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Tyrer Ecological Consultants Ltd, Roselands, Suite 1, 3 Cross Green, Formby, L37 4BH

Hedgerow Creation, Management & Maintenance Plan

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Prepared for	Ford Halewood Transmissions Ltd
Prepared by	Tyrer Ecological Consultants Ltd
Author(s)	Mr. D. Burrows Qualifying CIEEM
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Reviewed by	Mr. D. Burrows Qualifying CIEEM
Approved by	Mrs. K. Wilding CEnv MIEMA ACIEEM

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1.0 Introduction & Objectives

- 1.1 The following habitat types are covered by this management plan, in line with BNG Metric guidance:
- Native hedgerow,
 - Species rich native hedgerow,
- 1.2 As part of a Ford Motor Company's initiative to enhance their UK industrial sites ecological and environmental footprint, Tyrer Ecological Consultants Ltd have been commissioned to undertake an ecological evaluation of the Ford Halewood Transmissions site, and advice options to enhance the sites ecological value.
- 1.3 Subsequently, a Habitat Enhancement Strategy report (v1.1) has been produced by Tyrer Ecological Consultants Ltd (**Appendix I**) and submitted to the project team, which outlines the sites baseline ecological condition by summarising the sites habitat value in addition to an assessment of the sites zone of influence to ensure enhancement options are suitably targeted. The primary component of this report was the inclusion of two enhancement strategy 'options' which aimed to provide quantifiable net gains through differing habitat enhancement/creation. The baseline value and both enhancement options were quantified through the use of the Statutory Biodiversity Metric Tool.
- 1.4 Following submission, a period of review was conducted by the Ford project team in order to deliberate over the direction of enhancement. Subsequent conclusions have resulted in 'Option 1' being decided as the most appropriate course of action.
- 1.5 Option 1 aims to provide the greatest increase in biodiversity units. This option aims to enhance habitats on site without changing the functionality of the site in its current form. This is achieved primarily through enhancement of existing modified grassland parcels found throughout the site into higher distinctiveness neutral grassland, as well as the enhancement of existing neutral grassland into better condition neutral grassland through an appropriate management strategy. Furthermore, it is proposed that additional individual trees and hedgerows are planted throughout the proposed neutral grassland parcels to increase terrestrial connectivity within the site.
- 1.6 To achieve biodiversity net gain at the sites, habitat creation and enhancement measures are required, along with management plans to ensure the habitats achieve their intended conditions.
- 1.7 This document therefore aims to address the need for such a plan in relation to 'hedgerows' by providing extensive information in relation to the creation, management and continued maintenance of said habitat for a period of 5 years.
- 1.8 A clear understanding of the intended character and / or future use of the habitat will help ensure that it will be created, managed and maintained correctly and will therefore reach target condition and maturity in the form in which it has been designed in this habitat creation, management and maintenance plan (CMMP).
- 1.9 The Ford Halewood grounds maintenance team will be responsible for habitat creation, management, and maintenance within all areas of the site; as well as undertaking regular monitoring. Regular inspection of the site, keeping records of all work, inspections, issues and corrective action will be required. These records will feed into the wider monitoring of the site in accordance with the site's Management and Monitoring Plan. A list of Maintenance Operations will be included to help inform the teams which takes on the management and maintenance of this landscape.

NB: *The body managing the habitat does not need to be an ecologist, but should be familiar with the Tyrer Ecological report(s) as a minimum, the projected aims and objectives for the*

site, target habitat conditions, ecological sensitives and have sufficient authority and presence to influence activities. In the event of any uncertainty about ecological issues surrounding the habitat, the body is responsible for contacting an Ecologist.

Aims

- 1.10 The general aims for the management and maintenance of this specific habitat within the Halewood site include the following:
- Maintain and manage the newly created / enhanced habitat at the stated target condition for the period of at least 5 years.
 - To maintain and manage the newly created/ enhancement habitat to deliver the proposed biodiversity units for the site.
 - Ensure maintenance of the site habitat in a safe and secure condition.
 - Provide an enhanced / novel habitat on the site which will benefit biodiversity both within the site and the immediate vicinity and contributes towards the wider ecological network and nature recovery.

Possible Constraints to Creation, Management & Maintenance

- 1.11 Any management that would result in offences under protective legislation pertaining to wildlife **cannot** be undertaken and additional measures may be required to ensure wildlife is protected. As such, creation and management provisions are devised to ensure conformity with all relevant legislation, which includes (but is not limited to); the Wildlife and Countryside Act (WCA) 1981 (as amended) and the Conservation of Habitats and Species Regulations 2019 (EU Exit) (as amended).
- 1.12 The key species groups which have the potential to be present on-site both during and at the post-development stage, therefore requiring careful consideration during any management and / or maintenance operations, are:
- **Amphibians:** Many amphibian species are protected under legislation, with common toad (*Bufo bufo*) being a UK Biodiversity Action Plan (UKBAP) species, common frog (*Rana temporaria*) legislated under a variety of local BAPs (LBAP), and great crested newt (GCN) (*Triturus cristatus*) are fully protected in all life stages by Schedule 2 of The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (SI 2019/579) and the Wildlife and Countryside Act (1981) (as amended). They are listed a priority species under section 41 (s.41) of the Natural Environment Rural Communities Act 2006 (NERC Act). Should a GCN be observed at any time during management operations then work should cease and an ecologist be contacted for further advice.
 - **Breeding birds:** All wild birds, their eggs, young and nests, whilst being built or occupied are protected under both the Wildlife and Countryside Act (WCA 1981) and Natural Environment and Rural Communities Act (NERC Act 2006). Birds listed on Schedule 1 of the WCA 1981 are afforded a greater level of protection and are protected also from disturbance. The new habitats within various grasslands could provide certain bird species with suitable nesting habitat within tall areas of vegetation, and sufficient checks should be made by the wildlife champion to ensure that operations will not have an impact on breeding birds during the months of May – September. Any areas found to contain any nesting birds should be left undisturbed until such time the nest site has been naturally abandoned.
 - **Mammals:** Many mammalian species are protected under legislation, with badger (*Meles meles*) legislated under the Protection of Badgers Act (1992) and the Wildlife and Countryside Act (1981) (as amended) and hedgehog (*Erinaceus europaeus*) listed a priority species under Section 41 (s.41) of the Natural Environment Rural Communities

Act 2006 (NERC Act). These species alongside other small mammals are likely to be present within grassland habitats, at least in a foraging/commuting capacity. Should evidence of any protected species be observed onsite, Reasonable Avoidance Measures may be necessary to limit any impacts to the species. Water vole are fully protected under the Wildlife and Countryside Act (1981) (as amended), they may be utilise grassland habitats in a riparian setting. Works near watercourses may require a pre-commencement check for water vole to ensure they are unharmed.

2.0 Enhancement Opportunities

- 2.1 This document aims to provide clear and concise creation, management and maintenance operations regarding the habitat for which it has been created.
- 2.2 These operations should, however, provide measurable benefits to the hedgerow in accordance with the BNG Metric guidance sheets available from Natural England. The condition sheets provided for each habitat present a variety of different criteria which are applicable for the specific habitat. Based on the number of criteria passed by the habitat, a condition is achieved which helps to better represent the biodiversity value of said habitat. As such, a condition can be 'enhanced' by ensuring that more criteria are met by the habitat by way of management provisions.
- 2.3 For the hedgerows, there are 8 criteria divided into 4 functional groups: with an additional 2 criteria for hedgerow with trees which are not applicable in the context of this site. Certain thresholds must be met to achieve either good, moderate or poor condition (see **Table 2.1** below for further detail).
- 2.4 Given the generalist nature of this document, no specific recommendations will be made in respect of exact hedgerow enhancement as the nature of the recommendations will vary dependent on the existing and target conditions of the hedgerows in question. General options to match each of the criteria below have been provided in **Section 4.0**, with specific operations regarding each criteria prescribed.

Table 2.1 – Condition Assessment Criteria Sheet for 'Hedgerows'

Attributes and functional groupings		Criteria	Description
A1.	Height	>1.5 m average along length	The average height of woody growth estimated from base of stem to the top of shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees. Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is > 1.5 m height).
A2.	Width	>1.5 m average along length	The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths (e.g. blackthorn <i>Prunus spinosa</i> suckers) are only included in the width estimate when they >0.5 m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).
B1.	Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length (unless 'line of trees')	This is the vertical gappiness of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).

Attributes and functional groupings		Criteria	Description
B2.	Gap - hedge canopy continuity	Gaps make up <10% of total length and No canopy gaps >5 m	This is the horizontal gappiness of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small). Access points and gates contribute to the overall gappiness but are not subject to the >5 m criterion (as this is the typical size of a gate).
C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: - measured from outer edge of hedgerow, and - is present on one side of the hedge (at least)	This is the level of disturbance (excluding wildlife disturbance) at the base of the hedge. Undisturbed ground should be present for at least 90% of the hedgerow length, greater than 1m in width and must be present along at least one side of the hedge. This criterion recognises the value of the hedge base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches.
C2.	Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	The indicator species used are nettles (<i>Urtica spp.</i>), cleavers (<i>Galium aparine</i>) and docks (<i>Rumex spp.</i>). Their presence, either singly or together, should not exceed the 20% cover threshold.
D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA ³) and recently introduced species.	Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC ⁴ website, as well as the BSBI ⁵ website where the 'Online Atlas of the British and Irish Flora' ⁶ contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website ⁷ .
D2.	Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities.	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (e.g., excessive hedgerow cutting).
Condition categories for hedgerows without trees			Condition Assessment Result
No more than 2 failures in total; AND No more than 1 in any functional group.			Good
No more than 4 failures in total; AND <u>Does not fail both attributes</u> in more than one functional group (e.g. fails attributes A1, A2, B1 & C2 = Moderate condition).			Moderate
Fails a total of more than 4 attributes; OR <u>Fails both attributes</u> in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition).			Poor
Footnotes			

Footnote 1 – DEFRA (2007) *Hedgerow Survey Handbook. A standard procedure for local surveys in the UK.* [online] Available on: [layout \(hedgeline.org.uk\)](http://layout.hedgeline.org.uk)

Footnote 2 – STALEY, J.T. ET AL. (2020) *Definition of Favourable Conservation Status for Hedgerows.* [online] Available on: [Definition of Favourable Conservation Status for Hedgerows - RP2943 \(naturalengland.org.uk\)](http://naturalengland.org.uk)

Footnote 3 – Wildlife and Countryside Act 1991 (as amended).

Footnote 4 – CHEFFINGS, C, M. et al. (2005) *The Vascular Plant Red Data List for Great Britain.* Species Status 7: 11-116. [online] Available on: [The Vascular Plant Red Data List for Great Britain \(Species Status No. 7\) | JNCC Resource Hub](http://jncc.gov.uk)

Footnote 5 – BOTANICAL SOCIETY OF BRITAIN AND IRELAND (BSBI). *Definitions: wild, native or alien?* [online] Available on: [Definitions: wild, native or alien? – Botanical Society of Britain & Ireland \(bsbi.org\)](http://bsbi.org)

Footnote 6 – BSBI and Biological Records Centre (BRC) (2022) Available on: [BSBI Online Plant Atlas 2020](http://bsbi.org)

Footnote 7 – GB NON-NATIVE SPECIES SECRETARIAT (GBNNS) (2022) Available on: [Home » NNSS \(nonnativespecies.org\)](http://nonnativespecies.org)

Footnote 8 – See gov.uk standing advice on ancient and veteran trees. Available from: [Keepers of time: ancient and native woodland and trees policy in England \(publishing.service.gov.uk\)](http://publishing.service.gov.uk) and [Ancient woodland, ancient trees and veteran trees: advice for making planning decisions - GOV.UK \(www.gov.uk\)](http://gov.uk)

3.0 Creation Scheme

3.1 This hedgerow creation, management and maintenance plan has been created in accordance with the specific objectives set out in Section 1.0, however in brief the plan aims to establish, maintain, and enhance hedgerow habitats as appropriate, so that the habitat will, in time, provide, at a minimum, the proposed units outputted by the relevant Metric which has been referenced in the Ford Halewood Habitat Enhancement Strategy report (**Appendix I**).

3.2 The following habitat types are covered by this management plan, in line with BNG Metric guidance:

- Native hedgerow,
- Species rich native hedgerow.

Proposed hedgerows

3.3 Native hedgerows must be comprised of at least 80% native woody species; species rich native hedgerows must consist of at least 5 native woody species in a 30 m section. Any planting scheme should consist of native species which are within their native range in the north-west of England; the optimal time of year to plant new hedgerows is November to March. Where possible, it is recommended that species to be planted are locally harvested, though this is not essential (British Standard 3936:1992 – Nursery Stock – Part 1). Suitable species for planting in this area can be found in **Table 3.1** below.

3.4 Any planting scheme should consist of native species which are within their native range in the north-west of England, though the wider ecological context should also be taken into consideration when selecting species; as well as creating a diverse species list, the scheme should aim to complement, enhance, and/or extend what native habitat exists on the site or in its immediacy. Suitable species for planting in the north-west can be found in **Table 3.1** below:

Table 3.1 – Suitable native species for planting to create/enhance hedgerows.

Hedgerow species		
Common Name	Scientific Name	Preferred Habitats
Blackthorn	<i>Prunus spinosa</i>	Scrub edges, hedgerow, moist, well-drained soil
Broom	<i>Cytisus scoparius</i>	Coastal, heathland, woodland, along hedgerows
Buckthorn	<i>Rhamnus catharticum</i>	Wet soils, woodland, wet heathland, riverbanks
Dogwood	<i>Cornus sanguinea</i>	Damp soils, clay substrate, generalist
Guelder-rose	<i>Viburnum opulus</i>	Damp, neutral/chalky soils
Hawthorn	<i>Crataegus monogyna</i>	Generalist, full sun
Hazel	<i>Corylus avellana</i>	Woods and hedgerow understories, drier soils
Holly	<i>Ilex aquifolium</i>	Non-chalky, free-draining soils
Honeysuckle	<i>Lonicera periclymenum</i>	Shade tolerant, woodland
Juniper	<i>Juniperus communis</i>	Chalk soils, lowland, moorland, rocky
Spindle	<i>Euonymus europaeus</i>	Woodland, nutrient rich soils

3.5 A minimum of **five woody** species should be used in **species rich hedgerow** creation, though higher species diversity will result in a greater chance of more species successfully establishing and in an overall higher biodiversity following successful establishment. A typical appropriate mix of shrubs might include, for example, a mixture of 50% hawthorn, 25% blackthorn, 10% hazel, 10% guelder rose, 2.5% holly, and the other 2.5% made up of species such as honeysuckle interspersed throughout.

Planting

- 3.6 Planting is the most commonly used method for hedgerow creation and involves planting a chosen species mix of whips. Risks associated with the method are associated with the vulnerability of the whips during the first few years after planting. Plants may suffer from transplant shock, they are more vulnerable to grazing and damage; however, through careful management these issues can be corrected / mitigated for through measures including replacing any dead whips, along with the introduction of protective fencing and tree-guards. Taking this into account, along with the more rapid establishment of hedgerow and greater control of spacing under this method, planting is therefore the recommended method for hedgerow creation.
- 3.7 Hedgerows should be double planted, with each line approximately 50cm apart, individual whips should be spaced out roughly 20-30cm apart in a zig-zag pattern, species should be planted following the 'Notch planting' technique, whereby 5-10 individuals of the same species are placed together at a density of at least 5 whips per meter, whips should be 125cm – 150cm high feathered from the bottom with breaks and cut back to 60cm in height once in location on site.
- 3.8 To establish a wide base, during the first spring you should cut the branches back by 50% or to 60cm in height (with the exception of holly which should be left unmanaged in the first season). Remove any dead or diseased individuals, and 'Gap up' the hedge by replanting failed whips. The hedge should then be lightly trimmed every 2 years with the base trimmed every three years from the initial first trim during the first spring; and never cut back to the same point allowing the hedge to grow outwards, this should create a 'A' shaped hedgerow, trimming should occur in January and February.
- 3.9 Whips should be sourced from local UK provenances where possible to achieve a native species hedgerow which is best adapted to local conditions (British Standard 3936:1992 – Nursery Stock – Part 1), and to avoid introduction of pests and diseases such as ash dieback. Where local/community tree nurseries are not available, UK and Ireland Sourced and Grown (UKISG) certified stock should be utilised, sourced from seed zone 302.
- 3.10 All planting should be undertaken in the first planting season of habitat creation, with bare root stock to be planted between October-March and outside of periods of heavy rain/flooding, frost, or drought.
- 3.11 Holes for whips will be dug to a depth of 50cm, and for trees to a depth of 60cm (or to providers specifications); during digging any contaminants including rubbish will be removed. Whips should be protected from grazing/recreational activity while the hedgerow establishes, either by fencing or the use of shrub guards. Where recreational activity is likely, it is recommended that a timber post and wire netting fence is erected at least 1m either side of the newly established hedgerow alternatively where recreational activities are not predicated to cause damage to the whips, shrub guards should be used to protect them from grazing.
- 3.12 The whips should not need watering except in summer during times of drought; however, regular assessment should be made through the first two years to check for dry and curling leaves. Should watering be required, the earth around the trees should be thoroughly saturated to encourage roots to grow down to groundwater as opposed to up towards surface water.

Hedgerow Laying

- 3.13 Hedge "laying" is traditional management technique for hedgerows, whereby the base of the stems is partially cut so that it will bend without breaking, or killing the plant, it is way of stock proofing a hedge and also promoting vigorous growth from the base. To "lay" a hedge the stems must be 5-10cm thick at the base typically within the first 10/15 years of a hedgerow's growth this will encourage the hedgerow to thicken at the base. Hedgerows should be "laid" in

sections, as newly laid hedgerows temporarily reduce available habitat for wildlife. Below is a brief methodology for hedgerow laying:

- Works to be carried out when the hedge is dormant (September – March),
- Only cut using hand-tools (including chainsaws),
- Lay the hedge in the regional style,
- Cut each stem as low as possible (no more than 10cm from the ground),
- Choose stems which when laid do not leave large gaps,
- Protect the newly laid hedge from damage by grazing animals – rabbit fencing may be needed if local populations are high,
- Leave as much side growth on the branches as possible,
- Lay stems at an angle of about 35 to 45 degrees from horizontal,
- Keep any existing trees and leave the occasional 'standard' hawthorn or other species if this fits in with the local landscape,
- Keep deadwood where possible,
- Plant up gaps using native species to improve the continuity of the hedge,
- Fencing may only need to be temporary and in place for as long as it takes the hedge to grow sufficiently,
- Trimming the hedge should resume 2 years after laying.

Hedgerow Coppicing

3.14 Coppicing hedgerows is traditional method of rejuvenating hedges that have become overgrown and 'gappy' at the base, it typically undertaken on mature hedgerows and can be used to correct poor past management. Below is a brief summary the methodology for coppicing;

- Carry out work between September – March when the hedge is still dormant,
- Remove old fencing and wire,
- Cut and pullout bramble, clematis or other scrambling plants,
- Cut out elder plants and prevent re-growth of stumps,
- Encourage vigorous re-growth from the base of the plant by cutting the stems down to ground level (less than 10cm),
- Angle cuts so that water can easily run off,
- Keep all existing hedgerow trees,
- Cuttings can be placed over newly coppiced stools to prevent browsing by livestock or wild animals, or to leave dead wood for wildlife; however, they must not prevent new growth,
- Remove all unused cut branches from the immediate site after completion of the work,
- Control weeds during the first growing season after coppicing,
- Prevent livestock and grazing animals from damaging the hedge by setting fencing at least 1.2m from the centre of the hedge, or, if there is a bank, as close to the base of the bank as possible,
- Trim the hedge for 3 years after coppicing, allowing the hedge to become taller and wider at each cut.

Hedgerow Margins

3.15 Hedgerow margins make up an important component of a healthy hedgerow, these should ideally constitute 100-200cm of undisturbed ground along at least one side of the hedgerow, consisting of native ground flora if natural regeneration is not considered suitable (owing to the presence of INNS or neophyte species) to allow hedgerow margins to establish then they should be cleared prior to planting and weeded for the first year with a suitable grassland seed mix to be established 2 years after planting¹.

¹ Please see Grassland (Medium – Very High Distinctiveness) Creation, Management and Monitoring Plan

Fencing

- 3.16 Where fencing is required to protect newly established whips or a newly laid/coppiced hedgerow it should be erected 1m from the base of the hedge, to consist of a timber and wire netting fence. The fence materials and style should meet with British Standard 1722: part 2: 2000.

4.0 Management & Maintenance Programme

- 4.1 During any future hedgerow management / maintenance works, disturbance to the surrounding habitats will be minimised and the works should be undertaken by hand and light machine (trimmer, brush cutter, clearance saw and/or chainsaw) wherever possible.
- 4.2 The ideal time to undertake management/maintenance of a hedgerow will depend upon the specific activity – for example, activities to support newly planted hedgerows including weeding or watering and best undertaken in spring-summer, whilst planting and replacement of trees should be undertaken October – March when the shrubs are dormant, hedgerow trimming should take the winter after the worst of the frosts, January – February. **Table 4.1** provides management and maintenance prescription objectives to be implemented to assess and enhance the hedgerows in relation to each condition assessment criterion, whilst **Table 4.2** provides a summary guide to timings.
- 4.3 Any planting scheme should consist of native species which are within their native range in the north-west of England; suitable species for planting in this habitat can be found in **Table 3.1** above.

Table 4.1 – Specific management prescriptions in relation to each criterion

Criterion A1: Height
<i>The average height of woody growth estimated from base of stem to the top of the shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees.</i> <i>Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).</i> <i>A newly planted hedgerow does not pass this criterion (unless it is >1.5 m height).</i>
Objectives: To ensure that the hedgerow is >1.5 m height average along length.
Management Prescriptions: 1. After the initial trim in the first spring (See section 3.0), the hedgerow should be trimmed every 2 years, these trims should follow the incremental cutting methodology whereby the hedge is not cut back down to the same height each year and is instead allowed to increase in height.
Criterion A2: Width
<i>The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees.</i> <i>Outgrowths (such as blackthorn <i>Prunus spinosa</i> suckers) are only included in the width estimate when they are >0.5 m in height.</i> <i>Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).</i>
Objectives: To ensure that the hedgerow is >1.5 m width average along length
Management Prescriptions: 1. Hedgerows should be double planted at a minimum, with 5 whips per meter, following a zig zag pattern. 2. After the initial trim in the first spring, the hedgerow should be trimmed every 2 years, these trims should follow the incremental cutting methodology whereby the hedge is not cut back to the same width each year and is instead allowed to increase in width.

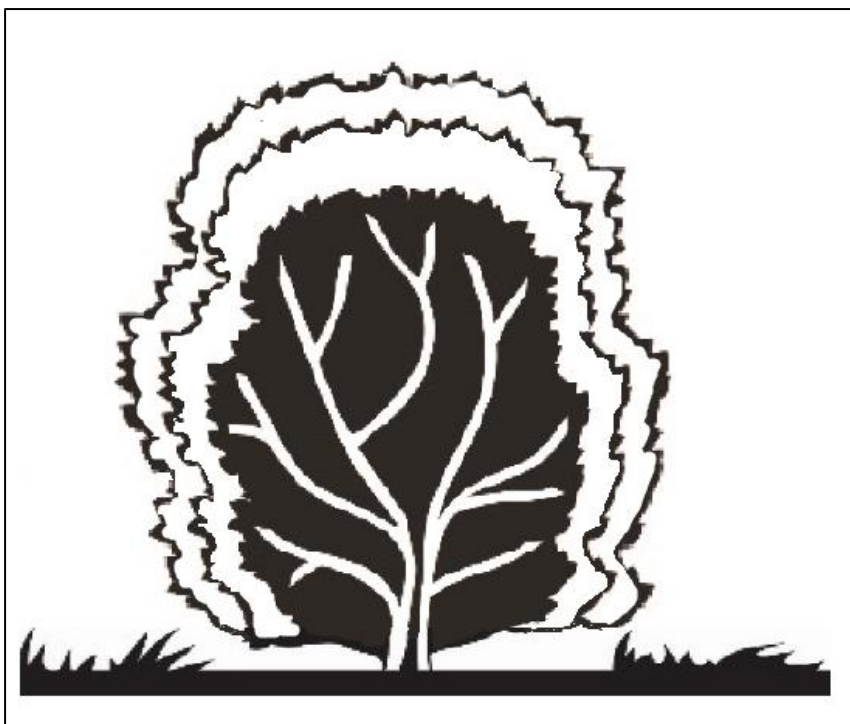


Figure 4.1 – Image taken from [Peoples trust for endangered species](#) to show the gradual growth of a hedgerow via incremental cutting.

Criterion B1: Gap – hedge base

This is the vertical 'gappiness' of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth.

Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).

Objectives: To ensure that the gap between ground and base of canopy <0.5 m for >90% of length

Management Prescriptions:

1. After the initial trim in the first spring (see **Section 3.0**), the hedgerow should be trimmed every 2 years, these trims should follow the incremental cutting methodology whereby the hedge is not cut back to the same width each year and is instead allowed to increase in width the base should be cut every 3 / 5 years.
2. If the hedgerow is mature and has been improperly managed the vertical gappiness of the hedgerow may need to be addressed through either coppicing or laying the Hegde (see **Section 3.0**).

Criterion B2: Gap – hedge canopy continuity:

This is the horizontal 'gappiness' of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small).

Access points and gates contribute to the overall 'gappiness' but are not subject to the >5 m criterion (as this is the typical size of a gate).

Objectives: To ensure that gaps make up <10% of total length and no canopy gaps >5 m

Management Prescriptions:

1. The hedgerow should be monitored, and dead specimens replaced this is a process known as 'Gapping up'. After the first 3 years of growth, care should be taken when planting new whips as shading may result in them failing.
2. Where re-planting is not considered suitable owing to the height/width or age of the hedgerow, the gappy section of hedgerow should be layed once mature enough (see **Section 3.0**).

Criterion C1: Undisturbed ground and perennial vegetation
<i>This is the level of disturbance (excluding wildlife disturbance) at the base of the hedgerow. Undisturbed ground is present for at least 90% of the hedgerow length, greater than 1 m in width and must be present along at least one side of the hedgerow.</i> <i>This criterion recognises the value of the hedgerow base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches.</i>
Objectives: To ensure that >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length, measured from outer edge of hedgerow and is present on one side of the hedgerow (at least).
Management Prescriptions: 1. At least 1m from the base of the hedgerow should be fenced off and allowed to re-generate via the seedbank, however if this is not considered suitable owing to the presence of invasives species or neophytes species the area should be cleared during the planting stage and re-seeded with an appropriate seed mix as per Grassland Creation Technical Appendix.
Criterion C2: Nutrient-enriched perennial vegetation
<i>The indicator species used are nettles <i>Urtica</i> spp., cleavers <i>Galium aparine</i> and docks <i>Rumex</i> spp. Their presence, either singly or together, does not exceed the 20% cover threshold.</i>
Objectives: To ensure that plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.
Management Prescriptions: 1. The hedgerow margins should be monitored for species indicative of nutrient enrichment, these should be removed where they are considered to exceed the 20% threshold. 2. Avoidance of the use of fertilisers or other chemicals on the hedgerow or surrounding habitats to reduce nutrient enrichment. 3. Nutrient enrichment should be further avoided through raking and removal of any cuttings resulting from ground flora management such as mowing.
Criterion D1: Invasive and neophyte species
<i>Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website, as well as the BSBI website where the 'Online Atlas of the British and Irish Flora' contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website.</i>
Objectives: To ensure that >90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA) and recently introduced species.
Management Prescriptions: 1. Creation of an Invasive Non-Native Species (INNS) eradication method statement by a suitably qualified invasive species contractor, to include identification and mapping of all INNS where applicable. 2. Regular monitoring of the hedgerow should take place to ensure it remains free of invasive species after eradication. 3. Removal of neophyte species such as Common field-speedwell (<i>Veronica persica</i>), Oxford ragwort (<i>Senecio squalidus</i>) and Hedgerow Crane's-bill (<i>Geranium pyrenaicum</i>). There are over 1,487 species of neophyte in the UK².

² BSBI Plant Atlas 2020 - <https://plantatlas2020.org/background>

Criterion D2: Current damage
<i>This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (e.g., excessive hedgerow cutting).</i>
Objectives: To ensure that >90% of the hedgerow or undisturbed ground is free of damage caused by human activities.
Management Prescriptions: 1. Temporary fencing of areas suffering damage to the ground layer from pedestrian access along 'desire paths' through hedgerows. 2. Temporary fencing while hedgerows and their margins are establishing. 3. Sympathetic hedgerow management to follow the above prescriptions.

4.4 Inspections:

- Inspect on a biannual basis when the majority of shrubs/trees are in full leaf (typically May) to ensure that all individuals are healthy, and in winter prior to the undertaking of management activities.
- Any defects requiring remedial action should be recorded during these inspections.
- Similarly, any condition assessment criteria which are not being met within the given time period should be recorded and fed back into continued management plans.

4.5 Maintenance Operations:

- Newly planted hedgerows take time to establish, and until this occurs, they are subject to competition from other plants. Any undesirable plants should be removed by hand from the base of each whip and 50mm deep mulch maintained.
- Shrub guards and tree ties should be inspected twice annually as part of the general maintenance visits and adjusted accordingly. Damaged guards or ties should be replaced; when the whips are established, and the trees (where present) can support themselves the ties and tree guards should be removed, and stakes cut down to ground level. This operation is likely to be required after 3 years dependent on establishment rates, stability and growing conditions. Guards and ties should be checked and re-adjusted after strong winds and removed in year 3 or as required.
- During the first spring after establishment the hedgerow should be cut down to 80cm in height (with the exception of holly, which should not be cut in the first year), with light incremental trimming every two years thereafter and every three years at the base of the hedge creating an 'A' shaped hedgerow.
- These works will be the sole responsibility of the contractors and at all times the hedgerow should be maintained in good health and in a safe condition.
- During establishment of the hedgerow thought to the margins should be given, 1m either side of the hedgerow should be cleared of species indicative of nutrient enrichment/negative indicator species or invasive species and the area should be seeded see the Grassland (Medium Distinctness) CMMP for guidance on re-seeding. This area should be protected by the erection of a wire and post fence.
- See **Table 4.2** below for appropriate timings.

Table 4.2 – Maintenance operations schedule for Hedgerows

Operation	Months												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Planting whips	✓	✓	✓							✓	✓	✓	Planting of suitable native species as per section 3.0 of this report.
Clearance of 1m margin											✓		Hedgerow margins to be established - cleared prior to planting and weeded for the first year ready for a suitable grassland seed mix to be established.
Margins re-seeded with suitable grass mix									a/r				To be completed 1 year after clearance following the creation process in section 3.0 of the Grassland (Medium Distinctiveness) HMMP
Gapping up									✓		✓		Failed individuals within the hedge should be replaced at this point.
First incremental trim	✓	✓											The hedgerow should be cut back to a height of 80cm (not holly) to encourage growth (not the base)
Following incremental trims	✓	✓											The hedge should be cut back, every two years following its first trim. However, not to the same point as previously to allow the hedge to grow in height and width as per section 3.0 of this report,
Cutting the base of the hedge	✓	✓											The base of the hedge should be cut in increments as above every 3 years from planting see section 3.0 of this report.
Watering													Water once a week during the growing season or as required, and as necessary in periods of drought only during the first 2 years until the trees have established.
Biannual Monitoring/Maintenance					2						2	2	Twice yearly the trees forming the hedgerow should be inspected; where unplanned mortality has occurred replacement planting will take place, where required to prevent encroachment and to shape the hedgerow will occur

Operation	Months												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
INNS Monitoring	Once every year for the 5-year period												Continued monitoring of the site for INNS by a suitable ecologist, to inform the requirement for further eradication measures.
Ground Flora Monitoring	Once every year for the 5-year period												Continued monitoring of the site for the hedgerow margins in relation to appropriate ground flora by a suitable ecologist, with a seed mix to be applied after the first five year period at the ecologist's discretion.
Year 1 Management of Wildflower Seeded Areas				a/r									Areas should be reseeded, watered and mown as required.
Year 2 Onward Cutting of Wildflower Seeded Areas, Rides and Glades								✓	✓				Annual cut in autumn.
Fencing Monitoring/Maintenance					2						2	2	To be undertaken during the visual inspection of trees; all fencing should be checked for damage and repairs made as required.
Hedgerow Laying	✓	✓									✓		Hedgerows to be laid, were suitable or required to sure up any gaps that cannot be filled by replanting owing to the age, width or height at the hedgerow. Laying should be undertaken once the hedgerow base stems are 5/10cm in diameter or the hedge is 10 years into its growth, this should be completed as per section 3.0 of this report.
Hedgerow coppicing	✓	✓									✓		Hedgerows that have become to 'leggy' or have been previously mismanaged should be coppiced, to sure up any gaps and allow the continuity of the hedgerow to be undertaken as laid out in section 3.0 of this report.

Table Key

One operation per year (annually) – ✓
Two operations per year (biannually) - 2
As required = a/r

5.0 Monitoring Scheme

- 5.1 Through the 5-year duration for which this management plan covers, records should be kept of all operations carried out in relation to any part of the management plan, including the biannual inspections undertaken by the local authority/appointed body. The actual management operations carried out can then be compared to the theoretical plan and any areas where there are discrepancies can be investigated further and changes can be made, either to the operation schedule or to the plan itself, to better reflect the nature of the habitat in question and to improve the efficacy of the scheme. Reviews should be undertaken annually for the first 5 years, in order to better develop the scheme and to adjust any parts of the plan which may not be achieving their objectives (see **Table 4.2**); refer to **Table 5.1** for monitoring schedule. If possible, the management should then be monitored by the in-house grounds team every 5-years, assessing the hedgerow against the stated criteria.
- 5.2 Annual monitoring reviews should only be undertaken by a suitably qualified person, typically an ecologist with an equivalent FISC 4 or greater botanical qualification. As a part of this, along with the INNS and ground flora monitoring, an updated condition assessment should be carried out using the appropriate BNG Metric condition assessment sheets, and changes in condition through increase or decrease in criteria scores relative to the baseline recorded.
- 5.3 In the final year of the plan, the actual progress should be reviewed against the predicted status of the hedgerow, in order to evaluate the effectiveness of the operations carried out up to that point. This information can then be used to inform a subsequent long-term management plan if it is deemed necessary by the local authority.
- 5.4 All of the species suggested within **Table 3.1** have been carefully selected, and all plant material should comply with the minimum requirements in BS 3936-1: 1992 Specification for trees and shrubs, BS 3936-4: 2007 Specification for forest trees and BS 8545: 2014 Trees from Nursery to Independence in the Landscape. Any plant material, which, in the opinion of the appointed Landscape Architect, does not meet the requirements of the Specification, or is unsuitable, or defective in any other way, will be rejected.

Table 5.1 – Monitoring schedule

Monitoring Year	Attending Ecologist (Signature)	Recommendations (Following Inspection)
2025		
2026		
2027		
2028		
2029		
2030		

