LANDSCAPE ARCHITECTURE

5 Year Habitat & Landscape Management Plan

LAND NORTH-EAST OF JUNCTION 11, M40 BANBURY

Prepared on behalf of Monte Blackburn

by DEP Landscape Architecture and Rachel Hacking Ecology

Revised November 2021

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APPENDIX A

The appointed landscape contractors risk assessment should be kept in Appendix A in line with section 2.1 for reference by any contractors working on the site.

This report should be read in conjunction with the following drawings and documents;

3568.11, 12 & 13 - Banbury - General Arrangement Plans by DEP
3568.14, 15 & 16 - Banbury - Planting Plans (1 of 3)
3568.MP – Banbury - Landscape Layout
3568.17 – Banbury – Habitat Enhancement Plan
3568.18 – Phase 3 Planting Plan
3568.19 – Tree Pit Details
Tree Survey by PJC Consultancy
Tree Survey by DEP Landscape Architecture Ltd
Ecology Surveys and Biodiversity Assessment by Rachel Hacking Ecology

1.0 Introduction and General Description

This report has been compiled on behalf of Monte Blackburn to provide information for the habitat and landscape maintenance and management requirements for the proposed development Northeast of Junction 11 of the M40 a Banbury.

This plan has been prepared to discharge landscape planning conditions and ensure that the landscape is maintained in a manner which protects and enhances existing wildlife habitats and promotes the biodiversity value of the site. The landscape will also play an important role in promoting recreational activities and will contribute to the visual amenity of the local area and successfulness of the development.

This plan has been prepared by Tim Rogers at DEP Landscape Architecture by Tim Rogers, a qualified and chartered Landscape Architect. Input relating to ecology and wildlife habitats has been provided by Rachel Hacking of Rachel Hacking Ecology.

The development comprises a combination of B2 and B8 industrial uses, with surrounding areas of landscaped open space, interconnected by footpaths.

The soft landscaped areas comprise amenity grass, species rich, wildflower meadow and wetland grassland and areas of native tree, hedge and shrub planting. These have been planted to create a pleasant working environment and contribute to the visual amenity and habitat diversity around the site. Such areas also provide foraging habitat for a variety of wildlife.

Existing trees, scrub areas and hedges are being retained around the site boundaries which form wildlife corridors. These features will be protected and enhanced (through additional planting and the infilling of hedgerow gaps) during the construction phase of the development in line with the Planting Plans and the Biodiversity Assessment recommendations.

The attenuation basins and interconnecting swales have been created to support the sustainable drainage system as part of the wider development and will provide temporary water storage during periods of heavy rainfall and additional habitat for amphibians and invertebrates such as dragonflies.

Retention of trees, hedgerows and scrub around the perimeter of the site has retained the site's potential to provide habitat for wildlife. This potential has been further enhanced through the provision of native species flowering and fruiting/berrying plants.

NOTE: On completion of the development construction, a Management Company will be set up to maintain the estate, including all landscaping works.

2.0 Proposals and Objectives

The overall objective of this report is to promote a successful landscape to enhance the environment around the development for the benefit of wildlife, species diversity, local landscape character and visual amenity. This management plan will aim to ensure that the landscaping is implemented, established and maintained as the design intended and will provide 5-year maintenance objectives for all landscaped elements within the scheme as a whole.

The Management Company will be responsible for appointing and managing landscape maintenance contractors to maintain the landscape. It will also be responsible for carrying out a review of the landscape management plan after a 5-year period, to ascertain any changes on site and to provide updated maintenance regimes as the landscape matures.

After this time, it would be appropriate to review this plan every 3-5 years to ensure that the management objectives and maintenance regimes responds to any changes on site and within the environment. This would also be the responsibility of the Management Company.

The main objectives for the maintenance of the landscape include the following:

- Maintain existing trees, hedges and vegetation around the site to preserve the character of the landscape and local wildlife habitats.

- Establish new trees, shrubs and vegetation around the site to reinforce the existing landscape structure, define site boundaries and establish wildlife corridors and foraging habitat.

- Establish additional native trees and shrubs to promote species and structural diversity, improve visual amenity and contribute to the landscape character to help integrate the site into the local landscape.

- Establish species rich grassland, wet grassland and wildflowers for the benefit of the local wildlife and habitat and species diversity.

- Provide a pleasant and safe environment in which to work and to encourage informal recreation and provide a valuable wildlife resource for the site.

- Provide and maintain a diverse habitat for wildlife.

2.1 Health and Safety

The following potential hazards have been identified during maintenance operations;

- Contractors working on the site should make themselves aware of the location of any underground or over ground services and cables.

- Working in areas close to industrial/storage activities and the general public; consideration must be given to vehicular and pedestrian users.

- The use of chemicals known to be hazardous to humans and animals; the contractor must also be aware of the limitations using of certain chemicals in areas close to a water course.

- Lifting heavy objects and working with heavy machinery.

- The possibility that hazardous material may be deposited in or inadvertently left in areas requiring clearing i.e. needles, dog faeces and fly tipping.

- Works to existing trees, including the use of chainsaws/machinery, climbing heights, falling branches.

- Working close to water courses and the risk of drowning.

Methods for reducing the potential site risks are well established and are common practice for competent contractors. The contractor is expected to identify all hazards associated with any maintenance operations proposed, together with an assessment of the risks involved and methods for reducing the risks.

A copy of the Risk Assessment should be recorded and retained at the back of this report for reference by all contractors working on site. This assessment should be reviewed annually to respond to any changes on site.

2.2 Site Operations and Responsibilities

All operations described within this document relate to the landscaped areas within the site curtilage.

All areas within adopted highway will be the responsibility of Cherwell District Council/ Oxfordshire County Council.

Suitably qualified Landscape Maintenance Contractors shall be employed to carry out all operations as listed in this report and obtaining advice from a suitably qualified ecologist in matters relating to ecology/wildlife/habitats.

All operations on site are to be carried out by qualified operatives with appropriate safety clothing. The appointed Landscape Maintenance Contractor and any sub-contractors are to adhere to the latest guidance on safe working practice, including information from the recognised industry body, the Local Authority and the government Health and Safety Executive.

The maintenance contractor is to carry out all operations with regards the safety and welfare of the general public, private and public property, domestic and native flora and fauna and statutory services including the Environment Agency.

2.3 Implementation of the Management Plan

This plan sets out a framework for the management of the landscaped/habitat areas. It includes detailed prescriptions of all maintenance requirements over the next 5 years with annual work schedules which quantify the frequencies and timings of these works. It also provides important

information on the protection of wildlife and provides a structure in place for the proactive monitoring, management and preservation of the landscape and wildlife habitats.

After 5 years the plan should be reviewed by the Management Company, a Landscape Architect and Ecologist and the maintenance requirements and work schedules should be updated to respond to any changes on site. Following this the plan should be further reviewed every 3-5 years to ensure the long-term success of the landscape.

In addition, at the end of the year, the Management Company would produce an annual Landscape Strategy following a review of the weekly, monthly and annual inspections and with consultation with a Landscape Architect and Ecologist. This would ensure that the site is actively maintained and retained as a safe and pleasant environment in which to work. These works would be paid for through the accumulation of fees left over from the general maintenance works and would be subject to the availability of these funds on an annual basis.

As an example works may include; Provision of new benches if they become damaged or old, new planting if shrub beds become old and tired, creation of new paths where desire lines have been created or installing new fences and gates, creation of more habitat areas for local wildlife.

The habitats onsite will continue to be managed in order to maximise wildlife interest for the duration of the management plan, for example through the maintenance of the grassland mowing regimes to encourage species diversity and through careful timing of pruning and scrub management works to avoid nesting bird season.

2.4 Disposal of materials from site

All, rubbish, leaves, grass and general arisings removed from the site are to be deposited of in a local licensed tip in the relevant waste section unless otherwise directed in this document.

In some cases, arisings and materials from tree maintenance works can be used to create habitat for wildlife for example creating log piles within the wildlife corridor.

3.0 Landscape Maintenance Soft Works

3.1 Existing Trees, Scrub and Hedgerows

This applies to the existing trees, scrub and hedgerows which are located around the development site and have been retained in order to preserve the habitat opportunities they provide for local wildlife. These trees were originally surveyed by PJC Consultancy Ltd in September 2016 and highlighted as important habitat in the ecological appraisal. This report presumes that all works have been carried out in accordance with the tree work and ecological recommendations.

Objectives
Promote the longevity of the existing trees, scrub corridors and hedgerows so that they continue to provide wildlife habitats and commuting routes around the site and ensure that they are maintained in a safe condition.

Inspections
The existing trees, scrub corridors and hedgerows should be inspected annually by a suitably qualified arboriculturalist to ensure that they do not pose a health and safety risk. Further inspections may also be required following severe winds and storms or following a report by the public.

Maintenance Operations
Routine pruning should only be carried out on trees/scrub areas which are close to publicly accessible areas (i.e. could fall or drop branches on surrounding paths, roads or properties) or impede the maintenance of fencing, buildings or street lighting. These should include;

The removal of dead, diseased, damaged or dying branches only where they pose a risk to the safety of the users of the site. Dead wood is an important habitat for wildlife within a healthy ecosystem and should not be removed unnecessarily.

Remove young natural colonisation, poorly formed or young low value trees where they are impeding the growth of the more desirable individual trees.

Where trees are overhanging the edge of the stream keep lower branches crown lifted if causing excessive shading or obstructing the flow of the water.

Any pruning or surgery to existing trees/scrub must maintain the natural shape of the tree, and if trees are to be felled this operation should be done in a safe manner by suitably qualified arboriculturalist. They must consider all safety implications and works should be in accordance with BS 3998 2010 and current wildlife legislation for the protection of bats and nesting birds. A suitably qualified ecologist should be contacted if necessary.

Report and or treat any incidence of pests and diseases.

The existing hedgerows should be maintained 1500mm high and busy growth encouraged without any gaps. Hedges to be cut on a rotational basis once every 2-3 years for the benefit of the local wildlife and cut in early spring before 1st March to avoid the bird nest season.

Once a month carry out a litter pick or remove any fly tipping which has collected around the base of the existing vegetation. Leaf litter underneath trees and hedgerows should be retained as this will provide valuable habitat for wildlife.

Please note that the maintenance of existing trees, shrubs and hedgerows within the 20m Badger Protection Area (BPA) should be kept to a minimum. This area should be allowed to become overgrown to deter the public.

3.2 Proposed Trees

Additional trees will be planted as Semi-mature feature specimen trees and Extra Heavy Standard and Standard native trees around the site.

Objectives
Promote the establishment of healthy specimen trees which will be allowed to grow to maturity and provide valuable wildlife habitat and increase species and structural diversity around the site.

Inspections
Inspect the trees annually when they are in full leaf to ensure that the trees are thriving and record defects requiring remedial works.

Maintenance Operations
Newly planted trees take some time to establish, and until this occurs, they are subject to competition from weeds. To reduce competition, around the trunk of each tree an area should be maintained weed free by using a non-residual based herbicide during the first 3 years to create a clear 50cm diameter circle around the base of each tree.

If the trees show signs of poor growth or reduced vigour an application of an appropriate fertiliser can be carried out. If the trees do not respond to a treatment of fertiliser, further investigations should be carried out. If appropriate remediate any problems. Should the remediation works not resolve the problem a replacement tree may need to be planted.

During establishment semi-mature trees will require watering particularly during the summer months. During the first summer all trees should be watered once a month, allow for the equivalent of 100 litres for Selected Standard trees and 200 litres for semi-mature trees.

Tree ties should be inspected and adjusted accordingly. Damaged ties or stakes should be replaced. When the trees are established and can support themselves the ties should be carefully removed, and the stakes cut down to ground level. This operation is likely to be required after 2 to 5 years dependant on establishment rates, stability and growing conditions.

Pruning of young trees should not generally be required unless they have dead or diseases branches. In such cases the tree branch should be pruned back (using a sharp clean knife) to an outward facing bud whilst maintaining the natural shape of the tree.

3.3 Proposed Native Hedge

Additional native hedges have been planted around the site as 1+1 BR transplants at 6 per lin.m.

Objectives
Manage the hedgerows to ensure the establishment of dense well-structured vegetation to provide robust boundaries around the site and valuable wildlife habitats.

Inspections
Inspect the hedges annually and record gaps which need filling with additional plants or trimming to encourage growth to fill gaps. Record if there are any areas of significant failure which may require remedial works.

Maintenance Operations
During the establishment period do not trim the top of the hedge until it has achieved the desired height. The hedges should be maintained 2000mm high where they sit against site boundaries and 1200mm high for all other areas. Hedges should only be cut every 2-3 years for the benefit of wildlife and in early spring before 1st March to avoid nesting birds.

During the establishment period lightly trim sides of the hedge to promote dense, bushy growth.

Check plants and heel in if they become uprooted.

Annually check shrub guards and adjust where necessary to allow the plants to grow without restriction, the guards should be removed once the hedges have established in 3-5 years.

Newly planted hedges will take some time to establish, and until this occurs they are subject to competition from weeds. To reduce competition, around the base of the hedge an area should be maintained weed free by using a non-residual based herbicide during the first 3 years. Once the hedge has established vegetation around the base of the hedge should be allowed to establish naturally as this will provide valuable habitat for local wildlife, particularly invertebrates.

During establishment the hedge may require regular watering particularly during prolonged dry periods during the summer months. The hedge should be watered if there has been a period of dry weather for 2 weeks or more between June to September in the first growing season.

Remove litter that has collected at the base of the hedges as part of the general maintenance operations in the wider landscape.

3.4 Proposed Native Shrubs

Additional native shrubs have been planted around the site as 1+1 BR transplants at 1m centres.

Objectives
Promote the establishment of healthy shrubs to provide valuable wildlife habitats, increase species and structural diversity and provide interest around the site.

Inspections
Inspect the shrubs annually when they are in fully leaf to ensure that they are thriving and record defects requiring remedial works.

Maintenance Operations

Newly planted shrubs will take some time to establish, and until this occurs, they are subject to competition from weeds. To reduce competition around the base of each plant maintain a 30cm diameter clear area using a non-residual based herbicide during the first 3 years.

After 3-5 years or after the canopy cover has established this should not be necessary and the ground flora underneath should be allowed to establish naturally as this will provide valuable habitat for local wildlife.

If they show signs of poor growth or reduced vigour an application of the appropriate fertiliser should be carried out. Any failed shrubs should be replaced to the original specification.

During establishment shrubs may require regular watering particularly during prolonged dry periods during the summer months. These areas should be watered if there has been a period of dry weather for 2 weeks or more between June to September in the first growing season.

Annually check shrub guards and adjust where necessary to allow the plants to grow without restriction, the guards should be removed once the shrubs have established in 3-5 years.

Pruning of young shrubs should not generally be required unless they have dead or diseases branches. In such cases the branch should be pruned back (using a sharp clean knife) to an outward facing bud whilst maintaining the natural shape. Pruning should be undertaken outside of the breeding bird season (March - August).

As part of the annual maintenance operations remove dead, diseased, supressed or poorly formed shrubs to avoid overcrowding and allow the better-quality shrubs to develop an even and open form. After 5 years and as part of the management regime in the longer term consider localised coppicing or thinning to aim for finished centres of between 2-3m to prevent overcrowding and to allow individual specimens to reach their full potential. These works should be advised by an arboriculturalist and works carried out in early spring before 1st March to avoid nesting birds.

Remove litter that has collected in the shrubs as part of the general maintenance operations in the wider landscape.

3.5 Proposed Ornamental Hedge

Objectives

Ornamental hedges around the development are intended to define public and private spaces. They should look neat and tidy and have dense, healthy vegetative growth.

Inspections

Inspect the hedges annually and record gaps which need filling with additional plants or trimming to encourage growth to fill gaps.

Maintenance Operations

Remove any litter which has collected at the base of the hedge.

Maintain the area underneath the hedge weed free, lightly dig over the surface using a hoe, look to uproot and remove all weeds. For the more prolific or deep-rooted weeds spot treat with a glyphosate-based weed killer and remove.

Do not trim the top of the hedge until they have achieved the desired height of 1200-1500 high. Lightly trim the sides of the hedges annually in June or cut back any individual leggy branches using secateurs to promote dense bushy growth. Allow the plants to grow into each other to create a dense continuous hedge.

Ensure that the bark mulch is maintained at a minimum depth of 75mm and is spread evenly under the base of the hedge. After the plants have established (2-3 years) and the canopies have met then the mulch will no longer be required and should be allowed to naturally break down into the soil.

During the establishment of the hedge during the first growing season ensure they are kept well-watered particularly during prolonged dry periods. Ensure that the soil if fully saturated and the bark mulch is in place to help retain the moisture in the soil and reduce competition from weeds.

If plants are showing signs of poor growth, disease or die back which is affecting the overall appearance of the hedge then identify the problem and carry out the appropriate treatment.

Once the hedges have reached the desired height of 1200-1500mm they should be lightly trimmed twice annually, and the arising removed from site. Trimming should be undertaken outside of the breeding bird season (March – August).

3.6 Proposed Ornamental Shrub Planting

Objectives

The shrub beds look to have total vegetation cover with no gaps. The plants should be maintained to promote healthy growth and ensure they achieve species potential in terms of texture, form and flower, to provide visual interest and a pleasant setting for the new development.

Inspections

Inspect the shrub beds annually and record gaps which need filling with additional plants, pruning or splitting of plants to encourage new growth to fill gaps.

Maintenance Operations

Remove any litter which has collected in the shrub beds.

Shrubs which are causing an obstruction by growing over paths, obscuring sight lines or lighting should be pruned back using secateurs. Ensure that the natural shape of the plant is maintained. Unless specifically identified in this report allow each plant species to reach their natural height to allow structural diversity in the beds. Please refer to the individual notes for the different maintenance required for shrubs, grasses and herbaceous plants.

Cut back or remove any dead, diseased or dying plants to encourage new grow. Allow the surrounding vegetation to fill the gap or replant any significant gaps in line with the original planting plan or following advice from someone horticulturally trained.

Lightly dig over the surface of the shrub beds using a hoe, look to uproot and remove all weeds from the beds. For the more prolific or deep-rooted weeds spot treat with a glyphosate-based weed killer and remove once it has died back.

In the newly established beds look to ensure that the bark mulch is maintained at a minimum depth of 75mm and is spread evenly around the whole of the shrub bed. After the plants have established (2-3 years) and the canopies have met then the mulch will no longer be required and should be allowed to naturally break down into the soil.

During the establishment in the first growing season ensure that the shrub beds are kept well-watered particularly during prolonged dry periods. Ensure that the soil if fully saturated and the bark mulch is in place to help retain the moisture in the soil and reduce competition from weeds.

If plants are showing signs of poor growth, disease or die back which is affecting the overall appearance of the shrub bed then identify the problem and carry out the appropriate treatment.

Routine annual pruning of new woody shrubs should generally not be required within the first 3 years (other than the works described above), although some of the herbaceous plants and grasses should be maintained in accordance with the list below to encourage new growth and a longer flowering period:

Herbaceous Plants

Allow the seed heads to remain on these plants throughout the autumn and early winter as they provide winter interest and insect habitats. Any stems which start to rot, become detached or look scruffy can be cut from the plant and removed if in a visible location.

In early spring when the threat of frost has gone all the old dead vegetation should be removed using secateurs to allow new growth to push through.

Grasses

Seed heads should be allowed to remain on the plants throughout the autumn and winter for visual interest, however any stems which become snapped or detached should be removed.

For the evergreen grasses remove the dead growth and seed heads in early spring, mid-March to April, this can be done by pulling out the dead growth gently by hand or carefully using secateurs.

Cornus

Cornus should be allowed to establish without being cut for the first 2-3 years. The stem colour in the winter is the characteristic feature of this shrub, therefore do not cut the stems until early spring before the leaves begin to appear.

Every 2-3 years once the shrubs have established reduce the height of the stems to 300mm above ground level to encourage strong stem colour and vigour. Pruning and cutting should be undertaken outside of the breeding bird season (March – August).

Specimen Shrubs

Large specimen shrubs in the planting beds should be allowed to establish as individual specimens with a shrub/ herbaceous layer underneath.

3.7 Proposed Meadow

Two different types of native wildflower/grass mixes have been sown across the site, these are EM3 which is a general-purpose meadow mix and WFG9 Meadow Mixture for Wetlands and Ponds in and around the attenuation basins.

Objectives
The meadows will provide different habitat types for local flora and fauna and a food source for insects, bats and birds. It will also provide seasonal interest across the site.

Inspections
Inspect the meadows and wildflowers annually in the summer to determine the success of establishment and record species to determine future management to ensure species rich diversity is maintained. Consult a qualified ecologist if necessary.

All Maintenance Operations – Year One
The requirements in the first year is to control weeds and reduce competition from the more prolific grass species to allow the less competitive species to become established.

Carry out a litter pick and remove any debris before each cut.

For all the meadows cut the swards to a height of 50mm every 2-3 months or when the sward reaches 150mm during the first full growing season. Final cut should be carried out in September-October.

Vegetation should be left in situ for 1-2 days to allow any invertebrates to escape, after which arisings should be collected and disposed of in a licensed tip.

Avoid strimming directly around newly established shrubs and trees to prevent bark wounds and damage to the plants.

EM3 General-Purpose Meadow Mix – Year Two and Subsequent Years

Do not cut from May through to late July/August to give the sown species an opportunity to flower. Once the flowers have set seed in August/ September cut back with a scythe, petrol strimmer or tractor mower to 50mm.

Carry out a litter pick and remove any debris before each cut.

Leave the arisings to dry and shed seed for 1-7 days then remove from site.

Mow the re-growth through to late autumn/winter to 50mm and again in April to reduce competition from the more prolific grass species. Repeat as above for the subsequent years.

Where the meadow runs along a hard-surfaced path once a year in the spring reform the edges to create a neat finish removing any turf which has encroached onto hard standing areas and reform a neat edge to any soft landscaped areas and trees.

WFG9 Meadow Grass Mixture for Wetlands and Attenuation Basins – Year Two and Subsequent Years

Do not cut from May through to late July/August to give the sown grass species an opportunity to flower. Once the flowers have set seed in August/ September cut back with a scythe or petrol strimmer to 100mm.

Carry out a litter pick and remove any debris before each cut.

Leave the arisings to dry and shed seed for 1-7 days then remove from site.

Mow the re-growth through to late autumn/winter to 50mm and again in April to reduce competition from the more prolific grass species. Repeat as above for the subsequent years.

The attenuation basins should be maintained free of any self-seeded trees or woody vegetation to ensure that its capacity for the temporary storage of water is not compromised and grassland species flourish.

After periods of heavy rainfall or if the basin is full and the embankments submerged DO NOT CARRY OUT ANY WORKS IN THESE AREAS for health and safety reasons. Allow the water to evaporate or soak away and the vegetation to recover.

3.8 Proposed Amenity Grass

Proposed general amenity grassland will be sown with a species-rich amenity mix which responds well to regular short mowing and is suitable for public open space.

Objectives

Regularly mown grassland will provide opportunities for informal recreation and a transition between the more formal landscape and the naturalistic habitats around the site. It is therefore important that the grass is well maintained and not patchy or overgrown. The flowering lawn mixture will also provide attractive flowers and habitat for pollinators.

Inspections

The Landscape Contractor should inspect the grassed areas during general maintenance operations and carry out remedial works within the scope of the maintenance operations as listed below.

Maintenance Operations

The grass sward should be kept well-watered until it has established particularly during prolonged dry periods if the seed has been sown in the spring/ summer months.

Carry out a litter pick before each cut.

The sward should be cut to maintain the grass between 25mm and 50mm high. The grass should be cut using a hand push or ride on mower.

The grass should look to be cut min 12 times a year but maybe required up to once a week along grass verges close to the development in the height of the summer.

Grass cuttings should be removed from site and deposited in a licensed tip.

The edges should be cut at the same time as the main cut along paths, kerb edges and soft landscaped areas to create a neat finish. Avoid using strimmer's around the base of trees and close to shrubs.

Once a year in the spring reform the grass edges along paths, shrub beds and trees to create a neat edge removing any turf which has encroached onto hard standing areas and reforming a straight edge to the soft landscaped areas.

A fertiliser application should to be applied as required, either as a spring feed for shoot growth or as an autumn feed for root growth using the appropriate feed application to compensate for any signs of poor growth or excessive wear.

An application of selective herbicide should be made in the spring to prevent any weed species from having a detrimental effect to the appearance of the sward and to prevent any infestation becoming severe.

Other maintenance applications which will be required from time to time include topdressing, over seeding, scarifying, spiking etc. to alleviate common problems such as thatch, compaction, poor drainage, malnourishment and worn areas, particular around the play equipment. These items should be identified and addressed in the annual check.

3.9 Additional Wildlife Considerations

The site, particularly its boundary features (trees, hedgerows and scrub), provides habitat for a number of species including bats, birds and invertebrates.

Objectives

This plan seeks to maintain and enhance this habitat and increase the provision for wildlife on site.

Bats

Consideration should be given to the possibility of bats being present within mature and semi – mature trees prior to maintenance works being carried out. A suitably qualified ecologist should be consulted if necessary.

Birds

Consideration should be given to the possibility of birds nesting within mature and semi – mature trees prior to maintenance works being carried out. A suitably qualified ecologist should be consulted if necessary.

Maintenance works to trees, hedges and scrub should not be carried out within the breeding bird season (March - August).

General

Dead wood and arisings from maintenance works to hedgerows and scrub can create suitable refugia and hibernacula habitat for many species such as amphibians, hedgehogs, reptiles and invertebrates. Where possible arisings from such works should be used to create habitat piles within the habitat corridor along the south western boundary.

4.0 Landscape Maintenance Hard Works

4.1 Proposed Paths

Paths runs through the site to provide access around the development.

Objectives
Maintain the footpaths in a good state of repair to provide a safe surface which is free from any ruts and trip hazards.

Inspections
A visual inspection is to be carried out by the maintenance contractor at 6 monthly intervals or following reports from the general public that the surface requires repairing. Report of the inspection should be logged.

Maintenance Operations
Surfaces are to be kept free of litter, mud, arisings, deleterious material and hazardous obstructions. Surfaces are to be uniform in appearance, a level surface and constructed from a homogenous material, free from large ruts, hollows and potholes (holes greater than 75mm in diameter and 20mm depth).

Paths to be repaired within one month of a reported fault, unless the potential hazard is severe in which case the area should be cordoned off and repaired at the earliest available opportunity. Foundations and surfaces are to be repaired to the original specification.

Paths should be cleared of weeds by spot treating with an application of a non-residual based herbicide up to three times a year.

Removed litter and any other detritus material and arising from the footpaths to maintain them in a safe and clean state free from any obstructions.

4.2 Proposed Seating

Objectives
The benches around the site are to encourage people to sit and relax or enjoy lunch etc, therefore it is important that they are maintained in a safe and clean state.

Inspections
A visual inspection is to be carried out by the maintenance contractor at 6 monthly intervals or following reports from the Site Manager that the benches require repairing. Report of the inspection should be logged.

Maintenance Operations
Benches should be kept free of litter, deleterious material and hazardous protuberances.

Benches should be wiped down with soapy water as required during general maintenance operations to remove any bird droppings or spillages.

Once annually in the spring the benches should be re-stained as per the original specification.

If faults or potential hazards are identified they should be reported and repaired in accordance with the original specification. If the fault presents a health a safety risk the bench should be removed or made safe until the repair has been completed.

4.3 Litter Bins

Objectives
The bins should be emptied regularly to maintain the public open space in a safe and clean condition and to encourage people to use them and respect the environment.

Inspections
A visual inspection is to be carried out by the maintenance contractor at 6 monthly intervals or following reports from the Site Manager that the benches require repairing. Report of the inspection should be logged.

Maintenance Operations
Litter bins should be emptied at each maintenance visit.

Bins should be wiped down with soapy water as required during general maintenance operations to remove any spillages.

The bins should be in good working order. If faults or potential hazards are identified they should be reported and repaired in accordance with the original specification.

4.5 Attenuation Basins

Objectives
The attenuation basins have been designed to accommodate rainfall events collected from surface water drainage across the site. For all other times these will function as shallow dry basins as part of the ecological enhancements on the site. It is important that these are maintained clear of any obstructions that would reduce their storage capacity or infill/outfall of water.

Inspections
An annual visual inspection should be carried out by a qualified drainage engineer to check the headwalls, inlet, outlet pipes and the hydrobrake flow control devise. Report of the inspection should be logged, and any works carried out as recommended within the report.

The Landscape Contractor should inspect the basins during general maintenance operations in relation to the grassland and vegetation within these areas and carry out remedial works within the scope of the maintenance operations as listed below and section 3.7.

Maintenance Operations
The headwalls, inlet/ outlet pipes and hydrobrake flow control device should be inspected by a qualified drainage engineer to ensure they are in good working order and any immediate repairs or necessary general maintenance operations should be carried out by a qualified contractor.

The wildflower and wetland grassland within and around the edges of the basin should be maintained in accordance with section 3.7 in terms of the establishment and future maintenance of these areas for the purposes of ecological enhancements and species diversity.

The attenuation basins themselves should be maintained free of any rubbish, fly tipping, self-seeded trees, woody vegetation or invasive injurious weeds to ensure that its capacity for the temporary storage of water is not compromised.

Ensure any trees or vegetation around the edge of the basins are cut back to ensure they do not overhang or obstruct the storage capacity of the basins, prevent maintenance access or physically obstruct or compromise the headwalls and inlet/ outlet pipes.

Remove any fallen branches, leaves or debris which may have collected at the mouth of the headwalls to ensure that there is a clear path for the unobstructed follow of water in the event of heavy rainfall. Any arising removed from site should be disposed in an appropriate licenced tip.

After periods of heavy rainfall or if the basin is full DO NOT CARRY OUT ANY WORKS IN THESE AREA for health and safety reasons.

5.0 Annual Work Schedules

APPENDIX A

5.0 MAINTENANCE SCHEDULES

	J	F	M	A	M	J	J	A	S	O	N	D	Total	Years (1-5)	Responsibility	Comments/Notes/Prerequisites
5.1 EXISTING TREES, SCRUB & HEDGEROWS																
Annual arboricultural inspection of trees		1											1	1-5	Arborist	Arrange for any remedial work to be done immediately only where they pose a risk to users of the site or property; works to include dead wooding, felling dangerous trees.
Schedule a health and safety arboricultural inspection after strong winds or storms														1-5	Arborist	As required.
Treatment of pests and diseases and/or removal of diseased trees													1	1-5	Arborist	As required and advised by arborist. All felling to be carried out in accord with BS3998, felling outside bird breeding season.
Removal of saplings and suckers, poorly formed or young low value trees. *		1											1	1-5	Arborist	Remove where they are impeding the growth of more desirable specimens
Cut back trees over shadowing, obstructing the stream		1											1	1-5	Arborist	Cut back trees or vegetation which are overhanging into the stream and casting shade and/or impeding the flow, cut outside of the bird nesting season.
Cutting hedge *		1											1	5	Contractor	Maintain at 1500 high. Cut on a rotational basis only every 2-3 years to promote wildlife, cut outside of the bird nesting season.
Litter pick around the existing trees.	1	1	1	1	1	1	1	1	1	1	1	1	12	1-5	Appointed contractor	Disposal in a licensed tip.
5.2 PROPOSED TREES																
Annual inspection to check trees						1							1	1-5	Appointed contractor	Record defects requiring remedial works.
Topping up of mulch and weed control around base of trees.				1									1	1-5	Appointed contractor	Avoid use of herbicides.

	J	F	M	A	M	J	J	A	S	O	N	D	Total	Years (1-5)	Responsibility	Comments/Notes/Prerequisites
Pruning *														1-5	Appointed contractor	Should not be required during the first few years, after which, as required avoiding bird breeding season and frosts. Sharp clean knife to be used.
Tree replacements											1			1	Appointed contractor	As required plant Nov-Mar.
Pest and disease control														1-5	Appointed contractor	As required throughout year, avoiding chemical methods, otherwise seek advice from ecologist.
Tree stake and tree tie inspection, repair and adjustment				1						1			2	2-5	Appointed contractor	Year 3, remove stakes when trees have rooted sufficiently.
Slow release fertiliser				1									1	1-5	Appointed contractor	Once in late spring only if showing poor signs of growth.
Watering					1	1	1	1	1				5	1	Appointed contractor	Water trees during the first growing season in the first year of establishment at the following rates until the soil fully saturated. Selected Standard 100 litres each and Semi-Mature 200 litres each.
5.3 PROPOSED NATIVE HEDGE																
Annual inspection to check hedges						1							1	1-5	Appointed contractor	Record defects requiring remedial works.
Trimming *		1											2	1-5	Contractor	Trim side of the hedge to promote dense bushy growth, avoid the bird nest season.
Check Plants			1						1				2	1-5	Contractor	Check plants, if they are loose or uprooted then heal them back in
Check Ties and guards			1						1				2	1-5	Contractor	Check ties and guards and re-secure or re-place if loose or missing. Once the plants have established then remove.
Weeding *			1						1				2	1-3	Contractor	During establishment period treat the base of the hedge with a non-residual based herbicide for the first 3 years to remove weeds and aid establishment. Year 4 onwards allow ground flora and grasses to establish naturally under the hedge as a wildlife margin.

	J	F	M	A	M	J	J	A	S	O	N	D	Total	Years (1-5)	Responsibility	Comments/Notes/Prerequisites
Cutting *		1											1	5	Contractor	Only cut top of hedge when it achieves the desired height 2000mm against back garden fences and 1200 for all other area. Cut every 2-3 years after berries have been eaten to benefit wildlife, cut outside of the bird nesting season.
Watering					2	2	2	2					8	1	Appointed contractor	Water hedges during the first growing season in the first year of establishment when there have been periods of no rainfall for a week or more until the soil is fully saturated.
Litter pick	1	1	1	1	1	1	1	1	1	1	1	1	12	1-5	Contractor	Remove litter or debris that has collected around the base of the hedge and dispose of in a licensed tip.
5.4 PROPOSED NATIVE SHRUB MIX																
Annual inspection to check native shrubs						1							1	1-5	Appointed contractor	Record defects requiring remedial works.
Trimming *			1										1	1-5	Contractor	Trim side of the hedge to promote dense bushy growth, avoid the bird nest season
Check Plants			1						1				2	1-5	Contractor	Check plants, if they are loose or uprooted then heal them back in
Check Ties and guards			1						1				2	1-5	Contractor	Check ties and guards and re-secure or re-place if loose or missing. Once the plants have established then remove.
Weeding *			1						1				2	1-3	Contractor	During establishment period treat the base of each shrub with a non-residual based herbicide for the first 3 years to remove weeds and aid establishment. Year 4 onwards allow ground flora and grasses to establish naturally around the shrubs for the benefit of wildlife.

	J	F	M	A	M	J	J	A	S	O	N	D	Total	Years (1-5)	Responsibility	Comments/Notes/Prerequisites
Cutting *		1											1	3-5	Contractor	Starting in year 5 locally coppice or thin shrubs to prevent overcrowding and promote healthy growth. Carry out only every 2-3 years on a rotational basis to promote wildlife. Cut outside of the bird nesting season
Watering					2	2	2	2					8	1	Appointed contractor	Water hedges during the first growing season in the first year of establishment when there have been periods of no rainfall for a week or more until the soil is fully saturated.
Litter pick	1	1	1	1	1	1	1	1	1	1	1	1	12	1-5	Contractor	Remove litter or debris that has collected around the shrubs and dispose of in a licensed tip.
5.5 PROPOSED ORNAMENTAL HEDGE																
Annual inspection to check hedges						1							1	1-5	Appointed contractor	Record defects requiring remedial works.
Trimming		1											2	1-5	Contractor	Trim side of the hedge to promote dense bushy growth, avoid the bird nest season.
Weeding				1	1	1	1	1	1	1			7	1-5	Contractor	Lightly dig around the base of the hedge to remove weeds. Spot treat with glyphosate for prolific weeds only.
Litter pick	1	1	1	1	1	1	1	1	1	1	1	1	12	1-5	Contractor	Remove any litter which has accumulated at the base of the hedge.
Top up bark mulch				1									1	1-3	Contractor	Top up the bark mulch in the spring to depth of 75mm to all ornamental hedges. Allow to rot down naturally after year 3 when the hedge has established.
Cutting		1											1	5	Contractor	Only cut top of hedge when it achieves the desired height 2000mm against back garden fences and 1200 for all other area. Cut every 2-3 years after berries have been eaten to benefit wildlife, cut outside of the bird nesting season.

	J	F	M	A	M	J	J	A	S	O	N	D	Total	Years (1-5)	Responsibility	Comments/Notes/Prerequisites
Watering					2	2	2	2					8	1	Contractor	Water hedging plants during the first growing season in the first year of establishment when there have been periods of no rainfall for a week or more until the soil is fully saturated.
5.6 PROPOSED ORNAMENTAL SHRUBS																
Annual inspection to check shrub beds						1							1	1-5	Appointed contractor	Record defects requiring remedial works.
Pruning				1				1			1		3	3-5	Contractor	Pruning should generally not be required in the first 3 years of establishment. After which only prune back where they cause any obstruction or obscure sight lines. Maintain the natural shape of the shrub. Cut back any dead, diseased or dying branches to stimulate new growth. For specific maintenance requirements of shrubs, grasses, herbaceous plants and climbers please refer to section 4.6
Weeding				1	1	1	1	1	1	1			7	1-5	Contractor	Lightly dig over the surface of the shrub beds to remove weeds. Spot treat with glyphosate for prolific weeds only.
Litter pick	1	1	1	1	1	1	1	1	1	1	1	1	12	1-5	Contractor	Remove any litter which has accumulated in the shrub beds.
Top up bark mulch				1									1	1-3	Contractor	Top up the bark mulch in the spring to depth of 75mm to all ornamental shrub beds. Allow to rot down naturally after year 3 when the shrubs have established.
Watering					2	2	2	2					8	1	Contractor	Water shrub beds during the first growing season in the first year of establishment when there have been periods of no rainfall for a week or more until the soil is fully saturated.

	J	F	M	A	M	J	J	A	S	O	N	D	Total	Years (1-5)	Responsibility	Comments/Notes/Prerequisites
5.7 PROPOSED MEADOW (EM3 & WFG9 MIX)																
Litter pick	1	1	1	1	1	1	1	1	1	1	1	1	12	1-5	Appointed contractor	Carry out a litter pick prior to strimming and once a month. Check debris for wildlife before disposing in licensed tip.
Establishment (both mixes) - Cutting					1			1		1			3	1	Appointed contractor	Cut sward to 50mm up to 3 times in the first year or when the sward reaches 150mm.
EM3 General Wildflower Mix - Cutting				1					1					2-5	Appointed contractor	Cut in late Aug-Sept once the flowers have set seed to 50mm. Cut again in late winter if grasses start to grow.
WFG9 Wetland Meadow Grass – Cutting *				1					1					2-5	Appointed contractor	Cut in late Aug-Sept to 100mm and again in late winter if grasses start to grow. DO NOT CUT if there has been any periods of heavy rainfall or the attenuation pond is full of water.
Remove arisings from site				1					1				2	1-5	Appointed contractor	In all cased allow the arising to remain on site for 3-7 days before disposing in a licensed tip.
Remove self-seeded trees, woody vegetation.									1				1	1-5	Appointed contractor	Cut or pull out any self-seeded trees and strim back any bramble or woody vegetation. Dispose of appropriately.
Redefine edges to hard standing areas.			1							1			2	1-5	Appointed contractor	Cut back and remove any turf that has overgrown onto paths.
Re-instatement of meadow mixes														1-5	Appointed contractor	As required where areas have failed and in accordance with previously applied mix.
Watering														1-5	Appointed contractor	As required in periods of drought during the first year of establishment

	J	F	M	A	M	J	J	A	S	O	N	D	Total	Years (1-5)	Responsibility	Comments/Notes/Prerequisites
5.8 PROPOSED AMENITY GRASSLAND																
Litter pick	1	1	1	1	1	1	1	1	1	1	1	1	12	1-5	Appointed contractor	Prior to cutting and once a month. Check for wildlife before disposing of the debris in a licensed tip.
Cut grass and strim edges to paths.				2	2	2	2	2	2				12	1-5	Appointed contractor	Cut areas of well-maintained grass to 25-50mm high and remove arisings from site.
Redefine cutting			1							1			2	1-5	Appointed contractor	Remove any grass turf that has overgrown onto paths and reform edges to shrub beds.
Strim grass (areas of grass at the back of the development site and under existing trees.			1							1			2	1-5	Appointed contractor	Strim no shorter than 150mm high to encourage formation of tussock type sward. Vegetation to be left in-situ for 1-2 days then removal all arisings.
Remove arisings from site			1	2	2	2	2	2	2	1			12	1-5	Appointed contractor	Dispose arising in a licensed tip.
Remove self-seeded trees, woody vegetation and any prolific weeds (docks, thistles etc.).									1				1	1-5	Appointed contractor	Cutback and remove any woody vegetation and treat any prolific weed infestation with a glyphosate-based weed killer. Dispose of appropriately.
Watering														1-5	Appointed contractor	As required in periods of drought during the first year of establishment
5.9 ADDITIONAL WILDLIFE CONSIDERATIONS																
Monitor Bat Boxes									1					3	Ecologist	Monitor in year 3 and relocate if not been used.
Bat Boxes – Works to trees in relation to the presence of bats.									1				1	1-5	Appointed contractor	Repair, re-secure or replace the boxes if they become damaged or loose. Consideration should be given to bat presence when carrying out works to trees. Consult an ecologist if in doubt.
Monitor Bird Boxes									1					3	Ecologist	Monitor in year 3 and relocate if not been used.

	J	F	M	A	M	J	J	A	S	O	N	D	Total	Years (1-5)	Responsibility	Comments/Notes/Prerequisites
Birds – Works to trees in relation to the presence of birds.									1				1	1-5	Appointed contractor	Repair, re-secure or replace the boxes if they become damaged or loose. Consideration should be given to nesting birds when carrying out works to trees, hedges and established shrubs. Consult an ecologist if in doubt.
General														1-5	Appointed contractor	Create habitats within the wildlife corridor SW boundary by creating log piles in the woodland from arisings during tree maintenance works.

5.10 PATHS																
Inspection of path and carry out the repairs as necessary.		1						1					2	1-5	Appointed contractor	Inspect path and repair as required in line with the original specification.
Weed control					1			1					2	1-5	Appointed contractor	Control weeds on the path by spot treatment or spraying with a non-residual based herbicide (to be approved by the ecologists).
Litter pick	1	1	1	1	1	1	1	1	1	1	1	1	12	1-5	Appointed contractor	Remove litter or debris that has collected on the path and dispose of in a licensed tip.
5.11 SEATING																
Annual inspection				1										1-5	Appointed contractor	Inspect seating for any damage, hazardous protuberances and repair as required in line with the original specification.
Clean seating				1				1					2	1-5	Appointed contractor	Wipe down metal work and clean seating with soapy water to remove any bird droppings etc.
Stain or oil timber				1										1-5	Appointed contractor	Annually oil or stain the wood in line with the original specification.
5.11 BINS																
Annual inspection				1										1-5	Appointed contractor	Inspect bins for any damage, hazardous protuberances and repair as required in line with the original specification.
Empty bin	4	4	4	4	4	4	4	4	4	4	4	4	52	1-5	Appointed contractor	Empty the bins weekly. Dispose of rubbish in a licensed tip.
Clean bins		1		1		1		1		1		1	6	1-5	Appointed contractor	Wipe down metal work and clean bin and around the bin with soapy water.

5.13 ATTENUATION BASINS																
Annual inspection				1										1-5	Qualified Engineer	A qualified drainage engineer to inspect the headwalls, inlet/ outlet pipes and the hydrobrake flow control devise and repair as advised.
Grassland maintenance operations			1							1			2	1-5	Appointed contractor	Establishment and maintenance of the grassland to be carried out in line with section 5.7
Remove overhanging branches, self-seeded trees, woody vegetation and any prolific weeds within and around the attenuation basins and headwalls *			1							1			2	1-5	Appointed contractor	Cutback and/or remove. Dispose of appropriately.
Remove any fallen branches, leaves or debris which may have collected at the mouth of the headwalls			1			1			1			1	4	1-5	Appointed contractor	Remove and dispose of appropriately to maintain a clear flow of water.
5.14 REVIEW OF MANAGEMENT PLAN																
Management plan to be reviewed and updated as required following ecological monitoring and annual inspections as listed in the tables above.												1	1	5	Ecologist/Landscape Architect and Management Company	Plan to be reviewed in year 5 (and once every 3-5 years thereafter) to ensure frequency of visits and management techniques are appropriate to promote ecology, promotes active management and responds to changes to the landscape as the site matures.
Annual Landscape Strategy												1	1	1-5	Ecologist/Landscape Architect and Management Company	An annual landscape strategy should be produced at the end of each year to provide a list of additional works required to activity maintain the site which fall outside of the general maintenance operations.