

HABITAT MANAGEMENT PLAN

KL06- [REDACTED]

Ref: KL06- HMP-v2

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Report Reference: v2

A NEW PLAN FOR
THE PLANET

 ENVIRONMENT
BANK

Report details

Project reference	
Project site	KL06- [REDACTED]
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Disclaimer

To achieve the study objectives stated in this report, we were required to base our conclusions on the best information available during the period of the investigation and within the limits prescribed by our client in the agreement. Where information is provided by others, EBL shall bear no liability in respect of any advice given on the basis of that information. No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information. Thus, we cannot guarantee that the investigations (date, work, interpretation of that data or work) completely defined the degree or extent of e.g., species abundances, habitat management efficacy, conservation credit calculations and hence credit requirements, described in the report.

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Habitat Management Plan-

Habitat Management Plan Overview

The purpose of this Habitat Management Plan (HMP) is to detail the habitat creation and enhancement proposals required to achieve the target habitats on 
 (Environment Bank Reference KL06), hereafter referred to as the Site. The HMP will also set out the provisions for their long-term management and monitoring.

The management period of at least 30 years is defined by the Environment Act 2021.

The plan is designed to be an adaptive, 'live' document and should be reviewed and amended regularly to ensure the management objectives achieve their intended aims over the 30-year management period.

Third party oversight of the HMP will be carried out by the relevant Local Planning Authority, who will review progress of the habitat bank against the proposed management objectives.

The land manager is responsible for implementing the management works in the HMP and reporting back progress to Environment Bank in accordance with the terms within the signed Habitat Management Agreement (HMA).

The HMP ensures that works do not adversely affect any protected species within the site and is compliant with UK Wildlife Legislation.

1. Site Information

1.1 Habitat Bank Details

Table 1 below summarises the details of the Site subject to the HMP.

Table 1- Site details

Site Details	
Site	[REDACTED]
Address	[REDACTED]
National Grid Reference (Centroid)	[REDACTED]
Site Boundaries	See Figure 1
Local Planning Authority	Kings Lynn and West Norfolk Council
Land Ownership	Private
Public Access	There is an access point at the south western corner of the Site for a permissive path which runs along the southern boundary of The Site. There is a Public Right of Way (PRoW) along the western boundary.

1.2 Principal Contacts

Table 2- Principal Contact Details

Principal Contact Details	
Landowner	[REDACTED]
Contact address	[REDACTED]
Land Manager	[REDACTED]

1.3 Site Boundary

Figure 1: Site Boundary



1.4 Management Context

Table 3 below details the management context associated with the Site and delivery of the HMP.

Table 3- Management Context

Management Context	
Existing Management	The Site is currently arable.
Utilities	There are no domestic utilities on Site.
Flooding	The Site sits to the east of a sea wall. Land to the west of this sea wall has a high risk of flooding. The majority of the Site is protected by the sea wall and is within a very low flood zone. The southern section of the Site is in a medium flood risk zone.
Public Access	There is an access point at the southwestern corner of the Site for a permissive path which runs along the southern boundary of the Site. There is a Public Right of Way (PRoW) along the western boundary. Both PRoW and permissive path are outside of the Site redline boundary and will be managed by the landowner outside of the lease agreement.
Protected Species	No protected or notable priority species records were returned for the Site.
Invasive Species	Horsetail was noted at the south of the Site. No other invasive species were noted on or within close proximity to the Site.

2. Management Proposals

2.1 Management Aims

The aims of the HMP are summarised in Table 4 below. This report details the seven management projects proposed for the Site. The projects are defined by the target habitat type.

The target ecological condition criteria are in line with the Statutory Biodiversity Net Gain Metric (DEFRA., 2023) and are defined in Section 2.2. The location and extent of each project area is shown in Figures 2.1, 2.2, 2.3, 2.4, 2.5, 2.6 and 2.7.

Table 4- Aims for each Habitat Enhancement and Management Project

Habitat Bank Projects	
KL06 - LM (Lowland meadows)	<i>To convert existing arable land and enhance existing arable field margins into lowland meadow and maintain to at least 'moderate' ecological condition.</i>
KL06 - ONG (Other neutral grassland)	<i>To convert existing arable land into a species rich neutral grassland and maintain in 'good' ecological condition.</i>
KL06 - OBW (Other woodland; broadleaved)	<i>To create and maintain woodland to at least 'moderate' ecological condition. New woodland will expand existing woodland bordering the Site.</i>
KL06 - MXS (Mixed scrub)	<i>To create and maintain new woody scrub margins to at least 'moderate' ecological condition.</i>
KL06 - PND (Ponds)	<i>To create and maintain ponds within newly created species rich grassland. Ponds will be maintained to at least 'moderate' ecological condition.</i>
KL06 - NRH (Native hedgerow)	<i>To create new species-rich hedgerows and maintain in 'good' ecological condition.</i>
KL06 - Existing Habitats	<i>To maintain the current condition of existing hedgerow identified within the lease boundary.</i>

2.2 Management Objectives

The aims of the HMP will be achieved through the following objectives:

KL06-LM – Lowland meadow

The lowland meadow will be created at the north of the Site on existing arable land. Existing arable field margin will also be enhanced to lowland meadow. The north of the site is outside of the flood zone and, therefore provides more favourable conditions to establish higher species diversity required for lowland meadow habitat. Figure 2.1 outlines the proposed area for lowland meadow creation. The exact location of the lowland meadow may change depending on the outcome of the soil analysis and further surveys.

The grassland will be managed for the benefit of wildlife. The target habitat will be lowland meadow, with a rich mixture of native grasses and broad-leaved herbs associated with neutral soils. There will likely be subtle changes in the floristic composition reflected by the naturally wetter areas across the field. The grassland will be monitored for diversity of species and presence of indicator species and plug planting may be necessary to increase species diversity.

To achieve the target condition of 'moderate' for lowland meadow in line with the current version of the Statutory Biodiversity Metric (DEFRA., 2023), it requires the fulfilment of 3 or 4 (including essential criteria 1) of the following criteria within 10 years:

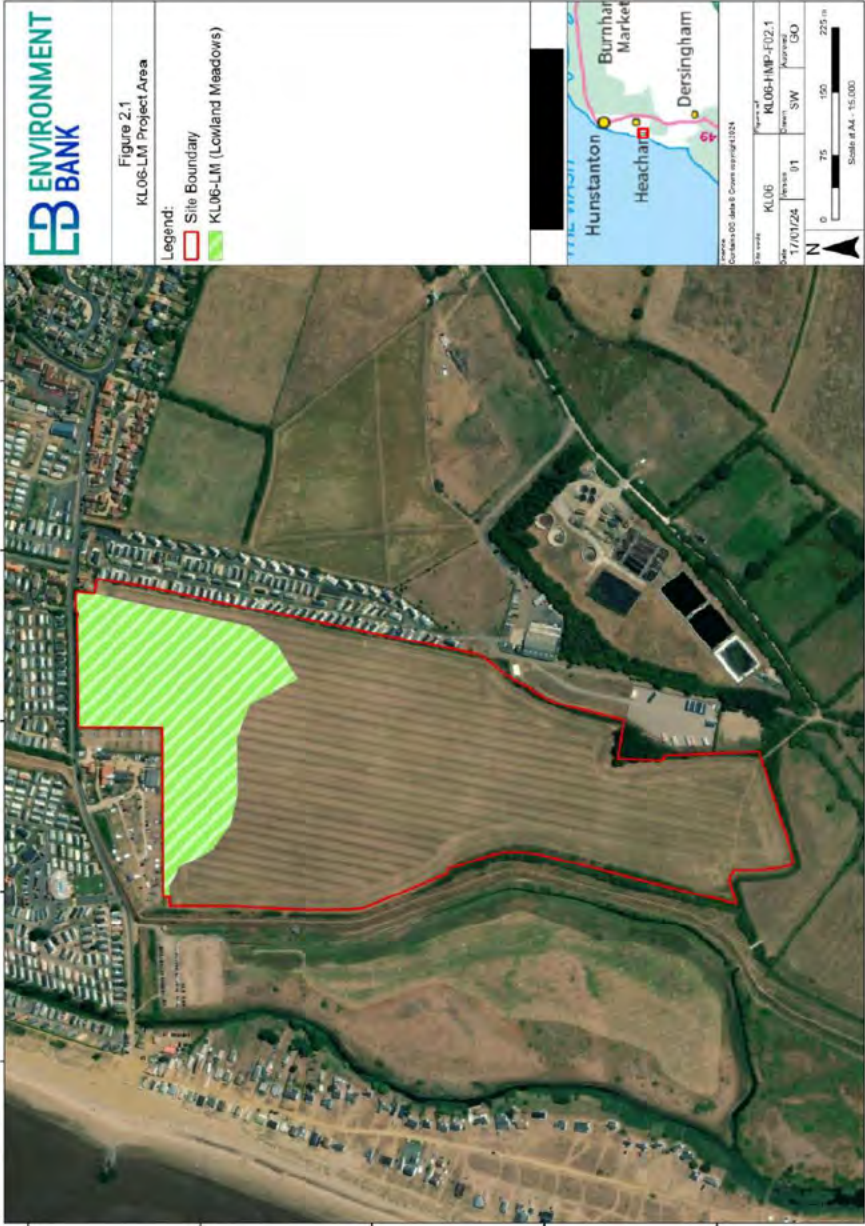
1. The parcel represents a good example of its habitat type "Lowland meadows" (UKHab Ltd, 2023), with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type (and relative to suboptimal species which may be listed in the UKHab description).
2. The sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds, and small mammals to live and breed.
3. Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.
4. Cover of bracken *Pteridium aquilinum* is less than 20% and cover of scrub (including bramble *Rubus fruticosus* agg.) is less than 5%.
5. There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition* and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.
6. There are ten or more vascular plant species per metre squared present, including forbs that are characteristic of Lowland meadows (invasive non-native plant species and species indicative of suboptimal condition cannot contribute towards this count).

**Species indicative of sub-optimal condition for this habitat type include Creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius*, common nettle *Urtica dioica*, creeping buttercup *Ranunculus repens*, greater plantain *Plantago major*, white clover *Trifolium repens*, cow parsley *Anthriscus sylvestris*.*

The Habitat Management Objectives for KL06-LM are as follows:

- Deliver a lowland meadow, as per the UK Habitat Classification description, with a minimum of 15 grassland species per m² and cover of broadleaved herbs and sedges >30 %, including ≥2 indicator species frequent and ≥2 indicator species occasional within the sward using the DAFOR scale.
- Deliver a variable sward height where at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm.
- Deliver bare ground cover (1 – 5% coverage).
- Maintain/reduce scrub coverage to less than 5% and bracken less than 20%.
- Remove the presence of invasive species.
- Maintain / reduce combined cover of undesirable species and physical damage to less than 5%.
- There are 10 or more vascular plant species per metre squared, including forbs.

Figure 2.1: KL06-LM Project Area



KL06-ONG – Other Neutral Grassland

A species rich neutral grassland will be created on existing arable fields within the site. This area has been identified as at a higher risk of flooding which may make it harder to achieve the conditions required for the establishment of lowland meadow. Therefore, other neutral grassland has been targeted in these areas. However, this grassland will be managed the same as the lowland meadow. The target habitat will be species-rich neutral grassland managed for the benefit of wildlife. Figure 2.2 outlines the proposed areas of the Site for the species rich neutral grassland creation.

To achieve the target condition of ‘good’ for other neutral grassland in line with the current version of the Statutory Biodiversity Metric (DEFRA., 2023), it requires the fulfilment of 5 or 6 of the criteria (including essential criteria 1 and 6) within 10 years:

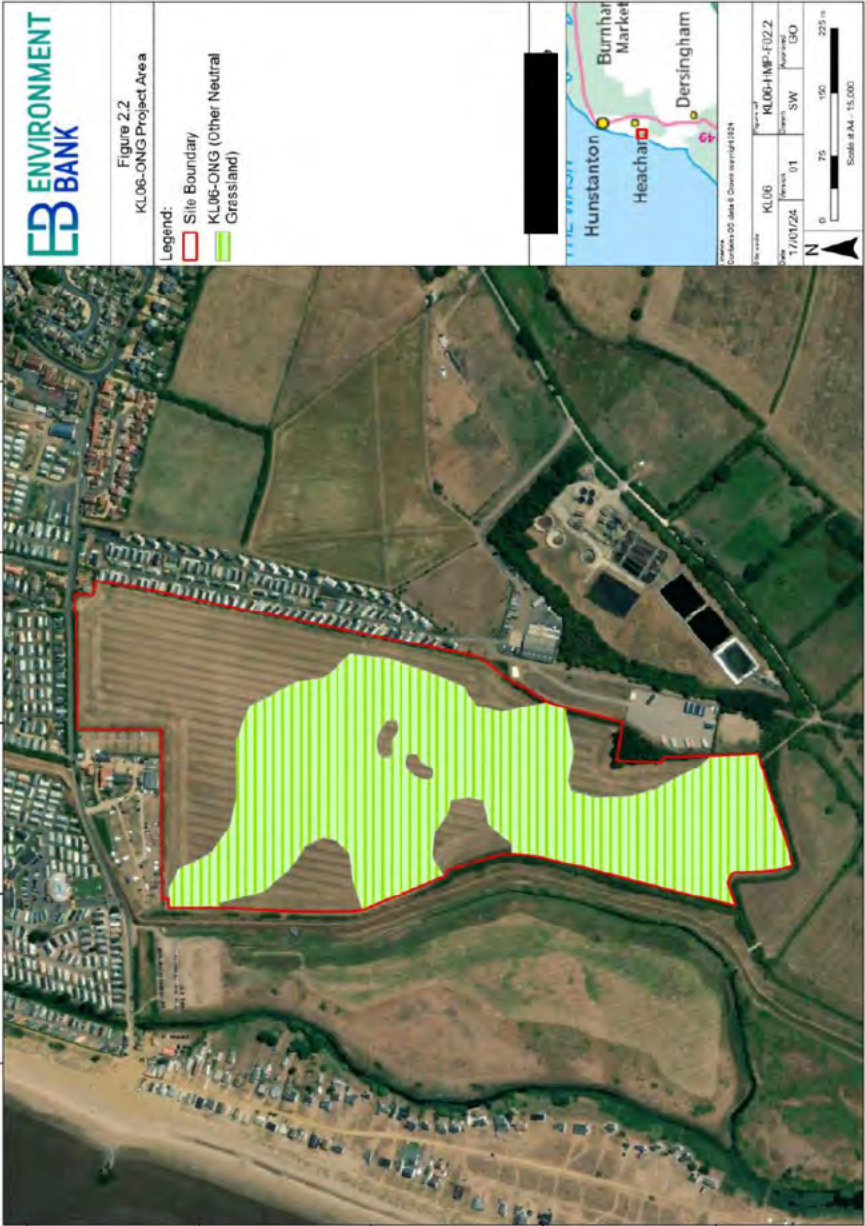
1. The parcel represents a good example of its habitat type “Other neutral grassland” (UKHab Ltd, 2023), with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type (and relative to suboptimal species which may be listed in the UKHab description).
2. .
3. The sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds, and small mammals to live and breed.
4. Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.
5. Cover of bracken *Pteridium aquilinum* is less than 20% and cover of scrub (including bramble *Rubus fruticosus* agg.) is less than 5%.
6. There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition* and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.
7. There are ten or more vascular plant species per metre squared, including forbs that are characteristic of the habitat type. This criterion is essential for achieving good condition (invasive non-native plant species and species indicative of suboptimal condition cannot contribute towards this count).

**Species indicative of sub-optimal condition for this habitat type include Creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius*, common nettle *Urtica dioica*, creeping buttercup *Ranunculus repens*, greater plantain *Plantago major*, white clover *Trifolium repens*, cow parsley *Anthriscus sylvestris*.*

The Habitat Management Objectives for KL06-ONG are as follows:

- Deliver a neutral grassland, as per the UK Habitat Classification description, with a minimum of 10 grassland species per m² and >20 % cover of broadleaved herbs and sedges.
- Deliver a variable sward height of at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm.
- Deliver bare ground cover (1 – 5% coverage).
- Maintain/reduce scrub coverage to less than 5% and bracken less than 20%.
- Remove the presence of invasive species.
Maintain / reduce combined cover of undesirable species and physical damage to less than 5%.
- There are ten or more vascular plant species per metre squared.

Figure 2.2: KL06-ONG Project Area



KL06-OBW- Woodland

Broadleaved woodland will be planted adjacent to existing woodland along the south-eastern edge of the Site boundary. Figure 2.3 outlines the proposed areas of the Site for the broadleaved woodland creation. The woodland will be planted with a native species mix appropriate for the Site's soil conditions and local area.

To achieve the target condition of 'moderate' for other broadleaved woodland in line with the current version of the Statutory Biodiversity Metric (DEFRA., 2023), it requires the habitat score between 26 to 32 of the condition score within 15 years. The criteria for woodland are as follows:

Condition Assessment Criteria			
Indicator	Good (3 points)	Moderate (2 points)	Poor (1 point)
Age distribution of trees	Three age classes present	Two age classes present	One age class present
Wild, domestic and feral herbivore damage	No significant browsing damage evident in woodland	Evidence of significant browsing pressure is present in 40% or less of whole woodland	Evidence of significant browsing pressure is present in 40% or more of whole woodland
Invasive plant species	No invasive species present in woodland	Rhododendron <i>Rhododendron ponticum</i> or cherry laurel <i>Prunus laurocerasus</i> not present, and other invasive species <10% cover.	Rhododendron or cherry laurel present, or other invasive species > 10% cover
Number of native tree species	Five or more native tree or shrub species found across woodland parcel	Three to four native tree or shrub species found across woodland parcel	Two or less native tree or shrub species across woodland parcel
Cover of native tree and shrub species	> 80% of canopy trees and >80% of understorey shrubs are native	50-80% of canopy trees and 50-80% of understorey shrubs are native	< 50% of canopy trees and <50% of understorey shrubs are native
Open space within woodland	10 – 20% of woodland has areas of temporary open space, unless woodland is <10ha in which case 0 – 20% temporary open space is permitted.	21- 40% of woodland has areas of temporary open space	<10% or >40% of woodland has areas of temporary open space. But if woodland <10ha has <10% temporary open space, please see Good category.

Condition Assessment Criteria			
Woodland regeneration	All three classes present in woodland; trees 4-7cm (DBH), saplings and seedlings or advanced coppice regrowth	One or two classes only present in woodland	No classes or coppice regrowth present in woodland
Tree health	Tree mortality less than 10%, no pests or diseases and no crown dieback	11% to 25% mortality and/or crown dieback or low risk pest or disease present	Greater than 25% tree mortality and or any high-risk pest or disease present
Vegetation and ground flora	Recognisable NVC plant community at ground layer present, strongly characterised by ancient woodland flora specialists.	Recognisable NVC plant community at ground layer present	No recognisable NVC community at ground layer present
Woodland vertical structure	Three or more storeys across all survey plots or a complex woodland	Two storeys across all survey plots	One or less storey across all survey plots
Veteran trees	Two or more veteran trees per hectare	One veteran tree per hectare	No veteran trees present in woodland
Amount of deadwood	50% of all survey plots within the woodland parcel have deadwood such as standing deadwood and fallen deadwood, large dead branches/ stems and stumps or an abundance of small cavities	Between 25% and 50% of all survey plots within the woodland parcel have deadwood, such as standing deadwood or fallen dead wood, large dead branches/ stems and stumps, or an abundance of small cavities	Less than 25% of all survey plots within the woodland parcel have deadwood, such as standing deadwood or fallen dead wood, large dead branches/ stems and stumps, or an abundance of small cavities
Woodland disturbance	No nutrient enrichment or damaged ground evident	Less than 1 hectare in total of nutrient enrichment across woodland area and/or less than 20% of woodland area has damaged ground	More than 1 hectare of nutrient enrichment and/or more than 20% of woodland area has damaged ground

The Habitat Management Objectives for KL06-OBW are as follows:

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- Ensure browsing pressure is controlled to reduce damage to newly establishing woodland planting.
- Ensure Rhododendron and laurel is not present and ensure that non-native species cover is less than 10%.
- Ensure at least four native tree species are found across the woodland parcel.
- Ensure that at least two age classes of trees are present within the woodland parcel.
- Promote diverse ground flora communities and woodland understorey of native species.
- Provision of deadwood including standing deadwood, large dead branches / stems, and stumps.

Figure 2.3: KL06-OBW Project Area



KL06-MXS - Mixed Scrub

Mixed native woody scrub will be created providing a margin between the grassland and western boundary hedgerow. Areas of scrub will also be planted adjacent to the eastern boundary and around newly planted woodland. Figure 2.4 outlines the proposed area of the site for the creation of mixed scrub. The ground will be prepared for native shrub and tree whip planting. Where large losses occur, failed stock will be replaced annually in the first five years and once established the scrub will be managed through a coppice of 25% of the shrubs every 10 years on rotation, ensuring a diversity of structure within the scrub. The target habitat will be planted stands of mixed native woody scrub in moderate ecological condition defined by fulfilment of the criteria outlined below.

To achieve the target condition of moderate for mixed scrub in line with the current version of the Statutory Biodiversity Metric (DEFRA., 2023), it requires the fulfilment of 3 or 4 of the following criteria within 5 years:

1. The parcel represents a good example of its habitat type - the appearance and composition of the vegetation closely matches its UKHab description (where in its natural range) At least 80% of the scrub is native. There are at least three native woody species. No single species comprises more than 75% of the cover (except hazel *Corylus avellana*, common juniper *Juniperus communis*, sea buckthorn *Hippophae rhamnoides* (only in its restricted native range), or box *Buxus sempervirens*, which can be up to 100% cover)
2. There is a good age range – all of the following are present: seedlings, sapling, young shrubs, and mature (ancient or veteran) shrubs.
3. There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition* make up less than 5 % of ground cover.
4. The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).
5. There are clearings, glades or rides present within the scrub, providing sheltered edges.

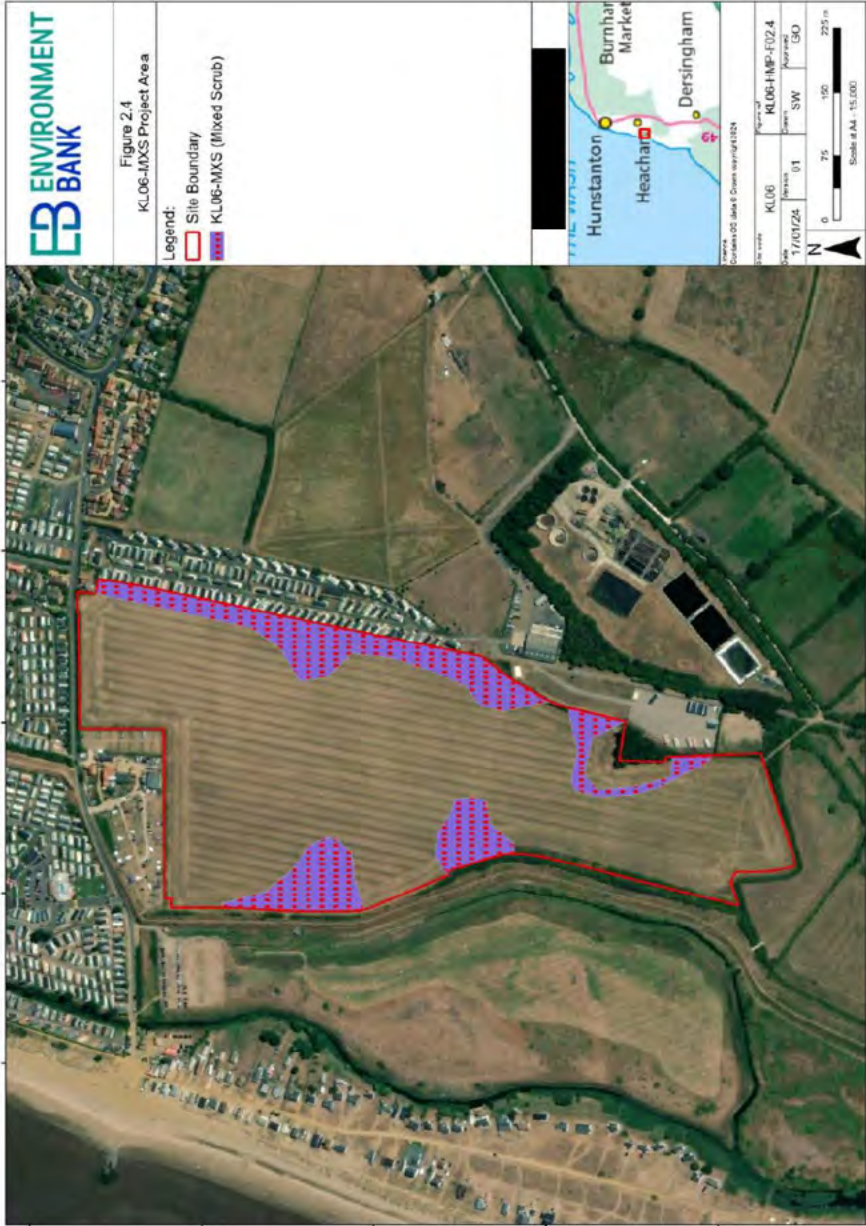
**Species indicative of sub-optimal condition for this habitat type include tree-of-heaven *Alnus incana*, holm oak *Quercus ilex*, turkey oak *Quercus cerris*, creeping thistle *Cirsium arvense*, common nettle *Urtica dioica*, cherry laurel *Prunus laurocerasus*, snowberry *Symphoricarpos* spp., buddleia *Buddleia* spp., Cotoneaster spp., Spanish bluebell *Hyacinthoides hispanica* (or hybrids).*

The Habitat Management Objectives for KL06-MXS are as follows:

- Deliver 3 or more native woody species within the mixed scrub with no more than 1 species providing 75% of the cover.

- Deliver a good age range with seedlings, young shrubs, and mature shrubs present.
- Reduce / remove invasive non-native and species indicative of sub-optimal condition (must be less than 5% coverage).
- Deliver a well-developed edge habitat that slowly grades into adjacent grassland, providing niche habitats for a range of wildlife.
- Deliver clearings, glades, and rides.

Figure 2.4: KL06-MXS Project Area



KL06 – PND - Ponds (Non-priority Habitat)

The proposed location of ponds is shown in Figure 2.5. Ponds have been placed in areas away from footpaths to reduce disturbance to the habitat. The exact location of the ponds will be determined through further site investigation and will consider topography, ground water levels and soil type. The ponds are located within the grassland habitat and therefore will have a level of disturbance from grazing livestock. The ponds will be fenced-off with stock fencing and access restricted for certain periods to ensure that ponds are able to reach target condition. A water trough can also be installed as drinking water source for livestock.

To achieve the target condition of 'moderate' for Ponds (Non-priority Habitat) in line with the current version of the Statutory Biodiversity Metric (DEFRA., 2023), it requires the fulfilment of 6, 7 or 8 of the following criteria within 3 years:

1. The pond is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution. Some low-level turbidity is acceptable if the pond is grazed by livestock.
2. There is semi-natural habitat (i.e., moderate distinctiveness or above) completely surrounding the pond, for at least 10 m from the pond edge or its entire perimeter.
3. Less than 10 % of the pond is covered with duckweed or filamentous algae.
4. The pond is not artificially connected to other waterbodies, either via streams, ditches, or artificial pipework.
5. Pond water levels should be able to fluctuate naturally throughout the year. No obvious dams, pumps, or pipework.
6. There is an absence of non-native plant and animal species.
7. The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities.
8. Emergent, submerged and/ or floating plants (excluding duckweeds), should cover at least 50% of the pond area that is less than 3m deep.
9. The surface of ponds is no more than 50% shaded by woody bankside species.
10. Any species included on the Water Framework Directive UKTAG GB High Impact Species List should be absent. Frequently occurring non-native plant species include water fern *Azolla* spp., Australian swamp stonecrop *Crassula helmsii*, parrot's feather *Myriophyllum aquaticum*, floating pennywort *Hydrocotyle ranunculoides*, Japanese knotweed *Fallopia japonica* and giant hogweed *Heracleum mantegazzianum*. Frequently occurring non-native animals include signal crayfish *Pacifastacus leniusculus*, zebra mussels *Dreissena polymorpha*, killer shrimp *Dikerogammarus villosus*, demon shrimp *D. haemobaphes*, carp *Cyprinus carpio*.

The Habitat Management Objectives for KL06-PND are as follows:

- Ensure good water quality by preventing pollution entering the ponds.
- Appropriate management of grassland habitat within 10m of the ponds.
- Removal or control of non-native species within the ponds or on pond bankside.
- Ensure emergent, submerged and/ or floating plants (excluding duckweeds), should cover at least 50% of the pond area that is less than 3m deep.
- Ensure the surface of the ponds is no more than 50% shaded by woody bankside species.

Figure 2.5: KL06-PND Project Area



KL06-NH –Native Species Rich Hedgerow

Species-rich native hedgerows will be created, enhancing the connectivity across the site and into the wider landscape. The target habitat will be species-rich native hedgerows planted and managed for the benefit of wildlife. Figure 2.6 outlines the proposed locations for the creation of species-rich native hedgerows. Native hedgerow whips will be planted in staggered double rows which will be cut in the first years of establishment to encourage bushy growth. Once established the hedgerow will be cut on rotation every year.

To achieve the target condition of good condition for native species rich hedgerow in line with the current version of the Statutory Biodiversity Metric (DEFRA., 2023), it requires no more than 2 failures in total and no more than 1 in any functional group.

The target condition will be defined by the following characteristics:

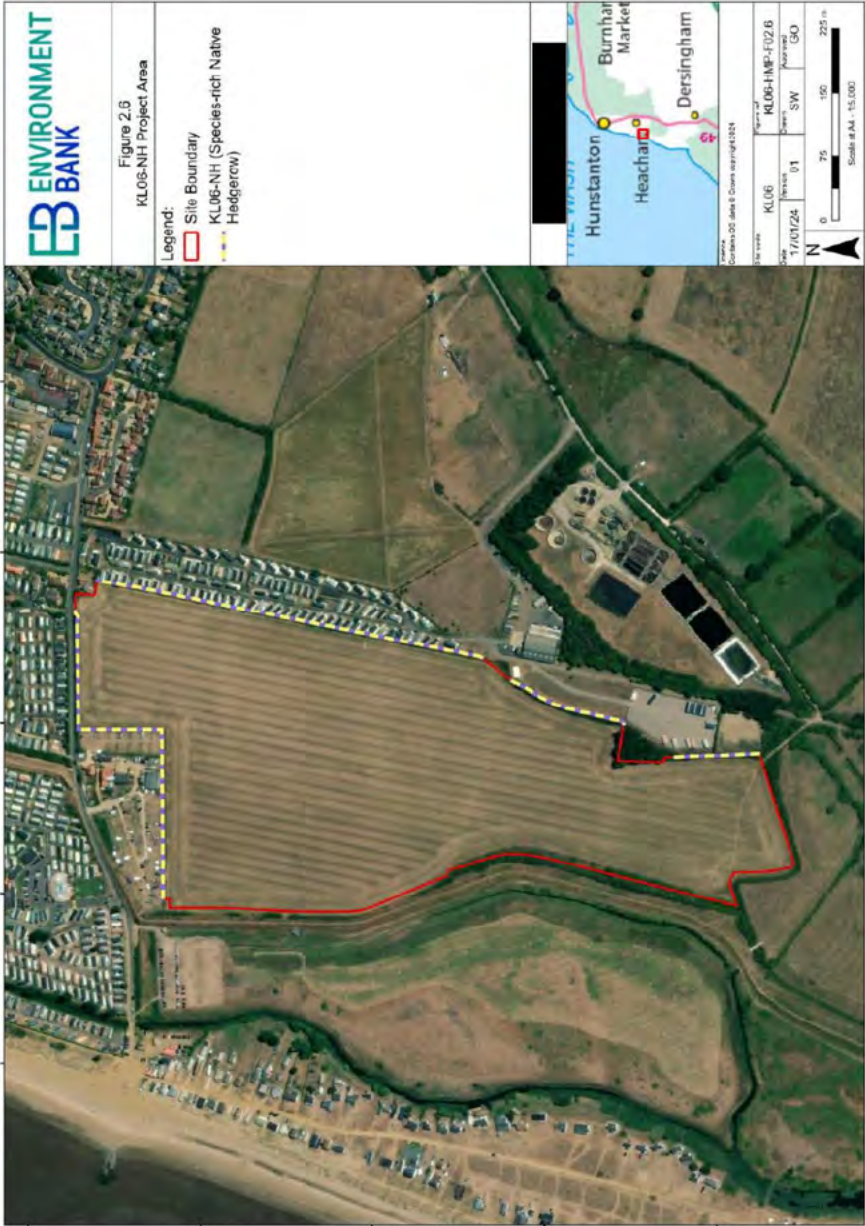
1. A mixed hedgerow canopy comprised of at least 90% native species (locally distinct where feasible) with no-one species exceeding 80% cover.
2. Hedgerow maintained at an average height of at least 1.5 m high and 1.5 m wide.
3. Gap between the ground and the base of the canopy less than 0.5m for over 90% of the length.
4. Gaps within the hedgerow make up less than 10% of total length and no one gap exceeding 5m.
5. Uncultivated hedgerow field margin >1m, with perennial herbaceous vegetation for >90% of the length, maintained along hedgerow on at least one side (unless otherwise bordered by grassland).
6. Plant species indicative of nutrient enrichment of soil dominate less than 20% cover of the area of undisturbed ground.
7. Over 90% of the hedgerow and undisturbed ground is free of invasive non-native (including those listed on Schedule 9 of WCA) and recently introduced/ neophyte species.
8. Over 90% of the hedgerow or undisturbed ground is free of damage caused by human activities.

The Habitat Management Objectives for KL06-NH are as follows:

- Deliver a mixed native hedgerow, with no single species providing over 80% of the coverage.
- Deliver a hedgerow with an average height of 1.5m, width of 1.5m and with the gap between the ground less than 0.5m.

- Ensure gaps within the hedgerow are minimal (less than 10% of hedgerow length) with no one gap larger than 5m.
- Deliver an undisturbed margin along the length of the hedgerow (greater than 1m in width, unless adjacent to grassland).
- Ensure that undesirable plant species cover is less than 20%.
- Ensure that there are no invasive non-native and neophyte species over 90% of the hedgerow and the associated margin.
- Ensure that over 90% of the hedgerow and the associated margin is free from damage caused by humans.

Figure 2.6: KL06-NH Project Area



KL06-Existing Habitats

Existing boundary hedgerow located within the lease boundary are to be maintained in their current condition. Figure 2.7 outlines the locations of these habitats.

There are several introduced non-native scrub species planted along the eastern boundary. These species have been introduced from the occupiers of the neighbouring caravan park. This section of hedgerow will run adjacent to newly established shrub habitat; therefore, any non-native species will need to be restricted to the current extent to ensure non-native species do not spread into the adjacent scrub habitat. Any non-native species recorded within the red line boundary will need to be removed.

Patches of horsetail *Equisetum sp.* have been recorded at the southern boundary. Horsetail will need to be controlled to ensure that it does not spread or form dense patches within newly establishing grassland habitat or invade newly created ponds.

Horsetails are poisonous to livestock and, therefore, cannot be controlled through grazing. Herbicides should not be used close to ditches due to risk of polluting the watercourse. In addition, only spot spraying or weed wiping should be used on species-rich grassland. Areas of dense horsetail will need to be cut through hand strimming with cuttings removed from site to protect grazing livestock and to prevent regrowth from the cuttings. Hand strimming will need to be undertaken during years where dense patches are seen to be establishing within habitats.

Figure 2.7: KL06-Existing Habitats Project Area



2.3 Early Works - Habitat Creation and Establishment

Table 5 below lists the habitat creation works that will be undertaken at the beginning of the lease term to fulfil the management objectives listed above. The actions are listed sequentially across all projects for ease of project planning (note that the actions for both Lowland Meadow and Other Neutral Grassland are the same).

Table 5- Creation and establishment prescriptions for all areas

Project ref	Action	Objective/s	Comments	Timing	Delivery body	Capital works / Management
KL06-LM	Nutrient stripping through the continuation of cereal crop to reduce soil nutrients.	Deliver a lowland meadow, as per the UK Habitat Classification description, with a minimum of 15 grassland species per m2 and cover of broadleaved herbs and sedges >30 %, including ≥2 indicator species frequent and ≥2 indicator species occasional within the sward using the DAFOR scale.	To reduce soil nutrients.	September 2022 -April 2023	Land manager / Contractor	Management
KL06-LM	Prepare ground for seeding: hard graze existing grassland with livestock	Deliver a lowland meadow, as per the UK Habitat Classification description, with a minimum of 15 grassland species per m2 and cover of broadleaved herbs and sedges >30 %, including ≥2 indicator species frequent and ≥2 indicator species occasional within the sward using the DAFOR scale.		Jan - mid May 2024	Land manager	Management

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Project ref	Action	Objective/s	Comments	Timing	Delivery body	Capital works / Management
KL06-LM	Herbicide spray existing grassland to remove dominant undesirables		Approximately 4l per Ha of Roundup/ 0.5l per Ha of Wetter	Mid-May 2024	Land manager	Capital works
KL06-LM	Cultivate grassland <u>after</u> herbicide spraying dominant undesirables	Deliver a lowland meadow, as per the UK Habitat Classification description, with a minimum of 15 grassland species per m2 and cover of broadleaved herbs and sedges >30 %, including ≥2 indicator species frequent and ≥2 indicator species occasional within the sward using the DAFOR scale.	Cultivate to 6/8 inches to bring up undesirable species.	May 2024	Land manager / Contractor	Capital works
KL06-LM	Prepare seedbed	Deliver a lowland meadow, as per the UK Habitat Classification description, with a minimum of 15 grassland species per m2 and cover of broadleaved herbs and sedges >30 %, including ≥2 indicator species frequent and ≥2 indicator species occasional within the sward using the DAFOR scale.	Leave seedbed for 6 weeks	June 2024	Land manager / Contractor	Capital works
KL06-LM	Herbicide spray existing grassland to remove dominant undesirables	Deliver a lowland meadow, as per the UK Habitat Classification description, with a minimum of 15 grassland species per m2 and cover of broadleaved herbs and sedges >30 %, including ≥2 indicator species frequent		Mid-July 2024	Land manager	Capital works

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Project ref	Action	Objective/s	Comments	Timing	Delivery body	Capital works / Management
		and ≥2 indicator species occasional within the sward using the DAFOR scale.				
KL06-LM	Minimum cultivation	Deliver a lowland meadow, as per the UK Habitat Classification description, with a minimum of 15 grassland species per m2 and cover of broadleaved herbs and sedges >30 %, including ≥2 indicator species frequent and ≥2 indicator species occasional within the sward using the DAFOR scale.	Approximately a fortnight after the second herbicide spray, make a seedbed with minimum cultivation	After second herbicide spray July-August 2024	Land manager	Capital works
KL06-LM	Sow commercial seed mix* (10-40kg per hectare) and roll to ensure contact with ground.	Deliver a lowland meadow, as per the UK Habitat Classification description, with a minimum of 15 grassland species per m2 and cover of broadleaved herbs and sedges >30 %, including ≥2 indicator species frequent and ≥2 indicator species occasional within the sward using the DAFOR scale.	Seeding prior to heavy rain events should be avoided or during periods of prolonged drought. Seed should be sown onto surface and rolled.	August 2024*	Land manager / Contractor	Capital works
KL06-LM	Manage sward structure with low intensity grazing	Deliver a lowland meadow, as per the UK Habitat Classification description, with a minimum of 15 grassland species per m2 and cover of broadleaved herbs and sedges >30 %, including ≥2 indicator species frequent and ≥2 indicator species occasional	Use machinery to top sward to a height of 50-100 mm if conditions are deemed unsuitable for grazing. Long term grazing prescriptions will be determined once the grassland has become established.	August-September 2025	Land manager / Contractor	Management

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Project ref	Action	Objective/s	Comments	Timing	Delivery body	Capital works / Management
		within the sward using the DAFOR scale.				
KL06-LM	Use grazing, topping, hand pulling and/or spot treatment to manage/remove undesirable weeds (e.g. nettle, thistles, docks).	Deliver bare ground cover (1 – 5% coverage). Maintain/reduce scrub coverage to less than 5% and bracken less than 20%. Maintain / reduce combined cover of undesirable species and physical damage to less than 5%.	To reduce undesirable species in the sward and stop them spreading further.	August-September 2025	Land manager / Contractor	Management
KL06-ONG	Nutrient stripping through the continuation of cereal crop to reduce soil nutrients.	Deliver a neutral grassland, as per the UK Habitat Classification description, with a minimum of 10 grassland species per m2 and >20 % cover of broadleaved herbs and sedges.	Need to reduce the soil nutrients.	September 2022- April 2023	Land manager / Contractor	Management
KL06-ONG	Prepare seedbed in the same manner as KL06-LM capital works outlined in the rows above.	Deliver a neutral grassland, as per the UK Habitat Classification description, with a minimum of 10 grassland species per m2 and >20 % cover of broadleaved herbs and sedges.	Wildflower seed must make contact with bare ground without competition. 1. Graze, leave the area for approximately four weeks. 2. Herbicide spray with 4l per Ha Roundup/ 0.5l per Ha Wetter 3. Leave for approximately two weeks before cultivating to 6/8 inches 4. Prepare a seedbed and leave for	January - July 2024	Land manager/ Contractor	Capital works

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Project ref	Action	Objective/s	Comments	Timing	Delivery body	Capital works / Management
			approximately six weeks 5. Herbicide spray as above 6. Leave for approximately two weeks, before making a seedbed with minimum cultivation			
KL06-ONG	Sow commercial seed mix** (10-40kg per hectare) and roll to ensure contact with ground.	Deliver a neutral grassland, as per the UK Habitat Classification description, with a minimum of 10 grassland species per m2 and >20 % cover of broadleaved herbs and sedges.	Seeding prior to heavy rain events should be avoided or during periods of prolonged drought. Seed should be sown onto surface and rolled.	August 2024*	Land manager / Contractor	Capital works
KL06-ONG	Use grazing to control swards	Deliver a neutral grassland, as per the UK Habitat Classification description, with a minimum of 10 grassland species per m2 and >20 % cover of broadleaved herbs and sedges. Deliver a variable sward height of at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm.	Use machinery to top sward to a height of 50-100 mm if conditions are deemed unsuitable for grazing. Long term grazing prescriptions will be determined once the grassland has become established.	August-September 2025	Land manager / Contractor	Capital works
KL06-ONG	Use grazing to manage/remove undesirable weeds (e.g. nettle, thistles, docks).	Deliver bare ground cover (1 – 5% coverage). Maintain/reduce scrub coverage to less than 5% and bracken less than 20%. Maintain / reduce combined cover of undesirable species and physical damage to less than 5%.	To reduce undesirable species in the sward and stop them spreading further.	August-September 2025	Land manager / Contractor	Management

HABITAT MANAGEMENT PLAN

Project ref	Action	Objective/s	Comments	Timing	Delivery body	Capital works / Management
KL06-OBW	Prepare ground for woodland planting, remove any existing cereal crop.	Promote diverse ground flora communities and woodland understorey of native species. Ensure non-native cover is less than 10%.		July – September 2023	Land manager / Contractor	Management
KL06-OBW	Plant native tree whips at a density of approximately 1600/ha with 2.5m spacing between trees.	Ensure at least four native tree species are found across the woodland parcel.	Tree spacing to allow for machine access for weeding. Native species mix will be determined following soil analysis and comprise species in-keeping with the natural character of the site. Planting will need to be undertaken in appropriate weather conditions, avoiding ground frost or waterlogged conditions.	October 2024– March 2025	EBL / Contractor	Capital works
KL06-OBW	Install stock-proof fencing around the perimeter of woodland planting to protect from grazing.	Prevent damage to newly establishing woodland planting.		After tree planting 2024– 2025	EBL / Contractor	Capital works
KL06-OBW	Manage/remove undesirable weeds.	Ensure that non-native species cover is less than 10%. Promote diverse ground flora communities and woodland understorey of native species.	Control to include topping/pulling or spot treatment only.	April– September 2024	Land manager / Contractor	Management

HABITAT MANAGEMENT PLAN

Project ref	Action	Objective/s	Comments	Timing	Delivery body	Capital works / Management
KL06-OBW	Replace failed planting stock.	Ensure at least four species are found across the woodland parcel. Ensure that at least two age classes of trees are present within the woodland parcel.	Planting will need to be undertaken in appropriate weather conditions, avoiding ground frost or waterlogged conditions.	October 2025-February 2026	EBL / Contractor	Capital works
KL06-MXS	If required- Spray along the proposed length of shrub planting with a suitable herbicide using a weed wiper of spot spraying.	Remove the presence of invasive species. Reduce / remove the presence of undesirable species (must be less than 5% coverage).	Only to be done if deemed necessary to prevent unwanted vegetation growth from negatively impacting the establishment to newly planted scrub. If herbicide is required, it should be applied using a weed wiper or spot spraying.	April-September 2024	EBL / Contractor	Capital works
KL06-MXS	Plant native shrub and tree whips (different ages) at a density of approximately 1000/ha with lower planting densities towards the margins.	Deliver a good age range with seedlings, young shrubs, and mature shrubs present. Deliver a well-developed edge.	Plant native shrub and tree whips at mixed intervals to create a mosaic.	January-February 2025	EBL / Contractor	Capital works
KL06-MXS	Manage/remove undesirable weeds by topping/pulling or spot treatment only.	Reduce / remove undesirable species (must be less than 5% coverage).	To reduce competition.	April – September 2025	Land manager / Contractor	Management
KL06-MXS	Replace all failed planting stock with native species. This may be the same species or different native species	Delivery of 3 or more woody species within the mixed scrub with no more than 1 species providing 75% of the cover.		October 2025-March 2026	EBL / Contractor	Capital works

HABITAT MANAGEMENT PLAN

Project ref	Action	Objective/s	Comments	Timing	Delivery body	Capital works / Management
	depending on why planting stock has failed.	Deliver a good age range with seedlings, young shrubs, and mature shrubs present.				
KL06-PND	Pond creation. Ponds / scrapes can be dug using digger to specification provide by EBL ecologist.		Ponds will slope at the edges (maximum of 12° slope). Embayment created around pond edges. The ponds will have underwater hummocks and bars at deeper points.	March 2024	EBL / Contractor	Capital works
KL06 PND	Natural establishment of Pond plants		Ponds will be left to naturally vegetate for the first 18months	April- September 2024-2025	Land manager	Management
KL06-PND	If required: If the summer is dry, the ponds will need reprofiling to encourage success		Ponds will slope at the edges (maximum of 12° slope). Embayment created around pond edges.	August- September 2024	EBL/ Contractor	Capital works
KL06-PND	If required: Seeding / planting of marginal and pond plants.	Ensure emergent, submerged aquatic and/or floating plants (excluding duckweeds), should cover at least 50% of the pond that is less than 3m deep.	If planting is required, species will be native and sourced from a supplier that is able to guarantee that the stock is free from contamination from non-native invasives.	April- September 2026	Land manager / Contractor	Capital works

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Project ref	Action	Objective/s	Comments	Timing	Delivery body	Capital works / Management
KL06-PND	If required: Stock-proof fencing erected around pond areas. Pond areas include 'drawdown' zones that hold water seasonally.	Ensure good water quality by preventing pollution entering the ponds. Appropriate management of grassland habitat within 10m of the pond bankside.	Access to pond edges will be maintained to allow machinery access. A 2m buffer zone will be left between the pond 'drawdown' zone and the fence line.	March-December 2024	EBL / Contractor	Capital works
KL06-NH	Prepare ground and apply mulch along 2m strip of the proposed length to control unwanted vegetation growth that may negatively impact the establishment of newly planted whips.	Ensure that undesirable plant species cover is less than 20%. Ensure that there are no invasive non-native and neophyte species over 90% of the hedgerow and the associated margin.	Herbicides may be used if deemed necessary if vegetation growth persists and there is a negative impact to the establishing whips. If herbicide is required, it should be applied using a weed wiper or spot spraying.	October 2022	EBL / Contractor	Capital works
KL06-NH	Plant native 2-year old hedgerow whips in a staggered double row at 40 cm intervals at a density of 6 plants/m ² .	Deliver a mixed native hedgerow, with no single species providing over 80% of the coverage.	Planting will need to be undertaken in appropriate weather conditions, avoiding ground frost or waterlogged conditions. Guards or fencing will be used if damage from browsing deer or livestock is considered too high and cannot be controlled by other means.	November 2022 / March 2023	EBL / Contractor	Capital works
KL06-NH	Trim young growth to encourage bushy growth of whips	Deliver a hedgerow with an average height of 1.5m, width of 1.5m and with the gap between the ground less than 0.5m.	Hedgerow cutting is not permitted between 28 th February to 1 st September to avoid nesting bird season – later cutting is preferred	October 2024	Land manager / Contractor	Management

HABITAT MANAGEMENT PLAN

Project ref	Action	Objective/s	Comments	Timing	Delivery body	Capital works / Management
KL06-NH	Manage competitive growth of grasses and tall herbs during first years of establishment, as required.	Deliver an undisturbed margin along the length of the hedgerow (greater than 1m in width, unless adjacent to grassland).	Spraying hedgerow margins is not permitted once the hedgerow is planted. Weed management by spot treatment only.	As required (2022-2023)	Land manager / Contractor	Management
KL06-NH	Replace failed planting stock	Ensure gaps within the hedgerow are minimal (less than 10% of total hedgerow length) with no one gap larger than 5m.	Planting will need to be undertaken in appropriate weather conditions, avoiding ground frost or waterlogged conditions.	October 2024 / March 2025	EBL / Contractor	Capital works

*Seed will ideally be sourced from a local green hay source subject to one being found. If not, then a suitable commercial seed mix will be sown. Seed mix specification will be agreed with Environment Bank prior to sowing.

2.4 Early Works - Habitat Creation and Establishment Schedule

Table 6 below summarises the schedule of creation and establishment outlined in Table 5.

Table 6- Creation Schedule (All proposals)

Project ref	Prescription	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
KL06-LM1	Nutrient Stripping	2022												
		2023												
KL06-LM1	Prepare ground for seeding: hard graze existing grassland with livestock	2024												
KL06-LM1	Herbicide spray to minimise regrowth of dominant undesirables	2024												
KL06-LM1	Prepare ground for seeding: tine/cultivate to a depth of 6/8 inches to create a weed-free, fine seedbed.	2024												
KL06-LM1	Herbicide spray then follow with second cultivation/tine	2024												
KL06-LM1	Sow commercial seed mix	2024												
KL06-LM1	Manage sward structure with low intensity grazing	2025												
KL06-LM1	Manage/remove undesirable weeds (e.g. nettle, thistles, docks).	2025												
KL06-ONG	Nutrient Stripping	2022												
		2023												

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Project ref	Prescription	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
KL06-ONG	Prepare ground for seeding: hard graze existing grassland with livestock	2024												
KL06-ONG	Herbicide spray to minimise regrowth of dominant undesirables	2024												
KL06-ONG	Prepare ground for seeding: tine/cultivate to a depth of 6/8 inches to create a weed-free, fine seedbed.	2024												
KL06-ONG	Herbicide spray then follow with second cultivation/tine	2024												
KL06-ONG	Sow commercial seed mix	2024												
KL06-ONG	Manage sward structure with low intensity grazing	2025												
KL06-ONG	Manage/remove undesirable weeds (e.g. nettle, thistles, docks).	2025												
KL06-OBW	Prepare ground for woodland planting, remove any existing cereal crop.	2024												
KL06-OBW	Plant native tree whips	2024												
		2025												
KL06-OBW	Install stock-proof fencing around the perimeter of woodland planting to protect from grazing animals.	2024-2025												
KL06-OBW	Use machinery to manage / remove undesirable weeds.	2025												

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Project ref	Prescription	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
KL06-MXS	Spray along the proposed length of shrub planting with a suitable herbicide	2024												
KL06-MXS	Plant native shrub and tree whips	2024												
		2025												
KL06-MXS	Manage competitive growth of grasses and tall herbs during first years of establishment, as required. Spot treat any undesirable weeds (e.g. nettle, thistles, docks).	2025												
KL06-MXS	Replace failed planting stock.	2025												
		2026												
KL06- PND	Create ponds	2024												
KL06-PND	If required: Reprofile ponds to encourage success													
KL06-PND	If required: Stock-proof fencing installation	2024												
KL06-PND	If required: Planting of marginal and pond plants (if required)	2025												
KL06-NH	Prepare ground and spray 2 m wide strip along the proposed length of hedgerow planting with a suitable herbicide	2022												
KL06-NH	Plant native 2-year-old hedgerow whips (with tree guards) in a staggered double row at 40 cm intervals at a density of 6 plants/m.	2022												
		2023												

[illegible]

2.5 Long Term Habitat Management

Table 7 below lists the habitat enhancement and management works that will be implemented over the management period (30 years). The actions are colour coded for each project for ease of reference.

Table 7- Management prescriptions for all areas

Project ref	Action	Objective/s	Comments	Timing	Delivery body
KL06-LM	Graze grassland to manage sward height	Deliver a lowland meadow, as per the UK Habitat Classification description, with a minimum of 15 grassland species per m2 and cover of broadleaved herbs and sedges >30 %, including ≥2 indicator species frequent and ≥2 indicator species occasional within the sward using the DAFOR scale. Deliver a variable sward height of at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm. Deliver bare ground cover (1 – 5% coverage). Maintain/reduce scrub coverage to less than 5% and bracken less than 20%.	Grazing regime will be prescribed following an assessment of the grassland after the completion of the early works. Grazing will be dependent on grassland condition, and other variables, such as weather and ground conditions. Grazing may not be required every year. Livestock density will be assessed each year to fit requirements.	To be determined.	Land manager
KL06-LM	Grazing to manage/remove undesirable weeds (e.g. nettle, thistles, docks).	Remove the presence of invasive species. Maintain / reduce combined cover of undesirable species and physical damage to less than 5%.	Grazing regime will be prescribed following an assessment of the grassland after the completion of the early works. Grazing will be dependent on grassland condition, and other variables, such as weather and ground conditions. Grazing may not be required every year. Livestock density will be assessed each year to fit requirements.	To be determined.	Land manager

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Project ref	Action	Objective/s	Comments	Timing	Delivery body
KL06-ONG	Grazing grassland to manage sward height	Deliver 15 or more other neutral grassland indicator species in 2m x 2m quadrat samples (averaged). Deliver a variable sward height of at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm. Deliver bare ground cover (1 – 5% coverage). Maintain/reduce scrub coverage to less than 5% and bracken less than 20%.	Grazing regime will be prescribed following an assessment of the grassland after the completion of the early works. Grazing will be dependent on grassland condition, and other variables, such as weather and ground conditions. Grazing may not be required every year. Livestock density will be assessed each year to fit requirements.	To be determined.	Land manager
KL06-ONG	Grazing to manage/remove undesirable weeds (e.g. nettle, thistles, docks).	Remove the presence of invasive species. Maintain / reduce combined cover of undesirable species and physical damage to less than 5%.	Grazing regime will be prescribed following an assessment of the grassland after the completion of the early works. Grazing will be dependent on grassland condition, and other variables, such as weather and ground conditions. Grazing may not be required every year. Livestock density will be assessed each year to fit requirements.	To be determined.	Land manager
KL06-OBW	Cutting using machinery to eliminate dense bracken or other undesirable species.	Ensure at least four species are found across the woodland parcel. Promote diverse ground flora communities and woodland understorey of native species.	Bracken and other dominant tall rank species can prevent natural colonisation of native trees and shrubs. The 'colonisation pattern' should be observed for a few years after planting to determine if weeding is required.	When required	Land manager
KL06-OBW	Ensuring areas of open habitat are maintained through cutting back dense scrub understorey or selective thinning of trees.	Promote diverse ground flora communities and woodland understorey of native species. Provision of deadwood including standing deadwood, large dead branches/ stems and stumps.	Deadwood can be left in open areas to benefit wildlife.	5-10 years after planting. Then, when required.	Land manager

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Project ref	Action	Objective/s	Comments	Timing	Delivery body
KL06-OBW	Replacing damaged stock-proof fencing.	To ensure browsing pressure is controlled to reduce damage to woodland and to promote natural colonisation.		When required	Land manager
KL06-OBW	Light grazing within woodland to promote light patch-scarification or moulding.	Promote diverse ground flora communities and woodland understorey of native species.	This is not required if good ground flora diversity has already been achieved through other management. Grazing should be done for brief periods to prevent excessive damage to trees and ground flora.	5-10 years after planting. Late summer (after seedfall)	Land manager
KL06-MXS	Coppice 25% of shrubs in years 10, 20 and 30 in rotation to encourage different height classes amongst the shrubs.	Deliver a good age range with seedlings, young shrubs and mature shrubs present.	Maintain variation in height and structure. Creates some areas of young regrowth. Coppiced shrubs to be selectively thinned. Scrub cutting is not permitted between 28 th February to 1 st September to avoid nesting bird season – later cutting is preferred. Delay where possible cutting shrubs with berries until January / February to provide a foraging resource for birds and mammals.	October – February (2032, 2042 and 2053)	Land manager
KL06-MXS	Retain dead wood			As required	Land manager
KL06-MXS	Maintain the scrub edge.	Deliver a well-developed edge.	Manage the scrub edge to reduce in height along the edge to the grassland field. Cut back any scrub which is encroaching onto the grassland. Cut the grassland edge once a year ensuring the grassy scrub edge is maintained.	Every year once established in October	Land manager
KL06-MXS	Manage and remove any undesirable species and invasive non-native species.	Remove invasive species. Reduce / remove undesirable species (must be less than 5% coverage).	Control to include topping/pulling or spot treatment only.	April-September (2026 – 2053)	Land manager

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Project ref	Action	Objective/s	Comments	Timing	Delivery body
KL06-PND	Remove / control non-native invasive species.	Removal or control of non-native species within the ponds or on pond bankside.	If a non-native plant is found within pond or within 10 m of the pond, it should be removed. Regular checks will be undertaken to check for regrowth and further vegetation removal if required. All non-native invasive species must be disposed of appropriately so as to not contaminate other waterbodies or other land parcels.	When required *Likely undertaken May–September when plants are easier to identify.	Land manager / contractor
KL06-PND	Scrub and bankside woody vegetation is cut back if pond shading exceeds 50% cover.	Ensure the surface of the ponds are no more than 50% shaded by woody bankside species. Appropriate management of grassland habitat within 10m of the pond bankside.	Access to pond edges will be maintained to allow access to machinery.	October/ February	Land manager
KL06-NH	Trim young growth to encourage bushy growth of whips	Deliver a hedgerow with an average height of 1.5m, width of 1.5m and with the gap between the ground less than 0.5m.	Hedgerow cutting is not permitted between 28 th February to 1 st September to avoid nesting bird season – later cutting is preferred.	October 2024-2026	Land manager
KL06-NH	Cut 1/3 of hedgerow every year on rotation	Deliver a hedgerow with an average height of 1.5m, width of 1.5m and with the gap between the ground less than 0.5m. Ensure that over 90% of the hedgerow and the associated margin is free from damage caused by humans.	Hedgerow cutting is not permitted between 28 th February to 1 st September to avoid nesting bird season – later cutting is preferred. Delay where possible cutting shrubs with berries until January / February to provide a foraging resource for birds and mammals.	Every October – February after establishment (2026 – 2053)	Land manager

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Project ref	Action	Objective/s	Comments	Timing	Delivery body
KL06-NH	Top 50% of hedgerow margins on rotation.	Deliver an undisturbed margin along the length of the hedgerow (greater than 1m in width, unless adjacent to grassland).		October – February (2024 – 2053)	Land manager
KL06-NH	Manage and remove invasive non-native species	Ensure that undesirable plant species cover is less than 20%. Ensure that there are no invasive non-native and neophyte species over 90% of the hedgerow and the associated margin.	Control to include topping/pulling or spot treatment only.	April - September 2024-2053	Land manager
KL06-Existing Hedgerow	Cut 1/3 of hedgerow every year on rotation.	Maintenance of the existing hedgerow.	Hedgerow cutting is not permitted between 28 th February to 1 st September to avoid nesting bird season – later cutting is preferred. Delay where possible cutting shrubs with berries until January / February to provide a foraging resource for birds and mammals.	Every October – February (2022 – 2053)	Land manager
KL06-Existing Hedgerow	Manage and remove invasive non-native species	Ensure that undesirable plant species cover is less than 20%. Ensure that there are no invasive non-native and neophyte species over 90% of the hedgerow and the associated margin.	Control to include topping/pulling or spot treatment only	April - September 2022-2053	Land manager
KL06-Existing Hedgerow	Coppice/ cut shrubs when required to keep maintain the existing scrub.	Maintenance of the existing vegetation.	Scrub cutting is not permitted between 28 th February to 1 st September to avoid nesting bird season – later cutting is preferred. Delay where possible cutting shrubs with berries until January / February to provide a foraging resource for birds and mammals.	As required October – February (2022- 2053)	Land manager

2.6 Annual Management Schedule

Table 8 below summarises the schedule of management works to be implemented over the course of the 30-year management agreement. For additional details regarding each prescription refer to Table 7.

Table 8 - Annual Management Schedule (All proposals)

Project ref	Prescription	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
KL06-LM	Graze grassland to manage sward height	2025-2053												
KL06-LM	Grazing to manage/remove undesirable weeds (e.g. nettle, thistles, docks).	2025-2053												
KL06-ONG	Graze grassland to manage sward height	2025-2053												
KL06-ONG	Grazing to manage/remove undesirable weeds (e.g. nettle, thistles, docks).	2025-2053												
KL06-OBW	Application of herbicides or cutting using machinery to eliminate dense bracken or other undesirable species	2025-2053												
KL06-OBW	Ensuring areas of open habitat are maintained through cutting back areas of dense scrub understorey or removing some individual trees.	2027-2053												
KL06-OBW	Replacing damaged stock-proof fencing.	2023-2053												
KL06-OBW	Light grazing within woodland to promote light patch-scarification or moulding.	2027-2053												

Project ref		Prescription	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
KL06-MXS		Coppice 25% of shrubs in years 10, 20 and 30 in rotation to encourage different height classes amongst the shrubs.	2032, 2042 and 2053.												
KL06-MXS		Retain any dead wood	2024 – 2053												
KL06-MXS		Maintain the scrub edge.	2024 – 2053												
KL06-MXS		Manage and remove invasive non-native species	2024 – 2053												
KL06-PND		Remove / control non-native invasive species.	2024-2053												
KL06-PND		Scrub and bankside woody vegetation is cut back if pond shading exceeds 50% cover.	2027-2053												
KL06-NH		Trim young growth to encourage bushy growth of whips	2024 – 2026												
KL06-NH		Cut 1/3 of hedgerow every year on rotation	2026 – 2053												
KL06-NH		Top 50% of hedgerow margins on rotation	2024 – 2053												
KL06-NH		Manage and remove invasive non-native species	2024 – 2053												
KL06-Existing Hedgerow		Cut 1/3 of hedgerow every year on rotation.	2022 – 2053												
KL06- Existing Hedgerow		Manage and remove invasive non-native species	2022 – 2053												
KL06- Existing Hedgerow		Coppice / cut shrubs when required to keep maintain the existing scrub.	2022 – 2053												
				Permitted timings for management activity											

3. Early Implementation Actions

The 'Early Implementation Actions' are the habitat establishment actions (as defined within the Habitat Management Agreement (HMA)) that, once complete, confirm that the land is formally being managed as a Habitat Bank for habitat creation and restoration purposes and in turn, starts the 30-year management time period required of all Biodiversity Net Gain delivery sites. The following actions are the Early Implementation Actions for this Habitat Bank:

Table 9: Early Implementation Actions

Project ref	Prescription
KL06-LM (Lowland meadows)	Removal of cereal crop and prepare ground for green hay and / or seeding.
KL06-ONG (Other neutral grassland)	Removal of cereal crop and prepare ground for green hay and / or seeding.
KL06-OBW (Other woodland; Broadleaved)	Prepare ground for tree planting. Record and remove undesirable species.
KL06-MXS (Mixed scrub)	Prepare ground for shrub planting. Records and remove undesirable species.
KL06-PND (Ponds)	Clear areas for pond creation.
KL06-NRH (Native hedgerows)	Prepare ground for hedgerow planting. Records and remove undesirable species.

Early implementation Actions assume soil nutrients are already at a level suitable for grassland creation. If soil analysis shows that soil fertility is higher than recommended for habitat creation early implementation actions will be adjusted. This contingency proposal is detailed in Table 10.

There will be a requirement to formally document and demonstrate that these Early Implementation Actions have been completed and on which date. This will be achieved through a signed declaration that works were carried out in line with prescriptions, accompanied by timestamped photos of any management works taken before and after implementation. Correspondence between Environment Bank, landowner and contractors can also be used for this purpose.

4. Deviation from Management Prescriptions

All steps within the HMP will need to be followed accurately. However, it is inevitable that deviations may be required in certain years due to variable elements such as weather conditions.

Any deviation from the management prescriptions in tables 5, 6, 7, 8 and 9 must be agreed in writing with an Environment Bank ecologist.

5. Monitoring and Reporting

The HMP will be subject to monitoring, review and reporting. This will ensure that:

- the provisions of the management actions are fulfilled in accordance with the terms of the Habitat Management Agreement and subsequent funding; and,
- the management remains appropriate to achieve the target habitat types and condition.

To inform this approach, information about the delivery of the enhancement/management works and the status of the habitats will be collated for the duration of the management period. This information will comprise the following:

5.1 Report of Actions Taken

Each year the land manager must complete a 'Report of Actions Taken' form. The land manager must complete the form to show they have completed all actions required in the management plan for that particular year.

Acceptable evidence of works includes:

- Invoices/receipts from approved enhancement/management contractors; and,
- A signed declaration that works were carried out in line with management prescriptions, accompanied by timestamped photos of any management works taken before and after implementation.

The form will give the land manager an opportunity to comment on the management prescriptions, and this will be used to inform Environment Banks monitoring visits and annual management review process.

5.2 Annual Monitoring Survey

Environment Bank will undertake an annual monitoring review to ensure that management is being undertaken correctly in line with the management plan and to monitor the progress of the habitat creation.

Each year the Environment Bank will undertake a range of monitoring surveys, outlined within the monitoring schedule for the habitat bank within the Habitat Bank Strategy document (KL06-HBS-01).

Data compiled during this surveillance will be summarised within the Field Monitoring Report together with an updated habitat map.

5.3 Annual Management Plan Review

Following the monitoring visit an annual management plan review will take place. Environment Bank will analyse data and observations from the monitoring survey and discuss progress with the land manager. A decision will be made as to whether the management plan is still appropriate or whether amendments need to be made in order to ensure the target habitat condition is met within the required timeframes.

This annual review will start from 1 year from the anniversary date of scheme commencement. The annual management review will list all actions that were to be carried out in any given year and provide evidence to demonstrate that the works have been carried out.

5.4 Monitoring

All management actions and field surveillance will be monitored against management prescriptions or conservation objectives to demonstrate that the aims of the Habitat Management Plan is being fulfilled and to allow any changes to the management plan to be discussed in the annual management review process. Monitoring will be completed as part of the Annual Management Plan Review and field surveillance and reviewed against the following criteria:

Field Monitoring

Field monitoring will be carried out each year during the monitoring visit by a member of Environment Bank staff or an approved Environment Bank sub-contractor. Each habitat will be mapped and assessed against the relevant habitat condition criteria as detailed in Section 2.2.

5.5 Management Review

A review of the HMP will be undertaken every year. The review will determine if the management actions proposed remain appropriate to achieve the aims of the plan and/or what, if any, amendments, or contingency will be needed to remediate any shortfalls.

The review will be informed from data and comments provided by the land manager in the 'Reports of Actions Taken' form, the monitoring survey and any further discussions between the land manager and Environment Bank.

Table 10 outlines the costed contingency proposals included as part of this HMP along with some other examples of common management amendments.

Habitats will be monitored annually, and Environment Bank will propose interventions as early as possible in order to avoid delays in the time to target. During the establishment period for each habitat type, professional judgement will be used to assess the status of any transitional habitat in order to decide if it is at the expected pre-target condition and moving towards target condition within the expected time period.

Table 10 - Costed contingency proposals for each Habitat Management Project

Project ref	Trigger	Contingency	Management / Capital works
KL06-LM	Soil nutrient levels within the soil are higher than recommended for grassland creation.	Continue to grow and harvest a cereal crop without the application of fertiliser.	Capital works and management. EBL pay for the seed and the land manager would drill and harvest the crop.
	Invasive non-native species identified.	Adjust the management to include removal methodology of the invasive species. Methodology for non-native invasive species control differs for different species. If a non-native invasive species is identified the ecologist should be informed and specific control methodology will be discussed. Specialist contractors and permits may be required in some circumstances.	Management
	Cover of undesirable species and physical damage over 5%.	Review with the land manager or contractor the use of machinery within the habitat. Adjust the management plan in line with the outcomes to reduce physical damage.	Management
	Cover of bracken over 20% and cover of scrub over 5%	Introduce removal of existing bracken and scrub which is beginning to establish into the management plan area.	Management
	Target sward composition or diversity not achieved	Plug planting may be necessary to increase species diversity or additional overseeding to improve sward composition.	Management
KL06-ONG	Soil nutrient levels within the soil are higher than recommended for grassland creation.	Continue to grow and harvest a cereal crop without the application of fertiliser.	Capital works and management. EBL pay for the seed and the land manager would drill and harvest the crop.
	Invasive non-native species identified.	Adjust the management to include topping/pulling or spot treatment of the invasive species.	Management

HABITAT MANAGEMENT PLAN

Project ref	Trigger	Contingency	Management / Capital works
	Cover of undesirable species and physical damage over 5%.	Review with the land manager or contractor the use of machinery within the habitat. Adjust the management plan in line with the outcomes to reduce physical damage.	Management
	Cover of bracken over 20% and cover of scrub over 5%	Introduce removal of existing bracken and scrub which is beginning to establish into the management plan area.	Management
	Target sward composition or diversity not achieved	Plug planting may be necessary to increase species diversity or additional overseeding to improve sward composition.	Management
	Physical damage has increased over 5% due to activity / disturbance from the footpath.	Install fencing along the edge of the footpath to ensure that physical damage from the public is prevented.	Management
	Failure of tree planting	Replacement planting accounted for at 10% (as required)	Capital
KL06-OBW	Invasive non-native species identified.	Specific control methodology for species identified will be required. Specialist contractors and permits may be required in some circumstances.	Management
	Excessive damage to woodland due to over browsing.	Existing tree protection methods will be reassessed, and damaged stock-proof fencing replaced when required. *EBL will not instruct shooting as a way of deer / rabbit control and this activity is not covered within the management plan. Any shooting activity within the Site boundaries will need to be discussed with an EBL ecologist prior to shooting activities starting.	Management
	Failure of tree/shrub planting	Replacement planting accounted for at 10% (as required)	Capital
KL06-MXS	Invasive non-native species identified.	The specific control method will depend on the species identified. Specialist contractors and permits may be required in some circumstances.	Management
	Lack of a well-developed edge	Adjust the cutting of the scrub edge to ensure that the grassland margin is maintained.	Management

HABITAT MANAGEMENT PLAN

Project ref	Trigger	Contingency	Management / Capital works
	Lack of a good age range of shrubs within the habitat.	Additional planting of seedlings or young shrubs where required to provide the diverse habitat structure.	Management
KL06-PND	Invasive non-native species identified.	The specific control method will depend on the species identified. Specialist contractors and permits may be required in some circumstances. Non-native species will need to be disposed of in a way that will not result in the contamination of other waterbodies in the local area.	Management
	Ponds fail to colonise naturally, or damage is caused to the ponds where vegetation has been removed.	Planting of native species from commercial stock. Plants will be sourced from a supplier that is able to guarantee that the stock is free from contamination from non-native invasives.	Management
	Pollution entering ponds.	Source of the pollution should be identified immediately and removed. An EBL ecologist will be contacted, and next steps will be discussed.	Management
	Excessive damage by livestock.	Livestock are permitted to use ponds as a water source if discussed with EBL ecologist beforehand. If ponds show excessive damage due to livestock, ponds will need to be fenced off with stock-proof fencing.	Management
	Failure of hedgerow shrubs and gaps exceed threshold values	Replacement planting accounted for at 10% (as required).	Capital
KL06-NH	Failure of the hedgerow to meet the average height and width requirements.	Adjust the management regime to reduce cutting/ topping to allow for the growth of the hedgerow.	Management
	Invasive non-native species identified.	The specific control method will depend on the species identified. Specialist contractors and permits may be required in some circumstances.	Management

HABITAT MANAGEMENT PLAN

Project ref	Trigger	Contingency	Management / Capital works
	Physical damage caused by human activities identified over 10% of the hedgerow.	Review with the land manager or contractor the activities that are occurring to cause this damage. Adjust the management plan in line with the outcomes to reduce physical damage.	Management
KL06-Existing Habitat	Temporary physical damage to existing hedgerow due to habitat creation activities.	If required, existing hedgerow should be protected by temporary fencing. Any digging within the root protection zone (RPZ) of existing hedgerow / trees will need to be supervised by an EBL ecologist.	Capital

In addition to the above, amendments to the timings or prescriptions of the HMP can be made subject to the provision of evidence to justify the relevant management change. It is essential all changes receive prior agreement with Environment Bank before they can be implemented.

5.6 Scheme completion

The enhancement and management proposals set out in this report will be implemented over a period of 30 years from completion of the “Early Implementation Actions” (as defined above). For this site, the expected time period will be from April 2023 – 2053. On completion of the final year of management, a final Annual Management Review and Field Monitoring Report will be completed and a covering note outlining scheme completion.

6. References

Natural England and other parties (2023). Statutory Biodiversity Metric: User Guide. Available at [The Statutory Biodiversity Metric - Draft User Guide.pdf \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1184442/The-Statutory-Biodiversity-Metric-Draft-User-Guide.pdf) (Accessed: 2024) UK Habitat Classification Working Group (2018). *UK Habitat Classification-Habitat Definition V1.0* at <http://ecountability.co.uk/ukhabworkinggroup-ukhab>

UK Habitat Classification Working Group (2018). *UK Habitat Classification User Manual* at <http://ecountability.co.uk/ukhabworkinggroup-ukhab>

MONITORING STRATEGY

KL06 – KEN HILL FARMS AND ESTATE, SNETTISHAM

Ref: KL06-EB-MNS

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A NEW PLAN FOR
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**EB ENVIRONMENT
BANK**

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Disclaimer

To achieve the study objectives stated in this report, we were required to base our conclusions on the best information available during the period of the investigation and within the limits prescribed by our client in the agreement.

Where information is provided by others, Environment Bank shall bear no liability in respect of any advice given on the basis of that information. No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information. Thus, we cannot guarantee that the investigations (date, work, interpretation of that data or work) completely defined the degree or extent of e.g. species abundances, habitat management efficacy, conservation credit calculations and hence credit requirements, described in the report. Nor does Environment Bank accept any liability for any decisions made by the client on the basis of the information, consultancy or advice provided by Environment Bank.

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Executive Summary

This report outlines the monitoring strategy of a Habitat Bank at Ken Hill Farms and Estates (Environment Bank Reference KL06) within the Local Planning Authority of Borough Council of King's Lynn and West Norfolk. Hereafter referred to as KL06 or 'the Site'.

Environment Bank Ltd produces a Biodiversity Appraisal Report for each of our Habitat Banks which details the baseline habitats and flora found within each site following an initial ecological assessment. The Biodiversity Appraisal Report also provides information on the target habitats and target condition that is our aim, i.e. the uplift in Biodiversity Net Gain (BNG). The current and target habitats and condition for each site follow those in The Statutory Biodiversity Metric (the Metric) (Defra, 2024, 2023a, b); the majority of which follow definitions set out by the UK Habitat Classification (UKHab Ltd, 2023). Refer to the Biodiversity Appraisal Report for the Habitat Bank at KL06 for details of the habitats present within the site prior to creation/enhancement; the target habitats and target conditions; and the overall biodiversity increase (Biodiversity Units) for the Site.

A Habitat Management Plan is also formulated for each Site. The site and habitat specific BNG management objectives including detailed activities for creation, establishment and subsequent habitat management are found in the Habitat Management Plan. Refer to the KL06 Habitat Management Plan for the management objectives and activities.

Environment Bank's Monitoring Strategy is to provide data on progress towards BNG for each defined habitat within a Habitat Bank, providing the quantifiable evidence to measure gains (or otherwise) against set targets and enable us to employ adaptive management. The Monitoring Strategy will meet the monitoring requirements of the British Standard requirements for Habitat Banks (BS 8683; British Standards Institution, 2021) for survey methods; timing and frequency of resurvey; qualifications and experience required of surveyors; and arrangements for retaining and sharing raw survey data to aid future interpretation and assessment of change. Monitoring surveys will be bespoke, tailored to the habitat features present and those to be enhanced or created.

At the Site monitoring surveys will include the Metric condition assessment; botanical surveys including structured walks and detailed quadrats; whole feature assessments of vegetation structure and composition; soil chemistry; water chemistry; breeding bird surveys; winter bird survey; National Pond Survey; and Report of Actions Taken (management survey). The bespoke Monitoring Schedule for the Site with frequency of surveys by type is provided in Table 2 in this document.

As part of the monitoring strategy for the Site, Environment Bank will undertake an annual visit to ensure that management is being undertaken correctly in line with the prescriptions in the Habitat Management Plan formulated for the site and that it aligns with the responses in the Report of Actions taken submitted annually by the Land Manager.

1. Overview

1.1 Delivering Biodiversity Net Gain

1.1.1 Environment Bank Ltd are establishing a national network of Habitat Banks across England. From 12th February 2024, under Schedule 14 of the Environment Act 2021¹ all developments (small sites to follow in April) will need to deliver at least a 10 % increase in biodiversity as a result of their proposals; Biodiversity Net Gain (BNG). This can be delivered on-site or off-site. Habitat Banks are one-off solutions that unlock more sustainable development locally and meet wider nature recovery objectives. They are large-scale habitat creation and enhancement projects that deliver an uplift in biodiversity value and restore nature at scale. The uplift in biodiversity is measured by the Metric and translated into Biodiversity Units (BU) that can then be sold to developers to meet their mandatory BNG obligations. Habitat enhancement works at each of Environment Bank's Habitat Banks will commence in advance of BU sales.

1.2 Monitoring Biodiversity Net Gain

1.2.1 Monitoring is more than the activity of recording: monitoring is a programme of repeated surveys carried out to a pre-defined standardized method, with a baseline against which subsequent surveys are compared. Monitoring surveys have a specific purpose and aim to determine whether a management objective and/or target has been achieved or whether progress is being made towards achieving that target. A well-designed monitoring survey should detect changes in the data over time and trigger responses if any of the changes are undesirable.

1.2.2 Monitoring BNG activities are an essential component in securing the success of BNG delivery within a site. CIEEM has published a collaborative document on good practice principles for BNG (CIRIA, 2019). Chapter 13 *Maintenance and monitoring* highlights the need to:

- Implement the BNG management and monitoring plan.
- Use monitoring data to employ adaptive management and to demonstrate progress towards BNG.
- Use monitoring data to present quantifiable evidence on achieving measurable gains in biodiversity. Such monitoring should be over a timeframe that is commensurable with the specific features of the net gain design.
- Share the monitoring findings widely with industry and the project stakeholders.

1.2.3 Environment Bank produces a Biodiversity Appraisal Report for each of our Habitat Banks which details the baseline habitats and flora found within each site. This

¹ <https://www.legislation.gov.uk/ukpga/2021/30/schedule/14/enacted>

document also provides information on the target habitats and target condition, that is our aim, i.e. the uplift in BNG. The current and target habitats and condition for each site follow those in the Metric; the majority of which follow definitions set out by the UK Habitat Classification (UKHab) (UKHab Ltd, 2023).

- 1.2.4 A Management and Monitoring Plan (MMP) is also required to meet the British Standard requirements for Habitat Banks (BS 8683; British Standards Institution, 2021). Environment Bank provides two separate documents that together meet the requirements of the MMP. The site- and habitat-specific BNG management objectives including detailed activities for creation, establishment and subsequent habitat management are found in the Habitat Management Plan. The monitoring aspects of the MMP are provided in this document, the Monitoring Strategy Report, which under BS 8683 (8.2 Monitoring), shall be implemented to:
- a. Cover all habitats and features that have contributed towards the BNG calculations.
 - b. Check that habitat types and features are achieving the planned condition and functioning ecologically as intended according to timescales anticipated in the calculations.
 - c. Provide information to aid future interpretation and assessment of change.
 - d. Meet MMP requirements for survey methods, timing and frequency of resurvey, qualifications and experience required of surveyors and arrangements for retaining and sharing raw survey data to aid future interpretation and assessment of change.
- 1.2.5 Environment Bank's monitoring strategy is to provide data on progress towards BNG for each defined habitat within a Habitat Bank site, providing the quantifiable evidence and scientifically rigorous data required to measure gains (or otherwise) against set targets and enable us to employ adaptive management.

2. Methods

2.1 Competency

- 2.1.1 All Environment Bank staff that carry out monitoring surveys are highly experienced botanical surveyors, with the knowledge and skills required to meet the competency requirements of the Metric. We are using the Botanical Society of the British Isles (BSBI) Field Identification Skills Certificate (FISC) test to determine the botanical skill level of our surveyors.
- 2.1.2 All river condition assessments for BNG calculations and ongoing monitoring will be carried out by Environment Bank staff members trained and certified in MoRPH5 ([Modular River Survey](#)). Environment Bank staff includes trained and certified MoRPH5 assessors in every regional team.
- 2.1.3 Faunal surveys will be carried out by Environment Bank staff where a suitably qualified surveyor is available in-house, but otherwise will be carried out by a suitably qualified sub-contractor.

2.2 UK Habitat Assessment – Initial Walkover

- 2.2.1 A walkover survey and ecological assessment is undertaken for every proposed Habitat Bank to establish a baseline for the Site, as well as understand the local ecological priorities for biodiversity enhancement design, and to inform the proposed management measures that would need to be actioned for the lifetime of the project. In accordance with best practice (CIEEM, 2021), each site is also assessed to determine the presence of, and/or the opportunities for, protected, notable or invasive species within the Site in order to inform future proposals. Further surveys, including soil nutrient sampling and hydrological assessments, are also undertaken to further inform micro-siting of habitats.
- 2.2.2 The results of the initial walkover survey of a Habitat Bank (the Site) are provided in the Biodiversity Appraisal Report. This initial baseline survey identifies the habitats present using UKHab, taking into account the habitat requirements for the Metric, and provides an assessment of their condition. This initial survey facilitates our habitat creation and enhancement proposals and enables us to: formulate habitat-specific targets; specify the management activities required to achieve those targets; and to set the timeframe in which the targets must be achieved. Refer to the full Biodiversity Appraisal Report and associated Habitat Management Plan documents for further details.

Habitat Creation

- 2.2.3 In habitat creation projects, where the baseline habitat is lost and replaced with another target habitat (e.g. creating a grassland on a former arable field; creating a

stand of mixed scrub in an area of former grassland; or pond creation) a bespoke survey as detailed below will be formulated to collect data on clearly defined measurable objectives, set out in the Habitat Management Plan, within the boundary of the new habitat features. This will take place prior to or shortly after capital works take place to create the new habitat, depending on the habitat type in question.

Habitat Enhancement

2.2.4 In the case of habitat enhancement where the habitat is retained but there is a targeted improvement in condition (e.g. Poor to Good) or a change to a higher distinctiveness habitat in the same broad habitat group (such as enhancing Other neutral grassland to Lowland meadows habitat), the walkover survey of the site may be used as the baseline for our monitoring survey if it fulfils the data requirements to assess progress against our measurable objectives. Alternatively, a bespoke survey will be formulated as stated in 2.2.3 and carried out immediately before or after capital works takes place.

Habitat Retention

- 2.2.5 Habitat retention or ‘retained habitats’ are those habitats (area or linear) that do not provide an uplift in biodiversity units but are deemed to form an integral element of the habitat bank, such as an existing hedgerow that provides essential connectivity or a small woodland copse around which a larger woodland area is to be created.
- 2.2.6 The Metric User Guide (Defra, 2024) states “*Habitat retention is where the baseline habitat is retained in its baseline condition and there is no action to enhance or create the habitat. Habitats subject to retention may still require ongoing intervention to maintain their baseline condition*”.
- 2.2.7 Retained habitats therefore require monitoring to ensure that management activities by the land manager are maintaining the baseline condition (as a minimum) and to identify any need for intervention/adaptive management. Retained habitats will require a periodic habitat condition assessment.

Habitat Exclusion

2.2.8 Habitat exclusion or ‘excluded habitats’ are those habitats which do not provide any uplift in biodiversity units and are not considered integral to the Habitat Bank. The habitats do not form part of the habitat bank, despite residing within the Site boundary. Excluded habitats will not require a periodic habitat condition assessment.

2.3 Monitoring Survey

Survey Components

- 2.3.1 Environment Bank's monitoring survey for each Site will be bespoke, tailored to the habitat features present and those to be enhanced or created. Most Sites will have more than one habitat type in the creation/enhancement design: consequently, there will be more than one monitoring method employed.
- 2.3.2 The monitoring survey will provide data to complete a Metric habitat condition assessment and will provide additional data on the ecological functioning of the habitat and Site. Both quantitative and qualitative data will be recorded on several different variables that are predicted to change during habitat creation and/or enhancement through capital works and habitat management. The method of data collection for these surveys/data variables is shown in Table 1 and discussed below.
- 2.3.3 A bespoke Monitoring Schedule for KL06 is provided in Section 2.4

Table 1: Variables for which data may be collected during a monitoring survey, which will be site- and habitat-type dependent.

Survey	Data variables	Methods
Habitat condition assessment	Botanical composition & cover, frequency of key indicators, vegetation structure, invasive non-natives, habitat damage, physical structure (rivers).	Various including: quadrats, assessment of defined sections (linear features), structured walks, whole feature assessment, MoRPh5, National Pond Survey.
Soil chemistry	pH, Phosphorous, Nitrogen, Potassium & Magnesium; Textural Class & composition; Organic Matter.	Averaged per field/land parcel, or stratified sampling by 1 ha grid squares.
Water chemistry	As required	Whole feature sampling (where required)
Management activities	Stock animal & livestock units, timing of grazing, timing of cutting, other management actions.	Report of Actions Taken: an annual questionnaire for the Land Manager to complete and submit.
Faunal surveys	Breeding/wintering birds, mammals (protected species), invertebrates, amphibians and reptiles.	Species/taxa/group-specific methods as appropriate

Terrestrial Habitats Including Wetland

Quadrats

- 2.3.4 Quadrats will be the survey method employed in most terrestrial habitats (with an 'area' spatial feature type) to assess the botanical composition of each habitat feature within a Site. Percentage cover of all vascular plant species will be recorded in homogeneous stands of vegetation. Quadrat positions will not be fixed due to the well-documented difficulties inherent (and time taken) in relocating quadrat markers and the impact on data analysis of localised damage on swards in fixed quadrat locations: quadrats will be appropriately spaced across the habitat feature with a 10-figure grid reference recorded for each, and subsequent surveys will record quadrats in the same general area in representative, homogeneous vegetation stands.
- 2.3.5 Quadrat size will largely follow the sampling methods of the National Vegetation Classification (NVC) (Rodwell, 1991 et seq.), which are scaled in relation to the structural variation in habitats. The variation within shorter, more species-rich habitat types can generally be 'captured' in small quadrats than that in taller and/or species-poor vegetation. Quadrat sizes are likely to be:
- 2 × 2 m in short herbaceous vegetation (e.g. grassland) and dwarf-shrub heaths.
 - 4 × 4 m in short woodland field layers, tall herbaceous vegetation (e.g. tall-herb fen), sub-shrub heaths and open vegetation (e.g. open mosaic habitats).
 - 10 × 10 m in dense scrub and very tall woodland field layers.
 - 50 × 50 m in woodland canopy and shrub layers
- 2.3.6 Generally square quadrats are preferable, but shape is dependent on the shape of the habitat feature: linear or narrow features may require rectangular quadrats.
- 2.3.7 Quadrat number will vary with the size of the habitat feature. A general aim would be five quadrats per habitat feature for shorter vegetation, but this may be impractical in smaller areas of a habitat type. Fewer quadrats are likely to be recorded in new woodland and scrub areas as these tend to be limited in area (ha) in Environment Bank's Sites. Consequently, for analysis purposes, quadrat data will be averaged for the feature.
- 2.3.8 For those habitats where number of species per m² is included in the UKHab definition and/or condition assessment criteria in the Metric, a nested quadrat method (1 × 1 m within a 2 × 2 m quadrat) will be used.
- 2.3.9 The vegetation composition data recorded in quadrats will enable Environment Bank to determine similarity to the habitat definitions in the UKHab descriptions, which forms one of the Metric condition assessment criteria for many habitat types, and therefore our progress towards achieving the specified target habitat type and condition. Change in species composition attributes, similarity to NVC community types and other quantitative data may form part of the analysis.

Structured walks

- 2.3.10 Structured walks to assess vegetation composition are employed in Common Standards Monitoring of designated nature conservation sites (JNCC, 2019); in the assessment of Higher Level Stewardship (HLS) Farm Environment Plan (FEP) features (Natural England, 2010); and in the Baseline Evaluation of Higher Tier Agreements (BEHTA) (Natural England, 2016). They offer a standardised method of assessing progress towards attribute and target criteria that define favourable or unfavourable condition. They are particularly valuable in assessing whether, for example, grassland stands meet the Priority Habitat (Section 41 habitats and species²; NERC Act, 2006).
- 2.3.11 During a W-shaped or other representative walk, the surveyor stops at roughly regular intervals along the walk. Usually, 10 stops is sufficient unless the stand is very large when 20 stops may be recorded. At each stop the surveyor records data in the square metre in front of them, such as frequency data on positive and negative indicator species for the habitat, cover of individual or groups of plant species (e.g. % cover of: qualifying forb and sedge species, rye-grasses *Lolium* spp., or white clover *Trifolium repens*), cover of bare ground or litter, and sward height.
- 2.3.12 Environment Bank will employ structured walks in those habitats where frequency data of positive and/or negative indicator species, and aggregate cover of plant species/groups will inform on whether our habitat creation/restoration feature is meeting the definitions of the target habitat in UKHab and meeting the condition criteria in the Metric. For example, condition assessment of high distinctiveness grasslands requires frequency data on positive and negative indicator species, whilst assessment of heathland requires frequency data on dwarf-shrub species, heather age-classes and grazing impacts.
- 2.3.13 Structured walk data will contribute to Environment Bank's assessment of whether a favourable condition Priority habitat has been successfully achieved (where this was the target).

Whole feature assessment

- 2.3.14 Some attributes such as canopy cover of native trees in woodland; canopy cover of scattered trees in heathland; cover of scrub in grasslands; physical damage or excessive poaching in grasslands; or visual evidence of pollution in coastal saltmarsh are best assessed at the whole habitat feature level but will be determined following a walk-over of the habitat feature.

² Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 habitats and species of principal importance in England.

Linear features

The monitoring baseline data for habitat features with a 'line' spatial feature type, (such as hedgerows or line of trees) will be recorded by linear section at the length (m) specified in the Metric and/or in the habitat definition in UKHab, plus at the whole feature level (i.e. entire length of linear feature). Re-surveys of created/enhanced sections will inform on progress towards Metric condition criteria, such as the successful establishment of the requisite number of woody species per 30 m section in species-rich hedgerow creation.

Aquatic Habitats

Rivers

- 2.3.15 MoRPh5 ([Modular River Survey](#)) assessments will be carried out as a baseline for rivers, where included within a site, and subsequent resurvey will follow these methods.
- 2.3.16 Marginal vegetation will follow the methods set out for terrestrial habitats.
- 2.3.17 Further aquatic plant or macro-invertebrate surveys would be considered where appropriate and carried out by Environment Bank staff or an approved Environment Bank sub-contractor.

Ponds

- 2.3.18 The baseline for newly created ponds will take place following capital works to create the water body. The baseline survey for the pond will gather data at the whole feature level that specifically addresses the condition assessment criteria in the Metric for Pond habitat type.
- 2.3.19 In addition, in accordance with the methods of the National Pond Survey (Biggs *et al.*, 1998), Environment Bank surveyors will record:
- A complete list of wetland plants present on the outer boundary of the pond with a measure of their abundance.
 - The extent of emergent, floating-leaved and submerged plants stands with the approximate abundance of dominant species.
- 2.3.20 Repeat surveys will be carried out to identify change in the plant community of the pond and progress towards the targets set in the condition assessment criteria and HMP.

Ditches

- 2.3.21 As with terrestrial linear features, ditches will be recorded by linear section at the length (m) specified in the Metric and/or in the habitat definition in UKHab, plus at the whole feature level (i.e. entire length of linear feature). Re-surveys of created/enhanced sections will inform on progress towards Metric condition criteria,

such as the successful establishment of the requisite number of emergent, submerged and floating-leaved plants per 20 m section or % cover of marginal vegetation.

Survey Frequency

- 2.3.22 The frequency of each type of survey will be dependent on the habitat type and the time to target condition set by the Metric and will be adaptive where needed (e.g. if habitat features are not achieving gains towards the set targets as expected, adaptive management and an increase in monitoring frequency may be triggered).
- 2.3.23 A bespoke Monitoring Schedule for KL06 is provided in Section 2.4.

Management – Report of Actions Taken

- 2.3.24 Each year the Land Manager must complete a 'Report of Actions Taken' (RAT) form. The Land Manager must complete the form to show they have completed all actions required in the management plan for that particular year. The report will be used to inform Environment Banks monitoring visits and annual management review process – refer to the HMP for more detail.
- 2.3.25 Data on stock animal used and stocking density, dates during which stock were on the Site, and shutting-up and cutting dates – where applicable – will be collected.

2.4 Adaptive Management

- 2.4.1 The results of the monitoring survey will be used in combination with the annual review of the HMP and the Report of Actions Taken provided by the Land Manager to identify and implement any management changes required to achieve target condition – refer to the annual HMP Review and the costed contingency proposals in the HMP document.

2.5 Reporting

- 2.5.1 Data compiled during the monitoring survey will be summarised within the Habitat Monitoring Report. This will include an assessment of the condition of each habitat type within the Site and an appraisal of whether the habitats are making the expected gains towards achieving target habitat type and condition, within the Time to Target.
- 2.5.2 Environment Bank will provide a copy of the Habitat Monitoring Report to the LPA every 5 years, or more frequently if requested.

3. Monitoring Schedule for KL06

- 3.5.1 Environment Bank will undertake an annual visit to ensure that management is being undertaken correctly in line with the prescriptions in the HMP and that it aligns with the responses in the Report of Actions taken.
- 3.5.2 A bespoke Monitoring Schedule for KL06 is provided in Table 2 below, which will be carried out by Environment Bank ecologists who meets the competency standards required, or an approved Environment Bank sub-contractor.
- 3.5.3 Each habitat will be mapped and assessed against the relevant habitat condition criteria in the Metric.

Table 2: Monitoring schedule for KL06 showing the habitat type to be surveyed, the type of monitoring survey to be carried out, and the frequency of survey in relation to the time to target.

Key to habitat types: LM – Lowland meadows; ONG – Other neutral grassland; OBW – Other woodland; broadleaved; MXS – Mixed scrub; PND – Ponds (non-priority habitat); NH – Native hedgerow; Ret. – Retained habitat.

Key to survey type: CA – Metric condition assessment; SW – Structured walk; Q – Quadrats; WF – Whole feature assessment; Soils – Soil chemistry; Water – Water chemistry; BBS – Breeding Bird Survey; WBS – Winter Bird Survey; NPS – National Pond Survey; RAT – Report of Actions Taken (Management Survey); [] – If required.

Habitat Type	Site	LM	ONG	OBW	MXS	PND	NH	Ret.
Time to target (years)		10	10	15	5	3	12	N/A
Baseline survey (Capital Works phase)	Soils BBS WBS	SW Q CA	SW Q CA	Q CA	Q CA	NPS	CA	CA
Year 1	RAT	SW	SW	WF	WF	NPS	WF	
Year 2	RAT	SW	SW	WF	WF	[Water] NPS CA	WF	
Year 3	RAT	SW	SW	WF	Q CA	NPS CA	WF	
Year 4	RAT	SW	SW	WF	Q CA		WF	
Year 5	Soils BBS WBS RAT	SW Q CA	SW Q CA	Q CA	Q CA	NPS CA	CA	CA
Year 6	RAT	SW	SW	WF			WF	

Habitat Type	Site	LM	ONG	OBW	MYS	PND	NH	Ret.
Time to target (years)		10	10	15	5	3	12	N/A
Year 7	RAT	SW	SW	WF			WF	
Year 8	RAT	SW Q CA	SW Q CA	WF	WF	WF	WF	
Year 9	RAT	SW Q CA	SW Q CA	WF			WF	
Year 10	Soils BBS WBS RAT	SW Q CA	SW Q CA	Q CA	Q CA	NPS CA	CA	CA
Year 11	RAT	SW	SW	WF			CA	
Year 12	RAT	SW	SW	Q CA			CA	
Year 13	RAT	SW	SW	WF	WF	WF	WF	
Year 14	RAT	SW	SW	Q CA				
Year 15	Soils BBS WBS RAT	SW Q CA	SW Q CA	Q CA	Q CA	NPS CA	CA	CA
Year 16	RAT	SW	SW					

Habitat Type	Site	LM	ONG	OBW	MXS	PND	NH	Ret.
Time to target (years)		10	10	15	5	3	12	N/A
Year 17	RAT	SW	SW					
Year 18	RAT	SW	SW	WF	WF	WF	WF	
Year 19	RAT	SW	SW					
Year 20	BBS WBS RAT	SW Q CA	SW Q CA	Q CA	Q CA	NPS CA	CA	CA
Year 21	RAT	SW	SW					
Year 22	RAT	SW	SW	WF	WF	WF	WF	
Year 23	RAT	SW	SW					
Year 24	RAT	SW	SW					
Year 25	BBS WBS RAT	SW Q CA	SW Q CA	Q CA	Q CA	NPS CA	CA	CA
Year 26	RAT	SW	SW					
Year 27	RAT	SW	SW					

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Habitat Type	Site	LM	ONG	OBW	MYS	PND	NH	Ret.
Time to target (years)		10	10	15	5	3	12	N/A
Year 28	RAT	SW	SW	WF	WF	WF	WF	
Year 29	RAT	SW	SW					
Year 30 End	BBS WBS RAT	SW Q CA	SW Q CA	Q CA	Q CA	NPS CA	CA	CA

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Figure 1: Target Habitats (UKHab) for KL06

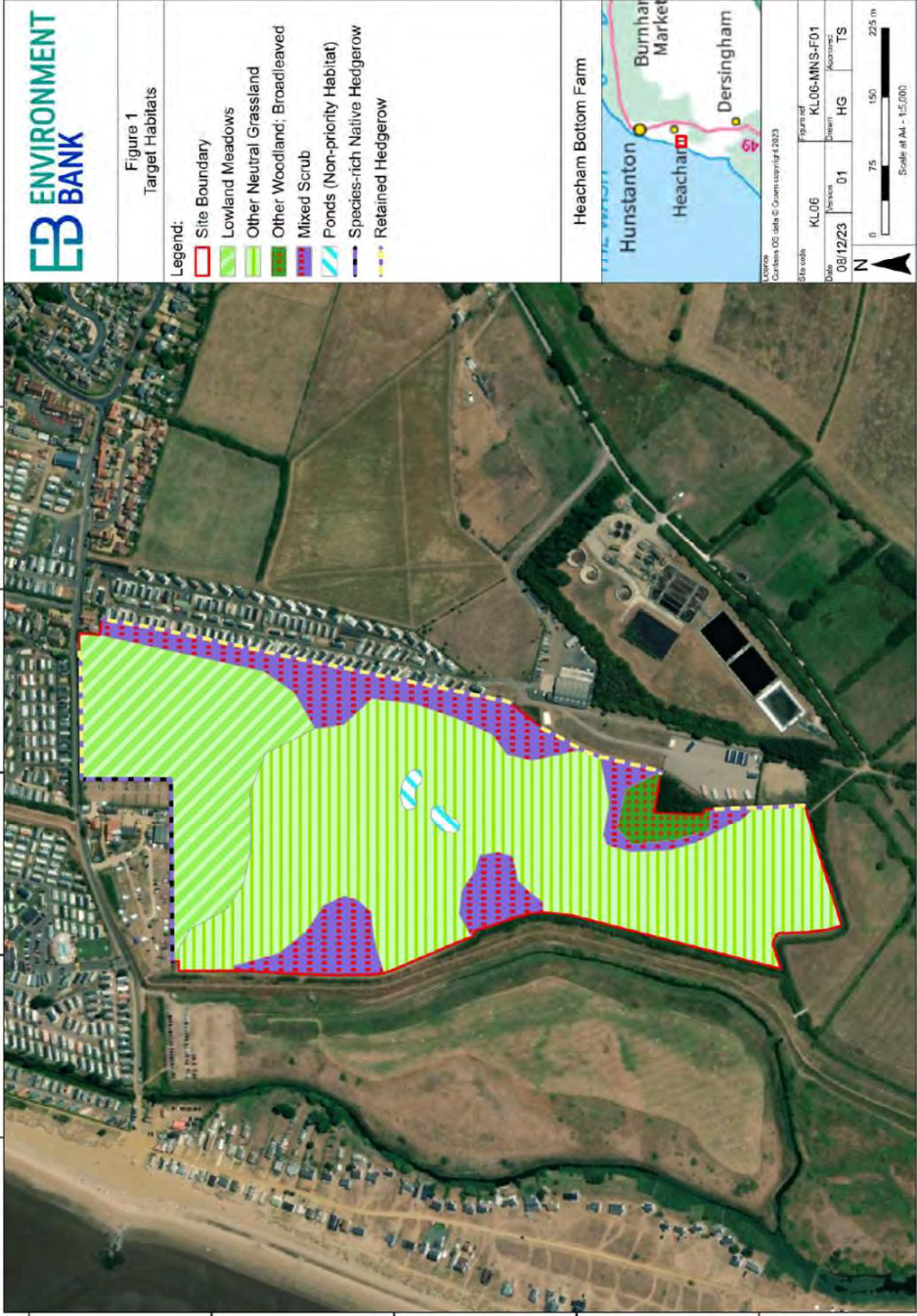


Figure 2: Target Habitats – Target Condition for KL06

