BREEAM Pre-Assessment

New Construction 2018

Paragon Asra (PA) Housing

Strathmore Centre Nursery
Strathmore Road
Teddington
TW11 8UH

SRE

Version	Revision	Date	Author	Reviewer	Project Manager
1	A	21.11.2019	Sam Paine	Sarah Beasley	Sam Paine

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Executive Summary

SRE exists to ensure that the built environment enhances life without costing the earth. This BREEAM[1] Pre-Assessment has been written by SRE on behalf of Paragon Asra (PA) Housing (the Client) to demonstrate the likely BREEAM score of the Strathmore Centre Nursery (the Proposed Development). This pre-assessment has been based on details supplied by the client and wider design team to-date, in addition to further desk-based study, best practise and historical data. SRE has been a licensed BREEAM organisation for over 10 years and has extensive knowledge of the methodology, which is used to produce an accurate assessment score.

Project Name	Strathmore Centre Nursery
Lead Assessor	Sam Paine
Target Rating	70.00% - Excellent
BREEAM Version	New Construction 2018
Assessment Type	Fully Fitted
BREEAM Type	Education – Pre-School

Scenario	Min Standards met	Score	BREEAM Rating
SRE Proposed	Yes	75.48%	Excellent

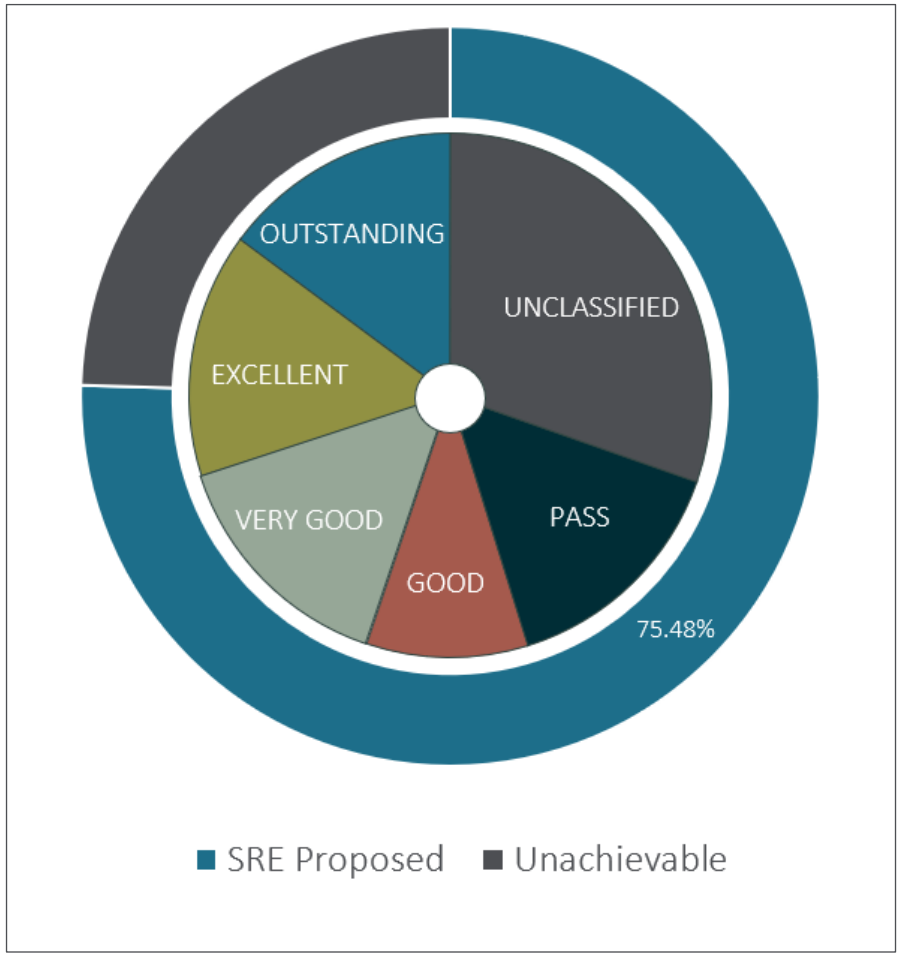

Figure 1 - BREEAM Score Chart

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1.0 Assessment Overview

1.1 Development Overview

The Proposed Development consists of a single-storey Pre-School Nursery with on-site parking and associated landscaping. The Site is located on Strathmore Road, previously occupied by the existing Pre-School Nursery.

Figure 2 - Site plan for the Proposed Development. Nursery is located to the right, with the two residential buildings (not assessed under BREEAM) to the left.

1.2 Assessment Criteria

The BREEAM Pre-Assessment has shown that the Proposed Development can currently achieve an 'Excellent' rating under BREEAM New Construction 2018 based on the assumptions and information agreed to-date.

The BREEAM Pre-Assessment has been undertaken as a 'Fully Fitted' assessment to reflect the scope of the works to be undertaken by the Client. The credits contained within the assessment are therefore those relevant to the scope of a 'Fully Fitted' assessment.

The scheme is required to achieve a BREEAM score of at least 70% to ensure an 'Excellent' rating is awarded. As a BREEAM assessor was appointed early there have been numerous opportunities to maximise the BREEAM score.

1.3 BREEAM Score

The overall target score for the project is currently 75.48%, which will deliver an 'Excellent' rating. The credits targeted, are considered by SRE and the design team to be realistic and deliverable on-site. Some potential credits are highlighted within the following section, some of which should be adopted to improve the current score and provide sufficient 'buffer' to protect against the loss of any credits throughout the construction phase.

BREEAM standards can be challenging to achieve, and the pre-assessment report should be carefully reviewed by the design and construction teams to ensure all targeted credits are delivered as the project is progressed. Sections 2.0 and 3.0 list the specific credits proposed as part of the BREEAM 'Excellent' rating.

1.4 SRE BREEAM Hub

SRE aim to simplify the BREEAM process as much as possible, informing and empowering each member of the design team to fully engage with the methodology, in addition to the support and guidance of the BREEAM AP, for the overall benefit of the project.

The SRE BREEAM Hub is a free resource which provides a simple guide to the BREEAM 2018 New Construction methodology. The information is broken down into RIBA Stages and includes credit summaries, checklists, design considerations and contractor requirements.

Visit www.sre.co.uk/breeam-hub.

1.5 Potential and Unachievable Credits

The following are credits which have been identified as those that are *potentially achievable* if high benchmarks and/or third-party reports are undertaken:

BREEAM Credit		Potential credits	% score	Summary of credit requirements
Man02	Life cycle cost and service life planning	Up to 3	1.71	Elemental and component level LCC analysis should be carried out by RIBA Stages 2 and 4 respectively.
Man03	Responsible Construction Practices	1	0.61	All items within the RCM assessment must be complied with. Currently only the minimum 9 items are assumed.
Hea01	Daylighting and Viewout	Up to 3	2.34	Given that the daylight and viewout credits are reliant on calculations, they have not been assumed at this stage. Calculations should be undertaken to confirm.
Hea02	VOCs (testing)	1	0.78	Testing of the indoor air quality to be undertaken prior to occupation, compliant with the Hea02 requirements.
Wst02	Use of recycled and sustainably sourced aggregate	1	0.60	One credit can be awarded where recycled or sustainably sourced aggregate is used at the site, with minimum percentages for applicable elements compliant with the Wst02 issue.
LE all	Increasing ecological value of the site	4	4.00	Up to 4 credits could be achieved where the ecological value of the site is increased. A BREEAM 2018 compliant ecology report is required to confirm these credits.

Table 1 - Potential credits

The following credits have been identified as *unachievable*. An explanation has been given for each:

BREEAM Credit		Unachievable credits	% score	Summary of credit requirements
Tra02	Sustainable Transport Measures	5	4.15	Several sustainable transport measures, in addition to those proposed, are not appropriate to the building type or scale and therefore are unlikely to be included within the project.
Mat03	Responsible Sourcing of Construction Products	2	2.14	Opportunities to achieve more than the 1 credit awarded under Mat03 may be limited, dependent on the procurement policy of the appointed Main Contractor.
Wst01	Construction Waste Management	1	0.60	While one further credit of the reduction of construction waste (by area or volume) is available, it would require meticulous and experienced construction practices. The credit may be achievable once a main contractor is appointed, however, in most cases, is unlikely to be achieved.
LE01	Site Selection	1	1.00	1 credit is awarded where the existing site is contaminated which is subsequently remediated prior to the start of construction. Unless contamination is confirmed – which is assumed unlikely as the site is currently a nursery – the credit cannot be achieved.

Table 2 - Unachievable credits

2.0 Summary score sheet

	Available	SRE Proposed
Management		
Man 01 - Project brief and design	4	4
Man 02 - Life cycle cost and service planning	4	1
Man 03 - Responsible construction practices	7	5
Man 04 - Commissioning and handover	4	4
Management Totals:	19	14
% Management Score Totals:	11	8.11
Health & Wellbeing		
Hea 01 - Visual Comfort	7	2
Hea 02 - Indoor Air Quality	5	3
Hea 04 - Thermal comfort	3	3
Hea 05 - Acoustic Performance	3	3
Hea 06 - Security	2	1
Hea 07 – Safe and healthy surroundings	2	2
Health & Wellbeing Totals:	22	14
% Health & Wellbeing Score Totals:	14	8.91
Energy		
Ene 01 - Reduction of energy use and carbon emissions	18	8
Ene 02 - Energy Monitoring	2	2
Ene 03 - External Lighting	1	1
Ene 04 - Low carbon design	3	1
Energy Totals:	24	12
% Energy Score Totals:	16	8.00

	Available	SRE Proposed
Transport		
Tra 01 – Transport assessment and travel plan	2	2
Tra 02 – Sustainable transport measures	10	5
Transport Totals:	12	7
% Transport Score Totals:	10	5.83
Water		
Wat 01 – Water Consumption	6	3
Wat 02 – Water Monitoring	1	1
Wat 03 – Leak Detection	2	2
Wat 04 – Water efficient equipment	1	1
Water Totals:	10	7
% Water Score Totals:	7	4.90
Materials		
Mat 01 - Environmental impacts from construction products - Building life cycle assessment (LCA)	10	8
Mat 02 - Environmental impacts from construction products - Environmental Product Declarations (EPD)	1	1
Mat 03 - Responsible Sourcing of Construction Products	5	2
Mat 05 - Designing for durability and resilience	1	1
Mat 06 - Material efficiency	1	1
Materials Totals:	18	13
% Materials Score Totals:	15	10.83
Waste		
Wst 01 - Construction Waste Management	6	4
Wst 02 - Use of recycled and sustainably sourced aggregates	2	0
Wst 03 - Operational Waste	1	1
Wst 05 - Adaptation to climate change	2	1

	Available	SRE Proposed
Wst 06 - Design for disassembly and adaptability	2	2
Waste Totals:	13	8
% Waste Score Totals:	6	3.69
Land Use & Ecology		
LE 01 - Site Selection	2	1
LE 02 - Ecological risks and opportunities	3	2
LE 03 - Managing impacts on ecology	3	2
LE 04 - Ecological change and enhancement	5	1
LE 05 - Long term ecological management and maintenance	2	2
Land Use & Ecology Totals:	15	8
% Land Use & Ecology Score Totals:	13	6.93
Pollution		
Pol 01 - Impact of Refrigerants	3	3
Pol 02 – Local Air Quality	2	2
Pol 03 - Flood and Surface Water Management	5	5
Pol 04 - Reduction of Night-Time Light Pollution	1	1
Pol 05 – Reduction of Noise Pollution	1	1
Pollution Totals:	12	12
% Pollution Score Totals:	8	8
Innovation		
AI - Approved Innovation	1	0
Innovation Totals:	1	0
% Innovation Score Totals:	10	0
OVERALL TOTALS:		95
OVERALL SCORE TOTALS:		75.48%

3.0 Detailed Assessment

		Available	SRE Proposed	Comments
Management				
Man 01	Project brief and design	4	4	**Project Delivery Planning** **Completed BEFORE end of RIBA Stage 2 (1 credit)** **Targeted – Yes** Notes from stakeholders meeting which identify and define each key phase of the project delivery (including, roles, responsibilities and contributions). The following should be considered when defining the above: end-user requirements, aims of the design and design strategy, installation and construction requirements or limitations, budget and technical expertise, maintainability and adaptability of the proposal, operational energy, requirements for the production of project and end-user documentation, and for commissioning, training and aftercare support. The project team should also demonstrate how stakeholders' contributions have influenced Initial Project Brief, Project Execution Plan, Communication Strategy and Concept Design. **Stakeholder Consultation (interested parties) (1 credit)** **Targeted – Yes** **Complete by end of RIBA Stage 2** Prior to completion of the Concept Design, the design team should consult with all interested parties on matters that cover the minimum consultation content. They should demonstrate how the stakeholder contributions and consultation exercise outcomes influence the Initial Project Brief and Concept Design. Prior to completion of the detailed design (RIBA Stage 4, Technical Design or equivalent), all interested parties should give and receive consultation feedback. **BREEAM AP - (Concept & Developed Design) + Prerequisite (2 credits)** **Targeted - Yes** **Complete by RIBA Stage 2** The prerequisite: the project team, including the client, formally agree on the strategic performance targets early in the design process. A BREEAM AP (SRE can provide this service) has been appointed prior to the close of RIBA Stage 2, with the role formally recognised for the remainder of the Concept & Developed Design Stage. The role encompasses assisting with any BREEAM related issues the design team may have in order to maximise the chances of achieving the earlier formally agreed BREEAM target score. Feedback will be provided based upon the monitoring of the project's

		Available	SRE Proposed	Comments
				development along with the collating of evidence for use within the assessment. **Actions:** *Design Team to provide a completed copy of the SRE Man01 meeting plan.* *Design Team to provide evidence of meetings between third party stakeholders and how the outcomes of the meetings have influenced the Project Brief and early design options (See SRE Man01 meeting plan).* *SRE BREEAM AP to provide regular input with regards to the BREEAM performance target.*
Man 02	Life cycle cost and service planning	4	1	**Elemental Life Cycle Costing (ELCC) (2 credits)** **Targeted - No** **Complete by RIBA Stage 2** An ELCC must be completed at RIBA Stage 2 and provide an analysis of future replacement costs over a period of 20, 30, 50 or 60 years (to be chosen by the client). **Component level Life Cycle Costing (CLCC) (1 credit)** **Complete by RIBA Stage 4** **Targeted - No** A CLCC must be completed by the end of RIBA Stage 4. Written examples of how this has influenced the final outcome of the design are to be provided. **Capital cost reporting (1 credit)** **Targeted - Yes** The capital cost of the project will be formally stated by the project team and included within the BREEAM assessment, measured in £k/m^2. **Actions:** *Design team to supply written confirmation of the capital cost of the project (£k/m^2).*
Man 03	Responsible construction practices	6	5	**Prerequisite - All timber and timber-based products used on the project to be 'Legally harvested and traded timber'.** **Environmental Management (1 credit)** **Targeted - Yes** The Main Contractor and demolition contractor must have a **certified Environmental Management System** (ISO 14001/EMAS) and implement best practice pollution prevention policies and procedures on-site in accordance with

		Available	SRE Proposed	Comments
				PPG6. **BREEAM AP (Site) (1 credit)** **Targeted - Yes** A BREEAM AP is to have been appointed, ensuring ongoing compliance during the construction, handover and close out stages. Support and corrective actions will be provided to the project team in order to achieve the targeted BREEAM score. **Responsible construction management (1 of 2 credits)** **Targeted - Yes** The Main Contractor must achieve the minimum 9 requirements in the *SRE BREEAM NC 2018 - Man03 RCM Assessment* (or BREEAM Table 4.1) for 1 credit. 6 additional items are required to achieve the second credit. If all items are completed the exemplary credit can also be awarded. The Considerate Constructors Scheme (CCS), or equivalent, can be used in support of the delivery of the above measures, however, this is in addition to the site-specific evidence detailed above. **Site monitoring of utilities and transport of construction and waste materials (2 credits)** **Targeted - Yes** The Main Contractor is to assign an individual with the appropriate authority with the responsibility of monitoring, reporting and setting performance targets against the following: - Energy consumption (kWh and litres of fuel used) and CO_2 emissions (total $kgCO_2$/project value); - Water (potable) (m^3) minus any recycled water use; and - Transport of materials from factory gate to site including transport, intermediate storage and distribution. Total fuel consumption and total carbon dioxide equivalent plus total distance travelled (km). **Actions:** *Appoint a Main Contractor & Demolition Contractor with a valid EMS certificate.* *Main Contractor to appoint on-site BREEAM AP.* *Evidence of all measures met within SRE BREEAM NC 2018 - Man03 RCM Assessment (BREEAM Table 4.1) must be provided.* *Main Contractor to assign an individual responsible for ensuring that monitoring records are maintained throughout construction.*

		Available	SRE Proposed	Comments
Man 04	Commissioning and handover	4	4	**Prerequisite - Commissioning schedule and responsibilities and BUG credits required for Excellent.** **Commissioning design, preparation, testing and responsibilities (2 credits)** **Mandatory - Credit is achieved; Targeted - Yes** An appropriate project team member is appointed as responsible for creating a full **commissioning and testing schedule** for all complex and non-complex systems and services, ensuring they are commissioned and tested to the appropriate standards (Building Regulations, BSRIA, CIBSE, etc.). **Testing and inspecting building fabric (1 credit)** **Targeted - Yes** The building fabric commissioning credit, requiring airtightness testing and a **thermographic survey** to confirm the continuity of insulation. Defects must be remediated to achieve the credit. **Handover (1 Credit)** **Mandatory - Credit is achieved; Targeted - Yes** Two **Building User Guides** are to be developed prior to handover, one technical and one non-technical, in addition to an on-site **training schedule** for the building occupiers and/or premises manager. **Actions:** *Main Contractor / M&E Consultant to provide a commissioning and testing schedule.* *Main Contractor to account for airtightness and thermographic surveys within the project programme and budget.* *Evidence of testing, commissioning and both BUGs required at Post-Construction.*
Health & Wellbeing				
Hea 01	Visual comfort	5	2	**Glare Control (1 credit)** **Targeted - Yes** A glare control assessment, resulting in a glare control strategy, is undertaken to aid in identifying and justifying areas where glare control measures have/haven't been included. Glare control measures should maximise daylight levels in all-weather whilst simultaneously ensuring that artificial lighting control systems are not interrupted. **Daylighting (2 credits)** **Targeted - No**

		Available	SRE Proposed	Comments
				All areas of the building occupied for a period of >30 consecutive minutes must achieve the minimum daylight requirements (2% daylight factor over 80% of floor area). There should be a uniformity ratio of at least 0.3 or, a minimum point daylight factor of at least 0.3 times the average daylight factor value. Spaces with glazed roofs, such as atria, must achieve a uniformity ratio of at least 0.7. Or, a minimum point daylight factor of at least 0.7 times the average daylight factor value. View Out (1 credit) Targeted - No 95% of the floor area in 95% of spaces for each relevant building area achieves adequate view out. Building areas within 8m of an external wall which has a window/opening of ≥20% of the surrounding wall area and at a seated eye level, the view out should be of a landscape or buildings (rather than just the sky). Internal/External lighting and zoning controls (1 credit) Targeted - Yes All internal lighting to be designed to provide illuminance levels in accordance with the SLL Code for Lighting 2012 and any other relevant industry standard. External lighting to be provided in accordance with BS 5489-1:2013 and BS EN 12464-2:2014. Actions: *Glare control assessment and strategy to be provided.* *M&E Consultant to confirm lighting requirements via specification and lighting designs.*
Hea 02	Indoor air quality	4	3	Prerequisite - An IAQ is to be provided by the Design Team prior to the end of RIBA Stage 2 The purpose of the plan is to minimise internal air pollution during the building's occupation and must, therefore, cover the following: • Removal of contaminant sources; • Dilution and control of contaminant sources; • Procedures for pre-occupancy flush out; • Third party testing and analysis; and • Maintaining good indoor air quality in-use. Ventilation (1 credit) Targeted - Yes

		Available	SRE Proposed	Comments
				In a naturally ventilated building, openable windows/ventilators are to be located >10m from sources of external pollution. In an air-conditioned building, air intakes are to be >10m from sources of external pollution and >10m from the building's exhaust and where present, HVAC systems must incorporate filtration systems in accordance with BS EN 13779:2007 Annex A3. If the Proposed Development is a naturally ventilated or mixed-mode building, cross ventilation should be provided to allow thermal comfort compliance in line with CIBSE AM10. Areas of large or variable occupancy are to be fitted with air quality sensors that are linked to the appropriate controls. **VOCs (Products) (2 credits)** **Targeted - Yes** Three of the following categories must achieve the standards set out in the BREEAM NC 2018 Technical Manual (Table 5.11) in addition to all wood-based products being classified as formaldehyde E1: Interior paints and coatings; wood-based products; flooring materials; ceiling, wall, acoustic and thermal insulation materials; interior adhesives and sealants. **VOCs (Testing) (1 credit)** **Targeted - No (tbc at PC Stage)** VOC testing must be undertaken prior to occupation to confirm that the VOC levels within the building meet the required BREEAM Standards. **Actions:** *Compliant IAQ plan to be provided.* *Design Team to commit to using only low VOC finishing materials as per the table provided within the commitment letter template. Datasheets with the required information to be provided by Main Contractor and Architects by the PC stage.*
Hea 04	Thermal comfort	3	3	**Thermal modelling (1 credit)** **Targeted - Yes** Modelling must be undertaken using compliant software in accordance with CIBSE AM11 Building Energy and Environmental Modelling. The simulation must provide full dynamic thermal analysis, whilst also meeting the criteria set out in CIBSE Guide A Environmental design if the building is to be mechanically/naturally ventilated in addition to

		Available	SRE Proposed	Comments
				CIBSE TM52 & TM59 if naturally ventilated (note: this is also linked to Ene04). **Design for future comfort (1 credit)** **Targeted - Yes** The above modelling criteria must be achieved. Where this is not possible, it should be demonstrated how the building has been adapted using passive design solutions to achieve compliance. **Thermal zoning and controls (1 credit)** **Targeted - Yes** The above thermal modelling is to inform the temperature zoning and control strategy for the building. A control strategy to be based on appropriate zoning, occupant control based on discussion with the end-user and system interaction. **Actions:** *Design Team to supply report demonstrating compliance with the thermal modelling and design for future comfort. SRE can complete if required.* *M&E consultants to confirm that the thermal zoning and controls have been based on the findings of the thermal modelling.*
Hea 05	Acoustic performance	3	3	**Acoustic performance for Education buildings (3 credits)** **Targeted - Yes** **Credit 1** The building's **Airborne Sound Insulation** and **impact sound insulation of floors** values achieve the performance standards set out in Section 1 of Building Bulletin 93: Acoustic design of schools: performance standards, February 2015 (BB93). Compliant pre-completion testing is carried out. **Credit 2** Achieve **indoor ambient noise levels** set out within Section 1 of BB93 for all room types. Compliant pre-completion testing is carried out. **Credit 3** **Room acoustics - Control of reverberation, sound absorption and speech transmission index (STI):**

		Available	SRE Proposed	Comments
				Teaching and study spaces achieve the requirements relating to reverberation time for teaching and study spaces set out within Section 1 of BB93. **Open plan teaching spaces** achieve the performance requirements relating to reverberation time and STI set out within Section 1 of BB93. **Corridor and stairwells**, for those that give direct access to teaching and study spaces, achieve the performance requirements relating to sound absorption. **Actions:** *Acoustician to provide a report confirming that the build-ups specified will achieve the above standards at the design stage.* *Main Contractor to allow for Post Construction testing within the project budget and programme.*
Hea 06	Security	1	1	**Security; Input by RIBA Stage 2 (1 credit)** **Targeted - Yes** A Suitably Qualified Security Specialist (SQSS/ALO) must conduct an evidence-based Security Needs Assessment (SNA) prior to RIBA Stage 2 and issue recommendations during Stage 2, which must be implemented within the project design. An Exemplary Credit can also be achieved where a compliant risk-based security rating scheme is used. The performance against the scheme must have be confirmed by independent assessment and verification. **Actions:** *Design Team to supply ALO correspondence prior to Stage 2 and confirmation that their recommendations have been included in the building design, these should also be indicated on the drawings.*
Hea 07	Safe and healthy surroundings	2	2	**Safe and healthy surroundings** **Targeted - Yes** **Safe Access (1 credit)** Safe access must be provided for pedestrians and cyclists, with dedicated paths and crossing points where paths cross vehicle access routes (with crossings raised to the pavement level). Where pedestrian paving cannot be provided, signage should clearly dictate the area as pedestrian friendly with speed and cycle restrictions. A change in paving, such as permeable paving, to clearly define the zone boundary, should also be considered. Restrictions to vehicular access such as delivery or waste collection will also be required.

		Available	SRE Proposed	Comments
				Outside Space (1 credit) Outside space for the use of the building user can be seen on drawings as part of the Proposed Development. **Actions:** *Design Team to supply a marked up and annotated site plan showing safe access for pedestrians and cyclists.*
Energy				
Ene 01	Reduction of energy use and carbon emissions	13	8	**Prerequisite -** at least four credits required for Excellent - an EPRNC of at least 0.4 must, therefore, be achieved. **Energy Performance modelling (9 credits)** **Targeted – Yes – 4 credits** Energy modelling to confirm that at least four credits are achieved, an EPR_{NC} of more than 0.4 should be achieved. **Prediction of Operational Energy Consumption (4 credits)** **Targeted - Yes** **Prerequisite** - Prior to completion of the Concept Design, relevant members of the design team hold a preliminary design workshop focusing on operational energy performance. **Energy Modelling and Reporting** - Undertake additional energy modelling during the design and post-construction stage to generate predicted operational energy consumption figures and report predicted energy consumption targets by end use, design assumptions and input data (with justifications). A risk assessment to highlight any significant design, technical, and process risks that should be monitored and managed throughout the construction and commissioning process. **Actions:** *Summary and notes from the energy design workshop.* *Design Stage and Post-Construction BRUKLs and final as-built EPC to be provided.*
Ene 02	Energy monitoring	2	2	**Sub-metering by end-use (1 credit)** **Targeted – Yes (Mandatory)** Energy Metering should be installed that enables ≥90% of the estimated Energy Consumption to be assigned to an end-use category. Major energy-consuming systems include (where present):

		Available	SRE Proposed	Comments
				a. Space Heating, b. Domestic Hot Water, c. Humidification, d. Cooling, e. Fans (major), f. Lighting, g. Small Power (lighting and small power can be on the same sub-meter where supplies are taken on each floor), h. Other major energy-consuming items (e.g. lifts). Energy consumption should be metered by end-use category with an appropriate energy monitoring and management system and end-uses made identifiable with labelling. **Sub-metering of high Energy load and tenancy areas (1 credit)** **Targeted - Yes** Monitor a significant majority of the energy supply with: An accessible energy monitoring and management system (EMS/BMS) for tenanted areas or relevant functional areas or departments in single occupancy buildings. **OR** Separate accessible energy sub-meters with pulsed or other open protocol communication outputs for future connection to an energy monitoring and management system for tenanted areas or relevant functional areas or departments in single occupancy buildings. Sub-meter per floor plate in large single-occupancy or single-tenancy buildings with one homogeneous function, for example, hotel bedrooms, offices. **Actions:** *M&E Consultant to supply specification and design drawings clearly highlighting the metering strategy.*
Ene 03	External Lighting	1	1	**External Lighting (1 credit)** **Targeted - Yes** BREEAM compliant and energy-efficient external lighting to be specified in compliance with the criteria set out in *Hea01*. Lighting to have a luminous efficacy of ≥70 lumens per circuit watt, controlled through a time-switch or daylight sensor to prevent operation during daylight hours, and presence detection in areas of intermittent pedestrian traffic. **Actions:** *M&E Consultant to supply drawings, specification and calculations to confirm lighting luminous efficacy and control method.*

		Available	SRE Proposed	Comments
Ene 04	Low carbon design	3	1	**Passive Design (1 credit)** **Targeted - No** The first credit within Hea04 must be achieved. The project team must undertake analyses of the proposed building design and development during RIBA Stage 2 to identify opportunities for the implementation of passive design measures. These will reduce the total heating, cooling, mechanical ventilation, lighting loads and energy consumption in line with the passive design analysis findings - these findings must also be quantified. **Free Cooling (1 credit)** **Targeted - No** The Passive Design credit must be achieved. A free cooling analysis must be undertaken, identifying opportunities for the implementation of free cooling solutions. The building must ultimately be naturally ventilated or use any combination of the free cooling solutions listed in the BREEAM technical guidance. **LZC Feasibility Study (1 credit)** **Targeted - Yes** A study must be undertaken by an Energy Specialist and completed prior to the end of RIBA Stage 2 which includes LZCs being specified to provide a meaningful reduction in CO_2 emissions. **Actions:** *A BREEAM Compliant LZC feasibility study to be provided.*
Transport				
Tra 01	Transport assessment and travel plan	2	2	**Pre-requisite – A Travel plan must be undertaken to achieve any credits within this section (2 credits)** **Targeted - Yes** A Travel Plan based upon the findings from a Transport Assessment/Statement is required for ANY transport section credits to be awarded. The **Transport Assessment/Statement** must assess the following as a minimum: Existing and future travel patterns of the site; The local walking and cycling environment; Disabled access; The number and type of existing (BREEAM) amenities within 500m of the site;

		Available	SRE Proposed	Comments
				Calculation of the current Accessibility Index and; Current cyclist facilities. The **Travel Plan** is intended to promote sustainable patterns of travel during the building's operation and use and should be prepared in collaboration with the building end-user/ occupant. **Actions:** *Design Team to supply a copy of a compliant Travel Plan and Transport Assessment/Statement.*
Tra 02	Sustainable transport measures	10	5	**Pre-requisite - Tra01 has been achieved.** **Transport options implementation (10 credits)** **Targeted - Yes** Credits are awarded based upon the site's Accessibility Index (AI) and the implementation of any of the following: 1. Existing AI ≥ 8. 2. Demonstrate an increase over the existing AI through either negotiating with transit companies for an increase in frequency OR provision of a diverted bus route/enhanced bus stop OR provide a dedicated bus service. 3. Provide a public transport information system in a publicly accessible area to allow building users access to up-to-date information on the available public transport and transport infrastructure. This may include signposting to public transport, cycling, walking infrastructure or local amenities. 4. Provide electric recharging stations for a minimum of 3kW for at least 10% of the total car parking capacity for the development. 5. Set up a car-sharing group or facility to facilitate and encourage building users to car share, raise awareness of the sharing scheme with marketing and communication materials, provide priority spaces for car sharers for at least 5% of the total car parking capacity for the development and locate priority parking spaces nearest the development entrance used by the sharing scheme participants. 6. During preparation of the brief, the design team consults with the local authority (LA) on the state of the local cycling network and public accessible pedestrian routes, to focus on whichever the LA deems most relevant to the project, and how to improve it and agree and implement one proposition chosen with the local authority. The proposition supported by the development is additional to existing local plans and has a significant impact on the local cycling network or on pedestrian routes open to the public. 7. Install compliant cycle storage spaces to meet the minimum levels set out in the BREEAM NC 2018 technical manual (Table 7.5).

		Available	SRE Proposed	Comments
				8. Provide at least two compliant cyclists' facilities for the building users for the scope of each compliant facility: a. Showers b. Changing facilities c. Lockers d. Drying spaces. 9. At least three existing accessible amenities are present. 10. Ensure a minimum of one new accessible amenity is provided OR ensure more than one new accessible amenity is provided. It has therefore been proposed that the following are installed to target **5** credits in this section: • Existing AI of >8 (measured at 9.51) (1) • A public transport information system (3) • A 3kW electric car recharging station (4) • Planned BREEAM compliant cycle storage provision of 2 spaces – BREEAM requires 1 space per 10 staff (7) • Cyclist facilities in the form of drying spaces and lockers/changing rooms – 1 shower and changing space shown (8) **Actions:** *M&E Consultant to confirm the installation of a 3kW electric car charging port.* *Client to confirm the provision of a public transport information system.* *Architect to confirm the installation of BREEAM compliant cycle storage and cyclist facilities.*
Water				
Wat 01	Water consumption	5	3	**Water consumption (5 credits)** **Targeted - Yes - 3 credits** Performance approximately equivalent to Level 3 has been targeted. A typical specification is as follows: - WC - 3.75 litres effective flush volume (incl. 25% of water from grey or rainwater harvesting); - Urinal/s – 1 urinal @ 2 litres per bowl per hour OR 2+ urinals @ 1.5 litres per bowl per hour (incl. 25% of water from grey or rainwater harvesting); - Wash hand basin taps – 5 litres per min; - Showers – 6 litres per min - Baths - 140 litres

		Available	SRE Proposed	Comments
				- Kitchenette Taps - 6 litres per min - Domestic sized dishwashers - 12 litres/cycle - Domestic sized washing machines - 40 litres/use **Actions:** *Developer/M&E/Architect Consultant to confirm water specification.*
Wat 02	Water monitoring	1	1	**Water monitoring (1 credit)** **Targeted - Yes** **Mandatory - A water** meter **is fitted to the mains supply on each building (Criterion 1).** A water meter is to be fitted on the mains supply to each building, with additional sub-meters or water monitoring equipment fitted to water-consuming plant areas and/or building areas consuming ≥10% of the building's total water demand. All meters should have a pulsed output and connectable to any BMS or utility monitoring system. **Actions:** *M&E Consultant to supply specification of water meters.* *M&E Consultant to supply schematics highlighting the position of mains and sub-meters at appropriate locations.*
Wat 03	Water leak detection	2	2	**Leak detection system (1 credit)** **Targeted - Yes** A BREEAM Compliant leak detection system is to be installed on the mains water supply to each building to detect major leaks on the water supply within the buildings and between the buildings and water supply. The system must be: a. A permanent automated water leak detection system that alerts the building occupants to the leak OR an inbuilt automated diagnostic procedure for detecting leaks; b. Activated when the flow of water passing through the water meter or data logger is at a flow rate above a pre-set maximum for a pre-set period of time. This usually involves installing a system which detects higher than normal flow rates at meters or sub-meters. It does not necessarily require a system that directly detects water leakage along part or the whole length of the water supply system; c. Able to identify different flow and therefore leakage rates, e.g. continuous, high or low level, over set time periods. Although high and low-level leakage rates are not specified, the leak detection equipment installed must have the flexibility to distinguish between different flow rates to enable it to be programmed to suit the building type and owner's or occupier's usage patterns;

		Available	SRE Proposed	Comments
				d. Programmable to suit the owner's or occupier's water consumption criteria; and Where applicable, designed to avoid false alarms caused by normal operation of large water-consuming plant such as chillers. **Flow control devices** **Targeted - Yes** Install flow control devices that regulate the water supply to each WC area or sanitary facility according to demand, in order to minimise undetected wastage and leaks from sanitary fittings and supply pipework. **Actions:** *M&E Consultant to supply drawings and specification to confirm the location and specification of the leak detection and prevention systems.*
Wat 04	Water efficient equipment	1	1	**Water efficient equipment (1 credit)** **Targeted – Yes** Identify all water demands from uses other than those listed under Wat 01 Water consumption: Table 8.4 that could be realistically mitigated or reduced. Where there is no water demand from uses other than domestic-scale, sanitary use components in the building, this issue is not applicable. Systems or processes to reduce the relevant water demand should be identified and established, through either good practice design or specification, a demonstrable reduction in the total water demand of the building. **Actions:** *M&E consultant to identify water demands and establish systems to reduce these.*
Materials				
Mat 01	Environmental impacts from construction products - Building life cycle	7 + 3 exemplary	7 + 1 exemplary	**Superstructure Life Cycle Assessment (LCA) (Up to 6 credits)** **Targeted - Yes** **Complete by RIBA Stage 2 and again at Stage 4** Carry out an LCA of 2-4 significantly different superstructure options, of which the options selected must not hinder the functional requirements previously specified by the client. This must be undertaken within an IMPACT Compliant LCA tool. The following must also be recorded in an 'Option Appraisal Summary Document':

		Available	SRE Proposed	Comments
	assessment (LCA)			• Differences between the design options; • Reasons for selecting the chosen options; and • Reasons for not selecting the discarded options. Reasons must be given for selecting the chosen design option, with the results submitted to BRE prior to the end of the RIBA Stage 2 AND prior to planning submission. This MUST be achieved in order to gain any credits within Mat01. During RIBA Stage 4, carry out an LCA of 2-3 significantly different superstructure options, based on that selected during Stage 2. Results must explore the same issues as those presented at RIBA Stage 2 with the 'Option Appraisal Summary Document' updated and submitted to BRE prior to the end of Stage 4. **Substructure and hard landscaping Life Cycle Assessment (LCA) (1 credit)** **Complete by RIBA Stage 2;** **Targeted - Yes** Carry out an LCA of ≥6 significantly different substructure and hard landscaping options (min 2 substructure & 2 hard landscaping). Results must explore the same issues as those presented for the Superstructure, with the 'Option Appraisal Summary Document' updated and submitted to BRE at the end of RIBA Stage 2. **Core building services options appraisal (1 exemplary credit)** **Complete by RIBA Stage 2;** **Targeted – Yes** Undertake LCA options appraisal of at least 3 significantly different core building services using an IMPACT Compliant LCA tool and submit to BRE prior to the end of Stage 2. **LCC and LCA alignment (1 exemplary credit)** **Complete by RIBA Stage 2;** **Targeted – No** Where the Man02 LCC (elemental and component level) credits are achieved, the LCA options appraisals align and integrate findings within the overall project. **Third-Party verification (1 exemplary credit)** **Complete by RIBA Stage 2 and Stage 4;** **Targeted – No** A suitably qualified third-party either carries out the LCA work or verifies the LCA work.

		Available	SRE Proposed	Comments
				Actions: *LCA assessment for the superstructure, substructure and hard landscaping, and core building services required and to be reported within an 'Option Appraisal Summary Document'* ***prior to the end of RIBA Stage 2 and prior to planning submission****.* *LCA assessment repeated and option appraisal summary document to be updated* ***during and prior to the end of Stage 4****.*
Mat 02	Environmental impacts from construction products - Environmental Product Declarations (EPD)	1	1	Environmental impacts from construction products (1 credit) Targeted - Yes To achieve the credit available, the materials listed in *Mat01* are assessed depending upon their EPDs (Environmental Product Declarations). Based upon the type of EPD, a score is given with a single credit awarded if 20 points are scored. Actions: *In conjunction with the Man01 LCA assessments, EPDs to be collated based on the materials considered. This can be done through the IMPACT compliant tool.*
Mat 03	Responsible sourcing of construction products	4	2	Mandatory - Criterion 1 only, Legally Harvested and traded timber. Elements and level of responsible sourcing are currently assumed. All elements are to be EMS certified for key process or have a BES 6001 Product certification, with all timber FSC/PEFC certified and from a legal source. Sustainable Procurement Plan (1 credit) Targeted - Yes The Client/Design Team are also required to create and implement a Sustainable Procurement Plan by the end of RIBA Stage 2 which sets out a clear framework for the responsible sourcing of materials to guide procurement throughout a project. The plan can be adopted at an organisational level or alternatively, it can be site/project specific. Measuring Responsible sourcing (3 credits) Targeted – Yes – 1 credit A target score of 10% of the available points will be achieved regarding the superstructure. This will require the use of the Mat03 Calculator tool and methodology to determine the number of credits.

		Available	SRE Proposed	Comments
				Actions: *A copy of the site/contractor/developer Sustainable Procurement Policy to be provided.* *A written commitment to maintain records through procurement of suppliers used and responsible sourcing certification held.* *All materials specified to have ISO14001 or BES 6001 certification as a minimum.* *Certification for all materials to be collated and provided within the SRE Mat03 tool.*
Mat 05	Designing for durability and resilience	1	1	**Designing for durability and resilience (1 credit)** **Targeted - Yes** Areas of the building fabric are to be identified which are potentially vulnerable to vehicular, trolley and pedestrian movement in addition to malicious damage, with suitable design measures to be included for protection and damage prevention. Key exposed building elements that may be subject to environmental degradation are also to be identified, with either a detailed assessment of the element's resilience or an appropriate durability standard (in line with BS 7543:2015) being installed. Convenient roof access should also be included within the plans in addition to a fabric design that prevents water damage, ingress and detrimental ponding. **Actions:** *Architect to supply* *- Design drawings illustrating vulnerable areas/parts of the building;* *- Design drawings and/or relevant section/clauses of the building specification or contract confirming the durability measures specified; and* *- Written specification confirming how measures have been implemented to limit material degradation due to environmental factors.*
Mat 06	Material efficiency	1	1	**Material efficiency; Input from RIBA Stage 1 (1 credit)** **Targeted - Yes** Opportunities should be identified and appropriate measures investigated and implemented, to optimise the use of materials in building design, procurement, construction, maintenance and end of life. This should be carried out at each of the RIBA stages, 1,2,3,4 and 5.

		Available	SRE Proposed	Comments
				Actions: *Material Efficiency Reports to be provided from RIBA Stage 1 onwards.*
Waste				
Wst 01	Construction waste management	5	4	**Pre-demolition audit (1 credit)** **Targeted - Yes** A pre-demolition/strip-out audit of any existing buildings, structures or hard surfaces should also be completed by RIBA Stage 2 in order to identify opportunities to reuse and recycle existing materials. This should be made reference to within the RMP. One credit has been assumed. **Resource Management Plan (RMP) and construction resource efficiency (4 credits)** **Targeted - Yes** A BREEAM compliant RMP must be developed covering non-hazardous waste relating to construction (including dedicated off-site manufacture), demolition and excavation. A nominated person should be identified to take responsibility for the plan and collection of data, confirming that the following targets have been met: **Construction resource efficiency:** **One credit –** awarded where the amount of waste generated per 100m^2 is < or equal to 13.3 (m^3) or 11.1 (tonnes) **Two credits –** awarded where the amount of waste generated per 100m^2 is < or equal to 7.5 (m^3) or 6.5 (tonnes) **Three credits –** awarded where the amount of waste generated per 100m^2 is < or equal to 3.4 (m^3) or 3.2 (tonnes) **Exemplary level –** awarded where the amount of waste generated per 100m^2 is < or equal to 1.6 (m^3) or 1.9 (tonnes) **Diversion of resources from landfill:** Type of Waste — Volume — Tonnage Non-demolition — *70%* — *80%* Demolition — *80%* — *90%* Excavation — *N/A* — *N/A* **Current targets:** **Two credits -** construction waste generated should be less than the target benchmarks which are assumed for this project at 7.5m3 or 6.5 tonnes of waste per 100m^2 (GIFA).

		Available	SRE Proposed	Comments
				One credit – is targeted for diverting waste from landfill - demolition 80% by volume (90% by tonnage); non-demolition 70% by volume (80% by tonnage), with all waste sorted into the key EU waste groups. **Actions:** *Demolition Contractor to supply a copy of the pre-demolition waste audit.* *Main Contractor to supply a copy of a compliant Resource Management Plan that gives reference to the pre-demolition audit.* *Main Contractor to give written confirmation that the above benchmarks for waste generation, and waste diversion from landfill will be achieved.*
Wst 02	Use of recycled and sustainably sourced aggregates	1	0	**Pre-requisite; Targeted - No** The reuse of site-won material on site should be encouraged and a pre-demolition audit should be carried out in accordance with Wst 01. **Project Sustainable Aggregate Points (1 credit)** **Targeted - No** All aggregate uses, types quantities and sources should be identified. The distance (km) travelled by all aggregates by transport type should be calculated and all this information should be entered into the Wst 02 calculator. 3.5-6 points will equate to one credit. More than 6 points will achieve an exemplary credit. It has been assumed that this credit will not be achieved due to the limited amount of existing hard standing on site that could potentially be recycled into recycled aggregate and the cost implications of sourcing it from external sources. **Actions:** *Main contractor to record and identify the above information so that it can be input into the Wst 02 calculator.*
Wst 03	Operational waste	1	1	**Mandatory - credit must be achieved for Excellent.** **Operational Waste (1 credit)** **Targeted - Yes** Bin-store to be appropriately sized, clearly labelled and dedicated space for the segregation and storage of operational recyclable waste is to be provided within the bin store. The store must be clearly labelled, lockable and accessible only to the building occupants and/or staff. This area should also include a drain and tap for general washing purposes.

		Available	SRE Proposed	Comments
				General rule for the size of the space - 2m^2 for recyclable waste storage must be provided for buildings per 1000m^2. **Alternatively -** where the recyclable waste storage must be suitably sized, based on the estimated likely waste streams for the building. **Actions:** *Architect to supply:* *- Drawings showing dedicated space for waste storage, adequately sized for recyclable waste storage.* *- Space to be labelled to assist with segregation of waste, accessible to building occupant.*
Wst 05	Adaptation to climate change	1	1	**Completed by RIBA Stage 2 (1 credit)** **Targeted - Yes** A climate change adaptation strategy appraisal for structural and fabric resilience is required to have been completed by the end of RIBA Stage 2. **Actions:** *Design Team to supply a Climate change adaption strategy.*
Wst 06	Design for disassembly and adaptability	2	2	**Design for disassembly and functional adaptability (recommendations) (1 credit)** **Targeted – Yes** **Input required from RIBA stage 2** The Design Team must undertake a study to explore the ease of disassembly and the functional adaption potential of different design scenarios by the end of RIBA Stage 2. **Design for disassembly and functional adaptability (implementation) (1 credit)** **Targeted - Yes** **Input required from RIBA stage 2** The above MUST be achieved, the Design Team must also (during Technical Design) provide an update on- a) How the recommendations or solutions proposed by Concept Design have been implemented where practical and cost effective. Omissions have been justified in writing to the assessor. b) changes to the recommendations and solutions during the development of the Technical Design c) A building adaptability and disassembly guide to communicate the characteristics allowing functional adaptability and disassembly to prospective tenants.

		Available	SRE Proposed	Comments
				Actions: *Design team to provide a copy of the disassembly and functional adaptability study prior to the end of RIBA Stage 2.* *Design team to update the disassembly and functional adaptability study prior to the end of RIBA Stage 4.*
Land Use & Ecology				
LE 01	Site selection	2	1	**Previously Occupied Land (1 credit)** **Targeted - Yes** In order to achieve the credit, 75% of the Proposed Development's footprint must be on previously occupied land/hard standing. **Contaminated Land (1 credit)** **Targeted - No** A contaminated land professional's report must confirm that the site is significantly contaminated prior to implementing the recommended remediation measures. **Actions:** *Architect to provide a drawing of the proposed building overlaying the existing site, annotated with the % of the developments footprint that is on previously developed land.* *Developer to supply any contamination report if land is believed to be contaminated and has been/will be remediated.*
LE 02	Ecological risks and opportunities	2	2	**Prerequisite - The client or contractor confirms compliance is monitored against all relevant UK and EU or international legislation relating to the ecology of the site.** **Survey and Evaluation (1 credit)** **Targeted - Yes** **Complete by RIBA Stage 1** An appropriate individual is to have been appointed to ensure early involvement in site configuration and influence strategic planning decisions. An appropriate survey and evaluation must have taken place at RIBA Stage 1. A Preliminary Ecological Appraisal must be undertaken. **Determining the Ecological Outcomes (1 credit)** **Targeted - Yes** **Complete by RIBA Stage 2**

		Available	SRE Proposed	Comments
				During RIBA Stage 2, the Design Team should have met to discuss the ecological outcomes of the Proposed Development. The Ecological Assessment must outline the ecological outcomes of the assessment, making recommendations in line with the BREEAM hierarchy. **Actions:** *Design Team to demonstrate discussions/plans for the ecological outcomes for the Proposed Development.* *Design Team to confirm the Ecologist's Recommendations are to be adhered to.*
LE 03	Managing impacts on ecology	3	2	**Prerequisite - Le02 is achieved.** **Planning, liaison, implementation and data (1 credit)** **Targeted - Yes** **Complete by RIBA Stage 3** Roles and responsibilities must have been clearly identified to ensure the implementation of the ecological outcomes. Site works and preparations are to have been planned and implemented at an early stage to optimise the potential benefits prior to liaising with the representative stakeholders to share data, solutions and the measures implemented. **Managing negative impacts of the project (2 credits)** **Targeted – Yes – 1 credit** For Route 2, one credit may be achieved where the loss of ecological value has been limited as far as possible. **Actions:** *Design Team to provide evidence of interactions and discussions, identifying responsibility and control measures for achieving the ecological outcomes.* *Design Team to appoint an Ecology Champion to ensure the delivery of outcomes.* *Design Team to provide evidence of site works and preparations having been undertaken at an early project stage.*
LE 04	Ecological change and enhancement	4	1	**Prerequisite - LE03 is achieved** **Liaison, implementation and data collation (1 credit)** **Targeted - Yes** Route 2 - Ecology Champion liaises with the representative stakeholders to share data, solutions and the measures implemented to enhance data on site. Where this is not possible, measures are implemented to be implemented that enhance the ecological value of the off-site area within the zone of influence.

		Available	SRE Proposed	Comments
				Enhancement of Ecology (3 credits) **Targeted – No (tbc)** Route 2 - Credits are awarded based upon the enhancement in ecological value: Minimising loss of ecological value (one credit - percentage score of 75-94) No net loss of ecological value (two credits - percentage score of 95-104) Net gain of ecological value (three credits - percentage score of 105-109) **Actions:** *Ecology Champion to provide evidence of liaising with representative stakeholders.* *Ecology report to confirm any changes in ecological value - 0 credits assumed until confirmed.*
LE 05	Long term ecological management and maintenance	2	2	**Prerequisite - LE04 is achieved** **Planning, liaison, data, monitoring and review management and maintenance (1 credit)** **Targeted - Yes** Ecology Champion liaises with the representative stakeholders to share data, solutions and the measures implemented to enhance data on site. Discussions must also be made with regards to the monitoring and reporting of successes and the site's continued maintenance and ecological value. **Landscape and ecology management plan (or similar) development (1 credit)** **Targeted - Yes** A five-year landscape and ecology management created in accordance with BS 42020:2013. **Actions:** *Ecologist to produce landscape and ecology management.*
Pollution				
Pol 01	Impact of refrigerants	3	3	It has been assumed that there are no refrigerants used within the installed plant or systems, therefore 3 credits have been targeted. **Actions:** *M&E Consultant to confirm that no refrigerants are being used.*

		Available	SRE Proposed	Comments
				OTHERWISE **Pre-requisite;** **Targeted - No** All systems with electric compressors should comply with the requirements of BS EN 378:20161. Refrigeration systems containing ammonia should comply with the Institute of Refrigeration Ammonia Refrigeration Systems code of practice. **Impact of refrigerant (2 credits)** **Targeted – No** **For two credits:** The direct effect life cycle CO2 equivalent emissions (DELC) of ≤100 CO_2-eq/kW OR all refrigerants used have a global warming potential (GWP) ≤10. **For one credit:** Systems using refrigerants have a DELC of ≤1000kgCO_2-eq/kW cooling and heating capacity. One credit is targeted. **Leak detection (1 credit)** **Targeted - No** All systems are hermetically sealed or only use environmentally benign refrigerants. OR An inbuilt automated diagnostic procedure for detecting leakage is enabled. In the event of a leak, the system must be capable of automatically responding and managing the remaining refrigerant charge to limit the loss of refrigerant.
Pol 02	Local air quality	2	2	**Local air quality (2 credits)** **Targeted - Yes** The site area has been deemed as being of high pollution, using Defra's national Pollution Climate Mapping modelling GIS tool. Therefore, assuming a gas boiler is used, NOx emissions from all installed combustion plants that provide space heating and domestic hot water must not exceed 24 mg/kWh to achieve 2 credits. For one credit to be achieved, the gas boiler must not emit more than 27 mg/kWh. Alternatively, where an all-electric system is proposed – 2 credits can be awarded by default.

		Available	SRE Proposed	Comments
				Actions: *M&E consultants to confirm the boiler type and that the boiler NOx emissions do not exceed the above maximum values.*
Pol 03	Flood and surface water management	5	5	**Flood resilience (2 credits)** **Targeted - Yes** A desk study undertaken by SRE (Preliminary Drainage and Flood Risk analysis based on the Environmental Agency mapping) suggests that the site should have a low risk of flooding from sea and rivers, and low risk of flooding from surface water. Detailed flood risk analysis is required to confirm this. **Surface water run-off (2 credits)** **Targeted - Yes** Where the area of impermeable run-off is set to increase, SuDs will need to be implemented to ensure that the rate of run-off remains the same as was measured prior to development. The credits are only achievable following further input. **Minimising watercourse pollution (1 credit)** **Targeted - Yes** Confirmation there is no discharge from the developed site for rainfall up to 5mm. For areas with a low risk source of watercourse pollution, an appropriate level of pollution prevention treatment must be provided (such as SuDS). Areas with a high risk of contamination or spillage of substances (oil or petrol) must have separators (or equivalent) installed in surface water drainage systems. Chemical or liquid gas storage areas have a means of shut off to the site drainage system. Any water pollution prevention systems must be installed and designed in accordance with the recommendation of documents, such as the SuDs manual (or other relevant industry best practice). They must also be bespoke solutions which consider the specific site requirements and natural/man-made environment of and surrounding the area. Additionally, a comprehensive and up to date drainage plan for the site must be made available, and any relevant maintenance agreements for the ownership (long term operation and maintenance) for all specified SuDS must be in place. Finally, all external storage and delivery areas are designed and detailed in accordance with the current best practice planning guidance. **Actions:** *Drainage Engineer to supply FRA and Drainage Strategy Report & calculations clearly confirming the BREEAM credits*

		Available	SRE Proposed	Comments
				that can be awarded. *Drawings to be provided confirming the drainage design / SUDs solution.*
Pol 04	Reduction of night-time light pollution	1	1	**Reduction of night-time light pollution (1 credit)** **Targeted - Yes** Lighting to be designed in compliance to ILP Guidance note for the reduction of obtrusive light, 2011. All external lighting to be switched off between 2300hrs and 0700hrs (security/safety lighting used between these times to comply with the lower levels of light as in the ILP's guidance. Illuminated advertisements, where specified, must be compliant with ILP Technical Report 5 - The Brightness of Illuminated Advertisements **Actions:** *M&E Consultant to supply marked-up design drawings, relevant sections of the building specification and/or calculations.*
Pol 05	Reduction of noise pollution	1	1	**Reduction of noise pollution (1 credit)** **Targeted - Yes** A noise impact assessment compliant with BS 4142:2014 should be commissioned. Noise levels must be measured or determined for existing background noise levels at the most sensitive area and noise rating level from the assessed building. This must be carried out by a suitably qualified acoustic consultant. The noise level from the assessed building, as measured in the locality of the nearest or most exposed noise-sensitive development, must be at least 5dB lower than the background noise throughout the day and night. If the noise sources from the assessed building are greater than the levels described, measures have been installed to attenuate the noise at its source to a level where it will comply with the criterion. **Actions:** *Noise assessment to be carried out at post construction stage.*
Innovation				
AI	Approved Innovation	1	0	

		Available	SRE Proposed	Comments
OVERALL SCORE TOTALS:		101	75.48	

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