
Malt Kiln Brow (Chipping Brook), Chipping

Protected Species Survey Report (Bats).

Compiled by Ecology Services Ltd.

Members of the Chartered Institute of Ecology and Environmental Management.

on behalf of

SCPi Bowland Ltd

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1.0 Introduction

- 1.1 Ecology Services Limited was commissioned by SCPI Bowland Ltd in September 2014, to carry out a bat investigation of a bridge structure located over Chipping Brook, off Longridge Road, Chipping, Lancashire; National Grid Reference; (NGR) 362560, 442948. See Map 1 Showing the location of the site.
- 1.2 The aim of the survey was to:
- Undertake an inspection and assessment survey of the bridge to ascertain if potential or evidence of use existed for any bat species.
 - And if found, to determine if more detailed surveys are required.
 - *Following the initial investigation survey, further activity surveys were recommended, this report also includes the results of the activity surveys.*
- 1.3 It is understood that the proposals at the site are part of a larger scheme for renovation/construction project of a hotel with an associated spa, wedding venue, trail head and creation of a new cricket pitch. To allow access to the proposed new cricket pitch access will be required over the existing bridge, which is the subject of inspection. The plans of which are shown on Map 2.
- 1.4 As part of the Local Authority's environmental policies, surveys are required to be undertaken on schemes which may have the potential to affect protected species, i.e. bats.
- 1.5 All daytime survey works were undertaken by experienced Senior Bat Ecologist Mrs. S. O'Neill, who holds a Bat Class Licence (Registration number CLS00694).

2.0 Statutory and Planning Context

Bats and their Requirements

- 2.1 All British bats and their roosts are afforded protection under the 1981 Wildlife & Countryside Act (as amended) and are listed in Schedule 2 of the Conservation of Habitats & Species Regulations 2010 (as amended).
- 2.2 When dealing with cases where a European Protected Species (EPS) (all UK bats) may be affected, a Local Authority is a 'competent authority' within the meaning of regulation 7 of the Conservation of Habitats & Species Regulations 2010 (as amended). The Local Authority must therefore exercise their functions under the provisions made within the 2010 Regulations and planning decisions should only be made when European Protected Species are fully taken into account.
- 2.3 The National Planning Policy Framework (NPPF) places a clear responsibility on Local Planning Authorities to conserve and enhance biodiversity and to encourage on the consideration that should be given to Protected Species where they may be affected by development. The Office of the Deputy Prime Minister (ODPM) Circular 06/2005 provides administrative guidance on the application of the law in relation to planning and nature conservation. This is supported by a guide to good practice entitled 'Planning for Biodiversity and Geological Conservation: Building in Biodiversity' in which paragraphs 5.34 and 5.35 identify that species such as bats are highly dependant upon built structures for survival and that roosts can be easily incorporated into existing and new developments/conversions to benefit these species.
- 2.4 A Local Planning Authority (LPA) has a duty to ensure that protected species and habitats within the UK are a "material consideration" in the determination of a planning application.

Therefore, a LPA is unlikely to determine an application until all relevant information relating to protected species or habitats is submitted in support of the application. Relevant information includes; adequate surveys and a method statement (the latter only if required) for their approval which will need to be submitted along with the planning application.

- 2.5 Where bats are affected by development then a licence to derogate from the Conservation of Habitats and Species Regulations 2010 (as amended) would be required. European Protected Species (EPS) mitigation licence applications are processed and issued by Natural England and the EPS licence can only be applied for, once planning permission is granted, if planning permission is required.
- 2.6 Natural England may grant an EPS mitigation licence for the purpose specified in paragraphs 2 of the Regulation. The purposes are:-
- 53(2)e preserving public health or safety or other imperative reason of overriding public interest including those of a social or economic nature and beneficial consequence of primary importance for the environment.
 - 53(2)f preventing the spread of disease.
 - 53(9)a that there is no satisfactory alternative.
 - 53(9)b that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable status in their natural range.
- 2.7 A bat roost may be defined in several ways:
- a) Maternity roost
 - b) Summer roost
 - c) Mating roost
 - d) Feeding roost
 - e) Hibernation roost
 - f) Transitional or temporary (night/day) roost
- 2.8 Roost selection is often closely correlated, to suitable foraging habitat within a reasonable commuting distance from the roost. Different sites are used throughout their active season which is dependent upon insect densities and abundance. Climatic conditions can also affect their ability to successfully forage. All British bats are insectivorous.

3.0 Methodology

Inspection & Assessment Survey Method

Buildings/Structures

- 3.1 The optimum time to investigate buildings and built structures for evidence of a bat roost is between May and August. Inspections and assessments may be conducted outside of this time and can often provide conclusive results which can save expense and time for Planning Applicants.

Buildings/Structure Roost Criteria

- 3.2 Roost assessment for buildings/structures follows the below system which is based upon the Bat Conservation Trust 'Bat Surveys: Good Practice Guidelines' (2012).

"Negligible" No features likely to be used by bats (roosting).

"Low" No features that could be used by bats (roosting).
Small number of potential (opportunistic) roosts, isolated habitat, isolated site that is not connected by suitable linear features.

- "Moderate" Several potential roosts, habitat could be used by foraging bats and the site is connected to suitable habitat with the wider survey area.
- "High" Significant features for roosting bats, high quality habitat for foraging, site is connected with the wider landscape and is close to known roost sites or bat foraging/commuting.
- "Confirmed" Evidence that the building is being used by bats; bats seen roosting, droppings, carcasses, feeding remains, bats are recorded/observed, or bats are heard within the building/structure.

- 3.3 For this methodology it should be borne in mind that inspections can also be inconclusive and if potential was found or the results of the survey were undetermined, then recommendations would indicate the requirement for further detailed activity surveys. Further activity (dusk emergence/pre dawn re-entry) surveys can only be undertaken at the site, during the breeding season for bats, the optimal time of which is between May and August inclusive, with sub-optimal timing in September. The results, conclusions and recommendations are based upon surveyor experience and knowledge of bat ecology.
- 3.4 A thorough exterior inspection of the bridge for bat roosting and potential was undertaken. Signs surveyed for were droppings, dead bats, feeding remains (beetle, moth and butterfly remains), urine staining and grease marks around crevices and down walls, and any noises such as scratching and squeaking. A Clulite one million candlepower lamp, an Explorer Premium 8803AL and a VOXX-10WW endoscope were used to check features. Video and high resolution photographs were taken for later review.
- 3.5 During the survey the surrounding area was assessed in relation to suitable habitat that may be of value to bats.

Activity Survey Methodology

- 3.6 *The activity surveys required two surveyors on any one survey to enable all areas of previously identified bat roosting potential to be covered. Surveyors noted any visual observations of bat activity and were aided by the use of the following equipment; Batbox Duet, a heterodyne and frequency division bat detector and Magenta 4, a heterodyne bat detector were used in conjunction with Anabat SD1/2 detectors, which were set to record so that data could be analysed if required.*
- 3.7 *A total of three activity surveys were undertaken at the site at an optimal time of year over the active breeding season of bats. These were conducted between the 15th of June 2015 and the 11th of August 2015 inclusive and consisted of two dusk emergence surveys and one dawn re-entry survey.*
- 3.8 Surveys were conducted following "The Bat Workers Manual "(JNCC 2004), "The Bat Mitigation Guidelines" (EN 2004) and the Bat Conservation Trust Bat Survey Good Practice Guidelines (2012) recommendations.

Personnel

- 3.9 All daytime survey works were undertaken by Senior Bat Ecologist Mrs. S. O'Neill, who holds a Bat Class Licence (Registration number CLS00694) assisted by experienced Ecologist Mrs. Z. Foster for health and safety reasons.

- 3.10 *The further activity surveys were conducted by Principal Ecologist Mrs. L. Eccles-Sargeant, who holds a Bat Class Licence (Registration number CLS00572) and experienced Ecologists who have regularly been involved with activity surveys including; experienced Ecologists Mrs. Z. Foster, Mr M. Barnes and Mr. C. Smith.*

Timing

- 3.11 The daytime survey was conducted on the 23rd of September 2014 when the bridge that will be affected by the proposed works were inspected for potential places that may be of value to bats and if evidence of use was present.
- 3.12 The daytime survey was conducted at a time when bats are fully active. Maternity colonies will have dispersed as their focus turns to the mating season and the beginning of building up fat stores.
- 3.13 *The activity surveys were undertaken between the 15th of June 2015 and the 11th of August 2015 inclusive, during the peak activity season and when maternity colonies are in occupation.*

Constraints

- 3.14 The survey was conducted within the active season of bats but when maternity colonies are not in occupation. The presence of droppings on exposed elevations, which may have been deposited during the summer months may be less likely to be identified however droppings, especially those located under the sheltered span of the bridge should remain and able to be identified on the survey.
- 3.15 There are no known constraints that would have adversely affected the inspection survey completed.
- 3.16 Overall, there are timing limitations to the survey undertaken and these have been taken into consideration when conclusions, impacts and recommendations have been made.

4.0 Survey Results

Desktop Study

UK Species of Principal Importance

- 4.1 Section 41 of the Natural Environmental and Rural Communities Act 2006 (NERC) lists several bat species as UK Species of Principal Importance, as follows:
- Noctule (*Nyctalus noctula*)
 - Soprano Pipistrelle (*Pipistrellus pygmaeus*)
 - Brown Long-eared (*Plecotus auritus*)
 - Lesser Horseshoe (*Rhinolophus hipposideros*)
 - Greater Horseshoe (*Rhinolophus ferrumequinum*)
 - Barbastelle (*Barbastella barbastellus*)
 - Bechstein's (*Myotis bechsteinii*)

National Status

- 4.2 There are 18 species of bat that are native to the United Kingdom. Little is known about the status of most species although the available evidence suggests a general decline in populations nationally (Harris, S. et al. 1995). The commonest species of bats are the pipistrelle family (*Pipistrellus* sp), although these are also estimated to have declined in numbers by 70% between 1978 and 1993.

Local Biodiversity Action Plan

- 4.3 Lancashire Biodiversity Action Plans (LBAP) list eight bat species as being present in Lancashire, these are as follows:-
- Brown Long-eared
 - Whiskered (*Myotis mystacinus*)
 - Brandt's (*Myotis brandtii*)
 - Daubenton's (*Myotis daubentonii*)
 - Noctule
 - Common Pipistrelle (*Pipistrellus pipistrellus*)
 - Soprano Pipistrelle
 - Natterer's (*Myotis nattereri*)
- 4.4 Nine species of bat have been regularly recorded in Lancashire, which include the above list, with the addition of Nathusius Pipistrelle (*Pipistrellus nathusii*) and Lesser Horseshoe (*Rhinolophus hipposideros*).

Regional Status

- 4.5 The north west of England appears to be a stronghold for Whiskered and Brandt's, both of which are reasonably rare in southern England.

Local Status

- 4.6 Populations of bats in many parts of Lancashire are comparable in size and importance to some of the best areas in the country.
- 4.7 The valleys of the Lune, Wyre, Hodder, Ribble and their tributaries hold substantial populations of Pipistrelle and Daubenton's. Many colonies of the latter species roost in bridges over the rivers. There are also good numbers of most of the other listed bat species in this area.
- 4.8 Clusters of Brown long-eared colonies are known in the Silverdale area, Fylde and West Lancashire and Whiskered and Brandt's are probably more common in the north of the county than in southern Lancashire.
- 4.9 Ponds in the Fylde, mill lodges and reservoirs in eastern Lancashire and other areas provide concentrated feeding areas for many bats.

Inspection & Assessment Survey Results

- 4.10 The site is situated in a rural area located to the south eastern outskirts of the village of Chipping. The bridge spans over Chipping Brook which flows from a northerly to southerly direction. Chipping Brook has a water channel width of approximately 3metres and a water depth of up to 0.5metres in places. The base is of stone and sediment and the banks are of a mix of engineered stone banking on the northwest and south east and earth to the northeast and south west. Immediately surrounding the bridge there is scattered scrub to the south west and south east. A semi-mature sycamore tree is located to the north-west and a common alder is located along an adjacent fence line to the north east.
- 4.11 The bridge is almost completely surrounded by agricultural land. To the north of the bridge lies a residential property with associated gardens and agricultural land comprising of bare ground with a strip of semi-improved neutral grassland located along Chipping Brooks' banks. To the east is an area of improved grassland with a fence line. To the south the improved grassland continues and areas of scattered trees, scattered scrub and tall

ruderal. To the west of the bridge is a stone wall with a lay by area then Longridge Road. A number of waterbodies are located further afield these include ponds and ditches, the nearest of which is c.115m and c.365m respectively. A small number of woodland copses are located nearby an unnamed copse located 700m to the east and High Head Wood located c.925m further east. Chipping Brook provides a suitable wildlife corridor that would allow bat species to commute to more suitable habitat within the wider survey area.

4.12 Overall, habitats within the immediate and wider survey area are considered to be of low to moderate value for bat species. Where suitable habitat is present in close proximity to built structures then there is an increased use of the buildings for roost sites given the presence of suitable foraging habitat.

4.13 A description of the bridge can be found in the Table 1 below.

Table 1: Description of Bridge.

Bridge Description:
A narrow stone constructed bridge that connects Longridge Road to agricultural land and is currently mainly used as a public footpath. Chipping Brook flows under the bridge and flows from a northern to southern direction. The bridge is of a single arch with stone faced abutments in-filled with rubble. Previous evidence of re-mortaring was observed but the bridge is generally degrading. The arch is approximately 2.5metres in height and spans a width of approximately 4metres. To the north-west and the south east of the bridge there is a 1.5 metre high stone built embankment. Cracks and crevices were observed and were also subject to inspection and further endoscope surveys.
Roost potential signs:
There are a number of cracks and crevices located on both the northern and southern elevations and under the arch span. The majority of the crevices are present where the mortar has failed leaving gaps between the stonework which allow access to the rubble infill. Some of the crevices are covered in cobwebs, however some are cobweb free. Crevices recede into the stone work up to 0.5meter, but these may also recede further. A small number of bat droppings were found located on the wall of the southern elevation. Droppings were indicative of myotis species. The droppings were found within cobwebs situated at the base of a crevice where mortar was missing. There were no grease stains or other rubbing marks present which would have been caused by bats accessing these areas. All possible crevices were subject to further inspection with an endoscope. The building is considered to have moderate potential for roosting bats.

4.14 Taking into account the moderate bat roost potential and the surrounding high potential contained within the surrounding habitat three further activity surveys were undertaken, the results of which are presented within the following section.

Activity Survey Results

4.15 The raw data from the activity surveys can be found within Appendix 3. An overview of dates, times and the results of the surveys are provided below and overleaf.

Table 2: Overview of Activity Surveys

Date & Times of survey	Date	Weather Conditions
Dusk Emergence Survey: Start time: 21.13 Finish time: 22.55	15/06/15	Sunset: 21.43 Start Temp: 13.9°C Finish Temp: 11°C Weather: Dry and calm with no breeze *BS (0) and 65% cloud cover.

<p><i>Dawn Re-Entry Survey:</i> <i>Start time: 02:52</i> <i>Finish time: 04:52</i></p>	<p>10/07/15</p>	<p><i>Sunrise: 04:52</i> <i>Start Temp: 8.9°C</i> <i>Finish Temp: 10.4°C</i> <i>Weather: Dry, chilly, BS (0-2) calm to light breeze with 100% cloud cover.</i></p>
<p><i>Dusk Emergence Survey:</i> <i>Start time: 20:19</i> <i>Finish time: 21:49</i></p>	<p>11/08/15</p>	<p><i>Sunset: 20:49</i> <i>Start Temp: 13.5°C</i> <i>Finish Temp: 9.9°C</i> <i>Weather: Hazy sun, warm and dry BS (0) calm with 20% cloud cover.</i></p>

*BS = Beaufort Scale

Activity Survey No.1

- 4.16 *The first activity survey was undertaken by two surveyors on the 15th of June 2015. No evidence of bat emergence was recorded by either of the surveyors.*
- 4.17 *Foraging and feeding activity was identified at the site mainly located to the north of the bridge and north and south along the watercourse. Bat species identified comprised of common pipistrelle and Daubenton's bats.*

Activity Survey No.2

- 4.18 *The second activity survey was undertaken by two surveyors on the 10th of July 2015. No evidence of bat re-entry was recorded by any of the surveyors.*
- 4.19 *Foraging and feeding activity was identified at the site mainly located to the north of the bridge but also to the west towards the adjacent road area. Bat species identified included common pipistrelle and soprano pipistrelle with a very brief pass by a myotis species. Data analysis of the calls showed characteristics of Daubenton's but the call was too brief to be able to fully analyse and confirm.*

Activity Survey No.3

- 4.20 *The second activity survey was undertaken by two surveyors on the 11th of August 2015. No evidence of bat emergence was recorded by any of the surveyors.*
- 4.21 *Foraging and feeding activity was identified at the site located to north of the bridge but also over and around the bridge and the adjacent tree lines. Bat species identified included common pipistrelle and soprano pipistrelle with passes of brief myotis species. Data analysis of the calls showed characteristics of Daubenton's.*

5.0 Conclusion

- 5.1 From the results of the initial inspection survey the bridge located over Chipping Brook was found to contain **moderate** bat roost potential when considering the number of cracks and crevices present within the bridge structure which would provide access into the in-filled rubble structure.
- 5.2 Evidence of a small number of bat droppings indicative of Myotis species were identified at the base of a crevice.
- 5.3 Although the crevices and cracks were subject to further survey with the aid of an endoscope full observation of the potential could not be completed.

- 5.4 *The Bat Surveys Good Practice Guidelines produced by the Bat Conservation Trust (2012), recommends a minimum number of presence/absence activity surveys which are required to provide confidence in negative preliminary roost assessments results from buildings and built structures in summer. These are determined for each building by the level of potential assigned to the individual structure. See Appendix 1 for the full table.*
- 5.5 *For buildings/structures with moderate roost potential, two dusk emergence and/or pre-dawn re-entry surveys are recommended during May to September. However as the adjacent habitat is of high value to bat species and evidence of bats, in the form of a dropping, was observed at the site the level of survey effort was increased to three activity surveys. The optimum time period is May to August.*
- 5.6 *To conclude, the further activity surveys identified foraging and feeding activity at the site. No evidence of emergence or re-entry was observed at the bridge.*
- 5.7 *Bat species comprised of; common pipistrelle, soprano pipistrelle and Myotis species with data analysis confirming the presence of Daubenton's.*

6.0 Implications and Recommendations

Bridge

- 6.1 The bridge over Chipping Brook, located off Longridge Road, has been found to contain moderate potential for bat species. Therefore there may be implications with regard to bats and any proposed work or development and further activity surveys are required to establish if bats are using this bridge structure.
- 6.2 *Subsequent activity surveys were completed at the site in the form of two dusk emergence surveys and one pre-dawn re-entry survey undertaken between the 15th of June 2015 and the 11th of August 2015 inclusive. No bat roosting activity was observed within the bridge structure. The activity surveys were completed during the optimal survey period and in line with BCT Guidance (2012). The level of survey undertaken is considered sufficient to provide confidence in the absence survey results. Therefore, there are no apparent implications with regard to bats and the bridge.*
- 6.3 *However, due to the presence of a small number of bat droppings located at the base of a crevice it is advised that a precautionary approach is undertaken for works on the bridge.*
- 6.4 *The level of activity located around the bridge instigates the requirement for a sensitive lighting scheme to be used, if required and light impact should be reduced wherever possible. In particular within the watercourse and along adjacent tree lines.*
- 6.5 *Works on the bridge should be undertaken in a sensitive manner and any Contractors working on the bridge should be made aware of the possible presence of bats. The following points should be followed as a minimum at the site;*
- All Contractors working on the bridge shall be made aware of the possible presence of bats and what to do if a bat/s is/are found and/or suspected when works are being undertaken.*
 - Endoscope surveys of the bridge shall be completed by a suitably experienced Ecologist to look for the potential presence of bats prior to works proceeding. This should ideally be completed at the same time as the re-mortaring works. If this is not possible then prior inspection shall be undertaken and areas found to be bat free*

shall be blocked with newspaper. The works shall then be undertaken within the following 2 days.

- *Gaps and crevices shall be left wherever possible whilst making the bridge sound to ensure that bats are not entombed within the bridge structure. Dowling may be used inserted in the gap/crevice which shall be removed once the mortar is consolidated so that entry/exit points remain.*

6.6 *If the works require planning approval, the Local Planning Authority will require the results of the activity surveys in support of any Planning Application, in line with current Planning Policy for both a presence or absent result.*

6.7 *If at any time a bat/s or evidence of bat/s is/are suspected or found within the bridge, all works must cease immediately and advice should be sought from either Natural England or the acting Consultant.*

6.8 *As bats are mobile creatures and can form new roosts at any time if works are not started within one year of this report then it may be necessary to repeat certain surveys.*

Other: Breeding Birds

6.9 The site also contains suitable breeding bird habitat within the immediate vicinity.

6.10 The Wildlife and Countryside Act (WCA) 1981 (as amended) states that all wild birds are protected at all times against killing or injury. Under the WCA, it is an offence to kill, injure or take any wild bird, to take damage or destroy the nest of any wild bird, or to take or destroy the egg of any wild bird. It is good practice to carry out any works outside of the breeding bird season that might affect nests and result in an offence being committed. The breeding bird season is generally considered to be between March and August inclusive.

6.11 If suitable breeding bird habitat such as trees and shrubs is affected during the breeding bird season, then an assessment by an Ecologist for breeding birds should be undertaken prior to works. If breeding birds are found, it is likely that works will have to be delayed until breeding has ceased.

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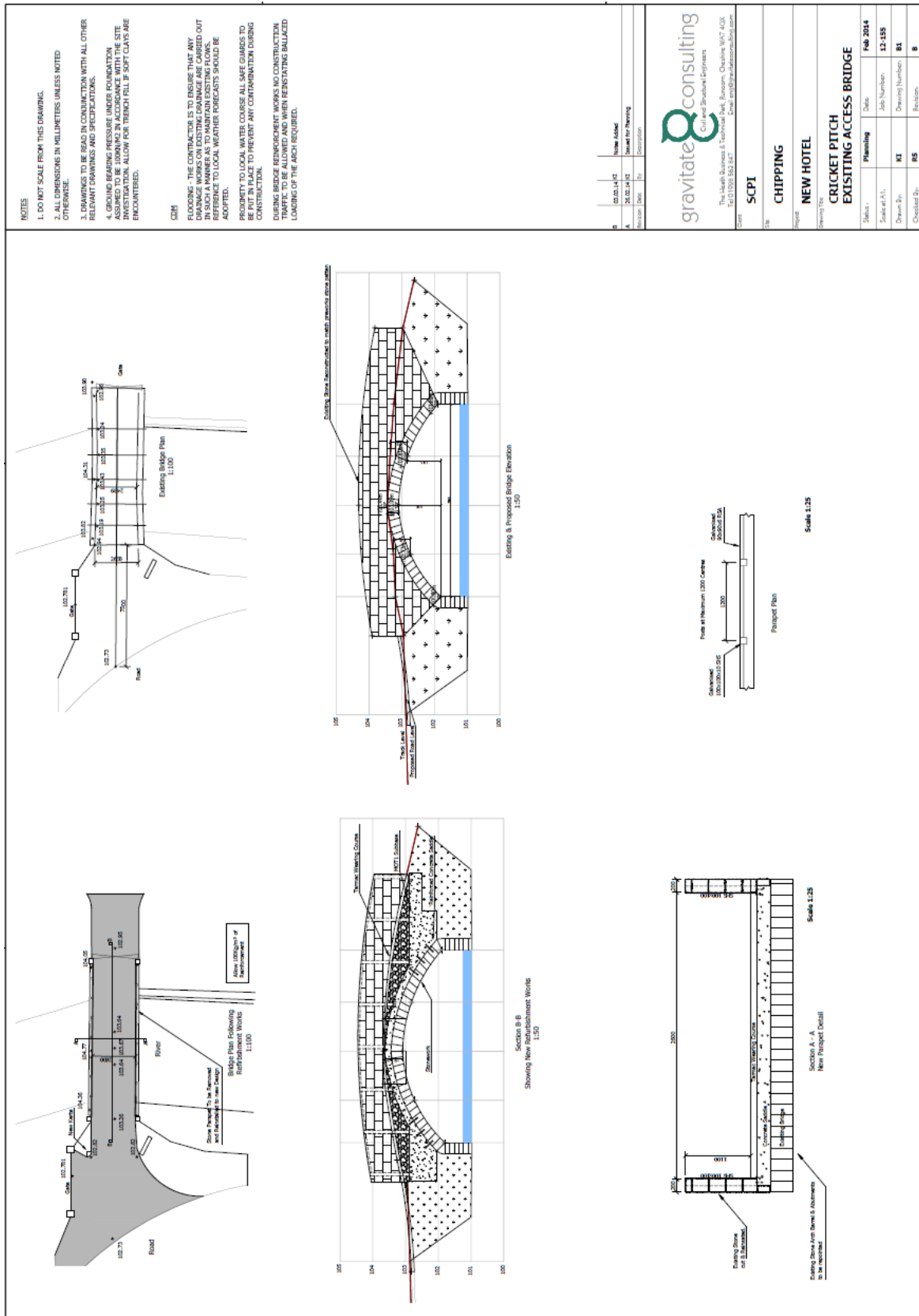
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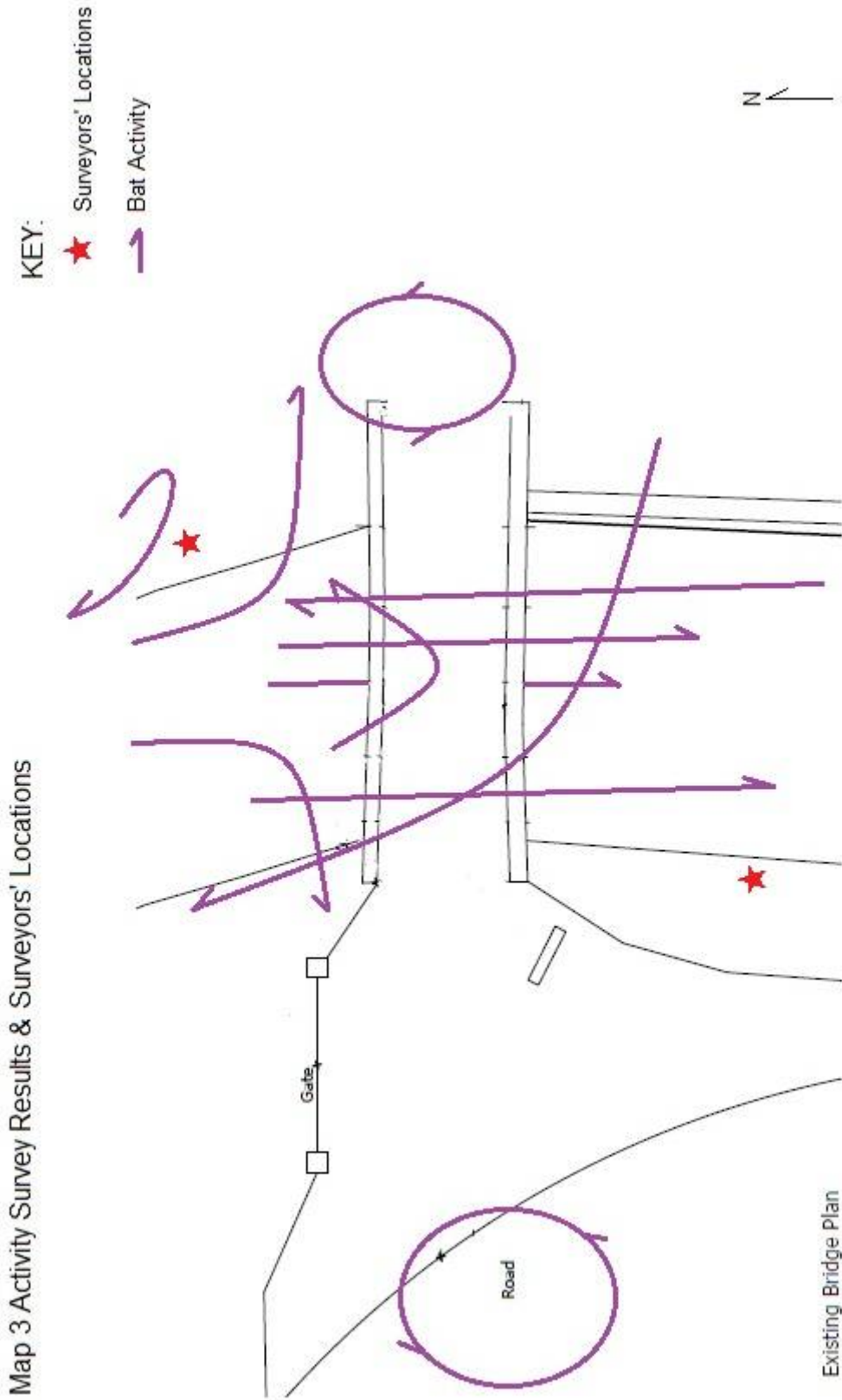
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Map 2:
Proposals for the Development at the Site



Map 3:
Activity Survey Results and Surveyors' Locations



Appendix 1:

Table 8.5 Minimum Number of Presence/Absence survey visits required to provide confidence in negative preliminary roost assessment results for buildings, built structures and trees in summer. (Taken from the Bat Conservation Trust Bat Survey Good Practice Guidelines (2012))

High roost potential	Low to moderate roost potential	Low roost potential
3 dusk emergence and/or pre-dawn re-entry surveys during May to September. Optimum period May to August.	2 dusk emergence and/or pre-dawn re-entry surveys during May to September. Optimum period May to August.	1 dusk emergence and/or pre-dawn re-entry survey during May to September. Optimum period May to August.
<p>If bats are discovered emerging from any of the buildings during the surveys, the survey schedule should be appropriately adjusted to increase the survey effort so that sufficient information can be collected.</p> <p>Note: two surveys carried out within the same 24 hours period constitutes as 1 survey.</p>		

The information within the above Table 8.5 is guidance and it is up to the acting consultant to determine in their expert judgement the overall level of survey that is required, this is based upon their knowledge, experience and is site specific i.e. taking into account the site conditions.

Appendix 2:
Site Photographs



Southern elevation of the bridge



Northern elevation of the bridge



View of the bridge from Longridge Road (from west)



Underneath the bridge looking west showing the numerous cracks where mortar is failing



Underneath the bridge span showing some of the numerous cracks where mortar is failing



Upper parapet wall showing cracks and crevices



Location of bat droppings outside crevice on southern parapet wall

Appendix 3: Raw Survey Data

Type of Survey:	Dusk emergence survey	Date:	15 th June 2015
Surveyor Position 1:	Lyn Eccles-Sargeant		
Time:	Activity:		
22.10	Bat HNS very feint, possibly Common pipistrelle.		
22:11	Common pipistrelle *HNS feeding.		
22.14	Common pipistrelle HNS		
22.15	x2 Common pipistrelle from north-west over top of bridge heading east.		
22.17	Common pipistrelle from north looped near bridge then headed back north.		
22.19	Bat same as above seen not heard.		
22.20	Myotis, possible Daubenton, HNS.		
22.21	Very brief bat call, HNS.		
22.23	Common pipistrelle HNS but very close.		
22.24	Common pipistrelle from north under bridge heading south.		
22.25	Myotis species, HNS.		
22.26	Common pipistrelle HNS and other faint call.		
22.27	Common pipistrelle from north under bridge heading south.		
22.28	Faint bat call, HNS		
22.30	Daubenton's, HNS, from north under bridge heading south and Common pipistrelle, HNS		
22.33	Common pipistrelle, flew around bridge from north looped near bridge then headed west.		
22.34	Common pipistrelle feeding over and under bridge		
22.36	Common pipistrelle, HNS, Losing light.		
22.37	Common pipistrelle, HNS.		
22.38	Common pipistrelle feeding, from north under bridge heading south.		
22.39	Common pipistrelle from south heading north over bridge.		
22.41	Common pipistrelle and Daubenton's from north heading south under bridge.		
22.44	x3 Common pipistrelle		
22.46	Common pipistrelle, constant bat activity mainly feeding.		
Surveyor Position 2:	Zoë Foster		
Time:	Activity:		
22.10	Common pipistrelle HNS		
22.12	Common pipistrelle foraging, HNS		
22.14	Common pipistrelle foraging from south under bridge heading north		
22.15	2x Common pipistrelle flew down stream and went over fields.		
22.18	Myotis; Daubenton's foraging and feeding in front of surveyor not echo-locating.		
22.21	Bat call HNS		
22.24	Myotis, foraging very low down above water very hard to see.		
22.33	Daubenton's (& possible Common pipistrelle) foraging over stream channel and flying over bridge.		
22.38	Constant bat activity flying up and down stream and over bridge.		

*HNS – Heard Not Seen

Malt Kiln Brow (Chipping Brook), Chipping

Type of Survey:	Dawn Re-entry survey	Date:	10 th July 2015
Surveyor Position 1:	Craig Smith		
Time:	Activity:		
02.51	Common pipistrelle HNS. Further bat seen c. 1 foot above water heading south, possible Daubenton's.		
02.52	Common pipistrelle and Soprano pipistrelle foraging, HNS.		
03.06	Soprano pipistrelle foraging, HNS, seems to be echo locating from the adjacent road.		
03.17	Common pipistrelle and Soprano pipistrelle, HNS		
03.26	Bat flew towards Surveyor 2.		
03.35	Common pipistrelle foraging overhead along tree lines, joined by a second briefly. On and off Common pipistrelle feeding activity.		
04.05	On and off Common pipistrelle and Soprano pipistrelle passes, foraging up and down tree line.		
04.32	Common pipistrelle brief pass.		
	On and off Common pipistrelle and Soprano pipistrelle passes feeding all morning. Daubenton's passes at the start of the survey and Soprano whilst setting up AnaBat. No interaction with the bridge.		
Surveyor Position 2:	Martyn Barnes		
02.55	Soprano pipistrelle, HNS but close.		
03.06	Soprano pipistrelle, HNS distant pass.		
03.06-03.25	Intermittent passes, HNS between this time.		
03.17	Common pipistrelle HNS, brief and close		
03.25	Common pipistrelle foraging and feeding close by, HNS.		
03.34	Common pipistrelle feeding over riverbank vegetation on the eastern bank and over the bridge.		
03.53	Soprano pipistrelle, HNS distant pass.		
04.04	Common pipistrelle and Soprano pipistrelle foraging and feeding over water to north of bridge close to position.		
04.10	Common pipistrelle and Soprano pipistrelle, local foraging over water and banks to both north and south of bridge.		
04.31	Common pipistrelle HNS, brief pass.		
	No re-entry observed. Common pipistrelle and Soprano pipistrelle using the banks, channel and surrounding trees for foraging and feeding in low numbers.		

Type of Survey:	Dusk emergence survey	Date:	11 th August 2015
Surveyor Position 1:	Craig Smith		
Time:	Activity:		
21.18	Pipistrelle, HNS.		
21.19	Common pipistrelle flew south down stream and over bridge past me. Soprano pipistrelle flew over bridge from fields to the east over to the road at the west.		
21.20	Soprano pipistrelle circling over the bridge and then south down stream		
21.21	Pipistrelle under the bridge then south down stream.		
21.22	Common pipistrelle foraging in the area and Soprano pipistrelle foraging around the bridge. 2x bats fly down stream (south) about 50cm from the water may be Daubenton's.		
21.40	Bat flew over bridge then south down stream not echo-locating		
21.45	Bat flew under bridge, Common pipistrelle.		

Malt Kiln Brow (Chipping Brook), Chipping

21.47	<i>Possible Daubenton's pass under bridge flying north up stream.</i>
	<i>No interaction with the bridge. A lot of cluttered pipistrelle calls both Common pipistrelle and Soprano pipistrelle. Possibly a couple of Daubenton's passes but hard to tell due to pipistrelle activity.</i>
Surveyor Position 2: Martyn Barnes	
Time:	Activity:
21.15	<i>Common pipistrelle passing briefly NW over bridge and north at overhanging tree tops on the western banks.</i>
21.18	<i>Common pipistrelle passing south to east followed by a second Common pipistrelle passing south then west.</i>
21.19	<i>Soprano pipistrelle pass west over bridge</i>
21.21	<i>Cluttered pipistrelle species brief forage under bridge.</i>
21.21-21.39	<i>Common pipistrelle and Soprano pipistrelle, local intermittent foraging around bridge and around both northern and southern banks of the bridge.</i>
21.39-21.49	<i>2x Common pipistrelle and a Soprano pipistrelle feeding and foraging around the bridge until 21.49</i>
21.45	<i>Possible myotis species, brief pass HNS.</i>
21.47	<i>Possible myotis species, brief pass HNS.</i>