The Honourable Society of Lincoln's Inn

Sustainability and BREEAM Pre-assessment Report

July 2015

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Mott MacDonald

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Executive Summary

In line with the planning policy of London Borough of Camden, this Sustainability and BREEAM pre-assessment report has been produced to form part of the planning application for the proposed extension of Lincoln's Inn Great Hall and Library.

There is a planning requirement for the development to achieve a BREEAM rating of 'Excellent', whilst also demonstrating a minimum standard within the energy, water and materials categories of BREEAM New Construction 2014.

Following consultation with BRE Global, the decision has been taken to assess and certify both the Great Hall and the Library as one single assessment, due to them being extensions of the same building whilst also following the same design and construction programme.

A core score of **65.59%** has been determined, which is below the required 70% threshold for BREEAM 'Excellent' rating. A score of at least 75% is preferable to allow for a buffer in case of any changes in design or non-compliance. It should be highlighted that the minimum standards in energy, water and materials categories, and those required to achieve BREEAM Excellent, have been exceeded, with the following percentage of un-weighted credits being achieved;

- Energy; 78.30% (60% target);
- Water; 66.70% (60% target);
- Materials; 57.10% (40% target)

The report details this core score, and further explains the proposed strategies to ensure these specific minimum standards, as detailed within the London Borough of Camden's planning guidance will be achieved. Due to certain site limitations, the aspirational rating of 'Excellent' is not a simple task, and careful consideration will be given to the certification strategy for the development.

1 Introduction

The Honourable Society of Lincoln's Inn seek to refurbish and improve existing kitchen and catering facilities which are currently inadequate for the needs of the Inn. There is also a need to provide expansion space for the existing library alongside new advocacy training and educational facilities to enhance the function of the Inn. In providing these new facilities, the existing Under Treasurer's residence will need be relocated to another part of the Inn.

To achieve the above proposals, planning and listed building consent are sought for five separate applications proposed at Lincoln's Inn:

- Application 1 – Old Hall Kitchen Refurbishment (Submitted to LB Camden Ref 2015/2413/P & 2015/2517/L)
- Application 2 – Great Hall Refurbishment Works (including Old Hall Temporary Kitchen Works)
- Application 3 – East Terrace Development (Excavation to create a two storey basement containing a lecture theatre, advocacy rooms and study areas)
- Application 4 – Library Extension (including demolition of Under Treasurer's House)
- Application 5 – 15 New Square (Change of use from Office B1 to Residential C3)

This Sustainability and BREEAM Pre-assessment Report has been prepared as part of applications 3 and 4.

1.1 Approach

This report summarises the findings of the BREEAM pre-assessment exercise for the Lincoln's Inn Great Hall Education Suite and Library extension. The development will consist of a three-storey extension to the existing library, along with new educational spaces located below the existing East Terrace. Due to a general lack of space on the premises, a substantial proportion of the new development will be located below ground, which will present both advantages and difficulties from a sustainability standpoint.

It is a local planning requirement that the development achieve a BREEAM rating of 'Excellent' under BREEAM New Construction 2014 Scheme. A pre-assessment meeting was held with the design team on 12th February 2015, to establish the development's expected performance in terms of sustainability and BREEAM rating. Further meetings have since been held with the project team, and regular

correspondence held, to further progress and development the BREEAM assessment score.

After consultation with both the Project Team and the BRE, it was decided that the project would be registered and assessed as a single development. Particular consideration shall then be given to certain aspects of the design and construction since under one assessment, the worst case scenario will be assessed, and as the two new build areas are considerably different, this may impact the overall certification level achievable. Some credits within BREEAM take an all or nothing approach, such as natural ventilation. With the considerably different design strategies which would need to be adopted across the development, it is unlikely that compliance would be demonstrated. This report will provide some further explanation where this is the case for a number of the credits.

The following sections describe the project's current achievable score, identifies further credits to be pursued where necessary as well as immediate actions required to begin the BREEAM certification process.

2 Sustainability Requirements

2.1 London Borough of Camden

London Borough of Camden (LBC) are committed to reducing Camden's carbon emissions, as such the Council have outlined requirements and policies within the Local Development Framework (LDF) to encourage more sustainable development within the Borough. The three key policies of the LDF are;

- *CS13 – Tackling climate change through promoting higher environmental standards;*
- *DP22 – Promoting sustainable design and construction;*
- *DP23 – Water*

Planning guidance has been produced by the Council, to assist projects in demonstrating compliance with these key policies.

The Core Strategy policy CS13, notes that BREEAM provides a helpful assessment tool for general sustainability. This assessment tool provides an overarching assessment tool for all aspects of sustainability. With a minimum requirement of BREEAM Excellent, as well as minimum standards for three categories; Energy, Water and Materials, demonstrating compliance with these will also demonstrate a sustainable approach for the development.

Table 2.1: Minimum standards

Category	Minimum standard for categories (% of un-weighted credits)
Energy	60%
Water	60%
Materials	40%

Source: CPG3 Sustainability 2013

For a project to achieve BREEAM 'Excellent', a minimum score of 70% must be demonstrated by the project during both interim design stage and post construction review.

2.2 BREEAM

There are ten technical sections within BREEAM New Construction 2014, each addressing a specific building related environmental impact or occupant-related factor. There are a number of credits associated

with each section, and each section carries a different overall weighting to the project.

Table 4.1 provides an overview of the differing section weightings, along with the individual credit weighting within that section.

Table 2.2: BREEAM Section Weightings

Section	Section Weighting %	Individual Credit Weighting %
Management	12.00%	0.57%
Health & Wellbeing	15.00%	0.83%
Energy	15.00%	0.65%
Transport	9.00%	0.82%
Water	7.00%	0.78%
Materials	13.50%	0.96%
Waste	8.50%	1.06%
Land Use & Ecology	10.00%	1.00%
Pollution	10.00%	0.77%
Innovation (additional)	10.00%	1.00%

As each section carries a different weighting per credit, the project team should decide which credits should be targeted based on how each credit will affect the final score. For instance, the cost of compliance with a waste credit may be higher than that of a management credit, but the contribution to BREEAM is far greater as each waste credit carries a higher weighting contribution than a management credit. This should be taken into consideration when setting the sustainability strategies for this development.

In addition, the energy, water and materials categories have been carefully considered, with particular attention to the un-weighted percentage of each in line with the policies requirements of LBC. These three topics are of key importance, and the project team will ensure that these are carefully considered and managed in line with both BREEAM and local planning requirements.

Section 3 of this report provides further details of the proposed strategies proposed by the project team to ensure sustainable design and construction is at the forefront of the project.

3 Sustainability Strategies

3.1 BREEAM Approach

Following the pre-assessment meeting and additional correspondence with the project team since the initial involvement of the BREEAM assessor, a likely score of **65.59%** has been determined, which is below the 70% threshold for BREEAM 'Excellent'.

As with all BREEAM ratings, there are a number of minimum standards which must be met to allow the project to achieve the desired rating, irrespective of the overall score. To achieve 'Excellent', in addition to the 70% total score, the following minimum standards must be met;

- **Man 03: Responsible Construction** – Achieve one credit under considerate construction (Achieve a CCS of between 25 and 32.
- **Man 04**: Commissioning and handover – Achieve Criterion 10 (Develop a Building User Guide)
- **Man 05: Aftercare –** Achieve second credit (seasonal commissioning)
- **Ene 01: Reduction of energy use** – Achieve a minimum of 5 credits.
- **Ene 02: Energy Monitoring –** Achieve the first credit (sub-metering) under this issue.
- **Wat 01: Water Consumption –** Achieve one credit under this issue (minimum 12.5% reduction in water consumption).
- **Wat 02: Water Monitoring –** Achieve Criterion 1 (The specification of a water meter on the mains water supply to each building; this includes instances where water is supplied via a borehole or other private source.)
- **Mat 03: Responsible Sourcing of Materials** – Achieve Criterion 1 (All timber and timber based products used on the project is 'Legally harvested and traded timber'
- **Wst 03**: **Operational waste** – Achieve one credit under this issue.
- **Le 03: Minimising Impact on Existing Site Ecology –** Achieve one credit under this issue (change in ecological value of < zero but ≥ -9 plant species).

Following continued discussions with the Project Team, it is anticipated that all minimum standards outlined above will actually be exceeded, with the project demonstrating compliance with the minimum standards required for BREEAM Outstanding, which in addition to the above, include;

- **Man 03; Responsible Construction** – Achieve two credits under considerate construction (Achieve a CCS of between 35 and 39);

- **Ene01; Reduction of energy use** – Achieve a minimum of 8 credits;
- **Wat01; Water Consumption** – Achieve two credits under this issue (minimum 25% reduction in water consumption);
- **Wst01; Construction waste management** – Achieve one credit (≤ 11.1 tonnes of construction and demolition waste generated per 100m^2 floor area).

For a project to achieve BREEAM Excellent, it is recommended that a minimum score of 75% is targeted during design stage to allow for a suitable buffer for alterations and non-compliances that may occur during the final design stages and construction activities. With a Core Score of 65.59%, this development is currently falling short of this required target score.

Going forward, it is proposed that careful consideration be given to the project's design and construction with the aspiration to demonstrate compliance with further credits; however, due to the certain site restrictions and limitations, the requirement of Excellent may prove difficult.

Appendix A of this report includes the BREEAM New Construction 2014 pre-assessment estimator tool. This has been completed following consultation with the project team, and provides detailed notes for each individual credit.

3.2 Project Limitations

As the development is to be assessed and certified as one single project, where one aspect of the building may benefit from sustainable design solutions, it may be unfeasible for the other aspect, meaning that although sustainable strategies are being incorporated as far as possible, credit may not be awarded for BREEAM. For example, a natural ventilation strategy is part of the design of the library extension, however due to the nature of the east terrace development, natural ventilation is not appropriate in these areas. As BREEAM requires for the potential of natural ventilation within all occupied areas of the project, the associated credit is not achievable. In addition to this, the natural ventilation strategy within the library extension will also hinder the project's ability to demonstrate compliance with all credits related to acoustic performance under Hea05.

It is hoped that appropriate levels of daylighting will be achieved within the regularly occupied areas of the development; however the potential of achieving this throughout the building may be limited due to possibility of overheating within some spaces in addition to the east terrace aspect of the development being below ground level. Careful consideration will be given to this as the project progresses.

Other factors which could potentially influence the overall BREEAM score include the availability of materials with the appropriate sustainability credentials i.e. green guide ratings and responsibly sourced. Due to the historic nature of the site and existing building, there is a requirement for careful consideration of material specification in ensuring a seamless integration between new and existing. This is applicable for both the building elements, as well as the external site features.

The specification of Ground Source Heat Pumps (GSHPs) is currently part of the energy strategy for the development, to assist in achieving the specific energy requirements set by London Borough of Camden, The London Plan and BREEAM. This low and zero carbon technology help the project to achieve up to 11 credits under Ene01, whilst allowing compliance to be demonstrated with Ene04. This technology has been chosen as a result of other technologies being deemed inappropriate due to the constraints of the site. Please refer to the Energy Strategy and Part L compliance report for further details of this. Unfortunately, although this technology has a positive effect the overall energy performance of the development, this technology typically prevents credits from being achieved under Pol02 NOx emissions due to the BRE's assumptions that heat pumps are driven by grid electricity, and thus having associated high NOx emissions. Due to this, three credits are unachievable for this issue.

The site in which the project is located also restricts the development's ability to achieve other aspects of BREEAM. These include;

- **Hea06; Safe Access**
  - The credit requires that dedicated cycle paths provide access from the site entrance to any cycle racks, as well as requiring that dedicated pedestrian crossings be provided where pedestrian routes cross vehicle access routes. The development is the infill and extension to an existing site and building, which is already restricted on space. Although the project will include pedestrian and cycle routes within the site, to ensure safe access of all users, the general lack of external space throughout the development limits the ability of the

project team being able to ensure these routes meet the specific requirements as detailed by BREEAM.

- **Tra03; Cyclist Facilities**
  - Again, the space limitations on site prevent adequate cycle storage being provided. There will be some cycle racks available for use throughout the campus style site on Lincoln's Inn, however these are existing and will not be in line with the specific requirements of BREEAM such as having appropriate lighting and being covered to provide protection from adverse weather.
- **Land Use and Ecology Credits**
  - The construction zone of the east terrace and library extension will be minimal. The ecological improvements which can therefore be made in these areas will have to be carefully considered, both for in keeping with the wider site landscaping strategy and the site limitations for improvements.

3.3 Key categories

As previously noted, in addition to the requirement for BREEAM Excellent, the development is subject to achieving minimum standards within the energy, water and materials categories. As these aspects of sustainability are key in the planning guidance of LBC, this section of the report provides further detail as to the strategies proposed by the project team to demonstrate compliance with this aspect of planning policy. Table 3.1 highlights the un-weighted credit performance in each of the three categories, compared to the requirement outlined in LBC's planning guidance.

Table 3.1: Development Performance

Category	Requirement	Expected
Energy	60%	78.30%
Water	60%	66.70%
Materials	40%	57.10%

3.3.1 Energy

Please refer to the Energy Strategy and Part L Compliance report, submitted as part of this planning application, for further details of the proposed strategy for the east terrace and library extension development. From a BREEAM perspective, the development is demonstrating a high level of performance in this category, with 78.30% of un-weighted credits, far exceeding the 60% minimum standard.

Energy modelling results confirm that 11 credits are achievable under Ene01, far exceeding the minimum requirements for BREEAM Outstanding.

In addition to this, sufficient levels of energy metering will be installed and consideration will be given to the unregulated energy demand of the project space.

3.3.2 Water Efficiency

Water efficiency is a key consideration for the development, while also evaluating the balance of user satisfaction. The current design does not include for many water use components within the project space, but efficient fixtures and fittings will be specified for use throughout. The project is currently targeting a minimum of 40% reduction in water use over the BREEAM baseline, with further improvement sought wherever feasible.

Consideration has been given to the inclusion of rainwater harvesting. Although this system will not be installed to offset water use demand from the WCs, it is proposed that it be utilised to offset potable water usage for irrigation purposes. As well as achieving water savings, this will also assist in demonstrating compliance with Wat04 credit of BREEAM.

3.3.3 Sustainable Use of Materials

Material selection and use is a key consideration of this project, for a number of reasons. The environmental impact of materials, as well as the responsible sourcing of construction materials will be considered throughout the design and construction of the development. BREEAM promotes the specification of building elements with a high Green Guide Rating (GGR). Exact performance under Mat01 is difficult to confirm at this stage of a project, but the Architect is aware of the criteria and will ensure specifications reflect this requirement as far as possible. As such, the three predicted credits are the minimum to be targeted at this stage, with consideration being given throughout the detailed design and construction to further maximise performance under this category where feasible. As previously noted within this report, it is important for the Architect and design team to ensure a seamless integration of the new building and external areas within the historic nature of the existing. Due to this, there may be limitations as to the material selection in line with the specific criteria of BREEAM.

In line with the requirements of Mat03, building materials will be responsibly sourced as far as possible. The production, implementation and management of a sustainable procurement plan will be a key factor, with the Principal Contractor sourcing materials in accordance with this.

The Principal Contractor will be responsible for waste management practices onsite. A Resource Management Plan (RMP) will be developed, and a set of measures proposed to minimise, reuse and recycle construction waste, including the following:

- Project targets
- Avoid over-purchasing
- Accurate delivery times
- Monitoring and review
- Education and awareness
- Materials optimisation
- On-site segregation

In addition to the materials aspects noted above, the project team will pay careful consideration to the specification of materials utilised on the internal parts of the building's envelope. Specific design criteria will be included within the design documentation to ensure product categories such as paints and varnishes, wood products, floor coverings and flooring adhesives are specified in accordance with the specific criteria as outlined in Hea02.

The internal environment of this project is important to the Client, as there will be much time spent within these spaces. In addition to the specification of low-impact materials to limit the potential formaldehyde and total VOC (volatile organic compounds) concentrations, natural ventilation strategy will be implemented wherever feasible, and aspects such as daylight and view out will also be considered.

4 Conclusion

Following continued correspondence with the project team throughout the early project stages, an overall likely BREEAM score of 65.59% has been determined for the development.

Although falling slightly short of the 70% threshold for BREEAM Excellent, the project team have committed to demonstrating compliance with all minimum standards relating to BREEAM Outstanding. In addition to this achievement, the development is far exceeding the minimum un-weighted credit requirements as set out by London Borough of Camden relating to energy, water and materials.

The pre-assessment is an assessment of what the project team deem to be feasible within the proposed scope of the project. Due to certain site limitations and restrictions, as detailed previously within the report, certain aspects of BREEAM will be difficult to demonstrate, thus making the requirement of BREEAM Excellent challenging. Through demonstrating all of the additional requirements as detailed above, the project team are making a concerted effort to ensure sustainability remains a priority throughout the project.

Appendices

Appendix A. BREEAM pre-assessment

BREEAM UK New Construction 2014 Pre-Assessment Estimator: Assessment Issue Scoring

BREEAM® UK

Building name	Extension to Lincoln's Inn Great Hall
Building score (%)	65.59%
Building rating	Very Good
Minimum standards level achieved	Outstanding level

MANAGEMENT

Man 01 Project brief and design

No. of BREEAM credits available	4	Available contribution to overall score	2.29%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will stakeholder consultation (project delivery) take place?	Yes	1	1
Will stakeholder consultation (third party) take place?	Yes	1	1
Will a sustainability champion (design) be assigned?	Yes	1	1
Will a sustainability champion (monitoring progress) be assigned?	Yes	1	1

Total BREEAM credits achieved	4
Total contribution to overall building score	2.29%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

Stakeholder consultation:
The project team have already consulted with various stakeholders, local groups and organizations such as the Historic Buildings and Monuments Commission for England.
Further actions include:
- First credit: Ensure that all project delivery stakeholders have been consulted before Stage 3 to ensure smooth delivery of the project. Project delivery stakeholders include the client, the building occupier, the design team, and the main contractor (or suitably experienced professional).
- Second credit: Engage with 3rd party stakeholders to inform design decisions. 3rd party stakeholders include FM staff, maintenance contractors, local communities, conservation groups, local authorities, etc.

The project team confirmed the appointment of a sustainability champion to facilitate the achievement of all BREEAM requirements.

Man 02 Life cycle cost and service life planning

No. of BREEAM credits available	4	Available contribution to overall score	2.29%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will an elemental life cycle cost (LCC)analyses be carried out?	No	2	0
Will a component level LCC plan be developed?	No	1	0
Will the predicted capital cost be reported?	No	1	0
Expected capital cost of the project (if available)		£/m^2	

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

Comments/notes:

The purpose of an Life Cycle Cost analysis is to help project teams assess the various options available for a project based on a systematic evaluation of life cycle cost over the building's lifespan. The results of a LCC analysis are used to determine the most cost-effective option among different competing alternatives.
The elemental LCC analyses was not undertaken during RIBA Stage 2, meaning that the first two credits under this issue are unachieavable within the project scope. Consideration will be given to the component level LCC and the reporting of capital cost as the project progresses.

Man 03 Responsible construction practices

No. of BREEAM credits available	6	Available contribution to overall score	3.43%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

Assessment Criteria	Compliant?	Credits available	Credits achieved
Is all site timber used in the project 'legally harvested and traded timber'?	Yes		
Will/does the principal contractor operate a compliant Environmental Management System?	Yes	1	1
Will a construction stage sustainability champion be assigned?	Yes	1	1
Will a considerate construction scheme be used by the principal contractor? (One credi where 'compliance' has been achieved. Two credits where 'compliance' is significantly exceeded.)	2	2	2
Will construction site impacts be metered/monitored?	Yes		
Will site utility consumption be metered/monitored?	Yes	1	1
Will transport of construction materials and waste be metered/monitored?	Yes	1	1
Will exemplary level criteria be met?		1	0

Total BREEAM credits achieved	6
Total contribution to overall building score	3.43%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Comments/notes:

The Project Team will ensure that all BREEAM requirements are communicated to the Main Contractor with regards to environmental management, the use of a considerate constructor scheme, construction site impacts, energy and water use, along with transport of construction materials and waste. The contractor will be required to record and provide evidence that the BREEAM requirements have been met.
The Project Team confirm that the appointment of a sustainability champion during construction stage will be included within the preliminaries.

Man 04 Commisioning and handover

No. of BREEAM credits available	4	Available contribution to overall score	2.29%
No. of BREEAM innovation credits available	0	Minimum standards applicable	Yes

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will commissioning schedule and responsibilities be developed & accounted for?	Yes	1	1
Will a commissioning manager be appointed?	Yes	1	1
Will the building fabric be commissioned?	No	1	0
Will a training schedule for building occupiers/managers at Handover?	Yes	1	1
Will a building user guide be developed prior to handover?	Yes		

Total BREEAM credits achieved	3
Total contribution to overall building score	1.71%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Comments/notes:

The Project Team confirmed that the details and requirements for Commissioning will be the responsibility of the Main Contractor and will be incorporated within the tender documents. Assessor to confirm to what extent a design review must be undertaken.

The Project Team will confirm whether a thermographic survey and air tightness inspection are to be undertaken to ensure the quality of insulation, avoidance of thermal bridging and air leakage (1 Credit).

The Project Team confirmed that a Building User Guide (BUG) will be produced prior to handover. The BREEAM Assessor can communicate BREEAM-specific requirements.

Man 05 Aftercare

No. of BREEAM credits available	3	Available contribution to overall score	1.71%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will aftercare support be provided to building occupiers?	Yes	1	1
Will seasonal commissioning occur over 12months once substantially occupied?	Yes	1	1
Will a post occupancy evaluation be carried out 1 year after occupation?	Yes	1	1
Will exemplary level criteria be met?	Yes	1	1

Total BREEAM credits achieved	3
Total contribution to overall building score	1.71%
Total BREEAM innovation credits achieved	1
Minimum standard(s) level	Outstanding level

Comments/notes:

HEALTH & WELLBEING

Hea 01 Visual Comfort

No. of BREEAM credits available	5	Available contribution to overall score	4.17%
No. of BREEAM innovation credits available	1	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will the design provide adequate glare control for building users?	Yes	1	1
Will relevant building areas be designed to achieve appropriate daylight factor(s)?	0	2	0
Will the design provide adequate view out for building users?	No	1	0
Will internal/external lighting levels, zoning and controls be specified in accordance with the relevant CIBSE Guides/British Standards?	Yes	1	1
Will exemplary level criteria be met?	No	1	0

Total BREEAM credits achieved	2
Total contribution to overall building score	1.67%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

It is expected that the final design will include glare control features. To be confirmed by the Architect.

Daylight analysis to be undertaken - however it is not expected that the appropriate levels will be achieved due to the proposed building layout. This will be reviewed as the design progresses.

It is expected that the final design will not provide the required view out for building users due to the underground nature of the development.

Electrical Engineer confirmed that all internal and external lighting is expected to comply with the relevant BREEAM requirements.

Hea 02 Indoor Air Quality

No. of BREEAM credits available	5	Available contribution to overall score	4.17%
No. of BREEAM innovation credits available	2	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will an air quality plan be produced and building designed to minimise air pollution?	Yes	1	1
Will building be designed to minimise the concentration and recirculation of pollutants in the building?	No	1	0
Will the relevant products be specified to meet the VOC testing and emission levels required?	Yes	1	1
Will formaldehyde and total VOC levels be measured post construction?	Yes	1	1
Will the building be designed to, or have the potential to provide, natural ventilation?	No	1	0
Will exemplary level VOCs (products)criteria be met?	0	2	0

Total BREEAM credits achieved	3
Total contribution to overall building score	2.50%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

- An Indoor Air Quality (IAQ) Plan is expected to be produced. The Project Team will inform the Main Contractor of the requirements (1 Credit).
- The proposed building layout is expected to prevent the project from meeting the BREEAM requirements on the location of air intake and exhausts. It is difficult to locate these more than 20m apart, and with the intake more than 10m from external sources of pollution. (1 credit).
- The team intends to include low VOC products as part of performance specification. BREEAM Assessor will send specific requirements to Architect to confirm (1 Credit).
- The Project Team will confirm whether VOC emission tests are to be carried out post-construction (1 Credit). Requirement could be included within the Contractor's tender documents.
- Natural ventilation has been allowed for within the library extension design, however BREEAM requires that all occupied spaces must be capable of natural ventilation to achieve the credit. Due to the underground nature and proposed layout of the east terrace development, this is not feasible for all occupied spaces within the project (1 Credit).

Hea 03 Safe containment in laboratories

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
Will an objective risk assessment of proposed laboratory facilities' design be completed?			
Will the manufacture & installation of fume cupboards and containment devices meet best practice standards?			
Will containment level 2 & 3 labs meet best practice safety & performance criteria?			

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

Comments/notes:

Hea 04 Thermal comfort

No. of BREEAM credits available	3	Available contribution to overall score	2.50%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will thermal modelling of the design be carried out?	Yes	1	1
Will the building design be adapted for a projected climate change scenario?	No	1	0
Will the modelling inform the development of a thermal zoning and control strategy?	Yes	1	1

Total BREEAM credits achieved	2
Total contribution to overall building score	1.67%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

At least 2 credits are likely under this issue, as thermal modelling is being undertaken at present, and the thermal zoning and control strategy will be informed based on these results. Climate change scenarios will be incorporated into the model, up to 2030s for mech vent buildings, however it is unknown at present whether the building will be sufficiently adapted based on these results. Mechanical Engineer to review and advise.

Hea 05 Acoustic Performance

No. of BREEAM credits available	3	Available contribution to overall score	2.50%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Credits	Credits available	Credits achieved
Will the building meet the appropriate acoustic performance standards and testing requirements for: a. Sound insulation b. Indoor ambient noise level c. Reverberation times?	2	3	2

Total BREEAM credits achieved	2
Total contribution to overall building score	1.67%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

The Project Team confirmed the importance of good acoustic performance for the development. It is expected that the development will meet the BREEAM requirements for sound insulation and reverberation times. However, due to the natural ventilation strategy for the library extension, the internal noise levels in line with the criteria for education buildings are not aschievable. The Acoustician's Stage 3 report provides details of the development's acoustic performance.

Hea 06 Safety and Security

No. of BREEAM credits available	2	Available contribution to overall score	1.67%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Where external site areas are present, will safe access be designed for pedestrians and cyclists?	No	1	0
Will a suitably qualified security consultant be appointed and security considerations accounted for?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.83%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Safe access:
The location of the proposed development is expected to make compliance with the requirements difficult. External areas do form part of the assessed site, but due to site limitations there will not be dedicated cycle and pedestrian routes, thereby meaning the credit will not be achievable within the project's scope.

Security:
The Project Team have met with a Crime Prevention Design Advisor (CPDA) to discuss site and development security. Recommendations have been provided for implementation into the design. HSLI actually have on-site security which was noted by the CPDA.

ENERGY

Ene 01 Reduction of energy use and carbon emissions

No. of BREEAM credits available	12	Available contribution to overall score	7.83%
No. of BREEAM innovation credits available	5	Minimum standards applicable	Yes

How do you wish to assess the number of BREEAM credits achieved for this issue?	Enter building performance data into the Ene01 calculator

Ene 01 Calculator

Country of the UK where the building is located	England	Confirm building regulation and version to be used:	England Part L2A 2013

New Construction (Fully fitted)

Building floor area	1600	m2
Notional building heating and cooling energy demand	168.82	MJ/m2yr
Actual building heating and cooling energy demand	106.19	MJ/m2yr
Notional building primary energy consumption	184.26	kWh/m2yr
Actual building primary energy consumption	120.05	kWh/m2yr
Target emission rate (TER)	21.90	kgCO2/m2yr
Building emission rate (BER)	16.9	kgCO2/m2yr
Building emission rate improvement over TER	22.8%	
Heating & cooling demand energy performance ratio (EPR_{ED})	0.248	
Primary consumption energy performance ratio (EPR_{PC})	0.337	
CO_2 Energy performance ratio (EPR_{CO2})	0.249	
Overall building energy performance ratio (EPR_{NC})	0.835	

Where specified, please confirm the energy production from onsite or near site energy generation technologies	
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	11
Total contribution to overall building score	7.17%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Comments/notes:

Based upon the current energy modelling results, and in line with the minimum requirements set by LBC's Planning Policy, 11 credits are anticipated at this stage of the project design. Thereby exceeding the minimum requirements for BREEAM Outstanding.

Ene 02 Energy monitoring

No. of BREEAM credits available	2	Available contribution to overall score	1.30%
No. of BREEAM innovation credits available	0	Minimum standards applicable	Yes

Assessment criteria	Compliant?	Credits available	Credits achieved
Will a BMS or sub-meters be specified to monitor energy use from major building services systems?	Yes	1	1
Will a BMS or sub-meters be specified to monitor energy use by tenant/building function areas?	Yes	1	1

Total BREEAM credits achieved	2
Total contribution to overall building score	1.30%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Comments/notes:

BMS to be installed, and all appropriate metering and sub-metering to be included.

Ene 03 External lighting

No. of BREEAM credits available	1	Available contribution to overall score	0.65%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment criteria	Compliant?	Credits available	Credits achieved
Will external light fittings and controls be specified in accordance with the BREEAM criteria?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.65%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Electrical Engineer confirmed that the proposed design is likely to meet the BREEAM requirements for luminous efficacy and automated daylight controls.
The actual scope of external lighting must be reviewed and confirmed as some will form the refurb contract, and not actually be part of the new build. BREEAM Assessor and Electrical Engineer to review as design progresses.

Ene 04 Low carbon design

No. of BREEAM credits available	3	Available contribution to overall score	1.96%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment criteria	Compliant?	Credits available	Credits achieved
Will passive design measures be used in line with an analysis be carried out during concep design stage (RIBA stage 2 or equivalent)?	No	1	0
Will free cooling measures be implemented in the whole building in line with the passive design analysis?	No	1	0
Will a LZC technology be specified in line with a feasibility study carried out by the completio of the Concept Design stage (RIBA Stage 2 or equivalent)?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.65%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Passive design analysis:
The opportunities for the implementation of passive design measures is limited. A passive design analysis was not deemed necessary due to this reasoning, and so these two credits are not achievable at this stage in the project.

Low and Zero Carbon (LZC) Technologies:
The Project Team confirmed that a LZC feasibility study has been undertaken. Based on initial discussions with Mechanical Engineer, it is expected that Ground Source Heat Pumps (GSHP) will likely be specified. GSHP are considered an LZC technology and would allow compliance with the requirements on this issue.

Ene 05 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
Will the refrigeration system be designed, installed & commissioned in accrodance with BREEAM criteria?		N/A	N/A
Will the refrigeration system demonstrate a saving in indirect greenhouse gas emissions?		N/A	N/A

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

Comments/notes:

Ene 06 Energy efficient transportation systems

No. of BREEAM credits available	3	Available contribution to overall score	1.96%
No. of BREEAM innovation credits available	0	Minimum standards applicable	N/A

Assessment criteria	Compliant?	Credits available	Credits achieved
Will a transportation system analysis be carried out to determine and specify the optimum number, size and type of lifts that is most energy efficient?	Yes	1	1
Will the relevant energy-efficient features criteria be met?	No	2	0

Total BREEAM credits achieved	1
Total contribution to overall building score	0.65%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

A lift consultant has recently been enaged with to advise on the lift specification for this project, as well as the overall site development. There is only one lift within the scope of this assessment which must be considered as part of this credit. The lift consultant will undertake a lift traffic analyis to determine the most appropriate size and type of lift, and so the first credit will be achieved. The additional two credits available will be follwoing further advice and consultation with the appointed lift specialist.

Ene 07 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
Pre-requisite: Criterion 1 of Hea 03 - risk assessment of laboratory facilities			
Have the occupants' laboratory requirements & performance criteria been confirmed during the preparation of the initial project brief to minimise energy demand?			
Best Practice Energy Practices in Laboratories (table 27)			
Will the laboratory meet criteria item b) Fan power?			
Will the laboratory criteria item c) Fume cupboard volume flow rates?			
Will the lab meet item d) Grouping / isolation of high filtration/ventilation activities?			
Will the laboratory meet criteria item e) Energy recovery - heat?			
Will the laboratory meet criteria item f) Energy recovery - cooling?			
Will the laboratory meet criteria item g) Grouping of cooling loads?			
Will the laboratory meet criteria item h) Free cooling?			
Will the laboratory meet criteria item i) Load responsiveness?			
Will the laboratory meet criteria item j) Cleanrooms?			
Will the laboratory meet criteria item k) Diversity?			
Will the laboratory meet criteria 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

Comments/notes:

Ene 08 Energy efficient equipment

No. of BREEAM credits available	2	Available contribution to overall score	1.30%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment criteria

Which of the following will be present and likely to be a/the major contributor to 'unregulated' energy use?	Present	Major impact
Ref A Small power and plug in equipment?	Yes	Yes
Ref B Swimming pool?	No	
Ref C Communal laundry?	No	
Ref D Data centre?	No	
Ref E IT-intensive operation areas?	No	
Ref F Residential areas?	No	
Ref G Healthcare?	No	
Ref H Kitchen and catering facilities?	No	

	Compliant	Credits available	Credits achieved
Will the significant majority contributor(s) to 'unregulated' energy use above meet the BREEAM criteria?	Yes	2	2

Total BREEAM credits achieved	2
Total contribution to overall building score	1.30%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

The Project Team will determine whether compliant equipment can be included as a requirement in a purchasing policy. The team will determine whether a review of existing equipment and possible replacement is feasible.

Compliant equipment includes equipment that has been awarded an Energy Star rating OR has been procured in accordance with the Government Buying Standards. Energy rating certifications other than the EU labelling scheme will be accepted, providing the energy efficiency performance is equivalent to the EU labelling scheme. This can be any internationally recognised energy efficiency labelling scheme for white goods or a national scheme developed for use in the country of assessment, for example Energy Label (in the EU), Energy Star (in the USA), The Appliance Energy Rating Scheme (in Australia), etc.

Ene 09 Drying space

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
Will internal/external drying space and fixings be provided?			

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

Comments/notes:

TRANSPORT

Tra 01 Public Transport Accessibility

No. of BREEAM credits available	5	Available contribution to overall score	4.09%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Building type category (for purpose of Tra01 issue assessment)	Further Education/Vocational College

Assessment Criteria	Compliant	Credits available	Credits achieved
Indicative public transport accessibility index (AI)	66.00	5	5
Will the building have a dedicated bus service?			N/A

AI	Indicative Accessibility Index for pre-assessment
0	Poor or no public transport provision
1	A single BREEAM compliant public transport node available
2	Some BREEAM compliant public transport nodes/services available
4	A selection of BREEAM compliant public transport nodes/services available
8	Good provision of public transport i.e. small urban centre / suburban area
10	Very Good provision of public transport i.e. small/medium urban centre
12	Excellent provision of public transport, i.e. medium urban centre
18	Excellent provision of public transport, i.e. large urban/metropolitan city centre

Total BREEAM credits achieved	5
Total contribution to overall building score	4.09%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

The central location of the building and very good public transport access should allow the development to achieve 5 credits under this issue.

Tra 02 Proximity to Amenities

No. of BREEAM credits available	1	Available contribution to overall score	0.82%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will the building be in close proximity of and accessible to applicable amenities?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.82%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

The central location of the building within a dynamic community should allow the development to achieve this credit. The BREEAM Assessor will communicate the type and number of amenities required to the Architect.

Tra 03 Cyclist facilities

No. of BREEAM credits available	2	Available contribution to overall score	1.64%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Building type category (for purpose of Tra03 issue assessment)	Further & Higher Education
How many compliant cycle storage spaces will be provided?	
What cyclist facilities will be provided?	Please select

Assessment Criteria	Compliant?	Credits available	Credits achieved
Cycle storage spaces	No	2	0
Cyclist facilities	No		

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

Comments/notes:

The general lack of available space makes this credit difficult to achieve and it is unlikely that the proposed design will include sufficient bicycle storage compliant with BREEAM. Compliant bicycle storage must be covered overhead, fixed to a permanent structure, and appropriately lit.
The numbers required are dependent upon the occupancy of the building, and due to the highly accessible location via puclic transport, this requirement can be halved. Architect to confirm occupancy of the project, and the number of spaces and facilities required will be calculated.

Tra 04 Maximum Car Parking Capacity

No. of BREEAM credits available	2	Available contribution to overall score	1.64%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Building type category (for purpose of Tra04 issue)	Further & Higher Education
Building's indicative Accessibility Index (sourced from issue Tra01)	66

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will BREEAM's maximum parking capacity criteria for the building type/Accessibility Index be met?	Yes	2	2

Total BREEAM credits achieved	2
Total contribution to overall building score	1.64%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

The small number of parking space available should allow the development to achieve this credit. BREEAM Assessor to confirm.

Tra 05 Travel Plan

No. of BREEAM credits available	1	Available contribution to overall score	0.82%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will a transport plan based on site specific travel survey/assessment be developed?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.82%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

The Project Team confirmed that a travel plan has been developed. BREEAM Assessor will liaise with transport consultant and confirm compliance.

WATER

Wat 01 Water Consumption

No. of BREEAM credits available	5	Available contribution to overall score	3.89%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

How do you wish to assess the number of BREEAM credits to be achieved for this issue?	Define a target % improvement over baseline sanitary fittings
What is the target for % reduction in potable water consumption for sanitary use in the building?	40% - three credits
Please select the calculation procedure used	

Standard approach data

Water Consumption from building micro-components	
Water demand met via greywater/rainwater sources	
Total net water consumption	
Improvement on baseline performance	

Key Performance Indicator - use of freshwater resource

Total net Water Consumption		Indicator not assessed
Default building occupancy		Indicator not assessed

Alternative approach data

Overall microcomponent performance level achieved	

Total BREEAM credits achieved	3
Total contribution to overall building score	2.33%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Comments/notes:

Based on initial discussions, a 40% improvement over the baseline has been deemed achievable through the specification of highly efficient fixtures and fittings, including dual flush toilets and low flow taps. BREEAM Assessor to provide details of water use baseline figures. Architect and Mechanical Engineer to review specifications and confirm.

Wat 02 Water Monitoring

No. of BREEAM credits available	1	Available contribution to overall score	0.78%
No. of BREEAM innovation credits available	0	Minimum standards applicable	Yes

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will there be a water meter on the mains water supply to the building(s)?	Yes	1	1
Will metering/monitoring equipment be specified on the water supply to any relevant	Yes		
Will all specified water meters have a pulsed output?	Yes		
If the site/building has an existing BMS connection, will all pulsed meters be connected to the BMS?	Yes		

Total BREEAM credits achieved	1
Total contribution to overall building score	0.78%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Comments/notes:

Water meters to be specified for mains water supply. It will have a pulsed output and be connected to the existing BMS system.

Wat 03 Water Leak Detection and Prevention

No. of BREEAM credits available	2	Available contribution to overall score	1.56%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will a mains water leak detection system be installed on the building's mains water supply?	No	1	0
Will flow control devices be installed in each sanitary area/facility?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.78%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

It is thought that it may be difficult to include a mains water leak detection system on the mains water supply as it is not expected that there will be a connection to the existing mains, and no new supply. In this case, a water leak detection system would have to be installed on the existing mains water supply. The Project Team will confirm whether this is feasible (1 Credit).

Flow control devices will be installed in all sanitary areas (1 Credit).

Wat 04 Water Efficient Equipment

No. of BREEAM credits available	1	Available contribution to overall score	0.78%
No. of BREEAM innovation credits available	No	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Has a meaningful reduction in unregulated water demand been achieved?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.78%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Water-efficient equipment will be specified.
Current proposals suggest that a rainwater harvesting system wll be included within the design. Although this will not be connected to the building's plumbing system (i.e. to offset water usage of the WCs), this will be utilised to offset the potable water usage for irrigation.

MATERIALS

Mat 01 Life Cycle Impacts

No. of BREEAM credits available	6	Available contribution to overall score	5.79%
No. of BREEAM innovation credits available	3	Minimum standards applicable	No

How do you wish to assess the number of BREEAM credits to be achieved for this issue?	Define the number of Mat 01 credits achieved

Assessment Criteria

Predicted total Mat01 credits achieved	3
Predicted total Mat01 points achieved	
Number of building elements assessed	
Green Guide exemplary level compliant?	
Has IMPACT compliant software been used?	

Total BREEAM credits achieved	3
Total contribution to overall building score	2.89%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

The Project Team confirmed intent to pursue this credit and specify materials with high Green Guide rating. Minimum Green Guide rating will likely be included as a performance specification. BREEAM Assessor will communicate additional requirements.

3 credits have been assumed at this point, out of 6 available.

Mat 02 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
Will ≥80% of all external hard landscaping and boundary protection achieve a Green Guide A or A+ rating?	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

Comments/notes:

Due to the nature of the project as an extension of an existing building, it is expected that a seamless integration within the existing site would be difficult with additional requirements in terms of environmental impact. The historical nature of the site will also limit the material choices for the external works. Architect will review as design progresses further, however compliance at this stage is deemed difficult.

Mat 03 Responsible Sourcing

No. of BREEAM credits available	4	Available contribution to overall score	3.86%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

Assessment Criteria	Compliant	Credits available	Credits achieved
All timber and timber based products are 'Legally harvested and trader timber	Yes		
Is there a documented sustainable procurement plan?	Yes	1	1
Percentage of available responsible sourcing of materials points achieved	19.00%	3	1

Please confirm the route used to assess Mat03	Please select

Total BREEAM credits achieved	2
Total contribution to overall building score	1.93%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Comments/notes:

The Project Team confirmed that all timber-based products will be legally harvested and traded, according to the UK Government Timber Procurement Policy. The Main Contractor will be made aware of this requirement and the necessity to provide supporting evidence.

A Sustainable Procurement Plan shall be developed as a framework for the responsible sourcing of materials to guide the procurement by all parties involved in the specification and procurement of materials. Project Team to confirm and liaise with BREEAM Assessor for further details (1 Credit).

Up to 3 credits are available for projects using building materials responsibly sourced in accordance with the BREEAM methodology. Architect to liaise with BREEAM Assessor to discuss (3 Credits).

Mat 04 Insulation

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		Credits available	Credits achieved	
What is the building's targeted insulating index?	3.00	1	1	Note: An insulatic

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

Comments/notes:

The Project Team confirmed intent to specify insulation materials with a high Green Guide rating. This should form part of the performance specification. Architect to liaise with BREEAM Assessor for further guidance of the documentation requirements. The Main Contractor must be made aware of the necessity to keep a record of all insulation materials used on the project, with associated Green Guide Rating.

Mat 05 Designing for durability and resilience

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
Will suitable durability/protection measures be specified and installed to vulnerable areas o the building?	Yes	1	1
Will suitable durability/protection measures be specified and installed to exposed parts of the building?	Yes		

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

Comments/notes:

The Project Team confirmed that the final design will include measures to prevent damage to vulnerable parts of the internal and external building elements.
Architect to liaise with BREEAM Assessor for specific requirements.

Mat 06 Material efficiency

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
Will material efficiency measures be identified & implemented during all RIBA stages?	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

Comments/notes:

The Project Team will consult with all relevant team members to identify ways by which to reduce material use and preserve resources. Consultation must take place at each RIBA stage. Supporting evidence can include reports identifying the ideas discussed and options considered, drawings or calculations showing reductions in material use, meeting notes, etc.
BREEAM Assessor can provide additional information upon request to assist with the documentation of this credit.

WASTE

Wst 01 Construction Waste Management

No. of BREEAM credits available	4	Available contribution to overall score	4.25%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

How do you wish to assess the number of BREEAM credits to be achieved for this issue?	Define a target number of BREEAM credits		
Select the number of BREEAM credits being targeted for issue Wst 01	3	BREEAM Wst01 Innovation credits:	

Assessment Criteria	Compliant?
Construction resource management plan	
Compliant Pre-demolition audit	
Does the excavation waste meet the exemplary level requirements?	

Key Performance Indicators - Construction Waste

Measure/units for the data being reported		
Non-hazardous construction waste (excluding demolition/excavation)		
Total non-hazardous construction waste generated		Note: At the pre-assessment stage this
Non-hazardous non-demolition const. waste diverted from landfil		Note: At this stage this will be a target
Total non-hazardous non-demolition const. waste diverted from landfil		Note: At the pre-assessment stage this
Total non-hazardous demolition waste generated		Note: At this stage this will be a target
Non-hazardous demolition waste diverted from landfil		Note: At this stage this will be a target
Total non-hazardous demolition waste to disposal		Note: At the pre-assessment stage this
Material for reuse		Note: At this stage this will be a target
Material for recycling		Note: At this stage this will be a target
Material for energy recovery		Note: At this stage this will be a target
Hazardous waste to disposal		Note: At this stage this will be a target

Total BREEAM credits achieved	3
Total contribution to overall building score	3.19%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Comments/notes:

The Project Team confirmed that the Main Contractor will be made aware of the requirements for this credit.
Waste Generation
The Main Contractor shall develop and implement a Resource Management Plan covering all non-hazardous waste generated by the building's design and construction.
Waste generation must be kept below 7.5m3 (6.5 tonnes) per 100m2 of internal floor area (2 Credits).
Diversion from landfill
The Main Contractor shall ensure that the following percentages of non-hazardous construction and demolition waste have been diverted from landfill:
Construction: 70% (volume), 80% (weight). Demolition: 80% (volume), 90% (weight).
Supporting evidence must be recorded and sent to the BREEAM Assessor.
Opportunities should be sought throughout pre-construction with the aim to further improve these waste targets where feasible.

Wst 02 Recycled Aggregates

No. of BREEAM credits available	1	Available contribution to overall score	1.06%
No. of BREEAM innovation credits available	1	Minimum standards applicable	No

Assessment Criteria	Total
What is the target total % of high-grade aggregate that will be recycled/secondary aggregate?	0%

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

Structural frame	
Bitumen/hydraulically bound base, binder and surface courses	
Building foundations	
Concrete road surfaces	
Pipe bedding	
Granular fill and capping	

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

Comments/notes:

The Project Team will determine whether the use of recycled and secondary aggregates can be considered on this project.
This credit requires that recycled or secondary aggregates are specified for at least 25% of the total high grade aggregate used on the project.

BREEAM Assessor to provide additional information upon request.

Wst 03 Operational Waste

No. of BREEAM credits available	1	Available contribution to overall score	1.06%
No. of BREEAM innovation credits available	0	Minimum standards applicable	Yes

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will operational recyclable waste volumes be segregated and stored?	Yes	1	1
Will static waste compactor(s) or baler(s) be specified where appropriate?	Yes		
Will vessel(s) for composting suitable organic waste where appropriate?	Yes		

Total BREEAM credits achieved	1
Total contribution to overall building score	1.06%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Comments/notes:

The Project Team expect that all BREEAM requirements will be met to achieve this credit.
The Inn have an existing service yard, containing refuse bins and a compactor, which is expected to be utilised for the operational waste generated from this new extension
Architect to provide drawings and sizing details, and to liaise with the Client to determine whether there is an existing waste policy for the Inn.

Wst 04 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

Comments/notes:

Wst 05 Adaption to climate change

No. of BREEAM credits available	1	Available contribution to overall score	1.06%
No. of BREEAM innovation credits available	1	Minimum standards applicable	N/A

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will a climate change adaptation strategy appraisal for structural and fabric resilience be conducted by the end of Concept Design (RIBA Stage 2 or equivalent)?	No	1	0
Will emexplary level criteria – Responding to adaptation to climate change be met?	No	1	0

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

Comments/notes:

This credit requires to conduct of a climate change adaptation strategy assessment for structural and fabric resilience during RIBA Stage 2, evaluate the impact of extreme weather conditions on the building, and identify measures to mitigate these impacts.
Due to the current stage of the project, demonstrating compliance with this credit is no longer achievable due to the early stage documentation requirements.

Wst 06 Functional adaptability

No. of BREEAM credits available	1	Available contribution to overall score	1.06%
No. of BREEAM innovation credits available	0	Minimum standards applicable	N/A

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will a building specific functional adaptation strategy appraisal be conducted by Concept Design (RIBA Stage 2 or equivalent) and will functional adaptation measures be implemented?	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

Comments/notes:

The credit requires projects to undertake a building-specific functional adaptation strategy study during RIBA Stage 2. The study must include recommendations for measures to facilitate future changes of use of the building over its lifespan. Measures must later be adopted in the final design by the end of Stage 4 based on the recommendations from the functional adaptation study.

There has been no such formal appraisal document, but the Architect confirms that similar consultation has been undertaken throughout the early project stages to determine the functionability of the project space. Architect and BREEAM Assessor to review this early stage documentation to determine if it is line with the specific BREEAM requirements.

LAND USE & ECOLOGY

LE 01 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
Will at least 75% of the proposed development's footprint be located on previously occupied land?	Yes	1	1
Is the site deemed to be significantly contaminated?	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

Comments/notes:

The Project Team confirmed that the requirements for previously occupied land will be met.

LE 02 Ecological Value of Site and Protection of Ecological Features

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
Can the land within the construction zone be defined as 'land of low ecological value'?	Yes	1	1
Will all features of ecological value surrounding the construction zone/site boundary be protected?	Yes	1	1

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

Comments/notes:

A Suitably Qualified Ecologist has been appointed to engage with the project team regarding the ecological value of the site. A site survey has been undertaken, and a specific BREEAM report is to be produced as the landscape strategy is developed.

An arboriculturalist has also been engaged by the team to advise on the protection of trees during the construction period.

Based on the above, both of these credits are deemed likely.

LE 03 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

Assessment Criteria

What is the likely change in ecological value as a result of the sites development?	<0≥-9 species (i.e. minimal negative change)	Plant species richn

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

Comments/notes:

Due to the location of the development and construction on land of low ecological value, it is expected that the impact of the development on the site's ecological value will be minimal. There are some trees which will have to be removed due to the works, however new trees will also be planted to minimise the impact of this removal. Ecologist is to liaise with the Architect has the landscape plans develop to advise on planting strategy for the project site to assist in achieving no negative change in ecological value.

LE 04 Enhancing Site Ecology

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
Will a suitably qualified ecologist be appointed to report on enhancing and protecting site ecology?	No	2	0
Will the suitably qualified ecologist's general recommendations be implemented?			
What is the targeted/intended improvement in ecological value as a result of enhancement actions?			

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

Comments/notes:

The Project Team confirm that an ecologist has been appointed to advise on enhancing the ecology of the site, however the credit requires that this appointement must have taken place by the end of RIBA Stage 1. Unfortunately, due to the project programme, this appointment was not made until RIBA Stage 2, with the site survey and corresponding report being undertaken during this stage also.
It is therefore the Assessor's judgement that the credit intent has been met, as the ecologist's late involvement has not hindered the project's ability to implement ecological improvements. However, as it is the BRE who undertake the final verification, the project is not reliant upon these credits as part of the overall score at this stage. The BREEAM assessor will liaise with the BRE to determine if this is an acceptable approach to compliance.
Due to the low ecological value of the existing site, an increase in ecological value could be achieved through careful design. Architect and Ecologist to liaise during the landscape design for the project.

LE 05 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
Will a Suitably Qualified Ecologist be appointed to monitor/minimise impacts of site activities on biodiversity?	Yes	2	2
Will a landscape and habitat management plan be produced covering at least the first five years after project completion in accordance with British Standards?	Yes		
Number of applicable measures to improve biodiversity confirmed by SQE	4		
Number of applicable measures implemented:	4		

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

Comments/notes:

The Project Team confirmed that an ecologist has been appointed. A landscape and habitat management plan will be produced and a number of measures will be implemented to improve the site's long term biodiversity. Ecologist to confirm.
It will be the responsibility of the Main Contractor to ensure the applicable measures are implemented during the construction phase of the project. Ecologist to advise the Project Team of what is required, and these requirements should be included within the Main Contractor tender documents.

POLLUTION

Pol 01 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?	Yes	2	0	
Do all systems (with electric compressors) comply with the requirements of BS EN 378:2008 (parts 2 & 3) & where refrigeration systems containing ammonia are installed, the IoR Ammonia Refrigeration Systems Code of Practice?	Yes			
Global Warming Potential of the specified refrigerant(s) 10 or less?	No			
What is the target range Direct Effect Life Cycle CO2eq. emissions for the system?		kgCO2eq/kW coolth capacity		
Cooling/Heating capacity of the system		kW		
Will a refrigerant leak detection and containment system be specified/installed?	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

Comments/notes:

Refrigerants will be used within the building systems, and they will not be natural refrigerants, as such full credits is unlikely. Using the Pol01 calculator may allow us to achieve one credit, but this will be dependent upon the specification and capacity of the systems.
A refrigerant pump down and leak detection system will be specified, therefore this credit is likely.
Mechanical Engineer to liaise with BREEAM Assessor for further information.

Pol 02 NO_x Emissions

No. of BREEAM credits available	3	Available contribution to overall score	0.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria

NO_x emission level - space heating		mg/kWh
NOx emission level - water heating		mg/kWh
Does this building meet BREEAM's definition of a highly insulated building?		
Energy consumption: heating and hot water		kWh/m2/yr

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

Comments/notes:

The current energy stategy allows for ground source heat pumps to meet the energy targets for this new development. Unfortunately, where this strategy allows for an improved energy performance, compliance with this credit is unlikely as the BRE assumes that heat pumps utilise grid electicity and therefore generate high NOx emissions
A calculation will be undertaken once the energy strategy is finalised, however it is our expectation that compliance with these credits is not achievable.

Pol 03 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
What is the actual/likely annual probability of flooding for the assessed site?	Low	2	2
Will a Flood Risk Assessment be undertaken?	Yes		
Will the site meet the BREEAM criteria for peak rate surface water run off?	Yes	1	1
Will the site meet the criteria for surface water run off volume, attenuation and/or limiting discharge?	Yes	1	1
Will the site be designed to minimise watercourse pollution in accordance with the BREEAM criteria?	Yes	1	1

Total BREEAM credits achieved	5
Total contribution to overall building score	3.85%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

The project is located in an area of low flood risk, and so two credits are possible where a flood risk assessment is produced, OR where the EA confirm that due to the low flood risk of the site, a FRA is not required. Project team to advise whether this documentation is available.

The drainage consultant must confirm compliance with the specific BREEAM requirements with regards to surface water run off and the minimisation of watercourse pollution. Based on current strategies, it is anticipated compliance with these credits is likely. Drainage consultant to provide drawings and calculations to demonstrate this.

Pol 04 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
Will the external lighting specification be designed to reduce light pollution?	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

Comments/notes:

The current external lighting strategy is expected to include façade lighting which could hinder the project's ability to demonstrate compliance, due to the associated upward lighting levels. The external lighting strategy is still in development, and so Electrical Engineer to liaise with BREEAM Assessor to confirm feasibility.

Pol 05 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
Will there be noise-sensitive areas/buildings within 800m radius of the development?	Yes	1	1
Will a noise impact assessment be carried out and, if applicable, noise attenuation measures specified?	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

Comments/notes:

The Project Team confirmed that an acoustician has been appointed to carry out a Noise Impact Assessment (NIA). It is understood that local acoustic requirements are more stringent that the requirements of BREEAM.

INNOVATION

Inn 01 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
Man 03 Responsible construction practices	No	1	0
Man 05 Aftercare	Yes	1	1
Hea 01 Visual Comfort	No	1	0
Hea 02 Indoor Air Quality	No	2	0
Ene 01 Reduction of energy use and carbon emissions	No	5	0
Wat 01 Water Consumption	No	1	0
Mat01 Life Cycle Impacts	No	3	0
Mat03 Responsible Sourcing of Materials	No	1	0
Wst01 Construction Waste Management	No	1	0
Wst02 Recycled Aggregates	No	1	0
Wst 05 Adaption to climate change	No	1	0

Number of 'approved' innovation credits achieved?	

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

Comments/notes: