

Light Valley Solar

Outline Landscape and Ecological Management Plan

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Light Valley
Solar

Infrastructure Planning

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

Light Valley Solar

DCO Submission

Outline Landscape and Ecological Management Plan

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Contents

1	Introduction	1
1.1	Overview and purpose of the document	1
1.2	The Order Limits and Proposed Development	2
1.3	Relevant legislation and guidance	3
2	Aims and objectives	5
2.1	Purpose of this report	5
2.2	Biodiversity Net Gain	5
2.3	Long term objectives	6
3	Key personal / management responsibilities	7
4	Creation and management prescriptions	8
4.2	General planting implementation and management prescriptions	8
4.3	Mixed native hedgerows with / without hedgerow trees (UKHab: species rich hedgerow with / without trees)	14
4.4	Woodland belts and blocks (<i>UKHab: other woodland – broadleaved</i>)	18
4.5	Native scrub with scattered trees (<i>UKHab: mixed scrub</i>)	22
4.6	Meadow seeding - within perimeter fencing (<i>UKHab: modified grassland</i>)	24
4.7	Meadow seeding – field margins and enhanced grassland (<i>UKHab: other neutral grassland</i>)	26
4.8	Public Rights of Way and Permissive Paths	28
4.9	Existing habitats	29
4.10	Habitat boxes and wildlife enhancement features	32
5	Landscape and ecological auditing / monitoring	34
5.1	Landscape	34
5.2	Ecology	34

List of tables

Table 2-1	Long term objectives	6
Table 4-1	Species rich hedgerow with / without trees management activities for BNG condition criteria	14
Table 4-2	Hedgerow species for planting within the Proposed Development	15
Table 4-3	Hedgerow tree species for planting within the Proposed Development	18
Table 4-4	Other woodland – broadleaved management activities for BNG condition criteria	18
Table 4-5	Woodland tree species for planting within the Proposed Development	21
Table 4-6	Mixed scrub management activities for BNG condition criteria	22
Table 4-7	Scrub and tree species for planting within the Proposed Development	23
Table 4-8	Modified grassland management activities for BNG condition criteria	24
Table 4-9	Other neutral grassland: BNG Condition criteria	26
Table 4-10	Enhanced ditches management activities for BNG condition criteria	31
Table 5-1	Outline management prescription timetable	36

1 Introduction

1.1 Overview and purpose of the document

- 1.1.1 Light Valley Solar Limited (the ‘Applicant’) has prepared this outline Landscape and Ecological Mitigation Plan (oLEMP) in relation to an Application for a Development Consent Order (DCO) for the construction, operation, maintenance, and decommissioning of Light Valley Solar (the ‘Proposed Development’).
- 1.1.2 This oLEMP sets out a framework for the planting, establishment, long term management and monitoring of landscape and ecological mitigation and enhancement for the Light Valley Solar project.
- 1.1.3 This oLEMP concerns works which will be required during both the construction and operational phases of the Proposed Development.
- 1.1.4 This oLEMP is to be read in conjunction with the following documents:
- 1) Outline Environmental Masterplan (ES Volume 2) [EN0110012/APP/LVS/02.12]
 - 2) Outline Bird Mitigation Area Management Plan [EN0110012/APP/LVS/07.19].
 - 3) Arboricultural Impact Assessment [EN0110012/APP/LVS/06.03.16.02]
 - 4) Advanced Planting for Glint and Glare Mitigation Plan [EN0110012/APP/LVS/06.02.16.1].
 - 5) Biodiversity (ES Volume 1) [EN0110012/APP/LVS/06.01.06.00].
 - 6) Landscape and Visual Amenity (ES Volume 1) [EN0110012/APP/LVS/06.01.10.00].
 - 7) Public Rights of Way Management Plan [EN110012/APP/LVS/07.09].
- 1.1.5 The purpose of this oLEMP is to set out planning, management and monitoring prescriptions to be followed by, or on behalf of, the Applicant. The detailed version of this LEMP, to be in substantial accordance with this outline, will be approved by North Yorkshire Council pursuant to a Requirement in the draft DCO.
- 1.1.6 While as much has been included in this oLEMP as practicable to accompany the DCO Application, several options are set out in order to leave some flexibility in specification, however each will achieve the same landscape and ecological outcomes.
- 1.1.7 In the case of there being more than one detailed LEMP for the Proposed Development, any detailed LEMP(s) which follows a first detailed LEMP to be approved will set out how the landscape and ecological measures will be managed across the different works covered by the respective LEMP¹.

¹ As mentioned in chapter 1.2, references to ‘a’ or ‘the’ detailed LEMP in this Outline plan can be read as referring to ‘any’ detailed LEMP, as more than one LEMP could be brought forward for different parts of the Proposed Development, depending on the detailed construction strategy undertaken.

1.2 The Order Limits and Proposed Development

Order Limits

- 1.2.1 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 Site Location and Order Limits Plans [EN0110012/APP/LVS/06.02.01.01]. The Order Limits are described in Chapter 2: The Proposed Development (ES Volume 1) [EN0110012/APP/LVS/06.02.01.01] of the Environmental Statement (ES).
- 1.2.2 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, Cable Route Corridor Area totalling 328.5 ha of land, Highways Improvement Areas 17.5 ha and Solar Development Site 8 Access Area 24.1 ha.

The Proposed Development

- 1.2.3 Ref 1The Proposed Development comprises a more than 100 megawatts (MW) solar photovoltaic (PV) electricity generating station and associated development comprising Battery Energy Storage System (BESS), substations, grid connection infrastructure and other infrastructure integral to the construction, operation and maintenance, and decommissioning phases.
- 1.2.4 The Proposed Development will include solar PV modules to convert sunlight into direct current (DC) electricity, which will then be transformed into alternating current (AC) via conversion units for export to the National Grid.
- 1.2.5 The solar PV modules will be mounted on either fixed or tracking structures, arranged in rows across the Solar Development Sites. A BESS will be installed to store surplus electricity generated by the solar PV system or excess energy from the grid. Supporting infrastructure will include on-site cabling to connect the PV modules to the conversion units, as well as switch rooms, substations and other electrical equipment necessary for grid export. Electricity will be transmitted via underground cables within designated Cable Route Corridors to connect to Monk Fryston substation via a 275 kV cable.
- 1.2.6 The Proposed Development will involve new planting, field boundary enhancement and planting of seed mixes within the Solar Development Sites. Planting will also be used to provide screening through:
- 1) The creation of new native woodland blocks and belts;
 - 2) Planting new hedgerows;
 - 3) Reinforcing existing boundary hedgerows; and
 - 4) New tree and scrub planting.
- 1.2.7 Figure 3.1: Outline Environmental Masterplan (ES Volume 2) [EN0110012/APP/LVS/02.12] is an illustration of how the mitigation and

enhancement commitments and outcomes set out in the ES could be delivered. The detailed LEMP(s) will include an updated version of the environmental masterplan for each Solar Development Site, setting out the detailed design of the Proposed Development in a way which delivers the commitments and outcomes set out in the ES.

1.3 Relevant legislation and guidance

1.3.1 This oLEMP has been produced with reference to the following guidance:

- 1) National Plant Specification 'Handling and Establishing Landscape Plants'.

1.3.2 All plants and planting operations are to comply with the requirements and recommendations of all current relevant British Standard specifications including but not limited to:

- 1) BS 8545. Trees: From Nursery to Independence in the Landscape (Ref 2);
- 2) BS 3936-1:1992. Nursery stock. Specification for trees and shrubs (Ref 3);
- 3) BS 3882:2015 - Specification for topsoil (Ref 4);
- 4) BS 4428:1989. Code of practice for general landscape operations (excluding hard surfaces) (AMD 6784) (Ref 5);
- 5) BS 5837: 2012 Trees in relation to design, demolition and construction - recommendations (Ref 6);
- 6) BS3998:2010 Tree work – recommendations (Ref 7);
- 7) Countryside and Rights of Way Act 2000 (Ref 8);
- 8) The Hedgerow Regulations 1997 (Ref 9);
- 9) Local Authority Guidance (Ref 10); and
- 10) Solar Energy UK Guidance: A Standardised Approach to Monitoring Biodiversity on Solar Farms (2022) (Ref 11).

1.3.3 For more detail, please refer to the 'Relevant legislation, policy, standards and guidance' section within Chapter 6: Biodiversity (ES Volume 1) [EN0110012/APP/LVS/06.01.06.00] and Chapter 10: Landscape and Visual Amenity (ES Volume 1) [EN0110012/APP/LVS/06.01.10.00].

Local Nature Recovery Strategy

1.3.4 As required under the Environment Act 2021 (Ref 14), every county in England will produce a Local Nature Recovery Strategy. These strategies will work together to restore, create and connect habitats across England.

1.3.5 The Local Nature Recovery Strategy will consider land at a county scale and will identify locations to improve nature and provide other benefits, such as capturing

carbon from the atmosphere, flood regulation and access to nature-rich spaces where this is most needed for health and wellbeing.

- 1.3.6 The Order Limits are wholly located within the Local Nature Recovery Strategy (LNRS) for North Yorkshire and York, which is currently in draft form (January 2026).
- 1.3.7 Within the North Yorkshire and York Draft LNRS, the vast majority of the Solar Development Sites area falls outside the potential nature recovery zones mapped and the Solar Development Sites are therefore not a particular target for biodiversity and nature recovery.

2 Aims and objectives

2.1 Purpose of this report

- 2.1.1 The overall aim of this outline Landscape and Ecology Management Plan (oLEMP) is to set out prescriptions for: the successful establishment of all proposed landscape and habitat creation measures for the Proposed Development and their management, in order to provide the required ecological enhancements, strengthen the green infrastructure within the local area and to provide landscape and visual mitigation throughout the Solar Development Sites, where appropriate.
- 2.1.2 This document considers the habitats and species recorded within the Solar Development Sites, as well as those identified within the surrounding area during desk study, in order to maximise the biodiversity benefits of habitats within the Solar Development Sites for local wildlife.
- 2.1.3 An overview of how habitats will be managed to provide targeted mitigation for protected species likely to be impacted by the Proposed Development is provided within this document.
- 2.1.4 The overall aims of this oLEMP are:
- 1) To enable that the Proposed Development safeguards and enhances the integrity of existing landscape and ecological features;
 - 2) To enable that the Proposed Development maintains and enhances existing and proposed trees and hedges in a healthy condition;
 - 3) To enable that the Proposed Development enhances public awareness and appreciation of habitats and associated flora and fauna, except where it compromises the first two objectives;
 - 4) To enable that the Proposed Development ensures the successful establishment and continued growth to maturity of the proposed soft landscape scheme;
 - 5) To enable that the Proposed Development delivers Biodiversity Net Gain over its lifetime;
 - 6) To comply with legal obligations and constraints; and
 - 7) To enable that the Proposed Development manages the landscape and ecological measures in a manner that ensures the safety of site users.

2.2 Biodiversity Net Gain

- 2.2.1 Each habitat below has a UKHab definition and targeted condition. Refer to Table 3.1-3.3 of the Biodiversity Net Gain (BNG) Report [EN0110012/APP/LVS/05.09] to see all habitats proposed post development.

- 2.2.2 The BNG Report sets out the assumptions for the potential BNG units that could be provided by the habitat creation that will be delivered by the Proposed Development, and the final details of this will be set out in the detailed LEMP(s).
- 2.2.3 This oLEMP provides more information on how these proposed habitats will be created and managed over the lifetime of the Proposed Development (see Section 4.3-4.9 below);
- 2.2.4 It is noted that the statutory Biodiversity Net Gain regime, although it does not yet apply to NSIPs, requires that all habitats are secured for 30 years post completion. The DCO requires that the created habitats must be managed in line with the detailed LEMP(s) over the lifetime of the Proposed Development, which comprises 60 years. As such, this is far beyond the timeframe required for BNG.

2.3 Long term objectives

- 2.3.1 The long-term objectives of the landscape and ecological enhancement works that form part of the Proposed Development are set out in Table 2-1 below.

Table 2-1 Long term objectives

Year 1-5	On-Going
Ensure good plant establishment	Complement and enhance existing local landscape character
Ensure rapid plant growth	Develop structural and visual diversity to provide screening and shelter where needed
Create rich / varied wildlife habitats	Increase wildlife habitats / value
Begin the development of natural ground layers	Achieve and maintain Biodiversity Net Gain
Create visual and sensory diversity	

3 Key personal / management responsibilities

- 3.1.1 The detailed Landscape and Ecological Management Plan (LEMP) will be produced and approved by North Yorkshire Council pursuant to a Requirement in the draft DCO.
- 3.1.2 The detailed LEMP will set out the roles and responsibilities of those involved in creating, managing and monitoring the proposals set out within this document.
- 3.1.3 A suitably qualified person such as a Landscape Architect or Ecologist will be appointed to oversee the coordination of implementing the final LEMP, including sourcing seeds and plants.
- 3.1.4 The sourcing of all plant material should be considered at an early stage given the quantities required for a development of this scale.

4 Creation and management prescriptions

4.1.1 The following management measures apply to the Solar Development Sites.

4.1.2 A separate Outline Bird Mitigation Area Management Plan [EN0110012/APP/LVS/07.19] has been produced for the bird mitigation area contained within Solar Development Site 1 and should be read in conjunction with the following measures.

4.2 General planting implementation and management prescriptions

Advanced Planting

4.2.1 Limited areas of planting may be undertaken prior to, or at the commencement of the construction phase to allow for sufficient growth ahead of the operational phase of the Proposed Development.

4.2.2 The planting would be undertaken early in the construction phase to ensure establishment to mitigate the potential impact of glint and glare that could occur on road and rail users from the solar panels over short lengths.

4.2.3 In light of the conclusions of the Glint and Glare Assessment [EN0110012/APP/LVS/06.02.16.1], the detailed LEMP will include:

- 1) an updated glint and glare analysis of the detailed design of the Proposed Development to confirm whether significant glint and glare effects currently identified in the Glint and Glare Assessment as arising at Year 1 of the Proposed Development at the general locations shown on figure Advanced Planting for Glint and Glare Mitigation [EN0110012/APP/LVS/06.02.16.1] would still arise on the basis of the detailed design;
- 2) if any significant glint and glare effects are still predicted to arise; and the Applicant is unable to confirm that it has, working with landowners otherwise already facilitated changes to existing planting that would mitigate those effects and can demonstrate that that existing planting will be maintained to retain that mitigatory effect until the Proposed Development's landscaping proposals have matured to mitigate those effects; details of the location, species type and height of planting to be put in place to mitigate those effects so that they are not significant; and
- 3) a commitment for that planting to be put in place prior to the installation of solar panels at the locations that, but for the planting proposed, would cause significant glint and glare effects based on the updated analysis undertaken.

4.2.4 In all areas of advance planting that may be undertaken, where existing vegetation is available, the Applicant will liaise with landowners to undertake advanced management to grow up their existing hedgerows as an alternative.

Clearance

- 4.2.5 All ground vegetation within areas where planting is to take place, including any that has re-established during the construction period, should be cleared from site prior to planting.
- 4.2.6 The following clearance works should be undertaken:
- 1) All grass and perennial vegetation should be cleared from the planting area, including epicormic and below ground growth.
 - 2) All rubbish, debris and stones over 25 mm diameter should be cleared.
 - 3) All arisings should be removed from the area.

General planting prescriptions

- 4.2.7 All planting will be undertaken during the plants' dormant seasons to reduce the impact of planting upon the plant, typically between November and March of each year.
- 4.2.8 All planting will take place in the autumn as this provides the maximum period of time between planting and the growing season and typically has the most ideal ground conditions for planting as spring ground can be heavy and waterlogged.
- 4.2.9 Current trends demonstrate that the planting season is narrowing each year, and this will be taken into account when programming the planting works.
- 4.2.10 Planting will be carried out during the construction phase of the Proposed Development, or within the first available year/season post construction.
- 4.2.11 All planting will be carried out during appropriate climate conditions, avoiding wet and waterlogged conditions.
- 4.2.12 All plants and planting operations are to comply with the requirements and recommendations of all current legislation, guidance and British Standards set out in Section 1.3 above.
- 4.2.13 All planting works to be carried out to CPSE Handling and establishing landscape plants (obtainable from the Horticultural Trades Association) (2002) Part III (Ref 12), paragraphs 6.2 to 6.6. Plant upright or well balanced with best side to front. Plants to be handled and dispatched in accordance with the National Plant Specification - Handling and establishment, with special reference to the following:
- 1) Frost: Protect bare root plants and frost susceptible plants;
 - 2) Handling: Handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle;
 - 3) Plant packaging: Bare root material to be sealed in co-extruded black and white polyethylene bags;
 - 4) Planting: Upright or well balanced with best side to front;

- 5) If plants suffer slight damage, they are to be carefully pruned. If major damage has occurred the plant shall be rejected and replaced at the Contractor's expense;
- 6) After delivery, if planting is not carried out immediately, root balled shrubs should be placed cheek to cheek and the root ball covered with sand, peat or straw and watered to prevent drying out;
- 7) Bare-rooted plants should be heeled-in by pacing the roots in a prepared trench and covering them with top-soil, which should be watered thoroughly to eliminate air pockets around the roots; and
- 8) The security and tidiness of the area set aside for heeling in shall be the responsibility of the Contractor. If planting is delayed for more than a week after delivery, packaged plants shall be unpacked, the bundles opened up and each groups of plants heeled-in separately and clearly labelled.

4.2.14 All tree and hedgerow plants will be native and should be of UK provenance where practicable and commercially available.

4.2.15 The 'Local Seed Zone Provenance' (i.e., the region which the Proposed Development lies) is Region 40 in Native Seed Zone 401.

Cultivation

4.2.16 Topsoil within planting pits will be cultivated to a minimum depth of 400 mm where tree/hedgerow/woodland planting is proposed, to ensure there is sufficient room to accommodate new planting and to provide appropriate growing conditions for new planting.

4.2.17 Topsoil in areas to be seeded with wildflower and grass seed mixes will be cultivated using minimum tilling or direct drilling of seed straight into a stubble of the previous arable crop. This retains some surface protection offered by the stubble and reduces the number of cultivator passes across the soil surface.

4.2.18 No cultivation should take place in wet/ waterlogged conditions, within the root protection areas of existing trees as defined by BS5837:2012 (Ref 6) or in areas of archaeological sensitivity.

4.2.19 Where drilling is required within the root protection areas of existing trees located within land not currently subject to arable production, this should include surface specification only and of no more than 50 mm depth to ensure roots are not damaged.

4.2.20 No topsoil will be imported or exported from site and no grading of the topsoil should be undertaken.

Staking and protection

4.2.21 Due to the nature and location of the Solar Development Sites, existing populations of both rabbit and deer are present throughout. Protection against

mammal damage, particularly during the establishment years is essential to ensure their success.

- 4.2.22 All staking and protection measure will consist of biodegradable products where practicable.
- 4.2.23 Should any non-biodegradable products be used, these will be removed in a timely manner following establishment and disposed of responsibly.
- 4.2.24 All stakes, canes and other supports will be positioned on the windward side of the tree or shrub and driven in to the ground vertically.
- 4.2.25 Once plants are suitably established, all guards, stakes, ties and protective fencing will be removed and will be disposed of off-site (subject to satisfactory establishment and growth) in Year 5.
- 4.2.26 Where large areas of woodland and scrub planting blocks are proposed, these areas will be protected collectively through the installation of a deer and rabbit proof fence alleviating the need to provide excess quantities of individual guards.
- 4.2.27 The fence will be designed to protect the newly planted trees and shrubs against both rabbit and deer damage and therefore it is recommended the following typical specification is used:
- 1) Overall height 250 cm (minimum)
 - 2) Fence should consist of 100 mm (maximum) aperture
 - 3) Lower 60 cm of the fence should consist of a tighter aperture of 31 mm (maximum) to prevent rabbits.
 - 4) The fence should continue below ground in an outward facing L shape to prevent rabbits from tunnelling under the fence.

Mulching

- 4.2.28 All new tree, shrub and hedgerow planting will be covered using a coarse bark mulch to a minimum depth of 75 mm leaving the stem of the plant clear to aid water retention and weed control following planting.
- 4.2.29 The following mulch areas are recommended:
- 1) Individual Tree Planting: minimum mulch area of 250 mm radius from stem.
 - 2) Native Scrub Planting (including within Woodland Planting): minimum mulch area of 150 mm radius from stem; and
 - 3) Hedgerow Planting (including hedgerow trees): minimum mulch area of 500 mm offset from the centreline of the proposed hedge.
- 4.2.30 In order to ensure the mulching remains effective it is essential that the minimum depth of 75 mm is maintained throughout the establishment period.
- 4.2.31 The mulch depth will be reviewed annually and topped up as required.

Watering

- 4.2.32 Due to current climate pressures, it is essential to minimise requirements for watering where practicable to limit the impact on water supplies.
- 4.2.33 Good horticultural practice methods will be followed to minimise the water requirement for each plant, including the following:
- 1) Planting at the correct time of year and during the planting season (November – March);
 - 2) Ensuring the organic content of the topsoil is sufficient enough to retain moisture; and
 - 3) Ensuring all plants are sufficiently mulched to a depth of 75 mm.
- 4.2.34 Immediately following planting, it is essential that all newly planted trees and shrubs receive sufficient water that penetrates the full depth of the topsoil.
- 4.2.35 The rates of watering vary between plant size, species and location. In order to minimise the use of water, the following volumes should be applied to each plant type:
- 1) Standard: 50 litres per tree
 - 2) Feathered: 25 litres tree shrub
 - 3) Transplants and Whips: 20 litres per shrub
- 4.2.36 Generally, watering should be carried out to the following principles:
- 1) Quantity: Wet full depth of topsoil.
 - 2) Application: Do not damage or loosen plants.
 - 3) Compacted soil: Loosen or scoop out, to direct water to root zone.
- 4.2.37 These are indicative volumes and may need to be revised when soil and weather conditions are taken into account.
- 4.2.38 Subject to average seasonal precipitation, and the adhering of the methods to minimise watering outlined above, the newly planted trees and shrubs should not require any further watering until growth spurts are evident through the following summer.
- 4.2.39 If the following spring and subsequent summer receives lower than average precipitation, additional watering may be required to help sustain the plants in the early years following planting. This will be undertaken at the same rates set out above and only continue whilst the unseasonally dry weather continues.
- 4.2.40 Once all plants are established and independent in the landscape all watering will cease and the plants left to mature and become self-sufficient.
- 4.2.41 Due to changes in the current climate, summer droughts are becoming more frequent.
- 4.2.42 During these periods, restrictions may be applied the use of water and, if severe can extend to the use in some commercial practices.

- 4.2.43 If the water supply is, or is likely to be, restricted by emergency legislation, the appointed contractor will submit proposals for an alternative suitable source of water to the managing authority and obtain instructions before proceeding, keeping the client advised of any agreements.

General landscape management

- 4.2.44 For the purpose of this report, the 'establishment period' is the first five years following planting, with 'long-term management' in the years following this.
- 4.2.45 The establishment period of plants can vary between species and the location of planting, time of year and climate conditions during the establishment period. It is therefore important to continuously evaluate the establishment of the planting to ensure the correct prescriptions are adopted to ensure optimum growth.
- 4.2.46 Any plants and trees which are found to be dying, damaged or diseased within the establishment period will be replaced with the same species and size, as per the timetable in Appendix A.
- 4.2.47 Thereafter, replacement planting may be required for any significant failures, identified through monitoring to ensure the BNG condition criteria for each habitat type is met. The specification for replacement planting will be appropriate to the conditions on sites, acknowledging the potential for conditions to change over the 60-year lifetime of the Proposed Development.

Operational restrictions

Herbicide use

- 4.2.48 There is a general presumption against the use of herbicides due to the detrimental impact they can have on the environment. These will be restricted to essential tasks when other management methods are not feasible or have failed following repeated attempts.
- 4.2.49 Where herbicide treatments are to be used, contact with any planting, both existing or planted as part of this Proposed Development, must be avoided and all health and safety prescriptions set out by the herbicide manufacturer must be followed.

Pruning

- 4.2.50 All pruning works, including cutting or flailing of hedgerows, will take place during October to February, outside of the main bird nesting season (March to August/September), for the duration of the Proposed Development.
- 4.2.51 If pruning is required during bird nesting season advice from a suitably qualified ecologist will be sought prior to undertaking any works.

4.3 Mixed native hedgerows with / without hedgerow trees (UKHab: species rich hedgerow with / without trees)

4.3.1 The prescriptions in this Section apply to the following mitigation measures:

- 1) Proposed Native Hedgerow; and
- 2) Proposed Native Hedgerow with Trees.

4.3.2 The targeted Biodiversity Net Gain (BNG) condition to be met for ‘Species Rich Hedgerow with/without Trees’ is Moderate, as detailed with the BNG Report [EN0110012/APP/LVS/05.09].

4.3.3 In order to achieve the targeted condition, the following management activities will be undertaken within the Proposed Development, which will help achieve the associated BNG condition criteria, as outlined below in Table 4-1:

Table 4-1 Species rich hedgerow with / without trees management activities for BNG condition criteria

Management Activities	BNG Condition Criteria Achieved
It is proposed that hedgerows will be managed to be 4-4.5 m tall (as described below).	This will help achieve condition criteria A1 “Height >1.5 m average”
Hedgerows will be managed to be at least 1.5 m wide	This will help achieve condition criteria A2 “Width >1.5 m average”
Hedgerows will receive a varied cutting schedule to ensure they retain their width to their base.	This will help achieve condition criteria B1 “Gap between ground and base of canopy <0.5 m for >90% of length”
Any failed hedgerow plants will be replaced to infill any gaps that form	This will help achieve condition criteria B2 “Gaps make up <10% of total length and no canopy gaps >5 m”
Invasive non-native species will be managed on an ongoing basis, and biosecurity measures to reduce the potential for spreading invasive species within and outside the Order Limits, is detailed within the Outline Invasive Species Management Plan (oISMP) [EN0110012/APP/LVS/07.22]	This will help achieve condition criteria D1 “>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species and recently introduced species.”
As detailed below, the hedgerow trees will have formative pruning carried out annually in the establishment period, in accordance with good arboricultural practice to BS 3998:2010, and be monitored for signs of failing tree health. This	This will help achieve condition criteria E1 “At least 95% of hedgerow trees are in a healthy condition. There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.”

Management Activities	BNG Condition Criteria Achieved
will ensure they are maintained in a healthy condition, with any failures replaced.	

- 4.3.4 A network of existing native hedgerows are present across the Solar Development Sites, with frequent mature, standard trees present. Hedgerows are generally intact, however gaps between hedges exist often where hedgerows are adjacent to ditches, notable at Solar Development Sites 4 and 8.
- 4.3.5 The Proposed Development offers significant opportunities for hedgerow and hedgerow tree planting, as well as the enhancement of existing hedgerows through gapping up and supplementary planting to enhance their species diversity, in line with local conservation priorities, national targets and to mitigate minor impacts to hedgerow habitat arising from the Proposed Development.
- 4.3.6 Strengthening the local hedgerow network will significantly enhance the habitat areas for bat species, as well as birds and invertebrates, and contribute to local green infrastructure.

Hedgerow planting

- 4.3.7 All new hedgerows and gapping up planting will comprise a double staggered row of plants; overall, five plants per linear metre.
- 4.3.8 Species will be mixed throughout the hedge line in random, single species groups of three/five/seven.
- 4.3.9 A 500 mm wide trench will be excavated to take plants and topsoil cultivated to 400 mm depth prior to application of fertiliser. It is intended that all species be planted as bare root whips.
- 4.3.10 As per the UKHab criteria for species rich hedgerows, there will be four or more native woody species per 30 m section of hedge.
- 4.3.11 Locally appropriate species will be used, based on those found within the local area, such as hazel, hawthorn, blackthorn, and field maple.
- 4.3.12 An indicative list of hedgerow species is provided below in Table 4-2 (those which have been identified frequently within hedgerows across the Sites).

Table 4-2 Hedgerow species for planting within the Proposed Development

Common Name	Scientific Name	Specification	Mix (%)
Field Maple	<i>Acer campestre</i>	Transplant, 1+1, 40-60cm (h).	15
Hazel	<i>Corylus avellana</i>	Transplant, 1u1, 40-60cm (h)	15
Dogwood	<i>Cornus sanguinea</i>	Transplant, 1+1, 40-60cm (h)	5
Hawthorn	<i>Crataegus monogyna</i>	Transplant, 1+1, 40-60cm (h)	45
Holly	<i>Ilex aquifolium</i>	2L Containerised, 40-60cm (h)	5
Wild Privet	<i>Ligustrum vulgare</i>	Transplant, 1+1, 40-60cm (h)	5

Blackthorn	<i>Prunus spinosa</i>	Transplant, 1+1, 40-60cm (h)	5
Dog-rose	<i>Rosa Canina</i>	Transplant, 1+1, 40-60cm (h)	5

4.3.13 A total length of 35.11 km (linear) of new hedgerow is proposed within the Proposed Development. This comprises of:

- 1) 14.77 km (linear) of Proposed Native Hedgerow
- 2) 20.34 km (linear) of Proposed Native Hedgerow with Trees

Hedgerow management

4.3.14 Newly planted hedgerows will be watered in-line with the prescriptions set out in Section above.

4.3.15 To control the growth of weeds at the base of the proposed hedgerow, a 75 mm layer of bark mulch will be maintained until the plant is sufficiently established and in-line with the prescriptions set out in Section 4.2 above.

4.3.16 Newly planted hedgerows will be trimmed in at least the first two years to encourage bushy growth, allowing the hedge to become taller and wider at each cut.

4.3.17 Once the desired hedgerow height and width has been achieved and plants are suitably established, a variable cutting schedule on a three year or more rota will be adopted to provide a range of habitats for invertebrates and to ensure a supply of fruit and berries are available to birds and wildlife within the hedgerows each year.

4.3.18 Cutting must take place outside the bird nesting season, and a window of October-February is specified. Ideally, cutting will take place in January/February (where the ground is dry enough to allow machinery access), to ensure that food source for birds, such as nuts and berries remain in the hedgerows over the winter months. This may be focussed on hedgerows adjacent to roads and tracks where a tractor will be able to access in wet conditions without damaging the ground.

4.3.19 The shrubby element of hedgerows (excluding hedgerow trees) will be maintained to an optimum height of 4-4.5 m tall.

4.3.20 Hedgerows planted under overhead lines must be maintained at a lower height in-line with the asset owners guidance. No hedgerow trees will be planted within 6 m either side of overhead lines. Final details should be sought from the asset owners prior to planting, pursuant to their protective provisions in the draft DCO.

Hedgerow tree management

4.3.21 An inspection and formative prune of all new hedgerow trees will be carried out annually in the establishment period, in accordance with good arboricultural practice to BS 3998:2010 (Ref 7).

- 4.3.22 A clear stem of a minimum of 1.5 m above the maintained height of the hedgerow must be maintained for all hedgerow trees in order to be distinguishable and to safeguard from damage.

Table 4-3 Hedgerow tree species for planting within the Proposed Development

Common name	Scientific name	Specification	Root type
Field Maple	<i>Acer campestre</i>	Standard, 2x, 300-350cm	B
Wild Crab Apple	<i>Malus sylvestris</i>	Standard, 2x, 300-350cm	B
Wild Cherry	<i>Prunus avium</i>	Standard, 2x, 300-350cm	B
English Oak	<i>Quercus robur</i>	Standard, 2x, 300-350cm	B

4.4 Woodland belts and blocks (UKHab: other woodland – broadleaved)

4.4.1 The prescriptions in this Section apply to the following mitigation measures:

- 1) Proposed Native Woodland Belts; and
- 2) Proposed Native Woodland Blocks.

4.4.2 The targeted BNG condition to be met for ‘Other Woodland – Broadleaved’ is Poor, as detailed with the BNG Report **[EN0110012/APP/LVS/05.09]**.

4.4.3 In order to achieve the targeted condition, the following management activities will be undertaken within the Proposed Development, which will help achieve the associated BNG condition criteria, as outlined below in Table 4-4:

Table 4-4 Other woodland – broadleaved management activities for BNG condition criteria

Management Activities	BNG Condition Criteria Achieved
No specific management required to meet condition	This will help achieve condition criteria A “Age distribution of trees – One age-classes present”
Woodland will be monitored to ensure browsing damage is present in less than 40% of woodland. If limit is exceeded, management will be put in place to control herbivore access to woodland/trees (i.e. fencing/guards), and replanting will be established where required.	This will help achieve condition criteria B “Wild, domestic and feral herbivore damage - Evidence of significant browsing pressure is present in less than 40% of whole woodland”
Invasive non-native species will be managed on an ongoing basis, and biosecurity measures to reduce the potential for spreading invasive species within and outside the Order Limits, is detailed within the Outline Invasive Species Management Plan (oISMP) [EN0110012/APP/LVS/07.22]	This will help achieve condition criteria C “Invasive plant species - No invasive species present in woodland.”
Five or more native tree species should be planted in the woodland, as outlined in table 4-5 below	This will help achieve condition criteria D “Number of native tree species - Five or more

Management Activities	BNG Condition Criteria Achieved
	native tree or shrub species found across woodland parcel.”
At least 80% of the woodland trees and understory shrubs will be native, as outlined in table 4-5 below	This will help achieve condition criteria E “Cover of native tree and shrub species - >80% of canopy trees and >80% of understory shrubs are native.”
Any failed planting will be replaced to ensure open space does not exceed 20%	This will help achieve condition criteria F “Open space within woodland - 10 - 20% of woodland has areas of temporary open space. Unless woodland is <10 ha, in which case 0 - 20% temporary open space is permitted.”
No specific management required to meet condition	This will help achieve condition criteria G “Woodland regeneration - No classes or coppice regrowth present in woodland.”
Tree health will be monitored and managed throughout the lifespan of the Proposed Development, with tree species chosen to reduce likelihood of dieback (as detailed below).	This will help achieve condition criteria H “Tree health - 11% to 25% tree mortality and or crown dieback or low-risk pest or disease present.”
No specific management required to meet condition	This will help achieve condition criteria I “Vegetation and ground flora - No recognisable woodland NVC plant community at ground layer present.”
No specific management required to meet condition	This will help achieve condition criteria J “Woodland vertical structure – one storey or less across all survey plots.”
No specific management required to meet condition	This will help achieve condition criteria K “Veteran trees - No veteran trees present in woodland.”
No specific management required to meet condition	This will help achieve condition criteria L “Amount of deadwood – Less than 25% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities.”

Management Activities	BNG Condition Criteria Achieved
Halting of detrimental farming practices and ongoing woodland management is anticipated to ensure no nutrient enrichment or damaged ground within woodland.	This will help achieve condition criteria M “Woodland disturbance – No nutrient enrichment or damaged ground evident”

- 4.4.4 Small woodland blocks and shelter belts can provide ‘stepping stones’ between larger areas of woodland.
- 4.4.5 Proposed woodland belts vary in widths across the Proposed Development and comprises of mixed native tree and shrub planting. Suggested species to be included are illustrated in Table 4-5 below.
- 4.4.6 The tree species selected will reflect the species identified within the Solar Development Sites to ensure they are locally appropriate.
- 4.4.7 Tree planting locations will require an appropriate offset from Solar PV arrays to ensure shading will not occur once the tree has matured, and to ensure leaf fall on the panel structures does not present an issue.
- 4.4.8 Lower growing species will be planted adjacent to the proposed Solar PV arrays to avoid overshadowing, details of which will be provided in detailed landscape proposals post consent, which would be prepared prior to the construction of the Proposed Development. These plans should include detailed planting specifications and schedules as well as fully coordinated locations of all proposed planting.
- 4.4.9 A total area of 8.52 ha of woodland is proposed across the Proposed Development. This comprises:
 - 1) 2.62 ha of Native Woodland Belt; and
 - 2) 5.90 ha of Native Woodland Block.

Woodland belts and block planting

- 4.4.10 Trees within woodland planting will be planted at a minimum of 5 m centres.
- 4.4.11 Planting mixes will include a variety of tree and shrub species and ages, including 60-90 m transplants, 125-150 cm whips and 200-250 cm feathered trees. Planting mixes will be planted in single species groups of three, five or seven to reinforce a natural layout of species within the landscape.
- 4.4.12 Trees and shrubs will be planted appropriately depending on size and will including notch, trench and pit planting appropriate to the size of the rooting area / rootball.
- 4.4.13 All trees and shrubs will be planted with a 75 mm depth bark mulch a minimum of 250 mm in diameter around each tree and 150 mm diameter around each shrub to suppress weeds and retain soil moisture.

- 4.4.14 Planting will focus on long-lived trees to mitigate the possible loss of ash due to ash dieback in future years.
- 4.4.15 It may be desirable to plant trees not identified in the local area which are ecologically similar to ash or are resistant to both disease and climate change impacts. A list of locally appropriate and resistant trees is provided in Table 4-5 below.

Table 4-5 Woodland tree species for planting within the Proposed Development

Common name	Scientific name	Specification	Mix (%)
Field maple	<i>Acer campestre</i>	Transplant – seed raised, 1+2, 100-125	5
Black alder	<i>Alnus glutinosa</i>	Transplant – seed raised, 1+1, 40-60	5
Downy birch	<i>Betula pubescens</i>	Feathered, 2X, 125-150	10
Hazel	<i>Corylus avellana</i>	Transplant – seed raised, 1+1, 40-60	15
Hawthorn	<i>Crataegus monogyna</i>	Transplant – seed raised, 1+1, 40-60	20
Holly	<i>Ilex aquifolium</i>	Containerised, 40-60	5
Sweet cherry	<i>Prunus avium</i>	Transplant – seed raised, 1+1, 40-60	5
Blackthorn	<i>Prunus spinosa</i>	Transplant – seed raised, 1+1, 40-60	15
English oak	<i>Quercus robur</i>	Transplant – seed raised, 1+2, 100-125	10
Goat willow	<i>Salix caprea</i>	Seedling, 1+0, 40-60	10

- 4.4.16 Local priority species will be included within the proposed new planting, in appropriate locations.
- 4.4.17 Local genetic stock is to be sourced where available ensuring that they are not hybridised and a mixture of male and female plants would be planted (according to species).

Woodland and shelterbelt management

- 4.4.18 All trees and shrubs will be watered in-line with the prescriptions set out in Section 4.2 above.
- 4.4.19 To control the growth of weeds at the base of the proposed trees and shrubs, a 75mm layer of bark mulch will be maintained until the plant is sufficiently established and in-line with the prescriptions set out in Section 4.2 above.
- 4.4.20 Hand pulling of persistent weeds will be undertaken or treated using a spot herbicide where weeds are more widespread.

4.4.21 Seed fall would be monitored and any self-sown specimens that may negatively impact the solar panels, adjacent land or habitat establishment would be removed.

4.5 Native scrub with scattered trees (*UKHab: mixed scrub*)

4.5.1 The prescriptions in this Section apply to the following mitigation typology Proposed Native scrub with Trees.

4.5.2 The targeted BNG condition to be met for ‘Mixed Scrub’ is Moderate, as detailed with the BNG Report **[EN0110012/APP/LVS/05.09]**.

4.5.3 In order to achieve the targeted condition, the following management activities will be undertaken within the Proposed Development, which will help achieve the associated BNG condition criteria, as outlined below in Table 4-6:

Table 4-6 Mixed scrub management activities for BNG condition criteria

Management Activities	BNG Condition Criteria Achieved
A mix of native species will be planted within the scrub, as detailed within Table 4-7	This will help achieve condition criteria A “The parcel represents a good example of this habitat type: At least 80% of the scrub is native, there are at least three native woody species, and no single species comprises more than 75% of the cover.”
Invasive non-native species will be managed on an ongoing basis, and biosecurity measures to reduce the potential for spreading invasive species within and outside the Order Limits, is detailed within the Outline Invasive Species Management Plan (oISMP) [EN0110012/APP/LVS/07.22] . Control of suboptimal species cover will be managed as detailed below (i.e. hand pulling and mulching to protect against weeds).	This will help achieve condition criteria B “There is an absence of invasive non-native plant species (as listed on Schedule 9 of WCA) and species indicative of suboptimal condition make up less than 5% of ground cover.”
Scrub to be managed so that scattered scrub and grasses form the boundary with adjacent habitat (i.e. through an appropriate pruning regime)	This will help achieve condition criteria C “The scrub has a well-developed edge with scattered scrub and tall grassland and/or forbs present between the scrub and adjacent habitat.”

4.5.4 Bands of trees with lower canopy shrub planting are also proposed as part of the Proposed Development. This planting typology has been specified to provide additional vegetative layering within the landscape.

4.5.5 The mix of shrub and scattered tree planting is to provide effective screening of up to 3-12 m without compromising the open aspects of particular views.

4.5.6 The tree and shrub species selected will reflect the species identified within the Solar Development Sites to ensure that they are locally appropriate.

- 4.5.7 Tree planting locations will require an appropriate offset from panels to ensure shading will not occur once the tree has matured, or leaf fall becomes a problem on the panel structures.
- 4.5.8 An area of 4.86 ha of Native Scrub with Scattered Trees will be established across the Solar Development Sites.

Native scrub with scattered trees planting

- 4.5.9 Shrub planting will be planted at 1 m centres (in the case of typologies with densely planted scrub planting) or 2 – 4 m centres (in the case of typologies with scattered/low density scrub planting).
- 4.5.10 Scattered trees will be planted at 5 m centres within the scrub planting areas.
- 4.5.11 All tree and native shrub species will be planted in single species groups of three, five and seven to reinforce a natural layout of species within the landscape.
- 4.5.12 Planting mixes will include a variety of tree and shrub species and ages, including 60-90 m transplants, 125-150 cm whips and 200-250 cm feathered trees. Planting mixes will be planted in single species groups of three, five or seven to reinforce a natural layout of species within the landscape.
- 4.5.13 Trees and shrubs will be planted appropriately depending on size and will including notch, trench and pit planting appropriate to the size of the rooting area / rootball.
- 4.5.14 All trees and shrubs will be planted with a 75 mm depth bark mulch a minimum of 250mm in diameter around each tree and 150 mm diameter around each shrub to suppress weeds and retain soil moisture.
- 4.5.15 A list of locally appropriate species is given below in Table 4-7 (those which have been identified within the Sites).

Table 4-7 Scrub and tree species for planting within the Proposed Development

Common name	Scientific name	Specification	Density
Dogwood	<i>Cornus sanguinea</i>	Transplant – seed raised, 1+1, 40-60	10
Hazel	<i>Corylus avellana</i>	Transplant – seed raised, 1+1, 40-60	20
Hawthorn	<i>Crataegus monogyna</i>	Transplant – seed raised, 1+1, 40-60	20
European spindle	<i>Euonymus europaeus</i>	Transplant – seed raised, 1+1, 40-60	10
Blackthorn	<i>Prunus spinosa</i>	Transplant – seed raised, 1+1, 40-60	20
Goat willow	<i>Salix caprea</i>	Seedling, 1+0, 40-60	10
Guelder-rose	<i>Viburnum opulus</i>	Transplant – seed raised, 1+1, 40-60	10

Common name	Scientific name	Specification	Density
Field maple	<i>Acer campestre</i>	Transplant – seed raised, 1+2, 100-125	Counted
Downy birch	<i>Betula pubescens</i>	Feathered, 2X, 125-150	Counted
English oak	<i>Quercus robur</i>	Transplant – seed raised, 1+2, 100-125	Counted
Sweet cherry	<i>Prunus avium</i>	Transplant – seed raised, 1+1, 40-60	Counted

Native scrub with trees management

- 4.5.16 All trees and shrubs will be watered in-line with the prescriptions set out in Section 4.2 above.
- 4.5.17 To control the growth of weeds at the base of the proposed trees and shrubs, a 75 mm layer of bark mulch will be maintained until the plant is sufficiently established and in-line with the prescriptions set out in Section 4.2 above.
- 4.5.18 Hand pulling of persistent weeds will be undertaken or treated using a spot herbicide where weeds are more widespread.
- 4.5.19 Seed fall would be monitored and any self-sown specimens that may negatively impact the solar panels, adjacent land or habitat establishment would be removed.

4.6 Meadow seeding - within perimeter fencing (UKHab: modified grassland)

- 4.6.1 The targeted BNG condition to be met for 'Modified Grassland' is Good, as detailed with the BNG Report **[EN0110012/APP/LVS/05.09]**.
- 4.6.2 In order to achieve the targeted condition, the following management activities will be undertaken within the Proposed Development, which will help achieve the associated BNG condition criteria, as outlined below in Table 4-8:

Table 4-8 Modified grassland management activities for BNG condition criteria

Management Activities	BNG Condition Criteria Achieved
A correct seed mix will be chosen to provide a suitable number of species that will thrive within the Proposed Development as per the soil conditions.	This will help achieve condition criteria A “There are 6-8 vascular plant species per m2 present, including at least two forbs. Note – this criterion is essential for achieving Moderate or Good condition.”
Conservation grazing is proposed (as detailed below) to leave a varied, tall sward with flowering plants.	This will help achieve condition criteria B “Sward height is varied (at least 20% of the swad is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.”

Management Activities	BNG Condition Criteria Achieved
Scrub cover is to be monitored and removed if over 20% of grassland.	This will help achieve condition criteria C “Any scrub present accounts for less than 20% of the total grassland area. Note – patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.”
As detailed below, stocking of livestock used for conservation grazing will be amended should bare ground cover exceed limits.	This will help achieve condition criteria E “Cover of bare ground is between 1% and 10% including localised areas (e.g. rabbit warrens).”
Bracken cover is to be monitored and removed if over 20% of grassland.	This will help achieve condition criteria F “Cover of bracken <i>Pteridium aquilinum</i> is less than 20%.”
Invasive non-native species will be managed on an ongoing basis, and biosecurity measures to reduce the potential for spreading invasive species within and outside the Order Limits, is detailed within the Outline Invasive Species Management Plan (oISMP) [EN0110012/APP/LVS/07.22]	This will help achieve condition criteria G “There is an absence of invasive non-native plant species (as listed on Schedule 9 of the Wildlife and Countryside Act (Ref 13)).”

General management activities

- 4.6.3 It is assumed that all modified grassland within the perimeter fencing will be grazed once fully established.
- 4.6.4 It is suggested that a base stocking density of 2.5 ewes per hectare (~0.375 Livestock Unit (LSU)/ha) is used across the Proposed Development as a conservation grazing benchmark with grazing only be permitted between August-November.
- 4.6.5 No grazing will take place between April and July, allowing grasses and forbs to flower and seed. If this is not possible a reduced stocking density should be adopted to leave a varied, tall sward with flowering plants.
- 4.6.6 Grazing between March-April is permitted to reduce the vigour of early grasses.
- 4.6.7 A rotational grazing should be adopted in small mobs to avoid poaching in wet conditions.
- 4.6.8 All water points for stock will be positioned outside enhanced margins. Raised water troughs should be used to reduce damage to the surrounding grassland. Troughs should be dispersed around the Solar Development Sites and their placement should be rotated.
- 4.6.9 All supplementary feeding and any treatment will be avoided.

- 4.6.10 Where grazing is not possible, or commercially viable, the grassland within the perimeter fencing will be managed in-line with the general management activities for Meadow Seeding – field margins and enhanced grassland, outlined in Section 4.7.

Remedial measures

- 4.6.11 If monitoring reveals excessive bare ground or overgrazing, remove stock for a four-week period to allow for the recovery of the sward and extend if necessary. If overgrazing is continually observed, a reduced stocking intensity must be considered.
- 4.6.12 If sward height exceeds 100 mm during periods of grazing, increase stocking rate to a maximum of 0.6 livestock units/ha.
- 4.6.13 If the sward height is over 150 mm before grazing commences in August, a hay cut will commence, as per the Field Margins and Enhanced Grassland prescription.

4.7 Meadow seeding – field margins and enhanced grassland (UKHab: other neutral grassland)

- 4.7.1 The targeted condition set out in the BNG assessment for ‘Other Neutral Grassland’ is Moderate.
- 4.7.2 In order to achieve the targeted condition, the following criteria must be met:

Table 4-9 Other neutral grassland: BNG Condition criteria

Management Activities	BNG Condition Criteria Achieved
A correct seed mix will be chosen to provide a suitable number of species, including indicator species of neutral grassland, that will thrive within the Proposed Development as per the soil conditions. Ongoing monitoring, as detailed below in Remedial Measures, will ensure management is amended should indicator species not be present or the grassland is failing.	This will help achieve condition criteria A “The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type. Note – this criterion is essential for achieving Moderate or Good condition.”
The grassland will be managed through a traditional hay cut, as described below	This will help achieve condition criteria B “Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.”
Scrub and bracken cover to be monitored and removed if over 5% of grassland for scrub, and 20% of grassland for bracken.	This will help achieve condition criteria D “Cover of bracken is less than 20% and cover of scrub (including bramble <i>Rubus fruticosus</i> agg.) is less than 5%.”

General management activities

- 4.7.3 All field margins and enhanced grassland areas will be managed as a hay meadow for the duration of the operational phase of the Proposed Development.
- 4.7.4 The first cut will take place in each year, between February and March to a height of 25-50 mm.
- 4.7.5 The hay meadow will be left uncut until late summer (August).
- 4.7.6 The meadow should be cut and reduced to 40-60 mm with the hay left in situ to dry for 1-7 days to allow shed.
- 4.7.7 Following this period all arisings will be removed and disposed of away from Sites. The timings should be reviewed dependent on prevailing conditions.
- 4.7.8 It is essential that all cuttings are removed from site to lower the nutrient status and prevent litter build-up.
- 4.7.9 The edges of the grassland adjacent to scrub and woodland and bases of all hedgerows should be left to encourage neutral ecotones of woodland to scrub to rough grassland.

Weed control

- 4.7.10 The field margin and enhanced grassland areas will be monitored for invasive and perennial weeds.
- 4.7.11 All persistent weeds should be hand pulled if not too excessive.
- 4.7.12 If weeds are too widespread then an increase in cutting will be considered to top all perennial weeds.
- 4.7.13 If herbicide treatments are to be used, contact with the other vegetation must be avoided and all health and safety prescriptions set out by the herbicide manufacturer must be followed.

Remedial measures

- 4.7.14 If monitoring reveals the field margins and enhanced grassland are failing to reach the condition criteria highlighted above, a supplementary seeding will take place to ensure a sufficient, species diverse sward.
- 4.7.15 Where establishment is not occurring as required, action will be taken to alter the seed mix and/or management methodologies. If indicator species are not present, over seeding or plug planting with desired species may be required.
- 4.7.16 If coarse grasses persist after five years, a three-cut regime (April, July, September, with removal of arisings) will be implemented to reduce fertility. Once fertility is reduced, cutting frequency may return to twice per year.

4.8 Public Rights of Way and Permissive Paths

Public Rights of Way

- 4.8.1 It is essential to maintain all Public Rights of Way (PRoWs) located throughout the Solar Development Sites free from obstructions, in-line with the legislations listed in Section 1.3 above. This includes:
- 1) The pruning of all hedgerows and shrub planting adjacent to all PRoWs;
 - 2) Maintaining clear stem heights of all trees along PRoWs to ensure the minimum head heights are provided; and
 - 3) Ensure all gates and stiles are functional and safe to use.
- 4.8.2 To restrict the movement of domestic animals into the bird mitigation area a proposed agricultural wire stock fence (up to 1.15m (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 Bird Mitigation Area. The fence will be retained and managed for the duration of the operational phase of the Proposed Development.
- 4.8.3 Details of the outline PRoW management measures are set out in in the Outline Public Rights of Way Management Plan [EN110012/APP/LVS/07.09];

Permissive paths

- 4.8.4 The Applicant will create three types of permissive paths across the Solar Development Sites to improve local connectivity, complement the wider network of PRoWs and facilitate greater public access to the countryside. They will provide new links between existing PRoW creating loops that seek to improve connectivity.
- 4.8.5 The permissive path uses will include:
- 1) pedestrian only;
 - 2) pedestrian and cyclists; and
 - 3) pedestrian, cyclists and equestrian.
- 4.8.6 The designation of these permissive paths take into consideration their connectivity to existing types of PRoW (e.g. footpaths or bridleways) and associated permitted users.
- 4.8.7 Locations and use of permissive paths, are illustrated on Figure 3.1: Outline Environmental Masterplan (ES Volume 2) [EN0110012/APP/LVS/02.12]
- 4.8.8 The permissive paths will be managed through the following measures:
- 1) Displaying clear signage at the entrance to permissive path, which should include making clear the path is a permissive path, with usage permitted by the landowner;

- 2) Appropriate enclosures (e.g. gates or other barriers) will be installed at access points to control the type of users permitted on each path where appropriate. For example gates will be designed to allow pedestrian access while preventing horse riders and cyclists where such users are not appropriate or permitted. Where equestrian access is permitted, gates will comply with British Horse Society standards.
- 3) Regular maintenance, including annual closure for maintenance with appropriate signage / warnings;
- 4) Surfacing all permissive paths using a grass and wildflower seeding as set out in section 4.7 above. Where permissive paths utilise existing tracks, the surface will be maintained as existing.
- 5) Providing the following minimum widths / heights:
 - a. Pedestrian only paths: minimum maintained width of 1.5m along field edges and 1m where paths cross fields;
 - b. Pedestrian and cyclists only: minimum maintained width of 3m along field edges and 2m where paths cross fields, and a clear head height of 3m; and
 - c. Pedestrian, cycle and equestrian paths: minimum maintained width of 3m along field edges and 2m where paths cross fields, and a clear head height of 3m.

4.8.9 The final detail of all permissive path including signage, surfacing and widths will be agreed in advance with North Yorkshire Council as part of approval of the detailed LEMP(s).

4.9 Existing habitats

Existing hedgerows to be enhanced

4.9.1 Existing hedgerows marked as retained across the Proposed Solar Development Sites and as illustrated in Arboricultural Impact Assessment [EN0110012/APP/LVS/06.03.16.02] will be enhanced to improve their structure and species diversity.

4.9.2 The proposed enhancement will be undertaken through two main methods:

- 1) In-fill planting to close up small gaps within the hedgerow using a suitable species rich mix; or
- 2) The removal of sections where either the hedgerow has suffered substantial die back or where the majority of the hedgerow is formed of non-shrub species such as bramble or ivy.

4.9.3 All sections requiring removal to improve their structure and diversity will be done in a way in which damage to adjacent hedgerow plants is limited.

4.9.4 Sections identified for removal should be completely removed and grubbed out to create a clear, cultivated gap for re-planting.

- 4.9.5 Prior to the commencement of the construction phase, existing hedgerows will be trimmed to their current managed extent to minimise the risk of conflict with construction plan and to avoid the need for maintenance during construction. Once construction is complete, the hedges will be allowed to grow out to their proposed height.
- 4.9.6 During the operational phase, existing hedgerow maintenance will be required. This will include:
- 1) Removal of trees succumbing to ash dieback or other disease;
 - 2) Removal or pruning of trees experiencing partial or total structural failure due to storm damage, where that failure threatens to damage infrastructure;
 - 3) Hedge trimming and maintenance.
- 4.9.7 Where hedgerows require removal for visibility splays to facilitate temporary access routes these will be coppiced to just above ground level allowing for the necessary visibility splay. The trees can then be allowed to regenerate following completion of site works and the removal of temporary access.

Existing ditches and watercourses

- 4.9.8 Generally, the quality of the ditches within the Solar Development Sites have been identified as poor, due to agricultural impacts such as runoff; the cessation of intensive agricultural land use in proximity to these watercourses will likely lead to better water quality over the duration of the Proposed Development.
- 4.9.9 In addition, wide buffers of at least 10 m will enhance the ditch and river habitats for associated protected and notable species, including water vole, otter, birds and invertebrates.
- 4.9.10 Ditch management will be carefully considered, with works being undertaken on a rotational basis so that undisturbed areas remain annually. Ditch management can be carried out every two to five years, with cutting being undertaken in autumn/winter and only on one side of the bank cut each time.
- 4.9.11 Habitats adjacent to watercourses within the Solar Development Sites will be managed to enhance the structural and species diversity of marginal vegetation. This may be achieved through a combination of seeding, rotational cutting and targeted scrub removal where encroachment is detrimental to ditch condition.
- 4.9.12 Where not in conflict with access and maintenance requirements, planting of trees may also be undertaken adjacent to ditches and rivers, with sufficient distance from the ditch to prevent damage and on the northern side where practicable to prevent shading.
- 4.9.13 With regards to BNG (see BNG Report [EN0110012/APP/LVS/05.09]), as per the Design Parameters and Commitments Document [EN0110012/APP/LVS/05.06], a 10 m buffer will be provided from bank top for all ditches where practicable, with neutral grassland largely proposed within this buffer. The change from arable at baseline to neutral grassland post development within parts of this proposed 10

m buffer will result in reduced riparian zone encroachment (from Major to No encroachment), and as such, the applicable lengths of ditches have been added to the metric as enhanced resulting from reduced riparian zone encroachment, namely D1.1, D1.2, D1.4, D1.5, D1.9, D1.11, D1.12, D1.13, D2.2, D3.1, D4.4, D4.7, D4.13, D4.14, D6.5, and D7.1 (shown on Figure 6.6: UK Habitat Classification Results [EN0110012/APS/LVS/06.02.06.06]). Where ditches are present on the Solar Development Sites' boundary, the extent of encroachment on the offsite bank is anticipated to remain unchanged from the baseline and as such is not changed in the metric.

- 4.9.14 In addition, the condition of a smaller number of ditches within the Solar Development Sites, namely D1.3, D1.12, D1.13, D6.3, and D6.5 (shown on Figure 6.6: UK Habitat Classification Results [EN0110012/APS/LVS/06.02.06.06]), will be improved from poor to moderate. This will be achieved through passing the condition criteria as detailed in Table 4-10 below. The management activities required to pass these criteria are also detailed. To note, to increase to moderate condition not all of these measures need to be passed for each of the ditches listed, for example D6.3 only requires the removal of filamentous algae and duckweed to reach moderate condition:

Table 4-10 Enhanced ditches management activities for BNG condition criteria

Management Activities	BNG Condition Criteria Achieved
The halting of agricultural fertiliser and pesticides application on adjacent land will help improve water quality of surrounding ditches, and the creation and management of buffer zones as detailed above will help trap sediment and nutrients before reaching the channel. Additional in channel planting, with species such as water forget-me-not (<i>Myosotis scorpioides</i>) or brooklime (<i>Veronica beccabunga</i>), and ensuring the ditches do not become overshadowed by surrounding vegetation will also help improve water quality.	This will help achieve condition criteria A “The ditch is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution.”
Ditches will be monitored and if filamentous algae and/or duckweed Lemma spp. exceeds 10% cover of the ditch the species will be removed.	This will help achieve condition criteria C “There is less than 10% cover of filamentous algae and/or duckweed Lemma spp..”
The establishment of the 10 m buffer zones, as detailed above, will help reduce physical damage along the ditch, with ongoing monitoring to ensure damage remains under 5%.	This will help achieve condition criteria E “Physical damage is evident along less than 5% of the ditch, with examples of damage including: excessing poaching, damage from machinery use or storage, or any other damaging management activities.”

4.10 Habitat boxes and wildlife enhancement features

Bats

- 4.10.1 To improve the Proposed Development for roosting bats post development, a series of bat boxes will be installed on mature trees within the Sites. The Ground Level Tree Assessment (GLTA) has been completed based on a worst-case scenario assessment for tree loss as detailed in the Arboricultural Impact Assessment presented at Appendix 16.2 (ES Volume 3) [EN0110012/APP/LVS/06.03.16.02].
- 4.10.2 Of the trees that may require removal to facilitate the development, two of these trees were assessed as PRF-M (trees providing roosting potential for multiple bats). Further bat surveys are therefore required to confirm the presence/absence of bat roosts within these three trees prior to felling. Following these further surveys, should it be confirmed that bats do roost in these PRF-M trees, and the tree does in fact require removal to facilitate development, further/specific types of boxes installed on retained mature trees in the Solar Development Sites may be recommended depending on the type/species of bat roosts to be lost.
- 4.10.3 Boxes will be installed facing a number of aspects to increase opportunity for roosting bats. Exact locations will be determined by an ecologist.
- 4.10.4 The boxes will be visually inspected from ground-level annually to ensure that they remain in situ and secure, and to monitor for any damage to the box structure.
- 4.10.5 Where damage has been observed to bat boxes, they will be replaced during October-November.
- 4.10.6 Boxes will be inspected by a qualified ecologist prior to any removal/replacement to ensure no bats are present, avoiding any disturbance.

Birds

- 4.10.7 To enhance nesting opportunities across the Solar Development Sites, a series of bird boxes (colony boxes and A-Frames) will be installed on retained mature trees.
- 4.10.8 All bird boxes will be installed at suitable locations across the Solar Development Sites, with the final locations determined by a licensed ecologist (where appropriate).
- 4.10.9 The boxes will be visually inspected from ground level annually to ensure they remain in situ and secure, and to monitor for any damage to the box structure.
- 4.10.10 All boxes will be cleaned out on an annual basis between September and February. Where damage has been observed to the bird boxes they will be replaced between September and February. All health and safety guidance current at the time must be followed.

Insect houses

- 4.10.11 A series of insect houses will be fixed to a single wooden stake 1,550 mm (l) x 75 mm (dia) driven a minimum of 500 mm into the ground to ensure the box is approximately 1 m above ground level. The insect houses will be attached to post using an aluminium nail.
- 4.10.12 The insect houses will be located within suitable habitat across the Solar Development Sites, with the final locations determined by an ecologist.

Hedgehog houses

- 4.10.13 A series of hedgehog houses will be installed in suitable habitat within the Solar Development Sites to improve the Proposed Development for the species post development.
- 4.10.14 The houses will be located in suitable habitat adjacent to woodland or scrub, with the final locations determined by an ecologist.

Log piles/hibernacula

- 4.10.15 A series of log piles/hibernacula will be installed in suitable habitat within the Solar Development Sites, such as in the grassland margins adjacent to wet ditches, to improve the Proposed Development for groups such as reptiles and amphibians post development.
- 4.10.16 All log piles and hibernacula will be installed in suitable locations across the Solar Development Sites determined by an ecologist.

5 Landscape and ecological auditing / monitoring

5.1 Landscape

- 5.1.1 For successful establishment, it is essential to undertake regular monitoring visits during the establishment period.
- 5.1.2 The purpose of the monitoring visits is to provide a detailed assessment of plant establishment and health and growing conditions.
- 5.1.3 It is recommended that monitoring visits are undertaken twice a year, one in early-mid spring at the beginning of the growing season and once in late summer – early autumn towards the end of the growing season.
- 5.1.4 Additional site visits may be required in the first year to monitor the establishment of proposed meadows and the presence of competing weeds where seeding has been made on bare ground.
- 5.1.5 Monitoring visits should be undertaken by a competent Landscape Architect who is a member of the Landscape Institute.
- 5.1.6 It is recommended that the monitoring visits are carried out prior to any scheduled maintenance activity.
- 5.1.7 Following the monitoring visit, a monitoring report should be provided to the maintenance teams setting out the condition of the planting and any recommendations to ensure the management objectives are met and if necessary, recommend revisions to the management plan to ensure successful establishment.

5.2 Ecology

- 5.2.1 An outline ecological monitoring strategy is set out below, however, further details for essential monitoring of the Proposed Solar Development Sites habitats will be set out within the detailed LEMP, based on a standardised approach.
- 5.2.2 Habitat specific monitoring will be required as part of Biodiversity Net Gain delivery / progress reporting and is included as a 'UKHab' survey along with Condition Assessments of the habitats recorded.
- 5.2.3 The monitoring strategy should include:
 - 1) UKHab Survey – a habitat survey as well as Condition Assessments of the establishing habitats, will be undertaken to ensure the habitats are developing as desired, and in line with BNG commitments. As rough guidance, it is suggested that this assessment is undertaken on year 1, 2, 3, 5, then every five years until year 30. The requirements for monitoring under Biodiversity Net Gain will be fully detailed in the BNG strategy to be prepared alongside the detailed LEMP.

- 2) Botanical Quadrants – fixed point quadrants will be recorded at selected locations. The distribution of quadrants will be designed to ensure each habitat is sampled, with the number of quadrants to be dependent on the size of the area and estimated species diversity of the proposed habitat. This will help to track establishment and identify any problems should the habitat not be forming as required. Where these quadrants are undertaken within panelled fields, locations will ensure that all habitats are sampled, including directly beneath and between the strings of panels, as well as within the field edges, outside of the array.
- 3) Soil Survey – a soil survey would provide a helpful measurement, particularly within an area that had previously been subject to intensive agricultural production for many years. It is therefore proposed that such a survey is carried out prior to seeding and habitat establishment across the Proposed Development, although this could be targeted or sampled according to needs identified during the preparation of the detailed LEMP. Basic measurements may include pH, soil type, soil organic matter, bulk density, soil moisture, infiltration capacity, and texture. Additional measurements may include soil carbon, nitrogen, phosphorous, potassium and magnesium. There may also be opportunities to monitor other indicators such as fungal: bacterial ratio or fungal DNA.
- 4) Monitoring of protected and notable species (bats, badgers, water vole, otter etc) through the completion of protected species surveys at various times post development. This will help to understand if protected species are still present on site compared to the predevelopment baseline, and how protected species use of the site post-development.
- 5) Bird Surveys - bird surveys will be undertaken within the Bird Mitigation Area, for full details of proposed surveys refer to Outline Bird Mitigation Area Management Plan [**EN0110012/APP/LVS/07.19**].

Annex A Outline management prescription timetable

Table 5-1 Outline management prescription timetable

Operation Management Prescription	Frequency per Annum	Season	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6 onwards
Hedgerow								
Water newly planted hedgerow plants during extended periods of dry weather.	As required	March – October						
Maintain a weed free area to base of hedgerow.	Twice yearly	March – October						
Mechanical cut	3 year rotation	November – February						On-going
Replace dead and dying plants	Check annually	Next available planting season						
Hedgerow trees								
Water newly planted hedgerow trees during extended periods of dry weather.	As required	March – October						
Maintain a weed free area to base of hedgerow tree.	Twice yearly	March – October						
Formative prune to remove dead, dying and diseased branches and maintain a clear stem a minimum of 1.5m above top of hedgerow in order to be distinguishable. All works in accordance with good arboricultural practice and to BS3998:2010.	Annually	November – February						On-going
Replace dead and dying plants	Check annually	Next available planting season						
Woodland Belts and Blocks								
Water newly planted trees and shrubs during extended periods of dry weather.	As required	March – October						
Maintain a weed free area to base of trees and shrubs	Twice yearly	March – October						
Formative prune to remove dead, dying and diseased branches. All works in accordance with good arboricultural practice and to BS3998:2010.	Annually	November – February						On-going
Replace dead and dying plants.	Check annually	Next available planting season						
Native Scrub with Scattered Trees								
Water newly planted shrubs during extended periods of dry weather.	As required	March – October						
Maintain a weed free area to base of shrubs	Twice yearly	March – October						

Operation Management Prescription	Frequency per Annum	Season	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6 onwards
Formative prune to remove dead, dying and diseased branches. All works in accordance with good arboricultural practice and to BS3998:2010.	Annually	November – February						On-going
Replace dead and dying plants.	Check annually	Next available planting season						
Meadow Seeding within Solar Development Sites								
Sheep grazing.	Annually	August – March						On-going
Mechanically topped to control flush of weeds.	As required	August - September						On-going
Meadow Seeding within Field Margins and Enhanced Grasslands								
Cut regularly to maintain approximately 75mm (h)	3-4 times	March – October						
Cut to a height of 75mm	1	February – March						On-going
Hay cut, leaving cutting to dry and seed to disperse. Collect arisings after 7-14 days and remove from site.	1	August – September						On-going
Spot herbicide application	As required	March – October						On-going
Bird and Bat Boxes, and Hedgehog and Insect Houses								
Visually inspect and clean out (excluding bat boxes and targeting protected species)	Annually	October – February						On-going

References

- Ref 1 Planning Act 2008, available at:
<https://www.legislation.gov.uk/ukpga/2008/29/contents>
- Ref 2 BS 8545. Trees: From Nursery to Independence in the Landscape. Available at:
[REDACTED]
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- Ref 3 BS 3936-1:1992. Nursery stock. Specification for trees and shrubs. Available at:
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- Ref 4 BS 3882:2015 - Specification for topsoil. Available at:
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- Ref 5 BS 4428:1989. Code of practice for general landscape operations (excluding hard surfaces) (AMD 6784). Available at:
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- Ref 6 BS 5837: 2012 Trees in relation to design, demolition and construction - recommendations. Available at:
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- Ref 7 BS3998:2010 Tree work – recommendations. Available at:
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- Ref 8 Countryside and Rights of Way Act 2000. Available at:
<https://www.legislation.gov.uk/ukpga/2000/37/contents> Accessed: January 2026
- Ref 9 The Hedgerow Regulations 1997. Available at:
<https://www.legislation.gov.uk/uksi/1997/1160/contents> Accessed: January 2026
- Ref 10 Local Authority Guidance; and
- Ref 11 Solar Energy UK Guidance: A Standardised Approach to Monitoring Biodiversity on Solar Farms (2022)
- Ref 12 Horticultural Trades Association (2002) Handling and establishing landscape plants. Available at:
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- Ref 13 Wildlife and Countryside Act 1981. Available at:
<https://www.legislation.gov.uk/ukpga/1981/69/contents> Accessed: January 2026

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