



OUTBUIULDING AT TURVILLE HEATH HOUSE,
TURVILLE HEATH, HENLEY-ON-THAMES, OXON. RG9 6JY

ECOLOGY AND PROTECTED SPECIES APPRAISAL

1st October 2019

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1.0 INTRODUCTION AND BACKGROUND

This report has been prepared by *James Johnston Ecology (JJE)*, on behalf of Nicky Bird (the site owner). It presents the findings of an ecology and protected species appraisal undertaken at an outbuilding and adjacent land on the west side of the main house at Turville Heath House. This updates the ecology work conducted by JJE in 2008. There was a planning proposal here for conversion of the outbuilding to make a 1-bed annexe, which was consented in 2008, although that consent lapsed. There is now a fresh planning application for a similar scheme. This report supports the planning application to the local planning authority (South Oxon District Council / SODC). JJE has undertaken a preliminary site inspection, habitat walkover survey, records search, and full suite of bat emergence surveys, over summer 2019.

All British bat species and their roost sites (and great crested newts and their places of shelter) are fully protected from 'intentional' and 'reckless' harm and disturbance, under the Wildlife and Countryside Act (WCA) 1981 (as amended 1985 and 2000), and the Habitats Regulations 2017. Barn owls can use old buildings as nest and roost sites. This is a threatened species of medium conservation concern, listed by the Royal Society for the Protection of Birds (RSPB) as having undergone a moderate decline (25 - 49%) in the UK breeding population or range over the last 25 years, and with an unfavourable status in Europe. All British bird species are legally protected from disturbance during nesting, under the WCA 1981.

Potential adverse effects on protected species are a 'material consideration' within the planning decision, and Local Plan policies protect against development impacts to habitats of high ecology value. If bats or other legally protected species are found to be residing within impacted buildings, a full mitigation strategy (and derogation licence for bats) will be required, to avoid unlawful activity.

The remainder of this report provides the following sections - Methods, Findings, Potential Impacts, Mitigation and Enhancement Strategy, and the Summary + Conclusions. Photos are interspersed within the text and plans and appendices are at the back of the report.

2.0 METHODS

Background Records – Information on statutory nature conservation designations was gathered through a web-search (Natural England’s ‘nature on the map’ / MAGIC/DEFRA website). The writer also has knowledge of bat roosts recorded by a neighbour at the site from the 2007/08 period, and also has significant past experience of the notable fauna active around this part of the District from several ecology and fauna surveys conducted over the last 24 years for other planning projects nearby. A single bat emergence survey with two surveyors was also conducted by JJE in June 2008 at this site, and those survey results are referenced as background records for the site.

Walkover Surveys – Daylight ecology walkover surveys were conducted on 16/06/08 and 13/08/19. These involved walking all of the application site and its boundaries, noting the principal plant species and habitats, noting any evidence of notable fauna and/or potential for fauna arising from the habitats, and surveying the building for protected species evidence, especially for bats, bird nesting, and reptile potential in surrounding land (based upon boundary grassland type and presence of any features that reptiles tend to favour).

Preliminary Bat Roost Survey – A preliminary bat roost appraisal / inspection was conducted on those survey dates (16/06/08 and 13/08/19), in line with the BCT 2016 guidelines - Bat Surveys for Professional Ecologists (initially for a ‘preliminary survey’) - comprising records search and a daylight search for roost evidence in and around the building (and especially around beams and internal crevices, roof voids, and around any architectural recesses). A ladder, torches and an endoscope were used where necessary for close inspection of potential roost features. Evidence looked for includes crevices or roof areas swept free of cobwebs, ‘polishing’ of crevice edges from oils being rubbed off the fur of bats, stains and scratch marks, bat droppings, bats themselves, and piles of discarded moth wings. Any bat droppings around buildings are usually sent for DNA analysis to confirm the species identification, if this is not apparent from the character of the droppings. In this instance one sample was sent.

Bat Emergence and Activity Surveys – A full suite of two dusk and one dawn bat emergence / re-entry surveys was undertaken in good weather, over summer 2019. The survey technique involved the surveyors using the standard approach of watching (all sides of the building) and listening for emerging bats, whilst using an array of ultrasonic bat detectors and recorders to give acoustic warning of flying bats. These alert the surveyors to possible emergence activity and also record echolocation calls for later sonogram analysis of the species involved.

The equipment used included Duet, Pettersson 240x and D200, and broadband recorders (EM3 and SM2BAT+). Some bat detectors were placed around the margins of the survey area, with speakers turned to high volume to alert surveyors to more distant bats approaching. ‘Broadband’ recording detectors ensured no bat passes could be missed. Emergence surveying was conducted from half an hour before sunset until one and a half hours after sunset, and the opposite at dawn. When a bat is heard, the surveyor looks around to see its direction of flight and whether it is emerging from the building or commuting past.

Personnel – The survey work was led by James Johnston (MCIEEM / CEnv, who holds bat survey licence 2015-11566-clc-clc and has 24 years’ bat survey experience), along with help from a bat survey assistant with over 14 years bat survey experience (Mr Alan J Johnston).

Dates / Weather - The survey dates and weather conditions were acceptable for reliable emergence / re-entry surveying. Conditions were as follows:

Date	Weather
13/08/19 Daylight inspection + Dusk emergence	Dry, warm and sunny. Temperatures 20– 13°C (max/min). Light westerly wind (6 mph). Sunset 8.31pm
19/08/19 Dawn re-entry survey	Dry. Mixed sun + cloud. Temperature 14°C). No wind. Sunrise 4.45am
10/09/19 Dusk emergence	Dry. Mild. Cloudy. Temperatures 17-12°C (max/min). Light S-Westerly wind (7mph). Sunset 7.30pm

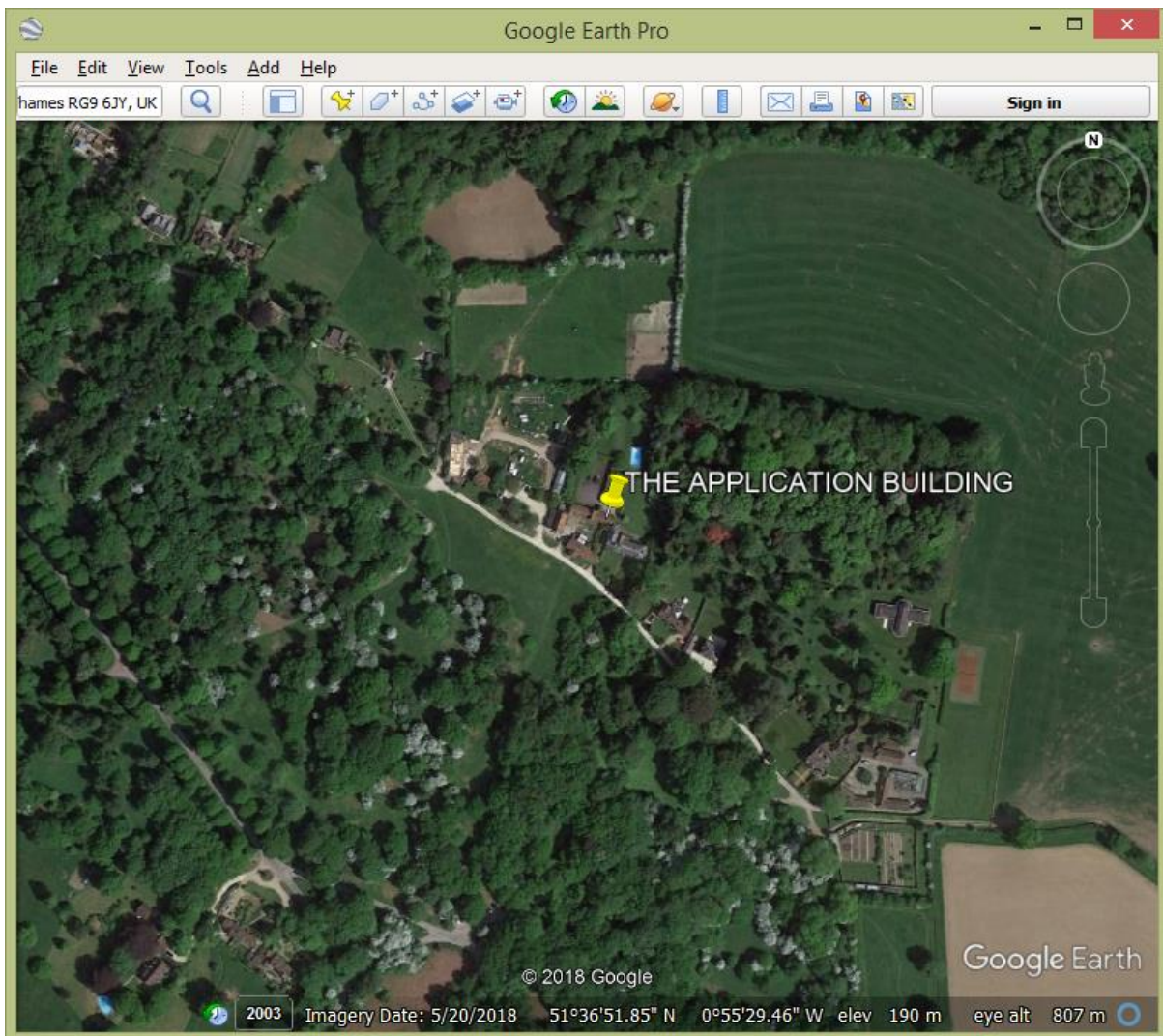
Limitations - Ecology survey work can only present a 'snap-shot' of the ecology conditions at that time. Site conditions and fauna usage patterns can change over short timeframes and so new or altered ecology constraints in the near future can be different from the recent past. Detailed fauna surveys also only ever represent a sampling exercise, and so there is always an opportunity for some fauna usage to go unnoticed, particularly any rare or sporadic site usage by elusive fauna. Bat recording and activity identification is notoriously difficult due to bats' nocturnal habits, similarities between species (in looks and echolocation calls), and because some species (eg – long-eared bats) choose to rarely echolocate at all (or do so only very quietly), resulting in them being significantly under-recorded (acoustically) compared to louder bat species. Adverse weather can affect bat emergence. Nevertheless, significant field experience, use of accepted standard survey equipment, and appraisal methods (as above) allow these limitations to be sufficiently reduced.

Kaleidoscope Pro auto-bat-identification software was used in this assessment, and the software is recognised as unreliable on its own (for species identification, since software mis-identification of species occurs in perhaps 10-20% of recordings). However, this limitation was overcome by manual checking of each recorded sonogram (by James Johnston), and so did result in accurate manual bat species identification from the auto-recorded sonograms.

3.0 FINDINGS

Site and Wider Surroundings

The outbuilding lies adjacent to a large house within large well-managed gardens, in a rural / village edge setting, with large areas of mature broadleaf woodland across surrounding and nearby land (see aerial photo below, courtesy of Google Earth). This is consequently considered a 'bat friendly' locality, and many of Britain's 18 bat species might be expected to be active across the wider locality. The local landscape was also noted as suitable for potentially supporting other notable species, such as barn owls, declining farmland birds, and reptiles and amphibians.

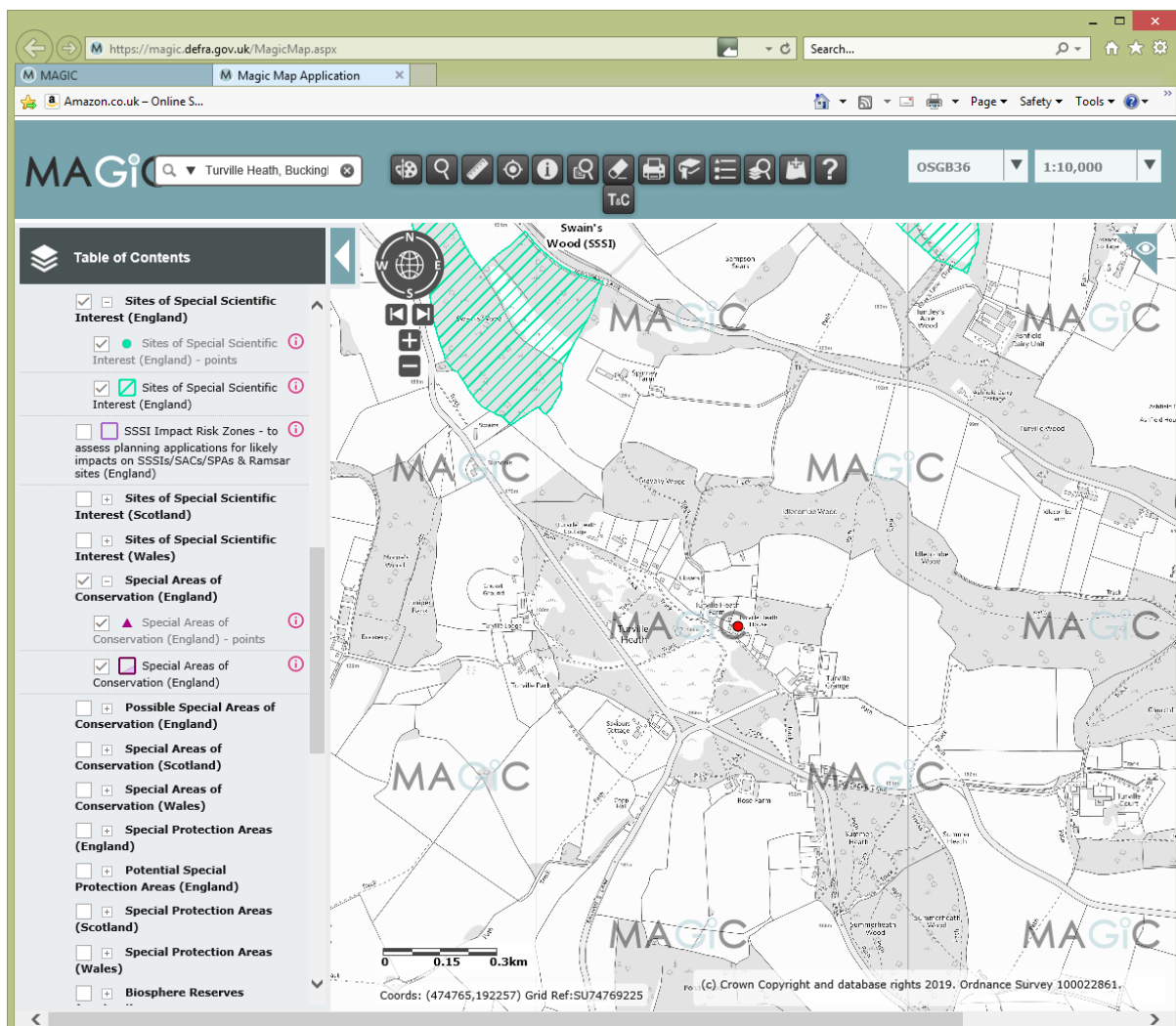


Aerial photo of local landscape of application site (courtesy of Google Earth)

Statutory Designations

There are no designations at or adjacent to the application site. The nearest SSSI is Swains Wood, 0.6km away to the north-west (shown on the plan below, courtesy of MAGIC/DEFRA). The reason for that SSSI is given below:

The site occupies the upper stretches of a classic dry valley and contains chalk grassland and scrub, flanked on two sides by woodland. The grassland is exceptionally rich in both plant and invertebrate species, and several national rarities are present. The woodlands are unusual for the Chilterns in that, although some beech is present, there are parts where a more mixed canopy prevails.



Statutory Designations (with application at centre, marked with red dot)

The Building / Architecture

The outbuilding links on to the corner of the main Turville Heath House dwelling, and is a former barn / cartshed building, divided into four rooms. The walls are mostly constructed of brick and flint, although the taller barn section at the west end mostly has timber-framed walls that are clad in timber shiplap / featherboards. The roof is clay tiles over bitumen felt. One of the rooms at the east end has a ceiling creating a small attic above. At the west end the room is open up to the ridge.



North-east corner



North-west corner



South-west side



West end interior / roof

The roof structure is softwood beams in traditional rafter and purlin arrangement, with a 'bolt-trussed' Queen post at the west end (see photo above).

Habitats

The site habitats are very simple species-poor 'residential' types, eg – gravel driveway through east of site (between main house and outbuilding); leylandii hedge beside north side of outbuilding; gravel parking in north-east of site; tarmac parking in north-west quadrant of site; mown amenity grass / lawn verges; bare ground / disturbed ground / with tall ruderal herbs (docks, thistle, nettles) beside south-west side of outbuilding (although this land belongs to a neighbour and is not part of the application site). They are shown on the 'Ecology Findings' plan.



Leylandii hedge + gravel parking

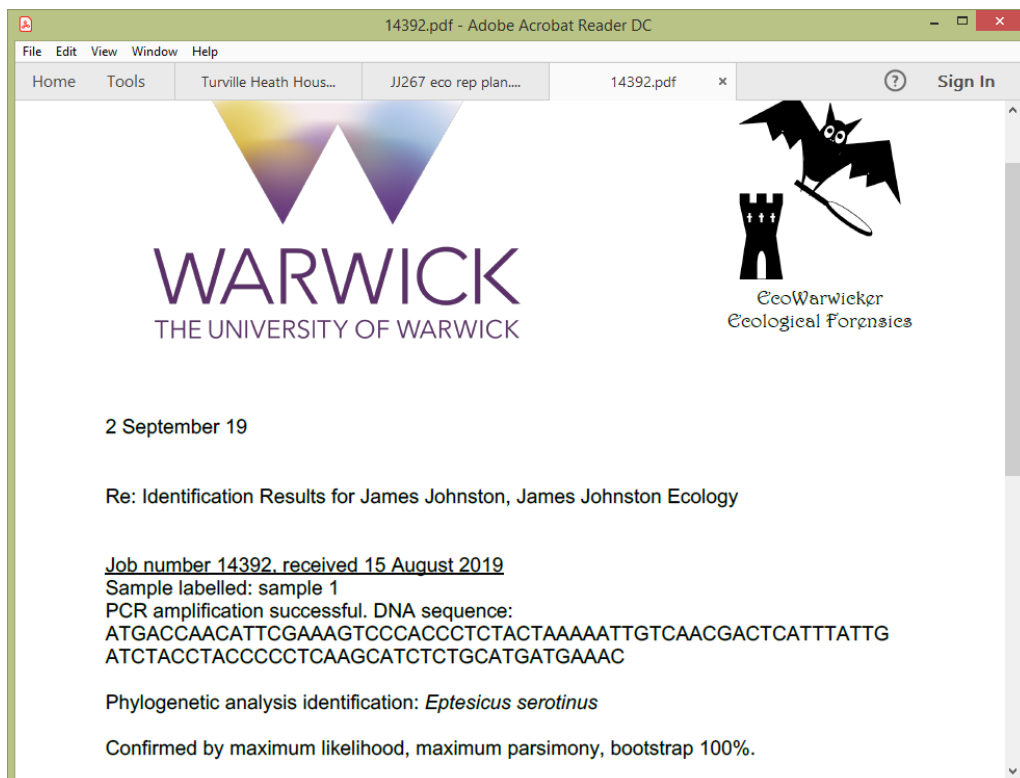


Adjacent off-site ruderal herbs

Fauna

Records – In 2008 a neighbour video-recorded a single bat emerging from two different locations around the tiled gable roof area of the south-west end of the building. The JJE emergence survey on 16/06/08 recorded one common pipistrelle bat emerging from that same ridge area, and considered this to relate to the same video-recorded bat (confirming a male day-roost for a single common pipistrelle).

2019 Daylight Buildings' Inspections / Bat Roost Potential – The updated daylight inspection on 13/08/19 confirmed evidence of further minor bat roosts. A low number (less than ten) of pipistrelle droppings (small dark and smooth-sided droppings) were noted randomly scattered around inside the west end of the building; One small pile of 30 serotine bat droppings was also found on the floor beneath the ridge at the west end of the building (confirmed through DNA analysis); And, around 50 droppings from another bat (suspected brown long-eared, as they were light coloured coarse grained droppings) were noted scattered beneath the ridge board. No bats were seen at this time in the buildings, but active roosts were confirmed by the droppings.



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WARWICK
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EcoWarwick
Ecological Forensics

2 September 19

Re: Identification Results for James Johnston, James Johnston Ecology

Job number 14392, received 15 August 2019
Sample labelled: sample 1
PCR amplification successful. DNA sequence:
ATGACCAACATTGCGAAAGTCCCACCCTCTACTAAAAATTGTCAACGACTCATTATTG
ATCTACCTACCCCTCAAGCATCTCTGCATGATGAAAC

Phylogenetic analysis identification: *Eptesicus serotinus*

Confirmed by maximum likelihood, maximum parsimony, bootstrap 100%.

Bat DNA result

2019 Dusk / Dawn Bat Survey Results – The two dusk and one dawn bat surveys confirmed only single day-roosting bats from these three species (common pipistrelle, serotine and brown long-eared – one bat of each species).

On both survey evenings a single common pipistrelle emerged from an internal gap between roof purlin and bitumen felt in the west end of the building, at around 20 minutes after sunset, and commuted off north-eastwards. On both survey evenings a single brown long-eared bat was seen flying inside the western end of the building, from 20 minutes after sunset, with this bat clearly seen to be that species (from its large ears). It regularly rested on the ridge board and emerged later at around one hour after sunset, from the open barn door, north-westwards. A single serotine was seen emerging on one evening only, at 15 minutes after sunset (using the same route as the BLB). The serotine was not echolocating during emergence and so was not audibly recorded, but was seen to be a large bat (with droppings confirmed as serotine from DNA analysis).

The dawn survey confirmed a common pipistrelle returning to roost inside the west end of the outbuilding (at 25 minutes before sunrise), and one BLB flying inside that open room from 1.5 hours before sunrise.

The surveyors also noted low numbers of soprano pipistrelles and common pipistrelles commuting over the site from west to east through the early part of the survey evenings, and one barbastelle bat was heard and recorded crossing the garden area to the east, during the latter stage of the second survey evening (see samples of recorded sonograms within the Appendix). The roosting BLB was too quiet to trigger the acoustic recorders and so no BLB sonogram was recorded. The locations of the bat survey findings are shown on the 'Ecology Findings' plan.

Bat Roost Interpretation and Evaluation – The surveys confirmed three minor day-roosts, each supporting one bat (for the species common pip, serotine, and brown long-eared / BLB). These three species are all locally and regionally common and so each of the three roosts is of **Low conservation significance**.

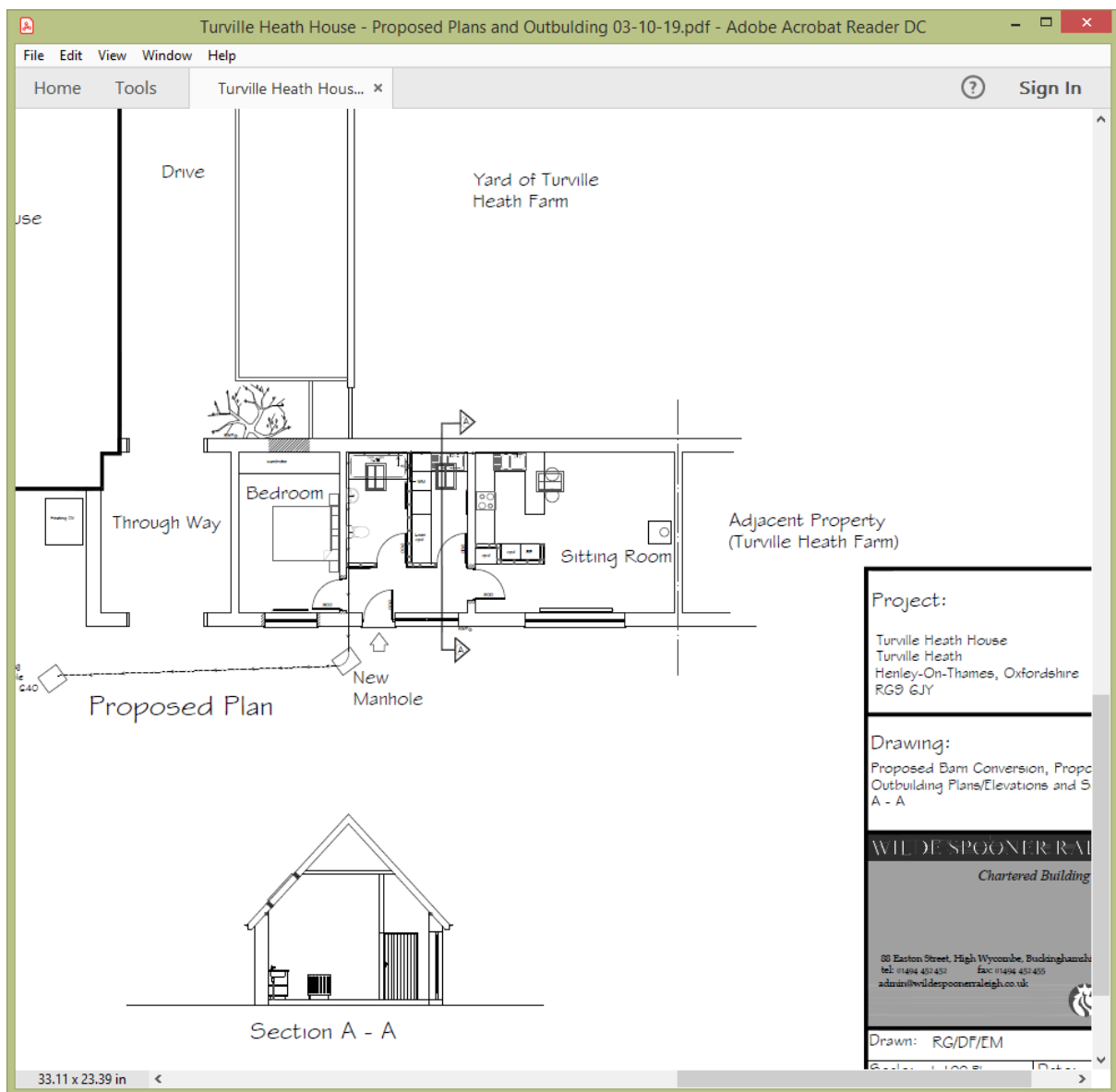
Birds – No evidence of barn owls was found in any part of the outbuilding (no nesting scrapes on wall tops, barn owls pellets, old eggs, or ‘whitewash’ wall staining), and this rare and protected bird is considered absent.

Some nesting activity was noted by more common birds, including an active nest for a pair of swallows inside the barn, and an occasional wall-top nest from common garden birds (robin, wren, and house sparrow) throughout the building. The leylandii hedge beside the north of the building also provides good nesting potential for garden birds, and is likely to support nests during the March to August nesting season.

Reptiles and Newts – The gravel, tarmac, and short-mown lawn verges that surround the outbuilding and which will be within the construction area during conversion works, have no potential for supporting newts or reptiles at any time, since no potential shelter opportunity or habitat structure is provided.

4.0 POTENTIAL IMPACTS

The Scheme - The scheme involves residential conversion of the outbuilding to make a 1-bed annexe, involving re-roofing, addition of services, insulation and rooflights on the south side. The covered 'drive-through' part of the building is retained / unaffected. Landscaping is negligible but a short stretch of the evergreen / leylandii hedge on the north side of the building will be removed.



The proposals

Designations – As the site is already ‘brownfield’ and has its own existing foul and surface drainage systems, the proposed alteration and conversion is considered to have no potential for causing adverse impacts to the distant designated sites, or to ground-water quality.

Habitat – No significant habitat impacts will arise from the scheme. No mature trees or any species-rich or high value habitats are present on site, and so none are impacted. The proposed removal of a short stretch of leylandii hedge causes loss of a tiny area of mono-species non-native habitat of low ecology value.

Bats – Without mitigation in place the minor pipistrelle, serotine, and BLB day-roosts around the outbuilding (involving only 3 bats in total for the site), will be at risk of suffering disturbance, bat harm (from possible crushing injuries), and roost destruction, from the build works, principally during re-roofing, wall lining and conversion works. The tiles, ridge tiles and featherboards will need to be removed to allow the works, and careless removal of them, and/or installation of temporary scaffolding can cause injuries to bats roosting in gaps associated.

No bat foraging habitats or potential linear commuting features are lost to the scheme, and as the site is already well-lit with security lighting and has some residential uses (existing passive light-spill from the adjacent house), and since no mature trees are impacted, there is considered no potential for impacts to any bat commuting activity through or around the site. The low levels of bat flight activity (commuting) through and around the site, which was noted during the bat surveys, will be able to continue (unaffected), with the development scheme completed.

Birds – Without mitigation in place, there is potential for unlawful disturbance of nesting birds (swallows and small garden birds) during the conversion and alterations, throughout the building (if the work was started during the nesting period of 1st March to end of August). There is no potential for impacts to rare or specially protected nesting birds, as none nest at the site.

Reptiles and Newts – There is concluded to be no potential for this conversion scheme to cause impacts to any individual newts or reptiles, or loss of any habitat used by those species, as the land around the outbuilding is not suitable for them and is in any event not affected by the works. The impacts are to the building only.

Other Fauna – No other potential fauna issues were identified.

5.0 MITIGATION AND ENHANCEMENT

Bats

Bat mitigation design generally falls into two distinct areas – 1. Roost provision / protection or compensation; and, 2. Avoidance of bat harm during works.

Roost Provision – The minor roosts for individual pipistrelle, serotine and brown long-eared bats, will be re-created through the erection of suitable crevice-type bat boxes around the external wall-tops at the eastern and northern ends of the building, as shown on the plan of Mitigation + Enhancement. This will involve two bat boxes using the high quality long-lasting ‘woodstone’ and plastic-coated wooden materials – Beaumaris Maxi (x1 box), and Eco Bat Crevice box (x1), which are suitable for these bat species (including serotine, since the Beaumaris Maxi box has a large roost gap). Further suitable crevice roost opportunities for these bats will be created around the renovated featherboard gable / dormer features, where the new wooden barge boards will overlie the featherboards (see plans at the back of this report for locations).



Beaumaris woodstone Maxi box



Eco Bat Crevice Box

Avoidance of bat harm – To ensure no harm to the roosting bats, the Project Ecologist is required to give a ‘Tool-box Talk’ to the contractors at the outset of works (explaining how to work sensitively around the site); Leave a copy of the Derogation Licence on site for future reference; Remain ‘on call’ if bats are ever seen in unexpected places; And, conduct roost exclusion work (supervise the hand-roof strip, roost exclusion / roost soft-destruction), around the building. Contractors will need to take care with all works on site, as bat roosts can move locations.

As there is no maternity roosting at the site and winter bat hibernation around these types of draughty structures is also unlikely, there are no 'bat-related' seasonal constraints to the conversion / roost exclusion work.

Bat Derogation Licensing – The bat disturbance and roost closure / exclusion would be unlawful unless a Natural England Bat Derogation Licence is first gained. This can only be applied for after full planning consent has been gained. For these minor roosts involving low numbers of common bat species, Natural England's 'fast-track' Bat Mitigation Class Licence (CL21) can be used (which the Project Ecologist is registered to use). This licence system does not require a specific bat method statement to be prepared for the site, but instead the Ecologist and Contractor agree to only use certain permitted techniques and methods (which are listed as Conditions of the licence) to ensure bats are not harmed.

The licence system requires most of the bat survey data to have been gathered during the most recent bat activity season, and so if conversion work is not scheduled to start before Autumn 2020, then some updated bat emergence surveying should be planned for Summer 2020 (to support the later licence application and confirm any new or different bat roosting patterns).

Birds

Care needs to be taken to avoid any disturbance of nesting birds during the build and conversion works. This is best achieved by starting the build works and the clearance of any leylandii hedge habitat, outside the March to August nesting season, unless an updated bird survey by the Project Ecologist at that time confirms no active nests in each area where works are progressing. If nesting activity still occurs during the construction period in the vicinity of build works, it can often be possible for the build works to proceed under guidance and supervision from the Ecologist, without causing unlawful disturbance, by using techniques such as temporary 'curtains' that mask views of the nest. The Ecologist will remain 'on call' to advise on such situations and to conduct updated surveys where necessary.

Unexpected Fauna

If the contractor suspects any new or altered fauna issue, such as bats roosting in an unexpected location or larger numbers of bats than expected, or any reptiles or newts seen on site, they must immediately stop work in that area and contact the Ecologist for an updated survey and advice on correct protocols (in liaison with the Local Planning Authority and Natural England), to safeguard the fauna and avoid unlawful activity.

Habitat

There are no requirements for any particular habitat protection measures, since the land around the outbuilding (where contractors will operate) is all gravel and hard-standing, and there are no notable / high value habitats or any mature trees adjacent to the works area.

Enhancement

The Government's NPPF advises that LPAs should seek net biodiversity gain within all planning applications. This scheme causes negligible biodiversity loss, as no vegetated habitat is lost, except for the short stretch of leylandii hedge.

Consequently, the additional measures below will guarantee overall biodiversity enhancement at the site (see locations on the plan of ecology 'Mitigation and Enhancement' at the back of this report):

- Purchase and erection of further bat roost boxes of mixed styles and materials around the site, fixed high up (5-6m height) onto a mature garden tree (x2 boxes) - involving oak and cedar wood crevice boxes (which are found to be used by a range of bat species).
- Purchase and erection of a range of bird nest boxes around the site, fixed at 2.5-3m height, onto external walls and garden trees throughout the site facing into garden areas (x3 boxes for the site), including a woodstone open-fronted nest box, and closed boxes with 28mm and 32mm entrance holes.



Oak bat box



Wooden crevice bat box



Open-fronted nest box



28mm entrance hole

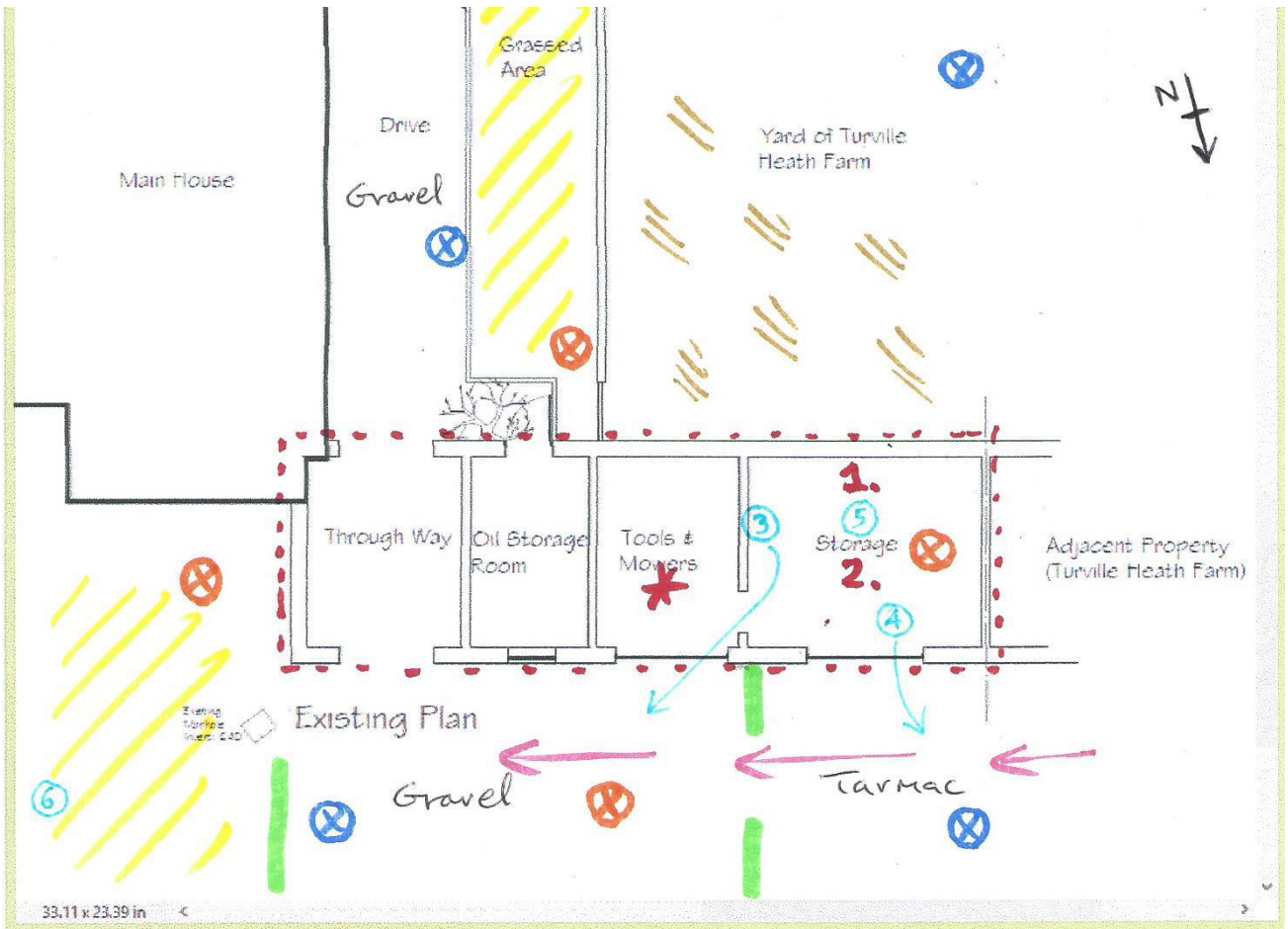
6.0 SUMMARY + CONCLUSIONS

James Johnston Ecology (JJE) has undertaken an ecology appraisal including a full suite of three bat surveys over summer 2019 (updating some survey and appraisal work that was undertaken by JJE in 2008). This report concludes that with the mitigation strategy followed, the proposed conversion of an outbuilding adjoining Turville Heath House, to provide further accommodation, will cause: No significant ecology impacts; No impact to any designated sites; No damage to notable habitat; No long-term or unlawful impacts to roosting bats; And, no impacts to any other legally protected species. The minor bat roosts that were confirmed (1 common pipistrelle bat, 1 serotine bat and 1 brown long-eared bat) will be re-created / compensated with new suitable crevice roost features around that building.

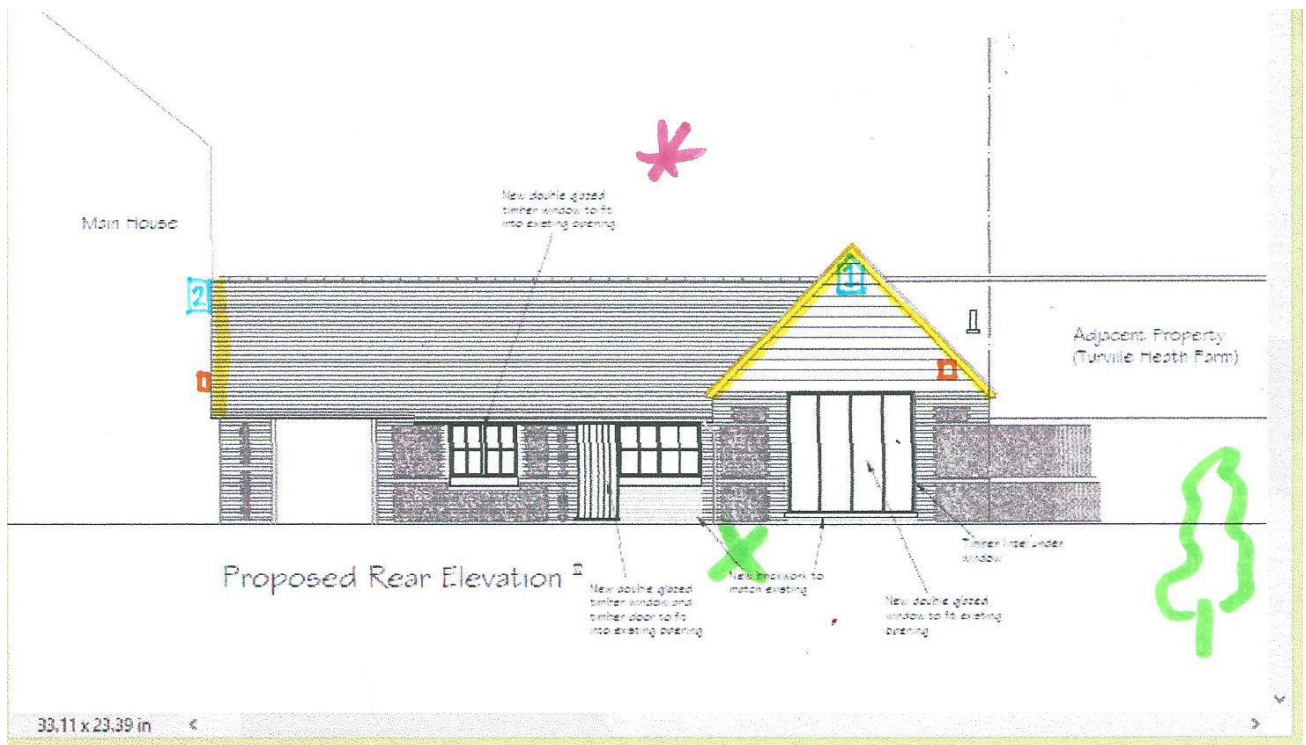
The mitigation involves: Gaining of a Bat Derogation Licence (Bat Mitigation Class Licence) to allow disturbance of the individual male pipistrelle, serotine, and brown long-eared bats in gaps around the building; A site briefing meeting / Tool-box talk with Project Ecologist and Contractor; Care with works to avoid bat harm (roost exclusion / soft roost dismantling); Erection of bat boxes around external wall-tops; And, avoidance of nesting bird disturbance through careful timing of works. Ecology enhancement is proposed through bat and bird boxes. The appraisal found no potential for reptiles or newts within the construction zone (as it is all hard-standing and mown lawn), and so negligible potential for reptiles or newts to be affected.

The mitigation and enhancement can be guaranteed through use of a Planning Condition linked to this report. It can therefore be concluded that this scheme (with the recommendations followed) avoids significant ecology impacts and unlawful fauna impacts, but includes some ecology enhancement, and so would not be contrary to Local Plan ecological policy or wildlife laws.

PLANS



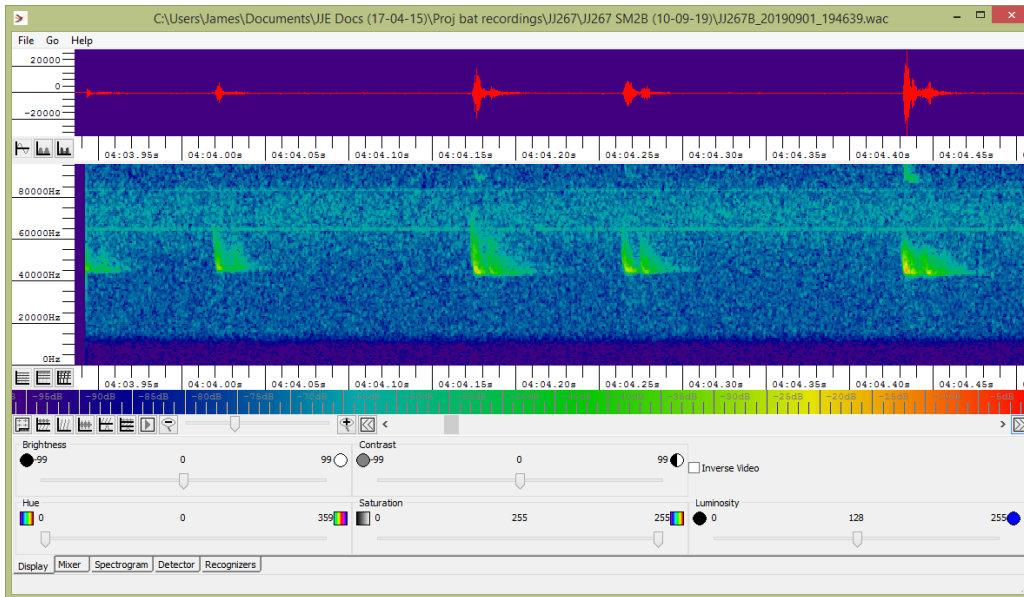
- outbuilding for conversion
 - Mono-species garden hedge
 - Bare earth + tall ruderal herbs
 - Locations of bat surveyors spread over 3 surveys
 - Locations of broadband bat recording devices
 - Mown lawns
 - 1.** - serotine bat droppings inside barn (DNA confirmed) x 30
 - 2.** - Low numbers of BLB + pipistrelle bat droppings on floor
 - 3.** - 1 pip bat emerged from internal roost gap on 2 evenings
 - 4.** - 1 serotine bat emerged on 1 evening
 - 5.** - 1 brown long-eared flying inside on 2 survey evenings
 - Pipistrelles commuting through + over site during evening period
 - 6.** - 1 Barbastelle briefly heard over garden late in the evening (10/9/19)
 - *** - Birds nest throughout building
- Turville Heath House
 - Ecology Findings
 - JS267 (07/10/19)



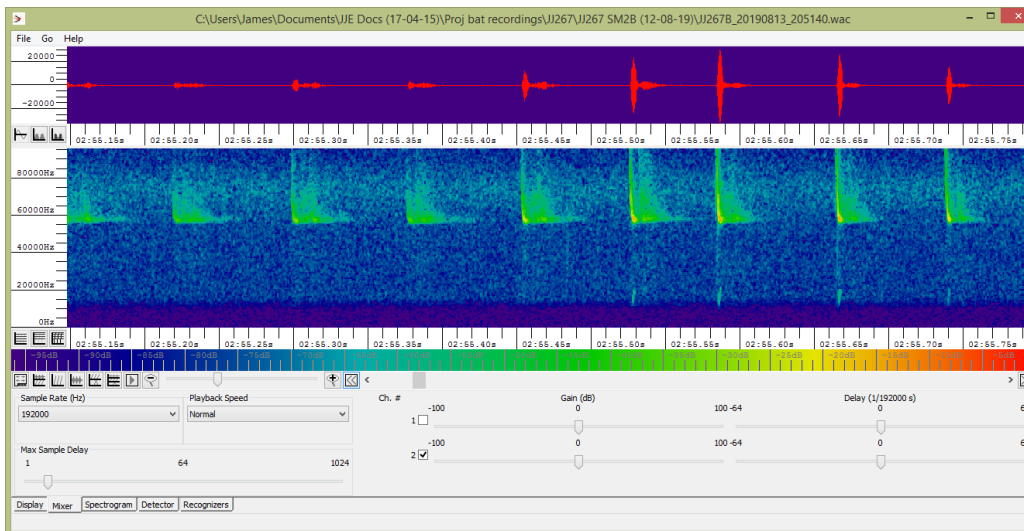
- * - No works to proceed until Bat Derogation Licence has been gained. Start of works must avoid March to August bird nesting season. Ecologist must give Toolbox Talk at start of works (prior to any disturbance)
- 1 - Beaumaris Maxi bat roost box
- 2 - Eco Bat crevice box fixed onto outbuilding gable wall-top
- ✓ - Bat roost gaps created where barge boards overlie replaced wooden featherboards
- - Woodstone bird boxes onto walls and 1 boundary tree (x3 boxes)
- 🌳 - Mature Ash tree on NW boundary (15M north-west from outbuilding), will have 2 wooden crevice bat boxes erected at 5-6M height and 1 woodstone bird nest box fixed at 3M height
- ✗ - Leylandii hedge removal to avoid March-Aug nesting season

- Turville Heath House
- Mitigation + Enhancement
- 35267 (08/10/19)

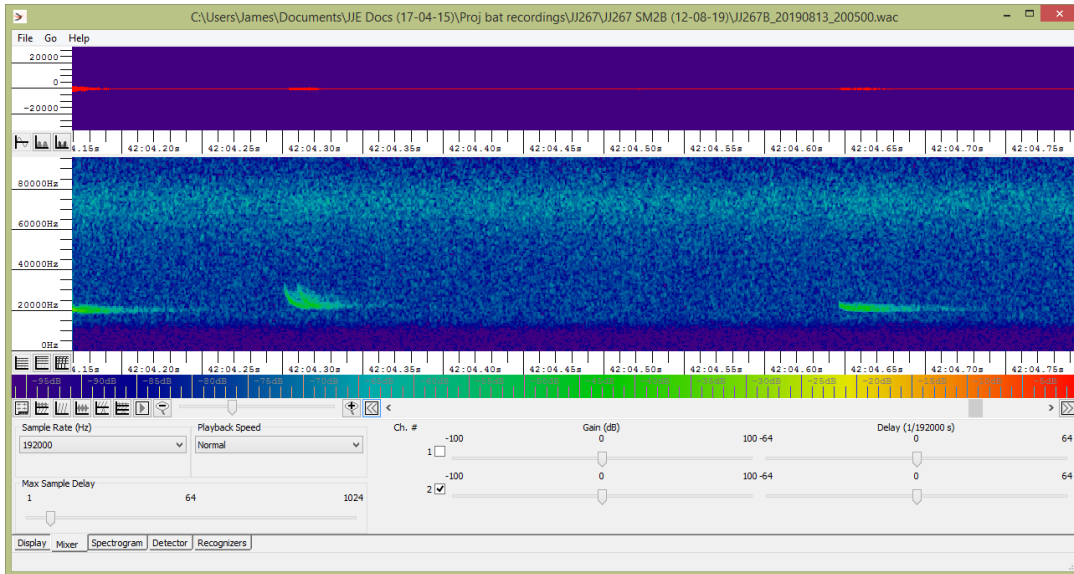
APPENDIX – Recorded Sonograms



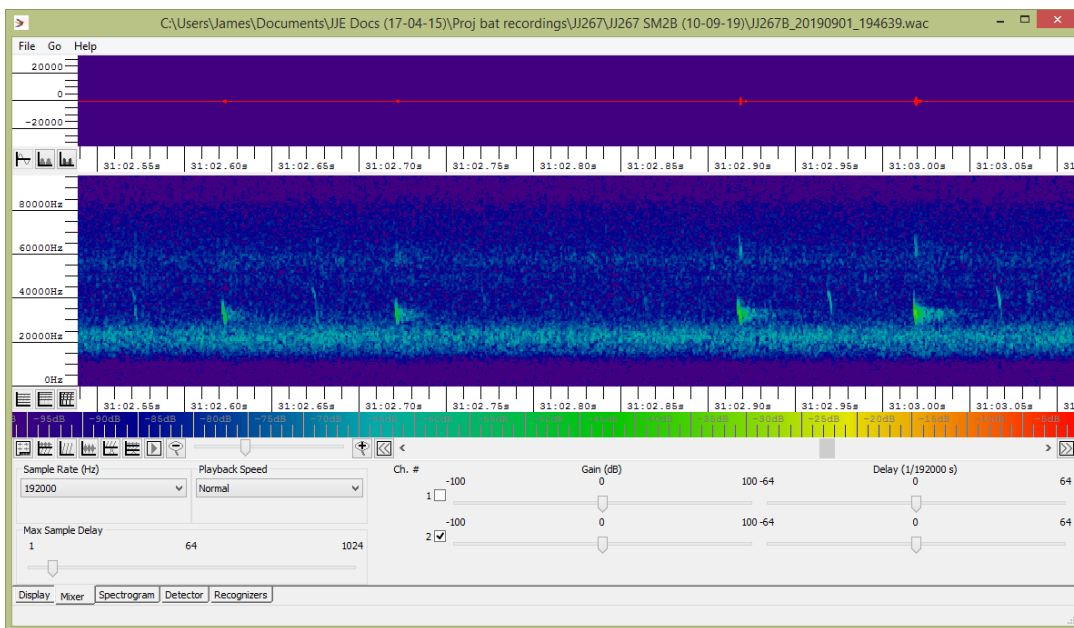
Emerging common pip



Commuting soprano pip



Distant Noctule



Barbastelle commuting through off-site to east