

Living Ecosystems

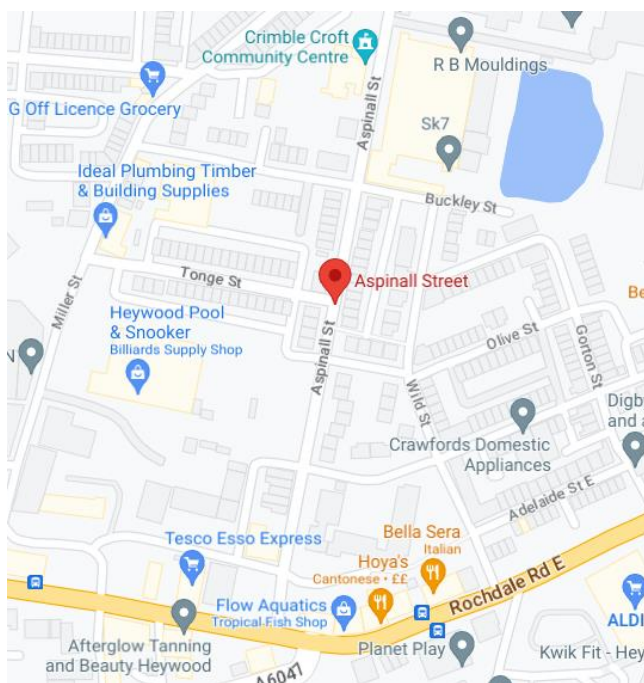


'Working Towards Sustainable Development and Providing Ecological Education...'

Landscape and ecological management plan with recommended ecological planting scheme – Aspinall Street, Heywood

1. Introduction

Living Ecosystems was commissioned by Alan Craigen in June 2023 to produce a Landscape and Ecological Management Plan for a proposed development on a plot of land at the junction of Townrow Street and Aspinall Street, Heywood, Rochdale OL10 4FH. The site is located at grid reference SD 86018 10850.



Location of proposed development and it's surroundings

The site is located on Aspinall Street in Heywood. The site is approximately 15 metres wide (west to east) by 50 metres long (north to south) or 750 square metres in extent. The site is bounded by Aspinall Street to the east, and Townrow to the south. To the north are residential properties; with residential development to the south west and scrub to the north west. Currently the site is occupied by **B4** Improved grassland dominated by tall rank grassland.



The development site as it is currently.

2. Development Proposal

The proposed development and its associated works include a residential scheme of three bungalows, with related landscaping and infrastructure.



The proposal is for the construction of three bungalows on a plot off waste-land on Aspinall Street.

Planning permission has been granted by Rochdale Borough Council for the development subject to planning condition is as follows:-

No above ground works shall take place until a scheme of biodiversity enhancements for the site including, but not limited to, provision for bird boxes and bat boxes, has been submitted to and approved in writing by the Local Planning Authority. No dwelling shall be occupied until such time as the duly approved biodiversity enhancement measures within that plot have been installed in accordance with the duly approved detail. Reason: In the interests of enhancing biodiversity and habitat provision within the site in accordance with Policy G7 of the adopted Rochdale Core Strategy and the National Planning Policy Framework.

(a) Notwithstanding the details shown on the approved plans, the development hereby permitted shall not be occupied until full details of both hard and soft landscaping works have been submitted to and approved in writing by the Local Planning Authority. The details shall be substantially in accordance with the submitted plan ref. C393-001/D, and shall include the formation of any banks, terraces or other earthworks, hard surfaced areas and materials, planting plans, specifications and schedules (including planting size, species and numbers/densities), existing plants / trees to be retained, a scheme for the timing / phasing of implementation works. Page 4 of 5 (b) The landscaping works shall be carried out in accordance with the approved scheme for timing / phasing of implementation and shall be maintained in accordance with the duly approved Landscape Environmental Management Plan. (c) Any trees or shrubs planted or retained in accordance with this condition which are removed, uprooted, destroyed, die or become severely damaged or become seriously diseased within 5 years of planting shall be replaced within the next planting season by trees or shrubs of similar size and species to those originally required to be planted. Reason: To ensure that the site is satisfactorily landscaped having regard to its location and the nature of the proposed development and in accordance with Policies P1, P2, P3, G6 and G7 of the adopted Rochdale Core Strategy and the National Planning Policy Framework.

Framework.

The following report is intended to provide mitigation for any impacts on protected habitats and species at the site.

3. Pre-existing information about protected species at the site

Desktop Study and Data Search

The following sources of information and ecological records were consulted:

- A. MAGiC Maps: A web-based interactive map which brings together geographical, landscape and environmental information from Government sources at all levels.
- B. The NBN Atlas: which is the UK's largest repository of publicly available biodiversity data.
- C. All measurements within this report are approximate only, and have been estimated whilst on site or calculated using mapping software (QGIS) or internet-based mapping services such as MAGiC Maps and Google Earth.

Evaluation methods of the data search

The habitats, vegetation and animal life were evaluated with reference to standard nature conservation criteria as described in A Nature Conservation Review (Ratcliffe, 1977) and Guidelines for the Selection of Biological SSSIs (Bainbridge, et al., 2013). These are size (extent), diversity, naturalness, rarity, fragility, typicality, recorded history, position in an ecological or geographical unit, potential value and intrinsic appeal.

Habitats have been assessed to determine whether they meet those described in UK Biodiversity Action Plan: Priority Habitat Descriptions (Maddock, A (ed), 2008); these lists are used to help draw up the statutory lists of Priority Habitats, as required under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Where suitable, the ecological value of the habitats present has been assessed using the terms outlined in Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2018).

Government advice on wildlife, as set out in the National Planning Policy Framework (Ministry of Housing, Communities and Local Government, 2021) and associated government circulars has been taken into consideration. Legislation relating to protected species, such as those listed under Schedules 1, 5, 6 and 8 of the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017, is referenced where applicable, and any impacts to protected species are evaluated in accordance with current guidance.

The presence of any Priority Species, as listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 is noted, and habitats are assessed in terms of their suitability and value for these species. The presence of habitats and/or species listed by the Greater Manchester Biodiversity Action Plans has been taken into account in the evaluation of the site environmental schemes and designations, including details of statutory nature conservation sites;

- A. Greater Manchester Local Record Centre (GMLRC);
- B. Greater Manchester Biodiversity Action Plan (BAP);

3.1 Desktop Study and Data Search Results

The site is not designated as a statutory designated site for nature conservation, and no statutory designated sites for nature conservation lie within a 1.0 kilometre radius of the site.

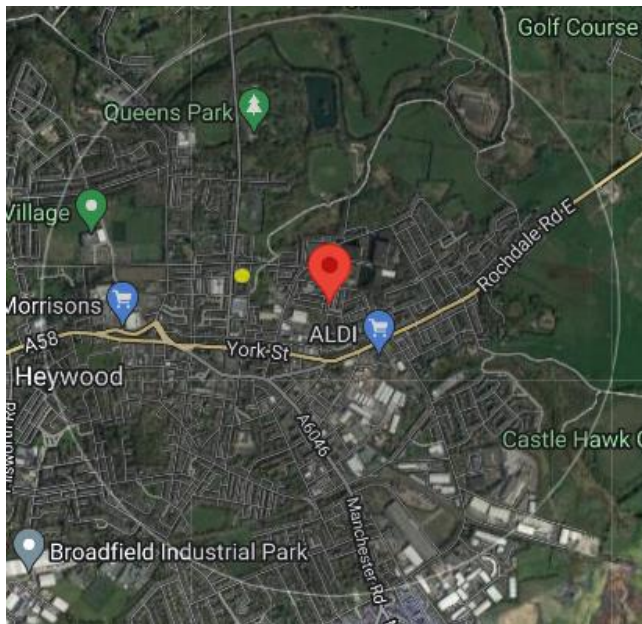
The site has no non-statutory designations for nature conservation, and no non-statutory designated sites for nature conservation lie within a 1.0 kilometre radius of the site.

The relevant protected species records from the ecological data search within the 500metre radius search area were as follows;

Common Pipistrelle (*Pipistrellus pipistrellus*) a single roost site was recorded in Queen's Park, Heywood approximately 0.2 km to the West of the site in 2015. (*Pipistrellus pipistrellus* is a priority species designated in ECH4, LBAP, UKBAP, WCA5).

Species: *Pipistrellus pipistrellus* | **Common Pipistrelle** **Date:** 2015-08-03 **England** **OSGR:** SD85751103

Data Resource: Natural England Bat Roost Visit Records From 2013 Onwards **Basis Of Record:** Human Observation



Hedgehogs (*Erinaceus europaeus*) have been recorded 6 times within 1.0 kilometres of the site in the last 6 years. (*Erinaceus europaeus* is a priority Species, UKBAP, LBAP, WCA5. IUCN Red List for British Mammals - vulnerable to extinction).

Species: *Erinaceus europaeus* | West European Hedgehog Date: 2021-08-01 England OSGR: SD8611

Data Resource: Big Hedgehog Map Records Basis Of Record: Human Observation [View record](#)

Species: *Erinaceus europaeus* | West European Hedgehog Date: 2021-06-10 England OSGR: SD8610

Data Resource: Big Hedgehog Map Records Basis Of Record: Human Observation [View record](#)

Species: *Erinaceus europaeus* | West European Hedgehog Date: 2021-05-11 England OSGR: SD8610

Data Resource: Big Hedgehog Map Records Basis Of Record: Human Observation [View record](#)

Species: *Erinaceus europaeus* | West European Hedgehog Date: 2020-04-09 England OSGR: SD8610

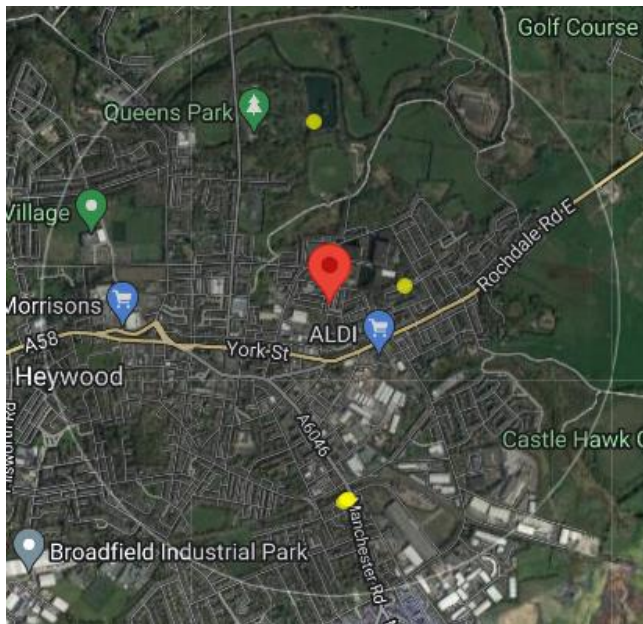
Data Resource: Big Hedgehog Map Records Basis Of Record: Human Observation [View record](#)

Species: *Erinaceus europaeus* | West European Hedgehog Date: 2019-11-19 England OSGR: SD8610

Data Resource: Big Hedgehog Map Records Basis Of Record: Human Observation [View record](#)

Species: *Erinaceus europaeus* | West European Hedgehog Date: 2017-05-09 England OSGR: SD8611

Data Resource: Big Hedgehog Map Records Basis Of Record: Human Observation [View record](#)



4. Summary of existing habitats at the Aspinall Street site

B4 Improved grassland dominated by tall rank grassland.



A detailed habitat survey of the site was undertaken on the morning of 18th June 2023. The survey followed the Phase 1 Habitat Survey Methodology (JNCC, 2010). This involves walking over the site, mapping and target noting any semi-natural habitats. The survey area includes the footprint of the proposed development. The weather was slightly overcast, dry and warm (22 degrees C) with a light wind. The survey was carried out by Richard Parkinson a very experienced Principal Ecologist with over 30 years of appropriate experience. The initial survey was carried out at an optimal time and I am entirely confident that the survey has identified and addressed all the relevant ecological issues at the site.

The following is a record of the species recorded within the site boundary during the survey.

Perennial ryegrass (*Lolium perenne*) A
 False oat grass (*Arrhenatherum elatius*) F
 Annual meadow-grass (*Poa annua*) O
 Cock's-foot *Dactylis glomerata*) A
 Curled dock (*Rumex crispus*) O
 Common dandelion (*Taraxacum officinale*) O
 Common nettle (*Urtica dioica*) O
 Common ragwort (*Senecio jacobaea*) O
 Bramble (*Rubus fruticosus*) R
 Elder (*Sambucus nigra*) R
 Meadow buttercup (*Ranunculus acris*) O
 White clover (*Trifolium repens*) O
 Laurel (*Laurus* sp) O

5. Enhancement and management of habitats

Suggested Habitat enhancements

Good horticultural practices should be employed to ensure no, or minimal, use of pesticides and herbicides. The creation of up to 30% of the site as gardens and hedgerow post development will significantly improve the site. Gardens in the UK generally contain at least 15 native/useful species on average. Where possible landscape planting within the proposed development area should aspire to consist of at least 50% of native or otherwise beneficial species preferably of UK provenance. A beneficial species is one which though not native is not invasive or harmful; and also provides significant ecological resources to native species, such as nectar, fruit, berries, nesting opportunities or cover amongst others. This will contribute to local Biodiversity Action Plan goals. Beneficial species include non native species which are not invasive and provide significant wildlife opportunities such as nectar berries, cover or nesting opportunities. Details of the habitat improvements are contained in section 6.0 below (**6.0 Defra Biodiversity Metric calculations for the proposed development at Aspinall Street in Heywood with required habitat improvements and planting instructions**).

Enhancements for bats

Under the National Planning Policy Framework (2021) there is a requirement to provide features in proposed developments that promote biodiversity and habitat enhancements.

It is therefore recommended: that new roosting opportunities for bats be provided at the site as part of the proposals.

A total of 2 bat roost boxes could be incorporated into or onto the wall as high as possible on one of the bungalows. A simpler technique can also provide roosting features for crevice dwelling bats such as leaving a gap of approximately 20mm behind barge boards.

Suitable bat roosting boxes include the following:



Schwegler 1FQ bat box



EcoSurv Bat Box - Bespoke Brick
Code: 002134

Enhancements for birds

Under the National Planning Policy Framework (2021) there is a requirement to provide features in proposed developments that promote biodiversity and habitat enhancements.

Consideration could be given to the incorporation of either one three bay swift or one three bay house sparrow nest box into

the development. Each box should ideally be positioned as high up as possible on the wall of the chosen bungalow preferably on the northern or eastern aspect to keep them out of strong sunlight and prevailing winds. All of the boxes listed below are long lasting, maintenance free Schwegler bird box designs which can be easily attached to the outside of buildings. Other brands are also available with similar specifications which will also be suitable. House martin bricks and sparrow terraces are designed to be attached beneath the eaves of existing buildings. The boxes are all designed for species which are under stress and have undergone considerable declines in recent years. Installing bird boxes is cheap, and would be good for local biodiversity whilst reducing potential maintenance issues arising from blocked gutters.

Given that House Sparrows are known to be present in the vicinity of the site, it is recommended that new nesting opportunities for these UK BAP species be provided at the site.

House sparrows are listed as a Species of Principal Importance in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006), they are UK BAP Priority Species. House Sparrow is listed upon the RSPB's Red List of 'Birds of Conservation Concern 3' (2009).

In order to provide new nesting opportunities for House Sparrow at the site, it is recommended that a single House Sparrow Terraces be fitted to one of the bungalows. Sparrow Terrace should ideally be positioned close to the eaves of the chosen buildings on the northern or eastern aspect to keep them out of strong sunlight and prevailing winds. The above enhancement would facilitate the aims and objectives of the UK BAP Species Action Plan for House Sparrows.



Three bay sparrow terrace Schwegler 1SP Sparrow Terrace

Swifts spend just four months in Europe over the summer and during this time they use urban areas around our homes and buildings to provide nesting sites. Renovation and rebuilding of older houses means that many of these preferred spaces, such as under roofs, attics or tiles, are often blocked so that they cannot find sufficient nest sites. These Swift Nest Boxes from Schwegler can help this species by providing valuable nesting locations and the installation of several units is an ideal way to support a swift colony. These boxes have been used across Europe with great success for many decades.

The boxes should be installed at least four to seven metres above the ground, ensuring that there is unobstructed access for birds entering and leaving. If possible, boxes should be sites under the shelter of eaves or overhanging roofs.



Schwegler three bay swift brick

Other generic wooden bird nest boxes can be located within the neighbouring woodland areas.

Note on breeding birds and vegetation clearance

It is strictly illegal in the UK to take, damage or destroy the nest of any wild bird while it is being built or in use. Therefore prior to any vegetation clearance or tree felling operation during the nesting bird season [March to August inclusive] trees and dense brush should be carefully inspected for any active nests. If an active nest is identified this area should be left undisturbed until nesting activity has finished. It is an offence to disturb any nesting bird or its nest. It is recommended that if vegetation clearance operations are scheduled to take place during the nesting bird season then a breeding bird survey should first be undertaken by a suitably qualified person in order to assess any potential impacts and inform future action. If active nests are found an exclusion area should be established around the nest in order to ensure that birds are not disturbed until nesting activity has ceased.

Enhancements for hedgehogs and other small mammals

The State of Britain's Hedgehogs 2022 report reveals hedgehogs have declined by between 30% – 75% across different areas of the countryside since 2000.

Grace Johnson, Hedgehog Officer, Hedgehog Street (a joint campaign by BHPS and PTES) says:

“Hedgehogs can travel around one mile every night through gardens and parks in search of food and mates. It’s clear from our report that gardens can be havens for hedgehogs, but only if they are connected via gaps in or under garden boundaries to let hedgehogs in and out. A ‘Hedgehog Highway’ (a 13cm or CD case sized square gap) will enable hedgehogs to roam between neighbouring gardens and green spaces, which is vital to their survival.”

Hedgehog passes should be incorporated into fence lines of the development (an approximately 10x10cm gap at the bases of fences). Although no evidence for hedgehogs was found during the survey, they could be present at the site. The site is certainly suitable for hedgehogs and given the current alarming declines in hedgehog numbers consideration should be given to implementing the following guidelines designed to protect hedgehogs during development projects.

+ All fencing erected between residential properties should contain at least one gap at ground level (approximately 10x10cm) in order to allow movement of mammals, such as hedgehogs and amphibians, such as common frogs, to move freely between gardens.

+ Several boards or planks should be used to provide an escape routes out of any excavations at the end of each working day to facilitate a means of escape for mammals such as hedgehogs.

+ As the habitat has been identified as offering possible foraging potential and shelter for hedgehogs, it is recommended that if hedgerows and other dense herbaceous vegetation are to be removed. This should be done in a careful manner to check for the presence of hedgehogs; additionally it is recommended that if hedgehogs are discovered during their most vulnerable time, i.e. during hibernation/breeding then they are to be left in situ, and the habitat retained around them. If they are in danger of being harmed then they should be

6.0 Defra Biodiversity Metric calculations for the proposed development at Aspinall Street in Heywood with required habitat improvements and planting instructions.

The Defra Biodiversity Metric is designed to provide a means of assessing changes in biodiversity value (losses or gains) brought about by development or changes in land management. The metric is a habitat based approach to determining a proxy biodiversity value. Baseline conditions at the Site were measured with areas (hectares - ha) calculated for each of the existing habitat parcels present. Proposed habitats to be ‘created’ were measured in the same way.

These measurements were input into the Biodiversity Metric 3.0 calculation tool along with the habitat type and a number of other variables including habitat condition and connectivity. Based on these multipliers the calculator provides a total number of biodiversity ‘habitat units’ for each habitat and an overall ‘net unit’ and ‘net percentage’ change for the whole site. Use of the tool therefore characterises the overall biodiversity interest of the existing and proposed habitats at the Site quantitatively and provides an indication of the overall loss or gain in biodiversity value at the Site.

Table 1.0 Results from Biodiversity Metric 3

Phase 1 habitat type	UK habs/broad habitat types	UK habs/habitat types	Area ha	Distinctiveness	Condition	Ecological connectivity	Strategic significance	Habitat units
Tall rank grass	Modified grassland	Improved grassland	0.075	Medium 4	Poor 1	Low 1	Within area formally identified in local strategy	0.3
						Existing biodiversity value = 0.4 biodiversity habitat units Currently the development would cause a loss of 0.4 biodiversity habitat units	The proposed development must provide at least a 10% biodiversity gain.	0.3 +10% =0.33 biodiversity habitat units

Hedgerow planting with trees	Native hedgerow with trees	hedgerow	0.5 metres	Low	Moderate	Low	Not within areas identified in local strategy	This would provide 0.27 biodiversity habitat units
Urban vegetated garden	Urban vegetated garden	Urban vegetated garden	0.03 hectares	Low	Moderate	Low	Not within areas identified in local strategy	This would provide 0.06 biodiversity habitat units
								This gives a total of 0.33 biodiversity habitat units post-development which gives the required 10% uplift in biodiversity.

In order to achieve the required minimum 10% uplift in biodiversity units post development it is suggested that a 50 metre length of native hedgerow with small trees of UK provenance be planted around the boundaries of the site. Planting a hedgerow with 'Poor' distinctiveness (ie low species diversity 2 to 3 tree or shrub species) would provide the necessary 1.58 units; this would provide a 10% increase in biodiversity habitat units post development. A species rich hedgerow with 6 or more tree or shrub species would require only about 35 metres of hedging. In addition to hedges a further 200 square metres of the site will consist of planet gardens giving an additional 0.06 of a habitat unit. This gives a total of 0.33 habitat units which meets the required 10% increase in biodiversity post-development.

Hedgerow creation

The new hedgerow would be located along the boundary of the development. It is proposed that approximately 50 m of species-poor hedgerow be created (1 to 3 species) as part of the new habitat ; or alternatively approximately 35 metres of species rich hedgerow (6 plus species).

The aim is to create habitats that are an improvement on the existing habitats. These will be suitable to support a wide range of species, including breeding birds, amphibians, foraging bats, invertebrate species and other small mammals.

Hedgerow species

Areas of hedgerow to be restored should use typical native species of local provenance. The following list of species (below) are typical of hedgerows and woodland in Greater Manchester and planting should contain a mix of the following species, with a predominance (50% +) of hawthorn (*Crataegus monogyna*) and/or blackthorn (*Prunus spinosa*).

Beech spp (up to 10%) *Fagus* species
Hornbeam (5% +) *Carpinus betulinus*
Climbing roses (5% +) *Rosa* species
Rowan (5% +) *Sorbus aucuparia*
Holly (10% +) *Ilex aquifolium*

Hazel (10% +) *Corylus avellana*
Hawthorn/Blackthorn (50% +) *Crataegus monogyna* / *Prunus spinosa*
Cotoneaster and *Pyracantha* (10% +) *Cotoneaster* and *Pyracantha* species

Ground flora and climbers may include:

The following species can be planted in the hedge bases at a rate of 2 to 4 plants per metre of hedge to further improve diversity.

Bluebell (UK variant) *Hyacinthoides non-scripta*
Honeysuckle *Lonicera periclymenum*
Red campion *Silene dioica*
Ramsoms (wild garlic) *Allium ursinum*
Wood anemone *Anemone nemorosa*
Primrose *Primula vulgaris* or other primulas
Herb-robert *Geranium robertianum*
Wood avens *Geum urbanum*
Common dog-violet *Viola riviniana* or pansys
Ivy (*Hedera helix*)
Periwinkle (*Vinca minor* or *major*)
Tutsan species (*Hypericum* sp)
Primulas (*Primula* sp)

Add trees and shrubs to gardens

Add small garden trees and shrubs to the planting scheme. Where possible each garden should include one of the listed berry bearing trees which will provide useful autumn forage for birds. Spring flowering shrubs from the list below should be added to the planting scheme scheduled for the site at a rate of 2 plants per garden. Flowering currants provide a much needed source of nectar to bees in early spring.

Table 2.0 Beneficial trees and shrubs for gardens in Greater Manchester

Common name	Latin name
Shrubs and trees suitable for gardens	
Rowans & whitebeams	<i>Sorbus</i> sp
Cherries and plums	<i>Prunus</i> sp
Apples and crabapples	<i>Malus</i> sp
The species below may be used either as garden plants or in hedges	
Guelder rose or other viburnums	<i>Viburnum</i> sp
Flowering currant or other currant species	<i>Ribes</i> sp
Hawthorn	<i>Crataegus monogyna</i>
Blackthorn	<i>Prunus spinosa</i>
Holly	<i>Ilex aquifolium</i>
Dogwoods	<i>Cornus</i> sp

Similar species which will perform the same function may be substituted if necessary.

Landscaping aftercare and maintenance

Landscaping and ecological enhancements as detailed in this report and indicated on the landscaping plan to be carried out on completion of the three properties prior to occupation.

Establishment and Management of Hedgerows

1. All hedgerow planting shall be carried out in accordance with BS4428:1989 code of practice for general landscape operations (excluding hard surfaces).
2. Remove existing ground vegetation.
3. Dig over soil.
4. Hedging plants to be supplied as bare-root specimens.
5. All plant roots shall be kept under a moist cloth or in a bucket of water during planting.

6. Plants not planted on day receipt are to be heeled-in in a pre-prepared trench and kept moist until plants are required.
7. Hedgerow plants shall either be notch or trench planted into uncompacted soil,
8. Hedge trenches shall be dug to a minimum depth of 40 cm and width of 60 cm, with the plants put into the ground at the same depth at which they had been previously grown in the nursery.
9. There should be approximately 3 to 4 plants per metre.
10. All plants shall be well heeled in after planting.
11. Hedges should only be planted between November and March, while plants are still dormant.
12. Avoid planting in very cold or wet weather. All plants to be feathered whips approximately 1 metre high, to be planted at 0.3 metre spacing in a double row at 0.4 metre apart.
13. Ensure newly planted hedgerows are protected from trampling using temporary fencing.
14. Use mulch around and between the base of new plants to prevent growth of competitive grasses.

Hedgerow Aftercare

1. Suppression of weed growth may be required to prevent smothering of the new hedgerow plants.
2. It may be necessary to interplant the hedgerow the following season if some plants have not taken.
3. For the first three years the hedgerow should be trimmed back to encourage low lateral growth of branches.
4. Growth of the hedgerow should be trimmed back by half in the first 3 years.
5. The hedgerow should be established after 3-5 years.
6. Ideally the new hedgerows will establish to be 2-3m in height with an A-shaped profile. This allows for maximum sun exposure and can be cut with a flail mower if necessary (between DEcember and February inclusive).

After 3-5 years the new hedgerows can be treated as 'established'hedgerow and managed accordingly (see Table 2.0 below).

Monitoring of the site and review of the management plan throughout the 5-year period will be undertaken to allow any necessary alterations to the management/maintenance regime.

Table 3.0: Management of newly established hedgerows From Year 1 to 5

Hedgerow Type	Year 1	Year 2	Year 3	Year 4	Year 5
New hedgerows: shrubs only	Plant new plants. Suppress weeds	Replace where necessary Prune back new growth 50%	*Prune back new growth 50%	Avoid pruning	Prune one side only and follow protocols for 'Established Hedgerows' see below
Established Hedgerows	Once established hedgerows should ideally be pruned on each side in alternative years to allow growth and protection for wildlife. The top of the hedgerow can be trimmed annually.				

*Pruning should take place in autumn to avoid bird-nesting season unless it is evident (for example when plants are very young) that no birds are nesting or if a nesting bird check has been undertaken by a suitably qualified individual.

Installation and Maintenance of bird and bat boxes

Installation of the bird and bat boxes will take place at the completion of the building construction works to minimise the risk of disturbance to nesting birds.

1. Bat boxes do not need to be maintained.

2. Bird boxes should ideally be cleaned out once per year in the Autumn or Winter following bird nesting season (bird nesting season is generally March-August inclusive).

7.0 CONCLUSION

In order to achieve the required minimum 10% uplift in biodiversity post development it is suggested that a 50 metre length of native hedgerow of uk provenance be planted around the boundaries of the site. In addition to hedges a further 200 square metres of the site will consist of three gardens each with at least two small native trees or shrubs planted in it. This will give the required 10% increase in biodiversity at the site post-development. The addition of two bat roosting boxes and a sparrow nesting terrace or a swift nesting terrace will further improve biodiversity. Taken together the measures will benefit all the protected species at the site and improve the overall biodiversity on the site.

Prepared by

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