green shoots
ecology

Code for Sustainable Homes Ecology Report & Recommendations

69 Highgate High Street, London, N6 5JX

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Author: Dan Sullivan (Senior Ecologist, Green Shoots Ecology Ltd.)

8 Darnley Road
Woodford Green
London IG8 9HU

T: 020 8989 4114
M: 07776 484 947

1. Introduction

Surveyor

1.1 The surveyor and the author of this report is Dan Sullivan MCIEEM, Senior Ecological Consultant and Director of Green Shoots Ecology Ltd.

Client

1.2 Mike Russum of Birds Portchmouth Russum Architects Ltd. instructed Green Shoots Ecology.

Proposed Development Site

1.3 The site is located at 69 Highgate High Street, London, N6 5JX.

Survey Instructions

1.4 The client instructed Green Shoots Ecology to carry out a Code for Sustainable Homes Ecology Survey to fulfil the Code's requirements and give recommendations to gain credits for sections ECO1 to ECO5. Dan Sullivan is a Suitably Qualified Ecologist and therefore able to make recommendations for Code for Sustainable Homes Report. He has over 14 years experience as a full-time Ecological Consultant and is a full member of the Chartered Institute of Ecology and Environmental Management.

1.5 The Code for Sustainable Homes is the national standard for sustainable design and construction. The Code aims to reduce carbon emissions and increase sustainability of homes. The relevant sections of the Code in terms of ecology are sections ECO1 to 5. This report was commissioned also to give recommendations which if followed would give credits for these sections. These sections have the following aims:

ECO1: To promote development on land that already has a limited value to wildlife, and discourage the development of ecologically valuable sites.

ECO2: To enhance the ecological value of a site.

ECO3: To promote the protection of existing ecological features from substantial damage during the clearing of the site and the completion of construction works.

ECO4: To minimise reductions and promote an improvement in ecological value.

ECO5: To promote the most efficient use of a building's footprint by ensuring that land and material use is optimised across the development.

Survey constraints

1.6 In most cases a site visit is made for a Code for Sustainable Homes survey. In the case of the current site the baseline ecological value of the site has been determined using evidence from photographs, site plans and similar. These were supplied by the developer and clearly show habitats and features present before development. As a result it was not considered necessary to visit the site before producing this report.

2. Site biodiversity and planning

2.1 As planning permission was given for this development it has been assumed that any issues regarding protected species or other ecological issues had been resolved through the planning process before site clearance.

2.2 National Planning Guidance for Local Authorities is contained within the National Planning Policy Framework 2012 (NPPF). Section 11 (Conserving and enhancing the natural

environment) includes the statement that:

When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:

- Development proposals where the primary objective is to conserve or enhance biodiversity should be permitted.

- Opportunities to incorporate biodiversity in and around developments should be encouraged.

In order to gain credits for the code for sustainable homes, recommendations to enhance the site ecology are made. If carried out these will help to fulfil the requirements of the National Planning Policy Framework, Section 11 and also enable credits for the Code for Sustainable Homes Ecology Section to be obtained.

3. Code for Sustainable Homes Recommendations for Category 9: Ecology

Eco1: Ecological Value of Site

3.1 This criterion is to encourage, wherever possible, development on land that already has a limited value to wildlife and to discourage the development of ecologically valuable sites. There is **one credit** available for this unit.

3.2 This site and construction zone (area within 3m of site boundary) currently contains only hardstanding and a one-storey brick and wood building with a sloping felt covered roof. It contains no vegetated areas, trees, hedges, ponds or other ecological features. It is therefore of low ecological value with no ecological features of value. As a result a credit should be awarded for this section.

Eco 2: Ecological Enhancement

3.3 The aim here is to enhance the ecological value of the site and **one credit** is available. The credit is awarded when features have been designed for positive ecological enhancements by a consultant ecologist. The ecologist recommends key recommendations and additional recommendations. To obtain the point the developer must implement all key recommendations and 30% at least of all additional recommendations.

Key Recommendation

3.4 The following recommendation is a key recommendation; it must be implemented to obtain a credit. As the entire site will consist of a building with no garden area the only way to significantly enhance the site ecologically is to add suitable habitat to the roof area.

R1: It is recommended that a green roof is included within the development. Addition of a green roof would create a new vegetated area in a previously unvegetated site. Green roofs provide a suitable habitat for a range of invertebrates and plants.

R2: Any green roof added should contain at least 10 different sedum species so as to provide a range of flowering species. Having a range of flowering species means that the overall period when flowers are likely to be available for pollinating insects is likely to be lengthy compared to roofs with only a few species. This is because different species often flower in different months.

R3: At least 5 other non-sedum drought resistant herbaceous plant species should also be added to the green roof to diversify the types of plants present and also the flower shapes produced as different flower shapes attract different pollinators. For instance long, tubular flowers attract bumblebees while hoverflies favour flowerheads with numerous small flowers such as the type of flowers found in Umbelliferous plants.

Additional recommendations: At least one of these recommendations should also be carried out:

R4: Three log piles consisting of non-coniferous tree logs should be placed on the green roof in the brown roof area. A wide range of species rely on dead wood, including the globally threatened stag beetle (*Lucanus cervus*), a London Biodiversity Action Plan priority species. Any log piles added should be a minimum of 1 metre long and a minimum of 50cms high, but preferably higher and wider.

R5: Solitary bee nesting boxes or insect hotels should be added to the green roof. Two should be added. These are available online from a variety of retailers. Any described as suitable for solitary bees are acceptable. These have been shown to be effective and readily used. Solitary bees are important pollinating insects. These should be put in sunny areas.

R6: Lack of water on sedum roofs can restrict the variety of invertebrate species that can be found. It is recommended that at least 2 shallow containers are added to the green roof to provide temporary pools which can provide water for birds and invertebrates. The containers can be plastic or any other non-toxic impermeable material. The containers should be between 5-15 cms deep and between 0.25-1.00 square metres in area. These will fill up regularly with rain water.

3.5 Once the developer has decided which recommendations will be implemented then the developer will have to supply detailed documentary evidence stating:

• How the key recommendations and 30% of additional recommendations
will be incorporated into the design
• The planting schedule of any species to be incorporated from suitably
qualified ecologist's recommendation (this has already been supplied).

Eco 3; Protection of Ecological Features

3.6 There is **one credit** available for protecting all existing features of ecological value including from damage during site preparation and construction works.

3.7 The evidence showing habitats and features present before site clearance showed no trees, hedges or other features of ecological value to be present. Therefore a credit for Eco 3 is likely to be awarded by default.

Eco 4; Change in Ecological Value of Site

3.8 There are a total of **four credits** available under this criterion and they are awarded for steps taken to minimise reduction in ecological value and encouragement of improvements. Ecological value is based on numbers of native or wildlife friendly plant species. 1 Credit is awarded for a change of ecological value of between -9 and -3, 2 for between -3 and +3, 3 for a change of between +3 and +9 and 4 for an increase greater than +9.

3.9 The change in ecological value of the site after development depends on the combined changes in areas of vegetated habitats and their species compositions. The site is currently occupied entirely by building and hardstanding with no vegetation. Therefore the current ecological value of the site is 0. After development there will be a green roof and therefore an increase in ecological value.

3.10 Ecological value after development is based on number of native and ecologically valuable plant species still alive one year after development and total areas of each habitat type. This is calculated by:

1) Multiplying the area of each habitat by the number of relevant species within that habitat
2) Adding the totals of habitat areas x species calculated in 1) above
3) Dividing the total for 2) above by the total site area – this gives the ecological value

As mentioned credits can be gained as follows:

• Minor negative change: between –9 and less than or equal to –3   - One credit
• Neutral: greater than –3 and less than or equal to +3   - Two credits
• Minor enhancement: greater than 3 and less than or equal to 9   - Three credits
• Major enhancement: greater than +9   - Four credits

The client has provided details of planting on site in a green roof as well as total area of green roof and total site area. From this it is possible to calculate an ecological value of the site after development. The table below shows calculation of this value:

Table 1: Ecological Value of Site after Development

Habitat	Possible Area m2	Number of ecologically valuable species	Area x species
Hardstanding and buildings	47	0	0
Green roof	22	18	396
Totals	69		396
Ecological value			5.73

As the ecological value of the site before development was 0 three credits would be achieved for this section as the value after development is 5.73, an increase of 5.73. This would be sufficient to gain two credits for a minor enhancement (change of ecological value greater than +3 and less than or equal to +9).

Eco 5; Building Footprint

3.11 There are a total of **two credits** available for this section.

The first credit is given for houses, where the net internal floor area: net internal ground floor area ratio is greater than or equal to 2.5:1. For blocks of flats the first credit is achieved where the net internal floor area: net internal ground floor area ratio is greater than or equal to 3:1. For a combination of houses and flats the first credit is achieved where the ratio of total net internal floor area: total net internal ground floor area of all houses and flats (i.e. the site-wide footprint to floor area ratio) is greater than the area weighted average of the two target ratios above.

The second credit is achieved as follows - for houses, where the net internal floor area: net internal ground floor area ratio is greater than or equal to 3:1 OR For blocks of flats, where the net internal floor area: net internal ground floor area ratio is greater than or equal to 4:1 OR For a combination of houses and flats, the ratio of total net internal floor area: total net internal ground floor area of all houses and flats (i.e. the site-wide footprint to floor area ratio) is greater than the area weighted average of the two target ratios above.

3.12 The client has stated the net internal floor area of the whole maisonette is 109.3 m² and net internal area of the ground floor is 11 m². This gives a ratio of over 9:1 and the development is classed as a house or houses. The remainder of the ground floor is outside of residential use and so not included. As the ratio is greater than 3:1 then 2 credits should be awarded for this section.

4. <u>Summary</u>

Table 1: Predicted credits awarded for BREEAM ecology section

Section	Credits likely to be awarded	Comments
ECO1: To promote development on land that already has a limited value to wildlife, and discourage the development of ecologically valuable sites.	1	Development area is classed as low ecological value according to the scheme.
ECO2: To enhance the ecological value of a site.	1	Credit would be awarded providing the recommendations for this section were carried out.
ECO3: To promote the protection of existing ecological features from substantial damage during the clearing of the site and the completion of construction works.	1	No features of ecological value were known to be present on site before site clearance, so a credit likely to be awarded for this section by default. .
ECO4: To minimise reductions and promote an improvement in ecological value.	3	The proposed planting plan for the green roof would result in a "minor ecological enhancement" of the site. As a result 3 credits should be obtained.
ECO5: To minimise building footprint.	2	The ratio of internal floor area to ground floor area is greater than 9:1. Therefore 2 credits should be awarded.
Total	8	

5. <u>References:</u>

Department for Communities and Local Government (2010). Code for Sustainable Homes Technical Guide
Office of the Deputy Prime Minister (2005). Circular 06/2005: Biodiversity and Geological Conservation. Para. 99.
Office of the Deputy Prime Minister (2005). Planning Policy Statement 9: Biodiversity and Geological Conservation. London: HMSO