

**APPENDIX P8 – ECOLOGICAL ASSESSMENTS OF SELECTED
SITES**

Lowans Ecology & Associates

Louise Lowans BSc. (Hons), MCIEEM

**Preliminary biodiversity survey/assessment for outline planning for
Westbourne, Fosters Hill, Holwell, Dorset DT9 5LQ**

Louise Lowans

31/01/2017

Correspondence Address:
Suite 3, 7 The Square
Wimborne, Dorset BH21 1JA
Tel: 01202 920425
Mob: 07983 664173
Email: lowansecology@gmail.com

Preliminary biodiversity survey/assessment for outline planning for Westbourne, Fosters Hill, Holwell, Dorset DT9 5LQ

Lowans Ecology and Associates

This consultancy was established in April 2010. The principal ecologist is Louise Lowans BSc. (Hons), MCIEEM, who qualified as an ecologist in 1994. She has a wide experience of ecology with particular experience in protected species surveys. She has Natural England licences for bats, dormice and barn owls.

Before setting up Lowans Ecology and Associates she worked with Kevin Cook of Fieldwork Ecological Services, they will continue to work together on future projects. Prior to working with FES she worked at a national consultancy and as a volunteer for Dorset Wildlife Trust. She has also worked for the Institute of Freshwater Ecology, a local authority and an international NGO.

This report has been designed for quick processing by statutory bodies in support of Planning Applications. Surveys and assessments are conducted by Lowans Ecology and Associates to standards set by Natural England and other authorities and at a scale appropriate to the development, wildlife and habitats involved.

1 Executive summary

Survey date: 28/01/2017
Grid reference: ST 70479 10726

Survey result: Positive

Species: Long-eared *Plecotus sp.* bats (to be confirmed by DNA analysis)

Evidence: Bat droppings within loft

Type of roost: Small maternity roost, to be confirmed.

Priority: HIGH

Mitigation: Emergence surveys will be required between 1st May and 30th September. A European Protected Species Licence will be required before the existing house is demolished. The house will be demolished between 1st October and 30th April and a permanent roost suitable for long-eared bats will be incorporated into the loft of unit 1. Refer to section 9 for mitigation

Species: Badger *Meles meles*

Evidence: Commuting paths and snuffle holes

Priority: MEDIUM

Mitigation: Continued access throughout the site. Refer to section 9 for mitigation

Species: Nesting birds

Evidence: Boundary hedges, shrubs and trees

Priority: HIGH

Mitigation: Any work to hedges, shrubs and trees will be carried out between 1st September and 28th February so as to avoid the bird nesting season. Refer to section 9 for mitigation

Species: Amphibians

Evidence: Pond

Priority: HIGH

Mitigation: Pond water will be eDNA tested for presence of great crested newts. Pond will be netted to establish presence of amphibians. If found to be present replacement pond will be incorporated into proposed site. Refer to section 9 for mitigation

Species: Reptiles

Evidence: Boundary hedges, shrubs and trees

Priority: HIGH

Mitigation: Refer to section 9 for mitigation

Surveyor: Louise Lowans (NE Bat Licence 2015-16733-CLS-CLS.
Dormouse 2016-21322-CLS-CLS. Barn Owl CL29/00005)

2 Survey background

A biodiversity assessment was commissioned in advance of the proposed outline planning application. The survey was conducted to assess any impacts the proposed development may have on biodiversity and protected species.

Local Planning Authorities are required to take into account nature conservation issues when making planning decisions, by aiming to conserve and enhance biodiversity (National Policy Planning Framework 2012 (NPPF) and by having regard to conserving biodiversity, which includes restoring and enhancing a population or habitat under the Natural Environment & Communities Act 2006 (NERC 2006).

The remit of the ecologist is to recommend a course of action that; protects the interest of the European Protected Species (e.g. bats, otters, etc.) as defined within The Conservation of Habitats & Species Regulations 2010 and other protected species protected under the Wildlife & Countryside Act 1981 (as amended) (e.g. bats, nesting birds, slow worms, etc.) and The Protection of Badgers Act 1992, protects the owners and their agents from committing an offence under these pieces of legislation and is the best course of action for primarily the welfare of the protected species, but with some regard to the implementation of the owners' project.

3 Building description

Westbourne is a detached 1930's house and detached garage set in a large garden with mature trees, including three apple trees, a cherry tree, shrubs and a pond. The site measures 0.4 hectares. All of the boundaries are lined with mature hedges. The north boundary lies adjacent to Fosters Hill. The east and south boundaries lie adjacent to neighbouring properties and the west boundary lies adjacent agricultural land. The site is situated in Holwell, OS Grid Reference ST 70479 10726. Appendix A - Figures 1 to 8. Appendix B - Plan 1.

House

The house is constructed of brick and is covered with render. It has a cross pitched asbestos tiled roof, lined with bitumen underfelt. The loft runs the length of the house, it is approximately 2 metres high, 4 metres wide and 6 metres long. It is insulated but not boarded out. There are three chimneys. Attached to the east elevation is a two storey flat roofed section, a sun room and a mono pitched single storey section. Attached to the south elevation is a flat roofed section. The window and door frames are UPVC. The soffits and barge boards are wooden.

Garage

The garage is constructed of brick and has a low pitched corrugated iron roof.

It is proposed to demolish the house and garage and build three four bedroom houses and garages. Appendix B - Plans 2 and 3.

4 Methodology - Desk study and field survey

This report includes surveys for the wildlife detailed below:

Survey Scope: Protected sites, bats, nesting birds, badger, reptiles and amphibians

4.1 Protected and other notable sites

The location was checked for habitats protected under the WCA, and other habitats that could be County Wildlife sites or Biodiversity Action Plan habitats.

4.2 Data search

A data search for all protected species records, within a 2km radius of the site was requested from Dorset Environmental Records Centre.

4.3 Weather conditions

The weather conditions were recorded.

4.4 Limitations of survey

Limitations that may affect the overall survey result were recorded.

4.5. Bats

4.5.1 Daytime survey

A building survey was conducted, on 28/01/2017, it investigated the status of bats by assessing the buildings' suitability for bat roosts and places of rest for bats.

This was achieved by:

Checking external walls, soffits, roof coverings, internal spaces, lofts, beams, ledges, window sills, floors, holes and cavities etc. that display use by bats - regular use is demonstrated by staining, droppings and worn surfaces.

4.6 Nesting birds

The buildings and site were surveyed for signs of nests of swallows, house sparrows and other birds as building works should not conflict with bird breeding seasons.

4.7 Badger

The site was searched for the following signs of badger *Meles meles*: tracks, hair on fences, feeding holes, latrines, scratching posts and setts.

4.8 Reptiles

The site was assessed for its potential to support fully protected reptiles and common reptiles, positive features being open undisturbed habitats, sandy banks, tall sward grassland and permanent scrubby areas.

4.9 Amphibians

The site was assessed for ponds and ditches that could be used by amphibians.

5 Assessment and Survey results

5.1 Protected sites within 2000 metres of the site

The site falls within Impact Risk Zones for Blackmore Vale Commons and Moors SSSI, Holnest SSSI, Rookmoor SAC and Holnest SAC. The LPA should consult Natural England on the likely risks to the protected sites. The following protected and notable sites, lie within 2000 metres of the site. Deciduous woodland BAP Priority Habitat and traditional orchard BAP Priority Habitat.

5.2 Data search

Dorset Environmental Records Centre hold records for the following protected species within a 2km radius of the site.

Bats

There are no records of bat within the site. Records are held for five brown long-eared *Plecotus auritus* bat roosts and five serotine *Eptesicus serotinus* roosts recorded between 1990 and 2013. Records are also held for lesser horseshoe *Rhinolophus hipposideros*, natterer's *Myotis nattereri*, noctule *Nyctalus noctula*, common pipistrelle *Pipistrellus pipistrellus*, Soprano pipistrelle *Pipistrellus pygmaeus* and Nathusius's pipistrelle *Pipistrellus nathusii* recorded in 2013 the records do not specify the type of roosts.

Badger

There are no records of badger within the site. Within a 2km radius of the site there are 8 records of badger recorded between 2005 and 2015.

Amphibians

There are no records of amphibians within the site. Within a 2km radius of the site, there are 3 records of male great crested newts recorded in 2013.

Records are also held for European otter *Lutra lutra*, brown hare, *Lepus europaeus*, common (Mealy) redpoll *Acanthis flammea*, white-letter hairstreak *Satyrrium w-album*, brown hairstreak *Thecla betulae*, bluebell *Hyacinthoides non-scripta*, devil's-bit scabious *Succisa pratensis*, pignut *Conopodium majus*, sanicle *Sanicula europaea*, strawberry clover *Trifolium fragiferum* and ragged robin *Lychnis flos-cuculi*.

5.3 Weather conditions,

28/01/2017

The weather conditions were dry with 70% cloud cover. There was no wind and the air temperature was approximately 7°C.

5.4 Limitations of survey

There were no limitations to the survey

5.5 Bats

5.5.1 Daytime survey,

28/01/2017

House

Approximately 40 long-eared bat droppings were found below the main ridge beam. The droppings looked to be recent, the number of bat droppings would suggest that this is a small maternity roost. There were no cobwebs on the ridge beam. No live or dead bats or other types of bat droppings were found within the loft space. The bat droppings have been sent to Warwick University for DNA analysis, upon receipt of the results the report will be updated.

Externally, there are gaps between the roof tiles and chimneys. At least two evening emergence survey will be carried out between 1st May and 30th September to ascertain the type of roost, number of bats that are present and the entry/exit points. Refer to sections 8 and 9 for recommendations.

Garage

The garage was found to have a NEGLIGIBLE potential for use by bats. No signs of bats (droppings, staining, feeding remains and live or dead bats) were found.

5.6 Nesting birds

No signs of nesting birds were found on the buildings. All of the hedges, trees and shrubs have a HIGH potential to be used by nesting birds. Mitigation will be required, refer to sections 8 and 9.

5.7 Badger

There are several snuffle holes and paths that are likely to be from badger. No badger setts or latrines were found within the site. Mitigation will be required, refer to sections 8 and 9.

5.8 Reptiles

The hedges in the site have the potential to be used by hibernating reptiles. The lawn within the site has a low potential to be used by reptiles as it is mown. Mitigation will be required, refer to sections 8 and 9.

5.9 Amphibians

There is a concrete lined pond, it is approximately 4 metres long, 2 metres wide and 1 metre deep. It contains water lily, yellow iris and *Potamogeton sp.* It has a high potential for use by amphibians. Great crested newts are known to be within the local area, DNA testing of the water will therefore be required. Mitigation will be required, refer to sections 8 and 9.

6 Summary of ecological survey

- The site falls within Impact Risk Zones for Blackmore Vale Commons and Moors SSSI, Holnest SSSI, Rooksmoor SAC and Holnest SAC. Deciduous woodland BAP Priority Habitat and traditional orchard BAP Priority Habitat lie within 2000 metres of the site.
- Dorset Environmental Records Centre hold no records of protected species within the site.
- Approximately 40 long-eared bat droppings were found within loft, this is likely to be a small maternity roost. At least two evening emergence survey will be carried out between 1st May and 30th September to ascertain the type of roost, number of bats that are present and the entry/exit points.
- The hedges, trees and shrubs will be used by nesting birds. Mitigation will be required.
- Badgers are commuting through and feeding within the site. Mitigation will be required.
- The boundary hedges have the potential to be used by hibernating reptiles. Mitigation will be required.
- The pond has a HIGH potential to be used by amphibians, including great crested newts. Mitigation will be required.

7 The law and the way forward

7.1 Bats

Bats and their places of rest are fully protected under UK and European Law. Within the Conservation of Species and Habitat Regulations 2010 it is stated that it is illegal to intentionally damage, destroy or obstruct access to any place that a bat uses for shelter, including during the process of a development, unless a Natural England European Protected Species Licence (EPSL) has been granted.

Advice from Natural England is that a licence **is** needed if the consultant ecologist, on the basis of survey information and specialist knowledge of the species concerned, considers that on balance the proposed activity is **reasonably likely** to result in an offence under Regulation 41; or

If the consultant ecologist, on the basis of survey information and specialist knowledge of the species concerned, considers that on balance the proposed activity is **reasonably unlikely** to result in an offence under Regulation 41 then no licence is required. However, in these circumstances Natural England would urge that reasonable precautions be taken to minimise the effect on European protected species should they be found during the course of the activity. If they are found then work should cease and an application be made to Natural England.

Regulation 41 states that

- (1) A person commits an offence if he—
- (a) deliberately captures, injures or kills any wild animal of a European protected species,
 - (b) deliberately disturbs wild animals of any such species,
 - (c) deliberately takes or destroys the eggs of such an animal, or
 - (d) damages or destroys a breeding site or resting place of such an animal,

For the purposes of paragraph (1)(b), disturbance of animals includes in particular any disturbance which is likely—

- (a) to impair their ability—
 - (i) to survive, to breed or reproduce, or to rear or nurture their young, or
 - (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate;
- or
- (b) to affect significantly the local distribution or abundance of the species to

which they belong.

- (2) It is an offence for any person—
- (a) to be in possession of, or to control,
 - (b) to transport,
 - (c) to sell or exchange, or
 - (d) to offer for sale or exchange,

7.2 Nesting birds

All birds, their nest and eggs are protected by the Wildlife and Countryside Act 1981, which makes it an offence to intentionally kill, injure or take any wild bird. It is an offence to intentionally take, damage or destroy the eggs, young or nest whilst it is being built or in use or prevent parent birds access to their nests.

7.3 Badgers

Badgers are protected under the Protection of Badgers Act 1992. It is illegal to willfully kill, injure, take, possess or cruelly ill-treat a badger, or attempt to do so; to intentionally or recklessly interfere with a badger sett by damaging or destroying it; to obstruct access, or any entrance of, a badger sett and to disturb a badger when it is occupying a sett.

A badger sett is defined as 'any structure or place, which displays signs indicating current use, by a badger.' This can include culverts, pipes and holes under sheds, piles of boulders, old mines and quarries, etc. 'Current use' does not simply mean 'current occupation' and for licensing purposes it is defined as 'any sett within an occupied badger territory regardless of when it may have last been used'.

7.4 Reptiles

All six terrestrial reptile species native to Britain, (adder, grass snake, smooth snake, common lizard, sand lizard and slow worm) are protected under UK law, with the sand lizard and smooth snake afforded additional protection under European Law.

7.5 Amphibians

Great Crested Newt *Triturus cristatus* and Natterjack Toad *Bufo calamita*

The Great Crested Newt and Natterjack Toad and their respective habitats are fully protected under Schedule 5 (Section 9) of the Wildlife and Countryside Act 1981 (as amended) and under the Conservation of Habitats and Species Regulations 2010. It is illegal to kill, injure, capture, handle or disturb them, and the places they use for breeding, resting, shelter and protection are protected from being damaged or destroyed. They are both UK Biodiversity Action Plan priority species. Great crested newts are also protected by the Protection of Animals Act 1911 and under the Abandonment of Animals Act 1960.

Common amphibians

The more common British amphibians, i.e. common frog *Rana temporaria*, common toad *Bufo bufo*, smooth newt *Lissotriton vulgaris* and palmate newt *Lissotriton helveticus* are protected only by Section 9(5) of the Wildlife and Countryside Act 1981. This section prohibits sale, barter, exchange, transporting for sale and advertising to sell or to buy.

Common toad is now a UK Biodiversity Action Plan Priority Species and Species of Principle Importance in England (Section 41 of the Natural Environmental and Rural Communities Act 2006 (NERC)).

8 Consultant's decision to proceed

On the basis of the survey the consultant has to recommend a course of action that:

- Protects the interest of the bats as defined within the Habitats Regulations.
- Protects the building owners and their agents from committing an offence under the Habitat Regulations.
- Is the best course of action for primarily the welfare of the bats but with some regard to the implementation of the owners' project.

8.1 Bats

As the proposed work to the house will destroy a bat roost this would result in an offence under Regulation 41. Therefore this project WILL require a European Protected Species Licence before works can proceed. The method statement in section 9.1 will be conditioned as part of the planning application and will be adhered to.

European Protected Species Licence

Planning authorities are required to take account of nature conservation issues in their decision making. Guidance on the consideration that local planning authorities should give to nature conservation interest is contained in Planning Policy Statement 9 circular 06/05; Biodiversity and Geological Conservation - Statutory obligations and their impact within the planning system; and Defra Circular 02/2002. Planning authorities have a statutory duty under regulation 9(5) to have regard to the requirements of the Habitats Directive in the exercise of their functions. Planning authorities should give due weight to the presence of a European Protected Species on a site to reflect these requirements, in reaching planning decisions and this may justify a refusal of planning permission. Alternatively, the planning authority may attach conditions or reserved matters to their consent, which must be resolved before work can go ahead.

The planning and licensing (Natural England) systems make independent judgements of whether a proposal meets their separate requirements. They require that the following three 'tests' are met in order that planning permission can be granted and licence issued.

Test 1 Regulation 53 (2) (e) states that 'licences may be granted to 'preserve public health or public safety or other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences or primary importance for the environment'.

Test 2 Regulation 53 (9) (a) states that a licence may not be granted unless the licensing authority is satisfied 'that there is no reasonable alternative'.

Test 3 Regulation 53 (9) (b) states that a licence cannot be issued unless the licensing authority is satisfied that the action proposed 'will not be detrimental to the maintenance of the species concerned at a favourable conservation status in its natural range'.

With regards to this site, all three of the tests are met.

Test 1 - The Licence will be applied for on the grounds of 'imperative reasons of overriding public interest' The house is structural unsound.

Test 2 - The house is structural unsound. It is not financially viable to repair it. It will therefore be replaced with three dwellings.

Test 3 - The proposed work will be carried out at a time of year when the impact of disturbance will be LOW. Permanent bat provision, suitable for brown long-eared bats will be provided within unit 3.

8.2 Nesting birds

The method statement in section 9.2 will be conditioned as part of the planning application and will be adhered to.

8.3 Badgers

The risk based mitigation method statement in section 9.3 will be conditioned as part of the planning application and will be adhered to.

8.4 Reptiles

The risk based mitigation method statement in section 9.4 will be conditioned as part of the planning application and will be adhered to.

8.5 Amphibians

As the pond will be removed, a new pond will be created within the site. The risk based mitigation method statement in section 9.5 will be conditioned as part of the planning application and will be adhered to.

9 Mitigation

9.1 Bats

1. At least two emergence survey will be carried out between 1st May and 30th September to ascertain ascertain the type of roost, number of bats that are present and the entry/exit points. This information will be required for the European Protected Species Licence. The Dorset Biodiversity Mitigation Plan will be updated and a full report written upon completion of the surveys.
2. As bats are present no work will be carried to the buildings, until a European Protected Species Licence has been issued by Natural England. The European Protected Species Licence is applied for after full Planning Permission is granted. The licence will take at least 30 working days to process once it has been submitted to Natural England. The licence is applied for by the owner of the site but the bat consultant prepares the application.
3. The buildings will be demolished between 1st October and 30th April, after the licence is granted.
4. A permanent roost suitable for long-eared bats will be constructed prior to the demolition of the house. The roost will be a minimum of 4 metres long, 5 metres wide and 2 metres in height. The dedicated roost space will be constructed of uncut trusses and have a pitched tiled roof, lined with bitumen underfelt. The ridge board must be rough, untreated and exposed to allow long-eared bats to hang there. Bat access into the dedicated roost will be via raised ridge tiles and access slates. The dedicated roost will be seeded with bat droppings from the original roost. The precise details of the roost will be determined upon completion of the evening emergence surveys. The updated reports will be sent to the Natural Environment Team for approval. Appendix B - Plan 4.
5. Raised ridge tiles:- Two raised ridge tile access points will be incorporated into the roof. The gaps will be 15mm to 20mm wide and 50mm to 70mm long. The access holes will be established in the felt to allow bats free access into and out of the loft, the holes must be adjacent to a rafter – to allow bats to climb back out. Appendix B - Plans 4 and 5.
6. Access slates: The access slates will be 150mm wide and 50mm to 80mm high. The slates will be on each elevation of the roof. The access holes will need to be adjacent to a rafter to allow bats to climb back out. Appendix B - Plans 4 and 6.
7. The dedicated roost will not be used for storage and will be kept dark. It will be accessed via a loft hatch that will be kept locked. Within the dedicated roost, the roof slope will not be insulated so as to allow the sun to heat the roost. The floor will be insulated and boarded to allow access and cleaning.
8. No rooflights or unscreened downlighters will be permitted in the roost area, which will be kept dark.
9. To provide a wider variety of roosting locations and varying temperature pockets two sets of baffles and sandwich boards will be created within the roost. Appendix B - Plan 7.
10. Baffles: The baffles will also be installed below the ridge beam. The baffles will be constructed with rough untreated wood. The baffles will be attached to either side of the rafter. Appendix B - Plan 7.
11. Sandwich boards: Each sandwich board will be constructed of rough untreated timber. It will be 400mm by 600mm with a 30mm gap between the timbers. The top and sides will be enclosed. Appendix B - Plan 7.
12. The consultant, a qualified bat worker, will be on site, on the day the proposed work is to start, to check the loft space for the presence of bats. The loft will be thoroughly search, paying particular attention to all crevices. An endoscope will be used to check the crevices. If bats are present they will be moved by the bat ecologist, using gloves the ecologist will place the bat in a cloth bag, it will be released into the permanent roost.
13. The bat ecologist will oversee the removal of the roof tiles, lead flashing, soffits and barge boards. They will be removed by hand, in the presence of the bat ecologist, in case bats are found to be present. If found they will be moved to the permanent roost as described above.
14. All contractors will be given a tool box talk on bats and procedures to follow should bats be found at any stage of the developments.

15. If bats are found when the trained bat ecologist is not on site, then work must stop (by Law) and the consultant ecologist informed 07983 664173.
16. If an injured or underweight bat is found the Bat Conservation Trust will be contacted on 0845 1300 228 for details of the nearest bat care worker.
17. No security lighting will be placed above or below the bat roost.
18. Monitoring of dedicated roost - Upon completion of the works, two annual surveys will be conducted between 1st May and 30th September to check the number of bats using the dedicated roost. The Licensed bat ecologist will carry out a daytime visit to check for the presence of bat droppings and live bats in the roosts and if thought necessary an evening emergence survey will be conducted to determine numbers and species found in the roost (as recommended by Natural England - Bat Mitigation Guidelines 2004).
19. The consultant will sign off planning conditions when the redevelopment work is complete.

9.2 Nesting birds

1. Any work to the trees/hedges/shrubs will be carried out between 1st September and 28th February so as to avoid the bird nesting season

9.3 Badgers

1. Badgers will have continued access through the site. A badger gate will be inserted into fences, in the same position as the current paths. If this is not done it is highly likely that the badgers will dig under the proposed fences, as badgers are extremely faithful to their commuting paths. Appendix B - Plan 8. Please note if fencing is not being erected e.g. hedging is being used to separate the new plots, the badger gates will not be required.
2. When the foundations are dug. A plank will be propped out of the foundation holes so that if a badger falls into the hole it can climb back out.

9.4 Reptiles

1. Grass on site will be maintained as short sward (2 cm) prior to and during the works.
2. If the hedges are to be removed, they will be removed between September and October before reptiles go into hibernation.
3. If any reptiles are found during the proposed development work. Work in the local vicinity will stop and Lowans Ecology and Associates (07983 664173) contacted immediately for advice.

9.5 Amphibians

1. The pond water will be tested for the presence of great crested newts. It is now possible to take water samples and send them for eDNA testing instead of having to carry out evening surveys of the pond. Natural England will accept eDNA samples taken between the 15 April and 30 June, provided that animals are active and moving in the areas the samples are taken. If great crested newts are found to be present a European Protected Species Licence maybe required prior to the removal of the pond.
2. The pond will also be checked for the presence of common amphibians.
3. A new wildlife pond will be created within the site, it will be 2m wide, 4m long and 1m deep. It will be created before the existing pond is removed.
4. The existing pond will drained between 1 September and 30th November when amphibians should have left.
5. If amphibians are found during the proposed development work. Work in the local vicinity will stop and Lowans Ecology and Associates (07983 664173) contacted immediately for advice.
6. The proposed pond will have shallow and deeper areas. Appendix B - Plan 9.
7. The pond will be level.
8. Remove sharp stones from the area that has been dug.
9. Line the area of the pond with underlay.

10. Line the pond with a liner e.g. a butyl or EPDM liner.
11. To calculate the amount of pond liner required, use this equation: (Length + 2 depths + 30 cm) by (width + 2 depths + 30 cm) Example: for a pond with the final dimensions of 10 m long, 5 m wide and 0.5 m deep: $(10 + (2 \times 0.5) + 0.3)$ by $(5 + (2 \times 0.5) + 0.3)$ = liner dimensions required are 11.30 m by 6.30 m. This will overestimate the amount of liner needed, but the excess will be useful for anchoring the liner around the edge of the pond, whilst still allowing for a small margin of error.
12. Trim back any excess liner. Secure the edges of the underlay and liner with turves that have been dug out. Make sure the topsoil can't get washed back into the pond, place them carefully, not sloping into the water.
13. Fill the pond with clean water. (Ideally let it fill with rain water or water collected in waterbutts).
14. Ensure no mud gets into the pond.
15. Put a thin layer of children's play sand on the bottom of the pond or washed gravel to give the plants somewhere to root. (Do not use builders sand).
16. Planting - refer to the list of plants below, plant a maximum of 10 plants, choose one or two plants from each category. Initially the pond will look sparse but the plants will establish themselves over time and other plants will come into the pond naturally (e.g. wind/bird dispersal).

Planting:

Plants next to the pond

Devil's-bit scabious *Succisa pratensis*
 Hemp agrimony *Eupatorium cannabinum*
 Teasel *Dipsacus fullonum*
 Purple loosestrife *Lythrum salicaria*
 Red valerian *Centranthus ruber*
 Yarrow *Achillea millefolium*

Low growing wetland grasses (Plant in dry ground or up to 2cm of water)

Creeping bent *Agrostis stolonifera* (often present as lawn grass)

Marginal herbs and rushes that grow into the water (Plant in 2cm to 10cm depth of water)

Lesser spearwort *Ranunculus flammula*
 Marsh pennywort *Hydrocotyle vulgaris*
 Water Forget-me-not *Myosotis scorpioides*
 Water Mint *Mentha aquatica*
 Watercress *Rorippa nasturtium-aquaticum*

Marginal plants with attractive flowers and architecture (Plant in 2cm to 10cm depth of water, damp banks and in marsh areas).

Marsh cinquefoil *Potentilla palustris*
 Marsh woundwort *Stachys palustris*
 Marsh-marigold *Caltha palustris*
 Pendulous sedge *Carex pendula*
 Purple loosestrife *Lythrum salicaria*
 Ragged-robin *Lychnis flos-cuculi*
 Water Dock *Rumex hydrolapathum*
 Yellow iris *Iris pseudacorus*

Floating-leaved plants (Plant in 15cm to 30cm depth of water) **Choose one or water lilies**

Amphibious Bistort *Persicaria amphibia*
 Broad-leaved pondweed *Potamogeton natans*
 Fringed water-lily *Nymphoides peltata*
 White Water-lily *Nymphaea alba*
 Yellow Water-lily *Nuphar lutea*

Submerged plants (Float in deep water)

Common water-starwort *Callitriche stagnalis*
 Curled pondweed *Potamogeton crispus*
 Rigid hornwort *Ceratophyllum demersum*
 Spiked water-milfoil *Myriophyllum spicatum*
 Water-crowfoot *Ranunculus aquatilis*

9.6 Planting

1. Any planting will be native. To enhance the biodiversity of the site, the landscape/planting scheme will include plants and trees that can be used by bees and other pollinators throughout the year.
2. At least two fruit trees will be planted within the site.

10 References

- Dietz, C., Helversen (von) O. and Nill, D. Bats of Britain, Europe and Northwest Africa, English Edition, A & C Black Publishers Ltd., 2009.
- Hundt L, et al. Bat surveys. Good practice guidelines. Bat Conservation Trust. 2012.
- Mitchell-Jones, A.J. Bat mitigation guidelines. English Nature. 2004.
- Mitchell-Jones, A.J. and McLeish, A.P. The bat workers manual, 3rd Edition, JNCC. 2004.
- National Bat Monitoring Programme Annual Report 2015, BCT/JNCC, 2015.
- Razgour O., Whitby D., Dahlberg E., Barlow K., Hanmer J., Haysom K., McFarlane H., Wicks L., Williams C., Jones G. (2013). Conserving grey long-eared bats (*Plecotus austriacus*) in our landscape: a conservation management plan. Available to download from the Bat Conservation Trust <http://www.bats.org.uk>
- Schofield, H. W. and Mitchell-Jones, A.J. The bats of Britain and Ireland. 2nd Edition. Vincent Wildlife Trust. 2003.
- Stebbing, R.E., Yalden, D.W. and Herman, J.S. Which bat is it? 3rd Edition. Mammal Society. 2007.
- Swift, S. M. Long-eared bats. Poyser Natural History. 1998.

Appendix A - Figures

Figure 1 - Part of north and west elevations



Figure 2 - Part of north and west elevations



Figure 3 - East elevation



Figure 3 - South elevation



Figure 5 - Part of south and west elevations of house



Figure 6 - East and north elevation of garage



Figure 7 - Garden looking east



Figure 8 - Pond



Figure 9 - Long-eared droppings below ridge



Figure 10 - No cobwebs at ridge



Figure 11 - Likely access around chimneys



Figure 12 - Badger commuting path

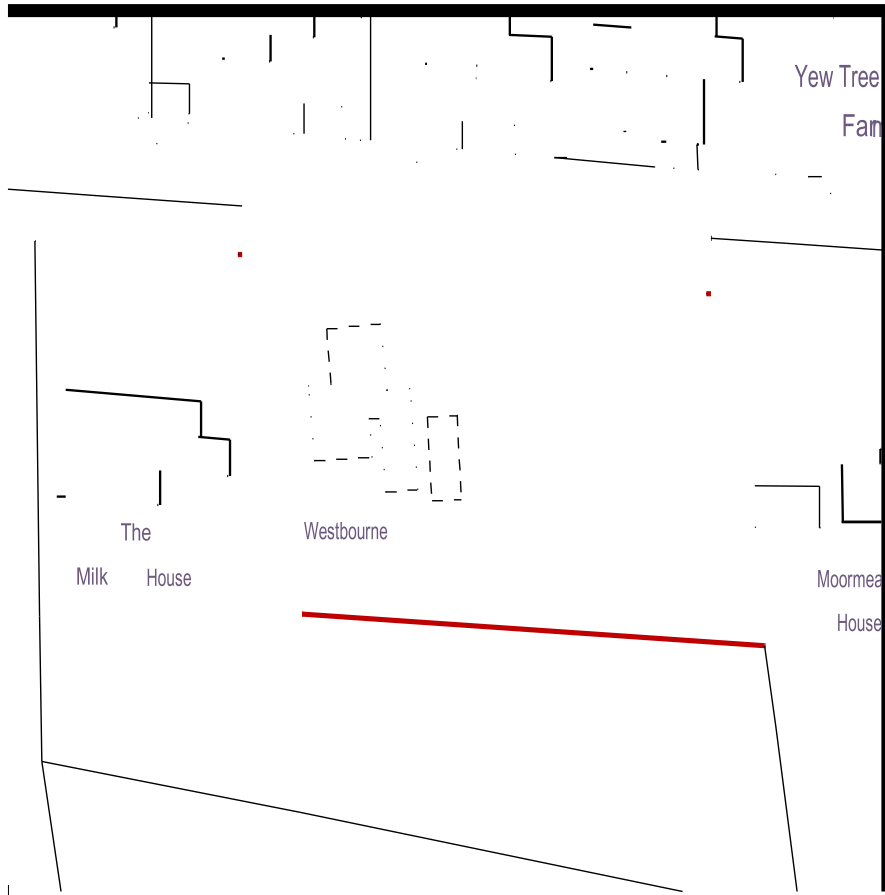


Figure 13 - Badger snuffle hole

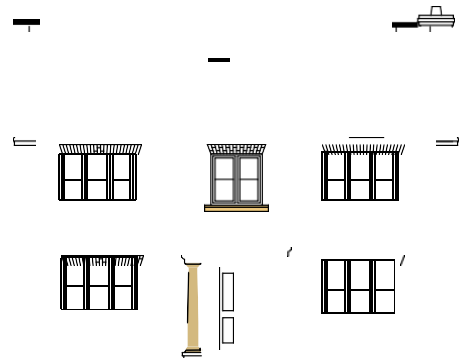
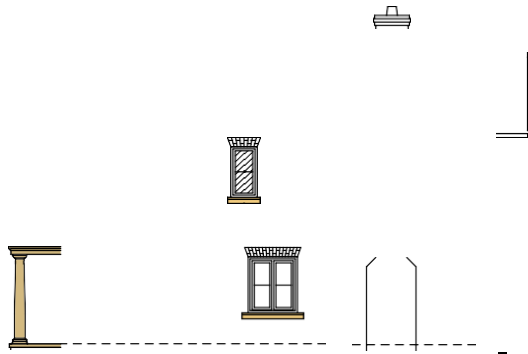
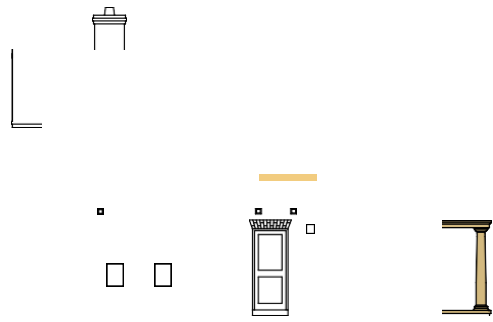
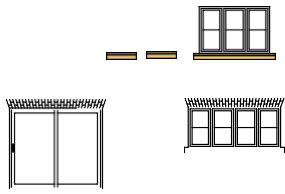


Appendix B - Plans

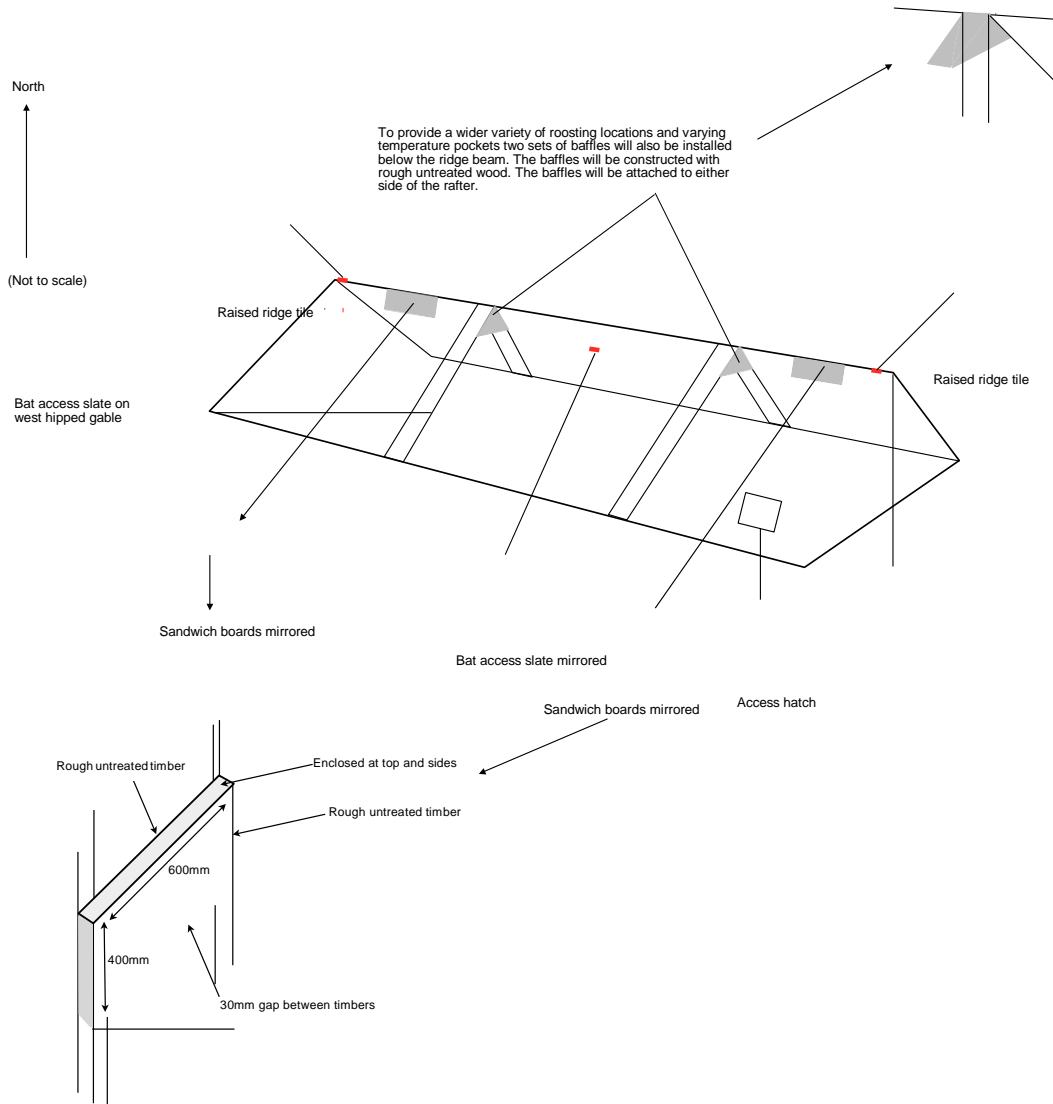
Plan 1 - Location plan



Location Plan scale 1:1250



Plan 7 - Internal view of permanent bat roost



Plan 8 - Example of badger gates



AN ECOLOGICAL ASSESSMENT OF SELECTED SITES AT HOLWELL

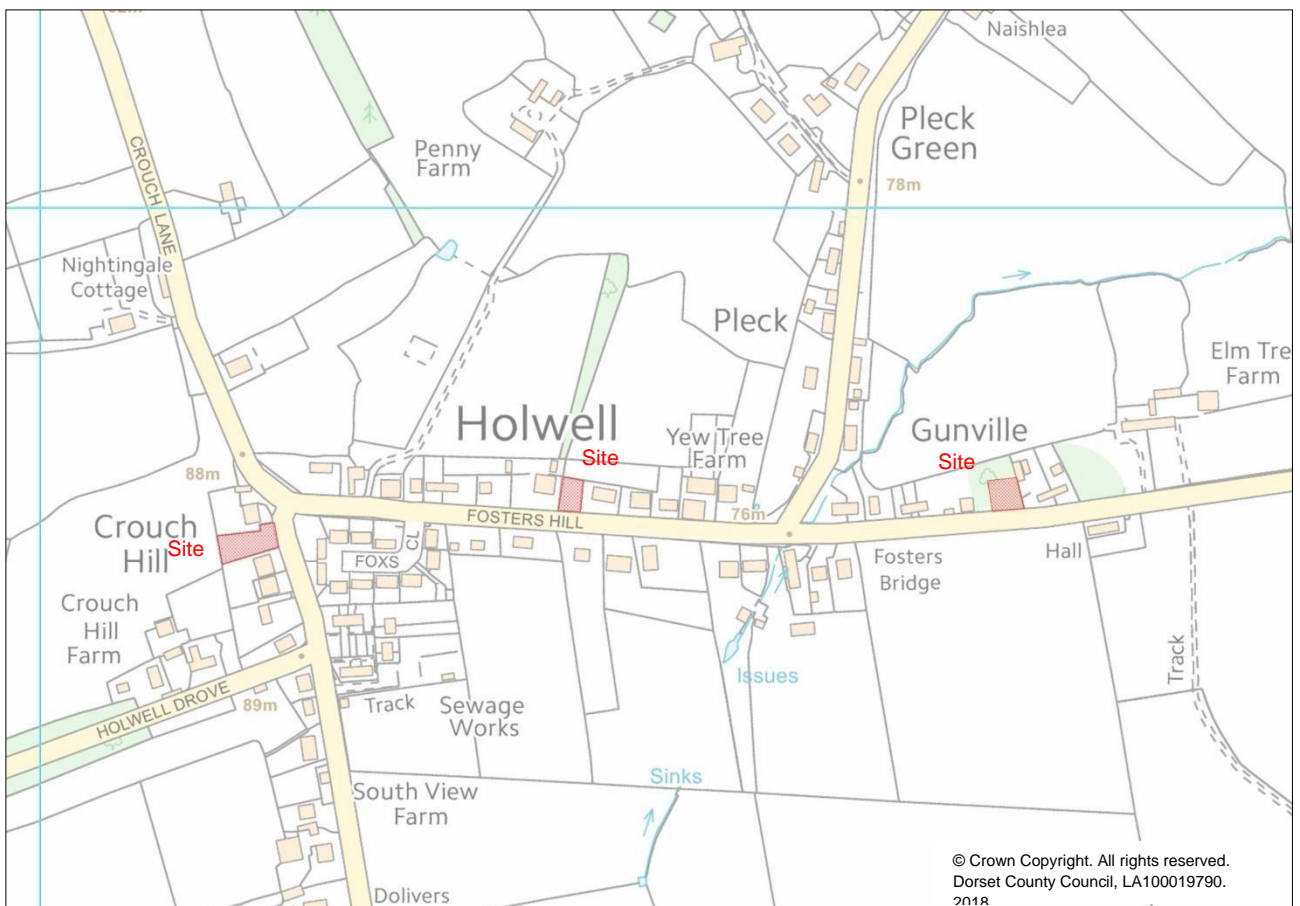
Bryan Edwards, Dorset Environmental Records
Centre 3rd May 2018

BACKGROUND

An ecological assessment was undertaken of three small areas that have been put forward for development within the Holwell Neighbourhood Plan. The sites were surveyed on the 3rd May 2018. In addition a search was made for Protected Species and Biodiversity Priority (BAP) Species from the DERC database.

The following conclusions relate specifically to the brief supplied at the time of writing, if the proposals should change a re-appraisal or appraisal amendment may be required.

Map 1. Location of sites surveyed



SUMMARY

- No Protected Species, Biodiversity Priority Species or Red Listed species were recorded from the three sites surveyed, although time of the year was not ideal for some species.
- The grasslands are semi-improved and of little ecological interest. Two Dorset Notable plant species were found on part of Site 2.
- The small lengths of hedge present at the three sites are the most important ecological features. Being within the village and enclosing land not used for agricultural purposes they may not qualify for assessment under the Hedgerow Regulations Act (1997).
- There are no records of Protected Species directly on any of the three sites surveyed, but there is a record for Great Crested Newt close to Site 3.

Site 1. South of 'The Rectory', ST7016 1073, 0.09 hectares

An area of rough grassland with short lengths of hedge at the eastern and western ends, there is a small orchard in the northwest corner.

The grassland is semi-improved, tall and dominated by Meadow Foxtail *Alopecurus pratensis* with frequent Yorkshire Fog *Holcus lanatus*, plus smaller quantities of Cock's-foot *Dactylis glomerata* and Rough Meadow-grass *Poa trivialis*. The herb component is poor with occasional to frequent Creeping Buttercup *Ranunculus repens*, Lesser Celandine *Ficaria verna*, Cut-leaved Crane's-bill *Geranium dissectum*, Cow Parsley *Anthriscus sylvestris*, Hogweed *Heracleum sphondylium* and Wood Dock *Rumex sanguineus*. Other species present in small quantity include Cuckoo Flower *Cardamine pratensis*, Bush Vetch *Vicia sepium*, Meadow Vetchling *Lathyrus pratensis*, Common Sorrel *Rumex acetosa*, Goat's-beard *Tragapogon pratensis*, Stinging Nettle *Urtica dioica* and Wild Angelica *Angelica sylvestris*.

In the northwest corner is a small orchard which has been demarcated by the planting of shrubs. There are Apple and Plum trees present plus several garden trees and shrubs. Beneath the trees is a coarse ground flora including Creeping Buttercup, Lesser Celandine, Cow Parsley, Willowherb species *Epilobium* sp., Bramble *Rubus fruticosus* agg., Ivy *Hedera helix*, Hedge Woundwort *Stachys sylvatica* and Cuckoo Pint *Arum maculatum*.

The east and west hedges are both around 20 metres in length. The eastern hedge adjoining the road has four woody species, mainly Elm *Ulmus procera*, with Hawthorn *Crataegus monogyna*, Field Maple *Acer campestre* and Rose species *Rosa* sp. The western hedge is very similar but additionally has Blackthorn *Prunus spinosa*. The ground layers contain abundant Ivy and Bramble, plus Lesser Celandine, Wood Avens *Geum urbanum*, Cleavers *Galium aparine* and Cow Parsley. Hart's-tongue Fern *Asplenium scolopendrium* was noted in east hedge and Soft Shield-fern *Polystichum setiferum* in the west hedge.

An Orange Tip butterfly was noted, and Robin and Wren were both singing in the thick hedges which provide suitable nesting habitat.

Site 2. Foster's Hill, ST7041 1077, 0.04 hectares

A plot of ground which appears to have been cultivated or disturbed in the past and then left, and supports a mixture of grassland and ruderal plants.

An annual Willowherb species *Epilobium* sp. is most abundant, with scattered patches of grass including Yorkshire Fog *Holcus lanatus*, Meadow Foxtail *Alopecurus pratensis* and Rough Meadow-grass *Poa trivialis*, with Annual Meadow-grass *Poa annua* on the bare ground. Other species present include occasional to locally frequent Creeping Buttercup *Ranunculus repens*, Broad-leaved Dock *Rumex obtusifolius* and Dandelion *Taraxacum officinale* agg. Other species noted include Lesser Celandine *Ficaria verna*, Cut-leaved Crane's-bill *Geranium dissectum*, Common Sorrel *Rumex acetosa*, Stinging Nettle *Urtica dioica*, Greater Plantain *Plantago major*, Daisy *Bellis perennis*, Creeping Thistle *Cirsium arvense* and Spear Thistle *Cirsium vulgare*. Towards the northern end where the ground appears damp there are several species associated with older grasslands including locally frequent Common Fleabane *Pulicaria dysenterica** and Square-stalked St John's-wort *Hypericum tetrapterum*, plus several patches of Stone Parsley *Sison amomum**.

The short lengths of hedge at the front and back are both neatly trimmed. The front hedge adjoining the road has five woody species, Ash *Fraxinus excelsior*, Field Maple *Acer campestre*, Hawthorn *Crataegus monogyna*, Blackthorn *Prunus spinosa* and Rose *Rosa* sp. The ground layer and margins have abundant Ivy *Hedera helix* with Cleavers *Galium aparine*, Lesser Celandine *Ficaria verna*, Wood Avens *Geum urbanum*, Garlic Mustard *Alliaria petiolata*, Ground Ivy *Glechoma hederacea*, Cow Parsley *Anthriscus sylvestris* and False-brome *Brachypodium sylvaticum*. The back hedge has three woody species, Elm *Ulmus procera*, Blackthorn and Hawthorn. The ground layer has abundant Ivy with a few plants of Bluebell *Hyacinthoides non-scripta* and Primrose *Primula vulgaris* also noted.

* = Dorset Notable plant species

Site 3. Adjacent to Gunville, ST7075 1077, 0.04 hectares

A very small plot of land which at the time of the survey was around 75% bare ground with just sparse vegetation. The most frequent species are Rough Meadow-grass *Poa trivialis*, Creeping Buttercup *Ranunculus repens* and Wood Dock *Rumex sanguineus*, with abundant small seedlings of annuals such as Common Orache *Atriplex patula* and a Willowherb species *Epilobium* sp.. Other species present include Wavy Bitter-cress *Cardamine flexuosa*, Greater Plantain *Plantago major*, Stinging Nettle *Urtica dioica*, Cleavers *Galium aparine*, Creeping Thistle *Cirsium arvense* and Floating Sweet-grass *Glyceria fluitans*.

Along the roadside is a short length of hedge with 6 species of tree and shrub, Elm *Ulmus procera*, Hawthorn *Crataegus monogyna*, Blackthorn *Prunus spinosa*, Wild Privet *Ligustrum vulgare*, Ash *Fraxinus excelsior* and Pedunculate Oak *Quercus robur*. There is also planted Garden Privet *Ligustrum ovalifolium* and Snowberry *Symphoricarpos* sp. The ground layer has abundant Ivy *Hedera helix* with Bramble *Rubus fruticosus* agg., Cleavers *Galium aparine*, Ground Ivy *Glechoma hederacea*, Ivy-leaved Speedwell *Veronica hederifolia*, Cuckoo Pint *Arum maculatum* and False-brome *Brachypodium sylvaticum*; Small Periwinkle *Vinca minor* is present also.

Along the east side there are some old garden shrubs and fruit trees and a planted row of young conifers.

Adjoining the site to the north is a small area of deciduous woodland of Ash and Oak with Willow *Salix* sp. over Lesser Celandine *Ranunculus ficaria*, Herb Robert *Geranium robertianum* and Ramsons *Allium ursinum*.

PROTECTED SPECIES

No signs of protected species were seen during the survey, however this does mean that they are not present. A search for protected species was made on the Dorset Important Species layer on the Dorset Environmental Records Centre (DERC) GIS system. A summary of the suitability of the sites for protected species is given below.

Great Crested Newt: There is a record of Great Crested Newt from 2013 from a garden pond near to or adjacent to **Site 3**. Within the area surveyed and outlined for development there is no garden pond and the habitat was not suitable for newts.

Bats: No suitable habitat for bat roosts was present on any of the three sites, but there is suitable foraging habitat in the form of trees and mature hedges at Sites 1 and 3. There are bat records from the village from the Roadside Mammal Survey carried out in 2005 by the Dorset Bat Group. These are for the Holwell Drove and Crouch Lane area near to Site 1, with records for Common Pipistrelle and Serotine.

Birds: The survey was too early in the season for some nesting birds. Suitable habitat does exist in the hedges and the small orchard in Site 1.

Badger: No signs of Badgers were seen at any of the sites, although the mammal tracks at Site 1 could have been Badger or Fox. The nearest Badger record on our database is from 2016 of an active sett 700 metres east of Site 3 at Packers Hill.

Hedgehog: There are no records on the DERC Important species layer of Hedgehogs from the village, but suitable habitat for this species is present especially at Site 1.

Dormouse: The nearest record on the DERC Important Species layer of Dormouse is 2-km to the south of the village, near Pulham. The lack of records from around Holwell may reflect the absence of surveys rather than unsuitable habitat.

Otter: The nearest Otter record is from Holwell Drove, 460 metres southwest of Site 1. No suitable habitat exists on any of the sites surveyed.

Water Voles; the nearest record from Water Vole is from the River Lydden near King's Stag some 2.6- km east of the village. No suitable habitat exists on any of the sites surveyed.

Reptiles: No records on the DERC database, but suitable habitat for Slow Worn is present at Sites 1 and 2.

Plan 9 - Example profile of pond

