



Redrow

Land South of Burbage

ECOLOGY MITIGATION/ENHANCEMENT STRATEGY

July 2024

FPCR Environment and Design Ltd

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FIGURE

Figure 2: Habitat Mitigation Measures Plan

Figure 1: Faunal Mitigation and Enhancement Plan

1.0 INTRODUCTION

- 1.1 The following Ecological Mitigation Strategy (EMS) has been prepared by FPCR Environment & Design Ltd. on behalf of Redrow and sets out details of the proposed ecological enhancements for the proposed development of an area of land to the west of Workhouse Lane Burbage.
- 1.2 This document should be read in conjunction with the Landscape Masterplans (PDP Associates, drawing No. c-2109-01 Revision C and c-2109-02 Revision C).
- 1.3 FPCR Environment and Design Ltd completed ecological assessments of the site between 2020 and 2023 and have provided the Ecological Appraisal (FPCR, November 2023) and Update Bat and Great Crested Newt Survey Report (FPCR, November 2023) to support the Outline planning application.

Site Location and Context

- 1.4 The site is located on the southern edge of the town of Burbage and comprises Burbage Fields Farm and the surrounding arable and pasture fields. Bullfurlong Lane and pasture fields border the site to the west, the southern boundary comprises a fence line, beyond which lies the M69 and associated screen planting whilst the eastern boundary is bordered by playing fields and further arable and pasture fields. Coventry Road borders the north of the site with the existing residential area of Burbage extending beyond. In the wider landscape arable and pasture fields extend to the south, east and west with an urbanised area to the north.

2.0 BASELINE SITE CONDITIONS

- 2.1 FPCR undertook an ecological appraisal of the site in November 2020, which included a badger survey, ground level tree assessments (GLTA) (for roosting bats) and waterbody Habitat Suitability Index (HSI) assessments for GCN.
- 2.2 Following the results of the GLTA survey, two nocturnal bat surveys to determine the presence/absence of roosting bats was undertaken on a single tree (T5) in 2021. A detailed internal/external inspection of buildings in respect for roosting bats was undertaken in 2021, with nocturnal bat surveys of buildings undertaken in 2021. Bat activity surveys including walked transects and automated passive static bat detector surveys were undertaken during spring, summer and autumn 2021. GCN presence/absence surveys in the form of aquatic surveys and an eDNA survey were undertaken in 2021. A scoping winter bird survey was undertaken in November 2020 and a scoping breeding bird survey was undertaken in April 2020.
- 2.3 Further update surveys were undertaken across 2021 to 2023, which included updated extended phase 1 habitat surveys during August 2021 and January 2023, badger survey, GLTA for roosting bats), waterbody Habitat Suitability Index (HSI) assessments for GCN, update nocturnal bat surveys of buildings in 2023, update walked activity bat transect and automated passive static bat detector surveys in May 2023, update GCN presence/absence survey in the form of a GCN DNA survey in 2023, update winter bird surveys during winter 2022-2023 and an updated scoping winter bird survey during May 2023.
- 2.4 A summary of the results is provided below (full details, including plans, can be found in the Ecological Appraisal¹ and Update Bat and Great Crested Newt Survey Report²).

Protected Sites

Statutory Designated Sites

- 2.5 No significant negative impacts are anticipated on any statutory sites designated for nature conservation as a result of the proposed development.

Non-Statutory Designated Sites

- 2.6 Hedgerow Oak Tree pLWS, Long Field Hedgerow pLWS and Horse Field Hedgerow pLWS are each located within or immediately adjacent to the application site boundaries. These are all to be retained within the proposals and will be protected during the constructions using heras fencing around appropriate root protection areas as detailed below. As such these sites are not considered to pose a constraint to the proposed development of the site.

Habitats

- 2.7 The site largely comprised improved grassland field compartments, with a single field compartment supporting semi-improved grassland, largely enclosed by native hedgerows and hedgerows with associated trees. A brook ran from the east-south-east through the site to the southern boundary. Additional habitats present within the site included small areas of dense and scattered scrub, small

¹ Land South of Burbage: ECOLOGICAL APPRAISAL. FPCR (November 2023)

² Land South of Burbage: UPDATE BAT AND GREAT CRESTED NEWT SURVEY REPORT. FPCR (November 2023)

area of marshy grassland, bare ground, standard trees, hardstanding track/roads, buildings and a small area of amenity grassland within the eastern extent of the site.

Fauna

Badger *Meles meles*

- 2.8 No evidence of badger, such as setts, latrines or tracks, was recorded within the site or within 30m (where accessible) during the survey work undertaken in 2020, 2021 or 2023. As such, badgers are not considered to pose a constraint to the proposed development.

Bats

Roosts – Trees

- 2.9 No evidence of roosting bats was identified within tree T5 which was identified as having moderate potential to support a bat roost. This and all other trees assessed as being suitable to support roosting bats within the site are to be retained by the proposed development within retained boundary hedgerows or areas of green space and will be largely buffered from the built development.

Roosts – Buildings

- 2.10 Four common pipistrelles *Pipistrellus pipistrellus* roosts were identified within three buildings. A single common pipistrelle was identified emerging from a gap in the roof tiles near the roof apex of B3a on a south-east aspect. A single common pipistrelle was identified emerging from missing roof tile of B3b on a south-west aspect. A single common pipistrelle was identified re-entering under guttering below a chimney of B4a on an eastern aspect and two common pipistrelles were identified emerging from roof tiles near the chimney of B4a on a southern aspect. The buildings support non-breeding day roosts of a widespread species, common pipistrelle, which have been assessed as site level importance in line with Table 3.2 of the UK Bat Mitigation Guidelines³.

Commuting and Foraging

- 2.11 Seasonal bat activity surveys undertaken across the site in 2021 and 2023 highlighted the site is utilised by common and widespread species of bats, primarily common pipistrelle having recorded low numbers of registrations. No Annex II species of bats were recorded within the site.

Birds

- 2.12 The habitats within the survey area supported small numbers of common and widespread bird species during both the breeding and winter seasons that were typical of the habitats present.

³ Reason, P.F. and Wray, S. (2023). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Version 1.1. Chartered Institute of Ecology and Environmental Management, Ampfield.

Great Crested Newt (GCN) *Triturus cristatus*

- 2.13 No GCN were recorded within the on-site ponds or any of the neighbouring ponds surveyed in 2021. All other ponds surveyed returned negative results. As such GCN are not considered to pose a constraint to the proposals.

Other Protected Species

- 2.14 No other protected species including reptiles, otter *Lutra lutra*, water vole *Arvicola amphibius* and white-clawed crayfish *Austropotamobius pallipes* were considered to pose a constraint to the proposed development.

3.0 MITIGATION MEASURES

- 3.1 The following mitigation measures are based upon the results of the suite of survey work undertaken between 2020 and 2023 and are considered appropriate for the habitats and species present or those that are thought reasonably likely to occur within the site.

Retained Habitats

- 3.2 The majority of hedgerows and tree lines within and at the site boundaries are retained within the proposed development, albeit sections/hedgerows are lost within the middle and north of the site for internal access and to facilitate the central block of housing. All individual broadleaved trees are to be retained.
- 3.3 All retained hedgerows, tree lines and trees in accordance with the Arboricultural Assessment⁴ will be protected from damage and from soil compaction during construction and ground works via the use of fenced Root Protection Areas (RPAs) of appropriate diameter, in accordance with guidance in *British Standard 5837 (2012) - Trees in Relation to Construction - Recommendations*. In addition, these retained habitats will be largely buffered from development and kept in the public domain, such that their long-term retention and management can be secured.
- 3.4 The ditch and brook sections, are to be largely retained and buffered within the proposed development. The western end of the ditch will be culverted where the road crosses, however this is not anticipated to have a significant impact given the existing lack of aquatic and marginal vegetation, ephemeral nature and the fact that it is already partially culverted.
- 3.5 A small section of the brook will also be culverted for an access road to the south-eastern field, close to the existing culverted section. In addition, small sections will be bridged where proposed footpaths cross. These are also anticipated to be minor impacts that will not affect the overall condition of the brook which is already heavily shaded by the adjacent tree cover which has resulted in a lack of aquatic and limited marginal vegetation. The pond P4, located along the western boundary, is also to be retained.
- 3.6 Heras fencing will be used throughout the pre-commencement and construction stages to protect a buffer zone of minimum width 2m where the proposed working areas bound the pond and water courses. Fencing will be appropriate to restrict access to such areas by construction workers / equipment, to ensure no physical damage occurs and to minimise the risk of accidental pollution events. No works or storage of materials will take place within the above protection zones. Guidance for Pollution Prevention GPP4, GPP5, GPP13, GPP19, GPP21 and GPP 22 should be followed.
- 3.7 Green Infrastructure (GI) will be created along the sites eastern, southern, and western boundaries and throughout the development separating built parcels providing semi-natural green spaces. Habitats include mixed scrub, amenity grassland, broadleaved tree planting, native hedgerow planting, attenuation basin features, species rich meadow grassland and orchard establishment.

Bats

- 3.8 No roosting bats were recorded within the single tree surveyed as being providing a moderate potential to support roosting bats and is retained within the proposed development. All other trees

⁴ Land to the South West of Lutterworth Road, Burbage: Arboricultural Assessment. FPCR (November 2023)

assessed as providing potential to support roosting bats are to be retained and will be largely buffered from the built development. As such, there will be no net loss of Preliminary Roost Features (PRFs) as a result of development.

- 3.9 Buildings B3a, B3b and B4a supports a peak count of 1-2 common pipistrelle non-breeding day roosts, these roosts are classed as site level importance. In the absence of mitigation proposals will results in a permanent loss of four common pipistrelle day roots, and will likely result in the killing, injury and/or disturbance of individual common pipistrelle bats, which will otherwise result in a breach of UK legislation.
- 3.10 A Natural England European Protected Species (EPS) Licence is required to facilitate demolition of these buildings and resultant destruction of four day roosts. The following bat mitigation strategy outlines details of working methods, mitigation, and compensation measures required to facilitate the proposed development. Full details of the mitigation strategy is subject to agreement with Natural England following the approval of a mitigation licence application.

Bat Mitigation Strategy

- 3.11 This mitigation strategy follows the principles of the latest edition of the UK Bat Mitigation Guidelines⁵.
- 3.12 Guidance on assessing the importance of roosts is included in Tables 3.2 of the mitigation guidelines. The presence of three non-breeding day roosts occupied by a widespread species, common pipistrelle, is of site level importance. Retention of the existing roost sites not feasible in the context of the development, as such there is no satisfactory alternative to avoid the permanent loss of these roosts.
- 3.13 Table 5.1 of the bat mitigation guidelines states that the proposed scale of compensation required for non-breeding day roost of site level importance is “*Flexible (in terms of timing and type)*”. There is sufficient scope within the scheme to provide alternative roost resources to compensate for the loss of three low conservation status roosts. Adherence to mitigation measures and delivery of compensation measures will seek to ensure that the Favourable Conservation Status common pipistrelle bats using the site is maintained.
- 3.14 Mitigation will be provided as follows (subject to agreement with Natural England).
- Installation of five 1FR bat tubes integrated into new dwellings to compensate for the loss of known roosts. Integrated features to be placed on a south-east to south-west aspect of new buildings, situated as close as possible to existing roosts, where feasible. Integrated bat tubes will be located close to the corner of properties at the eaves and sited away from windows and doors. (see Figure 1). This will provide similar roosting opportunities in a similar location to the roosts currently present.
 - Two 2F Schwegler bat boxes suitable for use by crevice dwelling species will be mounted on suitable retained trees prior to demolition works. These bat boxes will provide an alternative roost location during the demolition to ensure there is no net loss of roosting opportunities. Following completion of works tree mounted boxes will be left in-situ to provide additional enhancements.

⁵ Reason, P.F. and Wray, S. (2023). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Chartered Institute of Ecology and Environmental Management, Ampfield

- As roosts are of site level importance and used by a widespread species no timing constraints are proposed for the works affecting the roosts.
- Prior to the start of works all contractors will be inducted by a licensed bat ecologist/accredited agent to make them aware of the possible presence of bats, their legal protection and of best working practices to avoid harming bats. All works affecting bats will be supervised by a licensed bat ecologist/accredited agent.
- Prior to commencement of demolition works, buildings with confirmed roosts must be subject to a pre-works inspection. This will include inspection of the known roost site, internal inspection of any loft spaces/voids, and checking of suitable PRFs, using endoscopes, torches and inspection mirrors, as required,
- Following the pre-works inspection, all suitable PRFs will be removed by hand under the supervision of the licensed bat ecologist/accredited agent. Where applicable, materials will be removed carefully and not rolled or sprung to avoid potential harm to bats. Removed PRFs will be thoroughly checked to check for the presence of bats.
- All new properties will ensure that roofing membranes used are either bitumen Type 1F felt, or a non-bitumen coated roofing membrane (NBRM) product which is certified as having passed a 'snagging propensity test'. Roofing membranes containing non-woven spunbonded polypropylene filaments can lead to bat deaths as they become tangled and trapped within the fibres.
- The lighting scheme will be designed with reference to the Bat Conservation Trust and Institute of Lighting Professionals guidance⁶. Lighting should be avoided where mitigation and enhancement measures are installed for bats particularly near any access points provided. One option in other areas of the site is to use directional lighting that is focused downwards towards the ground and avoids spill in unwanted areas, additionally low level sodium lighting should be used.

- 3.15 Additional roosting opportunity enhancements for bats, including common pipistrelles, will be delivered through the scheme. Roost enhancements will comprise the installation of a variety of bat boxes on new buildings and retained trees across the site (Figure 1). Many of these boxes are manufactured from long-lasting Woodcrete and will last for at least 20 - 25 years.

Precautionary Working Methods

- 3.16 Prior to the commencement of works on the above listed buildings, a pre-commencement inspection is to be undertaken by a licenced/accredited Ecological Clerk of Works (ECoW).
- 3.17 Prior to the commencement of works on the above listed buildings, all contractors undertaking works to the buildings, where works carry a risk of disturbing bats and/or damaging or destroying roost sites, must attend a toolbox talk delivered by a licenced bat worker. The toolbox talk will outline: legislation relating to bats; measures that will be used to protect them; good working practices; licensable activities and what to do should bats be found on site.

All licensable works must be carried out best using practice methodologies during suitable weather conditions and supervised by a licenced/accredited Ecological Clerk of Works (ECoW). Where

⁶ Bat Conservation Trust & Institute of Lighting Professionals 2023. *Guidance Note 8: Bats and Artificial Lighting at Night*. Bats and the Built Environment Series.

direct ecological supervision is not possible due to health and safety issues e.g., internal asbestos removal, contractors will be briefed by the ecologist regarding suitable working methods.

- 3.18 Examples of licensable works which will require ecological supervision are provided below:
- Roofing works; inclusive (but not limited to) removal of; roof/ridge tiles, fascia boards, soffit boxes, bargeboards/ roof verges, roof lining.
 - Eaves works (both internal and external).
 - Chimneys, rainwater goods, lead flashing etc.
 - Removal of cladding and demolition of brickwork (where PRFs or access points are present)
 - Any additional works which will result in impacts to potential roost features and/or access points.
- 3.19 Lighting during construction will be kept to a minimum, reducing the risk of disturbance to foraging and commuting bats, along with other nocturnal species, and will include the following precautions:
- Lighting to be directed away from retained boundary habitats and trees with bat roost potential;
 - No works to be conducted onsite after sunset and security lighting kept to a minimal level, as required for safety and security purposes; and
 - Security lights to be set on short timers and be sensitive to large moving objects.
- 3.20 If any roosting bats are identified within buildings not currently listed under the licence, all works on the building should immediately stop and advice sought from the licenced/accredited Ecological Clerk of Works (ECOW).

Breeding Birds

- 3.21 Suitable habitat for nesting birds, including hedgerow and tree lines are to be lost. To minimise the risk of disturbance to breeding birds and avoid potential offences under the Wildlife and Countryside Act 1981 (*as amended*) any removal of suitable nesting vegetation should occur outside of the bird breeding season (March to August inclusive). If this is not possible, such vegetation will be checked prior to removal by a suitably experienced ecologist. If active nests are found, vegetation should be left untouched and suitably buffered from works until all birds have fledged. Specific advice should be sought prior to undertaking site clearance.
- 3.22 New hedgerow, native tree and scrub planting will compensate for the loss of habitats as a result of the permitted development (see ecological enhancements below).

4.0 HABITAT ENHANCEMENT / CREATION

Grassland Enhancement

- 4.1 Areas of existing improved and semi-improved grassland will be retained and will be enhanced, with either a flowering lawn mix or with a wildflower seed mix such as Emorsgate EM2, or similar (and appropriate management) to create species rich meadow grassland.

- 4.2 The north-eastern corner of the existing semi-improved field will be retained and enhanced through the creation of an orchard, with the existing grassland managed to create a wildflower seed mixture via Emorsgate EM1F, or similar grassland.
- 4.3 These areas will be protected from construction activities via the installation of heras fencing (or other suitable fencing).

Hedgerow Enhancement

- 4.4 To ensure the ecological value of the retained lengths of hedgerows are maintained all retained hedgerows will be managed by side trimming on a rotational basis. Trimming of all hedgerows should not be undertaken within the same year and when trimmed this should be in an 'A' profile to promote the development of wide, healthy hedgerow bases. Hedgerows are to be gapped up using native species of local provenance as listed in the below section. In addition, these will provide nesting opportunities for breeding birds and small mammals.

Ditch Enhancement

- 4.5 The ditch located within the south-east of the site will be retained and enhanced within the proposed scheme. The ditch will be cleared, and the site-side bank will be lightly regraded where possible alongside appropriated planting which will create habitats of value to wildlife.
- 4.6 This will include areas designed to be temporarily/seasonally inundated to improve capacity and flows which will provide an enhanced habitat in the long term. It is recommended that a wetland tolerant wildflower meadow mix Emorsgate EM8 Meadow Mixture for Wetlands (or similar) is sown and could include native marginal plant species along the banks, surrounded by a native buffer planting mix.

Habitat Creation

- 4.7 The proposed development could incorporate the creation of the following new native habitats:
- Species rich meadow grassland;
 - Orchard establishment;
 - Native hedgerow and scrub planting;
 - Native trees; and
 - Attenuation feature.
- 4.8 Details of the habitats that could be created, along with management during establishment and long-term management are set out below.

Species Rich Meadow Grassland

- 4.9 Species rich meadow grassland will be incorporated within extensive areas of green space associated along the eastern and southern site boundaries and surrounding the central LEAP area. This would comprise an appropriate species mix such as Emorsgate EM2 (standard general purpose meadow mixture) or similar.

Timings/Creation

- Best surface sown in spring or autumn;
- Sowing at a rate as specified (dependant on exact species mix);
- Ground should be cultivated prior to seeding to bury the surface vegetation and harrow or rake to produce a medium firm tilth; and
- Surface sow and do not incorporate or cover the seed but firm in with a roll, or by treading to give good soil contact.

Management During Establishment

- 4.10 Native grassland may take 12-18 months to knit together as turf, therefore newly seeded areas will be protected to prevent seedling destruction during establishment. Any flush of annual weeds from the soil during the first growing season will be controlled by topping or mowing. The arisings should be removed off site, to encourage grassland establishment.
- 4.11 During initial establishment the grassland should be mown regularly to a height of 40-60mm, with cuttings removed if dense. The mowing frequency will have regard to weather conditions to ensure that there is no excessive cutting during dry periods and in very wet conditions all grass cutting operations will cease until conditions allow for grass cutting to take place without damaging the surface levels or creating 'divots' from the machinery.

Orchard

- 4.12 An orchard will be established over retained grassland located within the north-east of the site. The orchard trees should be planted with local heritage species. The grass will be seeded with a wildflower seed mixture such as Emorsgate EM1F or similar.
- 4.13 Orchard trees species recommended for inclusion are listed below.

Cox <i>Malus domestica</i> 'Cox's Orange Pippin'	Annie Elizabeth <i>Malus domestica</i> 'Annie Elizabeth'
Brambley <i>Malus domestica</i> 'Bramley's Seedling'	Barnack Orange
Victoria plum <i>Prunus domestica</i> 'Victoria'	Belvior seedling <i>Malus domestica</i> 'Belvoir Seedling'
Dumelow's Seedling <i>Malus domestica</i> 'Dumelow's Seedling'	Langton's Nonsuch <i>Malus domestica</i> 'Langton's Nonsuch'
Martin's Custard <i>Malus domestica</i> 'Martin's Custard'	French Codlin <i>Malus domestica</i> 'French Codlin'
Lord Burghley <i>Malus domestica</i> 'Lord Burghley'	Marriage Maker <i>Malus domestica</i> 'Marriage Maker'
Prince Charles <i>Malus domestica</i> 'Prince Charles'	Packington Apple <i>Malus domestica</i> 'Packington Apple'
Queen Caroline <i>Malus domestica</i> 'Queen Caroline'	St. Ailred <i>Malus domestica</i> 'St. Ailred'

Timings/Creation

- Maidens to be planted between October and March.

- Fruit trees will be planted in a traditional hexagonal formation with individual specimens planted 8-10m apart^{7,8}.
- Maidens to be planted within tree pits c.100cm² with a maximum depth of 50cm⁹.
- Maidens will be protected by tree guards against grazing and vandalism.
- Areas of 1m in diameter will be mulched around the base of specimens to increase weed suppression.

Management During Establishment

- 4.14 Orchard trees should be watered during dry weather during the growing season (April – September). Tree shelters/guards should be checked, tightened and firmed up in ground if necessary. Formative pruning regime during tree development should be carried out during the winter period. All dead and dying specimens are to be replaced with a tree/plant of either the same species or similar species as those existing.
- 4.15 Emorsgate EM1F or similar wildflower grassland should be created and managed as per the prescriptions as outlined above for Emorsgate EM2 grassland.

Native Hedgerow and Scrub Planting

- 4.16 Native hedgerows will be created throughout the sites green space and adjacent to the southern site boundary. Native tree specimens could also be planted within the hedgerows.
- 4.17 In addition, native scrub will be established along the southern and western site.
- 4.18 Any native hedgerow and scrub planting mix for the landscaping scheme will aim to use native species, with an emphasis on those bearing nectar, berries, fruit and nuts, as these have a greater value for wildlife than non-native species. These features would also provide enhanced nesting and commuting opportunities for a range of faunal species including birds and foraging bats.
- 4.19 Indicative species for inclusion within the planting are listed below.

Native Hedgerow Planting

Hawthorn *Crataegus monogyna*

Blackthorn *Prunus spinosa*

Dogwood *Cornus sanguinea*

Hazel *Corylus avellana*

Holly *Ilex aquifolium*

Elder *Sambucus nigra*

Native Scrub Planting

Hawthorn *Crataegus monogyna*

Blackthorn *Prunus spinosa*

Hazel *Corylus avellana*

Guelder Rose *Viburnum opulus*

Holly *Ilex aquifolium*

Wild privet *Ligustrum vulgare*

Dog-rose *Rosa canina*

⁷ Natural England 2010. *TIN012 Traditional orchards: a summary*. Sheffield: Natural England.

⁸ Natural England 2010. *TIN013 Traditional orchards: site and tree selection*. Sheffield: Natural England.

⁹ Natural England 2010. *TIN014 Traditional orchards: planting and establishing fruit trees*. Sheffield: Natural England

Hedgerow Tree Specimens

Field maple *Acer campestre*

Goat willow *Salix caprea*

Crab apple *Malus sylvestris*

Wild cherry *Prunus avium*

English oak *Quercus robur*

Timings/Creation

- Planting will be between the end of October and March, avoiding periods of inundation or prolonged ground frost; and
- Suitable rabbit guards, fencing, or shelters will be used to protect plants from damage until established. Tree guards will be removed once the hedgerow/shrubs are established.

Management During Establishment

- 4.20 Until the new planting is established, formative pruning will be undertaken once annually to keep the hedgerow tidy. Weeding by hand or using glyphosate as appropriate should be undertaken around the base of the plants, three times per year.
- 4.21 New hedgerows / scrub planting should be watered as necessary.
- 4.22 All failing / failed specimens, within the hedgerow are to be replaced with a tree / plant of either the same species or similar species as those existing.

Native Tree Planting

- 4.23 Native trees will be planted in areas of public open space and street scape (as well as in the new hedgerow planting as specified above).
- 4.24 Suitable tree species for inclusion include the following:

Field maple *Acer campestre*

Wild cherry *Prunus avium*

Black alder *Alnus glutinosa*

English oak *Quercus robur*

Goat willow *Salix caprea*

Silver birch *Betula pendula*

Crab apple *Malus Sylvestris*

Hornbeam *Carpinus betulus*

Timings/Creation

- Planting will be between end of October and March, avoiding periods of inundation or prolonged ground frost; and
- Suitable guards, fencing, or shelters will be used to protect plants from damage, where appropriate, until established. Tree guards will be removed once the trees and shrubs are established.

Management During Establishment

- 4.25 During establishment, weeding by hand or using glyphosate as appropriate should be undertaken around the base of the plants, three times per year (from mid-April to late September) and specimens should be watered as necessary.
- 4.26 All failing/failed specimens are to be replaced with a tree/plant of either the same species or similar species as those existing.

Attenuation Features

- 4.27 The attenuation features located along the east of the site will be sown with Emorsgate EG8 (species rich wetland grassland). This will provide a range of habitats for a variety of fauna.

Timings/Creation

- Wet Grassland is best sown in autumn or spring, when the ground is moist and can be worked but avoiding wet conditions, to give time for plants to mature enough to withstand flooding;
 - Sowing at a rate as specified – 5 g/m²;
 - Ground should be cultivated prior to seeding to bury the surface vegetation and harrow or rake to produce a medium firm tilth;
 - Surface sow and do not incorporate or cover the seed but firm in with a roll, or by treading to give good soil contact; and
 - Predominately perennial species are unlikely to flower in the first growing season. Annual weeds from the soil in the first growing season can be easily controlled by topping or mowing.
- 4.28 During initial establishment the grassland should be mown regularly to a height of 40-60mm, with cuttings removed if dense. Mowing will be avoided during wet conditions.
- 4.29 Fertiliser will not be applied at any point as this will lead to dominance of nutrient loving species such as broad-leaved grasses, nettles and docks.

Faunal Enhancements (Figure 1)**Bat / Bird Boxes**

- 4.30 The proposed development could incorporate a range of bat boxes erected on new buildings / garages within the development, as well as on retained trees at the northern site boundary.

Bat Boxes

- 4.31 Suggested bat boxes (in addition to those proposed as per the EPSL as listed above) for inclusion include the following:
- 17 x Ibstock Enclosed Bat Box 'C' integrated into new dwellings;
 - 17 x Integrated Eco Bat Box integrated into new dwellings; and
 - 17 x Vivara Pro Woodstone Bat Boxes (or similar) installed onto suitably retained trees.
- 4.32 The bat boxes should be sited at a height of 3 to 6m in an east to west facing direction (avoiding north). The entrances to the bat boxes should be maintained clear and free from vegetation.

Bird Boxes

- 4.33 Suggested bird boxes for inclusion include the following:
- 16 x Vivara Pro Woodstone House Sparrow Nest Box (two per unit) integrated into new dwellings;
 - 17 x Vivara Pro Build-In Half Open Nest Boxes integrated into new dwellings;
 - 16 x Manthorpe Swift Bricks integrated into new dwellings; and
 - 16 x Schwegler Brick Nest Boxes (Type 24) integrated into new dwellings.
- 4.34 Bird boxes should be sited at a height of approximately 3 to 6m in a northerly, easterly or south-easterly direction under the eaves.

Hedgehog Holes / Routes

- 1.1 A series of hedgehog passes can be incorporated at the base of some garden fences, comprising 13 x 13cm holes with small signs located above the holes to inform residents of what they are. This would open up commuting routes for hedgehogs, allowing access to the foraging, resting and hibernation habitat that will be created throughout the site and additional opportunities which are provided in new residential gardens and the area of public open space in the west of the site. Proposed commuting routes are shown on Figure 1, thus hedgehog passes would need to be installed at each intersection with garden fencing / walls to enable these routes to be passable.

5.0 TIMETABLE OF WORKS

Table 5.1:

Description of Works	Mitigation Implementation											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Prior to Site Wide Construction Commencing												
Heras fencing erected to protect retained ponds, grasslands, hedgerows, tree lines and trees.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Installation of two bat boxes on retained trees.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Supervision of bat licence work, including Toolbox talk and a pre-works inspection.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
During construction												
Ground vegetation clearance.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Woody vegetation clearance.	✓	✓	Preceded by a nesting bird check by a suitably experienced ecologist during breeding bird season							✓	✓	✓
Maintenance of Heras fencing.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lighting to be kept to a minimum and directed away from retained habitats.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Installation of five integrated bat tubes within the new dwellings.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Habitat creation.	Timings as set out within Table 5.2 below											

Table 5.2:

Description of Works	Establishment and First Year Management											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Meadow / Wet Grassland	To be sown in the first growing season after the implementation in accordance with the construction programme.											
Remove weeds using repeated cultivation or a herbicide. Then plough or dig to bury the surface vegetation.			✓	✓	✓	✓	✓	✓	✓			

Description of Works	Establishment and First Year Management											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Meadow grassland – Best sown in autumn or spring			✓	✓	✓				✓	✓		
Wet Grassland – Best sown in spring or late summer once the land has drained.				✓	✓			✓	✓			
Control weed growth by topping or mowing and remove the cuttings from site.												
Avoid cutting in the spring and early summer if the mixture is autumn sown the previous year. In this first year a mid-summer cut is vital to remove annuals before they seed.							✓			✓		
During initial establishment the wet grassland should be mown when it reaches approximately 100mm in length for the first year.							✓			✓		
Native Shrub / Trees / Hedgerows / Orchard	To be sown in the first growing season after the implementation in accordance with the construction programme											
Planting between November and March with bone meal and a slow-release fertiliser.	✓	✓	✓								✓	✓
Water during dry weather.				✓	✓	✓	✓	✓	✓	✓		
Bat / Bird Boxes	Boxes on retained trees to be erected during the construction period.											
Erected prior to completion of development	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



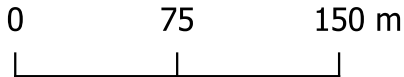
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Key

- Site Boundary
- Habitat Reetention and Enhancement**
 - Retained and enhanced other neutral grassland
 - Retained pond P4
 - Traditional orchards
 - Modified grassland enhanced to other neutral grassland
- Hedgerow Retention**
 - Line of Trees
 - Native Hedgerow
 - Native Hedgerow - Associated with bank or ditch
 - Native Hedgerow with trees
 - Native Hedgerow with trees - Associated with bank or ditch
 - Native Species Rich Hedgerow
- Watercourse**
 - Ditches
 - Other Rivers and Streams
- Urban Trees Retention**
 - Retained
 - Minimum 2m pond and watercourse buffer

All retained hedgerows, tree lines and trees will be protected from damage and from soil compaction during construction and ground works via the use of fenced Root Protection Areas (RPAs) of appropriate diameter.





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Key:

- Site Boundary
- ▲ 2F Schwegler Bat Box [2]
- ▲ 1FR Schwegler Bat Tube [5]
- ▲ Istock Enclosed Bat Box 'C' [17]
- ▲ Integrated Eco Bat Box [17]
- ▲ Vivara Pro Woodstone Bat Box [17]
- Vivara Pro Build-In Half Open Nest Box [17]
- Schwegler Brick Nest Box (Type 24) [16]
- Manthorpe Swift Brick [16]
- Vivara Pro Woodstone House Sparrow Nest Box [16]
- Hedgehog Highways



client
Redrow
project
Land South of Burbage

drawing title
FAUNAL MITIGATION AND ENHANCEMENT PLAN

scale @ A3
1:3,500

drawing / figure number
Figure 2

drawn
MPG/HEH

issue date
23/7/2024

rev

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