St George's Rd, Semington, Trowbridge, BA14 6JQ

Landscape and Ecological Management Plan



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All Ecology Ltd

Tel: 01453 393001
Email: info@allecology.co.uk
Web: www.allecology.co.uk

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England and Wales Office

All Ecology Ltd,
Haw Street,
Coaley,
Dursley,
Gloucestershire,
GL11 5AY.

Scotland Office

All Ecology Ltd,
Bowfield Road,
Howwood,
Renfrewshire,
PA9 1BZ.

Tel: 01453 861210
Email: info@allecology.co.uk
Web: www.allecology.co.uk

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The flora and fauna detailed within this report are those noted during the field survey and from anecdotal evidence. It should not be viewed as a complete list of flora and fauna species that may frequent or exist on site at other times of the year.

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1.0 Introduction

Background

1.1 All Ecology was commissioned to produce this document in respect of a proposed development at a site known as St George's Rd, Semington, Trowbridge, BA14 6JQ.

1.2 The site is the southern portion of a single open field of poor semi-improved grassland. This is enclosed by hedges on all sides with the exception of the north boundary, which is bordered by the reminder of the field.

1.3 An Ecological Appraisal of the site carried was carried out by AD Ecology Ltd in 2015 with a subsequent Walkover Survey update of the site undertaken by All Ecology Ltd in 2021.

1.4 The site is subject to a proposed planning application for the erection of 18 new residential dwellings with associated gardens, infrastructure and landscaping as a second phase of the adjacent residential development.

1.5 The following condition was attached to the planning permission for which the present report is intended to discharge:

> *No development shall commence on site including site clearance until a Landscape and Ecology Management Plan (LEMP) has been submitted to and approved in writing by the Local Planning Authority. The LEMP shall specify the design and location of features required as mitigation as outlined in Section 4 of the Walkover Survey report prepared by All Ecology (November 2021) and required by the Biodiversity Net Gain Preliminary Design Stage Report prepared by All Ecology (July 2022) the including, including but not exclusively:*
>
> *a. New hedge planting in the public realm including protective measures and buffers.*
>
> *b. Enhancement of retained hedges.*
>
> *c. Protective measures and buffers for retained hedge at the northern boundary.*
>
> *d. Hedgehog paths through any solid fences.*
>
> *e. Integral bird swift boxes and bird homes.*
>
> *f. Reptile/ amphibian hibernaculum.*
>
> *g. Integral bat boxes.*
>
> *h. Hedgehog homes.*
>
> *The LEMP shall also include long term objectives and targets, management responsibilities and maintenance schedules for each ecological feature within the development including but not limited to:*
>
> *1. Retained and new hedges and trees.*

2. Attenuation basin/ pond and associated aquatic vegetation and wetland meadow grassland.

3. Wildlife corridor.

4. Wildflower meadow.

5. Native and non-native hedgerow planting.

The LEMP shall also include a mechanism for monitoring success of the management prescriptions, incorporating review and necessary adaptive management in order to attain targets and detail of the legal and funding mechanism(s) by which long-term implementation of the plan will be secured. The LEMP shall be implemented in full and for the lifetime of the development in accordance with the approved details.

REASON: To ensure the long-term management of landscape and ecological features retained and created by the development, for the benefit of visual amenity and biodiversity for the lifetime of the scheme.

No development shall commence above slab level until details of how nest and roosting places for building dependent species such as swift bricks (12 have been asked for in groups of 2/3s) has been incorporated into the dwellings hereby approved has been submitted to and approved in writing by the Local Planning Authority.

REASON: In the interests of enhancing the local and natural environment

Objectives and Aim

1.6 The objectives of this document are to maximise the enhancement of the proposed development for biodiversity to meet policy requirements.

1.7 The aims of the LEMP are to ensure that the new development is constructed and managed in accordance with planning approval and wildlife legislation, and ensure the delivery of the proposed ecological enhancements in order to maximise the potential for gains on site.

1.8 Ecological objectives are set out for which management proposals are specified for the construction phase and the operational phase of the development, which is expected to continue in perpetuity. This document should be read in conjunction with Peter Quinn Associates' Detailed Landscape Proposals, the key points of which will be summarised here.

Site Location



Figure 1: Site location plan.

2.0 Development Description and Objectives

Development Description

2.1 The site is subject to a proposed planning application for the erection of 18 new residential dwellings with associated gardens, infrastructure and landscaping as a second phase of the adjacent residential development.

Objectives

2.2 The objectives of the management are as follows:

- Maintain and increase the value of commuting and foraging habitat for bats by creating new gardens, planting of shrubs, trees and by creation and enhancement of grassland and hedges.
- Increase the value for roosting bats by providing new roosting features where none currently exist.
- Maintain and increase the value of the site for bird species through habitat creation: hedgerow, garden habitats, boxes on buildings/trees.
- Increase the value of the site for reptiles and amphibians through habitat management and the installation of a hibernaculum.
- Increase the value of the site for Hedgehogs through the installation of Hedgehog homes and creation of hedgehog highways through solid boundaries.
- Ensure compliance with the legal protection of breeding birds.
- Ensure compliance with the legal protection of roosting bats.
- Ensure compliance with the legal protection of reptiles.
- Ensure compliance with the legal protection of Badgers.

3.0 Survey and Site Assessment

3.1 The site does not fall within, or in close proximity to, any statutory or non-statutory designated sites. An Ecological Appraisal of the site carried out by AD Ecology Ltd in 2015 with a subsequent Walkover Survey update of the site carried out by All Ecology Ltd in 2021 that established the following with regard to habitats and their potential for protected species either on site or in the surrounding area.

3.2 The field interior supports poor semi-improved, neutral grassland, which is a common and widespread habitat. Hedgerows comprise of native species-rich on the south and east boundaries with a short section of native species-poor hedge adjacent to Common Nettle dominated tall ruderal vegetation on the west boundary of the site. All the higher plants recorded within the study area are widespread and common, none are legally protected, nationally or county notable, listed in the WSBRC records or are listed in the UK or Wiltshire Biodiversity Action Plan. No invasive plant species were recorded.

3.3 The site boundaries are likely to provide foraging habitat for some bat species, while also providing commuting routes for bats flying between foraging habitat outside the site. The grassland is of limited botanical diversity and as such is likely to support only a limited invertebrate population, and furthermore the site is small, isolated and much of it surrounded by further grassland of limited value and housing, roads, street-lighting etc. Therefore, the site is likely to provide only limited foraging habitat for bats

3.4 No badger setts were found on-site or identified adjacent to the study area. No other signs of badger were found (e.g., no latrines, no badger foraging, no well-worn badger paths, no prints, hairs or other signs).

3.5 There are no waterbodies on-site to support water vole or otter, and are not an issue for this scheme. The existing boundary habitat does not provide optimum habitat to support hazel dormouse, and the hedgerows are isolated/fragmented.

3.6 No direct observations or signs of other mammal species were identified, although it is likely that rabbit, fox and deer frequent the site and Hedgehogs may be present in within boundary hedgerows.

3.7 The hedgerows provide nesting and foraging habitat for birds. The field itself is unsuitable for ground nesting birds and provides only a limited foraging resource.

3.8 The study area does not contain any ponds or other waterbodies suitable to support breeding great crested newt or other amphibians. There are no ponds identified on the OS map that lies within 500 m of the study area without a major barrier in between. Great crested newt is therefore not considered to be present within the study area and is not a constraint for the proposed development

3.9 The study area, is a mosaic of grassland, boundary hedgerows, tall ruderal vegetation with adjoining gardens and grassland field which provides some potential to support common reptiles, particularly slow worm and grass snake. However, the grassland interior provides no diurnal or seasonal refuges, and therefore if present reptiles will be restricted to the site edges

where scattered scrub and rough grassland are present along the south boundary and the southern portion of the west hedge.

4.0 Management Proposals

4.1 The management proposals include the following summary items:

- The west boundary hedge which had become overgrown by bramble and has a small amount of woody hedgerow species, will be enhanced and its structure re-enforced by reducing bramble and by planting of new hedgerow species.
- Enhancement and creation of habitats.
- Fauna – enhancement.

Habitat Removal

4.2 All habitat removal would be undertaken in accordance with the accompanying CEMP.

Habitat Creation

4.3 The following is taken from the Peter Quinn Associates - Detailed Landscape Proposals (21/498/02). This plan also presents the specification of the habitats to be created.

SHRUB AND TREE PLANTING

GENERAL

Planting: Native Tree & Shrub Beds Only

4.4 Between 2 and 4 weeks prior to initial herbicide application, all vegetation earmarked for removal within proposed areas of planting within public open space, to be cut to within 50mm of ground level and removed to compost area (as agreed on site).

Planting: All Beds

4.5 Ensure that there is a minimum topsoil depth of 4500mm across all tree and shrub beds.

4.6 2 weeks prior to ground preparation works outlined below, all beds proposed for planting with shrubs, perennials and seedlings (including boundary hedges, front gardens and planting within POS) to be sprayed with systemic herbicide. In addition, a 1.5m diameter circle around proposed standard trees in grass is to be sprayed with systemic herbicide, centred on each individual plant.

4.7 Two weeks later, all beds are to be cleared of any remaining vegetation not shown on planting plan or described as being retained, including all shrubs, weeds, grass and other bulky vegetable matter. All bricks, wire, timber, plastic and other debris greater than 50mm in any dimension showing at the surface to be removed to tip. Do not use stone picking machinery.

4.8 All beds (excluding native tree and shrub beds but including a 1m diameter circle around proposed individual trees and scrub in grass) to be spread with 75mm Maxwell Mycological Mycorrmax Planting Compost (ALS) before planting/tree pit excavation.

4.9 All small beds to be hand dug to a depth of 300mm to incorporate compost and to break up any compaction. Larger beds should also be hand dug to 300mm or ripped (to a depth of 450mm at

600m centres) if preferred. As the native topsoil is clayey, **no rotovators or similar machinery shall be used in any planting beds**. Do not use any machinery under tree canopies.

4.10 All beds within and adjacent to front gardens to be raised to level of adjacent kerb as necessary with topsoil from site. After planting, before bark mulching, all beds to be forked over by hand to relieve surface compaction.

SHRUB, SEEDLINGS AND PERENNIALS

4.11 All trees and shrubs to conform to BS 3936.

4.12 Specified sizes are all minimum sizes. All plants to be supplied at the size stated or greater. Undersized stock, unless expressly approved by the client, will be rejected and replanted with the specified stock at the Landscape Contractor's own cost.

4.13 Plants labelled CG to be supplied container grown in minimum 3 litre pots unless otherwise stated. All plants labelled BR to be supplied bare root. If bare root stock is not available or if planting takes place beyond the bare-root planting season, all such plants should be supplied and planted at the height specified as container grown stock as above. Herbaceous perennials supplied in the growing season should support growth of a height and breadth that matches the pot size.

4.14 UK native shrubs and young trees to be sourced from suppliers who are signed up to the UK Sourced and Grown Assurance Scheme and grown in the UK from UK-sourced seed where applicable. Species not available from UKSG suppliers should be labelled with the countries of origin (ie source country of stock and each country where grown).

4.15 Parthenocissus, Hydrange petiolaris, Euonymus Emerald Gaiety, Euonymus Silver Queen and Hedera helix Pedata to be planted hard against walls & fences except where the roots would be in rain shadow. Where the roots would not be exposed to rain, it should be planted beyond the rain shaded strip and the shoots directed towards the wall. In all cases any supporting stick to be removed and stems pinned to ground with steel wire (min 400mm length 3mm gauge bent double).

4.16 All plants to be pit planted with 30g sterilised bonemeal incorporated into backfill.

4.17 Hedges to be arranged in a double staggered row with 45cm between rows. Unless otherwise specified, where a number of species/varieties are specified within a polygon (discrete area of a planting bed enclosed by lines), each type of plant should be well distributed and evenly spaced across the polygon in single species groups (ssg) of 1-3.

4.18 Soil around all plants to be watered with 10 litres of water per plant immediately after planting to ensure settling of soil around roots/rootball.

4.19 All planting beds except those in or at edge of significant gravel areas to be covered with 75mm settled depth of composted BARK mulch. Particle size to be 20-75mm. Bark to be cleared from leaves (including dormant herbaceous crowns) to leave plant wholly visible. Beds within or at edge of significant gravel areas to be mulched with gravel rather than bark.

4.20 If the client advises that there is a significant likelihood of rabbit browsing, all shrub and seedling stock beyond front gardens and contiguous shrub beds, to be protected immediately upon planting as follows:

Single-stemmed shrub and seedling stock to be protected with 600mm clear plastic spiral rabbit guard supported by a single bamboo cane.

Multi-stemmed or bushy stock to be protected with cylinder of recycled plastic netting guard 600mm high 300 diameter (mesh size max 40x20mm) secured by two bamboo canes. Guards to be fixed so that there is no gap between guard and soil surface.

Densities

4.21 Hedges to be planted at 6/m except Ilex crenata hedges which are to be planted at 7/m.

4.22 Beds within POS to be planted at 1 and 3/sqm as annotated. All other stock is specified at the following densities:

Eventual spread (mm) Plant No's.
0-500 5-7/sqm
501-1300 4-5/sqm
1301-2500 3-4/sqm
2501+ 2-3/sqm

4.23 Plant each bed with quantity as annotated on drawing: though densities are within the above ranges, actual quantities have been calculated in response to particular bed situation, shape, gradient and purpose, stock size at planting, growth rate, habit and deciduous/evergreen nature.

ADVANCED STOCK TREES

4.24 All advanced stock trees to conform to BS 3936.

4.25 The following notes refer only to trees shown on the plan by a cross within a circle. Other tree stock to be planted as per Shrub, Seedlings and Perennials notes above.

4.26 UK native trees to be sourced from suppliers who are signed up to the UK Sourced and Grown Assurance Scheme and grown in the UK from UK-sourced seed. Native trees of species not available from UKSG suppliers should be labelled with the countries of origin (ie source country of stock and each country where grown).

4.27 Container-grown trees (CG) to be supplied in a container at least as large as the specified pot and kept moist at all times. Container-grown trees to be supplied in the containers in which they have been growing for a minimum of 6 months. Rootballed trees to be supplied with rootball wrapped within hessian (burlap) and kept moist between lifting and planting. Rootballs must be well-rooted through and appropriate to the age, size and species of tree. Rootballs should be supported by wire/timber as appropriate. Wire support to be removed at the time of planting. Hessian to be cut to allow free growth of roots or removed at the time of planting. All other trees to be supplied with roots wrapped in damp straw inside a black polythene bag min 130 microns thick. All trees supplied or planted outside planting season (Nov-March) to be container grown.

4.28 Large rootballed trees (>/= Standard) to be secured with Platypus rootball fixing system (Plati-Mat) or similar and approved, of the size appropriate to the tree (refer to manufacturer). All smaller rootballed trees, feathered trees and maidens to be planted with single short (1200mm long, 700mm above ground) stake. Stake to be tanalised softwood minimum 50mm cross section and driven into ground at an angle of c.45° to cross tree stem at c.400mm above GL. Stem to be secured to stake with light-duty rubber tree tie & spacer. Stake to be angled in order to brace the tree against the prevailing wind.

4.29 All other trees to be planted with 2 short stakes (1500mm long, 600mm above finished ground level) with crossbar, tree tie & spacer. Stakes to be Robinia, sweet chestnut or pressure-treated softwood min 75mm diameter installed vertically into base of pit (before tree is planted) with 900mm below finished ground level.

4.30 All trees to be planted in pit minimum 1m diameter by 600mm deep with 60g sterilised bonemeal incorporated into backfill of each tree. Backfill to be topsoil. Do not use compost in backfill except incorporated Mycorrmax Planting Compost mulch as described under "General" above.

4.31 Trees to be planted in position shown by cross on plan. When it is not possible to plant in this position the contractor should refer back to developer for instruction.

4.32 All trees to be planted with “Root Rain Urban” product by Greenleaf.

4.33 Soil around all trees to be watered with 60 litres of water per tree immediately after planting to ensure settling of soil around roots/rootball.

4.34 All trees located within 3m of paved surfacing or a wall to be planted after "Reroot" 600mm ribbed sheet (www.greenblue.com) has been installed to 600mm depth along the edge of the paving/wall. Sheet to extend minimum 2m in either direction from the point on the edge of the paving/wall nearest the tree.

4.35 If the client advises that there is a significant likelihood of rabbit browsing, all trees to be protected immediately upon planting with recycled plastic mesh (mesh size 40 x 20mm max) to protect tree from ground to min 600mm above GL. Mesh to be attached to both sides of double tree stakes so that there is a minimum 50mm gap between trunk and mesh. For single tree stakes the mesh is to be formed into a cylinder of minimum diameter 300mm and securely attached to two smaller stakes (min. 25mm Ø, 900mm long, 600mm above ground) so that the tree is approximately central. The mesh is to be fixed so that there is no gap between it and the soil surface.

4.36 All trees planted in grass to be protected with Tom’s Strimmer Guard and with 1.2 x 1.2m Biodegradable Mulchspat and fixings by Greenfix (www.greenfix.co.uk) installed after any remaining sward has been sprayed with translocated herbicide in a circle of 1.5m diameter. Sprayed circle to be covered with 75mm settled depth of composted BARK mulch (particle size 20-75mm) after mulchspat is installed.

4.37 Proposed foundation types and depths should be specified in line with NHBC guidelines on tree planting in relation to foundations to take into account existing and proposed tree species and soil shrinkability. The foundation depth of existing buildings and walls on and adjacent to the site should also be checked to ascertain the suitability of proposed trees.

4.38 Dessert fruit trees to be planted as above. All dessert fruit trees to be varieties bred or traditionally grown in Wiltshire subject to availability. A minimum of three varieties of each fruit type (apple, pear, plum/gage) is to be planted. These may be available from Lodge Farm Trees (www.lodgefarmtrees.co.uk 01454 260 310) or from Walcot Nursery (01905 841 587 www.walcotnursery.co.uk). If size specified is not available then use largest available size. If vigorous rootstock is not available then refer to client. Do not use smaller rootstocks.

Timing of planting/seeding

4.39 Please note that all of the landscaping shown on this plan is to be installed during the first planting/seeding season after the completion of the development phase.

SEEDING AND AQUATIC PLANTING

WILDFLOWER SEEDING

4.40 Area annotated as "wildflower meadow" to be seeded with Emorsgate mix EM3 "Special General Purpose Meadow Mixture" at a rate of 4g/sqm.

4.41 Areas annotated as "damp meadow" to be seeded with Emorsgate mix EM8 "Meadow Mixture for Wetlands" at a rate of 4g/sqm.

4.42 Seed and detailed sowing advice available from www.wildseed.co.uk (Limes Farm, Tilney All Saints, Kings Lynn, Norfolk, PE34 4RT. Tel 01553 829 028).

Preparation and sowing

4.43 All areas to be seeded to be cultivated by harrow or with fork, spade and/or rake to break up the surface of the soil to produce a fine tilth. Rotavators and other power cultivators shall not be used for any operation. Use of such machinery is likely to destroy topsoil structure and produce a capped layer which could impede drainage and set back germination and subsequent establishment. Do not use machinery of any sort beneath canopy of existing trees or within 2m of centreline of existing hedges.

4.44 Allow a fallow period of 2-3 weeks after cultivation for weed seeds to germinate and kill with systemic herbicide.

4.45 When topsoil is neither too dry nor so moist that the structure is damaged by machine passage, grade to smooth, flowing contours, removing all minor hollows and ridges.

4.46 Unless otherwise stated, finished levels after settlement to be level with adjoining paving, kerbs, manholes etc.

4.47 Rake to a true, even, surface to produce a suitable seedbed. Remove clumps of vegetation and other objects brought to the surface larger than 100mm in any dimension. Do not use stonepicking machinery in this operation as this will destroy soil structure.

4.48 Obtain approval of appearance of prepared soil areas before seeding.

4.49 Sow seed at a rate of 4g/sqm during March or September weather and soil conditions permitting. Inform Landscape Architect/client of intention to sow. Do not sow without Landscape Architect/client approval.

4.50 Spread seed evenly in two equal sowings in opposite directions. Mix with fine sand to ensure the correct sowing rate.

4.51 Do not cover or incorporate the seed. Firm with Cambridge roller immediately after sowing.

AQUATIC PLANTING

4.52 To be planted after sowing of damp meadow (see above).

4.53 Aquatic plants to be supplied as plugs and removed from pots and planted into hole made with dibber/trowel and firmed in by hand.

4.54 Plant plugs at 3/sqm in single species drifts of 5-8.

4.55 Plant snake's head fritillary at 4 x own depth in September and October and wild daffodil at 2 x own depth in September and October.

4.56 Bulbs to be planted in single-species random drifts of 10-20.

4.57 Aquatic planting area (total 26sqm) to be planted at 3 plants per sqm (total No 78 plugs) in early spring or early autumn.

Management and Monitoring

Hedges

4.58 Ensure retained, enhanced and newly planted hedges are suitably cared for to enable successful establishment into a dense hedge that can be suitably maintained for both ornamental or wildlife value.

4.59 Routine operations will involve: watering at times of drought, ensuring sufficient water is applied to ensure trees remain healthy; removing shrub shelters after establishment of native hedgerows; pruning/clipping and re-shaping hedge species; removing weeds; hoeing or forking over beds; fertilising; topping up mulch; monitoring for pests and diseases; and replacing dead or dying specimens.

4.60 Boundary hedgerows will be managed at a minimum height of 2.0 m. New whips will be checked regularly and any damaged or dead whips replaced. Management practices will include laying the hedges to encourage bushy growth low down and trimming only every two years or less. Management will be carried out in January and/or February only, avoiding periods of hard frost. Cuttings would be removed from the edge of the hedge after cutting. Ensure replacement planting is undertaken to the original specification into well-prepared ground.

4.61 Garden hedges will be under the control of the new occupants.

Wildflower Meadow/Damp Meadow

4.62 The main aims are to manage and enhance the grassland habitat by maintaining and then increasing floristic diversity. This will be achieved through the planting schedules and management detailed below followed by monitoring of the grassland communities.

4.63 In the first year of establishment, cutting regularly will reduce the mulching effect of fast growing species on the less competitive species, thereby increasing the diversity of the sward. Cutting and removal of arisings will result in much better establishment of the desirable species. This preferred method can be also be done less frequently. The material needs to be removed from the habitat to avoid the build-up of nutrient levels.

4.64 In the first year, the first cut would be taken in early May to a height of 5 cm. Then for the second cut in the first year, the grassland would be cut late July/early August. This would be cut and left to dry and then turned at least once before bailing to encourage seed drop. A final cut in the first year would be undertaken approximately a month after the second cut. The removed materials would be bailed to encourage seed drop for the following year. The cuts would be made to around 5 cm height above ground.

4.65 In the second year and onwards the grassland would be managed with one or possibly two cuts per year, one in late July and possibly one in autumn in the event regrowth is vigorous. All arisings would be removed to reduce the available nutrients in the soil to allow a greater species diversity to develop. On no account would fertilisers be used. The grassland would be monitoring biennially for the first five years after establishment by assessing the grassland in July before the cut; the results of this monitoring will inform whether a second cut is carried out that year.

4.66 Bare areas and areas of dead grass which become apparent, should be made good by over-seeding at the earliest available opportunity.

4.67 The grassland will be maintained to ensure the absence of invasive non-native species (as listed on schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition and physical damage of the grassland habitat will account for less than 5% total area. On-going management will maintain a varied sward height with at least 20% of the sward less than 7 cm and at least 20% more than 7 cm.

Pond, Aquatic and Marginal Planting

4.68 The pond would be maintained to have about 50% open water and 50% marginal vegetation. If nutrient levels are high in the pond, then aquatic and marginal vegetation will increase rapidly. If this were the case then any excess vegetation would be removed in September when most animals have completed their lifecycle, but before animals, such as frogs, start to hibernate. Any removal of vegetation would only take place in one half of the pond, leaving the rest for the next year. Any collected sediment and vegetation would be left at the side of the pond for at least 24 hours to allow any trapped animals to crawl back in. Autumn leaves would also be removed at this time to reduce the rate of silting in the pond.

4.69 Without any movement in the surface of the water duckweed is likely to cover the pond each year and if nutrient levels in the pond are high then blanket weed can also proliferate. In the spring a net can be used to remove duckweed and a twisted stick or broom can be used to pull blanket weed from the pond. Removed vegetation would be left on the side of the pond for a day or so to allow any caught animals to re-enter the pond, before being taken away and

composted elsewhere to avoid the leaching of nutrients back into the pond. The long-term management would aim to create variation in structure of marginal vegetation by cutting back and removing short sections on a 2-3 year rotation. Vegetation would be removed as a wedge, with dense stands of single species (e.g., yellow iris) to be selectively thinned between September and November.

4.70 Animals would be allowed to colonise naturally and no attempt would be made to transfer animals to the pond as this can spread disease or other unintended animals or plant life.

Shrubs

4.71 Planting within and around the buildings and roads will be suitably cared for to enable successful establishment; to maintain growth and a high aesthetic appearance; and prevent planting beds becoming overgrown and untidy.

4.72 Routine operations will involve: watering at times of drought, ensuring sufficient water is applied to ensure shrubs remain healthy; pruning/clipping and re-shaping species to encourage bushiness; removing weeds; hoeing or forking over beds; fertilising; topping up mulch; monitoring for pests and diseases; and replacing dead or dying specimens as soon as possible when growing conditions permit.

4.73 When shrubs start to overlap or dominate less vigorous species, it may be necessary to remove some individual plants to retain the character of the bed. Thinning should take place as required in a logical process over several stages.

4.74 Monitor and replace failed planting with new equivalent plants between October and March or later if containerised stock is used and weather conditions permit. Dead head flowering shrubs following the flowering period to promote further flowering. NB: - Remove arisings from site.

Trees

4.75 To ensure new tree planting is managed to enable its successful establishment, and to promote healthy growth and attractive form.

4.76 Routine operations will involve: watering at times of drought, ensuring sufficient water is applied to ensure trees remain healthy; applications of slow release fertiliser; inspecting stakes and ties to trees and removing these as soon as trees are self-supporting to benefit tree establishment; re-firming trees in ground after strong winds, frost heave or other disturbances; monitoring and replacing failed planting with new plants between October and March; inspecting trees for pests and diseases; and forming and maintaining a mulch layer around the base of the tree to prevent weed competition.

4.77 Regular pruning will be avoided and tree canopies will be allowed to reach a minimum of 75% of expected canopy for their height and age.

4.78 Ensure replacement planting is undertaken to the original specification into well-prepared ground.

Gardens

4.79 Private gardens will be under the control of the new occupants.

Lighting

4.80 Street lights are proposed to light the new access road as indicated on the Lighting Plan. Private lighting on individual plots will utilise highly directional warm white LED lighting in down spots at 2.5 m high using warm white (2700 K) 8W LED lamps, 550 lumens with a 35 degree beam angle. These would be individually activated by PIR sensors on a 5 minute cut off to further reduce their impacts. These will assist in lighting only the areas where lighting is required and minimising light spill either directly or through reflected light, and lights would be positioned to avoid illumination of the boundary hedges.

Enhancement for Fauna

Installation of Bat Boxes

4.81 A total of six Schwegler 1FE Bat Panels will be installed at the apices of gable ends of the buildings to provide new roosting sites for bats. A variety of locations and aspects have been chosen to maximise the chance of occupation, See Enhancement Plan for locations.

Installation of Bird Boxes

4.82 A total of four Schwegler Swift Nest Box 17A (triple cavity), or an equivalent, will be installed into buildings across the site. The entrance should be at the apex of the wall height directly under the roof edge. It is very important to ensure that there are no protruding parts, roof parts, pipes, etc. below the entrance, as Swifts approach and fly away very steeply. Therefore, the area under the entrance should be unobstructed and lead directly to the ground. The triple cavity nest box will be installed as it is advantageous that several nesting aids be installed for the formation of Swift colonies. See Enhancement Plan for locations.

4.83 All on-going management of habitats that could be utilised by nesting birds, hedges, marginal vegetation etc., would be carried out outside the bird nesting season of March to August inclusive. Bird boxes would be cleaned out at this time also to prevent a build-up of decaying nest debris. The specification of the bat boxes has been chosen to avoid the need for regular maintenance, which could disturb roosting bats, which requires a licence.

Installation of Hibernacula

4.84 A new hibernaculum will be installed in the southeast corner of the site within the open greenspace and near to cover of boundary hedgerows. See Enhancement Plan for locations and specification.

Installation of Hedgehog Homes and Highways

4.85 Two new Hedgehog homes will be installed in the open greenspace within the east portion of the site and near to hedgerow habitats that offer cover. 13 x 13 cm gaps will be created in the base of solid garden fencing (where applicable) to allow for Hedgehog movement around the site.

Management Responsibilities

4.86 The implementation of this management plan will be the responsibility of Newland Homes who will instruct the strict adherence to this plan, with the available resources, as well as with assistance from area specialists where necessary to ensure that all measures are executed using best possible practice. All appointed sub-contractors will be approved as competent and knowledgeable in their position.

Mechanism for Ensuring Delivery

4.87 Upon completion of the habitat creation and establishment, a report will be produced and sent to the Council Ecologist detailing and confirming the works carried out including the provision of bat and bird boxes, and the hibernacula.

4.88 An information pack that will include a copy of this LEMP, will be provided to the each of the new dwellings detailing the wildlife features that have been included in their new development and which species may be present, and the time of year that bird boxes can be cleaned out.

4.89 Following the completion of each monitoring survey a letter will be produced and sent to the Council Ecologist confirming the works have been carried out in accordance with the Management Plan and maintain a record of any changes to the grassland.

Schedule of Works

4.90 The following schedule of works sets out the annual management activities as well as the other planting on site and site monitoring following the first year of establishment.

Table 1: Schedule of works.

Action Required	Timings
Advanced Nursery Stock Trees	
Newly planted tree stock should be inspected for disease by a competent person and inform the Landowner or management company of any major deterioration in the condition of any landscape element	Annually, in late autumn
Tree Surgery / Crown reduction as instructed by a qualified arborist. The works and should only be carried out by qualified contractors with proof of adequate insurance cover	Annually inspect and monitor condition of trees - September
Pruning of epicormic or basal growth can normally be undertaken by unqualified personnel. Tree canopies will be allowed to reach a minimum of 75% of expected canopy for their height and age.	Annually - September

Weed control by ensuring no weed growth within a 500mm diameter of each tree. A suitable herbicide should be used in compliance with manufacturer's instructions	Annually – April and August
Fertilise using suitable slow release fertiliser as per manufacturer's instructions	Up until year 4 – April and August
Inspect guys, tree ties and stakes as scheduled and after strong winds. Replace loose, broken ties or decayed stakes to original specification	Every 3 months
Remove ties and stakes	3 years after planting
Remove dead trees and replace as per original specification	Annually until year 30
Water all trees during dry periods to ensure establishment, in the occurrence of a drought watering shall be undertaken by bowser and non-potable water	During dry periods until end of year 2 from implementation
Shrub and Tree Beds	
Newly planted stock should be inspected for disease by a competent person and inform the Landowner or management company of any major deterioration in the condition of any landscape element	Annually, in late autumn
Tree Surgery / Crown reduction as instructed by a qualified arborist. The works and should only be carried out by qualified contractors with proof of adequate insurance cover	Annually inspect and monitor condition of trees - September
Pruning of epicormic or basal growth can normally be undertaken by unqualified personnel	Annually – September until year 5. Year 5 to 30 to be retained where appropriate to provide ecological resource.
Weed control by ensuring no weed growth within a 500mm diameter of each tree. A suitable herbicide should be used in compliance with manufacturer's instructions	Annually – April and August until year – ground flora allowed to establish thereafter.
Fertilise using suitable slow release fertiliser as per manufacturer's instructions	Up until year 4 – April and August

Inspect guys, tree ties and stakes as scheduled and after strong winds. Replace loose, broken ties or decayed stakes to original specification	Every 3 months
Remove ties and stakes	3 years after planting
Remove dead trees and replace as per original specification	Annually until year 5. Year 5 to 30 dead and decaying wood to be retained where appropriate to provide ecological resource. Additional planting where required.
Water all trees during dry periods to ensure establishment, in the occurrence of a drought watering shall be undertaken by bowser and non-potable water	During dry periods until end of year 2 from implementation
Wildflower/damp Meadow	
Maintain grass area in a manner appropriate to the intended	Year 1 Monthly from August to October Year 2 Onwards Monthly from August to October
Cut and remove arisings if dense to 50mm high	
Leave grass sward meadow mix from spring through to late July/August to achieve a varied height before cutting to 50mm. Leave the 'hay' to dry and shed seed for 1-7 days then remove from site.	
Remove Litter and fallen leaves regularly to maintain a neat appearance	
Aquatic/marginal Planting	
Remove excess aquatic and marginal vegetation	Annually in September where necessary
Removal of duckweed and blanketweed	Annually in early spring where necessary
Cut back and remove short sections of marginal vegetation	2-3 year rotation
Native Hedge Planting	
During dry periods till end of year 1 from implementation	Annually – March & August until year 4
Fertilise using suitable slow-release fertiliser as per manufacturer's instructions	Until year 4 – April and August
Prune hedge planting to reduce the height to 2.0m with vertical sides	January/February after year 2 and thereafter in alternate years.
Water buffer planting during dry periods to ensure establishment, in the occurrence of a drought order watering shall be undertaken by bowser and non-potable water	During dry periods till end of year 1 from implementation.

Defects	
Remove and replace plant losses to original specification	Annual – October until year 30
Notifiable weed growth and other injurious weeds or invasive plants / notifiable weed growth	
All areas affected shall be fenced off to minimise the possibility of unintentionally spreading the injurious weeds or invasive plants	May and August – Inspect, manage accordingly
Appoint specialist firm to undertake herbicide treatment to eradicate invasive plant	
Reviewing the maintenance and management plan	
Qualified personnel shall monitor / report and adjust the short-term maintenance plan and timings twice a year	Twice per annum
The long-term management plan including its objectives and deliverability should be reviewed every 5 years and should be adjusted as appropriate.	Every 5 years in perpetuity but for a minimum of 30 years

5.0 Plans

Enhancement Plan



Lighting Plan (full resolution plan supplied separately)



Detailed Landscape Proposals (full resolution plan supplied separately)

