energycouncil
engineering sustainable buildings

Sustainability Statement

for

Proposed Residential, Extra Care
and Health Hub,
Bowes Street,
Moss Side,
Manchester,

For

Rowlinson Constructions Ltd



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1.0 Introduction

This high level Sustainability Strategy has been developed in support of the planning application by Rowlinson Constructions for the Bowes Street development in Manchester. The proposed development consists of the construction of 92 standalone apartments, 54 Houses, an Extra Care facility containing 72 apartments and a Health Hub containing an additional 40 apartments.

This statement provides supporting information for Sustainability strategies considered on site in accordance with the Local Authority standards and for the tender submission.

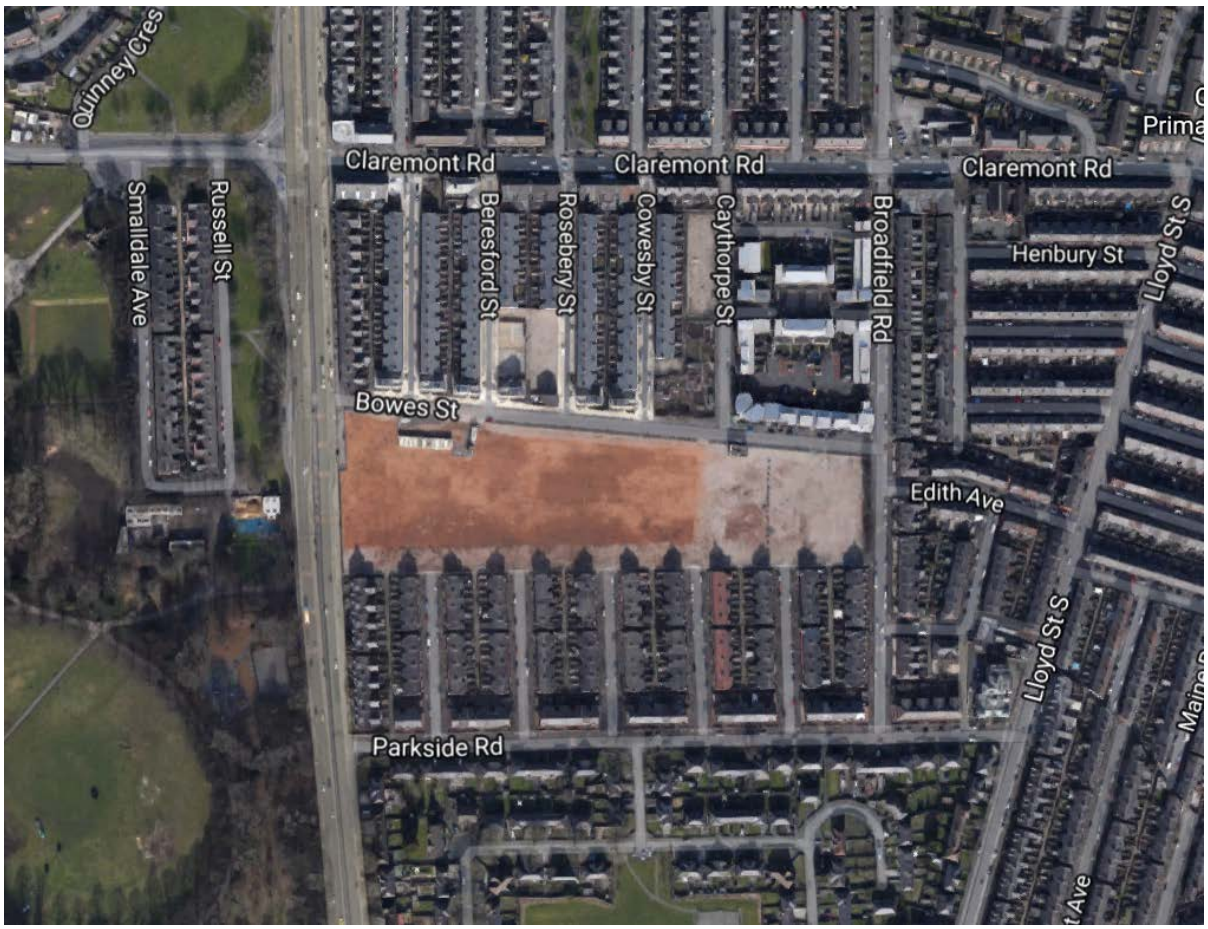
The following requirements have been identified with respect to the energy/ sustainability standards:

A. The principles of Level 4 of the Code for Sustainable Homes for all residential units
B. BREEAM very good/ excellent rating to the Extra Care facility & Health Hub
C. Emission standards relating to LA requirements, Code and BREEAM.
D. Management of Climate Change
E. Waste Management Strategy
F. Water Management & Weather Resilience
G. Good practice for material use and selection

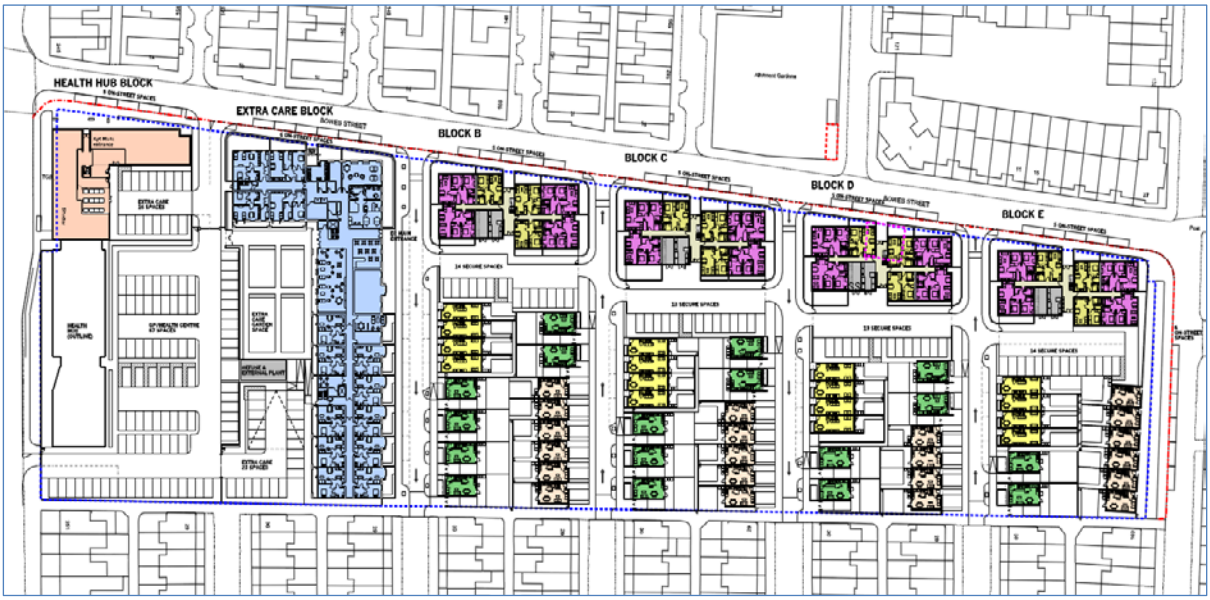
Code and BREEAM seek to minimise the adverse effects of new buildings on the environment at global and local scales, whilst promoting healthy indoor conditions for the occupants. The Code assessment is specifically targeted at assessing new build residential developments, whereas BREEAM is generally directed towards non-residential developments. A comprehensive list of the proposals and sustainable techniques, which will be undertaken are listed herein.

*Following the government's technical housing standards review the Code fSH was withdrawn from government policy on 27th March 2015, thereby meaning that the Code is now no longer a planning requirement. Planning conditions incorporating Code can be successfully appealed. There is currently no other externally certified means to assess sustainability for housing so until such time as an alternative becomes available, and to meet the spirit of Manchester CC's sustainability planning policy we propose to meet the principles of Code level 3, but without including for full BRE certification.

Location



Site Plan



1.1 Executive Summary

The development has been assessed to maximize its sustainability and environmental credentials. This strategy considers many aspects of the design and construction of the development and the following issues have been identified:

1. Energy Efficiency
2. Transport
3. Pollution
4. Construction Materials and Waste
5. Water Consumption
6. Ecological Aspects incl. Land use and Ecology
7. Health and Wellbeing
8. Sustainable Management of the Construction process

Sustainable developments arise as a result of user interaction (or management operation) with the environment, buildings and their associated building services.

Achieving sustainable development requires action on four main fronts:

1. Promotion and encouragement of sustainable lifestyles.
2. Design and construction of quality buildings and building services and its surroundings.
3. Use, operation and maintenance of buildings, building services and its surroundings.
4. Selection and use of other sustainable equipment and surroundings incl. adoption of lifestyle changes, new methods and embracing the challenges ahead.

In addition by adopting the philosophies below the development can be developed sustainably:

- Designing buildings and the surrounding environments that are easy to operate and maintain.
- Pre-installing sustainable and energy efficient equipment and/or advising on such.
- Providing guidance on the efficient and sustainable use of the buildings and surroundings.

An energy hierarchy for Former Siemens Site will consider the need to reduce energy use first, then use clean, efficient non-renewable systems and finally use renewable energy for the remaining energy requirements. This is the *BE LEAN, BE CLEAN, BE GREEN* approach. Full details are provided in our Energy Statement 98415ES

2.0 Overview

The UK Government's policy targets relating to sustainability and the built environment is focused on moving to a low carbon economy through a stepped program of reduced carbon budgets en route to the long term goal of an 80% reduction in emissions by 2050.

New and existing buildings have become priority concerns for policy-makers with a range of policy (and related fiscal) measures targeting the energy and carbon performance of buildings. Below is a summary of the main performance criteria:



Figure 1 – Sustainability performance criteria

Energy & CO_2:
Dedicated energy strategy to reduce energy demand and deliver significant CO_2 emissions reductions through: • Improved fabric performance over current standards • Solar shading and good air-tightness • Passive-led ventilation strategy • The use of mechanical ventilation with high heat recovery efficiency where required • Energy-efficient lighting systems and good control • Potential CHP energy plant to supply heat and power to the parts of the development • Photovoltaic panels to generate electricity to the parts of the development

Resilience to future climate change impacts:
• Prioritise passive measures to limit demand for cooling

Water Management –
Minimising use of mains supplied water • Water efficient sanitary-ware • Water efficient white goods • Rainwater re-use for irrigation through strategically placed water butts

Surface Water Management and Flood Mitigation –
Minimising surface water runoff and Prevent localised flooding by: • Manage peak runoff and volume • Sustainable storage and attenuation tanks • Potential for other Sustainable Drainage Systems (SUDs) including soakaways Resilience to future climate change: • SUDs sized with an allowance for climate change

Urban Greening and Biodiversity
Green/brown/biodiverse roofs, strategic tree-planting and soft landscaping will provide: • Net gain in local biodiversity • Urban cooling through evapotranspiration • Improved local air quality • Attenuated and potentially reduced surface water runoff • Sense of wellbeing (residents / local community) • Resilience to future climate change impacts

Occupant wellbeing
• Inclusive design principles; all dwellings will achieve Lifetime Homes standard • Access to good levels of daylight where possible • Good internal air quality and thermal comfort through controllable systems and devices • Private and communal outdoor space • Sense of place & wellbeing • Safety & security measures in line with Secured by Design • Provision of secure cycle parking

3.0 - Assessment Strategy

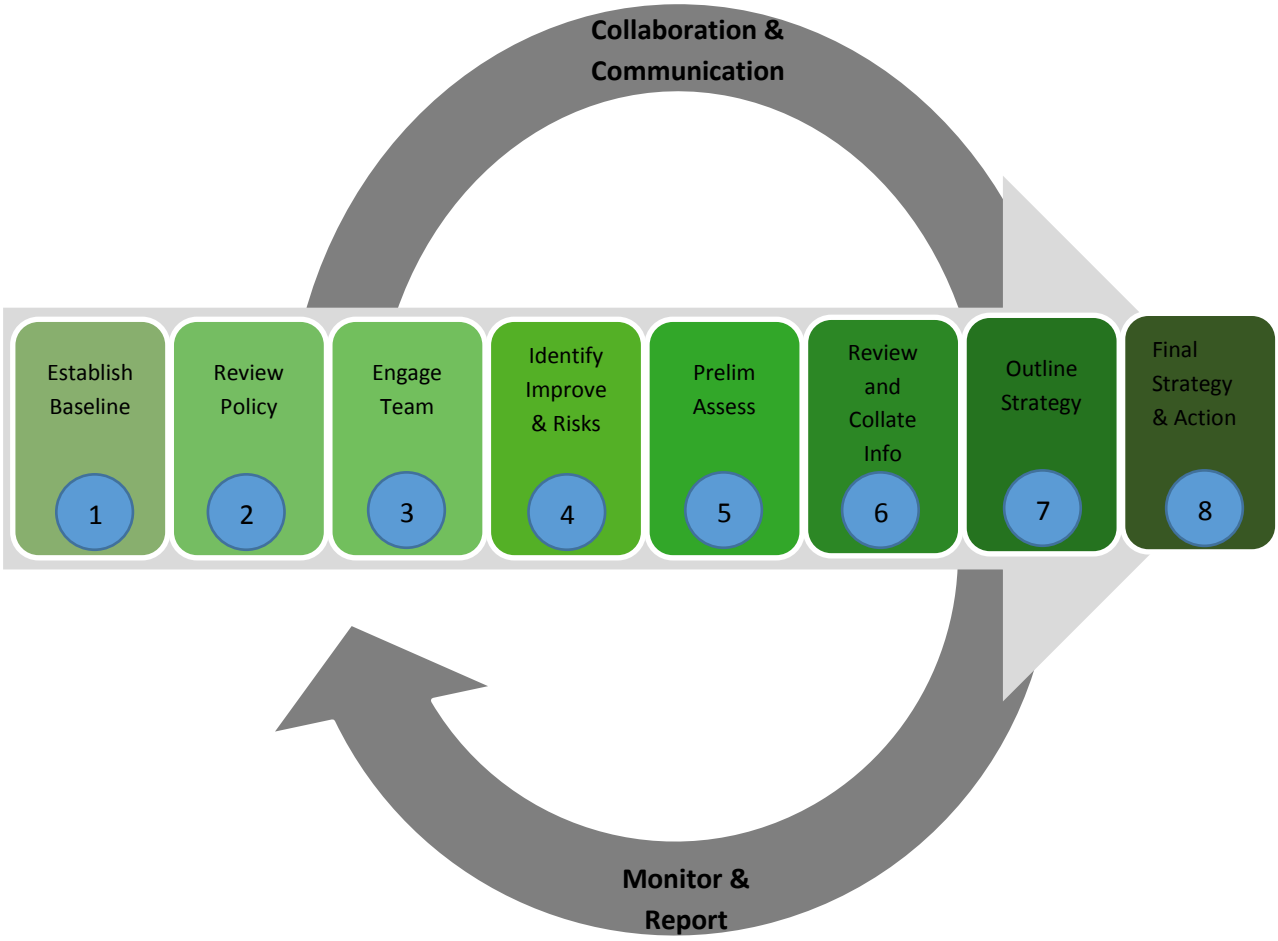
3.1 Collaboration

The strategy has been developed by the project sustainability consultant in consultation with Rowlinson Constructions, and the design team. Sustainability workshops are held with the project team, with further workshops planned periodically up to planning submission. Ongoing collaboration between the team and coordination of the design proposals will be important in order to maintain and enhance the sustainability strategy as the project evolves.

3.2 Strategy Development

The methodology to develop the project sustainability strategy involves an integrated but simple, step-by-step approach:

Figure 3 – Sustainability strategy methodology



Steps:

1. Establish design baseline, i.e. the starting point including any key constraints to implementing sustainability measures

2. Policy review – identify sustainability standards and targets set for the scheme by the client and the local planning authority

3. Engage with design team and client - communicate targets; review early stage design proposals

4. Identify key opportunities for achieving the desired level of sustainability performance, and the key risks. This may include risks associated with the minimum standards under LA policy or Code/ BREEAM

5. Preliminary environmental assessment (i.e. CSH/ BREEAM) based on the issues identified

6. Collate information and outputs from workshops, design proposals and assessment activities

7. Develop outline strategy for review

8. Finalise and implement strategy

As part of the strategy development and implementation, there is a reiterative process of communication and collaboration with the project team to assist and inform development proposals, the cost plan and decision-making. This is particularly important when targeting an advanced level of sustainability performance such as a BREEAM Very Good or Excellent. Procedures are put in place to monitor and report progress against the sustainability targets throughout the design and construction process.

The following flow diagram shows the key stages of a BREEAM/ Code for Sustainable Homes assessment for the scheme.

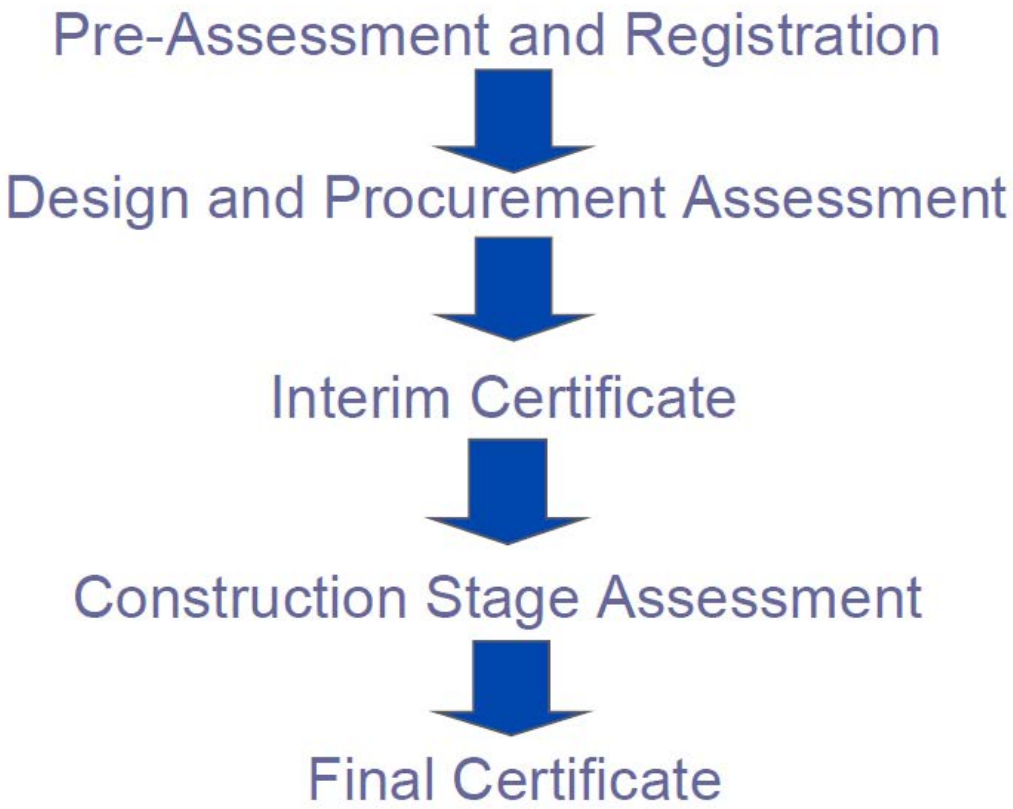


Figure 4 – BREEAM/ Code assessment flow diagram

The pre-assessment and registration stage is the first step and highlights the pre-assessment considerations and early indicative performance against Code/BREEAM to meet the targets set by a client, planning or other requirement.

The Design and Procurement (D&P) assessment will usually commence after planning and during detailed design. The Pre-Assessment guidance and advice provided by the assessor during the D&P assessment will allow the design team to produce the required design and corresponding auditable material to comply with the Code requirements.

Upon completion of the D&P assessment the assessor will submit a recommendation report to BRE. BRE undertake an independent quality check on that recommendation and if deemed appropriate will issue an Interim (design stage) certificate showing the rating achieved.

In order to complete the assessment and achieve a full BREEAM/ Code certificate or the principles of these assessment methods, the assessor will be required to verify performance of the scheme throughout construction and once again submit to BRE recommending full certification.

3.3 Prioritising Opportunities

Environmental, social and cost effectiveness are key issues relating to the sustainability performance of a development. The nature and location of the Development generally determines some of the sustainability measures; with local planning policy requirements also providing critical drivers.

To deliver the highest sustainability performance possible within the constraints of the site, a balance is required between the various environmental, social and economic issues. This can typically mean prioritising those sustainability principles that provide the greatest potential for the development to limit its environmental and social impact at a local and national scale, without compromising the viability of the scheme.

Those principles identified as providing the greatest opportunity for the Development to deliver an advanced sustainability performance are as follows:

- Energy and CO_2
- Bio-Diversity & Urban Greening
- Water Management
- Mitigating Overheating Risk
- Occupant Health & Well Being

In addition, Climate change adaptation is integrated into the key sustainability issues where appropriate.

3.4 Main Criteria

The design currently includes a number of components that gives the scheme a head start in relation to the BREEAM & CfSH. The list below is not exhaustive but confirms the main elements the Design team and Contractor could include, meeting the applicable BREEAM ratings as part of their proposals:

Energy

- **Emissions –**

  It is noted that the envelope of the building is fixed and complied with building regulations at the time of the original construction. The development will be fitted out to achieve low energy and carbon dioxide emissions to exceed current Building Regulations Part L1A & L2A using thermally efficient/airtight construction and energy efficient communal heating and hot water systems. The Energy Performance Ratio (EPR) will be calculated for the building based on the BREEAM criteria.

- **Energy Monitoring –**

  Energy sub-meters will be installed in the building to monitor and meter energy use from major building services systems, by tenant or building function to enable the buildings energy usage to be managed well during operation.

- **Energy Efficient Transport –**

  A transport system analysis will be undertaken on the lifts to ensure that the optimum number, size and type of lifts is chosen which is most energy efficient. Energy efficient features such as LED lighting, traction control with VSD's will be considered.

- **Energy Efficient Equipment –**

  Energy efficient equipment will be considered based on all unregulated energy consuming appliances such as small power, laundry, catering facilities etc.

- **Energy Efficient Lighting –**

  Energy efficient lighting will be installed internally and externally. Movement and daylight controlled lighting will be introduced where practicable. All external space and security lighting will be specified with low energy lamps, daylight controls and designed to reduce light pollution.

- **Energy Efficient Cold Storage –**

  Energy efficient cold storage refrigeration equipment will be designed, installed and commissioned in accordance with BREEAM criteria, where practical.

- **Low/Zero Carbon Technology –**

LZC technology will be considered on the site taking into account any LZCs already on site or within the local vicinity.

Water

- **Water Consumption –**

Water consumption will be reduced to meet a predicted consumption 40% less than the baseline to meet 3 BREEAM credits and Part G. The design team will provide a schedule of all appliances and water consuming equipment with manufacturer, type, flow rates all specified and how the flow rate is achieved (flow regulators, limiters, etc...).

- **Water Monitoring –**

A pulsed output water meter will be provided on the mains water supply to the building. Further pulsed output metering will be provided on any large water consuming plant, equipment or building areas (eg Laundry etc). Where a BMS is specified all water meters and sub-meters will be connected.

- **Water Leak Detection and Prevention –**

A mains water leak detection system will be installed on the main water supply to the non residential buildings. This will have alarm thresholds to advise the Facilities Management of any problems. Flow control devices will be installed on the communal toilet and shower areas to automatically shut the water supplies off when not in use and prevent unwanted water usage.

Materials

- **Life Cycle Impacts –**

The scheme will use Green Guide "A/A+" Rated materials, wherever practicable. Where practical, IMPACT compliant software will be considered to assess Key Performance Indicators. KPI's will include embodied greenhouse gas emissions of each building element – walls, windows, roof, upper floors, internal walls, floor finishes and coverings.

- **Responsible Sourcing Of Materials –**

All building and construction materials used on the schemes will aim to be sought from environmentally managed accreditation schemes, wherever practicable (such as EMAS / ISO 14001 accreditation). All timber will be sourced from a certified chain of custody which is legally harvested and trader timber.

- **Insulation–**

Insulation values must be excellent and have low environmental impact in use and during manufacture. All products will seek Global Warming Potential GWP<5, Green Guide ratings of A/A+, where practicable and with good thermal characteristics and an insulation index rating of greater than 2.5. The Contractor will provide manufacturer's literature and purchase orders to validate this item.

- **Material Durability and Resilience –**

Suitable durability and protection measures will be considered to all vulnerable and where possible exposed parts of the building.

- **Material Efficiency –**

Material efficiency measures will be considered for the building incl. identifying and implementing the various types and qualities at each RIBA stage.

Surface Water

- **Flood Risk –**

A Flood Risk Assessment will be carried out for the site in compliance with Code guidance. It is assumed that the site is situated in Zone 1 (a low flood risk area) and there is low risk of flooding from all main sources as listed in PPS 25.

Waste

- **Operational Waste –**

External bin storage will comply with BREEAM Guidance with all operational waste segregated and stored - this includes non-organic and organic waste streams. The external bins will be compliant in terms of location, size, specification, etc. with level access provided to all general and recyclable refuse bins.

- **Construction Waste Management –**

The Contractor will operate a BREEAM compliant SWMP where practicable. Consider use of SMART Waste or other equivalent Accredited Construction scheme on site. This helps to reduce construction waste and recycle waste wherever possible. It is assumed that the Contractor will ensure that at least 85% of weight or by volume of non hazardous construction waste generated by the project will be diverted from landfill where practicable.

- **Recycled Aggregates –**

Recycled and Secondary Aggregates will be considered for structural frame, bound/binder and surface courses, foundations, road surfaces, pipe bedding and granular fill and capping.

- **Functional Adaptability –**

A building specific functional adaption strategy will be and recommendations will be implemented, where practical.

Health & Wellbeing

- **Visual Comfort –**

Daylight and view out calculations will be considered to optimise these benefits which in turn will reduce the requirement to consume energy utilising electric lighting. Internal and external lighting levels, zoning and controls will be specified in accordance with CIBSE guides and British Standards.

- **Acoustic Performance**

Sound insulation, indoor ambient noise and reverberation feasibility study and testing will be carried out in accordance with Building Regulations Part E. A performance enhancement above Building Regs standards will be implemented, where practicable.

- **Indoor Air Quality –**

Indoor Air Quality standards will be considered to minimize air pollution, concentrations of pollutants within the building such as VOC and formaldehyde, where practicable.

- **Safety and Security**

The security of the building will be reviewed by appropriate bodies and to the client's requirements.

- **Thermal Comfort**

The building will be thermally modelled using Dynamic Simulation Modelling to assess the overheating risk and internal temperatures predicted within the habitable space. The modelling will inform the development of a thermal zoning and control strategy.

Management

- **Project Brief and design –**

  Stakeholder consultation will be undertaken as part of the pre-planning process with consideration of project delivery and third party bodies/ organisation.

- **Lifecycle cost and service life planning –**

  An elemental lifecycle cost analysis will be considered at component level with the predicted capital cost reported where possible.

- **Commissioning and Handover 1–**

  Building User Guide & Training - A comprehensive BREEAM compliant Building User Guide (BUG) will be developed prior to handover. This will detail how to effectively and efficiently operate the building in a non-technical manner, explain what sustainability measures have been introduced and why, and provide emergency and local information about the area. Comprehensive guidance on the management and maintenance of the property which explains the main features of the proposals to ensure the longevity of the elements will be provided. A training schedule will be prepared for the building occupiers/ managers in line with BREEAM Man04 criteria.

- **Commissioning and Handover 2 –**

  Commissioning - A commissioning schedule and responsibilities will be developed by the Main Contractor and issued to the team. A commissioning manager will be appointed to oversee all work.

- **Commissioning and Handover 3 –**

  A thermography survey will be considered prior to completion to ensure that the building fabric that encloses an internal heated and/or conditioned (treated) zone of the building, including internal walls separating treated and untreated zones, will be tested. The thermographic surveys of the building fabric will be undertaken by a professional holding a valid level 2 certificate in thermography (as defined by UKTA). The survey should confirm:

  1. Continuity of insulation
  2. Avoidance of excessive thermal bridging

3. Avoidance of air leakage paths through the fabric (excl. intentional openings)

Any defects identified via the survey inspection shall be rectified by the main contractor.

- **Aftercare –**

Seasonal commissioning will be undertaken once the building is substantially occupied over a 3, 6, 9 and 12 month period. Aftercare support will be provided to building occupiers with a post occupancy evaluation carried out 1 year after occupation. The exemplary BREEAM criteria will be met.

- **Responsible Construction Practices –**

The Contractor will manage and monitor environmental issues during construction process wherever practicable. This will include the monthly monitoring and management of energy and water consumption of site activities, separation, streaming and recycling of waste, the reduction of air, dust and ground pollution and aim for using 80% FSC/PEFC, etc... certified timber for all site timber. The Contractor must complete BREEAM Man 3 checklist and provide a comprehensive monthly report detailing how they are monitoring, targeting and managing energy, emissions and fresh water usage.

Ecology

- **Ecology issues Eco 1 – 5**

The design team will employ a suitably qualified ecologist to recommend appropriate ecological features that could positively enhance the ecology of the site in line with BREEAM Guidance. Significant ecological improvement will be undertaken to enhance the ecological value of the site once the development is built. The team will undertake ecological improvement of the site based on suitably qualified ecologist's guidance. Protection and mitigation measures will be introduced as and when necessary to reduce the impact of the development on the existing site and to enhance the development where appropriate. If applicable a long term biodiversity management plan will be developed for the site in accordance with BREEAM criteria.

Transport

- **Public Transport Accessibility –**

The transportation to and from the development will be reviewed and analysed to provide an accessibility index rating.

- **Proximity to Amenities –**

The building will be reviewed and analysed against local amenities in close proximity to the building with safe pedestrian routes considered.

- **Maximum Car Parking Capacity –**

The amount of car parking will be reviewed against the building type and usage and the accessibility index rating to provide the optimum amount of car parking spaces.

- **Travel Plan –**

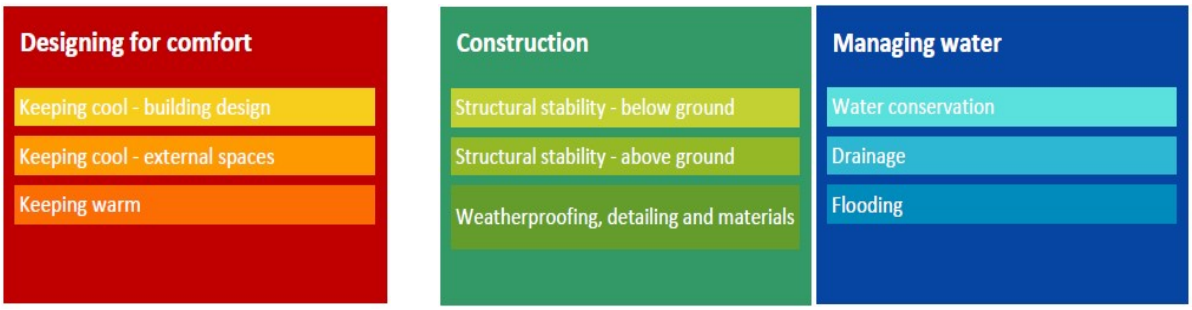
The Travel Plan will be developed for the building based on a specific travel survey and in line with BREEAM criteria.

4.0 Climate Change Risk Assessment

Energy Council recently assisted in a research project funded by the Technology Strategy Board to develop Climate Change Adaption Strategies. Threats and opportunities were analysed considering climate change adaptation, thermal comfort, passive cooling, flood resilience, housing and mass customization. Using predicted Climate modelling data in 2030, 2050 and 2080 Energy Council carried out thermal modelling to predict internal temperature changes against various parameters. Once the various risks had been identified, the study then went on to develop design strategies to minimise the impact of climate change should these risks ever become a part of modern day life. The research was presented by our client at PLEA 2013 - 29th Conference, Sustainable Architecture for a Renewable Future in Munich, Germany on 10-12 September 2013.

Future climate data suggests that between now and 2080 we will move towards warmer, more arid summers followed by wetter but milder winters. Stronger winds will be more prevalent as well as the extreme weather events, heat waves and storms.

The Technology Strategy Board (TSB) 2010 report "Design for Future Climate: Opportunities for Adaptation in the Built Environment" groups the impacts of climate change into three broad categories with sub-issues (shown below), and each of these have been considered as part of the design approach to the proposed development.



Two key items for consideration, particularly with Elderly Housing Facilities, are that prolonged over heating presents danger to the occupants and problems increase as the temperature rises over 28˚C. Overheating raises the likelihood of carbon intensive cooling systems being retro fitted. So to combat the rise in temperatures and humidity between now and 2030 onwards, we have introduced high levels of thermal mass combined with increased natural and forced ventilation on the project to provide future flexibility and robustness. These solutions are critical in advanced passive cooling strategies.

We have considered the effects of climate change and the need to incorporate early passive design actions and importantly incorporate flexibility / adaptable service strategies into the new developments especially with regard to ventilation and solar shading.

The Design of the scheme incorporates many of the key elements as highlighted below:

- Natural Ventilation – The scheme uses passive ventilation and cooling strategies to keep the building within acceptable ambient temperature levels.
- Cross Ventilation – Window locations will encourage cross ventilation, including internal windows to corridors, and where practicable.
- Potential for solar shading - External solar shading & internal blinds could be introduced at a future date if required.

If climate change becomes an issue over the next half century, history shows that industry will innovate and will produce new technology and ideas to address the issues. This could take the form of additional solar transmittance films or phase change materials fitted to windows or other elements of the fabric.

The proposed buildings have incorporated important design ideas to mitigate risk and will be in an excellent position to adapt should the need arise.

4.1 Possible Risks for Manchester

Using the climate projections from the UK Climate Impacts Program (UKCP09) the impacts and associated risks from a changing climate in Central Manchester mainly relates to rising temperatures and changing rainfall patterns, which are exacerbated by extreme weather events that are hard to predict. A basic assessment of the key impacts and associated risks for the Development has been carried out and is summarised below:

Climate Impact		Climate Risk
Rising temperatures and hot weather events	Overheating internal and external (i.e. urban heat island	Health implications for people Operational and cost issues for building managers/owners Increased CO_2 from increased cooling demand (known as 'maladaptation')
Hot weather events and prolonged or intense periods of precipitation	Structural Stability	Subsidence or Heave Cracking of building fabric

		Safety implications for people Operational and Cost issues for building managers/owners
Increased winter rainfall and prolonged or intense periods of precipitation	Water resource and flooding	Water shortages Localised Flooding Operational and cost issues for building managers/owners

The Development's response to each of these identified impacts and risks are provided in the following sections.

4.2 Managing Overheating

Overheating occurs when temperatures increase up to a point where it causes discomfort. The effect can be particularly noticeable for occupants when temperatures peak in the late afternoon as a building or built environment absorbs heat from the day.

4.2.1 External Overheating

The 'Urban Heat Island' (UHI) effect is a phenomenon whereby urban temperatures are higher than the surrounding, less dense areas due to heat being stored and 'trapped' within building structures. The result is urban centres being a lot warmer than the surrounding less urban areas, especially at night when the heat is released.

According to recent Climate Change Partnerships the UHI currently adds up to a further 5-6°C to summer night temperatures and will intensify in the future. Consequently overheating of the external environment, as well as the internal environment, needs to be addressed.

In the context of the Development, the following proposed measures will help to reduce external overheating and provide benefits in terms of balancing the microclimate. The strategy for soft landscaping is also discussed within the Ecology report.

The proposed design measures are as follows:

- **Green Infrastructure** - Trees and shrubs provided as part of the landscaping strategy will provide protection from both heat and UV radiation by direct shading to both the building and outdoor spaces. The proposed trees, green roofs and other soft landscaping will also provide evapotranspiration (the movement of water from a plant to the air) which in turn

cools the local environment. Vegetation can also control the microcilamte by converting solar radiation to latent heat.

- **External materials with low albedo and high conductivity -** Materials with a low albedo and high conductivity (like vegetation) are advantageous to a building's climate resilience. This is due to the low albedo element storing heat energy which is then re-radiated at night when it is cooler because of its high conductivity.

4.2.2 Internal Overheating

The use of mechanical ventilation and air conditioning in buildings in Central Manchester is expected to increase due to rising temperatures; exacerbated by the UHI effect. The use of active cooling can obviously offset internal overheating risk; however increased use of mechanical measures, such as air conditioning can emit heat energy to the external environment if not recovered, thereby increasing the temperature of the microclimate and further intensifying the UHI. Active cooling will also increase the amount of energy consumed and consequently CO_2 emissions, thus further contributing to climate change. Measures that cause this effect are often referred to as 'maladaptation'; a short term solution, which in reality exacerbates the issue.

Adopting passive and low energy measures will provide dual benefits in terms of both climate change mitigation and adaptation. These design measures will include the following:

- **Solar Shading -** Solar shading will be provided to the building through overhangs and balconies. The residential units will be designed to limit unwanted solar gain in line with Part L compliance and industry best practice guidance. 'Frittered' glass to the balconies is being explored, which will provide an element of shading to glazed areas. Shading is yet to be fully explored by the design team but will be tested, together with other solar control measures, within the overheating model developed by the project energy consultant.
- **Natural Ventilation** - The use of natural ventilation will help negate the need for mechanical cooling and support reductions in CO_2 emissions associated with mechanical ventilation (commonly used to increase air volume to internal spaces).
- **Solar Control Glazing** - Glazing systems with a low solar energy transmittance (i.e. low g-value) will be specified to vulnerable apartments (identified through the overheating modelling and analysis). This help to limit the amount of unwanted solar gain.
- **Reduce Lighting Gains** - Low energy lighting will reduce internal heat gains from luminaires.

4.3 Managing Structural Stability

Ground conditions can be affected by periods of drought and excess water conditions. Soils that contain clay minerals, such as Clay, lose water as they dry (making them shrink) and absorb water when wet (making them swell). This shrink-swell behavior is controlled by seasonal changes in the soil moisture content related to rainfall and local drainage.

Whilst cracking is an obvious surface effect, it is not always realised that the fissures may penetrate to a depth of 3 meters, and exceptionally, can reach 10 meters below the ground surface. This can have severe consequences for building foundations, causing subsidence and resulting in structural damage.

Many of our traditional building materials are not made to cope with hot weather conditions. Manchester will likely experience increased damage to buildings and other structures from cracking caused by extreme heat. Not only could this have safety implications for building users, but will lead to a higher number of insurance claims being made for remedial works, driving up premiums and overall costs to property owners.

Good drainage is the key to reducing the structural risks caused by shrink-swell and the Development will manage its surface water runoff sustainably and responsibly. This will help to reduce the burden on the local drainage infrastructure which is likely already under considerable pressure. This issue is discussed in Section 5 ‘Water Management and Weather Resilience’.

Storm damage to the building facades and roof area could also have implications for structural stability. Over time the protection offered by facade and roof materials could deteriorate and lead to heat loss and water infiltration. It is has therefore been important to the applicant to specify durable and robust materials where the design allows, whilst still ensuring that these materials meet the other sustainability needs of the development

4.4 Managing Water

Future climate change predictions suggest that the Greater Manchester area will experience wetter and warmer winters and drier and hotter summers. In the locality, storms and heavy rainfall events have increased considerably over the last 10 -15 years.

Induced pluvial flooding from summer storms are predicted to be more prevalent than river flooding and this is likely to lead to damage to property and infrastructure. This trend is expected to continue.

4.4.1 Water Conservation

Concurrently with these predictions, the demand for water is increasing and potable natural supplies are diminishing. The processing of water to potable standards will be resource and energy intensive so developments need to consider and minimise potable water consumption as much as possible.

Operational water consumption can be reduced by specifying appliances which use less water. Built-up areas will be drained to remove surface water and this process has traditionally been done using underground pipes to prevent flooding locally by conveying the water away as quickly as possible but other Sustainable Urban Drainage systems can be introduced to manage rainwater runoff rates and protect water quality. By managing the natural flow patterns we can mitigate flooding problems elsewhere in the catchments' area and the surface water run-off can be reduced to prevent contamination with silt, heavy metals, chemicals, and oil, which can be damaging to watercourses.

During the construction process the principles of Code for Sustainable Homes and BREEAM will encourage this construction site to be managed in an environmentally and socially considerate manner; adhering to best practice policies in respect of both ground and surface water pollution. During construction water usage is monitored, metered and benchmarks set to minimise water consumption. Sustainable Urban Drainage System will be utilised where necessary to meet the utilities and LA policies.

4.4.2 Surface Water Run-off

Rainfall is still expected during the summer months, albeit less than we experience now, but overall the climate modelling projects a decrease in annual rainfall. However, when a short but heavy rainfall event does occur, surges in runoff will put pressure on existing drainage and sewerage infrastructure and could lead to overflowing drains. The resulting excess water will be forced elsewhere creating the risk of flash flooding, particularly where there are impermeable surfaces making it impossible for the water to soak into the ground below. Floods, particularly containing sewerage water, impact upon public safety and health, particularly in urban environments.

Flood damage to property will incur financial cost but could also cause disruption to the day-to-day running of businesses, resulting in operational losses.

Sustainable forms of drainage (SUDs) that complement other sustainability requirements will be incorporated into the design proposals to reduce runoff to the main drainage infrastructure as far as possible. These measures are discussed in Section 5 'Water Management and Weather Resilience'.

4.5 Building Flexibility

The Development incorporates a number of measures and approaches to promote flexibility of spaces as far as practicable. The design proposals for the apartments have considered the needs of occupants and users both now and in the future, incorporating measures that will help assist or potentially reduce the need for future alterations. The proposed design measures are as follows:

- **Adaptability** - All apartments have been designed to achieve the Lifetime Homes standard. The open plan layouts allow for future flexibility in living space.
- **Accessibility** - Inclusive design principles have been applied throughout the development. This includes access to indoor and outdoor spaces, to waste storage areas and to dedicated cycle parking areas where provided.
- **Ease of Maintenance and Replacement** - Building services plant space allocation and riser location have been carefully considered to ensure good access by facilities management personnel to carry out regular maintenance works. This will help ensure the efficient operation of equipment throughout the lifetime of the building. In addition, the location of large plant and equipment has been strategically assessed to ensure the ease of replacement at the end of its life.

5.0 Water Management and Weather Resilience

The Environment Agency's Flood Zone maps and Strategic Flood Risk Assessment indicates that the site is located in Flood Zone 1; categorised as 'low risk'. This is land designated as having less than a 0.1% annual probability of flooding from rivers or the sea in any year (less than a 1 in 1000 annual probability of flooding).

The Drainage strategy details consultation with the Environment Agency and proposed water management features of the drainage system. Rate of surface water runoff discharged from the site, using a number of surface water attenuation measures.

In accordance with the Code requirements, the drainage design will be developed to ensure flooding of the building will not occur in the event of local drainage system failure and the post run-off volume over the development lifetime is no greater than the predevelopment rate using the Code drainage hierarchy.

An assessment of potential impacts associated with the construction and operation of the proposed development on flood risk and drainage has been undertaken. The assessment identifies a range of potential construction and operational impacts relating to local water resources, however the proposed mitigation measures will ensure that such residual impacts are minimised. Measures proposed during the construction phase of the development include the following:

- the development of a Construction Environmental Management Plan (CEMP) to ensure best practice and minimisation of impacts throughout the construction phase on water resources. This will reduce and minimise the potential for contaminants to migrate to surface water, mitigate localised flood risk and protect water quality and associated ecosystems. The CEMP will be disseminated on site via appropriate Tool Box talks for site workers;
- works will be undertaken in accordance with the Environment Agency's Pollution Prevention Guidance (PPG). This includes –

  PPG 5: Works In, Near or Liable to Affect Watercourses and

  PPG 6: Working at Construction and Demolition Sites during each stage of development.

  The PPG's ensure the proposed works are undertaken adopts a preventative approach which is addressed in an environmentally sensitive manner;

- prior to the construction of the permanent drainage systems, an appropriate temporary drainage system will be considered to collect and treat the surface water generated on site and ensure this does not affect surface water courses. Works may include silt traps to ensure that suspended solids are removed from the drainage water. Foul sewage from construction site offices will formally drain to the combined sewer system or will be stored for appropriate disposal. Any parts of the existing drainage system found during construction will be removed or plugged to prevent a potential pathway of water leaving the Application Site without being treated; and
- during the construction phase a flood plan / evacuation plan will be prepared in order to ensure the safety of workers on site and to minimise the pollution of flood water when a flood watch / flood warning is received. In addition flood risk should be considered within the site-wide Health and Safety Plan.

During the operational phase of the new development, the following measures will be put in place in order to mitigate against adverse impacts on water resources, flood risk and drainage:

- Outline Flood Risk Strategy confirms that the proposed drainage strategy will manage surface water so as not to increase flood risk to the application site or surrounding area. This may include roof top attenuation/ green roofs.
- as part of the proposed development a new drainage system will be installed in accordance with current design standards, to include separate systems for foul and surface water. Routine inspection and maintenance of the new drainage system should be undertaken;
- design of on-site levels will be reviewed to prevent overland flows being directed towards the building and creating of standing water;
- any significant parking areas or areas of intense vehicle manoeuvring, such as the proposed car parking and service/delivery yards, will be drained via petrol interceptors, selected in accordance with the requirements of Pollution Prevention Guideline 3: The Use and Design of Oil Separators in Surface Water Drainage Systems.

6.0 Waste Management

A Waste Management Strategy (WMS) considers the design, site clearance, construction and operational waste impacting upon the proposed development.

The UK construction industry makes significant contributions to the amount waste produced each year and a significant proportion of this waste would end up in landfill sites were it not for the WMS. The design team has reviewed the early options to realise greater reductions in waste going to landfill, thus saving valuable resources, reducing transportation and the risk linked to waste from by-products being produced that are hazardous to human health.

The Institute Civil Engineers Pre demolition protocol 2008 will be reviewed to identify any potential savings that may be on offer throughout the site clearance/ remediation. This will offer a clear understanding of any applicable materials that will be able to be incorporated within the design.

The site will be monitored by an experienced industry professional to assess performance against the Code for Sustainable Homes and this will include management of the construction site and the environmental impact. This project will be assessed against:

- environmental policies regarding air, dust and water pollution
- polices for waste management to segregate, recycle and reuse waste generated on site
- energy and water saving measures in place during the construction process
- procuring of materials from local sources and certified responsible sources

At all times we will look to ensure the developer is following the waste hierarchy of “reduce, reuse and recycle”. By implementing this holistic waste strategy the developer will establish key techniques to safeguard against excessive amount of waste being produced. Any waste produced, will then be reused (or refurbished and reused. Once this initial step has been exhausted, waste materials should then enter the recycling process. Where possible the materials will then be recycled into secondary raw material, thus maximising potential applications. The potential energy content of waste will also be examined. Consideration will be given to recovering energy from the waste which could then be used to offset non-renewable energy. After following this hierarchy and once all other possibilities have been exhausted, waste would be disposed of in a safe and controlled manner.

The Contractor will develop a Site Waste Management Plan (SWMP) for the project. Although the SWMP has been with-drawn from UK legislation it is still necessary to develop one to meet Code for Sustainable Homes criteria Man 1, prior to works commencing on site. The SWMP will identify:

- Set procedures and commitments to minimise non-hazardous waste at the design stage
- Procedures to minimise hazardous waste
- Set bench marks for resource efficiency
- Monitor, measure and report non-hazardous and hazardous waste produced on site.
- Implement key procedures and commitments to sort and divert waste from landfill.

The Contractor will be compliant with the following local and national documents:

- British Standard 5906:2005
- Waste Prevention Programme for England
- BREEAM and The Code for Sustainable Homes
- Local Council Domestic Waste and Recycling Service Standard
- GLA Policy

Operational waste proposals will be developed in line with BS5906:2005, the Code for Sustainable Homes, BREEAM and Local Authority Council's Waste Collection schedule and facilities. The storage of the external bin storage will be sized accordingly and will have inclusive access and usability to ensure all residents including those of wheelchair use can access. This requirement is embodied within the Code issues Was 1, Was 3, Hea 3 and Hea 4.

As a large domestic development the Development will incorporate excellent facilities for occupants and visitors to develop good practice for recycling waste as follows:

a. Guest, office and food and beverage wastes will be segregated into waste-streams prior to storage at the designated communal bin storage waste area.

b. All communal wheelie/Euro bins will be stored in the designated waste area and will be out of view to the public. Bins for recyclable materials and general waste requirements will be sized to meet waste management company frequency and collection requirements.

c. Meetings will be organised with the chosen waste management company to ascertain percentages of recycling and to ensure the building occupiers are segregating maximum levels of mainstream wastes.

The scheme will be registered against the Considerate Constructors Scheme (CCS). CCS is a nationally recognised resource which utilises regular site visits to ensure compliance. By registering and committing to CCS the developer is highlighting they have made a pledge to:

- Being organised, clean and tidy
- Ensuring that the external appearance of the site enhances the image of the industry
- Enhancing the appearance of facilities, stored material, vehicles and plant
- Raising the image of workforce by the appearance
- Identifying, managing and promoting environmental issues
- Seeking sustainable solutions, and misaiming waste, the carbon footprint and resources
- Minimising impact of vibration, and air/ light / noise pollution
- Protecting the ecology, the landscape, wildlife, vegetation and water courses

The project will strive to meet compliance with best practice CCS achieving a minimum overall score of 35, with a minimum of 7 points in each section.

7.0 Materials

Material selection plays a key role in the design, development and construction of the project. An organic, fluid and informed approach will be taken to the building design with information presented from findings produced using industry tools. Key performance indicators such as pre-demolition audits, site waste management plans and experience from other projects assists with this process and ensures that careful selection of materials will be considered. Material selection will be highlighted and continually reviewed, with the estimated waste being produced and recovered impacting upon the materials selected. Once selected careful consideration will be given to minimising waste produced through deliveries, handling and storage of materials.

The Building Research Establishment's (BRE's) "Green Guide" will play a critical role in the section of materials. The Green Guide www.greenguide.org.uk investigates the materials and components (bricks, block, timber, hard-core etc) used to construct building elements – external walls, roof, windows etc. with each element then awarded a Green Guide rating (A+ to E). A+ bring the most environmentally friendly material and E being the worst. By reviewing the Green Guide rating for each building element we can assess and manage the actual materials used on site and the key components that the Green Guide considers as follows:

- Water extraction
- Climate change
- Mineral resource extraction
- Stratospheric ozone depletion
- Human toxicity and Eco-toxicity to Freshwater and land
- Nuclear waste
- Waste disposal
- Fossil fuel depletion
- Eutrophication
- Acidification
- Photochemical ozone creation

8.0 Conclusion

The scheme will ensure that a quality sustainable new development is created. The development will be resilient to climate change and will offer residents and the whole community added benefits in terms of quality of living standards and life, lower energy and water bills, enhanced/improved surroundings and facilities.

Energy Council has reviewed the current project and provided guidance to ensure the key principles of the Code for Sustainable Homes and applicable BREEAM ratings can be secured at the As Built Stage.

Extra Care BREEAM Very Good - A final score of 61.7% is projected

Health Centre BREEAM Excellent - A final score of 71.5% is projected

The principles of the Code for Sustainable Home will be adopted

Refer to 9.0 Appendix 1 BREEAM & Code Pre-Assessment for further details.

9.0 Appendices – Appendix 1 - BREEAM Pre-Assessments

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

BREEAM® UK

Building name	Extra Care
Building score (%)	61.70%
Building rating	Very Good
Minimum standards level achieved	Very Good 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?	No	1	0	
Will stakeholder consultation (third party) take place?	No	1	0	
Will a sustainability champion (design) be assigned?	No	1	0	
Will a sustainability champion (monitoring progress) be assigned?	Yes	1	0	The first Sustainal

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:

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?	Yes	1	1
Expected capital cost of the project (if available)		£/m^2	

Total BREEAM credits achieved	1
Total contribution to overall building score	0.57%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

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?	No	1	0
Will a considerate construction scheme be used by the principal contractor? (One credit 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?	No	1	0
Will exemplary level criteria be met?	No	1	0

Key Performance Indicators: Construction site energy use

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

Key Performance Indicators: Construction site greenhouse gas emissions

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

Key Performance Indicators: Construction site use of freshwater resources

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

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

Comments/notes:

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 building user guide be developed prior to handover?	Yes	1	1
Will a training schedule be prepared for building occupiers/managers?	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:

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?	No	1	0
Will a post occupancy evaluation be carried out 1 year after occupation?	No	1	0
Will exemplary level criteria be met?	No	1	0

Total BREEAM credits achieved	1

Total contribution to overall building score	0.57%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Very Good level

Comments/notes:

HEALTH & WELLBEING

Hea 01 Visual Comfort

No. of BREEAM credits available	4	Available contribution to overall score	3.33%
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
How many credits will be targeted for the daylighting criteria?	0	1	0
Will the design provide adequate view out for building users?	Yes	1	1
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	3
Total contribution to overall building score	2.50%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

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?	Yes	1	1
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?	No	1	0
Will the building be designed to, or have the potential to provide, natural ventilation?	Yes	1	1
Will exemplary level VOCs (products)criteria be met?	0	2	0

Key Performance Indicators: Indoor air quality

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

Total BREEAM credits achieved	4
Total contribution to overall building score	3.33%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

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?	Yes	1	1
Will the modelling inform the development of a thermal zoning and control strategy?	Yes	1	1

Key Performance Indicators: Thermal comfort

Predicted Mean Vote (PMV)	INA
Predicted Percentage Dissatisfied (PPD)	INA

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

Comments/notes:

Hea 05 Acoustic Performance

No. of BREEAM credits available	4	Available contribution to overall score	3.33%
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?	1	4	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:

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:

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?	Define a target number of BREEAM credits achieved
Select the target number of BREEAM credits for the Ene01 issue:	3

Ene 01 Calculator

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

New Construction (Fully fitted)	Non-Domestic Building Areas	Domestic Building Areas	
Building floor area		3600	m2
Notional building heating and cooling energy demand			MJ/m2 yr
Actual building heating and cooling energy demand			MJ/m2 yr
Notional building primary energy consumption			kWh/m2 yr
Actual building primary energy consumption			kWh/m2 yr
Target emission rate (TER)			kgCO2/m2 yr
Building/Dwelling emission rate (BER/DER)			kgCO2/m2 yr
Building emission rate improvement over TER			Area Weighted
Heating & cooling demand energy performance ratio (EPR_{ED})		0.000	0.0%
Primary consumption energy performance ratio (EPR_{PC})		0.000	
CO_2 Energy performance ratio (EPR_{CO2})		0.000	
Overall building energy performance ratio (EPR_{NC})		0.000	
Number of BREEAM credits achieved	0	0	

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 'area-weighted' BREEAM credits achieved	3
Total contribution to overall building score	1.96%
Total BREEAM innovation credits achieved	0

Minimum standard(s) level	Very Good level

Comments/notes:

Ene 02 Energy monitoring

No. of BREEAM credits available	1	Available contribution to overall score	0.65%
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?			

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

Comments/notes:

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:

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 concept 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 completion of the Concept Design stage (RIBA Stage 2 or equivalent)?	Yes	1	1

KPI - Low and/or zero carbon energy generation

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

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:

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?	Yes	2	2

Total BREEAM credits achieved	3
Total contribution to overall building score	1.96%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

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?		
Ref B Swimming pool?		
Ref C Communal laundry?		
Ref D Data centre?		
Ref E IT-intensive operation areas?		
Ref F Residential areas?		
Ref G Healthcare?		
Ref H Kitchen and catering facilities?		

	Compliant	Credits available	Credits achieved
Will the significant majority contributor(s) to 'unregulated' energy use above meet the BREEAM criteria?	No	2	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:

Ene 09 Drying space

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 internal/external drying space and fixings be provided?	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:

TRANSPORT

Tra 01 Public Transport Accessibility

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

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

Assessment Criteria	Compliant	Credits available	Credits achieved
Indicative public transport accessibility index (AI):	5.00	3	2
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	2
Total contribution to overall building score	2.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Tra 02 Proximity to Amenities

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 the building be in close proximity of and accessible to applicable amenities?	Yes	2	2

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

Comments/notes:

Tra 03 Cyclist facilities

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

Building type category (for purpose of Tra03 issue assessment)	Sheltered housing, care home, supported housing/living facility
How many compliant cycle storage spaces will be provided?	15
What cyclist facilities will be provided?	Changing facilities and lockers and drying space

Assessment Criteria	Compliant?	Credits available	Credits achieved
Cyle and wheelchair/electric buggy storage spaces	No	1	0
Cyclist facilities - staff	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:

Tra 04 Maximum Car Parking Capacity

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

Building type category (for purpose of Tra04 issue)	Sheltered housing, care home, supported housing/living facility
Building's indicative Accessibility Index (sourced from issue Tra01)	5

Assessment Criteria	Compliant?	Credits available	Credits achieved

Will BREEAM's maximum parking capacity criteria for the building type/Accessibility Index be met?	Yes	2	1

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:

Tra 05 Travel Plan

No. of BREEAM credits available	1	Available contribution to overall score	1.00%
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	1.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

WATER

Wat 01 Water Consumption

No. of BREEAM credits available	5	Available contribution to overall score	4.38%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

How do you wish to assess the 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	

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	
Default building occupancy	

Alternative approach data

Overall microcomponent performance level achieved	

Total BREEAM credits achieved	3
Total contribution to overall building score	2.63%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Comments/notes:

Wat 02 Water Monitoring

No. of BREEAM credits available	1	Available contribution to overall score	0.88%
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 plant/building areas?	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	0.88%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Comments/notes:

Wat 03 Water Leak Detection and Prevention

No. of BREEAM credits available	2	Available contribution to overall score	1.75%
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?	Yes	1	1
Will flow control devices be installed in each sanitary area/facility?	Yes	1	1

Total BREEAM credits achieved	2
Total contribution to overall building score	1.75%

Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Wat 04 Water Efficient Equipment

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
Has a meaningful reduction in unregulated water demand been 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:

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?	

Key Performance Indicator - embodied green house gas emissions by element	Total area of element m^2	Total impact $kgCO_2$ eq.	Area of element impact data relevant to m^2

External walls			
Windows			
Roof			
Upper floor construction			
Internal wall			
Floor finishes/coverings			

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

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

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

Comments/notes:

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?	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:

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	40.00%	3	2

Please confirm the route used to assess Mat03	Route 1: Lowest RSCS point score

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

Comments/notes:

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?	2.60	1	1	Note: An insulatio

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:

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 of 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:

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?	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:

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:	0

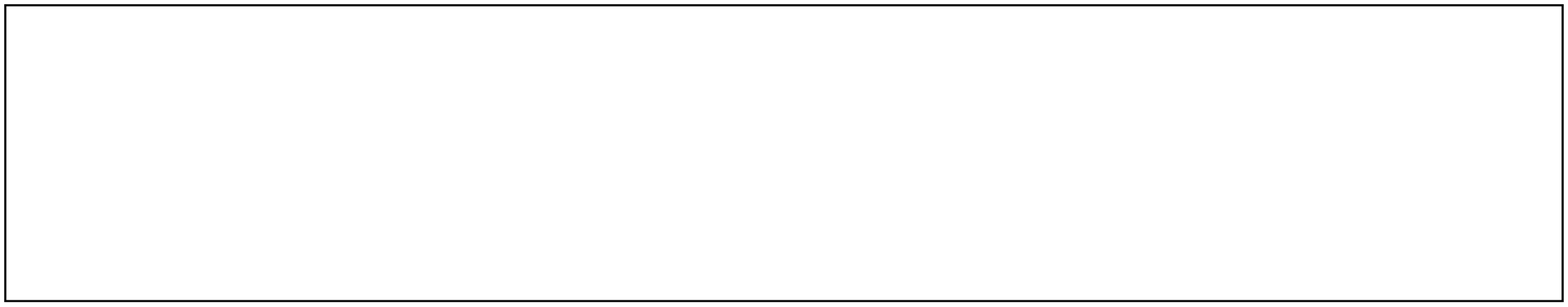
Assessment Criteria	Compliant?
Construction resource management plan	
Compliant Pre-demolition audit	
Does the excavation waste meet the exemplary level requirements?	

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 landfill		Note: At this stage this will be a target b
Total non-hazardous non-demolition const. waste diverted from landfill		Note: At the pre-assessment stage this
Total non-hazardous demolition waste generated		Note: At this stage this will be a target b
Non-hazardous demolition waste diverted from landfill		Note: At this stage this will be a target b
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 b
Material for recycling		Note: At this stage this will be a target b
Material for energy recovery		Note: At this stage this will be a target b
Hazardous waste to disposal		Note: At this stage this will be a target b

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:



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:

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?	N/A
Will Internal and, if applicable, communal storage & home compost facilities be provided?	

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:

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 exemplary 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:

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:

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:

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

Ecological value of the land defined using	A Suitably Qualified Ecologist

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:

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

Data sourced for calculating the change in ecological value from	Suitably Qualified Ecologist site survey of plant species

Assessment Criteria

What is the likely change in ecological value as a result of the sites development?	≥0 species (i.e. no negative change)	Plant species richn

Total BREEAM credits achieved	2

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

Comments/notes:

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?	Yes	2	2	
Will the suitably qualified ecologist's general recommendations be implemented?	Yes			
What is the targeted/intended improvement in ecological value as a result of enhancement actions?	≥6 species (large positive change)			Plant species richı

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:

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:	3		
Number of applicable measures implemented:	3		

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:

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	FALSE
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?			
Global Warming Potential of the specified refrigerant(s) 10 or less?			
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:

Pol 02 NO_x Emissions

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

Assessment Criteria

NO_x emission level - space heating	39.00	mg/kWh

NO_x emission level - cooling	39.00	mg/kWh
NOx emission level - water heating	39.00	mg/kWh
Does this building meet BREEAM's definition of a highly insulated building?	N/A	
Energy consumption: heating and hot water		kWh/m2 yr

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

Comments/notes:

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?	No	1	0
Will the site be designed to minimise watercourse pollution in accordance with the BREEAM criteria?	No	1	0

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

Comments/notes:

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?	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:

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:

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	No	1	0
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	0
Total contribution to overall building score	0.00%
Minimum standard(s) level	N/A

Comments/notes:

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

BREEAM® UK

Building name	Health Hub
Building score (%)	71.50%
Building rating	Excellent
Minimum standards level achieved	Excellent 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?	No	1	0
Will stakeholder consultation (third party) take place?	No	1	0
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	2
Total contribution to overall building score	1.14%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

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?	Yes	1	1
Expected capital cost of the project (if available)		£/m^2	

Total BREEAM credits achieved	1
Total contribution to overall building score	0.57%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

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 credit 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?	No	1	0
Will exemplary level criteria be met?	No	1	0

Key Performance Indicators: Construction site energy use

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

Key Performance Indicators: Construction site greenhouse gas emissions

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

Key Performance Indicators: Construction site use of freshwater resources

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

Total BREEAM credits achieved	5
Total contribution to overall building score	2.86%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Comments/notes:

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 building user guide be developed prior to handover?	Yes	1	1
Will a training schedule be prepared for building occupiers/managers?	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:

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
How many credits will be targeted for the daylighting criteria?	0	2	0
Will the design provide adequate view out for building users?	Yes	1	1
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	3
Total contribution to overall building score	2.50%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

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?	Yes	1	1
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?	No	1	0
Will the building be designed to, or have the potential to provide, natural ventilation?	Yes	1	1
Will exemplary level VOCs (products)criteria be met?	0	2	0

Key Performance Indicators: Indoor air quality

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

Total BREEAM credits achieved	4
Total contribution to overall building score	3.33%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

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?	Yes	1	1
Will the modelling inform the development of a thermal zoning and control strategy?	Yes	1	1

Key Performance Indicators: Thermal comfort

Predicted Mean Vote (PMV)	INA
Predicted Percentage Dissatisfied (PPD)	INA

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

Comments/notes:

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?	3	3	3

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

Comments/notes:

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:

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?	Define a target number of BREEAM credits achieved
Select the target number of BREEAM credits for the Ene01 issue:	7

Ene 01 Calculator

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

New Construction (Fully fitted)

Building floor area		m2
Notional building heating and cooling energy demand		MJ/m2yr
Actual building heating and cooling energy demand		MJ/m2yr
Notional building primary energy consumption		kWh/m2yr
Actual building primary energy consumption		kWh/m2yr
Target emission rate (TER)		kgCO2/m2yr
Building emission rate (BER)		kgCO2/m2yr
Building emission rate improvement over TER		
Heating & cooling demand energy performance ratio (EPR_{ED})		
Primary consumption energy performance ratio (EPR_{PC})		
CO_2 Energy performance ratio (EPR_{CO2})		
Overall building energy performance ratio (EPR_{NC})		

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	7
Total contribution to overall building score	4.57%
Total BREEAM innovation credits achieved	0

Minimum standard(s) level	Excellent level

Comments/notes:

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:

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:

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 concept 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 completion of the Concept Design stage (RIBA Stage 2 or equivalent)?	Yes	1	1

KPI - Low and/or zero carbon energy generation

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

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:

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?	Yes	2	2

Total BREEAM credits achieved	3
Total contribution to overall building score	1.96%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

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?		
Ref B Swimming pool?		
Ref C Communal laundry?		
Ref D Data centre?		
Ref E IT-intensive operation areas?		
Ref F Residential areas?		
Ref G Healthcare?		
Ref H Kitchen and catering facilities?		

	Compliant	Credits available	Credits achieved
Will the significant majority contributor(s) to 'unregulated' energy use above meet the BREEAM criteria?	No	2	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:

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	3	Available contribution to overall score	3.38%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

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

Assessment Criteria	Compliant	Credits available	Credits achieved
Indicative public transport accessibility index (AI):	5.00	3	2
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	2
Total contribution to overall building score	2.25%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Tra 02 Proximity to Amenities

No. of BREEAM credits available	1	Available contribution to overall score	1.13%
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	1.13%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Tra 03 Cyclist facilities

No. of BREEAM credits available	1	Available contribution to overall score	1.13%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Building type category (for purpose of Tra03 issue assessment)	Sheltered housing, care home, supported housing/living facility
How many compliant cycle storage spaces will be provided?	15
What cyclist facilities will be provided?	Changing facilities and lockers and drying space

Assessment Criteria	Compliant?	Credits available	Credits achieved
Cyle and wheelchair/electric buggy storage spaces	Yes	1	1
Cyclist facilities - staff	Yes		

Total BREEAM credits achieved	1
Total contribution to overall building score	1.13%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Tra 04 Maximum Car Parking Capacity

No. of BREEAM credits available	2	Available contribution to overall score	2.25%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Building type category (for purpose of Tra04 issue)	Sheltered housing, care home, supported housing/living facility
Building's indicative Accessibility Index (sourced from issue Tra01)	5

Assessment Criteria	Compliant?	Credits available	Credits achieved

Will BREEAM's maximum parking capacity criteria for the building type/Accessibility Index be met?	Yes	2	1

Total BREEAM credits achieved	1
Total contribution to overall building score	1.13%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Tra 05 Travel Plan

No. of BREEAM credits available	1	Available contribution to overall score	1.13%
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	1.13%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

WATER

Wat 01 Water Consumption

No. of BREEAM credits available	5	Available contribution to overall score	4.38%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

How do you wish to assess the 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?	50% - four credits
Please select the calculation procedure used	
Will the building be compliant with the additional Wat01 criterion for this building type?	

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	
Default building occupancy	

Alternative approach data

Overall microcomponent performance level achieved	

Total BREEAM credits achieved	4
Total contribution to overall building score	3.50%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Comments/notes:

Wat 02 Water Monitoring

No. of BREEAM credits available	1	Available contribution to overall score	0.88%
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 plant/building areas?	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	0.88%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Comments/notes:

Wat 03 Water Leak Detection and Prevention

No. of BREEAM credits available	2	Available contribution to overall score	1.75%
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?	Yes	1	1
Will flow control devices be installed in each sanitary area/facility?	Yes	1	1

Total BREEAM credits achieved	2
Total contribution to overall building score	1.75%

Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Wat 04 Water Efficient Equipment

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
Has a meaningful reduction in unregulated water demand been 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:

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?	

Key Performance Indicator - embodied green house gas emissions by element	Total area of element m^2	Total impact $kgCO_2$ eq.	Area of element impact data relevant to m^2

External walls			
Windows			
Roof			
Upper floor construction			
Internal wall			
Floor finishes/coverings			

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

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

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

Comments/notes:

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?	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:

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	40.00%	3	2

Please confirm the route used to assess Mat03	Route 1: Lowest RSCS point score

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

Comments/notes:

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?	2.60	1	1	Note: An insulatio

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:

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 of 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:

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?	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:

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:	0

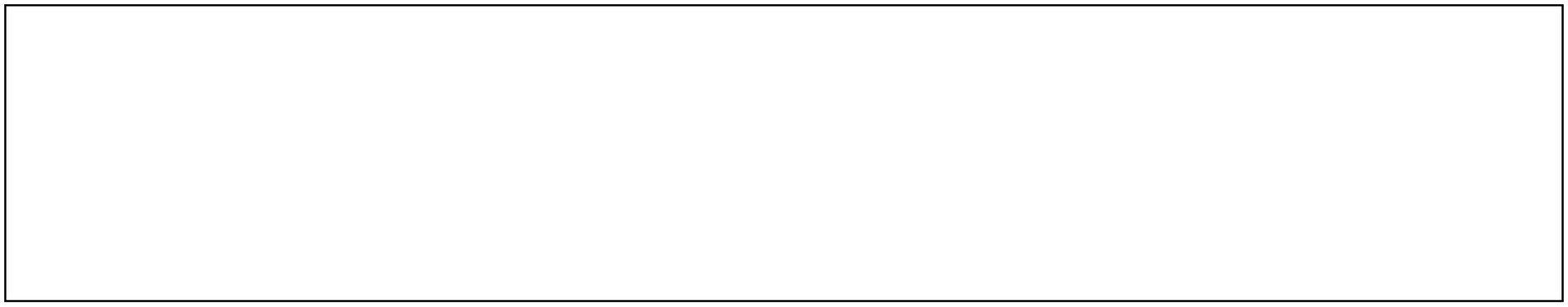
Assessment Criteria	Compliant?
Construction resource management plan	
Compliant Pre-demolition audit	
Does the excavation waste meet the exemplary level requirements?	

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 landfill		Note: At this stage this will be a target b
Total non-hazardous non-demolition const. waste diverted from landfill		Note: At the pre-assessment stage this
Total non-hazardous demolition waste generated		Note: At this stage this will be a target b
Non-hazardous demolition waste diverted from landfill		Note: At this stage this will be a target b
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 b
Material for recycling		Note: At this stage this will be a target b
Material for energy recovery		Note: At this stage this will be a target b
Hazardous waste to disposal		Note: At this stage this will be a target b

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:



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:

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?	N/A
Will operational waste facilities compliant with HTM 07-01 be provided?	

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:

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 exemplary 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:

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:

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:

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

Ecological value of the land defined using	A Suitably Qualified Ecologist

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:

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

Data sourced for calculating the change in ecological value from	Suitably Qualified Ecologist site survey of plant species

Assessment Criteria

What is the likely change in ecological value as a result of the sites development?	≥0 species (i.e. no negative change)	Plant species richn

Total BREEAM credits achieved	2

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

Comments/notes:

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?	Yes	2	2	
Will the suitably qualified ecologist's general recommendations be implemented?	Yes			
What is the targeted/intended improvement in ecological value as a result of enhancement actions?	≥6 species (large positive change)			Plant species richı

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:

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:	3		
Number of applicable measures implemented:	3		

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:

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	FALSE
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?			
Global Warming Potential of the specified refrigerant(s) 10 or less?			
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:

Pol 02 NO_x Emissions

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

Assessment Criteria

NO_x emission level - space heating	39.00	mg/kWh

NO_x emission level - cooling	39.00	mg/kWh
NOx emission level - water heating	39.00	mg/kWh
Does this building meet BREEAM's definition of a highly insulated building?	N/A	
Energy consumption: heating and hot water		kWh/m2 yr

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

Comments/notes:

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?	No	1	0
Will the site be designed to minimise watercourse pollution in accordance with the BREEAM criteria?	No	1	0

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

Comments/notes:

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?	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:

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:

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: