

United Environmental Services Ltd

1 Booths Park,
Chelford Road,
Knutsford,
Cheshire
WA16 8QZ

www.ues.org.uk

enquiries@ues.org.uk

01565 757788



LANDSCAPE & ECOLOGICAL MANAGEMENT PLAN

At

East Lancs Paper Mill

Cricket Pitch Relocation Site
Church Street East
Radcliffe
M26 2PG

NGR: SD 79632 07371

Prepared for:	Christopher Wright, Morris Homes Northern Ltd
Written by:	Kathryn James, UES Senior Project Manager
Approved by:	Toby Hart, UES Managing Director

A handwritten signature in black ink, appearing to read 'Toby Hart', is positioned below the 'Approved by:' line.

Date:	25 th August 2024
Updated:	6 th December 2024
UES reference:	UES03854/15



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1 INTRODUCTION

1.1 Author and qualifications

This report is compiled and written by Kathryn James BSc MRes MCIEEM, Senior Project Manager for United Environmental Services (UES) Ltd.

It has been verified by Toby Hart BSc MCIEEM PIEMA, UES Managing Director.

1.2 Development proposals and previous survey information

Outline planning permission was granted by Bury Council on 19th December 2018 (62969). Following approval of planning permission 62969, a s73 application was granted by Bury Council on 24th March 2022 (67597), as detailed below.

62969 - Outline application for up to 400 residential dwellings including details of vehicular access (all other matters reserved) and associated works including relocation of cricket pitch, including a pavilion, provision of open space and sports facilities and demolition of existing building and structures.

67597 - s73 Application - Variation to conditions 2 for consistency and to allow phasing; 3 removing indicative masterplan from list of approved plans; 8 and 42 for consistency; 9, 23, 33 and 39 to amend the trigger point for submitting information; 11 to allow site clearance and preparation to take place prior to commencement of development; 15, 18 and 37 to amend the trigger point for submitting information and consistency; 16, 27, 28 and 34 for flexibility and to amend the trigger point as to when information is submitted; 17 and 30 to increase flexibility and 26 to allow for phasing, following approval of planning permission 62969.

A suite of ecological surveys were undertaken by WYG to inform the planning applications; the most relevant of which is a preliminary ecological appraisal (PEA) of the cricket pitch relocation site produced by WYG in September 2018 (see report reference A090070-193). UES have also undertaken several ecological surveys on the cricket pitch relocation site in 2024:

- Bat activity survey – interim report (see report reference UES0354/12; dated August 2024)
- Breeding bird survey (see report reference UES0354/09; dated August 2024)
- Great crested newt (GCN) *Triturus cristatus* environmental DNA (eDNA) survey (see report reference UES0354/13; dated July 2024)

1.3 Objectives and scope

UES has been commissioned by Morris Homes Northern Ltd to produce a landscape and ecology management plan (LEMP) for the cricket pitch relocation site at East Lancs Paper Mill, Radcliffe. This LEMP details how the final landscaping plans will be implemented and how ecologically value habitats that are to be created and retained on site will be established, maintained and managed, and which organisations are responsible for these requirements. This report also provides details of how the site will be enhanced with regards to retained habitats and specific habitat requirements for specific species. The LEMP aims to:



- Ensure that retained and created habitats are established and managed appropriately throughout their lifetime
- Provide habitats and features on site which promote protected or otherwise notable species and enhance the overall biodiversity and ecology of the site
- Ensure that management responsibilities are appropriately delegated and that specific measures are scheduled

The LEMP has been produced to partially discharge condition 33 of planning permission 67597:

No phase of development shall commence (excluding works of site clearance and preparation) until a landscape management plan for that phase, including long- term design objectives, management responsibilities and maintenance schedules for all landscaped areas within that phase (except privately owned domestic gardens), shall be submitted to and approved in writing by the Local Planning Authority. The scheme shall include the following elements:

- *Detail of any retained or enhanced habitats;*
- *Detail extent and type of new soft landscaping including landscape schedule predominantly based on native species;*
- *Details of maintenance regimes;*
- *Details of any new habitat created including opened up and restored culverted stream channels, new SUDs ponds, wetlands and swales on site details of treatment of site boundaries and/or buffers around water bodies; and*
- *Details of management over the longer term including adequate financial provision and named body responsible for management plus production of detailed management plan.*

The landscape management plan shall be carried out as approved.

Reason. To ensure the protection of wildlife and supporting habitat and secure opportunities for the enhancement of the nature conservation value of the site pursuant to Section 15 of the National Planning Policy Framework.

1.4 Structure of the report

This report sets out the baseline ecological information before detailing how the objectives of this LEMP will be achieved during and after the development.

It should be read in conjunction with Appendices 1 and 2, as well as the following supplementary reports detailed in section 1.2.



2 BASELINE ECOLOGICAL INFORMATION

2.1 Habitats

The cricket pitch relocation site at East Lancs Paper Mill is located within a largely urban area in Radcliffe, Greater Manchester, and has an area of approximately 5.5ha. A PEA was undertaken by WYG in 2018 which identified and mapped the habitats onsite. The majority of the site was classified as marshy grassland, with some areas of broadleaved semi-natural woodland, dense willow scrub and tall ruderal vegetation at the margins. A small area mapped as swamp was also identified within the northern section of the site, located immediately adjacent to an area of woodland.

UES completed an updated walkover survey in 2024. The site remains in a similar condition as when it was assessed in 2018, however it has been subject to natural successional processes, the main change being significant encroachment of self-seeded grey willow *Salix cinerea* and osier *Salix viminalis* scrub across the site, forming multiple scattered and dense stands. Additionally, whilst the small area of swamp was not previously found to be holding water in 2018, it now appears to hold standing water for most of the year.

A suite of ecological surveys were undertaken by WYG to inform the planning applications; the most relevant of which is a PEA of the cricket pitch relocation site produced by WYG in September 2018. Bat activity surveys, breeding bird surveys and a great crested newt eDNA survey have also undertaken by UES in 2024. The results of the ecological surveys highlighted the following species and / or habitats as important ecological receptors on site:

- Broad-leaved semi-natural woodland
- Marshy grassland
- Dense scrub
- Swamp
- Amphibians
- Bats
- Badgers
- Breeding birds
- Invertebrates
- Reptiles
- Hedgehogs
- Invasive species

2.2 Broad-leaved semi-natural woodland

The two areas of broad-leaved semi-natural woodland identified within the site qualify as the NERC S41 habitat of principal importance lowland mixed deciduous woodland. Lowland broad-leaved woodland is also the subject of a Greater Manchester local biodiversity action plan (LBAP).

The majority of the woodland will be lost in order to facilitate the development; however, a small area of woodland will be retained to the north of site adjacent to the swamp. The remaining woodland will be managed for the benefit of the habitat and its wildlife, including tree thinning, pruning and the selective removal of invasive species, such as Himalayan balsam *Impatiens glandulifera*.



Root protection areas (RPAs) should be established and implemented around the trees which are to be retained. Where necessary, these areas should be adequately protected by appropriately designed protective barriers and ground protection throughout the entire development process.

The loss of woodland onsite is unavoidable in order to facilitate a viable development. However, this will be compensated for as part of the wider development which includes the retention, enhancement and creation of a large area of woodland and scrub habitat to the west of site. Appropriate enhancements for this habitat would include the planting of native species of broad-leaved tree and shrubs of local provenance, wherever possible, including those species which provide nectar, fruit and berries, to have the greatest benefits to local wildlife. Selective thinning of trees would help to keep the canopy open, encouraging the understorey vegetation and ground flora. The selective removal of invasive non-native species, such as Himalayan balsam, would also greatly enhance the woodlands.

2.3 Marshy grassland

Marshy grassland is not listed as a NERC S41 habitat of principal importance but meets the criteria of 'grasslands' under Greater Manchester's LBAP. Although some of the marshy grassland onsite will be lost in order to facilitate the development, a significant area will be retained and enhanced to the east of the site as part of an ecological compensation area (ECA). Having said that, the do-nothing approach of not developing the site would also result in the loss of marshy grassland which can already be seen succeeding naturally into scrub habitat. The proposed development provides a mechanism to secure the long-term retention and management of marshy grassland onsite.

2.4 Dense scrub

Dense scrub is not listed as a NERC S41 habitat of principal importance or the subject of a LBAP. However, it is an important habitat for foraging and shelter for birds, mammals, amphibians and invertebrate species. Although some of the scrub onsite will be lost in order to facilitate the development, a significant area will be retained and enhanced to the east of the site as part of an ecological compensation area. Scrub habitat can be easily replicated and requires a certain level of management to ensure it doesn't spread at the detriment of other habitats, such as marshy grassland. The proposed development provides a mechanism to secure the long-term retention and management of scrub onsite.

2.5 Swamp

Swamp is not listed as a NERC S41 habitat of principal importance or the subject of a LBAP. However, it is an important habitat for amphibians and invertebrate species, and as such is due to be retained in its entirety as part of the proposed development.

Specific procedures or control measures will need to be implemented to ensure that the swamp is not impacted as a result of construction works onsite. These measures should be set out by the contractors prior to the commencement of works and should conform to best practice guidance.

2.6 Amphibians

The habitats recorded on site provide good quality terrestrial habitat for foraging, commuting and resting/hibernating amphibians such as GCN. An assessment of the site to support GCN was undertaken by WYG as part of their 2018 PEA of the site. WYG concluded that 'the site is poorly connected to potential GCN habitat in the wider area due to the presence of the River Irwell to the east, south and south-west of the site and the urban area (including multiple roads) to the north and west of the site, where most of the nearby GCN records were located. GCN are considered unlikely to be present on site'.

At the time of writing their report the area of swamp within the site was found to be holding no surface water and therefore was not assessed for GCN using a HSI or eDNA analysis. The area of swamp now appears to hold standing water for most of the year, and as such was subject to a GCN eDNA survey by UES in July 2024. The results of the eDNA assessment were negative indicating that GCNs are likely absent from this waterbody.

Given these results and the results of previous GCN surveys and assessments of the site and wider development area, it is considered that GCNs are not present onsite or within the immediate vicinity of the site, and they will not be adversely impacted by the proposed development. However, the site does have potential to support common amphibian species, including common toad *Bufo bufo*, which is a NERC S41 priority species.

Given that there will be no loss of breeding habitat and there will be some retention of foraging, commuting, sheltering and hibernating habitats, both on site and within the immediate vicinity, it is considered that the proposed development won't have a significant adverse impact on common amphibian species locally.

The retention and enhancement of the marshy grassland, scrub, swamp and woodland habitats, as well as native species-rich hedgerow planting and the provision of hibernacula and log piles, will ensure that habitat is available onsite for foraging, commuting, sheltering, hibernating and breeding common amphibian species.

In addition, in order to limit the potential for harm to common toad and other amphibians to the lowest practicable level during the construction phase of the development, the following reasonable avoidance measures (RAMs) should be implemented:

- Prior to the start of works or any vehicle access, all areas of grassland within the working area are to be mown / cut to have a sward height below 10cm. This mowing is to be undertaken at least 24 hours prior to the start of works in order to give any amphibians present time to move off site of their own accord. The mown / cleared areas will then be maintained with a short sward below 10cm until the works on site have been completed.
- Any potential hibernacula created on site during the construction works are to be removed by hand. If hibernacula cannot be removed by hand e.g., due to its weight, it will be lifted vertically opposed to being dragged horizontally and the area will be checked immediately afterwards for sheltering wildlife. Hibernacula could include piles of brash, rubble, bricks, loose soil, debris, brash piles etc.
- No excavations are to be left open overnight. If this is not feasible a plank should be left within the excavation at a 45-degree angle to allow trapped wildlife to escape. Any open excavations should be checked for trapped wildlife in the morning prior to start of works on site.



- All open excavations are to be checked for trapped wildlife immediately prior to backfilling.
- Where possible, materials will be stored on pallets off the ground in order to reduce the risk of amphibians sheltering underneath them.
- If any amphibians (excluding GCNs) are found on site during the construction phase of the development, they will be transported by hand to a suitable area of retained habitat outside of the working area. Suitable habitats include the base of dense scrub or other sheltered vegetated areas.
- In the highly unlikely event that a GCN is observed on site, works in that area will stop immediately and UES will be called for advice on how to best proceed.

2.7 Bats

An assessment of the site to support bats was undertaken by WYG as part of their 2018 PEA of the site. WYG assessed the site as having moderate suitability for commuting and foraging bats. In accordance with condition 15 of planning permission 67597, UES are currently undertaking bat activity surveys of the site. The results of the surveys undertaken thus far are detailed in UES' August 2024 bat activity survey – interim report. A minimum of five species were recorded during the surveys conducted between April and July 2024: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared (BLE) *Plecotus auritus*, noctule *Nyctalus noctula* and a *Myotis* species. Common pipistrelles accounted for 91.92% of the transect survey data and 98.64% of the static detector data, with other species recorded to a lesser extent. Bats were recorded utilising the areas of woodland and scrub and the borders of the wet grassland.

The retention and enhancement of the marshy grassland, scrub, swamp and woodland habitats, as well as native species-rich hedgerow planting and the provision of bat boxes, will ensure that habitat is available onsite for foraging, commuting and roosting bats.

In addition, WYG identified a single tree onsite (a willow within the woodland along the west site boundary) as having moderate potential to support roosting bats, due to the presence of an old woodpecker hole. The remainder of the trees onsite were assessed as having negligible potential to support roosting bats. In order to limit the potential for harm to bats to the lowest practicable level during the construction phase of the development, the willow tree identified as having moderate potential to support roosting bats should be subject to an aerial tree assessment to determine if it still has potential to support roosting bats, and if necessary, further bat presence / absence surveys should be undertaken ahead of felling, in accordance with the Bat Conservation Trust (BCT) survey guidelines. This is in accordance with condition 14 of planning permission 67597.

2.8 Badgers

The habitats on site, particularly the woodland, provide suitable foraging, commuting and sett building opportunities for badgers.



The retention and enhancement of the marshy grassland, scrub and woodland habitats, as well as native species-rich hedgerow planting and tree planting, will ensure that habitat is available onsite for foraging and commuting badgers.

A badger sett showing evidence of current use was observed in the woodland at the western end of the site during WYG's 2018 PEA. Two other badger holes were also found in the vicinity, one of which showed signs of periodic use and the other appeared to be disused.

Prior to commencement onsite, an updated badger walkover survey should be undertaken to determine the current use of the site by badgers and further badger activity surveys undertaken if considered necessary. Badger surveys can be undertaken all year round, although the optimal months are November to April inclusive. Depending on the findings of the surveys, a licence to interfere with setts for development purposes may be required from Natural England. Sett exclusion under licence typically involves the installation of one way gates over all entrances of the sett, and installation of badger mesh around the gates and between sett entrances to prevent badgers from digging back into the sett. Sett exclusion takes a minimum of twenty one consecutive days from the point of gate installation. Monitoring of a sett following installation of one way gates must be carried out to determine levels of badger activity. Works taking place within 30m of a sett which will not damage or destroy a badger sett are still likely to require a disturbance licence. This will allow works to proceed but may include specific conditions to minimise disturbance to the badger sett. This is in accordance with condition 19 of planning permission 67597.

In addition, in order to limit the potential for harm to badgers to the lowest practicable level during the construction phase of the development, the following RAMs should be implemented, as per WYG's 2018 PEA:

- 'If any excavations must remain open overnight, it is recommended that access ramps (these can be roughened planks of wood, or even a ramp of earth) are installed each night near to crossing points to allow any animals that accidentally fall into the excavation a means of climbing out.
- Avoiding works at night where possible to minimise disturbance and the impact of noise and light pollution to badgers and other wildlife foraging / commuting nearby to the site. When works after dark cannot be avoided, any lighting should only be used where necessary and be designed to be sympathetic by minimising light spill on the habitats adjacent to the works areas.
- Daily checks of any excavations and equipment (such as large pipes which an animal could seek refuge) should be made by contractors prior to commencing work to ensure that no badgers, hedgehogs or other animals have become trapped or sought refuge in the excavations or equipment. Should a trapped badger or other protected/notable species be found within the works, an ecologist should be immediately contacted for advice.
- Any pipes stored, or installed on site, with a diameter of greater than 200mm should be covered or capped at night to reduce the risk of badgers and other animals becoming trapped inside.
- Consideration should be given to the placement of any gravel storage, or piles of materials that may create mounds suitable for digging (e.g. burrow creation). We would advise that any such piles are checked on a daily basis by contractor staff to ensure that no digging/burrowing activity has taken place. If the mounds are to be left in place overnight, the safest approach may be to temporarily fence them to ensure that animals cannot access the fresh soil.
- If injured or sickly animals are found then the animal should be admitted to a wildlife hospital or centre for relocation by an ecological clerk of works (ECoW).'

2.9 Breeding birds

The site contains an array of habitats suitable to support a diverse assemblage of breeding birds. In accordance with condition 18 of planning permission 67597, UES undertook a suite of breeding bird surveys between March and August 2024 (see report reference UES03845/09).

A total of forty-five bird species were recorded during the surveys, seventeen of which were assessed as confirmed or likely breeding within 50m of the survey boundary and a further six species assessed as possibly breeding. Most of the species observed are considered to be common and widespread species, although some are of conservation concern.

The majority of activity recorded was associated with the woodland along the western site boundary, as well as the damp areas and willow scrub throughout site. Areas of woodland, marshy grassland and willow scrub will be lost in order to facilitate the development; however, provided suitable mitigation and compensation measures are incorporated into the development design, it is considered unlikely that the development will have a significant impact upon breeding birds.

The retention and enhancement of the marshy grassland, scrub, swamp and woodland habitats, as well as native species-rich hedgerow and tree planting, and the provision of bird boxes, will ensure that habitat is available onsite for foraging, commuting and breeding birds.

In addition, all vegetation clearance works will be undertaken outside of the nesting bird season, which runs from March to August inclusive. If this is not possible and works need to be undertaken within this period, a nesting bird check will be undertaken by a suitably qualified ecologist immediately prior to the works. If nesting birds are found within the areas scheduled for clearance, a minimum 4m exclusion zone (depending on the species) will be sensitively set up around the nest and left until the young have fledged the nest and breeding is completed, as confirmed by a suitably qualified ecologist. This is in accordance with condition 17 of planning permission 67597.

2.10 Invertebrates

An assessment of the site to support invertebrates was undertaken by WYG as part of their 2018 PEA of the site. WYG concluded that 'the variety of habitats on site (marshy grassland, dense scrub, tall ruderal, broad-leaved woodland and swamp) are potentially suitable for a range of invertebrate species. The undisturbed and floristically rich marshy grassland in particular is thought to offer very good foraging opportunities for invertebrates.' The site also has potential to support two NERC Section 41 priority species: cinnabar moth *Tyria jacobaeae* and wall butterfly *Lasiommata megera*.

The retention and enhancement of the marshy grassland, scrub, swamp and woodland habitats, as well as native species-rich hedgerow and tree planting, and the provision of hibernacula, log piles and insect boxes, will ensure that habitat is available onsite for foraging, sheltering, hibernating and breeding invertebrates.

2.11 Reptiles

An assessment of the site to support reptiles was undertaken by WYG as part of their 2018 PEA of the site. WYG concluded that 'the habitats present on site are considered to have

some potential to support reptiles. The predominant habitat marshy grassland would provide suitable foraging habitat for grass snakes *Natrix helvetica*. The dense scrub habitats on site could provide suitable foraging habitat and shelter for common reptile species, including common lizard *Zootoca vivipara* and slow-worm *Anguis fragilis*. However, the ground in much of the site would be likely to retain high levels of moisture through much of the year which would not be favourable to those two species, which favour drier conditions.

There is very limited connectivity between the site and adjacent areas which might possibly support reptiles, with the presence of the River Irwell to the east, south and south-west of the site and the urban areas (including multiple roads) to the north and west of the site.

It is concluded that there is some potential for the presence of reptiles in certain parts of the site.'

The retention and enhancement of the marshy grassland, scrub, swamp and woodland habitats, as well as native species-rich hedgerow planting and the provision of hibernacula and log piles, will ensure that habitat is available onsite for foraging, commuting, sheltering, hibernating and breeding common reptile species.

In addition, in order to limit the potential for harm to reptiles to the lowest practicable level during the construction phase of the development, RAMs should be implemented. The RAMs detailed in section 2.6 in relation to amphibians will also serve to protect reptiles, if present at the time of works.

2.12 Hedgehogs

An assessment of the site to support hedgehogs *Erinaceus europaeus* was undertaken by WYG as part of their 2018 PEA of the site. WYG concluded that 'the scrub and woodland habitats onsite have the potential to support sheltering, resting and breeding hedgehogs and all the habitats could be used as foraging grounds for hedgehogs. Therefore, the site is considered to have suitability for hedgehogs.'

The retention and enhancement of the scrub and woodland habitats, as well as native species-rich hedgerow and tree planting, and the provision of hibernacula, log piles and hedgehog highways, will ensure that habitat is available onsite for foraging, commuting, sheltering, hibernating and breeding hedgehogs.

In addition, in order to limit the potential for harm to hedgehogs to the lowest practicable level during the construction phase of the development, RAMs should be implemented. The RAMs detailed in sections 2.6 and 2.8 in relation to amphibians and badgers will also serve to protect hedgehogs, if present at the time of works.

2.13 Invasive species

Three invasive plant species were observed onsite during WYG's 2018 PEA: giant hogweed *Heracleum mantegazzianum*, Himalayan balsam and Japanese knotweed *Fallopia japonica*.

An invasive species method statement should be prepared, in accordance with condition 20 of planning permission 67597, to ensure the removal and eradication of these species onsite.



3 LANDSCAPING AND HABITAT MANAGEMENT

Each habitat on site will require a certain level of establishment, maintenance and monitoring to ensure that they are providing the ecosystem function required of them. This section details the habitats being retained or created, and specific management measures for each habitat. The management responsibilities and mechanisms to ensure compliance are explained in section 4, and finally the management measures are summarised in the management schedule in section 5.

3.1 Broad-leaved semi-natural woodland

The retained woodland to the north of site will be managed for the benefit of the habitat and its wildlife, including tree thinning, pruning and the selective removal of invasive species, such as Himalayan balsam.

Selective thinning of trees would help to keep the canopy open, encouraging the understorey vegetation and ground flora. An approved arboriculturist should be appointed to identify if any specialist arboricultural works are required e.g. the felling of trees, woodland thinning or removal of deadwood. Works should only be undertaken outside of the breeding bird season and should not be undertaken from March to August inclusive. If this is not possible and works need to take place during this period, a pre-commencement nesting bird check should be undertaken by a suitability qualified ecologist. Additionally, any trees due to be removed should be subject to a ground level tree inspection of their potential to support bats, which will inform the potential requirement for further bat presence / absence surveys or the need to implement soft-felling techniques.

Dead branches and dead trees should be left standing within the woodland and should not be removed unless there is a requirement to remove diseased specimens or there is a risk to health and safety. If any trees need to be removed for the purposes of thinning the woodland, ring-barking should be implemented to kill the tree and reduce its canopy cover, but allow the tree to be retained as standing deadwood. If any trees or deadwood are to be felled, they should be left lying on the woodland floor in distinct piles.

The retained woodland on site will continue to provide nesting habitat for birds, and when mature will develop fissures and crevices which could be used for roosting purposes by bats, or for nesting by birds. Furthermore, the woodland will continue to provide a food source for birds, bats and other mammals in the form of fruit and invertebrates.

The retention of standing and fallen deadwood will provide opportunities for wildlife, including rare species that are specialists of this habitat. Deadwood can be particularly beneficial for birds, mosses, lichens, fungi and invertebrates, particularly saprophytic beetles.

An invasive species method statement should be prepared, in accordance with condition 20 of planning permission 67597, to ensure the removal and eradication of invasive species from the woodland.

The ongoing monitoring and intervening management if required, will ensure the woodland maintains an ecologically favourable condition and continues to provide opportunities for wildlife. The general condition of the woodland will be monitored annually to look for obvious threats e.g. significantly increased levels of disturbance or deliberate damage, and to remove any litter present. A more detailed inspection will be undertaken every five years by a suitably qualified ecologist and arboriculturist. This five year inspection may identify the need for further



management works including thinning, understory clearance or the removal of diseased specimens.

3.2 Scattered broad-leaved trees

To increase biodiversity on site the planting scheme includes areas of tree planting along the site boundaries. The exact species to be planted have not been specified within the landscape masterplan but should be native species that are appropriate for the location and reviewed by a landscape architect. Suitable tree species include but are not limited to:

- Bird cherry *Prunus padus*
- Common alder *Alnus glutinosa*
- Common whitebeam *Sorbus aria*
- Crab apple *Malus sylvestris*
- Crack willow *Salix fragilis*
- English oak *Quercus robur*
- Field maple *Acer campestre*
- Hawthorn *Crataegus monogyna*
- Hazel *Corylus avellana*
- Hornbeam *Carpinus betulus*
- Pedunculate oak *Quercus robur*
- Rowan *Sorbus aucuparia*
- Silver birch *Betula pendula*
- Small-leaved lime *Tilia cordata*
- Whitebeam *Sorbus aria*
- Wild cherry *Prunus avium*

The newly planted and retained trees on site will provide nesting habitat for birds, and once fully mature, may develop fissures and crevices which can be used by roosting bats. Furthermore, the trees selected will provide resources to a wide range of invertebrates in the form of nectar, fruit and foliage for larval forms. They will also provide a food source for bats and birds in the form of fruit and invertebrates attracted to the trees.

Newly planted trees will be staked to aid growth and they will be protected from deer, squirrel or rabbit damage using biodegradable tree spirals or guards. For the first growing season following planting, vegetation within a one metre diameter of the base of each tree should be treated by the application of a glyphosate-based herbicide by knapsack sprayer, by an operative holding PA1 and PA6 licences, in order to reduce competition from weeds and grasses. This should first be carried out in April and throughout the following summer in response to new weed growth. Care must be taken to avoid spray drift onto the leaves or bark of the newly planted tree. Alternatively, a mulch material such as chippings or bark can be laid around the base of the tree within a one metre diameter.

The growth and establishment of the trees will be assessed after the first growing season after planting, and if any are deemed not to be in sufficient health / sufficiently well established, they will to be replaced by the planting contractor. Replacements should be replaced like-for-like, unless deemed inappropriate for their location; if this is the case, advice from the project ecologist and / or arboriculturist will be sought.

Once established, trees will then require little management in the future, unless specifically addressing problems or damage to individual specimens. Branches will only be removed when they pose a risk to the health and safety of people or property. Where possible, all branch removal and any other arboricultural works will be undertaken outside of the breeding bird season and will not be undertaken from March to August inclusive. If this isn't possible, a pre-commencement nesting bird check will be undertaken immediately prior to the works. If any specialist works are required, an approved arboriculturist will be appointed.



3.3 Hedgerows

To increase biodiversity on site the proposed landscape design includes the planting of native species-rich hedgerows along the site boundaries. Species to be planted have not been specified within the landscape masterplan but the hedgerows should include a minimum of five native species, such as:

- Blackthorn *Prunus spinosa*
- Common dogwood *Cornus sanguinea*
- Dog rose *Rosa canina*
- Elder *Sambucus nigra*
- Hawthorn
- Hazel
- Holly *Ilex aquifolium*
- Wild privet *Ligustrum vulgare*

During the first growing season the newly planted hedges must be well watered particularly during dry periods. A similar effort of weed suppression as detailed in section 3.2 should be carried out at the base of newly planted hedgerows during the first two growing seasons.

The newly planted hedgerows must have an initial prune within the second year after planting to encourage dense, bushy growth. This should be undertaken in late winter (January to February), when birds are not nesting and so that the fruits have been left as a food source for birds over the majority of winter.

After the initial prune, trimming must be undertaken every three years in January or February. The flowers and fruits on the most common hedgerow species develop on two- to three-year-old wood and therefore trimming more frequently than this will reduce the wildlife value. Growth should not be left untrimmed for longer than three years however, as the woody growth will become too thick to be cleanly trimmed. A tall thick hedge with good growth at the base is optimal for wildlife (e.g. two to three metres tall by two metres wide).

The hedgerows will provide high quality terrestrial habitat for foraging and commuting common amphibian species, reptiles, bats and other mammals. They will also provide nesting and foraging opportunities for birds.

3.4 Marshy grassland

The landscaping proposals have been designed to retain and enhance a mosaic of marshy grassland and scrub habitats to the east of site within a designated ecological compensation area. Approximately half of the ECA will comprise retained marshy grassland which will be sown with a wildflower grassland seed mix (e.g Emorsgate EM8F wild flowers for wetlands) and managed appropriately to prevent scrubbing over. This mix has been chosen as it only contains native species and is suitable for the proposed location.

The initial sowing and ground works will be carried out by a suitably experienced contractor and will be undertaken in spring (March to April) or autumn (September to October). Seed will be hand-cast to reduce any impact on adjacent habitats. In the first year, prolific weeds, such as docks and thistles must be removed by hand or spot-treated with an appropriate glyphosate-based herbicide, suitable for use adjacent to water.



The marshy grassland is to be mown / cut annually in the autumn (September – October) to a height of no-lower than 40cm, to reduce any risk of harm to amphibians. Any litter or debris will be removed from the area prior to cutting and underneath these materials will be checked for sheltering wildlife. Where possible, arisings will be left *in situ* for 48 hours, before being collected and piled in designated composting areas at the edge of the grassland; this will provide sheltering opportunities for amphibians, small mammals and other wildlife. The cuttings must not be left in situ longer than 72 hours, as this will increase the level of nutrients within the soil and prohibit the establishment of the marshy grassland.

An unmown 3m buffer will be retained around each hibernaculum to reduce the risk of harm to any individuals using the features.

The marshy grassland will provide pollen and nectar resources for an array of invertebrates, which will present foraging opportunities for common amphibian species, reptiles, birds, bats and other mammals.

3.5 Dense scrub

The landscaping proposals have been designed to retain and enhance a mosaic of marshy grassland and scrub habitats to the east of site within a designated ecological compensation area. Approximately half of the ECA will comprise dense and scattered willow scrub.

The scrub habitats currently present onsite will, for the most part, be left unmanaged to allow natural processes to occur. However, some level of management will be required to ensure that scrub does not encroach into the adjacent marshy grassland and to ensure that a range of age classes and structures are maintained onsite. This may require selective scrub control throughout site undertaken on a rotational basis; works should be undertaken by a suitably qualified contractor.

The more mature areas of scrub will be highlighted by the project ecologist during annual management meetings, and these areas will be subject to coppicing: the total area coppiced annually will amount to 10% of the area of existing dense scrub. All other areas of scrub will be left to develop naturally.

Coppicing will be undertaken through the winter months (October – February inclusive), using hand tools. Arisings will be piled up in dense log / brash piles and cut stumps will not be treated with herbicide, to allow regrowth. If the volume of arisings is too great and not suitable for brash piling, then it should be disposed of appropriately offsite so as not to increase the level of nutrients within the soil and prohibit the establishment of adjacent habitats, such as marshy grassland.

3.6 Swamp

The development proposals include the retention of an area of swamp to the north of site. A small area of standing water is present within the swamp, and it is predominantly comprised of dominant common reed.

If the vegetation cover grows to exceed 80% of the swamp, some will need to be removed via cutting, digging or raking, but care must be taken to not damage the swamp. The level of cover should be reduced to 50%. Removed vegetation should be left next to the water for a period of 24 hours to allow wildlife caught up in it to return to the water. It should then be removed and disposed of appropriately.

The encroachment of small quantities of scrub, such as willow, within the open water can provide an ecological benefit as it creates structural diversity and provides additional microhabitats. Significant growth of shrub and tree species, however, will likely have detrimental impacts on the vegetative communities present and the associated faunal species. As such, small areas of natural scrub encroachment will be retained however scrub removal will be implemented if scrub species begin to cover more than 10% of the swamp. The swamp will be inspected annually in spring or summer to determine if scrub removal is required.

Scrub removal will be undertaken using hand tools, and arisings will be used to create log / brush piles adjacent to the ponds to provide hibernacula for amphibians and other wildlife. Cut stumps will be treated with glyphosate-based herbicide, suitable for use adjacent to water. These works will be undertaken in the winter months (November – February) to minimise the impact to breeding birds and amphibians using the ponds.

The southern edge of the swamp will be sown with a wildflower grassland seed mix (e.g Emorsgate EM8F wild flowers for wetlands) and managed appropriately to prevent scrubbing over. This mix has been chosen as it only contains native species and is suitable for the proposed location. Some selective reed and scrub clearance is likely to be required prior to sowing, which should be undertaken by a suitably experienced contractor.

The grassland surrounding the ponds is to be cut once a year in the autumn, to allow the vegetation to grow and provide shelter for commuting wildlife, such as amphibians. The arisings will be removed from the ground after mowing.

In the longer term the swamp will also support many other plant species as part of a process of natural succession. The native, supplementary species detailed above are designed to give an instant aesthetic and ecological benefit; nectar-bearing flowering plants will attract a range of insects, which will provide a food source for other wildlife such as bats and birds. The proposed seed mix and ongoing management of the swamp will ensure an array of microhabitats and niches are present, ensuring suitable conditions are available for a wider range of species.

Aquatic and wetland habitats are particularly susceptible to invasion of non-native species which can change habitats and suppress native species. A number of invasive species are known to be present onsite, including Himalayan balsam. An invasive species method statement should be prepared, in accordance with condition 20 of planning permission 67597, to ensure the removal and eradication of invasive species from within the swamp. The method statement will also detail ongoing monitoring requirements onsite to ensure invasive species are controlled and eradicated in the long term.

No fish or other animals should be introduced to the swamp. Fish are often detrimental to standing waterbodies as they predate on the larval stages of many other species. Secondly, introducing animals from other areas increases the possibility of transmitting and spreading disease.

3.7 Amenity grassland and ornamental shrub planting

The areas of amenity grassland and ornamental shrub planting on site can be managed freely according to the appointed management company's programme. This habitat type is of limited value to wildlife, and as these areas are likely to be frequently disturbed by users of the site, encouraging wildlife into these areas may cause unnecessary impacts on wildlife.



3.8 Additional habitats

3.8.1 Bird boxes

The ecological compensation area, as well as the proposed hedgerows and tree lines, will provide potential nesting opportunities for birds, particularly when mature. To provide an additional and immediate ecological enhancement, a suite of bird boxes will be installed onsite.

Bird boxes will be installed on a north facing aspect in close proximity to good quality habitat for birds such as hedgerows, tree lines, woodland, waterbodies and scrub. The proposed make and model of bird box has been chosen to target species likely to be present on site or within the local area. If the proposed model of bird box is not available due to stock shortages, an alternative model can be used instead. All proposed changes must be discussed and agreed with the project ecologist to ensure that they provide similar nesting opportunities. The use of woodcrete or woodstone boxes will be prioritised due to their durability and longevity. The following bird boxes will be installed onsite:

- 6x Schwegler 1B bird nest box (26mm, 32mm and oval entrances) – affixed to semi-mature / mature trees which are due to be retained within the proposed development site and fences / poles within the ECA until tree planting has matured. Once tree planting within the ECA has matured the boxes can be moved and installed on trees under the supervision of a suitably qualified ecologist. The boxes should be installed at a height of 3-6m and should be positioned on the northern or eastern aspect, thus avoiding the strongest sunlight and wettest winds.
- 1x Vivara Pro woodstone house sparrow nest box – to be installed as high as practically possible, ensuring that there is unobstructed access for birds entering and leaving. If possible, the box should be sited under the shelter of eaves or overhanging roofs. The box will be positioned on the northern aspect of the building, thus avoiding the strongest sunlight and wettest winds.

Once installed, the bird boxes should not require any management in the long-term.

House sparrows are a NERC S41 priority species and are a red-listed bird of conservation concern (BoCC), showing population declines nationally. The provision of targeted nesting opportunities for this species will provide an ecological enhancement as suitable nesting opportunities are not currently present on site.

The retention and enhancement of the marshy grassland will provide foraging opportunities for a number of species including grasshopper warbler. The location of the marshy grassland in close proximity to, and within a mosaic habitat of scattered trees and scrub, collectively delivers foraging and nesting habitat in the east of the site. The management of the marshy grassland and scrub will be required to maintain areas of thicker ground cover for ground nesting birds, whilst preventing the habitats become mature, alongside open marshy grassland for insect foraging. The longer sward height of marshy grassland will provide cover for nesting birds, offering protection, alongside the damp nature of the habitat producing a suitable environment for a larger range of species, including dragonflies, strengthening the range of foraging opportunities available.

3.8.2 Bat boxes

The retained woodland, as well as the proposed tree lines, will provide potential roosting opportunities for bats, particularly when the trees reach a maturity where fissures and cavities

develop. To provide an additional and immediate ecological enhancement, a suite of bat boxes will be installed onsite.

Bat boxes will be installed on a south facing aspect in close proximity to good quality habitat for bats such as hedgerows, tree lines, woodland, waterbodies and scrub. The proposed make and model of bat box has been chosen to target species likely to be present on site or within the local area. If the proposed model of bat box is not available due to stock shortages, an alternative model can be used instead. All proposed changes must be discussed and agreed with the project ecologist to ensure that they provide similar nesting opportunities. The use of woodcrete or woodstone boxes will be prioritised due to their durability and longevity. The following bat boxes will be installed onsite:

- 1x Schwegler 1FF box – to be installed on the southern aspect of the club house to expose the box to high levels of sunlight, as per Appendix 2. The box should be positioned as high-as possible towards the eaves of the building.
- 2x Schwegler 2F bat box – affixed to semi-mature / mature trees which are due to be retained within the proposed development site and fences / poles within the ECA until tree planting has matured. Once tree planting within the ECA has matured the boxes can be moved and installed on trees under the supervision of a suitably qualified ecologist. The boxes should be installed at a height of 3-6m and should be positioned on the southern aspect, to expose the box to high levels of sunlight.
- 2x Schwegler 2FN bat box - see recommendations for 2F bat box above.

Any external lighting installed must be directed away from the bat boxes in order to minimise disturbance and increase the likelihood of occupancy. If this is not possible, UES should be contacted to discuss alternative locations for bat boxes due to be impacted by external lighting.

It should be noted that once inhabited by a bat, boxes may only be inspected or disturbed by a licenced bat ecologist. Once installed, the bat boxes should not require any management in the long-term.

All species of British bats and their roosts are fully protected under the Wildlife & Countryside Act 1981 (as amended) and the Conservation of Habitats & Species Regulations 2012 (as amended), and seven species of bat are listed as NERC S41 priority species. The provision of targeted roosting opportunities will provide an ecological enhancement as suitable roosting opportunities for bats are currently limited onsite.

3.8.3 Insect boxes

Insect boxes will be provided onsite to provide an enhancement in the availability of breeding and sheltering opportunities. Insect boxes will be installed on a south facing aspect in close proximity to good quality habitat for insects such as hedgerows, tree lines, woodland, wildflower grassland, as well as ornamental planting. See Appendix 2 for mapped locations.

The proposed make and model of insect box has been chosen to target species likely to be present on site or within the local area. If the proposed model of insect box is not available due to stock shortages, an alternative model can be used instead. All proposed changes must be discussed and agreed with the project ecologist to ensure that they provide similar nesting opportunities. The use of woodcrete or woodstone boxes will be prioritised due to their durability and longevity. The following insect boxes will be installed onsite:

- 1x Bee brick – integrated within the external wall of the newly constructed club house. The bee brick should be a minimum of 1m high on a southerly aspect to expose the box to high levels of sunlight.
- 2x Schwegler insect nesting aid – affixed to semi-mature / mature trees which are due to be retained within the proposed development site and fences / poles within the ECA until tree planting has matured. Once tree planting within the ECA has matured the boxes can be moved and installed on trees under the supervision of a suitably qualified ecologist. The boxes will be placed at a height of 4-6m and on a south-facing aspect.

The insect boxes installed will provide breeding and sheltering opportunities for solitary Hymenopterans species that are likely to be present onsite or in the local area.

Once installed, the insect boxes should not require any management in the long-term.

3.8.4 Hibernacula

As an additional ecological enhancement, two hibernacula will be created within the ECA. Proposed hibernacula locations are shown on the ecological enhancements plan at Appendix 2.

Each hibernacula will be created by excavating a pit in the ground (500mm depth, 2000mm length, and 1000mm width). Ideally, these pits will then be filled using materials already present on site, including hay, brash, cut timber / logs and brick / rock hard-core, or the materials can be sourced from elsewhere if necessary. The pits will be piled up to a height of approximately 1000mm above ground level. Hibernacula will then be loosely capped with topsoil ensuring that access is still available through to the lower layers at the margins. The hibernacula will provide sheltering and hibernating opportunities for reptiles, common amphibian species, small mammals and invertebrates. The following diagram provides a visual representation of the hibernacula, with the only additional requirement to the diagram being that a pit is first excavated.

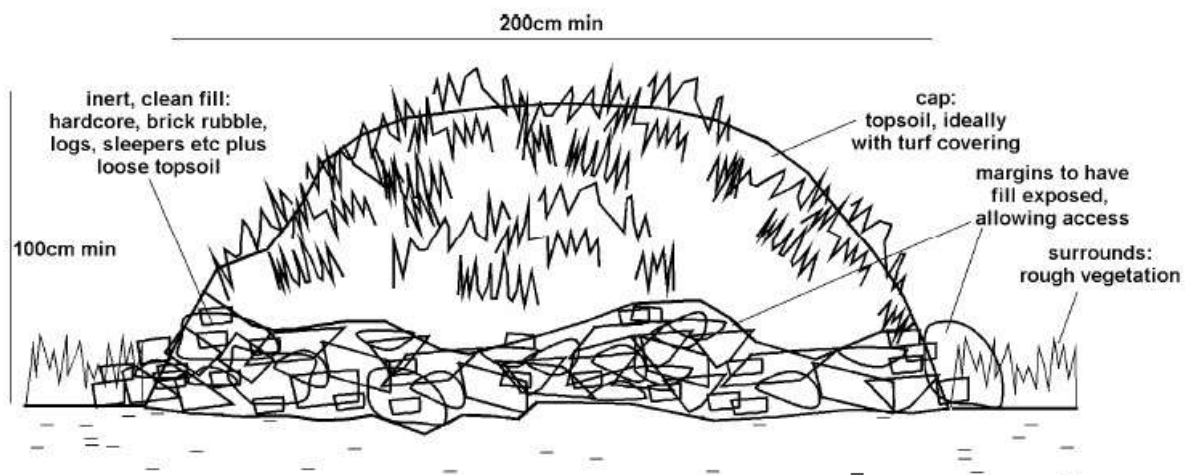


Figure 1 – Hibernacula design.

The hibernacula installed will provide sheltering and hibernating opportunities for amphibian and reptile species that have potential to be present onsite or in the local area, including common toad, grass snake, common lizard and slowworm, as well as other NERC S41 priority species, such as hedgehogs.



3.8.5 Log piles

As an additional ecological enhancement, two log piles will be created within the ECA. Proposed log pile locations are shown on the ecological enhancements plan at Appendix 2.

The log piles will be created using wood and brash from the vegetation clearance works onsite. These log piles will include a mix of different size logs to provide structural diversity and micro niches that favour different groups of species e.g. larger cavities for hedgehogs and smaller cavities for invertebrates. These log piles will provide sheltering, foraging and hibernating opportunities for common amphibian species, reptiles, small mammals and invertebrates.

3.8.6 Hedgehog highways

To allow continued use of the site by hedgehogs and to ensure commuting routes are not blocked, any fences installed onsite will be designed to allow passage of hedgehog. This can either be through the choice of material e.g. choosing a fence style that naturally contains suitable sized holes at the base or through the inclusion of hedgehog highways. Hedgehog highways are small 13cm x 13cm holes at the base of fences.



4 RESPONSIBILITIES, MONITORING AND REMEDIAL MEASURES

The responsibility for ensuring that the initial habitat creation works are undertaken lies with the developer and any contractors appointed to carry out those works at the time of the development. They will be responsible for ensuring that the habitat creation works are carried out in accordance with this LEMP.

Subsequent management of the habitats on site will be the responsibility of the appointed management company. They must ensure that the ongoing measures detailed within this LEMP are implemented. They will also be responsible for monitoring the establishment of habitats as well as monitoring them for any changes affecting their quality or function. An annual meeting must be held to discuss these issues and whether any remedial works are necessary to restore the habitats to a satisfactory standard. This meeting should be held from late summer to winter, so that the habitats can be assessed when in flower (e.g. wildflower grassland) and to allow for the required remedial works to be arranged.

The eastern section of the site has been designed as a designated ecological compensation area, and as such will not have open public access. This is to protect the habitats and species present. An access gate will be fitted with a secure padlock, with keys / access codes kept securely by assigned persons.



5 MANAGEMENT SCHEDULE

The below table summarises the management requirements and responsibilities detailed in the previous sections. This table should be read in conjunction with the previous sections, which include more detail which should not be overlooked.

Table 1 – Management schedule

ACTIVITY	DESCRIPTION	TIMINGS
<i>Initial works – carried out by appointed contractors</i>		
Initial arboricultural works including tree felling and thinning	An arboriculturist should be appointed to identify if any specialist works are required within the retained woodland.	September – February. Can be undertaken at any time of year provided a nesting bird check is first undertaken by a suitably qualified ecologist.
Tree planting	Including use of stakes, biodegradable spirals or guards and treatment of vegetation at base of trees.	During the development, although planting between October and April is preferred.
Hedgerow planting	Planting of new hedgerows. Also including treatment of vegetation at base of trees.	During the development, although planting between October and April is preferred.
Sowing of marshy grassland within the ECA	Preparatory ground works and sowing to be carried out by appropriately experienced contractor.	March to April, or September to October.
Initial scrub management within ECA	To ensure that no more than 50% of the ECA comprises willow scrub; selective scrub control / coppicing may be required. Works to be undertaken using hand tools, and arisings disposed of appropriately.	September – February. Can be undertaken at any time of year provided a nesting bird check is first undertaken by a suitably qualified ecologist.
Initial removal of dense vegetation / scrub from the swamp	If required, if vegetation covers more than 80% of the swamp or scrub covers more than 10% of the swamp. Undertaken using hand tools under ecological supervision. Arisings used to create log / brash piles adjacent to ponds.	November to February.
Sowing of wildflower grassland around the swamp edge	Preparatory ground works and sowing to be carried out by appropriately experienced contractor.	March to April, or September to October.
Installation of bat, bird and insect boxes.	As detailed in section 3.8.	During the development, but prior to occupation.
Creation of two amphibian and reptile hibernacula and two log piles.	As detailed in section 3.8.	As soon as possible during the development.



Installation of hedgehog highways	As detailed in section 3.8.	During the development, but prior to occupation.
<i>Establishment – carried out by the appointed management company</i>		
Tree / hedge plant establishment assessment	Inspection of newly planted trees / hedgerows to monitor establishment after first growing season. Any trees deemed not to be in sufficient health / sufficiently well-established are to be replaced by the planting contractor.	After first full growing season, in late summer when leaves are still present to provide indication of tree health.
Weed suppression of sown grasslands	To decrease competition for target wildflower species: prolific weeds (thistles, docks and dominant grasses)	The first April after sowing.
Initial mowing of wildflower grasslands	To prevent nutrient enrichment. Sward is to be cut down to 40 – 75mm. Cuttings are to be left <i>in situ</i> for 48 hours, then collected and disposed of appropriately.	End of October after first year of sowing; this will allow flower to set seed and amphibians to move towards hibernation sites.
<i>Ongoing management – carried out by the appointed management company</i>		
Arboricultural works / tree pruning	To address specific health and safety risks.	September – February. Can be undertaken at any time of year provided a nesting bird check is first undertaken by a suitably qualified ecologist.
Annual monitoring inspection of the woodland	To remove any litter present and to look for obvious threats or changing conditions e.g. significantly increased levels of disturbance or deliberate damage.	April – September, annually.
Initial pruning of hedgerows	To establish dense, bushy growth.	Two years after planting. January to February.
Subsequent pruning of hedgerows.	To establish dense, bushy growth. Pruning should aim to achieve a height of around 3m and a width of around 2m.	Once every three years following the initial pruning. January to February.
Removal of dense vegetation / scrub from the swamp	If required, if vegetation covers more than 80% of the swamp or scrub covers more than 10% of the swamp.	November to February. Annually, if required.
Ongoing management of wildflower grasslands	Removal of litter or debris from mowing area, and checking for sheltering wildlife underneath. Sward is to be cut down to 40 – 75mm. Cuttings are to be left <i>in situ</i> for 48 hours, then collected and disposed of appropriately. During each cut, the sward should be monitored for establishing weeds,	September to October, annually.



	including brambles, and these should be uprooted, cut back or use of appropriate herbicide.	
Scrub coppicing	To ensure that no more than 50% of the ECA comprises willow scrub. Scrub to be cut back on a rotational basis, if required, to allow a range of age classes to develop. Most mature 10% areas of dense scrub to be highlighted by annual management meeting and subjected to coppicing: cutting to ground level with hand tools, and arisings disposed of appropriately.	September – February. Can be undertaken at any time of year provided a nesting bird check is first undertaken by a suitably qualified ecologist.
Management meetings	To discuss the establishment and condition of habitats, and whether any remedial actions are required to restore habitats.	End of summer to winter, annually.



6 CONCLUSION

Once implemented, the landscaping and ecological measures will provide a biologically diverse landscape. The bottom-up approach to improving the biodiversity on site will ensure that the habitats on site can support a range of invertebrate species and provide other food sources, which will then in turn benefit fauna further up the food chain. These landscaping proposals also ensure that any habitats which are to be lost to facilitate the development are appropriately compensated for. This is in accordance with sections 180, 185 and 186 of the NPPF, which states that developments should contribute to and enhance the natural and local environment.



APPENDICES

Appendix 1 – Landscape masterplan

Landscape Strategy

The development site is set within a substantial green and blue landscape infrastructure framework and the close relationship that the site has with the River Inwell and Radcliff Ees provides an opportunity to create a development with a mature established landscape characteristic, integrated and connected to the existing and proposed green infrastructure assets found within the local area. Existing wetlands and scrub habitats within the site support significant populations of willow warbler, bullfinch, goldfinch, greenfinch and chiffchaff. These would be supplemented with additional planting using native species linking areas of established habitat to form a mosaic of native habitats providing a rich, varied and ecologically diverse naturalistic landscape for informal recreation & leisure.



Newly Planted Trees

Tree lined streets and green links within the development planted with a range of native and ornamental trees in-keeping with the residential character of the local area will be used to provide a robust green infrastructure, promoting biodiversity and complementing the many existing trees that will be retained and protected. New trees have been included as informal groups and singles to compliment the groups of mature and semi-mature trees retained across the site and to strengthen the structural integrity and definition of the new landscape framework as a whole.



Hedgerows

Hedgerows have been used to define space, provide screening, soften boundary treatments and provide a unifying element throughout the development. Native hedgerows will act as wildlife corridors increasing connectivity throughout the development and non-native ornamental evergreen hedge species have been proposed for the private garden boundaries away from areas of POS to provide year-round structural definition and screening.



Ornamental Shrub Planting

Ornamental shrub planting is to be used to bring colour, character and diversity to the individual gardens and street scene throughout the development. Large 25 litre specimen shrubs with loose canopy forms will be introduced where space allows providing an established and varied ornamental character. Contemporary shrub beds will be planted along verges, boundary walls and gable sides to bring form, texture and colour to the principal access routes.



Native Woodland

New belts of native woodland and understorey planting will be introduced to the boundaries of the development to create a substantial landscape buffer and to frame areas of open meadow grass and mown margins. New planting will connect physically with existing tree groups and incorporate retained scrub vegetation, linking isolated elements of vegetation and improving habitat connectivity.



Native Wildflower Meadow & Amenity Grassland

The native wildflower meadows and grassland areas will be specified primarily to provide a visual and ecological transition between the shorter grass and hedgerows/ tree belts providing a sward with a greater diversity of species than short grass, with a predominance of wildflowers, thus providing a species rich habitat/ hunting ground for local bird and bat populations. Amenity grassland is included to create areas of short mown grass for informal recreation with easy pedestrian access for the users of the site.



Attenuation Pond & Wetland Planting

Areas of native species-rich wetland meadow would be introduced to reinstate the historic Hutchinsons's Golt as a principle element of the sustainable drainage strategy creating a visual and ecological transitional corridor running across the site, enhancing landscape character and biodiversity. The attenuation ponds will provide natural water storage and drainage. They will be planted with native wetland meadow species suitable for seasonally wet soils, based on the vegetation of traditional water meadows. Mown grass around the swales enhances the visual impact and definition of these features, contrasting with the tall grasses and wetland species to the internal banks and bases. A network of raised timber walkways will run throughout the wetlands providing access to people of all abilities encouraging outdoor recreation for the residents and the wider community.



KEY & NOTES

- Buildings**
Refer to Architects drawings for details
- Proposed Street Trees**
A variety of native and ornamental trees selected for their form, site suitability and seasonal interest
- Proposed Native Woodland Trees**
A variety of native trees selected for the Public Open Space to enhance the character of the proposed development and provide a rich habitat with varying opportunities for local wildlife
- Proposed Native Wet Woodland Trees**
A selection of native trees able to withstand waterlogged soils and be tolerant alongside the water within the Public Open Space increasing biodiversity across the proposed development
- Proposed Scrub**
A variety of native and ornamental species selected to complement the existing areas of scrub, providing habitat to support the populations of native species: bullfinch, goldfinch, greenfinch and chiffchaff found within the site
- Proposed Amenity Grassland**
Areas of short mown grassland for informal recreation with easy pedestrian access for the users of the site
- Proposed Native Meadow & Grassland**
Native meadow with a predominance of wildflowers, providing a species rich habitat and varying ground encouraging local wildlife
- Proposed Attenuation Pond & Wetland Planting**
Native species rich flowers and grasses selected for seasonally wet soils within the region of the water retention
- Proposed Hedges**
A variety of native and ornamental hedgerow species selected to provide structure, texture and seasonal interest
- Proposed Areas of Ornamental Shrub Planting**
A selection of shrubs, variegated plants, climbers and ground cover chosen for their site suitability, form, texture and colour
- Proposed Rain Gardens & Bioswales**
Linear planting beds with multi-layered planting, aiming to increase water infiltration and create a visually attractive, period permeable form of pollution
- Proposed Lawn Areas**
A variety of native and ornamental species selected to provide structure, texture and seasonal interest
- Proposed Lodge Side Habitat**
To create a soft edge to the water and a natural appearance along Church Street East and open functional flood plain
- Existing Natural Shrubs and Habitat**
To be retained and managed in accordance with the ecological management plan including species-rich, diversity and creation of new habitat for breeding birds, foraging bats, invertebrates and protected species
- Proposed Native Woodland Planting**
A variety of native trees selected for their form, site suitability and seasonal interest to enhance the character of the proposed development and provide a rich habitat with varying opportunities for local wildlife
- Existing Trees & Vegetation**
To be retained and managed

Metres
10 20 30 40 50 60 70 80 90 100
SCALE 1:1000

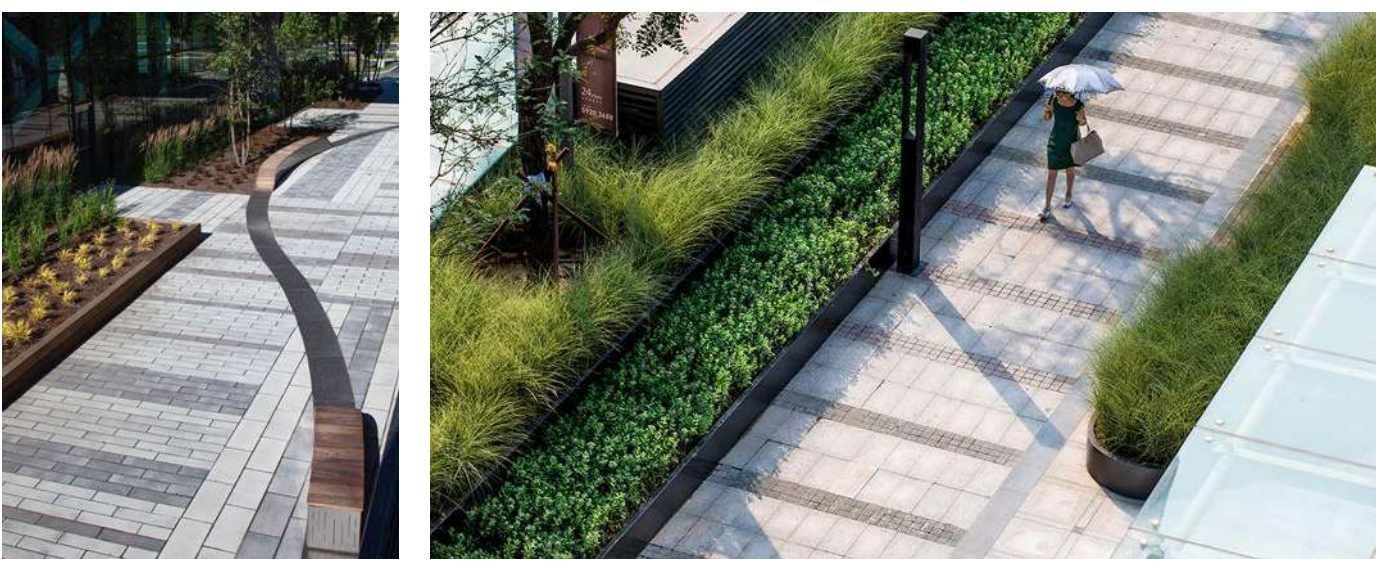
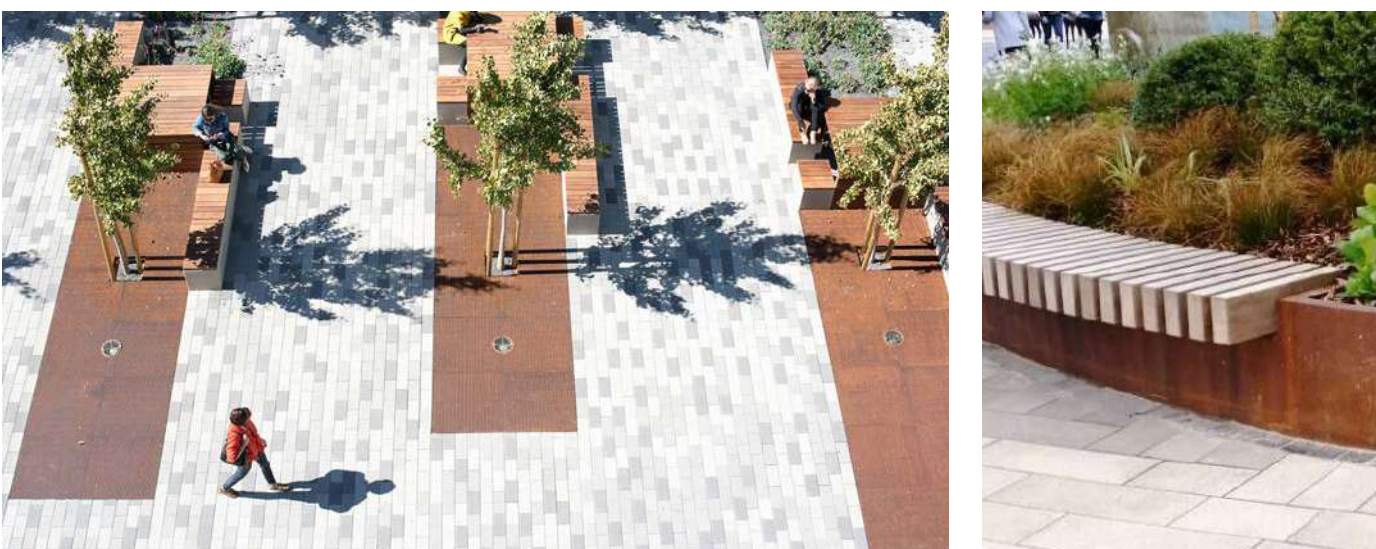


Church Street East

This space will form a central focal point to the development. The contemporary design will establish a pedestrian orientated linear open space. Feature strips combining planting and street furniture will form focal points providing pedestrian orientated communal gathering places.

Distinctive paving patterns and attractive materials will be used to create a hardware and long-lasting surface treatment that indicates a hierarchy of footpaths and cycleways, encouraging sustainable travel within the local community.

Tree planting will include large species suited to urban environments such as Acer platanoides and Sorbus aria, to provide structure, shelter and shade within the open space. Smaller species such as Prunus and Amelanchier will also be used to provide seasonal interest and attractive foliage. Rain gardens and bioswales will be used to form linear planting beds with multi-layered planting, aiming to increase urban biodiversity and create a wildlife corridor, protect pedestrians from air pollution.



Play Areas

A range of timber play equipment alongside natural play features such as large boulders and raised earth forms will be used within the play areas to encourage informal play. In keeping with the informal and naturalistic design the remaining space around the play areas would be maintained as open lawn, allowing space for informal ball games and sports.





Appendix 2 – Ecological enhancements plan

East Lancs Paper Mill - Cricket Pitch Relocation Site

Site plan

- Development boundary
- Bat box
- Bird box
- Insect box
- Hibernacula
- Log pile

