Brogan Solar Farm

on behalf of Fuse Renewables Ltd.

Appendix 6: Biodiversity Management Plan

avianecology

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V1	25/03/2026	Draft for client comment	K. Love *MSc BSc (Hons.)* **Ecologist**	A. Littlechild *BSc (Hons)* **Senior Ecologist**
V2	08/05/2026	Updated following layout amendment	K. Love *MSc BSc (Hons.)* **Senior Ecologist**	-

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Annexes

1 INTRODUCTION

1.1.1 This Biodiversity Management Plan ('BMP') has been prepared in relation to the proposed installation of a solar farm and associated infrastructure (the 'Proposed Development') on land located to the east of the B4393 near Llanfyllin, North Wales, SY22 5LQ; at central Ordnance Survey (OS) grid reference: SJ 17662 18915 (hereafter referred to as the 'Site').

1.1.2 This document details biodiversity protection and enhancement measures, including ongoing management practices to be adopted with the aim of developing and maintaining wildlife habitats to provide a net benefit for local biodiversity.

1.1.3 The site-specific approach provided within this report provides recommendations for long-term management of the land throughout the lifetime of the Proposed Development, to conserve and improve landscape habitat connectivity within the wider landscape for wildlife through protecting and enhancing potentially important wildlife corridors and habitats. This will contribute to the establishment of coherent ecological networks and demonstrates the stepwise approach, supporting the targets of Planning Policy Wales[1].

1.1.4 Full details of the assessment utilising the DECCA Framework stepwise approach are detailed within *Appendix 5: Net Benefits for Biodiversity (NBB) Statement.*

1.1.5 This BMP should be read in conjunction with the *Detailed Landscape Proposals* (Drawing Number: P25-0182_EN_001; REV: C) produced by Pegasus Group, as well as the *Proposed Layout Plan* (Drawing Number: BGS.LYT.DEV.06; REV: 06) produced by Fuse Energy Ltd. These plans respectively illustrate the Proposed Development's landscaping and layout design.

2 ECOLOGICAL BASELINE- PRE-DEVELOPMENT

2.1.1 Detailed descriptions of baseline ecological conditions can be found in the *Ecological Assessment Report*[2] (EAR).

2.1.2 The Proposed Development is predominantly located within a rural landscape, on agricultural land located to the east of the B493 and located c. 2.5 km east of the town of Llanfyllin in North Wales. The Site is c. 12.1 hectares (ha) in extent. The Site is shown on **Figure 1** of the EAR.

2.1.3 The Proposed Development is comprised of an installation of a 5MW solar farm with associated infrastructure.

2.1.4 Habitats within the Site comprised of modified arable grassland, with boundary features of tree lines and hedgerows (including one species-rich section) between the individual fields. A small stand of non-native conifers was present within the southwestern extent of the Site. Three individual trees were recorded within the Site. All were mature oak trees and some supported veteran features. No ponds were identified within the Site although two are situated within 250 m of the Site boundary.

2.1.5 Access to the Site is via the B4393 directly to the west of the Site.

[1] https://www.gov.wales/sites/default/files/publications/2024-07/planning-policy-wales-edition-12.pdf (Accessed: 6th January 2026).
[2] Avian Ecology Limited (2026). *Brogan Solar Farm: Ecological Assessment Report*.

3 ECOLOGICAL MITIGATION MEASURES

3.1 Designated Sites and Habitats

3.1.1 The Site does not form part of any statutory or non-statutory designated sites for nature conservation. A total of four national statutory designated sites are located within 5 km of the Site, with a further three internationally designated sites, located within 10 km of the Site.

3.1.2 No statutory or non-statutory designated sites will be directly affected by the Proposed Development as all are considered sufficiently distanced to avoid direct impacts.

3.1.3 However, multiple statutory designated sites located within 5 km and 10 km of the Site are designated due to the known presence of lesser horseshoe maternity and/or hibernation roosts. Tanat and Vyrnwy Bat Sites / Safleoedd Ystlumod Tanat ac Efyrnwy Special Area of Conservation (SAC) has multiple sites located within proximity to the Site, the closest being located c. 480 m south of Site. The sites associated with the SAC are thought to support up to 4% of the UK species population. In the absence of mitigation measures, the Proposed Development may impact foraging and commuting bats which could be associated with the SAC due to the proximity and connectivity between the Site and aforementioned designated sites. As such, potential impacts are examined in a Habitats Regulations Assessment (HRA) report (*see Appendix 7*). Foraging and commuting bats are further discussed in Section 3.3 of this report.

3.1.4 The proposed access tracks will exploit existing farm accesses and will also avoid removing mature trees. Any access track within tree root protection areas (RPAs) will utilise geocell protection, with hand-dug fence installation also required in RPAs (see *Detailed Landscape Proposals*). However, in order to facilitate access from the B4393, an existing access point requires widening. To avoid impacts to a mature tree located within the hedgerow directly north of access point (see Photograph 6 in the EAR), widening works can only be conducted in a southern direction along a species-rich hedgerow. Here 11.5 m of hedgerow is proposed to be removed and translocated within the Site to infill an existing hedgerow gap (following guidance in paragraph 8.36 of the Powys Local Development Plan (2011 to 2026) Supplementary Planning Guidance Biodiversity and Geodiversity). Following completion of the construction period, a newly planted 11.5 m section of hedgerow will be further planted at this access point. It is anticipated that decommissioning works will also require access widening in the same hedgerow location, in which case hedgerow will be removed and replanted upon completion of works.

3.1.5 The layout of the Proposed Development has mostly been designed to maintain a stand-off buffer of at least 5 m from boundary features such as hedgerows, ditches and trees and 10 m from woodland. Newly created hedgerow habitats will also include 5 m buffers, whilst planted woodlands will include 10 m buffers. These will be retained and protected during construction, following British Standards BS5837:2012 *Trees in relation to design, demolition and construction*.

3.1.6 Standard measures to ensure surface water runoff control and pollution prevention, following Guidelines for Pollution Prevention[3], will be implemented; these measures will safeguard boundary habitats, as well as off-Site ditches and watercourses with associated habitats and species.

3.1.7 There will be clear delineation of working areas and access routes for vehicles entering the Site and instructions on these will be given to all site construction staff, delivery drivers and subcontractors.

[3] https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/ (Accessed: 6th January 2026).

3.2 Birds

3.2.1 Site clearance works should be undertaken outside of the breeding bird season in so far as reasonably practical. The breeding bird season is generally considered to be 1st March to 31st August inclusive. Where this cannot be avoided, a suitably experienced ecologist will be appointed to undertake a pre-site clearance survey (within 72 hours) to identify the presence of any wild bird nests being built or in use (including those of ground nesting birds such as skylark (although none were recorded during field surveys; see *Appendix 2: Breeding Bird Survey Report*)). Only once the appointed ecologist is satisfied that an offence under Part 1 of the Wildlife and Countryside Act 1981 (as amended) will not occur, may works proceed.

3.2.2 If a nesting bird species is identified, a suitable work exclusion zone will be established around the nest site until the young have fledged the nest and a Breeding Bird Protection Plan will be required, in line with best practice guidance and in consultation with the advising ecologist.

3.2.3 During operation, disturbance will be minimal and limited to intermittent maintenance activities. However, it is recommended that habitat maintenance is undertaken outside of the breeding bird season in so far as reasonably practical to minimise disturbance to nesting birds.

3.3 Bats

3.3.1 Protection of trees, hedgerows and other field boundary features around the Site and adjacent land will safeguard potential roost sites and maintain foraging and commuting opportunities.

3.3.2 No trees with bat roost potential are expected to be affected by works, however should this change, prior to any required tree removal or pruning, a Ground Level Tree Assessment (GLTA) and if appropriate, consequent Potential Roost Feature (PRF) aerial inspection will be undertaken.

3.3.3 If the tree supports a PRF suitable for individual bats (PRF-I), then works could still proceed including whole tree removal without the need for further survey. It would, however, need appropriate roost compensation prior to tree removal and for works to be carried out under a Precautionary Working Method Statement (PWMS) as per the Bat Mitigation Guidelines (CIEEM 2023)[4]. Compensation would be provided in line with Collins (2023)[5], whereby the removal of PRF-I suitable features are compensated for through the roost resource approach (i.e. PRF feature translocation or bat box provision).

3.3.4 If a tree supports one or more PRF suitable to support multiple bats (PRF-M), the tree would be subject to further surveys across the summer period of May-September inclusive, with at least two between May and August inclusive. This would comprise either three aerial and endoscopic surveys, or if the features are too deep to carry out a full endoscopic survey, three emergence surveys with the use of night vision aids.

3.3.5 If a roost is confirmed, no tree works would commence until the data gathered would be used to inform potential design amendments to avoid or reduce impacts or, failing that support a licence application to Natural Resources Wales (NRW) to destroy/disturb the roost.

3.3.6 Statutory designated sites present within proximity of the Site are designated due to the presence of lesser horseshoe maternity and hibernation roosts. Lesser horseshoe bats roost in buildings and

[4] 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 and Environmental Management, Ampfield.
[5] Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London

structures (as detailed within Table 3.2 of the BCT guidelines (Collins, 2023)). Given that no buildings or structures are present within the Site, the presence of roosting lesser horseshoe bats, including those associated with statutory designated site populations, is considered unlikely.

3.3.7 Construction will be undertaken during daylight hours as far as possible; in order to protect foraging and/ or commuting bats. If any lighting is required during construction, this will be used in a sensitive manner and directed away from field boundary habitats and habitats bordering the Site. No permanent lighting is proposed during operational phase of the Proposed Development.

3.3.8 Any lighting required will be restricted and directed away from retained boundary habitats to maintain dark corridors for foraging and commuting. Light spill can be avoided in a number of ways, including the use of low-level lighting and use of hoods and careful selection of lighting; further information is available in *Bats and Artificial Lighting at Night*[6]. As long as lighting is designed and implemented in a sensitive manner, no discernible effects are anticipated on foraging or commuting bats.

3.4 Badger

3.4.1 No evidence of badger was identified within the Site or immediate surrounds.

3.4.2 However, due to the highly mobile nature of badgers, a pre-construction badger check will be undertaken to confirm the status of badger setts within the Proposed Development area before commencement of works (within two weeks). If a newly established sett is found, or if baseline conditions have altered, advice will be provided by the project ecologist to ensure necessary protection, avoidance or mitigation measures are in place before works proceed. This will inform safeguarding measures required and inform a disturbance licence required from NRW.

3.4.3 To protect badgers in the locality, works will follow a precautionary working method statement (PWMS), see **Annex 6.3**. These include measures such as ensuring no trenches/excavations will be left open over night without the creation of sloping escape ramps, which may be achieved by edge profiling of trenches/excavations or by using planks placed into them at the end of each working day. Ideally, open excavations / trenches should be covered overnight or other measures taken to prevent badgers entering or falling into such features.

3.5 Otter and Water Vole

3.5.1 Two watercourses are located within proximity to the Site. This includes the Afon Cain and The Brogan which are located c. 70 m west and c. 50 m south, respectively, at their closest point to the Site. Both watercourses are considered to have potential to support otter and water vole.

3.5.2 Works are sufficiently distanced from watercourses that, if present, water vole would not be negatively impacted by the Proposed Development.

3.5.3 Standard measures to ensure run off control and pollution prevention will be used to protect off-Site watercourses and associated terrestrial habitats in order to ensure no indirect effects on otter or water vole.

[6] Institution of Lighting Professionals & the Bat Conservation Trust (2023). *Guidance Note 08/23: Bats and artificial lighting in the UK Bats and the Built Environment series.*

3.6 Hazel Dormouse

3.6.1 The dominant agricultural habitat within the Site is considered to be of negligible suitability for the species, however woodland, hedgerows and tree lines within and adjacent to the Site have suitability for the species.

3.6.2 Any works within suitable habitat, such as hedgerows (including proposed translocation works), will follow a PWMS under the supervision of a licensed ecologist to avoid any risk of adverse effects on hazel dormice species, if present. The PWMS is provided in **Annex 6.3**.

3.7 Amphibians and Reptiles

3.7.1 Two ponds are located within 250 m of the Site without significant barriers to dispersal present between the Site and ponds. Both ponds have confirmed presence of great crested newt (GCN), as such it is considered likely that GCN are present within suitable terrestrial habitat on-Site and within the locale.

3.7.2 Habitats at the Site to be lost to the Proposed Development primarily consist of agricultural land, which is of low ecological value for amphibians and reptiles. This will be subject to temporary disturbance but converted to more species diverse grassland post development. Habitats of higher ecological value for amphibians and reptiles, including hedgerow (and associated field margins), scrub and woodland are to be retained by the Proposed Development, except an 11.5 m length of hedgerow which will be translocated to another area of the Site.

3.7.3 To protect individual amphibians and reptiles, any works within suitable habitats works will be conducted outside of the hibernation period (November to February inclusive) and under the supervision of a licensed ecologist following a PWMS, as provided in **Annex 6.3**.

3.7.4 Standard measures to ensure run off control and pollution prevention will be used to protect aquatic and associated terrestrial habitats and ensure no indirect effects on amphibians and reptiles.

3.8 Other Species

3.8.1 Small mammals including hedgehog, and brown hare, in addition to a variety of invertebrates may also potentially use the Site.

3.8.2 Any vegetation clearance works that may affect these species will follow a PWMS under the supervision of a licensed ecologist to avoid any risk of adverse effects to these species, if present. The PWMS is provided in **Annex 6.3.**

3.9 Pre-construction Surveys

3.9.1 Due to the mobility of species, pre-construction surveys should be undertaken immediately prior to construction (i.e., within the preceding two weeks for badger and within 72 hours for other species). The pre-construction survey will also include a general walkover of the construction zone to determine Site conditions have not changed, including the status of any invasive non-native species (INNS).

3.9.2 The results of pre-construction surveys, including any additional measures required (if applicable) will be communicated to the Local Planning Authority, through a 'Sign off Report', at the earliest opportunity. All works associated with pre-construction surveys will be undertaken under the guidance of the consulting ecologist and will ensure legislative compliance.

3.9.3 **Table 3.1** below outlines the required pre-construction surveys and the circumstances in which they are required.

Table 3.1: Requirements for Pre-construction Surveys

Pre-construction survey required	Works required for	Timings
Nesting birds	Vegetation clearance works	Only required for works in breeding bird season (March to August inclusive). Survey must be undertaken within 72 hours of vegetation clearance.
Bats	Tree removal or limb removal	Any time of year
Badger	Site clearance works/excavations	Any time of year
Hazel dormouse	Hedgerow or tree trimming Hedgerow or tree removal	Above ground works to occur any time of year. Ground works below stump level to avoid hibernation season (November to February inclusive).
Amphibians/reptiles	Suitable vegetation clearance above ground level i.e. long grassland Hedgerow or tree removal	Any time of year Ground works below stump level to avoid hibernation season (November to February inclusive).
Invasive Non-Native Species (INNS)	Any works	Any time of year

4 ECOLOGICAL ENHANCEMENT MEASURES

4.1 Habitat Enhancement

4.1.1 Management practices are proposed that will enhance the Site for the benefit of local wildlife. The design and long-term management of the land seeks to maintain and improve functionality through protecting and enhancing potentially important wildlife corridors i.e., through species-rich hedgerow creation and infill planting to strengthen existing hedgerows and tree lines within and around the Site, as well as a pond with wetland margins within a grassland meadow, scrub and woodland creation.

4.1.2 Further enhancements include the development of extensive areas of species and structurally-diverse grassland under the solar panels and in dedicated open meadows, as well as wildflower margins around the Site perimeter and field boundaries. This includes a 10 m buffer along an on-Site central parallel hedgerow feature (which lines an access track), considered to be a wildlife corridor, as well as a 10 m buffer along a northern hedgerow.

4.1.3 The creation of well managed grassland habitat on fields which were formerly less structurally and species diverse provides increased habitat for invertebrates and foraging, shelter and breeding opportunities for other wildlife.

4.1.5 The *Detailed Landscape Proposals* sets out the proposed landscape measures.

4.1.6 Planting will not be carried out when the ground is wet/waterlogged or frost bound, or during periods of excessive cold drying winds.

4.1.7 All bare-root planting stock will be kept covered until planted in order to minimise water loss and prevent the roots from drying out. Bare-root stock shall be planted while dormant (during winter months). Containerised and root-balled stock will be used where necessary, as advised by the supplier.

4.1.8 Any imported topsoil will comply with BS 3882 *Specification for Topsoil*. All supplying nurseries will be registered under the Horticultural Trade Association Nursery Certification Scheme and plant material should be of certified British provenance. All plants will be packed and transported in accordance with the Code and Practice for Plant Handling as produced by The Committee for Plant Supply and Establishment.

4.1.9 All plant material will conform with BS:3936 *Specification for nursery stock Bulbs, corms and tubers* and all seeding shall conform with BS:4428 *Code of practice for general landscape operations (excluding hard surfaces)*, or the most up to date and current British Standards and in accordance with seed supplier's technical advice.

4.1.10 It is advised that herbicides are not used on Site; however, if herbicides are required, the herbicide handbook (English Nature, 2003[7]) provides guidance on appropriate herbicide use in relation to nature conservation works.

Ground Preparation

4.1.11 Where necessary, existing weeds will be manually removed or treated with a suitable herbicide as specified within the herbicide handbook (English Nature, 2003) or hand-weeding.

4.1.12 Any extraneous matter such as plastic, large pieces of wood and metal will be removed from Site to a registered waste disposal facility.

Native Hedgerow Planting

4.1.13 It is proposed for 106 m of new hedgerow to be planted and 324 m of existing hedgerow with gaps to be infilled.

4.1.14 As specified in the *Detailed Landscape Proposals*, the following species will form the hedgerow planting within the Site:

Table 4.1: Hedgerow planting mix

Species	Common Name	% Mix
Acer campestre	Field maple	10
Corylus avellana	Hazel	15
Crataegus monogyna	Hawthorn	60
Ligustrum vulgare	Common privet	2.5
Prunus spinosa	Blackthorn	10
Rosa canina	Dog-rose	2.5

[7] English Nature (2003) *The Herbicide Handbook: Guidance on the use of herbicides on nature conservation sites*. Natural England, Peterborough.

4.1.15 The exact timing of the proposed hedgerow planting will be dependent on the ground conditions but planting would take place between the months of December-February inclusive. It is expected that ground conditions and climate will allow for earlier planting (i.e. before January), and this will allow the plants more time to establish a network of feeder roots before the onset of spring. Planting would avoid freezing and waterlogged conditions.

4.1.16 Hedgerow trenches shall be dug to 450 mm x 450 mm x 450 mm depth, the base of which shall be broken up before returning the approved topsoil backfill mixture to the trench, at the ratio of one part compost to two parts topsoil. All stock shall be planted to the root collar and well firmed in place.

4.1.17 Plants to be planted at 5 per linear metre in a double staggered row for mixed native hedgerows. All stock shall be planted to the root collar and well firmed in place.

4.1.18 After planting, a 50 mm layer of approved compost fine bark (nominal size 1-10 mm) shall be spread over the whole hedge area (1 m wide).

4.1.19 On completion, all hedge plants shall be thoroughly watered in and will be protected from damage by rabbit proof fencing or individual biodegradable spirals/shrub guards, as appropriate.

Native Hedgerow Translocation

4.1.20 To facilitate access, it is proposed that an 11.5 metre section of species-rich hedgerow be translocated from its current position and relocated within the Site to infill an existing hedgerow gap.

4.1.21 Hedgerow translocation is influenced by factors such as soil type, hedge age and composition, root spread and depth, weather conditions, equipment and timing. A suitably experienced and licenced Ecological Clerk of Works (ECoW) should be appointed to oversee key stages of the works, and contractors should refer to *Translocating Wildlife – a Guide for Civil Engineers*[8] for best practice guidance.

4.1.22 The optimal period for translocation is between October and late February, allowing the hedge to establish before summer. Note this conflicts with Section 3.7 of this report, which details amphibian and reptile mitigation of avoiding hedgerow removal during the hibernation period (November to February inclusive). Therefore, the hedgerow translocation should be undertaken in October.

4.1.23 Works should not proceed during hot, dry weather or when the ground is affected by frost; cool, damp conditions are preferable. Hedge roots must be exposed for the shortest time possible and must not be allowed to dry out, with sections removed and replanted in the receptor trench without delay.

4.1.24 Prior to works, the licenced ECoW must undertake checks for protected and notable species (e.g. hazel dormouse, hedgehog, amphibians and reptiles).

4.1.25 The ECoW should meet with the landscape team before works commence to agree methods and respond to site or weather conditions. The receptor trench alignment and adjacent fencing should be marked out in advance, and all required materials, including fertiliser, water retention granules, watering equipment and topsoil should be available on Site.

4.1.26 Prior to lifting, the hedge should be cut back to approximately 300-600 mm in height, with side growth reduced to solid wood to ease handling and reduce post-translocation stress. Clean, sloping cuts of no

[8] https://www.emerald.com/jcien/article/163/3/123/440057/Translocating-wildlife-habitats-a-guide-for-civil

less than 30 degrees should be made using chainsaws, with additional pruning undertaken if directed by the ECoW.

4.1.27 The receptor trench should be excavated at least 750 mm from any new boundary fencing to avoid disturbed ground and allow for future growth. While dimensions will depend on root size, the trench is expected to be approximately 1.5 m wide and excavated to an average depth of 1 m, subject to adjustment by the ECoW. The base should be scarified and treated with slow-release fertiliser (e.g. 20:4:10 N:P:K at 50 g/m) and Broadleaf P4 water retention granules (30 g/m). The trench must not be left open long enough to dry out, particularly in dry weather.

4.1.28 Hedge sections should be excavated and transferred sequentially in short lengths. Roots and stems should be cleanly cut by a chainsaw operative rather than broken by machinery, and safe working practices must be agreed between operatives. Sections must be set at ground level within the trench and backfilled using retained topsoil from the original hedge location. All works must be supervised by the ECoW.

4.1.29 Following placement, the ECoW should promptly inspect the hedge to confirm correct depth and adequate soil coverage. Exposed roots must be buried, additional topsoil added where necessary, and soil firmed to remove air voids. The hedge should then be thoroughly watered to settle the soil, with further topsoil applied if roots become exposed. Ground flora should be allowed to regenerate naturally from the translocated root mass and associated soils.

Tree and Scrub Planting

4.1.30 Habitat enhancements proposed include newly planted trees, whips and 0.04 ha of newly planted scrub.

4.1.31 As specified in the *Detailed Landscape Proposals*, the species in Table 4.2 will form the native tree planting within the Site. This comprises of 49 newly planted 2.5m-3m tall trees, as well as 14 newly planted 1.5m-1.75m whips.

Table 4.2: Tree planting mix

Species	Common Name	Number (Trees)	Number (Whips)
Acer campestre	Field maple	9	6
Alnus glutinosa	Common alder	12	5
Prunus avium	Wild cherry	13	3
Quercus robur	English oak	15	0

4.1.32 As specified in the *Detailed Landscape Proposals*, the following species in Table 4.3 will form the native scrub planting within the Site.

Table 4.3: Native scrub planting mix

Species	Common Name	% Mix
Corylus avellana	Hazel	25
Crataegus monogyna	Hawthorn	45
Prunus spinosa	Blackthorn	15
Rosa canina	Dog-rose	5

Virburnum opulus	Guelder rose	10

4.1.33 All standard trees will be planted in separate pits (1 m x 1 m x 900 mm), which shall be backfilled with a mixture of approved topsoil and tree and shrub planting compost at a rate of one part compost to two parts topsoil. Root barriers will be employed near any services.

4.1.34 The bottom of each pit will be broken up to a depth of 150 mm and the sides will be scarified. Each tree shall be planted centrally within the pit to the original root collar and secured by two untreated stakes (1.4 m minimum length), with approved ties.

4.1.35 All scrub plants will be planted in individual pits (450 mm x 450 mm x 450 mm), which shall be backfilled with a mixture of approved topsoil mixture at a rate of one part compost to two parts topsoil.

4.1.36 After planting, all trees and scrub will be watered-in and a mulch layer of 1 m diameter approved forest bark will be spread over the tree pit to a depth of 50mm. A biodegradable spiral guard will be fixed to the base of each tree to protect it from rabbit damage and potential strimmer damage.

4.1.37 On completion, all plants shall be thoroughly watered-in and will be protected from damage by rabbit proof fencing or individual spirals/shrub guards, as appropriate.

Grassland Creation

Wildflower, wetland pond margins and botanically-rich grassland

4.1.38 The main body of the Site where construction works are proposed is currently modified grassland agricultural land. Land beneath and around the solar panels will be converted to grassland through seeding with appropriate seed mix such as *Emorsgate EG1 – General Purpose Meadow Grass Mixture,* or similar (c. 8.01 ha). The perimeter areas of the Site (c. 1.15 ha), as well as a dedicated meadow field directly east of the solar layout (c. 2.48 ha), will be sown with *Emorsgate EM 1- Basic General Purpose Meadow Mixture* or similar. Land bordering the newly created pond will be sown with *Emorsgate EM 8- Meadow Mixture for Wetlands,* or similar (c. 0.05) ha.

4.1.39 A longer-term approach to the establishment of these grassland meadow habitats has been adopted, through suitable management practices and the avoidance of fertilizers and herbicides to establish an increasingly species and structurally varied grassland across the Site.

Seeding

4.1.40 Prior to seeding (after construction of the access tracks and other associated infrastructure), unwanted vegetation growth within the fields will be removed by scraping the surface to a depth of up to 150 mm. If there is an abundance of annual or perennial weeds, the Site may be treated with an approved herbicide at least six weeks prior to seeding. Herbicide use however, should only be used if absolutely necessary. It is advised that suitable gaps are made within existing vegetation, through clearance of existing, retained superfluous low growing vegetation, to create seeding areas (if applicable).

4.1.41 All grassland seed areas shall be top-soiled to a minimum depth of 75 mm. The ground shall then be thoroughly broken up and cultivated and fine graded to even running falls, before raking and cross raking. The ground will be harrowed and rolled, using a tine harrow in order to avoid damaging any underground services. Where existing tree roots are present, shallow cultivation will be carried out to ensure roots are not damaged. However, if there are any areas which have suffered high soil compaction, for instance due to heavy machinery being deployed, these will be harrowed using a disc

harrow to ensure the soil structure is suitable for subsequent sowing. If such a requirement arises to harrow with discs, caution should be exercised to ensure newly installed underground services are not damaged during harrowing. The grass seed mixes shall be sown in accordance with good practice and in line with the supplier's guidance.

4.1.42 Seeding will take place in accordance with the suppliers' guidance, ideally in either spring (late March to May) or in September (although seeding is possible at other times of year).

4.1.43 Seeds shall be broadcast by approved lightweight machinery, following seeding the area will be subject to rolling to incorporate the seed with the growing substrate. Where this is not possible, seeds will be broadcast by hand.

Pond Creation

4.1.44 A single new permanent pond (c. 0.06 ha) is proposed within the newly created meadow field east of the solar array. This pond will be surrounded by areas of wet wildflower grassland within the wider wildflower meadow, providing connectivity throughout the Site. The location of the proposed pond is provided in the *Detailed Landscape Proposals*.

4.1.45 The pond creation will be undertaken by a long-reach excavator (or similar) prior to creation to adjacent habitats. On completion of the profiling works the working area will be cleared of all debris and returned to a condition suitable for grassland seeding (see above).

4.1.46 The pond will be created to provide a range of depths, an irregular shape and with the deepest area being 1.5-2 m. Shallow depths are very important for wildlife and these can be categorised into shallow (0-10 cm deep) and mid-depth (10 cm-30 cm deep) zones. There should be some submerged ridges of gravel within the shallower areas, of a type appropriate for use in ponds. Ponds need to slope very gently at the edges in order to increase wildlife potential. Water levels will go up and down during the year, so shallows should be created with long, low-angles to make sure there are always shallows available. The pond should include a wide, undulating draw-down zone, rather than one that is narrow and descends steeply. A shallow wetland shelf of less than 30 cm will encourage a diversity of pond plants which in turn provides for invertebrates and egg laying substrate for newts.

4.1.47 Shallow zones (0-10 cm depth) should make up approximately 40% of the pond; mid-depths (10-30 cm depth) should make up approximately 40% of the pond and deeper waters (1.5-2 m depth) should make up approximately 20% of the pond.

4.1.48 The pond will not have any connection points to existing ditches, nor have any drainage pipe work present so water levels should naturally fluctuate throughout the year.

4.1.49 It is considered that aquatic/marginal species will eventually naturally colonise the pond, however, in order to accelerate this process and thereby provide suitable breeding pond for amphibians, it is recommended that suitable marginal planting is undertaken. This will comprise c. 40 m pre-planted coir matting along the banksides.

4.1.50 Pond-edge seed mixture such as the *Emorsgate EM 8- Meadow Mixture for Wetlands ,* or similar*, such as* the *Wet Areas Wildflower Only Seed Mix*[9] (or similar in agreement with the LPA), should be broadcast surrounding the pond margins, using the methods described in the grassland creation section (above).

[9] https://www.habitataid.co.uk/collections/wildflower-seed-meadow-mixes-others/products/wet-wildflowers-only-mix

4.1.51 Sub-soil (which will be much lower in fertiliser/nutrients than the existing top-soil) excavated during the mechanical pond creation process should be stored adjacent to the working areas and spread across the surrounding area once the pond excavation has been undertaken; this will form a valuable nutrient-poor substrate for seeding purposes.

4.1.52 The following list of native aquatic plant species would ideally be present when colonised over time, and could also be used for plug planting as a remedial measure should planting not become established after a period of two years:

Submerged but with floating leaves

- water crowfoot *Ranunculus aquatilis*;
- bladderwort - *Urticularia spp*;
- frogbit *Hydrocharis morsus-ranae*;
- broad-leaved pondweed *Potamogeton natans*; and,
- curled pondweed *Potamogeton crispus*.

Totally submerged

- spiked water-milfoil Myriophyllum spicatum;
- hornwort *Ceratophyllym demersum*;
- shining pondweed *Potamogeton lucens*;
- horned pondweed *Zannichellia palustris*;
- fennel pondweed *Potamogeton pectinatus*; and,
- water starwort *Callitriche stagnalis*.

Emergent species along pond shelf

- branched bur-reed *Sparganium erectum*;
- amphibious bistort *Persicaria amphibium*;
- arrowhead *Sagittaria aquatilis*;
- water crowfoot *Ranunculus aquatilis*;
- water mint *Mentha aquatica*;
- flowering rush *Butomus umbellatus*;
- water plantain *Alisma plantago-quuatica*;
- water forget-me-not *Myosotis Scorpiodes*;
- marsh cinquefoil *Potentilla palustris*; and,
- greater Pond-sedge *Carex Riparia*.

4.2 Wildlife Enhancement

Maintaining Connectivity

4.2.1 The perimeter fence will incorporate suitably sized (approximately 200 mm x 200 mm) gaps or gates at its base at suitable locations around the Site (approximately every 200 m) to allow the free movement of wildlife, including badger and small mammals, thereby maintaining and strengthening habitat connectivity and dispersal opportunities across and through the Site. Precise locations will be agreed with the project ecologist and will be subject to confirmation during the installation depending on condition at that time.

Bird Nest Boxes

4.2.2 Additional bird nesting provision will be made through the inclusion of five bird boxes erected on semi-mature/mature trees located along the field boundaries within and adjacent to the Site. Precise locations will be subject to confirmation during the installation depending on tree condition at that time.

4.2.3 Bird boxes should ideally be installed in the autumn (September to November) following the cessation of construction works, by the appointed contractor under advice of the suitably competent ecologist.

4.2.4 Boxes should be erected at an appropriate height of between 1 to 5 metres. Boxes should be angled so that they face away from the prevailing wind or in a semi sheltered environment, ideally on north or east facing aspects. Positioning within or close to hedgerows will increase chances of occupation. Bird boxes will be suitable for a variety of farmland bird species.

4.2.5 Suitable specifications for bird boxes are provided in **Annex 6.1**.

Bat Roost Boxes

4.2.6 Additional bat roost provision will be made through the inclusion of a minimum of five bat roost boxes on suitable trees along the field boundaries within and bordering the Site. Following BCT guidance[10], boxes will be erected at an appropriate height (ideally above 4m in height) and with clear flight paths to utilise the Site boundary features.

4.2.7 Boxes should be positioned away from artificial light sources, sheltered from strong winds and exposed to the sun for part of the day (ideally south or west facing). Multiple boxes should also be grouped, each with a different aspect, to provide a number of different options for bats. Precise locations will be agreed with the project ecologist and will be subject to confirmation during the installation depending on tree condition at that time.

4.2.8 Suitable specifications for roost boxes are provided in **Annex 6.1**.

Hibernacula

4.2.9 One hibernacula will be created in woodland or in the grassland meadow situated adjacent to field boundary tree line and hedgerows within the Site. This will measure approximately 2m x 2m x 1m in height. The hibernacula will be constructed from logs and / or clean bricks/rubble sourced locally as far as possible, or with 'clean' materials brought in from elsewhere where this is not possible and

[10] https://cdn.bats.org.uk/uploads/pdf/Bat-Box-Information-Pack-Sept-2020-JF.pdf?v=1600095860&_gl=1*1p5xe9l*_ga*MjE0MDAwODIyMi4xNzAwMDYzNjk5*_ga_G28378TB9V*MTcwMDA2MzY5OS4xLjAuMTcwMDA2MzY5OS4wLjAuMA (Accessed: 6th January 2026).

topped with soil and earth. The hibernacula will provide shelter and over-wintering refuge for amphibians, reptiles, small mammals and invertebrates.

4.2.10 An example of hibernacula is provided in **Annex 6.2**.

Invertebrates

4.2.11 Additional habitat provision for invertebrates will be made through the inclusion of five insect hotels/boxes erected within the Site. Precise locations will be subject to confirmation during the installation depending on the box/hotel and condition of trees (if required).

4.2.12 Insect hotels can be installed any time of year and should follow the cessation of construction works, by the appointed contractor under advice of the suitably competent ecologist.

4.2.13 Boxes should be erected at sheltered undisturbed locations and be angled so that they face away from the prevailing wind. An assortment of boxes/hotels will be suitable for a variety of insect species.

4.2.14 Suitable specifications for insect boxes/hotels are provided in **Annex 6.1**.

5 HABITAT MANAGEMENT

5.1 Overview

5.1.1 Habitat management will be reviewed and undertaken periodically throughout the lifetime of the Proposed Development (see Section 7). Management will be the responsibility of the current or any subsequent owner of the Proposed Development. All works associated with the implementation of the BMP will be undertaken by experienced contractors. The costs of any such works will be borne by the owner or any subsequent owner of the Proposed Development. Monitoring and reporting will be undertaken by a suitably qualified ecologist and the costs associated with monitoring reporting and any rectification works will be borne by the owner or any subsequent owner. The Applicant would welcome a condition in this regard on any granting of planning permission.

5.2 Hedgerow, Scrub and Tree Management

5.2.1 During the establishment period (the first five years), all dead, dying or diseased stock will be replaced with stock of similar size and species by the appointed contractor at their own cost. If the failure of the plant is due to disease and the disease is considered likely to re-occur, then an alternative native species of local provenance may be used as a replacement. The exact timing of the planting of replacement hedgerow/tree is dependent on the ground conditions; however, planting should ideally take place between the months of November and March inclusive, this will allow the plants more time to establish a network of feeder roots before the onset of spring.

5.2.2 The planting areas will be kept mulched and weed-free during the establishment period, using approved hand-weeding or if necessary, herbicide treatment (applications in April, June and August). The herbicide handbook (English Nature, 2003) provides guidance on appropriate herbicide use in relation to nature conservation works. Where used, herbicides will be sprayed in appropriate weather conditions, to avoid affecting adjacent grassland areas.

5.2.3 During the establishment period, tree/hedgerow plants should be inspected during periods of warm weather and drought. If it is considered that the ground conditions are too dry, the planted areas will be watered on a regular basis until weather conditions are considered suitable for watering to cease.

5.2.4 At the end of each growing season, all trees and hedgerows shall receive an application of slow-release fertiliser.

5.2.5 During establishment, hedgerows will be trimmed outside each growing season; hedgerows will be cut back by half the growth of that year with pruning aiming to encourage the development of healthy well-shaped specimens. New hedgerows will be trimmed using powered hand-held machinery (not flail cutters) for the first 3 years until established.

5.2.6 All canes, stakes, guards, spirals or ties will be regularly checked and replaced as required and removed once plants have established. Once established, planting guards (if non-biodegradable guards used or biodegradable guards still present) will be removed and disposed of appropriately off-Site.

5.2.7 Once established, all hedgerows will be allowed to grow up to a height of 3m and managed at 3m or above, as appropriate for the operation of the Site.

5.2.8 Once established, all hedgerows will be managed on a 2–3-year flexible rotation so that not all hedgerows are cut in the same year, which will benefit wildlife and allow plants to flower and set seed/fruit. Established hedgerows will be cut between late September and February only using a tractor mounted flail or other method as appropriate.

5.2.9 No cutting or trimming is to be undertaken during the breeding bird season (1st March to 31st August inclusive).

5.2.10 Existing and newly planted trees will be left to grow naturally and not cut apart from pruning if necessary to maintain the health of the tree, safety or to protect infrastructure from damage. These will be clearly marked to ensure that they are not cut back during hedgerow trimming/maintenance works. If any tree does require pruning, advice of an ecologist must first be sought and GLTA may be required before any works can commence, as detailed within Section 3.3

5.2.11 Occasional thinning and under planting of woodlands may be undertaken, where and when required to ensure the long-term health and biodiversity value of the habitat.

5.3 Grassland Management

5.3.1 The grassland vegetation within the Site will be managed to provide a varied habitat structure providing nesting opportunities for birds, as well as nectar, pollen and shelter for invertebrates, amphibians, reptiles and small mammals. Taller grassland vegetation will be encouraged to develop at the base of hedgerows and at field margins to provide foraging and shelter opportunities for a range of wildlife.

Initial Management

5.3.2 Grassland management will be carried out in accordance with the seed supplier's technical advice during the establishment phase.

Emorsgate EG1 – General Purpose Meadow Grass Mixture, or similar - Main Body of the Solar Site

5.3.3 During the first year of management, in good growing conditions (warm soils and adequate rainfall) the grass will establish and need its first management around 6-10 weeks from sowing, by which time grass will have reached around 10 cm height.

5.3.4 Light grazing with livestock can be introduced at this stage. Sheep are to be preferred as they have lighter feet and graze grass back neatly, encouraging the grass to thicken up by tillering at the base. Grazing for short periods initially will avoid over grazing and allow time for the grass to recover. Grazing however, should be avoided if the soil is saturated with water.

5.3.5 Alternatively, topping of initial growth (sown species and weeds) will encourage the sward to thicken up and restrict any weed growth.

5.3.6 Any cut material will be either removed from the Site or heaped in small piles in designated areas within the Site in order to prevent mulched patches which will inhibit young grass and nutrient build-up within the soil. Heaped material within suitable locations will provide suitable habitat for amphibians, reptiles and invertebrates.

Emorsgate EM 1- Basic General Purpose Meadow Mixture or similar, and Emorsgate EM 8- Meadow Mixture for Wetlands, or similar - Site Perimeter and Meadow Area

5.3.7 There will often be a vigorous initial growth and a flush of annual weeds during the first season. This should be managed by topping and mowing throughout the first year at regular intervals. Regular cutting to establish the grassland will take place during Year 1 after seeding and possibly also in Year 2, if growth is particularly vigorous on the ex-arable land. In the unlikely event that the grassland / meadow planting fails and the area of bare ground is greater than 20%, these areas will be re-seeded.

5.3.8 Annual weeds can be managed by topping and mowing prior to setting seed which will encourage lateral development of the grasses. Any topping undertaken between April and July should be no lower than 200 mm to retain habitat for ground nesting birds.

5.3.9 Alternatively, and if necessary, persistent problem perennial weeds can be controlled by hand pulling or if necessary, careful targeted application of a non-residual herbicide by way of spot spraying with a knapsack (low pressure to avoid spray drift), or weed wiping (no herbicide application within the vicinity of the created pond, or offsite ditches and watercourses) in April, June and August.

5.3.10 Any cut material will be either removed from the Site or heaped in small piles in designated areas within the Site in order to prevent nutrient build-up within the soil.

5.3.11 Specific attention should be paid to the potential presence of the following injurious (harmful) weeds: common ragwort, spear thistle, creeping thistle, curled dock and broad-leaved dock; which are all listed within the Weeds Act 1959. These species should be removed from the grassland areas prior to enhancement works commencing[11].

Long-term Management

Wildflower, wetland & botanically-rich grassland

5.3.12 Following establishment of a suitable sward, the grassland habitats will be managed through either mechanical cuts (option A) and/or grazing (option B) to develop nectar and pollen rich meadow grassland with a varied structure. Both management approaches are detailed below for ease of reference. Management by sheep grazing (option B) is preferred.

Option A: Cutting Regime

5.3.13 Following establishment, one or possibly two cuts will be taken per year comprising an early cut in February (if necessary) to manage regrowth around panels, with a second later in the season between August and September (each cut reducing sward height to approximately 150 mm). No cutting will take place throughout the summer to allow the seeds of the later flowering species to fall prior to the cut. There may be circumstances when an additional summer cut is required to prevent vegetation obscuring panels, in such cases cuts should reduce sward height to no lower than 200 mm to retain habitat for and potentially protect nesting birds, as well as any other fauna present.

5.3.14 Cutting should adopt a systematic method (i.e., working outwards towards the boundary features); this will allow fauna such as invertebrates, amphibians, birds and small mammals to temporarily and safely vacate the area.

5.3.15 The management will take a flexible approach and the exact dates will be dependent upon weather conditions. A phased (rotational) cutting regime is recommended (i.e., ideally the entire area should not be cut at the same time) in order to allow for more structured grassland.

5.3.16 Cuttings will remain on-Site for three to five days following the cut to allow seeds to disperse, then be removed or heaped in designated areas within the Site in order to remove nutrients and promote the development of a species-rich sward.

5.3.17 The meadow and wildflower grassland along the field margins can be cut less frequently once established, with a single main cut (reducing sward height to approximately 150 mm) late in the season, between August and September, subject to weather conditions. The late cut will allow the

[11] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69296/pb7190-harmful-weed-control.pdf (Accessed: 6th June 2024)

seeds of the later flowering species to fall prior to the cut. An optional earlier cut can be made in March, if necessary, to manage re-growth.

Option B: Grazing Regime

5.3.18 Once established, the grassland within the perimeter fence can be managed by sheep grazing as an alternative to mechanical cutting. Grazing should follow a low-intensity grazing regime to maintain grass cover. Moderate trampling will expose ground for colonisation by annuals the next spring; however, heavy trampling can lead to ground poaching and infestations by weed species that will be detrimental to the Site.

5.3.19 During the spring and summer (March to August), stock will ideally be removed or stocking density reduced to allow summer flowering plants to set seed, and grazing will be removed in the winter period in order to prevent the compaction of wet earth. The shepherd will be responsible for the management of livestock and the stocking density.

5.3.20 Ideally, it is best to aim for a stocking rate sufficient to maintain a varied structure, rather than the maximum that the grassland can support. Grazing density (**Table 5.1**) is based on medium sized sheep (i.e., 60 kg). It is important to regularly monitor the Site to ensure the grassland is not under or over grazed and stock density and duration altered accordingly. The stocking density should be reduced in wet periods or in conditions when poaching would lead to a break-up of the sward and colonisation by aggressive weed species.

Table 5.1: A guide to stocking levels for lowland grassland (number of sheep per hectare). Adapted from the Lowland Grassland Management Handbook[12] produced by Natural England.

Number of grazing weeks per year	Neutral Grassland (sheep per ha)
16	12.5
20	10
24	8
36	5.5
52	4

5.3.21 The following indicators will be used to review and amend stocking densities:

- An increase in the amount of uneaten grass, the accumulation of litter, an increase in vigorous rank and unpalatable grasses, and a reduction in low growing herbs indicates stocking density is too low (increase density); and/or,
- A reduction in density of plants, excessive poaching, weed invasion and the development of bare patches indicates stocking density is too high (reduce density).

5.4 Pond Management

5.4.1 Scrub management will be employed to prevent the pond from becoming encroached by shading scrub after creation/restoration and used to maintain a relatively open pond and prevent domination by tall, emergent species such as reedmace.

5.4.2 Should overly vigorous native vegetation colonise the ponds, the aquatic vegetation may need to be cut back or removed from the ponds. Management of aquatic vegetation (if required) should be

[12] https://publications.naturalengland.org.uk/publication/35034

undertaken annually with vegetation thinned rather than removed. Removed vegetation should be hand sorted to ensure no animals are caught up in the vegetation and left at the pond edge for at least twenty-four hours before being placed in habitat piles within the Site.

5.4.3 Aquatic vegetation management methods should avoid the amphibian breeding season (March to June inclusive) when amphibians are most active at ponds. Pond management work should be carried out in late autumn through winter, typically 1st November to 31st January, when amphibians are typically using terrestrial habitats.

5.4.4 Any significant accumulation of debris and rubbish should be carefully removed from the ponds with minimal disturbance to the habitat as possible (as required).

5.4.5 Pond management work is designed to improve the species diversity of the ponds and there is little risk of damage or destruction occurring, as the Site will be enhanced by employing these management practices. Where the work is carried out with sensible precautions and at an appropriate time of year then the risk of deliberate killing, injuring or disturbing amphibians can be greatly minimised.

5.4.6 The pond will not have any drainage or ditch connections, so water levels should naturally fluctuate throughout the year.

5.4.7 Should invasive species (e.g. New Zealand pygmy weed) be observed within waterbodies a suitable qualified ecologist or invasive species specialist should be contacted and a suitable management or eradication plan implemented.

5.5 Habitat Piles

5.5.1 A small proportion of any wood and/or grass removed during habitat management or other work operations and not taken off-Site should be placed into loose piles and placed along the edge of retained woodland, tree or hedgerows features. These habitat piles should not exceed approximately 1 m high by 2 m wide and will provide valuable invertebrate habitat and shelter for other species including small mammals, amphibians and reptiles. These should be placed in the same locations each year, with locations to be determined on Site in consultation with the advising ECoW.

6 ECOLOGICAL MONITORING

6.1.1 The development of the biodiversity interest of the Site will be monitored over time by a suitably experienced ecologist. A walkover survey will be undertaken on years 1, 3, 5 and 10 and every 5 years thereafter for a minimum period of 30 years.

6.1.2 This will involve an inspection of the hedgerows, tree and scrub planting, the created pond, as well as the grassland and any other ecological features to ensure that they are being managed in a manner suitable for the enhancement of wildlife interest.

6.1.3 Bird, bat and insect boxes, as well as the hibernacula will also be checked to ensure they are in place and in working order. The results of these monitoring surveys will be used to inform future changes in management and the potential need to replace missing boxes. The management plan will be amended, if necessary, based on the monitoring recommendations (including amending the cutting/grazing regime if necessary).

6.1.4 Following the outcomes of each monitoring survey it will be the duty of "the Owner" of the Site to amend the BMP to inform future changes in management including amending the grazing and cutting regime, if needed.

6.1.5 Monitoring procedures are outlined in **Table 6.1**:

Table 6.1: Monitoring procedures and key indicators.

Biodiversity feature	Monitoring procedure	Key indicators
Hedgerows / scrub / tree planting and hedgerow translocation	Walk full length of planted/infilled/translocated hedgerows and trees Monitor if cutting regimes are being implemented.	• Note areas requiring replacement planting and (after year five) removal of spiral guards. • Damaged/dead whips/planted trees/hedgerow shrubs. • Significant weed growth competition. • Unofficial hedgerow gaps. • Damaged or unnecessary planting guards. • Planting impacted by drought.
Grassland areas	Walkover of grassland areas- main body of the Site and perimeter Monitor if cutting/ grazing regimes are being implemented.	• Reduction in density of plants or plant species present compared to original baseline surveys, which indicates the need to amend cutting regime. <u>If option A (cutting) is chosen:</u> • Excessive weed invasion or unwanted perennial weeds (docks, thistles) may need control by occasional hand weeding, topping, spot treatment with an herbicide or other specific remediation. • Accumulation of cuttings from previous cuts not being collected. <u>If option B (Grazing) is chosen:</u> • Increase in the amount of uneaten grass/accumulation of litter/vigorous rank and unpalatable grasses – indicates need to increase stock densities. • Reduction in density of plants or plant species present (count and check against original seed mix species list) - Indicates need to reduce stock densities or amend cutting regime.

Biodiversity feature	Monitoring procedure	Key indicators
		• Excessive poaching, weed invasion or unwanted perennial weeds (docks, thistles) may need control by occasional spot treatment with an herbicide or other specific remediation. • Occasional bare patches at the edges of the grassland (<20%) are acceptable as they provide diversity within the grassland habitat for invertebrates and birds.
Pond	A visual check of the created pond. Check that pond is regularly holding water	• Pond is not sufficiently holding water; additional works such as further desilting, excavation and/or the introduction of pond liners etc may be required. • Development of overly dense and/or vigorous aquatic and marginal vegetation may require management. • Scrub management may be required and any potential canopy shading out pond may need pruning works.
Invasive plant species	Visually check for any areas of infestation.	• New invasive species recorded.
Bird, bat and insect boxes	Externally inspect each box. Internal inspection of each box (once every 5 years). Bat boxes can only be internally inspected by a licensed ecologist.	• External inspection- ensure boxes are present, intact and secured. Note if need to replace. • Damaged, dilapidated, or missing boxes. • Build-up of debris.
Hibernacula	Visually inspect hibernacula	• Check for obvious damage. Note need for repair or for hibernacula to be built-up. Also note any barriers that may hinder wildlife entering the structure.
Mammal gaps in fence-lines	Walk perimeter fence lines	• Check fence lines to make sure mammal gaps are present and not obstructed.

6.1 Contingency Measures

6.1.1 If the monitoring outlined above identifies that a habitat is not meeting the target condition or is not meeting the description for the proposed habitat type, the following contingency measures should be considered.

6.1.2 In all cases, where a failure is identified, the root cause should be identified and remedial measures implemented.

Grasslands

Absence of herbs/ high cover of bare ground

6.1.3 If the herb layer is not establishing, or there are large areas of bare ground it may be appropriate to re-seed / overseed the area. This should be done using a suitable mix and following the methodology outline in the habitat creation section above. It may be necessary to create batches of bare ground prior to seeding.

Nutrient levels too high

6.1.4 If nutrient levels are too high, as indicated by the presence of increasing neutral grassland species or competitive weed species (e.g., nettles, spear thistle, white clover, coarse grasses), efforts should be made to reduce the nutrient levels in the soils.

6.1.5 A cut and collect regime may help reduce nutrient levels. This involves waiting for plants to reach a substantial height before mowing and then removing all arisings form the Site. Any nutrients taken in by the plants during growth will therefore be removed from the Site. This method may take a number of years to be effective.

Absence of bare ground

6.1.6 Many herb species require patches of bare soil to germinate. If there are no localised bare patches, it may be appropriate to manually disturb the soil. This should be in in no more than 5% of the total area.

Hedgerows

High planting failure rate.

6.1.7 Small gaps should fill in naturally as neighbouring hedgerow shrub species grow, however where there is a high failure rate shrub species should be replanted or alternative species used. It may be appropriate to consider alternative planting methods, such as traditional hedgerow laying.

Trees and scrub

High planting failure rate.

6.1.8 Where there is a high failure rate, tree / scrub species should be replanted or alternative species used. It may be appropriate to consider alternative planting methods, such as planting larger root balls or stock specimens.

Pond

Vegetation fails to naturally colonise

6.1.9 If the pond does not start to naturally colonise aquatic species after a period of two years, additional plug planting may be undertaken with plant species as listed in section 4.1.52, with supplementary plant edge seed mix also sown.

Silt build-up / non-water holding

6.1.10 If the pond becomes subject to significant levels of silt build up and the pond profile becomes significantly shallower, de-silting may be required. If so, this should only be undertaken by specialist contractors and under the advice / supervision of an ecologist

7 INDICATIVE MANAGEMENT SCHEDULE

7.1.1 The following management programme shows possible months in which activities will commence within the first planting period after construction.

Implementation and Habitat Enhancement Year 1

Management Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Grassland creation (*preferred month)			✓*	✓*	✓	✓	✓	✓	✓*			
Hedgerow, scrub and tree planting	✓	✓									✓	✓
Hedgerow translocation (*preferred month to avoid impacts on potentially hibernating GCN)	✓	✓								✓*	✓	✓
Pond creation (*preferred month)	✓*	✓*	✓	✓	✓	✓	✓	✓	✓*	✓*	✓*	✓*
Installation of marginal pre-planted coir matting in pond (*preferred month)	✓	✓	✓*	✓*	✓	✓	✓	✓	✓*	✓*	✓	✓
Pond-edge seed mixture sowing			✓*	✓*	✓			✓	✓	✓*		
Watering of planted/translocated stock (if required during dry periods)				✓	✓	✓	✓	✓	✓	✓		
Installation of wildlife boxes/hibernacula and habitat piles	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Invasive non-native species walkover survey	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Habitat Management Year 2

Management Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Visual inspections- inspect hedgerows, trees and scrub for signs of disease or damage, inspect grassland for damage and weed levels						✓	✓	✓	✓			
Translocated hedgerow monitoring (*preferred month)			✓	✓*	✓*	✓*	✓*	✓*	✓	✓		
Grassland cutting and collection of arisings			✓	✓	✓	✓	✓	✓	✓*	✓		
Initial management of grassland (targeted herbicide treatment of perennial weeds or cutting/topping where necessary)				✓		✓		✓				
Herbicide treatment or hand-weeding of hedgerow / tree planting bed				✓		✓		✓				

Trimming of new hedgerows to encourage bushy side growth and maintenance of retained hedgerows	✓	✓							✓	✓	✓	✓
Failed tree / hedgerow stock replacement (*preferred month)	✓	✓										✓*
Watering of planted/translocated stock (if required during dry periods)				✓	✓	✓	✓	✓	✓	✓		
Management of marginal pond vegetation									✓	✓		
Removal/thinning of aquatic vegetation and debris/leaf litter	✓										✓	✓
Monitoring of water level in pond and remedial measures (*preferred month)	✓*	✓*	✓	✓	✓	✓	✓	✓	✓*	✓*	✓*	✓*
Inspect wildlife boxes/hibernacula and habitat piles- replace and repair as required	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Invasive non-native species walkover survey	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Ongoing Annual Management, Year 3 onwards

Management Activity	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Visual inspections- inspect hedgerows, trees and scrub for signs of disease or damage, inspect grassland for damage and weed levels								✓	✓			
Translocated hedgerow monitoring (*preferred month)			✓	✓*	✓*	✓*	✓*	✓*	✓	✓		
Grassland cutting and collection of arisings (*preferred month)		✓						✓	✓*			
Sheep grazing	✓	✓							✓	✓	✓	✓
Herbicide treatment or hand-weeding of hedgerow / tree planting bed (establishment period up to first five years)				✓		✓		✓				
Periodic trimming of hedgerows as required (on a 2 or 3 year cycle and no more than 1/3 cut in any one year)	✓	✓							✓	✓	✓	✓
Tree / hedgerow stock replacement (*preferred month)	✓	✓										✓*
Watering of planted/translocated stock (if required during dry periods)				✓	✓	✓	✓	✓	✓	✓		

Management Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Management of marginal pond vegetation									✓	✓		
Removal/thinning of aquatic vegetation and debris/leaf litter	✓										✓	✓
Canopy management above pond and scrub management around pond, if required	✓	✓							✓	✓	✓	✓
Inspect wildlife boxes/hibernacula and replace and repair as required	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Invasive non-native species walkover survey	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

ANNEX 6.1: WILDLIFE BOX SPECIFICATIONS

Suitable Examples of Bird Boxes		
Bark box- Great tit / tree sparrow nest box (or similar)		Nest box and roost site with 28 mm entrance suitable for great tit or tree sparrow. Likely to be used by roosting birds, with potential for use by roosting bats.
Bark box- Starling box (or similar)		A large box for nesting starling. *Branch stub* entrance provides shelter and protection from predators. Top loop provides more comfortable carrying and a quick initial attachment point to the tree; whilst *through the box* nail points provide security for this large box.
Bark box- Branch stub (or similar)		Replicating a rotting branch stub with void. More likely to be used by nesting and roosting birds than roosting bats.

Suitable Examples of Bird Boxes		
Bark box- Open fronted nest box (or similar)		For birds such as robin and pied wagtail. Open fronted but with a generous canopy to screen from aerial predators. Place in good cover not in the open.
Siting	The nest boxes should be sited in trees and are best positioned at a height of between 1 to 5 metres. Boxes should be angled so that they face away from the prevailing wind or in a semi sheltered environment, ideally on north of east facing aspects. Positioning within or close to hedgerows or woodland will increase chances of occupation.	
Timing	Bird boxes will be erected outside of the breeding bird season, to eliminate the possibility of disturbing birds currently utilising the trees for nesting.	
Other Notes	Note that bird boxes should not be opened between the months of March to September to avoid disturbing nesting birds. If the specific boxes detailed above are not available at time of purchase, similar boxes may be used, although advice should first be sought from an ecologist.	
References	https://www.barkboxes.co.uk/product/great-tit-tree-sparrow/ (Accessed: 6th January 2026) https://www.barkboxes.co.uk/product/starling-box/ (Accessed: 6th January 2026) https://www.barkboxes.co.uk/product/branch-stub/ (Accessed: 6th January 2026) https://www.barkboxes.co.uk/product/open-fronted-nest-box/ (Accessed: 6th January 2026)	

Suitable Examples of Bat Roost Boxes		
Bark box- Large Twin Crevice (or similar)		Primarily for use by roosting bats but may also be used by small birds as a safe roost site. Two curved internal voids narrowing down to tight crevices at the top. Suitable for a range of bat species, mating roosts and spring and autumn roosts where the thermal mass is a benefit. Top loop for more comfortable carrying and quick initial attachment to the tree and two *through the box* nail holes for secure attachment of this heavy box.
Bark box- Kent Type Twin Crevice (or similar)		Two parallel crevices for roosting bats with internal connection to move between the two. Light internal finish for helping to spot bats, droppings and rub marks. Top loop for quick and easy initial attachment to the tree, plus two *through the box* nail points for maximum security.
Bark box- Bat chamber (or similar)		Primarily for use by roosting bats including as an autumn mating roost, particularly for pipistrelles. Also likely to be used by small birds as a safe roost site. 16mm hole for endoscope inspection in the base facilitating inspection, potentially avoiding working at height with the right equipment. Light internal finish facilitates detection of droppings or rub marks. Top loop makes initial attachment to the tree easier – with two further attachment points for 6" nails for security.
Siting	The bat boxes can be sited in trees and are best positioned at a height above 4 metres. Bat boxes should ideally be sited in south or west open sunny positions, facing different directions to provide a variety of micro-habitats.	
Timing	Bat boxes can be installed at any time of year following the cessation of construction works.	
Other Notes	Note that bat boxes can only be internally inspected by licensed bat workers. If the specific boxes detailed above are not available at time of purchase, similar boxes may be used, although advice should first be sought from an ecologist.	

References	https://www.barkboxes.co.uk/product/large-twin-crevice/ (Accessed: 6th January 2026) https://www.barkboxes.co.uk/product/kent-type-twin-crevice/ (Accessed: 6th January 2026 https://www.barkboxes.co.uk/product/bat-chamber/ (Accessed: 6th January 2026)

Suitable Examples of Insect Hotels		
National Trust Insect Tower for a variety of insects (or similar)		Designed to provide habitat for a range of insects. The nesting tubes are for solitary bees, vertical slots are for butterflies, refuge holes are good for ladybirds and lacewings and pinecones for a variety of species.
Schwegler *Hymenoptera* nesting box (or similar)		Hardwood nesting aid for *Hymenoptera* such as wild bees, sand wasps and common wasps. They live and occupy existing holes. Natural numbers of these features are decreasing with arable cultivation.
Schwegler Clay and reed box for a variety of insects (or similar)		Reeds either side and clay with holes in the centre provides a range of habitats for a variety of insect species.
Siting	The nest boxes should be sited in trees and should be angled so that they face away from the prevailing wind or in a semi sheltered environment within a sunny area.	

Suitable Examples of Insect Hotels	
Timing	Boxes can be installed at any time of year following the cessation of construction works.
References	https://www.nhbs.com/schwegler-clay-and-reed-insect-nest (Accessed: 6th January 2026) https://www.nhbs.com/schwegler-insect-nesting-aid-hardwood (Accessed: 6th January 2026) https://www.nhbs.com/insect-tower (Accessed: 6th January 2026)

ANNEX 6.2: HIBERNACULA SPECIFICATIONS

Suitable Hibernacula	
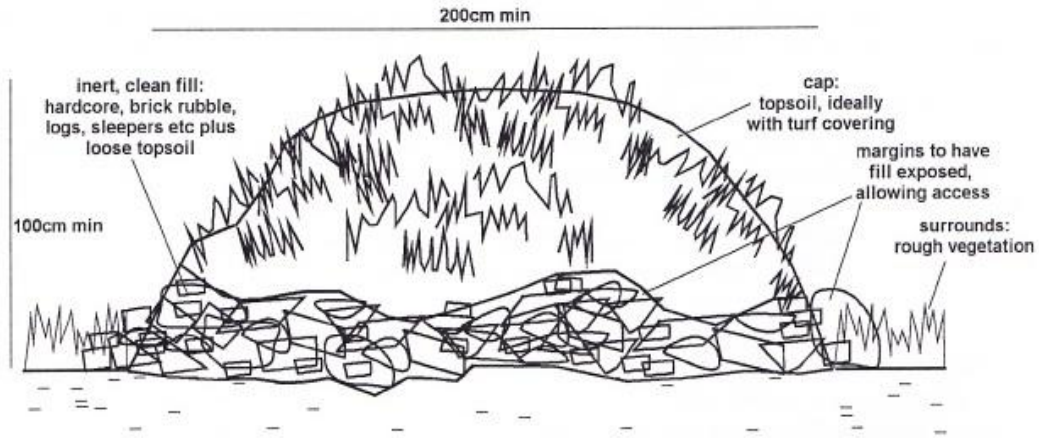	
Illustration of a hibernacula measuring 1m x 1m x 2m in height (taken from English Nature, 2001).	
	
Photograph of a haitat enhancment for biodiversity.	
Siting	One loacted within woodland or grassland close to field boundary habitats. Exact location should be detemined by an ecolgist/ ECoW.
References	English Nature (2001). *Great Crested Newt Mitigtaion Guidelines*, English Nature, Peterborough.

ANNEX 6.3: PRECAUTIONARY WORKING METHOD STATEMENT (PWMS)

The following Method Statement outlines suitable measures to be implemented during construction works associated with the proposed solar development to avoid the disturbance, injury or killing of individual badgers, hazel dormice, amphibians, reptiles and small mammals (e.g., hedgehog).

Measures to ensure the favourable conservation status of the species during the Proposed Development must reflect legislation and guidance application at the time and the construction phase will be undertaken following suitable measures under the supervision of an Ecological Clerk of Works (ECoW) as required to provide advice.

BADGERS

Method Statement Objectives

The following Method Statement outlines suitable measures to be implemented during construction works associated with the proposed solar development to avoid the disturbance, injury or killing of individual badgers.

Measures to ensure the favourable conservation status of the species during the Proposed Development must reflect legislation and guidance application at the time and the construction phase will be undertaken following the PWMS under the supervision of an ECoW as required to provide advice. For works within 30m of any newly identified setts, this PWMS alone is considered to be insufficient, with certain works requiring licenced mitigation from Natural England and an independent, detailed Method Statement.

This PWMS relate to small scale removal of optimal habitat including hedgerows, scattered scrub, and tall grassland, and should not be employed for larger scale or extensive habitat removal. Minor or short term destructive or disturbance works (e.g., grid connection, cable laying, ground mountings, construction of substations) will also follow this Method Statement to ensure legal compliance and to ensure the objectives are achieved.

Any unmitigated development related activities on the Site, including vegetation clearance or excavations in areas close to a badger sett may potentially damage a sett or disturb a badger occupying a sett. As a result, safeguards must be implemented to protect setts and the Method Statement below details measures to be implemented to ensure these objectives are achieved.

Method Statement

This Method Statement should be followed for the entire construction phase. Minor or temporary works will also follow this Method Statement to ensure legal compliance and to ensure that no significance disturbance (beyond that typically encountered) on badgers or their setts results from the Proposed Development.

Mitigation

The following mitigation measures will be adopted throughout the construction phase of the development:

- Prior to any construction works commencing all site operatives will be informed by 'tool box' talk, which will detail site specific ecological constraints and protected species issues relating to this Site;
- Prior to the commencement of development activities (within two weeks) an update badger sett check/survey will be undertaken by a suitably experienced ecologist;
- If any setts are identified, a 30m buffer area will be applied around active / potentially active badger sett entrances, clearly demarcated in a way that permits the free movement of badger (e.g., using

barrier tape or fencing with a sufficient gap at ground level). A badger licence may be required before works can continue within this buffer area;

- . The 30m buffer zone will be fenced off in order to clearly define working zones and prevent encroachment, with no clearance works, vehicle movements, tool/equipment storage or other construction activity to take place within this defined radius;

- No trenches/excavations will be left open over night without the creation of sloping escape ramps for badgers, which may be achieved by edge profiling of trenches/excavations or by using planks placed into them at the end of each working day. Ideally, open excavations / trenches should be covered overnight or other measures taken to prevent badgers entering or falling into such features.

- Any areas of soil to be stored for any period of time should be fenced to deter use by badgers and/or checked daily by site staff to ensure no attempted creation of new setts by badgers (soil bunds hold great potential for sett creation). The appointed ecologist will be contacted to undertake an assessment, if necessary;

- No works will take place between sunset and sunrise (i.e. no night time working) within 50m of an active badger sett and security lighting (if used) will not be directed towards any of the setts;

- Care and diligence will be used at all times; as new holes could be opened up in a short period of time. If any suspected badger holes are observed, works in that area should stop and further advice sought from the appointed ecologist;

- In the unlikely event that an exposed badger tunnel is suspected, all works at this location will cease immediately, the tunnel if exposed will be covered using wooden boards and the trench immediately back filled, as advised by the appointed ecologist;

- Chemicals will be stored in a designated and secured compound located as far away from the badger setts as possible; and,

- Suitable pollution prevention and control measures that prevent negative effects occurring to the badger setts on and adjacent to site, will be adopted during the proposed developments construction and operational periods.

If a suspected badger sett is found during the construction period, works must stop within 30m of the sett and an ecologist/ ECoW must be notified immediately so they can advise appropriate further action.

A 30m buffer must be implemented around the sett entrance and no further works undertaken within this zone. A badger licence to disturb or temporarily close the sett may be required before any works can re-commence in this buffer zone.

Hazel Dormouse

Summary of Method Statement

Any clearance of habitats, including proposed hedgerow translocation works, of potentially suitable for hazel dormouse (hedgerow and woodland) will be carried out by hand or light machinery using either the 'single-stage clearance' approach or 'two-stage clearance' approach (Wells *et al.,* 2025[13]), whilst under the direct supervision of a suitably licensed ecologist and/or accredited agent.

Search and Habitat Clearance

Prior to habitat clearance and translocation works commencing in suitable hazel dormouse habitats, a detailed inspection of all such vegetation to be removed/impacted will be undertaken by the supervising ecologist in order to ensure no hazel dormice are present. Translocation and removal of 11.5 m hedgerow proposed in October should also be first checked by the ecologist.

Potential impacts of killing and injury during site clearance will be mitigated using the 'single- stage clearance' approach (Wells *et al.,* 2025). The 'single-stage clearance' approach involves removal of <150 m vegetation per day progressively towards retained dormouse habitat while dormice are active. Clearance should occur in spring (May) or autumn (mid-September to the end of October). The proposed 11.5 m of translocated hedgerow should therefore occur in October (to comply with translocation best practice, the single-stage clearance approach and avoidance of other species hibernation periods).

If works are proposed during the dormouse hibernation period between November – March, vegetation will be 'soft' felled following the 'two-stage clearance' approach (Wells *et al.,* 2025), in order to avoid impacts on potential dormouse hibernation habitat, such as tree/hedge 'stools' and exposed roots (no ground clearance will take place in these habitats during this period). This involves the removal of above ground vegetation to <0.3m (stumps sometimes >0.5m if translocated) between November and March, followed by stump removal and ground disturbance in spring. Felled tree sections may be logged into approximately 2m lengths and piled away from proposed works areas to provide wildlife habitat (including summer and winter nest/hibernation sites for dormice). As a precautionary measure, remaining stumps that may provide places of shelter and hibernation should only be removed the following April/May.

All clearance will be undertaken by an appointed contractor under the supervision of a suitably qualified/licenced ecologist using hand tools or light machinery, and will be sensitive to the likelihood of disturbing dormice. Vegetation will be gradually reduced to stump level, with all cut brash stacked in habitat piles or chipped into piles at suitable locations around the Site (outside of the proposed development works areas in retained woodland habitats), as directed by the ECoW to provide habitat for invertebrates, small mammals (including dormice), amphibians and reptiles.

Site operatives will be informed by a 'tool box', which will detail the potential for protected species to occur on-Site, what to look out for and what to do in the event that animal is found.

If a hazel dormouse is found during site clearance or construction periods, works must stop immediately, and contact should be made with a suitably qualified/licenced ecologist for advice. Further works potentially affecting dormice would require a European Protected Species Mitigation Licence to legally proceed.

[13] Wells, D., Chanin, P. and Gubert, L. (2025). *The Dormouse Mitigation Handbook*: *Third edition.* Gloucester, Mammal Society.

Amphibians, Reptiles and Small Mammals

Summary of Method Statement

Common species of amphibian and reptile, as well as notable small mammal species such as hedgehog, may be present within the Site, particularly within field boundary and woodland habitats. The following Method Statement outlines suitable measures to be implemented during construction works to avoid the potential for disturbance, injury or killing of individual amphibians, reptiles and small mammals.

This PWMS relates only to minor or short term destructive or disturbance works (e.g., small scale vegetation removal, cable laying, hedgerow translocation). All such works will follow this Method Statement to ensure legal compliance and to ensure the objectives are achieved. They will not be employed for larger scale or extensive scrub, woodland or hedgerow habitat removal.

Vegetation clearance works including grassland greater than 15 cm in height will be supervised by a suitably experienced ecologist.

Method Statement

This Method Statement will be followed for the construction works and associated minor, short term destructive habitat clearance works within the Site, as listed above in order to ensure legal compliance and to ensure the objectives are achieved.

The following measures will be adopted throughout the construction period of the Proposed Development:

- Site operatives will be informed by 'tool box' talk of the potential for protected species to occur on-Site, what to look out for and what to do in the event that animal is found.

- The timing of any proposed ground level tree, hedgerow or woodland works should avoid the hibernation period (November to February inclusive). This will reduce individual animals being disturbed during hibernation, if present.

- Ground works undertaken in suitable habitat areas should be undertaken in daylight hours only, to avoid the periods when newts (including GCN) and small mammals such as hedgehog are most active and mobile.

- Vegetation clearance works of suitable terrestrial habitats will only commence after a careful visual inspection by a ECoW has determined that no animals are present. Vegetation should be reduced (by hand strimmer) to a height of c.150 mm prior to ground works commencing to aid visual searches and encourage individuals to temporarily move away from the working areas.

- Trenches and excavations will include an escape route for animals that might enter the trench, especially if left open overnight. Ramps should be no greater than 45 degrees in angle and can include wooden planks or ramped earth. Any excavations open for a prolonged period will be covered.

- All excavations left open overnight or longer will be checked for animals prior to the continuation of works or infilling.

- Any excavated material stored overnight will be searched prior to being used as infill.

- Any brash cut down from the Site should be placed in piles within the set aside habitat area, to create additional hibernacula for both amphibian and reptile species.

Should a great crested newt be found at any point during construction, works must cease immediately and the ECoW will advise on the appropriate actions, including applying for a licence, if required.

Should a notable small mammal species (such as hedgehog), reptile or other amphibian species be found at any point during construction, works must cease immediately and the animal be allowed to move away of its own accord. The ECoW should be contacted and will advise on the appropriate actions including translocating the individual animal within a pre-designated receptor area (such as retained woodland or hedgerow feature), comprising of terrestrial habitats which will not be impacted by the proposed works and have excellent connectivity with surrounding terrestrial habitats.