PLOT H, SISTER, MANCHESTER (COMMERCIAL)

BREEAM NC 2018 V6.1

PRE-ASSESSMENT REPORT

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Executive Summary

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

The proposed development comprises Purpose Built Student Accommodation (PBSA) with ground floor flexible commercial floorspace across three buildings of 8, 10 and 38 storeys, with a two-storey podium. This report only considers the ground floor commercial elements of the scheme, which are to be assessed under one 'Similar Buildings' assessment.

BREEAM Methodology

The BREEAM UK New Construction 2018 v6.1 scheme can be used to assess the environmental life cycle impacts of new non-domestic buildings at the design and construction stages. 'New Construction' is defined as development that results in a new standalone structure, or new extension to an existing structure, which will come into operation or use for the first time upon completion of the works.

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

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

- BREEAM UK 2018 Non-Domestic New Construction v6.1 (Commercial – Retail)

Design Stage Review

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

Post Construction Stage Review

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

BREEAM Rating

A review of the current development proposals has been carried out against the BREEAM UK 2018 v6.1 New Construction assessment methodology. It is anticipated that the scheme's design has the potential to score **58.87%** (minimum score level for BREEAM 'Very Good' rating is 55%), see Table 1.2 below.

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

Minimum Standards

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

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

Table 1.1 - Minimum Standards

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

RIBA Sensitive Credits

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

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

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

Table 1.2 – Pre-Assessment Review

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Management						
Man 1 – Project Brief and Design						
Man 1a	**Stakeholder Consultation (Project Delivery)**	1	1	0.80%	Design Team	**BREEAM Criteria:** **1)** Prior to completion of the **Concept Design**, the project delivery stakeholders meet to identify and define for each key phase of project delivery: 1.a Roles 1.b Responsibilities 1.c Contributions. Consider each one of the following items when defining roles, responsibilities and contributions for each key phase of the project: 2.a End user requirements 2.b Aims of the design and design strategy 2.c Particular installation and construction requirements or limitations 2.d Occupiers' budget and technical expertise in maintaining any proposed systems 2.e Maintainability and adaptability of the proposals 2.f Operational energy 2.g Requirements for the production of project and end user documentation 2.h Requirements for commissioning, training and aftercare support. **2)** The project team demonstrates how the project delivery stakeholders' contributions, and the consultation process outcomes influence the following: 3.a Initial Project Brief 3.b Project Execution Plan 3.c Communication Strategy 3.d Concept Design.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Design Stage Evidence: - Responsibilities Matrix - Project Execution Plan **Post Construction Stage Evidence:** - As per Design Stage.
Man 1b	**Stakeholder Consultation (Third Party)**	1	1	0.80%	Design Team	**BREEAM Criteria:** **1)** Prior to completion of the **Concept Design**, the design team consult with all interested parties **(for example actual or intended building users, representative consultation group from the existing community, existing partnerships and networks that have knowledge of existing buildings of the same type, potential users of shared facilities)** on matters that cover the minimum consultation content. <u>Minimum Consultation Content</u>: 1. Functionality, build quality and impact (including aesthetics). 2. Provision of appropriate internal and external facilities (for future building occupants and visitors or users). 3. Management and operational implications. 4. Maintenance resources implications. 5. Impacts on the local community, e.g. local traffic or transportation impact. 6. Opportunities for shared use of facilities and infrastructure with the community or appropriate stakeholders. 7. Compliance with statutory (national or local) consultation requirements. 8. Energy use and sustainability measures. 9. Implementing principles and processes that deliver an inclusive and accessible design. **Design Stage Evidence:** - Statement of Community Involvement - Alternative stakeholder consultation document

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Post Construction Stage Evidence: - As per Design Stage.
	Pre-requisite	-	-	-	Design Team	**BREEAM Criteria:** The project team, including the client, formally agree strategic performance targets early in the design process, (with the support of the BREEAM AP).
Man 1c	**BREEAM AP (Concept Design)**	1	1	0.80%	BREEAM AP	**BREEAM Criteria:** Involve a BREEAM AP in the project at an appropriate time and level to: a. Work with the project team, including the client, to consider the links between BREEAM issues and assist them in maximising the project's overall performance against BREEAM, from their appointment and throughout **Concept Design**. b. Monitor progress against the performance targets agreed throughout all stages after their appointment, where decisions critically impact BREEAM performance. c. Proactively identify risks and opportunities related to the achievement of the targets agreed. d. Provide feedback to the project team as appropriate, to support them in taking corrective actions and achieving their agreed performance targets. e. Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team. **Design Stage Evidence:** - Letter of instruction to BREEAM AP. - Meeting minutes / communication records / formal notes of conversations and other statements reporting on discussions related to performance targets and maximising performance. - BREEAM AP Report. **Post Construction Stage Evidence:** - As per Design Stage.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Man 1d	**BREEAM AP (Developed Design)**	1	1	0.80%	BREEAM AP	**BREEAM Criteria:** Involve the BREEAM AP in the project at an appropriate time and level to: a. Work with the project team, including the client, to consider the links between BREEAM issues and to assist them in maximising the project's overall performance against BREEAM throughout **Developed Design**. b. Monitor progress against the performance targets agreed throughout all stages where decisions critically impact the specification and tendering process and the BREEAM performance. c. Proactively identify risks and opportunities related to the achievement of the targets agreed. d. Provide feedback to the project team as appropriate, to support them in taking corrective actions and achieving their agreed performance targets. e. Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team. **Design Stage Evidence:** - Letter of instruction to BREEAM AP. - Meeting minutes / communication records / formal notes of conversations and other statements reporting on discussions related to performance targets and maximising performance. - BREEAM AP Report. **Post Construction Stage Evidence:** - As per Design Stage.
Man 2 - Life Cycle Cost and Service Life Planning						
Man 2a	**Elemental LCC**	2	0	0.80%	Cost Consultant	**Credit Not Targeted** **BREEAM Criteria:** **1)** A competent person (an individual with expertise or a recognised qualification) carries out an outline, entire asset LCC plan at Process Stage 2 (equivalent to **Concept Design**) together with any design options appraisals in line with Standardised method of life cycle costing for construction

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						procurement' PD 156865: 2008. **The elemental LCC plan**: a. **Provides an indication of future replacement costs of building fabric and services over a period of analysis as required by the client (e.g. 20, 30, 50 or 60 years);** b. **Includes service life, maintenance and operation cost estimates.** The study period should ideally be agreed by the client, in line with the design life expectancy of the building. However, where the life expectancy of the building is not yet formally agreed (due to being at very early design stages), the default design life of 60 years should be used for modelling purposes (in line with the UK default). **2)** Demonstrate, using appropriate examples provided by the design team, how the elemental LCC plan has been used to influence building and systems design and specification to minimise life cycle costs and maximise critical value. **Design Stage Evidence:** - Elemental LCC Plan - Letter confirming how the Elemental LCC plan has influenced the building and system design and specification. **Post Construction Stage Evidence:** - As per Design Stage.
Man 2b	**Component LCC**	1	0	0.80%	Cost Consultant	**Credit Not Targeted** **BREEAM Criteria:** **1)** A competent person develops a component level LCC options appraisal by the end of Process Stage 4 (equivalent to **Technical Design** – RIBA Stage 4) in line with PD 156865: 2008.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						The component level LCC includes (where present) replacement and maintenance costs associated with: **a. Envelope, e.g. cladding, windows, or roofing** **b. Services, e.g. heat source, cooling source, or controls** **c. Finishes, e.g. walls, floors or ceilings** **d External spaces, e.g. alternative hard landscaping, boundary protection.** The Component level LCC option appraisal should review all of the above component types (where present). However, you do not need to consider every single example cited under each component; only a selection of those most likely to draw valued comparisons. This is to ensure that a wide range of options are considered and help focus the analysis on components which would benefit the most from appraisal. **2)** Demonstrate, using appropriate examples provided by the design team, how the component level LCC options appraisal has been used to influence building and systems design and specification to minimise life cycle costs and maximise critical value. **Design Stage Evidence:** - Component LCC Plan - Letter confirming how the Component LCC plan has influenced the building and system design and specification. **Post Construction Stage Evidence:** - As per Design Stage.
Man 2c	**Capital Cost Reporting**	1	1	0.80%	Client or Project Manager	**BREEAM Criteria:** The capital cost to be reported for the refurbishment project £/m².

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Design Stage Evidence: - Letter of Commitment confirming predicted Capital Costs. **Post Construction Stage Evidence:** - Letter of Confirmation confirming final Capital Costs.
Man 3 - Responsible Construction Practices						
Man 3	**Timber Procurement (M)**	Pre-Req	Pre-Req	-	Main Contractor	**BREEAM Criteria:** Main contractor to ensure that all timber is legally harvested and trade timber. **Design Stage Evidence:** - Letter of Commitment confirming all timber will be legally harvested and traded timber. **Post Construction Stage Evidence:** - Copies of all relevant certificates or chain of custody evidence.
Man 3a	**Environmental Management**	1	1	0.80%	Main Contractor	**BREEAM Criteria:** **1)** All parties who at any stage manage the construction site (e.g. the principal contractor, the demolition contractor) operate an EMS covering their main operations. The EMS must be third party certified, to **ISO 14001:2015(10)**, EMAS (EU Eco-Management and Audit Scheme) or equivalent standard, or be in compliance with BS8555:2016. **2)** All parties who at any point manage the construction site (e.g. the principal contractor, the demolition contractor) implement best practice pollution prevention policies and procedures on site in accordance with Working at construction and demolition sites: **PPG6, Pollution Prevention Guidelines**.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Design Stage Evidence: - Letter of Commitment. **Post Construction Stage Evidence:** - A copy of the principal contractors EMS/EMAS certificate or for BS 8555, evidence of their status, e.g. a copy of their phase 4 audit.
Man 3b	**Sustainability Champion**	1	1	0.80%	Sustainability Champion	**BREEAM Criteria:** Involve a BREEAM AP in the project at an appropriate time and level to: a. Work with the project team, including the client, to consider the links between BREEAM issues and assist them in achieving and if possible, going beyond the design intent, to maximise the project's performance against the agreed performance targets throughout the **Construction, Handover and Close Out** stages. b. Monitor construction progress against the performance targets agreed throughout all stages where decisions critically impact BREEAM performance. c. Proactively identify risks and opportunities related to the procurement and construction process and the achievement of the targets agreed. d. Provide feedback to the constructors and the project team as appropriate to support them in taking corrective actions and achieving their agreed performance targets. e. Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team and the provision to the assessor. **Design Stage Evidence:** - Letter of instruction to BREEAM AP. - Formal letter of Commitment. **Post Construction Stage Evidence:** - Meeting minutes / communication records / formal notes of conversations and other statements reporting on discussions related to performance targets and maximising performance.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- BREEAM AP Report.
Man 3c	**Responsible Construction Management**	2	2	0.80%	Main Contractor	**BREEAM Criteria:** The Main Contractor to register with CCS and achieve a score of beyond compliance (>39) and confirm there is safe access in and around the buildings at the point of handover. **Design Stage Evidence:** - Letter of Commitment - Letter of Registration to CCS Scheme **Post Construction Stage Evidence:** - Final CCS Report
	Pre-requisite	-	-		Design Team	**BREEAM Criteria:** Assign responsibility to an individual for monitoring, recording and reporting energy use, water consumption and transportation data (where measured) resulting from all on-site construction processes (and dedicated off-site manufacturing) throughout the build programme. To ensure the robust collection of information, this individual must have the appropriate authority and responsibility to request and access the data required. Where appointed, the BREEAM AP could perform this role. **Design Stage Evidence:** Letter of Commitment **Post Construction Stage Evidence:** As per Design Stage.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Man 3d	**Monitoring of Construction site impacts (Energy and Water)**	1	1	0.80%	Main Contractor	**BREEAM Criteria:** Energy Consumption Main Contractor sets targets for the site energy consumption in kWh (and where relevant, litres of fuel used) as a result of the use of construction plant, equipment (mobile and fixed) and site accommodation. Monitor and record data for the energy consumption described. Report the total carbon dioxide emissions (total kg CO_2/project value) from the construction process via BREEAM Projects. Water Consumption Set targets for the potable water consumption (m^3) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation. Monitor and record data for the potable water consumption. Use the collated data to report the total net water consumption (m^3), i.e. consumption minus any recycled water use from the construction process via BREEAM Projects. **Design Stage Evidence:** - Letter of Commitment **Post Construction Stage Evidence:** - Final monitoring and recording data
Man 3e	**Monitoring of Construction Site Impacts (Transport)**	1	1	0.80%	Main Contractor	**BREEAM Criteria:** Main Contractor sets targets for transportation movements and impacts resulting from delivery of the majority of construction materials to site and construction waste from site. As a minimum cover: a. transportation of materials from the point of supply to the building site, including any transport, intermediate storage and point of supply.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Monitor as a minimum: a.i. Materials used in major building elements (i.e. those defined in BREEAM issue Mat 01 Environmental impacts from construction products - Building life cycle assessment (LCA)). a.i. Ground works and landscaping materials. b. transportation of construction waste from the construction gate to waste disposal processing or recovery centre gate. This monitoring must cover the construction waste groups outlined in the project's resource management plan. Monitor and record data for the transportation movements as described above. Using the collated data, report separately for materials and waste, the total transport-related carbon dioxide emissions ($kgCO_2$-eq), plus total distance travelled (km) via BREEAM Projects (for the purposes of potential future BREEAM performance benchmarking). **Design Stage Evidence:** - Letter of Commitment **Post Construction Stage Evidence:** - Final monitoring and recording data
Man 03 (Ex)	**Responsible Construction Management**	1	1	1%	Main Contractor	**BREEAM Criteria:** The Main Contractor to register with CCS and achieve a score of beyond compliance (>39) and confirm there is safe access in and around the buildings at the point of handover, driver training is provided is provided to promote safety, and any vehicular accidents are reported. **Design Stage Evidence:** - Letter of Commitment - Letter of Registration to CCS Scheme

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Post Construction Stage Evidence: - Final CCS Report - Letter of Confirmation
Man 4 - Commissioning and Handover						
Man 4a	**Commissioning and testing schedule and responsibilities**	N/A	N/A	N/A	Client/ M&E	<u>Credit Not Applicable</u> **BREEAM Criteria:** **1) Prepare a schedule of commissioning and testing. The schedule identifies and includes a suitable timescale for commissioning and re-commissioning of all complex and non-complex building services and control systems and for testing and inspecting building fabric.** The schedule identifies the appropriate standards for all commissioning activities to be conducted, where applicable, in accordance with: 2.a Current Building Regulations 2.b BSRIA guidelines (16) 2.c CIBSE guidelines (17) 2.d Other appropriate standards. **2)** Where a building management system (BMS) is specified: a. Carry out commissioning of air and water systems when all control devices are installed, wired and functional. b. Include physical measurements of room temperatures, off-coil temperatures and other key parameters, as appropriate, in commissioning results. c. The BMS or controls installation should be running in auto with satisfactory internal conditions prior to handover. d. All BMS schematics and graphics (if BMS is present) are fully installed and functional to user interface prior to handover. **3) Appoint an appropriate project team member to monitor and programme pre-commissioning, commissioning and testing.** Where necessary include re-

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						commissioning activities on behalf of the client. **4) The principal contractor accounts for the commissioning and testing programme, responsibilities and criteria within their budget and the main programme of works.** Allow the required time to complete all commissioning and testing activities prior to handover. **Design Stage Evidence:** - Letter of Commitment - Copy of Commissioning Schedule - Relevant sections / clauses of the building specification / contract - Copy of Programme of Works confirming commissioning has been accounted for. **Post Construction Stage Evidence:** - Copies of commissioning records / reports - Formal Letter of Confirmation listing systems commissioned in line with the Commissioning Schedule, along with details of the details of the standards/codes/Building Regulations that each system has been commissioned in accordance with. - Formal letter confirming the BMS commissioning procedures carried out in line with the BREEAM requirements.
Man 4b	**Commissioning – design and preparation**	N/A	N/A	N/A	M&E	<u>Credit Not Applicable</u> **BREEAM Criteria:** **1)** During the design stage, the client or the principal contractor appoints an appropriate individual with responsibility for: a. Undertaking design reviews and giving advice on suitability for ease of commissioning. b. Providing commissioning management input to construction programming and during installation stages. c. Management of commissioning, performance testing and handover or post-handover stages.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						For buildings with complex building services and systems, this role needs to be carried out by a specialist commissioning manager (can either be a specialist from the same organisation as the Main Contractor, or a separate external instruction). **Design Stage Evidence:** - Letter of Commitment - Relevant sections / clauses of the building specification / contract **Post Construction Stage Evidence:** - Copies of commissioning records / reports - Formal letter confirming the commissioning responsibilities carried out by the specialist commissioning manager, for all complex systems.
Man 4c	**Testing and inspecting building fabric**	1	0	0.80%	Main Contractor	**Credit Not Targeted** **BREEAM Criteria:** **1)** Achieve the 'Commissioning – Testing Schedule and responsibilities' credit. **2)** Complete post-construction testing and inspection to quality-assure the integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths (this is through **airtightness testing** and a **thermographic survey**). A suitably qualified professional undertakes the survey and testing in accordance with the appropriate standard. **3)** Rectify any defects identified during post-construction testing and inspection prior to building handover and close out. Any remedial work must meet the required performance characteristics for the building or element as defined at the design stage. **Design Stage Evidence:** - Letter of Commitment.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Post Construction Stage Evidence: - Copy of the thermographic survey results and air tightness testing results and, where applicable, a formal letter to confirm the measures taken to rectify any defects.
Man 4d	**Handover**	N/A	N/A	N/A	Design Team	<u>Credit Not Applicable</u> **BREEAM Criteria:** **1)** Prior to handover, develop two building user guides for the following users: a: A non-technical user guide for distribution to the building occupiers. b: A technical user guide for the premises facilities managers. Draft copies will be developed and discussed with users first (where the building occupants are known) to ensure the guide is most appropriate and useful to potential users. **2)** Prepare two training schedules timed appropriately around handover and proposed occupation plans for the following users: a: A non-technical training schedule for the building occupiers. b: A technical training schedule for the premises facilities managers. **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and/or a formal letter of commitment confirming the requirement to develop two compliant Building User Guides. - Relevant sections/clauses of the building specification/contract and/or a formal letter of commitment confirming the requirement to develop two training schedules.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Post Construction Stage Evidence: - Copy of the two BREEAM compliant Building User Guides required, covering the minimum BREEAM contents. - Formal letter confirming that the Building User Guide has been distributed to all building occupiers and premises managers. - Copy of the two training schedules required, covering the minimum BREEAM contents.
Man 5 – Aftercare						
Man 5a	**Aftercare Support**	N/A	N/A	N/A	Developer	**Credit Not Applicable** **BREEAM Criteria:** **1)** Provide aftercare support to the building occupiers through having in place operational infrastructure and resources. This includes as a minimum: • A meeting between the aftercare support team or individual, and the building occupier or management team (prior to initial occupation, or as soon as possible thereafter) to: • Introduce the aftercare support available, including the content of the building user guide (where it exists) and training schedule. • Present key information about features of the building including the design intent and how to use the building to ensure it operates as efficiently and effectively as possible. • On-site facilities management training including: • A walkabout of the building **AND** • introduction to and familiarisation with the building systems, their controls and how to operate them in accordance with the design intent and operational demands. • Provide initial aftercare support for at least the first month of building occupation, e.g. weekly attendance on-site, to support building users

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						and management (the level of frequency will depend on the complexity of the building and building operations). • Provide longer term aftercare support for occupiers for at least the first 12 months from occupation, e.g. a helpline, nominated individual or other appropriate system to support building users and management. **2)** Establish operational infrastructure and resources to coordinate the collection and monitoring of energy and water consumption data for a minimum of 12 months, once the building is substantially occupied. This facilitates analysis of discrepancies between actual and predicted performance, with a view to adjusting systems and user behaviours accordingly. **Design Stage Evidence:** - Letter of Commitment - Relevant sections / clauses of the building specification / contract **Post Construction Stage Evidence:** - Contract to provide compliant aftercare support and training. - Commissioning records, reports and letter of appointment.
Man 5b	**Commissioning - Implementation**	N/A	N/A	N/A	M&E	<u>Credit Not Applicable</u> **BREEAM Criteria:** **1)** Complete the following commissioning activities over a minimum 12-month period, once the building becomes substantially occupied. **Complex systems**: The specialist commissioning manager will: a. Identify changes made by the owner or operator that might have caused impaired or improved performance. b. Test all building services under full load conditions, i.e. heating equipment in mid-winter, cooling and ventilation equipment in mid-summer and under part load conditions (spring and autumn).

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						c. Where applicable, carry out testing during periods of extreme (high or low) occupancy. d. Interview building occupants (where they are affected by the complex services) to identify problems or concerns regarding the effectiveness of the systems. e. Produce monthly reports comparing sub-metered energy performance to the predicted one. f. Identify inefficiencies and areas in need of improvement. g. Re-commission systems (following any work needed to serve revised loads) and incorporate any revisions in operating procedures into the operations and maintenance (O&M) manuals. **Simple systems** (naturally ventilated): The external consultant, aftercare team or facilities manager will: a. Review thermal comfort, ventilation, and lighting, at three, six and nine month intervals after initial occupation, either by measurement or occupant feedback. b. Identify deficiencies and areas in need of improvement. c. Re-commission systems and incorporate any relevant revisions in operating procedures into the O&M manuals. **Design Stage Evidence:** - Letter of Commitment - Relevant sections / clauses of the building specification / contract **Post Construction Stage Evidence:** - As per Design Stage.
Man 5c	**Post Occupancy Evaluation**	N/A	N/A	N/A	Developer	**Credit Not Applicable** **BREEAM Criteria:** **1)** The client or building occupier commits to carry out a POE exercise (see Definitions on the facing page) one year after the building is substantially occupied. This gains comprehensive in-use performance feedback identifies

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						gaps between design intent and in-use performance. The aim is to highlight any improvements or interventions that need to be made and to inform operational processes. **An independent party carries out the POE covering**: a. A review of the design intent and construction process (review of design, procurement, construction and handover processes). b. Feedback from a wide range of building users including facilities management on the design and environmental conditions of the building covering: i. Internal environmental conditions (light, noise, temperature, air quality) ii. Control, operation and maintenance iii. Facilities and amenities iv. Access and layout v. Energy and water consumption vi. Other relevant issues, where appropriate **2)** The independent party provides a report with lessons learned to the client and building occupiers. **3)** The client or building occupier commits funds to pay for the POE in advance. **Design Stage Evidence:** - Letter of Commitment - Relevant sections / clauses of the building specification / contract **Post Construction Stage Evidence:** - Letter of appointment - Contract to provide POE exercise.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Health and Wellbeing						
Hea 1 - Visual Comfort						
Hea 1a	**Glare Control**	N/A	N/A	N/A	Architect	<u>Credit Not Applicable</u> **BREEAM Criteria:** **1)** Identify areas at risk of glare using a glare control assessment. The glare control assessment also justifies any areas deemed not at risk of glare. **2)** Where risk has been identified within a relevant building area, a glare control strategy issued to design out the potential for glare. The glare control strategy does not increase energy consumption used for lighting. This is achieved by: a. Maximising daylight levels in all weather, cloudy or sunny AND b. Ensuring the use or location of shading does not conflict with the operation of lighting control systems. **Definition**: Glare control - relevant building areas *For glare control include areas of the building where lighting and resultant glare could be problematic for users, e.g. those areas that have been designed to contain or use workstations, projector screens etc. and sports halls.* **Design Stage Evidence:** - Glare control assessment identifying areas at risk of glare and building form, layout and/or design measures implemented in order to design out potential glare in all relevant building areas. **Post Construction Stage Evidence:** - Formal letter confirming that the building has been constructed according to measures identified in the glare control assessment.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Hea 1b	**Daylighting**	2	0	0.88%	Daylight Consultant	<u>Credit Not Targeted</u> **BREEAM Criteria:** **1)** Daylighting criteria have been met: - **80% of building areas that are designed to be occupied for 30 minutes or more achieve a 2% Average Daylight Factor** **Definition:** Daylighting - relevant building areas *For the purpose of BREEAM, this is defined as areas within the building where good daylighting is considered to be of benefit to the building users (typically those areas occupied continuously for 30 minutes or more). This includes the following (where occupied continuously for 30 minutes or more) specifically stated because they are often omitted:* *1. Sports hall exercise spaces* *4. Kitchen and catering areas* *5. General communal areas* *6. Small offices (including those within multi-residential buildings)* *7. Meeting rooms (including those within multi-residential buildings)* *8. Leisure areas* *9. Any area that may involve close up work.* *However, this <u>excludes</u> the following (where present):* *Media, arts production, SEN sensory spaces, and other areas requiring strictly controlled acoustic or lighting conditions.* **Design Stage Evidence:** - Daylighting Calculations **Post Construction Stage Evidence:** - Formal letter confirming that the building has been constructed according to measures identified in the Daylighting assessment.

Project: Plot H, Sister, Manchester
Project No: 7067
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Revision: 2.0

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Hea 1c	**View Out**	1	1	0.88%	Architect	**BREEAM Criteria:** **1) 95% of the floor area in 95% of spaces for each relevant building area (rooms designed to have desks / workstations are within 8m of an external wall which has a window which is at least 20% of the surrounding wall area.** Where the room depth is greater than 8m, the percentage of window opening must be at least the same as the values in Table 1.0 BS8206: Part 2. **Definition/Applicable Rooms:** BREEAM defines relevant building areas requiring a view out to include areas of the building where: 1. There are or will be workstations or benches or desks for building users. 2. Close work will be undertaken, or visual aids will be used. **For Shell Only assessments, where relevant building areas may not be known, it is acceptable to draw a notional line on the plans and calculations made based on these relevant areas only.** **Design Stage Evidence:** - View Out Calculations **Post Construction Stage Evidence:** - Formal letter confirming that the building has been constructed according to measures identified in the View Out calculations.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Hea 1d	**Internal and External Lighting**	1	1	0.88%	M&E	**BREEAM Criteria:** **3) External Lighting –** All external lighting located within the construction zone is designed in accordance with **BS 5489-1:2013 Lighting of roads and public amenity areas** and **BS EN 12464-2:2014 Light and lighting - Lighting of work places - Part 2: Outdoor work places**. **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and/or a formal letter - Design drawings demonstrating the external lighting. **Post Construction Stage Evidence:** - Formal letter confirming that there have been no changes to the external lighting design. - 'As built' drawings showing the lighting layout - BREEAM assessor's site inspection.
Hea 2 Indoor Air Quality						
Hea 2a	**Pre-requisite - Indoor Air Quality Plan**	N/A	N/A	N/A	Design Team/ Indoor Air Quality Specialist	**Credit Not Applicable** **BREEAM Criteria:** **1)** A site-specific indoor air quality plan has been produced and implemented in accordance with the guidance in Guidance Note GN06 during the **design stages**. The objective of the plan is to facilitate a process that leads to design, specification and installation decisions and actions that minimise indoor air pollution during occupation of the building. The indoor air quality plan must consider the following: a. Removal of contaminant sources b. Dilution and control of contaminant sources: c. Where present, consideration is given to the air quality

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						requirements of specialist areas such as laboratories d. Procedures for pre-occupancy flush out e. Third party testing and analysis f. Maintaining good indoor air quality in-use. **Design Stage Evidence:** - Copy of Indoor Air Quality Plan. **Post Construction Stage Evidence:** - As per Design Stage.
Hea 2b	**Ventilation**	N/A	N/A	N/A	M&E	<u>Credit Not Applicable</u> **BREEAM Criteria:** **1)** The building has been designed to minimise the indoor concentration and recirculation of pollutants in the building as follows: a. Provide fresh air into the building in accordance with the criteria of the relevant standard for ventilation. b. Ventilation pathways are designed to minimise the ingress and build-up of air pollutants inside the building. c. Where present, HVAC systems must incorporate suitable filtration to minimise external air pollution, as defined in BS EN16798-3:2017(45). The specified filters should achieve supply air classification of at least SUP 2. d. Occupied spaces have carbon dioxide or air quality sensors specified in accordance with Building Regulations ADF2 and: i. In mechanically ventilated buildings or spaces: sensors are linked to the mechanical ventilation system and provide demand-controlled ventilation to the space. ii. In naturally ventilated buildings or spaces: sensors either have the ability to alert the building owner or manager when CO_2 levels exceed the recommended set point, or are linked to controls with

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						the ability to adjust the quantity of fresh air, i.e. automatic opening windows or roof vents. iii. The total number of sensors and the net internal area covered by the sensors is reported to the BREEAM assessor. **2)** The ventilation strategy provides adequate ventilation rates throughout the year, including sufficient airflow rates in summer to prevent overheating and maintain required thermal comfort conditions, in accordance with CIBSE AM10 for naturally ventilated buildings, and CIBSE AM13 for mixed mode buildings. **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and design drawings demonstrating that fresh air into the building is designed in accordance with the criteria of the relevant standard for ventilation. **Post Construction Stage Evidence:** - Post completion confirmation that there has been no changes to the information provided at design stage. - ' As built' drawings at practical completion.
Hea 2c	**Volatile Organic Compounds (VOCs)**	N/A	N/A	N/A	Design Team and Main Contractor	**Credit Not Applicable** **BREEAM Criteria:** **One credit** Three out of the five product types meet the emission limits, testing requirements and any additional requirements listed in Table 5.11 of the BREEAM Technical Manual. Where wood-based products are not one of three selected product types, all wood-based products used for internal fixtures and fittings must be tested and classified as formaldehyde E1 class as a minimum. **Two Credits**

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						All the product types listed meet the emission limits, testing requirements and any additional requirements listed in Table 5.11 of the BREEAM Technical Manual. Product Types: • Interior paints and coatings • Wood based products (including flooring) • Flooring materials (including floor levelling compounds and resin flooring) • Ceiling, wall, and acoustic thermal insulation materials • Interior adhesives and sealants (including flooring adhesives) **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and/or a formal letter confirming the requirement for product types to meet the emission limits, testing requirements and any additional requirements listed in Table 5.11 of the BREEAM NC 2018 scheme guidance. **Post Construction Stage Evidence:** - Manufacturer's literature and/or a formal letter from the product manufacturer confirming compliance with the emission limits, testing requirements and any additional requirements listed in Table 5.11 of the BREEAM NC 2018 scheme guidance.
Hea 2d	**Volatile organic compound (VOC) emission levels (post construction)**	N/A	N/A	N/A	Main Contractor/ Indoor Air Quality Specialist	**Credit Not Applicable** **BREEAM Criteria:** **1)** The formaldehyde concentration in indoor air is measured post construction (but pre-occupancy) and does not exceed 100µg/m³ averaged over 30 minutes (World Health Organization guidelines for indoor air quality: Selected pollutants, 2010. **2)** The formaldehyde sampling and analysis is performed in accordance with ISO 16000-2 and ISO 16000-3.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						3) The total volatile organic compound (TVOC) concentration in indoor air is measured post construction (but pre-occupancy) and does not exceed 500µg/m³over 8 hours. **4)** The TVOC sampling and analysis is performed in accordance with ISO 16000-5 and ISO 16000-6 or ISO 16017-1. **5)** Where levels are found to exceed these limits, the project team confirms the measures that have, or will be, undertaken in accordance with the IAQ plan, to reduce the TVOC and formaldehyde levels to within the above limits. **6)** The measured concentration levels of formaldehyde (µg/m³) and TVOC (µg/m³) are reported, via the BREEAM Scoring and Reporting Tool. **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and/or a formal letter of commitment **Post Construction Stage Evidence:** - Copy of the VOC and formaldehyde testing report confirming emission levels that are compliant with the required standards. - Formal written confirmation of the measures taken, in accordance with the projects IAQ plan, to reduce the levels to within the stipulated limits (where applicable).
Hea 4 Thermal Comfort						
Hea 4a	**Thermal modelling**	N/A	N/A	N/A	Thermal Modeller/M&E	**Credit Not Applicable** **BREEAM Criteria:** **1)** Thermal modelling has been carried out using software in accordance with CIBSE AM11 Building Energy and Environmental Modelling during the design stages. **2) The software used to carry out the simulation at the detailed design stage provides full dynamic thermal analysis.** For smaller and more basic building

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						designs with less complex heating or cooling systems, an alternative less complex means of analysis may be appropriate (such methodologies must still be in accordance with CIBSE AM11). **3)** The modelling demonstrates that: a. **For air-conditioned buildings**, **summer and winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design**, Table 1.5; or other appropriate industry standard (where this sets a higher or more appropriate requirement/level for the building type). b. **For naturally ventilated/free running buildings**: i. **Winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design**, Table 1.5; or other appropriate industry standard (where this sets a higher or more appropriate requirement/level for the building type). ii. **The building is designed to limit the risk of overheating, in accordance with the adaptive comfort methodology outlined in CIBSE TM52: The limits of thermal comfort: avoiding overheating in European buildings.** **4) For air-conditioned buildings, the PMV (predicted mean vote) and PPD (predicted percentage of dissatisfied) indices based on the above modelling are reported via the BREEAM assessment scoring and reporting tool.** **Design Stage Evidence:** - Thermal Modelling Report - PMV (Predicted Mean Vote) and PPD (Predicted Percentage of Dissatisfied) indices based on the thermal modelling. **Post Construction Stage Evidence:**

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- Formal letter confirming that there have been no changes to the design since the thermal comfort assessment has been carried out, therefore equipment has been installed as per the design stage specification in order to achieve the design heating and cooling internal temperatures.
Hea 4b	**Designing for future thermal comfort**	N/A	N/A	N/A	Thermal Modeller/M&E	<u>Credit Not Applicable</u> **BREEAM Criteria:** **1)** The 'Thermal Modelling' criteria are achieved. **2)** The thermal modelling demonstrates that the relevant requirements are achieved for a projected climate change environment. Where this is not met, the project team demonstrates how the building has been adapted or designed to be easily adapted in future using passive design solutions in order to subsequently meet the requirements. **3)** For air-conditioned buildings, the PMV and PPD indices based on the above modelling are reported via the BREEAM assessment scoring and reporting tool. **Design Stage Evidence:** - Thermal Modelling Report - PMV (Predicted Mean Vote) and PPD (Predicted Percentage of Dissatisfied) indices based on the thermal modelling. **Post Construction Stage Evidence:** - Formal letter confirming that there have been no changes to the design since the thermal comfort assessment has been carried out, therefore equipment has been installed as per the design stage specification in order to achieve the design heating and cooling internal temperatures.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Hea 4c	**Thermal zoning and controls**	N/A	N/A	N/A	Thermal Modeller/M&E	<u>Credit Not Applicable</u> **BREEAM Criteria:** **1)** The 'Thermal Modelling' criteria are achieved. **2) The thermal modelling analysis has informed the temperature control strategy for the building and its users.** The strategy for proposed heating or cooling systems demonstrates that it has addressed the following: a. Zones within the building, and how the building services could efficiently and appropriately heat or cool these areas. For example, consider the different requirements for the central core of a building compared with the external perimeter adjacent to the windows. b. The degree of occupant control required for these zones. This is based on discussions with the end user (or alternatively building type or use specific design guidance, case studies, feedback) and considers: i. User knowledge of building services. ii. Occupancy type, patterns and room functions (and therefore appropriate level of control required). iii. How the user is likely to operate or interact with the systems, e.g. are they likely to open windows, access thermostatic radiator valves (TRV) on radiators, change air-conditioning settings etc. iv. The user expectations (this may differ in the summer and winter) and degree of individual control (i.e. obtaining the balance between occupant preferences, for example some occupants like fresh air and others dislike draughts). c. How the proposed systems will interact with each other (where there is more than one system) and how this may affect the thermal comfort of the building occupants. d. The need or otherwise for an accessible building user actuated manual

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						override for any automatic systems. **Design Stage Evidence:** - Copy of the temperature control strategy, covering the minimum content required by BREEAM, which has been influenced by the thermal modelling to demonstrate appropriate thermal zones and occupant controls. - Design drawings demonstrating the thermal zones and occupant controls within each occupied area of the building. **Post Construction Stage Evidence:** - Formal letter confirming that there have been no changes to the design stage since the thermal comfort assessment has been carried out.
Hea 5 - Acoustic Performance						
Hea 5a	**Performance Standard**	1	1	0.88%	Acoustician	**BREEAM Criteria:** **1)** During the design stages the building meets the appropriate acoustic performance standards and testing requirements for the acoustic principles of: a. Indoor ambient noise level **Shell Only requirements** - The basic built form has a large impact on the acoustic performance of the building and would be outside the control of the tenant. A suitably qualified acoustician (SQA) must carry out a quantifiable assessment of the specification of the build form, construction and any external factors likely to affect the indoor ambient noise levels. The SQA must then confirm the developer's works will enable a future tenant utilising a typical fit-out and specification to meet the levels required to demonstrate compliance. COMMERCIAL SPECIFIC REQUIEMENTS: Indoor ambient noise levels - Achieve indoor ambient noise levels that comply with the design ranges given in Section 7 of BS8233:2014.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Design Stage Evidence: - Acousticians report demonstrating compliance with appropriate acoustic performance standards and testing requirements for sound insulation, indoor ambient noise levels and room acoustics. - Relevant sections/clauses of the building specification/contract and/or a formal letter confirming that a programme of pre-completion testing will be carried out **Post Construction Stage Evidence:** - Acousticians' pre-completion testing report confirming that the requirements for sound insulation, indoor ambient noise levels and reverberation have been met. - Formal letter, where relevant, to confirm that all required remedial works have been carried out in accordance with the acousticians' recommendations.
Hea 6 - Safety and Security						
Hea 6a	**Consultation with ALO**	1	0	0.88%	Architect/ALO	**Credit Not Targeted** **BREEAM Criteria:** **1)** A Suitably Qualified Security Specialist (SQSS) conducts an evidence-based Security Needs Assessment (SNA) during or prior to **Concept Design** (RIBA Stage 2 or equivalent). The purpose of the SNA will be to identify attributes of the proposal, site and surroundings which may influence the approach to security for the development. **2)** The SQSS develops a set of security controls and recommendations for incorporation into the proposals. Those controls and recommendations shall directly relate to the threats and assets identified in the preceding SNA. **3)** The controls and recommendations shall be incorporated into proposals and implemented in the as-built development. Any deviation from those controls and recommendations shall be justified and agreed with the SQSS.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Design Stage Evidence: - Security Needs Assessment in line with BREEAM requirements. **Post Construction Stage Evidence:** - Formal letter confirming that the recommendations contained within the SNA have been incorporated within he building design (with examples). - 'As Built' drawings
Hea 07 – Safe and Healthy Surroundings						
Hea 7a	**Safe Access**	1	0	0.88%	Architect/Landscape Architect	**Credit Not Targeted** **BREEAM Criteria:** **1)** Where external site areas form part of the assessed development the following apply: **2) Dedicated and safe cycle paths are provided from the site entrance to any cycle storage and connect to offsite cycle paths where applicable.** **3) Dedicated and safe footpaths are provided on and around the site providing suitable links for the following:** a. The site entrance to the building entrance. b. Car parks (where present) to the building entrance. c. The building to outdoor space. d. Connecting to off-site paths where applicable. **4) Pedestrian drop-off areas are designed off, or adjoining to, the access road and should provide direct access to other footpaths.** **5)** Where vehicle delivery access and drop-off areas form part of the assessed development, the following apply: **Delivery areas are not accessed through general parking areas and do not cross or share the following:**

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						a. Pedestrian and cyclist paths. b. Outside amenity areas accessible to building users and general public. 6) There is a dedicated parking or waiting area for goods vehicles with appropriate separation from the manoeuvring area and staff and visitor car parking. 7) Parking and turning areas are designed for simple manoeuvring according to the type of delivery vehicle likely to access the site, thus avoiding the need for repeated shunting. **Design Stage Evidence:** - Design Drawings - Letter of Commitment **Post Construction Stage Evidence:** - 'As Built' Drawings - Letter of Confirmation - Site Inspection Report
Hea 7b	**Outside Space**	1	1	0.88%	Architect/Landscape Architect	**BREEAM Criteria:** **1)** There is an outside space providing building users with an external amenity area. The outside space must: - be an outdoor landscaped area, for example a garden, balcony or terrace; the majority of the space should be open to the sky. - have appropriate seating areas and be non-smoking. - be located to ensure it is accessible to all building users and avoids areas that will have disturbances from sources of noise (e.g. building services, car parks, busy roads, delivery areas etc.). **Design Stage Evidence:** - Formal letter of commitment.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- Design drawings demonstrating the provision of an outside space providing building users with an external amenity area. **Post Construction Stage Evidence:** - Formal letter of confirmation. - 'As Built' drawings demonstrating the provision of an outside space providing building users with an external amenity area.
Energy						
Ene 1 - Reduction of CO2 Emissions						
Ene 1a	**Reduction of CO_2 Emissions**	9	1	0.73%	Energy Assessor	**BREEAM Criteria:** 1) Calculate an Energy Performance Ratio just for the building's heating and cooling energy demand only (EPR ED). Compare the EPR ED achieved with the Energy Performance Ratio for New Construction (EPRNC) benchmark scale and award the corresponding number of BREEAM credits. **Design Stage Evidence:** - A copy of the building regulations output document from the approved software. **Post Construction Stage Evidence:** - As per interim design stage., but with the output documents from the approved software reflecting performance at the as-built stage of analysis. This must account for any changes to the specification during construction and the measured air leakage rate, ductwork leakage and fan performances (as required by building regulations).

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Ene 1b	**Prediction of operational energy consumption**	4	0	0.73%	Energy Assessor/Design Team	<u>Credit Not Targeted</u> **BREEAM Criteria:** **1)** Involve relevant members of the design team in an energy design workshop focusing on operational energy performance. **2)** Undertake additional energy modelling during the design and post-construction stage to generate predicted operational energy consumption figures. **3)** Report predicted energy consumption targets by end use, design assumptions and input data (with justifications). **4)** Carry out a risk assessment to highlight any significant design, technical, and process risks that should be monitored and managed throughout the construction and commissioning process. **Design Stage Evidence:** - Workshop minutes, agreed outcomes. - Predicted energy consumption values, design assumptions, input data and risk assessments reported as detailed in the Energy Prediction and Post-occupancy guidance available from the BREEAM website. Confirmation of suitably qualified energy modeller's qualifications and experience. **Post Construction Stage Evidence:** - As per interim design stage. - Where changes to design assumptions and input data have occurred at postconstruction stage, the energy modelling should be re-run to take into account those changes.
Ene 2 - Energy Monitoring						
Ene 2a	**Sub-metering of major energy consuming systems**	N/A	N/A	N/A	M&E	<u>Credit Not Applicable</u> **BREEAM Criteria:**

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						1) Install energy metering systems so that at least 90% of the estimated annual energy consumption of each fuel is assigned to the end-use categories. <u>Fuel Types</u> Gas Electricity <u>End Uses</u> Space heating Domestic hot water heating Humidification Cooling Ventilation Pumps Lighting Small power Renewable or low carbon systems Controls **2)** Meter the energy consumption in buildings according to the total useful floor area: **If the area is greater than 1,000m², by end-use category with an appropriate energy monitoring and management system.** If the area is less than 1,000m², use either: - an energy monitoring and management system or - Separate accessible energy sub-meters with pulsed or other open protocol communication outputs, for future connection to an energy monitoring and management system. **3) Building users can identify the energy consuming end uses, for example through labelling or data outputs.**

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Design Stage Evidence: - Relevant sections/clauses of the building specification/contract and design drawings demonstrating the proposed metering strategy. - Details of the energy monitoring and management system. - Formal written confirmation that the end energy consuming uses will be identifiable to the building users i.e. through labelling or data outputs. **Post Construction Stage Evidence:** - 'As built' drawings confirming the installed metering strategy in line with the design stage specification. - BREEAM assessor's site inspection.
Ene 2b	**Sub-metering of high energy load and tenancy areas**	N/A	N/A	N/A	M&E	**Credit Not Applicable** **BREEAM Criteria:** **1)** Monitor a significant majority of the energy supply with: a. An accessible energy monitoring and management system for: a.i tenanted areas, or; a.ii relevant function areas or departments in single occupancy buildings. - Kitchens (excluding small staff kitchens and food technology rooms) - Computer suites - Workshops - Lecture halls - Conference rooms - Drama studios - Swimming pools - Sports halls - Process areas - Laboratories - High containment suites within laboratories - Controlled environment chambers

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- Animal accommodation areas - Data centres - IT work and study rooms, including IT-equipped library space and any space with provision of more than one computer terminal per 5m² **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and design drawings demonstrating the proposed metering strategy. - Details of the energy monitoring and management system. - Formal written confirmation that the end energy consuming uses will be identifiable to the building users i.e. through labelling or data outputs. **Post Construction Stage Evidence:** - 'As built' drawings confirming the installed metering strategy in line with the design stage specification. - BREEAM assessor's site inspection.
Ene 3 - External Lighting						
Ene 3	**External Lighting**	1	1	0.73%	M&E	**BREEAM Criteria:** **1)** No external lighting (which includes lighting on the building, at entrances, or signs), **OR;** **2) The average initial luminous efficacy of the external light fittings within the construction zone is not less than 70 luminaire lumens per circuit Watt.** **External light fittings are automatically controlled for prevention of operation during daylight hours AND presence detection in areas infrequently used.** **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and design drawings

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- Manufacturer's datasheets confirming the lamp lumens and circuit Watt for each fitting, confirming an average luminous efficacy of not less than 70 lumens per circuit Watt. **Post Construction Stage Evidence:** - 'As built' drawings showing the number and type of installed external light fittings - Where changes have occurred since the design stage specification, please provide manufacturer's datasheets for the installed fittings confirming the lamp lumens and circuit Watt of each fitting. - BREEAM assessor's site inspection.
Ene 4 - Low Carbon Design						
Ene 4a	**Passive Design Analysis**	1	0	0.73%	M&E / Energy Assessor	**Credit Not Targeted** **BREEAM Criteria:** **1)** Achieve the first credit Hea 04 Thermal comfort: One credit - Thermal modelling to demonstrate that the building design delivers appropriate thermal comfort levels in occupied spaces. **2)** The project team analyses the proposed building design and development during **Concept Design** to identify opportunities for the implementation of passive design measures **3)** Implement passive design measures to reduce the total heating, cooling, mechanical ventilation, lighting loads and energy consumption in line with the passive design analysis findings. **4)** Quantify the reduced total energy demand and carbon dioxide (CO_2-eq) emissions resulting from the passive design measures. **Design Stage Evidence:** - Passive Design Analysis Report.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- Results from a dynamic simulation model demonstrating the reduced energy demand and CO_2-eq emissions from the specified passive design measures. **Post Construction Stage Evidence:** - As per interim design stage.
Ene 4b	**Free Cooling**	1	0	0.73%	M&E / Energy Assessor	**Credit Not Targeted** **BREEAM Criteria:** **1)** Achieve the passive design analysis credit. **2)** Include a free cooling analysis in the passive design analysis. **3)** Identify opportunities for the implementation of free cooling solutions. **4)** The building is naturally ventilated or uses any combination of the free cooling strategies listed below: - Night-time cooling (which could include the use of a high exposed thermal mass) - Ground coupled air cooling - Displacement ventilation (not linked to any active cooling system) - Ground water cooling - Surface water cooling - Evaporative cooling, direct or indirect - Desiccant dehumidification and evaporative cooling, using waste heat - Absorption cooling, using waste heat.
Ene 4b	**LZC Technologies**	1	0	0.73%	M&E / Energy Assessor	**Credit Not Targeted**

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						BREEAM Criteria: **1)** An energy specialist completes a feasibility study (see Low and zero carbon feasibility study on the next page) by the end of **Concept Design**. **2)** Establish the most appropriate recognised local (on-site or near-site) low and zero carbon (LZC) energy sources for the building or development based on the feasibility study. **3)** Specify local LZC technologies for the building or development in line with the feasibility study recommendations. **4)** Quantify the reduced regulated carbon dioxide (CO_2-eq) emissions resulting from the feasibility study. **Design Stage Evidence:** - LZV Feasibility Report - Results from a dynamic simulation model demonstrating reductions in CO_2-eq emissions from the specified low and zero carbon technology. **Post Construction Stage Evidence:** - As per interim design stage.
Ene 6 - Energy Efficient Transportation Systems						
Ene 6	**Lifts & Escalators**	N/A	N/A	N/A	Lift Supplier	**Credit Not Applicable** **BREEAM Criteria:** **Energy Consumption** For specified lifts, escalators or moving walks (transportation types): a. **Analyse the transportation demand and usage patterns for the building to determine the optimum number and size of lifts, escalators or moving walks.** b. **Calculate the energy consumption** in accordance with BS EN ISO 25745 Part 2 (132) or Part 3 (133) for one of the following:

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- least two options for each transportation type (e.g. for lifts, hydraulic, traction or machine room-less (MRL)) OR; - At least two options considering different system arrangements and control strategies. c. **Consider the use of regenerative drives**, subject to the requirements in Regenerative drives in the BREEAM manual. d. **Specify the transportation system with the lowest energy consumption.** **Energy Efficient Features** Specify the following three energy efficient features for each lift: a. **A standby condition for off-peak periods.** b. **The lift car lighting and display lighting provides an average luminous efficacy across all fittings in the car of >70 luminaire lumens per circuit Watt.** c. **Use of a drive controller capable of variable speed, variable-voltage, and variable - frequency (VVVF) control of the drive motor.** Specify regenerative drives where their use is demonstrated to save energy. **Design Stage Evidence:** - Transportation analysis and/or calculations based on usage patterns for the building - Letter of Commitment **Post Construction Stage Evidence:** - Manufacturer's datasheet for the installed lift, in line with the design stage specification. - Post completion confirmation that there has been no changes to the information provided at design stage. - BREEAM Assessor's site inspection.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Ene 8 - Energy Efficient Equipment						
Ene 8	**Energy Efficient Equipment**	N/A	N/A	N/A	M&E/End Occupier	<u>Credit Not Applicable</u> **BREEAM Criteria:** **1)** Identify the building's unregulated energy consuming loads. Estimate their contribution to the total annual unregulated energy consumption of the building, assuming a typical or standard specification. **2)** Identify the systems or processes that use a significant proportion of the total annual unregulated energy consumption of the building. **3)** Demonstrate a meaningful reduction in the total annual unregulated energy consumption of the building. Table 6.5 (within the BREEAM Technical) lists some examples of significant contributors to unregulated energy consumption, and the associated criteria. If additional significant contributors, not listed in the table, will be specified, the design team should justify how a meaningful reduction will be achieved for these contributors. **Estimating annual unregulated energy consumption** - A method should be used that estimates actual energy use, based on expected equipment loads and hours of operation. The energy uses may be estimated by using simple hand calculations, or benchmark data, or by the methods described in CIBSE TM54: Evaluating operational energy performance of buildings at the design stage. **Design Stage Evidence:** - Energy Efficient Equipment Report - Product datasheets **Post Construction Stage Evidence:** - Manufacturer's datasheet for the installed equipment, in line with the design stage specification. - Post completion confirmation that there has been no changes to the information provided at design stage. - BREEAM Assessor's site inspection.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Transport						
Tra 1 - Transport assessment and travel plan						
Tra 1	**Transport assessment and travel plan**	2	2	1.20%	BREEAM Assessor	**BREEAM Criteria:** **1)** No later than **Concept Design** stage, undertake a site-specific transport assessment (or develop a travel statement) and draft travel plan, which can demonstrably be used to influence the site layout and built form. **2)** The site-specific travel assessment (or statement) shall cover as a minimum: a: If relevant, travel patterns and attitudes of existing building or site users towards cycling, walking and public transport, to identify relevant constraints and opportunities. b: Predicted travel patterns and transport impact of future building or site users. c: Current local environment for pedestrians and cyclists, accounting for any age-related requirements of occupants and visitors. d: Reporting of the number and type of existing accessible amenities, within 500m of the site. e: Disabled access accounting for varying levels and types of disability, including visual impairment. f: Calculation of the existing public transport Accessibility Index (AI), g: Current facilities for cyclists. **3) Following a transport assessment, a site-specific travel plan that provides a long-term management strategy which encourages more sustainable travel will be produced.** The travel plan includes measures to increase or improve more sustainable modes of transport and movement of people and goods during the building's operation. **Design Stage Evidence:** - Copy of the travel plan based on a site-specific travel survey/assessment

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- Formal letter to confirm that the recommendations of the travel plan will be implemented post construction and supported by the building's management in operation. **Post Construction Stage Evidence:** - Formal letter confirming that the travel plan will be implemented and supported by the building's management in operation. - BREEAM assessor's site inspection.
Tra 2 – Sustainable Transport Measures						
Tra 2	**Sustainable Transport Measures**	10	5	1.20%	BREEAM Assessor	**BREEAM Criteria:** **1)** Award credits according to the existing Accessible Index (AI) of the project, and the total number of points achieved for the options implemented. **1. The existing AI calculated in Tra 01 achieves ≥ 8.** 2. Demonstrate an increase over existing accessibility / dedicated service. 3. Provide a public transport information system in a publicly accessible area, to allow building users access to up-to-date information on the available public transport and transport infrastructure. This may include signposting to public transport, cycling, walking infrastructure or local amenities. 6. Provide electric recharging stations of a minimum of 3kW for at least 10% of the total car parking capacity for the development. 7. Set up a car sharing group or facility. 8. Consult with local Authority, agree and implement one proposition. 9. Install compliant cycle storage spaces to meet the minimum levels. 10. Provide at least two compliant cyclists' facilities for the building users: Showers, Changing facilities, Lockers or Drying spaces. **11. At least three existing accessible amenities are present.** **12. Ensure a minimum of one new accessible amenity (eg access to outdoor open space), is provided.** **Design Stage Evidence:** - Provide evidence demonstrating the sustainable transport measures being implemented on site.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- Design Stage drawings **Post Construction Stage Evidence:** - Post Construction Stage drawings - BREEAM assessor's site inspection.
Water						
Wat 1 - Water Consumption						
Wat 1	**Water Consumption**	N/A	N/A	N/A	Architect/M&E	<u>Credit Not Applicable</u> **BREEAM Criteria:** **1)** Use the BREEAM Wat 01 calculator to assess the efficiency of the domestic water-consuming components. **2)** Use the standard Wat 01 method to compare the water consumption (litres/person/day) for the assessed building against a baseline performance. **3)** Award BREEAM credits based upon the percentage improvement over baseline building water consumption. The efficiency of the following 'domestic scale' water-consuming components must be included in the assessment: - WCs - Urinals - Taps (wash hand basins and where specified kitchen taps and waste disposal unit) - Showers - Baths - Dishwashers (domestic and commercial sized) and - Washing machine (domestic and commercial or industrial sized) <u>No. of BREEAM credits</u> <u>% improvement</u> 1 12.5% 2 25%

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						3 40% 4 50% 5 55% 1 exemplary performance credit 65% **Design Stage Evidence:** - A completed copy of the BREEAM Wat 01 calculator. - Product data sheets supporting the data used to complete the calculator tool. **Post Construction Stage Evidence:** - As per Design Stage.
Wat 2 - Water Monitoring						
Wat 2	**Water Monitoring**	1	1	0.66%	M&E	**BREEAM Criteria:** **1) Specify a water meter on the mains water supply to each building**. This includes instances where water is supplied via a borehole or other private source. **2) For each meter (main and sub):** **a. Install a pulsed or other open protocol communication output AND** **b. Connect it to an appropriate utility monitoring and management system,** e.g. a building management system (BMS), for the monitoring of water consumption. If there is no BMS system in operation at Post Construction stage, award credits provided that the system used enables connection when the BMS becomes operational. **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and design drawings - Letter of Commitment

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Post Construction Stage Evidence: - 'As built' drawings confirming the installation of a water meter on the mains water supply to the building. - Formal letter confirming that the water meter and sub-meters will be connected to the BMS. - BREEAM assessor's site inspection.
Wat 3 - Water Leak Detection and Prevention						
Wat 3a	**Leak detection system**	1	1	0.66%	M&E	**BREEAM Criteria:** **1) A leak detection system which is capable of detecting a major water leak on the mains water supply within the building <u>and between</u> the building and the utilities water meter is installed.** The leak detection system must be: a. A permanent automated water leak detection system that alerts the building occupants to the leak OR an inbuilt automated diagnostic procedure for detecting leaks is installed. b. Activated when the flow of water passing through the water meter/data logger is at a flow rate above a pre-set maximum for a pre-set period of time. c. Able to identify different flow and therefore leakage rates, e.g. continuous, high and/or low level, over set time periods. d. Programmable to suit the owner/occupiers' water consumption criteria. e. Where applicable, designed to avoid false alarms caused by normal operation of large water-consuming plant such as chillers. **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and design drawings confirming the specification of a water leak detection system - Letter of Commitment

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Post Construction Stage Evidence: - 'As built' drawings showing the installation of a BREEAM compliant water leak detection system. - BREEAM assessor's site inspection.
Wat 3b	**Flow Control Devices**	N/A	N/A	N/A	M&E	**Credit Not Applicable** **BREEAM Criteria:** Install flow control devices that regulate the water supply to each WC area or sanitary facility according to demand, in order to minimise undetected wastage and leaks from sanitary fittings and supply pipework. **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and design drawings confirming the specification of flow control devices that regulate the supply of water to each WC area/facility i.e. solenoid valves connected to PIR controls to ensure water is supplied only when needed and therefore prevent minor water leaks. **Post Construction Stage Evidence:** - 'As built' drawings showing the installation of solenoid valves connected to PIRs in each toilet facility. - BREEAM assessor's site inspection.
Materials						
Mat 1 Environmental impacts from construction products - Building life cycle assessment (LCA)						
Mat 1	**Environmental impacts from construction products - Building life cycle assessment (LCA)**	6	0	1.57%	Architect/Structural Engineer	**Credit Not Targeted** **BREEAM Criteria:** **1)** During the **Concept Design**, demonstrate the environmental performance of the building as follows: a. Carry out a building LCA on of the superstructure design using either the

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						BREEAM Simplified Building LCA tool or an IMPACT Compliant LCA tool according to the methodology. b. Submit the Mat 01/02 Results Submission Tool to BRE at the end of **Concept Design**, and before planning permission is applied for (that includes external material or product specifications). **2)** During **Technical Design**, demonstrate the environmental performance of the building as follows: a. Carry out a building LCA on of the superstructure design using either the BREEAM Simplified Building LCA tool or an IMPACT Compliant LCA tool according to the methodology. b. Submit the Mat 01/02 Results Submission Tool to BRE at the end of **Technical Design**. **Design Stage Evidence:** - LCA options appraisal summary document. - Evidence that the LCA options appraisal summary document has been received by the design team and client (meeting minutes, letter of acknowledgement) - Evidence of how the LCA design options have informed the design decision-making process (e.g. meeting minutes, documented design development showing how the LCA options have affected the design). **Post Construction Stage Evidence:** - As per Design Stage.
Mat 02 - Environmental impacts from construction products – Environmental Product Declarations (EPD)						
Mat 2	**Environmental impacts from construction products – (EPD)**	1	0	1.57%	Architect/Structural Engineer	**Credit Not Targeted** **BREEAM Criteria:** Specify construction products with EPD that achieve a total EPD points score of at least 20, according to the Methodology in the BREEAM Technical Manual.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Design Stage Evidence: - The Mat 01/02 Results Submission tool. - Copies of EPD certificates. **Post Construction Stage Evidence:** - As per Design Stage.
Mat 3 - Responsible Sourcing of Materials						
Mat 3a MINIMUM STANDARD	**Timber Procurement**	Pre-Req.	Pre-req.	-	Main Contractor	**BREEAM Criteria:** All timber used on site will be sourced in accordance with the UK Government's Timber Procurement Policy. **Design Stage Evidence:** - Letter of Commitment confirming all timber will be legally harvested and traded timber. **Post Construction Stage Evidence:** - Copies of all relevant certificates or chain of custody evidence.
Mat 3b	**Sustainable Procurement Plan**	1	1	1.57%	Main Contractor	**BREEAM Criteria:** **1)** A sustainable procurement plan must be used by the design team to guide specification towards sustainable construction products. The plan must: a. Be in place before **Concept Design**. b. Include sustainability aims, objectives and strategic targets to guide procurement activities. Note: targets do not need to be achieved for the credit to be awarded but justification must be provided for targets that are not achieved. c. Include a requirement for assessing the potential to procure construction products locally. There must be a policy to procure construction products locally where possible. d. Include details of procedures in place to check and verify the effective

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						implementation of the sustainable procurement plan. **Design Stage Evidence:** - Copy of the sustainable procurement plan, which has been produced during Concept Design - Letter of Commitment **Post Construction Stage Evidence:** - As per Design Stage.
Mat 3c	**Major Building Elements**	3	1	1.57%	Main Contractor	**BREEAM Criteria:** Key building materials are responsibly sourced to reduce environmental and socio-economic impacts, as demonstrated through the specification of products with compliant Responsible Sourcing Certification (BES 6001, ISO 14001, FSC, PEFC). **Design Stage Evidence:** - Complete 'Mat 03' table. - Responsible sourcing certificates (i.e. ISO 14001, BES 6001 etc.) for each material comprising the applicable building elements. **Post Construction Stage Evidence:** - 'As built' drawings confirming the installation of materials for the applicable location and use categories as per the design stage. - Responsible sourcing certificates (i.e. ISO 14001, BES 6001 etc.) for each material comprising the applicable building elements.
Mat 5 - Designing for Robustness						
Mat 5	**Designing for Robustness**	1	1	1.57%	Architect	**BREEAM Criteria:** **Protecting vulnerable parts of the building from damage** **1)** The building incorporates suitable durability and protection measures or designed features/solutions to prevent damage to vulnerable parts of the

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						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.External building fabric damage by a vehicle. Protection where parking or manoeuvring areas are within 1 metre of the building façade and where delivery areas or routes are within 2 metres of the façade, i.e. specifying bollards or protection rails. d. Potential malicious damage to building materials and finishes, in public and common areas where appropriate. **Protecting exposed parts of the building from material degradation** **2)** Environmental factors have been identified that are relevant to the site location. **3)** Existing applicable building elements that are exposed to any relevant environmental factors have been identified. **4)** Existing applicable building elements have been surveyed have been assessed to identify impacts of material degradation effects including an assessment to grade the severity of any degradation effects. **5)** Design and specification measures have to be developed to repair and protect existing elements according to the severity of any degradation affects, to limit degradation. Where it is not feasible to implement measures to limit material degradation for existing elements, justification should be provided. **6)** Newly specified materials or newly constructed elements (e.g. a new external wall) within the scope of refurbishment or fit-out works incorporate

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						appropriate design and specification measures to limit material degradation due to environmental factors. **Design Stage Evidence:** - Design drawings illustrating the vulnerable areas/parts of the building and the durability measures specified to reduce damage to the building's fabric or materials in case of accidental or malicious damage. - Evidence confirming the applicable building elements appropriate to the building and the environmental factors likely to cause material degradation effects in the identified applicable materials. - Relevant sections/clauses of the building specification/contract and/or design drawings confirming the elements/products achieving an appropriate quality or durability standard or design guide **Post Construction Stage Evidence:** - 'As built' drawings confirming the installation of protection measures in order to protect vulnerable areas in line with the design stage specification. - BREEAM assessor's site inspection.
Mat 6	**Material Efficiency**	1	0	1.57%	Design Team	<u>Credit Not Targeted</u> **BREEAM Criteria:** **1)** At the **Preparation and Brief** and **Concept Design** stages, set targets and report on opportunities and methods to optimise the use of materials. These must be done for each of the following stages. - Preparation and Brief - Concept Design - Developed Design - Technical Design - Construction. **2)** Develop and record the implementation of material efficiency, during:

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- Developed Design - Technical Design - Construction. **3)** Report the targets and actual material efficiencies achieved. **Design Stage Evidence:** - Details of targets, opportunities and methods reported during each RIBA Stage (1-5) to optimise the use of materials **Post Construction Stage Evidence:** - Details of material efficiency measures implemented during the Developed Design (RIBA Stage 3), Technical Design (RIBA Stage 4) and Construction (RIBA Stage 5). - Provide details of the targets and actual material efficiencies achieved.
Waste						
Wst 1 - Construction Waste Management						
Wst 1b	**Pre-Demolition Audit**	1	1	0.80%	Developer	**BREEAM Criteria:** **1)** Complete a pre-demolition audit of any existing buildings, structures or hard surfaces being considered for demolition. This must be used to determine whether refurbishment or reuse is feasible and, in the case of demolition, to maximise the recovery of material for subsequent high grade or value applications. The pre-demolition audit must cover: - Identification and quantification of the key materials where present on the project - Potential applications and any related issues for the reuse and recycling of the key materials in accordance - with the waste hierarchy - Opportunities for reuse and recycling within the same development

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- Identification of local re-processors or recyclers for recycling of materials - Identification of overall recycling targets where appropriate - Identification of reuse targets where appropriate - Identification of overall landfill diversion rate for all key materials. **Design Stage Evidence:** - Pre-demolition Audit **Post Construction Stage Evidence:** - As per Design Stage
Wst 1c	**Construction Resource Efficiency**	3	2	0.80%	Main Contractor	**BREEAM Criteria:** **1)** Prepare a compliant Resource Management Plan (RMP) covering: a. Non-hazardous waste materials(from on-site construction and dedicated off-site manufacture or fabrication, including demolition and excavation waste. b. Accurate data records on waste arisings and waste management routes. **2)** Meet or improve upon the benchmarks below for non-hazardous construction waste, excluding demolition and excavation waste. No. of BREEAM credits — Amount of waste generated per 100m² (GIFA) 1 — ≤13.3 m³ or ≤11.1 tonnes **2 — ≤7.5 m³ or ≤6.5 tonnes** 3 — ≤3.4 m³ or ≤3.2 tonnes 1 exemplary performance credit — ≤1.6 m³ or ≤1.9 tonnes **Design Stage Evidence:** - A copy of the Resource Management Plan. - Relevant sections/clauses of the building specification/contract and/or a formal letter

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Post Construction Stage Evidence: - Copy of the final compliant Resource Management Plan confirming the waste types (per waste group) generated on site relating to on site construction and dedicated off site manufacture/fabrication (excluding demolition and excavation waste).
Wst 1d	**Diversion of waste from Landfill**	1	1	0.80%	Main Contractor	**BREEAM Criteria:** **1)** Meet the diversion from landfill benchmarks for non-hazardous construction waste and demolition and excavation waste generated. Sort waste materials into separate key waste groups, either on-site or through a licensed contractor for recovery. **<u>One Credit</u>** Non-Demolition – 70% by Volume or 80% by tonnage Demolition – 80% by Volume or 90% by tonnage Excavation – N/A **<u>Exemplary</u>** Non-Demolition – 85% by Volume or 90% by tonnage Demolition – 85% by Volume or 95% by tonnage Excavation – 95% by Volume or 95% by tonnage **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and/or a formal letter confirming **Post Construction Stage Evidence:** - Copy of the final compliant Resource Management Plan confirming the waste generated on site.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Wst 2 - Use of recycled and sustainably sourced aggregates						
Wst 2	**Recycled Aggregates**	1	0	0.80%	Main Contractor/Structural Engineer	<u>Credit Not Targeted</u> **BREEAM Criteria:** - Identify all aggregate uses and types on the project - Determine the quantity in tonnes for each identified use and aggregate type. - Identify the region in which the aggregate source is located. - Calculate the distance in kilometres travelled by all aggregates by transport type Enter the information into the BREEAM Wst 02 calculator to calculate the Project Sustainable Aggregate points. **Design Stage Evidence:** - Copy of the 'Wst 02' Calculator - Documentary evidence supporting the data used to complete the 'Wst 02' Calculator **Post Construction Stage Evidence:** - As per Design Stage
Wst 3 - Recyclable Waste Storage						
Wst 3	**Recyclable Waste Storage**	1	1	0.80%	Architect/ building Owner	**BREEAM Criteria:** **1) Dedicated space(s) is provided for the segregation and storage of operational recyclable waste volumes generated by the assessed building/unit, its occupant(s) and activities.** This space must be: a. Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams b. Accessible to building occupants or facilities operators for the deposit of materials and collections by waste management

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						contractors c. Of a capacity appropriate to the building type, size, number of units (if relevant) and predicted volumes of waste that will arise from daily/weekly operational activities and occupancy rates. For consistent and large amounts of operational waste generated, provide: a. Static waste compactors or balers; situated in a service area or dedicated waste management space. b. Vessels for composting suitable organic waste OR adequate spaces for storing segregated food waste and compostable organic material for collection and delivery to an alternative composting facility. c. A water outlet provided adjacent to or within the facility for cleaning and hygiene purposes where organic waste is to be stored or composted on site. **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and design drawings confirming the provision and scope of dedicated facilities (i.e. storage of recyclable waste streams, access arrangements, and capacity). **Post Construction Stage Evidence:** - 'As built' drawings showing the installed areas provided for the storage and segregation of recyclable waste and general waste, in line with the design stage specification. - BREEAM assessor's site inspection.
Wst 4 – Speculative Finishes						
Wst 4	**Speculative Finishes**	N/A	N/A	N/A	Architect	<u>Credit Not Applicable</u> **BREEAM Criteria:** **1)** For tenanted areas, where the future occupant is not known and carpets or other floor or ceiling finishes are installed, these must be limited to a

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						show area only. **2)** Only install floor and ceiling finishes selected by the known occupant of a development. Alternatively, where only ceiling finishes and no carpets are installed, the building owner confirms that the first tenants will not be permitted to make substantial alterations to the ceiling finishes. **Design Stage Evidence:** - Letter of Commitment - Design Drawings **Post Construction Stage Evidence:** - Letter of Confirmation - 'As Fitted' drawings - BREEAM assessor's site inspection.
Wst 5 – Adaptability to Climate Change						
Wst 5	**Adaptability to Climate Change**	1	1	0.80%	Architect / Structural Engineer	**BREEAM Criteria:** **1)** Conduct a climate change adaptation strategy appraisal for structural and fabric resilience by the end of **Concept Design** (RIBA Stage 2 or equivalent), in accordance with the following approach: **2) Carry out a systematic (structural and fabric resilience specific) risk assessment to identify and evaluate the impact on the building over its projected life cycle from expected extreme weather conditions arising from climate change** and, where feasible, mitigate against these impacts. The assessment should cover the following stages: • Hazard identification • Hazard assessment • Risk estimation • Risk evaluation • Risk management. **3)** Develop recommendations or solutions based on the climate change

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						adaptation strategy appraisal, before or during **Concept Design**, that aim to mitigate the identified impact. **4)** Provide an update during **Technical Design** demonstrating how the recommendations or solutions proposed at Concept Design have been implemented where practical and cost effective. Omissions have been justified in writing by the assessor **Design Stage Evidence:** - Copy of the climate change adaptation strategy appraisal, developed during Concept Design (RIBA Stage 2) - Provide an updated appraisal during Technical Design (RIBA Stage 4) **Post Construction Stage Evidence:** - As per Design Stage.
Wst 6 – Design for disassembly and adaptability						
Wst 6	**Functional Adaptability**	2	2	0.80%	Architect / Structural Engineer	**BREEAM Criteria:** **Design for Disassembly and Functional Adaptability – Recommendations** **1)** Conduct a study to explore the ease of disassembly and the functional adaptation potential of different design scenarios by the end of **Concept Design**. **2)** Develop recommendations or solutions based on the study during or prior to **Concept Design**, that aim to enable and facilitate disassembly and functional adaptation. **Disassembly and Functional Adaptability – Implementation** **3)** Provide an update, during Technical Design, on: a. How the recommendations or solutions proposed by Concept Design have been implemented where practical and cost effective. Omissions have been justified in writing to the assessor. b. Changes to the recommendations and solutions during the development of the Technical Design.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						4) Produce a building adaptability and disassembly guide to communicate the characteristics allowing functional adaptability and disassembly to prospective tenants. **Design Stage Evidence:** - Disassembly and functional adaptability study, implementation plan report, building adaptability and disassembly guide. **Post Construction Stage Evidence:** - As per Design Stage.
Land Use and Ecology						
Le 1 – Site Selection						
Le 1a	**Site Selection**	1	1	1.46%	Architect	**BREEAM Criteria:** Proposed development on a pre-developed site - At least 75% of the proposed development's footprint is on an area of land which has previously been occupied. **Design Stage Evidence:** - Design drawings, report and site photographs confirming: a. Type and duration of previous land use b. Area (m2) of previous land use c. Location and footprint (m2) of proposed development and temporary works. **Post Construction Stage Evidence:** - 'As built' drawings confirming that there have been no changes to the site layout building orientation.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Le1b	**Contaminated Land**	1	0	1.46%	Contaminated Land Specialist	**Credit Not Targeted** **BREEAM Criteria:** A contaminated land professional's site investigation, risk assessment and appraisal has deemed land within the site to be affected by contamination. The site investigation, risk assessment and appraisal have identified: - The degree of contamination - The contaminant sources or types - The options for remediating sources of contamination which present an unacceptable risk. The client or principal contractor confirms that remediation of the site will be carried out in accordance with the remediation strategy and its implementation plan as recommended by the contaminated land professional. **Design Stage Evidence:** - Copy of remediation strategy and implementation plan **Post Construction Stage Evidence:** - Evidence to demonstrate the recommendations set out in the remediation strategy and implementation plan have been implemented.
LE 2 – Ecological Risks and Opportunities						
Le 2	**Pre-Requisite**	Pre-Req	Pre-Req	-	Ecologist / Design Team	**BREEAM Criteria:** The client or contractor confirms compliance is monitored against all relevant UK and EU or international legislation relating to the ecology of the site. **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN40 Document **Post Construction Stage Evidence:**

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- As per Design Stage.
Le 2a	**Survey and Evaluation**	1	1	1.46%	Ecologist / Design Team	**BREEAM Criteria:** **1)** A Suitably Qualified Ecologist (SQE) carries out a survey and evaluation for the site early enough to influence site preparation works, layout and, where necessary, strategic planning decisions (typically **Preparation and Brief** or **Concept Design** stage). The SQE's survey and evaluation determines the site's ecological baseline, including: a. Current and potential ecological value and condition of the site and related areas within the Zone of Influence. b. Direct and indirect risks to current ecological value from the project. c. Capacity and feasibility for enhancement of the site's ecological value and, where relevant, areas within the Zone of Influence. Recommendations and data collected from the survey and evaluation are shared with appropriate project team members to influence decisions made for activities during site preparation, design and construction works, which can support ecological features. **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN40 Document **Post Construction Stage Evidence:** - As per Design Stage.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Le 2b	**Determining Ecological Outcomes**	1	1	1.46%	Ecologist / Design Team	**BREEAM Criteria:** **1)** Achieve the 'Survey and Evaluation' credit. **2)** The project team liaise and collaborate with representative stakeholders early enough to influence key planning decisions (typically **Concept Design** stage), to: a. Identify the optimal ecological outcomes for the site. b. Identify, appraise and select measures to meet the optimal ecological outcomes for the site, in line with the mitigation hierarchy of action: 1. Avoidance 2. Protection 3. Reduction or limitation of negative impacts 4. On site compensation and 5. Enhancement, considering the capacity and feasibility within the site, or where viable, offsite. **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN40 Document **Post Construction Stage Evidence:** - As per Design Stage.
LE 3 – Managing Impacts on Ecology						
Le 3	**Pre-Requisite**	Pre-Req	Pre-Req	-	Ecologist / Design Team / Contractor	**BREEAM Criteria:** Le 02's 'Survey and evaluation and Determining ecological outcomes' criteria have been achieved. **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN13 Document

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Post Construction Stage Evidence: - As per Design Stage.
Le 3a	**Planning and Measures on Site**	1	1	1.46%	Ecologist / Design Team / Contractor	**BREEAM Criteria:** **1)** Further planning to avoid and manage negative ecological impacts on-site is carried out early enough to influence the concept design and design brief as well as site preparation planning (typically **Concept Design** stage). **2)** On-site measures for managing negative ecological impacts during site preparation and construction are implemented in-practice (e.g. mitigation measures to protect existing ecological features). **3)** Measures are based on input from the project team in collaboration with representative stakeholders and data collated as part of the 'Determining ecological outcomes' in LE02 Ecological risks and opportunities. **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN40 Document **Post Construction Stage Evidence:** - As per Design Stage.
Le 3b	**Managing Negative Impacts**	2	2	1.46%	Ecologist / Design Team / Contractor	**BREEAM Criteria:** **1)** Negative impacts from site preparation and construction works have been managed according to the mitigation hierarchy, in line with the SQE's recommendations and, either: a. No overall loss of ecological value has occurred (two credits). b. The loss of ecological value has been minimised (Minimising Loss) (one credit).

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Design Stage Evidence: - Ecologist Report - Completed BREEAM GN40 Document **Post Construction Stage Evidence:** - As per Design Stage.
LE 4 – Ecological Change and Enhancement						
Le 4	**Pre-Requisite**	Pre-Req	Pre-Req	-	Ecologist / Design Team / Main Contractor	**BREEAM Criteria:** **1)** Achieve the 'Managing Negative Impacts' credit. **2)** The client or contractor confirms compliance is monitored against all relevant UK, EU or international legislation relating to the ecology of the site. **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN40 Document **Post Construction Stage Evidence:** - As per Design Stage.
Le 4a	**Ecological Enhancement**	1	1	1.46%	Ecologist / Design Team / Main Contractor	**BREEAM Criteria:** **1)** Measures have been implemented that enhance ecological value, which are based on input from the project team and SQE in collaboration with representative stakeholders and data collated as part of the 'Determining ecological outcomes' in Le 02. Measures are implemented in the following order: a. On site, and where this is not feasible, b. Off site within the Zone of Influence. **2)** Data collated are analysed and where potentially valuable, provided to the local environmental records centres nearest to, or relevant for, the site.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Design Stage Evidence: - Ecologist Report - Completed BREEAM GN40 Document **Post Construction Stage Evidence:** - As per Design Stage.
Le 4c	**Change and Enhancement of Ecology**	3	3	1.46%	Ecologist / Design Team / Main Contractor	**BREEAM Criteria:** **1)** Up to three credits are awarded based on the change in ecological value occurring as a result of the project. This must be calculated in accordance with the process set out in GN36 – BREEAM, CEEQUAL and HQM Ecology Calculation Methodology – Route 2. Credits are awarded in line with the Reward Scale table in GN36 where there are no residual impacts on protected sites or irreplaceable habitats. **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN40 Document **Post Construction Stage Evidence:** - As per Design Stage.
Le 4 Ex	**Exemplary Level Criteria**	1	1	1.00%	Ecologist / Design Team / Main Contractor	**BREEAM Criteria:** **1)** The change in ecological value calculated under criterion 6 above confirms significant net gain has been achieved as set out in GN36 - BREEAM, CEEQUAL and HQM Ecology Calculation Methodology – Route 2. **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN40 Document **Post Construction Stage Evidence:** - As per Design Stage

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
LE 5 - Long Term Ecology Management and Maintenance						
Le 5	**Pre-Requisite**	Pre-Req	Pre-Req	-	Ecologist/ Main Contractor	**BREEAM Criteria:** **1)** The client or contractor has confirmed that compliance is being monitored against all relevant UK, EU and international standards relating to the ecology of the site. **2)** Achieve the 'Managing Negative Impacts' credit. **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN40 Document **Post Construction Stage Evidence:** - As per Design Stage.
Le 5a	**Management and Maintenance Throughout the Project**	1	1	1.46%	Ecologist/ Main Contractor	**BREEAM Criteria:** **1)** Measures have been implemented to manage and maintain ecology throughout the project. These measures are based on input from the project team in collaboration with representative stakeholders and data collated as part of the 'Determining ecological outcomes' in Le 02. **2)** To ensure the optimal ecological outcomes agreed in Le 02 are met in-practice, these measures must monitor and review the effectiveness of the mitigation and enhancement measures in place for Le 03 & Le 04 to ensure they are implemented. **3)** A section on Ecology and Biodiversity has been included as part of the tenant or building owner information supplied, to inform the owner or occupant of local ecological features, value and biodiversity on or near the site. This should include detailed management and maintenance plans as required by landscape and asset managers as well as relevant parts of the handover information for occupiers written in a format that encourages understanding and supportive behaviours.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Design Stage Evidence: - Ecologist Report - Completed BREEAM GN40 Document **Post Construction Stage Evidence:** - As per Design Stage. - As-built evidence showing measures have been carried out in practice.
Le 5b	**Landscape and Ecology Management Plan**	1	1	1.46%	Ecologist/ Main Contractor	**BREEAM Criteria:** **1) A Landscape and Ecology Management Plan**, or equivalent, has been developed in accordance with BS 42020:2013 Section 11.1(213) covering at least the first five years after project completion as a minimum and including: a. Actions and responsibilities of relevant individuals prior to handover b. The ecological value and condition of the site at handover and how this is expected to develop and change over time c. Identification of opportunities for ongoing alignment with activities beyond the development project, which support the aims of BREEAM's Strategic Ecology Framework. d. Identification and guidance to trigger appropriate remedial actions to address previously unforeseen impacts e. Clearly defined and allocated roles and responsibilities for delivering the plan. **2)** The landscape and management plan or similar will be updated to support maintenance of the ecological value of the site. **Design Stage Evidence:** - Ecologist Report - Completed BREEAM GN40 Document **Post Construction Stage Evidence:** - As per Design Stage. - Copy of the Landscape and Ecology Management Plan.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Pollution						
Pol 1 – Impact of Refrigerants						
Pol 1a	**Impact of Refrigerants**	N/A	N/A	N/A	M&E	<u>Credit Not Applicable</u> **BREEAM Criteria:** <u>Three Credits</u> No refrigerant within the installed plant or systems. <u>Two Credits</u> The direct effect life cycle CO_2 equivalent emissions (DELC) of ≤100 CO_2-eq/kW. For systems which provide cooling and heating, the worst performing output based on the lower of kW cooling output and kW heating output is used to complete the calculation. OR All refrigerants used have a global warming potential (GWP) ≤10. <u>One Credit</u> Systems using refrigerants have a DELC of ≤1000kgCO_2-eq/kW cooling and heating capacity. **Design Stage Evidence:** - Completed copy of the Pol 01 Calculator tool. - Documentary evidence supporting the data used to complete the calculator tool. **Post Construction Stage Evidence:** - As per interim design stage.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
Pol 1b	**Leak Detection**	N/A	N/A	N/A	M&E	<u>Credit Not Applicable</u> **BREEAM Criteria:** All systems are hermetically sealed or only use environmentally benign refrigerants, or where systems are not hermetically sealed they have a permanent automated refrigerant leak detection system. In the event of a leak, the system must be capable of automatically responding and managing the remaining refrigerant charge to limit loss of refrigerant. **Design Stage Evidence:** - Equipment Schedule - Product information sheet **Post Construction Stage Evidence:** - Letter of confirmation - 'As Installed' drawings
Pol 2 – Local Air Quality						
Pol 2	**Local Air Quality**	N/A	N/A	N/A	M&E	<u>Credit Not Applicable</u> **BREEAM Criteria:** <u>Two Credits</u> **1)** All heating and hot water is supplied by non-combustion systems. For example, only powered by electricity. **OR;** Emissions from all installed combustion plant that provide space heating and domestic hot water do not exceed the levels as follows: Gas boiler = NOx 24 mg/kWh. <u>One Credit</u>

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Emissions from all installed combustion plant that provide space heating and domestic hot water do not exceed the levels as follows: Gas boiler = NOx 27 mg/kWh. **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract confirming - Product Data Sheets - Letter of Commitment **Post Construction Stage Evidence:** - Formal letter confirming that there have been no changes since the design stage. - BREEAM assessor's site inspection.
Pol 3 Surface Water Run-Off						
Pol 3	**Pre-Requisite**	Pre-Req	Pre-Req	-	Flood Risk Specialist	**BREEAM Criteria:** An appropriate consultant is appointed to carry out and demonstrate the development's compliance with all criteria. **Design Stage Evidence:** - Completed BREEAM GN13 Document **Post Construction Stage Evidence:** - As per Design Stage.
Pol 3a	**Flood Risk**	2	1	1.00%	Flood Risk Specialist	**BREEAM Criteria:** **Low Flood Risk – 2 Credits** **A site-specific flood risk assessment (FRA) confirms the development is in a flood zone that is defined as having a low annual probability of flooding.** The FRA takes all current and future sources of flooding into consideration.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Medium or High Flood Risk – 1 Credit A site-specific FRA confirms the development is in a flood zone that is defined as having a medium or high annual probability of flooding and is not in a functional floodplain. The FRA must take all current and future sources of flooding into consideration. To increase the resilience and resistance of the development to flooding, one of the following must be achieved: a. The ground level of the building and access to both the building and the site, are designed (or zoned) so they are at least 600 mm above the design flood level of the site's flood zone. b. The final design of the building and the wider site reflects the recommendations made by an appropriate consultant in accordance with the hierarchy approach outlined in section 5 of BS8533:2017 (222). **Design Stage Evidence:** - Flood Risk Assessment **Post Construction Stage Evidence:** - Formal letter confirming that there have been no changes to the flood risk associated with the development site.
Pol 3	**Surface Water Run-Off**	Pre-Req	Pre-Req	-	Drainage Consultant	**BREEAM Criteria:** Surface water run-off design solutions must be bespoke, i.e. they must take account of the specific site requirements and natural or man-made environment of and surrounding the site. The priority levels detailed in the Methodology must be followed, with justification given by the appropriate consultant where water is allowed to leave the site.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						Design Stage Evidence: - Drainage Report - Completed BREEAM GN13 Document **Post Construction Stage Evidence:** - As per Design Stage.
Pol 3b	**Surface Water Run-off (Rate)**	1	1	1.00%	Drainage Consultant	**BREEAM Criteria:** **1) For brownfield sites, drainage measures are specified so that the peak rate of run-off from the site to the watercourses (natural or municipal) shows a 30% improvement for the developed site compared with the predeveloped site.** This should comply at the 1-year and 100-year return period events. **2)** For Greenfield sites, drainage measures are specified so that the peak rate of run-off from the site to the watercourses (natural or municipal) is no greater for the developed site than it was for the pre-development site. This should comply at the 1-year and 100-year return period events. **3)** Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified Sustainable Drainage Systems (SuDS) are in place. **4)** Calculations include an allowance for climate change. This should be made in accordance with current best practice planning guidance. **Design Stage Evidence:** - Drainage Report - Completed BREEAM GN13 Document **Post Construction Stage Evidence:** - Formal letter confirming that the drainage solutions assessed at the design stage have been implemented.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						- 'As built' drawings showing the impermeable areas pre and post development.
Pol 3c	**Surface Water Run-off (Volume)**	1	1	1.00%	Drainage Consultant	**BREEAM Criteria:** **1)** Flooding of property will not occur in the event of local drainage system failure (caused either by extreme rainfall or a lack of maintenance); **AND** **EITHER** **Drainage design measures are specified so that the post-development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed site's development. This must be for the 100-year 6-hour event, including an allowance for climate change.** Any additional predicted volume of run-off for this event is prevented from leaving the site by using infiltration or other SuDS techniques. **OR** Justification from the appropriate consultant indicating why the above criteria cannot be achieved, i.e. where infiltration or other SuDS techniques are not technically viable options. Drainage design measures are specified so that the post-development peak rate of run-off is reduced to the limiting discharge. The limiting discharge is defined as the highest flowrate from the following options: a. The pre-development one-year peak flowrate b. The mean annual flowrate (Qbar) c. 2L/s/ha. **2)** For the one-year peak flowrate, the one-year return period event criterion applies. **3)** Relevant maintenance agreements for the ownership, long term operation

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						and maintenance of all specified SuDS are in place For either option, above calculations must include an allowance for climate change; this should be made in accordance with current best practice planning guidance. **Design Stage Evidence:** - Drainage Report - Completed BREEAM GN13 Document. **Post Construction Stage Evidence:** - Formal letter confirming that the drainage solutions assessed at the design stage have been implemented. - 'As built' drawings showing the impermeable areas pre and post development.
Pol 3d	**Minimising Watercourse Pollution**	1	0	1.00%	Drainage Consultant	<u>Credit Not Targeted</u> **BREEAM Criteria:** **1) There is no discharge from the developed site for rainfall up to 5 mm (confirmed by the appropriate consultant).** **2)** Areas with a low risk source of watercourse pollution, an appropriate level of pollution prevention treatment is provided, using appropriate SuDS techniques. **3)** Areas with a high risk of contamination or spillage of substances, such as petrol and oil, have separators (or an equivalent system) are installed in surface water drainage systems. **4)** Chemical or liquid gas storage areas have a means of containment fitted to the site drainage system (i.e. shut-off valves). This is to prevent the escape of chemicals to natural watercourses in the event of a spillage or bunding failure.

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						5) All water pollution prevention systems have been designed and installed in accordance with the recommendations of documents such as the SuDS manual and other relevant industry best practice. They must be bespoke solutions taking account of the specific site requirements and natural or man-made environment of and surrounding the site. **6)** A comprehensive and up to date drainage plan of the site will be made available for the building or site occupiers. **7)** Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS must be in place. **8)** All external storage and delivery areas are designed and detailed in accordance with the current best practice planning guidance. **Design Stage Evidence:** - Drainage Report - Completed BREEAM GN13 Document. **Post Construction Stage Evidence:** - Formal letter confirming that the drainage solutions assessed at the design stage have been implemented. - 'As built' drawings showing the impermeable areas pre and post development.
Pol 4 – Reduction of Night-time Light Pollution						
Pol 4	**Reduction of Night-time Light Pollution**	1	1	1.00%	M&E	**BREEAM Criteria:** **1)** External lighting pollution has been eliminated through effective design that removes the need for external lighting. This does not adversely affect the safety and security of the site and its users. **OR**;

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						2) The external lighting strategy has been designed in compliance with Table 2 (and its accompanying notes) of the Institution of Lighting Professionals (ILP) Guidance notes for the reduction of obtrusive light, 2011. **3) All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00.** **4)** If safety or security lighting is provided and will be used between 23:00 and 07:00, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP guidance notes. **5)** Where specified, illuminated advertisements are designed in compliance with ILP PLG05 The Brightness of Illuminated Advertisements. **Design Stage Evidence:** - Relevant sections/clauses of the building specification/contract and/or a formal letter - Design Lighting Drawings **Post Construction Stage Evidence:** - Formal letter confirming that there has been no changes to the lighting design - 'As built' drawing showing the installed external light fittings, photocell and time clock, in line with the design stage specification. - BREEAM assessor's site inspection.
Pol 5 – Noise Attenuation						
Pol 5	**Noise Attenuation**	N/A	N/A	N/A	Acoustician/M&E	**Credit Not Applicable** **BREEAM Criteria:** **1)** There are no noise-sensitive areas within the assessed building or within 800 m radius of the assessed site. **OR;**

Issue		Available Credits	Targeted Credits	Credit Weighting (%)	Responsibility	BREEAM Criteria
						2) Where there are noise-sensitive areas within the assessed building or noise-sensitive areas within 800 m radius of the assessed site, a noise impact assessment compliant with BS 4142:2014 is commissioned. Noise levels must be measured or determined for: - Existing background noise levels: at the nearest or most exposed noise-sensitive development to the proposed assessed site including existing plant on a building, where the assessed development is an extension to the building - Noise rating level from the assessed building. - The noise impact assessment must be carried out by a suitably qualified acoustic consultant. - **The noise level from the assessed building, as measured in the locality of the nearest or most exposed noise sensitive development, must be at least 5dB lower than the background noise throughout the day and night.** - If the noise sources from the assessed building are greater than the levels, measures have been installed to attenuate the noise at its source to a level where it will comply with the criterion. **Design Stage Evidence:** - Noise Impact Assessment **Post Construction Stage Evidence:** - Pre-Completion Noise Impact Assessment Report

APPENDIX A – RIBA SENSITIVE CREDITS

RIBA Sensitive Credits

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

Table 1.3 – RIBA Sensitive Credits

RIBA Stage 2 – Concept Design
Man 1a – Stakeholder Consultation (Project Delivery)
Man 1a – Stakeholder Consultation (Third Party)
Man 1c – BREEAM AP (Concept Design)
Tra 1 – Transport Assessment and Travel Plan
Mat 3b – Enabling Sustainable Procurement
Wst 5a – Adaptation to Climate Change – Structural and Fabric Resilience
Wst 06a – Functional Adaptability
Le 02 – Ecological Risks and Opportunities
Le 03 – Managing Impacts on Ecology
Le 4 – Ecological Change and Enhancement
Le 5 – Long Term Ecology Management and Maintenance
RIBA Stage 3 – Developed Design
Man 01d – BREEAM AP (Developed Design)
RIBA Stage 4 – Technical Design
N/A
RIBA Stage 5 – Manufacturing and Construction
Man 3b – Sustainability Champion