



Fusion Students, Deansgate, Manchester

BREEAM Pre-Assessment Report

Impact Sustainability Ltd

T: 01273 905 693

M: 07792 670 919

E: george@impactsustainability.co.uk

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1.0 Introduction

Impact Sustainability has been instructed by Fusion Devco Manchester Ltd to prepare a BREEAM pre-assessment report. The purpose of the pre-assessment report is to set out the BREEAM assessment strategy for the proposed Fusion student accommodation development on Deansgate, Manchester. The current development proposals include a lower ground floor, upper ground floor, mezzanine floor and 22no upper floors within a single block. The student accommodation spaces will include cluster apartments with en-suite rooms as well as studio rooms, 'twodio' rooms and a one bed apartment. Ground and lower ground floor level spaces have yet to be finalised but will likely comprise common room, gym, sports hall, laundry facility and ancillary support spaces.

The proposed development design will require consideration of Manchester City Council's adopted Core Strategy 2012 to 2027. Within the Manchester Core Strategy, Policy DM1 'Development Management' refers to BREEAM. Within this policy it is stated that commercial developments should demonstrate best practice construction through the application of BREEAM standards. Furthermore, the within the Supplementary Planning Document (adopted April 2007) under the 'Environmental Design' section it is confirmed that developments are encouraged to use the BREEAM method and to achieve a 'Very Good' rating. Therefore, it is anticipated that the development will need to aim for a minimum BREEAM Very Good rating to meet local policy requirements. However, it is understood that the client is aspiring to a higher BREEAM rating and therefore a rating of 'Excellent' will be targeted.

As the development involves the construction of new student accommodation building this will be assessed under BREEAM New Construction 2018 (Multi-residential), which is the current version of the most suitable BREEAM scheme. Within this report the proposed strategy for assessment under BREEAM NC 2018 is discussed, with key and mandatory issues also identified.

2.0 BREEAM

2.1 Introduction to BREEAM

BREEAM is the Building Research Establishment's (the BRE) Environmental Assessment Method. This is a voluntary environmental assessment tool that is used to assess the environmental impact of buildings. The performance of the building is assessed against a range of environmental factors, with different sections focusing on specific sustainability issues. These sections each have differing weighting factors, which vary from scheme to scheme. For a NC 2018 'multi-residential' assessment they are:

- | | |
|----------------------|-----|
| • Management | 11% |
| • Health & Wellbeing | 14% |
| • Energy | 16% |
| • Transport | 10% |
| • Water | 7% |

- Materials 15%
- Waste 6%
- Land Use & Ecology 13%
- Pollution 8%
- Innovation Up to 10%

Within each of the sections of BREEAM are a range of different issues relating to the section, with credits awarded under an issue where the building meets or exceeds a performance benchmark defined by BREEAM. The percentage of available credits achieved within each section is multiplied by the section weighting factor and these are then summed to determine an overall percentage score. This BREEAM score corresponds to an overall rating as shown in table 2.1 below.

BREEAM Score (%)	BREEAM Rating
< 30	Unclassified
≥ 30 - < 45	Pass
≥ 45 - < 55	Good
≥ 55 - < 70	Very Good
≥ 70 - < 85	Excellent
≥ 85	Outstanding

Table 2.1 BREEAM Ratings

2.2 BREEAM Schemes

As previously mentioned, BREEAM can be used to assess a range of development types. In the UK the available BREEAM schemes are currently as follows:

- **BREEAM New Construction** – Used to assess new non-domestic construction. The default assessment type is for fully fitted buildings, but this can be adapted to assess ‘Simple Buildings’ (by filtering out some more technical credits and simplifying others), shell only and shell and core construction.
- **BREEAM Refurbishment & Fit Out** – Used to assess major refurbishment, minor refurbishment, reconfiguration and fit out of shell construction
- **BREEAM Domestic Refurbishment** – Used to assess buildings refurbished to provide residential accommodation
- **BREEAM Communities** – Used to assess master planning and frameworks
- **BREEAM Infrastructure** – Used to assess civil engineering and public realm projects
- **BREEAM In Use** – Used to assess the performance of buildings during operation

2.3 Minimum Performance Standards

Under the BREEAM method minimum performance standards are required within issues to achieve specific ratings. As one would expect, the number of applicable minimum performance standards increases with the higher BREEAM rating that is sought. Table 2.2 summarises the minimum performance standards required under a BREEAM NC 2018 assessment.

BREEAM Issue	Pass	Good	Very Good	Excellent	Outstanding
Man03: Responsible construction practices	-	-	-	One credit (Responsible construction management)	Two credits (Responsible construction management)
Man04: Commissioning & handover	-	-	One credit (Commissioning-test schedule and responsibilities)	One credit (Commissioning-test schedule and responsibilities)	One credit (Commissioning-test schedule and responsibilities)
Man04: Commissioning & handover	-	-	Criterion 11 (Building User Guide)	Criterion 11 (Building User Guide)	Criterion 11 (Building User Guide)
Man05: Aftercare*	-	-	-	One credit: (Commissioning implementation)	One credit: (Commissioning implementation)
Ene01: Reduction of CO2	-	-	-	Four credits (Energy performance)	Six credits (Energy performance) and Four credits (Energy modelling and reporting)
Ene02: Energy Monitoring	-	-	One credit (First sub-metering credit)	One credit (First sub-metering credit)	One credit (First sub-metering credit)
Wat01: Water consumption	-	One credit	One credit	One credit	Two credits
Wat02: Water monitoring	-	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only
Mat03 Responsible sourcing of materials	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only
Wst01: Construction waste management	-	-	-	-	One credit
Wst03: Operational waste	-	-	-	One credit	One credit

Table 2.1 Minimum Performance Standards of BREEAM NC 2018

2.4 BREEAM Assessment Stages

A BREEAM assessment typically comprises several different stages. Initially, a pre-assessment is completed to undertake a high-level review of current proposals against BREEAM compliance criteria. The aim of this pre-assessment stage is to establish a target score / rating and to identify any areas requiring action at an early stage. During the design stages a design stage assessment is completed, where design information and commitments are used to demonstrate how the development will comply with BREEAM criteria. At the end of this process a design stage 'interim' BREEAM certificate is issued. Finally, towards the end of the construction phase a post construction assessment is completed, in which the actual building features and performance are assessed against BREEAM compliance criteria. At the end of the post construction assessment a final post construction BREEAM certificate is issued.

The different stages of BREEAM are shown below against the relevant RIBA stages.

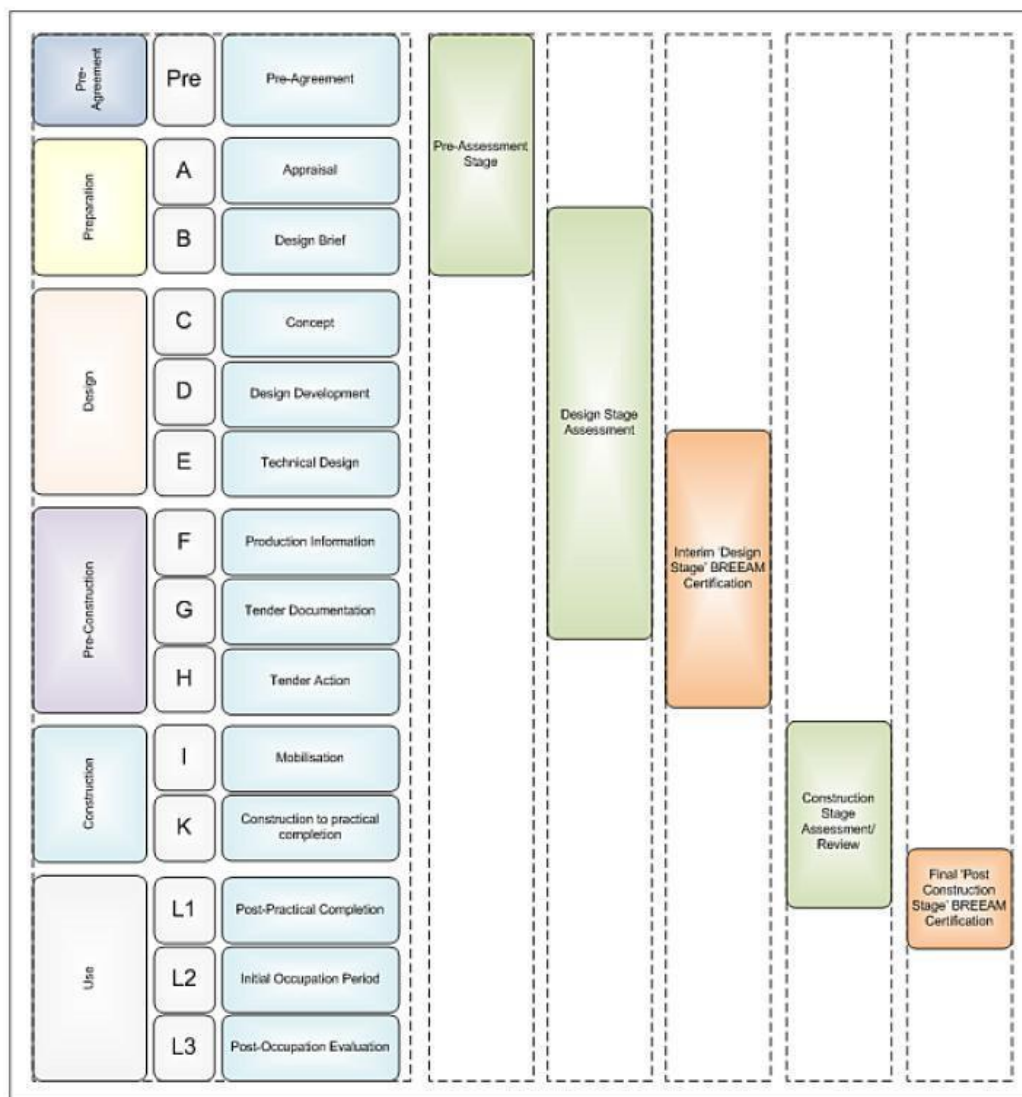


Figure 2.1 BREEAM assessment and RIBA stages

3.0 BREEAM Pre-Assessment

3.1 Summary

A BREEAM pre-assessment has been completed under the BREEAM NC 2018 scheme. This has been based upon discussions during an initial BREEAM workshop with the project team held on 17th September 2020 via video call, pre-application information provided, site location / opportunities / constraints and similar project experience. The primary purpose of this exercise is to determine the maximum BREEAM rating that could be achieved should a full assessment be completed and to advise the project team of any BREEAM related considerations at this early stage. The review also allowed any issues that are programme dependant or that could affect the planning process to be identified.

The pre-assessment has been completed for the proposed development based on current design intent. The criteria are assessed as 'fully fitted, which assumes that the fit out will be completed under the contract. The BREEAM pre-assessment score is 76.8%, which achieves an 'Excellent' rating with all mandatory requirements met. Table 3.1 provides a summary of the scores achieved in each section, whilst figure 3.1 shows the targeted credits against the BREEAM ratings.

BREEAM Section	Credits Available	Credits Targeted	% Achieved	% Section Weighting	Overall % Contribution
Management	21	21	100.00%	11.00%	11.00%
Health & Wellbeing	19	12	63.16%	14.00%	8.84%
Energy	22	11	50.00%	16.00%	8.00%
Transport	12	12	100.00%	10.00%	10.00%
Water	9	6	66.67%	7.00%	4.67%
Materials	14	12	85.71%	15.00%	12.86%
Waste	10	4	40.00%	6.00%	2.40%
Land Use & Ecology	13	10	76.92%	13.00%	10.00%
Pollution	12	9	75.00%	8.00%	6.00%
Innovation	10	3	30.00%	10.00%	3.00%
BREEAM Pre-Assessment Score					76.8%

Table 3.1 BREEAM Pre-Assessment Score Summary



Figure 3.1 BREEAM Pre-Assessment Rating

3.2 Potential Credits

The pre-assessment score of 76.8% achieves an 'Excellent' rating with an additional 6.8% to allow for unforeseen loss of credits during the assessment process. However, some additional issues were uncertain during the pre-assessment workshop and so these have been highlighted as 'potential' credits, the viability of which will be investigated as the project progresses.. During the pre-assessment meeting several BREEAM issues were identified that could be included within the target score to further increase this target score and provide more security to the targeted 'Excellent' rating, which are summarised below.

- **Hea 04: Thermal Comfort - Design for future thermal comfort** – At this stage it cannot be confirmed whether the current design will avoid overheating using a future probabilistic weather scenario for the 2050s. However, if the thermal modelling process confirms thermal comfort conditions can be maintained using a future weather file a credit worth 0.74% will be available.
- **Hea 05: Acoustic performance** – At present it is assume that airborne sound insulation between rooms and impact sound insulation between floors will improve upon Building regulations requirements by 3dB. However, if this can be improved to 5dB an additional credit worth 0.74% will be available.

- **Ene 01: Reduction of energy use and carbon emissions - Prediction of operational energy consumption** - An energy workshop and detailed energy modelling is not envisaged at this stage. This could be completed to achieve 4no credits worth 2.91%, although would have to be actioned very soon.
- **Ene 04: Low carbon design - Passive design analysis** – It is understood that energy modelling of the building to the required level required for a passive design analysis has not yet been completed. However, if this is undertaken by the end of stage 2 an additional credit with a value of 0.73% is available.
- **Wat 01: Water consumption** – At present it is assumed that low water consuming fittings will be installed within WC/shower pods, kitchens and common area WCs. However, if ultra-low water use fittings are installed an additional credit worth 0.78% will be viable.
- **Mat 06: Material Efficiency** – It is understood a materials efficiency analysis has not been completed. However, as the LCA software can provide output report to support this credit it could be considered and if adopted would improve the target score by 1.07%.
- **Wst 02: Use of recycled and sustainably sourced aggregates** – At this stage it is uncertain whether a source of recycled aggregate would be available, or whether recycled aggregate would be 'fit for purpose' within the required use categories. This credit, worth 0.60%, should be reviewed again post contract.
- **Wst 05 Adaptation to Climate Change:** - Initial study of the design's climate change resilience has not been completed. However, the LCA software can output reports to support this credit and so it could be considered. If completed an uplift of 0.60% to the score could be expected.
- **LE 01: Site selection - Contaminated land** – Once complete the Site Investigation may show there is contamination on site. If this is the case and a remediation strategy is put in place a credit with a value of 1.00% will be available.
- **Hea 01: Visual Comfort (innovation)** – An exemplary level credit is available under the issue where manual dimming down to 20% of output is provided to lights within occupied areas. This could be incorporated into the lighting design to achieve the credit, worth 1.00%.

The above measures provide a total uplift of 10.2%, improving the target score from 76.8% to 86.9% if all adopted. However, whilst some of these could be adopted at additional cost it is unlikely that all will be available as some depend on favourable results from relevant analyses and investigations.

3.3 Pre-Assessment Matrix

Management	Available		Targeted		Potential		Comments
	Credits	%	Credits	%	Credits	%	
Man 01: Project brief and design > 1. Project delivery planning	1	0.52%	1	0.52%			RIBA Plan of Works Toolbox and details of project delivery team consultation (i.e. feasibility / concept design stage meeting minutes demonstrating communication of client brief) required. Required by end of stage 2.
Man 01: Project brief and design > 2. Stakeholder consultation	1	0.52%	1	0.52%			Local stakeholder consultation information to be provided to confirm this was completed in accordance with specific BREEAM requirements during stage. Required by end of stage 2.
Man 01: Project brief and design > 3. BREEAM Advisory Professional : BREEAM AP (Concept Design)	1	0.52%	1	0.52%			BREEAM AP appointed to provide input and design advise in relation to BREEAM during concept design stage. Required by end of stage 2.
Man 01: Project brief and design > 3. BREEAM Advisory Professional : BREEAM AP (Developed Design)	1	0.52%	1	0.52%			BREEAM AP appointed to provide input and design advise in relation to BREEAM during technical design stage. Dependant on above credit being achieved.
Man 02: Life cycle cost and service life planning > 1. Elemental life cycle cost (LCC)	2	1.05%	2	1.05%			Elemental level LCC can be completed by LCA consultant using the same software package. Required by end of stage 2.
Man 02: Life cycle cost and service life planning > 2. Component level life options appraisal	1	0.52%	1	0.52%			Component level LCC can be completed by LCA consultant using the same software package. Required by end of stage 4.
Man 02: Life cycle cost and service life planning > 3. Capital cost reporting	1	0.52%	1	0.52%			Prepare a cost plan showing construction value in £/sqm.
Man 03: Responsible construction practices > 3. Environmental management	1	0.52%	1	0.52%			Contract to require main contractor to hold ISO14001 certification.
Man 03: Responsible construction practices > 4. BREEAM Advisory Professional (Site)	1	0.52%	1	0.52%			Contract to require appointment of BREEAM AP during the construction phase to influence and monitor site activities.
Man 03: Responsible construction practices > 5. Responsible construction management	2	1.05%	2	1.05%			Contract to require main contractor to register site with Considerate Constructor's Scheme and commit to achieving a score of 35, with at least 7 scored under each section.
Man 03: Responsible construction practices > 6. Monitoring of construction site impacts : Utility consumption	1	0.52%	1	0.52%			Contract to require main contractor to monitor and record site energy use & water use on a monthly basis and report against KPIs.
Man 03: Responsible construction practices > 6. Monitoring of construction site impacts : Transportation of construction materials and waste	1	0.52%	1	0.52%			Contract will require main contractor to monitor delivery & waste vehicles movements.

Man 04: Commissioning and handover > 1. Commissioning - testing schedule and responsibilities	1	0.52%	1	0.52%			M&E consultant to prepare a commissioning schedule, including equipment to be commissioned, standards to be commissioned to and programme. All commissioning activities to be monitored by M&E consultant.
Man 04: Commissioning and handover > 2. Commissioning - design and preparation	1	0.52%	1	0.52%			Appointment of a specialist to: i. Undertake design reviews and giving advice on suitability for ease of commissioning ii. Provide commissioning management input to construction programming and during installation stages iii. Manage commissioning, performance testing and handover/post-handover stages.
Man 04: Commissioning and handover > 3. Testing and inspecting building fabric	1	0.52%	1	0.52%			Appointment required of a suitably qualified thermographer to undertake a thermographic survey and confirm integrity of fabric.
Man 04: Commissioning and handover > 4. Handover	1	0.52%	1	0.52%			Main contractor to prepare a Building User Guide and a training schedule. Training to cover the design intent, the available aftercare team, the BUG contents, Introduction to systems & maintenance requirements.
Man 05: Aftercare > 1. Aftercare support	1	0.52%	1	0.52%			Main contractor to offer aftercare support to client by having a presence on site, facilitating training and being available for 12 months after handover. Client to monitor energy, water and occupancy satisfaction quarterly for first 12 months of occupation.
Man 05: Aftercare > 2. Commissioning - implementation	1	0.52%	1	0.52%			Seasonal commissioning to be completed at 3, 6 & 9 months intervals after handover to ensure systems are functioning correctly at all times of year. Could be undertaken under maintenance contract.
Man 05: Aftercare > 3. Post Occupancy Evaluation (POE)	1	0.52%	1	0.52%			Client to instruct an independent 3rd party to complete a POE 12 months after occupation, prepare a case study about the project and publish on website. Funds for this exercise should be allocated within the cost plan.
Management Totals	21	11.00%	21	11.00%	0	0.00%	

Health and Wellbeing	Available		Targeted				Comments
	Credits	%	Credits	%			
Hea 01: Visual comfort > 1. Control of glare from sunlight control	1	0.74%	1	0.74%			Blinds or other glare control measures to be installed where required (i.e. South, East & West elevations in areas where computers screens are likely to be used).
Hea 01: Visual comfort > 2. Daylighting	2	1.47%	0	0.00%			Based on similar project experience it is anticipated that daylight levels within study rooms will not meet BREEAM requirements.
Hea 01: Visual comfort > 3. View out	1	0.74%	1	0.74%			Plans and elevations to be provided to show that 95% of occupied floor area where computer screens are likely to be used will achieve a view out of a window.

Hea 01: Visual comfort > 4. Internal and external lighting levels, zoning and control	1	0.74%	1	0.74%			Lighting design to follow SLL Code for Lighting 2012, LG7 and be appropriately zoned. Any external lighting to meet BS 5489-1:2013 & BS EN 12464-2:2014.
Hea 02: Indoor air quality > 2. Ventilation	1	0.74%	1	0.74%			Due to the urban context of the site it is likely that a mechanical ventilation strategy will be adopted. This will provide fresh air in accordance with CIBSE guide A requirements and will incorporate filtration in accordance with BS EN 16798:2017 to ensure air quality is maintained. An indoor air quality plan will also be prepared to ensure good air quality is maintained through operation.
Hea 02: Indoor air quality > 3. Emissions from construction products	2	1.47%	0	0.00%			Requires detailed management of sub-contractors and the materials they use as finishes materials must all comply with the relevant BS, which may alter specs etc. Therefore not targeted at this stage.
Hea 02: Indoor air quality > 4. Post-construction indoor air quality measurement	1	0.74%	0	0.00%			VOC testing will not be completed as previous credit has not been targeted.
Hea 04: Thermal comfort > 1. Thermal modelling	1	0.74%	1	0.74%			Thermal modelling to be completed using dynamic simulation software to confirm thermal comfort is maintained all year in accordance with CIBSE TM59 and TM52.
Hea 04: Thermal comfort > 2. Design for future thermal comfort	1	0.74%	0	0.00%	1	0.74%	Unlikely to be achievable due to level of ventilation required and weather file to be used. However this should be checked during modelling process as a credit may be possible.
Hea 04: Thermal comfort > 3. Thermal zoning and controls	1	0.74%	1	0.74%			Thermal modelling to be used to confirm controls strategy is effective, with adjustments made where modelling identifies problems.
Hea 05: Acoustic performance > 1. Sound insulation	2	1.47%	1	0.74%	1	0.74%	Acoustic consultant to confirm that airborne and impact sound insulation between spaces improved on Building Regs by 3dB. Pre-completion testing would be required to confirm this so should be included under the contract. A second credit is available if the sound insulation improvement is 5dB.
Hea 05: Acoustic performance > 2. Indoor ambient noise level	1	0.74%	1	0.74%			Acoustic consultant to confirm that ambient noise levels and reverberation levels to occupied areas comply with BS8233:2014. Pre-completion testing would be required to confirm this so should be included under the contract.
Hea 05: Acoustic performance > 3. Room acoustics	1	0.74%	1	0.74%			
Hea 06: Security	1	0.74%	1	0.74%			Security consultant to be engaged to complete a Security Needs Assessment to ensure site is designed with security in mind. Required by end of stage 2.
Hea 07: Safe and healthy surroundings > 1. Safe access	1	0.74%	1	0.74%			Site plan will confirm that pedestrians and cyclists have safe access to the building & cycle storage facilities from public footpath / highway.
Hea 07: Safe and healthy surroundings > 2. Outside space	1	0.74%	1	0.74%			Outside amenity space will be provided on site in the form of a roof terrace.
Health and Wellbeing Totals	19	14.00%	12	8.84%	2	1.47%	

Energy	Available		Targeted		Potential		Comments
	Credits	%	Credits	%	Credits	%	
Ene 01: Reduction of energy use and carbon emissions > 1. Energy performance	9	6.55%	4	2.91%			Based upon discussions around the proposed energy strategy it is likely that these credits will be challenging to achieve. However, a minimum of 4no credits is required for an Excellent rating and so these must be targeted. A copy of the preliminary BRUKL will be required in order to assess the BREEAM performance.
Ene 01: Reduction of energy use and carbon emissions > 2. Prediction of operational energy consumption	4	2.91%	0	0.00%	4	2.91%	<i>An energy workshop and detailed energy modelling is not envisaged at this stage. This could be completed to achieve 4no credits although would have to be actioned very soon. Required by end of stage 2.</i>
Ene 02: Energy monitoring > 1. Sub-metering of end use categories	1	0.73%	1	0.73%			Sub-metering regime to be installed to ensure that 90% of primary energy use is identifiable, i.e. sub metering of key systems. Also relevant function areas to be separately sub-metered.
Ene 03: External lighting	1	0.73%	1	0.73%			External lighting to have efficacy of 60 lms/W and be automatically controlled using presence detection and time switch or daylight control.
Ene 04: Low carbon design > 1. Passive design : Passive design analysis	1	0.73%	0	0.00%	1	0.73%	<i>Assumed not addressed at this stage as would involve a level of modelling that has not been completed. However, if completed an additional credit is available. The passive design measures would need to demonstrate a reduction in CO2 emissions of at least 5% can be achieved.</i>
Ene 04: Low carbon design > 1. Passive design : Free cooling	1	0.73%	0	0.00%			Assumed no free cooling strategy at present. Would require the above credit to be achieved.
Ene 04: Low carbon design > 2. Low and zero carbon technologies	1	0.73%	1	0.73%			LZC feasibility assessment required, which should demonstrate at least 10% of regulated energy will be provided by on site technologies. PV will be installed at roof level, although the space available is limited and so this is unlikely to offer a significant reduction in CO ₂ emissions
Ene 06: Energy Efficient transportation systems > 1. Energy consumption	1	0.73%	1	0.73%			Lift supplier to complete traffic analysis and energy comparison to ensure lift is suitably sized and low energy option. Specified lift to include low energy features such as VVVF drive, standby mode and LED lighting.
Ene 06: Energy Efficient transportation systems > 2. Energy efficient features : Lifts	1	0.73%	1	0.73%			
Ene 08: Energy efficient equipment	2	1.45%	2	1.45%			White goods in kitchens to achieve the following energy performance under EU Energy Labelling Scheme: 1. Fridges, fridge-freezers: A+ rating 2. Washing machines: A++ rating 3. Dishwashers: A+ rating 4. Washer-dryers: A rating 5. Tumble dryers: A rating
Energy Totals	22	16.00%	11	8.00%	5	3.64%	

Transport	Available		Targeted		Potential		Comments
	Credits	%	Credits	%	Credits	%	
Tra 01: Transport assessment and travel plan	2	1.67%	2	1.67%			Planning stage travel plan to be provided.
Tra 02: Sustainable transport measures	10	8.33%	10	8.33%			The following transport issues are possible: 1. Site in close proximity to public transport nodes 2. Transport information screen in lobby 3. Covered and secure cycle storage to be provided 4. Shower / changing area to be provided for staff use 5. Amenities available locally. 6. Consult with LA regarding improvement of local cycle network under section 278. GMAL for the site indicates that it has an AI of 54.63, therefore the 6 items listed above will achieve 10no credits.
Transport Totals	12	10.00%	12	10.00%	0	0.00%	

Water	Available		Targeted		Potential		Comments
	Credits	%	Credits	%	Credits	%	
Wat 01: Water consumption	5	3.89%	2	1.56%	1	0.78%	Low water consumption sanitary fittings to be specified as follows: WCs - 6/3L dual flush Taps - 6L/min Showers - 8L/min <i>Should ultra-low water fitting be specified an additional credit may become available.</i>
Wat 02: Water monitoring	1	0.78%	1	0.78%			Pulsed output water meter to be installed on incoming water supply and monitored by BMS.
Wat 03: Water leak detection > 1. Leak detection system	1	0.78%	1	0.78%			Water leak detection system to be installed to sound alarm if a water leak is detected. This should be monitored by BMS.
Wat 03: Water leak detection > 2. Flow control devices	1	0.78%	1	0.78%			Water supply to <u>non-study room</u> WC areas to be controlled via PIR to be switched off when WC not in use.
Wat 04: Water efficient equipment	1	0.78%	1	0.78%			Planting areas to avoid the use of fixed irrigation systems.
Water Totals	9	7.00%	6	4.67%	1	0.78%	

Materials	Available		Targeted		Potential		Comments
	Credits	%	Credits	%	Credits	%	
Mat 01: Environmental impacts from construction products - Building life cycle assessment (LCA) > 1. Superstructure	6	6.43%	6	6.43%			LCA discussed during meeting. This will achieve 7 points in this section if completed. Required by the end of stage 2/3.
Mat 01: Environmental impacts from construction products - Building life cycle assessment (LCA) > 2. Substructure	1	1.07%	1	1.07%			

Mat 02: Environmental impacts from construction products - Environmental Product Declarations (EPD)	1	1.07%	1	1.07%			Materials with robust environmental performance information such as EPDs to be included in spec or requirement to be included in contract.
Mat 03: Responsible sourcing of construction products > 1. Pre-requisite - Legally harvested and traded timber	0	0.00%	0	0.00%			Contract to require main contractor to ensure all timber is FSC certified.
Mat 03: Responsible sourcing of construction products > 2. Enabling sustainable procurement	1	1.07%	1	1.07%			Contract to require main contractor to adopt a sustainable procurement policy.
Mat 03: Responsible sourcing of construction products > 3. Measuring responsible sourcing	3	3.21%	2	2.14%			Contract to require main contractor and to procure key materials from supplier capable of providing EMS certification for the product such as ISO 14001 or BES 6001.
Mat 05: Designing for durability and resilience	1	1.07%	1	1.07%			Architect to identify areas of the design where durability is required and environmental degradation is a risk, with appropriate protection measures specified.
Mat 06: Material efficiency	1	1.07%	0	0.00%	1	1.07%	<i>A materials efficiency analysis could be completed using information from the LCA consultant to pick up this credit. Required by the end of stage 2/3.</i>
Materials Totals	14	15.00%	12	12.86%	1	1.07%	

Waste	Available		Targeted		Potential		Comments
	Credits	%	Credits	%	Credits	%	
Wst 01: Construction waste management > 1. Pre-demolition audit	1	0.60%	0	0.00%			Site already cleared and pre-refurbishment audit to not completed at the appropriate time.
Wst 01: Construction waste management > 2. Construction resource efficiency	3	1.80%	2	1.20%			Main contractor to register with Smartwaste or similar and ensure that construction waste is limited to 6.5 tonnes or 7.5m3 per 100sqm GFA.
Wst 01: Construction waste management > 4. Diversion of resources from landfill	1	0.60%	1	0.60%			Main contractor to ensure that 80% of waste by volume or 90% by weight does not go to landfill.
Wst 02: Use of recycled and sustainably sourced aggregates	1	0.60%	0	0.00%	1	0.60%	<i>It is uncertain at this stage whether a source of recycled aggregate is available for use on site, or whether aggregate with recycled content is appropriate for use. This credit could be picked up at a later stage if possible.</i>
Wst 03: Operational waste	1	0.60%	1	0.60%			Dedicated recycling waste storage area of at least 20sqm to be provided with easy access for collections. Kitchens to be provided with dedicated recycling waste bins, food waste bins and composting information. Food waste collections to be arranged.
Wst 05: Adaptation to climate change	1	0.60%	0	0.00%	1	0.60%	<i>This analysis is not currently envisaged but could be completed by the LCA consultant under their scope. Required by end of stage 2/3.</i>

Wst 06: Design for disassembly and adaptability > 1. Recommendations	1	0.60%	0	0.00%			This level of analysis has not currently been allowed for and it is likely too late to action this.
Wst 06: Design for disassembly and adaptability > 2. Implementation	1	0.60%	0	0.00%			
Waste Totals	10	6.00%	4	2.40%	2	1.20%	

Land Use and Ecology	Available		Targeted		Potential		Comments
	Credits	%	Credits	%	Credits	%	
LE 01: Site selection > 1. Previously occupied land	1	1.00%	1	1.00%			Existing and proposed site plans to show site footprints falls on previously developed site.
LE 01: Site selection > 2. Contaminated land	1	1.00%	0	0.00%	1	1.00%	<i>An SI report and remediation strategy may show site is contaminated and will need to be remediated, although this has not yet been confirmed.</i>
LE 02: Identifying and understanding the risks and opportunities for the project > 2. Survey and evaluation	1	1.00%	1	1.00%			From initial discussions with Wardell Armstrong there is a good availability of credits within the ecology section due to the lack of ecological value and urban context of the existing site. Ecologist to complete the BREEAM GN40 pro forma to ensure the ecology credits are achieved, have input throughout the design stages and collaborate with the various disciplines. Ecologist's recommendations should be incorporated into the design and a management plan should be developed. Ecologist input required by the end of stage 2.
LE 02: Identifying and understanding the risks and opportunities for the project > 3. Determining the ecological outcomes for the site	1	1.00%	1	1.00%			
LE 03: Managing negative impacts on ecology > 2. Planning, liaison, implementation and data	1	1.00%	1	1.00%			
LE 03: Managing negative impacts on ecology > 3. Managing negative impacts of the project	2	2.00%	2	2.00%			
LE 04: Change and enhancement of ecological value > 2. Change and enhancement of ecology	3	3.00%	1	1.00%			
LE 04: Change and enhancement of ecological value > 3. Liaison, implementation and data collation	1	1.00%	1	1.00%			
LE 05: Long term ecology management and maintenance > 2. Planning, liaison, data, monitoring and review management and maintenance	1	1.00%	1	1.00%			
LE 05: Long term ecology management and maintenance > 3. Landscape and ecology management plan (or similar) development	1	1.00%	1	1.00%			
Land Use and Ecology Totals	13	13.00%	10	10.00%	1	1.00%	

Pollution	Available		Targeted		Potential		Comments
	Credits	%	Credits	%	Credits	%	
Pol 01: Impact of refrigerants	3	2.00%	3	2.00%			At present it is assumed that there are no significant refrigerant using systems present and so maximum credits will be available. Please advise if this is not the case.

Pol 02: Local air quality	2	1.33%	0	0.00%			Cannot be achieved unless boiler and CHP with NOx emissions below 27mg/kWh can be installed.
Pol 03: Flood and surface water management > 2. Flood resilience	2	1.33%	2	1.33%			The site appears to fall just on the boundary of flood zone 2 and so it is not entirely clear if there is a risk of flooding. If there is, a Flood Risk Assessment should be submitted to demonstrate that the lower floors are suitably robust to endure flooding and that the building is designed above the flood level.
Pol 03: Flood and surface water management > 3. Surface water run-off : Rate	1	0.67%	1	0.67%			Peak run off from site will be reduced by at least 30% through on-site attenuation measure and volume run off will not increase . Structural engineer to confirm with calcs.
Pol 03: Flood and surface water management > 3. Surface water run-off : Volume	1	0.67%	1	0.67%			
Pol 03: Flood and surface water management > 5. Minimising watercourse pollution	1	0.67%	0	0.00%			As discussed no infiltration will be provided on site so first 5mm of rainfall will enter local drains, which makes the credit unviable.
Pol 04: Reduction of night-time light pollution	1	0.67%	1	0.67%			External lighting to be designed in accordance with ILP guidance notes for reduction of obtrusive light and time switch controlled.
Pol 05: Reduction of noise pollution	1	0.67%	1	0.67%			Acoustic consultant to complete a noise impact assessment in accordance with BS 4142 to confirm no risk of noise pollution to local residents. HVAC system to be specified in accordance with recommended dB thresholds.
Pollution Totals	12	8.00%	9	6.00%	0	0.00%	

Innovation	Available		Targeted		Potential		Comments
	Credits	%	Credits	%	Credits	%	
Inn 01: Innovation	10	10.00%	0	0.00%			
Man 03: Responsible construction practices > 1. Responsible construction management	1	1.00%	0	0.00%			
Hea 01: Visual comfort > 1. Daylighting	1	1.00%	0	0.00%			
Hea 01: Visual comfort > 2. Internal and external lighting	1	1.00%	0	0.00%	1	1.00%	An innovation credit is available where manual dimming down to 20% output is provided to lights within occupied areas.
Hea 02: Indoor air quality	1	1.00%	0	0.00%			
Hea 06: Security	1	1.00%	0	0.00%			
Ene 01: Reduction of energy use and carbon emissions > 1. Energy performance	3	3.00%	0	0.00%			
Ene 01: Reduction of energy use and carbon emissions > 2. Prediction of operational energy consumption : Post-occupancy stage	2	2.00%	0	0.00%			
Wat 01: Water consumption	1	1.00%	0	0.00%			

Mat 01: Environmental impacts from construction products - Building life cycle assessment (LCA) > 1. Core building services options appraisal during Concept Design	1	1.00%	1	1.00%			These innovation credits can be achieved through the LCA modelling process.
Mat 01: Environmental impacts from construction products - Building life cycle assessment (LCA) > 2. LCA and LCC alignment	1	1.00%	1	1.00%			
Mat 01: Environmental impacts from construction products - Building life cycle assessment (LCA) > 3. Third party verification	1	1.00%	1	1.00%			
Mat 03: Responsible sourcing of construction products	1	1.00%	0	0.00%			
Wst 01: Construction waste management > 1. Construction resource efficiency	1	1.00%	0	0.00%			
Wst 02: Use of recycled and sustainably sourced aggregates	1	1.00%	0	0.00%			
Wst 05: Adaptation to climate change	1	1.00%	0	0.00%			
LE 02: Identifying and understanding the risks and opportunities for the site	1	1.00%	0	0.00%			
LE 04: Change and enhancement of ecological value	1	1.00%	0	0.00%			
Innovation Totals (Up to a maximum of 10 credits)	10	10.00%	3	3.00%	1	1.00%	
Overall Totals	142	110.0%	100	76.8%	113	86.9%	

4.0 Conclusion

The proposed student residential development on Deansgate, Manchester has been designed to minimise the environmental impact of the construction process and maximise its sustainability, creating a low energy, environmentally conscious and crucially pleasant living environment for the future occupants. A number of sustainable features will be incorporated into the design to achieve this as detailed within this report.

The scheme has been assessed against BREEAM New Construction 2018 'Multi-Residential' criteria. The predicted BREEAM score of 76.8% demonstrates that an 'Excellent' rating will be achieved when the full assessment is undertaken. The minimum score required to achieve an 'Excellent' rating is 70%, and therefore the proposed score includes an additional 6.8% over this threshold score to allow for any unforeseen short fall during the assessment process.

From the pre-assessment exercise it is clear that a BREEAM 'Excellent' rating is the highest realistic rating that the proposed unit could achieve under full certification. Many of the additional credits identified as 'potential' would involve additional consultant appointments to be made or cannot be confirmed at this stage. Whilst it is possible that some of these credits could be targeted as the project progresses it is unlikely that all will be available.

Therefore, the proposed BREEAM strategy is to target a BREEAM 'Excellent' rating, with an aspiration to maximise the achieved score as far as practicable.

The client and project team are fully committed to exploring all available options to improve the target score and maintain the 'Excellent' rating throughout the assessment process.