Seaforth Land

20-23 Greville Street

BREEAM
Pre-assessment Tracker & Action List for Office New Build

MLM. Group

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0	P	Pre-assessment	Clare Hardy	Bysshe Wallace	21/12/17
1	P	Pre-assessment Progress	Clare Hardy	Cat Clarkson	16/01/18

Contents

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 ≥ 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 C1: Energy Performance RIBA Stage 4(E-F): Recommended action	Energy Consultant	Targeted	12	0	2	0
	Client	Targeted				
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
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
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				
Ene06 Energy Efficient Transportation Systems C1: Energy Consumption RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	1	0	0	0
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
Ene08 Energy Efficient Equipment C1-3: Two Credits RIBA Stage 4(E-F): Recommended action	N/A	Not targeted	2	0	0	0

	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

Pre-assessment date: 16 October 2017

Updated: 16 January 2018

BREEAM Reference: TBC

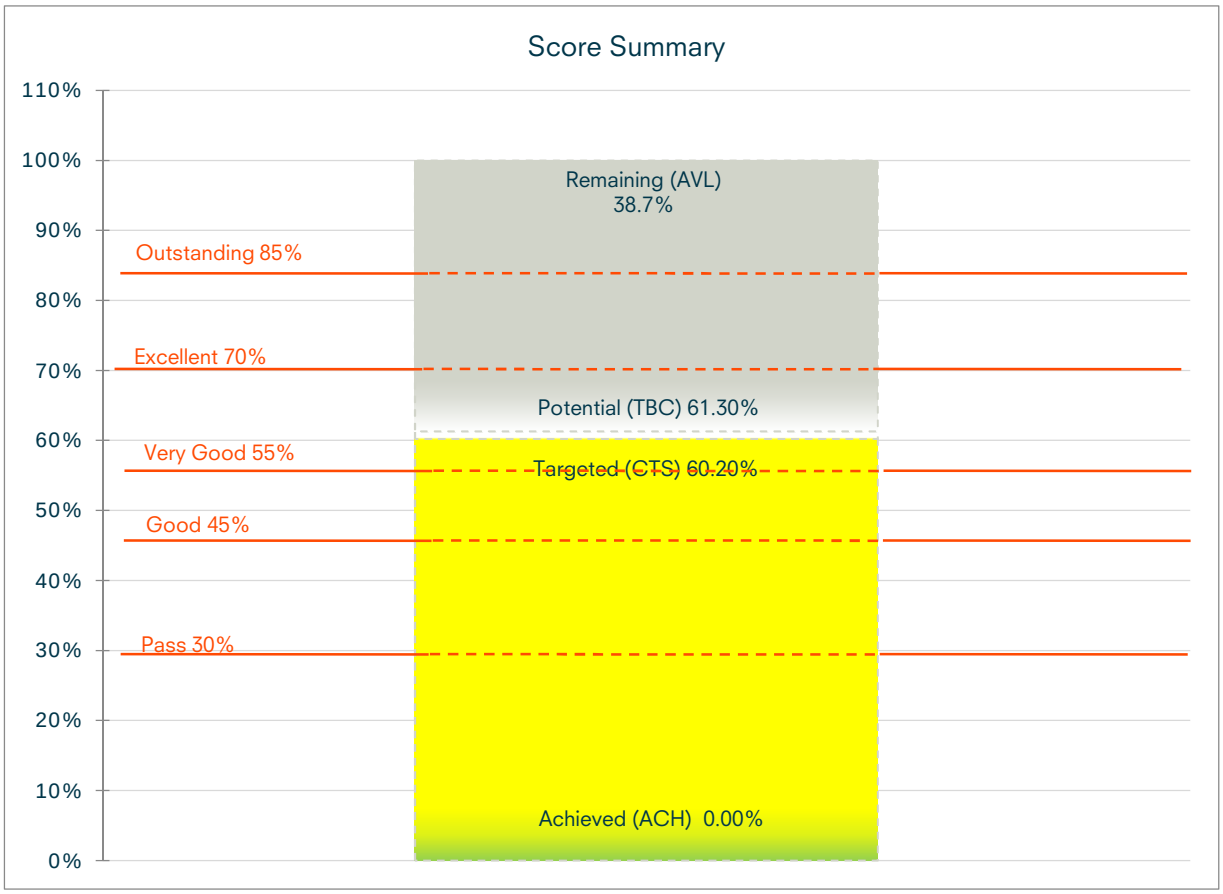
Internal Reference: 7134062

BREEAM Requirement: Very Good ≥ 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.

	Action By	Credit Status	
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 contarctor 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 ≥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.

	Action By	Credit Status	AVL	ACH	CTS	TBC
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.

	Action By	Credit Status	AVL	ACH	CTS	TBC
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 incoporated. 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

1. 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:

   a. The building's operational energy demand;
   b. The building's primary energy consumption;
   c. The total resulting CO2 emissions;
   d. 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 plan;, 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 Inital 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	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 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 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.

   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 RIBA Stage 4(E-F): Recommended action	N/A	N/A	Pre-requisite to achieve credit
	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	2	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, it is unkown 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.
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.		
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.		

	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

3. 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	✓		✓		✓	✓	✓

Key:
✓ - Amenity relevant to building type
C - Core amenity for 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.

	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 ≥ 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

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 incoporated.

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 ≥ 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 design 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

4. 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

5. 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

6. Where the design team has used an IMPACT compliant software tool (or equivalent) to measure the environmental impact of the building.

7. 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:
   1. How and at what stages of the design the tool was utilised.
   2. 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.

8. 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

1. 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

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

	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
4. 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 that 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 (m^3) 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).

	Action By	Credit Status	AVL	ACH	CTS	TBC
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. Identify 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	N/A	Not targeted	1	0	0	0
RIBA Stage 1(A-B): Climate Adaptation Strategy Appraisal RIBA Stage 3(D): Recommended action	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 BREEAM checklist for defining land of low ecological value (see Checklists and tables in the BREEAM 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 ≥ 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:

	Applicable Measures				
	All	4	3	2	1
Credits	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	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.
	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
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
Pol03 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.

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)
	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, 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
Pol03 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

5. 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:
   1 Type and storage volume (l) of the drainage measures;
   2 Total area of hard surfaces (m2);
   3 Peak/Volume flow rates (l/s) pre and post development for the return period events;
   4 Additional allowance for climate change designed in to the system;
   5 Impact on the building from flooding from local drainage system failure
6. Provide details of the relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS are in place.
7. The calculations must include an allowance for climate change; this should be made in accordance with current best practice planning guidance.

   One credit
8. 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
9. 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).
10. 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)
11. 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 Qbar; 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
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
	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
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.

   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.

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.

   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.

3. 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.

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.

	Action By	Credit Status	AVL	ACH	CTS	TBC
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				

Assessor's Notes

At the pre-assessment meeting, this credit was considered achievable and thatacoustician will be appointed, and all BREEAM crietria 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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