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Ecological Management Plan

Client

Cellarhead BESS Ltd.

Project

Cellarhead Battery Energy Storage System

Staffordshire

Date

November 2025

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Figure 1: Ecological Enhancement Plan

Rev	Issue Status	Prepared/Date	Approved/Date
-	Final	EM2/ 23/10/25	ERD / 07.11.25
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1.0 INTRODUCTION

- 1.1 The following Ecological Management Plan (EMP) has been prepared by FPCR Environment and Design Ltd. (FPCR) on behalf of Cellarhead BESS Ltd., for the Battery Energy Storage System proposals at Cellarhead, Staffordshire (central grid reference SJ 94780 49302), hereafter referred to as 'the Site'.
- 1.2 The following document is based on the proposed habitats set out within the Landscape Mitigation Softworks Planting Plans (Sirius Planning 2025 drawing number: SRE1164 07 01), and provides details of the proposed mitigation and enhancement measures for newly created habitats within the Site and Off-site Mitigation Land and their long-term management and review.
- 1.3 The EMP has been prepared to inform the discharge of Condition 21 of Planning Consent SMD/2022/0548, which states:

21. Notwithstanding the submitted detail, no development including site stripping and site clearance shall commence until such time that a Landscape and Ecology Management Plan (LEMP) has been submitted to and approved in writing by the Local Planning Authority. The LEMP shall be based on the Biodiversity Impact Assessment January 2022, the Ecological Appraisal dated December 2021 and the Landscape Mitigation Plan 10541-L-01G. The LEMP shall amongst other matters provide:

- a) Details of the proposed habitat enhancement, creation and management of the proposed off site mitigation on land immediately to the south of the site*
- b) Details of habitat creation and species enhancements on site*
- c) Updated BNG calculation using latest Defra metric and UK Habs baseline and post intervention plans*
- d) Soil preparation details*
- e) Appropriate planting/ seeding specifications*
- f) Timescale for implementation*
- g) Long-term habitat management plan*

The development shall be carried out strictly in accordance with the approved LEMP.

- 1.4 This document should be read in conjunction with the Landscape Maintenance and Management Plan (LMMP) (Sirius Planning, October 2025) produced in accordance with Condition 14. Note that where duplicate elements are required within Condition 14 that reference landscape specific operations, these are addressed within the LMMP.
- 1.5 The updated Biodiversity Net Gain (BNG) Metric and associated plans which address Item C of Condition 21 have been submitted separately to this document.

Site Context

- 1.6 The Site is located to the north of Werrington, near Stoke-on-Trent in Staffordshire, and currently comprises two modified grassland fields bound and divided by native hedgerows and trees. Electricity pylons are present in the north-west of the site.

- 1.7 As part of the Biodiversity Net Gain Assessment (FPCR, January 2022) undertaken to inform the Planning Application (SMD/2022/0548), it was identified that an additional area of land would be required to facilitate a net gain from the development proposals. An area of land to the south of the Site boundary, the Off-site Mitigation Land, was subsequently included within the application area. Biodiversity enhancements are proposed within this Off-site land, details of which are provided within this EMP.
- 1.8 This EMP provides management prescriptions for retained, enhanced and proposed habitats in association with the Biodiversity Net Gain requirements. All landscape areas and management regimes will be monitored by the developer along with the appointed Management Company to allow for an appropriate refinement or revision of the Plan, so long as the modifications are in accordance with the aims and objectives set out herein.
- 1.9 The Plan will be reviewed every year for the first 10 year period (as detailed in the LMMP), and every 5 years following this. It is expected that following each 5 year period, the proposed practices and resultant habitats and landscape areas are reviewed alongside the Ecological Management Plan (EMP) and LMMP. This review (carried out by a suitably qualified Ecologist) will form part of the regular monitoring programme for the Site and will determine the future management. The Plan will be updated as required for the full duration of operation (40 years).

2.0 LANDSCAPE MANAGEMENT PROPOSALS AND ECOLOGICAL ENHANCEMENT

- 2.1 The design proposals for the Site are set out within the Landscape Mitigation Softworks Planting Plan (Drawing Number: SRE1164 07 01). Management principles are devised for the following landscape elements that are proposed or existing within the Site at present.
- Other Neutral Grassland
 - Native Hedgerow with Trees (see accompanying LMMP)
 - Native Scrub Mix Planting

3.0 MANAGEMENT AIMS AND OBJECTIVES

Long Term Landscape and Ecological Management Objectives

- 3.1 The main objectives for the Site are to maintain, protect and enhance the nature conservation value of the retained habitats and provide new habitats to maximise biodiversity within the Site in accordance with the requirement of both local and national planning policy. Sympathetic management of new and retained habitats will aim to encourage the natural dispersal of wildlife within the Site and surrounding habitats and will contribute to the maintenance of ecologically valuable habitat in the long-term.
- 3.2 The habitats created and enhanced will provide resources for use by a wide variety of species including birds, bats and invertebrates.

Objectives

- 3.3 This plan promotes the following objectives for Site management:

Objective 1

- 3.4 Maintain, protect and enhance the existing nature conservation value of retained features as part of Site development works, in order to maintain opportunities for species such as bats.

Objective 2

- 3.5 To create a variety of new habitats to improve the ecological value of the proposed development and maximise their value through appropriate management ensuring connectivity is maintained and created.

Objective 3

- 3.6 To monitor and manage retained and newly created habitats throughout the management period to ensure ecological diversity is maintained in the long term. Feedback from Site monitoring should be applied to appropriate refinement or revision of the plan, so long as the modifications that are agreed are in accordance with the aims and objectives set out herein.

4.0 HABITAT ENHANCEMENT / CREATION**Other Neutral Grassland (Meadow and Wet Grassland)**

- 4.1 Moderate condition Other Neutral Grassland has been targeted within the Biodiversity Net Gain Metric within the Site boundary and Off-site Mitigation Land to the south. This is largely to be seeded with a meadow grassland mixture, except within the proposed infiltration basin and swales where a wet grassland mixture is to be sown. A 15m buffer has been excluded from this target habitat as works may not be feasible in these areas.

Soil Preparation

- 4.2 To discourage more robust plant species and maintain low nutrient grassland, no topsoil or fertiliser will be used in the creation of this Other Neutral Grassland.
- 4.3 The Biodiversity Impact Assessment (FPCR, January 2022) included recommendations for soil preparation measures to reduce nutrient levels. The most appropriate method for nutrient level reduction is a period of cutting and removal of the existing grass clippings for the first one or two years until nutrient levels are sufficiently reduced, before moving on to sowing the meadow grassland seed mix. Alternative methods such as soil inversion may be appropriate, which involves deep ploughing of the soil to bury the topsoil under a layer of nutrient poor subsoil. The exact ploughing depth would be determined by the depth of topsoil present however is typically around 80cm. A specialist contractor should be contacted to advise on the practicalities of this method for the Site.
- 4.4 The methodology for cut and removal is outlined below.
- 4.5 Perform two years of grass cutting, with an initial cut in June followed by a second cut in August or September. After each cutting, remove all clippings, and do not apply any fertilisers or other inputs.
- 4.6 Clippings can be placed around the base of newly planted scrub and along wooded edges where woody growth is desired, but they should not be near grassland areas that require low fertility.

- 4.7 Perform soil nutrient testing during autumn if year 2 to evaluate the effectiveness of the nutrient-stripping process. If the phosphorus levels have an index of 2- 3 or below, the stripping is considered successful, and the next phase can begin. If the levels are above this index, a second cycle of stripping will be conducted before proceeding.

Sowing

- 4.8 The next phase can commence in year 2. Cut the grass as short as possible between late July and September, ideally in late August, and remove all the grass clippings.
- 4.9 Scarify the grassland using a disc and/or chain harrow three times in immediate succession, changing direction each time to create at least 50% bare ground.
- 4.10 Broadcast the seed mix using the Emorsgate EM2 General Meadow Mix (or similar approved) at a rate of 40 kg per hectare. Sow the seeds when the soil is saturated but not flooded, ideally in calm wind conditions. After sowing, roll the seed to ensure it is properly bedded in.
- 4.11 There is likely to be a flush of annual weeds. While these weeds can look unsightly, they will offer shelter to sown seedlings and are great for invertebrates. Therefore, do not cut the annual weeds until mid-to late summer in year 3. Then, cut, remove and compost.
- 4.12 Maintain short grass during year 3 and dispose of all clippings. Mow or trim the grass monthly during the growing season to manage weed and grass growth while promoting the spread of perennial species. If mowing is needed before July, cut above the height of the germinated yellow rattle plants to enable this annual species to bloom and produce seeds. Avoid applying any fertiliser.
- 4.13 Areas to be sown with Emorsgate EM8 Meadow Mixture for Wetlands (or similar approved) will be sown during early autumn or in spring once the land has drained.

Management

- 4.14 The condition of the grassland areas will be reviewed within 6 months of its original seeding and any areas which have failed to establish would be re-seeded.
- 4.15 Following the initial year of its creation, the condition of grassland will be reviewed for the first 2 years for any areas of pernicious weeds (i.e. docks *Rumex* spp., thistles *Cirsium* spp. or ragwort *Jacobaea* spp.), which will be controlled by hand pulling or the spot-application of target herbicides if deemed necessary.
- 4.16 In the second year and subsequent years, management to maintain the structure of the meadow grassland will entail annual grass cuts from late-July onwards, after wildflower seeds have set. Leave the 'hay' to dry and shed seed for 1-7 days, then remove from site.
- 4.17 Mow the regrowth through to late autumn/winter to circa 50mm and again in spring if needed.
- 4.18 Cut or hand-pull, or use glyphosate spray, to spot-treat affected areas of pernicious and/or invasive weeds before they seed in late summer.
- 4.19 Details of Biodiversity Net Gain target conditions and habitat management measures required to achieve these can be found in Table 1 below.

Other Neutral Grassland (Tussock and Embankment Grassland)

- 4.20 Poor condition Other Neutral Grassland has been targeted within the Biodiversity Net Gain Metric. This is to be seeded around the peripheries of the Site, between the proposed bund and adjacent boundary hedgerows which are to be retained. Seed mixes include a tussock mixture adjacent to hedgerows and an embankment mixture on the bunds.
- 4.21 As the Embankment Grassland is only proposed as a temporary habitat to aid slope stability before the scrub planting establishes, this has not covered in this EMP. Measures for soil preparation, sowing and management of this are included within the LMMP.

Soil Preparation

- 4.22 As above, the areas to be sown will be raked or harrowed to produce a medium fine tilth. All stones over 30mm in diameter will be removed, and no topsoil or fertiliser should be used in the creation of this Other Neutral Grassland.

Sowing

- 4.23 Areas to be sown with Emorsgate EG10 Tussock Grass Mixture (or similar approved) will be sown during spring (April/early May) or preferably the optimal period for lowland sites of autumn (late August to September), selecting a time when the soil is moist and can be worked.

Management

- 4.24 The condition of the grassland areas will be reviewed within 6 months of its original seeding and any areas which have failed to establish would be re-seeded.
- 4.25 To control any flush of annual weeds, the grassland would first be cut during mid to late summer and then can be kept short by mowing through the following year. All arisings will be removed within a 48-hour period to a designated composting area or removed from site.
- 4.26 Following the initial year of its creation, the condition of grassland will be reviewed for the first 2 years for any areas of pernicious weeds (i.e. docks *Rumex spp.*, thistles *Cirsium spp.* or ragwort *Jacobaea spp.*), which will be controlled by hand pulling or the spot-application of target herbicides if deemed necessary.
- 4.27 Following establishment tussock grassland will be cut on a rotational basis to a height of 150mm every 2-3 years. Cutting will take place between October-February ensuring that no more than half the area is cut in any one year leaving part as an undisturbed refuge.
- 4.28 Details of Biodiversity Net Gain target conditions and habitat management measures required to achieve these can be found in Table 1 below.

Mixed Scrub

- 4.29 Moderate condition mixed scrub has been targeted within the Biodiversity Net Gain Metric. This is to be planted along the northern, eastern and southern boundaries of the Site. This will create a continuous linear feature and provide a foraging and commuting resource for bats and small mammals and suitable nesting and foraging habitat for birds.

Planting

- 4.30 The scrub mix will comprise native species and a list can be found within the accompanying LMMP document. The scrub will have at least three woody species with no one species

comprising more than 75% of the cover and shrubs will be allowed to self-set, promoting the presence of seedlings, saplings, young shrubs and mature shrubs.

- 4.31 Planting will be undertaken between November and March, avoiding periods of inundation or prolonged ground frost; and suitable guards, fencing, or shelters will be used to protect plants from damage, where appropriate, until established. The tree guards will be removed once the trees and shrubs are established.

Management

- 4.32 During establishment, weeding by hand or using glyphosate as appropriate will be undertaken around the base of the plants, three times per year (from mid-April to late September) and specimens watered as necessary during dry weather.
- 4.33 Within the first 5 years of being planted all failing/failed trees are to be replaced with a plant of either the same species or similar species as those existing. This is to allow some flexibility and to avoid problems encountered with 'Same Tree Disease'.
- 4.34 Details of Biodiversity Net Gain target conditions and habitat management measures required to achieve these can be found in Table 1 below.

Individual Trees

- 4.35 The location of individual trees to be planted are shown on the Landscape Mitigation Softworks Planting Plans (Sirius Planning 2025 drawing number: SRE1164 07 01). Planting is to comprise native species as detailed within the LMMP. The LMMP provides detailed planting and management prescriptions for the proposed trees, with additional information provided in Table 1 below to ensure the Biodiversity Net Gain target conditions can be met.

Native Hedgerow with Trees

- 4.36 The location of retained and proposed hedgerows to be planted are shown on the Landscape Mitigation Softworks Planting Plans (Sirius Planning 2025 drawing number: SRE1164 07 01). Planting is to comprise native species as detailed within the LMMP. The LMMP provides detailed planting and management prescriptions for the proposed hedgerows, with additional information provided in Table 1 below to ensure the Biodiversity Net Gain target conditions can be met.

Management Plan

- 4.37 A Ten Year Management Works Programme is provided in the LMMP. Table 1 below provides the specific management measures required for the proposed habitat to meet their BNG target Conditions.

Table 1: Biodiversity Net Gain Target Condition Score Objectives

Feature	Target Condition	BNG-specific Habitat Management criteria to achieve BNG target
Other Neutral Grassland (including Species-rich Meadow Grassland and Wet Grassland)	Moderate	To create a diverse sward, a species mix such as Emorsgate EM2 – general meadow mixture (or similar) will be used. Emorsgate EM8 – meadow mixture for wetlands (or similar) will be used for planting within SUDs. To achieve the target condition, management prescriptions should meet the following criteria: • Soil preparation, sowing and annual management should aim to create a diverse grassland sward, where wildflower species (indicators for the other neutral grassland habitat) are very clearly and easily visible throughout the sward. • Annual management to prevent scrub/bracken encroachment spreading throughout the area. • Treatment to remove any invasive non-native species should they arise. • Targeted weeding/treatment to limit/remove undesirable species to below 5% ground cover (creeping thistle, spear thistle, curled dock, broad-leaved dock, common nettle, greater plantain, cow parsley). • Creation of a varied sward height through annual management, with half of grassland cut at one time and targeting at least 20% of the area to be cut short.
Other Neutral Grassland (Including Tussock Grassland)	Poor	To create a tussocky sward, a species mix such as Emorsgate EG10 – tussock grassland mixture (or similar) will be used. To achieve the target condition, management prescriptions should meet the following criteria: • Annual management to prevent scrub/bracken encroachment spreading throughout the area. • Treatment to remove any invasive non-native species should they arise. • Targeted weeding/treatment to limit/remove undesirable species to below 5% ground cover (creeping thistle, spear thistle, curled dock, broad-leaved dock, common nettle, greater plantain, cow parsley).
Mixed Scrub	Moderate	To achieve the target condition, management prescriptions should meet the following criteria: • For the first five years all dead and dying specimens are to be replaced with a tree/plant of either the same species or similar species as those existing. No one species should account for more than 75% of the cover. • Pernicious weeds and non-native species (creeping thistle, common nettle, cherry laurel, snowberry, buddleia, cotoneaster, Spanish bluebell) should make up less than 5% of the ground cover through treatment (if necessary); • Scrub will be managed to possess a well-developed edge with scattered scrub, tall grassland and/or herbs present between the scrub and adjacent habitat(s).

Feature	Target Condition	BNG-specific Habitat Management criteria to achieve BNG target
		Shrubs will be allowed to self-set, promoting the presence of seedlings, saplings, young shrubs and mature shrubs.
Newly Planted Trees	Moderate	To achieve the target condition, management prescriptions should meet the following criteria: - The large majority of trees will be native tree species in planting scheme. - Area beneath trees maintained as vegetation (not paved/gravelled over). - Pruning regime to be limited to that required to maintain tree health, with exception of public health and safety requirements. - Deadwood, cavities, ivy and loose bark allowed to develop to provide ecological niches. - Replace any failed specimens, undertaken as advised by a suitably qualified Arboriculturalist; - Maintain free of litter and self-seeded non-native plants.
Hedgerows with Trees	Good	To achieve the target condition, management prescriptions should meet the following criteria: - Failed specimens will be replaced during establishment on a like-for-like basis. - Hedgerows will be managed to encourage tall, wide and bushy features year (minimum 1.5m high and 1.5m wide) with only one side of hedgerows cut each. - Fertiliser use will be prohibited within grasslands in the Site boundary that are adjacent to hedgerows to reduce nutrient enrichment. - Gaps make up <10% of total length and no gaps are >5m. >90% of hedgerow and adjacent ground is free of invasive species. - A minimum of 1m adjacent to the hedgerows will be managed as 'undisturbed' ground where possible. Management of grasslands within these areas adjacent to hedgerows will be in line with the management of meadow grasslands. - Once new hedgerows have established they will be managed on rotation along with the existing hedgerow resource with the aim of encouraging the establishment of tall, bushy structures. - There should be at least one mature tree per 30m of hedgerow. - At least 95% of hedgerow trees are in a healthy condition, with little or no evidence of damage or disease.

Additional Measures for Faunal Species

- 4.38 Although the above measures will create additional foraging and commuting habitat for a wide range of wildlife, the following species-specific measures are also recommended.

- 4.39 Details regarding species precautionary measures can be found within the Construction Ecological Management Plan (CEMP)¹.

Bats

- 4.40 Additional enhancement will include the erection of 3 bat boxes. Bat boxes will be installed on mature trees within the Site boundary and will comprise Schwegler 1FF flat bat box (or similar type/design).
- 4.41 Bat boxes will be installed at least 3m from the ground on the southern or eastern aspects of the indicative tree location (see Figure 1) adjacent to areas of proposed green space and potential commuting/foraging habitat. Bat boxes should also be positioned away from any proposed artificial lighting.
- 4.42 Inspection of bat boxes should be undertaken to ensure they are in place and in good condition. Bat boxes are generally designed to be self-cleaning; however, a build-up of droppings and cobwebs/debris can occur over time. Therefore, if cleaning is required this should be undertaken outside of the active bat season in the autumn and winter (October to March, inclusive) when bats are less active and less likely to be present. Please note, that once bats have inhabited a roost (which includes confirmation of the presence of bats and/or their droppings), they may only be disturbed by a Licensed bat worker to ensure legal compliance with current wildlife legislation.

Birds

- 4.43 Additional Enhancement will include the erection of 3 bird boxes. Bird boxes will be installed on mature trees within the Site boundary and will comprise a mixture of Schwegler 1B (26mm and 32mm) Nest Boxes (or similar type/design)
- 4.44 Bird boxes should be installed at a height of 3-5m between a northern and eastern aspect (see figure 1) and will be adjacent to areas of proposed green space.

5.0 ROLES AND RESPONSIBILITIES

- 5.1 Retained and newly created habitats will be managed and monitored throughout the period of this plan to ensure their ecological diversity is maintained in the long term in tandem with their safety and use. Feedback from site monitoring should be applied to appropriate refinement and/or revision of the plan, so long as the modifications that are agreed are in accordance with the objectives set out above.
- 5.2 The construction phase and post construction management phase will be carried out by specialist contractors and overseen/coordinated by the Construction Site Manager(s). Post-construction monitoring will be undertaken/coordinated by a dedicated management company.
- 5.3 It is envisaged that Appointed Management Company will oversee the required landscape management operations and undertake future reviews of this management plan.

¹ FPCR Environment and Design Ltd. (October 2025)- Construction Ecological Management Plan (CEMP)

6.0 REVIEW OF MANAGEMENT PLAN

- 6.1 The management plan should run for the duration of the operation (40 years), with the work programme fully reviewed every year for the first ten-year period, and then subsequently reviewed in years 15, 20, 25, 30, 35 and 40 by a suitably qualified and experienced ecologist and arboriculturist.
- 6.2 This is an adaptive management plan; over time, it may be necessary to adjust management measures according to the success of the outcomes. The results of the review should be used to inform changes to the management plan and work programme. The management and monitoring schedule is provided within the accompanying LMMP document.

FPCR Environment and Design Ltd

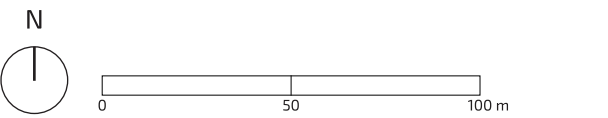
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- Key
- Site Boundary
 - Off-site Boundary
 - Indicative Bat Box Locations
 - Indicative Bird Box Locations



Schwegler 1FF bat boxes



1B Schwegler bird box
(26mm and 32mm)

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client	The Sirius Group		
project	Cellarhead, Staffordshire		
title	Ecological Enhancement Plan	scale	1:2,000 @ A3
number	FIGURE 1	rev	-