



DAVID CLEMENTS ECOLOGY LTD

**COWBRIDGE COMPREHENSIVE, ABERTHIN ROAD,
COWBRIDGE, VALE OF GLAMORGAN**

SURVEY FOR BATS AND REPTILES

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SUMMARY

This report sets out the results of a survey for the presence or possible presence of bats and reptiles at the former Cowbridge Sixth Form building situated on Aberthin Road in Cowbridge, Vale of Glamorgan. The site is situated in a semi-rural location on the northern outskirts of Cowbridge, South Wales, and comprises the former main school building, an adjacent demountable building and surrounding grounds.

The site lies just south-west of the A48 by-pass and is adjacent to residential dwellings in the south and the west. There is an area of woodland to the east of the site and Cowbridge Comprehensive playing fields to the north-east which are surrounded by agricultural land. The school has been vacant for approximately seven years and has been subject to vandalism which has left it derelict. The windows and doors are largely boarded up by metal security panels to restrict access.

There are no existing records of bats from the site itself, although there are records of foraging bats approximately 380m from the site including serotine, Daubenton's, noctule, common pipistrelle and brown long-eared. A roost of an unknown bat species was recorded within a house approximately 500m from the site and there are a further seven records of bat roosts within a 2km radius of the site, five of which are of lesser horseshoe. There are no existing records of reptiles within the site but there are records of slow worm within 50m.

The site comprises the former stone-built school building on one-to-two stories which is estimated to be of late Victorian age, together with a wooden demountable building constructed on a brick base which is more modern. Both buildings are unsafe due to vandalism and are boarded up to limit further damage. The buildings are within a small plot containing hardstanding, grass areas, scrub, shrubs and semi-mature trees which have been left unmanaged.

The main school building is constrained in respect of bats. There is evidence indicating there is a lesser horseshoe roost within the main school building as droppings were found and the species was recorded on static devices which had been placed within the loft spaces. Common pipistrelle was observed returning to roost in the main school building during the dawn flight survey and was also recorded on a static device within the loft space. Both these species were also recorded foraging on the site during the flight surveys along with soprano pipistrelle and serotine. The occupations within the main school building at the time of the present survey appear to comprise only low numbers or single individuals of lesser horseshoe and common pipistrelle within the south-west of the main school building. This is considered to represent a summertime day-roost only which is probably primarily by small numbers of non-breeding individuals. The main school building does not appear to be suitable for winter hibernation use by bats.

No bats were recorded emerging or returning to roost within the demountable building although the surveys found a high level of bat activity on the site; however it was not possible to access the building at the time to undertake an internal inspection. On this basis, the possibility of roosting bats being present cannot be ruled out entirely. Therefore, it is recommended that this building is included in any future derogation licence and a precautionary approach is taken prior to and during the demolition process. A precautionary approach to nesting birds is also recommended.

Current development proposals are unknown at the time of writing. However, any works which might potentially affect a bat roost, whether directly or indirectly, must take place under a derogation licence obtained in advance from NRW. This is a statutory requirement. Derogation

licences can only be obtained where detailed planning consent is in place, and will require the submission of a detailed method statement based on the actual construction details.

The main school building provides features which are suitable for use by nesting birds, and a jackdaw was recorded nesting within a chimney during the inspection survey. It is likely that this building is also used for nesting by species such as house sparrow and starling, at least on occasion. The demountable building appears to have less potential for use by nesting birds, but could also be used for this purpose on occasion. The scrub and trees on site also provide suitable nesting bird habitat. Any demolition or refurbishment of the buildings, vegetation clearance or arboricultural works (including fellings) to trees, will therefore need to take the possibility of nesting birds into account.

The reptile survey confirmed the presence of a good population of slow-worm and a low population of grass snake on the site, common toad and common frog were also recorded during the survey. An appropriate mitigation strategy should be agreed with the local authority's ecologist to detail how the risk of killing or injuring common reptiles will be managed, this is likely to require a 'fence, trap and clear' operation.

Appropriate preliminary recommendations are made in respect of mitigation measures in the event of development.

1.0 INTRODUCTION

- 1.1 This report has been prepared by David Clements Ecology Ltd (DCE) on the instructions of Cushman and Wakefield. It sets out the results of a survey of the former Cowbridge Sixth Form at Aberthin Road, Cowbridge in the Vale of Glamorgan for the presence or possible presence of bats and reptiles. The site location and context is shown in Plan 1.
- 1.2 The site is situated in a semi-rural location at the north-eastern outskirts of the town of Cowbridge, South Wales, and comprises the former sixth form school building and demountable building owned and operated by the local authority. The site lies directly to the south-west of the A48 bypass with residential properties to the west and south, and Cowbridge Comprehensive School to the north-east. There is agricultural land to the north and east of the site.
- 1.3 The former sixth form school has been unoccupied for approximately seven years and services have been disconnected. The school has been vandalised and so is now boarded up to stop further entry as it is deemed unsafe. The remainder of this report sets out the results of an initial inspection and assessment for bats, the result of further bat roost surveys and a reptile survey.

1.4 Statutory Position and Background Information

Bats

- 1.4.1 Bats are flying insectivorous mammals. There are about 17 species resident in Britain which vary from comparatively common and widespread species (eg the pipistrelles¹, brown long-eared bat) to internationally rare and endangered species (eg the horseshoe bats). Bats do not make nests but have ‘roosts’, which may be solitary or gregarious. Individual bats require a range of different roosting sites for differing purposes: in the summer, for example, daytime roosts in buildings and trees may be used, whilst for winter hibernation roosts in locations such as humid caves, basements or deep within the fabric of stonebuilt structures are preferred. Other roosts may be used at various times for the rearing of young, mating and as temporary feeding perches etc.
- 1.4.2 All bats and their roosts require strict protection under the EU Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna (92/43/EEC; the ‘Habitats Directive’), which is implemented in the UK via the Conservation of Habitats & Species Regulations 2010 (the ‘Habitats Regulations’). Some additional protection against disturbance is also conferred under the amended Wildlife & Countryside Act 1981. Bats are listed under the Bern Convention on the Conservation of European Wildlife and Natural Habitats and also under the Agreement on the Conservation of European Bats 1992 (the ‘Eurobats Agreement’), signed within the framework of the Bonn Convention on the Conservation of Migratory Species of Wild Animals 1979.

¹ ‘Pipistrelle bats’ are now known to comprise an aggregate of two distinct species which can be distinguished in the field by their echolocation calls. These species are identified as ‘common pipistrelle’ and ‘soprano pipistrelle’ respectively. Both species are comparatively common and widespread in the UK.

- 1.4.3 All bats are listed in Annex IV of the EC Habitats Directive, and the British species are listed on Schedule 2 of the Habitats Regulations 1994, and are therefore designated ‘European Protected Species’ by the latter. Such species are subject to enhanced protection and more stringent licensing provisions than those which are protected under the Wildlife & Countryside Act alone.
- 1.4.4 Both the animals themselves and any structures or places used for breeding or shelter are fully protected against both intentional or unintended but ‘reckless’ disturbance or harm, the latter irrespective of whether or not bats are present in them at the time. Where works are allowed to affect such places there is a legal requirement to obtain a licence (or ‘derogation’) in advance and to ensure that the works do not result in any avoidable harm to bats. The bats should also enjoy continued ‘favourable conservation status’ once the works are completed, through the incorporation of suitable mitigation and enhancement measures.
- 1.4.5 The issuing of licences which allow the disturbance of European Protected Species by development, or for any other reason, is the responsibility of Natural Resources Wales (NRW). The licensing restrictions are considerably more onerous than those of the Wildlife & Countryside Act and could potentially have significant impact on the viability of a given development proposal, irrespective of whether or not a valid planning consent has been obtained. Further details on the procedures are set out in TAN 5 (WAG 2009).
- 1.4.6 All species of bat in Britain are believed to be declining in range and numbers, with about half of the resident species classed as ‘rare’ and three classed as ‘endangered’ (Morris 1993; Richardson 2000). Several species of bat are listed as priorities for conservation under Section 7 of the Environment (Wales) Act 2016².
- 1.4.7 Some of the rarest bat species in Europe, including the horseshoe bats, barbastelle, Bechstein’s bat and greater mouse-eared bat, are additionally listed on Annex II of the Habitats Directive. This requires the EU nation states to designate key areas of habitat used by these species as Special Areas of Conservation (SACs), and to implement policies to conserve and enhance their populations through appropriate management etc. These species are accorded enhanced conservation significance in the UK, although they are not subject to any additional protection measures.

Derogations

- 1.4.8 Amongst other things, the Habitats Regulations make it an offence to:
- capture or kill;
 - disturb;
 - take or destroy eggs or young, or;
 - damage or destroy a breeding site or resting place of;
- a European Protected Species, except under certain narrowly defined circumstances. New developments which would contravene the protection afforded to such species

² In Wales the s.7 list of the EWA 2016 supersedes the s.42 list of the Natural Environment & Rural Communities Act 2006, which in turn replaced the ‘Priority Species’ lists of the UK Biodiversity Action Plan.

require derogation, in the form of a licence, from the Habitats Directive which must be issued by NRW.

1.4.9 Before such a licence can be issued, NRW must be satisfied that:

- the derogation would not be detrimental to the ‘favourable conservation status’ of populations of the species concerned within its natural range.
- the derogation is in the interests of public health and public safety, or for other imperative reasons of over-riding public interest, including those of a social or economic nature, or will have beneficial consequences of primary importance to the environment.
- there is no satisfactory alternative to the derogation which would allow the development to proceed but which would avoid, or reduce, the need for adverse impact to the species.

1.4.10 Failure to obtain a derogation would render any actions which cause harm or disturbance to bats illegal, including any activities which might be undertaken under a valid planning consent. The possession of planning consent in no way alleviates or over-rides the requirements of the Habitats Regulations, and neither does it automatically ensure that a derogation may be obtained.

1.4.11 Current planning guidance in Wales requires that local planning authorities are in possession of all of the survey information which is necessary in order to determine the probability of impact to European Protected Species, and the likely viability and success of any required mitigation measures, before determining any given planning application. As of 1 October 2008, planning authorities cannot register a new planning application until all of the necessary survey information has been made available. NRW will not consider any application for licences in relation to a proposed development until after it has received notice of the planning consent.

Reptiles

1.4.12 Four native reptile species occur in South Wales, comprising common lizard, slow-worm, adder and grass snake. These four species are all afforded so-called ‘partial protection’ under the amended Wildlife & Countryside Act 1981, which prohibits the deliberate killing or injury of individuals. However, there is no direct protection extended to the habitats which support these species. All four common reptiles are listed as ‘Priority Species’ in the UK BAP and its Welsh equivalent.

1.4.13 Five native amphibian species occur in South Wales, comprising common frog, common toad, smooth newt, palmate newt and great crested newt. The latter species is nationally rare and declining, and is afforded full protection under both UK and European legislation (see under bats, above), which also extends to the habitats which support it. The other four species are not afforded any direct statutory protection, other than with respect to trade.

1.4.14 The aims of the survey were to establish if reptiles are present on the site, and if so to identify species and approximate number of any reptiles and amphibians using each part of the site. The results of the surveys are detailed within this report.

2.0 APPROACH & METHODS

Methodology

2.1 Bats

- 2.1.1 A site inspection for bats was carried out in accordance with the guidance given by BCT (2016) in dry weather conditions during daylight hours on 28th July 2017. The exterior of the buildings were searched using high-powered lanterns (Clulite FAN1). Other equipment was available as required including a digital endoscope (A68KF) for the examination of any crevices in the fill of stone walls etc and ladders to inspect high areas. Searches were made especially for evidence such as bat droppings and feeding remains, as well as for sightings of actual bats (in cracks and crevices etc) and secondary signs such as fur-oil and urine stains, scratch marks etc.
- 2.1.2 An internal building inspection was undertaken on 16th August although it was not safe to enter the roof spaces and there was no access to the demountable building. During the internal inspection two static Anabat Express bat detectors were deployed just within the loft hatches and left in place for seven nights, see Plan 2 for locations. Two static detectors were then placed within the building on a second occasion on 25th August and again left in place for six nights.
- 2.1.3 The layout and construction of the building was recorded, briefly described and characterised, with an estimate being made of the potential attractiveness and suitability for bats with reference to a range of factors including human disturbance, light levels, air movement, exposure, thermal stability and cobwebbing of access points etc.
- 2.1.4 In addition, two flight surveys were carried out at the site at dusk on 9th August and at dawn on 23rd August 2017. On each occasion eight observers were stationed around the buildings with Anabat SD1 or SD 2 frequency-division bat detectors, supplemented by a mixture of Petterson D200 and BatBox duet heterodyne detectors. Bat calls were logged and recorded to SD cards for subsequent analysis using the AnaloookW software (Corben 2006). The flight surveys were undertaken in accordance with the guidelines set out by BCT (2016).

Birds

- 2.1.5 Nesting bird activity was noted during the bat inspections but no specific surveys for nesting birds were carried out.

2.2 Reptiles

- 2.2.1 Surveys were undertaken following the advice given by Gent & Gibson (1998) and Froglife (1999). The survey comprised of placing 45 'artificial refugia', comprising 60 x 60cm squares of roofing felt or coraline, to act as artificial roosting and basking sites. The refugia were placed across the site on 28th July 2017 and were left to bed in for 12 days. The refugia were placed out in areas of the site which were assessed as being most likely to be attractive to reptiles and amphibians; particularly within grassland and at the edge of scrub habitats on the site.

- 2.2.2 The refugia were then checked on seven occasions between the 9th August and 31st August 2017. The species and numbers of any reptiles, amphibians and small mammals found underneath or on the refugia were recorded. Where possible, any ‘natural refugia’ e.g. logs, stones, scrap metal, etc. were also lifted to search for any reptiles or other animals.
- 2.2.3 Reptile populations were assessed in accordance with population level criteria as stated in the Key Reptile Site Register (Froglife, 1999) which allows the classification of the relative size of reptile populations based on the maximum number of adults observed by one person on one day, see Table 1 below.

Table 1: Key Reptile Site Register Population Score.

	Population Score		
	Low Population	Good Population	Exceptional Population
Grass snake	<5	5-10	>10
Adder	<5	5-10	>10
Slow worm	<5	5-20	>20
Common lizard	<5	5-20	>20

Figures in the table refer to maximum number of adults seen by observation and/or under tins (placed at a density of up to 10 per hectare), by one person in a day (Froglife, 1999).

2.3 Existing Records

- 2.3.1 To support the survey work, a data trawl was carried out with the South-East Wales Biological Records Centre (SEWBRc) in order to obtain access to any existing biological data which might be available. SEWBRc is the main repository for biodiversity and wildlife records in the south-east Wales region.

2.4 Survey Constraints

- 2.4.1 The roof voids of the main school building were not accessed as they were deemed unsafe, however this should not have limited the bat survey as it was possible to place static detectors just within the loft spaces and bat activity was recorded. It was also not possible to access the basement boiler room, a precautionary approach with regard for bats should be adopted during works in this part of the building. It was not possible to gain internal access to the demountable; no bats were recorded emerging from or returning to this building however it is recommended that a precautionary approach is adopted during the demolition process.
- 2.4.2 During the bat flight surveys, due to the complexity of the main school building and the overgrown vegetation in the vicinity the view of some parts of the building was obscured.
- 2.4.3 The reptile surveys were carried out during August, which is typically a sub-optimal month to carry out such surveys; however surveys were timed so that the temperature was within the recommended range, and this is not considered to have limited the results of survey.

3.0 SURVEY RESULTS

3.1 Bats

Description of the Site

- 3.1.1 The layout of the building is shown in Plan 2, and representative photographs are given in Appendix 1.
- 3.1.2 The site comprises the old stonebuilt Main School Building (B1) on one-to-two stories which is estimated to be of Victorian age, together with an adjacent single-storey demountable building (B2) situated to the north of the main building. The buildings are within a small plot containing hardstanding and grassland areas with scrub both of which have become overgrown. There are also a number of mature and semi-mature trees.

Exteriors

- 3.1.3 The main school building is complex with several pitched parapet roofs which are slate tiled with ridge vent tiles present. There are also several chimneys and covered roof vents situated centrally on the ridges. To the rear of the building there is an adjoined building which has a flat membranous roof. The northern part of the building is open to the apex with no loft space and large arched windows; the southern half of the building is largely two-storey. The windows are mostly covered with metal grills however some of the uncovered rear windows have been smashed and the mesh has lifted from some windows. There are louvered vents above arched windows which are covered with mesh although this has lifted in places. The stone lintels and eaves are largely intact although showing signs of weathering in places. There are three small courtyards, one to the north of the main front entrance door and two at the rear of the building. There are also ceramic vents below internal floor level present at the rear of the building. The school grounds have become overgrown with trees and scrub growing adjacent to most aspects of the building and ivy cover on some.
- 3.1.4 Given the time it has been unoccupied the building is largely in good condition although there are several access points into the structure which could provide potential opportunities for roosting bats. The features noted which occur in several places across the building include the following:
- Slipped and missing roof tiles giving access to roof space;
 - Weathered stone lintels giving rise to gaps;
 - Broken windows;
 - Lifted flashing at base of vents on roof ridge and along parapet-tile interface;
 - Missing mortar;
 - Broken vents giving access beneath the classroom floors; and
 - Gaps in masonry at eaves and in stone fascia beneath gutter plate.
- 3.1.5 The demountable is a simple L-shaped building with a flat bitumen-felt roof which is folded at the edges. The building stands on a brick base, is clad with painted wooden boards and has painted wooden soffits. The windows of the building are boarded up although there are gaps above the boards at the tops of the windows, the glass of which

has been smashed. Stone steps lead up to the door which is also boarded. A climbing shrub covers the ground around and has grown up to cover corners of the building. There are gaps in the boarding at the eaves and under the roofing felt, gaps above the boards and also beneath boards which have become warped. These gaps and the gaps above the boarded window provide suitable opportunities for roosting bats.

Interiors

- 3.1.6 The main school building is formed of two-stories at the southern end. There are approximately 3-4 attics in this part of the building although access was not possible as they were deemed unsafe. Some of these attics are likely to be connected as a dividing brick wall was visible through one loft hatch which did not extend to the roof. The loft hatches were open in all cases and one loft was accessible at the rear of a classroom storage cupboard.

Site Inspection Results

- 3.1.7 Main school building: No droppings, evidence of bats or bats themselves were recorded during the internal inspection on 16th August. However, when the static detectors were collected after the second placement on 31st August, fresh droppings characteristic of a lesser horseshoe bat, were found at three locations at floor level on the first floor of the main school building. The locations where droppings were found are shown on Plan 2. A large amount of bird nesting material was also noted within the fireplace in an upstairs room in the main school building.

Flight Survey Results

- 3.1.8 A dusk emergence survey took place on 9th August 2017. Weather conditions were calm, warm and dry, with an air temperature at start of about 17°C, falling to about 15°C by the end of the survey. No bats were recorded emerging from the main school building or the demountable building during the dusk survey although the complexity of the building and overgrown vegetation obscured a clear view of some areas. However, bat activity was recorded across the site shortly after dusk and throughout the survey period. The species recorded included soprano pipistrelle, common pipistrelle, serotine (between 21.45 and 21.51) and lesser horseshoe (between 21.54 and 21.56) with activity highest at the back of the old school building where all species were recorded whilst only pipistrelle species were recorded with lower activity at the front of the main school building. At the rear of the school pipistrelle bats were seen foraging over trees and scrub in the school grounds as well as around the school building itself with a concentration of activity within the rear courtyard to the south. The first bat, a common pipistrelle was recorded at 20.48; the last bat, a soprano pipistrelle recorded at 21.58; dusk was at 21.26. The survey results are shown on Plan 3.
- 3.1.9 A dawn re-entry survey took place on 23rd August 2017. Weather conditions were still, warm and mostly dry with a short drizzle shower just before dawn. The air temperature at the start was about 17°C, falling to about 16°C by the end of the survey. Commuting and foraging common and soprano pipistrelles were recorded throughout the survey with highest activity at the rear of the main school building over vegetation, within the rear courtyard to the south and around the demountable. The first bat was recorded at 04.35 and the last at 06.10, both common pipistrelle, sunrise was at 06.10. One or two

bats were recorded flying around the roof of the main school building shortly before dawn. One bat was seen to return to roost at the front of the main school building and another under a missing ridge tile towards the rear. Observations from surveyors suggest that it is highly likely that bats are roosting within other parts of the building although it was not possible to locate the exact re-entry points.

Static Detectors

The location of the static devices is shown on Plan 3.

3.1.10 *First Placement 16th – 23rd August 2017*

At location 1, a lesser horseshoe bat was recorded within the loft space on five of the seven nights with the highest level of activity on 23rd August when 11 intermittent calls were recorded between 00.47 and 05.26. A common pipistrelle was also recorded within the loft on two nights with one call recorded on each occasion.

At location 2, a lesser horseshoe was recorded on one night, 23rd August, with six intermittent calls from 00.42 to 05.27. It is likely that the bat recorded at location 1 and 2 is the same individual given the timing of the call and the close proximity of the detectors.

3.1.11 *Second Placement 25th – 31st August 2017*

At location 2, a lesser horseshoe was recorded within the loft space on each of the six nights the detector was in place with between 12 and 16 calls recorded per night. The earliest call was recorded on 29th August at 19.46, approximately 23 minutes before sunset and the latest on 26th August at 06.35 approximately 16 minutes after sunrise.

At location 3, similar activity was recorded, with lesser horseshoe recorded on each of the six nights with between 8 and 29 calls recorded per night. . The earliest call was recorded on 30th August at 19.40, approximately 29 minutes before sunset and the latest on 26th August at 07.06 approximately 47 minutes after sunrise.

3.1.12 *Summary of static detector findings*

The static detector data confirms that the main school building supports the day roost of either an individual or a small number of lesser horseshoe and common pipistrelle bats and that lesser horseshoe are present in each of the loft spaces where static detectors were placed with common pipistrelle present in at least one of the loft spaces.

Existing Bat Records

- 3.1.13 There are no existing records of bats from the site itself, although there are records of foraging bats approximately 380m from the site including serotine, Daubenton's, noctule, common pipistrelle and brown long-eared (SEWBRc 2017). A roost of an unknown bat species was recorded within a house approximately 500m from the site and there are a further seven records of bat roosts within a 2km radius of the site, five of which are of lesser horseshoe (SEWBRc 2017). The site does not fall within 10km of any statutory sites which are designated primarily for the conservation of bats.

Birds

3.1.14 A jackdaw was recorded nesting in a chimney during the external inspection and a nest was also visible in a sapling to the south of the demountable building. Bees were also seen flying out of the front northern gable louvered vent.

3.2 Reptiles

Reptile Survey Results

3.2.1 During the reptile survey slow worm was recorded on each of the seven survey visits and grass snake on five occasions. The peak count for slow worm was nine on 16th August and two for grass snake on 16th, 23rd and 31st August. Common toad and frog were also recorded during the survey. In accordance with the Key Reptile Site Register Population Score, the slow worm population on the site is classified as good and the grass snake population low. The survey results are shown in Table 2 and on Plan 4.

Table 2: Results of refugia survey 2017

		<i>9th August</i>	<i>16th August</i>	<i>18th August</i>	<i>23rd August</i>	<i>25th August</i>	<i>27th August</i>	<i>31st August</i>
Slow worm	M	1	1	1	-	-	1	1
	F	4	4	2	2	1	3	1
	J	1	5	3	4	2	-	2
Total Adults		5	5	3	2	1	4	2
Grass snake	A	-	1	-	1	-	1	2
	J	-	1	1	1	-	-	-
Total Adults		-	1	-	1	-	1	2
Other species		-	-	1 x CFA 1 x CFJ	1 x CTJ 1 x CFJ	-	-	1 x CTJ 1 x CTA
Start time of survey		16:30	10:10	10:30	13:20	12:55	09:50	12:40
Weather and temperature		18.5°C Cloudy, sunny spells, calm, dry	18°C Sunny, still, dry	15°C Cloudy, showers, breezy	20°C, Sunny, light breeze, dry	20°C, Sunny, calm, dry	17°C Sunny, calm, dry	17° Sunny, calm, dry
Key		M: Male F: Female J: Juvenile A: Adult CF: Common frog CT: Common toad						

Existing Reptile Records

3.2.2 The data trawl returned records of slow worm, common lizard and grass snake within 1km of the site, the nearest record was for slow worm 50m to the south-west. There are also records for common toad, common frog, palmate and smooth newt within 1km (SEWBRc data, 2017).

4.0 ASSESSMENT OF BAT USE

4.1 Bats

- 4.1.1 The site is constrained in respect of bats. There is evidence indicating that bats occupy roosts in attic voids in several locations in the main school building and also use at least two rooms on the first floor of the building. Lesser horseshoe bat(s) were detected on static detectors within the roof spaces and droppings were found on the floor at three locations on the first floor of the main school building. Common pipistrelle were also recorded returning to roost within the main school building during the flight surveys and this species was also recorded on a static detector within the roof space.
- 4.1.2 The current occupations of the main school building are considered to represent summertime day-roosts only. These appear to comprise only low numbers or single individuals of lesser horseshoe and common pipistrelle however given the limited access to the loft spaces and complexity of the building the possibility of further roosts cannot be ruled out at this time.
- 4.1.3 There was no internal access to the demountable building so it was not possible to look for evidence of bats or to place static detectors. However, no bats were seen to emerge from or return to roost within this building during the flight surveys. On this basis it is unlikely that roosting bats are present in this building, however it is not possible to rule this out entirely.

Nesting Birds

- 4.1.4 The main school building does have features which appear suitable for use by nesting birds. Jackdaws were recorded nesting within a chimney during the external building inspection and a large amount of nesting material was also recorded in a fireplace during the internal survey. It is likely that these buildings are used for nesting by other species such as house sparrow, starling etc, at least on occasion.

5.0 ASSESSMENT OF DEVELOPMENT IMPACTS

5.1 Bats

- 5.1.1 No detailed plans showing the proposed development of the site are available at the time of writing. However, it is understood that these are likely to comprise the redevelopment/demolition of the main school building and demolition of the demountable building.
- 5.1.2 The present survey indicates that bats occupy attic voids in the main school building and also utilise some of rooms on the first floor. These current occupations comprise day roosting by lesser horseshoe and common pipistrelle bats, occupying summer roosts. Therefore any proposed redevelopment work will result in the disturbance to and/or destruction of lesser horseshoe and common pipistrelle roosts. These impacts should be capable of mitigation, but this will depend upon the nature of any future development proposals.
- 5.1.3 As far as can be ascertained on current survey evidence, The proposed demolition of the demountable building is unlikely to have any adverse impacts on bats, although a precautionary approach should be adopted prior to and during demolition. Two flight surveys with 3 surveyors located around the building failed to detect any entry or exit by bats even though there was a great deal of bat activity over the site during the surveys. However, this building appears to have potential due to its location and access points and should therefore be included in the derogation licence and ideally be inspected prior to demolition.
- 5.1.4 Overall the presence of hibernating bats during the winter months is considered unlikely. The main school building is unlikely to maintain the stable, cool humid conditions required for hibernation. The demountable has a flat roof with poor insulation with very limited potential for hibernating bats.

5.2 Nesting Birds

- 5.2.1 The proposed redevelopment of the main school building has the potential to cause impacts to nesting birds, especially synanthropic species such as house sparrow, starling and jackdaw. The demolition of the demountable building could also impact nesting birds, but this is considered much less likely.

5.3 Reptiles

- 5.3.1 The reptile survey indicated that the site supports a good population of slow worm and small population of grass snake. Common frog and common toad were also recorded during the survey. Slow worm were recorded across the site with grass snake recorded in the north only. Without mitigation the proposed development could result in the killing or injury of reptiles and the site will therefore need to be subject to a suitable reptile clearance strategy ahead of any future site clearance and construction works.

6.0 RECOMMENDATIONS

6.1 Bats

Main School Building

- 6.1.1 Current development proposals are unknown at the time of writing. However, any works which might potentially affect the bat roosts, whether directly or indirectly, must take place under a derogation licence obtained in advance from NRW. This is a statutory requirement. Derogation licences can only be obtained where detailed planning consent is in place, and will require the submission of a detailed method statement based on the actual construction details.
- 6.1.2 The main school building has been confirmed as a day roost of lesser horseshoe bat, a species of high conservation importance. If it is not possible to retain and/or enhance any new or existing spaces to allow this species to continue roosting within the new development, then the most acceptable solution in this instance would be to provide a bespoke ‘bat house’ in a suitable location on the site and to ensure that this was available for occupation prior to the loss of the existing roost. Lesser horseshoe bats are light and noise averse, so roost entrances should be located away from windows and doors to minimise disturbance from human activity and if the existing roost is to be maintained within the new development it is likely that sound-proofing would be required to reduce noise disturbance. An optimum roosting space would have a height to the apex of at least 2m which was not cluttered with roofing timbers and an entrance with a minimum height of 20cm to allow bats to fly into the roost (VWT 2008). Ideally the roost entrance would be low down, facing towards a vegetated commuting route allowing bats to make short trips in and out of the roost to light-sample prior to full emergence. The bat house could also provide replacement roost features for common pipistrelle, also confirmed as roosting within the main school building.
- 6.1.3 Any new buildings should also incorporate new and replacement opportunities for roosting common pipistrelle bats. These should take the form of permanent bat-boxes incorporated into the fabric of the walls in suitable locations to be determined by the supervising ecologist. Such integrated bat-boxes should be sited at least 5m above ground-level, away from windows and doors, and in locations where they will not be illuminated at night (eg by security lighting) or accessible to predators such as cats or corvids. The apex of new gables is often a suitable location for such installations. Suitable proprietary bat-boxes are shown at Appendix 3.
- 6.1.4 In addition it is also recommended that at least 8 ridge-tile bat-access points are installed in suitable locations, in accordance with the advice provided at Appendix 2. Note that these will provide access only under the ridge-tiles themselves, and not into the underlying attic space. Access under and behind exterior roofing good on the new buildings, such as fascias, barge-boards and soffits etc, should also be encouraged by the provision of access gaps of 25mm wide by (at minimum) 100mm long provided at 2-5m intervals.
- 6.1.5 Prior to commencement of works, suitable roosting opportunities in the form of bat boxes should also be provided on suitable trees on the periphery of the development site. It is recommended that 6 Schwegler 2F woodcrete boxes are erected, preferably in

two groups of three, facing south-east, south and south-west at over 4m height, away from any direct lighting.

- 6.1.6 On the basis of the present survey it is recommended that the redevelopment and demolition works should be undertaken over the winter months (ie November to end February) when bats are least likely to be present.
- 6.1.7 Any works affecting the attics, the roofs or any exterior roof structures such as fascias, barge-boards, soffits, gutter-plates, ridge-tiles, hips or flashings etc should only be carried out with an NRW licence in place, and in accordance with the licence-approved method statement.
- 6.1.8 No breathable roofing membranes (BRMs) are to be installed anywhere in either the refurbished building or any new buildings on the site. In all situations the roof lining should be Type 1F Bitumen felt with hessian matrix to BS8747 (2007), which is an acceptable alternative under current Buildings Regulations (Parts L1B, L2B and C). Research has shown that roosting bats can become entangled with the fibres of BRMs resulting both in the death of bats and damage to the BRM which is sufficient to seriously impair its waterproofing function. None of the BRMs which are currently available are approved for use in bat roosts³ and the use of these in developments on sites which harbour bat-roosts will only be permitted by NRW in exceptional circumstances where the total exclusion of bats can be guaranteed in the future.
- 6.1.9 The contractors undertaking the demolition and refurbishment works should be provided with a 'toolbox talk' setting out the issues and constraints in respect of both bats and nesting birds (see below) and explaining the conditions and terms of the licence. The contractors should be provided with appropriate emergency contact numbers, including those of the supervising ecologist, NRW and the Local Planning Authority (LPA) Ecologist.
- 6.1.10 The site lighting design, including any security lighting, should be carefully reviewed in liaison with the supervising ecologist so as to minimise the illumination of bat-roosts or bat-roost entrances and to maintain, as far as possible, 'dark corridors' around the site periphery for bat movement. Security lighting should ideally be passive infra-red (PIR) activated with the minimum necessary activation time. Any lights which are permanently illuminated at night should be vectored and baffled so as to minimise light-spill into areas which may be used by bats. Further advice on suitable lighting design, including interim technical guidance notes, is available from the Bat Conservation Trust⁴.

Demountable Building

- 6.1.11 As far as can be ascertained on current survey evidence, the proposed demolition of the demountable building is unconstrained with respect to bats, although a precautionary approach should be adopted prior to and during demolition. However, as discussed previously, this building should be included in the derogation licence and ideally be inspected prior to demolition if possible.

³ For further information see:

http://www.bats.org.uk/news.php/254/bats_and_breathable_roofing_membranes_update_of_findings_%20

⁴ http://www.bats.org.uk/pages/bats_and_lighting.html

6.1.12 The works must also be subject to precautionary measures in respect of nesting birds. Demolition should be undertaken during the winter months, i.e. from approximately November to February, in order to risk encountering any bats which may be roosting adventitiously. Works must be undertaken with the possibility of roosting bats in mind. Contractors should remove all exterior fascias, barge-boards, ridge tiles, etc. by hand, checking carefully for any evidence of bats.

6.1.12 In the event that bats are found to be present at any time during works, all works in the immediate vicinity must cease immediately and the supervising ecologist summoned as a matter of urgency. The 'immediate vicinity' should comprise any occupied structure or void in its entirety, plus an area of at least 5m radius around the find site. This is a statutory requirement. The supervising ecologist will either take the bats into care or remove them to one of the provided bat-boxes, as appropriate.

6.2 Nesting Birds

6.2.1 Works affecting either the buildings or the trees and shrubs of the site must have regard to the possible presence of nesting birds. The bird nesting season runs approximately between March and August inclusive, and therefore it is recommended that any fellings or tree-works are undertaken outside of this period. Undertaking works outside the bird nesting season minimises the risk of causing avoidable harm or disturbance to nesting birds, which is a statutory obligation. If this timing is not possible, however, then the works must be preceded by a survey by an appropriately qualified person to ascertain that no nesting birds are present.

6.2.2 In the event that nesting birds are found to be present at any time during works, all works in the immediate vicinity must cease immediately and appropriate expert advice sought as a matter of urgency. The 'immediate vicinity' would comprise any nest occupied structure or void in its entirety, plus an area of at least 5m radius around the find site. Nesting birds, their nests, eggs and chicks, must not be harmed or disturbed and should be carefully covered over and wherever possible left *in situ* until expert assistance has been obtained. This is a statutory requirement.

6.2.3 It is likely that the LPA will require the incorporation of bird nesting opportunities in any new development on this site. These should ideally include bird boxes attached to, or incorporated into, the walls of new buildings in suitable locations and at a suitable height (ie at least 4m above ground level). Ideally these should include specialised boxes which are suited to synanthropic species such as swallow, house sparrow, jackdaw and starling etc. Suitable examples are shown at Appendix 4.

6.3 Reptiles

6.3.1 Mitigation for common reptiles should concentrate primarily on minimising the potential for causing the death and injury of individuals during site clearance and building operations: this is a statutory requirement. In this instance, it is likely that the grassland and scrub habitats on site will need to be cleared of reptiles by means of a 'fence, trap and clear' operation, unless adequate habitat can be retained on site to support the reptile population.

- 6.3.2 A full method statement with respect to reptiles should be prepared in consultation with the Council's Ecologist prior to site clearance and construction, and implemented accordingly. Current Natural Resources Wales (NRW) guidance with respect to reptile mitigation is provided at Appendix 5.
- 6.3.3 Clearance operations for reptiles are seasonally constrained and cannot be carried out during the hibernation period which extends approximately from November to February inclusive. Work outside of this period considerably reduces the probability of vulnerable torpid and/or immobile hibernating individuals being encountered and potentially harmed. Whilst the clearance of *above-ground* vegetation is desirable in the winter months to avoid nesting bird conflicts, the destructive searching of stumps should ideally be carried out either in the spring or autumn, outside of the period when reptiles may be hibernating at or below ground level. A possible solution would be that the shrubs and trees etc are coppiced to 300mm or so during the winter months, and then are lifted under supervision in the following spring. A clearance of vegetation over the winter reptile hibernation period should be undertaken with hand tools only, such as strimmers etc, avoiding the use of driving heavy machinery over the site, to prevent potential death and/or injury to torpid hibernating reptiles. Once the desired clearance and construction programme has been determined, a detailed programme of works should be drawn up which coordinates the various seasonal constraints and agreed with the council Ecologist.

7.0 REFERENCES

Andrews Ecology (AEcol 2013) *Bat Tree Habitat Key*, 2nd edition. AEcol private publication.

Bat Conservation Trust (BCT 2016) *Bat Surveys for Professional Ecologists. Good Practice Guidelines*, 3rd Edition. Bat Conservation Trust, London.

Bat Conservation Trust (BCT 2012) *Bat Surveys – Good Practice Guidelines*, 2nd Edition. Bat Conservation Trust, London.

Corben, C (2006) *AnalogW for Bat Call Analysis Using ZCA*. Version 4.1b, 2014. Titley Electronics Ltd.

Dietz, C & Kieffer, A (2016) *Bats of Britain & Europe*. Bloomsbury, London.

English Nature (EN 2004) *Reptiles: Guidelines for Developers*. English Nature. Peterborough

Froglife (1999) *Reptile Survey : an introduction to planning, conducting and interpreting surveys for snake and lizard conservation*

Gent, T & Gibson, S (Eds) (1998) *Herpetofauna Workers' Manual*. Joint Nature Conservation Committee, Peterborough.

Jones, G & Racey, P A (2008) Genus *Pipistrellus*: Common pipistrelle *Pipistrellus pipistrellus*; Soprano pipistrelle *Pipistrellus pygmaeus*, pp 343-351 **in**: Harris, S & Yalden, D W (Eds) *Mammals of the British Isles: Handbook*, 4th Edition. xiv + 799. Mammal Society, Southampton.

Morris, P A (1993) *A Red Data Book for British Mammals*. Mammal Society, London.

Richardson, P (2000) *Distribution Atlas of Bats in Britain & Ireland, 1980-1999*. Bat Conservation Trust, London.

Vincent Wildlife Trust, VWT (2008) *The Lesser Horseshoe Bat Conservation Handbook*. The Vincent Wildlife Trust, Ledbury, Herefordshire.

Wales Biodiversity Partnership (WBP 2016) *Section 7: Interim List of Living Organisms & Habitats of Principal Importance for the Purpose of Maintaining and Enhancing Biodiversity in Wales*. Wales Biodiversity Partnership/Welsh Government.

APPENDIX 1 PHOTOGRAPHS OF THE SITE 2017



Main school building, north-west aspect



Main school building, south-west gable



North-west aspect toward rear courtyard



Main building, rear courtyard, site of high bat activity



Main school building, north-east aspect



School grounds to rear, facing A48 to north-east



Roof vent with evident nesting bird material



Flat roof room to rear of main school building



End gable on north-west aspect



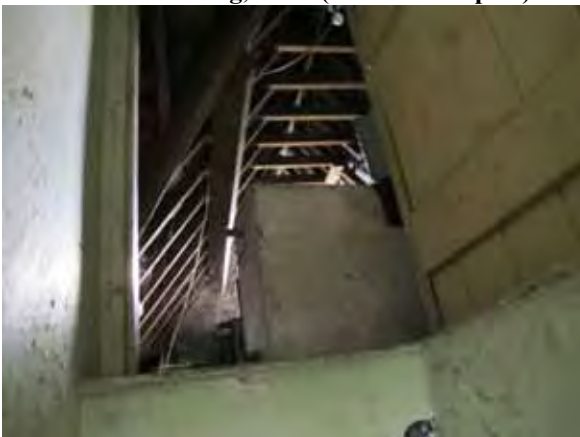
Missing ridge tiles providing potential roost feature



Main school building, front (south-east aspect)



Main school building, front (south-east aspect)



Loft space, static device location 3



Lesser horseshoe droppings within main school



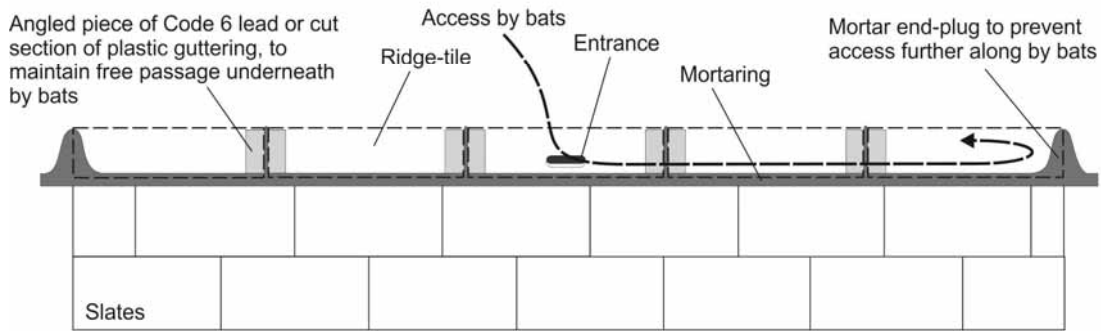
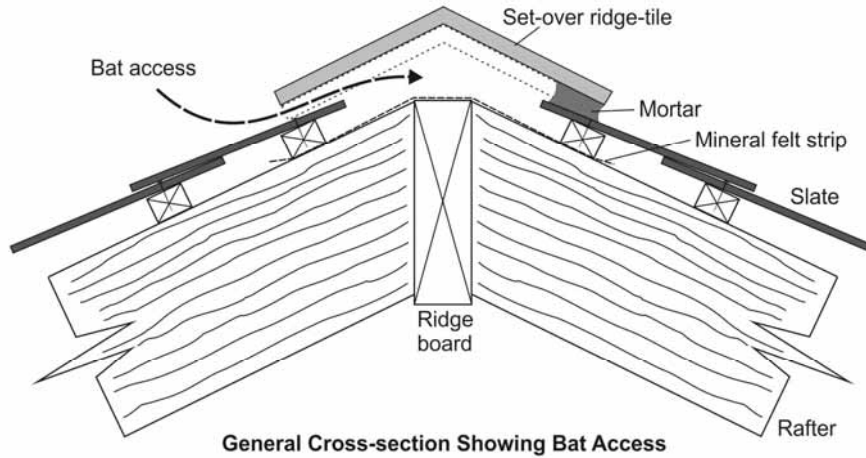
Demountable, eastern aspect



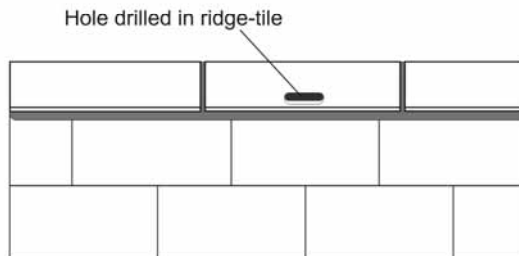
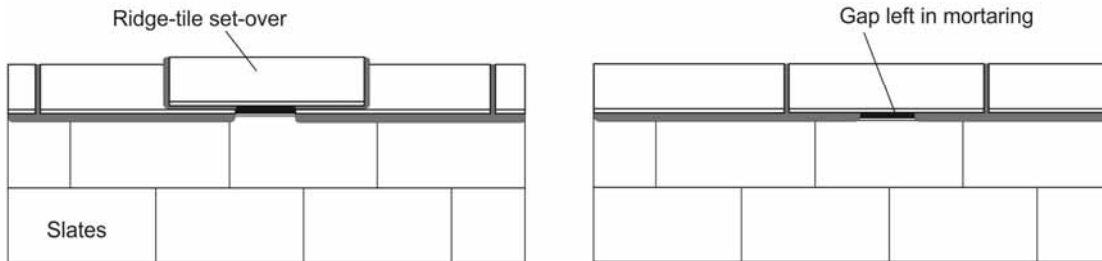
Demountable, western aspect

APPENDIX 2 – RIDGE-TILE BAT-ACCESS PROVISIONS

RIDGE-TILE ACCESSES FOR USE BY BATS
(No access into attic space)



Internal Mortaring to Control Access by Bats



Fabrication Of Entrance

Access gaps to be approx 40-60mm long x 20mm high, and on one side of ridge-tile only
Strip of bituminous felt along whole length of ridge section which is accessible to bats
Allow movement by bats along ridge at least 1m either side of entrance gap

APPENDIX 3

EXAMPLES OF INTEGRATED BAT BOXES

Suitable for rendering over, leaving just the entrance exposed



Schwegler 1FR



Schwegler 1FE



Schwegler 1WI
(Hibernation box)



ACO Integrated

Brick or custom-faced boxes



Habibat Custom Face
(Can have any facing)



BirdBrickHouse
Brick-faced bat box

Wall cavity boxes



Ibstock Type B



Small Flat
215 x 215 mm

Ibstock Type B
(Small)



Wildex Wall Cavity
(Large)



Wildex Wall Cavity
(Small)



Vivara Pro
Woodstone Built-in

Exposed at surface



Schwegler 27



Ibstock Type C

APPENDIX 4

EXAMPLES OF BOXES FOR SYNANTHROPIC BIRD SPECIES



Schwegler 1SP House Sparrow Terrace



Schwegler 1BFN Integrated Starling Box



Vivara Woodstone House Martin Cups



Vivara Woodstone Swallow Cup



Schwegler 11 House Martin Cups



Ibstock 2 Integrated Swift Box



Ecosurv Integrated Swift Box



Vivara Woodstone Integrated House Sparrow Box



Vivara Woodstone Integrated Swift Box



Vivara Woodstone Under-Eave Swift Box

APPENDIX 5: REPTILE MITIGATION MEASURES – NRW GUIDANCE (Draft Feb 2005)

For any development site which supports reptiles, or which contains habitats with the potential to support reptiles, NRW recommends detailed survey at an early stage. Where suitable survey information is unavailable, however, or where there is insufficient time to carry out the necessary surveys, it should be assumed that any habitats on the site which are suitable for reptiles do indeed support reptiles, and mitigate accordingly.

Legislation

The four most common British reptiles (comprising grass snake, adder, slow-worm and common lizard) are afforded so-called ‘partial protection’ under the Wildlife and Countryside Act 1981 (as amended). This protects individuals of all species from ‘intentional’ or ‘reckless’ killing and injury, but does not confer any direct protection to the habitats which support them.

Where it can reasonably be predicted that reptiles could potentially be killed or injured by activities such as site clearance, earthworks or construction operations etc, to carry out such activities in the absence of appropriate mitigation could legally constitute intentional or reckless killing or injuring, and could result in prosecution.

Where reptiles (other than sand lizard, smooth snake and turtles, all of which are subject to additional restrictions under the law) are present, or potentially present, on a development site, the developer should consider the need for mitigation at an early stage in the development programme. The presence of reptiles on a development site will not necessarily prevent the development from taking place, but it means that ‘reasonable’ mitigation measures must be put in place to prevent, as far as possible, the killing or injuring of any reptiles.

It is not necessary to obtain a licence to carry out works which affect reptiles, but it is always advisable to seek guidance in any case where a development could potentially cause impacts to reptiles, and to obtain advice regarding what would constitute ‘reasonable’ mitigation, although it is ultimately up to the developer to decide what is ‘reasonable’ (and to accept any consequences which may ensue). In most cases, the services of an appropriately qualified and experienced reptile consultant will be required.

The remainder of this document sets out the main elements of a typical reptile clearance strategy. It is recognised, however, that not all of the elements listed below will be necessary or appropriate in all cases, and that individual strategies will vary from site to site.

Reptile Clearance Methodology

If reptiles are confirmed as being present (or are assumed to be present, for example from habitat assessment) then measures should be put in place to avoid or minimise the killing and injuring of reptiles as a result of development operations. Ideally, a ‘Reptile Mitigation Strategy’ should be drawn up for the site by a suitably qualified person, and agreed in advance with either the NRW or the relevant Local Authority Ecologist.

Wherever possible, reptiles should be accommodated within the site, or on one or more adjacent or nearby site. The translocation of reptiles to a different site which lies at a distance from the development site should only be undertaken as a last resort. Where reptiles cannot be accommodated within the site, a suitable receptor site should be identified in advance and surveyed for suitability. If a reptile population already exists on the receptor site, then advance enhancement works to increase the ‘carrying capacity’ of the receptor site may be necessary. Adequate time should be allowed in the development programme for the safe clearance of reptiles ahead of any potentially harmful works using suitable means, which may vary from site to site.

It should be noted that the clearance of reptiles from a site can only be undertaken when the reptiles are active (ie, during the spring, summer and autumn months) and should never be attempted during the winter hibernation period (which runs approximately from November to March inclusive). This constraint may lead to conflict with other issues – the presence of nesting birds, for example, all species of which are protected against disturbance – which will also need to be taken into account and mitigated for accordingly⁵.

Mitigation measures should apply to all areas of the site which will be subject to potentially harmful impacts, including the laying of haul routes, siting of contractors’ compounds and the bulk storage of materials and soils etc.

⁵ Hedgerow translocations or clearance of habitats such as trees, scrub, bramble or reedbed etc can lead to direct conflicts, which may require phased clearance or other mitigation measures to overcome.

It should be remembered that reptiles may be present beneath the soil at depths of up to 250mm or more, as well as in locations such as amongst tree roots or buried rubble and brick waste etc.

Typical Mitigation Procedure

1. Where there are suitable receptor sites adjacent to the development site, mitigation should commence with the removal of tall vegetation from all areas affected by development to make them less attractive to reptiles, and to encourage them to move away voluntarily into adjacent habitats. Vegetation should initially be cut to a height of about 200mm, starting furthest away from the adjacent habitats and working towards them, so as to drive any reptiles which may be present towards the receptor habitats. All cutting must be done by hand (eg by strimmer or brush-cutter), rather than by tractor-drawn mowers, so as to minimise the risk of causing reptile casualties. All arisings should be removed immediately from the site following cutting.

After a maximum of two days, the vegetation of the site should be cut again in a similar pattern to a height of about 50mm, taking great care to avoid injuring any reptiles which may be present and with all arisings again being removed from the site. The vegetation of the site should then be maintained in this short condition for a minimum of two further days before proceeding to Step 2.

In some rare situations this staged cutting, coupled with the careful removal of any structures which may be used by sheltering reptiles (eg rubble piles, timber piles, drystone walls etc – see Step 3 below) may be sufficient to achieve ‘clearance’ of the site by rendering it so unsuitable for reptiles that no further measures are required. In these circumstances, the site should then be maintained in this unsuitable condition until the commencement of development works, which should then be preceded by ‘destructive searching’ (see Step 8 below). These situations are likely to be very unusual, however, and will require careful assessment in advance by an appropriately qualified person.

Where there are no suitable habitats in the surrounding area for reptiles to relocate to (for example if the site is surrounded by roads or hard standings, or is hemmed in by other developments) then this step should be ignored.

2. Reptile-proof fencing should be erected around the perimeter of the affected areas of the site. These should be erected in accordance with published specifications such as that contained in the Highways Agency’s *Design Manual for Road & Bridges* (Vol 10(4) (7) HA116/05 *Nature Conservation Advice in Relation to Reptiles and Roads* or the forthcoming *Reptile Mitigation Guidelines* (English Nature). The fencing will normally be required to extend below ground level for a depth of about 250mm, and both the installation and fabrication process may require careful supervision by a suitably qualified reptile handler to ensure that no reptiles are accidentally injured in the process. On large sites it may be useful, and will probably speed up the process, if the site is subdivided into smaller parcels.

Reptile-proof fences may be either vertical ‘no-pass’ fences or sloping ‘one-way’ fences. The former will prevent the movement of reptiles in either direction, whilst the latter can be erected in areas where the site lies immediately adjacent to a suitable receptor sites, and will allow reptiles to leave the development area voluntarily.

3. Within the enclosed parcels, any rubble piles, drystone walls, tree roots, buried rubble and timber piles etc should be dismantled by hand to prevent reptiles from using them to shelter in. All arisings should be removed from the site. As far as possible, these operations should be carried out by hand, with the minimum tracking by any vehicles or machinery across the site. Complex or large structures may need to be carefully dismantled under the supervision of a reptile handler who can halt the works and rescue any reptiles which may be found sheltering in them.
4. Following the clearance of sheltering places, the vegetation of the enclosed parcel should be cut, if it has not already been so. Cutting should initially be to a height of about 200mm, starting at the centre of the parcel and working outwards towards the edges. All cutting must be done by hand (eg by strimmer or brush-cutter), rather than by tractor-drawn mower, so as to minimise the risk of causing reptile casualties. All arisings should be removed immediately from the site following cutting.

Note that for a linear site, such as a cycle-path or verge, strimming should be undertaken from the path working ahead and outwards at the same time, effectively cutting a ‘V’-shape.

5. After cutting, the site should be strewn with ‘refugia’. These should comprise a combination of suitable materials such as sheet metal, timber (eg chipboard), roofing felt and carpet tiles. These will be used by reptiles

for sheltering beneath, or for basking on, where they can be found and caught more easily. If the vegetation is already shorter than 200mm, refugia may be laid out straight away without cutting the vegetation. Refugia should be spread evenly around the site at a high density (ie about 100 per hectare).

6. Depending on the site, visits should be made to the site by a reptile handler over at least the next two days to check beneath the refugia, collect any reptiles which may be beneath them and remove them to the receptor habitats. In practice, it will usually take at least a week for the refugia to 'bed in', and daily reptile collection visits may need to take place over a period of several weeks. Reptile collecting visits must be undertaken in suitable weather conditions, ie in dry, still conditions with air temperatures in excess of 10°C.
7. Daily or near-daily reptile collection and removal visits should continue until reptile numbers under the refugia begin to decline noticeably, at which point the vegetation of the site can be cut again, using the same methodology as at Step 4, but this time to a height of 100mm. Daily reptile collection and removal visits should continue for a further minimum of three days, in suitable weather conditions.
8. When reptile numbers are again detected to be declining, a final cut can be made to achieve very short, close-cropped vegetation of about 40-50mm height, again using the same methodology as at Step 4. This staged removal of the vegetation is likely to drive reptiles to make greater and greater use of the refugia, by removing alternative sheltering places and rendering the rest of the site unattractive to reptiles.

Depending on the individual circumstances of the site, it may be advisable to review the spread and location of refugia, and to begin to cluster these towards the edges of the site or in selected locations, although if this is done then the areas where refugia are no longer present must be kept in a highly unattractive state for reptiles. The manipulation of refugia numbers and locations may be used to reduce the amount of time needed for a reptile handler to check for reptiles. On a small site, however, there is probably no point in moving the refugia, and moving refugia may reduce capture efficiency⁶. This is a matter which will require expert assessment.

It is essential that the integrity of the reptile-proof fences is maintained throughout the trapping period. These should be checked on every visit, and any breaks repaired within 24 hours, otherwise reptiles could re-enter the trapping area from outside. An advantage of subdividing the trapping areas into compartments is that any breaks in the perimeter fence which do occur, and which go undetected for any length of time, will only affect the compartment it lies alongside, and not the whole trapping area.

On sites where vandalism is a significant problem, it may be necessary to institute security measures to ensure that the reptile-proof fences remain intact throughout the trapping period. The measures necessary will vary from site to site, but could include the use of 'Heras' fencing and/or the presence of site security personnel in extreme cases.

9. Daily or near-daily reptile collection visits should carry on until 10 successive nil-returns have been achieved, in suitable weather conditions, following the last vegetation cut. Following a final inspection by a suitably qualified person (the final inspection can be done at the same time as the last check of the refugia). At this point, the trapping records should be summarised and sent to the relevant Species Officer at the NRW. Although there is no obligation to do this, it will assist in maintaining a clear position with the statutory body and will encourage a cooperative dialogue. This may be useful in establishing that there has been full and reasonable compliance with the legal requirements in the event of a challenge arising.

Note that there is no need to have 10 successive nil-returns between the vegetation cuts, but that these cuts should be at least 2 days apart and the numbers should be showing a decline (the exact time taken should be determined by the reptile handler in charge, and will vary from site to site).

10. NRW will then write to the developer to "release" the site to the developer or site engineers. Again, there is no obligation to obtain written consent from the NRW, but it will further demonstrate that there has been best-practice compliance to the satisfaction of the statutory body.
11. The area cleared of reptiles should then ideally be immediately stripped of all vegetation and the topsoil removed, leaving bare subsoil. This final stripping may be done with machinery (ideally using a bucket with tines)⁷. In some cases it may be desirable that the site is 'destructively searched' prior to development, especially

⁶ Reptiles usually take a while to find refugia (hence the 'bedding in'), and once they do they tend to use them habitually. Moving refugia may simply confuse the animals and be counterproductive.

⁷ It is worth noting that there can be a conflict on sites where there is also an archaeological watching brief: archaeologists usually specify a bladed bucket to produce smearing in which archaeological layers can be seen. A tined bucket makes this much more difficult.

if the trapping out has not gone absolutely to plan (eg vandalism problems etc). This means that the topsoil layer to a depth of about 250mm is removed from the site in strips or sections, working sequentially across the site, using a digger with a tined bucket, under the supervision of a reptile handler who is able to check for the presence of any reptiles remaining in the soil. Where such reptiles are found, the reptile handler will stop the works, rescue the animal and release it to the receptor area.

12. The edges of the cleared area should be marked with high-visibility temporary fencing to prevent accidental trafficking of vehicles on the uncleared parts of the site (if any).
13. If there is any delay between the end of the reptile clearance operation and the commencement of development, measures must be taken to prevent the recolonisation of the site by reptiles from adjacent habitats, unless there is no such habitat adjacent to the site. To prevent reptiles re-entering the cleared area, the developer must therefore either:
 - a) Keep the area in the cleared condition obtained at Step 9 - bare earth with no vegetation. To keep the area bare, the developer could consider using an approved herbicide. Or:
 - b) Retain the reptile-proof fencing until development works are underway in the area concerned. If this option is chosen, the integrity of the reptile-proof fences will need to be checked regularly throughout the intervening period (ie daily or near-daily), and any breaks repaired within 24 hours. If undetected breaks occur for any length of time, the affected area (or compartment) will need to be trapped out again by repeating Steps 5-9 above.

Maintenance of the site in a cleared and reptile-proof condition is really only critical during the reptiles' active period, since recolonisation is not likely to occur during the winter months. Therefore if a site has been cleared of reptiles in summer prior to development in winter, the reptile-proof fences can be removed (or allowed to deteriorate) once the hibernation period has begun (ie after about the end of October). If the start of development is subsequently delayed beyond the end of the hibernation period, however, (ie after about the end of March) it may be necessary to reinstall the fences, or even re-trap the site.

The site can be re-opened to reptiles by removing the fencing after all construction works are complete.

Catching Methods

The use of refugia at high densities (100/ha) can be very effective for collecting slow-worms. However, other species are less readily found under refugia, and can be much more difficult to catch. 'Noosing' of common lizards whilst sunning on refugia can be effective, but requires skill and is very time-consuming. Snake catching is also a specialised skill, and carries health and safety implications. However, both snakes and common lizards tend to be more mobile than slow-worms, and are therefore more likely to respond to the vegetation clearance and remove themselves from the trapping area where one-way fences make this possible.

Keeping Records

For trapping records, we recommend logging the date, time, weather conditions, temperature, minimum night temp (night before), species caught and location caught (a rough map would suffice, eg area A, B or C) and, if possible, the sex and age of the animals, and if gravid. Ideally a report of the trapping operation, in which all of the capture records are summarised and evaluated, should be prepared at the end of the operation and submitted to the NRW and/or the local authority ecologist. There is no obligation to do so, but the keeping of clear and unambiguous records may be essential in establishing that there was full and reasonable compliance with the law in the event of there being any challenge to the methods used.

When to Trap

Ideally clearance should begin as early as 1 April, with the aim of the site being cleared by the end of July. Clearance operations are less desirable later in the summer, since after about June there is the chance that juvenile animals will also be present, which as well as being extremely difficult to see and catch, may also significantly increase the number of animals on the site.

Post-development Monitoring

In addition to the above, we would encourage the developer to put in place a scheme to monitor the effects of the development on the reptiles and to see if the mitigation has been successful. The design of any monitoring exercises should be discussed in advance with the NRW.

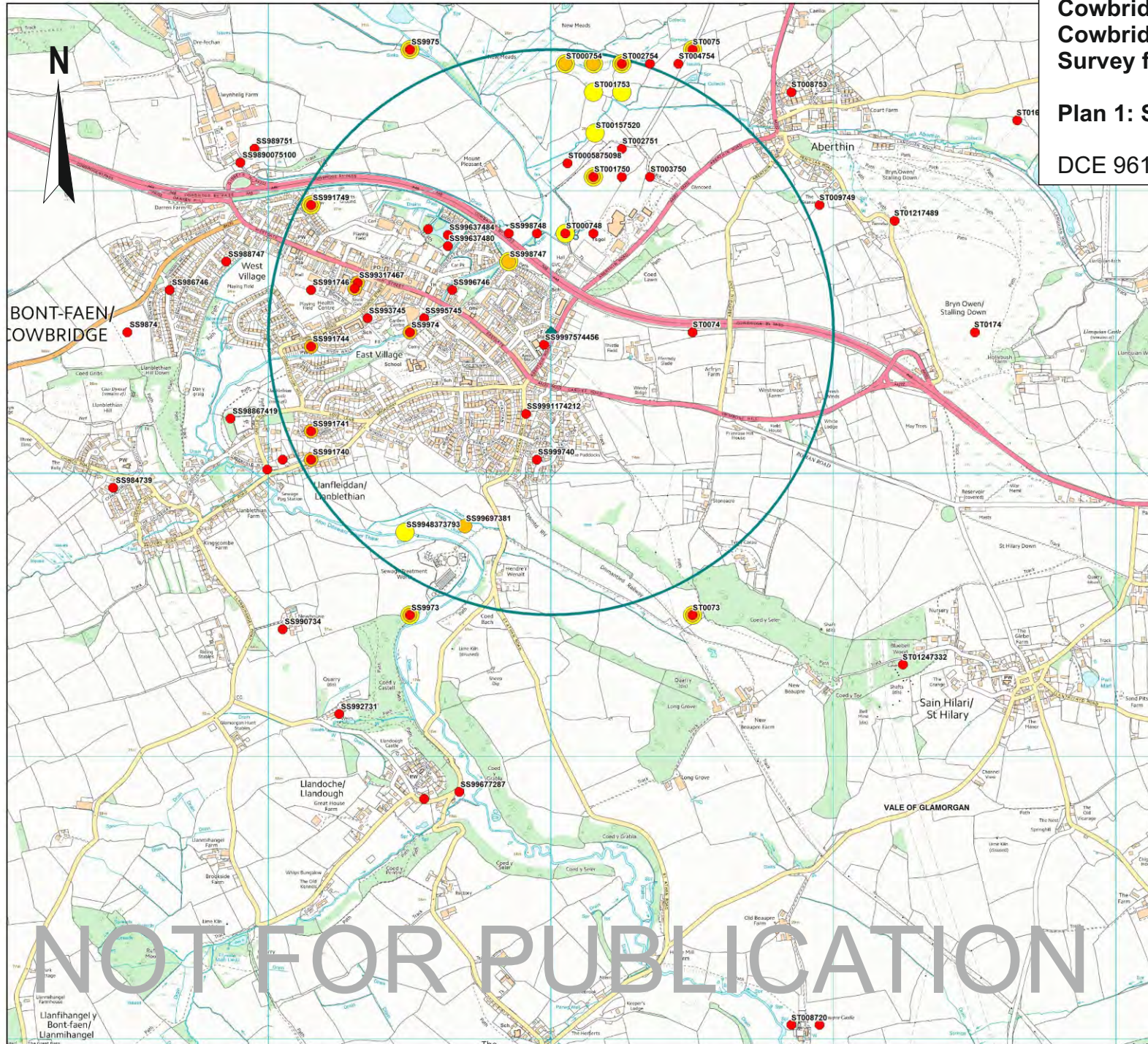
Cowbridge Sixth Form, Aberthin Road, Cowbridge, Vale of Glamorgan Survey for Bats and Reptiles

Plan 1: Site Location & Context

DCE 961

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Sep 2017



- ◆ Centre of Search Area
- 1km Search Buffer
- Priority and Protected Species
- Other Species of Conservation Concern
- Species of Local Conservation Concern
- Unitary Authority Boundary

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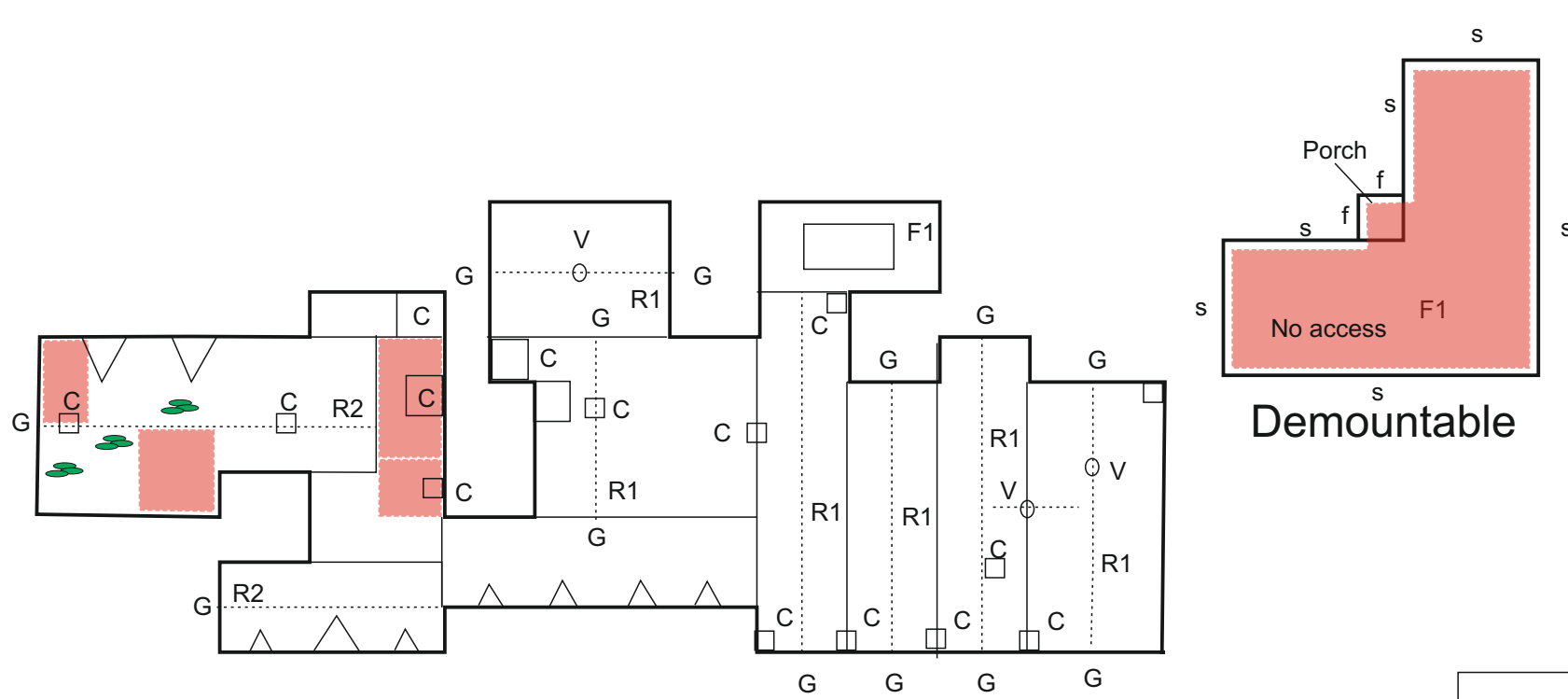
**Cowbridge Sixth Form, Aberthin Road,
Cowbridge, Vale of Glamorgan
Survey for Bats and Reptiles**

Plan 2: Bat Inspection Results

DCE 961

NTS





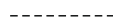

Sep 2017



Main School Building

Demountable

- R1 Ridge, with storey-height
- F1 Flat roof, with storey-height
- G Gable
- f Fascia
- s Soffit
- C Chimney
- V Vent

-  Bat droppings
-  Building footprint
-  Attic, with access
-  Attic, no access
-  Ridge-line
-  Valley

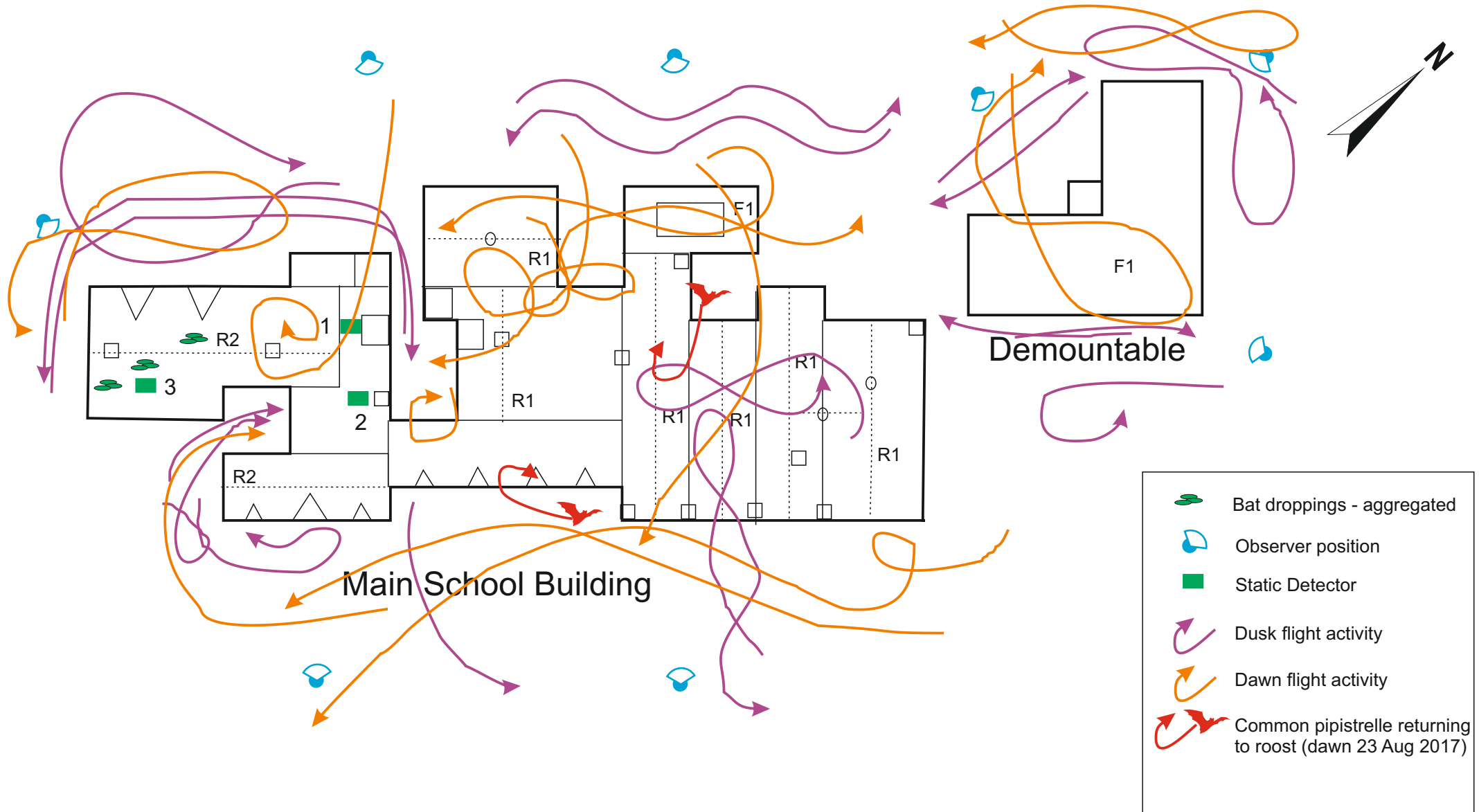
**Cowbridge Sixth Form, Aberthin Road,
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Survey for Bats and Reptiles**

Plan 3: Bat Flight Survey & Statics

DCE 961

NTS

Sep 2017



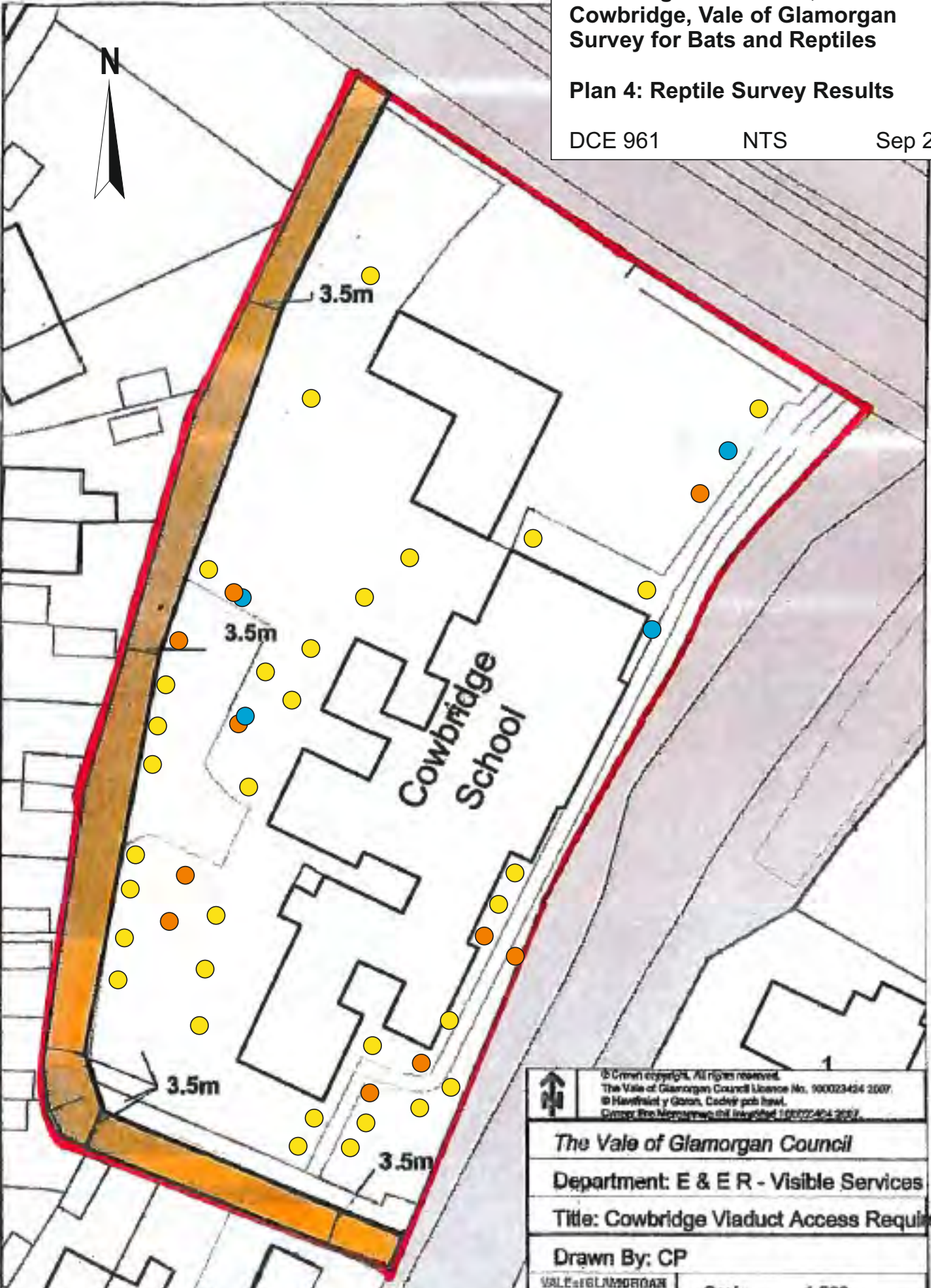
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Plan 4: Reptile Survey Results

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Sep 2017



Key

- slow worm
- grass snake

● refugia



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The Vale of Glamorgan Council

Department: E & E R - Visible Services

Title: Cowbridge Viaduct Access Requirement

Drawn By: CP



Scale 1:500

Time 02:18:56 PM

Date 29 Oct 2010