

Ecological Management &
Mitigation Plan

Land of Church Lane,
Climping

August 2021

Ecological Management & Mitigation Plan

Land of Church Lane, Climping

20/08/2021

Vivid and Climping Homes Ltd

Land West of Church Lane

Climping

West Sussex

BN175RG

Document Control:

Project no.	Project
9709	Land of Church Lane, Climping

Rev	Written by:	Checked by:	Authorised by:	Date
Rev0	Eleanor Hale	Richard Schofield	Richard Schofield	20 August 2021

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Contents

.....

1.	Introduction.....	1
2.	Objectives, Roles and Legislation.....	3
3.	Baseline Ecology	4
4.	Site Clearance	6
5.	During Construction	8
6.	Post Construction - Enhancement	10
7.	Maintenance	17
8.	References	20

Appendix A ⇒Habitat Survey Map

Appendix B ⇒Suggested Compensatory Planting

Appendix C ⇒Bat and Bird Box Designs

Appendix D ⇒Tree protective fencing specification

1. Introduction

Background

- 1.1 Phlorum Ltd has been commissioned by Vivid and Climping Homes Ltd to compile an Ecological Management Plan prior to development across land west of Church Lane, Climping (hereafter referred to as the site).

Site Description

- 1.2 The site is located at west of Church Lane, Climping. The site comprises of a large arable field. The east of the site is bordered by an area of hedge and trees. The south and southwest of the site consist of broad-leaved semi natural woodland. In the northern boundary of the site is a small area of evergreen hedgerow and limited areas of ruderal vegetation.
- 1.3 The site at Church Lane is within a relatively rural location within the centre of Climping in West Sussex. The site is bounded to the north by residential housing, and Horsemere Green Lane and to the east by Church Lane. Yapton Road bounds the site to the west and Crookthorn Lane is directly south.
- 1.4 In wider surrounds, agricultural land dominates the landscape south, east and west with residential properties and commercial buildings to the north. Littlehampton is located approximately 1.5km to the east and the coastline is approximately 1.3km to the south
- 1.5 The National Grid Reference for the centre of the site is grid reference TQ 00082 02044. The survey area extended over approximately 25 hectares (ha).

Proposed Development

- 1.6 It is understood that the current proposals for the site are for a residential development, including the provision of green space and creation of ponds. A new junction will also be required between the A259 and Church Lane. It is understood the woodland within the southern and western site extents will be retained except for a discrete area within the eastern site extent to make way for the new junction.

Ecological Management Plan Layout of the Report

- 1.7 This document has been compiled in the context of the proposals stated in this introduction and based on information made available by the client at the time. Alterations to the scheme and changes in ecological legislation may necessitate amendments to this document at a later stage.

2. Objectives, Roles and Legislation

Conservation Objectives

- 2.1 The Ecological Management Plan details a working methodology which aims to avoid any negative impact to protected species within the works area. The report also sets out some basic on-site precautions for contractors to minimise any risk to protected species including bats, badgers and breeding birds.

Responsibilities

- 2.2 The list below provides information on the roles and responsibilities for the Ecological Management Plan.
- ☛ The Site owner, or site manager, will be responsible for ensuring that the long term maintenance is carried out as specified in this document.
 - ☛ The Architect and Planner will be responsible for the implementing the Ecological Management Plan for the site.
 - ☛ The principal contractor on site will be responsible for ensuring that the Ecological Management Plan is followed during the construction phase.
 - ☛ Phlorum Limited will be responsible for providing ecological assistance to the project, as and when required.

Legislation

- 2.3 The contractors will be required to comply with all relevant environmental legislation and Best Practice guidance during their work.
- 2.4 Protected species, including, species of reptiles and amphibians, all UK bats, the hazel dormouse dormice, otter, water voles and nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended). Some rare bird species also receive protection under Schedule 1 of the Act. European protected species also receive protection under the Conservation of Habitats and Species Regulations 2010 (as amended). Badgers are afforded protection under the Protection of Badgers Act 1992.

3. Baseline Ecology

Site Potential

- 3.1 The information for the sites potential has been compiled based on the Preliminary Ecological Appraisal (PEA) conducted by Phlorum in December 2020, Arboricultural survey and Arboricultural Report by Phlorum in December 2020, Badger Survey Report by Phlorum in February 2021, Bat tree Assessment (ground based) February 2021, Bat Tree Climbing in August 2021, and Great Crested Newt Survey and Great Crested Newt Report by Phlorum in June 2021.
- 3.2 Habitats present on the site consist of arable land, ruderal vegetation, hedge and trees, broad leaved semi natural woodland and evergreen hedgerow. Habitats within the site were assessed as being of value to wildlife within the local vicinity with potential to support a discrete number of breeding birds, bats, badgers and great crested newts. Appendix A shows the habitat map from the PEA (Phlorum 2020). Habitats and species assemblages might have changed since its production.
- 3.3 The baseline conditions present at this site indicated that there were no on-site waterbodies present at the time of the survey. There were at least seven waterbodies within 500m of the site.
- 3.4 Aerial photographs and OS maps show the site to be predominantly arable land with a housing estate directly to the north of the site. The wider surrounds consist of a series of agricultural fields with an associated network of hedgerows.
- 3.5 During the badger survey, no direct evidence (for example, setts) of badgers were identified, however, the habitats on site, such as the broad-leaved semi natural woodland, arable land and ruderal vegetation, offered moderate potential for breeding or foraging badgers. Therefore, a precautionary approach to clearance was recommended.
- 3.6 A bat tree inspection was undertaken from the ground, which identified 62 trees which had high or moderate value to roosting bats, most of which were located in the southern and western boundaries. Therefore, both tree climbing surveys and transect surveys were recommended.
- 3.7 The bat transects are ongoing, until October, and the findings have not yet been finalised. So far, the surveys indicate moderate bat activity, particularly commuting behaviour along the east and south boundary.
- 3.8 A bat tree climb has been undertaken, and focused on three trees (T7, 8 and T9), which will be impacted by the new access route/roundabout. These trees were climbed, and no evidence of bats was identified in the features observed.

- 3.9 Great crested newt surveys were undertaken, whereby no great crested newts were found in any surveyed pond or drainage ditch. The terrestrial habitat on site was identified as offering low potential for commuting newts. Therefore, great crested newts were not considered to pose a constraint to development, but post construction site enhancement was recommended.

Site Constraints

- 3.10 The site is located in a predominantly rural area that is dominated by agricultural land with a network of hedgerows and woodland blocks to the south, east and west of the site. Residential properties with associated gardens are adjacent to the site at its northern boundary. On-site the southern and western boundary consists of broad-leaved semi-natural woodland.
- 3.11 Current proposals are for the construction of a residential development to include the provision of green space. A new junction will be required between A259 and Church Lane. It is understood the woodland within the southern and western site extent will be retained with the exception of an area of hedge and trees within the south-eastern site extent to make way for the new junction. Ponds will also be created as part of the plans.
- 3.12 If the future it is understood that a new round about could be created, by the Council in the south-west corner of the site.

Considerations

- 3.13 Appropriate consideration must be given to wildlife features present on the site before and during construction phases.
- 3.14 Opportunities for biodiversity enhancement post construction are examined in Chapter 6.
- 3.15 The proposed habitat enhancement measures, their management and maintenance must be undertaken by the client or their appointed contractors.

4. Site Clearance

Birds

- 4.1 "n order to avoid any potential impact on breeding birds, the clearance of trees on the the site should be undertaken outside of the main bird nesting season which runs from March to August inclusive¹, with clearance works possible between September and February. Where this is not possible, an ecological clerk of works (ECoW) must be used to carry out a watching brief and check the vegetation for active nests and signs of bird breeding activity, prior to any vegetation clearance works commencing.
- 4.2 "n the event that a nest is found, an exclusion zone around the nest will be established. The extent of the buffer area will be determined by the ecologist at the time and will depend on its location and proximity to the works. Works will then cease within this buffer area until the young birds have fledged. The buffer area will be delineated by tape which will either be attached using stakes or tied around trees.
- 4.3 The ecologist will monitor the nest over a period of a few weeks and inform the on-site contractors when the nest is no longer in use, enabling works to continue in this area.

Bats

- 4.4 The development of the site will include the removal of trees from the south-eastern boundary of the site, to make way for the construction of a new junction between A259 and Church Lane which has the potential to negatively impact on bats through the loss of roost sites and through direct disturbance impacts to individual bats.
- 4.5 Based on the findings of the ongoing bat transect surveys, was found that there is moderate bat activity at the site. 62 trees that were considered to have features of high or moderate value to roosting bats. No bat roosts were found to be present in any trees on the proposed development site and bats were not considered to pose a constraint to development. A climbing inspection was carried out on some of the trees which will be removed due to the new junction. But no evidence of bats was observed in these trees.

¹ "t should be noted that this is the main breeding period. Breeding activity may occur outside this period (depending on the particular species and geographical location of the site) and thus due care and attention should be given when undertaking potentially disturbing works at any time of year.

- 4.6 "t should be noted that bat surveys are only valid for one year due to the highly mobile nature of these species and their ability to move their roosting sites from season to season. "f more than a year has passed between the bat survey report being produced and the commencement of works at the proposed development site it is possible that bats could find new roosts in existing trees and buildings. "t is also recommend that the trees being felled are reassessed and if need a climbing inspection is carried out within 1 week of the trees being felled.
- 4.7 "n the event that a bat is found during tree removal, work should be stopped and the project ecologist should be contacted immediately for guidance on how to proceed.

Toolbox Talk

- 4.8 Prior to any works starting, the ecologist will give a toolbox talk to all on-site contractors in relation to all protected species at the site. A repeat toolbox talk may be required as different contractors work at the site and the site foreman must communicate this to the ecologist. A precautionary approach to the vegetation clearance is recommend including an ecological watching brief supervising the vegetation clearance works.

Clearance of Habitats

- 4.9 The contractors will, so far as reasonably practicable, avoid undertaking clearance of habitats during the relevant species' nesting, hibernation or rearing seasons, as appropriate. Any ecological clearance works will need to be supervised by a suitably qualified ecologist.

5. During Construction

Birds

- 5.1 Contractors will remain vigilant throughout the works and any breeding or nesting behaviour observed or suspected on site must be reported immediately to the project ecologist. All works must cease until advice has been sought from the ecologist.
- 5.2 The ecologist must re-visit the site to inspect the nest and in the event that an active nest is confirmed, an exclusion zone around the nest will be established. Works will have to cease within this buffer area until the young birds have fledged.

Bats

- 5.3 Removal of trees or structures with potential to support or conceal roosting bats must be undertaken with care during favourable weather conditions (e.g. not during heavy rain, high winds or unseasonable low temperatures) under an appropriate ecological watching brief. Should any bats be encountered, works would need to stop immediately and a suitable mitigation agreed prior to works re-commencing. This will involve a discussion with Natural England and acquisition of a development licence for works to resume.
- 5.4 Breathable membranes must not be used as part of the new building design.
- 5.5 All retained shrubbery and trees will provide habitat connectivity to the wider landscape, minimising the impact on commuting bats who use the landscape.

Badgers

- 1.8 "n order to safeguard badgers should they enter the site during construction works, the following measures will be implemented:
 - ☛ Any trenches or deep pits within the site that are to be left open overnight will be provided with a means of escape should a badger enter. This could simply be in the form of a roughened sturdy plank of wood placed in the trench as a ramp to the surface. This is particularly important if the trench fills with water;
 - ☛ Any temporarily exposed open pipes (>150mm outside diameter) should be blanked off at the end of each working day so as to prevent badgers gaining access as may happen when contractors are off-site;

- ❖ Any trenches/pits will be inspected each morning to ensure no badgers have become trapped overnight. Should a badger become trapped in a trench it will likely attempt to dig itself into the side of the trench, forming a temporary sett. Should a trapped Badger be encountered a suitably qualified ecologist will be contacted immediately for further advice;
- ❖ The storage of topsoil or other soft building materials in the site will be given careful consideration. Badgers will readily adopt such mounds as setts. So as to avoid the adoption of any mounds, these will be kept to a minimum and any essential mounds subject to daily inspections with consideration given to temporarily fencing any such mounds to exclude badgers;
- ❖ The storage of any chemicals at the site will be contained in such a way that they cannot be accessed or knocked over by any roaming badgers;
- ❖ Fires will only be lit in secure compounds away from areas of badger activity and not allowed to remain lit during the night; and
- ❖ Unsecured food and litter will not be left within the working area overnight.

1.9 Given that no evidence of badgers has been recorded within or adjacent to the site it is considered that badgers do not currently pose a constraint to development. Nonetheless, badgers are dynamic animals and levels of badger activity can rapidly change at a site, with new setts being created at any time. It is therefore recommended that an update survey is carried out prior to commencement of site works in order to confirm the current status of badgers at the site.

6. Post Construction - Enhancement

Habitat Enhancement and Management

- 6.1 New development offers the opportunity for habitat enhancement in accordance with national and local planning policy. Specific habitat enhancement measures and maintenance practices which pay attention to wildlife are detailed below.
- 6.2 Details of species and locations of the sites habitat enhancements are not yet finalised. However, there is the aim to provide a green corridor over the central archaeological areas. This area is proposed to only be cut by the access road to the new houses. It is also proposed to provide amenity grass on the edge of the path through this area and then longer grass meadow over other areas.

Landscaping

Wildflower

- 1.10 Good ground preparation is the best way to maximise the success of seed germination to mature plant growth.
- 1.11 Before sowing wild flower seeds the most important tasks are:
 - ☛ To create space by removing or controlling unwanted vegetation and weeds which may compromise results; and
 - ☛ To create conditions in which seedlings can establish and grow.
- 1.12 There are two main routes to establishing wild seeds and mixtures; firstly sowing in bare ground or sowing into gaps of existing vegetation. To maximise biodiversity seed should be sown in bare ground outside the root protection areas of trees and other retained vegetation.
- 1.13 This may require the removal of some of amenity grassland areas at the site.

Route 1: Sowing into bare soil cleared of vegetation

- ☛ Generally the most successful way to establish wild flowers and grasses from seed is to sow into a clean seedbed that has been first cleared of all weeds and other vegetation and then cultivated to produce optimum conditions for germination.
- ☛ It is recommended an appropriate meadow mix, is obtained from a supplier such as Emorsgate Seeds.

Route 2: Sowing into gaps created in existing vegetation

- ☛ Seed sown into gaps in existing vegetation will grow, but more slowly and less reliably as a result of competition from well established neighbours. Where site assessment reveals that the existing vegetation is worth preserving this approach, although slower, could be more appropriate.

Amenity Grassland

- 6.3 The Arun Open Space Study (2009) reference identified a deficiency of this type of space in the area. Proposals could include wetland, meadow and extended woodland areas.
- 6.4 Amenity grassland area will be laid, which will involve a mix for grass species. "t is recommended that a grassland seed mix is used which contains a minimum of 5 species native to the UK. These areas will either be sowed or specialist turf laid. These will be regularly mowed during the growing season. Low level weed populations may be spot sprayed with herbicide, or pulled (e.g. ragwort). Selective herbicides are only worth using as a last resort for serious infestations as they will result in the loss of any wild flower species.

Existing Hedgerow

- 6.5 To ensure continued connectivity across the site the hedgerow present throughout the site will be managed.
 - ☛ The hedgerow will be managed outside of the breeding bird season (March ÷August inclusive).
 - ☛ Maintain the hedge at least 2m tall and 1.5m wide by year 2.
- 6.6 Cutting the hedgerows:
 - ☛ The hedgerow will be cut no more than once every 2 years and opposing sides of the hedgerow will be cut in alternating years. This will ensure that the hedgerow is not overly cut so growth will be ensured, and that at least one side of the hedgerow a year will provide fruits for birds in the winter.
 - ☛ The hedgerow must not be flayed as this would cause unnecessary damage to the hedgerow, instead the hedgerow will be cut with hand tools such as strimmer* and chainsaws. The hedgerow will be cut so that the top of the hedgerow meets at an apex point. This will serve to provide structural support for the hedgerow.
 - ☛ Gaps in the hedge must be filled in by planting native species (see Appendix B). The planting will occur in early winter, when the ground is warm (not frozen) and some moisture is available.

- ❖ Retain old, dying and dead trees where these are not hazardous, as they support important insect communities and might be used by hole-nesting birds and roosting bats.

Retained Trees

- ❖ The retained trees on site, must be protected in accordance with British Standards (BS 2012) 5837:2012 Trees in Relation to Design, Demolition and Construction.
- ❖ The root protection areas of retained trees must be left free from disturbance and protected from contamination or compaction during the proposed works. Protection shall comprise a combination of tree protection fencing. Tree protection fencing shall be installed around the retain trees, as shown in Appendix D. The specification for tree protection fencing shall be metal welded mesh panels (e.g. Heras panels), in concrete or rubber feet. The panels shall be supported by metal stabiliser struts mounted on either a base plate secured by ground pins, or in a block tray (refer to Appendix D). Any variation from this specification for tree protection fencing shall be discussed with the project arboriculturist.
- ❖ Signs shall be affixed to the fencing as shown to explain its purpose. The signs shall be affixed at a reasonable size and frequency to ensure they are easily visible to operatives at the site.

Tree Planting

6.7 Additional trees will be planted on-site (species not yet confirmed). These should be maintained as follows:

- ❖ Newly planted trees should be supported with tree ties. These should be fitted to allow stem and canopy movement which in turn enables root growth to be stimulated. Best management practices, therefore, recommend the support as low as possible with tree ties comprising a wide band (usually hessian or rubber to prevent bark abrasion); this must also facilitate radial expansion of the stem. Alternatively, below-ground root anchor systems may be used: these allow full aboveground movement and help give the impression of an established tree or shrub;
- ❖ Remove all forms of support after new root growth adequately stabilises the tree or shrub. This can vary by species, size, soil type, etc. As a general guide it should be acceptable to remove all support within two years of planting;
- ❖ Once established, trees should then be pruned annually between September and February inclusive;
- ❖ "t is preferable to maintain a dense canopy. Pruning outer branches regularly will promote this;

- ☉ Pruning between September and February inclusive is outside the breeding bird season, which is taken to run between March and August, and will therefore avoid disturbance to nesting birds and their young; and
- ☉ "t is important to note however that birds can nest outside this period if weather conditions are suitable and due care should be taken when undertaking works at any time of the year. "f breeding birds or their nests are suspected or discovered then the pruning in the vicinity of the nest must be postponed until young birds have fledged and the nest is no longer in use.

General

- 6.8 The arising* from mowing, pruning and maintenance work undertaken to maintain trees, shrubs and herbaceous plants will be responsibly disposed of by the contractors appointed to carry out these works by the client.

Wildlife Measures

- 6.9 All information below is provided as a draft, as more information will be required to guarantee these features will be conditioned.

Bat Boxes

- 6.10 At least ten bat box must be incorporated into the design proposals. Bat boxes can be incorporated as integral bricks to buildings, added to the exterior walls or fitted to a suitable tree. A range of suitable bat box or bat brick designs are available from Schwegler (Schwegler, 2016). The 2F Schwegler bat box is recommended. This is a general-purpose bat box, which is ideal for crevice-dwelling species, such as pipistrelles (*Pipistrellus* sp.), *Myotis* species (particularly Daubenton* (*Myotis daubentonii*)), Leisler* (*Nyctalus leisleri*), and serotine (*Eptesicus serotinus*). Other similar designs are available from a number of other suppliers.
- 6.11 Bat boxes must be installed at appropriate locations ideally with south-east or south-west facing aspects in a sheltered but sunny location. The boxes will be placed as high as possible; this is normally at least 3m high. Bat boxes do not need annual inspection/cleaning, and must be left alone unless under the supervision of a suitably licenced bat ecologist.
- 6.12 Where it is found that bat boxes have not been used, the possibility of re-setting them to more suitable areas will be explored and advice must be sought from the project ecologist.
- 6.13 Specific locations and installation of the bat boxes are not yet confirmed, and bat box specifications are detailed in Appendix C.

Bats and Lighting

- 6.14 The BCT (Bat Conservation Trust) have produced a guidance note with collaboration with the "LP ("nstitute of Lighting Professionals) titled Bats and artificial lighting in the UK ² and dated 2018.
- 6.15 Artificial lighting is thought to increase the risk of predation; consequently, bats are thought to modify their behaviour to this threat. The illumination of a roost can cause disturbance, which may result in a roost being abandoned. Light falling on a roost may delay when bats emerge from the roost and could shorten the time available to forage for food. The peak of nocturnal abundance is at, and soon after, dusk; therefore, delaying emergence may result in missed foraging opportunities for bats. Excessive light can also block flights paths to and from roosts.
- 6.16 "n addition, artificial lighting can affect the feeding behaviour of bats. Firstly, lit conditions can pose as a barrier to movement and secondly, certain light sources attract different ranges of insects. Studies have shown that noctule, Leisler's bat, serotine and pipistrelle congregate around mercury lights that attract insects. However, further studies have shown that slower-flying broad winged species such as long-eared bats, *Myotis* species (Brandt's bat, whiskered, Daubenton's bat), barbastelle, and greater and lesser horseshoe bats generally avoid all street lights.
- 6.17 Bats less tolerant to light are put at a disadvantage and lighting may affect their foraging behaviour.
- 6.18 The spectral impacts of light can also impact on bat behaviour. Slow flying bats, such as *Plecotus* and *Myotis* species avoid white and green light, but fast flying bats, such pipistrelles species have been found to be more abundant in these areas. Both slow-flying and fast-flying bats have been found present in red light areas, compared to dark control.
- 6.19 The current site receives some light pollution from the surrounding infrastructure, namely in the southeast corner. Development provides the opportunity to enhance the site's value for foraging bats and to minimise indirect impacts from lighting associated with the new renovation. This can be achieved by following accepted best practice ("nstitute of Ecology and Environmental Management 2006, "nstitute of Lighting Professionals 2018):
 - ☛ The level of artificial lighting including flood lighting must be kept to a minimum, particularly around the site boundaries and near to native shrubs and trees along the western and northern boundaries;;

² BCT and "LP (2018). Guidance Note 8 Bats and artificial lighting - "nstitution of Lighting Professionals. [online] Available at: <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>. Bat Conservation Trust and the "nstitute of Lighting Professionals [Accessed 21/01/2019].

- ☉ LED lights are preferred to low pressure sodium lights, which in turn are preferred to high pressure sodium or mercury lamps, and lights must be directed down with minimal light spillage;
 - ☉ "deally the site boundaries should be kept dark, preferably at bat emergence (0-1 hour after sunset) and during peak bat activity periods (e.g. 1.5 hours after sunset and 1.5 hours before sunrise); and
 - ☉ Artificial lighting must not directly illuminate any potential bat commuting areas. Similarly, any newly planted linear features or buffer areas around the site boundary must not be directly lit.
- 6.20 Lighting proposal recommendations will be provided once information is received.

Bird Boxes

- 6.21 At least ten bird box must be integrated into the design proposals. Bird boxes can be incorporated as integral bricks to buildings, added to the exterior walls or fitted to a suitable tree. A range of suitable bird box or bird brick designs are available from Schwegler (Schwegler, 2016). Woodcrete bird boxes (Schwegler, 2016) are recommended as they include a broad range of designs, are long lasting compared to wooden boxes and insulate occupants from extremes of temperature and condensation. Other similar designs are available from a number of other suppliers.
- 6.22 Bird boxes will be installed at appropriate locations with a north-east or north-west facing aspect, at least 3m from ground level and if on a building, a safe distance from windows to avoid disturbance.
- 6.23 Once installed the boxes must be inspected annually outside of the main nesting bird season: between September and February, for evidence of nesting birds (evidence might include presence of an old nest and eggs, feathers and/or bird droppings).
- 6.24 "f old bird nests are found, these must be removed and where possible, the nest box cleaned with warm water.
- 6.25 Where the bird boxes have not been used, the possibility of re-siting them to more suitable areas will be explored and advice should be sought from the project ecologist.
- 6.26 Specific locations and installation of the bird boxes is not yet confirmed and bird box specifications are detailed in Appendix C.

Pond Creation

- 1.1 The proposed ponds are mainly part of the surface water management of the site. However, these ponds can be created with the aim of supporting wildlife, by creating habitat, breeding areas, feeding areas, and increasing connectivity. The ponds creation should consider all wildlife species, and planting should include species that will attract a range of species found locally. Species could include lesser spearwort (*Ranunculus flammula*) water forget-me-not (*Myosotis scorpioides*) and water mint (*Mentha aquatica*) in the shallow water and water starwort (*Callitriche stagnalis*) in the deeper areas. Floating plants like water soldier (*Stratiotes aloides*) provide cover in the summer for a range of aquatic species

Habitat Piles (log piles, hibernacula, bug hotels)

- 1.2 A proportion of any deadwood arising from vegetation clearance works must be retained within the site to form piles. These are recommended at the edge of the site.
- 1.3 These log piles will provide potential habitat opportunities for invertebrate species, which in turn could provide a prey source for a range of other wildlife. In addition, the provision and management of new native landscape planting will provide additional opportunities for invertebrates at the site in the long term.
- 1.4 Log piles should be in sunlight for part of the day and should not be disturbed. They should be kept clear of rank vegetation growth, and not be allowed to become too shaded by overhanging trees.
- 1.5 Piles and hibernacula need to be kept topped up with wood as it rots down to ensure they provide a continuity of habitat.
- 1.6 Position the bug hotel in full sun facing the south east or south, at least a metre of the ground.
- 1.7 The bug hotel should be kept clear from vegetation obscuring the entrances to the tunnels.
- 1.8 Must be firmly fixed so that it does not sway or move in the wind.

7. Maintenance

Long Term Maintenance

- 7.1 As stated earlier the proposed habitat enhancement measures, their management and maintenance must be undertaken by the client or their appointed contractors.
- 7.2 Landscape maintenance has been described in Chapter 5 above.

Bat Boxes

- 7.3 As stated in Chapter 5, bat boxes do not need annual inspection/cleaning, and must be left alone unless under the supervision of a suitably licenced bat ecologist.

Bird Boxes

- 7.4 Schwegler nest boxes are simple to install, inspect and clean and are built to last at least 25 years against damage by weather, rot or natural predators. The installation, inspection and cleaning must be undertaken by the clients appointed contractor. Inspection, and cleaning if necessary, must be undertaken outside of the main bird nesting season which runs from March to August inclusive³.

Trees and Shrubs

- 7.5 Once established, trees and shrubs must then be pruned annually between September and February inclusive, outside of the breeding bird season (March to August inclusive).
- 7.6 Plants will be monitored and any dead or diseased specimens must be removed and replaced accordingly.
- 7.7 The shrubs will be managed to prevent encroachment into other areas but maintained to ensure they provide continuous wildlife habitat.

Grassland

- 7.8 These areas will be regularly mown during the growing season. Low level weed growth can be spot sprayed with herbicide as a last resort, or pulled out.
- 7.9 It is recommended that certain areas are only mowed one or twice a year to encourage wildflowers and wildlife, see wildflower section below.

³ It should be noted that this is the main breeding period. Breeding activity may occur outside this period (depending on the particular species and geographical location of the site) and thus due care and attention should be given when undertaking potentially disturbing works at any time of year.

Wildflower

- 7.10 Avoid creating bare ground within root protection areas of trees and other woody vegetation.
- 7.11 First year management 11 Most sown meadow wild flower and grass species are perennial; they will be slow to germinate and grow and will not usually flower in their first growing season. There will often be a flush of annual weeds from the soil in the first growing season which may grow up and obscure the meadow seedlings beneath. This annual weed growth is easily controlled by topping or mowing.
- 7.12 Mow newly sown meadows regularly throughout the first year of establishment to a height of 40 ~~60~~mm, removing cuttings if dense. This will control annual weeds and help maintain balance between faster growing grasses and slower developing wild flowers.
- 7.13 Avoid cutting in the spring and early summer if the mixture has been sown or is autumn sown. These sown annuals should be allowed to flower, then in mid 11 summer cut back and the cut vegetation removed.
- 7.14 Carefully dig out or spot treat any residual perennial weeds such as docks.
- 7.15 Management once established 11 In the second and subsequent years sowings can be managed in a number of ways which, in association with soil fertility, will determine the character of the grassland. The best results are usually obtained by traditional meadow management based around a main summer hay cut in combination with autumn and possibly spring mowing or grazing.
- 7.16 Meadow grassland is not cut or grazed from spring through to late July/August to give the sown species an opportunity to flower. After flowering in July or August take a 'hay cut': cut back with a scythe, petrol strimmer or tractor mower to c50mm. Leave the 'hay' to dry and shed seed for 1 11 days then remove from site.
- 7.17 Mow or graze the re 11 growth through to late autumn/winter to c 50mm and again in spring if needed.

Habitat Piles (log piles, hibernacula, bug hotels)

- 7.18 The hibernacula and log pile should be annually inspected and repaired if required.
- 7.19 Any vegetation obscuring the entrances to the tunnels, should be removed.
- 7.20 The bug hotel should be annually inspected and repaired, if required.

Waste

- 7.21 Any waste generated will be disposed of in accordance with current legislation. The waste will be segregated as required, and stored in suitable containers. All waste removed off site will have an appropriate Transfer Note, or Consignment Note, as required.

7.22 Where possible the waste hierarchy will be followed:

- ☐ Waste prevention;
- ☐ Reuse;
- ☐ Recycle/composting;
- ☐ Other recovery; and
- ☐ Disposal.

7.23 Limited vegetative waste should be generated. However, vegetative waste will be composted where possible, although if there are diseased plants then these will be removed from site, and not composted, where appropriate.

8. References

- ❖ Collins, J. (ed.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn). The Bat Conservation Trust, London. [on-line]. Available from <http://www.bats.org.uk/pages/batsurveyguide.html> [Accessed on 18/04/2018].
- ❖ Eaton, M.A., Brown, A. F., Noble, D. G., Musgrove, A.J., Hearn, R., Aebischer, N.J., Gibbons, D.W., Evans, A. & Gregory, R.D. (2009). *Birds of Conservation Concern 3: The Population Status of Birds in the United Kingdom, Channel Islands and the Isle of Man*. British Birds 102, pp296-341 [on-line]. Available from http://www.rspb.org.uk/images/BoCC_tcm9-217852.pdf [Accessed on 16/04/2019].
- ❖ Fure, A. (2006). Bats and lighting. The London Naturalist, No. 85.
- ❖ "EEM - "nstitute of Ecology and Environmental Management (2006). *Bats and Lighting*. Winchester: "EEM.
- ❖ "LP "nstitute of Lighting Professionals (2018). *Guidance Note 08/18 Bats and artificial lighting in the UK. Bats in the built environment series*. "LP and the Bat Conservation Trust [on-line]. Available from: <https://www.bats.org.uk/news/2018/09/new-guidance-on-bats-and-lighting> [Accessed on 16/04/2019]
- ❖ Jones, J. (2000). *"mpact of Lighting on Bats. Bat Conservation Trust*. [On-line]. Available from <http://www.bats.org.uk/downloads/Helpine/lighting.pdf> [Accessed on 16/04/2019]
- ❖ Phlorum (2020). Preliminary Ecological Appraisal " Land of Church Lane, Climping. Unpublished report.
- ❖ Phlorum (2020). Arboricultural Report " Land of Church Lane, Climping. Unpublished report.
- ❖ Phlorum (2021). Badger Report "Land of Church Lane, Climping. Unpublished report.
- ❖ Phlorum (2020). Bat Tree "nspection Report "Land of Church Lane, Climping. Unpublished report.
- ❖ Phlorum (2021). Great Crested Newt Report "Land of Church Lane, Climping. Unpublished report.
- ❖ Schwegler (2016). *Bird and Nature Conservation Products* [on-line]. Available from http://www.schwegler-natur.de/pdf/Katalog/CatalogueEN_HQ.pdf [Accessed on 16/04/2019].

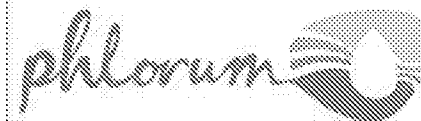
Appendix A

Habitat Survey Map



Figure 1: Land west of Church Lane, Climping

Drawn by: KR
 On: 17/11/2020
 Ref: 9709
 Not to scale



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Appendix B

Suggested Compensatory Planting

Suggested Compensatory Planting

This section provides a list of plants which are of proven value to wildlife. The list is not exhaustive and merely provides a guide for suggested planting for wildlife value. Planting should be tailored on a site by site basis. The list includes some native and ornamental species however the emphasis should always be on the use of predominantly native species.

N = Native, NN = Non-native.

This list includes species that may be harmful if handled or ingested. Schedule 9 (Part 2) of the Wildlife and Countryside Act, 1981 (as amended) includes a list of invasive plants, including aquatic species, that should always be avoided in planting schemes.

Large Shrubs

Hedge veronica/Hebe (*Veronica* spp.) NN

Hawthorn (*Crataegus monogyna*) N

Blackthorn (*Prunus spinosa*) N

Rose: dog rose (*Rosa canina*), field rose (*R. arvensis*), burnet rose (*R. pimpinellifolia*) N

California lilac (*Ceanothus* spp.), (*C. arborea*) NN

Wild privet (*Ligustrum vulgare*) N

Common holly (*"ex aquifolium*) N

Barberry (*Berberis* spp.) (*B. darwinii*), (*B. thunbergii*), (*B. x stenophylla*) NN

Daisy Bush (*Olearia* spp.), (*O. x hastii*), (*O. macrodonta*) and (*O. traversii*) NN

Firethorn (*Pyracantha coccinea*) NN

Hazel (*Corylus avellana*) N (*C. maxima*) NN

Viburnum (*Viburnum* spp.), wayfaring tree (*V. lantana*) N, guelder rose (*V. opulus*) N, laurustinus (*V. tinus*) E Note: *V. lantana* can become invasive in more open habitats.

Dogwood (*Cornus sanguinea*) N

Broom (*Cytisus scoparius*) N

Escallonia (*Escallonia macrantha*) NN

Hardy fuchsia (*Fuchsia magellanica*) NN

Buckthorn (*Rhamnus cathartica*) N

Spindle (*Euonymus europaeus*) N

Tutsan (*Hypericum androsaemum*) N

Yew (*Taxus baccata*) N

Trees

Cherry (*Prunus* spp.), wild cherry (*P. avium*), bird cherry (*P. padus*), domestic plum (*P. domestica*) N or cherry plum (*P. cerasifera*) NN

Ash (*Fraxinus excelsior*) N

Apple (*Malus* spp.), edible apple (*M. domestica*), crab apple (*M. sylvestris*) N

Pear (*Pyrus* spp.), edible pear (*P. communis*) NN

Small-leaved lime (*Tilia cordata*) N

Silver birch (*Betula pendula*) N

Yew (*Taxus baccata*) N

Black poplar (*Populus nigra*) N

Foxglove tree (*Paulownia tomentosa*) NN

Beech (*Fagus sylvatica*) N

Climbers

Jasmine (*Jasminum* spp.), summer jasmine (*J. officinale*), winter jasmine (*J. nodiflorum*) NN

"vy (*Hedera helix*) N

Climbing hydrangea (*Hydrangea anomala* ssp. *petiolaris*) NN

Honeysuckle (*Lonicera* spp.) (*L. periclymenum*) N

Clematis (*Clematis* spp.) NN

Hop (*Humulus lupulus*) N

Firethorn (*Pyracantha atalantioides*) NN

Nasturtium (*Tropaeolum majus*) NN

Bulbs

English bluebell (*Hyacinthoides non-scripta*) N

Squill species (*Scilla* spp.) N/NN

Snowdrop (*Galanthus nivalis*) N

Winter aconite (*Eranthis hyemalis*) E

Crocus species (*Crocus* spp.) NN

Wild Daffodil (*Narcissus pseudonarcissus*) N

Onion species (*Allium* spp.) N/NN. N.B. *Allium triquetrum* (three cornered leek) and *Allium paradoxum* (few-flowered leek) are Schedule 9 invasive plant species.

Wood anemone (*Anemone nemorosa*) N

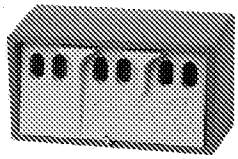
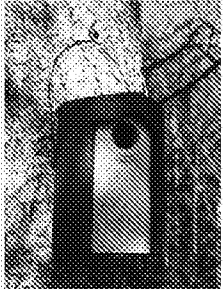
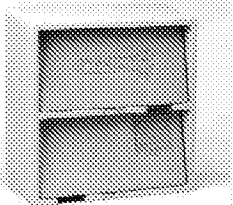
Lesser celandine (*Ficaria verna*) N

Appendix C

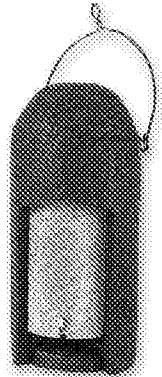
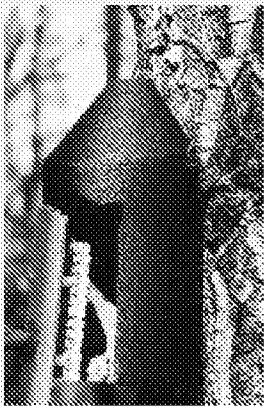
Bat and Bird Box Designs

Bat and Bird Box Designs

Bird Boxes

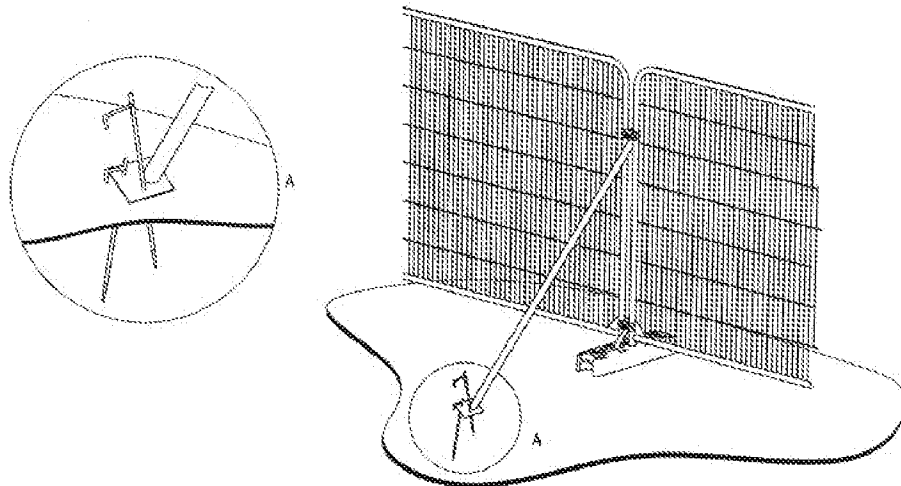
Example	Type	Dimension D x W x H (cm)	Target Species	Location
	1SP Schwegler sparrow terrace	24.5 x 43 x 20	House sparrow	The terrace can be fixed on to the surface of a suitable wall or incorporated into the wall. It is suitable for all types of houses in built-up areas, and on industrial and agricultural buildings such as barns, sheds and factories. Due to its weight (15kg), it is not suitable for fences or garden sheds. Ideally place the terrace two metres or more above the ground. Either install on the surface of the wall using the plugs and screws provided, or install directly into the wall.
	3S Schwegler starling box Hole-fronted 45mm entrance hole The large diameter nesting chamber (140mm) also helps to encourage occupation.	28 x 19 x 20cm	Starlings	On an external wall or tree at a height of at least 1.5m. Near to vegetation if possible as this will provide additional protection and cover. Starlings are gregarious birds and prefer to nest in colonies, so grouping several boxes together will encourage occupancy.
	Schwegler 1MF double swift box	43 x 46 x 22.5	Swift	Should be positioned at least 5m above the ground, ideally under the eaves.

Bat Boxes

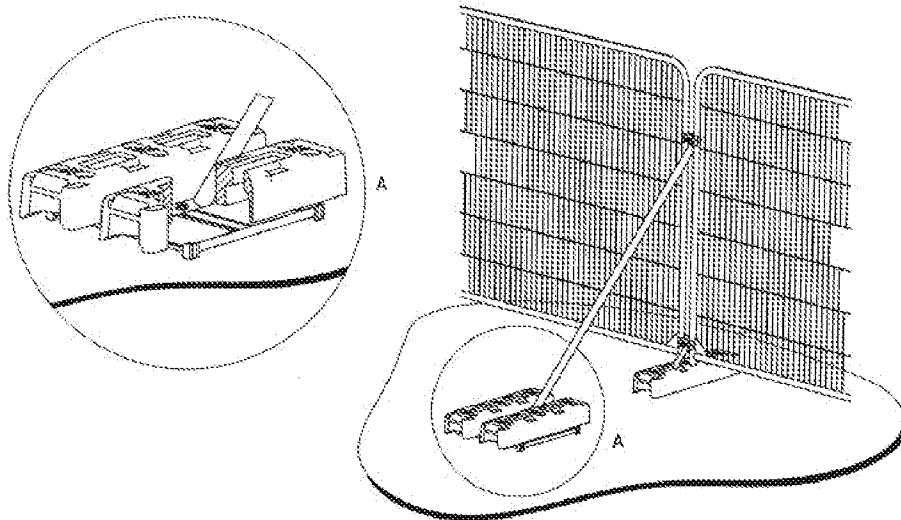
Example	Type	Dimension D x W x H (cm)	Target Species	Location
	2FN Schwegler Bat Box	36 x 16 x 16	Suitable for woodland species particularly Noctule, and Bechstein's bats. But also successful for Lesser noctule, Daubenton's and Nathusius pipistrelle.	This model has two entrances, one at the rear against the tree trunk and one at the front. Bats often creep into the rear entrance but leave by the front. It has a domed roof to form clusters and an increased internal height. It is effective against small predators and excludes draughts and light. This model is particularly suitable for use in parks and forests. Please note that once bats have inhabited a roost site they may only be disturbed by licensed bat workers.
	2F Schwegler Bat Box (General Purpose) with or without Double Front Panel	16 x 16 x 33	Without panel: Particularly successful with brown long-eared bat. Also used by noctule. With panel: Ideal for crevice-dwelling species: pipistrelles, Myotis species (particularly Daubenton's, Leisler's and serotine.	On trees or buildings and at a height of 3 to 6m. Open sunny positions and in groups of 3 to 5 facing different directions. Please note that once bats have inhabited a roost site they may only be disturbed by licensed bat workers.

Appendix D

Tree Protection Fencing Specification



a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray

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