

OXO_013 Rev B
Landscape and Ecology Management Plan
(A para 79 application)
Oxpens, Oxfordshire
October 2022

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INTRODUCTION

SEED_landscape Design Limited has been appointed by Mr and Mrs Fennessy to work with architect Helen Seymour-Smith and SOLID Engineering on the landscape Technical Design for this NPPF Para 80 application. Full planning permission was granted January 2021.

DESCRIPTION

Oxpens is located to the West of Wigginton parish in Oxfordshire, and North of the River Swere. The site is currently characterised as being of modern and pre-modern agricultural form under the National Historic Landscape Characterisation.

The wider site comprises of several adjoining fields to the South and East, connected by a 3 year old hardcore access track and a tyre track access leading to an existing agricultural barn and a small woodland. The proposed dwelling would be set on the Northern site, characterised by a modern man-made pond surrounded by an ash plantation. A natural spring runs from the North and connects to the pond, eventually linking to the River Swere tributaries.

NCA 107 - COTSWOLDS - STATEMENT OF ENVIRONMENTAL OPPORTUNITIES

SEO 1

Protect and enhance the highly distinctive farmed landscape, retaining the balance between productive arable, pastoral and wooded elements and the open, expansive views particularly from the scarp, high wold and dip slope.

SEO 2

Safeguard and conserve the historic environment, cultural heritage and geodiversity that illustrate the history, evolution, foundations, landuse and settlement of the Cotswolds landscape, and enable access to and interpretation of the relationship between natural processes and human influences.

SEO 3

Protect, maintain and expand the distinctive character of the Cotswolds and the network of semi-natural and arable habitats, including limestone grassland, beech woods and wetlands along streams and rivers, to enhance water quality, strengthen ecological and landscape connectivity, support rare species and allow for adaptation to changes in climate.

SEO 4

Safeguard and manage soil and water resources, allowing naturally functioning hydrological processes to maintain water quality and supply; reduce flooding; and manage land to reduce soil erosion and water pollution and to retain and capture carbon.



Landscape Masterplan (not to scale)

- A** The old barn and landscape maintenance storage
- B** Entrance drive
- C** The entrance courtyard
- D** The damp woodland
- E** The filter wetland
- F** The lake
- G** Existing stream
- H** Mixed native woodland
- I** Native meadow with mown paths and destinations
- J** Existing hedgerow laid to open up views out
- K** MG4 grassland meadow



THE SITE

Application boundary

Ownership boundary

MG4 GRASSLAND DAMP MEADOW

N



Scale 1:1250 @ A3

PURPOSES OF THIS DOCUMENT

This document is part of a suite of documents which set out the principles of the proposed landscape works, building on the work completed for Stage 3 through the developed design phase. General arrangement plans, planting and specifications all outline the aspiration of the planting and biodiversity strategies.

In conjunction the document will reference key information collated from the Ecology by Design Preliminary Ecological Appraisal, NVC Report (2019), and consultation advice; as well as recommended SuDS management provided by Clive Onions Civil Engineers to aid the design of the landscape at Oxpens.

This management plan has been produced for two purposes which are:

- To promote landscape and biodiversity net gains as a result of the proposed development
- The LEMP addresses the requirement to discharge planning condition 10 which states,

Application No.: 20/01933/F

Condition 10

No development shall commence unless and until a Landscape and Ecological Management Plan (LEMP), which shall include types, locations, design and numbers of all additional features to be included for wildlife as set out in the Preliminary Ecological Appraisal prepared by ecologybydesign dated August 2019, has been submitted to and approved in writing by the Local Planning Authority. The development shall not be carried out other than in accordance with approved LEMP.

Reason -To protect habitats of importance to biodiversity conservation from any loss or damage in accordance with Policy ESD10 of the Cherwell Local Plan 2011 – 2031 Part 1 and Government guidance contained within the National Planning Policy Framework.

Sources of information used

Sources of information considered in the production of this management plan are set out in the table below.

Source	Date	Information obtained
Preliminary Ecological Appraisal (PEA) (Ecology by design)	August 2019	Current habitat types, quality and structure. Other information relevant to the presence of protected and notable species.
National Vegetation Classification (NVC) Report (Ecology by design)	July 2019	Botanical monitoring to establish baseline for distribution and composition of plant communities present on site.
Biodiversity Impact Calculator (Ecology by design)	March 2020	Value of proposed ecological enhancements
Flood Risk Assessment and Drainage Strategy (Clive Onions)	June 2020	Recommendations on the management and maintenance of SuDS, watercourses, and other water features.
BS5837 Tree Survey Assessment (Cotswold Wildlife Surveys)	July 2019	State of trees and constraints

SCOPE OF THE MANAGEMENT PLAN

Management period

The management period of this plan is five years from completion of the landscape works.

Management responsibilities

The implementation of this management plan will be the responsibility of the land owner Mr and Mrs Fennessy . Any transference of responsibility of this plan should be undertaken with the appropriate appointment of a competent organisation capable of delivering the detailed measures within this document.

The organisation implementing this plan will be undertaken by a management company with the necessary certificates of competence to implement landscape management operation on site. The management organisation will ensure that management complies with best practice standards and all relevant health and safety procedures, protection of the environment, avoidance of pollution and protection of protected species and habitats.

Document review

In order to ensure that the plan continues to remain appropriate, applicable and effective a review will be undertaken by both the land owner and SEED Landscape Design. To ensure that all information contained within the document remains relevant. This review will be undertaken once every 5 years. Should it be determined that the conservation aims of the management plan are not being met, remedial action will then be identified, agreed (with the controlling authority) and implemented so that development still delivers the fully functioning biodiversity objectives of the originally approved scheme.

Controlling authority

The controlling authority is Cherwell District Council

Cherwell District Council,
Bodicote House,
Bodicote,
Banbury
OX15 4AA

Landscape

The scope of the proposals and the associated management prescriptions are defined by what is already present on site and habitats that will be created as part of the proposals.

Biodiversity Aims

The supporting aims are;

- To promote structural diversity in the existing plantation woodland
- To control the growth of bramble scrub and invasive non-native species
- To promote use of the site for reptiles and amphibians
- To promote use of the site for bats
- To promote use of the site by target bird species

General aims and objectives

The aim of the management plan is:

To set out management objectives and enhancement prescriptions to promote the landscape and ecological biodiversity value of the site.

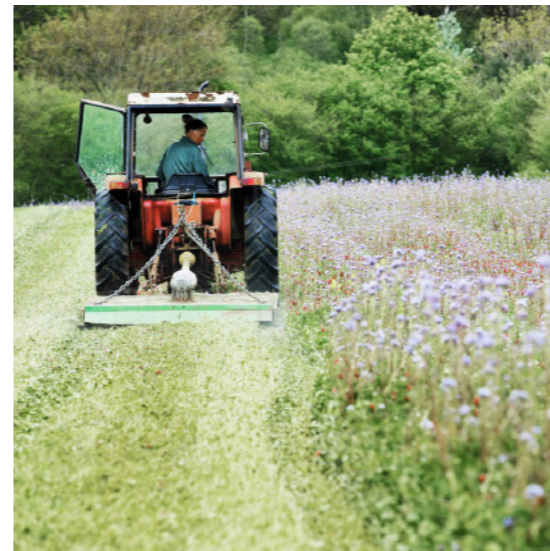
Landscape Aims

- Creation of new biodiverse woodland to replace monoculture plantation.
- The control of bramble scrub and invasive non-native species.
- Conserve and enhance the ecological and landscape value of the site through safeguarding and enhancing the ecological and physical integrity of the site.
- Creation of species rich habitats for UK wildlife which include UK protected species, through providing appropriate planting and management of habitat friendly maintenance methods and applications which do not cause harm or injury to flora and fauna.
- To provide a safe and secure site which establishes and maintains health and safety procedures for management.
- Maintenance of the site complying with all statutory legislation and best practice.
- Maintains a flexible management approach which responds to the changing needs of the landscape and ecology of the site.

General requirements of the maintenance contractor

The following list is not exhaustive and instead ensures best practice is upheld for general maintenance around site. The most labour intensive area in terms of typical domestic maintenance will be the gardens and roof gardens in and around the main property. In general this section mainly concerns its self with this area to maintain a high level of cleanliness in regard to hard landscaping and vigorous, healthy plant growth within the designed borders.

1. Maintain domestic planted areas in a manner which ensures the establishment of healthy and vigorous plant specimens and a close textured, weed-free borders which a managed tidy appearance. Keep all shrub beds and tree planting areas within the domestic garden areas weeded and cleared of litter.
2. Establish a regular pattern of maintenance operations throughout the season and according to best practice.
3. Fertilisers are to be used sparingly within the domestic gardens and not to be used anywhere else on site. A careful use of natural and organic fertilisers will be selected for domestic borders only.
4. Watering to be kept to the establishment of planting species within the first year. Following the establishment phase, water during prolonged dry periods only in particular dry hot springs with a particular focus on the domestic gardens.
5. Allow for extra maintenance in any periods of unusually prolific weed growth and unseasonally difficult weather or prolonged periods of dry, hot weather.
7. Check all tree ties, stakes and other accessories, and remove when appropriate. Ensure all hard surfaces and footways are swept and kept weed free.
8. The Maintenance Contractor will employ skilled supervisors and operatives to deliver a high quality level of workmanship. When required the additional employment of arboriculturalists and pond specialists may be required fulfil certain maintenance obligations.
9. Special attention should be given to the maintenance of all newly planted schemes during their most sensitive phase, which is for several years following planting. Particular focus should be placed on watering, tree pruning etc. during this period.
10. Where there is an issue which may affect the initial design or a change in the overall design intent, the Maintenance Contractor should seek instruction before any work begins on site with SEED Landscape Design if the issue affects design intent for habitat creation or changing the integrity of the domestic gardens. The Maintenance Contractor will be required to refer back to this document (LEMP) and the five year maintenance programme document.
11. Special attention shall be given in respect of water requirement, particularly in relation to newly planted stock. It is the Maintenance Contractor's responsibility to always be aware of any statutory restrictions on water, and advise the client where restrictions are likely to occur.



Meadow grass cutter



Water holes for larger tree specimens



General weeding of domestic gardens



Young field grown tree species



Maintaining hard landscape areas



Arboricultural work example

Contract management

The maintenance contractor to confirm a named contract supervisor within the organisation to manage the maintenance contract and take instructions on his behalf. The supervisor will not be changed without advanced notice to the client and SEED Landscape Design. All work on this contract will be undertaken by suitably skilled and trained staff, provided with appropriate well-maintained and safe equipment.

Inspections and monitoring

The site will be subject to inspection by SEED Landscape Design in terms of maintenance standards and the development of the scheme site wide. The maintenance contractor to allow for attendance by the supervisor at regular intervals to monitor the work and to report on progress in accordance with the management programme. The supervisor will monitor the site for damage, defects, vandalism or thefts. The client and SEED Landscape Design will be notified directly of any problems relating to the condition of the landscape outside the remit of the contract.

Record sheets

Site visits will be recorded to understand tasks done on maintenance days and to aid the development of the management programme in regard to domestic and wider landscape spaces. Record sheets will also be utilised to document fertilisers used on site. No pesticides or herbicides are to be used at any time unless with prior written permission. If permission has been gained, the amount and specification of chemical to be documented as part of the visit record sheet.

Health and Safety

The maintenance contractor will be responsible for ensuring the work is carried out in a safe manner avoiding risks to the health and safety of his employees and client. A site specific risk assessment for this project should be submitted prior to commencement of the work.

Protection of property and utilities

All existing features including, fencing, paving, drains, services, surrounding landscape and other property is to be protected from damage during the course of the works. The contractor shall allow for any protective measures required to facilitate the maintenance operations within the price for the work. Any damage caused to such the property and services will be made good by the contractor at his own expense.

Workmanship and cleanliness

The Landscape Maintenance is to be carried out to a high standard. Planted areas must be kept neat and clean in appearance at all times, weed and litter free, with all planting in a healthy state. The landscape maintenance contractor shall ensure that the works themselves do not cause inconvenience or danger to users of the site.

At the end of each day of each visit, the contractor shall remove from site all rubbish and superfluous materials from site and where appropriate, compost any arisings or trimmings from site leaving the works in a clean and tidy state. All hard areas are to be left in a clean condition, free from any soil, mud, leaves, cuttings and plant clippings.

Disposal of waste material

The maintenance contractor shall allow for the removal and safe disposal of all waste materials arising from the landscape maintenance works. The contractor shall allow for the disposal of all litter off site and will be responsible for all waste disposal costs and approvals.

Fly tipping and improper disposal of waste shall be reported to the client and SEED Landscape Design and removed on instruction.

Irrigation and water arrangements

The intention is for the soft landscape within the domestic gardens to become well established under an initial maintenance contract. Following the successful completion of the maintenance and defects liability period it is not anticipated that the contractor will need to regularly water landscape areas after this.

During the period of plant establishment, the maintenance contractor is to monitor the site during extended periods of hot dry weather, and report to the maintenance supervisor, if there are likely to be plant failures as a result, hand watering using water points on site can be used to water those plants likely to fail if the dry period continues.

Pesticides and Herbicides

No Pesticides or herbicides should be used without permission from the owner and SEED Landscape Design. If chemicals are used on site with the correct permissions, the following should be adhered too.

The maintenance contractor must use a certified operator, take appropriate safety precautions and comply with the Control of Pesticides Regulations 1986, the conditions of approval for the chemical, and any relevant Code of Practice issued by DEFRA. Maintenance contractor must keep full and accurate records of all herbicides used, the area in question, the amounts and the date of completion. Unintentional spray overlap must be avoided. Spraying must stop whilst turning.

The maintenance contractor must mark the point where spraying has stopped for refilling or for breaks. Herbicide must never drift, fall or run-off onto open water or onto adjacent sites, gardens or ground not intended for treatment. The maintenance contractor must dispose of unused and unwanted containers, and chemicals, including unused dilute tank mixtures, in a safe way in accordance with the methods approved by the Control of Pesticides Regulations and relevant Codes of Practice. Disposal of canisters and vessels containing chemicals to be done off site.

Excess wet weather

If excess wet weather has caused areas of water of to stand, the ground should be spiked in order to facilitate drainage of water where possible. With hard landscaping areas where standing water is taking place, the client and SEED Landscape should be notified prior to any remedial work taking place.

The machinery must not be tracked over the soft landscape when the ground is wet.

Programming of maintenance operations

The Maintenance Contractor will allow for carrying out all maintenance works in such a manner as to avoid unreasonable disturbance to the client. Any heavy works required on site to be programmed in and checked with the client to ensure no conflict with client engagements.

New planting should be monitored, in order to ensure that there is no loss / deterioration of habitats, during maintenance operations.

Any necessary removal of vegetation should be undertaken outside of the main bird breeding season (which is March to September inclusive) or where this is not possible, checks should be undertaken by a suitably trained ecologist prior to clearance works within the bird nesting season and 5m buffer zones of 'no disturbance' implemented where active nests are found. The nests should be checked weekly until the suitably experienced ecologist has confirmed that the nests are no longer in use, before works can continue.

Pruning should be undertaken during autumn / late winter / early spring in order to avoid disturbance during the bird breeding season, which is March to September inclusive. A proportion of the pruning of fruiting trees / shrubs should be undertaken during late February in order to ensure that this foraging resource is available to birds throughout the wintering period.

Checks for nesting birds must be made before all hedge cutting work and a buffer zone of 'no disturbance' of approximately 5m should be left around any active nests found during the bird activity season which is March to September.

All vegetation management work should avoid disturbance to nesting birds, which is an offence under the Wildlife and Countryside Act 1981 (as amended).

Injurious, non native invasive or harmful weed and pest species

Injurious weeds, as defined by the Weeds Act 1959, Non-native Invasive plant or animal species as identified by the Wildlife and Countryside Act 1981 – Schedule 9 (updated in 2010,) or species considered harmful to the environment, not currently covered by legislation have not been identified on site according to the PEA Ecology Report.

It is the responsibility of the maintenance contractor to note the presence, or siting of any occurrence of Schedule 9 and other legislated species, and bring it to the attention of the client and SEED Landscape Design and agree a strategy for the removal of these weeds as appropriate.

It is the Maintenance Contractor's responsibility to familiarise themselves with updates to legislation covering potential injurious, or non-native invasive plant and animal species, as this can be subject to change at any time.

Reinstatement Works

Where reinstatement works are required either due to maintenance contractors' damage or when instructed under the contract, these shall be undertaken in accordance with good horticultural practice. The maintenance contractor will be expected to undertake and maintain any reinstatement works so that new works establish well and tie in with existing planting as quickly as possible.

The maintenance contractor will be responsible for all defects on reinstatement works until the end of the maintenance contract. Any reinstatement or replanting works on site should respect the original intent of the design and planting proposals. Attention is drawn to the planting plans contained in the appendices which highlight the plants which have been specified for the site.

Attention is drawn to the planting plans contained in the appendices which highlight the plants which have been specified for the site.

Habitat designations on site



Management arrangements

The implementation, management and maintenance of the landscape works will be the responsibility of the Landscape Maintenance Contractor. If the hard and soft landscaping are subject to a 12 months Rectification Period (under the construction contract) the maintenance of the landscape will be the responsibility of the Landscape Contractor.

Scope of work

The maintenance work on-site has been divided up as per the following designations:

1. Mixed Native woodland
2. Hedgerows and hedgerow tree
3. Damp meadow
4. Pond and wetland
5. Domestic Garden: Species rich lawn
6. Domestic Garden: Rain Garden
7. Domestic Garden: Naturalistic woodland planting

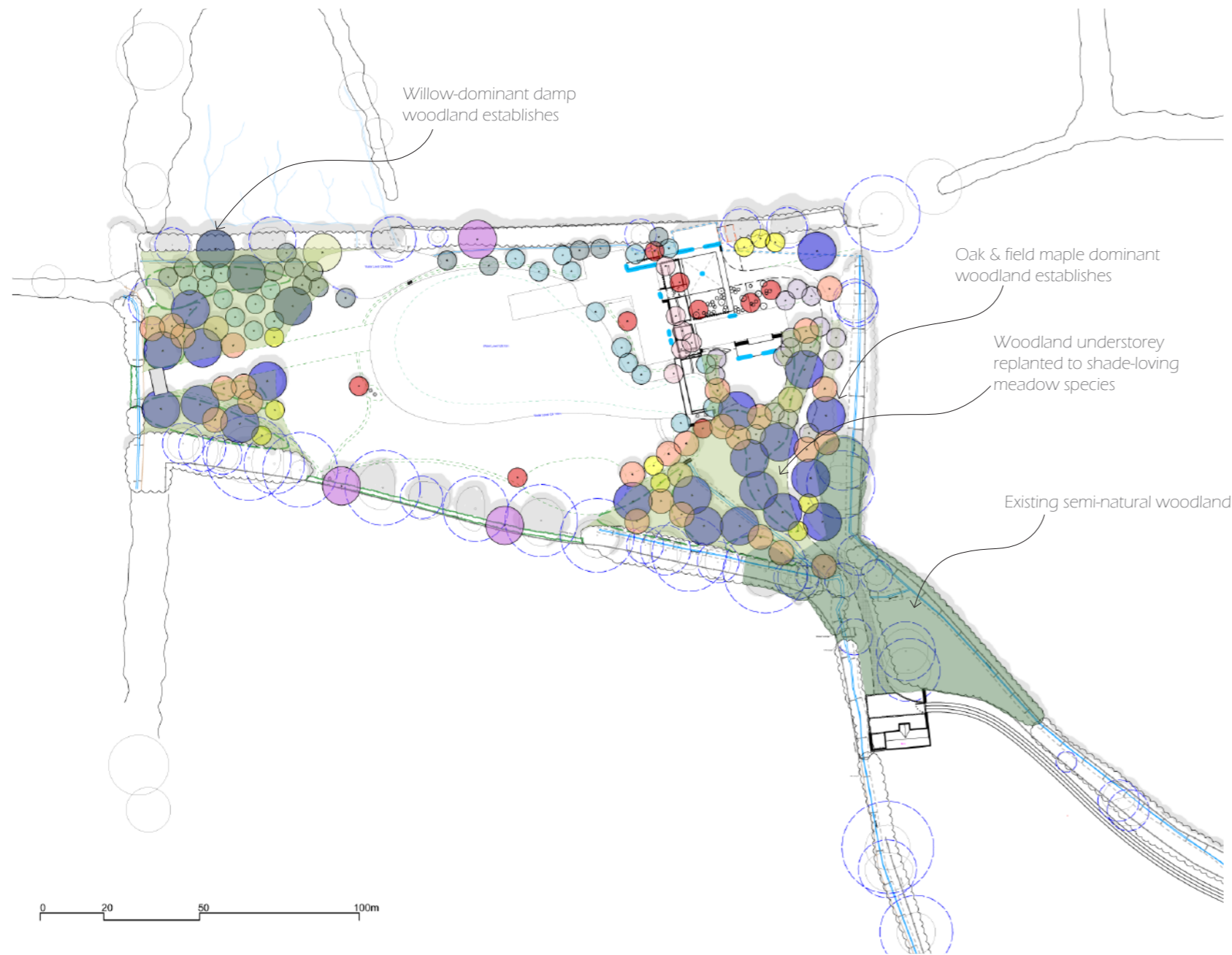
General requirements of the maintenance contractor

Executive summary

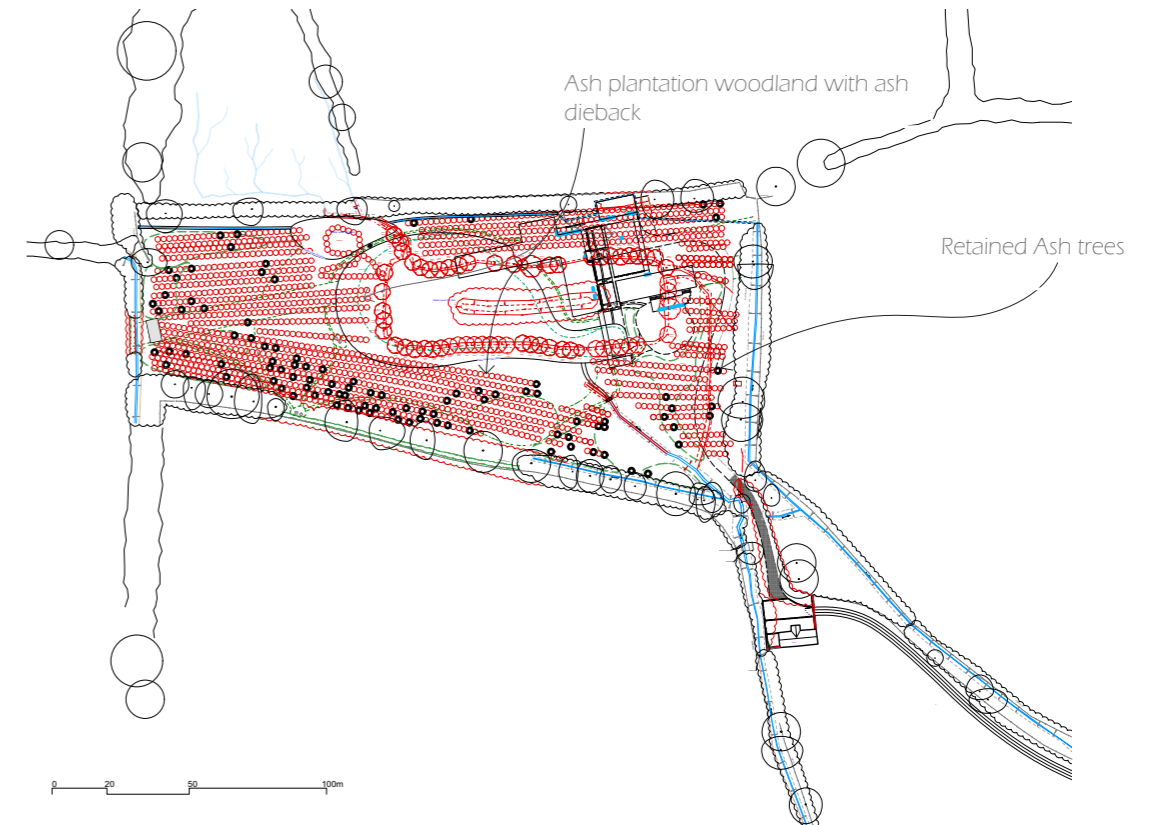
The maintenance contractor is expected to apply best practice to landscape management and maintenance. The plans set out by SEED Landscape Design have been developed to maximise biodiversity, habitat creation and provide all year round interest to the clients.

The maintenance contractor is expected to comply with all environmental and ecological requirements set out in this LEMP document.

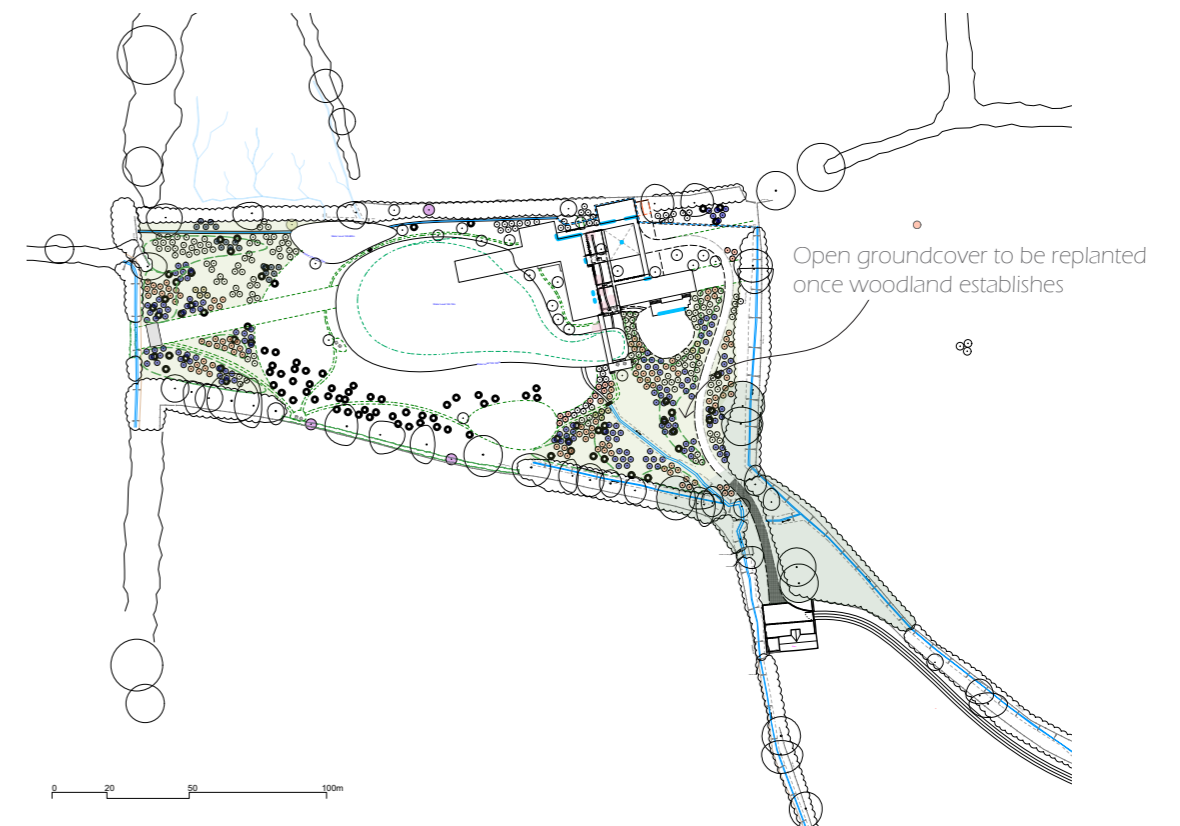
a). Oxpens Proposed Site with Habitat Designations



a). Proposed trees after 30 years (this is our starting point for the woodland creation and management).



b). Existing trees removed and retained.



c). Proposed trees in 1st year

Mixed native woodland

INTRODUCTION

To achieve a biodiverse-rich mixed native woodland, sensitively replacing the Ash (*Fraxinus* sp.) plantation woodland with careful monitoring is a significant part of the landscape concept. There is evidence of Ash dieback found in several existing trees, confirmed in the BS5837 Tree Survey Assessment. For this reason, a 30 yr planting plan has been designed to establish an Oak-dominant woodland with sub-dominant species such as Field Maple, Crab Apple and Silver Birch, and an understorey of blackthorn, hawthorn and elder, ultimately creating a long term woodland composition. Damper areas will be Willow-dominant, with other riparian sub-species.

The felled ash deadwood and its stumps will form an important habitat and can be re-used into the landscape scheme. as well as opening up areas for ground flora and damp meadow to flourish and increase biodiversity.

The fragment of existing semi-natural woodland includes mature oak trees and bluebells and should be retained and protected.

LONG TERM OBJECTIVES

- To create a mixed native woodland appropriate to site which forms a biodiverse habitat for a wide variety of species.
- To safeguard this goal by sensitively phasing and thinning out the Ash plantation.
- To move away from a monoculture plantation and encourage climate resilience and structural diversity.

WOODLAND MANAGEMENT

Objectives

1. To protect and maintain existing mature trees
2. To ensure successful establishment and development of new plantings according to the landscape proposals
3. To develop and enhance their wildlife value
4. To enhance the visual amenity of the site

Methods

Establishment of new trees (to be reviewed every 3-5 years)

- Maintain a weed free area of at least 1m diameter at the base of newly planted trees by fitting mulch mats.
- Maintain rabbit guards / tree shelters
- Maintain stakes and tree ties
- Maintain fences of enclosed groups of trees
- Check trees are firmed in and have not become disturbed due to wind-rock or soil disturbance
- Maintain drains, ditches and watercourses to ensure free flow of water from woodland
- In the occurrence of long periods of drought, ensure new trees at edge of woodland have sufficient moisture
- Any dead or poorly established trees should be replaced. This can be done at a rate of one replacement for every two failures if proportion of failures is low. If high proportions of the same species have failed they may not suit the site or could be sub-standard from the supplier. If failures are in clusters, then site conditions are more likely the cause. Any under-lying problems should be addressed before replanting.
- Treatment of any pests and diseases

Existing, retained trees

- Prune any dead, diseased or damaged wood
- Felling or pruning of any storm damaged or other dangerous trees as required. Major work should be undertaken by a qualified arboriculturist. Any tree works should be in accordance with the status of the registered landscape.
- Any major tree works to be done outside of nesting bird season (unless required for health and safety).

Establishment of field and ground flora

For the first three to five years after tree planting, the trees will be subject to maintaining a weed free area at their bases by hand weeding and mulching. This means that it will not be possible to fully establish the field layer until this regime is completed. The area will then be seeded with a native woodland grass and wild flower mix.

HABITAT CREATION FOR KEY SPECIES

Replacing the Ash Plantation

A percentage of felled Ash logs (with bark still attached) and brash should be retained and piled to create refuges for amphibians and reptiles where indicated in the landscape proposals. These log piles will decay over time and should be replaced by other tree cuts when available. Larger old stumps should be left to decay naturally and only removing them if necessary. This will create a unique habitat for beneficial fungi, beetles and other invertebrates with the heat of decay in the soil and slowly release nutrients over time. Dead roots deep in the ground will also facilitate water penetration and drainage.

Woodland rides, scallops and glades

Scallops are small open areas within a woodland which will increase the foliage available to insects, and hence the insect biomass for foraging birds and bats. The openness will allow tall herbs and scrub to grow along the woodland edge, creating different levels of shelter and diversity of food for wildlife. Glades are larger open areas than scallops, and will allow a larger patch of wildflower meadow to be maintained, providing rich nectar sources for insects such as butterflies, and shelter opportunities for birds and small mammals. Rides will provide open corridors for foraging bats and birds, bringing sunlight into the woodland.

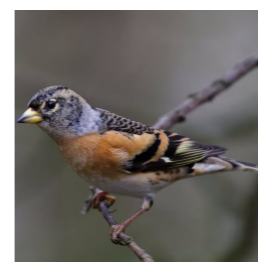
KEY SPECIES LEGISLATION

- Tree Sparrows are Red list Birds of Conservation Concern and Wildlife and Countryside Act 1981 Schedule 1.
- Bramblings are winter visitors protected by the Wildlife and Countryside Act 1989 Schedule 1.
- Tree Pipits are summer visitors and are Red list Birds of Conservation Concern protected by the Wildlife and Countryside Act 1981 Schedule 1.
- Common grass snake is a species of principal importance, wildlife and countryside Act 1981 species.

(RSPB)



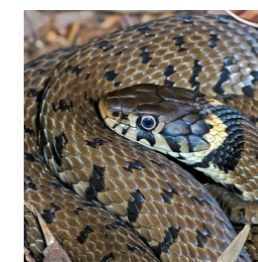
Tree Sparrow



Brambling



Tree Pipit



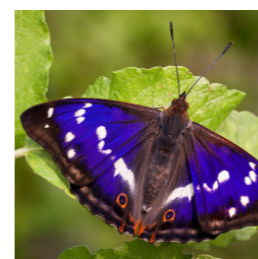
Common Grass snake



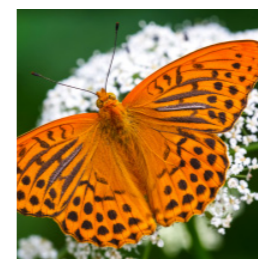
Lesser Stag Beetle



Net Wing Beetle



Purple Emperor



Silver Washed Fritillary

REFERENCES:

1. Woodland Management, A Practical Guide; Chris Starr
2. <https://treesforlife.org.uk/into-the-forest/habitats-and-ecology/ecology/decomposition-and-decay/>
3. <https://www.forestresearch.gov.uk/tools-and-resources/fthr/pest-and-disease-resources/ash-dieback-hymenoscyphus-fraxineus/>
4. Advice from Ecology by Design



d). Proposed trees after 30 years.

LEMP MANAGEMENT PRESCRIPTIONS (TASKS)

MANAGEMENT PRESCRIPTION	TIMING	FREQUENCY	RESPONSIBILITY	COMMENTS
Replacing the Ash Plantation				
Ash to be clear felled and thinned where indicated on removals and gradually replaced by new proposed specimen trees	First year. Consult arboriculturalist annually.	On-going	Contractor	Any remaining Ash trees should be monitored for ash dieback and safety. Retain larger stumps of felled Ash where appropriate.
Dead wood to be kept in-situ or in excess collected and placed into piles throughout the native woodland areas.	Annually	On-going	Contractor	Dead wood is an important habitat and should be kept in-situ where possible. Dead wood through-out its de-composing stage also provides shelter for a range of important fungi species. Avoid cutting deadwood into small pieces, and leave in direct contact with the ground, in dappled shade and in compact piles to maintain humidity.
Rides, Scallops and Glades				
Central zones to be mowed	Twice yearly for 5 years, late June and late August	On-going	Contractor	Central zone should remain shorter to maintain habitat mosaic of open areas.
25% of Tall herb zone to be cut on rotation and cuttings removed off site or to dedicated location	Once yearly, late July/August	On-going	Contractor	Cutting should ideally be on rotation to create a variety of ages and structure for target species.
Scrub and woodland edge shrubs to be cut back/coppiced or cleared where dominating too much and outgrowing the ride/scallop/glade edge mosaic	Every 8-20 years outside bird nesting season (Aug-March)	On-going	Contractor	Retain brash from cuttings to create hibernacula. Bracken and bramble are beneficial scrub habitats, however they may dominate and suppress the habitat mosaic intended. In the case of bracken dominating - cut/roll twice a year for first 5 years in late June & August. For bramble, where deer are not present, cut back and allow recovery and spot spray young regrowth with suitable herbicide.
General Prescriptions				
Leaf litter to be kept in-situ unless excessive over planted species.	Annually	On-going	Contractor	Leaf litter provides shelter for a range of invertebrates. Woodland leaf and branch litter also provides building materials for nests and during de-composing nutrients to the trees and vegetation on the Woodland floor.
Fruiting species (Malus sylvestris - Crab apple) to be allowed to drop fruit without removal	Annually - Autumn	On-going	Contractor	Fallen fruit should be left in situ unless excessive fruit rot covers meadow species and promotes dead patches.
Shrub understorey layer should be cut back if out-growing sub-dominant/dominant trees, to allow these sub-dominant trees to form the lower canopy.	Every 1-2 years depending on the species.	On-going	Contractor	The ultimate aim of the native woodland is to create a long term Oak and Field Maple canopy. To achieve this, any outgrowing shrubs or self-seeded saplings will be cut back or removed to allow these species to take over.

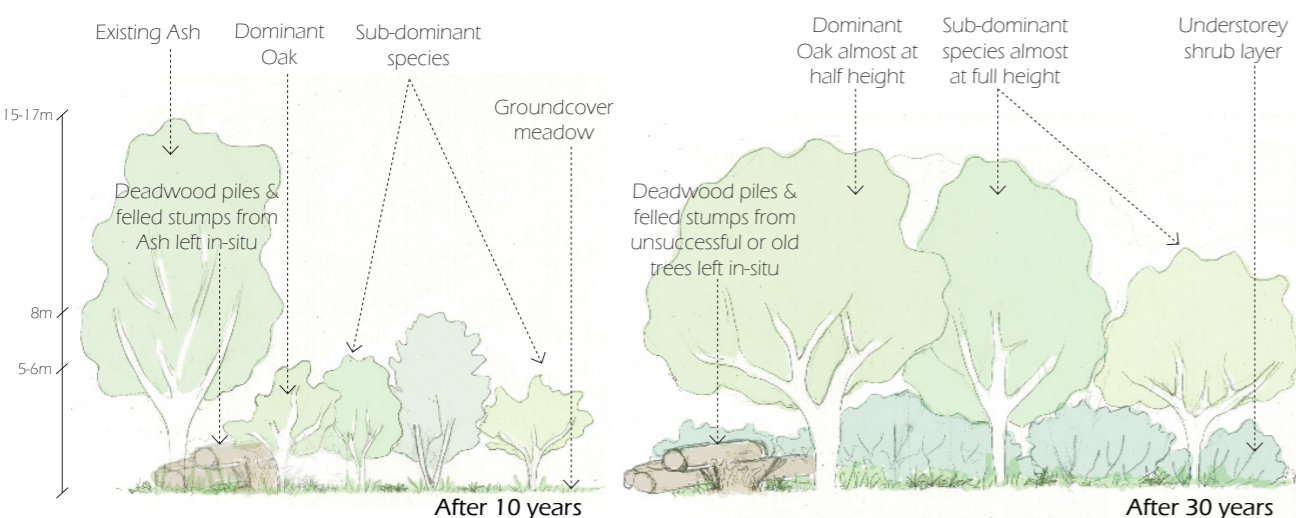
Key

- Scallops
- Rides
- Glade
- Woodland requiring monitoring to allow for dominant tree canopy of Quercus robur to establish.
- Woodland requiring monitoring to allow for dominant tree canopy of Salix pentandra/alba to establish
- Locations of Malus sylvestris

Additional information on deadwood

Dead wood is a key habitat for the Woodland. Leaving dead or decaying trees standing can be hugely beneficial. Felled stumps and broken limbs should be left in-situ where it will be most beneficial. Dead wood will provide food for hundreds of types of animals, fungus, lichen and moss. It also provides homes for bats, woodpeckers and many invertebrates.

Central zone strips in Rides should be mowed to a minimum of 2m width for habitat maintenance access.



e). Diagrammatic section through woodland area



Hedgerow and Hedgerow Trees

INTRODUCTION

Boundaries are important for ecological connectivity and the current hedgerow boundary is overgrown and scrubby. The landscape proposal will have areas of dominating scrub cut back and parts of the hedgerow laid and filled with small hedging whips 0.45 x 0.60cm (H). With the key objective being to create a healthy thick hedgerow which acts as green corridors to link in with surrounding hedgerow boundaries. The hedgerow will then need to be managed to allow certain species to grow into mature trees to create further habitat and frame views from the property and create a composition of different elevations.

Any Ash trees affected by ash-dieback within the hedgerow should be left to decay naturally (if safe) as it will provide a valuable habitat within the hedgerow. Where there are several affected trees together, it may be appropriate to fell the group and replant with new hedgerow specimens and allow them to establish and keep continuity in the hedgerow.

LONG TERM OBJECTIVES

- To create a bio-diverse hedgerow with long flowering and fruiting seasons to attract foraging species and insect populations. Insect 'biomass' will encourage a range of invertebrates and bird life to the hedgerows.

HEDGEROW MANAGEMENT

Objectives

1. To protect and maintain the existing hedgerows
2. To maintain and enhance their character within the landscape
3. To ensure the successful establishment and development of newly planted hedgerows
4. To enhance the wildlife value of the hedgerows

METHODS

Newly planted Hedgerows

- Maintain a weed free base to the hedge for the first 3 to 4 years by hand weeding and topping up of mulch.
- In the first autumn after planting, cut back to 450mm above ground to encourage strong basal growth. In the second winter cut back new growth by 50% and in the third winter trim laterals and leading shoots to shape.
- Check hedge in spring at bud burst for any failures and replace immediately, so that a growing season is not lost.
- If the spring and summer following planting are dry the hedge should be watered.

Existing hedgerows

- Where hedgerows are overgrown and encroaching out to the sides, trim by 'brushing' or 'siding up' to bring back structure to hedge and allow light to bottom of hedge. This can then continue on a 3 year basis.
- Hedge cutting should be done to different sides/parts of the hedges on alternative years, so that there will always be untrimmed, dense areas with berries available for wildlife. A dense diverse native species 2 metre high hedge holds the greatest variety of wildlife.
- Where hedgerows are neglected and have fallen areas or areas that are dying out, **coppice** by cutting right down to 10cm above ground level. Whilst the hedgerow re-establishes keep hedge-line weed free and clear of debris.
- Hedge cutting should be avoided between 1st March and 31st July to protect breeding birds and allow all berries to be eaten. Ideally, cutting should take place at the end of winter but could be brought forward to early winter if access to land is difficult.
- Maintain hedge structure and fill any gaps by planting, laying or coppicing
- Maintain a margin of 1 – 2 metres either side and encourage the growth of tussocky grasses at the base of the hedge to suppress weeds such as cleavers.

HABITAT CREATION FOR KEY SPECIES

HEDGEROWS

Gaps within hedgerows should be filled with small hedging whips 0.45 x 0.60 (H) to maintain continuity of the hedgerow improving conditions for foraging and commuting bats, and it will be important that hedgerows are not illuminated. This will be of particular value for woodland species that have been recorded on the site such as the Lesser Horseshoe bat (*Rhinolophus hipposiderus*), which are protected under the Wildlife and Countryside act 1981 Schedule 5 and the EU Habitats Directive.

Fruiting native hedgerow species will provide an important food source to Red list Birds of Conservation Concern and Wildlife and Countryside Act 1981 Schedule 1 Species birds found within 2km the area such as *Turdus iliacus* (Redwing) and *Turdus pilaris* (Fieldfare). Keeping fallen leaves and fruits left in-situ at the bottom of the hedge will create a valuable food source and shelter for wildlife over winter.

Presence of larger trees within the hedgerow can attract predators, so some areas should be free of tall maturing trees to provide safety for smaller birds. Nest boxes will be introduced into one of the hedgerow Ash trees on the Western field boundary to encourage nesting for *Falco tinnunculus* (Kestrels) which are classified as Amber under the Birds of Conservation Concern.

Deadwood or cuttings from hedges can be left in situ or staked into piles, to create hibernacula (log and brash piles) which will be placed at intervals along the base of hedgerows next to the meadow. This will allow reptiles such as the Common Grass snake to forage and bask within the grassland close to their resting habitat.

KEY SPECIES LEGISLATION

- Common grass snake is a species of principal importance, wildlife and countryside Act 1981 species
- Lesser Horseshoe Bat protected in the UK under the Wildlife and Countryside Act, 1981. Priority Species under the UK Post-2010 Biodiversity Framework.
- Redwing & Fieldfare are Red list Birds of Conservation Concern and Wildlife and Countryside Act 1981 Schedule 1.
- Kestrel is in the Amber list Birds of Conservation Concern
- Turtle doves are classified in the UK as Red under the Birds of Conservation Concern 4 (2021). Priority Species under the UK Post-2010 Biodiversity Framework. Listed as Vulnerable on the global IUCN Red List of Threatened Species.

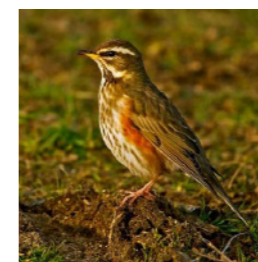
(Wildlifetrusts.org)



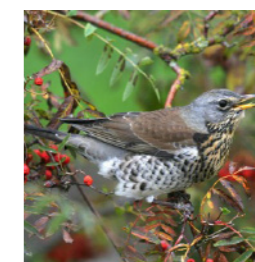
Turtle Dove



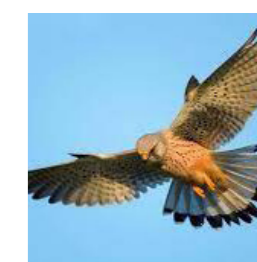
Lesser horseshoe bat



Redwing



Fieldfare

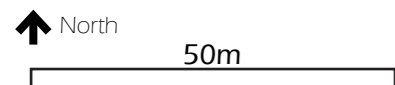


Kestrel



Key

- Extent of laid hedgerow
- Extent of existing hedgerow to remain as it is (reviewed after 10 years)
- Locations of hibernacula on each boundary
- Fraxinus (Ash) specimens to be monitored - Refer to Arboriculturalist's report



f). Hedgerows retained, enhanced and proposed.

LEMP MANAGEMENT PRESCRIPTIONS (TASKS)

MANAGEMENT PRESCRIPTION	TIMING	FREQUENCY	RESPONSIBILITY	COMMENTS
Ash trees in the Hedgerow				
Ash to be monitored annually. If affected by dieback they should be left to decay naturally and removed if a risk to health and safety. Any removed Ash should be replaced by Tilia cordata to maintain continuity of hedgerow. Ash stumps should be retained where appropriate.	First year. Consult arboriculturalist to review annually.	On-going	Contractor	Larger stumps of felled Ash should be retained where appropriate as a source of dead wood habitat.
Dispersed Ash trees within the hedgerow should be left to decay naturally if safe and kept as deadwood.		On-going	Contractor	Dead wood is an important habitat and should be kept in-situ where possible. Dead wood through-out its de-composing stage also provides shelter for a range of important fungi species.
Maintaining existing hedgerow				
Brushing: Where existing hedges are overgrown and encroaching out to sides, cut back by 'brushing' or 'siding up' to allow light to bottom of hedge and bring back structure to hedge.	Every three years	On-going	Contractor	Cutting must be carried out away from bird nesting season. 1-2m of tussocky grasses should be maintained around either side of hedge retiles, amphibians and small animals.
Areas of older mixed species hedge should be left to grow on. A quick trim with loppers can prevent branches from drooping.	Annually	On-going	Contractor	Maintaining a variety of ages in the hedgerow will create better diversity of wildlife and protect soil over the years with beneficial fungi.
Coppicing: Any coppiced areas should be kept free of weeds to allow hedgerow to re-establish	Twice a year over the first 5 years	On-going	Contractor	Making sure suppressing weeds are managed will allow a healthy hedgerow to establish again and keep habitat connectivity.
Laying: Existing hedgerows should be cut back to reduce bulk and laid where indicated on plan	First year		Skilled hedge-layer	Hedge laying creates vigorous thicker hedges beneficial to habitat creation.
General Prescriptions				
New specimens planted to be hedge laid at the appropriate time out of bird nesting season	After ten years		Skilled hedge-layer/contractor	Hedge laying creates vigorous thicker hedges beneficial to habitat creation.
The boundary hedges to be monitored and kept to the correct heights.	Every five years	On-going	Contractor	Maintaining the hedgerow to prescribed heights allows views across the wider landscape from the main property.
Hibernacula (A place for a creature to seek refuge) should be created in each of the four boundaries.	Reviewed annually	On-going	Contractor	Hibernacula or log piles can be created using dead wood found in the hedgerow. Dead wood should be either left in situ (log piles) or collected and staked into piles with other decaying material to create shelters (hibernacula).
Any dead specimens should be replaced to keep connectivity throughout the hedgerow.	Annually	On-going	Contractor	Hedges to be inspected each year to check if any new specimens have died. Keeping a strong thick hedgerow maintains the connectivity of the wider landscape green infrastructure.
Existing hedgerow management should be reviewed after 5-10 years once woodland areas are established.	Every five years	On-going	Contractor	Once the woodland is established, the views across the wider landscape from the main property will change and existing hedgerows will need to be reassessed.



Damp Meadow & MG4 Grassland Meadow

INTRODUCTION

The site prior to the Ash plantation woodland was field/grassland, and currently, the field to the South-east comes under NVC community MG4 Alopecurus pratensis – Sanguisorba officinalis grassland, which is a lowland neutral grassland community characterised by a species-rich sward. MG4 grassland falls within the definition of a lowland meadow and as such is 'habitat of principal importance for the conservation of biodiversity under the provisions of the Natural Environment and Rural Communities Act (NERC) 2006 and the aim will be to bring this grassland character back to the middle of the site. MG4 grasslands are typically found adjacent to rivers and are seasonally flooded, so monitoring of the stream restoration from the wetland at the North-West of the site will be crucial to sustaining the health of the damp meadow.

A range of seed mixes have been used across the site with a EM8 Emorsgate meadow mixture for wetlands being used to cover the majority of the site. An additional mix of EH1 Emorsgate Hedgerow seed mix has been used for the boundaries and EL1 flowering lawn mix for a species rich lawn.

LONG TERM OBJECTIVES:

- To achieve a species diverse meadow and grassland area by careful monitoring for different cutting times to increase the seed dispersion of existing species and to manage invasive species which may reduce the diversity of the meadows.
- To phase in the woodland areas on site by short term meadow establishment to provide coverage whilst the trees are young. Once the canopy closes the composition of the Woodland floor will change and more shade loving species will be incorporated into the scheme.

LANDSCAPE MANAGEMENT FOR DAMP MEADOW & MG4 GRASSLAND MEADOW

Objectives

1. To develop and enhance the wildlife value of the grasslands and meadows.
2. To increase the species diversity.
3. To obtain native seed of a local provenance if possible.
4. To enhance the visual amenity of the site.
5. To monitor and control invasive and undesirable species.

METHODS

- Withholding all nutrient application.
- Reduction in the fertility of the sites.
- Specific cutting regimes have been developed on the following page - the first part describes the establishment of the new damp meadow and the last prescription describes the cutting regime for the already established MG4 grassland meadow.

The cutting regime will be affected by considerations such as:

- When the latest and most important plants ripen and shed seed.
- When invertebrates have completed their life cycle.
- When the weather is dry.
- The need to control certain plants in the sward.
- The height of the grass.
- All cuttings / arings should be removed once seed has been allowed to drop.
- Any undesirable or invasive species will be controlled by hand weeding or spot spraying with an appropriate herbicide.
- Artificial fertilizers should not be used, but a light dressing of farmyard manure would be acceptable if deemed necessary.

HABITAT CREATION FOR KEY SPECIES

The meadow provides a continuity of habitat across the site.

The addition of food plants such as vetches, clovers, bird's foot-trefoils, various grasses and geraniums will greatly enhance the value of the meadow for invertebrates including the butterfly and moth species, marbled white (*Melanargia galathea*) a Low priority species for Butterfly Conservation and brown argus (*Aricia agestis*) also a Low priority species for Butterfly Conservation (have they been recorded around site?)

Allowing some boundary areas as well as some strips of grassland in the meadow to grow into a tussocky sward and die back naturally will also enhance the site for small mammals, a good food source for many species including barn owls, and will improve the hibernacula for reptiles. The site falls within an important arable and grassland assemblage area for farmland birds particularly: curlew (*Numenius arquata*), grey partridge (*Perdix perdix*), tree sparrow (*Passer montanus*) and lapwing (*Vanellus vanellus*). Creating a meadow which has hedgerows and scattered trees linking the site with the wider farmland will encourage farmland species to utilise the site, providing food, shelter and breeding habitat.

Alauda arvensis (Skylark) and *Motacilla flava* (Yellow Wagtail) favour damp meadows and are Red listed Bird of Conservation

KEY SPECIES LEGISLATION

- Small Copper, Brimstone, Orange Tip, Marbled White
- Skylark classified in the UK as Red under the Birds of Conservation Concern (2021)
- Curlew, Lapwing, Yellow Wagtail and Grey Partridge classified in the UK as Red under the Birds of Conservation Concern 4 (2021). Priority Species under the UK Post-2010 Biodiversity Framework.
- Barn owls are protected in the UK under the Wildlife and Countryside Act, 1981

(Ecology by design 2019)



Skylark



Small Copper



Brimstone



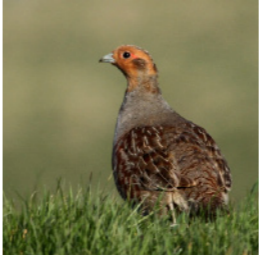
Orange Tip



Marbled White



Yellow Wagtail



Grey Partridge



Barn Owl

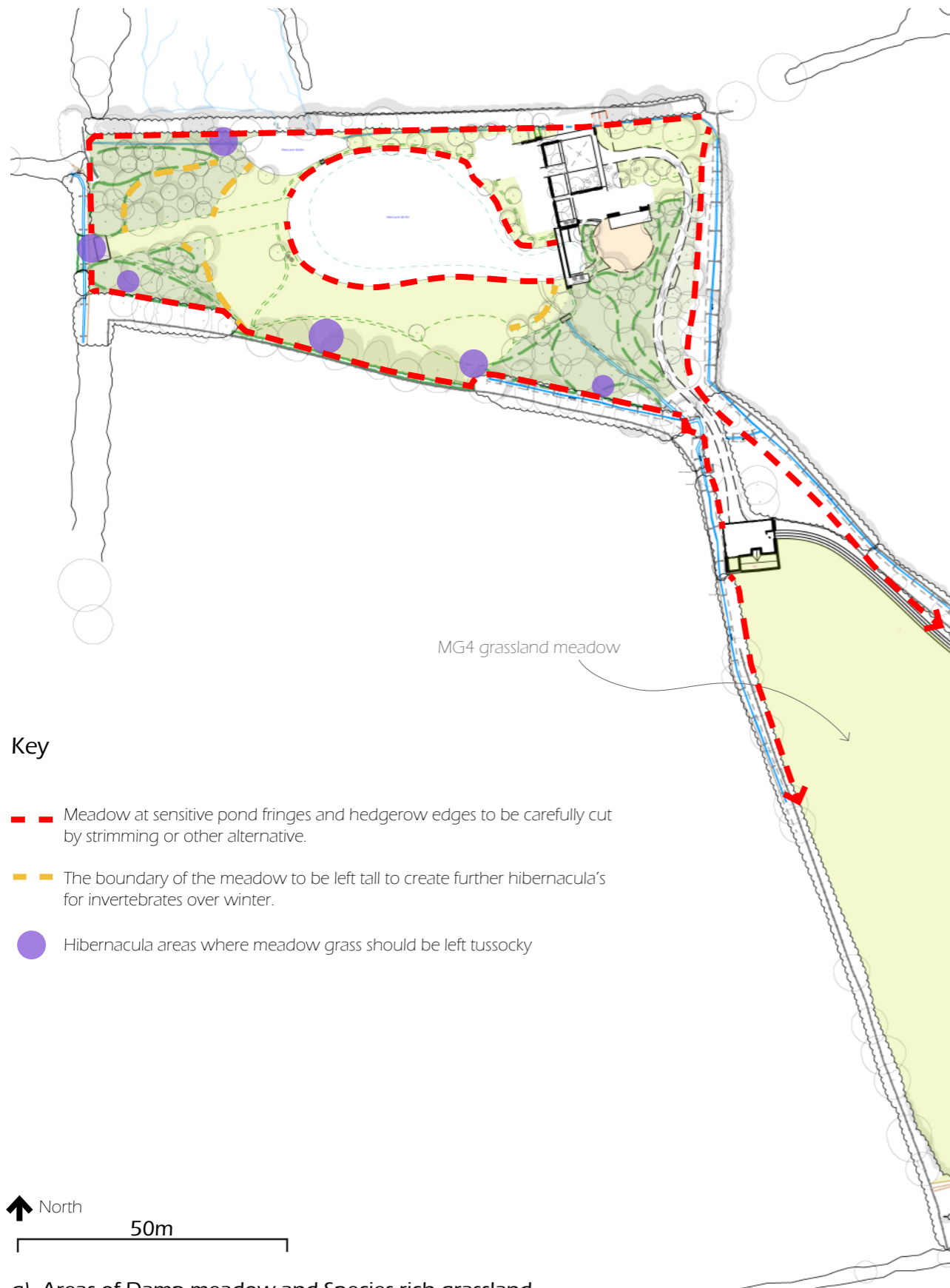


Linnet



Gatekeeper

LEMP MANAGEMENT PRESCRIPTIONS (TASKS)



MANAGEMENT PRESCRIPTION	TIMING	FREQUENCY	RESPONSIBILITY	COMMENTS
Meadow Establishment				
Cut back meadow regularly to maintain balance between the faster growing grass sward and the slower growing wild flower species	First year (new meadows only)	On-going	Contractor	Cutting back regularly in the first year of establishment will allow for a more diverse wild flower meadow.
The meadow and improved grassland should be cut once in mid summer and mowed or grazed again in Autumn. Mowing and grazing of spring growth recommended		On-going	Contractor	The mid summer cut allows for the meadow to flower and produce more seed. Fast vigorous perennials such as Daisy, Sorrel and clover can be knocked back to allow for slower growing specimens to come through in the third year.
Sensitive Areas				
Sensitive edges around pond and hedgerows should be strimmed in stages to protect areas for reptiles and amphibians and give them a chance to escape	Annually late July - early September	On-going	Contractor	Careful strimming rather than mowing around the edges will protect important edge habitats
Boundaries to damp meadow and MG4 grassland should every two years be allowed to grow tall late into the season	Every two years	On-going	Contractor	Maintaining areas of meadow to remain tall creates shelter for a variety of species to over winter.
Once Established				
After three years and the meadow is more established, sections of the meadow are to be left to grow out. This should be a few strips at random throughout the meadow, and at the boundaries by hedgerows.	Annually (after 3 years for new meadows) with careful monitoring.	On-going	Contractor	Maintaining areas of meadow to remain tall creates shelter for a variety of species to over winter.
As an already established meadow, the MG4 grassland meadow should be: - cut for hay in late July/August - hay baled and removed from site - meadow lightly grazed by cattle during autumn and early winter - a few piles of grass cuttings around the edges to be left for grass snakes to lay egg	Annually with careful monitoring	On-going		As recommended in the Ecology by Design NVC Report (2019), following these steps will ensure the health of the MG4 grassland meadow, and provide opportunity habitat for grass snakes.
Weed species such as dock, thistle and nettle should be hand weeded with all the root taken out.	Annually	On-going	Contractor	Removing invasive species reduces the potential for meadow specimens to be suppressed by more dominant species. A working meadow will store nutrients within herbage and root systems making it harder for weed species to establish.

Key

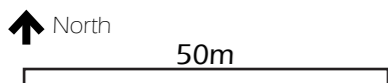
- - - Meadow at sensitive pond fringes and hedgerow edges to be carefully cut by strimming or other alternative.
- - - The boundary of the meadow to be left tall to create further hibernacula's for invertebrates over winter.
- Hibernacula areas where meadow grass should be left tussocky

Additional information on deadwood

The wild flower meadow is a living breathing organism and requires careful steering in the years ahead. In order to safeguard the longevity of the meadow it is prudent to rotate the cutting regime each year and additionally allow areas to extend the growing season occasionally.

For a spring flowering meadow you should mow from late June to October and for a summer flowering meadow, cut between late July and March.

Cutting different sections at different times of year from early July through to September. This will give the greatest diversity in sward and structure. This should still allow for the rough edge to the boundaries for invertebrates to over-winter.



g). Areas of Damp meadow and Species rich grassland

Pond and Wetland

INTRODUCTION

The pond and associated wetland will be reformed as a focal point for the property and an important habitat. The pond is formed on the line of the watercourse from the northern valley - which first reaches a shallow area of filtering Wetland, and then reaches the pond, providing attenuation for the drainage on site before the water falls off to the MG4 grassland meadow. The top water level of the pond should retain itself at a constant level to provide the right growing conditions for a range of plant species from marginal, emergent to sub-emergent. The body of water and graded edges of the pond provide a range of habitats for invertebrates with opportunities for spawning.

LONG TERM OBJECTIVES:

- To create an optimum habitat for a range of species and maintain its aesthetic qualities as a focal point from the house.
- To ensure water restores to its historic flooding regime, by improving pond conditions and management of watercourses and ditches, which in result will improve conditions for the MG4 grassland meadow habitat.
- To ensure the water clarity is maintained as this is paramount to the pond functioning as a wild life pond. Water quality is particularly important for oxygen levels within the water and care must be taken to remove invasive species such as Lemna minor (Common Duckweed and newer alien species such as Lemna minuta (Lesser Duckweed).

LANDSCAPE MANAGEMENT FOR POND & WETLAND

Objectives

1. To establish and develop the pond and its associated marginal planting as valuable wildlife habitats.
2. To maintain the pond its banks and marginal planting so as to provide an attractive, naturalistic setting within the property.
3. To monitor and maintain the water quality of the pond.
4. To monitor and maintain all inlet and outlets from the pond (including wetland), as well as ensuring ditches and watercourses are intact and free of blockages.
5. To monitor and control any invasive or undesirable species.

METHODS

Maintenance related to the planting may be necessary, such as coppicing or pollarding bank-side trees and shrubs, or dividing and transplanting aquatics, but this will be added to the maintenance schedules as the detail design for these areas develops.

Routine maintenance will involve

- Checking new marginal planting during establishment and replacing any failures.
- Checking and clearing any debris around inlets and outlets to the pond.
- Maintaining adequate light levels to the pond by clearing encroaching woody species.
- Removing excessive leaf fall during Autumn. Leave in piles away from pond edge.
- Removing excessive plant or algal growth. When thinning marginal plants, remove no more than 25% to ensure the protection of wildlife. The cuttings should be left adjacent to the pond for at least 48 hours to allow wildlife to return to the water. The waste can then be composted. Duckweed and Water Fern should be controlled and scraped from the surface using a sieve or board during the Spring and Summer period and disposed of away from the pond in a compost heap.
- Clearing blanket weed with rake.
- Maintaining the banks and edges to ensure they do not erode/become too steep and maintain varied shallow depths.
- Checking structural soundness of any decks or jetties and making any necessary repairs.

HABITAT CREATION FOR KEY SPECIES

Pond shelves will add a variety of water levels to suit different species. Wide shallow marginal planting will allow a variety of grasses and plants to establish. Floating and submerged plants will also provide aquatic cover for invertebrates. Species such as wild angelica (*Angelica sylvestris*) and water mint (*Mentha aquatica*) will be planted to provide nectar source for bees and wetland hoverflies.

At the existing stream end, small piles of stone and natural crevices at the edges of the pond will help provide a wider variety of habitat for invertebrates. Damselflies inject their eggs into stems, leaves, rotten wood or mud close to water. Therefore a few small patches of bare ground or log piles left at the pond's edge will allow for egg laying.

Ponds and wetlands are also important for amphibians such as common toad (*Bufo bufo*) and the common frog (*Rana temporaria*), a species found on site that is protected by the Wildlife and Countryside Act 1981 and a UKBAP Priority Species; and reptiles such as grass snake (*Natrix natrix*), recorded on site and protected by the Wildlife and Countryside Act 1981 and a UKBAP Priority Species.

KEY SPECIES LEGISLATION

- Common toads are a species of principal importance, wildlife and countryside Act 1981 species, and Priority Species under the UK Post-2010 Biodiversity Framework
- Common Grass snakes are a species of principal importance, wildlife and countryside Act 1981 species
- Sandmartins are protected by the wildlife and countryside act 1981
- Common Pipistrelles are protected by the Wildlife and countryside Act 1981 and the conservation of habitats and species regulations 2017



Damselfly



Common toad



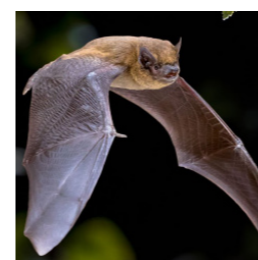
Common Grass Snake



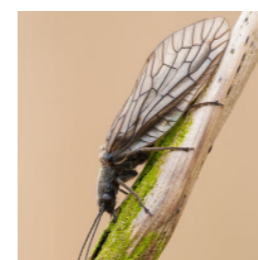
Common frog



Sandmartin

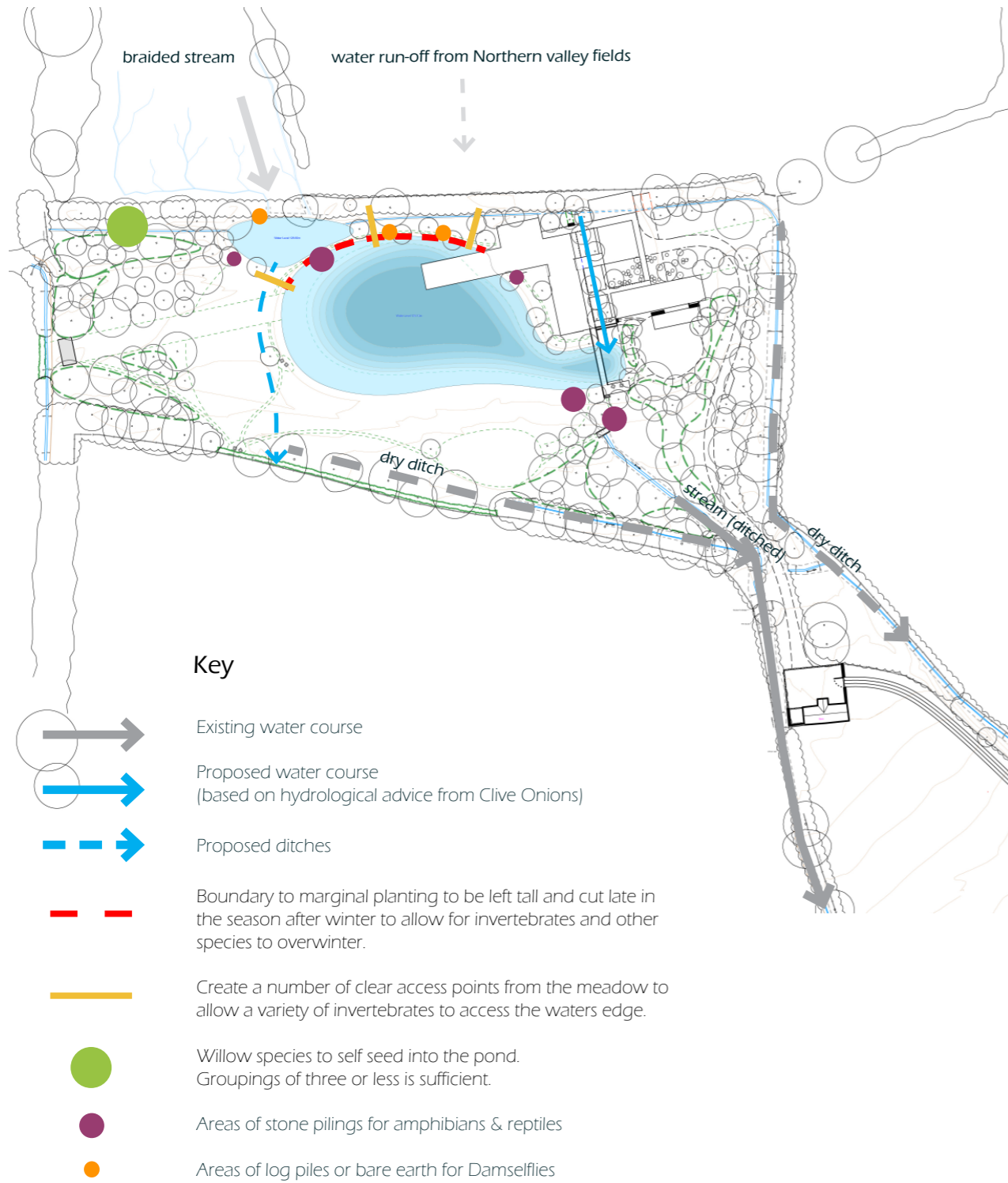


Common Pipistrelle



Alderfly

LEMP MANAGEMENT PRESCRIPTIONS (TASKS)

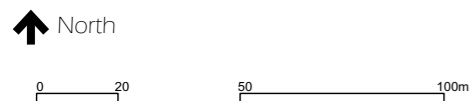


MANAGEMENT PRESCRIPTION	TIMING	FREQUENCY	RESPONSIBILITY	COMMENTS
A buffer of meadow planting should be maintained around the shallow marginal planting	Annually	On-going	Contractor	The inclusion of a buffer zone from the late summer meadow cut will protect vulnerable species which have created habitats within the marginal planting
Clear out excessive free floating perennial plants such as duckweed or lesser duckweed, water fern and algal growth. Leave in a compost heap away from the pond edge.	Annually Spring & Summer	On-going	Contractor	Free floating perennial plants can use up excess mineral nutrients in the pond and reduce oxygen levels. Not all floating species or filamentous algae should be removed but a quality composition of open water and closed water should be maintained.
Shallow edges where marginal planting is to be thinned out (25%) and allow for clear areas. Cuttings should be left in a compost heap away from the pond edge.	Annually late July - early September	On-going	Contractor	Access to the waters edge is important for a range of invertebrates. Dense marginal coverage requires balance with areas clear for access.
Some leaf litter and dead wood (large sections of branches) can remain but should not impede the water flow through the pond.	Annually - Winter	On-going	Contractor	Some aquatic beetle larva feed on decaying wood whilst others feed on the fungi and algae on the wood surface. Bare course leaf litter is a vital underwater habitat for variety of species including uncommon species such as Downy emerald dragonfly.
Any excess leaf litter should be cleared and heaped into piles away from the ponds edge.	Annually - Autumn	On-going	Contractor	Cuttings and leaf piles should be piled away from pond edge to avoid excess nutrient build up draining back into the pond.
Self seeding of willow specimens to be encouraged but excess self seeding needs to be managed to avoid compromising the attenuation of the pond	Annually - Winter	On-going	Contractor/ Arboriculturalist	The submerged roots of willow provide habitat for crawling water beetles and mayflies.
Tree species and marginals to be planted within the first year with allowance for the pond to self colonise. Additional aquatic plants to be introduced in the 2nd and 3rd year of establishment	3 year establishment	On-going	Contractor	Planting further aquatics in the 2nd or 3rd year allows self colonising species a chance to establish. Careful monitoring is requirement to avoid invasive species taking a hold in this period.

Additional information on winter clearance

General advice is that all maintenance work should take place during the winter months. Unfortunately depending on the species present in the pond this can be detrimental to species which are over-wintering. Habitat ponds work best when they are not disturbed.

Keep maintenance to an absolute minimal and judge actions on necessity. Leaf litter and decaying wood are important to the functioning of the pond as a habitat. Excess of both can have a detriment to the pond functioning as an attenuation pond.



h). Pond and Wetland area



Domestic Gardens: Rain garden, Woodland garden & Lawn

INTRODUCTION

The domestic gardens are made up of a central Rain garden that leads to the Eastern part of the pond, the Woodland gardens that extend out from proposed woodland areas and a species rich lawn. For built areas, a sensitive lighting strategy has been created to allow bird and bat boxes to be installed in darker areas on the South-West and South-East points of the building.

Proper maintenance of the central rain garden will be key to improve water quality across the site from any site water run-off, which in result will provide better conditions for wildlife. This will include routine maintenance checks around inlets and outlets. The woodland gardens will have a similar naturalistic character to the native woodland areas, however must be managed to ensure safety around walkways and a more formal aesthetic quality.

LONG TERM OBJECTIVES:

- To ensure rain garden's optimum functionality by checking water flows.
- To maintain aesthetic quality of woodland garden as suggested by planting proposals.
- To maintain all domestic planting to a high standard for visual interest throughout the year.

DOMESTIC GARDENS LANDSCAPE MANAGEMENT

Objectives

1. To provide an integrated, high quality setting for the new house.
2. To ensure the successful establishment and development of the new planting in accordance to the landscape proposals.
3. To ensure the planting are maintained in a healthy condition.
4. To monitor and control undesirable species..

METHODS

The ornamental garden areas around the house are being developed. Once they are complete this section will be updated. These will include tree, shrub and herbaceous planting along with areas of species rich lawn. Once finalised, detailed annual maintenance cycles for specific areas can be added to the Management Plan.

All areas for planting would be cultivated to a depth of 450mm minimum with the addition of plenty of organic matter. Irrigation systems would be installed to simplify watering during the establishment period, but once established the planting would need regular watering only in severe conditions

General maintenance during establishment will include:

- Mulching the woodland garden to a depth of 50mm for herbaceous areas and 75mm for shrubs and trees, using a fine grade bark.
- Re-applying mulch in winter / early spring to the appropriate depth.
- Replacing any failures and identifying and remedying any under-lying problems.
- Ensuring all trees and shrubs are well firmed in and have not been disturbed by wind-rock or soil disturbance.
- Controlling undesirable species by hand weeding - artificial herbicides must be avoided where there is water flow.
- Regular watering to promote good establishment.
- Installation and maintenance of rabbit fencing where appropriate.

HABITAT CREATION FOR KEY SPECIES

Nectar-rich plants suitable for rain gardens will be beneficial to bees, butterflies and hoverflies, and the temporal wet nature of the rain garden will provide a good interim habitat for the adjacent pond wildlife. With proper planting selection for year-round interest, nectar source will be available for longer periods of the year.

Woodland gardens will continue the connectivity of native woodland areas throughout the site, with sensitive lighting to maintain minimal ecological disturbance. Hidden bug houses can be installed within the woodland garden and be obscured by planting to fit into the landscape design to not stand out.

Bird boxes have been proposed on the North-east of building and trees to avoid strong sunlight and wettest winds (RSPB). Bat boxes should be on South-West of building so that they receive adequate sunlight, but are sheltered from strong winds (Ecology by Design 2019). Integrated bat boxes are suitable for a variety of crevice dwelling species, such as Common Pipistrelle (*Pipistrellus pipistrellus*) and Whiskered Bat (*Myotis mystacinus*) which have been recorded on site and is protected under the Wildlife and Countryside act 1981 Schedule 5 and the EU Habitats Directive.

KEY SPECIES LEGISLATION

House

- Common pipistrelles and Whiskered bats are both protected by the Wildlife and countryside Act 1981 and the conservation of habitats and species regulations 2017
- House sparrow is a Red list species on the bird of conservation concern and is protected under the Wildlife and countryside Act 1981



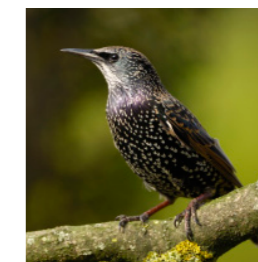
Common Pipistrelle



Whiskered Bat



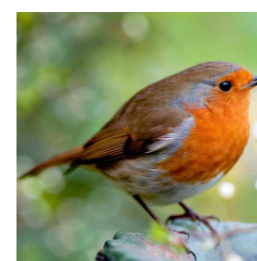
Blue tit



Starling



Whiskered bat

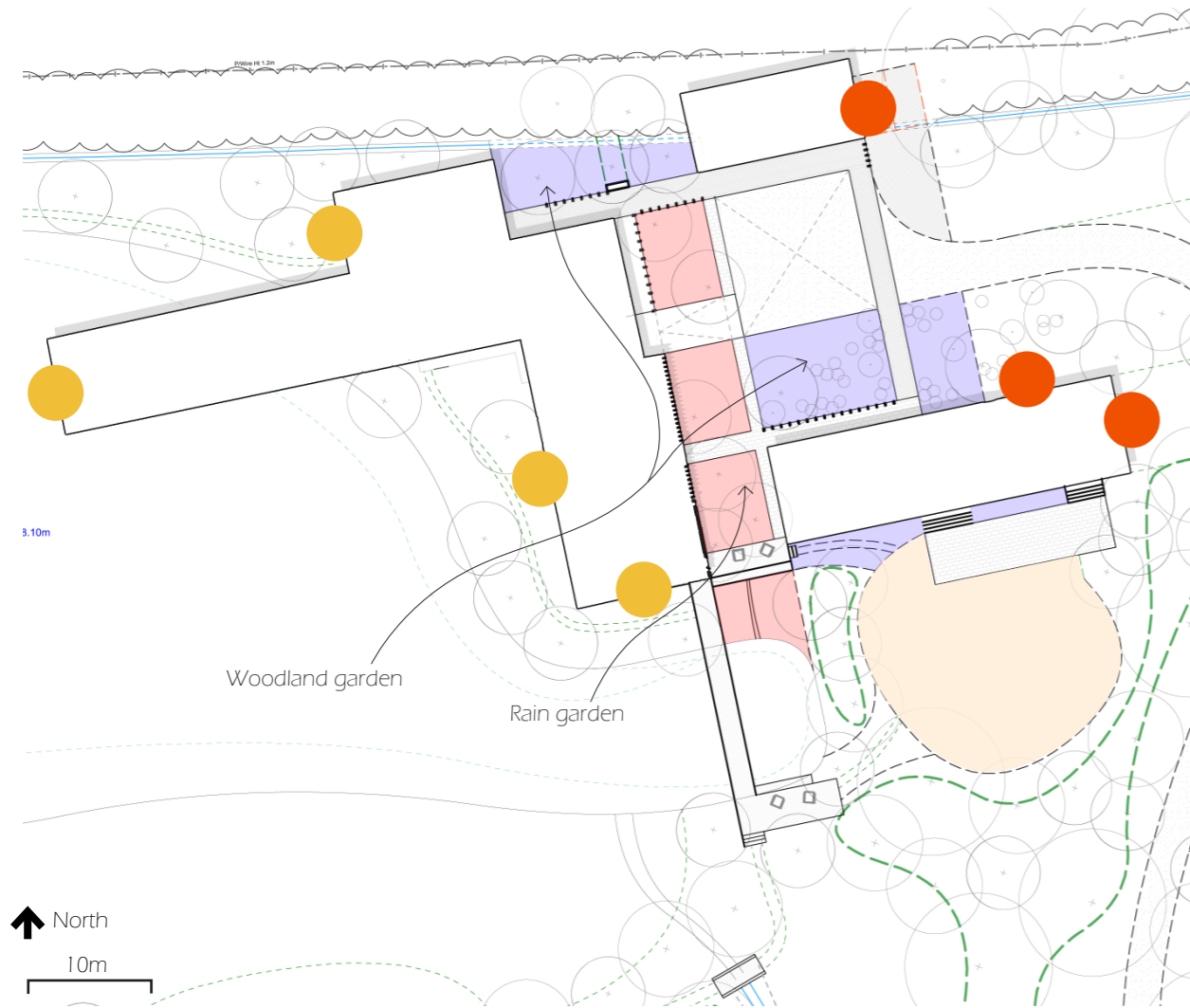


Robin



Great tit

LEMP MANAGEMENT PRESCRIPTIONS (TASKS)



- Key**
- Location of bat box on South-West elevation
 - Location of bird box on North-East elevation
 - Direction of water flow

MANAGEMENT PRESCRIPTION	TIMING	FREQUENCY	RESPONSIBILITY	COMMENTS
Bird boxes to be inspected and replaced if broken. Bats and bird flight path should be kept clear and free of clutter. Bats paths should not be illuminated.	Annually	On-going	Contractor	Broken or covered bird boxes have no ecological value
Occasional weeding by hand, ensuring whole plant is removed at the roots	First two years	On-going	Contractor	Once planting beds have established, they should fill any gaps and suppress weed growth. This will ensure the right balance of plants fill the space and maintain itself for its best potential as a diverse habitat.
During winter, remove any dead or untidy plants, however leave some dead stems and seed heads for wildlife.	Annually	On-going	Contractor	Standing dead stems can hold a great number of insects, larvae and eggs, while seed heads will be an important winter food source for birds. (RSPB)
If required, cutting should be undertaken during late summer/autumn with a scythe or strimmer, with tougher material cut by hand. Remove all cut material for composting.	Annually	On-going	Contractor	
Hidden bug houses in woodland should be kept as dry as possible and in a sunny location surrounded by vegetation.	Annually	On-going	Contractor	Many cold blooded invertebrates require bare areas of earth to allow them to bask throughout the day.

Additional information

Architectural walls with north and south facing aspects can accommodate a large number of species. Bat boxes on both aspects will be included for summer roosts and winter hibernation. The south wall will include bug houses for invertebrates as well as deep crevices for insects, bats and mammals.

The re-use of materials is a key part of the sites design. Using stones from the entrance wall, timbers from the derelict barns, logs from cut wood off the site will all provide artificial habitats for invertebrates. Bird boxes should be included within the northern elevations of the wall. Bird boxes can be made from materials of site, or naturally aesthetic boxes included in the design.

i). Rain and Woodland Garden

The Barn

INTRODUCTION

The barn and associated walls will be repaired for use as storage for site landscape maintenance machinery - this use will allow the building to become a showcase on how to integrate habitats into the built environment. Existing gaps and holes will be left where possible to avoid damaging any existing bat roosts.

LONG TERM OBJECTIVES

- To encourage nesting for barn owls and other bats and birds.
- To associate the barn as a sanctuary for wildlife
- Showcase habitat integration

Objectives

1. To provide an integrated, high quality setting for the new house.
2. To ensure the successful establishment and development of the new plantings in accordance to the landscape proposals.
3. To ensure the plantings are maintained in a healthy condition.
4. To monitor and control undesirable species.

Methods

General maintenance during establishment will include: -

- Ensuring holes and nesting boxes are checked once or twice a year, following RSPB guidance on maintenance.
- Maintain areas of foraging habitat around the barn - leaving grasses tall and food source from scrub.

HABITAT CREATION FOR KEY SPECIES

A nesting site for barn owls will be integrated into the barn as there was evidence on site of owls roosting but not nesting. For this the existing entrance hole at the highest point of the East-facing wall of the barn gives the perfect opportunity to lead into a deep nest box. Tussocky grasses should be left tall around the barn where access isn't necessary and strips throughout the meadow will allow areas for owls to hunt over.

The existing barn will incorporate features for other target species as well as the barn owl such as little owls, sparrows, kestrels, doves, bats, reptiles and amphibians:

Numerous **cavities** in the mortar of the South-facing wall can be created to suit a range of invertebrates such as spiders and wasps. Old stones that are stacked in the barn can be re-used to create **stone pilings** for amphibians and reptiles especially to the North and West, where it starts to connect with the stream. All four walls can have a variety of **small sized openings** for sparrows and other small hole-nesting bird species. Brown long-eared bats prefer large uncluttered roof voids; a feature of barns and older buildings.

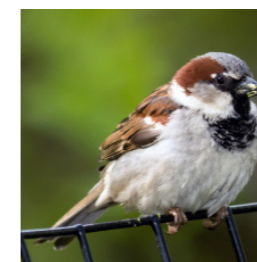
Having a simple earth floor that is cool and damp provides an ideal habitat for bats, that can enter through a wide horizontal slot in the lower part of the wall below any internal floor where it is dark. Existing barn entrances will have to be closed off to provide a darker habitat.

KEY SPECIES LEGISLATION

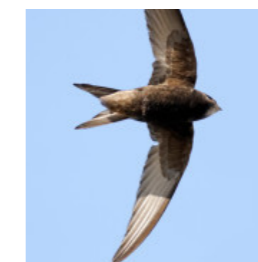
- Barn owls are protected in the UK under the Wildlife and Countryside Act, 1981
- House Sparrows, Swifts and Starlings are on the UK Red list status of conservation and protected by the Wildlife and Countryside Act, 1981
- Blue Tits are protected by the Wildlife and Countryside Act 1981
- Brown Long-Eared Bats are protected in the UK by the Wildlife and Countryside Act 1981 and under the European Protected Species



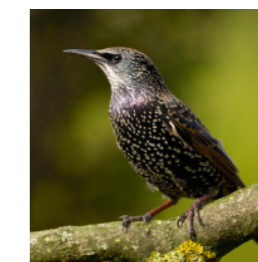
Barn Owl



House Sparrow



Swift



Starling



Brown Long-eared Bat

LEMP MANAGEMENT PRESCRIPTIONS (TASKS)



Barn owl entrance hole

MANAGEMENT PRESCRIPTION	TIMING	FREQUENCY	RESPONSIBILITY	COMMENTS
Owl nesting box to be inspected and replaced if broken within the ecology walls.	Annually	On-going	Contractor	Broken or covered bird boxes have no ecological value
Purpose made holes in the walls should be checked that they are accessible and free of any debris build up.	Annually	On-going	Contractor	Blocked holes will inhibit bats and smaller birds from entering and leaving through safe passage
Keep unused stone for stone pilings. Check the stone pilings remain intact.	Annually	On-going	Contractor	Stone stacks are an important habitat for a range of species, fungi and bryophytes. It also provides shelter for invertebrates



Key

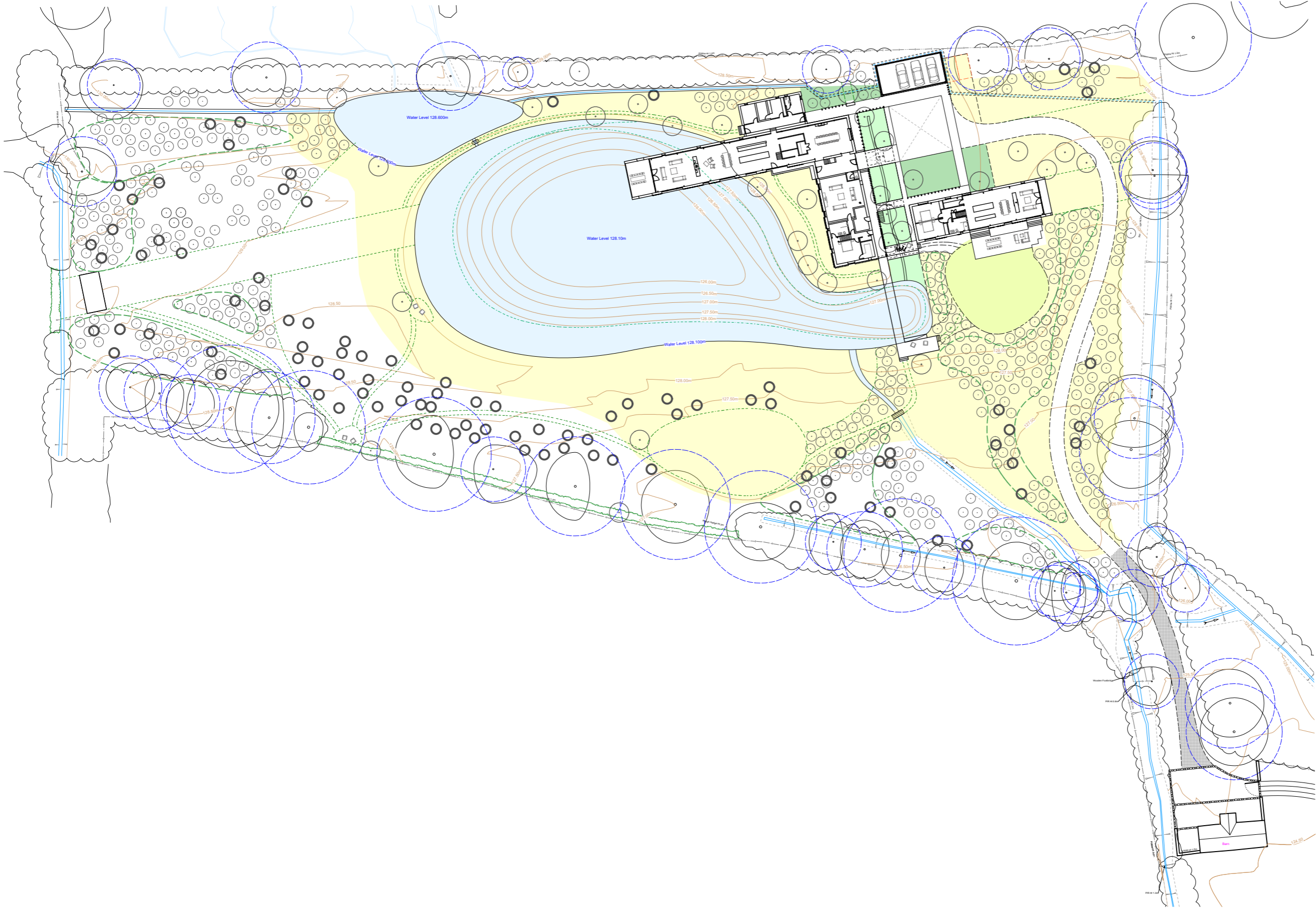
- Location of cavities in mortar for invertebrates
- Area of loose stones stacked at base of South-facing walls.
- ▲ Barn owl entrance

Additional information on the Barn

Architectural walls with north and south facing aspects can accommodate a large number of species. Bat boxes on both aspects will be included for summer roosts and winter hibernation. The south wall will include bug houses for invertebrates as well as deep crevices for insects, bats and mammals. Stone will be stacked at the base of south facing walls for invertebrates and small mammals as well as closer to the stream to the West for amphibians and reptiles. The walls will become colonised with plants such as penny wort, navel wort, maidenhair ferns and valerian as well as mosses and lichens.

The re-use of materials is a key part of the sites design. Using loose stones from existing walls, logs from cut wood off the site will all provide artificial habitats for invertebrates. Bird boxes should be included within the northern elevations of the wall. Bird boxes can be made from materials of site, or naturally aesthetic boxes included in the design.

APPENDIX I (PLANTING PLANS)



Notes:
 1. All dimensions are in millimeters unless otherwise specified.
 2. Contractors must check all dimensions and levels on site. Only figured dimensions to be worked from.

KEY / LEGEND

- Damp Meadow**
 eg. EM8 Meadow Mixture for Wetlands by Emorsgate Seeds. Alternatively seed could be harvested from the adjacent damp meadow field.

- Species Rich Lawn**
 eg. EL1 Flowering Lawn Mixture by Emorsgate Seeds.

- Naturalistic Woodland Planting**
 eg.
 SHRUBS:
 Ilex aquifolium
 Viburnum opulus
 Buxus sempervirens (clipped and unclipped)
 Sarcococca hookeriana

- GROUND STOREY**
 Digitalis sp.
 Fragaria vesca
 Ficaria verna
 Galium odoratum
 Galanthus nivalis
 Hedera helix
 Hyacinthoides non-scripta
 Primula vulgaris
 Viola riviniana
 Dryopteris wallichiana
 Blechnum spicant
 Luzula nivea
 Deschampsia cespitosa Gold Veil'
 Molinia Moorhexe
 Molinia caerulea Heidebraut'
 Vinca difformis
 Tiarella wherryi

- Rain Garden**
 eg.
 SHRUBS:
 Cornus alba
 Salix sp. (coppiced)
 Frangula alnus

- GRASSES, FERNS & PERENIAL**
 Liguliana sp.
 Primula veris
 Persicaria sp.
 Caltha palustris
 Hottonia palustris
 Rodgersia sp.
 Eriophorum angustifolium
 Carex sp.
 Molinia sp.
 Carex sp.
 Deschampsia sp.

- Pond & Wetland**
 eg.
MARGINALS (adjacent to meadow)
 Angelica sylvestris
 Botomus umbellatus
 Callitriche
 Caltha palustris
 Mentha aquatica
 Angelica sylvestris
 Carex pendula
 Carex riparia
 Filipendula ulmaria meadowsweet
 Geum rivale
 Hottonia palustris
 Iris pseudocorus / Iris laevigata

- MARGINALS (adjacent to house)**
 Glyceria maxima
 Phragmites australis
 Eleocharis palustris
 Typha latifolia

- AQUATICS**
 Lythrum salicaris
 Mentha aquatica
 Miriophyllum spicatum
 Myostis palustris
 Nymphaea alba
 Ranunculus aquatilis
 Sparganium erectum

Plant sizes
 All herbaceous and aquatic plants to be 9cm. All ferns and grasses to be 2L

Top Soil
 All planting beds to have a min of 450mm imported topsoil (BS 3882:2015). Mixture of rain garden growing medium TBC



rev	date	changes
Technical Design (LI work stage 4)		
drawing	client	
LAYOUT - Structural	Mr & Mrs Fennessy	
Planting Plan		
number	scale	
OXO_109	1: 400 @ A1	
date	drawn by / checked by	
28/06/2022	JM / MS	



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 info@seedlandscape.com
 project
 Oxpens,
 Oxfordshire

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Notes:
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KEY / LEGEND

OAK WOODLAND

DOMINANT

Quercus robur - BR feathered 80/100cm (H)

SUB-DOMINANT

Acer campestre - BR feathered 80/100cm (H)

Prunus avium - BR feathered 80/100cm (H)

Malus sylvestris - BR feathered 80/100cm (H)

Betula pendula - BR feathered 80/100cm (H)

Betula pendula - RB 50% feathered 50% MS 2.5-3m (H)

SHRUB LAYER - UNDERSTOREY

Crateagus monogyna - BR 80/100cm (H)

Corylus avellana - BR 80/100cm (H)

Sambucus nigra - BR 80/100cm (H)

Ilex aquifolium - BR 80/100cm (H)

Prunus spinosa - BR 80/100cm (H)

Rhamnus cathartica - BR 80/100cm (H)

Rosa canina - BR 80/100cm (H)

Frangula alnus - BR 80/100cm (H)

Viburnum opulus - BR 80/100cm (H)

DAMP WOODLAND

DOMINANT

Salix pentandra - BR feathered 80/100cm (H)

Salix alba - RB feathered 2.5-3m (H)

SUB-DOMINANT

Alnus glutinosa - BR feathered 80/100cm (H)

Betula pubescens - BR feathered 80/100cm (H)

Betula pubescens - RB 50% feathered 50% MS 2.5-3m (H)

SHRUB LAYER - UNDERSTOREY

Prunus spinosa - BR feathered 80/100cm (H)

Salix caprea - BR feathered 80/100cm (H)

Salix cinerea subsp. oleifolia - BR feathered 80/100cm (H)

Sambucus nigra - BR feathered 80/100cm (H)

Cornus sanguinea - BR feathered 80/100cm (H)

HEDGEROW TREES

Ulmus procera - RB feathered 2.5-3m (H)

ORNAMENTAL

Betula nigra - RB 50% feathered 50% MS 2.5-3m (H)

Carpinus betulus (MS 2.5-3m landscape) Magnolia stellata (MS 2.5-3m house) Hamamelis intermedia (MS 2.5-3m house & landscape) Malus sylvestris cultivar (MS 2.5-3m house & landscape)

HEDGEROW MIX

Crateagus monogyna (50%) - BR 80/100cm (H)

Corylus avellana (10%) - BR 80/100cm (H)

Ilex aquifolium (5%) - BR 80/100cm (H)

Prunus spinosa (15%) - BR 80/100cm (H)

Rosa canina (10%) - BR 80/100cm (H)

Viburnum opulus (5%) BR 80/100cm (H)

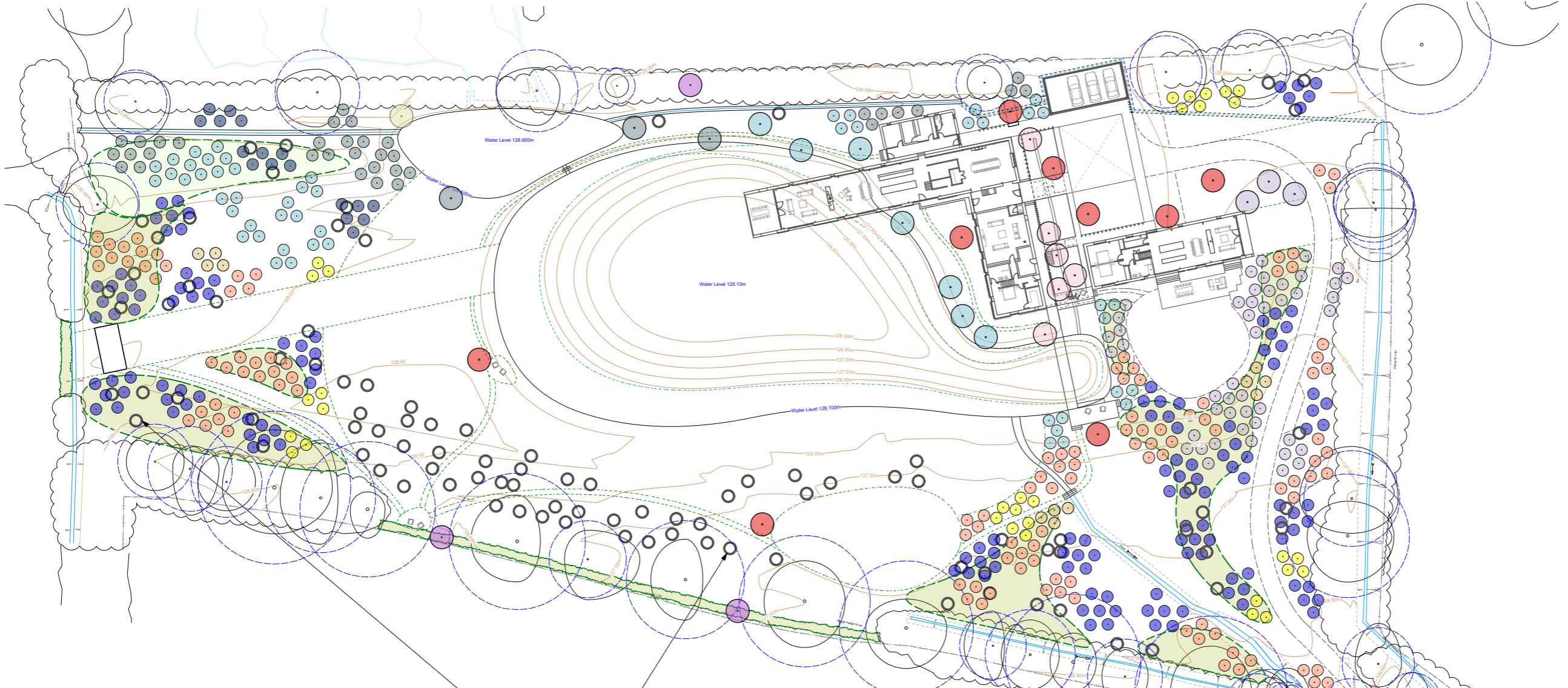
Top Soil

All large trees to be planted in a 1x1m tree pit with topsoil (BS 3882:2015) and root anchor system.

SEED landscape design
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 info@seedlandscape.com

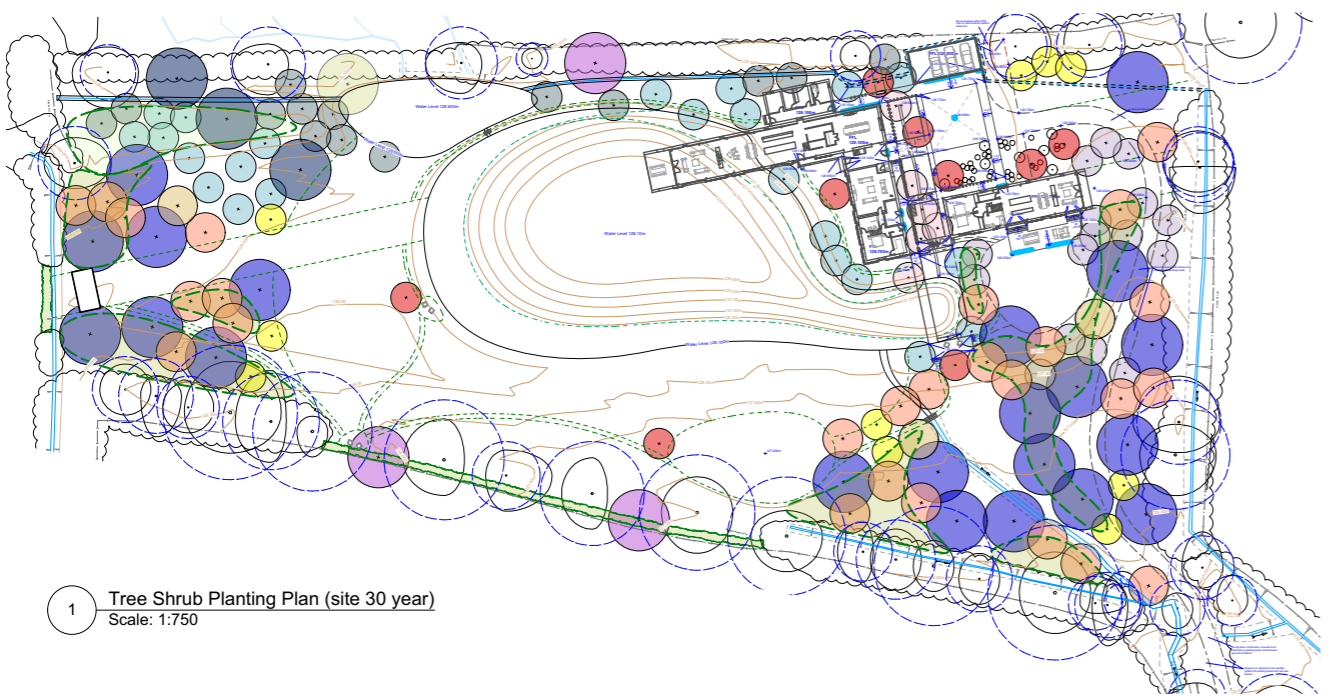
rev	date	changes
1	28/06/2022	Technical Design (LI work stage 4)

drawing	client
LAYOUT - Tree Shrub Planting Plan	Mr & Mrs Fennessy
number	scale
OXO_108	1: 400 @ A1
project	date
Oxpens, Oxfordshire	28/06/2022
drawn by / checked by	JM / MS



2 Tree Shrub Planting Plan (site 1st year)
 Scale: 1:400

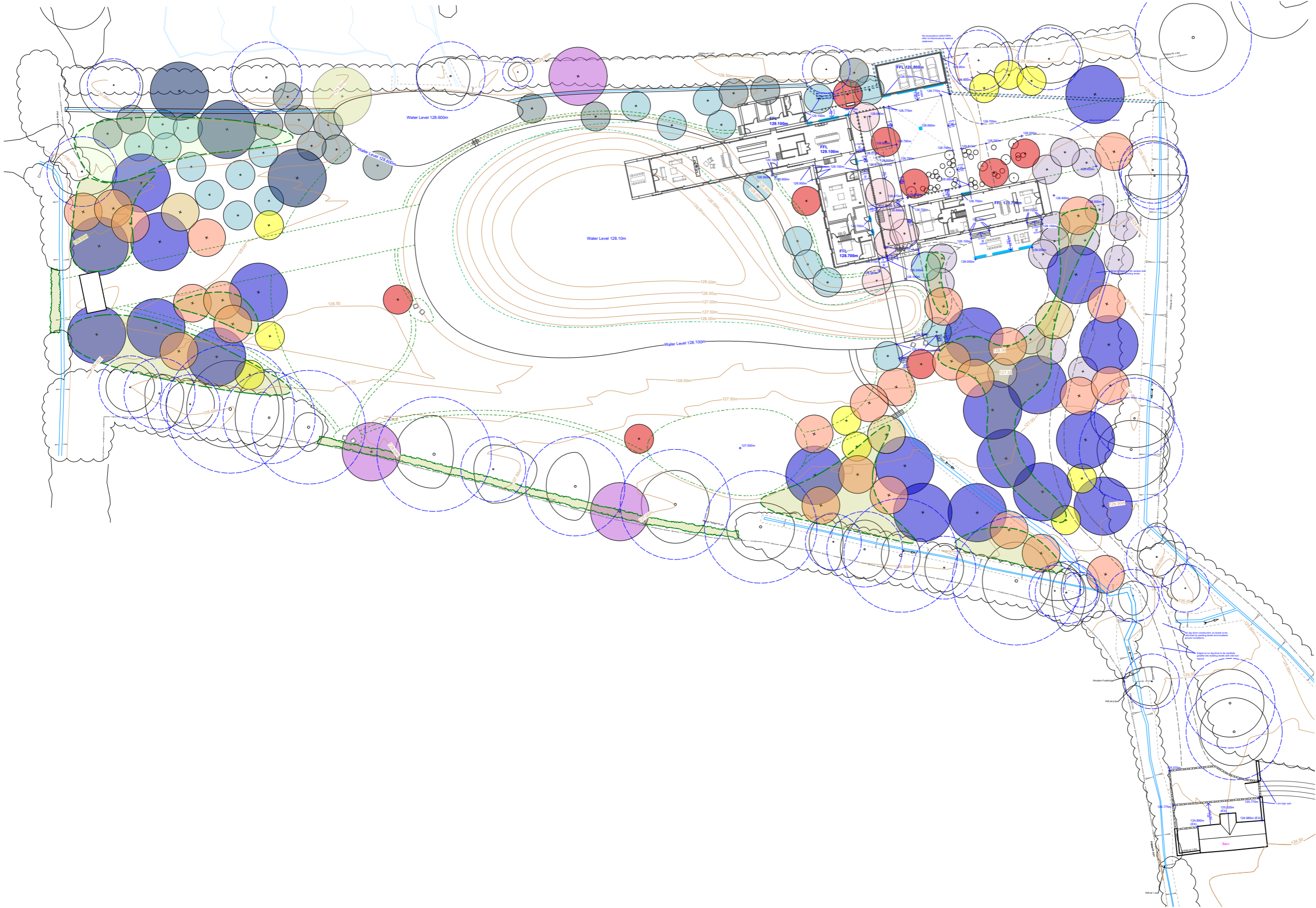
Retained ash trees (to be agreed on site with SEED).
 NB. these are mainly associated with the oak and willow (the dominant woodland species)



1 Tree Shrub Planting Plan (site 30 year)
 Scale: 1:750



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KEY / LEGEND

N

rev	date	changes
Technical Design (LI work stage 4)		

<p>SEED <i>landscape design</i> 87 Walcot Street Bath BA1 5BW +44 (0)1225 424 514 info@seedlandscape.com project Oxpens, Oxfordshire</p>	<p>drawing LAYOUT - Tree Shrub Planting Plan 30 YEAR number OXO_107 date 28/06/2022</p>	<p>client Mr & Mrs Fennessy scale 1: 400 @ A1 drawn by / checked by JM / MS</p>
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Contractors must check all dimensions and levels on site. Only figured dimensions to be worked from.

SEED

APPENDIX II (ARBORICULTURAL REPORT)