



Five Lanes Solar

Discharge of Condition 8 (20/08618/FUL): Landscape and Ecology Management Plan (LEMP)

R02

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Prepared on Behalf of Five Lanes Solar Ltd

Five Lanes Solar

Landscape and Ecology Management Plan (LEMP)

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Contents

1.0	Introduction	5
1.1	Background	5
1.2	Scope	5
1.3	The Site	5
1.4	Development Proposals	6
2.0	Aims	6
3.0	Landscape Design Concepts	7
3.1	Key design concepts	7
3.2	Design objectives	8
3.3	Phases of Development	8
3.4	Management objectives	9
3.5	Maintenance objectives	9
3.6	Monitoring	9
4.0	Site description	10
4.2	Habitats	10
4.3	Protected and Notable Species	10
5.0	Habitat Enhancement/ Creation	12
5.2	Grassland beneath solar panels	12
5.3	Wildflower grassland	13
5.4	Hedgerow and woodland buffer mix	13
5.5	Grey Partridge mix	13
5.6	Riparian corridor	13
5.7	New Hedgerows and Hedgerow Infill Planting	13
5.8	Wildlife Features	15
6.0	Habitat Protection and Protection Measures, Management Objectives and Prescriptions	15
6.2	Prior to Works Commencing	15
6.3	During Enabling and Construction	16
6.4	Existing Hedgerows and trees	18
6.5	Grassland under solar panels	20
6.6	Wildflower grassland	21
6.7	Hedgerow and woodland buffer mix	22
6.8	Grey Partridge Mix	23
6.9	Riparian habitat grassland	24
6.10	Wildlife Features	25
7.0	Species Protection Measures	25
8.0	Monitoring and Reporting	26
8.2	Remedial Actions	26
8.3	Plan Review	27
9.0	Responsibilities	27
9.2	Funding and Implementation	27
10.0	Annual maintenance programme	28
10.2	Annual maintenance schedule	29
11.0	Decommissioning and Restoration	33
Appendices.....		34
Appendix 1: Maintenance Specification Q35		34
Appendix 2: Pruning Techniques		43
Appendix 3: Drawings		45

1.0 Introduction

1.1 Background

- 1.1.1 Tir Collective has been instructed by Five Lanes Solar Ltd to prepare this Landscape and Ecological Management Plan (LEMP) which relates to the consented development consisting of the installation of a solar farm comprising ground mounted solar PV panels with a generating capacity of up to 49.9MW, including mounting system, battery storage units, inverters, underground cabling, stock proof fence, CCTV, internal tracks and associated infrastructure, landscaping and environmental enhancements for a temporary period of 40 years and a permanent grid connection hub. The solar farm will be located on land west of the A429 (Crudwell Road), north of Malmesbury, Wiltshire.
- 1.1.2 The aim of the LEMP is to provide details of the measures proposed to protect existing landscape features and prescriptions for the creation and management of the new and retained landscape features. It provides the requirements during the construction and operation (40 years) and the management framework during the operational phase. The implementation of the LEMP is central to protecting the landscape, visual and ecological importance of the Site.

1.2 Scope

- 1.2.1 Condition 8 of the planning approval (20/08618/FUL) for the development requires that:
- 1.2.2 *"Prior to the commencement of works, including ground works/excavation, site clearance, vegetation clearance and boundary treatment works a Landscape and Ecology Management Plan (LEMP) shall be submitted to and approved in writing by the Local Planning Authority. The LEMP will include long term objectives and targets, management responsibilities and maintenance schedules for each ecological feature within the development, together with a mechanism for monitoring success of the management prescriptions, incorporating review and necessary adaptive management in order to attain targets. The LEMP shall also include details of the legal and funding mechanism(s) by which long-term implementation of the plan will be secured. The LEMP shall be implemented in full and for the lifetime of the development in accordance with the approved details. "*

1.3 The Site

- 1.3.1 The Site is shown in **Appendix 3**. The Site comprises two areas, the main solar farm Site that covers 63.29ha, and the grid connection and substation Site, which is located approximately 5.8km to the northeast of the solar farm.
- 1.3.2 The Site comprises several medium-sized, irregularly shaped arable and permanent pasture fields, which form part of a wider working agricultural landscape. The fields within the site are bounded by managed hedgerows, with occasional individual trees along field boundaries,

Five Lanes Solar

Landscape and Ecology Management Plan (LEMP)

reflecting a largely intact historic field pattern. In the northeast of the site, an arable field is partially bisected by a small watercourse, which is lined with scrub vegetation.

- 1.3.3 The shape and boundary of the main solar farm Site is defined by the agricultural fields and hedgerow boundaries. It is surrounded by other large and medium-sized arable fields with some smaller pasture fields and small woodland plantations.
- 1.3.4 The Site supports a range of common agricultural habitat types typical of land that has been subject to long-term agricultural management and improvement. While botanical diversity is characteristic of improved farmland, the Site retains functional ecological connectivity to the wider countryside through its network of hedgerows, watercourses and adjacent woodland plantations. These features contribute to local landscape structure and provide links to surrounding habitats within the wider agricultural and estate landscape associated with Charlton Park.

1.4 Development Proposals

- 1.4.1 The consented development is for the installation of a 49.9MW ground-mounted photovoltaic panel and mounting system with a permanent on-site grid connection hub, inverters, underground cabling. The solar panels would be set out in lines within the field boundaries, mounted on a rack supported by pile-driven foundations. The linear arrays would be orientated to the south with a tilt of 25°: the lowest edge of the panels would be 850mm above the ground, and the highest edge would be 2.8m above the ground.
- 1.4.2 Access to the solar farm would be via a new hardcore gravel access track to the southwest of the solar farm that runs along an existing farm track, adjacent to the arable field boundary, and connects to the A429 Crudwell Road via an existing field gateway.
- 1.4.3 The landscape proposals for the solar farm include the establishment of infill native hedgerows, riparian corridors, and wildflower grassland, supplemented by marginal grassland alongside hedgerows and woodland. Mitigation for the substation compound specifically incorporates the planting of native hedgerows and hedgerow trees to provide some screening and filtering of views. For further details, refer to drawings L100-L105 and L200.
- 1.4.4 At the grid connection Site, proposals include removing an existing pylon and replacing it with two new pylons, the installation of two 15m high communication towers, a switch room, a service building, 2.4m high palisade security fencing, 1.2m high stock-proof fencing, a container for storage, and a loose gravel access track.

2.0 Aims

- 2.1.1 The LEMP should be read in conjunction with information used to support the planning application, including the Ecological Impact Assessment (EclA) – (GE Consulting 2023) and the details provided on the landscape proposal drawings, included in **Appendix 3** of this report:

- TC22031 **L100:** Landscape Strategy
- TC22031 **L101:** Detailed plan 1 of 5
- TC22031 **L102:** Detailed plan 2 of 5
- TC22031 **L103:** Detailed plan 3 of 5
- TC22031 **L104:** Detailed plan 4 of 5
- TC22031 **L105:** Detailed plan 5 of 5 (Substation)
- TC22031 **L200:** Specifications

2.1.2 The aims of this document are to:

- Provide details on mitigation, compensation and enhancement measures to ensure no net loss of biodiversity and no adverse effects on the landscape character of the area.
- Provide sufficient detail to ensure that retained and new habitats are managed and maintained in the long-term to benefit biodiversity and landscape function.
- Provide a timetable for the implementation of the LEMP.
- Provide a monitoring framework to ensure that appropriate refinements and/ or revision of the plan can be made, in order to promote any objectives/ targets of the LEMP.

2.1.3 Any changes to the LEMP will need to be agreed in writing by Wiltshire Council.

3.0 Landscape Design Concepts

3.1 Key design concepts

3.1.1 The following list defines the key landscape design concepts which have guided the preparation of the landscape and ecological proposals.

3.1.2 Protection of retained habitats, which are of ecological and nature conservation interest, including retention of existing trees and hedgerows. Adjacent to the grid connection Site are blocks of Ancient Woodland; 15m buffers have been incorporated to the proposals. Compliance with the Arboricultural Method Statement and Tree Protection Plan will be adhered to prevent damage to boundary features and retained trees.

3.1.3 10m buffers from water courses have also been incorporated to protect existing habitats.

3.1.4 Enhancement /creation of ecologically valuable habitats and features, including:

- Retention of existing hedgerows and trees along field boundaries, which are to be protected with a suitable buffer around the Root Protection Areas (RPA) of each tree and hedgerow that is to be retained.

Five Lanes Solar

Landscape and Ecology Management Plan (LEMP)

- Proposed native trees and hedgerows, including infill planting, are proposed to enhance the existing field boundaries and to provide some screening and filtering of views whilst providing wildlife corridors and connections to existing features.
- Proposed planting will include native species of local provenance with known wildlife benefit, which are also consistent with adjacent hedgerows.
- New areas of wildflower grassland within the Site are proposed. These will have a sympathetic cutting regime to encourage a more diverse grassland structure and species composition within the grassland created for biodiversity enhancement.
- Incorporation of enhancements for protected species, including bat and bird boxes on retained trees throughout the Site to increase roosting/nesting opportunities and provision of 6no. hibernacula for reptiles and amphibians; and
- Management techniques on Site to provide habitats suitable for grazing sheep of grassland areas.

3.1.5 The management and maintenance objectives have been formulated to achieve and fulfil the overall design concepts and meet the Biodiversity Net Gain Metric.

3.2 Design objectives

3.2.1 Design objectives aim to reinforce existing field boundaries to:

- protect, enhance and maintain the retained habitats and the wildlife they support.
- strengthen and gap up existing hedgerows to reduce visual effects and reinforce these landscape elements, which make an important contribution to landscape character.
- reduce the visual impact of the development when viewed from publicly accessible locations.
- compensate for any habitat loss, where possible.
- creation of suitable and connected habitats to promote the wildlife the Site already supports, whilst providing a net gain for biodiversity in accordance with local and national planning policy.

3.3 Phases of Development

3.3.1 The phasing regime for planting will be carried out as follows:

- **Phase 1:** Planting to be carried out in the first season following construction completion (see **Appendix 3**).
- **Phase 2:** Ongoing habitat management, native tree and hedgerow management, and grassland management years 2-40 (refer to Section 6.0 Habitat Protection Measures,

Management Objectives and Prescriptions; and Section 10.0 Annual Maintenance Schedule).

- **Phase 3:** Reinstatement/restoration and ongoing landscape and ecological management specification (refer Section 11.0 Decommissioning & Restoration).

3.4 Management objectives

- 3.4.1 Management objectives will involve short-term and long-term commitments to achieve and fulfil the overall design concepts.

Short term objectives (0-5 years):

- Successfully establish hedgerow and tree planting with acceptable rates of growth.
- Remove undesirable species/weeds from the establishing planting/ grassland areas.
- Replace dead plants within the structure planting where necessary.
- Provide sufficient resources, including necessary labour, materials and machinery.
- Establish wildflower grassland and marginal grassland.
- Protect and maintain retained existing habitats of ecological value.

Long term objectives (5-40 years):

- To carry out periodic maintenance as necessary; and
- Overall, provide a net gain in ecological value on Site, in particular for those identified within the Ecological Impact Assessment.

- 3.4.2 With all aspects of landscape management, it is essential that the principle of an 'ongoing commitment' is established and that sufficient resources are made available to ensure continuity.

3.5 Maintenance objectives

- 3.5.1 Maintenance objectives will include regular planting checks and maintenance to ensure that the planting is establishing and is consistent with the original design intentions. This will involve continuous/ongoing routine operations throughout the year, for which a detailed maintenance schedule is to be followed.

3.6 Monitoring

- 3.6.1 Monitoring is an essential element of the plan to ensure that the results of any management works are measured and evaluated. Monitoring reports will be provided to the Wiltshire

Council. Any lessons learnt from this monitoring can then be reflected in a review of the management plan, see Section 8.0 for further details.

4.0 Site description

- 4.1.1 The existing habitats identified as of value within the immediate zone of influence will be retained and protected during the construction and operational phase of the development. The pasture and arable land will be directly impacted by the solar proposals on the Site. The habitats around the periphery of the Site will be retained, and a buffer will be created around these features.
- 4.1.2 A summary description of the onsite habitats is provided below. Refer to the Outline Landscape and Ecology Management Plan – GE Consulting, 2022 and Ecology and Nature Conservation ES chapter - GE Consulting, 2021, for a detailed description and assessment.

4.2 Habitats

- 4.2.1 The Site comprises several large arable fields under intensive arable cultivation (rotational cereal and other crops) and modified grassland fields bound by hedgerows and tree lines.
- 4.2.2 'Farmland Habitats' is a Wiltshire Biodiversity Action Plan (WBAP) priority habitat which encompasses mixed farming, arable plants and farmland birds. The arable fields are ubiquitous, with the surrounding landscape being intensively farmed and lacking any significant margins or botanical interest.
- 4.2.3 The majority of the boundaries comprised a diversity of hedgerows, both species-rich and species-poor hedgerows, which were occasionally defunct and gappy and contained occasional mature standards. Hedgerows are a Habitat of Principal Importance (S41 of NERC Act), Wiltshire Biodiversity Action Plan priority habitat and form important ecological corridors providing linkages between the Site and the wider landscape.
- 4.2.4 There are several small woodland blocks which lie adjacent to the Site. These woodlands are listed on the Priority Habitat Inventory. The woodlands are likely to act as 'stepping-stone' habitats in an otherwise agricultural landscape and are an important ecological feature. All woodlands are Wiltshire Biodiversity Action Plan priority habitats.

4.3 Protected and Notable Species

- 4.3.1 The Site supports, or has the potential to support, the following protected and notable species:
- **Amphibians:** Single off-site pond 115m to the north confirmed as supporting great crested newt. Taking a precautionary approach, low numbers of great crested newts are assumed though their presence in the arable and grassland habitats on Site that will be

impacted is considered very unlikely with hedgerows, rough grassland margins and adjacent woodland copses providing suitable terrestrial habitats.

- **Badger:** The Site supports a single badger outlier sett and offers foraging opportunities for the local badger population.
- **Bats:** Habitats such as the stream and ditches, hedgerows and adjacent woodlands provide foraging and commuting habitat for bats, including Annex II bats. Arable fields are of negligible value to foraging bats. The semi-improved and poor semi-improved grassland fields offer some suitable foraging habitat. A number of mature hedgerow trees contained features suitable for roosting bats.
- **Birds:** A reasonable assemblage of farmland birds was recorded on and adjacent to the Site during breeding bird surveys. Fifteen notable species were recorded, including the ground-nesting species skylark and grey partridge.
- **Dormouse:** No records of hazel dormouse were returned within 2km of the Site. However, given the presence of favourable habitat for the species, such as species-rich hedgerows on the Site and the connectivity with woodland copses, it is considered that the species could be present.
- **Invertebrates:** Watercourses, hedgerows and margins are likely to support common/widespread invertebrates and potentially some notable species such as brown hairstreak butterfly.
- **Reptiles:** The watercourses, hedgerows and margins are likely to support common/widespread reptiles such as slow worms and potentially grass snake.
- **Riparian mammals:** The small watercourse bisecting the Site offers sub-optimal habitat for otter and water vole, though the data search returned records of both species from within 2km of the Site.
- **Other Notable Species:** Brown hares were recorded off-site in arable fields to the north. The Site contained suitable habitat to support hedgehog.

4.3.2 **Table 1** below summarises the importance of the various ecological features on the Site and their level of importance/ likely value, as identified by GE Consulting.

Table 1: Ecological features

Ecological Feature	Level of Importance/ Likely Value
North Meadow & Clattinger Farm SAC	International/European
Cloatley Manor Farm Meadows SSSI	National
Cloatley Farm SSSI	National
Maskelyne's Copse CWS/ASNW	County

Five Lanes Solar

Landscape and Ecology Management Plan (LEMP)

Ecological Feature	Level of Importance/ Likely Value
Bristol Avon River LWS Charlton Park Estate pastures LWS Long Wood, Charlton Park LWS	County
Arable	Negligible
Semi-improved Grassland	Local
Poor Semi-improved Grassland	Negligible
Watercourses	Local
Ditches	Negligible
Hedgerows	County
Dense Scrub	Negligible
Scattered Trees	Local
Pond (off-site)	Negligible
Plantation Woodland (off-site)	District
Amphibians	Local
Badger	Local
Bats (commuting & foraging)	Local – County
Bats (roosting)	Local
Breeding Birds	Local
Dormouse	County
Invertebrates	Local - County
Otter	Negligible
Reptiles	Local
Water Vole	Negligible
Hedgehog	Local
Brown Hare	Local

5.0 Habitat Enhancement/ Creation

- 5.1.1 A number of habitats will be enhanced or created on site as a result of the proposals. Their extent is detailed below, and their location is illustrated in the Landscape Strategy Figures L100-105 and L200 (refer to **Appendix 3**).

Species Rich Grassland

5.2 Grassland beneath solar panels

- 5.2.1 Species-rich grassland will be sown within the existing arable and improved grassland fields beneath the solar panels and will be sheep-grazed in areas.

- 5.2.2 During the operational phase, the grassland beneath the solar panels will be grazed by sheep. Grazing by sheep will be at low intensity, which will be in a part of the fields at any one time in order to ensure that grassland within a proportion of the fields can flower each year. Low-intensity grazing will be defined by forage availability and the duration the sheep are within each field.

5.3 Wildflower grassland

- 5.3.1 The development design will enhance the central area of the Site with the sowing of wildflower grassland. It will be managed as traditional hay meadows with cutting completed during late July / August to allow plants to seed.

5.4 Hedgerow and woodland buffer mix

- 5.4.1 Grassland will be sown alongside retained and proposed hedgerows and woodland to create opportunities for wildlife. Buffer areas will be protected during construction by the installation of temporary Heras fencing.

5.5 Grey Partridge mix

- 5.5.1 AB9: Grey Partridge Mixture or similar will be sown as margin grassland in the woodland and hedgerow buffers, see **Figure L100** for locations. It will be managed as tussocks for ground nesting birds and to provide a winter foraging habitat. Appropriate livestock management practices will be implemented to control grazing in these areas. Buffer areas will be protected during construction by the installation of temporary Heras fencing. Suitably sized gaps will be left underneath the security and stock-proof fencing to allow access for wildlife.

5.6 Riparian corridor

- 5.6.1 Grassland EG8 Emorsgate Meadow Grass Mixture for Wet Soils will be sown along the riparian corridor as well as damp grassland areas over soakaways, see **Figure L100** for locations. This is to enhance habitats and provide additional food sources for amphibians and small mammals. Care will be taken around the RPAs of trees and hedges following the removal of weeds.

5.7 New Hedgerows and Hedgerow Infill Planting

- 5.7.1 New native hedgerows are proposed for the grid connection Site to provide some screening of the lower parts of the development. Infill planting of gaps in hedgerows is also proposed on the solar farm Site where gaps are not being used for access. Some areas of hedgerow planting are to include Standard tree planting. The hedgerows are to provide some visual screening of the proposals whilst enhancing wildlife connectivity to existing and retained features.

- 5.7.2 Planting of hedgerows and infill planting will ideally be undertaken during January-February, and outside the breeding bird season to avoid disturbance (March to September (inclusive). Species will comprise a mixture of locally sourced native species including *Acer campestre*, *Corylus avellana*, *Crataegus monogyna*, *Ilex aquifolium*, *Rosa canina*, and *Sambucus nigra*. Tree species within the hedgerows will also comprise a mix of native species, including *Acer campestre*, *Betula pendula* and *Crataegus monogyna*.
- 5.7.3 The native hedgerows are to be planted using bareroot transplants at 40-60cm high or 60-80cm high, trench planted as a double staggered row 250mm between plants and 300mm between the rows. The same species should be planted in random blocks of minimum 5no. and maximum 8no. plants. The native species are to be locally sourced and representative of the local area.
- 5.7.4 For the planting of Standard trees within hedgerows, rootballed stock is to be used with trees measuring 1.75m – 2m tall. Tree stakes and ties will be fixed and provided with an overall length 1500mm and 750mm height above ground.
- 5.7.5 The hedgerow planting is to be protected from rabbits with bio-degradable rabbit guards installed around the individual plants.
- 5.7.6 Ongoing management of the hedgerows will aim to promote structural and botanical diversity. During years 2-4, hedgerows will be allowed to develop naturally in height and width. It is advised that hedgerows are lightly cut back annually by 25% to encourage branching out.
- 5.7.7 During years 5-40, these hedgerows will be allowed to develop to 2.5-3m high and 2m wide. At this stage 50% of each length of hedgerow will be cut annually on rotation between October-February inclusive. The habitats 1-2m either side of the hedgerow base can be cut to 100mm during the same period.
- 5.7.8 Dead wood habitat will be maintained in situ where possible. In the event that it cannot, the wood will be placed in a specific habitat pile(s) and left to degrade naturally.
- 5.7.9 Tree management will generally be avoided unless there are overriding safety concerns, although a 2-3 m clear stem will be maintained for hedgerow trees to ensure they are distinguishable. Where tree works are necessary, an assessment of the tree's features to support protected species will be carried out by a suitably qualified ecologist in advance.
- 5.7.10 Hedgerow plants that are dying, damaged or diseased will be replaced on a like-for-like basis as per Implementation, where the failure of the plants would adversely affect the structure or continuity of the hedgerow.

5.8 Wildlife Features

- 5.8.1 Specific features will be created/ installed for wildlife species, as detailed in **Table 2** below. Locations are illustrated on **Figure L100**.

Table 2: Wildlife Features

Item	No.	Description and Location
Bird boxes	20	- A variety of boxes with different sized entrance holes to suit different species of hedgerow birds. To include Schwegler Types 1B (with 26mm & 32mm holes); 2H (open nest box), 3S (starling box). - Positioned at least 2m above ground level. - Entrance out of direct sun, north or east facing.
Bat Boxes	21	- Schwegler 2f general purpose bat boxes will be installed on suitable retained trees. - Installed in groups of 3 to 5 boxes facing in different directions (east, south and west) to provide a variety of micro-habitats. - Minimum 3m height and with unobstructed entrances.
Hibernacula – to benefit reptiles, invertebrates and amphibians	6	- Constructed from arisings from hedgerow removal or materials sourced off Site as necessary. - Where possible placed in corners of solar array fields, or wildflower grassland, but not so that they impede hedgerow management machinery.

6.0 Habitat Protection and Protection Measures, Management Objectives and Prescriptions

- 6.1.1 The following details the protection measures for the existing retained habitats and prescriptions for the enhancement and creation of the new habitats, in addition to the ongoing management of the site during the operational phase.
- 6.1.2 These works will be undertaken by the Operations and Management Contractor in liaison with landowners, with input from the Ecologist where appropriate.
- 6.1.3 The management of habitats should be aligned with the Biodiversity Net Gain (BNG) strategy for the site. The management of the various habitats will also help to promote structural and botanical diversity, which has the potential to enhance the Site for a range of wildlife. The management of habitats and ecological features is detailed below.

6.2 Prior to Works Commencing

- 6.2.1 **Table 3** defines the measures to be undertaken prior to works commencing on Site.

Table 3: Pre-construction Prescriptions

Ecological Feature	Avoidance/ Mitigation Requirements	Responsibility
Habitats/ species – general	A Construction Environmental Management Plan (CEMP) will be produced with input from the project ecologist. This will include details on the location of Site compounds, storage and access, work methodologies, control of dust, noise and pollutants, lighting and timings.	Construction Contractor with input from Project Ecologist
Hedgerows and trees	Retained hedgerows, trees and water courses will be protected by 'no go' zones that will be clearly marked out across the Site in advance of any works.	Arboriculturalist/ Contractor
Badger	A pre-commencement check should be undertaken by a suitably qualified ecologist no later than 1 month prior to commencement of works. Suitable buffers will be created to protect the outlier sett if active at the time (and any other new setts discovered); however licencing may be required if there is potential for sett disturbance/destruction during construction.	Project Ecologist
Ground nesting birds/amphibians, and reptiles	Arable fields should be left unseeded, and grassland fields should be tightly grazed or maintained with a short sward length (<100mm) to discourage the potential for ground nesting birds to be present during construction. This will also reduce the potential for reptiles and amphibians to be present within construction areas.	Project Ecologist

6.3 During Enabling and Construction

- 6.3.1 The measures to prevent adverse impacts to ecological features during enabling and construction are set out in **Table 4**. An Ecological Clerk of Works (ECow) will be present for Tasks 2.6 and 2.9.

Table 4: Enabling and Construction Prescriptions

Predicted Impact	Avoidance/ Mitigation Requirements	Responsibility
General impacts	A CEMP will be produced and agreed prior to works commencing and will be adhered to at all times.	Construction Contractor and Operator with advice from Project Ecologist
Accidental damage to retained hedgerows and trees during construction and enabling	Existing farm access tracks, watercourse crossings and hedgerow gaps will be used as much as possible to reduce possible adverse impacts. Access routes will be prepared prior to materials and construction traffic being brought onto Site. Hedgerows and water courses will be protected by exclusion zones that will be clearly marked out across with wooden stakes with	Construction Contractor with advice from Project Ecologist and Arboriculturalist.

Predicted Impact	Avoidance/ Mitigation Requirements	Responsibility
	painted tops and marker paint on the ground across the Site in advance of any works. Not to be removed until the end of construction phase. All construction staff will be given an induction regarding exclusion zones and other buffer zones. A minimum 10m buffer to all watercourses will be maintained at all times during enabling and construction. Any cable runs will be located outside root protection areas and will utilise culvert crossings or cable pipe bridges. No hedgerow removal will be required for the cable route.	
Damage/ pollution to watercourse	10m exclusion zones will be maintained along the watercourses. No construction activities, or storage of materials will take place in this exclusion zone. These areas will be marked and all contractors, machinery and materials will be restricted to these areas. The existing crossing of the stream will be used and bog mats or barriers will be used if conditions dictate. Pollution prevention measures will be adhered to as detailed in the CEMP.	Construction Contractor with advice from project Ecologist.
Damage to hedgerows during cable routing	Cable crossings to use minimally invasive methods to prevent root damage. All work and machinery to be kept inside the bellmouth of the marked crossings.	Construction Contractor with advice from Arboriculturist.
Damage to soil structure during cable trenching	Store subsoil and topsoil on either side of trench to avoid mixing of soil types and backfill accordingly.	Construction Contractor
Nesting birds	Small sections of suitable habitat may need to be removed within the nesting season (March to August inclusive), but prior to this taking place, a check for nesting birds will be undertaken. Working areas will be maintained as unsuitable for ground nesting birds throughout enabling and construction; however if areas of longer grassland habitat are being removed, then these will need to be subject to checks by a suitably qualified ecologist for the presence of ground nesting birds. Any active nests will be left in situ and suitably buffered until young have fledged.	Project Ecologist
Entrapment of animals	Trenches or large excavations will be covered overnight to prevent wildlife falling in and failing to escape, or a strategically placed plank or sloped excavation at one end of the trench will provide a means of escape. Any pipes will be capped at the end of the day to reduce the potential for wildlife to enter and become trapped.	Construction Contractor

Five Lanes Solar

Landscape and Ecology Management Plan (LEMP)

Predicted Impact	Avoidance/ Mitigation Requirements	Responsibility
Lighting impacts on bats and other nocturnal species	Construction will be restricted to daylight hours, finishing at least 30 minutes before sunset and commencing at least 30 minutes after sunrise. Temporary use of artificial light may be used occasionally in agreement with the ECoW, e.g. to aid completion of cable runs or to move machinery off Site e.g. if forecast of bad weather e.g. heavy rain. Any lighting used will be directional focussed on the ground away from hedgerows and adjacent woodland and shrouded/baffled as required to prevent unnecessary light spill.	Construction Contractor
Protection of reptiles, amphibians and small mammals	Habitats within the working area will be managed to deter these species prior to and during construction to minimise risk of impacts. Reasonable Avoidance Measures (RAMs) will be employed to avoid impacts on individual amphibians, reptiles and small mammals during construction. The RAMs would include a 'toolbox talk' and watching brief by the ECoW in areas of potentially suitable habitat to minimise risk of accidental harm. Full details of the RAMs are included in Appendix 4.3 Great Crested Newt Addendum report (GE Consulting 2022).	Construction Contractor/ landowner with advice from Project Ecologist

6.4 Existing Hedgerows and Trees

Objectives

- 6.4.1 No lengths of hedgerows or trees will be removed as part of the proposals. Retained trees and hedgerows and adjacent woodlands will be protected during construction operations following the BS5837:2012 "Trees in Relation to Design, Demolition and Construction – Recommendations."
- 6.4.2 Where defunct/ gappy hedgerows exist, these will be in-filled using locally sourced native species.
- 6.4.3 Ongoing management of the hedgerows will aim to promote structural and botanical diversity. Ongoing management of scattered trees will aim to promote mature trees, including dead-wood habitat.

Protection and Enhancement Measures

- 6.4.4 The hedgerows will be subject to a buffer of either 5m or the RPAs. No machinery and/or digging will be permitted within these buffer zones, with the exception of the installation of

the stock proof boundary fence. Where work within buffer zones is required, this should be a trenchless solution, if possible, carried out according to section 7.6 of BS5837-2012.

- 6.4.5 A full BS5837 survey has been undertaken on site in order to identify the tree and hedgerow RPAs and the level of impact that electrical cables will have upon the hedgerows and scattered trees. The survey identified constraints with the position of cables adjacent to the hedgerows and will help to inform mitigation measures if necessary.
- 6.4.6 Gappy hedgerows will be enhanced using the following native species that will be locally sourced: *Acer campestre*, *Corylus avellana*, *Crataegus monogyna*, *Ilex aquifolium*, *Rosa canina* and *Sambucus nigra*.

Management Prescriptions

- 6.4.7 The hedgerows will be managed to promote the structural diversity and the fruiting of flowers and berries. Hedgerows will be trimmed on a two to three-year rotation¹ in January – February using a flail trimmer, to allow berries to fruit and provide foraging opportunities to wildlife. They will be maintained at a width of 2m and a minimum height of 2.5-3m. Not all the hedgerows on site will be trimmed in the same year so as to retain structural diversity and foraging opportunities. A third of the hedgerow length will be trimmed each year. Trimming in winter will also avoid disturbing nesting birds, reptiles and dormice which potentially use the site.
- 6.4.8 Tree management will be avoided unless there are overriding safety concerns. Where tree works are necessary, an assessment of the tree's features to support protected species will be carried out by a suitably qualified ecologist in advance. Where removal of tree features capable of supporting protected species is necessary, then further surveys following the recommended standard published guidelines and where necessary, mitigation will be carried out prior to works commencing. For example, if a bat roost is identified in any tree to be impacted, a Natural England European Protected Species (EPS) licence will be sought prior to any works that impact the tree, and works will proceed as per the approved mitigation.
- 6.4.9 Dead wood habitat will be maintained in situ where possible. In the event that it cannot, the wood will be placed in a specific habitat pile(s) and left to degrade naturally.

¹ This trimming frequency will help to maintain the health, thickness and species diversity of the hedgerows. Hedgerows left unmanaged for long periods become tall and 'leggy', often resulting in gaps at the bases.

Five Lanes Solar

Landscape and Ecology Management Plan (LEMP)

6.5 Grassland under solar panels

Objectives

- 6.5.1 The existing semi-improved grassland underneath the solar panels, and fields previously occupied by arable habitat, will be supplemented/ planted with Cotswold Seeds Solar Park Long Term Grazing.
- 6.5.2 Ongoing management of the grassland will aim to maintain and promote the establishment of wildflowers and will be managed by low-intensity sheep grazing.

Creation Prescriptions

- 6.5.3 The following measures will be carried out to prepare the semi-improved grassland and arable fields, and sow/establish the grass seed:
- Where competitive perennials are present, glyphosate will be applied as a spot application to reduce the proliferation of these species. Suitable herbicides would, however, be chosen and applied carefully to avoid runoff into adjacent ditches.
 - For the existing semi-improved grassland fields, prepare the ground for sowing in late summer/early spring by cutting and/or intensive grazing, followed by harrowing where necessary to create gaps of ~50% bare soil.
 - For the existing arable fields, a fine seedbed with a good tilth will be created through repeated harrowing and rolling.
 - Sow Cotswold Seeds Solar Park Long Term Grazing mixture with a range of grasses and forbs will be sown in spring/autumn by tractor-mounted seed broadcasters at a rate of 25-35kg/ha. The surface mixtures can be shallow-drilled or broadcast before the panels are installed (areas may need to be patched up after installation if damaged by machinery). Alternatively, it can be sown between the rows of arrays after installation, but issues can arise when trying to seed directly beneath the arrays. Wildflower establishment can be further enhanced by adding yellow rattle seed at up to 1g/m² to this mix.
 - Following sowing, the soil will be rolled to ensure good contact between the soil and the seed and to help promote rapid germination.

Management Prescriptions

- 6.5.4 Management in the first growing season will be necessary to control competitive/undesirable species. Annual species will be cut to approximately 8.0cm, eight weeks after sowing and perennial species will be treated by spot spraying or weed-wiping with herbicide.
- 6.5.5 Low-intensive sheep grazing will be introduced at least eight weeks after sowing to encourage tillering and maintain the grassland. Where practicable, grazing will be rotated around the

various field units, so that grazing is periodic and some grassland on site is always in flower (between June and September).

- 6.5.6 Any scrub or trees invading the grassland or encroaching towards the solar panels will be removed by pulling-up or cutting at the base, so as to leave the soil and surrounding flora undisturbed. This will be undertaken annually.
- 6.5.7 All tree and shrub removal should be undertaken outside of the bird nesting season (March-September). If unavoidable, a thorough check of the site for nesting birds should be undertaken prior to any works affecting vegetation. Any active nests found must be retained in situ with a suitable vegetative buffer, until the ecologist confirms that the nest(s) are no longer active. Only then can vegetation clearance and construction within this area resume.
- 6.5.8 No fertilisers will be used as this will promote the proliferation of competitive species at the expense of botanical diversity.

6.6 Wildflower grassland

Objectives

- 6.6.1 The central area of the Site will be sown with wildflower grassland to create a meadow for the benefit of wildlife. It will be managed as traditional hay meadows with cutting completed during late July / August to allow plants to seed.

Creation Prescriptions

- 6.6.2 The following measures will be carried out to prepare the arable land and sow/establish the grassland seed:
 - Where competitive perennials are present, herbicide will be applied as a spot application to reduce the proliferation of these species;
 - A fine seedbed with a good tilth will be created through repeated harrowing and rolling.
 - Sow Cotswold Seeds, Cotswold Wild Flora mix or similar approved. It will be sown in spring by tractor-mounted seed broadcasters at a rate of 10kg/acre (25kg/ ha).
 - Following sowing, the soil will be rolled to ensure good contact between the soil and the seed and to help promote rapid germination.

Management Prescriptions

- 6.6.1 Management in the first growing season will be necessary to control competitive/undesirable species. Annual species will be cut to approximately 8.0cm, eight weeks after sowing and perennial species will be treated with herbicide.

Five Lanes Solar

Landscape and Ecology Management Plan (LEMP)

- 6.6.2 Following the first year, cut the meadow once annually, after the meadow has flowered and gone over. After mowing, remove the cuttings. This helps decrease the fertility of the soil so favouring delicate wildflowers. If you have very poor growth on thin soil, then cuttings can be left.
- 6.6.3 Any scrub or trees invading the grassland will be removed by pulling-up or cutting at the base, so as to leave the soil and surrounding flora undisturbed. This will be undertaken annually.
- 6.6.4 All tree and shrub removal should be undertaken outside of the bird nesting season (March-September). If unavoidable, a thorough check of the site for nesting birds should be undertaken prior to any works affecting vegetation. Any active nests found must be retained in situ with a suitable vegetative buffer until the ecologist confirms that the nest(s) are no longer active. Only then can vegetation clearance and construction within this area resume.
- 6.6.5 No fertilisers will be used as this will promote the proliferation of competitive species at the expense of botanical diversity.

6.7 Hedgerow and woodland buffer mix

Objectives

- 6.7.1 The grassland buffers adjacent to the hedgerows will be enhanced with Cotswold Grass Seeds, Buffer Strip Grass Margin or similar and approved, to increase grassland species diversity and habitat creation.

Creation Prescriptions

- 6.7.2 The following measures will be carried out to create the grassland buffer:
- Sow between March and early May, or August and late September.
 - Surface sow Cotswold Grass Seed, Buffer Strip Grass Margin onto a fine, firm seedbed at not more than 1-2cm at a rate of 10g/acre (25kg/ha).

Management Prescriptions

- 6.7.3 Management in the first growing season will be necessary to control competitive, undesirable species. Annual species will be cut once the grassland reaches 8.0cm eight weeks after sowing, and perennial species will be treated with glyphosate.
- 6.7.4 Once established, Buffer Strips only need to be cut once a year after mid-July.
- 6.7.5 No fertilisers will be used as this will promote the proliferation of competitive species at the expense of botanical diversity.
- 6.7.6 The resulting cuttings will be removed from the site and composted.

- 6.7.7 Any scrub or trees invading the grassland will be removed by pulling or cutting at the base so as to leave the soil and surrounding flora undisturbed. This will be undertaken annually. All tree and shrub removal should be undertaken outside of the bird nesting season (which is March-September). If unavoidable, a thorough check of the site for nesting birds should be undertaken prior to any works affecting vegetation.

6.8 Grey Partridge Mix

Objectives

- 6.8.1 Shepards Seeds Grey Partridge Mixture, or similar and approved, is proposed to attract larger farmland birds such as Grey Partridge. The mix will drop high quantities of small seed, helping provide a vital food source for farmland birds throughout the winter and into the early spring. The species used will quickly create good nesting cover, enabling many farmland birds the opportunity to breed close to a reliable food source.

Creation Prescriptions

- 6.8.2 The following measures will be carried out to prepare the arable land and sow/establish the grassland seed:
- Where competitive perennials are present, herbicide will be applied as a spot application to reduce the proliferation of these species;
 - A fine seedbed with a good tilth will be created through repeated harrowing and rolling.
 - Sow Shepards Seeds Grey Partridge Mixture or similar will be sown in locations as shown on the Landscape Strategy plan L100.
 - It will be sown between 1st March and 15th of June as 8-10m strips at a rate of at least 50kg/ha following the removal of weeds and the ploughing in of surface vegetation.
 - Mixtures sown should not contain more than 70% of a single species by weight of mix. Suggested species to include Barley, Triticale, Quinoa, Linseed, Mustard, Fodder Radish, and Sunflower.

Management Prescriptions

- 6.8.3 Year 1 Autumn/ Winter: Leave the crop standing. The mixture will flower and set seed for winter food. Once established, the tussocky grassland requires minimal maintenance.
- 6.8.4 Year 2 Spring/ Summer: The biennial components will grow again, providing cover and further seed.
- 6.8.5 No re-sowing is needed in the second spring.

Five Lanes Solar

Landscape and Ecology Management Plan (LEMP)

- 6.8.6 Year 2 Autumn/winter: Keep the plot in place until 15 February of the second year to maximise the "hungry gap" food supply.
- 6.8.7 Year 3 re-establishment: Re-sow the 2-year mix every other year (or move to a new location) to prevent weed buildup and maintain high seed production.
- 6.8.8 Any scrub or trees invading the grassland will be removed by pulling or cutting at the base so as to leave the soil and surrounding flora undisturbed. This will be undertaken annually. All tree and shrub removal would be undertaken outside of the bird nesting season (which is March-September). If unavoidable, a thorough check of the site for nesting birds would be undertaken prior to any works affecting vegetation.

6.9 Riparian habitat grassland

Objectives

- 6.9.1 Along the riparian corridor and damp grassland areas over soakaways will be sown with EG8 Emorsgate Meadow Grass Mixture for Wet Soils to enhance habitats and provide additional food sources for amphibians and small mammals. Care will be taken around the RPAs of trees and hedges following the removal of weeds.

Creation Prescriptions

- 6.9.2 The following measures will be carried out to prepare the arable land and sow/establish the grassland seed:
- Prepare the ground for sowing in late summer/early spring by cutting, followed by harrowing where necessary to create gaps of ~50% bare soil, with care taken around the RPAs of trees and hedges following the removal of weeds.
 - Sow EG8 Emorsgate Meadow Grass Mixture for Wet Soils will be sown along the riparian corridor as well as damp grassland areas over soakaways. It will be sown in spring/autumn at a rate of 50kg/ha (5g/ m²).

Management Prescriptions

- 6.9.3 Management in the first growing season will be necessary to control competitive/undesirable species. Annual species will be cut to approximately 8.0cm, eight weeks after sowing and perennial species.
- 6.9.4 Mow all plant growth (sown grasses and weeds) regularly to 40-60mm throughout the first growing season to prevent weeds smothering the slower-growing grasses. Remove cuttings if dense; more frequent and regular topping will minimise the amount of toppings produced each time so they can be left to disperse.

- 6.9.5 In the second and subsequent years, grass sowings can be managed in a number of ways which, in association with soil fertility, will determine the character of the grassland. Regular mowing or continuous grazing will produce a short turf or lawn.
- 6.9.6 The sowing can be managed as a meadow, allowing the grasses to grow tall, flower and seed from May through to July/August. The grass meadow should be cut back, and mowing resumed in late summer.
- 6.9.7 Grassland, which is not cut or grazed each year, will eventually become coarse and tussocky in character.
- 6.9.8 Wildflower seed can be added after the grasses have established and weed problems have been dealt with. The sward will need preparation for sowing into existing grass. Flower establishment will not be as good as compared with sowing the grasses and flowers together onto bare soil, as the grasses have a 'head start'.
- 6.9.9 Any scrub or trees invading the grassland will be removed by pulling or cutting at the base so as to leave the soil and surrounding flora undisturbed. This will be undertaken annually. All tree and shrub removal would be undertaken outside of the bird nesting season (which is March-September). If unavoidable, a thorough check of the site for nesting birds would be undertaken prior to any works affecting vegetation.

6.10 Wildlife Features

- 6.10.1 Specific features will be created/ installed for wildlife species, as detailed in **Table 2** above in Section 5.7. Locations are illustrated on **Figure L100**.

Maintenance

- 6.10.2 The bird boxes will require an annual clean-out and condition check in the winter months (when birds have finished nesting). Boxes to be repaired/replaced as necessary.
- 6.10.3 The bat boxes will require an annual clean-out and condition check in the winter months (when bats have finished breeding). The check should be completed by a bat - licenced ecologist. Boxes to be repaired/replaced as necessary.
- 6.10.4 Hibernacula will be retained, and where necessary, brash and stone added to maintain these features at least every two years in April or October. Cutting of the grassland within 2m radius of the piles will be avoided.

7.0 Species Protection Measures

- 7.1.1 Management of habitats will take place during Autumn and Winter to avoid the active period for most wildlife, including the breeding bird season. For hedgerows and scrub, cutting in late winter, after most of the berries have gone, will allow the hedgerow and scrub to provide food

for birds over winter. Should any management be required within the breeding bird period, checks for nesting birds by a suitably trained ecologist/Ecological Clerk of Works (ECoW) will take place prior to any works commencing to ensure that no breeding birds are present. If any are present, no works will take place in that area until the young have fledged the nest.

- 7.1.2 Management of grassland to no lower than 150mm will additionally minimise potential impacts to reptiles, water vole and amphibians. Cutting no more than one bank of any ditch at one time also minimises impacts on these species.

8.0 Monitoring and Reporting

- 8.1.1 Monitoring is fundamental to the success of this management plan and is required to assess biodiversity changes and identify potential issues. It allows assessments of changes to be identified when compared to baseline data. This will not only enable the effectiveness of mitigation or compensation to be identified but will also inform future mitigation proposals on other Sites.
- 8.1.2 Monitoring will be undertaken in Years 1, 3, 5, 10, 25 and 40 of operation. The Site shall be monitored at the optimal time of year (subject to specific ecological requirements) by a qualified and experienced ecologist. Monitoring will establish the extent of the habitats, their species composition and their general condition.
- 8.1.3 A Monitoring Report will be produced at the end of each monitoring period that will summarise the results of the monitoring actions undertaken and setting out any recommendations arising from the findings of the monitoring, and to inform any updates/iterations to this LEMP.
- 8.1.4 The Monitoring Reports will be submitted to Wiltshire County Council following completion of ecological monitoring within the monitoring periods as outlined above. The management prescriptions may therefore change, where necessary, to ensure that habitats and protected species are favourably conserved on Site.

8.2 Remedial Actions

- 8.2.1 Following the completion of each monitoring period, it may become apparent that remedial actions are required to ensure the success of the proposed landscape and ecology strategy (see **Appendix 3**). Potential remedial actions/interventions will be specific to the problem identified. Some general actions have been outlined below:
- Review and understand reasons for (any) reduced success.
 - Supplementary or replacement plantings will be used for any failure rates of greater than 10% of initial plantings across the target habitat types.

- Devise further appropriate mitigation/remediation strategies, which could include further remedial habitat creation measures.

8.2.2 General actions must be coordinated with the landscape architect and ecologist.

8.3 Plan Review

8.3.1 The LEMP has been produced for the 40-year lifetime of the scheme, it will be a 'live' document, with reviewed iterations following each monitoring cycle, following the first 5 years post development, with reviews in Years 5, 10, 25 and 40. This will ensure the success of the management regime will be assessed and reviewed, with management prescriptions revised for the next LEMP iteration, where necessary.

9.0 Responsibilities

- 9.1.1 The successful implementation of the LEMP will involve a wide range of individuals and organisations. The Applicant/Operator of the solar farm will be wholly responsible for achieving the objectives of the LEMP. A variety of contractors will be appointed by the Applicant/Operator, and each will have contractual obligations to meet the responsibilities of the Applicant.
- 9.1.2 The obligation to implement and maintain the proposed landscape and ecological features is for the operational lifespan of 40 years, which is based on the maintenance requirements and schedules set out in this LEMP.
- 9.1.3 While this initial iteration has been written to cover the full 40-year period, the LEMP will be a 'live' document, with reviewed iterations on a five-yearly basis for the lifetime of the development. Upon completion of this initial period, the success of the management regime will be assessed and reviewed, with management prescriptions revised for the next LEMP iteration, if necessary.

9.2 Funding and Implementation

9.2.1 The implementation of this LEMP shall be funded by the applicant and secured for the lifetime of the development. All landscape and ecological management, monitoring and any required remedial or adaptive management measures will be delivered in accordance with this LEMP through a combination of operational budgets and contractual arrangements with suitably qualified landscape management and ecological specialists. The responsibility for funding and delivery will remain with the Site owner/operator, or any successor in title, for the duration of the development.

10.0 Annual maintenance programme

10.1.1 The annual maintenance programme for the Site will be carried out in line with the following programme to ensure that the maintenance works is carried out at the most beneficial time.

For all seasons, the following will need to be undertaken:

- Inspections;
- Watering – may be necessary during the establishment period or through periods of drought to ensure the planting/grass areas continue to thrive; and
- Pest and disease control.

Table 6 Timetable for Implementation and Habitat Management

Action	January	February	March	April	May	June	July	August	September	October	November	December	Notes
Pre-construction													
Toolbox talk													To all construction staff, prior to any works commencing
Erection of tree/hedgerow protective fencing													Prior to any works commencing
Construction and Operation													
Proposed planting implementation													Planting of native trees and hedgerows
Grass seeding													Establishment of all types of grass seeded areas
Hedgerow trimming													On two to three year rotation to maintain height and shape.
Rotational grazing of sheep in grassland beneath solar arrays													With some areas left ungrazed between April - July
Clearance of scrub encroachment into ditches, grassland													

Action	January	February	March	April	May	June	July	August	September	October	November	December	Notes
Cutting of wildflower grassland/ hedgerow and woodland buffer mix/ Grey Partridge mix/ riparian corridor grassland													Avoiding 2m radius around refugia

10.2 Annual maintenance schedule

Table 7 Annual Maintenance: Native tree planting

Action	Details	Timing	Standard
Weed control	Hand weed a minimum of 4 times per year. Apply herbicide to kill re-growth when required.	February; April; May; July; September	Refer to Appendix 1 : Q35/ 645; 650; 657; 670
Fertilizer	Applications of fertilizer to be carried out early in the growing season.	April	Ensure correct fertilizer application. Refer to Appendix 1 : Q35/ 695
Pest and disease control	To be carried out if necessary and in accordance with best practice.	When required	To eradicate all pests and disease to a high standard
Pruning	At the appropriate season for the species, pruning to be carried out to remove all damaged diseased or dead wood. To be commenced from year 5.	February – October Where pruning occurs in bird breeding season (Mar – Sept), works must avoid impacting nests	Shrubs: Prune to ensure the plant is kept well balanced and in good shape. Refer to Appendix 2 for pruning techniques and Appendix 3 for pruning schedule. Refer to Appendix 1: Q35/ 170; 540; 545; 550; 575; 580

Five Lanes Solar

Landscape and Ecology Management Plan (LEMP)

Action	Details	Timing	Standard
Tree thinning	Once every five years, to stop favoured trees becoming suppressed and weakened by other vegetation.	Avoid nesting season between March-Sept	Refer to Appendix 1: Q35/715

Table 8 Retained and proposed native hedgerows

Action	Details	Timing	Standard
Trimming of hedges	Trim on a three-year rotation, no more than a third per year, to maintain height and shape (2.5-3m high and 2m wide). Laying/ coppicing as appropriate to maintain density to the base.	January/ February	Refer to Appendix 1: Q35/611
Pest and disease control	To be carried out if necessary and in accordance with best practice.	When required	To eradicate all pests and disease to a high standard
Infill planting, as necessary	Replace failed specimens/ dead or damaged areas on a like-for-like basis	October-March	To ensure hedgerows do not become gappy
Tree guards	Examine all guards and replace or adjust as appropriate. Biodegradable guards to be used, but remove guards once hedgerows established, if still present.	When required within the first 3 years.	To establish hedgerows successfully.

Table 10 Annual maintenance: Grassland under solar panels

Action	Details	Timing	Standard
Pest and disease control	To be carried out if necessary and in accordance with best practice	When required	To eradicate all pests and disease to a high standard
Grazing	Low-intensity sheep grazing	Sheep to be excluded from some fields during spring – summer to	Refer to Appendix 1: Q35/222

		allow plants to flower and set seed	
Scrub removal	Remove by pulling or cutting at the base so as to leave the soil and surrounding flora undisturbed	Annually	

Table 11 Annual maintenance: Hedgerow and woodland buffer grassland, riparian habitat grassland, and Grey partridge mix

Action	Details	Timing	Standard
Pest and disease control	To be carried out if necessary and in accordance with best practice	When required	To eradicate all pests and disease to a high standard
Weed control – first year	Control annual weeds in the first growing season by topping or mowing.	First season	Refer to Appendix 1: Q35/275
Weed control – general	Unwanted perennial weeds to be controlled by occasional spot treatment with herbicide. * Note: herbicide should <u>not</u> be used within the riparian corridors.	Throughout	Refer to Appendix 1: Q35/657
Cutting	80mm eight weeks after sowing in first year; subsequent years 150mm, with exception of vegetation 2m radius around refugia, which will not be cut. Using a tractor mower set to approximately 50mm. Cut hay will be left to dry and shed seed for 1-7	October to March	Refer to Appendix 1: Q35/275

Five Lanes Solar

Landscape and Ecology Management Plan (LEMP)

Action	Details	Timing	Standard
	days, and the resulting hay will be used as animal fodder.		
Scrub removal	Remove by pulling or cutting at the base so as to leave the soil and surrounding flora undisturbed	Annually	

Table 12 Ditches

Action	Details	Timing	Standard
Scrub/ Weed clearance	On-going vegetation clearance to remove scrub from encroaching within ditches; vegetation removed to be left on the bankside for two days before being removed from the site	Autumn to early spring; only one pond managed in any one year	As required to maintain pond health, Refer to Appendix 1: Q35/896

11.0 Decommissioning and Restoration

- 11.1.1 Any future consent will include a planning condition requiring eventual decommissioning of the Site, including the removal of all equipment and the reinstatement of the land as per its current use and profile. It is now standard practice for the decommissioning process to be controlled by a condition requiring agreement of details towards the end of the scheme's lifetime. This makes sense on the basis that it provides a better mechanism to ensure that the proposed details are appropriate at the actual time of decommissioning – in this instance, this would not be for 40 years. As such, it is considered more appropriate to agree these details closer to the time, when an actual contractor is appointed to undertake the works.
- 11.1.2 Over the 40 years of operation, the ecological conditions are likely to change, but reliably predicting likely future decommissioning effects is not possible at this stage. However, potential impacts from decommissioning are considered likely to be similar to those already described in relation to the construction phase effects, namely direct and indirect disturbance and temporary habitat loss.
- 11.1.3 Updated ecological surveys are likely to be necessary prior to decommissioning in order to record the presence of protected and notable species and habitats and identify any necessary protection and mitigation measures in order to comply with planning policy and wildlife legislation applicable at the time.

Appendices

Appendix 1: Maintenance Specification Q35

Generally

- 110 NOTICE: Give notice before:
- Application of herbicide.
 - Application of fertilizer.
 - Watering.
 - Each site maintenance visit.
 - Period of notice: 1 week before site visit.
- 130 REINSTATEMENT: Damage or disturbance to soil structure, planting, grass: Reinstate to original condition and within a reasonable period of time (according to season).
- 140 CONTROL OF MAMMALIAN PESTS: Employ only approved firms and methods.
- 155 WATERING
- Supply: Potable mains water.
 - Quantity: Ensure the full depth of topsoil is thoroughly wetted.
 - Application: Do not damage or loosen plants. Use a fine rose or low-pressure hose where appropriate to avoid damaging or loosening plants.
 - Compacted soil: Where necessary, loosen soil or form depressions around the stem base of plants to ensure that water reaches the root zone instead of dispersing on the surface.
 - Frequency: As necessary for the continued thriving of all planting/grass areas.
- 160 WATER RESTRICTIONS: If water supply is, or is likely to be, restricted by emergency legislation, submit proposals for an alternative suitable source of water. Obtain instructions before proceeding.
- 170 DISPOSAL OF ARISING GENERALLY: unless specified otherwise, dispose of arisings from all specified operations by removing from site.
- 180 CHIPPING OR SHREDDING: Not permitted on site.
- 197 CLEANLINESS: Leave the works in a clean, tidy condition at completion and after any maintenance operations.

Existing grassland Areas

- 210 MAINTENANCE OF GRASS AREAS: Maintain grass in a manner appropriate to the intended use. Carry out the following as necessary:

- Grass height: to be maintained with Low-intensity sheep grazing on rotation, leaving some grassland within field units free to flower and set seed throughout spring – summer.
- Condition: Maintain grass in a healthy vigorous sward, free from disease, fungal growth, discolouration, scorch or wilt.
- Water logging and compaction: ensure that soil and grass does not become compacted or waterlogged.

New grassland areas

222 MAINTENANCE OF IMPROVED/ SPECIES RICH GRASS AREAS:

- Grass height: to be maintained with Low-intensity sheep grazing on rotation, leaving some grassland within field units free to flower and set seed throughout spring – summer.
- Condition: Maintain grass in a healthy vigorous sward, free from disease, fungal growth, discolouration, scorch or wilt.
- Water logging and compaction: ensure that soil and grass does not become compacted or waterlogged.

273 MAINTENANCE OF DITCH/HEDGEROW BUFFERS: Carry out the following:

- Times of year/frequency of cutting: October to March
- Height of cut: 80mm eight weeks after sowing in first year; subsequent years 150mm, with exception of vegetation 2m radius around refugia, which will not be cut.
- Arisings: Cuttings will be left to dry and shed seed for approximately one to seven days and the resulting cuttings removed from the site and composted.

275 MAINTENANCE OF TUSSOCKY/NECTAR RICH PLANTING: Carry out the following:

- Times of year/frequency of cutting: October to March
- Height of cut: 80mm eight weeks after sowing in first year; subsequent years 150mm, with exception of vegetation 2m radius around refugia, which will not be cut.
- Arisings: Cuttings will be left to dry and shed seed for approximately one to seven days and the resulting cuttings removed from the site and composted.

Native Shrubs / Trees

500 ESTABLISHMENT OF NEW PLANTING

- Duration: 0-5 years.
- Weed control: refer to Q35/645; 650; 657; 670.

Five Lanes Solar

Landscape and Ecology Management Plan (LEMP)

- Area: Maintain a weed free area around each tree and shrub, minimum diameter the larger of 1 m or the surface of the original planting pit.
- 510 TREE STAKES AND TIES (IF REQUIRED): Inspect as scheduled and additionally immediately after strong winds, and carry out the following:
- Check stakes for looseness, breaks and decay and replace as necessary to original specification. If a tree with a defective stake has grown sufficiently to become self supporting, remove stake(s) and fill the hole(s) with lightly compacted soil.
 - Adjust, refix or replace loose or defective ties as necessary, allowing for growth since planting and to prevent chafing. Where chafing has occurred, reposition or replace ties to prevent further chafing.
 - Where stakes are longer than half the height of the clear stem of the tree, cut the stake to this height in spring and retie to tree firmly but not tightly with a single tie.
 - Remove redundant tapes, tags, ties, labels and other encumbrances.
 - Remove stakes and ties during spring when no longer required to support tree.
- 520 REFIRMING: Ensure that trees and shrubs remain firmly bedded after strong winds, frost heave and other disturbances. Refirm by treading around the base. 'Collars' at the base of tree stems created by tree movement to be broken up by fork, avoiding damage to roots, backfilled with topsoil as necessary, and refirmed.
- 530 TREE SHELTERS: Adjust, refix or replace any loose or defective guards to original specification and to prevent chafing. Remove tree shelters and dispose off site once trees / shrubs are fully established.
- 540 PRUNING GENERALLY:
- Prune in accordance with good horticultural practice. Prune larger branches and woody stems in accordance with good arboricultural practice.
 - Thin, trim and shape appropriately to each species, location, season, and stage of growth, leaving a well balanced natural appearance.
 - Use clean sharp secateurs, hand saws or other tools to carry out works. Trim off ragged edges of bark or wood with a sharp knife.
 - Remove branches without damaging or tearing the stem.
 - Keep wounds as small as possible and cut cleanly back to sound wood. Make cuts above and sloping away from an outward facing healthy bud, angled so that water will not collect on cut area.
 - Prune larger branches neither flush nor leaving a stub, but using the branch bark ridge or branch collar as a pruning guide.

- 545 PRUNING OF EXCESSIVE OVERHANG: Remove annually any growth encroaching onto grassed areas.
- 550 PRUNING OF EXCESSIVE HEIGHT: Remove excessive height of more than five metres within the edge mix, and eight metres within woodland mix and dispose off site.
- 570 FORMATIVE PRUNING OF YOUNG TREES:
- Do not prune whips or feathered trees.
 - Type and timing of pruning operations to be carried out to suit the plant species.
 - Do not prune during the late winter/early spring sap flow period, unless specified otherwise.
 - Crown prune young trees up to 4 m high by removing dead branches and reducing selected side branches by one third to preserve a well-balanced head, ensuring the development of a single strong leader and the removal of duplicated branches and potentially weak or tight forks. In each case cut back to live wood.
- 580 PRUNING FLOWERING SPECIES: Unless otherwise specified or instructed, prune:
- Winter flowering shrubs in spring.
 - Shrubs flowering between March and July immediately after the flowering period.
 - Shrubs flowering between July and October back to old wood in winter.
- 611 TRIMMING ESTABLISHED HEDGES:
- Time of year: January/February.
 - Operations:
 - Form: Trim carefully and neatly to regular line and shape with vertical sides.
 - Trim: Remove current growth rather than old wood.
 - Tools/ Cutting: suitable mechanical cutters.
- 620 REMOVAL OF DEAD PLANT MATERIAL: At the end of the growing season, check all shrubs and remove all dead foliage, dead wood, and broken or damaged branches and stems.
- 635 REINSTATEMENT OF PLANTING AREAS:
- Remove dead and damaged plants
 - Carefully move any mulch materials to one side and dig over the soil, leaving it fit for replanting. Take care not to disturb roots of adjacent plants.
 - Replace plants, using pits and plants to the original specification or to match the size of adjacent or nearby plants of the same species, whichever is the greater.
 - Dress with Enmag slow-release fertilizer at 70g/sq. m.

645 WEED CONTROL GENERALLY:

- Remove and/or prevent plant growth that is not required in the landscape to achieve the following level(s) of weed control: 90% control; no weed species in excess of 150mm high.
- Ensure that the methods used cause the minimum of damage to adjacent plants, trees or grass.
- All tree and shrub planting to be maintained weed free throughout planting area.

650 HAND WEEDING: Remove all weeds, including roots, by hand using hoes, trowels or forks, taking care to remove not more than a minimum quantity of soil, causing minimum disturbance to trees, plants, mulched surfaces and leaving the area in a neat, raked, clean condition.

657 HERBICIDE TO KILL REGROWTH:

- Apply a suitable foliar acting herbicide to kill regrowth.
- Allow the recommended period before clearing arisings.

670 WEED CONTROL WITH SUMMER HERBICIDE:

- Apply a suitable foliar acting herbicide.
- Re-apply as necessary to maintain required level of weed control.
- Allow the recommended period before clearing arisings.

680 SOIL AERATION: Prick up trodden or otherwise compacted soil surfaces using a border fork as specified in BS 7370: Part 4, to aerate the soil of root areas. Do not damage plants and their roots.

690 MAINTENANCE OF MULCH:

- Top up with Melcourt Forest Biomulch to thickness of 50mm.
- Sweep up and replace mulch spilling onto adjacent areas and, if not contaminated with weeds or rubbish, return to planted area.
- Remove weeds growing on or in mulch by hand weeding or herbicide.

695 FERTILIZING ESTABLISHED TREES AND SHRUBS: Spring spread of Enmag slow release fertilizer, at a uniform rate of 70g/m².

710 NATIVE TREE AND SHRUB PLANTING MAINTENANCE

- Watering: In exceptional circumstances to prevent plants dying.
- Loose plants: Refirm surrounding soil, without compacting.
- Vegetation: Except trees and coppice shoots to be retained, cut down to 5m in edge mix area and 8m in woodland mix area.
- Arisings: Leave between rows.

- Ditches and drains: Keep clear.

715 NATIVE TREE AND SHRUB THINNING: Thin out the northern edge of the existing woodland, every five years, by removing dead/dying trees and favouring straight, upright trees. Prune low branches along the northern edge. Allow the removal of branches to be left on woodland floor to decay and return nutrients into the soil. Avoid thinning during the bird nesting season (generally March-September).

Tree work

810 TREE WORK GENERALLY

- Identification: Before starting work agree which trees, shrubs and hedges are to be removed or pruned.
- Standards: To BS 3998 and Health & Safety Executive (HSE) 'Forestry and arboriculture safety leaflets'.
- Removing branches: Cut as shown in Arboricultural Association Leaflet No 8 'Mature tree maintenance'. Cut vertical branches similarly, with no more slope on the cut surface than is necessary to shed rainwater.
- Appearance: Leave trees with a well-balanced natural appearance.
- Chain saw work: Operatives must hold a Certificate of Competence.
- Tree work: To be carried out by an approved member of the Arboricultural Association.

815 ADDITIONAL WORK

- Defective, diseased, unsafe or weak parts of trees additional to those scheduled for attention: Give notice if detected.

820 PREVENTION OF WOUND BLEEDING

- Standard: To BS 3998, clause 8.

825 PREVENTION OF DISEASE TRANSMISSION

- Standard: To BS 3998, clause 9 and Appendix B.

830 CLEANING OUT AND DEADWOODING

Remove:

- Rubbish, wind blown or accumulated in branch forks.
- Wires, clamps, boards and metal objects, if removable without causing further damage and not part of a support structure that is to be retained.
- Other unwanted objects, e.g., tree houses, swings.

835 CUTTING AND PRUNING GENERALLY

- Tools: Appropriate, well maintained and sharp.

Final pruning cuts:

- Chainsaws: Do not use on branches of less than 50 mm diameter.
- Hand saws: Cut in one continuous operation to form a smooth cut surface.
- Anvil type secateurs: Do not use.

Removing branches: Do not damage or tear the stem.

- Wounds: Keep as small as possible, cut cleanly back to sound wood leaving a smooth surface, and angled so that water will not collect on the cut area.
- Cutting: Cut at a fork or at the main stem to avoid stumps wherever possible.

Large branches: Remove in small sections and lower to ground with ropes and slings.

- Dead branches and stubs: When removing, do not cut into live wood.
- Unsafe branches: Remove epicormic shoots and potentially weak forks that could fail in adverse weather conditions.
- Disease or fungus: Give notice if detected. Do not apply fungicide or sealant unless instructed.

840 CROWN REDUCTION/ SHAPING

- General: Cut back selectively to lateral or sublateral buds or branches to retain flowing branch lines without leaving stumps.

845 CROWN LIFTING

- Clearances: Remove branch systems to give clearance.
- Removing branches: Remove whole branches back to the stem or cut lower portions of branches back to lateral or sublateral buds or branches. Do not leave stumps.

850 CROWN THINNING

- Removing branches: Remove inward growing, crossing, rubbing, dead and damaged branches.
- Thinning: Selectively remove approximately 2.0 metres of secondary and small live branch growth evenly throughout the crown.
- Branches: Cut back to lateral or sublateral buds or branches without leaving stumps.
- Appearance: Leave a uniform and well-balanced structure of branches and foliage

855 CUTTING TREE ROOTS

- Excavating: Use hand tools only.

- Protected area: Do not cut roots within an area which is the larger of:
- The branch spread of the tree.
- An area with a radius of half the tree's height, measured from the trunk.
- Outside protected area: Give notice of roots exceeding 50 mm in diameter. Do not cut without approval.

Cutting:

- Make clean smooth cuts with a hand saw.
- Wounds: Minimize. Avoid ragged edges.
- Finishing: Pare cut surfaces smooth with a sharp knife.

Backfilling:

- Protection: Cover cut roots with clean sharp sand.
- Material: Backfill with original topsoil.

860 REMOVING TREES

- Standards: To BS 3998, Appendix A and Health & Safety Executive (HSE)/ Arboricultural and Forestry Advisory Group Safety Leaflets.
- Existing services: Check for below and above ground services. Give notice if they may be affected.
- Shrubs and smaller trees: Cut down and grub up roots.

Tree stumps:

- Removal by winching: Give notice. Do not use other trees as supports or anchors.
- Work near retained trees: Where tree canopies overlap and in confined spaces generally, take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained.

Filling holes:

- Material: Use as-dug material and/ or imported soil as required.
- Finishing: Grade to marry in with surrounding ground level

865 BARK DAMAGE

Wounds:

- Bark: Gently remove ragged edges using a sharp knife.
- Wood: Remove splintered wood from deep wounds.

- Size: Keep wounds as small as possible.

870 CAVITIES IN TREES

- Investigation: Remove rubbish and rotten wood. Probe the cavity to find the extent of any decay and give notice.
- Water filled cavities: Do not drain.
- Sound wood inside cavities: Do not remove.

Ponds

896 CLEARANCE OF PONDS AND SWALES

Clearance: Remove Litter, debris and excessive scrubby vegetation causing obstruction.

- Frequency: On-going vegetation clearance to remove scrub from encroaching on ponds and swales; vegetation removed to be left on the bankside for two days before being removed from the site.
- Time of Year: Autumn to early spring; only one pond, or one side of swale managed in any one year.
- Method: By hand.

Protecting / Maintaining / Making Good Defects

MAINTENANCE:

- Make visits at approximately monthly intervals during the growing season and as necessary to fulfil the requirements of this specification.

FAILURES OF PLANTING:

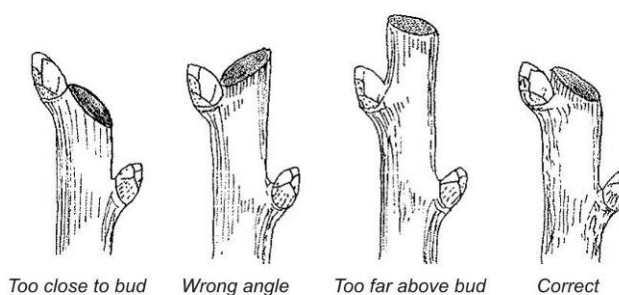
- Excepting theft or malicious damage after practical completion, any trees/shrubs/plants that have failed to thrive will be regarded as defects due to materials or workmanship not in accordance with the Contract. Unless otherwise instructed they must be replaced by approved equivalent trees/shrubs/plants during the next suitable planting season.
- Replacements must match the size of adjacent or nearby plants of the same species or should match the original specification, whichever is the greater.

Appendix 2: Pruning Techniques

General notes

- All pruning cuts shall be made in accordance with BS 7370
- Priming shall be undertaken to promote flowering and fruiting in accordance with the species and age of the plant
- Stems shall only be removed so as to retain the natural appearance of the individual plant species
- All damage, diseased or deadwood material shall be removed from trees/shrubs
- Any crossing or rubbing branches are to be removed from trees/shrubs.
- Plants may be permitted to overlap hard areas e.g. paving. If growth restricts the use of the paving, it will be necessary to trim by shortening long growths NOT by cutting indiscriminately along the edge.
- Ground cover plants should not overhang grass areas because of the difficulty in keeping edges trimmed, prune back encroaching growth.
- Pruning cuts and techniques

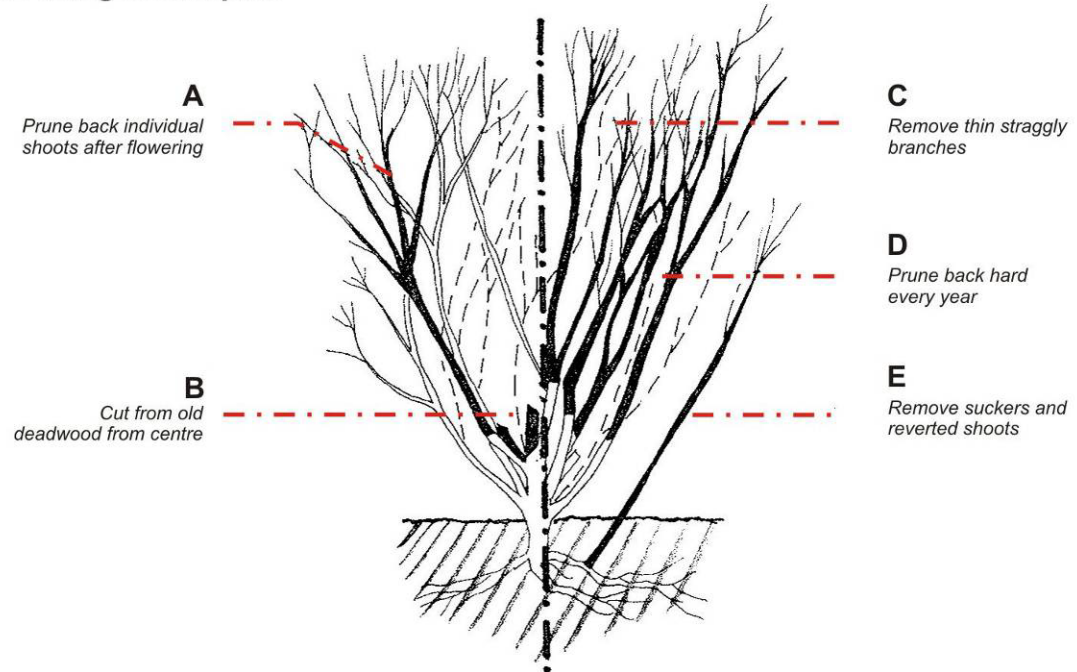
Pruning cuts



Five Lanes Solar

Landscape and Ecology Management Plan (LEMP)

Pruning techniques



taken from Landscape Management & Maintenance Handbook, Jones, Hing P (1990)

Appendix 3: Drawings

- TC22031 **L100**: Landscape Strategy
- TC22031 **L101**: Detailed plan 1 of 5
- TC22031 **L102**: Detailed plan 2 of 5
- TC22031 **L103**: Detailed plan 3 of 5
- TC22031 **L104**: Detailed plan 4 of 5
- TC22031 **L105**: Detailed plan 5 of 5 (Substation)
- TC22031 **L200**: Specifications

- Key
- 

Site boundary
- 

Existing trees to be retained. Root Protection Area show with magenta dashed line.
- 

Existing hedgerows to be retained. Root Protection Area show with magenta dashed line. Hedgerows to be managed to 2-3m high and a minimum of 2m wide, refer to LEMP.
- 

Proposed access track
- 

Solar arrays
- 

Proposed 2m high stock proof fence (yellow dashed dot line), refer to drawing LA.300.
- 

Proposed native trees, refer to drawing LA.200 for specifications.
- 

Proposed native hedgerows, refer to drawing LA.200 for specifications. To be managed at 2m wide and 2.5-3m high, refer to LEMP.
- 

Grazed grassland underneath panels: Cotswold Seeds: Solar Park Long Term Grazing Mixture, refer to drawing LA.200 for specifications.
- 

Proposed riparian habitat corridor: Meadow Mixture for Wetland, refer to drawing LA.200 for specifications. Minimum 10m wide (or RPA where greater).
- 

Proposed buffer strip grass margin mixture, refer to drawing LA.200 for specifications. Minimum 5m wide strip alongside retained and/or proposed hedgerows (or RPA where greater).
- 

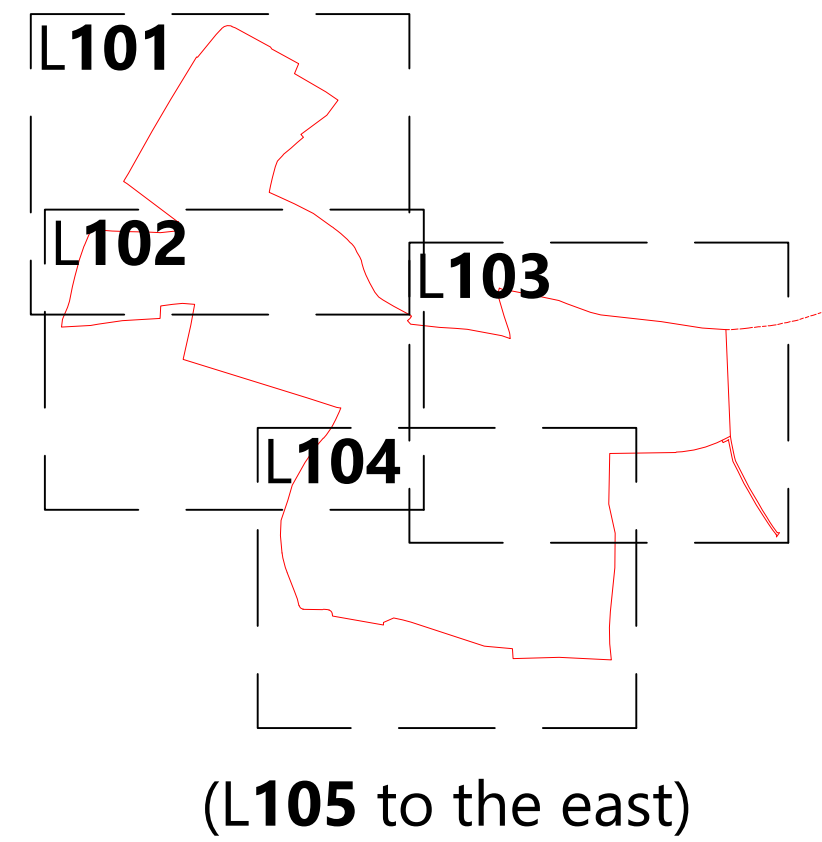
Proposed Grey Partridge mix, refer to drawing LA.200 for specifications. 8-10m wide strip.
- 

Proposed wildflower grassland: Cotswold Wild Flora Mixture, refer to drawing LA.200 for specifications.
- Proposed ecological features (see LEMP for details)
- 

Bird boxes
- 

Bat boxes
- 

Habitat piles



Key



Site boundary



Existing trees to be retained. Root Protection Area show with magenta dashed line



Existing hedgerows to be retained. Root Protection Area show with magenta dashed line. Hedgerows to be managed to 2-3m high and a minimum of 2m wide, refer to LEMP.



Proposed access track



Solar arrays



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Proposed wildflower grassland: Cotswold Wild Flora Mixture, refer to drawing LA.200 for specifications.

Proposed ecological features (see LEMP for details)



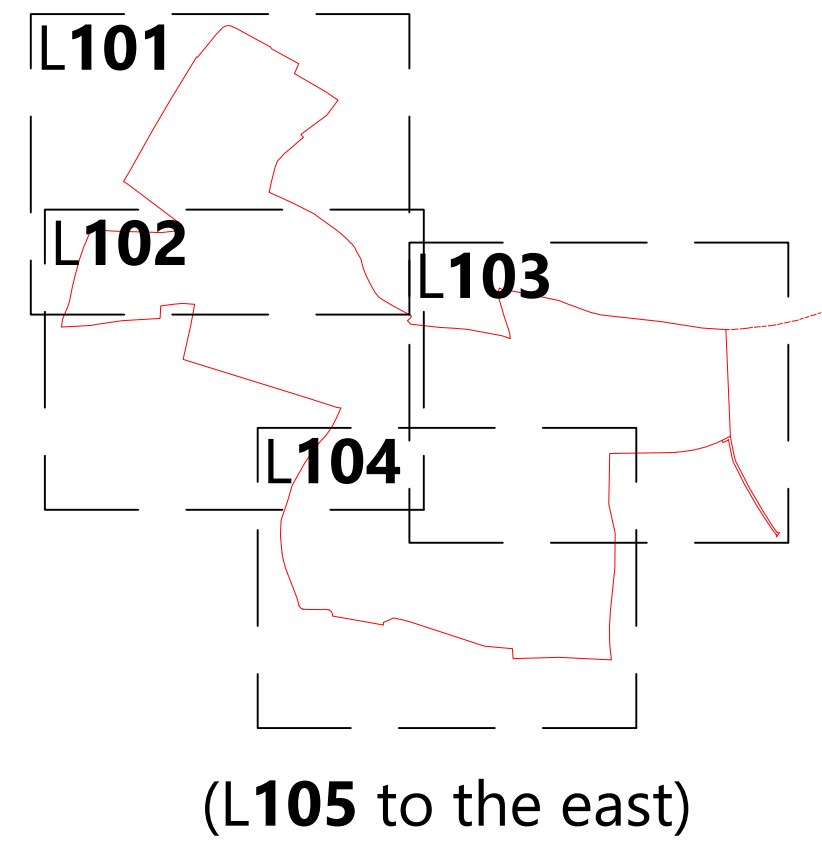
Bird boxes



Bat boxes



Habitat piles



Key



Site boundary



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Existing hedgerows to be retained. Root Protection Area show with magenta dashed line. Hedgerows to be managed to 2-3m high and a minimum of 2m wide, refer to LEMP.



Proposed access track



Solar arrays



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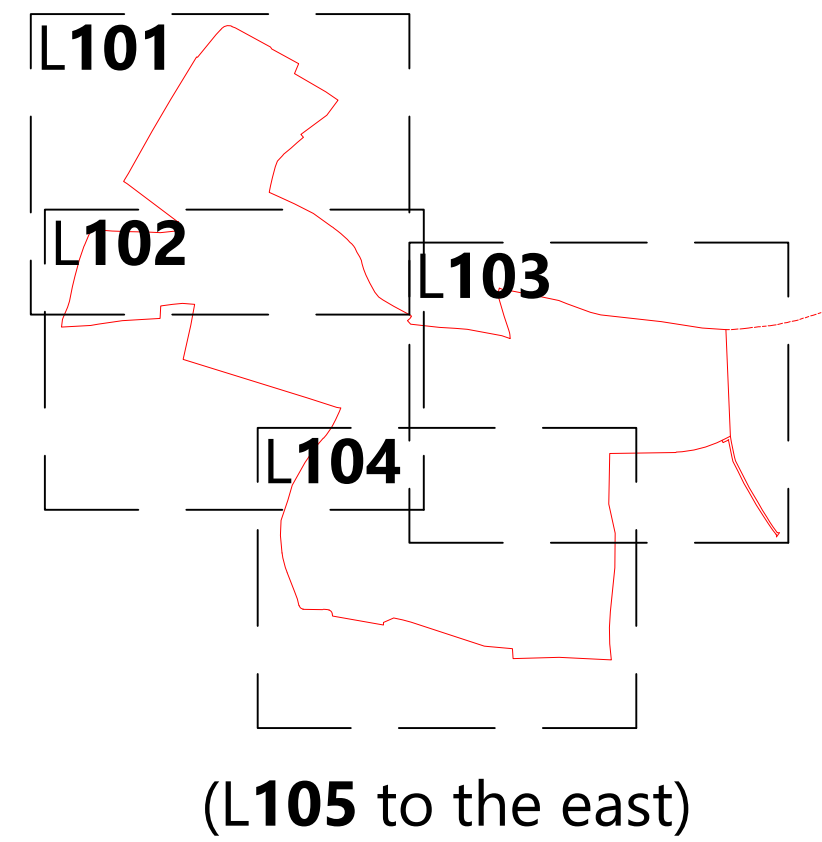
Bird boxes



Bat boxes



Habitat piles



Key



Site boundary



Existing trees to be retained. Root Protection Area show with magenta dashed line



Existing hedgerows to be retained. Root Protection Area show with magenta dashed line. Hedgerows to be managed to 2-3m high and a minimum of 2m wide, refer to LEMP.



Proposed access track



Solar arrays



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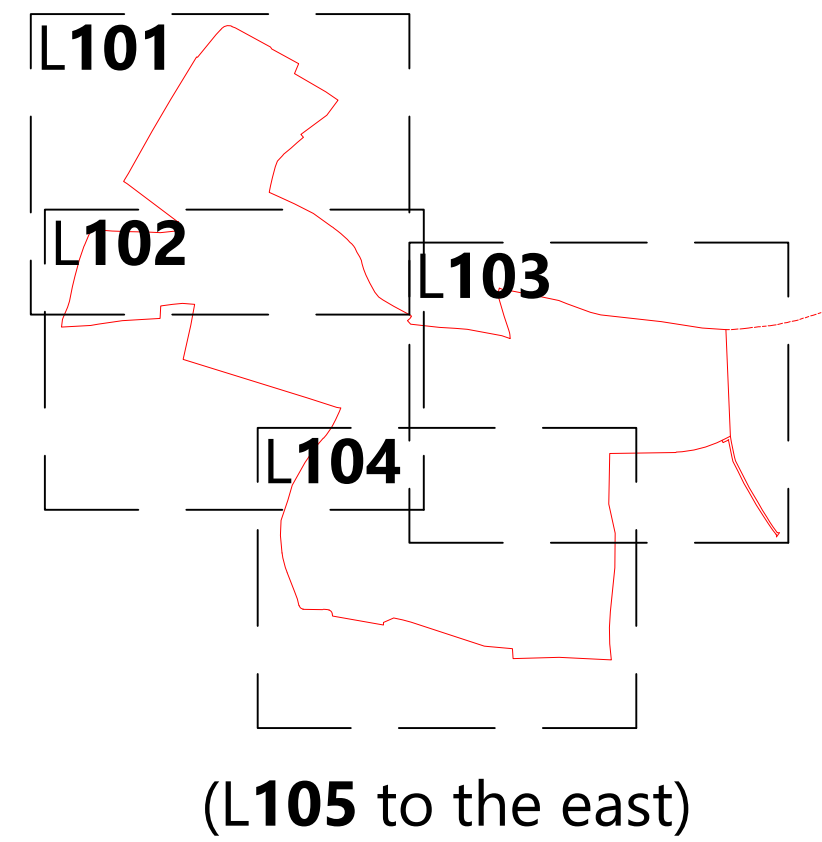
Bird boxes



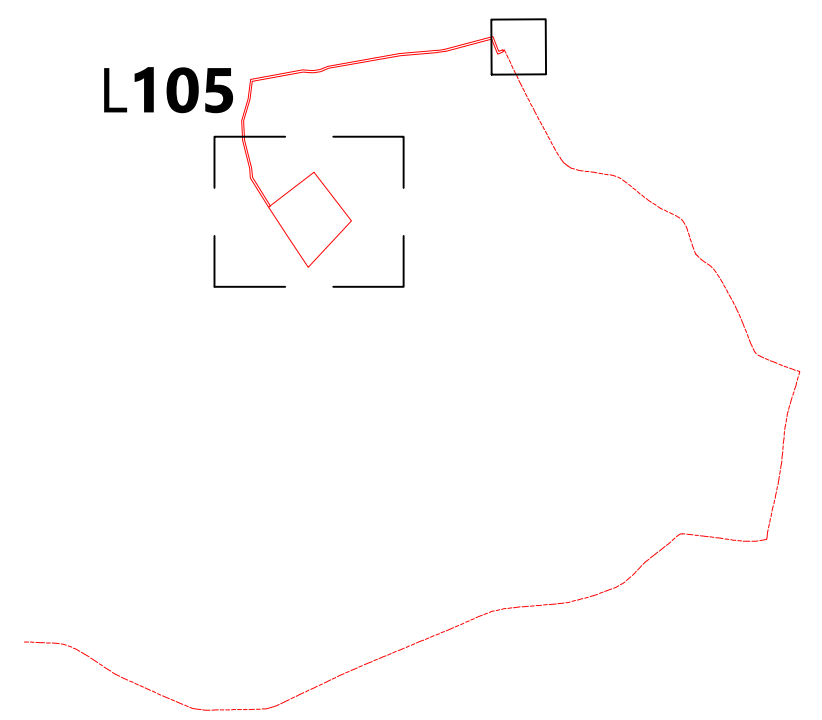
Bat boxes



Habitat piles



- Key
- Site boundary
 - Existing pylons and overhead lines
 - Bridleway (orange dashed line)
 - Existing trees to be retained. Root Protection Area show with magenta dashed line
 - Proposed access tracks
 - Proposed substation compound
 - Proposed security fencing (black dashed line)
 - Proposed trees in proposed native hedgerows, refer to drawing LA.200 for specifications.
 - Proposed native hedgerows, refer to drawing LA.200 for specifications. To be managed at 2m wide and 2.5-3m high, refer to LEMP.



(L101-104 to the west)

Notes: Refer to Tree Constraints and Tree Protection plans for details on existing trees.
Site plan drawn by others, refer to *Site Block Plan (DNO Area)* - Proposed, Rev D for details of substation.



Scale 1:500 @ A1
TC22031-1_v5.dwg

03 June 2026

Shepherd Seeds AB9: Grey Partridge Mixture



Suggested Sowing Rates
50kg/ha 20kg/acre 5g/m2

Description
Once mature the contents of our 2 year Ab9 Grey Partridge mix will drop high quantities of small seed, helping provide a vital food source for farmland birds throughout the winter and into the early spring. The species used in Ab9 will quickly create good nesting cover enabling many farmland birds the opportunity to breed close to a reliable food source.

Where To Establish
This option may be established in blocks or strips of at least six meters in width and a minimum of 0.4ha. The maximum individual plot size allowed under this agreement is five hectares. Careful consideration should be given to plot locations to help maximize their benefit to both target and non target species. It is important that once these plots have been established they are managed correctly with plots containing annuals being renewed every year and perennial mixtures every two years.

Sowing
AB9 should be sown between the 1st of March and 15th of June. To comply you must establish a mixture containing cereals, brassicas and other seed producing species that will provide an abundance of high energy small grain seeds throughout the winter months to meet the needs of farmland birds.

Mixtures must be sown into warm, well drained soils in spring and allowed to establish. It is important that correct agronomy is used if needed to prevent the ingress of aggressive weed species.

Mixtures are best drilled between 1.5cm and 2.5cm to allow fast and even germination. It is important that adequate soil warmth and moisture is available. After drilling it is recommended that the seed bed is then rolled to ensure good seed to soil contact.

Composition
AB9 contains: 50% Spring Triticale, 30% Spring Barley, 5% White Millet, 5% Kale, 5% Linseed, 5% Fodder Radish – (ingredients may vary)

Ref:
<https://www.shepherdseeds.co.uk/products/countryside-stewardship-seed-mixtures/grey-partridge-mix-ab9-countryside-stewardship/>

Grazing grassland underneath panels, such as Cotswold Seeds: Solar Park Long Term Grazing Mixture



Suggested Sowing Rates
32.5kg/ha 13kg/acre

Description
This mix is a dual purpose ley, which provides a tough green cover around the panels and a high quality grazing ley for sheep. It includes a larger amount of perennial ryegrass to aid establishment and produce a bulky sward that will benefit livestock. It will need to be over-seeded after year 5 to renew the quality of the ryegrasses and reduce invasive species which are lower quality. This ensures the sward remains nutritious and beneficial as a livestock grazing ley. This mix has a higher sowing rate to compensate for the livestock grazing pressure on the sward.

Sowing
Mixtures should be shallow sown, especially if the mixture includes clover to a depth no deeper than 15mm. The surface mixtures can be shallow drilled or broadcast before the panels are installed (areas may need to be patched up after installation if damaged by machinery). Alternatively it can be sown between the rows of arrays after installation, issues can arise when trying to seed directly beneath the arrays.

Management
More productive mixtures containing high levels of ryegrass may be grazed by sheep, lower yielding mixtures may be topped or mulched periodically several times a year to keep the sward height low.

Ref:
<https://www.cotswoldseeds.com/products/1904/solar-park-long-term-grazing-mixture>

Plant schedules

Solar Fields					
Trees					
Number	Species	Girth	Height	Specification	Density
80	Acer campestre	40-60cm	10-12cm	300-350cm 2x; Selected Standard; clear stem minimum 200cm; 4 breaks; RB	Counted
83	Crataegus monogyna	12-14cm	350-425cm	Heavy Standard; 5 brks: 3x: RB: Clear Stem 175-200cm	Counted
14	Prunus avium	12-14cm	350-425cm	Heavy Standard; 5 brks: 3x: RB: Clear Stem 175-200cm	Counted
14	Quercus robur	12-14cm	350-425cm	Heavy Standard; 5 brks: 3x: RB: Clear Stem 175-200cm	Counted
10	Salix caprea	12-14cm	350-425cm	Heavy Standard; 5 brks: 3x: RB: Clear Stem 175-200cm	Counted

Native Hedge Mix					
Number	Species	Height	Specification	Density	Percentage Contribution
370	Acer campestre	40-60cm	1+1; Transplant - seed raised; B	0.25Ctr Double Staggered at 0.3m offset	10%
1102	Corylus avellana	60-80cm	Branched; 3 breaks	0.25Ctr Double Staggered at 0.3m offset	30%
370	Crataegus monogyna	60-80cm	1 + 1; Transplant - seed raised; branched; 4 breaks	0.25Ctr Double Staggered at 0.3m offset	10%
370	Ilex aquifolium	60-80cm	Leader with laterals	0.25Ctr Double Staggered at 0.3m offset	10%
735	Rosa canina	40-60cm	Branched; 5 breaks	0.25Ctr Double Staggered at 0.3m offset	20%
735	Sambucus nigra	40-60cm	Branched; 3 breaks	0.25Ctr Double Staggered at 0.3m offset	20%
Total :3682					

Wildflower grassland Cotswold Seeds: Cotswold Wild Flora mixture



Suggested Sowing Rates
25kg/ha 10kg/acre 2.5g/m2

Description
A very colourful mixture of native perennial and annual wild flowers and grasses. This is our most popular wild flower mixture. We include annual species in the mixture to give an exceptional show of vivid colour during the first year. From the second year the perennial flower species begin to increase and just get better year by year. Sow between March and early May, or August and early October at 10 kg per acre or 25 kg per hectare. Species included vary occasionally. Pictured here, Gordon Crouchs farm in Devon showing the benefit of the first year annuals.

Sowing
It is important to control any weeds in the area to be sown before the seeds are broadcast. Problem weeds are docks, thistles and nettles as these cannot be removed easily once the meadow area is sown.

Stale seedbed technique - prepare the seedbed as usual then wait a few weeks for weeds to germinate, then cultivate again to destroy the weeds. Then sow your seed.

Black plastic sheeting can work well on small areas.

Once weeds have been dealt with, prepare a fine, but firm and well-worked seedbed and give it a roll. Then broadcast the seeds by hand or using a spinner. Once this is done, harrow or rake the area, then roll it again to ensure the seeds are in good contact with the soil.

Annual wild flowers should be spring sown into bare soils to get the best results, they should be sown by May for a late spring/early summer sowing.

If an existing meadow starts to look thin, then it is possible to overseed with just wildflower seeds, although to do this successfully the area must be cut and harrowed well, beforehand to ensure the seeds reach the soil.

Management
Wildflower mixtures contain fine, non-aggressive grasses, excluding the more competitive grasses such as ryegrasses, cocksfoot and agricultural forms of timothy. Heavy, clay-rich or fertile soils will encourage grass growth, so meadows are most successful on lighter, drier, free-draining soils.

Any perennial weeds should be cut out or spot treated. Annual weed varieties will disappear after the first season.

Wild flower meadows, once successfully established, should be permanent, and will improve and evolve with age.

Wildflowers prefer infertile soils, so do not thrive in areas of high fertility. Some enthusiasts remove fertile topsoil exposing less fertile subsoil.

If established correctly on the right type of soil, the balance of species should be harmonious. Any imbalance normally means the soil is too heavy, too wet or too fertile, so favouring grasses.

Composition
EM2 is a complete mix composed of 15% native wild flowers and 85% slow growing grasses (by weight). The flower and grass components are also available to order separately as EM2F for the flower component and EG1 for the grass component.

Ref: <https://www.cotswoldseeds.com/products/416/cotswold-wild-flora>

Riparian habitat corridor such as Emorsgate Seeds EG8: Meadow Mixture for Wetlands



Suggested Sowing Rates
25kg/ha 20kg/acre 5g/m2

Description
EG8 contains species suitable for seasonally wet soils and is based on the vegetation of traditional floodplain and water meadows. Soils in wet meadows may flood for short periods in winter, but are usually well drained in summer.

Ground Preparation
Ideally select ground that is not highly fertile and does not have a problem with perennial weeds (especially grass weeds like couch). Good preparation is essential to success so aim to control weeds and produce a good quality seed bed before sowing.

To prepare a seed bed, first remove weeds using repeated cultivation. Then plough or dig to bury the surface vegetation, harrow or rake to produce a medium tilth, and roll or tread to produce a firm surface.

Sowing
Seed is best sown in the autumn or spring but can be sown at other times of the year if there is sufficient warmth and moisture. The seed must be surface sown and can be applied by machine or broadcast by hand. To get an even distribution, and avoid running out, divide the seed into two or more parts and sow in overlapping sections. Do not incorporate or cover the seed, but firm in with a roll, or by treading, to give good soil/seed contact.

First Year Management
Growth and establishment of wild grasses may be slow initially, especially at low sowing rates (2-5g/m2). There will often be a flush of annual weeds from the soil in the first growing season. This weed growth is easily controlled by topping or mowing.

Mow all plant growth (sown grasses and weeds) regularly to 40-60mm throughout the first growing season to prevent weeds smothering the slower-growing grasses. Remove cuttings if dense, more frequent and regular topping will minimise the amount of toppings produced each time so they can be left to disperse.

Management Once Established
In the second and subsequent years grass sowings can be managed in a number of ways which, in association with soil fertility, will determine the character of the grassland. Regular mowing or continuous grazing will produce a short turf or lawn.

The sowing can be managed as a meadow allowing the grasses to grow tall, flower and seed from May through to July/August. The grass meadow should be cut back and mowing resumed in late summer.

Grassland which is not cut or grazed each year will eventually become coarse and tussocky in character.

Wild flower seed can be added after the grasses have established and weed problems have been dealt with. The sward will need preparation for sowing into existing grass. Flower establishment will not be as good as compared with sowing the grasses and flowers together on to bare soil, as the grasses have a 'head start'.

Composition
EG8 is a 100% grass seed mixture which can be sown alone or sown with wild flowers eg EM8F or EP1F. EG8 is available premixed with these flower mixtures as complete meadow mixtures EM8 and EP1. Generally when sowing EG8 grasses without wild flowers the sowing rate may be increased to 10-15g/m2 without compromising the development of diversity.

Ref: <https://wildseed.co.uk/product/mixtures/grass-only-mixtures/meadow-grass-mixture-for-wet-soils/>

Hedgerow and woodland grass mix such as Cotswold Seeds: Buffer Strip Grass Margin Mixture.



Suggested Sowing Rates
25kg/ha 10kg/acre 2.5g/m2

Description
An ideal mixture for buffer strips on cultivated land. It is suitable for all soil types and creates habitat for small mammals, invertebrates and birds. Its main purpose is to protect vulnerable areas, such as water courses, from agrochemicals and fertilisers.

Sowing
Sow between March and early May, or August and late September. Later sowings are slower to establish and can be vulnerable to slugs.

Many of the species included have small seeds and should therefore be surface sown onto a fine, firm seedbed at not more than 1-2cm. If broadcasting it is best to lightly harrow and roll twice after sowing.

Management
Once established, Buffer Strips only need to be cut once a year after mid July. If sowing a six metre margin we recommend leaving the outer two or three metres uncut to provide tussocky cover for insects and wildlife.

Beetle Banks may be cut two or three times in the first year for annual weed control but, once established, are cut only to prevent the encroachment of woody and suckering weeds.

Recreating Grassland may be mown for hay (or silage) in late June and can also be grazed or topped if needed. Species Rich Parkland Grassland is less productive and may be grazed occasionally or topped to keep the sward down.

Ref:
<https://www.cotswoldseeds.com/articles/364/resource-protection-and-grassland-sowing-and-growing>

Planting notes

The handling of plants to be in accordance with National Plant Specification 'Handling and Establishing Landscape Plants'. All plants and planting operations are to comply with the requirements and recommendations of all current relevant British Standard specification including but not limited to:

- BS 8545: Trees: From Nursery to Independence in the Landscape
- BS 3936-1:1992. Nursery stock. Specification for trees and shrubs
- BS 3882:2015 - Specification for topsoil
- BS 4428:1989. Code of practice for general landscape operations (excluding hard surfaces) (AMD 6784)
- BS 5837: 2012 Trees in relation to design, demolition and construction. Recommendations

All planting to be carried out during appropriate climatic conditions from mid-November to mid-March. Existing topsoil and/or imported, clean/inert horticultural ameliorants from sustainable sources. Contractor to satisfy themselves with measurements on site and the full extent of works before pricing.

Clearance

For construction and/or temporary facilities only:

Cut back grass and all other vegetation to an initial height of 150mm and then, following a period of 24 hour period, cut back to ground. Refer also to the recommendations provided in the Preliminary Ecological Appraisal.

Vegetation clearance shall be undertaken in a directional manner towards areas of retained vegetation.

For areas of proposed seeding, clear all grass and perennial vegetation including brambles, suckering and epicormic growth to ground level, apply herbicide and cultivate to a fine tilth in preparation of seeding. All rubbish, debris and existing **redundant** infrastructure to be removed. Stone picking of all stones and debris over 25mm to be undertaken. All trees and shrubs to be retained to be protected during works in line with BS5837:2012.

Topsoil

Existing topsoil must be cultivated in accordance with BS 3882:2015 outside RPAs of existing trees. No cultivation should take place in wet/ waterlogged conditions and within the RPAs of existing trees.

Trees

Excavate planting pits to the following dimensions:
Feathered Trees: 500 x 500 x 500mm depth
Selected Standard Trees: 1000 x 1000 x 500mm depth

Supply and plant, incorporating slow release fertiliser N:P:K - 4:19:10 ENMAG or similar approved at the following rates:
Feathered Trees: 100g / tree pit
Selected Standard Trees: 100g / tree pit
Shrubs: 70g / m²

Provide and fix tree stakes and ties to the following dimensions:
Feathered Trees: overall length 1250mm; height above ground: 600mm
Selected Standard Trees: overall length 1500; height above ground: 750mm

Proposed tree species are not to be substituted. Should stock at the specified sizes be unavailable, use next available size.

Native shrub planting

Species to be planted randomly throughout and in groups minimum of 5no. and maximum 8no. species. Mixture of plant species to be as per the percentage contributions in the schedules below.

Native Hedgerow

Planting native hedge to be with bare-root transplants via slit planting - cutting a slit in the ground and holding it open with a spade whilst the roots of the plant are carefully inserted and spread downwards. These are to be planted with centres of 0.3m in double staggered lines offset at 0.25m. Mixture of plant species to be as per the percentage contributions in the schedules.

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Specifications

L200

Mulch

Native planting
Plants to receive a minimum of 200mm (radius) and 75mm (d) of bark mulch to the base of each plant.

Hedge
Hedge to receive a minimum of 600mm (w) and 75mm (d) of bark mulch along the length of proposed hedge.

Plant position

Final position of trees and shrubs subject to confirmation of service location and approval of statutory undertakers. Allow for location of service information prior to work commencing on site.

Planting Season

Bare-root shrubs to be planted between mid-November and mid-March dependant upon the planting season.

General notes

Substitutions, if made, should be similar in size, form and water demand. Plants shall be arranged to avoid straight lines and geometric patterns.

Rabbit guards

Biodegradable spiral rabbit guards are to be installed around transplants.

