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69-71 Swainstone Rd, Reading
BREEAM UK Domestic Refurbishment 2014 pre-assessment

For

Sharma Family Properties

15th July 2021



A connected approach to
sustainable building solutions

Melin Consultants are accredited to provide a range of calculation, assessment and testing services. They are licensed BREEAM assessors and provide BREEAM Accredited Professional services

Melin Consultants fully check all work prior to completion and a robust audit trail exists to demonstrate accountability.

CPD (Continual Professional Development) records are kept and all technical staff are required to complete a minimum 20 hours per year in training activities.

This document contains the following information:

- BREEAM UK Domestic Refurbishment 2014 pre-assessment

Project Ref: 1597b **Report Date:** 15/07/2021 **Report author:** Chris Amos **Function:** Senior Consultant

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1. Executive Summary

1.1 Overview

The proposed development is for the conversion of an existing dwelling house into two dwellings.

The existing property is currently a single dwelling house with full planning consent subject to conditions for subdivision into two separate dwelling houses. One 3 bedroom and 1 4 bedroom dwelling houses.

The report provides information on the proposed sustainability measures that will be incorporated into the scheme during design, construction and occupation and an outline to the BREEAM rating the building can expect to achieve during the design and post construction stages if adhering to the outlined measures.

In formulating this report the BREEAM UK Domestic Refurbishment 2014 Pre-assessment Estimator v4.2 tool has been used.

1.2 Key Findings

This Pre-assessment identifies an average (Across the 2 dwellings) target BREEAM score for the development of **62.70%** and a BREEAM rating of Very Good. This provides a buffer over the target score of 55% needed to achieve a Very Good rating.

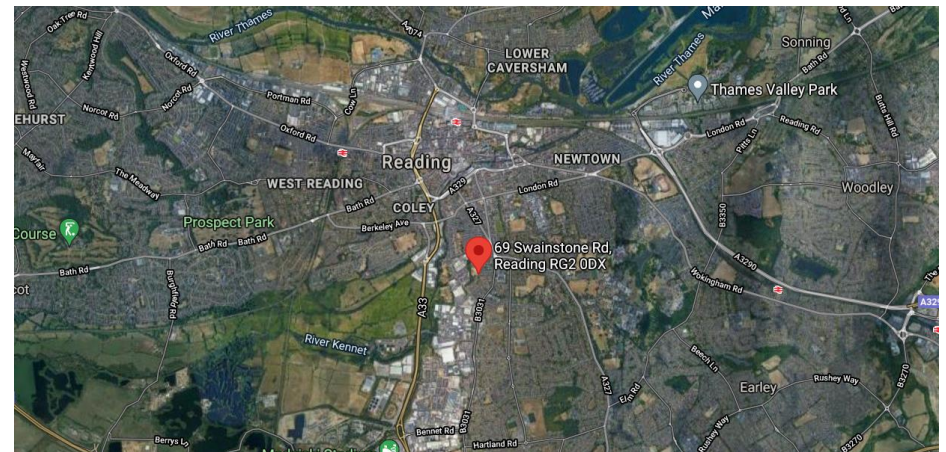
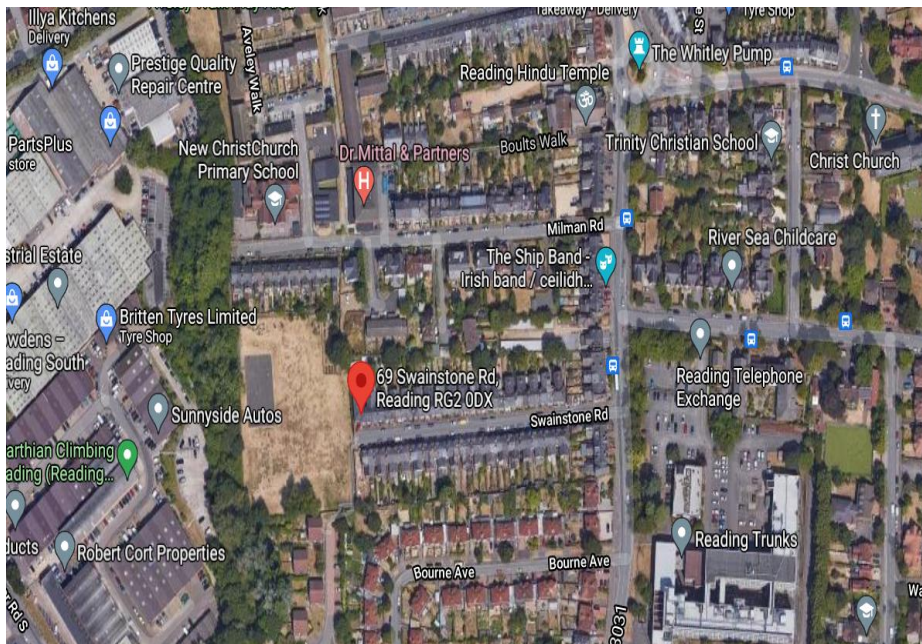
At pre-assessment stage a number of assumptions have been made which may be subject to change at design stage.

2. Introduction

The proposed site is a domestic refurbishment development including the provision of two separate dwelling houses at 69 & 71 Swainstone Road, Reading.

2.1 Location

The site is situated at the end of Swainstone Rd, Reading.



2.2 Introduction to BREEAM

This report has been prepared by Melin Consultants considering local planning requirements. This report is intended to provide a clear and straightforward assessment of the proposed development's sustainability measures through the use of BREEAM and to outline the rating that the development is likely to achieve if the targeted credits are undertaken and completed in the correct manner as prescribed by the BRE.

BREEAM (Building Research Establishment's Environmental Assessment Method) was first developed as an assessment method in 1990 and has been continually developed in line with the Building Regulations ever since, the most recent update, BREEAM Domestic Refurbishment 2.2, was published and released in March 2016.

BREEAM is currently the world's leading and most widely used environmental assessment method for buildings and can currently be used to assess any building, anywhere in the world.

The methodology is tried and tested in terms of its technical standards and its commercial delivery and expert advice is sought for almost every issue within BREEAM. It is overseen by an independent Sustainability Board which represents a wide cross section of construction industry stakeholders. BREEAM won the

Sustainable Building Conference where it was acknowledged 'the most successfully executed program for promoting sustainable practices, and influencing other initiatives, worldwide'.

2.3 Technical Standard

BREEAM Domestic Refurbishment is a performance-based assessment method and certification scheme for domestic buildings undergoing refurbishment that assesses the design, construction, intended use and future-proofing of developments. It uses a common framework that is adaptable depending upon the building's type and location.

The assessment criteria and process focuses on the design of the building from concept stage right through to an occupied building. It requires evidence to support the design and construction decisions, agreed during the development of the project, and ensures that they have been fully implemented.

2.3.1 Aims and Objectives

To date BREEAM has been used to certify over 260,000 building assessments across the building life cycle and is being applied in over 50 countries.

The core aims and objectives of BREEAM are:

- To reduce the impacts of buildings on the environment.
- To enable buildings to be recognised according to their environmental benefits.
- To provide a credible, environmental label for buildings.
- To simulate demand for sustainable buildings.
- To provide market recognition to low environmental impact buildings.
- To ensure best environmental practice is incorporated within buildings.
- To set criteria and standards surpassing those required by regulations and challenge the market to provide

solutions that minimise the environmental impact of buildings.

- To raise the awareness of owners, occupants, designers and operators of the benefits of buildings with a reduced impact on the environment.
- To allow organisations to demonstrate progress towards corporate environmental objectives.

2.4 The Stages

A BREEAM assessment is used to measure a building's environmental performance. There are two main stages of assessment the **Design Stage** and **Post-Construction Stage**, although a **Pre-assessment** is often carried out initially as a requirement of planning or to achieve funding.

2.4.1 The Pre-assessment

The Pre-assessment involves an initial evaluation of the sustainability of the proposed development which provides advice on the elements that need to be incorporated into the detailed design and cost plan.

The main benefits of carrying out a Pre-assessment are that the design team and BREEAM Assessor are introduced at an earlier

stage of the project; this will help to identify the constraints of the project sooner meaning that they can be addressed quicker and more cost effectively.

The Pre-assessment helps to highlight which credits are likely to be easily achievable, which in turn will help to maximise the credits that will be available and make it easier to achieve the desired rating.

To calculate the predicted score and rating Melin Consultants have used the BREEAM 2014 Domestic Refurbishment Pre-Assessment Estimator. The results and output of which can be found at the end of this report.

2.4.2 The Design Stage

The Design Stage assessment and interim BREEAM rating confirms the proposed new building's performance at the design stage of the life cycle. Ideally the assessment and certification will occur prior to the beginning of on-site operations. The BREEAM rating at this stage is labeled as 'interim' because it does not reflect the building's final, new construction performance.

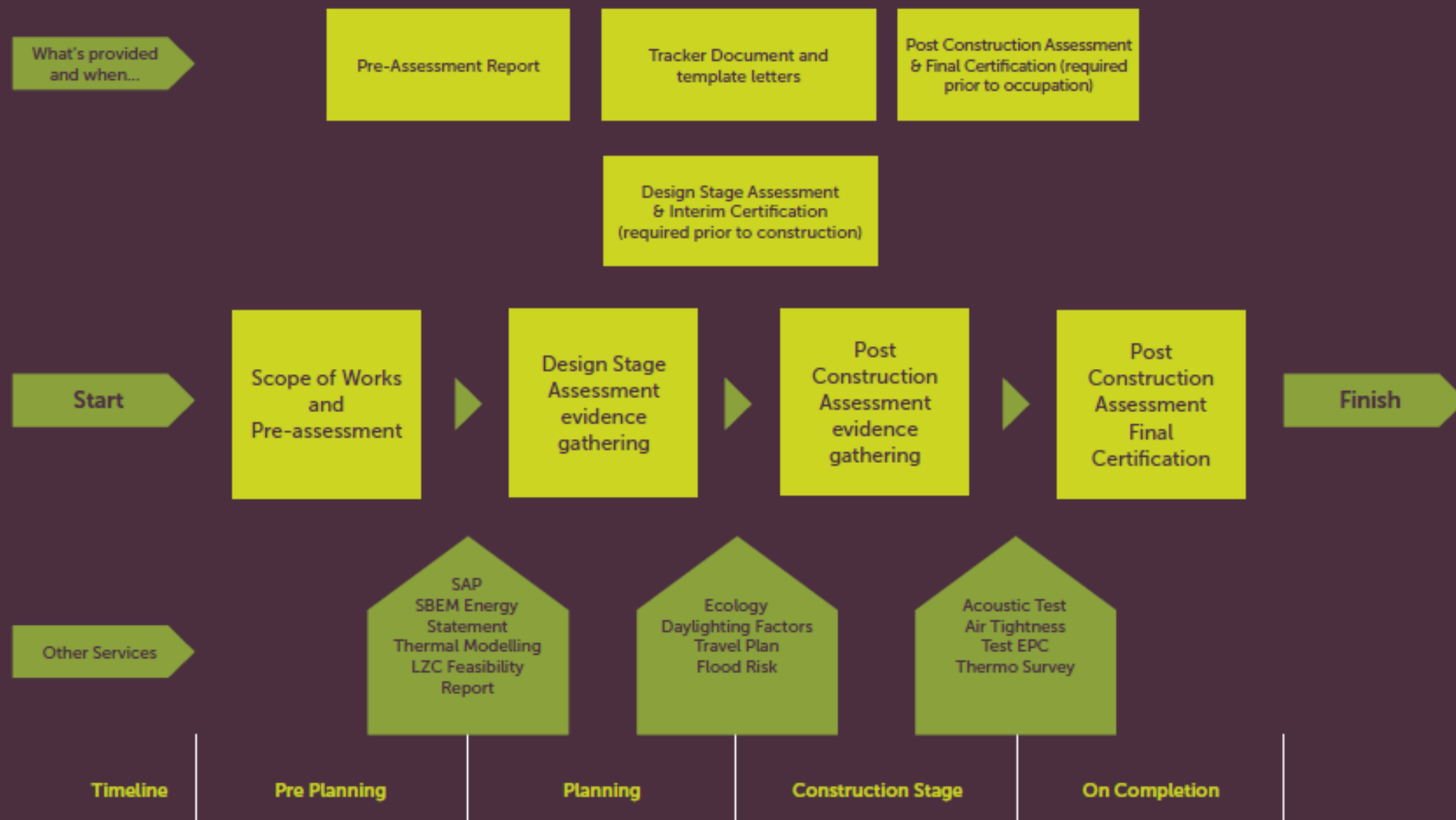
To complete an assessment at this stage the design must be advanced to a point where the relevant design information is available for evaluation and verification of the building's performance by the BREEAM assessor.

2.4.3 The Post Construction Stage

The Post Construction Stage assessment and final BREEAM rating confirms the as built performance of the building at the new construction stage of the life cycle. A final assessment is completed and certified after practical completion of the building works.

2.5 Process

Melin employ licensed BREEAM assessors and Accredited Professionals whom can provide robust and informed advice for all aspects of sustainable design. It is anticipated that the proposed development will follow the work schematic on the following page which sets out a clear and timed approach to gaining the required rating.



2.6 Categories

Assessments can be carried out for new builds, extensions, refurbishments, fit out and shell and core projects. An assessment is made up of the following ten categories:

- Management – to encourage the adoption of sustainable management in connection with the design, construction, commissioning, handover and aftercare activities.
- Health and Wellbeing – to encourage the increased comfort, health and safety of building occupants.
- Energy – to encourage the specification and design of energy efficient building solutions, systems and equipment that support the sustainable use of energy in the building and operation.
- Water – to encourage sustainable water use in the operation of the building and its site.
- Materials – to encourage steps taken to reduce the impact of construction materials through design, construction, maintenance and repair.
- Waste – to encourage the sustainable management of construction and operational waste.
- Pollution – to encourage the prevention and control of pollution and surface water run-off associated with the building's location and use.
- Innovation – to provide opportunities for exemplary performance and innovation to be recognised.

Management	Health & Wellbeing	Energy	Water
- Home User Guide - Responsible Construction Practices - Construction Site Impacts - Security - Protection and enhancement of ecological features. - Project Management	- Daylighting - Sound Insulation - Volatile Organic Compounds (VOCs) - Inclusive Design - Ventilation - Safety	- Improvement in energy efficiency rating - Energy efficiency rating post-refurbishment - Primary Energy Demand - Renewable technologies - Energy labelled white goods - Drying Space - Lighting - Energy Display Devices - Cycle Storage - Home Office	- Internal water use - Water meters - External water use
Materials	Waste	Pollution	Innovation
- Environmental impact of Materials - Responsible sourcing - Insulation	- Household waste - Refurbishment site waste management	- Surface water run off - Flooding - Nitrogen oxide emissions	Exemplary Performance

Each category is then broken down further into individual measures across a range of environmental issues (see table above).

Depending on a building type and function not all of these issues are relevant and are filtered out for the Pre-assessment.

2.6.1 Category weightings

Each BREEAM category carries its own weighting factor which is applied as credits are achieved. For example, 1 credit within the Energy category will have a different impact than 1 credit in the Water section.

Category	Weighting
Management	12%
Heath & Wellbeing	17%
Energy	43%
Water	11%
Materials	8%
Waste	3%
Pollution	6%
Total	100%
Innovation (Additional)	10%

2.7 Benchmarks

The BREEAM rating benchmarks for projects assessed using the 2014 version of BREEAM UK Domestic Refurbishment 2014 as follows:

BREEAM Rating	% score	
Outstanding	≥ 85	Less than top 1% of UK DR buildings.
Excellent	≥ 70	Top 10% of UK DR buildings.
Very Good	≥ 55	Top 25% of UK DR buildings.
Good	≥ 45	Top 50% of UK DR buildings.
Pass	≥ 30	Top 75% of UK DR buildings.
Unclassified	< 30	Doesn't meet minimum level of good practice

*DR – Domestic Refurbishment

These benchmarks enable stakeholders to compare the performance of a newly constructed building with other BREEAM rated buildings.

2.7.1 Minimum standard

To provide a flexible approach BREEAM uses a balanced approach to the scoring. To achieve a particular level of performance the majority of BREEAM credits can be traded. However, to ensure performance against fundamental environmental is not overlooked BREEAM sets minimum standards of performance in key areas.

BREEAM Issue	Minimum standards by rating level				
	Pass	Good	Very Good	Excellent	Outstanding
ENE02 Energy efficiency rating post-refurbishment	0.5 Credits	1 Credit	2 Credits	2.5 Credits	3.5 Credits
WAT01 Internal Water Use	-	-	1 Credit	2 Credits	3 Credits
HEA05 Ventilation	1 Credit	1 Credit	1 Credit	1 Credit	1 Credit
HEA06 Safety	1 Credit	1 Credit	1 Credit	1 Credit	1 Credit
POL03 Flooding	-	-	-	2 Credits	2 Credits
MAT01 Environmental impact of materials	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only

Results Output

Category	No. of Credits Available	No. of Credits Agreed	Credits Agreed (%)	Section Weighting (%)	Section Score (%)
Management	11	3	27.27%	12%	3.27%
Health & Wellbeing	12	5	41.66%	17%	7.08%
Energy	29	23.5	81%	43%	34.84%
Water	5	4	88%	11%	11%
Materials	48	18	37.5%	8%	3.00%
Waste	5	5	100%	3%	1.20%
Pollution	8	6	75%	6%	4.50%
Innovation (additional)	10	0	%	n/a	-
					62.70%

Category	Available	Excellent	Comments
Man01	3	3	A Home Users Guide will be supplied to the dwelling and will contain all the required information for the occupant to understand how to operate their home efficiently and effectively.
Man02	2	1	50% of optional items from Checklist A-3 addressed (Checklist A-3 available upon request from the Melin BREEAM assessor)
Man03	1	1	The project team will provide a completed copy of Checklist A-5 to demonstrate that the site is managed in an environmentally sound manner in terms of resource use, energy consumption and pollution
Man04	2	1	Where retained, external doors and windows will comply with the BREEAM minimum security requirements. Where newly added, these items will be appropriately certified, e.g. External door sets: PAS24:2007, Windows: BS7950:1997.
Man05	1	0	Credit not sought
Man06	2	2	The criteria outlined in regard to 'project roles and responsibilities', 'handover and aftercare' will be adhered to, to ensure delivery of a functional and sustainable refurbishment, designed and built in accordance with performance expectations.

Man06 Innovation	2	0	Credit not targeted
Hea01	2	2	To achieve these credits daylighting calculations will need to be undertaken on the new dwelling, confirming the extension does not significantly reduce daylighting levels in the neighboring property and the dwelling achieves minimum daylighting requirements for the kitchen, living room, dining room and study. (Melin Consultants can provide this service, if required a quote can be provided upon request)
Hea02	4	4	It is assumed that sound testing will be required, and the property will perform beyond the building regulation standards by 5dB.
Hea03	1	1	Internal finishes and fittings will be specified with low emissions of volatile organic compounds (VOCs). Further guidance on the relevant product categories is available from the Melin BREEAM Assessor
Hea04	2	0	Credit not targeted
Hea05	2	1	Evidence will be supplied by the project team to demonstrate that 'Minimum Requirements' will be met (Further guidance is available from the Melin BREEAM Assessor)
Hea06	1	1	Formal commitment will be provided at Design Stage to demonstrate that the Fire and Carbon Monoxide (CO) Detection and Alarm Systems will be compliant.
Ene01	6	1.5/2.5/4	Credits will be awarded based on SAP Calculations, this will be used to calculate the improvement to the dwelling's Energy Efficient Rating.
Ene02	4	4	Credits will be awarded based on SAP Calculations, this will be used to calculate the Energy Efficient Rating.
Ene03	7	7	Design Stage SAP Calculations will demonstrate the Primary Energy Demand for the proposed refurbishment. Based on this figure credits will be awarded.
Ene04	2	2	There will be greater than a 20% improvement in the DER from renewables
Ene05	2	2	Where supplied, the white goods will be supplied in accordance with the above labelling scheme. Where not supplied, a leaflet will be supplied to occupants providing guidance on the EU Energy Efficiency Labelling Scheme.
Ene06	1	1	A 4m+ internal drying space will be provided
Ene07	2	2	Two credits have been targeted at pre-assessment stage based on Energy Efficient external lighting of more than 45 lumens per circuit watt & Energy Efficient security lighting. Maximum internal lighting wattage of 9 watts/m ² across the total floor area.
Ene08	2	2	A BREEAM compliant energy display device will be fitted displaying the Electricity and Primary Heating Fuel.
Ene08 Innovation	1	1	The Energy Display Device will also be capable of recording the consumption data.

Ene09	2	1	Based on the provision of two dedicated cycle storage spaces
Ene10	1	0	Credit not targeted
Wat01	3	1	2 credits are currently targeted, which meets the minimum requirement for an 'Excellent' rating. The water consumption of the relevant sanitaryware will be confirmed to the Assessor. This will be re-evaluated at Design Stage.
Wat02	1	1	One credit awarded based on no individual or communal garden space to be provided
Wat03	1	0	Credit not sought, as a water meter would need to be specified to provide a visible display of mains potable water consumption to occupants. The meters would need to be a permanent feature secured within the dwelling in a location visible to occupants (i.e. not hidden within a cupboard).
Mat01	25	0	Credits not sought
Mat02	15	3	At pre-assessment stage, it is estimated that a sustainable procurement plan will be provided, and all new timber will be sourced in accordance with the UK Government's Timber Procurement Policy
Mat03	8	0	Credits not sought
Was01	2	2	Two credits are targeted based on the provision of internal recycling containers being provided, composting facilities/ service for green & kitchen waste provided and the provision of an interior kitchen composting waste container of at least 7 litres.
Was02	3	3	Waste generated through the refurbishment process will be managed in accordance with a compliant site waste management plan
Was02 Innovation	1	1	A Site Waste Management Plan (to the relevant standard) will be produced
Pol01	3	3	Three credits predicted, based on the assumed provision of high efficiency gas boilers
Pol02	3	1	One credit is achieved based on the fact that there is no change in the size of the building footprint or hardstanding areas as a result of the refurbishment
Pol03	2	2	2 credits targeted to meet minimum standards for Excellent, a Flood Risk Assessment will be required meeting the above standards.