



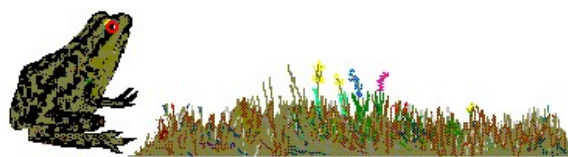
P/20/0074

**Detached Dwelling, Detached Garage
and Private Driveway,
Plot 4, Collier's Row,
Heol Gerrig, Merthyr Tydfil**

**LANDSCAPE and ECOLOGY
MANAGEMENT PLAN
Revision 1**

Document issued: 8th October 2020

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P/20/0074 Plot 4, Collier's Row, Heol Gerrig: Landscape and Ecology Management Plan REVISION 1

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1. INTRODUCTION

- 1.1. Pryce Consultant Ecologists was commissioned in July 2019 to carry out a Preliminary Ecological Appraisal (PEA) of land at Colliers Row, Heol Gerrig, Merthyr Tydfil, on which Maxiom Ltd, as developer, was seeking planning permission to carry out a small residential development comprising of eight detached dwellings (application no. P/19/0228). Subsequent to the submission of the PEA in support of the application to Merthyr Tydfil County Borough Council acting in its role as Local Planning Authority (LPA) and the subsequent granting of outline planning permission for the scheme, the developer wishes to bring forward the development of one of the housing plots, Plot 4, together with the planned central access road, in advance of the remainder of the site. This application has been registered as application no. P/20/0074. During Pre-Application consultations the LPA has advised that a Landscape and Ecological Management Plan (LEMP) is required in support of the detailed application for Plot 4 but in order to inform the Plot 4 LEMP and to ensure that it forms part of an overall landscape strategy, the LPA has also requested that a Landscape Master Plan applicable to the whole site is produced. The Landscape Master Plan has been prepared and has been submitted as a separate supporting document to application no. P/19/0228. The present document addresses the request for the Landscape and Ecological Management Plan covering Plot 4 and the access road only but reference should be made to the Landscape Master Plan in order to put Plot 4 in context with the remainder of the site.

Plot 4 is shown on figure LEMP1 and is centred at OS grid reference SO 0389 0623.

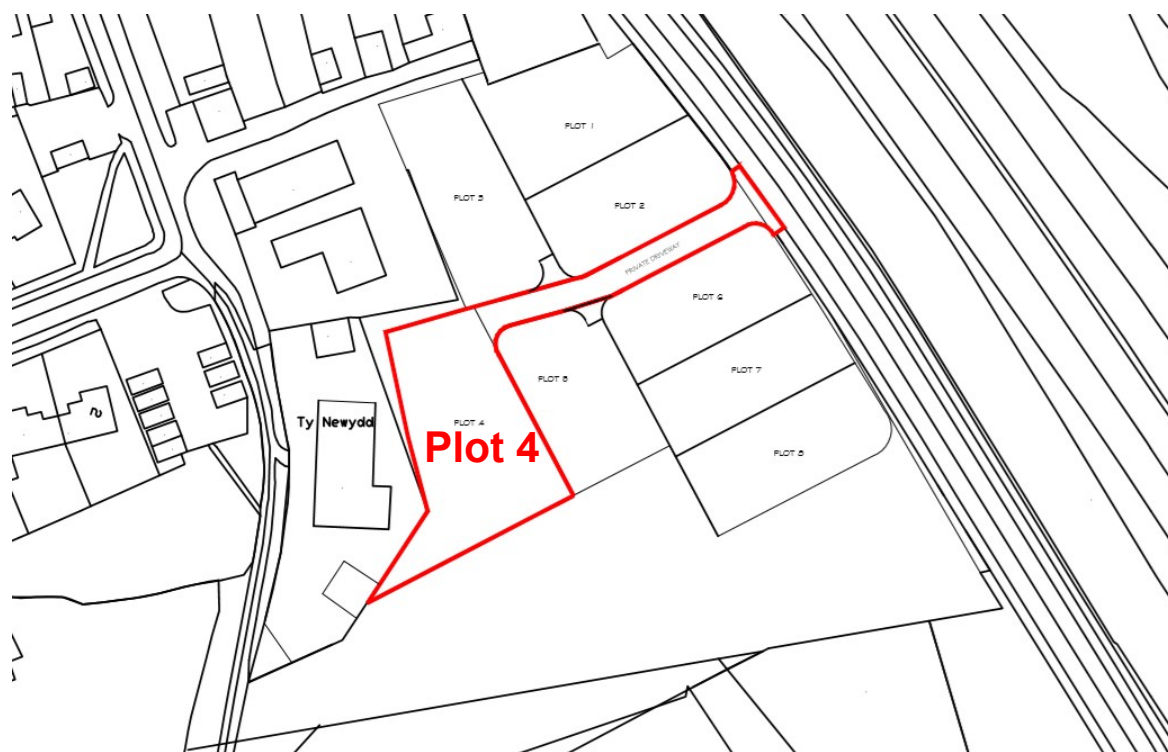


Figure LEMP1

Extent and location of Plot 4 and access road

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- 1.2. The summary of the *Preliminary Ecological Appraisal* which relates to the whole site is reproduced at paragraph 1.2 of the *Landscape Master Plan*.
- 1.3. Following the pre-application consultations regarding the development of Plot 4, an email was received from the MTCBC Case Officer requesting the provision of a *Landscape and Ecology Management Plan (LEMP)* relating specifically to Plot 4 and a *Landscape Masterplan* for the whole site which would then inform the structural landscape for Plot 4. The email is reproduced at paragraph 1.3 of the *Landscape Master Plan*.
- 1.4. The ecological recommendations listed at Section 5 of the *Preliminary Ecological Appraisal* provided the basis of the *Landscape Master Plan* and are reproduced at paragraph 1.4 of that document.
- 1.5. This Landscape and Ecology Management Plan relating to Plot 4 and the access road has been prepared in close consultation with the developer who undertakes to implement its recommendations during the enabling and construction phases of the project and to carry out any reasonable remedial actions should the need arise during the period that he remains active on site.
- 1.6. The developer has undertaken to implement the recommendations made in the *Preliminary Ecological Appraisal* but in September 2020, MTCBC requested that they be translated into requirements and, as such, further details of each needed to be provided. It should be noted that the recommendation addressed in the present document apply only to Plot 4 and that it is not possible at this stage to provide such details for the houses to be built on the other plots within the site as they have not yet been designed.

2. LANDSCAPE AND ECOLOGY MANAGEMENT PLAN RATIONALE

- 2.1. The LEMP includes strategies, methodologies and prescriptions to successfully implement the recommendations set out in the *Preliminary Ecological Appraisal* and the aims of the *Landscape Master Plan* insofar as they are applicable to Plot 4 and the proposed access road, which are as follows.
 - species protection and management,
 - habitat retention, protection and disturbance limitation,
 - habitat enhancements and creation
 - habitat specifications to assist landscape practitioners,
 - species composition specification for landscape plantings,
 - seasonal timings,
 - planting-stock nativeness and provenance,
 - habitat management,
 - species management,
 - duration of landscape implementation, maintenance and management
- 2.2. The LEMP, together with the *Landscape Master Plan*, will form part of the site Environmental Management System and has been drafted by the site ecologist who will ensure its satisfactory implementation in order to make certain that landscaping and ecological mitigation targets are successfully achieved.

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- 2.3 All works will be carried out bearing due regard to the protection of retained habitats, flora and fauna and appropriate new features will be designed into the scheme to provide foraging and roosting, nesting and refuge sites for faunal species. Retained, enhanced or newly created habitats will be protected by appropriate fencing to ensure that they are not damaged during construction site operations.
- 2.4 Careful planning and supervision of site personnel will seek to ensure that disturbance to all ecological features is kept to an absolute minimum.
- 2.5 Prescribed works will only be carried out during the appropriate seasons, in order to comply with current legislation and best practice as outlined at appendix 3.
- 2.6 This LEMP covers ecological issues which need to be addressed during the pre-construction period and the construction phase but future management will be at the discretion of the purchaser of the new house. It is anticipated, however, that the garden, once established, is likely to provide a range of habitats providing, for instance, faunal cover, foraging, refuge and nesting sites.

3. LANDSCAPE AND ECOLOGY MANAGEMENT PLAN OVERVIEW

- 3.1 This LEMP has been prepared at the request of the Local Planning Authority and provides the plan by which the developer will be able to implement the provision of enhanced habitat features during the construction phase whilst minimizing disturbance to existing ecological receptors. This LEMP is applicable to Plot 4 and the central access road only.
- 3.2 The scope of landscaping is limited by the close juxtaposition of the housing plots and the fact that the future maintenance of the proposed landscape features will ultimately be the responsibility of the plot owners. Features that will need regular attention have therefore been limited to simple hedgerows and a small woodland area that will only require an acceptable level of domestic maintenance. Figure LEMP2 shows the Plot 4 Landscape and Ecology Management Plan as proposed.
- 3.3 The principal landscape feature will be the provision of a small area of woodland together with a strong hedgeline to be established inside the southern, western and part of the northern boundaries of the Plot. Once established, these features will provide 206m² of dense woodland and hedgerow habitat inside the Plot boundary, backed on the western and northern boundaries by the existing boundary walls and on the southern boundary by a new, 2m high, solid close-boarded wooden fence that will afford shelter, not only to the hedgerow plants but also to fauna using the corridor. This corridor will contribute habitat connectivity between scrub habitats outside the site including the gardens to the west and the existing woodland to the south. It will also link in a similar hedgeline to be established when the remainder of the wider site is developed as described at paragraph 3.3 of the *Landscape Master Plan*.
- 3.4 The retained woodland and new hedgeline will be provided as described at section 5, below.
- 3.5 General vegetation clearance will not be carried until after the small woodland and hedgeline habitat corridors that will be retained along the site boundaries have been set-out and protected with appropriate fencing.

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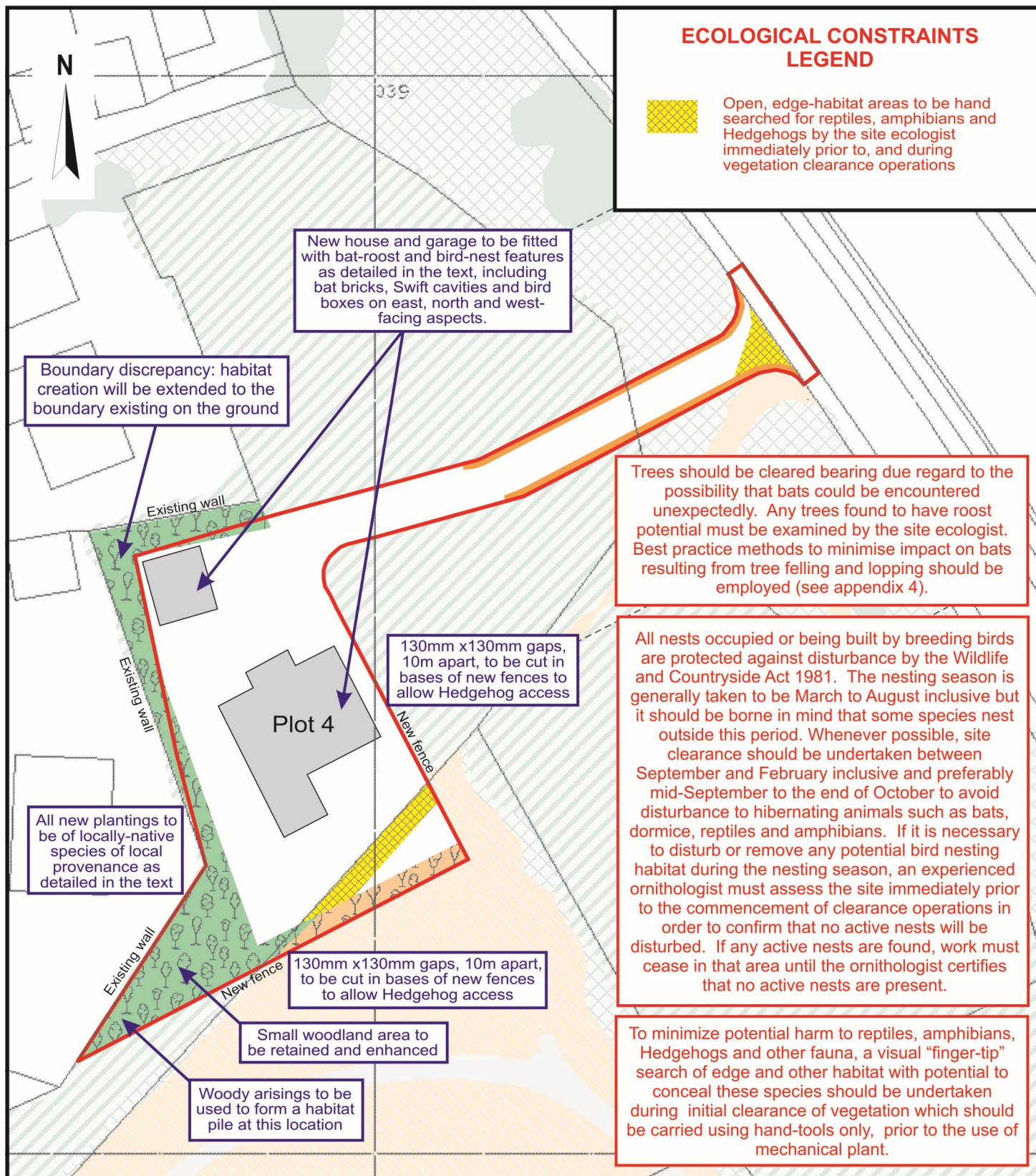
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- 3.6 Following the general vegetation clearance operation, the hedgeline along the southern boundary of the plot will be established in ameliorated soil using new planting stock of locally native species of local provenance, as described at paragraph 5.3.
- 3.7 130mm x 130mm apertures will be cut at intervals of every 10m in the base of the new wooden fence along the southern boundary of the Plot in order to facilitate the passage of Hedgehogs.
- 3.8 0.5m wide flower-rich grass verges, totalling in all, 61m², will be provided along each side of the internal access road which will be constructed between the kerb-line and the feather-edge fencing along plot boundaries.
- 3.9 Artificial bat roosting and bird nesting features will be built into the fabric of the new house as described at sections 6 and 8.
- 3.10 Careful planning and supervision of site personnel will seek to ensure that disturbance to all ecological features is kept to an absolute minimum. All site personnel will receive induction and tool-box talks which will provide details of all flora and fauna, particularly protected species and Section 7 *Species of Principal Importance*¹ that may be present within the site. Personnel will be reminded of their legal obligations to respect and, as far as possible, leave undisturbed, all wildlife that may be encountered.
- 3.11 Prescribed works will only be carried out during the appropriate times of year, in order to comply with current legislation and best practice as outlined at appendix 3. A suitable timetable for works will be drawn-up to comply with all ecological constraints and requirements.
- 3.12 Once construction has been completed and the new dwelling has been sold to the end-user, future management and maintenance of the habitat features provided during the construction phase will become the responsibility of the new owner.

4 CLEARANCE OF VEGETATION

- 4.1 It is anticipated that it will not be possible to retain any areas of existing vegetation except for the small area of woodland in the south-west corner of the Plot, together with that located within the prescribed hedgeline corridor that runs inside the western Plot boundary. The eastern half of the southern boundary will be planted in existing open grassland requiring only a minimum of vegetation clearance. Here, as there are no existing trees, the new hedgeline will comprise only of newly planted stock but in all other respects soil amelioration and planting procedures will be similar to those prescribed for the currently wooded areas in section 5. All areas and corridors in which it is planned to retain vegetation will be marked out and landscaped as detailed at section 5.1. prior to the removal of vegetation from the remainder of the Plot.
- 4.2 In order to minimise disturbance or possible killing of protected species, the removal of existing trees, scrub, bramble, tall-herb and other rank vegetation will be undertaken between September and February (to avoid the bird-nesting season) but preferably between

¹ *Species of Principal Importance for Conservation of Biological Diversity* listed under section 7 of the Environment (Wales) Act 2016.



LANDSCAPE PLANTINGS LEGEND

- Small woodland and 1.5m wide hedgeline incorporating existing woodland plants, gaps filled by new plantings where necessary
- 1.5m wide new hedgeline along site boundary planted on existing open grass-dominated area
- 0.5m grass verges between kerb and wooden feather-edge fence to be constructed as part of Plot 4 development
- Boundary of Plot 4 including access road

SCALE
METRES

0 10 50

Maxiom Ltd

Plot 4, Colliers Row, Merthyr Tydfil
Figure LEMP2

LANDSCAPE AND ECOLOGY MANAGEMENT PLAN



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mid-September and the end of October when fauna such as reptiles and Hedgehog are active and would be able to escape unaided.

- 4.3 The Landscape and Ecology Management Plan seeks to minimize the possible impact on reptiles and amphibians and includes means to prevent the accidental killing and injuring of animals if any are present. Notwithstanding the provisions outlined at paragraph 3.5, the initial clearance of vegetation, including areas of trees, bramble, scrub, tall-herb and rank vegetation (including long grass) which have the potential to harbour reptiles and terrestrial-phase amphibians, will ideally be limited to September and October inclusive, as reptiles are active in this period and will be more able to escape disturbance. The operation will commence in the centre of the area to be cleared and work outwards towards the boundaries through which, displaced animals will have the opportunity to escape. Initial clearance will be undertaken using hand tools only (eg strimmer, chain-saw, loppers, hand saws, etc) and will remove vegetation down to a height of no less than 50mm.

Prior to, and during the initial clearance of vegetation, the site ecologist or other suitably qualified person will be in attendance to carry-out a finger-tip search of the working front to ensure that any fauna, including reptiles, amphibians and Hedgehog, are not killed or disturbed and come to no harm. Any animals encountered will be carefully removed off-site to a location in the vicinity that will not be disturbed in the foreseeable future which will have been agreed in advance with the Planning Authority's Ecologist. The chosen receptor area includes woodland-edge and rank and short grassland vegetation suitable to support reptiles, terrestrial phase amphibians and Hedgehogs and is located to the south of the site on land in the ownership of the developer. Its location is shown on figure MP3.



Figure LEMP3

Location of reptile, terrestrial-phase amphibian and Hedgehog translocation receptor site (dashed purple line) in relation to the application site (red line).

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- 4.4 Woody arisings produced by on-site vegetation clearance will be chipped and used as a soil ameliorant or mulch in the landscaping scheme. It is further recommended that suitable wood, brash and wood-chip will, under the direction of the site ecologist, be made into a mound to provide a habitat pile for reptiles and Hedgehogs (see paragraph 7.7). The habitat pile will be located within the nib of land located within the south-western extremity of the Plot (Plot 4), its exact position to be decided in consultation with the site ecologist.

5 LANDSCAPING

5.1 Proposed boundary hedgelines and small area of woodland

As far as possible, with the exception of the eastern half of the southern boundary, which will be planted in existing open grassland, suitable existing trees and shrubby woodland plants that are currently located in the small woodland area and within the proposed hedgeline corridors will be retained and preserved. The woodland and hedgelines are essential to provide shelter and refuge, as well as foraging potential for fauna such as reptiles, amphibians, birds and Hedgehogs which will also use the habitat as corridors after the landscape scheme is established.

The site ecologist or arboriculturalist will select existing trees and shrubs and will individually mark them for retention and incorporation into the retained woodland and new hedgelines. Woody plants for retention in all the new hedgelines will be trimmed to c.300mm height at the time of the erection of boundary fencing along the southern side of the Plot, the fencing contractors taking particular care that marked plants retain their markings and are not unduly damaged. Trees in the small woodland area will be left undisturbed, trimmed or removed as advised by the site ecologist, with a view to enhancing the species composition by the introduction of new plantings of species selected from the list at paragraph 5.3.

The permanent boundary fencing will be of a wooden close-boarded type, 2m high, constructed to the specification stipulated in the planning permission. Following the completion of fence construction, trimmed plants will be allowed to regrow within the confines of the small woodland area and the 1.5m wide defined hedgeline corridors, both inside the new fence line (on the southern side of the Plot) and inside the existing boundary walls (on the western and northern sides of the Plot) and gaps between plants will be filled by new plantings of appropriate species (see paragraphs 5.2 and 5.3). Detailed specifications will be provided by the landscape architect. These areas will be protected from potential damage resulting from the ingress of construction plant and materials by the erection of high-visibility temporary fencing (eg orange Netlon hung on road pins) which will be maintained in serviceable condition for the whole duration of the construction phase (including, where appropriate, construction work on adjacent Plots).

5.2 Provenance of planting stock

Specified plantings will be of species appropriate to preserve the character of the local area and will be principally of locally native species of local origin (Herbert, *et al*, 1999). In order to ensure that plantings are compatible with the local gene pool, all woody plant species will be of local provenance as outlined in Forest Practice Note No. 8 '*Using Local Seed Sources for Planting Native Trees and Shrubs*' (Forestry Commission, 1999).

Feeding opportunities for birds and other fauna will be enhanced by planting native nectar-producing and berry- and seed-bearing trees, shrubs and herbaceous plants. Native species of trees and shrubs (including non berry-bearing species) generally have higher invertebrate productivity than alien species, thus resulting in a richer foraging environment

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for birds and other fauna. However, some non-native species such as Berberis, Pyracantha, Cotoneaster, etc may be included within the garden area if required by the purchaser, which will provide additional ornament as well as having potential for faunal foraging, cover and nesting birds.

5.3 Species composition of small-woodland and boundary hedgeline planting enhancements

The hedgelines will include existing trees and shrubs selected for retention and cut-back at the time of fence construction. Gaps that require planting will be identified by the site ecologist and will be filled using 1+1 whips (except for pot-grown Holly) selected by the site ecologist from the following species. A similar planting regime will be employed in the eastern section of the southern boundary hedgeline except that, as no existing trees are present, stock will be planted conventionally in two lines 1m apart with individual plants in each line planted at 400mm centres or closer if considered necessary. The final mix of species planted will depend upon the species composition and abundance of retained woodland plants but will be selected by the site ecologist from the following species.

<i>Corylus avellana</i>	Hazel (native form, not cultivar or selected garden types),
<i>Crataegus monogyna</i>	Hawthorn (native form, not cultivar or selected garden types),
<i>Sambucus nigra</i>	Elder (native form, not cultivar or selected garden types)
<i>Rosa canina</i>	Dog Rose (native form, not cultivar or selected garden types),
<i>Viburnum opulus</i>	Guelder Rose (native form, not cultivar or garden types),
<i>Sorbus aucuparia</i>	Rowan (native form, not cultivar or selected forms),
<i>Frangula alnus</i>	Alder Buckthorn,
<i>Lonicera periclymenum</i>	Honeysuckle (native form, not cultivar or selected garden types),
<i>Hedera helix</i>	Ivy (native form, not cultivar or selected garden types)
<i>Ilex aquilinum</i>	Holly (native form) to be introduced as 15cm pot-grown plants.

Planting will be undertaken when suitable soil and weather conditions prevail, most probably in late autumn or late winter/early spring. Planting stock will be planted in compliance with BS4428:1989 and BS8545:2014.

Prior to planting, the soil will be ameliorated with suitable soil or compost worked in to the gaps to be planted and, if required, a controlled slow-release fertilizer such as Enmag and soil improver such as Alginure will be incorporated into the soil. All new plantings will be provided with tree shelters. Chipped arisings derived from woody vegetation clearance may be used as a mulch following planting. On completion of planting, the planted areas will be provided with temporary fencing as described at paragraph 5.1

Once established, the hedgelines will be trimmed to provide healthy, bushy growth, 3m high and 1.5m wide at the base in order to ensure they attain and maintain a dense and uniform structure and to provide wildlife habitat. The developer will arrange to do this whilst the site is still being developed but maintenance beyond then will become the responsibility of the new householders. Pruning will be carried out no more frequently than once per year in late winter, thus ensuring that autumn-produced berries and fruits are available for winter faunal feeding. No vegetation which has potential to harbour birds' nests will be pruned or cut in the bird breeding season which is generally taken to be March – August inclusive but may extend beyond this period.

All plants which fail or are vandalized during the period that the developers remain active on site will be replaced with equivalent planting stock.

5.4 Grass verges of internal access road

The 0.5m wide grass verges to the access road (shown on figure LEMP2) will be created using *Emorsgate EM4 Wild Meadow grassland seed mix*. Once established, the verges will

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provide narrow areas of species-rich grassland suitable to support a diversity of wild plants, invertebrates and other fauna, in particular, pollinators, and facilitate their movement along the corridors so formed and between the gardens that will be created during the development of the remainder of the site. The species included in this mix are as follows.

<i>Achillea millefolium</i>	Yarrow
<i>Betonica officinalis</i> (<i>Stachys officinalis</i>)	Betony
<i>Centaurea nigra</i>	Common Knapweed
<i>Galium verum</i>	Lady's Bedstraw
<i>Lathyrus pratensis</i>	Meadow Vetchling
<i>Leucanthemum vulgare</i>	Oxeye Daisy
<i>Lotus corniculatus</i>	Bird's-foot Trefoil
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Primula veris</i>	Cowslip
<i>Prunella vulgaris</i>	Selfheal
<i>Ranunculus acris</i>	Meadow Buttercup
<i>Rhinanthus minor</i>	Yellow Rattle
<i>Rumex acetosa</i>	Common Sorrel
<i>Silene flos-cuculi</i> (<i>Lychnis flos-cuculi</i>)	Ragged Robin
<i>Trifolium pratense</i>	Wild Red Clover
<i>Vicia cracca</i>	Tufted Vetch
<i>Agrostis capillaris</i>	Common Bent (cultivar)
<i>Alopecurus pratensis</i>	Meadow Foxtail (wild)
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass (wild)
<i>Briza media</i>	Quaking Grass (wild)
<i>Cynosurus cristatus</i>	Crested Dog's-tail (cultivar)
<i>Festuca rubra</i>	Slender-creeping Red-fescue (cultivar)
<i>Phleum bertolonii</i>	Smaller Cat's-tail (wild)

Sowing will be carried out when soil and weather conditions are suitable, most probably in late autumn or late winter/early spring. Planting stock will be planted in compliance with BS4428:1989 and BS8545:2014.

From a biodiversity point of view, the grass verges, once established, will be maintained by infrequent mowing or strimming, ideally just once per year in late summer to a minimum height of 150mm, although in mild winters, an additional cut in late winter to a minimum height of 150mm may also be desirable. All arisings must be removed for off-site disposal.

As the habitat becomes established and matures, maintenance may be varied and species composition diversified but arisings must always be removed off site if a flower-rich sward is to be maintained.

5.5 Management of habitat areas and ecological features

Once the new dwelling is sold the maintenance of the habitat areas will become the responsibility of the new owner. It will be recommended to the new owner that existing vegetation and new plantings should not be over-managed and, where possible, wild incoming species such as ivy and bramble should be allowed to grow, as these provide good food sources and cover for birds and other fauna especially in winter. Hedgelines should be cut no more frequently than once per year in late winter, thus ensuring that autumn-produced berries and fruits are available for winter faunal feeding. The new owner will also be given advice on the benefits of attracting wildlife to the new garden and the means by which this can be achieved and maintained.

Grass verges, once established, should be maintained by infrequent mowing or strimming, ideally just once per year in late summer to a minimum height of 150mm, although in mild

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winters, an additional cut in late winter to a minimum height of 150mm may also be desirable. All arisings must be removed for off-site disposal.

Future site maintenance should be planned to minimise habitat and faunal disturbance and to maintain and enhance ecological features. Grass verge maintenance staff must be briefed and reminded of the management aims and prescriptions and will, if necessary, be guided by MTCBC biodiversity staff.

6 BATS

- 6.1 There is potential to achieve conservation enhancement by providing suitable bat roost opportunities within the fabric of the new house. Roost features will be located as shown in red on figure LEMP4, below.

Two purpose-built cavities will be made behind the wooden cladding at the apices of the east and west elevation pine ends of the new house. These will be lined with suitable



Figure LEMP4

**Locations for the installation of bat roost features (red),
Swift nest crevices (blue), Sparrow terrace (green) and tit boxes (purple)**

mineral roofing felt material to allow bats to grip the internal vertical surfaces. Each cavity will be accessed by a 15mm x 45mm horizontally-aligned slot through the wooden cladding located near the base of the box. The developer has provided such bat roost features in a house that he is currently building in Llanelli as shown on figure LEMP5.

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**Figure LEMP5**

Bat roost cavity to be provided behind the wooden cladding at the apices of the eastern and western pine-ends similar to these provided by the developer at his construction site in Llanelli.

Access holes 15mm x 45mm.



In addition, internal sections of the soffits at each of the four corners of the new house will be provided with roost boxes to the design marketed by Wildcare Nationwide Ecology Supplies <https://www.wildcare.co.uk/soffit-bat-box.html> as shown at figure LEMP6. The boxes will be constructed from 12-18mm FSC hardwood exterior plywood and its dimensions are as follows: Entrance slot 20mm, Box length 330mm, Height of box at its highest point 250mm and at lowest 140mm. The angles of the various components will be made to match the roof pitch of the new house.

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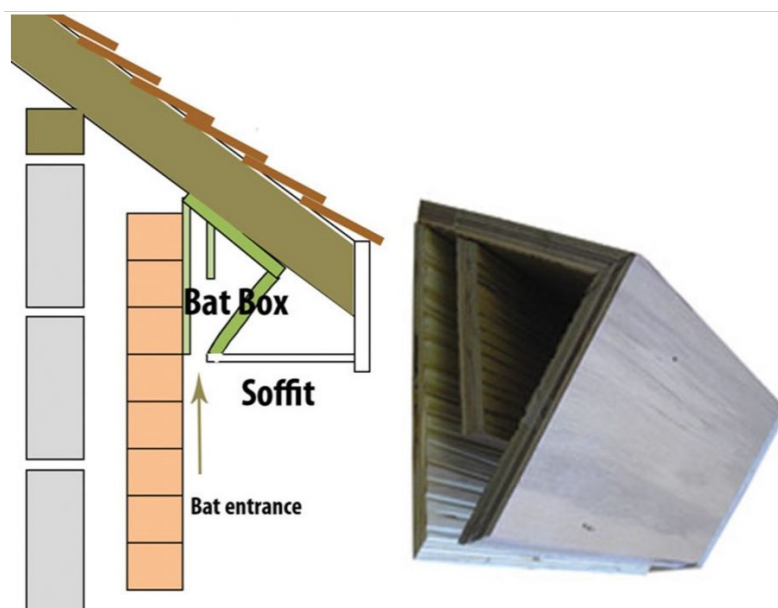


Figure LEMP6

**Bat roost soffit-boxes to be provided at each of the four corners of the new house.
This box is marketed by Wildcare Nationwide Ecology Supplies**

- 6.2 All site operations will avoid unnecessary disturbance to bat habitat. The best practice methods outlined at appendix 2 designed to minimise impact on bats resulting from tree felling and lopping will be employed. If any bats or roosts were to be found during site clearance, further work to that tree must stop immediately and advice sought from the site ecologist.
- 6.3 Pipistrelles, the most frequent species in the urban environment, can thrive where there is outside or flood-lighting where they feed on moths and other insects attracted to the light (in contrast to many other bat species). However, outside lighting must be directed away from roost entrances and potential bat habitat. The site ecologist will advise as regards outside lighting where bats might be impacted
- 6.4 Landscape plantings will be limited to the provision of strong hedgelines along the northern, western and southern boundaries of the Plot but they will provide edge habitats attractive to foraging bats as well as habitat connections between existing scrub to the north, gardens to the west and the woodland to the south. Landscape plantings will be of locally native species as described at section 5, and will be suitable to support insects and other invertebrates which will contribute to the diet of the local bat population.

7 REPTILES AND AMPHIBIANS

7.1 Existing reptile habitat

Although the habitat within the site is generally unsuitable to support reptiles and terrestrial-phase amphibians, small numbers may occur along the existing edge-habitats shown in yellow and brown cross-hatch on figure LEMP2. It is an offence under the Wildlife and Countryside Act to kill individual reptiles and the developer will ensure that vegetation clearance work is carried out carefully, preferably in September or October although other times between April and October may be possible provided that the site ecologist has

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certified that no active birds' nests will be disturbed by the operation. The ecologist or other suitably qualified person will be in attendance when undertaking the initial site clearance operation in the yellow and brown hatched areas shown on figure LEMP2 to carry-out a finger-tip search of potential habitat and safely remove any animals encountered as described at paragraph 7.3.

7.2 Obligations of site personnel

Site personnel will be made aware of their obligations to these protected species and, at all times, will ensure that all reasonable steps are taken to ensure that no harm comes to individual animals.

7.3 Precautions to minimize damage to animals during site clearance

This LEMP seeks to minimize the possible impact on reptiles and amphibians and includes means to prevent the accidental killing and injuring of animals if any are present. The initial clearance of vegetation which has the potential to harbour reptiles and terrestrial-phase amphibians, including areas of trees, bramble, scrub, tall-herb and rank vegetation (including long grass), will ideally be limited to September and October inclusive, as reptiles are active in this period and will be more able to escape disturbance. The operation will commence in the centre of the area to be cleared and work outwards towards the boundaries through which, displaced animals will have the opportunity to escape. Initial clearance will be undertaken using hand tools only (eg strimmer, chain-saw, loppers, hand saws, etc) and will remove vegetation down to a height of no less than 50mm.

Prior to, and during the initial clearance of vegetation, the site ecologist or other suitably qualified person will be in attendance to carry-out a finger-tip search of the working front to ensure that any fauna, including reptiles, amphibians and Hedgehog, are not killed or disturbed or come to any harm. Any animals encountered will be carefully removed off-site to a location in the vicinity that will not be disturbed in the foreseeable future which will have been agreed in advance with the Planning Authority's Ecologist. The chosen receptor area includes woodland-edge and rank and short grassland vegetation suitable to support reptiles, terrestrial phase amphibians and Hedgehogs and is located to the south of the site on land in the ownership of the developer. Its location is shown on figure LEMP3.

7.4 Reptile and amphibian habitat provision

The internal access-road verges offer the only potential for habitat replacement but these are of very limited extent and their suitability to support reptiles and amphibians will depend on the maintenance of a minimal mowing regime. All drain pots will be fitted with escape ladders to ensure that any animals falling-in have a means of climbing out. The new garden, once established, may also offer potential habitat but the creation of such habitat will be at the discretion of the new owner.

7.5 Reptile and amphibian habitat connectivity

There are limited opportunities within the Plot to provide reptile habitat connectivity although the proposed boundary hedgeline may offer some potential for animals to travel between adjacent habitats. Access under new fencing, through which reptiles and amphibians can easily pass, will be provided. See section 9, below, on Hedgehogs regarding the provision of such access.

7.6 Habitat piles and refugia

Woody arisings produced by on-site vegetation clearance will be chipped and used as a soil ameliorant in the landscaping scheme but suitable wood, brash and wood-chip will, under the direction of the site ecologist, be made into a habitat pile to provide habitat for reptiles and Hedgehogs and will be located within the nib of land located within the south-western

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extremity of the Plot (Plot 4), its exact position to be decided in consultation with the site ecologist.

A reptile and amphibian hibernaculum will also be created from waste rubble and masonry derived from on-site operations and will be located in the same area within Plot 4. The hibernaculum will be constructed of soil-covered, free-draining, buried rubble to a depth of about 300mm having an area of approximately 1m²–2m². The site ecologist will advise on its location and construction.

8 NESTING BIRDS

8.1 Precautions to protect nests during site clearance

As all nests occupied or being built by breeding birds are protected by the Wildlife and Countryside Act 1981, scrub or dense vegetation or any other potential nesting habitat will not be disturbed or removed during the breeding season unless, immediately prior to the commencement of such operations, it is judged by the site ecologist, not to be supporting any nests. Removal of scrub and other dense vegetation is therefore best undertaken between September and February inclusive to ensure that disturbance to nesting birds is kept to a minimum. However, it is always preferable to complete this work in September or October as other species such as reptiles, amphibians and Hedgehogs will still be active in these months and have a better chance of escape than later when the weather is cold.

8.2 New provision for nesting birds

The new house and garage present the opportunity for the installation of nest boxes to attract several species of breeding birds. In general, such features should avoid placement in south-facing situations, preference being given to west- and north-facing aspects and may be of varying types including those located in internal cavities formed in walls and/or soffits, as well as suitably designed boxes attached to walls. Various potential types of bird nest features are shown at appendices 1 and 2.

House Sparrow, Robin, Blue Tit, Great Tit, etc

These species frequently nest in association with human habitation in the urban and suburban environment. One sparrow terrace and three tit boxes will be attached to the eastern and western elevations as shown on figure LEMP3 and a robin box and a tit box will be affixed to the western elevation of the garage and a further tit box to the northern elevation of the garage. Suitable boxes are shown at figure LEMP7.



Figure LEMP7

Left to right, tit box, robin box and sparrow terrace of the types to be fixed on the elevations of the new house (as shown on figure LEMP4) as well as the garage (see text)

Swifts have declined in numbers considerably in recent years resulting from the loss of traditional nest sites in old buildings due to their demolition or renovation. Two banks, each of five nest-boxes, will be installed in the new house, one in the east-facing elevation and one in the west-facing elevation where the required 5m clear drop is available below them. The developer has provided Swift nesting boxes in a house that he is currently building in Llanelli as shown on figure LEMP8 and the new house at Plot 4 Colliers Row will be provided with similar boxes attached to the wooden cladding in the locations shown on figure LEMP3.



Figure LEMP8

Swift-boxes similar to these constructed at the developer's house-building site in Llanelli will be provided on the eastern and western elevations of the new house at Plot 4 Colliers Row in the locations shown on figure LEMP4

The provision of bird nesting features will result in an ecological gain which, in combination with the new boundary hedgelines and potential of new gardens, will, to some degree, mitigate the loss of woodland habitat. The site ecologist will be retained by the developer and will advise on the designs, details, locations and numbers of boxes appropriate to attract different species.

Where accessible, the bird nesting features provided should be cleaned-out and repaired as necessary.

8.3 Provision of habitats suitable to attract birds

At section 5, the plantings specified along the new boundary hedgelines include locally native species of local origin as these generally are more productive of insects which, in turn, support foraging birds. Native berry-producing plants such as Ivy, Rowan, Crab Apple and Hawthorn, as well as non-natives such as Cotoneaster and Pyracantha, also provide food for birds in autumn and winter. The site ecologist ensure that the species specified are planted and managed to ensure their satisfactory establishment.

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9 HEDGEHOG

Hedgehog is a *Species of Principal Importance for Conservation of Biological Diversity* under section 7 of the Environment (Wales) Act 2016. It is possible that Hedgehogs frequent areas of dense vegetation, wall-bottoms and other potential refuges within and around the margins of the Plot and animals may retreat to these situations during daylight hours and over the winter period.

In order to avoid possible killing or injury to Hedgehogs, initial disturbance of any habitats which could potentially be concealing individual animals will be undertaken with great care, using hand tools only. Clearance will only be undertaken between April and October, when animals will be active and not in hibernation. Site staff will carry out a visual “finger-tip” search of the habitat prior to, and during clearance work and will ensure that if any individuals are encountered, they are translocated to safety away from the site or are allowed to seek refuge in areas which will not be disturbed. Any animals caught will be translocated to the reptile receptor area shown at figure LEMP3.

Movement of individual animals into the site and between gardens will be facilitated by ensuring that boundary fencing allows space below panelling or by the provision of 130mm x 130mm holes at ground level about every 10m. Similarly, new boundary walls will be constructed with 130mm diameter pipes through their bases about every 10m to allow Hedgehog passage. Consideration will also be given to drilling 130mm diameter holes in the bases of existing walls at appropriate locations as advised by the site ecologist.

10 BADGER

No signs of Badgers were seen during the *Preliminary Ecological Appraisal* and it is considered unlikely that animals visit the site. Nevertheless, attention is drawn to best practice designed to minimise impact on Badgers during development works which is reproduced at appendix 1. In particular, all excavations left overnight will be provided with a means of escape to prevent any animals becoming trapped, such as a fixed, sloping plank or a sloping side to part of the excavation.

11 INVASIVE NON-NATIVE PLANT SPECIES (INNS)

During the *Preliminary Ecological Appraisal*, a small bush of Cherry Laurel was recorded about 50m north of the proposed access road and a single possible Hollyberry Cotoneaster was recorded on the woodland edge some 15m south-east of the south-eastern corner of Plot 4. No INNS were recorded within the development site but it should be noted that bird-sown seedlings may be present and any plants encountered during construction works will be destroyed or removed in a way that will not result in their proliferation.

It is possible that small plants of Japanese Knotweed might be present within the site. Site staff should be aware of its possible presence and be vigilant in its detection. Construction works must ensure that knotweed stands are not disturbed in a way that would cause the spread or export of propagules from the site and site operations must comply with approved containment practices. Japanese Knotweed must be treated using approved methods prior to the commencement of any work which might cause its disturbance or spread in compliance with the *Knotweed Code of Practice* (Environment Agency, 2013).

12 IMPLEMENTATION AND SUPERVISION

12.1 Design and Construction Stages

There will be input from the site ecologist during the design and construction stages of the project. All the actions prescribed in this Landscape and Ecology Management Plan will be included in appropriate clauses in works contracts and be specified in appropriate method statements. Where appropriate, the site ecologist will approve documents and plans.

An appropriately implemented Environmental Management System (EMS) will be produced and provide guidance to site personnel. A Landscape Management Plan has been produced that will form an essential part of the EMS and the present LEMP has been drafted to inform the development of Plot 4 (the first phase of the development). The site ecologist will ensure their satisfactory implementation in order to make certain that ecological management and mitigation targets are successfully achieved.

The site ecologist will be retained to ensure that the appointed personnel are familiar with the ecological conditions and requirements of the site and that such requirements are being satisfactorily implemented.

Site works will be supervised by an appropriately qualified member of staff performing the duties of an Ecological Clerk of Works to ensure that the ecological requirements of the works progress to completion satisfactorily.

12.2 Site inductions and tool-box talks

All site personnel will be made familiar with the ecological requirements of the site and made aware of their obligations to protected species and other relevant wildlife legislation at induction courses and tool-box talks. This is essential during the early stages of site operations, in particular during the initial clearance of vegetation, to ensure that any animals present come to no harm.

13. ONGOING HABITAT MANAGEMENT AND MONITORING

Future management of the habitats and other ecological features provided during the construction phase will become the responsibility of the owner of the new house once it has been completed and the developer has left the site. Therefore, although appropriate recommendations will be made, the ongoing maintenance and management of biodiversity within the plot will not be subject to any controls and will be at the discretion of the householder.

The maintenance of the access road verges will be the responsibility of the developer until the time that construction work on all the plots within the development site has been completed. This will be achieved by setting-up a management and maintenance company to be paid-for by regular contributions agreed with each of the householders within the site and this company will be responsible for the ongoing management of the verges and other communal features. The company's maintenance staff will be precisely briefed on the desired objectives and the means by which they may be achieved as outlined in the penultimate and final paragraphs of section 5.4, above.

It is not proposed that any formal ecological monitoring will be carried out but the management and maintenance company's staff will be briefed and will be sufficiently knowledgeable to be able to vary the desired maintenance regime should it become necessary.

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APPENDIX 1

BEST PRACTICE PROTOCOL PROVIDING FOR THE WELL-BEING OF BADGERS

If evidence of Badger activity is identified during site surveys or construction works, in order to comply with the Protection of Badgers Act, 1992, it will be necessary to protect all existing setts against disturbance and interference during site works. In general, any disturbance is prohibited within 30m of any active sett unless licensed by Natural Resources Wales or the Welsh Government and then only between the months of July to November inclusive (September is the least damaging month as most birds will have finished nesting by then and animals such as Hedgehog, amphibians and reptiles will still be active and have a better chance of escape). Significant destruction of foraging grounds may also be judged as an infringement of the law on animal welfare grounds and, in extreme cases, prosecutions have been brought by the RSPCA.

Best practice principles advise that:

- All site personnel are made aware of the presence of setts and foraging grounds
- All site personnel are aware of the implications of the law
- If any setts are found during site works, a substantial fence will be erected, consisting of posts with three plain wires and with clearly visible bunting strung along the top, or Herras fencing, around each sett, a minimum distance of 30m from any entrance in order to prevent accidental access by any vehicle. A line of bunting supported on road pins is inadequate.
- Fragmentation of Badger territories is minimised during construction works.
- Existing Badger paths will not be obstructed during site works.
- All trenches dug on site will be provided with escape ramps, sloping boards or battered sides to allow any trapped animals to escape. As few trenches as possible will remain open on site over night.
- Fires will not be built near any sett.
- Any chemicals or other noxious substances stored on site will be in an area which is proofed against Badgers.
- If necessary, replacement foraging resources will be provided for the duration of the works.
- Landscaping proposals will bear due regard to the needs of foraging Badgers by the provision of infrequently cut grass verges and native species fruiting trees and shrubs.

APPENDIX 2

BEST PRACTICE PROTOCOL FOR TREE FELLING WHERE TREES HAVE THE POTENTIAL FOR SUPPORTING ROOSTING OR HIBERNATING BATS

Mature trees with trunk/branch cavities and/or a covering of ivy are particularly valuable bird nesting and bat roost sites, and will be retained wherever possible; compensatory planting with appropriate species will be undertaken where felling is inevitable.

Where tree felling or lopping is planned, such work will only be carried out between August and February to avoid the bird-breeding season.

All bats are protected by the Wildlife and Countryside Act 1981. Bat tree-roosts are extremely difficult to identify, and it should be assumed that any mature native-species tree is an actual roost. Every effort should be made to avoid disturbance or damage to these trees during construction work. It is an offence under the Wildlife and Countryside Act to knowingly disturb bat roosts or hibernacula. To minimise disturbance to bat populations by the removal of trees the following protocol will be followed.

- As far as possible all trees having bat roost potential should be preserved. If it is necessary for trees to be removed, all felling operations will bear due regard to this protocol.
- If bats are found during tree work, then all work will stop and Natural Resources Wales must be informed immediately.
- If the tree trunk is smaller than 200mm diameter and if it has no dense ivy, suitable holes, loose bark, and no holes associated with the root system, then work can be carried out on the tree between September and February (ie avoiding the bird breeding season).
- To avoid disturbing nursery roosts, work must never be carried out between June and August inclusive.
- If the tree does have any of the above or has a trunk size greater than 200mm, it must be cut only in September and October when bats, including young of the year, are still mobile and able to fly-out. If cutting must take place at other times, summer is probably best as bats can be more easily seen, can fly away and may take young with them, thus enabling a better chance of survival. But due regard must also be taken of nesting birds and the presence of other breeding fauna.
- If felling were to take place during hibernation (November to March) the bats will be torpid, difficult to see and the whole roost may be lost as they will be unable to escape.
- Any timber cut will be left lying for at least 24 hours to allow bats the opportunity to escape.
- It is also important to consider to what extent the habitat that is being removed is available elsewhere locally. For example, if only one tree in twenty of similar age or structure is to be felled, then it is likely that the impact of the loss will be less important. If the tree to be felled is solitary and in an area with few or no mature trees, then the impact may be significant.

Where the loss of mature trees is unavoidable, compensatory planting with appropriate locally native species of local provenance should be undertaken.

APPENDIX 3 PROTECTED and OTHER SIGNIFICANT SPECIES and HABITATS: Recommended Times of Work to avoid undue disturbance

Feature	January	February	March	April	May	June	July	August	September	October	November	December
Bats and their breeding and resting sites (European Protected Species, WCA,1981, sch.5, E(W)A sect 7)				Limited disturbance to roosts permitted under licence but preferable in September & October					Felling under licence best done now. Felled trees of >20cm diameter must be left to lie on the ground for 24hrs to allow any bats to escape			
Otter and its breeding and resting sites (European Protected Species, WCA,1981, sch.5, E(W)A sect 7)									Disturbance to Otter sites limited to between Sept and Jan and is subject to licence from NRW			
Dormouse and its habitat (European Protected Species, WCA,1981, sch.5, E(W)A sect 7)			Disturbance subject to licence from NRW						Disturbance subject to licence from NRW			
Water vole habitat and places of shelter (WCA,1981, sch.5, E(W)A sect 7)			Disturbance subject to NRW approval						Disturbance subject to NRW approval			
Badger (Protection of Badgers Act 1992)								Work within 30m of a sett or annex permitted and sett closure permitted: all subject to NRW licence				
Hedgehog, Harvest Mouse, Brown Hare, Water Shrew (E(W)A sect 7)	Consult a qualified ecologist before carrying out any works in areas identified as supporting these species											
Red Kite and some other protected bird's nests (WCA,1981, sch.1)	No disturbance at any time											
All other Breeding Birds: nest sites (WCA,1981)	Vegetation clearance permissible		Avoid disturbance to potential nesting habitat during this period unless, immediately prior to commencement of works a qualified ornithologist certifies that no active bird's nests will be disturbed.						Vegetation clearance permissible			
Great Crested Newt and its breeding & hibernation sites (European Protected Species, WCA,1981, sch.5)									Disturbance of breeding or terrestrial habitat should only be carried out between September and January and is subject to licence from NRW			
Other newts frogs & toads (except Natterjack) (WCA,1981, sch.5, E(W)A sect 7) Breeding ponds								Disturbance of amphibian breeding ponds should only be carried out during August to January inclusive				
Other newts frogs & toads (except Natterjack) (WCA,1981, sch.5, E(W)A sect 7) Terrestrial habitat			Disturbance to potential terrestrial habitat should be preceded by a capture and translocate operation or 'destructive search'									
Reptiles (except Smooth Snake) (WCA,1981, sch.5, E(W)A sect 7)			Disturbance to potential terrestrial habitat should be preceded by a capture and translocate operation or 'destructive search'									
Marsh Fritillary butterfly (WCA,1981, sch.5, E(W)A sect 7)	Areas supporting Marsh Fritillaries must not be disturbed except after consultation and advice from NRW											
Other Protected & Significant Invertebrates (WCA, 1981, E(W)A sect 7)	Consult a qualified ecologist before carrying out any works in areas identified as supporting these species											
Habitats of Principal Importance for Conservation of Biological Diversity in Wales (E(W)A sect 7)	Habitats of Principal Importance should not be disturbed at any time of year without prior consultation with a qualified ecologist											
Important Hedgerows as defined in the Hedgerow Regulations, 1997	Important hedgerows may only be removed following the issue of a <i>Hedgerow Removal Order</i> or a valid planning consent issued by the local planning authority											
Uncultivated or semi-natural habitats subject to the Environmental Impact Assessment (EIA) (Agriculture) (Wales) Regulations 2007	Changes to qualifying habitats may only be undertaken after a favourable Screening Decision is given by the Welsh Government or an application for change of use has been approved											
KEY TO COLOURS												
Avoid disturbance at any time												
Best time to carry out site work subject to advice and/or licence												
Most suitable times for works to take place												

