by the registered project's BREEAM Assessor to have a particular building technology or feature, design or construction method or process recognised as 'innovative'.

All Innovation credits have a fixed environmental weighting of 1% towards the final score, and there is a maximum of innovation credits (totalling 10%) which may be awarded to any scheme.

1.7 Environmental Weightings, Final Score and BREEAM Rating

Once each BREEAM credit has been assessed the category percentage scores are determined (based on the number of credits achieved over those available within a category) and an environmental weighting applied. The weighted category scores are then totalled to give an overall score and any additional score for innovation is added to give the final BREEAM score which is used to determine the BREEAM rating.

2 Project Status

2.1 BREEAM Workshops:

The design team meeting held at Groupwork's offices, Clerkenwell on the 16 October 2017 was attended by:

Name of Attendee	Company	Role in Project
Fred Samaha	Quantem Consulting LLP	Partner
Alex Cotterill	Amin Taha Architects	Architect
Paul Downie	Webb Yates	Building Services Engineer
Andrew Lerpiniere	Webb Yates	Director
Clare Hardy	MLM Consulting Engineers	BREEAM assessor

2.2 Summary

The project currently targets a score of 62.60% which equates to a VERY GOOD rating.

To ensure that a Very Good rating is achieved/maintained and achieved, it is vital that all design team members read through the action list of credits required and ensure that the credit criteria are incorporated in the developing design and that suitable evidence is provided to validate achievement.

Where information could be provided to support the achievement of a credit this should be provided to the assessor at the earliest opportunity. The assessor should also be informed of any credit criteria, which cannot be met. Changes to existing specifications and tender package documents to address the criteria contained in this report would enable the design team to deliver the necessary rating.

This document should be used as a 'live' tool throughout the project and the BREEAM options and requirements should be considered at every stage of development.

Any changes made to the document from the last issue will be shown in red ink for tracking purposes.

The table below shows the progress of the score of the project based on the development of the scheme:

Score History Table

Revision	Report	Achieved Score (ACH)	Currently Targeted Score (CTS)	Potentially Achievable Score (TBC)
0	Pre-assessment	0.00%	62.60%	64.00%
1	Pre-assessment Progress	0.00%	62.60%	64.00%

The initial score targeted at the Pre-assessment meeting will allow for the required BREEAM rating to be achieved provided sufficient and compliant evidence is received by MLM.

The Pre-assessment meeting held for this project on the date above details the credits targeted, who is responsible for providing evidence for each credit, and the evidence that must be provided to the BREEAM assessor in order to secure credits and achieve the required BREEAM rating. Any changes to the targeted credits and/or changes to the score are detailed below for reference. Where any changes to the score have occurred, this is reflected in the current targeted score on the Summary page of this document.

The current projected score will allow for the required BREEAM rating to be achieved once sufficient and compliant evidence is received by MLM.

2.3 Tracker

Management

				AVL	ACH	CTS	TBC
Total credits in Management:		Action By	Credit Status	18	0	10	2
Man01 Project Brief and Design C1-4: Stakeholder Consultation (Project Delivery)	RIBA Stage 2(C): Consultations	Project Manager	Targeted	1	0	1	0
		Architect	Targeted				
Man01 Project Brief and Design C5-7, 8: Stakeholder Consultation (Third Party)	RIBA Stage 2(C): Consultations. RIBA Stage 4(EF): Feedback.	Project Manager	Targeted	1	0	1	0
		Architect	Targeted				
Man01 Stakeholder Consultation C9-11: Sustainability Champion (Design)	RIBA Stage 1(A-B): Appointment	BREEAM AP	Targeted	1	0	1	0
		Project Manager	Targeted				
Man01 Stakeholder Consultation C12-13: Sustainability Champion (Monitoring Progress)	RIBA Stage 1(A-B): Appointment. RIBA Stage 2(C): BREEAM target confirmed	BREEAM AP	Targeted	1	0	1	0
		Project Manager	Targeted				
Man02 Life Cycle Cost and Service Life Planning C1-2: Elemental Life Cycle Cost (LCC)	RIBA Stage 2(C): Elemental LCC	N/A	Not targeted	2	0	0	0
		N/A	N/A				
Man02 Life Cycle Cost and Service Life Planning C3: Component Level LCC Option Appraisal	RIBA Stage 4(E-F): Component Level LCC Plan.	N/A	Not targeted	1	0	0	0
		N/A	N/A				
Man02 Life Cycle Cost and Service Life Planning C4: Capital Cost Reporting	RIBA Stage 6(J-K): Recommended action	Project Manager	TBC	1	0	0	1
		Client	TBC				
Man03 Environmental Management							
Minimum standards for this credit with the currently targeted Very Good \geq 55% BREEAM rating:							
None							
Man03 Responsible Construction Practices C1: Pre-requisite	RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	Pre-requisite for this credit.			
		Client	Targeted				
Man03 Responsible Construction Practices C2-3: Environmental Management	RIBA Stage 4(E-F)/Stage 5: Recommended action	Principal Contractor	Targeted	1	0	1	0
		Client	Targeted				

Man03 Responsible Construction Practices C4-6: Sustainability Champion (construction)	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				
Man03 Responsible Construction Practices C7-8: Considerate Construction	RIBA Stage 4(E-F)/Stage 5: Recommended action	Principal Contractor	Targeted	2	0	1	1
		Client	Targeted				
Man03 Responsible Construction Practices C9: Monitoring of refurbishment or fit-out-site impacts	RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	Pre-requisite for criteria 10 to 18			
		Client	Targeted				
Man03 Responsible Construction Practices C10-15: Monitoring of refurbishment or fit-out-site impacts- Utility Consumption	RIBA Stage 4(E-F)/Stage 5: Recommended action	Principal Contractor	Targeted	1	0	1	0
		Client	Targeted				
Man03 Responsible Construction Practices C16-18: Monitoring of refurbishment or fit-out-site impacts - Transport of construction materials and waste	RIBA Stage 4(E-F)/Stage 5: Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				
Man03 Responsible Construction Practices C19: Exemplary Level Criteria	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				
Man04 Commissioning and Handover							
Minimum standards for this credit with the currently targeted Very Good ≥ 55% BREEAM rating: None							
Man04 Commissioning and Handover C1-4: Commissioning and testing schedule and responsibilities	RIBA Stage 4(E-F): Appointment RIBA Stage 4(E-F): Recommended action	M&E	Targeted	1	0	1	0
		Client	Targeted				
Man04 Commissioning and Handover C5-6: Commissioning Building Services	RIBA Stage 4(E-F): Recommended action	M&E	Targeted	1	0	1	0
		Client	Targeted				
Man04 Commissioning and Handover C7-8: Testing and inspecting building fabric	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				
Man04 Commissioning and Handover C9-10: Handover	RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	1	0	1	0
		Client	Targeted				

Health and Wellbeing

				AVL	ACH	CTS	TBC
Total credits in Health and Wellbeing:		Action By	Credit Status	14	0	3	0
Hea01 Visual Comfort C3-5: Daylighting (building type dependent)	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	3	0	0	0
		N/A	N/A				
Hea01 Visual Comfort C6-9: View Out	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	2	0	0	0
		N/A	N/A				
Hea02 Indoor Air Quality C1: Indoor air quality (IAQ) plan	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				
Hea02 Indoor Air Quality C2-5: Ventilation	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				
Hea02 Indoor Air Quality C13-14: Adaptability - Potential for Natural Ventilation	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				
Hea04 Thermal Comfort C1-5: Thermal modelling	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				
Hea04 Thermal Comfort C6-9: Adaptability - For a Projected Climate Change Scenario	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				
Hea04 Thermal Comfort C10-12: Thermal Zoning and Controls	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				
Hea05 Acoustic Performance C4-6: (for Industrial, Retail, Prisons and 'Other' building types)	RIBA Stage 4(E-F): Recommended action	Acoustician	Targeted	2	0	2	0
		Principal Contractor	Targeted				
Hea06 Safety and Security C1-3: Security of Site and Building	RIBA Stage 2(C): Crime Impact Assessment RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	1	0	1	0
		Client	Targeted				

Energy

				AVL	ACH	CTS	TBC
Total credits in Energy:		Action By	Credit Status	24	0	18	0
Ene01 Reduction of Energy Use and Carbon Emissions							
<u>Minimum standards for this credit with the currently targeted Very Good ≥ 55% BREEAM rating:</u>							
None							
Ene01 Reduction of Energy Use and Carbon Emissions C1: Whole building energy model (option 1)	RIBA Stage 4(E-F): Recommended action	Energy Consultant	Targeted	15	0	15	0
		Client	Targeted				
Ene01 Reduction of Energy Use and Carbon Emissions C8: Exemplary Level Criteria - two credits - Zero regulated carbon	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	2	0	0	0
		N/A	N/A				
Ene02 Sub-Metering of Major Energy Consuming Systems							
<u>Minimum standards for this credit with the currently targeted Very Good ≥ 55% BREEAM rating:</u>							
Part 2, 3 and 4: One credit (First sub-metering credit)							
Ene02 Energy Monitoring C1-4: Sub-Metering of Major Energy Consuming Systems	RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	1	0	1	0
		M&E	Targeted				
Ene02 Energy Monitoring C5: Sub-Metering of High Energy Load and Tenancy Areas	RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	1	0	1	0
		M&E	Targeted				
Ene03 External Lighting C1-3: One Credit	RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	1	0	1	0
		M&E	Targeted				
Ene04 Low Carbon Design C1-3: Passive Design Analysis	RIBA Stage 2(C): Passive Design Analysis RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				
Ene04 Low Carbon Design C4-6: Free Cooling	RIBA Stage 2(C): Passive Design Analysis RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				
Ene04 Low Carbon Design C7-8: Low Zero Carbon (LZC) Feasibility Study	RIBA Stage 2(C): Feasibility Study RIBA Stage 4(E-F): Recommended action	Energy Consultant	Not targeted	1	0	0	0
		N/A	N/A				

Ene06 Energy Efficient Transportation Systems C1: Energy Consumption	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				
Ene06 Energy Efficient Transportation Systems C2-6: Energy Efficient Features	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	2	0	0	0
		N/A	N/A				

Transport

				AVL	ACH	CTS	TBC
Total credits in Transport:	Action By	Credit Status		9	0	9	0

Tra01 Public Transport Accessibility C1-2: Accessibility Index C3: Alternative transport measures	RIBA Stage 3(D): Recommended action	Transport Consultant	Targeted	5	0	5	0
		Architect	Targeted				
Tra02 Proximity to Amenities C1: Proximity to Local Amenities	RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
		N/A	N/A				
Tra03 Cyclist Facilities C1-4: Cycle Storage, Cyclist Facilities, Cycle storage and cyclist facilities	RIBA Stage 3(D): Recommended action	Architect	Targeted	2	0	2	0
		Client	Targeted				
Tra05 Travel Plan C1-4: One Credit	RIBA Stage 3(D): Recommended action	Transport Consultant	Targeted	1	0	1	0
		Principal Contractor	Targeted				

Water

				AVL	ACH	CTS	TBC
Total credits in Water:		Action By	Credit Status	8	0	6	0
Wat01 Water Consumption							
<u>Minimum standards for this credit with the currently targeted Very Good ≥ 55% BREEAM rating:</u>							
One credit (Where applicable)							
Wat01 Water Consumption C1-6: Up to Five Credits (Building Dependant)	RIBA Stage 3(D): Recommended action	Client	Targeted	5	0	3	0
		Principal Contractor	Targeted				
Wat02 Water Monitoring							
<u>Minimum standards for this credit with the currently targeted Very Good ≥ 55% BREEAM rating:</u>							
Part 2: Criterion 1 only							
Wat02 Water Monitoring C1-5: One Credit	RIBA Stage 4(E-F): Recommended action	M&E	Targeted	1	0	1	0
		Principal Contractor	Targeted				
Wat03 Water Leak Detection C1: Leak Detection System	RIBA Stage 3(D): Recommended action	M&E	Targeted	1	0	1	0
		Principal Contractor	Targeted				
Wat03 Water Leak Detection C2: Flow Control Devices	RIBA Stage 3(D): Recommended action	M&E	Targeted	1	0	1	0
		Principal Contractor	Targeted				

Materials

				AVL	ACH	CTS	TBC
Total credits in Materials:		Action By	Credit Status	13	0	7	0
Mat 01 Environmental Impact of Materials C8-10: Up to 4 Credits	RIBA Stage 3(D): Recommended action	Architect	Targeted	6	0	2	0
		N/A	N/A				
Mat 01 Environmental Impact of Materials Exemplary Level		N/A	Not targeted	1	0	0	0
Mat03 Responsible Sourcing of Materials							
<u>Minimum standards for this credit with the currently targeted Excellent ≥ 70% BREEAM rating:</u> Criterion 1 only							
Mat03 Responsible Sourcing of Materials C1: Pre-requisite	RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	Pre-requisite to achieve credit			
		Client	Targeted				
Mat03 Responsible Sourcing of Materials C2: Sustainable Procurement Plan	RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	1	0	1	0
		Client	Targeted				
Mat03 Responsible Sourcing of Materials C3-4: Responsible Sourcing of Materials (RSM)	RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	3	0	1	0
		Client	Targeted				
Mat03 Responsible Sourcing of Materials C5: Exemplary Level Criteria	RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				
Mat04 Insulation C1-2: Embodied impact	Recommended action by: RIBA Stage 3(D)	Architect	Targeted	1	0	1	0
		M&E	Targeted				
Mat05 Designing for Durability and Resilience C1: Protecting vulnerable parts of the building from damage C2-5: Protecting exposed parts of the building from material degradation	RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
		Project Manager	Targeted				
Mat06 Material Efficiency C1-2: One Credit	RIBA Stages 1,2,3 and 4: Material Use Review RIBA Stage 3(D): Recommended action	Project Manager	Targeted	1	0	1	0
		Architect	Targeted				

Waste

				AVL	ACH	CTS	TBC
Total credits in Waste:		Action By	Credit Status	11	0	7	0
Wst01 Construction Waste Management							
<u>Minimum standards for this credit with the currently targeted Very Good ≥ 55% BREEAM rating:</u>							
None							
Wst01 Construction Waste Management C1: Pre-refurbishment audit	RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	1	0	1	0
		Client	Targeted				
Wst01 Construction Waste Management C2-4: Reuse and direct recycling of materials	RIBA Stage 3(D): Recommended action	N/A	Not targeted	2	0	0	0
		N/A	N/A				
Wst01 Construction Waste Management C5-6: Resource Efficiency	RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	3	0	2	0
		Client	Targeted				
Wst01 Construction Waste Management C7: Diversion of resources from landfill	RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	1	0	1	0
		Client	Targeted				
Wst01 Construction Waste Management C8-11: Exemplary level criteria	RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				
Wst02 Recycled Aggregates C1-3: One Credit	RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				
Wst02 Recycled Aggregates C4-6: Exemplary Level Criteria	RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				

Wst03 Operational Waste							
Minimum standards for this credit with the currently targeted Very Good ≥ 55% BREEAM rating: None							
Wst03 Operational Waste C1-7: One Credit	RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
		Client	Targeted				
Wst05 Adaptation to Climate Change C1: Structural and Fabric Resilience Part 1 Major Refurbishment Only	RIBA Stage 1(A-B): Climate Adaptation Strategy Appraisal RIBA Stage 3(D): Recommended action	Client	Targeted	1	0	1	0
		Architect	Targeted				
Wst05 Adaptation to Climate Change C2: Exemplary Level Criteria - Responding to adaptation to climate change	RIBA Stage 1(A-B): Climate Adaptation Strategy Appraisal RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	Not targeted				
Wst06 Functional Adaptability C1-2: One Credit	RIBA Stage 1(A-B): Functional Adaptation Strategy Appraisal RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
		Client	Targeted				

Land Use and Ecology

				AVL	ACH	CTS	TBC
Total credits in Land Use and Ecology		Action By	Credit Status	3	0	3	0
LE04 Enhancing Site Ecology C1-3: Ecologist's Report and Recommendations	RIBA Stage 1(A-B): Ecologist Appointment RIBA Stage 4(E-F) Recommended action	Ecologist	Targeted	1	0	1	0
		Principal Contractor	Targeted				
LE05 Long Term Impact on Biodiversity C1-3: Up to Two Credits	RIBA Stage 4(E-F): Recommended action	Ecologist	Targeted	2	0	2	0
		Principal Contractor	Targeted				

Pollution

				AVL	ACH	CTS	TBC
Total credits in Pollution:		Action By	Credit Status	12	0	6	0
PoI01 Impact of Refrigerants C2: Pre-requisite to Achieve C3-7	RIBA Stage 3(D): Recommended action	M&E	Targeted	Pre-requisite to achieve credit			
		N/A	N/A				
PoI01 Impact of Refrigerants C3-5: Impact of Refrigerant	RIBA Stage 3(D): Recommended action	M&E	Targeted	2	0	1	0
		Principal Contractor	Targeted				
PoI01 Impact of Refrigerants C6-7: Leak Detection	RIBA Stage 3(D): Recommended action	M&E	Targeted	1	0	1	0
		Principal Contractor	Targeted				
PoI02 NO_x Emissions C1-2: Up to Three Credits (All Building Types except Industrial)	RIBA Stage 3(D): Recommended action	N/A	Not targeted	3	0	0	0
		N/A	N/A				
PoI03 Flood Risk Management and Reducing Surface Water Run-off C1-6: Flood Risk Management	RIBA Stage 3(D): Recommended action	Drainage Consultant	Targeted	2	0	2	0
		N/A	N/A				
PoI03 Flood Risk Management and Reducing Surface Water Run-off C7-10: Surface Water Run-off	RIBA Stage 3(D): Recommended action	Drainage Consultant	Targeted	2	0	1	0
		N/A	N/A				
PoI03 Flood Risk Management and Reducing Surface Water Run-off C11-14: Minimising Water Course Pollution	RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				
PoI03 Flood Risk Management and Reducing Surface Water Run-off C15: Exemplary level requirements	RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				
PoI04 Reduction of Night Time Light Pollution C:1-5 One credit	RIBA Stage 3(D): Recommended action	M&E	Targeted	1	0	1	0
		Principal Contractor	Targeted				

3 Score Summary

BREEAM UK Refurbishment and Fit-Out Non-Domestic SD216: 1.1 - 2014
Pre-assessment date: 16 October 2017

BREEAM Reference: TBC
Internal Reference: CTN/7134062/CH

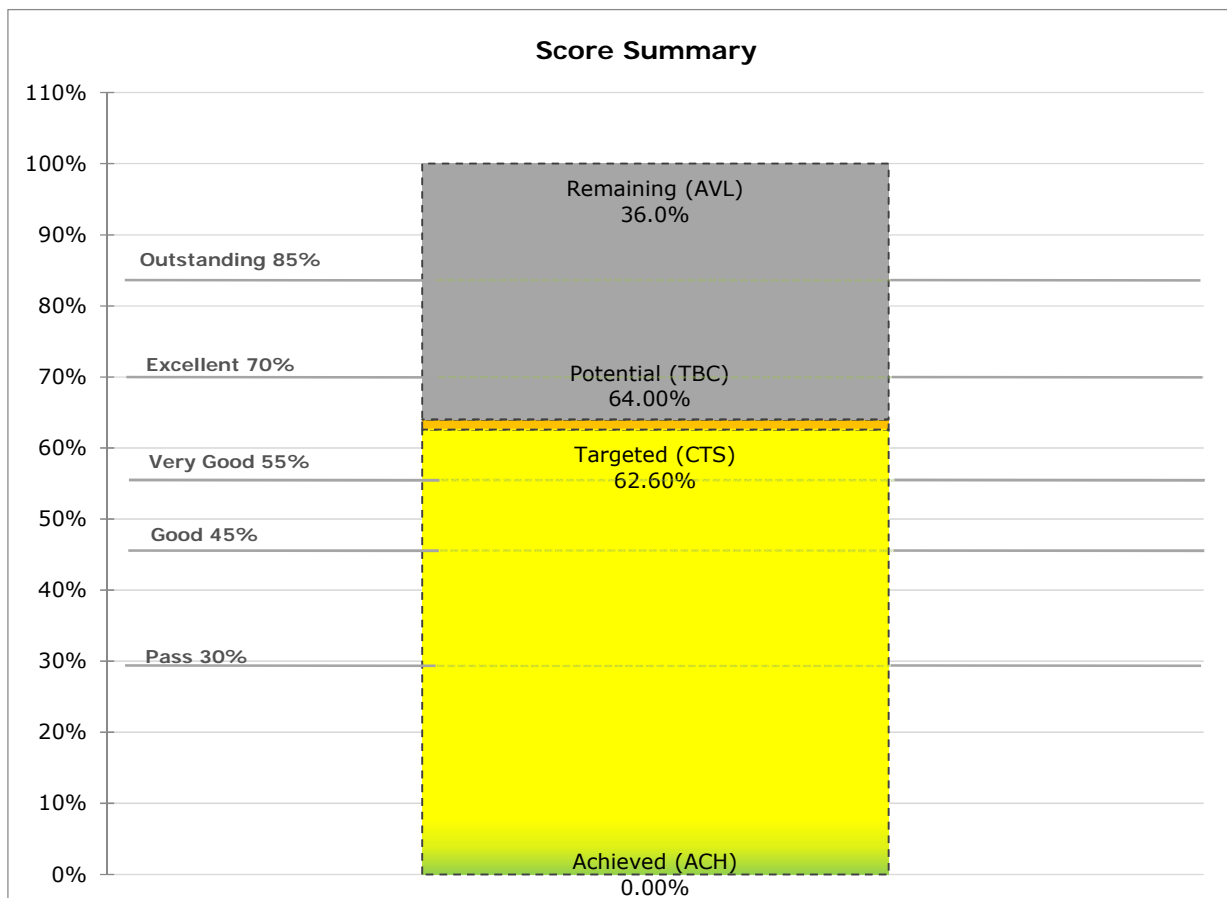
Updated: 16 January 2018

BREEAM Requirement: Very Good \geq 55%

Minimum standards level achieved: Very Good

Current Targeted Score: 62.6%

Achieved Score: 0.0%



5 Credit Status

This report provides an overview of the current position of the project in terms of the BREEAM assessment and the progress in achieving the required rating.

The 'Targeted' credits are detailed in the following pages and it is the responsibility of the design team to provide the evidence, as required by BREEAM, to the Assessor as soon as it becomes available.

All the BREEAM Credits have a recommended time period where they should be completed within to help ensure they are carried out at the most appropriate time. Some credits and specific criteria have mandatory RIBA stages where they must be completed within and these are marked out in bold in the credit summary bar. Below are the RIBA stages which is used in the report.

Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Handover and Close Out
0 (A.)	1 (B.)	2 (C.)	3(D)	4 (E-F)	5	6 (J-K)

Each credit has been assigned to a responsible party. It is their responsibility to refer to the relevant section of the Credit Status in this document and BREEAM manual.

Please note that it is not possible to achieve 100% in a BREEAM assessment, therefore there will always be credits that are 'Not Sought' due to the nature of the assessment.

The credits detailed below were agreed at the pre-assessment meeting for the and the status of each credit reflects the information provided by the Design Team following all meetings and correspondence to date with the BREEAM Assessor.

All actions and evidence must be submitted to the BREEAM Assessor as soon as possible for review to and inclusion in the BREEAM report.

Where text is struck through, evidence has been received, reviewed and signed off.

Changes to the document following the report issued prior to this issue (where applicable) are shown in red text.

5.1 Scoring Abbreviations:

AVL = Available credits

ACH = Achieved credits out of the total credits available

CTS = Credits which form part of the Current Targeted Score

TBC = Credits which are To Be Confirmed. These include the CTS credits and additional credits that are potentially achievable but not formally confirmed as targeted.

Management

		AVL	ACH	CTS	TBC	
Total credits in Management:	Action By	Credit Status	18	0	10	2

Man01 Project Brief and Design	RIBA Stage 2(C): Consultations						
C1-4: Stakeholder Consultation (Project Delivery)		Project Manager	Targeted				
		Architect	Targeted	1	0	1	0

Assessor's Notes

It was confirmed in the pre-assessment meeting that stakeholder consultation in relation to project delivery will be carried out by the team throughout the key phases of project delivery and a sustainability brief will be provided. It was advised that all key meetings be documented to provide evidence for this credit.

The Team noted the site is currently at Riba Stage 2.

Evidence/Action Required

1. Provide a clear sustainability brief which is developed prior to Concept Design and sets out the following:
 - a. Client requirements e.g. internal environmental conditions required
 - b. Sustainability objectives and targets including target BREEAM rating, business objectives etc.
 - c. Timescales and budget
 - d. List of consultees and professional appointments that may be required e.g. Suitably Qualified Acoustician etc.
 - e. Constraints for the project e.g. technical, legal, physical, environmental.

2. Provide documentation (meeting minutes, construction programme, responsibilities and/or specification clauses) confirming that collaboration began prior to Concept Design stage (RIBA Stage 2 or equivalent). All project delivery stakeholders i.e. the client, the building occupier (where known), the design team and the principal contractor must meet to identify and define their roles, responsibilities and contributions for each of the following key phases of project delivery;
 - Design;
 - Construction;
 - Commissioning and handover;
 - Occupation (up to and including stage L).

3. Provide an outline of the roles and responsibilities of the design team showing the following have been considered at each of the key phases of project delivery:
 - a. End user requirements
 - b. Aims of the design and design strategy
 - c. Particular installation and construction requirements / limitations
 - d. Design and construction risk assessments e.g. CDM, legionella risk assessment
 - e. Legislative requirements e.g. building control notification, heritage requirements
 - f. Procurement and supply chain
 - g. Identifying and measuring project success in line with project brief objectives
 - h. Occupiers' budget and technical expertise in maintaining any proposed systems
 - i. Maintainability and adaptability of the proposals
 - j. Requirements for the production of project and end user documentation
 - k. Requirements for commissioning, training and aftercare support.

4. Where the stakeholder contributions and the consultation process have resulted in changes to the Initial Project Brief, provide documentary evidence in the form of feedback forms, client ER's, specification addendums, drawings, Design Stage Reports, Execution Plan, Communication Strategy, etc, as confirmation.

Man01 Project Brief and Design C5-7, 8: Stakeholder Consultation (Third Party)	RIBA Stage 2(C): Consultations. RIBA Stage 4(EF): Feedback.	Project Manager	Targeted	1	0	1	0
		Architect	Targeted				

Assessor's Notes

It was advised at the pre-assessment meeting that consultation with relevant third party stakeholders will be undertaken.

Evidence/Action Required

5. Provide documentary evidence (meeting minutes, consultation plan, consultee feedback) confirming that, prior to completion of the Concept Design stage, all relevant third party stakeholders (see definition below) have been consulted by the design team and this covers the following minimum consultation content dependent on the building type:
 1. Functionality, build quality and impact (including aesthetics)
 2. Provision of appropriate internal and external facilities (for future building occupants and visitors/users)
 3. Management and operational implications
 4. Maintenance resources implications
 5. Impacts on the local community, e.g. local traffic/transport impact
 6. Opportunities for shared use of facilities and infrastructure with the community/appropriate stakeholders, if relevant/appropriate to building type.
 7. Compliance with statutory (national/local) consultation requirements.
 8. Inclusive and accessible design.
 9. Where services are taken from outside of the refurbishment area that affect the suitability of the service, e.g. domestic hot water services and legionella prevention.

Relevant third parties include:

1. Actual/intended building users (if known) including facilities management (FM) staff or those responsible for the day-to-day operation of the building and grounds.
2. Existing partnerships and networks that have knowledge of and experience working on existing buildings of the same type.
3. Potential users of any shared facilities, e.g. operators of clubs and community groups.

6. Provide documentary evidence in the form of feedback forms, amended design drawings, and specification addendums to demonstrate how the stakeholder contributions and outcomes of the consultation exercise have influenced or changed the Initial Project Brief and Concept Design.
7. Provide documentary evidence confirming prior to completion of the detailed design (RIBA Stage 4, Technical Design or equivalent), consultation feedback has been given to, and received by, all relevant parties regarding suggestions made, including how the results of the consultation process have influenced, or resulted in modifications to, the proposed design and building operation/use.

Feedback must cover:

1. What was proposed during the consultation exercise;
2. How these proposals were considered;
3. The outcome, e.g. implementation of the suggestion or a description of why options have not been deemed feasible;
4. Implications for management and operation of the building.

The consultation feedback must be summarised within a design intent document which has been approved by each of the main parties/stakeholders.

Man01 Stakeholder Consultation C9-11: Sustainability Champion (Design)	RIBA Stage 1(A-B): Appointment	BREEAM AP	Targeted	1	0	1	0
		Project Manager	Targeted				

Assessor's Notes

It was advised at the pre-assessment meeting that BREEAM performance targets be formally agreed between the Client and the design team. At the meeting a Very Good target was set.

Evidence/Action Required

9. Provide an appointment letter, specification clause, project programme, meeting minutes confirming that a Sustainability Champion (BREEAM Accredited Professional) has been appointed to facilitate the setting and achievement of BREEAM performance target(s) for the project. The design stage Sustainability Champion is appointed to perform this role during the feasibility stage (Stage 1, Preparation and Brief stage, as defined by the RIBA Plan of Work 2013 or equivalent).
10. The defined BREEAM performance target(s) has been formally agreed between the client and design/project team no later than the Concept Design stage (RIBA Stage 2 or equivalent). This formal agreement must be in the form of a letter of appointment or contract and provided to the Assessor as evidence.
11. To achieve this credit at the interim (design) assessment stage, the agreed BREEAM performance target(s) must be demonstrably achieved by the project design. This is demonstrated via the BREEAM Assessor's design stage assessment report.

Man01 Stakeholder Consultation C12-13: Sustainability Champion (Monitoring Progress)	RIBA Stage 1(A-B): Appointment. RIBA Stage 2(C): BREEAM target confirmed	BREEAM AP	Targeted	1	0	1	0
		Project Manager	Targeted				

Assessor's Notes

At the pre-assessment meeting this credit was considered uncertain, because a BREEAM compliant individual is currently not appointed for the relevant stages. However, the team decided to target this credit and the design process and appointed is to be agreed.

Evidence/Action Required

12. The Sustainability Champion criteria 9, 10 and 11 have been achieved.
13. Provide an appointment letter, specification clause, project programme, meeting minutes and the BREEAM assessor's progress report confirming:
 - The Sustainability Champion (BREEAM AP) will monitor and report progress against BREEAM targets by attending key project / design team meetings during the Concept Design, Developed Design and Technical Design stages, as defined by the RIBA Plan of Work 2013;
 - Updated BREEAM progress reports will be provided during, and prior to, completion of each stage, as a minimum, to formally report progress to the client and design team.

Man02 Life Cycle Cost and Service Life Planning C1-2: Elemental Life Cycle Cost (LCC)	RIBA Stage 2(C): Elemental LCC	N/A	Not targeted				
		N/A	N/A	2	0	0	0

Assessor's Notes

At the pre-assessment meeting this credit was considered unachievable because a compliant report will not be produced within the required BREEAM timescale. Additionally the client does not normally undertake a LCC for this type of development.

Evidence/Action Required

1. Provide a copy of an outline, entire asset Elemental Life Cycle Cost (LCC) plan that has been carried out, at Process Stage 2 (equivalent to Concept Design - RIBA Stage 2) together with any design option appraisals in line with 'Standardised method of life cycle costing for construction procurement' PD 156865:2008.

The LCC must be an economic evaluation of the life cycle costs of the assets over a defined period of analysis. The costs are expressed as cost per square metre of gross internal floor area (GIFA) and presented for elemental analysis, aligned to the level of capital cost plans.

The capital cost for the building must include the expenses related to the initial construction of the building:

- a. Construction, including preparatory works, materials, equipment and labour;
- b. Site management;
- c. Construction financing;
- d. Insurance and taxes during construction;
- e. Inspection and testing.

2. The elemental LCC plan shows:

- a. An outline LCC plan has been undertaken for the project based on the building's basic structure and envelope, appraising a range of options and based on the life expectancy of the refurbished building, e.g. 20, 30, 50+ years;
- b. The servicing strategy for the project outlining services component over a 15 -year period, in the form of an 'elemental LCC Plan'.

Man02 Life Cycle Cost and Service Life Planning C3: Component Level LCC Option Appraisal	RIBA Stage 4(E-F): Component Level LCC Plan.	N/A	Not targeted	1	0	0	0
		N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was considered unachievable because a compliant report will not be produced within the required BREEAM timescale. Additionally the client does not normally undertake a LCC for this type of development.

Evidence/Action Required

- Provide a copy of a component level LCC option appraisal, developed by the end of Process Stage 4 (equivalent to Technical Design – RIBA Stage 4) in line with PD 156865:2008. The component level LCC appraisal for service life planning at the feasibility stage requires the environment of the building and other local conditions to be identified, and the fundamental requirements to be met in planning the service life of the building.

Decisions should be made on:

- The likely design life of the building (rather than the contractual design life);
- The minimum functional performance criteria for each component over the building’s design life;
- The components that must be repairable, maintainable or replaceable within the design life of the building. Only the key differentiators between components and systems need to be comparatively modelled.

The LCC must include the following component types (where present):

Applicability	Building components
Part 1 assessments, including components within scope of works.	Envelope, e.g. cladding, windows, and/or roofing
Part 2 & 3 assessments including newly specified local and core services.	Newly specified local and/or core service equipment, e.g. boiler, air-conditioning, air handling unit, and/or controls etc.
Parts 1 – 4, where finishes are within scope of works.	Finishes, e.g. walls, partitions, floors and/or ceilings etc.
Where external spaces are within scope of works.	External spaces, e.g. alternative hard landscaping, boundary protection.

Where carrying out a major refurbishment covering all parts of the scheme, a component level LCC plan shall be developed as above.

Man02 Life Cycle Cost and Service Life Planning C4: Capital Cost Reporting	RIBA Stage 6(J-K): Recommended action	Project Manager	TBC	1	0	0	1
		Client	TBC				

Assessor's Notes

At the pre-assessment meeting this credit was considered uncertain, because It is to be confirmed if the capital cost can be reported for the project.

Evidence/Action Required

- Provide written confirmation to the BREEAM Assessor of the capital cost for the building in pounds per square metre (£k/m²).

Man03 Environmental Management				
Minimum standards for this credit with the currently targeted Very Good ≥ 55% BREEAM rating: None				
Man03 Responsible Construction Practices C1: Pre-requisite	RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	Pre-requisite for this credit.
		Client	Targeted	

Assessor's Notes

It was advised at the pre-assessment meeting that all timber and timber products used on the project be legally harvested and traded timber. The design team noted at present a contractor has not been appointed but they will be required to comply.

Evidence/Action Required

1. Provide written confirmation that all timber and timber based products used on the project is 'legally harvested and traded timber' (see Relevant definitions below). This can be in the form of a letter, specification clauses or contract requirements confirming that all site timber used on the project is sourced in accordance with the UK Government's Timber Procurement Policy.

BREEAM follows the UK government's definition of legally sourced timber, as outlined in the Central Point of Expertise on Timber (CPET) 5th Edition report on the UK Government Timber Procurement Policy, which states that legal timber and wood-derived products are those that originate from a forest where the following criteria are met:

1. The forest owner/manager holds legal use rights to the forest.
2. There is compliance by both the forest management organisation and any contractors with local and national legal criteria including those relevant to:
 - a. Forest management
 - b. Environment
 - c. Labour and welfare
 - d. Health and safety
 - e. Other parties' tenure and use rights
 - f. All relevant royalties and taxes are paid.
3. There is full compliance with the criteria of CITES.

Man03 Responsible Construction Practices C2-3: Environmental Management	RIBA Stage 4(E-F)/Stage 5: Recommended action	Principal Contractor	Targeted	1	0	1	0
		Client	Targeted				

Assessor's Notes

It was advised at the pre-assessment meeting that a Contractor has not be appointed yet, but whoever is appointed will be required operate an EMS system.

Evidence/Action Required

2. Provide a copy of the EMS certificate as confirmation that the principal contractor operates an environmental management system (EMS) covering their main operations. The EMS must be either:
 - a. be third party certified, to ISO 14001/EMAS or equivalent standard; OR
 - b. have a structure that is in compliance with BS 8555 2003 and has reached phase four of the implementation stage, 'implementation and operation of the environmental management system', and has completed phase audits one to four, as defined in BS 8555.
3. Provide site log books, pollution prevention procedures, etc confirming that the principal contractor implements best practice pollution prevention policies and procedures on-site in accordance with Pollution Prevention Guidelines, Working at construction and demolition-sites: PPG6.

Man03 Responsible Construction Practices C4-6: Sustainability Champion (construction)	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was considered uncertain because until the contractor is appointed, it is unknown whether they will appoint a BREEAM compliant individual.

Evidence/Action Required

4. Provide a contract letter confirming the appointment of a Sustainability Champion (BREEAM AP) to monitor the project to ensure ongoing compliance with the relevant sustainability performance/process criteria, and therefore BREEAM target(s), during the Construction, Handover and Close Out stages (as defined by the RIBA Plan of Works 2013, stages 5 and 6).

The following roles and responsibilities should be detailed in full within the documentary evidence:

Sustainability Champion will ideally be site based or will visit the site regularly to carry out spot checks, with the relevant authority to do so and require action to be taken to address shortcomings in compliance.

The Sustainability Champion will monitor site activities at key stages of construction to ensure that risks of non-compliance are minimised.

They will report on progress at relevant project team meetings including identifying potential areas of non-compliance and any action needed to mitigate.

5. The defined BREEAM performance target must form a requirement of the principal contractor's contract and be formally agreed between the client and design/project team no later than the Concept Design stage (RIBA Stage 2 or equivalent). This formal agreement must be in the form of a letter of appointment or contract and provided to the Assessor as evidence.

6. To achieve this credit at the final post-construction stage of assessment, the BREEAM related performance target for the project must be demonstrably achieved by the project. This is demonstrated via the BREEAM assessor's final post-construction stage certification report.

Man03 Responsible Construction Practices C7-8: Considerate Construction	RIBA Stage 4(E-F)/Stage 5: Recommended action	Principal Contractor	Targeted	2	0	1	1
		Client	Targeted				

Assessor's Notes

It was advised at the pre-assessment meeting that a CCS score between 25-34 should be targeted by the Contractor. It is to be confirmed if the second credit can be targeted for going beyond best practice.

Evidence/Action Required

8. Where the refurbishment or fit-out project does not meet the definition of a small scale or low value project provide specification clauses or a formal letter of commitment from the client/developer confirming that the site has been registered with the Considerate Constructors Scheme or other compliant organisation.

The BREEAM credits can be awarded as follows:

To achieve BREEAM credits using the Considerate Constructors Scheme (CCS) and its Code of Considerate Practice, the principal contractor must achieve scheme certification and a CCS score as follows:

1. One credit: a CCS score between 25 and 34*
2. Two credits: a CCS score between 35 and 39**
3. Exemplary level performance: a CCS score of 40 or more**.

* A score of at least 5 in each of the five sections must be achieved.

** A score of at least 7 in each of the five sections must be achieved.

Small scale or low value refurbishment or fit-out projects

Projects up to 500m² total floor area or a contract value of up to £1m for education, industrial, institutions, leisure, retail and multi-residential buildings or up to £2m for health, mixed use, residential institutions and other buildings.

Man03 Responsible Construction Practices C9: Monitoring of refurbishment or fit-out-site impacts	RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	Pre-requisite for criteria 10 to 18			
		Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and all credits related to monitoring of construction site impacts be targeted by the Contractor.

Evidence/Action Required

- Provide a letter of confirmation or specification clause detailing that responsibility has been assigned to an individual(s) for monitoring, recording and reporting energy use, water consumption and transport data (where measured) resulting from all on-site refurbishment or fit-out processes (and dedicated off-site monitoring) throughout the refurbishment or fit-out programme.

To ensure the robust collection of information, this individual(s) must have the appropriate authority and responsibility to request and access the data required.

Man03 Responsible Construction Practices C10-15: Monitoring of refurbishment or fit-out-site impacts- Utility Consumption	RIBA Stage 4(E-F)/Stage 5: Recommended action	Principal Contractor	Targeted	1	0	1	0
		Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and both energy and water consumption be monitored on site by the Contractor.

Evidence/Action Required

Energy Consumption 10-12

- Criterion 9 is achieved
- Monitor and record data on principal contractor's and sub-contractors' 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.
- Using the collated data report the total carbon dioxide emissions (total kgCO₂/project value) from the construction process to the BREEAM Assessor.

Water Consumption 13-15

- Criterion 9 is achieved.
- Monitor and record data on principal contractor's and sub-contractors' potable water consumption (m³) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation.
- Using the collated data report the total net water consumption (m³), i.e. consumption minus any recycled water use, from the construction process to the BREEAM Assessor.

Man03 Responsible Construction Practices C16-18: Monitoring of refurbishment or fit-out-site impacts - Transport of construction materials and waste	RIBA Stage 4(E-F)/Stage 5: Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was considered uncertain because a contractor has not yet been appointed. Until a contractor is appointed and confirms if this credit can be targeted, the site is not seeking this credit.

Evidence/Action Required

- 16. Criterion 9 is achieved.
- 17. Monitor and record data on transport movements and impacts resulting from delivery of the majority of refurbishment or fit-out materials to site and refurbishment, fit-out and demolition or strip-out waste from site. As a minimum this must cover:
 - a. Transport of materials from the factory gate to the building site, including any transport, intermediate storage and distribution.

For the purposes of this issue, the factory gate is defined as being the product manufacturer gate (i.e. where manufacture and pre-assembly finishes and the material is in its final product form). Examples might include:

 1. Steel/concrete/glass manufacturers for cladding, windows and beams etc.
 2. Quarry gate for aggregate and sand
 3. Concrete plant for concrete
 4. Saw mill and timber processing plant for timber.
 - b. Scope of this monitoring must cover the following as a minimum:
 - i. Where Part 1 is being assessed, materials used in major building elements, including insulation materials
 - ii. Where Part 2 is being assessed, materials used for core services
 - iii. Where undertaking a comprehensive refurbishment including fit-out with a combination of Parts 1 - 4, materials used for major building elements, services and interior fit-out
 - iv. Where within scope, ground works and landscaping materials
 - c. Transport of construction waste from the construction gate to waste disposal processing/recovery centre gate. Scope of this monitoring must cover the construction waste groups outlined in the project's waste management plan.
- 18. Using the collated data, report separately for materials and waste, the total fuel consumption (litres) and total carbon dioxide emissions (kgCO₂ eq), plus total distance travelled (km) to the BREEAM Assessor.

Man03 Responsible Construction Practices C19: Exemplary Level Criteria	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was considered unachievable. This credit is to be reviewed once a contractor has been appointed.

Evidence/Action Required

- 19. Provide specification clauses or a formal letter of commitment from the client/developer confirming that the site has been registered with the Considerate Constructors Scheme or other compliant organisation.

The Exemplary credit can be awarded as follows:
Exemplary level performance: a CCS score of 40 or more**.
** A score of at least 7 in each of the five sections must be achieved.

Man04 Commissioning and Handover

Minimum standards for this credit with the currently targeted Very Good ≥ 55% BREEAM rating:
None

Man04 Commissioning and Handover C1-4: Commissioning and testing schedule and responsibilities	RIBA Stage 4(E-F): Appointment RIBA Stage 4(E-F): Recommended action	M&E	Targeted	1	0	1	0
		Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and commissioning of the building services will be carried out and an appropriate schedule of commissioning and testing will be prepared.

Evidence/Action Required

1. Provide a schedule of commissioning and testing that identifies appropriate commissioning required for the scope of works that includes a suitable timescale for commissioning and re-commissioning of all relevant works carried out. Commissioning should be carried out where changes are being made to the following:
 - a. Building services (including both complex and non-complex systems)
 - b. Building services control systems (including Building Management Systems)
 - c. Changes to the building fabric that will affect thermal performance.
2. The schedule will identify the appropriate standards that all commissioning activities will be conducted in accordance with, such as current Building Regulations, BSRIA and CIBSE guidelines and/or other appropriate standards, where applicable. Where a building management system (BMS) is specified, the following commissioning procedures must be carried out and detailed in the appointment letter/s:
 1. Commissioning of air and water systems is carried out when all control devices are installed, wired and functional
 2. In addition to air and water flow results, commissioning results include physical measurements of room temperatures, off-coil temperatures and other key parameters as appropriate
 3. The BMS/controls installation should be running in auto with satisfactory internal conditions prior to handover
 4. All BMS schematics and graphics (if BMS is present) are fully installed and functional to user interface before handover
 5. The occupier or facilities team is fully trained in the operation of the system.
3. Provide a copy of the appointment letter detailing the commissioning responsibilities or specification clause confirming that an appropriate project team member(s) is appointed to monitor and programme pre-commissioning, commissioning, testing and, where necessary, re-commissioning activities on behalf of the client.
4. Provide a copy of the specification clause or a letter confirming that the principal contractor accounts for the commissioning and testing programme, responsibilities and criteria within their budget and main programme of works, allowing for the required time to complete all commissioning and testing activities prior to handover.

Man04 Commissioning and Handover C5-6: Commissioning Building Services	RIBA Stage 4(E-F): Recommended action	M&E	Targeted	1	0	1	0
		Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and that commissioning of the building services will be carried out by a specialist commissioning manager.

Evidence/Action Required

5. The commissioning and testing schedule and responsibilities credit is achieved.
6. Provide a letter of appointment for the specialist commissioning engineer for buildings with complex building services and systems. The letter must confirm that the specialist commissioning manager is appointed during the design stage (by either the client or the principal contractor) 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/post hand-over stages.

Where there are simple building services, this role can be carried out by an appropriate project team member, provided they are not involved in the general installation works for the building services system(s).

Man04 Commissioning and Handover C7-8: Testing and inspecting building fabric	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				

Assessor's Notes

As the building is part refurbishment and part new build, it was noted that there maybe poor performing elements. It was viewed that there maybe a lot of defects requiring remediation and as such the credit is not sought.

Evidence/Action Required

7. Provide a copy of the programme of works, specification clause and/or the project budget confirming that the integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths will be quality assured through completion of a thermographic survey as well as airtightness testing and visual inspection at appropriate times during the refurbishment.

Dependent on building type or construction, this can be demonstrated through the completion of a thermographic survey as well as an airtightness test and inspection. The survey and testing must be undertaken by a Suitably Qualified Professional (a professional holding a valid level 2 certificate in thermography) in accordance with the appropriate standard.

The thermographic survey must cover 100% of the treated spaces, unless it is a large complex building, and ensure that all elements of the building fabric that enclose an internal heated and/or conditioned (treated) zone of the building will be tested. This includes internal walls separating treated and untreated zones.

In the case of large and complex buildings, it may be impractical for the thermographic survey and air-tightness testing to cover 100% of the building. Where a complete thermographic survey is deemed impractical by a Level 2 qualified thermographic surveyor, the guidance in air tightness standard TSL2 should be followed on the extent of the survey and testing. This could include airports, large hospitals and high-rise buildings.
8. Provide documentary evidence such as commitment letter confirming that any defects identified in the thermographic survey and/or airtightness testing report will be rectified prior to building handover and closed out. Any remedial work must meet the required performance characteristics for the building/element.

Man04 Commissioning and Handover C9-10: Handover	RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	1	0	1	0
		Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and a Building User Guide and a training schedule for the building manager would be developed prior to handover.

Evidence/Action Required

9. Provide a formal letter of commitment from the design team or relevant section clauses of the specification confirming that a Building User Guide (BUG) will be developed or (where present) an existing Building User Guide is updated, prior to handover for distribution to the building occupiers and premises managers, with a draft copy developed and discussed with users first (where the building occupants are known) to ensure the guide is most appropriate and useful to potential users.

The Building User Guide (BUG) must cover all functions and uses of the building, ensuring building users are able to access and use the building effectively. Where relevant, the documents must describe the facilities to be shared and how access to them will be arranged for potential users.

A Building User Guide should be written in plain English and will provide easily accessible and understandable information relevant to the following stakeholders:

- The building's staff (or where relevant residents)
- The non technical facilities management team/building manager
- Other building users e.g. visitors / community users

The content of the guide must be specific to the building type and end users, but broadly include information on the following:

- Overview of the building and its environmental strategy, e.g. energy/water/waste efficiency policy/strategy and how users should engage with/deliver the policy/strategy.
- Building services overview and access to controls, e.g. where to find them, what they control, how to operate effectively and efficiently etc.
- Pre-arrival information for visitors, e.g. access and security procedures/provisions
- Provision of, and access to, shared facilities
- Safety and emergency information/instructions
- Building related operational procedures specific to building type/operation, e.g. laboratories.
- Building related incident reporting/feedback arrangements
- Building related training information/links
- Provision of, and access to, transport facilities, e.g. public transport, cyclist facilities, pedestrian routes etc.
- Provision of, and access to, local amenities
- Provide details and copies of risk assessments carried out including a legionella risk assessment
- Re-fit, refurbishment and maintenance arrangements/considerations
- Links, references and relevant contact details

10. Provide a formal letter of commitment from the design team or relevant section clauses of the specification confirming that a training schedule will be prepared for building occupiers/premises managers, timed appropriately around handover and proposed occupation plans, which includes the following content as a minimum:

- a. The design intent of refurbishment/fit-out works
- b. The available aftercare provision and aftercare team main contact(s), including any scheduled seasonal commissioning and post occupancy evaluation
- c. Introduction to, and demonstration of, installed systems and key features, particularly building management systems, controls and their interfaces, to ensure they are fully conversant with the detailed operation of the building
- d. Introduction to the Building User Guide and other relevant building documentation, e.g. design data, technical guides, maintenance strategy, operations and maintenance (O&M) manual, commissioning records, log book etc.
- e. Maintenance requirements, including any maintenance contracts and regimes in place.

Health and Wellbeing

				AVL	ACH	CTS	TBC
Total credits in Health and Wellbeing:		Action By	Credit Status	14	0	3	0

Hea01 Visual Comfort C3-5: Daylighting (building type dependent)	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted				
		N/A	N/A	3	0	0	0

Assessor's Notes

At the pre-assessment meeting, this credit was considered unachievable as although the refurbishment will have large windows. However, some units/areas are located in on lower ground floors. Therefore it is not assumed the daylight levels can be improved and the credit has not been sought.

Evidence/Action Required

3. Provide daylight calculations and detailed floor plans confirming daylighting criteria have been met using either of the following options:

a. The 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) meet good practice daylight factor(s) and other criterion as outlined in Table - 12 and daylighting uniformity criteria below.

OR

b. The 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) meet good practice average and minimum point daylight illuminance criteria as outlined in Table - 14.

Table - 12: Minimum values of average daylight factor required

Building/area type	Average daylight factor required	Minimum area (m ²) to comply			Other requirement
		1 Credit	2 Credits	3 Credits	
Retail buildings					
Sales areas	-	17.5%	25%	35%	Point daylight factors of 2% or more
Other occupied areas	2%	40%	60%	80%	EITHER (a) OR {(b) and (c)} as per below text

Daylighting uniformity criteria:

(a) A uniformity ratio of at least 0.3 or a minimum point daylight factor of at least 0.3 times the relevant average daylight factor value in Table - 12. Spaces with glazed roofs, such as atria, must achieve a uniformity ratio of at least 0.7 or a minimum point daylight factor of at least 0.7 times the relevant average daylight factor value in Table - 12.

(b) At least 80% of the room has a view of sky from desk or table top height (0.85m in multi-residential buildings, 0.7m in other buildings).

(c) The room depth criterion $d/w + d/HW < 2/(1-RB)$ is satisfied.

Where:

d = room depth,

w = room width,

HW = window head height from floor level,

RB = average reflectance of surfaces in the rear half of the room

Table - 14: Space type and illuminance requirements - both criteria (average illuminance and minimum point illuminance) should be met.

Area type	Minimum area to comply			Average daylight illuminance (averaged over entire space)	Minimum daylight illuminance at worst lit point
	1 Credit	2 Credits	3 Credits		
Retail buildings					
Sales areas	17.5%	25%	35%	At least 200 lux point daylight illuminances for 2650 hours per year or more	
Other occupied areas	40%	60%	80%	At least 200 lux for 2650 hours per year or more	At least 60 lux for 2650 hours per year or more

4. For Two Credits - Provide daylight calculations, detailed floor plans and elevations and area calculations confirming where daylighting provision, averaged over all relevant spaces, has improved after refurbishment or fit-out by 30% or more and there is a minimum glazing to floor area ratio of either:
- 5% glass to floor area ratio for side windows; OR
 - 2.5% glass to floor area ratio for roof lights;

Note: The improvement in daylighting provision is calculated using the BREEAM Hea 01 Calculator tool based upon either the increase in glazing area, transmittance, illuminance or percentage daylight factor.

5. For One Credit - Provide daylight calculations, detailed floor plans and elevations and area calculations confirming where daylighting provision, averaged over all relevant spaces, has improved after refurbishment or fit-out by 15% or more and there is a minimum glazing to floor area ratio of either:
- 5% glass to floor area ratio for side windows; OR
 - 2.5% glass to floor area ratio for roof lights;

Note: The improvement in daylighting provision is calculated using the BREEAM Hea 01 Calculator tool based upon either the increase in glazing area, transmittance, illuminance or percentage daylight factor.

Hea01 Visual Comfort C6-9: View Out	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	2	0	0	0
		N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, this credit was considered unachievable as some units/areas are located in on lower ground floors. Therefore it is not assumed the view out requirements can be achieved and the credit has not been sought.

Evidence/Action Required

6. Where seeking two credits provide scaled floor plans and calculations confirming that 95% of relevant floor areas are within 7m of a wall with a window or permanent opening that provides an adequate view out. The floor plans must detail all rooms/ spaces names. Relevant areas are where there are or will be workstations/ benches or desks for building users. Also where close work will be undertaken or visual aids used.
7. Where seeking one credit provide scaled floor plans and calculations confirming that 80% of relevant floor areas are within 7m of a wall with a window or permanent opening that provides an adequate view out. The floor plans must detail all rooms/ spaces names. Relevant areas are where there are or will be workstations/ benches or desks for building users. Also where close work will be undertaken or visual aids used.
8. Provide calculations confirming that the window/ opening is $\geq 20\%$ of the surrounding wall area (in m^2) of the internal wall in which the window/opening is located, including the area of the window/opening itself). Where the room depth is greater than 7m, compliance is only possible where the percentage of window/opening is the same as, or greater than, the values in table 1.0 of BS 8206.

Hea02 Indoor Air Quality C1: Indoor air quality (IAQ) plan	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, this credit was not targeted.

Evidence/Action Required

1. Provide a copy of the indoor air quality plan which has been produced and implemented or specification clause , with the objective of facilitating a process that leads to design, specification and installation decisions and actions that minimise indoor air pollution during the design, construction and 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. Procedures for pre-occupancy flush out
 - d. Protection of Heating Ventilation and Air Conditioning (HVAC) systems from sources of pollution during refurbishment/fit-out works e.g. dust
 - e. Procedures for protecting the indoor air quality of areas outside of the refurbishment or fit-out zone that may be affected by the refurbishment/fit-out works
 - f. Procedures for identifying and implementing third party testing and analysis required to ascertain that the contaminant sources have been removed effectively before occupancy
 - g. Commitments for maintaining indoor air quality in-use, e.g. maintenance and cleaning of the HVAC system, ductwork and filters.

Hea02 Indoor Air Quality C2-5: Ventilation	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted				
		N/A	N/A	1	0	0	0

Assessor's Notes

At the pre-assessment meeting this credit was considered unachievable as air intakes and exhausts might will not meet the required BREEAM distance criteria.

Evidence/Action Required

Provide design drawings, models and/or specification clauses confirming that refurbishment and fit-out works include measures to minimise the concentration and recirculation of pollutants in the building as follows:

2. Provide fresh air into the building in accordance with the criteria of the relevant standard for ventilation.
3. Design ventilation pathways to minimise the build-up of air pollutants in the building, as follows:
 - a. In air-conditioned and mixed-mode buildings/spaces:
 - i) The building's air intakes and exhausts are over 10m apart and intakes are over 20m from sources of external pollution.
 - OR
 - ii) The location of the building's air intakes and exhausts, in relation to each other and external sources of pollution, is designed in accordance with BS EN 13779:20071 Annex A2.
 - b. In naturally-ventilated buildings/spaces: openable windows/ventilators are over 10m from sources of external pollution.
4. Where present, HVAC systems must incorporate suitable filtration to minimise external air pollution, as defined in BS EN 13779:2007 Annex A3.
5. Areas of the building subject to large and unpredictable or variable occupancy patterns must have CO₂ or air quality sensors specified and:
 - a. In mechanically ventilated buildings/spaces: sensor(s) are linked to the mechanical ventilation system and provide demand-controlled ventilation to the space.

Hea02 Indoor Air Quality C13-14: Adaptability - Potential for Natural Ventilation	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was considered unachievable because the building has depths greater than 15m. Therefore it cannot be designed to be capable of providing fresh air entirely via a natural ventilation strategy.

Evidence/Action Required

13. Provide specification details, drawings and calculations confirming the building ventilation strategy is designed to be flexible and adaptable to potential building occupant needs and climatic scenarios. This can be demonstrated as follows:

a. Occupied spaces of the building are designed to be capable of providing fresh air entirely via a natural ventilation strategy. The following are methods deemed to satisfy this criterion dependent upon the complexity of the proposed system:

i) Room depths are designed in accordance with CIBSE AM10 (section 2.4) to ensure effectiveness of any natural ventilation system. The openable window area in each occupied space is equivalent to 5% of the gross internal floor area of that room/floor plate.

OR

ii) The design demonstrates that the natural ventilation strategy provides adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates. This is demonstrated using ventilation design tool types that meet the requirements of CIBSE AM10 (or for education buildings by using the ClassVent tool).

For a strategy which does not rely on openable windows, or which has occupied spaces with a plan depth greater than 15m, the design must demonstrate (in accordance with criterion 13 a- i above) that the ventilation strategy can provide adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates.

14. Provide specification details or written confirmation that the natural ventilation strategy is capable of providing at least two levels of user-control on the supply of fresh air to the occupied space. The two levels of ventilation must be able to achieve the following:

- Higher level: higher rates of ventilation achievable to remove short term odours and/or prevent summertime overheating
- Lower level: adequate levels of draught-free fresh air to meet the need for good indoor air quality throughout the year, sufficient for the occupancy load and the internal pollution loads of the space.

Note: Any opening mechanisms must be easily accessible and provide adequate user-control over air flow rates to avoid draughts. Relevant industry standards for ventilation can be used to define 'adequate levels of fresh air' sufficient for occupancy and internal air pollution loads relevant to the building type.

Hea04 Thermal Comfort C1-5: Thermal modelling	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was not targeted.

Evidence/Action Required

Provide relevant specification clauses and correspondence and a copy of the thermal comfort modelling report confirming the following:

1. Thermal modelling has been carried out using software in accordance with CIBSE AM11 Building Energy and Environmental Modelling.
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 model must demonstrate that:
 - a. For air conditioned buildings, summer and 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).

The model must also demonstrate the Predicted Mean Vote (PMV) and Predicted Percentage of Dissatisfied (PPD) indices.

5. For air conditioned buildings, provide to the Assessor the PMV (predicted mean vote) and PPD (predicted percentage of dissatisfied) indices based on the above modelling.

Hea04 Thermal Comfort C6-9: Adaptability - For a Projected Climate Change Scenario	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				

Assessor's Notes

At the pre-assessment meeting It was discussed that the building design will not be adapted for a projected climate change scenario and hence this credit is not achievable.

Evidence/Action Required

- 6. Criteria 1-4 must be achieved.
- 7. The thermal modelling must demonstrate that the relevant requirements set out in criteria 3 are achieved for a projected climate change environment.

Note:

Dynamic thermal simulation software packages currently provide the facility for building designs to be assessed under external climatic conditions specific to geographic location. Industry standard weather data for the UK is available in the form of Test Reference Years (TRYs) and Design Summer Years (DSYs) provided by CIBSE. This weather data enables thermal analysis of building designs under current climatic conditions, yet no account is taken of the projected variations in weather data that will occur during the building's life cycle as a result of climate change. The following probabilistic DSY weather data files should be used to establish the projected climate change environment against which the design is evaluated.

Free Running Buildings

- Time period: 2050s
- Emissions scenario: Medium (A1B)

Mechanically Ventilated or Mixed Mode Buildings

- Time period: 2030s
- Emissions scenario: Medium (A1B).

The above weather files represent the minimum requirements to perform thermal modelling under a climate change scenario and subsequently demonstrate compliance. Where design teams feel that added consideration of building occupant risk/sensitivity to overheating is necessary, weather files can be used that exceed the minimum requirements outlined above. The time periods indicated above have been selected to represent the building services life cycle likely to be present in each building services strategy type. A shorter time period is chosen for mechanically ventilated/mixed mode building types due to consideration of mechanical servicing equipment life span (before major upgrade or replacement is required), and to avoid over-specification of plant which could lead to inefficient operation.

- 8. Where thermal comfort criteria are not met for the projected climate change environment, provide updated specifications, drawings and calculations demonstrating 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 under criterion 7.
- 9. For air conditioned buildings, the PMV (predicted mean vote) and PPD (predicted percentage of dissatisfied) indices based on the above modelling are to be provided to the Assessor for reporting via the BREEAM assessment scoring and reporting tool.

Hea04 Thermal Comfort C10-12: Thermal Zoning and Controls	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was not targeted.

Evidence/Action Required

10. Criteria 1 to 4 are achieved.
11. Provide copies of relevant section/clauses of the building specifications and drawings confirming that the thermal modelling analysis (undertaken for compliance with criteria 1 to 4) have informed the temperature control strategy for the building and its users.
12. Provide drawings and a copy of the thermal comfort strategy highlighting the points considered and decisions taken for the heating/cooling system for the building. The strategy for the proposed heating/cooling system(s) must demonstrate 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 different requirements for the central core of a building compared with the external perimeter adjacent to the windows.
 - b. Where specified, any new local cooling or heating services (or changes to existing services) are designed to ensure they do not conflict with core services (e.g. conflicts between two separate cooling systems, conflicts between core heating and locally provided cooling systems).
 - c. The degree of occupant control required for these zones, based on discussions with the end user (or alternatively building type or use specific design guidance, case studies, feedback) 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 system(s), 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 drafts).
 - d. 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.
 - e. The need or otherwise for an accessible building user actuated manual override for any automatic systems.

Note: Responsive heating or cooling controls for a particular area/zone of the building must be accessed and operated by the individual(s) occupying that area or zone. Such controls must be located in, or within the vicinity of, the zone or area they control.

Hea05 Acoustic Performance C4-6: (for Industrial, Retail, Prisons and 'Other' building types)	RIBA Stage 4(E-F): Recommended action	Acoustician	Targeted	2	0	2	0
		Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and an acoustician will be appointed and all the criteria will be met.

Evidence/Action Required

1. Provide a professional report and calculations from the appointed suitably qualified Acoustician and drawings confirming that the building meets the appropriate acoustic performance standards and testing requirements defined in the checklists and tables section which defines criteria for the acoustic principles of:
 - a. Sound insulation
 - b. Indoor ambient noise level
 - c. Reverberation times
2. Where undertaking a partial refurbishment or fit-out, the performance standards and testing requirements detailed in Table - 25 for the following principles are applicable to each assessment part:
 - a. Part 1: criteria for sound insulation and indoor ambient noise levels
 - b. Part 2: criteria for indoor ambient noise levels only
 - c. Part 3: criteria for sound insulation and indoor ambient noise levels
 - d. Part 4: sound insulation and reverberation control
3. Where undertaking a partial refurbishment or fit-out, the following acoustic performance standards and testing requirements apply:

Part 1:

All criteria relevant to the building type are applicable.
 Where a Part 1 only assessment is being undertaken and it is not possible to demonstrate full compliance with the criteria defined in the relevant tables, up to three credits (as applicable to building type, note four credits are available for multi-residential) are available where:
 A suitably qualified acoustician (SQA) carries out a quantifiable assessment of the specification of the built form and any external factors that are likely to affect the building acoustics criteria relevant to the building type and function.
 From the assessment, the SQA should demonstrate the capability of the building to be able to meet the required levels to demonstrate compliance with the BREEAM criteria and highlight any significant issues.
 Where the specific room functions and areas within the building are yet to be defined, the acoustician must base their assessment on the most sensitive room type likely to be present in the building, as a worst case.
 The assessment demonstrates that the works are considering future acoustic issues and criteria.
 Where deficiencies are highlighted that will make future compliance impracticable or incredibly costly, then the credits for the affected criteria should not be awarded.

Part 2: Core services

One credit is available for indoor ambient noise only as relevant to the building type and function:
 Where an SQA confirms that it is not feasible to meet the indoor ambient noise criteria in full in accordance with the relevant tables due to the scope of works, in order to demonstrate compliance; measurements and/or quantitative assessment by an SQA is required to demonstrate that the installed core services either:

- do not change the indoor ambient noise levels where local services or break in noise dominate; or
- reduce the indoor ambient noise levels.

Part 3: Local services

Two credits are available for indoor ambient noise and sound insulation, as relevant to the building type and function:
 Where an SQA confirms that it is not possible to meet the indoor ambient noise and sound insulation criteria in accordance with the relevant tables in full due to the scope of works, in order to demonstrate compliance; measurement and assessment by an SQA are required to demonstrate that the local services either:

- do not change the indoor ambient noise levels where noise break-in through the building envelope is dominant and maintain sound insulation between noise-sensitive spaces; or
- reduce the indoor ambient noise levels and maintain sound insulation between noise-sensitive spaces.

Table - 25: BREEAM acoustic criteria for Industrial, Retail, Prisons and Other building types

Industrial, Retail, Prisons and Other building types (two credits)	
First credit - Sound insulation and internal indoor ambient noise levels	
Room function	All room functions
Criteria	Internal indoor ambient noise levels: Indoor ambient noise levels comply with the design ranges given in BS 8233: 2014 (see Additional information section in the manual) unless otherwise stated below. Where the room types below are present, the appropriate criteria for ambient noise levels, sound insulation and acoustic privacy must also be achieved.
Testing requirement	Internal indoor ambient noise levels: A programme of pre-completion acoustic testing is carried out by a compliant test body in accordance with the acoustic testing and measurement procedures outlined in the Additional information section of this BREEAM issue (refer to the manual).
Room function	Acoustically sensitive rooms
Criteria	Sound insulation: The sound insulation between acoustically sensitive rooms and other occupied areas complies with the example matrix relating to internal sound insulation within Section 7.5 of BS 8233:2014 which takes into consideration the likely level of activity noise, the degree of privacy required and the sensitivity of the adjacent space. It may be considered appropriate to adapt the levels of sound insulation presented within the table according to a specific building's use and any modification to the criteria should be justified by an SQA. Examples of rooms with a 'confidential' privacy requirement may include human resources meeting rooms, or rooms where private conversations may be taking place, however their 'activity noise' is likely to be only 'typical' and then the level of sound insulation would be determined based on the sensitivity of the receiving space. Factory spaces are likely to be considered less sensitive as a receiving space than an adjacent office area, however the activity noise level may be anticipated to be higher.
Testing requirement	Sound insulation: A programme of pre-completion acoustic testing is carried out by a compliant test body in accordance with the acoustic testing and measurement procedures in the Methodology section.
Notes	Acoustically sensitive rooms refers to any room/space the design team or client deems to be acoustically sensitive for the purposes of privacy which may include the following types of space/rooms (where specified); 1. Cellular offices 2. Meeting or interview or consulting or treatment rooms. In addition: 1. Court buildings: witness/consultation rooms and judges' or magistrates' chambers and jury retiring rooms 2. Prison buildings: care or listener suites, official visit rooms, 'closed visits' rooms 3. Educational buildings/spaces: rooms for teaching and learning i.e. classrooms, lecture theatres 4. Rooms used for public speaking or seminars 5. Any other room or space the design team or client deems to be acoustically sensitive for the purposes of privacy. To increase the ambient noise level, where privacy is required or the ambient targets include a minimum as well as maximum limit, an artificial sound source or sound masking system may be required. Any artificial sound source or sound masking system should be installed and in operation at the time of the acoustic testing to demonstrate compliance.

Second credit – Reverberation	
Room function	Rooms/areas used for speech or performance, including public speaking
Criteria	Achieve reverberation times compliant with Section 1 of BB93. In addition, or alternatively, if relevant to the assessed building; classrooms, seminar rooms and lecture theatres achieve reverberation times compliant with section 1 of BB93.
Testing requirement	<p>Reverberation times within teaching and study spaces: A programme of acoustic measurements is carried out by a compliant test body to achieve the required performance standards set out in table 6 in section 1 of BB93. Measurements should be carried out in accordance with the ANC Good Practice Guide, Acoustic testing of Schools.</p> <p>Open Plan teaching spaces: STI Measurements of the STI should be taken in at least one in ten typical student listening positions in the open plan spaces in accordance with the ANC Good Practice Guide, Acoustic testing of Schools.</p> <p>Corridors and stairwells: installation of a specification compliant with the BB93 criteria demonstrates compliance. Reference is also made to the Notes below.</p>
Notes	Where the reverberation time required by the relevant standard is not appropriate for the type of space/building assessed, the acoustician must confirm why this is the case. In addition the acoustician must set alternative appropriate reverberation times and provide these to demonstrate compliance.

Hea06 Safety and Security C1-3: Security of Site and Building	RIBA Stage 2(C): Crime Impact Assessment RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	1	0	1	0
		Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and suitably qualified security specialist will be consulted and their recommendations incorporated. The team noted the site is currently at Riba stage 2.

Evidence/Action Required

1. Provide written confirmation that a suitably qualified security specialist (SQSS) will be appointed to conduct an evidence-based Security Needs Assessment (SNA) during or prior to Concept Design (RIBA Stage 2 or equivalent).

An individual achieving any of the following can be considered to be 'suitably qualified' for the purposes of compliance with BREEAM:

1. Crime Prevention Design Advisors (CPDA) or Architectural Liaison Officers (ALO), Counter Terrorism Security Advisor (CTSA); Design Out Crime Officer (DOCO); or
2. A specialist registered with a BREEAM-recognised third party accreditation scheme for security specialists.
3. A practising security consultant that meets the following requirements:
 - a. Minimum of three years relevant experience within the last five years. This experience must clearly demonstrate a practical understanding of factors affecting security in relation to construction and the built environment, relevant to the type and scale of the project being undertaken.
 - b. Hold a suitable qualification relevant to security.
 - c. Maintains (full) membership to a relevant professional body or accreditation scheme that meets the following:
 - i. Has a professional code of conduct, to which members must adhere; and
 - ii. Ongoing membership is subject to peer review.
2. Provide a copy of the recommendations or solutions set out by the suitably qualified security specialist (SQSS). These recommendations or solutions must aim to ensure that the design of buildings, public and private car parks and public or amenity space are planned, designed and specified to address the issues identified in the preceding Security Needs Assessment (SNA).

The Security Needs Assessment (SNA) is the project and site specific assessment of security needs, and must include (where applicable):

1. A visual audit of the site and surroundings, identifying environmental cues and features pertinent to the security of the proposed development.
2. Formal consultation with relevant stakeholders, including the local SQSS, in order to obtain a summary of crime and disorder issues in the immediate vicinity of the proposed development.
3. Identify risks specific to the proposed, likely or potential use of the building(s).
4. Identify risks specific to the proposed, likely or potential user groups of the building(s).
5. Identify any detrimental effects the development may have on the existing community. The purpose of the assessment is
3. Provide drawings to confirm that the recommendations or solutions proposed by the suitably qualified security specialist (SQSS) are implemented. Any deviation from those recommendations or solutions will need to be justified, documented and agreed in advance with a suitably qualified security specialist.

Energy

		AVL	ACH	CTS	TBC	
Total credits in Energy:	Action By	Credit Status	24	0	18	0

Ene01 Reduction of Energy Use and Carbon Emissions

Minimum standards for this credit with the currently targeted Very Good \geq 55% BREEAM rating:

None

Ene01 Reduction of Energy Use and Carbon Emissions	RIBA Stage 4(E-F): Recommended action	Energy Consultant	Targeted	15	0	15	0
C1: Whole building energy model (option 1)		Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. Based on the proposed energy strategy and initial SBEMS, 15 credits are currently assumed for an EPRNDR of 0.97.

Evidence/Action Required

- To calculate the Energy Performance Ratio for Non Domestic Refurbishment (EPR_{NDR}) and compare with the benchmarks in Table 27 to determine the corresponding number of BREEAM credits, provide the following information detailed in each step of methodology below:

Methodology

Step 1: Model the existing building energy performance

Input file of the EPC Calculation with '_epc.inp' file extension for the existing building (this is different from the '_brukl.inp' file extension)

A copy of the "As Designed" EPC certificate from a compliant energy modelling software used to model the existing building to confirm the following figures to inform the calculation of the Ene 01 score:

- Reference building energy demand (DemRef), kWh/m²
- Actual (existing) building energy demand (DemEx), kWh/m²
- Reference building primary energy consumption (PERef), kWh/m²
- Actual (existing) building primary energy consumption (PEEx), kWh/m²
- Reference building CO₂ emissions (SER), KgCO₂/m²
- Actual (existing) building CO₂ emissions (BEREx), KgCO₂/m²

The above information is obtained by uploading the EPC input file (for the existing building) to the BREEAM Non Domestic Refurbishment Ene 01 website. (This will be done by the assessor)

Step 2: Model the refurbished building performance

Input file of the EPC Calculation with '_epc.inp' file extension for the proposed / refurbished building (this is different from the '_brukl.inp' file extension)

The refurbished building performance should be modelled using the proposed building specification, as opposed to the existing building specification that is used in Step 1.

A copy of the "As Designed" EPC certificate from a compliant energy modelling software used to model the refurbished building to confirm the following building energy performance information to inform the calculation of the Ene 01 score:

- a. Actual (proposed) building energy demand (DemProp), kWh/m²
- b. Actual (proposed) building primary energy consumption (PEProp), kWh/m²
- c. Actual (proposed) building CO₂ emissions (BERProp), kgCO₂/m²

The above information is obtained by uploading the EPC input file (for the proposed / refurbished building) to the BREEAM Non Domestic Refurbishment Ene 01 website. (This will be done by the assessor)

Step 3: Enter the reference, existing and proposed/refurbished building performance into the BREEAM Non Domestic Refurbishment Scoring and Reporting tool

The above data, generated from the two building models, should be entered into the BREEAM Non Domestic Refurbishment Scoring and Reporting tool in order to determine the Ene 01 score. (This is done by the assessor)

Table - 27: Ene 01 EPR_{NDR} benchmark scale

BREEAM Credits	EPR _{NDR}	Rating	Minimum requirements
1	≥0.06	Pass Good Very Good	None
2	≥0.12		
3	≥0.18		
4	≥0.24		
5	≥0.30		
6	≥0.36	Excellent	Requires a minimum of 6 credits to be achieved (equivalent to an EPR _{NDR} of ≥ 0.36).
7	≥0.42		
8	≥0.48		
9	≥0.54		

10	≥ 0.60	Outstanding	Requires a minimum of 10 credits to be achieved (equivalent to an EPR_{NDR} of ≥ 0.60).
11	≥ 0.66		
12	≥ 0.72		
13	≥ 0.78		
14	≥ 0.84		
15	≥ 0.90		

Table - 30: Assessment parts and applicable performance components and sub-components

Assessment part	Applicable components	Applicable sub-components
Part 1: Fabric and Structure	Thermal conductance and infiltration	<ul style="list-style-type: none"> • Fabric (U-value) • Infiltration rate (against heating and cooling) • Glazing area
Part 2: Core Services	Heating	<ul style="list-style-type: none"> • % heat recovery • Efficiency of heat generation • Heating control factor • Efficiency of heating distribution • Heating pipework insulation
	Cooling	<ul style="list-style-type: none"> • Efficiency of cooling generation • Cooling control factor • Efficiency of cooling distribution • Cooling pipework insulation
	Ventilation	<ul style="list-style-type: none"> • Fan efficiency • Duct and AHU leakage • Ventilation control factor
	Hot water	<ul style="list-style-type: none"> • Efficiency of hot water generation • Hot water control factor
Part 3: Local Services	Lighting	<ul style="list-style-type: none"> • Lighting efficiency • Lighting control factor
	Local heating, cooling, ventilation and hot water	<ul style="list-style-type: none"> • As above for core services, depending on scope of local provision for local cooling, heating, ventilation and hot water

Ene01 Reduction of Energy Use and Carbon Emissions C8: Exemplary Level Criteria - two credits - Zero regulated carbon	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	2	0	0	0
		N/A	N/A				

Assessor's Notes

It was confirmed that exemplary credit for Ene 01 is not being targeted.

Evidence/Action Required

8. Provide a copy of the Building Regulations Output Document and EPC INP. file from the approved software. The output documents must be based on the design stage of analysis.

Also provide evidence confirming:

- The total carbon neutral energy generation (kWh/yr)
- The source of the carbon neutral energy
- Calculated estimate of energy consumption from unregulated systems/process (kWh/yr) (only required if confirming zero regulated carbon or carbon negative exemplary credits).
- Calculated estimate of exported energy surplus (only required if confirming carbon negative status).

The building achieves an $EPR_{NDR} \geq 0.9$ and zero net regulated CO₂ emissions.

The annual building net regulated CO₂ emissions (kgCO₂/m²yr) arising as a result of annual energy consumption from fixed building services, i.e. space heating and cooling, domestic hot water, ventilation and lighting, also referred to as controlled services and fittings, as a result of requirements imposed on such systems by the Building Regulations. In aiming to achieve a zero regulated carbon status, the building energy modelling can take account of contributions of energy generated from on-site and near-site renewable and low carbon installations. Energy generated and supplied from off-site renewable and low carbon installations cannot be used to meet this definition.

Ene02 Sub-Metering of Major Energy Consuming Systems

Minimum standards for this credit with the currently targeted Very Good \geq 55% BREEAM rating:
Part 2, 3 and 4: One credit (First sub-metering credit)

Ene02 Energy Monitoring C1-4: Sub-Metering of Major Energy Consuming Systems	RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	1	0	1	0
		M&E	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and major energy consuming systems will be sub-metered with pulsed outputs and a BMS will be specified for monitoring.

Evidence/Action Required

1. Provide specification clauses and design drawings confirming that the energy metering systems are installed with pulsed outputs that enable at least 90% of the estimated annual energy consumption of each fuel to be assigned to the various end-use categories of energy consuming systems as per the guidance in CIBSE TM39 Building energy metering (see Methodology in the BREEAM manual).

Energy Consuming Systems are systems that consume energy to perform the following functions within a building:

- a. Space heating
- b. Domestic hot water heating
- c. Humidification*
- d. Cooling*
- e. Ventilation i.e. fans (major)*
- f. Pumps
- g. Lighting
- h. Small power
- i. Renewable or low carbon systems (separately)
- j. Controls
- k. Other major energy-consuming systems/plant, where appropriate. Depending on the building type, this might include for example: plant used for swimming or hydrotherapy pools; other sports and leisure facilities; kitchen plant/catering equipment; cold storage plant; laboratory plant; sterile services equipment; transportation systems (e.g. lifts and escalators); drama studios and theatres with large lighting rigs; telecommunications; dedicated computer room or suite; dealing rooms; covered car parks; ovens/furnaces; and floodlighting. See also CIBSE TM39: Building energy metering for further information.

Note: The systems succeeded by * must not be present where a BREEAM New Construction Simple Buildings assessment is being carried out.

2. The energy consuming systems in buildings with a total useful floor area greater than 1,000m² must be metered using an appropriate energy monitoring and management system.
4. Provide written confirmation that the end energy consuming uses are identifiable to the building users, for example through labelling or data outputs.

Ene02 Energy Monitoring C5: Sub-Metering of High Energy Load and Tenancy Areas	RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	1	0	1	0
		M&E	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and accessible energy sub-meters with pulsed output will be provided, to enable future connection to an energy monitoring and management system, covering a significant majority of the energy supply to tenanted areas.

Evidence/Action Required

5. Provide specifications and design drawings confirming that an accessible energy monitoring and management system or separate accessible energy sub-meters with pulsed or other open protocol communication outputs to enable future connection to an energy monitoring and management system are provided, covering a significant majority of the energy supply to tenanted areas or, in the case of single occupancy buildings, relevant function areas or departments within the building/unit.

Ene03 External Lighting C1-3: One Credit	RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	1	0	1	0
		M&E	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and external lighting will be specified for the development which will be designed according to the relevant criteria.

Evidence/Action Required

Provide specification clauses and lighting drawings which confirm:

1. The building has been designed to operate without the need for external lighting (which includes on the building, signs and at entrances).

OR alternatively, where the building does have external lighting, one credit can be awarded as follows:

2. The average initial luminous efficacy of the external light fittings within the construction zone is not less than 60 luminaire lumens per circuit Watt.
3. All external light fittings are automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic.

An automatic external lighting control system that prevents operation during daylight hours through either time switch or daylight sensor (a manually switched lighting circuit with daylight sensor or time switch override is also acceptable) in addition to providing presence detection in areas of intermittent traffic.

Note: for external lighting not fitted with presence detectors, time switches must provide automatic switch off of lighting after a specified curfew hour - except in cases where there is a specific requirement for lighting to be left on all night.

Ene04 Low Carbon Design C1-3: Passive Design Analysis	RIBA Stage 2(C): Passive Design Analysis RIBA Stage 4(E-F): Recommended action	N/A	Not targeted				
		N/A	N/A	1	0	0	0

Assessor's Notes

At the pre-assessment meeting this credit was considered unachievable because passive design analysis will not be carried out for the project

Evidence/Action Required

1. The first credit within issue Hea 04 Thermal comfort has been achieved to demonstrate the building design can deliver appropriate thermal comfort levels in occupied spaces.
2. Provide an analysis of the existing building fabric, form, site location and outline scheme design by Concept Design stage (RIBA Stage 2 or equivalent) to identify opportunities for the implementation of passive design solutions that reduce demands for energy consuming building services. As a minimum, the passive design analysis should cover:
 1. Site location
 2. Site weather
 3. Microclimate
 4. Building layout
 5. Building orientation
 6. Building form
 7. Building fabric
 8. Thermal mass or other fabric thermal storage
 9. Building occupancy type
 10. Daylighting strategy
 11. Ventilation strategy
 12. Adaptation to climate change.
3. The building must use passive design measures to reduce the total heating, cooling, mechanical ventilation and lighting loads and energy consumption in line with the findings of the passive design analysis and the analysis demonstrates a meaningful reduction in the total energy demand as a result. The installation should contribute at least 5% of overall building energy demand and/or CO₂ emissions.

Ene04 Low Carbon Design C4-6: Free Cooling	RIBA Stage 2(C): Passive Design Analysis RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was considered unachievable because no free cooling technology will be specified for the development.

Evidence/Action Required

4. The passive design analysis credit must be achieved.
5. The passive design analysis carried out under criterion 2 above must include an analysis of free cooling and identifies opportunities for the implementation of free cooling solutions. Provide results from a dynamic simulation model demonstrating the feasibility of the free cooling strategy and meeting the first credit for Hea 04.

The free cooling should apply to all occupied spaces in the building. Small IT rooms and lift motor rooms are excluded. Mechanical ventilation may only be used for small areas, e.g. for kitchenettes and toilets.

6. Provide written confirmation that the building uses ANY of the free cooling strategies listed below to reduce the cooling energy demand, i.e. it does not use active cooling. The free cooling analysis should demonstrate consideration of appropriate technologies from the following:
 1. Night-time cooling (requires fabric to have a high exposed thermal mass)
 2. Ground coupled air cooling
 3. Displacement ventilation (not linked to any active cooling system)
 4. Ground water cooling
 5. Surface water cooling
 6. Evaporative cooling, direct or indirect
 7. Desiccant dehumidification and evaporative cooling, using waste heat
 8. Absorption cooling, using waste heat.
9. The building does not require any significant form of active cooling or mechanical ventilation (i.e. naturally ventilated).

Ene04 Low Carbon Design C7-8: Low Zero Carbon (LZC) Feasibility Study	RIBA Stage 2(C): Feasibility Study RIBA Stage 4(E-F): Recommended action	Energy Consultant	Not targeted	1	0	0	0
		N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, it was confirmed a compliant LZC feasibility study will be produced. Photovoltaics are proposed for the scheme but these are to be connected to the office units. Therefore the credit is not targeted.

Evidence/Action Required

7. Provide a copy of a BREEAM compliant LZC feasibility study carried out by an energy specialist (Planning reports are generally not compliant). The feasibility study must establish the most appropriate recognised local (onsite or near-site) low or zero carbon (LZC) energy source(s) for the building/development, and be carried out by the completion of the Concept Design stage (RIBA Stage 2 or equivalent). The LZC study should cover as a minimum:
 1. Energy generated from LZC energy source per year
 2. Carbon dioxide savings from LZC energy source per year
 3. Life cycle cost of the potential specification, accounting for payback
 4. Local planning criteria, including land use and noise
 5. Feasibility of exporting heat/electricity from the system
 6. Any available grants
 7. All technologies appropriate to the site and energy demand of the development.
 8. Reasons for excluding other technologies
 9. Where appropriate to the building type, connecting the proposed building to an existing local community CHP system or source of waste heat or power OR specifying a building/site CHP system or source of waste heat or power with the potential to export excess heat or power via a local community energy scheme.
8. A local LZC technology/technologies must be specified and installed in the building/development in line with the recommendations of this feasibility study and this method of supply results in a meaningful reduction in regulated carbon dioxide (CO₂) emissions. The installation should contribute at least 5% of overall building energy demand and/or CO₂ emissions.

Ene06 Energy Efficient Transportation Systems C1: Energy Consumption	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, it was confirmed this credit could not be achieved. There is an existing lift which is to be reused and therefore the criteria will not be achieved.

Evidence/Action Required

1. Where new lifts, escalators and/or moving walks (transportation types) are specified within refurbishment works, provide design drawings showing the lift location/s in the building and provide a copy of the professional report/transportation study and calculations confirming:
 - a. An analysis of the transportation demand and usage patterns for the building must be carried out to determine the optimum number and size of lifts, escalators and/or moving walks.
 - b. The energy consumption has been estimated in accordance with BS EN ISO 25745 Energy performance of lifts, escalators and moving walks, Part 2 : Energy calculation and classification for lifts (elevators) and/or Part 3 - Energy calculation and classification for escalators and moving walks, for one of the following:
 - i) At least two types of system (for each transportation type required); OR
 - ii) An arrangement of systems (e.g. for lifts, hydraulic, traction, machine room-less lift (MRL)); OR
 - iii) A system strategy which is 'fit for purpose'.
 - c. The use of regenerative drives should be considered, subject to where it produces an energy saving greater than the additional standby energy used to support the drives. Regenerative drives will typically be appropriate for lifts with high travel and high intensity use.
 - d. The transportation system with the lowest energy consumption is specified.

Ene06 Energy Efficient Transportation Systems C2-6: Energy Efficient Features	RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	2	0	0	0
		N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, it was confirmed this credit could not be achieved. There is an existing lift which is to be reused and therefore the criteria will not be achieved.

Evidence/Action Required

2. Criterion 1 must be achieved for newly specified lifts.

Provide relevant specification clauses and either manufacturers' product details or a formal letter of commitment from the system manufacturer/supplier confirming:

Lifts
3. For each newly specified lift, the following three energy-efficient features must be specified and for existing lifts, at least two of the following energy efficient features are specified:
 - a. The lifts operate in a stand-by condition during off-peak periods. For example the power side of the lift controller and other operating equipment such as lift car lighting, user displays and ventilation fans switch off when the lift has been idle for a prescribed length of time.
 - b. The lift car lighting and display lighting provides an average lamp efficacy, (across all fittings in the car) of > 55 lamp lumens/circuit Watt.
 - c. The lift uses a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor.
4. Where the use of regenerative drives is demonstrated to save energy, they are specified.

Transport

		AVL	ACH	CTS	TBC
Total credits in Transport:	Action By	Credit Status	9	0	9 0

Tra01 Public Transport Accessibility	RIBA Stage 3(D): Recommended action	Action By	Credit Status	AVL	ACH	CTS	TBC
C1-2: Accessibility Index C3: Alternative transport measures		Transport Consultant	Targeted	5	0	5	0
		Architect	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and a check of TFL PTAL calculator shows an accessibility index of 55 and hence the project can target all 5 credits.

Evidence/Action Required

Up to five credits - Accessibility Index

1-2. To determine the Accessibility Index (AI), provide scaled drawing/s highlighting the location of the building and all public transport nodes in proximity of the building and the distance (in m) from the building entrance to the transport node (via safe pedestrian route/s, not as the crow flies). Provide timetables for all services at each public transport node considered.

AND/OR

In the case of a large phased refurbishment/regeneration of a site where new transport facilities will be provided, but at a later stage a commitment has been made to provide transport facilities within the shortest of the following periods, demonstrated either within the General Contract Specification or in the form of a Section 106 Agreement:

1. The transport facilities will be available for use by the time 25% of all phases have been completed and are ready for occupation. OR
 2. The transport facilities will be available for use within 25% of the total build time for the phase in which the assessed building forms a part, measured from the completion date of that phase.
- The most appropriate rule for the development in question must be used, ensuring that the time building users have to wait before having use of the transport facilities is as short as possible.

Where the transport facilities will not be available for use within a period of five years from occupation of the building, they

1. The public transport Accessibility Index (AI) for the assessed building is calculated and BREEAM credits awarded in accordance with the table of building types, AI benchmarks and BREEAM credits in Table - 34.
2. The Accessibility Index is determined by entering the following information in to the BREEAM Tra 01 calculator:
 - a. The distance (m) from the main building entrance to each compliant public transport node
 - b. The public transport type(s) serving the compliant node e.g. bus or rail
 - c. The average number of services stopping per hour at each compliant node during the operating hours of the building for a typical day (see compliance notes and Table - 36 in the Additional Information section of the BREEAM manual).

Table 34: Credits available for each building type relating to the public transport Accessibility Index (AI) score.

Accessibility Index	≥2	≥4	≥8	≥10	≥12	≥18
Building Type	BREEAM Credits Available					
Retail, Law Court, Further Education College, Higher Education type 1, Other building type2	1	2	3	3	4	5

Tra02 Proximity to Amenities C1: Proximity to Local Amenities	RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
		N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and the development is located near or has within all the amenities required for this credit.

Evidence/Action Required

1. Provide a marked up scaled plan highlighting the location and distance (in m) of all relevant amenities, as listed in Table - 37 below, from the proposed project/ development.

AND

In the case of a large phased refurbishment/regeneration of a site where new amenities will be provided, but at a later stage a commitment has been made to provide transport facilities within the shortest of the following periods, demonstrated either within the General Contract Specification or in the form of a Section 106 Agreement:

1. The transport facilities will be available for use by the time 25% of all phases have been completed and are ready for occupation. OR

2. The transport facilities will be available for use within 25% of the total build time for the phase in which the assessed building forms a part, measured from the completion date of that phase.

The most appropriate rule for the development in question must be used, ensuring that the time building users have to wait before having use of the transport facilities is as short as possible.

Where the transport facilities will not be available for use within a period of five years from occupation of the building, they cannot be considered for determining compliance with the BREEAM criteria.

Table - 37: Credits available for Tra02 for different building types

Criteria	Building Types					
	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6
No. of BREEAM Credits	1	1	1	1	1	1
No. of Amenities	2	2	2	2	2	4
Proximity (metres)	500	500	500	500	500	1000
Appropriate food outlet	✓	✓	✓	✓	✓	✓
Access to cash	✓	✓	✓	✓	✓	✓
Access to an outdoor open space (public or private, provided suitably sized and accessible to building users)				✓	✓	✓
Access to a recreation/leisure facility for fitness/sports	✓	✓	✓		✓	✓

Key:

✓ - Amenity relevant to building type

Building Types:

Type 1: Offices, Retail, Industrial, Courts

Type 2: Pre-school, Schools, Sixth Form

Type 3: Higher Education and Further Education

Type 4: Healthcare

Type 5: Multi-residential (there are two credits available and each can be awarded independently of the other).

Type 6: Other Building types

This issue is not applicable to prison buildings/developments.

Tra03 Cyclist Facilities C1-4: Cycle Storage, Cyclist Facilities, Cycle storage and cyclist facilities	RIBA Stage 3(D): Recommended action	Architect	Targeted	2	0	2	0
		Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and a compliant number of cycle storage spaces are to be provided along with showers and changing facilities. The team needs to confirm the number of building users for the development.

Evidence/Action Required

1 credit available for the provision of adequate cycle storage

1. Provide design drawings, relevant specification clauses and manufacturers' literature confirming compliant cycle storage spaces that meet the minimum levels set out in Table - 38 are specified.

Compliant cycle storage spaces are defined as those that meet the following:

1. Cycles can be secured within spaces in rack(s). They are covered overhead and the cycle racks are set in or fixed to a permanent structure (building or hard-standing). Alternatively the cycle storage may be located in a locked structure fixed to or part of a permanent structure with appropriate surveillance.
2. The distance between each cycle rack, and cycle racks and other obstructions, e.g. a wall, allows for appropriate access to the cycle storage space, to enable bikes to be easily stored and accessed.
3. The storage facility or entrance to the facility is in a prominent site location that is viewable/overlooked from either an occupied building or a main access to a building.
4. The cycle storage facility has adequate lighting, this could be demonstrated with the lighting criteria defined in BREEAM issue Hea 01 Visual comfort. The lighting must be controlled to avoid out-of-hours use and operation during daylight hours, where there is sufficient daylight in or around the facility.

1 credit available for the provision of adequate cyclist facilities

2. Criterion 1 must be achieved.
3. Provide design drawings, relevant specification clauses and manufacturers' literature confirming that at least two of the following types of compliant cyclist facilities must be provided for all building users (including pupils where appropriate to the building type):
 - a. Showers
 - b. Changing facilities
 - c. Lockers
 - d. Drying spaces

Compliant showers are defined as those that meet the following:

1. Provision of one shower for every 10 cycle storage spaces, subject to a minimum provision of one shower.
2. Any development providing eight showers or more will comply regardless of the number of cycle storage spaces provided.
3. Both male and female users must be catered for i.e. either separate showers within shared gender-specific facilities (required provision split 50-50) or single shower cubicles and changing space for mixed use.
4. The showers do not need to be dedicated to cyclists and can be those shared with other users/uses.

Compliant changing facilities are defined as those that meet the following:

1. Appropriately sized for the likely/required number of users. The assessor should use their judgement to determine whether the changing area is appropriately sized given the number of cycle storage spaces or
2. Changing areas must include adequate space and facilities to hang or store clothing and equipment while changing or showering, e.g. bench seat and/or hooks.
3. Toilet/shower cubicles cannot be counted as changing facilities.

Compliant lockers are defined as those that meet the following:

1. The number of lockers is at least equal to the number of cycle spaces required.
2. Lockers are either in or adjacent to compliant changing rooms, where provided.
3. The lockers are sized appropriately for the storage of a cyclist's equipment.

A compliant drying space is defined as a space that is specifically designed and designated with adequate heating/ventilation for the drying of wet clothes. A plant room for example is not a compliant drying space.

Table - 38: Cycle storage criteria for each building type

Building type	No. spaces per unit of measure	Unit of measure	Notes
Retail			
Large Retail	1	10 staff	The number of staff should be the maximum number using the building at any time/shift. The staff spaces must be provided in addition to customer spaces. Whilst they do not need to be separate from customer spaces, this is encouraged. This is subject to providing a minimum of 10 cycle customer spaces. Any retail development that provides at least 50 customer cycle storage spaces will comply regardless of the number of parking spaces.
	1	20 public car parking spaces	
Small Retail	10	Total	The spaces must be publicly accessible within proximity of a main building entrance. Compliant cyclist facilities are intended for staff only i.e. it is not a requirement of compliance to provide facilities for customers.
Note: Where the number of building users (based upon the unit of measure) exceeds 200 the sliding scale of compliance can be used to identify the appropriate number of cycle spaces required (see Methodology section of the BREEAM Manual).			

* Other Building - type 1: A building predominantly occupied by staff/employees with occasional business related visitors.

Other Building - type 2: A building occupied by a number of core staff/employees with a larger number of consistently frequent visitors/users (either resident or non-resident).

Other Building - type 3: As type 2, but building types specifically required to be located rurally as a result of its function, i.e. a building which would never be located within an urban area, e.g. a National Park visitor centre (see definition of rural location and rural location sensitive buildings).

Tra05 Travel Plan C1-4: One Credit	RIBA Stage 3(D): Recommended action	Transport Consultant	Targeted	1	0	1	0
		Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and a travel plan will be commissioned for the project and it will be BREEAM compliant.

Evidence/Action Required

1. Provide a copy of a compliant travel plan developed as part of the feasibility and design stages.

A travel plan should be a strategy for managing all travel and transport within an organisation, principally to increase choice and reduce reliance on the car by seeking to improve access to a site or development by sustainable modes of transport. A travel plan contains both physical and behavioural measures to increase travel choices and reduce reliance on single-occupancy car travel.

2. Provide a site specific travel assessment/statement undertaken to ensure the travel plan is structured to meet the needs of the particular site and covers the following (as a minimum):

- a. Where relevant, existing travel patterns and opinions of existing building or site users towards cycling and walking so that constraints and opportunities can be identified.
- b. Travel patterns and transport impact of future building users.
- c. Current local environment for walkers and cyclists (accounting for visitors who may be accompanied by young children)
- d. Disabled access (accounting for varying levels of disability and visual impairment)
- e. Public transport links serving the site
- f. Current facilities for cyclists

3. The travel plan must include a package of measures to encourage the use of sustainable modes of transport and movement of people and goods during the buildings operation and use. Provide design drawings demonstrating examples of design measures implemented, these may include:
 - Providing priority parking spaces for car sharers
 - Providing dedicated and convenient cycle storage and changing facilities or improving existing facilities such as through improved security, lighting, provision and access
 - Restricting and/or charging for car parking
 - Financial incentives and benefits for walking, cycling or car sharing
 - Providing information in lobby areas about public transport or car sharing made available.
 - Improved safe access for pedestrians and cyclists as feasible and within the scope for the existing site (for all types of user regardless of the level of mobility or visual impairment) via improved lighting, way-marking and signage for cyclist and pedestrian routes to adjoining routes, transport nodes and amenities, and provision of new or improved crossing points for pedestrians and cyclists.
 - Providing suitable taxi drop-off/waiting areas.
 - Improved lighting, landscaping and shelter to make pedestrian and public transport waiting areas pleasant
 - Negotiating improved bus services, i.e. altering bus routes or offering discounts.
4. If the occupier is known, they must be involved in the development of the travel plan and they must confirm in the form of a formal letter of commitment or, in the case of a speculative development, the developer must confirm that the travel plan will be implemented post refurbishment or fit-out and supported by the buildings management in operation.

Water

		AVL	ACH	CTS	TBC	
Total credits in Water:	Action By	Credit Status	8	0	6	0

Wat01 Water Consumption

Minimum standards for this credit with the currently targeted Very Good \geq 55% BREEAM rating:

One credit (Where applicable)

Wat01 Water Consumption	RIBA Stage 3(D): Recommended action	Client	Targeted	5	0	3	0
C1-6: Up to Five Credits (Building Dependant)		Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and the site will achieve a 40% reduction and 3 credits are targeted at this stage. It was confirmed that the sanitary fittings have not yet been specified for the project and rainwater harvesting is not proposed.

Evidence/Action Required

1. An assessment of the efficiency of newly specified building's domestic water consuming components and (where relevant) measures specified to retrofit existing devices is undertaken using the BREEAM Wat 01 calculator, including all fittings applicable to the project type as detailed in Table 42.
2. The water consumption (litres/person/day) for the assessed building is compared against a baseline performance and BREEAM credits awarded based upon Table - 41.
3. Provide relevant specification clauses, manufacturers' literature and design drawings confirming the efficiency of the following water-consuming components specified in the proposed building/development:
 - a. WC's - flush volume in litres;
 - b. Urinals - flush volume in litres and flush control;
 - c. Taps - flow rate in litres/min, water pressure (high pressure 0.3+0.02 MPa or low pressure 0.01 \pm 0.002 MPa) (wash hand basins and where specified kitchen taps and waste disposal unit);
 - d. Showers - flow rate in litres/min, water pressure (high pressure 0.3+0.02 MPa or low pressure 0.01 \pm 0.002 MPa) and temperature;
 - e. Baths - capacity in litres;
 - f. Dishwashers - domestic in litres/cycle and commercial sized in litres/rack;
 - g. Washing machines - domestic in litres/use and commercial or industrial sized in litres/kg.

Table - 41: BREEAM Credits available for percentage improvement over baseline building water consumption.

% Improvement	No. of BREEAM credits
12.50%	1
25%	2
40%	3
50%	4
55%	5
65%	Exemplary performance

Note: for some building types an alternative approach to compliance must be used to award credits (for further information please refer to the Methodology section within the BREEAM manual, below, and the BREEAM Wat01 calculator)

Table - 42: Applicability of Wat01 according to building and project type

Building type	Project type	Applicable fittings to be assessed
Leasehold properties and speculative refurbishment or fit-out projects including retail, offices and industrial	Fabric and structure (Part 1)	Wat 01 is not applicable
	Core services only (Part 2)	Wat 01 is applicable to all water fittings in washrooms and changing facilities in common and core areas
Owner occupier properties including healthcare, education, multi-residential, commercial and other building types covered by the scope of the scheme	Fabric and structure (Part 1)	Wat 01 is not applicable
	Upgrade of core building services only (Part 2)	Wat 01 is not applicable

Wat02 Water Monitoring

Minimum standards for this credit with the currently targeted Very Good \geq 55% BREEAM rating:

Part 2: Criterion 1 only

Wat02 Water Monitoring	RIBA Stage 4(E-F): Recommended action	M&E	Targeted				
C1-5: One Credit				1	0	1	0
		Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and a pulsed water meter will be specified on the mains water supply to the building.

Evidence/Action Required

1. Provide specification clauses and drawings confirming the specification of 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.
3. Each meter (main and sub) must have a pulsed or other open protocol communication output to enable connection to an appropriate utility monitoring and management system, e.g. a building management system (BMS), for the monitoring of water consumption. Examples also include automatic meter reading systems (AMR) and building energy management systems (BEMS). Automatic monitoring and targeting (aM&T) is an example of a management tool that includes automatic meter reading and data management.
4. If the refurbishment zone is within a site that has an existing BMS, managed by the same occupier/owner (as the space undergoing refurbishment or fit-out), the pulsed/digital water meter(s) for the refurbishment or fit-out zone must be connected to the existing BMS
5. If the refurbishment or fit-out zone is within a building that is leasehold, the pulsed/digital water meter(s) for the refurbishment or fit-out zone must be connected to the incoming water supply for water using equipment in tenanted areas.

Wat03 Water Leak Detection C1: Leak Detection System	RIBA Stage 3(D): Recommended action	M&E	Targeted	1	0	1	0
		Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and a leak detection system will be specified for the mains water supply within the building and between the building and the utilities water meter

Evidence/Action Required

1. Provide specification clauses, drawings and manufacturers' literature confirming the specification of a leak detection 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 specified. The leak detection specification must confirm the inclusion of the following:
 - a. A permanent automated water leak detection system that alerts the building occupants to the leak OR an in-built 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.

Wat03 Water Leak Detection C2: Flow Control Devices	RIBA Stage 3(D): Recommended action	M&E	Targeted	1	0	1	0
		Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and flow control devices in the form of solenoid valves connected to PIR will be specified to regulate the supply of water to each WC area/facility (WCs, wash hand basin taps and urinals) according to the demand.

Evidence/Action Required

2. Provide relevant specification clauses and design drawings confirming the specification of flow control devices that regulate the supply of water to each WC area/facility (WCs, wash hand basin taps and urinals) according to demand are installed (and therefore minimise water leaks and wastage from sanitary fittings).

Provide confirmation as to which of the following flow control devices is specified:

- A time controller, i.e. an automatic time switch device to switch off the water supply after a predetermined interval.
- A programmed time controller, i.e. an automatic time switch device to switch water on and/or off at predetermined times.
- A volume controller, i.e. an automatic control device to turn off the water supply once the maximum pre-set volume is reached.
- A presence detector and controller, i.e. an automatic device detecting occupancy or movement in an area to switch water on and turn it off when the presence is removed.
- A central control unit, i.e. a dedicated computer-based control unit for an overall managed water control system, utilising some or all of the types of control elements listed above.

Materials

			AVL	ACH	CTS	TBC
Total credits in Materials:	Action By	Credit Status	13	0	7	0

Mat 01 Environmental Impact of Materials C8-10: Up to 4 Credits	RIBA Stage 3(D): Recommended action	Architect	Targeted	6	0	2	0
		N/A	N/A				
Mat 01 Environmental Impact of Materials Exemplary Level		N/A	Not targeted	1	0	0	0

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and based on initial review and the fact that a lot of materials are being used in-site the project can achieve 2 credits under Option 2.

Evidence/Action Required

Up to four credits (option 2): Elemental assessment of environmental performance information

- Provide robust environmental performance information (Table 48) for newly specified materials or where materials are retained in situ, for elements listed below.

Part 1 includes elements of the fabric and structure including:

- External walls (envelope, structure and finishes)
- External windows and roof lights
- Structural frame
- Basements/retaining walls (including excavations)
- Upper floors (including horizontal structure)
- Roof (including coverings)
- Stairs and ramps
- External solar shading devices, access structures etc.
- Ground/lowest floor
- Foundations (including excavation)

Part 2 and 3 includes elements used for core and local services including:

- Heat source, space heating, air-conditioning and ventilation
- Communication, security and control systems
- Electrical installations
- Fire and lightning protection
- Lift and conveyor installations/systems
- Water and waste installations
- Sanitary installations

- Provide completed copy of the Part B of the BREEAM Mat 01 calculator to calculate the total number of points achieved. The number of points scored is based on the percentage of each element that has been:

- reused in situ
- reused in situ with minor repairs
- specified with robust environmental performance information.

- Credits are awarded based upon the percentage of available points achieved as set out in Table 47

Table - 47: Percentage of BREEAM Mat 01 calculator points achieved and credits awarded (Option 2)

Percentage of BREEAM Mat 01 calculator points achieved (%) (Option 2)	Credits	
	Industrial	All other buildings
10	1	1
40	1	2
60	1	3
75	1	4
85	1 + 1 exemplary	4 + 1 exemplary

Table - 48: Allocation of points awarded

Type of claim	Compliant environmental claim	Points:
Environmental product declaration	Where at least one product per element type has a third party certificated environmental product declaration that conforms to one of the following standards: ISO 15804 Type 3 EPD ISO 14025 Type 3 EPD ISO 14024 Type 1 EPD.	5
Self declared recycled content	Where newly specified materials have recycled content to ISO 14021 that meets good practice levels of recycled content set out in Choosing construction products, Guide to the recycled content of mainstream construction products, WRAP.	5
Reused in-situ	Where a whole element or part of an element has been reused in situ and confirmation has been provided that the element complies with current statutory requirements and is fit for purpose (i.e. a minimum design life of at least 5 years)	5
Reused in situ with minor repairs	Where the whole or part of an element has been reused in situ with minor repairs	5

Mat03 Responsible Sourcing of Materials

Minimum standards for this credit with the currently targeted Excellent ≥ 70% BREEAM rating:
Criterion 1 only

Mat03 Responsible Sourcing of Materials C1: Pre-requisite	RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	Pre-requisite to achieve credit
		Client	Targeted	

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and all timber used on the project will be legally harvested and traded timber.

Evidence/Action Required

1. Provide written confirmation that all timber used on the project is 'Legally harvested and traded timber'.

This must come from either the supplier – confirming their timber is sourced in compliance with the UK Government’s Timber Procurement Policy for legal and sustainable sourcing

OR

Copies of the actual chain of custody evidence in accordance with CPET requirements

OR

A specification or letter of intent from the design team confirming that all timber will be procured in accordance with the policy.

Note:

- a. It is a minimum requirement for achieving a certified BREEAM rating certification (for any rating level) that compliance with criterion 1 is confirmed.

- b. For other materials there are no pre-requisite requirements at this stage.

Mat03 Responsible Sourcing of Materials C2: Sustainable Procurement Plan	RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	1	0	1	0
		Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and the appointed contractor should source materials for the project in accordance with a documented sustainable procurement plan.

Evidence/Action Required

2. The principle contractor must provide a sustainable procurement plan setting out the framework for responsible sourcing of materials. The aim being to guide procurement throughout the project.

The plan may be prepared and adopted at an organisational level or be site/project specific and for the purposes of BREEAM compliance, will cover the following as a minimum:

1. Risks and opportunities are identified against a broad range of social, environmental and economic issues. BS 8902:2009 Responsible sourcing sector certification schemes for construction products-Specification can be used as a guide to identify these issues.
2. Aims, objectives and targets to guide sustainable procurement activities.
3. Strategic assessment of sustainably sourced materials available locally and nationally. There should be a policy to procure materials locally where possible.
4. Procedures are in place to check and verify that the sustainable procurement plan is being implemented/adhered to on individual projects. These could include setting out measurement criteria, methodology and performance indicators to assess progress and demonstrate success

Mat03 Responsible Sourcing of Materials C3-4: Responsible Sourcing of Materials (RSM)	RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	3	0	1	0
		Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and the building materials be responsibly sourced by the contractor.

Evidence/Action Required

- One credit can be awarded where at least three of the material types listed in Table 53 'Material categories' has been responsibly sourced from one of the responsible sourcing schemes recognised by BREEAM.

Provide a full list of manufacturers and extractors of the materials in the following building elements OR provide a letter of intent confirming that all materials will be responsibly sourced.

Provide design drawings showing the building elements and written confirmation of the breakdown of each material in m³ or %.

Please complete the MAT 03 evidence template.

Procure all major materials from suppliers that have ISO 14001, EMAS, BS 8555 or BES 6001 policies and systems in place covering the extraction and process stages of manufacture. Provide copies of the compliant certificates for the materials used within the assessed building elements;

OR

A letter of intent or specification clause detailing the specific requirements with regards to the responsible sourcing of the materials used within the building.

- Up to three of the available RSM credits (refer to Table 51) can be awarded where the applicable building materials (refer to Table 53) are responsibly sourced in accordance with the BREEAM methodology

Provide a full list of manufacturers and extractors of the materials in the following building elements OR provide a letter of intent confirming that all materials will be responsibly sourced.

Provide design drawings showing the building elements and written confirmation of the breakdown of each material in m³ or %.

Please complete the MAT 03 evidence template.

Procure all major materials from suppliers that have ISO 14001, EMAS, BS 8555 or BES 6001 policies and systems in place covering the extraction and process stages of manufacture. Provide copies of the compliant certificates for the materials used within the assessed building elements;

OR

A letter of intent or specification clause detailing the specific requirements with regards to the responsible sourcing of the materials used within the building.

Table 53 - Location/use and material categories

Location/use categories
1. External wall (e.g. bricks, blocks) 2. External wall finishes (plastering, cladding, render, internal dry lining, wall coverings etc.) 3. Insulation 4. Roof (structure) 5. Roof finishes (e.g. tiles, cladding systems, etc.) 6. Upper floors (mezzanines) 7. Floor (structure) 8. Flooring finishes (including coatings) 9. Internal partitions/internal walls (structure) 10. Internal partitions/internal walls (finishes, wall coverings) 11. Ceiling (structure) 12. Ceiling finishes (including coatings) 13. External/internal doors/ windows 14. Staircases/ramps 15. Fittings (shop fittings, railings, screens, gutters, vents, air grilles) 16. Furniture (desks, chairs, display cabinets, shelving) 17. Building services (equipment, distribution systems) 18. Hard landscaping 19. Other
Material categories
1. Timber/ timber-based products (TBP) 2. Concrete/ cementitious (plaster, mortar, screed etc.) 3. Metal 4. Stone/ aggregate 5. Clay-based (pavers, blocks, bricks, roof tiles, etc.) 6. Gypsum 7. Glass 8. Plastic, polymer, resin, paint, chemicals and bituminous 9. Animal fibre/skin, cellulose fibre 10. Other

Credits awarded where the applicable building materials (refer to Table 44) are responsibly sourced in accordance with the BREEAM methodology, as defined in steps 1 to 2 in the Methodology section (refer to the manual).

Table - 51: The number of BREEAM credits achieved is determined as follows

RSM credits	% of available RSM points achieved
3	≥ 54%
2	≥ 36%
1	≥ 18%

Mat03 Responsible Sourcing of Materials C5: Exemplary Level Criteria	RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				

Assessor's Notes

The exemplary credit for responsible sourcing has not been targeted at this stage.

Evidence/Action Required

- 4. Where at least 70% of the available RSM points are achieved.

Mat04 Insulation C1-2: Embodied impact	Recommended action by: RIBA Stage 3(D)	Architect	Targeted	1	0	1	0
		M&E	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and all insulation being proposed for the applicable building elements would aim to achieve the insulation index as or greater than 2.5. The scope of new insulation is to be confirmed.

Evidence/Action Required

1. Provide a full list and manufacturers' literature for any new insulation specified for use within the following building elements:
 - a. External walls
 - b. Ground floor
 - c. Roof
 - d. Building services

For each newly specified insulation material in the building fabric, provide manufacturers' literature or written confirmation direct from the manufacturer confirming all of the following:

- Area of insulation (m²);
- Thickness (mm);
- Density (kg/m³);
- Thermal conductivity (W/mK).

For each newly specified insulation material in the building services, provide manufacturers' literature or written confirmation direct from the manufacturer confirming all of the following:

- Volume of insulation (m³);
- Density (kg/m³);
- Thermal conductivity (W/mK).

Please complete the MAT 04 evidence template.

2. Provide marked up drawings showing the location of each insulation type.
2. The Insulation index for the building fabric and services insulation must be the same as or greater than 2.5. See the Methodology section in the manual for a description of calculating the Insulation Index.

Mat05 Designing for Durability and Resilience C1: Protecting vulnerable parts of the building from damage C2-5: Protecting exposed parts of the building from material degradation	RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
		Project Manager	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project.

Evidence/Action Required

Protecting vulnerable parts of the building from damage

1. Provide drawings, specifications, written confirmation and manufacturers' literature (where applicable) that 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 kitchen areas.
 - c. Protection against, or prevention from, any potential vehicular collision where vehicular parking and manoeuvring occurs within 1m of the external building façade for all car parking areas and within 2m for all delivery areas.
 Suitable durability and protection measures to vulnerable parts of the building can include:
 1. Bollards/barriers/raised kerbs to delivery and vehicle drop-off areas
 2. Robust external wall construction, up to 2m high
 3. Corridor walls specified to Severe Duty (SD) as per BS 5234-2 and, for Healthcare buildings, Health Technical Memorandum 56 - Partitions
 4. Protection rails to walls of corridors
 5. Kick plates/impact protection (from trolleys etc) on doors
 6. Hard-wearing and easily washable floor finishes in heavily used circulation areas (i.e. main entrance, corridors, public areas etc)
 7. Designing out the risk without the need for additional materials specification to protect vulnerable areas.

Protecting exposed parts of the building from material degradation

2. Provide documentation to confirm that environmental factors have been identified that are relevant to the site location. Design drawings, specifications and manufacturers' literature may also serve as evidence.

See Table - 58 for list of applicable elements, environmental factors and material degradation effects to consider.
3. Provide drawings and/or specification to confirm that existing applicable building elements that are exposed to any relevant environmental factors have been identified.

See Table - 58 for list of applicable elements, environmental factors and material degradation effects to consider.
4. Provide an analysis that the existing applicable building elements (see Table 58) have been surveyed and have been assessed to identify impacts of material degradation effects including an assessment to grade the severity of any degradation effects. Design and specification measures have been 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. Design drawings, specifications and manufacturers' literature may also serve as evidence.

See Table - 50 for list of applicable elements, environmental factors and material degradation effects to consider.
5. Provide drawings and/or specification to confirm that 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.

Methodology

The following outlines the process to assess criterion 2.

1. Identify from the list of 'applicable building elements' under Table-58 the elements that are appropriate to the building being assessed.
2. Obtain survey from design team of existing applicable building elements to identify elements where material degradation effects are evident, the severity of any affects, and appropriate design and specification measures that have been considered to protect and limit environmental degradation.
3. Where existing elements with signs of environmental degradation are outside of the scope of refurbishment works, check that confirmation has been provided from design team that the severity of any degradation is low or that justification has been provided by the design team regarding the feasibility of any measures.
4. Establish from the 'environmental factors' list those factors that are likely to cause material degradation effects in the identified newly specified applicable building elements.
5. Confirm the design and specification measures in place to limit these degradation effects.
6. The assessor should use their professional judgement in determining whether the design team have adequately demonstrated that they have designed and specified materials and/or measures which will be effective in preventing unnecessary deterioration, so reducing frequent replacements, repairs and maintenance through the life cycle of the building.
7. At post construction stage, where the design and specification measures installed differ from that proposed at design stage, the assessor must ensure that these measures still meet the aims of the criterion as detailed in point 6 above.

Table - 58: Applicable building elements, environmental factors and material degradations effects to consider.

Applicable building elements, environmental factors and material degradation effects
Applicable building elements
<ol style="list-style-type: none"> 1. Foundation/substructure/lowest floor/retaining walls 2. External walls 3. Roof/balconies 4. Glazing: windows, skylight 5. External doors 6. Railings/Balusters (where exposed to external environment) 7. Cladding (where exposed to external environment) 8. Staircase/ramps (where exposed to external environment) 9. Hard landscaping
Environmental factors
<ol style="list-style-type: none"> 1. Environmental agents, including: <ol style="list-style-type: none"> a. Solar radiation b. Temperature variation c. Water/Moisture d. Wind e. Precipitation e.g rain and snow f. Extreme weather conditions: High wind speeds, flooding, driving rain, snow 2. Biological Agents, including: <ol style="list-style-type: none"> a. Vegetation b. Pests, insects 3. Pollutants, including: <ol style="list-style-type: none"> a. Air contaminants b. Ground contaminants
Material degradation effects (includes, but not necessarily limited to the following)
<ol style="list-style-type: none"> 1. Corrosion 2. Dimensional change, e.g. swelling or shrinkage 3. Fading/discolouration 4. Rotting 5. Leaching 6. Blistering 7. Melting 8. Salt crystallisation 9. Abrasion

Mat06 Material Efficiency C1-2: One Credit	RIBA Stages 1,2,3 and 4: Material Use Review RIBA Stage 3(D): Recommended action	Project Manager	Targeted	1	0	1	0
		Architect	Targeted				

Assessor's Notes

At the pre-assessment meeting this credit was considered achievable and efforts would be made to optimise the use of materials in building design, procurement, construction, maintenance and end of life. It was confirmed that the requirements of this credit are achievable

Evidence/Action Required

1. Provide documentary evidence in the form of a report, drawings, meeting notes, etc, confirming that opportunities have been identified, and appropriate measures investigated and implemented within the scope of refurbishment or fit-out works, to optimise the use of materials through building design, procurement, refurbishment, maintenance and end of life (see examples in Table 59)

Material efficiency is the process of undertaking a building project to enable the most efficient use of materials over the lifecycle of the building and its component. This includes using fewer materials, reusing existing demolition/ strip-out materials and, where appropriate, procuring materials with higher levels of recycled content. It may also include the adoption of alternative means of design/construction that result in lower materials usage and lower wastage levels including offsite manufacture and use of pre-assembled service pods.

2. The above must be carried out in consultation with the relevant parties who are involved in the design, specification and/or construction of the building at each of the following RIBA stages:
 - a. Preparation and Brief
 - b. Concept Design
 - c. Development Design
 - d. Technical Design
 - e. Construction

Table - 59: examples of material efficiency actions are as follows

BREEAM Refurbishment and Fit-out assessment parts	Example material efficiency considerations
All assessment parts	<ul style="list-style-type: none"> • Can existing elements be reused, preferably on-site? • Can materials with a high recycled content be used? • Consider the waste hierarchy for waste materials removed as part of the refurbishment
Part 1: Fabric and structure	<ul style="list-style-type: none"> • Windows: can existing windows be repaired? If not, consider the materials for the replacement windows (see Mat 01) • Insulation: can existing insulation be 'topped up' without removal of material? If not consider use of materials that comply with Mat 04) • Cladding: consider whether cladding can be repaired or reused.
Parts 2 and 3: Core and local services	<ul style="list-style-type: none"> • Pipework: use of materials with a high recycled content • Ventilation systems and ductwork: consider changes to design to minimise the need for ventilation systems, position of air handling units closer to ventilated spaces to minimise length in ductwork, consider use of fabric ductwork to replace galvanised steel.

Waste

			AVL	ACH	CTS	TBC
Total credits in Waste:	Action By	Credit Status	11	0	7	0

Wst01 Construction Waste Management

Minimum standards for this credit with the currently targeted Very Good \geq 55% BREEAM rating:

None

Wst01 Construction Waste Management	RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	1	0	1	0
C1: Pre-refurbishment audit		Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and a pre-refurbishment audit will be carried out for the project.

Evidence/Action Required

1. Provide a copy of the pre-refurbishment audit of all existing buildings, structures or hard surfaces within the scope of the refurbishment or fit-out zone.

The requirements for carrying out an appropriate pre-refurbishment audit are

- a. The audit should be carried out at the Concept Design Stage (equivalent to RIBA stage 2) prior to strip-out or demolition works in order to use the audit results to guide the design, consideration of materials that can be reused, and to set targets for waste management and ensure all contractors are engaged in the process of maximising high grade reuse and recycling opportunities.
- b. The audit should be carried out by a competent person who is independent of the project, has appropriate knowledge of buildings, waste and options for the reuse and recycling of different waste streams
- c. Actual waste arisings and waste management routes used should be compared with those forecast from the audit and barriers to achieving targets should be investigated.

The audit must be referenced in the resource management plan and cover:

- d. Identification and quantification of the key materials where present on the project (see Table 66 in the BREEAM manual)
- e. Potential applications and any related issues for the reuse and recycling of the key materials in accordance with the waste hierarchy.
- f. Identification of local reprocessors or recyclers for recycling of materials
- g. Identification of overall recycling rate for all key materials
- h. Identification of reuse targets where appropriate.

Wst01 Construction Waste Management C2-4: Reuse and direct recycling of materials	RIBA Stage 3(D): Recommended action	N/A	Not targeted				
		N/A	N/A	2	0	0	0

Assessor's Notes

At the pre-assessment meeting, this credit was unknown and that some demolition will occur but it will be minimal. Until the demolition audit is completed the materials available for reuse if unknown and as such the credit is not sought.

Evidence/Action Required

Please complete a copy of the Wst 01 calculator tool confirming the material types on site along with the proposed reuse or direct recycling proposed from the drop down menu within the tool provided.

2. Where waste material types detailed in Table 64 are either directly re-used on-site or off-site or are sent back to the manufacturer for closed loop recycling.

3. One credit is achieved where 50% of the total available points for the waste material types detailed in Table 64, that are present on the project have been achieved (using the Wst 01 calculator tool)

Please note that in most instances any materials specified in Table 64 that are sent to a Material Recovery Facility (MRF) for recovery do not qualify for this credit.

4. Two credits are achieved where 75% of the total available points for the waste material types detailed in Table 64, that are present on the project have been achieved (using the Wst 01 calculator tool)

Please note that in most instances any materials specified in Table 64 that are sent to a Material Recovery Facility (MRF) for recovery does not qualify for this credit.

Table - 64: Options for direct re-use and recycling

Material	Options for reuse or direct recycling
Inert materials (excluding soil)	On-site reuse in original form e.g. bricks, roof tiles, paving slabs, kerbs, cills
	Off-site reuse in original form e.g. bricks, roof tiles, paving slabs, kerbs, cills
New and used metal materials	On-site reuse of metal material in original form
	Off-site reuse of metal material in original form
Composite materials (materials which include more than one material type often bonded together)	On-site reuse in original form
	Off-site reuse in original form
New and used plasterboard (offcuts/unused/undamaged boards)	On-site reuse in original form
	Off-site reuse of unused/undamaged plasterboard on other construction or refurbishment projects
	Off-site reuse options for unused or undamaged plasterboard – e.g. local community scheme, surplus construction material trading, charities
	Plasterboard manufacturer take-back schemes e.g. collection of bagged offcuts or unused boards
Furniture	On-site reuse in original form
	Off-site reuse options – e.g. local community schemes, local charities, schools, etc
Timber products (All sawn soft/hard wood only – no board products e.g. MDF/chipboard etc.)	On-site reuse of timber on the project
	Off-site reuse via another project, National/local community wood reuse scheme
New and used mineral fibre ceiling panels and tiles	Off-site reuse in other construction/refurbishment projects, local community schemes, charities

New and used mineral fibre ceiling panels and tiles	Off-site recycling via manufacturer for closed loop recycling
Vinyl floor coverings (uplifted vinyl flooring and post-installation offcuts)	Off-site direct recycling via manufacturer for closed loop recycling
Used carpet tiles (good reusable condition)	On-site reuse of carpet tiles in their original form
	Off-site direct reuse on other construction/refurbishment projects, local community schemes, charities
	Direct recycling via a manufacturer for closed loop recycling
Packaging materials (all timber, cardboard & plastic)	Repatriation of wooden pallets from product suppliers for direct reuse
New and unused insulation board (foam board only e.g. EPS, XPS, ISO, COMP. not mineral fibre)	Off-site reuse of new and unused insulation board on other construction/refurbishment projects, local community schemes, charities
	Resale of insulation board via surplus construction material trading companies
	Collection by manufacturer for closed loop recycling
Fixtures and fittings	On-site reuse in original form e.g. sinks, doors, gates
	Off-site reuse in original form, e.g. sinks, doors, gates

Wst01 Construction Waste Management C5-6: Resource Efficiency	RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	3	0	2	0
		Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and a resource management plan will be produced for the construction site and at least two credits will be targeted for the resource efficiency credit.

Evidence/Action Required

- Provide a copy of a Resource Management Plan (RMP) covering the waste arisings from the refurbishment or fit-out project with the aim of minimising waste, recording and reporting accurate data on waste arisings.

The resource management plan aims to promote resource efficiency and to prevent illegal waste activities. Resource efficiency includes minimising waste at source and ensuring that clients, designers and principal contractors assess the use, reuse and recycling of materials and products on and off the site.

The RMP must include:

- A target benchmark for resource efficiency, i.e. m³ of non-hazardous waste per 100m² or tonnes of non-hazardous waste per 100m²
 - Procedures and commitments for minimising non-hazardous waste in line with the target benchmark
 - Procedures for minimising hazardous waste
 - Procedure for the principle contractor and all subcontractors for monitoring waste, managing and diverting demolition waste from landfill:
 - A waste minimisation target and details of waste minimisation actions to be undertaken
 - Procedures for estimating, monitoring, measuring and reporting hazardous and non-hazardous site waste covering the principle contractor and all subcontractors. If waste data are obtained from licensed external waste contractors, the data needs to be reliable and verifiable, e.g. by using data from EA/SEPA/EA Wales/NIEA Waste Return Forms. All construction waste data should be reported on a monthly basis throughout the project and checked against what would be expected based upon the stage of the project, invoices etc. to validate completeness of waste reporting data.
 - Procedures for sorting, reusing and recycling construction waste into defined waste groups, either on-site or through a licensed external contractor
 - Procedures for reviewing and updating the plan
 - The name or job title of the individual responsible for implementing the above.
- The non-hazardous waste relating to on-site refurbishment or fit-out, and dedicated off-site manufacture or fabrication processes generated by the building's design and construction meets, or exceeds, the resource efficiency benchmarks set out in Table 61 as relevant to the project type.

Table - 61: Refurbishment and fit-out waste resource efficiency benchmarks - Refurbishment (**Combinations of Parts 1 - 4**)

BREEAM credits	Amount of construction waste generated per 100m ² (gross internal floor area)	
	m ³	Tonnes
One credit	≤11.3	≤3.5
Two credits	≤4.5	≤1.2
Three credits	≤2.1	≤0.4
Exemplary Level	≤1.4	≤0.3

Note - Volume (m³) is actual volume of waste (not bulk volume).

Wst01 Construction Waste Management C7: Diversion of resources from landfill	RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	1	0	1	0
		Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and at least 90% of construction waste by volume be diverted from landfill and where possible these figures should be maximised.

Evidence/Action Required

- Provide written confirmation of the percentage of non hazardous construction and demolition waste to be diverted from landfill. The following percentages of non-hazardous construction and demolition waste (where applicable) generated have been diverted from landfill:

Table 63: Diversion of waste for refurbishment and fit-out

BREEAM credits	Source of waste	Volume	Tonnage
One credit	Refurbishment/fit-out	85%	90%
	Demolition	90%	95%
Exemplary level	Refurbishment/fit-out	95%	97%
	Demolition	95%	97%

Wst01 Construction Waste Management C8-11: Exemplary level criteria	RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				

Assessor's Notes

The exemplary credit for construction waste management has not been targeted at this stage.

Evidence/Action Required

The following criteria outlines the exemplary level criteria to achieve an innovation credit.

- Non-hazardous construction waste generated by the building's design and refurbishment or fit-out is no greater than the exemplary level resource efficiency benchmark (outlined in Table 62 and Table 61).
- The percentage of non-hazardous construction and demolition (if relevant) waste diverted from landfill meets or exceeds the exemplary level percentage benchmark (outlined in Table 63).
- Waste materials will be sorted into separate key waste groups (according to the waste streams generated by the scope of the works; the List of Wastes/European Waste Catalogue code should be referenced) either on-site or off-site through a licensed contractor for recovery.
- 75% of difficult to manage wastes have been reused on or off-site rather than recycled, in accordance with Table 64.

Wst02 Recycled Aggregates C1-3: One Credit	RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was considered unachievable due to the nature of the build. Additionally potential issues with structural warranties.

Evidence/Action Required

1. Provide specification details, calculations and written confirmation that the percentage of high-grade aggregate that is recycled or secondary aggregate, specified in each application (present) must meet the following minimum % levels (by weight or volume) to contribute to the total amount of recycled or secondary aggregate, as specified.

This information must include the volumes and quality of the aggregate that can be obtained.

Minimum high grade aggregate applications apply to:

- Structural Frame 15%
- Bitumen or hydraulically bound base, binder, and surface courses for paved areas and roads 30%
- Building foundations 20%
- Concrete road surfaces 15%
- Pipe bedding 100%
- Granular fill and capping (see Relevant definitions section in the BREEAM manual) 100%

2. The total amount of recycled or secondary aggregate specified, and meeting criterion 1, must be greater than 25% (by weight or volume) of the total high grade aggregate specified for the development. Where the minimum level in criterion 1 is not met for an application, all the aggregate in that application must be considered as primary aggregate when calculating the total high grade aggregate specified.

3. The recycled or secondary aggregates are EITHER:

- a. Construction, demolition and excavation waste obtained on-site or off-site OR
- b. Secondary aggregates obtained from a non-construction post-consumer industrial by-product source.

Wst02 Recycled Aggregates C4-6: Exemplary Level Criteria	RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				

Assessor's Notes

The exemplary credit for recycled aggregates has not been targeted at this stage.

Evidence/Action Required

4. The percentage of high-grade aggregate, that is recycled and/or secondary aggregate, specified in each application (present) must meet the exemplary minimum levels (by weight or volume), as defined below. Where this minimum level is not met, all the aggregate in that application must be considered as primary aggregate when calculating the total high grade aggregate specified.

Minimum high grade aggregate applications for exemplary level apply to:

- Structural Frame 30%
- Bitumen or hydraulically bound base, binder, and surface courses for paved areas and roads 75%
- Building foundations 35%
- Concrete road surfaces 45%
- Pipe bedding 100%
- Granular fill and capping (see Relevant definitions section in the BREEAM manual) 100%

5. Where the total amount of recycled and/or secondary aggregate specified is greater than 35% (by weight or volume) of the total high-grade aggregate specified for the project. Where the minimum level in criterion 1 is not met for an application, all the aggregate in that application must be considered as primary aggregate when calculating the total high grade aggregate specified.

6. The contributing recycled or secondary aggregate must not be transported more than 30 km by road transport.

Wst03 Operational Waste							
Minimum standards for this credit with the currently targeted Very Good \geq 55% BREEAM rating: None							
Wst03 Operational Waste C1-7: One Credit	RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
		Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and dedicated space would be provided for the segregation and storage of operational recyclable waste. It was also confirmed that no static waste compacter or baler is applicable to the project and no organic waste is to be stored on site.

Evidence/Action Required

1. Provide marked up drawings and specification clauses confirming that 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.

Minimum storage space provision:

1. At least 2m² per 1000m² of net floor area for buildings < 5000m².
2. A minimum of 10m² for buildings \geq 5000m²
3. An additional 2m² per 1000m² of net floor area where catering is provided (with an additional minimum of 10m² for buildings \geq 5000m²).

Wst05 Adaptation to Climate Change C1: Structural and Fabric Resilience Part 1 Major Refurbishment Only	RIBA Stage 1(A-B): Climate Adaptation Strategy Appraisal RIBA Stage 3(D): Recommended action	Client	Targeted	1	0	1	0
		Architect	Targeted				

Assessor's Notes

At the pre-assessment meeting this credit was considered achievable.
Discussions are ongoing with the team to establish what is required and if this is feasible.

Evidence/Action Required

1. Provide a copy of the 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:
 - a. 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:

- i) Hazard Identification
- ii) Hazard assessment
- iii) Risk estimation
- iv) Risk Evaluation
- v) Risk Management

BREEAM definition of Structural and fabric resilience is the ability of a structure to withstand an increased burden of weather/increase pressure/hazards associated with climate change. Examples of increased pressures/hazards include:

1. Solar radiation
2. Temperature variation
3. Water/moisture
4. Wind
5. Precipitation e.g rain and snow
6. Extreme weather conditions: high wind speeds, flooding, driving rain, snow; rainwater ponding
7. Subsidence/ground movement.

Methodology

Hazard identification

1. Review the evidence/information from relevant bodies to identify and understand the expected impacts of increased extreme weather events climate change for on the building.
2. Identify likely hazards (see Relevant definitions in the BREEAM manual).

Hazard assessment

1. Identify the scale of the hazards identified.

Risk estimation

1. Identify the risk presented by these hazards to the building and the likely impact of the hazards taking into account the following aspects as a minimum:
 - a. Structural stability
 - b. Structural robustness
 - c. Weather proofing and detailing
 - d. Material durability
 - e. Health and safety of building occupants and others
 - f. Impacts on building contents and business continuity.

Risk evaluation

1. Evaluate the potential impact of these risks on the building.
2. Determine the tolerable risk threshold.
3. Check the sensitivity of the risk assessment.
4. Identify areas where the risks are unacceptable in health and safety, life cycle assessment and financial terms.

Risk management

1. Identify risk reduction measures.
2. Mitigate the hazards as far as is practically feasible.
3. Adapt the design/specification to incorporate the measures identified by the risk assessment in the final design.

Wst05 Adaptation to Climate Change C2: Exemplary Level Criteria - Responding to adaptation to climate change	RIBA Stage 1(A-B): Climate Adaptation Strategy Appraisal	N/A	Not targeted	1	0	0	0
	RIBA Stage 3(D): Recommended action	N/A	Not targeted				

Assessor's Notes

The exemplary credit has not been targeted at this stage.

Evidence/Action Required

A holistic approach to the design and refurbishment or fit out of the current building's life cycle, to mitigate against the impacts of climate change, is represented by the achievement of these criteria.

The following outlines the exemplary level criteria to achieve an innovation credit for this BREEAM issue:

2. Achievement of the Structural and fabric resilience issue above and the following issues and criteria points or credits:

Hea 04 – Thermal comfort

(Link to Wst 5 issue- to preventing increasing risks of overheating)
 Criterion 6 in the second credit of the Hea 04 issue has been achieved.

Ene 01 – Reduction of energy use and carbon emissions

(Link to Wst 05 issue – to maximise energy efficiency contributing to low carbon emissions resulting from increasing energy demands)

At least eight credits in this issue have been achieved

Ene 04 – Low carbon design

(Link to Wst 05 issue- to maximise opportunities to avoid unnecessary carbon emissions)

The Passive design analysis credit in this issue has been achieved.

Wat 01 – Water consumption

(Link to Wst 05: to minimise water demands in periods of drought)

A minimum of three credits in this issue have been achieved.

Mat 05 – Designing for durability and resilience

(Link to Wst 05 issue - to avoid increased risks of deterioration and higher maintenance demands)

Criterion 2 relating to material degradation in this issue has been achieved.

Pol 03 – Surface water run-off

(Link to Wst 05: to minimise the risks of increased flood risk and surface water run-off affecting the site or others)

Flood risk – a minimum of one credit has been achieved.

Surface water run off – two credits have been achieved.

Wst06 Functional Adaptability C1-2: One Credit	RIBA Stage 1(A-B): Functional Adaptation Strategy Appraisal	Architect	Targeted	1	0	1	0

	RIBA Stage 3(D): Recommended action	Client	Targeted	+	-	+	-
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Assessor's Notes

At the pre-assessment meeting this credit was considered achievable and that the building is adaptable for future uses

Evidence/Action Required

1. Provide a copy of the functional adaptation strategy confirming that a building-specific functional adaptation strategy study has been undertaken by Concept Design (RIBA Stage 2 or equivalent), which includes recommendations for measures to be incorporated to facilitate future adaptation.

This should consider:

1. The potential for major refurbishment, including replacing the façade.
2. Design aspects that facilitate the replacement of all major plant within the life of the building e.g. panels in floors/walls that can be removed without affecting the structure, providing lifting beams and hoists.
3. The degree of adaptability of the internal environment to accommodate changes in working practices.
4. The degree of adaptability of the internal physical space and external shell to accommodate change in-use.
5. The extent of accessibility to local services, such as local power, data infrastructure etc.

2. Provide a copy of the implementation plan report confirming functional adaptation measures (see examples in Table 68) have been adopted in the design by Technical Design stage (RIBA Stage 4 or equivalent) in accordance with the functional adaptation strategy recommendations, where practical and cost effective. Omissions have been justified in writing to the assessor.

The implementation will be specific to the building and scope of project, but information should be made available to the assessor covering:

1. The feasibility for multiple/alternative building uses and area functions e.g.related to structural design of the building
2. Options for multiple building uses and area functions based on design details e.g. modularity
3. Routes and methods for major plant replacement e.g.networks and connections have flexibility and capacity for expansion
4. Accessibility for local plant and service distribution routes e.g.detailed information on building conduits and connections infrastructure
5. The potential for the building to be extended, horizontally and/or vertically.

Table 68: Design measures allowing future adaptation

	Accessibility	Spatial adaptability	Expandability
Part 1: Fabric and structure <ul style="list-style-type: none"> • External walls • Cladding • Ground and first floor • Roof 	Use of products or systems which allow easy replacements	Location of structural components within the floor space	Provision to add extensions or alterations to increase building capacity
Parts 2 and 3: Core and local services <ul style="list-style-type: none"> • Mechanical and electrical • Plumbing • Stairs and lifts • Fire 	Inclusion of facilities management requirements and CDM feedback for future operational needs		Provision of capacity in infrastructure to enable future expansion and adaptation

Land Use and Ecology

				AVL	ACH	CTS	TBC
Total credits in Land Use and Ecology				3	0	3	0
LE04 Enhancing Site Ecology C1-3: Ecologist's Report and Recommendations	RIBA Stage 1(A-B): Ecologist Appointment RIBA Stage 4(E-F) Recommended action	Ecologist	Targeted	1	0	1	0
		Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and the proposed site will sit on the exciting footprint which is currently all hard landscaping. An ecologist has been appointed. Planting is proposed but there is limited space available on the roof and a small positive change is only envisaged.

Evidence/Action Required

1. Provide confirmation that a suitably qualified ecologist (SQE) has been appointed by the client or their project representative by the end of the Preparation and Brief stage (RIBA Stage 1 or equivalent) to advise on enhancing the ecology of the site at an early stage.
2. Provide a copy of the SQE's Ecology Report with appropriate recommendations for the enhancement of the site's ecology at Concept Design stage (RIBA Stage 2 or equivalent). The report must be based on a site visit/survey by the SQE.

The suitably qualified ecologist must carry out site surveys of existing site ecology, on which their report is based (or to provide verification where the report is prepared by others) at the Concept Design stage (RIBA Stage 2 or equivalent) in order to facilitate and maximise potential ecological enhancement.

3. Provide landscape plans and formal written confirmation that the advice and recommendations of the Ecology Report for the enhancement of site ecology have been or will be, implemented in the refurbishment or fit-out.

LE05 Long Term Impact on Biodiversity C1-3: Up to Two Credits	RIBA Stage 4(E-F): Recommended action	Ecologist	Targeted	2	0	2	0
		Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. It was confirmed that an ecologist will be appointed to complete a compliant BREEAM report/habitat plan. Additionally all suggested additional measures will be incorporated during construction.

Evidence/Action Required

1. Provide confirmation a Suitably Qualified Ecologist (SQE) was appointed prior to commencement of activities on-site and they confirm that all relevant UK and EU legislation relating to the protection and enhancement of ecology will be complied with during the refurbishment or fit-out process.
2. Provide a copy of a site specific landscape and habitat management plan, appropriate to the site, covering at least the first five years after project completion in accordance with BS 42020:2013 Section 11.1. Provide written confirmation that this will be handed over to the building owner/occupants for use by the grounds maintenance staff.

BS 42020: 2013 Section 11.1 states that the following should be included in long term management plans for habitats, species and biodiversity features:

- a. Description and evaluation of features to be managed
 - b. Ecological trends and constraints on-site that could influence management
 - c. Aims and objectives of management
 - d. Appropriate management options for achieving aims and objectives
 - e. Prescriptions for management actions
 - f. Preparation of a work schedule (including an annual work plan capable of being rolled forward over a five year period)
 - g. Body or organisation personnel responsible for implementation of the plan
 - h. Monitoring and remedial measures (see 11.2)
 - i. Funding resources and mechanisms to ensure sustainable long term delivery of the proposed management.
3. Where additional measures to improve the assessed site's long term biodiversity are adopted. Evidence is required in the form of letters, training schedules, toolbox talks, presentation literature, company policies, photographs, specification clauses, projects programmes, etc for the additional measures being implemented on site selected from Table 69.

Table - 69: Additional measures for the improvement of long term biodiversity

Ref	Additional measures for the improvement of long term biodiversity
1	The principal contractor nominates a Biodiversity Champion with the authority to influence site activities and ensure that detrimental impacts onsite biodiversity are minimised in line with the recommendations of a Suitably Qualified Ecologist
2	The principal contractor trains the site workforce on how to protect site ecology during the project. Specific training must be carried out for the entire site workforce to ensure they are aware of how to avoid damaging site ecology during operations onsite. Training should be based on the findings and recommendations for protection of ecological features highlighted within a report prepared by a Suitably Qualified Ecologist
3	The principal contractor records actions taken to protect biodiversity and monitor their effectiveness throughout key stages of the refurbishment or fit-out process. The requirement commits the principal contractor to make such records available where publicly requested.
4	<p>Where a new ecologically valuable habitat appropriate to the local area is created. This includes a habitat that supports nationally, regionally or locally important biodiversity, and/or which is nationally, regionally or locally important itself; including any UK Biodiversity Action Plan (UK BAP) priority habitats Local Biodiversity Action Plan (LBAP) habitats, those protected within statutory sites (e.g. SSSIs), or those within non-statutory sites identified in local plans.</p> <p>Local biodiversity expertise should be sought during the Preparation and Brief (RIBA Stage 1 or equivalent) to help identify species of local biodiversity importance onsite and ensure that the proposals support local priorities</p>
5	Where flora and/or fauna habitats exist onsite, the contractor programmes site works to minimise disturbance to wildlife. For example, site preparation, ground works, and soft landscape have been, or will be, scheduled at an appropriate time of year to minimise disturbance to wildlife. Timing of works may have a significant impact on, for example, breeding birds, flowering plants, seed germination, amphibians etc. Actions such as phased clearance of vegetation may help to mitigate ecological impacts. This additional requirement will be achieved where a clear plan has been produced detailing how activities will be timed to avoid any impact on site biodiversity in line with the recommendations of a Suitably Qualified Ecologist

Pollution

				AVL	ACH	CTS	TBC
Total credits in Pollution:		Action By	Credit Status	12	0	6	0

Pol01 Impact of Refrigerants C2: Pre-requisite to Achieve C3-7	RIBA Stage 3(D): Recommended action	M&E	Targeted	Pre-requisite to achieve credit			
		N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and that refrigerants will be specified for the development and it will comply with the relevant standards.

Evidence/Action Required

2. Where refrigerants are required:

Provide a copy of the specification clause or letter from the M&E Engineer or system manufacturer confirming all systems (with electric compressors) comply with the requirements of BS EN 378:2008 (parts 2 and 3) and where refrigeration systems containing ammonia are installed, the Institute of Refrigeration Ammonia Refrigeration Systems Code of Practice.

Pol01 Impact of Refrigerants C3-5: Impact of Refrigerant	RIBA Stage 3(D): Recommended action	M&E	Targeted	2	0	1	0
		Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and any refrigerants specified for the development will have Direct Effect Life Cycle CO₂ equivalent emissions of ≤100 kgCO_{2e}/kW cooling/heating capacity or a low Global Warming Potential and at least two credit can be achieved.

Evidence/Action Required

Where refrigerants are required provide a copy of the specification clause, letter from the M&E Engineer or system manufacturer confirming the following relevant refrigeration types and system information for each specified system:

Provide the following information:

- Global Warming Potential (GWP) of the specified system refrigerant(s);
- Total refrigerant charge (kg);
- Cooling capacity of the systems(s) (kW);
- Sectoral release factors:
 - Annual refrigerant leakage rate (% of refrigerant charge);
 - Annual purge release factor (% of refrigerant charge);
 - Annual service release factor for catastrophic system failure (%);
 - Recovery efficiency (% of refrigerant charge).

3. Where the systems using refrigerants have Direct Effect Life Cycle CO₂ equivalent emissions (DELCO_{2e}) of ≤100 kgCO_{2e}/kW cooling/heating capacity. This includes systems using refrigerants: comfort cooling systems, I.T servers and I.T equipment and cold storage units, commercial food/drink display cabinets but excluding domestic white goods e.g. fridges and freezers) and or/space heating (including refrigerants in heat pumps) capacity. To calculate the DELCO_{2e} please refer to the Relevant definitions in the Additional information section and the Methodology section in the manual.

OR

4. Where air-conditioning or refrigeration systems are installed the refrigerants used have a Global Warming Potential (GWP) ≤10.

5. One credit is achieved where the systems using refrigerants have Direct Effect Life Cycle CO₂ equivalent emissions (DELCO_{2e}) of ≤1000 kgCO_{2e}/kW cooling/heating capacity. This includes systems using refrigerants: comfort cooling systems, I.T servers and I.T equipment and cold storage units, commercial food/drink display cabinets but excluding domestic white goods e.g. fridges and freezers) and or/space heating (including refrigerants in heat pumps) capacity.

PoI01 Impact of Refrigerants C6-7: Leak Detection	RIBA Stage 3(D): Recommended action	M&E	Targeted	1	0	1	0
		Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and that a refrigerant leak detection system will be specified for the systems using refrigerants and will meet the below criteria.

Evidence/Action Required

6. Provide a copy of the specification clause, a letter from the M&E Engineer or system manufacturer confirming that systems using refrigerants have a permanent automated refrigerant leak detection system installed; OR an in-built automated diagnostic procedure for detecting leakage is installed. In all instances a robust and tested refrigerant leak detection system must be installed and must be capable of continuously monitoring for leaks.
7. The system must be capable of automatically isolating and containing the remaining refrigerant(s) charge in response to a leak detection incident. A system which initiates an automated shut down and pump down of the refrigerant into a separate storage tank would meet this criterion.

PoI02 NO_x Emissions C1-2: Up to Three Credits (All Building Types except Industrial)	RIBA Stage 3(D): Recommended action	N/A	Not targeted	3	0	0	0
		N/A	N/A				

Assessor's Notes

At the meeting it was noted the site is proposing a VRF and these systems have high Nox levels and no credits are currently sought.

Evidence/Action Required

1. Provide relevant specification clauses from the building specification or contract confirming the NO_x emissions of the boilers specified for the project and the manufacturer's product information confirming the NO_x emissions as 0% excess O₂ dry conditions.

The building's delivered heating and hot water demand, under normal operating conditions, dry NO_x emission levels (at 0% excess O₂) must meet the following:

NO _x Emission levels for heating and hot water (mg/kWh)	Credit
≤100 mg/kWh	1 credit
≤70 mg/kWh	2 credits
≤40 mg/kWh	3 credits

Provide calculations showing the average NO_x emissions for the building where multiple systems are present.

2. The direct and indirect NO_x emissions will be reported via the BREEAM scoring and reporting tool in mg/kWh and energy consumption in kWh/m²/yr arising from systems installed to meet the building's space heating, cooling and hot water demands.

PoI03 Flood Risk Management and Reducing Surface Water Run-off C1-6: Flood Risk Management	RIBA Stage 3(D): Recommended action	Drainage Consultant	Targeted	2	0	2	0
		N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and a Flood Risk Assessment report will be undertaken for the project and confirmed as low risk.

Evidence/Action Required

Low Flood Risk

1. Provide flood maps from the appropriate statutory body, such as the Environment Agency in England and Wales, the Rivers Agency in Northern Ireland and the Scottish Environment Protection Agency in Scotland or the relevant local authority/internal drainage board, which confirm that the refurbishment or fit-out is situated in a flood zone that is defined as having a low annual probability of flooding

OR

2. Provide completed checklist confirming that the project meets the requirements for avoidance of flooding in accordance with Checklist 1 e.g. where the refurbishment or fit-out zone is of a floor level that is 0.3m higher than the obtained/estimated flood level and safe access/escape routes are available/present.

PoI03 Flood Risk Management and Reducing Surface Water Run-off C7-10: Surface Water Run-off	RIBA Stage 3(D): Recommended action	Drainage Consultant	Targeted	2	0	1	0
		N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and that the proposed site will sit on the exciting footprint. No new attenuation measures are proposed as the building will utilise the existing drainage system, thus a neutral impact is assumed for one credit.

Evidence/Action Required

One credit - neutral impact on surface water

7. Provide a drainage report, full calculations and drawings from an appropriate consultant confirming that there is no increase in the impermeable surfaces as a result of the refurbishment works; **OR**
8. If there is an increase in the impermeable surface as a result of the refurbishment works then the following must be met:
 - a. Hard standing areas - where there is an extension or increase in the hardstanding areas and hence an increase in the total impermeable area as a result of the refurbishment works, the hardstanding area must be permeable or be provided with on-site SuDS to allow full infiltration of the additional volume, to achieve the same end result. The permeable hardstanding must include all pavements and public rights of way, car parks, driveways and non-adoptable roads, but exclude footpaths that cross soft landscaped areas which will drain onto a naturally permeable surface.
 - b. Building extension - where there is an increase in building footprint, extending onto any previously permeable surfaces, the additional run-off caused by the area of the new extension must be managed on-site using an appropriate SuDS technique for rainfall depths up to 5mm.

Two credits - reducing run-off

9. Provide a drainage report, full calculations and drawing to confirm that an Appropriate Consultant has been used to design an appropriate drainage strategy for the site.
10. Provide a drainage report, full calculations and drawing confirming that either of the following criteria are met:
 - a. There is a decrease in the impermeable area by 50% or more, from the pre-existing impermeable hard surfaces;**OR**
 - b. Where run-off as a result of the refurbishment is managed on-site using source control achieving the following requirements:
 - i. The peak rate of run-off as a result of the refurbishment for the 1 in 100 year event has been reduced by 50% from the existing site.
 - ii. The total volume of run-off discharged into the watercourses and sewers as a result of the refurbishment, for a 1 in 100 year event of 6 hour duration has been reduced by 50%.
 - iii. An allowance for climate change must be included for all of the above calculations; this should be made in accordance with current best practice planning guidance.

Pol03 Flood Risk Management and Reducing Surface Water Run-off C11-14: Minimising Water Course Pollution	RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was considered unachievable because the proposed site will sit on the exciting footprint. No pollution measures are proposed as the building will utilise the existing drainage system, thus no credits are assumed.

Evidence/Action Required

11. Provide a written statement or drainage report, calculations and/or drawings confirming that there is no discharge from the developed site (includes new and existing hard landscaping and buildings) for rainfall up to 5mm (confirmed by the Appropriate Consultant).
12. Provide design drawings or relevant specification clauses indicating that suitable pollution prevention measures are put in place (or already exist) for the different sources of pollution present on the assessed site as follows :

Low risk source of watercourse pollution: An appropriate level of pollution prevention treatment is provided, using appropriate SuDS techniques

High risk source of watercourse pollution: Where there is risk of contamination or spillage of substances such as petrol and oil in areas such as vehicle manoeuvring areas, car parks, waste disposal facilities, delivery and storage facilities or plant areas, separators (or an equivalent system) are installed in surface water drainage systems.

Chemical/liquid gas storage areas: A means of containment is fitted to the site drainage system (i.e. shut-off valves) to prevent the escape of chemicals to natural watercourses (in the event of a spillage or bunding failure).

Vehicle washing areas: Pollution prevention systems must be in accordance with Pollution Prevention Guidelines 13. All water pollution prevention systems have been designed and installed in accordance with the recommendations of documents such as Pollution Prevention Guideline 3 (PPG 3) and/or where applicable the SuDS manual.

13. Provide formal written confirmation that a comprehensive and up-to-date drainage plan of the site will be made available for the building/site occupiers.
14. Provide formal written confirmation that relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS will be in place.

Pol03 Flood Risk Management and Reducing Surface Water Run-off C15: Exemplary level requirements	RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
		N/A	N/A				

Assessor's Notes

The exemplary credit for reducing surface water has not been targeted at this stage.

Evidence/Action Required

15. Where all run-off from the developed site is managed on-site using source control, the following must be achieved to confirm compliance:
 - a. The peak rate of run-off as a result of the refurbishment for the 1 in 1 year event is reduced to zero.
 - b. The peak rate of run-off as a result of the refurbishment for the 1 in 100 year event is reduced to zero.
 - c. There is no volume of run-off discharged into the watercourses and sewers as a result of the refurbishment, for a 1 in 100 year event of 6 hour duration.
 - d. An allowance for climate change must be included for all of the above calculations, in accordance with current best practice national planning guidance.
 - e. Where an appropriately qualified professional has been employed to provide the above calculations and design an appropriate drainage strategy for the site, ensuring all above criteria are achieved.

Pol04 Reduction of Night Time Light Pollution C:1-5 One credit	RIBA Stage 3(D): Recommended action	M&E	Targeted	1	0	1	0
		Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and that external lighting will be designed according to the relevant BREEAM criteria.

Evidence/Action Required

Provide specification clauses and drawings confirming the external lighting meets the following requirements:

1. External lighting pollution has been eliminated through effective design that removes the need for external lighting without adversely affecting the safety and security of the site and its users.

OR alternatively, where the building does have external lighting, one credit can be awarded as follows:
2. The external lighting strategy has been designed in compliance with Table 2 (and its accompanying notes) of the 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's Guidance notes.
5. Illuminated advertisements, where specified, must be designed in compliance with ILP PLG 05 The Brightness of Illuminated Advertisements.



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Seaforth Land

20-23 Greville Street

BREEAM

Pre-assessment Tracker & Action List for
Office New Build



MLM.
Group

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1 Introduction

The development will be assessed under BREEAM New Construction SD5076: 5.0 - 2014 Commercial - Offices - General Office, as a Fully Fitted building.

This report has been prepared by MLM Consulting Engineers Ltd Sustainability Group and provides guidance to the design team in relation to the BREEAM New Construction SD 5076: 5.0 - 2014 requirements for the refurbishment/extension at 20-23 Greville Street, London, EC1N 8SS. The report is based upon information obtained at the design team meeting held on 16 October 2017.

The proposals involve the retention and refurbishment of an existing office building comprising 3,643 sqm (gia) of floorspace to provide a new mixed use building comprising:
Change of use of existing Class B1 at ground floor, basement and first floor levels to Class A1/A3 use;
demolition of existing fifth floor plant room and construction of rooftop extension at fifth and mezzanine floor level for Class B1 use, rear infill extension to all floors for Class B1 use, external alterations including new façade and glazing, and associated works

The building is not noted as historic.

Heating and cooling systems for the offices are via a VRF system and natural ventilation is proposed. DHW is point of use.

There is no associated landscaping and it is to be confirmed if planting is feasible on the roof areas.
Note only the office units are assessed under this assessment.

1.1 What is BREEAM?

This guidance report is based on the SD 5075:5.0 - 2014 issued by the BRE. As with all schemes under the BREEAM umbrella the assessment seeks to minimise the adverse effects of new and existing buildings on the environment at global and local scales, whilst promoting healthy indoor conditions for the occupants. The environmental implications of any building are assessed at the design stage, and compared with good practice by independent assessors.

BREEAM establishes a set of categories under which specific credit requirements are grouped. These are:

- Management
- Health and Wellbeing
- Energy
- Transport
- Water
- Materials
- Waste
- Land Use and Ecology
- Pollution

Within each category there are a number of credits which the design team can choose from to achieve the desired rating. It should be noted that there will be certain minimum requirements that must be achieved depending on the BREEAM rating required. Building designs are compared against the credit criteria by registered assessors and credits awarded where the criteria have been met. An overall rating of the building's performance is given using the terms; Pass, Good, Very Good, Excellent or Outstanding. The rating is determined from the number of credits achieved in each of the categories, which are then weighted (i.e. credits multiplied by environmental weighting factor) to provide an overall score.

This report is for advice only. This report outlines the overall performance of the development and provides a written and tabulated summary that should be used as a quick reference guide. For full details of the credit criteria refer to the BRE website www.breeam.org where copies of the assessor manuals are available for download. The final rating achieved in a certified assessment will be dependent on the provision of acceptable information as evidence that the compliance requirements of the credits have been met. Such evidence could be in the form of marked-up drawings, specification clauses, manufacturers' literature and project specific documents or reports.

1.2 Scoring and Rating Assessed Buildings

The BREEAM rating benchmarks for new construction projects assessed using the 2014 version of BREEAM are as follows:

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

1.3 Minimum Standards

The BREEAM categories contain a number of environmental issues which reflect the choices available when procuring, designing and constructing a building.

Each category has a set number of 'credits' available and these credits are awarded where the building demonstrates that it complies with the requirements set by BREEAM.

1.4 Minimum Standards and BREEAM Ratings

The following outlines the minimum standards to meet specific ratings:

BREEAM Issue	BREEAM Rating / Minimum no. of credits				
	Pass	Good	Very Good	Excellent	Outstanding
Man 03: Responsible construction practices	None	None	None	One credit (Considerate Construction)	One credit (Considerate Construction)
Man 04: Commissioning and handover	None	None	None	Criterion 10 (Building User Guide)	Criterion 10 (Building User Guide)
Man 05: Aftercare	None	None	None	One credit (Seasonal commissioning)	One credit (Seasonal commissioning)
Ene 01: Reduction of energy use and carbon emissions	None	None	None	Five credits	Eight credits
Ene 02: Energy monitoring	None	None	One credit (First sub-metering credit)	One credit (First sub-metering credit)	One credit (First sub-metering credit)
Wat 01: Water consumption	None	One credit	One credit	One credit	Two credits
Wat 02: Water monitoring	None	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only
Mat 03: Responsible sourcing of materials	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only
Wst 01: Construction waste management	None	None	None	None	One credit
Wst 03: Operational waste	None	None	None	One credit	One credit
LE 03: Minimising impact on existing site ecology	None	None	One credit	One credit	One credit

1.5 Innovation Credits

Innovation credits provide recognition for designs which innovate in the field on sustainable performance, above and beyond the level that is currently recognised and rewarded by standard BREEAM issues. There are two ways in which BREEAM awards 'Innovation Credits':

The first is by meeting Exemplary Performance criteria defined within an existing BREEAM issue i.e. going beyond the standard BREEAM assessment criteria and therefore best practice.

The second is where an application is made to BRE Global by the registered project's BREEAM Assessor to have a particular building technology or feature, design or construction method or process recognised as 'innovative'.

All Innovation credits have a fixed environmental weighting of 1% towards the final score, and there is a maximum of innovation credits (totalling 10%) which may be awarded to any scheme.

1.6 Environmental Weightings, Final Score and BREEAM Rating

Once each BREEAM credit has been assessed the category percentage scores are determined (based on the number of credits achieved over those available within a category) and an environmental weighting applied. The weighted category scores are then totalled to give an overall score and any additional score for innovation is added to give the final BREEAM score which is used to determine the BREEAM rating.

2 Project Status

2.1 BREEAM Workshops:

The pre-assessment meeting held at t Groupwork's offices, Clerkenwell on the 16 October 2017 was attended by:

Name of Attendee	Company	Role in Project
Fred Samaha	Quantem Consulting LLP	Partner
Alex Cotterill	Amin Taha Architects	Architect
Paul Downie	Webb Yates	Building Services Engineer
Andrew Lerpiniere	Webb Yates	Director
Clare Hardy	MLM Consulting Engineers	BREEAM Assessor and AP

2.2 Summary

The project currently targets a score of 60.20% which equates to a VERY GOOD rating.

To ensure that a Very Good $\geq 55\%$ rating is achieved/maintained, it is vital that all design team members read through the action list of credits required and ensure that the credit criteria are incorporated in the developing design and that suitable evidence is provided to validate achievement.

Where information could be provided to support the achievement of a credit this should be provided to the assessor at the earliest opportunity. The assessor should also be informed of any credit criteria, which cannot be met. Changes to existing specifications and tender package documents to address the criteria contained in this report would enable the design team to deliver the necessary rating.

This document should be used as a 'live' tool throughout the project and the BREEAM options and requirements should be considered at every stage of development.

Any changes made to the document from the last issue will be shown in red ink for tracking purposes.

The table below shows the progress of the score of the project based on the development of the scheme:

Score History Table

Revision	Report	Achieved Score (ACH)	Currently Targeted Score (CTS)	Potential Score (TBC)
0	Pre-assessment	0.00%	60.20%	61.30%
0	Pre-assessment Progress	0.00%	60.20%	61.30%

The initial score targeted at the Pre-assessment meeting will allow for the required BREEAM rating to be achieved provided sufficient and compliant evidence is received by MLM.

The Pre-assessment meeting held for this project on the date above details the credits targeted, who is responsible for providing evidence for each credit, and the evidence that must be provided to the BREEAM assessor in order to secure credits and achieve the required BREEAM rating. Any changes to the targeted credits and/or changes to the score are detailed below for reference. Where any changes to the score have occurred, this is reflected in the current targeted score on the Summary page of this document.

The current projected score will allow for the required BREEAM rating to be achieved once sufficient and compliant evidence is received by MLM.

2.3 Tracker

	Action By	Credit Status	AVL	ACH	CTS	TBC
MANAGEMENT 0.57% weighting per credit			21	0	13	2
Man01 Project Brief and Design C1-3: Stakeholder Consultation (Project Delivery) RIBA Stage 2(C): Consultations	Project Manager	Targeted	1	0	1	0
	Architect	Targeted				
Man01 Project Brief and Design C4-7: Stakeholder Consultation (Third Party) RIBA Stage 2(C): Consultations. RIBA Stage 4(EF): Feedback.	Project Manager	Targeted	1	0	1	0
	Architect	Targeted				
Man01 Stakeholder Consultation C8-10: Sustainability Champion (Design) RIBA Stage 1(A-B): Appointment	BREEAM AP	Targeted	1	0	1	0
	Project Manager	Targeted				
Man01 Stakeholder Consultation C11-12: Sustainability Champion (Monitoring Progress) RIBA Stage 1(A-B): Appointment. RIBA Stage 2(C): BREEAM target confirmed	BREEAM AP	Targeted	1	0	1	0
	Project Manager	Targeted				
Man02 Life Cycle Cost and Service Life Planning C1-3: Elemental Life Cycle Cost (LCC) RIBA Stage 2(C): Elemental LCC	N/A	Not targeted	2	0	0	0
Man02 Life Cycle Cost and Service Life Planning C4-5: Component Level LCC Plan Option Appraisal RIBA Stage 4(E-F): Component Level LCC Plan.	N/A	Not targeted	1	0	0	0
Man02 Life Cycle Cost and Service Life Planning C6: Capital Cost Reporting RIBA Stage 6(J-K): Recommended action	Project Manager	TBC	1	0	0	1
	Client	TBC				
Man03 Responsible Construction Practices C1: Pre-requisite RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	Pre-requisite for criteria			
	Client	Targeted				
Man03 Responsible Construction Practices C2-3: Environmental Management RIBA Stage 4(E-F)/Stage 5: Recommended action	Principal Contractor	Targeted	1	0	1	0
	Client	Targeted				
Man03 Responsible Construction Practices C4-6: Sustainability Champion (construction) RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
Man03 Responsible Construction Practices C7: Considerate Construction RIBA Stage 4(E-F)/Stage 5: Recommended action	Principal Contractor	Targeted	2	0	1	1
	Client	Targeted				

	Action By	Credit Status	AVL	ACH	CTS	TBC
Man03 Responsible Construction Practices C8: Monitoring of Construction-Site Impacts RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	Pre-requisite for criteria 9 to 17			
	Client	Targeted				
Man03 Responsible Construction Practices C9-14: Utility Consumption RIBA Stage 4(E-F)/Stage 5: Recommended action	Principal Contractor	Targeted	1	0	1	0
	Client	Targeted				
Man03 Responsible Construction Practices C15-17: Transport of construction materials and waste RIBA Stage 4(E-F)/Stage 5: Recommended action	N/A	Not targeted	1	0	0	0
Man03 Responsible Construction Practices C18: Exemplary Level Criteria RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
Man04 Commissioning and Handover C1-4: Commissioning and testing schedule and responsibilities RIBA Stage 4(E-F): Appointment RIBA Stage 4(E-F): Recommended action	M&E	Targeted	1	0	1	0
	Client	Targeted				
Man04 Commissioning and Handover C5-6: Commissioning Building Services RIBA Stage 4(E-F): Recommended action	M&E	Targeted	1	0	1	0
	Client	Targeted				
Man04 Commissioning and Handover C7-9: Testing and inspecting building fabric RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
Man04 Commissioning and Handover C10-11: Handover RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	1	0	1	0
	Client	Targeted				
Man05 Aftercare C1-2: Aftercare Support RIBA Stage 6(J-K): Recommended action	Client	Targeted	1	0	1	0
	Principal Contractor	Targeted				
Man05 Aftercare C3: Seasonal Commissioning RIBA Stage 6(J-K): Recommended action	Client	Targeted	1	0	1	0
	M&E	Targeted				
Man05 Aftercare C4-5: Post Occupancy Evaluation RIBA Stage 6(J-K): Recommended action	Client	Targeted	1	0	1	0
	Project Manager	Targeted				

	Action By	Credit Status	AVL	ACH	CTS	TBC
HEALTH & WELLBEING 0.88% weighting per credit			17	0	6	0
Hea01 Visual Comfort C1-2: Glare Control RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
Hea01 Visual Comfort C3: Daylighting (building type dependent) RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
Hea01 Visual Comfort C4-6: View Out RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
Hea01 Visual Comfort C7-13: Internal and External Lighting Levels, Zoning and Control RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
Hea01 Visual Comfort C14: Exemplary Level Criteria RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
Hea02 Indoor Air Quality C1: Indoor air quality (IAQ) plan RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
Hea02 Indoor Air Quality C2-5: Ventilation RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
Hea02 Indoor Air Quality C6-7: Volatile Organic Compound (VOC) Emission Levels (products) RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	1	0	1	0
	Client	Targeted				
Hea02 Indoor Air Quality C8-12: Volatile Organic Compound (VOC) Emission Levels (post construction) RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
Hea02 Indoor Air Quality C13-14: Adaptability - Potential for Natural Ventilation RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
Hea02 Indoor Air Quality C15-17: Exemplary Level Criteria RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
Hea04 Thermal Comfort C1-4: Thermal modelling RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
Hea04 Thermal Comfort C5-8: Adaptability - For a Projected Climate Change Scenario RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0

	Action By	Credit Status	AVL	ACH	CTS	TBC
Hea04 Thermal Comfort C9-11: Thermal Zoning and Controls RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
Hea05 Acoustic Performance C1: (for Education, Healthcare, Office and Law Courts building types) RIBA Stage 4(E-F): Recommended action	Acoustician	Targeted	3	0	3	0
	Principal Contractor	Targeted				
Hea06 Safety and Security C1-10: Safe Access RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
	Principal Contractor	Targeted				
Hea06 Safety and Security C11-13: Security of Site and Building RIBA Stage 2(C): Crime Impact Assessment RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	1	0	1	0
	Client	Targeted				

			Action By	Credit Status	AVL	ACH	CTS	TBC
ENERGY 0.65% weighting per credit					23	0	6	0
Ene01 Reduction of Energy Use and Carbon Emissions		Energy Consultant	Targeted	12	0	2	0	
C1: Energy Performance RIBA Stage 4(E-F): Recommended action		Client	Targeted					
Ene02 Energy Monitoring		Principal Contractor	Targeted	1	0	1	0	
C1-4: Sub-Metering of Major Energy Consuming Systems RIBA Stage 4(E-F): Recommended action		M&E	Targeted					
Ene02 Energy Monitoring		Principal Contractor	Targeted	1	0	1	0	
C5: Sub-Metering of High Energy Load and Tenancy Areas RIBA Stage 4(E-F): Recommended action		M&E	Targeted					
Ene03 External Lighting		Principal Contractor	Targeted	1	0	1	0	
C1-3: One Credit RIBA Stage 4(E-F): Recommended action		M&E	Targeted					
Ene04 Low Carbon Design		N/A	Not targeted	1	0	0	0	
C1-3: Passive Design Analysis RIBA Stage 2(C): Passive Design Analysis RIBA Stage 4(E-F): Recommended action								
Ene04 Low Carbon Design		N/A	Not targeted	1	0	0	0	
C4-6: Free Cooling RIBA Stage 2(C): Passive Design Analysis RIBA Stage 4(E-F): Recommended action								
Ene04 Low Carbon Design		Energy Consultant	Targeted	1	0	1	0	
C7-8: Low Zero Carbon (LZC) Feasibility Study RIBA Stage 2(C): Feasibility Study RIBA Stage 4(E-F): Recommended action		Principal Contractor	Targeted					
Ene06 Energy Efficient Transportation Systems		N/A	Not targeted	1	0	0	0	
C1: Energy Consumption RIBA Stage 4(E-F): Recommended action								
Ene06 Energy Efficient Transportation Systems		N/A	Not targeted	2	0	0	0	
C2-6: Energy Efficient Features RIBA Stage 4(E-F): Recommended action								
Ene08 Energy Efficient Equipment		N/A	Not targeted	2	0	0	0	
C1-3: Two Credits RIBA Stage 4(E-F): Recommended action								

	Action By	Credit Status	AVL	ACH	CTS	TBC
TRANSPORT 1.00% weighting per credit			9	0	9	0
Tra01 Public Transport Accessibility C1-2: Accessibility Index C3: Dedicated Bus Service RIBA Stage 3(D): Recommended action	Transport Consultant	Targeted	3	0	3	0
	Architect	Targeted				
Tra02 Proximity to Amenities C1-2: Proximity to Local Amenities RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
	Project Manager	Targeted				
Tra03 Cyclist Facilities C1-4: Cycle Storage and Cyclist Facilities RIBA Stage 3(D): Recommended action	Architect	Targeted	2	0	2	0
	Client	Targeted				
Tra04 Maximum Car Parking Capacity C1: Car Parking Capacity RIBA Stage 3(D): Recommended action	Architect	Targeted	2	0	2	0
	Principal Contractor	Targeted				
Tra05 Travel Plan C1-4: One Credit RIBA Stage 3(D): Recommended action	Transport Consultant	Targeted	1	0	1	0
	Principal Contractor	Targeted				

	Action By	Credit Status	AVL	ACH	CTS	TBC
WATER 0.88% weighting per credit			8	0	6	0
Wat01 Water Consumption C1-5: Up to Five Credits (Building Dependant) RIBA Stage 3(D): Recommended action	Client	Targeted	5	0	3	0
	Principal Contractor	Targeted				
Wat01 Water Consumption C6: Exemplary Level Criteria	N/A	Not targeted	1	0	0	0
Wat02 Water Monitoring C1-4: One Credit RIBA Stage 4(E-F): Recommended action	M&E	Targeted	1	0	1	0
	Principal Contractor	Targeted				
Wat03 Water Leak Detection C1: Leak Detection System RIBA Stage 3(D): Recommended action	M&E	Targeted	1	0	1	0
	Principal Contractor	Targeted				
Wat03 Water Leak Detection C2: Flow Control Devices RIBA Stage 3(D): Recommended action	M&E	Targeted	1	0	1	0
	Principal Contractor	Targeted				

	Action By	Credit Status	AVL	ACH	CTS	TBC
MATERIALS 1.04% weighting per credit			13	0	9	0
Mat 01 Life Cycle Impacts C1-3: Up to 6 Credits (Building Dependant) RIBA Stage 3(D): Recommended action	Architect	Targeted	5	0	3	0
Mat 01 Life Cycle Impacts C4-8: Exemplary Level Criteria RIBA Stage 3(D): Recommended action	N/A	Not targeted	3	0	0	0
Mat 02 Hard Landscaping and Boundary Protection C1: One Credit RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
	Principal Contractor	Targeted				
Mat03 Responsible Sourcing of Materials C1: Pre-requisite RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	Pre-requisite to achieve credit			
	Client	Targeted				
Mat03 Responsible Sourcing of Materials C2: Sustainable Procurement Plan RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	1	0	1	0
	Client	Targeted				
Mat03 Responsible Sourcing of Materials C3: Responsible Sourcing of Materials (RSM) RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	3	0	1	0
	Client	Targeted				
Mat03 Responsible Sourcing of Materials C4: Exemplary Level Criteria RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
Mat04 Insulation C1-2: Embodied impact RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
	M&E	Targeted				
Mat05 Designing for Durability and Resilience C1: Protecting vulnerable parts of the building from damage C2: Protecting exposed parts of the building from material degradation RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
	Project Manager	Targeted				
Mat06 Material Efficiency C1-2: One Credit RIBA Stages 1,2,3 and 4: Material Use Review RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
	Project Manager	Targeted				

	Action By	Credit Status	AVL	ACH	CTS	TBC
WASTE 0.94% weighting per credit			9	0	7	0
Wst01 Construction Waste Management C1-3: Construction Resource Efficiency RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	3	0	2	0
	Client	Targeted				
Wst01 Construction Waste Management C4-5: Diversion of Resources from Landfill RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	1	0	1	0
	Client	Targeted				
Wst01 Construction Waste Management C6-8: Exemplary Level Criteria RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
Wst02 Recycled Aggregates C1-3: One Credit RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
Wst03 Operational Waste C1-7: One Credit RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
	Client	Targeted				
Wst04 Speculative Floor and Ceiling Finishes C1-2 One Credit - Office building types only RIBA Stage 4(E-F): Recommended action	Client	Targeted	1	0	1	0
	Principal Contractor	Targeted				
Wst05 Adaptation to Climate Change C1: Structural and Fabric Resilience RIBA Stage 1(A-B): Climate Adaptation Strategy Appraisal RIBA Stage 3(D): Recommended action	Client	Targeted	1	0	1	0
	Architect	Targeted				
Wst05 Adaptation to Climate Change C2: Exemplary Level Criteria - Responding to adaptation to climate change	N/A	Not targeted	1	0	0	0
Wst06 Functional Adaptability C1-2: One Credit RIBA Stage 1(A-B): Functional Adaptation Strategy Appraisal RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
	Client	Targeted				

		Action By	Credit Status	AVL	ACH	CTS	TBC
LAND & ECOLOGY 1.00% weighting per credit				10	0	8	0
LE01 Site Selection							
C1: Previously Occupied Land RIBA Stage 1(A-B): Recommended action		Architect	Targeted	1	0	1	0
		Client	Targeted				
LE01 Site Selection							
C2-3: Contaminated Land RIBA Stage 2(C): Recommended action		N/A	Not targeted	1	0	0	0
LE02 Ecological Value of Site and Protection of Ecological Features							
C1: Ecological Value of Site RIBA Stage 4(E-F): Recommended action		Ecologist	Targeted	1	0	1	0
		Principal Contractor	Targeted				
LE02 Ecological Value of Site and Protection of Ecological Features							
C2-3: Protection of Ecological Features RIBA Stage 4(E-F): Recommended action		Ecologist	Targeted	1	0	1	0
		Principal Contractor	Targeted				
LE03 Minimising Impact on Existing Site Ecology							
C1-2: Change in Ecological Value RIBA Stage 3(D): Recommended action		Ecologist	Targeted	2	0	2	0
		Principal Contractor	Targeted				
LE04 Enhancing Site Ecology							
C1-3: Ecologist's Report and Recommendations RIBA Stage 1(A-B): Ecologist Appointment RIBA Stage 4(E-F) Recommended action		Ecologist	Targeted	1	0	1	0
		Principal Contractor	Targeted				
LE04 Enhancing Site Ecology							
C4-6: Increase in Ecological Value RIBA Stage 1(A-B): Ecologist Appointment RIBA Stage 4(E-F) Recommended action		N/A	Not targeted	1	0	0	0
LE05 Long Term Impact on Biodiversity							
C1-3: Up to Two Credits RIBA Stage 4(E-F): Recommended action		Ecologist	Targeted	2	0	2	0
		Principal Contractor	Targeted				

	Action By	Credit Status	AVL	ACH	CTS	TBC
Pollution 0.77% weighting per credit			13	0	7	0
Pol01 Impact of Refrigerants C2: Pre-requisite to Achieve C3-7 RIBA Stage 3(D): Recommended action	M&E	Targeted	Pre-requisite to achieve credit			
Pol01 Impact of Refrigerants C3-5: Impact of Refrigerant RIBA Stage 3(D): Recommended action	M&E	Targeted	2	0	1	0
	Principal Contractor	Targeted				
Pol01 Impact of Refrigerants C6-7: Leak Detection RIBA Stage 3(D): Recommended action	M&E	Targeted	1	0	1	0
	Principal Contractor	Targeted				
Pol02 NOx Emissions C1-2: Up to Three Credits (Building Type Dependent) RIBA Stage 3(D): Recommended action	N/A	Not targeted	3	0	0	0
Pol03 Surface Water Run-off C1-3: Flood Risk RIBA Stage 3(D): Recommended action	Drainage Consultant	Targeted	2	0	2	0
Pol03 Surface Water Run-off C4: Pre-requisite RIBA Stage 3(D): Recommended action	Drainage Consultant	Targeted	Pre-requisite for C4-14, C15-22 or C23-24 (Simple Buildings)			
Pol03 Surface Water Run-off C5-14: Surface Water Run-off RIBA Stage 3(D): Recommended action	Drainage Consultant	Targeted	2	0	1	0
Pol03 Surface Water Run-off C15-22: Minimising Water Course Pollution RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
Pol04 Reduction of Night Time Light Pollution C:1-5 One credit RIBA Stage 3(D): Recommended action	M&E	Targeted	1	0	1	0
	Principal Contractor	Targeted				
Pol05 Reduction of Noise Pollution C:1-5 One credit RIBA Stage 3(D): Recommended action	Acoustician	Targeted	1	0	1	0
	Principal Contractor	Targeted				

3 Score Summary

BREEAM New Construction SD5076: 5.0 - 2014

BREEAM Reference: TBC

Pre-assessment date: 16 October 2017

Internal Reference: 7134062

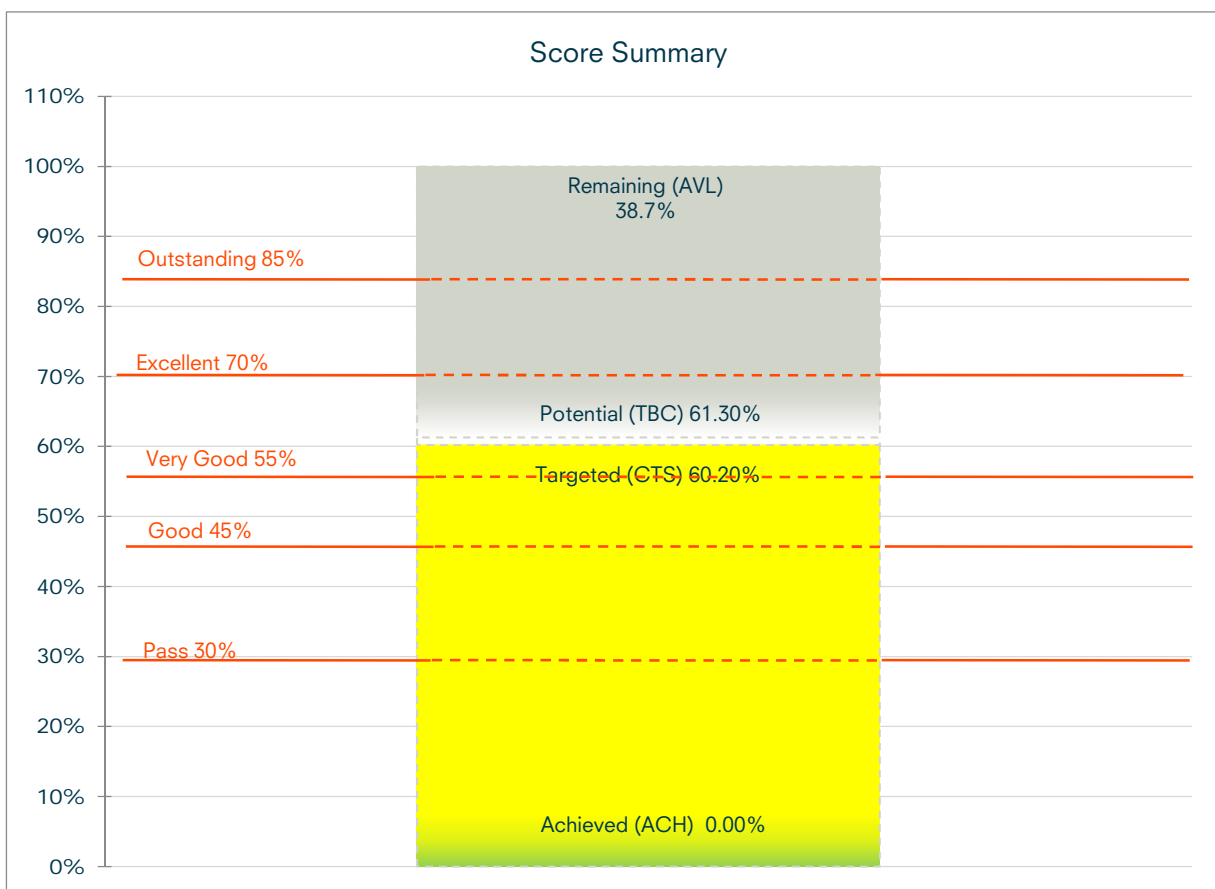
Updated: 16 January 2018

BREEAM Requirement: Very Good \geq 55%

Minimum standards level achieved: Very Good

Current Targeted Score: 60.2%

Achieved Score: 0.0%



5 Credit Status

This report provides an overview of the current position of the project in terms of the BREEAM assessment and the progress in achieving the required rating.

The 'Targeted' credits are detailed in the following pages and it is the responsibility of the design team to provide the evidence, as required by BREEAM, to the Assessor as soon as it becomes available.

All the BREEAM Credits have a recommended time period where they should be completed within to help ensure they are carried out at the most appropriate time. All credits and specific criteria have mandatory RIBA stages where they must be completed within unless otherwise indicated with 'Recommended Action' beside it in the credit summary bar. Below are the RIBA stages referred to in this report.

Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Handover and Close Out
0 (A.)	1 (B.)	2 (C.)	3(D)	4 (E-F)	5	6 (J-K)

Each credit has been assigned to a responsible party. It is their responsibility to refer to the relevant section of the Credit Status in this document and BREEAM manual.

Please note that it is not possible to achieve 100% in a BREEAM assessment, therefore there will always be credits that are 'Not Sought' due to the nature of the assessment.

The credits detailed below were agreed at the pre-assessment meeting for the and the status of each credit reflects the information provided by the Design Team following all meetings and correspondence to date with the BREEAM Assessor.

All actions and evidence must be submitted to the BREEAM Assessor as soon as possible for review to and inclusion in the BREEAM report.

Where text is struck through, evidence has been received, reviewed and signed off.

Changes to the document following the report issued prior to this issue (where applicable) are shown in red text.

5.1 Scoring Abbreviations:

AVL = Available credits

ACH = Achieved credits out of the total credits available

CTS = Credits which form part of the Current Targeted Score

TBC = Credits which are To Be Confirmed. These include the CTS credits and additional credits that are potentially achievable but not formally confirmed as targeted.

	Action By	Credit Status	AVL	ACH	CTS	TBC
MANAGEMENT 0.57% weighting per credit			21	0	13	2

Man01 Project Brief and Design C1-3: Stakeholder Consultation (Project Delivery) RIBA Stage 2(C): Consultations	Project Manager	Targeted	1	0	1	0
	Architect	Targeted				

Assessor's Notes

It was confirmed in the pre-assessment meeting that stakeholder consultation in relation to project delivery will be carried out by the team throughout the key phases of project delivery and a sustainability brief will be provided. It was advised that all key meetings be documented to provide evidence for this credit. The Team noted the site is currently at Riba Stage 2.

Evidence/Action Required

1. Provide documentation (meeting minutes, construction programme, responsibilities and/or specification clauses) confirming that collaboration began prior to Concept Design stage (RIBA Stage 2 or equivalent). All project delivery stakeholders i.e. the Client, the building occupier (where known), the design team and the principal contractor must meet to identify and define their roles, responsibilities and contributions for each of the following key phases of project delivery;
 - Design;
 - Construction;
 - Commissioning and handover;
 - Occupation (up to and including stage L).
2. Provide an outline of the roles and responsibilities of the design team showing the following have been considered at each of the key phases of project delivery:
 - a. End user requirements
 - b. Aims of the design and design strategy
 - c. Particular installation and construction requirements / limitations
 - d. Occupiers budget and technical expertise in maintaining any proposed systems
 - e. Maintainability and adaptability of the proposals
 - f. Requirements for the production of project and end user documentation
 - g. Requirements for commissioning, training and aftercare support.
3. Where the stakeholder contributions and the consultation process have resulted in changes to the Initial Project Brief, provide documentary evidence in the form of feedback forms, Client ER's, specification addendums, drawings, Design Stage Reports, Execution Plan, Communication Strategy, etc, as confirmation.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Man01 Project Brief and Design C4-7: Stakeholder Consultation (Third Party) RIBA Stage 2(C): Consultations. RIBA Stage 4(EF): Feedback.	Project Manager	Targeted	1	0	1	0
	Architect	Targeted				

Assessor's Notes

It was advised at the pre-assessment meeting that consultation with relevant third party stakeholders will be undertaken.

Evidence/Action Required

4. Provide documentary evidence (meeting minutes, consultation plan, consultee feedback) confirming that, prior to completion of the Concept Design stage, all relevant third party stakeholders have been consulted by the design team and this covers the following minimum consultation content dependent on the building type:
 1. Functionality, build quality and impact (including aesthetics)
 2. Provision of appropriate internal and external facilities (for future building occupants and visitors/users)
 3. Management and operational implications
 4. Maintenance resources implications
 5. Impacts on the local community, e.g. local traffic/transport impact
 6. Opportunities for shared use of facilities and infrastructure with the community/appropriate stakeholders, if relevant/appropriate to building type.
 7. Compliance with statutory (national/local) consultation requirements.
 8. Inclusive and accessible design.

Relevant third parties include:

1. Actual/intended building users (if known) including facilities management (FM) staff or those responsible for the day-to-day operation of the building and grounds.
2. Representative consultation group from the existing community (if the building is a new development in an existing community) or for a community still under construction.
3. Existing partnerships and networks that have knowledge of and experience working on existing buildings of the same type.
4. Potential users of any shared facilities, e.g. operators of clubs and community groups.
5. Provide documentary evidence in the form of feedback forms, amended design drawings, and specification addendums to demonstrate how the stakeholder contributions and outcomes of the consultation exercise have influenced or changed the Initial Project Brief and Concept Design.
6. Provide documentary evidence confirming prior to completion of the detailed design (RIBA Stage 4, Technical Design or equivalent), consultation feedback has been given to, and received by, all relevant parties regarding suggestions made, including how the results of the consultation process have influenced, or resulted in modifications to, the proposed design and building operation/use.

Feedback must cover:

1. What was proposed during the consultation exercise;
2. How these proposals were considered;
3. The outcome, e.g. implementation of the suggestion or a description of why options have not been deemed feasible;
4. Implications for management and operation of the building.

The consultation feedback must be summarised within a design intent document which has been approved by each of the main parties/stakeholders.

Additionally for Education, Healthcare, Law Courts and Major Transport Node building types only:

	Action By	Credit Status	AVL	ACH	CTS	TBC
Man01 Stakeholder Consultation C8-10: Sustainability Champion (Design) RIBA Stage 1(A-B): Appointment	BREEAM AP	Targeted	1	0	1	0
	Project Manager	Targeted				

Assessor's Notes

It was advised at the pre-assessment meeting that BREEAM performance targets be formally agreed between the Client and the design team. At the meeting a Very Good target was set.

Evidence/Action Required

8. Provide an appointment letter, specification clause, project programme, meeting minutes confirming that a Sustainability Champion (BREEAM Accredited Professional) has been appointed to facilitate the setting and achievement of BREEAM performance target(s) for the project. The design stage Sustainability Champion is appointed to perform this role during the feasibility stage (Stage 1, Preparation and Brief stage, as defined by the RIBA Plan of Work 2013 or equivalent).
9. The defined BREEAM performance target(s) has been formally agreed between the Client and design/project team no later than the Concept Design stage (RIBA Stage 2 or equivalent). This formal agreement must be in the form of a letter of appointment or contract and provided to the Assessor as evidence.
10. To achieve this credit at the interim (design) assessment stage, the agreed BREEAM performance target(s) must be demonstrably achieved by the project design. This is demonstrated via the BREEAM Assessor's design stage certification report.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Man01 Stakeholder Consultation C11-12: Sustainability Champion (Monitoring Progress) RIBA Stage 1(A-B): Appointment. RIBA Stage 2(C): BREEAM target confirmed	BREEAM AP	Targeted	1	0	1	0
	Project Manager	Targeted				

Assessor's Notes

At the pre-assessment meeting this credit was considered uncertain, because a BREEAM compliant individual is currently not appointed for the relevant stages. However, the team decided to target this credit and the design process and appointed is to be agreed.

Evidence/Action Required

11. The Sustainability Champion criteria 8, 9 and 10 have been achieved.
12. Provide an appointment letter, specification clause, project programme, meeting minutes and the BREEAM assessor's progress report confirming:
 - The Sustainability Champion (BREEAM AP) will monitor and report progress against BREEAM targets by attending key project / design team meetings during the Concept Design, Developed Design and Technical Design stages, as defined by the RIBA Plan of Work 2013;
 - Updated BREEAM progress reports will be provided during, and prior to, completion of each stage, as a minimum, to formally report progress to the Client and design team.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Man02 Life Cycle Cost and Service Life Planning C1-3: Elemental Life Cycle Cost (LCC) RIBA Stage 2(C): Elemental LCC	N/A	Not targeted	2	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was considered unachievable because a compliant report will not be produced within the required BREEAM timescale. Additionally the client does not normally undertake a LCC for this type of development.

Evidence/Action Required

1. Provide a copy of an outline, entire asset Elemental Life Cycle Cost (LCC) plan that has been carried out, at Process Stage 2 (equivalent to Concept Design - RIBA Stage 2) together with any design option appraisals in line with 'Standardized method of life cycle costing for construction procurement' PD 156865:2008.

The LCC must be an economic evaluation of the life cycle costs of the assets over a defined period of analysis. The costs are expressed as cost per square metre of gross internal floor area (GIFA) and presented for elemental analysis, aligned to the level of capital cost plans.

The capital cost for the building must include the expenses related to the initial construction of the building:

- a. Construction, including preparatory works, materials, equipment and labour;
- b. Site management;
- c. Construction financing;
- d. Insurance and taxes during construction;
- e. Inspection and testing.

2. The elemental LCC plan shows:
 - a. Provides an indication of future replacement costs 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.
3. Demonstrate, using appropriate examples provided by the design team, how the elemental LCC plan has been used to influence building and systems design/specification to minimise life cycle costs and maximise critical value.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Man02 Life Cycle Cost and Service Life Planning C4-5: Component Level LCC Plan Option Appraisal RIBA Stage 4(E-F): Component Level LCC Plan.	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was considered unachievable because a compliant report will not be produced within the required BREEAM timescale. Additionally the client does not normally undertake a LCC for this type of development.

Evidence/Action Required

4. Provide a copy of a component level LCC option appraisal, developed by the end of Process Stage 4 (equivalent to Technical Design – RIBA Stage 4) in line with PD 156865:2008. The component level LCC appraisal for service life planning at the feasibility stage requires the environment of the building and other local conditions to be identified, and the fundamental requirements to be met in planning the service life of the building.

Decisions should be made on:

- a. The likely design life of the building (rather than the contractual design life);
- b. The minimum functional performance criteria for each component over the building's design life;
- c. The components that must be repairable, maintainable or replaceable within the design life of the building.

The LCC must include the following component types (where present):

- a. Envelope, e.g. cladding, windows, and/or roofing
 - b. Services, e.g. heat source cooling source, and/or controls
 - c. Finishes, e.g. walls, floors and/or ceilings
 - d. External spaces, e.g. alternative hard landscaping, boundary protection
5. Demonstrate, using appropriate examples provided by the design team, how the component level LCC cycle appraisal has been used to influence building and systems design/specification to minimise life cycle costs and maximise critical value.

Man02 Life Cycle Cost and Service Life Planning C6: Capital Cost Reporting RIBA Stage 6(J-K): Recommended action	Project Manager	TBC	1	0	0	1
	Client	TBC				

Assessor's Notes

At the pre-assessment meeting this credit was considered uncertain, because It is to be confirmed if the capital cost can be reported for the project.

Evidence/Action Required

6. Report the capital cost for the building in pounds per square metre (£k/m²), via the BREEAM Assessment Scoring and Reporting tool, Assessment Issue Scoring tab, Management section.

	Action By	Credit Status	AVL ACH CTS TBC
Man03 Responsible Construction Practices C1: Pre-requisite RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	Pre-requisite for criteria
	Client	Targeted	

Assessor's Notes

It was advised at the pre-assessment meeting that all timber and timber products used on the project be legally harvested and traded timber. The design team noted at present a contractor has not been appointed but they will be required to comply.

Evidence/Action Required

1. All timber and timber based products used on the project is 'Legally harvested and traded timber' (see Relevant definitions below).

BREEAM follows the UK government's definition of legally sourced timber, as outlined in the Central Point of Expertise on Timber (CPET) 5th Edition report on the UK Government Timber Procurement Policy, which states that legal timber and wood-derived products are those that originate from a forest where the following criteria are met:

1. The forest owner/manager holds legal use rights to the forest.
2. There is compliance by both the forest management organisation and any contractors with local and national legal criteria including those relevant to:
 - a. Forest management
 - b. Environment
 - c. Labour and welfare
 - d. Health and safety
 - e. Other parties' tenure and use rights
 - f. All relevant royalties and taxes are paid.
3. There is full compliance with the criteria of CITES.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Man03 Responsible Construction Practices C2-3: Environmental Management RIBA Stage 4(E-F)/Stage 5: Recommended action	Principal Contractor	Targeted	1	0	1	0
	Client	Targeted				

Assessor's Notes

It was advised at the pre-assessment meeting that a Contractor has not be appointed yet, but whoever is appointed will be required operate an EMS system.

Evidence/Action Required

2. The principal contractor operates an environmental management system (EMS) covering their main operations. The EMS must be either:
 - a. be third party certified, to ISO 14001/EMAS or equivalent standard; OR
 - b. have a structure that is in compliance with BS 8555 2003 and has reached phase four of the implementation stage, 'implementation and operation of the environmental management system', and has completed phase audits one to four, as defined in BS 8555.

Provide a copy of the EMS certificate as confirmation.

3. Provide site log books, pollution prevention procedures, etc confirming that the principal contractor implements best practice pollution prevention policies and procedures on-site in accordance with Pollution Prevention Guidelines, Working at construction and demolition-sites: PPG6.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Man03 Responsible Construction Practices C4-6: Sustainability Champion (construction) RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was considered uncertain because until the contractor is appointed, it is unknown whether they will appoint a BREEAM compliant individual.

Evidence/Action Required

4. Provide a contract letter confirming the appointment of a Sustainability Champion (BREEAM AP) to monitor the project to ensure ongoing compliance with the relevant sustainability performance/process criteria, and therefore BREEAM target(s), during the Construction, Handover and Close Out stages (as defined by the RIBA Plan of Works 2013, stages 5 and 6).

The following roles and responsibilities should be detailed in full within the documentary evidence:
 Sustainability Champion will ideally be site based or will visit the site regularly to carry out spot checks, with the relevant authority to do so and require action to be taken to address shortcomings in compliance.
 The Sustainability Champion will monitor site activities at key stages of construction to ensure that risks of non-compliance are minimised.
 They will report on progress at relevant project team meetings including identifying potential areas of non-compliance and any action needed to mitigate.

5. The defined BREEAM performance target must form a requirement of the principal contractor's contract and be formally agreed between the Client and design/project team no later than the Concept Design stage (RIBA Stage 2 or equivalent). This formal agreement must be in the form of a letter of appointment or contract and provided to the Assessor as evidence.
6. To achieve this credit at the final post-construction stage of assessment, the BREEAM related performance target for the project must be demonstrably achieved by the project. This is demonstrated via the BREEAM assessor's final post-construction stage certification report.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Man03 Responsible Construction Practices C7: Considerate Construction RIBA Stage 4(E-F)/Stage 5: Recommended action	Principal Contractor	Targeted	2	0	1	1
	Client	Targeted				

Assessor's Notes

It was advised at the pre-assessment meeting that a CCS score between 25-34 should be targeted by the Contractor. It is to be confirmed if the second credit can be targeted for going beyond best practice.

Evidence/Action Required

7. Provide specification clauses or a formal letter of commitment from the Client/developer confirming that the site has been registered with the Considerate Constructors Scheme or other compliant organisation.

The BREEAM credits can be awarded as follows:

To achieve BREEAM credits using the Considerate Constructors Scheme (CCS) and its Code of Considerate Practice, the principal contractor must achieve scheme certification and a CCS score as follows:

1. One credit: a CCS score between 25 and 34*
2. Two credits: a CCS score between 35 and 39**
3. Exemplary level performance: a CCS score of 40 or more**.

* A score of at least 5 in each of the five sections must be achieved.

** A score of at least 7 in each of the five sections must be achieved.

Man03 Responsible Construction Practices C8: Monitoring of Construction-Site Impacts RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	Pre-requisite for criteria 9 to 17
	Client	Targeted	

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and all credits related to monitoring of construction site impacts be targeted by the Contractor.

Evidence/Action Required

8. Provide a letter of confirmation or specification clause detailing that responsibility has been assigned to an individual(s) for monitoring, recording and reporting energy use, water consumption and transport data (where measured) resulting from all on-site construction processes (and dedicated off-site monitoring) throughout the build programme.

To ensure the robust collection of information, this individual(s) must have the appropriate authority and responsibility to request and access the data required. Where appointed, the Sustainability Champion (BREEAM AP) could perform this role.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Man03 Responsible Construction Practices C9-14: Utility Consumption RIBA Stage 4(E-F)/Stage 5: Recommended action	Principal Contractor	Targeted	1	0	1	0
	Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and both energy and water consumption be monitored on site by the Contractor.

Evidence/Action Required

Energy Consumption 9-11

- 9. Criterion 8 is achieved
- 10. Monitor and record data on principal contractor's and sub-contractors' 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.
- 11. Using the collated data report the total carbon dioxide emissions (total kgCO2/project value) from the construction process via the BREEAM Assessment Scoring and Reporting tool.

Water Consumption 12-14

- 12. Criterion 8 is achieved.
- 13. Monitor and record data on principal contractor's and sub-contractors' potable water consumption (m3) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation.
- 14. Using the collated data report the total net water consumption (m3), i.e. consumption minus any recycled water use, from the construction process via the BREEAM Assessment Scoring and Reporting tool.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Man03 Responsible Construction Practices C15-17: Transport of construction materials and waste RIBA Stage 4(E-F)/Stage 5: Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was considered uncertain because a contractor has not yet been appointed. Until a contractor is appointed and confirms if this credit can be targeted, the site is not seeking this credit.

Evidence/Action Required

15. Criterion 8 is achieved.
16. Monitor and record data on transport movements and impacts resulting from delivery of the majority of construction materials to site and construction waste from site. As a minimum this must cover:
 - a. Transport of materials from the factory gate to the building site, including any transport, intermediate storage and distribution, See Relevant definitions.
 - b. Scope of this monitoring must cover the following as a minimum:
 - i. Materials used in major building elements (i.e. those defined in BREEAM issue Mat 01 Life cycle impacts), including insulation materials.
 - ii. Ground works and landscaping materials.
 - c. Transport of construction waste from the construction gate to waste disposal processing/recovery centre gate. Scope of this monitoring must cover the construction waste groups outlined in the project's waste management plan.
17. Using the collated data, report separately for materials and waste, the total fuel consumption (litres) and total carbon dioxide emissions (kgCO2 eq), plus total distance travelled (km) via the BREEAM Assessment Scoring and Reporting tool.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Man03 Responsible Construction Practices C18: Exemplary Level Criteria RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was considered unachievable. This credit is to be reviewed once a contractor has been appointed.

Evidence/Action Required

18. Provide specification clauses or a formal letter of commitment from the Client/developer confirming that the site has been registered with the Considerate Constructors Scheme or other compliant organisation.

The Exemplary credit can be awarded as follows:

Exemplary level performance: a CCS score of 40 or more**.

** A score of at least 7 in each of the five sections must be achieved.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Man04 Commissioning and Handover C1-4: Commissioning and testing schedule and responsibilities RIBA Stage 4(E-F): Appointment RIBA Stage 4(E-F): Recommended action	M&E	Targeted	1	0	1	0
	Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and commissioning of the building services will be carried out and an appropriate schedule of commissioning and testing will be prepared.

Evidence/Action Required

1. Provide a schedule of commissioning and testing that identifies and includes a suitable timescale for commissioning and re-commissioning of all complex and non-complex building services and control systems and testing and inspecting building fabric.
2. The schedule will identify the appropriate standards that all commissioning activities will be conducted in accordance with, such as current Building Regulations, BSRIA and CIBSE guidelines and/or other appropriate standards, where applicable. Where a building management system (BMS) is specified, the following commissioning procedures must be carried out and detailed in the appointment letter/s:
 1. Commissioning of air and water systems is carried out when all control devices are installed, wired and functional
 2. In addition to air and water flow results, commissioning results include physical measurements of room temperatures, off-coil temperatures and other key parameters as appropriate
 3. The BMS/controls installation should be running in auto with satisfactory internal conditions prior to handover
 4. All BMS schematics and graphics (if BMS is present) are fully installed and functional to user interface before handover
 5. The occupier or facilities team is fully trained in the operation of the system.
3. Provide a copy of the appointment letter detailing the commissioning responsibilities or specification clause confirming that an appropriate project team member(s) is appointed to monitor and programme pre-commissioning, commissioning, testing and, where necessary, re-commissioning activities on behalf of the Client.
4. Provide a copy of the specification clause or a letter confirming that the principal contractor accounts for the commissioning and testing programme, responsibilities and criteria within their budget and main programme of works, allowing for the required time to complete all commissioning and testing activities prior to handover.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Man04 Commissioning and Handover C5-6: Commissioning Building Services RIBA Stage 4(E-F): Recommended action	M&E	Targeted	1	0	1	0
	Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and that commissioning of the building services will be carried out by a specialist commissioning manager.

Evidence/Action Required

5. The commissioning and testing schedule and responsibilities credit is achieved.
6. Provide a letter of appointment for the specialist commissioning engineer for buildings with complex building services and systems. The letter must confirm that the specialist commissioning manager is appointed during the design stage (by either the Client or the principal contractor) 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/post hand-over stages.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Man04 Commissioning and Handover C7-9: Testing and inspecting building fabric RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

As the building is part refurbishment and part new build, it was noted that there maybe poor performing elements. It was viewed that there maybe a lot of defects requiring remediation and as such the credit is not sought.

Evidence/Action Required

7. The commissioning and testing schedule and responsibilities criteria above must be achieved (criteria 1-4).

8. Provide a copy of the programme of works, specification clause and/or the project budget confirming that the integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths will be quality assured through completion of post construction testing and inspection.

Dependent on building type or construction, this can be demonstrated through the completion of a thermographic survey as well as an airtightness test and inspection. The survey and testing is undertaken by a Suitably Qualified Professional (a professional holding a valid level 2 certificate in thermography) in accordance with the appropriate standard.

The thermographic survey must cover 100% of the treated spaces, unless it is a large complex building, and ensure that all elements of the building fabric that enclose an internal heated and/or conditioned (treated) zone of the building will be tested. This includes internal walls separating treated and untreated zones.

In the case of large and complex buildings, it may be impractical for the thermographic survey and air-tightness testing to cover 100% of the building. Where a complete thermographic survey is deemed impractical by a Level 2 qualified thermographic surveyor, the guidance in air tightness standard TSL2 should be followed on the extent of the survey and testing. This could include airports, large hospitals and high-rise buildings.

9. Provide documentary evidence such as commitment letter confirming that any defects identified in the thermographic survey and/or airtightness testing report will be rectified prior to building handover and closed out. Any remedial work must meet the required performance characteristics for the building/element.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Man04 Commissioning and Handover C10-11: Handover RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	1	0	1	0
	Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and a Building User Guide and a training schedule for the building manager would be developed prior to handover.

Evidence/Action Required

10. Provide a formal letter of commitment from the design team or relevant section clauses of the specification confirming that a Building User Guide (BUG) will be developed prior to handover for distribution to the building occupiers and premises managers.

The Building User Guide (BUG) must cover all functions and uses of the building, ensuring building users are able to access and use the building effectively. Where relevant, the documents must describe the facilities to be shared and how access to them will be arranged for potential users.

The BUG should be made readily available to all future building users and provide information relevant to the following stakeholders:

- The building's staff (or where relevant residents) AND
- The non technical facilities management team/building manager
- Other building users e.g. visitors / community users

The content of the guide must be specific to the building type and end users, but broadly include information on the following:

- Overview of the building and its environmental strategy, e.g. energy/water/waste efficiency policy/strategy and how users should engage with/deliver the policy/strategy.
- Building services overview and access to controls, e.g. where to find them, what they control, how to operate effectively and efficiently etc.
- Pre-arrival information for visitors, e.g. access and security procedures/provisions
- Provision of, and access to, shared facilities
- Safety and emergency information/instructions
- Building related operational procedures specific to building type/operation, e.g. laboratories.
- Building related incident reporting/feedback arrangements
- Building related training information/links
- Provision of, and access to, transport facilities, e.g. public transport, cyclist facilities, pedestrian routes etc.
- Provision of, and access to, local amenities
- Re-fit, refurbishment and maintenance arrangements/considerations
- Links, references and relevant contact details

Action By Credit Status AVL ACH CTS TBC

11. Provide a formal letter of commitment from the design team or relevant section clauses of the specification confirming that a training schedule will be prepared for building occupiers/premises managers, timed appropriately around handover and proposed occupation plans, which includes the following content as a minimum:
- a. The building's design intent
 - b. The available aftercare provision and aftercare team main contact(s), including any scheduled seasonal commissioning and post occupancy evaluation
 - c. Introduction to, and demonstration of, installed systems and key features, particularly building management systems, controls and their interfaces
 - d. Introduction to the Building User Guide and other relevant building documentation, e.g. design data, technical guides, maintenance strategy, operations and maintenance (O&M) manual, commissioning records, log book etc.
 - e. Maintenance requirements, including any maintenance contracts and regimes in place.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Man05 Aftercare C1-2: Aftercare Support RIBA Stage 6(J-K): Recommended action	Client	Targeted	1	0	1	0
	Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and aftercare support will be provided for the project.

Evidence/Action Required

1. Provide written confirmation or a contract confirming there is (or will be) operational infrastructure and resources in place to provide aftercare support to the building occupier(s), which includes the following as a minimum:
 - a. A meeting programmed to occur between the aftercare team/individual and the building occupier/management (prior to initial occupation, or as soon as possible thereafter) to:
 - i. Introduce the aftercare team or individual to the aftercare support available, including the Building User Guide (where existing) and training schedule/content.
 - ii. Present key information about the building including the design intent and how to use the building to ensure it operates as efficiently and effectively as possible.
 - b. On-site facilities management training, to include 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.
 - c. Initial aftercare support provision for at least the first month of building occupation, e.g. on-site attendance on a weekly basis to support building users and management (this could be more or less frequent depending on the complexity of the building and building operations).
 - d. Longer term aftercare support provision for occupants for at least the first 12 months from occupation, e.g. a helpline, nominated individual or other appropriate system to support building users/management.
2. Provide written confirmation or a contract confirming there is (or will be) operational infrastructure and resources in place to co-ordinate the collection and monitoring of energy and water consumption data for a minimum of 12 months, once the building is occupied. This is done to facilitate analysis of discrepancies between actual and predicted performance, with a view to adjusting systems and/or user behaviours accordingly.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Man05 Aftercare C3: Seasonal Commissioning RIBA Stage 6(J-K): Recommended action	Client	Targeted	1	0	1	0
	M&E	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and that seasonal commissioning would be carried out for the building services.

Evidence/Action Required

3. Provide formal written confirmation/appointment letter or commissioning responsibilities schedule confirming the following seasonal commissioning activities will be completed over a minimum 12 month period, once the building becomes substantially occupied. The letter/schedule must include full details as described below:
 - a. Complex systems - Specialist Commissioning Manager:
 - i) Testing of all building services under full load conditions, i.e. heating equipment in mid-winter, cooling/ventilation equipment in mid-summer, and under part load conditions (spring/autumn).
 - ii) Where applicable, testing should also be carried out during periods of extreme (high or low) occupancy.
 - iii) Interviews with building occupants (where they are affected by the complex services) to identify problems or concerns regarding the effectiveness of the systems.
 - iv) Re-commissioning of systems (following any work needed to serve revised loads), and incorporating any revisions in operating procedures into the operations and maintenance (O&M) manuals.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Man05 Aftercare C4-5: Post Occupancy Evaluation RIBA Stage 6(J-K): Recommended action	Client	Targeted	1	0	1	0
	Project Manager	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and that Post Occupancy Evaluation can be carried out one year after initial building occupation.

Evidence/Action Required

4. Provide a signed and dated commitment by the Client/developer or future building occupier that a post occupancy evaluation (POE) exercise will be carried out one year after initial building occupation. This will gain in-use performance feedback from building users to inform operational processes, including re-commissioning activities, and maintain or improve productivity, health, safety and comfort. The POE is carried out by an independent third party (see Man 01 Project brief and design – Relevant definitions) and needs to cover:
 - a. A review of the design intent and construction process (review of design, procurement, construction and handover processes):
 - i. Internal environmental conditions (light, noise, temperature, air quality)
 - ii. Control, operation and maintenance
 - iii. Facilities and amenities
 - iv. Access and layout
 - v. Other relevant issues
 - vi. Sustainability performance (energy/water consumption, performance of any sustainable features or technologies e.g. materials, renewable energy, rainwater harvesting etc.).
 - b. A review of the design intent and construction process (review of design, procurement, construction and handover processes).
 - c. 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. Other relevant issues.
 - d. Sustainability performance (energy/water consumption, performance of any sustainable features or technologies e.g. materials, renewable energy, rain- water harvesting etc.).
5. Provide a signed and dated commitment from the Client or building occupier that appropriate dissemination of information on the building’s post-occupancy performance will be disseminated. This must be done to share good practice and lessons learned and inform changes in-user behaviour, building operational processes and procedures, and system controls.

Appropriate dissemination includes communication to immediate stakeholders such as building occupants, managers and owners.

In addition information should be communicated externally.

Appropriate dissemination in most cases will be the production and publication of a building case study through one of the following means:

1. Client’s/building owner’s own website, publicly available literature or press release
2. Industry/sector or government/local authority sponsored website or information portals.

Action By Credit Status AVL ACH CTS TBC

Relevant information for dissemination includes the following information about the building and its performance:

1. A basic description of the project and building
2. BREEAM rating and score
3. The key innovative and low-impact design features of the building
4. Project cost
5. Project size: floor area, site area
6. Facilities available for community use (where relevant)
7. Any steps taken during the construction process to reduce environmental impacts, i.e. innovative construction management techniques
8. Predicted and actual carbon dioxide emissions and/or Energy Performance Certificate rating.
9. Outcomes of the post-occupancy evaluation study, to share lessons learned from the project including:
 - a. Occupant feedback
 - b. Energy and water consumption including renewable energy generation, level of rainwater/grey water provision.

	Action By	Credit Status	AVL	ACH	CTS	TBC
HEALTH & WELLBEING 0.88% weighting per credit			17	0	6	0
Hea01 Visual Comfort C1-2: Glare Control RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, this credit was considered unachievable as the building will be undertaking a CAT A fit out. As this is a basic landlord fit out blinds will not be provided and the credit is not sought.

Evidence/Action Required

1. The potential for disabling glare must be designed out of all areas of the building where lighting and resultant glare could be problematic for users, e.g. those areas that have been designed to contain/use workstations, projector screens etc. and sports halls, using a glare control strategy, either through building form and layout and/or building design measures such as low eaves, occupant controlled devices such as blinds, bioclimatic design and/or external shading or brise soliel.
2. Provide marked-up design drawings, window schedule and specification clauses or contract requirement confirming that the glare control strategy avoids increasing lighting energy consumption, by ensuring that:
 - a. The glare control system is designed to maximise daylight levels under all conditions while avoiding disabling glare in the workplace or other sensitive areas. The system should not inhibit daylight from entering the space under cloudy conditions, or when sunlight is not on the facade.

AND

- b. The use or location of shading does not conflict with the operation of lighting control systems.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Hea01 Visual Comfort C3: Daylighting (building type dependent) RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, this credit was uncertain as although large windows already exist or are proposed, the daylight factor is unknown until calculations are undertaken. Therefore this credit is at risk and not currently sought, it can be reviewed following issue of daylight calculations.

Evidence/Action Required

3. Provide daylight calculations and detailed floor plans confirming daylighting criteria have been met using either of the following options:

a. The 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) meet good practice daylight factor(s) and other criterion as outlined in Table - 10 and daylighting uniformity criteria below.

OR

b. The 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) meet good practice average and minimum point daylight illuminance criteria as outlined in Table - 12.

Table - 10: Minimum values of average daylight factor required

Building/Area Type	Credits	Average Daylight Factor Required	Minimum Area (m ²) to Comply	Other Requirement
Courts, Industrial, Office, Prison Buildings and all Other Building Types				
All occupied spaces, unless indicated in Relevant definitions of the manual	1	2%	80%	EITHER (a) OR {(b) and (c)} as per text below

Action By Credit Status AVL ACH CTS TBC

Daylighting Uniformity Criteria:

(a) A uniformity ratio of at least 0.3 or a minimum point daylight factor of at least 0.3 times the relevant average daylight factor value in Table - 10. Spaces with glazed roofs, such as atria, must achieve a uniformity ratio of at least 0.7 or a minimum point daylight factor of at least 0.7 times the relevant average daylight factor value in Table - 10.

(b) At least 80% of the room has a view of sky from desk or table top height (0.85m in multi-residential buildings, 0.7m in other buildings).

(c) The room depth criterion $d/w + d/HW < 2/(1-RB)$ is satisfied.

Where:

d = room depth,

w = room width,

HW = window head height from floor level,

RB = average reflectance of surfaces in the rear half of the room

Table - 12: Space type and illuminance requirements - both criteria (average illuminance and minimum point illuminance) should be met.

Area Type	Credits	Minimum Area to Comply	Average Daylight Illuminance (averaged over entire space)	Minimum Daylight Illuminance at Worst Lit Point
Courts, Industrial, Office, Prison Buildings and all Other Building Types				
All occupied spaces, unless indicated in Relevant definitions	1	80%	At least 300 lux for 2000 hours per year or more	At least 90 lux for 2000 hours per year or more

	Action By	Credit Status	AVL	ACH	CTS	TBC
Hea01 Visual Comfort C4-6: View Out RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, this credit was uncertain as although large windows already exist or are proposed, the criteria is unknown until calculations are undertaken. Therefore this credit is at risk and not currently sought, it can be reviewed following issue of view out calculations.

Evidence/Action Required

4. Provide scaled floor plans and calculations confirming that 95% of relevant floor areas are within 7m of a wall with a window or permanent opening the provides an adequate view out. The floor plans must detail all rooms/ spaces names. Relevant areas are where there are or will be workstations/ benches or desks for building users. Also where close work will be undertaken or visual aids used.
5. Provide calculations confirming that the window/ opening is $\geq 20\%$ of the surrounding wall area (in m2) of the internal wall in which the window/opening is located, including the area of the window/opening itself). Where the room depth is greater than 7m, compliance is only possible where the percentage of window/opening is the same as, or greater than, the values in table 1.0 of BS 82061.

Hea01 Visual Comfort C7-13: Internal and External Lighting Levels, Zoning and Control RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, this credit was considered unachievable as the building will be undertaking a CAT A fit out. As this is a basic landlord fit out, lighting and controls will not be provided and the credit is not sought.

Evidence/Action Required

Internal Lighting

7. Provide written confirmation and/or design drawings confirming that all fluorescent and compact fluorescent lamps are fitted with high frequency ballasts.

Provide design drawings, and either relevant specification clauses or a formal letter confirming compliance with all of the following standards in relevant areas.
8. Internal lighting in all relevant areas of the building is designed to provide an illuminance (lux) level appropriate to the tasks undertaken, accounting for building user concentration and comfort levels. This can be demonstrated through a lighting design strategy that provides illuminance levels in accordance with the SLL Code for Lighting 2012 and any other relevant industry standard.

Action By Credit Status AVL ACH CTS TBC

9. For areas where computer screens are regularly used, the lighting design complies with CIBSE Lighting Guide 7 sections 3.3, 4.6, 4.7, 4.8 and 4.9. This gives recommendations highlighting:
- a. Limits to the luminance of the luminaires to avoid screen reflections. (Manufacturers' data for the luminaires should be sought to confirm this)
 - b. For 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.

External Lighting

10. Provide design drawings, and either relevant specification clauses or a formal letter confirming all external lighting located within the construction zone is designed to provide illuminance levels that enable users to perform outdoor visual tasks efficiently and accurately, especially during the night. To demonstrate this, external lighting provided is specified 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.

Zoning and occupant control

Provide design drawings, and either relevant specification clauses or a formal letter confirming compliance with all of the following standards in relevant areas:

11. Internal lighting is zoned to allow for occupant control in accordance with the criteria below for relevant areas present within the building:
- a. In office areas, zones of no more than four workplaces
 - b. Workstations adjacent to windows/atria and other building areas separately zoned and controlled
 - e. Teaching space or demonstration area

	Action By	Credit Status	AVL	ACH	CTS	TBC
Hea01 Visual Comfort C14: Exemplary Level Criteria RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

It was confirmed that exemplary credit is not being targeted.

Evidence/Action Required

The following outlines the exemplary level criteria to achieve an innovation credit for daylighting:

14. Provide daylight calculations and detailed floor plans confirming daylighting criteria have been met using either of the following options:

a. Relevant building areas meet exemplary daylight factor(s) and the relevant criteria in Table- 15.

OR

b. Relevant building areas meet exemplary average and minimum point daylight illuminance criteria in Table- 16.

Table - 15: Exemplary level values of average daylight factor required.

Area Type	Credits	Average Daylight Factor Required	Minimum Area (m ²) to Comply	Other Requirement
All Building Types	The criteria outlined in Table - 10 and Table - 11 concerning uniformity ratio (a), view of sky (b) or room depth criterion (c) are met where they are used to demonstrate compliance.			
All Building Types (excluding retail – see below)				
Functions as identified in the standard criteria (Multi-Storey Buildings)	1	3%	80%	Where used, a minimum point daylight factor of 1.2% OR 2.1% for spaces with glazed roofs, such as atria
Common Areas and Offices (multi storey buildings)	1	3%	80%	Where used, a minimum point daylight factor of 1.2% OR 2.1% for spaces with glazed roofs, such as atria

Action By Credit Status AVL ACH CTS TBC

Table - 16: Exemplary level illuminance value requirements. Both criteria (average illuminance and minimum point illuminance) should be met.

Area Type	Credits	Minimum Area to Comply	Average Daylight Illuminance (averaged over entire space)	Minimum Daylight Illuminance at Worst Lit Point
All building types (excluding retail – see below)				
Multi-Storey Buildings Occupied spaces (unless indicated below)	1	80%	At least 300 lux for 2650 hours per year or more	At least 90 lux for 2650 hours per year or more

Hea02 Indoor Air Quality C1: Indoor air quality (IAQ) plan RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, this credit was not targeted.

Evidence/Action Required

1. Provide a copy of the indoor air quality plan which has been produced or specification clause, with the objective of facilitating 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. Procedures for pre-occupancy flush out
 - d. Third party testing and analysis
 - e. Maintaining indoor air quality in-use.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Hea02 Indoor Air Quality C2-5: Ventilation RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was considered unachievable as air intakes and exhausts might will not meet the required BREEAM distance criteria.

Evidence/Action Required

Provide design drawings, models and/or specification clauses confirming that the building has been designed to minimise the concentration and recirculation of pollutants in the building as follows:

2. Provide fresh air into the building in accordance with the criteria of the relevant standard for ventilation.
3. Design ventilation pathways to minimise the build-up of air pollutants in the building, as follows:
 - i) The building's air intakes and exhausts are over 10m apart and intakes are over 20m from sources of external pollution.
 - OR
 - ii) The location of the building's air intakes and exhausts, in relation to each other and external sources of pollution, is designed in accordance with BS EN 13779:20071 Annex A2.
- b. In naturally-ventilated buildings/spaces: openable windows/ventilators are over 10m from sources of external pollution.
4. Where present, HVAC systems must incorporate suitable filtration to minimise external air pollution, as defined in BS EN 13779:2007 Annex A3.
5. Areas of the building subject to large and unpredictable or variable occupancy patterns must have CO2 or air quality sensors specified and:
 - b. In naturally ventilated buildings/spaces: sensors either have the ability to alert the building owner or manager when CO2 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/roof vents.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Hea02 Indoor Air Quality C6-7: Volatile Organic Compound (VOC) Emission Levels (products) RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	1	0	1	0
	Client	Targeted				

Assessor's Notes

At the pre-assessment meeting this credit was considered achievable and compliant VOC products will be used. The team is to confirm how many product categories are applicable to the build.

Evidence/Action Required

6. Provide a copy of the relevant section/clause of the building specification or contract confirming all decorative paints and varnishes specified meet the criteria in Table - 18 (refer to the manual).
7. At least five of the seven remaining product categories listed in Table - 18 (refer to the manual) meet the testing requirements and emission levels criteria for volatile organic compound (VOC) emissions (listed in the table).

Where five or fewer products are specified within the building, the number of products that needs to be assessed for the VOC criteria reduces proportionally as follows:

- Where five products are present, four must comply
- Where four products are present, three must comply
- Where three products are present, two must comply
- Where two or fewer products are present, all must comply.

Product categories:

- Paints and varnishes;
- Wood panels;
- Timber structures;
- Wood flooring;
- Resilient, textile and laminated floor coverings;
- Suspended ceiling tiles;
- Flooring adhesives;
- Wall coverings;
- Adhesives for hanging flexible wall coverings.

Note: Letter/s from or copies of the manufacturers' literature confirming the testing standards and emissions achieved will be required as Post Construction evidence.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Hea02 Indoor Air Quality C8-12: Volatile Organic Compound (VOC) Emission Levels (post construction) RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was considered unachievable. This credit is to be reviewed once a contractor has been appointed.

Evidence/Action Required

Provide a formal written commitment or specification clause/s confirming that the necessary post completion testing will be carried out and:

8. The formaldehyde concentration level is measured post construction (but pre-occupancy) and is found to be less than or equal to 100µg/m³ averaged over 30 minutes (WHO guidelines for indoor air quality: Selected pollutants, 2010)
9. The total volatile organic compound (TVOC) concentration level is measured post construction (but pre-occupancy) and found to be less than 300µg/m³ over 8 hours, in line with the Building Regulation requirements.
10. Where VOC and formaldehyde levels are found to exceed the limits defined in criteria 10 and 11, the project team confirms the measures that have, or will be taken, in accordance with the IAQ plan, to reduce the levels to within these limits.
11. The testing and measurement of the above pollutants must be in accordance with the following standards where relevant:
 - a. BS ISO 16000-4: 2011 Diffusive sampling of formaldehyde in air
 - b. BS ISO 16000-6: 2011 VOCs in air by active sampling
 - c. BS EN 16017-2: 2003 VOCs - Indoor, ambient and workplace air by passive sampling
 - d. BS ISO 16000-3: 2011 formaldehyde and other carbonyls in air by pumped sampling.
12. The measured concentration levels of formaldehyde (µg/m³) and TVOC (µg/m³) will be reported, in the BREEAM Assessment Scoring and Reporting Tool.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Hea02 Indoor Air Quality C13-14: Adaptability - Potential for Natural Ventilation RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was considered unachievable because the building has depths greater than 15m. Therefore it cannot be designed to be capable of providing fresh air entirely via a natural ventilation strategy.

Evidence/Action Required

13. Provide specification details, drawings and calculations confirming the building ventilation strategy is designed to be flexible and adaptable to potential building occupant needs and climatic scenarios. This can be demonstrated as follows:

a. Occupied spaces of the building are designed to be capable of providing fresh air entirely via a natural ventilation strategy. The following are methods deemed to satisfy this criterion dependent upon the complexity of the proposed system:

i) Room depths are designed in accordance with CIBSE AM10 (section 2.4) to ensure effectiveness of any natural ventilation system. The openable window area in each occupied space is equivalent to 5% of the gross internal floor area of that room/floor plate.

OR

ii) The design demonstrates that the natural ventilation strategy provides adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates. This is demonstrated using ventilation design tool types that meet the requirements of CIBSE AM10 (or for education buildings by using the ClassVent tool).

For a strategy which does not rely on openable windows, or which has occupied spaces with a plan depth greater than 15m, the design must demonstrate (in accordance with criterion 13 a- i above) that the ventilation strategy can provide adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates.

14. Provide specification details or written confirmation that the natural ventilation strategy is capable of providing at least two levels of user-control on the supply of fresh air to the occupied space. The two levels of ventilation must be able to achieve the following:

- Higher level: higher rates of ventilation achievable to remove short term odours and/or prevent summertime overheating
- Lower level: adequate levels of draught-free fresh air to meet the need for good indoor air quality throughout the year, sufficient for the occupancy load and the internal pollution loads of the space.

Note: Any opening mechanisms must be easily accessible and provide adequate user-control over air flow rates to avoid draughts. Relevant industry standards for ventilation can be used to define 'adequate levels of fresh air' sufficient for occupancy and internal air pollution loads relevant to the building type.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Hea02 Indoor Air Quality C15-17: Exemplary Level Criteria RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, this credit was not targeted.

Evidence/Action Required

15. Criterion 6 has been achieved.
16. Provide a copy of the relevant section/clause of the building specification or contract confirming all seven remaining product categories listed in Table - 18 meet the testing requirements and emission levels criteria for Volatile Organic Compound (VOC) emissions (listed in the Table - 18).
17. For products listed b – f in Table - 18, the formaldehyde emission levels have been measured and found to be less than or equal to 0.06mg/m³ air in accordance with the approved testing standards in Table - 18.

Hea04 Thermal Comfort C1-4: Thermal modelling RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was not targeted.

Evidence/Action Required

Provide relevant specification clauses and correspondence and a copy of the thermal comfort modelling report confirming the following:

1. Thermal modelling has been carried out using software in accordance with CIBSE AM11 Building Energy and Environmental Modelling.
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 model must demonstrate that:
 - 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.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Hea04 Thermal Comfort C5-8: Adaptability - For a Projected Climate Change Scenario RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting It was discussed that the building design will not be adapted for a projected climate change scenario and hence this credit is not achievable.

Evidence/Action Required

- 5. Criteria 1-4 must be achieved.
- 6. The thermal modelling must demonstrate that the relevant requirements set out in criteria 3 are achieved for a projected climate change environment.

Note:

Dynamic thermal simulation software packages currently provide the facility for building designs to be assessed under external climatic conditions specific to geographic location. Industry standard weather data for the UK is available in the form of Test Reference Years (TRYs) and Design Summer Years (DSYs) provided by CIBSE. This weather data enables thermal analysis of building designs under current climatic conditions, yet no account is taken of the projected variations in weather data that will occur during the building's life cycle as a result of climate change. The following probabilistic DSY weather data files should be used to establish the projected climate change environment against which the design is evaluated.

Free Running Buildings

- Time period: 2050s
- Emissions scenario: Medium (A1B)

Mechanically Ventilated or Mixed Mode Buildings

- Time period: 2030s
- Emissions scenario: Medium (A1B).

The above weather files represent the minimum requirements to perform thermal modelling under a climate change scenario and subsequently demonstrate compliance. Where design teams feel that added consideration of building occupant risk/sensitivity to overheating is necessary, weather files can be used that exceed the minimum requirements outlined above. The time periods indicated above have been selected to represent the building services life cycle likely to be present in each building services strategy type. A shorter time period is chosen for mechanically ventilated/mixed mode building types due to consideration of mechanical servicing equipment life span (before major upgrade or replacement is required), and to avoid over-specification of plant which could lead to inefficient operation.

- 7. Where thermal comfort criteria are not met for the projected climate change environment, provide updated specifications, drawings and calculations demonstrating 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 under criterion 6.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Hea04 Thermal Comfort C9-11: Thermal Zoning and Controls RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, this credit was considered unachievable as the building will be undertaking a CAT A fit out. As this is a basic landlord fit out, zoning and controls will not be provided and the credit is not sought.

Evidence/Action Required

9. Criteria 1 to 4 are achieved.
10. Provide copies of relevant section/clauses of the building specifications and drawings confirming that the thermal modelling analysis (undertaken for compliance with criteria 1 to 4) have informed the temperature control strategy for the building and its users.
11. Provide drawings and a copy of the thermal comfort strategy highlighting the points considered and decisions taken for the heating/cooling system for the building. The strategy for the proposed heating/cooling system(s) must demonstrate 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 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, based on discussions with the end user (or alternatively building type or use specific design guidance, case studies, feedback) 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 system(s), 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 drafts).
 - 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.

Note: Responsive heating or cooling controls for a particular area/zone of the building must be accessed and operated by the individual(s) occupying that area or zone. Such controls must be located in, or within the vicinity of, the zone or area they control.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Hea05 Acoustic Performance C1: (for Education, Healthcare, Office and Law Courts building types) RIBA Stage 4(E-F): Recommended action	Acoustician	Targeted	3	0	3	0
	Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and an acoustician will be appointed and all the criteria will be met.

Evidence/Action Required

1. Provide a professional report and calculations from the appointed suitably qualified Acoustician and drawings confirming that the building meets the appropriate acoustic performance standards and testing requirements defined in Tables - 19, 20, 21 and 22 for all relevant areas for the acoustic principles of:

- a. Sound insulation
- b. Indoor ambient noise level
- c. Reverberation times

Table - 21: BREEAM Acoustic Criteria for Office Buildings

Office Buildings (three credits)	
First Credit - Sound Insulation	
Criteria	The sound insulation between acoustically sensitive rooms and other occupied areas complies with the performance criteria given in Section 7 of BS 8233:2014.
Testing Requirement	A programme of pre-completion acoustic testing is carried out by a compliant test body in accordance with the acoustic testing and measurement procedures outlined in the Additional information section of this BREEAM issue (refer to the manual).
Notes	If testing is to be carried out where the office is not yet furnished, then section 7.5 of BS 8233:2014 should be referred to when determining the performance criteria. Where the office is to be furnished at the time testing is carried out, then refer to section 7.7.6 of BS 8233:2014 for the relevant performance criteria.
Second Credit - Internal Indoor Ambient Noise Levels	
Criteria	Achieve indoor ambient noise levels that comply with the design ranges given in Section 7 of BS 8233:2014.
Testing Requirement	A programme of acoustic measurements is carried out by a compliant test body in accordance with the acoustic testing and measurement procedures outlines in the Additional information section of this BREEAM issue (refer to the manual).
Third Credit - Reverberation	
Criteria	Acoustic environment (control of reverberation, sound absorption and speech transmission index): Achieve the requirements relating to sound absorption and reverberation times, where applicable, set out in Section 7 of BS 8233:2014.
Testing Requirement	A programme of acoustic measurements is carried out by a compliant test body in accordance with the acoustic testing and measurement procedures outlined in the Additional information section of this BREEAM issue (refer to the manual).

Action By Credit Status AVL ACH CTS TBC

Hea06 Safety and Security C1-10: Safe Access RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
	Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable as the building does not have any external areas and access to the building is direct from the public highway/footpath. Therefore the credit is awarded by default provided C11-13 below is achieved.

Evidence/Action Required

Provide a scaled drawing and relevant sections of the specifications confirming all necessary compliant features and dimensions as detailed below:

Where external site areas form part of the assessed development the following apply:

1. Dedicated cycle paths provide direct access from the site entrance(s) to any cycle storage provided, without the need to deviate from the cycle path and, if relevant, connect to offsite cycle paths (or other appropriate safe route) where these run adjacent to the development's site boundary.
2. Footpaths on site provide direct access from the site entrance(s) to the building entrance(s) and connect to public footpaths off-site (where existing), providing practical and convenient access to local transport nodes and other off-site amenities (where existing).
3. Where provided, drop-off areas are designed off/adjoining to the access road and provide direct access to pedestrian footpaths, therefore avoiding the need for the pedestrian to cross vehicle access routes.
4. Dedicated pedestrian crossings must be provided where pedestrian routes cross vehicle access routes, and appropriate traffic calming measures must be in place to slow traffic down at these crossing points.
5. For large developments with a high number of public users or visitors, pedestrian footpaths must be signposted to other local amenities and public transport nodes off-site (where existing).
6. The lighting for access roads, pedestrian routes and cycle lanes is compliant with the external lighting criteria defined in Hea 01 Visual comfort, i.e. in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Hea06 Safety and Security C11-13: Security of Site and Building RIBA Stage 2(C): Crime Impact Assessment RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	1	0	1	0
	Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and suitably qualified security specialist will be consulted and their recommendations incorporated. The team noted the site is currently at Riba stage 2.

Evidence/Action Required

11. Provide written confirmation that a suitably qualified security specialist (SQSS) will be appointed to conduct an evidence-based Security Needs Assessment (SNA) during or prior to Concept Design (RIBA Stage 2 or equivalent).

An individual achieving any of the following can be considered to be 'suitably qualified' for the purposes of compliance with BREEAM:

1. Crime Prevention Design Advisors (CPDA) or Architectural Liaison Officers (ALO), Counter Terrorism Security Advisor (CTSA); Design Out Crime Officer (DOCO); or
2. A specialist registered with a BREEAM-recognised third party accreditation scheme for security specialists.
3. A practising security consultant that meets the following requirements:
 - a. Minimum of three years relevant experience within the last five years. This experience must clearly demonstrate a practical understanding of factors affecting security in relation to construction and the built environment, relevant to the type and scale of the project being undertaken.
 - b. Hold a suitable qualification relevant to security.
 - c. Maintains (full) membership to a relevant professional body or accreditation scheme that meets the following:
 - i. Has a professional code of conduct, to which members must adhere; and
 - ii. Ongoing membership is subject to peer review.

12. Provide a copy of the recommendations or solutions set out by the suitably qualified security specialist (SQSS). These recommendations or solutions must aim to ensure that the design of buildings, public and private car parks and public or amenity space are planned, designed and specified to address the issues identified in the preceding Security Needs Assessment (SNA).

The Security Needs Assessment (SNA) is the project and site specific assessment of security needs, and must include (where applicable):

1. A visual audit of the site and surroundings, identifying environmental cues and features pertinent to the security of the proposed development.
2. Formal consultation with relevant stakeholders, including the local SQSS, in order to obtain a summary of crime and disorder issues in the immediate vicinity of the proposed development.
3. Identify risks specific to the proposed, likely or potential use of the building(s).
4. Identify risks specific to the proposed, likely or potential user groups of the building(s).
5. Identify any detrimental effects the development may have on the existing community. The purpose of the assessment is to inform stakeholder decision-making and allow the identification and evaluation of security recommendations and solutions.
13. Provide drawings to confirm that the recommendations or solutions proposed by the suitably qualified security specialist (SQSS) are implemented. Any deviation from those recommendations or solutions will need to be justified, documented and agreed in advance with a suitably qualified security specialist.

	Action By	Credit Status	AVL	ACH	CTS	TBC
ENERGY 0.65% weighting per credit			23	0	6	0

Ene01 Reduction of Energy Use and Carbon Emissions						
C1: Energy Performance RIBA Stage 4(E-F): Recommended action	Energy Consultant	Targeted	12	0	2	0
	Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. Based on the proposed energy strategy and initial SBEM, 4 credits are currently assumed for an 0.160 EPRNC .

Evidence/Action Required

- To calculate the Energy Performance Ratio (EPRNC), provide the following:

A copy of the Building Regulations "As Designed" Output Document, i.e. BRUKL Output Document (SBEM) from the approved software from an Accredited Energy Assessor to confirm the following figures:

- The building's operational energy demand;
- The building's primary energy consumption;
- The total resulting CO2 emissions;
- Provide the following performance data by modelling the building's specified/designed regulated fixed building services and fabric, as undertaken by an accredited energy assessor using approved building energy calculation software:
 - Building floor area (m2);
 - Notional building energy demand (MJ/m2);
 - Actual building energy demand (MJ/m2);
 - Notional building energy consumption (kWh/m2);
 - Actual building energy consumption (kWh/m2);
 - Target Emission Rate (kgCO2/m2);
 - Building Emission Rate (kgCO2/m2).

Action By Credit Status AVL ACH CTS TBC

Table - 25: Ene 01 EPRNC benchmark scale

BREEAM Credits	EPRNC	Rating	Minimum Requirements
1	0.075	Pass Good Very Good	Requires a performance improvement progressively better than the relevant national Building Regulations compliant standard.
2	0.15		
3	0.225		
4	0.3		
5	0.375	Excellent	Requires 5 credits to be achieved (equivalent to an EPR of at least 0.375).
6	0.45		
7	0.525		
8	0.6	Outstanding	Requires 8 credits to be achieved (equivalent to an EPR of at least 0.6).
9	0.675		
10	0.75		
11	0.825		
12	0.90 AND zero net regulated CO ₂ emissions		

Action By Credit Status AVL ACH CTS TBC

Ene02 Sub-Metering of Major Energy Consuming Systems

Minimum standards for this credit with the currently targeted Very Good ≥ 55% BREEAM rating:

One credit (First sub-metering credit)

Ene02 Energy Monitoring C1-4: Sub-Metering of Major Energy Consuming Systems RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	1	0	1	0
	M&E	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and major energy consuming systems will be sub-metered with pulsed outputs and a BMS will be specified for monitoring.

Evidence/Action Required

1. Provide specification clauses and design drawings confirming that the energy metering systems are installed with pulsed outputs that enable at least 90% of the estimated annual energy consumption of each fuel to be assigned to the various end-use categories of energy consuming systems as per the guidance in CIBSE TM39 Building energy metering (see Methodology in the manual).

Energy Consuming Systems are systems that consume energy to perform the following functions within a building:

- a. Space heating
- b. Domestic hot water heating
- c. Humidification*
- d. Cooling*
- e. Ventilation i.e. fans (major)*
- f. Pumps
- g. Lighting
- h. Small power
- i. Renewable or low carbon systems (separately)
- j. Controls
- k. Other major energy-consuming systems/plant, where appropriate. Depending on the building type, this might include for example: plant used for swimming or hydrotherapy pools; other sports and leisure facilities; kitchen plant/catering equipment; cold storage plant; laboratory plant; sterile services equipment; transportation systems (e.g. lifts and escalators); drama studios and theatres with large lighting rigs; telecommunications; dedicated computer room or suite; dealing rooms; covered car parks; ovens/furnaces; and floodlighting. See also CIBSE TM39: Building energy metering for further information.

2. The energy consuming systems in buildings with a total useful floor area greater than 1,000m2 must be metered using an appropriate energy monitoring and management system.
4. Provide written confirmation that the end energy consuming uses are identifiable to the building users, for example through labelling or data outputs.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Ene02 Energy Monitoring C5: Sub-Metering of High Energy Load and Tenancy Areas RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	1	0	1	0
	M&E	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and accessible energy sub-meters with pulsed output will be provided, to enable future connection to an energy monitoring and management system, covering a significant majority of the energy supply to tenanted areas.

Evidence/Action Required

5. Provide specifications and design drawings confirming that an accessible energy monitoring and management system or separate accessible energy sub-meters with pulsed or other open protocol communication outputs to enable future connection to an energy monitoring and management system are provided, covering a significant majority of the energy supply to tenanted areas or, in the case of single occupancy buildings, relevant function areas or departments within the building/unit.

Ene03 External Lighting C1-3: One Credit RIBA Stage 4(E-F): Recommended action	Principal Contractor	Targeted	1	0	1	0
	M&E	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and external lighting will be specified for the development which will be designed according to the relevant criteria.

Evidence/Action Required

Provide specification clauses and lighting drawings which confirm:

1. The building has been designed to operate without the need for external lighting (which includes on the building, signs and at entrances).
- OR alternatively, where the building does have external lighting, one credit can be awarded as follows:
2. The average initial luminous efficacy of the external light fittings within the construction zone is not less than 60 luminaire lumens per circuit Watt.
3. All external light fittings are automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic.

An automatic external lighting control system that prevents operation during daylight hours through either time switch or daylight sensor (a manually switched lighting circuit with daylight sensor or time switch override is also acceptable) in addition to providing presence detection in areas of intermittent traffic.
 Note: for external lighting not fitted with presence detectors, time switches must provide automatic switch off of lighting after a specified curfew hour - except in cases where there is a specific requirement for lighting to be left on all night.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Ene04 Low Carbon Design C1-3: Passive Design Analysis RIBA Stage 2(C): Passive Design Analysis RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was considered unachievable because passive design analysis will not be carried out for the project

Evidence/Action Required

1. The first credit within issue Hea 04 Thermal comfort has been achieved to demonstrate the building design can deliver appropriate thermal comfort levels in occupied spaces.
2. Provide an analysis of the proposed building design/development by Concept Design stage (RIBA Stage 2 or equivalent) to identify opportunities for the implementation of passive design solutions that reduce demands for energy consuming building services. As a minimum, the passive design analysis should cover:
 1. Site location
 2. Site weather
 3. Microclimate
 4. Building layout
 5. Building orientation
 6. Building form
 7. Building fabric
 8. Thermal mass or other fabric thermal storage
 9. Building occupancy type
 10. Daylighting strategy
 11. Ventilation strategy
 12. Adaptation to climate change.
3. The building must use passive design measures to reduce the total heating, cooling, mechanical ventilation and lighting loads and energy consumption in line with the findings of the passive design analysis and the analysis demonstrates a meaningful reduction in the total energy demand as a result. The installation should contribute at least 5% of overall building energy demand and/or CO2 emissions.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Ene04 Low Carbon Design C4-6: Free Cooling RIBA Stage 2(C): Passive Design Analysis RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was considered unachievable because no free cooling technology will be specified for the development.

Evidence/Action Required

4. The passive design analysis credit must be achieved.
5. The passive design analysis carried out under criterion 2 above must include an analysis of free cooling and identifies opportunities for the implementation of free cooling solutions. Provide results from a dynamic simulation model demonstrating the feasibility of the free cooling strategy and meeting the first credit for Hea 04.

The free cooling should apply to all occupied spaces in the building. Small IT rooms and lift motor rooms are excluded. Mechanical ventilation may only be used for small areas, e.g. for kitchenettes and toilets.

6. Provide written confirmation that the building uses ANY of the free cooling strategies listed below to reduce the cooling energy demand, i.e. it does not use active cooling. The free cooling analysis should demonstrate consideration of appropriate technologies from the following:
 1. Night-time cooling (requires fabric to have a high exposed thermal mass)
 2. Ground coupled air cooling
 3. Displacement ventilation (not linked to any active cooling system)
 4. Ground water cooling
 5. Surface water cooling
 6. Evaporative cooling, direct or indirect
 7. Desiccant dehumidification and evaporative cooling, using waste heat
 8. Absorption cooling, using waste heat.
 9. The building does not require any significant form of active cooling or mechanical ventilation (i.e. naturally ventilated).

	Action By	Credit Status	AVL	ACH	CTS	TBC
Ene04 Low Carbon Design C7-8: Low Zero Carbon (LZC) Feasibility Study RIBA Stage 2(C): Feasibility Study RIBA Stage 4(E-F): Recommended action	Energy Consultant	Targeted	1	0	1	0
	Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, it was confirmed a compliant LZC feasibility study will be produced. The Initial SBEM notes a carbon offset reduction 5.25% from the PhotoVolatics.

Evidence/Action Required

7. Provide a copy of a BREEAM compliant LZC feasibility study carried out by an energy specialist (Planning reports are generally not compliant). The feasibility study must establish the most appropriate recognised local (onsite or near-site) low or zero carbon (LZC) energy source(s) for the building/development, and be carried out by the completion of the Concept Design stage (RIBA Stage 2 or equivalent). The LZC study should cover as a minimum:
 1. Energy generated from LZC energy source per year
 2. Carbon dioxide savings from LZC energy source per year
 3. Life cycle cost of the potential specification, accounting for payback
 4. Local planning criteria, including land use and noise
 5. Feasibility of exporting heat/electricity from the system
 6. Any available grants
 7. All technologies appropriate to the site and energy demand of the development.
 8. Reasons for excluding other technologies
 9. Where appropriate to the building type, connecting the proposed building to an existing local community CHP system or source of waste heat or power OR specifying a building/site CHP system or source of waste heat or power with the potential to export excess heat or power via a local community energy scheme.

8. A local LZC technology/technologies must be specified and installed in the building/development in line with the recommendations of this feasibility study and this method of supply results in a meaningful reduction in regulated carbon dioxide (CO2) emissions. The installation should contribute at least 5% of overall building energy demand and/or CO2 emissions.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Ene06 Energy Efficient Transportation Systems C1: Energy Consumption RIBA Stage 4(E-F): Recommended action	N/A	Not targeted				
	N/A	N/A	1	0	0	0

Assessor's Notes

At the pre-assessment meeting, it was confirmed this credit could not be achieved. There is an existing lift which is to be reused and therefore the criteria will not be achieved.

Evidence/Action Required

1. Where lifts, escalators and/or moving walks (transportation types) are specified, provide design drawings showing the lift location/s in the building and provide a copy of the professional report/transportation study and calculations confirming:
 - a. An analysis of the transportation demand and usage patterns for the building must be carried out to determine the optimum number and size of lifts, escalators and/or moving walks.
 - b. The energy consumption has been estimated in accordance with BS EN ISO 25745 Energy performance of lifts, escalators and moving walks, Part 2 : Energy calculation and classification for lifts (elevators) and/or Part 3 - Energy calculation and classification for escalators and moving walks, for one of the following:
 - i) At least two types of system (for each transportation type required); OR
 - ii) An arrangement of systems (e.g. for lifts, hydraulic, traction, machine room-less lift (MRL)); OR
 - iii) A system strategy which is 'fit for purpose'.
 - c. The use of regenerative drives should be considered, subject to where it produces an energy saving greater than the additional standby energy used to support the drives. Regenerative drives will typically be appropriate for lifts with high travel and high intensity use.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Ene06 Energy Efficient Transportation Systems						
C2-6: Energy Efficient Features	N/A	Not targeted				
RIBA Stage 4(E-F): Recommended action			2	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, it was confirmed this credit could not be achieved. There is an existing lift which is to be reused and therefore the criteria will not be achieved.

Evidence/Action Required

2. Criterion 1 must be achieved.

Provide relevant specification clauses and either manufacturers' product details or a formal letter of commitment from the system manufacturer/supplier confirming:

Lifts

3. For each lift, the following three energy-efficient features must be specified:

a. The lifts operate in a stand-by condition during off-peak periods. For example the power side of the lift controller and other operating equipment such as lift car lighting, user displays and ventilation fans switch off when the lift has been idle for a prescribed length of time.

b. The lift car lighting and display lighting provides an average lamp efficacy, (across all fittings in the car) of > 55 lamp lumens/circuit Watt.

c. The lift uses a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor.

4. Where the use of regenerative drives is demonstrated to save energy, they are specified.

Ene07 Energy efficient laboratory systems			
C1: Pre-requisite	N/A	N/A	Pre-requisite to achieve credit
RIBA Stage 4(E-F): Recommended action	N/A	N/A	

Assessor's Notes

Evidence/Action Required

1. Criterion 1 within issue Hea 03 Safe containment in laboratories must be achieved.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Ene08 Energy Efficient Equipment C1-3: Two Credits RIBA Stage 4(E-F): Recommended action	N/A	Not targeted				
	N/A	N/A	2	0	0	0

Assessor's Notes

At the pre-assessment meeting this credit was considered unachievable as the building will be undertaking a CAT A fit out. As this is a basic landlord fit out, it is unknown what equipment will be relevant.

Evidence/Action Required

1. Identify from Table - 28 below the functions/equipment that are or will be present within the assessed building.
2. Of those functions identify which will be responsible for the significant proportion of the total annual unregulated energy consumption of the development and its operation.
3. Provide relevant specification clauses, manufacturers' product details confirming compliance with the relevant scheme or standards detailed below, and design drawings and/or calculations confirming a meaningful reduction in the total annual unregulated energy consumption of the building:
 Table - 28 contains solutions deemed to satisfy compliance for common examples of significant contributors to unregulated energy consumption, for a number of different building types/functions.

Action By Credit Status AVL ACH CTS TBC

Ref	Function / Equipment	Criteria
A	Small power, plug in equipment	The following equipment has been awarded an Energy Star rating OR has been procured in accordance with the Government Buying Standards 1. Office equipment 2. Other small powered equipment 3. Supplementary electric heating. For domestic scale white goods, the criteria in Ref F Residential areas apply
D	Data centres	1. Design is in accordance with the 'Best practices for the EU Code of Conduct on Data Centres' principles with the data centre achieving at least the 'Expected minimum practice' level (as defined in the Code of Conduct). 2. Temperature set points are not less than 24°C, as measured at the inlet of the equipment in the rack.
E	IT- intensive operating areas	1. Uses a natural ventilation and cooling strategy as standard, with forced ventilation only to be used when the internal temperature exceeds 20oC and active cooling only when the internal temperature exceeds 22°C. 2. There is a mechanism to achieve automatic power-down of equipment when not in use, including overnight.
<p>Energy efficient white goods scheme and equivalent rating scheme (Category reference F) Energy rating certifications other than the EU labelling scheme will be accepted, providing the energy efficiency performance is equivalent to the EU labelling scheme. This can be any internationally recognised energy efficiency labelling scheme for white goods or a national scheme developed for use in the country of assessment, for example Energy Label (in EU), Energy Star (in USA), The Appliance Energy Rating Scheme (in Australia), etc. A statement confirming that the scheme is nationally recognised and can be regarded as equivalent to the EU labelling scheme is required for use.</p>		
<p>Large-scale equipment in healthcare (Category reference G) This includes commercial-scale catering and laundry equipment, and all other equipment with connected electrical loads in excess of 10kW rated input power. All medical equipment can be exempted from complying with the criteria.</p>		

	Action By	Credit Status	AVL	ACH	CTS	TBC
TRANSPORT 1.00% weighting per credit			9	0	9	0

Tra01 Public Transport Accessibility C1-2: Accessibility Index C3: Dedicated Bus Service RIBA Stage 3(D): Recommended action	Transport Consultant	Targeted	3	0	3	0
	Architect	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable as the site is located in central london. A check of TFL PTAL calculator shows an accessibility index of 55.

Evidence/Action Required

Up to five credits - Accessibility Index

- 1-2. To determine the Accessibility Index (AI), provide scaled drawing/s highlighting the location of the building and all public transport nodes in proximity of the building and the distance (in m) from the building entrance to the transport node (via safe pedestrian route/s, not as the crow flies). Provide timetables for all services at each public transport node considered.

AND/OR

In the case of a large phased development where new transport facilities will be provided, but at a later stage a commitment has been made to provide transport facilities within the shortest of the following periods, demonstrated either within the General Contract Specification or in the form of a Section 106 Agreement:

1. The transport facilities will be available for use by the time 25% of all phases have been completed and are ready for occupation. OR
 2. The transport facilities will be available for use within 25% of the total build time for the phase in which the assessed building forms a part, measured from the completion date of that phase.
- The most appropriate rule for the development in question must be used, ensuring that the time building users have to wait before having use of the transport facilities is as short as possible.

1. The public transport Accessibility Index (AI) for the assessed building is calculated and BREEAM credits awarded in accordance with the table of building types, AI benchmarks and BREEAM credits in Table - 29.
2. The Accessibility Index is determined by entering the following information in to the BREEAM Tra 01 calculator:
 - a. The distance (m) from the main building entrance to each compliant public transport node
 - b. The public transport type(s) serving the compliant node e.g. bus or rail
 - c. The average number of services stopping per hour at each compliant node during the operating hours of the building for a typical day (see compliance notes and Table - 30 in the Additional Information section of the manual).

Action By Credit Status AVL ACH CTS TBC

OR

One Credit - Dedicated Bus Service

- For buildings with a fixed shift pattern, i.e. where building users will predominantly arrive/depart at set times, one credit can be awarded where the building occupier provides, or commits to providing a dedicated bus service to and from the building at the beginning and end of each shift/day. Provide written confirmation of the shift pattern from the Client/ occupier.

This credit is only available in cases where a development is unable to achieve any of the available credits using the Accessibility Index criteria (i.e. its location has a low public transport Accessibility Index).

Table 29: Credits available for each building type relating to the public transport Accessibility Index (AI) score.

Accessibility Index	≥2	≥4	≥8	≥10	≥12	≥18
Building Type	BREEAM Credits Available					
Offices, Industrial, Multi-residential, Other Building Type 1	1	2	3	-	-	-

	Action By	Credit Status	AVL	ACH	CTS	TBC
Tra02 Proximity to Amenities C1-2: Proximity to Local Amenities RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
	Project Manager	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and the development is located near or has within all the amenities required for this credit.

Evidence/Action Required

1. Provide a marked up scaled plan highlighting the location and distance (in m) of all relevant amenities, as listed in Table - 31 below, from the proposed project/ development.

AND

In the case of a large phased development where new amenities will be provided, but at a later stage a commitment has been made to provide transport facilities within the shortest of the following periods, demonstrated either within the General Contract Specification or in the form of a Section 106 Agreement:

1. The transport facilities will be available for use by the time 25% of all phases have been completed and are ready for occupation. OR
 2. The transport facilities will be available for use within 25% of the total build time for the phase in which the assessed building forms a part, measured from the completion date of that phase.
- The most appropriate rule for the development in question must be used, ensuring that the time building users have to wait before having use of the transport facilities is as short as possible.

Where the transport facilities will not be available for use within a period of five years from occupation of the building, they cannot be considered for determining compliance with the BREEAM criteria.

2. Where a building type is indicated to have core amenities (Labelled as C in Table - 31) at least two of these must be provided as a part of the total number required. The remaining number of amenities required can be met using any other applicable amenities (including any remaining core amenities).

Action By Credit Status AVL ACH CTS TBC

Table - 31: Credits available for Tra02 for different building types

Criteria	Building Types						
	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	
No. of BREEAM Credits	1	1	1	1	1	1	1
No. of Amenities	3	3	4	4	4	7	2
Proximity (metres)	500	500	500	500	500	1000	500
Appropriate food outlet	C	C	C	C	C	C	✓
Access to cash	C	C	C	C	C	C	✓
Access to an outdoor open space (public or private, provided suitably sized and accessible to building users)	✓	✓	✓	C	C	C	✓
Access to a recreation/leisure facility for fitness/sports	C	C	C	✓	✓	✓	✓
Publicly available postal facility	✓	✓	✓	✓	✓	✓	✓
Community facility	✓	✓	✓		✓	✓	✓
Over-the-counter services associated with a pharmacy	✓	✓	✓	✓	✓	✓	✓
Public sector GP surgery or general medical centre			✓		✓	✓	✓
Child care facility or school	✓		✓		✓	✓	✓
<p>Key: ✓ - Amenity relevant to building type C - Core amenity for building type</p> <p>Building Types: Type 1: Offices, Retail, Industrial, Courts Type 2: Pre-school, Schools, Sixth Form Type 3: Higher Education and Further Education Type 4: Healthcare Type 5: Multi-residential (there are two credits available and each can be awarded independently of the other). Type 6: Other Building types This issue is not applicable to prison buildings/developments.</p>							

	Action By	Credit Status	AVL	ACH	CTS	TBC
Tra03 Cyclist Facilities C1-4: Cycle Storage and Cyclist Facilities RIBA Stage 3(D): Recommended action	Architect	Targeted	2	0	2	0
	Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and a compliant number of cycle storage spaces are to be provided along with showers and changing facilities. The team needs to confirm the number of building users for the development and thus the number of spaces required.

Evidence/Action Required

1 credit available for the provision of adequate cycle storage

1. Provide design drawings, relevant specification clauses and manufacturers' literature confirming compliant cycle storage spaces that meet the minimum levels set out in Table - 32 are specified.

Compliant cycle storage spaces are defined as those that meet the following:

1. Cycles can be secured within spaces in rack(s). They are covered overhead and the cycle racks are set in or fixed to a permanent structure (building or hard-standing). Alternatively the cycle storage may be located in a locked structure fixed to or part of a permanent structure with appropriate surveillance.

2. The distance between each cycle rack, and cycle racks and other obstructions, e.g. a wall, allows for appropriate access to the cycle storage space, to enable bikes to be easily stored and accessed.

3. The storage facility or entrance to the facility is in a prominent site location that is viewable/overlooked from either an occupied building or a main access to a building.

4. The cycle storage facility has adequate lighting, this could be demonstrated with the lighting criteria defined in BREEAM issue Hea 01 Visual comfort. The lighting must be controlled to avoid out-of-hours use and operation during daylight hours where there is sufficient daylight in or around the facility.

1 credit available for the provision of adequate cyclist facilities

2. Criterion 1 must be achieved.
3. Provide design drawings, relevant specification clauses and manufacturers' literature confirming that at least two of the following types of compliant cyclist facilities must be provided for all staff and pupils (where appropriate):
 - a. Showers
 - b. Changing facilities
 - c. Lockers
 - d. Drying spaces

Action By Credit Status AVL ACH CTS TBC

Compliant showers are defined as those that meet the following:

1. Provision of one shower for every 10 cycle storage spaces, subject to a minimum provision of one shower.
2. Any development providing eight showers or more will comply regardless of the number of cycle storage spaces provided.
3. Both male and female users must be catered for i.e. either separate showers within shared gender-specific facilities (required provision split 50-50) or single shower cubicles and changing space for mixed use.
4. The showers do not need to be dedicated to cyclists and can be those shared with other users/uses.

Compliant changing facilities are defined as those that meet the following:

1. Appropriately sized for the likely/required number of users. The assessor should use their judgement to determine whether the changing area is appropriately sized given the number of cycle storage spaces or
2. Changing areas must include adequate space and facilities to hang or store clothing and equipment while changing or showering, e.g. bench seat and/or hooks.
3. Toilet/shower cubicles cannot be counted as changing facilities.

Compliant lockers are defined as those that meet the following:

1. The number of lockers is at least equal to the number of cycle spaces required.
2. Lockers are either in or adjacent to compliant changing rooms, where provided.
3. The lockers are sized appropriately for the storage of a cyclist's equipment.

A compliant drying space is defined as a space that is specifically designed and designated with adequate heating/ventilation for the drying of wet clothes. A plant room for example is not a compliant drying space.

Cycle storage and cyclist facilities (sheltered housing, care homes and supported living facilities and prison building types only)

4. Where criteria 1 to 3 have been met for cycle space and cycle facilities requirements.

Table - 32: Cycle storage criteria for each building type

Building Type	No. Spaces per Unit of Measure	Unit of Measure	Notes
Commercial			
Offices, Industrial	1	10 staff	
Note: Where the number of building users (based upon the unit of measure) exceeds 200 the sliding scale of compliance can be used to identify the appropriate number of cycle spaces required (see Methodology section).			

	Action By	Credit Status	AVL	ACH	CTS	TBC
Tra04 Maximum Car Parking Capacity C1: Car Parking Capacity RIBA Stage 3(D): Recommended action	Architect	Targeted	2	0	2	0
	Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable as no parking spaces are to be provided.

Evidence/Action Required

1. The building's car parking capacity is compared to the maximum car parking capacity benchmarks in Table - 33 and the relevant number of BREEAM credits awarded.

a. Provide drawings, relevant specification clauses or contract requirements confirming the number and type of parking spaces provided for the building

AND

b. Provide the relevant documentation or correspondence from the design team or Client confirming the Table-33: Credits available in Tra04 Maximum car parking capacity for different building types

Building Accessibility Index	Criteria Building's Accessibility Index			No. of credits
	<4	≥4 - <8	≥8	
Building Type	Max. parking capacity 1 space per x building users, where x is:			
Office, industrial, student residences and key worker accommodation	3	4	5	1
	4	5	6	2

	Action By	Credit Status	AVL	ACH	CTS	TBC
Tra05 Travel Plan C1-4: One Credit RIBA Stage 3(D): Recommended action	Transport Consultant	Targeted	1	0	1	0
	Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and a travel plan will be commissioned for the project and it will be BREEAM compliant.

Evidence/Action Required

1. Provide a copy of a compliant travel plan developed as part of the feasibility and design stages.

A travel plan should be a strategy for managing all travel and transport within an organisation, principally to increase choice and reduce reliance on the car by seeking to improve access to a site or development by sustainable modes of transport. A travel plan contains both physical and behavioural measures to increase travel choices and reduce reliance on single-occupancy car travel.

2. Provide a site specific travel assessment/statement undertaken to ensure the travel plan is structured to meet the needs of the particular site and covers the following (as a minimum):
 - a. Where relevant, existing travel patterns and opinions of existing building or site users towards cycling and walking so that constraints and opportunities can be identified.
 - b. Travel patterns and transport impact of future building users.
 - c. Current local environment for walkers and cyclists (accounting for visitors who may be accompanied by young children)
 - d. Disabled access (accounting for varying levels of disability and visual impairment)
 - e. Public transport links serving the site
 - f. Current facilities for cyclists

Action By Credit Status AVL ACH CTS TBC

3. The travel plan must include a package of measures to encourage the use of sustainable modes of transport and movement of people and goods during the buildings operation and use. Provide design drawings demonstrating examples of design measures implemented, these may include:
 - Providing parking priority spaces for car sharers
 - Providing dedicated and convenient cycle storage and changing facilities
 - Lighting, landscaping and shelter to make pedestrian and public transport waiting areas pleasant
 - Negotiating improved bus services, i.e. altering bus routes or offering discounts
 - Restricting and/or charging for car parking
 - Criteria for lobby areas where information about public transport or car sharing can be made available.
 - Pedestrian and cycle friendly (for all types of user regardless of the level of mobility or visual impairment) via the provision of cycle lanes, safe crossing points, direct routes, appropriate tactile surfaces, well-lit and signposted to other amenities, public transport nodes and adjoining off-site pedestrian and cycle routes
 - Providing suitable taxi drop-off/waiting areas
 - Ensuring that rural buildings are located with appropriate transport access to ensure that they adequately serve the local community (where procured to do so e.g. community centre).

4. If the occupier is known, they must be involved in the development of the travel plan and they must confirm in the form of a formal letter of commitment or, in the case of a speculative development, the developer must confirm that the travel plan will be implemented post construction and supported by the buildings management in operation.

Action By Credit Status AVL ACH CTS TBC

WATER 0.88% weighting per credit

8 0 6 0

Wat01 Water Consumption

Minimum standards for this credit with the currently targeted Very Good \geq 55% BREEAM rating:

One credit

Wat01 Water Consumption

C1-5: Up to Five Credits (Building Dependant)
RIBA Stage 3(D): Recommended action

Client	Targeted	5	0	3	0
Principal Contractor	Targeted				

Wat01 Water Consumption

C6: Exemplary Level Criteria

N/A	Not targeted	1	0	0	0
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Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and a 40% improvement is proposed. No rainwater/greywater is to be incorporated.

Evidence/Action Required

1. An assessment of the efficiency of the building's domestic water consuming components is undertaken using the BREEAM Wat 01 calculator.
2. The water consumption (litres/person/day) for the assessed building is compared against a baseline performance and BREEAM credits awarded based upon Table - 35.
3. Provide relevant specification clauses, manufacturers' literature and design drawings confirming the efficiency of the following water-consuming components specified in the proposed building/development:
 - a. WC's - flush volume in litres;
 - b. Urinals - flush volume on litres and flush control;
 - c. Taps - flow rate in litres/min, water pressure and temperature (wash hand basins and where specified kitchen taps and waste disposal unit);
 - d. Showers - flow rate in litres/min, water pressure and temperature;
 - e. Baths - capacity in litres;
 - f. Dishwashers - domestic in litres/cycle and commercial sized in litres/rack;
 - g. Washing machines - domestic in litres/use and commercial or industrial sized in litres/kg.

Table - 35: BREEAM Credits available for percentage improvement over baseline building water consumption.

% Improvement	No. of BREEAM Credits
12.50%	1
25%	2
40%	3
50%	4
55%	5
65%	Exemplary performance

Note: for some building types an alternative approach to compliance must be used to award credits (for further information please refer to the Methodology section, below, and the BREEAM Wat01 calculator)

Action By Credit Status AVL ACH CTS TBC

Wat02 Water Monitoring

Minimum standards for this credit with the currently targeted Very Good \geq 55% BREEAM rating:

Criterion 1 only

Wat02 Water Monitoring

C1-4: One Credit

RIBA Stage 4(E-F): Recommended action

M&E	Targeted	1	0	1	0
Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and a pulsed water meter will be specified on the mains water supply to the building.

Evidence/Action Required

1. Provide specification clauses and drawings confirming the specification of 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.
3. Each meter (main and sub) must have a pulsed or other open protocol communication output to enable connection to an appropriate utility monitoring and management system, e.g. a building management system (BMS), for the monitoring of water consumption. Examples also include automatic meter reading systems (AMR) and building energy management systems (BEMS). Automatic monitoring and targeting (aM&T) is an example of a management tool that includes automatic meter reading and data management.
4. If the site on which the building is located has an existing BMS, managed by the same occupier/owner (as the new building), the pulsed water meter(s) for the new building must be connected to the existing BMS.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Wat03 Water Leak Detection C1: Leak Detection System RIBA Stage 3(D): Recommended action	M&E	Targeted	1	0	1	0
	Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and a leak detection system will be specified for the mains water supply within the building and between the building and the utilities water meter

Evidence/Action Required

1. Provide specification clauses, drawings and manufacturers' literature confirming the specification of a leak detection 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 specified. The leak detection system must be:
 - a. A permanent automated water leak detection system that alerts the building occupants to the leak OR an in-built 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.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Wat03 Water Leak Detection C2: Flow Control Devices RIBA Stage 3(D): Recommended action	M&E	Targeted	1	0	1	0
	Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and flow control devices in the form of solenoid valves connected to PIR will be specified to regulate the supply of water to each WC area/facility (WCs, wash hand basin taps and urinals) according to the demand.

Evidence/Action Required

2. Provide relevant specification clauses and design drawings confirming the specification of flow control devices that regulate the supply of water to each WC area/facility (WCs, wash hand basin taps and urinals) according to demand are installed (and therefore minimise water leaks and wastage from sanitary fittings).

The following could be considered as types of flow control devices:

- A time controller, i.e. an automatic time switch device to switch off the water supply after a predetermined interval.
- A programmed time controller, i.e. an automatic time switch device to switch water on and/or off at predetermined times.
- A volume controller, i.e. an automatic control device to turn off the water supply once the maximum pre-set volume is reached.
- A presence detector and controller, i.e. an automatic device detecting occupancy or movement in an area to switch water on and turn it off when the presence is removed.
- A central control unit, i.e. a dedicated computer-based control unit for an overall managed water control system, utilising some or all of the types of control elements listed above.

	Action By	Credit Status	AVL	ACH	CTS	TBC
MATERIALS 1.04% weighting per credit			13	0	9	0

Mat 01 Life Cycle Impacts						
C1-3: Up to 6 Credits (Building Dependant) RIBA Stage 3(D): Recommended action	Architect	Targeted	5	0	3	0

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and 3 credits are currently assumed.

Evidence/Action Required

1. BREEAM awards credits on the basis of the building's quantified environmental life cycle impact through assessment of the main building elements, as set out in Table - 38 below. Specify A or A+ Green Guide rated materials for all elements listed below to ensure the maximum number of credits are achieved for this item.

Using the MAT 01 evidence template (design team to request this from the assessor) provide full material specification breakdowns and their area in m2 for each type of above elements applicable.

Provide copies of section and detail drawings of each element detailing each layer of the materials within Table - 38: Elements assessed by building type

Building Type	Element Type Assessed					
	External Walls	Windows	Roof	Upper Floor Slab	Internal Walls	Floor Finishes / Coverings
Office	✓	✓	✓	✓	-	✓

	Action By	Credit Status	AVL	ACH	CTS	TBC
Mat 01 Life Cycle Impacts C4-8: Exemplary Level Criteria RIBA Stage 3(D): Recommended action	N/A	Not targeted	3	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, this credit was not targeted.

Evidence/Action Required

The following outlines the two exemplary level routes available to achieve up to three innovation credits for this BREEAM issue.

Route 1: Using the Green Guide to Specification (elemental approach) - one credit

- Where assessing four or more applicable building elements, the building achieves at least two points in addition to the total points required to achieve maximum credits under the standard BREEAM criteria (as outlined in the table 39).

OR

- Where assessing fewer than four applicable building elements, the building achieves at least one point in addition to the total points required to achieve maximum credits under the standard BREEAM criteria.

Route 2: Using compliant life cycle assessment software tools (whole building approach) - two credits

- Where the design team has used an IMPACT compliant software tool (or equivalent) to measure the environmental impact of the building.
- Where the design team can demonstrate how the use of an IMPACT compliant software (or equivalent) has benefited the building in terms of measuring and reducing its environmental impact. This should take the form of a short qualitative statement from the design team providing comments on the following:
 - How and at what stages of the design the tool was utilised.
 - How the tool helped (or did not help) steer the design process to optimise cost and mitigate environmental impacts, giving examples of specific changes to the building design/ specification that resulted.
- Where the design team submit the Building Information Model (BIM) from the IMPACT compliant software tool (or equivalent) for the assessed building to BRE Global (via the project's appointed BREEAM assessor).

Further information about IMPACT is provided in the Other information section of this BREEAM issue (refer to the manual).

Please note a project can achieve all three innovation credits where it is complying with exemplary level criteria 4 to 8, i.e. one route is not necessarily exclusive of the other, a project can comply with both routes 1 and 2 or choose to comply with only route 1 or only route 2.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Mat 02 Hard Landscaping and Boundary Protection C1: One Credit RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
	Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable as there is no external areas and no new hard landscaping or boundary protection. Therefore the credit can be awarded by default.

Evidence/Action Required

- At least 80% of all external hard landscaping and boundary protection (by area) must achieve an A or A+ Green Guide rating.

Specify A or A+ Green Guide rated materials for all external hard surfaces and boundary protection. Provide copies of section drawings with the following:

- A detailed description of each applicable element and its constituent materials;
- Locations and area (m2) of each applicable element;
- Green Guide element numbers for the applicable materials.

Green Guide specifications, element numbers and ratings can be reviewed at: www.thegreenguide.org.uk.

For the purpose of assessment, hard landscaping includes (but is not limited to) parking areas (including manoeuvring areas, lanes, roads within the parking area), pedestrian walkways, paths, patios. The definition excludes basement parking, access or approach roads and designated vehicle manoeuvring areas, balconies, roof terraces, specialist sports areas (running tracks, netball areas etc.) and retaining walls.

Action By Credit Status AVL ACH CTS TBC

Mat03 Responsible Sourcing of Materials

Minimum standards for this credit with the currently targeted Excellent ≥ 70% BREEAM rating:

Criterion 1 only

Mat03 Responsible Sourcing of Materials

C1: Pre-requisite

RIBA Stage 3(D): Recommended action

Principal Contractor	Targeted	Pre-requisite to achieve credit
Client	Targeted	

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and all timber used on the project will be legally harvested and traded timber.

Evidence/Action Required

1. Provide written confirmation that all timber used on the project is 'Legally harvested and traded timber'.

This must come from either the supplier – confirming their timber is sourced in compliance with the UK Government’s Timber Procurement Policy for legal and sustainable sourcing

OR

Copies of the actual chain of custody evidence in accordance with CPET requirements

OR

A specification or letter of intent from the design team confirming that all timber will be procured in accordance with the policy.

Note:

a. It is a minimum requirement for achieving a certified BREEAM rating certification (for any rating level) that compliance with criterion 1 is confirmed.

b. For other materials there are no pre-requisite requirements at this stage.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Mat03 Responsible Sourcing of Materials C2: Sustainable Procurement Plan RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	1	0	1	0
	Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and the appointed contractor should source materials for the project in accordance with a documented sustainable procurement plan.

Evidence/Action Required

- The principle contractor must provide a sustainable procurement plan setting out the framework for responsible sourcing of materials. The aim being to guide procurement throughout the project.

The plan may be prepared and adopted at an organisational level or be site/project specific and for the purposes of BREEAM compliance, will cover the following as a minimum:

- Risks and opportunities are identified against a broad range of social, environmental and economic issues. BS 8902:2009 Responsible sourcing sector certification schemes for construction products-Specification can be used as a guide to identify these issues.
- Aims, objectives and targets to guide sustainable procurement activities.
- Strategic assessment of sustainably sourced materials available locally and nationally. There should be a policy to procure materials locally where possible.
- Procedures are in place to check and verify that the sustainable procurement plan is being implemented/adhered to on individual projects. These could include setting out measurement criteria, methodology and performance indicators to assess progress and demonstrate success

	Action By	Credit Status	AVL	ACH	CTS	TBC
Mat03 Responsible Sourcing of Materials C3: Responsible Sourcing of Materials (RSM) RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	3	0	1	0
	Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and the building materials be responsibly sourced by the contractor.

Evidence/Action Required

- 3. Provide a full list of manufacturers and extractors of the materials in the following building elements OR provide a letter of intent confirming that all materials will be responsibly sourced.

Provide design drawings showing the building elements and written confirmation of the breakdown of each material in m³ or %.

Please complete the MAT 03 evidence template.

Procure all major materials from suppliers that have ISO 14001, EMAS, BS 8555 or BES 6001 policies and systems in place covering the extraction and process stages of manufacture. Provide copies of the compliant certificates for the materials used within the assessed building elements;

OR

A letter of intent or specification clause detailing the specific requirements with regards to the responsible sourcing of the materials used within the building.

Table 44 - Location/use and material categories

Location/Use Categories
1. Ceiling (including ceiling finishes) 2. Door/window 3. Floor (including floor finishes) 4. Insulation 5. Internal partition/internal walls (including finishes) 6. Roof (including roof finishes) 7. Structure, primary and secondary 8. External wall (e.g cladding, lining, render, including finishes) 9. Building service 10. Hard landscaping 11. Other
Material Categories
1. Timber/ timber-based products (TBP) 2. Concrete/ cementitious (plaster, mortar, screed etc.) 3. Metal 4. Stone/ aggregate 5. Clay-based (pavers, blocks, bricks, roof tiles, etc.) 6. Gypsum 7. Glass 8. Plastic, polymer, resin, paint, chemicals and bituminous 9. Animal fibre/skin, cellulose fibre 10. Other

Action By Credit Status AVL ACH CTS TBC

Credits awarded where the applicable building materials (refer to Table 44) are responsibly sourced in accordance with the BREEAM methodology, as defined in steps 1 to 2 in the Methodology section (refer to the manual).

Table - 43: The number of BREEAM credits achieved is determined as follows

RSM Credits	% of Available RSM Points Achieved
3	≥ 54%
2	≥ 36%
1	≥ 18%

Mat03 Responsible Sourcing of Materials C4: Exemplary Level Criteria RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, this credit was not targeted.

Evidence/Action Required

- Where at least 70% of the available RSM points are achieved.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Mat04 Insulation C1-2: Embodied impact RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
	M&E	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and all insulation being proposed for the applicable building elements would aim to achieve the insulation index as or greater than 2.5. The scope of new insulation is to be confirmed.

Evidence/Action Required

1. Provide a full list and manufacturers' literature for any new insulation specified for use within the following building elements:
 - a. External walls
 - b. Ground floor
 - c. Roof
 - d. Building services

For each specified insulation material in the building fabric, provide manufacturers' literature or written confirmation direct from the manufacturer confirming all of the following:

- Area of insulation (m²);
- Thickness (mm);
- Density (kg/m³);
- Thermal conductivity (W/mK).

For each specified insulation material in the building services, provide manufacturers' literature or written confirmation direct from the manufacturer confirming all of the following:

- Volume of insulation (m³);
- Density (kg/m³);
- Thermal conductivity (W/mK).

Please complete the MAT 04 evidence template.

Provide marked up drawings showing the location of each insulation type.

2. The Insulation index for the building fabric and services insulation must be the same as or greater than 2.5. See the Methodology section in the manual for a description of calculating the Insulation Index.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Mat05 Designing for Durability and Resilience C1: Protecting vulnerable parts of the building from damage C2: Protecting exposed parts of the building from material degradation RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
	Project Manager	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project.

Evidence/Action Required

Protecting vulnerable parts of the building from damage

1. Provide drawings, specifications, written confirmation and manufacturers' literature (where applicable) that 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 kitchen areas.

- c. Protection against, or prevention from, any potential vehicular collision where vehicular parking and manoeuvring occurs within 1m of the external building façade for all car parking areas and within 2m for all delivery areas.

Suitable durability and protection measures to vulnerable parts of the building can include:

1. Bollards/barriers/raised kerbs to delivery and vehicle drop-off areas
2. Robust external wall construction, up to 2m high
3. Corridor walls specified to Severe Duty (SD) as per BS 5234-2 and, for Healthcare buildings, Health Technical Memorandum 56 - Partitions
4. Protection rails to walls of corridors
5. Kick plates/impact protection (from trolleys etc) on doors
6. Hard-wearing and easily washable floor finishes in heavily used circulation areas (i.e. main entrance, corridors, public areas etc)
7. Designing out the risk without the need for additional materials specification to protect vulnerable areas.

Protecting exposed parts of the building from material degradation:

2. Provide an analysis of the relevant building elements demonstrating that appropriate design and specification measures to limit material degradation due to environmental factors have been incorporated. Design drawings, specifications and manufacturers' literature may also serve as evidence.

See Table - 50 for list of applicable elements, environmental factors and material degradation effects to consider.

Methodology

The following outlines the process to assess criterion 2.

1. Identify from the list of 'applicable building elements' under Table-50 the elements that are appropriate to the building being assessed.
2. Establish from the 'environmental factors' list those factors that are likely to cause material degradation effects in the identified applicable building elements.
3. Confirm the design and specification measures in place to limit these degradation effects.

Action By Credit Status AVL ACH CTS TBC

Table - 50: Applicable building elements, environmental factors and material degradations effects to consider.

Applicable Building Elements, Environmental Factors and Material Degradation Effects
Applicable Building Elements
1. Foundation/substructure/lowest floor/retaining walls
2. External walls
3. Roof/balconies
4. Glazing: windows, skylight
5. External doors
6. Railings/Balusters (where exposed to external environment)
7. Cladding (where exposed to external environment)
8. Staircase/ramps (where exposed to external environment)
9. Hard landscaping
Environmental Factors
1. Environmental agents, including:
a. Solar radiation
b. Temperature variation
c. Water/Moisture
d. Wind
e. Precipitation e.g rain and snow
f. Extreme weather conditions: High wind speeds, flooding, driving rain, snow
2. Biological Agents, including:
a. Vegetation
b. Pests, insects
3. Pollutants, including:
a. Air contaminants
b. Ground contaminants
Material Degradation Effects (includes, but not necessarily limited to the following)
1. Corrosion
2. Dimensional change, e.g. swelling or shrinkage
3. Fading/discolouration
4. Rotting
5. Leaching
6. Blistering
7. Melting
8. Salt crystallisation
9. Abrasion

	Action By	Credit Status	AVL	ACH	CTS	TBC
Mat06 Material Efficiency C1-2: One Credit RIBA Stages 1,2,3 and 4: Material Use Review RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
	Project Manager	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project.

Evidence/Action Required

1. Provide documentary evidence in the form of a report, drawings, meeting notes, etc, confirming that opportunities have been identified, and appropriate measures investigated and implemented, to optimise the use of materials in building design, procurement, construction, maintenance and end of life.

Material efficiency is the process of undertaking a building project to enable the most efficient use of materials over the lifecycle of the building and its component. This includes using fewer materials, reusing existing demolition/ strip-out materials and, where appropriate, procuring materials with higher levels of recycled content. It may also include the adoption of alternative means of design/construction that result in lower materials usage and lower wastage levels including offsite manufacture and use of pre-assembled service pods.

2. The above must be carried out in consultation with the relevant parties who are involved in the design, specification and/or construction of the building at each of the following RIBA stages:
 - a. Preparation and Brief
 - b. Concept Design
 - c. Development Design
 - d. Technical Design
 - e. Construction

	Action By	Credit Status	AVL	ACH	CTS	TBC
WASTE 0.94% weighting per credit			9	0	7	0

Wst01 Construction Waste Management C1-3: Construction Resource Efficiency RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	3	0	2	0
	Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and a resource management plan will be produced for the construction site and at least two credits will be targeted for the resource efficiency credit.

Evidence/Action Required

1. Provide a copy of a Resource Management Plan (RMP) detailing the amount of non-hazardous waste related to on-site construction and dedicated off-site manufacture or fabrication (including demolition and excavation waste) generated by the building's design and construction. The project waste arisings should be recorded and include construction, demolition and excavation waste. Note that the performance benchmarks for the award of credits do not include demolition and excavation waste.

The aim of the RMP is to promote resource efficiency and to prevent illegal waste activities. Resource efficiency includes minimising waste at source and ensuring that Clients, designers and principal contractors assess the use, reuse and recycling of materials and products on and off the site.

A compliant RMP is one that defines:

1. A target benchmark for resource efficiency, i.e. m³ of waste per 100m² or tonnes of waste per 100m²;
 2. Procedures and commitments for minimising non-hazardous waste in line with the target benchmark;
 3. Procedures for minimising hazardous waste;
 4. A waste minimisation target and details of waste minimisation actions to be undertaken;
 5. Procedures for estimating, monitoring, measuring and reporting hazardous and non-hazardous site waste. If waste data is obtained from licensed external waste contractors, the data needs to be reliable and verifiable, e.g. by using data from EA/SEPA/EA Wales/NIEA Waste Return Forms;
 6. Procedures for sorting, reusing and recycling construction waste into defined waste groups, either on-site or through a licensed external contractor;
 7. Procedures for reviewing and updating the plan;
 8. The name or job title of the individual responsible for implementing the above.
2. Where construction waste related to on-site construction and off-site manufacture/fabrication (excluding demolition and excavation waste) meets or is lower than the following benchmarks in Table - 51:

Table - 51: Construction waste resource efficiency benchmarks

BREEAM Credits	Amount of waste generated per 100m ² (gross internal floor area)	
	m ³	Tonnes
One credit	≤13.3	≤11.1
Two credits	≤7.5	≤6.5
Three credits	≤3.4	≤3.2
Exemplary Level	≤1.6	≤1.9

Note - Volume (m³) is actual volume of waste (not bulk volume).

Action By Credit Status AVL ACH CTS TBC

3. Where existing buildings on the site will be demolished a pre-demolition audit of any existing buildings, structures or hard surfaces must be completed to determine if, in the case of demolition, refurbishment / reuse is feasible and, if not, to maximise the recovery of material from demolition for subsequent high-grade / value applications. The audit must be referenced in the RMP and cover:

- a. Identification of the key refurbishment/ demolition materials.
- b. Potential applications and any related issues for the reuse and recycling of the key refurbishment and demolition materials in accordance with the waste hierarchy.

Wst01 Construction Waste Management C4-5: Diversion of Resources from Landfill RIBA Stage 3(D): Recommended action	Principal Contractor	Targeted	1	0	1	0
	Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and at least 90% of construction waste by volume be diverted from landfill and where possible these figures should be maximised.

Evidence/Action Required

4. Provide a copy of the RMP and calculations confirming that non-hazardous construction (on-site and off-site manufacture/fabrication in a dedicated facility), demolition and excavation waste (where applicable) generated by the project have been diverted from landfill, meeting the requirements set out below via one or more of the following:
- Reusing the material on site (in-situ or for new applications);
 - Reusing the material on other sites;
 - Salvaging or reclaiming the material for reuse;
 - Returning the material to the supplier via a 'take-back' scheme;
 - Recovery of the material from site by an approved waste management contractor and recycled or sent for energy recovery.

The amount of waste diverted from landfill must meet the following benchmarks:

Table - 52: Diversion from landfill benchmarks

BREEAM Credits	Type of Waste	Volume	Tonnage
One Credit	Non demolition	70%	80%
	Demolition	80%	90%
	Excavation	N/A	N/A
Exemplary Level	Non demolition	85%	90%
	Demolition	85%	95%
	Excavation	95%	95%

5. The RMP must detail how waste materials will be sorted into separate key waste groups see Table - 50 in the BREEAM manual (according to the waste streams generated by the scope of the works) either onsite or offsite through a licensed contractor for recovery.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Wst01 Construction Waste Management C6-8: Exemplary Level Criteria RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

The exemplary credit for construction waste management has not been targeted at this stage.

Evidence/Action Required

6. Non-hazardous construction waste generated by the building's design and on-site construction and off-site manufacture or fabrication (including demolition and excavation waste) is no greater than the exemplary level resource efficiency benchmark (outlined in Table - 51).

Table - 51: Construction waste resource efficiency benchmarks

BREEAM Credits	Amount of waste generated per 100m2 (gross internal floor area)	
	m3	Tonnes
Exemplary Level	≤1.6	≤1.9

Note - Volume (m3) is actual volume of waste (not bulk volume).

7. The percentage of non-hazardous construction (onsite and offsite manufacture/fabrication), demolition and excavation waste (if relevant) diverted from landfill meets or exceeds the exemplary level percentage benchmark (outlined in Table - 52).

Table - 52: Diversion from landfill benchmarks

BREEAM Credits	Type of Waste	Volume	Tonnage
Exemplary Level	Non demolition	85%	90%
	Demolition	85%	95%
	Excavation	95%	95%

8. All key waste groups are identified for diversion from landfill in the RMP.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Wst02 Recycled Aggregates C1-3: One Credit RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was considered unachievable due to the nature of the build. Additionally potential issues with structural warranties.

Evidence/Action Required

1. Provide specification details, calculations and written confirmation that the percentage of high-grade aggregate that is recycled or secondary aggregate, specified in each application (present) must meet the following minimum % levels (by weight or volume) to contribute to the total amount of recycled or secondary aggregate, as specified in.

This information must include the volumes and quality of the aggregate that can be obtained.

Minimum high grade aggregate applications apply to:

- Structural Frame 15%
 - Bitumen or hydraulically bound base, binder, and surface courses for paved areas and roads 30%
 - Building foundations 20%
 - Concrete road surfaces 15%
 - Pipe bedding 100%
 - Granular fill and capping (see Relevant definitions section in the manual) 100%
2. The total amount of recycled or secondary aggregate specified, and meeting criterion 1, must be greater than 25% (by weight or volume) of the total high grade aggregate specified for the development. Where the minimum level in criterion 1 is not met for an application, all the aggregate in that application must be considered as primary aggregate when calculating the total high grade aggregate specified.
 3. The recycled or secondary aggregates are EITHER:
 - a. Construction, demolition and excavation waste obtained on-site or off-site OR
 - b. Secondary aggregates obtained from a non-construction post-consumer industrial by-product source.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Wst03 Operational Waste C1-7: One Credit RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
	Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and dedicated space would be provided for the segregation and storage of operational recyclable waste. It was also confirmed that no static waste compacter or baler is applicable to the project and no organic waste is to be stored on site.

Evidence/Action Required

1. Provide marked up drawings and specification clauses confirming that 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.

Minimum storage space provision:

1. At least 2m² per 1000m² of net floor area for buildings < 5000m².
2. A minimum of 10m² for buildings ≥5000m²
3. An additional 2m² per 1000m² of net floor area where catering is provided (with an additional minimum of 10m² for buildings ≥ 5000m²).

Wst04 Speculative Floor and Ceiling Finishes C1-2 One Credit - Office building types only RIBA Stage 4(E-F): Recommended action	Client	Targeted	1	0	1	0
	Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting this credit was considered achievable and no speculative floor/ceiling finishes will be specified.

Evidence/Action Required

1. For tenanted areas (where the future occupant is not known), provide design drawings and/or relevant specification or contract clauses confirming, prior to full fit-out works, carpets, other floor finishes and ceiling finishes have been installed in a show area only.

For an office a show area could be either a floor plate or an individual office. However, to award this credit it must be less than 25% of the net lettable floor area.

2. In a building developed for a specific occupant, provide a copy of formal agreement from the Client confirming that the occupant has selected (or agreed to) the specified floor and ceiling finishes.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Wst05 Adaptation to Climate Change C1: Structural and Fabric Resilience RIBA Stage 1(A-B): Climate Adaptation Strategy Appraisal RIBA Stage 3(D): Recommended action	Client	Targeted	1	0	1	0
	Architect	Targeted				

Assessor's Notes

At the pre-assessment meeting this credit was considered achievable.
Discussions are ongoing with the team to establish what is required and if this is feasible.

Evidence/Action Required

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:
 - a. 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:
 - i) Hazard Identification
 - ii) Hazard assessment
 - iii) Risk estimation
 - iv) Risk Evaluation
 - v) Risk Management

BREEAM definition of Structural and fabric resilience is the ability of a structure to withstand an increased burden of weather/increase pressure/hazards associated with climate change. Examples of increased pressures/hazards include:

1. Solar radiation
2. Temperature variation
3. Water/moisture
4. Wind
5. Precipitation e.g rain and snow
6. Extreme weather conditions: high wind speeds, flooding, driving rain, snow; rainwater ponding
7. Subsidence/ground movement.

Methodology:

Hazard identification

1. Review the evidence/information from relevant bodies to identify and understand the expected impacts of increased extreme weather events climate change for on the building.
2. Identify likely hazards (see Relevant definitions in the manual).

Hazard assessment

1. Identifv the scale of the hazards identified.

Action By Credit Status AVL ACH CTS TBC

Risk estimation

1. Identify the risk presented by these hazards to the building and the likely impact of the hazards taking into account the following aspects as a minimum:

- a. Structural stability
- b. Structural robustness
- c. Weather proofing and detailing
- d. Material durability
- e. Health and safety of building occupants and others
- f. Impacts on building contents and business continuity.

Risk evaluation

1. Evaluate the potential impact of these risks on the building.
2. Determine the tolerable risk threshold.
3. Check the sensitivity of the risk assessment.
4. Identify areas where the risks are unacceptable in health and safety, life cycle assessment and financial terms.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Wst05 Adaptation to Climate Change C2: Exemplary Level Criteria - Responding to adaptation to climate change RIBA Stage 1(A-B): Climate Adaptation Strategy Appraisal RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

The exemplary credit has not been targeted at this stage.

Evidence/Action Required

A holistic approach to the design and construction of the current building's life cycle, to mitigate against the impacts of climate change, is represented by the achievement of these criteria.

The following outlines the exemplary level criteria to achieve an innovation credit for this BREEAM issue:

- 2. Achievement of the Structural and fabric resilience issue and following issues and the following criteria points or credits:

Hea 04 – Thermal comfort

(Link to Wst 5 issue- to preventing increasing risks of overheating)

Criterion 6 in the second credit of the Hea 04 issue has been achieved.

Ene 01 – Reduction of energy use and carbon emissions

(Link to Wst 05 issue – to maximise energy efficiency contributing to low carbon emissions resulting from increasing energy demands)

At least eight credits in this issue have been achieved.

Ene 04 – Low carbon design

(Link to Wst 05 issue– to maximise opportunities to avoid unnecessary carbon emissions)

The Passive design analysis credit in this issue has been achieved.

Wat 01 – Water consumption

(Link to Wst 05: to minimise water demands in periods of drought)

A minimum of three credits in this issue have been achieved.

Mat 05 – Designing for durability and resilience

(Link to Wst 05 issue - to avoid increased risks of deterioration and higher maintenance demands)

Criterion 2 relating to material degradation in this issue has been achieved.

Pol 03 – Surface water run-off

(Link to Wst 05: to minimise the risks of increased flood risk and surface water run-off affecting the site or others)

Flood risk – a minimum of one credit has been achieved.

Surface water run off – two credits have been achieved.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Wst06 Functional Adaptability C1-2: One Credit RIBA Stage 1(A-B): Functional Adaptation Strategy Appraisal RIBA Stage 3(D): Recommended action	Architect	Targeted	1	0	1	0
	Client	Targeted				

Assessor's Notes

At the pre-assessment meeting this credit was considered achievable and that the building is adaptable for future uses.

Evidence/Action Required

1. Provide a copy of the functional adaptation strategy confirming that a building-specific functional adaptation strategy study has been undertaken by Concept Design (RIBA Stage 2 or equivalent), which includes recommendations for measures to be incorporated to facilitate future adaptation.

This should consider:

1. The potential for major refurbishment, including replacing the façade.
2. Design aspects that facilitate the replacement of all major plant within the life of the building e.g. panels in floors/walls that can be removed without affecting the structure, providing lifting beams and hoists.
3. The degree of adaptability of the internal environment to accommodate changes in working practices.
4. The degree of adaptability of the internal physical space and external shell to accommodate change in-use.
5. The extent of accessibility to local services, such as local power, data infrastructure etc.

2. Provide implementation plan report confirming functional adaptation measures have been implemented (RIBA Stage 4 or equivalent) in accordance with the functional adaptation strategy recommendations, where practical and cost effective. Omissions have been justified in writing to the assessor.

The implementation will be specific to the building and scope of project, but information should be made available to the assessor covering:

1. The feasibility for multiple/alternative building uses and area functions e.g. related to structural design of the building
2. Options for multiple building uses and area functions based on design details e.g. modularity
3. Routes and methods for major plant replacement e.g. networks and connections have flexibility and capacity for expansion
4. Accessibility for local plant and service distribution routes e.g. detailed information on building conduits and connections infrastructure
5. The potential for the building to be extended, horizontally and/or vertically.

	Action By	Credit Status	AVL	ACH	CTS	TBC
LAND & ECOLOGY 1.00% weighting per credit			10	0	8	0

LE01 Site Selection C1: Previously Occupied Land RIBA Stage 1(A-B): Recommended action	Architect	Targeted	1	0	1	0
	Client	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The site currently consists of building and hard landscaping.

Evidence/Action Required

1. Provide design drawings (including existing site plan) and calculations confirming at least 75% of the proposed development's footprint is on an area of land which has previously been occupied by industrial, commercial or domestic buildings or fixed surface infrastructure.

The design drawings, report or site photographs must confirm the following:

- Type and duration of previous land use;
- Area (m2) of previous land use;
- Proposed site plan showing location and footprint (m2) of proposed development and temporary works.

LE01 Site Selection C2-3: Contaminated Land RIBA Stage 2(C): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was considered unachievable as the site is on the existing foundations, therefore no contaminated assessment will take place.

Evidence/Action Required

2. Provide a copy of the contaminated land professional's site investigation report, risk assessment and appraisal which has deemed land within the site to be affected by contamination. The site investigation, risk assessment and appraisal must have identified:
3. Provide formal written confirmation from the Client or principal contractor 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.

Note: Asbestos can only be considered as a contaminant if it is found within the ground.

	Action By	Credit Status	AVL	ACH	CTS	TBC
LE02 Ecological Value of Site and Protection of Ecological Features C1: Ecological Value of Site RIBA Stage 4(E-F): Recommended action	Ecologist	Targeted	1	0	1	0
	Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The site is currently all hard landscaping therefore it is assumed the site will be of low ecological value. This is to be confirmed by the ecologist.

Evidence/Action Required

1. Provide confirmation that the land within the assessment zone is defined as 'land of low ecological value' using either:
 - a. The BREEM checklist for defining land of low ecological value (see Checklists and tables in the BREEM manual);
 - OR
 - b. Provide a copy of a signed and dated ecology report from the Suitably Qualified Ecologist (SQE) who has identified the land as being of 'low ecological value' within an ecological assessment report, based on a site survey.

	Action By	Credit Status	AVL	ACH	CTS	TBC
LE02 Ecological Value of Site and Protection of Ecological Features C2-3: Protection of Ecological Features RIBA Stage 4(E-F): Recommended action	Ecologist	Targeted	1	0	1	0
	Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The site is currently all hard landscaping therefore it is assumed the site will be of low ecological value with nothing to protect. This is to be confirmed by the ecologist.

Evidence/Action Required

2. Provide specification clauses, drawings and, if appointment, the SQE's report, confirming that all existing features of ecological value within and surrounding the construction zone and site boundary area are adequately protected from damage during clearance, site preparation and construction activities in line with BS42020:2013. These must include the following as a minimum:

1. Trees determined to be of value using one of the following measures:
 - a. More than 10 years old (or where age is unknown where the trunk diameter is over 100mm)
 - b. Tree of significant ecological value (as defined by BS 5837: 2012 and confirmed by the Suitably Qualified Ecologist or qualified arboriculturalist).
2. Hedges and natural areas requiring protection.
3. Watercourses and wetland areas.

Note: Where a tree is deemed to create a significant danger to the public or occupants by a statutory body or qualified arboriculturalist, then that feature may be exempt from the 'protection of ecological features' requirement of this issue.

3. In all cases, the principal contractor is required to construct the ecological protection measures recommended by the SQE, prior to any preliminary site construction or preparation works (e.g. clearing of the site or erection of temporary site facilities).

Action By Credit Status AVL ACH CTS TBC

LE03 Minimising Impact on Existing Site Ecology

Minimum standards for this credit with the currently targeted Very Good \geq 55% BREEAM rating:

One credit

LE03 Minimising Impact on Existing Site Ecology

C1-2: Change in Ecological Value

RIBA Stage 3(D): Recommended action

Ecologist	Targeted	2	0	2	0
Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The site is currently hardstanding and the team noted improved planting is proposed, as such a positive change is assumed. The exact species change will be confirmed by the ecologist's report.

Evidence/Action Required

2 credits - Change in Ecological Value 1 (no negative change in ecological value)

1. a. Provide scaled existing and proposed site plans confirming landscape and vegetation plot types, area (m2) of vegetation plot types

The plans should confirm the area (m2) of the existing and proposed broad habitat types. Habitat types can be found in Table - 54 of the manual.

OR

b. Provide a signed and dated copy of the Suitably Qualified Ecologist (SQE) report (where appointed) along with scaled existing and proposed site plans confirming the area (m2) of the existing and proposed broad habitat types and based on their site survey, they confirm the following and either the assessor or Ecologist inputs this data in to the BREEAM LE 03/LE 04 calculator:

- i) The broad habitat types that define the landscape of the assessed site in its existing pre-developed state and proposed state.
- ii) Area (m2) of the existing and proposed broad habitat plot types.
- iii) Average total taxon (plant species) richness within each habitat type.

Two credits are achieved where the change in the ecological value of the site is equal or greater than 0 i.e. no negative change.

1 credit - Change in Ecological Value 2

2. Where the change in ecological value of the site is less than zero but equal to or greater than minus nine plant species i.e. a minimal change, using the methods outlined in either 1(a) or (b) above.

	Action By	Credit Status	AVL	ACH	CTS	TBC
LE04 Enhancing Site Ecology C1-3: Ecologist's Report and Recommendations RIBA Stage 1(A-B): Ecologist Appointment RIBA Stage 4(E-F) Recommended action	Ecologist	Targeted	1	0	1	0
	Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. It was confirmed an ecologist will be appointed to complete a compliant BREEAM report and all recommendations will be incorporated.

Evidence/Action Required

1. Provide confirmation that a suitably qualified Ecologist (SQE) has been appointed by the Client or their project representative by the end of the Preparation and Brief stage (RIBA Stage 1 or equivalent) to advise on enhancing the ecology of the site at an early stage.
2. Provide a copy of the SQE's Ecology Report with appropriate recommendations for the enhancement of the site's ecology at Concept Design stage (RIBA Stage 2 or equivalent). The report must be based on a site visit/survey by the SQE.

The suitably qualified Ecologist must carry out site surveys of existing site ecology, on which their report is based (or to provide verification where the report is prepared by others) at the Concept Design stage (RIBA Stage 2 or equivalent) in order to facilitate and maximise potential ecological enhancement.

3. Provide landscape plans and formal written confirmation that the advice and recommendations of the Ecology Report for the enhancement of site ecology have been or will be, implemented in the final design and build.

	Action By	Credit Status	AVL	ACH	CTS	TBC
LE04 Enhancing Site Ecology C4-6: Increase in Ecological Value RIBA Stage 1(A-B): Ecologist Appointment RIBA Stage 4(E-F) Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. The site is currently hardstanding and the team noted improved planting is proposed, but it is not known if +6 species will be achieved. The exact species change will be confirmed by the ecologists report.

Evidence/Action Required

4. The criteria of the first credit must be met.
5. The recommendations of the Ecology Report for the enhancement of site ecology have been implemented in the final design and build, and the Suitably Qualified Ecologist confirms that this will result in an increase in ecological value of the site, with an increase of six plant species or greater.
6. The increase in plant species has been calculated using the BREEAM LE 03/LE 04 calculator, using actual plant species numbers.

Provide landscape plans and formal written confirmation that the advice and recommendations of the Ecology Report for the enhancement of site ecology have been or will be, implemented in the final design and build.

	Action By	Credit Status	AVL	ACH	CTS	TBC
LE05 Long Term Impact on Biodiversity C1-3: Up to Two Credits RIBA Stage 4(E-F): Recommended action	Ecologist	Targeted	2	0	2	0
	Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and is being targeted for the project. It was confirmed that an ecologist will be appointed to complete a compliant BREEAM report/habitat plan. Additionally all suggested additional measures will be incorporated during construction.

Evidence/Action Required

1. Provide confirmation a Suitably Qualified Ecologist (SQE) was appointed prior to commencement of activities on-site and they confirm that all relevant UK and EU legislation relating to the protection and enhancement of ecology has been complied with during the design and construction process.
2. Provide a copy of a site specific landscape and habitat management plan where a landscape and habitat management plan, appropriate to the site, is produced covering at least the first five years after project completion in accordance with BS 42020:2013 Section 11.1. Provide written confirmation that this will be handed over to the building owner/occupants for use by the grounds maintenance staff.

BS 42020: 2013 Section 11.1 states that the following should be included in long term management plans for habitats, species and biodiversity features:

- a. Description and evaluation of features to be managed
- b. Ecological trends and constraints on-site that could influence management
- c. Aims and objectives of management
- d. Appropriate management options for achieving aims and objectives
- e. Prescriptions for management actions
- f. Preparation of a work schedule (including an annual work plan capable of being rolled forward over a five year period)
- g. Body or organisation personnel responsible for implementation of the plan
- h. Monitoring and remedial measures (see 11.2)
- i. Funding resources and mechanisms to ensure sustainable long term delivery of the proposed management.

3. Where additional measures to improve the assessed site's long term biodiversity are adopted, according to Table - 58.

No. of Credits	No. of Additional Measures
1	2
2	4

Provide confirmation where the Suitably Qualified Ecologist (SQE) confirms that some of the additional measures listed in Table - 58 are not applicable to the assessed development, the credits can be awarded as follows:

Credits	Applicable Measures				
	All	4	3	2	1
	Number of Additional Measures to Assess				
1	2	2	2	N/A	N/A
2	4	4	3	2	1

Action By Credit Status AVL ACH CTS TBC

Evidence is required in the form of letters, training schedules, toolbox talks, presentation literature, company policies, photographs, specification clauses, projects programmes, etc for the additional measures being implemented on site.

Ref	Additional measures for the improvement of long term biodiversity
1	The principal contractor nominates a Biodiversity Champion with the authority to influence site activities and ensure that detrimental impacts onsite biodiversity are minimised in line with the recommendations of a Suitably Qualified Ecologist
2	The principal contractor trains the site workforce on how to protect site ecology during the project. Specific training must be carried out for the entire site workforce to ensure they are aware of how to avoid damaging site ecology during operations onsite. Training should be based on the findings and recommendations for protection of ecological features highlighted within a report prepared by a Suitably Qualified Ecologist
3	The principal contractor records actions taken to protect biodiversity and monitor their effectiveness throughout key stages of the construction process. The requirement commits the principal contractor to make such records available where publicly requested
4	<p>Where a new ecologically valuable habitat appropriate to the local area is created. This includes a habitat that supports nationally, regionally or locally important biodiversity, and/or which is nationally, regionally or locally important itself; including any UK Biodiversity Action Plan (UK BAP) priority habitats Local Biodiversity Action Plan (LBAP) habitats, those protected within statutory sites (e.g. SSSIs), or those within non-statutory sites identified in local plans.</p> <p>Local biodiversity expertise should be sought during the Preparation and Brief (RIBA Stage 1 or equivalent) to help identify species of local biodiversity importance onsite and ensure that the proposals support local priorities</p>
5	Where flora and/or fauna habitats exist onsite, the contractor programmes site works to minimise disturbance to wildlife. For example, site preparation, ground works, and soft landscape have been, or will be, scheduled at an appropriate time of year to minimise disturbance to wildlife. Timing of works may have a significant impact on, for example, breeding birds, flowering plants, seed germination, amphibians etc. Actions such as phased clearance of vegetation may help to mitigate ecological impacts. This additional requirement will be achieved where a clear plan has been produced detailing how activities will be timed to avoid any impact on site biodiversity in line with the recommendations of a Suitably Qualified Ecologist

	Action By	Credit Status	AVL	ACH	CTS	TBC
Pollution 0.77% weighting per credit			13	0	7	0

Pol01 Impact of Refrigerants C2: Pre-requisite to Achieve C3-7 RIBA Stage 3(D): Recommended action	M&E	Targeted	Pre-requisite to achieve credit			
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and that refrigerants will be specified for the development and it will comply with the relevant standards.

Evidence/Action Required

2. Where refrigerants are required:

Provide a copy of the specification clause or letter from the M&E Engineer or system manufacturer confirming all systems (with electric compressors) comply with the requirements of BS EN 378:2008 (parts 2 and 3) and where refrigeration systems containing ammonia are installed, the Institute of Refrigeration Ammonia Refrigeration Systems Code of Practice.

Pol01 Impact of Refrigerants C3-5: Impact of Refrigerant RIBA Stage 3(D): Recommended action	M&E	Targeted	2	0	1	0
	Principal Contractor	Targeted				

Assessor's Notes

The proposed systems are currently being reviewed.

At the pre-assessment meeting, this credit was considered achievable and any refrigerants specified for the development will have Direct Effect Life Cycle CO₂ equivalent emissions of ≤100 kgCO₂e/kW cooling/heating capacity or a low Global Warming Potential and at least two credit can be achieved.

Evidence/Action Required

Where refrigerants are required:

Provide a copy of the specification clause, letter from the M&E Engineer or system manufacturer confirming the following relevant refrigeration types and system information.

Provide the following information:

- a. Global Warming Potential (GWP) of the specified system refrigerant(s);
- b. Total refrigerant charge (kg);
- c. Cooling capacity of the systems(s) (kW);
- d. Sectoral release factors:
 - Annual refrigerant leakage rate (% of refrigerant charge);
 - Annual purge release factor (% of refrigerant charge);
 - Annual service release factor for catastrophic system failure (%);
 - Recovery efficiency (% of refrigerant charge).

Action By Credit Status AVL ACH CTS TBC

Two credits

3. Where the systems using refrigerants have Direct Effect Life Cycle CO₂ equivalent emissions (DELC CO₂e) of ≤100 kgCO₂e/kW cooling/heating capacity. This includes systems using refrigerants: comfort cooling systems, I.T servers and I.T equipment and cold storage units, commercial food/drink display cabinets but excluding domestic white goods e.g. fridges and freezers) and or/space heating (including refrigerants in heat pumps) capacity. To calculate the DELC CO₂e please refer to the Relevant definitions in the Additional information section and the Methodology section in the manual.

OR

4. Where air-conditioning or refrigeration systems are installed the refrigerants used have a Global Warming Potential (GWP) ≤10.

OR

One Credit

5. Where the systems using refrigerants have Direct Effect Life Cycle CO₂ equivalent emissions (DELC CO₂e) of ≤1000 kgCO₂e/kW cooling/heating capacity. This includes systems using refrigerants: comfort cooling systems, I.T servers and I.T equipment and cold storage units, commercial food/drink display cabinets but excluding domestic white goods e.g. fridges and freezers) and or/space heating (including refrigerants in heat pumps) capacity.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Pol01 Impact of Refrigerants C6-7: Leak Detection RIBA Stage 3(D): Recommended action	M&E	Targeted	1	0	1	0
	Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and that a refrigerant leak detection system will be specified for the systems using refrigerants and will meet the below criteria.

Evidence/Action Required

6. Provide a copy of the specification clause, a letter from the M&E Engineer or system manufacturer confirming that systems using refrigerants have a permanent automated refrigerant leak detection system installed; OR where an in-built automated diagnostic procedure for detecting leakage is installed. In all instances a robust and tested refrigerant leak detection system must be installed and must be capable of continuously monitoring for leaks.
7. The system must be capable of automatically isolating and containing the remaining refrigerant(s) charge in response to a leak detection incident. A system which initiates an automated shut down and pump down of the refrigerant into a separate storage tank would meet this criterion.

	Action By	Credit Status	AVL	ACH	CTS	TBC
Pol02 NOx Emissions C1-2: Up to Three Credits (Building Type Dependent) RIBA Stage 3(D): Recommended action	N/A	Not targeted	3	0	0	0
	N/A	N/A				

Assessor's Notes

At the meeting it was noted the site is proposing a VRF and these systems have high Nox levels and no credits are currently sought.

Evidence/Action Required

1. Provide relevant specification clauses from the building specification or contract confirming the NOx emissions of the boilers specified for the project and the manufacturer's product information.

The building's delivered heating and hot water demand, under normal operating conditions, dry NOx emission levels (at 0% excess O2) must meet the following:

NOx Emission levels for heating and hot water (mg/kWh)	Credit
≤100 mg/kWh	1 credit
≤70 mg/kWh	2 credits
≤40 mg/kWh	3 credits

Two credits (Industrial building types only)

NOx Emission levels for heating and hot water (mg/kWh)	Credit
Office and associated areas ≤70 mg/kWh	1 credit
Operational areas ≤70 mg/kWh	1 credit

Provide calculations showing the average NOx emissions for the building where multiple systems are present.

2. The direct and indirect NOx emissions will be reported via the BREEAM scoring and reporting tool in mg/kWh and energy consumption in kWh/m2/yr arising from systems installed to meet the building's space heating, cooling and hot water demands.

	Action By	Credit Status	AVL	ACH	CTS	TBC
PoI03 Surface Water Run-off C1-3: Flood Risk RIBA Stage 3(D): Recommended action	Drainage Consultant	Targeted	2	0	2	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and a Flood Risk Assessment report will be undertaken for the project and confirmed as low risk.

Evidence/Action Required

1. Low Flood Risk (Two credits)

Provide a site specific Flood Risk Assessment (FRA) to determine the flood zone of the site. It must confirm the development is situated in a flood zone that is defined as having a low annual probability of flooding (in accordance with current best practice national planning guidance) and detail the flood risk from:

- Fluvial;
- Tidal;
- Surface water: Sheet run-off from adjacent land (urban and rural);
- Groundwater: Most common in low-lying areas underlain by permeable rock (aquifers);
- Sewers: Combined, foul or surface water sewers;
- Reservoirs, canals and other artificial sources.

PoI03 Surface Water Run-off C4: Pre-requisite RIBA Stage 3(D): Recommended action	Drainage Consultant	Targeted	Pre-requisite for C4-14, C15-22 or C23-24 (Simple Buildings)			
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and that the proposed site will sit on the existing footprint, thus a neutral impact is assumed.

Evidence/Action Required

4. Provide confirmation that an appropriate consultant is appointed to carry out, demonstrate and/or confirm the development's compliance with the criteria 5-14, C15-22 or 23-24 (Simple Buildings).

A consultant with qualifications and experience relevant to designing SUDS and flood prevention measures and completing peak rate of run-off calculations. Where complex flooding calculations and prevention measures are required, this must be a specialist hydrological engineer.

	Action By	Credit Status	AVL	ACH	CTS	TBC
PoI03 Surface Water Run-off C5-14: Surface Water Run-off RIBA Stage 3(D): Recommended action	Drainage Consultant	Targeted	2	0	1	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and that the proposed site will sit on the exciting footprint. No new attenuation measures are proposed as the building will utilise the existing drainage system, thus a neutral impact is assumed for one credit.

Evidence/Action Required

One credit

- Provide a drainage report, full calculations and drawings from an appropriate consultant confirming that the drainage measures are specified to ensure 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.

The report must contain all information necessary to demonstrate compliance including:

- Type and storage volume (l) of the drainage measures;
- Total area of hard surfaces (m²);
- Peak/Volume flow rates (l/s) pre and post development for the return period events;
- Additional allowance for climate change designed in to the system;
- Impact on the building from flooding from local drainage system failure

- Provide details of the relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS are in place.
- The calculations must include an allowance for climate change; this should be made in accordance with current best practice planning guidance.

One credit

- The drainage report from the appropriate consultant should also include information showing the proposed drainage solution, system failure flood flow routes, potential flood ponding levels and ground floor levels where 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

- Calculations for the pre and post development volume of run-off where drainage design measures are specified to ensure 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 for the 100-year 6-hour event, including an allowance for climate change (see criterion 14).
- Calculations for the pre and post development volume of run-off where any additional predicted volume of run-off for this event is prevented from leaving the site by using infiltration or other Sustainable Drainage System (SuDS) techniques.

OR (only where criteria 8 and 9 for this credit cannot be achieved)

- Provide 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.

Action By Credit Status AVL ACH CTS TBC

12. Provide calculation results for the limiting discharge where drainage design measures are specified to ensure that the post development peak rate of run-off is reduced to the limiting discharge. The limiting discharge is defined as the highest flow rate from the following options:

a. The pre development 1 year peak flow rate; OR

b. The mean annual flow rate Q_{bar} ; OR

c. 2L/s/ha.

Note: for the 1 year peak flow rate, the 1 year return period event criterion applies (as described in the peak run-off criteria above).

13. Provide relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS are in place.

14. For either option, above calculations must include an allowance for climate change; this should be made in accordance with current best practice planning guidance.

	Action By	Credit Status	AVL	ACH	CTS	TBC
PoI03 Surface Water Run-off C15-22: Minimising Water Course Pollution RIBA Stage 3(D): Recommended action	N/A	Not targeted	1	0	0	0
	N/A	N/A				

Assessor's Notes

At the pre-assessment meeting this credit was considered unachievable because the proposed site will sit on the exciting footprint. No pollution measures are proposed as the building will utilise the existing drainage system, thus no credits are assumed.

Evidence/Action Required

15. Provide a written statement or drainage report, calculations and/or drawings confirming that there is no discharge from the developed site for rainfall up to 5mm (confirmed by the Appropriate Consultant).
16. Provide design drawings or relevant specification clauses indicating for areas with a low risk source of watercourse pollution, an appropriate level of pollution prevention treatment is provided, using appropriate SuDS techniques.
17. Provide design drawings or relevant specification clauses indicating where there is a high risk of contamination or spillage of substances such as petrol and oil (areas include vehicle manoeuvring areas, car parks, waste disposal facilities, delivery and storage facilities or plant areas.), separators (or an equivalent system) are installed in surface water drainage systems.
18. Provide design drawings or relevant specification clauses indicating where the building has chemical/liquid gas storage areas, a means of containment is fitted to the site drainage system (i.e. shut-off valves) to prevent the escape of chemicals to natural watercourses (in the event of a spillage or bunding failure).
19. Provide a formal letter from the design team or drainage report confirming all water pollution prevention systems have been designed and installed in accordance with the recommendations of documents such as Pollution Prevention Guideline 3 (PPG 3) and/or where applicable the SUDS manual. For areas where vehicle washing will be taking place, pollution prevention systems must be in accordance with Pollution Prevention Guidelines 13.
20. Provide formal written confirmation that a comprehensive and up-to-date drainage plan of the site will be made available for the building/site occupiers.
21. Provide formal written confirmation that relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS will be in place.
22. Provide drawings and details of all, where present, external storage and delivery areas and confirm they have been designed and detailed in accordance with the current best practice planning guidance (see Other information in the manual for further information).

	Action By	Credit Status	AVL	ACH	CTS	TBC
Poi04 Reduction of Night Time Light Pollution C:1-5 One credit RIBA Stage 3(D): Recommended action	M&E	Targeted	1	0	1	0
	Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and that external lighting will be designed according to the relevant BREEAM criteria.

Evidence/Action Required

Provide specification clauses and drawings confirming the external lighting meets the following requirements:

- External lighting pollution has been eliminated through effective design that removes the need for external lighting without adversely affecting the safety and security of the site and its users.
OR alternatively, where the building does have external lighting, one credit can be awarded as follows:
- The external lighting strategy has been designed in compliance with Table 2 (and its accompanying notes) of the ILP Guidance notes for the reduction of obtrusive light, 2011.

Buildings located in Scotland must comply with the light pollution criteria in the guidance note 'Controlling Light Pollution and Reducing Lighting Energy Consumption'. This can be demonstrated via completion of the checklists in Annexes B and C of the guidance note by a relevant member of the design team.
- The external lighting strategy has been designed in compliance with Table 2 (and its accompanying notes) of the ILP Guidance notes for the reduction of obtrusive light, 2011.

Buildings located in Scotland must comply with the light pollution criteria in the guidance note 'Controlling Light Pollution and Reducing Lighting Energy Consumption'. This can be demonstrated via completion of the checklists in Annexes B and C of the guidance note by a relevant member of the design team.
- The external lighting strategy has been designed in compliance with Table 2 (and its accompanying notes) of the ILP Guidance notes for the reduction of obtrusive light, 2011.

Buildings located in Scotland must comply with the light pollution criteria in the guidance note 'Controlling Light Pollution and Reducing Lighting Energy Consumption'. This can be demonstrated via completion of the checklists in Annexes B and C of the guidance note by a relevant member of the design team.
- 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's Guidance notes.
- Illuminated advertisements, where specified, must be designed in compliance with ILP PLG 05 The Brightness of Illuminated Advertisements.

	Action By	Credit Status	AVL	ACH	CTS	TBC
PoI05 Reduction of Noise Pollution C:1-5 One credit RIBA Stage 3(D): Recommended action	Acoustician	Targeted	1	0	1	0
	Principal Contractor	Targeted				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and that an acoustician will be appointed, and all BREEAM criteria achieved.

Evidence/Action Required

1. Provide a drawing showing that there are, or will be, no noise-sensitive areas or buildings within 800 m radius of the assessed development.
 OR
2. Alternatively, where the building does have noise sensitive areas or buildings within 800 m radius of the development, one credit can be awarded by appointing a suitably qualified Acoustician to carry out a noise impact assessment and provide a report in compliance with BS 7445: 2003 the following noise levels measured/determined:
 - a. Where a noise impact assessment in compliance with BS 7445 has been carried out and the following noise levels measured/determined:
 - i. Existing background noise levels at the nearest or most exposed noise-sensitive development to the proposed development or at a location where background conditions can be argued to be similar.
 - ii. The rating noise level resulting from the new noise-source.
3. The noise impact assessment must be carried out by a suitably qualified acoustic consultant holding a recognised acoustic qualification and membership of an appropriate professional body.

A suitably qualified acoustician is an individual who holds a recognised acoustic qualification and membership of an appropriate professional body. The primary professional body for acousticians in the UK is the Institute of Acoustics.

4. The noise level from the proposed site/building, as measured in the locality of the nearest or most exposed noise-sensitive development, is a difference no greater than +5dB during the day (07:00 to 23:00) and +3dB at night (23:00 to 07:00) compared to the background noise level.
5. Where the noise source(s) from the proposed site/building is greater than the levels described in criterion 4, provide written confirmation that attenuation measures compliant with the SQA recommendations will be installed to attenuate the noise at its source to a level where it will comply with criterion 4.



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