



**FALCONHURST BARNES,  
MARKBEECH**

**Bat Building and Emergence Survey Report**

For and on behalf of

**Mr and Mrs Talbot**

**October 2015**

**CORYLUS ECOLOGY**

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## **1.0 INTRODUCTION**

- 1.1 Corylus Ecology was requested to undertake a bat surveys of a collection of farm buildings at Falconhurst in Markbeech, Edenbridge (TQ 469 426). The proposals involve renovating derelict barns for a proposed wedding venue.
- 1.2 The initial bat building survey was undertaken by Corylus Ecology in July 2013. The bat building survey involves the assessment, both internally and externally, for evidence of use by and the potential for use by bats. This initial survey revealed that six of the seven buildings had good potential to support bat roosts. There was some limited evidence of long-eared bats and pipistrelle bats in three of the buildings so further emergence surveys were recommended and the results included in this report.
- 1.3 The emergence surveys were undertaken on 3<sup>rd</sup> June 2014 and 7<sup>th</sup> July 2014. The bat emergence survey seeks to characterise if and how bats are using the building, and in what numbers. An update bat building survey was undertaken in July 2014 and an update emergence survey was undertaken on 26<sup>th</sup> August 2015.

## 2.0 METHODOLOGY

### *Bat Building Survey*

- 2.1 The buildings were subject to an external and internal survey on 8<sup>th</sup> July 2013 and 24<sup>th</sup> July 2014. The surveys were undertaken by Jenny Passmore (licence number 2015-15012-CLS-CLS) and Christian Gunn (2015-13609-CLS-CLS) of Corylus Ecology and Ali Johnston (licence number 20123491).
- 2.2 The external survey of the building included an assessment of areas for potential for bats and a search for evidence such as droppings and staining immediately below potential roost areas and for droppings around the base of the buildings and on window sills.
- 2.3 The interior of the building was surveyed for evidence of bats including droppings, staining and bats themselves. Bat droppings were searched for on the top of beams (where they are less likely to have been disturbed/damaged) as well as on the ground below. A high powered Clulite torch was used in the search. A RIDGID SeeSnake micro™ Inspection Camera endoscope with halogen light, which can fit into cavities only 9.5mm wide, was used to look for signs of bats in any accessible cavities, in particular the mortise and tenon joints of the beam work.

### *Bat Emergence Survey*

- 2.4 Two evening emergence surveys of buildings with bat potential (B1, B1a, B2, B5 and B6) were undertaken on 3<sup>rd</sup> June 2014 and 7<sup>th</sup> July 2014 and an update survey was undertaken on 26<sup>th</sup> August 2015. Surveys commenced 15 minutes before sunset and continued until 1½ hours after sunset depending on the level of visibility. Elekon Bat Loggers were used.

### *Bat Sound Analysis*

- 2.5 The sonograms were subsequently up-loaded onto Bat Explorer software for analysis. The sonograms were analysed and compared to identification parameters given in Parsons and Jones 2000 and Russ 2012 and also compared with library recordings made by the surveyors. It should be noted that it is not always possible to identify each bat pass to species level due either to poor recordings of their echolocations or due to similarities between echolocations of bat species not allowing confidence of identification. It should also be noted that bats will vary their echolocation in different habitats and their calls may therefore not always resemble 'typical' echolocation calls. Where identification has not been possible suggestions of likely bat species have been provided.
- 2.6 The *Myotis* genus is generally the hardest to separate to species level due to the plasticity of the calls and overlapping of call characteristics between the different species. Where the sonogram quality has allowed, parameters including call duration, pulse interval, start frequency, end frequency and peak energy have been recorded.



### 3.0 RESULTS

#### 3.1 Bat Building Survey

##### *Location*

- 3.1.1 The barn complex is situated in a rural setting with hedgerows, mature trees and a pond nearby providing foraging opportunities for bats. There are other buildings nearby built with traditional materials that appear to have good suitability to support bat roosts.

##### *Main building B1*

- 3.1.2 The largest building in the complex is an old dairy barn which is two-storey and has a timber frame. The walls comprise of brick footings and timber cladding and clay peg tiled roof. The roof is on a north-south axis and is a simple pitched roof, without hips. Halfway down on the western elevation, the roof of the adjacent building B1a is built into and up against B1. B1a does not block the eaves of B1, which are accessible for bats to fly in and out of the building. The rafters protrude from the eaves and access is visible at the eaves on all elevations. Other features of the building include a small brick pigsty with a low, monopitched clay tiled roof adjoined to the southern gable. There is a small open window with a grill across it on the southern gable, which is at eaves height and low down at first floor level. At the northern gable there is a small window at first floor level. At the northern end there is a lean-to feature. The eastern side of the barn has three doors; a large barn door centrally located, a door to a workshop in the northern part of the barn and a door of the lean-to, situated at the northern end.
- 3.1.3 Inside, the barn has three bays, the central bay open to the roof and the two ends partitioned. On the first floor there are two mezzanine loft areas at each end of the barn which are partitioned from the central space with timber cladding. The mezzanines are connected by an elevated walkway which spans the central section and is rotten in places. Two swallow nests were noted in the tall central section. During the update 2014 survey, the doors on the western elevation of the barn were open, connecting the internal space to the adjacent B1a and B4.
- 3.1.4 There is a sofa in the central section which had ten very old pipistrelle bat droppings. It was noted during the update survey in 2014 that the sofa had been removed. Beneath the walkway approximately ten long-eared droppings and five moth wings were noted. Approximately 20 yellow underwing moth wings were noted on the elevated walkway in 2013. In 2014 there was a slight increase in the number of moth wings to 25 and in addition, 15 long-eared droppings and ten pipistrelle bat droppings were noted, two of which were fresh. A long-eared bat was seen at the ridge board in the central section, close to the wall of the southern mezzanine area. On the internal wall partitioning the southern section, there was a trail of some 20 moth wings caught on the wall which suggest the presence of a feeding perch as well as day roost as this corresponds to the position of the bat seen above. Two pipistrelle droppings were noted stuck to the southern partition walls

- 3.1.5 The northern mezzanine section measures 4x4m with a height to the apex of approx. 4.5m and the lower pitch of the roof is a vertical wall, with timber cladding. The mezzanine is separated from the central section by timber cladding on the lower section only. The roof is not lined so the clay tiles were visible. There is a thick layer of dust on the floor and there are gaps visible at the gable and under the roof tiles which could provide access for bats. The timber beams here look modern and there were no cavities noted, such as in the mortice and tenon joints. An old wasp nest was present. There is an open window at the gable bringing light into this northern section. Loosely scattered pipistrelle droppings and long-eared droppings were noted under the ridge line amounting to 30-40 droppings in total, occasionally fresh. In 2014 the evidence was very similar; eight out of 22 long-eared droppings were fresh and nine pipistrelle droppings were noted. There were also 30-40 moth wings both old and new. A second long-eared bat was seen roosting at the ridgeboard, close to the northern gable.
- 3.1.6 The southern mezzanine section has partition walls up to the rafters although a window is present bringing in light. This section is lighter than the northern mezzanine section. A ridge tile is missing which allows some light and water ingress and the floor is rotting in places. There was no evidence of bats noted in this section in 2013. In 2014 there was evidence: five moth wings and 15 long-eared droppings, fresh and in a loose cluster under the ridgeline. Five pipistrelle droppings were noted; two near the window and three near the door. There is an additional void in the southern section but this could not be accessed as the floor was rotten and unsuitable for supporting a ladder. A long-eared bat was seen at the ridgeline, in the corner where the void mentioned above meets the ridgeline.
- 3.1.7 The workshop in the north-east corner of the barn was inspected and found to have plywood boarding lining the roof and a section of wall with vertical boarding, creating a double layer. A second area is sectioned off with a carpet wall partition. The workshop area is very dark and there was no visible access into this for bats, although mice and rat droppings were noted. The lean-to section at the northern end measures only 2m wide and 3m long with height of 1.5m. It is used to store pipes and materials and links to the adjacent building, B1a, through a heavy fabric partition. The roof from the outside is covered with moss.
- 3.1.8 In summary, the evidence suggests the presence of a small roost of pipistrelle bats and confirmed roost of long-eared bats. A total of three long-eared bats were seen during the 2014 survey and the number of droppings suggests this is a roost used by small numbers of individual bats rather than a maternity site. Bat potential was identified in the roof tiles for crevice dwelling bats and at the ridgeboard for long-eared bats. The mezzanine areas were less suitable as they had windows making them light and drafty.

*Building 1a*

- 3.1.9 B1a is annexed to the main barn and located to the south-west. It is a two storey building with traditional clay roof tiles, stone footings and timber clad walls, which appear to have been recently repaired on the southern gable. There is a hay loft door and a window on this south gable. The clay roof tiles have gaps with potential to support bat roosts.
- 3.1.10 Inside, the ground floor is laid with bricks and there are a further two windows on the west elevation. A swallow nest was noted. Seven long-eared droppings were noted on a plywood sheet below a hole in the ceiling above. The side room to the east is cobwebby and full of storage. The roof is not lined in the void and the hay loft door is shut making the space relatively draft free but there is access for bats where the hay loft door is not flush with the door frame. There are some cobwebs and a covering of dust on the floor and the space is dark. The void is approximately 2.75m high and 4m wide and the floor has rot holes so access was restricted. In the loft void some eight fresh long-eared droppings were noted towards the centre and near to a hole in the floor and around 25 older long-eared droppings were located near the loft door, with occasional fresh droppings present. In 2014, access was restricted due to the rotten floor and safety concerns but 35 fresh long-eared droppings were noted around the hay loft door and six moth wings; there was no significant increase in evidence. There were also four pipistrelle bat droppings visible along the centre line.

*Garden Store B2*

- 3.1.11 B2 is a large modern garage-style building with a clay tile roof. The roof pitch is on an east-west axis and hipped at both ends with tight fitting weather boarding on the walls. There are three large double doors on the southern elevation and three corresponding windows on the northern elevation however these windows are either boarded or light ingress is blocked by the storage inside. There is a tree line behind the building to the north and the shady conditions have resulted in heavy moss coverage on this northern roof pitch. In 2013 there were no access points for bats at the eaves which are tightly fitting however in 2014 a missing section of board that elsewhere seals the eaves was noted on the north-east corner.. The roof has several lifted tiles and therefore numerous access points for bats. Inside the roof and walls are lined with tight fitting sarking. There are three bays used for storage of various garden materials and equipment; in the eastern bay, five old long-eared droppings were found. B2 has potential for crevice dwelling bats in the roof and evidence suggests that long-eared bats can enter the building, likely through the missing board on the north-east corner.

*Building B3*

- 3.1.12 This building is located to the north of the farm complex, the roof is orientated on an east-west axis and is parallel to and shaded by the tree line that forms the northern boundary of the Site. The footprint of the building is approximately 8m by 5m and it is brick built with clay roof tiles and a chimney at the western

end. Dense ivy covers the roof and is present inside the building as well. There are large holes in the roof, particularly at the eastern end of the ridge where it has collapsed in on itself. There is a bird nest visible on the rafters. An external hole in the brick work was noted which leads into the chimney cavity. The building is in a dilapidated state and is considered too exposed to the elements to provide suitable bat roosting opportunities. It is considered the building has no potential for bats

#### *Building B4*

- 3.1.13 B4 is attached to the western elevation of B1 and B1a and the roof pitch is on the same north-south orientation. This was previously a cattle barn and the construction is modern with a steel frame and corrugated asbestos sheeting on the walls and roof. In 2014 it was noted that two of the wall panels were missing on the western elevation making the building open and light. There are brick footings to 1.5m and the mortar has crumbled away throughout. There was previously very dense ivy cover on the external walls but this has been cut back, leaving just the stems exposed. On the southern gable there is an area of timber cladding and there are gaps into the building created where ivy has lifted the timbers. The northern gable is brick with four boards of timber at the top and an area noted for potential bat access in the north-east corner.
- 3.1.14 Inside there is some storage but generally it is open and uncluttered. There is ivy encroaching on the western elevation and a bird nest noted. There are two skylight panels making the internal space too light as a roost for long-eared bats, for example. However in the eastern part of the barn there is a lean-to section (continuous with the internal space of B4) which is darker. This lean-to section has clay peg roof tiles and timber cladding at each end. No evidence of bats using the barn was found and no internal features that could be used as a roost were noted, however there is potential externally on the roof of the lean-to section. Overall this building has low potential for bats.

#### *Building 5*

- 3.1.15 B5 is a timber frame barn that is partially open-sided along on the eastern elevation. The walls are timber clad and the roof covered with clay tiles and it is divided into three bays. The northern two bays are open and the most southerly third bay enclosed with timber clad walls. The northern part of the building has two storeys and there is a hayloft door on the northern gable which was used to access the space. B5 is joined to B6, sharing a wall. The roof pitch is orientated north-south and a valley links the roof of B5 and B6. The roof tiles on the eastern side are traditional and therefore irregular in profile, with plenty of gaps noted for bats to use. Likewise, the roof tiles have bat potential on the western side and there is a chimney on this side. One fresh pipistrelle dropping was noted on a fridge that is located just outside the building, on the eastern side.

- 3.1.16 Inside, the southern part of the building is used for storage and is open to the roof. The space is strewn with cobwebs and ivy stems and a swallow nest was noted. The northern part is divided from the southern part with a brick wall and a brick chimney. There is bird nesting material consisting of twigs fallen into the fireplace. Areas of potential for bat roosts include the double wall between B5 and B6 which is created from a double layer of vertical timber cladding, with access into the space between.
- 3.1.17 The roof void is cluttered and used for storage of building materials. The void is accessed through a hay loft door on the northern gable and a caravan is parked 2m from the building which could obstruct access for bats. There is a thick layer of dust on the joists and there is no roof lining present. No bat droppings were visible. In 2014 the caravan had been removed. Just within the entrance of the hay loft door was approximately 40 moth wings and three long-eared droppings, one of which was fresh. Ten moth wings were located slightly further into the void. B5 is fairly light and draughty for a long-eared day roost but has potential as a feeding roost and potential for bats to roost under the ridge tiles.
- 3.1.18 There is a low pigsty directly south of B5, constructed with a brick base, timber frame and a clay tile roof. There are gaps in the brickwork and roof tiles however the building is low, only 2m high. The roof tiles are slipping and missing in several places. The feature is heavily overgrown with ivy which would restrict usage by bats. It is considered unlikely that this would be used and it has low potential.

#### *Building 6*

- 3.1.19 This is a two-storey, timber-framed and timber-clad barn with a clay peg tile roof and a dormer hay loft door on the western roof pitch. During the 2015 emergence survey it was noted that the hanging tiles on the cheeks of the dormer had been removed. The roof tiles are broken and crumbling and provide ample opportunities for roosting by crevice dwelling bats. The northern end is open sided and there is an open window and partially open stable door at the southern end.
- 3.1.20 Inside, the barn is used for storage of furniture as well as a tractor and the space is divided longitudinally into two bays. The bay in the western half has the tractor and three bird nests were noted. The space is very cluttered and cobwebby but no droppings were found. A swallow nest was noted. There is access to the adjacent B5 through the eaves of the shared wall, at the top of the eastern wall.
- 3.1.21 There is a void which is constructed in the central part of the roof area and it is used for some storage including timber. It measures approximately 2.75m high to the apex, 10m long and 3m wide but does not extend to the eaves. There is a window at each end so the space is quite draughty and light making it an unlikely day roost for void dwelling bats. There is bitumen lining on the western pitch of the roof only. The timber boarding at the northern gable is tight fitting but there are gaps at the eaves of the gable. The floor of the void is dusty but no bat droppings were found. There were 10 moth wings noted in the 2014

update survey. The void has limited potential for day roosting long-eared bats but there is high potential in the roof tiles.

3.1.22 There was no evidence of barn owl found in any of the buildings.

## 3.2 Bat Emergence Surveys

On each survey, all buildings with potential were surveyed which included B1, B1a, B2, B5 and B6.

*3<sup>rd</sup> June 2014, sunset 21:08hrs.*

3.2.1 The conditions during this survey were dry and still with 10% cloud cover. The temperature at the start of the survey was 17°C and dropped to 15°C at the end. A total of five surveyors (S1 through S5) observed the buildings and their positions are marked on Figure 1. Surveyor S1 was located at the south-east corner of B1 and B1a, Surveyor S2 was looking at B2, Surveyor S3 was positioned south-west of B4, B1a and B1. Surveyors S4 and S5 were positioned north and south of B5 and B6 respectively.

3.2.2 At six minutes before sunset S1 saw and heard a 55kHz pipistrelle bat emerge from B1 and fly towards the treeline to the north where S2 also recorded this bat. The bat emerged from the eaves of B1, on the eastern elevation and towards the southern end, marked on Figure 1. The second bat recorded was a 45kHz pipistrelle that was seen by S1 near the southern end of B1, at 21:21hrs, 13 minutes after sunset. S3 did not record this bat, however, S4 saw it fly to the northern tree line and was concluded to have emerged from the southern gable. The first long-eared bat was heard at 22:07hrs, 59 minutes after sunset and emerged from B6. Surveyor S4 saw the bat to the west of B6, near the dormer hay loft door as marked on Figure 1 and S5 and S3 also recorded the bat. There were a further four long-eared passes recorded by S4 one of which was picked up by S1 at 70 minutes after sunset but no other bats emerged.

3.2.3 Aside from the emergence of a 45kHz pipistrelle, 55kHz pipistrelle and long-eared bat, the activity level around the barns was fairly quiet during the survey; there were regular passes by 45kHz and 55kHz pipistrelle bats which were foraging in the vicinity and the occasional long-eared passes.

*6<sup>th</sup> July 2014, sunset 21:15hrs*

3.2.4 The conditions during this survey were dry with a light breeze and 10% cloud cover. The temperature at the start of the survey was 18°C and dropped to 15°C at the end. A total of five surveyors observed the buildings and their positions were the same as during the first survey. The results of this survey are marked on Figure 2.

3.2.5 The first bat heard was a 45kHz pipistrelle which was seen emerging from the southern end of B1, at 21:28hrs, 13 minutes after sunset by surveyor S1. The next bat was a serotine which was heard by all

surveyors at 21:44hrs, 29 minutes after sunset but did not emerge from any building. The first 55kHz pipistrelle bat was recorded at 21:44hrs, 29 minutes after sunset and it flew into the site from the west.

- 3.2.6 The first long-eared bat was recorded at 21:58hrs, 43 minutes after sunset and was seen by S4 and S5 emerging from a location in the valley between building B5 and B6. An exact point of emergence could not be determined but it is considered to have come from under one of the roof tiles of B6. A second long-eared bat emergence was recorded at 22:09hrs, 53 minutes after sunset, from B1. The bat flew out from the eaves on the eastern elevation, above the double barn doors. The third long-eared bat to emerge came out from the apex of the southern gable of B6, seen at 22:12hrs, 57 minutes after sunset. The next long-eared bat to emerge came from the southern gable of B1a, from the gap around the hay loft door. This bat emerged at 22:14hrs, 59 minutes after sunset. The fifth and final long-eared bat also emerged from B6, from the southern side of the hay loft dormer at 22:21hrs, 66 minutes after sunset.

*26<sup>th</sup> August 2015, sunset 19:58hrs*

- 3.2.7 The conditions during this survey were dry with a light breeze and 10% cloud cover. The temperature at the start of the survey was 16°C and dropped to 13°C at the end. A total of five surveyors observed the buildings and their positions as well as the results are marked on Figure 3.
- 3.2.8 The first bat to emerge was a 45kHz pipistrelle at 20:08hrs, some 10 minutes after sunset. Surveyor S2 saw this bat emerge from the northern end of B1. A second 45kHz pipistrelle was seen to emerge from the south-east corner of B5 at 20:24hrs, 26 minutes after sunset, by S5. The first long-eared was seen to emerge from the northern gable of B5 at 20:26hrs, 28 minutes after sunset. Between these two sightings, S3 saw a long-eared bat enter the southern end of B1a through a gap above the door at 20:30hrs. A second long-eared entered B1a through the open window at 20:35hrs. It is assumed one of these bats came from B5 and the second could have been the same bat or a second emergence that went undetected. A second bat was seen to emerge from the north gable of B5 at 20:42hrs, 44 minutes after sunset. Surveyor S5 standing to the south of B6 saw a long-eared bat emerge from between the valley of B5 and B6, at 20:51hrs, 53 minutes after sunset. The long-eared bats were all flying low to the ground with very quiet or no echolocation until approximately 50 minutes after sunset when some echolocation calls were recorded.
- 3.2.9 A summary of the results is presented below:

*3<sup>rd</sup> June 2014*

<b>Species</b>	<b>Building</b>
1 x 55kHz pipistrelle	B1
1 x 45kHz pipistrelle	B1
1 x long-eared bat	B6

*6<sup>th</sup> July 2014*

<b>Species</b>	<b>Building</b>
1 x 45kHz pipistrelle	B1
5 x long-eared bat	B1, B1a, B5/6, B6

*26<sup>th</sup> August 2015*

<b>Species</b>	<b>Building</b>
2 x 45kHz pipistrelle	B1, B5
3 x long-eared bat	B5, B6

## 4.0 EVALUATION AND RECOMMENDATIONS

- 4.1 A bat building survey of Falconhurst Barns has been undertaken looking for evidence of and potential for bats. The initial building survey undertaken in 2013 found limited evidence of pipistrelle and long-eared bats and therefore summer emergence surveys were undertaken the following year, in June and July 2014. An update internal survey was undertaken in July 2014 to see if there has been any significant change in the amount of evidence found. An update emergence survey was also undertaken in August 2015.
- 4.2 The complex of barns support a range of different roosting environments and the surveys show that they are used by a small population of long-eared bats in the summer months and singleton 45kHz and 55kHz pipistrelle bats.
- 4.3 There was some variability in the results during 2014; there was an increase from one long-eared bat emergence in the June 2014 survey to five long-eared bats in the July 2014 emergence survey and during the update survey in August 2015, three were recorded. The peak of five long-eared bats were recorded from two buildings; three from B5/6 and two from B1/B1a however it is considered that the bats use the B5/6 and B1/B1a interchangeably.
- 4.4 A peak of five long-eared bats is considered too small to be a maternity roost; the average number is 10-50 (Altringham, 2003) and the amount of droppings is consistent with a small summer roost. Further to this, individual bats were seen during the update building survey in 2014 and they were not grouped together but singleton bats. This is considered to be of low conservation significance (English Nature, 2004). A feeding perch in B5 also qualifies as a small roost of low conservation significance.
- 4.5 With regard to pipistrelle bats, evidence in the form of droppings did not significantly change between the two building surveys. Two 45kHz and one 55kHz pipistrelle bat were recorded emerging from B1 and one 45kHz pipistrelle emerged from the south-east corner of B5. There are various suitable roosting features for singleton pipistrelle bats throughout the buildings and these appear to be used on a fairly temporary basis. The singleton pipistrelle roosts are considered to be of low conservation significance under the Bat Mitigation Guidelines (English Nature, 2004).
- 4.6 It is understood that the proposals involve the conversion of the derelict barns into functional barns that can be used to host weddings. Building B1 will be open to the roof where currently there are two mezzanine, loft-type voids at either end. Likewise, there is a second storey to B1a that will be removed. B2 will remain and be converted into a catering kitchen. It is understood that B3 is being demolished and rebuilt at the northern end of B4, similar to the current location. Building B4 is to be re-instated with an

original wall replacing the corrugated asbestos wall. B5 and B6 are to be renovated to accommodate a groom's house.

### ***EPS Licence***

- 4.7 A licence from Natural England will be required to permit the works. An EPS licence would require recent survey information from the most recent active season May – September. The Conservation Regulations 2010 places Local Planning Authorities under the obligation to consider the three European Protected Species licensing tests when considering a planning application which impacts on European Protected Species. The three licensing tests, which Natural England also has to apply later when considering a licence application, are (i) whether there are imperative reasons of overriding public interest for the planning application; (ii) whether there are any satisfactory alternatives; and (iii) whether the species' favourable conservation status has been maintained.
- 4.8 It is considered that the third test may be met if any loss of a bat roost could be appropriately mitigated for by providing a suitable replacement roost. A time specific mitigation plan and method statement for works would be drawn up with the licence application. In relation to the other two tests, both are matters which concern planning law rather than ecology.

### ***Mitigation and Timings***

- 4.9 The licence would require detailed information on roost provision by way of mitigation and timings of the proposed works. The timing of the stripping of all areas considered to hold potential to support bats, such as the roof tiles, ridgeline and soffits, would be restricted to certain times of the year when bats are less vulnerable to disturbance. Therefore this work should be undertaken in September/October or March/April to avoid disturbance to bats during the key breeding and hibernating periods.
- 4.10 Prior to any works to the building all personnel would be given a tool box talk by the ecologist or accredited agent named in the EPS licence to ensure that the appropriate level of care is taken when carrying out the work. Prior to any work commencing an internal survey of the buildings will be undertaken by a licenced ecologist and should it be required any bats found will be caught in a hand net and released later that evening.
- 4.11 Hand tools may be used under the direct supervision of the bat ecologist to help loosen/prise off ridge and roof tiles and to aid the process. The internal roofing felt from the inside of the roof voids will be removed carefully by hand and under ecological supervision. Once the features suitable for bats have been removed works on the buildings could continue without interruption.
- 4.12 Any bats found would be checked over by the ecologist for signs of any injury and standard parameters including species, sex, breeding status recorded. The ecologist would be licenced to handle bats should

any be found during the stripping process. Wherever possible, the bat should be allowed to remain in situ and work should cease in that area so that it could leave of its own accord that evening. However, any bats needing to be kept in captivity during the day would be placed in a bat rescue kit which will include a basket with a lid and a small capsule to hold water and kept in an appropriate cool, dry location until it is released. If weather conditions are not favourable for release then the bat will be placed within a tree mounted bat box within the Site boundary. If more than one species of bat is found then the species will be kept separate at all times.

### **Roost Provision**

- 4.13 A tree mounted bat box such as the Schwegler 2F bat box will be installed near to the buildings prior to the supervised renovation works. There are trees to the north which would be suitable. If any bats are found they would be kept during the day and released the same evening. This is unless significantly bad weather occurs in which case bats may be put into the bat box installed in a suitable location and allowed to fly on their own accord.
- 4.14 The level of mitigation would follow recommendations set out by Natural England's Bat Mitigation Guidelines (2004). The bat surveys confirmed the presence of singleton 45kHz and 55kHz pipistrelle bats under the roof tiles of B1 and B5. Pipistrelles are crevice dwelling bats and mitigation for singleton bats such as this will involve providing similar and suitable crevice type features in the new building. The pipistrelle roosts will be recreated through the installation of raised roof tiles on B1 and B5. Roof tiles will be raised using a timber wedge or folded lead flashing to a height of 25mm or by using purpose made tile set from Tudor Roof Tiles, see Appendix 1.
- 4.15 A total of eight raised tiles should be incorporated into the roof. Four raised tiles on B1 and four raised tiles on B5 is considered sufficient to provide a range of different roost conditions. The tiles should be distributed equally on the east and west pitches of the roof. Traditional bitumen roofing felt should be used rather than a breathable roofing membrane which is known to entangle bats due to the loosening and disintegration of fibres.
- 4.16 The surveys confirmed small numbers of long-eared bats roosting in the void/ridgeline of B1 and crevice-type positions in the ridge tiles/ dormer features of B5/6. Replacement measures for long-eared bats should comprise of two features; raised ridge tiles to replicate the crevice-type roost positions and an alternative void to replicate B1.
- 4.17 When seeking to create a replacement roof void for long-eared bats, Natural England's Bat Mitigation Guidelines (2004) recommend that the void should have minimum dimensions of a floor area 5m by 5m wide and a height of 2.8m to the apex. Such a void needs to be uncluttered, generally free from trusses

- and be dedicated for use by bats meaning that other uses/entry by people would not be allowed to avoid disturbance.
- 4.18 A dedicated loft space for long-eared bats will be created in B2 to the north of B1. The garage will be only a few metres north of the barn and within flying range of the bats noted during the emergence surveys. The garage void will be perpendicular to the current one and orientated on an east-west axis. Access to the bat loft will be provided through the installation of three suitably raised ridge tiles with associated slots within the underlining. Appendix 2 illustrates how these can be created. For monitoring and maintenance a small hatchway measuring 450mm x 450mm, as recommended in the Bat Mitigation Guidelines 2004, will be installed. The roof of the void will be lined with traditional roofing felt.
- 4.19 The location of the new bat loft in the garage will be where lighting is unlikely to have any impact, particularly on the access points. The lighting strategy will be need to be described for approval within the bat EPS licence application. The lighting strategy should be sensitive to bats and all lighting should be kept to a minimum.
- 4.20 Ensuring the local term viability of the bat population will also involve maintaining and enhancing the local environment for foraging bats. This would take the form of planting trees and hedgerows to create habitat corridors that allow bats to commute around the Site, particularly from the new long-eared void in B2 to woodland to the east and west. Generous planting and native species used in the landscape design will provide a foraging resource for the local bats and also provide food, shelter and resting places for wildlife such as birds and small mammals. Suitable native species include oak, beech, hawthorn, blackthorn, silver birch, hazel and field maple.
- 4.21 The current designs suggest that there is sufficient opportunity and scope to provide appropriate mitigation to meet the relevant derogation test and ensure the continued functioning of the local bat assemblage.
- 4.22 In general, the extent to which bats use alternative roosts is not well studied and appears to be highly variable. Therefore follow-on monitoring would be required for this reason and for the requirement of the EPS licence, once the works have been completed. In this instance, it is recommended that two years after the work has been completed, an emergence survey (May-September) along with an internal check of the long-eared void is undertaken (Natural England, 2004).
- 4.23 Regarding the surrounding landscape, the planting in the surrounding area is well-established and mature shrubs and trees should be retained wherever possible. Additional tree and shrub planting should be species rich and use native, locally sourced species such as hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, oak *Quercus robur*. Fruit trees such as plum and apple are also valuable for pollinators and biodiversity. Any planting including herbaceous borders should maximise the use of

native species rich in nectar in order to benefit invertebrates and biodiversity. Night scented plant such as honeysuckle *Lonicera periclymenum* and tobacco plant *Nicotiana sylvestris* attract night flying insects and moths. An extract from 'Encouraging Bats' from Bat Conservation Trust is included in Appendix 3 for ideas for a planting scheme that benefits invertebrates.

#### *Breeding birds*

- 4.24 Two swallow nests were noted in B1, one in B1a, one in B5 and one in B6. Swallows and their nests like other birds, are fully protected under the Wildlife and Countryside Act 1981. The June 2009 BTO report 'Birds of Conservation Concern 3' lists the swallow as an Amber List species which means it is of medium conservation concern and has a population or range that has experienced population decline in recent years. Factors which are believed to contribute to their decline are the deterioration in the quality of feeding habitats in both their breeding and wintering grounds and the diminishing availability of suitable nesting sites as farms are modernised and other ramshackle buildings are renovated or demolished.
- 4.25 Compensation measures for the loss of the swallow breeding sites in the buildings should be incorporated into the new buildings. Swallows require open access to a building which is fairly dark and has suitable beams or ledges on which to build their nests. Provision of swallow nesting areas in new buildings is typically suited to open sided garages and also porch or dormer type features which can be boarded off from the internal space. Ledges can be included at eaves height or beams built in to the design to allow swallows to nest. An additional option to encourage swallows is the creation of small wooden nest platforms or installation of nest cups but this is not essential, as swallows often build their own nests.
- 4.26 Further bird nests were noted in B3, B4 and three were noted in B6. There is also potential for breeding birds noted in all the buildings as well as the trees, hedges and shrubs. It is therefore recommended that any clearance of vegetation is to be undertaken outside of the breeding bird season limiting this work to between October and end of February. If these dates do not coincide with clearance work then it is recommended that the buildings and vegetation are checked by a suitably experienced ecologist before the works commence. It is recommended that integrated features are included in the new building design for breeding birds.
- 4.27 Colonial house sparrow boxes can be fitted externally onto the proposed buildings, placed 2-4m above ground level and under the eaves. Monitoring suggests there is a severe decline in the UK sparrow population underway, estimated as falling by 71% between 1977 - 2008 and with declines seen in both rural and urban populations (RSPB). The boxes should be installed on the north or east elevation to avoid strong sun or prevailing wind and rain. One colonial sparrow box is recommended.



---

## 5.0 CONCLUSIONS

- 5.1 Bat building and bat emergence surveys 2013- 2015 have identified evidence a small roost of long-eared bat using B1/B1a and B5/B6 which is not considered to be a maternity roost. A peak of five long-eared bats were recorded in the July 2014 emergence survey. Evidence of long-eared feeding roosts was also noted in B1, B1a and B5. In addition, singleton 45kHz pipistrelle bats and 55kHz pipistrelle bat were recorded emerging from the southern end of B1 and a single 45kHz pipistrelle bat from the southern end of B5.
- 5.2 As these buildings will be renovated, an EPS licence from Natural England will be required to continue with the project. The mitigation required has been outlined and the compensation required will involve a combination of crevice dwelling features built into the roof tiles and ridge tiles and a dedicated loft void for long-eared bats.
- 5.3 Precautions and compensation regarding the disturbance of breeding birds have been given.

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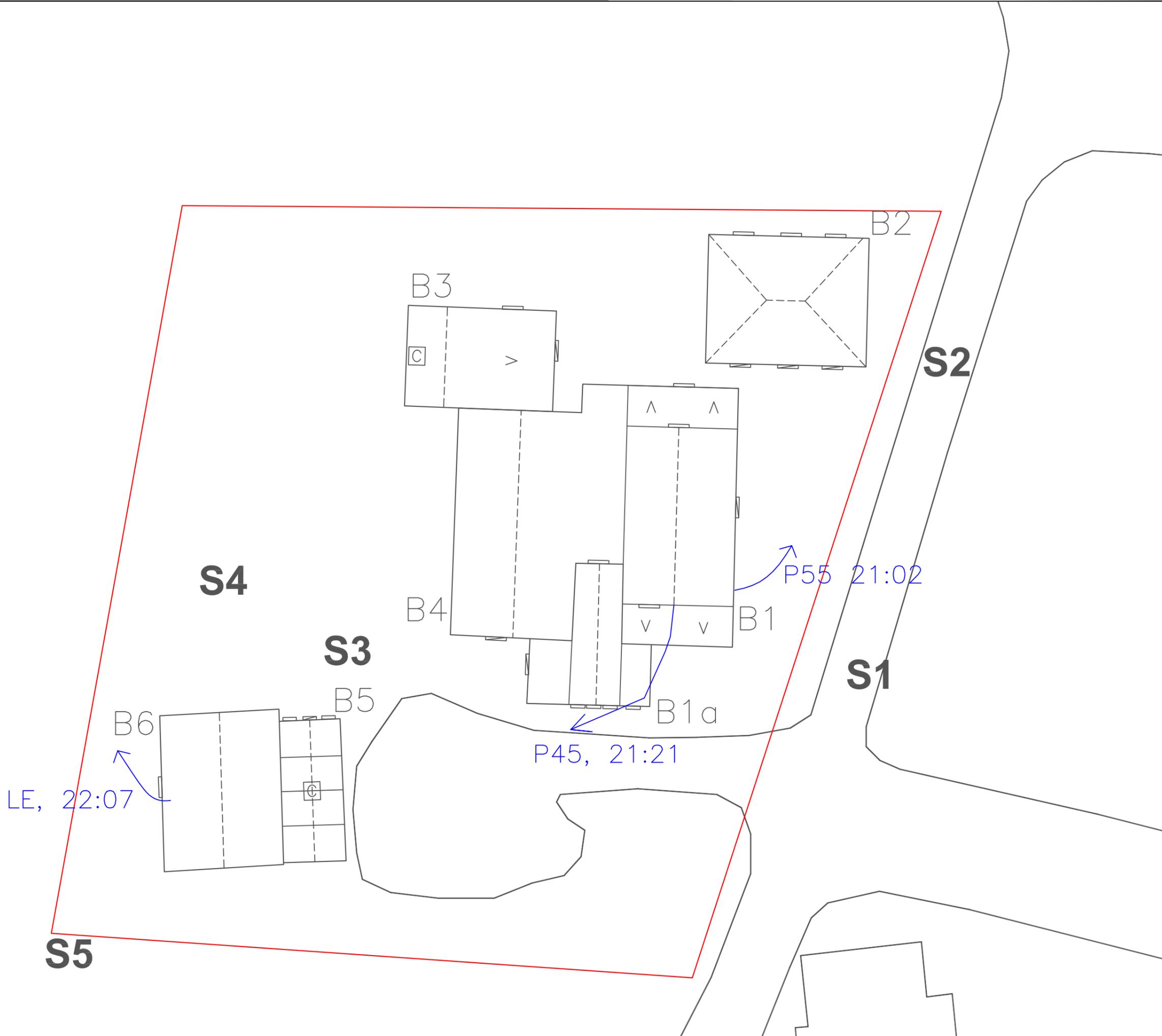
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## FIGURES



- Key
- B1 Building 1
  - S1 Surveyor locations
  - Bat emergence or re-entry
  - P45 Common pipistrelle
  - P55 Soprano pipistrelle
  - LE Brown long-eared
  - Ridge line
  - ▭ Window
  - ▭ Door
  - ⊞ Chimney
  - ∇ Lean to roof
  - Site boundary

revision	description	date	checked by

Corylus Ecology Ltd, Unit A3, Speldhurst Business Park, Went Farm, Langton Road, Speldhurst, Kent TN3 0NR. Corylus Ecology is the trading name of Corylus Ecology Ltd registered in England. No 5005553. Registered Office: Herwood House, Herwood, Ashford, Kent TN24 8DH



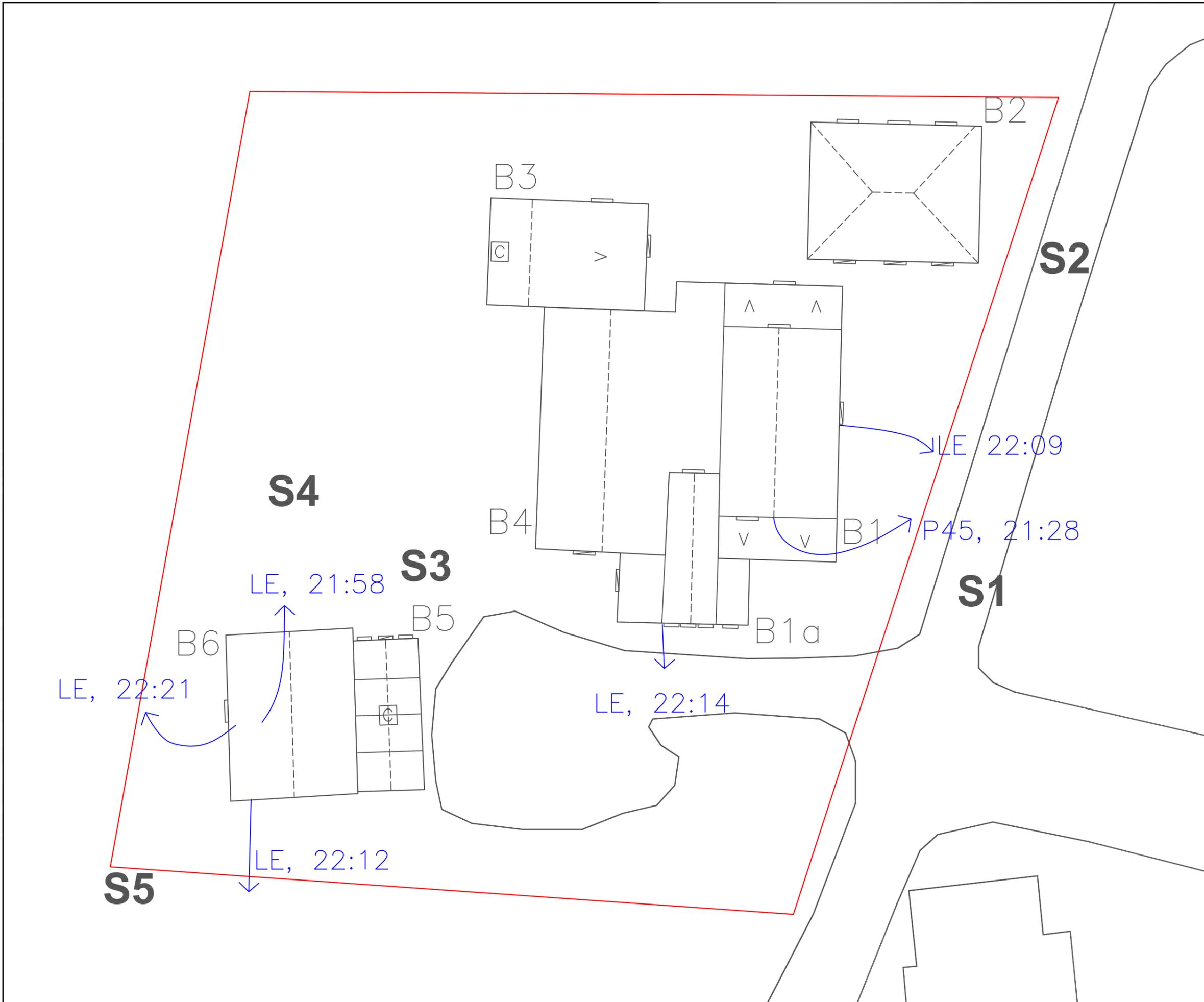
Project:  
**Falconhurst Barns, Cowden**

Title:  
**Bat Emergence & Results: 3rd June 2014**

status	drawing no.
	<b>Figure 1</b>

scale	size	date	drawn	checked
NTS	A3	6.10.15	JP	JP

CAD filename: Figure\_1.dwg



- Key
- B1 Building 1
  - S1 Surveyor locations
  - Bat emergence or re-entry
  - P45 Common pipistrelle
  - P55 Soprano pipistrelle
  - LE Brown long-eared
  - Ridge line
  - Window
  - Door
  - C Chimney
  - V Lean to roof
  - Site boundary

revision	description	date	checked by

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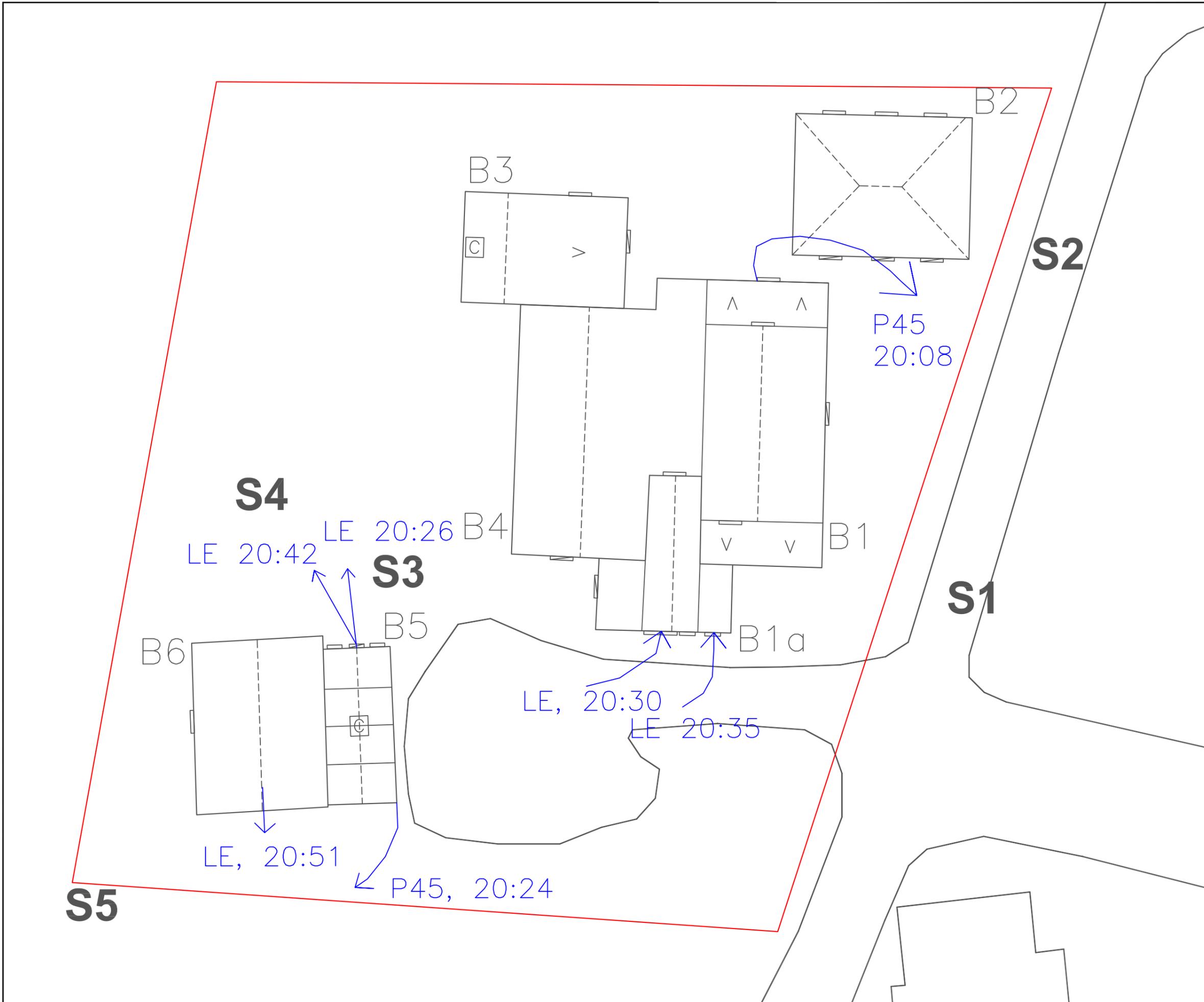
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**Falconhurst Barns, Cowden**

Title:  
**Bat Emergence & Results: 7th July 2014**

status drawing no. **Figure 2**

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CAD filename:  
 Figure\_2.dwg



- Key
- B1 Building 1
  - S1 Surveyor locations
  - Bat emergence or re-entry
  - P45 Common pipistrelle
  - P55 Soprano pipistrelle
  - LE Brown long-eared
  - Ridge line
  - Window
  - Door
  - C Chimney
  - V Lean to roof
  - Site boundary

revision	description	date	checked by

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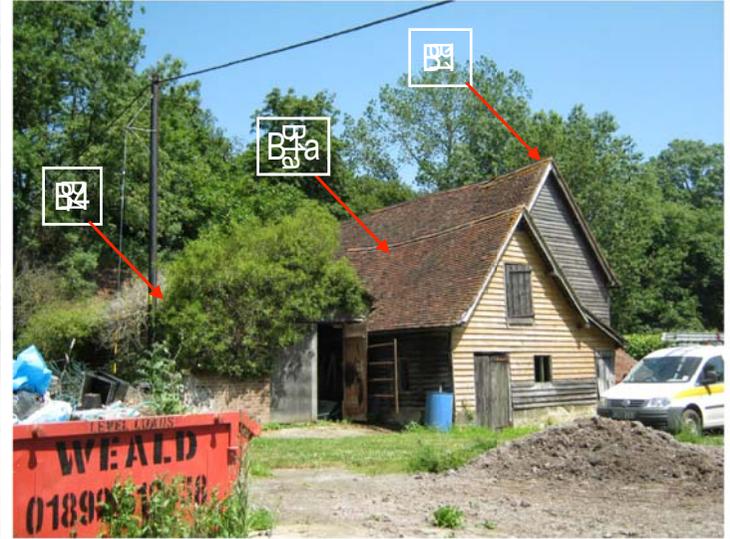
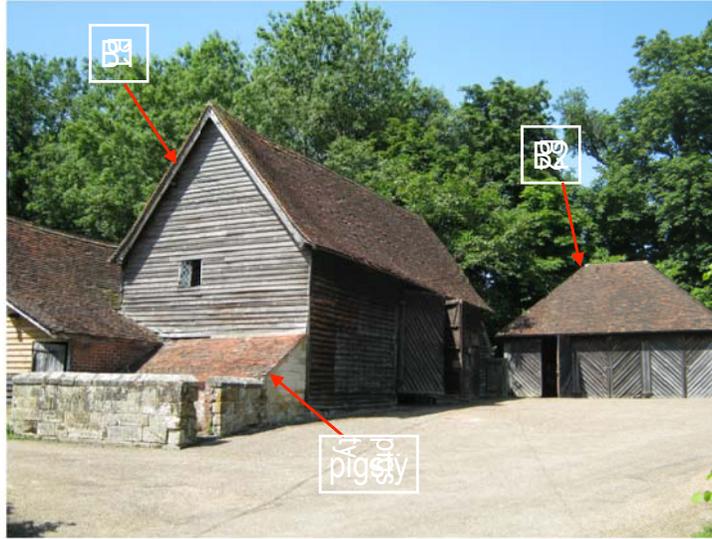
Project:  
**Falconhurst Barns, Cowden**

Title:  
**Bat Emergence & Results: 26th September 2015**

status:   drawing no. **Figure 3**

scale	size	date	drawn	checked
NTS	A3	6.10.15	JP	JP

CAD filename:  
 Figure\_3.dwg



## APPENDICES



Tudor Roof Tile Co. Limited  
Dengemarsh Road, Lydd, Kent, TN29 9JH  
Tel: 01797 320 202 Fax: 01797 320 700  
Email: [info@tudorrooftiles.co.uk](mailto:info@tudorrooftiles.co.uk)  
Web: [www.tudorrooftiles.co.uk](http://www.tudorrooftiles.co.uk)



CRAFTED by Tudor Tiles



## **Bat Access Tile Set**

All UK bats and their roosts are protected by law. The Wildlife & Countryside Act introduced in 1981, gave legal protection to all bat species and their roosts in England. The Conservation (Natural Habitats, etc.) Regulations 1994 as amended (most recently in 2007 and 2009 and better known as the Habitats Regulations), further strengthened this legal protection.

Bat-related offences are arrestable. The potential fine for each offence is £5,000 per bat. An offender can also be imprisoned for six months. If any property has been, or is suspected to have been, home to any number of bats, at any time, legislation requires taking advice and precautions when working on the roof. Legislation also requires provision to allow access for bats if they return.

Different species of bats prefer differing places to roost. The two most usually found species in the UK are Pipistrelle and Brown Long-Eared.

Pipistrelle



Brown Long-Eared



Pipistrelle prefer confined spaces such as under tiles on roof and hanging. The Brown Long-Eared prefer roof timbers and ridges inside lofts.

Tudor Roof Tiles Co. Limited can provide purpose made access points within your roof tiles or ridge tiles. The Bat Access Set can form part of a mitigation package required by law for existing roosts or as potential access where a roost had not previously been present.



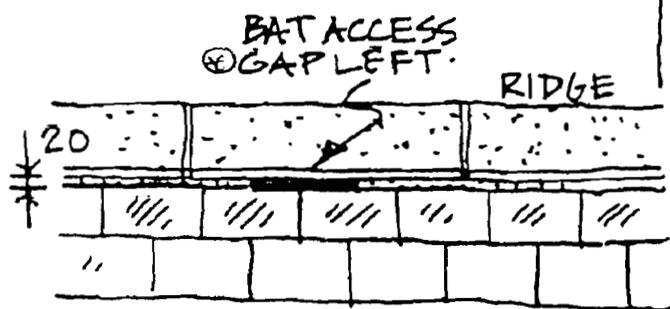
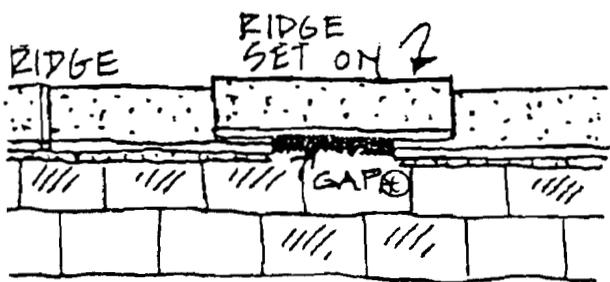
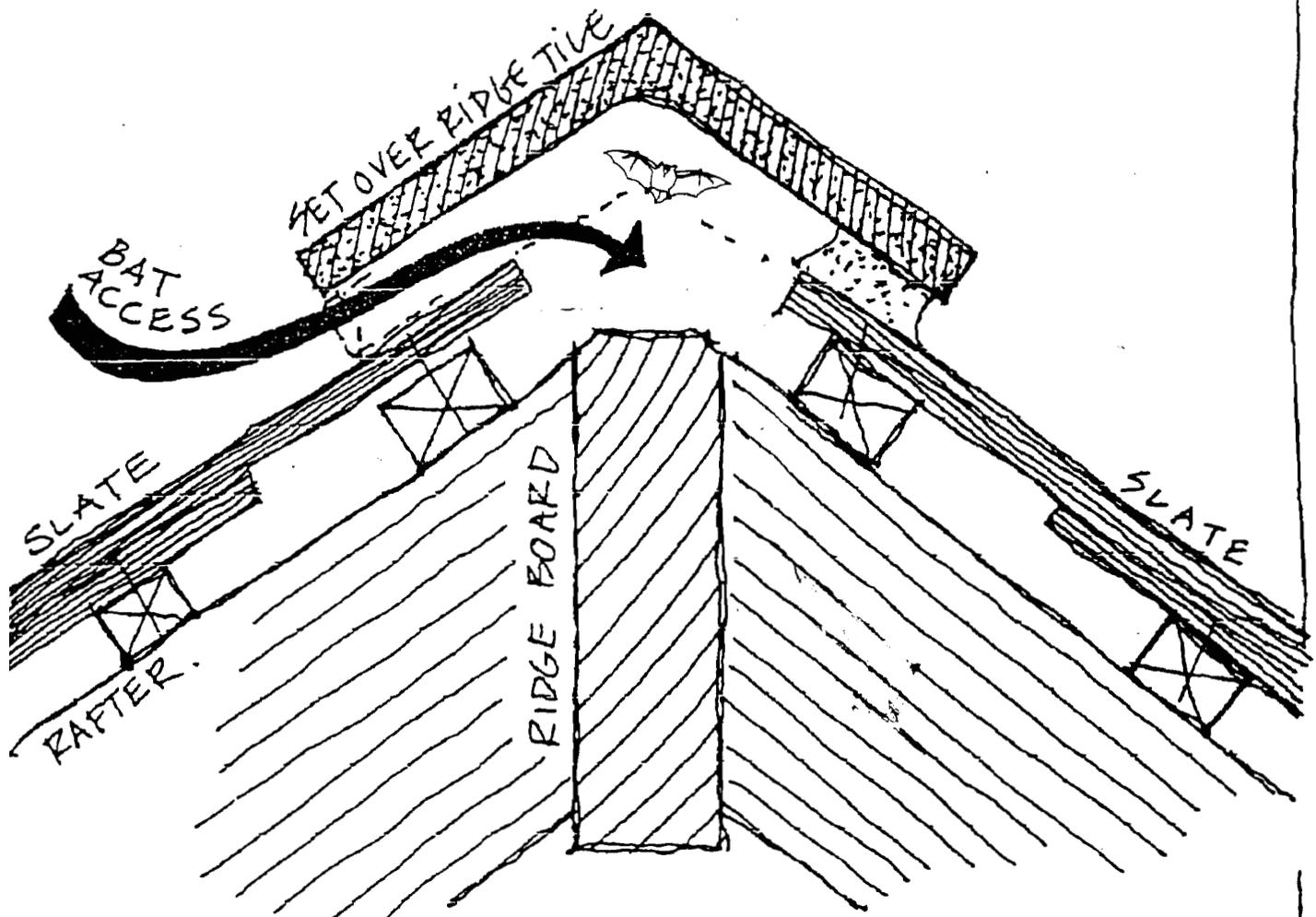
Available in all 5 Tudor colours, or in Natural Clay (without sand face), the Bat Access Set presents a bat optimised entrance to the under-felt, or to the loft when the under-felt is opened.

For use within the roof tiles, the top 'tunnel' tile offers the bat an 18mm high x 165mm long (approx.) tunnel to an entrance hole in the undertiles. This allows the bat to crawl into the roost area.

An advantage of Tudor's tiles large double camber, is that it provides the maximum amount of natural air flow under the tiles. The carefully designed access, along with this air flow between the tiles and the under-felt, aims to provide conditions where the bats are protected from any extremes of heat. Tudor also offer ridge tiles with a similar 18mm access cut into the ridge tile side, and we can look to manufacture bespoke access tiles to your requirement.

Expert advice on bats can be obtained from the Bat Conservation Trust, 15 Cloisters House, 8 Battersea Park Road, London, SW8 4BG. Bat Helpline 0845 1300 228 .... [www.bats.org.uk](http://www.bats.org.uk) ..... email [enquiries@bats.org.uk](mailto:enquiries@bats.org.uk)

# RIDGE TILE ACCESS DETAIL 4A



~ OPTION A ~ 'Piggy-back' gap

~ OPTION B ~ Mortar Gap

ROOF RIDGE SET ON TOP OF GENERAL RIDGE TILES TO FORM BAT ACCESS GAP.

MAINTAIN 20MM MORTAR GAP. & LEAVE A SECTION OUT.

⊕ GAP 15 to 20mm high, 25 to 35mm wide



SP

The above information is for guidance only and may not be appropriate in all circumstances, if in doubt seek professional advice.

English Nature Cumbria Team, Juniper House, Murray Moss, Oxenholme Road, Kendal LA9 7RL. Tel: 01539 792800 Fax: 01539 792830 Email: cumbria@english-nature.org.uk

# Which plants should I choose?

Bat-friendly gardeners should aim to plant a mixture of flowering plants, vegetables, trees and shrubs to encourage a diversity of insects, which in turn may attract different bat species. Flowers that bloom throughout the year, including both annuals and herbaceous perennials, are a good idea: night-flowering blossoms attract night-flying insects. Trees and shrubs provide food for insects and roosting opportunities for bats.

Approximate flowering periods are listed below, although they may vary according to area and weather conditions!

## Flowers for borders

\*Aubretia (spring to early summer)  
 \*Candytuft (summer to autumn)  
 \*Cherry pie (summer to autumn)  
 Corncockle  
 Cornflower  
 Corn marigold  
 Corn poppy  
 \*Echinacea  
 English Bluebell (spring)  
 \*Evening primrose (summer to autumn)  
 Field poppies (summer)  
 \*Honesty (spring)  
 \*Ice plant 'Pink lady' (early autumn)  
 Knapweed (summer to autumn)  
 Mallow (summer to autumn)  
 \*Mexican aster (summer to autumn)  
 \*Michaelmas daisy (summer to autumn)  
 \*Night-scented stock (summer)

Ox-eye daisy (summer)  
 \*Phacelia (summer to autumn)  
 \*Poached egg plant (summer)  
 Primrose (spring)  
 Red campion (spring)  
 \*Red valerian (summer to autumn)  
 Scabious (summer)  
 St John's wort (spring)  
 \*Sweet William (summer)  
 \*Tobacco plant  
 \*Verbena (summer to autumn)  
 \*Wallflowers (spring to early summer)  
 Wood forget-me-not (spring)  
 Yarrow (early summer)



Plants marked \* are hybrids or exotics that may be useful in the garden



## Herbs (both leaves & flowers are fragrant)

Angelica  
 Bergamot (summer to early autumn)  
 Borage (spring to early autumn)  
 Coriander (summer)  
 English marigolds  
 Fennel (summer to early autumn)  
 Feverfew (summer to autumn)

Hyssop (summer to early autumn)  
 Lavenders  
 Lemon balm  
 Marjoram (summer)  
 Rosemary (spring)  
 Sweet Cicely (spring to early summer)  
 Thyme (summer)

## Things to remember

- Pesticide-free gardens tend to be better for wildlife and bats.
- Wherever possible, try to choose native plants and trees.
- Never dig up plants from the wild. Buy native plants from reputable suppliers who breed their own stock.
- Use peat-free compost or peat-substitutes such as coir. Peat extraction is unsustainable and seriously damages our unique bog habitats. Gardeners can help by reducing the demand for this product.
- Creating a range of habitats such as a pond, vegetable garden and hedgerow makes your garden more attractive to insects and in turn bats.
- Add a seat, put your feet up and watch your garden come to life!
- Hedge and tree lines are important to help bats navigate.
- Use lighting sensitively in your garden and do not point it at a bat box or roost.

## Trees, shrubs & climbers

Bramble (climber)

\*Buddleia (shrub)

Common alder  
(suitable for coppicing)

Dog rose (climber)

Elder (small)

English oak (large gardens only)

Gorse (shrub)

Guelder rose (shrub)

Hawthorn (suitable for coppicing)

Hazel (suitable for coppicing)

Honeysuckle (native honeysuckle)

Hornbeam

Ivy (climber)

\*Jasmine (night-scented)

Pussy willow (suitable for coppicing)

Rowan

Silver birch



## Wild flowers for pond edges & marshy areas

Bog bean

Bugle

Creeping Jenny (spring to summer)

Flag iris

Hemp agrimony (summer)

Lady's smock (spring to summer)

Marsh mallow

Marsh marigold (spring)

Marsh woundwort

Meadowsweet  
(summer to early autumn)

Purple loosestrife (summer)

Water avens

Water forget-me-not  
(summer to autumn)

Water mint (summer to autumn)

## Appendix 4 – Bat Legislation

All British bat species receive legal protection in the United Kingdom. The Wildlife and Countryside Act 1981 (WCA) (as amended) transposes into UK law the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention). The 1981 Act was recently amended by the Countryside and Rights of Way (CROW) Act 2000 and the more recent Habitats Regulations amendments (2007). All British bat species are listed under Schedule 5 of the 1981 Act, and is therefore subject to the provisions of Section 9, which makes it an offence to:

- Intentionally kill, injure or take a bat [Section 9(1)];
- Possess or control any live or dead specimen or anything derived from a bat [Section 9(2)]
- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection [Section 9(4)(b)];
- Intentionally or recklessly obstruct access to any structure or place which a bat uses for shelter or protection [Section 9(4)(c)]
- Sell, offer for sale, possess or transport for the purpose of sale or publish advertisements to buy or sell a bat [section 9(5)]

Bats are also included on Annex IV of Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (known as the Habitats Directive). As a result of the UK ratifying this directive, all British bats are protected under The Conservation Regulations 1994 (the Habitat Regulations) (as amended 2007). Annex IV of the Habitats Directive requires member states to construct a system of protection as outlined in Article 12, this is done through Schedule 2 of the Regulations whereby Regulation 39 makes it an offence to:

- Deliberately capture or kill a bat [Regulation 39(1)(a)];
- Deliberately disturb a bat in such a way as to be likely to significantly affect i) the ability of any significant group of animals of that species to survive, breed or rear or nurture their young, OR ii) the local distribution of that species. [Regulation 39(1)(b)];
- Damage or destroy a breeding site or resting place of a bat [Regulation 39(1)(d)].

Under the law, a roost is any structure or place used for shelter or protection. This could be any structure, for example any building or mature tree. Bats use many roost sites and feeding areas throughout the year. These vary according to bat age, condition, gender and species, as well as season and weather. Since bats tend to re-use the same roosts for generations, the roost is protected whether the bats are present or not.

In a judgement issued by the High Court in June 2009 in the case of R. (on the application of Simon Woolley) v Cheshire East Borough Council, it was determined that the Habitats Regulations 1994 place Local Planning Authorities under the obligation to consider the three European Protected Species licensing tests when considering a planning application which impacts on European Protected Species. The three licensing tests, which Natural England also has to apply later when considering a licence application, are (i) whether there are imperative reasons of overriding public interest for the planning application; (ii) whether there are any satisfactory alternatives; and (iii) whether the species' favourable conservation status has been maintained.



**FALCONHURST,  
MARKBEECH, KENT**

**North Lawn Car Park and Landscaping**

**Extended Phase I Habitat Survey**

**For and behalf of  
Mr and Mrs Talbot**

**July 2015**

**CORYLUS ECOLOGY**

**Unit A3 Speldhurst Business Park, Langton Road, Speldhurst, Tunbridge Wells, Kent. TN3 0NR**

**Telephone: 01892 861868 E-mail: [info@corylus-ecology.co.uk](mailto:info@corylus-ecology.co.uk)**

*Directors: H G Wrigley (née Lucking) BSc. MIEEM*

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**References****Figures**

Figure 1 – Phase I Plan

Figure 2 – Annotated Photographs

**Appendices**

Appendix 1 – Amphibian Legislation

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## 1.0 INTRODUCTION

1.1 Corylus Ecology has been requested to undertake an extended Phase I Habitat Survey of a 0.7ha area of land within the Falconhurst Estate, near Edenbridge in Kent, hereinafter referred to as the 'Site'.

1.3 The proposals for the Site involve the creation of a car park with up to 20 spaces and landscaping relating to the proposed use of the area as a wedding venue.

### Context

1.4 The Site includes a collection of buildings which have previously been surveyed with respect to bats and barns owls and the relevant recommendations are the subject of a separate report (Corylus Ecology, Bat Building and Emergence Report, August 2014).

### Scope of Survey

1.5 The Phase I Habitat Survey provides information relating to the habitats within the Site and identifies potential for and, if apparent, evidence of use by protected species. In addition, it provides recommendations for further surveys if required.

1.6 The aims of the Extended Phase I Habitat were to:

- classify the habitats within the Site according to those within the Phase 1 manual;
- identify habitats of ecological interest suitable for further surveys, and the potential to encounter protected species;
- suggest appropriate mitigation where necessary.

---

## 2.0 METHODOLOGY

### 2.1 Desk Study

- 2.1.1 Records of designated sites and protected species were sought within 3km of the Site from the Kent and Medway Biological Records Centre.

### 2.2 Extended Phase I Survey

- 2.2.1 The Site was subject to an extended Phase I Habitat survey on 25<sup>th</sup> March 2015. The habitats present on the Site were mapped in accordance with the '*Handbook for Phase I Habitat Survey – a Technique for Environmental Audit*' (Joint Nature Conservation Committee, 2003). Habitat areas and features of topographical and/or ecological interest were described in the form of target notes. These were later used to create botanical species lists by target note area and also to create a colour coded Phase I Habitat map. All nomenclature follows Stace (1997). Non-native or invasive species were also identified and mapped where appropriate.

### 2.3 Protected Species Assessment

- 2.3.1 The Phase I Habitat survey included an assessment of the potential for the survey area to support protected species. This type of survey aims to assess the potential for protected species to occur due to the habitats present and does not include any species-specific survey methods designed to demonstrate whether the Site is in fact used by such species.
- 2.3.2 With regard to badgers *Meles meles*, any holes or scrapes likely to be used by or indicate the presence of badgers were searched for together with any other field signs associated with this species, including latrines, pushes and hairs.

---

## 3.0 RESULTS

### 3.1 Desk Study

- 3.1.1 The centre of the Site is located at British national grid reference TQ 46854269 and the Site lies within the High Weald Area of Outstanding Natural Beauty (AONB) which is an area renowned for its woodlands, agricultural landscape and open heaths.

#### **Statutory Designated Sites**

- 3.1.2 Cowden Pound Pastures Site of Special Scientific Interest (SSSI) is located some 820m north-west of the Site. This SSSI consists of agriculturally unimproved neutral grassland, a nationally rare habitat and one of a few examples of this habitat in the High Weald. The grass sward is diverse and includes species such as devil's-bit scabious *Succisa pratensis*, betony *Betonica officinalis*, brown sedge *Carex disticha*, heath-grass *Danthonia decumbens* and heath dog-violet *Viola canina*.
- 3.1.3 Cowden Meadow SSSI is located approximately 1.6km to the south-east of the Site. This is a small area (1.2ha) comprising one of the best remaining areas of unimproved neutral grassland in Kent. Old meadow species are present including quaking grass *Briza media*, oxeye daisy *Leucanthemum vulgare*, pepper saxifrage *Silaum silaus*, sneezewort *Achillea ptarmica*, southern marsh orchid *Dactylorhiza praetermissa* and early marsh orchid *Dactylorhiza incarnata*.

#### **Non-Statutory Designated Sites**

##### *Ancient Woodland*

- 3.1.4 There are various ancient and ancient replanted woodland areas occurring nearby, the closest being a small (0.39ha) unnamed wood 120m to the east. Another small unnamed area (1.15ha) lies 195m to the south-east. Falcon Hurst wood is a larger area ancient woodland (3.71ha) some 215m to the south-west.

#### **Protected Species**

##### *Bats*

- 3.1.5 Eleven species of bat out of the 15 species recorded in Kent have been recorded in the 5km radius of the Site from a total of 334 records which have been provided. These 11 bat species are serotine, Brandt's, Daubenton's bat, whiskered bat, Natterer's bat, Leisler's bat, noctule, 45kHz pipistrelle, 55kHz pipistrelle, brown long-eared bat and Bechstein's bat.
- 3.1.6 There are no bat records from within a 1km radius of the Site. The nearest record for a long-eared bat roost comes from 1.5km to the south, alongside Hartfield Road. The roost was identified through the identification of droppings in September 1999 and October 1999. A little further from Site, a long-eared roost comprising a single bat was recorded in July 1999 at a house 1.9km to the south-west of the Site,

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on Spode Lane. The nearest confirmed maternity roost comes from a record of 19 long-eared bats in August 1993, located at a distance of 1.4km south of Site.

- 3.1.7 Regarding pipistrelle bats, there are maternity roosts identified which have not been assigned to species level. For example there is a record of a pipistrelle maternity roost 4.1km north of Site, with a peak of 74 bats recorded in July 1993. The nearest record of a maternity roost of 45kHz pipistrelle bats is for 230 bats and was recorded 2.4km to the north-east of Site.
- 3.1.8 There are 15 roost records for Daubenton's bat which comprise of three hibernation locations: two on Furnace Lane 2.8km to the south and one 3.6km to the north-east near Hill Hoath Road, Hever. These are single bats with the most recent record from 2011. There are also 12 records of Daubenton's bat in flight and these are all from the summer months in the areas around the hibernation sites, except for one record from the south of Edenbridge in August 2011, 3.6km north of Site. Likewise the 19 roost records for Natterer's bats are mainly comprised of hibernation records with a maximum of three bats at the Furnace Lane location. Aside from this there was one Natterer's bat which was examined in the hand from 2009 in a location 4.2km east of Site. There are four roost records for Bechstein's bat including a maternity roost of 33 bats recorded in August 2012, located 4.2km to the east of Site. A whiskered/Brandt's maternity roost has been recorded 4.3km from Site, comprising of eight bats.
- 3.1.9 The nearest record for serotine is 2.1km north-east of the Site for one bat recorded in 1987. A more recent record of a roost from 1990, deduced from droppings, is located at a distance of 2.4km to the south. There are only two roost records for noctule bats provided; one for six bats, 3.1km to the north-east and one consisting of droppings and located 3.3km to the south.

#### *Reptiles*

- 3.1.10 Common lizard, slow worm, grass snake and adder have all been recorded within a 3km radius. Grass snake have been recorded regularly in the area with 32 records, the majority from Cowden Pound Pastures and spanning the years 1998 to 2006. Slow worms have also been regularly recorded with 38 records from Cowden Pound Pastures, the majority in 2006. There is just one record provided for common lizard, from a location some 2.7km to the west in Chiddingstone Hoath in 1967.

#### *Great crested newts and amphibians*

- 3.1.11 There are records of smooth newt, common frog and common toad in the 3km search area but no records of great crested newt. The smooth newt records is from 1.2km to the north-east and common frog and toad were recorded in Cowden Pound.

#### *Dormice*

- 3.1.12 There are 40 records of dormice provided with the most recent from May 2012 from Cowden Pound Pastures where they have been recorded regularly from 1998 to 2012.

#### *Badger*

- 3.1.13 There are no records of badgers for the site itself but several records of badger in the 3km search area.
- 3.1.14 Other notable species recorded in the 3km search area include bullhead, European eel and the purple emperor butterfly.

#### *Botanical species*

- 3.1.15 Eleven species of plants from the *Orchidaceae* family have been recorded within a 3km radius: broad-leaved helleborine *Epipactis helleborine*, violet helleborine *E. purpurata*, common twayblade *Listera ovate*, autumn lady's-tresses *Spiranthes spiralis*, greater butterfly-orchid *Platanthera chlorantha*, common spotted-orchid *Dactylorhiza fuchsii*, early marsh-orchid *D. incarnate*, heath spotted-orchid *D. maculate*, southern marsh-orchid *D. praetermissa*, early-purple orchid *Orchis mascula* and late spider-orchid *Ophrys fuciflora*. Many of these records are historical (pre-1980) but there are records for common spotted-orchid, early marsh-orchid, heath spotted-orchid and early-purple orchid from 2000 onwards.

### **3.2 Extended Phase 1 Survey**

- 3.2.1 The Site lies to the west of the village of Markbeech which is approximately 4.5km south-east of Edenbridge in Kent. The Site comprises 0.7ha of land which for the most part comprises redundant farm buildings and barns with hedgerows, lawn and scattered trees also within the Site. The Site is located in a rural setting with residential dwellings to the east and south of the Site and grazed fields to the east and west and Cowden Pound Road situated along the northern boundary.
- 3.2.2 The habitats present are shown within Figure 1 with further details provided by way of specific Target Notes, denoted by the letters TN. Annotated photographs are provided in Figure 2 for reference.

#### *Scattered Trees*

- 3.2.3 There is a clump of scattered mature trees TN8a in the lawn area including oak *Quercus robur*, common lime *Tilia x europea* with shrub species holly *Ilex aquifolium*, laurel *Laurus nobilis* and rhododendron *Rhododendron ponticum*. The ground flora at the base of the trees includes ramsons *Allaria ursinum*, primrose *Primula vulgaris*, stinking iris *Iris foetidissima*, Lords-and-Ladies *Arum maculatum*, ground ivy *Hederacea glechoma* and lesser celandine *Ranunculus ficaria*.

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3.2.4 There is a line of scattered trees TN8b along the western boundary of the Site comprising native and non-native species such as false acacia *Robinia pseudoacacia*, semi-mature horse chestnut *Aesculus hippocastanum*, maple species *Acer* sp., mature cherry *Prunus* sp. and a species of cypress.

3.2.5 The trees along the northern boundary TN13 include ash *Fraxinus excelsior*, horse chestnut, field maple *Acer campestre* and walnut *Juglans regia*.

*Grassland – species poor*

3.2.6 There is a short-mown area of grassland TN2 between the buildings which contains Yorkshire-fog *Holcus lanatus*, creeping bent *Agrostis capillaris* and rough meadow-grass *Poa trivialis*.

3.2.7 The grassland to the south of the buildings TN6 is similar in species composition but is longer around the margins alongside the hedge TN7. Species present include Yorkshire-fog and creeping bent. Wood sedge *Carex sylvestris* is locally dominant at the base of the hedge and ramsons are frequent in the shaded grassland below the scattered trees.

*Tall Ruderal*

3.2.8 Within the low stone walls associated with the redundant pigsty building, tall ruderal vegetation dominates, TN3. The dominant species is common nettle *Urtica dioica* with the following species also present: hogweed *Heracleum sphondylium*, hairy bittercress *Cardamine hirsute*, red dead-nettle *Lamium purpureum*, foxglove *Digitalis purpurea*, common sorrel *Rumex acetosa*, creeping buttercup *R. repens*, male fern *Dryopteris filix-mas*, bramble *Rubus fruticosus* agg., cleavers *Galium aparine* and cow parsley *Anthriscus sylvestris*. The grasses include tufted hair grass *Deschampsia cespitosa*, Yorkshire-fog and creeping bent.

3.2.9 A further area of tall ruderal TN5 surrounds the pigsty to the south. The flora is dominated by spear thistle *Cirsium vulgare* and nettle with Yorkshire-fog and creeping bent.

3.2.10 There is an area of rough grassland TN12 that shows signs of disturbance (bonfires) in patches and recent management. Species in TN12 include Yorkshire-fog, rough meadow-grass, spear thistle, ground elder *Aegopodium podagraria*, Lords-and-Ladies, common nettle, red dead-nettle, cleavers, ribwort plantain *Plantago lanceolata*, feverfew *Tanacetum parthenium*, yarrow *Achillea millefolium*, garlic mustard *Alliaria petiolata*, great mullein *Verbascum thapsus*, cow parsley, field forget-me-not *Myosotis arvensis*, petty spurge *Euphorbia peplus*, common chickweed *Stellaria media* and ground ivy. In the northern part which is shaded by the trees of TN13, black horehound *Ballota nigra*, stinking iris *Iris foetidissima* and variegated Lords-and-Ladies were noted.

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*Introduced Shrub*

- 3.2.11 There is a group of seven forsythia *Forsythia* sp. bushes and one hawthorn *Crataegus monogyna* TN10 in the east of the survey area which supports scrambling dog rose *Rosa canina* and bramble.

*Species-poor hedgerow*

- 3.2.12 To the west of the buildings, there is a well-maintained hawthorn hedge TN7 growing to a height of 2m.

*Wall*

- 3.2.13 There is a 0.8m high brick and stone wall TN4 in the eastern part of the survey area which is missing sections of mortar.

*Hardstanding*

- 3.2.14 TN1 is an area of hardstanding covered with gravel which forms the driveway to the buildings.

*Spoil*

- 3.2.16 There are various items of metal, piping and miscellaneous items laid out on the terrace, indicated on Figure 1 as S1.

- 3.2.17 S2 is a manure pile with a bonfire area in the northern part.

- 3.2.18 S3 is a recent store of stone in one of the open-sided buildings.

- 3.2.19 S4 is an area of shaded stone rubble 4m by 3m which has become vegetated by hart's tongue fern *Asplenium scolopendrium*, Lords-and-Ladies, bramble and moss species.

- 3.2.20 S5 is a pile of woodchip along the western site boundary which appears to have been laid fairly recently as it is devoid of colonising vegetation.

- 3.2.21 S6 is the timber from a felled ash *Fraxinus excelsior*, approximately 1m diameter at breast height and with an estimated 116 rings/years.

### 3.3 Protected Species Assessment

*Great Crested Newts*

- 3.3.1 There is suitable terrestrial habitat on Site for GCN including the following areas:

- tall ruderal area TN3
- low stone and brick wall with missing mortar, TN4
- rank grassland in the northern section of TN6

- ruderal area TN5
- the northern edge of TN12 including old stone pile S4 which is a suitable hibernaculum
- other areas of spoil (S1, S2, S3, S4, S5, S6) are fairly recent but would become more suitable over time.

It should be noted that outside the survey area, to the west, is an area of woodland which also provides good quality habitat for GCN.

- 3.3.2 There were no records of great crested newt provided within the 3km radius. However there is a good network of ponds in the local landscape, with 34 ponds recorded within a 1km radius. Map studies reveal that within a 250m radius, a distance more readily covered by an individual newt, there are seven ponds, the majority to the north beyond a minor road. The closest pond is P1 adjacent to the Site. The approximate distances of these ponds from Site are provided below.

**Table 1 - Ponds within 250m**

Pond	Distance	Direction
P1	0	W
P2	125	NW
P3	100	NW
P4	90	N
P5	125	NE
P6	115	E
P7	105	E

#### *Reptiles*

- 3.3.3 On site, the areas noted as suitable for GCN are also broadly suitable for reptiles, particularly the grassland area TN6 and ruderal area TN3. The habitat on Site is fairly small in area however it is located in a rural area which provides good connectivity to other suitable natural habitats, such as hedgerows and grazed fields. There is expected that the habitats could support low numbers of common reptiles species such as slow worm *Anguis fragilis*, common lizard *Zootoca vivipara* and also grass snake *Natrix natrix* given the proximity of water.
- 3.3.4 Common lizard, slow worm, grass snake and adder have all been recorded within a 3km radius. Grass snake and slow worms have been recorded regularly in Cowden Pound Pastures but the records for common lizard are from 1967, from a location 2.7km to the west.

#### *Bats*

- 3.3.5 The scattered trees throughout the Site were assessed for potential to support features that could be used by roosting bats. Three trees were identified with potential:

ID	Species	Category	DBH	Grid Ref	Features
T1	Oak	2	100	TQ 46889 42646	A double-stemmed ivy-covered oak
T2	Oak	1	120	TQ 46940 42642	Mature tree with low potential features on the branches. At 8m on west side, there is a stress fracture. At 15m on western side, two branches have split ends. At 10m on northern side, broken branch where some healing at the edge leads to a crack and potential crevice.
T3	Field Maple	1	70	TQ 46979 42718	Upwards hole in scar on the south side at 5m

#### *Dormice*

- 3.3.6 The Site itself does not support the density of trees or hedgerows required to support dormice. There is a hawthorn hedge TN7 however this is well-maintained and species-poor so would not provide adequate food resources for dormice. The mature trees are sparsely distributed.
- 3.3.7 Regarding connections to further habitat, the woodland adjacent to the western boundary of the site is small (0.7ha) with an occasional shrub layer. Although the woodland is small, the tree line along the northern boundary of the Site provides a possible connection to more extensive habitat: the tree line extends eastwards for 540m and is breached briefly by the driveway to the Falconhurst estate but connects to a small (0.39ha) unnamed wood. Perpendicular to this woodland is another unnamed woodland 1.15ha in area and separated by a field gap of approximately 35m; this woodland extends south along the train line.
- 3.3.8 There are no dormouse records for the woodland areas described. However, dormouse are known to be present in the woods around Cowden Pound Pastures, approximately 1.25km north-west of Site with the most recent record from 2012. The habitat between Cowden Pound Pastures and the Site is rural but woodland coverage is patchy so there is no direct habitat link to the Site.

#### *Breeding Birds*

- 3.3.9 The trees and hedgerows within the Site provide suitable habitat for breeding birds.

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## 4.0 EVALUATION AND RECOMMENDATIONS

4.1 The proposals for the Site include the creation of a car park with 20 spaces to accompany the conversion of the redundant farm buildings in to a wedding venue (Corylus Ecology, Bat Building and Emergence Report, August 2014). A pathway will be constructed from the car park to the proposed wedding venue buildings and there will be additional landscape works.

4.2 No rare or nationally scarce plant species were identified during the survey. The main habitat type is grassland and disturbed grassland dominated by ruderal species. The survey was carried out in March which gave the potential for early spring plants to be identified but it should be noted that some later flowering herbaceous species would not be detectable and the majority of grasses would have been in a vegetative rather than flowering state.

### *Great Crested Newts*

4.3 Habitat with potential to support great crested newt has been identified and the suitable terrestrial habitat to be affected totals 0.7ha. Pond 1 is adjacent to the Site. Great crested newts (GCN) breed in ponds during spring and early summer but spend the majority of the year on land. Although no ponds will be lost to the proposals, the proximity of the proposed car park and landscaping means that potential impacts to great crested newt need to be considered.

4.4 Great crested newts (GCN) are fully protected under The Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2010. The protection afforded to GCN is such that the animals, their eggs and the habitats they use for rest or shelter are protected including both aquatic and terrestrial habitats. The potential for an offence relates to the following provisions of the Conservation Regulations and the Wildlife and Countryside Act, as amended, which make it an offence to:

- Deliberately capture, kill or injure a great crested newt [Conservations Regs Regulation 41(1)(a)];
- Intentionally kill, injure or take a great crested newt [WCA Section 9(1)];
- Intentionally or recklessly disturb a great crested newt while it is occupying a structure or place which it uses for shelter or protection [WCA Section 9(4)(b)];

4.5 Understanding the size of any great crested newt population present is required in order to correctly assess the likely impacts of the proposals. As the habitats on site are considered suitable for GCN and there is a strong local pond network, further information about the suitability of the ponds within 250m of the Site is required. It is recommended that ponds should be subject to Habitat Suitability Index (HSI) assessments and where necessary, presence/likely absence surveys should be carried out in accordance with English Nature's Great Crested Newt Mitigation Guidelines, 2001. These guidelines

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recommend the use of at least three of the following four survey methods wherever possible: bottle trapping, torchlight searches, egg searches and hand netting.

- 4.6 Due to the nature of the proposals it is not considered necessary to extend the pond surveys to 500m from Site. However, a proportion of these ponds between 250-500m from the Site are being surveyed in 2015 for a neighbouring development so it is recommended that all relevant information is included in the GCN assessment.
- 4.7 Should a population of GCN be identified, either a method statement will need to be drawn up for the works or an EPS licence application will need to be made to Natural England to limit and mitigate for the impact of the proposals. Included in any licence application would be details on mitigation and times of year for when it is best practice to conduct works. The level of mitigation would follow recommendations set out by English Nature's Great Crested Newt Mitigation Guidelines (2001).
- 4.8 The Conservation Regulations 2010 places Local Planning Authorities under the obligation to consider the three European Protected Species licensing tests when considering a planning application which impacts on European Protected Species. The three licensing tests, which Natural England also has to apply later when considering a licence application, are (i) whether there are imperative reasons of overriding public interest for the planning application; (ii) whether there are any satisfactory alternatives; and (iii) whether the species' favourable conservation status has been maintained.
- 4.9 With regard to the second test, the local authority and Natural England must consider whether there are any satisfactory alternatives to the proposed work. The third test, regarding favourable conservation status involves designing mitigation in proportion to the nature and status of the population present. This may involve excluding and relocating individuals from the works area and providing some terrestrial habitat within the Site as a receptor site to receive them. Appropriate habitat linkages are needed to maintain movement and functionality of the local population.

#### *Reptiles*

- 4.10 The desk study records show that slow worm, grass snake and common lizard have been recorded in a 3km radius of the Site. Suitable reptile habitat has been identified on Site; the habitat is small in area but varied including brickwork, compost heaps, tall ruderal and grassland which is connected to the wider countryside. Some areas, such as TN12 have been more recently disturbed but areas such as TN3 are more established.

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- 4.11 The proposals involve conversion of these areas to hardstanding for a car park and outdoor seating area and an increased management regime for the remaining grassland. A presence/likely absence survey for reptiles is required to assess what populations are present and the likely impacts of the development.
- 4.12 Under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) it is an offence to intentionally kill or injure a reptile. To avoid committing an offence under the Act, precautions must be put in place to reduce threats to reptile species but also to mitigate against the effects of development. Mitigation for the more common British reptile species does not require a licence from Natural England but a mitigation strategy should be designed for approval by the planning authority for the protection and conservation of reptiles. This will include the most appropriate method of moving the reptiles from the development area and whether this would be best achieved by translocation or habitat manipulation.
- 4.13 A reptile survey entails setting out heat traps (squares of roofing felt) which the reptiles use to thermo-regulate. Froglife (1999) recommend that a minimum of 10 heat traps are set out per hectare. However, the density may be increased in areas where more suitable habitat is present and to cover all the suitable habitat areas. Once set, the heat traps are left to bed in for a few days and are then checked on seven occasions in suitable conditions. The number and species of reptile and breeding conditions are recorded. The optimal survey period for reptiles is March – September.

#### *Bats*

- 4.14 Two oak trees and a field maple have been noted as having potential for bats but it is understood that these trees are being retained. Should these trees with potential be affected directly (i.e. removed as part of the scheme) or indirectly (through increase lighting for example) then further surveys to determine the presence of tree roosts would be required. Any further surveys required would likely involve two dusk emergence surveys in the period May – September. Any trees containing bats roosts which are due to be felled would require an EPS licence.
- 4.15 A cluster of ash trees and a walnut tree in TN13, the trees closest to the buildings are to be removed as part of the proposals. These trees were assessed and found to have no potential for roosting bats.
- 4.16 Long-eared bats have been identified roosting in three of the old farm buildings on site (Corylus Ecology, 2014) with a peak of 5 long-eared bats recorded during an emergence survey in July 2014. A 55kHz pipistrelle and a 45kHz pipistrelle were also recorded using the main barn. Regarding foraging resources, the proposals will involve minimal loss of trees and vegetation. However lighting is predicted to pose the greatest impact and should be designed to be minimal, particularly around the mitigation and compensation measures. Where lighting is unavoidable, lights should incorporate PIR motion sensors and back-shields to reduce the upward diffusion of light.

*Dormice*

- 4.17 There is no suitable habitat for dormice within the survey area but there are dormice records within 1.25km of the site and suitable woodland in the surrounding landscape. Therefore no further surveys to determine the presence/likely absence of this species are considered necessary. However, appropriate precautions are recommended to ensure that the low risk of accidental disturbance or injury to any itinerant dormice is minimised. Dormice construct their winter nests in dry and sheltered areas at ground level, such as in thick tussocks of vegetation or under tree stumps. Should any rotten tree stumps or dense ground vegetation need to be removed during winter, it is recommended that the work is supervised by an experienced ecologist and that a precautionary fingertip search of ground level vegetation is undertaken prior to any clearance work.

*Breeding birds*

- 4.18 The trees and hedgerows within the Site provide extensive suitable habitat for breeding birds. All wild birds receive protection under the Wildlife and Countryside Act 1981 as amended and this includes disturbance while breeding. The breeding bird season is generally taken as 1<sup>st</sup> March to 1<sup>st</sup> September so if the Site work is expected to be undertaken within this timeframe then it is recommended that these areas are checked by a suitably experienced ecologist for active nests before the work commences. Should breeding birds be identified it will be necessary to postpone works until a time when the chicks have fledged and left the nest.

*Recommendations with regard to NPPF*

- 4.19 The National Planning Policy Framework (NPPF) replaced the Planning Policy Statement 9 (2005) Biodiversity and Geological Conservation in March 2012 and sets out planning policies on the protection of biodiversity and geological conservation through the planning system. It is Section 11 of the National Planning Policy Framework which sets out the Government's current planning policy in relation to conserving and enhancing the natural environment. The NPPF states that "the planning system should contribute to and enhance the natural and local environment by:
- Protecting and enhancing valued landscapes, geological conservation interests and soils;
  - Recognising wider benefits of ecosystem services;
  - Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures
- 4.20 Regarding NPPF it is recommended that an ecological enhancement strategy is devised on completion of the protected species surveys. Measures to enhance biodiversity are likely to include generous native

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planting and provision of nesting and roosting areas for birds, bats, invertebrates and small mammals. Provision of habitat for invertebrates and small mammals can be met through planting of hedgerows which are left unmanaged at the base, including a grassy headland at least 1m wide.

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## 5.0 CONCLUSIONS

- 5.1 The proposals involve the construction of a 20 space lawn car park, hardstanding for a seating area, planting and pathway construction.
- 5.2 The Phase 1 Habitat survey identified no rare or protected plant species but there is suitable habitat for great crested newts and reptiles.
- 5.3 Surveys to determine GCN presence/likely absence have been recommended for the survey window of mid-March to mid-June. It is recommended that all ponds within 250m of the Site are surveyed. If presence is confirmed then a method statement or EPS licence would be required.
- 5.4 The habitat on Site is suitable for reptiles so further presence/likely absence surveys have been recommended in order to determine potential impacts.
- 5.5 A bat tree assessment has been undertaken and none of the trees earmarked for removal have features suitable for bats. Trees T1, T2 and T3 have potential to support bat roosts and an ecologist should be consulted if at a later stage if these tree require any pruning or felling work.
- 5.6 The survey area does not support dormouse habitat and no further surveys have been recommended. As dormice are known to be present in the local area, appropriate precautions over clearance of ground level vegetation and refugia have been given.
- 5.7 With regard to NPPF, potential biodiversity enhancements have been outlined but it is recommended that an ecological enhancement strategy is devised on completion of the protected species surveys.

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## Appendix 1 – Amphibian Legislation

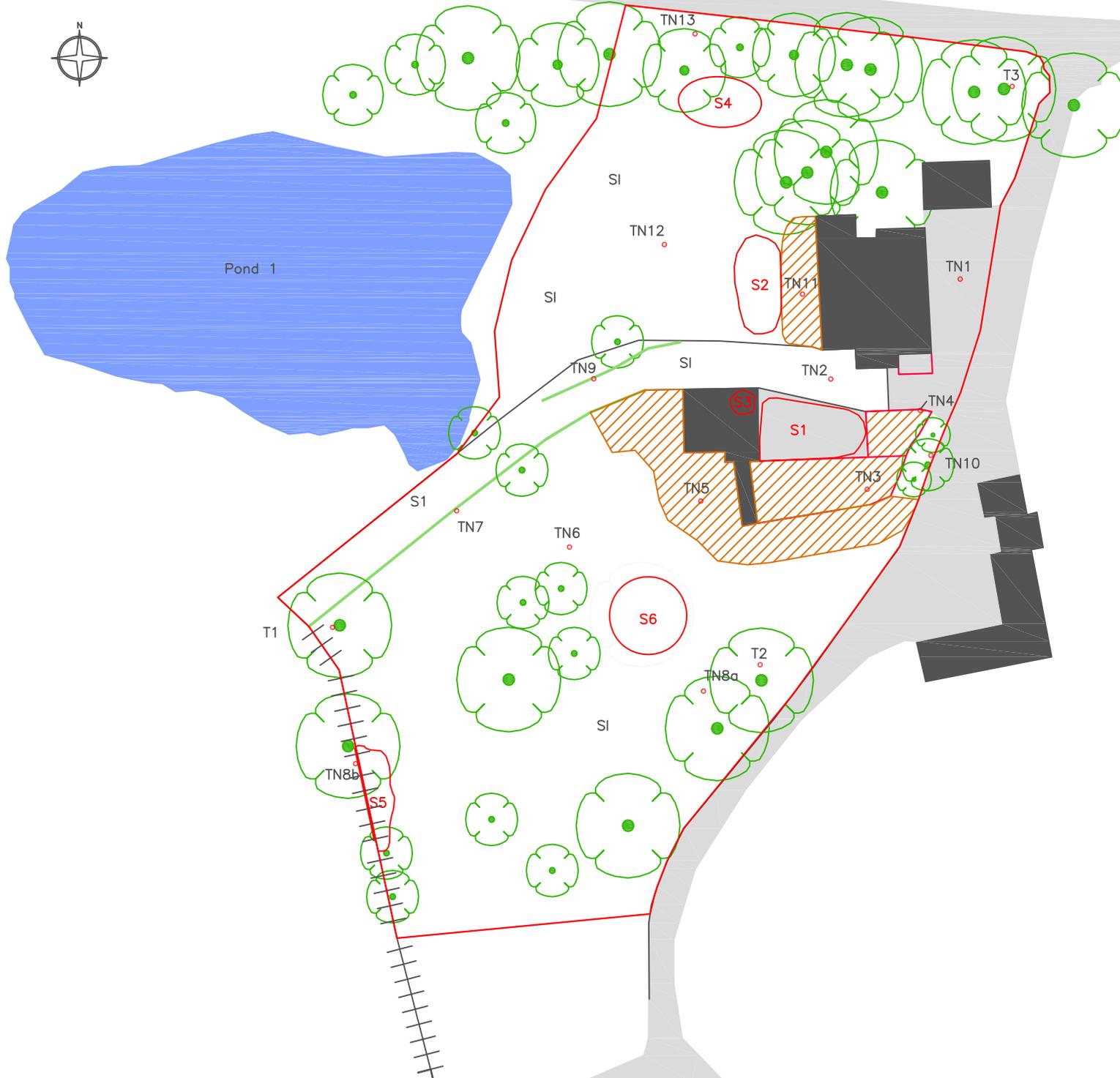
All British amphibian species receive legal protection in the United Kingdom though the degree to which different species are protected varies. The Wildlife and Countryside Act 1981 (WCA) (as amended) transposes into UK law the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention). The 1981 Act was recently amended by the Countryside and Rights of Way (CRoW) Act 2000 and the more recent Conservation Regulations (2007). The great crested newt is listed under Schedule 5 of the 1981 Act, and is therefore subject to the provisions of Section 9, which make it an offence to:

- Intentionally kill, injure or take a great crested newt [Section 9(1)];
- Possess or control any live or dead specimen or anything derived from a great crested newt [Section 9(2)]
- Intentionally or recklessly disturb a great crested newt while it is occupying a structure or place which it uses for shelter or protection [Section 9(4)(b)];
- Intentionally or recklessly obstruct access to any structure or place which a great crested newt uses for shelter or protection [Section 9(4)(c)] Sell, offer for sale, possess or transport for the purpose of sale or publish advertisements to buy or sell a great crested newt [section 9(5)]

The other more common amphibian species are protected against sale (Section 9(5)) only. In all cases, the legislation applies to all life stages including spawn, eggs, juveniles and adults.

The great crested newt is also included on Annex IV of Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (known as the Habitats Directive). As a result of the UK ratifying this directive, the great crested newt is protected under The Conservation of Habitats and Species Regulations 2010 (The Conservation Regulations). Annex IV of the Habitats Directive requires member states to construct a system of protection as outlined in Article 12, this is done through Part 3 of the Regulations whereby Regulation 41 makes it an offence to:

- Deliberately capture or kill a great crested newt [Regulation 41(1)(a)];
- Deliberately disturb great crested newts in such a way as to be likely to significantly affect i) the ability of any significant group of animals of that species to survive, breed or rear or nurture their young, OR ii) the local distribution of that species. [Regulation 41(1)(b) and 41(2)];
- Damage or destroy a breeding site or resting place of a great crested newt [Regulation 41(1)(d)].



Key

-  Survey Area
-  Tree
-  Semi-Improved Grassland
-  Tall Ruderal
-  Waterbody
-  Spoil
-  Species Poor Hedge
-  Fence
-  Wall
-  Building
-  Hard Standing
-  Target Note 1

revision	description	date	checked by

Corylus Ecology Ltd, Unit A3, Speldhurst Business Park, West Farm, Langton Road, Speldhurst, Kent TN3 0NR  
 Ecology is the trading name of Corylus Ecology Ltd registered in England, No 5202026, Registered Office Newwood House, Newwood, Ashford, Kent TN24 8DH



Project:  
**Falconhurst North Lawn Car Park**

Title:  
**Phase I Plan**

status		drawing no.	
scale	size	date	drawn
NTS	A3	26-05-15	JP
CAD filename		checked by	
Figure_1.dwg		HL	

**Figure 1**

Figure 2 - Annotated Photographs of Falconhurst Phase 1 relating to North Lawn Car Park proposals



The entrance to Falconhurst, TN11, the manure heap S2 with ruderal vegetation TN11 and scattered trees TN13 in the background, TN2 grassland TN2 and low stone wall TN4



and TN2 and yew hedge TN9 with pond 1 just out of sight in the background, S1 in the foreground and stone pile S3 within the barn, Northern part of the grassland TN6, looking towards trees TN8b



Lawn TN6 with scattered trees



The northern part of TN6 merging into ruderal TN5



Spoil pile S6



Suitable reptile habitat of TN3



Suitable reptile habitat of TN5



Another view of rough grassland and ruderal habitat of TN5



**FALCONHURST,  
COWDEN**

**Reptile and Great Crested Newt Report**

**For and on behalf of  
Mr and Mrs Talbot**

**October 2015**

**CORYLUS ECOLOGY**

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## 1.0 INTRODUCTION

1.1 Corylus Ecology has undertaken reptile and great crested newt (GCN) surveys for a development on Falconhurst Estate, near the village of Markbeech in Kent, hereinafter referred to as the 'Site'. These surveys will be used to determine the impacts of the scheme on reptiles and GCN and inform a mitigation strategy to minimise impacts to these protected species. These surveys are in relation to recommendations made by Corylus Ecology in *Extended Phase I Habitat Survey* (May 2015).

### Scope of Survey

1.2 The aims of the protected species surveys were to:

- determine the presence/likely absence of reptiles,
- determine the presence/likely absence of great crested newt,
- evaluate the importance of any great crested newt or reptile population on Site; and
- suggest appropriate mitigation and compensation for protected species where necessary.

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## 2.0 METHODOLOGY

### 2.1 Reptile presence/likely absence

- 2.1.1 During the initial Site assessment, habitats suitable for common reptile species were identified and consequently a presence/likely absence survey was undertaken. A total of 15 heat traps were placed throughout the Site in areas considered suitable for reptiles, these being the areas of tall ruderal and long grassland habitats bordering the Site, including hedgerow bases.
- 2.1.2 The total Site area is approximately 0.7Ha and therefore the survey design achieved a density of greater than ten per ha following guidance from Froglife (1999). Heat traps consisted of heavy gauge green mineral roofing felt cut into approximately 0.7m x 1m rectangles; these were placed along habitat margins and orientated to receive the maximum amount of sunshine.
- 2.1.3 There is some discrepancy among sources of advice regarding the number of surveys required for reptile surveys. The guidance from the Highways Agency Design Manual for Roads and Bridges (DMRB) Vol. 10 Section 4 Part 7 states that *'Estimating population sizes or densities with any degree of accuracy or reliability will always be problematic.....It will be necessary to sample a relatively large proportion of a resident population in order to estimate population sizes accurately and this will be most difficult for common lizards and slow-worms in particular. Given the large survey effort necessary for population estimates to be made for any species, this should be restricted to those situations where, on the basis of the magnitude of predicted impacts and the importance of the population it is clearly warranted.'* The Froglife guidance suggests that a minimum of 7 survey visits under favourable weather conditions are required, whilst the English Nature advice within the Species Conservation Handbook (1994 *et seq.*) states that *'it is difficult to get any reliable opinion of animals in a population in less than 5 to 10 visits'*.
- 2.1.4 Seven survey visits are commonly undertaken however for this survey an additional survey was undertaken in September to extend the survey period and decrease the chance of a false negative result. The Site was surveyed from 25<sup>th</sup> September to 7<sup>th</sup> October 2015 with surveys being undertaken in conditions considered suitable for reptiles. The Herpetofauna Groups of Britain and Ireland (HGBI) guidance suggests that optimum conditions are in temperatures between 9°C and 18°C, in absence of wind and rain, and, depending on conditions, between the hours of 08:30 and 11:00 hours or 16:00 and 18:30. Peak counts of reptiles can often occur outside those times mentioned above, in particular immediately after rain. The surveys were therefore timed to utilise the best available weather conditions.
- 2.1.5 Guidance from Froglife, advises that in relation to time of year, *"Reptiles are generally active from March to October, but the most profitable months for surveying tend to be April, May and September. The exact timing however will depend on temperature, rainfall and other climatic patterns."* Froglife advise further in

relation to time of day: “For the best months indicated above, the best times to search are generally between 8.30am and 11.00am, and between 4.00pm and 6.30pm.” Other productive times to check are overcast conditions with hazy sunshine, especially when weather conditions are warmer and during sunny conditions after rain. In this regard, further information regarding the time and conditions of each visit to check the heat traps were recorded.

#### *Reptile Evaluation Methodology*

- 2.1.6 The criteria for designating Local Wildlife sites, these consisting of sites of importance on a county level, (previously known as SINCs) include criteria for their selection on the basis of their reptile populations. These criteria follow guidelines established by Froglife in identifying Key Reptile Sites. The scoring system is explained in Table 1 and the results will be compared to these criteria.
- 2.1.7 The scoring system is based upon the maximum number of adult animals, that is all animals recorded excluding hatchlings / juveniles, seen under artificial refugia (placed at a density of a minimum of 10 per hectare) or by general observation by one person, in one day.

*Table 1 - Evaluation of Reptile Population Status Based on Counts and Score Given*

<b>Species</b>	<b>Low Population Score 1</b>	<b>Good Population Score 2</b>	<b>Exceptional Population Score 3</b>
Adder	<5	5-10	>10
Grass Snake	<5	5-10	>10
Common Lizard	<5	5-20	>20
Slow Worm	<5	5-20	>20

- 2.1.8 A Key Reptile Site is identified when a site meets any of the following thresholds:
- Supports three or more reptile species; or
  - Supports two snake species; or
  - Supports an exceptional population of any one species; or
  - Supports an assemblage of species scoring  $\geq 4$  points using the above system; or,
  - Supports a population of adder scoring  $>1$ .
- 2.1.9 Any other species noted under the refugia were also recorded, principally any amphibian species in terrestrial phase.

## **2.2 Great Crested Newt HSI Survey Methodology**

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2.2.1 The HSI Assessment followed guidance published by Oldham, R.S *et al* 2000. Commonly referred to as The Oldham Criteria, it is a simple field and desk based assessment of water bodies for their potential to support great crested newts. It involves examining ten “Factors” which are subsequently calculated and given a Suitability Index (SI). These ten factors are thought to affect great crested newts and include:

- Location (in Britain);
- Pond area;
- Desiccation rate (years out of ten that pond dries);
- Water quality (subjective assessment);
- Percentage of pond shaded;
- Number of waterfowl;
- Fish population (subjective assessment);
- Number of ponds within 1km;
- Terrestrial habitat quality; and
- Percentage macrophyte cover.

2.2.2 The pond on Site was subject to an HSI assessment. Once each factor and accompanying suitability indices were ascertained, a simple geometric mean was calculated. The resulting figure, the HSI, is a value between 0.00 and 1. The resulting value is then used against a categorical scale to establish the potential of encountering great crested newts. The categorical scale includes the following values and potential to encounter great crested newt:

- HSI value of <0.5 = Poor
- HSI value of 0.5 – 0.59 = Below Average
- HSI value of 0.6 – 0.69 = Average
- HSI value of 0.7 – 0.79 = Good
- HSI value of >0.8 = Excellent

2.2.3 In general, water bodies/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 allow the conclusion that any particular pond with a high score will support newts, or that any pond with a low score will not do so. Therefore professional judgement and consideration of the surrounding habitat and location of the pond in respect to the likely impacts are all factors in deciding the suitability of the pond to support great crested newt.

### 2.3 Great Crested Newt Presence/Absence Surveys

- 2.3.2 The surveys were undertaken using guidance set out in English Nature's Great Crested Newt Mitigation Guidelines (English Nature, 2001). The guidance recommends that at least two surveys must be conducted between mid-April and mid-May, and a third during this period if the presence of GCN is identified. In addition, a minimum of four survey visits must be undertaken, with a further two if the presence of great crested newt is confirmed. The additional two visits establish a size class estimate.
- 2.3.3 The guidelines recommend the use of at least three of the following four survey methods wherever possible:
- bottle trapping;
  - torchlight searches;
  - egg searches; and/or
  - hand netting.
- 2.3.4 In total six ponds were surveyed within 250m of the Site and survey data from 2015 was also available from a further four ponds within 250-500m of the pond. Four presence/absence surveys were undertaken on 25<sup>th</sup> March, 2<sup>nd</sup> April, 8<sup>th</sup> April and 21<sup>st</sup> April 2015 with a further two surveys undertaken on 6<sup>th</sup> May and 12<sup>th</sup> May 2015 to inform a population estimate. All were undertaken in suitable weather conditions. All surveys were undertaken by licensed individuals with non-licensed surveyors assisting. The key licensed surveyors were Jenny Passmore (licence no C137165) and Christian Gunn (2015-9312-CLS-CLS) of Corylus Ecology.
- 2.3.5 All ponds were subject to torchlight searches, bottle trapping and searching for eggs. However, no bottle trapping was undertaken during the first three surveys as night time air temperatures were below 5°C as set out in the survey guidelines (English Nature, 2001). The water clarity during each survey was good and netting was not considered necessary. The torch surveys were undertaken using 1 million candle power Clulite torches. Guidelines relating to the precautions for preventing the spread of the fungal disease *Batrachochytrium dendrobatidis* published in 2008 were followed (ARG-UK, 2008).

#### **Amphibian Evaluation Methodology**

- 2.3.6 Guidelines for the selection of SSSIs (JNCC, 1989) provides criteria for Nationally Important assemblages and populations, however, there is no similar countrywide assessment for smaller populations. The methodology applied for evaluating those of *County Importance* is based upon the Criteria for Selection and Delineation for Local Wildlife sites in Kent (KWT, 2005). These guidelines are aimed at identifying important amphibian sites and are based on estimates of population sizes as well as presence and absence of species.

2.3.7 The criteria used to designate *County Importance* are based on a scoring system which forms the basis for the selection of Sites of Special Scientific Interest for amphibians. The use of a scoring system allows sites with exceptional populations to be identified, as well as sites with good assemblages of a range of species. This scoring system is set out in the table below.

*Table 2 - Amphibian Assemblage Evaluation Criteria*

<b>Species</b>	<b>Method</b>	<b>Low population Score 1</b>	<b>Good population Score 2</b>	<b>Exceptional population Score 3</b>
Great crested newt	Seen or netted in day	<5	5-50	>50
	Counted at night	<10	10-100	>100
Smooth newt	Netted in day or counted at night	<10	10-100	>100
Palmate newt	Netted in day or counted at night	<10	10-100	>100
Common toad	Estimated	<500	500-5000	>5000
	Counted	<100	100-1000	>1000
Common frog	Spawn clumps counted	<50	50-500	>500

N.B. If four species are present, add 1 point; if five species are present, add two points to the total

2.3.8 All Sites with either exceptional populations of great crested newts or scoring 5 points or more based on their amphibian assemblage would be evaluated as being of County Importance under this criteria and qualify for consideration as Sites of Special Scientific Interest.

### 3.0 RESULTS

#### 3.1 Reptiles

- 3.1.1 Grass snake, slow worm and common lizard were recorded during the survey. There were six juvenile grass snake recorded on 17<sup>th</sup> September 2015 however no adult grass snakes were observed. The peak slow worm count of 11 was recorded on 2<sup>nd</sup> September. Common lizard was recorded on just one survey occasion, on 28<sup>th</sup> August 2015. No amphibians or small mammals were recorded under the mats.
- 3.1.2 The surveys were undertaken from 25<sup>th</sup> September to 7<sup>th</sup> October which is towards the end of the survey season but the surveys were carried out in good weather conditions. Between the fourth and fifth survey, the ruderal vegetation around mats 1-10 was strimmed and this is likely to have affected the results of the last three surveys; reptiles were detected in this area but at lower densities. In addition, it should be noted that mat 11 was removed between the 2<sup>nd</sup> and 17<sup>th</sup> September (third and fourth survey) and it was not replaced.
- 3.1.3 The survey results including weather conditions is provided in Appendix 1 and the plan of the reptile survey is provided as Figure 1.

#### 3.2 Habitat Suitability Index (HSI) Assessment

- 3.2.1 Eighteen ponds within a 500m radius were identified, four of which were not on maps but identified from ground truthing. Eight of the 18 ponds are within a 250m radius of the Site and were subject to HSI assessments for great crested newts. There are an additional six ponds to the north-west of the Site which were already being surveyed by Corylus Ecology so the results of these assessments are also included here. To summarise, of the 18 ponds within 500m of the Site, two were completely dry (P14, P16), 12 were subject to HSI assessments for great crested newts and the four most easterly ponds were not assessed.
- 3.2.2 All ponds are marked on Figure 2 and the results of the 12 HSI assessments are presented below. The ponds are listed in order of distance from the Site boundary.

*Table 3 - Habitat Suitability Index Assessments*

Pond	Distance	HSI score	Suitability	Direction
P1	0	0.68	average	W
P4	90	0.69	average	N
P3	100	0.40	poor	NW
P7	105	0.49	poor	E
P6	115	0.41	poor	E
P15	115	0.60	average	E
P2	125	0.79	good	NW

P5	125	0.71	good	NE
P8	315	0.88	excellent	NW
P9	350	0.57	below average	NW
P10	370	0.79	good	NW
P11	480	0.43	poor	NW

- 3.2.3 At this stage, pond 11 was ruled out from further surveys as it was deemed unsuitable: it is surrounded by electric fencing and contains approximately 25 hens, ducks and geese. The bankside vegetation is denuded, there is no emergent vegetation and there is a high predation pressure on any GCN including eggs and larvae.
- 3.2.4 Likewise, the following ponds were considered unsuitable for GCN: pond 6 is a duck and geese pond, pond 3 is heavily stocked with fish and pond 7 contained very little water so was subject to one torch survey before the conclusion that it was unsuitable for GCN and further surveys. In addition, P14 and P16 were dry and were not subject to an HSI assessment (see Figure 2).
- 3.2.5 Four ponds had 'good' or 'excellent' results (P2, P5, P8, P10) and the remaining eight ponds scored 'average' or below. The full HSI results for the twelve ponds surveyed are provided in Appendix 2. It should be noted that an HSI assessment gives an indication of likely presence and does not constitute a presence/absence survey.

### 3.3 Presence/likely absence surveys

#### *Ponds within 250m*

- 3.3.1 Of the eight ponds within 250m which were subject to HSI assessments, four were suitable for presence/absence surveys (P1, P2, P4, P5). Pond 7 was also partially suitable: it was surveyed only once on 25<sup>th</sup> March as it was found to be rapidly drying with no suitable open water. GCN were recorded in P1, P2 and P4 so they were subject to an additional two surveys to inform a population estimate.

#### *Ponds 250-500m*

- 3.3.2 Of the six ponds beyond 250m of the Site which were subject to HSI assessments, four were suitable for presence/absence surveys (P8, P9, P10, P15). The ponds beyond 250m would not always be considered essential to survey for a development of this size and impact but they were already being surveyed to inform another planning application in the area. GCN were recorded in P8 so this pond was subject to an additional two surveys to inform a population estimate.

*Pond 1*

- 3.3.3 P1 is a large lake with shallow margins, surrounded by mature and semi-mature trees. The pond was assessed for its potential to support great crested newts on 23<sup>rd</sup> July 2014. A maximum of two carp were seen in the pond. Aquatic vegetation is limited to water mint *Mentha aquatic* at the points where the banks have a shallow gradient. The vegetation does not provide great cover but is an egg laying substrate. The terrestrial habitat close to the pond has good potential to support GCN as it includes areas for refuge such as tree stumps and fallen trees and areas for foraging. Despite the presence of fish, there are pockets of vegetation in the pond which can provide protection from predation. There is also a high density of ponds in the area and good quality terrestrial habitat, so presence/absence surveys for GCN were undertaken. The HSI score of 0.68 suggests that the pond has 'Average' suitability.
- 3.3.4 The results of the presence/likely absence survey at P1 are summarised below with peak counts highlighted in bold. Four amphibian species were recorded: great crested newt, smooth newt, common toad and common frog. The GCN recorded was male.
- 3.3.5 Bottle trapping was undertaken on three of the six surveys when there was an absence of strong winds and night time temperatures were above 5°C. However bottle trapping did not record any amphibians and unfortunately a water shrew was killed in one of the traps on 21<sup>st</sup> April. Bottle traps with escape holes for small mammals were subsequently used. There was a GCN egg found on vegetation on 6<sup>th</sup> May, during the fourth survey. The full results are provided in Appendix 3.

Table 4 - GCN presence/likely absence survey summary, P1

	GCN	Palmate	Smooth	Palmate/Smooth
25/03/2015	0	0	2	<b>2</b>
02/04/2015	0	0	<b>3</b>	1
08/04/2015	0	0	2	0
21/04/2015	<b>1</b>	0	0	0
06/05/2015	<b>1</b>	0	0	0
12/05/2015	0	0	0	0

- 3.3.6 The populations of GCN and smooth newt are 'Low' under the Amphibian Assemblage Evaluation criteria (Table 2) and score two points. Fifty-seven common frogs were recorded on the first survey and 22 on the second survey, and there was a low level of frogspawn noted, peaking at 10 clumps. The presence of a low population of common frog and common toad contributes an extra two points and as four species were recorded, an additional point is awarded which brings the total for pond 1 to five points under the Amphibian Assemblage Evaluation criteria. The amphibian assemblage is therefore

considered as County Importance and is eligible for consideration as a Site of Special Scientific Interest (KWT, 2005).

#### *Pond 4*

- 3.3.7 Pond 4 is a large shallow pond located 90m from the Site in a woodland shaw and within horse grazed fields and had a HSI score of 0.69, suggesting average suitability. There was a peak count of 1 GCN on 2<sup>nd</sup> April.
- 3.3.8 The results of the presence/likely absence survey at P4 are summarised below with peak counts highlighted in bold. Four amphibian species were recorded: great crested newt, smooth newt, common toad and common frog. The GCN recorded was female.
- 3.3.9 Bottle trapping was not undertaken as the pond was very shallow, with deep leaf litter and mud around the perimeter. There was no natural vegetation so two artificial egg strips were set however there were no eggs detected. The full results are provided in Appendix 3.

*Table 5 - GCN presence/likely absence survey summary, P4*

	GCN	Palmate	Smooth	Palmate/Smooth
25/03/2015	0	0	0	0
02/04/2015	<b>1</b>	0	<b>1</b>	0
08/04/2015	0	0	1	0
21/04/2015	0	0	0	0
06/05/2015	0	0	<b>1</b>	0
12/05/2015	0	0	0	<b>1</b>

- 3.3.10 The populations of GCN and smooth newt are 'Low' under the Amphibian Assemblage Evaluation criteria (Table 2) and score two points. The presence of common frog and common toad contributes an extra two points and as four species were recorded, an additional point is awarded which brings the total for pond 1 to five points under the Amphibian Assemblage Evaluation criteria. The amphibian assemblage is therefore considered as County Importance and is eligible for consideration as a Site of Special Scientific Interest (KWT, 2005).

#### *Pond 2*

- 3.3.11 Pond 2 is located 125m from the Site and it is a medium-sized garden pond with good macrophyte cover. The HSI assessment resulted in a score of 0.79 suggesting good suitability. There was a peak count of 17 GCN on 6<sup>th</sup> May.

- 3.3.12 The results of the presence/likely absence survey at P4 are summarised below with peak counts highlighted in bold. Two amphibian species were recorded: great crested newt and smooth newt. The peak female GCN count of 7 was on 6<sup>th</sup> May and the peak male GCN count of 10 was recorded on 6<sup>th</sup> May and also earlier on 8<sup>th</sup> April.
- 3.3.13 Bottle trapping was undertaken on the final three surveys when night time temperatures were consistently above 5°C, however no amphibians were recorded using this method. Artificial egg strips were set as well as natural vegetation being checked; GCN egg laying/eggs were noted on three of the six surveys. The full results are provided in Appendix 3.

Table 6 - GCN presence/likely absence survey summary, P2

	GCN	Palmate	Smooth	Palmate/Smooth
25/03/2015	1	0	8	0
02/04/2015	9	0	3	<b>1</b>
08/04/2015	11	0	<b>12</b>	0
21/04/2015	5	0	5	<b>1</b>
06/05/2015	<b>17</b>	0	3	0
12/05/2015	7	0	0	<b>1</b>

- 3.3.14 The populations of GCN and smooth newt are 'Medium' under the Amphibian Assemblage Evaluation criteria (Table 2) and score four points. There were no other amphibian species identified therefore the amphibian assemblage is not considered of County Importance.

#### *Pond 8*

- 3.3.15 Pond 8 is located in Buckhurst Farm 315m from the Site and it is a large steeply-sided garden pond surrounded by oak trees and with limited macrophyte cover around the edges. The HSI assessment resulted in a score of 0.88 suggesting excellent suitability. There was a peak count of 25 GCN on the final survey on 12<sup>th</sup> May.
- 3.3.16 The results of the presence/likely absence survey at P8 are summarised below with peak counts highlighted in bold. Four amphibian species were recorded: great crested newt, smooth newt, palmate newt and common frog. The peak count of female GCN was 4 on 8<sup>th</sup> April and the peak male GCN count of 22 was recorded on 12<sup>th</sup> May.
- 3.3.17 Bottle trapping was undertaken on the final three surveys when night time temperatures were consistently above 5°C. On 21<sup>st</sup> April survey, five GCN were recorded from bottle trapping whereas no GCN had been recorded from torch surveying the previous night. This is the only occasion when bottle

trapping achieved a peak count amongst survey methods; all other counts are from torch surveying. On the final survey 12<sup>th</sup> May, one GCN was recorded from bottle trapping compared to 25 GCN recorded from torch surveying the previous night.

- 3.3.18 Artificial egg strips were set as well as natural vegetation being checked; GCN egg laying/eggs were noted on the 6<sup>th</sup> May, the fourth survey. The full results are provided in Appendix 3.

*Table 7 - GCN presence/likely absence survey summary, P8*

	GCN	Palmate	Smooth	Palmate/Smooth
25/03/2015	0	0	8	0
02/04/2015	1	0	3	1
08/04/2015	11	2	22	6
21/04/2015	5	0	37	10
06/05/2015	12	1	5	5
12/05/2015	25	0	5	4

- 3.3.19 The populations of GCN and smooth newt are 'Medium' under the Amphibian Assemblage Evaluation criteria (Table 2) and score four points. The 'Low' population of palmate newt scores 1 point. Common frog was also recorded. The presence of four species results in an extra point so the total of 7 points under the Amphibian Assemblage Evaluation criteria suggests the assemblage is of County Importance and is eligible for consideration as a Site of Special Scientific Interest (KWT, 2005).

#### *Summary of Results*

- 3.3.20 When results for all ponds are combined for each survey date, a peak of 32 GCN were recorded on the sixth survey. This equates to a 'Good' population size class. However, if the ponds only within 250m of the Site are considered, the population size drops to a 'Low' population with a peak of just two GCN. This is due to the relatively large contribution of P8, which is located 315m from the Site.

*Table 8 - Peak GCN counts for all ponds within 250m*

25/03/2015	2
02/04/2015	2
08/04/2015	0
21/04/2015	1
06/05/2015	0
12/05/2015	2

3.3.21 With regard to other species smooth newts, a Low population was recorded except on the 8<sup>th</sup> April when the population was Good. There were no confirmed palmate newts within 250m of the Site and the unidentified small newt species were also very low in number, equating to a Low population. The attribution of unidentified newts to either smooth or palmate does not change the results or evaluation of results in a significant way.

*Table 9 - Peak small newt counts for ponds within 250m*

	Smooth	Palmate	Smooth/palmate
25/03/2015	10	0	2
02/04/2015	7	0	2
08/04/2015	15	0	0
21/04/2015	5	0	1
06/05/2015	4	0	0
12/05/2015	0	0	2

## 4.0 EVALUATION

### 4.1 Reptiles

4.1.1 The peak count of 11 slow worm equates to a 'Good' population score and 2 points under the Key Reptile Site criteria (Table 1). This scoring system is based upon the maximum number of adult animals, that is all animals recorded excluding hatchlings/juveniles, seen under artificial refugia (placed at a density of a minimum of 10 per hectare) or by general observation on one survey occasion. A peak of six juvenile grass snake were recorded however no adults. It can be estimated that the population of adults is below 5 and that there is a 'Low' population score, 1 point. The peak count of one common lizard equates to a 'Low' population score and 1 point. The Site is classified as a Key Reptile Site of County Importance because it meets the following thresholds:

- It supports three reptile species;
- It supports an assemblage of species scoring  $\geq 4$  points using the Key Reptile Site criteria

#### *Slow Worm Ecology*

4.1.2 Slow worms, which are legless lizards, have a widespread distribution across England, Wales and Scotland but are particularly common in southern and eastern England. They occur in a variety of habitats including rough grassland, hedgerows, heathland, woodland edges, downs and moorland (Beebee & Griffiths, 2000). Fairly thick vegetation cover, combined with sunny areas to allow basking, appear to be their preferential habitat requirements.

#### *Grass Snake Ecology*

4.1.3 Grass snakes are Britain's largest snake and hibernate from October to early March. Deep leaf litter, mammal burrows, overgrown rock piles and cracks or crevices beneath tree buttresses and roost seem to provide the preferred sites, particularly when on south-facing slopes. Feeding and egg laying site may be several hundred metres from hibernaculum and snakes will use hedgerows, ditches and banks as movement corridors where possible. Newts, frogs and toads form the majority of their diet and grass snakes are accomplished swimmers, regularly dive to look for food and can stay under for 30 minutes or more (Beebee & Griffiths, 2000).

#### *Common Lizard Ecology*

4.1.4 Common lizard often survive in loose colonies arranged along features such as road embankments, or within larger areas of suitable habitats, for example, on sunny banks or hillsides. Common lizards occur in a wide range of different habitats across the United Kingdom and Ireland and are considered the most widespread of the British reptiles. Despite being widespread, their habitat requirements result in a distribution which is patchy. Adequate common lizard habitat may be described as undisturbed ground that is topographically diverse with fairly dense but short vegetation less than 0.5 metres high, open to

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the sun and with at least a few exposed areas or promontories that can be used for basking (Beebee & Griffiths, 2000).

#### *Population Estimates*

- 4.1.5 In terms of a population estimate and in the experience of the surveyors, the proportion of the total population recorded during a standard presence/likely absence survey may be suggested to be in the region of 10% of the total population. However in reality, densities are limited by available resources and typical home ranges, particularly in the case of grass snakes which tend to live at densities of <5 per ha (Beebee & Griffiths, 2000). Therefore the populations surveyed are estimated to be 20% of the population; 100 slow worm and 5 common lizard.
- 4.1.6 This type of population estimation is not considered accurate for grass snake. Grass snakes lay approximately 5 – 20 eggs depending on the age of the female and sometimes considerably more and approximately 30% fail to hatch (Beebee & Griffiths, 2000). With this in mind it is considered most likely that the six juveniles detected during the survey are from one to two females located in the vicinity.

#### *Likely Impacts*

- 4.1.7 The following habitats on Site have been identified as suitable reptile habitat (Corylus Ecology, 2015) and will be lost in the proposals; spoil piles S1-6 and tall ruderal TN3 and TN5. The following habitats have been identified as suitable reptile habitat (Corylus Ecology, 2015) and will be disturbed and altered for landscaping; the grassland TN12 and TN6, particularly the northern edge.
- 4.1.8 As all common reptile species are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) against intentional death or injury then a reptile mitigation strategy is required. Mitigation for the more common British reptile species does not require a European Protected Species (EPS) licence from Natural England but a mitigation strategy should be designed for approval by the planning authority for the protection and conservation of reptiles.
- 4.1.9 Once a receptor site with suitable habitat for reptiles has been identified, a detailed mitigation plan will be drawn up; this will include the methodology for translocating the slow worms and for conducting the destructive search once the trapping exercise is complete.
- 4.1.10 Herpetofauna Groups of Britain and Ireland (HGBI) Guidance recommends 60- 90 trapping sessions in suitable weather conditions to relocate common reptile species. However, considering the small area to be trapped and it is likely that greater than 10% of the population was noted during the presence/likely absence survey, 60 trapping sessions is considered excessive for such a small site measuring 0.05ha. Therefore a minimum of 30 trapping sessions is proposed and would demonstrate reasonable effort in

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removing reptiles from the works area and this will be reviewed after 20 sessions. The translocation would involve capturing animals by hand during the active reptile season, from April to October. All captured animals will be moved to a Receptor Site.

- 4.1.11 The chosen Receptor Site will be enhanced for slow worms by installing refugia: this will include at least one hibernacula and two log piles in order to provide shelter and a hibernation site. A management regime will also be drawn up to ensure that the receptor site remains suitable for the slow worms, and monitoring will be required to evaluate the success of the translocation.

## **4.2 Great Crested Newts**

- 4.2.1 A total of eight ponds off-Site ponds were surveyed and GCN have been confirmed in four (P1, P2, P4, P8) waterbodies. Evidence of breeding was recorded in the two closest ponds P1 and P2 and also P8.
- 4.2.2 P1 and P4 recorded only individual newts although a GCN egg was recorded in Pond 1 on 6<sup>th</sup> May suggesting that there had been at least two individuals present at some point towards the end of May and beginning of June. The presence of two large carp in this pond may limit the breeding success of GCN; carp are omnivorous and would predate eggs and larvae. The individual recorded in P4 is considered to be transitional and there was no breeding recorded here.
- 4.2.3 The main area of newt activity appears to be in P2 and P8 which are located approximately 185m from one another. It is expected that there is some interchange of individuals between the two ponds. The intervening habitat is broadly suitable as terrestrial habitat, comprising of a grazed field and ditch.
- 4.2.4 The closest P1 is adjacent to the western boundary of the Site and supports a Low GCN population. The development area is small totalling 540m<sup>2</sup> (0.054ha) and the Site comprises largely of hardstanding and farm buildings but there is a hedgerow, rank grassland, tall ruderal, brick walls and a stone pile which constitute suitable GCN terrestrial habitat. To the west of P1 is an area of broad-leaved woodland and the wider countryside is good terrestrial habitat. The Site is bordered to the north by a small 'B' road which may cause a limited degree of fragmentation of habitat.
- 4.2.5 During foraging, the majority of GCN will disperse 50-250m from the pond; the distance that individuals are required to move will largely depend on the quality (biodiversity) of the habitat. Low quality habitat will provide less food per unit area and therefore newts will need to move greater distances to obtain sufficient resources. The quality of habitat on Site would suggest that GCN may be present, albeit in low numbers.

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*Pond Network and Metapopulations*

- 4.2.6 GCN are surveyed at a landscape level because GCN populations are interconnected by dispersal of individuals, resulting in the existence of “metapopulations” which are linked together over time through the dispersal of predominantly juvenile newts (English Nature, 2001). This metapopulation structure is an adaptation to the variable nature of pond habitats over time in terms of their suitability for GCN breeding. For example ponds may decline in suitability due to becoming overgrown and dry, by being stocked with fish, or a pond may experience occasional drought or pollution. Similarly pond habitats can become increasingly suitable, such as through fish removal and new pond creation or due to climatic and geological changes over longer time periods. While populations within individual ponds will change in size over time as habitat quality alters, this ability to move between populations ensures that GCN remain present in the local landscape.
- 4.2.7 Dispersal among ponds by GCN predominantly occurs during the juvenile phase. Once they emerge from their natal pond juvenile GCN spend 2-3 years in the terrestrial habitat around and between ponds before finally entering a pond to breed. During this time dispersal appears to occur on a random basis in terms of direction but will be confined to suitable habitat in terms of shelter and foraging. Dispersal can occur over distances of 1 km or more from the natal pond. For this reason it is important that all suitable or potentially suitable ponds remain connected by terrestrial habitat that is suitable for GCN dispersal, even if they do not currently support GCN.
- 4.2.8 Within a metapopulation, at any one time the more successful populations serve as a potential “source” of individuals from which newts can disperse to neighbouring ponds and the location of the largest/most important populations will shift over-time. The loss or isolation of source populations from neighbouring ponds will therefore have a negative impact on the persistence and distribution of GCN across the landscape.
- 4.2.9 GCN are fully protected under The Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2010. The protection afforded to GCN is such that the animals, their eggs and the habitats they use for rest or shelter are protected including both aquatic and terrestrial habitats and therefore consideration must be given to the potential of death or injury to individual animals. Therefore the Low population of GCN in the landscape needs to be considered in relation to the impacts of the proposals.

*Licence Risk Assessment*

- 4.2.10 Natural England’s GCN European Protected Species (EPS) licensing service includes a section which is referred to as a “Licence Risk Assessment”. This provides a way of assessing the amount of habitat to be lost in proximity to any breeding pond and whether an offence is likely, depending on the distance and

area of habitat affected. This is in recognition of the terrestrial movements of GCN and the increased probability of encountering animals closer to breeding ponds.

- 4.2.11 The nearest pond supporting GCN is P1, west of Site and will not be directly affected by the scheme. The development will affect approximately 0.054ha of land within 100m of Pond 1 with no impact beyond 100m. The Licence Risk Assessment has been run based on this evidence and has been reproduced below.

Table 10 - Natural England Licence Risk Assessment

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	0.01 - 0.1 ha lost or damaged	0.3
Land 100-250m from any breeding pond(s)	No effect	0
Land >250m from any breeding pond(s)	No effect	0
Individual great crested newts	Minor disturbance of newts	0.5
	Maximum:	0.5
Rapid risk assessment result:	<b>AMBER: OFFENCE LIKELY</b>	

- 4.2.12 Using the risk assessment it can be seen that the risk of committing an offence is considered 'Amber' or 'Likely'.
- 4.2.13 The GCN populations recorded at P1 and P4 is Low, with only individuals recorded. At pond 1 only a single male GCN was recorded on two occasions. P2 and P8 support Medium populations and are located 215m and 315m from the Site respectively.
- 4.2.14 Taking this into account, it is not considered that a license will not be required and the low risk of encountering GCN could be minimised through the implementation of a method statement which is outlined below in the mitigation strategy. By following the correct procedures to prevent encountering GCN during works, the risk of committing an offence will be reduced from 'Likely' to 'Highly Unlikely'.

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## 5.0 GREAT CRESTED NEWT MITIGATION STRATEGY

5.1 The mitigation strategy laid out below is split into a Method Statement, which is designed to reduce the risk of encountering any reptiles or GCN during the proposed works and an Enhancement Strategy, which is designed to maintain and enhance the Site for GCN. No EPS licence is considered necessary for GCN and no fencing or trapping is required.

### 5.2 Method Statement – Reptiles and GCN

#### *Habitat Management*

5.2.1 All grassland on Site should be maintained with regular grazing or cutting up to the point of commencement of works. This management should be implemented to avoid the habitats on Site becoming more suitable for amphibians.

#### *Site Induction*

5.2.2 All contractors working on the project will be briefed on the potential presence of newts by the Site manager prior to work commencing.

#### *Site Clearance and Ecological Supervision*

5.2.3 Machinery should be tracked in over the Site entrance only and taken back out the same way. The Site compound and construction zone itself should be kept as small as possible and marked out to avoid accidental incursions into vegetation which does not need to be removed.

5.2.4 A destructive search under ecological supervision will be necessary for certain areas of the Site which have been identified as suitable for reptiles, which includes all the grassland, ruderal areas and spoil piles which should be taken apart by hand only. Any reptiles or amphibian species found would be relocated to the Receptor Area.

5.2.5 The project ecologist's contact details will be left on site. If amphibians are found during any of the works outside of that which is covered by an ecological watching brief, then work must stop and the project ecologist should be consulted.

#### *Construction Works and Material Storage*

5.2.6 All materials used during the construction will be stored on pallets and not on the ground. Piles of bricks and other building materials can be used as shelter by amphibians if not stored correctly. Keeping the site tidy and removing waste materials will ensure that no refuge sites are created.

5.2.7 Any ditches and other excavations will be dug and back-filled the same day. If this is not possible then trenches/excavations will be covered at the end of each day so newts, reptiles and other animals do not

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get trapped inside. As a precaution each morning any ditches or holes will be checked by the site manager. Any newts found will be placed in the suitable container and the project ecologist notified.

- 5.2.8 Topsoil has very high nutrient levels, and if these nutrients drain or leach into the water they will reduce water quality. To avoid any enrichment problems, don't store or dispose of topsoil in any areas where it can be washed into the pond. Ensure topsoil that is temporarily stored on site is kept away from the pond (behind temporary bunds if required) so that soil and nutrients are not washed in by rainfall.

### **5.3 Enhancement Strategy**

- 5.3.1 It is suggested that the pond adjacent to the works area is subject to a continued management strategy to ensure that the pond and the immediate terrestrial habitat remain suitable for great crested newts. The following recommendations are appropriate to the Site:

#### *Fish Removal*

- 5.3.2 Remove carp from the pond to allow successful amphibian breeding

#### *Pond Enhancements - marginal and aquatic planting*

- 5.3.3 If additional planting of the pond is included in the landscaping proposals for aesthetic reasons, native aquatic plant species that are locally sourced will maximise biodiversity and suitability for wildlife. It should be noted that planting is not essential as plants and animals that colonise under their own steam are likely to be more appropriate to the waterbody and local area. It also avoids the accidental transfer of invasive, alien plant species. For floating water plants, amphibious bistort and broad-leaved pondweed could be used. For bankside planting the following native species have attractive flowers; marsh marigold, ragged-robin, yellow iris, marsh woundwort and purple loosestrife. Water dock and pendulous sedge add architectural value. Further information on planting and other aspects of pond design can be found on the Pond Conservation Website [www.pondconservation.org.uk](http://www.pondconservation.org.uk).

#### *Terrestrial Enhancements*

- 5.3.4 The pond banks are relatively bare so inclusion of at least two log piles around the edge of the pond will improve the area by providing shelter for invertebrates, amphibians and other wildlife. It would be ideal to retain all the timber from felled trees and use this to construct several log piles within a 5m margin of the lake, in suitably vegetated areas. Each log pile should be secured with stakes to prevent piles from collapsing and with wire to prevent removal or dismantling.
- 5.3.5 A 1.5m buffer should be retained along the base of hedgerows and treelines which is left to grow long. This will provide suitable habitat in which GCN, other amphibians and reptiles can forage, shelter and move through the landscape.

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## 6.0 CONCLUSIONS

- 6.1 Protected species surveys at Falconhurst Estate have been undertaken in relation to reptiles and great crested newts.
- 6.2 A 'Good' population of slow worm and 'Low' population of common lizard and grass snake has been recorded. The reptile assemblage on the Site results in the Site being considered a Key Reptile Site under the Froglife Guidance. A detailed reptile mitigation strategy will be required to relocate animals from the development area into a safe receptor site that will be enhanced for reptiles. The relocation exercise would need to take place between March and September.
- 6.3 Regarding amphibians, five species were recorded; great crested newt, smooth newt, palmate newt, common frog and common toad. The GCN populations at P1 and P4 were Low, with only individual GCN recorded. P2 and P8 support Medium GCN populations and are located 215m and 315m from the Site respectively. It is considered that there is a low risk of encountering GCN which could be minimised through implementation of the method statement provided.

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Key

-  Survey Area
-  Tree
-  Semi-Improved Grassland
-  Tall Ruderal
-  Waterbody
-  Spoil
-  Species Poor Hedge
-  Fence
-  Wall
-  Building
-  Hard Standing
-  Target Note 1
-  Reptile Felt


revision	description	date	checked by

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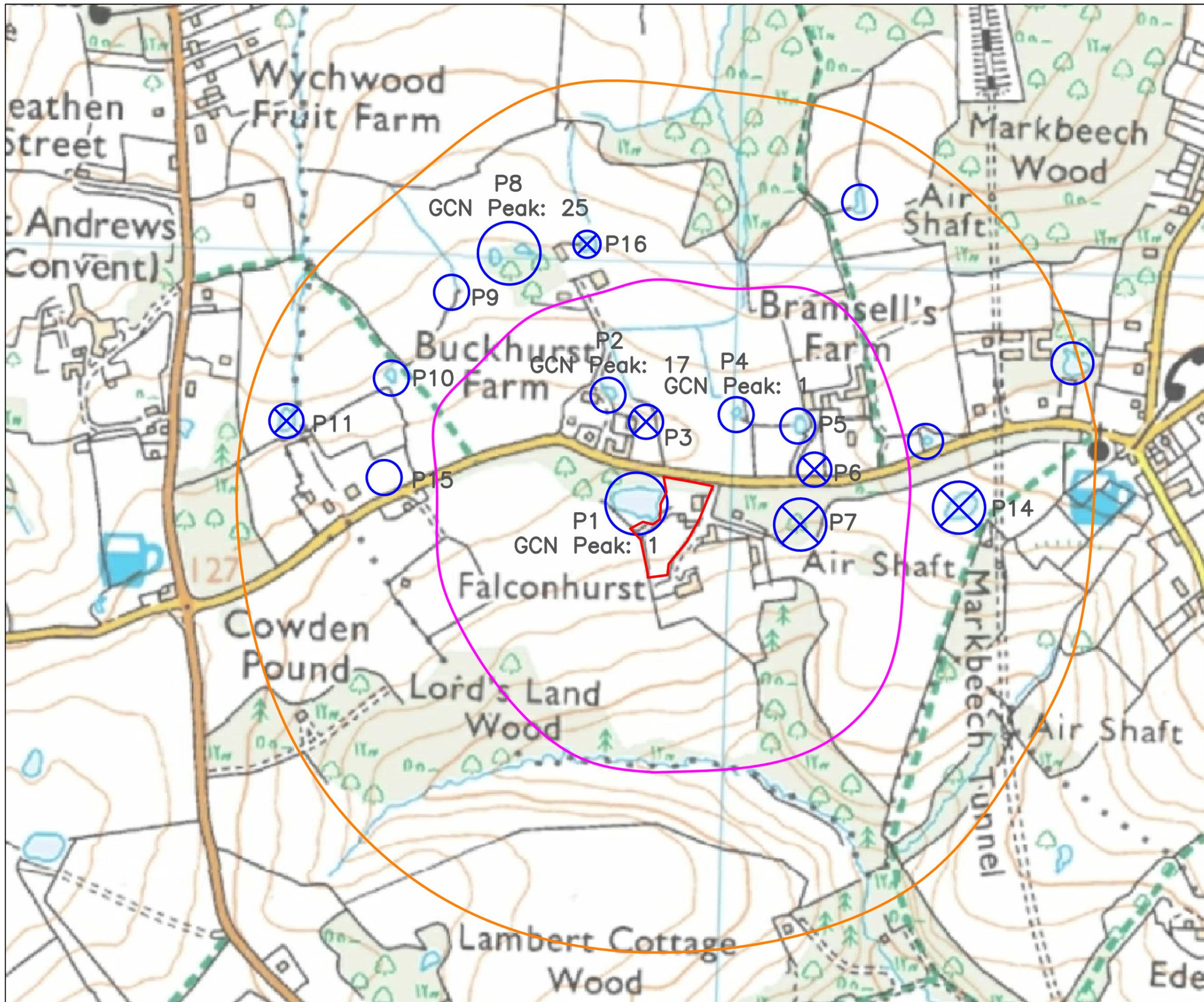
Project:  
**Falconhurst North Lawn Car Park**

Title:  
**Reptile Survey Plan**

Status: drawing no. **Figure 1**

scale	size	date	drawn	checked
NTS	A3	12-10-15	JP	HL

CAD filename:  
 Figure\_1.dwg



Key

- Site Boundary
- 250m From Site Boundary
- 500m From Site Boundary
- Pond Location
- Pond Unsuitable

Ordnance Survey  
Licence Number  
100050443

revision	description	date	checked by

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Project:  
**Falconhurst**

Title:  
**GCN Pond Location Plan**

status		drawing no. <b>Figure 2</b>		
scale	size	date	drawn	checked
NTS	A3	12-10-2015	AW	JP
CAD filename Figure_1.dwg				

Figure 3 - Annotated photographs of ponds within 250m



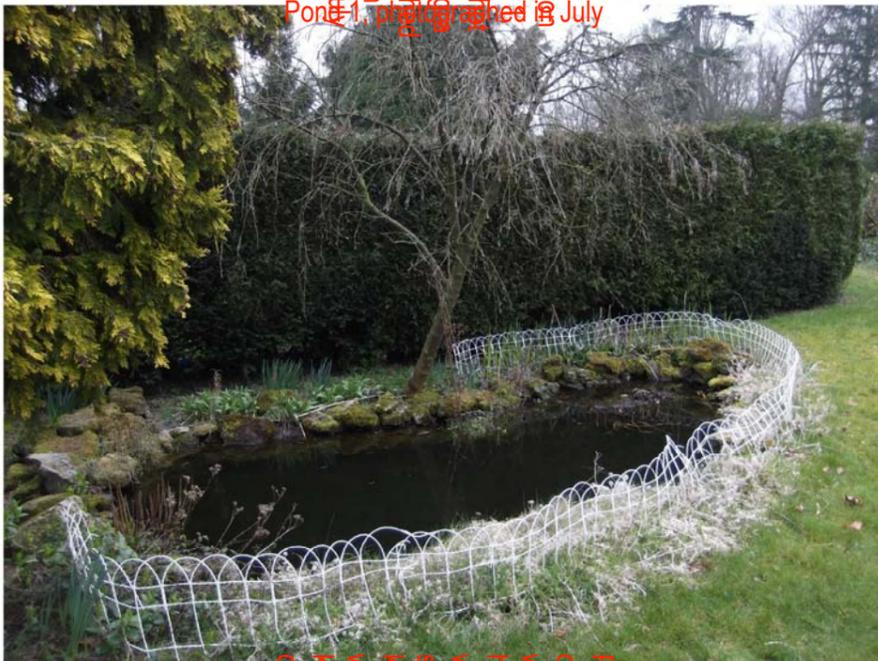
Pond 1, photographed in July



Pond 1



Pond 2, photographed in March



Pond 3 which was stocked with carp



Pond 4



Pond 5



Pond 6



Pond 7 in March, which was dry in April



The other half of pond 7

Appendix 1 - Reptile Survey Results

Visit no	Date	Species	Common lizard	Slow worm	Grass Snake	Tv/Th	Toad	Frog	Other	Weather conditions		
1	25.08.15	Male		1						Time	9:15	
		Female								Temp	15°C	
		Adult Unknown								Cloud	95%	
		Sub								Rain	recent	
		Juv				1				Wind	BF 2	
		TOTAL		0	1	1	0	0	0			
		PEAK		0	1	0	0	0	0			
2	28.08.15	Male		4						Time	9:30	
		Female		1						Temp	16.5°C	
		Adult Unknown								Cloud	30%	
		Sub	1	1						Rain	nil, ground damp	
		Juv								Wind	BF 1	
		TOTAL		1	6	0	0	0	0			
		PEAK		1	6	0	0	0	0			
3	02.09.15	Male		6						Time	16:00	
		Female		3						Temp	17°C	
		Adult Unknown								Cloud	95% sunny	
		Sub		1						Rain	nil	
		Juv		1	4					Wind	BF 1	
		TOTAL		0	11	4	0	0	0			
		PEAK		0	10	0	0	0	0			
4	17.09.15	Male		2						Time	15:05	
		Female		2						Temp	16°C	
		Adult Unknown								Cloud	30%	
		Sub		5						Rain	overnight	
		Juv			6					Wind	BF 2	
		TOTAL		0	9	6	0	0	0			
		PEAK		0	9	0	0	0	0			
5	30.09.15	Male								Time	15:15	
		Female		1						Temp	16°C	
		Adult Unknown								Cloud	20%	
		Sub								Rain	nil	
		Juv								Wind	BF 2	
		TOTAL		0	1	0	0	0	0			
		PEAK		0	1	0	0	0	0			
6	05.10.15	Male								Time	14:50	
		Female		4						Temp	16°C	
		Adult Unknown								Cloud	100%	
		Sub		2						Rain	recent light rain	
		Juv								Wind	BF 1	
		TOTAL		0	6	0	0	0	0			
		PEAK		0	6	0	0	0	0			
7	07.10.15	Male								Time	12:20	
		Female			4					Temp	13.5°C	
		Adult Unknown								Cloud	100%	
		Sub			2					Rain	Recent	
		Juv								Wind	BF 0	
		TOTAL		0	0	6	0	0	0			
		PEAK		0	0	6	0	0	0			

Appendix 2 - Habitat Suitability Index Results

**P1**

Location	1	1
Pond area	2000	0.8
Pond drying	never	0.9
Water quality	moderate	0.67
Shade	90%	0.4
Fowl	none	1
Fish	minor	0.33
Ponds	10.2	1
Terr'l habitat	good	1
Macrophytes	water mint	0.35
<b>HSI</b>	<b>Average</b>	<b>0.68</b>

**P4**

Location	1	1
Pond area	375	0.8
Pond drying	sometimes	0.5
Water quality	moderate	0.67
Shade	95%	0.3
Fowl	absent	1
Fish	absent	1
Ponds	10.2	1
Terr'l habitat	good	1
Macrophytes	0%	0.3
<b>HSI</b>	<b>Average</b>	<b>0.69</b>

**P7**

Location	1	1
Pond area	50	0.1
Pond drying	annually	0.1
Water quality	moderate	0.67
Shade	90%	0.4
Fowl	absent	1
Fish	absent	1
Ponds	10.2	1
Terr'l habitat	good	1
Macrophytes	0%	0.3
<b>HSI</b>	<b>Poor</b>	<b>0.49</b>

**P10**

Location	1	1
Pond area	375	0.8
Pond drying	rarely	1
Water quality	moderate	0.67
Shade	80%	0.6
Fowl	absent	1
Fish	absent	1
Ponds	10.2	1
Terr'l habitat	Good	1
Macrophytes	0%	0.3
<b>HSI</b>	<b>Good</b>	<b>0.79</b>

**Key**

<0.5	poor
0.5-0.59	below average
0.6-0.69	average
0.7-0.79	good
>0.8	excellent

**P2**

Location	1	1
Pond area	180	0.4
Pond drying	rarely	1
Water quality	moderate	0.67
Shade	20%	1
Fowl	absent	1
Fish	absent	1
Ponds	10.2	1
Terr'l habitat	moderate	0.67
Macrophytes	20%	0.5
<b>HSI</b>	<b>Good</b>	<b>0.79</b>

**P5**

Location	1	1
Pond area	300	0.6
Pond drying	never	0.9
Water quality	poor	0.33
Shade	80%	0.6
Fowl	absent	1
Fish	absent	1
Ponds	10.2	1
Terr'l habitat	good	1
Macrophytes	0%	0.3
<b>HSI</b>	<b>Good</b>	<b>0.71</b>

**P8**

Location	1	1
Pond area	2700	0.8
Pond drying	Never	0.9
Water quality	Good	1
Shade	60%	1
Fowl	minor	0.67
Fish	absent	1
Ponds	10.2	1
Terr'l habitat	good	1
Macrophytes	30%	0.6
<b>HSI</b>	<b>Excellent</b>	<b>0.88</b>

**P11**

Location	1	1
Pond area	375	0.7
Pond drying	never	0.9
Water quality	poor	0.33
Shade	40%	1
Fowl	major	0.01
Fish	nil	1
Ponds	10.2	1
Terr'l habitat	poor	0.33
Macrophytes	0%	0.3
<b>HSI</b>	<b>Poor</b>	<b>0.43</b>

**P3**

Location	1	1
Pond area	4	0.05
Pond drying	never	0.9
Water quality	moderate	0.67
Shade	60%	1
Fowl	absent	1
Fish	major	0.01
Ponds	10.2	1
Terr'l habitat	moderate	0.67
Macrophytes	20%	0.5
<b>HSI</b>	<b>Poor</b>	<b>0.40</b>

**P6**

Location	1	1
Pond area	100	0.2
Pond drying	never	0.9
Water quality	poor	0.33
Shade	15%	1
Fowl	major	0.01
Fish	none	1
Ponds	10.2	1
Terr'l habitat	moderate	0.67
Macrophytes	nil	0.3
<b>HSI</b>	<b>Poor</b>	<b>0.41</b>

**P9**

Location	1	1
Pond area	84	0.2
Pond drying	rarely	1
Water quality	poor	0.33
Shade	90%	0.4
Fowl	absent	1
Fish	absent	1
Ponds	10.2	1
Terr'l habitat	poor	0.33
Macrophytes	10%	0.4
<b>HSI</b>	<b>Below Av.</b>	<b>0.57</b>

**P15**

Location	1	1
Pond area	36	0.05
Pond drying	never	0.9
Water quality	moderate	0.67
Shade	0%	1
Fowl	none	1
Fish	none	1
Ponds	10.2	1
Terr'l habitat	moderate	0.67
Macrophytes	nil	0.3
<b>HSI</b>	<b>Average</b>	<b>0.60</b>















**Pond 15**

Date	Methodology	Great Crested Newt				Peak	Palmate Newt				Peak	Smooth Newt				Peak	Smooth / Palmate		Other	Obscuring Veg	Turbidity
		Male	Female	Juv	Peak		Male	Female	Juv	Peak		Male	Female	Juv	Peak		Count	Juv			
25/03/2015	<b>Torch</b>	0	0	0	<b>0</b>	0	0	0	<b>0</b>	0	0	0	<b>0</b>	0	0	<b>0</b>	water boatmen	0	3		
	Egg Strips																				
	Bottle Trap																				
02/04/2015	<b>Torch</b>	0	0	0	<b>0</b>	0	0	0	<b>0</b>	0	2	0	<b>2</b>	0	0	<b>0</b>	water boatman, midge larvae	0	2.5		
	Egg search																				
	Bottle Trap																				
08/04/2015	<b>Torch</b>	0	0	0	<b>0</b>	0	0	0	<b>0</b>	1	2	0	<b>3</b>	0	0	<b>0</b>		0	1		
	Egg search	Pond is lined																			
	Bottle Trap																				
21/04/2015	<b>Torch</b>	0	0	0	<b>0</b>	0	0	0	<b>0</b>	0	1	0	<b>1</b>	0	0	<b>0</b>	water boatman	0	3		
	Egg search																				
	Bottle Trap																				

**Weather Conditions**

Date	Temp °C	Cloud %	Rain
25/03/2015	3.7	0	nil
02/04/2015	4.8	100	nil
08/04/2015	7.2	0	nil
21/04/2015	8.8	0	nil
06/05/2015	7.6	100	nil
12/05/2015	9.5	0	nil

## **Appendix 4 – Reptile Legislation**

All British reptiles are afforded legal protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) largely as a consequence of a national decline in numbers due to habitat loss. Under the terms of the Act, it is an offence to intentionally kill or injure a reptile and accordingly in order to avoid committing an offence under the Act, appropriate mitigation techniques need to be incorporated for reptiles occurring within development sites. Mitigation methods for reptiles may include trapping and relocation of animals to a suitable receptor site, combined with the exclusion of the development site through the use of reptile fencing. Measures to enhance habitats for reptiles include the provision of hibernacula and appropriate management to improve foraging areas may also be required.

Mitigation for the more common British reptiles and amphibians does not require a licence from Natural England but would typically be agreed in consultation with the local planning authority.

Despite the range of their distribution and the diversity of habitats in which they may be found, the national status of the slow worm is not considered favourable. The slow worm is considered to have undergone a long term decline since the 1930's. Currently the largest threat has been identified as loss of habitat, in particular, due to a shift in planning policy towards the development of brown field sites (English Nature, 2004).

## Appendix 5 – Amphibian Legislation

All British amphibian species receive legal protection in the United Kingdom though the degree to which different species are protected varies. The Wildlife and Countryside Act 1981 (WCA) (as amended) transposes into UK law the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention). The 1981 Act was recently amended by the Countryside and Rights of Way (CROW) Act 2000 and the more recent Conservation Regulations (2007). The great crested newt is listed under Schedule 5 of the 1981 Act, and is therefore subject to the provisions of Section 9, which make it an offence to:

- Intentionally kill, injure or take a great crested newt [Section 9(1)];
- Possess or control any live or dead specimen or anything derived from a great crested newt [Section 9(2)]
- Intentionally or recklessly disturb a great crested newt while it is occupying a structure or place which it uses for shelter or protection [Section 9(4)(b)];
- Intentionally or recklessly obstruct access to any structure or place which a great crested newt uses for shelter or protection [Section 9(4)(c)] Sell, offer for sale, possess or transport for the purpose of sale or publish advertisements to buy or sell a great crested newt [section 9(5)]

The other more common amphibian species are protected against sale (Section 9(5)) only. In all cases, the legislation applies to all life stages including spawn, eggs, juveniles and adults.

The great crested newt is also included on Annex IV of Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (known as the Habitats Directive). As a result of the UK ratifying this directive, the great crested newt is protected under The Conservation of Habitats and Species Regulations 2010 (The Conservation Regulations). Annex IV of the Habitats Directive requires member states to construct a system of protection as outlined in Article 12, this is done through Part 3 of the Regulations whereby Regulation 41 makes it an offence to:

- Deliberately capture or kill a great crested newt [Regulation 41(1)(a)];
- Deliberately disturb great crested newts in such a way as to be likely to significantly affect i) the ability of any significant group of animals of that species to survive, breed or rear or nurture their young, OR ii) the local distribution of that species. [Regulation 41(1)(b) and 41(2)];
- Damage or destroy a breeding site or resting place of a great crested newt [Regulation 41(1)(d)].