

**Preliminary Ecological Appraisal for the proposed barn extension and
reedbed creation at KPS, Isfield, East Sussex
TQ 44940 16167**

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CONTENTS

- 1.0 INTRODUCTION**
- 2.0 SITE DESCRIPTION**
- 3.0 EXISTING RECORDS**
- 4.0 THE NERC ACT & THE NATIONAL PLANNING POLICY FRAMEWORK**
- 5.0 PROTECTED SPECIES**
 - 5.1 Nesting birds**
 - 5.2 Badgers**
 - 5.3 Bats**
 - 5.4 Water voles**
 - 5.5 Dormice**
 - 5.6 Reptiles**
 - 5.7 Great crested newts**
 - 5.7.1 Summary of GCN survey**
 - 5.7.2 GCN population estimate**
 - 5.8 Other amphibians**
- 6.0 PROPOSED WORKS**
 - 6.1 Western section**
 - 6.2 Central section**
 - 6.3 Eastern section**
- 7.0 IMPACT OF THE PROPOSED WORKS**
 - 7.1 Central section**
 - 7.2 Eastern section**
- 8.0 MITIGATION**
 - 8.1 Nesting birds**
 - 8.2 Badgers**
 - 8.3 Bats**
 - 8.4 Water voles**
 - 8.5 Dormice**
 - 8.6 Reptiles**
 - 8.7 Great crested newts**
 - 8.7.1 Natural England mitigation licence**
- 9.0 REFERENCES**

- APPENDIX I : Waterbodies**
- APPENDIX II : Wildlife legislation**
- APPENDIX III : Survey results**
- APPENDIX IV : Photographs**

1.0 INTRODUCTION

This Preliminary Ecological Appraisal (PEA) was commissioned by *KPS Composting Services Ltd* to comment on potential ecological and protected species issues in respect of a planning application to Wealden District Council for a proposed barn extension and associated reedbed/habitat creation scheme at the KPS composting site in Isfield, East Sussex.

The aims of this study are as follows :

- Review of pre-existing ecological information (SxBRC, MAGIC data, etc).
- Assess the likely impacts of the scheme on biodiversity.
- Assess the likely impacts of the scheme on Great crested newts and reptiles which are known to be present within the surrounding area.
- Outline a mitigation strategy suitable for Great crested newts should a Natural England licence application be necessary.
- Outline a mitigation strategy suitable for reptiles and/or other protected species.

2.0 SITE DESCRIPTION (see Figure 1)

The KPS green composting site covers approximately 9.72Ha and receives and processes green waste and wood waste which are exported as compost and wood chip respectively.

The site is located in a rural area 0.7Km south of the village of Isfield and 6Km north-east of Lewes. It is surrounded by farmland with woodland, including areas of designated ancient woodland. The central National Grid Reference is TQ 44940 16167.

The nearest nationally designated site is Plashett Park wood SSSI which is approximately 380m east of the site. Plashett Park wood is an area of ancient woodland covering some 154Ha.

Scimcorner wood (Ancient woodland) borders the works footprint immediately to the south.

The KPS site can be divided into three main areas. The western section consists of a composting and waste wood processing area of approximately 4.63Ha. This area will not be affected by any works.

The central section covers approximately 2.49Ha and consists of a site office, storage barn, associated hard standing/compacted ground and parking with three settling lagoons (Ponds 5, 9 & 10) used to store and treat run-off from the composting works.

The eastern section covers approximately 2.6Ha and this consists of a rough grassland field with tall herb and agricultural field, both of which have been left largely unmanaged, although used by a local farmer to raise pheasants. The eastern section is where the reedbed /habitat creation works will be undertaken.

A large L- shaped earth bund of approximately 2m high is present in this section which forms a barrier with the Scimcorner wood ancient woodland.

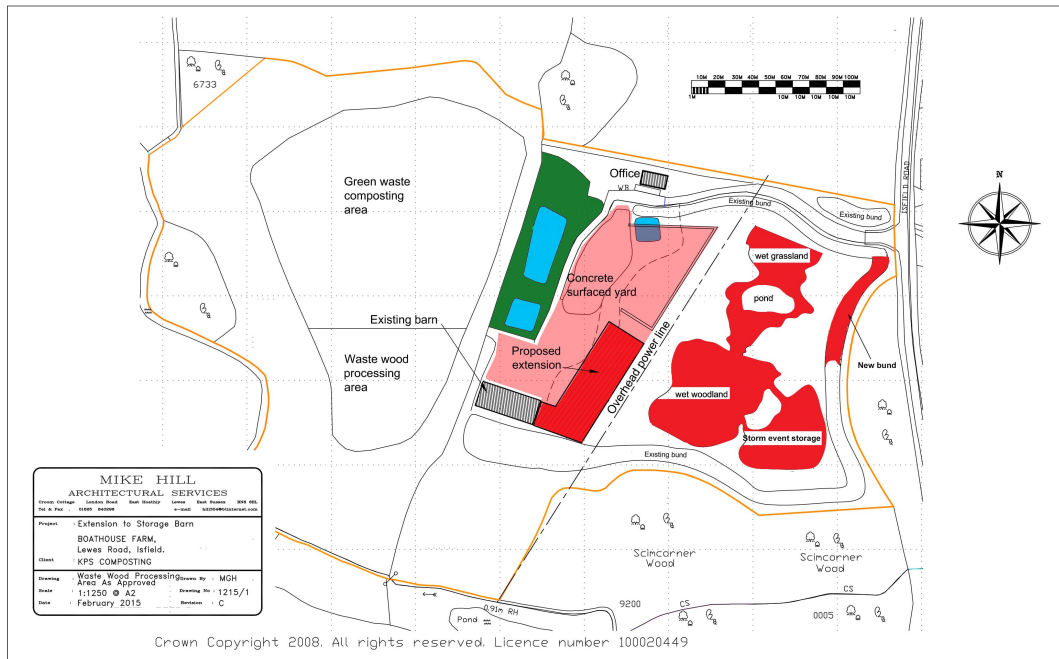


Figure 1 : Proposed works

3.0 EXISTING RECORDS

A database search of the Sussex Biodiversity Record Centre (SxBRC) was undertaken in April 2016 for the nearby Honey-pot nursery site. The Honey-pot site lies 50m to the north-east of the KPS site, separated only by the Isfield Road. This study revealed no records held by SxBRC for any protected species within 1Km of the KPS site.

A search of the MAGIC database revealed no details for any previous European Protected Species mitigation licences being issued by Natural England within the area, although it should be noted that the database may not yet be complete.

A Great crested newt (GCN) survey was undertaken for the Honey-pot application in spring 2016 (*Barry Kemp Conservation Ltd - Great crested newt survey for the proposed development at Honey-pot nursery, Isfield, East Sussex*) and included twenty-one of the twenty-three ponds identified within 500m of the KPS site. The survey recorded GCN presence in 9 of the waterbodies (Ponds 1, 4, 6, 8, 12, 14, 15, 16 & 19).

With the exception of the ponds / lagoons within the KPS site (Ponds 9, 10 and 11), which scored "Good" or "Average" on the HSI assessments, GCN were found to be present in all waterbodies that were suitable for them (ie, contained no fish).

The numbers of GCN recorded for each waterbody are summarised in Table 1. Ponds are shown in Figure 2, Appendix I. Full survey results are shown in Appendix III.

A reptile survey undertaken as part of the Extended Phase 1 survey for the Honey-pot site (*Sylvan Consultancy, August 2016: Honey-pot Nursery Phase 1 Habitat Survey*) recorded Grass snakes, Slow worms and Common lizards being present.

A Grass snake was observed basking on the banks of Pond 5 within the KPS site during a site visit on 19th May 2016 (*Kemp*).

Numerous Marsh frogs (*Pelophylax ridibunda*) were observed within Ponds 5 , 9 and 10 during May and June 2016 (Kemp). Marsh frogs are a non-native species that have no legal protection under UK or European legislation.

Waterbody	Presence/absence count	Peak count	Distance from KPS works area (m)	Date recorded
Pond 1	-	43	118	05/05/16
Pond 4	-	20	290	30/05/16
Pond 6	2	-	174	28/04/16
Pond 8	3	-	127	28/04/16
Pond 12	1	-	306	04/05/16
Pond 14	1	-	340	05/05/16
Pond 15	1	-	377	05/05/16
Pond 16	8	-	461	05/05/16
Pond 19	-	5	250	04/05/16

Table 1 : GCN presence in ponds

4.0 THE NERC ACT & THE NATIONAL PLANNING POLICY FRAMEWORK

Local authorities and other public authorities in England and Wales have a duty to promote and enhance biodiversity in all of their functions. The NERC act aims to raise the profile of biodiversity and to make sure that it is considered in all local authority decisions and policies. The wording of the legislation, in section 40 of the Act, states that :

"Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity."

The National Planning Policy Framework (NPPF) was introduced in March 2012 and has replaced the existing planning policy guidance relevant to protected species and biodiversity (Planning Policy Statement 9 , or PPS9).

Policies within the NPPF reaffirm the protection previously afforded through PPS9 to priority species, habitats and designated sites.

The protection afforded via the NPPF to wildlife on proposed development sites is largely unchanged. There is still a requirement for local planning authorities to avoid, mitigate and compensate for significant harm to biodiversity and to protect irreplaceable habitats, but also to provide 'net gains' in biodiversity thereby "contributing to the government's commitment to halt the overall decline in biodiversity."

5.0 PROTECTED SPECIES

Due to the timing of the forthcoming application to Wealden District Council it was not possible to undertake detailed protected species surveys for this application. However GCN surveys of the four waterbodies within the KPS landholding (Ponds 5, 9, 10 & 11) and numerous surrounding ponds were undertaken as part of the Honeypot study. Some casual evidence of protected species was also observed within the site during various visits to the KPS site for the GCN surveys.

However it is possible to assess the habitats within the KPS site in regards to their potential to support the following species and to make some assessments of any potential risk.

5.1 Nesting birds

Any trees and scrub within the works footprint are likely to provide nesting opportunities for a range of common birds.

It is not considered necessary to undertake breeding bird surveys of the site provided that any scrub or tall vegetation that will be affected by the proposed works is cut down prior to the bird nesting season. Since no trees will be lost and much of the tall, scrubby vegetation is present on the southern and eastern bunds, which will not be affected, potential bird nesting habitat is limited to the tall herb/scrub on the banks of Pond 5.

5.2 Badgers

Badgers (*Mele mele*) were observed foraging in several areas outside of the KPS site during the GCN surveys and some field signs were also observed (*Kemp*). However no setts or field signs of badgers were observed within the KPS site or within 30m of the site.

5.3 Bats

No trees or buildings in which bats may roost will be lost as a result of the works. The existing barn, which is to be extended is not suitable as a roost site for bats due to its loose boarding on three sides and open aspect to the north.

Any existing potential flightpaths (over hedgerows or bunds) will remain unaffected.

5.4 Water voles

No Water vole (*Arvicola amphibious*) activity was noted within or around any of the waterbodies. This once common species has suffered catastrophic declines in recent decades due to a combination of habitat loss and predation by American mink (*Neovison vison*). The Water vole now has very restricted distribution in Sussex with its main populations in East Sussex known from the Pett Level and Rye Harbour areas of the eastern River Rother catchment.

5.5 Dormice

Dormice (*Muscardinus avellanarius*) mainly occur in woodland, but are increasingly being found in hedgerows and larger areas of scrub, particularly where linked to woodland.

Dormice tend to hibernate at ground level in features like rotten tree stumps, vegetation heaps and amongst leaf litter, typically in woodland and hedgerow. No suitable habitat for Dormice will be affected by the proposed works.

5.6 Reptiles

The banks of lagoons within the KPS site all have the potential to support reptiles, particularly Grass snakes since the vegetation is largely left unmanaged due to the steep sides. A Grass snake was observed basking on the banks of Pond 5 (*Kemp*), which is the only waterbody to be affected by the works. The proximity of ancient woodland to suitable habitat is also likely to encourage reptiles to the site, particularly where it is adjacent to the unmanaged fields within the eastern section.

Although the habitat here does provide opportunities for reptiles, the affect of pheasants being present in this area may reduce the likelihood of reptiles being present since they are known to predate juvenile reptiles.

5.7 Great crested newts

It is possible to be definitive about the risk to GCN and to devise an appropriate mitigation strategy for the site since sufficient recent data is available via the Honeypot study.

5.7.1 Summary of GCN survey

Initial visits to twenty-one waterbodies were made during the daytime and Habitat Suitability Index (HSI) assessments were undertaken of each waterbody. During the HSI assessments egg searches were also undertaken.

Following the HSI assessments, waterbodies were identified which required further survey.

Surveys were undertaken between 28th April and 3rd June 2016 by Barry Kemp (Natural England survey licence no. 2015-19089-CLS-CLS).

Torching (using a 1,000,000 candlepower Cluson torch) was assessed as being the most appropriate and least invasive survey method for the majority of the waterbodies within the study area. However it was not possible to torch the treatment lagoons within the KPS site (Ponds 5, 9 and 10) due to the thick duckweed cover. Bottle trapping was also impractical for these lagoons as there was no marginal or aquatic vegetation and shoreline access was dangerous, so eDNA sampling techniques were used. Pond 11 is also situated within the KPS landholding. Pond 11 is a 'natural' pond set in a copse and visually it is typical of many woodland ponds. Despite the water being very clear and not appearing to be adversely affected by any potential run-off from the composting works, Pond 11 was devoid of any wildlife, most noticeably with no evidence of invertebrate presence. Since no newts were observed during the torching surveys, Pond 11 was also subjected to eDNA sampling.

No GCN were recorded in any of the four KPS waterbodies (the closest to the works area). However GCN were found to be present in two ponds less than 150m from the footprint. Details of waterbodies with GCN occupancy is shown in Table 1. Since GCN are capable of migrating over 1.3Km from their breeding ponds (*Jehle, Thiesmeier, Foster : The Great crested newt, a dwindling pond-dweller*, 2011) it is possible that GCN could still be encountered within the footprint during their active season.

5.7.2 GCN population estimate

Networks of suitable waterbodies (typically within 250m from each other) can form GCN metapopulations which allow the interchange of GCN between waterbodies.

Population counts of GCN from a number of waterbodies can be added together if they are all part of the same metapopulation (*English Nature 2001 : Great crested newt mitigation guidelines*).

Due to the number of waterbodies included in this study it was not possible to survey all of them in the same evening. Also, some ponds only required one visit (to establish presence) so population estimates were not always required. Ponds 22 and 23 were not surveyed as part of the Honeypot study.

The maximum count for GCN for any one evening visit was achieved on 5th May when 53 individuals (forty-three recorded in Pond 1, eight in Pond 16 and one from each of ponds 14 and 15) were recorded. Under NE guidelines this equates to a 'Medium' population (11-100 individuals recorded). Given the distance of Ponds 22 and 23 from the works area (377m and 442 respectively) it is unlikely that the potential presence of GCN in these ponds would alter the predicted population size from 'Medium' to 'Large' (over 100 individuals).

5.8 Other amphibians

No native amphibians were recorded in Ponds 5, 9, 10 or 11. Non-native Marsh frogs were observed or heard within Ponds 2, 5, 9 and 10.

6.0 PROPOSED WORKS (See Figure 1)

The proposed works will be phased, taking approximately 10 to 15 weeks to complete, subject to suitable ground conditions.

It is anticipated that the works will commence in April/May 2017 once planning permission has been granted, so will take place when any protected species are likely to be active.

6.1 Western section

The western section of the site will remain unaffected by the proposed works.

6.2 Central section

The proposed works within the central section of the site include extending the existing storage barn and resurfacing of the existing hard surface/compacted ground with concrete. One of the settlement lagoons (Pond 5) will be infilled to form part of the resurfaced yard.

6.3 Eastern section

Earthworks will be undertaken in the eastern section of the site to create a reedbed and pond, an area of wet woodland and areas of wet grassland /meadow.

7.0 IMPACT OF THE PROPOSED WORKS (see Figure 1)

7.1 Central section

The works footprint within the central section of the site will cover some 0.6Ha and in the main is located on existing hard standing, compacted ground and small areas of amenity grassland. As such the risk of harming protected or other species is minimal. However it is proposed that Pond 5 be drained and infilled leaving only the northern bank and part of the eastern bank in-situ.

No GCN were recorded in Pond 5 (or the other KPS waterbodies), but a Grass snake was observed basking on the eastern bank so the infilling of the lagoon will require some precautionary mitigation to avoid harming reptiles. The tall vegetation on the banks of the lagoon may provide potential opportunities for nesting birds.

7.2 Eastern section

The groundworks for the reedbed, pond, wet woodland and wet grassland/meadow within the eastern section will disturb an area of some 2.1Ha. In the main this consists of unmanaged rank grassland which has been used to raise pheasants.

The two fields are fairly homogenous, with no real features which could act as a focii for wildlife. The fact that they have been used continuously to raise pheasants may have resulted in a reduction of some other species using the field (pheasants frequently predate reptiles and amphibians), however the fields do still have the potential to offer areas of foraging and also provide cover for birds, small mammals and reptiles and amphibians.

Since reptiles and GCN are present nearby (the latter being present in ponds less than 150m away) some species mitigation will be required (see Section 8.6 & 8.7).

In terms of the impact of the works from a habitat perspective, the finished groundworks will result in an improvement on the existing habitat by allowing the creation of a pond, reedbed, wet woodland and wet meadow as well as retaining some of the existing grassland. This will result in an increase in biodiversity. The cessation of using the fields to raise pheasants will also increase the local biodiversity.

Table 2 shows the proposed areas of habitat that will be created or enhanced (within the works area) :

Reedbed and wetland	950m ²
Pond	300m ²
Wet woodland	1,500m ²
Seasonal wetland/overflow pond	1,600m ²
Meadow planting & tree planting (new & existing habitat areas)	5,600m ²
Total	9,950 m²
Existing grassland	7,250m ²

Table 2 : Proposed new habitat areas

8.0 MITIGATION

The proposed works have the potential to have a detrimental impact on any protected and non-protected species that may be present, in terms of potential direct physical harm to individual animals and also disturbance to their terrestrial habitat. Therefore some mitigation will be necessary to avoid harming these species.

8.1 Nesting birds

Any scrub or tall vegetation that will be affected by the proposed works should be cut down prior to the bird nesting season. Potential bird nesting habitat is limited to the tall herb/scrub on the banks of Pond 5.

Left unmanaged throughout the spring and summer the two fields in the eastern section where the majority of the habitat creation will occur, could provide nesting opportunities for birds, so this area should be mowed and kept at a low sward for the duration of the works.

8.2 Badgers

No setts or field signs of badgers were observed within the KPS site.

Since new and existing setts can fall in and out of use, as a precaution a visual inspection of the working area should be undertaken a few weeks prior to works commencing.

8.3 Bats

No impact on bats is predicted.

Any existing potential flightpaths (hedgerows or bunds) will remain unaffected. The creation of wetland habitats may actually favour bats by providing additional foraging opportunities.

8.4 Water voles

Water voles are not present on site.

8.5 Dormice

No suitable dormouse habitat will be affected.

8.6 Reptiles

Some mitigation for reptiles will be necessary. Mitigation for reptiles can be undertaken simultaneously with mitigation for GCN since mitigation measures are broadly the same (see 8.7 below).

8.7 Great crested newts

Survey findings suggest a “Medium” population of GCN are present in the area. Because of the risk of harming GCN and the disturbance to potential habitat, a GCN mitigation licence will be required from Natural England.

A suitable level of mitigation will need to be approved by Natural England and a licence issued prior to any works starting on site. Mitigation measures are likely to include installation of temporary exclusion fence, trapping and/or destructive search.

8.7.1 Natural England mitigation licence

In June 2016 Natural England introduced a new Low Impact Great crested newt class licence (WML-CL33). This licence permits the capture and disturbance of GCN and low levels of damage and destruction to their terrestrial resting places.

Under Natural England’s “Earned Recognition” scheme the licence gives ecological consultants who are registered with Natural England the authority to undertake or to supervise certain activities which infringe the protection afforded to GCN at sites registered under it. Specifically, the licence permits GCN to be disturbed, to be caught and relocated to a safe place, and allows small areas of terrestrial habitat, used by GCN as a resting place, to be damaged or destroyed.

No GCN breeding sites will be damaged or lost as a result of the proposed works. Only a small amount of potential terrestrial habitat will be damaged. Effectively this will be a temporary disturbance to the habitat (being re-instated as improved habitat) and therefore the proposals can be covered by a Low Impact mitigation licence.

9.0 REFERENCES

- Sussex Biodiversity Record Centre (2016) : *SxBRC/16/041- Desktop Biodiversity Report, Honeypot Nursery, Isfield.*
- Barry Kemp Conservation Ltd (2016) : *Great crested newt survey for the proposed development at Honeypot nursery, Isfield, East Sussex.*
- Sylvan Consultancy (2016) : *Phase One Habitat Survey For Honeypot Nursery, Isfield, East Sussex. A Report For Mike Hill Architectural Services.*
- Natural England (2011) : *GCN Method Statement WML –A14-2 .*
- Natural England & Countryside Council for Wales (2007) : *Disturbance & protected species – Understanding & applying the law in England & Wales.*
- English Nature (2001) : *Great crested newt mitigation guidelines.*
- English Nature (2004) : *Reptiles - guidelines for developers.*
- Gent, T. & Howarth, W. (1998) : *Herpetofauna Workers’ Manual - Amphibians & Reptiles & the Law.*
- Froglife (1998) : *Evaluating local mitigation/translocation programmes : Maintaining best practice and lawful standards.*
- DEFRA (2014) : *Analytical and methodological development for improved surveillance of the Great Crested Newt, WC1067.*
- Jehle, Thiesmeier, Foster (2011) : *The Great crested newt, a dwindling pond-dweller.*
- C.I.E.E.M. (2013) : *Guidelines for Preliminary Ecological Appraisal.*
- MAGIC : <http://magic.defra.gov.uk>.

APPENDIX I : Waterbodies

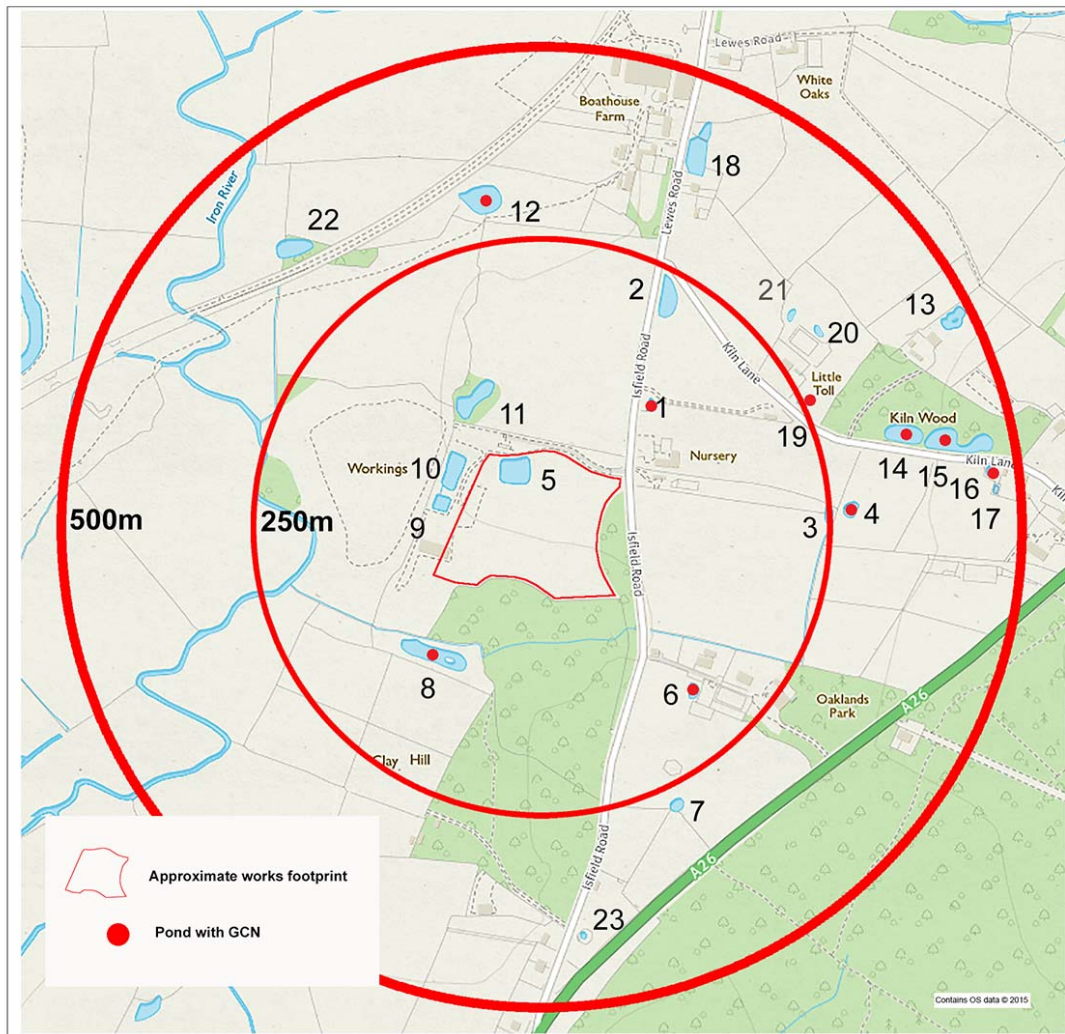


Figure 2 : Waterbodies

WATERBODIES WITHIN THE STUDY AREA

Twenty-three waterbodies are present within 500m of the Honeyplot site. A brief description of the ponds is given below :

Pond 1 (TQ 45111 16318)

Pond 1 is some 118m from the works footprint, separated only by the Isfield Road. Pond 1 is quite small, measuring approximately 30m². Throughout the survey period there was no aquatic vegetation although encroaching grasses and scrub were present on the waters edge.

Pond 2 (TQ 45127 16451)

Pond 2 lies approximately 217m north of the works footprint. It covers approximately 700m². The pond is stocked with fish. A much smaller pond, possibly an old trial hole, is present a few metres from Pond 2. This pond measures only 2m in diameter and also contains fish.

Pond 3 (TQ 45331 16188)

Pond 3 lies 271m east of the works footprint and covers approximately 135m². It is stocked with coarse fish and used by the local angling club.

Pond 4 (TQ 45359 16193)

Pond 4 lies 290m east of the works footprint and covers approximately 200m². The pond is set within a meadow used as hay crop and is 90% surrounded by a hedgerow/ willow scrub. Reedmace (*Typha latifolia*), Yellow flag (*Iris pseudacorus*) and watermint (*Menta aquatica*) cover 30% of the shoreline.

Pond 5 (TQ 44947 16229)

Pond 5 is situated within the central section of the proposed works footprint and covers approximately 1000m². Pond 5 is the last part of a water treatment process for the green composting site. It has very steep banks with no marginal or aquatic vegetation being present throughout the survey period. Marsh frogs (*Pelophylax ridibunda*) were observed around the pond on several occasions.

Pond 6 (TQ 45172 15963)

Pond 6 lies 174m southeast of the footprint and covers approximately 150m². It is a shallow, butyl lined pond set within a garden. The pond is 80% covered by Canadian pondweed (*Elodea canadensis*) and Water lily (*Nymphaea alba*).

Pond 7 (TQ 45157 15818)

Pond 7 lies 283m southeast of the works footprint and covers approximately 150m². The pond contains many large Koi.

Pond 8 (TQ 44853 16001)

Pond 8 is a large pond approximately 340m southwest of the works footprint. It covers approximately 1200m² and is surrounded by woodland around the majority of its perimeter. Some areas of marginal/aquatic vegetation are present, mainly Watermint.

Pond 9 (TQ 448612 16187)

Pond 9 is situated within the KPS site some 27m from the works footprint and covers approximately 270m². Pond 9 is the first lagoon in the sequence of the waste water treatment process for the KPS site. It has very steep banks with no marginal or aquatic vegetation. A layer of thick Duckweed (*Lemna sp.*) covered the lagoon throughout the survey period. A spillway links Pond 9 to Pond 10. Marsh frogs were observed around the pond on several occasions.

Pond 10 (TQ 44874 16226)

Pond 10 also lies 27m from the works footprint and covers approximately 750m². Pond 10 is the second lagoon in the sequence of the waste water treatment process. It also has very steep banks with no marginal or aquatic vegetation and had a thick Duckweed throughout the survey period. Marsh frogs were observed around the pond.

Pond 11 (TQ 44898 16318)

Pond 11 is part of the KPS landholding and is 92m from the works footprint. It is a large natural pond of some 900m². Pond 11 is set within a wooded area. It appears typical of many woodland ponds, being 100% shaded with very little marginal or aquatic vegetation present. Pond 11 was unusual in that water quality was exceptionally clear, yet no invertebrates or other wildlife were noted throughout the survey period.

Pond 12 (TQ 44902 16573)

Pond 12 lies 306 m north of the works footprint within what appears to be unmanaged grassland. It is a quite shallow waterbody which covers approximately 1200m² but is probably fairly ephemeral. Much of the pond perimeter is encroached by grass and scrub .

Pond 13 (TQ 45474 16436)

Pond 13 is stocked with fish including carp, roach and golden orfe. The pond covers some 480m². It is located approximately 442m to the northeast of the works footprint.

Pond 14 (TQ 45414 16291)

Pond 14 is 340m east of the works footprint. It is located within Kiln wood (ancient woodland). The pond is very heavily encroached by the woodland, particularly to the southern side. Water levels were low but water quality appeared to be fairly good. It covers some 850m².

Pond 15 (TQ 45462 16287)

Pond 15 is 377m east of the works footprint. It is also located within Kiln wood. The pond is very heavily encroached by the woodland, particularly to the southern side and surrounded by reeds . Pond 15 may dry out in dry periods. It covers some 750m².

Pond 16 (TQ 45527 16246)

Pond 16 is located within a garden/road verge on the edge of Kiln Lane approximately 461m from the works footprint. It is approximately 100m² and shaded by trees and scrub.

Pond 17

Pond 17 is marked on OS maps but does not exist.

Pond 18 (TQ 45158 16632)

Pond 18 is a large garden pond of approximately 1100m² containing carp. The pond is surrounded by overhanging scrub and trees but has some emergent plants including Yellow flag and Marsh marigold (*Caltha palustris*). The pond is located some 391m north of the works footprint. Marsh frogs were observed around the pond.

Pond 19 (TQ 45302 16326)

Pond 19 is located within the garden of 'Little Toll' some 250m from the works footprint. It is a relatively small, butyl lined pond measuring approximately 50m². Aquatic plants include Canadian pondweed, water lily and watermint.

Pond 20 (TQ 45314 16410)

Pond 20 is a brick built , above ground ornamental fish pond within the garden of 'Little Toll' some 308m from the works footprint.

Pond 21 (TQ 45284 16443)

Pond 21 is a recently created pond for domestic ducks and geese. It is set within a caged area within 'Little Toll' some 305m from the works footprint. The pond is extremely turbid with no aquatic or marginal vegetation.

Pond 22 (TQ 44675 16500)

Pond 22 was not surveyed as part of the Honeypot study. It is 377m northwest of the works footprint.

Pond 23 (TQ 45048 15655)

Pond 23 was not surveyed as part of the Honeypot study. It is 442m south of the works footprint on the eastern side of Isfield Road.

APPENDIX II : WILDLIFE LEGISLATION

There are two main sources of legislation which protect wildlife in the UK :

- Wildlife & Countryside Act 1981 (WCA).
- Conservation of Habitats & Species Regulations 2010.

Other legislation/regulations includes :

- The Protection of Badgers Act 1992.
- Wild Mammals (Protection) Act 1996.
- The Countryside and Rights of Way (CROW) Act 2000.
- The Natural Environment and Rural Communities Act 2006.

The main species within the proposed works footprint that may be affected by the proposals are :

Reptiles

Grass snake, adder, common lizard and slow-worm are protected under Schedule 5 of WCA (as amended).

It is prohibited to :

- Intentionally kill or injure these species
- Sell, offer or expose for sale, possess or transport for purpose of sale these species, or any part thereof.

Common frog, common toad, smooth newt and palmate newt are listed in respect to Section 9(5) only which affords them protection against sale, offering or exposing for sale, possession or transport for the purpose of sale.

Birds

With certain exceptions, all birds, their nests and eggs are protected under Sections 1-8 of the WCA.

It is prohibited to :

- Intentionally kill, injure or take any wild bird
- Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built.
- Intentionally take or destroy an egg of any wild bird.
- Sell, offer or expose for sale, have in his possession or transport for the purpose of sale any wild bird (dead or alive) or bird egg or part thereof.

Certain species of bird, for example the barn owl, bittern and kingfisher receive additional protection under Schedule 1 of the Act and Annex 1 of the European Community Directive on the Conservation of Wild Birds (2009/147/EC). This affords them protection against :

- Intentional or reckless disturbance while it is building a nest or is in, on or near a nest containing eggs or young.
- Intentional or reckless disturbance of dependent young of such a bird.

Bats

All species of bat are fully protected under The Conservation of Habitats and Species Regulations 2010.

This prohibits :

- Deliberate killing, injuring or capturing .
- Deliberate disturbance of bat species as to impair their ability to survive, breed, or reproduce, or to rear or nurture young or to hibernate or migrate.
- to affect significantly the local distribution or abundance of the species.
- Damage or destruction of a breeding site or resting place.
- Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

Bats are also protected under the WCA through their inclusion on Schedule 5. Under this Act, they are additionally protected from :

- Intentional or reckless disturbance.
- Intentional or reckless obstruction of access to any place of shelter or Protection.
- Selling, offering or exposing for sale, possession or transporting for purpose of sale.

Dormice

Dormice are fully protected under The Conservation of Habitats and Species Regulations 2010.

This prohibits :

- Deliberate killing, injuring or capturing .
- Deliberate disturbance of dormice as to impair their ability to survive, breed, or reproduce, or to rear or nurture young or to hibernate or migrate.
- to affect significantly the local distribution or abundance of the species.
- Damage or destruction of a breeding site or resting place.
- Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

Dormice are also protected under the WCA through their inclusion on Schedule 5. Under this Act, they are additionally protected from :

- Intentional or reckless disturbance.
- Intentional or reckless obstruction of access to any place of shelter or Protection.
- Selling, offering or exposing for sale, possession or transporting for purpose of sale.

Water voles

The water vole is fully protected under Schedule 5 of the WCA. This makes it an offence to :

- Intentionally kill, injure or take (capture) water voles.
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection.
- Intentionally or recklessly disturb water voles while they are occupying a structure or place used for shelter or protection.
- Sell, offer or expose for sale, or have in his possession or transport for the purpose of sale, any live or dead water vole or part thereof.

Great crested newts

Great crested newts receive full protection under The Conservation of Habitats and Species Regulations 2010.

This prohibits :

- Deliberate killing, injuring or capture.
- Deliberate disturbance to impair their ability to survive, breed, or reproduce, rear or nurture young, hibernate or migrate , or to affect significantly the local distribution or abundance of the species.
- Deliberate taking or destroying of the eggs.
- Damage or destruction of a breeding site or resting place.
- Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

Great crested newts are also listed on Schedule 5 of the WCA. Under this Act, they are additionally protected from :

- Intentional or reckless disturbance.
- Intentional or reckless obstruction of access to any place of shelter or protection.
- Selling, offering or exposing for sale, possession or transporting for purpose of sale.

Badgers

Badgers receive protection under The Protection of Badgers Act 1992.

The Act makes it an offence to :

- Wilfully kill, injure, take, or attempt to kill, injure or take a badger.
- Cruelly ill-treat a badger, including use of tongs and digging.
- Possess or control a dead badger or any part thereof .
- Intentionally or recklessly damage, destroy or obstruct access to a badger sett or any part thereof.
- Intentionally or recklessly disturb a badger when it is occupying a badger sett .
- Intentionally or recklessly cause a dog to enter a badger sett
- Sell or offers for sale, possesses or has under his control, a live badger.

APPENDIX III : SURVEY RESULTS (Honeypot nursery , 2016)

HSI scores and evaluation

The Habitat Suitability Index (HSI) for Great crested newts was developed by Oldham et al. (2000). An HSI is a numerical index, between 0 and 1. Values close to 0 indicate unsuitable habitat, 1 represents optimal habitat. The assessment incorporates ten suitability indices, all of which are factors known to be important for GCN. In general, ponds with high HSI scores are more likely to support Great crested newts than those with low scores. However, the system is not sufficiently precise to conclude that any particular pond with a high score will support newts, or that any pond with a low score will not do so. The *Suitability indices* are :

SI_1 – Geographic location

SI_2 - Pond area

SI_3 - Permanence

SI_4 – Water quality

SI_5 - Shade

SI_6 – Waterfowl

SI_7 - Fish

SI_8 – Pond count (within 1Km)

SI_9 – Terrestrial habitat

SI_{10} – Macrophytes

Results of HSI assessment

	Pond 1	Pond 2	Pond 3	Pond 4	Pond 5
SI1 - Location	1	1	1	1	1
SI2 - Pond area	0.05	1	0.2	0.4	0.95
SI3 - Pond drying	0.9	0.9	0.9	0.9	0.1
SI4 - Water quality	1	0.67	0.33	1	0.33
SI5 - Shade	1	0.6	1	0.3	1
SI6 - Fowl	1	0.67	1	1	1
SI7 - Fish	1	0.01	0.01	1	1
SI8 - Ponds	1	1	1	1	1
SI9 - Terrestrial habitat	1	1	1	1	0.67
SI10 - Macrophytes	1	0.3	0.3	0.7	0.3
HSI SCORE	0.73	0.49	0.42	0.77	0.60

	Pond 6	Pond 7	Pond 8	Pond 9	Pond 10
SI1 - Location	1	1	1	1	1
SI2 - Pond area	0.2	0.2	0.9	0.55	0.95
SI3 - Pond drying	0.9	0.9	0.9	0.9	0.9
SI4 - Water quality	1	0.67	1	0.33	0.33
SI4 - Shade	1	1	0.4	1	1
SI6 - Fowl	1	1	1	1	1
SI7 - Fish	1	0.01	1	1	1
SI8 - Ponds	1	1	1	1	1
SI9 - Terrestrial habitat	1	1	1	0.67	0.67
SI10 - Macrophytes	0.7	0.3	0.35	0.3	0.3
HSI SCORE	0.81	0.45	0.80	0.71	0.75

	Pond 11	Pond 12	Pond 13	Pond 14	Pond 15
SI1 - Location	1	1	1	1	1
SI2 - Pond area	0.96	0.92	0.9	0.9	0.9
SI3 - Pond drying	0.9	0.5	0.9	0.9	0.5
SI4 - Water quality	0.33	1	0.33	1	1
SI4 - Shade	0.3	1	1	0.4	0.4
SI6 - Fowl	1	1	0.67	1	1
SI7 - Fish	1	1	0.01	1	1
SI8 - Ponds	1	1	1	1	1
SI9 - Terrestrial habitat	0.67	1	0.67	1	1
SI10 - Macrophytes	0.3	0.5	0.3	0.3	0.3
HSI SCORE	0.67	0.86	0.45	0.79	0.75

	Pond 16	Pond 18	Pond 19	Pond 20	Pond 21
SI1 - Location	1	1	1	1	1
SI2 - Pond area	0.2	0.95	0.05	0.2	0.05
SI3 - Pond drying	0.9	0.9	0.9	0.9	0.9
SI4 - Water quality	1	0.33	1	0.33	0.01
SI4 - Shade	0.6	0.6	1	1	1
SI6 - Fowl	1	0.67	1	1	0.01
SI7 - Fish	1	0.01	1	0.01	1
SI8 - Ponds	1	1	1	1	1
SI9 - Terrestrial habitat	1	0.67	1	0.67	0.67
SI10 - Macrophytes	0.3	0.3	1	0.3	0.3
HSI SCORE	0.71	0.43	0.73	0.41	0.25

Summary of HSI Scores

POND NUMBER	HSI SCORE	PREDICTED PRESENCE
1	0.73	GOOD
2	0.49	POOR
3	0.42	POOR
4	0.77	GOOD
5	0.60	AVERAGE
6	0.81	EXCELLENT
7	0.45	POOR
8	0.80	EXCELLENT
9	0.71	GOOD
10	0.75	GOOD
11	0.67	AVERAGE
12	0.86	EXCELLENT
13	0.45	POOR
14	0.79	GOOD
15	0.75	GOOD
16	0.71	GOOD
18	0.43	POOR
19	0.73	GOOD
20	0.41	POOR
21	0.25	POOR

GCN Survey results

Pond reference				Method	Torch			Egg search
Pond 1					Torch power:			
No. of survey visits to this pond:		6		>= 1,000,000 cp				
Sex/life stage:				Male	Female	Imm.	eggs found?	
(1) Date:	Air temp	Veg cover	Turbidity		11	14	0	No
04/05/16	14	1	1	Adult totals:	25			
(2) Date:	Air temp	Veg cover	Turbidity		18	25	0	No
05/05/16	11	1	1	Adult totals:	43			
(3) Date:	Air temp	Veg cover	Turbidity		6	1	0	No
11/05/16	17	1	3	Adult totals:	7			
(4) Date:	Air temp	Veg cover	Turbidity		10	17	0	No
16/05/16	13	1	3	Adult totals:	27			
(5) Date:	Air temp	Veg cover	Turbidity		6	10	0	No
19/05/16	13	1	2	Adult totals:	16			
(6) Date:	Air temp	Veg cover	Turbidity		4	1	0	No
28/05/16	14	1	2	Adult totals:	5			
Peak adult count for this pond in any one visit = 43								

Pond reference				Method	Torch			Egg search
Pond 2					Torch power:			
No. of survey visits to this pond:		1		>= 1,000,000 cp				
Sex/life stage:				Male	Female	Imm.	eggs found?	
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	No
05/05/16	11	1	2	Adult totals:	0			
Peak adult count for this pond in any one visit = 0								
NOTE : Pond screened out due to fish								

Pond reference				Method	Torch			Egg search
Pond 3					Torch power:			
No. of survey visits to this pond:		1		>= 1,000,000 cp				
Sex/life stage:				Male	Female	Imm.	eggs found?	
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	No
11/05/16	17	1	2	Adult totals:	0			
Peak adult count for this pond in any one visit = 0								
NOTE : Pond screened out due to fish								

*Vegetation cover score (0-5) : 0 = no vegetation obscuring survey;
5 = water completely obscured by vegetation.*
Turbidity score (0-5) : 0 = completely clear; 5 = very turbid.

Pond reference				Method	Torch			Egg search
Pond 4					Torch power:			
No. of survey visits to this pond:		6		>= 1,000,000 cp				
Sex/life stage:				Male	Female	Imm.	eggs found?	
(1) Date:	Air temp	Veg cover	Turbidity		1	8	0	Yes
11/05/16	17	2	2	Adult totals:	9			
(2) Date:	Air temp	Veg cover	Turbidity		2	4	0	No
16/05/16	13	2	2	Adult totals:	6			
(3) Date:	Air temp	Veg cover	Turbidity		4	7	0	No
19/05/16	13	2	3	Adult totals:	11			
(4) Date:	Air temp	Veg cover	Turbidity		4	15	0	No
28/05/16	14	2	2	Adult totals:	19			
(5) Date:	Air temp	Veg cover	Turbidity		6	14	0	No
30/05/16	17	2	2	Adult totals:	20			
(6) Date:	Air temp	Veg cover	Turbidity		4	15	0	No
03/06/16	13	2	1	Adult totals:	19			
Peak adult count for this pond in any one visit = 20								

Pond reference				Method	Torch			Egg search
Pond 6					Torch power:			
No. of survey visits to this pond:		1		>= 1,000,000 cp				
Sex/life stage:				Male	Female	Imm.	eggs found?	
(1) Date:	Air temp	Veg cover	Turbidity		0	2	0	Yes
28/04/16	10	3	1	Adult totals:	2			
Peak adult count for this pond in any one visit = 2 (Presence/absence only)								

Pond reference				Method	Torch			Egg search
Pond 7					Torch power:			
No. of survey visits to this pond:		1		>= 1,000,000 cp				
Sex/life stage:				Male	Female	Imm.	eggs found?	
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	No
28/04/16	10	3	2	Adult totals:	0			
Peak adult count for this pond in any one visit = 0								
NOTE : Pond screened out due to fish								

Pond reference				Method	Torch			Egg search
Pond 8					Torch power:			
No. of survey visits to this pond:		1		>= 1,000,000 cp				
Sex/life stage:				Male	Female	Imm.	eggs found?	
(1) Date:	Air temp	Veg cover	Turbidity		0	3	0	Yes
28/04/16	11	1	3	Adult totals:	3			
Peak adult count for this pond in any one visit = 3 (Presence/absence only)								

*Vegetation cover score (0-5) : 0 = no vegetation obscuring survey;
5 = water completely obscured by vegetation.
Turbidity score (0-5) : 0 = completely clear; 5 = very turbid.*

Pond reference				Method	Torch			Egg search
Pond 11					Torch power:			
No. of survey visits to this pond:		2		>= 1,000,000 cp			eggs found?	
Sex/life stage:				Male	Female	Imm.		
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	No
28/04/16	11	0	0	Adult totals:	0			
(2) Date:	Air temp	Veg cover	Turbidity		0	0		No
19/05/16	13	0	0	Adult totals:	0			
Peak adult count for this pond in any one visit = 0								
NOTE : eDNA sampling also used								

Pond reference				Method	Torch			Egg search
Pond12					Torch power:			
No. of survey visits to this pond:		1		>= 1,000,000 cp			eggs found?	
Sex/life stage:				Male	Female	Imm.		
(1) Date:	Air temp	Veg cover	Turbidity		0	1	0	Yes
04/05/16	14	2	2	Adult totals:	1			
Peak adult count for this pond in any one visit = 1 (Presence/absence only)								

Pond reference				Method	Torch			Egg search
Pond 14					Torch power:			
No. of survey visits to this pond:		1		>= 1,000,000 cp			eggs found?	
Sex/life stage:				Male	Female	Imm.		
(1) Date:	Air temp	Veg cover	Turbidity		1	0	0	No
05/05/16	11	1	1	Adult totals:	1			
Peak adult count for this pond in any one visit = 1 (Presence/absence only)								

Pond reference				Method	Torch			Egg search
Pond 15					Torch power:			
No. of survey visits to this pond:		1		>= 1,000,000 cp			eggs found?	
Sex/life stage:				Male	Female	Imm.		
(1) Date:	Air temp	Veg cover	Turbidity		1	0	0	Yes
05/05/16	11	1	3	Adult totals:	1			
Peak adult count for this pond in any one visit = 1 (Presence/absence only)								

Pond reference				Method	Torch			Egg search
Pond 16					Torch power:			
No. of survey visits to this pond:		1		>= 1,000,000 cp			eggs found?	
Sex/life stage:				Male	Female	Imm.		
(1) Date:	Air temp	Veg cover	Turbidity		5	3	0	No
05/05/16	11	1	2	Adult totals:	8			
Peak adult count for this pond in any one visit = 8 (Presence/absence only)								

Pond reference				Method	Torch			Egg search
Pond 18					Torch power:			
No. of survey visits to this pond:		1		>= 1,000,000 cp			eggs found?	
Sex/life stage:				Male	Female	Imm.		
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	No
19/05/16	13	1	3	Adult totals:	0			
Peak adult count for this pond in any one visit = 0								
NOTE : Pond screened out due to fish								

Pond reference				Method	Torch			Egg search		
Pond 19					Torch power: >= 1,000,000 cp					
No. of survey visits to this pond:		6		Sex/life stage:			Male	Female	Imm.	eggs found?
(1) Date:	Air temp	Veg cover	Turbidity		3	2	0	No		
04/05/16	14	3	1	Adult totals:	5					
(2) Date:	Air temp	Veg cover	Turbidity		1	3	0	No		
11/05/16	18	3	1	Adult totals:	4					
(3) Date:	Air temp	Veg cover	Turbidity		1	3	0	No		
16/05/16	13	3	2	Adult totals:	4					
(4) Date:	Air temp	Veg cover	Turbidity		3	0	0	No		
19/05/16	13	3	2	Adult totals:	3					
(5) Date:	Air temp	Veg cover	Turbidity		2	1	0	No		
28/05/16	14	3	2	Adult totals:	3					
(6) Date:	Air temp	Veg cover	Turbidity		1	1	0	No		
03/06/16	13	3	1	Adult totals:	2					
Peak adult count for this pond in any one visit = 5										

Vegetation cover score (0-5) : 0 = no vegetation obscuring survey;
5 = water completely obscured by vegetation.

Turbidity score (0-5) : 0 = completely clear; 5 = very turbid.

Other amphibian species

Waterbody	Smooth newts	Palmate newts	Other
Pond 1	1-10	1-10	-
Pond 2	-	1-10	Marsh frog
Pond 3	-	-	-
Pond 4	1-10	1-10	-
Pond 5	-	-	Marsh frog
Pond 6	1-10	1-10	-
Pond 7	-	-	-
Pond 8	-	-	Common frog
Pond 9	-	-	Marsh frog
Pond 10	-	-	Marsh frog
Pond 11	-	-	-
Pond 12	1-10	1-10	-
Pond 13	-	-	-
Pond 14	-	1-10	-
Pond 15	-	-	-
Pond 16	-	1-10	-
Pond 18	-	-	Common toad
Pond 19	1-10	1-10	Common frog
Pond 20	-	-	-
Pond 21	-	-	-

APPENDIX IV : PHOTOGRAPHS



Photograph 1 : View from central section looking south-east



Photograph 2 : View looking east



Photograph 3 : View from eastern section looking west



Photograph 4 : View looking north



Photograph 5 : View from end of eastern bund looking north



Photograph 6 : Bund looking south



Photograph 7 : Lagoon - Pond 5



Photograph 8 : Vegetation on bank of Pond 5