

**LANDSCAPE AND ECOLOGICAL
MANAGEMENT PLAN**

**at
348a Leeds Road
Birstall
Batley
West Yorkshire
WF17 0HY**

**Client:
Owens Developments Ltd**

**Client Address:
Essential Enterprise Village
Enterprise House
Fieldhad Lane
Birstall
Batley
West Yorkshire
WF17 9BN**

**JCA Ref:
20183/AD**

**Date of Report:
01/02/23**



Quality Assurance

JCA ref.	Desktop Survey Completed:		Site Surveyed:		Report Completed:		Checked:	
	Date	Name	Date	Name	Date	Name	Date	Name
20183/AD	N/A	N/A	N/A	N/A	01/03/23	Amy Donaldson	02/03/23	Audrey Bourdais Paull
							06/03/2023	Adam West

This report has been prepared and provided in accordance with the *British Standard 42020: Biodiversity – Code of practice for planning and development 2018* and the *CIEEM's Code of Professional Conduct*.

Risk Assessment Completed	N/A
Bio-security Procedure Completed	
Lone Worker Procedure Completed	



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1. Introduction

1.1 Purpose of the Report

- 1.1.1 JCA Ltd. have been instructed by **Owens Developments Ltd** to produce a Landscape and Ecological Management Plan (LEMP) in association with the planning application proposed for **348a Leeds Road** (hereafter referred to as the 'proposed development').
- 1.1.2 To aid in the discharge of Condition Decision Notice provided Kirklees Council regarding the application 2017/62/93657/E. This report will include the following:
- (i) *A Landscape and Ecological Management Plan (LEMP) shall be submitted to and approved in writing by the Local Planning Authority prior to first occupation of the dwellings. The content of the LEMP shall include the following:*
 - (ii) *Description of features to be managed, as included in the Ecological Design Strategy.*
 - (iii) *Prescriptions for management actions.*
 - (iv) *Preparation of a work schedule (including an annual work plan capable of being rolled forward over a five-year period).*
 - (v) *Ongoing monitoring and remedial measures.*
 - (vi) *The LEMP shall also include details of the legal and funding mechanism(s) by which the long-term implementation of the plan will be secured by the developer with the management body(ies) responsible for its delivery. The plan shall also set out (where the results from monitoring show that conservation aims and objectives of the LEMP are not being met) how contingencies and/or remedial action will be identified, agreed and implemented so that the development still delivers the fully functioning biodiversity objectives of the originally approved scheme. The approved plan will be implemented in accordance with the approved details.*
- 1.1.3 This report will ultimately aim to enhance the site's value to wildlife through the retention of any existing ecological features, the creation of new habitats and the provision of new roosting/nesting opportunities within the proposed development.

1.2 Terms of Reference

- 1.2.1 The principal source documents used to inform this LEMP include:



Ecological Reports:

- Phase 1 Habitat Survey Report (JCA Ltd, 2015. Ref: 12390a/JoC).
- Preliminary Ecological Appraisal (Brooks Ecology, 2018).
- Ecological Design Strategy (Curtis Ecology, 2021. Ref no. CE0954).
- Japanese Knotweed Management Proposal (Invasive Weed Management, 2015).

Proposed Development Plan:

- Site Layout Plan (Chris Finn Architect, 2017. DWG no. 2625-01-01A).

1.3 Scope of the Report

- 1.3.1 This report is compiled in accordance with guidance outlined in the National Planning Policy Framework (NPPF) so that the development takes into account the value of ecosystem services and enhance ecological networks.
- 1.3.2 Chapter 15 of the NPPF and in criteria E of policy NE3: Natural Environment of the Kirklees Local Plan Policy LP30, Biodiversity and Geodiversity (Kirklees Council, date unknown) apply to the proposed development.

1.4 Scheme Description and Location

- 1.4.1 The site is located at Ordnance Survey (OS) National Grid Reference **SE 238268** with nearby postcode **WF17 0HY**.
- 1.4.2 The site was previously comprised of a detached bungalow with garage, two small outbuildings and a surrounding garden. Recent satellite imagery shows that these buildings have been demolished (Google Earth Pro, 2023).
- 1.4.3 The site is bordered to the east and west by residential properties, to the north by a small parcel of woodland, and to the south by agricultural grasslands.
- 1.4.4 The scheme is for the erection of five detached dwellings with garaging, associated access and landscaping. Please see **Appendix 2** for the current proposed development plans.
- 1.4.5 Under the current plans, all the habitats on site are to be removed to facilitate the development.



2. Local Biodiversity Action Plan

2.1 Purpose of the Action Plan

2.1.1 JCA Ltd aim to incorporate Local Biodiversity Action Plan (LBAP) habitats within management plans. We also aim to attract and support LBAP species, through either directly planting LBAP floral species, or creating habitats that will attract these species. The LBAP that covers **348a Leeds Road** is the Kirklees BAP (Kirklees Biodiversity Action Plan, No Date).

2.1.2 The species listed within the Kirklees Habitat (and Species*) Action Plan are summarised in **Tables 1-4** below:

Table 1: Kirklees Habitat Action Plan bird species:

Birds			
Common name	Scientific name	Common name	Scientific name
Common bullfinch	<i>Pyrrhula pyrrhula</i> subsp. <i>Pileata</i>	Red grouse	<i>Lagopus lagopus</i> subsp. <i>Scotica</i>
Common grasshopper warbler	<i>Locustella naevia</i>	Reed bunting	<i>Emberiza schoeniclus</i>
Common linnet	<i>Carduelis cannabina</i> subsp. <i>autochthona/cannabina</i>	Ring ouzel	<i>Turdus torquatus</i>
Common starling	<i>Sturnus vulgaris</i> subsp. <i>Vulgaris</i>	Skylark	<i>Alauda arvensis</i> subsp. <i>arvensis/scotica</i>
Corn bunting	<i>Miliaria calandra</i> subsp. <i>calandra/clanceyi</i>	Song thrush	<i>Turdus philomelos</i> subsp. <i>Clarkei</i>
Eurasian curlew	<i>Numenius arquata</i>	Spotted flycatcher	<i>Muscicapa striata</i>
Eurasian tree sparrow	<i>Passer montanus</i>	Tree pipit	<i>Anthus trivialis</i>
European turtle dove	<i>Streptopelia turtur</i>	Twite*	<i>Carduelis flavirostris</i> subsp. <i>bensonorum/pipilans*</i>
Grey partridge	<i>Perdix perdix</i>	Willow tit	<i>Parus montanus</i> subsp. <i>Kleinschmidtii</i>
Hawfinch	<i>Coccothraustes coccothraustes</i>	Wood warbler	<i>Phylloscopus sibilatrix</i>
Hedge accentor	<i>Prunella modularis</i> subsp. <i>Occidentalis</i>	Yellow wagtail	<i>Motacilla flava</i> subsp. <i>Flavissima</i>
House sparrow	<i>Passer domesticus</i>	Yellowhammer	<i>Emberiza citrinella</i>



Northern lapwing	<i>Vanellus vanellus</i>
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Table 2: Kirklees Habitat Action Plan fish, reptiles and amphibian species:

Fish, reptiles and amphibians	
Common name	Scientific name
Atlantic salmon	<i>Salmo salar</i>
European eel	<i>Anguilla anguilla</i>
Common lizard	<i>Lacerta vivipara</i>
Common toad	<i>Bufo bufo</i>
Great crested newt	<i>Triturus cristatus</i>

Table 3: Kirklees Habitat Action Plan terrestrial mammal species:

Terrestrial mammals	
Common name	Scientific name
Brown hare	<i>Lepus europaeus</i>
Brown long-eared bat	<i>Plecotus auritus</i>
Mountain hare	<i>Lepus timidus</i>
Noctule	<i>Nyctalus noctula</i>
Otter	<i>Lutra lutra</i>
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>
Water vole*	<i>Arvicola terrestris*</i>
West European hedgehog	<i>Erinaceus europaeus</i>

Table 4: Kirklees Habitat Action Plan invertebrate species:

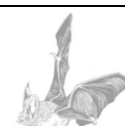
Invertebrates	
Common name	Scientific name
Northern wood ant*	<i>Formica lugubris*</i>

2.1.3 The habitats listed within the Kirklees BAP are as follows:

- Arable field margins
- Blanket bog
- Hedgerow
- Inland rock outcrop and scree habitats
- Lowland dry acid grassland
- Lowland heathland
- Hay meadows
- Lowland mixed deciduous woodland
- Open mosaic habitats on previously developed land
- Other semi-natural grassland
- Ponds



- Reedbeds
- Rivers and riverine
- Scrub
- Traditional orchards
- Upland flushes, fens and swamps
- Upland heathland
- Upland mixed ashwoods
- Upland oak woodland
- Wet woodland
- Wood-pasture and parkland



3. Ecological Background & Constraints

3.1 Habitats

- 3.1.1 For a comprehensive description of the site's current ecological value please see the accompanying Phase 1 Survey Report produced by JCA (2015). A summary of the habitats and features present in this report can be seen below.
- 3.1.2 The following habitats were identified on site (as per Joint Nature Conservation Committee guidelines (2010)):
- Buildings,
 - Hard standing,
 - Improved grassland,
 - Introduced shrub,
 - Standing water,
 - Woodland and scrub.
- 3.1.3 The bungalow and garage onsite were given bat roosting potential following the Phase 1 Survey Report (JCA, 2015). The woodland adjacent to site was deemed to offer a dark corridor which could be used as commuting zones by bat species.
- 3.1.4 The buildings, woodland and scrub, introduced shrubs and improved grassland on site provide nesting opportunities for breeding birds. A wood pigeon was present on site during the Phase 1 survey, and a birds' nest was identified within the wooden outbuilding on site.
- 3.1.5 The woodland and scrub, and the introduced shrubs on site provide suitable habitat for foraging, commuting and hibernating hedgehogs.

3.2 Protected and/or Notable Species

- 3.2.1 Following the Phase 1 Survey (JCA, 2015), the site was considered to contain habitats of low to moderate ecological value, having the potential to support the following protected and/or notable species:
- Roosting, foraging and commuting bats,
 - Nesting and foraging birds,
 - Foraging, commuting and hibernating hedgehogs,
 - Invasive species.



- 3.2.2 Japanese knotweed *Fallopia japonica*, Himalayan balsam *Impatiens glandulifera* and Horsetail *Equisetum arvense*, designated Schedule 9 (WCA, as amended) species, were identified on site during the 2015 survey.
- 3.2.3 Invasive Weed Management was contracted to oversee the removal of Japanese knotweed and Himalayan balsam in 2015. The Japanese knotweed was removed via excavation and installation of a root barrier membrane, and the Himalayan balsam was removed via herbicide treatment. These treatments are guaranteed for 10 years under the contract of removal.
- 3.2.4 The survey undertaken in 2018 did not identify any invasive species on site; it is likely that the small amounts of horsetail found within planters in 2015 was removed during site clearance.



4. Habitat Creation

4.1 Habitat Creation Overview

- 4.1.1 Due to the proposed development being a residential housing scheme, the development is limited in what can be included within the development plans. However, the site currently contains habitats of negligible to moderate value, and so there is scope to enhance the site's wildlife value post development through habitat creation.
- 4.1.2 The proposed development will see the site's value to wildlife and biodiversity increased through creation of the following:
- Creation of vegetated gardens to create nectar and pollen rich habitats,
 - Native tree planting,
 - Native shrub planting,
 - Inclusion of faunal boxes.
- 4.1.3 The proposed soft landscaping within the development can be seen in **Appendix 3**.

4.2 Trees Planting

- 4.2.1 Tree planting has been proposed and has been kept consistent with the Ecological Design Strategy (Curtis Ecology, 2021).
- 4.2.2 Species Selection: The chosen species are all UK natives and are of provenance in the local area. These species have attractive autumnal colours, berries, flowers, interesting bark and leaves and as such, the site should be attractive throughout the seasons for both residents and wildlife. The species selected have a range of life expectancies in order to provide the site with long term tree cover. Poisonous species have been avoided, as have species which commonly drop branches.
- 4.2.3 Trees should be positioned where they will provide the highest amenity possible and are unlikely to conflict with other trees or structures as they attain their mature height and spread.
- 4.2.4 Tree Specifications: **Table 5**, below, details the recommended tree species suitable for planting on site. Consideration is given to availability, immediate impact, ease of installation and likelihood of successful establishment.



4.2.5 Trees should be container-grown and selected according to guidelines BS: 3936: Part 1: 1992 - Nursery Stock. This will ensure that they are of good form and in good condition.

Table 5: Native deciduous trees to include within landscaping plans.

Botanical Name	Common Name	Size at Purchase
<i>Prunus padus</i>	Bird cherry	Whip 60-90cm
<i>Malus sylvestris</i>	Crab apple	Whip 60-90cm
<i>Alnus glutinosa</i>	Common alder	Whip 60-90cm
<i>Betula pubescens</i>	Downy birch	Whip 60-90cm
<i>Acer campestre</i>	Field maple	Whip 60-90cm
<i>Capinus betulus</i>	Hornbeam	Whip 60-90cm
<i>Prunus avium</i>	Wild cherry	Whip 60-90cm

4.2.6 Tree Planting Implementation: The following guidance for good tree planting, provided below, must be followed:

- **Site Preparation:** The tree planting scheme will be implemented after the completion of the development. This will avoid damage to new trees from construction hazards such as re-grading of soils near roots and/or mechanical damage to tree crowns.
- **Planting Hole:** A planting hole will be excavated by hand and will be twice the diameter of the root ball and of equal depth. Roughen the sides of the hole with the spade. Offer the new tree into the hole and backfill using the original soil material.
- **Staking:** Staking will be required in order to secure the tree and prevent losses within the first years of establishment. It may be necessary to angle the stakes in order to avoid damaging the root ball. All trees are to be staked at a height of no more than 1m.
- **Tree Ties:** Adjustable and flexible (preferably biodegradable) tree ties will be used. These are to be attached at a point no more than one third of the way up the stem. Ties will be inspected after one year and adjusted as required. Only if establishment is particularly slow should stakes remain in place longer than three growing seasons.
- **Mulching:** Woodchip mulch should be applied around the base of each tree to a depth of no more than 75mm. This will conserve water close to the soil surface and inhibit weed growth.



- **Timing:** Carry out the planting during the dormancy period for deciduous species (November to February).
- **Tree Guards:** Incorporate spiral type guards around the base of each stem in order to reduce pest damage throughout the winter months and to prevent mechanical damage from strimmers and mowers.
- **Future work:** After completing any future tree works such as pruning or felling, retain all deadwood on site and created into log piles in suitable and sheltered positions. This will then provide habitat for flora and fauna such as fungus and invertebrates.

4.3 Aftercare

- Thoroughly water all newly planted trees and shrub beds immediately after planting and during any prolonged periods of dry weather. An irrigation system should be installed in order to ensure regular watering to the planted vegetation.
- Once planted, inspect trees and shrubs on an annual basis for signs of poor condition or damage. Any trees or shrubs that die within the first 5 years after planting will be replaced with trees or shrubs of the same species and size.
- Trees and shrubs in share ownership spaces will be the **responsibility of the homeowners** of the site. Maintenance will be a covenant responsibility placed upon the owners in perpetuity through their ownership title.
- Complete all tree and shrub works outside of the breeding bird period, from 1st February – 31st August inclusive.
- Remove any weeds found growing around the newly planted trees and shrubs annually in subsequent years after planting. This will ensure the uptake of valuable resources such as water, nutrients and light; this done manually without the use of herbicides.
- Inspect tree ties annually and adjust if required. Tree ties and stakes are to be removed within three years of planting unless establishment is deemed to be unusually slow.
- Apply new bark mulch around the base of each tree to a depth of no more than 75mm, each year for at least the first three years. This will conserve water close to the soil surface and inhibit weed growth.



4.4 Native Shrub Planting

4.4.1 The gardens across the site, as well as the western strip of shared land, should be planted with species-rich vegetation to increase the value of the site to biodiversity. The landscaping plan should include native shrub species, with the avoidance of typical ornamental species that provide little value to wildlife.

4.4.2 Species Selection: The species have been selected for their hardiness, amenity value and their value to local wildlife, either in the form of flowers, berries, seeds or shelter. Species that are poisonous such as Spindle have been avoided.

4.4.3 **Table 6** below summarises the proposed shrub species.

Table 6: Native shrubs to include within landscaping plans.

Botanical Name	Common Name	Botanical Name	Common Name
<i>Buxus sempervirens</i>	Common Box	<i>Berberis vulgaris</i>	Barberry
<i>Carpinus betulis</i>	Common Hornbeam	<i>Calluna vulgaris</i>	Heather
<i>Clematis vitalba</i>	Wild Clematis	<i>Corylus avellana</i>	Hazel
<i>Cornus mas</i>	Cornelian Cherry	<i>Cytisus scoparius</i>	Broom
<i>Crataegus monogyna</i>	Common Hawthorn	<i>Hebe 'Silver Queen'</i>	Hebe 'Silver Queen'
<i>Ilex aquifolium</i>	Holly	<i>Juniperus communis</i>	Juniper
<i>Ligustrum vulgare</i>	Privet	<i>Lavandula angustifolia</i>	English Lavender
<i>Lonicera periclymenum</i>	Honeysuckle	<i>Prunus laurocerasus</i>	Cherry Laurel
<i>Rosa canina</i>	Dog Rose	<i>Prunus spinosa</i>	Blackthorn
<i>Sambucus nigra</i>	Elder	<i>Pyracantha coccinea</i>	Firethorn
<i>Sarcococca confuse</i>	Sweet Box	<i>Rosa pimpinellifolia</i>	Burnet Rose
<i>Viburnum tinus 'Eve Price'</i>	Laurustinus 'Eve Price'	<i>Salix purpurea</i>	Purple Willow

4.4.4 **Table 7** below summarises the proposed flowering species, to be planted alongside the shrub.

Table 7: Mixed flower planting.

Botanical Name	Common Name
<i>Allium sativum</i>	Allium
<i>Calluna vulgaris</i>	Heather
<i>Digitalis purpurea</i>	Foxgloves
<i>Dipsacus fullonum</i>	Teasel
<i>Helleborus foetidus</i>	Stinking Hellebore



<i>Hyacinthoides non-scripta</i>	Bluebells
<i>Jasminum nudiflorum</i>	Winter Jasmine
<i>Lavandula angustifolia</i>	English Lavender
<i>Leucanthemum vulgare</i>	Oxeye Daisy
<i>Lobularia maritima</i>	Sweet Alyssum
<i>Lonicera periclymenum</i>	Honeysuckle
<i>Myosotis arvensis</i>	Forget-me-not
<i>Primula veris</i>	Cowslip

4.4.5 Shrub Planting Implementation: Follow the good shrub planting practice provided below:

- **Site Preparation:** It is recommended that the shrub planting scheme is implemented after the completion of the development. The shrub beds must be installed before the shrubs are planted and care must be taken during development to ensure that soils within these beds are not contaminated with cement or other building materials.
- Loosen the soil to eliminate compaction and improve drainage. If the existing topsoil is of poor quality, a fertile, freely draining soil with neutral or slightly acidic pH must be imported.
- **Planting Hole:** A planting hole will be excavated to around two/three times the diameter of the root ball and no deeper than the roots. The sides and bottom of the hole must be roughened with the spade or fork.
- **Planting:** The top layers of compost must be scraped away when planting container grown plants, with the point where the roots flare out being near the soil surface. Place the shrub in the centre of the hole and carefully refill ensuring soil is positioned between and around all of the roots in order to eliminate any air pockets. Firm the soil around the shrub gently, avoiding compacting the soil.
- **Mulching:** Woodchip mulch must be applied around the base of each shrub to a depth of no more than 75mm. This will conserve water close to the soil surface and inhibit weed growth.
- **Timing:** Planting must be carried out during the dormancy period for deciduous species (November to February).
- **Positioning:** Shrubs within the amenity bed should be planted 1m apart, ideally with at least one example of each species planted within each bed. In larger shrub beds, shrubs must be planted in small groups (3-4) of the same species.



5. Faunal Boxes

5.1 Faunal Boxes Overview

- 5.1.1 In total **three** bat boxes, **four** bird boxes and **one** hedgehog shelter have been recommended. The location of each faunal box to be erected can be seen in **Appendix 3**.

5.2 Bat Roosting Provisions

- 5.2.1 All British bat species are protected by UK legislation. This is in response to the declines experienced by many bat species over the past century. The cause of the decline could be linked to a number of factors, including habitat loss, pesticide over-use, habitat fragmentation, loss of roost sites and roost disturbance.
- 5.2.2 There is a wide range of different bat boxes available, including both internal and external designs. External designs include the traditional wooden and woodcrete boxes. Internal designs include boxes that can be built into the walls, with a front that mimics the brickwork of the building, essentially becoming invisible. Other roost opportunities include cutting slots into soffit boxes, using bat bricks that lead into cavity walls and using lifted tiles to allow access into the loft. The bat box recommended for the proposed development will provide roosting opportunities for a range of bat species.
- 5.2.3 The number and specification of the recommended bat boxes are detailed in **Table 8** below, and their locations shown in **Appendix 3**. Should the bat roosting provisions included within this report not be suitable, there is a wide range of options available to pursue. If this was to occur, an suitably qualified ecologist should be contacted as soon as possible in the planning process to ensure provisions for roosting bats remain as part of the proposed development.
- 5.2.4 Where lighting is required, conditions should be imposed to ensure the impact of the lighting on the bats is kept to a minimum. Lighting will be situated away from areas of both retained and new trees and shrubs. Any lighting should be of a low level of luminance. The use of low-pressure sodium lamps or high-pressure sodium lamps is recommended instead of mercury or metal halide lamps. Overall levels on site should be as low as planning permits. Lighting column height near hedgerows or trees should be kept to a minimum as this reduces the ecological impact. Where lighting can be directed downwards at a more acute angle, taller columns can be used. Please refer to the Institution of Lighting Professionals (2018).

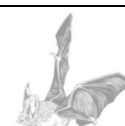


Table 8: Bat roosting opportunities to be installed as part of the proposed development.

Bat Box	Number to be Installed	Description	Details
Ibstock Enclosed Bat Box 'C' (or a comparable design) 	3	The Enclosed Bat Box 'C' from Ibstock is designed for the pipistrelle bat. It is ideal for new builds as it can be integrated directly into the brickwork to produce a discrete but attractive home for bats. The inside of the box is designed to create several roosting zones which are ideal for crevice dwelling bats. The bottom entrance means that no maintenance is required as droppings will simply fall out the bottom. This Ibstock Bat Box C is available in two sizes and three colours (red, blue or cream). The box is both durable and fully frost resistant.	Dimensions <u>Small Box</u> Height: 215mm Width: 215mm Depth: 105mm Weight: 6.7kg <u>Large Box</u> Height: 290mm Width: 215mm Depth: 105mm Weight: 9.2kg

5.3 Bird Nesting Provisions

- 5.3.1 In the UK there are approximately 600 species of birds. Many birds regularly visit gardens and will quickly adopt to new nest boxes, but only when the right box design is selected and situated correctly. Each species prefers a specific nest box design, with different dimensions and hole sizes.
- 5.3.2 The Phase 1 Survey Report (JCA, 2015) identified potential for a range of bird species to be utilising the site. As such, recommendations have been aimed at



providing opportunities for multiple bird species .

5.3.3 The specifications of all bird boxes to be installed on site post-development are detailed below in **Table 9** below, and locations shown in **Appendix 3**. Bird boxes on buildings should be securely fastened below the eaves, at least 4m above ground level (to prevent predation by cats).

Table 9: Bird nesting opportunities to be installed as part of the proposed development.

Bird Box	Number to be Installed	Description	Details
1SP Schwegler Sparrow Terrace (or comparable design) 	1	This terrace provides ideal nesting opportunities for three sparrow families. Made of Schwegler's revolutionary WoodCrete mix, this terrace is durable, breathable and will last many decades. It may also occasionally attract tits, redstarts and spotted flycatchers. The terrace can be fixed on to the surface of a suitable wall or incorporated into the wall. It is suitable for all types of houses in built-up areas, and on industrial and agricultural buildings. Due to its weight (15kg), it is not suitable for fences or garden sheds. Either install on the surface of the wall using the plugs and screws provided or install directly into the wall. Cleaning is advisable but not necessary. The front panel can be removed by turning the screw hook.	Dimensions <u>Brood Chamber</u> Height: 160mm Width: 105mm Depth: 150mm <u>External Dimension</u> Height: 245mm Width: 430mm Depth: 200mm
Starling Nest Box (or comparable design)	1	This starling box is purpose designed with a 45mm opening and made from exterior quality resin bonded plywood to offer a durable nesting site for	Dimensions Height: 510mm



		starlings, It is manufactured with surface sunk coated staples to resist rusting and finished with a non-toxic water repellent finish. The hinged roof provides convenient access for cleaning and there are drainage holes in the floor. This nest box can be fixed to a wall, fence, tree or building in a position which is not exposed to full sun or prevailing wind/rain. Site approximately 3 – 4 metres above ground level where there is easy flight access and where it cannot be reached by cats or other potential predators. Boxes can be cleaned out in October/November. Any flees or other parasites that have built up should be killed off with boiling water and any unhatched eggs should be removed.	Width: 160mm Depth: 180mm Weight: 1.4kg
Vivara Pro Barcelona WoodStone Open Nest Box (or comparable design) 	2	Unlike a traditional wooden nest box, these boxes will not rot away or deteriorate and are guaranteed for 10 years. This robust material safeguards against attacks from predators such as woodpeckers, cats and squirrels, whilst also providing a well-insulated interior with a consistent internal temperature (important for breeding). These open nest boxes are suitable for wrens, robins, spotted flycatchers, pied and grey wagtails, song thrushes and blackbirds. These nest boxes have a removable front panel for easy cleaning. We recommend cleaning the boxes out at the end of each breeding season	Dimensions Height: 240mm Width: 190mm Length: 175mm



		may encourage them to be used again in future years, as it reduces parasites. We recommend using hot water rather than chemicals to remove any parasites that remain.	
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5.4 Hedgehog Provisions

Hedgehog Access Holes

- 5.4.1 Hedgehog numbers have declined by 90% over the past 50 years due to several factors including habitat loss, fragmentation and parasites.
- 5.4.2 Access to gardens has become increasingly limited for hedgehogs, as fences and walls block their dispersal. A simple solution is to create a 13x13cm access hole at ground level into fences to allow hedgehogs to freely move between green spaces (Bunnell, 2014). The locations of these gaps must be confirmed upon the finalisation of detailed proposed development plans.

Hedgehog Shelters

- 5.4.3 Providing shelter for hedgehogs within green spaces will encourage this species to visit the site and utilise the natural space. Therefore, **1 hedgehog shelter must be included post-construction** (location shown in **Appendix 3**).
- 5.4.4 Hedgehog shelters are simple to construct and should be situated in a sheltered, undisturbed area preferably under vegetation with dried leaves or hay placed inside for bedding (Bunnell, 2014).The specification of hedgehog shelter recommended in shown in **Table 10** below.

Table 10: Hedgehog shelter to be installed as part of the proposed development.

Hedgehog Shelter	Number to be Installed	Description	Details
------------------	------------------------	-------------	---------



Woodstone Hedgehog House (or a comparable design) 	1	Woodstone is an incredibly strong, insulated and long lasting material. This shelter provides two predator-proof tunnels and a removal inspection roof. The shelter should be placed in a quiet location in the garden and covered with leaves for camouflage to encourage occupancy.	Dimensions <u>Chamber:</u> Diameter: 580mm Height: 300mm <u>Tunnel:</u> Diameter: 580mm Length: 250mm <u>Weight:</u> 15kgs
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6. Management and monitoring

6.1 Conclusion

- 6.1.1 Monitoring of faunal boxes and wildlife features over a 5-year period is essential. Monitoring is key to understanding how habitat and wildlife features are being used by wildlife on site after the development. Without monitoring, and effective and adaptive management scheme cannot be maintained and revised.
- 6.1.2 A Schedule of Ecological Mitigation and Monitoring has been produced in **Tables 11.1-11.3** (shown below), this will cover the site from 2023-2053. Please note, the schedule is similar from Years 1-30 as the majority of the recommended ecological measures commence once construction works have finished. This Schedule should be treated as a working document and amended as appropriate to meet work activities on the ground.
- 6.1.3 The developer, **Owens Developments Ltd**, are responsible for ensuring implementation of the plan by contractually affording responsibility to homeowners of the new development.
- 6.1.4 A combination of a suitably qualified ecologist (SQE) and the homeowners should conduct the ecological monitoring checks. Should it become apparent that any of the ecological provisions are not succeeding in their role to maintain the sites' biodiversity, both the client and SQE will liaise as to ensure that any concerns are addressed.
- 6.1.5 The schedule of ecological monitoring needs to be reviewed every five years and, if amendments are required to these procedures, these must be first agreed with the local planning authority and county ecologist before being implemented. If the original company carrying out the landscaping procedures changes then the new landscaping company must take the responsibility to follow the ecological monitoring procedures listed in this report.



Table 11: Schedule of Ecological monitoring onsite from years 1 to 30.**Key:**

	Appropriate time to conduct deliverable
	Unadvised time to conduct deliverable

TABLE 11.1. SCHEDULE OF ECOLOGICAL MONITORING – YEAR 1

DELIVERABLE	TIME OF YEAR											
	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Install bat boxes												
Plant shrub beds prior to planting												
Plant up shrub beds												
Plant trees and hedgerows												
Install tree guards, tree stakes and tree ties around newly planted specimens												
Place mulch at base of shrubs and trees												
Install irrigation system ¹												
Water planted shrubs, hedgerows, and trees												

¹Irrigation system to be installed prior to planting, to ensure plants can be appropriately watered upon planting.

TABLE 11.2. SCHEDULE OF ECOLOGICAL MONITORING – YEARS 2-6												
DELIVERABLE	TIME OF YEAR											
	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Monitoring of bat boxes (including repairs and cleaning, where necessary)												
Annual check of shrubs, plant beds												
Annual check of irrigation system												
Monthly check to ensure plants are appropriately watered												
Plant up shrub beds												
Plant trees and hedgerows												
Install tree guards, tree stakes and tree ties around newly planted specimens												
Place mulch at base of shrubs and trees												



TABLE 11.3. SCHEDULE OF ECOLOGICAL MONITORING – YEARS 7-30

DELIVERABLE	TIME OF YEAR											
	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Annual check of shrubs, plant beds												
Annual check of irrigation system												
Monthly check to ensure plants are appropriately watered												
Plant up shrub beds												
Plant trees and hedgerows												
Install tree guards, tree stakes and tree ties around newly planted specimens												
Place mulch at base of shrubs and trees												



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Relevant Legislation:

Wildlife and Countryside Act 1981 <<http://jncc.defra.gov.uk/page-3614>>

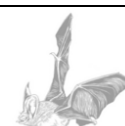
The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Available at:
<https://www.legislation.gov.uk/uksi/2017/1012/contents/made>

Countryside and Rights of Way Act 2000

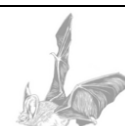
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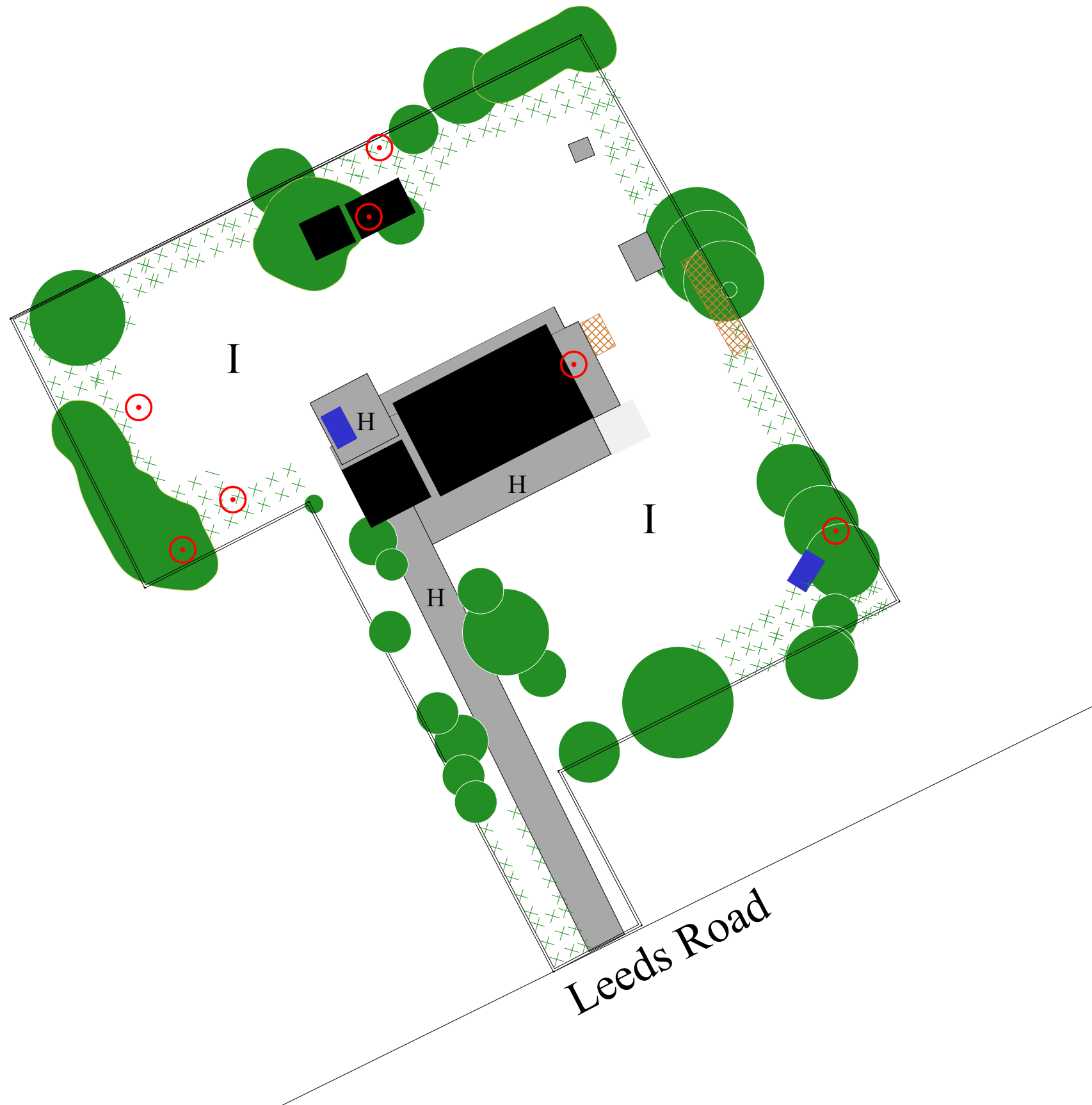
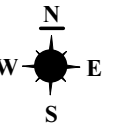
Appendices





Appendix 1: Phase 1 Habitat Map





Appendix 1: Phase 1 Habitat Map

348a Leeds Road, Batley
West Yorkshire
WF17 0HY
JCA Ref: 12390a/JoC

SCALE : 1:500

PAPER SIZE : A3

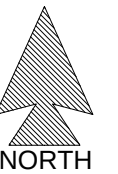
KEY

-  Buildings
-  Hard standing
-  Improved grassland
-  Introduced shrub
-  Scattered broad-leaved trees
-  Scattered scrub
-  Standing water

 Target note

Appendix 2: Proposed Development Plan



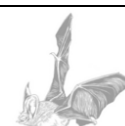


Planned Contracts Ltd
Howden Clough Leeds Road Batley
Conveyance Plan All scale 1:500 20/02/2023 drwg. no. 2625-01-16B

Chris Finn Architect

BOWLING GREEN HOUSE
38 RYTHERGATE
CAWOOD SELBY YO8 3TP
TEL: 01757 268650

Appendix 3: Planting and Faunal Box Plan



Planting and Faunal Box Plan: 348a Leeds Road

Faunal boxes:

-  Istock Enclosed Bat Box 'C'
-  Woodstone Hedgehog House
-  Vivara Pro Barcelona WoodStone Open Nest Box
-  1SP Schwegler Sparrow Terrace
-  Starling Nest Box

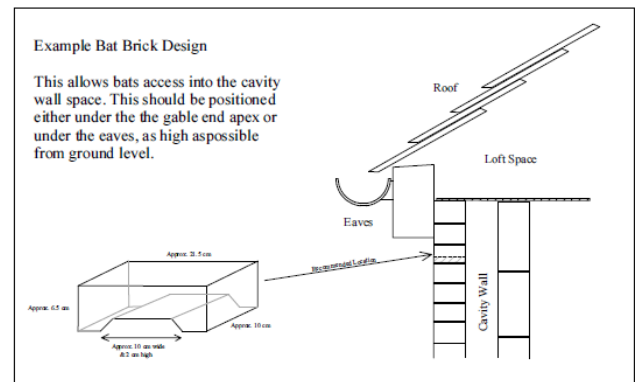
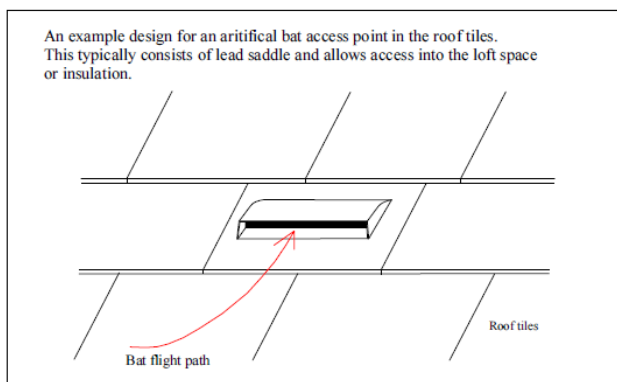
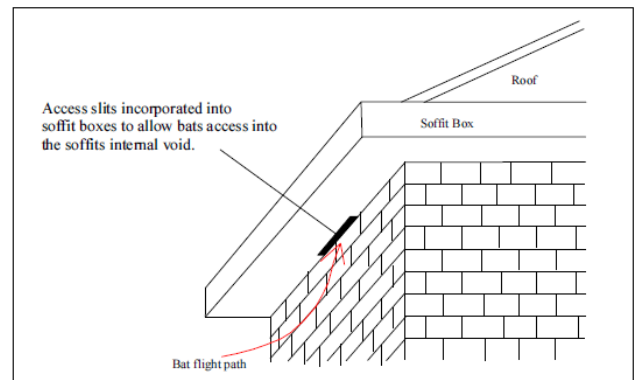
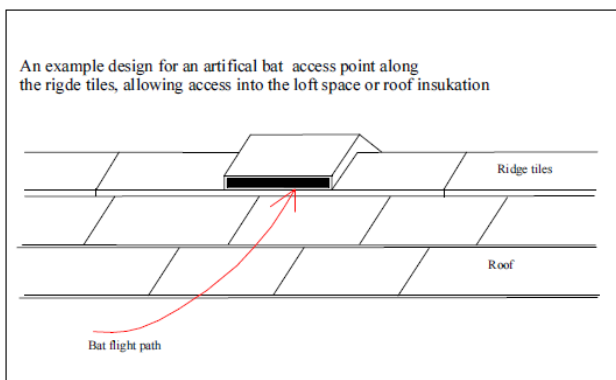
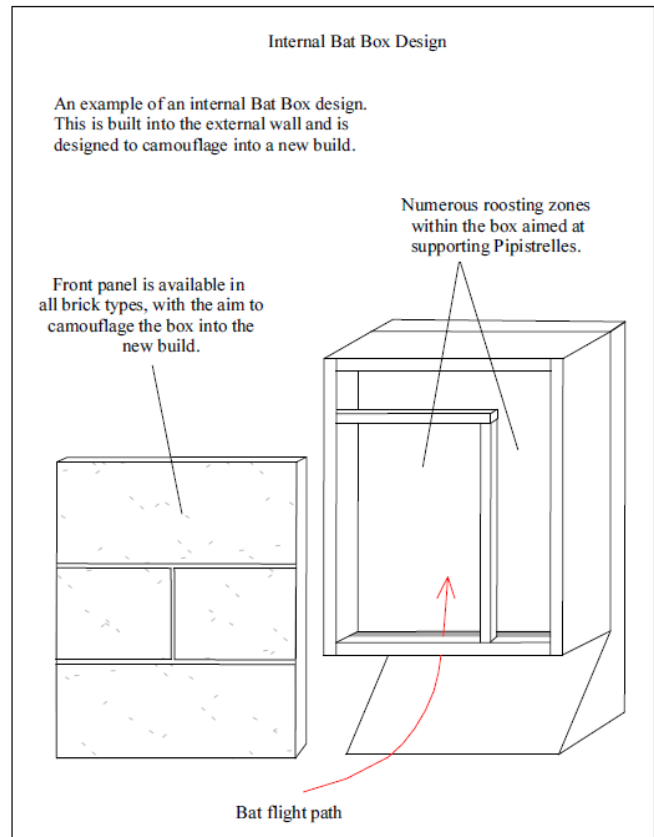
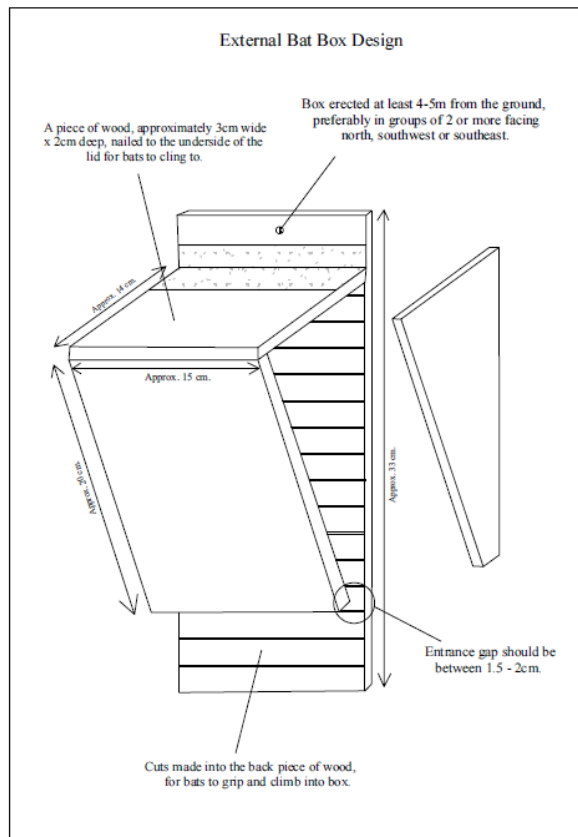
 Proposed native tree and shrub planting



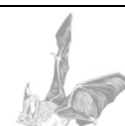
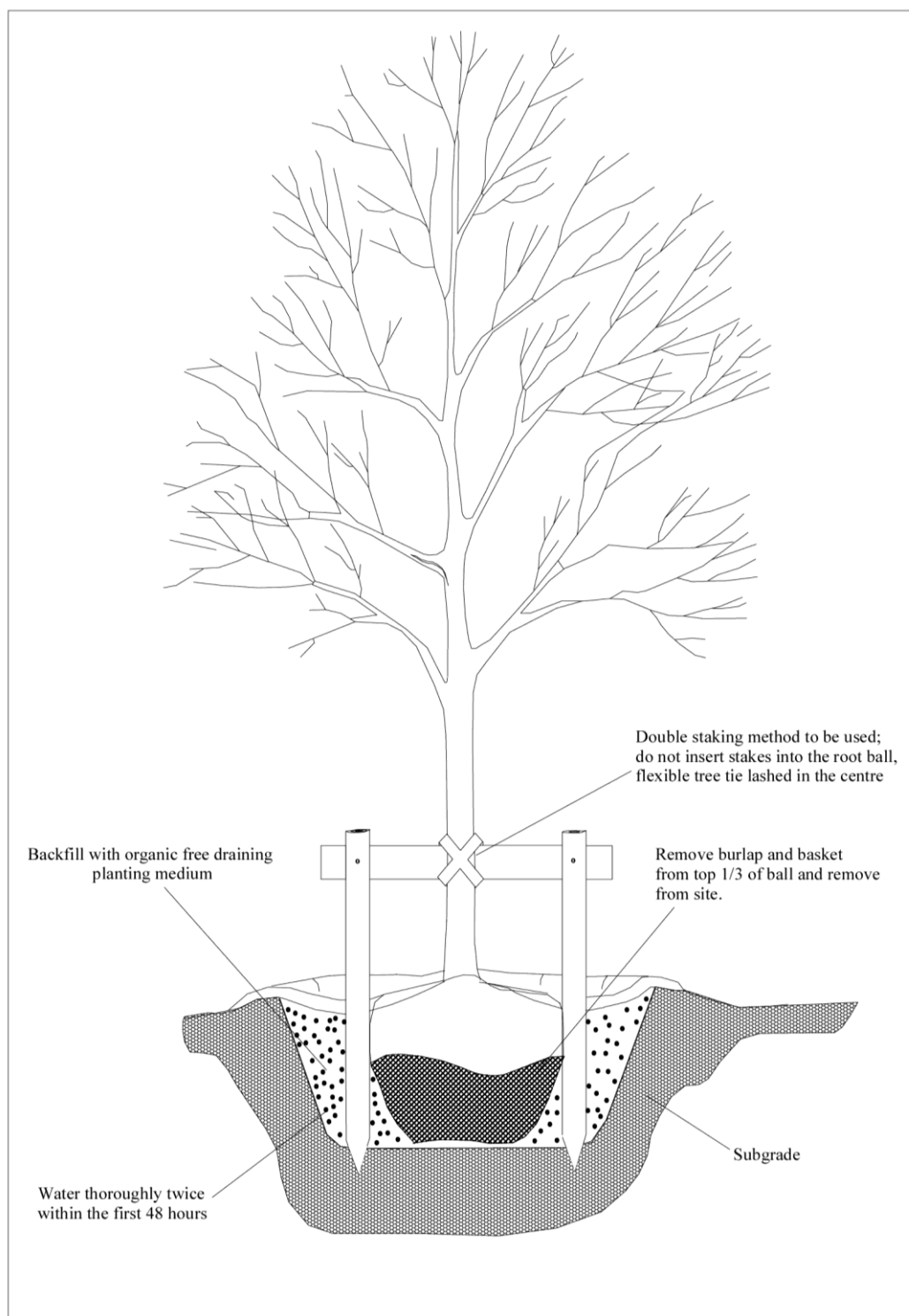
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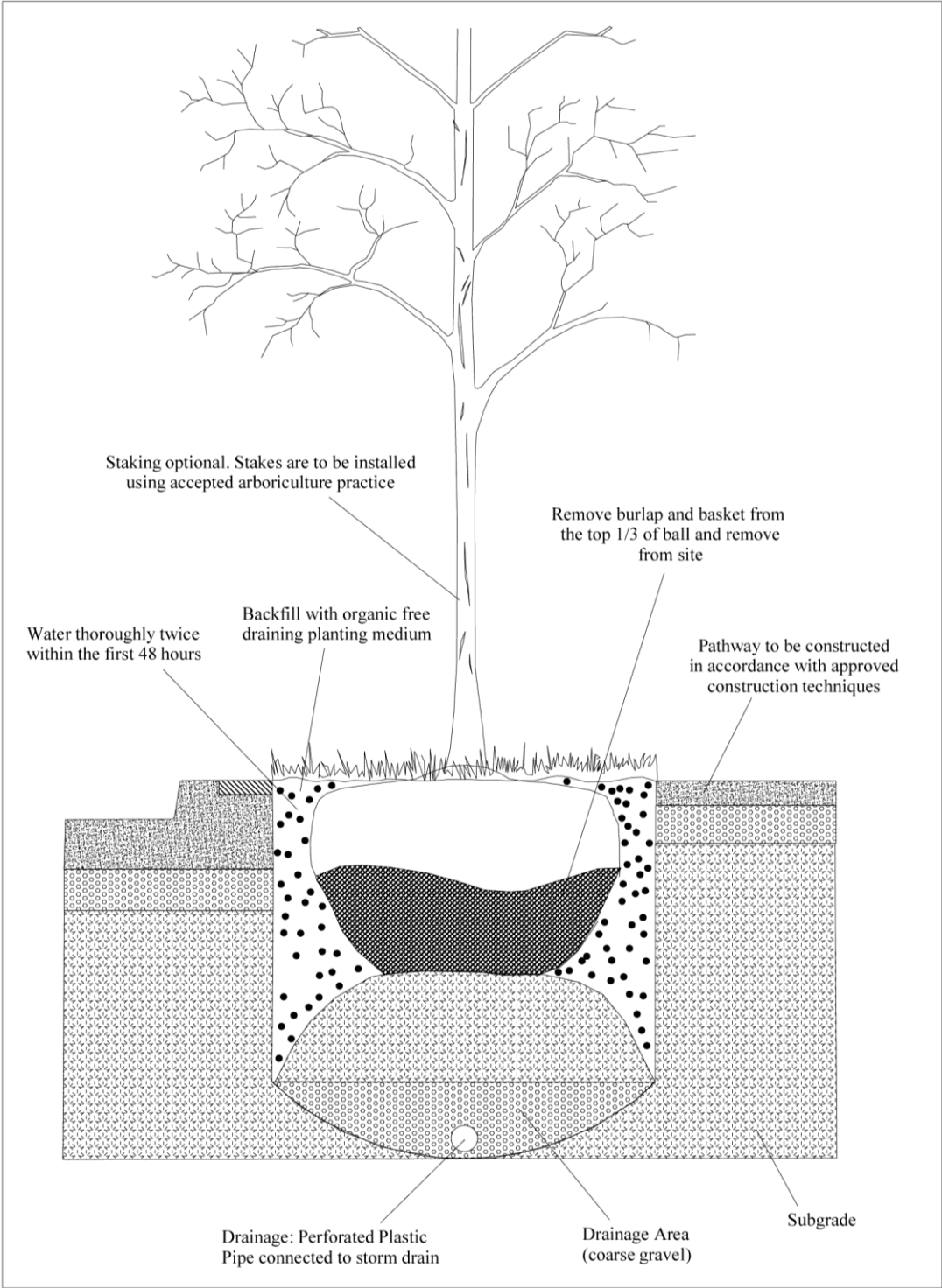

Appendix 4: Examples Artificial Bat Box Designs



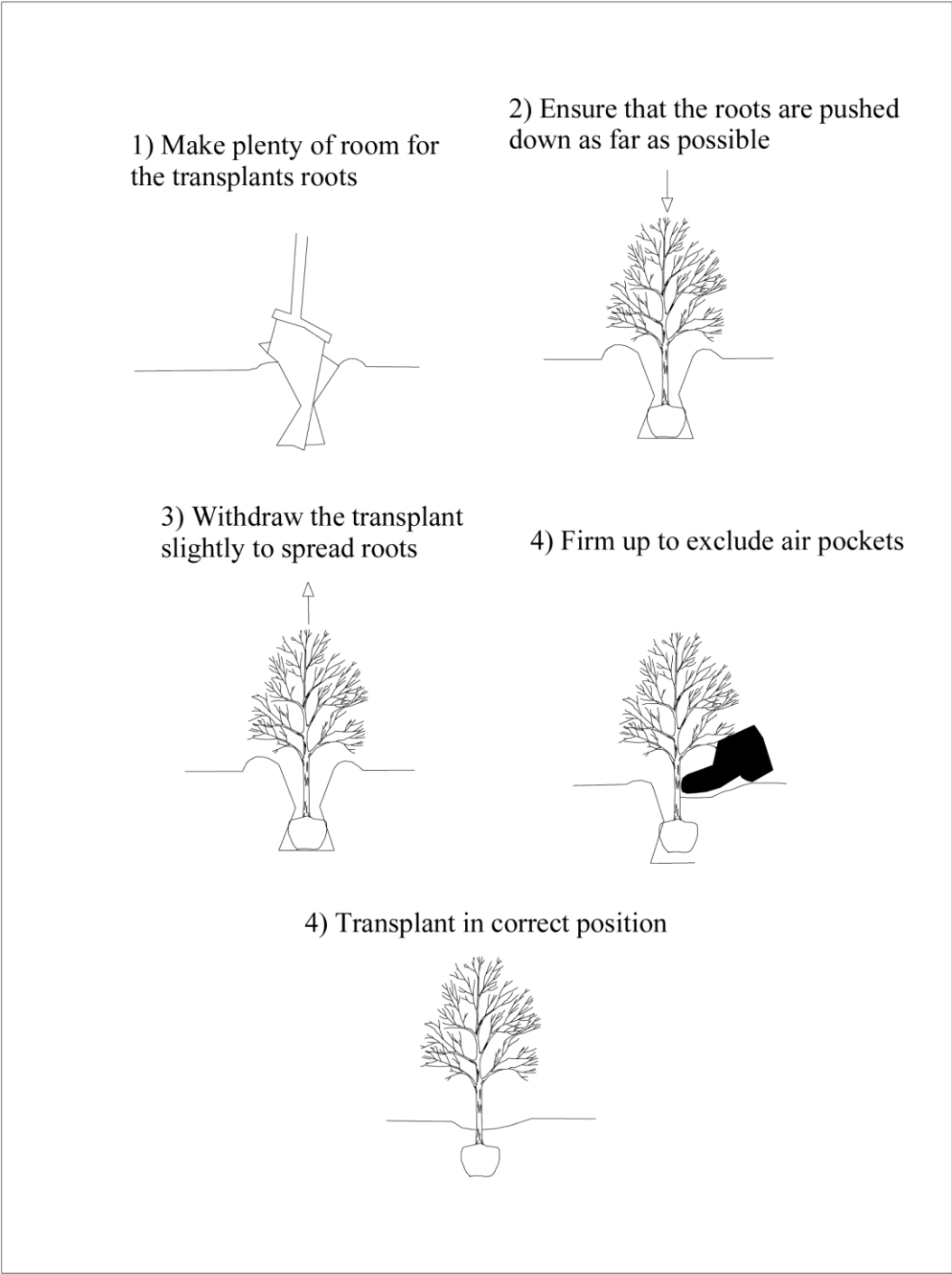
Appendix 5: Example of planting a tree in an open grass strip



Appendix 6: Example of planting a tree within a street



Appendix 7: Example of planting a tree



Appendix 8: Author Qualifications

Authors:

Adam West, Principal Ecologist

BSc (Hons) Animal and Wildlife Management.

Adam joined JCA to lead the expanding ecology department. Having returned to education as a mature student, Adam studied Countryside Management for two years before undertaking a Bachelor's degree, for which he was awarded First Class Honours. Adam has many years' experience in ecological consultancy, working on projects ranging from individual planning applications to national infrastructure projects. Adam holds a Natural England Level 1 great crested newt survey class licence, a Natural England Level 2 bat survey class licence (and the Scottish and Welsh equivalents) and a CSCS card.

Amy Donaldson, Graduate Ecologist

Bsc (Hons) Zoology, Qualifying CIEEM Member

Amy joined JCA in 2022 after graduating with a First Class Honours from the University of Leeds. Amy volunteered for numerous years with the Northumberland wildlife trust to develop a variety of field surveying skills. In 2020 Amy began bat surveying, where she gained practical knowledge and experience in the field. Amy is looking forward to developing her report writing and data analysis skills with JCA, and is working towards her Level 1 bat survey class licence.

Audrey Bourdais Paull, Graduate Ecologist

BSc (Hons) Zoology.

Audrey graduated in 2020 in Zoology at the University of Leeds and joined JCA in 2022. Audrey volunteered for many years with various wildlife conservation and rescue organisations, as well as working on various projects to develop a variety of field survey techniques, report writing and data analysis skills. Audrey is looking forward to developing her ecology consultancy experience with JCA, as well as combining her previous dog training and detection work with ecology to expand into ecology detection dogs.



The Information and advice which we have prepared and provided is true and has been prepared and provided in accordance with the CIEEM's Code of Professional Conduct. We confirm that the opinions expressed are our true and bona fide opinions.

Signed by



.....
Amy Donaldson

01/03/23

Reviewed by



.....
Audrey Bourdais Paull
Date

Reviewed and authorised by



.....
Adam West

06/03/2023



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ECOLOGICAL SERVICES

Ecological Pre-Planning Services

- Phase 1 Habitat Surveys
- Great Crested Newt eDNA Sampling
- Protected species: Bat, Wintering and Nesting Bird, Badger, Amphibian, Otter, Water Vole, White-Clawed Crayfish, Dormice and Reptile Surveys.
- Preparation for Environmental Impact Assessment (EIA)
- Invasive Species Surveys
- Code for Sustainable Homes
- Butterfly & Insect Surveys

Ecological Post-Planning Services

- Biodiversity Enhancement Plans
- Protected Species Mitigation
- Ecological Management (Bat and Bird box installation and inspection)
- Planting Schemes
- Monitoring of bird or bat boxes.

ARBORICULTURAL SERVICES

Guidance for Architects & Developers

- British Standard 5837 Surveys
- Arboricultural Implications Assessments (AIA)
- Arboricultural Method Statements (AMS)

Advice for Engineers, Loss Adjusters and Insurers

- Tree Surveys for Subsidence
- Heave Assessment
- Tree Root Identification

Advice for Local Authorities and Social Housing

- Tree Safety Surveys
- Specialist Decay Detection
- Landscape and Orchard Design

Tree Advice for the Legal Profession

- Subsidence Litigation
- Personal Injury and Accident Investigation
- Expert Witness, Planning Inquiries and Appeals

Veteran Tree Management

- Ancient Woodland Management
- Veteran Tree Management

Tree Health and Pest and Disease Management

- Pest and Disease Surveys
- Tree Health Checks
- Disease Mitigation and Control



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