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LANDSCAPE ARCHITECTS

Landscape and Ecological Management Plan

Heyford Park, Phase 9

Bicester

Dorchester Living

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1 INTRODUCTION

1.1 Background and Context

1.1.1 This report presents a Landscape and Ecological Management Plan for Public Open Space (POS), public realm, front gardens and communal areas of landscape associated with the development at the land within Phase 9 of the development of Heyford former military base and the wider context encompassing surrounding development parcels. The POS is to be managed for the primary purpose of low-key recreational use, to provide biodiverse ecological habitat and to provide an attractive setting to the new properties.

1.1.2 The management responsibility will be with the appointed Management Company. Areas are to be managed in accordance with this Management Plan for a minimum ten-year period, commencing at the time of completion of the contractor's defects liability period. For the duration of the contractor's defects liability period (12 months after completion of works) the maintenance liability of all areas will lie with the developer.

1.1.3 It is the intention that the areas of land that this document relates to are covered by landscape management instructions for a full duration of ten years. After the initial ten year management period, this document is to be reviewed to check for its relevance to the landscape.

1.1.4 This report has been designed to provide a steering manual for the day-to-day management of the site and one, which can be updated as required. It sets out in broad terms the landscape and biodiversity aspirations for the site, both in the short and longer term and provides practical means by which these aims may be translated to well managed results on the ground.

1.2 Report Structure

1.2.1 The report is structured as follows:

- Section 2: describes the management aims and objectives for the Site.

- Section 3: gives a site description and evaluation of baseline conditions.
- Sections 4 and 5: sets out the management strategy for the existing Site. This includes new planting on the Site with specific advice relating to routine maintenance, management operations and species specific information.
- Section 6: gives information on site specific landscape management information.
- Section 7: gives information on species specific landscape management information.

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2 MANAGEMENT AIMS AND OBJECTIVES

2.1 Aims and Objectives

2.1.1 The primary landscape objective for the landscape areas subject to this Management Plan is to create and maintain a functional, attractive and sustainable space, to increase the sense of site unity and to increase the visual appeal and emphasise the site's characteristics. The main aim of the Management Plan is to set mechanisms in place which ensure that the site is well managed, for the benefit of the residents so that it does not become degraded through neglect, inappropriate management or misuse.

2.1.2 The primary biodiversity objective is to maintain and enhance ecological connectivity within and around the site and create a range of habitats to serve as refuge, shelter, foraging and commuting habitat for a range of species which are likely to be present at the residential site. To this end, habitat creation that interconnects with adjacent landscape features such as tree-lines and hedgerows are proposed to avoid habitat fragmentation impacts.

Where practicable the habitats and landscaped areas will be enhanced and managed to maximise the potential biodiversity of the site. Enhanced value to wildlife is central to the overall impact of the management proposals. This is particularly relevant and specific to bat habits as set out in section 7.

2.1.3 An acceptable visual appearance and the provision of an ecologically sustainable, healthy and diverse vegetative framework will ensure that the appeal and functional purposes of the area is sustained in the foreseeable future.

2.1.4 The general principle aims for managing the site are as follows:

- To introduce sensitive management policies which will enhance the visual and ecological appeal of the site, maximise the screening functions where needed and create a high quality landscape setting for the new buildings whilst never forgetting that excessive maintenance can discourage wildlife.

- To encourage appropriate use of the site by residents, whilst strongly discouraging inappropriate and indiscriminate use of the site by, for example, vandalism, tipping, anti-social behaviour.
- To ensure that the long term health and vigour of the new planting is optimised in the future.
- To implement a programme of measures to increase the visual and amenity appeal of the site.
- To retain and enhance existing ecological connectivity and habitats for biodiversity.
- To develop diversity and sustainability in new habitats.
- To allow natural succession where relevant.
- To provide enhanced habitat for species such as bats, breeding birds, hedgehogs, reptiles and insects.
- To monitor developments and allow flexibility to the management approach.

2.1.5 The specific site objectives are as follows:

- To optimise the biodiversity of the site by way of introducing appropriately managed native vegetation and species which are known to be of value to wildlife.
- Maintain and enhance the integrity of existing tree planting and hedgerows that fall within the site boundary.
- Improve green infrastructure connectivity across and around the site contributing to provide enhanced wildlife corridor function.
- Encourage populations of notable and protected species including bats, birds, insects, small mammals, amphibians and reptiles that may encounter the site by encouraging the development of habitats of notable and protected species, promote structural and age diversity of vegetation, including newly planted trees planted within close proximity to existing mature specimens.

3 SITE DESCRIPTION AND EVALUATION OF BASELINE CONDITIONS

3.1 Site Overview

3.1.1 The approximately 12ha site is located on land to the south of Camp Road, Bicester and forms part of the wider Heyford Park development to create housing, employment, education, retail and community use with associated landscaping. The site comprises disused buildings and rough unmanaged semi-improved grassland, with scrub and hedgerows.

3.2 Site Surveys

3.2.1 A site wide Phase 1 Habitat survey has been undertaken, along with arboricultural survey and arboricultural method statement. This report follows up on a much earlier Heyford Park Settlement Area: Mitigation Implement Programme Report (27.11.12) which was a response to the Phase 1 Habitat findings. Confirmation by 4 Acre Ecology Limited reveals that bats are present (limited numbers) and should be accommodated under law.

3.2.2 Other previous surveys have been carried out on the site between 2001 and 2010. These cumulated in an Environmental Statement produced by Watermen in 2010. The Ecology Chapter of this (Chapter 120) included mitigation measures to minimize the impact and enhance the site post development. The consented planning permission Condition 48 required a Programme of implementation of mitigation and enhancement to be produced before commencement. This LEMP document looks to protect and aid the establishment of this work; protecting existing landscape features and promoting establishment of the proposed works.

3.2.3 The Environmental Statement identified hedgerows and trees, Great Crested Newts, Bats and nesting birds requiring on site mitigation with further enhancements to waterbodies.

3.3 Summary of Existing Ecological Features

3.3.1 The following ecological features have been identified on site through the supporting ecological survey and assessment information:

- **Hedgerows** (hedgerows represent Priority Habitat and provide green infrastructure/wildlife corridor function)
- **Bats** (potential nearby off-site roosts and habitats of local value to foraging and commuting bats)
- **Badger** (no setts present but field signs indicate Badger are present in the area)
- **Common Reptiles** (potential foraging, shelter and basking habitat, no reptiles recorded in surveys. Nearby (main flying field) low population of Common Lizards and Grass Snakes present)
- **Great Crested Newts** (no GCN recorded at on-site waterbody or off-site pond close to boundary)
- **Birds** (potential for general nesting)
- **UK BAP Priority Species/Local BAP Species** (opportunities across site for species such as Hedgehog)

3.3.2 The following have not been identified as existing ecological features, as surveys have indicated that habitats are not suitable, these species are likely absent, and/or no impacts have been identified: Statutory designated sites, non-statutory designated sites, ancient woodland, veteran trees, TPOs, Conservation Areas, blue/aquatic infrastructure, Otter and Water Vole, other protected mammals, specially protected birds, fish/marine species, protected invertebrates, protected flora and invasive species.

3.4 Ecological Trends and Constraints

3.4.1 Increased footfall pressure from new residents (particularly dog walkers) will raise the potential level of ambient disturbance. This will be controlled for by mowing distinct footpaths and retaining wilder rough vegetation to discourage straying from the

paths. Increased predation by cats on birds and small mammals cannot be controlled for.

3.4.2 Increased littering will be controlled for by means of the general site maintenance.

3.4.3 The building of children's dens and fire lighting is a potential risk. Illustrated information boards highlighting the range of species that are present and explaining the rationale underpinning the management regimes will help to offset this by engendering a sense of ownership and respect for the natural environment. A supporting information leaflet will also be included in each home sales pack.

3.4.4 Natural succession will inevitably change the overall species mix but this is to be encouraged to some extent but will also be controlled by a rotational mowing programme for the more invasive species.

4 MANAGEMENT PLAN

4.1 Works Programme

4.1.1 It is expected that the Management Plan will commence following completion of the landscape works. The provisions of the establishment maintenance specification set out below should also be adopted by the contractor from the time plants are installed and then during the 12 month defects liability period, prior to handover. Any property that is purchased and therefore becomes private land owned by the new resident(s) becomes the management responsibility of the new resident(s) from the time of completion of purchase. The new property owner should manage the landscape in conjunction with this document.

4.1.2 It should be noted that the proposed annual timing of operations in the following Works Programme are flexible and it is anticipated that the exact programme of works will be influenced by seasonal weather conditions and factors such as variability in growth rates and perceived effects on biodiversity.

4.1.3 In the management directions set out below, the timing of operations (by season or month) is only given where this is critical, either in terms of achieving optimum results or minimising potential disturbance to wildlife. In general terms pruning or other works to established hedgerows, shrubs and trees, which may contain breeding birds, should avoid the bird breeding season. In most years this is from February to August inclusive.

4.2 Legal Constraints

4.2.1 Presence/potential presence of statutorily protected species will need to be given due consideration with respect to management operations in the affected areas.

4.3 Management of Existing Mature Trees and Hedgerows

Objective: existing mature specimen trees and hedgerows are to be subject to some arboricultural works, to ensure public safety but also to enhance their longevity, their value to the setting of the site and to optimise their wildlife potential.

Mature/veteran trees will be retained if deemed structurally sound and dead branches/standing dead wood only removed where it is not safe to be retained *in situ*. Annual inspections should be carried out on trees in areas of human activity ie. near paths or roads, with other trees undergoing a detailed inspection every 3-5 years. Dead wood arisings will be maintained on site to create habitat piles. Prior to any works on mature trees capable of providing suitable features for bat roosts these trees will be inspected by a licensed bat worker and works will be undertaken in accordance with 'Best Working Practice', as specified by The Bat Conservation Trust (Hundt 2012).

4.3.1 Following the inspection a schedule will be provided of essential remedial surgery/other works or tree removal required for public safety/tree health reasons and this to be supplied to Cherwell District Council. Works are to be carried out in accordance with BS 3998 - 2010 Tree Work - recommendations or refer to 'the current document' of that standard. These works are to be undertaken at a time to avoid the bird breeding season and preferably during the winter months unless more urgent action is required. As the site is located within a conservation area, the local council will require consultation prior to major pruning works to existing trees.

4.3.2 A detailed Arboricultural Impact Assessment and Arboricultural method statement has been provided by Pegasus Group (D.0358_22) and should be read in conjunction with this report.

5 MANAGEMENT OPERATION FOR NEW PLANTING TO COMMUNAL AREAS AND POS

5.1 Operation 1: New Specimen Trees

Objective: to promote early establishment and vigour in all newly planted trees within the development area. Longer-term management to include replacement as required and formative pruning to create a healthy, strategic landscape component and to perpetuate the original design aims. Please refer to Appendix A drawing 1619 A6 03 for tree specification and planting schedule.

Establishment Maintenance of New Specimen Trees

5.1.1 Establishment Maintenance of newly planted trees will be required for the first three years after planting to ensure rapid early growth. Visits shall be undertaken at least monthly between April and September, with two visits during the dormant season, to ensure that the following maintenance requirements are satisfactorily undertaken:

- Watering as required to ensure healthy growth, particularly in Years 1 and 2. All trees to be visited weekly in periods of dry weather and sufficient water to be applied to eliminate drought related stress.
- All trees to be treated with an annual application of an approved slow-release fertiliser (e.g. Osmocote) at the manufacturer's recommended rates in April of Years 1, 2 and 3.
- Trees that have become loosened, lifted up or out of the ground to be set upright and re-firmed by treading. Tree supports (including underground guys) to be regularly checked, adjusted, repaired and replaced as necessary and irrigation tubes to be kept free of blockages.
- Weed control is required to keep all planting areas free of grass and weed growth. This weed control must be by hand in Year 1, with chemical control, using Glyphosate, permitted only in 1.0m squares around clear-stemmed trees in Years 2 and 3.
- Trees to be kept free of pests and diseases; regular monitoring to be undertaken.

- General pruning to be carried out to remove straggling stems, over-vigorous shoots, suckers and dead, misshapen, broken or otherwise unhealthy branches.
- Planting areas to be kept free of litter and leaf fall and grass edges to be kept regularly trimmed and tidy.
- Where mulch is used as a top dressing, this to be regularly topped up to 75mm to ensure a minimum depth of 50mm, ensuring that the tree trunks flare is not smothered. Mulch to be kept cleared off adjacent grass, paved areas etc.
- General autumn tidy.
- All arisings to be removed from site and the site to be left clean and tidy at all times.

5.1.2 An inspection is to be made in August each year. Any losses of planted trees, whether by natural means or vandalism and any other plants that have failed to thrive, to be replaced in the planting season following the loss. Replacement trees are to be of the same specification and size as the original plants.

5.1.3 New tree planting within the Public Open Space should be regarded in a different light to those within residential area. As such, in the longer term these trees may be subject to minimal management to allow the trees to develop into character trees of value to wildlife.

Longer Term Management of New Specimen Trees

5.1.4 Regular maintenance visits should be made at quarterly intervals each year. It will be necessary to undertake general inspection for pests and disease, 'tidying' eg. pruning of any poor or damaged branches, removal and replacement of dead trees, litter and leaf fall clearance, topping up, raking and sweeping of mulch to provide a tidy appearance etc., as described above for the Establishment Period. All arisings to be removed from site and the site to be left clean and tidy at all times.

5.1.5 An inspection to be made in August up to and including Year 5. Any losses of planted trees, whether by natural means, wear and tear or vandalism and any other trees that have failed to thrive, to be noted and the trees replaced in the planting season

following the loss. Replacement trees to be of the same specification, location and size as the original trees, unless the LPA gives its written consent to any variation.

5.1.6 If a tree support is no longer required as the tree is supporting itself, remove the tree support entirely. The tree support is generally removed around year 3, however this judgement shall depend on how well the tree has established before tree support removal is considered.

5.1.7 Following completion of the Establishment Period, the need for both watering and weed control is likely to be reduced but must still be undertaken as necessary to ensure healthy growth and maintain the mulched tree beds in a weed free condition. Tree surroundings to be maintained in a weed free state, with trimmed edges and mulch material to be kept topped up to a depth of 75mm. In dry summers trees will require watering using the irrigation system to ensure healthy growth.

5.1.8 Regular monitoring for pests and diseases will also be needed on an on-going basis and any necessary control measures undertaken as soon as possible.

5.1.9 General, corrective pruning to trees to remove die back, straggling stems, over-vigorous shoots, suckers, epicormic growth and dead, misshapen, discoloured, thin, weak, over-crowded, old, broken or dangerous branches from trees by pruning back with a clean cut to the main stem, or to a sound and healthy outward growing lateral. Any removal of dead, diseased or ill formed trees also to be undertaken at this time and replacement undertaken.

5.1.10 Trees to be subject to formative pruning, crown thinning and crown raising/ reduction, on an annual basis in the autumn, and at other additional times as necessary, to improve the shape of the crowns and to remove any die back and weak or dangerous branches.

5.2 Operation 2: New Native Hedgerow

5.2.1 Native species hedges are planted to the following mitigation criteria as part of planning condition 48 (Environmental Statement) and for ecological purposes the objectives below should be actively pursued through management:

- Habitats at the site such as hedgerows are predominantly proposed for retention although some boundary hedges are to be removed during demolition and construction phase. The following mitigation for hedgerows is recommended:
- Nut, berry-bearing and flowering native species to attract butterflies, moths and breeding birds should be used.
- Where possible hedgerows should connect with ecological features to provide extra benefit to biodiversity i.e. other hedgerow, woodlands, pond or scrub which may be used for commuting and foraging bats and birds.
- Where access gaps are created in hedgerows, enhancement should take place for 20m either side of the gap.

5.2.2 ***Objectives***: Promote early growth of new hedge plants to create well-structured and healthy, dense hedges of value to local wildlife. Please refer to Appendix A drawing 1619 A6 14 for hedging species and planting schedule.

Initial Establishment Maintenance of New Native Hedgerow

5.2.3 Establishment Maintenance of new hedgerow planting will be required for the first three years after adoption to ensure rapid early growth. Monthly visits to be undertaken between April and September, with two visits during the dormant season, to ensure that the following maintenance requirements are satisfactorily undertaken:

- Watering as required to ensure healthy growth, particularly in Year 1 and 2. All planting areas to be visited weekly in periods of dry weather and sufficient water to be applied to eliminate drought related stress.
- Hedge plants to be treated with an annual application of an approved slow-release fertiliser (eg Osmocote), at the manufacturer's recommended rates in April of Years 1, 2 and 3.
- Plants, which have become loosened, lifted up or out of the ground to be set upright and re-firmed by treading.

- The need for weed control will be minimised through the use of mulch in planting areas. The mulch is to be regularly topped up to 75mm, ensuring that the lower branches and foliage of plants are not smothered. Mulch to be kept clear of adjacent grass, paved areas etc. This will generally suppress weeds but there may be some localised ingress of weeds. Any additional weed control required to keep the hedge trench free of grass and weed growth must be by hand in Year 1, with chemical control, using glyphosate, permitted only in Years 2 and 3.
- Plants to be kept free of pests and diseases, regular monitoring to be undertaken.
- General pruning to be carried out to trim laterals, remove straggling stems, over-vigorous shoots, suckers and dead, misshapen, broken or otherwise unhealthy branches. Leading shoots to be left untrimmed during the Establishment Period.
- Planting areas to be kept free of litter and leaf fall.
- General autumn tidy.
- All arisings to be removed from site and the site to be left clean and tidy at all times.

5.2.4 An inspection to be made in August each year. Any losses of hedge plants, whether by natural means or vandalism and any other plants that have failed to thrive, to be replaced in the planting season following the loss. Replacement plants to be of the same specification and size as the original plants.

5.2.5 It may be necessary to reinforce the integrity of the new hedgerows by installing a framework of posts and wire, to be kept intact and in good repair during the Establishment Period.

Longer term Management of New Native Hedgerow

5.2.6 Regular maintenance visits should be made at a minimum of monthly intervals between April and September with two visits during the dormant season each year. It will be necessary to undertake general 'tidying' e.g. removal of litter, as described above for the Establishment Period. All arisings to be removed from site.

5.2.7 Mature hedgerows will need cutting to prevent the native hedge becoming 'leggy' and to encourage dense growth. Cutting on a three-year cycle (one side, top, other side) will allow time for flowering and fruiting shrubs to develop throughout the length of the hedge and is the most beneficial for wildlife.

5.2.8 Planting, laying and cutting will be carried out between October and March where possible to ensure that birds are not nesting and ideally in January and February to ensure that the fruiting berries are not lost. If a hedge must be trimmed during the fruiting season it is essential to only cut one side so that plenty of food remains. A healthy hedge can normally recover well from severe cutting, but repeated cutting at the same height can gradually cause whole hedges to die off. One major problem associated with mechanized hedge cutting is the decline in the number of saplings left in hedges to grow into mature trees. Trees will be marked with tree tags from The Tree Council or use fluorescent tape to prevent them being lost.

5.2.9 Gaps will either be planted with new plants, which are an opportunity to increase the botanical diversity of the hedge or add trees to the hedge line, or be left to regenerate naturally if possible. Any new planting will need to be protected from stock, rabbits and deer for approximately 3-4 years. Initially the surrounding hedge may need cutting back to ensure the new plants receive sufficient light. Regular trimming in the early years of a hedgerow's life will help make it dense.

5.2.10 An inspection to be made in August each year. Any losses of planted plants, whether by natural means, wear and tear or vandalism and any other plants that have failed to thrive, will be replaced in the planting season following the loss. This to include any plants that are relatively short lived and which will require routine replacement during the period of the Management Plan. Replacement plants to be of the same specification and size as the original plants.

5.2.11 Following completion of the Establishment Period, the need for both watering and weed control is likely to be reduced.

5.2.12 Recommended cutting machinery for hedging operations will be by use of a handheld mechanical hedge trimmer or a tractor-mounted flail/cutting bar/circular saw attachment for bigger material. All cut faces should be left neat and clean with no jagged ends or tears.

5.2.13 Intermittent laying will be used as a renovation and wildlife-friendly management technique. As hedges grow, they gradually become more tree-like; gaps tend to appear lower down and the stems cease to provide an effective barrier. At this point, the hedge should be allowed to grow sufficiently tall (3-5m high) so that it can be laid, both to fill in the gaps and to ensure the long-term viability of the hedge by promoting vigorous regrowth from the base. Laying involves partially cutting stems, so that they will bend without breaking, at ground level and laying them at an angle of between 35 degrees to the ground and horizontal. These cut stems, known as pleachers, will be laid parallel to each other and tucked tightly together, protecting the new growth from livestock grazing. Vertical stakes and binders will be used to strengthen and thicken the hedge, depending on regional variation. The aim should be to manage the hedgerow through cutting so that it is not necessary to lay more often than at least every 20 years.

5.2.14 Hedge margins are an important habitat for all wildlife and a buffer zone of at least 1m will be maintained on both sides being cut no more frequently than every three years.

5.2.15 Regular monitoring for pests and diseases will be undertaken on an ongoing basis and any necessary control measures will be undertaken as soon as possible.

5.3 Operation 3: New Formal Hedges

Objectives: Promote early growth of new formal hedge plants to create well-structured and healthy, dense hedges.

Initial Establishment Maintenance of New Formal Hedges

5.3.1 Establishment maintenance of new formal hedge planting will be required for the first three years after planting to ensure rapid early growth. Visits shall be undertaken at least monthly between April and September in the first year, with two visits during the dormant season. In the second and third years the frequency of visits can be reduced to bi-monthly. Maintenance visits are required to ensure that the following maintenance requirements are satisfactorily undertaken:

- Watering as required to ensure healthy growth, particularly in Year 1 and 2. All planting areas to be visited weekly in periods of dry weather and sufficient water to be applied to eliminate drought related stress.
- Formal hedges in front gardens shall be maintained in accordance with the preceding clauses, with special care to keep hedges clear of invasive ruderal species. Pruning, clipping, and training of hedges shall be carried out in September each year, to avoid disturbance to birds in the breeding season. The aim is to produce a dense hedge of maximum height of 1.2m with a width of 0.8m. To this end leading stems and other top growth to be allowed to grow for 3 - 4 years, laterals should be trimmed back annually to rectangular shape, to encourage dense bushy growth. Once new sections of hedge have reached the desired dimensions, they shall be managed according to the longer-term management prescriptions as set out below.
- Hedge plants to be treated with an annual application of an approved slow-release fertiliser used as a top dressing at the manufacturer's recommended rates in April of Years 1 and 3.
- Plants which have become loosened, lifted up or out of the ground to be set upright and re-firmed by treading.
- The need for weed control will be minimised through the use of mulch in planting areas. The mulch is to be regularly topped up to 75mm, ensuring that the lower branches and foliage of plants are not smothered. Mulch to be kept clear of adjacent grass, paved areas etc. This will generally suppress weeds but there may be some localised ingress of weeds. Any additional weed control required to keep the hedge trench free of grass and weed growth must be by hand.
- Plants to be kept free of pests and diseases, regular monitoring to be undertaken.
- General pruning to be carried out to trim laterals, remove straggling stems, over-vigorous shoots, suckers and dead, misshapen, broken or otherwise unhealthy branches. Leading shoots to be left untrimmed during the Establishment Period.
- Planting areas to be kept free of litter.

- All arisings to be removed from site and the site to be left clean and tidy at all times.

5.3.2 An inspection to be made in August each year. Any losses of hedge plants, whether by natural means or vandalism and any other plants that have failed to thrive, to be replaced in the planting season following the loss. Replacement plants to be of the same specification and size as the original plants.

5.3.3 It may be necessary to reinforce the integrity of the new formal hedges by installing a framework of posts and wire, to be kept intact and in good repair during the Establishment Period.

Longer term Management of New Formal Hedges

5.3.4 Regular maintenance visits should be made at a minimum of monthly intervals between April and September with two visits during the dormant season each year. It will be necessary to undertake general 'tidying' eg removal of litter, as described above for the Establishment Period. All arisings to be removed from site.

5.3.5 Formal hedges will need cutting to prevent the vegetation becoming 'leggy' and to encourage growth. Cutting on a three-year cycle (one side, top, other side) will allow time for flowering and fruiting shrubs to develop throughout the length of the hedge and is the most beneficial for wildlife.

5.3.6 Formal hedges in front gardens are to receive formative pruning to remove straggling stems, over-vigorous shoots, suckers and dead, misshapen, discoloured, thin, weak, over-crowded, old or broken branches from shrubs by pruning back with a clean cut to the main stem, or to a sound and healthy outward growing lateral. The aim is to produce a dense hedge of maximum height of 1.2m with a width of 0.8m by cutting back annual growth once each year during the winter months (November – March). Laterals should be trimmed back annually to rectangular shape, to encourage dense bushy growth and create a symmetrical hedge.

5.3.7 Planting and cutting will be carried out between November and March where possible to ensure that birds are not nesting and ideally in January and February to ensure that the fruiting berries are not lost. If a hedge must be trimmed during the fruiting season it is essential to only cut one side so that plenty of food remains. A healthy

hedge can normally recover well from severe cutting, but repeated cutting at the same height can gradually cause whole hedges to die off.

5.3.8 Gaps shall be planted with new plants. Any new planting will need to be protected from stock, rabbits and deer for approximately 3-4 years. Initially the surrounding hedge may need cutting back to ensure the new plants receive sufficient light. Regular trimming in the early years of a hedge's life will help make it dense.

5.3.9 An inspection to be made in August each year. Any losses of planted plants, whether by natural means, wear and tear or vandalism and any other plants that have failed to thrive, will be replaced in the planting season following the loss. This to include any plants that are relatively short lived and which will require routine replacement during the period of the Management Plan. Replacement plants to be of the same specification and size as the original plants.

5.3.10 Following completion of the Establishment Period, the need for both watering and weed control is likely to be reduced.

5.3.11 Recommended cutting machinery for hedging operations will be by use of a handheld mechanical hedge trimmer. All cut faces should be left neat and clean with no jagged ends or tears.

5.3.12 Regular monitoring for pests and diseases will be undertaken on an ongoing basis and any necessary control measures will be undertaken as soon as possible.

5.4 Operation 4: New Ornamental Shrub and Herbaceous Planting

Objective: to encourage rapid establishment of a closed canopy of shrubs and ground cover planting in ornamental and native planting beds. Longer term management will aim to sustain shrubs and herbaceous planting in a healthy, vigorous condition and to maximise the visual amenity of the planting. Please refer to Appendix A drawing 1619 A6 14 for planting schedule.

Establishment Maintenance of Ornamental Shrub and Herbaceous Planting

5.4.1 Establishment Maintenance of new planting will be required for the first five years after planting to ensure rapid early growth. Visits to be undertaken at least monthly

between April and September, with two visits during the dormant season, to ensure that the following maintenance requirements are satisfactorily undertaken:

5.4.2 Watering as required to ensure healthy growth, particularly in Year 1 and 2. All planting areas to be visited weekly in periods of dry weather and sufficient water to be applied to maintain planting areas in moist condition but without risk of waterlogging, to eliminate drought related stress.

5.4.3 All shrubs and herbaceous plants to be treated with an annual application of an approved slow-release fertiliser (eg Osmocote), at the manufacturer's recommended rates in April of Years 1, 2 and 3.

5.4.4 Plants which have become loosened, lifted up or out of the ground to be set upright and re-firmed by treading. All tree and shrub guards and other protection, to be regularly checked, re-firmed, repaired or replaced as necessary.

5.4.5 Regular hand weeding will be required to ensure weed free planting areas throughout. The need for weed control will be minimised through the use of a 75mm minimum layer of mulch. The mulch is to be regularly topped up to 75mm, to ensure a minimum depth of 50mm, using the mulch originally specified. Mulch to be kept 10mm below adjacent grass, paved areas etc. and cleared off as necessary. In the gapping up of planting areas, stringent weed control is also necessary and may be either by hand or with glyphosate, carefully applied to avoid damage and to create a weed free zone of 1m diameter centred on each plant.

5.4.6 It is necessary to ensure that the lower branches and foliage of plants within the mulched ornamental areas are not smothered. Mulch to be topped up as necessary and kept cleared off adjacent grass, paved areas etc. This will generally suppress weeds but there may be some localised ingress of weeds. Any additional weed control required must be by hand.

5.4.7 Plants to be kept free of pests and diseases, regular monitoring to be undertaken.

5.4.8 Ornamental planting areas to be kept free of litter and leaf fall, with all arisings removed from site and the planting areas to be left clean and tidy at all times.

5.4.9 General autumn tidy taking care not to discourage wildlife which may be present.

5.4.10 An inspection to be made in August each year. Any losses of shrubs or herbaceous plants, whether by natural means, accidental damage or vandalism and any other plants that have failed to thrive, to be noted and replaced in the planting season following the loss. Replacement plants to be of the same specification and size as the original plants.

5.4.11 The herbaceous planting is to be dead-headed after flowering and routinely managed.

Longer Term Management of Ornamental Shrub and Herbaceous Planting

5.4.12 Regular maintenance visits should be made at monthly intervals between April and September with two visits during the dormant season each year. It will be necessary to undertake general routine maintenance including weeding, removal and replacement of dead plants, litter and leaf fall clearance (except in native planting areas), topping up, raking and sweeping of mulch to provide a tidy appearance etc., as described above for the Establishment Period. All arisings to be removed from site and the site to be left clean and tidy at all times.

5.4.13 An inspection to be made in August of each year until Year 5. Any losses of planted plants, whether by natural means, wear and tear, accidental damage or vandalism and any other plants that have failed to thrive, to be replaced in the planting season following the loss. This to include any plants that are relatively short lived (eg Hebe and Lavandula) and which will require routine replacement during the 5 year period of the Management Plan. Replacement plants to be of the same specification and size as the original plants.

5.4.14 Following completion of the Establishment Period, the need for both watering and weed control is likely to be reduced but topping up of mulch must still be undertaken as necessary to maintain the ornamental beds in a weed free condition. Ornamental planting beds to be maintained in a weed free state and mulch material to be kept topped up to ensure a minimum depth of 50mm, as appropriate.

5.4.15 In dry summers some ornamental beds may require watering to ensure healthy growth, in the longer term.

5.4.16 Regular monitoring for pests and diseases will also be needed on an on-going basis and any necessary control measures undertaken as soon as possible.

5.4.17 At a time to be agreed (likely to be between Years 4 and 5) and when no longer considered necessary / inflicting constraint on the plants, plant guards and other protection, to be removed with care to avoid damage to the plants.

5.4.18 General and formative pruning to shrubs to remove straggling stems, over-vigorous shoots, suckers and dead, misshapen, discoloured, thin, weak, over-crowded, old or broken branches from shrubs by pruning back with a clean cut to the main stem, or to a sound and healthy outward growing lateral. Ground cover plants e.g. Hedera and Pachysandra, to be trimmed to shape and to prevent encroachment onto adjoining hard surfaces, shrub species or grass edges in April to June each year.

5.4.19 Specific shrub species shall be pruned in accordance with best horticultural practice and as a general guidance note the following examples have been given:

Agapanthus H. Hybrids	No need to cut down in the autumn, as the seedheads look attractive over winter.
Dryopteris filix-mas	Remove dead or diseased fronds as necessary.
Euonymus fortunei spp.	Clip to shape in April and trim again if necessary in late August.
Geranium spp.	Remove the flowering stems and straggly growth in July after flowering, to encourage second flush of flowers. In March or April every 3rd year, lift, divide and replant if necessary.
Hebe spp.	To be neatly clipped to a maximum height 1m. Clip in April and remove any dead wood as necessary.
Lavandula spp.	Cut back flowering stalks on last year's wood in September /October and trim to create a tidy, dome shaped form.

Lonicera nitida	Cut all new growths back by half each year in March to encourage bushy growth. Prune in September to maintain shape.
Viburnum davidii	Cut back 30% of stems to ground level in March, if overcrowded. Trim to shape in March and September and out of adjoining shrubs.

PLEASE REFER TO PLANTING SCHEDULE ON 1619 A6 14 (APPENDIX A)

NB. Viburnums are susceptible to a number of pests and disease, including Viburnum beetle and require particularly vigilant monitoring and early treatment.

5.4.20 Vigorous species to be pruned as necessary to restrict lateral and top growth, to prevent infringement on adjoining plants, paths, grass, edges etc. It may be necessary in 5 - 15 years after planting, to undertake rejuvenate pruning of these and other species, if they outgrow their location or become over-mature. In these cases, shrubs to be cut to 100mm above ground level in March. Plant re-growth is to be monitored and any shrubs which do not regenerate successfully to be removed and replaced, with plants of the same size and specification as the original plants.

5.4.21 Herbaceous planting including Geranium and Nepeta to be dead headed after flowering, with flower stems cut to ground level. Similarly dead top growth of deciduous species to be cut down to just above ground level in September/October. Where necessary to maintain a tidy appearance and in accordance with good horticultural practice, any dead leaves of evergreen species to be cut back to ground level in the autumn. Those species which retain attractive winter leaves e.g. Heuchera spp. to be retained un-pruned but tatty leaves to be cut out on a regular basis. Any woody growth of species to be cut hard back in late February.

5.4.22 Vigorous herbaceous species e.g. Geranium spp. to be divided and splits used to extend/gap up the original planting in October, as necessary to ensure longevity and free flowering of the parent plants. Particular care will be required in areas of perennial plants that die back in the autumn and in these areas it will not be possible to use herbicides and mulch will need to be topped up with care to avoid smothering.

Due to the relatively short-lived nature of some plants (e.g. Hebe and Lavender), provision should be made for plant replacement after 5-10 years. Similarly, it may be necessary to replace some of the herbaceous species, which have a tendency to die out, in time. This to be undertaken in early spring, as necessary.

5.5 Operation 5: Native Wildflower Grassland (Emorsgate EM3 or equivalent to suit soil type on site) in Public Open Space

Objective: Areas of native wildflower grassland are to be maintained as a picturesque amenity space that is of value to wildlife and maintains its species diversity through effective management.

Establishment Maintenance of Native Wildflower Grassland

5.5.1 Areas of newly seeded/turfed wildflower grassland to be subject to establishment maintenance during the first year after implementation.

5.5.2 Areas for seeding must be cleared of debris and existing vegetation before seeding. A fine even seed bed to be prepared and seed sown and rolled afterwards.

5.5.3 Seed sown in Autumn or Spring with suitable ground conditions (not waterlogged or in drought).

5.5.4 Areas newly seeded to be subject to establishment maintenance during the first year after seeding. Mow newly sown meadows regularly throughout the first year of establishment to a height of 50mm, removing cuttings if dense. This will control annual weeds and help maintain balance between faster growing grasses and slower developing grasses, carefully dig out or spot treat any residual perennial weeds. Grass cutting should not take place when ground is flooded or boggy with unstable soil conditions.

5.5.5 Watering as required to ensure healthy growth, particularly in Year 1 and 2. All wildflower areas to be visited weekly in periods of dry weather and sufficient water to be applied to maintain planting areas in moist condition but without risk of waterlogging, to eliminate drought related stress.

5.5.6 Strimming by hand may be required in more difficult to reach areas. In this instance, maintenance is to be conducted using the same techniques detailed above. Use of a strimmer will be beneficial and arisings will need to be raked up by hand. If strimmers are used, care to be taken not to damage adjacent vegetation.

Longer Term Management of Native Wildflower Grassland

5.5.7 Following first year of establishment, cut to height of 75mm, once in late August, once again in mid-October and in mild winters once again in mid-March. All cut material should be collected by sit on mower collection box at once, except for the August cut which shall be left for 3-5 days after cutting to allow to dry, for re-dispersal of seeds. This can then be collected using the collection box on a sit on mower. NB. It will be necessary for the company maintaining the wildflowers to have an understanding of the principles of wildflower management, which is different from normal amenity grass management. This should ideally be demonstrated before the contract for the grounds maintenance is let.

5.5.8 Strimming by hand may be required in more difficult to reach areas. In this instance, maintenance is to be conducted using the same techniques detailed above. Use of a strimmer will be beneficial and arisings will need to be raked up by hand. If strimmers are used, care to be taken not to damage adjacent vegetation.

5.5.9 For established growth, areas immediately adjacent (within 1-2m) to hedging or boundary vegetation can be left unmown for 2-3 years providing brambles and tussock grass is controlled.

5.5.10 To avoid disturbing potential fauna that may potentially be present, wildflower grassland adjacent to hedgerows should have minimal disturbance and should only be entered during times of maintenance.

5.6 Operation 6: Amenity Grass

Objective: Areas of short mown grass are to be maintained as a high-quality sward, for informal recreational use.

Establishment Maintenance of Amenity Grass

5.6.1 Areas of newly seeded/turfed grass to be subject to establishment maintenance during the first year after implementation.

5.6.2 Once the grass has established sufficiently to be stable and well rooted, the first cut is to be made when the grass has reached 50mm in height and the grass shall not be cut lower than 25mm. All subsequent cutting; the frequency and number of cuts within a growing season will be undertaken as required to keep grass below 50mm. Operations to be carried out in suitable dry weather conditions. Cuttings to be removed or distributed lightly and evenly over the sward.

5.6.3 Watering as required to ensure healthy growth, particularly in Year 1 and 2. All wildflower areas to be visited weekly in periods of dry weather and sufficient water to be applied to maintain planting areas in moist condition but without risk of waterlogging, to eliminate drought related stress.

5.6.4 Any failed areas of grass to be seeded at the correct season. Any ingress of pernicious perennial weeds to be hand pulled. Any stones or litter on the surface to be removed.

Longer Term Short Grass Management

5.6.5 Areas of short grass once established for twelve months are to be cut to keep grass below 50mm. The frequency and number of cuts within the growing season, likely between March and October to maintain the grass between 25 - 50mm. However, it will be weather permitting and should be reviewed to suit extreme weather ie extremely dry arid conditions it may be necessary to reduce the cut leaving the grass slightly longer. The height of grass shall not exceed 50mm before cutting, topped to a height of 25mm. Any short grass that abuts a vertical obstacle to be strimmed at the same time as each grass cut to achieve a neat edge. Swathes of arisings to be collected up and removed from site.

5.6.6 All grass edges against paved areas, kerbs or other hard surfaces to be edged regularly to maintain a 10-20mm clear gap between the two surfaces.

5.6.7 In March and September of each year, all grass edges to be trimmed in accordance with the above paragraph, to be re-cut to a straight line or smooth curve as appropriate using a half moon edging tool or similar.

5.6.8 The sward to be treated with an approved selective herbicide, at the recommended rate of application on an annual basis in May of each year, to control broad-leaved weeds.

5.6.9 Any damage to the sward caused by pests (moles, rabbits etc.) or by vehicles or general wear and tear, to be reinstated by top dressing, re-cultivation, re-seeding and watering, at the correct season, as necessary. Any reinstated areas to be protected and subject to establishment maintenance as itemised above. If grass growth is poor it may be necessary to apply a spring and/or autumn fertiliser to the sward, to encourage vigour. Similarly, turf aeration and scarification may also be necessary, to alleviate compaction and control the development of thatch. Fertilizing and aeration maintenance tasks are not to be undertaken during the establishment period of the lawn and this would be detrimental to the health of the lawn.

5.6.10 Any leaf material, broken branches, litter, stones or other debris which occur on the grass, to be removed as necessary, to maintain a clear grass surface.

5.7 Operation 7: General Long Term Management Objectives

5.7.1 This area will ideally support and become a link corridor and habitat for a vast diversity of mammals, birds and insects protecting the existing tree lined avenue.

5.7.2 Adding strategically placed wood log piles and fallen tree trunks away from trafficked areas will also encourage wildlife colonies to nest and create homes and encourage wildlife enhancement through habitat creation. Locations to be recommended by Consulting Ecologist.

5.7.3 Areas of nettles and brambles are to be encouraged to grow and be managed so that they do not become a nuisance, to residents and walkers but will become safe havens for wildlife.

5.7.4 As the above if trees are to be removed due to disease or dying then the areas to be set aside for wildflower seeding until the replacement trees have reached maturity.

5.7.5 This area, as above, to be developed and managed to retain the existing character but will over a period of time with the measures above become a fascinating wildlife corridor and amenity area.

6 SITE SPECIFIC AREAS

6.1 Operation 8: Site Housekeeping, Hard Landscape features, Play and Open Spaces

Objective: Ensure that the site is respected and that the hard and soft landscape elements including high quality fixtures are maintained in good condition, without the risk of degradation through natural processes or abuse.

Routine Site Monitoring

6.1.1 All furniture including benches, bins, signage, railings, fencing and light fittings etc. are to be regularly checked and cleaned and if necessary repaired. Timber treated with an appropriate preservative or replaced as appropriate, and in accordance with manufacturer's instructions. Dangerous items may need to be removed from site and area made good.

6.1.2 Regular checks of the site will be required and any litter, other debris and / or fly tipping to be removed on a one/two weekly basis. Any litter bins to be regularly inspected and emptied, as necessary to avoid over-filling. Vigorous attention will be required with respect to control of dog fouling.

6.1.3 Hoggin Path to be check for a level even surface. without potholes or any build up materials. Excess materials to be spread evenly (gentle rake taking care not to disturb compacted surfacing) and potholes are to be repaired to match the original materials and construction method. Edging to the path should be check for damage or movement and repaired or replaced as required to maintain the integrity of the path. Leaves, litter and other debris to be removed from the path.

6.1.4 All areas of paving, flush and raised edging to paths and planting areas, kerbs, macadam and other hard surface areas throughout the management areas of the site, to be kept free of leaves and silt deposits, swept or alternative method of debris removed e.g. suction or blowing, on a monthly basis. Method to be suitable for each specific material. All to be maintained free of grass, weed, moss or algal growth, using appropriate translocated and herbicides and moss-killers. Particular attention is required to areas that may be prone to slipperiness. It may be necessary to use a

pressure washer on occasion to remove any silt or algal build up. Areas of permeable block paving is to be maintained to the manufacturer's specification to ensure required permeability is retained. Due to the nature of the paving it may require more frequent weed control. No suction methods should be used. Any granular fill displaced by cleaning should be replaced.

6.1.5 Any walls or structures such as bins or cycle storage should be regularly checked to ensure safety, function and aesthetics. This may include the removal of graffiti.

6.1.6 Longer term management of paths, steps, roads and other hard surfaces etc. will include twice annual monitoring in April and September of each year and repair/replacement to be undertaken as necessary, to prevent further deterioration.

6.1.7 Site drainage issues also to be addressed on a routine basis to ensure that there are no problems relating to blockages or disrepair of main drains or laterals, dispersal of surface water etc. This will include regular checking and clearance of any drainage gulleys and grated drainage channels and rodding of underground drainage pipes as necessary.

6.1.8 Gritting and snow clearance to be undertaken on an 'as required' basis to all paths and other hard surfaced areas.

6.1.9 Any unauthorised use of the areas or vandalism/graffiti/loitering/dens or other abuse or anti-social behaviour, to be reported immediately to the Local Authority/Police (as appropriate) for further action and/or removed as soon as possible. Similarly, any inappropriate use of the open space by residents e.g. installation of personal possessions/ children's play equipment etc, into the communal areas, dumping of shopping trolleys, storage of bikes etc, to be similarly reported and appropriate action/warnings issued.

6.2 Operation 9: Play Spaces; LEAP/LAP/NEAP/MUGA/Trim Trail Provision

Refer to drawings 1619 A6 05, 06, 07, 08, 09, 11, Appendix A.

6.2.1 ***Objectives***: Ensure surfacing and equipment and safety fencing is kept clean and safe in line with manufacturer's instructions.

6.2.2 Play provision on site comes in the form of 2 number LEAP (Local Equipped Area of Play), 3 number LAP (Local Area Play), a NEAP (Neighbourhood Equipped Area of Play), MUGA (Multi-use Games Area) and Trim Trail.

6.2.3 The play area shall have a safety inspection by ROSPA on completion and thereafter annual inspections by ROSPA or Independent Play Inspectors or similar approved organisations to ensure ongoing safety and aesthetics.

6.2.4 Play areas will have a life span for as long as the play equipment is of an adequate condition that is suitable for use by children. Replacement to happen based on the use and wear of the equipment and in line with manufacturer's recommendations. It must be ensured that play equipment is regularly checked to ensure that any dangers are eradicated. Checks to be made with reference to manufacturers instructions for each separate piece of play equipment (e.g. checking Kompan Climbing Structure for fraying ropes (weekly), broken joints (monthly) and ensuring ropes are tensioned (twice annually)). Should a potential danger be found, the play area is to be closed until repairs are made to manufacturers guidelines.

6.2.5 When new equipment is required owing to the limited lifespan of play equipment, this will be replaced like for like.

6.2.6 Safety surfacing to play areas should be checked monthly for foreign objects and worn/reduced surface areas to ensure compliancy with regards to critical fall height impact (Please note this inspection frequency and procedure may vary and must follow the manufacturer's specification.)

6.2.7 Safety surfaces should be monitored on a monthly basis with an annual inspection to verify fit for purpose and condition. This will also be in accordance with manufacturer's specification. It is important that rubber mulch safety surfacing is kept clean and safe. Brushing is required to remove debris. As rubber mulch is a permeable material, it is best to pressure wash or jet wash the surface to ensure the porous void remain open. This can be a damaging process for the surfacing and unless it is known how to conduct this task properly, a professional contractor should undertake this task.

6.2.8 Gate self-closing mechanisms to be checked to ensure they are in working order. Railings to be checked to ensure stability, damaged to be repaired.

6.2.9 Play areas containing vegetation are to be managed as per the appropriate section of this document.

6.3 Operation 10: Rain Gardens

6.3.1 *Objectives*: Ensure an attractive and functional bioretention feature to collect and utilise rain and surface water runoff.

Establishment and Maintenance of rain gardens

6.3.2 Plants to be managed as per the relevant sections of this management plan. Before planting the area should be weed and litter free with cultivated top soil. If weeds are likely and time allows spray with a non-residual herbicide. If time is short and no problem weeds are expected they can be spot treated or removed by hand. Care being taken to not compact soil from foot traffic, thus reducing drainage potential.

6.3.3 Planting should be installed in suitable ground conditions so not waterlogged or cracked, dry, drought conditions. Care should be taken not to damage any drainage materials during planting or maintenance. Repairs are to be undertaken promptly to ensure correct drainage and conditions for the plants.

6.3.4 Rain garden planting may require watering for the first few years during dry periods to aid the initial establishment. Do not water if there is a risk of frozen ground conditions.

6.3.5 Continuously keep the rain gardens tidy through regular practices such as removing litter, dead or damaged plants. Replacements should be planted in the next growing season. Rain garden plants are to be managed as per the appropriate section of this Management Plan e.g. shrub, herbaceous planting. Some plants may be dormant for part of the year and dead growth can be cut back if unsightly.

6.3.6 After two years of establishment pruning and reduction of dominating species may be required. Replacement planting if required should be as per the original specification unless the species is deemed not successful in that context. In which case a substitution should be agreed with the landowner (and with the LPA if replacement is required within the first 5 years).

6.3.7 Inspection of rain gardens should be carried out regular to monitor any bare ground, silt deposits, excessive waterlogging and poor growth. Conditions are likely to vary between highs and lows and localised differences may require a specific approach, e.g., boggy areas which remain waterlogged for a significant portion of the year may need the addition of an appropriate species.

6.4 Operation 11: Attenuation Basin - Wetland Meadow (Emorsgate EM8)

6.4.1 Objective: To enhance the naturalisation to the periphery of the attenuation basin.

Establishment Maintenance of Wetland Seeded Areas

6.4.2 Care to be taken when working on sloped ground and near water. Using appropriate machinery or hand held methods as recommended in the contractor risk assessment.

6.4.3 Areas for seeding must be cleared of debris and existing vegetation before seeding. Prepare the seed bed using repeated cultivation or herbicide. Add nothing that will improve fertility of the soil or promote weed growth. Uncontaminated site sourced, low fertility soil may be used as the top soil. A fine even seed bed to be prepared and seed sown and rolled afterwards.

6.4.4 When seed is sown the ground conditions should be suitable (not waterlogged or in drought). Plant growth will need to establish before there are chances of flooding. Water in seed if weather is dry.

6.4.5 Surface sow seed by machine or hand. Sow the area twice in opposing directions to ensure cover at a rate recommended by the manufacture and firm by rolling. Areas of newly seeded grass to be subject to establishment maintenance during the first year after seeding to control rough and dominant species.

6.4.6 To control annual weeds and promote balance between fast growing grasses and slower growing flowers mow newly sown meadows regularly throughout the first year. Cut to a height of 40 – 60mm, removing dense cuttings. Avoid cutting between spring and summer so flowering is achieved. Cutting from late August may remain to encourage re-dispersal of seeds.

6.4.7 Strimming by hand may be required in more difficult to reach areas within the Swale. In this instance, maintenance is to be conducted using the same techniques detailed above. Use of a strimmer will be beneficial and arisings will need to be raked up by hand.

6.4.8 Spot treat any perennial weeds regularly.

Long Term Maintenance of Meadow Grass Wetland

6.4.9 Inspection of the drainage pond should be inspected regularly for erosion, bare ground, silt deposits, litter, excessive waterlogging and poor growth. Conditions are likely to vary between highs and lows in ridge and furrow grassland. Localised differences may require a specific approach, eg boggy areas which remain waterlogged for a significant portion of the year may need the addition of a revised plant or seed selection to accommodate natural changes and conditions.

6.4.10 In the second and subsequent years sowings are from mid-summer (July) to autumn (end of August) and in spring to maintain balance of grass to flowers. Cut to 100 – 150mm. Cutting from late August may remain to encourage re-dispersal of seeds.

6.4.11 Continue to spot treat perennial weeds.

7 SPECIES SPECIFIC LANDSCAPE MANAGEMENT INFORMATION

7.1 Operation 12: Avoidance of Adverse impacts on Bats Using the Site

Objective: To avoid disturbance/displacement of bats using the site. The conversion of the existing buildings will be carried out under a working method statement as part of a European Protected Species Licence (EPSM2012-5157A). This will help to ensure that the bats are not injured or killed during the construction process, while bat boxes will provide temporary roosting opportunities until the new buildings are constructed, which will be over a number of phases.

Across all phases 20 Loft spaces will be created with access for the light testing bats, specifically Brown Long-eared bats. These loft spaces will also have features for crevice dwelling bats. The number of roosts to be located in this phased area will be confirmed by specialist ecological consultant.

Across all phases 25 bat boxes will be erected in suitable trees before any demolition work begins. As a precaution, to avoid the maternity season, demolition of buildings with identified bat roosts will be carried out from January to mid-May. The number and location within this phased area will be confirmed with the consulting ecologist.

A tool-box talk will be carried out by a qualified ecologist named on the licence. This will inform the contractors of the method statement both before commencement and for ongoing maintenance.

7.1.1 Care will be taken to avoid any unnecessary bright lights - both in regards to temporary security lighting during the construction phase and any long-term lighting plans for the site:

7.1.2 Any potential new lighting impacts associated with the proposed development will be minimised by the use of lights with little to no UV content, warm white light sources, and directional downlights - illuminating below the horizontal plane which avoid light trespass into the environment. The use of light directional accessories such as baffles, hoods and louvres can assist with this. Particular attention will be made to avoid lighting of the boundary hedgerows.

7.1.3 Lighting types to be avoided include any blue-white light sources, metal halide and mercury lamps, and any form of uplighting, which lights above the horizontal plane, illuminating trees and foraging habitat.

7.1.4 **Measure**: Confirmation by Ecological Clerk of Works that the lighting regime is being complied with during and post construction.

Objective: Enhancement of the Site Habitats for Bats

7.1.5 Any garden planting close to the retained grassland areas will include night scented plants such as Aubretia, Field Poppies, Honesty, Michaelmas Daisy, Night-scented Stock, Mexican Aster and Verbena. These plants will attract nocturnal invertebrates thereby creating a foraging resource for bats.

7.1.6 To increase the roosting opportunities for bats through the Provision of Bat Boxes a range of bat boxes will be installed. These will be installed on mature retained trees on the northern and western boundaries as high as possible (minimum height of three metres) to avoid interference by vandals. All boxes will be placed in sheltered, wind-free areas that are exposed to the sun for part of the day facing a south-east, south or south westerly direction and all lighting will be angled away to avoid direct illumination of the box.

7.1.7 Where necessary branches will be cleared to provide an unrestricted flight path to and from the box.

7.1.8 The boxes will be put in place during the winter months to allow the bats to use the new roosts during the following spring/summer months.

7.2 Operation 13: Enhancement of the Site Habitats for Birds

7.2.1 *Objectives*

- To increase the nesting opportunities for birds through the Provision of Bird Boxes.
- Creation of species-rich native wildflower areas to provide foraging habitat
- Provide native-planted ponds throughout the site;(external to this parcel)

- An overall site wide contribution of bird boxes to include 40 assorted bird nest boxes on mature trees across all site phases; to be retained to provide further nesting opportunities and contribute of 10 nest boxes on new buildings across all site phases suitable for House Martins.

7.2.2 Specific to Phase 9, this provision equates to:

- 8 number Sparrow terraces along with 8 Avianex nest boxes will be erected onto the new buildings.
- 10 number Swift nest boxes are to be erected onto the new buildings in accordance with the aims and objectives of the Cherwell Swifts Conservation Project.
- The nest boxes will be erected on the northern, eastern or western elevation of the new builds during the winter months to allow the boxes to be used during the following spring/summer months.
- 5 number Schwegler 1B nest boxes and 5 number Schwegler 2H bird nest boxes will be erected in the boundary hedges and trees to the north, west and south of the site.
- 2 number Barn Owl nest boxes will be erected on retained trees or poles on the western or southern boundary of the site.

7.3 Operation 14: Enhancement of the Site Habitats for Hedgehogs

Objective: to increase the resting/shelter/hibernation/foraging opportunities for Hedgehogs.

7.3.1 Creation of loggeries and woodpiles from the arisings from the tree surgery operations and general site maintenance will be undertaken. This will provide both shelter and invertebrate food sources as the brash/log piles decay and become colonised by Seproxylic invertebrates. The loggeries/woodpiles will be places at the bases of hedgerows (positions to be confirmed by Consulting Ecologist).

7.3.2 The loggeries will be erected during the winter months when the ground is easier to dig. The woodpiles can be erected at any time of the year.

7.3.3 8 number insect boxes will be erected onto the new builds or retained trees to provide sheltering opportunities for invertebrates.

7.4 Operation 15: Monitoring

Objective: To establish success of the habitat creation measures. A full monitoring schedule can be seen in Appendix B.

7.4.1 An annual check of onsite bird, bat and invertebrate boxes will be undertaken by licensed bat worker to establish take up of the enhanced habitat features.

7.4.2 Checks of loggeries/woodpiles will be undertaken on each site visit by the retained ecologist to ensure that these are being satisfactorily maintained. Assessment of structural diversity of the grass swards will also be undertaken during such visits.

7.4.3 A check of the lighting specs for the site will be undertaken by the Ecological Clerk of Works (retained ecologist) during construction.

7.4.4 Nest boxes are to be checked for damage and ensure correct alignment is maintained to encourage nesting birds etc. Rotten or damaged boxes are to be removed and replaced with boxes as specified within the original approved documentation. All boxes are to be maintained by a suitably qualified person; for general advice refer to: http://rspb.org.uk/asdvice/helpingbirds/nestboxes/smallbirds/maintenance.aspx.

7.5 Operation 16: Reporting

7.5.1 *Objective*: To inform the accountable site managers of progress against this plan and the success or otherwise of the objectives in order that remedial action can be taken if necessary and to advise the Local Planning Authority of the outcomes so that the discharge of their duties under the NERC Act 2006 can be assessed.

7.5.2 **Timings**: annually to the managers, end of 5 and 10 years for the LPA.

8 REFERENCES

Countryside and Rights of Way Act 2000

The Conservation of Habitats and Species Regulations 2017

National Planning Policy Framework, 2018.

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