RIDGE

Property and Construction Consultants

BREEAM Pre-assessment

Oxford Technology Park
Kidlington

July 2014

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Contents

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Rev 1	14/07/2014	For Planning	FC	AG

Section 1 – Executive Summary

Hill Street Holdings appointed Ridge and Partners LLP as registered BREEAM assessors to prepare a BREEAM pre-assessment. This assessment included preliminary outline design stage assessment of the predicted BREEAM score of proposed Oxford Technology Park development.

The aim of this report is to present the BREEAM New Construction (NC) 2014 pre-assessment undertaken to demonstrate the sustainable design and construction approach for the proposed development. Hill Street Holdings are aspiring to develop two "BREEAM Outstanding" office buildings.

The report aims to highlight the specific requirements that need to be taken into account to achieve a BREEAM Outstanding rating.

This report provides guidance to achieve an Outstanding BREEAM rating, and in particular on:

1. BREEAM NC 2014 Pre-assessment performance
2. The mandatory credits that are required to achieve a BREEAM Outstanding rating.
3. BREEAM NC 2014 Detailed credit requirements
4. The requirements for specialist consultants.

After the preliminary pre-assessment meeting a BREEAM New Construction (NC) 24014 score identified the key credits to be targeted. An 88.31% score was achieved which translate to a BREEAM "Outstanding" rating. Table 4 and figure 1 below show a summary of the initial targeted credits.

BREEAM Section	Credits Available	Pre-assessment prediction	% of Credits Achieved	Section Weighting	Section Score
Management	18	14	77.78%	0.11	8.56%
Health and Wellbeing	12	12	100.00%	0.105	10.50%
Energy	21	15	71.43%	0.15	10.71%
Transport	9	9	100.00%	0.1	10.00%
Water	8	8	100.00%	0.075	7.50%
Materials	13	12	92.31%	0.145	13.38%
Waste	9	8	88.89%	0.095	8.44%
Land Use & Ecology	10	9	90.00%	0.11	9.90%
Pollution	13	11	84.62%	0.11	9.31%
Innovation	10	0	0.00%	0.1	0.00%
BREEAM Pre-Assessment total Score		**88.31%**			

At the concept stage of design, it is recommended to target a score between 2% and 5% greater than the required rating, i.e. 90% for a "Outstanding" rating. This buffer would allow for credits to be lost as the project progresses through the design and construction stages but still achieve the 85% requirement upon certification at project completion.

Section 2 – Introduction

Hill Street Holdings appointed Ridge and Partners LLP as registered BREEAM assessors to prepare a BREEAM pre-assessment. This assessment included preliminary outline design stage assessment of the predicted BREEAM score of proposed Oxford Technology Park development.

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This report provides guidance to achieve an Outstanding BREEAM rating, and in particular on:

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7. BREEAM NC 2014 Detailed credit requirements
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2.1 BREEAM New Construction (NC) Overview

The Building Research Establishment Environmental Assessment Method (BREEAM) is a performance based assessment method and certification scheme for new buildings. The primary aim of the BREEAM process is to mitigate the life cycle impacts of new buildings on the environment in a robust and cost effective manner. This is achieved through integration and use of the scheme by clients and their project teams at key stages in the design and procurement process. This enables the client, through the BREEAM Assessor and the BRE Global certification process, to measure, evaluate and reflect the performance of their building against best practice in an independent and robust manner. This performance is quantified by a number of individual measures and associated criteria stretching across a range of environmental issues which is ultimately expressed as a single certified BREEAM rating.

The potential BREEAM ratings for a building are as shown below:-

Rating	Percentage Score	Equivalent performance
Outstanding	>85	Less than 1% of UK new non-domestic buildings
Excellent	>70	Top 10% of UK new non-domestic buildings
Very Good	>55	Top 25% of UK new non-domestic buildings
Good	>45	Top 50% of UK new non-domestic buildings
Pass	>30	Top 75% of UK new non-domestic buildings
Unclassified	<30	Failed to met minimum BREEAM criteria

Table 1, BREEAM ratings Benchmarks

In order to achieve a BREEAM rating for a building, the client must appoint an independent person, accredited by the BRE, to act as an assessor. The assessor will work with the client to:-

1. Provide a Pre-assessment of the rating which is likely to be achieved by the building.
2. Register the project with the Building Research Establishment (BRE) who administers the scheme.
3. Collate information provided by the client and the contractor and prepare a design stage report for submission to the BRE.
4. Visit the completed site and collate photographic and other evidence to show that the building has been built to incorporate those features that were agreed as part of the design stage assessment. The evidence is compiled into a final report for submission to the BRE who will issue a certificate to confirm the building's final rating.

Both the design stage and the completion reports are assessed by the BRE in order to confirm that the evidence has been provided in the format and to the level of detail required by the BRE.
The table below provides a useful comparison of the RIBA outline plan of work with the BREEAM assessment stages. The columns shown gold are the stages within which information is gained and collated, those shown green are the stages wherein the project reports are issued to the BRE for approval.
It should be noted that typically approximately 6 weeks are required for the BRE to consider the evidence provided in both the Design stage and the Post Construction reports.

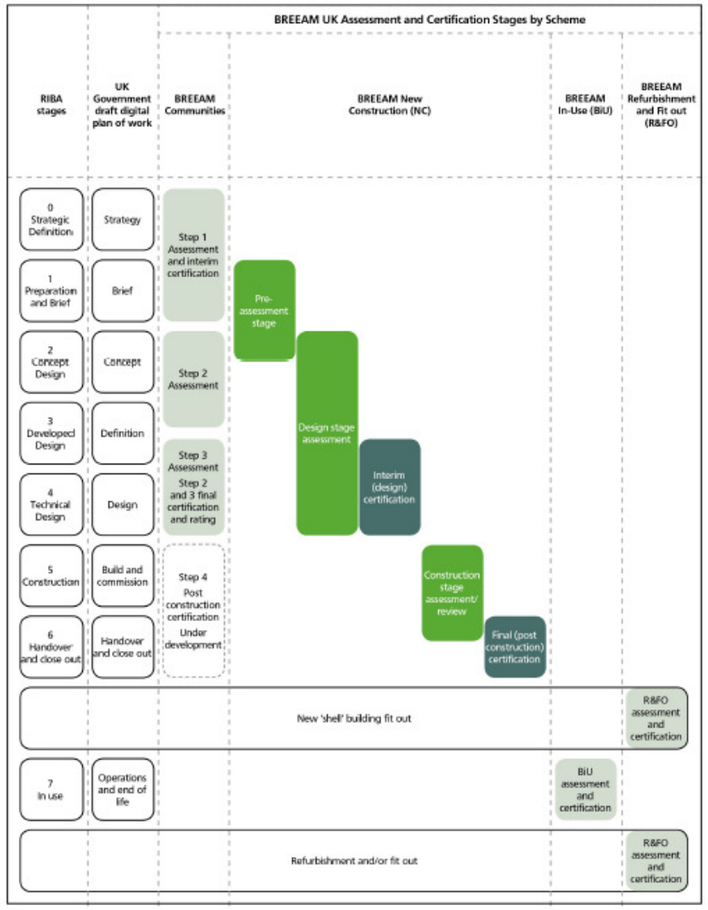

Table 2, BREEAM assessment and certification stages and the RIBA Outline Plan of Works (see appendix 1)

On completion of a compliant Post Construction report, the BRE will issue to the client a certificate confirming the BRREAM rating for the building, the details of which will also be listed on GreenBook Live (www.greenbooklive.com).

Please note that it is not a formal Design Stage assessment which will follow during detailed design stage of the project.

2.2 BREEAM NC 2014 Scheme Classification

A preliminary BREEAM New Construction (NC) 2014 Pre-assessment was carried out to evaluate the proposed building environmental performance.

The following information was used to start the BREEAM NC 2014 Pre-assessment

The results of this report are based on a Pre-assessment meeting held at UMC architects office in Newark on the 24th of June 2014. All of the credits identified as being viable were agreed with UMC Architects and Hill St Holdings at the time of the meeting.

Client = Hill Street Holdings
Architect = UMC architects

Project = Oxford Technology Park
Project type = New Construction (Shell and Core)
Building type = Office
Building subtype = General Office Building

Assessed under BREEAM New Construction 2014

The BREEAM New Construction 2014 reference manual (version 1.0) should be referred to for full guidance on compliance with each credit and the items of evidence required by the Assessor.

Note: The score is currently an accurate estimate; the final score may change if the design or processes are amended by others in a way that prevents the award of the currently identified credits.

Section 3 – Rating Summary

The credits identified to allow the project to achieve a BREEAM "Outstanding" rating are shown in **Error! Reference source not found.** below.

BREEAM Section		Credits Available	Pre-assessment prediction
Management			
Man 01	Project brief and design	4	2
Man 02	Life cycle cost and service life planning	4	2
Man 03	Responsible construction practices	6	6
Man 04	Commissioning and handover	4	4
	Management Totals:	**18**	**14**
	Management score totals:	**11**	**8.56%**
Health & Wellbeing			
Hea 01	Visual Comfort	4	4
Hea 02	Indoor Air Quality	2	2
Hea 04	Thermal comfort	3	3
Hea 05	Acoustic Performance	1	1
Hea 06	Safety and Security	2	2
	Health & Wellbeing Totals:	**12**	**12**
	Health & Wellbeing score totals:	**10.5**	**10.50%**
Energy			
Ene 01	Reduction of energy use and carbon emissions	12	8
Ene 02	Energy Monitoring	2	2
Ene 03	External Lighting	1	1
Ene 04	Low carbon design	3	2
Ene 06	Energy Efficient Transportation Systems	3	2
	Energy Totals:	**21**	**15**
	Energy score totals:	**15**	**10.71%**
Transport			
Tra 01	Public Transport Accessibility	3	3
Tra 02	Proximity to amenities	1	1
Tra 03	Cyclist facilities	2	2
Tra 04	Maximum Car Parking Capacity	2	2
Tra 05	Travel Plan	1	1
	Transport Totals:	**9**	**9**
	Transport score totals:	**10**	**10.00%**
Water			
Wat 01	Water Consumption	5	5
Wat 02	Water Monitoring	1	1
Wat 03	Leak Detection	2	2
	Water Totals:	**8**	**8**
	Water score totals:	**7.5**	**7.50%**

Materials			
Mat 01	Life Cycle Impacts	5	5
Mat 02	Hard Landscaping and Boundary Protection	1	1
Mat 03	Responsible Sourcing of Materials	4	3
Mat 04	Insulation	1	1
Mat 05	Designing for durability and resilience	1	1
Mat 06	Material efficiency	1	1
	Materials Totals:	**13**	**12**
	Materials score totals:	**14.5**	**13.38%**
Waste			
Wst 01	Construction Waste Management	4	3
Wst 02	Recycled Aggregates	1	1
Wst 03	Operational Waste	1	1
Wst 04	Speculative Floor and Ceiling Finishes	1	1
Wst 05	Adaptation to climate change	1	1
Wst 06	Functional adaptability	1	1
	Waste Totals:	**9**	**8**
	Waste score totals:	**9.5**	**8.44%**
Land Use & Ecology			
LE 01	Site Selection	2	1
LE 02	Ecological Value of Site and Protection of Ecological Features	2	2
LE 03	Minimising impact on existing site ecology	2	2
LE 04	Enhancing site ecology	2	2
LE 05	Long Term Impact on Biodiversity	2	2
	Land Use & Ecology Totals:	**10**	**9**
	Land Use & Ecology score totals:	**11**	**9.90%**
Pollution			
Pol 01	Impact of Refrigerants	3	2
Pol 02	NOx emissions	3	2
Pol 03	Surface Water Run Off	5	5
Pol 04	Reduction of Night Time Light Pollution	1	1
Pol 05	Noise Attenuation	1	1
	Pollution Totals:	**13**	**11**
	Pollution score totals:	**11**	**9.31%**

Innovation			
Man 03	Responsible construction practices	1	0
Hea 01	Visual Comfort	1	0
Ene 01	Reduction of energy use and carbon emissions	5	0
Wat 01	Water Consumption	1	0
Mat 01	Life Cycle Impacts	3	0
Mat 03	Responsible Sourcing of Materials	1	0
Wst 01	Construction Waste Management	1	0
Wst 02	Recycled Aggregates	1	0
Wst 05	Adaptation to climate change	1	0
AI	Approved Innovation	1	0
	Innovation Totals:	**16**	**0**
	Innovation score totals:	**16**	**0**

Table 3, Detailed BREEAM Pre-assessment summary

After the preliminary pre-assessment meeting a BREEAM New Construction (NC) 24014 score identified the key credits to be targeted. A 88.31% score was achieved which translate to a BREEAM "Outstanding" rating. Table 4 and figure 1 below show a summary of the initial targeted credits.

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Table 4, Building Performance by Section

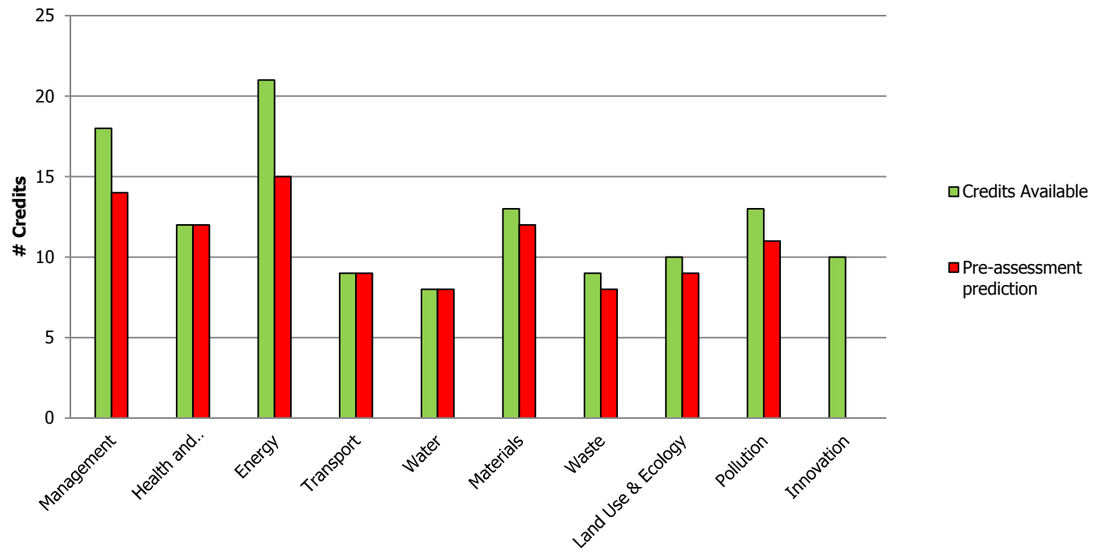

Figure 1, Oxford Technology park rating summary

Section 4 – Mandatory Criteria

Whilst most BREEAM credits are tradable and can be targeted in various configurations to achieve the required overall score, some credits are mandatory to achieve certain BREEAM ratings. To achieve a BREEAM "Outstanding" rating the following credits must be achieved, in addition to achieving a score of ≥85% overall. Table 5 below highlights the mandatory requirements to achieve a "Outstanding" rating.

BREEAM Issue	PASS	GOOD	VERY GOOD	EXCELLENT	OUTSTANDING
Man 03: Responsible construction practices	None	None	None	One Credit (Considerate construction)	Two Credit (Considerate construction)
Man 04: Commissioning and handover	None	None	None	Criterion 9 (Building User Guide)	Criterion 9 (Building User Guide)
Man 5: Aftercare	None	None	None	One credit (seasonal commissioning)	One credit (Seasonal commissioning)
Ene 01: Reduction of energy use and carbon emissions	None	None	None	Five Credits	Eight Credits
Ene 02: Energy monitoring	None	None	One credit (First sub-metering credit)	One credit (First sub-metering credit)	One credit (First sub-metering credit)
Wat 01: Water consumption	None	One credit	One credit	One credit	Two credit
Wat 02: Water monitoring	None	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only
Mat 03: Responsible sourcing of materials	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only
Wst 01: Construction waste management	None	None	None	None	One credit
Wst 03: Operational waste	None	None	None	One credit	One credit
LE 03: Minimising impact on existing site ecology	None	None	One credit	One credit	One credit

Table 5, BREEAM Minimum Standards (Outstanding rating)

Section 5 – Detailed Credit Requirements

The following section identifies the requirements to achieve the targeted BREEAM rating.

5.1 Management

		Credits available	Credits targeted
Man 01 - Project brief and design:		4	2
Requirement 1	Prior to completion of the Concept Design (RIBA Stage 2 or equivalent), the project delivery stakeholders (see Relevant definitions) have met to identify and define their roles, responsibilities and contributions for each of the key phases of project delivery.		
Requirement 2	In defining the roles and responsibilities for each key phase of the project, the following must be considered:		
	a. End user requirements		
	b. Aims of the design and design strategy		
	c. Particular installation and construction requirements/limitations		
	d. Occupiers budget and technical expertise in maintaining any proposed systems		
	e. Maintainability and adaptability of the proposals		
	f. Requirements for the production of project and end user documentation		
	g. Requirements for commissioning, training and aftercare support		
Requirement 3	The project team demonstrate how the project delivery stakeholder contributions and the outcomes of the consultation process have influenced or changed the Initial Project Brief, including if appropriate, the Project Execution Plan, Communication Strategy, and the Concept Design.		
Requirement 4	Prior to completion of the Concept Design stage, all relevant third party stakeholders have been consulted by the design team and this covers the minimum consultation content (see compliance note CN3 in Technical Manual NC 2014).		
Requirement 5	The project must demonstrate how the stakeholder contributions and outcomes of the consultation exercise have influenced or changed the Initial Project Brief and Concept Design.		
Requirement 6	Prior to completion of the detailed design (RIBA Stage 4, Technical Design or equivalent), consultation feedback has been given to, and received by, all relevant parties.		
		Credits available	**Credits targeted**
Man 02 - Life cycle cost and service life planning:		**4**	**2**
Requirement 1	An elemental life cycle cost (LCC) analysis has been carried out, at Process Stage 2 (equivalent to Concept Design - RIBA Stage 2) together with any design option appraisals in line with 'Standardised method of life cycle costing for construction procurement' PD 156865:2008.		
Requirement 2	The LCC analysis shows:		
	a. An outline LCC plan for the project based on the building's basic structure and envelope, appraising a range of options and based on multiple cash flow scenarios e.g. 20, 30, 50+ years;		
	b. The fabric and servicing strategy for the project outlining services component and fit-out options (if applicable) over a 15-year period, in the form of an 'elemental LCC Plan'.		
Requirement 3	A component level LCC plan has been developed by the end of Process Stage 4 (equivalent to Technical Design – RIBA Stage 4) in line with PD 156865:2008 and includes the following component types (where present):		
	a. Envelope, e.g. cladding, windows, and/or roofing		
	b. Services, e.g. heat source cooling source, and/or controls		
	c. Finishes, e.g. walls, floors and/or ceilings		
	d. External spaces, e.g. alternative hard landscaping, boundary protection.		
Requirement 4	Demonstrate, using appropriate examples provided by the design team, how the component level LCC plan has been used to influence building and systems design/specification to minimise life cycle costs and maximise critical value.		
Requirement 5	Report the capital cost for the building in pounds per square metre (£k/m^2), via the BREEAM Assessment Scoring and Reporting tool, Assessment Issue Scoring tab, Management section.		
		Credits available	**Credits targeted**
Man 03 - Responsible construction practices:		**6**	**6**
Requirement 0	All timber and timber based products used on the project is 'Legally harvested and traded timber' (see Relevant definitions). *Note: For other materials there are no pre-requisite requirements at this stage.*		
Requirement 1	The principal contractor operates an environmental management system (EMS) covering their main operations. The EMS must be either:		
	a. third party certified, to ISO 14001/EMAS or equivalent standard; or		
	b. have a structure that is in compliance with BS 8555:2003 and has reached phase four of the implementation stage, 'implementation and operation of the environmental management system', and has completed phase audits one to four, as defined in BS 8555.		
	For Healthcare NHS buildings, see the pre-requisite for this issue in compliance note CN7.		
Requirement 2	The principal contractor implements best practice pollution prevention policies and procedures on-site in accordance with Pollution Prevention Guidelines, Working at construction and demolition-sites: PPG6.		
Requirement 3	A Sustainability Champion is appointed to monitor the project to ensure ongoing compliance with the relevant sustainability performance/process criteria, and therefore BREEAM target(s), during the Construction, Handover and Close Out stages (as defined by the RIBA Plan of Works 2013, stages 5 and 6). To do this the Sustainability Champion will ideally be site based or will visit the site regularly to carry out spot checks, with the relevant authority to do so and require action to be taken to address shortcomings in compliance. The Sustainability Champion will monitor site activities with sufficient frequency (see compliance note CN6) to ensure that risks of noncompliance are minimised. They will report on progress at relevant project team meetings including identifying potential areas of non-compliance and any action needed to mitigate.		
Requirement 4	The defined BREEAM performance target forms a requirement of the principal contractor's contract (see compliance note Man 01 Project brief and design – CN5 and in Man 01 Project brief and design – Relevant definitions).		
Requirement 5	To achieve this credit at the final post construction stage of assessment, the BREEAM-related performance target for the project must be demonstrably achieved by the project. This is demonstrated via the BREEAM Assessor's final post construction stage assessment report.		
Requirement 6	Where the principal contractor has used a 'compliant' organisational, local or national considerate construction scheme and their performance against the scheme has been confirmed by independent assessment and verification.The BREEAM credits can be awarded as follows:		
	a. One credit where the contractor achieves 'compliance' with the criteria of a compliant scheme.		
	b. Two credits where the contractor significantly exceeds 'compliance' with the criteria of the scheme.		
	Refer to the Relevant definitions section for a list of compliant schemes and therefore how performance, as determined by a compliant scheme, translates in to BREEAM credits.		
Requirement 7	Responsibility has been assigned to an individual(s) for monitoring, recording and reporting energy use, water consumption and transport data (where measured) resulting from all on-site construction processes (and dedicated off-site monitoring) throughout the build programme. To ensure the robust collection of information, this individual(s) must have the appropriate authority and responsibility to request and access the data required. Where appointed, the Sustainability Champion could perform this role.		

Requirement 8	**One credit: Utility consumption - Energy** Criterion 7 is achieved.		
Requirement 9	Monitor and record data on principal constructor's and subcontractors' 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.		
Requirement 10	Report the total carbon dioxide emissions (total $kgCO_2$/project value) from the construction process via the BREEAM Assessment Scoring and Reporting tool.		
Requirement 11	**One credit: Utility consumption - Water** Criterion 7 is achieved.		
Requirement 12	Monitor and record data on principal constructor's and subcontractors' potable water consumption (m^3) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation.		
Requirement 13	Using the collated data report the total net water consumption (m^3), i.e. consumption minus any recycled water use, from the construction process via the BREEAM Assessment Scoring and Reporting tool.		
Requirement 14	**One credit: Transport of construction & waste** Criterion 7 is achieved.		
Requirement 15	Monitor and record data on transport movements and impacts resulting from delivery of the majority of construction materials to site and construction waste from site. As a minimum this must cover:		
	a. Transport of materials from the factory gate to the building site, including any transport, intermediate storage and distribution. See Relevant definitions.		
	b. Scope of this monitoring must cover the following as a minimum:		
	i. Materials used in major building elements (i.e. those defined in BREEAM issue Mat 01 Life cycle impacts), including insulation materials.		
	ii. Ground works and landscaping materials.		
	c. Transport of construction waste from the construction gate to waste disposal processing/recovery centre gate. Scope of this monitoring must cover the construction waste groups outlined in the project's waste management plan.		
Requirement 16	Using the collated data, report separately for materials and waste, the total fuel consumption (litres) and total carbon dioxide emissions ($kgCO_2$ eq), plus total distance travelled (km) via the BREEAM Assessment Scoring and Reporting tool.		
		Credits available	**Credits targeted**
Man 04 - Commissioning and handover:		**4**	**4**
Requirement 9	A Building User Guide (BUG) is developed prior to handover for distribution to the building occupiers and premises managers (see Relevant definitions).		
Requirement 1	A schedule of commissioning and testing that identifies and includes a suitable timescale for commissioning and recommissioning of all complex and non-complex building services and control systems and testing and inspecting building fabric.		
Requirement 2	All commissioning activities are carried out in accordance with current Building Regulations, BSRIA and CIBSE guidelines and/or other appropriate standards, where applicable. Where a building management system (BMS) is specified, refer to compliance note CN5 on BMS commissioning procedures.		
Requirement 3	An appropriate project team member(s) is appointed to monitor and programme pre-commissioning, commissioning, testing and, where necessary, re-commissioning activities on behalf of the client.		
Requirement 4	The principal contractor accounts for the commissioning and testing programme, responsibilities and criteria within their budget and main programme of works, allowing for the required time to complete all commissioning and testing activities prior to handover.		
Requirement 5	For buildings with complex building services and systems, a specialist commissioning manager is appointed during the design stage (by either the client or the principal contractor) with responsibility for:		
	a. Undertaking design reviews and giving advice on suitability for ease of commissioning.		
	b. Providing commissioning management input to construction programming and during installation stages.		
	c. Management of commissioning, performance testing and handover/post-handover stages.		
	Where there are simple building services, this role can be carried out by an appropriate project team member (see criterion 3), provided they are not involved in the general installation works for the building services system(s).		
Requirement 6	The commissioning and testing schedule and responsibilities credit is achieved.		
Requirement 7	The integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths is quality assured through completion of post construction testing and inspection. Dependent on building type or construction, this can be demonstrated through the completion of a thermographic survey as well as an airtightness test and inspection (see compliance notes CN6 and CN7. The survey and testing is undertaken by a Suitably Qualified Professional (see Relevant definitions) in accordance with the appropriate standard.		
Requirement 8	Any defects identified in the thermographic survey or the airtightness testing reports are rectified prior to building handover and close out. Any remedial work must meet the required performance characteristics for the building/element.		
Requirement 9	A Building User Guide (BUG) is developed prior to handover for distribution to the building occupiers and premises managers (see Relevant definitions).		
Requirement 10	A training schedule is prepared for building occupiers/premises managers, timed appropriately around handover and proposed occupation plans, which includes the following content as a minimum:		
	a. The building's design intent		
	b. The available aftercare provision and aftercare team main contact(s), including any scheduled seasonal commissioning and post occupancy evaluation		
	c. Introduction to, and demonstration of, installed systems and key features, particularly building management systems, controls and their interfaces		
	d. Introduction to the Building User Guide and other relevant building documentation, e.g. design data, technical guides, maintenance strategy, operations and maintenance (O&M) manual, commissioning records, log book etc.		
	e. Maintenance requirements, including any maintenance contracts and regimes in place.		

5.2 Health and Wellbeing

		Credits available	**Credits targeted**
Hea 01 - Visual Comfort:		**4**	**4**
Requirement 1	The potential for disabling glare has been designed out of all relevant building areas using a glare control strategy, either through building form and layout and/or building design measures (see compliance note CN3).		
Requirement 2	The glare control strategy avoids increasing lighting energy consumption, by ensuring that:		
	a. The glare control system is designed to maximise daylight levels under all conditions while avoiding disabling glare in the workplace or other sensitive areas. The system should not inhibit daylight from entering the space under cloudy conditions, or when sunlight is not on the facade		
	AND		
	b. The use or location of shading does not conflict with the operation of lighting control systems.		
Requirement 3	Daylighting criteria have been met using either of the following options:		
	a. The relevant building areas meet good practice daylight factor(s) and other criterion as outlined in Table - 10 and Table - 11.		

	OR	
	b. The relevant building areas meet good practice average and minimum point daylight illuminance criteria as outlined in Table - 12.	
Requirement 4	95% of the floor area in relevant building areas is within 7m of a wall which has a window or permanent opening that provides an adequate view out.	
Requirement 5	The window/opening must be ≥ 20% of the surrounding wall area (refer to Relevant definitions in the Additional information section). Where the room depth is greater than 7m, compliance is only possible where the percentage of window/opening is the same as, or greater than, the values in table 1.0 of BS 8206.	
Requirement 6	In addition, the building type criteria in Table - 13 are applicable to view out criteria.	
Requirement 7	**Internal lighting** All fluorescent and compact fluorescent lamps are fitted with high frequency ballasts.	
Requirement 8	Internal lighting in all relevant areas of the building is designed to provide an illuminance (lux) level appropriate to the tasks undertaken, accounting for building user concentration and comfort levels. This can be demonstrated through a lighting design strategy that provides illuminance levels in accordance with the SLL Code for Lighting 2012 and any other relevant industry standard.	
Requirement 9	For areas where computer screens are regularly used, the lighting design complies with CIBSE Lighting Guide 7 sections 3.3, 4.6, 4.7, 4.8 and 4.9. This gives recommendations highlighting:	
	a. Limits to the luminance of the luminaires to avoid screen reflections. (Manufacturers' data for the luminaires should be sought to confirm this.)	
	b. For uplighting, the recommendations refer to the luminance of the lit ceiling rather than the luminaire; a design team calculation is usually required to demonstrate this.	
	c. Recommendations for direct lighting, ceiling illuminance, and average wall illuminance.	
Requirement 10	**External lighting All external lighting located within the construction zone is designed to provide illuminance levels that enable users to perform outdoor visual tasks efficiently and accurately, especially during the night. To demonstrate this, external lighting provided is specified in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas and BS EN 12464-2:2014 Light and lighting - Lighting of work places - Part 2: Outdoor work places.**	
Requirement 11	**Zoning and occupant control** Internal lighting is zoned to allow for occupant control (see Relevant definitions) in accordance with the criteria below for relevant areas present within the building:	
	a. In office areas, zones of no more than four workplaces	
	b. Workstations adjacent to windows/atria and other building areas separately zoned and controlled	
	c. Seminar and lecture rooms: zoned for presentation and audience areas	
	d. Library spaces: separate zoning of stacks, reading and counter areas	
	e. Teaching space or demonstration area	
	f. Whiteboard or display screen	
	g. Auditoria: zoning of seating areas, circulation space and lectern area	
	h. Dining, restaurant, café areas: separate zoning of servery and seating/dining areas	
	i. Retail: separate zoning of display and counter areas	
	j. Bar areas: separate zoning of bar and seating areas	
	k. Wards or bedded areas: zoned lighting control for individual bed spaces and control for staff over groups of bed spaces	
	l. Treatment areas, dayrooms, waiting areas: zoning of seating and activity areas and circulation space with controls accessible to staff.	
	Note: the criteria for zoning of lighting control are excluded for assessments of prison buildings.	
Requirement 12	Areas used for teaching, seminar or lecture purposes have lighting controls provided in accordance with CIBSE Lighting Guide 5.	
Requirement 13	In addition meet the building type criteria in Table - 14 (where relevant).	

		Credits available	Credits targeted
Hea 02 - Indoor Air Quality:		**2**	**2**
Requirement 2	The building has been designed to minimise the concentration and recirculation of pollutants in the building as follows: Provide fresh air into the building in accordance with the criteria of the relevant standard for ventilation.		
Requirement 3	Design ventilation pathways to minimise the build-up of air pollutants in the building, as follows:		
	a. In air conditioned and mixed mode buildings/spaces:		
	i. The building's air intakes and exhausts are over 10m apart and intakes are over 20m from sources of external pollution. OR		
	ii. The location of the building's air intakes and exhausts, in relation to each other and external sources of pollution, is designed in accordance with BS EN 13779:2007 Annex A2.		
	b. In naturally ventilated buildings/spaces: openable windows/ventilators are over 10m from sources of external pollution.		
Requirement 4	Where present, HVAC systems must incorporate suitable filtration to minimise external air pollution, as defined in BS EN 13779:2007 Annex A3.		
Requirement 5	Areas of the building subject to large and unpredictable or variable occupancy patterns have carbon dioxide (CO_2) or air quality sensors specified and:		
	a. In mechanically ventilated buildings/spaces: sensor(s) are linked to the mechanical ventilation system and provide demand-controlled ventilation to the space.		
	b. In naturally ventilated buildings/spaces: sensors either have the ability to alert the building owner or manager when CO2 levels exceed the recommended set point, or are linked to controls with the ability to adjust the quantity of fresh air, i.e. automatic opening windows/roof vents.		
Requirement 13	The building ventilation strategy is designed to be flexible and adaptable to potential building occupant needs and climatic scenarios. This can be demonstrated as follows:		
	a. Occupied spaces of the building are designed to be capable of providing fresh air entirely via a natural ventilation strategy. The following are methods deemed to satisfy this criterion dependent upon the complexity of the proposed system:		
	i. Room depths are designed in accordance with CIBSE AM10 (section 2.4) to ensure effectiveness of any natural ventilation system. The openable window area in each occupied space is equivalent to 5% of the gross internal floor area of that room/floor plate. OR		
	ii. The design demonstrates that the natural ventilation strategy provides adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates. This is demonstrated using ventilation design tool types recommended by CIBSE AM10 (or for education buildings by using the ClassVent tool).		
	For a strategy which does not rely on openable windows, or which has occupied spaces with a plan depth greater than 15m, the design must demonstrate (in accordance with criterion 13a - i above) that the ventilation strategy can provide adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates.		
Requirement 14	The natural ventilation strategy is capable of providing at least two levels of user-control on the supply of fresh air to the occupied space (see compliance note CN6 for further details). Note: Any opening mechanisms must be easily accessible and provide adequate user-control over air flow rates to avoid draughts. Relevant industry standards for ventilation can be used to define 'adequate levels of fresh air' sufficient for occupancy and internal air pollution loads relevant to the building type. Note: Multi-residential buildings with self-contained flats and individual bedrooms must have a degree of openable window function. This does not need to provide two levels of user-control (as required above), but must be occupant controlled.		

		Credits available	Credits targeted
Hea 04 - Thermal comfort:		**2**	**2**
Requirement 1	Thermal modelling has been carried out using software in accordance with CIBSE AM11 Building Energy and Environmental Modelling.		
Requirement 2	The software used to carry out the simulation at the detailed design stage provides full dynamic thermal analysis. For smaller and more basic building designs with less complex heating or cooling systems, an alternative less complex means of analysis may be appropriate (such methodologies must still be in accordance with CIBSE AM11).		
Requirement 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.		
Requirement 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.		
Requirement 5	Criteria 1 to 4 are achieved.		
Requirement 6	The thermal modelling demonstrates that the relevant requirements set out in criteria 3 are achieved for a projected climate change environment (see Relevant definitions).		
Requirement 7	Where thermal comfort criteria are not met for the projected climate change environment, 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 under criterion 6.		
Requirement 8	For air conditioned buildings, the PMV and PPD indices based on the above modelling are reported via the BREEAM assessment scoring and reporting tool.		
Requirement 9	Criteria 1 to 4 are achieved.		
Requirement 10	The thermal modelling analysis (undertaken for compliance with criteria 1 to 4) has informed the temperature control strategy for the building and its users.		
Requirement 11	The strategy for proposed heating/cooling system(s) 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, based on discussions with the end user (or alternatively building type or use specific design guidance, case studies, feedback) considers:		
	i. User knowledge of building services		
	ii. Occupancy type, patterns and room functions (and therefore appropriate level of control required)		
	iii. How the user is likely to operate or interact with the system(s), e.g. are they likely to open windows, access thermostatic radiator valves (TRV) on radiators, change air-conditioning settings etc.,		
	iv. The user expectations (this may differ in the summer and winter) and degree of individual control (i.e. obtaining the balance between occupant preferences, for example some occupants like fresh air and others dislike drafts).		
	c. How the proposed systems will interact with each other (where there is more than one system) and how this may affect the thermal comfort of the building occupants.		
	d. The need or otherwise for an accessible building user actuated manual override for any automatic systems.		

		Credits available	Credits targeted
Hea 05 - Acoustic Performance:		**1**	**1**
Requirement 1	**One credit for Shell & Core assessments:** The building meets the appropriate acoustic performance standards and testing requirements defined in the checklists and tables section which defines criteria for the acoustic principles of:		
	a. Sound insulation **(N/A)**		
	b. Indoor ambient noise level		
	c. Reverberation times **(N/A)**		

		Credits available	Credits targeted
Hea 06 - Safety and Security:		**2**	**2**
Requirement 1	Where external site areas form part of the assessed development the following apply: Dedicated cycle paths provide direct access from the site entrance(s) to any cycle storage provided, without the need to deviate from the cycle path and, if relevant, connect to off-site cycle paths (or other appropriate safe route) where these run adjacent to the development's site boundary.		
Requirement 2	Footpaths on-site provide direct access from the site entrance(s) to the building entrance(s) and connect to public footpaths off-site (where existing), providing practical and convenient access to local transport nodes and other off-site amenities (where existing).		
Requirement 3	Where provided, drop-off areas are designed off/adjoining to the access road and provide direct access to pedestrian footpaths, therefore avoiding the need for the pedestrian to cross vehicle access routes.		
Requirement 4	Dedicated pedestrian crossings are provided where pedestrian routes cross vehicle access routes, and appropriate traffic calming measures are in place to slow traffic down at these crossing points.		
Requirement 5	For large developments with a high number of public users or visitors, pedestrian footpaths must be signposted to other local amenities and public transport nodes off-site (where existing).		
Requirement 6	The lighting for access roads, pedestrian routes and cycle lanes is compliant with the external lighting criteria defined in Hea 01 Visual comfort, i.e. in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas.		
Requirement 7	Where vehicle delivery access and drop-off areas form part of the assessed development, the following apply: Delivery areas are not directly accessed through general parking areas and do not cross or share pedestrian and cyclist routes and other outside amenity areas accessible to building users and general public.		
Requirement 8	There is a dedicated parking/waiting area for goods vehicles with appropriate separation from the manoeuvring area and staff and visitor car parking.		
Requirement 9	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.		
Requirement 10	There is a dedicated space for the storage of refuse skips and pallets away from the delivery vehicle manoeuvring area and staff/visitor car parking (if appropriate given the building type/function).		
Requirement 11	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).		

Requirement 12	A suitably qualified security specialist (SQSS) develops a set of recommendations or solutions during or prior to Concept Design (RIBA Stage 2 or equivalent). These recommendations or solutions aim to ensure that the design of buildings, public and private car parks and public or amenity space are planned, designed and specified to address the issues identified in the preceding SNA.	
Requirement 13	The recommendations or solutions proposed by the suitably qualified security specialist (SQSS) are implemented (see CN9. Any deviation from those recommendations or solutions will need to be justified, documented and agreed in advance with a suitably qualified security specialist.	

5.3 Energy

		Credits available	Credits targeted
Ene 01 - Reduction of energy use and carbon emissions:		**12**	**8**
Requirement 1	Calculate an Energy Performance Ratio for New Constructions (EPR_{NC}). Compare the EPR_{NC} achieved with the benchmarks in Table - 25 and award the corresponding number of BREEAM credits.		
		Credits available	**Credits targeted**
Ene 02 - Energy Monitoring:		**2**	**2**
Requirement 1	Energy metering systems are 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 (see Methodology).		
Requirement 2	The energy consuming systems in buildings with a total useful floor area greater than 1,000m^2 are metered using an appropriate energy monitoring and management system.		
Requirement 3	The systems in smaller buildings are metered either with an energy monitoring and management system or with separate accessible energy sub-meters with pulsed or other open protocol communication outputs, to enable future connection to an energy monitoring and management system (see Relevant definitions).		
Requirement 4	The end energy consuming uses are identifiable to the building users, for example through labelling or data outputs.		
Requirement 5	An accessible energy monitoring and management system or separate accessible energy sub-meters with pulsed or other open protocol communication outputs to enable future connection to an energy monitoring and management system are provided, covering a significant majority of the energy supply to tenanted areas or, in the case of single occupancy buildings, relevant function areas or departments within the building/unit.		
		Credits available	**Credits targeted**
Ene 03 - External Lighting:		**1**	**1**
Requirement 1	The building has been designed to operate without the need for external lighting (which includes on the building, signs and at entrances). OR alternatively, where the building does have external lighting, one credit can be awarded as follows:		
Requirement 2	The average initial luminous efficacy of the external light fittings within the construction zone is not less than 60 luminaire lumens per circuit Watt.		
Requirement 3	All external light fittings are automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic.		
		Credits available	**Credits targeted**
Ene 04 - Low carbon design:		**3**	**2**
Requirement 1	The first credit within issue Hea 04 Thermal comfort has been achieved to demonstrate the building design can deliver appropriate thermal comfort levels in occupied spaces.		
Requirement 2	The project team carries out an analysis of the proposed building design/development to influence decisions made during Concept Design stage (RIBA Stage 2 or equivalent) and identify opportunities for the implementation of passive design solutions that reduce demands for energy consuming building services (see compliance note CN4).		
Requirement 3	The building uses passive design measures to reduce the total heating, cooling, mechanical ventilation and lighting loads and energy consumption in line with the findings of the passive design analysis and the analysis demonstrates a meaningful reduction in the total energy demand as a result (see compliance note CN16).		
Requirement 4	The passive design analysis credit is achieved.		
Requirement 5	The passive design analysis carried out under criterion 2 includes an analysis of free cooling and identifies opportunities for the implementation of free cooling solutions.		
Requirement 6	The building uses ANY of the free cooling strategies listed in compliance note CN5 to reduce the cooling energy demand, i.e. it does not use active cooling.		
Requirement 7	A feasibility study has been carried out by the completion of the Concept Design stage (RIBA Stage 2 or equivalent) by an energy specialist (see Relevant definitions) to establish the most appropriate recognised local (on-site or near-site) low or zero carbon (LZC) energy source(s) for the building/development (see compliance note CN7).		
Requirement 8	A local LZC technology/technologies has/have been specified for the building/development in line with the recommendations of this feasibility study and this method of supply results in a meaningful reduction in regulated carbon dioxide (CO2) emissions (see compliance note CN16).		
		Credits available	**Credits targeted**
Ene 06 - Energy Efficient Transportation Systems:		**2**	**2**
Requirement 1	Where lifts, escalators and/or moving walks (transportation types) are specified: a. An analysis of the transportation demand and usage patterns for the building has been carried out to determine the optimum number and size of lifts, escalators and/or moving walks. b. The energy consumption has been calculated in accordance with BS EN ISO 25745 Energy performance of lifts, escalators and moving walks, Part 2 : Energy calculation and classification for lifts (elevators) and/or Part 3 - Energy calculation and classification for escalators and moving walks, for one of the following: i. At least two types of system (for each transportation type required); OR ii. An arrangement of systems (e.g. for lifts, hydraulic, traction, machine room-less lift (MRL)); OR iii. A system strategy which is 'fit for purpose'. c. The use of regenerative drives should be considered, subject to the requirements in CN6. d. The transportation system with the lowest energy consumption is specified.		
Requirement 2	Criterion 1 is achieved.		
Requirement 3	**Lifts** For each lift, the following three energy efficient features are specified: a. The lifts operate in a standby condition during off-peak periods. For example the power side of the lift controller and other operating equipment such as lift car lighting, user displays and ventilation fans switch off when the lift has been idle for a prescribed length of time. b. The lift car lighting and display lighting provides an average lamp efficacy, (across all fittings in the car) of > 55 lamp lumens/circuit Watt. c. The lift uses a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor.		

Requirement 4	Where the use of regenerative drives is demonstrated to save energy, they are specified.	
Requirement 5	**Escalators and/or moving walks** Each escalator and/or moving walk complies with at least one of the following: It is fitted with a load-sensing device that synchronises motor output to passenger demand through a variable speed drive; OR	
Requirement 6	It is fitted with a passenger-sensing device for automated operation (auto walk), so the escalator operates in standby mode when there is no passenger demand.	

5.4 Transport

		Credits available	Credits targeted
Tra 01 - Public Transport Accessibility:		**3**	**3**
Requirement 1	**Up to 3 credits - Accessibility Index The public transport Accessibility Index (AI) for the assessed building is calculated and BREEAM credits awarded in accordance with the table of building types, AI benchmarks and BREEAM credits in Table - 29 (see checklists and tables).**		
Requirement 2	The Accessibility Index is determined by entering the following information in to the BREEAM Tra 01 calculator:		
	a. The distance (m) from the main building entrance to each compliant public transport node		
	b. The public transport type(s) serving the compliant node e.g. bus or rail		
	c. The average number of services stopping per hour at each compliant node during the operating hours of the building for a typical day (see compliance notes and Table - 30 in the Additional Information section).		
	OR		
Requirement 3	**One credit - Dedicated bus service For buildings with a fixed shift pattern, i.e. where building users will predominantly arrive/depart at set times, one credit can be awarded where the building occupier provides, or commits to providing a dedicated bus service to and from the building at the beginning and end of each shift/day. This credit is only available in cases where a development is unable to achieve any of the available credits using the Accessibility Index criteria (i.e. its location has a low public transport Accessibility Index).**		

		Credits available	Credits targeted
Tra 02 - Proximity to amenities:		**1**	**1**
Requirement 1	Where the building is located within close proximity of, and accessible to, local amenities which are likely to be frequently required and used by building occupants, as outlined in Table - 31		
Requirement 2	Where a building type is indicated to have core amenities (Labeled as C in Table - 31) at least two of these must be provided as a part of the total number required. The remaining number of amenities required can be met using any other applicable amenities (including any remaining core amenities).		

		Credits available	Credits targeted
Tra 03 - Cyclist facilities:		**2**	**2**
Requirement 1	Compliant cycle storage spaces that meet the minimum levels set out in Table - 32 (see checklists and tables) are installed.		
Requirement 2	Criterion 1 has been achieved.		
Requirement 3	At least two of the following types of compliant cyclist facilities have been provided for all staff and pupils (where appropriate) (see relevant definitions for the scope of each compliant cyclist facilities:		
	a. Showers		
	b. Changing facilities		
	c. Lockers		
	d. Drying spaces		

		Credits available	Credits targeted
Tra 04 - Maximum Car Parking Capacity:		**2**	**2**
Requirement 1	The building's car parking capacity is compared to the maximum car parking capacity benchmarks in Table - 33 and the relevant number of BREEAM credits awarded. For most building types, except those where stated, the benchmarks vary according to the building's public transport Accessibility Index (AI determined in accordance with BREEAM issue Tra 01 Public transport accessibility). Therefore, for these building types the AI must be determined prior to assessing this issue. This is required to ensure that the building's car parking capacity is relative to the development's accessibility to the public transport network.		

		Credits available	Credits targeted
Tra 05 - Travel Plan:		**2**	**2**
Requirement 1	A travel plan has been developed as part of the feasibility and design stages.		
Requirement 2	A site specific travel assessment/statement has been undertaken to ensure the travel plan is structured to meet the needs of the particular site and covers the following (as a minimum):		
	a. Where relevant, existing travel patterns and opinions of existing building or site users towards cycling and walking so that constraints and opportunities can be identified.		
	b. Travel patterns and transport impact of future building users.		
	c. Current local environment for walkers and cyclists (accounting for visitors who may be accompanied by young children)		
	d. Disabled access (accounting for varying levels of disability and visual impairment)		
	e. Public transport links serving the site		
	f. Current facilities for cyclists.		
Requirement 3	The travel plan includes a package of measures to encourage the use of sustainable modes of transport and movement of people and goods during the buildings operation and use.		
Requirement 4	If the occupier is known, they must be involved in the development of the travel plan and they must confirm that the travel plan will be implemented post construction and be supported by the buildings management in operation.		

5.5 Water

		Credits available	Credits targeted
Wat 01 - Water Consumption:		**5**	**5**
Requirement 1	An assessment of the efficiency of the building's domestic water-consuming components is undertaken using the BREEAM Wat 01 calculator.		

Requirement 2	The water consumption (L/person/day) for the assessed building is compared against a baseline performance and BREEAM credits awarded based upon Table - 35.	
Requirement 3	The efficiency of the following 'domestic scale' water-consuming components must be included in the assessment (where specified):	
	a. WCs	
	b. Urinals	
	c. Taps (wash hand basins and where specified kitchen taps and waste disposal unit)	
	d. Showers	
	e. Baths	
	f. Dishwashers (domestic and commercial sized)	
	g. Washing machines (domestic and commercial or industrial sized).	
	The BREEAM Wat 01 calculator defines the building types and activity areas for which the above components must be assessed.	
Requirement 4	Where a greywater and/or rainwater system is specified, its yield (L/person/day) is used to off-set non potable water demand from components that would otherwise be supplied using potable water.	
Requirement 5	Any greywater systems must be specified and installed in compliance with BS 8525-1:2010 Greywater Systems - Part 1 Code of Practice. Any rainwater systems must be specified and installed in compliance with BS 8515:2009+A1:2013 Rainwater Harvesting Systems - Code of practice.	
Requirement 6	**Healthcare and prison buildings:** Refer to the relevant compliance note for additional criteria regarding the specification of particular water-consuming component controls.	

		Credits available	Credits targeted
Wat 02 - Water Monitoring:		**1**	**1**
Requirement 1	The specification of a water meter on the mains water supply to each building; this includes instances where water is supplied via a borehole or other private source.		
Requirement 1	The specification of a water meter on the mains water supply to each building; this includes instances where water is supplied via a borehole or other private source.		
Requirement 2	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 (see Compliance notes).		
Requirement 3	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 (see Relevant definitions).		
Requirement 4	If the site on which the building is located has an existing BMS, managed by the same occupier/owner (as the new building), the pulsed/digital water meter(s) for the new building must be connected to the existing BMS.		

		Credits available	Credits targeted
Wat 03 - Leak Detection:		**2**	**2**
Requirement 1	A leak detection system which is capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter is installed. The leak detection system must be:		
	a. A permanent automated water leak detection system that alerts the building occupants to the leak OR an 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.		
Requirement 2	Flow control devices that regulate the supply of water to each WC area/facility according to demand are installed (and therefore minimise water leaks and wastage from sanitary fittings).		

5.6 Materials

		Credits available	Credits targeted
Mat 01 - Life Cycle Impacts:		**5**	**5**
Requirement 1	BREEAM awards credits on the basis of the building's quantified environmental life cycle impact through assessment of the main building elements, as set out in Table - 38:		
Requirement 2	Credits are awarded on the basis of the total number of points achieved, as set out in Table - 39 below, and calculated using the BREEAM Mat 01 calculator. This point's score is based on the Green Guide rating(s) achieved for the specifications that make up the main building elements (as in Table - 38). Note: Where an independently verified third party Environmental Product Declaration (EPD), covering part of or the whole life cycle, is available for a material or product that forms part of an assessed building element, this can be used to increase the contribution of that element to the building's Mat 01 performance. (Refer to Calculation procedure where a specific Environmental Product Declaration (EPD) is available for a material in the Methodology section for more details.)		
Requirement 3	Life cycle greenhouse gas emissions (kgCO2 eq.) for each element are also required to be reported based on a 60-year building life. Where specific data is not available for a product or element, generic data should be used. Generic data can be obtained from the online Green Guide for each element and must be entered in to the BREEAM Mat 01 calculator.		

		Credits available	Credits targeted
Mat 02 - Hard Landscaping and Boundary Protection:		**1**	**1**
Requirement 1	Where at least 80% of all external hard landscaping and 80% of all boundary protection (by area) in the construction zone achieves an A or A+ rating, as defined in the Green Guide to Specification. Green Guide ratings for the specification(s) of each element can be found at www.thegreenguide.org.uk		

		Credits available	Credits targeted
Mat 03 - Responsible Sourcing of Materials:		**4**	**3**
Requirement 1	All timber and timber based products used on the project is 'Legally harvested and traded timber' (see Relevant definitions). Note:		
	a. It is a minimum requirement for achieving a BREEAM rating (for any rating level) that compliance with criterion 1 is confirmed.		
	b. For other materials there are no pre-requisite requirements at this stage.		
Requirement 2	The principal contractor sources materials for the project in accordance with a documented sustainable procurement plan (see the Relevant definitions in the Additional information section).		
Requirement 3	The available RSM credits (refer to Table - 43) can be awarded where the applicable building materials (refer to Table - 44) are responsibly sourced in accordance with the BREEAM methodology, as defined in steps 1 to 2 in the Methodology section.		

		Credits available	Credits targeted
Mat 04 - Insulation:		**1**	**1**
Requirement 1	Any new insulation specified for use within the following building elements must be assessed:		
	a. External walls		
	b. Ground floor		
	c. Roof		

	d. Building services	
Requirement 2	The Insulation index for the building fabric and services insulation is the same as or greater than 2.5. See Mat 04 Insulation section for a description of calculating the Insulation index.	

		Credits available	Credits targeted
Mat 05 - Designing for durability and resilience:		**1**	**1**
Requirement 1	**Protecting vulnerable parts of the building from damage. The building incorporates suitable durability and protection measures or designed features/solutions to prevent damage to vulnerable parts of the internal and external building and landscaping elements. This must include, but is not necessarily limited to:**		
	a. Protection from the effects of high pedestrian traffic in main entrances, public areas and thoroughfares (corridors, lifts, stairs, doors etc.).		
	b. Protection against any internal vehicular/trolley movement within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas.		
	c. Protection against, or prevention from, any potential vehicular collision where vehicular parking and manoeuvring occurs within 1m of the external building façade for all car parking areas and within 2m for all delivery areas.		
Requirement 2	**Protecting exposed parts of the building from material degradation The relevant building elements incorporate appropriate design and specification measures to limit material degradation due to environmental factors. (See Methodology for the process to assess this criterion). See Table - 47 in the Checklists and tables section for a list of applicable elements, environmental factors and material degradation effects to consider.**		

		Credits available	Credits targeted
Mat 06 - Material efficiency:		**1**	**1**
Requirement 1	Opportunities have been identified, and appropriate measures investigated and implemented, to optimise the use of materials in building design, procurement, construction, maintenance and end of life		
Requirement 2	The above is carried out by the design/construction team in consultation with the relevant parties (see CN3) at each of the following RIBA stages:		
	a. Preparation and Brief		
	b. Concept Design		
	c. Developed Design		
	d. Technical Design		
	e. Construction.		

5.7 Waste

		Credits available	Credits targeted
Wst 01 - Construction Waste Management:		**4**	**3**
Requirement 1	**Up to three credits Where a Resource Management Plan (RMP) has been developed covering the non-hazardous waste related to on-site construction and dedicated off-site manufacture or fabrication (including demolition and excavation waste) generated by the building's design and construction (see CN3).**		
Requirement 2	Where construction waste related to on-site construction and dedicated off-site manufacture/fabrication (excluding demolition and excavation waste) meets or is lower than that shown in Table - 48:		
Requirement 3	Where existing buildings on the site will be demolished a pre-demolition audit of any existing buildings, structures or hard surfaces is completed to determine if, in the case of demolition, refurbishment/reuse is feasible and, if not, to maximise the recovery of material from demolition for subsequent high grade/value applications. The audit must be referenced in the RMP and cover:		
	a. Identification of the key refurbishment/demolition materials.		
	b. Potential applications and any related issues for the reuse and recycling of the key refurbishment and demolition materials in accordance with the waste hierarchy.		
Requirement 4	The following percentages of non-hazardous construction (on-site and off-site manufacture/fabrication in a dedicated facility), demolition and excavation waste (where applicable) generated by the project have been diverted from landfill ans shown in Table - 49.		
Requirement 5	Waste materials will be sorted into separate key waste groups as per Table - 50 (according to the waste streams generated by the scope of the works) either on-site or through a licensed contractor for recovery.		

		Credits available	Credits targeted
Wst 02 - Recycled Aggregates:		**1**	**1**
Requirement 1	The percentage of high-grade aggregate that is recycled and/or secondary aggregate, specified in each application (present) must meet the following minimum % levels (by weight or volume) to contribute to the total amount of recycled and/or secondary aggregate, as specified in table -48.		
Requirement 2	The total amount of recycled or secondary aggregate specified, and meeting criterion 1, is greater than 25% (by weight or volume) of the total high grade aggregate specified for the development. Where the minimum level in criterion 1 is not met for an application, all the aggregate in that application must be considered as primary aggregate when calculating the total high grade aggregate specified.		
Requirement 3	The recycled and/or secondary aggregates are EITHER:		
	a. Construction, demolition and excavation waste obtained on-site or off-site OR		
	b. Secondary aggregates obtained from a non-construction post-consumer industrial byproduct source (see Relevant definitions section).		

		Credits available	Credits targeted
Wst 03 - Operational Waste:		**1**	**1**
Requirement 1	Dedicated space(s) is provided for the segregation and storage of operational recyclable waste volumes generated by the assessed building/unit, its occupant(s) and activities. This space must be:		
	a. Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams		
	b. Accessible to building occupants or facilities operators for the deposit of materials and collections by waste management contractors		
	c. Of a capacity appropriate to the building type, size, number of units (if relevant) and predicted volumes of waste that will arise from daily/weekly operational activities and occupancy rates.		
Requirement 2	Where the consistent generation in volume of the appropriate operational waste streams is likely to exist, e.g. large amounts of packaging or compostable waste generated by the building's use and operation, the following facilities are provided:		
	a. Static waste compactor(s) or baler(s); situated in a service area or dedicated waste management space.		
	b. Vessel(s) for composting suitable organic waste resulting from the building's daily operation and use; OR adequate space(s) for storing segregated food waste and compostable organic material prior to collection and delivery to an alternative composting facility.		
	c. Where organic waste is to be stored/composted on-site, a water outlet is provided adjacent to or within the facility for cleaning and hygiene purposes.		
Requirement 6	The recyclable storage is located in a dedicated non-obstructive position in either:		
	a. Communal kitchens; OR		
	b. Where there are no communal kitchens present, in a communal space such as communal lounges or utility areas.		
Requirement 7	Home composting facilities and a home composting information leaflet is provided within the kitchen area or communal space for each self-contained dwelling, bedsit or communal kitchen.		

		Credits available	Credits targeted
Wst 04 - Speculative Floor and Ceiling Finishes:		**1**	**1**
Requirement 1	For tenanted areas (where the future occupant is not known), prior to full fit-out works, carpets, other floor finishes and ceiling finishes have been installed in a show area only.		
Requirement 2	In a building developed for a specific occupant, that occupant has selected (or agreed to) the specified floor and ceiling finishes.		
		Credits available	**Credits targeted**
Wst 05 - Adaptation to climate change:		**1**	**1**
Requirement 1	Conduct a climate change adaptation strategy appraisal for structural and fabric resilience by the end of Concept Design (RIBA Stage 2 or equivalent), in accordance with the following approach:		
	a. Carry out a systematic (structural and fabric resilience specific) risk assessment to identify and evaluate the impact on the building over its projected life cycle from expected extreme weather conditions arising from climate change and, where feasible, mitigate against these impacts. The assessment should cover the following stages:		
	i. Hazard identification		
	ii. Hazard assessment		
	iii. Risk estimation		
	iv. Risk evaluation		
	v. Risk management		
		Credits available	**Credits targeted**
Wst 06 - Functional adaptability:		**1**	**1**
Requirement 1	A building-specific functional adaptation strategy study has been undertaken by the client and design team by Concept Design (RIBA Stage 2 or equivalent), which includes recommendations for measures to be incorporated to facilitate future adaptation.		
Requirement 2	Functional adaptation measures have been implemented (RIBA Stage 4 or equivalent) in accordance with the functional adaptation strategy recommendations, where practical and cost effective. Omissions have been justified in writing to the assessor.		

5.8 Land Use and Ecology

		Credits available	Credits targeted
LE 01 - Site Selection:		**2**	**1**
Requirement 1	At least 75% of the proposed development's footprint is on an area of land which has previously been occupied by industrial, commercial or domestic buildings or fixed surface infrastructure.		
Requirement 2	A contaminated land specialist'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:		
	a. The degree of contamination		
	b. The contaminant sources/types		
	c. The options for remediating sources of contamination which present an unacceptable risk.		
Requirement 3	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 specialist.		
		Credits available	**Credits targeted**
LE 02 - Ecological Value of Site and Protection of Ecological Features:		**2**	**2**
Requirement 1	Land within the construction zone is defined as 'land of low ecological value' using either:		
	a. The BREEAM checklist for defining land of low ecological value (see Table -52);		
	OR		
	b. A Suitably Qualified Ecologist (SQE) who has identified the land as being of 'low ecological value' within an ecological assessment report, based on a site survey.		
Requirement 2	All existing features of ecological value within and surrounding the construction zone and site boundary area are adequately protected from damage during clearance, site preparation and construction activities in line with BS42020: 2013.		
Requirement 3	In all cases, the principal contractor is required to construct ecological protection recommended by the SQE, prior to any preliminary site construction or preparation works (e.g. clearing of the site or erection of temporary site facilities).		
		Credits available	**Credits targeted**
LE 03 - Minimising impact on existing site ecology:		**2**	**2**
Requirement 1	**Two credits** The change in ecological value of the site is equal to or greater than zero plant species, i.e. no negative change, using the methods outlined in either (a) or (b) below:		
	a. Determine the following information and input this data in to the BREEAM LE 03/LE 04 calculator:		
	i. The broad habitat type(s) that define the landscape of the assessed site in its existing pre-developed state and proposed state (see Table - 53).		
	ii. Area (m^2) of the existing and proposed broad habitat types.		
	OR		
	b. Where a Suitably Qualified Ecologist (SQE) has been appointed and, based on their site survey, they confirm the following and either the assessor or ecologist inputs this data in to the BREEAM LE 03/LE 04 calculator:		
	i. The broad habitat types that define the landscape of the assessed site in its existing pre-developed state and proposed state.		
	ii. Area (m^2) of the existing and proposed broad habitat plot types.		
	iii. Average total taxon (plant species) richness within each habitat type.		
	OR		
Requirement 2	**One credit** Where the change in ecological value of the site is less than zero but equal to or greater than minus nine plant species i.e. a minimal change, use the methods outlined in either 1(a) or (b) above.		
		Credits available	**Credits targeted**
LE 04 - Enhancing site ecology:		**2**	**2**
Requirement 1	A suitably qualified ecologist (SQE) has been appointed by the client or their project representative by the end of the Preparation and Brief stage (RIBA Stage 1 or equivalent) to advise on enhancing the ecology of the site at an early stage.		
Requirement 2	The SQE has provided an Ecology Report with appropriate recommendations for the enhancement of the site's ecology at Concept Design stage (RIBA Stage 2 or equivalent). The report is based on a site visit/survey by the SQE (see also CN4).		
Requirement 3	The early stage advice and recommendations of the Ecology Report for the enhancement of site ecology have been, or will be, implemented in the final design and build.		
Requirement 4	The criteria of the first credit are met.		
Requirement 5	The recommendations of the Ecology Report for the enhancement of site ecology have been implemented in the final design and build, and the SQE confirms that this will result in an increase in ecological value of the site, with an increase of six plant species or greater (refer also to Compliance note CN8 for alternative means of compliance).		
Requirement 6	The increase in plant species has been calculated using the BREEAM LE 03/LE 04 calculator, using actual plant species numbers.		

		Credits available	Credits targeted
LE 05 - Long Term Impact on Biodiversity:		**2**	**2**
Requirement 1	Where a Suitably Qualified Ecologist (SQE) is appointed prior to commencement of activities on-site and they confirm that all relevant UK and EU legislation relating to the protection and enhancement of ecology has been complied with during the design and construction process.		
Requirement 2	Where a landscape and habitat management plan, appropriate to the site, is produced covering at least the first five years after project completion in accordance with BS 42020:2013 Section 11.1. This is to be handed over to the building owner/occupants for use by the grounds maintenance staff.		
Requirement 3	Where additional measures to improve the assessed site's long term biodiversity are adopted, according to Table - 55.		
	One credit where at least 2 additional measures are adopted		
	Two credits where at least 4 additional measures are adopted		
	Where the Suitably Qualified Ecologist (SQE) confirms that some of the additional measures listed in Table - 55 are not applicable to the assessed development, the credits can be awarded in accordance with the table in the Tracker Plus Additional Guidance document.		

5.9 Pollution

		Credits available	Credits targeted
Pol 01 - Impact of Refrigerants:		**3**	**2**
Requirement 1	**Three credits - No refrigerant use here the building does not require the use of refrigerants within its installed plant/systems. OR alternatively, where the building does require the use of refrigerants, the three credits can be awarded through compliance with requirements 2 to 7.**		
Requirement 2	**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.**		
Requirement 3	**Impact of refrigerant: 2 credits: Where the systems using refrigerants have Direct Effect Life Cycle CO2 equivalent emissions (DELC CO2e) of ≤ 100 kgCO2e/kW cooling/heating capacity. To calculate the DELC CO2e please refer to the Relevant definitions in the Additional information section and the Methodology section. OR**		
Requirement 4	Where air-conditioning or refrigeration systems are installed the refrigerants used have a Global Warming Potential (GWP) ≤ 10. **OR**		
Requirement 5	**One credit:** Where the systems using refrigerants have Direct Effect Life Cycle CO_2 equivalent emissions (DELC CO_{2e}) of ≤ 1000 $kgCO_{2e}$/kW cooling/heating capacity.		
Requirement 6	**Leak Detection - One credit Where systems using refrigerants have a permanent automated refrigerant leak detection system installed; OR where an in-built automated diagnostic procedure for detecting leakage is installed. In all instances a robust and tested refrigerant leak detection system must be installed and must be capable of continuously monitoring for leaks. AND**		
Requirement 7	The system must be capable of automatically isolating and containing the remaining refrigerant(s) charge in response to a leak detection incident (see Other information section for additional information).		
		Credits available	**Credits targeted**
Pol 02 - NOx emissions:		**3**	**2**
Requirement 1	Where the plant installed to meet the building's delivered heating and hot water demand has, under normal operating conditions, a NOx emission level (measured on a dry basis at 0% excess O_2) as follows:		
	1 Credit: ≤ 100 mg/kWh		
	2 Credits: ≤ 70 mg/kWh		
	3 Credits: ≤ 40 mg/kWh		
Requirement 2	Report via the BREEAM scoring and reporting tool the direct and indirect NOx emissions in mg/kWh and energy consumption in kWh/m^2/yr arising from systems installed to meet the building's space heating, cooling and hot water demands.		
		Credits available	**Credits targeted**
Pol 03 - Surface Water Run Off:		**5**	**5**
Requirement 1	**Two credits - Low flood risk Where a site-specific flood risk assessment (FRA) confirms the development is situated in a flood zone that is defined as having a low annual probability of flooding (in accordance with current best practice national planning guidance). The FRA must take all current and future sources of flooding into consideration (see CN5).**		
Requirement 2	**One credit - Medium / High flood risk Where a site-specific FRA confirms the development is situated in a flood zone that is defined as having a medium or high annual probability of flooding and is not in a functional floodplain (in accordance with current best practice national planning guidance). The FRA must take all current and future sources of flooding into consideration (see CN5). AND**		
Requirement 3	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 600mm above the design flood level of the flood zone in which the assessed development is located (see CN8); **OR**		
	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 BS 8533:2011.		
Requirement 15	There is no discharge from the developed site for rainfall up to 5mm (confirmed by the Appropriate Consultant).		
Requirement 16	In areas with a low risk source of watercourse pollution, an appropriate level of pollution prevention treatment is provided, using appropriate SuDS techniques.		
Requirement 17	Where there is a high risk of contamination or spillage of substances such as petrol and oil (see Compliance notes for a list of areas), separators (or an equivalent system) are installed in surface water drainage systems.		
Requirement 18	Where the building has chemical/liquid gas storage areas, a means of containment is fitted to the site drainage system (i.e. shut-off valves) to prevent the escape of chemicals to natural watercourses (in the event of a spillage or bunding failure).		
Requirement 19	All water pollution prevention systems have been designed and installed in accordance with the recommendations of documents such as Pollution Prevention Guideline 3 (PPG 3) and/or where applicable the SUDS manual For areas where vehicle washing will be taking place, pollution prevention systems must be in accordance with Pollution Prevention Guidelines 13.		
Requirement 20	A comprehensive and up-to date drainage plan of the site will be made available for the building/site occupiers.		
Requirement 21	Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS must be in place.		
Requirement 22	Where present, all external storage and delivery areas designed and detailed in accordance with the current best practice planning guidance (see Other information for further information).		

		Credits available	Credits targeted
Pol 04 - Reduction of Night Time Light Pollution:		**1**	**1**
Requirement 1	Where external lighting pollution has been eliminated through effective design that removes the need for external lighting without adversely affecting the safety and security of the site and its users. OR alternatively, where the building has no external lighting, one credit may be awarded as follows:		
Requirement 2	The external lighting strategy has been designed in compliance with Table 2 (and its accompanying notes) of the ILP Guidance notes for the reduction of obtrusive light, 2011. Buildings located in Scotland must comply with the light pollution criteria in the guidance note 'Controlling Light Pollution and Reducing Lighting Energy Consumption'. This can be demonstrated via completion of the checklists in Annexes B and C of the guidance note by a relevant member of the design team.		
Requirement 3	All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00.		
Requirement 4	If safety or security lighting is provided and will be used between 23:00 and 07:00, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP's Guidance notes.		
Requirement 5	Illuminated advertisements, where specified, must be designed in compliance with ILE Technical Report 5 – The Brightness of Illuminated Advertisements.		
		Credits available	**Credits targeted**
Pol 05 - Noise Attenuation:		**1**	**1**
Requirement 1	Where there are, or will be, no noise-sensitive areas or buildings within 800m radius of the assessed development.		
Requirement 2	**OR** alternatively, where the building does have noise-sensitive areas or buildings within 800m radius of the development, one credit can be awarded as follows:		
	a. Where a noise impact assessment in compliance with BS 7445 has been carried out and the following noise levels measured/determined:		
	i. Existing background noise levels at the nearest or most exposed noise-sensitive development to the proposed development or at a location where background conditions can be argued to be similar.		
	ii. The rating noise level resulting from the new noise source (see CN4).		
Requirement 3	The noise impact assessment must be carried out by a suitably qualified acoustic consultant holding a recognised acoustic qualification and membership of an appropriate professional body (see Relevant definitions in the Additional information section).		
Requirement 4	The noise level from the proposed site/building, as measured in the locality of the nearest or most exposed noise-sensitive development, is a difference no greater than +5dB during the day (07:00 to 23:00) and +3dB at night (23:00 to 07:00) compared to the background noise level.		
Requirement 5	Where the noise source(s) from the proposed site/building is greater than the levels described in criterion 4, measures have been installed to attenuate the noise at its source to a level where it will comply with criterion 4.		

Section 6 – Requirements for Specialist Consultants

There are particular credits under BREEAM that require a suitably qualified consultant to report on certain aspects of the design of the building and surrounding area. This report identifies the consultants that should be appointed in order to ascertain key credits targeted to achieve a BREEAM "Outstanding" rating. The following are the specialist consultants required. Please note that the BRE define the credentials for the consultants to be considered "Suitably Qualified". The definitions of what is required can be found at appendix 2.)

6.1 Suitably qualified acoustician:

The appointment of an acoustician will allow 1 credit from a possible 21 for item HEA05 and 1 credit from a possible 1 for POL05.

The main responsibility of an acoustician is to provide early design advice on:

- External sources of noise impacting the chosen site
- Site layout and zoning of the building for good acoustics
- Acoustic requirements for users with special hearing and communication needs and acoustic treatment of different zones and facades.

In addition the acoustician will generate a report that covers the following:

- A noise impact assessment in compliance with BS 7445:1991
- The following noise levels measured/determined: Existing background noise levels at the nearest or most exposed noise-sensitive development to the proposed development or at a location where background conditions can be argued to be similar and the rating noise level resulting from the new noise-source.

6.2 Suitably qualified Ecologist:

The appointment of a Suitably Qualified Ecologist will allow: 1 credit from a possible 1 for item LE02, 2 credits from a possible 2 for item LE03, 2 credits from a possible 3 for item LE04, and 2 credits from a possible 2 for item LE05.

Their main responsibility is to carry out a site specific survey and produce a report confirming:

- The ecological value of the site
- The change in ecological value on the site
- The recommendations on how to enhance and protect site ecology
- That all relevant UK and EU legislation relating to protection and enhancement of ecology will comply with.
- The preparation of a landscape and habitat management plant for the first five years after completion.

Note: The suitably qualified Ecologist must be appointed prior to work commencing on-site (RIBA Stage K). Further guidance of the credits linked to each profession is attached in the appendices. We recommend that client appoints each of the above specialists in order to achieve/secure the credits required for the target rating.

Section 7 – Conclusion

Following the Pre Assessment meeting between UMC Architects, Hill St Holdings and Ridge, the following has been identified:-

1. BREEAM NC 2014 Pre-assessment performance
2. The mandatory credits that are required to achieve a BREEAM Outstanding rating.
3. BREEAM NC 2014 Detailed credit requirements
4. The requirements for specialist consultants.

During the initial pre-assessment an early score of 88.31% was estimated which achieved a "Outstanding" BREEAM rating (85% or above). At the concept stage of design, it is recommended to target a score between 2% and 5% greater than the required rating, i.e. 90% for a "Outstanding" rating. This buffer would allow for credits to be lost as the project progresses through the design and construction stages but still achieve the 85% requirement upon certification at project completion.

Appendix 1 – BREEAM assessment and certification stages and the RIBA Outline Plan of Works

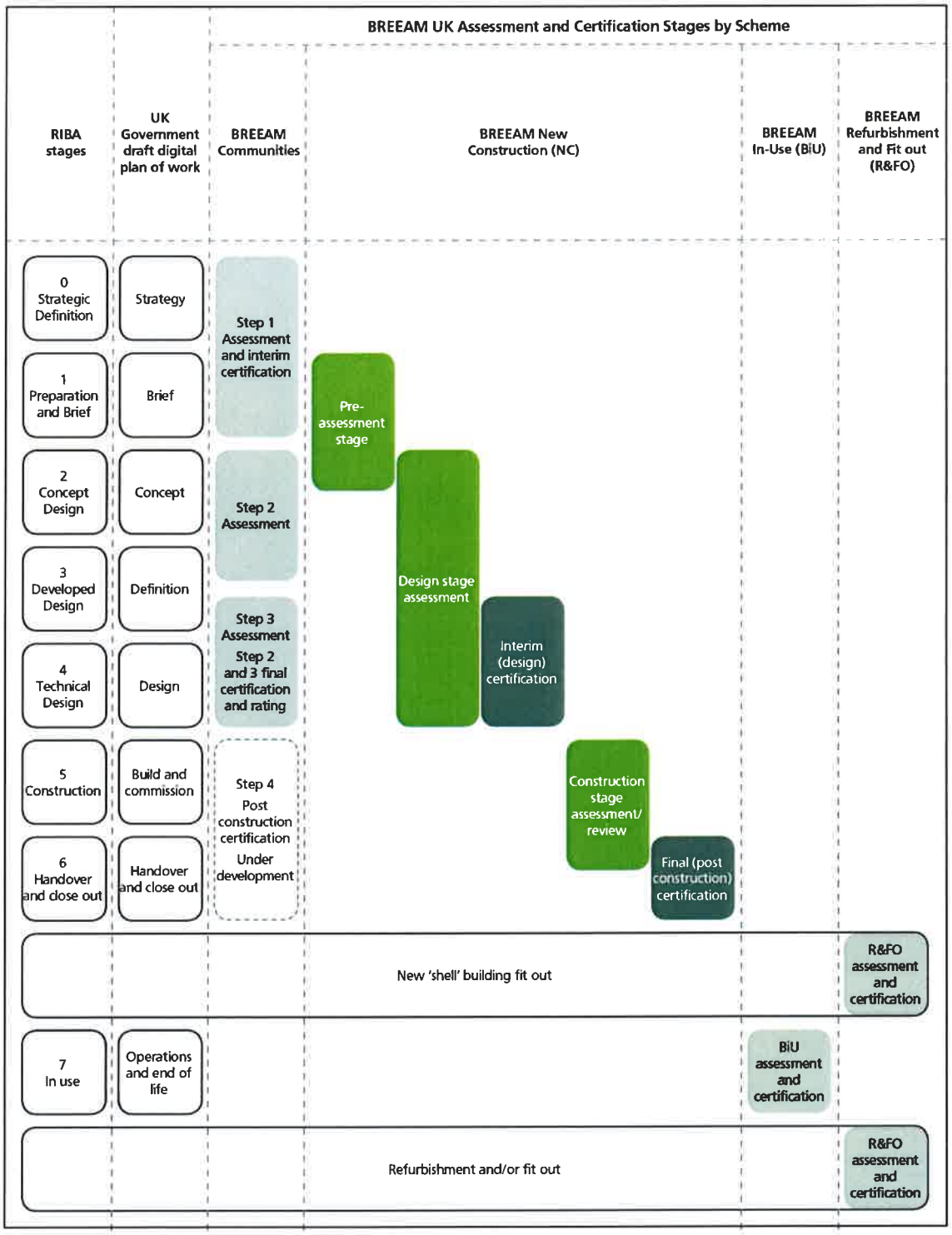

Figure 2: BREEAM assessment and certification stages and the Royal Institute of British Architects (RIBA) Outline Plan of Work 2013

Appendix 2 – Requirements of Specialist Consultants

There are particular credits under BREEAM that require a suitably qualified consultant to report on certain aspects of the design of the building and surrounding area. The definition of the 'Suitably Qualified' consultant is noted below. These should be considered when making an appointment to ensure their report will be valid for BREEAM submission.

1. Requirements of the Acoustician

To be deemed 'suitably qualified' under BREEAM, any appointed acoustician must be an individual who holds a recognised acoustic qualification and membership of an appropriate professional body. The primary professional body for acoustics in the UK is the Institute of Acoustics.

2. Requirements of the Ecologist

To be deemed a 'Suitably Qualified Ecologist' under BREEAM the individual must achieve all of the following:

- Holds a degree or equivalent qualification (e.g. N/SVQ level 5) in ecology or a related subject.
- Is a practicing ecologist, with a minimum of three years relevant experience (within the last five years). Such experience must clearly demonstrate a practical understanding of factors affecting ecology in relation to construction and the built environment; including, acting in an advisory capacity to provide recommendations for ecological protection, enhancement and mitigation measures. Examples of relevant experience are: ecological impact assessments; Phase 1 and 2 habitat surveys and habitat restoration.
- Is covered by a professional code of conduct and subject to peer review.

Full members of the following organizations, who meet the above criteria, are deemed suitably qualified ecologists for the purposes of BREEAM:

- Chartered Institution of Water and Environmental Management (CIWEM)
- Institute of Ecology and Environmental Management (IEEM)
- Institute of Environmental Management and Assessment (IEMA)
- Landscape Institute (LI)