




BREEAM AP REPORT: Contractor's Responsibilities

The Reveller Tower of London

Prepared for:
Historic Royal Palaces

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1. INTRODUCTION

1.1 Background

This report provides the targeted BREEAM Assessment score and detailed credit breakdown of the Contractor's responsibilities for the refurbishment and fitout of the proposed new learning centre in the Reveller building and moat of the Tower of London.

This document is to be read in conjunction with the latest BREEAM Tracker Report also prepared by Sol Environment and included in the Tender Package.

1.2 About BREEAM

The Building Research Establishments Environmental Assessment Method ('BREEAM' hereafter) is a voluntary scheme that aims to quantify and reduce the environmental burdens of buildings by rewarding those designs that take positive steps to minimise their environmental impacts.

Projects are assessed using a system of credits. The credits are grouped within the following categories:

- Management;
- Health & Wellbeing;
- Energy;
- Transport;
- Water;
- Materials;
- Waste;
- Land Use and Ecology; and
- Pollution.

A further 'Innovations' section is provided to award developments that go above and beyond the levels set out in the standard criteria, where exemplary performance levels are achieved.

Each issue is a source of environmental impact which can be assessed against a performance target and awarded one or more credits. The assessment process results in the report covering the issues assessed together with a formal certification giving a rating on a scale of PASS, GOOD, VERY GOOD, EXCELLENT and OUTSTANDING.

1.3 BREEAM Scoring

Within each of the BREEAM categories are a number of credit requirements that reflect the options available to designers and managers of buildings.

An environmental weighting is applied to the scores achieved under each category, as shown below (see Table 1.1). The weighting factors have been derived from consensus based research with various groups

such as government, material suppliers and lobbyists. This research was carried out by BRE to establish the relative importance of each environmental issue.

Table 1.1: BREEAM RFO 2014 Issue Weighting Factors		
Environmental Impact Categories	No of Credits in Category	Environmental Weighting Factor (as % of total possible points score available)
		Core Weightings (will differ depending on the scope of the fitout)
Category 1 – Management	21	13.44%
Category 2 – Health & Wellbeing	19	14.51%
Category 3 – Energy	26	16.76%
Category 4 – Transport	9	6.72%
Category 5 – Water	9	6.72%
Category 6 – Materials	13	14.00%
Category 7 – Waste	11	7.70%
Category 8 – Land Use & Ecology	4	8.96%
Category 9 – Pollution	13	11.20%
Total	125	100%

The BREEAM scoring runs from Unclassified to Outstanding, as depicted in Table 1.2 below.

Table 1.2: BREEAM Performance Ratings		
BREEAM Rating	Performance	Score
UNCLASSIFIED	Does not meet levels of standard good practice	<30
PASS	Top 75% of UK new non-domestic buildings (standard good practice)	30
GOOD	Top 50% of UK new non-domestic buildings (intermediate good practice)	45
VERY GOOD	Top 25% of UK new non-domestic buildings (advanced good practice)	55
EXCELLENT	Top 10% of UK new non-domestic buildings (best practice)	70
OUTSTANDING	Less than top 1% of UK new non-domestic buildings (innovator)	85

2. PROJECT DESCRIPTION

The proposed building is targeting the achievement of a **Very Good** BREEAM rating (with an aspiration to achieve Excellent) against **BREEAM Refurbishment and Fit-Out 2014 (RFO) – Other: Community Centre** assessment tool.

A BREEAM Assessor and AP (BREEAMAP0494) have been appointed by Historic Royal Palaces to provide advice and guidance to the pre-tender design team to compile and agree the target rating and associated mix of BREEAM credits required to achieve the desired BREEAM rating and to complete the BREEAM Assessment with the contractor’s post-tender design team.

Key details in relation to undertaking the BREEAM assessment are as follows:

TABLE 1.3: BREEAM Assessment	
BREEAM Stages	Action
BREEAM Assessment Responsibility	Sol Environment have been appointed to complete the full BREEAM Assessment service and will liaise with the contractor’s design team to assist delivery of the BREEAM Certification at both Interim and Post Construction Stages.
BREEAM Registration	The site has been registered with the BRE by the BREEAM Assessor (Sol Environment). BREEAM Reference Number is BREEAM-0131-0630
BREEAM Accredited Professional	The client has appointed BREEAM Accredited Professional (Sol Environment BREEAMAP1000383) to provide BREEAM AP duties for the design stages of the development. Should the BREEAM AP be appointed for the construction stage, the BREEAM AP will visit the site regularly to carry out spot checks and will require action to be taken to address shortcomings in compliance. In collaboration with the contractor, the BREEAM AP will monitor site activities with sufficient frequency to ensure that risks of non-compliance are minimised. The contractor is to allow the BREEAM AP to conduct their responsibilities throughout the preconstruction and construction stages.
BREEAM Requirement	The development is targeting BREEAM Very Good. The Tower Hamlets Local Plan 2031 Policy D.ES7 states that BREEAM Excellent should be achieved, but due to the unique historical significance of the site it has been agreed that Very Good will be targeted instead.
Certification deadlines	Design Stage Certification to be completed ASAP and submitted to Historic Royal Palaces no later than occupation. The post completion stage report is to be submitted to the BRE as soon as possible after completion and the Final BREEAM Certificate submitted to Historic Royal Palaces no later than 3 months following completion (subject to BRE review timescales upon submission).
Target Rating	A BREEAM Very Good rating (55 – 70%) is to be achieved.
Criteria flexibility	The Contractor is permitted to adjust the credit mix subject to achieving the targeted Very Good rating. Adjustments will be discussed with Historic Royal Palaces and the design team, with input and advice from the BREEAM AP.
Current Score	Targeted credits – 69.19%
Confidence	The contractor must be aware of the significance of achieving the target rating & the input required to achieve the credits outlined in this assessment.

3. PRE-PLANNING STAGE CREDIT STATUS

A number of credits require input or evidence to show that correct consultation, design input or reporting was undertaken at the correct pre-planning stage. If not correctly undertaken, these early stage credits are often irrecoverably lost. This section details the status of RIBA Stage dependent credits up to RIBA Stage 2.

The following table lists the status of credits requiring pre-planning stage input that will be adopted by the BREEAM Assessor during the construction phase.

TABLE 1.4: Pre-Tender Stage Credits		
Ref	Title	Status
Man 01. 1	Stakeholder Consultation (Project Delivery)	Project delivery stakeholder consultation has taken place. Credit sought
Man 01. 2	Stakeholder Consultation (Third Party)	An independent third-party stakeholder consultation process took place in the form of a public exhibition. Credit sought
Man 01. 3	Sustainability Champion (Design)	A BREEAM AP (BREEAMAP0494) was appointed during the concept design stage and will monitor progress to the end of Stage 4. Credits sought
Man 02. 1	Elemental life cycle costing	An elemental LCC has been produced. Credit sought
Hea 06. 2	Security of site and building	A Security Needs Assessment has been completed by the local police force Counter-Terrorism Officer and DOCO in consultation with the design team. This credit will be targeted. Credits sought
Ene 01. 2	Historic building report	A historic building report has been produced by Purcell. Credit sought
Ene 04. 1	Passive Design Analysis	A Passive Design Analysis has not been undertaken as there is limited scope for fabric improvement. Therefore, credit is not sought.
Ene 04. 2	Free Cooling	A Passive Design Analysis has not been undertaken as there is limited scope for free cooling. Therefore, credit is not sought.
Ene 04. 3	Low and Zero carbon study	LZC Feasibility Study has been conducted and LZC technologies will be used on site. Credits sought
Mat 06	Material Efficiency	A review of material efficiencies within the development has been undertaken. Credit sought
Wst 01	Pre-Refurbishment Audit	A Pre-Refurbishment Audit has been undertaken. Credit sought
Wst 05	Adaptation to climate change – structural and fabric resilience	A climate change adaptation strategy has been undertaken at the concept design stage. Credit sought
Wst 06	Functional Adaptability	A building-specific functional adaptation strategy study has been undertaken at the concept design stage. Credit sought
Le 04	Enhancing Site Ecology	An ecological assessment has been undertaken. Credit sought

4. CONTRACTOR'S RESPONSIBILITIES SUMMARY

The following section provides the detailed credit breakdown of the credits relevant to the contractor and is to be read in conjunction with the BREEAM Tracker Report (completed by Sol Environment and included as part of the tender package) to confirm the score committed to by the client and design team.

The successful contractor is permitted to alter the mix of credits to achieve the target rating subject to approval, advice and guidance from the BREEAM Assessor and client. All conditions and specifications are in accordance to the BREEAM Refurbishment and Fit-Out (RFO) 2014 Technical Manual SD216 – Issue: 1.1.

MAN 02: Life cycle cost and service life planning

- Capital cost reporting (*Criteria 6*)
 - Contractor is required to report the capital cost for the building in pounds per square metre (£k/m²), to the BRE via the BREEAM Assessor.

ONE CREDIT (*Refer to BREEAM RFO 2014 Technical Manual SD216 – Issue: 1.1*)

MAN 03: Construction Site Impacts

- Pre-requisite: Legally Harvested Timber (*Criterion 1*)

Contractor to ensure that all site timber used on the project will be sourced in accordance with the UK Government's Timber Procurement Policy, and relevant responsible sourcing certification will be collected from suppliers for all timber.
- Pre-requisite: Environmental Management (*Criteria 2-3*)

Contractor to operate an Environmental Management System covering our main operations, compliant with one of the following:

 - a. Third party certified, to ISO14001/EMAS or equivalent standard.
 - b. BS8555 20031 and has reached phase four of the implementation stage, 'implementation and operation of the environmental management system', and completed phase audits one to four, as defined in BS8555.

Contractor also required to implements best practice pollution prevention policies and procedures on-site in accordance with Pollution Prevention Guidelines, Working at construction and demolition-sites: PPG6.

- Sustainability Champion (construction) (*Criteria 4-6*)
 - The defined BREEAM performance target – BREEAM VERY GOOD – form a requirement of the principal contractor's contract;
 - A BREEAM Accredited Professional must be appointed to monitor the project to ensure ongoing compliance with the relevant sustainability performance/process criteria, and therefore BREEAM target(s), during the Construction, Handover and Close Out stages.
 - The AP will visit the site regularly to carry out spot checks, with the relevant authority to do so, and will require action to be taken to address shortcomings in compliance. The AP will monitor site activities with sufficient frequency to ensure that risks of non-compliance are minimised. They will report on progress at relevant project team meetings including identifying potential areas of non-compliance and any action needed to mitigate.

- Considerate construction (*Criterion 7*)

The contractor is required to use a 'compliant' organisational, local or national considerate construction scheme (such as CCS) and the performance against the scheme is required to be confirmed by independent assessment and verification. The contractor is required to significantly exceed 'compliance' with the criteria of the scheme. Under CCS this equates to a score of ≥ 39 with at least 13 in each section.

- Monitoring of construction-site impacts (*Criteria 8-17*)

Contractor is required to monitor, record and report all energy, water and transport consumption data during the construction process to the following standards:

- Monitor and record data on energy consumption (kWh) from the use of construction plant, equipment (mobile and fixed) and site accommodation necessary for completion of all construction processes.
- Monitor and record data on potable water consumption (m3) from the use of construction plant, equipment (mobile and fixed) and site accommodation necessary for completion of all construction processes.
- Monitor and record data on transport resulting from delivery of the majority of construction materials to site and construction waste from site. As a minimum, this must cover:
 - Transport of materials from the factory gate to the building site, including any transport, intermediate storage and distribution. Scope of this monitoring must cover the following as a minimum:
 - a. Materials used in major building elements (i.e. those defined in BREEAM issue Mat 01), including insulation materials,
 - b. Ground works and landscaping materials
 - Transport of construction waste from the construction gate to waste disposal processing/recovery centre gate. Scope of this monitoring must cover the construction waste groups outlined in the project's site waste management plan (SWMP)
- An appropriate member of the site staff is to be nominated with responsibility for monitoring, recording and reporting on the above items.

SIX CREDITS + ONE EXEMPLARY CREDIT (*Refer to BREEAM RFO 2014 Technical Manual SD216 – Issue: 1.1*)

MAN 04: Commissioning and Handover

- Commissioning and testing schedule responsibilities (*Criteria 1-4*)
 - The principal contractor is required to account for the commissioning and testing programme, responsibilities and criteria within their budget and main programme of works, allowing for the required time to complete all commissioning and testing activities prior to handover.
- Commissioning building services (*Criteria 5-6*)
 - For buildings with complex building services and systems, a specialist commissioning manager is appointed during the design stage (by either the client or the principal contractor) with responsibility for:
 - Undertaking design reviews and giving advice on suitability for ease of commissioning.
 - Providing commissioning management input to construction programming and during installation stages.

- Management of commissioning, performance testing and handover/post-handover stages.
- Handover (*Criteria 10-11*)
 - A Building User Guide (BUG) is to be developed by the contractor prior to handover, for distribution to the building occupiers and premises managers. The content of the guide will be specific to the building type and end users, but broadly should include information on the following:
 - Overview of the building and its environmental strategy, e.g. energy/water/waste efficiency policy/strategy and how users should engage with/deliver the policy/strategy.
 - Building services overview and access to controls, e.g. where to find them, what they control, how to operate effectively and efficiently etc.
 - Pre-arrival information for visitors, e.g. access and security procedures/provisions
 - Provision of, and access to, shared facilities
 - Safety and emergency information/instructions
 - Building related operational procedures specific to building type/operation, e.g. laboratories
 - Building related incident reporting/feedback arrangements
 - Building related training information/links
 - Provision of, and access to, transport facilities, e.g. public transport, cyclist facilities, pedestrian routes etc.
 - Provision of, and access to, local amenities
 - Re-fit, refurbishment and maintenance arrangements/considerations
 - Links, references and relevant contact details There is no requirement on the format the Building User Guide
 - A training schedule is to be prepared by the contractor for building occupiers/premises managers, timed appropriately around handover and proposed occupation plans, which includes the following content as a minimum:
 - a. The building's design intent
 - b. The available aftercare provision and aftercare team main contact(s), including any scheduled seasonal commissioning and post occupancy evaluation
 - c. Introduction to, and demonstration of, installed systems and key features, particularly building management systems, controls and their interfaces
 - d. Introduction to the Building User Guide and other relevant building documentation, e.g. design data, technical guides, maintenance strategy, operations and maintenance (O&M) manual, commissioning records, log book etc.
 - e. Maintenance requirements, including any maintenance contracts and regimes in place.

THREE CREDITS (*Refer to BREEAM RFO 2014 Technical Manual SD216 – Issue: 1.1*)

MAN 05: Aftercare Support

- Aftercare Support (*Criteria 1-2*)
 - The contractor will ensure that there is (or will be) operational infrastructure and resources in place to provide aftercare support to the building occupier(s), which includes the following as a minimum:

- a. A meeting programmed to occur between the aftercare team/individual and the building occupier/management (prior to initial occupation, or as soon as possible thereafter) to:
 - i. Introduce the aftercare team or individual to the aftercare support available, including the Building User Guide (where existing) and training schedule/content.
 - ii. Present key information about the building including the design intent and how to use the building to ensure it operates as efficiently and effectively as possible.
- b. On-site facilities management training, to include a walkabout of the building and introduction to and familiarisation with the building systems, their controls and how to operate them in accordance with the design intent and operational demands.
- c. Initial aftercare support provision for at least the first month of building occupation, e.g. on-site attendance on a weekly basis to support building users and management (this could be more or less frequent depending on the complexity of the building and building operations).
- d. Longer term aftercare support provision for occupants for at least the first 12 months from occupation, e.g. a helpline, nominated individual or other appropriate system to support building users/management.
- o The contractor will also ensure that is (or will be) operational infrastructure and resources in place to coordinate the collection and monitoring of energy and water consumption data for a minimum of 12 months, once the building is occupied. This is done to facilitate analysis of discrepancies between actual and predicted performance, with a view to adjusting systems and/or user behaviours accordingly.

ONE CREDIT (*Refer to BREEAM RFO 2014 Technical Manual SD216 – Issue: 1.1*)

- Seasonal Commissioning (*Criterion 3*)
 - o The contractor will ensure the following seasonal commissioning activities will be completed by a Specialist Commissioning Manager over a minimum 12-month period, once the building becomes substantially occupied:
 - i. Testing of all building services under full load conditions, i.e. heating equipment in mid-winter, cooling/ventilation equipment in mid-summer, and under part load conditions (spring/autumn).
 - ii. Where applicable, testing should also be carried out during periods of extreme (high or low) occupancy.
 - iii. Interviews with building occupants (where they are affected by the complex services) to identify problems or concerns regarding the effectiveness of the systems.
 - iv. Re-commissioning of systems (following any work needed to serve revised loads), and incorporating any revisions in operating procedures into the operations and maintenance (O&M) manuals.

ONE CREDIT (*Refer to BREEAM RFO 2014 Technical Manual SD216 – Issue: 1.1*)

HEA 05: Acoustic Performance

- Sound Insulation (*Airborne sound insulation and Impact noise*) – FIRST CREDIT
 - o Contractor is responsible for the completion of a programme of post-completion acoustic testing to be carried out by a compliant test body in accordance with the requirements of Section 7 of HTM 08-01: Acoustics.

- Sound insulation performance standards committed to at the design stage and nominated in the BREEAM RFO 2014 Technical Manual are required to be achieved.
- Reverberation – SECOND CREDIT
 - Contractor is responsible for the completion of a programme of acoustic measurements to be carried out by a compliant test body in accordance with the Section 7 of HTM 08-01: Acoustics
 - Acoustic environment standards committed to at the design stage and nominated in the BREEAM RFO 2014 Technical Manual are required to be achieved.

TWO CREDITS (*Refer to BREEAM RFO 2014 Technical Manual SD216 – Issue: 1.1*)

ENE 01: Reduction of energy use and carbon emissions

- A copy of the Building Regulations Output Document from the approved software for both the existing building and proposed building, with the output documents from the approved software reflecting performance at the as built stage of analysis for the proposed building. This must account for any changes to the specification during refurbishment or fit-out and the measured air leakage rate, ductwork leakage and fan performances (as required by Building Regulations).
- To achieve at least the targeted 6 credits (in accordance with the design stage documentation), the Energy Performance Ratio for Non-Domestic Refurbishment (EPR_{NDR}) is required to be ≥ 0.36 .

\geq SIX CREDITS (*Refer to BREEAM RFO 2014 Technical Manual SD216 – Issue: 1.1*)

MAT 03: Responsible Sourcing of Materials

- Pre-requisite: Timber procurement (*Criterion 1*)
 - Contractor to ensure that all timber will be sourced in compliance with the UK Government Timber Procurement Policy for legal and sustainable sourcing, and copies of the chain of custody certificates confirming compliance with the CPET (Central Point of Expertise for Timber procurement) requirements will be obtained from suppliers.
- Sustainable Procurement Plan (*Criterion 2*)
 - Contractor to provide a compliant Sustainable Procurement Plan prior to starting work on site.
 - A compliant Sustainable Procurement Plan is a plan that sets out a clear framework for the responsible sourcing of materials to guide procurement throughout a project and by all involved in the specification and procurement of construction materials. The plan may be prepared and adopted at an organisational level or be site/project specific, and for the purposes of BREEAM compliance, will cover the following as a minimum:
 1. Risks and opportunities are identified against a broad range of social, environmental and economic issues. BS 8902:2009 Responsible sourcing sector certification schemes for construction products- Specification can be used as a guide to identify these issues.
 2. Aims, objectives and targets to guide sustainable procurement activities.
 3. The strategic assessment of sustainably sourced materials available locally and nationally. There should be a policy to procure materials locally where possible.
 4. Procedures are in place to check and verify that the sustainable procurement plan is being implemented/adhered to on individual projects. These could include setting out measurement criteria, methodology and performance indicators to assess progress and demonstrate success.

- Contractor to source materials for the project in accordance with their documented sustainable procurement plan.
- Responsible sourcing of materials (*Criteria 3-4*)
 - Contractor to ensure that all relevant products and materials specified and used within the development shall be sourced from responsible suppliers capable of providing certification to the level required for the particular tier claimed to ensure >18% of the available responsible sourcing points have been achieved and at least 1 credit is achieved (refer to MAT 3 calculator & responsible sourcing schedule in BREEAM Technical Manual).
- Recycled materials
 - Contractor to ensure that all recycled materials and products will be sourced only from suppliers who can provide an EMS certificate (or equivalent) for the recycling process.
- Collation of certified material documentation
 - The contractor will collate and provide to BREEAM assessor copies of all relevant certificates/chain of custody evidence and delivery notes/purchase orders confirming supply of relevant material to site.

TWO CREDITS (*Refer to BREEAM RFO 2014 Technical Manual SD216 – Issue: 1.1*)

MAT 04: Insulation

- Thermal insulation products
 - Contractor to ensure that at least 80% of all thermal insulation products, including building services, used within the development shall be sourced from suppliers capable of providing certification to the level required for the particular tier claimed (refer to responsible sourcing schedule in BREEAM Technical Manual).
- Collation of certified material documentation
 - Where certified materials are used, contractor will collate and provide to BREEAM assessor copies of all relevant certificates/chain of custody evidence and delivery notes/purchase orders confirming supply of relevant material to site.
- Contractor to ensure that the Insulation Index for the building fabric and services insulation is the same as or greater than 2.5. See the Mat 04 Insulation section of the BREEAM Technical Manual for a description of calculating the Insulation Index.

ONE CREDIT (*Refer to BREEAM RFO 2014 Technical Manual SD216 – Issue: 1.1*)

MAT 06: Material efficiency

- The Contractor shall ensure conduct a Material Efficiency review of the project at each of the project stages: Concept Design (where applicable), Developed Design, Developed Design, Technical Design, Construction.
- In the Material Efficiency review, the Contractor shall identify opportunities and appropriate measures investigated and implemented within the scope of fit-out works to optimise the use of materials through building design, procurement, refurbishment and maintenance and end of life.

ONE CREDIT (*Refer to BREEAM RFO 2014 Technical Manual SD216 – Issue: 1.1*)

WST 01: Construction Waste Management

- Contractor to provide a compliant Site Waste Management Plan (SWMP). The following targets will be included in the SWMP and waste tickets will be provided at the conclusion of the development to ensure targets are met:
 - Resource Efficiency: non-hazardous construction waste is limited to a maximum 2.1m³ (or 0.4 tonnes) / 100m² of Gross Internal Floor Area
 - Waste Diverted from Landfill: 85% volume (or 90% by weight) of non-hazardous, non-demolition waste, and 90% volume (or 95% by weight) of demolition waste is diverted from landfill.
- Where possible the following waste materials included within the construction/demolition are either directly re-used on-site or off-site or are sent back to the manufacturer for closed loop recycling (50% of the total available points for this credit are to be achieved):
 - Inert materials (excluding soils);
 - New and used metal materials;
 - Composite materials;
 - New and used plasterboard;
 - Furniture;
 - Timber products;
 - New and used mineral fibre ceiling panels and tiles;
 - Vinyl floor coverings (uplifted vinyl flooring and post-installation offcuts);
 - Used carpet tiles (good reusable condition);
 - Packaging materials (all timber, cardboard & plastic);
 - New and unused insulation board; and
 - Fixtures and fittings.

FIVE CREDITS (*Refer to BREEAM RFO 2014 Technical Manual SD216 – Issue: 1.1*)