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Summary

St. Mary's Lodge Hospital, Upper Sunbury Road, Hampton, Middlesex.

Bat Surveys, June, 2006

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Summary

Scammell Securities instructed Furesfen, to carry out bat surveys at St. Mary's Lodge Hospital within the London Borough of Richmond.

An internal and external building inspection was conducted on the 5.6.06 in a good light, two hours before sunset. This included the main hospital, outbuildings and surrounding trees.

Three bat emergence and activity surveys were undertaken on the evenings of 5.6.06, 12.6.06 and 19.6.06 using recordable Bat Box 4 (DUET) Frequency Division detectors.

No bat roosts either current or historical were found within the hospital buildings or grounds although bats are known to be roosting nearby.

During the surveys pipistrelle bats of two species were detected commuting from the east to west for commuting and feeding purposes.

A dark corridor must be retained along the boundary with the school by sensitive planting and restriction in use of external security and ornamental lighting.

Birds breeding on site included at least one possibly two pairs of blackbirds. Breeding birds are protected at all times at their nests under the Wildlife and Countryside Act 1981 (as amended).

Recommendations are made to mitigate further loss of bat foraging opportunities, commuting routes and to limit light pollution. Recommendations are made to safeguard the welfare of nesting birds.

1. Introduction and background.

- 1.1 Scammell Securities instructed Furesfen, to carry out bat surveys around St. Mary's Cottage Hospital within the London Borough of Richmond upon Thames (TQ128696). This was in advance of plans to demolish buildings and construct a nursing home with associated car parking.
- 1.2 The Lodge was formerly a NHS cottage hospital, open between 1912 and 2004, when it closed and has since remained empty. Vandalism has been circumvented by boarding windows and doors which prevents access to some of the outbuildings. It is built within an area classed as Green Belt, according to the borough's Unitary Development Plan, which restricts certain types of development.
- 1.3 To the south of the lodge lies the extensive Hampton Water Treatment Works, river Thames and Stain Hill Reservoir SMI's (Sites of Metropolitan Importance). On the western boundary is Hydes Field, a Site of Borough Importance for Nature Conservation. The latter is noted in the London Ecology Unit Handbook (1993) as important for a diverse plant community, a small stream (Portlane Brook) and woodland which forms part of the borough boundary with Spelthorne. School playing fields on the northern boundary are separated by a strip of mature trees.
- 1.4 The immediate setting for the hospital is characterised in nature conservation terms as: open water, playing fields, mature trees, old buildings and mature garden. Some trees have vertical habitats (ivy), rot holes and both standing and lying deadwood is present. Hospital buildings are both one and two storeys with a range of roof pitches including flat roofs and ancillary structures (garage, sun room, etc). Many of these are features of interest to bats.
- 1.5 Informal management of areas adjacent to the hospital, the neglected garden, lack of use and the presence of a large area of open water increase the likelihood of onsite nature conservation interest, which should be identified before any works take place.
- 1.6 Surveys were commissioned to determine if any bat species were using the buildings for roosting purposes. Roofs containing crevices and voids, which are suitable for bat ingress and occupation, must be checked in advance of works. Likewise trees especially near water can be of interest to certain species of bat.
- 1.7 The fieldwork was undertaken by A. Fure. Consultation was undertaken with Scammell Securities in producing this report.
- 1.8 There are several pieces of legislation concerning certain wildlife species and habitats: The legislative framework (e.g. the Wildlife and Countryside Act 1981 and the EC Directive on the Conservation of Habitats and Wild Fauna and Flora (92/43/EEC) for the presence of protected species and habitats. All species of bat are protected in the UK on Schedules 5 of the Wildlife and Countryside Act (1981, as amended) and on Schedule 2 of the Conservation (Natural Habitats) Regulations (1994). Bats are also protected by the Wild Mammals (Protection) Act, (1996).

1.9 This report seeks to:

- to clarify the bat use of the site
- to discuss the impact of works on any bats that may be present
- to make pre works recommendations.

1.10 In compiling this report the following have been completed:

- a desktop study
- a roof inspection
- three bat emergence and activity surveys.

2. Method.

2.0 Desk Study.

Searches were made for data and Richmond upon Thames Biodiversity Action Plan was viewed. The Richmond Handbook for the Borough (Handbook 21) has useful entries on adjacent sites.

2.1. Consultation included:

- Scammell Securities

2.2 Internal and external building inspection.

This was conducted on the 5.6 .06 in a good light, four hours before sunset.

Fieldwork for bat interest included inspection of:

- the main hospital buildings
- surrounding trees
- adjacent buildings within the grounds.

2.3 Features of interest were noted and searches conducted as follows:

- to look for bat droppings and obvious staining beneath soffits, barge boards and gable ends, both around the hospital and outbuildings
- to look for bat droppings on ledges and for obvious staining on surfaces
- to check for cobwebs as dropping traps, particularly in doorways and windows
- to check the walls for adherent faeces
- the chimneys were checked externally for cracks and the flat roof on the link building checked for signs of ingress. Binoculars were used to watch from points on the ground.

2.4 Bat surveys

Three bat emergence and activity surveys were undertaken on the evenings of 5.6.06, 12.6.06, 19.6.06 using recordable Bat Box 4 (DUET) Frequency Division detectors. Bats usually emerge about twenty minutes after sunset depending on the species, light levels, weather conditions and time of year. Activity will last for about an hour and thirty minutes after sunset, during times of peak insect activity. Recordings are taken and analysed through Batsound software during periods of prolonged bat activity so that all species can be accounted for.

3. Results.

3.1 Desk Study

There are several bat records for the immediate area (author's data 1998-2006). Four bat casualties (Bat Conservation Trust helpline) were collected nearby (TQ130696) during May and June, 2006. Local records include those of noctule, common, soprano and Nathusius pipistrelles, and at least two nearby roosts are known. There are important areas for wildlife adjacent to the hospital: the river Thames (Site of Metropolitan Importance), an important wildlife corridor where eight species of bat are recorded. Parts of Hampton Water Treatment Works act as an important foraging area for bats and there are anecdotal records of a bat roost in one of the pumping stations on the Lower Sunbury Road. Bats are a target species within the Richmond, London and National Biodiversity Action Plans.

3.2 Features of interest to bats in the environs include:

- dark and undisturbed buildings with multiple roof pitches and warm flat roofs
- tree lines of particular interest are the hybrid black poplars on the boundary with Hydes Field
- insects generated from the reservoir generated a thick mist of flies along the road in the lea of the front hedge
- potential roost sites in the mature oak and ash trees on the school field boundary.

3.3 Interior inspection of buildings and structures:

The original unfelted timber framed roof was in good condition and was easily observed with a torch. One or two detached buildings were not accessible as they were boarded up to prevent vandalism.

- buildings, particularly the roof interiors, did not reveal any animal droppings, staining or adherent faeces commensurate with bat occupation
- the basement boiler room did not show any sign of bat ingress or occupation.

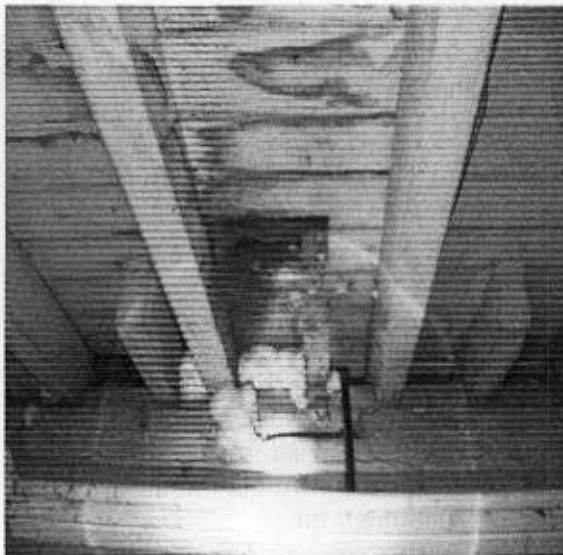


Fig.1 Use of expandable foam to plug 'gaps'



Fig. 2 Large wasp nest in roof void

The main roof hatch remained open and bees and wasps had entered nearby rooms particularly the bath which was full of their corpses. No bat droppings or feeding remains were noted. Storage boxes left in the west-wing had been used by rodents (mainly mice) to make their nests. This roof space was full of mouse droppings. The east-wing had not been used for storage and there were no signs of animal ingress. The roof space of a single storey linked building could not be accessed but could be viewed with a powerful torch and binoculars. No signs of animal occupation were found. Some holes in the roof fabric had been filled with polyurethane expandable foam in recent years (Fig. 1), which seals access from the outside. In the west-wing a large wasp nest was found (Fig.2). All the curtains of the upper floors were checked for hanging bats and the window sills were checked for droppings, none of which were found.

3.4 Exterior inspection of buildings and structures:



Fig.3 Gable ends are often used by bats



Fig.4 Flat roofs, favourite with bats seeking warmth

Attention was paid to some exterior features known to be of particular interest to pipistrelle bats which were checked for staining. This included the gable end of the building and the flat roofed linking building Fig.4. In addition particular attention was paid to the following:

- the whitewashed walls of the summerhouse
- the extensive porch with bench seats
- a 'social' building with a cracked concrete joist on the northern boundary
- trees on the northern, eastern and western boundaries and a large specimen willow in the garden

3.5 Bat activity surveys

First survey 5.6.06

During the first survey a soprano pipistrelle *Pipistrellus pygmaeus* echolocating at 55kHz was detected at 21.35 (sunset + twenty three minutes) commuting from east to west along the rear of the hospital building, using the treeline. A bat stream was encountered and bats repeated this path at one or two minute intervals until five bat passes were counted. Sound analysis found that later than 21.45, a lone common pipistrelle *Pipistrellus pipistrellus* foraged under the willow tree with a majority of sopranos. Prolonged feeding activity was noted (tables appended). A lone pipistrelle was later detected at the front of the hospital in the lighter area.

Second survey 12.6.06

The second survey concentrated on the exterior of the multiple roofs with their varying pitches. Particular attention was paid to the chimneys especially the lead flashing around them. On this occasion two surveyors took up vantage points from the southern and western boundary. No bats were seen during the emergence survey. During the activity survey, when surveyors move around the site, bats were not recorded until 22.00, much later than at the rear of the site (sunset+ forty two minutes). After 21.13 many bats were observed feeding onsite, as before.

Third survey 19.6.06

This survey concentrated on the rear roofs of the property, where it was darkest, despite security lighting. This was activated by a sensor and emitted 9 lux on a light meter. The first pipistrelle flew from east to west at 21.47 (sunset + twenty six minutes). Bats registered faintly on the bat detector (nearly out of range) as they were using the school-side of the tree line possibly as the school were not using their floodlights as was noted on a previous occasion.

3.6 Other species

Birds breeding on site include two pairs of blackbirds and a chaffinch family. Opposite on the waterworks, twenty lapwings were recorded as well as four rabbits. Herons were seen flying overhead on two occasions. On the last occasion more than fifty swifts were noted feeding overhead, highlighting the foraging value locally. Tables are appended.

4. Discussion

4.1 Location

The green belt setting of the old hospital is a relatively sensitive wildlife area due to the contiguous land use, nature of the boundary features and their informal management. This includes the straggly hedgerows, mature trees, a small brook and large areas of open water. The resources for wildlife include: standing deadwood and deadwood piles; invertebrate food resources; commuting routes and flyways and of course, cavities and voids for roosting and nesting sites. These have led to a diverse bird and animal community in the neighbouring area. Wildlife value is increased due to the relatively undisturbed location. There are two pairs of blackbird breeding in the old hospital grounds and regular flypasts of green finches suggest they are breeding nearby and collecting food onsite. This interest can be easily lost when we *tidy* landscapes during new development and care should be taken to retain informal areas

4.2 Bats

Two species of pipistrelle bats were encountered during activity surveys. These bats are reliant on linear and dark features found on the site as well as an abundance of food. The predominant species was the 55 kHz or soprano pipistrelle. This was to be expected as the second most common species in England. The 55 kHz pipistrelle appears more particular in habitat selection than the 45 kHz species. It seems to prefer waterside locations such as rivers, lakes and wet woodland. The bulk of its prey appears to be small aquatic invertebrates. Colonies are usually larger than the 45 kHz pipistrelle with numbers often in the region of 100-150. Roosts in houses are frequently found but tree roosts are also used. The 45 kHz pipistrelle can use a wide range of habitats, but frequents the more open situations, such as woodland edges, parkland, watersides and gardens. It will fly up to 5km from the roost to forage but most stay with 2km. Colonies,

usually of 30-60 bats; they frequently use modern building for roost sites, and are sometimes found in bat boxes.

4.3 Significance

Bats were encountered twenty three minutes after sunset on the first occasion which usually means that they have not travelled far to this location. Of significance is the way the bats were using boundary features such as the tree line on the nearby northern boundary with the school for both commuting and foraging purposes. Despite its relative commonness the pipistrelle is a national BAP priority species due to its recent rapid decline in numbers. The number of bat passes, was more than could be expected from an urban garden and therefore of medium interest. Bat conservation measures should be considered during these proposals as the area has the potential to cause nuisance insect swarms. Bats can eat upwards of 3,000 midges in a night's foraging and allowing bats to travel, unimpeded by light pollution to their feeding areas, is preferable to use of insecticides. According to a Thames Water website, treatment of midge swarms at a south London treatment works, costs £50,000 a year in insecticides.

4.4 Trees

Care should be taken so that features (inherent in the trees) of interest to bats are not minimised during works. Tree canopy and wood (dead or dying) creates humidity and insect biomass.

Trees are used by bats for a variety of functions such as:

Roost sites: even small voids are used by bats on a transient basis in the summer.

Commuting routes: in order to avoid open areas.

Cover: especially during the early part of the evening and in urban centres where light levels are high.

Foraging area: the trees are both an insect breeding habitat and offer a sheltered microclimate.

4.5 Impact of works.

These works will not impact on any current bat roost although external security lighting, if used, may prevent bats from using their commuting routes and foraging areas. In common with other borough's Richmond upon Thames UDP: seeks to resist development, which endangers the integrity of green corridors. This could apply to light pollution falling on boundary features. Hedge and tree lines act as important commuting routes along which bats safely travel and must be protected from light pollution. A dark corridor must be retained around the site. The surrounding areas are unsuitable for foraging bats as they are brightly lit (floodlit school sports pitches and security lighting on parts of the waterworks). Brightly lit areas lose interest entirely for some bat species which are repelled by bright lighting such as Daubenton's. This is important as this is a species associated with open water.

4.6 Breeding birds

Birds are protected under the Wildlife and Countryside Act (1981, as amended).

With certain exceptions, it is illegal to:

- Intentionally kill, injure or take any wild bird
- Intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built

- Intentionally take or destroy an egg of any wild bird

Breeding birds are known to occur on a site, during works it may be necessary to employ an ecological consultant to carry out a breeding bird survey and produce an appropriate mitigation strategy.

4.7 Limitations

Due to changing bat behaviour (according to the time of year), it is best to record bat activity at least over a three month period to gather information regarding the bat use of a site. In this instance there is already much known about this location and roosts are known to be offsite.

5 Recommendations

- Any loss of trees in the grounds should be mitigated by new tree planting. New plantings should select tree species that will mature to form large trees. Oak and Ash are good species both for the insect biomass they produce for foraging bats and as potential roost trees. Smaller tree/shrub species that could be planted include rowan, whitebeam and hawthorn.
- All old mature trees on site should be retained. Felled limbs should be left as lying wood. These trees provide both foraging areas and potential roost sites.
- The continuous linear corridor of trees must be retained as a dark corridor as this forms the main component of the bat flyways and foraging site. If individual trees are lost forming gaps in the canopy, then replacement trees should be planted.
- Measures to keep the bat corridor, trees and other flyways protected from light spillage should be carried out. One way of achieving this is to plant more trees to shield existing features from light pollution. Another method would be to alter the lighting to direct the illumination to away from and sensitive areas. Lighting at the rear of the property should be no more than the existing external lights at 9 lux.
- A condition may be considered restricting the use of exterior lighting one hour after sunset during May to October to allow the safe passage of bats through the site.
- Hedges and shrubs at the front of the property should remain on a minimal management regime and be allowed to grow as large and bushy as possible. The mixed hawthorn and elm hedge along the front of the property should be retained.
- The area should be managed on organic principles. Bats are particularly affected by herbicides and pesticides, both directly and indirectly by the loss of prey.
- Areas of long grass should be increased on site especially in association with the hedges. This might be appropriate on the southern and/or western boundaries. The rotation of cutting can be varied between 2 or 3 times per year to once every 2 or 3 years.
- Bat monitoring should be repeated one year post works, to judge their impact on the bat flyway and ensure lighting recommendations have been met.
- Bird populations should be protected during development by watching briefs or working outside the breeding season which is February to October.
- If bats are found at any stage during tree operations or demolition **WORK MUST BE HALTED IMMEDIATELY** and English Nature contacted or myself contacted.

Appendix A.

Table 1 Selected bat activity 5.6.06

Sunset 21.12 Cloud cover 2/8 .Temperature 17degrees centigrade. No wind at start.

Time	Details: General initial survey
21.35	First bat travelling from east to west, no echolocation. Sunset +23mins
21.36	2 nd bat 55khz pipistrelle travelling from east to west behind hospital along tree line
21.37	3 rd bat flew over store with plastic roof tiles same trajectory
21.39	4 th path and species as above
21.41	5 th movement but some feeding of other bats occurring around rear of building tree line and onsite large willow
21.42-21.10	pass
	Constant feeding activity around rear of school, one is a 45kHz or common pipistrelle
21.50	As it grew darker first bats at front of building
22.15	Activity ceases, just occasional passes
22.30	Comments: Security light at rear low lumen Bright security light on east side of building is on a sensor Streetlight opposite site-low pressure sodium Finish

Table 2 Selected bat activity 12.6.06

Sunset 21.19 m. Cloud cover 5/8. Temperature 25 degrees centigrade. Light wind. Flaming sunset after hot day

Time	Details: 2 surveyors in south-western quadrant observing roof and roof detail
22.00	First bat from this aspect ss+ 41mins 3.5lux
22.10	55khz pip
22.13	Bat activity constant in the lightest area (front of building)
22.30	Light levels measured at rear of building when security light triggered show 9 lux on 0 lux off
Other species:	Birds dropping into bushes in the front to roost. Wood pigeons on roof. Heron overhead 6 rose cockchafers.

Table 3 Selected bat activity 19.6.06

Sunset 21.21pm. 7/8 Cloud cover. Temperature 19 degrees centigrade. No wind throughout.

Time	Details: 2 surveyors at rear of the property Clouds of insects low to the ground
21.47	55khz pip ss+26
21.52	Pip pass
21.53	Edge of call , bats passing on school side
21.54	Commencement of feeding activity around the trees
22.00	Bat activity now constant in the front and back, both common species of pipistrelle are present
Other species	Hampton Water works Lapwing and rabbits. Heron overhead Chaffinch family onsite

Appendix B

Table of Birds and Mammals seen during surveys (alphabetical order)

Taxon	Vernacular	Quantity	Comment
Parus caeruleus	Blue Tit	4	
Fringilla coelebs	Chaffinch	2	breeding on site
Turdus merula	Common Blackbird	2	breeding on site
	Common Wood		
Columba palumbus	Pigeon	2	
Streptopelia	Eurasian Collared		
decaocto	Dove	2	
	European		
Carduelis chloris	Greenfinch	2	overhead
Parus major	Great Tit	2	
Ardea cinerea	Grey Heron	1	mobbed by gulls returning to roost
Vanellus vanellus	Northern Lapwing	20	on Hampton Waterworks
Oryctolagus			
cuniculus	Rabbit	4	on Hampton Water works
	Rose-ringed		
Psittacula krameri	Parakeet	0	small flocks regularly seen overhead

Appendix C References

J. Archer & D. Curson (1993) Nature Conservation in Richmond upon Thames Ecology Handbook 21, London Ecology Unit

Richmond upon Thames Biodiversity Action Plan

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Specialisation

- Urban ecology
- Common Bird Census, Breeding Bird Survey.
- Protected species survey includes badger, reptiles, water vole, and kingfisher.
- Holder of dormouse licence no. 20032582. Small Mammal (capture-mark-recapture studies)
- Bat licence holder no.20051966 Surveys using frequency division, or heterodyne detector.
- Management plans
- Phase 1 Habitat Survey

Professional Experience

Ecological Consultant –established Furesfen in 1997. Presently advising a wide range of clients on the nature conservation interest on sites and commenting on the impact of projects. These may include recreational projects through to development. Proof of evidence provided at public inquiries. Assist in the production of management plans, site assessments, preparation of mitigation strategies, and consultation with statutory authorities.

Recent clients:

Ecological Assessments for and protected species surveys for London projects include Halcrow, Capita-Symonds Group, Alfred McAlpine, Thames Water, CIP and Skanska.

- Culvert strengthening and replacement bridges.
- Flood alleviation schemes and infrastructure modernisation.
- Schools, Hospitals and Hospices (PFI initiatives, City Academies etc).
- Restoration of Parks and Open Spaces.

Bat surveys *apropos* lighting issues and fragmentation of corridors:

- Road widening schemes for Mouchel Consulting.
- Floodlighting for a variety of sports clubs across many London Boroughs.

Presentations on wildlife issues include:

- Local Authority Planning Officers
- Private Organisations and youth Groups

Research Projects and general surveys include

- Vegetation, bird, mammal surveys on the M25 for Mouchel Consulting on behalf of the Highways Agency, 2001-03 and Transport for London, 2004
- 3 year small mammal trapping study, Royal Parks Agency, 1997.
- Breeding bird surveys of 9 nature reserves, small mammal trapping, Royal Borough of Kingston upon Thames, 1997, 2002, 2005.
- Surrey University, Training of staff in wildlife survey techniques, 2003.
- Audit of open spaces re: Biodiversity Action Plans, Redbridge Council, 2004, 2005.