

Ecological Mitigation Scheme & LEMP

June 2026

Project Reference: PR-26-0123

Larkins Farm
Gellings Lane
Knowsley
L34 9EN

National Grid Reference: SJ 414 962



Larkins Farm, Gellings Lane, Knowsley, L34 9EN
Ecological Mitigation Scheme & Landscape and Ecological Management Plan

Document Title	Ecological Mitigation Scheme & Landscape and Ecological Management Plan
Project Reference	PR-26-0123
Issue Number	1.0
Prepared for	MAT Design Ltd
Prepared by	Tyrer Ecological Consultants Ltd

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Review date	29/05/2026	01/06/2026
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Date of issue	02/06/2026	

Revision	Date	Amendment
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1.0 Introduction & Objectives

- 1.1 As part of a granted planning application with Knowsley Council (Ref.: 23/02676/FUL¹) regarding the development of a solar farm at Larkins Farm, Tyrer Ecological Consultants Ltd were commissioned to carry out a Biodiversity Net Gain (BNG) Assessment (see **External Appendices**). See **Figure 1.1** for a proposed site plan.

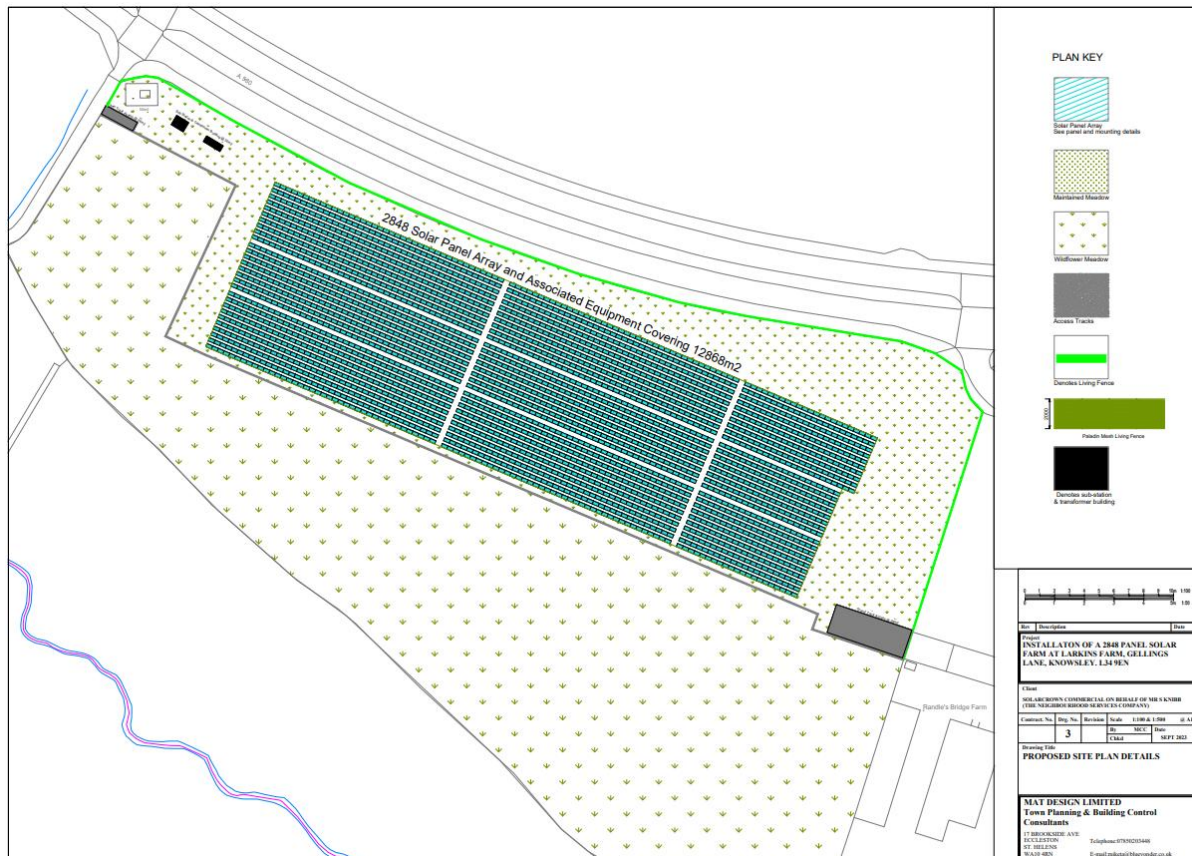


Figure 1.1 – Proposed Site Plan (MAT Design Ltd)

- 1.2 The nationwide introduction of mandatory Biodiversity Net Gain (BNG) required by the Environment Act 2021 was implemented in February 2024 for major applications and April 2024 for minor applications. In summary, all developments, with minor exceptions, are required to achieve a 10% net gain in biodiversity units as calculated using the Defra Statutory Metric.
- 1.3 Whilst this application was submitted prior to the national requirement, the application still achieved a net gain above 10%, as output by the then relevant BNG Metric v4.0, which predated the Statutory Metric. As per the assessment, the scheme was projected to achieve a **65.85% net-gain** in **Habitat units** and **70.03% net-gain** in **Hedgerow units**.
- 1.4 In July 2024 the application was granted consent with conditions, a number of which pertain to ecological matters. Of these conditions, two align with the aforementioned BNG assessment, namely:

“3. Prior to commencement of the development, a scheme of ecological mitigation shall be submitted to and approved by the local planning authority. The ecological mitigation scheme shall deliver an enhancement in biodiversity in line with the Biodiversity Net-gain Assessment. This shall provide a minimum 65.85% net gain in Area units and a 70.03% net gain in Linear

¹ See: <https://planapp.knowsley.gov.uk/online-applications/applicationDetails.do?activeTab=externalDocuments&keyVal=S1AGF5IXGN100>

units. The approved ecological mitigation scheme shall be implemented before the approved development is brought into use or in accordance with a timescale previously approved in writing by the Local Planning Authority.”

And:

“8. Prior to the generation of electricity from the site, details of a Landscape and Ecological Management Plan shall have been submitted to and have been approved by, the local planning authority. All works shall be carried out in accordance with the approved details and retained as such hereafter.

The Plan should include the following:

*Description and evaluation of the features to be managed;
Ecological trends and constraints on site which may influence management;
Aims and objectives of management;
Appropriate management options for achieving aims and objectives;
Prescriptions for management actions;
Preparation of a work schedule (including an annual work plan and the means by which the plan will be rolled forward annually);
Personnel responsible for implementation of the plan;
Confirmation of funding and ownership and details of a programme of monitoring and remedial measures triggered by monitoring.”*

- 1.5 Tyrer Ecological Consultants Ltd have therefore been commissioned to produce a Biodiversity Enhancement Scheme and Landscape and Ecological Management Plan (LEMP) in order to fulfil Conditions 3 and 8 of the granted permission and enhance the site in line with the approved BNG assessment.
- 1.6 The final two points of Condition 8, regarding personnel and funding, lie outside of the remit of Tyrer Ecological. As such, this LEMP will not aim to address these points, which will instead be confirmed by the applicant.

Aims

- 1.7 This Biodiversity Enhancement Scheme and LEMP which will include the following:
 - A summary of the habitat forecast to be lost;
 - Creation methods for proposed compensatory planting to be undertaken;
 - Management and maintenance schedules for the proposed habitats for a period of five years.
- 1.7 The general aims for the management and maintenance on this specific site include the following:
 - Protection of the retained habitats including hedgerows and grassland during construction
 - Maintain and manage newly created habitats to deliver ecological aims and objectives of the proposals outlined within the site associated landscape plans, ecological appraisal, and other design drawings and proposals.
 - Ensure maintenance of site landscaping and habitats in a safe and secure condition.
 - Allow hedgerows and other herbaceous plants to reach their potential to ensure that they produce flowers and seed heads and grow in their natural shape and form to provide texture and interest.

- Ensure all vegetation and habitats are maintained to a good standard and state of repair so that they do not have the potential to cause harm to any residents.
- Manage planted hedgerows and grassland on site to ensure the planting remains in favourable condition.
- Appoint a Wildlife Champion to monitor any wildlife boxes / biodiversity enhancement features and replace if damage is observed.

- 1.8 The management company appointed by the developer (MAT Design Ltd) will be responsible for habitat creation, management, and maintenance within the site; at this stage it is unknown whether the monitoring will be undertaken by the local authority or via a private firm. Regular inspection of the site, keeping records of all work, inspections, issues and corrective action will be required. These records will feed into the wider monitoring of the site in accordance with Biodiversity Net Gain legislation and this report. A list of Maintenance Operations will be included to help inform the body which takes on the management and maintenance of this landscape.

NB: *The body managing the habitat does not need to be an ecologist, but should be familiar with the Tyrer Ecological report(s) as a minimum, the projected aims and objectives for the site, target habitat conditions, ecological sensitives and have sufficient authority and presence to influence activities. In the event of any uncertainty about ecological issues surrounding the habitat, the body is responsible for contacting an Ecologist.*

Possible Constraints to Management & Maintenance

- 1.9 Any management that would result in offences under protective legislation pertaining to wildlife cannot be undertaken. As such, management and maintenance provisions are devised to ensure conformity with all relevant legislation, which includes (but is not limited to); the Wildlife and Countryside Act (WCA) 1981 (as amended) and the Conservation of Habitats and Species Regulations 2019 (EU Exit) (as amended).
- 1.10 As per the findings of the Preliminary Ecological Appraisal (PEA) (**External Appendix**) undertaken by Tyrer Ecological Consultants, the key species groups which have the potential to be present on-site post-development and therefore require careful consideration during any management in the post development stage are:
- **Breeding birds:** All wild birds, no matter how common, their eggs, young and nests, whilst being built or occupied are protected under both the Wildlife and Countryside Act (WCA 1981) and Natural Environment and Rural Communities Act (NERC Act 2006). Birds listed on Schedule 1 of the WCA 1981, for example barn owl (*Tyto alba*), are afforded a greater level of protection, and are protected also from disturbance. The new habitats being created during the proposed soft landscaping provide opportunities for nesting birds as they mature, and sufficient checks should therefore be made by the Wildlife Champion for any breeding birds during the months of May – September. Any areas containing breeding birds should be left alone until such time the nest site has been naturally abandoned.
 - **Amphibians:** Many amphibian species are protected under legislation, with common toad (*Bufo bufo*) being a UK Biodiversity Action Plan (UKBAP) species and common frog (*Rana temporaria*) legislated under a variety of local BAPs (LBAP), and great crested newt (GCN) (*Triturus cristatus*) are fully protected in all life stages by Schedule 2 of The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (SI 2019/579) and the Wildlife and Countryside Act (1981) (as amended). They are listed a priority species under section 41 (s.41) of the Natural Environment Rural Communities Act 2006 (NERC Act). Should a GCN be observed at any time during management operations then work should cease and an ecologist be contacted for further advice.

- **Terrestrial Mammals:** Many mammalian species are protected under legislation, badger (*Meles meles*) are protected under the Protection of Badgers Act (1992) and hedgehog (*Erinaceus europaeus*) listed as a priority species under Section 41 (s.41) of the Natural Environment Rural Communities Act 2006 (NERC Act). This species alongside other small mammals are likely to be present within the various proposed habitats, at least in a foraging/commuting capacity. Should evidence of any protected species be observed onsite, Reasonable Avoidance Measures may be necessary to limit any impacts to the species.
- **Invasive Species:** Schedule 9 (Part II) of the Wildlife & Countryside Act (as amended) (1981) – hereafter referred to as the “WCA” - and Schedule 2 of the Alien Invasive Species (Enforcement and Permitting) Order – hereafter referred to as the “IASO” – form the principal legislation surrounding invasive non-native species in the UK. These are species which are all alien but have become naturalised since their introduction, and now pose a lasting threat to both the economy and native biodiversity, outcompeting other species and sometimes causing structural damage or injury. Under the WCA Section 14(2)a, it is an offence to “plant or otherwise cause to grow in the wild any plant which is included in Part II of Schedule 9”. Schedule 2 of the IASO makes it an offence to import, keep, breed, purchase or release any listed invasive alien species. General biosecurity measures should be enacted by any contractor on site to prevent cross-contamination and the establishment of any invasive non-native species (INNS)

Limitations

- 1.11 The proposed enhancements contained within this LEMP have been informed by a combination of the original PEA, BNG Assessment, Biodiversity Enhancement Plan and eCEMP produced by Tyrer, ‘Proposed Site Plan’ (MAT Design Ltd) (**Figure 1.1** previous), ‘Living Fence and Wildflower Meadow Details’ (MAT Design Ltd), consultation with the applicant, and knowledge of appropriate botanical species for the region.

2.0 Baseline & Post-Development Site Description

- 2.1 The application site is situated on Gellings Lane in Knowsley, to the west of the M57. The site broadly comprises an arable field with tussocky margins and hedgerows. A summary of all baseline habitats identified is presented below in **Tables 2.1 – 2.2**, including area/length, condition summary, strategic significance and habitat/hedgerow units. For habitat specific condition assessment tables, please see **Appendix I**. These habitat classifications follow the UK Habitat Classification Version 1.1 utilised during the original BNG Assessment (now superseded by Version 2.0).

Table 2.1 – Baseline habitat parcels recorded within the site boundary

Habitat Reference	Habitat Type	Area (ha)	Condition	Strategic Significance	Habitat units
1	c1c (Cereal crops)	4.67	N/A	Formally identified in local strategy	10.74
2	g4 (Modified grassland)	0.19	Moderate	Formally identified in local strategy	0.87
3	s4b (Tall forbs)	0.02	Poor	Formally identified in local strategy	0.05

Table 2.2 – Baseline hedgerow habitats recorded within the site boundary

Hedge Reference	Habitat Type	Length (km)	Condition	Strategic Significance	Hedgerow units
1	h2a (Native hedgerow)	0.042	Poor	Formally identified in local strategy	0.10

- 2.2 The development proposals involve the creation of a solar farm, a substation, a transformer building and access, and associated landscaping. All of the cereal crop areas will be lost to facilitate this, but the grassland and tall forb edges will be retained and enhanced.
- 2.3 In respect of soft landscaping, the scheme and the measures detailed in this LEMP incorporate the creation of new areas of modified grassland throughout the site between and beneath the solar panels, creation of developed areas (the solar farm, transformer building, substation and access) and enhancement of the existing modified grassland and tall forb habitats to other neutral grassland, denoted as 'wildflower meadow' and 'maintained meadow' within the proposed plan, alongside the enhancement of the native hedgerow to a native hedgerow with trees.
- 2.4 A summary of all post-development habitats to be created and enhanced onsite is presented overleaf in **Tables 2.3 – 2.4**, including area/length, condition summary, strategic significance and habitat/hedgerow units. For habitat specific condition assessment tables, please see **Appendix I**. These habitat classifications follow the UK Habitat Classification Version 1.1 utilised during the original BNG Assessment (now superseded by Version 2.0)
- 2.5 The habitats proposed to be created and enhanced on the site and the species mixes selected as detailed in **Section 3.0** have been designed to maximise the opportunities for ecological habitat development across the site utilising native species inclusion.
- 2.6 A private groundsman/contractor team appointed by the applicant ("the Management Company") will be the individual(s) responsible for the carrying out of the management and maintenance plan.

Table 2.3 – Post-development habitat parcels recorded within the site boundary

Habitat Reference	Habitat Type	Area (ha)	Condition	Strategic Significance	Habitat units
2	g3c (Other neutral grassland)	0.19	Moderate	Formally identified in local strategy	1.49
3	g3c (Other neutral grassland)	0.02	Moderate	Formally identified in local strategy	0.14
4	g4 (Modified grassland)	4.44	Poor	Formally identified in local strategy	17.71
5	u1b (Developed land; sealed surface)	0.23	N/A	Formally identified in local strategy	0.00

Table 2.4 – Post-development linear habitats recorded within the site boundary

Hedge Reference	Habitat Type	Length (km)	Condition	Strategic Significance	Hedgerow units
1	h2a 11 (Native hedgerow with trees)	0.042	Poor	Formally identified in local strategy	0.16

- 2.7 The very low distinctiveness habitats set to be created on site (i.e. Developed land; sealed surface) have been excluded from this LEMP.

3.0 Habitat Management and Monitoring Plans

3.1 g3c – Other neutral grassland (Habitat References 2 & 3)

3.1.1 The retained areas of modified grassland and tall forbs will be enhanced to other neutral grassland in 'Moderate' condition.

3.1.2 UK Habitats v2.0² defines other neutral grassland as the following:

"A neutral grassland that does not meet the definition of either g3a or g3b AND that meets at least three of these four criteria:

- 1. >20% cover of broadleaved herbs and sedges;*
- 2. >8 species per m² (including forbs, grasses, sedges and rushes, and excluding bryophytes);*
- 3. ≥1 grass species that is not generally sown for intensive agricultural production (ie. Rye-grasses Lolium spp., Timothy Phleum pratense, Cock's-foot Dactylis glomerata, Meadow fescue Festuca pratensis) is at least abundant;*
- 4. Cover of Rye-grasses Lolium spp. and White Clover Trifolium repens, where present, is <30%."*

Species Assemblage

3.1.3 As detailed within 'Living Fence and Wildflower Meadow Details' (MAT Design Ltd), a variety of native forb and graminoid species are present within the selected seed mix for the enhanced areas, including, but not limited to:

- Agrimony (*Agrimonia eupatoria*),
- Common bent (*Agrostis capillaris*).
- Common bird's-foot trefoil (*Lotus corniculatus*),
- Common knapweed (*Centaurea nigra*),
- Corncockle (*Agrostemma githago*),
- Cowslip (*Primula veris*),
- Musk-mallow (*Malva moschata*),
- Oxeye daisy (*Leucanthemum vulgare*),
- Red clover (*Trifolium pratense*),
- Sheep's fescue (*Festuca ovina*),
- Wild teasel (*Dipsacus fullonum*).

Habitat Creation

3.1.4 This habitat should be created through direct seeding of the above mix. Initially, the area should be cleared and any perennial weeds such as common nettle (*Urtica dioica*), docks (*Rumex sp.*) or thistles (*Cirsium sp.*) dug out. The land should then be raked, making it as level as possible. Whilst seeds establish more readily on a flatter surface, drastic reprofiling of the site topography is not encouraged, as retention of variation typically improves the diversity of a grassland by providing a greater range of niches.

² Available online: <https://ukhab.org/ukhab-documentation/>

- 3.1.5 When using a seed mix, the suitable seed mix should be sown on prepared ground, by digging and creating a fine seedbed or scarifying the grass. The seed mix should then be cast over the bare ground (typically in late August or September), ensuring the area is not too wet to avoid the seed sitting in standing water, before being trodden in and watered regularly, but not covered with soil. A sowing rate of four grams of seed per m² of habitat should be utilised. These species are generally perennial, and as such will be slow to germinate and grow and will not normally flower during the first season. Raking of seed should be avoided, as this can concentrate the seed distribution or bury the seed too deep. If there is a prolonged dry period, the seeded area may be lightly watered. Birds and other seed predators should be kept off the land as much as possible; deterrents can be installed to discourage predation where required, but should be removed upon successful establishment of the targeted grassland habitat.
- 3.1.6 Throughout the first growing season seeded areas should be topped up and mown in regular, two monthly intervals to ensure weeds do not become dominant; cutting height during this first year should be to approximately 50mm with a focus on establishment of grasses and removal of nutrients. For a minimum of two years following this first growing season, a biannual cut should take place to ensure establishment with the first, partial cut in mid-July to September leaving 10-20% uncut, and a second full cut in October – December removing late-season growth. All cut materials should be removed from site in order to prevent nutrient build-up within the soil.
- 3.1.7 Once the grassland is established, an annual varied cut will be carried out using a mower in late summer / early autumn (reducing sward height to no lower than 30mm, and no longer than 100mm, with at least 20% over 70mm and 20% under 70mm) to allow the seeds of late flowering species to fall prior to a cut. Cuttings will remain on-site for three to five days to following the cut to allow seeds to disperse, and then be removed in order to remove nutrients and promote the development of a species-rich sward and placed on habitat piles located on site.

Targeted Criteria Prescriptions

- 3.1.8 For the other neutral grassland to achieve 'Moderate' condition, three – five of the six condition assessment criteria need to be met including essential Criterion A; for the context of this report, Criteria A, B, C and D will be targeted for the enhanced areas. See **Table 3.1.1**:

Table 3.1.1 – Specific management prescriptions in relation to each criterion

Criterion A
<i>"The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type (and relative to Footnote 3 suboptimal species which may be listed in the UKHab description).</i> <i>Note – this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only."</i>
Objective: To ensure that the habitat is representative of a UKHab description; that is to say, the habitat meets the specific criteria outlined in its description.
Management Prescriptions: The sowing and subsequent ongoing management of a suitable seed mix should satisfy this criterion, to include the following: 1. Planting of broadleaved herbs and sedges to cover a minimum of 20% of the habitat parcel. 2. Planting of additional species to meet a minimum of 8 species per m², targeting the incorporation of indicator species.

3. Planting of at least one grass species to abundance that is not generally sown for intensive agricultural production, such as common bent, false oat-grass, crested dog's-tail, or rough meadow-grass. 4. Removal of rye grasses and white clover where present to ensure a maximum of 30% cover of the habitat parcel. 5. Planting of the selected species mix, which will ensure that the habitat meets this criterion. Regular management prescriptions as per the other criteria below will all help to contribute to meeting the UKHabs description for each grassland type.
Criterion B
<i>"Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed."</i>
Objective: To ensure there is a varied sward throughout, ensuring that specific microclimates exist within the parcel to support a wide variety of fauna.
Management Prescriptions: 1. An annual and targeted cutting by mower in late summer / early autumn to allow the seeds of the later flowering species to fall prior to the cut. 2. Cut height should be varied using staggered bursts, leaving some areas (minimum of 20% of the habitat) uncut and above 7cm, and other areas (minimum of 20% of the habitat) cut to below 7cm. 3. Cuttings will remain on-site for three to five days following the cut to allow seeds to disperse, and then be removed in order to remove nutrients and promote the development of a species rich sward and placed on habitat piles located on site. 4. Sufficient variety of species should be present (see Criterion A above) so as to naturally achieve different heights at throughout the year a naturally varied sward height.
Criterion C
<i>"Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens."</i>
Objective: To ensure that the vegetation specific to the habitat present is consistent throughout the parcel, with no large areas of bare ground that exceed 5% of ground cover.
Management Prescriptions: 1. Identifying areas of bare ground during inspections/monitoring. 2. Where any areas remain bare by Year 2 following habitat creation, or are bare prior to management, seeding/reseeding will occur in these areas as per the creation processes previous. 3. Should areas of bare ground be as a result of erosion, any such areas should be fenced off to prevent access to allow the vegetation to recolonise. 4. As a part of points 1 – 3 above, 1 – 5% of the grassland should be earmarked for retention as bare earth to allow natural succession to occur at the site. Where less than 1% of total grassland area comprises bare earth, bare patches should be created through scarification and/or turf stripping. Areas typical of the grassland should be targeted, and areas dense in desirable species avoided.

Criterion D
"Cover of bracken <i>Pteridium aquilinum</i> is less than 20% and cover of scrub (including bramble <i>Rubus fruticosus</i> agg.) is less than 5%."
Objective: To prevent encroachment of scrub or bracken, which may outcompete the specific species indicative of the habitat parcel and eventually change the habitat type.
Management Prescriptions: 1. Targeted thinning and removal of bracken when encroaching on the habitat, ensuring that it never exceeds 5% of cover within the parcel. 2. Targeted thinning and removal of scrub species when encroaching on the habitat, ensuring that they never exceed 20% of cover within the parcel. NB: Scrub removal must not be undertaken during the breeding bird season which is 1st March to 31st August inclusive.

Schedule of Works

3.1.9 Inspect grassland annually when vegetation is beginning to flower (typically July – August) to ensure a diverse structure is maintained, check for signs of disease, invasive species and informing ensuing management prescriptions based on target habitat type.

3.1.10 **Table 3.1.2** below outlines a yearly calendar for the undertaking of the above management prescriptions.

Table 3.1.2 – Maintenance operations schedule for neutral grassland

Operation	Months												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Visual inspection of grassland							✓	✓					Inspect grassland annually
Year 1 management			a/r									Grassland should be reseeded, watered and mown as required	
Year 2 onward cutting								✓	✓				Annual cut
INNS and injurious plants removal	a/r												Identify invasive plants and notify site manager, remove by hand or with aid of INNS contractor
Remove injurious plants, scrub and bracken	✓	✓							✓	✓	✓	✓	Identify injurious plants and notify site manager, remove by hand
Reseeding/ seeding of bare areas								a/r					Following the creation processes
Table Key One operation per specified month – ✓ As required = a/r													

3.2 g4 – Modified grassland (Habitat Reference 4)

3.2.1 Modified grassland will be created, covering the majority of the site.

3.2.2 UK Habitats v2.0 defines modified grassland as the following:

*“Species-poor vegetation (<9 species per m²) dominated by a few fast-growing grasses on fertile, neutral soils. It is frequently characterised by an abundance of Rye-grasses *Lolium* spp. And White clover (*Trifolium repens*). Most broadleaved species present will be associated with high fertility.”*

Soil Conditions

3.2.3 Given the wide range of pH on which modified grassland can develop, it is considered unlikely that soil conditions will be unsuitable for the establishment of modified grasslands, with pH within the viable range.

Species Assemblage

3.2.4 The commonly associated species cited by UK Habitats in their definition for modified grasslands can be found in **Table 3.2.1** below and are thus suitable for planting. The grass cover in modified grasslands is usually more than 75%. Species more commonly found in wetter examples of modified grasslands are also presented:

Table 3.2.1 – UK Habitats modified grassland indicator species list

Common Name	Scientific Name
Broad-leaved Dock	<i>Rumex obtusifolius</i>
Common Chickweed	<i>Stellaria media</i>
Cock's-foot	<i>Dactylis glomerata</i>
Creeping Buttercup	<i>Ranunculus repens</i>
Creeping Thistle	<i>Cirsium arvense</i>
Crested Dog's-tail	<i>Cynosurus cristatus</i>
Dandelion	<i>Taraxacum agg.</i>
Dock	<i>Rumex spp.</i>
Greater Plantain	<i>Plantago lanceolata</i>
Rye-grasses	<i>Lolium spp.</i>
Timothy	<i>Phleum pratense</i>
White Clover	<i>Trifolium repens</i>
Yorkshire-fog	<i>Holcus lanatus</i>
Wetter Conditions	
Creeping Bent	<i>Agrostis stolonifera</i>
Floating Sweet Grass	<i>Glyceria fluitans</i>
Hard Rush	<i>Juncus inflexus</i>
Rough Meadow-grass	<i>Poa trivialis</i>
Soft-rush	<i>Juncus effusus</i>

Habitat Creation

3.2.5 Modified grasslands are created through direct seeding, turfing and soil addition where required. Initially, the area should be cleared and any undesirable species, unless they are of any special conservation importance, dug out; generally short forbs/herbs and graminoids will not need to be removed though hard wood/shrub species would. The land should then be raked, making it as level as possible.

3.2.6 When using a seed mix, the suitable seed mix should then be sown on prepared ground, by digging and creating a fine seedbed or scarifying the grass. The seed mix should then be sown over the bare ground (typically in late August or September), ensuring the area is not too wet

to avoid the seed sitting in standing water, before being trodden in and watered regularly, but not covered with soil. A sowing rate of four grams of seed per m² of habitat should be utilised. These species are generally perennial, and as such will be slow to germinate and grow and will not normally flower during the first season.

- 3.2.7 A variety of seed packs of species associated with modified grasslands (cited within **Table 3.2.1**) can be found online, but it is recommended that Emorsgate Seeds' EM1 Basic General Purpose Meadow Mixture³ or similar is utilised. Whilst the variety of species included within this seed mix might be more typically associated with a higher distinctiveness grassland, several species may not take or may only occur occasionally due to nutrient enrichment and intensive mowing. Other more robust species likely will take, and will enhance the diversity of the sward. Many more common and robust species are likely to colonise naturally from the surrounding areas. Further guidance regarding ground preparation, sowing and management can also be found in the individual seed description. Successful application of the above mix or similar in terms of species composition will allow modified grassland habitat to be created, provided the habitat meets the specific criteria outlined in the UK habitats definition stated in section 3.2.2.
- 3.2.8 Throughout the first growing season seeded areas should be topped up and mown in regular, two monthly intervals to ensure weeds do not become dominant, cutting height during this first year should be to approximately 50mm with a focus on establishment of grasses and removal of nutrients. For a minimum of two years following this first growing season, a biannual cut should take place to ensure establishment with the first, partial cut in mid-July to September leaving 10 – 20% uncut, and a second full cut in October – December removing late-season growth. All cut materials should be removed from site in order to prevent nutrient build-up within the soil.
- 3.2.9 Once the grassland is established, an annual varied cut will be carried out using a mower in late summer / early autumn (reducing sward height to no lower than 30mm, and no longer than 100mm, with at least 20% over 70mm and 20% under 70mm) to allow the seeds of late flowering species to fall prior to a cut. Cuttings will remain on-site for three to five days following the cut to allow seeds to disperse and then be removed in order to remove nutrients and promote the development of a species-rich sward, and placed on habitat piles located on site. It is acknowledged that in some cases annual cutting may not be possible owing to the amenity use of a grassland; a varied cutting regime may instead be implemented whereby half of the sward may be cut one fortnight and the other half cut the following fortnight. Additionally, where land use allows, certain areas should be mown only annually – such areas may include habitat edges, for example.

Targeted Criteria Prescriptions

- 3.2.10 For the modified grassland to achieve 'Moderate' condition, four or five of the seven condition assessment criteria need to be met not including essential criterion A; for the context of this report, only the criteria included in **Table 3.2.2** below will be targeted:

Table 3.2.2 – Specific management prescriptions in relation to each criterion

Criterion A
<i>"There are 6-8 vascular plant species per m² present, including at least 2 forbs (these may include those listed in Footnote 1).</i>
<i>Note - this criterion is essential for achieving Moderate or Good condition."</i>

³ See: <https://wildseed.co.uk/product/mixtures/complete-mixtures/general-purpose-meadow-mixtures/basic-general-purpose-meadow-mixture/>

Objective: To ensure that the habitat is representative of its UKHab description, whilst meeting between six and eight species, including those typical of the habitat type.
Management Prescriptions: The sowing and subsequent ongoing management of a suitable seed mix should satisfy this criterion, to include the following: 1. Planting/sowing of seed mix to ensure six – eight species per m². 2. Planting/sowing of forbs to ensure at least two are present per m². 3. Methods to sow suitable species have been provided previous.
Criterion C
<i>“Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble Rubus fruticosus agg. may be present).</i> <i>Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.”</i>
Objective: To ensure scrub encroachment never exceeds 20% of the total grassland area.
Management Prescriptions: 1. Targeted thinning and removal of scrub species when encroaching on the habitat, ensuring that they never exceed 20% of cover within the parcel. N.B. Scrub removal should only be undertaken outside of the breeding bird season which is 1 March to 31 August inclusive.
Criterion D
<i>“Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.”</i>
Objective: To prevent and/or repair excessive damage to the soil/ground and therefore vegetation.
Management Prescriptions: 1. Signage and / or fencing to prevent excessive trampling / use of grassland as a thoroughfare and to prevent the grassland being used by heavy machinery. 2. Repair of damaged areas through releveling any gouges/pits with soil from the site, followed by reseeding as per the creation measures.
Criterion F
<i>“Cover of bracken Pteridium aquilinum is less than 20%.”</i>
Objectives: Ensure cover of bracken does not exceed a coverage of greater than 20%.
Management Prescriptions: 1. Targeted thinning and removal of bracken to maintain coverage levels to less than 20%.

Criterion G
<i>"There is an absence of invasive non-native plant species³ (as listed on Schedule 9 of WCA⁴)."</i>
Objective: To maintain an absence of invasive, non-native species.
Management Prescriptions: 1. Initial and continued removal of any invasive non-native species, listed as such under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) or Schedule 2 of the Alien Invasive Species Order (2019) by a qualified invasive species contractor in line with a precautionary working method statement with appropriate biosecurity protocol.

Schedule of Works

3.2.11 Inspect grassland annually when vegetation is beginning to flower (typically July – August) to check for signs of disease, invasive species and informing ensuing management prescriptions based on target habitat type.

3.2.12 **Table 3.2.3** below outlines a yearly calendar for the undertaking of the above management prescriptions.

Table 3.2.3 – Maintenance operations schedule for modified grassland

Operation	Months												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Visual inspection of grassland							✓	✓					Inspect grassland annually
Year 1 management			a/r									Grassland should be reseeded, watered and mown on a two monthly basis or as required	
Year 2 onward cutting								✓	✓	✓	✓	✓	Partial cut in late Summer and full cut in Autumn
Years 4 onwards cutting			a/r									As required for amenity use	
INNS and injurious plants removal	a/r											Report invasive plants to Appointed Body, remove by hand or following advice of INNS specialist	
Remove scrub and bracken	✓	✓							✓	✓	✓	✓	Identify injurious plants and notify site manager, remove by hand
Reseeding/ seeding of bare areas								a/r				Following the creation processes	
Table Key One operation per specified month – ✓ As required = a/r													

3.3 h2a 11 – Native hedgerow with trees (Hedge Reference 1)

3.3.1 The existing hedgerow onsite will be enhanced to a native hedgerow with trees.

3.3.2 UK Habitats v2.0⁴ defines native hedgerows as the following:

“A hedgerow with >80% canopy cover of UK native or archaeophyte woody species.”

Whilst to achieve the relevant habitat classification, the hedgerow must also meet the qualifying threshold for secondary code 11 – Hedgerow with trees, which is defined as:

“A linear feature ≥20m long with a woody component <5m wide at its base, a shrub layer present and with ≥2 prominent trees taking their natural shape that are <20m apart over most of its length.”

3.3.3 As the hedgerow already meets native status as per the BNG Assessment, to enhance it to a native hedgerow with trees, it will be supplementally planted with individual trees.

Species Assemblage

3.3.4 The trees planted will be native; a list of indicative appropriate native trees is presented in **Table 3.3.1**. Where possible, it is recommended that species to be planted are locally harvested, though this is not essential (British Standard 3936:1992 – Nursery Stock – Part 1).

Table 3.3.1 – Suitable native species for planting

Common Name	Scientific Name
Alder	<i>Alnus glutinosa</i>
Alder Buckthorn	<i>Frangula alnus</i>
Aspen	<i>Populus tremula</i>
Bird Cherry	<i>Prunus padus</i>
Black Poplar	<i>Populus nigra subsp. betulifolia</i>
Common Whitebeam	<i>Sorbus aria</i>
Crab Apple	<i>Malus sylvestris</i>
Downy Birch	<i>Betula pubescens</i>
Elder	<i>Sambucus nigra</i>
Field Maple	<i>Acer campestre</i>
Goat Willow	<i>Salix caprea</i>
Grey Poplar	<i>Poplar x canescens</i>
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Hornbeam	<i>Carpinus betulus</i>
Large-leaved Lime	<i>Tilia platyphyllos</i>
Lime	<i>Tilia x europaea</i>
Midland Hawthorn	<i>Crataegus laevigata</i>
Osier	<i>Salix viminalis</i>
Pedunculate Oak	<i>Quercus robur</i>
Rowan	<i>Sorbus aucuparia</i>
Sessile Oak	<i>Quercus petraea</i>
Silver Birch	<i>Betula pendula</i>
Small-leaved Lime	<i>Tilia cordata</i>
Wild Cherry	<i>Prunus avium</i>
Wild Service Tree	<i>Sorbus torminalis</i>
Wych Elm	<i>Ulmus glabra</i>
Yew	<i>Taxus baccata</i>

Habitat Creation

⁴ Available online: <https://ukhab.org/ukhab-documentation/>

- 3.3.5 Given that 42 metres of hedgerow are currently present onsite, a minimum of three trees should be planted along the stretch, spaced roughly equidistant, ensuring that the trees are each less than 20m from each other.
- 3.3.6 Planting of individual trees typically includes using a chosen species mix of propagated stems. Stems should be sourced from local UK provenances where possible to achieve a native species tree which is best adapted to local conditions, and to avoid introduction of pests and diseases such as ash dieback. Where local/community tree nurseries are not available, UK and Ireland Sourced and Grown (UKISG) certified stock should be utilised, sourced from seed zone 302.
- 3.3.7 All planting should be undertaken in the first planting season of habitat creation, with bare root stock to be planted between October – March and outside of periods of heavy rain/flooding, frost, or drought.
- 3.3.8 Holes for trees will be dug to a depth of 600mm; during digging any contaminants including rubbish will be removed. Timber stakes should be placed in the holes prior to planting of the trees, and on the side of the prevailing wind. After planting, a surface layer organic mulch will be applied to a depth of 50mm and in a 500mm radius around the stem to discourage weeds. Each tree should be attached to its stake using a rubber tie and spacing device, and tree guard applied.
- 3.3.9 The trees should not need watering except in summer during times of drought; however, regular assessment should be made through the first two years to check for dry and curling leaves. Should watering be required, the earth around the trees should be thoroughly saturated to encourage roots to grow down to groundwater as opposed to up towards surface water.
- 3.3.10 Newly planted trees have an extremely high failure rate, with studies⁵ showing a survival rate of only 54% after 5 years; for this specific habitat it is recommended that initial precautions are undertaken to mitigate for this risk.
- 3.3.11 To ensure that the targeted biodiversity gain will be met at the site as a minimum, it is recommended that planted trees are inspected each year. Any trees which have failed should be replaced.

Targeted Criteria Prescriptions

- 3.3.12 For the hedgerow with trees to achieve the targeted 'Poor' condition, it does not need to meet any specific number of condition assessment criteria. However, to ensure that its current condition is maintained post-development, it is recommended that regular management measures are undertaken to meet the currently met criteria, alongside Criterion E2 within the hedgerow with trees condition assessment. See **Table 3.3.2** below for management prescriptions which will be targeted:

Table 3.3.2 – Specific management prescriptions in relation to each criterion

Criterion B1: Gap – hedge base
<i>This is the vertical 'gappiness' of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth.</i>
<i>Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).</i>

⁵ See: <https://www.trees.org.uk/Trees.org.uk/files/4e/4e5f2a54-f016-408a-b520-1b965f175924.pdf>

Objective: To ensure that the gap between ground and base of canopy is <0.5 m for >90% of length.
Management Prescriptions: 1. The hedgerow should be trimmed every 2 years. These trims should follow the incremental cutting methodology, whereby the hedge is not cut back to the same width each year and is instead allowed to increase in width. The base should be cut every 3 / 5 years.
Criterion B2: Gap – hedge canopy continuity
<i>This is the horizontal ‘gappiness’ of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small).</i> <i>Access points and gates contribute to the overall ‘gappiness’ but are not subject to the >5 m criterion (as this is the typical size of a gate).</i>
Objective: To ensure that gaps make up <10% of total length and no canopy gaps are >5 m
Management Prescriptions: 1. The hedgerow should be monitored, and dead specimens replaced. This is a process known as ‘Gapping up’. 2. After the first 3 years of growth, care should be taken when planting new whips as shading may result in them failing. Where re-planting is not considered suitable owing to the height/width or age of the hedgerow, the gappy section of hedgerow should be layed once mature enough.
Criterion D1: Invasive and neophyte species
<i>“>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA) and recently introduced species.</i> <i>Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website, as well as the BSBI website where the ‘Online Atlas of the British and Irish Flora’ contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website.”</i>
Objectives: To ensure that >90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA) and recently introduced species.
Management Prescriptions: 1. Regular monitoring of the hedgerow should take place to ensure it remains free of invasive species. 2. Removal of neophyte species such as common field-speedwell (<i>Veronica persica</i>) and hedgerow crane’s-bill (<i>Geranium pyrenaicum</i>). There are over 1,487 species of neophyte in the UK⁶. 3. Should any Invasive Non-Native Species (INNS) establish, an eradication method statement should be produced by a suitably qualified invasive species contractor, to include identification and mapping of all INNS where applicable.
Criterion E2: Tree Health

⁶ See: [BSBI Plant Atlas 2020 - https://plantatlas2020.org/background](https://plantatlas2020.org/background)

At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.

This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.

Objectives: To ensure the hedgerows successful establishment and longevity

Management Prescriptions:

1. Conduction of a site walkover by suitably qualified tree surgeons/arboriculturists to identify and map presence of disease/pest species (see **Table 3.3.3**) and ill-health.
2. All trees with high-risk pests or diseases will need to be removed to achieve the criterion. Trees host to disease or pests should be targeted first to prevent spread to existing or newly planted stock. In publicly accessible sites, trees at risk of falling or dropping boughs should also be prioritised to prevent risk to members of the public.

Where applicable erect fencing, to protect the trees from recreational actives or livestock.

Table 3.3.3 – Tree Diseases/Pests and Risk Levels

Common Name	Risk Level
Acute/Chronic Oak Decline	High
<i>Anoplophora chinensis</i>	High
<i>Anoplophora glabripennis</i>	High
Ash Dieback	High
Asian Longhorn beetle	High
Bronze Birch borer	High
Canker	Low
<i>Cryphonectria parasitica</i>	High
<i>Dendroctonus micans</i>	Low
Emerald Ash borer	High
<i>Gibrellia circinata</i>	High
Horse Chestnut Bleeding Canker	High
Horse Chestnut leaf miner	Low
<i>Ips amitinus</i>	High
<i>Ips duplicatus</i>	High
<i>Ips typographus</i>	High
Oak Processionary Moth	Low
<i>Phytophthora lateralis</i>	High
<i>Phytophthora kernoviae</i>	High
<i>Phytophthora ramorum</i>	High
<i>Phytophthora austrocedrae</i>	High
<i>Phytophthora spp</i>	High
Pine Lappet Moth	High
Pine Processionary Moth	High
Red Band Needle Blight	High
Sawyer Beetle	Low
<i>Tomicus piniperda</i>	Low
Weevils	High

Schedule of Works

3.3.13 Inspect on a biannual basis when the majority of shrubs/trees are in full leaf (typically May) to ensure that all individuals are healthy, and in winter prior to the undertaking of management activities. Any defects requiring remedial action should be recorded during these inspections.

3.4.14 **Table 3.3.4** below outlines a yearly calendar for the undertaking of the above management prescriptions.

Table 3.3.4 – Maintenance operations schedule for hedgerows

Operation	Months												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Planting of trees	✓	✓	✓							✓	✓	✓	Planting of suitable native species
Incremental trims	✓	✓											The hedge should be cut back every two years
Cutting the base of the hedge	✓	✓											The base of the hedge should be cut in increments as above, every 3 years.
Tree stakes, ties and guards				✓					✓				Check and adjust, replace or remove as required until the specimen has established. Check and readjust after strong winds. Remove in year 3 – 5 or as required
Watering					a/r								Water once a week during the growing season or as required, and as necessary in periods of drought
Biannual Monitoring/ Maintenance					2						2	2	Twice yearly the trees forming the hedgerow should be inspected
Routine pruning										✓			Should only include the removal of dead or diseased branches. Mature trees should be subject to pruning if deemed necessary by the arboricultural specialist.
<u>Table Key</u> One operation per specified month – ✓ As required = a/r													

4.0 Progress Checks

- 4.1 Following the completion of the soft landscaping, a progress check should be undertaken by an ecologist to ensure the works match the proposed plan.
- 4.2 In the final year of the plan, an ecologist should conduct another check of the progress compared to the proposed landscaping plan. Any deviations should be remedied to ensure the ecological outcome of the site.
- 4.3 All of the species suggested within this plan have been carefully selected in accordance with local suitability for the north-west, and any plant material which is unsuitable or defective in any other way should not be considered.

5.0 Checklist of Management Actions – For use by contractor

5.1 **Table 5.1** details a checklist of management actions which should be undertaken on an annual basis, following the handover to the client/ site management team.

Table 5.1 – Checklist of Management Actions

Task	Recommended Month/ Season	Complete (Date)	Comments	Remedial Action Required/ Completed
Pre-clearance / Works				
Pre-commencement check and site walkover by ecologist	Prior to any site clearance works, must be undertaken outside of hibernation season (between November and March) to avoid impacts to terrestrial GCN.			
Demarcation of works area.	Any time prior to start of any site clearance.			
Install protection around retained habitat features.	Any time prior to start of any site clearance.			
Appoint wildlife champion	Post construction every two years.			
Demarcation and removal of INNS	Prior to start of any site clearance.			
Grassland				
Carry out an inspection of the establishment of the grass sward to identify any damaged areas, excessive weed growth, poor grass cover etc	Early spring – starting in April			

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Task	Recommended Month/ Season	Complete (Date)	Comments	Remedial Action Required/ Completed
Cut grass to 2.5 cm-5 cm with an appropriate mechanical mower, remove all arisings. Allow some areas to grow over 7 cm.	Late summer/early autumn from year 2 onward			
Topdressing, over seeding, scarifying, spiking	As required after inspections			
Modified Grassland				
Carry out an inspection of the establishment of the grass sward to identify any damaged areas, excessive weed growth, poor grass cover etc	Early spring – starting in April			
Cut grass to 2.5 cm-5 cm with an appropriate mechanical mower, remove all arisings. Allow some areas to grow over 7 cm.	Starting in spring throughout the summer and into early autumn			
Topdressing, over seeding, scarifying, spiking	As required after inspections			
Hedgerows				
Check health status of new plantings (sickly plants and pest monitoring).	Twice annually (in January/ February and August/ September).			
Replace any failed plants.	October and March (avoiding periods of snow and frost).			

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Task	Recommended Month/ Season	Complete (Date)	Comments	Remedial Action Required/ Completed
Inspect and install, replace, loosen, tighten or remove support tubes/ stakes and protection.	At least twice annually or more often as necessary each year.			
Fifth-year check				
Replace failed trees.	Inspect at year five and undertake any replacements between October and March inclusive, avoiding periods of frost and snow.			
Check the habitats match the landscaping plan (including both retained and created habitats)	Inspect at year five to ensure check all landscaping is in place in accordance with landscaping plan. Any deviation from the plan will need to be fixed.			

Appendix I: Baseline Condition Assessment Sheets

Condition Assessment Score – Grassland (Low) (Habitat Ref.: 2)

Condition Assessment Criteria		Habitat Reference
		2
		Criterion passed (Y/N)
A	There are 6-8 vascular plant species per m ² present, including at least 2 forbs. Note - this criterion is essential for achieving Moderate or Good condition. Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m ² (excluding those listed in Footnote 1), please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high, or very high distinctiveness, please use the relevant condition sheet.	Y
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.	N
C	Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble <i>Rubus fruticosus</i> agg. may be present). Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	N
D	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	Y
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens).	Y
F	Cover of bracken <i>Pteridium aquilinum</i> is less than 20%.	Y
G	There is an absence of invasive non-native plant species (as listed on Schedule 9 of WCA).	Y
Total Score		5
Condition Assessment Result		Condition Assessment Score
Passes 6 or 7 criteria including passing essential criterion A		Good
Passes 4 or 5 criteria including passing essential criterion A		Moderate
Passes 3 or fewer criteria; OR Passes 4 - 6 criteria (excluding criterion A)		Poor

Condition Assessment Score – Tall Forbs (Habitat Ref.: 3)

Condition Assessment Criteria		Habitat Reference	
		3	
		Criterion passed (Y/N)	
A	Vegetation structure is varied, providing opportunities for vertebrates and invertebrates to live, eat and breed. A single structural habitat component or vegetation type does not account for more than 80% of the total habitat area.	N	
B	The habitat parcel contains different plant species that are beneficial for wildlife, for example flowering species providing nectar sources for a range of invertebrates at different times of year.	N	
C	Invasive non-native plant species (listed on Schedule 9 of WCA) and others which are to the detriment of native wildlife (using professional judgement) cover less than 5% of the total vegetated area. Note - to achieve Good condition, this criterion must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).	Y	
Total Score		1	
Condition Assessment Result		Condition Assessment Score	
• Passes all 3 core criteria; AND • Meets the requirements for Good condition within criterion C.		Good	
• Passes 2 of 3 core criteria; OR • Passes 3 of 3 core criteria but does not meet the requirements for Good condition within criterion C.		Moderate	
• Passes 0 or 1 of 3 core criteria.		Poor	Y

Condition Assessment Score – Hedgerows (Hedge Ref.: 1)

Functional Group	Criteria	Description	Hedge Reference
			1 Criterion passed (Y/N)
A1 Height	>1.5 m average along length	The average height of woody growth estimated from base of stem to the top of the shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees. Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is >1.5 m height).	N
A2 Width	>1.5 m average along length	The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths (such as blackthorn <i>Prunus spinosa</i> suckers) are only included in the width estimate when they are >0.5 m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).	N
B1 Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length	This is the vertical 'gappiness' of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).	Y
B2 Gap - hedge canopy continuity	Gaps make up <10% of total length; and No canopy gaps >5m	This is the horizontal 'gappiness' of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small). Access points and gates contribute to the overall 'gappiness' but are not subject to the >5 m criterion (as this is the typical size of a gate).	Y

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Functional Group	Criteria	Description	Hedge Reference
			1 Criterion passed (Y/N)
C1 Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: · Measured from outer edge of hedgerow; and · Is present on one side of the hedgerow (at least).	This is the level of disturbance (excluding wildlife disturbance) at the base of the hedgerow. Undisturbed ground is present for at least 90% of the hedgerow length, greater than 1 m in width and must be present along at least one side of the hedgerow. This criterion recognises the value of the hedgerow base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches.	N
C2 Nutrient-enriched perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	The indicator species used are nettles <i>Urtica</i> spp., cleavers <i>Galium aparine</i> and docks <i>Rumex</i> spp. Their presence, either singly or together, does not exceed the 20% cover threshold.	N
D1 Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA) and recently introduced species.	Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website, as well as the BSBI website where the 'Online Atlas of the British and Irish Flora' contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website.	Y
D2 Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities.	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (for example, excessive hedgerow cutting).	N
Condition Assessment Result		Condition Assessment Score	
No more than 2 failures in total; AND No more than 1 failure in any functional group.		Good	
No more than 5 failures in total; AND <u>Does not fail both attributes</u> in more than one functional group (for example, fails attributes A1, A2, B1, C2 and E1 = Moderate condition).		Moderate	
Fails a total of more than 5 attributes; OR <u>Fails both attributes</u> in more than one functional group (for example, fails attributes A1, A2, B1 and B2 = Poor condition).		Poor	Y

Appendix II: Post-development Condition Assessment Sheets

Condition Assessment Score – Grassland (Medium – Very High) (Habitat Refs.: 2 & 3)

Condition Assessment Criteria		Habitat Reference
		2 & 3
		Criterion passed (Y/N)
A	The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type. Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.	Y
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Y
C	Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens.	Y
D	Cover of bracken <i>Pteridium aquilinum</i> is less than 20% and cover of scrub (including bramble <i>Rubus fruticosus agg.</i>) is less than 5%.	Y
E	Combined cover of species indicative of sub-optimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species (as listed on Schedule 9 of WCA) are present, this criterion is automatically failed.	N
Additional Criterion - must be assessed for all non-acid grassland types		
F	There are 10 or more vascular plant species per m ² present, including forbs that are characteristic of the habitat type. Note - this criterion is essential for achieving Good condition for non-acid grassland types only.	N
Total Score		4
Essential criterion for Good condition achieved (for non-acid grassland)		N
Condition Assessment Result		Condition Assessment Score
Non-acid grassland Types (Result out of 6 criteria)		
Passes 5 or 6 criteria, including essential criterion A and additional criterion F.		Good
Passes 3 - 5 criteria, including essential criterion A.		Moderate
Passes 2 or fewer criteria; OR Passes 3 or 4 criteria excluding criterion A and F.		Poor

Condition Assessment Score – Grassland (Low) (Habitat Ref.: 4)

Condition Assessment Criteria		Habitat Reference
		4
		Criterion passed (Y/N)
A	There are 6-8 vascular plant species per m ² present, including at least 2 forbs. Note - this criterion is essential for achieving Moderate or Good condition. Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m ² (excluding those listed in Footnote 1), please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high, or very high distinctiveness, please use the relevant condition sheet.	Y
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.	N
C	Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble <i>Rubus fruticosus</i> agg. may be present). Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Y
D	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	Y
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens).	N
F	Cover of bracken <i>Pteridium aquilinum</i> is less than 20%.	Y
G	There is an absence of invasive non-native plant species (as listed on Schedule 9 of WCA).	Y
Total Score		5
Condition Assessment Result		Condition Assessment Score
Passes 6 or 7 criteria including passing essential criterion A		Good
Passes 4 or 5 criteria including passing essential criterion A		Moderate
Passes 3 or fewer criteria; OR Passes 4 - 6 criteria (excluding criterion A)		Poor

Condition Assessment Score – Hedgerows (Hedge Ref.: 1)

Functional Group	Criteria	Description	Hedge Reference
			1
			Criterion passed (Y/N)
A1 Height	>1.5 m average along length	The average height of woody growth estimated from base of stem to the top of the shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees. Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is >1.5 m height).	N
A2 Width	>1.5 m average along length	The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths (such as blackthorn <i>Prunus spinosa</i> suckers) are only included in the width estimate when they are >0.5 m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).	N
B1 Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length	This is the vertical 'gappiness' of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).	Y
B2 Gap - hedge canopy continuity	Gaps make up <10% of total length; and No canopy gaps >5m	This is the horizontal 'gappiness' of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small). Access points and gates contribute to the overall 'gappiness' but are not subject to the >5 m criterion (as this is the typical size of a gate).	Y

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Functional Group	Criteria	Description	Hedge Reference
			1
			Criterion passed (Y/N)
C1 Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: · Measured from outer edge of hedgerow; and · Is present on one side of the hedgerow (at least).	This is the level of disturbance (excluding wildlife disturbance) at the base of the hedgerow. Undisturbed ground is present for at least 90% of the hedgerow length, greater than 1 m in width and must be present along at least one side of the hedgerow. This criterion recognises the value of the hedgerow base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches.	N
C2 Nutrient-enriched perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	The indicator species used are nettles <i>Urtica</i> spp., cleavers <i>Galium aparine</i> and docks <i>Rumex</i> spp. Their presence, either singly or together, does not exceed the 20% cover threshold.	N
D1 Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA ³) and recently introduced species.	Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website, as well as the BSBI website where the 'Online Atlas of the British and Irish Flora' contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website.	Y
D2 Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities.	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (for example, excessive hedgerow cutting).	N
E1 Tree class	There is more than one age-class (or morphology) of tree present (for example: young, mature, veteran and or ancient ⁸), and there is on average at least one mature, ancient or veteran tree present per 20 - 50m of hedgerow.	This criterion addresses if there are a range of age-classes or morphologies which allow for replacement of trees and provide opportunities for different species.	N

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Functional Group	Criteria	Description	Hedge Reference
			1
			Criterion passed (Y/N)
E2 Tree health	At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.	Y
Condition Assessment Result		Condition Assessment Score	
No more than 2 failures in total; AND No more than 1 failure in any functional group.		Good	
No more than 5 failures in total; AND <u>Does not fail both attributes</u> in more than one functional group (for example, fails attributes A1, A2, B1, C2 and E1 = Moderate condition).		Moderate	
Fails a total of more than 5 attributes; OR <u>Fails both attributes</u> in more than one functional group (for example, fails attributes A1, A2, B1 and B2 = Poor condition).		Poor	Y