



LANDSCAPE, CONSTRUCTION & ECOLOGICAL MANAGEMENT PLAN (WITH ENHANCEMENT PLAN)

LAND AT BETTISFIELD, WHITCHURCH,
WALES SY13 2LU

FOR

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Report Control Sheet

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LANDSCAPE & ECOLOGICAL MANAGEMENT PLAN (LEMP)

INTRODUCTION

This Landscape and Ecological Management Plan (LEMP) has been produced to improve benefits for local biodiversity at the proposed site and satisfy conditions relating to the management of habitats to be created.

Conditions from the LPA follow in italics, below, *Requires the submission of a landscape and ecological management plan.*

A landscape and ecological management plan (LEMP) shall be submitted to, and be approved in writing by, the local planning authority prior to the commencement of the development. The content of the LEMP shall include the following:

- a) Description and evaluation of features to be managed.*
- b) Ecological trends and constraints on site that might influence management.*
- c) Aims, objectives and targets of management.*
- d) Description of the management operations for achieving aims and objectives.*
- e) Prescriptions for management actions.*
- f) Preparation of a work schedule (including an annual work plan capable of being rolled forward over a thirty-year period).*
- g) Details of monitoring needed to measure the effectiveness of management.*
- h) Details for each element of the monitoring programme.*
- i) Details of the persons or organisation(s) responsible for implementation and monitoring.*
- j) Mechanisms of adaptive management to account for necessary changes in work schedule to achieve the required aims, objectives and targets.*
- k) Reporting on years 5, 10, 20 and 30, with Biodiversity Net Gain reconciliation calculations at each stage.*

The LEMP shall also include details of the legal and funding mechanism(s) by which the long-term implementation of the plan will be secured by the developer with the management body(ies) responsible for its delivery. The plan shall also set out (where the results from monitoring show that conservation aims and objectives of the LEMP are not being met) how contingencies and/or remedial action will be identified, agreed and implemented so that the development still delivers the fully functioning biodiversity objectives of the originally approved scheme. The approved plan shall be implemented in accordance with the approved details. Reason: To protect the landscape character and amenity of the development site over the long term in accordance with the National Planning Policy Framework. These recommendations will allow the site better to comply with national and local planning policy and legislation.

BIODIVERSITY CREATION AND ENHANCEMENTS

A preliminary ecological assessment of the land at Bettisfield was undertaken in February 2023, using appropriate methods generally following the current guidance from the (Chartered) Institute of Ecology and Environmental Management and the UK Habitat Classification, with further reference to British Standards such as 42020 and 8683 as appropriate or practicable. This survey was to inform a planning application at the site, where proposals included the development of a new industrial unit.

The inspection found that the site is located among a set of detached and semi-detached residences. The surrounding landscape is predominantly rural, with extensive surrounding areas of wetland, such as Fenn's Whixhall and Bettisfield Mosses, being present to the north- and south-east. The Llangollen branch of the Shropshire Union Canal crosses Bettisfield 60m to the north of the site.

The 1.1ha site is composed of two fields. Both are occupied by a variety of wetland and scrub features, linked to the wider rural landscape by a network of ditches along its northern boundary and a hedgerow leading to an adjacent agricultural field to the south. The larger western field is characterised by three prominent mounds, separating the marshy, rush-dominated wetland habitat at their base into two distinct basins. The eastern-most of these basins is further characterised by an area of open water, whereas the other is more relatively overgrown with vegetation. The field's northern, southern and western boundaries are drier, with dense patches of bramble scrub and establishing shrub saplings growing amidst a largely neutral, cock's foot and false oatgrass-dominated disturbed neutral grassland.

The eastern field is relatively drier, being partially located on an elevated slope on a north-west aspect. The northern boundary of this area is dominated by a dense strip of bramble, with a shallow stream and a deep, water-filled ditch marking the field's northern and western boundaries respectively.

Trees and woody shrubs recorded during this survey were: Elder *Sambucus nigra*, silver birch *Betula pendula*, downy birch *Betula pubescens*, goat willow *Salix caprea*, *Salix* spp, hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, alder *Alnus glutinosa*, pedunculate oak *Quercus robur*, dogwood *Cornus sanguinea*, Leyland cypress *Cupressus x leylandii*

Grasses and forbs recorded were: Cock's foot *Dactylis glomerata*, common bent *Agrostis capillaris*, creeping bent *Agrostis stolonifera*, soft rush *Juncus effusus*, *Juncus* sp, red fescue *Festuca rubra* s.l., false oatgrass *Arrhenatherum elatius*, Yorkshire-fog *Holcus lanatus*, viper's bugloss *Echium vulgare*, herb-robert *Geranium robertianum*, hogweed *Heracleum sphondylium*, cleavers *Galium aparine*, broad-leaved dock *Rumex obtusifolius*, creeping buttercup *Ranunculus repens*, ivy *Hedera helix*, bulrush *Typha latifolia*, snowdrop *Galanthus nivalis*, ragwort *Jacobaea vulgaris*, bristly oxtongue *Helminthotheca echioides*, prickly sow-thistle *Sonchus asper*, knapweed *Centaurea nigra*, creeping thistle *Cirsium arvense*, ribwort plantain *Plantago lanceolata*, male fern *Dryopteris filix-mas*, foxglove *Digitalis*

purpurea, common mouse-ear *Cerastium fontanum*, dandelion *Taraxacum officinale* agg., bramble *Rubus fruticosus* agg.

The proposal is for the construction of four dwellings within the eastern portion of a site in the village of Bettisfield, 8.25km north-west of the town centre of Wem.

- Full planning permission is yet to be approved by Wrexham Council (WC) for the development.
- A consultation response to the planning application from the appointed ecology officer gave recommendations relating the proposals.

To ensure the efficient and effective maintenance of habitats within green spaces and to continually monitor their condition for feedback into the maintenance programme, it is imperative to confirm the responsibility for both management and monitoring. This will enable proactive measures to safeguard the integrity of these ecosystems.

The establishment and future success of the proposed external landscape is largely dependent on the standard and frequency of the subsequent maintenance and management it receives. Throughout the development period and thereafter, a long-term maintenance and management regime will be adopted. The practical schedule of management, including initial aftercare throughout the first year, long-term work schedule as well as the legal and funding mechanisms through which these are to be practically carried out in perpetuity must be defined.

1. Native Wildflower Strip

1.1 A belt of native wildflower species is to be planted along the south edge of the access road. This will create a dense, structurally complex habitat at the periphery of the housing development. The sowing of wildflower is to be completed during the autumn or winter. Wildflowers should be of local provenance (native only) and include species that flower at different times to benefit as many pollinator species as possible.

1.2 The Wildflower strip will require occasional maintenance to retain its value. Any cutting or trimming must be carried out from late September to early November. If this is unavoidable, a pre-clearance inspection by a suitably experienced ecologist will be required to ensure appropriate action is taken.

1.3 Initially, the plants will require light trimming to promote shoot growth and a denser habitat. Future management to maximise the benefit for local biodiversity will mean avoiding annual cutting along the entire length, preferably cutting approximately half on an alternate year rotational basis. This will maximise the quantity and quality of flowers and fruit/seed made available to a wide range of species, improve the density and complexity of each section to provide ideal pollinator habitat and provide food for the developing larvae of a wide range of invertebrates.

The flora must not be cut short and not at all during the growing, flowering and seeding seasons, or sprayed, as a varied flora is of vital importance for biodiversity.

2. [Public Open Space Soft Landscaping](#)

- 2.1 Maintain grassland diversity by cutting longer grass areas down to a height of 4–8 cm annually at the end of summer (no later than September), removing hay within about a week after allowing seed to fall. If standing-crop biomass is too high, cut again before end November so sward is left short over winter, or cut in spring. Leave an area as tussocky grassland (about 25% of south-east area of tall grassland near pond as indicated on mowing plan) to increase habitat diversity.
- 2.2 The northern boundary is to be left tussocky, too. Very shaded areas will not require regular annual cutting. Eliminate any troublesome invading plants if required manually, or *in extremis* using only environmentally approved, non-persistent herbicide. Improve species-richness by pocket planting community-native species or in-sowing with locally-sourced seed as needed.
- 2.3 Cut shorter parkland grass four or five times in the growing season, to keep the sward in a “parkland” state, mimicking a lightly-grazed pasture so the height does not reach a much above 15–20cm. Remove arisings to the designated area as decomposer habitat on site.
- 2.4 Cut any very short sward grass/verges/paths associated with play area during growing season (March–October) to maintain a sward height of between 25mm after cutting to 75mm before cutting approximately, using a collecting mower.
- 2.5 Remove any arisings for decomposer habitat on site.

3. [Native Woodland Scrub Strips](#)

- 3.1 A belt of native shrub species is to be planted along the eastern edge of the site to create a buffer between the housing and the adjacent agriculture field. This will create a dense, structurally complex habitat at the periphery of the woodland in the boundary corridor. The planting of shrubs is to be completed during the autumn or winter. Shrubs should be of local provenance (native cultivars only) and include species that flower at different times to benefit as many pollinator species as possible. The landscape plan indicates hawthorn, blackthorn, guelder rose, dogwood and damson.
- 3.2 The side facing the adjacent agricultural field will require occasional maintenance to retain a hedge like face allowing use of the field space. Any cutting or trimming must be carried out outside the bird nesting season, which is usually from March to the end of August, to avoid risk of disturbance of nesting birds or their young. If this is unavoidable, a pre-clearance inspection by a suitably experienced ornithologist will be required to identify which nests are in use, and ensure appropriate action is taken.

3.3 Initially, the plants will require light trimming to promote shoot growth and a denser habit. Future management to maximise the benefit for local biodiversity will mean avoiding annual cutting along the entire length, preferably cutting approximately half on an alternate year rotational basis to allow species such as hawthorn, that flower on previous year's growth, to produce fruit. This will maximise the quantity and quality of flowers and fruit/seed made available to a wide range of species, improve the density and complexity of each section to provide ideal bird nesting habitat, allow the development of ground flora species-richness at the base of the shrubs, and provide food for the developing larvae of a wide range of invertebrates.

The shrub base flora must not be cut short and not at all during the growing, flowering and seeding seasons, or sprayed, as a varied ground flora is of vital importance for biodiversity.

4. General Management Operations, Monitoring and Reporting

4.1 All planting areas should be monitored at least monthly for the first year and four monthly for subsequent years.

The management actions are for guidance and should be amended and augmented following each survey.

All trees and shrubs should be thoroughly watered in when planted. The necessity for additional watering depends on the soil composition and weather conditions and all plantings should be monitored for signs of drought stress and watered if necessary.

Any stakes, ties or guards used to support and protect developing trees and shrubs must be checked during routine monitoring to ensure they are fit for purpose and not too tight or damaging the bark. Once the plants are established all stakes, ties and guards must be removed. Biodegradable guards are recommended.

Large eddies can form around buildings and any tall plantings in the containers in particular may require further or prolonged staking for support against wind damage.

Any failed trees should be replaced the following autumn. The reason for failure should be investigated and appropriateness of species reconsidered, and management altered accordingly.

The use of herbicides and pesticides is proscribed.

Long-term Habitat Condition Monitoring and Reporting

5.2 An assessment of the habitats' condition should be undertaken every five years, with findings being reported and the maintenance schedule altered accordingly to ensure the condition of the habitats is on a good trajectory.

For the purposes of establishing habitat target conditions to be achieved through appropriate maintenance and which monitoring can assess against, the following are

set of criteria reflecting ideal, good ecological conditions the major, broad habitats on the site should be maintained towards.

Native Woodland Scrub Strips

Condition Criteria

- At least 80% of scrub is native, and there are at least three native woody species, with no single species comprising more than 75% of the cover (except hazel *Corylus avellana*, common juniper *Juniperus communis*, sea buckthorn *Hippophae rhamnoides* or box *Buxus sempervirens*, which can be up to 100% cover).
- Seedlings, saplings, young shrubs and mature (or ancient or veteran) shrubs are all present.
- There is an absence of invasive non-native plant species and species indicative of sub-optimal condition make up less than 5% cover.
- The scrub has a well-developed edge with scattered scrub and tall grassland and/or forbs present between the scrub and adjacent habitat.
- There are clearings, glades or rides present within the scrub, providing sheltered edges.

The condition of the scrub patch is indicated on a sliding scale according to the number of criteria met.

Species-rich, neutral grassland

Essential Criteria

- The appearance and composition of the vegetation closely matches characteristics of neutral grasslands. Perennial rye-grass *Lolium perenne* likely to be present at <30%, with between 9 and 15 further species per metre squared also present. Common indicator species include: yarrow *Achillea millefolium*, meadow buttercup *Ranunculus acris*, Creeping buttercup *Ranunculus repens*, white clover *Trifolium repens* and red clover *Trifolium pratense*. Wildflowers and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward.
- There are greater than 10 species per square metre.

Additional Criteria

- Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.
- Cover of bare ground is between 1% and 5%, including localised areas, for example rabbit warrens.
- Cover of bracken is less than 20% and cover of scrub (including bramble) is less than 5%.
- There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition and

physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.

All essential criteria and at least two of the four additional criteria must be met to achieve Biodiversity Net Gain target of 'good' condition.

Trees/Woodland Areas

Three categories within each criterion representing poor; moderate; good.

- Age distribution of trees: one; two; three age-classes present.
- Browsing damage is present in 40% or more of the patch; present, but less than 40%; no significant evidence.
- Invasive species such as rhododendron *Rhododendron ponticum* or cherry laurel *Prunus laurocerasus* cover >10%; <10%; none present.
- Number of native tree species present is two or less; three or four; five or more
- The cover of native tree and cover of shrub species compared to non-native is <50%; 50-80%; >80%
- Woodland regeneration: no small trees, saplings/coppice regrowth or seedlings present; one or two classes present; all three classes present.
- Tree health: 25% of trees show signs of high-risk pest or disease; 11-25% of trees show signs; 10% or less of trees show signs.
- Vegetation and ground flora: no recognisable woodland community on ground layer; community present; community present and strongly characterised by ancient woodland floor specialists.
- Amount of deadwood: standing and fallen dead wood is rare; frequent; abundant.
- Woodland disturbance: >20% of the floor is damaged by disturbance, poaching or nutrient enrichment; <20% damaged; no enrichment or damaged ground evident.

The condition is represented by the accumulative condition of each indicator. The target being the maximum number of indicators scoring 'good'.

PRESCRIPTIONS

The table below presents the operational prescriptions for the projects listed in the previous paragraphs, as presently identified. This may be supplemented as time passes in order to maintain satisfactory conservation status of species and habitats and protect/enhance biodiversity.

Project list and prescription with details of the programme of work, including season when work should be carried out, frequency (no. of times per year) of operations.

KEY: A = Autumn, W = Winter, Sp = Spring, Su = Summer

PROJECT	PRESCRIPTION (Refer to previous section for details)	YEAR(S)	SEASON	FREQ. (per yr)
1.1	Sowing of species-rich grassland within and surrounding the wildflower features.	1	A	N/A
1.2	Management of species-rich grasslands annual management once in early October	All	A	1
2.1	Sowing of species-rich grassland within and surrounding the POS features.	1	A	N/A
2.2	Management of species-rich grasslands Biannual mowing to height 10-15cm once in early October, once mid to late March	All	S/A	2
3.1	Planting of shrubs within native strip	1	A/W	N/A
3.2	Formative structural management of new plantings. Light trimming to increase habit density	1-5	A	As required
3.3	Hedge management of front face of established plants - cutting on a 2-year rotation	>5	W	1 on rotation
3.4	Watering/ monitoring for water requirements	1	All	Weekly
5.1	Survey all new plantings for watering requirements.	1	Sp/Su/Au	10
5.2	Survey all developing habitats, report on findings and any alterations in management timings or actions required.	2+	each	4
5.2	Survey the habitats to assess condition and trajectory to target. Report on findings to feed back into routine management.	All	Sp/Su	1

CONSTRUCTION & ECOLOGICAL MANAGEMENT PLAN (CEMP)

INTRODUCTION

This plan provides recommendations for ecological management and enhancements to be incorporated into the site development to comply with national and local planning policy and legislation.

It is very important to remember that diversity in ecology is not just about the number of individual species (“species richness”) but includes their relative abundance. The huge wildlife losses we have experienced in recent years are more than of individual species of animals and plants that have become rare or extinct, but the literally uncountable reduction of abundance (“bioabundance” if you like) in individuals of so many species that just a few decades ago were very common.

This plan has been devised and produced for the protection and enhancement of biological diversity and biological abundance, and to support ecosystem services. The plan takes an ecosystem approach to ensure long-term care and enhancement, and to facilitate compliance on site with planning conditions, regulations, best practice, and the law relating to wildlife, ecology, and nature conservation. The plan and its actions should be reviewed at the agreed intervals and, when necessary, amended or updated to meet changing circumstances and verify that the overarching aim of no net loss but rather a net gain in biodiversity is being achieved. Guidance for businesses on managing the risks and opportunities is also of relevance, particularly for developing Biodiversity Action Plans (please enquire for further information).

BACKGROUND

Purpose of CEMP

- The Construction Ecological Management Plan (CEMP) presented here has been prepared to ensure protection of habitats and wildlife species.

Scope of Works

- The CEMP is principally concerned with the site preparation phase of construction. This will include:
 - The clearance of on-site tree and shrub vegetation.
 - The clearance of on-site grassland and scrub vegetation.
 - Groundworks.
- The CEMP is intended to cover only the construction phase and makes no prescription for operational phase management procedures. A copy of this document should be retained on-site for reference for the duration of construction.

Roles and Responsibilities

The applicant has appointed Betts Ecology to provide an Ecological Clerk of Works (ECoW), to be responsible for advising relevant persons with regard to ecological issues. The applicants have appointed contractors to undertake clearance and construction site works.

1.9 Responsibilities of the ECoW will include, though not be limited to:

- Advising on the locations of ecological constraints, such as protected or notable species, or valuable habitats.
- Supervising key works activities to ensure the correct implementation of ecological impact avoidance and mitigation measures as set out herein (if required).
- Providing reactionary advice to the applicant on ecological issues.
- Liaising as necessary with WC.

1.10 The responsibilities of the applicant and any contractors will include, though not necessarily be limited to:

- Adhering to the management procedures set out herein, including any appointed third-party contractor.
- Liaising as necessary with the ECoW regarding any uncertainties in the management procedures set out herein, or where there is any concern of impacts to ecological features.

IMPORTANT ECOLOGICAL FEATURES

- 2.1 In order to inform the CEMP presented here, a desktop study and site walkover survey were completed during February 2023 by Betts Ecology. This was necessary to ensure an accurate understanding of the baseline ecological conditions, such that suitable construction-phase control measures may be implemented to avoid and minimise the potential for, and effects of, ecological impacts. A summary of the baseline conditions is provided here.

Habitats and Flora

- 2.2 The habitat is composed of two fields. Both are occupied by a variety of wetland and scrub features, linked to the wider rural landscape by a network of ditches along its northern boundary and a hedgerow leading to an adjacent agricultural field to the south. The larger western field is characterised by three prominent mounds, separating the marshy, rush-dominated wetland habitat at their base into two distinct basins. The eastern-most of these basins is further characterised by an area of open water, whereas the other is more relatively overgrown with vegetation. The field's northern, southern and western boundaries are drier, with dense patches of bramble scrub and establishing shrub saplings growing amidst a largely neutral, cock's foot and false oatgrass-dominated disturbed neutral grassland.

The eastern field is relatively drier, being partially located on an elevated slope on a north-west aspect. The northern boundary of this area is dominated by a dense strip of bramble, with a shallow stream and a deep, water-filled ditch marking the field's northern and western boundaries respectively.

- 2.3 The site's native hedgerows and tree lines recorded during this survey were: Elder *Sambucus nigra*, silver birch *Betula pendula*, downy birch *Betula pubescens*, goat willow *Salix caprea*, *Salix* spp, hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, alder *Alnus glutinosa*, pedunculate oak *Quercus robur*, dogwood *Cornus sanguinea*, Leyland cypress *Cupressus x leylandii*
- 2.4 The surrounding landscape set of detached and semi-detached residences. The surrounding landscape is predominantly rural, with extensive surrounding areas of wetland, such as Fenn's Whixhall and Bettisfield Mosses, being present to the north- and south-east. The Llangollen branch of the Shropshire Union Canal crosses Bettisfield 60m to the north of the site.

Species

- 2.5 Inspections of the existing trees for bat roost potential were undertaken in February 2023. No bats or significant potential roost features were found, such as cracks, rot holes and crevices.
- 2.6 During the preliminary ecological assessment, The site's native hedgerows and tree lines are all of good ecological value, providing a sheltered, extensive connectivity feature across the wider landscape. The relative density of woody species present and in-setting of trees provides a further source of both shelter and forage in the form of berries and nectar provided by these species. The extensive bramble scrub across the site is also a notable source of shelter, pollen and forage. While the quick establishment of the species over the site's habitats is to be managed, to avoid it from out-competing the wetland specialists and grassland species present, limited patches should be retained where possible to retain their value to local fauna.
- 2.7 No suitable ponds were present within 500m of the site. The surveyed areas are almost entirely occupied by sealed surfaces, which do not provide suitable great crested newt foraging habitat, as well as lacking undisturbed features on site where these amphibians could conceal themselves during the day or during winter. As such, the site is considered to be unsuitable great crested newt habitat and is not of any significance for this species.
- 2.7 Two suitable water bodies were detected within a 500 m radius from the site during a desk-based search, both of which being features present on site. The stream to the north of the site contains running water, and while serving as a potential commuting feature is unlikely to support a great crested newt breeding population. The first, the pond identified, was found to have a Habitat Suitability Index (HSI) score of 0.78, indicating it as being of Good to Excellent suitability for great crested newts. The second suitable water body was the ditch separating two fields, which was found to have an HSI score of 0.63, indicating an Average suitability. See HSI calculation appendix (Betts, 2023) for further details. Great crested newt (GCN) surveys were undertaken and a report completed (Betts Ecology, 2023).

LEGISLATIVE CONTEXT

- 3.1 The Conservation of Habitats and Species Regulations 2010 (as amended) enacts the Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, and Council Directive 79/409/EEC on the Conservation of Wild Birds, into UK law. The Regulations define European Protected Species ('EPS' including all UK bat species) which are assigned a greater level of protection than that afforded under other domestic legislation. Key offences under the Regulations of relevance to the site include:
- The damage or destruction of a breeding or resting place used by an animal of an EPS (e.g. a bat roost).
 - The deliberate killing or injury of any animal of an EPS.
 - The deliberate disturbance of any animal of an EPS.

- 3.2 The Wildlife and Countryside Act 1981 (as amended) forms the primary piece of UK legislation relating to the protection of habitats and species (including nesting birds, reptiles and widespread amphibians). Key offences under the Act of relevance to the site include:
- The intentional or reckless damage or destruction of nests or eggs of any wild bird.
 - The intentional or reckless killing or injury of any native reptile.
- 3.3 Additionally, badgers and their setts are protected under the Protection of Badgers Act, 1992.

ECOLOGICAL CONTROL MEASURES

Trees and Hedgerows

Protection Measures

- 4.1 Where appropriate, all retained trees, hedgerows, and groups of shrubs should be protected by Tree Protection Fencing (TPF) for the duration of construction activities, in accordance with BS5837:2012.
- 4.2 No works (including initial site clearance) will commence until the TPF has been erected around trees, where appropriate. The fencing will remain and be maintained fully intact and upright at all times, until the completion of all construction operations. Signage will be used to advertise the fenced areas as Construction Exclusion Zones where no heavy plant, machinery, or material storage will be permitted.

Outcome

- 4.3 Subject to implementation of the above controls, it is anticipated that no damage will occur to retained trees and hedgerows during construction operations.

Bat Species

Protection Measures

- 4.4 No evidence of bats was recorded during the preliminary roost assessments, and no significant bat roost potential has been identified in any trees or buildings. As such, no impacts to roosting bats are anticipated to result from the construction of the proposed development, and no specific construction-phase control measures are proposed.
- 4.5 In order to enhance the site's carrying capacity for roosting bats, it is recommended that two new bat boxes will be incorporated into the north

boundary. These will be Schwegler F1 Bat Boxes or similar design (see Ecological Enhancement Plan).

- 4.6 Any external lighting to be included as part of the proposal should be appropriately cowed to reduce light spill and avoid disturbance to both bats as well as other nocturnal species present within the site's surroundings. Use of motion-sensitive switches and suitable low impact UV lighting can similarly further minimise overall light disturbance within the structure's surroundings. Bats and Artificial Lighting at Night (ILP, 2023) best practise should be followed at all times.

Outcome

- 4.7 Many actions relating to construction and bats are obligatory to comply with current legislation. There is also the need to observe planning policy and best practice as recognised by the various statutory authorities. There is a large body of national and international legislation protecting bats and their habitats. Construction of the development is not anticipated to adversely affect bat species. If any roosting bats are found within the development site, an ECoW will be appointed.

Bird Species

Protection Measures

- 4.8 No development shall take place (excluding demolition) until details of the number, design, location and post-development monitoring arrangements of (bird nesting boxes/bat boxes/bricks/tubes) to be provided as part of the development. An EES has been produced below.
- 4.9 In order to minimise the potential for impacts to nesting birds, pre-works nesting bird check by the ECoW is considered necessary. However, site personnel will remain vigilant for the potential presence of nesting birds, such certain species (notably ground nesting species) can nest all year round. Where there is any doubt, advice will be sought in the first instance from the ECoW.

Outcome

- 4.10 Site works will be undertaken with sensitive seasonal timing, avoiding impacts to nesting birds and ensuring compliance with Conditions 8 and 9 of the Decision Notice.

Amphibian & Reptile Species

Protection Measures

- 4.11 Two suitable water bodies were detected within a 500 m radius from the site during a desk-based search, both of which being features present on site. The stream to the north of the site contains running water, and while serving as a

potential commuting feature is unlikely to support a great crested newt breeding population. The first, the pond identified in **TN7**, was found to have a Habitat Suitability Index (HSI) score of 0.78, indicating it as being of Good to Excellent suitability for great crested newts. The second suitable water body was the ditch separating two fields, which was found to have an HSI score of 0.63, indicating an Average suitability. Great crested newt (GCN) surveys were undertaken, and a report completed (Betts Ecology, 2023).

- 4.12 A GCN mitigation license will be required and an ECoW appointed to undertake works.

Outcome

- 4.13 It is considered that the development poses minimal risk to amphibian and reptile species.

CONCLUSIONS

In the absence of ecological impact avoidance and/or mitigation measures, construction of the consented development at Bettisfield has potential to damage retained tree, hedgerow and shrub vegetation, and to kill or injure and damage the habitats of protected species.

The management procedures set out herein, such as the erection of protective fencing, sensitive timing of works and vegetation clearance and a GCN mitigation licence, will ensure that construction works are achieved lawfully and with minimal risk to important ecological features. Appointing an ECoW further reduces risk to damage to wildlife and habitats.

ECOLOGICAL SUPPORT NETWORK

Betts Ecology is committed to the growth of biodiversity across the development site and will be available for continued expert advice and Ecological Clerks of Work (ECoW) when required. Advice should be sought if any failures are identified during monitoring and the action plan amended to trigger remedial as and when required.

ECOLOGICAL ENHANCEMENT PLAN

PROTECTED SPECIES ENHANCEMENT SCHEME

Installation of bird and bat boxes

(Please refer to the Target Notes (TN) on Figure 1 below.

(TN1) Two Schwegler 2F (or similar) Bat Roost boxes will be installed on a suitable tree at a height between 3–6m facing south-west. They will provide permanent new roosting opportunities for bats (please see Figure 1 for locations). The boxes are manufactured from long-lasting Woodcrete, last at 20–25 years and do not require maintenance. The boxes will be positioned to avoid direct sunshine and artificial lighting.

(TN2) Integrated bat boxes, Istock Enclosed Bat Box 'C' (or similar) will be installed in to the new development on a south-west elevation.

Bird nest boxes will be provided both on the new house and on suitable trees on the site to provide nesting habitats for a variety of bird species.

- (TN3) Two **Vivara Pro Woodstone House Martin** (or similar) nest boxes. These should be sited underneath the eaves on exterior walls of the new developments.
- (TN4) Two **2GR Schwegler Nest Boxes** (or similar) with a single oval entrance hole (30mm x 45mm) to be installed on suitable trees on the site (Figure 1). These boxes are suitable for coal tit, blue tit, great tit, redstart, nuthatch and other birds.

Nest boxes should be hung at a height of at least 1.5m and should be angled so that they face away from the prevailing wind (usually south-westerly in the UK) and out of direct sunlight or artificial lighting. The chances of occupation are higher if there is good tree or hedge cover nearby, as these will provide a source of insect food for the nestlings when they hatch. Bird boxes require one annual clean in autumn (*i.e.* outside the bird breeding season, which is considered generally as March to the end of August in the UK). Care should be taken in case bats have occupied the bird boxes, in which case they must not be disturbed other than by a suitably licensed person.

Hedgehog, amphibian and reptile refugia

The public open space buffer strips of the site to be created will also provide habitats and refugia for small mammals including hedgehogs, for amphibians in their terrestrial phase, and for reptiles. The area will be in a sunny location offering partial shade and left unmanaged, although occasional cautious

strimming following hand search may be necessary in some areas to provide basking areas for reptiles.

A proportion of the 'wild area' is to be sown with Emorsgate EM1 General Purpose Wildflower/Meadow Mix. This area should only be managed annually (as per LEMP) following a careful pre-cut check for vulnerable fauna. All the cuttings should be removed and composted.

Log piles from felled trees will be created to provide habitats for invertebrates and small mammals.

Two Woodcrete hedgehog domes will be installed in the tussocky in dry, sheltered spots. Each boundary fence to the homes and gardens must contain at least two 13cm x 13cm holes suitable for hedgehogs to pass through.

Two great crested newt hibernacula will be created to the north west and south of the site (TN5).

HABITAT ENHANCEMENT SCHEME

Background

The principal contributors to the habitat units currently present on site are: 4105m² of neutral grassland, of which 1381m² is notably waterlogged and more species rich, 1036m² of bramble scrub, a small 115m² patch of woodland and two maturing goat willows *Salix caprea*.

The main ecological linear features currently present on site are two native hedgerows, one within the south-eastern corner and the other being a small stretch separating the eastern and western fields, and a line of trees running along the northern stream. These three features are 95, 17 and 88m long respectively. Lastly the site's boundaries are marked by a 52m ditch separating the two fields and a 92m stretch of stream marking the northern boundary.

The planned development of the new building is expected to result in encroachment within the habitats adjacent to the existing water courses, with the construction of a culvert being required directly within the western ditch. Habitat losses are expected particularly within the south-eastern corner of neutral grassland, and much of the existing bramble scrub and trees are to be removed as part of the proposal.

The development is to partially offset these losses through a number of remediation measures: most notable among these is the retention of a large Public Open Space of tussocky grassland to the north-west of the proposed residences, as well as the creation of a new, 129m long ditch along the eastern and southern boundary. Enhancement of existing and retained habitats is to take place through sowing of marsh grassland species; if appropriate management of these areas are maintained in perpetuity, the unique high-ecological value of these features can be retained in

the long term and provide partial buffers towards encroachment on sections of the nearby stream.

Enhancements will significantly increase the amount of native hedgerows present on site, amounting to a total length of 351m. Of these, at least 196m will be planted and maintained as species-rich, native hedgerows.

Proposed measures are expected to result in significant net increases to biodiversity in regard to existing hedgerow and water course features on site. Ultimately, however, habitat losses will be significant within the current proposal, with a loss of 30% from existing habitat units. This is largely due to the good quality of the habitats currently present on-site, and while the Proposed Public Open Space and tree planting help offset losses by focusing on the ecologically valuable, waterlogged grassland areas to the north, the extent of these retained areas in relation to the scale of the development would not be sufficient to achieve a No Net Loss and Net Gain scenario.

Enhancement opportunities

Extending the Public Open Space area by approximately 1000m² to the east, creating a wide buffer between the proposed residences and the northern stream, will further help offset the significant losses and bring the project closer to a No Net Losses scenario. The extended open area can be further developed into a combination of ecologically valuable habitats alongside the grassland, through the creation of new water bodies and Sustainable Urban Drainage (SUDs) features within the Open Space.

Given the high ecological value of on-site habitat features, a combination of further on-site enhancements such as extensions to the Public Open Space with off-site enhancement measures, such as retention and maintenance for biodiversity in perpetuity of the western field's wetlands would likely be required in order to achieve Biodiversity Net Gain

Figure 1: Walkway Enhancement Plan. This detailed site plan shows a proposed walkway network (red line) and various landscape enhancements (green areas, trees, and numbered callouts 1-5) for a park area. The plan includes labels for existing features like 'Ash Canopy' and 'Horned Lark'.



CAPABILITY AND QUALITY ASSURANCE

Founded in 1985 to provide high quality professional services to meet an increasing market demand in applied environmental sciences, the Practice stems from the original Betts family business which was established in 1760 for the refining and recycling of high value industrial wastes and mineral ores. Betts thus offer an unusual blend of technological and practical expertise in a range of environmental disciplines, allied particularly to the biological conservation legislation and biodiversity policies of recent years. Contracts undertaken cover a wide spectrum of projects at local, national and international levels in the construction, extractive, agricultural, leisure, energy and general industrial sectors. Scientific staff belong to appropriate professional institutes by whose codes of practice they abide. Due consideration of the British Standards on Biodiversity is included in relevant work and applied where appropriate.

Scott Latham - Senior Ecologist

Scott has extensive experience and over a decade's expertise in professional ecological consultancy, built on a lifetime's involvement in a range of environmental science and natural history subjects both in the UK and overseas (Sri Lanka, Uganda, South Africa, the USA and several continental European countries). His career has included species reintroduction, human-wildlife conflict resolution and legally protected species work under licence. Scott is practised in GIS, EIA, wildlife law, animal behaviour, ornithology, entomology and a range of applied ecological topics as well as project management and planning. He is also Chair of the Staffordshire Squirrel Project and is involved in various Professional Institute initiatives.

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