Francis Gardner House

BREEAM Pre-Assessment

August 2020

Mendick Waring Ltd
Edelman House
1238 High Road
London
N20 0LH
T: 020 8446 9696
www.mendickwaring.co.uk

Table of Contents

Issue Details

Project	Francis Gardner House
MW Reference	J2595
Report Scope	BREEAM Strategy
Revision	03.1
Date	13/08/2019
Author	Arnold Stone (Assessor)
Checked By	Ioannis Protonotarios (AP)

MWL Group
Edelman House
1238 High Road
London N20 0LH

Tel: 020 8446 9696
enquiries@mwl-group.com
http://www.mwl-group.com

1.0 Introduction

MWL have been appointed to undertake a BREEAM 2018 New Construction Pre-Assessment for Francis Gardner House.

The development is assessed under BREEAM UK New Construction 2018, and a pre-assessment has been undertaken to establish the strategy for achieving a BREEAM 'Excellent' rating.

BREEAM (Building Research Establishment Environment Assessment Method) is the world's leading and most widely used environmental assessment method for non-domestic building in the UK.

BREEAM sets the standard for best practice in sustainable design and is used to describe a building's environmental performance. The 'BREEAM UK New Construction' scheme identifies building specific standards in which this can be assessed against.

Overview of BREEAM Scoring Requirements:

BREEAM Rating	% Score	Equivalent to:
Outstanding	≥ 85	Less than the top 1% of UK new non-domestic buildings (innovator)
Excellent	≥ 70	Top 10% of UK new non-domestic buildings (best practice
Very good	≥ 55	Top 25% of UK new non-domestic buildings (advanced good practice)
Good	≥ 45	Top 50% of UK new non-domestic buildings (intermediate good practice)
Pass	≥ 30	Top 50% of UK new non-domestic buildings (intermediate good practice)

August 2020 Amendment to Strategy:

A new alternative methodology for compliance with Ene 01 Reduction of Energy Use and Carbon Emissions was introduced by BRE following the development of the original BREEAM strategy by MWL.

The 'alternative methodology' uses the more up to date emission factors of SAP 10 which take account of progress towards decarbonisation of grid supply electricity, and in accordance with the Greater London Authority's current policy defines all heating systems in the notional building as being by gas boiler. For comparison, the 'standard methodology' uses outdated carbon factors and assumes the notional building heating system type is the same as proposed.

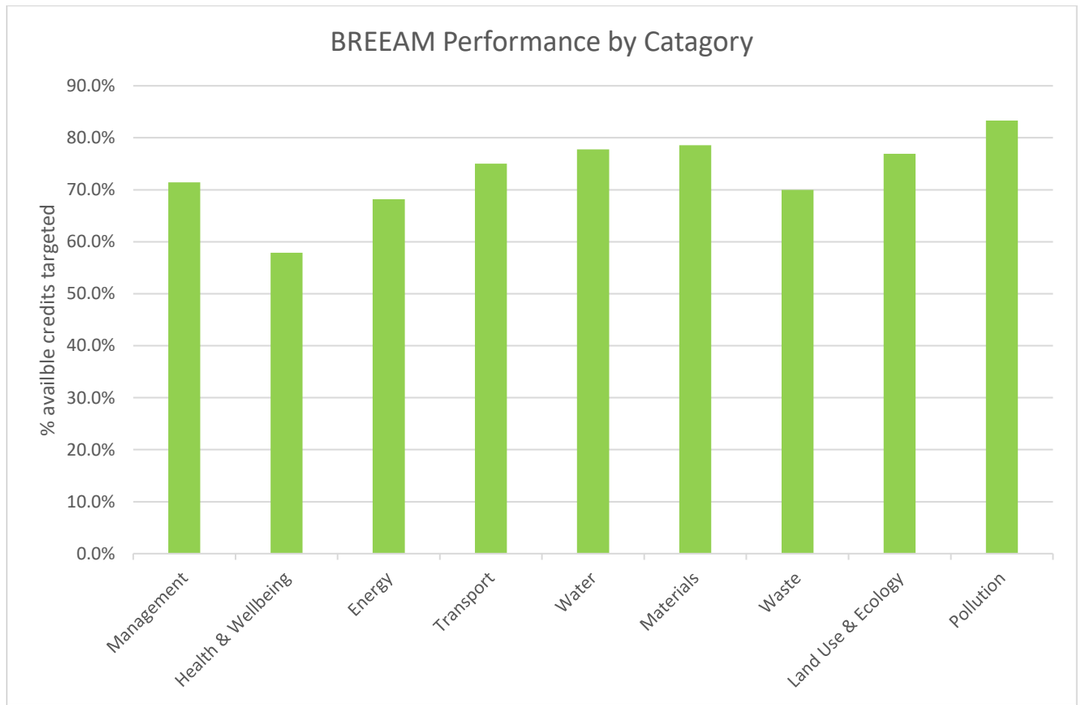
The BREEAM Pre-Assessment submitted in February 2020 followed the Ene 01 standard methodology. By utilising the new alternative methodology, the building is better rewarded for the energy efficient building services proposed, and the Ene 01 results increase from 4 to 7 credits.

2.0 BREEAM 2018 Scoring and Results

A full BREEAM Pre-Assessment is included in Section 3.0 of this report, which confirms a BREEAM 2018 rating of **'Excellent'** with a score of **72.4%** is considered achievable.

BREEAM UK New Construction 2018 is still a relatively new and untested scheme and is significantly more challenging than its predecessor, the 2014 version. A BREEAM 'Excellent' rating under the 2018 scheme is broadly equivalent to a BREEAM 2014 'Outstanding' rating, therefore this development represents the top level of current sustainability standards.

The below chart summarises the performance of this building in each category of BREEAM New Construction 2018:



3.0 BREEAM 2018 Pre-Assessment Table

The following BREEAM strategy is based on review of the planning-issue design information and meetings held between MWL and the design team. It should be noted the Requirements Summary column provided below is only indicative of the type of issues assessed by each credit – for full BREEAM technical requirements refer to the latest version of the BREEAM New Construction 2018 Technical Manual (Scheme Document 5078 version 3.0).

Target Score:	72.4%
Target Rating:	EXCELLENT

Credit	Title	Available	Targeted	Mandatory Minimum Standards	Requirement Summary	Pre-Assessment Comments
Man 01a	Project Brief and Design: Project Delivery Planning and Third Party Consultation	2	2	None	First Credit: Prior to completion of the Concept Design, the project delivery stakeholders have met to identify and define their roles, responsibilities and contributions for each of the key phases of project delivery. Second Credit: Prior to completion of the Concept Design, the design team consult with all interested parties and demonstrate how exercise influenced the Initial Project Brief and Concept Design. Feedback must be given to consultees	Project delivery planning and public consultation appropriate to the project has been undertaken
Man 01b	Project Brief and Design: BREEAM Advisory Professional	2	2	None	First Credit: Prior to completion of the Concept Design, a BREEAM AP qualified person is appointed to identify risks and opportunities and provide support Second Credit: The first credit is achieved, and the BREEAM AP continues to monitor progress throughout the Developed Design and formally report progress to the client and design team.	MWL has been appointed as BREEAM AP at an early enough stage to influence the Project Brief and Concept Design
Man 02	Life Cycle Cost & Service Life (LCC)	4	1	None	A competent person develops a component level LCC options appraisal in line with PD 156865: 2008: - Two Credits: By the end of Process Stage 2 (Concept Design) - One credit: By the end of Process Stage 4 (Technical Design) - One credit: Report the capital cost for the building in pounds per square metre	Capital Cost will be reported for one credit. It was not possible to undertake full LCC analysis prior to planning due to time constraints

Credit	Title	Available	Targeted	Mandatory Minimum Standards	Requirement Summary	Pre-Assessment Comments
Man 03a	Responsible Construction: Pre-requisite - Timber	✓	✓	None	All timber and timber-based products used on the project is 'Legally harvested and traded timber' in accordance with the UK Government Timber Procurement Policy	The contractor will be required to responsibly source timber
Man 03b	Responsible Construction: Environmental Management	1	1	None	The principal contractor operates an environmental management system (EMS) in accordance with ISO 14001 The principal contractor implements best practice pollution prevention policies in accordance with PPG6	The contractor will be required operate to ISO 14001 and PPG6
Man 03c	Responsible Construction: BREEAM AP (site)	1	0	None	A BREEAM AP qualified person is appointed to monitor construction progress against the agreed performance targets; the BREEAM AP should ideally be site based or visit the site regularly to carry out spot checks and may advise actions to be taken	This is not a commonly held qualification amongst contractors and would limit appointments at tender, therefore the credit is not considered feasible at this stage for commercial reasons but will be explored at a later date
Man 03d	Responsible Construction: Responsible Construction Management	2	1	1 credit for Excellent 2 for Outstanding	Achieve items listed as required for one credit in BREEAM Table 4.1 For one credit, one section of the table must be met; for two credits the whole table must be met	The contractor will be required to meet the requirements of BREEAM Table 4.1 for responsible site management
Man 03e	Responsible Construction: Monitoring of construction site impacts	2	2	None	Assign responsibility to an individual for monitoring, recording and reporting energy use, water consumption and transportation data resulting from all on-site construction processes First Credit: Utilities: - Site energy / electricity consumption (kWh) - Site energy / electricity emissions (kgCO2) - Site water consumption (m^3) Second Credit: Transport - Materials from factory to site (litres of fuel, km, kgCO2) - Waste from site to processing centre (litres of fuel, km, kgCO2)	The contractor will be required to monitor site energy, water, and transport consumption
Man 04a	Commissioning and Handover: Testing Schedule and Responsibilities	1	1	Mandatory for Very Good and above	Prepare a schedule of commissioning and testing. The schedule identifies and includes a suitable timescales and applicable standards	The contractor will be required to prepare a compliant commissioning schedule

Credit	Title	Available	Targeted	Mandatory Minimum Standards	Requirement Summary	Pre-Assessment Comments
Man 04b	Commissioning and Handover: Design and Preparation	1	1	None	During the design stage, a specialist commissioning manager is appointed, with responsibility for: - Design reviews and advice on ease of commissioning. - Commissioning management input to construction programming - Management of commissioning, testing, and handover	The contractor will be required to appoint a specialist commissioning manager to oversee commissioning activities
Man 04c	Commissioning and Handover: Thermographic Survey	1	1	None	Complete post-construction testing and inspection to quality-assure the integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths (this is through a thermographic survey). Rectify any defects identified.	The contractor will be required to appoint a specialist to undertake a Thermographic Survey upon completion of the project. Any defects identified by the survey must be rectified
Man 04d	Commissioning and Handover: Handover	1	1	Mandatory for Very Good and above	Prior to handover, develop two building user guides and two training schedules: - Non-technical guide/training for the building occupiers - Technical guide/training for the facilities manager. A draft copy of the guide shall be developed and discussed with users first.	The contractor will be required to produce appropriate handover documentation
Man 05a	Aftercare: Aftercare Support	1	1	None	Provide aftercare support to the building occupiers through having in place operational infrastructure and resources (e.g. meeting prior to initial occupation, helpline support for the first 12 months) Establish operational infrastructure and resources to coordinate the collection and monitoring of energy and water consumption data for a minimum of 12 months,	Handover and aftercare support infrastructure will be put in place
Man 05b	Aftercare: Commissioning Implementation	1	1	Mandatory for Excellent and above	Complete seasonal commissioning activities over a minimum 12-month period, once the building becomes substantially occupied	Seasonal commissioning will be included in the commissioning schedule
Man 05c	Aftercare: Post Occupancy Evaluation (POE)	1	0	None	The client or building occupier commits to carry out a POE exercise one year after the building is substantially occupied. The client or building occupier commits funds to pay for the POE in advance. This requires an independent party to be appointed to carry out the POE The independent party appointed for POE provides a report with lessons learned to the client and building occupiers.	Would require infrastructure to be put in place for Post Occupancy Evaluation, to be carried out by a third part one year after occupation. This is not currently sought because the cost of the exercise is disproportionate to the value of the credit. However feasibility will be further reviewed during the detailed design stage

Credit	Title	Available	Targeted	Mandatory Minimum Standards	Requirement Summary	Pre-Assessment Comments
	TOTAL	21	15			
Hea 01a	Glare Control	1	1	None	Identify areas at risk of glare using a glare control assessment. The glare control assessment also justifies any areas deemed not at risk of glare.A glare control strategy designs out potential glare in all relevant building areas where risk has been identified. This should be achieved through building form and layout or building design measures.The glare control strategy does not increase energy consumption used for lighting	A glare control assessment will be undertaken during the detailed design stage to determine the areas of the building that are at risk of glare and feasibility of implementing BREEAM compliant shading measures
Hea 01b	Daylighting	2	0	None	The relevant building areas meet good practice daylight factors and other criteria as outlined in BREEAM Table 5.1 and Table 5.2 or The relevant building areas meet good practice average and minimum point daylight illuminance criteria as outlined in BREEAM Table 5.3	Bedrooms and living/kitchen areas are been designed to provide good levels of daylight; however several amenity areas, including basement level gym, basement communal lounge, lack daylight due to constraints of the site. These amenities are proposed to provide a comfortable environment and added value to residents, however they do not meet the BRE criteria for daylight levels and therefore the credits cannot be achieved.
Hea 01c	View Out	1	0	None	95% of the floor area in 95% of spaces for each relevant building area is within 8m of an external wall with a window ≥ 20% of the surrounding wall area.	This credit cannot be achieved because, due to site constraints, several amenity areas do not have adequate view out, as stated above under the 'Daylighting' comments.
Hea 01d	Lighting Levels, Zones and Controls	1	1	None	Zoning and Occupant Control: Light switches provided for each zone, and can be accessed and operated by the individuals occupying the area: - Windows separately zoned and controlled - In office areas, zones of no more than four workplaces - Scene setting controls in meeting rooms, cafes etc Design to comply with the following: - External Lighting: BS 5489 and BS EN 12464-2 - Internal Lighting: SLL Code for Lighting 2012 and LG 7	Compliant systems will be included in the detailed design specification

Credit	Title	Available	Targeted	Mandatory Minimum Standards	Requirement Summary	Pre-Assessment Comments
Hea 02a	Indoor Air Quality: Pre-requisite - IAQ Plan	✓	✓	Pre-requisite: Hea 02 credits cannot be awarded unless met	A site-specific indoor air quality plan is produced no later than the end of Concept Design (Stage 2), covering: 1.a: Removal of contaminant sources 1.b: Dilution and control of contaminant sources: Where present, consideration is given to the air quality requirements of specialist areas such as laboratories 1.c: Procedures for pre-occupancy flush out 1.d: Third party testing and analysis 1.e: Maintaining good indoor air quality in-use.	An Indoor Air Quality Plan will be produced
Hea 02b	Indoor Air Quality: Ventilation	1	1	None	HVAC systems must incorporate suitable filtration to minimise external air pollution Air intakes and exhausts, in relation to each other and sources of external pollution, are in accordance with the following best practice as appropriate: - BS EN 13779:2007 Annex 219 - BRE FB 30 Ventilation for healthy buildings - BRE IP 9/14 Locating ventilation inlets - CIBSE TM2122 Areas of the building subject to large and unpredictable or variable occupancy patterns have carbon dioxide (CO_2) or air quality sensors specified For naturally ventilated or mixed mode buildings, the design demonstrates that the ventilation strategy provides adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates in accordance with CIBSE AM10	Where mechanical ventilation is proposed, it will be designed to comply with the appropriate standards for minimising recirculation

Credit	Title	Available	Targeted	Mandatory Minimum Standards	Requirement Summary	Pre-Assessment Comments
Hea 02c	Indoor Air Quality: Emissions from Construction Products (VOC)	3	1	None	One credit: Three out of the five product types meet the emission limits, testing requirements and any additional requirements listed in BREEAM Table 5.11 Two credits: at least five of the seven remaining product categories of the product types listed meet the emission limits, testing requirements and any additional requirements listed in Table BREEAM 5.11. Third credit: The formaldehyde concentration in indoor air is measured post construction (pre-occupancy) and does not exceed 100 µg/ m³ averaged over 30 minutes; plus the total volatile organic compound (TVOC) concentration is measured and does not exceed 500 µg/ m³over 8 hours.	Interior finishes will be specified to be low VOC wherever feasible. The requirements will be further reviewed against the FF&E specification at detailed design stage, in order to maximise the credits achieved
Hea 04a	Thermal Comfort: Thermal Modelling & Future Comfort	2	0	None	For air conditioned buildings, the PMV (predicted mean vote) and PPD (predicted percentage of dissatisfied) are reported First Credit: Current Climate Thermal modelling has been carried out using software in accordance with CIBSE AM11 and demonstrates that summer and winter operative temperature ranges in occupied spaces are in accordance with CIBSE Guide A Second Credit: Future Climate The thermal modelling demonstrates that the relevant requirements are achieved for a projected climate change environment Note: For naturally ventilated buildings, the design must limit the risk of overheating in accordance with CIBSE TM52	The building has been designed to provide cooling to bedrooms by purge ventilation to prevent overheating. AC systems are proposed to amenity areas such as the gym and lounge. The feasibility of undertaking detailed thermal comfort analysis will be further reviewed at the detailed design stage
Hea 04b	Thermal Comfort: Zoning & Controls	1	0	None	The Thermal Modelling credit is achieved and the thermal modelling analysis has informed the temperature control strategy for the building and its users. The strategy for proposed heating/cooling system(s) demonstrates that it has addressed Hea 04 requirements 11a to d, in particular the design must consider the degree of occupant control required, based on discussions with the end user	Compliant mechanical systems and controls will be included in the detailed design specification; however as noted above the thermal modelling is subject to further review

Credit	Title	Available	Targeted	Mandatory Minimum Standards	Requirement Summary	Pre-Assessment Comments
Hea 05	Acoustic Performance	4	4	None	The building meets the appropriate acoustic performance standards and testing requirements defined in the relevant table below. These tables define criteria for the acoustic principles of: a: Sound insulation b: Indoor ambient noise level c: Room acoustics	The indoor acoustic environment of bedroom, living, and amenity areas will be designed to comply with all appropriate standards A 5dB improvement over building regulations for airborne and impact sound insulation is sought
Hea 06	Security	1	1	None	A Suitably Qualified Security Specialist (SQSS) conducts an evidence-based Security Needs Assessment (SNA) during or prior to Concept Design (RIBA Stage 2). The SQSS develops a set of security controls and recommendations for incorporation into the proposals. Those controls and recommendations shall directly relate to the SNA. The controls and recommendations shall be incorporated into proposals and implemented in the as-built development. Any deviation must be justified and agreed with the SQSS.	The building will be constructed in accordance with the principles of Secured by Design
Hea 07	Safe and Healthy Surroundings	2	2	None	First credit: Safe access- Dedicated and safe cycle paths, footpaths, drop-off areas are provided- Delivery areas are not accessed through general parking, cycle, pedestrian routes and have sufficient space for waiting and manoeuvring Second credit: Outside space- There is an outside space providing building users with an external amenity area - This must include seating and be non-smoking, and be sufficiently sized for the predicted number of building users during coffee or lunch breaks etc	The assessed building has limited external areas, which will be designed for safe access into the building and cycle store. A communal external amenity area (roof terrace) is proposed which will be accessible to all users
	TOTAL	19	11			
Ene 01a	Reduction of Energy Use & Carbon: Energy Performance	9	7	4 credits for Excellent 6 for Outstanding	Calculate an Energy Performance Ratio for New Constructions (EPR NC). Compare the EPR NC achieved with the benchmarks in BREEAM Table 6.1 and award the corresponding number of credits	Amended August 2020: 7 credits have been calculated based on the energy strategy following the new 'alternative methodology' for Ene 01

Credit	Title	Available	Targeted	Mandatory Minimum Standards	Requirement Summary	Pre-Assessment Comments
Ene 01b	Reduction of Energy Use & Carbon: Energy Modelling and Reporting	4	0	None	Prior to completion of the Concept Design, relevant members of the design team hold a preliminary design workshop focusing on operational energy performance. The energy modeller must model several scenarios for predicted operational energy consumption figures, creating a range of predicted options, informed by a risk assessment of the building energy uses. Report predicted energy consumption targets. Carry out a risk assessment to highlight any significant design, technical, and process risks	It was not feasible to undertake a review of operational energy performance prior to planning submission. This credit is new to BREEAM 2018 and is not typical practice
Ene 02	Energy Monitoring: Sub-metering of end-uses and tenancy areas	1	1	1 credit for V. Good and above	First Credit: - Install energy metering systems so that at least 90% of the estimated annual energy consumption of each fuel is assigned to the end-use categories - Buildings >1,000m² shall include automatic meter reading systems or building energy management systems (BEMS) Second Credit: - Install energy metering systems for each tenancy / function area - Sub-meter per floor plate in large single occupancy or single-tenancy buildings with one homogeneous function, for example hotel bedrooms, offices.	Compliant systems will be included in the detailed design specification
Ene 03	External Lighting	1	1	None	The average initial luminous efficacy of the external light fittings within the construction zone is not less than 70 lumens per Watt. All external light fittings are automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic.	Compliant systems will be included in the detailed design specification

Credit	Title	Available	Targeted	Mandatory Minimum Standards	Requirement Summary	Pre-Assessment Comments
Ene 04a	Low Carbon Design: Passive Design & Free Cooling	2	1	None	First Credit: Passive Design Analysis - Analyse the proposed building design and development during Concept Design (Stage 2) to identify opportunities for the implementation of passive design measures - Implement passive design measures and quantify the reduced total energy demand and carbon dioxide (CO_2) emissions from the measures Second Credit: Free Cooling - Include a free cooling analysis in the passive design analysis - The building is naturally ventilated or uses any combination of the free cooling strategies in the analysis	A Passive Design Analysis will be undertaken
Ene 04c	Low and Zero Carbon Technologies	1	1	None	An LZC Feasibility Study has been carried out by the end of Concept Design (Stage 2) Specify local LZC technologies in line with the feasibility study recommendations and quantify the reduced regulated carbon dioxide (CO_2) emissions	An LZC Feasibility Study is included in the energy strategy, and renewables shall be included in the form of PVs that contribute at least 5% of overall building CO2 savings
Ene 06	Energy Efficient Transportation System (Lifts)	2	2	None	Lifts: - An analysis of the transportation demand and usage patterns for the building is carried out to determine the optimum number and size of lifts - The energy consumption is calculated for at least two types of systems and the lowest energy consumption specified - Each lift includes: Standby mode; Lighting >70 lumens per Watt; VVVF drive; Regenerative drives where demonstrated to save energy Escalators: - A load-sensing device that synchronises motor output to passenger demand through a variable speed drive OR a passenger-sensing device for automated operation (auto walk), so the escalator operates in auto start mode when there is no passenger demand	Lift Traffic Analysis and Energy Calculations will be undertaken during the detailed design

Credit	Title	Available	Targeted	Mandatory Minimum Standards	Requirement Summary	Pre-Assessment Comments
Ene 08	Energy Efficient Equipment	2	2	None	For the below unregulated energy consuming loads applicable to the building, demonstrate a meaningful reduction in the total annual unregulated energy consumption of the building in accordance with the criteria defined in BREEAM Table 6.5 • Swimming pool • Laundry facilities • Data centres • IT-intensive operating areas • Domestic scale appliances • Healthcare equipment • Kitchen and catering facilities	Unregulated energy consumption will be established in accordance with CIBSE TM54 and reduced
	TOTAL	22	15			
Tra 01	Transport Assessment and Travel Plan	2	2	None	A travel plan has been developed as part of the feasibility and design stages. A site specific travel assessment/statement has been undertaken to ensure the travel plan is structured to meet the needs of the particular site 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 building's operation and use. 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 building's management in operation.	A Transport Assessment and Travel Plan shall be produced
Tra 02	Sustainable Transport Measures: Transport Options Implementation	10	7	None	Up to 10 credits: - Identify the sustainable transport measures in BREEAM Table 7.4. - Award credits according to the Accessibility Index (AI) of the project, and the total number of points achieved for the Table 7.4 options implemented	As per TfL, the Accessibility Index (AI) is 24. Credits are considered achievable, based on: - Accessibility Index >8 - Provision of compliant cycle spaces - Good access to local amenities - 1 new amenity (gym) - A travel information point in the Foyer - Staff shower + 4no lockers
	TOTAL	12	9			

Credit	Title	Available	Targeted	Mandatory Minimum Standards	Requirement Summary	Pre-Assessment Comments
Wat 01	Water Consumption	5	3	1 for Good and above2 for Outstanding	The water consumption (L/person/day) for the assessed building is compared against a baseline performance and credits awarded based upon BREEAM Table 8.1, including:• WCs• Urinals• Taps (wash hand basins, kitchen taps, waste disposal units)• Showers• Baths• Dishwashers (domestic and commercial sized)• Washing machines (domestic and commercial sized)	Low water use fittings will be included in the detailed design specification. It is not feasible to achieve additional credits, due to limited space available for greywater recycling tanks and circulation. Target specification for 3 credits:- WCs: 4/3L dual flush- Basin taps: 4 L/min- Showers: 9 L/min- Kitchen taps: 5 L/min- Dishwashers: 12 L/cycle- Laundry Washing Machines: 10 L/kg
Wat 02	Water Monitoring	1	1	For Good and above: Criterion 1 only (mains water meter)	The specification of a water meter on the mains water supply to each building Water-consuming plant or building areas, consuming 10% or more of the building's total water demand, are fitted with easily accessible sub-meters 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. BMS	Compliant systems will be included in the detailed design specification
Wat 03a	Water Leak Detection	1	1	None	A leak detection system which 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 and is: • A permanent automated water leak detection system that alerts the building occupants to the leak • 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. • Able to identify different flow and therefore leakage rates • Programmable to suit the owner/occupiers' consumption • Designed to avoid false alarms large water-consuming plant	Compliant systems will be included in the detailed design specification

Credit	Title	Available	Targeted	Mandatory Minimum Standards	Requirement Summary	Pre-Assessment Comments
Wat 03b	Flow Control Devices	1	1	None	Flow control devices that regulate the supply of water to each WC area/facility according to demand are installed Typically: • Solenoid valves connected to PIR in toilet facilities	Compliant systems will be included in the detailed design specification Note: For residential accommodation, flow control devices are required in public areas only; residential areas are exempt
Wat 04	Water Efficient Equipment	1	1	None	The design team has identified all unregulated water demands and specified systems or processes to reduce the relevant water demand This must cover at least (where applicable): • Equipment used for irrigation • Swimming pools / hot tubs / hydrotherapy pools • Vehicle wash equipment • Project-specific industrial processes • Water filtration and treatment processes • Building services (e.g. cooling towers, humidification)	Methods for reducing unregulated waster use from irrigation will be further reviewed
	TOTAL	9	7			
Mat 01a	Life Cycle Assessment (LCA): Superstructure	6	4	None	Up to six credits, awarded based on performance RIBA Stage 2: LCA must be undertaken for the proposed super-structure design, including 2 to 4 alternative design options to compare the results and inform decision making. The developer must justify the design option selected. RIBA Stage 4: Updated LCA must be produced for 2 to 3 significantly different superstructure design options (based on the selected Concept Design option, as applicable to the Technical Design stage.	Superstructure LCA has been undertaken at the concept design stage
Mat 01b	Life Cycle Assessment (LCA): Substructure & hard landscaping	1	1	None	Prior to completion of the Concept Design (RIBA Stage 2) LCA must be undertaken for at least six significantly different substructure or hard landscaping design options (at least two shall be substructure and at least two shall be hard landscaping).	Sub-structure and hard landscaping LCA has been undertaken at the concept design stage

Credit	Title	Available	Targeted	Mandatory Minimum Standards	Requirement Summary	Pre-Assessment Comments
Mat 02	Construction Products: Environmental Product Declarations (EPD)	1	1	None	Specify construction products with EPD that achieve a total EPD points score of at least 20, according to the BREEAM Tables 9.8 and 9.9 An EPD compliant with BREEAM is an independently verified environmental label (i.e. ISO Type III label) according to the requirements of ISO 14025.	The contractor will be required to procure materials with sufficient EPDs to achieve the credit
Mat 03a	Pre-requisite: Construction Timber	✓	✓	Pre-requisite: Mandatory for all ratings	All timber and timber-based products used on the project is 'Legally harvested and traded timber' in accordance with the UK Government Timber Procurement Policy	The contractor will be required to procure compliant timber
Mat 03b	Enabling Sustainable Procurement	1	1	None	Prior to completion of the Concept Design, a sustainable procurement plan must be used by the design team to guide specification towards sustainable construction products which includes: • Objectives and strategic targets to guide procurement activities • A policy to procure construction products locally where possible • Procedures to check and verify effective implementation If the plan is applied to several sites or adopted at an organisational level it must also identify the risks and opportunities against social, environmental and economic issues, following BS ISO 20400:2017.	The project team will implement a Sustainable Procurement Plan prior to the specification of materials
Mat 03c	Responsible Sourcing of Construction Materials	3	2	None	Up to three credits are available where building materials are responsibly sourced in accordance with the BREEAM Table 9.10 This must cover as a minimum: • Superstructure • Internal finishes • Substructure and hard landscaping	The contractor will be required to meet at least two credits by maximising Responsible Sourcing certificates such as BES 6001
Mat 05	Durability & Resilience	1	1	None	Part 1: The building incorporates suitable durability and protection measures to prevent damage to vulnerable parts of the building and landscaping, including protection against high pedestrian traffic, internal trolley movement, external vehicular collision, vandalism Part 2: Key exposed building elements have been designed and specified to limit long and short term degradation due to environmental factors in accordance with BREEAM Table 9.14 and BS 7543: 2015	Compliant durability measures will be included in the detailed design specification

Credit	Title	Available	Targeted	Mandatory Minimum Standards	Requirement Summary	Pre-Assessment Comments
Mat 06	Material Efficiency	1	1	None	Set targets and report on opportunities and methods to optimise the use of materials for each of the following stages. • Preparation and Brief • Concept Design • Developed Design • Technical Design • Construction. Develop and record the implementation of material efficiency, see BREEAM Table 9.15, during: • Developed Design • Technical Design • Construction. Report the targets and actual material efficiencies achieved.	The architect has undertaken review at the Preparation of Brief (RIBA Stage 1) and will update at each following stage
	TOTAL	14	11			
Wst 01a	Pre-Demolition Audit	1	1	None	Prior to completion of the Concept Design, complete a pre-demolition audit of any existing buildings, structures or hard surfaces being considered for demolition. This must be used to determine whether refurbishment or reuse is feasible and, in the case of demolition, to maximise the recovery of material for subsequent high grade or value applications. The audit must cover the content and scope described in the BREEAM 2018 Technical Guidance	A Pre-Demolition Audit will be produced
Wst 01b	Construction Waste Management	4	2	1 credit for Outstanding	A BREEAM compliant Resource Management Plan (RMP) is 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 Up to three credits are available based on the amount of non-hazardous construction waste generated per 100n2 gross internal floor area (tonnes or m3) Up to one credit is available based on diversion of waste from landfill (construction and demolition waste to be reported separately, in tonnes or m3)	The contractor will be required to meet at least one credit for resource efficiency and one credit for diversion from landfill

Credit	Title	Available	Targeted	Mandatory Minimum Standards	Requirement Summary	Pre-Assessment Comments
Wst 02	Recycled and Sustainably Sourced Aggregates	1	0	None	If demolition occurs on site, to encourage the reuse of site-won material on site, complete a pre-demolition audit of any existing buildings, structures or hard surfaces in accordance with Wst 01 (above) Identify all aggregate uses and types on the project (see BREEAM Table 10.5 and 10.6) and determine the quantity in tonnes for each identified use and aggregate type. Identify the region in which the aggregate source is located and calculate the distance in kilometres travelled by all aggregates by transport type. Recycled aggregates from materials in-situ or within the same construction site (e.g. crushed concrete) gain maximum points (0 kilometres). Corresponding credits awarded as per BREEAM Table 10.4.	The use of sufficient recycled aggregate is typically not feasible, however this credit shall be further reviewed by the contractor at technical design stage
Wst 03	Operational Waste	1	1	1 credit for Excellent and above	Provide a dedicated space for the segregation and storage of operational recyclable waste generated. The space must be clearly labelled, accessible to building occupants or facilities operators, sufficiently sized, and appropriate to the building type Where the consistent generation in volume of the appropriate operational waste streams is likely to exist, e.g. packaging, food waste, additional facilities must be provided e.g. water outlet, compactor/baler	A sufficiently sized refuse store with recyclable waste storage will be provided
Wst 04	Speculative Floor and Ceiling Finishes (Offices Only)	n/a	n/a	None	Office Assessments Only: For tenanted areas: floor finishes and ceiling finishes have been installed in a show area only or the occupant has selected (or agreed to) the specified floor and ceiling finishes	n/a

Credit	Title	Available	Targeted	Mandatory Minimum Standards	Requirement Summary	Pre-Assessment Comments
Wst 05	Adaptation to Climate Change	1	1	None	Conduct a systematic risk assessment to identify the impact of expected extreme weather conditions arising from climate change on the building over its projected life cycle. The assessment covers the installation of building services and renewable systems, as well as structural and fabric resilience aspects Develop recommendations or solutions based on the climate change adaptation strategy appraisal, before or during Concept Design, that aim to mitigate the identified impact. Provide an update during Technical Design demonstrating how the recommendations or solutions proposed have been implemented where practical and cost effective	A Risk Assessment and Climate Adaptation Strategy Appraisal will be undertaken by the design team
Wst 06	Design Disassembly and Functional Adaptability	2	2	None	First Credit: By the end of Concept Design, conduct a study to explore the ease of disassembly and the functional adaptation potential of different design scenarios; develop recommendations or solutions to enable and facilitate disassembly and functional adaptation. Second Credit: In addition to the above, provide an update during Technical Design on how the recommendations have been implemented; and produce a building adaptability and disassembly guide to communicate the characteristics allowing functional adaptability and disassembly to prospective tenants.	Disassembly and Functional Adaptability Study will be undertaken by the design team During the detailed design a Building Adaptability and Disassembly Guide will be produced
	TOTAL	10	7			
LE 01a	Site Selection Previously Occupied Land	1	1	None	At least 75% of the proposed development's footprint is on an area of land which has previously been occupied	The site is located on previously occupied land
LE 01b	Site Selection: Contaminated Land	1	0	None	A contaminated land professional's site investigation, risk assessment and appraisal has deemed land within the site to be affected by contamination. The client or principal contractor confirms that remediation of the site will be carried out in accordance with the remediation strategy and its implementation plan as recommended by the contaminated land professional.	There is no known ground contamination, therefore the credit (for improving a contaminated site) cannot be achieved

Credit	Title	Available	Targeted	Mandatory Minimum Standards	Requirement Summary	Pre-Assessment Comments
LE 02a	Pre-requisite	✓	✓	Pre-requisite for any LE02 to LE05 credits to be awarded	Before any ecology credits can be awarded, the project team must select an assessment route: • Project Team Member Route – significantly less credits available • Ecologist Route – full credits available The client must confirm compliance with all relevant UK and EU legislation will be monitored	An ecologist has been appointed to undertake an early stage ecological assessment and a Preliminary Ecological Appraisal has been undertaken
LE 02b	Identifying and Understanding the Risks And Opportunities For The Project	2	2	None	Prior to the completion of the Preparation and Brief (Stage 1), an appropriate level of survey and evaluation has been carried out by an ecologist to determine the ecological baseline of the site and inform the site preparation, design and construction works. During Concept Design (Stage 2), the project team collaborate with representative stakeholders to identify the optimal ecological outcome, and solutions and measures are identified sufficiently early in the project to influence key project planning decisions in accordance with the following hierarchy: 1. Avoidance 2. Protection 3. Reduction of negative impacts 4. On site compensation and 5. Enhancement within the site, or where viable, off-site	A Preliminary Ecological Appraisal has been undertaken which includes recommendations for the protection and enhancement of site ecology The BREEAM credit criteria will be further addressed at the detailed design stage
LE 03	Managing Negative Impacts on Ecology	3	3	None	Prior to the completion of the Concept Design, roles and responsibilities for managing negative impacts on ecology are clearly defined at an early stage, and the potential impact of site preparation and construction is identified Where the above is undertaken and results in no net loss of ecological value, three credits are awarded Where the above is undertaken and results in a minor loss of ecological value, two credits are awarded Note: To award LE 03, all LE 02 credits must first be met	A Preliminary Ecological Appraisal has been undertaken which includes recommendations for the protection and enhancement of site ecology The BREEAM credit criteria will be further addressed at the detailed design stage. The site is located on previously occupied land, therefore there are no significant negative impacts

Credit	Title	Available	Targeted	Mandatory Minimum Standards	Requirement Summary	Pre-Assessment Comments
LE 04	Change and Enhancement of Ecological Value	4	2	None	One credit is awarded where measures are implemented that enhance site ecological value.Up to three additional credits are awarded on a sliding scale based on the change in ecological value as a result of the development.Note: To award LE 04, all LE 03 credits must first be met	A Preliminary Ecological Appraisal has been undertaken which includes recommendations for the protection and enhancement of site ecologyThe BREEAM credit criteria will be further addressed at the detailed design stage. The site is located on previously occupied land, therefore there is scope for improvement
LE 05	Long Term Ecology Management and Maintenance	2	2	None	The project team liaise with representative stakeholders to monitor the implementation of recommended LE 03 & LE 04 measures and develop and management and maintenance solutions. This should cover the LE05 criteria 4a to 4f detailed in the BREEAM Technical Guidance. A landscape and management plan and information on local ecological features must be provided to the occupiers upon handover. The landscape and management plan must be in accordance with BS 42020 and cover the LE05 criteria 7a to 7e detailed in the BREEAM Technical Guidance Note: To award LE 05, all LE 03 credits must first be met	A Preliminary Ecological Appraisal has been undertaken which includes recommendations for the protection and enhancement of site ecology The BREEAM credit criteria will be further addressed at the detailed design stage.
	TOTAL	13	10			
Pol 01a	Impact of Refrigerants	2	1	None	All refrigerant systems comply with the requirements of BS EN 378 The systems using refrigerants have Direct Effect Life Cycle CO2 emissions of: • Less than 1,000 kgCO2e/kW (one credit) • Less than 100 kgCO2e/kW (two credits) Note: The credits can be awarded by default if there are no systems using refrigerants	Efficient cooling is proposed which will achieve one credit. Systems capable of achieving two credits are not currently commercially viable

Credit	Title	Available	Targeted	Mandatory Minimum Standards	Requirement Summary	Pre-Assessment Comments
Pol 01b	Refrigerants Leak Detection	1	1	None	All systems are hermetically sealed or only use environmentally benign refrigerants; or Have a permanent automated refrigerant leak detection system, that is robust and tested, and capable of continuously monitoring for leaks, has an inbuilt automated diagnostic procedure, and is capable of automatically isolating and containing the remaining refrigerants Note: The credit can be awarded by default if there are no systems using refrigerants	Hermetically sealed systems and /or automated refrigerant leak detection will be included in the detailed design
Pol 02	Local Air Quality	2	2	None	Up to two credits available where all heating and hot water is supplied only powered by electricity, or where the NO_x emission requirements outlined in BREEAM Table 12.4 are met For biomass and solid fuel fired technologies, PM and VOC emissions outlined in Table 12.5 must also be met	All heating and hot water shall be powered by electricity
Pol 03a	Flood and Surface Water: Flood Resilience	2	2	None	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 OR 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 and the resilience and resistance of the development to flooding is increased sufficiently	A Flood Risk Assessment has been produced and confirms the proposed site is in Flood Zone 1 with a low risk of flooding from all sources
Pol 03b	Flood and Surface Water: Surface Water Run-Off	2	2	None	Pre-requisite: Surface water run-off design solutions must be site specific First Credit: The peak rate of run-off from the site is 30% better than the pre-developed site (for 1-year and 100-year return period events) Second Credit: The post-development run-off volume (over the development lifetime) is no greater than it was before development	A 30% reduction in Surface Water Run-Off shall be targeted

Credit	Title	Available	Targeted	Mandatory Minimum Standards	Requirement Summary	Pre-Assessment Comments
Pol 03c	Flood and Surface Water: Minimising Watercourse Pollution	1	0	None	There is no discharge from the developed site for rainfall up to 5mm SUDS and an appropriate level of pollution prevention treatment are provided in accordance with the detailed criteria 17 to 24	The civil engineer has advised it is not feasible to prevent the first 5mm of rainfall, despite the proposed use of SUDS
Pol 04	Reduction of Night Time Light Pollution	1	1	None	The external lighting strategy is in compliance with: • Table 2 (and its accompanying notes) of the ILP Guidance notes for the reduction of obtrusive light, 2011 • All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00. • Safety or security lighting provided between 23:00 and 07:00 complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP's Guidance notes. • Illuminated advertisements, where specified, are in compliance with ILP PLG 05 The Brightness of Illuminated Advertisements	External lighting will be designed to minimise light pollution
Pol 05	Reduction of Noise Pollution	1	1	None	A noise impact assessment in compliance with BS 4142: 2014 is carried out to assess the existing background noise and proposed plant noise 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.	Background noise testing and plant noise calculations will be undertaken
	TOTAL	12	10			

Credit	Title	Available	Targeted	Mandatory Minimum Standards	Requirement Summary	Pre-Assessment Comments
Inn	Innovation	10	0	None	The innovation category rewards exemplary performance and innovation that go beyond, the requirements of the credit criteria: • Man 01 Project brief and design (Simple buildings only) • Man 03 Responsible construction practices • Hea 01 Visual comfort • Hea 02 Indoor air quality • Hea 06 Security • Ene 01 Reduction of energy use and carbon emissions • Wat 01 Water consumption • Mat 01 Environmental impacts from construction products - Building life cycle assessment (LCA) • Mat 03 Responsible sourcing of construction products • Wst 01 Construction waste management • Wst 02 Use of recycled and sustainably sourced aggregates • Wst 05 Adaptation to climate change • LE 02 Identifying and understanding the risks and opportunities for the project • LE 04 Change and enhancement of ecological value • Pol 03 Flood and surface water (Simple buildings only)	The innovation category rewards exemplary performance and innovation that go beyond the requirements of the above credit criteria. None are currently considered feasible under BREEAM 2018 however will be further reviewed at the detailed design stage
	TOTAL	10	0			

BREEAM 2018 Pre-Assessment Credits and Weighted Scores:

Environmental Section	Section Weighting	Credits Available	Credits Targeted	Available Credits Targeted (%)	Weighted Score
Management	11.0%	21.0	15.0	71.4%	7.86%
Health & Wellbeing	14.0%	19.0	11.0	57.9%	8.11%
Energy	16.0%	22.0	15.0	68.2%	10.91%
Transport	10.0%	12.0	9.0	75.0%	7.50%
Water	7.0%	9.0	7.0	77.8%	5.44%
Materials	15.0%	14.0	11.0	78.6%	11.79%
Waste	6.0%	10.0	7.0	70.0%	4.20%
Land Use & Ecology	13.0%	13.0	10.0	76.9%	10.00%
Pollution	8.0%	12.0	10.0	83.3%	6.67%
Innovation	10.0%	10.0	0.0	0.0%	0.00%
TOTAL:					**72.47%**