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Updated Mitigation statement and Habitat Creation and Management Plan

**Land at Bartons Road,
Havant**

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Report Summary:

- 1. This report outlines mitigation measures for a residential development on the southern side Bartons Road bounding the eastern edge of Havant, where a common pipistrelle bat roost and a population of reptiles has been identified.**
- 2. Mitigation measures outlined within this document include the creation of new wildflower meadow habitat, native tree and shrub planting, new roosting habitat for bats, pond restoration and the creation and management of a new reptile receptor area.**
- 3. This Mitigation Statement has been updated following the approval of outline planning permission at this site and the issue of a reserved matters application by Bellway Homes.**

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Table of Contents

1	INTRODUCTION.....	3
1.1	BACKGROUND.....	3
1.2	RATIONALE.....	4
2	PRE-CONSTRUCTION MITIGATION MEASURES.....	5
2.1	ON-SITE CONSERVATION.....	5
2.2	REPTILE FENCING.....	6
2.3	REPTILE TRANSLOCATION STRATEGY.....	9
3	CONSTRUCTION PHASE MITIGATION MEASURES.....	11
3.1	POND ENHANCEMENT MEASURES.....	11
3.2	GRASSLAND ENHANCEMENT.....	12
3.3	WILDFLOWER MEADOW CREATION.....	13
3.4	ENHANCEMENTS AND MITIGATION FOR BATS.....	13
3.5	ENHANCEMENTS FOR NESTING BIRDS.....	17
4	POST CONSTRUCTION MANAGEMENT.....	18
4.1	MANAGEMENT PLAN OPERATIONS.....	18
4.2	POST-CONSTRUCTION REPTILE MONITORING.....	18
5	APPENDIX 1 – LANDSCAPE PLAN PRODUCED BY TERRA FIRMA	ERROR! BOOKMARK NOT DEFINED.



1 INTRODUCTION

1.1 Background

The Ecology Co-op has been commissioned by Bellway Homes to outline mitigation measures for the residential development of land on the southern side Bartons Road bounding the eastern edge of Havant. Following surveys at this site by The Ecology Co-op through 2014 and 2015, it was determined that a low population of common lizards (*Zootoca vivipara*) and slow worms (*Anguis fragilis*) was present, whilst a solitary common pipistrelle bat roost was also identified within a mature turkey oak tree at the western edge of the site. The enhancement of the value of the site for foraging and roosting bats is a material consideration of this document as well as ensuring that the reptile population is protected.

This document has been written in order to demonstrate the ecological mitigation and enhancement measures for implementation during the construction of a large housing development of up to 175 new homes, the creation of a new reptile receptor area dedicated for wildlife interest and a variety of enhancements for biodiversity along newly created green spaces throughout the development.



Figure 1 – The Bartons Road site as shown from aerial imagery on a north-south axis and outlined in red.



This document outlines all mitigation and compensation measures necessary to ensure that wildlife and particularly reptiles and bats are protected at the Bartons Road site. All of the prescribed mitigation and habitat creation measures within this document will be implemented into the site development in full through a series of 'prescriptions' outlined within a full Mitigation Statement to be submitted with a full planning application, or in order to release a planning condition.

1.2 Rationale

Reptiles

Slow Worms, Adder, Grass Snakes and Common Lizards are protected against intentional killing or injuring and trade under part of subsection 9(1) and all of subsection 9(5) of the Wildlife and Countryside Act 1981. Destruction of known habitats whilst reptiles are present may therefore lead to an offence.

British bats (*Vespertilionidae* and *Rhinolophidae*) are listed on *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended), and receive full protection under *Section 9*. These species are also all listed as European Protected Species on *Schedule 2* of the *Conservation (Natural Habitats, etc.) Regulations 1994* which gives them full protection under *Regulation 39*. Protection was extended by the *Countryside and Rights of Way Act 2000* (the CRow Act). Under the above legislation it is an offence to:

- kill, injure or take an individual;
- possess any part of an individual either alive or dead;
- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by these species for shelter, rest, protection or breeding;
- intentionally or recklessly disturb these species whilst using any place of shelter or protection; or
- sell or attempt to sell any individual.

Bats

All species of British bat are included as priority species in the *UK Biodiversity Action Plan* and as species of principal importance for the conservation of biological diversity in England under *Section 74* of the *Countryside and Rights of Way (CRow) Act 2000*.

Birds

Certain species are listed on *Schedule 1* of the *Wildlife and Countryside Act 1981* (as amended) and receive protection under *Sections 1(4)* and *1(5)*. The protection was extended by the *Countryside and Rights of Way (CRow) Act 2000*. There are special penalties where the offences listed above are committed for any *Schedule 1* species and it is also an offence to intentionally or recklessly:

- disturb any such bird when it is building its nest or while it is in or near a nest containing dependant young; or
- disturb the dependant young of any such birds



2 *PRE-CONSTRUCTION MITIGATION MEASURES*

2.1 *On-site Conservation*

The layout of the proposed development has been designed to be sympathetic to the greatest features of interest upon the site at present. As such, an existing pond, a semi-mature woodland plantation and some mature 'in-field' trees will be retained and enhanced where possible.

The Ecology Co-op has worked with the landscape architects through this proposal to prescribe a landscaping scheme that is both aesthetically desirable, as well as being of notable value for wildlife. This includes native species rich grassland establishment and native tree planting. In addition to the basic plan in Figure 3 below, a further detailed landscape plan has been produced by ACD and has been submitted separately.



Figure 3 – Proposals for habitat retention, enhancement and creation at Bartons Road.

2.2 Reptile fencing

The whole of the construction zone would need to be fenced where it borders grassland habitat in the form of the field corner at the northern end of the site and the grassland buffer strip along the northern and western boundaries in order to ensure that there is an impassable barrier between the development and habitat that may be used by reptiles.



Some natural barriers to movement will be used to reduce the total area that would need to be fenced. As such, the southern and eastern boundaries of the site, which lie within the arable field (and are thus totally unsuitable habitats for reptiles) will not be fenced (see Figure 5 below). A semi-permanent polypropelene material that is tough and stabilised against ultraviolet light should be installed to a depth of not less than 20cm below ground and supported by stakes every 2 metres fixed with clout nails and washers. The fencing should be backfilled with earth and tightly compacted to make sure that it acts as an impassable barrier. The advantage of the semi-permanent fence is that it is less susceptible to damage by dogs, deer, foxes and other animals as well as any accidental damage by construction staff and is suitable for developments where fencing may need to remain in-situ over a long period of time.



Figure 4 – an example of the semi-permanent fencing material that is recommended.

The reptile fencing would be required to make a continuous fence line around all suitable reptile habitats and would need to remain in-situ until all construction work deemed a risk to reptiles has been completed – i.e. earthworks and associated landscaping. Figure 5 below shows the proposed route of the reptile fence on aerial imagery (to make it easier to see).



Figure 5 – the recommended route for reptile barrier fencing, using Bartons Road to the north and the arable field as barriers to movement.

Habitat Manipulation

Habitat manipulation techniques will be used to help reduce the impact of the reptile fencing installation and also to help focus the reptile trapping effort following the first 30 trapping visits. By slowly strimming tall grass on a day when the temperature is above 9 degrees Celsius and reptiles are mobile, grassy areas can be very slowly strimmed in two passes. The idea is to strim the grass on the first pass to a height of approximately 10-15cm, which is low-risk to most reptiles and then rake off the cuttings. A second pass is then made aimed to take the grass height down to below 5cm having already disturbed the ground and encouraged reptiles to move away. The now very short grass is much less likely to support reptiles as it offers very little cover from predators and all cuttings are again removed. Prior to the installation of the reptile fencing this method can be employed before March, when daily temperatures are regularly below 6 degrees and reptiles are usually inactive underground or within hibernacula, safely away from the grassy area being strimmed. A watching brief by a suitably qualified ecologist will be undertaken to ensure that the digging activity required for the fencing does not cause any harm to reptiles and ground disturbance is minimised.



2.3 Reptile Translocation Strategy

In line with current guidelines outlined by the Amphibian and Reptile Group UK (ARGUK), a total of 60 translocation visits will be made between mid March and October, with 'tins' (which can be bitumen and or corrugated metal sheets) placed at a density of not less than 100 per hectare of suitable habitat in line with ARGUK guidelines. Translocation visits will be undertaken as long as the air temperature is between 9 degrees and 18 degrees in the morning or mid afternoon in the absence of wet or very windy weather. All captured reptiles will be placed into a large smooth-sided bucket with some green hay at the bottom and then released onto the approved receptor sites. All translocation details would be recorded into a table such as the example below and submitted to the council upon request as evidence of the work undertaken.

Date	Start Time/finish of Survey	Air Temperature & refugia temperature °C	Weather Notes	Species Total	Notes
31/05/2016	10:15/11:15	15/25	100% high and light cloud cover, 5-10 mph wind	2M 3F 1 Juv Slow Worm 1M Common Lizard	

Table 1 – The table format that should be used to document the translocation process

Although the target no of trapping checks a minimum of 60 trapping visits, this should be used as a guide, with the total no of visits cut shorter if there is an early drop in captured numbers and at least 15 visits in suitable weather conditions are made without identifying any reptile presence within the construction zone. Although the construction zone will be declared free of reptiles following 15 clear visits, an ecologist must still be present during the initial construction phases to undertake a 'watching brief' of all initial ground works. This watching brief would be carried out to ensure that stripping of surface vegetation is undertaken carefully and under observation with construction halted if any wildlife is identified within the construction zone. Site staff must be briefed prior to the commencement of construction on the importance of protecting the reptile fencing and contacting an ecologist in the event that any reptiles or other wildlife is identified within the construction zone.

Reptile receptor sites

The retained grassland associated with the field corner bordering Bartons Road has been identified as a suitable receptor for reptiles. This field corner has existed for approximately 6 years and this suggests that the reptile population present is likely to be expanding (given



its recent colonisation since reversion from arable habitat).

This receptor site was surveyed in 2017 and was expanded into the southern half of an adjacent horse paddock as per Figure 6 below to allow for the . This assessment showed a medium population of slow worms (peak count of 12) and a low population of common lizards (peak count of two) is present across this field corner (please note that survey of the adjacent horse paddock was not possible for animal welfare reasons). The reptile receptor area in the southern half of the horse paddock was removed from grazing in the autumn of 2018 to allow the grass sward to recover from the tight-grazing that has been in place for several years and a taller and more suitable sward for reptiles has become established. As this habitat is connected to the field corner via a narrow strip of woodland and a grassy field boundary, reptile population movements between these habitats is possible.



Figure 6 – the proposed receptor sites (outlined in yellow), which will act to accept all reptiles captured upon the proposed construction zone. Existing hibernacula created in 2016 are shown as yellow stars and proposed new hibernacula for creation in 2018 are indicated as red stars.



3 CONSTRUCTION PHASE MITIGATION MEASURES

3.1 Pond Enhancement Measures

An existing pond situated close to the eastern boundary of the site is to be enhanced as part of the wider measures being implemented to increase biodiversity at the site. At present this pond has been identified to rarely hold water, contains some litter and is heavily shaded, meaning there is no notable aquatic vegetation associated with it.

The location of this pond upon a slight slope in the landscape and within an area of permeable ground, suggests that it may be an old clay lined artificial pond used to water livestock - a so called 'dew pond'. It also remains possible that the pond emerged around an old spring, though this appears less likely.

It is likely that the clay liner at this pond has failed and as part of the enhancement efforts to improve it, bentonite clay will be used to reduce the permeability of the pond bed. The appropriate application of bentonite clay powder will be determined following a permeability test, however method for applying the bentonite can be accurately outlined here.

The pond will be opened up, so that canopy cover over the pond is reduced to no more than 30% by area and a variety of aquatic plants will be introduced to the pond both to reduce the risk of invasive pond plants becoming established and also so that suitable habitat for a variety of aquatic fauna becomes established more quickly.

Timing

The work to improve the existing pond should commence around August, which is the time when the pond is expected to hold little water and there would be the least disturbance to any fauna associated with it. The work required to excavate the top layer of earth from the pond (see below) should be completed by September, although completing the outline planting proposals should be flexible through to the following spring.

Pond enhancement scheme

To ensure that the existing pond is improved to provide better habitat for aquatic invertebrates and other wildlife, the following actions are prescribed:

1. The pond bed must be scraped out to remove all of the detritus in the pond bed that would affect the ability of the bentonite clay to reduce the permeability of the pond.
2. Following completion of the pond excavation to remove the top layer of detritus, the base of the pond will be raked over before being assessed for its present permeability and calculating an appropriate application rate of bentonite clay



powder. Once the clay powder is applied, the bed will be rotavated to ensure that the clay binds with the pond bed.

3. Plug planting of some pond edge plants would be undertaken to speed up the restoration of the pond as well as to incorporate new species of wildlife interest. Plants to be introduced will include branched bur-reed (*Sparganium erectum*), purple loosestrife (*Lythrum salicaria*), water forget-me-not (*Myosotis palustris*), meadowsweet (*Filipendula ulmaria*) as well as aquatic plants including hornwort (*Ceratophyllum demersum*) and broadleaved pondweed (*Potamogeton natans*).
4. As the pond is presently heavily shaded on two sides, some thinning of the surrounding tree canopy should be undertaken, so that at least 70% of tree canopies overhanging the pond are cut back.

The pond edge planting area will cover a total of not less than 20 square metres, creating a valuable new habitat.

3.2 Grassland Enhancement

This section of enhancement applies only to the area of grassland identified within the reptile receptor area shown in figure 6. The main focus for this habitat is appropriate management, as an NVC assessment of this area of grassland has already shown that it is quickly improving in botanical diversity. As such, the following management and enhancement and management measures will be implemented:

- This grassland habitat will be cut once each year between mid August and mid September with the grass cutting machinery set to a cutting height not less than 10cm (so that risk of harming reptiles is reduced). If grass growth appears too coarse following the first year of cutting, then a second cut in the spring between March and mid May can also be made.
- After the cuttings have been left in place for a minimum of 24 hours so that seeds on cut plants have had time to shed, the cuttings must be gathered and composted (use of an 'on-site' composting area is acceptable).
- If any notifiable weeds under the weeds act are identified at any time, they must be hand treated with glyphosate only.

It is important that the contractors used for the management of this habitat are provided with a copy of the above prescriptions so that they are aware of the management requirements at this site.



3.3 *Wildflower Meadow Creation*

A large proportion of the amenity grassland areas, including an area bordering the drainage ditch running through the site, either side of the access road and around the retained in-field trees will be sown with a wildflower meadow mixture (see Appendix 1 plan by terra firma). This seed mixture should include at least 13 wildflower species, four grass species and all seeds must be of native British origin. In this instance Emorsgate Seeds mixture EM4 has been recommended, as it will suit the soil-type present and because the mixture includes a reference for the origin of all seed provided, ensuring that it is British.

The total area of available grassland at the site totals 10,829 square metres, with the majority of this grassland proposed for wildflower meadow creation or retention of existing grassland.

3.4 *Enhancements and mitigation for bats*

Roost protection

A common pipistrelle bat roost was identified within the turkey oak tree near to the western edge of the site during surveys by the Ecology Co-op in 2014 and 2015. This tree must remain undisturbed throughout the construction process, with the tree protection fencing designed to protect the tree itself helping to ensure that no construction activity of any kind will take place within reach of the tree canopy. Whilst common pipistrelle bats are amongst the most 'disturbance tolerant' of bat species, it is important that this roost is not subjected to excessive noise and visual impacts and no construction lighting must be allowed to splash onto this tree at any time, with all lighting kept a minimum of 20 metres from this base of this tree. This can be outlined in a subsequent 'Construction Management Plan' for the development within a future detailed planning application.

Measures to protect this roost and other potential future bat roosts on or around the site from artificial light are outlined in the following section below.

External lighting

Bright external lighting can have a detrimental impact upon foraging and commuting bats, but importantly can also cause bats to be fooled into thinking that the light is from the sun, causing them to remain in their roosts for longer. Guidelines issued by the Bat Conservation Trust should be incorporated into the lighting scheme at the Bartons Road development and the following measures must be implemented into the site design:

1. No 'upward pointing' or bare bulb lights will be installed anywhere on the development.
2. All external lights upon lamp-posts will not be more than 3.5 metres in height and will



have shields installed to focus light towards footpaths and roads only. No light will be allowed to emit light past horizontal (90 degrees from the ground).

3. A no-light zone must be established to protect the mature in-field trees and all boundary trees.
4. Any pedestrian ground lighting will not exceed 3 lux.
5. No external lights will be installed on new buildings above a height of 2 metres and all external lights will have shields to prevent light splash beyond horizontal.



Figure 7. An example of suitable downward shielded street lighting

A 'light free zone' is also proposed to ensure that the turkey oak trees are not subjected to excessive artificial light.

Improved bat flight paths

Within the site landscaping an improved flight path for foraging and commuting bats will be created along the eastern boundary. At present the large arable field is used very little by foraging and commuting bats, with the only notable activity from surveys in 2014 showing activity along the wooded western boundary. By creating a row of native trees, hedging and shrubs along the eastern boundary an improved flight line could be created for the benefit of these nocturnal animals between land to the north and south of this site. Because bats tend to navigate using such natural features, this new flight line could help to connect any establishing bat roosts within homes and mature trees to the wider landscape (see 'New Bat Roosting Habitat' section below). Figure 8 below shows how bats may use the new eastern boundary for commuting.



The total area of this new native shrub planting is 5481 square metres and will provide valuable habitat for nesting birds and invertebrates in addition to foraging and commuting bats.



Figure 8 – The new wooded eastern boundary will aid bat flight-path connectivity between woodland to the north of Bartons Road and land to the south.

New bat roosting habitat

In order to provide a net positive benefit for bats within the development, a number of bat roosts will be created in suitable locations across the site. These would be best situated on the existing mature in-field trees and trees bordering the site. As such, recommended enhancements are outlined below:

1. A total of 8 Schwegler woodcrete bat boxes would be hung on suitable mature trees within the site boundaries. The boxes would be hung by a suitably qualified ecologist to ensure that this positioning is most suitable, but generally locations above 3 metres in the most southeasterly facing aspect of a tree is best, using two 2F, two 2FN, two 1FF and two 1FS Schwegler bat boxes.



2. In line with Biodiversity Positive: Eco-towns biodiversity worksheet (Town and Country Planning Association, 2009), a total of 3 new dwellings will incorporate access suitable for serotine bats (*Eptesicus serotinus*). Access will consist of a series of 25mm gaps at the top of gable end brick walls or under fascia boarding leading to the area at the top of the cavity wall. These roosting points will be adjacent to areas of open green space, allowing serotines to emerge into an area of suitable foraging habitat.

3. A total of 15 new residential dwellings in close proximity to the site boundaries will incorporate features suitable for common and soprano pipistrelle bats. New roosting features will include 5 Schwegler 1FR bat tubes, 5 Schwegler 2FR bat tubes and 10 bat access tiles, which can be designed to match the roof tiles proposed for use within the construction design. Roofs where access tiles are installed will only use a bitumen non-fibrous membrane, which does not run the risk of fraying and trapping entangling bats as observed with some modern breathable membranes.



Schwegler 1 FD



Schwegler 1FS



Schwegler 1FF



Bat Tube 1FR/2FR



Bat access tile example

The specific location for roosting bats should be submitted with any future detailed planning submission.



3.5 Enhancements for Nesting Birds

In order to support declining house martins (*Delichon urbicum*) within the Borough, enhancements will be made within the site design in order to support this species. Already, the new wetland feature will help to create improved foraging habitat as there will be much higher invertebrate prey available, but in order to ensure that suitable nesting habitat is also available no less than 8 artificial nest boxes specific to house martins will also be incorporated into the development. Schwegler 9A nest boxes would be ideal for this purpose and can either be installed around the soffits of the new properties or built onto a stand-alone bird house.

The nest boxes must be installed at heights not less than 3 metres and in clusters of not less than 2 boxes approximately 30cm of each other (which encourages social nesting). The boxes should be installed towards the outside edge of the development and should not be situated on the exposed side (facing the prevailing wind).



The Schwegler 9A nest box

Additional bird boxes for some common nesting birds will also be provided, including three 1SP Schwegler 'sparrow terrace' boxes for positioning near to the soffit boards of new properties in any location and five Schwegler 1B nest boxes for installing at least 3 metres high on trees bordering the pond near the middle of the site.



The sparrow terrace and general purpose nest boxes



4 POST CONSTRUCTION MANAGEMENT

To ensure that the ponds and grassland across the site at the Bartons Road development are managed properly in the future, it is important that the following management operations are carried out in order to ensure that the value of these features is not adversely affected.

4.1 Management Plan Operations

The following management operations must be included within any long-term site management plan.

1. Bat boxes on trees would be inspected to check they had not become detached or damaged each year.
2. All of the wildflower meadow seeded grassland should be cut and gathered each year between mid August and the end of September. This is important to ensure that the grass does not become rank and coarse, which would lead to the development of poor grassland diversity. Grass cuttings should be collected and composted or used to build hibernacula that will support hibernating reptiles and amphibians on a patch of ground that will remain dry throughout the year.
3. All trees and hedges must only be cut outside the bird nesting season (1st March to 31st August) and where possible hedges shouldn't be cut until February, so that valuable winter food associated with fruiting trees is retained for over-wintering birds.

4.2 Post-construction Reptile Monitoring

In line with best practice it is important that the future reptile receptor site is monitored following the translocation process. It is advised that three monitoring surveys one year, three years and five years following the translocation process should be undertaken in order to establish if the receptor site has been effective in supporting the translocated reptile population. If there is evidence of a reduction in the reptile population, then it would mean further habitat enhancements may be necessary.