

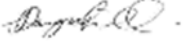
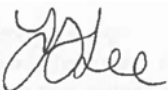
DAVID CLEMENTS ECOLOGY LTD

ST TYDFIL'S HOSPITAL, MERTHYR TYDFIL

BAT SURVEY REPORT

July 2020

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SUMMARY

This report has been prepared by David Clements Ecology Ltd (DCE) on the instructions of Chris Wilks of Amity Planning Ltd and refers to land at the former St Tydfil's Hospital, Merthyr Tydfil, South Wales. The site measures approximately 1.86 ha, encompassing three former hospital buildings along with an extensive area of previously cleared land. The former hospital buildings present are currently unoccupied, and appear to have been vacant for some time. The site is located at Ordnance Survey grid reference SO 05168 06342 and lies at approximately 195m AOD. The site is situated within an urban area close to the centre of Merthyr Tydfil.

It is proposed to redevelop the site to accommodate a residential scheme of 70 units comprising a mix of affordable and open market housing. As part of the development, a section of building 1 will be demolished and the grade II listed section retained and converted into six apartments. Buildings 2 and 3 will be demolished to facilitate the wider redevelopment of the site.

The site does not contain or lie immediately adjacent to, any statutory sites of nature conservation interest such as Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) or Local Nature Reserves (LNRs). The site does not contain or lie immediately adjacent to, any non-statutory sites such as Sites of Importance for Nature Conservation (SINCs).

The site comprises three buildings with an extensive area of hardstanding/rubble from previously cleared land. There are some mature trees within the site and woodland edge that borders the eastern site boundary.

Following an initial building inspection and two flight surveys for bats, it is confirmed that one of the buildings is used by individual common pipistrelle bats in the summer months. Some of the trees on the site and bordering the site do have potential to support roosting bats.

The proposed development will result in the loss of buildings 2 and 3, and part of building 1 and the renovation of the retained listed section of building 1. Therefore, a derogation licence from NRW will be required to undertake the part demolition/ part renovation of building 1. Additionally, the development will result in the loss of three mature trees close to the current buildings within the site boundary. Therefore, further recommendations with regards to the trees are made.

Additionally, Japanese knotweed in very close proximity to the north eastern most boundary of the site during the surveys.

Appropriate mitigation and enhancement measures are recommended.

1.0 INTRODUCTION

- 1.1 This report has been prepared by David Clements Ecology Ltd (DCE) on the instructions of Chris Wilks of Amity Planning and refers to a parcel of land at the former St Tydfil's Hospital site, in Merthyr Tydfil, South Wales. The site location and context is shown at Plan 1.
- 1.2 The site measures approximately 1.86 ha, encompassing a former hospital site that has largely been cleared with only three buildings remaining and a small number of trees within the site boundary. The premises are currently unoccupied and appear to have been vacant for some time and subject to anti-social activity. The site is located at Ordnance Survey grid reference SO 05168 06342 and lies at approximately 195m AOD.
- 1.3 The site is situated within an urban area, to the centre of Merthyr Tydfil town. A block of woodland occurs immediately east of the site. To the immediate north and south of the site, residential development occurs and to the west, further residential development and an area of public green space. In the wider environment, some green space occurs to the east and extensive urban development exists in all directions.
- 1.4 It is proposed to demolish the unlisted portion of building one and to retain and convert the grade II listed portion of building 1 into 6 apartments. Buildings 2 and 3 will be demolished in their entirety to facilitate the new development. The scheme will deliver 70 dwellings across the site to form a mix of affordable and open market housing, see Appendix 1 for current development plans.
- 1.5 The remainder of this report sets out the results of bat survey work undertaken at the site. It also assesses the likely impact of the proposed works on bats and nesting birds and makes recommendations regarding the mitigation of any potentially adverse biodiversity impacts.

1.6 Designated Sites of Biodiversity Interest

Statutory Sites

- 1.6.1 The site does not contain or lie immediately adjacent to any statutory sites of nature conservation interest such as Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) or Local Nature Reserves (LNRs). There are no sites designated for bats within 10km of the site. However, a number of such sites occur in the local vicinity:
- Cwm Glo A Glyndyrys, SSSI, 1.2km south-west. Extensive areas of marshy grassland, species-rich neutral grassland and acid grassland, and diverse grassland fungi.
 - Cwm Taf Fechan Woodlands, both SSSI and Local Nature Reserve, 1.9km north-west. Mixed deciduous woodlands with interesting plant communities in flushes around tufa springs, and bryophytes.

Non-Statutory Sites

- 1.6.2 No sites of nature conservation interest such as Sites of Importance for Nature Conservation (SINCs) lie within or immediately adjacent to the site boundary. However, several such sites exist within the local vicinity including the following:
- Afon Taf, Wildlife Site / SINC, 520m west. River and associated habitats, including ancient semi-natural woodland, linear wet woodland, and marshy grassland. Otter present.
 - Cyfarthfa Park, Wildlife Site / SINC, 990m north-west. Semi natural woodland and neutral grassland. Also includes small areas of plantation woodland and scrub and several woodland ponds.
 - Cwm Taf Fechan, Wildlife Site / SINC, 1.1km north-west. Contains Cwm Taf Fechan SSSI. The limestone geology gives rise to limestone woodlands, species-rich calcareous grasslands, species-rich neutral grasslands and calcareous scrub.
 - Cwm Glo, Wildlife Site / SINC, 1.7km south-west. The SINC contains the Cwm-Glo a Glyndyrus SSSI. Extensive areas of marshy grassland, species rich neutral grassland and acid grassland alongside woodland and heath supporting protected, rare and uncommon species including marsh fritillary butterfly, Great Crested Newt, big blue pinkgill, and olive earthtonge.
 - Rhydycar West, Wildlife Site / SINC, 1.3km south-west. Very extensive mosaic of ffridd enclosures supporting complex of semi-upland and lowland habitats. Great crested newt occurs in small pools; noctule and pipstrelle bats have both been recorded. Nationally rare and scarce invertebrates are varied and common throughout the area.
 - Cwm Taf Fields & Cefn Coed Tip, Wildlife Site / SINC, 1.4km west. Linear series of fields between the Afon Taf Fawr and the A470, containing areas of semi natural woodland and a re-vegetated limestone, semi-improved acid grassland, scrub, bracken slopes and dry heathland.
 - Glynmil, Wildlife Site / SINC, 1.5km south-east. Mosaic of semi-upland habitats, mainly comprising acid grasslands, marshy grassland, acid flush, dry heath, bracken slopes, scrub, ancient semi-natural oak woodland and wet woodland dominate.
 - Cwm Taf Fawr, Wildlife Site / SINC, 1.7km north-west. Section of major river tributary of the Afon Taf, including adjacent woodlands. Upper reaches support limestone gorge woodland, with a rich ground flora. The site also includes areas of species-rich calcareous, neutral and acid grasslands. Otter present.
 - Merthyr Common South, Wildlife Site / SINC, 1.8km east. Very extensive upland / semi-upland common along the hill ridge between two major rivers. Includes numerous ponds and streams, extensive outcrops of rock and some disused quarries.

- Y Graig, Wildlife Site / SINC, 2km north-west. Area of ‘ffridd’ habitats mainly dominated by bracken, with patches of acid grassland and dry heath, species-rich neutral and marshy grasslands and areas of wet willow woodland.
- Blaen-canaid, Wildlife Site / SINC, 2km south west. Series of species-rich semi-improved neutral grassland enclosures within large conifer plantation.

1.6.3 Sites of Importance for Nature Conservation (SINCs) are one of a class of non-statutory nature conservation designations which are recognised throughout the UK under a wide range of titles. Such ‘Wildlife Sites’ are so-called ‘third tier’ sites, generally ranked below sites which are of international or national biodiversity significance, but which are considered to have substantive nature conservation value in the sub-national (ie regional or district) context. They are usually designated at the county or county borough level by the relevant local planning authority and are recognised as a planning constraint in the relevant statutory development plan. The framework for the identification and designation of ‘Wildlife Sites’ is set out in various Government documents and is referred to in *Planning Policy Wales* (2017, 9th Edition) and *Technical Advice Note (Wales) 5: Nature Conservation & Planning, 2009*.

2.0 APPROACH AND METHODS

2.1 Survey Methodology

Bats

- 2.1.1 Surveys comprising an initial day time building inspection and two flight surveys were conducted in accordance with current best practise guidance provided by BCT (2016). An initial site inspection was carried out in dry, mild weather conditions during daylight hours on 17th April 2020 by a licenced bat ecologist and an assistant. All accessible areas of the buildings were entered and searched using high-powered lanterns (Clulite FAN1). Other equipment was available as required, including a digital endoscope (Rigid See snake CA350) for the examination of any crevices in the fill of stone walls etc, and ladders to inspect high areas. Interior and exterior 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 The layout and construction of the buildings were 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.
- 2.1.3 Following the initial site inspection two flight surveys were carried out for each building on the site on the following dates: dusk emergences on the 20th May 2020 and 26th May 2020 and dawn re-entry surveys on the 16th and 23rd June 2020. Four surveyors and an IR camera were stationed around building 1, and two surveyors were stationed around building 2 and a further two surveyors on building 3. All surveyors were equipped with Anabat SD1, SD 2 frequency-division bat detectors or Peersonic RPA3 full spectrum 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 AnalookW software (Corben, 2006). An Infrared Panasonic hc-w850 camera supplemented with an IR lamp was also used for a dawn survey on building 3. Footage was later analysed in VLC player.
- 2.1.4 Large standard trees were subject to a preliminary ground based survey to assess their potential suitability for use by roosting bats during the site inspection. This survey was carried out from ground level, using close-focusing binoculars, with particular attention being given to the presence of 'potential roosting features' (PRFs) such as those described by Andrews (2018). The trees were individually searched for features which are likely to be attractive to roosting bats such as cavities and rot-holes, splits and cracks, rugose or delaminating bark and dense ivy cover etc, and any such features recorded. The inspected trees were then categorised as follows:

Table 1: Categorisation of trees with respect to bat roosting potential

Occupied by bats	Bats are known to occupy features of the tree, or there is direct evidence of such occupation.	Further detailed survey by bat ecologist required. NRW licence required before any tree works.
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High potential for bat use	Tree has features which appear to be of high suitability for use by bats. Usually large and/or mature trees with numerous and/or well-developed PRFs.	Further surveys by bat ecologist required per BCT (2016) 'high roost suitability'. NRW licence will be required if any bats are found.
Moderate potential for bat use	Tree has features which appear moderately suitable for use by bats. Usually large and/or mature trees with at least some well-developed PRFs.	Further surveys by bat ecologist required per BCT (2016) 'moderate roost suitability'. NRW licence will be required if any bats are found.
Low potential for bat use	Tree has overall low roosting suitability, although some features of low or marginal roosting potential may be present. Trees of suitable age/size to support PRF but no PRF visible from ground.	Inspection by arborist and/or bat ecologist immediately prior to and during tree works. 'Soft-felling' may be advised.
Negligible potential of bat use	Usually young and/or small trees, lacking any obvious features suitable for use by bats.	No further survey required. No constraint to tree works.

2.2 Data Trawl

- 2.2.1 In addition to original survey, a data trawl was carried out with the South East Wales Biodiversity Record Centre (SEWBReC) in order to obtain access to any existing ecological information or records from the site. SEWBReC is the main repository for biodiversity and wildlife records in the south-east Wales region. Relevant records are referred to in the text.

2.3 Survey Constraints

- 2.3.1 The recommended time of year to complete ground based visual assessments of trees for bat roosting potential is December – March. However, at the time of the survey, surveyors were able to adequately survey and identify PRFs on the trees on site from the ground so this is not considered to have imposed a major constraint on the results.
- 2.3.2 Owing to the locations of buildings 2 and 3 it was not possible to cover the southern elevations of the buildings as these backed on to other properties.

3.0 SURVEY RESULTS

3.1 *Bats*

- 3.1.1 All species of bat and their roosting sites are protected under the EU Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna (92/43/EEC; the ‘Habitats Directive’), implemented in the UK via the Conservation of Habitats & Species Regulations 2017 (the ‘Habitats Regulations’). The roosting places used by bats are also protected against unauthorised disturbance or obstruction under the amended Wildlife & Countryside Act 1981. Several bat species, including common and soprano pipistrelle, are listed as priorities for conservation in Wales under Section 7 of the Environment (Wales) Act 2016.

3.2 *Data Trawl*

- 3.2.1 Three bat roost records are recorded for the St Tydfil’s Hospital site, all recorded in 2011. One of these relates to an unknown bat species where a roost was discovered in a basement with lesser horseshoe-type droppings. The remaining two records pertain to a pipistrelle bat species and a long eared bat species (SEWBrEC Ref: 0190-812). SEWBrEC and Natural Resources Wales were both contacted for further information regarding these records, however no further information was available. A further record for an unknown species is listed as ‘bat in hospital’ from 2005.
- 3.2.2 A further twenty bat roost records were returned in the data trawl within 2km of the site. The closest and most recent record relates to a 2018 record for a soprano pipistrelle, situated approximately 260m from the site for a live sighting of a day roost. Included in the bat roost records are two records for an unknown bat species where roosts were discovered in a tree, situated 1.7km – 1.9km away from the site. A further three records exist for a confirmed tree roost relating to a myotis bat species, located approximately 1.8km from the site. Two historical records exist that are sourced from the ‘Bat Roosts Database South Wales’, however there are no specific details for these records (SEWBrEC Ref: 0190-812).
- 3.2.3 There are many records of bats foraging and commuting in the vicinity of the site. The most recent record relates to a pipistrelle bat species which was seen foraging and commuting along a hedge in 2019, located approximately 1.1km away from the site. Further activity records for brown long-eared bat, noctule bat, serotine, common pipistrelle, soprano pipistrelle, Daubenton’s bat, Natterer’s bat and other possible myotis species, all occur within 2km of the site (SEWBrEC Ref: 0190-812).

3.3 *Building Inspection and Flight Surveys*

- 3.3.1 For detailed description of the building see Table 1 below and Plan 2. Plans 3 and 4 show the results of the flight surveys.

Dusk Emergence Survey

- 3.3.2 A dusk emergence survey was completed on the 26th May 2020 of buildings 2 and 3. The weather conditions were dry and calm with some cloud. Temperatures were approximately 18°C at the start of the survey and sunset was at 21:16.
- 3.3.3 No bats were seen to emerge from the buildings. Moderate levels of bat activity by common pipistrelle were observed during the survey. No other species were recorded.
- 3.3.4 A dusk emergence of building 1 was undertaken on the 20th May 2020. The weather conditions were dry and clear with some light wind. Temperatures were approximately 19°C at the start of the survey and sunset was at 21: 06.
- 3.3.5 No bats were seen to emerge from the building, however a bat was observed to enter the building, fly through the interior and exit again. Moderate levels of bat activity by common pipistrelle were observed during the survey. No other species were recorded.

Dawn Re-entry Survey

- 3.3.6 A dawn return survey of buildings 2 and 3 was completed on the 16th June 2020. The weather conditions were clear, dry and calm. The temperature was approximately 13°C at the start of the survey and sunrise was at 04:55.
- 3.3.7 No bats were seen to use or enter the buildings. Low levels of soprano and common pipistrelle activity were recorded across the site.
- 3.3.8 A dawn re-entry survey of building 1 was completed on the 23rd June 2020. The weather conditions were cloudy and dry with a light breeze. Temperatures at the start of the survey were approximately 14°C and sunrise was at 04:55.
- 3.3.9 Low levels of common and soprano pipistrelle activity were noted commuting over the site and past the buildings. A single common pipistrelle bat was seen to enter the building at 03:03am through an open window on the southern most elevation of building 1 (See Plan 4).

Ground Based Tree Assessment

- 3.4.1 A ground-based tree assessment was undertaken on the 17th April 2020 by a bat licenced ecologist and one assistant.
- 3.4.2 Four mature trees exist to the south of the site, and a number of trees occur to the east of the site. A large number of trees are located offsite but line the boundaries and lie in close proximity to the site, these offsite trees were not surveyed in detail but those that lie on the boundary and possess bat potential are highlighted on Plan 5.
- 3.4.3 All four trees to the south support low potential for bats due to their size/age. To the east of the site a number of trees occur, some with moderate to high potential for bats (See

Table 2 below). Many trees exist along the boundary to the west and some to the east that also support roosting potential for bats, these have been highlighted where situated on the site boundary.

Table 2: Bat Tree Assessment

Tree number (see Plan 5)	Species	Bat Potential	Comments
1	Willow sp	low	Of age/size to support features
2	Leylandii	Low	Of age/size to support features
3	Birch sp	Low	Of age/size to support features
4	Unknown	low	Of age/size to support features
5	Sweet chestnut	High	Multiple features including knot holes and fluting
6	Beech	Low	Of age/size to support features
7	Beech	Low	Of age/size to support features
8	Sweet chestnut	Moderate	Knot holes
9	Birch	Moderate	Wounds that appear extensive
10	Sycamore	Low	Wounds that don't appear extensive
11	Sycamore	Low	Wounds that don't appear extensive

Table 1: Exterior building descriptions

Building	Description	Evidence of Bats & Nesting Birds	Bat Roosting Potential
Building 1			
	Exterior: The building is a double storey former hospital building which has been vacant for some time. The northern most half is grade 2 listed building. The exterior walls are ashlar in moderate condition, some localised damage and gaps apparent. The roof to the grade listed section is complex with a number of double pitched roofs. The roofs have almost been entirely stripped leaving roof battens and roof lining (in poor condition) largely exposed. A small flat roof section with walls of slate cladding also occurs on the eastern elevation of the grade listed section. Windows are largely missing leaving large openings to the building interior.	No visible signs of roosting by bats observed on the exterior structure on the day of the survey. Blue tit seen emerging from damaged ashlar on the south eastern corner of the building. Many pigeons observed flying in and out of the building via window spaces.	Many features that could be used by bats on the exterior including: damaged slate cladding, damaged stonework, gaps in window lintels. Some potential for hibernation, in damaged stonework. Moderate potential for roosting bats.
	Interior: The former hospital building has been vacant for some time and is in a poor state of condition. Water damage is apparent throughout the interior, damage to the walls has created crevices to wall interiors. Owing to the lack of roof some rooms are well lit and draughty, others are darker and more stable. The building is clearly subject to anti-social behaviour with significant debris apparent in the southern portion of the building. The interior supports plastered walls with tiled floors all in poor condition.	No visible signs of roosting by bats observed within the interior on the day of the survey. Nesting pigeons were apparent with nests containing young chicks found in the building interior.	The interior is in a very poor state, creating many crevices available to roosting bats and access to wall cavities. Moderate potential for roosting bats.
Building 2			
	Exterior: The building is a double storey former hospital building which has been vacant for some time and currently stands in a state of disrepair. The building is L shaped with a lean-to extension to the west and a flat roof and porchway extension to the north and east elevations. The walls are constructed of ashlar with bath stone dressing. The roof has been stripped out with only the battens and timbers remaining. Doors and window panes are largely missing, the lintels surrounding them are in poor condition.	No visible signs of roosting by bats or nesting birds observed on the exterior structure on the day of the survey.	Features for bats include raised tiles of the lean-to roof extension, gaps in door and window lintels. Some hibernation potential in the lintels. Moderate potential for roosting bats.
	Interior: The interior has largely been stripped out with no floors present and plastered walls in poor condition. Owing to the lack of roof the interior is largely well lit and draughty.	No visible signs of roosting by bats or nesting birds observed in the interior on the day of the survey.	Significant debris in the interior with some potential for use by roosting bats.
Building 3			

	Exterior: A flat roofed single story outbuilding with red brick walls and cement block roof. Walls in moderate condition, with some mortar fillets missing, one area supports significant damage to the brick work permitting access to the wall interior. Big open hole through roof into part of the interior, damaged and open windows and doorways permitting access to the interior. Parts of the building support PVC fascias with gaps beneath. Building subject to vandalism.	No visible signs of roosting by bats or nesting birds observed on the exterior structure on the day of the survey.	Damage to brick and stone walls creating access to wall interiors suitable for roosting bats and hibernating bats. Moderate potential for roosting bats.
	Interior: Interior walls of the eastern most portion of the building are damaged creating gaps and crevices. The building has been vacant for some time and appears subject to anti-social behaviour. A large hole in the roof is apparent from the interior. Parts of the building interior support plastered walls.	No visible signs of roosting by bats observed in the interior structure on the day of the survey. A wren nest was observed in the interior of Building 3.	Interior walls also damaged creating crevices suitable for roosting bats. Moderate potential for roosting bats.

4.0 ASSESSMENT OF DEVELOPMENT IMPACTS

4.1 Bats

- 4.1.1 It is proposed to demolish buildings 2 and 3 and demolish part of building 1 and remove three mature trees within the site and redevelop the land. The redevelopment plans currently comprise the construction of a residential scheme to deliver 70 dwellings. Detailed plans for the development can be found at Appendix 1.
- 4.1.2 The present survey indicates that individual common pipistrelles are using the building for day roosting in the summer months on an adventitious basis.
- 4.1.3 The redevelopment of the site requires the demolition of the southern portion of building 1 and retention and conversion of the grade II listed northern portion. The works would have a negative impact at the site level only. Any works to the building will require a derogation licence from Natural Resources Wales which will include a detailed method statement and mitigation provisions.

4.2 Nesting Birds

- 4.2.1 The present survey also found evidence of present and past nesting bird activity in buildings 1 and 3.
- 4.2.2 Four mature trees are to be lost to the development that also support potential for nesting birds.
- 4.2.3 All nesting birds are afforded protection under the Wildlife & Countryside Act 1981 (as amended), and therefore the presence of nesting birds must be taken into account when carrying out demolition and conversion works. No further bird surveys are considered necessary, although a precautionary approach to works is advised and replacement of any nesting sites that are destroyed should be mitigated using nest boxes (see Section 5.0 below).

5.0 RECOMMENDATIONS

5.1 Bats

- 5.1.1 The use of the building by bats is confirmed. It will be necessary to obtain a licence from NRW to carry out the works. The obtaining of this licence will require the formulation of a detailed method statement and mitigation provisions. 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 redevelopment/refurbishment details.
- 5.1.2 The demolition works should be undertaken during the autumn (September to October), and should be avoided between the months of November and February when bats are hibernating and unable to move from harm's way. Surface features such as fascias, soffits, ridge tiles and eave tiles should be carefully dismantled and checks using an endoscope of gaps in walls checked for any signs of roosting bats, before proceeding with the main demolition.
- 5.1.3 In the event that bats are discovered at any time during the works, all works must cease immediately, and further qualified advice sought as a matter of urgency.
- 5.1.4 Mitigation to provide a roosting place within the new development will be required. It is recommended that two Schwegler 1FR bat tubes or (similar design) are rendered into the exterior walls of the new building closest to the original building location. Consideration should be given to providing further opportunities for bats to roost on any new buildings through the provision of appropriate bat-boxes on the exterior walls. These should ideally be incorporated into the wall structures in suitable locations, and should be of woodcrete or ABS plastic construction, rather than timber. Suitable examples are shown at Appendix 2.
- 5.1.5 The majority of the trees on site and around the boundaries are to be retained within the new development. However, four mature trees that will be lost were considered to have low potential for roosting bats, it is recommended that these trees are soft felled in the autumn months (September to October). Should any further trees be impacted by the development then further surveys may be required.
- 5.1.6 Any new lighting scheme within the newly developed site must be designed in liaison with an ecologist and following the advice set out by BCT (2018). No lighting of the adjacent woodland habitats should occur.

5.2 Nesting Birds

- 5.2.1 Works affecting the buildings or trees 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 building work, felling 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.

- 5.2.2 In the event that nesting birds are found to be present 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 nesting bird-occupied void in its entirety, plus an area of at least 5m radius around the find site. Nesting birds must not be harmed or disturbed, and should be left undisturbed until the young have fledged. This is a statutory requirement.
- 5.2.3 As with bats (above) consideration should be given to the incorporation of bird-boxes on the developed site, either on the new buildings or on any suitable trees in the vicinity. Suitable examples are shown at Appendix 2.

5.3 ***Habitats & Other Protected Species***

- 5.3.1 Japanese knotweed lies in very close proximity to the north east boundary of the site. Although it appears that this is outside of the site boundary, any ground within a 10m radius of a visible stand must be treated as potentially contaminated with root material and dealt with accordingly. The affected area of the site should be fenced off at the outset of works. Ideally, an agreement should be formed with the neighbouring landowner to undertake an eradication programme carried out by specialists. The site should be subject to regular monitoring prior to development to determine whether the knotweed has spread into the site boundary.
- 5.3.2 Any retained habitats should be securely fenced off with appropriate temporary fencing (eg 'Heras' fencing) at the start of construction work to prevent access and incidental damage by site vehicles, equipment and personnel.
- 5.3.3 All retained trees should be treated in accordance with British Standard BS5837 (2012) *Guidance for the Treatment of Trees in Relation to Construction*. Damage to mature trees, as well as tree and scrub understorey should be avoided wherever possible.
- 5.3.4 Building compounds and storage areas should not be sited on areas of habitat which are to be retained or in the off-site habitats and should be suitably fenced and bunded where they stand adjacent to semi-natural habitats. Similarly, no equipment, machinery or materials should be brought into the retained areas, or stored under retained tree canopies, or ground levels altered within these clearly demarcated zones of protection.
- 5.3.5 Any trees which must be removed as part of the development should be replaced on a like-by-like basis as a minimum with native species which are indigenous to the region, and from stock which is of local (or at least UK) provenance and also contain a good range of wildlife friendly plants (see Appendix 3 for example species).
- 5.3.6 To provide ecological enhancement following the development, consideration should be given to the erection of bat roosting and bird nesting boxes in suitable trees around the site. These should be sited in such a manner that predators such as cats cannot reach

them, and be at least 4m (preferably 5m) above ground level. The entrances to bat boxes should not be illuminated at night. Bat boxes should ideally be of ‘woodcrete’ construction (such as those manufactured by Schwegler Ltd), since these are much more robust and longer-lived than traditional wooden boxes and require less after-maintenance. Further examples are given at Appendix 4.

- 5.3.7 The services of an appropriately qualified and licensed ecologist should be available on an ‘on-call’ basis throughout the development in order to deal promptly with any protected species or other ecological matters which may arise during the clearance and construction works.
- 5.3.8 Any new fencing installed within the new development should have 13cm by 13cm squares cut out of the base or a continuous 13cm tall gap running along the bottom of the fence to allow the passage of hedgehogs and other small mammals.
- 5.3.9 Any excavations should be suitably fenced off at night to prevent any wildlife falling and becoming trapped.
- 5.3.10 Small numbers of common reptiles are likely to be present within the site, please refer to the reptile mitigation strategy for mitigation measures related to reptiles.

6.0 REFERENCES

Andrews, H (2018) *Bat Roosts in Trees: A guide to identification and assessment for tree-care and ecology professionals.* Pelagic Publishing, Exeter.

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

Bat Conservation Trust (BCT 2018) *Bats and Artificial Lighting in the UK Guidance Note. Bats and the built environment series.* Bat Conservation Trust, London.

Chartered Institute of Ecology and Environmental Management (2013) *Guidelines for Preliminary Ecological Appraisal.* CIEEM, Winchester.

APPENDIX 2: INTEGRATED BAT AND BIRD BOX DESIGNS

Suitable for rendering over, leaving just the entrance exposed



Schwegler 1FR



Schwegler 1FE



Schwegler 1WI
(Hibernation box)

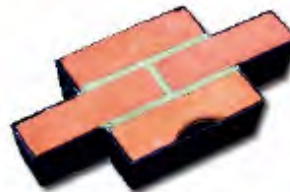


ACO Integrated

Brick or custom-faced boxes



Habibat Custom Face
(Can have any facing)



BirdBrickHouse
Brick-faced bat box

Wall cavity boxes



Ibstock Type B



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 3: LANDSCAPING SPECIES

Trees and shrubs

All planting stock should be of native species which are indigenous to the region and will be of Welsh or at least UK, provenance.

Trees/shrubs

<i>Quercus robur</i> and/ or	Pedunculate oak
<i>Quercus petraea</i>	Sessile oak
<i>Fraxinus excelsior</i>	Ash
<i>Acer campestre</i>	Field maple
<i>Corylus avellana</i>	Hazel
<i>Crataegus monogyna</i>	Common hawthorn
<i>Betula pendula</i>	Silver birch
<i>Cornus sanguinea</i>	Dog wood
<i>Ilex aquifolium</i>	Holly
<i>Malus sylvestris</i>	Crab apple
<i>Prunus avium</i>	Wild cherry
<i>Prunus spinosa</i>	Blackthorn
<i>Rosa canina</i>	Common dog-rose
<i>Sorbus aucuparia</i>	Rowan
<i>Taxus baccata</i>	Yew
<i>Viburnum opulus</i>	Guelder rose
<i>Euonymus europaeus</i>	Spindle
<i>Sambucus nigra</i>	Elder

Planting should be carried out using 600mm bare-rooted transplants in spiral plastic guards (rabbit/vole protection) where appropriate. Standard tree aftercare should be applied.

Climbers

<i>Clematis vitalba</i>	Traveller's-joy
<i>Lonicera periclymenum</i>	Honeysuckle
<i>Solanum dulcamara</i>	Bittersweet
<i>Tamus communis</i>	Black bryony

Wildlife friendly plants for formal landscaping

The species listed below are primarily non-native species, which are commonly found in gardens and formal landscape areas. Those native species included are aesthetically pleasing and suitable for formal planting schemes.

Woody Species

Bodnant viburnum (<i>Viburnum x bodnantense</i>)	Lilac (<i>Syringa vulgaris</i>)
Californian lilac (<i>Ceanothus</i> spp.)	Mahonia (<i>Mahonia</i> spp.)
Firethorn (<i>Pyracantha</i> spp.)	Mock orange (<i>Philadelphus</i> spp.)
Laurustinus (<i>Viburnum tinus</i>)	Serviceberry (<i>Amelanchier canadensis</i>)
Japanese quince (<i>Chaenomeles japonica</i>)	White jasmine (<i>Jasminum officinale</i>)

Herbs

Alpine rock-cress (<i>Arabis alpina</i>)	Orpine (<i>Sedum telephium</i>)
Angelica (<i>Angelica archangelica</i>)	Perennial cornflower (<i>Centaurea montana</i>)
Annual honesty (<i>Lunaria annua</i>)	Perennial honesty (<i>Lunaria rediviva</i>)
Aubretia (<i>Aubretia deltoidea</i>)	Perennial sunflower (<i>Helianthus decapetalus</i>)
Autumn Stonecrop (<i>Sedum</i> 'Purple Emperor')	Phlox (<i>Phlox paniculata</i>)

Borage (<i>Borago officinalis</i>)	Poached-egg plant (<i>Limnanthes douglasii</i>)
California poppy (<i>Eschscholtzia californica</i>)	Purple coneflower (<i>Echinacea purpurea</i>)
Canadian Fleabane (<i>Erigeron canadensis</i>)	Purple-top vervain (<i>Verbena bonariensis</i>)
Candytuft (<i>Iberis sempervirens</i>)	Red campion (<i>Silene dioica</i>)
Christmas rose (<i>Helleborus niger</i>)	Red valerian (<i>Centranthus ruber</i>)
Common mallow (<i>Malva sylvestris</i>)	Rosemary (<i>Rosmarinus officinalis</i>)
Common poppy (<i>Papaver rhoeas</i>)	Sage (<i>Salvia officinalis</i>)
Cosmos (<i>Cosmos bipinnatus</i>)	Shrubby Veronica (<i>Hebe recurva</i>)
Evening primrose (<i>Oenothera biennis</i>)	Snapdragon (<i>Antirrhinum majus</i>)
Wood forget-me-not (<i>Myosotis sylvatica</i>)	Soapwort (<i>Saponaria officinalis</i>)
French marigold (<i>Tagetes spp.</i>)	Spear mint (<i>Mentha spicata</i>)
Globe thistle (<i>Echinops ritro</i>)	Spring crocus (<i>Crocus chrysanthus</i>)
Great mullein (<i>Verbascum thapsus</i>)	Sunflower (<i>Helianthus annuus</i>)
Grecian windflower (<i>Anemone blanda</i>)	Sweet alyssum (<i>Lobularia maritime</i>)
Heart-Leaf Ice-plant (<i>Aptenia cordifolia</i>)	Sweet bergamot (<i>Monarda didyma</i>)
Hollyhock (<i>Althaea rosea</i>)	Sweet rocket (<i>Hesperis matronalis</i>)
Hyssop (<i>Hyssopus officinalis</i>)	Sweet William (<i>Dianthus barbatus</i>)
Ice plant (<i>Sedum spectabile</i>)	Tickseed (<i>Coreopsis spp</i>)
Lacy phacelia (<i>Phacelia tanacetifolia</i>)	Tobacco plant (<i>Nicotiana affinis</i>)
Late Michaelmas-daisy (<i>Aster x versicolor</i>)	Wallflower (<i>Cheiranthus cheiri</i>)
Lavender (<i>Lavandula angustifolia</i> .)	Winter aconite (<i>Eranthis hyemalis</i>)
Lenten rose (<i>Helleborus orientalis</i>)	Yellow alyssum (<i>Alyssum saxatile</i>)
Ox-eye daisy (<i>Leucanthemum vulgare</i>)	Yellow loose-strife (<i>Lysimachia vulgaris</i>)
Marjoram (<i>Origanum vulgare</i>)	

Sources: *Plants for wildlife friendly Gardens* (Natural England), *Planting Gardens for Birds* (RSPB), *Gardening for Bats* (Bat Conservation Trust) and *Starting a Butterfly Garden* (School Garden Company).

APPENDIX 4: BIRD AND BAT BOXES FOR TREES

EXAMPLES OF NON-INTEGRATED BIRD BOXES FOR TREES AND BUILDINGS

Suspended Designs



Schwegler 1B
General box



Schwegler 2H open-front
'robin' box



Schwegler 5
'large owl' box



Schwegler 1CGA
'small owl' box



Schwegler 20
'starling' box



Schwegler 28 'kestrel' box



Schwegler 5KL 'nuthatch' box

Surface-mounted Designs



Schwegler 1MR general box



Vivara Pro open-front
'robin' box



Vivara Pro ova open-front
'robin' box



Vivara Pro 'starling' box



Vivara Pro 28/32mm
general box



Vivara Pro 28/32mm
oval general box

EXAMPLES OF SURFACE-MOUNTED BAT BOXES

Tree-mounted boxes



Schwegler 2F General Box



Schwegler 1FD Nursery Box



Schwegler 1FS Nursery Box (Large)



Schwegler 1FW Winter Box
(Very large box)



Schwegler 2FN
Noctule Box



Schwegler 2F DFP
Daubenton's Bat Box



Miramar General Box

Tree or building-mounted boxes



Schwegler 1FF General Box



Schwegler 1FQ Decorative Box



Schwegler 1FFH General Box



Vivara Woodstone Low Profile Box



NHBS Cavity Box
(Brown Long-Eared Bat Box)



NHBS Crevice Box

PHOTOGRAPHS OF SITE (April 2020)

	
Western elevation of building 1	Western elevation of building 1
	
Western elevation of building 1, grade listed section	View of part of western elevation
	
Large open window on the western elevation	Interior of building 1



Interior of building 1, water damage



Damage to ceiling, interior of building



Water damage in building 1 interior



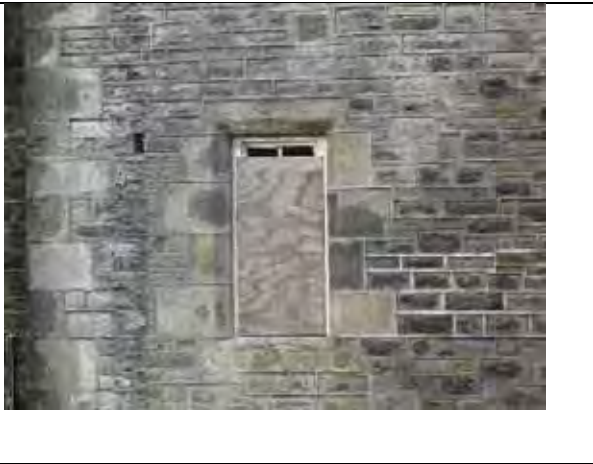
Interior of building 1



Damage to exterior stone work on western elevation



Northern elevation of building 1

	
Southern elevation of building 1 with damage to exterior stone work	Open window areas on western elevation of building 1
	
Damaged slate clad flat roof extension on western elevation	Boarded up window with gaps
	
Exterior stone work damage, blue tit seen exiting during building inspection on south east corner of building 1.	Western elevation of building 2

	
Northern elevation of building 2	Gaps in window lintels on northern elevation of building 2
	
Gaps in lintel on northern elevation of building 2	Northern and eastern elevations of building 2
	
Interior of building 2	Northern and western elevations of building 3

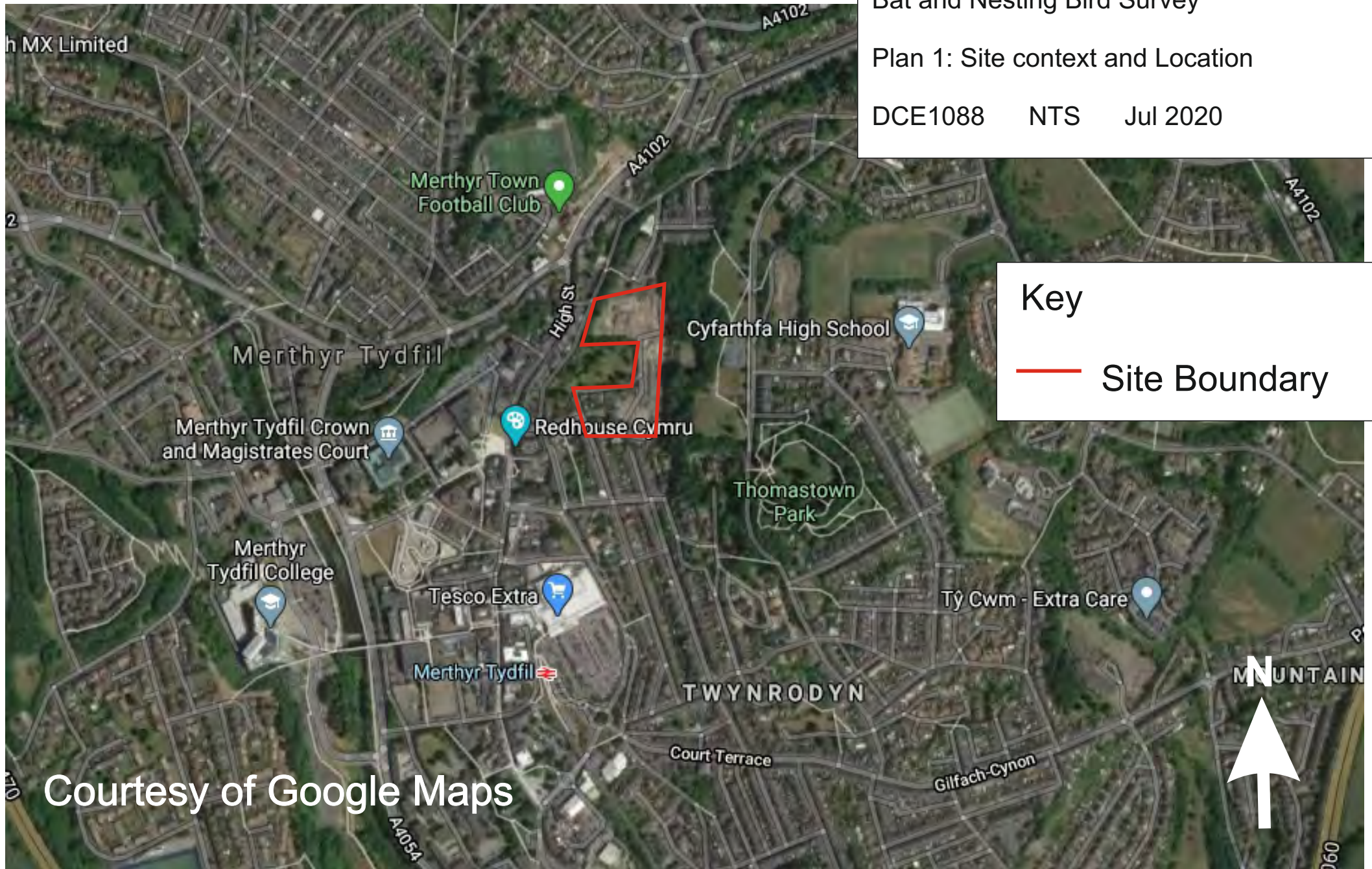
	
Gaps in northern elevation of building 3	Gaps in northern elevation of building 3
	
Gaps in interior wall stone work in building 3	Birds nest in interior of building 3
	
Northern and eastern elevations of building 3	Sweet chesnut tree with PRF

	
Tree on boundary with PRF	Gaps under PVC fittings on northern extension of building 1
	
Damage to external stone work on northern extension of building 1	

St Tydfil's Hospital, Merthyr
Bat and Nesting Bird Survey

Plan 1: Site context and Location

DCE1088 NTS Jul 2020



Key

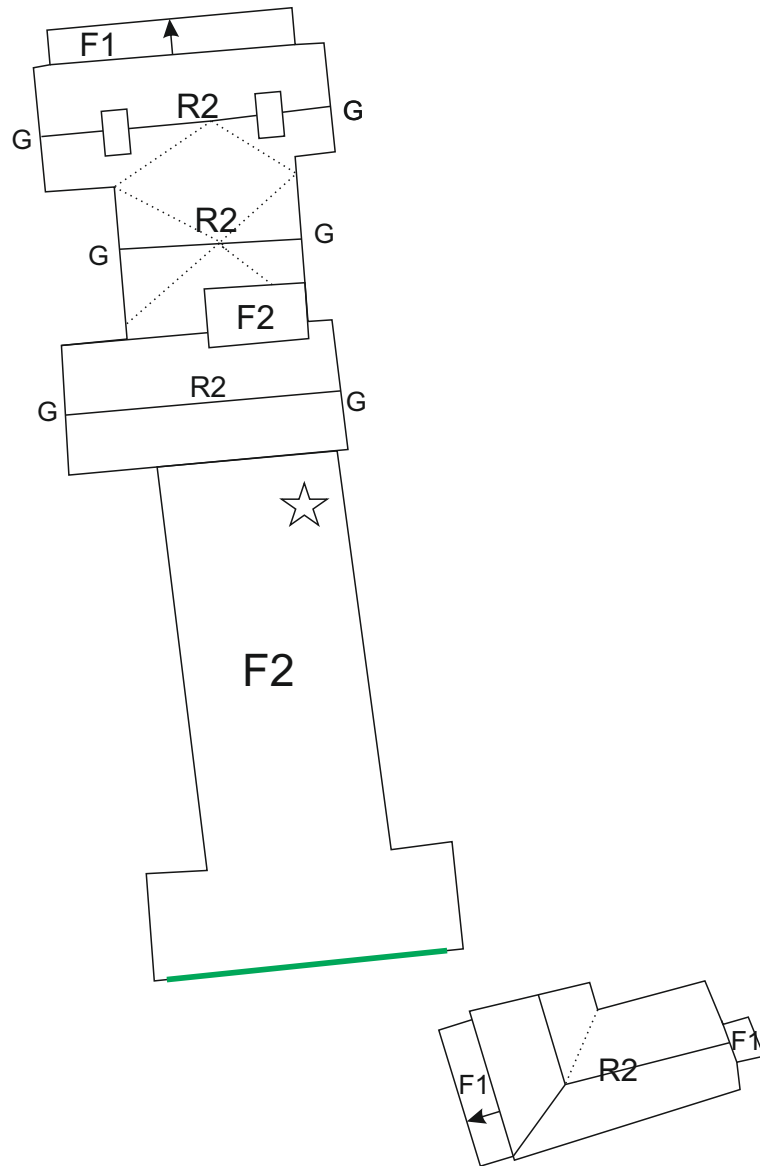
— Site Boundary

Courtesy of Google Maps

St Tydfil's Hospital, Merthyr
Bat and Nesting Bird Survey

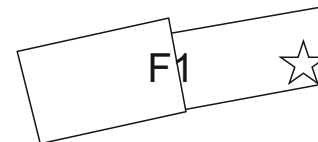
Plan 2: Building Inspection Results

DCE1088 NTS Jul 2020



Key

- ☆ Bird nests
- Ivy
- F Flat roof (storey number)
- G Gable
- R Ridge (storey number)
- Chimney
- ... Valley



St Tydfil's Hospital, Merthyr
Bat and Nesting Bird Survey

Plan 3: Flight Survey Dusk Emergence Results
(20th May 2020 & 26th May 2020)

DCE1088 NTS Jul 2020

Key



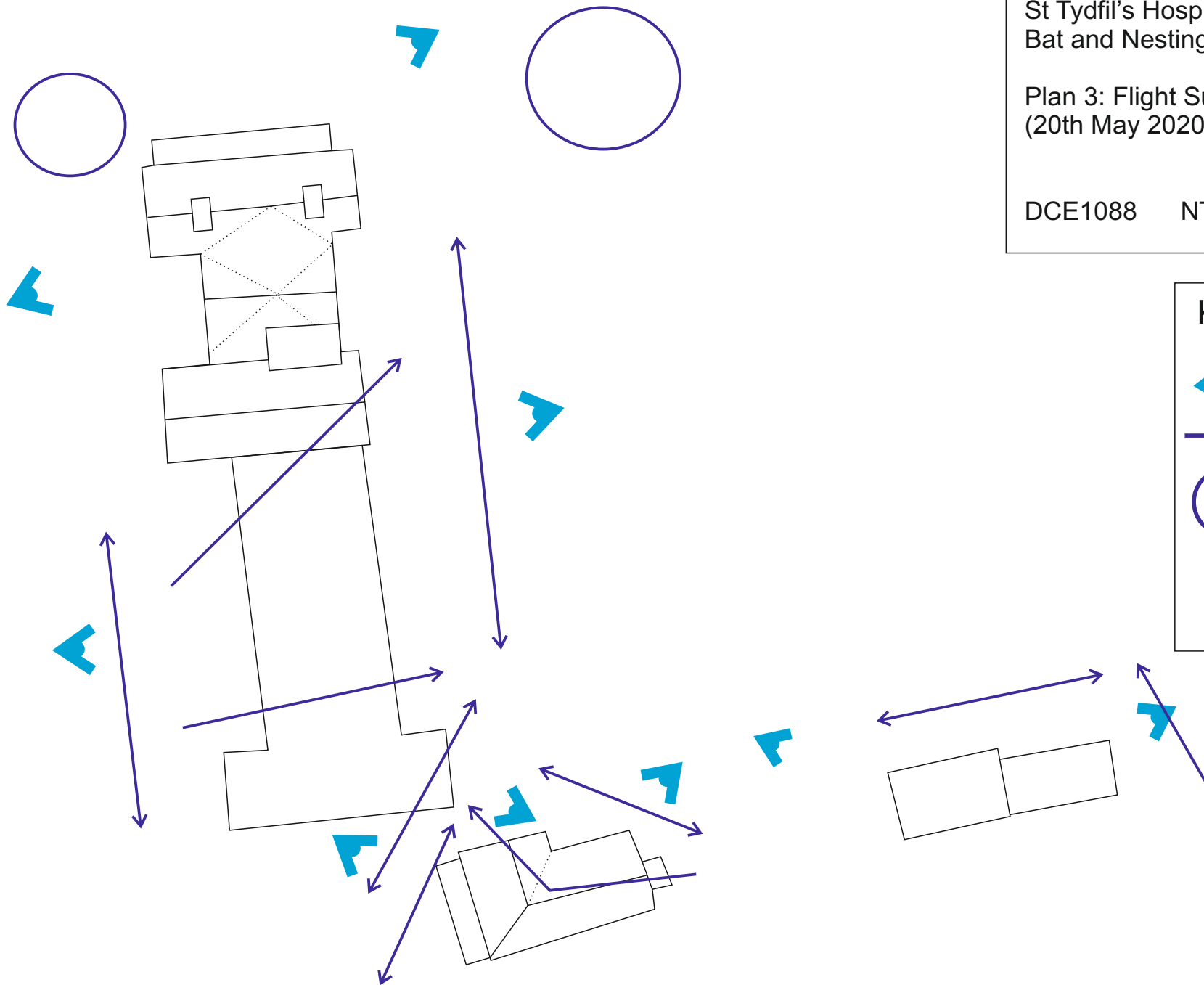
Surveyor position



Flight line
(common pipistrelle)



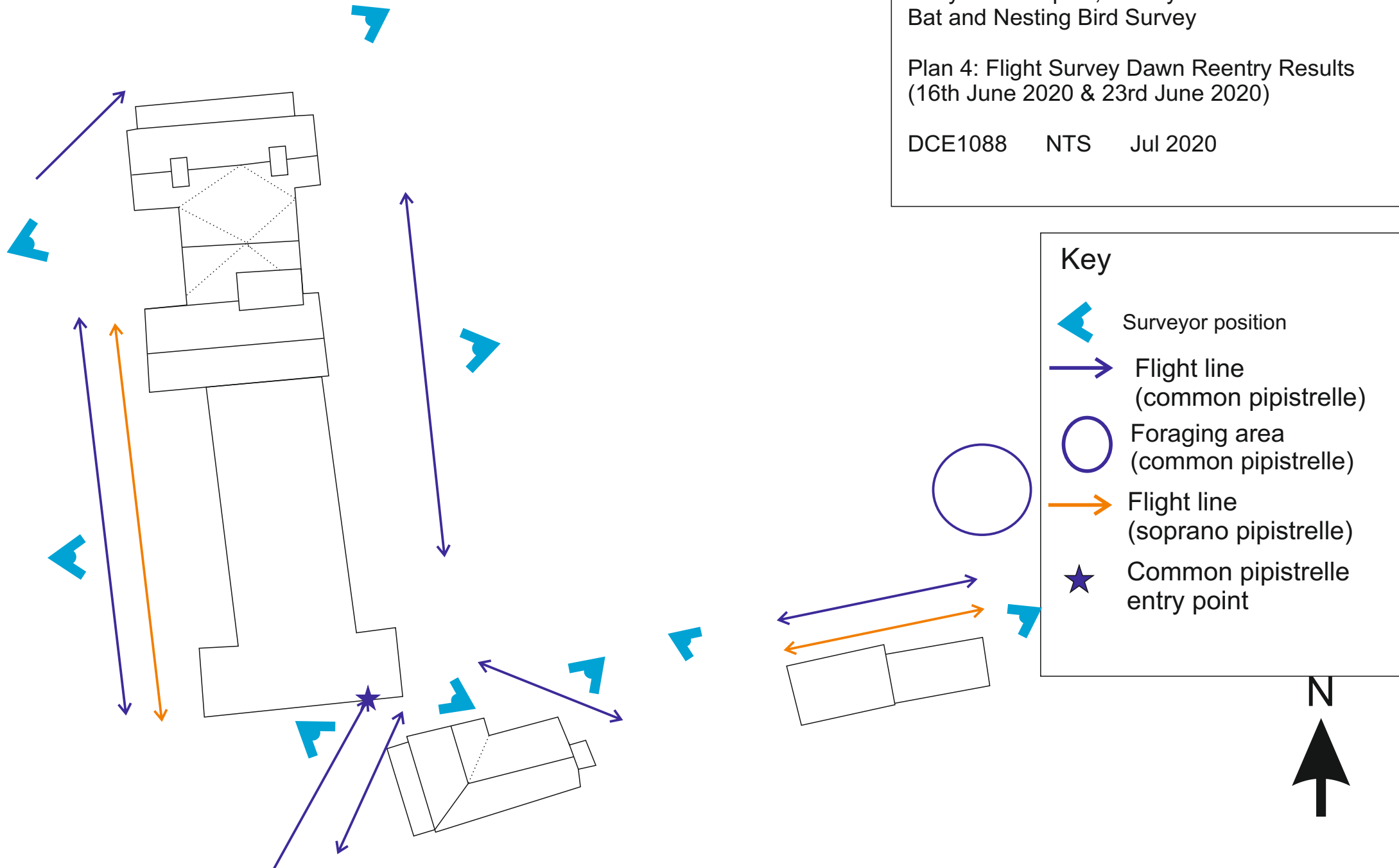
Foraging area
(common pipistrelle)



St Tydfil's Hospital, Merthyr
Bat and Nesting Bird Survey

Plan 4: Flight Survey Dawn Reentry Results
(16th June 2020 & 23rd June 2020)

DCE1088 NTS Jul 2020



St Tydfil's Hospital, Merthyr
Bat and Nesting Bird Survey

Plan 5: Ground based Tree Assessment Results

DCE1088 NTS Jul 2020

