# BREEAM Predictive Assessment

## Reading Shopping Park

Prepared for Arriva Life & Pensions UK Limited

February 2020

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| Revision | Date |
|---|---|
| Draft | 15th July 2019 |
| 2nd Draft | 2nd August 2019 |
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| Author | Signature |
|---|---|
| Charlotte Brewin BSc MSc BREEAM AP |  |
| **Checked & Authorised** | **Signature** |
| Simon Rainsford BSc MSc AIEMA |  |

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# EXECUTIVE SUMMARY

1. This BREEAM Predictive Assessment report has been prepared by Envision on behalf of Arriva Life & Pensions UK Limited to support the planning application for the redevelopment of the Reading Shopping Park.

2. The purpose of the report is to consider how the development proposals align with the internationally recognised sustainability standard, BREEAM (Building Research Establishment's Environmental Assessment Method).

3. A predictive assessment has been undertaken against the BREEAM UK New Construction 2018 standards for the proposed different building types that could form part of the redevelopment of the Reading Station Shopping Park.

4. At this very early stage of design, a predicted score of between 82% and 85% is considered possible, dependent on the building type, with all relevant mandatory requirements to achieve a BREEAM Excellent rating, as illustrated below. This is subject to change at the detailed design, and therefore it is recommended that any planning condition should be in line with the Reading Borough Council policy to achieve an Excellent rating, without reference to a specific score.

| Building Type | Potential Rating and Score |
|---|---|
| **Office** | Excellent (84.5%) |
| **Retail** | Excellent (84.9%) |
| **Gym** | Excellent (85.5%) |
| **Hotel** | Excellent (82.8%) |

# 1 INTRODUCTION

1.1 Envision has been appointed by Arriva Life & Pensions UK Limited to prepare a BREEAM Predictive Assessment in support of a planning application for the proposed redevelopment of Reading Shopping Park. The proposal is a mixed-use scheme, comprising of up to four blocks with the potential to include residential and commercial uses.

1.2 BREEAM is an assessment methodology used to recognise the adoption of best practice principles of sustainable design and construction in new commercial developments. Based on an assessment against a range of criteria, including looking at best practice principles of Management, Health &Well Being, Energy, Transport, Water, Materials, Waste, Land Use & Ecology and Pollution, a sustainability rating is awarded. The rating levels that can be achieved are indicated in the table below.

**Table 1 – BREEAM Rating Levels**

| PASS | GOOD | VERY GOOD | EXCELLENT | OUTSTANDING |
|---|---|---|---|---|
| 30%+ | 45%+ | 55%+ | 70%+ | 85%+ |
| Standard Good Practice | Intermediate Good Practice | Advanced Good Practice | Best Practice | Innovator |

1.3 BREEAM is only used to assess non-residential occupied developments and is therefore only applicable to the non-residential/commercial space of this proposed development. The proposed development site is in central Reading. Reading Borough Council's Core Policy CC2: Sustainable Design and Construction states that new major non-residential developments should achieve a BREEAM Excellent rating, where possible.

This report demonstrates how the desired BREEAM Excellent Rating would be achieved, based on a review of the proposed design and commitments made.

# 2 APPROACH TO BREEAM

2.1 The proposed development has been registered with BRE against BREEAM UK New Construction 2018. Due to the number of different building types, the formal assessment, that would be undertaken at a much later stage of design, would require separate assessments of each block and of each commercial use within that development block. Where there is more than one unit of the same development type within one block (e.g. a number of retail units situated together of the same design and construction), this assessment would be undertaken following a Shell Only, Similar Buildings approach. This would achieve one BREEAM certificate for each commercial building type within each proposed development block. (BREEAM is only relevant to commercial uses, not residential).

2.2 The majority of credits within BREEAM are tradable, meaning that there is some flexibility to how a specific target can be achieved. BREEAM also includes a number of mandatory standards, which must be met in order to achieve specific ratings. These credits are shown in the table below.

**Table 2 – Minimum Credit Criteria to Achieve a BREEAM Excellent Rating**

| BREEAM issue | Minimum Requirement for Excellent Rating |
|---|---|
| **Man 03 – Responsible Construction Practices** | One Credit (Responsible Construction Management) |
| **Man 04 – Commissioning and Handover** | One Credit (Commissioning – test schedule and responsibilities)<br>Criterion 11 (Building User Guide) |
| **Man 05 – Aftercare** | One Credit (Commissioning – implementation) |
| **Ene 01 – Reduction of $CO_2$ Emissions** | Four credits |
| **Ene 02 – Energy Monitoring** | 1 Credit (Sub-metering) |
| **Wat 01 – Water Consumption** | 1 credit |
| **Wat 02 – Water Monitoring** | Criterion 1 only (Mains Water Meter) |
| **Mat 03 – Responsible Sourcing** | Criterion 1 only (Legally and harvested timber) |
| **Wst 03 – Operational Waste Storage** | One Credit |

2.3 Following a review of the initial scheme information, a predictive assessment has been undertaken to determine which BREEAM credits are achievable given the nature of the scheme and its current level of design. The study has been based on site constraints, the review of initial design information, liaison with the design team, and on the assumption that various measures and activities can be adopted in detailed design and construction. The detailed results of this are presented in Appendix 1.

# 3 BREEAM RESULTS AND CONCLUSION

3.1 A predictive assessment has been undertaken against the BREEAM UK New Construction 2018 standards for the proposed different building types that could form part of the redevelopment of the Reading Station Shopping Park. At this very early stage of design, a predicted score of between 82% and 85% is considered feasible, dependent on the building type, with all relevant mandatory requirements to achieve a BREEAM Excellent rating, as illustrated below with full details of the predicted credits provided in Appendix 1.

3.2 This is subject to change at the detailed design, and therefore it is recommended that any planning condition should be in line with the Reading Borough Council policy to achieve an Excellent rating, without reference to a specific score.

## Figure 2 – BREEAM Predictive Score – Office

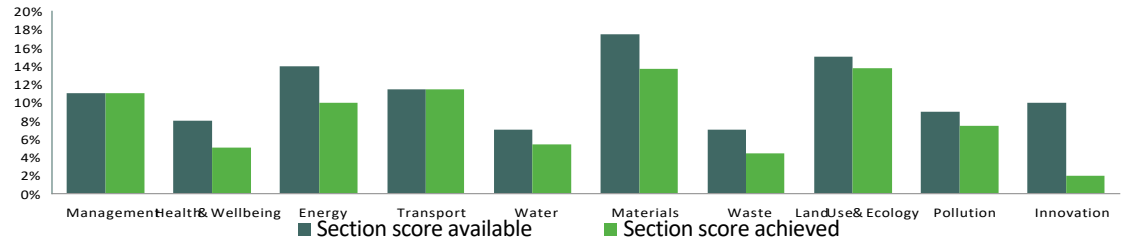
**BREEAM UK New Construction 2018 Assessment Report: Rating & Key Performance Indicators**

BREEAM® UK delivered by bre

### Overall Building Performance

| | |
|---|---|
| Building name | Reading Station Shopping Park - Office |
| BREEAM rating | Excellent |
| Total Score | 84.50% |
| Min. standards level achieved | Excellent level |

### Building Performance by Environment Section




## Figure 3 – BREEAM Predictive Score - Retail

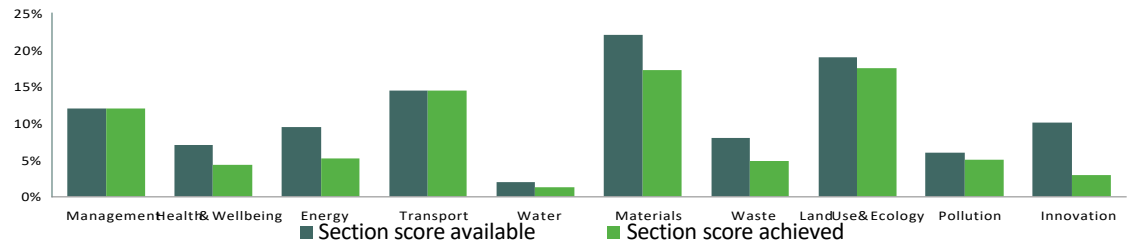
**BREEAM UK New Construction 2018 Assessment Report: Rating & Key Performance Indicators**

BREEAM® UK delivered by bre

### Overall Building Performance

| | |
|---|---|
| Building name | Reading Station Shopping Park - Retail |
| BREEAM rating | Excellent |
| Total Score | 84.90% |
| Min. standards level achieved | Excellent level |

### Building Performance by Environment Section



## Figure 4 – BREEAM Predictive Score – Gym

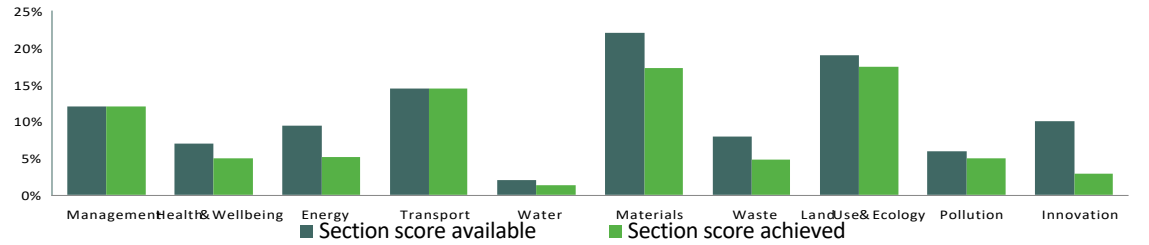
**BREEAM UK New Construction 2018 Assessment Report: Rating & Key Performance Indicators**

BREEAM® UK delivered by bre

### Overall Building Performance

| | |
|---|---|
| Building name | Reading Station Shopping Park - Gym |
| BREEAM rating | Excellent *Note: the BREEAM rating has been pegged back to the minimum standards level achieved* |
| Total Score | 85.50% |
| Min. standards level achieved | Excellent level |

### Building Performance by Environment Section




## Figure 5 – BREEAM Predictive Score - Hotel

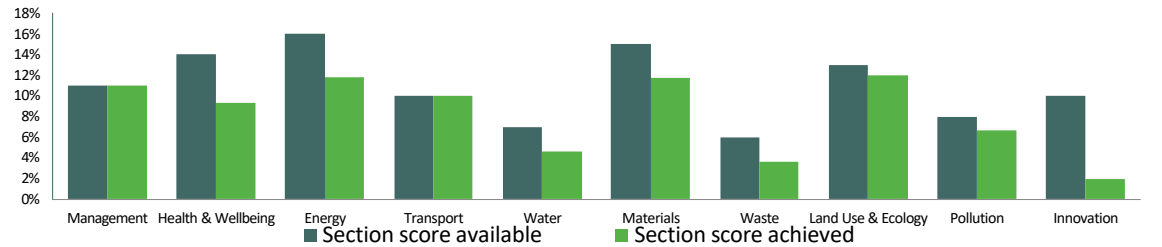
**BREEAM UK New Construction 2018 Assessment Report: Rating & Key Performance Indicators**

BREEAM® UK delivered by bre

### Overall Building Performance

| | |
|---|---|
| Building name | Reading Station Shopping Park - Hotel |
| BREEAM rating | Excellent |
| Total Score | 82.80% |
| Min. standards level achieved | Excellent level |

### Building Performance by Environment Section



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# APPENDIX 1 - BREEAM PREDICTIVE ASSESSMENT: TARGETED CREDITS AND COMMENTS

* = Minimum Requirement to achieve Excellent
Office and Hotel assessments assumed to be carried out on a shell and core and fully fitted basis respectively.
Retail and Gym assessments assumed to be carried out on a shell only basis.

| Credit Title | Predicted Credits | | | | Comments |
|---|---|---|---|---|---|
| | Office | Retail | Gym | Hotel | |
| **Management** | | | | | |
| **Man 01** Project Delivery Planning | 1 | 1 | 1 | 1 | Project delivery stakeholders (client, building occupier (if known) and principal contractor or construction project manager) involved from RIBA Stage 2. |
| **Man 01** Stakeholder consultation (interested parties) | 1 | 1 | 1 | 1 | Consultation carried out with future FM, representatives from local community and existing partnerships working on similar buildings, with demonstration of how contributions have influenced the design, and feedback has been given. |
| **Man 01** BREEAM Advisory Professional (Concept Design) | 1 | 1 | 1 | 1 | BREEAM Advisory Professional (Envision) appointed at RIBA Stage 1 and sets the performance target. |
| **Man 01** BREEAM Advisory Professional (Developed Design) | 1 | 1 | 1 | 1 | The BREEAM Advisory Professional (Envision) continues to monitor the progress to achieving 'Excellent' during the design process. |
| **Man 02** Elemental Life Cycle Costing | 2 | 2 | 2 | 2 | An elemental Life Cycle Costing (LCC) assessment has been carried out at RIBA Stage 2 to consider the operational and maintenance costs (i.e. whole life cycle costs) of the proposed outline design of the entire asset, considering options to minimise life cycle costs and maximise critical value, and demonstrate how assessment has influenced design. |
| **Man 02** Component level LCC options appraisal | 1 | 1 | 1 | 1 | Commitment has been made to carrying out a component Life Cycle Costing (LCC) assessment at RIBA Stage 4 for each block, to consider the operational and maintenance costs (i.e. whole life cycle costs) of the specific components of the design (the building envelope, services, finishes and external spaces, where |

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| | | | | | present) considering options to minimise life cycle costs and maximise critical value, and demonstrate how assessment has influenced design. |
| **Man 02** Capital cost reporting | 1 | 1 | 1 | 1 | Capital cost of proposed building (£/$m^2$) to be reported with BREEAM submission |
| **Man 03** Legally harvested and traded timber | PreReq | PreReq | PreReq | PreReq | All site timber to be sourced in accordance with UK Gov's Timber Procurement Policy. |
| **Man 03** Environmental management | 1 | 1 | 1 | 1 | Principal contractor operates an ISO 14001 certified Environmental Management System (EMS). |
| **Man 03** BREEAM Advisory Professional (site) | 1 | 1 | 1 | 1 | BREEAM Advisory Professional appointed to monitor achievement of Excellent target through construction stage. |
| **Man 03** Responsible construction management | 3* | 3* | 3* | 3* | (Minimum requirement 1 credit for BREEAM Excellent)<br>Set plans and implement actions to minimise identified risks during construction. Registering site with Considerate Constructor's Scheme (CCS) and achieving score 40+ would help to gain credits (including exemplary level credit) |
| **Man 03** Monitoring of construction site utility consumption | 1 | 1 | 1 | 1 | Principal Contractor to monitor energy and water consumption on site. |
| **Man 03** Monitoring transport of construction materials and waste | 1 | 1 | 1 | 1 | Principal Contractor to monitor fuel consumption of transport of materials and waste to/from site. |
| **Man 04** Commissioning - testing schedule and responsibilities | 1* | N/A | N/A | 1* | Commissioning of all building services and control systems, including BMS, in accordance with a prepared schedule, in line with relevant CIBSE/BSRIA guidelines. Appointed team member to monitor. Commissioning included in overall project programme. (Credit only applicable to shell and core or fully fitted assessments) |
| **Man 04** Commissioning – Design and Preparation | 1 | N/A | N/A | 1 | Appointed commissioning manager involved from design stage to undertake design reviews. For complex building services, must be a specialist commissioning manager. (Credit only applicable to shell and core or fully fitted assessments) |

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| **Man 04** Testing and inspecting building fabric | 1 | 1 | 1 | 1 | Complete post construction testing and inspecting to quality assure the integrity of building fabric by a suitably qualified professional and rectify any defects identified. |
| **Man 04** Handover | 1* | N/A | N/A | 1* | (Minimum requirement for BREEAM Excellent)<br>Production of two Building User Guides (one for FM and one for occupiers) and committed schedule of training for building occupiers (Credit only applicable to shell and core or fully fitted assessments). |
| **Man 05** Aftercare support | N/A | N/A | N/A | 1 | Monitor energy and water consumption data for first 12 months of occupation and providing aftercare support to building occupiers (Credit only applicable to fully fitted assessments where end user is known) |
| **Man 05** Commissioning – implementation | N/A | N/A | N/A | 1* | (Minimum requirement for BREEAM Excellent)<br>Appoint specialist commissioning manager to undertake seasonal commissioning of complex systems. (Credit only applicable to fully fitted assessments where end user is known) |
| **Man 05** Post occupancy evaluation | N/A | N/A | N/A | 1 | Commitment to a third party carry out a post occupancy evaluation, including committed funds and responsibility. (Credit only applicable to fully fitted assessments where end user is known) |
| **Health and Wellbeing** | | | | | |
| **Hea 01** Control of glare from sunlight | N/A | N/A | N/A | 1 | Glare control strategy designs out potential glare in relevant building areas where risk identified. (Credit only applicable to fully fitted assessments) |
| **Hea 01** Daylighting | 0 | 0 | 0 | 0 | The following daylighting criteria for relevant building areas (generally areas that are occupied for more than 30mins) are met:-<br>Occupied areas - 2% daylight factor for 80% of the occupied floor area, uniformity ratio of 0.3 and daylight illuminance of at least 300 lux for 2000 hours per year<br>Sales areas in retail – 35% of area achieves point daylight factor of 2% or more and at least 200 lux for 2650 hours per year |

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| | | | | | Credits generally considered very onerous. Whilst access to good levels of daylighting is an aspiration for this development, the credits are not assumed at present. |
| **Hea 01** View out | 1 | 0 | 0 | 0 | In relevant occupied areas (where workstations), 95% of floor area within 8m of external wall with window, and window size >20% of surrounding wall area. Considered feasible to achieve for offices but potentially restrictions on locations of back of house areas may restrict feasibility to achieve for other uses. |
| **Hea 01** Internal and external lighting levels, zoning and control | 1 | 1 | 1 | 1 | Internal lighting designed in accordance with SLL Code for Lighting and other appropriate standards, as well as zoned to allow local occupant control. (Internal lighting requirements only relevant to fully fitted or shell and core assessments.) External lighting designed in accordance with BS5489 and BS EN 12464-2:2-14. |
| **Hea 02** Indoor air quality (IAQ) plan | Pre-Req | N/A | N/A | Pre-Req | Site specific Indoor Air Quality (IAQ) plan produced and implemented. The plan must be produced no later than the end of RIBA Stage 2 (Credit only applicable to shell and core or fully fitted assessments) |
| **Hea 02** Ventilation | 1 | N/A | N/A | 1 | Designed to minimise the indoor concentration and recirculation of pollutant in the building. Provide fresh air into the building in accordance with the criteria of the relevant standard for ventilation (Credit only applicable to shell and core or fully fitted assessments) |
| **Hea 02** Emissions from construction products | 1 | N/A | N/A | 1 | Three out of the five product types used in construction/finishes meet the VOC / formaldehyde emission limits and testing requirements. All wood-based products used for internal fixtures and fittings must be tested and classified as formaldehyde E1 class as a minimum. (Credit only applicable to shell and core or fully fitted assessments) |
| **Hea 02** Post construction indoor air quality measurement | 1 | N/A | N/A | 1 | The formaldehyde concentration in indoor air is measured post construction and does not exceed 100ug/m3 averaged over 30 minutes. Where levels exceed these will be rectified with measures implemented. (Credit only applicable to shell and core or fully fitted assessments) |

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| **Hea 04** Thermal modelling | 1 | N/A | N/A | 1 | Thermal modelling in accordance with CIBSE AM11 inc full dynamic thermal analysis, winter temp ranges in accordance with CIBSE Guide A, and building designed to limit risk of overheating. (Credit only applicable to shell and core or fully fitted assessments) |
| **Hea 04** Design for future thermal comfort | 1 | N/A | N/A | 1 | Thermal modelling to include projected climate change environment. (Credit only applicable to shell and core or fully fitted assessments) |
| **Hea 04** Thermal zoning and controls | 1 | N/A | N/A | 1 | Provision of appropriate zoning strategy for heating/cooling system in line with thermal comfort modelling results (Credit only applicable to shell and core or fully fitted assessments) |
| **Hea 05** Acoustic performance | 1 | 1 | 1 | 1 | The noise chapter of the Environmental Statement confirms that sound insulation levels would be specified during detailed design. The following assumptions have been made for each building type:-<br>Office – Up to 3 credits available for meeting relevant acoustic performance standards for sound insulation, indoor ambient noise levels and sound absorption/reverberation times. Experience on other schemes indicates achieving all 3 credits is very onerous and significantly impacts build costs. Achievement of 1 credit considered reasonable.<br>Retail and Gym – 1 credit for meeting relevant acoustic performance standards for indoor ambient noise levels.<br>Hotel - Up to 4 credits available based on achieving +/- 3, 5 or 8dB airborne/impact sound insulation. Experience on other schemes indicates achieving all 4 credits is very onerous and significantly impacts build costs. Achievement of 1 credit considered reasonable.<br>All performance standards demonstrated through a programme of acoustic measures set out by a compliant test body in accordance with the ANC Good Practice Guide. |

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| **Hea 06** Security of site and building | 1 | 1 | 1 | 1 | A Security Needs Assessment has been carried out at RIBA Stage 2, with consultation with the local police. This report includes a number of recommendations which would be incorporated into the detailed designs. |
| **Hea 07** Safe access | 1 | 1 | 1 | 1 | Dedicated safe cycle and pedestrian access provision within the site to building entrances, and vehicle delivery and drop off areas not accessed through general parking areas and do not cross pedestrian/cycle paths. |
| **Hea 07** Outside space | 1 | 1 | 1 | 1 | Provision of outside landscaped space as an external amenity area, including appropriate seating. |
| **Energy** | | | | | |
| **Ene 01** Energy performance | 4* | 4* | 4* | 4* | Minimum requirement for Excellent rating - achieve 4 credits, based on results of energy modelling. This is the assumed minimum credits feasible, and is in line with the draft BRUKL prepared, results of which are presented in the energy statement. Shell only assessments only consider actual vs notional primary energy, with greater emphasis on the building's thermal fabric and air tightness. Shell only doesn't consider the energy efficiency of building services or renewable energy, whereas shell and core and fully fitted assessments compare actual vs notional for all 3 metrics. |
| **Ene 01** Prediction of operational performance | 4 | N/A | N/A | 4 | Undertake additional energy modelling during the design and post-construction stage to generate predicted operational energy consumption figures. Requires minimum 7 different energy modelling scenarios, including weather data. Report predicted energy consumption targets by end use, design assumptions and input data.<br>Carry out a risk assessment to highlight any significant design, technical, and process risks that should be monitored and managed throughout the construction and commissioning process.<br>(Credits only applicable to shell and core or fully fitted assessments) |
| **Ene 02** Sub-metering of major energy consuming systems | 1* | N/A | N/A | 1* | All major energy consuming systems separately metered and monitored using a BMS (or with pulsed output to enable connection to future BMS). Minimum |

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| | | | | | requirement to achieve Excellent. (Credit only applicable to shell and core or fully fitted assessments) |
| **Ene 02** Sub-metering of high energy load and tenancy areas | 1 | N/A | N/A | 1 | Separate sub-metering of tenanted areas or relevant function areas (Credit only applicable to shell and core or fully fitted assessments) |
| **Ene 03** External lighting | 1 | 1 | 1 | 1 | Installation of energy-efficient light fittings and relevant daylight controls for external lighting. |
| **Ene 04** Passive design analysis | 1 | 1 | 1 | 1 | The early MEP design advice and energy statement includes passive design analysis of the proposed development. Thermal comfort modelling, to achieve credit Hea 04, would be undertaken prior to the reserved matters application for each development block and therefore before the end of at RIBA Stage 2. The detailed design would incorporates measures set out in the energy statement to reduce energy demand. |
| **Ene 04** Free cooling | 0 | 0 | 0 | 0 | Include a free cooling analysis in passive design analysis and identify opportunities to implement free cooling solutions. Generally considered onerous requirement and therefore assumed not feasible for this development. |
| **Ene 04** Low zero carbon feasibility study | 1 | 1 | 1 | 1 | The energy statement includes an initial appraisal of low and zero carbon (LZC) options for the development. This would be developed further prior to the reserved matters application for each development block and therefore before the end of at RIBA Stage 2. The design would then incorporate the recommended LZC technology. |
| **Ene 06** Energy efficient transportation systems | 2 | N/A | N/A | 2 | Analysis of lift transportation demand and usage patterns for the building and calculate the energy consumption in accordance with BS EN ISO 25745 Part 2 or 3. Specify three energy efficient features for each lift – standby condition, lift car lighting of >70 luminaire lumens per circuit Watt, drive controller capable of variable speed and regenerative drives. (Credit only applicable to shell and core or fully fitted assessments) |

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| **Ene 08** Energy efficient equipment | 2 | N/A | N/A | 2 | Identify the building's unregulated energy consuming loads and the systems/processes that use a significant proportion of the unregulated energy. Demonstrate reduction in unregulated consumption with energy efficient measures. (Credit only applicable to shell and core or fully fitted assessments) |
| **Transport** | | | | | |
| **Tra 01** Transport Assessment and Travel Plan | 2 | 2 | 2 | 2 | The Transport Statement and Travel Plan prepared by Cole Easdon Consultants (dated February 2020) covers all BREEAM requirements (including reporting on BRE accessibility index). |
| **Tra 02** Sustainable Transport Measures | 10 | 10 | 10 | 10 | Credits determined based on sustainable transport features of the site and range of sustainable transport measures implemented as part of the project. Tra 01 credit must also be achieved.<br>Review of site confirms good public transport links and close proximity to local amenities, achieving 4 credits.<br>Further credits assumed feasible for:-<br>- Provision of new local amenity (e.g. cash point, gym)<br>- Cycle storage and associated changing facilities<br>- For offices/gym/hotel – 1 space for every 20 staff plus showers and lockers<br>- For retail – 4 spaces in total<br>- Electric car parking spaces (3kW charging points for 10% of carparking)<br>- Public transport information system, including signposting<br>- Significant improvements to local cycling and pedestrian network |
| **Water** | | | | | |
| **Wat 01** Water consumption | 3* | N/A | N/A | 3“ | Use the BREEAM Wat 01 calculator to assess the efficiency of the domestic water-consuming components. Assume 3 credits for a 40% improvement over expected. (Credit only applicable to shell and core or fully fitted assessments)<br>(1 credit required, where applicable, as minimum for BREEAM Excellent) |

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| **Wat 02** Water monitoring | 1* | 1* | 1* | 1* | Based on specification of water meter with pulsed output on mains water supply to each building. (Water meter on mains water supply to each building, mandatory for BREEAM Excellent). |
| **Wat 03** Leak detection system | 1 | 0 | 0 | 1 | Provision of leak detection system capable of detecting major water leak on mains water supply within building and between building and utilities water meter. Requirements considered too onerous for shell only assessments. |
| **Wat 03** Flow control devices | 1 | N/A | N/A | 0 | Installation of flow control devices in the WCs/changing areas. For hotels, this requirement is for every ensuite WC and is very onerous therefore not targeted. (Credit only applicable to shell and core or fully fitted assessments.) |
| **Wat 04** Water efficient equipment | 1 | 1 | 1 | 1 | Identify water demands for the development and ensure that unregulated water demands are minimised (e.g. water efficient irrigation of external landscaping). |
| **Materials** | | | | | |
| **Mat 01** Superstructure | 4 | 4 | 4 | 4 | A Lifecycle Assessment (LCA) of superstructure and substructure design options (using 'e-Tool') has been carried out at RIBA Stage 2, comparing against BREEAM benchmarks. This indicates that 4 credits are achievable for Mat 01. To maximise benefit and inform design options appraisals, this has been commenced for whole development at masterplanning stage, with further appraisals to be carried out at in preparation of Reserved Matters design for each block. The initial results indicate that 4 credits are achievable for Mat 01. Further LCA options appraisals and comparisons with other LCA benchmarks to be completed during RIBA Stage 4 and submit updated results. |
| **Mat 01** Substructure and hard landscaping | 1 | 1 | 1 | 1 | Linking with above, the LCA includes options appraisal of different hard landscaping design options. This indicates 1 credit is achievable for Mat 01. |
| **Mat 02** Specification of products with a recognised environmental product declaration (EPD) | 1 | 1 | 1 | 1 | Specification of main construction materials that achieve Environmental Performance Declaration (EPD) certification |
| **Mat 03** Legally harvested and traded timber | Pre-req* | Pre-req* | Pre-req* | Pre-req* | All timber products to be legally sourced. (Minimum requirement for Excellent). |

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| **Mat 03** Sustainable procurement plan | 1 | 1 | 1 | 1 | A sustainable procurement plan has been developed by the design team to guide specification towards sustainable construction products, following the process set out in BS ISO 20400:2017. |
| **Mat 03** Responsible sourcing of materials | 3 | 3 | 3 | 3 | Commitment to procure high proportion of construction materials from 'responsible sources' (inc suppliers with ISO14001/BES 6001 certification). |
| **Mat 05** Designing for durability and resilience | 1 | 1 | 1 | 1 | A commitment has been made to undertaking a resilience and durability study at detailed design, to demonstrate protection of 'exposed' elements of the building and landscape, due to both 'wear and tear' and exposure to harsh climatic conditions. |
| **Mat 06** Material efficiency | 1 | 1 | 1 | 1 | A materials workshop was held during the development of the masterplan, with development of a material efficiency strategy to set a framework to guide consideration of material efficiency throughout the design and construction. Further workshops would be held at each RIBA stage to consider opportunities to reduce/optimise materials in line with this material efficiency strategy. |
| **Waste** | | | | | |
| **Wst 01** Pre demolition audit | 1 | 1 | 1 | 1 | Commitment has been made to ensure a pre-demolition audit of any existing buildings, structures or hard surfaces will be undertaken prior to demolition. |
| **Wst 01** Construction resource efficiency | 2 | 2 | 2 | 2 | A Resource Management Plan to be developed (equivalent to a Site Waste Management Plan), with target to reduce waste to <7.5m3 (or 6.5tonnes) of construction waste generated per 100m2 GIFA. |
| **Wst 01** Diversion of resources from landfill | 1 | 1 | 1 | 1 | Construction Waste Targets set/achieved:-<br>80% by volume or 90% by tonnage of demolition waste diverted from landfill.<br>70% by volume or 80% by tonnage of non-hazardous construction waste diverted from landfill. |
| **Wst 02** Project sustainable aggregate points | 1 | 1 | 1 | 1 | Credit is achieved where all sufficient points are achieved based on use of sustainable aggregate (i.e. reused/recycled/locally sourced). It is often awarded where demolition on-site and reuse of crushed materials in situ, and therefore is |

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| | | | | | considered feasible for this development. Would need to be reviewed prior to demolition. |
| **Wst 03** Operational waste | 1* | 1* | 1* | 1* | A waste management strategy is proposed in principle within the Design and Access Statement, with provision of a dedicated central space for storage of recyclable waste. Further details of this would be developed at detailed design, ensuring the space is clearly labelled and accessible to building occupants/facilities operators. The size would be determined by floor area of commercial use:- general $2m^2$ per $1000m^2$, up to maximum $10m^2$, plus additional $2m^2$ if catering facilities. |
| **Wst 04** Speculative finishes | 1 | N/A | N/A | N/A | For speculative offices, no floor or ceiling finishes installed until tenant known and then installed to tenant specification (Credit only applicable to offices) |
| **Wst 05** Adaptation to climate change | 0 | 0 | 0 | 0 | Undertake a climate change adaptation strategy appraisal during Concept Design (i.e. risk assessment to identify impact of expected extreme weather conditions arising from climate change on the building over its life cycle). This has not yet been completed therefore credits not assumed. May be feasible to consider during preparation of reserved matters applications. Would need to incorporate recommendations in detailed design. |
| **Wst 06** Design for disassembly and functional adaptability | 0 | 0 | 0 | 0 | Carry out a study to explore the ease of disassembly and functional adaptation of design options by end of Concept Design. This has not yet been completed therefore credits not assumed. May be feasible to consider during preparation of Reserved Matters design for each block. |
| **Land Use and Ecology** | | | | | |
| **LE 01** Previously occupied land | 1 | 1 | 1 | 1 | Development on previously occupied land. |
| **LE 01** Contaminated land | 0 | 0 | 0 | 0 | Second credit only achieved if site found to be contaminated and implement appropriate remediation strategy – not relevant to this site. |

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| **LE 02** Survey and evaluation | 1 | 1 | 1 | 1 | An appropriate individual is appointed at an early stage to survey and evaluate the ecological baseline of the site and the capability of enhancement. The EcIA appended to the ES presents the findings of the initial survey and evaluation. |
| **LE 02** Determining the ecological outcomes of the site | 1 | 1 | 1 | 1 | Consider the ecological outcome for the site following the hierarchy of action and liaising with the representative stakeholders and project team. Further work is required during the detailed design, building on the existing EcIA, to ensure this credit is achievable. |
| **LE 03** Planning, liaison, implementation and data | 1 | 1 | 1 | 1 | Roles and responsibilities to be clearly defined and site preparation and construction works planned at an early stage to optimise benefits and outputs. This will include following the recommendations in the EcIA regarding timing of demolition works. |
| **LE 03** Managing negative impacts of the project | 2 | 2 | 2 | 2 | Negative impacts form site preparation and construction works have been managed according to the hierarchy and either no overall loss of ecological value occurred (achieving 2 credits) OR the loss of ecological value has been limited as far as possible (achieving 1 credit). Assumed feasible to achieve 2 credits following the recommendations in the EcIA regarding timing of demolition works, and with proposed ecological enhancements through landscaping strategy. |
| **LE 04** Liaison, implementation and data collection | 1 | 1 | 1 | 1 | Through liaison with relevant stakeholders, solutions and measures are implemented in a way that enhances ecological value on site, or where not feasible, off site within the zone of influence. Further work is required during the detailed design, building on the existing EcIA, to ensure this credit is achievable. |
| **LE 04** Enhancement of ecology | 3 | 3 | 3 | 3 | Up to 3 credits awarded based on calculation of the change in the ecological value occurring as a result of the project. Will need to be reviewed during detailed design but assume a net gain in ecological value through landscaping strategy. |
| **LE 05** Planning, liaison, data, monitoring and review management and maintenance | 1 | 1 | 1 | 1 | Project team liaise with relevant stakeholders on solutions and measures to monitor and report on the ecological outcomes and successes form the project. Link with monitoring commitments made in EcIA. |

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| **LE 05** Landscape and ecology management plan development | 1 | 1 | 1 | 1 | Landscape and ecology management plan to be developed in accordance with BS 42020:2013 covering minimum five years after project completion. |
| **Pollution** | | | | | |
| **Pol 01** Impact of refrigerants | 2 | N/A | N/A | 2 | 2 of 3 credits feasible based on specification of cooling systems use refrigerants with DELC $CO_2$ of <1000kg$CO_{2e}$/kW cooling/heating capacity, with leak detection/containment.<br>(Credit only applicable to shell and core or fully fitted assessments) |
| **Pol 02** $NO_x$ emissions | 2 | N/A | N/A | 2 | 2 credits for all heating and hot water supplied by non-combustible systems (i.e. electric supply) or very low NOx emissions (e.g. <24mg/kWh for conventional gas boiler). Will be dependent on energy strategy.<br>(Credit only applicable to shell and core or fully fitted assessments) |
| **Pol 03** Flood resilience | 1 | 1 | 1 | 1 | The FRA prepared by Simpson TWS (dated 24th Jan 2020) confirms the majority of the site is located in Flood Zone 2 / 3a but not in the functional floodplain and recommends the building floor levels have been set in line with the hierarchy approach in BS8533:2017 'Assessing and managing flood risk in development', therefore 1 of 2 credits are achievable. |
| **Pol 03** Surface water run-off - Rate | 1 | 1 | 1 | 1 | The FRA prepared by Simpson TWS (dated 24th Jan 2020) confirms the drainage measures proposed to achieve a reduction in peak rate of run-off from site post development compared to pre-development (including allowance for climate change), for 1-year and 100-year return period events. This confirms the surface water runoff rate has been restricted back to near greenfield runoff rates and is around a 160% reduction for the 1-year and circa 180% for the 100-year return period in comparison to pre-development rates. |
| **Pol 03** Surface water run-off - Volume | 1 | 1 | 1 | 1 | The FRA prepared by Simpson TWS (dated 24th Jan 2020) confirms flooding will not occur in event of local drainage system failure, and post development run-off volume no greater that pre-development, for a 100-year 6-hour event, including allowance for climate change. |

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| **Pol 03** Minimising watercourse pollution | 1 | 1 | 1 | 1 | No discharge from developed site for rainfall up to 5mm. Specification of suitable SUDs systems, including water pollution prevention measures where relevant. Generally only feasible where infiltration possible. As infiltration is considered not feasible, it is more difficult to comply with these requirements. However the SuDS systems proposed green roofs and permeable paving is likely to intercept the first 5mm of rainfall. Further to this, the levels of treatment which the proposed SuDS would provide would equal and better the corresponding values (as demonstrated in the FRA under water quality heading in Section 9). Therefore, in the absent of infiltration methods, the measures proposed would ensure the quality of discharged surface water runoff is to an acceptable level in line with the CIRIA Report SuDS Manual C753. |
| **Pol 04** Reduction of night time light pollution | 1 | 1 | 1 | 1 | External lighting designed in compliance with Table 1 and accompanying notes of ILE Guidance Note for reduction of obtrusive light.<br>All non-safety/security lighting automatically switched off between 2300hrs and 0700hrs.<br>Safety and security lighting complies with lower levels in ILE guidance when operating between 2300hrs and 0700hrs.<br>Illuminated advertisements, where specified, must be designed in compliance with ILP PLG 05 The Brightness of Illuminated Advertisements. |
| **Pol 05** Reduction of noise pollution | 1 | N/A | N/A | 1 | A noise impact assessment has been undertaken as part of the EIA (chapter 8 of the Environmental Statement). However due to the early stage of design development, it is not possible to fully quantify the building services noise impact. At detailed design, a further assessment would be undertaken, with recommendations to ensure the noise levels of proposed site/building are no greater than +5db during the day and +3dB at night compared to background noise levels. (Credit only applicable to shell and core or fully fitted assessments) |