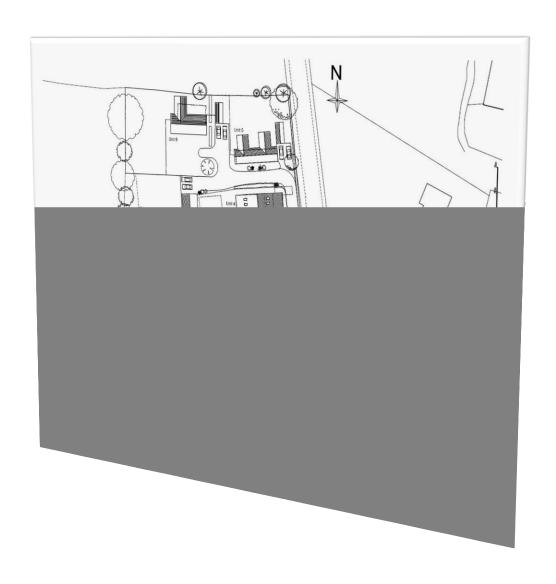
Roecrofts Farm, Ulnes Walton Lane, Ulnes Walton, Leyland, PR26 8LT

Conditions - Master document v.1

Tyrer Ecological Consultants Ltd





Author: Mr. M. Pritchard ACIEEM Issued: 14 October 2021
For: Warwick Consultancy

Document Context & Aims

As part of a granted planning application (20/01087/FUL - Chorley Council) at Roecrofts Farm, Ulnes Walton, Tyrer Ecological Consultants Ltd were commissioned to provide a strategy to successfully discharge several planning conditions in relation to ecological and environmental matters.

Important Context

Granted proposals are for "Redevelopment of the site, including the demolition and conversion of existing buildings B2-B9 to create 5no. residential dwellings".

Tyrer Ecological Consultants Ltd have been involved with the approved scheme from its concept to the current phase, having carried out a Preliminary Ecological Appraisal (PEA) (August 2020) in accordance with the Guidelines for Preliminary Ecological Appraisal, 2nd Edition (CIEEM, 2017) and follow up surveys for Bats (two dusk surveys) during August and September 2020 within the active season of Bats, in accordance with the Bat Conservation Trust (BCT) - Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed. (2016).

Key ecological factors at this site, as established during the PEA and Bat surveys, include (extracted from issued ecological documents):

- The survey results gathered by Tyrer Ecological Consultants Ltd conclude that two of the buildings at Roecrofts Farm, namely B1 and B7 as described in the PEA report Appendix I, support bat roosts. Specifics are presented as follows:
- B1 Contains two roosts supporting up to two bats, B1 Roost 1 is a gap under the barge boards on the higher gable apex west-facing elevation, B1 Roost 2 is a gap under the barge boards on the lower gable apex, west-facing elevation.
- **B7** Contains two roosts supporting up to five bats, B7 Roost 1 is at the roof verge below the roof verge capping on the south-facing elevation, B7 Roost 2 has two access points and is located at the roof verge near the apex on the north-facing elevation.
- B1 does not form part of the current granted planning permission.
- A European Protected Species Mitigation Licence (EPSML) has been granted for the conversion works for B7 (Tyrer). The licence outlines a strategy for protecting and providing mitigation for bats in accordance with the mitigation hierarchy and is a legally binding document. This is also applicable to discharge Condition 10.

Relevant Planning Conditions | (20/01087/FUL) (Chorley Council) at Roecrofts Farm

- The refurbishment/conversion works to building B7 and as identified in the Dusk Survey Results report by Tyrer Ecological Consultants Ltd dated 14th September 2020 and the Proposed Site Plan (drawing number D410/PO8 Rev.B), shall not in any circumstances commence unless the Local Planning Authority has been provided with either:
 - a) a licence issued by Natural England pursuant to Regulation 55 of The Conservation of Habitats and Species Regulations (Various Amendments) (England and Wales) Regulations 2018 authorizing the specified activity/development to go ahead; or
 - b) b) a statement in writing from the relevant licensing body to the effect that it does not consider that the specified activity/development will require a licence.

Reason: To ensure that protected species are not adversely affected.

- Prior to occupation, a "lighting design strategy for biodiversity" for areas to be lit shall be submitted to and approved in writing by the Local Planning Authority. The strategy shall:
 - a) identify those areas/features on site that are particularly sensitive for bats and that are likely to cause disturbance in or around their breeding sites and resting places or along important routes used to access key areas of their territory, for example, for foraging; and
- b) show how and where external lighting will be installed (through the provision of appropriate lighting contour plans and technical specifications) so that it can be clearly demonstrated that areas to be lit will not disturb or prevent the above species using their territory or having access to their breeding sites and resting places.

All external lighting shall be installed in accordance with the specifications and locations set out in the strategy, and these shall be maintained thereafter in accordance with the strategy. Under no circumstances should any other external lighting be installed without prior consent from the Local Planning Authority.

Reason: To ensure that lighting does not adversely affect protected species.

- No development shall take place (including any demolition, ground works, site clearance) until a method statement for barn owls has been submitted to and approved in writing by the Local Planning Authority. The content of the method statement shall include the:
 - a) Purpose and objectives for the proposed works;
 - b) Detailed design(s) and/or working method(s) necessary to achieve stated objectives (including, where relevant, type and source of materials to be used);
 - c) Extent and location of proposed works shown on appropriate scale maps and plans;
 - d) Timetable for implementation, demonstrating that works are aligned with the proposed phasing of construction;
 - e) Persons responsible for implementing the works;
 - f) Initial aftercare and long-term maintenance (where relevant);

The works shall be carried out strictly in accordance with the approved details and shall be retained in that manner thereafter.

Reason: To ensure that barn owls are not adversely affected.

	13	No removal of or works to any hedgerows, trees, shrubs or brambles, or works to or demolition of buildings or structures that may be used by breeding birds shall take place during the main bird breeding season 1st March and 31st August inclusive, unless a competent ecologist has undertaken a careful, detailed check of vegetation for active birds' nests immediately before the vegetation is cleared and provided written confirmation that no birds will be harmed and/or that there are appropriate measures in place to protect nesting bird interest on site. Any such written confirmation should be submitted and approved in writing by the Local Planning Authority.
		Reason: To ensure that breeding birds are not adversely affected
	14	Prior to the commencement of the development hereby permitted, a method statement detailing the Reasonable Avoidance Measures (RAMs) to be adopted in order to avoid and/or minimise any unforeseen disturbance impacts on local great crested newt populations during the course of the development shall have been submitted to and approved in writing by the Local Planning Authority. The development shall only be carried out in accordance with the RAMs detailed in the approved method statement.
		Reason: To ensure that great crested newts are not adversely affected.
1	15	A scheme for the landscaping of the development and its surroundings shall be submitted prior to the commencement of the development. These details shall include all existing trees and hedgerows on the land; detail any to be retained, together with measures for their protection in the course of development; indicate the types and numbers of trees and shrubs to be planted, their distribution on site, those areas to be seeded, paved or hard landscaped; and means of enclosure. The scheme should include a landscaping/habitat creation and management plan which should aim to contribute to targets specified in the UK and Lancashire Biodiversity Action Plans. Landscaping proposals should comprise only native plant communities appropriate to the natural area. All hard and soft landscape works shall be carried out in accordance with the approved details within the first planting and seeding seasons following the first occupation of any buildings or the completion of the development, whichever is the sooner, and any trees or plants which within a period of 5 years from the completion of the development die, are removed or become seriously damaged or diseased shall be replaced in the next planting season with others of similar size and species.
		Reason: To ensure that a satisfactory landscaping scheme for the development is carried out to mitigate the impact of the development and secure a high-quality design that respects the setting of the Listed Building.
	16	A scheme for the Biodiversity Enhancement Measures, as set out in Appendix IV of the Preliminary Ecological Appraisal by Tyrer Ecological Consultants Ltd dated 11th September 2020 shall be submitted to and approved in writing by the Local Planning Authority. The approved scheme shall be implemented prior to first occupation of the development (or in accordance with a phasing plan which shall first be agreed in writing with the Local Planning Authority) and shall be retained thereafter.
		Reason: To ensure that satisfactory biodiversity enhancement measures are carried out.
1	19	No development shall commence until a surface water drainage scheme has been submitted to and approved in writing by the Local Planning Authority. The drainage scheme must include:
		(i) An investigation of the hierarchy of drainage options in the National Planning Practice Guidance (or any subsequent amendment thereof). This investigation shall include evidence of an assessment of ground conditions and the potential for infiltration of surface water; (ii) A restricted rate of discharge of surface water agreed with the Local Planning Authority (if it is agreed that infiltration is discounted by the investigations); and (iii) A timetable for its implementation.
		The approved scheme shall also be in accordance with the Non-Statutory Technical Standards for Sustainable Drainage Systems (March 2015) or any subsequent replacement national standards. The development hereby permitted shall be carried out only in accordance with the approved drainage scheme.
		Reason: To promote sustainable development, secure proper drainage and to manage the risk of flooding and pollution.
2	20	Foul and surface water shall be drained on separate systems.
		Reason: To secure proper drainage and to manage the risk of flooding and pollution.

Condition discharge strategy

Condition 10 - EPSML for Bats

A licence issued by Natural England pursuant to Regulation 55 of The Conservation of Habitats and Species Regulations (Various Amendments) (England and Wales) Regulations 2018 authorizing the specified activity/development to go ahead was granted on xxxxxxxxxxxxxxxx. The licence can be made available to the LPA; Condition 10 can therefore be discharged.

Condition 11 - Lighting & Bats

In accordance with part 'a' of this planning condition:

- Figure 1 (below) shows areas of Roecrofts Farm post-development that would be particularly sensitive to Bats. This should be used to inform a technical drawing as requested in part 'b'.
- Areas in Figure 1 Red avoid any direct lighting whatsoever in these zones,
- Areas in Figure 1 **Black** create/maintain dark buffer zones in these zones, these areas of the site are valuable to bats and essential foraging/commuting; any lighting in these areas that are required should utilise bat sensitive lighting techniques such as:
 - > Use of low-pressure sodium lamps instead of LED, mercury or metal halide lamps,
 - > Using lighting accessories such as hoods, cowls, louvres and shields to direct the light to the intended area only,
 - The light should be as low as guidelines permit,
 - > If lighting is not needed in any particular area, do not illuminate,
 - There are lighting design computer programs that are widely in use by specialists which produce an topographic of the site in question, showing how the area will be affected by light spill when all the factors of the lighting components listed above are taken into consideration. This should be a useful tool to inform the design process and should be carried out by a lighting design specialist.

Further reading: Bat Conservation Trust (BCT) - Guidance Note 08/18 - Bats and artificial lighting in the UK | Bats and the Built Environment series.

See Figure 1 below for visual aid.

To fully discharge this condition, a lighting design specialist should produce the required technical drawings, appropriate lighting contour plans and technical specifications so that it can be clearly demonstrated that areas to be illuminated will not disturb or prevent Bats using their territory or having access to their roosts / flight paths. All external lighting should be installed in accordance with the British Standard and maintained forthwith. The LPA will discharge this condition once they are satisfied all elements have been met.

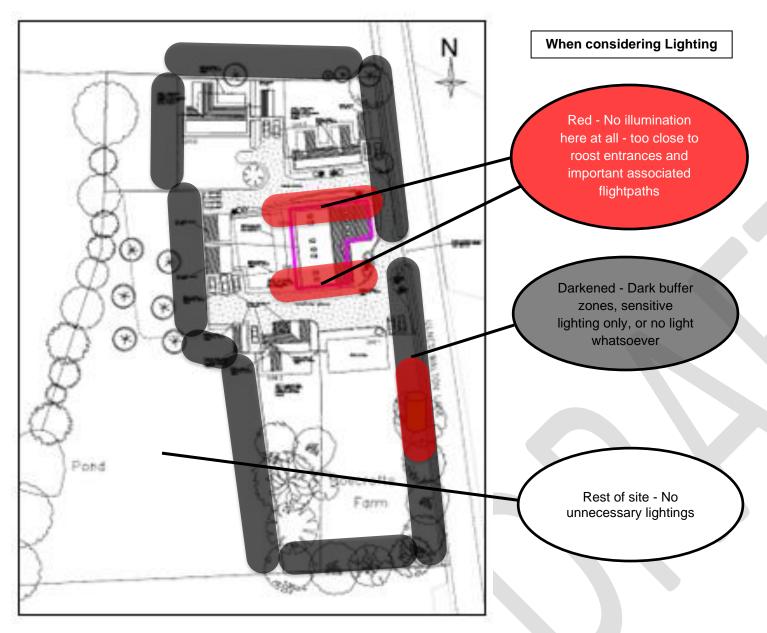


Figure 1 - Visual aid to inform a more technical lighting drawing, to discharge part b) of Condition 11.

Condition 11 can therefore be partly discharged only.

Condition 12 - Barn owls

Barn Owl (Tyto alba) - Method Statement

Proposals are for "Redevelopment of the site, including the demolition and conversion of existing buildings to create 5no. residential dwellings"; however, it is acknowledged that the presence of protected species needs to be addressed from a conservation perspective in accordance with Planning condition 12. The proposals involve demolition of Building 9 (B9) where evidence of Barn owl was encountered during the PEA which states the following for Barn owls:

"In relation to Schedule 1 (WCA) specially protected bird species such as Barn owl, suitability of use exists at B7 and B9, to a lesser extent the damaged building B8. Historic evidence of Barn owl was found within B9 - a smattering of faecal splashing, old pellets and feathers was located on the ground in the western area on the ground; the building offers overhead shelter but is draughty and part-illuminated and the evidence was found on the ground in an area exposed to predators such as Fox/Rat, therefore the evidence is unlikely to represent breeding use by owls, but more likely roost/rest use. Barn owls were identified as present in the landscape by the desktop study with breeding records south of the site around Croston Big Wood (early 90's); local habitat value is highly favourable hunting habitat with a wide range of rough grasslands, grassland edges and rural surroundings.

It is recommended that to mitigate loss of B9 which has historically supported Barn owl(s), and other buildings that could be used by Barn owl on the site, mitigation that follows guidance provided in "Barn Owls and Rural Planning Applications - What needs to happen. - A Guide for Planners. Barn Owl Trust" should be provisioned as part of the design scheme. A barn owl nest box is recommended to be installed on a suitable mature tree - see Appendix IV for specifics."

- Preliminary Ecological Appraisal - Roecrofts Farm, Tyrer Ecological, August 2021

Barn Owl Method statement particulars:

- a) The purpose of providing the Barn owl mitigation is therefore to mitigate for loss of a historic Barn owl roost(s) site in B9 by providing a permanent, long term, similar space to roost with potential for breeding use.
- b) To this end x1 Triangular Barn owl Nest Box and x1 typical timber Barn owl nest box are recommended to be installed on two suitable retained mature trees in the north-west and west of the site, an area within 20-40 metres and clear sight of B9 proposed to be demolished. The x1 Triangular Barn owl Nest Box should be installed on T15 a mature Ash tree, the x1 typical timber Barn owl nest box should be installed on a suitable tree within G31 a group of early mature trees comprised of Sycamore, Ash, Goat Willow, Damson & Hawthorn (see AIA report Godwins Arboricultural Roecrofts Farm) tree in G31 to be decided by a competent Ecologist during installation. Boxes should face open grassland to the west or east. See Figure 2 below for box types and where to order the boxes from / how to make a Barn owl nest box.
- c) The boxes should be installed prior to demolition of B9 and within a month prior to the first occupancy of the site at the latest. See Figure 2 below for where to site the nest boxes.
- d) As above.
- e) Mr Colin & Robert Barlow who are the named applicants on the granted planning permission are responsible for implementing this mitigation / ensuring correct installation of the barn owl boxes, as well as managing/maintaining the site in the long term through appointed contractors. Clear flight lines should be maintained to the trees / nest site(s) through limb management and grass cutting. No post-development monitoring is recommended. The owners will be responsible for ensuring the upkeep of the site in the long term and will contact an Ecologist for guidance if any further work is needed, such as box checks.
- f) As above.

If the steps above can be carried out Condition 12 can be discharged.

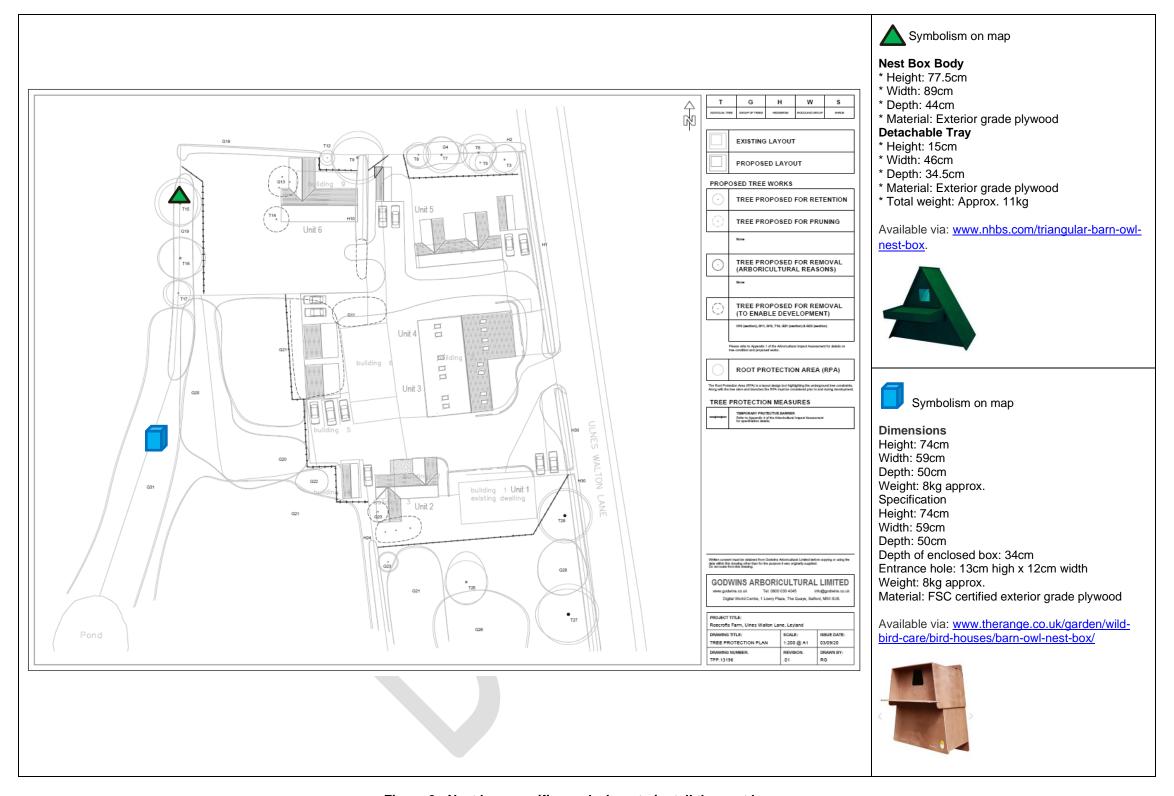


Figure 2 - Nest box specifics and where to install the nest boxes

Condition 13 - Breeding Birds / Timings and actions

To discharge this condition It is reccomended in the first instance that any site clearence works, or site preparatory works as indicated in the most recent AIA report (Godwins) and most recent Landscape plan (TBC), or any works to hedgerows, trees, mature shrubbery or brambles, or demolition of buildings or structures that may be used by breeding birds, should take place outside of the main bird breeding season 1st March and 31st August inclusive. Works such as this should target the autumn and winter months.

Any works within spring and summer months will require an initial careful and detailed check of vegetation / buildings for active birds' nests immediately before clearance by a competent ecologist who will provide and maintain a detailed audit of works / tool box talks / checks had on site. Where necessary, appropriate measures will be put in place, such as buffer zones and temporary no-go areas using heras fencing providing a buffer, to protect nesting bird interest on site

Following site clearance in preparation for development written confirmation (Detailed audit trail) of methods of protection to birds, if necessary, will be submitted to the Local Planning Authority for scrutiny and approval in such an event, to discharge this condition.

Condition 14 - Great Crested Newt (GCN) - Reasonable Avoidance Measures

See Appendix I, external.

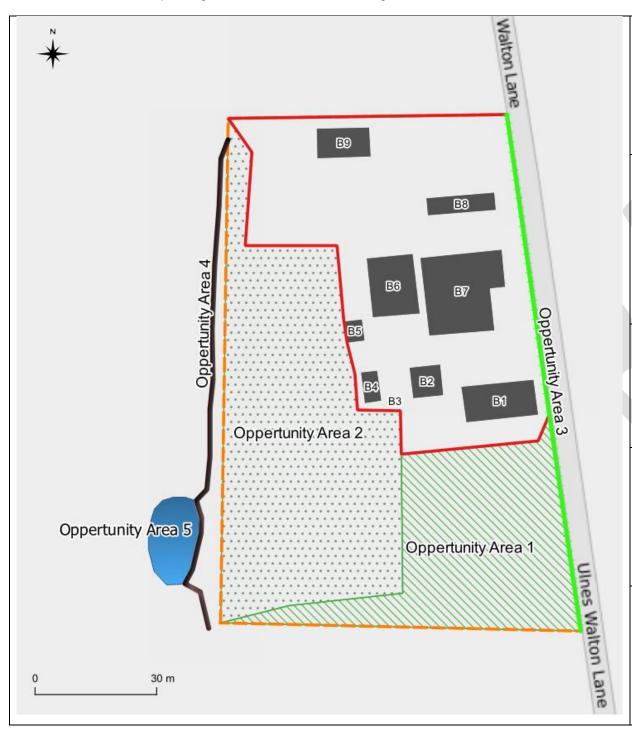
Condition 15 & Condition 16 - Landscaping Plan & Protective Measures / Biodiversity Enhancement Plan

Retained tree root protection areas (RPA)

Retained tree root protection areas (RPA) of retained features: The tree Root Protection Area (RPA) is a layout design tool indicating the area around a tree that, along with the tree stem and branches, must be considered during development. The protection of the roots and soil structure within the RPA should be treated as a priority. The RPA of each tree or group is marked on the Tree Constraints Plan at the rear of the AIA report (Godwins Arboricultural - Roecrofts Farm) along with recommendations for correct fencing to protect these areas, to which the scheme should adhere too. Tree protective fencing will be erected prior to the commencement of any works to protect retained features and remain in place until all construction work is complete.

Wildlife Opportunity Areas

Given the wider site ownership which includes areas of woodland, mixed scattered trees, treelines, a pond, and surrounding ditch system, there are multiple options for enhancement and management to achieve biodiversity net-gain goals in accordance with *Biodiversity Net Gain: Good practice principles for development'* (CIEEM et. al., 2019). Five ecological opportunity areas have therefore been identified (see Figure 3) along with a proposed scheme of habitat improving, which includes details for planting, maintenance, and monitoring.



Ecological Opportunity Area 1 - Mixed woodland

- Condition improvement management and maintenance plan
- > Brash piles from trees fell on site / deadwood habitat provision
- > Local invasive Rhododendron control
- Bat/bird boxes
- Optional monitoring

Ecological Opportunity Area 2 - Mixed scattered tree, apple/damson orchard and grassland meadow

- > Condition improvement management and maintenance plan
- > Translocated hedgerow along the development site western border beyond a new fence
- Mowing regime to create a diverse habitat structure
- Optional SUDS area in accordance with Conditions 19 & 20 swales, basins, rain garden
- Insect hotel
- Hedgehog home local priority sp.
- Optional monitoring

Ecological Opportunity Area 3 - Eastern boundary hedgerow - species rich

- Proposed removal / change to translocation along the western development edge
- > Retention of the more species rich areas
- Replaced with a single species Blackthorn hedgerow
- Optional monitoring

Ecological Opportunity Area 4 - Ditch along western boundary

- Condition improvement management and maintenance plan
- Rewet using SUDS on the wider site
- Manage the shade over the ditch
- Improve for species such as Water vole local priority sp.
- Optional monitoring

Ecological Opportunity Area 5 - Off-site Pond

- Condition improvement management and maintenance plan
- Rewet using SUDS on the wider site
- Manage the shade over the pond
- Improve for groups such as amphibians and invertebrates local priority sp.
- Optional monitoring

Figure 3 - Image above shows ecological opportunity areas at Roecrofts Farm, and outlines what typical management could be prescribed in a management & maintenance plan to improve these areas long term (10-20 years).

Biodiversity Enhancement

Figure 4 below shows where Biodiversity Enhancement is prescribed.

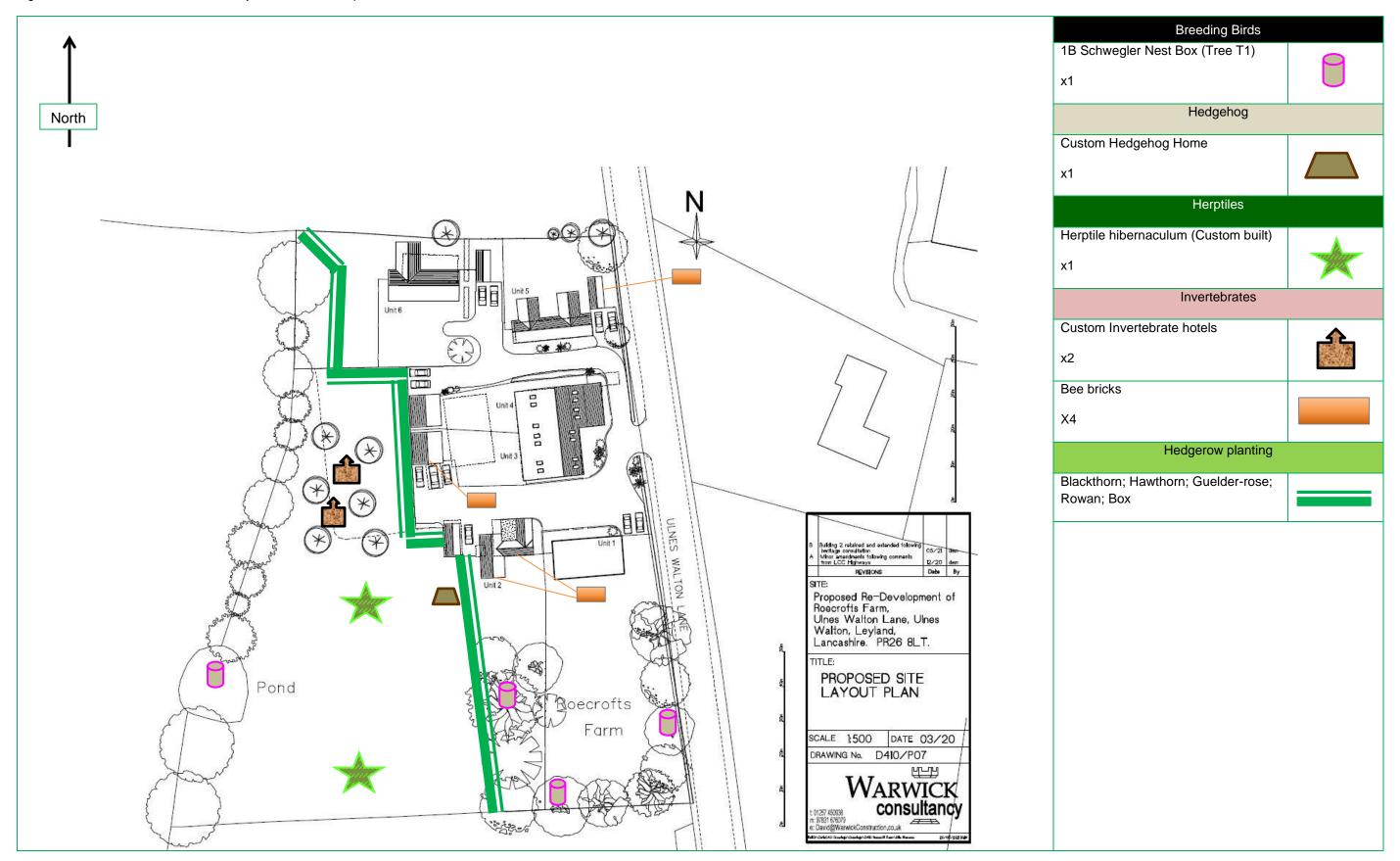


Figure 4 - Image above shows a visual key for biodiversity enhancement and where to place it on site. Table 4.1 overleaf should be studied in conjunction with the above Figure 4.

Product Type (other retailers are available)	Quantity	Description	Installation location
Herptile hibernaculum (Custom built) e.g. e.g.	x2	Specification To provide areas of refuge habitat likely used by amphibians and potentially reptiles given time, it is recommended one refuge/shelter for winter hibemation (a hibemaculum) is integrated into the design scheme, to be located in the south of the site in the buffer zone/proposed wildflower area on the banks of the Brook, safely buffered ways from the development. The hibernacula can be created using existing features on site (reclamation) or new materials brought to site (such as timber pallets, slates), and should be set up as to provide shelter with insulation properties within and thermal cover using materials such as tarpaulin or turf between layers and have discrete access points only for small animals. To sequentially construct a hibernaculum (Amphibian Habitat Management Handbook, Baker et. al. 2011): Remove the turf from the footprint of the hibernaculum and set aside, or locate a suitable bare area, On well-drained soil excavate to a depth of approximately 50 cm and set aside spoil (this is unnecessary on poorly drained soils). Fill the footprint or pivith core material as desired. Materials likely to retain moisture are preferable, such as cut timber, brash and grubbed up tree roots. Other material such as inert hardcore, bricks, rocks, slates, old pipes and building rubble may also be used. Materials that will decompose should not be placed beneath heavy components such as bricks or rocks, to reduce the risk of collages. Pack the larger spaces within the core materials with wood chippings, loose topsoil or spoil. Cover the hibemaculum with the turves removed from the footprint. Take care not to create structures that might attract rodents, such as piles of rubble with many entrance holes. There has been no rigorous investigation of the optimum size of hibernaculus, but larger hibemaculus are probably more useful than small constructions because they contain a variety of different microhabitats and are more likely to maintain stable conditions. Place within the buffer zone as spe	Herptile hibernaculum (Custom built) Mixed scattered tree, apple/damson orchard and grassland meadow See Figure 4 for visual aid
1B Schwegler Nest Box www.nhbs.com/1b-schwegler- nest-box	x4	Entrance hole sizes * 32mm entrance hole will attract Great, Blue, Marsh, Coal and Crested Tit, Redstart, Nuthatch, Collared and Pied Flycatcher, Wryneck, Tree and House Sparrow and, bats. * 26mm entrance hole suits Blue, Marsh, Coal and Crested Tit and possibly Wren. All other species are prevented from using the nest box due to the smaller entrance hole. * Oval entrance hole (29 x 55mm) suits Redstarts because more light enters the brood chamber. It is also suitable for all other species which nest in the 32mm boxes. These Woodcrete nest boxes are famous for their durability - lasting for at least 20-25 years. Woodcrete is a breathable blend of wood, concrete and clay which will not rot, leak, crack or warp, whilst preventing condensation and maintaining more constant temperatures inside than wooden boxes. Schwegler bird boxes are backed by conservation organisations, government agencies and forestry experts and experiments have shown that the highest density if bird populations (i.e. breeding pairs per hectare) is achieved with Schwegler nest boxes. They are carefully designed to provide a stable environment and to mimic natural nest and roost sites with internal brood chamber dimensions that are similar to natural woodpecker cavities. Schwegler have a patented method of installation on trees that prevents the tree trunk from growing over the hanger from which the box is suspended. A separate replacement front panel is also available. 23cm high x 16cm diameter. Aluminium tree-friendly nail and hanger included.	Maturing trees. See Figure 4 for visual aid

Product Type (other retailers are available)	Quantity		Description	Installation location
Hedgehog Home www.riversidewoodcraft.co.uk/h	x1	General		Mixed scattered tree, apple/damson
edgehog-house-riverside-gold- plus-free-food		Designed for	Hedgehogs	orchard and grassland meadow
5143-11-EE-10-04		Height	200mm	See Figure 4 for
		Hole Size	115mm x 115mm increasing to 125 x 170mm with entrance cover removed	visual aid
		Length	525mm	
		Roof Type	Recycled Eco roof	
		Width	385mm, 510mm with tunnel	
Custom Invertebrate hotels i.g www.amazon.co.uk/Large- Vooden-Insect-Hotel-House/	x2	Specification Appearance:		Mixed scattered tree, apple/damsor orchard and grassland meadow
		and sturdy enough to last for years This bug hotel is made from untre- different nesting material. There are pine cones for ladybirds, Placement: Size against a wall and	the best one around because it includes a habitat for a variety of insects. It's large enough to create a focal point in a wildlife garden atted wood, which is important as insects need natural materials to thrive, and it's split into seven sections that each contain a wood slits for butterflies and moths, bamboo canes for solitary bees, and loose pieces of wood for beetles.	See Figure 4 for visual aid
		even frogs that enjoy cool stone co	ne damp ground. You could push bricks against them to keep the bug hotel upright, which would also encourage woodlice and inditions. Inatively, bug hotels can be created easily using raw materials on site, or items brought to site.	

Product Type (other retailers are available)	Quantity	Description	Installation location
Bee bricks www.nhbs.com/bee-brick	x3	Bee bricks The Bee Brick can be used in place of a standard brick or block in construction to create habitat for solitary bees. Alternatively, it can be used as a standalone bee house in your garden or wild patch. It will provide much needed nesting space for solitary bee species such as red mason bees and leafcutter bees, both of which are non-aggressive. Each Bee Brick contains cavities in which solitary bees can lay their eggs before sealing the entrance with mud and chewed-up vegetation. The offspring will emerge the following spring and the cycle will begin again. Each cavity goes part way into the brick, which is solid at the back. Bee Bricks should be placed in a warm sunny spot on a south-facing wall at a minimum height of 1m, with no vegetation obstructing the holes. It is highly recommended that bee-friendly plants should be located nearby so that the bees using the bricks have food, otherwise it is unlikely that the brick will be used. Available in a choice of four colours: white grey, dark grey, yellow and red. Specification: * Material: Concrete, * Origin: Cornwall, UK, * Dimensions: W 215mm x D 105mm x H 65mm, * Weight: 2.9kg, * Colours: White grey, yellow, dark grey and red	Newly created buildings See Figure 4 for visual aid

Both planning conditions can be discharged in-sync. See also - Appendix II, Proposed Site Landscape Plan for visual aid.

Decision needs to be made about what Opportunity Area(s) to target for management plan, who will do it, etc.

Condition 19 / 20 - Sustainable urban drainage system (SUDS)

- No development shall commence until a surface water drainage scheme has been submitted to and approved in writing by the Local Planning Authority. The drainage scheme must include:
 - (i) An investigation of the hierarchy of drainage options in the National Planning Practice Guidance (or any subsequent amendment thereof). This investigation shall include evidence of an assessment of ground conditions and the potential for infiltration of surface water;
 - (ii) A restricted rate of discharge of surface water agreed with the Local Planning Authority (if it is agreed that infiltration is discounted by the investigations); and
 - (iii) A timetable for its implementation.

The approved scheme shall also be in accordance with the Non-Statutory Technical Standards for Sustainable Drainage Systems (March 2015) or any subsequent replacement national standards. The development hereby permitted shall be carried out only in accordance with the approved drainage scheme.

Reason: To promote sustainable development, secure proper drainage and to manage the risk of flooding and pollution.

Foul and surface water shall be drained on separate systems.

Reason: To secure proper drainage and to manage the risk of flooding and pollution.

To discharge the above a Drainage specialist is required, however, a SUDS provides a fantastic opportunity for creating habitats and biodiversity opportunities at the site.

Typical SuDS we could apply at Roecrofts Farm

Water butts - to collect natural rainwater and redistribute on site (watering, increased hydrology, flood control, etc), **Permeable paving** - allows water to seep through and re-direct to target areas of the site,

Green roof - range of benefits, reduction of run-off, cooling benefits, insect / floral environment

Swales - shallow open channels, further slowing the flow of water and continuing the water treatment process

Filter strips - Plugging of semi-aquatic flowers, to filter, leach and suck up rainwater,

Detention and wetland basins - Sculpted depressions in open spaces help to slow down the runoff rate and store water on a temporary short-term basis during extreme events

Retention pond - end point for water, or temporary holding area with features connecting to other ponds

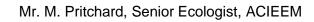
Benefits of SUDS on a development

- Practical, innovative and cost effective drainage techniques;
- Green approach looked upon favourably;
- Substantial improvement in the biodiversity, ecology and subsequent quality of life for people & wildlife;
- Results in a visually enhanced, low maintenance and attractive landscape;
- Use of SuDS results in an improved quality of water leaving the site compared with traditional piped drainage systems.
- SuDS provides on average 10-20% savings on construction costs compared to a traditional scheme.

Decision needs to be made about whether you want us to help provide ecological input on SUDS.

For further information, or to discuss, contact Tyrer Ecological Consultants Ltd on 01704 875781.

Kind regards,



mark@tyrer-ecologicalconsultants.co.uk

