

Preliminary Ecological Assessment

Solva Football Pitch

Solva

Pembrokeshire



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Survey Report

Date: 3rd February 2022

Version: Draft 1

Solva Football Pitch

Solva

Pembrokeshire

Grid reference: SM79704 24336

Action	Version No	Date-2022	Author/surveyor	check	Sent
Survey	Preliminary Ecological Assessment	25 th January	L. Wolstenholme		
Report	Draft 1	3 rd February	L. Wolstenholme	Anna Sutcliffe	
FINAL REPORT	Final		L. Wolstenholme		

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1.0 EXECUTIVE SUMMARY

- 1.1 ATEB Housing Association are seeking to determine the ecological constraints and opportunities associated with a proposed housing development at land occupied by former football pitches in Solva, Pembrokeshire.
- 1.2 The desk study revealed eight statutory designated sites of conservation importance within 2km of the proposed development. It is unlikely that the proposed development will negatively impact these sites but care must be taken to prevent silt run-off or other forms of pollution into the coastal designated sites 550m to the south
- 1.3 The site survey was conducted within the development footprint on the 25th January 2022 (within the red line depicted in Figure 3) and identified a total of three standard Phase 1 habitat types: Amenity Grassland, Intact Hedgerow and Defunct Hedgerow.
- 1.4 It is recommended that all existing hedgerows remain in place and are managed to benefit biodiversity.
- 1.5 It is recommended that a 1m buffer strip is put in place running alongside all hedgerows to protect the roots of woody species and to retain a foraging and commuting corridor for wildlife.
- 1.6 It is recommended that a precautionary method statement is written and adhered to in relation to site clearance focussed on avoiding harm to any reptiles, amphibians and hedgehogs which may be using the site.
- 1.7 Lighting of the site should be considered, particularly in relation to bats.
- 1.8 Any hedgerow, shrub or scrub clearance needs to take place outside of the bird nesting season (March- August inclusive). If hedgerow/shrub clearance has to be undertaken during the bird breeding season, then a suitably qualified ecologist must conduct a nest check prior to clearance.
- 1.9 To allow the movement of hedgehogs in and out of the site any new boundary treatments should not be flush to the floor. If this is not possible a series of suitably sized gaps (13cm x 13cm) should be strategically place intermittently along the new boundary treatment.
- 1.10 It is recommended that the non-native invasive plant species variegated yellow archangel and monbretia are eradicated from the site.
- 1.11 A range of measures could be undertaken to enhance the site for biodiversity including incorporating bird nest boxes and bat boxes into the design of the new buildings and the deliberate creation of reptile/amphibian refugia and hibernacula at the margins of the site.
- 1.12 The plans submitted with the planning application need to incorporate all these recommendations and once, finalised, be sent to Pembrokeshire Ecology so that they can be incorporated into this ecology report. As such the final plans must show the location of any biodiversity enhancement features. Lighting must also be checked, discussed and added to the plans.

2.0 INTRODUCTION, LOCATION, SITE DESCRIPTION AND CONTEXT

2.1 Pembrokeshire Ecology was instructed by ATEB Housing Association to provide an ecological assessment of the former football pitches in Solva, Pembrokeshire

2.2 **Timing-** preliminary ecological assessment survey: 25/1/2022
Surveyor – Leander Wolstenholme

2.3 **Reasons for survey** – to establish the ecology of the site and to identify the habitats and species associated with, and near, the site. This information will be used to highlight the ecological constraints and opportunities for development on site. A Preliminary Ecological Assessment identifies further detailed surveys that will be required to bring the information on the site up to the level required to obtain planning permission. This additional survey work may be required to finally fulfil the developer’s obligations in respect of the ecological sensitivities on the land and may require application for licences associated with protected species e.g. bats and badgers.

Site Location and Brief

2.4 The site lies immediately south of the A487 in Upper Solva. The site is situated within the Pembrokeshire Coast National Park and centred on national grid reference SM79704 24336. It is located 4km east of St Davids, 16km north-west of Haverfordwest and 19km south-west of Fishguard



Figure 1: Site Location: 0



Figure 2: Site Location: ●

2.5 The survey area can be seen in Figure 3 below and is approximately 1.6Ha.

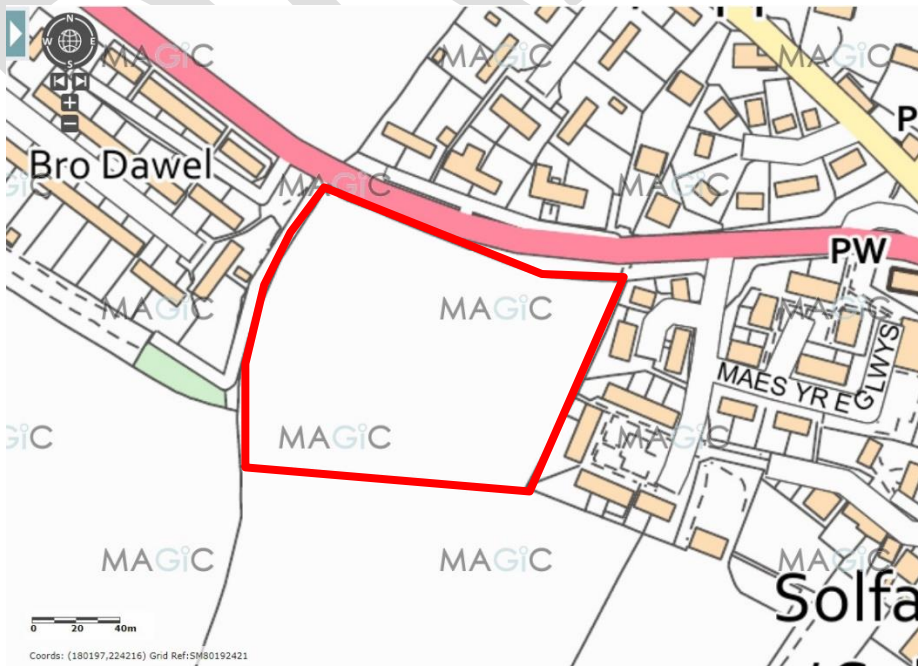


Figure 3: Survey Area (within the red line)

Background to the activity/development

- 2.6 ATEB Housing Association is seeking to determine the ecological constraints associated with a proposed housing development at the former football pitches, Solva, Pembrokeshire. **The proposed development plans are given in Appendix A.**
- 2.7 In support of a potential planning application Pembrokeshire Ecology were commissioned to undertake a preliminary ecological assessment of the site to identify any apparent or potential ecological constraints to, or opportunities arising from, the proposed actions or development and provide recommendations, as appropriate, to enable compliance with planning policy and wildlife legislation.

Survey Objectives

- 2.8 The objectives are:
- Identify designated nature conservation sites on or within proximity to the Project Site.
 - Identify known records of protected or notable species within proximity to the Project Site.
 - Identify and categorise the main habitats and features of ecological interest present within the Project Site.
 - Appraise the potential for protected or notable species of fauna and flora
 - Provide advice on potential ecological constraints and opportunities on or within proximity to the Project Site
 - Identify the requirement for further habitat and species surveys
 - Make recommendations for requirements to avoid and mitigate ecological impacts as well as opportunities for biodiversity enhancements
 - Provide a map showing the Phase 1 habitats on the Project Site and features of ecological interest
- 2.9 The purpose of the report is to demonstrate which habitats and species are present on site and whether further detailed survey work is necessary in order to understand the full ecological impact on the protected species and the Project Site.
- 2.10 A completed preliminary ecological assessment report will contribute to the paperwork required for obtaining full planning permission.
- 2.11 The legislation in relation to the protected species is outlined below but is not to be regarded as a definitive legal opinion. When dealing with individual species or habitats the client is advised to consult the full texts or the relevant legislation and obtain further legal advice.
- 2.12 The following legislation is potentially relevant to the Project Site:
- The Wildlife and Countryside Act (WCA) 1981 (as amended).
 - The Countryside and Rights of Way (CROW) Act 2000.
 - The Conservation of Habitats & Species Regulations 2017.
 - The Hedgerow Regulations 1997
 - The Protection of Badgers Act 1992
 - The Environment (Wales) Act 2016
 - The Natural Environment and Rural Communities Act 2006
 - The Welfare of Future Generations Act 2015 [in Wales]

- 2.13 The legislation listed [see Appendix C] has been considered when planning and undertaking this survey using the methods described in Section 3, when identifying potential constraints to the Project, and when making recommendations for further survey work, design options and mitigation, as discussed in Section 5.
- 2.14 Compliance with legislation may require the attainment of relevant protected species licences prior to the implementation of the Project.

Surveyor's experience and qualifications

- 2.15 The survey was undertaken by Leander Wolstenholme. Leander is an ecologist with over twenty five years' experience in field survey work. He has a degree and PhD in botany and plant genetics from the University of Aberystwyth and formerly worked as an ecological consultant with The Environment Partnership (TEP) based in Warrington. Following this he spent some 10 years working as the Head of Botany at the World Museum Liverpool and the Curator of Botany at the Manchester Museum during which time he conducted surveys as a freelance ecologist for TEP and other clients.
- 2.16 The lead ecologist for this site is Anna Sutcliffe. Anna is an ecologist with over forty years' experience in field survey work. She has a degree in geography and botany from the University of Reading and formerly worked as a tutor with the Field Studies Council and the officer for the Pembrokeshire Outdoor Charter group. She worked for 10 years as a field worker / seabird surveyor on Skomer Island. And now runs her own ecological consultancy since 2008

3.0 METHODOLOGY

3.1 The survey undertaken comprised of two components: a desk top study and a field-based habitat survey.

Desk Top Study

3.2 The objectives of a desk study are to review the existing information available in the public domain concerning species and habitats.

3.3 The following searches were undertaken:

3.4 Protected and Priority species records and records of locally designated sites (up to 2km from the Project Site, using the records held by the West Wales Biodiversity Information Centre (WWBIC).

3.5 Internationally, nationally and locally designated sites, including Special Areas of Conservation (SACs) and Sites of Special Scientific Interest (SSSIs) up to 2km from the site using the Multi Agency Geographic Information for the Countryside (MAGIC) website. (www.magic.gov.uk).

3.6 Aerial photographs and Ordnance Survey (OS) maps were reviewed to identify features of ecological interest surrounding the Project Site including ponds within 500m, nearby areas of ecological interest and features connecting these habitats (hedgerows, watercourses, railway lines).

3.7 A search of planning applications in the local area using Pembrokeshire County Council's planning portal.

Limitations to Desk Top Study

3.8 Biological records can be received from a wide variety of sources and may or may not be comprehensive and accurate. However, if assessed in conjunction with a Phase 1 Habitat survey, can contribute to a robust ecological assessment of a site.

Preliminary Ecological Assessment Survey

- 3.9 A preliminary ecological assessment survey involves a site walkover and preliminary assessment of key habitats, land use and ecological features. The main habitats present are recorded using standard Phase 1 Habitat Survey methodology as described in the Handbook for Phase 1 Habitat Survey: a technique for Environmental Audit (JNCC, 2010). The plant species defining the habitat types on the Project Site are recorded. Evidence of any invasive plant species subject to legal controls is also recorded.
- 3.10 In the case of a preliminary ecological assessment survey, as well as identifying and mapping the habitats, searches are also made on the Project Site for field signs of protected and species of conservation note. The Project Site is then assessed for its potential to support protected or notable species in order to identify potential ecological constraints and to guide recommendations for further surveys.
- 3.11 The following species are of note and the field signs searched for in the case of each species are briefly described:
- Bats**
- 3.12 During the Phase 1 Habitat Survey, where access allowed and the information at the time, trees and buildings on the Project Site will be identified for their potential and actual presence of features suitable as bat roost habitat. [See Appendix D for tables used to assess bat potential].
- 3.13 Tree roosts – [If present] Trees were assessed during the Phase 1 survey for specimens and wooded areas requiring further survey work. The assessment was conducted via an external appraisal from the ground using binoculars where necessary.
- 3.14 The trees and woodland [if present] overall rating was assessed on the basis of species composition and age, of their likelihood to support roosting bats, and/or the need for further assessment.
- 3.15 Bat Habitats on-site were classified into categories dependent on the presence of features suitable for bats to commute forage [Core Sustenance Zones]. See Appendix D Tables 1 & 2 for guidelines on assessing bat roosting, foraging and commuting features.
- Badgers**
- 3.16 During the Phase 1 survey signs and features of badger activity such as hairs and badger paths, if present, were mapped. The boundaries of the site were inspected both from inside the site and on the outside where possible. Sett entrances are recognised by oval holes c.300mm wide x 200mm high. These have a tendency to have a large mound of loose earth outside the holes. Other signs searched for included “snuffle holes” [holes dug by badgers while hunting for invertebrates]; “dung pits” where badgers dig holes and mark their territories with faeces; and “day nests” where dried material fashioned into a nest can be used as an “above ground nest”, or material could be found that has been dropped *en route* to the burrow. Each feature and sign are mapped. Should a sett be found within 30m of the development footprint, an in-depth badger survey will be planned to work out the status of the sett, whether neighbouring setts belong to related badgers or rival groups and finally an assessment will be made on the impact of closing the sett with a licence from NRW and an artificial sett may need to be constructed.

Otters

- 3.17 Otters are highly likely to be present IF any water bodies are found on site e.g. stream, river pond lake, the sea etc. If no water is found nearby then otters may not be present. Signs of otters include spraints (on rocks, grassy tussocks or other prominent feature), footprints, holts etc.

Hazel Dormice

- 3.18 Dormice are difficult to survey. A daytime search will involve looking for hazelnuts nibbled in a characteristic way. Habitat suitability is also important when combined with close scrutiny of the local mammal records and the location of good habitat as found in Ancient Woodland but also in other habitats like coniferous forest with undergrowth, hazel copse etc.

Water voles

- 3.19 Water voles live along rivers, streams and ditches, around ponds and lakes and in marshes, reed-beds and areas of wet moorland. Signs that water voles are present include burrows in the riverbank, feeding stations (piles of nibbled grass) and latrines of rounded cigar-shaped droppings.

Other mammals

- 3.20 Harvest mouse, fox, rabbit, polecat, stoat, weasel and hedgehog. Field signs e.g. droppings, nests, sightings etc. will be looked for and noted during a preliminary ecological assessment survey.

Amphibians and Reptiles

- 3.21 Signs, or actual sightings, that would indicate the presence of amphibians and reptiles will be noted during an extended phase 1 survey walkover.

Birds

- 3.22 Birds observed or heard will be noted during the preliminary ecological assessment survey walkover.

Invasive Non-Native species

- 3.23 Any species considered to be pernicious weeds under Schedule 9, Section 14 of the Wildlife and Countryside Act 1981 (as amended) will be noted, mapped and reported, if found during the survey. Such species will include Japanese Knotweed (*Fallopia japonica*) and Himalayan Balsam (*Impatiens glandulifera*).

4.0 RESULTS

Desk Study Results



Figure 4: Aerial photograph of site in relation to surrounding habitats. Project Site: ●



Figure 5: Close up aerial photograph of site in relation to surrounding habitats. Project Site within red line boundary

Designated Sites within 2km

4.1 There are eight designated sites within 2km. These are:

Designated Site Name	Distance from Project Site	Reason for Designation
Pembrokeshire Marine/Sir Benfro Forol SAC	550m south	Species: Otters, grey seals, shore dock, sea & river lampreys, allis & twaite shads Habitats: Reefs, estuaries, large shallow inlets and bays, mud and sand flats, subtidal sandbanks, saltmarsh, lagoons, caves
St David's/Ty Ddewi SAC	550m south	Vegetated sea cliffs of the Atlantic and Baltic Coasts, European dry heaths. Floating water-plantain (<i>Luronium natans</i>)
West Wales Marine SAC	550m south	Harbour Porpoise (<i>Phocoena pocoena</i>) – also notified for bats
North-west Pembrokeshire Commons SAC	Closest component 1.7km north (St David's Airfield Heaths SSSI)	Wet and dry heathland, wetlands, marshy grassland and an array of rare plants
Ramsay and St David's peninsula Coast SPA	550m south	Coastal birds.
St David's Coast Peninsula SSSI	500m south	Important geological and biological features including lichens, invertebrates, choughs, peregrines and is nationally important for grey seals
Dwrhyd Pits SSSI	600m north-west	Geological site - fossils
St David's Airfield Heaths SSSI	1.7km North	Wet heathland/

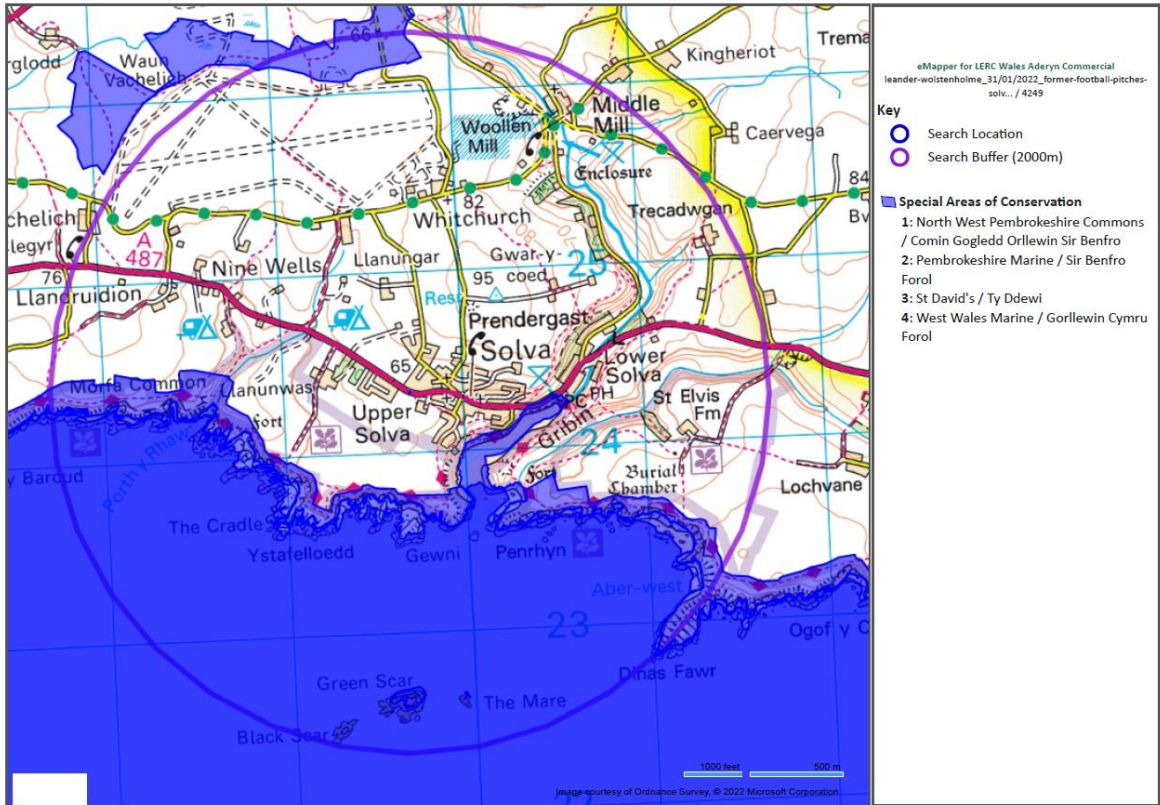


Figure 6: Designated sites within 2km of the project site: SACs

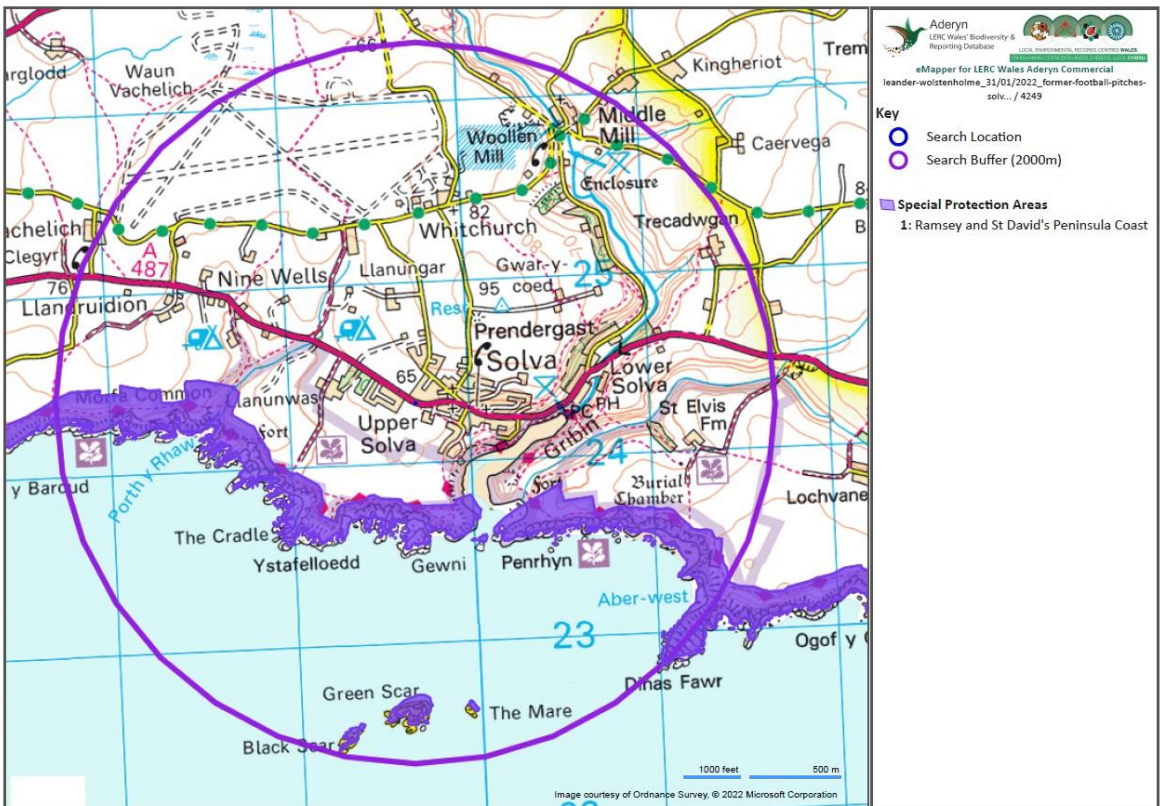


Figure 7: Designated sites within 2km of the project site: SPA

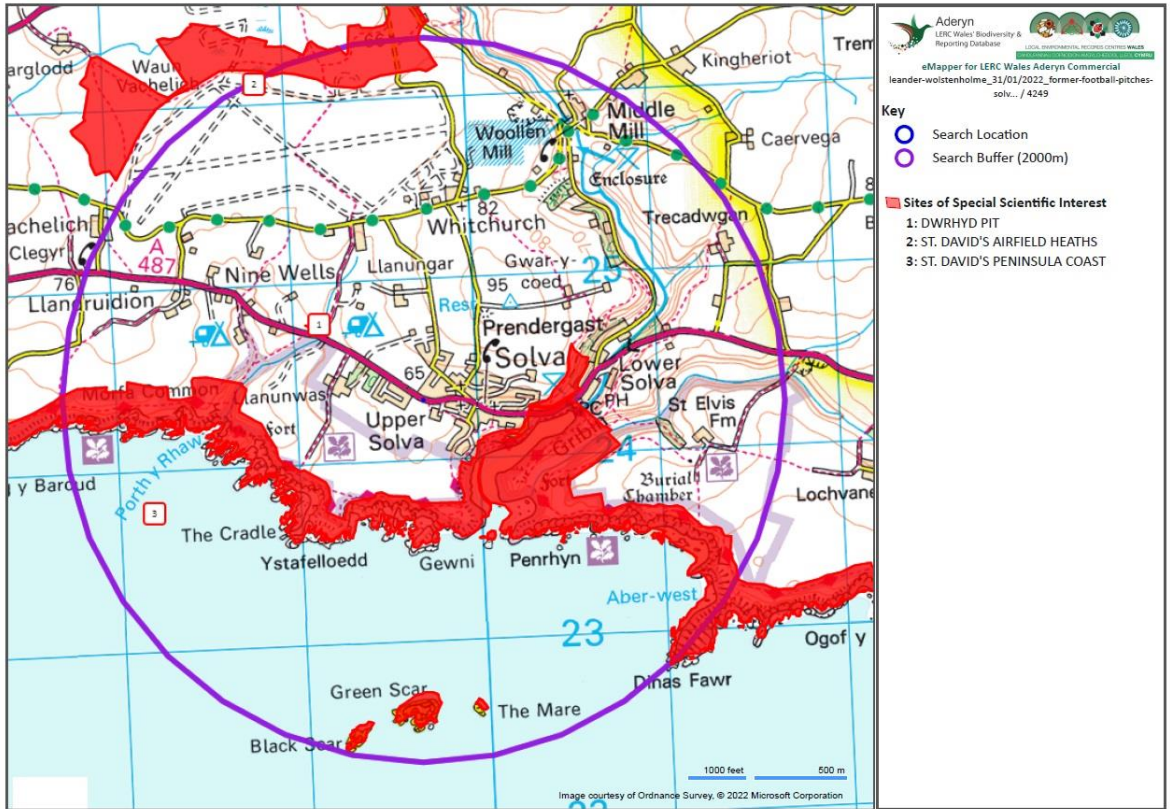


Figure 8: Designated sites within 2km of the project site: SSSIs

Protected and Priority Species:
Bats

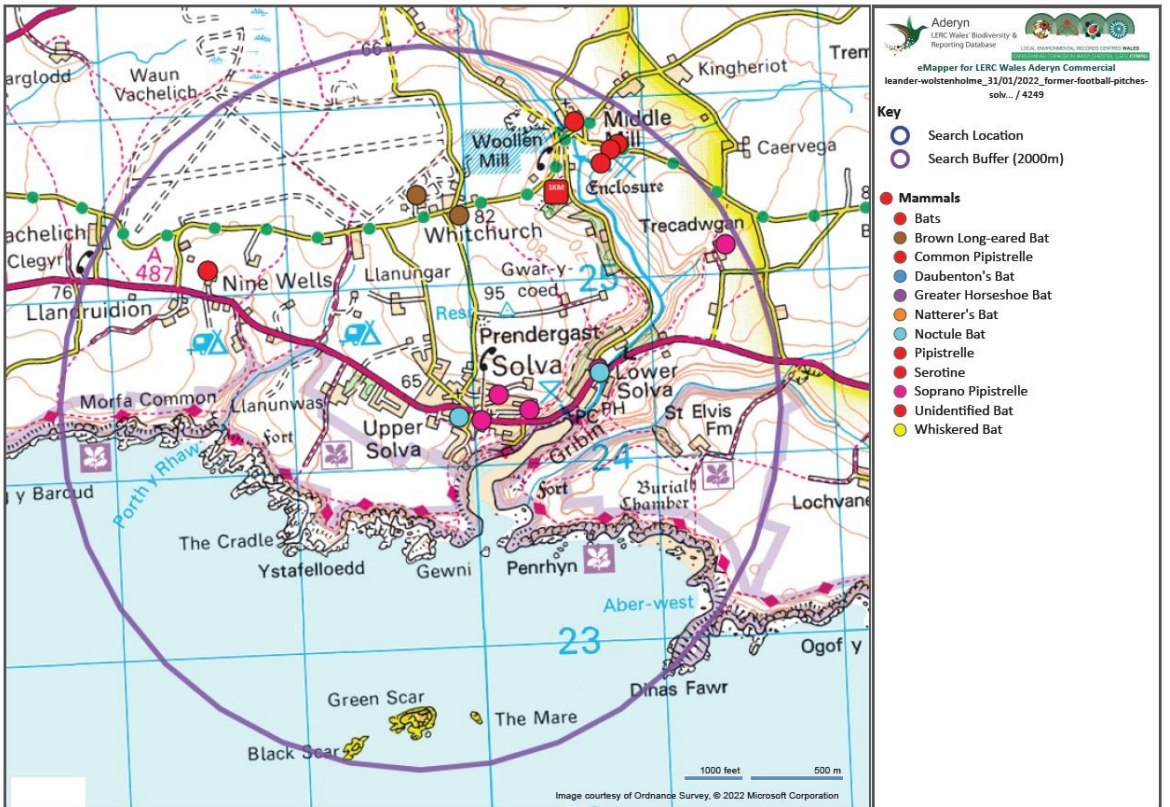
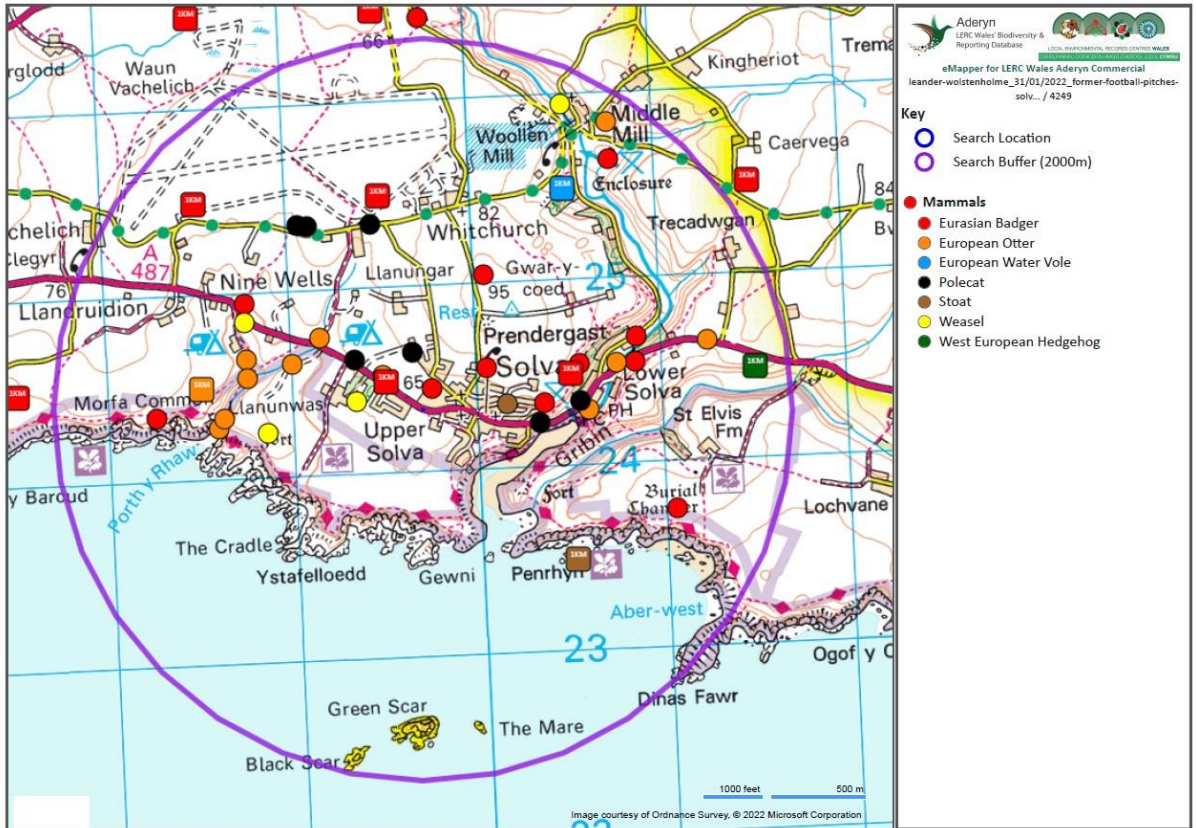
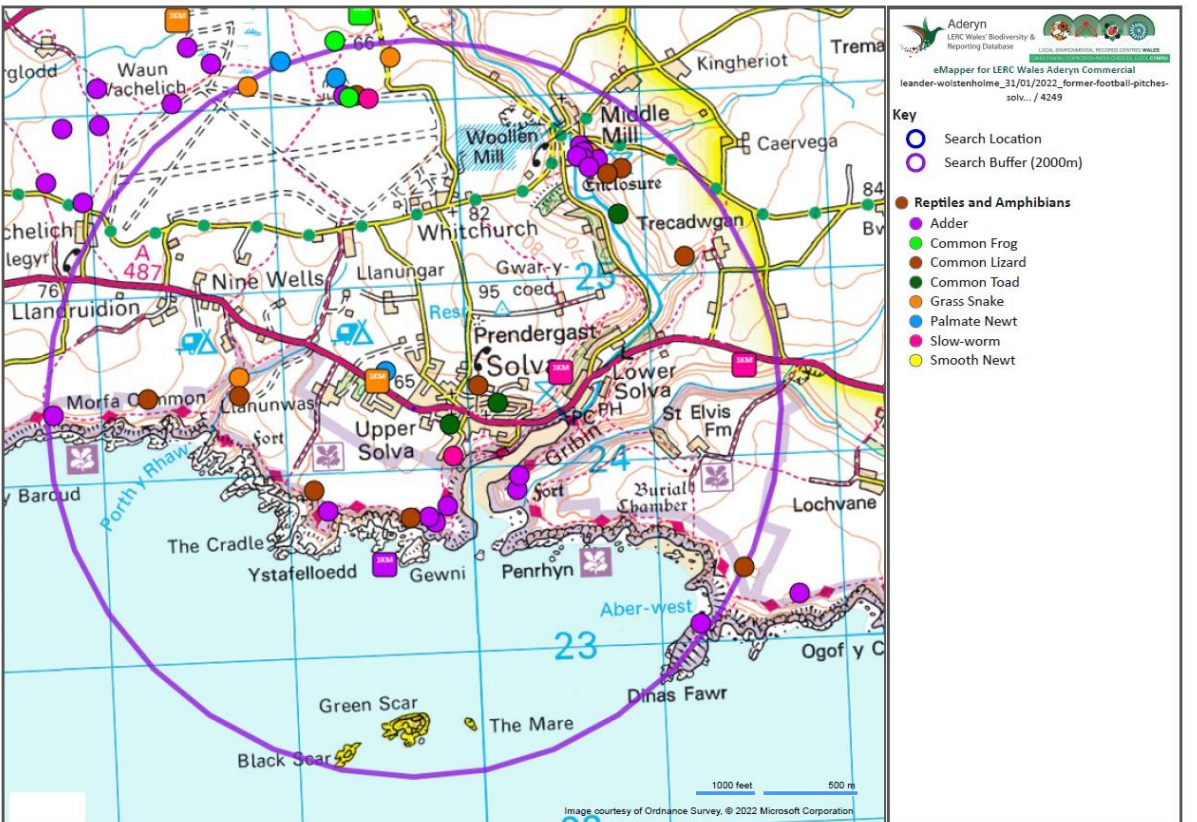


Figure 9: Distribution of bat records within a 2km buffer of the project site

Other Mammals



Reptiles and Amphibians



Other species

4.2 The are no category 1 (i.e. European and/or UK legally protected species, species listed in section 7 of the Environment (Wales) act or UK BAP priority species) plant species recorded from within 500m of the site

4.3 The following category 1 bird species have been recorded within 500m of the site:

- Duncock
- Starling

4.4 The following category 1 butterfly and moth species have been recorded within 500m of the site.

- Dingy Skipper
- Grayling
- Small Pearl-bordered Fritillary
- Wall

Habitats

Habitats Map

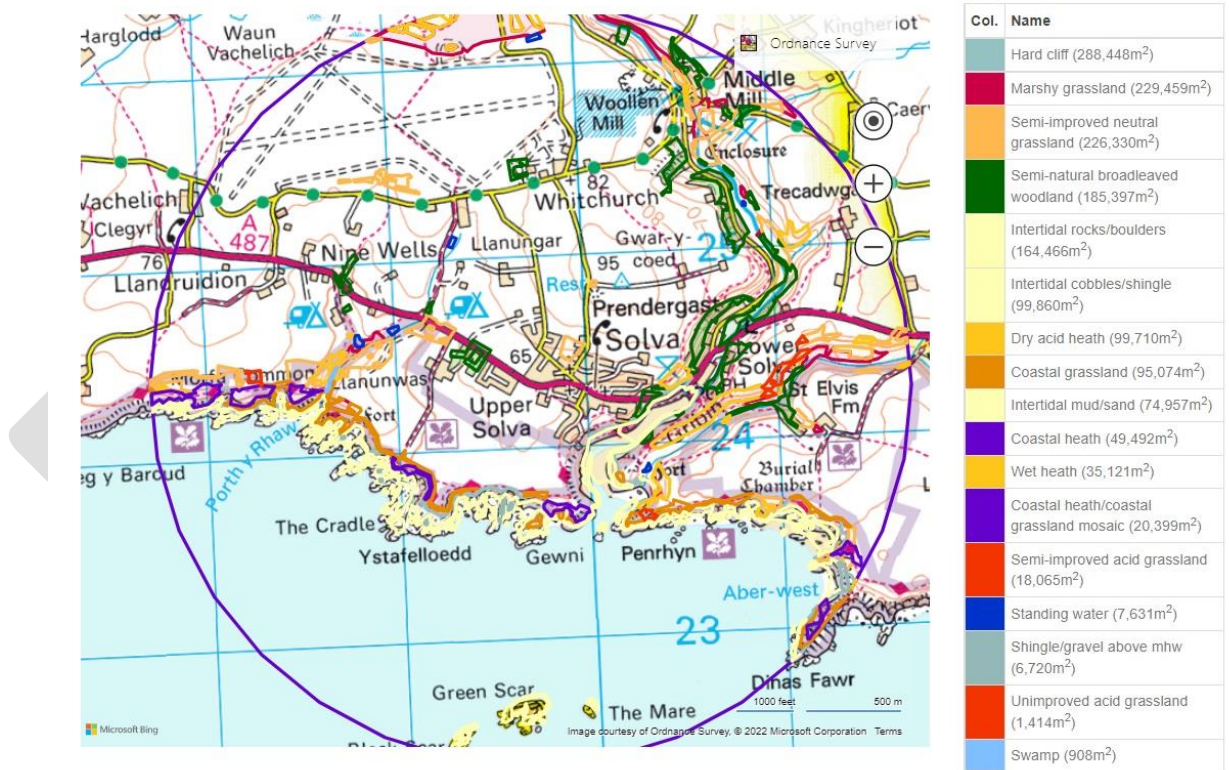


Figure 12: Phase 1 habitats within and near the project site from records held at the West Wales Biodiversity Information Centre.

Water

4.5 The nearest standing freshwater water are ponds 700m W at Nine Wells and a pond 750m NW near Llanungar-fawr.

4.6 The closest running freshwater is a stream 900m W (running south into Porth y Rhaw) and the River Solva 800m to the east.

Figure 13: Phase 1 Habitat Map – Area Within Red Line Boundary



Phase 1 Habitat Survey Results

- 4.7 The Phase 1 Habitat Survey map is given in Figure 13 and detailed species lists for each habitat are given in Appendix B. The Project Site is defined by the red line boundary given in Figure 3.

Amenity Grassland (Phase 1 Habitat Code J1.2)

- 4.8 This habitat occupies the bulk of the site. It is clearly mown regularly and managed for amenity purposes, Perennial ryegrass (*Lolium perenne*) is the most abundant species of grass with other species present including Yorkshire fog (*Holcus lanatus*), cock's-foot (*Dactylis glomerata*) and common bent (*Agrostis capillaris*). Herbs present including frequent common sorrel (*Rumex acetosa*), meadow buttercup (*Ranunculus acris*) and locally frequent daisy (*Bellis perennis*).



Figure 14: Amenity Grassland (facing east – with eastern boundary fence and hedgerow in the distance)

Hedgerows

- 4.9 The site is bounded on all sides by hedgerows. The northern hedgerow, running alongside the A487 road, is defunct consisting of only a few short sections of hawthorn (*Crataegus monogyna*) and blackthorn (*Prunus spinosa*) hedgerow with stretches of bramble (*Rubus fruticosus*) in between.
- 4.10 The eastern boundary consists of a wooden fence for half its length and hawthorn dominated hedgerow along the other half.
- 4.11 The western boundary hedgerow is defunct consisting of a row of individual, regularly spaced hawthorn bushes with bramble scrub in between the bushes.

- 4.12 The southern boundary hedgerow is intact and composed of a thick belt of blackthorn (*Prunus spinosa*) with other species such as hawthorn and elder (*Sambucus nigra*) also present.



Figure 15: Hedgerow along southern boundary (facing west)



Figure 16: Defunct northern boundary hedgerow (facing west)

Potential Reptile Features

4.13 A limited number of features were noted that could potentially provide refugia and hibernacula for reptiles as shown below (see Figure 13, Phase 1 Habitat Map, for locations).



Brush Pile – south east corner of site



Stone wall with gaps in stonework – located along southern and western boundaries



Piles of stones and concrete blockwork dumped along western boundary



Piles of grass clippings



Brush pile along eastern boundary hedgerow

Figure 17: Potential reptile features

Mammal Field Signs

- 4.14 A number of rabbit/fox pathways were noted across the site but no badger signs were observed.



Figure 18: Signs of Mammal Activity (trackways through grassland and a burrow in the north-eastern corner of the site – likely fox)

Birds

4.15 The following bird species noted during the phase 1 survey:

Magpie
Rook
House Sparrow (in hedgerows)
Dunnock

Other Species

4.16 No signs or sightings of reptiles, amphibians or other mammals were noted during the phase 1 survey although this absence of signs and sighting does not rule out their actual presence on site. This is particularly the case given that the survey was undertaken in January when the temperature was less than 10°C and most reptiles would be expected to be hibernating.

Invasive Species

4.17 Two invasive non-native species were noted growing on the site: variegated yellow archangel and monbretia, both growing adjacent to the fence and hedgerow along the eastern boundary.



Figure 19: Variegated yellow archangel (adjacent to eastern boundary hedgerow)



Figure 20: Monbretia (adjacent to eastern boundary hedgerow)

- 4.18 **Limitation for Phase 1 survey** – The survey was undertaken in January which is a sub-optimal time of year for a survey as some plants will not show at this time of year and a number of animal species will be hibernating and won't be visible or shown signs of presence.

5.0 EVALUATION

Designated Sites and Habitats

- 5.1 The desk study revealed that there are eight statutory designated sites of conservation importance within 2km of the proposed development. These are the Pembrokeshire Marine SAC, the St David's SAC, the West Wales Marine SAC, the North-west Pembrokeshire Commons SAC, the Ramsay and St David's peninsula Coast SPA, the St David's Coast Peninsula SSSI, the Dwrhyd Pits SSSI and the St David's Airfield Heaths SSSI.
- 5.2 Because of the distance of these sites from the project site and because of the nature of the development it is considered that the proposed development will likely have a negligible impact upon these sites. However, it must be ensured that there is no silt run off, or other forms of pollution, into the coastal designated sites (i.e. Pembrokeshire Marine SAC, the St David's SAC, the West Wales Marine SAC, the Ramsay and St David's peninsula Coast SPA, and the St David's Coast Peninsula SSSI) located some 550m to the south of site

Habitats

Amenity Grassland

- 5.3 Amenity grassland forms the bulk of the site and is the habitat that will be most impacted by the development. This habitat is of low value in ecological terms although it does provide feeding habitat for rooks, other corvids and other birds of open grassland. However, this habitat that is widespread at local, regional and national levels. The impact of the proposed development on this habitat will have a negligible impact on the ecological value of the area.

Hedgerows

- 5.4 Hedgerows are listed as priority habitats under section 7 of the Environment (Wales) Act 2016. Section 7 lists the living organisms and types of habitat in Wales that are considered to be of key significance to sustain and improve biodiversity in relation to Wales. The Act states that all reasonable steps should be taken to maintain and enhance the living organisms and types of habitat included in any list published under this section and encourage others to take such steps. As such the loss of any hedgerows or sections of hedgerows resulting from the proposed development will need to be compensated for.
- 5.5 Therefore it is recommended that all hedgerows are to be retained as part of the proposed development.
- 5.6 It is also recommended that any retained and new plant hedgerows are managed to benefit biodiversity. This can be achieved as follows:
- Only cut each hedge every 2 years; this reduces maintenance and labour costs, creates a bushier hedge for wildlife and allows flower and berry production in the intervening years.
 - Do not cut back to the same height repeatedly, raising the cutting height each time will avoid placing the hedge under stress and allow it to regenerate more vigorously.

- Cut hedges to a variety of shapes and sizes; “A” shaped hedges provide good stock proofing and shelter, create song posts for birds and enable hedgerow trees to develop if left untopped.
- Hedges can be trimmed, laid and coppiced from September to February but try to cut as late in the winter as possible so wildlife can take advantage of the nuts and berries produced in the autumn.

5.7 It is also recommended that a 1m wide buffer strip of tall/rough grass should be put in place running alongside all boundary hedgerows. This will offer feeding and commuting habitat for wildlife. These buffers strips should be cut once every one two years in late summer/autumn.

Species:

Bats

- 5.8 There are no trees or buildings on the site that show any cracks, holes or fissures that could potentially be used by bats as roosting sites.
- 5.9 The WWBIC data search returned a number of records of bats in the local area and it is likely that bats will use the hedgerows on the site for commuting and foraging.
- 5.10 Artificial lighting is known to cause disturbance to bats and can discourage them from using a previously utilized site. With this in mind, it is recommended that any additional lighting forming part of any future development be kept to a minimum and that any external lighting is directed away from the hedgerows and any other trees and shrubs on site. Furthermore, down lighting should be the preferred choice of any external lights to minimise glare or additional light pollution. However, it should be noted that the site is currently very brightly lit at night by artificial lighting and any bats roosting in the buildings will be tolerating the current level of lighting.
- 5.11 More information in relation to bats and lighting is noted in the Bat Conservation Trust’s ‘Guidance Note 8: Bats and Artificial Lighting’ in conjunction with The Institute of Lighting Professionals, available to download at <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>

Badgers

5.12 The WWBIC data search returned a number of records of badgers from the local area but no badger signs or setts were found on or near the site. It is therefore considered that the proposed development is unlikely to negatively impact badgers.

Reptiles and Amphibians

5.13 The large open expanse of short, mowed amenity grassland site shows very limited potential reptile and amphibian habitat. The WWBIC data search returned a number of records of reptiles and amphibians in the local area including some records relatively close to the site e.g. slow worm 340m E, common toad 205m E and palmate newt 260m NW. The hedgerows on site contained a number of features that could potentially be used by reptiles and terrestrial phase amphibians as refugia e.g stone walls, brush piles, stone piles and other debris. However, the site itself is set within a landscape that is largely unsuitable for commuting and foraging reptiles/amphibians

with a large busy road to the north and expansive, exposed large open fields of short grassland/arable fields to the south.

- 5.14 Therefore, because of this lack of connectivity, it is considered unlikely that reptiles and amphibians will be using the site. However, the presence of reptiles and amphibians cannot be entirely ruled out so it is recommended that a precautionary approach to site clearance is taken and that a precautionary method statement for site clearance in relation to reptiles, amphibians and hedgehogs (see paragraph 5.19) is written and adhered to.

Birds

- 5.15 A small number of common bird species were noted during the preliminary ecological assessment survey including the priority species house sparrow and dunnock. The WWBIC data search returned records of another priority species, starling, within 500m of the site.
- 5.16 Any removal of sections of hedgerow or shrubs will need to take place outside of the bird breeding season i.e. March to August inclusive. If it is not possible to time the works in accordance with the main bird breeding season a nesting bird check should be performed in the 24-hour period prior to the works commencing. The nesting bird check should be undertaken by a suitably qualified ecologist.
- 5.17 Should an active nest be confirmed in any location that is likely to be disturbed, a no-working exclusion zone should be established around the nest with works in that zone to be postponed until birds have fledged. Incubation and fledging periods vary between species and an appropriately experienced ecologist should undertake monitoring checks to confirm when nesting activity has ceased and the works can continue. The results of any nest monitoring surveys will be reported regularly to the Local Planning Authority and the cessation of nesting will be confirmed in writing prior to the re-commencement of work in areas identified as supporting active nests previously.

Other Species

- 5.18 The WWBIC data search returned records of hedgehog from the local area. Hedgehogs are protected under Schedule 6 of the Wildlife and Countryside Act (WCA) 1981 which prohibits killing and trapping by certain methods. They are also listed as a priority species under Section 7 of the Environment (Wales) Act 2016. This species is therefore considered one of the Wales' target species to avoid further population decline.
- 5.19 It is recommended that a precautionary approach is taken to the clearance of the site and that a precautionary method statement is written and adhered to with regard to site clearance and hedgehogs (and reptiles and amphibians – see paragraph 5.14).
- 5.20 In order to retain habitat connectivity for Species of Principal importance, such as hedgehogs, any new boundary treatments resulting from the development should not be flush to the ground, or suitably sized gaps 13cm x 13cm should be left at strategic points to allow the free movement of hedgehogs to and from the site. For more information see <https://www.hedgehogstreet.org/hedgehog-friendly-fencing/>.

Invasive Species

- 5.21 Two invasive species were noted growing on the site, both on the eastern boundary adjacent to gardens. These species are variegated yellow archangel (*Lamiastrum galeobdolon* subsp. *argentatum*) and monbretia (*Crocsmia x crocosmiiflora*). These species are both listed under Schedule 9 Part 2 of the Wildlife and Countryside Act (1981) as amended. Section 14 of the above act states that it is illegal to plant or otherwise cause to grow in the wild a plant listed in Schedule 9.
- 5.22 Therefore, whilst it is not an offence to have these species growing on a site, there is a risk that during the construction phase of the development, due to the action of machinery and the movement of machinery from one site to another, these species could be spread from its current location to new sites. This introduction of these species to a new site would constitute an offence. Therefore, it is strongly recommended that this species is eradicated from the Project Site prior to the onset of works.

Enhancements

- 5.23 Planning Policy Wales, Local Development Plan policies and the Environment (Wales) Act place a duty on the Local Planning Authority to enhance biodiversity. The Welsh Government has advised planning authorities (23rd October 2019) "...where biodiversity enhancement is not proposed as part of an application, significant weight will be given to its absence, and unless other significant material considerations indicate otherwise it will be necessary to refuse planning permission. A planning application should therefore include information on measures that will enhance, restore and/or create new habitats and improve the built environment for wildlife in addition to any measures for protecting existing wildlife and habitats on site.
- 5.24 There is therefore a requirement for biodiversity enhancement. Possible enhancements could include:
- Incorporating bat and bird boxes into the design of the new build housing. The placing of bat boxes should be away from main human activity in a quiet dark area. Given that the site is in an exposed location integrated bat and bird bricks would be the most suitable.
 - Creating reptile refugia and hibernacula e.g. habitat piles (piles of brash, logs etc.). These could be created by making a pile of hedge trimming arisings and arisings from grass cutting late in the season (e.g. September onwards) and placed in the furthest corner away from the road.
 - The eradication of the variegated yellow archangel and monbretia from the site would be viewed as an enhancement.

During Construction Works

- 5.25 If the site is to be protected with fencing then it is recommended that block and mesh (Heras fencing) is used so mammals such as badgers and hedgehogs may still access and cross the site if they are in the area.

- 5.26 During the construction phase, any temporarily stored materials (bricks, paving slabs, debris piles) should be kept above the ground on pallets and stored on hard standing to avoid forming refuge opportunities.
- 5.27 All artificial lighting will be directed away from the boundary hedgerows and trees near the site. Any external lighting used during construction should be switched off at night-time to prevent disturbance to nocturnal animals.
- 5.28 Trenches and holes will be covered at the end of each working day or include a means of escape for any animal falling in. (e.g. a wide plank of wood to allow the animal to climb out of its own accord).
- 5.29 Any temporary exposed open pipe system will be capped to prevent mammals/amphibians gaining access when contractors are off site.
- 5.30 Stock piling of soil material will be left un-compacted and not allowed to grass over as this might encourage badgers in the area to excavate new setts.
- 5.31 Any burning of rubbish must be sited away from any potential bat roosting sites, bird nesting sites and trees. Burnable material should not be left in a pile that could possibly be invaded by hedgehogs.

6.0 SUMMARY AND RECOMMENDATIONS

- 6.1 It is recommended that all existing hedgerows are to remain intact and managed to benefit biodiversity.
- 6.2 It is recommended that a 1m buffer strip is put in place running alongside all hedgerows to protect the roots of woody species and to retain a foraging and commuting corridor for wildlife.
- 6.3 It is recommended that a precautionary method statement is written and adhered to in relation to site clearance focussed on avoiding harm to any reptiles, amphibians and hedgehogs which may be using the site.
- 6.4 Lighting of the site should be considered, particularly in relation to bats.
- 6.5 Any tree, shrub or scrub (including hedgerows) clearance needs to take place outside of the bird nesting season (March- August inclusive). If tree/shrub clearance has to be undertaken during the bird breeding season, then a suitably qualified ecologist must conduct a nest check prior to clearance.
- 6.6 To allow the movement of hedgehogs in and out of the site any new boundary treatments should not be flush to the floor. If this is not possible a series of suitably sized gaps (13cm x 13cm) should be strategically place intermittently along the new boundary treatment.
- 6.7 It is recommended that the non-native invasive plant species variegated yellow archangel and monbretia are eradicated from the site.
- 6.8 A range of measures could be undertaken to enhance the site for biodiversity including incorporating bird nest boxes and bat boxes into the design of the new buildings and the deliberate creation of reptile/amphibian refugia and hibernacula at the margins of the site.
- 6.9 The plans submitted with the planning application need to incorporate all these recommendations and once, finalised, be sent to Pembrokeshire Ecology so that they can be incorporated into this ecology report. As such the final plans must show the location of any biodiversity enhancement features. Lighting must also be checked, discussed and added to the plans.

Appendix A: Proposed Plans for the Site

Appendix B – PLANT SPECIES LISTS BY HABITAT

The DAFOR scale is used to show the relative abundance of each species within each particular habitat such that: D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare. The qualifier “L” is sometimes used to mean locally so that e.g. LA means locally abundant.

Amenity Grassland (Phase 1 Habitat Code: J1.2)

Common Sorrel	<i>Rumex acetosa</i>	F
Meadow Buttercup	<i>Ranunculus acris</i>	O
Perennial Ryegrass	<i>Lolium perenne</i>	A
Yorkshire Fog	<i>Holcus lanatus</i>	O-F
Common Mouse-ear	<i>Cerastium fontanum</i>	R
Dandelion	<i>Taraxacum officinalis</i>	O
Creeping Buttercup	<i>Ranunculus repens</i>	LF
Daisy	<i>Bellis perennis</i>	LF
Common Ragwort	<i>Senecio jacobaea</i>	O
Ribwort Plantain	<i>Plantago lanceolata</i>	O
Common Cat’s-ear	<i>Hypochaeris radicata</i>	O
Cock’s-foot	<i>Dactylis glomerata</i>	LF
Common Bent	<i>Agrostis capillaris</i>	F
Creeping Thistle	<i>Cirsium arvense</i>	R
Broad-leaved Dock	<i>Rumex obtusifolius</i>	O
Lesser Celandine	<i>Ranunculus ficaria</i>	LO
Lesser Stitchwort	<i>Stellaria graminea</i>	O
Wood Dock	<i>Rumex sanguineus</i>	R
White Clover	<i>Trifolium repens</i>	R

Hedgerow 1

Woody Species

Hawthorn	<i>Crataegus monogyna</i>	A (LD)
Blackthorn	<i>Prunus spinosa</i>	A (LD)
Gorse	<i>Ulex europaeus</i>	O
Elder	<i>Sambucus nigra</i>	LF

Ground Flora

Bramble	<i>Rubus fruticosus</i>	LF
Cleavers	<i>Galium aparine</i>	O
Ivy	<i>Hedera helix</i>	A/LD
Cow Parsley	<i>Anthriscus sylvestris</i>	O
Hart’s-tongue Fern	<i>Phyllitis scolopendrium</i>	O
Tall Oat-grass	<i>Arrhenatherum elatius</i>	O
Alexanders	<i>Smyrnium olusatrum</i>	O
Red Campion	<i>Silene dioica</i>	O
Navelwort	<i>Umbilicus rupestris</i>	O
Male-fern	<i>Dryopteris filix-mas</i>	R

Hedgerow 2

Hawthorn bushes with bramble scrub in between bushes

Woody Species

Hawthorn	<i>Crataegus monogyna</i>	A (LD)
Blackthorn	<i>Prunus spinosa</i>	A (LD)

Privet	<i>Ligustrum ovalifolium</i>	O
Ground Flora		
Bramble	<i>Rubus fruticosus</i>	LF
Cleavers	<i>Galium aparine</i>	O
Bracken	<i>Pteridium aquilinum</i>	LF
Common Nettle	<i>Urtica dioica</i>	O
Alexanders	<i>Smyrniolum olusatrum</i>	O
Ivy	<i>Hedera helix</i>	A/LD
Hart's-tongue Fern	<i>Phyllitis scolopendrium</i>	O
Navelwort	<i>Umbilicus rupestris</i>	O
Cow Parsley	<i>Anthriscus sylvestris</i>	O
Red Champion	<i>Silene dioica</i>	O
Herb Robert	<i>Geranium robertianum</i>	O
Red Fescue	<i>Festuca rubra</i>	LF
Lavatera		R
Daffodil	<i>Narcissus</i>	R
Lords and Ladies	<i>Arum maculatum</i>	R
Greater Periwinkle	<i>Vinca major</i>	R

Hedgerow 3

Woody Species

Hawthorn	<i>Crataegus monogyna</i>	A (LD)
Blackthorn	<i>Prunus spinosa</i>	A (LD)
Gorse	<i>Ulex europaeus</i>	O

Ground Flora

Dove's-foot Crane's-bill	<i>Geranium molle</i>	O
Ivy-leaved Speedwell	<i>Veronica hederifolia</i>	O
Ground Ivy	<i>Glechoma hederacea</i>	O
Alexanders	<i>Smyrniolum olusatrum</i>	O
Bramble	<i>Rubus fruticosus</i>	LF

Hedgerow 4

Fence section

Honeysuckle	<i>Lonicera periclymenum</i>	LA
Cow Parsley	<i>Anthriscus sylvestris</i>	O
Cock's-foot	<i>Dactylis glomerata</i>	O
Alexanders	<i>Smyrniolum olusatrum</i>	O
Broad-leaved Dock	<i>Rumex obtusifolius</i>	O
Borage	<i>Borago officinalis</i>	R

Woody Species

Hawthorn	<i>Crataegus monogyna</i>	A (LD)
Elder	<i>Sambucus nigra</i>	O
Gorse	<i>Ulex europaeus</i>	O

Ground Flora

Bramble	<i>Rubus fruticosus</i>	LF
Variiegated Yellow Archangel	<i>Lamium galeobdolon</i> subsp. <i>argentatum</i>	LA

Daffodil	<i>Narcissus</i>	R
Monbretia	<i>Crocsmia x Crocosmiifolia</i>	R
Tall Oat-grass	<i>Arrhenatherum elatius</i>	O
Navelwort	<i>Umbilicus rupestris</i>	O
Pink Sorrel	<i>Oxalis articulata</i>	R

Appendix C: Further Biodiversity Enhancement Ideas

Suggestions for Bird Boxes

House Sparrows

House Sparrows are red listed as a bird of high conservation concern and artificial nest box colonies are well received by sparrows and this sort of design is popular. A house sparrow terrace installed on the side of the house will add to the enhancement of the site.

This selection of bricks were found on the internet at the time of writing the report:

Integrated British Bird houses:



Garden Bird house from Wayfair Ltd:

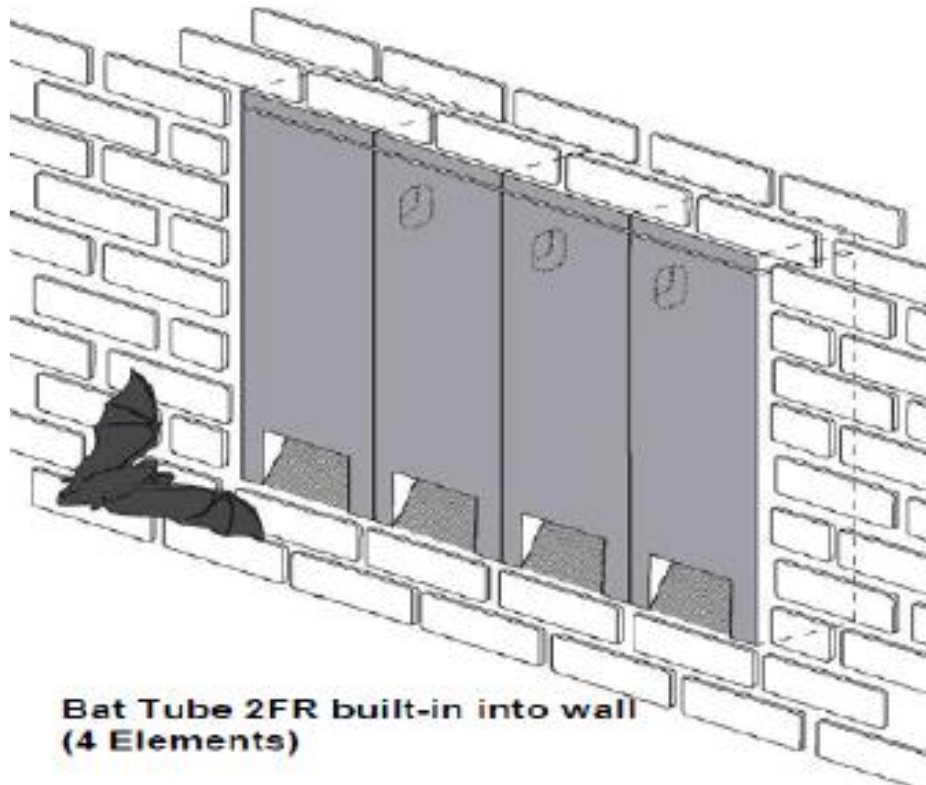


Or a Woodstone single chamber brick



BAT BOXES & BRICKS and crevice bat mitigation ideas.

Bat boxes may be installed on the building, on outbuildings or in trees. Alternatively, bat bricks can be installed as part of the development. The Bat Conservation Society produces a useful guide to the different types with advice on positioning etc. <http://www.bats.org.uk/>
www.Wildcare and www.habibat



E.g. Integrated Eco Bat box made from recycled plastic with crevice or cavity sections

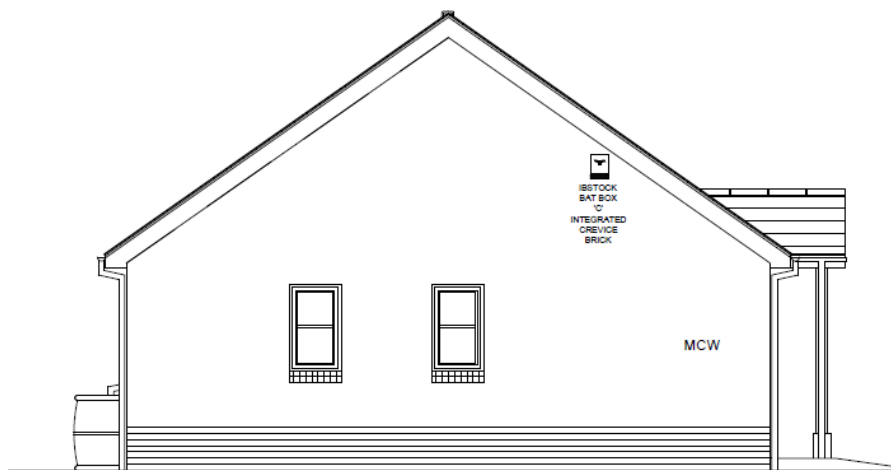


See image below of a wall brick bat box installed to match the outer walls of a house:



Once installed all you see is a slit on the outer walls and as long as it's away from noise and disturbance and lighting and close to trees and lines of hedgerows then this type of mitigation is robustly made and will not allow any ingress of wet or wind into the building and it also self-cleaning. Bats are contained inside the brick and exit through the slit at will.

The Vivara Pro Build-in Woodstone Bat Box is a suitable bat box for integrating into stone and brick walls - the Ecobox is very similar as are Istock products.



Gable end of a bungalow as an example of locating the bat or bird box away from windows and doors. All bat and bird boxes must be at least 2m above the ground level

These bat bricks can also be used to provide a weather proof access from the outside of a wall into a crevice in the wall or into a roof void by cementing a bat brick in the wall which has a hole cut/broken into its through the top and upper part of the box or brick. It is best to use woodcrete or a box made out of a material that will not rot.



Bat boxes mounted on outer walls - Chillon Woodcrete bat box that can be wall mounted inside bat house or roof mitigation or on the outside on a gable end of a house.

If a box is located on a south wall the bats can get too hot in summer better aspects are south west, east and north.



Bat boxes that can be mounted on poles [wooden] near or in amongst good sheltered habitat and amongst trees are seen below:



Maternity bat boxes



For best results, site your Causa maternity bat box:

- In a sturdy tree or building where bats have been seen or are known to feed.
- As high as possible (at least 2-5m), with a clear 'flight-path' for access.
- In a sheltered area, ideally south or southwest facing to ensure a few hours of sun.
- Near a wet area, such as a pond or marshy environment which will attract the insects favoured by bats and also provides somewhere for them to drink.

Dimensions: 51cm x 78cm x 16.5 cm.



Dimensions: 49x 26 x 13 cm.

This electrically heated bat box was developed to mitigate for the loss of a Pipistrelle maternity roost. It provides a thermostatically controlled artificially heated roost space with ceramic heat sinks and black external colouration to help it warm up and maintain a stable temperature. Its 1.7cm entrance slot is ideal for bats but deters birds.

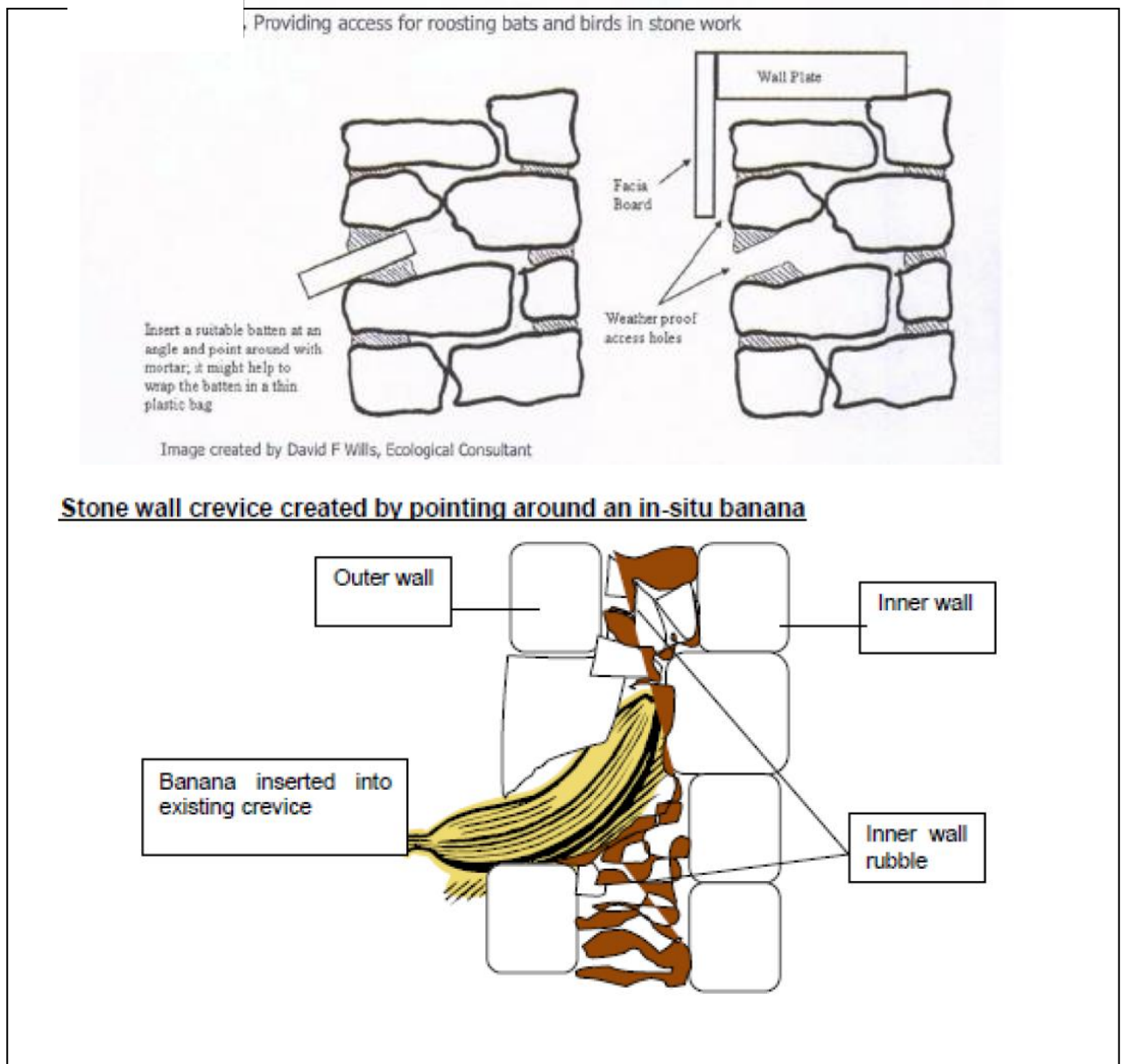
Comes in two sizes, the smaller Maternity Box and the larger Colony Box. Easy to install and operate, simply plugs into a conventional socket.

It is also suitable if you are looking to provide a heated bat roost and potentially encourage a maternity colony to use the box.

The box has 3 large crevices and an internal waterproof heater, which enhances the temperatures inside the box with the temperature thermostatically controlled and set by the user.

Crevice bat roosts within stone or concrete block walls [self-made] can be made by this method on site and at little extra cost using a banana or a piece of wood to insert into the bat access hole into the loose rubble in the centre of the wall (or into the centre of a hollow concrete block). Re-pointing around the wood or banana stops assiduous builders filling in the hole by mistake. Please note that it is best if the insertion is in and upwards into the wall so that there is no chance of water entering the crevice or hollow.

Additional access points onto the wall plate under the roofing but further down from the apex as seen in the diagram below and above.



Pollinator enhancement – Bee Bombs

See www.beebombs.com – an area of the garden with native wildflowers including thistles. Ivy is very useful in a garden too as it supplies flowers and fruit at times of year when there is little else.

Appendix D– LEGAL FRAMEWORK

3.1 Planning Policy Wales (8th Ed. January 2016) (PPW) sets out the land use planning policies of Welsh Government. It provides the policy framework for the preparation of Local Development Plans. Chapter 5, Conserving and Improving the Natural Heritage and Coast, outlines Welsh Government’s objectives for the conservation and improvement of natural heritage.

3.2 Technical Advice Note 5 (TAN5) Nature Conservation and Planning (2009)

The Planning Policy Wales (PPW) is supplemented by a series of Technical Advice Notes. TAN 5 provides guidance on how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. It provides advice on areas including the key principles of positive planning for nature conservation, nature conservation in Local Development Plans and development management procedures. It also provides advice on development affecting designated sites and habitats, in addition to protected or priority habitats and species.

3.2.1 Key Principles include that the town and country planning system in Wales should integrate nature conservation into all planning decisions; that the town and country planning system should look for development to provide a net benefit for biodiversity conservation with no significant loss of habitats or populations of species, locally or nationally and that they should ensure that the UK’s international and national obligations for site, species and habitat protection are fully met in all planning decisions.

3.3 Local Planning Policy Local Development Plans (LDPs) must be produced by every Local Planning Authority in Wales. Any development proposal will be tested against the policies within the LDP. The LDPs follow the planning guidance provide in PPW, including biodiversity and natural heritage policies. These include:

- protecting designated sites and other areas of importance for biodiversity conservation
- safeguarding protected species and priority species, including those listed in local biodiversity action plans
- Retaining, creating and enhancing features of importance for biodiversity conservation where appropriate.

Local planning policies for Carmarthenshire: for the precise wording of relevant local planning policies please refer back to the source documents. These have been considered whilst assessing the potential ecological constraints and opportunities identified by the desk study and field surveys and when assessing requirements for further surveys, design options and ecological mitigation as described in Section 6.

Appendix E – Tables of information cross referenced with the text

Table 1 - Building and Tree bat roost potential Categories

Potential	Description of Buildings	Description of Trees
Known or confirmed	Confirmed signs of bat presence/occupation (droppings, oily staining around entry points, insect remains, odour, scratching) and actual bat presence.	Confirmed signs of bat presence/occupation (droppings, oily staining around entry points, insect remains, odour, scratching) and actual bat presence.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions (e.g. temperature, humidity, height above ground level, light levels or levels of disturbance) and surrounding habitat. Can include structures with points of access to the interior of the building and poorly maintained fabric providing ready access points for bats into structures, but at the same time not draughty. Structures of traditional stone, brick or timber construction. Structures with large (>20 cm) roof timbers with mortice joints, cracks and holes. Structures of pre or early 20th century construction. Structures with large complicated and/or uncluttered roof spaces providing unobstructed flying spaces. Structures with weather boarding and/or hanging tiles with gaps. Structures with accessible south facing roofs. Structures with proximity to good foraging habitat such as woodland, wetland, water and /or good hedgerows.	A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions (e.g. temperature, humidity, height above ground level, light levels or levels of disturbance) and surrounding habitat.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions (e.g. temperature, humidity, height above ground level, light levels or levels of disturbance) and surrounding habitat but unlikely to support a roost of high conservation status. Can include structures with some potential to support roosting bats, but fewer features than a high-risk building. Features may include areas suitable for crevice dwelling and/or access points into structures. Some proximity to foraging habitat.	A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.

Potential	Description of Buildings	Description of Trees
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter protection, appropriate conditions and/or suitable habitat to be used on a regular basis or by large numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).	Tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen have only very limited appropriate conditions and/or suitable habitat to be used on a regular basis or by large numbers of bats (i.e. unlikely to be suitable for maternity or hibernation)
Negligible	No features suitable for roosting bats. Can include structures constructed from unsuitable materials e.g. prefabricated with steel and sheet material. Structure is draughty, light and cool buildings with no roosting opportunities. High levels of regular disturbance including external and/or internal lighting. Building is isolated from areas of foraging habitat.	Trees with no potential to support bats

Table 2 – Commuting and Foraging Habitat Potential Categories

Commuting and Foraging Potential	Descriptions
High	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High
Moderate	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
Low	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small number of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Negligible	Negligible habitat features on site likely to be used by commuting or foraging bats.

Appendix F – Disclaimer

Copyright and Intellectual Property

- The copyright of ecology reports provided remain the property of the ecologist pending payment of the account in full.
- We provide species data sets to the local Biodiversity Information Centre on an annual basis which will include any records from your survey (species and general location.)

Accuracy of information

- Our ecologists are experienced and professional in their approach and work to published Professional Codes of Conduct (British Standard 42020:2013 “Biodiversity. Code of practice for planning and development” and CIEEM Guidelines for Ecological Report writing (2016) where appropriate. Ecologists are however working in the natural world which may be subject to rapid changes not under their control. The information they collect will be as accurate as possible based on the time of the year and the natural conditions they face but we, and they, cannot be held responsible for any changes which occur subsequently.
- The company warrants that the reports supplied will be based on information collected using reasonable care and skill. In some cases, data sets may be large, and, in such circumstances, ecologists will make professional judgements on their analysis and presentation of data.
- Most reports are valid for a maximum period of two years provided no significant changes have been made to the property or land use nearby.
- It is possible that further survey work is recommended which would be the subject of additional fees. In this event the company and the ecologists cannot accept any liability if the client proceeds without acting on this advice.
- Ecological reports provide information on the site as a whole and the company and the ecologists cannot be held responsible for the effects that the findings might have on any planning or developments proposed.

Confidentiality

- The reports provided will be for the client’s sole use and for the purposes declared in the initial contact and confirmed in our quotation.
- No other party may use, copy or rely on the report or any of its contents or conclusions without written confirmation from the author.
- The company will maintain a copy of the reports, on behalf of the ecologist, in an electronic format. It will not be provided to any other person without the clients consent.
- The bat survey data will be submitted to the West Wales Biodiversity Information Centre automatically unless otherwise requested

Limitation of Liability

- The company and its ecologist contractors shall not be held responsible for any claim arising out of any defect found in the service provided as a result of information provided which is subsequently found to be defective.

Contacts between the company, its ecologists and the client shall be governed by the laws of England and Wales.

APPENDIX G: References

REFERENCES

The reference list for Preliminary Ecological Appraisal reports should include the standard references for each species or habitat as specified in IEEM *Sources of Survey Methods* (<http://www.ieem.net/sources-of-survey-methods-sosm->).

All UK and legislation for countries within the UK can be viewed at:

<http://www.hmso.gov.uk/legis.htm>,

Biodiversity 2020: A strategy for England's wildlife and ecosystem services

<http://www.defra.gov.uk/publications/2011/08/19/pb13583-biodiversity-strategy-2020/>

Defra (2007b) *An Introductory Guide to Valuing Ecosystem Services*. PB12852. Defra, London. <http://www.defra.gov.uk/environment/policy/naturalenviron/documents/eco-valuing.pdf> (accessed 10 April 2010)

Institute of Ecology and Environmental Management (2006) *Guidelines for Ecological Impact Assessment in the United Kingdom* (CIEEM website – as above) Institute of Environmental Assessment (1995)

Guidelines for Baseline Ecological Assessment. E & FN Spon. London. Joint Nature Conservation Committee *Phase 1 Habitat Classification*, Joint Nature Conservation Committee (2005)

<http://jncc.defra.gov.uk/page-4258>

Handbook for Phase 1 habitat survey - a technique for environmental audit, ISBN 0 86139 636 8 Millennium Ecosystem Assessment (2005) – for further details visit

<http://www.maweb.org/en/About.aspx>

RSPB (2009) *Birds of Conservation Concern 3*. RSPB Sandy, Beds.

http://www.rspb.org.uk/Images/BoCC_tcm9-217852.Pdf

The National Planning Policy Framework

<http://www.communities.gov.uk/publications/planningandbuilding/nppf>

The Natural Choice: securing the value of nature <http://www.official-documents.gov.uk/document/cm80/8082/8082.asp>

Welsh Assembly Government (2009) *Technical Advice Note (TAN) 5 - Nature Conservation and Planning*