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UNIVERSITY COLLEGE OF LONDON – THORNHAUGH MEWS

BREEAM PRE-ASSESSMENT

RAMBOLL

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BREEAM PRE-ASSESSMENT

Revision	**02**
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1. EXECUTIVE SUMMARY

Ramboll has been commissioned by the University College of London to carry out the BREEAM pre-assessment for the extension of the Institute of Education's library. The extension will also involve alterations to the building bordering the site, construction of an access road, and the creation of a conservation roof (also known as a green or a brown roof) within the centre of the development.

A pre-assessment meeting was held with the design team on June 7th 2016 to assess the building against the BREEAM New Construction 2014 (BREEAM NC 2014) requirements.

This report details the results obtained from the pre-assessment meeting and summarises the targeted scores for each section. A section covering the credits that require early consideration has been included to ensure that the appropriate requirements are actioned during the early stages of the design process.

The BREEAM target for the Thornhaugh Mews building is to achieve a rating of 'Excellent' in accordance with the wider sustainability aspiration for the proposed development. This requires an assessment score of at least 70% as well as achieving the minimum standards for the rating.

The initial pre-assessment review indicates a score of 70.90% is achievable. This score translates into a BREEAM rating of 'Excellent'.

The pre-assessment includes a number of credits, which are currently considered possible; however these carry some risk, which will require the design development to ensure that the credits can be achieved when a formal assessment is undertaken.

Full details of the credits currently being targeted to achieve an 'Excellent' rating are also included in the tracker in Appendix A.

2. BREEAM NEW CONSTRUCTION 2014

BREEAM is the Building Research Establishment's Environmental assessment method. The scheme aims to:

- Mitigate the life cycle impacts of buildings on the environment;
- Enable buildings to be recognized according to their environmental benefits;
- Provide a credible environmental label for buildings; and
- Stimulate the demand for sustainable buildings.

It is now a widely used and recognised standard to describe a building's environmental performance.

A BREEAM assessment is split into two parts, a design stage (DS) and a post-construction stage (PCS) assessment. The DS assessment results in an interim BREEAM certificate that confirms the building's performance at the design stage of the lifecycle. As indicated by its name, this stage of the assessment occurs during the design development of a scheme and therefore, does not represent a building's final performance against the BREEAM criteria, as this may change as construction is undertaken. The final BREEAM certificate is issued once the Post-Construction stage assessment has been validated by the BRE. It serves to confirm that the building's 'as-built' performance and rating are in accordance with that certified at the Design stage.

For a specific BREEAM rating to be achieved, the minimum percentage score needs to be achieved, and the minimum standards applicable to that rating complied with. The minimum standards applicable to each rating serve to ensure that performance against fundamental environmental issues is not over-looked in pursuit of a particular rating. Several minimum standards need to be met to achieve an 'Excellent' rating. These are identified in the report.

Formal certification cannot be achieved until this assessment is completed and submitted to BRE for approval.

BREEAM Thresholds

BREEAM ratings range between 'Pass' and 'Outstanding'. The rating achieved is dependent on the percentage score achieved and achieving the required minimum standards appropriate to each rating level. The ratings thresholds are as follows:

- Unclassified <30%
- Pass ≥30%
- Good ≥45%
- Very Good ≥55%
- Excellent ≥70%
- Outstanding ≥85%

3. TRACKER PLUS

The assessment has been set up on Tracker plus, which is an online based BREEAM project management system, used to streamline the delivery of the assessment.

The design team members can access Tracker plus to check the most up to date score, credits targeted, credit and evidence requirements as well as upload evidence for credits. The BREEAM assessor will provide login details for accessing the BREEAM assessment on Tracker plus for team members who are responsible for providing evidence for the assessment.

4. PRE-ASSESSMENT SUMMARY

The purpose of the pre-assessment is to establish a baseline of issues/credits, which need to be targeted based on a number of assumptions and the project details in the early stages. The pre-assessment gives a broad overview of the process and provides a strategy to achieve a desired rating.

The results from the pre-assessment carried out under BREEAM New Construction 2014 (Issue 4.1) are detailed below.

A breakdown of credits targeted against credits available is provided in Table 1, which also shows the weighted percentage value for each section.

Table 1. Pre-assessment BREEAM result

BREEAM Section	Credits Targeted	Credits Available	% of Credits Achieved	Section Weighting	Section score
Management	18	21	85.71%	0.12	10.29%
Health & Wellbeing	13	18	72.22%	0.15	10.83%
Energy	14	23	60.86%	0.15	9.13%
Transport	10	11	90.90%	0.09	8.18%
Water	7	9	77.78%	0.07	5.44%

BREEAM Section	Credits Targeted	Credits Available	% of Credits Achieved	Section Weighting	Section score
Materials	9	14	64.29%	0.135	8.68%
Waste	3	8	37.50%	0.085	3.19%
Land Use & Ecology	9	10	90.00%	0.10	9.00%
Pollution	8	13	61.54%	0.10	6.15%
				Total Score	70.90%
				Innovation Credits Achieved	0.00%
				FINAL BREEAM Score	70.90%
				BREEAM Rating	Excellent

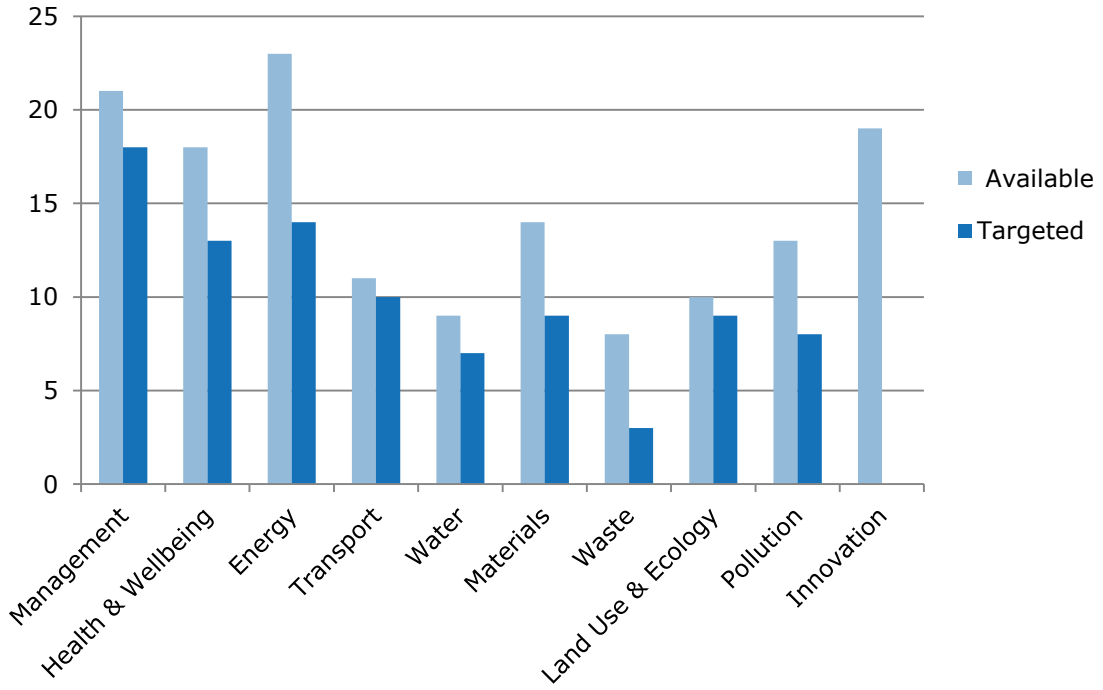
Table 2 summarizes the minimum standards that need to be achieved in order to qualify for an 'Excellent' rating and shows that all minimum standards have been targeted for the proposed development.

Table 2. Compliance with BREEAM minimum standards for an Excellent rating

Minimum Standards for BREEAM 'Excellent' rating	Targeted?
Man 03 – Responsible construction practices (CCS)	✓
Man 04 – Commissioning and handover (BUG)	✓
Man 05 – Aftercare (Seasonal commissioning)	✓
Ene 01 – Reduction of energy use and carbon emissions (5 credits)	✓
Ene 02 – Energy monitoring (first credit)	✓
Wat 01 - Water consumption	✓
Wat 02 – Water monitoring	✓
Mat 03 – Responsible sourcing	✓
Wst 03 – Operational waste	✓
LE 03 – Mitigating ecological impact	✓

Figure 2 below sets out how the proposed development has performed under each of the different BREEAM sections.

Figure 2. Comparison of targeted credits against available credits per section



5. TARGETED CREDITS THAT REQUIRE EARLY CONSIDERATION

Certain credits need to be addressed and considered by the design team during the early stages of the design process. In some cases a specific timeline for when the credit needs to be addressed is stipulated and forms part of the BREEAM requirements. These credits are listed below to ensure that the actions required to achieve these credits are taken at the appropriate time.

The requirements described below have been summarized and therefore do not correspond to the full set of requirements that need to be achieved in order for the credit to be awarded.

1.1 Targeted credits

Man 01 Project brief and design

One credit – Stakeholder consultation (project delivery)

Prior to completion of the Concept Design (RIBA Stage 2), the project delivery stakeholders have met to identify and define their roles, responsibilities and contributions for each of the key phases of project delivery.

One credit - Sustainability Champion (design)

A Sustainability Champion is appointed during the feasibility stage (Stage 1).
The defined BREEAM performance target(s) has been formally agreed between the client and design/project team no later than the Concept Design stage (RIBA Stage 2).

Man 02 Life cycle cost and service life planning

An elemental life cycle cost (LCC) analysis has been carried out at Process Stage 2 (equivalent to Concept Design - RIBA Stage 2) together with any design option appraisals.

Ene 04 Low carbon design

One credit - Low zero carbon feasibility study

The feasibility study is updated by the completion of the Concept Design stage (RIBA Stage 2).

Tra 05 Travel Plan

A travel plan has been developed as part of the feasibility and design stages.

LE 04 Enhancing site ecology

One credit - Ecologist's report and recommendations

A suitably qualified ecologist (SQE) is appointed by the client by the end of the Preparation and Brief stage (RIBA Stage 1) to advise on enhancing the ecology of the site at an early stage. The SQE has provided an Ecology Report with appropriate recommendations for the enhancement of the site's ecology at Concept Design stage (RIBA Stage 2).

6. ADDITIONAL APPOINTMENTS

An early stage review of the reports that had been prepared for the building has been carried out by the BREEAM assessor. Based on the information provided in the reports and on the requirements that need to be met to achieve the targeted credits, the following additional appointments/work is required:

- Man 01 – Additional Sustainability Champion (BREEAM Accredited Professional) appointment at RIBA Stage 1
- Man 02 – Life cycle cost analysis at RIBA Stage 2
- Hea 02 – An Indoor air quality plan needs to be carried out
- Hea 05/Pol 05 – Suitably qualified acoustician needs to be appointed
- Ene 04 – An updated low zero carbon feasibility study is required to include all the missing requirements
- Tra 05 – Transport statement addendum is required to cover the points that are missing. UCL transport consultant to prepare addendum to travel plan.
- Land use and ecology credits – Suitably qualified ecologist to update Ecology report and include missing requirements.
- Pol 03 – Confirmation from EA that the site has low flood risk.

7. CONCLUSION

Following the initial review of the scheme against the BREEAM New Construction 2014 criteria, a credible strategy has been proposed to deliver a BREEAM 'Excellent' building.

The design team is to develop and adapt the design to ensure the credits can be achieved as per the targets set. The BREEAM assessor has been and will continue to form an integral part of the design team and a consistent point for reference, review and questions. Following this principle is proven through experience to offer the surest route to a successful BREEAM certification and holistic sustainable design.

APPENDIX 1

BREEAM NEW CONSTRUCTION 2014 – PRE-ASSESSMENT

		Available	Targeted	Responsibility	Comments
Man 01	Project brief and design	4	3	Nick Hufton (SEH)	**Stakeholder consultation - 1 credit targeted** Consultation was carried out in 2007/2008. Information relating to the consultation process will need to be sent to the assessor to determine whether the documentations/actions that took place are sufficient to meet all the requirements for achieving this credit. The following forms of evidence should be submitted: • A list of the stakeholders consulted • A consultation plan setting out the process and the scope of the consultation • Agenda/minutes from consultation meetings • Documentation demonstrating consultation feedback and subsequent actions. **Stakeholder consultation (third party) - not targeted but added as potential** As it's unlikely that third party consultation was carried out using the DQI this credit may not be achievable. There may be a possibility of targeting the credit if it can be demonstrated that the organisation that carried out the consultation (if they were also involved in the design (e.g. architects, client, etc.)), provide evidence that robustly demonstrates the independence of the consultation process. BREEAM doesn't define what form this evidence must take; the onus is on the design team or relevant individual to clearly demonstrate to the BREEAM assessor a credible level of independence. UCL to investigate if any of their other buildings had this issue and what type of evidence was used to achieve this credit. **Sustainability champion (AP) - 2 credits targeted** A query has been sent to BRE to determine whether it is possible to still achieve this credit given the design programme. If this credit can still be achieved then an additional BREEAM AP appointment is required during RIBA Stage 1 and should be carried out as soon as possible.
Man 02	Life cycle cost and service life planning	4	3	To be appointed (Cost consultant)	**Elemental LCC - 2 credits targeted** Requires an additional appointment to carry out a life cycle cost analysis at RIBA stage 2. **Component LCC - Not targeted but added as a potential credit** Scope of works for the LCC would need to be broadened and carried out at component level at RIBA Stage 4. **Capital cost reporting - 1 credit targeted**
Man 03	Responsible construction practices	6	5	Ben Stubbs (UCL)	**Environmental management - 1 credit targeted** **Sustainability champion - Not targeted but has been added as potential credit**

					Requires an AP to be appointed and involved during construction. **Considerate construction - 2 credits targeted – MINIMUM STANDARD for Excellent rating (1 credit)** **Monitoring of construction site impacts - 2 credits targeted** All credit requirements will be added to the Constructors Responsibility Report to be used as evidence.
Man 04	Commissioning and handover	4	4	Ben Stubbs (UCL)	**Commissioning and testing schedule and responsibilities - 1 credit targeted** **Commissioning building services - 1 credit targeted** **Testing and inspecting building fabric - 1 credit targeted** **Handover - 1 credit targeted – MINIMUM STANDARD for Excellent rating (Produce BUG)** All credit requirements to be added to Constructors Responsibility Report to be used as evidence.
Man 05	Aftercare	3	3	Ben Stubbs (UCL)	**Aftercare support - 1 credit targeted** BUG and training schedule. **Seasonal commissioning - 1 credit targeted – MINIMUM STANDARD for Excellent rating (1 credit)** Not targeted in previous pre-assessment but added now. **Post occupancy evaluation - 1 credit targeted** POE to be carried out after first year of occupation and carried out by an independent third party. All credit requirements to be added to Constructors Responsibility Report to be used as evidence.
	Management Totals:	**21**	**18**		
	Management score totals:	**12**	**10.29**		
Hea 01	Visual Comfort	5	2	Nick Hufton (SEH)	**Glare control - 1 credit targeted** Please check CN3 in the additional guidance for compliant forms of glare control. **Daylighting - no credits targeted**

					Once a daylighting study is carried out it may be possible to achieve 1 or 2 credits. Daylighting specialist to confirm whether the current layout of the occupied areas is likely to achieve any credits based on the criteria set for occupied spaces in Higher Education buildings. **View out - No credits targeted but added as potential** It is likely that this credit will be achieved. Architects to confirm whether 95% of the area in relevant building areas is within 7m of a window. For compliance purposes a view into an internal courtyard or atrium will comply provided the distance from the opening to the back wall of the courtyard/atrium is at least 10m. **Internal and external lighting - 1 credit targeted** Requires compliance with CIBSE codes for lighting and meeting zoning and occupant control requirements.
Hea 02	Indoor Air Quality	5	4	Ajay Shah (AT10)	**Indoor air quality plan - 1 credit targeted** Additional appointment required to produce IAQ. **Ventilation - 1 credit targeted** As there are no sources of external pollution in proximity to the intakes, this credit has been targeted. Intakes and exhausts will need to be located at least 10m apart. **Volatile organic compound emission levels - 1 credit targeted** **Volatile emission levels (Post Construction) - 1 credit targeted** Requires formaldehyde and VOC testing at PC and meeting recommended levels. **Potential for natural ventilation - Not targeted but added as potential** Architect to confirm whether the openable window area in each occupied space is equivalent to 5% of the gross internal floor area of that room/floor plate. And that two levels of user control are possible for the supply of fresh air.
Hea 04	Thermal comfort	3	2	Ajay Shah (AT10)	**Thermal modeling - 1 credit targeted** **Adaptability for projected climate change - no credits targeted but added as potential credit** Requires thermal modeling for a projected climate change scenario. Not targeted as it may not be possible to achieve the required thermal comfort levels and demonstrate that the building can easily be adapted in the future through passive design. **Thermal zoning and controls - 1 credit targeted**

Hea 05	Acoustic Performance	3	3	To be appointed (Acoustician)	**Sound insulation - 1 credit targeted** **Internal indoor ambient noise levels - 1 credit targeted** **Reverberation times - 1 credit targeted** Requires a suitably qualified acoustician to be appointed to provide advice to meet the required levels.
Hea 06	Safety and Security	2	2	Nick Hufton (SEH)	**Safe access - 1 credit targeted** There is an external courtyard at the back of the building, which may will need to be assessed if there are pedestrian or cycle paths being provided. **Security of site - 1 credit targeted** Recommendations have been sought from an ALO in 2007/2008. The information will need to be sent to the assessor to determine whether this credit can be achieved with the current documentation. If it is not possible to award this credit with 2007 evidence, then it may be required to consult with a Suitably Qualified Security Specialist.
Health & Wellbeing Totals:		**18**	**13**		
Health & Wellbeing score totals:		**15**	**10.83**		
Ene 01	Reduction of energy use and carbon emissions	12	5	Ajay Shah (AT10)	**MINIMUM STANDARD for an Excellent rating (5 credits)** The energy specialist has confirmed that 5 credits are a reasonable target for the building. Additional confirmation of the number of credits that can be achieved for the scheme will be provided once the energy modelling is undertaken and results are available. Special attention will need to be given to the refurbished area and whether it should be included in the model, as it is likely to reduce the number of credits achieved.
Ene 02	Energy Monitoring	2	2	Ajay Shah (AT10)	**Sub metering of major energy consuming systems - 1 credit targeted** **Sub metering of high energy load areas - 1 credit targeted** The following areas will require sub-meters: • Kitchens (excluding small staff kitchens and food technology rooms) • Computer suites

					• Workshops • Lecture halls • Conference rooms • Drama studios • Process areas • Laboratories • High containment suites within laboratories • Controlled environment chambers • Data centres • IT work and study rooms, including IT-equipped library space and any space with provision of more than one computer terminal per 5m^2 Individual sub-metering of standard classrooms/seminar rooms is not required.
Ene 03	External Lighting	1	1	Ajay Shah (AT10)	**1 credit targeted** Average initial luminous efficacy of the external light fittings within the construction zone is not less than 60 luminaire lumens per circuit Watt and there are equipped with daylight sensors and PIRs.
Ene 04	Low carbon design	3	1	Ajay Shah (AT10)	**Passive design analysis - Not targeted but added as a potential credit** Passive design analysis needs to be carried out during RIBA stage 2. Thermadeck is being considered which may make this credit possible. It is noted that a meaningful reduction in energy consumption needs to be demonstrated based on the passive design solutions that are implemented, this will need to be at least 5% of overall building energy demand and/or CO_2 emissions. **Free cooling - Not targeted** **Low zero carbon feasibility study - 1 credit targeted** A LZC feasibility study was undertaken in September 2006. *Confirmation is required that the study was carried out by an energy specialist.* 1. Energy generated from LZC energy source per year - *Not included* 2. Carbon dioxide savings from LZC energy source per year - *Included but may need to be revised* 3. Life cycle cost of the potential specification, accounting for payback - *Not included* 4. Local planning criteria, including land use and noise - *land use included to some degree but not for all technologies, noise only included for wind turbines in the design note* 5. Feasibility of exporting heat/electricity from the system - *not included* 6. Any available grants - *not included* 7. All technologies appropriate to the site and energy demand of the development - *energy demand not included* 8. Reasons for excluding other technologies - *included* 9. Where appropriate to the building type, connecting the proposed building to an existing local community CHP system or

					source of waste heat or power OR specifying a building/site CHP system or source of waste heat or power with the potential to export excess heat or power via a local community energy scheme - *included*
Ene 06	Energy Efficient Transportation Systems	3	3	Ben Stubbs (UCL)	**Energy consumption - 1 credit targeted** **Energy efficient features - 2 credits targeted** Study to be undertaken by UCL's lift consultant.
Ene 08	Energy Efficient Equipment	2	2	Ajay Shah (AT10)	**2 credits targeted** It is likely that most of the unregulated energy will be consumed by small power and plug in equipment, therefore to comply with this credit all equipment will need to be procured in accordance with the Government Buying Standards or have an Energy Star.
	Energy Totals:	**23**	**14**		
	Energy score totals:	**15**	**9.13**		
Tra 01	Public Transport Accessibility	5	5	Diana Bastos (RUK)	**5 credits targeted** PTAL report indicates an AI of 49, therefore 5 credits can be achieved.
Tra 02	Proximity to amenities	1	1	Nick Hufton (SEH)	**1 credit targeted** Requires 2 of the following to be provided: • food outlet • cash point • gym And 2 of the following: • outdoor space • post box • community facility • Pharmacy • GP • Child care or school All within 500m of the building.
Tra 03	Cyclist facilities	2	1	Nick Hufton (SEH)	**Cycle storage - 1 credit targeted** Requires 1 covered cycle space per 10 building users (staff and pupils). Total number of cycle spaces can be reduced by 50% due to high level of public transport. **Cyclist facilities - no credits targeted** There is no scope to provide showers, changing facilities, lockers or drying space.

Tra 04	Maximum Car Parking Capacity	2	2	Diana Bastos (RUK)	**2 credits targeted** No car parking has been provided for the building.
Tra 05	Travel Plan	1	1	Ben Stubbs (UCL)	**1 credit targeted** There is an overarching travel plan for UCL which has been provided by the client. An addendum with site specific information will be provided to ensure that all requirements are met. A transport statement was produced for the proposed development in November 2008. The following was covered in the report: 1. Where relevant, existing travel patterns and opinions of existing building or site users towards cycling and walking so that constraints and opportunities can be identified - *There are some notes included in Appendix A which show that the current users of the building were interviewed but it is not clear what type of data was collected and the type of questions that were included in the survey. Therefore, it is not possible to determine whether this requirement has been met.* 2. Travel patterns and transport impact of future building users - *Pages 8-11* 3. Current local environment for walkers and cyclists (accounting for visitors who may be accompanied by young children) - *Pages 12-17 provides information on the pedestrian routes from the site and page 41 states that there cycle spaces and lockers provided for cyclists. Nothing has been included regarding young children and the information provided regarding cyclists is lacking.* 4. Disabled access (accounting for varying levels of disability and visual impairment) - *Page 5, sections 2.2 to 2.4 state that the building is fully accessible to visitors with restricted mobility, mobility impaired car parking is also provided close to the site.* 5. Public transport links serving the site - *Pages 6-9 provide a list of all public transport links accessible from the site.* 6. Current facilities for cyclists - *Page 41 states that there cycle spaces and lockers provided for cyclists*.
	Transport Totals:	**11**	**10**		
	Transport score totals:	**9**	**8.18**		
Wat 01	Water Consumption	5	3	Nick Hufton (SEH)	**3 credits targeted** A fourth credit may be achievable if a rainwater system is specified and covers part or all the flushing demand for the building. 4 potential credits
Wat 02	Water Monitoring	1	1	Ajay Shah (AT10)	**1 credit targeted** It is unlikely that there will be any water-consuming plant or building areas, consuming 10% or more of the building's total water demand.
Wat 03	Leak Detection	2	2	Ajay Shah (AT10)	**Leak detection system - 1 credit targeted** **Flow control devices - 1 credit targeted**
Wat 04	Water Efficient Equipment	1	1	Nick Hufton (SEH)	**1 credit targeted**

					The following water efficient features can be used to achieve this credit for the landscaping: 1. Drip-fed subsurface irrigation incorporating soil moisture sensors. The irrigation control should be zoned to permit variable irrigation to different planting assemblages. 2. Reclaimed/recovered water from a rainwater collection or waste water recovery system, with appropriate storage, i.e. greywater collection from building functions or processes that use potable water, e.g. sanitary facilities, irrigation etc. This should take into account the Government Buying Standards where appropriate to the building type. 3. External landscaping and planting that relies solely on precipitation, during all seasons of the year. 4. All planting specified is restricted to contextually appropriate species that thrive without irrigation and will continue to do so in those conditions likely as a result of climate change, i.e. typically warmer and drier conditions.
	Water Totals:	**9**	**7**		
	Water score totals:	**7**	**5.44**		
Mat 01	Life Cycle Impacts	6	3	Nick Hufton (SEH)	**3 credits targeted** Additional credits may be achievable, and will be updated once the materials proforma is completed.
Mat 02	Hard Landscaping and Boundary Protection	1	1	Nick Hufton (SEH)	**1 credit targeted** At least 80% of all external hard landscaping and 80% of all boundary protection (by area) in the construction zone will need to achieve an A or A+ rating.
Mat 03	Responsible Sourcing of Materials	4	3	Nick Hufton (SEH)	**Pre-requisite targeted** **Sustainable procurement plan - 1 credit targeted** **Responsible sourcing of materials - 2 credits targeted**
Mat 04	Insulation	1	1	Nick Hufton (SEH)	**1 credit targeted**
Mat 05	Designing for durability and resilience	1	1	Nick Hufton (SEH)	**1 credit targeted**
Mat 06	Material efficiency	1	0	Nick Hufton (SEH)	**Credit has not been targeted but has been added as potential.** This credit has not been targeted as it requires documenting the selection of materials for resource efficiency throughout the whole design and construction process.
	Materials Totals:	**14**	**9**		
	Materials score totals:	**13.5**	**8.68**		

Wst 01	Construction Waste Management	4	2	Ben Stubbs (UCL)	**Construction resource efficiency - 1 credits targeted** Requires a pre-refurbishment audit to be carried out. 1 additional credit has been added as potential. **Diversion of resources from landfill - 1 credit targeted**
Wst 02	Recycled Aggregates	1	0		**No credits have been targeted** Structural engineer has confirmed that it is difficult to source high quality recycled aggregates and therefore the credit will not be targeted.
Wst 03	Operational Waste	1	1	Nick Hufton (SEH)	**1 credit targeted** Requires a dedicated space for recyclable waste sorting. The area for the space should be calculated in accordance with CN 3 in the additional guidance.
Wst 05	Adaptation to climate change	1	0	Nick Hufton (SEH)	**Structural and fabric resilience - Not targeted but added as a potential credit.** Requires a climate change adaptation strategy appraisal in terms of fabric and structural resilience, to be carried out for the building during RIBA stage 2.
Wst 06	Functional adaptability	1	0		**Not targeted**
	Waste Totals:	**8**	**3**		
	Waste score totals:	**8.5**	**3.19**		
LE 01	Site Selection	2	1	To be appointed (Ecologist)	**Previously occupied land - 1 credit targeted** Confirmation that land can be defined as previously occupied land was provided in the Ecology report prepared in 2007/2008. The BREEAM Land Use and Ecology pre-assessment provides evidence showing that the report was prepared by three suitably qualified ecologists (page 8). Report confirms that 75% of the new development will be on previously occupied land. **Contaminated land - no credits targeted**
LE 02	Ecological Value of Site and Protection of Ecological Features	2	2	To be appointed (Ecologist)	**Ecological value of site - 1 credit targeted** **Protection of ecological features - 1 credit targeted** BREEAM Land Use and Ecology report, page 15, states that an ecological survey was carried out on the 24th of September 2008 (prior to commencement of initial site preparation works). Based on the findings of the site survey the SQE has determined that the site is of low ecological value and there are no ecological features that require protection during construction.

					Confirmation is still required that the site survey was conducted at an appropriate time of the year, when different animal and plant species are evident.
LE 03	Minimising impact on existing site ecology	2	2	To be appointed (Ecologist)	**2 credits have been targeted** The BREEAM Land Use and Ecology pre-assessment report, pages 16-17, provides: i. The broad habitat types that define the landscape of the assessed site in its existing pre-developed state and proposed state. ii. Area (m^2) of the existing and proposed broad habitat plot types. iii. Average total taxon (plant species) richness within each habitat type These values were inputted into the BREEAM LE03 calculator tool and a total of 2 credits were achieved for LE 03. Additional information is still required in terms of what will be included in the planting schedule. Existing and proposed site plans confirming landscape and vegetation plot types and their areas (in m^2) will need to be provided.
LE 04	Enhancing site ecology	2	2	To be appointed (Ecologist)	**Ecologist's report and recommendations - 1 credit targeted** **Increase in ecological value - 1 credit** The BREEAM Land Use and Ecology report, pages 19-20, provides recommendations relating to enhancing site ecology. The report confirms that if 12 additional native UK plant species are included in the planting schedule of the conservation roof, then the increase in ecological value will be enough to achieve an additional LE 04 credit. The following is still required to achieve this credit: • a proposed site plan highlighting the implementation of the ecological enhancements detailed in the report, and a written commitment from the developer to incorporate the enhancements. • evidence confirming the number of additional native UK plant species that have been incorporated into the planting schedule
LE 05	Long Term Impact on Biodiversity	2	2	To be appointed (Ecologist)	**2 credits targeted.** The BREEAM Land Use and Ecology report, pages 22-23 confirms that a suitably qualified ecologist from WYG was commissioned prior to commencement of activities on site. That there were no protected species found within the site during the survey and that the site does not form part of a protected area. However, as it is possible that birds nest in vegetation on site during their breeding season, any required tree of shrub removal should take place outside the bird nesting season (outside the period March to August). If this is to take place this will ensure that all relevant UK and EU legislation has been complied with.

					The report also confirms that an outline management plan has been included in Appendix C of the report. A roof conservation management plan has been submitted. The SQE confirms that only 3 out of the 5 additional requirements are applicable to the site. These include items 1, 2 and 5. The SQE clarifies that item 4 cannot be achieved as there is no opportunity to create new habitat. The conservation roof is assumed to compensate for the loss of the current habitat and is not in itself a new area. No evidence has been found confirming that the roof management plan covers at least 5 years after project completion and that it was prepared in accordance with with BS 42020:2013 Section 11.1 (meeting all the requirements in this standard which states that the following should be included in long term management plans for habitats, species and biodiversity features: a. Description and evaluation of features to be managed b. Ecological trends and constraints on-site that could influence management c. Aims and objectives of management d. Appropriate management options for achieving aims and objectives . Prescriptions for management actions f. Preparation of a work schedule (including an annual work plan capable of being rolled forward over a five year period) g. Body or organisation personnel responsible for implementation of the plan h. Monitoring and remedial measures(see 11.2) i. Funding resources and mechanisms to ensure sustainable long term delivery of the proposed management. BS42020:2013 also state sthat the level of detail required for any given site should be that which is necessary to ensure the effective management of the biodiversity features present. Appendix C is also referenced in the BREEAM ecology report but is not included. a. Management of any protected features on site b. Management of any new, existing or enhanced habitats c. A reference to the current or future site level or local Biodiversity Action Plan
Land Use & Ecology Totals:		**10**	**9**		
Land Use & Ecology score totals:		**10**	**9**		
Pol 01	Impact of Refrigerants	3	2	Ajay Shah (AT10)	**Impact of refrigerant - 1 credit targeted** It is likely that this credit can be achieved. MEP to confirm whether it is possible to achieve this credit based on the refrigerants used in the building. **Refrigerant leak detection system - 1 credit targeted**
Pol	NOx emissions	3	0	Ajay Shah (AT10)	**No credits targeted**

02					It may be possible to achieve 1 credit but this will depend on the source of heating and domestic hot water. 1 credit has been added as potential.
Pol 03	Surface Water Run Off	5	4	Nicholas Porter (RUK)	**Flood risk - 2 credits targeted** FRA is required to confirm that there is low risk of flooding. If a FRA has already been prepared for the site, it will need to be reviewed to determine whether it can be used as evidence to meet this credit. **Surface water run-off - 2 credits targeted** Impermeable area pre and post development will likely be the same. **Minimising water course pollution - not targeted but added as a potential credit** The 5mm discharge limit requires confirmation from the drainage engineer.
Pol 04	Reduction of Night Time Light Pollution	1	1	Ajay Shah (AT10)	**1 credit targeted**
Pol 05	Noise Attenuation	1	1	To be appointed (Acoustician)	**1 credit targeted** Requires suitably qualified acoustician to be appointed to undertake the work and prepare a report.
	Pollution Totals:	**13**	**8**		
	Pollution score totals:	**10**	**6.15**		
Man 03	Responsible construction practices	1	0		
Man 05	Aftercare	1	0		
Hea 01	Visual Comfort	1	0		-
Hea 02	Indoor Air Quality	2	0		
Ene 01	Reduction of energy use and carbon emissions	5	0		-
Wat 01	Water Consumption	1	0		-
Mat	Life Cycle Impacts	3	0		-

01					
Mat 03	Responsible Sourcing of Materials	1	0		-
Wst 01	Construction Waste Management	1	0		-
Wst 02	Recycled Aggregates	1	0		-
Wst 05	Adaptation to climate change	1	0		-
AI	Approved Innovation	1	0		-
Innovation Totals:		**19**	**0**		
Innovation score totals:		**19**	**0**		
OVERALL SCORE TOTALS:		**119**	**70.90**		