Light Valley Solar

Outline Bird Mitigation Area Management Plan

Document Reference: EN0110012/APP/LVS/07.19

November 2026
Version 2

APFP Regulation 5(2)(q)
Volume: 7

Light Valley Solar

Infrastructure Planning

Planning Act 2008

The Infrastructure Planning
(Applications: Prescribed Forms and Procedure) Regulations 2009

Light Valley Solar

DCO Submission

Outline Bird Mitigation Area Management Plan

Regulation Reference	APFP Regulation 5(2)(q)
Planning Inspectorate Case Reference	EN0110012
Application Document Reference	EN0110012/APP/LVS/07.19
Author	Light Valley Solar Limited

Version	Date	Status of Version
1.0	February 2026	DCO Submission
2.0	November 2026	DCO Deadline 4 Submission

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1 Introduction

1.1 Overview and purpose of the document

1.1.1 Light Valley Solar Limited (the Applicant) has prepared this Outline Bird Mitigation Area Management Plan (oBMAMP) as part of an Application for a Development Consent Order (DCO) for the construction of Light Valley Solar (the Proposed Development).

1.1.2 The purpose of the oBMAMP is to outline how measures proposed will provide mitigation for the anticipated displacement of ground nesting birds and wetland birds associated with Lower Derwent Valley and the Humber Estuary SPA and Ramsar site as a result of the Proposed Development.

1.1.3 The oBMAMP should be read in conjunction with the assessments provided in the Shadow Habitats Regulations Assessment (HRA) [**EN0110012/APP/LVS/05.11**], Chapter 12: Ornithology (ES Volume 1) [**EN0110012/APP/LVS/06.01.12**] and the Technical Note: Updated Ground Nesting Bird Baseline [**EN0110012].**

1.1.4 The proposed measures comprise the creation of high-quality wetland and grassland habitats, represents a conservation strategy that will mitigate the loss of Functionally Linked Land (FLL), ground nesting bird habitat and disturbance and displacement effects caused by the Proposed Development, and so doing, maintain the integrity for the relevant affected European sites and species conservation status at a local level (ground nesting birds).

1.1.5 The habitats that are created will be managed in accordance with the detailed version of this Management Plan over the course of the operational lifetime of the Proposed Development and until decommissioning works for the Proposed Development are completed. The management will be undertaken by suitably experienced and/or qualified personnel, who will be employed or contracted by the Applicant and/or any subsequent owner of the development in accordance with the requirements of the DCO Application. Within this document, the managing personnel will be referred to as the ‘nature conservation professional’ hereafter.

1.1.6 The oBMAMP establishes the core mitigation principles and governance mechanisms that will be taken forward into a detailed BMAMP, which will be prepared and approved post-consent in accordance with a Requirement of the DCO Application.

1.1.7 This oBMAMP applies solely to the Bird Mitigation Area (BMA) within the southern extent of Solar Development Site 1, shown as Work No. 9B on the Works Plans [**EN0110012/APP/LVS/02.03**]. It establishes the habitat creation, management, monitoring and adaptive management requirements for breeding ground-nesting birds and non-breeding SPA/Ramsar waterbirds within the BMA.

1.1.8 Bird habitat creation, management and monitoring outside the BMA, including within the remainder of Solar Development Site 1 and all other Solar Development Sites (2-4 and 6-8), will be delivered through the oLEMP [**EN0110012/APP/LVS/07.05**]. This includes open grasslands greater than 2 ha, Bird Habitat Areas (Solar Development Sites 4 and 6), field margins and habitat corridors. Relevant oLEMP prescriptions for hedgerows, scrub and bird boxes are incorporated by reference into this oBMAMP and will be implemented within the BMA through the detailed BMAMP, where compatible with the BMA's primary bird mitigation objectives.

1.1.9 This management plan incorporates embedded and good practice measures, as well as any further mitigation that arises out of the EIA and HRA process. An outline version of this management plans is submitted alongside the ES as part of this DCO Application to secure the commitments within the assessment. A Requirement is included in the draft DCO [**EN0110012/APP/LVS/03.01**] to ensure detailed management plans will be prepared to full versions by the appointed Contractor(s), substantially in accordance with the outline management plans, and will be submitted for approval by North Yorkshire Council in advance of starting the relevant phase of works.

1.2 Objectives of this plan

1.2.1 The objectives of this oBMAMP are to:

1) Set out the principles for mitigating loss habitat for ground nesting birds and the loss of FLL used by non-breeding SPA/Ramsar bird species;
2) Provide a clear framework for the delivery, management and long-term maintenance of bird mitigation measures;
3) Ensure that mitigation is functionally effective, reliable and available at the appropriate time relative to construction and operation; and
4) Establish an adaptive management and monitoring approach to ensure mitigation remains effective throughout the lifetime of the Proposed Development.

1.3 Assumptions, limitations and precautionary approach

1.3.1 This document is an outline plan and defines the mitigation principles, performance objectives and governance arrangements for the BMA, rather than detailed design specifications which will follow within the detailed BMAMP.

1.3.2 This oBMAMP has been informed by findings of Chapter 12: Ornithology (ES Volume 1) [**EN0110012/APP/LVS/06.01.12**], the Technical Note: Updated Ground Nesting Bird Baseline [**EN0110012]** and the Shadow Habitat Regulations Assessment [**EN0110012/APP/LVS/05.11**] for the Proposed Development, including baseline ornithological surveys, assessment of functionally linked land, and engagement with North Yorkshire Council and Natural England.

1.3.3 This oBMAMP is based on information on the Proposed Development at the time of submission of the DCO Application. A detailed BMAMP will be produced following the appointment of the nature conservation professional prior to the commencement of construction. The detailed BMAMP will be substantially in accordance with the oBMAMP.

1.3.4 The oBMAMP is based on the following assumptions:

1) That the requirement for bird mitigation arises from the loss of ground nesting bird habitat identified by findings of Chapter 12: Ornithology (ES Volume 1) [**EN0110012/APP/LVS/06.01.12**] and non-breeding waterbird utilisation recorded and assessed within the Order Limits associated with the relevant European sites, as identified in the Shadow Habitat Regulations Assessment [**EN0110012/APP/LVS/05.11**];

2) Mitigation will be delivered through the provision and management of the dedicated BMA which is designed to maintain and enhance the functionality the reliable availability of the area seasonally for both breeding and non-breeding birds. The definition of "functionality" is as set out in paragraph 5.6.4 below;

3) The final design, detailed prescriptions and precise spatial extents of each measure will be informed through on-going consultation with North Yorkshire Council and Natural England.

1.3.5 A precautionary approach has been demonstrated throughout, which is consistent with the Shadow Habitat Regulations Assessment [**EN0110012/APP/LVS/05.11**] and Chapter 12: Ornithology (ES Volume 1) [**EN0110012/APP/LVS/06.01.12**], to ensure that mitigation is sufficient in principle to avoid effects on the European site(s) integrity.

1.4 The Order Limits, Proposed Development and ornithological context

Order Limits

1.4.1 The Order Limits outline the maximum extent of the land that will be required to facilitate the construction, operation and maintenance, and decommissioning of the Proposed Development and are shown on the Works Plans [**EN0110012/APP/LVS/02.03**] and Location Plan [**EN0110012/APP/LVS/02.01**]. The Order Limits are described in Chapter 1: Introduction (ES Volume 1) [**EN0110012/APP/LVS/06.01.01**] and Chapter 2: The Proposed Development (ES Volume 1) [**EN0110012/APP/LVS/06.01.02**] of the Environmental Statement (ES).

1.4.2 The Order Limits cover an area of 1,270 hectares (ha) located within the administrative area of North Yorkshire Council, near Selby. The Proposed Development comprises seven distinct Solar Development Sites totalling 900 ha of land, as well as 328.5 ha of land within the Cable Route Corridor. The

remaining land within the Order Limits is made up of the Highways Improvement Areas (HIAs) and the Site 8 Access Area.

The Proposed Development

1.4.3 The Proposed Development comprises a solar photovoltaic (PV) electricity generating station of over 100 megawatts (MW) and 'associated development' comprising a Battery Energy Storage System (BESS), grid connection infrastructure and other infrastructure integral to the construction, operation and maintenance, and decommissioning phases.

1.4.4 The main element of the Proposed Development comprises seven Solar Development Sites (Solar Development Sites 1-4 and 6-8) that will accommodate the Solar PV Panels. A BESS Compound will be located within Solar Development Site 2.

1.4.5 The Cable Route Corridor is the area within which the export connection cables (hereafter referred to as the 'Grid Connection Cables') would be located to connect the Solar PV Sites to the National Grid at the existing Monk Fryston Substation (hereafter referred to as the 'Existing National Grid Monk Fryston Substation') and the area within which cables connecting the Solar Development Sites would be located (hereafter referred to as 'Interconnecting Cables') (refer to Figure 2.1: Illustrative Site Layout Plan (ES Volume 2) [**EN0110012/APP/LVS/06.02.02.01**].

1.4.6 Further details of the Proposed Development are presented in Chapter 2: The Proposed Development (ES Volume 1) [**EN0110012/APP/LVS/06.01.02**] and the design envelope for the Proposed Development is set out in the Design Parameters and Commitments Document [**EN0110012/APP/LVS/05.06**] and the limits of deviation shown on the Works Plans [**EN0110012/APP/LVS/02.03**].

1.4.7 The Proposed Development also includes three 275 kV substations located on Solar Development Site 1, 2 and 4 to export the generated electricity onwards to the National Grid at the 275 kV Monk Fryston Substation.

1.4.8 Construction compounds and / or laydown areas for the Solar Development Sites will be located within each Solar Development Site. Five Cable Construction Compounds for the Cable Route Corridor have been identified within the Cable Route Corridor with one Cable Construction Compound located in Solar Development Site 2.

1.4.9 The construction compounds will provide sufficient space for loading / unloading of materials and waste, and car parking for those working at the Proposed Development.

1.4.10 The Proposed Development includes infrastructure and associated activities that have the potential to result in:

1) Long-term land use change within parts of the Order Limits; and
2) Temporary and ongoing sources of disturbance during construction, operation (primarily replacement activities) and decommissioning.

1.5 Relevant European sites and qualifying features (non-breeding)

1.5.1 The Lower Derwent Valley and the Humber Estuary SPA and Ramsar sites are located within 20 km of the Order Limits. These are referred as the 'relevant European sites'.

1.5.2 These sites are designated for assemblages of non-breeding waterbirds and/or individual qualifying species, including waders and wildfowl, which are known to utilise land outside the designated boundaries for foraging, loafing and movement (FLL).

1.5.3 The conservation objectives of the relevant European sites seek to maintain or restore:

1) *The extent and distribution of supporting habitats;*
2) *The structure and function of those habitats; and*
3) *The populations of qualifying features for which the sites are designated.*

2 Summary of non-breeding bird baseline

2.1 Overview of the existing non-breeding bird baseline

2.1.1 The oBMAMP does not provide full comprehensive field surveys and desk-study information, all information is detailed in Chapter 12: Ornithology (ES Volume 1) [**EN0110012/APP/LVS/06.01.12**] and Appendix 12.2: Non-breeding Bird Survey Report (ES Volume 3) [**EN0110012/APP/LVS/06.03.12.02**]. However, an overall, broad summary is provided below.

2.1.2 Baseline ornithological surveys, the scopes of which were agreed with Natural England, were undertaken to characterise non-breeding bird use of land within the Order Limits, with particular reference to species associated with the relevant affected Special Protection Area (SPA) and Ramsar sites.

2.1.3 The baseline survey recorded a range of qualifying species and species part of the wider waterbird assemblage. Species including lapwing, golden plover, greylag goose were recorded at levels that are considered ornithologically meaningful when using Natural England's FLL broad guidance.

2.1.4 Utilisation of the Order Limits by non-breeding birds were characterised as spatially variable across the isolated Solar Development Sites, however particular concentrations were recorded within Solar Development Sites 1, 4 and 6/7.

2.1.5 Non-breeding birds were temporal with site utilisation influenced by factors including hydrology, weather and land management (cropping regimes).

2.1.6 While use was not uniform or continuous across all areas, the baseline evidence confirms that parts of the Order Limits provide functionally important foraging and loafing opportunities during the non-breeding period.

2.2 Implication for FLL and mitigation requirement

2.2.1 As stated in the Shadow Habitat Regulations Assessment [**EN0110012/APP/LVS/05.11**], in the absence of mitigation, the Proposed Development would result in:

1) The loss of some areas of FLL; and
2) Potential disturbance effects affecting the use of remaining land.

2.2.2 Mitigation is therefore required to ensure that the extent, distribution and function of supporting habitat for SPA/Ramsar bird species is maintained, such that there is no adverse effect on the integrity of the relevant affected European sites.

3 Potential effects requiring mitigation

3.1.1 The following section describes the impacts which were identified in the HRA and were taken forwards to the Avoidance Areas in order to safeguard the integrity of the relevant affected European sites.

3.2 Loss of Functionally Linked Land

3.2.1 The Proposed Development will result in the long-term change in land use within parts of the Order Limits during the operational phase, with temporary land use change during construction and decommissioning.

3.2.2 Baseline surveys confirm that the Order Limits is used by non-breeding bird species associated with relevant SPA and Ramsar sites. As such, these areas constitute functionally linked land contributing to the supporting habitat network of the relevant European sites.

3.2.3 In the absence of mitigation, the loss of access to these areas could reduce the availability of suitable foraging and loafing habitat for qualifying features and assemblage species during the non-breeding period.

3.3 Disturbance and displacement

3.3.1 Construction, operational and decommissioning activities have the potential to generate visual, noise and human disturbance that could temporarily or permanently displace non-breeding birds from land within or adjacent to the Order Limits.

3.3.2 Disturbance effects may arise from:

1) Construction activities, site personnel and traffic movement;
2) Operational infrastructure, maintenance and replacement activities; and
3) Changes to access (human access).

3.3.3 Without appropriate mitigation, such disturbance could reduce the functional value of remaining habitat and increase energetic costs to birds through displacement.

3.4 Summary of effects without mitigation

3.4.1 In the absence of mitigation, the Proposed Development could result in:

1) A net loss of FLL; and
2) Disturbance-related displacement of non-breeding birds.

3.4.2 These effects have the potential to undermine the conservation objectives of the relevant European sites. Mitigation is therefore required to avoid adverse effects on site integrity.

4 Summary of breeding bird baseline

4.1 Overview of the existing breeding bird baseline

4.1.1 The oBMAMP does not provide full comprehensive field surveys and desk-study information, all information is detailed in Chapter 12: Ornithology (ES Volume 1) [**EN0110012/APP/LVS/06.01.12**] and Appendix 12.2 [**EN0110012/APP/LVS/06.03.12.02**] and Technical Note: Updated Ground Nesting Bird document [**REP2-114**]. However, an overall, broad summary of birds (ground-nesting) likely to be impacted as a result of the Proposed Development is provided below in **Table 1**.

Table 1. Ground Nesting Bird territories recorded during the breeding bird surveys

Site Number	Skylark	Lapwing	Corn bunting	Yellow wagtail
1	14	7	0	1
2	7	0	1	0
3	1	0	1	1
4	48	1	27	4
6/7	4	0	0	0
8	9	0	1	1
Total territories	**83**	**8**	**30**	**6**

4.1.2 Including the above listed species, other farmland bird species which were recoded breeding within the Survey Area include:

- Seven species listed as Red on the Birds of Conservation Concern 5 (BoCC5): greenfinch, house sparrow, linnet, mistle thrush, song thrush, starling, and yellowhammer;
- 18 species listed as Amber on the (BoCC5): bullfinch, dunnock, kestrel, mallard, moorhen, meadow pipit, oystercatcher, reed bunting, rook, sedge warbler, shelduck, sparrowhawk, swift, stock dove, whitethroat, willow warbler, woodpigeon and wren;
- Five species listed on Section 41 NERC Act (2006): bullfinch, dunnock, house sparrow, linnet, starling; and
- Two birds listed on Schedule 1: barn owl and red kite.

4.1.3 Utilisation of the Order Limits by ground nesting birds were characterised as spatially variable across the isolated Solar Development Sites (1-4 and 6-8), however particular concentrations of ground nesting birds recorded within Solar Development Site 4 for skylark, and corn bunting in particular.

4.1.4 Baseline conditions of Solar Development Site 4 were also reviewed alongside the bird survey data. As presented in Technical Note: Updated Ground Nesting Bird document [**REP2-114]**, the majority of Solar Development Site 4 habitats are considered constrained and unreliable for ground nesting birds due to the proportion of winter crops. **Table 2** presents the existing baseline conditions of

Solar Development Site 4 across five years; whereby winter crops dominate the land.

Table 2. Winter crop coverage (%) only over the past six years. Note that this does not include other unsuitable crops including maize, second wheat, potatoes, sugar beet and carrot. See Technical Note: Updated Ground Nesting Bird document [REP2-114], for full details.

Year	Winter crop area (ha)	Percentage coverage of winter crop only within Solar Development Site 4
2021	141.1	65.8%
2022	166.0	77.4%
2023	187.5	87.4%
2024	72.1	33.6%
2025	131.6	61.4%
2026	128.2	59.8%

4.2 Summary of effects without mitigation

4.2.1 As stated in Chapter 12: Ornithology (ES Volume 1) [**EN0110012/APP/LVS/06.01.12**], in the absence of mitigation, the Proposed Development would result in a significant moderate to minor adverse effects during the operation phase due to the long-term loss of ground nesting bird habitat, specifically skylark, lapwing, corn bunting and yellow wagtail as identified during the breeding bird surveys.

4.2.2 It is well established that the overall trend in the U.K. of ground-nesting bird (specialist species) declines are linked with the intensification of agricultural practices, including more intensive management, greater reliance on pesticides and winter crop coverage. The damaging impact of these practices on nature are directly acknowledged in the Local Nature Recovery Strategy (Ref 4), particularly in relation to yellow wagtail and lapwing. Habitat creation and management within solar developments therefore provide an opportunity to address some of these pressures through the provision of secure nesting and foraging habitats.

4.2.3 Evidence of this potential is provided through research undertaken by the Royal Society for the Protection of Birds (RSPB) and Cambridge University (Ref 5) which has shown that well managed solar farms can result in an increase in both species richness and abundance of farmland birds when compared to typical arable land, including species listed as Red or Amber under BoCC (+133.3%), see **Table 3** below. It is therefore likely that the species listed in paragraph 4.1.2 will positively benefit from the enhancements and mitigation.

Table 3: Estimated abundance and species richness (± Standard Error) for farmland birds in arable and mixed habitat solar (data adapted from *Copping et al.*, 2025; Ref 5)

Group	Arable	Mixed habitat solar	Percentage change
Abundance			
All species	11.9 (±2.6)	35.1 (±6.4)	+194.96%
Farmland birds	8.7 (±2.3)	20.3 (±3.9)	+133.33%
Woodland birds	0.4 (±0.2)	6.3 (±1.3)	+1,475.00%
All BoCC Red/Amber	7.8 (±2.2)	19.4 (±5)	+148.72%
Farmland BoCC Red/Amber	7.6 (±2.1)	15 (±4.2)	+97.37%
Woodland BoCC Red/Amber	0.2 (±0.1)	2.5 (±0.6)	+1,150.00%
Species Richness			
All species	5.5 (±0.6)	13.5 (±1.1)	+145.45%
Farmland birds	3.4 (±0.5)	5.8 (±0.7)	+70.59%
Woodland birds	0.4 (±0.2)	3.7 (±0.7)	+825.00%
All BoCC Red/Amber	3.2 (±0.5)	6.8 (±0.8)	+112.50%
Farmland BoCC Red/Amber	3 (±0.5)	4.9 (±0.7)	+63.33%
Woodland BoCC Red/Amber	0.2 (±0.1)	1.2 (±0.3)	+500.00%

5 Outline Bird Mitigation Area Strategy

5.1.1 This section outlines the management measures and commitments made by the Applicant to ensure that potential impacts on bird species are avoided during both the breeding and non-breeding period, reduced, and are appropriately managed throughout the construction and operational phases of the Project.

5.2 Project team roles and responsibilities

5.2.1 Overarching roles and responsibilities during the construction phase of relevance to the oBMAMP will likely include, but are not limited to:

1) Construction Project Manager- overall responsibility for delivery of oCEMP works in accordance with the approved design and programme;
2) Specialist Contractor- to undertake construction of the oCEMP and associated BMA measures;

3) Environmental Manager / Ecological Clerk of Works- to provide ornithological oversight during construction of the oCEMP, ensuring compliance with the BMAMP and relevant provisions of the oCEMP;

4) Site Manager- daily coordination of activities and implementation of mitigation measures; and

5) Community Liaison Officer- interface between local stakeholders and the local community.

5.2.2 Note these roles and responsibilities are indicative and will be confirmed in the detailed BMAMP. However, the roles will liaise with and operate within the wider construction management framework detailed in the detailed CEMP and Construction Traffic Management Plan (CTMP). This will also include the roles and governance structures defined therein.

5.2.3 Following construction, responsibility for the ongoing management and monitoring of the BMA will transfer to a suitably qualified nature conservation professional or management body (referred to as the 'Nature Conservation Professional' in this document) who will continue to liaise with relevant project governance structures as appropriate.

5.3 Overview of mitigation approach

5.3.1 The mitigation strategy is based on the provision of dedicated bird mitigation land (the BMA), which will be managed specifically to maintain or enhance resources for non-breeding bird species associated with relevant affected European sites and ground nesting birds. It is important to note that ground nesting bird habitat is also located in other parts of the Order Limits and will be managed in line with commitments set out in the Outline Landscape and Ecological Management Plan [**EN0110012/APP/LVS/07.05**]. These areas include Solar Development Sites 1, 4 and 6, where retained grasslands (>2 ha) and field margins which will be managed for ground nesting birds and other bird species. These areas are not discussed in this document.

5.3.2 The mitigation within the BMA will be designed to provide:

1) Habitat of improved functional value compared to existing baseline conditions;

2) Reliable availability during the non-breeding and breeding period having regard to hydrological conditions, flood risk, habitat management and monitoring, and control of disturbance;

3) Low-disturbance conditions suitable for ground nesting birds, flocking waders and wildfowl.

5.3.3 For the purposes of this oBMAMP, reliable availability refers to the capacity of the BMA to consistently provide suitable and secure nesting, foraging and resting habitat during the non-breeding period and breeding period, taking into account factors such as water levels, habitat condition, management regimes, and

potential sources of disturbance, rather than uninterrupted availability i.e. land management.

5.3.4 Reliable availability also refers to maintaining and enhancing productivity, particularly for ground-nesting birds such as skylark and corn bunting. Under the existing baseline conditions within Solar Development Sites 1 and 4, breeding productivity is considered constrained by intensive agricultural practices as demonstrated above and the limited availability of suitable and secure nesting habitat throughout the breeding season.

5.3.5 For skylark and corn bunting, a key factor limiting productivity is the loss of suitable nesting conditions later in the season, when autumn/winter-sown crops become too tall and dense, or are ploughed preventing continued nesting attempts. Although both skylark and corn bunting can raise up to four broods annually under optimal conditions, productivity in modern agricultural landscapes is typically restricted to one or two broods (Ref 3). The proposed habitat creation and management measures are therefore intended to provide suitable nesting and foraging habitat across the breeding season, facilitating multiple successful breeding attempts.

5.3.6 Furthermore, evidence indicates that skylarks nesting in adjacent retained arable land and open grassland continue to use land beneath and around solar arrays for foraging and may also use these areas as nursery habitat (Fox, 2022). As such, by increasing the availability of suitable nesting habitat and maintaining foraging opportunities both within and around the BMA, the proposed mitigation will seek to improve breeding conditions relative to the baseline and support local populations of skylark and other ground-nesting farmland birds. These intended benefits will be evaluated through habitat and bird monitoring, with management adapted where the required functions are not being achieved.

5.3.7 An illustrated version of how the BMA will look like, is presented in the Outline Environmental Masterplan [**EN0110012/APP/LVS/02.12]**.

5.4 Location, size and function of the Bird Mitigation Area

5.4.1 The BMA is located in land secured by the DCO Application and has been strategically placed within the southern extent of Solar Development Site 1 due to its close proximity to the Lower Derwent Valley SPA, absence of over-headlines, lack of dense hedgerow and capability of diverting Public Rights of Way (PRoW) to reduce disturbance.

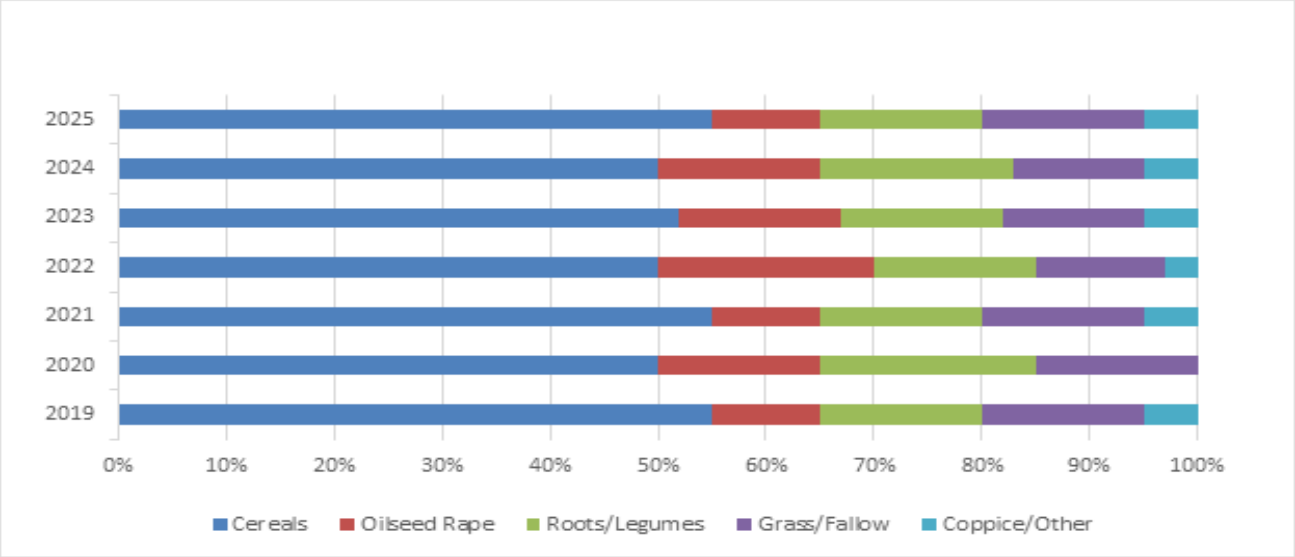
Overview of the existing Solar Development Site 1 baseline

5.4.2 As stated in Appendix 6.1: Habitats Report (ES Volume 3) [**EN0110012/APP/LVS/06.03.06.01**], Solar Development Site 1 largely comprises of arable fields (largely subgrade 3a and 3b; refer to Figure 5.2: Agricultural Land Classification (ES Volume 2) [**EN110012/APP/LVS/06.02.05.02**]), dissected by wet ditches and hedgerows with small areas of neutral grassland, scrub and modified grassland.

5.4.3 The area is also dissected by a Public Right of Way (PRoW) and currently experiences daily farming activities and pressures. The cropping activities for the past five years of this area is presented in Plate 1 below.

5.4.4 The area is currently considered to be unreliable and constrained due to the highly managed nature of the area and the type of crops i.e. all crops (wheat, rye, oilseed, barley) are winter (see **Plate 1**), which is one of the main factors for ground nesting bird and non-breeding waterbird declines (Ref 8; Ref 9; Ref 10; Ref 11; Ref 12; Ref 13; Ref 14).

Plate 1 Cropping composition at Solar Development Site 1 (2019-2025)



Size and Function

5.4.5 The BMA comprises approximately 88.1 ha of land secured within the southern extent of Solar Development Site 1. Applying precautionary 50 m offsets from relevant boundary and internal features leaves approximately 65.7 ha of open habitat for the purposes of the ground-nesting bird and non-breeding waterbirds. The total BMA area and the area remaining after application of these offsets are presented in **Table 4**.

Table 4 The BMA parameters

Area	Approximate area	Purpose
Total BMA extent	88.1 ha	Land secured within the BMA
Area remaining after precautionary 50 m offsets	65.7 ha	The precautionary area used to inform the assessment of potential ground-nesting and non-breeding bird capacity.
Area within the precautionary offsets	22.4 ha	Land remaining within the managed BMA but excluded from the above capacity calculation.

5.4.6 The 50m offsets provide a precautionary allowance for the potential influence of surrounding features on ground-nesting and non-breeding waterbird use. Land within these offsets remains part of the BMA and will be managed in accordance with this plan. Its exclusion from the capacity calculation does not mean that it has no ornithological value or that breeding or non-breeding birds will not use it.

5.4.7 The BMA will provide functions for both breeding ground-nesting birds and non-breeding waterbirds through seasonal management.

5.4.8 Habitat provision will therefore be considered through both its extent and its functional quality. For breeding ground-nesting birds, management of grassland will seek to provide secure and suitable nesting and foraging conditions throughout the breeding season and opportunities for repeated nesting attempts and increase breeding outputs, which is considered constrained based on existing conditions. For instance, BTO research for skylark records productivity of 0.26 fledged young per pair in winter wheat (current baseline), compared with 1.25 in grass set-aside and 1.67 in naturally regenerated set-aside (Ref 6).

5.4.9 For non-breeding waterbirds, management will seek to provide suitable foraging and resting conditions through appropriate sward management, provision of seasonally wet scrapes, maximisation of muddy areas and minimisation of disturbance, consistent with Countryside Stewardship guidance (Ref 7).

5.5 Habitat types to be delivered

5.5.1 The BMA will comprise habitat types known to be used by ground nesting and non-breeding SPA/Ramsar bird species, which may include:

1) Open grassland with varied sward structure and localised areas of bare or sparse ground to provide nesting cover and accessible foraging habitat for breeding ground-nesting birds;
2) Lightly managed grassland margins for ground nesting passerines;
3) Managed grassland maintained to provide short and open swards for foraging and roosting non-breeding waterbirds;
4) Wet grassland and (or) shallow wet features through scrape creation and (or) existing ditch enhancement;
5) Increased muddy margins that support prey availability and foraging efficiency.

5.5.2 The mitigation strategy does not rely on a single habitat mechanism, providing resilience under variable environmental conditions.

5.5.3 Alongside these habitat creation measures, the PRoW (non-circular route) which dissects the BMA will be re-routed to go along the boundary of the adjoining BMA and Solar Development 1 footprint within Solar Development Site 1. The PRoW will also be fenced (see paragraph 5.7.32) and will act as a barrier between the BMA and the PRoW to prevent public, dog encroachment and to ensure the BMA is safeguarded throughout the construction and operational phases. The re-routing and installation of fencing will be completed during the breeding period

(April-August, inclusive) during the construction of the BMA, alongside associated earth works; prior to the commencement of construction of the adjacent parts of Solar Development Site 1. An illustration of the potential PRoW and Fencing arrangement is presented in the Outline Environmental Masterplan [**EN0110012/APP/LVS/02.12**]

5.5.4 Note that the BMA will be constructed and functional (see paragraph 5.6.4) prior to the non-breeding bird period (September to March, inclusive), so that the BMA acts as a disturbance free area for non-breeding waterbirds and subsequently ground nesting birds whilst construction takes place. The BMA will be disturbance free thereafter.

5.5.5 Hedgerows and scrub within the BMA will be managed through the detailed BMAMP, applying the relevant prescriptions in Sections 4.3 and 4.5 and Annex A of the oLEMP [**EN0110012/APP/LVS/07.05**], which are incorporated by reference into this oBMAMP. Their implementation will remain compatible with the BMA's primary bird mitigation objectives.

5.5.6 Boundary habitats provide nesting, foraging and sheltering opportunities for other farmland bird species, including those recorded during the field surveys and identified in paragraph 4.1.2. Species of conservation concern such as wintering passerines (redwing and fieldfare), as well as breeding and wintering passerines linnet, yellowhammer, grey partridge, greenfinch, bullfinch, reed bunting and stock dove (not limited to) are anticipated to benefit from the creation and enhancement of suitable habitats within the BMA and across the wider Order Limits. The provision of structurally diverse grassland, hedgerows, scrub and field margins will increase opportunities for nesting and foraging, including through the availability of invertebrate prey, seed resources and suitable vegetation cover. These wider ecological benefits, as demonstrated in **Table 3**, compliment the primary mitigation objectives of the BMA and represent an additional positive consideration associated with the Proposed Development.

Table 5. Species recorded during the baseline surveys which will positively benefit from the habitat types throughout the Order Limits (Section 41 and Red BoCC species).

Habitat creation/enhancement	Recorded species likely to benefit	Anticipated ecological benefit
Seasonally managed botanically-diverse grassland	Skylark, grey partridge, meadow pipit, yellow wagtail, starling, stock dove, barn owl, oystercatcher, lapwing, and Waterbird assemblage	Nesting opportunities suitable for ground-nesting species and increased breeding output and foraging opportunities through improved vegetation and invertebrate resources. Increased foraging and roosting habitat availability and increased habitat connectivity for non-breeding birds.

Habitat creation/enhancement	Recorded species likely to benefit	Anticipated ecological benefit
Grassland margins and retained seed-bearing vegetation	Linnet, yellowhammer, grey partridge, greenfinch, corn bunting, reed bunting, meadow pipit	Seed resources, invertebrate prey and nesting cover.
Hedgerow, scrub and woodland creation/enhancement (oLEMP; [**EN0110012/APP/LVS/07.05)**	Yellowhammer, linnet, bullfinch, dunnock, song thrush, wren, linnet, red kite, wintering passerines (redwing and fieldfare)	Improved nesting habitat, shelter and foraging opportunities, as well as improved habitat connectivity.
Wet grassland, scrapes and associated margins	All	Additional and increased foraging opportunities and, where suitable vegetation and water conditions develop, potential breeding habitat
Fencing and diversion of PRoW	All	Minimisation of disturbance to increase breeding and non-breeding bird utilisation an breeding productivity.

5.6 Timing and duration of works

5.6.1 Works are anticipated to require a maximum of six months from commencement to completion.

5.6.2 Construction works to the BMA will be undertaken between the beginning of April and the end of August to ensure the safeguarding of the non-breeding period as informed through the surveys undertaken by the Applicant (see Appendix 12.2: Non-breeding Bird Survey Report (ES Volume 3) [**EN0110012/LVS/APP/06.03.12.02**].

5.6.3 During the construction phase of the BMA, an appointed ECoW will be in place to safeguard breeding birds as per the oCEMP [**EN0110012/APP/LVS/07.02**]

5.6.4 For the purposes of the oBMAMP, 'functional' is to be defined as the following (noting that this is a definition which has been accepted by Natural England in relation to a non-breeding bird mitigation area on another solar scheme):

1) All operating plant removed out of the BMA;
2) The entire BMA is available to support SPA designated bird species of the relevant affected European sites; and
3) The BMA is free from disturbance during the non-breeding period.

5.7 Aims and objectives of the Bird Mitigation Area

5.7.1 The habitat types in Section 5.5 will be delivered within the BMA through the adoption and implementation of the following overarching main aims and objectives:

1) Aim 1 – Creation of wetland habitats and the enhancement of existing features supporting breeding and non-breeding birds;
2) Aim 2 – Creation of optimal and open grassland habitat through sward height management; and
3) Aim 3- On-going dynamic habitat management throughout the breeding and non-breeding period.

5.7.2 These aims and objectives define the functional outcomes required to mitigate loss of functionally linked land and disturbance effects on non-breeding SPA/Ramsar bird species. The aims also address the breeding ground-nesting bird mitigation requirements identified in Chapter 12: Ornithology.

5.7.3 Detailed management prescriptions and design measures will be set out in the detailed BMMP secured through the DCO Application.

5.7.4 Each aim is discussed below.

Aim 1- Creation of wetland habitats and enhancement of existing features supporting breeding and non-breeding birds

5.7.5 Shallow depressions within the floodplain of Solar Development Site 1, within the BMA will create a series of scrape habitats to aid the natural accumulation of water during wet weather and non-breeding bird habitats.

5.7.6 Creation of backwaters and shallow off-channel features connected to existing ditches within the BMA will increase habitat heterogeneity, extend the availability of shallow water and muddy margins, and provide low-flow, sheltered foraging opportunities for non-breeding SPA/Ramsar bird species.

5.7.7 Scrapes will be designed to hold seasonal water and support wading birds, mammals, amphibians, and invertebrates, providing shallow water and muddy margins for foraging and loafing non-breeding SPA/Ramsar bird species.

5.7.8 The wet features and associated damp margins will also provide foraging opportunities for breeding birds, including lapwing and their chicks, and support invertebrate prey for other farmland birds, including skylark feeding young. Their design and management will provide accessible graded margins alongside adjoining grassland, creating optimal foraging habitats within the BMA.

5.7.9 Where appropriate, excess spoils from scrapes will be used to create islands which will be incorporated within the shallow wet features to provide secure loafing and roosting opportunities.

5.7.10 The edge of the scrape(s) will be dropped down to an undulating base of no more than 500 mm lower than the existing ground level, with detailed depth profiles,

side slopes, water retention measures and connectivity to existing ditch networks to be confirmed within the detailed BMAMP, informed by site-specific ground conditions and hydrological studies.

5.7.11 LiDAR and Ordnance surveys mapping indicate that the BMA is situated within a local topographic low, with elevations of approximately 5 m Above Ordnance Datum (AOD), in contrast of this, the northern area reaches approximately 16 m AOD. Therefore, the topographic contexts indicate that there is a natural gradient and tendency for water to flow towards the southern section, which will be beneficial for the scraps. Full details can be found in Appendix 5.1: Agricultural Land Classification (ES Volume 3) [**EN110012/APP/LVS/06.03.05.01**]. The detailed design of wet features (including layout, indicative extents, depth profiles, side slopes, water retention and connectivity to existing ditch networks) will be set out in the detailed BMAMP. The design will be informed by site-specific ground conditions and hydrological studies and will be developed in consultation with North Yorkshire Council and Natural England.

5.7.12 The creation of wet features and associated works will be implemented under ecological supervision, including oversight by an ECoW and (or) the Nature Conservation Professional (dependent upon experience), to ensure ecological requirements are met, functional habitat objectives are achieved, and existing watercourse function is maintained. All wet features will be created concurrently with the creation of grassland habitat (Aim 2).

Aim 2- Creation of optimal grassland habitat and open vistas during the relevant season

5.7.13 The BMA comprises approximately 88.1 ha of grassland, of which approximately 65.7 ha lies outside the precautionary 50 m offsets applied when estimating a precautionary habitat availability for ground-nesting birds. The grassland creation and management prescriptions below will apply across the full 88.1 ha, including land within these offsets.

5.7.14 The BMA is currently predominantly arable, comprising mainly cropped fields subject to conventional agricultural management, which is of low value to birds. Following removal of the final crop, no fertiliser will be applied to grassland creation areas. Although species-rich grassland can take time to establish on former arable land, successful creation is well documented where appropriate seed mixes, site preparation and management are implemented. Establishment measures will seek to minimise competition from agricultural weeds and residual crop species, and the results of soil sampling and establishment prescriptions will be included within the detailed BMAMP and coordinated with the detailed LEMP.

5.7.15 Within botanically-diverse meadow grassland, seed mixes will likely include yellow rattle (*Rhinanthus minor*) where appropriate to ground conditions and management objectives. Targeted autumn over-sowing may subsequently be undertaken where establishment monitoring identifies a need to reduce grass dominance. Ongoing cutting and vegetation management are addressed under Aim 3

5.7.16 The BMA grassland will be established and managed as hay meadow, targeting Moderate condition for 'Other Neutral Grassland', as identified in the BNG criteria detailed in the oLEMP [**EN0110012/APP/LVS/07.05**]. The detailed BMAMP will specify how the relevant condition criteria will be achieved alongside the seasonal habitat requirements of non-breeding SPA/Ramsar birds and breeding ground-nesting birds.

5.7.17 Grassland management will be undertaken to provide a seasonally varied sward structure suitable for both non-breeding SPA/Ramsar bird species and breeding ground-nesting birds. During the non-breeding period, management will aim to maintain areas of short, open grassland, targeting a sward height of approximately 7–10 cm, with local variation reflecting ground conditions and habitat requirements. Shorter vegetation will also be maintained around the margins of scrapes to facilitate access to suitable foraging habitat.

5.7.18 During the breeding season, grassland will be allowed to develop a more varied vegetation structure, including areas of approximately 20–50 cm suitable for nesting skylark, together with shorter, more open areas suitable for breeding lapwing. Management will seek to maintain a mosaic of vegetation heights rather than a uniform sward across the BMA, recognising the differing ecological requirements of the target species. Routine cutting and other potentially disruptive vegetation management will be avoided where possible during the breeding season, with appropriate safeguards for active nests and dependent young.

5.7.19 Maintenance of the grassland may include periodic mowing or cutting of taller ruderal vegetation (e.g. thistles and rushes), where required to prevent encroachment and maintain open habitat conditions. Targeted weed control, including the potential use of herbicides applied through weed wiping, may be undertaken where necessary and appropriate, subject to the relevant environmental safeguards and management commitments.

5.7.20 Localised clearance and earthworks (i.e. topsoil strip) within the BMA will be undertaken where required to achieve the habitat objectives, following which affected areas will be re-seeded to establish hay meadow, contributing to suitable foraging habitat and overall habitat condition. Note that this excludes areas where deliberately retained as bare ground or forming part of the scrape and wetland habitats.

5.7.21 Two hedge removals (H1.1 and H1.20; Appendix 6.1: Habitats Report (ES Volume 3) [**EN0110012/APP/LVS/06.03.06.01**]) will be undertaken to increase and maintain open sightlines and vistas across the BMA, improving habitat suitability and visibility for non-breeding and breeding bird species (open ground nesting birds), while retaining boundary and landscape function where required.

Aim 3- On-going dynamic habitat management throughout the breeding and non-breeding period

5.7.22 Management measures will remain in place for the lifetime of the Proposed Development. All costs associated with on-going management will be borne by

the Applicant or any subsequent owner of the development, including the costs of North Yorkshire Council and Natural England in engaging in the development of the BMA and involvement in on-going monitoring and review discussed below.

5.7.23 It is intended that the BMA will be managed by the Nature Conservation Professional. Management will be likely separated from (although is not precluded from not being so) the management of green infrastructure (including other ecological mitigation measures) undertaken in the remainder of the Order Limits. Details of this will be set out in the detailed BMAMP

5.7.24 Management will require regular visits and dynamic action, based on conditions at the time. As such management will be on-going, requiring regular visits and (where necessary) actions throughout the year. Management actions will include, but not be limited to, control of water levels, cutting regimes, island maintenance and the general upkeep of the BMA to ensure the aims and objectives of the BMA are met.

Grassland management

5.7.25 The main principles of grassland management are likely to be as follows (with full details to be set out in the detailed BMAMP):

1) Grassland will be managed principally through a hay meadow regime, with the main hay cut normally undertaken in September, however this will be subject to ground conditions and bird activity. Subsequent mechanical cutting will maintain a generally short sward of 7-10 cm during the non-breeding period, September to March inclusive. Management before the breeding season will be completed before breeding activity begins. Operations will safeguard active nests and dependent young, minimise disturbance to non-breeding birds and will be adjusted or postponed where necessary.

2) During the breeding period, March to August inclusive, grassland management will provide varied sward conditions across the BMA, generally between 7 cm and 50 cm, with a target of up to 80% of the sward cover within the 20–50 cm range. Shorter, open areas for foraging and suitable nesting cover will be retained. Approximately 20% of the grassland will be maintained below 7 cm, with approximately 5% (of the 20%) retained as localised bare ground, managed on a two-year rotational basis. The detailed BMAMP will identify the distribution of these features and how the seasonal targets will be achieved.

3) Routine cutting and topping will be excluded from breeding habitat between March and August, inclusive, where possible. Where vegetation exceeds 50 cm across more than 30% of an individual grassland parcel, localised cutting may be undertaken where necessary, subject to checks confirming that active nests and dependent young will not be affected. Any cutting will be controlled to safeguard nesting birds and maintain the required sward structure. Field margins will also be lightly managed where appropriate and will be managed to a maximum height of 100cm;

4) Following the main hay cut which will be subject to ground conditions and bird activity, arisings will remain in situ for approximately 7-14 days, subject to weather conditions, to allow drying and seed dispersal. All arisings will then be collected and removed from the Site to prevent thatch and nutrient accumulation. Collection operations will take account of bird activity and will be adjusted or postponed where necessary.

5.7.26 Grassland management within the BMA will follow the prescriptions in this oBMAMP and its Annex A. Relevant habitat establishment and BNG condition requirements will be coordinated with the oLEMP, while retaining the specific seasonal bird habitat requirements of the BMA. Grassland outside the BMA will be managed under Sections 4.6–4.8 of the oLEMP [**EN0110012/APP/LVS/07.05**], as applicable.

5.7.27 If feasible, conservation grazing may be used alongside, or as an alternative to, mechanical cutting where it can achieve the required seasonal sward structure and habitat condition. As this is an outline plan, the suitability of grazing, livestock type, stocking density, timing and duration will be determined within the detailed BMAMP, informed by ground conditions and the requirements of breeding and non-breeding birds. Any grazing will safeguard active nests and dependent young, minimise disturbance to non-breeding waterbirds and avoid excessive poaching or overgrazing. Grazing will be adjusted or suspended where monitoring identifies a requirement to do so based on the BMA's habitat objectives.

Scrape management

5.7.28 There will be inspections of scrape margins in winter (November/December), spring (March/April), and summer (July/August) to assess vegetation establishment and ensure that levels are appropriate to support emergent macrophytes (Annex A.1).

5.7.29 There will be monitoring of water depth within all scrapes in winter (November/December), spring (March/April) and summer (July/August). Levels may be adjusted to improve water retention in order to ensure scrapes remain damp or seasonally wet, subject to climatic conditions.

5.7.30 Areas surrounding scrapes will be periodically managed (at least bi-annually), through light ground disturbance or other appropriate methods, to prevent excessive vegetation growth and maintain open, sparsely vegetated margins suitable for wetland and foraging species.

General management

5.7.31 A proposed agricultural wire stock fence (up to 1.15 m (h)) will be located within Solar Development Site 1 along sections of an existing PRoW (NY|35.28|3/1) and the eastern and western boundaries of the BMA. The fence will be retained and managed for the duration of the operational phase of the Proposed Development to ensure animal movement is restricted into the bird mitigation area.

5.7.32 The proposed agricultural wire stock fence will be regularly checked and maintained

5.7.33 Areas of bare ground scraping will be undertaken in mid-March, prior to the breeding season, to enhance nesting habitat for lapwing. These areas will be repositioned annually. Note that such operations will need to consider bird activity at the time.

5.8 Setting measurable targets

5.8.1 Measurable targets on which to determine the success of the BMA and on-going management to meet these will be agreed though consultation with North Yorkshire Council and Natural England and defined in the detailed BMAMP.

5.8.2 It is likely that these targets will include:

1) Annual survey of the extent and quality of grassland created, recording sward height, botanical composition, grass dominance and cover of negative indicator plants and thatch accumulation. Assessment will be undertaken against the relevant habitat condition criteria identified in the oLEMP, with supplementary reference, where appropriate, to draw on relevant condition criteria set out in Natural England guidance '*Definition of Favourable Conservation Status for Lowland meadow (RP2971)'and 'Common Standards Monitoring Guidance for Lowland Grassland Habitats*' (Ref 2). Results will be compared with habitat objectives and previous surveys to identify changes requiring management intervention;
2) Baseline soil sampling within the BMA, including available phosphorus and organic matter may be done to inform establishment prescriptions. Repeat sampling will be undertaken where habitat monitoring identifies persistent grass dominance or poor botanical establishment and further investigation of soil conditions is required. Results will inform any necessary changes to management;
3) Hydrology will most likely be measured based on the extent to which scrapes hold water, both in terms of duration and depths at critical times of the year;
4) For breeding ground-nesting birds, performance measures will include the extent and seasonal availability of suitable nesting and foraging habitat, its vegetation structure, and use by ground nesting species. Bird monitoring will record sward heights and coverage, species distribution and evidence of breeding activity and, where practicable, breeding outcome. Habitat and bird results will be considered together to identify whether management changes are required;
5) For non-breeding waterbirds, performance measures will include the extent and seasonal availability of suitable foraging and roosting habitat, sward structure, scrape water depths and the availability of shallow water and muddy margins, alongside disturbance levels and use by waterbird. Bird monitoring will record abundance, distribution and behaviour throughout the

non-breeding season. Habitat and bird results will be considered together to identify whether management changes are required.

5.8.3 Where monitoring identifies persistently low or declining use by bird species, or an unexpected absence of breeding and (or) non-breeding activity, the causes will be investigated even where habitat condition targets are being achieved. The review will consider habitat suitability and accessibility, disturbance, management practices and wider influences on bird populations. Where factors within the Applicant's control are identified as contributing to reduced use, appropriate remedial measures will be implemented and their effectiveness assessed through follow-up monitoring. The detailed management plan will define the review triggers, responsibilities and timescales.

5.8.4 The indicative performance criteria outlined in Table 6 below provides an outline framework for assessing habitat establishment and the ongoing effectiveness of management within the BMA. These criteria will be refined within the detailed BMAMP, following consultation with North Yorkshire Council and Natural England, to establish measurable targets and appropriate intervention triggers. Assessment will take account of seasonal habitat requirements, site conditions and the intended functions of different areas within the BMA.

Table 6. Indicative performance criteria

Monitoring attribute	Indicative performance criterion
Winter sward	Approximately 7–10 cm across designated short-grassland areas during the non-breeding period.
Breeding sward	Varied vegetation structure, targeting up to 80% of the relevant vegetated sward within the 20–50 cm range, alongside shorter areas suitable for lapwing.
Short sward and bare ground	Provision of approximately 20% short sward below 7 cm and 5% localised bare ground, consistent with the agreed management prescriptions.
Botanical condition	Establishment and maintenance of grassland targeting Moderate-condition Other Neutral Grassland, in accordance with the oLEMP [**EN0110012/APP/LVS/07.05**]
Scrapes and hydrology	Seasonal water retention, with shallow water and exposed muddy margins available during relevant periods, taking account of rainfall and seasonal variation.
Breeding birds	Availability and use of suitable nesting and foraging habitat, assessed alongside species distribution, territorial activity and evidence of breeding.
Non-breeding birds	Availability and use of suitable foraging and roosting habitat, assessed alongside bird abundance, distribution, behaviour and disturbance levels.

5.9 Monitoring and review

5.9.1 Monitoring of the BMA will be undertaken by the appointed nature conservation professional to confirm compliance with the detailed BMAMP and to assess the

effectiveness of mitigation measures, including through breeding and non-breeding bird surveys (refer to paragraphs 5.9.7 onwards).

5.9.2 Where monitoring under Section 5.8 identifies that agreed habitat targets are not being met or indicates that the BMA is not providing its intended breeding or non-breeding bird functions, the Nature Conservation Professional will investigate the causes and identify appropriate remedial measures. Habitat condition, bird use, disturbance and relevant external influences will be considered together when determining the need for intervention.

5.9.3 Remedial measures may include changes to:

- the timing, location or intensity of cutting regimes i.e. if coarse grasses persist after five years;
- Additional cut-and-collect management;
- Targeted re-seeding or autumn introduction of yellow rattle where appropriate;
- Management of undesirable vegetation (bracken/scrub);
- Restoration of bare ground;
- Adjustments to scrape water levels or profiles;
- Measures to address identified disturbance (i.e. additional signage); and (or)
- Review of survey methods (see below).

5.9.4 All interventions (if required) will safeguard active nests and dependent young and maintain the breeding and non-breeding functions of the BMA. The timing and extent of any remedial works will take account of the differing seasonal habitat requirements of waterbirds and ground nesting birds.

5.9.5 The detailed BMAMP will specify intervention triggers, responsibilities, implementation timescales and arrangements for agreeing remedial measures with North Yorkshire Council and Natural England. Monitoring reports will record identified shortfalls, the actions taken and their effectiveness. Follow-up monitoring will be undertaken at intervals appropriate to the issue, with further management adjustments where required.

5.9.6 The overall responsibility for environmental management will rest with the appointed Nature Conservation Professional (or equivalent role), who will oversee monitoring, undertake routine site inspections, and ensure compliance with environmental legislation, best practice and DCO Application requirements. An adaptive management approach will be applied, whereby monitoring results will inform any necessary amendments and adaptations to management prescriptions to maintain the effectiveness of mitigation for the lifetime of the Proposed Development.

Bird and Habitat surveys

5.9.7 Winter bird surveys will be undertaken in post-construction Years 1, 2, 3, 4 and 5 and at five yearly intervals thereafter- surveys will include one diurnal and one nocturnal per month. Brief monthly reports will be prepared for the BMA during

winters 1, 2, and 3, followed by an annual report at the end of the winter season. Only end of season reports are suggested for the remaining monitoring years.

5.9.8 Breeding bird surveys will be undertaken in post-construction Years 1-5 and at five-yearly intervals thereafter, with additional monitoring where required following review. Surveys will cover the breeding season and record ground nesting species distribution; habitat use and evidence of breeding success where practicable. The detailed BMAMP will specify survey methods and reporting arrangements. Results will inform the annual management programme and any necessary remedial measures.

5.9.9 Annual habitat condition surveys for the first five years (then every five years) will assess grassland extent, sward height, botanical composition, grass dominance, negative indicator plants and thatch accumulation against the objectives and targets set out in Section 5.8 and those set out in the oLEMP [**EN0110012/APP/LVS/07.05**]. Scrape condition and water depths will also be monitored in accordance with the seasonal inspections specified in this plan.

5.9.10 In addition, fixed point photography, from selected vantage points around the Site, would be used to monitor the development of habitats and to identify whether additional vegetation or water level management is needed. Monitoring of habitats and species will inform an ongoing management programme.

5.9.11 Bird species richness, abundance and distribution will be considered alongside habitat status, condition and the outcomes of management when evaluating the effectiveness of the mitigation and enhancement measures. Bird numbers alone (breeding and non-breeding), including the number of territories recorded (breeding only), will not be used as the sole measure of success, as breeding and non-breeding populations and their distribution can be influenced by wider environmental factors. The combined assessment of habitat condition, management outcomes and bird monitoring will therefore be used to determine whether the relevant habitat objectives are being achieved and whether adaptive management is required.

5.9.12 Results will be reviewed together alongside results from the Solar Development Sites (as per the oLEMP; [**EN0110012/APP/LVS/07.05**]) particularly for breeding birds, to inform ongoing management and identify any necessary remedial measures.

5.9.13 Bird boxes within the BMA, including tree sparrow colony boxes and A-frames for kestrel and barn owl where provided, will be inspected and maintained through the detailed BMAMP. The relevant bird box prescriptions in Section 4.11 of the oLEMP [**EN0110012/APP/LVS/07.05**] are incorporated by reference into this oBMAMP. Inspections will be undertaken by suitably qualified persons, with any necessary licences, and cleaning and replacement undertaken annually between September and February, subject to checks confirming that birds are not nesting.

6 Conclusion

6.1.1 This oBMAMP sets out the framework, principles and governance arrangements for the delivery of mitigation to address the potential loss of functionally linked land and disturbance effects on non-breeding bird species associated with the Lower Derwent Valley and Humber Estuary SPA and Ramsar sites arising from the Proposed Development and delivering and managing habitat for breeding ground-nesting birds to address the relevant mitigation requirements as identified in Chapter 12: Ornithology and the Shadow HRA.

6.1.2 The oBMAMP identifies the provision and long-term management of a dedicated BMA, incorporating the creation and enhancement of wetland and grassland habitats, as the primary mechanism to maintain the availability and functionality of supporting habitats for qualifying species and those part of the wider waterbird assemblage (but not limited to) and ground-nesting birds throughout the operational lifetime of the Proposed Development.

6.1.3 This document establishes an adaptive outline management and monitoring framework to ensure that mitigation measures remain effective over time, with responsibilities, review mechanisms and performance targets to be confirmed and secured through the detailed BMAMP, to be approved post-consent in accordance with a Requirement of the DCO Application.

6.1.4 On this basis, the delivery of the measures set out in this oBMAMP demonstrate that, subject to the implementation of the measures set out herein and their subsequent refinement within the final BMAMP, the Proposed Development can be delivered without adverse effects on the integrity of the relevant European sites.

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A.1. Annex A Outline management prescription timetable

A.1.1. All management operations will be undertaken in accordance with the seasonal safeguards and habitat objectives set out in this plan. Timing will take account of actual bird activity, including presence of waterbirds, active nests and dependent young, rather than calendar dates alone- indicative months are provided. The detailed BMAMP will confirm management locations, methods, inspection frequencies and reporting arrangements.

Table 6-1 Outline management prescription timetable for the BMA

Operation management prescription	Frequency per annum	Season	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6 onwards
BMA grassland/Meadow management								
Cut to height of 7-10cm (non-breeding period)	Annually, as required	Late summer through to late winter (March), subject to bird activity and ground conditions						On-going
Cutting (7-10cm) to establish suitable spring sward conditions (breeding period)	As required	Before breeding activity begins (March), subject to bird activity						On-going
Maintain suitable nesting cover and foraging habitat; exclude routine cutting, topping and disruptive vegetation management from breeding habitat Cut to maintain an average height <50 cm across 80% of the BMA.	Throughout the breeding period	March to late summer (August), with safeguards extending to any active nests or dependent young within this period						On-going

Operation management prescription	Frequency per annum	Season	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6 onwards
Mechanical topping or targeted weed control to prevent excessive vegetation encroachment	As required	Late summer/early autumn, subject to bird activity						On-going
Hay cut within areas managed as meadow, retaining uncut refuges where required and allow hay arisings to dry and seed to disperse, then collect and remove from managed grassland	Once annually, but where applicable	Late summer (August) to early autumn time (September), which will be subject to ground conditions and bird activity Hay arisings to be left 7-14 days, subject to weather and bird activity.						On-going
Create or refresh bare or sparsely vegetated nesting areas for lapwing, repositioned annually	Annually	Mid-March						On-going
Field Margins								
Cut to 150–200 mm, collecting and removing arisings	Once	March, before nesting begins and subject to bird activity						On-going
Retain varied sward, generally left uncut for the year (100cm maximum height)	As required	April-August						On-going
Spot herbicide application	As required	Timing informed by habitat condition and bird activity						On-going

Operation management prescription	Frequency per annum	Season	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6 onwards
Scrape management								
Visual inspection and water depth monitoring	Three seasonal inspection rounds annually	November/December, March/April and July and August – timings will be dictated by bird activity						On-going
Clearance of vegetation around the edges (rotavated)	Every two years	August/September						On-going
Water level adjustment	Where required	timings will be dictated by bird activity						On-going
Hedgerow	see Annex A, A.1 Outline management prescription timetable in the Outline Landscape and Ecological Management Plan **[EN0110012/APP/LVS/07.05]**							
Native Scrub with Scattered Trees	see Annex A, A.1 Outline management prescription timetable Outline Landscape and Ecological Management Plan **[EN0110012/APP/LVS/07.05]**							
Bird and Bat Boxes, and Hedgehog and Insect Houses	see Annex A, A.1 Outline management prescription timetable Outline Landscape and Ecological Management Plan **[EN0110012/APP/LVS/07.05]**							

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