





## QA

### 65 Maygrove Road, Code for Sustainable Homes Pre-Certification Framework Report

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## 1.0 INTRODUCTION

- 1.1 Environmental Perspectives LLP were commissioned by REP Maygrove Road Developments to undertake a Code for Sustainable Homes (CSH) Certified Assessment for the proposed residential development at 65 Maygrove Road, in the London Borough of Camden.
- 1.2 A preliminary CSH assessment has been undertaken with the design team to ensure the team fully understand the target credits, the detailed information required to demonstrate compliance, who is responsible for actioning each target credit at the design stage, and who will be responsible for tracking compliance through the construction stage. This CSH Pre-Assessment report confirms the rating currently being achieved by the design and presents the framework of credits necessary to achieve the target Level 4 rating.
- 1.3 The application site at 65 Maygrove Road, which extends to approximately 0.3 hectares (ha) and is located in Camden, centred on Ordnance Survey Reference 525042,184693. The proposed development comprises the demolition of an existing office building for a residential development (56 market and 12 affordable/intermediate units consisting of one to three bedroom flats and 4 bedroom houses) including associated soft and hard landscaping, and basement car and cycle parking spaces.
- 1.4 Sustainability and environmental performance are being considered from the outset for the design – the scheme will be highly energy efficient, reduce water consumption and will seek opportunities to enhance biodiversity. The team will address materials selection and waste management throughout the design process and sustainable construction techniques will be reviewed. The team are committed to targeting a CSH Level 3, with an aspiration to achieve a CSH Level 4 rating across all dwellings at Maygrove Road.
- 1.5 This document therefore demonstrates the design team’s commitment to bringing forward a sustainable residential development at Maygrove Road, by providing a framework for achieving a target CSH Level 3 rating, with an aspiration to achieve a CSH Level 4 rating for the proposed development.

## 2.0 CODE FOR SUSTAINABLE HOMES

### BACKGROUND

- 2.1 In April 2007, the UK Government released the Code for Sustainable Homes (CSH) that complements the system of Energy Performance Certificates introduced in January 2008 under the Energy Performance of Buildings Directive. The CSH is intended to facilitate a step change in the environmental performance of new housing, in accordance with the Government target that all new housing be zero carbon by 2016.
- 2.2 From 1st May 2008, the Government announced that a mandatory rating against the CSH was required for all new homes. While the requirements mean that it is mandatory to have a rating against the CSH, this does not mean that it is mandatory to build a "Code" home or have each new home assessed and certified against the CSH; a home could simply have a 'nil' rating under the CSH.

### CSH CATEGORIES

- 2.3 The CSH aims to encourage and reward best practice through the recognition of improvements made to the design of residential buildings. It evaluates buildings against a number of environmental criteria captured under nine environmental categories, ranging from:
- **Energy** – rewards energy efficiency and renewable energy generation;
  - **Water** – promotes water efficiency and water recycling;
  - **Materials** – rewards the responsible sourcing of materials;
  - **Surface water run-off** – encourages a reduction in surface water run-off from sites and management of flood risk;
  - **Waste** – promotes best practice with regards to waste management including greater recycling of waste during construction, and the provision of facilities to enable household recycling throughout occupation;
  - **Pollution** – promotes measures to reduce air and water pollution;
  - **Health and wellbeing** – promotes a healthy and comfortable internal environment;



- **Management** – rewards good construction site practises, provision of information to building occupants to encourage environmental awareness and addresses home security; and
- **Ecology** – encourages ecological protection and enhancement.

2.4 The CSH certified assessment is undertaken in two stages: a Design Stage and a Post Construction Stage Assessment:

- The first part of the CSH certified assessment is undertaken at the Design Stage (DS), in the period up to the issue of tender documents (RIBA Stages A-G). This assessment is undertaken on 'Code Dwelling Types' – groups of dwellings that share the same features – which reduces the repetition of assessment that would otherwise be required at the individual dwelling level. Following submission of the Design Stage Report the Building Research Establishment (BRE) will undertake quality assurance (QA) and then issue an 'Interim Certificate';
- As each dwelling is constructed and completed, the second stage of the CSH certified assessment commences, during which the assessor is required to confirm that each individual dwelling conforms to the design stage assessment or that any variations are reported and reassessed – known as the Post Construction Stage Assessment (PCSA). Under the CSH therefore, each individual dwelling undergoes assessment and receives its own certificate.

### **CSH LEVELS & SCORING**

2.5 Within each category, individual environmental criteria are allocated a specific number of integer credits. The total number of credits for each category is then multiplied by the category weighting factor, designed to reflect the importance of that environmental issue, which determines the points score relating to that category in the CSH.

2.6 The CSH has 6 Levels of achievement, as shown in the table below.

**Table 2.1 Levels of CSH Achievement**

CSH Levels		Total Points Score (equal to or greater than)
LEVEL 1	Equivalent to the Energy Saving Trust's (EST) Good Practice Standard for energy efficiency.	36
LEVEL 2		48
LEVEL 3	Equivalent to the EST's Best Practice Standard for energy efficiency.	57
LEVEL 4	Approximately equivalent to the PassivHaus/EST's Exemplary Standard for energy efficiency.	68
LEVEL 5		84
LEVEL 6	Aspirational standard based on zero carbon emissions and high performance across all environmental categories.	90

### MANDATORY CREDITS

2.7 Unlike the BRE's EcoHomes assessment, the CSH contains mandatory standards under the energy, water, materials, waste, and surface water run-off categories, which must be met before even the lowest level of the CSH can be achieved – known as 'entry level' requirements. In addition, the CSH demands incrementally higher standards for energy and water to be met at each performance level. For example, the Dwelling Emission Rate (ENE 1) and Internal Potable Water Use (WAT 1) must be better than the standard demanded by the Building Regulations before any CSH Level rating can be awarded, and the mandatory requirements grow more onerous with each higher level of the CSH.

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## **THE CSH PRE-CERTIFICATION ASSESSMENT**

- 2.8 The design team for Maygrove Road have committed to targeting a minimum CSH Level 3 rating with an aspiration to achieve a CSH rating of Level 4 for all the proposed residential dwellings on-site. This is considered to be a challenging requirement due to the mandatory standards set by the CSH, in particular for energy efficiency and water consumption.
- 2.9 Pursuant to this, the team has undertaken a CSH Pre-Certification Assessment ('pre-assessment') with a qualified CSH assessor from Environmental Perspectives LLP, in order to determine how the proposed development is performing against the CSH standards. The CSH pre-assessment is based on the design drawings available at the time of review and commitments by the team to incorporate environmental features at the appropriate stage as detailed design and construction commences.
- 2.10 At the pre-assessment stage, the CSH appraisal is required to be conservative in order to avoid a situation arising where credits are awarded optimistically, which then have to be taken away later during the certification process. It may therefore, be the case that more credits can be secured for this development as the design and construction stage progresses, even if they are not reflected in this pre-assessment. Likewise, it should be noted that credits targeted at this stage might not be feasible as the design and construction progresses and situations change.

## **THE CERTIFIED ASSESSMENT**

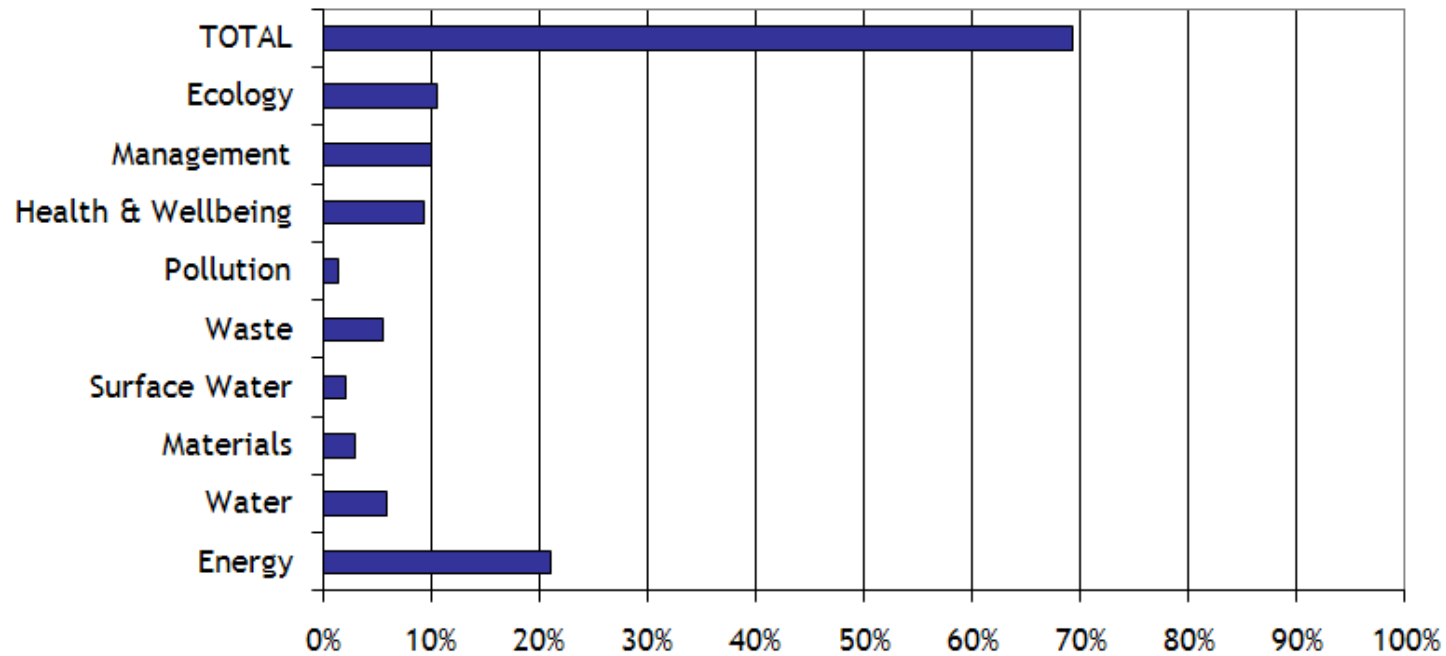
- 2.11 To secure the CSH credits at the certified assessment stage, the team are committed to providing all the necessary supporting evidence that will include, but is not limited to, design drawings (plans & elevations), calculations, copies of the design specification, manufacturer's literature etc. This information will become available for assessment as the design progresses.
- 2.12 Upon demonstration that all CSH target credits have been secured, a DS Report is submitted to the BRE for QA and Interim Certification. An Interim Certificate is then issued for each dwelling type once it has passed the QA process.
- 2.13 The second stage of a CSH assessment comprises a PCSA of each dwelling within the development under assessment. This is mandatory and takes place following construction. During the PCSA, documentary, photographic or site survey evidence must be collated to demonstrate that each dwelling has been built in accordance with the details given at the DS Assessment. Certain pieces of evidence may apply to more

than one dwelling, but each dwelling must have a suitable audit trail of evidence to justify the award of the final credit score. On completion of the PCSA, a Final CSH Report is submitted to the BRE in order to receive Final CSH Certificates for each dwelling.

## **CSH PERFORMANCE**

- 2.14 The design team for the proposed development at Maygrove Road is targeting a minimum CSH rating of Level 3, with an aspiration to achieve a CSH rating of Level 4. Pursuant to this, a CSH pre-assessment has been progressed and confirmed with relevant design team members in July 2011. The aim of this pre-assessment was to identify the opportunities and constraints of the application site and the proposals, and maximise the opportunities to enhance the environmental performance of the design.
- 2.15 During the pre-assessment, the likely credits that will contribute to achieving the target rating of Level 3, with an opportunity to achieve a Level 4 were identified.
- 2.16 The pre-assessment has provided a framework for a design that is likely to achieve a CSH points score of 69.32%, which equates to a Level 4 rating. Please note that the minimum score necessary for a Level 4 rating is 68%.
- 2.17 Figure 2.1 below shows the breakdown of targeted credits by section under this assessment.

**Figure 2.1 CSH Performance by Section**



- 2.18 It is important to note that we would like to endeavour to provide a buffer percentage to ensure the achievement of the target rating. This buffer acts as an 'insurance policy' so that as the design team progress through the certified assessment process, should any of the targeted credits prove unfeasible, their loss will not impact upon the overall rating. An ideal buffer score is at least 2%.
- 2.19 The credit framework we have identified for achieving the target rating is based on a number of assumptions which will need to be substantiated by team members prior to final confirmation of their feasibility.

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## HOW TO USE THIS REPORT

- 2.20 This report is not intended to provide full guidance for design team members. We provide a separate online system of credit guidance during the CSH certification process that includes the identification of relevant design team members for each credit so that responsibilities have been appropriately allocated. This seeks to ensure that the actions required to achieve the target rating are undertaken.
- 2.21 However, to provide comfort that the design team are fully involved in the achievement of the targeted credits, Section 3.0 provides a list of all the design team members who have initially been allocated responsibility for providing evidence to demonstrate achievement of the credits targeted. It is then the responsibility of that design team member, when it comes to the certification stages, to undertake the compliance requirements pertinent to their allocated credits as listed under each category, i.e. Management, or Land Use & Ecology etc.
- 2.22 Appendix 1.0 contains a tabulated credit summary, listing all those credits that have been targeted and form the framework for achieving the 'Very Good' rating. Appendix 1.0 also identifies those credits that are not considered appropriate to target due to site/development constraints that make their achievement unfeasible. Against each of the credits the relevant design team member is listed where possible (as designated in Section 5.0), indicating where we understand the responsibility lies for demonstrating achievement of the credits targeted.

### 3.0 DESIGN TEAM MEMBERS

Design Team	Company	Representative
Client	REP Maygrove Road Developments	Roger Walsh
Architect	Smith Lam Architects	Raymond Lam
Planning	Rolf Judd Planning	Sean Tickle
Mechanical & Electrical Engineer	SpencerMayes	Jon Mayes
Structural Engineer	Pringuer-James Consulting Engineers	Sean Pringuer-James
Contractor	tbc	tbc
Environmental Consultant	Environmental Perspectives	Olivia Finch
Transport Consultant	Paul Mew/John Ross	Paul Mew Associates
Sunlight/Daylight Consultant	Schroeders Begg	Ian Dias/Michael Ney

## 4.0 CSH FRAMEWORK SUMMARY

4.1 We have provided below a summary of the environmental performance measures targeted within each CSH category, explaining the pathway to achieve compliance for the Level 4 rating and the additional benefits that would arise at both the construction and operational stages to the client and any future operators.

### ENERGY

4.2 18 credits are targeted on the pathway to a Level 4 rating for CSH within this category.

4.3 The framework to meet these ratings is based upon aspects of the design process and development that are being undertaken in order to improve as far as is practical, the energy efficiency of the building. Credits associated with the following measures will therefore be targeted:

- Ensuring the building is well insulated in order to minimise heat loss from the dwellings;
- Use of Energy Display Devices (e.g. smart meters) to promote the empowerment of dwelling occupants to reduce electrical energy use;
- Specification of drying space to promote reduced energy means of drying clothes;
- Specification of energy efficient white goods;
- Use of energy-efficient external lighting with all external fittings controlled for the presence of daylight sensors; and
- Use of low and zero carbon technologies to limit both the CO<sub>2</sub> and running costs arising from the operation of a dwelling and its services;

4.4 Finally, the proposed development will be provided with secure, convenient and weatherproof cycle storage spaces in order to help minimise emissions associated with car use.

4.5 As a result of the planned energy efficiency measures and the low carbon heat and power supply to the assessed dwellings, the proposed development will achieve a 25% improvement on the target CO<sub>2</sub> emissions rate required by the 2010 Building Regulations Part L.



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## **WATER**

- 4.6 4 credits are targeted in the Water category on the pathway to a Level 4 rating. The following measures will be committed to by the design team in order to reduce the consumption of potable water.
- 4.7 To specifically reduce consumption of potable water within the proposed dwellings, water efficient fittings, appliances and water recycling systems will be specified where possible in order to limit internal water consumption to less than 105 litres/person/day. The following water efficiency measures could therefore be expected for incorporation within a typical dwelling:
- 4/2.6 litre dual flush WCs;
  - Taps with low flow regulators (e.g. timed turn off, electronic, spray or aerated);
  - Showers with a nominal flow rate of 6 litres per minute (at 1.5 bar pressure); and
  - Small size baths.
- 4.8 In addition external water use will be targeted in order to promote the recycling of rainwater through the specification of a *sufficiently sized* rainwater collection system for irrigation, where feasible in line with the credit compliance requirements.

## **MATERIALS**

- 4.9 Under the pathway to a CSH Level 4 rating, 10 materials credits have been targeted.
- 4.10 The team have committed to using construction materials that have a low environmental impact over the full life cycle of the building by specifying as many building elements as possible with a high rating under the Green Guide to Materials Specification.
- 4.11 In addition credit Mat 3 has been targeted which specifies that 80% of certain building elements are responsibly sourced.

## **SURFACE WATER RUN-OFF**

- 4.12 The full 4 credits are targeted under the Surface Water Run-Off category.

4.13 Firstly, full credits have been targeted under Sur 1 for incorporating Sustainable Drainage Systems (SuDS) to help meet the mandatory requirement to ensure that peak run-off into watercourses is no greater for the developed site than it was for the pre-development site through the development of a drainage strategy.

4.14 Additionally, 2 credits will be targeted for the site location being within an area deemed to be a '*low flood risk zone*'.

### **Waste**

4.15 7 credits are targeted in the waste category for the proposed development's pathway to CSH Level 4.

4.16 For the construction phase a Site Waste Management Plan (SWMP) will be produced that will ensure procedures and commitments are put in place for the following:

- Monitoring of waste generated on-site;
- Setting of targets for minimising the amount of waste generated on-site; and
- Sorting, reuse and recycling construction waste, either on-site or through a licensed external contractor, in order to divert at least 85% of non hazardous construction waste from landfill.

4.17 In order that the residents of the proposed development maximise the opportunities provided for recycling, the applicant will provide internal and/or external storage for waste including recycling facilities for each dwelling to cater for recyclable waste (separate to any bins provided for other non-recyclable waste).

### **POLLUTION**

4.18 In an effort to prevent and control potential forms of pollution arising from the proposed scheme 2 credits have been targeted under the CSH Pollution category.

4.19 Pol 1 has been targeted following a commitment to ensure that all insulant materials used in the dwelling will have a Global Warming Potential (GWP) of less than five in order to minimise the environmental impacts associated with the release of building-related air pollutants.

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- 4.20 In addition, one credit has been targeted under Pol 2, which will aim to reduce the level of NO<sub>x</sub> emissions associated with the proposed developments heating source.

### **HEALTH & WELL-BEING**

- 4.21 Within the Health and Well-being category credits have been awarded where commitments have been made to help improve the quality of life of future residents.
- 4.22 The design team have committed to provide improved sound insulation. 3 credits will be achieved under Hea 2 where airborne sound insulation values are at least 5db higher and impact sound insulation values are at least 5db lower than the performance standards set out in the Building Regulations Part E for England and Wales.
- 4.23 Additionally credits will be awarded for the provision of private/semi-private outdoor space for all residents to enjoy.
- 4.24 Finally, in order to provide future residents with easily accessible and adaptable homes that meet the changing needs of current and future occupants, full under Hea 4 have been targeted for meeting the Lifetime Homes standard in all dwellings.

### **MANAGEMENT**

- 4.25 All 9 credits have been targeted in the Management category under the CSH assessment for the proposed development.
- 4.26 Credits have been targeted in order to ensure best practise site management during the construction phase of the development, requiring a high Considerate Constructors Scheme (CCS) score and implementation of construction site best practices to minimise potential environmental impacts.
- 4.27 The applicant will also provide all tenants with a simple Home User Guide, covering information relevant to the 'non-technical' home occupier, including details of the sustainability performance of the home.
- 4.28 Finally, the team will ensure an Architectural Liaison Officer (ALO) is consulted early in the design process regarding recommendations for security so that the development meets 'Secure by Design' principles that minimise any opportunity for crime.

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## ECOLOGY

- 4.29 8 of 9 credits are targeted on the pathway to a Level 4 rating under the Ecology category.
- 4.30 In general, the Ecology credits that have been specified seek to enhance the on-site ecology and mitigate any negative effects, where feasible, during the construction and operational phases. The client will appoint a suitably qualified ecologist prior to any site clearance works to advise on suitable ecological enhancement techniques and strategies. Recommendations on species rich planting and other potential measures such as bird and bat boxes may therefore be recommended for incorporation into the development to enhance biodiversity on site and in the surrounding area. Amenity spaces will contain soft landscaping areas with plants and trees that bring ecological value to the site. It is therefore anticipated that the overall ecological value of the site will be increased.
- 4.31 In addition, credits have been targeted for making the most efficient use of the buildings footprint by ensuring that the proposed development optimises its land and material use.

## CONCLUSION

- 4.32 This CSH Framework report has set out the pathway to achieve a CSH Level 4 rating for the proposed residential development at Maygrove Road in LB Camden. The framework to meet these ratings is based upon the achievability and appropriateness of the credits for both the current and any future design of the proposed development.
- 4.33 This report highlights the proposed development's sustainability credentials and environmental performance through compliance with CSH standards. To attain a CSH Level 4 for the residential element, the score that is anticipated to be achieved is 69.32%. We would always recommend that a score of at least 1 or 2 points above the minimum score is aimed for during the pre-planning stages to ensure that during the certification stage and the BRE third party review of the final certified report, in the rare event that a credit was disputed and quashed, the target rating would still be likely to be achieved.
- 4.34 An achievable pathway to a CSH Level 4 rating has therefore been committed to by the client team. Following this 'Framework' report, a CSH Design Stage and eventually a Post-Construction Stage Assessment are recommended in order to gain full CSH certification for the proposed development.

## 5.0 APPENDIX 1.0 CSH CREDIT FRAMEWORK SUMMARY

Ref	Credit	Available	Targeted	Responsibility
<b>Energy and Carbon Dioxide Emissions</b>				
Ene 1	Dwelling Emission Rate	10	3	Mechanical Engineer
Ene 2	Building Fabric	9	5	Architect
Ene 3	Energy Display Devices	2	2	Project Manager
Ene 4	Drying Space	1	1	Architect
Ene 5	Energy Labelled White Goods	2	1	Project Manager
Ene 6	External Lighting	2	2	Mechanical Engineer
Ene 7	Low or Zero Carbon (LZC) Technologies	2	2	Mechanical Engineer
Ene 8	Cycle Storage	2	1	Architect
Ene 9	Home Office	1	1	Architect
<b>Section Total</b>		<b>31</b>	<b>18</b>	
<b>Water</b>				
Wat 1	Indoor Water Use	5	3	Project Manager
Wat 2	External Water Use	1	0	Architect
<b>Section Total</b>		<b>6</b>	<b>3</b>	

Ref	Credit	Available	Targeted	Responsibility
<b>Materials</b>				
Mat 1	Environmental Impact of Materials	15	8	Architect
Mat 2	Responsible Sourcing of Materials - Basic Building Elements	6	0	Contractor, Architect
Mat 3	Responsible Sourcing of Materials - Finishing Elements	3	2	Contractor, Architect
<b>Section Total</b>		<b>24</b>	<b>10</b>	
<b>Surface Water Run-off</b>				
Sur 1	Management of Surface Water Run-off from Developments	2	2	Landscape Architect/FRA consultant
Sur 2	Flood Risk	2	2	Other
<b>Section Total</b>		<b>4</b>	<b>4</b>	
<b>Waste</b>				
Was 1	Storage of Non-Recyclable Waste and Recyclable Household Waste	4	4	Architect
Was 2	Construction Site Waste Management	3	3	Contractor
Was 3	Composting	1	0	Architect
<b>Section Total</b>		<b>8</b>	<b>7</b>	
<b>Pollution</b>				
Pol 1	Global Warming Potential (GWP) of Insulants	1	1	Architect, Contractor
Pol 2	NO <sub>x</sub> Emissions	3	1	Mechanical Engineer
<b>Section Total</b>		<b>4</b>	<b>2</b>	

Ref	Credit	Available	Targeted	Responsibility
<b>Health &amp; Wellbeing</b>				
Hea 1	Daylighting	3	0	
Hea 2	Sound Insulation	4	3	Acoustician, Architect
Hea 3	Private Space	1	1	
Hea 4	Lifetime Homes	4	4	Architect
<b>Section Total</b>		<b>12</b>	<b>8</b>	
<b>Management</b>				
Man 1	Home User Guide	3	3	Project Manager
Man 2	Considerate Constructors Scheme	2	2	Contractor
Man 3	Construction Site Impacts	2	2	Contractor
Man 4	Security	2	2	Architect
<b>Section Total</b>		<b>9</b>	<b>9</b>	
<b>Ecology</b>				
Eco 1	Ecological Value of Site	1	1	Ecologist
Eco 2	Ecological Enhancement	1	1	Ecologist
Eco 3	Protection of Ecological Features	1	1	Ecologist
Eco 4	Change in Ecological Value of Site	4	3	Ecologist
Eco 5	Building Footprint	2	2	Architect

Ref	Credit	Available	Targeted	Responsibility
<b>Section Total</b>		<b>9</b>	<b>8</b>	
<b>OVERALL TOTAL</b>		<b>107</b>	<b>69.32</b>	<b>LEVEL 4 Targeted</b>