

HABITAT MANAGEMENT PLAN FOR PROPOSED WILDLIFE AREA AT LAND EAST OF POST MILL LANE, FRESSINGFIELD, SUFFOLK, IP21 5PJ



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JULY 2020

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Site Features & Evaluation

Site Details

Site Address: Post Mill Lane, Fressingfield, Suffolk, IP21 5PJ.

Owner: C. E Davidson Ltd

OS Reference: TM256773 (Approximate Centre)

Summary Description

A planning application (DC/19/05956) is submitted to Mid-Suffolk District Council for outline planning for the erection of up to 18 No dwellings and associated new roads, infrastructure and open space and land north of Post Mill Lane, Fressingfield, Suffolk.

As part of this application Eco-Check Ltd have undertaken a preliminary ecological appraisal, reptile survey and great crested newt survey of the site and bordering habitats, including an area of land to the east of Post Mill Lane which is not being developed but which is to be designated as a wildlife conservation area and green open space for residents.

The designated wildlife area covers an area of approximately 0.25ha and measures approximately 70m by 40m. The site interior contains a range of habitats including bare ground, semi-improved and improved grassland, scattered scrub and tall ruderal vegetation. The site is bound by defunct species poor hedging and trees and mostly dry ditches. To the south the site is bound by dwellings and gardens.

As part of this application we have produced an outline habitat, environmental and landscape management plan to create a wildlife conservation area within this area of land and which will be accessible to existing and new residents. This report provides supporting information and rationale for the proposed creation and management to enhance and maximise the sites ecological value.

This outline management plan covers an initial period of 10 years with information regarding the timing, implementation and management of the existing and proposed habitats and landscaping. This management plan has been sub-divided into five main areas of the proposed wildlife area:

- Areas A: Wildlife area access, footpath, seating, solar lighting and signage;
- Areas B: Wildlife and conservation area wildflower meadow and planting;
- Areas C: Protection and enhancement of boundary trees, hedging, scrub, ditches and bare ground (soil and sand exposures);
- Areas D: Wildlife and conservation area pond and pond planting;
- Areas E: Additional planting, bird and bat boxes, habitat piles/banks

1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE OF DOCUMENT

1.1.1 The Management Plan shall be taken to include this document and any supporting plans, reports and specifications previously submitted including the previous ecological assessment, phase 1 habitat map and masterplan which should be read in association with this management plan (Eco-Check October 2019). This also includes any documentation containing quantitative and qualitative information about the areas of the site that will be useful to those responsible for managing and maintaining them.

1.1.2 The purpose of this document is to schedule all required maintenance regimes, operations and works necessary for the satisfactory management of the landscape in perpetuity. The Management Plan sets out the management aims and objectives for the site along with the specific management objectives for each landscape component, and the associated maintenance works required on an Annual and Occasional basis. The Annual Works are those works that will be required every year, such as grass cutting, rotational scrub control, reed cutting and litter picking. The Occasional Works are those that will be required on an irregular or cyclical basis, such as dredging, tree felling, coppicing and monitoring.

1.2 THE GROUNDS

1.2.1 Location

The proposed wildlife area is a parcel of land to the east of Post Mill Lane in the small Suffolk village of Fressingfield. The site comprises improved and species poor semi-improved grassland with tall ruderal vegetation bound by trees and hedging to the north, south and east and a dry ditch with culvert forming the west boundary and propose point of entry into the site. There is also a dry ditch that runs along the north and eastern boundaries of the eastern field.

To the north of the site is arable land, while to the south are residential houses and gardens. To the east are grassland fields, possibly grazed pasture and to the west is further residential dwellings and gardens. The wider landscape is dominated by arable land, interspersed with woodland copses, hedgerows and small residential areas. The proposed wildlife area covers an area of approximately 0.6 acres (0.25ha) and has been periodically mown.

1.2.2 Ownership

The land subject to this plan is wholly in the ownership of C. E Davidson Ltd. The site is currently not in any particular land use but is periodically mown to prevent scrub encroachment. The proposed wildlife area will be operated and managed by the site owner.

1.2.3 Site Description and Objectives

This management plan has been prepared to form a wildlife area and area of green open space for existing and future residents with access from Post Mill Lane to the west. The proposed creation of this wildlife area comprises a combination of natural regeneration and structure planting in addition to some species-specific habitat creation such as a pond, wildflower area, banks and tree and hedge planting. This management plan gives details for the proposed habitat creation, enhancement, management, implementation and how this will be of benefit to wildlife.

The objectives of the management plan are to:

- To promote the long-term sustainability of the key habitats through ecological diversity enhancement, protection and conservation
- To support restoration and enhancement of the hedgerows, grassland, scrub and trees by encouragement of appropriate native species
- To promote the occurrence of BAP species such as turtle dove, grass snake, common lizard, great crested newt, bats and tree sparrow.
- To help assure safety of site users,
- To conserve and enhance the local landscape
- To achieve the above through sound, sensitive ecological, arboricultural and silvicultural practice

This outline management plan relates to an initial 10-year period and takes account of previous management and land use changes and sets objectives and extends and amends site management where relevant and appropriate. The plan does not assess tree health, specific arboricultural considerations or health and safety.

1.2.4 Implementation of Management Plan

Parties involved;

- **The Land Owners:** C. E Davidson will ultimately be responsible for the protection and management of the site and the implementation of hard and soft landscape works in accordance with planning drawings and documents including any contractual maintenance period associated with these works.
- **The Local Planning Authority:** This term (abbreviated to LPA) shall refer to Mid-Suffolk District Council and its Planning Officers, Suffolk Wildlife Trust, Place Services and Natural England who are involved in the process of the approval of landscape, ecology, development and other documentation.
- **The Landscape Management Contractor:** the company who may be appointed by the land owner to carry out the landscape and habitat management and maintenance works if not implemented by the employees of C. E Davidson Ltd.

2.0 LEGAL REQUIREMENTS

2.1 There are legal requirements to be considered within the management plan primarily related to statutory wildlife protection as well as forestry, planning, waste and health and safety as are summarised below.

2.2 During the ecological assessments undertaken by Eco-Check in 2019 bats, reptiles and a wide variety of birds (Schedule 1 WCA and Bird of Conservation Concern) have been considered as potentially using the site either on a permanent or semi-permanent basis. These species are afforded protection by the Wildlife and Countryside Act 1981 (as amended).

2.3 All species of British bat and their roosts are protected under British law by the Wildlife and Countryside Act 1981 (as amended), which is extended by the Countryside and Rights of Way Act 2000. Bats are classified as European Protected Species under the Conservation of Species and Habitats (Amendment EU Exit) Regulations 2019. Together, the legislation makes it illegal to:

- Intentionally or deliberately kill, injure or capture (or take) bats;
- Deliberately disturb bats (whether in a roost or not);
- Recklessly disturb roosting bats or obstruct access to their roosts;
- Damage or destroy bat roosts;
- Possess or transport a bat or any part of a bat, unless acquired legally;
- Sell, barter or exchange bats (dead or alive) or parts of bats.

2.4 All birds, their nests and eggs are protected by law under Part 1 of the Wildlife and Countryside Act 1981 (as amended). Furthermore bird species such as red wing, fieldfare, bittern, hobby, goshawk, graylag goose, marsh harrier, red kite, osprey, green sandpiper, kingfisher and barn owl are listed on Schedule 1, which gives them special protection whilst nest building, occupying a nest or being near a nest holding eggs or young.

2.5 Grass snake, slow worm, common lizard and otter are also European Protected Species and protected under the Conservation of Species and Habitats (Amendment EU Exit) Regulations 2019 and Schedule 5 of the Wildlife and Countryside Act, 1981 (as amended). This makes it illegal to intentionally kill or injure any individuals.

2.6 Badgers are protected and so are the setts (burrows) they live in. Under the Protection of Badgers Act 1992, in England and Wales (the law is different in Scotland) it is an offence to:

- Wilfully kill, injure or take a badger (or attempt to do so).
- Cruelly ill-treat a badger.
- Dig for a badger.
- Intentionally or recklessly damage or destroy a badger sett, or obstruct access to it.
- Cause a dog to enter a badger sett.
- Disturb a badger when it is occupying a sett.

2.7 Trees

Under the Forestry Act 1967 the felling of over 5m² of timber in any one quarter, not subject to a valid planning consent or for the prevention of danger needs permission from the Forestry Commission which can take up to 3 months to process. This does not apply to the felling of trees with a diameter not exceeding 8 centimetres or, in the case of coppice or underwood, with a diameter not exceeding 15 centimetres; or to the felling of fruit trees or trees standing or growing on land comprised in an orchard, garden, churchyard or public open space; or to the topping or lopping of trees or the trimming or laying of hedges.

2.8 Waste Management Regulation 1994 (as amended)

Due care and consideration should be given to the disposal of any dredge spoil from the ditches. Under the Nitrates Directive and protection of Nitrate Vulnerable Zones the disposal of dredge spoil within the site may not be deemed acceptable.

2.9 Health and Safety

The site facility, operations and works related to this management plan should be subject to an appropriate risk assessment to meet health and safety obligations and addressed by a separate report.

3.0 AREA SURVEYED

3.1 Wildlife Area

The proposed wildlife area can be divided into the following four general areas relating to the habitats and function;

- Areas A: Wildlife area access, footpath, seating, solar lighting and signage;
- Areas B: Wildlife and conservation area wildflower meadow and planting;
- Areas C: Protection and enhancement of boundary trees, hedging, scrub, ditches and bare ground (soil and sand exposures);
- Areas D: Wildlife and conservation area pond and pond planting;
- Areas E: Additional planting, bird and bat boxes, habitat piles/banks

3.2 Landscape Areas and Landscape Components

The proposed landscape areas as listed above and existing habitats shown in the habitat map Appendix 2 subject to this landscape and habitat management plan include the following components:

- Bare ground
- Ditches
- Footpaths and tracks
- Improved and semi improved grassland areas
- Native hedgerows
- Scattered and dense scrub
- Standing water (pond and ditches)
- Trees and hedging
- Wildflower meadow

3.3 Development proposals under planning application (DC/17/4171/FUL)

The proposed development for which this wildlife area is being formed relates to the construction of 18 new dwellings across an improved grassland field to the north of Post Mill Lane and north-west of the proposed wildlife area. The construction areas to which the planning application relates contain a low diversity of habitats dominated by improved grassland, tall ruderal and common ephemeral and perennial weed species. The site is bordered by more valuable habitats including dense scrub, scattered trees and hedging.

All construction work and site operational mitigation would take place in accordance with the recommendations within the extended phase 1 habitat and protected species survey report dated October 2019 and the content of this outline habitat, landscape and environmental management plan. These recommendations should be secured by way of condition on any planning consent granted and will be supervised, implemented and monitored by the appointed ecological clerk of works (EcOW).

4.0 OBJECTIVES AND MANAGEMENT PRESCRIPTIONS BY AREA

Area A: Wildlife area access, footpath, seating, solar lighting and signage;

Objectives

- Maximise the ecological interests of the areas of mown grassland along the footpath.
- Maintain and enhance the habitats along the footpath.
- Tree and shrub planting with native species to improve the landscape structure, biodiversity, and amenity value of the wildlife area.
- Maximise the amenity value of the wildlife area, educational interest and safety with solar lighting.

Management

4.1 Plant native hedging including shrubs and trees with irregular spacing along the footpath entrance into the wildlife area from the west. This will define the site entrance, provide screening and privacy and improve habitat connectivity to surrounding habitats (See landscape plan). Spiral guards to protect plantings from rabbits and maintain for 5 years. Species should be native, locally sourced and could include hawthorn, blackthorn, field maple, hazel and dogwood with appropriate trees standards for the soil substrate (See Hedge planting specification in Section 5).

4.2 Once areas of rough grassland have established within the designated areas, mow grass rides to form a figure of 8 loop around the pond and wildflower meadow to provide a pleasant footpath for residents. The length of the footpath will be approximately 160m. The mown footpath will provide a boundary habitat for wildlife and some grass piles created along the boundary hedges and ditches. Surplus grass cuttings should be burnt or composted. Elsewhere maintain areas of rank grassland along the footpath edge, cut annually between August/September, sward height after cutting should be approximately 10-15cm.

4.3 Cutting and pruning back of branches overhanging the site entrance and footpath as required to allow safe pedestrian access around the site.

4.4 Install two benches for seating, one adjacent to the wildflower meadow area in the west of the site and another adjacent the wildlife pond in the east end of the site.

4.5 Upon completion of the wildlife area and once the designated areas have been established, create an information board to the site entrance detailing some of the species of flora and fauna that are present and/or may be seen.

4.6 Whilst the wildlife area is unlikely to be used after dark, it may be prudent to install some solar downlights along the footpath and particularly around the pond edges for safety. These lights will not require mains power and the low lux downlights will not cause disturbance to nocturnal species such as foraging and commuting bats.

Area B: Wildlife and conservation area wildflower meadow and planting;

Objectives

- Maximise the ecological interests of the wildlife and conservation areas.
- Maximise the ecological interests of the areas of grassland and seeding
- Promote the nature conservation interest of the site through the promotion of a fun adventure experience for children and families within the wildlife areas and quiet enjoyment and environmental education.
- Tree and shrub planting with native species to increase diversity and ecological connectivity across the site

Management

4.7 Seeding wildlife and conservation areas with meadow mix for fertile soils- Wildflower and grass mix (<http://www.wildflowersuk.com/details.asp?ID=19&name=Meadow-Seed-Mix-for-Fertile-Soils--Wildflower-and-Grass-Mix>). Mow newly sown meadows regularly throughout the first year of establishment to a height of 40-60mm, removing cuttings if dense. This will control annual weeds and help maintain balance between faster growing grasses and slower developing wild flowers, seeding with yellow rattle (*Rhinanthus minor*) will promote diversity as is a semi-parasitic plant feeding off the nutrients in the roots of nearby grasses.

4.8 Additional tree and shrub planting within wildlife areas and around pond and site margins, suggested native trees include oak, alder, poplar and willow as detailed in landscape plan, whilst understory shrubs could include spindle tree and Guelder rose.

4.9 *Grassland Management*; Lack of cutting/grazing results in grassland becoming dominated by coarse grasses and scrub and eventual loss of characteristic grassland species. Over cutting or grazing is not desirable although very short grassland and bare patches of soil can add structural diversity to the grassland. There is evidence of rabbit grazing across the site which creates varied sward height and so any supplementary mowing should be targeted in areas where the sward is not controlled by grazing.

4.10 Due to the relatively small area of the proposed management site (0.25ha) it is deemed that grazing would not be feasible so it is proposed that there will be rotational cutting of grassland habitats. Cutting will be restricted to small-scale patch cutting to maintain structural diversity rather than large-scale "Cropping" of the grass, which is particularly detrimental if the cuttings are left to lie on the ground. Mowing grassland and removing the cut material helps to keep soil nutrient levels low and create openings in the sward where seed can spread.

4.11 Grassland to be cut between late August and mid-September (the later the better as more plants will get a chance to set seed). Rough grassland fringes around the pond and scrub stands will benefit from a shorter 'cut and rake' rotation cycle of 2-3 years where a half or a third is cut in late summer/autumn. This should be integrated with the coppicing cycle i.e. cut and rake the edge of scrub block that is being coppiced in the same year.

4.12 Ensure all the cuttings are removed annually, or at least every two or three years. This is particularly important since any dead vegetation will smother any seeds trying to germinate and allow nutrients to build up on site. Some grass cuttings can be taken and used to create grass piles around the site in sunny areas next to the areas of scrub or hedges. The piles are to have a base of no more than 2m by 2m and be no more than 1m high.

4.13 Where possible, cut different parts of the grassland at different times of the year to create a more interesting mosaic, aim for a sward height of approximately 10-15cm after cutting. Rough grassland strips to be retained along the boundary hedgerows and ditches, at least 2-3m wide.

Area C: Protection and enhancement of boundary trees, hedging, scrub, ditches and bare ground (soil and sand exposures);

Objectives

- Tree and shrub planting with native species to improve the landscape structure, biodiversity, and screening/amenity value within the vicinity of the proposed new dwellings.
- Maintain the existing trees in as healthy and attractive condition for as long as possible, to ensure continuity in tree cover and their contribution to the landscape structure, biodiversity, and screening/amenity value of the site and ensure that trees are healthy and safe.
- Maintain and enhance sufficient areas of bare sand and gravel exposures, earth bunds and banks for wildlife.
- Management of existing boundary scrub habitats to enhance value to wildlife and control encroachment into other habitat areas.
- Supplementing and management of boundary trees and hedging.

Management

4.14 Infill planting of native hedging including shrubs and trees with irregular spacing along the footpath entrance into the wildlife area. This will define the siter entrance, provide screening and privacy and improve habitat connectivity to surrounding habitats (See landscape plan). Spiral guards to protect plantings from rabbits and maintain for 5 years. Species should be native, locally sourced and could include hawthorn, blackthorn, field maple, hazel and dogwood with appropriate trees standards for the sandy/gravel substrate (See Hedge planting specification in Section 5).

4.15 Once established, cut hedges on a two-year cycle cutting half the hedge width on each cut, to be cut during autumn/winter period. Strim or cut basal vegetation along hedges every 2 years to maintain and enhance ground flora.

4.16 Formative pruning and tree care of existing boundary trees and planting of additional native trees such as oak, birch, alder, poplar and willow. Supplementary planting and replacement of tree stock as required, including English oak to the north and west boundaries. Existing and newly planted trees to be suitable protected with guards to prevent bark damage. Stake and protect planting from

rabbits with spiral guards. Any cut wood to be used to create dead wood habitat and occasional refuges/hibernacula along the ditches, hedges and pond margins.

4.17 Rotational cutting of dense mature scrub stands on the east boundary to promote a more varied age structure across the site as well as targeted removal of encroaching scrub from open habitats where appropriate, such as the pond margins. Create long edges to the scrub stands which are sunny and sheltered and a scrub mosaic effect. Edges are particularly important for wildlife because they have flowering plants which provide continued nectar for invertebrates, fruits and seeds for birds and mammals, shelter and nest sites and hunting grounds for raptors.

4.18 Supplementary planting of hawthorn and blackthorn along the north and south boundaries will provide habitat for turtle dove and natural regeneration of seed-bearing plants such as teasel (*Dipsacus fullonum*) fumitory, knotgrass and chickweed provide an important food source as do the adjacent crop fields to the north of the site.

4.19 Existing trees should be regularly visually checked for the presence of any diseased or rotten wood; fungal or other infections/disease; and stability and record kept of such inspections. If any such issues are identified then the advice of a qualified arboriculturist should be sought immediately and the necessary action undertaken with the prior written agreement of the Local Planning Authority, to ensure the health & safety of the tree as well as persons and property in the immediate vicinity. Over and above the general checks for the presence of any diseased or rotten wood; fungal or other infections/disease; and stability, tree safety monitoring and pruning of branches around the site will be undertaken as required and recorded. This will provide a fully audited tree inspection and safety management regime to ensure the future health and safety of trees as well as persons and property in and around the site.

4.20 Any trees felled during site clearance to be chipped and composted to provide mulching material around new tree and shrub plantings.

4.21 Removal of top soil from small areas along the site margins and a raised bank within the wildflower island to create pioneer habitats where early colonizing ruderal species can thrive will also be implemented. Maintain areas of bare soil exposures along the banks of the ditches, especially close to scrub habitat which will provide basking habitat for reptiles and suitable conditions for aculeate hymenoptera such as bees, wasps and ants.

Area D: Wildlife and conservation area pond and pond planting;

Objectives

- To enhance the ecological quality and diversity of species associates with areas of standing water;
- Create a pond covering an area of approximately 100m²;
- Create an attractive and exciting route for visitors along the footpath;
- Enhance and manage the pond to maximise value to wildlife.
- Form a small reed-bed, including the enhancement of the marginal aquatic habitats for invertebrates such as dragonfly;
- Management of scrub vegetation along the margins of the pond;
- Monitoring of the pond margins for flora and fauna and to assess any damage or impacts of disturbance from site users.

Management

4.22 The pond to be enhanced and managed to maximise its value to wildlife and particularly. This will include profiling the pond to have shallow margins and banks to provide access and feeding areas for wildlife and promote marginal aquatic and emergent vegetation and areas of deeper water. A steep, densely vegetated bank will be created to provide potential water vole habitat. Occasional cutting back and clearance of invading scrub (alder, willow etc.) will be required to prevent encroachment and shading of the pond.

4.23 The wildlife pond will be left as far as possible as 'minimum intervention' with rotational cutting, clearing and maintenance as required. Cutting back of any scrub or self-seeded trees may be required on an occasional basis. The margins of the pond will be fenced off with minimal intervention to prevent access by pedestrians and dogs, although fencing wire should provide sufficient clearance for small mammals to access the pond.

4.24 Manage the margins of the pond on a 3-5-year cycle, with targeted control of emergents more often as necessary. Highest species diversity of aquatic plants is most often associated with margins managed every three to five years. Management should be undertaken in the late summer or early autumn, after plants have seeded, after the bird breeding season but before winter visitors arrive and when water levels are low. Annual checks of the pond margins for evidence of water voles, amphibians etc.

4.25 The proposed grassland areas around the pond provide habitat and foraging ground for waders and waterfowl. Planting around the new pond with native rushes and sedges including *Juncus spp*, common reed *Phragmites australis*, reedmace *Typha latifolia*, water mint *Mentha aquatica* and *Iris.spp* (See Section 5).

Area E:

Areas E: Additional planting, bird and bat boxes, habitat piles/banks

Objectives

- Tree and shrub planting with native species to improve the landscape structure, biodiversity and amenity value of the site;
- Install bat and bird boxes and refuges and hibernaculum for herpetofauna

Management

4.26 Tree and shrub planting within the site, such as around the edges of the footpath, wildflower island and along the west boundary ditch. To be comprised of native species of local provenance, including trees and shrubs appropriate to the local area. Suitable species for inclusion within the planting could include native trees such as Oak, Birch *Betula pendula* and Field Maple, whilst native shrub species of particular benefit would likely include fruit and nut bearing species which would provide additional food for wildlife, such as Blackthorn, Hawthorn, Crab Apple *Malus sylvestris*, Hazel *Corylus avellana* and Elder. Where non-native species are proposed, these should include species of value to wildlife, such as varieties listed on the RHS' 'Plants for Pollinators' database, providing a nectar source for bees and other pollinating insects.

4.27 Install bat and bird boxes on mature boundary trees as young trees offer limited nesting and roosting opportunities. Install Weatherlite bird and bat boxes as detailed in Section 6.

4.28 Create new habitat/hibernaculum piles/banks within undisturbed areas of the site such as within the wildflower island, pond island and banks of the ditches. These can be created at any time of year and will provide potential refuge sites on which any animals found during clearance works can be placed. The habitat piles should be created following the guidelines provided in Section 6.

5.0 SUPPLEMENTARY GUIDANCE TO WILDLIFE AREA CREATION AND HABITAT MANAGEMENT

5.1 Planting and management of hedgerows to maintain and enhance their value for wildlife.

New hedge planting, supplementation and management of hedgerows as detailed in Section 4. The hedgerows will incorporate native species and will complete habitat connectivity around the perimeter of the site by linking to the existing trees, scrub and shrubs. The hedgerow planting and management around the site will be the responsibility of the owners of the site and are to be maintained by trimming back to prevent them from becoming overgrown. Time of year that the hedges should be cut back is late winter.

5.1.1 General Hedge Management-

Good hedgerow management will support an abundance of insects and provide habitat for a range of birds and mammals, and supply of food for some species throughout the year. The management of the margins next to the hedge is also critical for a wide range of species. A variety of boundary types also provides habitat for a wider diversity of wildlife. Some birds such as partridges and yellowhammers prefer short hedgerows (<2m) with grass margins, bullfinches and doves prefer wide hedgerows (>4m).

The new boundary hedgerows planting to be implemented with the following methods;

- Undertake any planting during winter, provided the ground is not frozen. The best time is early winter, when the ground is warm and moisture is available.
- Planting up the gaps can be done in conjunction with coppicing existing plants to reduce competition for the young plants.
- Before planting, ensure the ground is free of vegetation, using glyphosate if necessary. Alternatively, plant through black polythene or a straw mulch to suppress weeds and reduce moisture loss. Weed control may be necessary for at least the following three years.
- It may be necessary to use plastic tubes, spirals, quills or rabbit netting to protect young plants from grazing rabbits or deer.
- Where hedgerow trees are a feature of the hedge, you should plan to replace mature or dead trees by allowing saplings of native species to be left untouched during trimming or by planting new trees.
- Retain old, dying and dead trees where they are not a hazard, as they support important insect communities and may be used by hole-nesting birds and bats.
- Where a hedge includes several hedgerow trees, establish buffer strips at least 3m wide on either side of the hedge to protect the roots from damage.

A dense hedge base provides good habitat and helps with weed control. Thick, dense cover at the base of a hedge is important to protect nesting birds from predation, gives additional habitat for small mammals and insects and, once established, prevents weed species such as cleavers and thistles from smothering the hedge and affecting the adjoining buffer strip.

- Aim to maintain a variety of hedge heights and widths to provide the best range of habitat.
- Trim in January or February to avoid destruction/disturbance of birds' nests (March to August).
- Trim on a two- or three-year rotation rather than annually to boost the berry crop and insect population.
- Avoid trimming all hedges in the same year.
- Consider allowing small hedges to grow out gradually by leaving an additional few centimetre in height and width at each cut.
- Ground cover at the hedge base should be retained over-winter for ground nesting birds.

5.1.2 Hedge Restoration and Creation-

Sympathetic rotational trimming generally keeps hedgerows in good condition for many years, but occasional restoration work is necessary to prevent gaps developing or hedges turning into a line of trees. Hedgerow restoration can be done in the winter by one of the following methods;

- Coppicing (cutting stems at ground level) is the best method of restoration where the hedge is too overgrown to be laid because the stems are too thick. Laying (cutting stems part way through and interweaving them along the hedge line) has a less drastic effect on wildlife and maintains the character of the landscape, but requires skilled labour.
- Both coppicing and laying may reduce nesting opportunities for some birds in the few years immediately after management and should therefore be carried out on a long rotation rather than managing large sections in one year.
- Plant up gaps in hedgerows using species that are native to the area – use local sources of plants of original native stock where possible.
- Undertake any planting during winter, provided the ground is not frozen. The best time is early winter, when the ground is warm and moisture is available.
- Planting up the gaps can be done in conjunction with coppicing existing plants to reduce competition for the young plants.
- Before planting, ensure the ground is free of vegetation, using glyphosate if necessary. Alternatively, plant through black polythene or a straw mulch to suppress weeds and reduce moisture loss. Weed control may be necessary for at least the following three years.
- It may be necessary to use plastic tubes, spirals, quills or rabbit netting to protect young plants from grazing rabbits or deer.
- Where hedgerow trees are a feature of the hedge, you should plan to replace mature or dead trees by allowing saplings of native species to be left untouched during trimming or by planting new trees.
- Retain old, dying and dead trees where they are not a hazard, as they support important insect communities and may be used by hole-nesting birds and bats.
- Where a hedge includes several hedgerow trees, establish buffer strips at least 3m wide on either side of the hedge to protect the roots from damage.

5.1.3 Landscape, Tree and Hedge Planting Schedule-

A detailed landscape design is included within the attached landscape plan as submitted which should also include the planting of native, berry bearing tree species around the site which would provide additional food sources and nesting sites for species. New hedge planting will be implemented as detailed and the existing gaps in boundary hedgerows will be supplemented where necessary by infilling gaps with native hedge species and trees (See Hedge Restoration and Creation).

PLANTING SCHEDULE				
HEDGEROW MIX (As necessary)				
SPECIES	DENSITY	AGE	ROOT	HEIGHT
30% Blackthorn (<i>Prunus spinosa</i>)	0.45m	1+1 or 1/1	BR	40-60cm
20% Hawthorn (<i>Crataegus monogyna</i>)	0.45m	1+1 or 1/1	BR	40-60cm
10% Guelder Rose (<i>Viburnum opulus</i>)	0.45m	1+1 or 1/1	BR	40-60cm
10% Dog Rose (<i>Rosa Canina</i>)	0.45m	1+1 or 1/1	BR	20-30cm
10% Hazel (<i>Corylus avellana</i>)	0.45m	1+1 or 1/1	BR	40-60cm
10% Field Maple (<i>Acer campestre</i>)	0.45m	1+1 or 1/1	BR	40-60cm
5% Wild Honeysuckle (<i>Lonicera periclymenum</i>)	0.45m	1+1 or 1/1	BR	20-30cm
5% Holly (<i>Ilex aquifolium</i>)	0.45m	1+1 or 1/1	CG-3I	40-60cm

5.2 Planting and management of species rich grassland to enhance their value for wildlife

5.2.1 The majority of the site interior will be initially seeded with a meadow grass mixture suitable for nutrient enriched soil such as, (<http://www.wildflowersuk.com/details.asp?ID=19&name=Meadow-seed-mix-for-Fertile-Soils--Wildflower-and-Grass-Mix>). Such seed mixes include fine grasses and wildflowers that are tolerant of drought and higher fertility conditions associated with former arable land.

5.2.2 Grassland habitats where managed correctly are important corridors for the movement of fauna, over-wintering habitats for many insects and birds that move into adjacent habitats. The recommendation for grassland buffer strips is:

- At least 2m wide and preferably 3m along hedgerows and ditches
- Composed of perennial grasses and other non-weedy herbaceous species
- Avoid use of pesticides and fertilizers in this area
- Allow build-up of dead grass material (essential for successful nesting)
- Top the vegetation every 2-3 years to avoid scrub encroachment.

5.2.3 Once planted the aim of the grassland management is to encourage diversity in the sward by allowing other native species to flower and set seed. The longer sward will also provide a more diverse habitat for invertebrates and other animals.

- The grassland areas should be cut annually.
- Mowing should take place in late Aug- Sept.
- The sward height after cutting should be 10-15cm approximately.
- These cuttings can be taken and used to create grass piles around the site in sunny areas next to the areas of shrubs, scrub, pond margins or hedges. The piles are to have a base of no more than 2m by 2m and be no more than 1m high. The excess cuttings should then be removed from the site.

5.2.4 Species Rich Wildflower Grassland Areas

Wildflower Meadow-

The dominant habitat within the interior of the site is improved and species poor semi-improved grassland with short perennials and tall ruderal vegetation of limited ecological value, however the key areas of the site are to be seeded and managed to encourage the growth of a wild-flower meadow and species rich grassland. There are two key stages to achieving this, the first being ground preparation, the second timing and technique of sowing seeds. These are summarized below;

Ground preparation-

Good preparation

is essential to success so aim to control weeds and produce a good quality seed bed before sowing. To prepare a seed bed first remove weeds using repeated cultivation or a herbicide. Then plough or dig to bury the surface vegetation, harrow or rake to produce a medium tilth, and roll or tread to produce a firm surface.

Sowing-

Seed is best sown in the autumn or spring but can be sown at other times of the year if there is sufficient warmth and moisture. The seed must be surface sown and can be applied by machine or broadcast by hand. To get an even distribution, and avoid running out, divide the seed into two or more parts and sow in overlapping sections. Do not incorporate or cover the seed, but firm in with a roll, or by treading, to give good soil/seed contact.

Aftercare-

First year management-

Growth and establishment of wild grasses may be slow initially, especially at low sowing rates (2-5g/m²). There will often be a flush of annual weeds from the soil in the first growing season. This weed growth is easily controlled by topping or mowing on an annual basis as detailed above.

Management once established-

In the second and subsequent years grass sowings can be managed in a number of ways which, in association with soil fertility, will determine the character of the grassland. The sowing can be managed as a meadow by allowing the grasses to

grow tall, flower and seed from May through to July/August. The grass meadow should be cut back and mowing resumed in late summer.

Grassland which is not cut or grazed each year will eventually become coarse and tussocky in character. Grass swards that do not contain wild flowers can be selectively sprayed to control unwanted weeds such as docks and thistles. Wild flower seed can be added after the grasses have established and weed problems have been dealt with. The sward will need preparation for sowing into existing grass. Flower establishment will not be as good as compared with sowing the grasses and flowers together on to bare soil, as the grasses have a 'head start'. Generally, when sowing grasses without wild flowers the sowing rate may be increased to 10-15g/m² without compromising the development of diversity.

Timing-

Seeds need both warmth and moisture to grow and may be sown at any time of year when these conditions are met. August-September and March-April usually produce the best conditions for sowing outside in most parts of the UK. May to July sowings also work well in wetter western regions. Late autumn sowings should be avoided on sites prone to water-logging in winter and late spring and summer sowings should be avoided on droughty sites. Sowings into existing grass work best in autumn. Some plants need to be sown at particular times to fit in with their life cycles or biology. Cornfield Annuals need to be sown in the autumn or before May in the following spring to get a flowering display. Yellow rattle must be sown in autumn.

5.2.5 Species Rich Grassland and Wildflower Meadow Specification-

Wildflower plantings may include wildflowers, meadow mixtures, grasses, annuals, perennials, bulbs, or any combination of these.

The type and height of the proposed species must be appropriate to the specific region and adoption site. Most wildflower suppliers will provide custom mixtures for specific geographical areas.

Seed application/planting rates will vary depending on the types of wildflowers chosen. As a guide we recommend a general wildflower meadow mix and a cornfield annuals seed mix. This mixture will provide a suitable mix of 80% grasses to 20% wildflowers and sown at approximately 4 g/m².

The grass management programme during the first year is critical for success. During this season the vegetation should be cut down to 5-7 cm whenever the sward reaches 10-20 cm. The number of cuts required will depend on the soil's fertility and can range from 1 to 4. This cutting regime has the purpose of eliminating any annual weeds by not allowing them to flower.

5.2.6 A Guide for Subsequent Management Regimes-

There are a number of options for subsequent management, depending on soil fertility and the weather conditions in the individual seasons. The classic wild flower

meadow is a hay meadow with a cut taken in late July/early August and an aftermath cut in the autumn. The cuttings are removed, especially after the hay cut. This management regime aims to replicate the practice of taking hay in the summer and grazing the field over the winter.

If the soil is fertile, or the growing season is especially good, which would result in very strong grass growth swamping the wild flowers, lodging (falling over) and looking untidy in the summer, the management regime can be modified. One, and possibly two additional cuts (if the site is especially fertile) in the spring and early summer (i.e. April/May) can be introduced. Cutting at this time reduces the grass's vigour, results in a shorter sward and a later flowering.

The hay cut is taken in early August, when the cuttings must be removed, followed by an aftermath cut in the autumn. Spring Flowering meadows have their first cut taken in late June. A second cut can be made in late July/early August followed by an aftermath cut in the Autumn. This management regime encourages spring flowering wild flowers (e.g. Cowslips, Cuckoo flowers) and the shorter wild flowers (e.g. Birdsfoot Trefoil, Daisies and Selfheal) during the summer. Late Summer flowering meadows can be encouraged by only cutting in the autumn; but adding one or two spring cuts if especially fertile.

5.3 Scrub Management

5.3.1 Scrub, including hawthorn and blackthorn scrub and bramble scrub, is very valuable for a range of wildlife including breeding and nesting birds, invertebrates, reptiles and small mammals. Since scrub is a transitory habitat, it needs management to maintain it otherwise it will develop into woodland or can become invasive and reduce the biodiversity of the site;

- Where a stand of scrub does not attract a great variety of wildlife, the aim of managing the scrub should be to improve its value for wildlife. This can be done by increasing the variety of species and structure, encouraging natural regeneration and by rotational cutting to increase the age range within the scrub.
- It is proposed that the existing dense mature scrub habitat along the east edge of the site will need rotational cutting to promote a more varied age structure as well as targeted removal of encroaching scrub from open habitats where appropriate. Aim to create long edges to the scrub stands which are sunny and sheltered. Edges are particularly important for wildlife because they have flowering plants which provide continued nectar for invertebrates, fruits and seeds for birds and mammals, shelter and nest sites and hunting grounds for raptors.
- Management of mature stands of scrub to be achieved through rotational coppicing blocks of scrub and allowing them to re-grow, the scrub's characteristic thicket structure is rejuvenated and maintained. Scrub typically matures at about 15 years, so coppicing 1/15th every year, i.e. a 15-year rotation, is a good rule of thumb; alternatively cutting 2/15th every other year or 3/15th every third year. Where scrub is almost entirely composed of

bramble, the rotation will be shorter, between 5-6 years (i.e. a fifth or sixth each winter) to provide a mosaic of bramble at different stages of growth. In any event avoid cutting adjacent patches sequentially in order not to reduce reptile cover and foliage for invertebrates to feed on.

- Work on scrub is best carried out in the autumn/winter, ideally early February, and should never be done during the bird nesting season (March – August). Work on berry bearing scrub is best delayed until after December, leaving valuable autumn and winter fruits and seeds as food for wildlife.
- Brash cuttings will be used to create habitat piles within the scrub. Limit the number of piles and once these are established as part of the rotation, use the same locations in future years.

5.3.2 *Techniques to be used for managing scrub*

- Planting and sowing – for improvement natural regeneration should be encouraged but for quick results plant with whips of local provenance and from a sustainable source or translocated from within the site.
- Manual/machinery – for improvement, maintenance, reduction or eradication- Whether hand tools or large-scale machinery is used for scrub management will depend on the extent of the scrub and site ground conditions. It is important to use tools appropriate to the task and ground conditions, ranging from hand held tools, mower, chainsaw, to tractor-mounted hedge cutters or excavators. Where the surrounding habitat is fragile, for example herb -rich grassland or wet ground, machinery may not be feasible or advisable. Slash and burn may also be appropriate in certain areas although the risks to the reptile population are such that mechanical clearance will be preferable.
- Herbicides – for reduction or eradication- These can be used to help with eradication of scrub, by treating stumps to prevent re-growth. Careful consideration should be given to the methods of applying chemicals to avoid any adverse impacts on the surrounding wildlife. Hand held applicator sprayers or painting of stumps are targeted approaches with little impact on the surrounding wildlife and good long-term results. To be effective it generally needs to be done soon after cutting, before the stems callous over.

5.3.3 *Invasive species and weed control*

- Plants such as ragwort, docks and thistles can be a problem. A major contributing factor to the presence of such species is the amount of bare and disturbed ground. Invasive species such as bracken and bramble readily encroach into open areas of land where it can become too dominant.

5.4 Pond Creation

5.4.1 The pond in the east island is to be managed and enhanced to increase its value to amphibians and reptiles. As a general rule amphibians prefer ponds with the following characteristics;

- Surface area between 100 and 300m²
- Depth may vary; both deep (up to around 4m) and shallow ponds may be used
- Occasional drying out is not a problem, even if this means a total loss of that year's larvae; the pond should hold water throughout at least one summer in every 3 years
- Substantial cover of submerged and marginal vegetation
- Open areas to facilitate courtship behaviour
- Good populations of invertebrates and other amphibians, for prey
- Absence of shading on the south side
- Absence of fish and absence of low density of waterfowl

Profiling the bank of pond to provide slopes of about 45 degrees allows growth of emergent plants and provides feeding areas for waterfowl and their chicks. Consideration can be given to creating shallow scrapes at the ponds margins to create additional feeding habitat for waders.

5.4.2 Managing the habitat for amphibians and reptiles involves manipulation of both terrestrial and aquatic habitats. The terrestrial habitat is to have refuges and suitable areas for hibernation created. No fish to be stocked in the pond as these predate the eggs of amphibians.

5.4.3 Ponds require regular management by rotation to ensure they remain clear and fulfil their primary purpose. All successional stages have their attendant specialist plants and invertebrates; hence management should aim to provide every stage from recently cleared banks to those heavily choked with emergent vegetation. An understanding of the presence and distribution of scarce species is important so that their requirements can be accommodated in the management.

Sympathetic options for pond management include:

- Clearing alternate sides of the pond in each management period.
- Clearing the pond in sections; e.g. clear 10m lengths, with 10m between, alternate at each management period.

Frequency-

The length of the management rotation depends on factors such as aquatic vegetation, growth rates and water levels. Possible options for pond cleaning cycles are:

- light maintenance every year

- a two-year cycle, cutting half the pond banks each year, less frequent routine maintenance with targeted control of emergents more often as necessary
- radical cleaning and de-silting every 5-10 years as required

Highest species diversity of aquatic plants is most often associated with ponds managed every three to five years. Pond management should be undertaken in the late summer or early autumn:

- After plants have seeded
- After the bird breeding season but before winter visitors arrive
- When water levels are low

5.5 Retention of areas of bare ground (soil, sand and gravel)

It is proposed to retain areas of bare ground within the site, such as bunds, banks, ditch banks, tracks etc. Open patches of bare ground provide a valuable habitat mosaic within the surrounding habitats and feature early successional stages of vegetation.

Bare ground also heats up quickly in the sun providing ideal conditions for warmth-loving invertebrates and reptiles. Sand and gravel substrates are also valuable for aculeate hymenoptera (bees, wasps, ants etc.). Bare ground will eventually re-vegetate, open grassland swards will close up and coarse grasses and scrub will eventually dominate. This process can be re-set by re-profiling these areas of bare ground by creating scrapes to remove vegetation.

5.6 Invasive species and weed control

Plants such as ragwort, docks and thistles can be a problem. A major contributing factor to the presence of such species is the amount of bare and disturbed ground. This often arises from nutrient enrichment, over cutting/grazing, poaching, bonfire sites, or because a site has been reseeded in the past and contains a weed species seed bank (ragwort seed can remain dormant for up to 20 years). It is very important to ensure that there is a closed sward and this can be achieved by encouraging grasses to tiller.

Invasive species such as bracken, cherry laurel and rhododendron readily encroach into open areas of land where it can become too dominant and where present should be selectively removed to favour broadleaved, native species of trees and shrubs.

6.0 PROTECTED SPECIES

6.1 BIRDS-

SPECIES LEGISLATION-

Birds – all British birds, their nests and eggs (with certain exceptions) are protected under Section 1 of the Wildlife & Countryside Act 1981 as amended. This makes it an offence to:

- intentionally kill, injure or take any wild bird
- intentionally damage or destroy the nest of any wild bird while that nest is in use or being built
- intentionally take or destroy the egg of any wild bird
- possess or control any live or dead wild bird or any part of, or anything derived from a wild bird, or an egg or any part of the same.

DETAILED MITIGATION PLAN-

Birds – at present, the availability of nesting sites for birds is good as there are mature boundary trees, scrub, hedges of sufficient size or age to have nesting features. Landscaping by way of tree, shrub and hedge planting will provide additional nesting spaces in time but in the short term will be of limited value to birds. The following mitigation is to be implemented;

- The timing of scrub clearance, tree thinning/removal and grass cutting across the site will be sensitive to nesting birds. It is recommended that management works to scrub habitat which may be supporting nesting birds commence during the period between 15th September and end of February to avoid the main bird nesting season and to avoid potential disturbance to birds nesting within the area. May is a peak time for nesting birds, and deciduous trees and hedging bordering the site offers suitable breeding bird habitat.
- As new nests can be built at any time, it is recommended that any works within area of suitable nesting habitat be carried out under ecological supervision, or following a visual inspection. If this is not possible, then a nesting bird survey should be carried out by an experienced ecologist 24-48 hours prior to works. If during the survey an active nest is identified it must be left in-situ until the young have fledged and the nest has been abandoned. The site must be cleared during this period under the supervision of a suitably qualified ecologist (SQE).
- Once the clearance works commences birds are unlikely to start nesting within the working areas. However, in order to avoid accidental harm to nesting birds, a 10m buffer zone will be marked around any nest using high visibility fencing to ensure that the nest is not disturbed, damaged or destroyed whilst in use. Any such nest must be left undisturbed until the young have fledged.

- If any ground nesting birds are found to be nesting within or close to the working areas during the pre-inspection survey or clearance, a 25m standoff from the nest will be marked out using high visibility tape, within which no operational activity will be permitted until the breeding attempt concluded.
- On advice from the RSPB create 3 areas of habitat suitable as nesting areas for Turtle Doves which are now becoming rarer and are a UK/Suffolk BAP species. The site already has bordering stands of scrub, which Turtle Doves require (3 metres high and 4 metres wide) and these will be retained and managed accordingly and extended into the south-east corner of the site with Blackthorn and Hawthorn, supplemented with climbing plants such as traveller's joy (wild clematis), honeysuckle and bramble which are important for this species as is fresh open water because Turtle Doves are seed eaters. In addition, it is intended to put up many bird boxes on existing trees in the hope of attracting Tree Sparrows which also are becoming rare (see box specification below).
- Routine monitoring of bird populations at the site will take place, with an initial survey schedule of every 2 years for the first 4 years and every 3 years for the remaining 6 years of the 10-year management plan.
- To increase nesting opportunities generally, nest boxes will be installed. The box types should be designed for longevity and 'Weatherlite' boxes are recommended for most of them, in varying styles for differing species, which should be affixed to the mature scattered and boundary trees away from areas likely to be disturbed by people. This will total approximately 10 nest boxes which should be installed at heights sufficient to prevent predation with a south or south-east orientation.
- *Birds – nest boxes*: Installation of the nest boxes will be supervised by 'Eco-Check Ltd' or an experienced ecologist to ensure the correct positioning for each species. The types of nest boxes will cover a range of species as identified and will include:
 - Weatherlite bird boxes (32mm)
 - Weatherlite nest boxes (27mm)
 - Weatherlite wren roundhouse boxes
 - Weatherlite deep nest boxes for robins
 - Weatherlite general nest boxes
 - Schwegler No. 5 Owl boxes
 - Barn owl nest box
 - Woodpecker/Starling Nest Box

6.2 BATS-

Some of the mature boundary trees offer some opportunities for roosting bats such as fissures, cracks, rot holes, peeling bark etc. The site contains good bat foraging and commuting habitat for a range of bat species. Bat boxes on the mature trees would be likely used by roosting bats.

SPECIES LEGISLATION-

Bats- All species of British bat and their roosts are protected under British law by the Wildlife and Countryside Act 1994 (as amended), which is extended by the Countryside and Rights of Way Act 2000. Bats are classified as European Protected Species under the Conservation of Species and Habitats Regulations 2017. Together, the legislation makes it illegal to:

- Intentionally or deliberately kill, injure or capture (or take) bats;
- Deliberately disturb bats (whether in a roost or not);
- Recklessly disturb roosting bats or obstruct access to their roosts;
- Damage or destroy bat roosts;
- Possess or transport a bat or any part of a bat, unless acquired legally;
- Sell, barter or exchange bats (dead or alive) or parts of bats.

DETAILED MITIGATION PLAN-

The felling of any unsafe or diseased trees must always be undertaken with extreme caution under the assumption that bats may be present. Trees due to be felled should always be checked for signs of bats prior to felling; this is particularly the case for standing deadwood. Signs of roosting bats may include tiny scratches and staining around entry point to roost, bat droppings in/around/below entrance and the smoothing of surfaces around the roost entrance although evidence of a tree bat roost is not always evident.

In the event that trees are required to be removed, those which provide potential roost opportunities must be felled at a time which avoids the summer (breeding season) and winter (hibernation season):

- Late August to early October is the optimum time to carry out work on trees with bat roost potential as young bats are on the wing and the hibernation season has not yet commenced. However, consideration should be given to the presence of late breeding birds before trees are removed as breeding birds are protected under the Wildlife and Countryside Act 1981 (as amended).
- March or April is also a suitable time to carry out work on trees with bat roost potential, as bats are starting to move out of their winter hibernacula yet have not set up maternity roosts yet. Again, consideration for nesting birds should be given.
- Felling of trees with bat roost potential should be undertaken under the supervision of a suitably qualified ecologist. After the ecologist has checked the tree, it should be felled in stages, with branches lopped off individually rather than felling at the trunk. The trunk should then be felled in sections. The felled branches and sections of trunk should be carefully laid on the ground

making sure that any holes or crevices are not blocked and are facing downwards so rain water cannot enter, but also positioned to enable any bats present to easily vacate the crevice. Branches and trunk sections should be left in place for 48 hours to allow any bats to vacate prior to their removal.

- A suitable buffer zone should be placed around potential bat roost features and/or any of the proposed bat boxes to prevent disturbance.

Bat Mitigation Measures: Foraging and Commuting Habitat-

The protection of flight lines is extremely important in maintaining the ability of bats to access roosts and foraging areas. Due the number of linear features running around the periphery of the site it is not anticipated that any foraging or commuting routes will be bisected.

The proposed wildlife area will result in minimal loss of trees, hedges or other linear features and so foraging and commuting routes are unlikely to be impacted. The proposed hedges, trees, shrubs, pond etc. to be crated within the site will create additional foraging areas and offset any habitat loss. To encourage bats to use the boundary flight lines, any lighting should be kept to an absolute minimum or designed such that its impact is reduced (See Section Lighting). The proposal is for low wattage, solar downlighters installed at ground level to provide safety for pedestrians and at the same time minimise disturbance to nocturnal species.

Tree and hedge planting should be connected with existing linear flight lines on the site such as hedges, pond and trees to maintain connectivity. Tree planting should reflect the species currently present. It should include native species such as oak (*Quercus robur*). Native hedge planting will include blackthorn (*Prunus spinosa*), hawthorn (*Crataegus monogyna*) and spindle (*Euonymus europaeus*) and should include occasional fast-growing standards such as wild cherry (*Prunus avium*) or field maple (*Acer campestre*). Planting strongly-scented flowering plants, such as honeysuckle (*Lonicera periclymenum*) and sweet briar (*Rosa rubiginosa*) will attract insects which would benefit foraging bats.

Bat Mitigation Measures: Roosting Habitat

New bat roosting resources will be introduced to the site. This will take the form of 5 bat boxes which will include;

- Weatherlite Pentagon Bat Box
- Weatherlite Kent Box
- Weatherlite double chamber box
- 1 '1FW' Bat Hibernation Box
- 1 'Schwegler 1WQ' summer and winter roost box

These boxes are to be installed on the mature boundary trees around the site margins at a sufficient height to prevent ground predation. The boxes will ideally be on each elevation to provide the best variation in temperature, shelter and flight lines. If only one elevation is used this should be south-east facing as this provides the most shelter and warmth.

Monitoring and Management-

The bat boxes will be installed and maintained by the licensed bat ecologist (LBE) and maintained for a minimum of five years post construction.

The bat boxes will be checked and maintained where necessary on a yearly basis, to include a check for any roosting bats or signs of bat activity. If a bat box has not been utilised within the first 3 years it will be moved and installed in a different location, utilising any additional data from bat surveys to identify the optimal placement.

In order to prevent a potential breach in wildlife legislation, works close to, or to trees that support features of high or moderate potential to support a bat roost should be avoided and lighting should not directly light potential roost entrances.

Bat Mitigation Measures: Lighting-

Any new external lights will be set on a motion detector and positioned in such a way that they do not shine on the boundary habitats, tree canopies or hedges. Low intensity lighting should be used where possible in place of high intensity discharge or sodium lamps, this will minimize disturbance to foraging and commuting bats.

In accordance with the Bat Conservation Trust's publication *Bats and artificial lighting* (BCT, 2018) light pollution by artificial lighting will be kept to a minimum and light spillage avoided. The following specific mitigation will be put in place to minimize disturbance to bats caused by the lighting of the site. The following mitigation strategies have been taken from Bat Conservation Trust Landscape and Urban Design for Bats and Biodiversity (Gunnell et al., 2012) and other referenced sources:

- Minimise light spill by eliminating any bare bulbs and upward pointing light fixtures. The spread of light should be kept near to or below the horizontal plane, by using as steep a downward angle as possible and/or shield hood. Flat, cut-off lanterns are best;
- Use light sources that emit minimal ultra-violet light (van Langevelde and Feta, 2001) and avoid the white and blue wavelengths of the light spectrum, so as to avoid attracting insects and thus potentially reducing numbers in adjacent areas;
- Limiting the height of lighting columns to eight metres and increase the spacing of lighting columns (Fure, 2006) can reduce the spill of light into unwanted areas;
- Avoid using reflective surfaces under lights or light reflecting off windows (e.g. on to trees);
- Only the minimum amount of light needed for safety and access should be used and or turned off when the site is not in use;
- Artificial lighting proposals should not directly illuminate boundary habitats, which may be of value to foraging or commuting bats and birds (e.g. green corridors);

- Lighting that is required for security reasons should use a lamp of no greater than 2000 lumens (150 Watts) and be PIR sensor activated, to ensure that the lights are not on only when required (Jones, 2000; Collins, 2016);

6.3 HERPETOFAUNA- AMPHIBIANS AND REPTILES-

The site contains a good mosaic of terrestrial habitats that are of value to amphibians and reptiles comprising hedges, scrub, ditches, banks, open basking areas, tall ruderal vegetation, brash, wood piles etc. In the event that herpetofauna are found to be present work must cease and mitigation measures must be undertaken. If any reptiles or great crested newts are encountered within working areas then a European Protected Species mitigation license may be required from Natural England. This must be carried out on the advice of a suitably qualified herpetologist.

SPECIES LEGISLATION-

Herpetofauna- Native species of herpetofauna are protected solely under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). Species such as the adder *Vipera berus*, grass snake *Natrix natrix*, common lizard *Zootoca vivipara* and slowworm *Anguis fragilis* are listed in respect to Section 9(1) & (5). For these species, it is prohibited to:

- Intentionally (or recklessly in Scotland) kill or injure these species
- Sell, offer or expose for sale, possess or transport for purpose of sale these species, or any part thereof.

DETAILED MITIGATION PLAN-

- An understanding of reptile biology can help to ensure that any problems for reptiles that could arise from habitat management are avoided or minimised. Key points are:
 - Reptiles often favour mid-successional habitats and interfaces or ecotones can be important reptile habitat e.g. between scrub and rough grassland.
 - They need warmth, connectivity of habitat patches and varied topography/south facing slopes, abundant prey and cover from predators
 - Most have quite limited dispersal abilities
 - Large scale damage or loss of vegetation can be catastrophic to local populations of reptiles
 - Reptiles can show high fidelity to small habitat patches. They hibernate from October/November onwards and can emerge as early as February in warm conditions
 - The outcome of habitat management is important. Providing suitable habitat in the long term may mitigate for short term harm to individuals during management actions

- Management principals to adopt where reptiles are likely to be present:
 - Identify and map reptile foci and treat these areas carefully with management specifically tailored for reptiles. These may be areas with favourable topography, diverse habitat structure rich in prey etc.
 - Identify and map communal hibernacula and avoid damage to them during management
 - Try to keep south facing aspects open but with a mosaic of scrub and taller vegetation nearby
 - Areas of non-intervention are valuable to reptiles, especially in low nutrient status zones where vegetation growth is likely to be slow
 - Timing of works is crucial to minimise harm to reptiles
 - Winter is the best time for surface tree/shrub clearance (Nov-Feb) but leaving a hibernation site completely devoid of cover makes emerging animals vulnerable to predation

It is important to strike a balance between potential harm to individual reptiles and considering the wider needs of reptile populations as well as taking into account other site interest features

Management Timetable for Reptile Habitats Adapted from the Reptile Management Handbook:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mowing												
Scrub/tree work												
Bracken cutting												
Stump treatment												

Dark green = most effective/least damaging time for management

Light green = work may be less effective and/or requires more care to avoid disturbance

Mitigation for great crested newts and other amphibians normally comprises the following elements:

- Habitat creation, restoration or enhancement – to provide receptor areas for displaced amphibians, in compensation for areas to be lost or damaged
- Avoidance of disturbance, killing or injury – taking all reasonable steps to ensure works do not harm individuals, by altering working methods or timing to avoid newts; capture and removal; exclusion to prevent newts entering development areas
- Long-term habitat management and maintenance – to ensure the population will persist
- Post-development population monitoring – to assess the success of the scheme and to inform management or remedial operations.

Timing of Works;

- Removal of trees, scrub and any hedgerow sections and grubbing up roots to facilitate works as well as clearance of timber piles etc. should be timed to avoid the newt hibernation period (October to March inclusive);
- Piles of rubble, brash and timber represent ideal hibernacula for common lizards and snakes which generally begin hibernation between the final week of October and early November, depending on local weather conditions and temperatures. These habitats should not be disturbed during the winter months when herpetofauna are hibernating and therefore vulnerable;
- Strimming or cutting of tall vegetation, scrub and grassland within the construction areas and clearance of potential refuges should be undertaken on a warm (above 13°C), dry day with little wind. In this way herpetofauna are less likely to be in terrestrial refuges where they may be at risk of harm and are also more active at this time and so could escape harm's way. Vegetation should be cut to no less than 150mm on the first cut starting at the centre of the site working out towards the edges to allow any wildlife to disperse. After 48 hours the site may be cleared to ground level.
- Any piles of spoil (brash, logs or rubble) which are created during the course of site works should be immediately burned, removed from the site or ring-fenced in the event that they are to remain on site for any length of time. These measures will ensure that no hibernating animals are killed or injured during the winter period (November to March) when they are too sluggish to escape machinery.

Advance Works;

The following works are recommended to be implemented prior to any clearance and construction activities:

- An area of land containing features of value to amphibians and reptiles, within the boundary of the site and around the wildlife pond will be identified for biodiversity enhancement. The pond management should follow the specification as outlined under Section 5.4 to maximise its value to amphibians and other wildlife.
- Prior to the clearance of any potential reptile, amphibian and mammal refuge sites (including any rubble, sheeting, mud and leaf/vegetation piles), two new habitat/hibernaculum piles/banks will be created. These can be created at any time of year and will provide potential refuge sites on which any animals found during clearance works can be placed. The habitat piles should be created following the guidelines provided below (**Habitat Creation**) and be built in a location where the habitat/hibernaculum piles could remain unharmed throughout the proposed works and in to the future. The shape of the habitat piles/banks is not important but each should cover an area of approximately 4m². The location of these areas is marked on the masterplan in Appendix 2;

- A check of any potential refuges or hibernaculum (wood piles, rubble piles, brash, sheet materials, building materials, grass cuttings etc.) within the working areas will be undertaken immediately prior to works commencing and prior to cutting any potential herpetofauna habitat such as rank grassland, tall ruderal, scrub etc. The grassland and tall ruderal vegetation within and surrounding the working areas will be searched and then strimmed to no less than 150mm height on a warm (above 13°C), dry day with little wind and maintained at a short sward in order to discourage amphibians and reptiles for the duration of the construction period;
- Any herpetofauna found will be trans-located by the SQE into suitable receptor habitat as previously identified within the wildlife pond area or habitat/ hibernaculum piles. The supervision will continue until the SQE is satisfied that no herpetofauna are present;
- In the unlikely event that significant numbers of amphibians or reptiles were discovered, works would need to stop until the situation has been further assessed, and if necessary, a mitigation strategy developed and an application made for a site licence;
- All site workers will be briefed as to the possibility of protected species being present, the significance of their presence, the statutory protection they are afforded, where they are likely to be encountered, identification features, and what to do if any are found during works.

Habitat/Hibernaculum Pile Construction

The following guidelines are taken from the Great Crested Newt Conservation Handbook (Langton, T.E.S *et al.*, 2001) but were considered to be equally successful at providing potential refuge habitat for widespread reptiles:

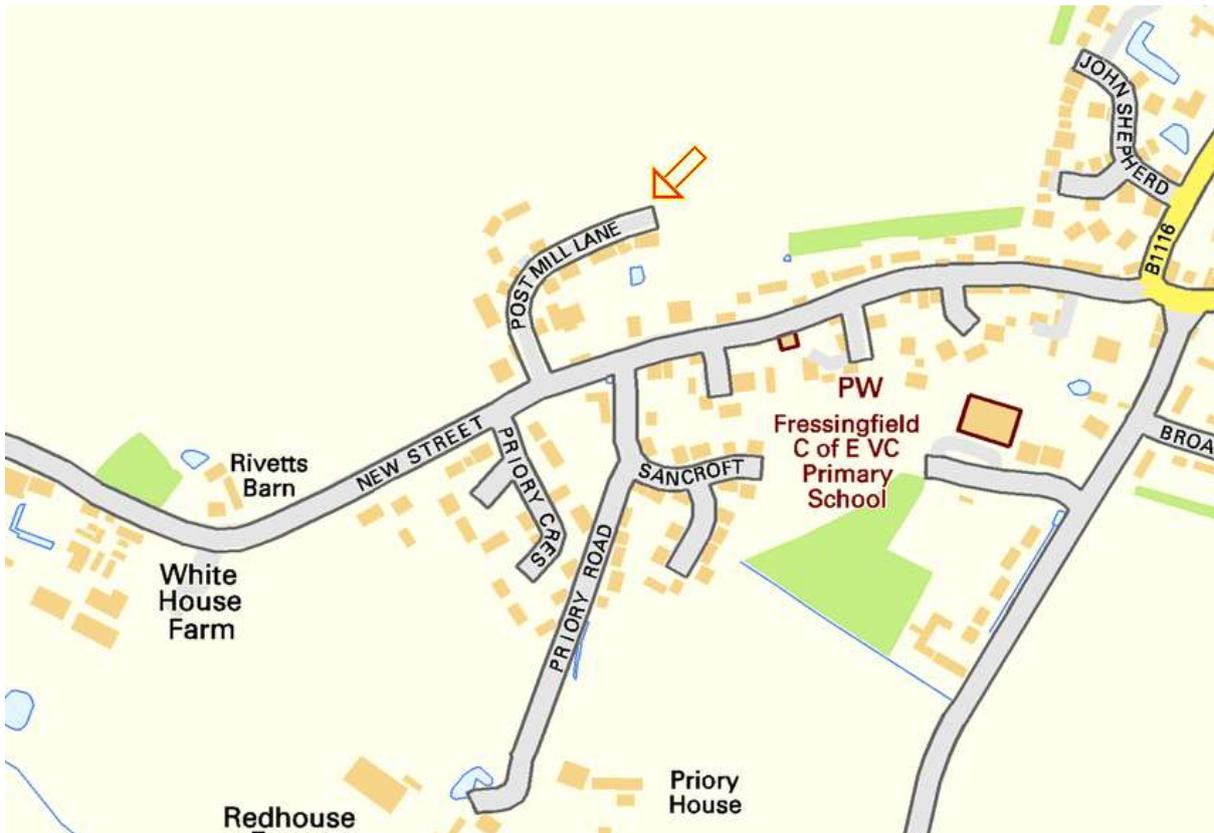
- habitat piles/hibernaculum should be located on the marginal habitats away from the proposed public access areas;
- for the habitat/hibernaculum piles, dig a hole approximately 50cm deep covering an area of approximately 2m², preferably south facing;
- for the habitat/hibernaculum bank, dig a trench approximately 50cm deep, 2m wide and approximately 10m in length so that it covers an area of approximately 20m²;
- create a layer of stone, rubble and wood on the floor of the dug hole;
- continue to add to the pile using soil from site excavation to spread over and between stones, rubble and wood;
- stone, rock, clean brick rubble (without cement residues) and old or misfired bricks can be used with split logs or fallen wood;
- cover the edges of the bricks with paving slabs or large pieces of concrete to create gaps that allow reptiles into the mound. Cover these in a thin layer of soil and brash, taking care not to block off any gaps.

7.0 COMPLIANCE

PERSONS RESPONSIBLE FOR;

- **Compliance with legal consents relating to nature conservation** – 'Eco-Check Ltd' in cooperation with land owner C.E Davidson and appointed contractors.
- **Compliance with planning conditions relating to nature conservation** – Land owner, contractors and ecologist
- **Implementation of sensitive working practices during site management** – Site manager and contractors/employees.
- **Implementation of the Management Plan** – Land owner in cooperation with ecologist to perform annual check of compliance with management plan. This should include a walkover of the site by the ecologist, to provide technical support in the continual management of the site. The purpose is to review the success of management regimes, suggesting alterations and improvements.

APPENDIX 1



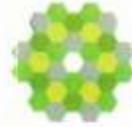
Site Location Plan- Streetmap 2015



Proposed wildlife conservation area

Land Registry
Official copy of
title plan

Title number SK358961
Ordnance Survey map reference TM2577SE
Scale 1:1250 enlarged from 1:2500
Administrative area Suffolk: Mid Suffolk



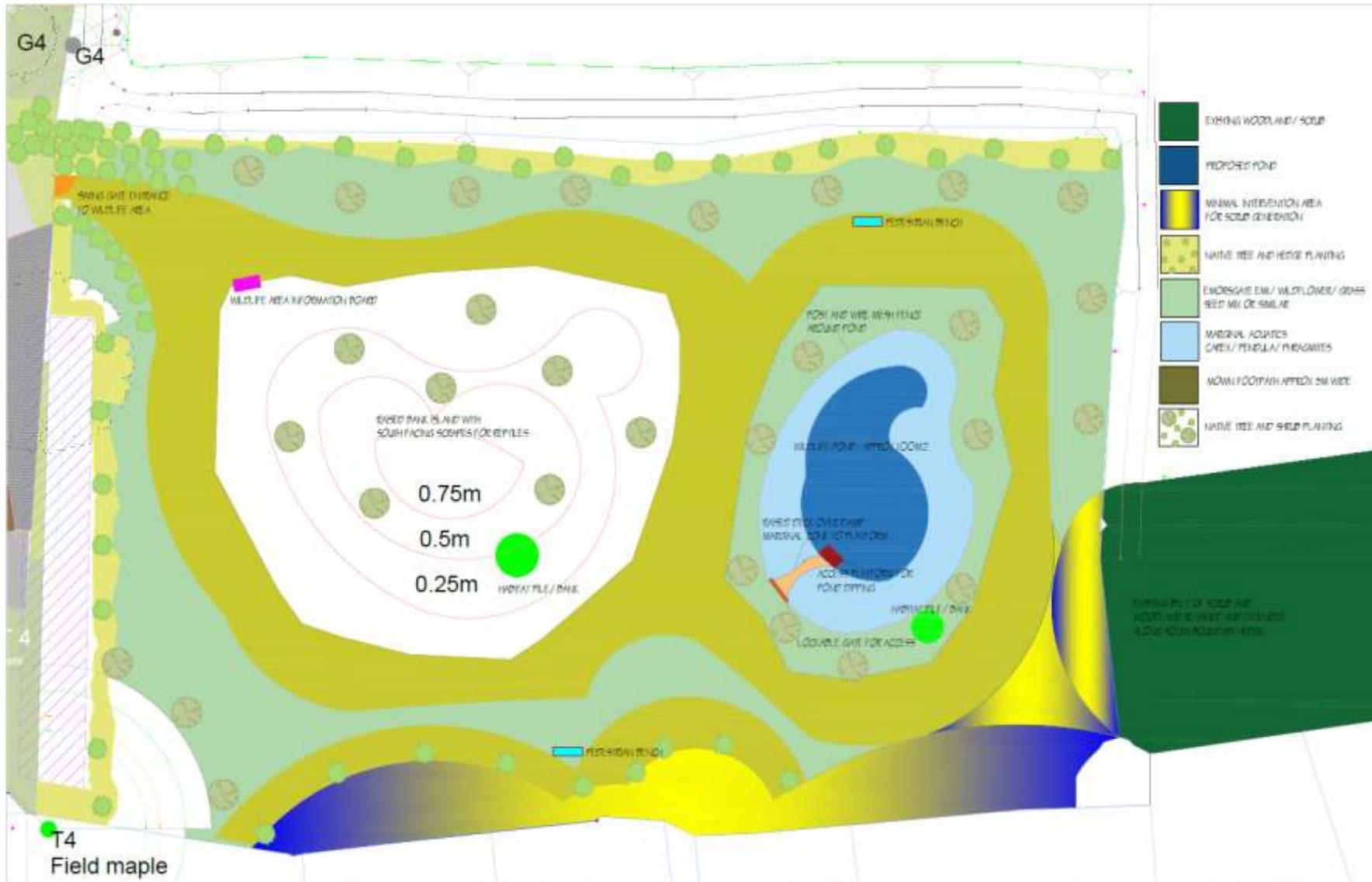
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This official copy issued on 2 March 2015 shows the state of this title plan on 2 March 2015 at 17:12:02. It is admissible in evidence to the same extent as the original (s.67 Land Registration Act 2002).
This title plan shows the general position, not the exact line, of the boundaries. It may be subject to distortions in scale. Measurements scaled from this plan may not match measurements between the same points on the ground.
This title is dealt with by Land Registry, Kingston upon Hull Office.

Extent of Proposed Wildlife Conservation Area

APPENDIX 2- Management Areas and Timetable- Plan 1st July 2020



Proposed 10-year management plan timetable- To be confirmed pending planning approval

Areas A											
Operation	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	

Areas B										
Operation	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029

Areas C										
Operation	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029

Areas D										
Operation	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029

Areas E										
Operation	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029

Table 6.1 Guidance on the optimal timing for carrying out specialist ecological surveys and mitigation

This is not definitive and is intended to provide an indication only. The timing of surveys and animal activity will be dependent on factors such as weather conditions. Please consult the *species briefing sheets* for more detailed information, including species distribution.

KEY	
	Recommended survey time
	No surveys
	Mitigation conducted at these times
	Mitigation works restricted

- * Where survey techniques involve the capture, handling or disturbance of *protected species* then only licensed persons can undertake surveys; personal *survey and monitoring* licences are obtained from English Nature, Countryside Council for Wales, Environment and Heritage Service (NI) or Scottish Natural Heritage
- ** Where mitigation involves the killing, capture, injury and/or disturbance of *protected species* and/or the damage, destruction or obstruction of their *habitats*, a *development licence* must be obtained from the Department for Food and Rural Affairs (England), Scottish Executive's Environment and Rural Affairs Department, Welsh Assembly (Countryside Division) or the Environment and Heritage Service Northern Ireland. Licences will be granted only to persons who have proven competence in dealing with the species concerned. Development licence applications

take approximately 30 days to be processed by government departments. Where mitigation works need to be conducted under licence *before* works begin, licence applications will need to be submitted considerably earlier.

		Licence required?	J	F	M	A	M	J	J	A	S	O	N	D	
Habitats / vegetation	Surveys	N	Mosses and lichens. No other detailed plant surveys – Phase 1 surveys only (least suitable time)			Detailed habitat assessment surveys Surveys for higher plants and ferns Mosses and lichens in April, May and September only						Mosses and lichens. No other detailed plant surveys – Phase 1 surveys only (least suitable time)			
	Mitigation	N	Planting and translocation		No mitigation for majority of species						Planting and translocation				
Birds	Surveys	N	Winter birds		Breeding birds / migrant species			Breeding birds		Breeding birds / migrant species			Winter birds		
	Mitigation	N	Clearance works may be conducted at this time, but must stop immediately if any nesting birds are found		No clearance or construction works Bird nesting season						Clearance works may be conducted at this time, but must stop immediately if any nesting birds are found				
Badgers	Surveys	*	All survey methods – best time is in spring and early autumn / winter												
	Mitigation	**	Building of artificial setts No disturbance of existing setts						Stopping up or destruction of existing setts					See Jan to June	
Bats	Surveys	*	Inspection of hibernation, tree and building roosts			No surveys		Activity surveys and inspection of building roosts. Emergence counts.				No surveys		Inspection of hibernation, tree and building roosts	
	Mitigation	**	Works on maternity roosts		Works on maternity roosts until mid-May. Works on hibernation roosts from mid-March			Works on hibernation roosts only			Hibernation roosts until November. Maternity roosts from mid-September		Works on maternity roosts only		

Table 6.1 Guidance on the optimal timing for carrying out specialist ecological surveys and mitigation (continued)

		Licence required?	J	F	M	A	M	J	J	A	S	O	N	D
Dormice	Surveys	*	Nut searches (sub-optimum time)		Nest searches (April sub-optimum time)		Cage traps and hair tube surveys to mid-October Nut searches from September (optimum time September to December) Nest searches (optimum time September to March)						Nut searches and nest searches (optimum time)	
	Mitigation	**	No clearance works				Clearance works (sub-optimum time)		No clearance works			Clearance works to early October (optimum time)		No clearance works
Otters	Surveys	*	Surveys for otters can potentially be conducted all year round, though vegetation cover and weather conditions may limit the times at which surveys can be carried out.											
	Mitigation	**	Mitigation can potentially be conducted in any month, but is likely to be restricted where otters are found to be breeding											
Pine martens	Surveys	*	Surveys may be conducted all year round weather permitting Optimum time is spring and summer. Surveys for breeding dens from March to May.											
	Mitigation	**	Works in areas of pine marten habitat and dens		Avoid all works in pine marten habitat								Works in areas of pine marten habitat and dens	
Red squirrels	Surveys	*	Surveys may be conducted all year round weather permitting Optimum time is spring and summer. Surveys for breeding females from December to September.											
	Mitigation	**	Avoid all works in red squirrel habitat										Works should preferably be conducted at this time	
Water voles (n/a in NI)	Surveys	*	Reduced activity	Initial surveys possible	All survey methods can be used during this period, though vegetation cover and weather conditions may limit the times at which surveys can be carried out. (Optimum time: March to June)						Initial surveys possible	Reduced activity		
	Mitigation	N ²	Avoid all works in water vole habitat			Works in water voles habitat possible	Avoid all works in water vole habitat			Works in water vole habitat possible		Avoid all works in water vole habitat		
Sand lizards, smooth snakes (n/a in NI) and common lizards	Surveys	*	No surveys – reptiles in hibernation		Activity surveys from March to June and in September / October. Surveys are limited by high temperatures during July and August. Peak survey months are April, May and September.						No surveys – reptiles in hibernation			
	Mitigation	**	Scrub clearance		Capture and translocation programmes can only be conducted whilst reptiles are active (March to June and September / October). Trapping is limited by high temperatures during July / August. Scrub clearance						Scrub clearance			

² The extent of legal protection of the water vole is currently under review; it has been proposed to fully protect water voles, as well as their habitats.

Table 6.1 Guidance on the optimal timing for carrying out specialist ecological surveys and mitigation (continued)

		Licence required?	J	F	M	A	M	J	J	A	S	O	N	D
Other reptiles	Surveys	N	No surveys – reptiles in hibernation	Activity surveys from March to June and in September / October. Surveys are limited by high temperatures during July and August. Peak survey months are April, May and September.									No surveys – reptiles in hibernation	
	Mitigation	N	Scrub clearance	Capture and translocation programmes can only be conducted whilst reptiles are active (March to June and September / October). Trapping is limited by high temperatures during July / August. Scrub clearance									Scrub clearance	
Great crested newts (n/a in NI)	Surveys	*	No surveys – newts in hibernation	Pond surveys for adults: mid-March to mid-June. Surveys must include visits undertaken between mid-April and mid-May. Egg surveys April to mid-June. Larvae surveys from mid-May. Terrestrial habitat surveys				Larvae surveys to mid-August. Terrestrial habitat surveys		Terrestrial habitat surveys		No surveys – newts in hibernation		
	Mitigation	**	No trapping of newts. Pond management only	Newt trapping programmes in ponds and on land				Newt trapping on land only				No trapping of newts. Pond management only		
Natterjack toads	Surveys	*	No surveys - toads in hibernation		Surveys of breeding ponds for adults. Surveys for tadpoles from May onwards. Surveys for adults on land			Surveys for adults on land.		No surveys – toads in hibernation				
	Mitigation	**	Pond management works		Trapping of adults in ponds from April to July. Trapping of adults on land. Trapping of tadpoles from May to early September				Pond management works					
White-clawed crayfish	Surveys	*	Reduced activity		Surveys can be undertaken	Avoid surveys (females are releasing young)		Optimum time for surveys				Reduced activity		
	Mitigation	***	Avoid capture programmes (low activity levels may lead to animals being easily missed)		Exclusion of crayfish from construction areas.	Avoid capture programmes		Exclusion of crayfish from construction areas.				Avoid capture programmes (low activity levels may lead to animals being easily missed)		
Fish	Surveys	*	For coastal, river and stream-dwelling species, the timing of surveys will depend on the migration pattern of the species concerned. Where surveys require information on breeding, the timing of surveys will need to coincide with the breeding period, which may be summer or winter months, depending on the species.											
	Mitigation	**	Mitigation for the protection of watercourses is required at all times of year. Mitigation for particular fish species will need to be timed so as to avoid the breeding season. This varies from species to species.											

*** Where mitigation involves the capture of white-clawed crayfish, a mitigation licence must be obtained from English Nature, Countryside Council for Wales, Environment and Heritage Service (NI) or Scottish Natural Heritage. Licences will be granted only to persons who have proven competence in dealing with the species concerned.

Wildlife & Construction Best Practice Guidance



Habitat Protection

Where retained habitat is adjacent an area of development, what should you do?

- An exclusion zone should be put in place consisting of barriers separating construction activities from wildlife areas.
- No polluting materials should be used near rivers.
- Care should be taken to prevent the introduction or spread of invasive plants such as Japanese Knotweed or Giant Hogweed.
- 'Keep out wildlife exclusion zone' signs to be secured to barriers.



Trees and Hedgerows

- The contractor should follow the specific requirements of the Local Authority in relation to Tree Preservation Orders.
- Trees should be fenced off by no less than the width of the canopy spread until all development work is complete.
- Do not use a tree for external fixtures or fittings.
- Nothing should be stored against the trunks of trees.
- There should be no change in soil depth within 2m of the trunks, unless it has been approved by an arboriculturist.
- Site Compounds should be erected outside of the tree canopy.



Phased Clearance In Relation to Reptiles and Amphibians

- Any site clearance should be undertaken in a phased and controlled manner and under ecological supervision. This gives a chance to reptiles and amphibians to move out the way to somewhere safe before a site is cleared.
- All clearance work should be undertaken during April - August in order to coincide with the reptile and amphibian active seasonal period and should be undertaken within a temperature range of 16°C - 24°C.
- Strim grass to a height of 100mm and the cut material to be hand raked to the sides of the area. All strimming should commence in the centre of the site working outwards towards the periphery of the development footprint to where the habitat is to be retained.

Protected Species

Birds and their Nests

- All species of wild bird in the UK are protected during the breeding season.
- They are protected against intentional killing, injuring or taking, damaging or destroying nests in use or being built, and taking or destroying eggs.
- Birds can nest in places, such as scrub, hedgerows, trees, in or on buildings, ledges, cliffs and on the ground, depending on the species. In the UK they typically build their nests and lay their eggs between March and the end of July.

What if you find a bird nesting on site?

- All works in the area must stop until the birds have completed breeding.
- An exclusion zone around the nest's area should be put up by an ecologist.
- **DO NOT** undertake scrub clearance during the bird-nesting season (March - end of July) if at all possible.
- **DO NOT** undertake scrub clearance during the bird-nesting season without an experienced ecologist being present.

Reptiles

- Reptiles are protected, which makes it an offence to intentionally and recklessly kill, injure or take any species of reptile.

Where are they found?

- Grass snake, slow worm and common lizard are fairly widespread and may be found within dense vegetation on sites that are directly next to open areas of rubble / rocks and / or short grassland.
- Clearance works should be undertaken in a phased manner and supervised by an ecologist.

What to do if you find a reptile?

- **STOP!** if you think you have found a reptile on site, stop all works and consult an ecologist immediately.

Amphibians

- Amphibian species include the common toad, common frog, smooth (or common) newt and palmate newt, there is also the fully protected great crested newt.
- Common amphibians are protected, which makes it an offence to intentionally and recklessly kill, injure or take them. Great crested newts are further protected for disturbance and/or damaging or obstructing their habits.

Where are they found?

- Amphibians can be found in or near ponds or other water bodies on development sites, including temporary pools. Most amphibians will hibernate on land during the winter months.

What should you do if you find an amphibian and are unsure of the identity?

- **STOP!** and consult an ecologist immediately.
- **STOP!** if you think you have found a great crested newt on site and consult an ecologist immediately.

Bats and their Roosts

- All bat species and their roosts are protected. It is an offence to intentionally kill, injure or take a bat. It is also an offence to intentionally or recklessly damage, destroy or obstruct access to any place that a bat uses for shelter or protection (even if bats are not currently present).

Places you may find them?

- Holes, and cracks in trees, in roofs and walls of houses and buildings, under bridges, in underground caves or old railway tunnels. Every building and mature tree is a potential bat roost.

Things to look out for?

- Below bat roost entrances: Dark stains on walls, tree trunks or bat droppings on the ground.
- Bat droppings are dark brown or black and about half a centimetre long - they crumble when crushed.

What should you do if you think you have found a bat roost?

- **STOP!** all works in the area and contact an Ecologist immediately.



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Wildlife and Construction Best Practice Guidance



BIRDS AND THEIR NESTS

- All species of wild bird in the UK are protected during the breeding season.
- They are protected against intentional killing, injuring or taking, damaging or destroying nests in use or being built, and taking or destroying eggs.
- Birds can nest in places, such as scrub, hedgerows, trees, in or on buildings, ledges, cliffs and on the ground, depending on the species. In the UK they typically build their nests and lay their eggs between March and the end of July.
- What if you find a bird nesting on site?
- All works in the area must stop until the birds have completed breeding.
- An exclusion zone around the nest/s area should be put up by an ecologist.
- **DO NOT** undertake scrub clearance during the bird-nesting season (March – end of August) if at all possible.
- **DO NOT** undertake scrub clearance during the bird-nesting season without an experienced ecological being present.



HABITAT PROTECTION

- Where retained habitat is adjacent an area of development, what should you do?
- An exclusion zone should be put in place consisting of barriers separating construction activities from wildlife areas.
- No polluting materials should be used near rivers.
- 'Keep out wildlife exclusion zone' signs to be secured to barriers.



REPTILES AND AMPHIBIANS

- Reptiles and amphibians are protected, which makes it an offence to intentionally and recklessly kill, injure or take any species of reptile.
- Amphibians can be found in or near ponds or other water bodies on development sites, including temporary pools. Most amphibians will hibernate on land during the winter months.
- What should you do if you find an amphibian or reptile and are unsure of the identity?
- Reptiles and amphibians are fairly widespread and may be found within dense vegetation on sites that are directly next to open areas of rubble / rocks and / or short grassland.
- Clearance works should be undertaken in a phased manner and supervised by an ecologist.
- **STOP!** if you think you have found a reptile or amphibian on site, stop all works and consult an ecologist immediately.

TREES AND HEDGEROWS

- Trees should be fenced off by no less than the width of the canopy spread until all development work is complete.
- Do not use a tree for external fixtures or fittings.
- Nothing should be stored against the trunks of trees.
- There should be no change in soil depth within 2m of the trunks, unless it has been approved by an arboriculturist.
- Site Compounds should be erected outside of the tree canopy.



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Species	Status	Use of scrub habitats
Hedgehog	Common	Favours areas where there is a mosaic of grassland, woodland, scrub and hedgerow. Uses scrub for daytime cover and hibernation sites, eg under bramble or brushwood.
Bat spp	Generally declining	When feeding, bats depend on habitat mosaics and habitat corridors that connect feeding and roosting areas. Mature, structured scrub may be beneficial in this respect.
Rabbit	Common and widespread	Uses low dense scrub as refuge cover to which to retreat from grassy feeding areas. The bark and shoots of many scrub and tree species are eaten, which may have detrimental or beneficial effects depending on circumstances. Avoids eating Elder.
Bank Vole	Common and widespread	Favours deciduous woodland and thick scrub. Climbing actively, it eats fruits, seeds and leaves of woody plants. May strip bark of Elder bushes.
Wood Mouse	Common and widespread	Favours woodland and scrub, living in runways below the litter but actively climbing to feed on fruits, nuts, buds and seedlings.
Dormice	Local, mainly SE England	Favours species-rich scrub, hedgerow and woodland, especially with coppice. The diet is primarily fruit, nuts, flowers and buds; a diverse range of scrub is required to provide food through the seasons. Hazelnuts, acorns and chestnuts are important prior to hibernation. Honeysuckle bark is used in nest construction. An agile climber, spending most time above ground, connectivity of scrub is important.
		
<small>Dormouse. John Robinson/English Nature</small>		
Fox	Common and widespread	May use scrub for shelter and lying-up sites.
Badger	Common and widespread	Setts mostly located within woodland, scrub or hedgerows etc, usually close to grassland feeding areas. An omnivorous diet includes fruit and nuts.
Otter	Frequent in Scotland, Wales, N and W England. Local but increasing elsewhere	May use scrub adjacent or close to rivers etc for shelter and lying-up sites.
Deer	Most species increasing in numbers and distribution.	Most species favour dense scrub for shelter. Most will also eat fruit, nuts, bark, leaves and buds of shrubs and deciduous trees, causing variable levels of damage and often preventing regeneration. Holly is favoured by Red and Sika Deer, Bramble by Roe and Muntjac Deer, but all have a wide diet.

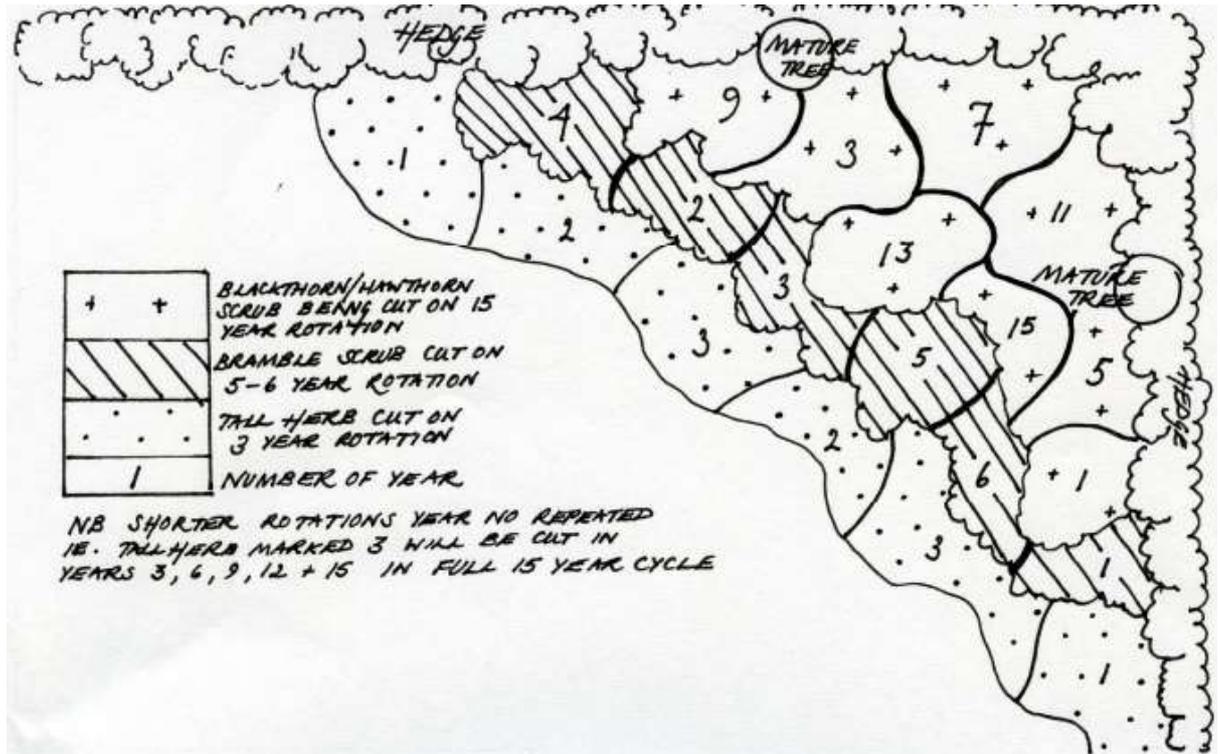


Figure 2- Example of proposed management regime and rotational cutting

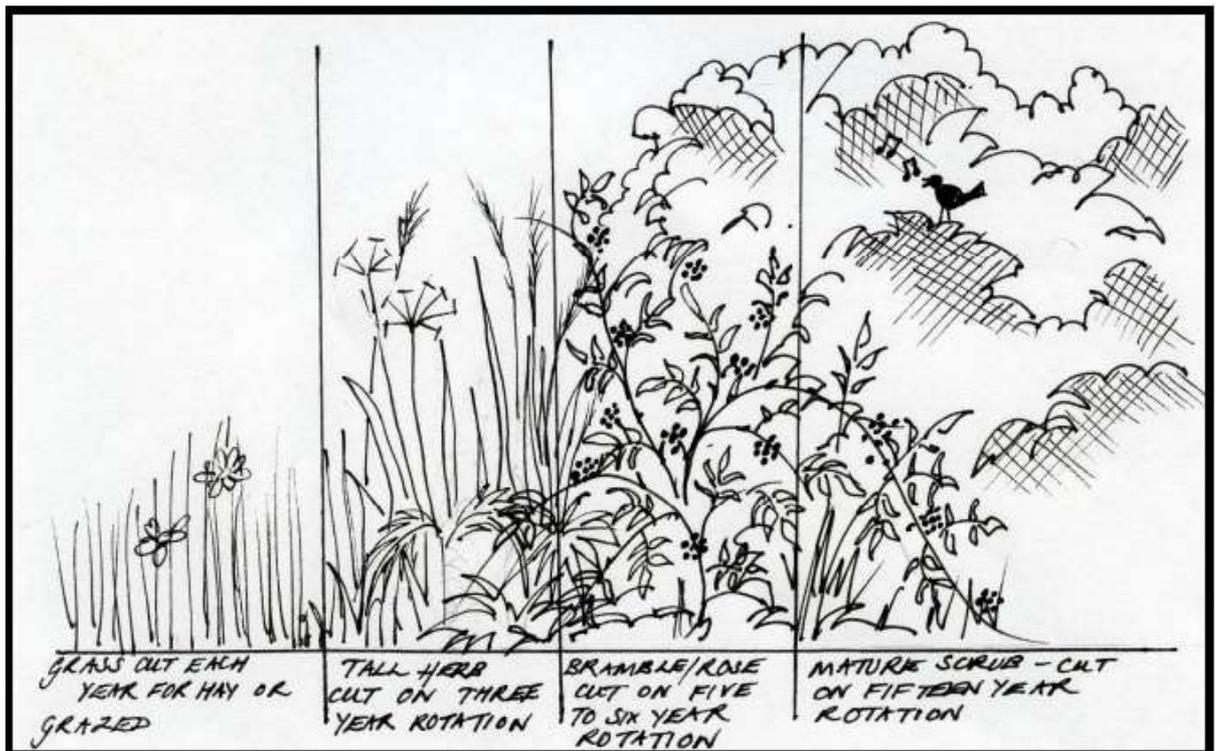


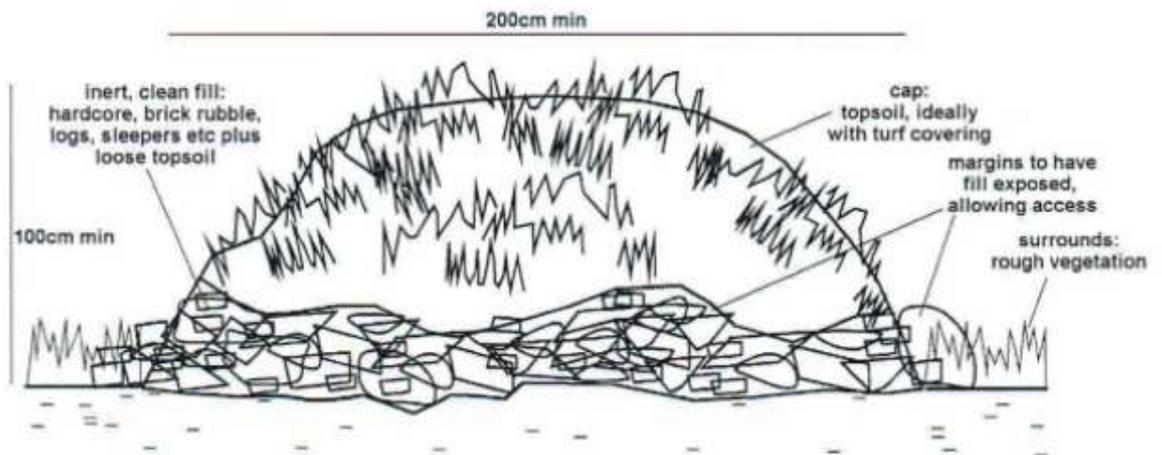
Figure 3- Example of proposed management regime and rotational cutting

Habitat/Hibernaculum Pile Construction

The following guidelines are taken from the Great Crested Newt Conservation Handbook (Langton, T.E.S *et al.*, 2001) but were considered to be equally successful at providing potential refuge habitat for widespread reptiles:

- habitat piles/hibernaculum should be located on the marginal habitats away from the proposed areas of ground works;
- for the first two habitat/hibernaculum piles, dig a hole approximately 50cm deep covering an area of approximately 4m², preferably with one longer side facing south;
- for the habitat/hibernaculum bank, dig a trench approximately 50cm deep, 2m wide and approximately 10m in length so that it covers an area of approximately 20m²;
- create a layer of stone, rubble and wood on the floor of the dug hole;
- continue to add to the pile using soil from site excavation to spread over and between stones, rubble and wood;
- stone, rock, clean brick rubble (without cement residues) and old or misfired bricks can be used with split logs or fallen wood;
- cover the edges of the bricks with paving slabs or large pieces of concrete to create gaps that allow reptiles into the mound. Cover these in a thin layer of soil and brash, taking care not to block off any gaps.

This design mimics artificial and natural conditions in which great crested newts have frequently been found over-wintering. Dimensions should not be below 2m length x 1m width x 1m height. The illustrated design would be suitable for locating on an impermeable substrate. On free-draining substrates, the design is largely similar but the bulk of the fill is sited in an excavated depression in the ground. Hibernacula should ideally be positioned across a site, both close to and distant from breeding ponds, always in suitable terrestrial habitat and above the flood-line.



Source: English Nature (2001) *Great Crested Newt Mitigation Guidelines*, Peterborough.

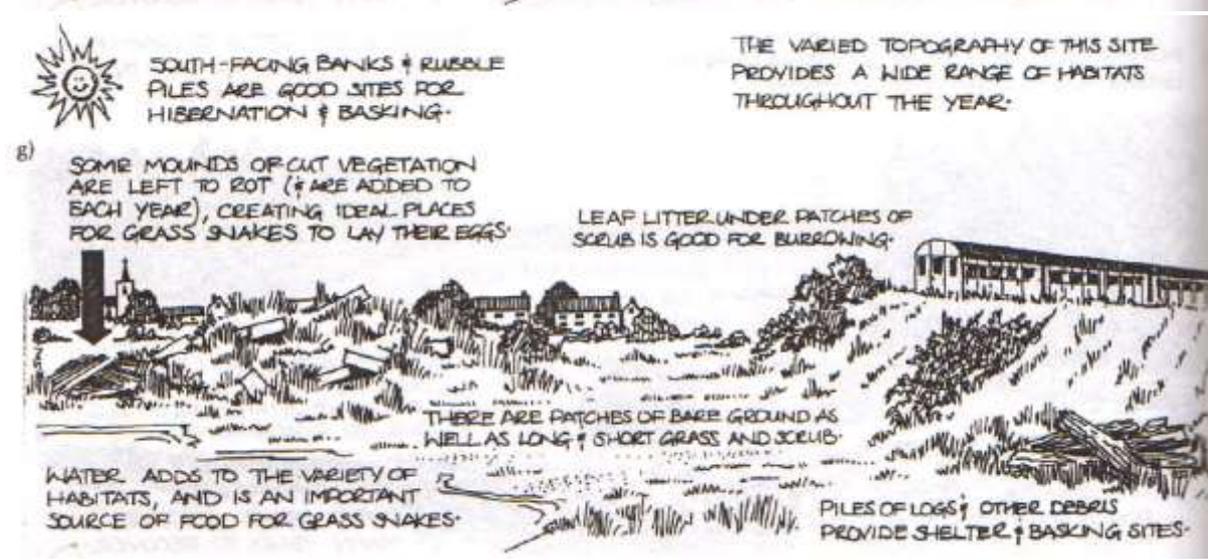
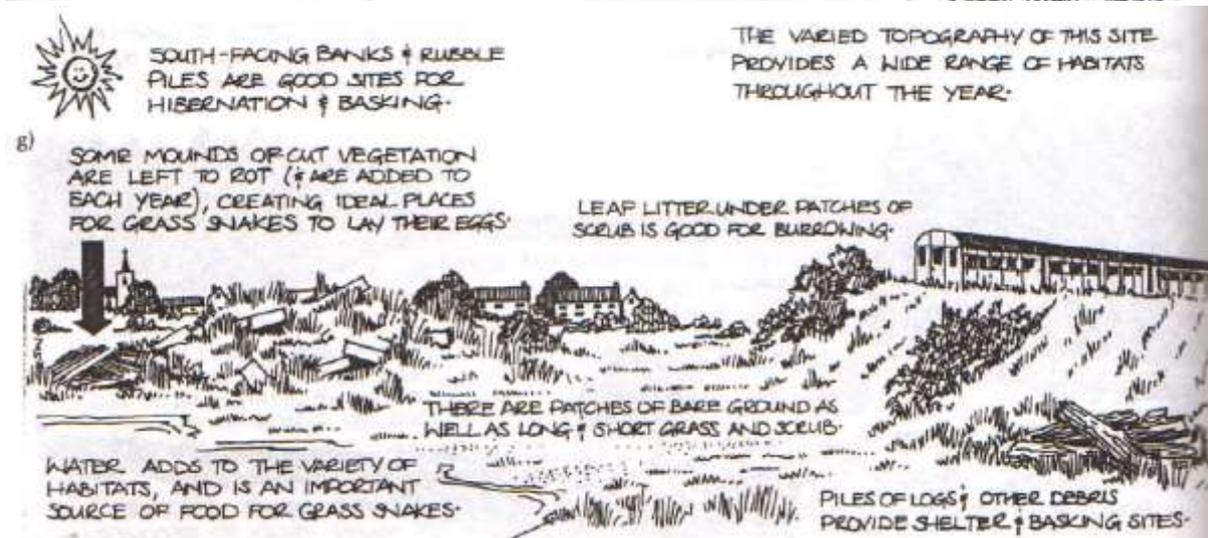
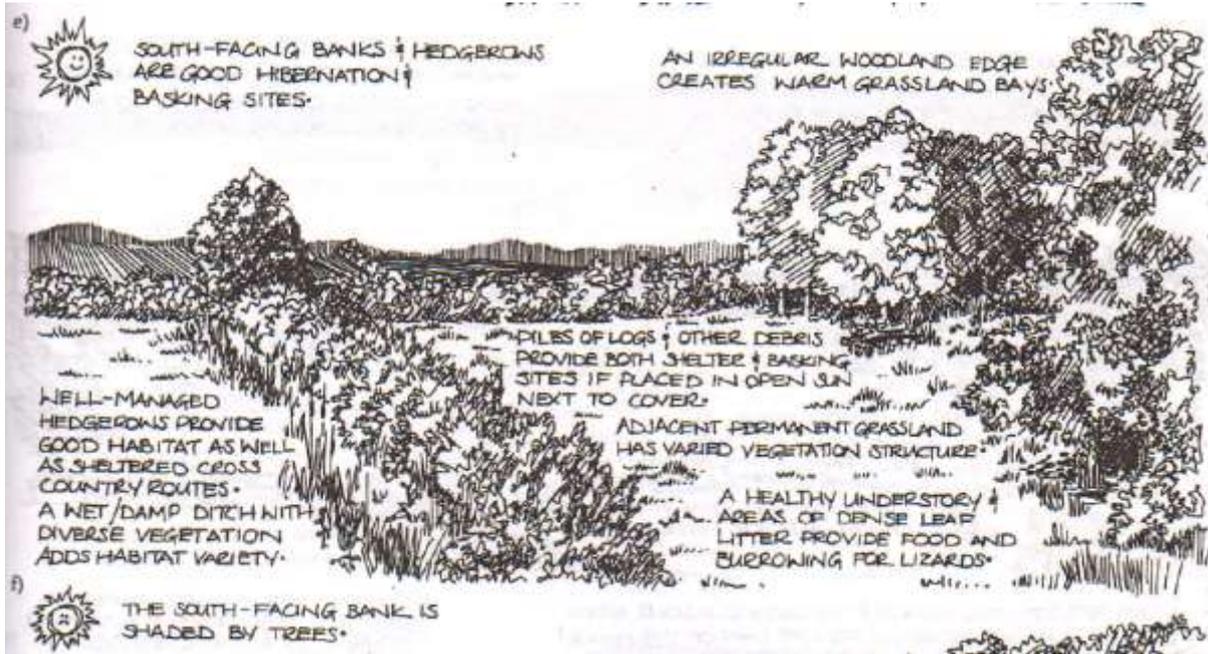


Illustration of positive landscape and habitat features for reptiles and amphibians

APPENDIX 3- SIMPLIFIED SUMMARY OF RELEVANT ECOLOGICAL LEGISLATION

Species	Legislation	Offences	Licensing procedures and guidance
Bats <i>European protected species</i>	Conservation of Habitats and Species Regulations 2010 (as amended) Reg 41	Deliberately ¹ capture, injure or kill a bat; deliberate disturbance ² of bats; or damage or destroy a breeding site or resting place used by a bat. [The protection of bat roosts is considered to apply regardless of whether bats are present.]	A Natural England (NE) licence in respect of development is required. Guidance documents: <i>NE Standing Advice for protected species 2013</i> <i>European Protected Species: Mitigation Licensing- How to get a licence</i> (NE 2013) <i>Bat Mitigation Guidelines</i> (English Nature 2004) <i>Bat Workers Manual</i> (JNCC 2004)
	Wildlife and Countryside Act 1981 (as amended) S.9	Intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb ³ a bat in such a place.	Licence from NE is required for surveys (scientific purposes) that would involve disturbance of bats or entering a known or suspected roost site.
Badger	Protection of Badgers Act 1992 (as amended)	Wilfully kill, injure or take a badger; or intentionally or recklessly damage, destroy or obstruct access to a badger sett or disturb a badger in its sett. [It is not illegal to carry out disturbance activities in the vicinity of setts that are not occupied.]	Where required, licences for development activities involving disturbance or sett interference or closure are issued by Natural England (NE). Licences for activities involving watercourse maintenance, drainage works or flood defences are issued under a separate process. Licences are normally not granted from December to June inclusive because cubs may be present within setts. Guidance documents: <i>NE Standing Advice for protected species 2013</i> <i>Badgers & Development</i> (NE 2007)

Species	Legislation	Offences	Licensing procedures and guidance
Birds	Wildlife and Countryside Act 1981 (as amended) S.1	Intentionally kill, injure or take any wild bird; intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built; intentionally take or destroy the nest or eggs of any wild bird. [Special penalties are liable for these offences involving birds on Schedule 1 (e.g. most birds of prey, kingfisher, barn owl, black redstart, little ringed plover).] Intentionally or recklessly disturb a Schedule 1 species while it is building a nest or is in, on or near a nest containing eggs or young; intentionally or recklessly disturb dependent young of such a species.	No licences are available to disturb any birds in regard to development. Licences are available in certain circumstances to damage or destroy nests, but these only apply to the list of licensable activities in the Act and do not cover development. General licences are available in respect of 'pest species' but only for certain very specific purposes e.g. public health, public safety, air safety. Guidance documents: <i>NE Standing Advice for protected species 2013</i>
Great crested newt <i>European protected species</i>	Conservation of Habitats and Species Regulations 2010 (as amended) Reg 41	Deliberately ¹ capture, injure or kill a great crested newt; deliberate disturbance ² of a great crested newt; deliberately take or destroy its eggs; or damage or destroy a breeding site or resting place used by a great crested newt.	Licences issued for development by Natural England. Guidance documents: <i>NE Standing Advice for protected species 2013</i> <i>European Protected Species: Mitigation Licensing- How to get a licence</i> (NE 2013) <i>Great Crested Newt Mitigation Guidelines</i> (English Nature 2001)
	Wildlife and Countryside Act 1981 (as amended) S.9	Intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb ³ a great crested newt in such a place.	Licences issued for science (survey), education and conservation by Natural England.
Adder Common lizard Grass snake Slow worm	Wildlife and Countryside Act 1981 S.9(1) and S.9(5)	Intentionally kill or injure any common reptile species.	No licence is required. However an assessment for the potential of a site to support reptiles should be undertaken prior to any development works which have potential to affect these animals. Guidance documents: <i>NE Standing Advice for protected species 2013</i>

Species	Legislation	Offences	Licensing procedures and guidance
Plants <i>All plants</i>	Wildlife and Countryside Act 1981 S.13	To uproot any wild plant without authorisation.	No licence is required. The land owner's permission is required.
Plants <i>Invasive species e.g. Japanese knotweed, hybrid knotweed, giant knotweed, giant hogweed, rhododendron, Himalayan balsam</i>	Wildlife and Countryside Act 1981 S.14	It is illegal to plant or otherwise cause to grow in the wild these species.	Any contaminated soil or plant material is classified as controlled waste and should be disposed of in a suitably licensed landfill site, accompanied by appropriate Waste Transfer documentation, and must comply with section 34 of the Environmental Protection Act 1990. Guidance documents: The Knotweed Code of Practice (Environment Agency, 2013 version 3) Managing Invasive Non-native Plants (Environment Agency 2010) Guidance on Section 14 of the Wildlife and Countryside Act, 1981 (Defra 2010)

¹Deliberate capture or killing is taken to include "accepting the possibility" of such capture or killing

²Deliberate disturbance of animals includes in particular any disturbance which is likely a) to impair their ability (i) to survive, to breed or reproduce, or to rear or nurture their young, or (ii) in the case of animals of hibernating or migratory species, to hibernate or migrate; or b) to affect significantly the local distribution or abundance of the species to which they belong.

³Lower levels of disturbance not covered by the Conservation of Habitats and Species Regulations 2010 remain an offence under the Wildlife and Countryside Act 1981 although a defence is available where such actions are the incidental result of a lawful activity that could not reasonably be avoided.

Site Designation	Legislation	Protection	Guidance
Special Area of Conservation (SAC) Special Protection Area (SPA) Wetland of International Importance (Ramsar site)	<p>Conservation of Habitats and Species Regulations 2010 (as amended)</p> <p>EC Directive on the conservation of natural habitats and of wild fauna and flora (92/42/EEC).</p> <p>EC Directive on the conservation of wild birds (79/409/EEC).</p> <p>Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971 (the Ramsar Convention).</p>	<p>Planning controls are effected through Part 2 of the Conservation of Habitats and Species regulations 2010 (Reg 21) and Part 6 (Regs 61- 67).</p> <p>The legislation for the Site of Special Scientific Interest which will underpin each designation also applies.</p> <p>These sites are given protection through policies in the Local Development Plan.</p>	<p>Formal Appropriate Assessment is required before undertaking, or giving consent, permission or other authorisation for a plan or project which is likely to have a significant effect on such a site.</p> <p>Guidance documents: The <i>National Planning Policy Framework</i> (Department for Communities and Local Government, March 2012), with particular reference to Policy 11. The Government Circular: <i>Biodiversity and Geological Conservation - Statutory Obligations and their Impact within the Planning System</i> (ODPM Circular 6/2005 & Defra Circular 01/2005) (the joint Circular).</p>
Site of Special Scientific Interest (SSSI)	Wildlife and Countryside Act 1981 (as amended)	<p>It is an offence to carry out or permit to be carried out any potentially damaging operation.</p> <p>SSSIs are given protection through policies in the Local Development Plan.</p>	<p>Owners, occupiers, public bodies and statutory undertakers must give notice and obtain the appropriate consent under S.28 before undertaking operations likely to damage a SSSI.</p> <p>S.28G places a duty on all public bodies to further the conservation and enhancement of SSSIs.</p> <p>Guidance documents: The <i>National Planning Policy Framework</i> (Department for Communities and Local Government, March 2012), with particular reference to Policy 11, and the joint Circular.</p>
Local Nature Reserve (LNR)	National Parks and Access to the Countryside Act 1949 S.21	LNRs are given protection through policies in the Local Development Plan.	<p>LNRs are generally owned and managed by local authorities.</p> <p>Development proposals that would potentially affect a LNR would need to provide a detailed justification for the work, an assessment of likely impacts, together with proposals for mitigation and restoration of habitats lost or damaged.</p> <p>Guidance documents: The <i>National Planning Policy Framework</i> (Department for Communities and Local Government, March 2012), with particular reference to Policy 11, and the joint Circular.</p>
Local Sites (e.g. LWS)	There is no statutory designation for local sites.	Local sites are given protection through policies in the Local Development Plan.	Development proposals that would potentially affect a local site would need to provide a detailed justification for the work, an assessment of likely impacts, together with proposals for mitigation and restoration of habitats lost or damaged.

Habitats & Species	Legislation (England & Wales)	Guidance
Species and Habitats of Principal Importance for the Conservation of Biodiversity	Natural Environment & Rural Communities Act 2006 S.40 (which superseded S.74 of the Countryside & Rights of Way Act 2000).	<p>S.40 of the NERC Act 2006 sets out the duty for public authorities to conserve biodiversity in England and Wales. Habitats and species of principal importance for the conservation of biodiversity are identified by the Secretaries of State for England and Wales, in consultation with NE and CCW, are referred to in S.41 of the NERC Act for England and S.42 for Wales. The list of habitats and species was updated in 2008:</p> <p>England: http://www.ukbap-reporting.org.uk/news/details.asp?x=45</p> <p>Wales: http://www.biodiversitywales.org.uk/wales_biodiversity_partnership_documents-134.aspx</p> <p>The habitats and species listed are not necessarily of higher biodiversity value, but they may be in decline. Habitat Action Plans and Species Action Plans are written for them or are in preparation, to guide their conservation. Ecological impact assessments should include an assessment of the likely impacts to these habitats and species.</p>
Biodiversity Action Plan (BAP) Habitats & Species	No specific legislation, unless it is also a species or habitat of principal importance as described above.	<p>The Biodiversity Action Plan (BAP) is the UK's initiative to maintain and enhance biodiversity in response to the Convention on Biological Diversity signed in 1992.</p> <p>The original BAP list of species and habitats, prepared over 10 years ago, was used to form the new list of species and habitats of principal importance. However some of the species have been taken off the new list and additional species and habitats have been included.</p>