
Technical Note

Project Title	Fisherman's Cottage - extension		
Subject	BREEAM	Date	06 June 2019
Author	GAJ	Our Ref	1292LFCg190606-1836n- Technical Note

1 Introduction

Method Consulting has been appointed by Alex Gooch to review the potential for the proposed extension to the 'Fisherman's Cottage' to achieve BREEAM certification in consideration of the Reading Borough Council's usual planning policy for a Very Good rating to be achieved. Based on information from the Client and architect (e.g. drawings, specifications, reports), Method have prepared a BREEAM Pre-assessment indicating what credits might be realistically achieved for the project, taking into account the scope and budget for works.

At this early stage, the results of the pre-assessment show that it would not be possible to achieve a Very Good rating, and that whilst a Pass may be narrowly achievable, any higher rating is not considered feasible, and the additional costs of pursuing further credits would not be of any tangible benefit in sustainability or practical terms and would actually make the project financially unviable.

This technical note has been written to present the results of the pre-assessment exercise and highlight the sustainable features which are being implemented as part of the strategy to achieve the highest possible BREEAM rating appropriate to the scope and value of the project.

2 Scope of the assessment – BREEAM New Construction 2018

The project would be assessed against the latest BREEAM 2018 New Construction criteria. This scheme has been used to carry out the pre-assessment for the new building which will enclose the existing outdoor pool. The scheme is applicable to many different types of building but also contains criteria specific to XX developments such as this which have been considered and included in the pre-assessment.

Having only been introduced in March 2018, this new scheme presents a significant number of new challenges for teams aiming to achieve high BREEAM ratings. With considerable changes to the requirements relating to credits in the Materials, Transport and Ecology sections, as well as

completely new criteria in other categories, even achieving a BREEAM rating of Very Good is proving to be very challenging for design teams considering BREEAM at concept stage when opportunities for targeting credits are at their maximum. The industry as a whole is having to gear up to potentially providing a completely new range of reports and analysis to support BREEAM targets, which for fast moving projects with budget restrictions is time consuming and costly and may not be considered appropriate or beneficial to project outcomes. There are also a number of new issues where without previous project experience to base targets on, it is difficult to estimate what credits might be achievable for a typical project and these are therefore considered risky to rely on as part of a BREEAM strategy at this early stage.

3 Results

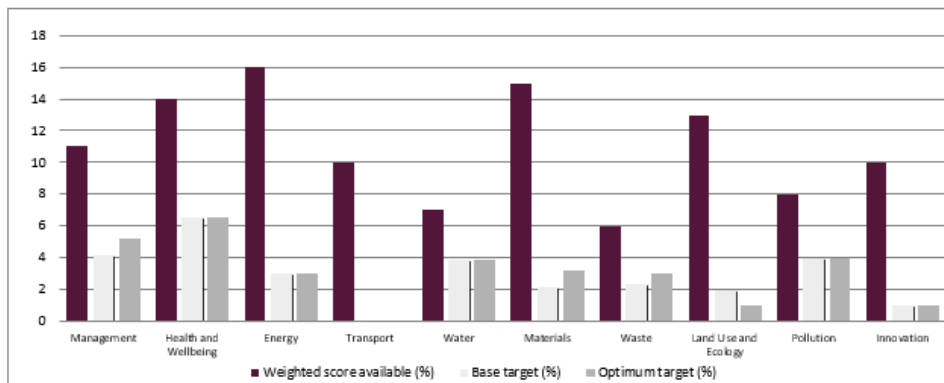
The attached summary of the pre-assessment scores shows the results of the pre-assessment exercise and demonstrates that a Very Good rating would not be possible to achieve.

The base score indicates that a Pass rating could not be achieved with the optimum score indicating that a Pass rating could be narrowly achieved, but not without a considerable level of expenditure on additional reports/consultant input. At this stage, it is normal to have a difference between the base score (the minimum score expected to be achieved) and the optimum score (which may be achieved but requires some further investigation or cost consideration). Neither the base nor the optimum is showing a rating beyond a Pass at this stage, so it can be inferred that achieving a rating of Good or above is very unlikely to be achieved without significant additional work and cost to the project, potentially to the extent that the project becomes unviable.

The graph below shows the breakdown of the targets by section compared to the total number of credits available.

Overall, the base target is 29.26% which does not achieve a rating and the optimum target is 30.98% which represents Pass rating. A Very Good rating would require a score of 55% plus

the achievement of certain mandatory minimum credits.



4 Discussion

As part of the pre-assessment process, the team have committed to a number of sustainable features which would support the achievement of certain BREEAM credits. A pragmatic approach has been taken to ensure that credits targeted will deliver value for money and benefit to the project and users.

A number of these features are outlined below to illustrate the project's sustainability credentials.

- The building services design utilises natural ventilation, and windows and rooflights to maximise natural daylight to reduce artificial lighting requirements.
- The limitations imposed by the listed building status of the main building preclude the specification of LZC technologies such as PV or solar thermal panels or Air Source Heat Pumps which require unsightly external condensers.
- The team are also targeting credits under Indoor Air Quality relating to specifying products with a low Volatile Organic Compound content. VOCs can contribute to poor air quality and 'Sick Building Syndrome' which is known to reduce the health and wellbeing of occupants as well as productivity.
- Thermal modelling could be undertaken to ensure that proposed heating and cooling strategies will deliver compliant thermal comfort conditions for the present climate with the potential to ensure thermal comfort in future without the need to install additional, costly cooling systems also being reviewed, although not currently assumed achievable.

- The proposed materials perform well under the Green Guide to Specification, and products with Environmental Product Declarations (EPDs) and good responsible sourcing credentials (e.g. FSC/PEFC; BES 6001; ISO 14001 certification) will be procured where possible.
- Low-water consuming showers, taps and WCs will be specified to minimise potable water use.

The pre-assessment process has also highlighted a number of reasons why achieving a rating of Pass or above would be very challenging, some of which are summarised below. The full pre-assessment should be also be referred to for details of other requirements which are also considered to be very challenging to meet.

Issues relating to the site which are outside of the team's control:

- There are issues in BREEAM which relate to the inherent characteristics of the site. Initial discussions would suggest that a number of these are not achievable for the Fisherman's Cottage extension, which reduces the target potential as detailed below:
- Requirements under the Transport section have been subject to a significant change in the 2018 scheme. Credits achievable are dependant on the Public Accessibility Index of the site as well as the proximity and availability of local amenities. Additional credits can be achieved through provision of, for example, new amenities, car charging points, cycle lanes and for negotiating enhanced bus services, which are considered generally inappropriate to the scope of this development, and thereby limiting options for how many credits can be achieved. For example, under Tra 02, a credit is awarded where the Public Transport Accessibility Index (AI) is ≥ 8 . It is anticipated that the AI for the site would be approximately 5, restricting the ability to achieve this credit.
- A Suitably Qualified Ecologist has been appointed at Concept Design Stage to review the existing site ecology and recommend enhancements, which are being implemented in the new soft landscaping design. However, the new 2018 requirements for ecology credits are much more onerous overall and require a significant level of input from a Suitably Qualified Ecologist (SQE) as well as from the rest of the project team which are considered inappropriate for the scale and value of this project. Although an SQE was appointed at Concept Design Stage, additional requirements which effectively form pre-requisites for the majority of credits to be achieved have not been implanted so it is not actually possible to achieve the majority of credits in this section, in spite of the ecological enhancements proposed (please refer to the pre-assessment tracker for further details).

Energy Performance

- It is the intention of BREEAM to add value and it is not good sustainability practice to over specify or overcomplicate projects, as this increases resource use and can lead to increased energy consumption as systems are not used or maintained properly (due to a lack of user understanding).
- Whilst there is no mandatory minimum for a Very Good rating under Ene 01, achieving any credits requires significantly enhanced building fabric and building services specifications over that required for Building Regulations. This is because under the new 2018 requirements it is much more difficult to achieve credits where the notional targets for energy demand/primary energy and total CO₂ emissions are not met as a minimum without the specification of PV or other LZC technologies. Although the proposed building will meet Part L Building Regulations, with some additional improvements to U-values, installing LZC technologies such as PV; solar thermal or ASHPs are precluded due to the setting in relation to a listed building.

Life Cycle Costing and Materials Analysis

- Achieving a rating above a Good would have required a number of additional studies and reports to be undertaken to achieve credits whether or not these would be considered of benefit to the project. This includes Man 02 Life Cycle Costing Analysis at RIBA Stages 2 & 4 as well as detailed options appraisals using 'IMPACT' LCA software at RIBA Stages 2 & 4. This would have required a review of a number of different sub-structure and superstructure options at these stages to enable Mat 01 credits to be achieved. In both cases the team would have needed to demonstrate how these option appraisals have informed the design.
- Undertaking these would have required a significant level of input from the team and the appointment of specialist consultants to undertake the modelling, opportunities for some of these credits are no longer available as the project is now beyond RIBA Stage 2 (Concept Design Stage) and given the scope of the project, undertaking relevant reports at RIBA Stage 4 would have an impact on programme as well as costs. Unlike previous schemes it is no longer possible to achieve several credits under Mat 01 simply by reference to the Green Guide for Specification once detailed design has been completed, and it is noted that the proposed materials for this scheme would have performed particularly well under previous BREEAM schemes.

5 Conclusion

Method Consulting has been appointed by Alex Gooch of Fisherman's Cottage to provide BREEAM advice and assessment services for the proposed 6 bedroom extension project. A pre-assessment has been undertaken and the results show that a Very Good rating would not be possible to achieve and indeed any rating would add significantly to the costs and timescales for the project which would render it financially unviable.

Given the scope and function of the Building undertaking a formal BREEAM assessment is not considered to be the appropriate approach to demonstrating the sustainability credentials for the project. However, this technical note together with the supporting pre-assessment tracker highlight the sustainable features which are being implemented which could achieve a Pass rating as well as providing some commentary on items which are not achievable.

6 Appendix 1

Pre-assessment target summary