BIODIVERSITY ENHANCEMENT & MANAGEMENT PLAN REPORT

at

Upper Batley High School
Batley Field Hill
Batley
West Yorkshire
WF17 0BJ

Client:
MPH Building Systems Ltd

Client Address:
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JCA Ref:
19166b/EG

Date of Report:
31/03/2023

JCA Limited
Arboricultural & Ecological Consultants

Quality Assurance

Version	**Desktop Survey Completed:**		**Site Surveyed:**		**Report Completed:**		**Reviewed:**	
	Date	Name	Date	Name	Date	Name	Date	Name
19166b/EG	N/A	N/A	N/A	N/A	31/03/23	Eve Goodwin	03/04/23	Adam West
Rev 1	N/A	N/A	N/A	N/A	05/04/23	Eve Goodwin	11/04/23	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	

Contents

1. Introduction

1.1 Purpose of the report

1.1.1 A Biodiversity Enhancement plan has been requested for **Upper Batley High School, Batley Field Hill** by Kirklees City Council. This is described within Condition 9 of the Decision Notice:

"9) No development shall commence until a Biodiversity Enhancement and Management Plan (BEMP) has been submitted and approved in writing by the local planning authority. The plan shall demonstrate how a minimum of 0.58 habitat units are to be achieved post-development and how protected species provisions are to be incorporated into the design, and must include details of the following:

a) Description and evaluation of features to be managed and enhanced;

b) Extent and location/area of proposed enhancement works on appropriate scale maps and plans;

c) Ecological trends and constraints on site that might influence management;

d) Aims and Objectives of management;

e) Appropriate management Actions for achieving Aims and Objectives;

f) An annual work programme (to cover an initial 5 year period capable of being rolled forward over a period of 30 years);

g) Details of the management body or organisation responsible for implementation of the BEMP;

h) Ongoing monitoring programme and remedial measures; and

i) The BEMP will be reviewed and updated every 5 years and implemented for a minimum of 30 years

The BEMP shall include details of the legal and funding mechanisms by which the long-term implementation of the BEMP will be secured by the developer with the management body responsible for its delivery. The BEMP shall also set out (where the results from the monitoring show that the Aims and Objectives of the BEMP 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 BEMP. The approved

BEMP will be implemented in accordance with the approved details.

Reason: In order to ensure the development provides ecological enhancement and creation measures sufficient to provide a biodiversity net gain in accordance with Policy LP30 of the Kirklees Local Plan and the National Planning Policy Framework. This pre-commencement condition is necessary to ensure details relating to the required biodiversity net gain are devised and agreed at an appropriate stage of the development process.

Biodiversity/Geological Conservation. This is a pre-commencement condition to secure the appropriate measures to eradicate invasive plant species, prior to construction."

1.1.1 This report will aim to fulfil the planning conditions set by Kirklees Council, with the ultimate aim of enhancing the site's value to wildlife, through the retention of any existing features of value to wildlife, the creation of new habitats and the provision of new roosting/nesting opportunities within the proposed development.

1.2 Terms of Reference

1.1.2 We have been instructed by Gavin Boker of **MPH Building Systems Ltd** to produce a Biodiversity Enhancement & Management Plan.

1.1.3 For this purpose, I have been supplied with the following documents and plans:

- 19166 Preliminary Ecological Appraisal (JCA, 2022)
- 19166a Biodiversity Accounting Assessment (JCA, 2022)
- D10592-03(B) DRAFT SITE PLAN (MPH Building Systems, 2022)

1.3 Scope of 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.

1.4 Details of Proposed Development

1.4.1 The development is the erection of a two storey modular building to be situated adjacent to the existing school reception area. The development

boundary encompasses a small section of the school property. The development also includes the creation of a small wildflower meadow and the planting of three trees.

1.4.2 **Appendix 1** details the proposed development plans

1.5 Site Description

1.5.1 **Upper Batley High School,** is situated 6.7km northeast of Wakefield, at grid reference: SE 241 249. The site is bordered primarily by residential properties. Agricultural fields and woodland parcels are present in the wider landscape, in particular to the north, northeast and northwest.

2. Aims and Objectives

2.1 Aims

2.1.1 Preservation and enhancement of the site's ecology, with regards to:

- Foraging and nesting birds;
- The integrity of the retained, enhanced, created and surrounding habitats.

2.2 Objectives

- To enhance the site's ecological value post development;
- To achieve a biodiversity net gain onsite through habitat retention, enhancement and creation;
- To satisfy Policy LP30 of the Kirklees Local Plan.

2.3 Management

2.3.1 The measures outlined within this BEMP are necessary for achieving the Aims and Objectives.

2.3.2 Further management details are outlined in Section 10 and Table 10

3. Local Biodiversity Action Plan

3.1 Kirklees Local Biodiversity Action Plan

3.1.1 If possible, JCA Ltd aim to incorporate Local Biodiversity Action Plan (LBAP) habitats within our enhancement 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 Upper Batley High School is the Kirklees Council BAP (The Kirklees Biodiversity Strategy, n.d.).

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

Table 2: Kirklees Habitat Action Plan fish, reptiles and amphibian species:

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

Table 3: Kirklees Habitat Action Plan terrestrial mammal species:

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

Table 4: Kirklees Habitat Action Plan invertebrate species:

Invertebrates	
Common name	Scientific name
Northern wood ant*	*Formica lugubris**

The habitats listed within the Kirklees Metropolitan Council BAP are:

- 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

4. Retention of Ecologically Valuable Features

4.1 Pre-Development

4.1.1 For a comprehensive description of the sites current ecological value please refer to the reports Preliminary Ecological Appraisal/19166 and Biodiversity Accounting Assessment/19166a (JCA Ltd., 2022). However, a summary of the habitats and features present on site can be seen below.

4.1.2 As listed below, the development site consists of three different habitats (as per UK Hab Classification system)

- Modified grassland,
- Urban trees,
- Developed land; sealed surface,

4.1.3 The urban trees are considered to be of moderate ecological value as they contribute to the ecological resilience of the Kirklees Wildlife Habitat Network. This network acts a 'wildlife corridor', providing fauna with a means to access a variety of habitats within the Kirklees area.

4.1.4 This habitat is considered to be suitable for foraging and nesting birds.

4.1.5 The remainder of the habitats on site are considered common in the local context and are of limited ecological value.

4.1.6 Under current development a section of the modified grassland and one small birch tree are to be removed.

4.2 Features to be Retained and Protected

4.2.1 The proposed development will not encompass the whole site; development works are confined to the southern section of the site. As a result, the habitats within the northern section of the site are to be retained and, consequently, there is scope to enhance these retained habitats.

4.2.2 Under the development plans 0.129 Ha of modified grassland and two small trees are to be retained.

5. Invasive Species Eradication

5.1.1 Invasive plant species are those plants listed under Schedule 9, Part II of the Wildlife and Countryside Act 1981 (as amended) or described on the Non-Native Species Secretariat (NNSS) website. Invasive species include; Giant Hogweed, Giant Kelp, Japanese Knotweed, Japanese Seaweed, Himalayan Balsam, Horsetail and Floating Pennywort. Under the Wildlife and Countryside Act 1981 (as amended) it is an offence to plant or cause the spread of Invasive Plant Species in the wild and therefore it is a legal obligation to remove them.

5.1.2 **Himalayan Balsam** (*Impatiens glandulifera*): was identified within the vegetated gardens to the west of the school site. While not within the development boundary it is recommended that all invasive species are subject to control measures.

Eradication Strategies: Himalayan Balsam is an annual plant which means it completes its lifecycle from germination through growth, Eradication Strategies: Himalayan Balsam is an annual plant which means it completes its lifecycle from germination through growth, flowering and the production of seed within the year and then dies without any regeneration of that plant. Thanks to this, it is quite simple to stop any further spread of the plant in the coming seasons.

Chemical Eradication: It is possible to use non-residual herbicides which are safe to use near watercourses. However, this method requires repeated applications every 3-4 weeks from late March until late July, and other non-chemical alternatives are available which require similar timeframes.

Mechanical Eradication: There is a choice of methods including trampling by machine or foot or whacking with a stick or cane. Following the destruction of the initial plant other seeds will have the opportunity to grow where the Himalayan Balsam grew before. It is also possible that residual Himalayan Balsam seeds may germinate, so this method should be repeated every 4 weeks.

Whichever method is chosen, the simple rule to follow is to not let the plant flower. Pollination of the flowers is the process that leads to seed production. As with most flowering plants which grow from seed, some seed remains in the soil beyond the first season which has the potential to grow in subsequent seasons. Best practice would check for the presence of Himalayan Balsam every April/May for the following 3-5 years. As long as the plant is not permitted to re-seed, the number plants each year will reduce significantly.

5.1.3 **Rockspray cotoneaster** (*Cotoneaster horizontalis*) was identified within the mixed woodland to the south. While not within the development boundary it is recommended that all invasive species are subject to control measures.

Mechanical Eradication: Being a superficial-rooted species removal by physical excavation is possible to achieve but must be in combination with a chemical application if mature plants are present. Young seedlings can be effectively pulled, however larger plants will develop multiple stems from the large root mass making it difficult to remove the whole plant. Root mass can be excavated to remove entire plants and prevent regrowth. Vegetative material should be chipped or burnt on site or removed to licensed landfill as controlled waste. It is beneficial to replant the area after excavation to prevent recolonisation of cotoneaster.

Chemical Eradication: When older plants have produced many branches from ground level, these can be cut and painted with 100% glyphosate. This is effective for plants with a diameter of over 2cm as smaller specimens can re-sprout from their roots. The specimens on site however are from last year's growing season only, and do not require chemical eradication.

To kill small shrubs and control regrowth, the herbicides glyphosate (100%) or triclopyr can be applied as a wiper or by handheld sprayer when plants are actively growing between spring and autumn. Alternatively, these herbicides can be applied to cut stumps or to abraded bark. Incorrect treatment of this INNS can inadvertently cause it to spread into other areas, both on and off site.

6. Biodiversity Metric 3.1

6.1 Introduction

6.1.1 The assessment was carried out by JCA Limited using the ecological data gathered during the Site's condition assessment survey carried out on 06/10/22.

6.1.2 For the purpose of this metric calculation, only the area undergoing development has been included within the assessment. This includes a small section of modified grassland, developed land and three urban trees.

6.1.3 The metric uses habitat features as a proxy measure for capturing the value and importance of nature. It uses a simple calculation that takes into account the importance of these features for nature: their size, ecological condition, location and proximity to nearby 'connecting' features. The metric enables assessments to be made of the present and forecast future biodiversity value of a site (Natural England, 2019).

6.1.4 A Biodiversity Metric 3.1 exercise, from the report '19166a Biodiversity Accounting Assessment' has been used as to fully inform this BEMP. The calculations have been processed in a Microsoft Excel workbook, which accompanies this report. However, a summary of the main findings is provided below:

6.2 Biodiversity Metric 3.1 Results

6.2.1 The existing biodiversity value for each habitat, together with the cumulative value of all habitats is provided in Table 5

Table 5: Baseline habitats on site and their ecological value as categorised by the Biodiversity Metric 3.1 calculator.

Biodiversity Metric Calculation Tool Reference Number	Biodiversity Metric 3.1 Habitat Type	Total Area on Site (Ha)	Distinctiveness	Condition	Strategic significance	Ecological Baseline Habitat Unit
1	Modified grassland	0.181	Low	Poor	Formally identified in local strategy	0.42
2	Urban Tree	0.012	Medium	Moderate	Formally identified in local strategy	0.11

Biodiversity Metric Calculation Tool Reference Number	Biodiversity Metric 3.1 Habitat Type	Total Area on Site (Ha)	Distinctiveness	Condition	Strategic significance	Ecological Baseline Habitat Unit
3	Developed land; sealed surface	0.001	V.Low	N/A - Other	Area/compensation not in local strategy/no local strategy	0.00
	Total (area excl. trees)	**0.182**	**-**	**-**	**-**	**0.53**

6.2.2 The modified grassland habitat was found to be in 'Poor' condition as it failed condition one (there was less than 6-8 species per m2), two (the sward height was uniform due to regular mowing), and four (physical damage was greater than 5% due to high levels of access – the area is regularly accessed to get into the woodland classroom).

6.2.3 The three Urban Trees within the development area were found to be in 'Moderate' condition, as they each failed condition three (all three trees were young in age) and condition five (no evidence of micro-habitats were present – likely due to the young age of the trees).

6.2.4 The developed land; sealed surface is automatically assigned N/A – Other.

6.2.5 The modified grassland and Urban Trees are within the West Yorkshire Wildlife Habitat Network and therefore are considered 'Formally identified in local strategy' within the strategic significance section.

6.2.6 To ensure a 10% net gain in biodiversity is achieved as part of the proposed development the following measures can be employed:

- Habitat retention;
- Habitat enhancement;
- Habitat creation; and/or
- Habitat area succession.

7 Habitat Retention and Enhancement

7.1 Summary

7.1.1 As per the Mitigation Hierarchy (British Standards Institution (BSI), 2013; shown below in Figure 2), development proposals should seek to avoid impacts; then to mitigate unavoidable impacts, and, as a last resort, to compensate for unavoidable residual impacts that remain after avoidance and mitigation measures.

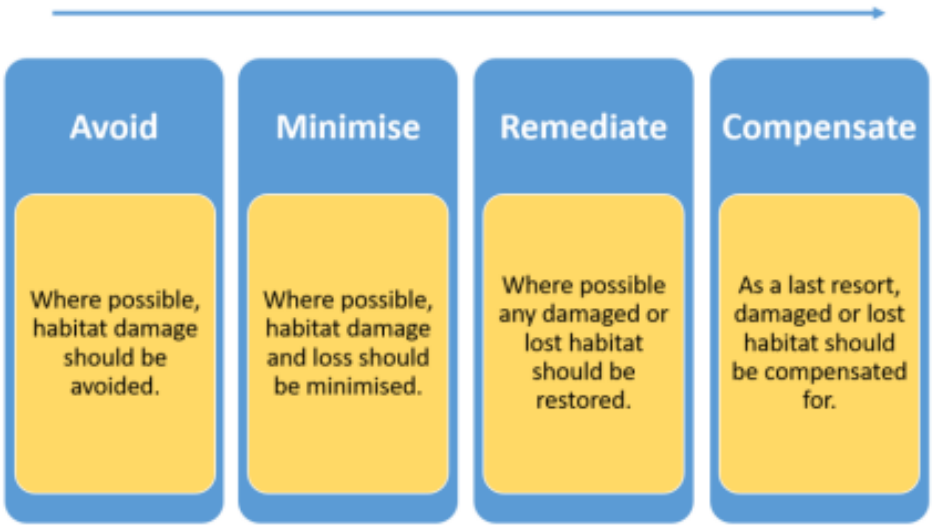

Figure 2: The mitigation hierarchy (BSI, 2013)

7.1.2 Within the development boundary there are three small trees, two of which are to be retained, with the small birch to be removed.

7.1.3 Within the proposed development plans, some habitats are set to be partially removed to facilitate the development.

7.1.4 **Table 6** below, shows the baseline habitat areas of retention and enhancement, as detailed within the Biodiversity Metric 3.1 Calculator

Biodiversity Metric 3.1 Habitat	Retained		Enhanced		Lost	
	Area (Ha)	Unit	Area (Ha)	Unit	Area (Ha)	Unit
Modified grassland	0.129	0.30	0.00	0.00	0.05	0.12

Urban Tree	0.008	0.07	0.00	0.00	0.00	0.04
Developed land; sealed surface	0.001	0.00	0.00	0.00	0.00	0.00
Total (area excl. trees)	**0.13**	**0.37**	**0.00**	**0.00**	**0.05**	0.16

8 Habitat Creation

8.1 Summary

8.1.1 As the site contains habitats of negligible to moderate conservation value, there is some scope to enhance the site's wildlife value post development.

8.1.2 The proposed development will see the site's value to wildlife and biodiversity increased through a combination of the following:

- Creation of wildflower meadow, classified as 'other neutral grassland'
- Planting of three trees
- Inclusion of faunal boxes

8.1.3 **Table 7** below, shows the habitat units delivered by each of the newly created habitats as included within the proposed development.

Table 7: Habitat units delivered by newly created habitats as calculated by the Biodiversity Metric 3.1 calculator.

Target Habitat	Area (Ha)	Distinctiveness	Target Condition	Strategic significance	Biodiversity value
Developed land; sealed surface	0.03	V.Low	N/A - Other	Area/compensation not in local strategy/no local strategy	0.00
Other neutral grassland	0.022	Medium	Moderate	Formally identified in local strategy	0.17
Urban Tree	0.012	Medium	Moderate	Formally identified in local strategy	0.04
Total (area excl. trees)	**0.052**	**-**	**-**	**-**	**0.21**

8.1.4 The Biodiversity Metric 3.1 has calculated a total net percentage increase of +0.06 habitat BU, equivalent to a net gain of +10.47%. This has been calculated through the input of the baseline habitat conditions and area coverage, and the input of the habitat type, condition and area coverage of those habitats to be created onsite.

8.1.5 Further details of the Biodiversity Metric 3.1 calculations can be found within the report '19166a Biodiversity Accounting Assessment', JCA 2022.

8.2 Tree Planting

8.2.1 **D10592-03(B) DRAFT SITE PLAN** shows areas of planting, which includes trees. Therefore, a recommended tree planting list for the site has been provided within this BEMP, as shown below.

8.2.2 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.

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.

8.2.3 Tree Specifications: Table 8, 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.

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 8: Recommended native deciduous trees to include within landscaping plans.

Botanical Name	Common Name	Size at Purchase
Betula pendula	Silver birch	Standard
Prunus padus	Bird Cherry	Standard
Sorbus aucuparia	Rowan	Standard

8.2.4 Tree Planting Implementation: Recommendations for good tree planting practice are given below:

- **Site Preparation:** It is recommended that the tree planting scheme is 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. The sides

of the hole should be roughened with the spade. The new tree should be offered into the hole and backfilled using the original soil material. Soil amendments such as compost should not be added as this has been shown to be detrimental to successful establishment.

- **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 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 should 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:** Planting should be carried out during the dormancy period for deciduous species (November to February).

- **Tree Guards:** Spiral type guards are to be incorporated 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, all deadwood should be retained 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.

8.2.5 **Appendices 2-4** provide illustrations on how to correctly plant trees on a development site.

8.3 Aftercare

8.3.1 All newly planted trees are to be thoroughly watered immediately after planting and during any prolonged periods of dry weather.

8.3.2 Once planted, trees should be inspected 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.

8.3.3 Trees in public open spaces will be the **responsibility of the managing agent** for the site whether it is a private company contracted to do the work or the Local Authority. It is recommended that a company that can provide this service is contacted early within the project lifecycle to ensure the habitats and ecology provisions on site are effectively maintained.

8.3.4 The bird nesting season is considered to be from 1st March – 31st August inclusive. Therefore, all tree and shrub works should be completed outside of the breeding bird period (i.e. between September - February).

8.3.5 Any weeds found growing around the newly planted trees and shrubs should be removed annually in subsequent years after planting. This will ensure the uptake of valuable resources such as water, nutrients and light. This should be done by manually without the use of herbicides.

8.3.6 Tree ties should be inspected annually and adjusted if required. Tree ties and stakes should be removed within three years of planting unless establishment is deemed to be unusually slow.

8.3.7 New bark mulch should be applied 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.

8.4 Grassland

8.4.1 A section of the existing modified grassland is to be removed and a wildflower meadow is to be created.

8.4.2 Species-rich grasslands require much less management than amenity grassland as they only require mowing twice a year, which will save a considerable amount of money in the long term.

8.4.3 Site Preparation: In the grasslands' current state, it is likely that the soil fertility is too high to allow for a habitat of ecological value to establish.

8.4.4 For example, low soil fertility is important for meadow establishment. The level of available phosphorous is the most important nutrient that influences grassland diversity. It is recommended that a soil test is carried out to establish levels of available nutrients nitrogen, phosphorous, potassium, in addition to soil pH prior to this grassland habitat being enhanced.

8.4.5 It may take several years for the soil's fertility to be appropriate for enhancement. Therefore, it may be necessary to remove the topsoil as high fertility soil tends to promote the growth of more vigorous grasses and weeds. This removed topsoil can be sold for profit.

8.4.6 Weed species such as docks Rumex sp. and thistles Cirsium sp., nettles Urtica dioica and vigorous growing grasses, should be pulled up by hand prior to seed bed cultivation.

A summary of ground preparation for fertile sites is listed below:

- Remove existing weed species, including grasses.
- Shallow cultivate site with a rotovator and roll to consolidate ground to keep in moisture.
- Repeat removal of weed species, including grasses.
- Power harrow to create fine surface tilth.
- Final spray if required.
- Surface sow the seed and roll.
- Alternatively, if old meadow grasses are present, expose 30% bare earth and sow 100% wildflower seed into existing vegetation

8.4.7 Planting implementation: It is important that the correct plant species are selected that are adapted to the local site conditions and resemble the semi-natural plant communities of the local area. The plant species must be matched to soil type (pH), fertility, hydrology and topography. A wildflower and grass mix of 20:80 is normally recommended but this should not include vigorous grasses as these will compete with wildflowers for resources.

8.4.8 Providing a good tilth can be prepared, the optimal time for seed sowing is in late summer/early autumn, which means the seeds are not exposed to rising soil temperatures but will be exposed to cold moist temperatures over winter, which can help break dormancy of some species. If sown too late in autumn, seedlings may be killed off by frosts. The months of March/April can also be suitable for sowing in areas of land that are prone to winter flooding.

8.4.9 A variety of wildflower seed mixes are available. However, **Table 9** below, provides a list of species chosen for the grassland habitat on site. All

chosen species are visually attractive, and many are the host plant for butterfly species. An increase in the abundance of insects onsite will benefit fauna higher up the trophic chain such as bats and birds who forage upon invertebrates.

Table 9: List of species suitable for species-rich grassland.

Flowering Plants		
Botanical Name	**Common Name**	**% Within Seed Mix**
Achillea millefolium	Yarrow	0.4
Centaurea nigra	Common Knapweed	0.5
Centaurea scabiosa	Greater Knapweed	1.5
Daucus carota	Wild Carrot	1
Echium vulgare	Viper's Bugloss	1.2
Eupatorium cannabinum	Hemp Agrimony	0.1
Galium verum	Lady's Bedstraw	1.2
Knautia arvensis	Field Scabious	1.5
Leontodon hispidus	Rough Hawkbit	0.4
Leucanthemum vulgare	Oxeye Daisy	1
Lotus corniculatus	Birdsfoot Trefoil	1
Malva moschata	Musk Mallow	0.5
Origanum vulgare	Wild Marjoram	0.1
Primula veris	Cowslip	0.5
Prunella vulgaris	Selfheal	2
Pulicaria dysenterica	Common Fleabane	0.1
Ranunculus acris	Meadow Buttercup	1.6
Reseda lutea	Wild Mignonette	0.4
Rhinanthus minor	Yellow Rattle	1.5
Silene dioica	Red Campion	1

Grasses		
Botanical Name	**Common Name**	**% Within Seed Mix**
Agrostis capillaris	Common Bent	10
Anthoxanthum odoratum	Sweet Vernal-grass (w)	1
Cynosurus cristatus	Crested Dogstail	32
Festuca ovina	Sheep's Fescue (w)	10
Festuca rubra	Slender-creeping Red-fescue	20
Phleum bertolonii	Smaller Cat's-tail (w)	6
Trisetum flavescens	Yellow Oat-grass (w)	1
	Total	**80**

Silene vulgaris	Bladder Campion	1
Trifolium pratense	Wild Red Clover	0.5
Vicia cracca	Tufted Vetch	1
	Total	**20**

8.4.10 The seeds should be sown sparsely, at a rate of 2 to 5 grams per square metre. Mix the seed with damp sand or sawdust in a ratio of 1 to 3 in order to ensure the seeds are evenly distributed across the seedbed.

8.4.11 Management: Following sowing, remove any annual and perennial weeds that appear. The grassland should remain nutrient poor, therefore, fertilisers should not be added at any point. The grassland should be cut only twice a year; once in the spring (between early March and early April) and once in the autumn (between late June and the end of August).

8.4.12 The cuttings should always be removed to prevent nutrients returning to the soil. The meadow shouldn't be cut shorter than 5cm. This cutting regime will prevent the grassland from succeeding into scrub and woodland, whilst allowing the flowers to set seed for the following year, thus producing a sustainable and viable habitat. If after two years the grassland remains species poor, the topsoil exercise should be repeated, and the seed mix re-sown.

8.5Proposed Development Summary of Net Impacts

8.5.1 **Table 10** below summarises the BU value of the Proposed Development together with the unit value of any biodiversity impacts or on-Site habitat creation/enhancement proposals. This shows that on balance, the Proposed Development would result in a net gain of **+0.06 habitat BU**, equivalent to a net gain of **+10.47%.**

Table 10: Summary of Biodiversity Metric results for habitats

	Biodiversity Units (BU)
Existing Site habitat biodiversity value (habitats)	0.53
Value of gross habitat biodiversity loss	0.16
Value of retained and proposed on-Site habitat creation and enhancement (habitats)	0.58

Net habitat biodiversity balance (habitats)	+0.06

8.5.2 The Proposed Development also satisfies the Trading Rules as unit gains have been generated across distinctive units.

9 Faunal Boxes

9.1 Summary

9.1.1 In total **three** bird boxes (one on building, two on trees). The location of each faunal provision to be installed can be seen in **Appendix 7**

9.2 Bird Nesting Provisions

9.2.2 In the UK there are approximately 600 species of birds. Many birds regularly visit gardens and will quickly adapt 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.

9.2.3 Three bird boxes comprising of one bird box on the building and two bird boxes installed in clusters of two on one of the mature trees on site must be installed as part of the proposed development.

9.2.4 The specifications of all bird boxes to be installed on site post-development are detailed below in Table 10 below, and locations shown in Appendices 5-7.

9.2.5 Bird boxes on buildings should be securely fastened below the eaves, at least 4m above ground level (to prevent predation by cats). Boxes should be positioned so that the front is facing in an easterly direction, as to avoid direct heat of the sun and prevailing wind and rain.

9.2.6 Bird boxes on trees should be installed in clusters facing in a northerly to easterly direction, thus avoiding strong sunlight and wet winds. Boxes should be installed as to ensure birds have a clear flight path to the bird box without any clutter directly in front of the entrance.

Table 11: 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
Vivara Pro Barcelona WoodStone Open Nest Box (or comparable design)	2 (to be installed on a mature tree)	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	Dimensions Height: 240mm Width: 190mm Length: 175mm

		boxes out at the end of each breeding season 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.	

10. Ecological Recommendations

10.1 Lighting

10.1.1 The site is located adjacent to a woodland parcel which is suitable for bats (JCA Ltd., 2022), which are nocturnal species sensitive to lighting.

10.1.2 As such, the following lighting guidance measures have been provided in line with recommendations provided by the Institute of lighting Professionals (ILP) and the Bat Conservation Trust (BCT) (ILP & BCT, 2018). The proposed development should seek to:

- Use lighting which is functional and directional only.
- Ensure lighting will not illuminate features of ecological interest such as retained hedgerows, trees or woodlands.
- Prohibit the use of floodlight style lighting onsite. Any lights present must be on timers/motion sensors and not permanently turned-on during hours of darkness (from sunset to sunrise).
- Plant natural shrub buffers to minimise light spill onto the site's adjacent habitats.
- Maintain dark zones on site to preserve wildlife areas of low light pollution.
- Use the minimum light levels necessary for the relevant task/function, this may equate to reducing light intensity, and/or using the minimum number of light sources or minimum column height.
- Use hoods, louvres or other luminaire design features to avoid light spill onto retained and newly created areas of vegetation likely to be used by foraging and commuting bats.
- Use light sources that emit minimal ultra-violet light to avoid attracting night-flying invertebrate species which in turn may attract bats to the light (BCT, 2009).
- Use recessed internal light fixtures.

11. Management and Monitoring

11.1.1 Monitoring of faunal boxes and wildlife features over a 5-year period is recommended. 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 a scheme can't be maintained and revised.

11.1.2 A Schedule of Ecological Mitigation and Monitoring has been produced in Table 10 (shown below), this will cover the site from 2022-2052. Please note, the schedule is similar from Years 1-30 as the majority of the recommended ecological measures commence once construction works have finished.

11.1.3 This Schedule should be treated as a working document and amended as appropriate to meet work activities on the ground.

11.1.4 The developer, MPH Building Systems Ltd., are the developer and management body for the development and are responsible for ensuring implementation of the plan by finding and appointing a specialist ecological management body or organisation who will carry this out.

11.1.5 If all the habitat retention, enhancement and creation measures are followed as outlined in this BEMP, the development will be able to produce a minimum of **0.58 BU** onsite post-development. This will satisfy Policy LP30 of the Kirklees Local Plan. It is the responsibility of MPH Building Systems Ltd to ensure these measures are followed and the Biodiversity Net Gain targets are met.

11.1.6 The development will be secured legally and financially via a Section 106 agreement.

11.1.7 A combination of a suitably qualified ecologist (SQE) and the Grounds Maintenance team will be conducting 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.

11.1.8 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.

12. Conclusion

12.1.1 JCA Limited (Ltd.) have been instructed by **MPH Building Systems Ltd** to produce a Biodiversity Enhancement & Management Plan (BEMP) in association with the planning application proposed for **Upper Batey High School**.

12.1.2 The proposed development includes the erection of a modular two storey building, the development plans indicate the development boundary to encompass a small area at the south east of the site, adjacent to the existing school reception.

12.1.3 The habitats within the development boundary of the site are to be modified by means of the removal of a small section of modified grassland and one tree, and the creation of two areas of wildflower meadow and the planting of three trees.

12.1.4 In accordance with Chapter 15 of the NPPF and the Local Plan Policy LP30 and as a means to quantify the loss and retention of the habitats on site, a Biodiversity Metric 3.1exercise was undertaken as part of the Biodiversity Accounting Assessment, which has informed this BEMP.

12.1.5 As per the BS 42020 (BSI, 2013) developments should following the mitigation hierarchy, thereby retaining habitats as the first option, minimising impact as the second and, if these options are not available, providing compensatory measures.

12.1.6 The Biodiversity Metric 3.1 identified the site to have a baseline value of **0.53 BU**. The proposed development will ensure that the site will have a biodiversity net gain of **+0.06 habitat BU**, equivalent to a net gain of **+10.47%.**

12.1.7 This has been achieved through the retention of modified grassland and urban trees, and the creation of other neutral grassland and urban trees.

12.1.8 The site has potential to support birds. As a result, **three bird boxes** (one on building, two on trees). The location of each proposed faunal box can be seen in **Appendix 7**.

12.1.9 Monitoring of faunal boxes and wildlife features over a 5-year period is recommended to ensure they are being effective. Should it be identified that the ecological provisions are no longer fit for purpose, revisions should be made to the management plan of the site.

12.1.10 The site is located adjacent to a woodland parcel suitable for bats (JCA Ltd., 2022), which is a nocturnal species sensitive to lighting. As such, guidance relating to appropriate lighting on site has been provided in **Section 8.1.**

12.1.11 To mitigate the ecological impacts of the development and to enhance the ecological value of the site post development new tree planting, soft planting and faunal boxes are recommended. It is anticipated that, provided these recommendations are implemented, **the proposed development's ecological impact is likely to be beneficial.**

13 Planting Schedule

Table 12 Planting Schedule at Upper Batley High School over the next 30 years.

Key:

	Appropriate time to conduct deliverable
	Unadvised time to conduct deliverable

TABLE 12.0 SCHEDULE OF ECOLOGICAL MONITORING – YEAR 0												
DELIVERABLE	**TIME OF YEAR**											
	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Installation of bird boxes (during construction)												

TABLE 12.1 PLANTING SCHEDULE – YEAR 1												
DELIVERABLE	**TIME OF YEAR**											
	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Preparation of ground for wildflower grassland												
Planting of new trees												
Put mulch at base of trees												

TABLE 12.2 PLANTING SCHEDULE – YEAR 2

DELIVERABLE	**TIME OF YEAR**											
	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Sowing of wildflower grassland												
Planting of new trees												
Loosen tree ties if required												
Place mulch at base of trees												
Replacement of diseased or damaged plants												

TABLE 12.3 PLANTING SCHEDULE – YEAR 3

DELIVERABLE	TIME OF YEAR											
	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Re-sowing of wildflower grassland if required												
Mowing of grassland												
Planting of new trees												
Place mulch at base of trees												
Remove tree ties and stakes if required												
Maintenance of trees												
Replacement of diseased or damaged plants												

TABLE 12.4 PLANTING SCHEDULE – YEAR 4

DELIVERABLE	TIME OF YEAR											
	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Mowing of grassland												
Planting of new trees												
Remove tree ties and stakes if required												
Maintenance of trees												
Replacement of diseased or damaged plants												

TABLE 12.5 PLANTING SCHEDULE – YEAR 5

Deliverable	**TIME OF YEAR**											
	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Mowing of grassland												
Remove tree ties and stakes if required												
Maintenance of trees, hedgerows and shrubs												
Replacement of diseased or damaged plants												
Install bird boxes on trees and buildings												

TABLE 12.6 PLANTING SCHEDULE – YEAR 6

Deliverable	**TIME OF YEAR**											
	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Mowing of grassland												
Remove tree ties and stakes if required												
Maintenance of trees												
Replacement of diseased or damaged plants												
Install bird boxes on trees and buildings if not done in previous year												

TABLE 12.6 PLANTING SCHEDULE – YEAR 7-30												
Deliverable	**TIME OF YEAR**											
	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Monitoring of bird boxes (including repairs and cleaning, where necessary)												
Annual check of trees (including replacement of any failed trees)												
Mowing of grassland												
Remove tree ties and stakes if required												
Replacement of diseased or damaged plants												
Monitoring survey of bird by ecologist every five years to see which species & quantity are using boxes												

14 References

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Multiple-Agency Geographic Information for the Countryside (MAGIC). <http://www.magic.gov.uk/>

Natural England. < http://www.naturalengland.org.uk/>

RELEVANT LEGISLATION:

Countryside and Rights of Way Act 2000
<http://www.legislation.gov.uk/ukpga/2000/37/pdfs/ukpga_20000037_en.pdf?view=interweave>

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< http://www.legislation.gov.uk/ukdsi/2019/9780111176573>

Wildlife and Countryside Act 1981
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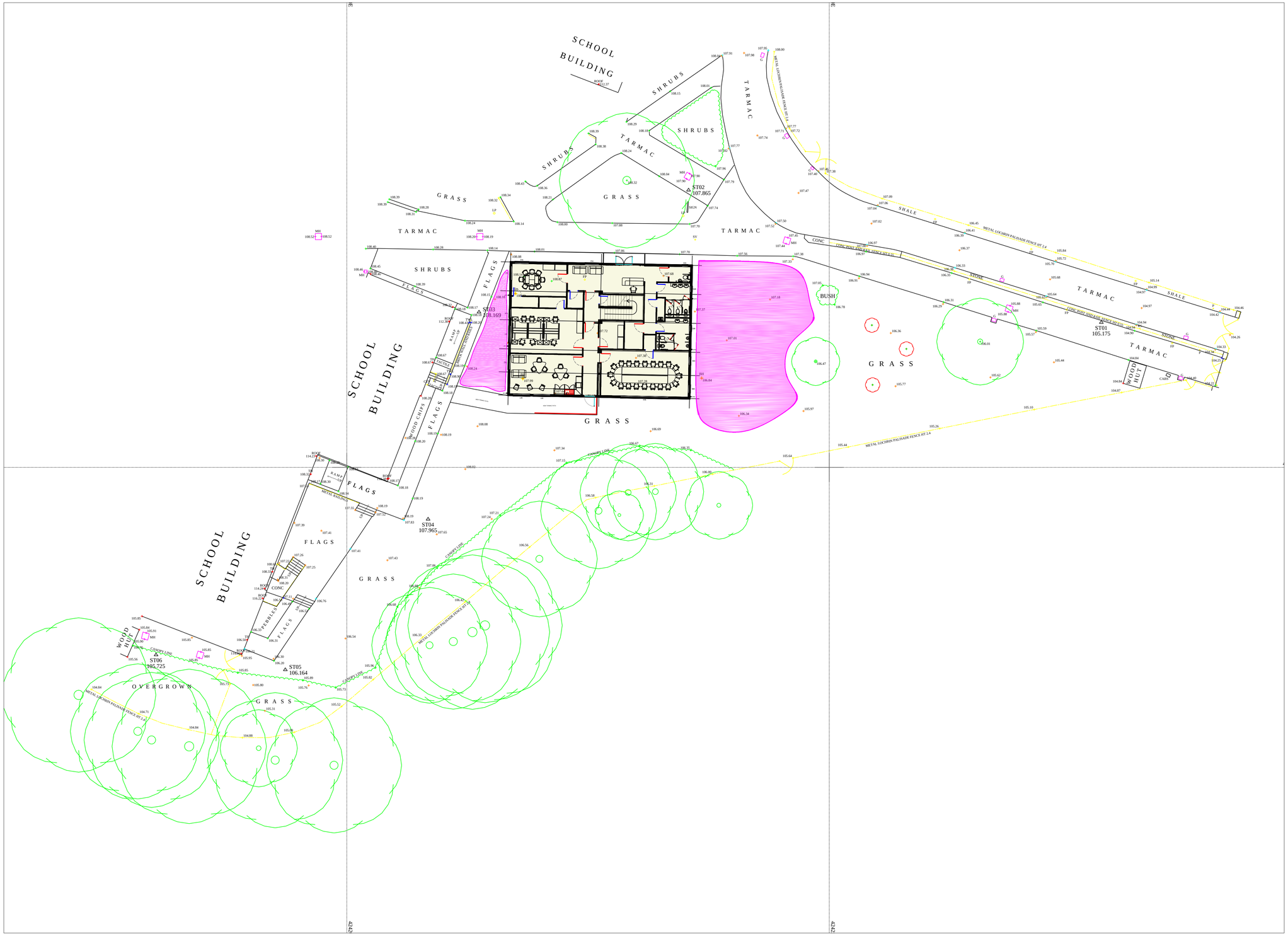
Appendices

Appendix 1: Proposed Development Plan



Notes

LEGEND

AREA OF WILD FLOWER PLANTING/MEADOW - 207m2 Approx.

REPLACEMENT TREES

PRELIMINARY ISSUE. WORK IN PROGRESS DRAWING

Rev	Description	Date	Dr by	Ap by
B	DWG UPDATED TO INCLUDE SUGGESTED LANDSCAPING AND PLANTING.	21.11.2022	GB	GB
A	BUILDING POSITION AMENDED SLIGHTLY. BUILDING LINE PUSHED BACK FROM PATH EDGE BY 1000mm. BUILDING FOOTPRINT REPLACED WITH GF LAYOUT AND PRELIMINARY EXTERNAL LANDSCAPING AND/OR NEW PATHWAYS INDICATED.	01.11.2022	GB	GB
Original by				

MPH Building Systems Ltd
Hoyers Industrial Estate
517 Leeds Road,
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HD2 1YJ
Telephone: 01484 430518
Email: info@mphbuildingsystems.co.uk
Website: www.mphbuildingsystems.co.uk

Client: UPPER BATLEY HIGH SCHOOL

Project: ADMIN BLOCK

Drawing: DRAFT SITE PLAN

Symbols

Comments

Issue status	
P	Preliminary
T	Tender
C	Construction
B	As Built

Scale: 1:200 @ A1 | Date: AUG 2022

Rev: B | Issue status: P | Project / Drawing Number: D10592-03

Appendix 2: UK Hab Map – Pre-development

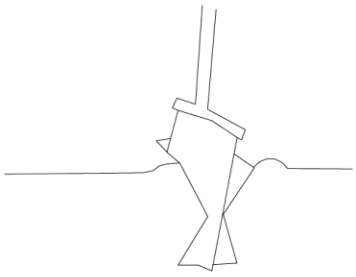
UKHab Habitat Map - Upper Batley High School

Appendix 3: UK Hab Map – Post-development

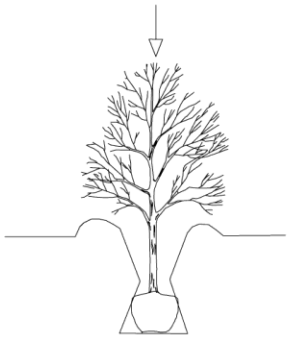
UK Hab Map; Upper Batley High School, Batley - Post-development

Appendix 4: Example of Planting a Tree

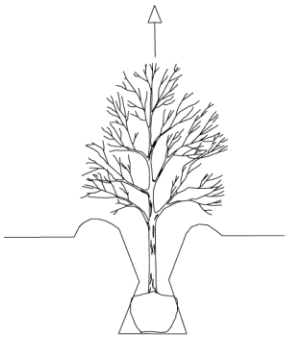
1) Make plenty of room for the transplants roots



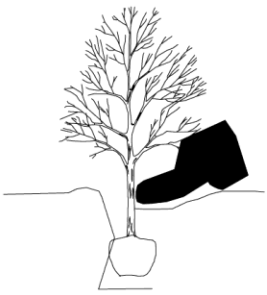
2) Ensure that the roots are pushed down as far as possible



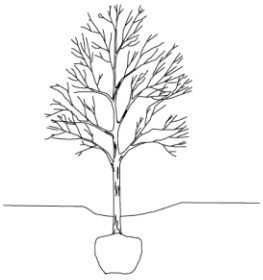
3) Withdraw the transplant slightly to spread roots



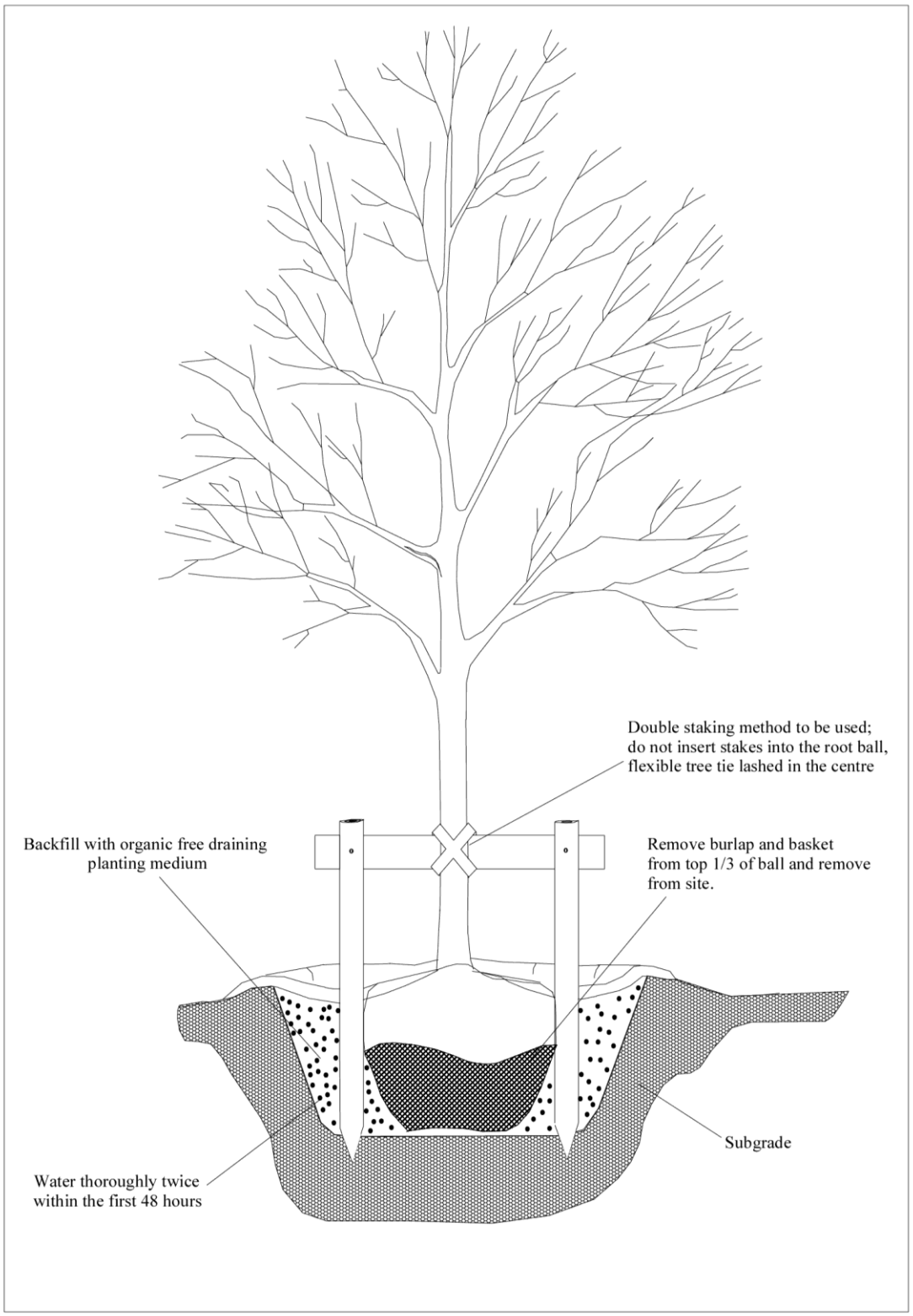
4) Firm up to exclude air pockets



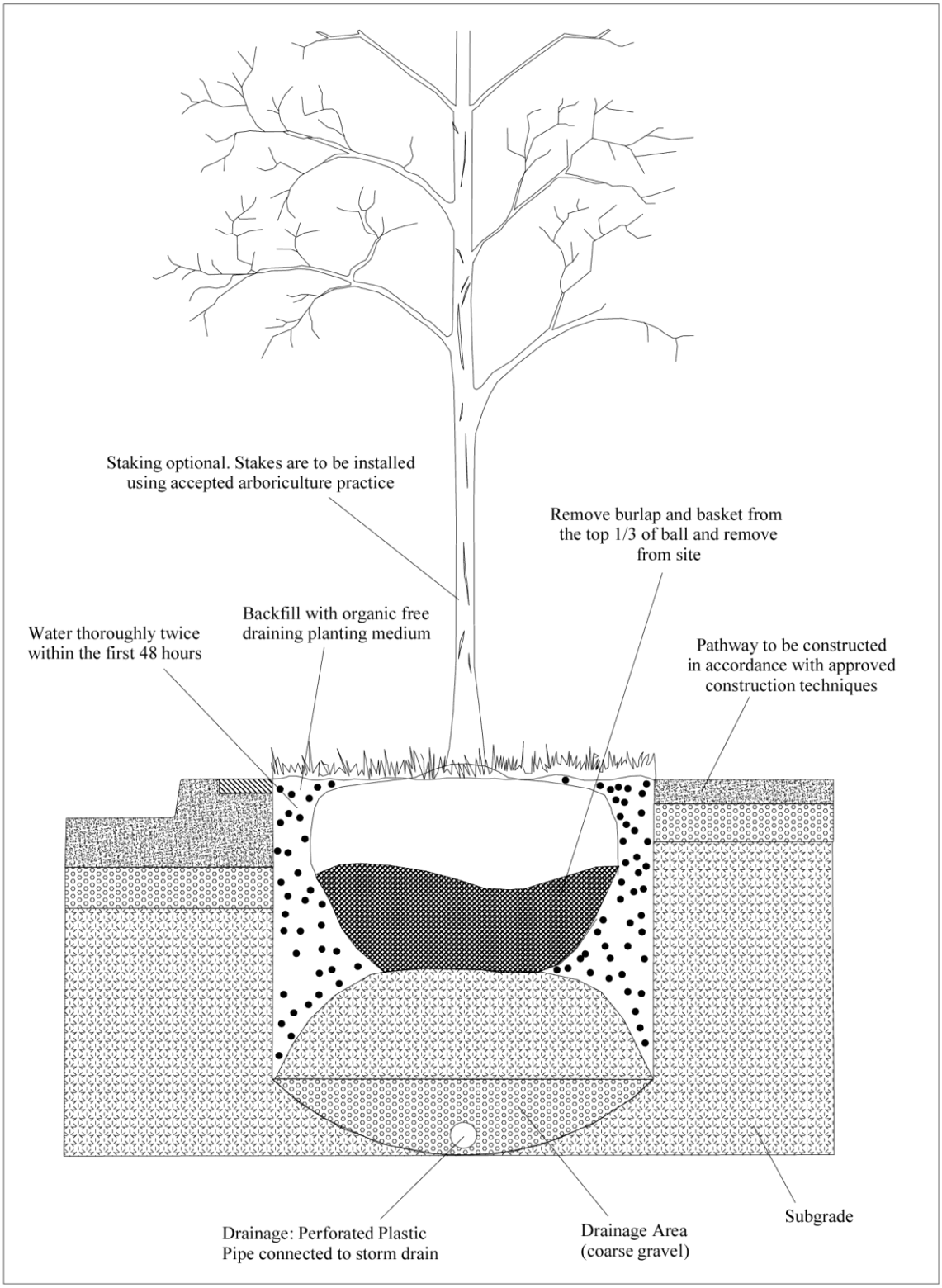
4) Transplant in correct position



Appendix 5: Example of Planting a in an Open grass strip

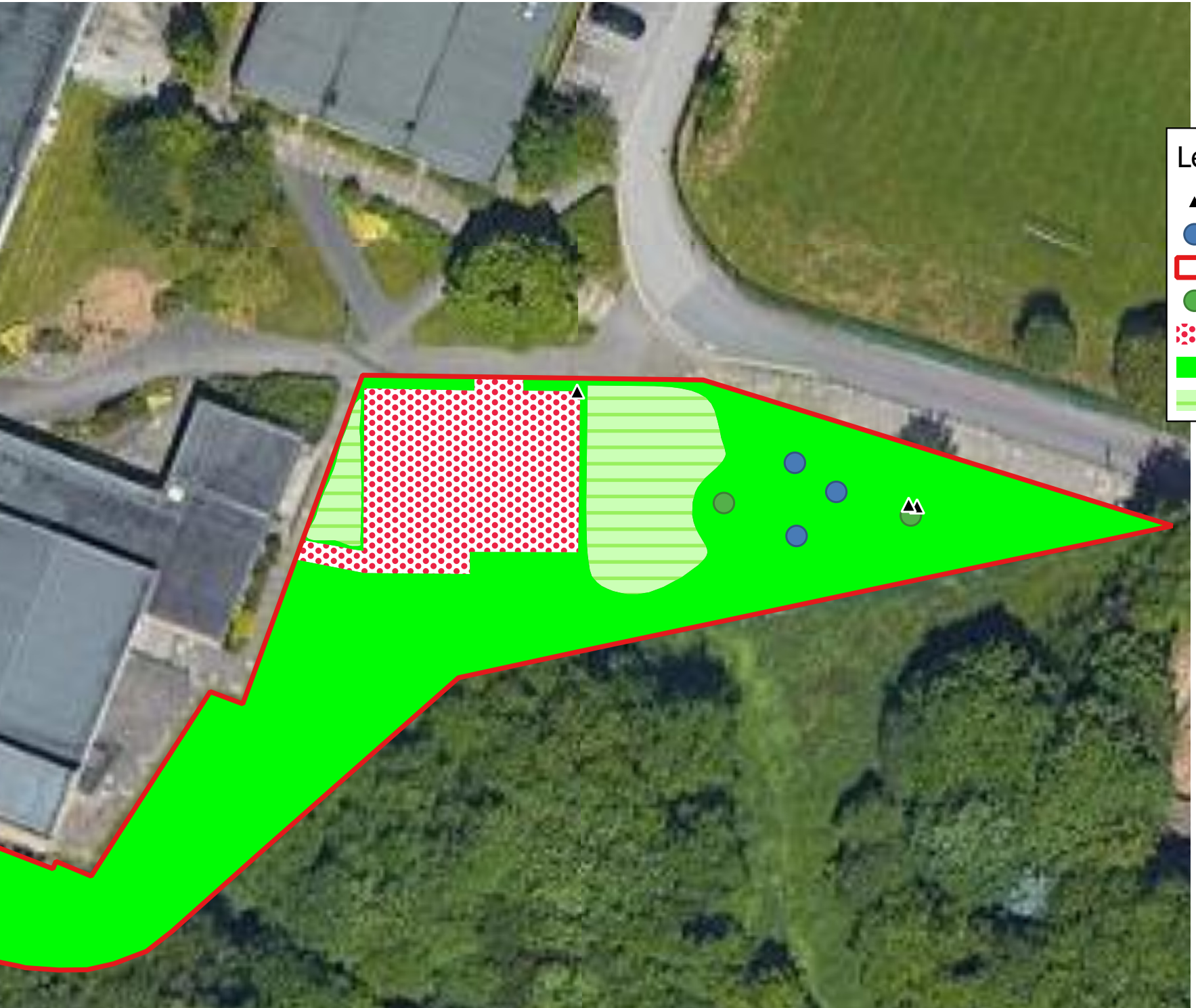


Appendix 6: Example of Planting within a Street



Appendix 7: Provision of All Faunal Boxes Across Site

Upper Batley High School; Bird Box Locations



Appendix 8: Author Qualifications

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 Batchelor'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 and a Natural England Level 2 bat survey class licence.

Eve Goodwin, Graduate Ecologist
BSc (Hons) Plant Biology, Qualifying CIEEM Member
Eve gained her Royal Society of Biology accredited undergraduate degree in 2019 from Aberystwyth University in Plant Biology. She has good plant identification skills which were developed through her academic studies and field work. She has since worked as a CAD technician and has joined JCA in 2022 where she hopes to develop her field skills further.

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

.....
Eve Goodwin
31/03/23

Reviewed and authorised by

.....
Adam West *ACIEEM*
03/04/2023

For and on behalf of ***JCA Ltd***

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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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