

Reference	Issue Title	Available	Achievable
Tra 3	Cyclist Facilities	2	2
<b>Compliance Requirements:</b> 1 credit can be awarded where covered, secure and well-lit cycle storage facilities are provided for all building users. The number of compliant cycle storage spaces provided is as follows: <ul style="list-style-type: none"><li>a. 10% of building users (i.e. staff) up to 500 PLUS</li><li>b. 7% for building users (i.e. staff) in the range of 501 – 1000 PLUS</li><li>c. 5% for building users (i.e. staff) over 1000</li></ul> In city centre locations the requirements for compliant cycle spaces can be reduced by 50%, provided that at least two of the available BREEAM credits provision for public transport (Tra1) have been awarded.			
2 credits can awarded where, in addition to the above, at least two of the following compliant facilities are provided for the building users: <ul style="list-style-type: none"><li>a. Compliant showers</li><li>b. Compliant changing facilities and lockers for clothes</li><li>c. Compliant drying space for wet clothes.</li></ul> For further guidance refer to BREEAM Bespoke 2008 Assessor Manual.			
<b>Preliminary Assessment status:</b> It is currently assumed that adequate BREEAM compliant cyclist facilities (e.g. storage spaces, showers and changing facilities) will be provided.  Two credits could be awarded.			

Reference	Issue Title	Available	Achievable
Tra 4	Pedestrian and cyclist safety	1	0
<b>Compliance Requirements:</b> 1 credit can be awarded where evidence provided demonstrates that the site layout has been designed in accordance with best practice to ensure safe and adequate cycle and pedestrian access.  External site areas must form part of the assessed site and these areas contain vehicle access roads, parking and/or pedestrian access to the building, adequate cycle lanes and pedestrian pathways must be provided. If the building does not have any external areas and internal access is directly from the public highway/footpath, then the credit(s) can be awarded on a default basis.  <i>Combined cyclist and pedestrian requirements:</i> <ul style="list-style-type: none"><li>• Delivery areas are not accessed through parking areas and do not cross or share pedestrian and cyclist routes.</li><li>• Lighting design of pedestrian pathways and cycle paths on site are in compliance with CIBSE Lighting Guide 6, 1992 (LG6) and BS5489 Part 1.</li></ul>			
<b>Preliminary Assessment status:</b> This credit can be achieved where delivery areas can be accessed without crossing or sharing pedestrian and cyclist routes. Although the site layout has been designed taking into consideration pedestrian and cyclist safety, the site space constraints and LBC requirement for provision of a cycle/pedestrian lane alongside the site make this credit unachievable for the Proposed Development, irrespectively of the Proposed Development characteristics.			

Reference	Issue Title	Available	Achievable
Tra 5	Travel Plan	1	1
<b>Compliance Requirements:</b> 1 credit can be awarded where evidence is provided to demonstrate that a travel plan has been developed and tailored to the specific needs of the building users.  A travel plan should be structured to meet the needs of the particular site and takes into consideration the findings of a site-specific transport survey and assessment that covers the following (as a minimum): <ul style="list-style-type: none"><li>• Where relevant, existing travel patterns and opinions of existing site users towards cycling and walking so that constraints and opportunities can be identified</li><li>• Travel patterns and transport impact of the future building users</li><li>• Current local environment for walkers and cyclists (accounting for visitors who may be accompanied by young children)</li><li>• Disabled access</li><li>• Public transport links serving the site</li><li>• Current facilities for cyclists.</li></ul> The travel plan should include a package of measures that have been used to steer the design of the development in order to meet the travel plan objectives and minimise car-based travel patterns.			
<b>Preliminary Assessment status:</b> It is assumed that a BREEAM-compliant Travel Plan will be developed to cover the Proposed Development needs. The credit could be achieved.			

Reference	Issue Title	Available	Achievable
Tra 8	Deliveries and Manoeuvring	1	0
<b>Compliance Requirements:</b> 1 credit can be awarded where evidence provided demonstrates that vehicle access areas have been designed to ensure adequate space for manoeuvring delivery vehicles and provide space away from manoeuvring area for storage of refuse skips and pallets.  Parking and turning areas should be designed for simple manoeuvring according to the type of delivery vehicle.  A separate parking area should be provided for waiting goods vehicles, away from the manoeuvring area and staff/visitor car parking.  Delivery areas should not be accessed through parking areas and should not cross or share pedestrian and cyclist routes and other outside amenity areas accessible to building users and general public.  Dedicated space for the storage of refuse skips and pallets should be away from the delivery vehicle manoeuvring area and staff/visitor car parking.			
<b>Preliminary Assessment status:</b> This credit can be achieved where delivery areas can be accessed without crossing or sharing pedestrian and cyclist routes. Although vehicle access areas have been designed to ensure adequate space for deliveries and manoeuvring, the site space constraints and LBC requirement for provision of a cycle/pedestrian lane alongside the site make this credit unachievable for the Proposed Development, irrespectively of the Proposed Development characteristics.			

Water Section

Reference	Issue Title					Available	Achievable															
Wat 1	Water Consumption					3	3															
This credit applies to all building areas.																						
<table><tr><th colspan="5">Minimum BREEAM Standards</th></tr><tr><td>P</td><td>G</td><td>VG</td><td>E</td><td>O</td></tr><tr><td>-</td><td>1</td><td>1</td><td>1</td><td>2</td></tr></table>								Minimum BREEAM Standards					P	G	VG	E	O	-	1	1	1	2
Minimum BREEAM Standards																						
P	G	VG	E	O																		
-	1	1	1	2																		
<b>Compliance Requirements:</b>																						
First credit can be awarded where all WCs have an effective flush volume of 4.5 litres or less and where dual flush toilets are specified they have guidance on the appropriate operation of the flushing device.																						
The second credit can be awarded for EITHER of the following:																						
a. All WCs have an effective flush volume of 3 litres or less OR																						
b. All WCs are compliant with the requirements for the first credit and fitted with a delayed action inlet valve.																						
Where dual flush toilets are specified they have guidance on the appropriate operation of the flushing device.																						
In order to achieve the third credit: Of the following, the two that offer the greatest possible reduction in annual water consumption have been specified:																						
a. All taps except kitchen taps, cleaners' sinks and external taps have a maximum flow rate less than 6 litres/min for a water pressure of 0.3MPa and are one of, or a combination of, the following types:																						
• Timed automatic shut-off taps e.g. push taps																						
• Electronic sensor taps																						
• Low flow screw-down/lever taps																						
• Spray taps																						
b. All showers, where specified, have a measured flow rate that does not exceed 9 litres per minute for a water pressure of 0.3MPa, assuming a delivered water temperature of 37°C.																						
c. All urinals are either:																						
• Fitted with individual presence detectors that operate the flushing control after each use.																						
• Ultra low flush or waterless urinals.																						
d. All baths have a capacity of 100litres to the overflow and each bath is fitted with a device that automatically stops the flow from the taps when the bath's maximum capacity is reached.																						
<b>Preliminary Assessment status:</b>																						
It is currently assumed that all WCs will have an effective flush volume of 4.5 litres or less and where dual flush toilets are specified they will have guidance on the appropriate operation of the flushing device. All WCs will also be fitted with a delayed action inlet valve. Water efficient taps, showers and urinals will also be provided. Three credits could therefore be achieved.																						
<b>NOTE:</b> Laboratory or BRF taps and emergency drench showers should be excluded from this credit as these are required for infection control, scrub up, emergency events etc. BRE confirmed some sanitary fittings can be excluded from the 'whole building' assessment of this issue where they are governed by strict criteria.																						

Reference	Issue Title				Available	Achievable
Wat 2	Water Meter				1	1 + 1 Innovation
This credit applies to all building areas.						
Minimum BREEAM Standards						
P	G	VG	E	O		
-	1	1	1	1		
Compliance Requirements:						
1 credit can be awarded where evidence provided demonstrates that a water meter with a pulsed output will be installed on the mains supply to each building/unit. This includes instances where water is supplied via a borehole or other private source.						
The water meter should have a pulsed output to enable connection to a Building Management System (BMS) for the monitoring of water consumption.						
Exemplary level requirements:						
To achieve an innovation credit sub meters must be fitted to allow individual water-consuming plant or building areas to be monitored such as cooling towers, car washes, catering areas, etc. (If the building does not have any major water consuming plant this exemplar credit is not available.)						
Each sub meter has a pulsed output to enable connection to a Building Management System (BMS) for the monitoring of water consumption.						
Preliminary Assessment status:						
Separate water meters (supplied by Thames Water) for the connections from Brill Place and Ossulton Street will be located within meter pits located on the footpath outside the property boundary. These water meters will be connected to the BMS to allow overall building water usage to be monitored.						
Additionally sub meters will be fitted to allow individual water-consuming plant or building areas to be monitored such as						
<ul style="list-style-type: none"><li>Boiler feed water</li><li>Cooling tower make up water</li><li>Hot and cold laboratory water usage</li><li>Treated water feed to laboratories</li><li>Hot and cold kitchen water usage</li><li>Hot and cold cage wash water usage</li><li>Central glass wash water usage.</li></ul>						
By implementing sub metering throughout the Proposed Development it will possible for UKCMRI to understand building water uses and water usage patterns to be identified.						
One credit and the innovation credit could be awarded.						

Reference	Issue Title	Available	Achievable
Wat 3	Major Leak Detection	1	1
This credit applies to all building areas.			
<b>Compliance Requirements:</b>			
1 credit can be awarded where evidence provided demonstrates that a leak detection system is specified or installed on the building's water supply.			
The leak detection system should be:			
a. Audible when activated;			
b. Activated when the flow of water passes through the water meter/data logger at a flow rate above a pre-set			

<div>minimum for a pre-set period of time;</div> <div>c. Able to identify different flow and therefore leakage rates, e.g. continuous, high and/or low level, over set time periods;</div> <div>d. Programmable to suit the owner/occupiers’ water consumption requirements;</div> <div>e. Where applicable, designed to avoid false alarms caused by normal operation of large water-consuming plant such as chillers.</div>
<div><b>Preliminary Assessment status:</b></div> <div>Leak detection will be implemented. This will include a software algorithm that would enable a link to be sent to the BMS from the sub meters indicating any ‘spike’ in usage that would be indicative of a significant leak. This would then generate a leak alarm and would initiate investigation by the building users. The credit could be awarded.</div>

Reference	Issue Title	Available	Achievable
Wat 4	Sanitary Supply Shut-off	1	1
<div>This credit applies to all building areas.</div> <div><b>Compliance Requirements:</b></div> <div>1 credit can be awarded where evidence provided demonstrates that proximity detection shut-off is provided to the water supply to all toilet areas.</div> <div>Compliance can be demonstrated by installing solenoid valves on the water supply to each toilet area in the building. The flow of water through that supply should be controlled by a link to either infrared movement detectors within each toilet facility OR sensors or switches placed at or on entry doors.</div>			
<div><b>Preliminary Assessment status:</b></div> <div>Water supply shut off via PIR and solenoid valves will be provided for all toilet areas. One credit could be achieved.</div>			

Reference	Issue Title	Available	Achievable
Wat 5	Water Recycling	1	0
<div>This credit applies to all building areas.</div> <div><b>Compliance Requirements:</b></div> <div>1 credit can be awarded where evidence provided demonstrates the specification of systems that collect, store and, where necessary treat, rainwater or greywater for WC and urinal flushing purposes.</div> <div><i>One of the following water recycling strategies must be implemented to demonstrate compliance:</i></div> <div>a. Where a rainwater collection tank has been installed and the tank is sized to collect at least 50% of either:<div><div>- The total predicted rain water run-off from the roof catchment area for the defined period of collection (i.e. 18 days), OR</div><div>- The rainwater run-off required to meet the total predicted flushing demand for the defined period of collection.</div></div></div> <div>b. Wastewater from wash hand basins and showers is collected from ≥80% of fittings and recycled to meet part (minimum of 10%) or the total of WC/urinal flushing demand within the building.</div> <div>c. A combination of waste water and rainwater collection that meets at least 50% of either:<div><div>- The total predicted toilet and urinal flushing demand for the defined period of collection, OR</div><div>- The total predicted toilet and urinal flushing demand for the defined period of collection and (where specified) irrigation of planting and landscaping.</div></div></div>			
<div><b>Preliminary Assessment status:</b></div> <div>Considering the technical complexity involved in the provision of a water recycling system for WC and urinal flushing purposes and the limited amount of water saved by such a system, this credit is not pursued.</div>			

<div>The technical complexities of grey water and rainwater recycling are detailed below:</div> <div><ul style="list-style-type: none"><li>Grey water is the term given to waste water collected from showers, dish washing and laundry (it does not include waste from toilets which is known as black water). Due to the quantity and nature of waste water for washing it is not considered feasible to collect this water for this project;</li><li>Rainwater falling on the north and south block roofs and the atrium roof could be collected into a storage tank located in the basement (or buried externally). The rainwater would need to be filtered to remove any litter/debris before storage and then the stored rainwater can be treated, ready to be reused for non-potable purposes. There are a number of technical issues associated with this option such as the constrained site space allows, at best, a maximum of 50% of the roof to be harvested as there is no space to run drainage externally to the north and east of the Proposed Development to where the rainwater harvesting tank would be located. This complexity would mean that the outfall from the rainwater harvesting tank would potentially not connect at the soffit of the attenuation tank but at mid level. In the occasion of a high rainfall event this would result in surcharging of connecting rainwater pipes (which run from the Proposed Development) which would put the Proposed Development at risk of water ingress.</li></ul></div> <div>The major water consumption item in the Proposed Development is the blow down on the steam boiler systems. The proposed strategy allows for a significant reduction in water consumption by specifying reverse osmosis for this process. Based on initial analyses, it was calculated that steam boiler feed using reverse osmosis, rather than softened water, would save over 2,600m<sup>3</sup> of water per annum and 100,00kgCO<sub>2</sub> per year.</div>
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Reference	Issue Title	Available	Achievable
Wat 6	Irrigation Systems	1	1
<div>This credit applies to all building areas.</div> <div><b>Compliance Requirements:</b></div> <div>1 credit is awarded where evidence provided demonstrates that a low-water irrigation strategy/system has been installed, or where planting and landscaping is irrigated via rainwater or reclaimed water.</div> <div>The irrigation method specified for internal or external planting and/or landscaping must comply with ANY ONE of the following:<div><div>a. Drip feed subsurface irrigation that incorporates soil moisture sensors. The irrigation control should be zoned to permit variable irrigation to different planting assemblages.</div><div>b. Reclaimed water from a rainwater or greywater system.</div><div>c. External landscaping and planting that relies solely on precipitation, during all seasons of the year.</div><div>d. The only planting specified is restricted to species that thrive in hot and dry conditions.</div><div>e. Where no dedicated, mains-supplied irrigation systems (including pop-up sprinklers and hoses) are specified, and planting will rely solely on manual watering by building occupier or landlord.</div></div></div> <div>Where a sub surface drip feed irrigation system is installed for external areas, a rainstat must also be installed to prevent automatic irrigation of the planting and the landscape during periods of rainfall.</div>			
<div><b>Preliminary Assessment status:</b></div> <div>It is assumed that a low-water irrigation strategy/system will be installed. The strategy will include drip feed subsurface irrigation incorporating soil moisture sensors, and will be zoned to permit variable irrigation to different planting assemblages. The credit could be awarded.</div>			

Materials Section

Reference	Issue Title	Available	Achievable
Mat 1	Materials Specification (Major Building Elements)	6	3
<p><b>Compliance Requirements:</b></p> <p>Up to 6 credits can be awarded determined by the Green Guide to Specification ratings for the major building elements, which are:</p> <div><div><ul style="list-style-type: none"><li>External walls</li><li>Windows</li><li>Roofs</li></ul></div><div><ul style="list-style-type: none"><li>Upper floor slabs</li><li>Internal Walls</li><li>Floor Finishes/ Coverings</li></ul></div></div> <p>Green guide ratings for the specification(s) of each element can be found at: <a href="http://www.thegreenguide.org.uk">www.thegreenguide.org.uk</a>.</p> <p>A spreadsheet-based calculator is used to determine the number of credits achieved for this BREEAM issue based on each applicable element's Green Guide rating. The calculator considers both the environmental impact of the materials within the applicable element and the impact of the element in relation to other elements assessed within the building.</p>			
<p><b>Exemplary level requirements:</b></p> <p>One innovative credit can be awarded where assessing 4 or more building elements, the building achieves at least 2 points additional to the total points required to achieve maximum credits under the standard BREEAM requirements and where assessing fewer than 4 building elements, the building achieves at least 1 additional point.</p>			
<p><b>Preliminary Assessment status:</b></p> <p>The material specifications for the major building elements of the Proposed Development will include bespoke materials not listed in the Green Guide. To find out the BREEAM rating of these materials, it will be necessary to submit formal queries to BRE as part of the Formal BREEAM assessment that will be undertaken post-planning. At the current preliminary stage, it is assumed that the material specifications could gain three credits.</p> <p>Materials currently specified include:</p> <ul style="list-style-type: none"><li>Brown roof;</li><li>Photovoltaic panels;</li><li>Aluminium curtain wall with projecting horizontal mullions;</li><li>Terracotta panels with terracotta and window infill;</li><li>Roof screen of large scale metal louvre elements; and</li><li>Profile-faced Trimo panels with feature fins.</li></ul> <p>The Green Guide rating of the material specifications will however be re-assessed during the Formal BREEAM Assessment.</p>			

Reference	Issue Title	Available	Achievable
Mat 2	Hard Landscaping and Boundary Protection	1	1
<p><b>Compliance Requirements:</b></p> <p>1 credit can be awarded where evidence provided demonstrates that at least 80% of the combined areas of external hard landscaping and boundary protection specifications achieve an A or A+ rating, as defined by the Green Guide to Specification.</p> <p>Green guide ratings for the specification(s) of each element can be found at: <a href="http://www.thegreenguide.org.uk">www.thegreenguide.org.uk</a>.</p>			

<p><b>Preliminary Assessment status:</b></p> <p>It is currently assumed that at least 80% of the combined areas of external hard landscaping and boundary protection specifications will achieve a Green Guide A or A<sup>+</sup> rating. The credit could be awarded.</p>
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Reference	Issue Title	Available	Achievable
Mat 3	Reuse of Building Façade	1	0
<p><b>Compliance Requirements:</b></p> <p>1 credit can be awarded where at least 50% of the total final façade (by area) is reused and at least 80% of the reused façade (by mass) comprises in-situ reused material.</p>			
<p><b>Preliminary Assessment status:</b></p> <p>This credit can be achieved for reusing existing buildings, and is therefore unachievable by the Proposed Development due to the nature of the site (no existing buildings on site), irrespectively of the Proposed Development characteristics.</p>			

Reference	Issue Title	Available	Achievable
Mat 4	Reuse of Building Structure	1	0
<p><b>Compliance Requirements:</b></p> <p>1 credit can be awarded where the design reuses at least 80% of an existing primary structure and, for part refurbishment and part new build the volume of the reused structure comprises at least 50% of the final structure's volume.</p>			
<p><b>Preliminary Assessment status:</b></p> <p>This credit can be achieved for reusing existing buildings, and is therefore unachievable by the Proposed Development due to the nature of the site (no existing buildings on site), irrespectively of the Proposed Development characteristics.</p>			

Reference	Issue Title	Available	Achievable
Mat 5	Responsible Sourcing of Materials	3	1
<p><b>Compliance Requirements:</b></p> <p>Up to 3 credits can be awarded where materials used in the following building elements are responsibly sourced:</p> <div><div><div>a. Structural Frame;</div><div>b. Ground floor;</div><div>c. Upper floors (including separating floors);</div><div>d. Roof;</div><div>e. External Walls;</div><div>f. Internal Walls;</div><div>g. Foundations/substructure; and</div><div>h. Staircase.</div></div></div> <p>Additionally all timber must be legally sourced and must not be included on the CITES (Convention on International Trade in Endangered Species) list.</p> <p>At least 80% of the following materials comprising the building elements must be responsibly sourced:</p> <div><div><div>a. Brick (including clay tiles and other ceramics);</div><div>b. Resin-based composites and polymeric render;</div><div>c. Concrete (including in-situ and precast concrete, etc);</div></div></div>			



- d. Glass;
- e. Plastics and rubbers (including EDTM, TPO, PVC and VET roofing membranes including polymeric renders);
- f. Metals (Steel, aluminium, etc.);
- g. Dressed or building stone including slate;
- h. Timber and wood panel (incl. MDF, chipboard, and cement bonded particleboard);
- i. Plasterboard and plaster;
- j. Bituminous materials, such as roofing membranes and asphalt;
- k. Other mineral-based materials; and
- l. Products with recycled content.

Note: insulation materials, fixings, adhesives and additives are excluded from this assessment.

Each applicable material is assigned to a responsible sourcing tier level based on the level and scope of certification achieved by the material supplier(s)/manufacturer(s), as per the following table

Tier Level	Points Available Per Element	Examples of Compliant Schemes
1	3	FSC, CSA, SFI with CoC, PEFC, Reused materials
2	2	There are currently no schemes allocated to this tier.
3	1.5	Timber: MTCC, Verified SGS, TFT
		Other mats.: certified EMS for the Key
		Recycled mats. With certified EMS for the Key Process
4	1	Certified EMS for the key process stage

The Responsible Sourcing Calculator is then used to determine the number of credits to be awarded.

Exemplary level requirements:

An innovation credit can be awarded where 95% of the applicable materials are responsibly sourced.

Preliminary Assessment status:

At the current preliminary, pre-tender stage, no detailed information is available on supply chain and sourcing issues. It is currently assumed that the Proposed Development could achieve one credit.

The responsible sourcing of materials would be incorporated into the contractual requirements of the contractor.

Although no commitment can be made at the current preliminary stage, the possibility of implementing more stringent requirement on responsible sourcing will be investigated at the more detailed procurement stage.

Reference	Issue Title	Available	Achievable
Mat 6	Insulation	2	2
<p><b>Compliance Requirements:</b></p> <p>1 credit can be awarded where evidence provided demonstrates that thermal insulation products used in the building (within external walls, ground floor, roof and building services) have a low embodied impact relative to their thermal properties, determined by the Green Guide to Specification ratings (<a href="http://www.thegreenguide.org.uk">www.thegreenguide.org.uk</a>).</p> <p>The insulation index, calculated using the Mat6 Insulation Index Calculator tool, must be ≥ 2.</p>			

An additional 1 credit can be awarded where evidence provided demonstrates that at least 80% of the thermal insulation used in the building elements is responsibly sourced, i.e. each insulation product must be certified in accordance with tier levels described in Mat5 “Responsible Sourcing of Materials”.

Any new insulation specified for use within the following building elements must be assessed: External walls, Ground floor, Roof and Building services.

Preliminary Assessment status:

It is currently assumed that the specified thermal insulation products will have a low embodied impact relative to their thermal properties, and at least 80% of the thermal insulation used in the building elements will be responsibly sourced. Two credits could therefore be achieved.

Reference	Issue Title	Available	Achievable
Mat 7	Designing for Robustness	1	1
<p><b>Compliance Requirements:</b></p> <p>1 credit can be awarded where protection is given to vulnerable parts of the building such as areas exposed to high pedestrian traffic, vehicular and trolley movements.</p> <p>Suitable durability and protection measures or design features should be specified to prevent damage to the vulnerable parts of these building areas from such traffic. This must include, but not be limited to:</p> <ul style="list-style-type: none"><li>a. Protection from the effects of high pedestrian traffic in main entrances, public areas and thoroughfares (corridors, lifts, stairs, doors etc).</li><li>b. Protection against any internal vehicular/trolley movement within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas.</li><li>c. Protection against, or prevention from, any potential vehicular collision where vehicular parking and manoeuvring occurs within 1m of the external building façade for all car parking areas and within 2m for all delivery areas.</li></ul>			
<p><b>Preliminary Assessment status:</b></p> <p>The design of the Proposed Development includes suitable durability and protection measures and design features to prevent damage to the vulnerable parts of the Proposed Development. One credit could be achieved.</p>			

Waste Section

Reference	Issue Title		Available	Achievable
Wst 1	Construction Site Waste Management		4	2

This credit applies to all building areas.

**Compliance Requirements:**

Up to 3 credits are available where non-hazardous construction waste generated by the building’s construction phase (excluding demolition and excavation waste) meets or exceeds the following resource efficiency benchmarks:

	Amount of waste generated per 100m <sup>2</sup> (gross internal floor area)	
Credits	m <sup>3</sup>	tonnes
1	13.0 - 16.6	6.6 - 8.5
2	9.2 – 12.9	4.7 - 6.5
3	<9.2	<4.7

A Site Waste Management Plan (SWMP) must be developed containing:

- a. The target benchmark for resource efficiency i.e. m<sup>3</sup> of waste per 100m<sup>2</sup> or tones of waste per 100m<sup>2</sup>
- b. Procedures and commitments for minimising non-hazardous waste in line with the benchmark
- c. Procedures for minimising hazardous waste
- d. Procedures for monitoring, measuring and reporting hazardous and non-hazardous site waste
- e. Procedures for sorting, reusing and recycling construction
- f. The name or job title of the individual responsible for implementing the above.

In addition to the above, sites with existing buildings that will be refurbished or demolished, where demolition forms a part of the principal contractor’s works contract, must comply with the following:

Complete a pre-demolition/pre-refurbishment audit of the existing building to determine if, in the case of demolition, refurbishment is feasible and, if not, to maximise the recovery of material from demolition or refurbishment for subsequent high-grade/value applications. The audit must be referenced in the SWMP and cover:

- 1. Identification of the key refurbishment/demolition materials.
- 2. Potential applications and any related issues for the reuse and recycling of the key refurbishment and demolition materials.

1 credit is available where evidence provided demonstrates that a significant majority of non hazardous construction waste generated by the development will be diverted from landfill and reused or recycled.

At least 75% by weight or 65% by volume of non-hazardous construction waste generated by the project must be diverted from landfill and either:

- a. Reused on site
- b. Reused on other sites
- c. Salvaged/reclaimed for reuse
- d. Returned to the supplier via a ‘take-back’ scheme
- e. Recovered from site by an approved waste management contractor and recycled.

For demolition projects, in addition to the above requirement, 90% by weight or 80% by volume of non-hazardous demolition waste must be diverted from landfill.

A Site Waste Management Plan (SWMP) must be developed complying with the above requirements.

Waste materials will be sorted into separate key waste groups (according to the waste streams generated by the scope of the works) either onsite or offsite through a licensed contractor for recovery.

<p><b>Exemplary level requirements:</b></p> <p>An innovation credit can be awarded where non-hazardous construction waste generated by the development meets or exceeds the resource efficiency benchmark required to achieve three credits (as outlined above) and where at least 90% by weight (80% by volume) of non-hazardous construction waste and 95% of demolition waste by weight (85% by volume) (if applicable) generated by the build has been diverted from landfill and either:</p> <ul style="list-style-type: none"><li>a. Reused on site (in-situ or for new applications)</li><li>b. Reused on other sites</li><li>c. Salvaged/reclaimed for reuse</li><li>d. Returned to the supplier via a ‘take-back’ scheme</li><li>e. Recovered from site by an approved waste management contractor and recycled.</li></ul> <p>All key waste groups must be identified for diversion from landfill at pre-construction stage SWMP.</p>			
<p><b>Preliminary Assessment status:</b></p> <p>The first draft of the Site Waste Management Plan (SWMP), which will be included in the ITT for the contractor, targets several materials streams with the view to reduce construction waste. These are for example: modular M&amp;E systems that should reduce the normal level of onsite waste generated from this work stream from 8% to about 1.5%; and cladding panels of unitised design, which would also assist with waste reduction on site.</p> <p>The SWMP illustrates UKCMRI’s commitment to reducing waste, lists the procedures for reporting, monitoring, and measuring of waste and an initial overview of onsite systems to separate materials into waste groups.</p> <p>Until the contractor is appointed, it is assumed that the construction site waste management measures specified for the Proposed Development would allow the Proposed Development to achieve two credits, as specified in the BREEAM guidance.</p> <p>The Proposed Development will be continuously re-assessed throughout its development (both at design and procurement stage and construction stage) against the requirement of this credit and any practicable opportunities to increase its score will be investigated.</p>			
Reference	Issue Title	Available	Achievable
Wst 2	Recycled Aggregates	1	0
<p>This credit applies to all building areas.</p> <p><b>Compliance Requirements:</b></p> <p>1 credit can be awarded where evidence provided demonstrates the significant use of recycled or secondary aggregates in ‘high-grade’ building aggregate uses.</p> <p>The following demonstrates compliance:</p> <p>Where the amount of recycled and secondary aggregate specified is over 25% (by weight or volume) of the total high-grade aggregate uses for the building. Such aggregates can be EITHER:</p> <ul style="list-style-type: none"><li>a. Obtained on site OR</li><li>b. Obtained from waste processing site(s) within a 30km radius of the site; the source will be principally from /construction, demolition and excavation waste (CD&amp;E) – this includes road plannings OR</li><li>c. Secondary aggregates obtained from a non-construction post-consumer or post-industrial by-product source.</li></ul> <p>Secondary aggregates include china clay waste, slate, Pulverised Fuel Ash (PFA, Ground Granulated Blast Furnace Slag (GGBFS), air-cooled blast furnace, steel slag, furnace bottom ash (FBA, incinerator bottom ash, foundry sands, recycled glass, recycled plastic, tyres, spent oil shale, colliery spoil and Municipal Solid Waste Treatment Residues.</p> <p>High Grade aggregate uses include:</p> <p><i>Bound:</i></p> <ul style="list-style-type: none"><li>• Structural frame;</li></ul>			

<ul style="list-style-type: none"><li>• Floor slabs including ground floor slabs; and</li><li>• Bitumen or hydraulically bound base, binder, and surface courses for paved areas and roads.</li></ul> <p><i>Unbound:</i></p> <ul style="list-style-type: none"><li>• Asphalt-based or similar road surfaces;</li><li>• Granular fill and capping;</li><li>• Pipe bedding;</li><li>• Sub bases/building foundations; and</li><li>• Gravel landscaping.</li></ul>
<p><b>Preliminary Assessment status:</b></p> <p>This credit is not currently targeted. Setting up a hardcore crushing facility and/or storage on site is considered impracticable; and the option of obtaining materials from nearby sites has been considered and found unviable, mainly due to the sheer size of the Proposed Development and the possibly limited extent of potential sources. The Proposed Development currently requires circa 90,000m<sup>3</sup> of concrete, thus to achieve the credit it would be necessary to source &gt; 20,000m<sup>3</sup> of recycled aggregate within 30kms at a time when there is comparatively little major construction activity due to the state of the UK market. Therefore the possibility of sourcing from nearby sites the right materials (specifications), in the appropriate quantities at the right time (impacts on programme) is deemed very unlikely.</p> <p>The proposed concrete mix design would however allow the incorporation of 25% recycled aggregates (should this prove feasible at construction stage) and this target will be included in the ITT documentation for the contractor.</p>

Reference	Issue Title					Available	Achievable															
Wst 3	Recycled Waste Storage					1	1															
This credit applies to all building areas.																						
<table><tr><th colspan="5">Minimum BREEAM Standards</th></tr><tr><td>P</td><td>G</td><td>VG</td><td>E</td><td>O</td></tr><tr><td>-</td><td>-</td><td>-</td><td>1</td><td>1</td></tr></table>								Minimum BREEAM Standards					P	G	VG	E	O	-	-	-	1	1
Minimum BREEAM Standards																						
P	G	VG	E	O																		
-	-	-	1	1																		
<b>Compliance Requirements:</b>																						
1 credit can be awarded where a central, dedicated space is provided for the storage of the building's recyclable waste streams, compliant with the following:																						
<div>a. Clearly labelled for recycling</div> <div>b. Placed 20m of a building entrance. (In some circumstances, it may not be possible to meet a 20m requirement; however, credit can be still achieved.)</div> <div>c. In a location with good vehicular access to facilitate collections.</div>																						
The size of the space allocated must be adequate to store the likely volume of recyclable materials generated by the building's occupants/operation. Whilst a fixed area cannot always be given, the following must be complied with as a minimum:																						
<div>a. At least 2m<sup>2</sup> per 1000m<sup>2</sup> of net floor area for buildings &lt; 5000m<sup>2</sup></div> <div>b. A minimum of 10m<sup>2</sup> for buildings ≥ 5000 m<sup>2</sup></div> <div>c. An additional 2m<sup>2</sup> per 1000m<sup>2</sup> of net floor area where catering is provided (up to an additional minimum of 10m<sup>2</sup> ≥ 5000m<sup>2</sup>).</div>																						
<b>Preliminary Assessment status:</b>																						
The Proposed Development will include a central, dedicated space for the storage of the Proposed Development's recyclable waste streams, compliant with the above BREEAM requirements. The credit could be achieved.																						

Reference	Issue Title	Available	Achievable
Wst 4	Compactor/ Baler	1	0
<p>This credit applies to all building areas.</p> <p><b>Compliance Requirements:</b></p> <p>1 credit is awarded where evidence provided demonstrates that either an industrial waste compactor or baler is installed for compacting/baling waste materials generated on site and:</p> <ul style="list-style-type: none"><li>a. A water outlet is provided for cleaning</li><li>b. The development achieves the BREEAM credit for storage of recyclable waste (Wst3).</li></ul> <p>The static waste compactor or baler should be installed and situated in a service area or dedicated waste management space.</p>			
<p><b>Preliminary Assessment status:</b></p> <p>The Proposed Development would not include a compactor/baler on site. The paper, cardboard and plastics will be removed daily from UKCMRI to an off-site consolidation centre for the delivery of goods and the removal of waste.</p>			

Reference	Issue Title	Available	Achievable
Wst 5	Composting	1	1
<p>This credit applies only to the kitchen areas.</p> <p><b>Compliance Requirements:</b></p> <p>1 credit is awarded where there is a vessel on site for composting food waste and adequate storage for such waste generated by the building's users and operation. At least one water outlet must be provided for cleaning in and around the facility. OR</p> <p>Where space or access is limited, there is a dedicated space for compostable food waste to be stored prior to removal and composting at an alternative site. At least one water outlet must be provided for cleaning in and around the facility.</p>			
<p><b>Preliminary Assessment status:</b></p> <p>It is currently assumed that provision will be made for a dedicated space for compostable food waste to be stored prior to removal and composting at an alternative site (through a specialist contractor). The possibility of providing the compostable waste to the nearby bio-digestive boiler plant will also be investigated during the operational phase. The credit could be awarded.</p>			

Land Use & Ecology Section

Reference	Issue Title	Available	Achievable
LE 1	Reuse of Land	1	1
<b>Compliance Requirements:</b>  1 credit can be awarded where evidence provided demonstrates that the majority of the footprint of the Proposed Development falls within the boundary of previously developed land.  At least 75% of the Proposed Development's footprint should be on an area of land, which has been previously developed for use by industrial, commercial or domestic purposes in the last 50 years.			
<b>Preliminary Assessment status:</b>  The Proposed Development site lies on previously developed land. The credit could therefore be awarded.			

Reference	Issue Title	Available	Achievable
LE 2	Contaminated Land	1	0
<b>Compliance Requirements:</b>  1 credit is awarded where evidence provided demonstrates that the land used for the new development has, prior to development, been defined as contaminated and where adequate remedial steps have been taken to decontaminate the site prior to construction.  The site must be deemed to be significantly contaminated as confirmed by a contaminated land specialist's site investigation, risk assessment and appraisal identifying:  a. The degree of contamination;  b. The contaminant sources/types; and  c. The options for remediating sources of pollution, which present an unacceptable risk to the site.  The client or contractor must confirm that remediation of the site will be carried out in accordance with the remediation strategy and its implementation plan.  The credit can only be awarded where remediation has taken place to enable current development of the site for the assessed building, or part of a larger phased development that includes the assessed building. The credit is not achievable for instances where historical remediation and development of the site has occurred outside the scope of the current development proposals.			
<b>Preliminary Assessment status:</b>  This credit can be achieved only for sites which can be defined as contaminated land, and is therefore unachievable by the Proposed Development due to the nature of the site (not defined as contaminated), irrespectively of the Proposed Development characteristics.			

Reference	Issue Title	Available	Achievable
LE 3	Ecological Value of Land and Protection of Ecological Features	1	1
<b>Compliance Requirements:</b>  1 credit is awarded where evidence provided demonstrates that the construction zone is defined as land of low ecological value and all existing features of ecological value will be fully protected from damage during site preparation and construction works.  Land within the construction zone is defined as 'land of low ecological value' using either:  a. BREEAM Checklist A4 OR  b. A suitably qualified ecologist who has identified the land as being of 'low ecological value' within an ecological assessment report, based on a site survey.			

All existing features of ecological value surrounding the construction zone and site boundary area must be adequately protected from damage during clearance, site preparation and construction activities as listed below:  <ul style="list-style-type: none"><li>• Trees of over 100 mm trunk diameter, and/or of significant ecological value, are protected by barriers. Minimum distance between tree trunk and barriers must be either the distance of branch spread or half tree height whichever is the greater.</li><li>• In all cases trees must be protected from direct impact and from severance or asphyxiation of the roots.</li><li>• Hedges and natural areas requiring protection must either have barriers erected and be protected, or, when remote from site works or storage areas, be protected with a prohibition of construction activity in their vicinity.</li><li>• Watercourses and wetland areas are to be protected by cut-off ditches and site drainage to prevent run-off to natural watercourses.</li></ul> In all cases, the contractor is required to construct ecological protection prior to any preliminary site construction or preparation works (e.g. clearing of the site or erection of temporary site facilities).
<b>Preliminary Assessment status:</b>  It is assumed that the construction zone can be defined as land of low ecological value and any existing features of ecological value will be fully protected from damage during site preparation and construction works. The credit could be awarded.

Reference	Issue Title	Available	Achievable															
LE 4	Mitigating Ecological Impact	2	2															
<table><tr><th colspan="5">Minimum BREEAM Standards</th></tr><tr><td>P</td><td>G</td><td>VG</td><td>E</td><td>O</td></tr><tr><td>-</td><td>-</td><td>1</td><td>1</td><td>1</td></tr></table> <p><b>Compliance Requirements:</b></p> <p>1 credit can be awarded where evidence provided demonstrates that the change in the site's existing ecological value, as a result of development, is less than zero and equal to or greater than minus nine plant species i.e. a minimal change.</p> <p>2 credits can be awarded where the change in ecological value of the site is equal to or greater than zero plant species i.e. no negative change.</p> <p><i>The change in ecological value of the site is calculated by EITHER of the following:</i></p> <p>a. The following information must be determined and input in to Ecology calculator 1: Plot type(s) and areas (m<sup>2</sup>) that define the landscape of the assessed site, in its existing pre-developed state and proposed state.</p> <p>OR</p> <p>b. Where a suitably qualified ecologist has been appointed and, based on a site survey, they confirm the following and the assessor or ecologist inputs this data in to the Ecology calculator 2:</p> <ol style="list-style-type: none"><li>1. Actual plot/habitat types that define the landscape of the assessed site in its existing pre-developed state and proposed state</li><li>2. Area (m<sup>2</sup>) of each plot/habitat type</li><li>3. Number of plant species found within each plot type.</li></ol>				Minimum BREEAM Standards					P	G	VG	E	O	-	-	1	1	1
Minimum BREEAM Standards																		
P	G	VG	E	O														
-	-	1	1	1														
<p><b>Preliminary Assessment status:</b></p> <p>It is assumed that no negative change in the ecological value of the site will occur as a result of the Proposed Development. Two credits could therefore be awarded.</p>																		



Reference	Issue Title	Available	Achievable
LE 5	Enhancing Site Ecology	3	2
<b>Compliance Requirements:</b>  1 credit can be awarded where the design team (or client) has appointed a suitably qualified ecologist (SQE) to advice and report on enhancing and protecting the ecological value of the site; and implemented the professional's recommendations for general enhancement and protection of site ecology.  The SQE must provide an Ecology Report with appropriate recommendations for protection and enhancement of the site's ecology. The report is based on a site visit/survey by the SQE prior to the commencement of initial site preparation works.  The general recommendations of the Ecology Report for enhancement and protection of site ecology have been, or will be, implemented.			
<b>Compliance Requirements:</b>  2 credits can be awarded where first credit has been achieved and the recommendations of the Ecology Report for enhancement and protection of site ecology have been implemented, and the suitably qualified ecologist confirms that this will result in an increase in ecological value of the site up to (but not including) 6 species.  The increase in plant species must be calculated using Ecology calculator 2, using actual species numbers.			
3 credits can be awarded where first credit has been achieved and the recommendations of the Ecology Report for enhancement and protection of site ecology have been implemented, and the suitably qualified ecologist confirms that this will result in an increase in ecological value of the site of 6 species or greater.  The increase in plant species must be calculated using Ecology calculator 2, using actual species numbers.			
<b>Preliminary Assessment status:</b>  The design team has appointed a suitably qualified ecologist to advice and report on enhancing and protecting the ecological value of the site.  The ecologist recommendations for general enhancement and protection of site ecology would be implemented. Additionally it is assumed the ecological value of the site could be increased up to 6 species. This would enable the Proposed Development to achieve two credits.  The proposed landscape design includes street tree planting along both Ossulston Street and Brill Place, and 'brown roof' using recycled substrates, which will be colonised over time by a succession of plant and animal species.  The third credit is achieved when the site ecological value is enhanced by 6 species or more. This is not considered possible due to the limited amount of landscaped areas.			

Reference	Issue Title	Available	Achievable
LE 6	Long Term Impact on Biodiversity	2	2
<b>Compliance Requirements:</b>  1 credit is awarded where the client has committed to achieving the mandatory requirements and at least two of the additional requirements, listed below, and			
2 credits are awarded when the mandatory requirements and at least four of the additional requirements are met.			
<u>Mandatory requirements:</u> <ul style="list-style-type: none"><li>A suitable qualified ecologist appointed prior to commencement of activities on site;</li><li>The suitable qualified ecologist confirms that all relevant EU and national legislation relating to protection and enhancement of ecology has been complied with during the design and construction phases;</li><li>A landscape and habitat management plan, appropriate to the site, covering at least 5 years after project completion. This is to be handed over to the building occupants and includes:<ul style="list-style-type: none"><li>Management of any protected features on site;</li></ul></li></ul>			

<ul style="list-style-type: none"><li>Management of any new, existing or enhanced habitats;</li><li>A reference to the current or future site level or local Biodiversity Action Plan.</li></ul>
<u>Additional Requirements:</u> <ul style="list-style-type: none"><li>'Biodiversity Champion' nominated by the contractor with the authority to influence site activities and ensure that detrimental impacts on site biodiversity are minimised;</li><li>Training of site workforce on how to protect site ecology;</li><li>Recording of actions taken to protect biodiversity during construction;</li><li>A new ecologically valuable habitat is created;</li><li>Site works programmed to minimize disturbance to wildlife, where flora and/or fauna habitats exist on site.</li></ul>
<b>Preliminary Assessment status:</b>  UKCMRI has committed to minimise the long term impact of the development on the site's, and surrounding area's biodiversity and comply with the mandatory requirements listed above and four of the additional requirements. These commitments will be included in the ITT for the contractor. Two credits could be awarded.

Pollution Section

Reference	Issue Title	Available	Achievable
Pol 1	Refrigerant GWP – Building Services	1	0
<p>This credit applies to all building areas.</p> <p><b>Compliance Requirements:</b></p> <p>1 credit can be awarded where refrigerants with a global warming potential (GWP) of less than 5 are used or where there are no refrigerants specified for use in building services.</p> <p><b>Preliminary Assessment status:</b></p> <p>Ammonia chillers (which comply with the BREEAM requirements) could not be fitted in the basement, and would also present fire/toxicity risks. Additionally, no detailed information/specifications of dx equipment (such as local cooling, cold rooms, etc) to be installed in the Proposed Development is available at this stage, and it is therefore unknown if it will be possible to specify refrigerants for equipment with a GWP &lt; 5 for all this equipment.</p>			

Reference	Issue Title	Available	Achievable
Pol 2	Preventing Refrigerant Leaks	2	1
<p>This credit applies to all building areas.</p> <p><b>Compliance Requirements:</b></p> <p>1 credit can be awarded where evidence provided demonstrates that refrigerant leaks can be detected or where there are no refrigerants specified for the development.</p> <p><u>Refrigerant leak detection:</u></p> <p>a. Systems using refrigerants must be contained in a moderately air tight enclosure (or a mechanically ventilated plant room), and a refrigerant leak detection system is installed covering high-risk parts of the plant.</p> <p>OR</p> <p>b. An automatic permanent refrigerant leak detection system is specified, which is NOT based on the principle of detecting or measuring the concentration of refrigerant in air.</p> <p>1 credit can be awarded where, in addition to the above, evidence provided demonstrates that the provision of automatic refrigerant pump down is made to a heat exchanger (or dedicated storage tanks) with isolation valves or where there are no refrigerants specified for the development.</p> <p><u>Refrigerant recovery system:</u></p> <p>The automatic shutdown and pump down of refrigerant occurs on the detection of high concentrations of refrigerant in the plant room/enclosure. For the majority of cases only systems in mechanically ventilated/moderately air tight plant rooms (or enclosures) comply.</p> <p>Automatic pump-down to either a separate storage tank or into the heat exchanger is acceptable but only where automatic isolation valves are fitted to contain the refrigerant once fully pumped down.</p> <p>The alarm threshold that triggers automatic pump down is set to a maximum of 2000ppm (0.2%), but lower levels can be set. The credit cannot be awarded for manual systems.</p> <p><b>Preliminary Assessment status:</b></p> <p>It is assumed that refrigerant leak detection systems will be specified. One credit could be achieved.</p> <p>With regard to the second credit (provision of an automatic refrigerant pump down), at this preliminary stage it is not considered practical to commit to this second credit due to the difficulty of providing an automatic refrigerant pump down to all cold storage kits, given inadequate detailed knowledge on the various refrigeration installations that will be specified as part of the Proposed Development.</p>			

Reference	Issue Title	Available	Achievable
Pol 3	Refrigerant GWP – Cold Storage	1	0
<p>This credit applies only to the Cold Storage (non food) areas.</p> <p><b>Compliance Requirements:</b></p> <p>1 credit can be awarded where evidence provided demonstrates the use of refrigerant within cold storage systems with a global warming potential (GWP) of less than 5.</p> <p>The requirement applies to refrigerants used in:</p> <ul style="list-style-type: none"><li>• Cold storage enclosures.</li><li>• Cold store services including: chilled water pipework and ductwork etc.</li><li>• Fixed cold or chilled storage cabinets.</li><li>• Fixed cold drink coolers.</li></ul> <p><b>Preliminary Assessment status:</b></p> <p>As for the Pol 1 credit, ammonia chillers (which comply with the BREEAM requirements) could not be fitted in the basement, and would also present fire/toxicity risks. Additionally, no detailed information/specifications of dx equipment (such as local cooling, cold rooms, etc) to be installed in the Proposed Development is available at this stage, and it is therefore unknown if it will be possible to specify refrigerants for equipment with GWP &lt; 5 for all this equipment.</p>			

Reference	Issue Title	Available	Achievable
Pol 4	NO <sub>x</sub> emissions from heating source	3	1
This credit applies to all building areas.			
Compliance Requirements:			
Up to 3 credits are available depending on the dry NO <sub>x</sub> emissions from delivered space heating energy, as detailed in the following table:			
Credits		Dry NO <sub>x</sub> Emissions from space heating (mg/kWh at 0% excess O <sub>2</sub> )	
1		≤100	
2		≤70	
3		≤40	
Preliminary Assessment status:			
The space heating will be provided by CHP alongside low NO <sub>x</sub> emission gas boilers. Dry NO <sub>x</sub> emissions from these space heating systems would be below 100mg/kWh.			

Reference	Issue Title	Available	Achievable
Pol 5	Flood Risk	3	3
<p>This credit applies to all building areas.</p> <p><b>Compliance Requirements:</b></p> <p>2 credits can be awarded where evidence provided demonstrates that the assessed development is located in a zone defined as having a low annual probability of flooding, as confirmed by a site specific Flood Risk Assessment (FRA). Note EA flood maps cannot be used as evidence to demonstrate compliance with the requirements of this issue.</p>			

1 credit can be awarded where the assessed development is located in a zone defined as having a medium or high annual probability of flooding.  The ground level of the building and access to it and the site, must be designed so they are at least 600mm above the design flood level of the flood zone in which the assessed development is located. It is accepted that, for buildings located in a medium flood zone, areas of the car park and site access may be allowed to flood and therefore fall below the 600mm threshold. In such cases the credit is still achievable provided safe access to the site and the ground floor of the building can be maintained to ensure the building/site does not become an 'island' in the event of a flood. A site specific Flood Risk Assessment (FRA) must confirm to the satisfaction of the local authority and statutory body that the development is appropriately flood resilient and resistant from all sources of flooding.			
1 further credit can be awarded where evidence provided demonstrates that surface water run-off attenuation measures are specified to minimize the risk of localised flooding, resulting from a loss of flood storage on site due to development.  The peak rate of run-off from the site to the watercourses must not be greater for the developed site than it was for the pre-development site. This should comply with the Interim Code of Practice for Sustainable Drainage systems (SUDS) (CIRIA, 2004), or for at least a 1 year and 100 year return period event with a 6-hour duration. The capacity of the attenuation measures must include an allowance for climate change.			
<b>Preliminary Assessment status:</b>  The Proposed Development is located in a zone defined as having a low annual probability of flooding.  Additionally, surface water run-off attenuation measures would be specified to minimise the risk of localised flooding, resulting from a loss of flood storage on site due to development. Three attenuation tanks are proposed in order to ensure that the peak rate of run-off from the site is no greater for the developed site than it was for the pre-development site and are designed for at least a 1 year and 100 year return period event with a 6 hour duration. The capacity of the attenuation measures also includes an allowance for climate change in accordance with current best practice.  Three credits could be awarded.			

Reference	Issue Title	Available	Achievable
Pol 6	Minimising Watercourse Pollution	1	1
This credit applies to all building areas. <b>Compliance Requirements:</b>  1 credit can be awarded where evidence provided demonstrates that effective on site treatment such as Sustainable Drainage Systems (SUDS) or oil separators have been specified in areas that are or could be a source of watercourse pollution.  The following demonstrates compliance: <ul style="list-style-type: none"><li>• Specification of SUDS or source control systems such as permeable surfaces or infiltration trenches where run-off drains are in areas with a relatively low risk source of watercourse pollution.</li><li>• Specification of oil/petrol separators in surface water drainage systems, where there is a high risk of contamination or spillage of substances such as petrol and oil.</li><li>• All water pollution prevention systems must be designed and detailed in accordance with the recommendations of Pollution Prevention Guideline 3 and where applicable the SUDS manual.</li><li>• A comprehensive and up-to-date drainage plan of the site will be made available for the building/site occupiers.</li></ul> In addition, where the building has chemical/liquid gas storage areas the following must also be achieved: <ul style="list-style-type: none"><li>• Shut-off valves fitted to the site drainage system to prevent the escape of chemicals to natural watercourses (in the event of a spillage or bunding failure).</li><li>• All external storage and delivery areas designed and detailed in accordance with the recommendations of UK environment agencies' Pollution Prevention Pays Guidance.</li></ul>			

<b>Preliminary Assessment status:</b>  It is currently assumed that oil separators will be specified in areas that are or could be a source of watercourse pollution. The credit could therefore be achieved.			
Reference	Issue Title	Available	Achievable
Pol 7	Reduction of Night Time Light Pollution	1	1
This credit applies to all building areas. <b>Compliance Requirements:</b>  1 credit is awarded where evidence provided demonstrates that the external lighting design is in compliance with the guidance Institution of Lighting Engineers (ILE) Guidance notes for the reduction of obtrusive light, 2005 (Table 1 of the guidance).  All external lighting (except for safety and security lighting) must be able to be automatically switched off between 2300hrs and 0700hrs. This can be achieved by providing a timer for all external lighting set to the appropriate hours.  If safety or security lighting is provided and will be used between 2300hrs and 0700hrs, this part of the lighting system complies with the lower levels of lighting recommended during these hours by the CIE guidance, for example by using an automatic switch to reduce the lighting levels at 2300 or earlier.  Illuminated advertisements, where specified, must be designed in compliance with ILE Technical Report 5 – The Brightness of Illuminated Advertisements.			
<b>Preliminary Assessment status:</b>  It is assumed that external lighting will be designed in compliance with the Institution of Lighting Engineers (ILE) Guidance notes for the reduction of obtrusive light, 2005. The credit could be achieved.			

Reference	Issue Title	Available	Achievable
Pol 8	Noise Attenuation	1	1
This credit applies to all building areas. <b>Compliance Requirements:</b>  1 credit is awarded where new sources of noise from the development do not give rise to the likelihood of complaints from existing noise-sensitive premises and amenity or wildlife areas that are within the locality of the site.  a. Where there are or will be no noise-sensitive areas or buildings in the locality of the assessed development, the credit can be awarded by default.  b. Where there are, or will be, existing noise-sensitive areas or buildings within 800m radius of the assessed development: <div>A noise impact assessment must be carried out in compliance with BS 4141:1997 and the following noise levels measured/determined:<ul style="list-style-type: none"><li>• Existing background noise levels at the nearest or most exposed noise-sensitive development to the Proposed Development; or at a location where background conditions can be argued to be similar.</li><li>• The rating noise level resulting from the proposed noise-source. This can be based upon reference to similar installations or sites, or determined by calculation.</li></ul>A suitably qualified acoustic consultant (holding a recognized acoustic qualification and membership of an appropriate professional body) must carry out the noise impact assessment.</div> c. Where the rating level of the noise source(s) from the site/building is equivalent to or less than the background noise level, the credit can be awarded. Where it is greater, measures must be installed to attenuate the noise at its source to a level where it will comply.			
<b>Preliminary Assessment status:</b>  It is assumed that sources of noise from the development will not give rise to the likelihood of complaints from existing noise-sensitive premises and amenity or wildlife areas in the proximity of the site. The credit could be achieved.			

5. BREEAM RATING

- 5.1
- The Proposed Development was evaluated against a BREEAM Bespoke protocol specifically tailored for the Proposed Development.
- 5.2
- The Proposed Development currently scores a potential 72.01% (i.e. ‘Excellent’ rating), complies with the mandatory credits of an ‘Excellent’ rating and achieves 60% of the energy credits, 40% of the materials credits, and 60% of the water credits (i.e. LBC BREEAM requirements).
- 5.3
- A summary of the BREEAM performance of the Proposed Development is illustrated in Table 5.1 and Figure 5.1.

Category	Environmental Weighting	Available Credits	%Achieved	%Contribution
Management	12.00%	14	100.00%	12.00%
Health and Wellbeing	15.00%	18	60.62%	9.09%
Energy	19.00%	28	62.73%	11.92%
Transport	8.00%	9	77.78%	6.22%
Water	6.00%	8	87.50%	5.25%
Materials	12.50%	15	53.33%	6.67%
Waste	7.50%	8	43.00%	3.22%
Land Use and Ecology	10.00%	10	80.00%	8.00%
Pollution	10.00%	13	66.34%	6.63%
Innovation	12.00%	10	100.00%	3.00%
TOTAL SCORE and RATING			72.01% EXCELLENT	

Table 5.1 BREEAM Performance by Category

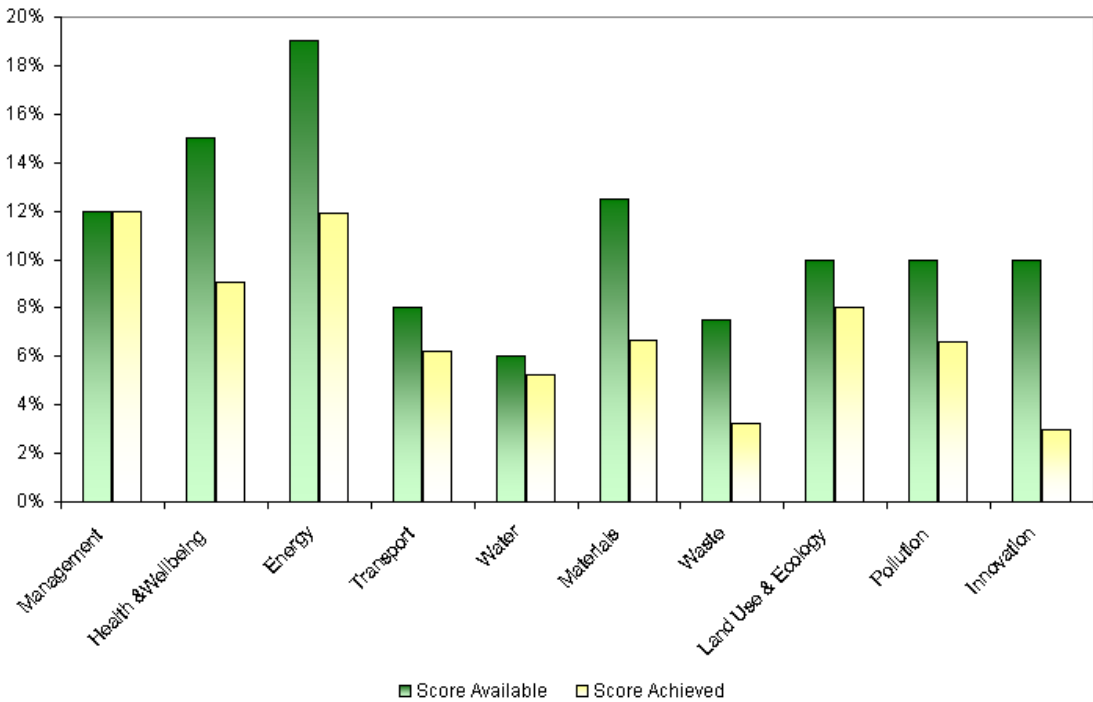


Figure 5.1 BREEAM Performance by Category

6. CONCLUSIONS AND RECOMMENDATIONS

- 6.1
- The Proposed Development was evaluated against the BREEAM Bespoke criteria tailored for the Proposed Development. The score under the BREEAM Bespoke methodology is calculated by determining the percentage of points achieved under each BREEAM category, i.e. Management, Health and Wellbeing, Energy, Transport, Water, Materials, Waste, Land Use and Ecology and Pollution. Each category has been given an environmental weighting factor, which is then applied to the percentage of points achieved under each category. These weighted percentages are then summed to give an overall score.
- 6.2
- The Preliminary BREEAM Bespoke assessment presented in this report is the result of pre-assessment workshops conducted with the client and project team throughout 2008, 2009 and 2010 and further analyses following the workshops.
- 6.3
- Consideration has also been given to the feedback provided by the GLA and LBC during the pre-application process and as such the Proposed Development intends to target all practicable credits to achieve the highest possible BREEAM rating.
- 6.4
- The pre-assessment indicates the Proposed Development currently scores 72.01% (i.e. ‘Excellent’ rating), and achieves 60% of the energy credits, 40% of the materials credits, and 60% of the water credits (as per LBC BREEAM requirements).
- 6.5
- In line with the UKCMRI vision to provide highly sustainable research facilities, the Proposed Development will be continuously re-assessed throughout its development (both at design and procurement stage and construction stage) to improve its BREEAM rating as much as feasible.
- 6.6
- Please note the results produced herein are based on the BRE pre-assessment calculator and are for indicative purposes only. Confirmation of the actual achievement of the various credits will be obtained post-planning, as part of the Formal BREEAM Assessment work.





