Greengage

London Euston Premier Inn - Extension WWA
BREEAM Pre-Assessment Report – July 2019

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London Euston Premier Inn - Extension - BREEAM Pre-Assessment Report

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1.0 INTRODUCTION

1.1 Greengage Environmental Ltd were commissioned by William Ward Associates (WWA) on behalf of Whitbread PLC (the 'applicant') to undertake a BREEAM Pre-Assessment for the Proposed Development at London Euston Premier Inn.

1.2 The Proposed Development is for the construction of a new roof and car park extension to the existing Premier Inn hotel building on Euston Road in London, with a net gain of 66 bedrooms. The proposal also includes the refurbishment of the existing hotel ground floor to create a restaurant and new entrance/reception area.

1.3 The London Borough of Camden's Local Plan (2017) Policy CC2 'Adapting to climate change' requires non-domestic developments of 500sqm of floorspace or above to achieve 'Excellent' in BREEAM assessments.

1.4 The Proposed Development has been assessed against the BREEAM 2014 Bespoke methodology to incorporate both the new extension and refurbishment areas. Due to the nature of the development there are challenges associated with achieving credits on a new build development where there are limitations due to the existing site and integration of the extension building to the current Premier Inn development.

1.5 This BREEAM Pre-Assessment report sets out a framework of which credits can be achieved by the design and the associated BREEAM rating that can be targeted for the Proposed Development. The credit framework is summarised within **Section 4.0** of this report and the full detail is provided within **Appendix A**.

2.0 BREEAM

BACKGROUND

2.1 The Building Research Establishment's Environmental Assessment Method (BREEAM) is a nationally recognised means of reviewing and improving the environmental performance of buildings.

2.2 There are a number of BREEAM methodologies in place to assess different types of projects e.g. BREEAM New Construction for new buildings and BREEAM Refurbishment and Fit-Out for refurbishment or first fit-out projects. The development has been pre-assessed against the BREEAM Bespoke 2014 Scheme, which is considered the appropriate scheme to establish a credit framework for this project at this stage of works as it enables both the new build extension and the refurbished ground floor area to be assessed under the 2014 methodology.

2.3 Used as a design tool, BREEAM will assess the environmental performance of new build buildings and refurbishments, providing a framework for improvement and an auditable demonstration of good design practice.

BREEAM CATEGORIES

2.4 BREEAM considers key global and local environmental issues and the internal environment for building occupants under various categories, covering:

- **Management** – rewards good construction site practices, provision of information to building occupants and security;
- **Health & Wellbeing** – promotes a healthy internal environmental;
- **Energy** – rewards energy efficiency and renewable energy generation;
- **Transport** – encourages locations with good access to public transport;
- **Water** – promotes water efficiency and water recycling;
- **Materials** – rewards the responsible sourcing of materials;
- **Waste** – encourages good waste management practices and recycling;
- **Land Use & Ecology** – encourages ecological enhancement and land already built on; and
- **Pollution** – promotes measures to reduce air and water pollution.

CATEGORY WEIGHTINGS

2.5 Each BREEAM category is allocated an environmental weighting factor, as a percentage of the overall total available score, as set out in Table 2.1 for the Proposed Development's bespoke methodology. In addition to this, there are varying numbers of credits within each category; the result is that not all credits carry equal value and some credits have a higher individual percentage score than others.

Table 2.1 Category Environmental Weightings: BREEAM Bespoke 2014

Environmental Section	Weighting (%)
Management	13.57
Health & Wellbeing	15.42
Energy	14.98
Transport	7.54
Water	6.79
Materials	14.14
Waste	7.78
Land Use & Ecology	8.48
Pollution	11.31
Innovation (additional)	10.00

BREEAM RATINGS

2.6 At the certified assessment stage, the building is assessed against the BREEAM criteria and credits are awarded where it can be demonstrated, by an auditable trail of supporting evidence, that the BREEAM credit requirements have been met. The overall environmental performance across the categories is calculated as a percentage score and expressed as a single rating on a scale of 'Pass', 'Good', 'Very Good', 'Excellent' or 'Outstanding', as shown in Table 2.2.

Table 2.2 BREEAM Ratings and Percentage Score

Rating	Percentage Score
UNCLASSIFIED	<30%
PASS	≥30%
GOOD	≥45%
VERY GOOD	≥55%
EXCELLENT	≥70%
OUTSTANDING	≥85%

MINIMUM RATING REQUIREMENT CREDITS

2.7 Under Management, Energy, Water, Materials and Waste, there are minimum credit requirements that need to be obtained for each BREEAM rating i.e. specific credits that will need to be achieved before a particular BREEAM rating can be awarded. All other credits are flexible.

2.8 The following minimum standards are required to reach an 'Excellent' rating:

Table 4.3 BREEAM 'Excellent' Minimum Standards

Credit	Minimum standard
Man 03: Responsible construction practices	One credit (Considerate construction)
Man 04: Commissioning and handover	One credit (Building User Guide)
Man 05: Aftercare	One credit (Seasonal commissioning)
Ene 01: Reduction of energy use and carbon emissions	Five credits for new build area Six credits for refurbishment area
Ene 02: Energy monitoring	One credit (First sub-metering credit)
Wat 01: Water consumption	One credit
Wat 02: Water monitoring	Criterion 1 only
Mat 03: Responsible sourcing of materials	Criterion 1 only
Wst 03: Operational waste	One credit

3.0 THE ASSESSMENT PROCESS

THE PRE-ASSESSMENT

3.1 The purpose of a BREEAM pre-assessment is to:

- Confirm those credits that have been identified as a framework for the minimum targeted rating; and
- Confirm the supporting information to be submitted at the certified assessment stage and thereby enable the team to address BREEAM requirements at the earliest opportunity and the appropriate stage in the design with the aim of reducing the need for design reiterations.

3.2 A certified assessment is third party verified by the Building Research Establishment (BRE) ensuring comparable benchmarking and high standards of assessment across the UK. Carried out by trained assessors, BREEAM provides an easily understood, independent and transparent label of environmental performance. In addition, to ensure high standards of BREEAM assessors and assessments, all BREEAM schemes are operated under a Competent Persons Scheme, which is UKAS accredited as meeting the requirements ISO 17024.

3.3 Under the BREEAM 2014 Bespoke methodology, the certified assessment comprises either two phases, the Design Stage (DS) and the Post Construction Review (PCR), or a single-phase Post Construction Assessment (PCA), though the latter is less common.

The Design Stage (DS) Assessment

3.4 Following completion of detailed design, the appropriate supporting evidence in the form of detailed drawings, completed specifications, and manufacturers' information etc. is available and therefore, the certified DS assessment can be undertaken. During the certified assessment, the relevant information is collected from the appropriate design team members and evaluated against the BREEAM criteria requirements.

3.5 Following the collation and review of the outstanding information, a BREEAM DS Assessment report will be produced that will be submitted to the BRE for quality assurance and 'interim' certification of the assessment undertaken, following which, it is anticipated that the 'Interim' DS BREEAM certificates will be issued by the BRE.

The Post Construction Review (PCR)

3.6 The PCR assessment is undertaken to confirm that buildings are either built or refurbished to the BREEAM DS specifications, or if there are variances from the DS these are documented, reassessed, and a new rating determined.

3.7 A PCR assessment comprises a site visit at or towards the end of completion, as near to handover as possible. Each issue must be reviewed, or assessed where there was no DS assessment, and documentary evidence recorded to confirm that it complies with the requirements for PCR assessment. It should be noted that because the evidence required for the PCR assessment relates to what has been, or is actually being done, for some credits to be awarded the evidence required differs from that required at the DS (for example, a written commitment to use FSC Timber at the DS has to be matched by documentation that demonstrates that the timber used was actually FSC).

3.8 On completion of the PCR assessment, a Final Certified BREEAM Report will be submitted to the BRE for final certification and quality assurance for the scheme.

4.0 THE PROPOSED DEVELOPMENT'S BREEAM PERFORMANCE

4.1 The pre-assessment BREEAM score that is targeted for the London Euston Premier Inn is **61.15%**, which is equivalent to a BREEAM rating of 'Very Good'.

4.2 As shown in Table 2.2, the percentage score required for a BREEAM 'Very Good' rating is 55%. It is recommended that a score of around 4-5% above this minimum score is aimed for during the design stages and achieved at the final certification stage. This is to ensure that if a credit was lost or disputed and revoked during design progression or 3rd party BRE certification, the target rating would still be robustly achieved. It is anticipated that further credits will be reviewed and targeted where feasible at the detailed design stages.

4.3 Table 4.1 shows the BREEAM strategy and credits targeted for each category, resulting in the overall score of 61.15% and a Very Good rating, significantly exceeding the 55% threshold required.

Table 4.1 Summary of BREEAM category scores

BREEAM category	Credits available	Credits targeted	Weighting (%)	Category score (%)
Management	21	15	11.00	13.57
Health & Wellbeing	20	8	14.00	15.42
Energy	23	13	16.00	14.98
Transport	10	8	10.00	7.54
Water	9	6	7.00	6.79
Materials	13	7	15.00	14.14
Waste	11	7	6.00	7.78
Land Use & Ecology	3	3	13.00	8.48
Pollution	13	6	8.00	11.31
Innovation	10	0	10.00	0.00
TOTAL				**61.15%**
TARGETED RATING				**Very Good**

4.4 In accordance with the relevant Planning Policy, non-residential developments should meet the BREEAM 'Excellent' (≥70%) standard. It is recognised that the strategy presented does

not reach the Excellent rating, however within the limitations of the development this is deemed the most appropriate strategy for the scope of works, particularly given the non-standard nature of the proposals. While not at an Excellent rating, the targeted score significantly exceeds the Very Good benchmark and represents a commitment to sustainable development that is feasible following a full review of all credits with the design team.

4.5 The scope of works as an extension to the existing building means that the design is limited to a certain extent by the existing hotel in order to ensure continuity of design. Examples include the daylighting and view out credits that are unlikely to be achieved as the standard room and corridor layout must be followed. The location of the extension in relation to existing services has also limited the building services strategy so that credits such as for ventilation cannot be achieved. Similarly, the most appropriate energy strategy to suit an extension type development does not allow for the pollution credits associated with NOx emissions to be achieved.

4.6 The design team have, however, made every effort to maximise environmental performance wherever feasible, for example through design of a high performing fabric for the new extension to maximise its energy performance. All mandatory credits for an Excellent rating have been targeted. This demonstrates the design team's clear commitment to maximise environmental performance of the building and leaves a potential scenario for an uplift of the rating to be achieved if feasible as a result of future design proposals.

4.7 The strategy presented does not meet an Excellent rating but significantly exceeds the Very Good rating, with further opportunities to be reviewed for improvements as the design develops.

4.8 A detailed breakdown of the targeted BREEAM credits is presented in **Appendix A** of this report.

5.0 CONCLUSION

5.1 This BREEAM Pre-Assessment report has set out a pathway to show how the Proposed Development could achieve a BREEAM 'Very Good' rating with a score of **61.15%**; significantly exceeding the 55% threshold score for a 'Very Good' rating and including all mandatory credits for an Excellent rating, thus demonstrating a strong commitment to sustainability.

5.2 Following this Pre-Assessment report, a BREEAM Design Stage and eventually Post-Construction Stage Assessment would be undertaken in order to gain full BREEAM certification for the Proposed Development.

5.3 **Appendix A** provides the detailed BREEAM credit assumptions for the Proposed Development.

APPENDIX A - DETAILED CREDIT ASSUMPTIONS

The detailed credit assumptions for the Proposed Development are detailed below.

		Available	Targeted	Responsibility	Comments and Actions
MANAGEMENT					
Man 01	Project brief and design	4	4	Developer, Architect, BREEAM AP	**Credit Item 1:** Stakeholder consultation (project delivery) (1 credit) The credit for stakeholder consultation of the project team is targeted. A clear sustainability brief is required prior to Concept Design (RIBA Stage 2) with roles and responsibilities for each key phase of the project to be considered. **Credit Item 2:** Stakeholder consultation (third party) (1 credit) Project team confirmed that third party consultation will be carried out for this scheme. **Credit 3:** Sustainability Champion (design) (1 credit) Greengage have been appointed as Sustainability Champion and will facilitate the setting and achievement of BREEAM performance targets for the project during the feasibility stage. **Credit 4:** Sustainability Champion (monitoring progress) (1 credit) Greengage have been appointed as Sustainability Champion and will monitor progress against the agreed BREEAM performance targets throughout the design process and formally report to the client and design team.

Man 02	Life cycle cost and service life planning	4	1	Developer/ Project Manager, Cost Consultant/QS	**Credit Item 1** Elemental life cycle cost (LCC) (2 credits) Credit not targeted **Credit Item 2** Component level LCC plan (1 credit) Credit not targeted **Credit Item 3** Capital cost reporting (1 credit) The credit for reporting the capital cost for the building in pounds per square metre of gross internal floor area (£k/m^2) at the formal assessment stage has been targeted.
Man 03	Responsible construction practices	6	5	Contractor	Pre-requisite All timber and timber-based products used during the construction process of the project will be 'legally harvested and traded timber' by the principal contractor. **Credit Item 1** Environmental management (1 credit) The principal contractor will be required to operate an environmental management system covering their main operations and also operate best practice pollution prevention policies in line with PPG6 to target this credit. **Credit Item 2** Sustainability Champion (construction) (1 credit) Credit not targeted but to be reviewed by contractor. **Credit Item 3** Considerate construction (up to 2 credits) Two credits are currently targeted for the Principal Contractor to participate in the Considerate Constructors Scheme (CCS) and its Code of Considerate Practice, and achieve scheme certification and a CCS score between 35 and 39 (with a score 7 achieved in each of the five sections).

					Credit Item 4 Monitoring of construction site impacts (2 credits) Both credits are targeted and the forecasting, monitoring, recording and reporting of energy use, water consumption and transport data will be undertaken by the Contractor.
Man 04	Commissioning and handover	4	3	Mechanical Engineer, Contractor, Electrical Engineer	**Credit Item 1:** Commissioning and testing schedule and responsibilities (1 credit) A schedule of commissioning and testing will be set out that identifies the appropriate commissioning required for the development and the standards that all commissioning activities will be conducted in accordance with. **Credit Item 2:** Commissioning building services (1 credit) A Specialist Commissioning Manager will be appointed during the Design Stage with responsibilities for undertaking design reviews & giving advice on suitability for ease of commissioning, providing commissioning management input to construction programming and during installation stages and management of commissioning, performance testing, and handover/post-handover stages. **Credit Item 3:** Testing and inspecting building fabric (1 credit) Credit not targeted but could be reviewed by contractor **Credit Item 4:** Handover (1 credit) This credit is targeted for the provision of a non-technical Building User Guide and user/operator training timed appropriately around handover and proposed occupation.
Man 05	Aftercare	3	2	Contractor, Mechanical Engineer, Electrical Engineer,	**Credit Item 1** Aftercare support (1 credit) Provide aftercare support to the building occupiers through having in place operational infrastructure and resources.

				Client	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 is to be established, with any discrepancies adjusted. **Credit Item 2** Commissioning - implementation (1 credit) Commissioning of the complex and simple systems over a minimum 12-month period, will be undertaken once the building becomes substantially occupied. **Credit Item 3** Post-occupancy evaluation (1 credit) Credit not targeted
Management score		**21**	**15**		
HEALTH AND WELLBEING					
Hea 01	Visual Comfort	7	2	Electrical Engineer	**Credit Item 1** Glare Control (1 credit) A glare control assessment will be carried out to analyse any areas at risk of glare, with suitable mitigation measures implemented. **Credit Item 2** Daylighting (up to 2 credits) This credit is not targeted. It is not expected that 80% of relevant areas will have a daylight factor of ≥2% and either a uniformity ratio of 0.3 or ≥80% of the room has a view of the sky and the required room depth criterion is satisfied. **Credit Item 3** View out (1 credit) Credit not targeted as required areas will not provide a sufficient view out due to building arrangement. **Credit Item 4** Internal & external lighting levels, zoning and control (1 credit)

					All internal lighting will be designed to provide illuminance (lux) levels and colouring rendering index in accordance with the SLL Code for Lighting 2012 and any other relevant industry standard. Internal lighting will be appropriate to the tasks undertaken, accounting for building user concentration and comfort levels. Where computer screens are to be regularly used, lighting shall comply with CIBSE Lighting Guide 7 sections 2.4, 2.13-2.15, 2.20 and 6.10-6.20. All external lighting will be required to be specified in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas and BS EN 12464-2:2014 Light and lighting - Lighting of workplaces - Part 2: Outdoor work places. Internal lighting is to be zoned to allow for occupant control. Zoning is in accordance with the criteria specified within the BREEAM manual.
Hea 02	Indoor Air Quality	5	1	Developer/ Project Manager, Architect, Mechanical Engineer	**Credit Item 1** Indoor Air Quality (IAQ) Plan (1 credit) An indoor air quality plan will be produced. **Credit Item 2** Ventilation (1 credit) This credit is not targeted as the extracts and exhausts are not sufficient distance apart. **Credit Item 3** Emissions from construction products (2 credit) Credit not targeted but may be reviewed by contractor. **Credit Item 4** Potential for natural ventilation (1 credit) Credit not targeted as natural ventilation cannot be provided.

Hea 04	Thermal Comfort	3	3	Mechanical Engineer	**Credit Item 1** Thermal modelling (1 credit) Thermal modelling will be carried out using software in accordance with CIBSE AM11 that provides full dynamic thermal analysis. Modelling must demonstrate that summer and winter operative temperature ranges in occupied spaces are in accordance with Table 1.5 of CIBSE Guide A. The PMV and PPD indices are reported. **Credit Item 2** Adaptability – for a projected climate change scenario (1 credit) The thermal modelling must demonstrate that the above requirements are met for a projected climate change scenario. **Credit Item 3** Thermal zoning and controls (1 credit) The thermal modelling analysis will be used to inform the temperature control strategy for the Proposed Development and its users.
Hea 05	Acoustic Performance	4	1	Contractor, Acoustician	**Credit Item 1** Acoustic performance (1 credit) An acoustician will be appointed to confirm relevant areas can meet airborne sound insulation levels 3dB higher and impact sound insulation 3dB lower than Building Regulations.
Hea 06	Safety and Security	1	1	Architect	**Credit Item 1** Security of site and building (1 credit) This credit is targeted and requires a SQSS to be appointed and provide recommendations during or prior to the Concept Design Stage.
Health & Wellbeing score		**20**	**8**		
ENERGY					
Ene 01	Reduction of energy use	13	6	Energy / Thermal Modelling	**Credit Item 1** Energy performance (up to 13 credits) 6 credits are targeted based on the performance of the new-

	and carbon emissions			Consultant, Mechanical Engineer, Electrical Engineer	build area and the worst case scenario performance of the refurbishment area.
Ene 02	Energy monitoring	1	1	Mechanical Engineer, Electrical Engineer	**Credit Item 1** Sub-metering of major energy consuming systems (1 credit) Energy meters will be installed that enable at least 90% of the estimated annual energy consumption of each fuel to be assigned to the various end-use categories of energy consuming systems. The meters will be connected to and monitored by an appropriate energy monitoring and management system (e.g. Building Management Systems or Automatic Monitoring and Targeting systems). The end energy consuming uses will be identifiable to the building users, through data outputs.
Ene 03	External Lighting	1	1	Electrical Engineer, Lighting Designer	**Credit Item 1** External lighting (1 credit) All external lighting will be designed to have a luminous efficacy of ≥60 luminaire lumens per circuit Watt and will be automatically controlled for prevention of operation during daylight hours with presence detection in areas of intermittent pedestrian traffic.
Ene 04	Low carbon design	3	2	Energy / Thermal Modelling Consultant, Mechanical Engineer	**Credit Item 1** Passive design - Passive design analysis (1 credit) A passive design analysis will be undertaken and measures incorporated within the building design. **Credit Item 2** Passive design - Free cooling (1 credit) Credit not targeted, as it is understood that there is no potential to provide free cooling.

					Credit Item 3 Low and zero carbon technologies - LZC feasibility study (1 credit) This credit has been targeted for a feasibility study to be carried out to establish the most appropriate on-site/near-site low or zero carbon (LZC) energy source(s) for the building/development is specified.
Ene 06	Energy efficient transportation systems	3	3	Mechanical Engineer, Lift Consultant	**Credit Item 1** Energy consumption (1 credit) An analysis of transport demand and usage patterns must be carried out to determine the optimum number and size of lifts. Energy consumption must also be calculated and the transportation system with the lowest energy consumption specified. **Credit Item 2** Energy efficient measures - Lifts (2 credits) Energy efficient features are to be specified for the lift including standby mode, lighting to required efficacies and variable speed, variable drive and variable voltage drive controllers.
Ene 08	Energy Efficient equipment	2	0	Mechanical Engineer, Electrical Engineer, Client	**Credit Item 1** Energy efficient equipment (2 credits) Credit is not currently targeted but could be reviewed during equipment procurement.
Energy score		**23**	**13**		
TRANSPORT					
Tra 01	Public Transport Accessibility	5	5	Transport consultant, Architect	**Credit Item 1** Sustainable transport solutions (up to 5 credits) The Accessibility Index for the development is greater than 18 so 5no. credits are targeted.

Tra 02	Proximity to amenities	2	2	Architect	**Credit Item 1** Proximity to amenities (up to 2 credits) The required number of amenities are within 500m of the site so the credit can be targeted.
Tra 03	Cyclist facilities	2	0	Architect	**Credit Item 1** Cycle storage (1 credit) Credit not targeted as insufficient cycle spaces will be provided to account for the whole hotel. **Credit Item 2** Cyclist facilities (1 credit) Credit not targeted as insufficient cyclist facilities will be provided to account for the whole hotel.
Tra 05	Travel Plan	1	1	Transport consultant	**Credit Item 1** Travel plan (1 credit) A transport assessment and travel plan will be produced for the development.
Transport score		**10**	**8**		
WATER					
Wat 01	Water consumption	5	3	Mechanical Engineer	**Credit Item 1** Water consumption (up to 5 credits) Water efficiency fittings will be supplied in order to achieve a Water efficiency level equivalent to three credits.
Wat 02	Water monitoring	1	1	Mechanical Engineer	**Credit Item 1** Water monitoring (1 credit) A water meter will be specified on the mains water supply. Water-consuming plant or building areas, consuming 10% or more of the building's total water demand, are either fitted with easily accessible sub-meters or have water monitoring equipment integral to the plant or area. Each meter (main and sub) has a pulsed or other open protocol communication output to enable connection to an appropriate utility monitoring and management system, e.g. a building

					management system (BMS), for the monitoring of water consumption.
Wat 03	Water leak detection	2	1	Mechanical Engineer	**Credit Item 1** Leak detection system (1 credit) A leak detection system will be installed that is capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter. Leak detection system must be a. A permanent automated water leak detection system that alerts the building occupants to the leak OR an in-built automated diagnostic procedure for detecting leaks is installed. b. Activated when the flow of water passing through the water meter/data logger is at a flow rate above a pre-set maximum for a pre-set period of time. c. Able to identify different flow and therefore leakage rates, e.g. continuous, high and/or low level, over set time periods. d. Programmable to suit the owner/occupiers' water consumption criteria. e. Where applicable, designed to avoid false alarms caused by normal operation of large water-consuming plant such as chillers. **Credit Item 2** Flow control devices (1 credit) This credit is not targeted.
Wat 04	Water Efficient Equipment	1	1	Architect, Landscape Architect, Mechanical Engineer	**Credit Item 1** Water Efficient Equipment (1 credit) One credit is targeted for using rainwater or manual watering to irrigate the soft landscaping proposed.

Water score		**9**	**6**		
MATERIALS					
Mat 01	Life Cycle Impacts	6	3	Architect	**Credit Item 1** Life cycle impacts (up to 6 credits) Three credits are targeted at present based on an elemental assessment of environmental performance. This credit will be reviewed at the detailed design stage by the Architect once all building elements have been finalised.
Mat 03	Responsible Sourcing of Materials	4	2	Contractor, Architect, Sustainability Consultant	Pre-requisite All timber and timber-based products used on the project will be legally harvested and traded. **Credit Item 1** Sustainable procurement plan (1 credit) A sustainable procurement plan will be produced by the end of Concept Design, for the Proposed Development to use when sourcing materials. **Credit Item 2** Responsible sourcing of materials (RSM) (up to 3 credits) One credit is targeted for the contractor to responsibly source relevant materials in line with the detailed BREEAM criteria.
Mat 04	Insulation	1	1	Architect, Mechanical Engineer	**Credit Item 1** Embodied impact (1 credit) New insulation specified for use within the following building elements (external walls, ground floor, roof and building services) will have an Insulation Index of equal to or greater than 2.5, as per BREEAM definitions.
Mat 05	Designing for durability and resilience	1	1	Architect, Structural Engineer, Landscape Architect	**Credit Item 1** Protecting vulnerable parts of the building from damage & protecting exposed parts of the building from material degradation (1 credit) The building will incorporate suitable durability and protection measures or designed features to prevent damage to vulnerable parts of the internal and external building and

					landscaping elements. This must include, but is not necessarily limited to: a. Negative impacts of high user numbers in relevant areas of the building (e.g. corridors, lifts, stairs, doors etc.). b. Damage from any vehicle or trolley movements 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. Relevant building elements will incorporate appropriate design and specification measures to limit material degradation due to environmental factors.
Mat 06	Material efficiency	1	0	Architect, Structural Engineer, Mechanical Engineer, Electrical Engineer, Contractor, Sustainability Consultant, Project Manager, Other	**Credit Item 1** Material efficiency (1 credit) This credit is not targeted.
Materials score		**13**	**7**		

WASTE					
Wst 01	Construction waste management	7	4	Developer/ Project manager, Contractor	**Credit Item 1** Pre-refurbishment audit (1 credit) The project team has confirmed that a BREEAM compliant pre-refurbishment audit will be undertaken. **Credit Item 2** Reuse and direct recycling of materials (2 credits) Credit not targeted **Credit Item 3** Construction resource efficiency (Up to 3 credits) A resource management plan will be produced including a target to generate ≤4.65 tonnes of waste per 100m^2 GIFA, equivalent to two credits. **Credit Item 4** Diversion of resources from landfill (1 credit) To achieve the requirements for one credit, 83% of non-demolition and 91% of demolition waste by tonnage must be diverted from landfill.
Wst 02	Recycled Aggregates	1	0	Structural Engineer	**Credit Item 1** Recycled aggregates (1 credit) This credit is not targeted.
Wst 03	Operational Waste	1	1	Architect	**Credit Item 1** Operational waste (1 credit) There will be a provision of suitable space and facilities to allow for segregation and storage of operational recyclable waste volumes generated by the hotel, its occupant(s) and activities. The storage space must be: a. Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams b. Accessible to building occupants or facilities operators for the deposit of materials and collections by waste management contractors

					c. Of a capacity appropriate to the building type, size, number of units (if relevant) and predicted volumes of waste that will arise from daily/weekly operational activities and occupancy rates.
Wst 05	Adaptation to climate change	1	1	Structural Engineer	**Credit Item 1** Structural and fabric resilience (1 credit) Credit targeted, where a climate change adaptation strategy appraisal will be undertaken to identify the impact of expected extreme weather conditions arising from climate change on the building over its projected life cycle. Solutions based on the climate change adaptation strategy appraisal, that aim to mitigate the identified impact, will be incorporated into the as built development.
Wst 06	Functional adaptability	1	1	Developer, Architect, Structural Engineer, Electrical Engineer, Mechanical Engineer	**Credit Item 1** Functional adaptability (1 credit) A building-specific functional adaptation strategy study will be undertaken including recommendations that will be adopted by the design team.
Waste score		**11**	**7**		
LAND USE AND ECOLOGY					
LE 04	Enhancing site ecology	1	1	Developer, Ecologist, Contractor	**Credit Item 1** Enhancing site ecology (1 credit) An SQE will be appointed to survey the site and provide recommendations for ecological enhancement.
LE 05	Long term impact on biodiversity	2	2	Ecologist, Contractor	**Credit Item 1** Long term impact on biodiversity (2 credits) An SQE will provide confirmation that all relevant legislation has been complied with and recommend additional measures to

					improve the site's long term biodiversity as well as producing a landscape and habitat management plan.
Land Use & Ecology score		**3**	**3**		
POLLUTION					
Pol 01	Impact of refrigerants	3	1	Mechanical Engineer	Pre-requisite All systems (with electric compressors) must comply with the requirements of BS EN 378:2008 (parts 2 and 3) and where refrigeration systems containing ammonia are installed, the Institute of Refrigeration Ammonia Refrigeration Systems Code of Practice. **Credit Item 1** Impact of refrigerant (up to 2 credits) To achieve 1 credit, the systems using refrigerants must have Direct Effect Life Cycle CO_2 equivalent emissions (DELC CO_{2e}) of ≤ 1000 $kgCO_{2e}/kW$ cooling/heating capacity. This credit is targeted. **Credit Item 2** Leak detection (1 credit) This credit is not targeted.
Pol 02	NOx emissions	3	0	Mechanical Engineer	**Credit Item 1** NOx emissions (Up to 3 credits) Credit not targeted due to the building services strategy.
Pol 03	Surface water run-off	5	3	Drainage / Flood Risk Consultant	**Credit Item 1** Flood risk management (Up to 2 credits) A FRA will be produced for the development to confirm a low flood risk from all sources. **Credit Item 2** Surface water run-off (Up to 2 credits) One credit is targeted as the development will have a neutral impact on surface water run-off.

					Credit Item 3 Minimising watercourse pollution (1 credit) Not targeted (Site does not prevent discharge up to 5mm).
Pol 04	Reduction of Night Time Light Pollution	1	1	Lighting Designer, Electrical Engineer	**Credit Item 1** Reduction of night time light pollution (1 credit) The external lighting strategy must be designed in compliance with Table 2 (and its accompanying notes) of the ILP Guidance notes for the reduction of obtrusive light, 2011. This can be demonstrated via completion of the checklists in Annexes B and C of the guidance note by a relevant member of the design team. All external lighting (except for safety and security lighting) must be able to be automatically switched off between 23:00 and 07:00. If safety or security lighting is provided and will be used between 23:00 and 07:00, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP's Guidance notes.
Pol 05	Reduction of noise pollution	1	1	Noise consultant	**Credit Item 1** Reduction of noise pollution (1 credit) A noise impact assessment will be undertaken in line with BS 4142:2014, demonstrating that 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, to target this credit.
Pollution score		**13**	**6**		
INNOVATION					
Man 03	Responsible construction practices	1	0	N/A	No innovation credits are targeted.

Hea 01	Visual Comfort	1	0	N/A	No innovation credits are targeted.
Ene 01	Reduction of energy use and carbon emissions	5	0	N/A	No innovation credits are targeted.
Mat 01	Life Cycle Impacts	1	0	N/A	No innovation credits are targeted.
Mat 03	Responsible Sourcing of Materials	1	0	N/A	No innovation credits are targeted.
Wst 01	Construction Waste Management	1	0	N/A	No innovation credits are targeted.
Wst 02	Recycled Aggregates	1	0	N/A	No innovation credits are targeted.
AI	Approved Innovation	1	0	N/A	No innovation credits are targeted.
Innovation score		MAX. 10	0		