BREEAM MULTI RESIDENTIAL (NEW CONSTRUCTION 2011)

PRE-ASSESSMENT REPORT

STUDENT HOUSING,
BOUNDARY LANE,
MANCHESTER

JULY 2011

REF: 2011-079-001A

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BREEAM Multi Residential (New Construction 2011): Pre-Assessment Report

CROSSLANE STUDENT HOUSING

BREEAM MULTI RESIDENTIAL (NEW CONSTRUCTION 2011)

STUDENT HOUSING, BOUNDARY LANE, MANCHESTER

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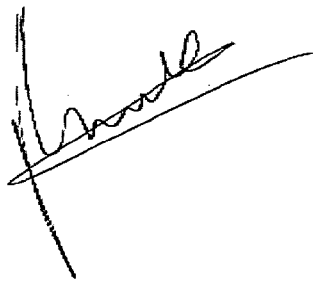
Authorised for and on behalf NJL Consulting LLP



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2. METHODOLOGY

The BREEAM Pre-Assessment is based on location and plan drawings of the development proposals, information provided by scheme architects SW Foulkes Ltd and a review of the site and surrounding areas.

Assumptions

Note that a number of assumptions have been made within this initial assessment which will require confirmation by means of further technical input during the formal Design Stage Assessment.

This development is currently at initial conceptual design stage and hence there remains flexibility in approach to construction and specification. This necessitates a number of assumptions in order to complete the BREAM Pre-Assessment. These are stated in the *Notes* column of the BREEAM Pre-Assessment report in *Appendix A*.

1. INTRODUCTION

BREEAM (Building Research Establishment's Environmental Assessment Method) is the world's leading and most widely used environmental assessment method for buildings. It sets the standard for best practice in sustainable design and has become the de facto measure used to describe a building's environmental performance.

Credits are awarded in ten categories according to performance. These credits are then added together to produce a single overall score on a scale of Pass, Good, Very Good, Excellent and Outstanding.

This BREEAM Pre-Assessment report has been prepared on behalf of Crosslane Student Housing, by an independent, qualified BREEAM Assessor for the proposed student accommodation development at Boundary Lane, Manchester.

The purpose of this initial report is to evaluate the potential rating achievable under a formal BREEAM assessment and demonstrate a commitment to the principles of good construction, design and sustainability. In line with policy requirements of Manchester City Council, this report provides a clear and reasoned statement that the development proposals will be designed to meet the BREAM 'Very Good' sustainable building criteria.

The version of the BREEAM this site has been assessed against is the BREEAM New Construction (2011) technical guidance.

Appendix A

BREEAM Multi Residential (New Construction 2011): Pre-Assessment Report

3. SUSTAINABILITY PERFORMANCE

Following a review of the information provided, it is demonstrated in the Pre-Assessment report that the development will, in principle, meet all mandatory credit requirements of the BREEAM and achieve 'Very Good rating under the assessment.

BREEAM 'Very Good standard developments must achieve mandatory minimum levels of performance, in excess of Building Regulation requirements, across issues including specific requirements relating to:

- Procurement and Commissioning;
- High frequency lighting ballasts;
- Prevention of microbial contamination;
- Sub-metering of energy uses;
- Water efficiency and monitoring;
- Water metering;
- Responsible sourcing of materials; and
- Mitigation of ecological impact

BREEAM Rating and Score

This report demonstrates that the proposed Student Housing development achieves the BREEAM New Construction (2011) 'Very Good' target with a score of 60.69% (N.B. minimum BREEAM 'Very Good' score = 55%).

Specific details of sustainability performance at the site are provided in the Pre-Assessment reports appended to this document.

Building Performance by Key Environmental Performance Indicator

Energy (consumption/production)	Life cycle stage	Measurement	Intensity	Units	Total	Units
Building operation [1]	Use	Modelled	800.00	kWh/m²/yr	4465120	kWh/yr
Energy production [2]	Use	Modelled	0.00	kWh/m²/yr	0	kWh/yr
Construction process [3]	INA	INA	INA	INA	INA	INA
Transport [4]	INA	INA	INA	INA	INA	INA
Greenhouse Gas Emissions						
Building operation [1]	Use	Modelled	8.00	$kgCO_2eq/m^2/yr$	44,651	$kgCO_2eq/yr$
Embodied [5]	Cradle-to-grave	Measured	INA	$kgCO_2eq/m^2$	INA	$kgCO_2eq$
		Proportion of applicable main building elements that data reported covers				INA
Construction process [3]	INA	INA	INA	INA	INA	INA
Transport [4]	INA	INA	INA	INA	INA	INA
Direct GHG emissions - Refrigerants [6]	Use	Modelled	0.00	$KgCO_2eq/kW_{cool}$	0	$KgCO_2eq$
Emissions to outdoor air, soil and water						
Nitrogen Oxides (NO_x) [7]	Use	Measured	101.00	mg/kWh	0.56	kg/yr
Use of freshwater resource						
Building operation [8]	Use	Modelled	INA	m3/person/yr	INA	m3/yr
Construction process [9]	INA	INA	INA	INA	INA	INA
Construction waste and recovery						
Construction waste [10]	Construction	Target	13.00	m3/100m2	72,558	m3
Construction waste diverted from landfill [10]	Construction	Target	70.00%	%	50,791	m3
Demolition waste diverted from landfill [11]	Construction	Target	80.00%	%	INA	INA
Demolition waste to disposal [11]	Construction	Target	20.00%	%	INA	INA
Material for re-use [12]	Construction	Target	0.00	m3/100m2	0	m3
Material for recycling [12]	Construction	Target	0.00	m3/100m2	0	m3
Material for energy recovery [12]	Construction	Target	0.00	m3/100m2	0	m3
Hazardous waste to disposal [12]	Construction	Target	0.0000	m3/100m2	0.00	m3
Sourcing of materials						
Materials responsibly sourced [13]	Construction	Measured	25.00%	%	-	-
Thermal comfort						
Time out of range of reference temperature [14]	Use	Modelled	INA	%	INA	INA
Indoor Air Quality						
Formaldehyde concentration level [7]	INA	INA	-	INA	INA	INA
Total volatile organic compound concentration [7]	INA	INA	INA	INA	INA	INA

Notes

1 Modelled using approved software compliant with the UK's National Calculation Method which in turn is compliant with Article 3 of The Energy Performance of Buildings Directive (EPBD) 2002/91/EC. Modelling includes building energy consumption resulting from the specification of a 'controlled', 'fixed building service' (as defined in Approved Document L2A, 2010).

2 The reported impact includes technologies that produce energy (on-site and/or near-site) as defined by Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.

3 The reported impact includes energy consumption from construction plant, equipment and site accommodation. This KPI is not assessed/reported at the design stage of assessment/certification.

4 The reported impact covers transport of the construction materials that make-up the main building elements and ground works and landscaping materials (from the factory gate to the site) and construction waste (from the construction gate to waste disposal processing / recovery centre gate). Main building elements are defined in the BREEAM 2011 New Construction Technical Guide (SD5073). This KPI is not assessed/reported at the design stage of assessment/certification.

5 The reported impact covers the construction materials that make-up the main building elements (over a 60 year study period). Main building elements are defined in the BREEAM 2011 New Construction Technical Guide (SD5073). The data is quantified using BRE's Environmental Profiles Methodology. The Environmental Profiles Methodology has been peer reviewed to comply with BS ISO 14040 and represents the Product Category Rules for BRE Global's environmental labelling scheme (EPD - ISO 14025, Type III) for construction products and elements.

6 The reported impact is for a 10 year study period. The calculation of the Direct Effect Life Cycle CO_2eq emissions used by BREEAM is based on the Total Equivalent Warming Impact (TEWI) calculation method for new stationary refrigeration and air conditioning systems, as described in Annex B of BS EN 378-1:2008.

7 The reported impact covers emissions from space heating and/or cooling.

8 The reported impact includes net water consumption from the micro-components utilised by building occupants for sanitary purposes. The impact accounts for water recycling/rainwater collection, where used for permissible non-potable water demands (For further detail refer to BREEAM 2011 New Construction Technical Guide (SD5073)).

9 The reported impact is net water consumption i.e. accounts for any water recycling/rainwater collection used to off-set a potable site demand. This KPI is not assessed/reported at the design stage of assessment/certification.

10 The reported impact covers non-hazardous waste from new construction materials, it therefore excludes hazardous and demolition and excavation waste. Where assessed and reported at the design stage of assessment this KPI is based on a target as reported in a compliant Site Waste Management Plan.

11 The reported impact covers non-hazardous waste from site demolition. Where assessed and reported at the design stage at the design stage of assessment this KPI is based on the target demolition waste diverted from landfill, as reported in a compliant Site Waste Management Plan. If no demolition taking place on site this KPI is not applicable.

12 Where assessed and reported at the design stage of assessment this KPI is based on a target as reported in a compliant Site Waste Management Plan.

13 The reported impact covers the proportion of the key building elements present and assessed by BREEAM that are responsibly sourced, where responsibly sourced is defined as follows; where at least 80% of the materials that make-up an element achieve certification in accordance with one of the responsible sourcing schemes defined in table 10-2 of the BREEAM 2011 New Construction Technical Guide (SD5073).

14 The reported impact covers the percentage "time out of range" of the minimum and maximum temperatures for summer and winter settings, whereby winter and summer settings are defined in accordance with the appropriate industry standard (refer to the BREEAM 2011 New Construction Technical Guide (SD5073) for further detail).

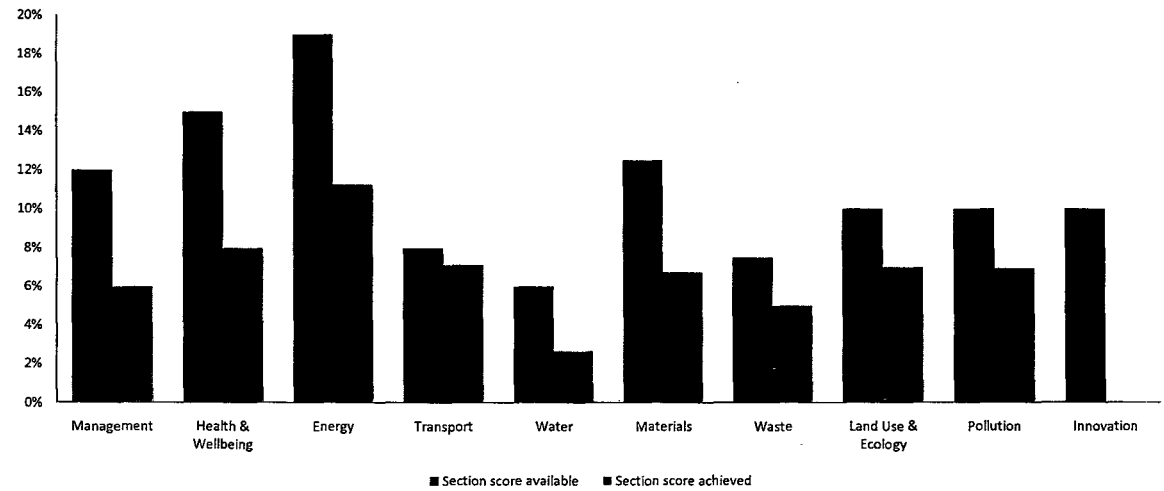
"INA" = Indicator Not Assessed. This will be the case where either the data required for the KPI is not gathered/measured by the building's project team or not assessed/quantified in BREEAM for a particular building type or assessment stage e.g. energy consumption for construction process at the design stage of assessment.

"-" = KPI not applicable to building being assessed.

Overall Building Performance

Building name:	Boundary Lane, Manchester - Student Housing
BREEAM rating:	Very Good
Total Score:	60.69%
Min. standards level achieved:	Very Good level

Building Performance by Environment Section



Environmental Section	No. credits available	No. credits Achieved	% credits achieved	Section Weighting	Section Score
Management	22	11	50.00%	12.0%	6.00%
Health & Wellbeing	15	8	53.33%	15.0%	8.00%
Energy	27	16	59.26%	19.0%	11.26%
Transport	9	8	88.89%	8.0%	7.11%
Water	9	4	44.44%	6.0%	2.67%
Materials	13	7	53.85%	12.5%	6.73%
Waste	6	4	66.67%	7.5%	5.00%
Land Use & Ecology	10	7	70.00%	10.0%	7.00%
Pollution	13	9	69.23%	10.0%	6.92%
Innovation	10	0	0.00%	10.0%	0.00%

Man03 Construction Site Impacts

No of BREEAM credits available	5	Available contribution to overall score	2.73%
No of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Energy consumption monitoring	Yes	1	1
Water consumption monitoring	Yes	1	1
Transport of construction materials and waste monitoring	Yes	1	1
Timber procurement	Yes	1	1
Construction site management - EMS	No	1	0
Construction site management - Pollution Prevention Procedures	Yes		

Key Performance Indicators: Construction site energy use

Energy consumption (total) - site processes		*Information not available at design stage*
Energy consumption (intensity) - site processes		*Information not available at design stage*
Distance (total) - materials transport to site		*Information not available at design stage*
Distance (total) - waste transport from site		*Information not available at design stage*
Energy consumption (total) - materials transport to site		*Information not available at design stage*
Energy consumption (total) - waste transport from site		*Information not available at design stage*
Energy consumption (intensity) - materials transport to site		*Information not available at design stage*
Energy consumption (intensity) - waste transport from site		*Information not available at design stage*

Key Performance Indicators: Construction site greenhouse gas emissions

Process greenhouse gas emissions (total) - site processes		*Information not available at design stage*
Greenhouse gas emissions (intensity) - site processes		*Information not available at design stage*
Greenhouse gas emissions (total) - materials transport to site		*Information not available at design stage*
Greenhouse gas emissions (total) - waste transport from site		*Information not available at design stage*
Greenhouse gas emissions (intensity) - materials transport to site		*Information not available at design stage*
Greenhouse gas emissions (intensity) - waste transport from site		*Information not available at design stage*

Key Performance Indicators: Construction site use of freshwater resources

Use of freshwater resource (total) - site processes		*Information not available at design stage*
Use of freshwater resource (intensity) - site processes		*Information not available at design stage*

Total BREEAM credits achieved	4
Total contribution to overall building score	2.18%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

The construction site will be managed in an environmentally sound manner in terms of resource use, energy consumption and pollution including the recording and monitoring of energy & water consumption, timber procurement and pollution prevention procedures.

BREEAM 2011 New Construction Assessment Report: Assessment Issue Scoring

MANAGEMENT

Man01 Sustainable Procurement

No. of BREEAM credits available	8	Available contribution to overall score	4.36%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

Assessment Criteria		Compliant?	Credits available	Credits achieved
Project brief and design	Criteria 1-3	Yes	1	1
	Criteria 4-6	No	1	0
	Criteria 7-9	No	1	0
	Criteria 10-13	No	1	0
Construction and handover	Criteria 14-17	No	1	0
	Criteria 18-21	Yes	1	1
Aftercare	Criteria 22	Yes	1	1
	Criteria 23-24	No	1	0
	Exemplary Level (Criteria 25)	No	1	0

Total BREEAM credits achieved	3
Total contribution to overall building score	1.64%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Assessor comments/notes:

From RIBA stage B (Design Brief) or equivalent the client, building occupier, design team and contractor will be involved in contributing to the decision making process for the project. As a minimum this includes meeting to identify and define their roles, responsibilities and contributions during the following phases: a. Design, b. Construction, c. Commissioning and handover d. Occupation. PLUS, there will be a schedule of training identified for relevant building occupiers/premises manager.

Man02 Responsible Construction Practices

No. of BREEAM credits available	2	Available contribution to overall score	1.09%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

Assessment Criteria

Compliant considerate construction scheme used	Considerate Constructors Scheme
Level achieved by the project using the compliant scheme	A CCS score between 32 and 35.5.

Total BREEAM credits achieved	2
Total contribution to overall building score	1.09%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Assessor comments/notes:

Considerate Constructors score of >32 to be acheived.

HEALTH & WELLBEING

Hea01 Visual Comfort

No. of BREEAM credits available	4	Available contribution to overall score	4.00%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

Assessment Criteria	Compliant?	Credits available	Credits achieved
Fluorescent lamps fitted with high frequency ballasts	Yes	N/A	N/A
Daylight factor	No	2	
Glare control and view out	Yes	1	1
Internal and external lighting	Yes	1	1
Exemplary level daylighting	No	1	0

Total BREEAM credits achieved	2
Total contribution to overall building score	2.00%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Assessor comments/notes:

High frequency ballasts will be installed in all flourescent lighting. The potential for disabling glare will be designed out of all relevant building areasand Illuminance (lux) levels in all internal relevant building areas of the building are specified in accordance with the CIBSE Code for Lighting 2009. Additionally, all positions within relevant building areas are within 7m of a wall which has a window or permanent opening that provides an adequate view out - the window/opening must be ≥20% of the surrounding wall area.

Hea02 Indoor Air Quality

No. of BREEAM credits available	4	Available contribution to overall score	4.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Min sources of air pollution: air quality plan and fresh air provision	Yes	1	1
Minimising sources of air pollution: VOCs (specification)	Yes	1	1
Minimising sources of air pollution: VOCs (measurement)	No	1	0
Potential for Natural Ventilation	No	1	0

Key Performance Indicators: Indoor air quality

Concentration levels of formaldehyde		*Information not available at design stage*
Total volatile organic compound (TVOC) concentration		*Information not available at design stage*

Total BREEAM credits achieved	2
Total contribution to overall building score	2.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

An indoor air quality plan will be produced. The building's air intakes and exhausts will be located over 10m apart to minimise recirculation and intakes are over 20m from sources of external pollution.The building will be designed to provide fresh air and minimise internal pollutants (and ingress of external polluted air into the building) in accordance with the criteria of the rel-evant standard for ventilation. All decorative paints and varnishes have meet Emission levels for VOC's requirements & at least five of the eight remaining product categories (listed in Table 5-3), have met the testing requirements and emission levels for Volatile Organic Compound (VOC) emissions against the relevant European standards

Man04 Stakeholder Participation

No. of BREEAM credits available	4	Available contribution to overall score	2.18%
No. of BREEAM innovation credits available	0	Minimum standards applicable	Yes

Assessment Criteria	Compliant?	Credits available	Credits achieved
Consultation	No	1	0
Inclusive and accessible design	Yes	1	1
Building user information	Yes	1	1
Post occupancy evaluation and information dissemination	No	1	0

Total BREEAM credits achieved	2
Total contribution to overall building score	1.09%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Assessor comments/notes:

The building is designed to be fit for purpose, appropriate and accessible by all potential users. An access statement will be developed in line with the CABE publication Design & Access Statements. Building User Guides wil be provided, appropriate to all users of the building (general users including staff and if applicable residents, as well as the non technical facilities man-agement team/building manager). The Guides willcover all functions and uses of the building. Post Occupancy Evaluation (POE) one year after building occupation will be carried out, to gain building performance feedback .

Man05 Life cycle cost and service life planning

No. of BREEAM credits available	3	Available contribution to overall score	1.64%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Feasibility stage LCC, concept design/development proposals	No	1	0
Strategic and system level LCC, component analysis and selection	No	1	0
Technical design LCC, specification and maintenance strategy	No	1	0

Total BREEAM credits achieved	0
Total contribution to overall building score	0.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

Credit not sought.

Hea05 Acoustic Performance

No. of BREEAM credits available	2	Available contribution to overall score	2.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Appointment of a suitably qualified acoustician	Yes		
Acoustic performance standards and testing requirements	Yes	2	2

Total BREEAM credits achieved	2
Total contribution to overall building score	2.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

Airborne sound insulation values are at least 5dB higher and impact sound insulation values are at least 5dB lower than the than the performance standards in the Building Regulations or Standards.

Hea06 Safety and Security

No. of BREEAM credits available	2	Available contribution to overall score	2.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Safe external access	N/A	N/A	N/A
Security of site and building	Yes	2	2

Total BREEAM credits achieved	2
Total contribution to overall building score	2.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

This building does not have any external areas and access to the building is direct from the public highway/footpath, therefore the two available credits must be assessed and awarded based on compliance with the security criteria. The project team will accounted for security considerations in the new building design and site layout through consultation with a suitably qualified security consultant. Consultation with this suitably qualified security consultant will occur during or prior to the concept design stage (RIBA stage C) or equivalent & the final design will embody the recommendations/solutions of the suitably qualified security consultant .

Hea03 Thermal Comfort

No. of BREEAM credits available	2	Available contribution to overall score	2.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Thermal modelling	Yes	1	0
Thermal zoning and control strategy	Yes	1	0

Key Performance Indicators: Thermal comfort (Time out of range (TOR))

TOR of min. and max. temperatures for summer and winter settings		%

Total BREEAM credits achieved	0
Total contribution to overall building score	0.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

Thermal modelling to be carried out using software in accordance with CIBSE AM11 48Building Energy and Environmental Modelling. & the modelling demonstrates that the building design and services strategy can deliver thermal comfort levels in occupied spaces in accordance with the criteria set out in CIBSE Guide 'A Environmental Design'

Hea04 Water Quality

No. of BREEAM credits available	1	Available contribution to overall score	1.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	Yes

Assessment Criteria	Compliant?	Credits available	Credits achieved
Minimising risk of contamination water systems	Yes	1	0
Minimising risk of contamination adiabatic humidification	No		
Provision of fresh drinking water	Yes		

Total BREEAM credits achieved	0
Total contribution to overal building score	0.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Assessor comments/notes:

All water systems in the building are designed in compliance with the measures outlined in the Health and Safety Executive's "Legionnaires' disease - The control of legionella bacteria in water systems".wholesome supply of accessible, clean and fresh drinking water is supplied in recreation areas (i.e. Chilled, mains-fed point-of-use water coolers)

Ene02 Energy Monitoring

No. of BREEAM credits available	1	Available contribution to overall score	0.70%
No. of BREEAM innovation credits available	0	Minimum standards applicable	Yes

Assessment Criteria	Compliant?	Credits available	Credits achieved
Monitoring of major energy consuming systems	Yes	1	1
Monitoring of energy use by tenancy or function area		N/A	N/A

Total BREEAM credits achieved	1
Total contribution to overall building score	0.70%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Assessor comments/notes:

Individual residential cluster metering will be provided such that the residents will be able to visit a website to monitor how much power they are consuming and generating to encourage more responsible power consumption. The following major energy consuming systems are to be monitored using separate, accessible energy sub-meters with a pulsed output to enable future connection to a BEMS: a. Space Heating, b. Domestic Hot Water, c. Lighting, d. Small Power (lighting and small power can be on the same sub-meter where supplies are taken at each floor/department).and h. Other major energy-consuming items where appropriate (see Compliance notes).

Ene03 External Lighting

No. of BREEAM credits available	1	Available contribution to overall score	0.70%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
External lighting specification	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.70%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

All external light fittings for the building, access ways and pathways have a luminous effi-cacy of at least 50 lamp lumens/circuit Watt when the lamp has a colour rendering index (Ra) greater than or equal to 60 OR 60 lamp Lumens / circuit Watt when the lamp has a colour rendering index (Ra) less than 60. External light fittings are controlled through a time switch, or daylight sensor, to prevent operation during daylight hours. Daylight sensor override on a manually switched lighting circuit is acceptable.

ENERGY

Ene01 Reduction of CO_2 Emissions

No. of BREEAM credits available	15	Available contribution to overall score	10.56%
No. of BREEAM innovation credits available	5	Minimum standards applicable	Yes

Ene01 Calculator and Key Performance Indicators

Building floor area	5581	m^2
Notional building energy demand	1000.00	$MJ/m^2/annum$
Actual building energy demand	800.00	$MJ/m^2/annum$
Notional building energy consumption	1000.00	$kWh/m^2/annum$
Actual building energy consumption	800.00	$kWh/m^2/annum$
Target Emission Rate (TER)	10.00	$kgCO2/m^2/annum$
Building Emission Rate (BER)	8.00	$kgCO2/m^2/annum$
Building improvement over TER	20.00%	
Demand Energy Performance Ratio (EPR)	0.20	
Consumption Energy Performance Ratio (EPR)	0.23	
CO_2 Energy Performance Ratio (EPR)	0.18	
Overall Building Energy Performance Ratio (EPR)	0.61	

Equivalent % of the building's 'regulated' energy consumption generated by 'carbon neutral' sources and used to meet energy demand from 'unregulated' building systems or processes?	
Is the building designed to be 'carbon negative'?	
If the building is defined as 'carbon negative' what is the total (modelled) renewable/carbon neutral energy generated and exported	

Total BREEAM credits achieved	7
Total contribution to overall building score	4.93%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Very Good level

Assessor comments/notes:

An array of pv panels is proposed for the roof to supply 100% of the landlord power requirement and a significant amount of power credit for each residential cluster on an individually monitored basis. The metering will be such that the residents will be able to visit a website to monitor how much power they are consuming and generating withthe aim of encouraging more responsible power consumption. Air source heat pumps will contribute to the water heating load of every residential cluster individually. Until final design is completed and building energy modelling undertaken, 20% DER:TER reduction assumed as per Manchester Sustainable Construction SPD guidance.

Ene06 Energy Efficient Transportation Systems

No. of BREEAM credits available	2	Available contribution to overall score	1.41%
No. of BREEAM innovation credits available	0	Minimum standards applicable	N/A

Assessment Criteria	Compliant?	Credits available	Credits achieved
Transportation system analysis and strategy	Yes	1	1
Energy efficient transportation features	Yes	1	1

Total BREEAM credits achieved	2
Total contribution to overall building score	1.41%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

An analysis of the transportation demand and usage patterns for the building has been carried out by the design team to determine the optimum number and size of lifts (including counter-balancing ratio), escalators and/or moving walks. The energy consumption has been estimated for potetntial options and the lift/escalator/moving walk system/strategy with the lowest energy consumption is specified. The lifts are to be specified with a regenerative drive unit (or alternative energy-efficient feature).

Ene07 Energy Efficient Laboratory Systems

Assessment Issue Not Applicable

No. of BREEAM credits available	N/A	Available contribution to overall score	N/A
No. of BREEAM innovation credits available	N/A	Minimum standards applicable	N/A

Assessment Criteria	Compliant?	Credits available	Credits achieved
Fume cupboards and/or other containment device specification			
Best Practice Energy Practices in Laboratories (table 6.2)			
Item a) Fan power			
Item c) Fume cupboard volume flow rates			
Item d) Grouping / isolation of high filtration/ventilation activities			
Item e) Energy recovery - heat			
Item f) Energy recovery - cooling			
Item g) Grouping of cooling loads			
Item h) Free cooling			
Item i) Load responsiveness			
Item j) Clean rooms			
Item k) Diversity			
Item l) Room air change rates			

Total BREEAM credits achieved	N/A
Total contribution to overall building score	N/A
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

Ene04 Low and Zero Carbon Technology

No. of BREEAM credits available	5	Available contribution to overall score	3.52%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

Assessment Criteria	Compliant?	Credits available	Credits achieved
Compliant LZC feasibility study	Yes	2	1
Scope of the feasibility study	Operational stage carbon savings/emissions		
Percentage reduction in operational stage CO_2 emissions	20.00%	2	2
Energy source of the LZC system	Solar		
Free cooling - credit not achievable (see note)	No	1	0

KPI - Low and/or zero carbon energy generation

Total on-site and/or near-site LZC energy generation	0	*kWh/yr*

Total BREEAM credits achieved	3
Total contribution to overall building score	2.11%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Assessor comments/notes:

Low carbon fesibiltiy study required. Proposed that an array of pv panels on the roof will supply 100% of the landlord power requirement and a significant amount of power credit for each cluster. For purposes of this assessment, it is assumed 20% CO2 reduction from LZC technology - to be confirmed through energy modelling calculations.

Ene05 Energy Efficient Cold Storage

Assessment Issue Not Applicable

No. of BREEAM credits available	N/A	Available contribution to overall score	N/A
No. of BREEAM innovation credits available	N/A	Minimum standards applicable	N/A

Assessment Criteria	Compliant?	Credits available	Credits achieved

Total BREEAM credits achieved	N/A
Total contribution to overal building score	N/A
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

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TRANSPORT

Tra01 Public Transport Accessibility

No. of BREEAM credits available	3	Available contribution to overall score	2.67%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Building type category (for purpose of Tra01 issue assessment)	Multi-Residential Accommodation

Assessment Criteria	Compliant	Credits available	Credits achieved
Public transport accessibility index	8.00	3	3
Building dedicated bus service			N/A

Total BREEAM credits achieved	3
Total contribution to overall building score	2.67%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

Full credit award for accessibility index due to city centre location & proximity to Oxford Road.

Tra02 Proximity to Amenities

No. of BREEAM credits available	2	Available contribution to overall score	1.78%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Close proximity and accessible to applicable amenities	Yes	2	2

Total BREEAM credits achieved	2
Total contribution to overall building score	1.78%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

Assumed to be within 500m of cash point, grocers and post box.

Ene08 Energy Efficient Equipment

No. of BREEAM credits available	2	Available contribution to overall score	1.41%
No. of BREEAM Innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Present	Significant majority contributor
Small power and plug in equipment	No	
Swimming pool	No	
Communal laundry	No	
Data centre	No	
Intensive operation areas	No	
Residential areas	Yes	Yes
Healthcare	No	
Kitchen and catering facilities	Yes	Yes

	Compliant	Credits available	Credits achieved
Significant majority contributors BREEAM compliant	Yes	2	2

Total BREEAM credits achieved	2
Total contribution to overall building score	1.41%
Total BREEAM Innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

Energy efficient equipment will be specified including, white goods, communal laundry and kitchen facilities.

Ene09 Drying Space

No. of BREEAM credits available	1	Available contribution to overal score	0.70%
No. of BREEAM Innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Residential internal/external drying space and fixings	No	1	0

Total BREEAM credits achieved	0
Total contribution to overall building score	0.00%
Total BREEAM Innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

Due to dimensions of ensuite assumed inadequate internal space for provision of internal drying space.

Tra05 Travel Plan

No. of BREEAM credits available	1	Available contribution to overall score	0.89%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Transport plan based on site specific travel survey/assessment	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.89%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

Compliant travel plan to be provided.

WATER

Wat01 Water Consumption

No. of BREEAM credits available	5	Available contribution to overall score	3.33%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

Please select the calculation procedure used	Standard 'whole building performance' approach

Standard 'whole building performance' approach data

Water Consumption from building micro-components	100.00	*L/person/day*
Water demand met via greywater/rainwater sources	0.00	*L/person/day*
Total net water consumption	87.50	*L/person/day*
Improvement on baseline performance	12.50%	*%*

Key Performance Indicator - use of freshwater resource

Total net Water Consumption		*m3/person/yr*
Default building occupancy		

Alternative 'elemental' approach data

Overall microcomponent performance level achieved	
% of flushing demand met using recycled non potable water	

Total BREEAM credits achieved	1
Total contribution to overall building score	0.67%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Excellent level

Assessor comments/notes:

Water consumption (litres/person/day) for the assessed building is compared against a notional baseline performance and the building is assumed to acheive a 12.5% improvement. This is to be delivered through specification of water efficient fixtures, including - a. WCs, b.Urinals, c. Taps (wash hand basins and where specified kitchen taps and waste disposal unit), d. Showers, e. Dishwashers (domestic and commercial sized), f. Washing machine (domestic and commercial/industrial sized).

Tra03 Cyclist facilities

No. of BREEAM credits available	1	Available contribution to overall score	0.89%
No. of BREEAM Innovation credits available	0	Minimum standards applicable	No

Building type category for purpose of Tra03 issue assessment	Student residences and key worker accommodation
Number of compliant cycle storage spaces provided	24

Assessment Criteria	Compliant?	Credits available	Credits achieved
Cycle storage spaces	No	1	0

Total BREEAM credits achieved	0
Total contribution to overall building score	0.00%
Total BREEAM Innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

24no. Cycle space proposed Insufficient for credit award - 80 spaces required for credit award (1 cycle space / 2 residents).

Tra04 Maximum Car Parking Capacity

No. of BREEAM credits available	2	Available contribution to overall score	1.78%
No. of BREEAM Innovation credits available	0	Minimum standards applicable	No

Building type category for purpose of Tra04 issue	Student residences and key worker accommodation
Buildings Accessibility Index, sourced from issue Tra01	8

Assessment Criteria	Compliant?	Credits available	Credits achieved
Maximum parking capacity	Yes	2	2

Total BREEAM credits achieved	2
Total contribution to overall building score	1.78%
Total BREEAM Innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

Building's BREEAM Accessibility Index assumed to be 8 (See Tra_01). On this basis parking provision must be 1 space per 6 building users for 2 credit award. Only two parking spaces are proposed for 'City Car' rental scheme.

Wat04 Water Efficient Equipment

No. of BREEAM credits available	1	Available contribution to overall score	0.67%
No. of BREEAM innovation credits available	No	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Specification/installation of water efficient equipment	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.67%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

Green walls proposed for this building - the irrigation method type specified/installed for internal or external planting and/or landscaping: a. Drip feed subsurface irrigation that incorporates soil moisture sensors. The irrigation control should be zoned to permit variable irrigation to different planting assemblages. OR b. Reclaimed water from a rainwater or greywater system. The storage system must be appropriately sized i.e. storage capacity is relative to the size of the soft landscaped area. OR c. External landscaping and planting that relies solely on precipitation, during all sea-sons of the year. OR d. All planting specified is restricted to species that thrive in hot and dry conditions. OR e. Where no dedicated, mains-supplied irrigation systems (including pop-up sprinklers and hoses) are specified and planting will rely solely on manual watering by building occupier or landlord.

MATERIALS

Mat01 Life Cycle Impacts

No. of BREEAM credits available	6	Available contribution to overall score	5.77%
No. of BREEAM innovation credits available	1	Minimum standards applicable	No

Assessment Criteria

Total Mat01 credits achieved	3
Total Mat01 points achieved	3.00
Number of building elements assessed	6
Exemplary level compliant?	No

Key Performance Indicator - embodied green house gas emissions by element	Total area of element m^2	Total impact $kgCO_2$ eq.	Area of element impact data relevant to m^2
External walls			
Windows			
Roof			
Upper floor construction			
Internal wall			
Floor finishes/coverings			

Key Performance Indicator - embodied green house gas emissions for building (assessed elements only)

Total embodied green house gas emissions for building (by assessed elements)	Missing data	$kgCO_2$ eq.		$kgCO_2$ eq./m^2
Proportion of applicable building elements that data reported covers				

Total BREEAM credits achieved	3
Total contribution to overall building score	2.88%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Assessor comments/notes:

Specification TBC - conservative credit award of 3 from potential 6 credits available for this section. BREEAM calculator tool to be completed once spec finailsed.

Wat02 Water Monitoring

No. of BREEAM credits available	1	Available contribution to overall score	0.67%
No. of BREEAM Innovation credits available	0	Minimum standards applicable	Yes

Assessment Criteria	Compliant?	Credits available	Credits achieved
Water meter on the mains water supply to the building(s)	Yes	1	1
Metering/monitoring equipment on supply to plant/building areas	Yes		
Pulsed output on all relevant water meters	Yes		
Existing BMS connection	N/A		

Total BREEAM credits achieved	1
Total contribution to overall building score	0.67%
Total BREEAM Innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Assessor comments/notes:

Using the BREEAM Wat 01 calculator, an assessment of the efficiency of the building's domestic water consuming components demonstrotes a 12.5% reduction in water consumption (litres/person/day) for the building , compared against a notional baseline performance. The efficiency of the following 'domestic scale' water consuming components must be included in the calculation (where specified): a. WCs, b. Urinals, c. Taps (wash hand basins and where specified kitchen taps and waste disposal unit), d. Showers, e. Dishwashers (domestic and commercial sized) f. Washing machine (domestic and commercial/industrial sized)

Wat03 Water Leak Detection and Prevention

No. of BREEAM credits available	2	Available contribution to overall score	1.33%
No. of BREEAM Innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Leak detection on building's mains water supply	Yes	1	1
Flow control device to each sanitary area/facility	No	1	0

Total BREEAM credits achieved	1
Total contribution to overall building score	0.67%
Total BREEAM Innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

Building be specified with leak detection system which is capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter. Second credit for the specification of flow control devices in WC areas/facilities does not apply to ensuite facilities in residential areas.

Mat04 Insulation

No. of BREEAM credits available	2	Available contribution to overall score	1.92%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Embodied Impact - insulation index	2.00	1	1
Responsible sourcing - % of insulating materials responsibly sourced	80%	1	1

Total BREEAM credits achieved	2
Total contribution to overall building score	1.92%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

Any insulation specified for use within the following building elements must be assessed: a. External walls / b. Ground floor / c. Roof / d. Building service. The Insulation Index, calculated using the BREEAM Mat 04 calculator is equal to or greater than 2 AND at least 80% by volume of the thermal insulation used in the building elements must be responsibly sourced.

Mat05 Designing for Robustness

No. of BREEAM credits available	1	Available contribution to overall score	0.96%
No. of BREEAM innovation credits available	0	Minimum standards applicable	N/A

Assessment Criteria	Compliant?	Credits available	Credits achieved
Suitable durability/protection measures to vulnerable building areas	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.96%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

Areas of the building (both internal and external) identified as being subject to regular/heavy vehicular, trolley and pedestrian movement and therefore where suitable durability/protection measures are required are specified to minimise the risk of damage.

Mat02 Hard Landscaping and Boundary Protection

No. of BREEAM credits available	1	Available contribution to overall score	0.96%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
External hard landscaping and boundary protection	No	1	0

Total BREEAM credits achieved	0
Total contribution to overall building score	0.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

Credit not sought.

Mat03 Responsible Sourcing

No. of BREEAM credits available	3	Available contribution to overall score	2.88%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

Assessment Criteria	Compliant	Credits available	Credits achieved
Percentage of available responsible sourcing points achieved	25.00%	3	1
All timber sourced in accordance with the UK Govt's Timber Procurement Policy.	Yes		

Building elements	Element present / assessed	% element responsibly sourced	Responsible sourcing points
Structural Frame	Yes	80%	1.00
Ground Floor	Yes	80%	1.00
Upper floors (including separating floors)	Yes	80%	1.00
Roof	Yes	80%	1.00
External walls	Yes	80%	1.00
Internal walls	Yes	80%	1.00
Foundation/Substructure	Yes	80%	1.00
Fittings	Yes	80%	1.00
Hard Landscaping	No		

Total BREEAM credits achieved	1
Total contribution to overall building score	0.96%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Assessor comments/notes:

Specification TBC - conservative credit award of 1 from potential 3 credits available for this section. BREEAM calculator tool to be completed once spec finalised.

Wst02 Recycled Aggregates

No. of BREEAM credits available	1	Available contribution to overall score	0.96%
No. of BREEAM Innovation credits available	1	Minimum standards applicable	No

Assessment Criteria	Total
Total % of high-grade aggregate that is recycled/secondary aggregate	25%

% of high-grade aggregate that is recycled/secondary aggregate - by application

Structural frame	25%
Floor slabs including ground floor slabs	25%
Bitumen/hydraulically bound base, binder and surface courses	50%
Concrete road surfaces	25%
Pipe bedding	50%
Building foundations	25%
Granular fill and capping	75%
Gravel landscaping	100%

Total BREEAM credits achieved	1
Total contribution to overall building score	0.96%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Assessor comments/notes:

Construction & material specification TBC, but assumed that the total amount of recycled and/or secondary aggregate specified is greater than 25% (by weight or volume) of the total high-grade aggregate specified for the development AND the percentage of high-grade aggregate specified per application (where present) that is recycled and/or secondary aggregate, must meet the minimum levels (by weight or volume) as detailed above.

Wst03 Operational Waste

No. of BREEAM credits available	1	Available contribution to overal score	0.96%
No. of BREEAM Innovation credits available	0	Minimum standards applicable	Yes

Assessment Criteria	Compliant?	Credits available	Credits achieved
Segregation and storage of operational recyclable waste volumes	Yes	1	1
Static waste compactor(s) or baler(s)	N/A		
Vessel(s) for composting suitable organic waste	N/A		
Internal and, if applicable, communal storage & home compost facilities	Yes		

Total BREEAM credits achieved	1
Total contribution to overal building score	0.96%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Assessor comments/notes:

Dedicated bin storage space(s) to cater for the segregation and storage of operational recy-clable waste volumes generated by the assessed building/unit, its occupant(s) and activities PLUS vessel(s) for composting suitable organic waste resulting from the building's daily operation and use OR adequate space(s) for storing segregated food waste and com-postable organic material prior to collection and delivery to an alternative com-posting facility. Where organic waste is to be stored/composted on site, a water outlet is provided adjacent to or within the facility for cleaning and hygiene purposes.

WASTE

Wst01 Construction Waste Management

No. of BREEAM credits available	4	Available contribution to overall score	5.00%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

Assessment Criteria	Compliant?
Compliant Site Waste Management Plan	Yes
Compliant Pre-demolition audit	Yes

Key Performance Indicators - Construction Waste

Measure/units for the data being reported	volume	
Non-hazardous construction waste (excluding demolition/excavation)	13.00	*m3/100m2*
Total non-hazardous construction waste generated	72558.20	*m3*
Non-hazardous non-demolition const. waste diverted from landfill	70.00%	*%*
Total non-hazardous non-demolition const. waste diverted from landfill	50790.74	*m3*
Total non-hazardous demolition waste generated	0.00	*m3*
Non-hazardous demolition waste diverted from landfill	80.00%	*%*
Total non-hazardous demolition waste to disposal	0.00	*m3*
Material for reuse	0.00	*m3*
Material for recycling	0.00	*m3*
Material for energy recovery	0.00	*m3*
Hazardous waste to disposal	0.00	*m3*

Total BREEAM credits achieved	2
Total contribution to overall building score	2.50%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Assessor comments/notes:

Non-hazardous construction waste (excluding demolition and excavation waste) gen-erated by the building's design and construction assumed to be 13.3m3/100m2 GIFA. Additionally, the following percentages of non-hazardous construction and demolition waste (where applicable) generated by the project have been diverted from landfill: Non demolition = 70% & Demolition = 80%

LE02 Ecological Value of Site and Protection of Ecological Features

No. of BREEAM credits available	1	Available contribution to overall score	1.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Ecological value of the land defined using	The BREEAM checklist

Assessment Criteria	Compliant?	Credits available	Credits achieved
Land of low ecological value	No	1	0
Protection of existing ecological features	Yes		

Total BREEAM credits achieved	0
Total contribution to overall building score	0.00%
Total BREEAM innovation credits achieved	N/A
Minimum Standard(s) level	N/A

Assessor comments/notes:

Existing mature trees, assumed to be over 10 years old, to frontage on Boundary Lane (to be retained). Therefore site not deemed to be of 'low ecological value'.

LE03 Mitigating Ecological Impact

No. of BREEAM credits available	2	Available contribution to overall score	2.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	Yes

Data sourced for calculating the change in ecological value from	Assessor's classification of broad habitat type(s) using BREEAM

Assessment Criteria

Change in ecological value	0.00	*Plant species richness*

Total BREEAM credits achieved	2
Total contribution to overall building score	2.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Assessor comments/notes:

Development propsals to include green walls and roofs. Therefore, assumed that the calculated change in ecological value of the site is equal to or greater than zero i.e. no neg-ative change.

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Wst04 Speculative Floor and Ceiling Finishes

Assessment Issue Not Applicable

No. of BREEAM credits available	N/A	Available contribution to overall score	N/A
No. of BREEAM innovation credits available	N/A	Minimum standards applicable	N/A

Assessment Criteria	Compliant?	Credits available	Credits achieved

Total BREEAM credits achieved	N/A
Total contribution to overall building score	N/A
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

LAND USE & ECOLOGY

LE01 Site Selection

No. of BREEAM credits available	2	Available contribution to overall score	2.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Previously developed land	Yes	1	1
Contaminated land	No	1	0

Total BREEAM credits achieved	1
Total contribution to overall building score	1.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

Proposed site is on previously developed land, not known to be contaminated land.

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POLLUTION

Pol01 Impact of Refrigerants

No. of BREEAM credits available	3	Available contribution to overall score	2.31%
No. of BREEAM Innovation credits available	0	Minimum standards applicable	No

Assessment Criteria		Credits available	Credits achieved
Refrigerant containing systems installed in the assessed building?	No	3	3

Total BREEAM credits achieved	3
Total contribution to overall building score	2.31%
Total BREEAM Innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

Air source heat pumps to be specified which operate through the compression and expansion of refrigerant gasses however, this is out with the scope of the credit as these systems are not used for cooling. Default 3 credit award.

Pol02 NO_x Emissions

No. of BREEAM credits available	3	Available contribution to overall score	2.31%
No. of BREEAM Innovation credits available	0	Minimum standards applicable	No

Assessment Criteria

NO_x emission level - space heating and cooling	101.00	*mg/kWh*
Heating and cooling energy consumption	1	*kWh/m²*
NO_x emission level - water heating	101	*mg/kWh*

Total BREEAM credits achieved	0
Total contribution to overall building score	0.00%
Total BREEAM Innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

Heat pumps are intended to deliver partial water heating. Remainder of water / space heating to be delivered through electrical resistance heating. Heat pumps & systems powered by grid electricity are likely to indirectly produce emission rates higher than those required by BREEAM and are therefore typically unable to achieve any credits under this issue.

LE04 Enhancing Site Ecology

No. of BREEAM credits available	3	Available contribution to overall score	3.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Suitably Qualified Ecologist appointment (SQE)	Yes	3	3
Implementation of the Suitably Qualified Ecologists general recommendations	Yes		
Change in ecological value (as confirmed by Suitably Qualified Ecologist)	6	*Plant species richness*	

Total BREEAM credits achieved	3
Total contribution to overall building score	3.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

Site currently comprises public house with majority hardstanding and some mature trees (to be retained). Development propsals to include green walls and roofs. Therefore, assumed that the suitably qualified ecologist (SQE) will calculate that this will result in an increase in ecological value of the site of 6 plant species or greater. Note, SQE required to provide an Ecology Report with appropriate recommendations for protection and enhancement of the site's ecology (based on a site visit/survey by the SQE at RIBA Stage B).

LE05 Long Term Impact on Biodiversity

No. of BREEAM credits available	2	Available contribution to overall score	2.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Mandatory criteria - SQE, ecologist & landscape/habitat management plan	Yes	2	1
Additional criteria - Biodiversity champion	No		
Additional criteria - Training of site workforce	Yes		
Additional criteria - Monitor and record actions to protect site biodiversity	Yes		
Additional criteria - New ecologically valuable habitat creation	No		
Additional criteria - Construction programme minimises disturbance to wildlife	No		

Total BREEAM credits achieved	1
Total contribution to overall building score	1.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

A suitably qualified ecologist (SQE) has been appointed prior to commencement of activities on site & confirms that all relevant UK and EU legislation relating to protection and enhancement of ecology has been complied with during the design and construction process PLUS the principal contractor will train the site workforce on how to protect site ecology during the project. Specific training must be carried out for the entire site workforce to ensure they are aware of how to avoid damaging site ecology during operations on site. Additionally a record of actions taken to protect biodiversity and monitor their effectiveness throughout key stages of the construction process will be maintained.

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Pol05 Noise Attenuation

No. of BREEAM credits available	1	Available contribution to overall score	0.77%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant	Credits available	Credits achieved
Noise sensitive areas/buildings within 800m radius of the development	Yes	1	1
Noise impact assessment and, if applicable, noise attenuation measures	Yes		

Total BREEAM credits achieved	1
Total contribution to overall building score	0.77%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

There are residential properties i/ noise-sensitive areas or buildings within 800m radius of the assessed development. A noise impact assessment in compliance with BS 7445:199120 has been carried out by a suitably qualified acoustician and the following noise levels measured/determined: a. Existing background noise levels at the nearest or most exposed noise-sensitive devel-opment to the proposed development or at a location where background conditions can be argued to be similar AND b. The rating noise level resulting from the new noise-source (see also Compliance note: Compliance at the design stage)

INNOVATION

Inn01 Innovation

No. of BREEAM innovation credits available	10	Available contribution to overall score	10.00%
		Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Man01 Sustainable Procurement	No	1	0
Man02 Responsible Construction Practices	No	1	0
Hea01 Visual Comfort	No	1	0
Ene01 Reduction of CO2 Emissions	Yes	5	0
Ene04 Low and Zero Carbon Technology	No	1	0
Ene05 Energy Efficient Cold Storage	N/A	N/A	N/A
Wat01 Water Consumption	No	1	0
Mat01 Life Cycle Impacts	No	1	0
Mat03 Responsible Sourcing of Materials	No	1	0
Wst01 Construction Waste Management	No	1	0
Wst02 Recycled Aggregates	No	1	0
Number of approved innovation credits achieved?			0

Total BREEAM innovation credits achieved	0
Total contribution to overall building score	0.00%
Minimum standard(s) level	N/A

Assessor comments/notes:

Innovation credits not sought.

Pol03 Surface Water Run off

No. of BREEAM credits available	5	Available contribution to overall score	3.85%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Annual probability of flooding	Low	2	2
Flood Risk Assessment	Yes		
Surface water run-off - peak rate	Yes	1	1
Surface water run-off - volume reduction and/or limiting discharge	Yes	1	1
Minimising watercourse pollution	No	1	0

Total BREEAM credits achieved	4
Total contribution to overall building score	3.08%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

Review of EA flood mapping shows evelopment is situated in a flood zone that is defined as having a low annual probability of flooding. A site specific Flood Risk Assessment (FRA) will be undertaken to confirm that there is a low risk of flooding from all sources. Flooding of property will not occur in the event of local drainage system failure (caused either by extreme rainfall or a lack of maintenance) AND the post development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed site's development. Drainage measures are specified to ensure that the peak rate of run-off from the site to the watercourses (natural or municipal) is no greater for the developed site than it was for the pre-development site (this should comply at the 1 year and 100 year return period events). Note that the existing site comprises ~100% impermeable surfacing -therefore compliance with these requirements assumed to be acheived.

Pol04 Reduction of Night Time Light Pollution

No. of BREEAM credits available	1	Available contribution to overall score	0.77%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
External lighting specification	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.77%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Assessor comments/notes:

Where safety and security lighting are specified these will be designed in compliance with Table 1 (and its accom-panying notes) of the ILE Guidance notes for the reduction of obtrusive light. All external lighting (except for safety and security lighting) will be automatically switched off between 2300hrs and 0700hrs (this can be achieved by providing a timer for all external lighting set to the appropriate hours) and if safety or security lighting is provided and will be used between 2300hrs and 0700hrs, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 1 of the ILE's Guidance notes.