

**Landscape and Ecological
Management Plan - Outline Plan**

Well House Farm,

Rudyard Road,

Biddulph Moor,

Staffordshire,

ST8 7JW

1 Introduction

- 1.1 This outline Landscape and Ecological Management Plan (LEMP) sets out a framework for the planting, management and monitoring of landscaping and ecological mitigation and enhancement habitats for the proposed ménage (hereafter referred to as “the Scheme”). This LEMP concerns works which will be required during both construction and operation phases of the Scheme. This LEMP is to be read in conjunction with the following documents:

- Block Plan 2a
- Landscape Plan 4a

2 Aims

- 2.1 The overarching aim of this LEMP is to set out prescriptions for habitat creation and management in order to provide a significant ecological enhancement, strengthen the green infrastructure within the local area as well as to provide landscape and visual mitigation through screening of the Scheme where this has been identified as necessary.
- 2.2 The document takes into account the habitats and species already recorded as present in order to tailor management for the most optimal outcome. Public amenity has also been considered when planning the location and type of habitats to establish, for example, diverse pollinator mixes which are flower rich and have a long flowering season are focussed near residential dwellings or Public Rights of Way (PRoW).

3 Key Personnel

- 3.1 The final LEMP will set out the roles and responsibilities of those involved in creating, managing and monitoring the prescriptions within this document. A suitably qualified person will be appointed to oversee the coordination of implementing the LEMP, including sourcing seed/plants, which will need to be considered at an early stage given the quantities required.

4 Creation and Management Prescriptions by Habitat Type

- 4.1 This section sets out the various principles and prescriptions for habitat creation and management which will drive the requirements for both landscape and ecological mitigation and enhancement which have been identified.
- 4.2 The enhancements and mitigation are illustrated within the relevant Landscape and Ecology Mitigation and Enhancement Plans, as referenced throughout this document.
- 4.3 This section should be read in conjunction with Appendix A which sets out management prescriptions which would be adopted for the duration of the Scheme.
- 4.4 **General Planting Implementation and Management Prescriptions General Implementation Prescriptions**

- 4.5 Planting to be undertaken in the planting season between October and March during construction, or within the first available year/season post construction. Planting to be carried out during appropriate climatic conditions.
- 4.6 Where existing ground vegetation is retained or has re-established during the construction phase, the following clearance works should be undertaken prior to planting works:
- All grass and perennial vegetation should be cleared from site including epicormic and below ground growth.
 - All rubbish, debris and stones over 25mm diameter should be cleared; and
 - All arisings should be removed from site.
- 4.7 The handling of plants on Site must be in accordance with National Plant Specification 'Handling and Establishing Landscape Plants'.
- 4.8 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 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; and
 - BS 3998:2010: Tree Work – Recommendations
- 4.9 Topsoil within planting pits should be cultivated to a minimum depth of 400mm where tree/hedgerow/woodland planting is proposed to ensure sufficient room to accommodate new planting and to provide appropriate growing conditions for new planting is achieved.
- 4.10 Topsoil in areas to be seeded with wildflower and grass seed mixes to be cultivated using minimum tilling or direct drilling of seed straight into previous stubble of the previous grassland. This retains some surface protection and cuts the number of cultivator passes across the soil surface.
- 4.11 No cultivation should take place in wet/ waterlogged conditions and within the root protection areas of existing trees as defined by BS5837:2012. Drilling required within the root protection areas of existing trees should include surface scarification only and of no more than 50mm depth to ensure roots are not damaged.
- 4.12 No topsoil to be imported or exported from Site and no grading of the topsoil should be undertaken.

- 4.13 In the interest of biodiversity protection, the use of herbicides should be kept to a minimum in the preparation or management of the planted or seeded areas.
- 4.14 All trees and shrubs to be planted with the appropriate biodegradable tree or shrub guards and removed subject to satisfactory establishment and growth within 2-3 years post construction or as required ensuring establishment.
- 4.15 Any plants and trees which are found to be dying, damaged or diseased following planting will be replaced with the same species and specification for the duration of the Scheme.
- 4.16 Any maintenance works such as cutting of trees or flailing, should take place during September to February which is outside of the bird nesting season (March to August), for the duration of the development. These works should also be carried out when the ground is dry enough to allow machinery access.
- 4.17 All shelters, guards, rabbit spirals and stakes will be checked annually and secured or replaced where necessary. Shelters will be removed from all plants and will be disposed of off-site (subject to satisfactory establishment and growth) by year 5 post planting.
- 4.18 Autumn sowing is preferable, with the seed sown as soon as possible subsequent to construction of the ménage to avoid a flush of unwanted species such as annual plants and injurious and invasive weeds (as well as careful preparation of the land prior to seeding, as set out above). Following this, weeds and invasive non-native species will be controlled by hand pulling, if not too excessive or treated using a spot herbicide treatment if more widespread.

5 Native Hedgerows and Hedgerow Trees

- 5.1 The hedgerow network is poor across the majority of the Site, is generally annually managed and species-poor. The Scheme offers significant opportunities for tree and hedgerow planting, in line with local conservation priorities, national targets and to mitigate significant impacts created by the Scheme. Strengthening the local hedgerow network will significantly enhance the area for bat species, as well as birds and invertebrates. All tree/hedgerow specimens will be native and of UK provenance. Trees will be locally sourced and of local provenance where possible; the "Local Seed Zone Provenance".
- 5.2 All new mixed native hedgerows will comprise of a double staggered row of plants 400 mm apart within each row, overall 6 plants per linear metre. Species will be mixed throughout the hedge line in random groups of 3/5/7. A 500 mm wide trench will be excavated to take plants and topsoil cultivated to 450 mm depth prior to application of fertiliser. All species, except Holly, will be planted as bare root whips.
- 5.3 Locally appropriate species will be used, based on those already found within the local area. The planting of blackthorn will provide habitat for rare species such as brown hairstreak butterfly *Thecla betulae*. Management of hedgerows will be key for species such as this. Tall thorny hedgerows are also suitable for nesting birds including turtle dove *Streptopelia turtur* and other declining farmland birds.

5.4 Table 1: Hedgerow species for planting within the Scheme.

Scientific Name	Common Name	Size	Form
<i>Acer campestre</i>	Field maple	45-60 cm	Whip (Bare Root)
<i>Corylus avellana</i>	Hazel	45-60 cm	Whip (Bare Root)
<i>Crataegus monogyna</i>	Hawthorn	45-60 cm	Whip (Bare Root)
<i>Ilex aquifolium</i>	Holly	45-60 cm	Container grown 3L
<i>Ligustrum ovalifolium</i>	Privet	45-60 cm	Whip (Bare Root)
<i>Lonicera periclymenum</i>	Honeysuckle	45-60 cm	Whip (Bare Root)
<i>Prunus spinosa</i>	Blackthorn	45-60 cm	Whip (Bare Root)
<i>Rosa arvensis</i>	Field Rose	45-60 cm	Whip (Bare Root)
<i>Rosa canina</i>	Dog Rose	45-60 cm	Whip (Bare Root)
<i>Viburnum lantana</i>	Gelder Rose	45-60 cm	Whip (Bare Root)

- 5.5 A total length of 56m of new hedgerow is proposed within the Scheme.
- 5.6 Poor management of hedgerows in the form of over-management, lack of management, damage due to narrow field margins or drift of herbicides/pesticides has led to degraded hedgerow habitats being common at present within the Scheme.
- 5.7 This LEMP will seek to secure appropriate management of all hedgerows within the Site, with a focus on optimising this habitat for local wildlife. The hedgerow should be regularly watered in its first summer and weeds should be controlled through the use of bark mulch. A 75 mm layer of bark mulch 0.5 m either side of the hedge will be spread along the length of the hedge immediately after planting to suppress weeds and retain soil moisture. Newly planted hedgerows should be trimmed in at least the first 2 years to encourage bushy growth, allowing the hedge to become taller and wider at each cut.
- 5.8 Hedgerows will be enhanced through less regular mechanical cutting, for example, every 2- 3 years and on rotation (either by rotating hedgerows or cutting each side of the hedgerow on rotation). This will benefit species such as brown hairstreak which rely on uncut blackthorn to lay eggs (and has significantly declined due to the practice of annual cutting). Cutting should take place outside the bird nesting season, and ideally in January/February where the ground is dry enough to allow machinery access. This will provide an important food source, such as nuts and berries, for bird species over the winter. This may be focussed on hedgerows adjacent to roads and tracks where a tractor will be able to access in wet conditions without damaging the ground.
- 5.9 All newly planted hedgerows will include Select Standard trees randomly spaced between 5 – 9 m centres. On occasions where visual receptors are likely to see visual effects in close proximity, denser tree planting of between 2-3m centres may be adopted to provide more instant screening effects. Where this occurs species will be appropriately mixed to ensure large species trees are intermittently mixed with smaller species trees to ensure suitable growing conditions in perpetuity.
- 5.10 All hedgerow trees will be planted as Select Standard trees between 3.0m – 3.5 m tall. Select Standard trees to be planted in pits 800mm x 800mm wide x 700 mm deep or dimensions of the rootball, whichever is greater. All trees should be planted

with a 75 mm depth of bark mulch, 0.5 m in diameter around each tree/shrub to suppress weeds and retain soil moisture. Any trees planted in or alongside hedgerows as part of the proposed hedgerows enhancements, are to be planted with a 1.5m tall white tipped marker post. This will allow locations of newly planted trees to be noticeable to operators of flails during maintenance periods. Planting will focus on long-lived trees in order to replace the many ash trees noted to be present within the hedgerow network, the majority of which can be expected to be lost in the next five years due to ash dieback.

- 5.11 The tree species selected will reflect the species identified within the Site to ensure they are locally appropriate. Tree planting locations will require an appropriate offset to ensure shading will not occur once the tree has matured, or leaf fall become a problem on the ménage. It may be desirable to plant trees not identified in the local area which are ecologically similar to ash or are resistant to both disease and climate change impacts. A list of locally appropriate and resistant trees are as follows:

- 5.12 Table 2: Tree species for planting within the Scheme.

Scientific Name	Common Name	Size	Form
Acer campestre	Field maple	300-350 cm	Select Standard (Bare Root/Rootball)
Crataegus monogyna	Hawthorn	300-350 cm	Select Standard (Bare Root/Rootball)
Malus sylvestris	Crab apple	300-350 cm	Select Standard (Bare Root/Rootball)
Prunus padus	Cherry (bird)	300-350 cm	Select Standard (Bare Root/Rootball)
Quercus robur	Pedunculate oak	300-350 cm	Select Standard (Bare Root/Rootball)

- 5.13 An inspection and formative prune will be carried out annually in accordance with good arboricultural practice to BS 3998:2010. A clear stem of up to 2m will be maintained for all hedgerow trees in order to be distinguishable. All trees will be regularly watered in the first summer and thereafter as required to ensure successful establishment. Bark mulch is to be maintained at a depth of 75 mm, 0.5 m in diameter around each tree as required to suppress weeds and retain soil moisture.

- 5.14 A total of 7 trees are proposed within the Scheme.

6. Diverse Meadow Creation and Management

- 6.1 Diverse grassland can be created within the Site, where managed appropriately. This can have a significant benefit to biodiversity but can also benefit surrounding agricultural land through offering an increase in pollinator species. Other benefits in terms of ecosystem services include an increase in water quality as a result of the

cessation of fertilisation and herbicide spraying as well as an increase in soil health as a result of the cessation of mowing.

- 6.2 Diverse grassland can take time to develop on previously pasture land which has been fertilised. However, with an appropriate seed mix selected and correct habitat management implemented wildflower meadows have been created on many farms in the UK. The preparation of the land before reversion to grassland will be key and must aim to minimise the impact of competition between desirable, sown species and unsown agricultural weeds and cereals.
- 6.3 Prior to finalisation of this LEMP, soil investigations will be essential to ensure appropriateness of seed mix/establishment techniques and promote a high likelihood of success. The seed mix will be selected to reflect the soil type, pH and nutrient levels in order to ensure that it establishes successfully. A mix such as gritstone would be appropriate as it contains a diversity of native wildflowers and non-vigorous grasses.
- 6.4 Autumn sowing is preferable, with the seed sown as soon as possible subsequent to construction of the ménage to avoid a flush of unwanted species such as annual plants and injurious weeds (as well as careful preparation of the land prior to seeding, as set out above).
- 6.5 Management during the first year is critical, with more regular cutting taking place to tackle annual or agricultural plants and injurious weeds. Herbicide application may be necessary should there be an abundance of injurious weeds. Subsequent to this, management would be in the form of a “haycut” between late July and September and/or grazing by sheep (aftermath grazing). The fields would be “shut up”, with no grazing or cutting between April and late July to allow the flowering species to grow, flower and set seed.
- 6.6 Where possible, cutting will be carried out using a cut-and-collect system so as to minimise nutrient build up in the soil which stifles species diversity. It will be necessary to balance the requirement for a late cut to allow plants to flower and set seed and ensuring that the cut is not taken so late that too much dead material is present, rendering the baled material unsuitable for agricultural applications. Careful monitoring and selection of seed mixes will be required in order to achieve both a diverse meadow and a use for the arisings collected. Alternatively, there may be an opportunity to use the cuttings within local composting sites such as anaerobic digesters.