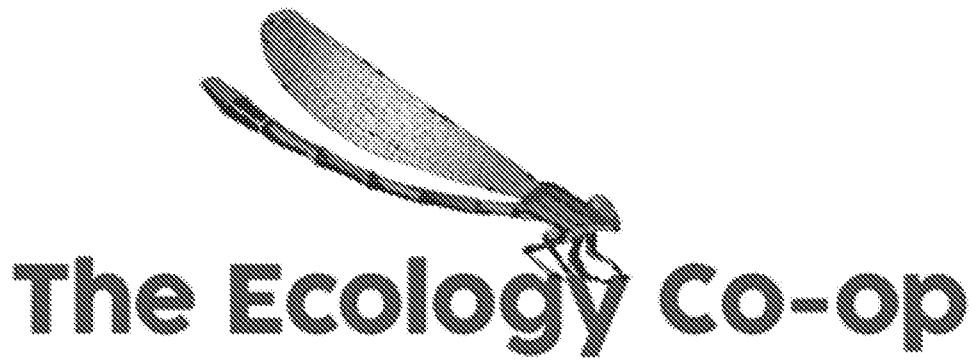
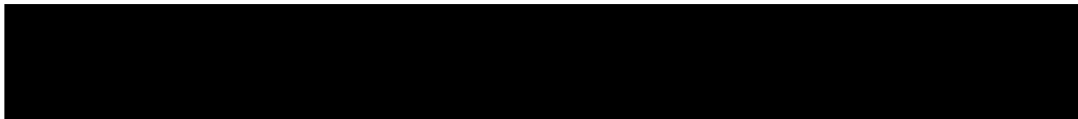




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Phase 2 Ecology Surveys

Land to the rear of Byfields, Nyton Lane, Westergate

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15th November 2018

Project No:1655

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Report Summary

1. **Planning Solutions** instructed the Ecology Co-op to undertake a Phase 1 Habitat Survey and Preliminary Ecological Appraisal of Land at Nyton Road, Westergate which was completed in September 2017. Based on the findings of this assessment, bat emergence surveys upon three properties (Byfields, Nightingale Cottage and a small barn), presence/absence surveys for reptiles; a Habitat Suitability Index (HSI) assessment and further surveys where required of a pond for great crested newts; and surveys for reptiles and bats were recommended. Bat surveys included walked transects at dusk and static logger deployment. This report presents the findings of these surveys, which were carried out between April and September 2018.
2. The site is approximately 0.9 hectares in area and includes Byfields and Nightingale Cottage and their associated garden spaces and outbuildings and a southern parcel of land. The following habitats are present; broadleaved woodland, ruderal, poor semi-improved grassland, amenity grassland, dense and scattered scrub and mixed parkland scattered trees with species poor hedgerows and hedgerows with trees, brick walls and fences along the sites boundaries and through the site.
3. The surveys confirmed the presence of a at least eight species of foraging and commuting bats including barbastelle (an Annex II species). The proposed development would potentially result in adverse impacts on these species, through habitat loss and disturbance as a result of artificial lighting.
4. A low population slow worms were identified at the site. The proposed development has the potential to adversely impact upon these species through habitat loss and direct injury during site preparation and construction.
5. The potential impacts, options for impact avoidance and mitigation measures for, bats, reptiles and great crested newts are outlined in this report. However, it is recommended that a detailed Mitigation Statement is developed as part of the detailed design for the scheme to outline suitable enhancement measures such as woodland enhancement, tree planting, hedgerow enhancement and the instillation of bird and bat boxes to benefit wildlife at the site.

This report has been prepared by The Ecology Co-operation Ltd, with all reasonable skill, care and diligence within the terms of the Contract with the client. This report only becomes the property of the client once payment for it has been received in full.

We disclaim responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.



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1 INTRODUCTION

1.1 Background to the proposed development

Planning Solutions intend to submit a planning application for residential development to include 5 5-bed properties on Land to the rear of Byfields, Nyton Lane, Westergate (see Figure 1). The National Grid Reference for the centre of the site is approximately SU 9369 0555 and the closest postcode is PO20 3US. The ecological impact assessments in this report are based on the proposed site plan and location plan produced by HRP Architects Ltd. (Drawing no. 1306-01 A, dated November 2016) (see Figure 2).



Figure 1. An aerial image showing the location of the site. The approximate site boundary is outlined in red.

Figure 2. Proposed site plan XXXXX .

1.2 The site

This site is approximately 0.9ha in area. It comprises two residential buildings (Byfields and Nightingale Cottage), their associated garden spaces and outbuildings and a parcel of land to the south. The following habitats are present across the southern parcel; broadleaved woodland, ruderal vegetation,



poor semi improved grassland, amenity grassland, dense scrub, scattered scrub, mixed parkland scattered trees with species poor hedgerows and hedgerows with trees, brick walls and fences along the boundaries.

1.3 Purpose of this Report

A Phase 1 Habitat Survey and Preliminary Ecological Appraisal, completed by the Ecology Co-op on the 14th July 2017¹, identified the potential for reptiles, bats (roosting, foraging and commuting) and great crested newts (given the presence of ponds within 250m to the site) to be present on the site. As such, Phase 2 surveys for each of these species/taxonomic groups were recommended.

These surveys commenced in April 2018 and were completed in September 2018. This report provides details of the findings of these surveys and an outline of the potential impacts of the proposed development together with an indication of impact avoidance and mitigation measures likely to be required for the development to proceed.

This work has been overseen by Briony Hill, a Graduate member of the Chartered Institute for Ecology and Environmental Management (CIEEM) and Paul Whitby, MCIEEM and a Chartered Ecologist (CEcol).

These surveys and report were carried out and produced at the request of **Planning Solutions**.

1.4 Policy and Legislation

Legal protection applying to relevant bird, mammal, herpetofauna and invertebrate species and current nature conservation planning policy is outlined in Appendix 1 of this report.

2 SURVEY METHODOLOGY

All methodologies used in the Phase 2 surveys are in accordance with current best practice guidance for the respective specie/taxonomic groups, as detailed below.

2.1 Bats

2.1.1 Bat Emergence Surveys

2.1.1.1 Byfields

This building was rated as having 'high' bat roosting potential. In accordance with current best practice guidelines², three emergence surveys were recommended to determine the presence of roosting bats and evaluate the conservation importance of the building for bats.

¹ The Ecology Co-op (2017). *Bat Scoping, Preliminary Ecological Appraisal and Phase 1 Habitat Assessment – Land to the rear of Byfield, Nyton Road, Westergate*.

² Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn). Bat Conservation Trust, London.



Three emergence surveys were undertaken on the 17th May, 4th and 20th June 2018, using the methodology set out in the best practice guidelines prepared by the Bat Conservation Trust. Weather conditions, timings and temperatures during each survey visit are presented in Table 1.

The surveys focused upon all the features identified during the scoping assessment, using three surveyors positioned according to Figure 3. During the final surveys an infra-red camera was used. The footage from the video cameras was later analysed for any signs of bat emergence. From these positions surveyors could see almost all features potentially suitable for roosting bats that were identified during the initial bat scoping survey.

The surveyors recorded any bat activity on or around the potential roosting entry/exit features identified during the scoping survey, using full spectrum hand held bat detectors to identify species through call frequencies. The bat calls were logged and recorded as sonograms for later confirmation of species where necessary.

Table 1. Timings, weather conditions and personnel details for the bat emergence surveys undertaken on Byfields.

Date	Survey start time/end time	Temp. degrees centigrade, weather conditions throughout survey	Surveyors
07/05/18	20:06 – 22:00 Sunset – 20:26	Max/Min temp.: 11-8°C 70% cloud cover, 0-5mph wind and dry	Sam Lunn Natural England bat licence holder - Level 2 Simon Rayburn Matt Howard
04/06/18	20:55 – 22:55 Sunset: 21:10	Max/Min temp.: 18-16°C 20% cloud cover, 0-5mph wind and dry.	Sam Lunn Jess Burkitt Hamish Muirden
20/06/18	21:05 – 23:00 Sunrise: 21:20	Max/Min temp.: 17-14°C 80% cloud, 0-5mph wind and dry	Sam Lunn Jess Burkitt Sophie Bradfield Infra red camera



Figure 3. An aerial image of the Byfield property, subjected to three bat emergence surveys, indicated with an orange shaded outline. The positions of three surveyors are indicated with red dots. The location of a camera used during the final survey is indicated with a yellow dot.

2.1.1.2 *Nightingale Cottage*

This building was rated as having 'moderate' bat roosting potential. In accordance with current best practice guidelines², two emergence surveys were recommended to determine the presence of roosting bats and evaluate the conservation importance of the building for bats.

Two emergence surveys were undertaken on the 15th May and 4th June 2018, using the methodology set out in the best practice guidelines prepared by the Bat Conservation Trust. Weather conditions, timings and temperatures during each survey visit are presented in Table 2.

The surveys focused upon all the features identified during the scoping assessment, using two surveyors positioned according to Figure 4. From these positions surveyors could see almost all features potentially suitable for roosting bats that were identified during the initial bat scoping survey.

Table 2. Timings, weather conditions and personnel details for the bat emergence surveys undertaken on Nightingale Cottage.



Date	Survey start time/end time	Temp. degrees centigrade, weather conditions throughout survey	Surveyors
15/05/18	20:50 – 22:40 Sunset – 21:10	Max/Min temp.: 19-13°C 10% cloud cover, 0-5mph wind and dry.	Kristina Lewis Natural England bat licence holder - Level 1 Emma Baker
04/06/18	20:50 – 22:40 Sunset – 21:10	Max/Min temp.: 18-16°C 20% cloud cover, 0-5mph wind and dry.	Ryan Walker Natural England bat licence holder - Level 2 Emma Baker



Figure 4. An aerial image of the Nightingale Cottage, subjected to two bat emergence surveys, indicated with a blue shaded outline. The positions of two surveyors during the first survey are indicated with red dots. The positions of two surveyors during the first survey are indicated with orange dots.

2.1.1.3 Nightingale Cottage Barn

This building was rated as having 'low' bat roosting potential. In accordance with current best practice guidelines², one emergence survey was recommended to determine the presence of roosting bats and evaluate the conservation importance of the building for bats.

The single emergence survey was undertaken on the 5th June 2018, using the methodology set out in



the best practice guidelines prepared by the Bat Conservation Trust. The weather conditions, timings and temperatures for the survey visit are presented in Table 3.

The surveys focused upon all the features identified during the scoping assessment, using one surveyor and one camera positioned according to Figure 5. The footage from the video cameras was later analysed for any signs of bat emergence. From these positions surveyors could see almost all features potentially suitable for roosting bats that were identified during the initial bat scoping survey.

Table 3. Timings, weather conditions and personnel details for the bat emergence survey undertaken on Nightingale Cottage Barn.

Date	Survey start time/end time	Temp. degrees centigrade, weather conditions throughout survey	Surveyors
04/06/18	20:50 – 22:40 Sunset – 21:10	Max/Min temp.: 18-16°C 20% cloud cover, 0-5mph wind and dry.	Sophie Bradfield Infra-red camera



Figure 5. An aerial image of the Nightingale Cottage Barn, subjected to one bat emergence survey, indicated with a green shaded outline. The position of one surveyors is indicated with a red dot. The position of a camera is indicated with a yellow dot.



2.1.2 Bat Activity Surveys – Walked Transects

Three walked bat activity transects were carried out at the site on the 23rd April, 20th June and 4th September 2018. Bat activity surveys followed current standard best practice guidelines³. Pre-determined transect routes were followed by surveyors, focussing on all linear features within the site boundary (tree-lines and hedgerows) (see Figure 6).

The transect routes were walked at a slow pace at dusk (during the period from sunset up to one and a half to two hours after sunset) by two surveyors, such that each part of the route was passed approximately every 15 minutes. Five stopping points were marked out where surveyors stopped for 5 minutes throughout the surveys period. All surveys were undertaken during weather conditions suitable for bat activity and at ambient temperatures above 10°C. Weather conditions, timings and temperature during each survey visit is presented in Table 4.

The surveyors recorded bat activity using 'Echo Meter Touch' bat detectors featuring auto-identification of bat species and automatically triggered recording for later review. The locations of all bat 'registrations' was recorded onto a field map during the survey to correspond with all sound recordings. Where possible, additional notes on size, flight height, type of flight (such as commuting, foraging, fast or slow) and direction of flight were also recorded.

Table 4. Timings, weather conditions and personnel details for bat activity surveys undertaken at Nyton Road, Westergate.

Date	Survey start time/end time	Temp. degrees centigrade, weather conditions throughout survey	Surveyors
23/04/18	19:55 – 22:05 Sunset – 20:10	Max/Min temp.: 14-10°C 40% cloud cover at start, 90% cloud cover at finish 0-5mph wind Dry	Briony Hill Natural England bat licence holder - Level 2 Emma Baker
20/06/18	21:05 – 23:00 Sunset: 21:20	Max/Min temp.: 17 – 14°C 30% cloud cover and 0-5mph breeze	Hamish Muirden
04/09/18	19:30-21:20 Sunset: 19:42	Max/Min temp.: 18 – 12.5°C 100% cloud cover, 0-5mph wind and dry.	Briony Hill Natural England bat licence holder - Level 2 Emma Baker

2.1.3 Bat Activity Surveys - Automated Static Bat Detecting

Two static bat detectors ("Peersonic Detector and Full Spectrum Recorder RPA2 enclosed within a waterproof IP67 box") were deployed across the site on 3 separate occasions (spring, summer and

³ Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*. The Bat Conservation Trust, London.



autumn), and left in the field for a minimum of 5 days, which is the expected maximum lifetime of the battery.

The static bat detectors comprise passive recording devices with real-time full-spectrum calls that can be viewed in detail on analysis software once downloaded, allowing accurate identification of most bat calls to species level (or genus level in the case of *Myotis* and *Plecotus* spp.). The loggers were programmed to record bat echolocation calls from 30 minutes prior to dusk until 30 minutes after dawn.

The recorded WAV files were analysed in full spectrum using Kaleidoscope software (version 4.5.5). All sound files were subject to manual analysis by an experienced bat ecologist. Where possible, identification was carried out to species level, except for the *Myotis* bats, as they are often inseparable through sound analysis alone due to overlapping call parameters, which were identified to genus level only. Descriptions of bat species assemblage therefore represent the minimum number present rather than a definitive list of all species present.

Analysed data was used to produce a Microsoft Excel table comparing the location of the static bat detectors and the total number of passes per species per night.

These two methodologies complement each other with the transect surveys providing information on foraging and commuting patterns across the site and automated static detector surveys giving more extensive coverage over the whole of the active foraging period for bats, thus increasing the likelihood of detecting scarce species.



Figure 6. The transect route walked during bat activity surveys is indicated with a red dashed line. During the April and September survey this was walked by two surveyors (for health and safety purposes). Surveyors start at points A and C. During the June survey this route was walked by one surveyor. Stop points are indicated with coloured letters. Static logger locations are indicated with dots.



2.2 Great crested newts

2.2.1 Habitat suitability assessment

The Phase 1 and PEA identified five ponds within 500m of the site boundary (see Figure 7).

It was recommended that Pond 1, 3 and 4 were subjected to visual assessment (pending access). Access permission was successfully gained to survey four of these ponds and during this process four additional ponds were identified (see figure 7). Where access permission was granted, all ponds were assessed for their potential to support great crested newts using the Habitat Suitability Index (HSI)⁴ in accordance with best practice guidance⁵. Pond 1 and 3 were assessed on the 31st February 2018, Pond 4 and four additional ponds (Pond 6a and 6b and 7) were assessed on the 15th March 2018 and an addition pond at Westergate Lodge, (referred to as Pond 8) was assessed on the 9th March 2018 (see Figure 7).

Those ponds with 'below average' or above suitability for breeding great crested newts were carried forward for presence/absence surveys.

Pond 2 and 5 were scoped out due to Nyton Road and a stream acting as barrier to movement for this species.

2.2.2 Presence/absence survey and population assessments

Pond 4, 6a, 6b and 7 were subjected to a presence/absence surveys. The survey methodology followed standard guidance on presence/absence surveys for great crested newts⁶. Four survey visits were undertaken using a combination of trapping, torchlight searching, netting and egg searching for presence of great crested newts during each survey visit. All surveys were undertaken during weather conditions suitable for great crested newts, above the minimum temperature of 5°C and at least two of the survey visits were undertaken during the 'peak activity period' for breeding great crested newts (i.e. between 15th April to 15th May). Weather conditions, temperature and pond turbidity during each survey visit is presented in Appendix 3.

Full population assessments were undertaken on Pond 4 and 7 as evidence of great crested newts was identified during the first four survey visits. This involved undertaking two addition visits as detailed above. It was ensured that at least three of the survey visits were undertaken during the 'peak activity period' for breeding great crested newts (i.e. between 15th April to 15th May).

Net traps were used instead of typical bottle traps during surveys. This was to prevent puncturing of the liners within Pond 4, 6a, 6b and 7.

⁴ Oldham, R.S., Keeble, J., Swan, M.J.S. and Jeffcote, M. (2000) *Evaluating the suitability of habitat for the great crested newt (Triturus cristatus)*. *Herpetological Journal* 10, 143-155.

⁵ English Nature (2001) *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.

⁶ English Nature (2001) *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.

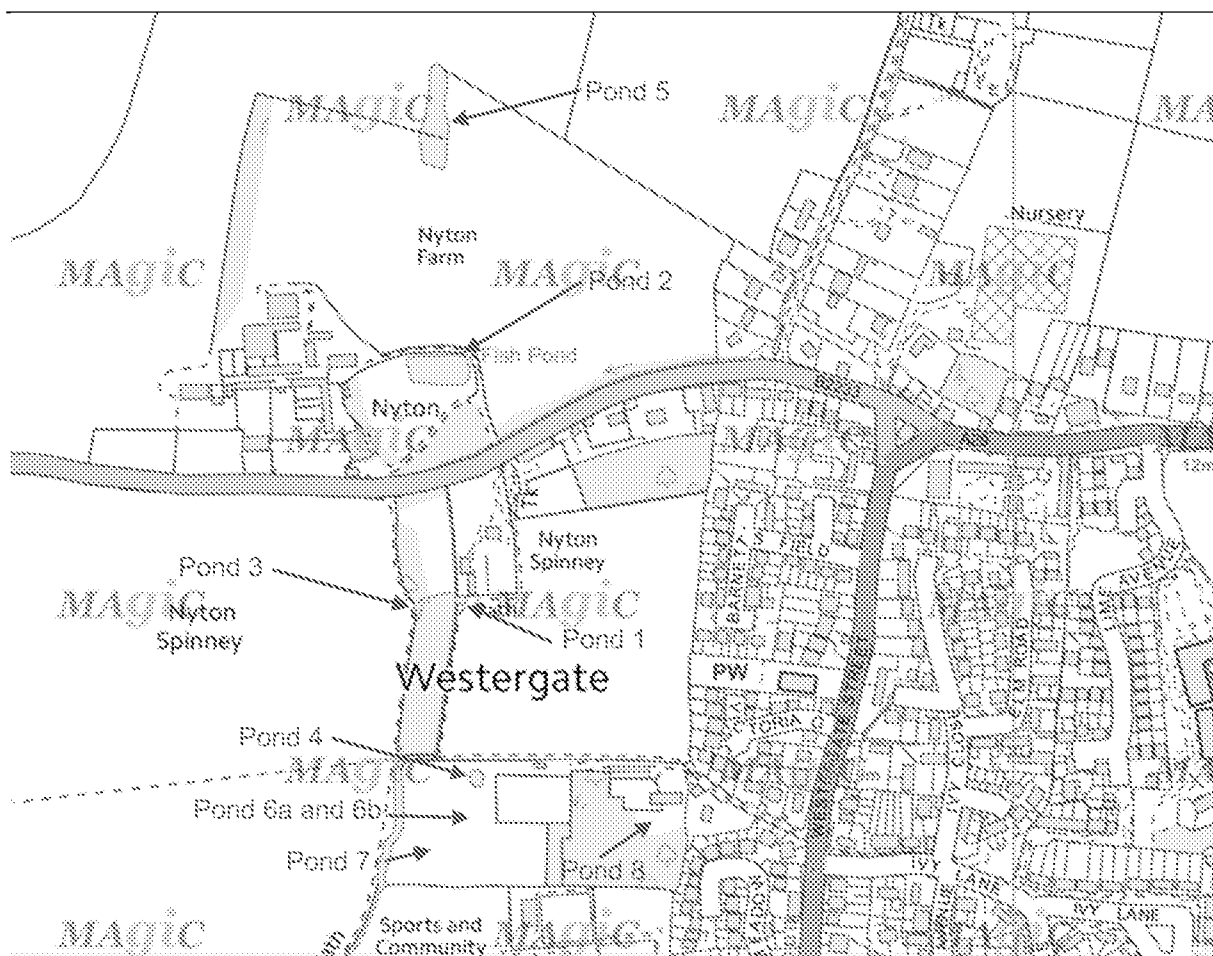


Figure 7. Ponds located within 500 meters of the sites boundaries which are shown with a red outline.

2.3 Reptiles

Standard reptile presence/likely absence surveys involve setting out artificial refugia (reptile 'mats') in potentially suitable habitat for reptiles. Reptile mats are either pieces of roofing bitumen felt or corrugated metal sheets, which absorb heat from the sun more rapidly than the surroundings and provide cover and basking places attractive to reptiles. These are then checked for presence of animals under suitable weather conditions. There are no up to date guidelines for reptile surveys, but a minimum of seven survey visits under suitable weather conditions is generally considered to be sufficient to determine their presence/likely absence.

A total of 10 roofing felt mats were used in this survey and placed in sunny locations in the long poor semi-improved grassland and in clearings of the woodland habitat. The sheets were placed out on the 20th March and left *in situ* for a minimum of 10 days to 'bed in' and allow reptiles to locate them before the first check.

The highest count of reptiles from the visits undertaken is used to categorise the population of each reptile species on the site as low, medium or exceptional, based on best practice guidance⁷.

⁷ Froglife (1999). *Froglife Advice Sheet 10: reptile survey*. Froglife, London.



2.4 Assessment Methodology

The assessment of ecological impacts in Section 4 of this report follows best practice guidelines for impact assessment⁸.

The mitigation hierarchy underpins this assessment:

- Avoidance - “Seek options that avoid harm to ecological features (for example, by locating on an alternative site).”
- Mitigation - “Adverse effects should be avoided or minimised through mitigation measures, either through the design of the project or subsequent measures that can be guaranteed – for example, through a condition or planning obligation.”
- Compensation – “Where there are significant residual adverse ecological effects despite the mitigation proposed, these should be offset by appropriate compensatory measures.”
- Enhancements – “Seek to provide net benefits for biodiversity over and above requirements for avoidance, mitigation or compensation.”

Six steps are required as part of an ecological impact assessment. These are summarised below and explained in more detail in Appendix 2:

1. Identify important ecological features (habitats, species, ecosystems and their functions/processes);
2. Identify and characterise the impact to important ecological features;
3. Incorporate measures to avoid and mitigate these impacts;
4. Assess the significance of any residual effects after mitigation;
5. Identify appropriate compensation measures to offset significant residual effects; and
6. Identify opportunities for ecological enhancement.

2.5 Constraints/limitations to surveys

These surveys record any flora or fauna that is present at the time of the survey visits. It is therefore possible that some species may not have been present during the survey, but may be evident at other times of the year and may appear or disappear from the site if habitat conditions change. For this reason, the surveys are considered valid for up to 18 months for badgers and bats, 2 years for reptiles and three years for great crested newts and dormice. If the habitat conditions change significantly beyond that time, it is recommended that the surveys are updated.

2.5.1 Bats

In accordance with best practice guidelines, three survey visits were undertaken upon Byfields, two upon Nightingale Cottage and one upon Nightingale Cottage Barn during the peak period in bat activity and during good weather conditions. The results presented here are therefore considered to be an accurate representation of the general use of the property by roosting bats.

⁸ CIEEM (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal*. Chartered Institute of Ecology and Environmental Management, Winchester.



Nevertheless, bats can use roosting features intermittently throughout the year and may be present in larger or smaller numbers depending on their breeding cycle, weather conditions, and in response to disturbance. These surveys record the emergence of bats at the time of the survey visits and therefore only provide a snapshot of bat roosting activity at the site at that time. Bats may be present at other times and the results should therefore be viewed with caution.

2.5.2 Great Crested Newts

The water of Pond 4 was turbid with low visibility although amphibians were identified using this technique. Netting was used as a method during the first survey however based on the disturbance created was not used on following survey visits. Typical bottle traps were not employed as the pond was lined. Instead crayfish nets were utilised in a ratio of three nets to one bottle trap. Egg searching was employed for all four surveys.

Pond 6a was too shallow to trap and netting was not possible following the first visit due to the high density of oxygenators within the pond. Egg searching was employed for all four surveys.

Pond 6b was too shallow to net or trap. Torching of this pond also proved difficult as it was swarming with tadpoles and this method could only be used on the final two surveys. Egg searching was employed for all four surveys. It is therefore considered that there is a low detectability warning.

Pond 7 was too shallow to net or trap however the water was very clear allowing good visibility of the entire waterbody while torching. Egg searching was also employed on all survey visits.

3 RESULTS

3.1 Bats

3.1.1 Bat Emergence Surveys

3.1.1.1 Byfields

3rd May 2018

No bats were recorded emerging from the property at any time during this survey.

General bat activity was moderate to high. Six species; common pipistrelle, soprano pipistrelle, common noctule, serotine, long-eared species and *Myotis spp.* were recorded foraging and commuting between 20:45 and 21:49.

A common noctule flew north to south over head of the property at 20:51 and was heard again at 21:01. This species was heard but not seen at the end of the survey.

A soprano pipistrelle flew west to east across the northern face of the property at 20:59. Two social calling individuals flew west across the front of the property at 22:00. This species foraged for 3 minutes along the woodland edge to the south from 21:10. This species foraged just north of the property at 21:14 and 22:20. This species was heard but not seen on ten occasions. At 21:09 two common pipistrelles foraged along the woodland edge to the south. This species foraged within the eastern



garden space at 21:34. Common pipistrelles were heard but not seen on ten occasions during the survey.

An individual *Myotis* foraged across the eastern garden space at 21:21. A serotine was recorded foraging at 21:06 and although not seen is expected to have been foraging along the tree line north of the road. This species was heard but not seen at 21:28. At 21:20, 21:39 and 21:49 a long-eared was heard but not seen.

4th June 2018

A common pipistrelle emerged from a roof tile on the north or western elevation of the attached garage at 21:37 (see Figure 8). The exact feature could not be determined due to it being located in a blind spot. The bat proceeded to commute south toward the woodland habitat.

General bat activity was moderate. Six species; common pipistrelle, soprano pipistrelle, common noctule, serotine, long-eared species and *Myotis spp.* were recorded foraging and commuting between 21:37 and 22:43.

At 22:12 a *Myotis sp.* foraged briefly within the north eastern garden space. Five minutes later an individual also commuted along the east and southern face of the property. *Myotis sp.* were heard but not seen on three occasions. A commuting common pipistrelle travelled along the southern and eastern face of the property at 21:41. This species foraged within the eastern garden space briefly at 22:11 and between 22:41 and the end of the survey north of the property. Common pipistrelles and soprano pipistrelles were heard but not seen on 11 and four occasions respectively.

Long-eared bats were heard but not seen on four occasions during this survey. At 22:19 and 22:39 a noctule and a serotine were heard commuting respectively but not seen.



Figure 8. Approximate emergence location and flight route of a common pipistrelle during the emergence survey on the 4th June 2018.

20th June 2018



No bats were recorded emerging from the property at any time during this survey. The night-vision camera footage was reviewed and no bats were observed emerging from the location it was focused upon.

General bat activity was moderate. Five species; common pipistrelle, soprano pipistrelle, common noctule, long-eared species and *Myotis spp.* were recorded foraging and commuting between 21:47 and 22:59.

Two soprano pipistrelles commuted south to north across the eastern garden space a minute apart at 21:48. Two individuals passed west to east over the garden space at 22:13. This species was heard but not seen on seven occasions. A common pipistrelle commuted north to south along the eastern face of the property at 21:54. Common pipistrelles commuted through the eastern garden space on six occasions. This species was heard but not seen on nine occasions.

A *Myotis sp.* commuted along the east and southern face of the property at 22:26. Two individuals commuted north to south towards the woodland along the eastern face of the property at 22:39. This species was heard but not seen on four occasions. At 21:47 and 22:22 a noctule was heard but not seen. A long-eared was heard but not seen at 22:28, 22:46 and 22:53.

3.1.1.2 Nightingale Cottage

15th May 2018

No bats were recorded emerging from the property at any time during the survey.

General bat activity was relatively high during this survey. Six species; common pipistrelle, soprano pipistrelle, common noctule, serotine, long-eared species and *Myotis spp.* were recorded foraging and commuting between 21:00 and 22:47.

A soprano pipistrelle commuted west to east overhead of the property at 21:00. An individual of this species commuted in the opposite direction at 21:26. This species was heard but not seen on six occasions. A common pipistrelle travelled west to east overhead of the property at 21:22. A common pipistrelle foraged overhead of the flat rooved section of the building at 21:31. This species was heard but not seen on 14 occasions.

At 21:13 a common noctule commuted north to south overhead of the property. Two passes by this species were heard but not seen. A long-eared was heard but not seen at 21:43 and 21:59. A *Myotis sp.* commuted along the northern face of the property at 22:00. This species was heard but not seen on three occasions. Serotine bats were heard but not seen on two occasions.

4th June 2018

No bats were recorded emerging from the property at any time during this survey.

General bat activity was low during this survey. Five species; common pipistrelle, soprano pipistrelle, serotine, long-eared species and *Myotis spp.* were recorded foraging and commuting between 21:33 and 22:37.



A common pipistrelle commuted south east to north west over the barn at 21:33. A foraging individual was recorded to the west of the property. This species was heard but not seen commuting at 22:29 and 22:34. Early in the survey soprano pipistrelles were heard but not seen foraging intermittently. A *Myotis* sp. commuted east to west over head of the residential property at 22:02 and 22:10. This species was heard but not seen on four other occasions. A serotine commuted north to south into the woodland habitat at 22:21. Finally, 22:25 a long-eared commuted north to south to the west of the property.

3.1.1.3 Nightingale Cottage Barn

4th June 2018

No bats were recorded emerging from the property at any time during this survey. The night-vision camera footage was reviewed and no bats were observed emerging from the building at any time.

General bat activity was the same as described above for Nightingale Cottage 4th June 2018.

3.1.2 Bat activity surveys – walked transects

Three bat activity surveys have been completed in April, June and September 2018.

Below, the bat activity transect results are summarised Table 5 where the number of recordings made for each bat species on each activity survey is provided, whilst a map illustrating the use of the site by these bat species is also provided as a summary of all three surveys is shown in Figure 9. The colour coding for bat species is provided in the figure reference for each map.

A minimum of six bat species; common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, common noctule *Nyctalus noctula*, serotine *Eptesicus serotinus*, long-eared *Plecotus* sp. species and *Myotis* sp. were recorded foraging and commuting across the site. By far the most frequently recorded species were common pipistrelle and soprano pipistrelle, which were recorded across all three surveys. A small number of *Myotis* bats (species undetermined) were recorded in all three months across the site. It is not possible to confidently determine species of *Myotis* from analysis of sonographs of the echolocation calls alone. Common noctule were recorded in June and September. Three serotine passes and one long-eared pass were recorded in September only.

Table 5. Total bat passes recorded during each activity survey at Nyton Road, Westergate.

Survey date	Number of passes					
	Common pipistrelle	Soprano pipistrelle	Noctule	<i>Myotis</i> sp.	Serotine	Long-eared
23/04/18	52+	57+	-	2	-	-
20/06/18	43+	21+	1	2	-	-
04/09/18	30	28	8	2	3	1



Figure 9. Bat activity recorded at Nyton Road, Westergate across all surveys, with red representing common pipistrelle bats, orange representing soprano pipistrelle, blue representing common noctule, yellow representing serotine, pink representing *Myotis* sp. and purple representing long-eared bat. Thicker lines represent greater activity observed.

3.1.3 Bat Activity Surveys - Automated Static Bat Detecting

In summary, a minimum of 8 species were recorded by static loggers; common pipistrelle (86.1% of all recorded calls); soprano pipistrelle (8.9%); *Myotis* spp. (2.7%); serotine (0.8%); barbastelle (0.6%); common noctule (0.6%); nathusius pipistrelle (0.3%) and long-eared *Plectotus* sp. (0.1%);

These figures reflect the level of activity by bats and not the number of individuals and should be viewed with caution.

May

Location 1

The detector recorded calls for five consecutive nights from the 3rd to the 7th May 2018.

A minimum of eight species were recorded during this deployment: common pipistrelle, soprano pipistrelle, Nathusius pipistrelle, serotine, common noctule, barbastelle, long-eared species and *Myotis* spp..

Common pipistrelle bats and soprano pipistrelles were recorded on 3 nights and accounted for just over 78% and 10% respectively of the calls recorded, with a peak count of 202 and 16 calls respectively.

Serotine, *Myotis* spp. and long-eared bats were recorded across 3 nights. These species accounted for 5.6% of all calls with a peak count of 18, 2.8% of calls with a peak count of 4 and 0.8% of calls with a peak count of 1 call, respectively. Nathusius pipistrelle were recorded on two nights accounting for 0.8%



of all calls, with a peak count of 2 calls. Common noctules and barbastelles were recorded on 1 night only accounting for 0.5% and 0.3% respectively. Across two nights only noise files were recorded.

Table 6 shows the full results from the static logger deployment in Location 1 during May 2018.

Table 6: Species recorded and the total number of passes per night in Location 1 May 2018.

Date	Serotine	Common Noctule	Myotis sp.	Common pipistrelle	Soprano pipistrelle	Nathusius pipistrelle	Long-eared bat	Barbastelle
3/05/18	3	-	3	60	13	-	1	-
4/05/18	1	-	4	47	16	1	1	-
5/05/18	-	-	-	-	-	-	-	-
6/05/18	18	2	4	202	13	2	1	1
7/05/18	-	-	-	-	-	-	-	-
Percentage total	5.6%	0.5%	2.8%	78.6%	10.7%	0.8%	0.8%	0.3%

Location 2

The detector recorded calls for five consecutive nights from the 3rd to the 7th May 2018.

A minimum of four species were recorded during this deployment: common pipistrelle, soprano pipistrelle, serotine and *Myotis spp.*

Bats were only recorded on one of the nights that the static logger was deployed for with only noise recorded on all other nights. During this night common pipistrelles accounted for 48.9% of calls, soprano pipistrelles accounted for 47.4% of calls, *Myotis sp.* accounted for 3% of calls and finally serotines accounted for 0.8% of calls.

Table 7 shows the full results from the static logger deployment in Location 2 during April 2018.

Table 7: Species recorded and the total number of passes per night in Location 2 May 2018.

Date	Serotine	Common Noctule	Myotis sp.	Common pipistrelle	Soprano pipistrelle	Nathusius pipistrelle	Long-eared bat	Barbastelle
3/05/18	1	-	4	65	63	-	-	-
4/05/18	-	-	-	-	-	-	-	-
5/05/18	-	-	-	-	-	-	-	-
6/05/18	-	-	-	-	-	-	-	-
7/05/18	-	-	-	-	-	-	-	-
Percentage total	0.8%	0%	3.0%	48.9%	47.4%	0%	0%	0%

June

Location 1

The detector recorded calls for five consecutive nights from the 20th to the 24th June 2018.



A minimum of eight species were recorded during this deployment: common pipistrelle, soprano pipistrelle, Nathusius pipistrelle, serotine, common noctule, barbastelle, long-eared species and *Myotis spp.*

Common pipistrelle bats were recorded on 4 nights and accounted for just over 78% of the calls recorded, with a peak count of 113 calls. Soprano and Nathusius pipistrelle bats were recorded on 3 nights accounting for 4.2% and 2.7% of calls respectively with a peak count of 11 and 6 calls respectively. Common noctules, *Myotis sp.* and barbastelles were recorded on 3 nights. These species accounted for 5.2% of all calls with a peak count of 10, 4.9% of calls with a peak count of 11 and 2.5% of calls with a peak count of 7 call, respectively. Long-eared bats were recorded on one night only, accounting of 0.5% of calls. Only noise files were recorded during the final night this logger was deployed.

Table 8 shows the full results from the static logger deployment in Location 1 during June 2018.

Table 8: Species recorded and the total number of passes per night in Location 1 June 2018.

Date	Serotine	Common Noctule	<i>Myotis sp.</i>	Common pipistrelle	Soprano pipistrelle	Nathusius pipistrelle	Long-eared bat	Barbastelle
20/06/18	-	-	5	110	-	-	-	2
21/06/18	7	10	11	113	11	6	-	7
22/06/18	1	4	-	37	4	3	2	-
23/06/18	-	7	4	57	2	2	-	1
24/06/18	-	-	-	-	-	-	-	-
Percentage total	2.0%	5.2%	4.9%	78.1%	4.2%	2.7%	0.5%	2.5%

Location 2

The detector recorded calls for four consecutive nights from the 20th to the 23rd June 2018.

A minimum of four species were recorded during this deployment: common pipistrelle, soprano pipistrelle, barbastelle and *Myotis sp.*

Common and soprano pipistrelles were recorded on 3 nights accounting for 94.2% and 3.1% of all calls respectively, with a peak count of 1785 and 66 calls respectively. *Myotis sp.* were recorded on 3 nights accounting for 2.3% of calls with a peak count of 30 calls.

Table 9 shows the full results from the static logger deployment in Location 2 during June 2018.

Table 9. Species recorded and the total number of passes per night in Location 2 June 2018.

Date	Serotine	Common Noctule	<i>Myotis sp.</i>	Common pipistrelle	Soprano pipistrelle	Nathusius pipistrelle	Long-eared bat	Barbastelle
20/06/18	-	-	27	420	11	-	-	2



21/06/18	-	-	30	1758	66	-	-	6
22/06/18	-	-	11	614	15	-	-	4
Percentage total	0%	0%	2.3%	94.2%	3.1%	0%	0%	0.4%

September

Location 1

The detector recorded calls for four consecutive nights from the 30th August to the 2nd September 2018.

A minimum of four species were recorded during this deployment: common pipistrelle, soprano pipistrelle, serotine and *Myotis sp.*

Common and soprano pipistrelles were recorded on all 4 nights accounting for 37.8% and 58.4% of calls respectively with a peak count of 34 and 77 calls. *Myotis sp.* were recorded on 2 nights accounting for 3.7% of calls with a peak count of 9 calls. Serotines were recorded on 1 night only accounting for 0.4% of calls overall.

Table 10 shows the full results from the static logger deployment in Location 2 during August/September 2018.

Table 10. Species recorded and the total number of passes per night in Location 2 August/September 2018.

Date	Serotine	Common Noctule	<i>Myotis sp.</i>	Common pipistrelle	Soprano pipistrelle	Nathusius pipistrelle	Long-eared bat	Barbastelle
30/08/18	1	-	-	34	77	-	-	-
31/08/18	-	-	-	29	16	-	-	-
01/09/18	-	-	1	29	54	-	-	-
02/09/18	-	-	9	8	9	-	-	-
Percentage total	0.4%	0%	3.7%	37.5%	58.4%	0%	0%	0%

3.2 Great Crested Newts

3.2.1 Habitat suitability assessment

The Phase 1 PEA identified five ponds within 500m of the proposed development through assessment of aerial imagery and mapping (see Figure 6). It was recommended that Pond 1, 3 and 4 were subjected to visual assessment and access permission was successfully gained to undertake this.

During this, four further ponds (Pond 6a, 6b, 7 and 8) not marked on OS maps were discovered during fieldwork and included in the HSI assessment.

HSI values were obtained for seven ponds, leaving two ponds (Pond 2 and 5) unassessed because these were scoped out during the Phase 1 Habitat survey given barriers to movement being located between them and the site. The calculated HSI values, together with a brief description of the ponds



and a summary of the recommendations for further surveys results is provided in Table 12. Full details of the HSI calculations are presented in Appendix 3.

Pond 4, 6a, 6b and 7 were carried recommended for a presence/absence surveys and population assessments where required.

Table 12. Details and HSI results of all ponds within 250m of Nyton Road, Westergate and recommendations of further surveys.

Pond	NGR	Description	H.S.I value	Interpretation	Survey recommendations
1	SU93560545	Rectangular in shape measuring approx. 6 by 7 m in area. Completely dry in February. Heavily shaded with a deep leaf litter layer.	N/A – dry in February	N/A	No further survey effort
2	SU93540563	Site visit not undertaken. Scoped out in Phase 1 as this is a fish pond and barrier to movement are located between the pond and the site.	N/A - Barriers to movement and fish pond	N/A	No further survey effort
3	SU93520544	Connected to a flowing stream which runs through the pond north to south.	N/A – flowing water	N/A	No further survey effort
4	SU93570530	Circular man-made wildlife pond.	0.76	‘Good’ suitability	Full survey
5	SU93540582	Site visit not undertaken. Scoped out in Phase 1 due to barriers to movement being located between the pond and the site.	N/A – Barriers to movement	N/A	No further survey effort.
6a	SU93580527	Very small lined wildlife pond which is heavily vegetated with oxygenators. In close proximity to wildflower habitat.	0.59	‘Below Average’ suitability	Full survey
6b	SU93570527	Very small and	0.61	‘Average’	Full survey



		shallow lined wildlife pond. In close proximity to wildflower habitat.		suitability	
7	SU93560526	Small lined wildlife pond with a planted island. In close proximity to wildflower habitat.	0.62	‘Average’ suitability	Full survey
8	SU93720528	Garden pond with very small surface area with and non-native aquatic plants. Owner noted the presence of palmate and smooth netws in the past.	0.48	‘Poor’ suitability	No further survey effort

3.2.2 Presence/absence survey and population assessments

A low population of great crested newts were identified at Pond 4 with a peak count of 2 individuals recorded and newts recorded on two of the six visits. The identification of great crested newt eggs confirms breeding (see Figure 10). A low population of great crested newts were identified at Pond 7 with a peak count 1 individuals recorded during one of the six visits.

In addition, common newts, palmate newts and common frogs were identified within Pond 4 and 7.

No great crested newts were found in Pond 6a or 6b. Although common newt and palmate newt were found in Pond 6a and common frog spawn and tadpoles in both. Detailed results for the presence/absence and populations are presented in Appendix 3.

Table 13. Summary of presence/absence surveys and population assessments of Pond 4, 6a, 6b and 7.

Pond	GCN present Y/N	No. visits	Peak Count	Population size class	Low detectability warning	Peak count visit number	GCN eggs found?	Other amphibian species present	Other relevant notes
4	Y	6	2	Low		6	Y (see Figure 10).	Lv, Lh, Rt adult	
6a	N	4	-	-		-	N	Lv, Lh, Rt spawn and tadpoles	
6b	N	4	-	-	Yes – see section 2.5.	-	N	Rt spawn and tadpoles	



7	Y	6	1	Low		3	N	Lv, Lh, Rt adult	
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Figure 10. A great crested newt egg identified in Pond 4 in April.

3.3 Reptiles

The reptile presence/absence survey identified a low population of slow worms at the site with a peak count of one adult recorded. Below, Table 14 provides all of the weather data and findings from each reptile survey.

Table 14: Results of reptile surveys undertaken at Nyton Road, Westergate. SW – slow worm, GS – grass snake, CL – common lizard, Juv – juvenile, SA – sub-adult, F- female, M – male, A - adult

Date	Start time	Max/min air temp °C	Weather notes	Species total
05/04/2018	14:30	12/20°C	15% cc, 13mph wind	None
09/04/2018	12:00	11/13°C	100%cc, 8mph wind, humid with drizzle	None
11/04/2018	17:00	15/17°C	10%cc, 10mph wind	None
18/04/2018	10:50	18/23°C	5%cc, 13mph wind	1 SA SW
01/05/2018	14:10	14/32°C	10%cc, 13mph wind	1x F SW 1 x Juv SW
08/05/2018	09:10	18/27°C	10%cc, 3mph wind	None
11/05/2018	09:45	16/26°C	0%cc, 14mph wind	None

4 POTENTIAL IMPACTS AND OUTLINE MITIGATION RECOMMENDATIONS

4.1 Bats

4.1.1 Potential impacts

Roosting



Byfields XXX

The surveys of Nightingale Cottage and Nightingale Cottage barn indicated that at

It is possible that some of the trees upon the site support features with the potential to be used by roosting bats.

During and post construction there is the potential for indirect effects from lighting pollution within the woodland edge where there is the possibility for trees within the woodland, outside of the red line boundary, to support bat roosting features and potential bat roosts. However, the area to be developed will be across the southern half of the site whilst the northern section, adjacent to the Ancient Woodland will remain as green space with an 18m planted buffer.

Overall, the development is considered to result in a **neutral impact** on roosting bats, which is considered to be **not significant**.

Foraging and Commuting

A large proportion of bat activity identified by activity surveys and static logger deployment was associated with the boundaries of the Ancient Woodland, along part of the northern and western boundaries and along the western tree-line. There was high species diversity and high levels of activity along these features with the following species recorded; common pipistrelle, soprano pipistrelle, *Myotis spp.*, long-eared bat, serotine, common noctule and barbastelle. *Myotis spp.* activity was considered to be moderate and regular, while low numbers of barbastelle calls were recorded during the June activity survey and by static loggers.

Activity across the remainder of the site was much lower with common pipistrelle, soprano pipistrelle, nathusius pipistrelle, common noctule, long-eared species and *Myotis spp.* recorded. *Myotis spp.* were recorded on two occasions only by the static logger and nathusius were recorded on one occasion by the static logger.

Trapping surveys identified common pipistrelle, soprano pipistrelle, common noctule, brown long-eared, Natterer's bat and whiskered/Brandt's bat on the boundaries of the ancient woodland adjacent to the site. In the wider area whiskered, Brandt's, Alcathoe and Natterer's were caught with Alcathoe and Natterer's recorded along the eastern boundary of the entrance track to the crematorium.

The most significant findings are the presence of barbastelle bat using the adjacent ancient woodland and Alcathoe trapped beyond the eastern boundary of the site.

Barbastelle's, an Annex II species, are rare in the UK and found only in the south, with an estimated population of 5,000 individuals according to the Bat Conservation Trust's website. Barbastelle bats are very sensitive to light disturbance.

Alcathoe has only been recently described as a separate species in 2001, with DNA analysis confirming it as present in the UK as recently as 2010. There is currently little information on the ecological preferences of this species, and it is assessed as 'Data deficient' on the IUCN Red List. It is known to



be present at two swarming sites in the south of the UK.

Nathusius is one of the less common bat species in the UK, with an estimated population of 16,000 individuals according to the Bat Conservation Trust's website. The species has a scattered distribution in the UK, but is generally more common in the southeast and it is a species believed to be expanding, with greater records having been made in successive years.

HBIC returned nine records for Bechstein's bat, dated between 2005 and 2016. The closest of these records was located approximately 280m to the north, within the Ancient Woodland adjacent to the site. Activity and static logger surveys identified *Myotis sp.*; however, this species was not trapped during the three trapping surveys. This suggests that if this species does use the site's boundaries, it is not regular and the site is not of high importance for this species.

This site is considered to be of **Local** ecological value in relation to foraging and commuting bats.

The proposed development has potential to result in permanent loss of habitat (semi-improved grassland margins and a short section of defunct hedgerow with trees along the southern boundary) used by foraging and commuting bats. The western tree-line will be retained and an 18m buffer established along part of the western and northern boundary.

There is the potential for disturbance to commuting and foraging bats, both temporary during construction and permanently after completion, through increased artificial lighting, which would illuminate foraging and commuting habitats.

Overall, in the absence of mitigation, the impact of the proposed development on foraging and commuting bats is considered to be a **high (certain) impact**, which is considered **significant negative** at a **County level**.

4.1.2 Outline Mitigation Measures

Roosting

License

As part of mitigation measure for bats a sensitive lighting scheme will be employed across the site. This will include a no-light-zone along the northern and western boundaries, thereby reducing illumination along the woodland edge.

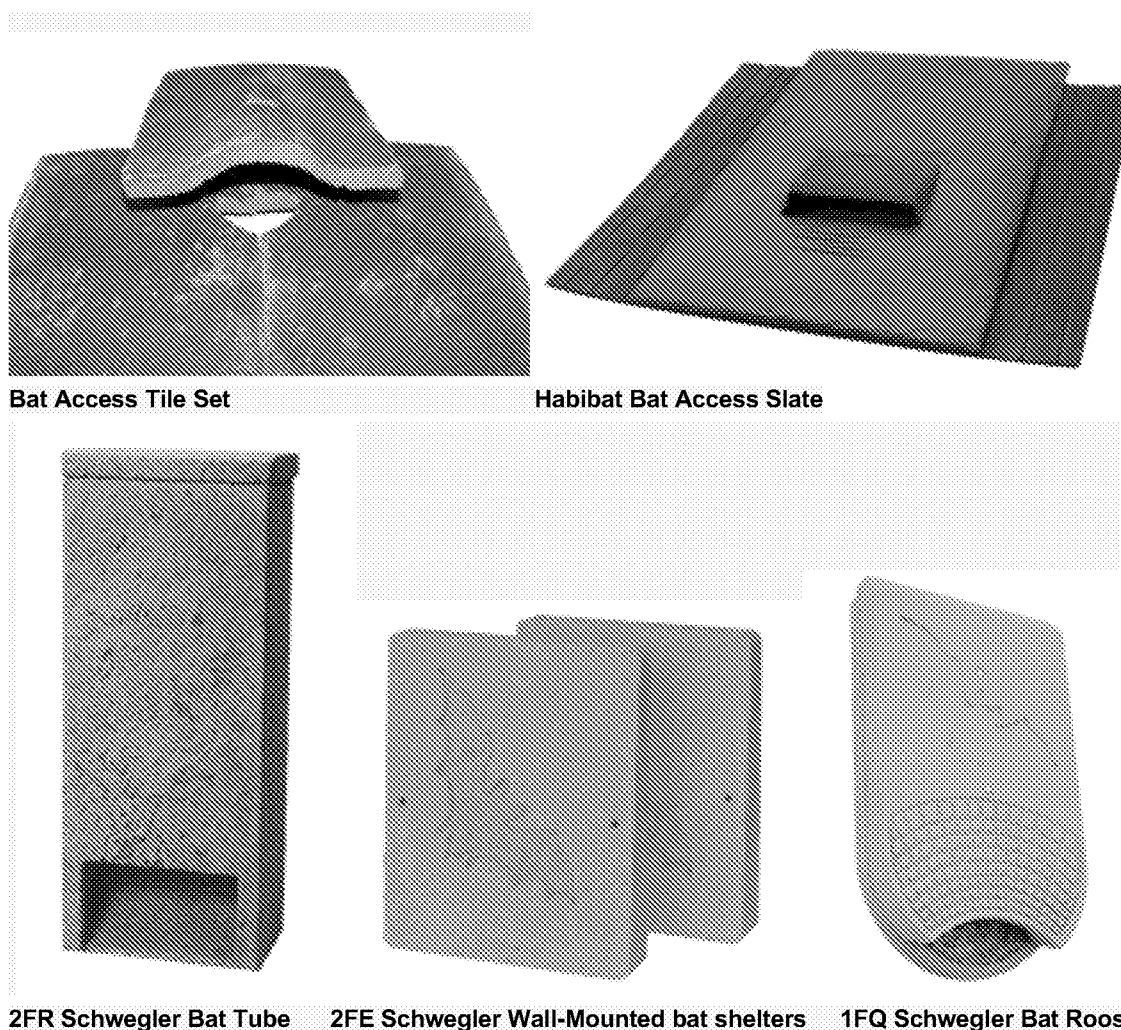
Incorporating integral bat roosting opportunities into new buildings will be necessary to provide a net gain in roosting opportunities for bats. The creation of no less than ten new roosting features is recommended across the development. This should include a mixture of the following features; bat access tiles, Schwegler 2FR bat tubes, 2FE Schwegler Wall-Mounted bat shelters and 1FQ Schwegler Bat Roost. These features should be positioned on south and east facing elevations. Where bat access tiles are used, bitumen must be used instead of Tyvec type linings which over time fray and entangle bats. Lighting must not face towards new bat roosting features.



In addition, five Schwegler woodcrete bat boxes should be hung on suitable mature trees upon the western and northern site boundaries. The boxes would be hung by a suitably qualified ecologist to ensure that the positioning is optimal, but generally locations above 3.5m in the most southeasterly facing aspect of a tree is best.

Proposed locations for the recommended bat roosting features would be fully detailed within a site-specific detailed Mitigation, Habitat Creation and Management Plan.

The residual impact is considered to be a **significant (positive) impact** at a **neighbourhood level**.



Foraging and Commuting

To minimise impacts on existing habitat features used by foraging and commuting bats, most notably the Ancient Woodland along the northern boundary, part of the western boundary and the tree-line along the western boundary, the proposed development layout has been designed to retain these features. Further to this, the current proposal is to develop the southern portion of the site. Therefore, a large area of green space will be retained to the north.

The edge of the Ancient Woodland and western tree-line are important for foraging and commuting bats. To ensure that the value of these habitats is not reduced, an 18m planted buffer will be created



where the Ancient Woodland is adjacent to the site's boundaries.

In addition, the proposed scheme will incorporate a 'sensitive lighting plan' developed as part of the detailed design, in accordance with guidelines set out by the Bat Conservation Trust (see Appendix 4). This must include measures to create 'dark corridors' along the retained tree belts and adjacent Ancient Woodland, and measures to minimise light spill onto all semi-natural habitats. All street lighting upon lamp-posts must not be more than 3.5m in height and have shields installed to focus light towards footpaths and roads only with no light allowed to emit light past horizontal (90 degrees from the ground). Light sources should not exceed 3 lux and have a narrow spectrum emitting minimal ultra-violet light so they are not attractive to insects.

The loss of a short section of defunct hedgerow with trees along the southern boundary of the site and grassland margins will be offset by habitat creation. This includes:

- native shrub planting within the 18m Ancient Woodland buffer;
- native scattered tree and shrub planting;
- wildflower habitat creation;
- native planting of SuDS features;
- planting of an orchard; and,
- ornamental planting schemes which include species known to be beneficial to insects.

This will create structural variation in vegetation and increase foraging resources for bats by increasing invertebrate prey.

Creation of species-rich habitats would be fully detailed within a site-specific detailed Mitigation, Habitat Creation and Management Plan.

The residual impact is considered to be a **significant (negative) impact** at a **neighbourhood level**.

4.2 *Great crested newts*

4.2.1 Potential impacts

Based on the survey results and information provided by South-East Water, the great crested newt is very scarce in the local area around the proposed development, with only two individuals found despite some considerable survey effort over two years. The ponds where great crested newts were found are located in an area of high quality terrestrial habitat and, whilst the eastern half of the proposed development site falls within 250m of these ponds (their accepted natural range), it is reasonable to conclude that great crested newts are very unlikely to disperse outside of this habitat in significant numbers and into the development site. The proposed development is therefore considered to have a 'low risk' of impacts on great crested newts.

4.2.2 Outline mitigation measures

Based on the above analysis, the proposed development does not require mitigation under a European Protected Species (EPS) Licence. However, the presence of the odd individual great crested newt cannot be completely discounted and therefore it is recommended that the development proceeds



under 'reasonable avoidance measures'. The preparation of the site for construction should include a period of careful habitat management (i.e. grass cutting to maintain a short turf) to reduce the habitat suitability for great crested newt as set out by a brief method statement, coupled with a tool box talk and watching brief by a licenced ecologist. In the unlikely event that a great crested newt is encountered at any stage during this process, all works should be ceased until this assessment has been re-evaluated.

4.3 Reptiles

The presence/absence survey identified a low population of slow worms.



Appendix 1 – Legislation and Policy

Introduction

The following text is intended for general guidance only and does not constitute comprehensive professional legal advice. It provides a summary of the current legal protection afforded to wildlife in general and certain species. It includes current national planning policy relevant to nature conservation.

The ‘Birds Directive’, ‘Habitats Directive’ and ‘Natura 2000 Sites’.

The Council Directive 79/409/EEC on the Conservation of Wild Birds (“the Birds Directive”) sets a framework for the protection of wild birds. Under the directive, a number of provisions are made including the designation and protection of ‘Special Protection Areas’ (SPAs) – areas which support important bird populations, and the legal protection of rare or vulnerable species.

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the “Habitats Directive”) directs member states of the EU to take measures to maintain favourable conservation status of important habitats and species. This requires the designation of a series of sites which contain important populations of species listed on Annex II of the directive. Together with ‘Special Areas of Conservation’ (SPAs), designated under the Birds Directive, SACs form a network across Europe of protected areas known as the ‘Natura 2000’.

Annex IV lists species in need of more strict protection, these are known as “European Protected Species (EPS)”. All bat species, common dormice *Muscardinus avellana*, otter *Lutra lutra* and great crested newts *Triturus cristatus* are examples of EPS that are regularly encountered during development projects.

The ‘Habitats Regulations’

The Conservation of Habitats and Species Regulations 2010 (the Habitats Regulations”) is the principle means of transposing the Habitats Directive and the Birds Directive, and updates the Conservation (Natural Habitats, &c.) Regulations 1994 (“the 1994 regulations”) in England and Wales.

‘Natura 2000’ sites receive the highest level of protection under this regulation which requires that any activity within the zone of influence of these sites would be subject to a Habitats Regulations Assessment (HRA) by the competent authority (e.g. planning authority), leading to an Appropriate Assessment (AA) in cases where ‘likely significant effects on the integrity of the site are identified.

For European Protected Species, Regulation 41 makes it a criminal offence to;

- Deliberately capture, injure or kill any such animal;
- Deliberately disturb wild animals of such species;
- Deliberately take or destroy their eggs (where relevant);
- Damage or destroy a *breeding or resting place* of such an animal;
- Possess, control, sell or exchange any live or dead animal or plant, of such species;
- Deliberately pick, collect, cut, uproot or destroy a wild plant of such species.

The Habitats Directive and Habitats Regulations provide for the derogation from these prohibitions for specific reasons provided certain conditions are met. An EPS licensing regime allows operations that would otherwise be unlawful acts to be carried out lawfully. Natural England is the licensing Authority



and, in order to grant a licence, ensures that three statutory conditions (sometimes referred to as the 'three derogation tests') are met:

- A licence can be granted for the purposes of "preserving public health or safety or for other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment" (Regulation 53 (2) (e).
- A licence can be granted if "there are no satisfactory alternatives" to the proposed action.
- A licence shall not be granted unless the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Wildlife and Countryside Act (1981) as amended.

This remains one of the most important pieces of wildlife legislation in the UK. There are various schedules to the Act protecting birds (Schedule 1), other animals including insects (Schedule 5), plants (Schedule 8), and control of invasive non-native species (Schedule 9).

Under the Wildlife and Countryside Act (WCA) 1981, all wild birds (with the exception of those listed on Schedule 2), their eggs and nests are protected by law and it is an offence to:

- Take, damage or destroy the nest of any wild bird while it is in use or being built.
- Take or destroy the egg of any wild bird.
- Disturb any bird listed on Schedule 1, while it is nest building, or at a nest with eggs or young, or disturb the dependant young of any such bird.

Schedule 5 lists all non-avian animals receiving protection to a varied degree. At its strongest, the Act makes it an offence to intentionally kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturb animals while occupying such places. Examples of species with *full protection* include all EPS, common reptile species, water vole *Arvicola amphibius*, white-clawed crayfish *Austropotamobius pallipes* and Roman snail *Helix pomatia*. Other species are protected from sale, barter or exchange only, such as white letter hairstreak *Satyrrium w-album*.

The Act makes it an offence to intentionally pick, uproot or destroy any plant or seed, and sell or possess any plant listed on Schedule 8. It is also an offence to intentionally uproot any wild plant not listed on Schedule 8 unless authorised [by the land owner]. Species on Schedules 5 and 8 are reviewed every 5 years when species can be added or removed.

Measures for the prevention of spreading non-native species which may be detrimental to native wildlife is included in the Act, which prohibits the release of animals or planting of plants into the wild of species listed on Schedule 9 (for example Japanese knotweed *Fallopia japonica*, Himalayan balsam *Impatiens glandifera*, New Zealand Pygmyweed *Crassula helmsii*).

The Wildlife and Countryside Act 1981 (as amended) also prohibits certain inhumane methods of traps and devices for the capture or killing of wild animals and certain additional methods such as fixed trap, poisoning with gas or smoke, or spot-lighting with vehicles for killing species listed on Schedule 6 of the Act (this includes all bat species, badger, otter, polecat, dormice, hedgehog and red squirrel).

Natural Environment and Rural Communities (NERC) Act (2006)

The NERC Act (2006) places a statutory duty under Section 40 on all public bodies, including planning authorities, to take, or promote the taking by others, steps to further the conservation of *habitats and*



species of principal importance for the conservation of biodiversity in England (commonly referred to as the 'Biodiversity Duty'). This duty extends to all public bodies the biodiversity duty of Section 74 of the Countryside and Rights of Way (CROW) Act 2000, which placed a duty only on Government and Ministers. Section 41 lists the habitats and species of principle importance. This includes a wide range of species from mosses, vascular plants, invertebrates through to mammals and birds. It originates from the priority species listed under the UK Biodiversity Action Plan (UK BAP) with some omissions and additions.

Protection of Badgers Act (1992)

The Badger *Meles meles* is afforded specific legal protection in Britain under the Protection of Badgers Act (1992), and Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) (see above).

Under this legislation, it is a criminal offence to:

- intentionally kill, injure, take, possess, or cruelly ill-treat, a Badger, or to attempt to do so;
- interfere with a sett, by damaging or destroying it;
- to obstruct access to, or any entrance of, a Badger sett; or
- to disturb a Badger when it is occupying a sett.

A licence may be obtained from Natural England to permit certain prohibited actions for a number of defined reasons including interference of a sett for the purpose of development, provided that a certain number of conditions are met. Note that licenses are not normally granted for works affecting badgers between the end of November and the start of July.

National Planning Policy Framework

The National Planning Policy Framework (NPPF 2012) sets out the Government's view on how planners should balance nature conservation with development and helps ensure that Government meets its biodiversity commitments with regard to the operation of the planning system.

The NPPF states that the wider benefits of an ecosystem should be recognised and the presence of a protected species is a material consideration for a development proposal (Circular 06/2005, 2005).

UK Post-2010 Biodiversity Framework

The UK Biodiversity Action Plan (UK BAP), published in 1994, was the UK's response to the commitments of the Rio Convention on Biological Diversity (1992). The UK BAP was replaced by the UK Post-2010 Biodiversity Framework. This framework covers the period 2011 to 2020 and forms the UK government's response to the new strategic plan of the United Nations Convention on Biodiversity (CBD) published in 2010. This promotes a focus on individual countries delivering target for protection for biodiversity through their own strategies.

The most recent biodiversity strategy for England, 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services' was published by Defra (2011), and a progress update was provided in July 2013 (Defra 2013).

'Biodiversity 2020' builds on the Natural Environment White Paper for England – 'The Natural Choice', published on 7 June 2011, and sets out the strategic direction for biodiversity policy for the next decade. Biodiversity 2020 deliberately avoids setting specific targets and actions for local areas because Government believes that local people and organisations are best placed to decide how to implement



the strategy in the most appropriate way for their area or situation.

In Kent, the themes identified as priorities in Biodiversity 2020 are carried forward by the Kent Biodiversity Partnership that administers the Kent Biodiversity Action Plans and Biodiversity Opportunities Areas (Kent BAP, 2014).

Birds of Conservation Concern (BoCC)

In 1996, the UK's leading non-governmental bird conservation organisations reviewed the conservation status of all bird species in the UK against a series of criteria relating to their population size, trends and relative importance to global conservation. The lists, known as the 'Red', 'Amber' and 'Green' lists (in order of decreasing concern) are used to inform key conservation policy and decisions. The lists are reviewed every 5 years and are a useful reference for determining the current importance of a particular site for birds. The most recent review was undertaken in 2015 (Eaton et al, 2015), which provides an up to date assessment of the conservation status of birds in the UK.

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APPENDIX 2 – Methodology for Assessment of Ecological Impacts

The assessment of ecological impacts follows best practice guidelines for impact assessment⁹.

Six steps are required as part of an ecological impact assessment which are detailed below:

1. Identify important ecological features (habitats, species, ecosystems and their functions/processes)

A summary of the approach to valuing important ecological features is detailed in Table 1.

Table 1: Categorisation of the level of value an important ecological feature has

Level of value	Example
International	Internationally designated site; Special Protected Area (SPA), Special Areas of Conservation (SAC), Ramsar, Biosphere Reserves. A viable area of a habitat or area important for maintaining viability listed as in Annex 1 of the Habitats Directive. Regularly occurring population of internationally important species listed in Annex 1, 2 or 4 of the Habitats Directive and Annex 1 of the Birds Directive.
National	Nationally designated sites; Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR), Local Nature Reserves (LRN). Regularly occurring population of nationally important species listed in UK BAP, Schedules 1, 5 and 8 of the Wildlife and Countryside Act or UK Red Data Book Species.
County / Regional	Non-statutory designated sites; Local Wildlife Sites (LWSs), Sites of Nature Conservation (SNCS) and Site of Importance for Nature conservation (SINCS). Ancient woodland more than 0.25ha. A viable area of a habitat or area important for maintaining viability identified in local/county BAPs listed as in Annex 1 of the Habitats Directive. Regularly occurring population of a species listed as being nationally scarce or a local/county BAP due to its rarity or localisation.
Local	Sites designated at a local level due to meeting ecological selection criteria. Habitats and species which are scarce in the local area.
Neighbourhood	Common widespread habitats (poor-semi improved grassland, arable fields, coniferous plantations etc).
Less than neighbourhood / negligible	Habitats with little to no ecological value (amenity grassland and hardstanding)

2. Identifying and characterising impacts to important ecological features

Impacts are characterised based on the changes expected to the extent and integrity of the important ecological features. This takes in to account permanent and temporary effects, timings and reversibility.

⁹ CIEEM (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal*. Chartered Institute of Ecology and Environmental Management, Winchester.



Impacts can be high, medium, low or neutral – see table 2. Each impact has a varying probability of occurring – see table 3. Impacts can either be negative or positive.

Table 2: Categorisation of the level of impact occurring to important ecological features

Impact type	Description
High	Large-scale, permanent changes to an important ecological feature which will impact on its integrity. This will likely result in changes in the conservation status of a species population or habitat type at the site.
Medium	Moderate-scale, permanent changes to an important ecological feature or large-scale temporary changes which will not impact upon its integrity. This will likely result in temporary changes in the conservation status of a species population or habitat type at the site, however these are unlikely to be reserved long-term.
Low	Small-scale, temporary changes to an important ecological feature or large-scale temporary changes which will not impact upon its integrity. This will likely result in temporary changes in the conservation status of a species population or habitat type at the site, however these are unlikely to be reserved long-term.
Neutral	No change in important ecological features.

Table 3: Categorisation of the probability of an impact occurring to important ecological features

Impact type	Description
Certain	It is reasonable to conclude that the impact will occur as a result of the proposal
Likely	It is reasonable to conclude that the impacts are more likely to will occur than not as a result of the proposal.
Unlikely	It is reasonable to conclude that these impacts are less likely to occur than to occur as a result of the proposal.

The following four steps lead on from the information identified in the above two steps:

- 3. Incorporating measures to avoid and mitigate these impacts;**
- 4. Assessing the significance of any residual effects after mitigation;**
- 5. Identifying appropriate compensation measures to offset significant residual effects; and**
- 6. Identifying opportunities for ecological enhancement.**



Appendix 3 Great crested newt survey conditions, 'Habitat Suitability Index' values, and survey data.

Table 1. HSI calculation for ponds assessed during the survey.

	Pond 1		Pond 2		Pond 3	
NGR	SU93560545		SU93540563		SU93520544	
SI attribute	SI value	Notes	SI value	Notes	SI value	Notes
Location						
Pond area						
Pond drying						
Water quality						
Shade cover						
Water-fowl						
Fish presence						
No. ponds						
Terrestrial habitat						
Macrophytes						
H.S.I. value	N/A	Scoped out - Pond dry in February	N/A	Scoped out - Barriers to movement and fish pond	N/A	Scoped out - Flowing water as connected to flowing stream

	Pond 4		Pond 5		Pond 6a	
NGR	SU93570530		SU93540582		SU93580527	
SI attribute	SI value	Notes	SI value	Notes	SI value	Notes
Location	1.00	SE England			1.00	SE England
Pond area	0.16	80m ²			0.01	6m ²
Pond drying	0.90	Never			0.50	Sometimes
Water quality	1.00	Good			1.00	Good
Shade cover	1.00	0%			1.00	0%
Water-fowl	0.67	Minor			1.00	Absent
Fish presence	1.00	Absent			1.00	Absent
No. ponds	1.00	9			1.00	9
Terrestrial habitat	1.00	Good			1.00	Good
Macrophytes	0.71	40%			0.91	60%
H.S.I. value	0.76	'good' suitability	N/A	Scoped out - Barriers to movement	0.59	'below average' suitability



	Pond 6b		Pond 7		Pond 8	
NGR	SU93570527		SU93560526		SU93720528	
SI attribute	SI value	Notes	SI value	Notes	SI value	Notes
Location	1.00	SE England	1.00	SE England	1.00	SE England
Pond area	0.01	4m ²	0.01	6m ²	0.01	3.5m ²
Pond drying	1.00	Rarely	1.00	Rarely	0.50	Sometimes
Water quality	1.00	Good	1.00	Good	0.67	Moderate
Shade cover	1.00	0%	1.00	0%	1.00	0%
Water-fowl	1.00	Absent	1.00	Absent	1.00	Absent
Fish presence	1.00	Absent	1.00	Absent	1.00	Absent
No. ponds	1.00	9	1.00	9	1.00	9
Terrestrial habitat	1.00	Good	1.00	Good	0.33	Poor
Macrophytes	0.90	90%	0.72	40%	0.90	90%
H.S.I. value	0.61	'average' suitability	0.62	'average' suitability	0.48	'poor' suitability

Table 2. Weather conditions and temperature during presence/absence and population surveys

Survey date	Air temperature evening/morning	Weather notes evening/morning	Surveyor
03/04/18	10.5°C	0-5mph wind, cloud 60%, dry	Briony Hill, Emma Baker
10/04/18 – 11/04/18	12°C/ 10.5°C	0-5mph wind, cloud 70%, dry / 0-5mph wind, cloud 40%, dry	Briony Hill, Sophie Bradfield
19/04/18 – 20/04/18	18°C/ 8.5°C	0-5mph wind, cloud 0%, dry / 0-5mph wind, cloud 0%, dry	Briony Hill, Emma Baker
24/04/18 – 25/04/19	14.5°C/ 9.5°C	5-10mph wind, cloud 100%, dry / 0-5mph wind, cloud 90%, dry	Briony Hill, Kate Lewis
30/04/18 – 01/05/18	9°C/ 4°C	0-5mph wind, cloud 100%, light rain / 0-5mph wind, cloud 10%, dry	Briony Hill, Sophie Bradfield
06/06/18 – 07/06/18	16°C/ 14.5°C	0mph wind, cloud 80%, dry / 0mph wind, cloud 100%, dry	Briony Hill, Kate Lewis



Table 3. Weather conditions and temperature during Great crested newt *Triturus cristatus* presence/absence and population surveys

Abbreviations: Lv=Common newt *Lissotriton vulgaris*; Lh=Palmate newt *Lissotriton helveticus*; Bb=Common toad *Bufo bufo*; Rt=Common frog *Rana temporaria*; ad=adult; spwn=spawn (toad or frog); td=tadpoles.

Pond 4	Torching results			Trapping results			Egg search	Netting	Other species			
Date	M	F	Juv	M	F	Juv	Present – Y/N		Lv	Lh	Bb	Rt
03/04/18	0	0	0	N/A - lined			Y – 2 identified	0	11	7	0	0
10/04/18	0	0	0	0	0	0	-	N/A	23	14	0	0
19/04/18	0	0	0	0	0	0	-	N/A	17	5	0	2
24/04/18	0	0	0	0	0	0	-	N/A	10	3	0	0
30/04/18	0	0	0	1	0	0	-	N/A	12	4	0	0
06/06/18	0	0	0	2	0	0	-	N/A	8	18	0	0

Pond 6a	Torching results			Netting			Egg search	Other species		
Date	M	F	Juv	M	F	Juv	Present – Y/N	Lv/Lh	Bb	Rt
03/04/18	0	0	0	0	0	0	N	5	0	Spwn
10/04/18	0	0	0	N/A – dense oxygenators			N	2	0	Spwn and td
19/04/18	0	0	0	N/A – dense oxygenators			N	eggs	0	td
24/04/18	0	0	0	N/A – dense oxygenators			N	4	0	td

Pond 6b	Torching results			Netting			Egg search	Other species		
Date	M	F	Juv	M	F	Juv	Present – Y/N	Lv/lh	Bb	Rt
03/04/18	N/A – packed with frog spawn			N/A - packed with frog spawn			N	-	-	Spw n
10/04/18	N/A – packed with frog spawn			N/A - packed with frog spawn			N	-	-	Spw n and td
19/04/18	0	0	0	N/A – packed with tadpoles and too shallow			N	0	0	td
24/04/18	0	0	0	N/A – too shallow			N	0	0	td

Pond 7	Torching results			Netting			Egg search	Other species		
Date	M	F	Juv	M	F	Juv	Present – Y/N	Lv/Lh	Bb	Rt
03/04/18	0	0	0	0	0	0	N	1	0	0
10/04/18	0	0	0	N/A – too shallow			N	0	0	0
19/04/18	0	1	0	N/A – too shallow			N	11	0	0



Nyton Road, Westergate – PHASE 2 HOLDING DOCUMENT

24/04/18	0	0	0	N/A – too shallow	N	10	0	1 ad
30/04/18	0	0	0	N/A – too shallow	N	6	0	1 ad
06/06/18	0	0	0	N/A – too shallow	N	6	0	0



APPENDIX 4 Reducing impacts of artificial light

Bright external lighting can have a detrimental impact upon foraging and commuting bat flight paths, but more importantly can also cause bats to remain in their roosts for longer. Artificial lighting can also cause significant impacts on other nocturnal species, most notably moths and other nocturnal insects. It can also result in disruption of the circadian rhythms of birds, reducing their fitness. Guidelines issued by the Bat Conservation Trust¹⁰ should be considered while designing the lighting scheme. A simple process which should be followed where the impact on bats is being considered as part of a proposed lighting scheme. It contains techniques which can be used on all sites, whether a small domestic project or larger mixed-use, commercial or infrastructure development. This includes the following measures:

Avoid lighting on key habitats and features altogether

there is no legal duty requiring any place to be lit. British Standards and other policy documents allow for deviation from their own guidance where there are significant ecological/environmental reasons for doing so. It is acknowledged that in certain situations lighting is critical in maintaining safety, such as some industrial sites with 24-hour operation. However, in the public realm, while lighting can increase the perception of safety and security, measurable benefits can be subjective. Consequently, lighting design should be flexible and be able to fully consider the presence of protected species

Apply mitigation methods to reduce lighting to agreed limits in other sensitive locations – lighting design considerations

Where bat habitats and features are considered to be of lower importance or sensitivity to illumination, the need to provide lighting may outweigh the needs of bats. Consequently, a balance between a reduced lighting level appropriate to the ecological importance of each feature and species, and the lighting objectives for that area will need to be achieved. The following are techniques which have been successfully used on projects and are often used in combination for best results;

- Dark buffers, illuminance limits and zonation
- Sensitive site configuration, whereby the location, orientation and height of newly built structures and hard standing can have a considerable impact on light spill
- Consider the design of the light and fittings, whereby the spread of light is minimised ensuring that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Consider the height of lighting columns. It should be noted that a lower mounting height is not always better. A lower mounting height can create more light-spill or require more columns. Column height should be carefully considered to balance task and mitigation measures. Consider no lighting solutions where possible such as white lining, good signage, and LED cat's eyes. For example, light only high-risk stretches of roads, such as crossings and junctions, allowing headlights to provide any necessary illumination at other times.
- Screening, whereby light spill can be successfully screened through soft landscaping and the installation of walls, fences and bunding
- Glazing treatments, whereby glazing should be restricted or redesigned wherever the ecologist and lighting professional determine there is a likely significant effect upon key bat habitat and features.
- Creation of alternative valuable bat habitat on site, whereby additional or alternative bat flightpaths, commuting habitat or foraging habitat could result in appropriate compensation for

¹⁰ Bat Conservation Trust and Institute for Lighting Professionals (2018) Guidance note 8. Bats and Artificial Lighting. <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>



any such habitat being lost to the development.

- Dimming and part-night lighting. Depending on the pattern of bat activity across the key features identified on site it may be appropriate for an element of on-site lighting to be controlled either diurnally, seasonally or according to human activity. A control management system can be used to dim (typically to 25% or less) or turn off groups of lights when not in use.

Demonstrate compliance with illuminance limits and buffers

- *Design and pre-planning phase*; It may be necessary to demonstrate that the proposed lighting will comply with any agreed light-limitation or screening measures set as a result of your ecologist's recommendations and evaluation. This is especially likely to be requested if planning permission is required.
- *Baseline and post-completion light monitoring surveys*; baseline, pre-development lighting surveys may be useful where existing on or off-site lighting is suspected to be acting on key habitats and features and so may prevent the agreed or modelled illuminance limits being achieved.
- *Post-construction/operational phase compliance-checking*



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