WHARTON
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Biodiversity Enhancement Management Plan

SITE LOCATION
Premier Foods Bakery, Carlton, South Yorkshire

ISSUE DATE
26 November 2024

OUR REFERENCE
241119 1532 BEMP V1A

PREPARED FOR
Premier Foods Plc.

PRINCIPAL AUTHOR
Katrina Wells

Quality Assurance

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Principal Author	Katrina Wells Senior Ecologist	Katrina Wells Senior Ecologist
Qualifications	BSc (Hons) MSc ACIEEM	BSc (Hons) MSc ACIEEM
Signature		
Reviewed and Authorised by	Laura Carter Head of Ecology	N/A – Minor amends only
Qualifications	*BSc (Hons)*	
Signature		
Project number	1532	1532

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Summary	
Site	Land at Premier Foods Bakery, Carlton, South Yorkshire National Grid reference SE 37227 09987
Purpose and brief	Biodiversity Enhancement Management Plan Commissioned by tor&co on behalf of Premier Foods Plc.
Development proposals	The Approved Development will comprise the construction of solar panels within a field to power the adjacent Premier Foods industrial bakery
Scope of the BEMP	This BEMP applies to the whole development as detailed above.
Habitat Creation Specification	Features that will be retained and enhanced are: • Neutral grassland (solar panel area) • Tussocky neutral grassland • Hedgerows • Scrub (mixed and bramble) New habitat features to be created are: • Mixed scrub • Individual trees • Neutral grassland • Bat and bird boxes
Management Measures	Management measures are provided for protected species, created habitats, and retained habitats to ensure establishment and longevity of habitats and conservation of protected species at the Site in line with the **Preliminary Ecological Appraisal** carried out for the Approved Development, as well as the **Biodiversity Net Gain** requirements for the Site.
Monitoring Requirements	The long-term management and monitoring at the Site are required for a minimum of 30 years. Management has been detailed up to Year 10 within this document, and management after this period will be reviewed depending on future monitoring outcomes with management altered accordingly. All habitats at the Site will be monitored against this BEMP for 10 years (annually for Years 1-3 after creation, Year 5 and Year 10) to ensure that management is being undertaken in accordance with this BEMP. A report on the findings of the monitoring will be made to the LPA by the 01^{t} November of each monitoring year. After 10 years the BEMP will be reviewed and amended, as necessary. Monitoring will be undertaken every 10 years unless potential issues or remedial measures require more frequent oversight. Any remedial measures required to achieve the aim of ensuring the landscaped areas have joint value for biodiversity, visual amenity and screening, including replacement planting and any which deviate from this management plan within the initial ten years will be provided to the Local Planning Authority (LPA) in writing.

1. Introduction/Background

1.1 The Principal Author

1.1.1 The Principal Author of this report is Katrina Wells BSc (Hons) MSc (Senior Ecologist). The Principal Author has over ten years of professional experience in ecological consultancy and has worked on projects ranging in scale including commercial, residential and local authority sites. The Principal Author currently holds Level 1 class survey licences from Natural England for both bats (Chiroptera spp.) and great crested newts (*Triturus cristatus*), has been assessed as a FISC Level 4 botanist by the Botanical Society of Britain and Ireland (BSBI), and is an Associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM); she is therefore subject to CIEEM's Code of Professional Conduct.

1.2 Purpose and Brief

1.2.1 Wharton Natural Infrastructure Consultants Ltd (Wharton) have been commissioned by tor&co on behalf of Premier Foods Plc. (the Applicant) to produce a Biodiversity Enhancement Management Plan (BEMP) in relation to a parcel of land known as land adjacent to Premier Foods Bakery, Carlton (see land within the red line boundary on Appendices 1 and 2), known herein as 'the Site'.

1.2.2 This document is provided pursuant to the discharge of Condition 3 of planning permission 2023/0845, which states:

'A Biodiversity Enhancement Management Plan (BEMP), completed by a suitably qualified ecologist shall be submitted to and agreed in writing by the Local Planning Authority prior to the commencement of works on site. The BEMP will include the following:

1. A recent landscape plan detailing the location of mitigation works and the size of each habitat area to be enhanced and/or created;

2. Management aims and prescriptions detailing the methods required to create and/or enhance each habitat at the required quality for a period of 30 years;

3. A timetable of delivery for each habitat created and/or enhanced;

4. A schedule of ecological monitoring for a minimum 30 year period, identifying when key indicators of habitat maturity should be achieved;

5. Details on the monitoring of habitats and the provision of a report, which shall be provided to the LPA on the 1st November of each year of monitoring (years one-three after creation, years five, and ten and every ten years thereafter), which will assess the condition of all habitats created and/or enhanced and any necessary management or replacement/remediation measures required to deliver the Net Gain values set out in the BEMP for each habitat;

6. A schedule of actions to be undertaken in case signs of failing are identified; the schedules must include details of technique(s) to be used, equipment to be used, roles and relevant expertise of personnel and organisations involved and timing of actions including submission of monitoring report to the Council.

7. The BEMP should also include other measures to enhance biodiversity on-site, including the provision of bat and bird boxes, giving details on types and locations of boxes proposed The development shall thereafter be completed in accordance with the agreed BEMP.

Reason: In the interests of securing adequate biodiversity net gain on the site in accordance with Local Plan Policy BIO Biodiversity and Geodiversity, the Biodiversity and Geodiversity SPD and the Carlton Masterplan Framework.

1.2.3 This document is intended to provide sufficient information to the Local Planning Authority to

discharge Condition 3.

1.3 Description of Site and Local Area

1.3.1 The Site is located to the east of Fish Dam Lane and south of Shaw Lane in Carlton. It is centred approximately at National Grid reference SE 37227 09987. A location plan of the Site has been provided in Appendix 1.

1.3.2 The Site under consideration comprises an area of grassland with areas of scrub and hedgerow on the borders.

1.4 The Approved Development

1.4.1 The Approved Development under planning permission 2023/0845 will comprise the installation of a solar farm up to 2MW of generating capacity, substation, and associated infrastructure, together with the erection of 2.4m high perimeter fencing and CCTV posts, within land adjacent to Premier Foods' bakery.

1.4.2 The proposals detailed above will be referred to throughout this report as the 'Approved Development'.

1.5 Scope of the BEMP

1.5.1 This BEMP applies to the whole scheme as detailed within the approved Amended Planting Plan no. 277101 -TOR-SK001 Rev A (tor&co, 2023) (hereafter 'Planting Plan').

1.5.2 This BEMP details management measures up to and including Year 10. Management beyond this period is likely subject to a wide range of factors including (but not limited to) climate change, change in Site conditions and use of the Site by occupants. As such, management of the Site will be reviewed after year 10 to take these factors into consideration, as well as to allow the potential for management with new management practices based on recent research to be developed within the next 10 years.

1.6 Roles and Responsibilities

1.6.1 The Applicant or their appointed third-party contractor will be responsible for the implementation of the methods detailed within this document. The appointed contractor is yet to be confirmed; however, they will be referred to in this document as 'the Appointed Contractor'.

1.6.2 Where the Site Manager who is responsible for ensuring the implementation of the BEMP is referred to within this report, this is _____. The contact details for the Site Manager are provided below:

Name:

Mobile:

Email:

1.6.3 Where an Ecological Clerk of Works (ECoW) is referred to within this report, the ECoW is the Principal Author. The contact details for the ECoW are provided below:

Katrina Wells

Mobile: 07496 256487

Email: katrina@wnic.co.uk

1.6.4 Where an Arboricultural Clerk of Works (ACoW) is referred to within this report, the ACoW is Peter Wharton. The contact details for the ACoW are provided below:

Peter Wharton

Mobile: 07888728295

Email: peter@wnic.co.uk

1.6.5 Should the Site Manager, ECoW or ACoW not be available to undertake the respective works, alternative named contacts must be provided by the Client and/or Wharton Natural Infrastructure Consultants Ltd.

2. Landscape and Ecological Features

2.1 Retained Landscape and Ecological Features

2.1.1 The BEMP is concerned only those ecological, arboricultural and landscape features that will be retained, enhanced or created as part of the Approved Development.

2.1.2 Ecological and landscape features that will be retained and enhanced within the Site, which require management, are:

- Neutral grassland
- Mixed scrub; and,
- Native hedgerows.

2.2 New Landscape and Ecological Features

2.2.1 New habitat creation forms part of the on-site ecological mitigation for the Approved Development. It is a requirement of this BEMP that details of the maintenance of all new planting within the Site is included.

2.2.2 New habitat features to be created as part of the Approved Development include the following:

- Mixed scrub
- Neutral grassland;
- Individual trees
- Bat boxes; and,
- Bird boxes.

3. Biodiversity Enhancement Management Measures

3.1.1 This BEMP has been produced based on a 10-year management period after which time the BEMP must be reviewed and amended as required.

3.2 Plans

3.2.1 The Planting Plan Titled 277101 -TOR-SK001 Rev A (tor&co, 2023) must be referenced in connection with the Biodiversity Enhancement Management Plan (BEMP) for the Site.

3.3 General Notes

3.3.1 All planting and operations must comply with the latest version of BS4428 'General Landscape Operations' and BS 3936 'Nursery Stock - Specification for Trees & Shrubs'.

3.3.2 All plants must be true to type, health and of the size specified on the Planting Plan. The BS 4043:1966 'Recommendations for transplanting semi-mature trees' (BSI, 1966) also outlines the minimum quality of stock, which will be accepted regarding trees.

3.3.3 Specification of species, position and density shall be in accordance with the drawing and planting schedule provided and must not be amended without prior approval of the Landscape Architect.

3.3.4 Prior to planting, the planting areas must be cleared of rubbish, concrete, metal, glass, decaying vegetation and contaminated topsoil. Substances injurious to plant growth including rubble, fuel and lubricants must also be removed.

3.3.5 Stock shall be materially undamaged, sturdy, healthy and vigorous, of good shape and without elongated shoots, and free from pests and diseases, discolouration, weeds and physiological disorders. Plants shall have been grown in a suitable environment and hardened off. The root systems shall be to the requirements of the National Plant Specification.

3.3.6 Where native species are used within the planting scheme, they must be of local provenance.

3.3.7 All plants must be planted within the next available planting season post-construction. All planting works shall be carried out between the first week in October and/or the first week of March unless ground conditions are otherwise suitable.

3.3.8 Planting must only be carried out if weather and ground conditions are suitable. No planting shall be carried out when the ground is frozen, covered in snow, or waterlogged.

3.3.9 Failed stock that has died or failed to grow satisfactorily for two full growing seasons following the planting date must be replaced during the next available planting season. This work shall include the disposal of all dead or failed stock and associated materials.

3.3.10 All planting works shall be undertaken in such a manner to ensure that all newly planted stock can establish, develop and thrive successfully. Works shall be carried out to the relevant British Standards including: British Standard 4428: 1989 - Code of Practice for general landscape operations (BSI, 1989), BS 5236: 1975 - Recommendations for the cultivation and planting of trees in the advanced nursery stock category (BSI, 1975) and BS 8545:2014 - Trees: from nursery to independence in the landscape- recommendations (BSI, 2014).

3.3.11 On completion of planting, all litter and debris associated with the planting shall be removed and the Site left in a clean and tidy fashion.

3.4 Existing Hedgerows

Management Aim

3.4.1 To achieve a species-rich and dense native hedgerow which provides a foraging resource for a range of fauna such as invertebrates, small mammals, and birds via the provision of nectar, pollen, and fruits. The hedgerows will also be utilised by a range of invertebrates as an egg-laying plant and food plant for larvae.

Management – Years 1-2

3.4.2 Within the first-year, gaps in existing hedgerows must be identified and planted using native species. These will include hawthorn (*Crataegus monogyna*), silver birch (*Betula pendula*) and wild cherry (*Prunus avium*).

3.4.3 All hedgerow cutting must be undertaken outside of the bird nesting season (March-September inclusive) by a suitably experienced contractor.

3.4.4 Any hedgerow plants that die or show signs of disease within the first five years must be removed and replaced immediately with an individual of the same species and size.

Management – Years 3-10

3.4.5 The hedgerows will require cutting once every three years in late Winter (late December to February). Research has shown that cutting every three years increases hawthorn and blackthorn flowers by around 2.5 times, more butterfly and moth larvae utilised the hedgerows, and more berries are subsequently produced (CEH, 2015). Cuts can be undertaken with a flail or electric hedge trimmers.

3.5 Habitat Enhancement – Scrub

Management Aims

- To improve diversity of tree and shrub species and to promote structural diversity within the Site.

Species Composition

3.5.1 The species to be planted within the existing scrub at the Site include:

- Hornbeam (*Carpinus betulus*)
- Hazel (*Corylus avellana*)
- Common hawthorn (*Crataegus monogyna*)
- Spindle (*Euonymus europaeus*)
- Holly (*Ilex aquifolium*)
- Wild privet (*Ligustrum vulgare*)
- Honeysuckle (*Lonicera periclymenum*)
- Wild cherry (*Prunus avium*)
- Blackthorn (*Prunus spinosa*)
- Dog rose (*Rosa canina*)
- Elder (*Sambucus nigra*)

- Wych (*Ulmus glabra*)

3.5.2 The individual tree species to be planted within the existing scrub on 'Site include:

- Silver birch (*Betula pendula*)
- Common hawthorn
- Wild cherry

3.5.3 The areas outlined as native shrub or tree planting will follow the general notes in Section 3.3 above, and management regimes as described below.

Management - Years 1

3.5.4 All trees and shrubs planted at the Site must be watered frequently, particularly during the summer or any other dry periods with little rainfall.

3.5.5 Stakes and ties must be adjusted to allow for growth.

Management - Years 2-5

3.5.6 Stakes and ties must be adjusted each year to allow for growth. They must be removed when the tree has sufficiently established to support itself, usually up to 5 years. All stakes, trees, and shrubs will be checked annually and shall be maintained in firm positions within the ground, with all ties securely fixed and adjusted to allow for an increase in stem girth.

3.5.7 Footpaths and routes must be clear from obstructions.

3.5.8 Trees must be inspected annually, or more frequently if there have been periods of high winds, by a suitably qualified Arboricultural consultant to assess the health and safety of all trees within the Site. Ideally, the inspections must alternate each year from a summer inspection to a winter inspection. During the summer inspections leaf coverage, vigour and signs of pests and/or disease can be assessed and during autumn/winter surveys the structural condition and signs of fungal colonisation are better assessed. All works specified by the survey must be undertaken to fulfil the landowner's duty of care.

3.5.9 In the first five years of establishment, any self-set plants within 2m of the new trees shrubs must be removed annually to maintain a two-meter diameter around the base of the shrub, free of competition with other species. Colonising plants will be highly competitive for resources with the planted shrubs, removing the self-set plants will improve the chances of successful establishment for the new shrubs. This shall be achieved by the use of hand tools, ensuring as little disturbance to the roots of the planted trees and shrubs as possible.

3.5.10 Any invasive species identified during monitoring must be immediately removed, and further treatment progressed if appropriate to prevent further spread of these species.

3.5.11 Soil around trees and shrubs must remain uncompacted. Any soil which becomes compacted must be loosened with a fork to allow air and nutrients to circulate, and to reduce pressure to root systems.

3.5.12 After strong winds, frost heave or other disturbances, plants must be re-firmed by treading around the base of trees and shrubs until firmly bedded. All stakes must be checked and replaced or repositioned as required.

3.5.13 Pruning must be undertaken of trees annually where appropriate; pruning must include: the removal of basal growth, epicormic stem growth and crossing branches, the removal of dead, diseased or damaged wood and/or the pruning back of long side branches as appropriate to the individual trees. This will be undertaken in order to promote the development of a well formed,

balanced specimen of the desired shape and habit.

3.5.14 The planting at the Site is likely to require minimal intervention to successfully establish. However, in the event of disease, damage, soil compaction, drought etc management interventions may be required.

Management Years 5-10

3.5.15 All stakes and ties must be removed, and the tree must have sufficiently established to support itself,

3.5.16 Footpaths and routes must be clear from obstructions.

3.5.17 Trees must be inspected annually, or more frequently if there have been periods of high winds, by a suitably qualified Arboricultural consultant to assess the health and safety of all trees within the Site. Ideally, the inspections must alternate each year from a summer inspection to a winter inspection. During the summer inspections leaf coverage, vigour and signs of pests and/or disease can be assessed and during autumn/winter surveys the structural condition and signs of fungal colonisation are better assessed. All works specified by the survey must be undertaken to fulfil the landowner's duty of care.

3.5.18 Once established, the shrubs will require cutting once every three years in late Winter (late December to February). Research has shown that cutting every three years increases hawthorn and blackthorn flowers by around 2.5 times and more berries are subsequently produced (CEH, 2015). Cuts can be undertaken with a flail or electric hedge trimmers.

3.5.19 Any invasive species identified during monitoring must be immediately removed, and further treatment progressed if appropriate to prevent further spread of these species.

3.5.20 Pruning must be undertaken of trees annually where appropriate; pruning must include: the removal of diseased or hazardous dead/damaged wood and/or the pruning back of long side branches as appropriate to the individual trees. This will be undertaken in order to promote the development of a well formed, balanced specimen of the desired shape and habit.

3.5.21 The planting at the Site is likely to require minimal intervention to successfully establish. However, in the event of disease, damage, soil compaction, drought etc management interventions may be required.

3.6 Habitat Enhancement – Neutral Grassland

Management Aims

- Improve species diversity within existing grassland which will fall within the area of solar panels.
- Increase structural diversity around Site edges.
- Provide transitional area between boundary scrub/hedgerows and more managed interior grassland.

Intended Species Composition

3.6.1 The new grass in areas to be covered by the solar panels will be sown with the shade tolerant Emorsgate EH1 Hedgerow Mix (Emorsgate Seeds, 2023) on 150mm depth sandy subsoil at a rate of 4g/m^2. The new grass in edge areas will be sown with Emorsgate EM10 Tussock Mix.

Management – Year 1

3.6.2 The following measure applies to both areas of grassland. To prepare a seed bed first scarify the existing grassland to provide bare patches for seeds and reduce competition from established

species.

3.6.3 Seeds must be sown in the autumn or spring for sufficient warmth and moisture. The seeds must be surface sown with an even distribution. Seeds must then be firmed with a roll, or by treading, to give good soil/seed contact.

3.6.4 Wildflower and grass species are slow to germinate and grow and therefore, do not usually flower in their first growing season. Consequently, there may be a flush of annual weeds from the soils existing seed base in the first growing season which may grow and obscure the meadow seedlings beneath.

3.6.5 When there is sufficient growth of either sown species or weeds to take a cut, mowing will be undertaken to a height of 40-60mm in the first year, with cuttings removed to preclude nutrient enrichment of the soil.

3.6.6 Following this initial cut, persistent weeds must be spot-treated with herbicide or removed fully by hand. If weed growth is significant the habitat may be mown until this is noticeably reduced.

3.6.7 Once seeded, the grassland must be monitored every three weeks for the growth of weed species, and these controlled as above, or spot treated.

Areas Beneath Panels

Management – Years 2-5

3.6.8 In the second year, the wildflower grassland at the Site will be cut in mid-August.

3.6.9 Arisings will be left to dry for a period of up to three days, and then removed from Site. This will allow any seeds within the cuttings to set prior to their removal from the Site. This mid-August cut will increase botanical diversity within the sward in the third year growing season.

3.6.10 From Year 3 onwards, the wildflower sward at the Site will be cut in rotation, with two-thirds being subject to an early August cut and one-third cut in late August/early September to allow late flowering species to set seed and ensure that one area is not subjected to the same management regime for more than two growing seasons. This management regime will encourage species diversity throughout the wildflower grassland and will allow any late flowering species to establish throughout the Site.

3.6.11 No cuttings shall be left for longer than three days at the Site to allow seeds to set. Cutting must be undertaken only in dry periods where the dehiscence of seed pods is more likely to occur. Wet conditions may, over time, result in increased nutrient loading from cuttings into the sward which may be preclusive to botanical diversity, and favour more fast-growing species which may out-compete slower growing wildflowers.

3.6.12 During this period, should monitoring indicate poor progress towards the management aims, soil testing should be undertaken to inform the design of remedial measures.

Management – Years 5-10

3.6.13 For each year going forward, the areas will be subject to a mid-late August cut. This later management regime will stabilise the species diversity throughout the wildflower grassland and will allow any late flowering species to establish throughout the Site.

3.6.14 No cuttings shall be left for longer than three days at the Site to allow seeds to set. Cutting must be undertaken only in dry periods where the dehiscence of seed pods is more likely to occur. Wet conditions may, over time, result in increased nutrient loading from cuttings into the sward which may be preclusive to botanical diversity, and favour more fast-growing species which may out-compete flower growing wildflowers.

Tussocky Grassland

Management – Years 2-10

3.6.15 Once established, tussocky grassland requires minimal maintenance.

3.6.16 Unwanted perennial weeds (docks, thistles) may need control by selective removal.

3.6.17 To control scrub and bramble development, tussocky areas will require cutting every 2-3 years between October and February.

3.6.18 To maintain foraging and shelter for wildlife, this must be done on a rotational basis so that no more than half the area is cut in any one year, leaving part as an undisturbed refuge.

3.6.19 No cuttings shall be left for longer than three days at the Site to allow seeds to set. Cutting must be undertaken only in dry periods where the dehiscence of seed pods is more likely to occur. Wet conditions may, over time, result in increased nutrient loading from cuttings into the sward which may be preclusive to botanical diversity, and favour more fast-growing species which may out-compete slower growing wildflowers.

3.7 Habitat Creation – Scrub and Individual Tree Planting

Management Aims

- To create areas of scrub planting ensuring they have joint value for biodiversity, visual amenity, and screening;
- To ensure the successful establishment of scrub and tree species within the first five years;
- To ensure the long-term survival of planted scrub and trees;
- To improve diversity of tree and shrub species and to promote structural diversity within the Site.

Species Composition

3.7.1 The species to be planted within the new scrub at the Site include:

- Hornbeam (*Carpinus betulus*)
- Hazel (*Corylus avellana*)
- Common hawthorn (*Crataegus monogyna*)
- Spindle (*Euonymus europaeus*)
- Holly (*Ilex aquifolium*)
- Wild privet (*Ligustrum vulgare*)
- Honeysuckle (*Lonicera periclymenum*)
- Wild cherry (*Prunus avium*)
- Blackthorn (*Prunus spinosa*)
- Dog rose (*Rosa canina*)
- Elder (*Sambucus nigra*)
- Wych (*Ulmus glabra*)

3.7.2 The individual tree species to be planted within the ‘Site include:

- Silver birch (*Betula pendula*)
- Common hawthorn
- Wild cherry

3.7.3 The areas outlined as native shrub or tree planting will follow the general notes in Section 3.3 above, and management regimes as described below.

Management - Years 1

3.7.4 All trees and shrubs planted at the Site must be watered frequently, particularly during the summer or any other dry periods with little rainfall.

3.7.5 Stakes and ties must be adjusted to allow for growth.

Management - Years 2-5

3.7.6 Stakes and ties must be adjusted each year to allow for growth. They must be removed when the tree has sufficiently established to support itself, usually up to 5 years. All stakes, trees, and shrubs will be checked annually and shall be maintained in firm positions within the ground, with all ties securely fixed and adjusted to allow for an increase in stem girth.

3.7.7 Footpaths and routes must be clear from obstructions.

3.7.8 Trees must be inspected annually, or more frequently if there have been periods of high winds, by a suitably qualified Arboricultural consultant to assess the health and safety of all trees within the Site. Ideally, the inspections must alternate each year from a summer inspection to a winter inspection. During the summer inspections leaf coverage, vigour and signs of pests and/or disease can be assessed and during autumn/winter surveys the structural condition and signs of fungal colonisation are better assessed. All works specified by the survey must be undertaken to fulfil the landowner's duty of care.

3.7.9 In the first five years of establishment, any self-set plants within 2m of the new trees shrubs must be removed annually to maintain a two-meter diameter around the base of the shrub, free of competition with other species. Colonising plants will be highly competitive for resources with the planted shrubs, removing the self-set plants will improve the chances of successful establishment for the new shrubs. This shall be achieved by the use of hand tools, ensuring as little disturbance to the roots of the planted trees and shrubs as possible.

3.7.10 Any invasive species identified during monitoring must be immediately removed, and further treatment progressed if appropriate to prevent further spread of these species.

3.7.11 Soil around trees and shrubs must remain uncompacted. Any soil which becomes compacted must be loosened with a fork to allow air and nutrients to circulate and to reduce pressure to root systems.

3.7.12 After strong winds, frost heave or other disturbances, plants must be re-firmed by treading around the base of trees and shrubs until firmly bedded. All stakes must be checked and replaced or repositioned as required.

3.7.13 Pruning must be undertaken of trees annually where appropriate; pruning must include: the removal of basal growth, epicormic stem growth and crossing branches, the removal of dead, diseased or damaged wood and/or the pruning back of long side branches as appropriate to the individual trees. This will be undertaken in order to promote the development of a well formed, balanced specimen of the desired shape and habit.

3.7.14 The planting at the Site is likely to require minimal intervention to successfully establish. However, in the event of disease, damage, soil compaction, drought etc management

interventions may be required.

Management Years 5-10

3.7.15 All stakes and ties must be removed, and the tree must have sufficiently established to support itself,

3.7.16 Footpaths and routes must be clear from obstructions.

3.7.17 Trees must be inspected annually, or more frequently if there have been periods of high winds, by a suitably qualified Arboricultural consultant to assess the health and safety of all trees within the Site. Ideally, the inspections must alternate each year from a summer inspection to a winter inspection. During the summer inspections leaf coverage, vigour and signs of pests and/or disease can be assessed and during autumn/winter surveys the structural condition and signs of fungal colonisation are better assessed. All works specified by the survey must be undertaken to fulfil the landowner's duty of care.

3.7.18 Once established, the shrubs will require cutting once every three years in late Winter (late December to February). Research has shown that cutting every three years increases hawthorn and blackthorn flowers by around 2.5 times and more berries are subsequently produced (CEH, 2015). Cuts can be undertaken with a flail or electric hedge trimmers.

3.7.19 Any invasive species identified during monitoring must be immediately removed, and further treatment progressed if appropriate to prevent further spread of these species.

3.7.20 Pruning must be undertaken of trees annually where appropriate; pruning must include: the removal of diseased or hazardous dead/damaged wood and/or the pruning back of long side branches as appropriate to the individual trees. This will be undertaken in order to promote the development of a well formed, balanced specimen of the desired shape and habit.

3.7.21 The planting at the Site is likely to require minimal intervention to successfully establish. However, in the event of disease, damage, soil compaction, drought etc management interventions may be required.

3.8 Habitat Creation – Neutral Grassland

Management Aims

- Create a grassland that once established, requires little or no maintenance.
- Provide good habitat for insects, small mammals, birds, amphibians and reptiles, providing nesting sites during spring, food during summer and autumn, and shelter during winter.
- Achieve a grassland with a least >20% cover of wildflowers within a standard 2m x 2m quadrat and species diversity of at least 8 wildflower and four grass species within the habitat.

Intended Species Composition

3.8.1 The new grass in areas to be covered by the solar panels will be sown with the shade tolerant Emorsgate EH1 Hedgerow Mix (Emorsgate Seeds, 2023) on 150mm depth sandy subsoil at a rate of 4g/m^2. The new grass in edge areas will be sown with Emorsgate EM10 Tussock Mix.

Management – Year 1

3.8.2 The following measure applies to both areas of grassland. 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. Alternatively, undertake a topsoil strip to prepare the ground for seed sowing.

3.8.3 Seeds must be sown in the autumn or spring for sufficient warmth and moisture. The seeds must be surface sown with an even distribution. Seeds must then be firmed with a roll, or by treading, to give good soil/seed contact.

3.8.4 Wildflower and grass species are slow to germinate and grow and therefore, do not usually flower in their first growing season. Consequently, there may be a flush of annual weeds from the soils existing seed base in the first growing season which may grow and obscure the meadow seedlings beneath.

3.8.5 When there is sufficient growth of either sown species or weeds to take a cut, mowing will be undertaken to a height of 40-60mm in the first year, with cuttings removed to preclude nutrient enrichment of the soil.

3.8.6 Following this initial cut, persistent weeds must be spot treated with herbicide or removed fully by hand. If weed growth is significant the habitat may be mown until this is noticeably reduced.

3.8.7 Once seeded, the grassland must be monitored every three weeks for the growth of weed species, and these controlled as above, or spot treated.

Areas Beneath Panels

Management – Years 2-5

3.8.8 In the second year, the wildflower grassland at the Site will be cut in mid-August.

3.8.9 Arisings will be left to dry for a period of up to three days, and then removed from Site. This will allow any seeds within the cuttings to set prior to their removal from the Site. This mid-August cut will increase botanical diversity within the sward in the third year growing season.

3.8.10 From year 3 onwards, the wildflower sward at the Site will be cut in rotation, with two-thirds being subject to an early August cut and one-third cut in late August/early September to allow late flowering species to set seed and ensure that one area is not subjected to the same management regime for more than two growing seasons. This management regime will encourage species diversity throughout the wildflower grassland and will allow any late flowering species to establish throughout the Site.

3.8.11 No cuttings shall be left for longer than three days at the Site to allow seeds to set. Cutting must be undertaken only in dry periods where the dehiscence of seed pods is more likely to occur. Wet conditions may, over time, result in increased nutrient loading from cuttings into the sward which may be preclusive to botanical diversity, and favour more fast-growing species which may out-compete slower growing wildflowers.

3.8.12 During this period, should monitoring indicate poor progress towards the management aims, soil testing should be undertaken to inform the design of remedial measures.

Management – Years 5-10

3.8.13 For each year going forward, the areas will be subject to a mid-late August cut. This later management regime will stabilise the species diversity throughout the wildflower grassland and will allow any late flowering species to establish throughout the Site.

3.8.14 No cuttings shall be left for longer than three days at the Site to allow seeds to set. Cutting must be undertaken only in dry periods where the dehiscence of seed pods is more likely to occur. Wet conditions may, over time, result in increased nutrient loading from cuttings into the sward which may be preclusive to botanical diversity, and favour more fast-growing species which may out-compete flower growing wildflowers.

Tussocky Grassland

Management – Years 2-10

3.8.15 Once established, tussocky grassland requires minimal maintenance.

3.8.16 Unwanted perennial weeds (docks, thistles) may need control by selective removal.

3.8.17 To control scrub and bramble development, tussocky areas will require cutting every 2-3 years between October and February.

3.8.18 To maintain foraging and shelter for wildlife, this must be done on a rotational basis so that no more than half the area is cut in any one year, leaving part as an undisturbed refuge.

3.8.19 No cuttings shall be left for longer than three days at the Site to allow seeds to set. Cutting must be undertaken only in dry periods where the dehiscence of seed pods is more likely to occur. Wet conditions may, over time, result in increased nutrient loading from cuttings into the sward which may be preclusive to botanical diversity, and favour more fast-growing species which may out-compete slower growing wildflowers.

3.9 Habitat Creation – Mitigation and Ecological Enhancement Measures

Management Aim

3.9.1 Provide nesting and roosting opportunities for birds and bats within the Development.

Locations

3.9.2 Recommended locations for all enhancement measures can be found in the Biodiversity Enhancement Strategy provided in Appendix 4.

Bird boxes

3.9.3 The Approved Development will provide further nesting opportunities for various bird species via a selection of nest boxes to be installed on trees throughout the Site. Recommendations for nest boxes (NHBS, 2024):

- 4x Vivara Pro Seville 28mm WoodStone Nest Box

3.9.4 All nest boxes should be installed as north- or northeast-facing, out of direct sunlight, at a minimum height of c.3m.

3.9.5 Any damaged/fallen boxes must be replaced within the first five years should damage/failure be identified during monitoring.

Bat boxes

3.9.6 The Approved Development will include the addition;

- 3 x Schwegler 2F Bat Box with double front panel (Wildcare, 2024) to be installed on existing trees on Site.

3.9.7 These should be installed on south or southwest-facing elevations at a minimum height of c.4m, away from artificial light sources.

3.9.8 The bat boxes are unlikely to require maintenance as the boxes recommended at the Site are self-cleaning as any droppings will naturally fall out of the bottom of the box.

3.9.9 Any damaged/fallen boxes must be replaced within the first five years should damage/failure be identified during monitoring. Bat boxes must not be inspected or removed by anyone who does not hold a suitable bat licence, unless specifically agreed by a suitably licensed ecologist.

4. Monitoring Requirements

4.1 Habitat Monitoring Requirements

4.1.1 All habitats at the Site will be monitored annually in Years 1-3 after creation, and then in Years 5 and 10, by an ecologist who is also a competent botanist (Field Identification Skills Certificate Level 3, minimum), to ensure that management is being undertaken in accordance with this management plan. A report on each year of monitoring will be provided to the LPA by November the 1st of that year.

4.1.2 The grassland and scrub habitats will be monitored between June and July through a National Vegetation Classification survey, and all grassland areas will be subject to standard 2m x 2m quadrat monitoring to determine any changes in plant communities and species diversity over time.

4.1.3 Hedgerow habitats will be subject to hedgerow surveys to monitor the change in height, width, ground flora composition and species diversity within hedgerows to ensure that management aims are being achieved.

4.1.4 Trees must be inspected annually, or more frequently if there have been periods of high winds, by a suitably qualified arboricultural consultant to assess the health and safety of all trees within the Site. Ideally, the inspections must alternate each year from a summer inspection to a winter inspection. During the summer inspections leaf coverage, vigour and signs of pests and/or disease can be assessed and during autumn/winter surveys the structural condition and signs of fungal colonisation are better assessed. All works specified by the survey must be undertaken to fulfil the landowner's duty of care.

4.2 Species Enhancement Monitoring

4.2.1 The bat and bird boxes at the Site will be subject to monitoring annually in Years 1-3 after creation, and then in Years 5 and 10, to check occupation and detail the species occupying them.

4.2.2 Bat boxes must be monitored by an ecologist with a minimum Class 1 survey licence from Natural England. The boxes specified do not require the handling of bats, and a Class 2 survey licence from Natural England is not considered to be necessary for this level of monitoring.

4.2.3 Bird box monitoring will be undertaken yearly outside of the nesting season to avoid abandonment of active nests. Bird boxes will be cleared of debris at the time of monitoring, and any nest material recorded (with an indication of species where possible).

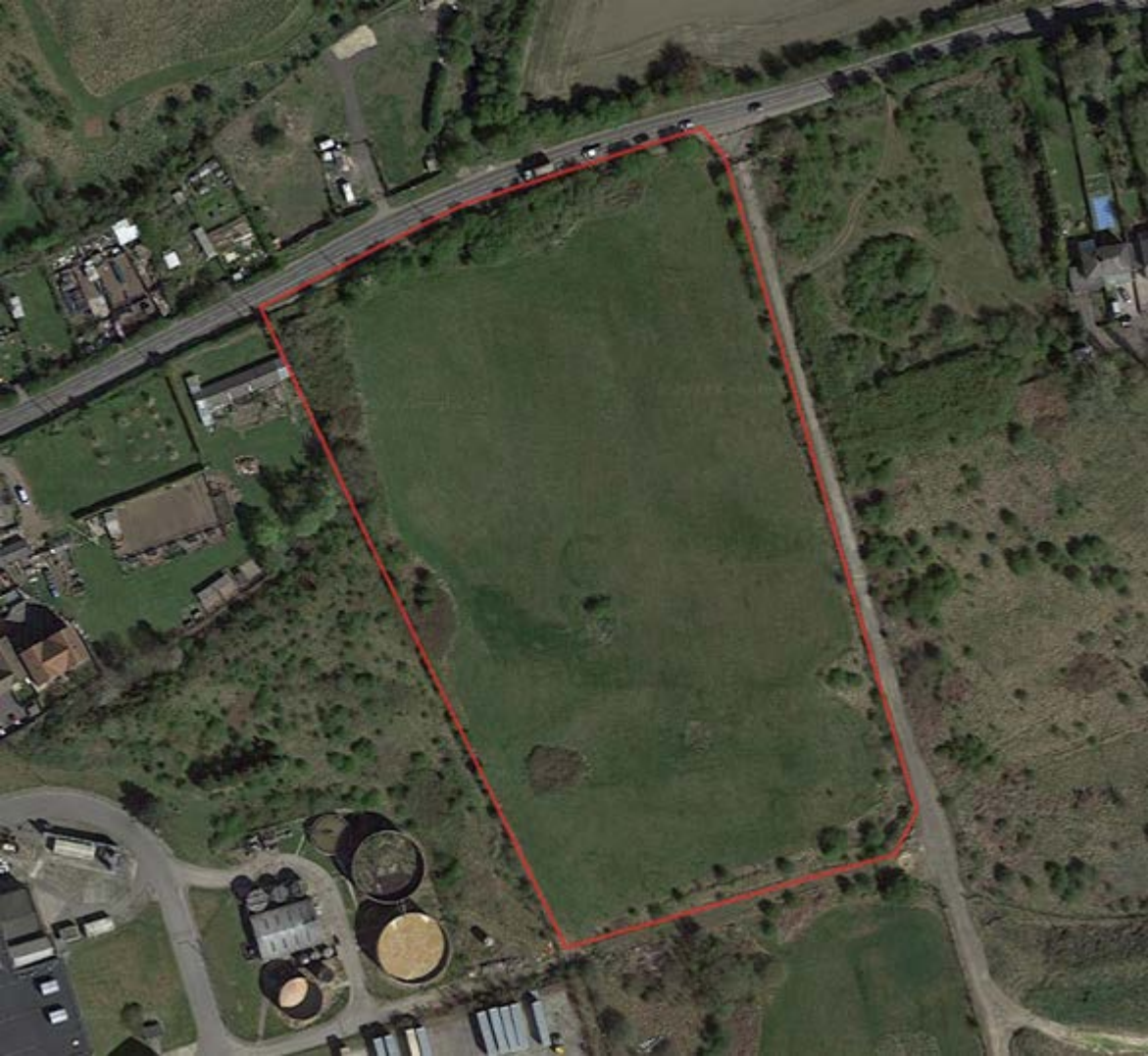
4.3 Outcome Reporting

4.3.1 Any remedial measures required to achieve the aims set out in this BEMP, including any which deviate from this management plan within the first ten years will be provided to the Site manager and maintenance team in a written report to be submitted within two weeks on completion of the monitoring visit. The monitoring report will also be sent to the Local Planning Authority by the 1st of November on the year of monitoring.

References

CEH. (2015, June). Increasing the value of hedges for wildlife with relaxed cutting regimes. Centre for Ecology & Hydrology: Natural Environment Research Council.
Emorsgate Seeds. (2023). Retrieved from https://wildseed.co.uk
NHBS. (2024). *NHBS Equipment Shop*. Retrieved from https://www.nhbs.com/equipment
tor&co. (2023). Amended Planting Plan.
Wildcare. (2024). https://www.wildcare.co.uk.

Appendix 1 – Location Plan



Appendix 2 – The Approved Amended Planting Plan (tor&co, 2023)

WILDFLOWER AND GRASSLAND MIXES	
TYPE	**SEED MIX**
Wildflower grassland	Emorsgate Seeds - EH1 Hedgerow Mixture or equally approved
Tussocky grassland	Emorsgate Seeds - EM10 Tussock Mixture or equally approved

SCRUB PLANTING INCLUDING INFILL AREAS

% MIX	SPECIES	COMMON NAME	SIZE	POT SIZE	NOTES
	SCRUB PLANTING AREAS planted on a staggered 1.5m grid				
7.5%	CARPINUS betulus	Hornbeam	40-60cm	Bare root	1u1 seedling undercut
15%	CORYLUS avellana	Hazel	40-60cm	Bare root	1+1 or 1/1 transplant, 2 breaks
27.5%	CRATAEGUS monogyna	Hawthorn	40-60cm	Bare root	1+1 or 1/1 transplant
5%	EUONYMUS europaeus	Spindle	40-60cm	Bareroot	1+1 or 1/1 transplant, min 3 breaks/branches
5%	ILEX aquifolium	Holly	40-60cm	3L container	leaders and laterals even canopy
5%	LIGUSTRUM ovalifolium	Privet	40-60cm	2L container	Branched, 5 breaks
2.5%	LONICERA periclymenum	Honeysuckle	40-60cm	3L container	1+1, min 2 breaks
7.5%	PRUNUS avium	Wild cherry	40-60cm	Bareroot	1+1 or 1/1 transplant
15%	PRUNUS spinosa	Blackthorn	40-60cm	Bare root	1+1 or 1/1 Branched, 2 breaks
2.5%	ROSA canina	Dog Rose	40-60cm	Bare root	1+0 Branched
5%	SAMBUCUS nigra	Elder	40-60cm	Bare root	1+0 or 1/0 transplant 2 breaks
2.5%	ULMUS glabra	Wych elm	40-60cm	Bare root	1+1 or 1/1 transplant

SPECIES	COMMON NAME	SIZE	POT SIZE	NOTES
TREES - planted in locations as shown in plan				
BETULA pendula	Silver birch	10-12cm	Bare root	2x transplanted, 3-3.5m high, min 1.75-2m clear stem, min 4 breaks/branches
CRATAEGUS monogyna	Hawthorn	10-12cm	Bare root	2x transplanted, 3-3.5m high, min 1.75-2m clear stem, min 4 breaks/branches
PRUNUS avium	Wild cherry	10-12cm	Bare root	2x transplanted, 3-3.5m high, min 1.75-2m clear stem, min 4 breaks/branches

Premier Foods Bakery, Fish Dam Lane, Carlton

Premier Foods plc

Figure 14 - Planting Plan

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Appendix 3 – BEMP Schedule

Table 1. Management Schedule Y1

Habitat / Management	Jan			Feb			Mar			Apr			May			Jun			Jul			Aug			Sept			Oct			Nov			Dec		
Early (E)/Mid (M) /Late (L)	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L
Existing Hedgerow Management																																				
Infill planting	X	X	X	X	X	X																														
Pruning	X	X	X	X	X	X	X	X	X																						X	X	X	X	X	X
Native Shrub Planting																																				
Native shrub planting	X	X	X	X	X	X	X																									X	X	X	X	X
Pruning	X	X	X	X	X	X																												X	X	X
Mulching																																				
Native Hedgerow																																				
Planting	X	X	X	X	X	X	X	X	X																						X	X	X	X	X	X
Mulching										X			X				X					X					X			X						
Pruning - Side branched	X	X	X	X	X	X	X																								X	X	X	X	X	X
Tree Planting																																				
Tree Planting	X	X	X	X	X	X																								X	X	X	X	X	X	X
Remove self-set plants within 2m of trees and shrubs							X				X			X			X			X			X			X			X							
Pruning	X	X	X	X	X	X																						X	X	X	X	X	X	X	X	X
Mulching							X				X			X			X			X			X			X			X							
Watering regime								X		X		X		X		X		X		X		X		X		X		X		X		X				
Grassland																																				
Seed bed preparation										X	X	X	X	X	X	X	X	X	X	X																	
Sowing																					X	X	X	X	X												
Spot treat and/or dig out residual weeds																						X	X	X	X		X	X	X		X	X				
Initial mow to a height of 40-60cm once sufficient growth is present																X	X	X																		
Spot treat establishing weeds							X		X	X		X		X		X		X		X		X		X		X		X			X					
Mowing regime												X			X																						
Late summer cut once yellow rattle has flowered																							X	X	X											

Table 2. Management Schedule Y2-5

Habitat / Management	Jan			Feb			Mar			Apr			May			Jun			Jul			Aug			Sept			Oct			Nov			Dec		
Early (E)/Mid (M) /Late (L)	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L
Existing Hedgerow																																				
Infill planting	X	X	X	X	X	X																														
Remove and replace diseased specimens	X	X	X	X	X	X																									X	X	X	X	X	X
Mowing the hedgerow base																											X									
Pruning	X	X	X	X	X	X																									X	X	X	X	X	X
Native Shrub Planting																																				
Native shrub planting	X	X	X	X	X	X	X																									X	X	X	X	X
Pruning	X	X	X	X	X	X																												X	X	X
Mulching	X	X	X	X	X	X																														
Native Hedgerow																																				
Infill Planting	X	X	X	X	X	X																									X	X	X	X	X	X
Cut back - Year 2	X	X	X	X	X	X																														
Once every 3 Year cutting	X	X	X	X																																X
Mulching	X	X	X	X	X	X																									X	X	X	X	X	X
Basal mowing																											X									
Pruning - Side branched	X	X	X	X	X	X																									X	X	X	X	X	X
Tree Planting																																				
Adjust stakes and ties																													X		X	X	X	X	X	X
Remove self-set trees within 2m of trees and shrubs																												X	X	X	X	X	X	X	X	
Remove self-set plants within 2m of trees and shrubs							X				X			X			X			X			X			X			X							
Crown lifting																												X	X	X	X	X	X	X	X	X
Health and structure assessment	X	X	X	X	X	X																							X	X	X	X	X	X	X	X
Removal of invasives and unwanted growth and establishment	X	X	X	X	X	X																							X	X	X	X	X	X	X	X
Pruning	X	X	X	X	X	X																								X	X	X	X	X	X	X
Watering regime and uncompacted soil								X		X		X		X		X		X		X		X		X		X		X		X		X				
Grassland Beneath Panels																																				
Spot treat establishing weeds							X			X		X		X		X		X		X		X		X		X		X			X					
Mowing regime - Year 2																							X													
2/3 of Site mowing regime - Year 3-5 (rotated yearly)																						X														
1/3 of Site mowing regime - Year 3-5 (rotated yearly)																							X	X												
Tussocky Grassland																																				
Spot treat establishing weeds							X			X		X		X		X		X		X		X		X		X		X			X					
Mowing regime – Year 3																						X														

Table 3. Management Schedule Y5-10

Habitat / Management	Jan			Feb			Mar			Apr			May			Jun			Jul			Aug			Sept			Oct			Nov			Dec		
Early (E)/Mid (M) /Late (L)	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L
Existing Hedgerow																																				
Pruning - Once every 3 years	X	X	X	X	X																															X
Native Shrub Planting																																				
Pruning - Once every 3 years	X	X	X	X	X																															X
Native Hedgerow																																				
Pruning - Once every 3 years	X	X	X	X																																X
Tree Planting																																				
Remove stakes and ties																														X	X	X	X	X	X	X
Crown lifting																												X	X	X	X	X	X	X	X	X
Health and structure assessment	X	X	X	X	X	X																							X	X	X	X	X	X	X	X
Removal of invasives and unwanted growth and establishment	X	X	X	X	X	X																							X	X	X	X	X	X	X	X
Pruning	X	X	X	X	X	X																								X	X	X	X	X	X	X
Watering regime and uncompacted soil								X		X		X		X		X		X		X		X		X		X		X		X		X				
Grassland Beneath Panels																																				
Mowing regime																							X	X												
Tussocky Grassland																																				
Spot treat establishing weeds							X			X		X		X		X		X		X		X		X		X		X			X					
Mowing regime – Year 3																						X														

Appendix 4 – Biodiversity Enhancement Plan

WILDFLOWER AND GRASSLAND MIXES	
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2.5%	LONICERA periclymenum	Honeysuckle	40-60cm	3L container	1+1, min 2 breaks
7.5%	PRUNUS avium	Wild cherry	40-60cm	Bareroot	1+1 or 1/1 transplant
15%	PRUNUS spinosa	Blackthorn	40-60cm	Bare root	1+1 or 1/1 Branched, 2 breaks
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PRUNUS avium	Wild cherry	10-12cm	Bare root	2x transplanted, 3-3.5m high, min 1.75-2m clear stem, min 4 breaks/branches

Premier Foods Bakery, Fish Dam Lane, Carlton

Premier Foods plc

Figure 14 - Planting Plan

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