Extended Phase 1 Habitat Survey
On
Land Parcel at
Parc Maen Hir Phase 2
Station Road
LETTERSTON
PEMBROKESHIRE

Field and hedge boundary

	Name	Address	Contact No	Email
Client	Jonathan COLE	ATEB, HAVERFOERDWEST PEMBROKESHIRE	01437 774 763	Jonathan.cole@atebgroup.co.uk
Ecologist	Anna Sutcliffe	Mullock Cottages, Dale Pembrokeshire	07866 457 088	annacsutcliffe@gmail.com & anna@pembrokeshireecology.wales

(Associated with biodiversity Solutions Ltd)

Address: Mullock cottages, Dale Pembrokeshire SA2 3AS
Tel: 01646 636 754 and Mob: 07866 457 088

Survey Report

Date: 9TH September 2018

Version: final – 11th July 2019

Parc Maen Hir Phase 2

Haverfordwest
Pembrokeshire
SA62 5RZ

Grid reference: SM 94889 29731

Action	Version No	Date-2018	Author/surveyor	check	Sent
Survey		9th September	A. Sutcliffe		
Report-DRAFT	V1	10th September	A. Sutcliffe	yes	
FINAL REPORT	V2 FINAL with no plans	12TH SEPTEMBER	A. Sutcliffe	yes	YES
FINAL REPORT-Bat transect results added	FINAL	11TH JULY 2019	A. SUTCLIFFE		YES 09/07/19

NB the writing in blue in the paragraphs about Badgers and Bats have been edited and contain new information

CONTENT

APPENDICES

1.0 Executive Summary - 2018

An Extended Phase 1 Ecology report on land at Letterston near Haverfordwest Pembrokeshire.
Timing – ecology survey: 9th September & 11th August 2018
Surveyor - Anna Sutcliffe of Pembrokeshire Ecology

Reason for survey – to establish the ecology of the site and to identify the habitats and species associated with and near the site. An extended Phase 1 identifies further detailed surveys on protected or important species that will be required to bring the information on the site up to the level required to obtain planning permission.

The baseline survey data relevant to the site is described in respect of the West Wales Biodiversity Information Centre records and is seen in the Appendix 4.

Designated sites close to the plot of land – none that will be affected by the development.

The <u>Proposed Plan</u> – is to develope the land for 26 units having fulfilled all the planning etc obligations in respect of ecological sensitivities on the land and any potential licences associated with protected species e.g. bats or badgers.

Conclusions:
The site has been assessed as poor semi-improved grassland with tall ruderals and invasive willow scrub. The hedges are native and thick on the south side but border a garden on the west side with non native species [Leylandii spp], the east side has a broken hedge and north side is bordered by a wooden fence separating the land from Parc Maen Hir Phase 1.

Badgers – there are badger setts on site – a full survey has been completed and a protected species licence will be required from Natural Resources Wales.

Bats – a bat survey transects are completed with low activity recorded over and around the site for three species of bats: common and soprano pipistrelle and noctule bats.

Summary: It is considered that with suitable and sufficient mitigation for badgers under licence and the inclusion of herb rich areas within the housing estate as well as in the badger compensation field to the east there will be low impact on the local and regional ecology through the development of the site.

Important information to be included on plans:
Location of vehicle access during the construction phase and when finished
Location of the SUDs, drains and electric trenches to be dug
Bat and bird mitigation and enhancement
Pollinator area of the site to compensate for the loss of habitat and variety of flowers. The butterflies (meadow browns, wall, common blue, red admiral, painted lady and ringlet) are in good numbers on this site. The field on the east side where the badger sett is to be located will be good compensation for the development at Parc Maen Hir part 2.

2.0 INTRODUCTION, LOCATION, SITE DESCRIPTION AND CONTEXT

Pembrokeshire Ecology was instructed by Jonathan Cole of ATEB to provide an ecological assessment on land at Letterston near Haverfordwest Pembrokeshire. The plot of land is referred to as ''Parc Maen Hir Phase 2'' or as the 'site' in the text from now on. The location is seen in Figure 1a and Appendix A

Timing – ecology survey: 11th August and 9th September 2018
Surveyor - Anna Sutcliffe of Pembrokeshire Ecology

Reason for survey – to establish the ecology of the site and to identify the habitats and species associated with and near the site. An Extended Phase 1 identifies further detailed surveys that will be required to bring the information on the site up to the level required to obtain planning permission.
The proposed development is for 26 units, this report provides information about the habitats and species that use the site or are nearby, additional survey work may be required to finally fulfil the developers obligations in respect of the ecological sensitivities on the land and any potential licences associated with protected species e.g. bats or badgers.

2.1.1 Location - Grid Reference: **SM 94889 29731**
South of Parc Maen Hir housing estate and south of Station Road Letterston near Haverfordwest in Pembrokeshire.

2.1.2 General Description: The site consists of one field of uncut high ruderal vegetation, semi-improved poor grassland and willow scrub interspersed with occasional dry acid areas with gorse, brambles and broom, blackthorn and elder

Figure 1a – Parc Maen Hir Phase 2 land boundary edged in red

Area: Plot of land with an entrance off Station Road Letterston. Size: 123m x 66-71m wide [**See Figure 1a – 1c**].
The field boundaries are made up with:
Southern hedge – continuous and of native composition [blackthorn, broom, gorse, willow, elder and brambles] and with badger paths and signs of recent activity
Northern edge – wooden fencing bordering on gardens.
West hedge – tall evergreen trees – all non native bordering on a landscaped garden to the west
East hedge - continued native hedge of predominantly blackthorn from the southern hedge which is broken 20m from the northern fencing.

There are no water courses or ponds within or close to the site.

The vegetation is uncut and scrub is encroaching from the edges. This field is on the Southern edge of Longstone Farm land before that area was developed into the Parc Maen Hir housing estate. The ground is deeply rutted and consists of shales and clay with piles of arisings from the previous development at Parc Maen Hir Phase 1 [2011]. These piles of soils, rubble and shales are now covered in scrub.

Figure 1b – Aerial image of the site showing the main access point. [See Fig1e]

2.1.3 The extended phase 1 survey was commissioned to identify whether there are known or potential ecological constraints on the site from protected and notable species and habitats that are designated conservation areas. The reference material used as guidance for this survey and report is the: ''Handbook for Phase 1 habitat surveys, a technique for environmental audit'' published by the Joint Nature Conservation Council [JNCC] 2010. This report will address the relevant wildlife legislation and planning policy as summarised in Appendix C of this report.

2.1.4 In order to deliver the extended phase 1 survey, a desk study and Phase 1 Habitat surveys were undertaken by an appropriately experienced ecologist to identify ecological features within the Project site.

2.2 Impacts of the proposed development

Removal of or changes to:

- Species composition of the site
- Biodiversity of the site
- Hedges and scrub
- Pembrokeshire banks or Cloddiau
- Trees and bushes with potential for breeding birds
- Boggy patches of land
- A Badger sett and badger commuting and feeding areas

2.3 OBJECTIVES

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.

(if present)

2.3 1 The purpose of the report is to demonstrate what habitats and species are present on site and whether further survey detailed survey work is necessary in order to understand the full ecological impact on the protected species and the Project site.

A completed extended Phase 1 survey report will contribute to the paperwork required for obtaining full planning permission.
The legislation in relation to the protected species is outlined, 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.

The following wildlife 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]

2.3.2 The legislation listed in 2.3.1 [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, design options and mitigation, as discussed in Section 6.

Compliance with legislation may require the attainment of relevant protected species licences prior to the implementation of the Project.

2.4.5 Surveyors experience and qualifications
Anna Sutcliffe has been a practising ecologist for over 40 years, surveying a wide range of species on land and on the sea all around the UK and also abroad.

She is a member of Chartered Institute of Ecology and Environmental management and has a degree in botany, geography and environmental management. She has been a qualified bat surveyor for 9 years and is training for her hazel dormouse licence.

Biodiversity Solutions is a social enterprise group of experienced and skilled ecologists with knowledge that spans all species and habitats likely to be found in Pembrokeshire

3.0 METHODOLOGY

3.1 DESK STUDY – the objectives of a desk study are to review the existing information available in the public domain concerning species and habitats.

The following searches have been undertaken:

Internationally, nationally and locally designated sites, up to 2 km from the site using the Multi Agency Geographic Information for the Countryside (MAGIC) website (www.magic.gov.uk)-see Appendix 5.

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

Special Areas of Conservation (SACs)

Sites of Special Scientific Interest (SSSIs)

Designated for bats within a 10 km radius of the Site in accordance with Bat Conservation Trust (Collins, 2016) recommendations

Section 7 list of Species and Habitats of Principal Importance for Conservation of Biological Diversity in Wales

An area associated with Ancient woodland designations as identified by the local records centre data trawl. (http://lle.gov.wales/home and www.WWBIC.org.uk)

Tree Protection Orders (TPO's) – contact Pembrokeshire County Council for details about the tree protection orders on site.

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

There have been previous surveys and reports on this site by Wildwood Ecology in 2007-10?

3.2 PHASE 1 HABITAT SURVEY-METHODOLOGY

A Phase 1 Habitat Survey (Figure 2: Table 4) of the Project Site was undertaken by one suitably experienced ecologist of Pembrokeshire Ecology on the 28th June 2018.

3.2.1 The survey involved a site walkover and preliminary assessment of key habitats, land use and ecological features. The main habitats present were 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 were recorded.

Evidence of any invasive plant species subject to legal controls was recorded. The Project Site was assessed for its potential to support protected or notable species in order to identify potential ecological constraints and to guide recommendations for further surveys.

3.3 Bats

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 5 for tables used to assess bat potential].

3.3.1 Tree roosts – [If present] Trees will be assessed during the Phase 1 survey for specimens and wooded areas requiring further survey work. The assessment will be conducted via an external appraisal from the ground using binoculars where necessary, using the 'bat tree habitat key 'developed by Henry Andrews.

3.3.2 The trees and woodland [if present] overall rating will be assessed on the basis of species composition and age, of their likelihood to support roosting bats and/or the need for further assessment. Tree Preservation orders will be checked with the local planning authority.

3.3.3 Bat Habitats on-site were classified into categories dependent on the presence of features suitable for bats to commute and forage [Core Sustenance Zones]. See Figure 3 map and Table 2 drawn up showing the potential commuting and core sustenance zones

3.4 Badgers during the Phase 1 survey the badger activity features signs of badgers. The boundaries of the site will be inspected both from inside the site and the outside and wherever possible badger activity within a 500m radius will be conducted to potential kick start full badger surveys. 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 include: '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 the burrow. If present, they will be photographed and flagged up for further survey work. The in depth badger survey will be planned to work out the status of the sett, whether the neighbouring setts are

related 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.

The Protection of Badgers Act 1992 (hereafter "PBA 1992") consolidates and improves upon the previous Badgers Act 1973, Badgers Act 1991, and Badgers (Further Protection) Act 1991. Under the PBA 1992 (except when holding a licence to do so) it is illegal for a person to wilfully; kill, injure, take, posses, sell, or otherwise cruelly treat a badger. It is also illegal to dig out, damage, destroy, or obstruct entry to setts (including by use of dog(s)). Further information on offences, exceptions, and penalties are listed on the PBA 1992 on legislation.gov.uk

3.5 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. Otter signs if found e.g. spraints, bedding, holts, hairs, then these are GPS'd and mapped and a survey methodology will need to be designed to learn what the otters are doing around the site over the next 12months.

3.6 Hazel Dormice – 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. This site has no ancient woodland or good connective habitat to this site and is isolated by the A roads and urban sprawl of Letterston on two sides of the site. There are no records for dormice within the 2Km search area.

3.7 Water voles are not found in these habitats although there is a record 1,246m North West of the site at Llangloffan Fen.

3.8 Other mammals – harvest mouse, fox, rabbit, polecat, stoat, weasel and hedgehog, the habitats on site are considered to be good for these species. Building works once started need to ensure that if large holes are dug and left [e.g. for installing the sewage system] that wildlife ladders allow them to exit without harm.

3.9 Amphibians and Reptiles
Pembrokeshire and this area have good records of common toad and common frog and slow worms and viviparous lizards are possible in the drier hedge banks.

Longstone Farm was surveyed for reptiles 7 years ago with conclusive negative results and although this habitat is poorly connected, a method statement must be approved by the planning ecologist and this will require the presence of a suitably qualified ecologist when clearing mounds of earth, banks and hedges. These may be used as refugia, hibernating sites and for foraging and breeding.

If survey work is required then they will consist of visual surveys in February [earliest], March –May and then in September to October during suitable weather conditions.

It is recommended that presence/absence surveys for reptiles should be undertaken in areas of suitable habitat using artificial refugia but a precautionary approach accompanied by a guiding method statement approved by the Planners will be sufficient when clearing the site ready for development. This must be a part of the planning application package.

3.10 Invasive Non Native species - 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 include Japanese Knotweed (*Fallopia japonica*) and Himalayan Balsam (*Impatiens glandulifera*).
Invasive non-native plant species were NOT identified during the Phase 1 Habitat Survey.

3.11 OTHER SPECIES
Butterflies were noted in good numbers on this field. Meadow Browns, peacock and red admiral. Moths were also abundant, being disturbed as the field was surveyed.
There are records for a butterfly called the Grizzled Skipper

- Section 41 species of principal importance under the NERC Act in England
- Section 42 species of principal importance under the NERC Act in Wales
- UK BAP: Priority Species

3.12 LIMITATIONS
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, they can contribute to a robust ecological assessment of a site.

Despite the limitations described, there are deemed to be no significant limitations to this report.

4.0 BASELINE SURVEY RESULTS

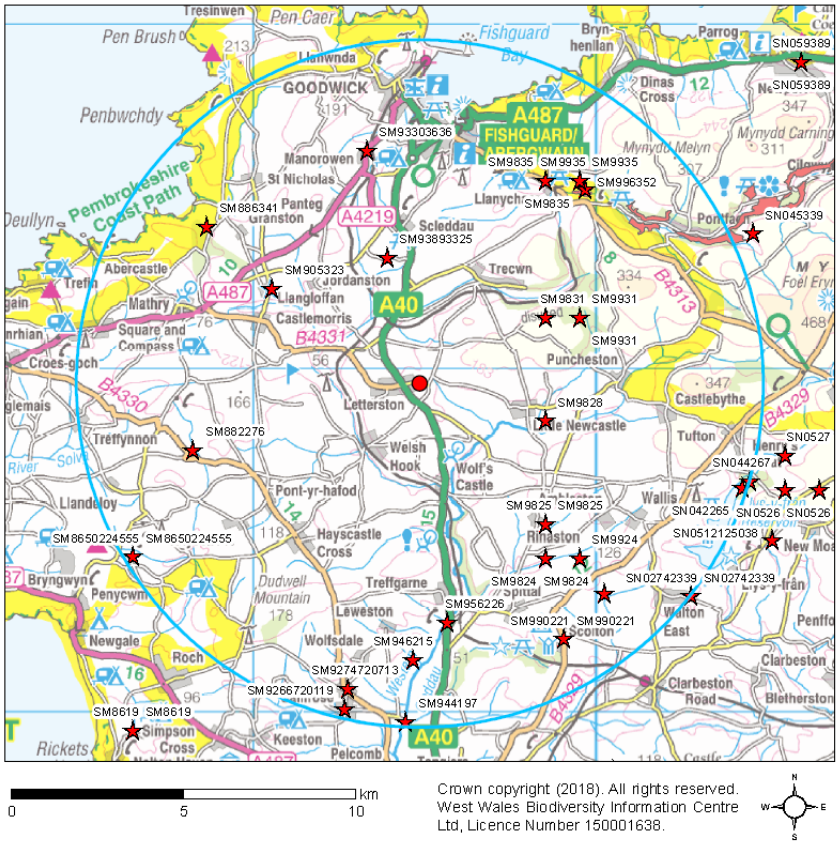
The designated habitats, sites and features within proximity to the Project Site are listed in **Table 1** below

4.1 DESK STUDY

Table 1 - designated habitats, sites and features

Designated Sites within 2 Km	
Locally Designated Sites within 2 km	Afon Cleddau SAC Llangloffan Fen
Designated Sites within 10 km designated for bats	Yes Bat SAC 1,323m west and 8,500m from the project areas
Protected and Priority Species Records from the last 10 years within 2 km	Annexe 2 species: Greater horseshoe bat Rhinolophus ferrumequinum in the bat SAC. And soprano pipistrelle bats maternity within 500m of the site Polecat (*Mustela putorius*); badger (*Meles meles*) Water vole 1246m away Llangloffan Fen– no water bodies near this site
Priority Habitats and Species – Section 7 List	The following species have been recorded within 2 km of the Project Site in the last 10 years: Plants: bluebell Hyacinthoides nonscripta. Amphibians: Common toad Bufo bufo, common frog Rana temporaria.[on site]; Common Lizard *(Zootoca vivIpara)* Reptiles: Slow-worm Anguis fragilis, grass snake Natrix natrix, Birds: yellowhammer Emberiza citronella, peregrine Falco peregrinus, kestrel Falco tinnunculus, linnet Linaria cannabina, house sparrow Passer domesticus, dunnock Prunella modularis, starling Sturnus vulgaris, redwing Turdus iliacus, song thrush Bats: Bat species Chiroptera, unidentified bat Myotis, pipistrelle species Pipistrellus, common pipistrelle Pipistrellus pipistrellus, and soprano pipistrelle Pipistrellus pygmaeus. Noctule [*Nyctalus noctula*] and greater horseshoe bats [*Rhinolophus ferrumequinum]*

Designated Sites within 2 Km	
	Mammals (excluding bats): West European hedgehog Erinaceus europaeus [359m] Eurasian badger *Meles meles [614m]* Invertebrates: Butterfly Conservation priority species: High for Grizzled Skipper (*Pyrgus malvae)* and small heath; meadow brown and peacock
Surrounding Land Use	Urban on the northern edge; western side pasture and then the A487 and the rest of urban Letterston. South – arable and pasture and east Carn Ysgubor mountain – rough grazing and good species biodiversity for locally important species.
Ancient Woodland	None within 2Km
Ponds [within 500m]	None on site
Previous surveys - bats	3 species identified on the excel spreadsheet from the West Wales Biodiversity Information centre.
Previous surveys - Invasive Non Native Species	none
Previous surveys -Badgers	none
Previous surveys - birds	Schedule 1 species recorded within the 2Km radius. No evidence of barn owl breeding within the Project Site but sightings within 2.2Km.
Previous surveys - reptiles	Longstone Farm Letterston
Previous surveys – bats	Longstone Farm and other houses within the village of Letterston
Local Biodiversity Action plan species	Hairy Dragonfly *(Brachytron pratense)*



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Land South of Letterston
SM9485329565
10km Buffer

Report produced for Pembrokeshire Ecology & Biodivesity Solutions on the 5th June 2018 by West Wales Biodiversity Information Centre.

This is a data search for high risk bat species records and designated sites held within 10km of the site.

please see the species list for details of bat records.

The following site is within the buffer.

North Pembrokeshire Woodlands SAC

Legend

site

10km buffer

Designation

1 - Protected and priority species

Statutory Bat Sites

Designation

SAC

Figure 1c - 10Km radius around the site marked with a red spot. The key to symbols is seen below. [See also Appendix A]

Red stars = Protected and priority species

Red areas are Bat Special Areas of Conservation 1.323m and 8,500m from site

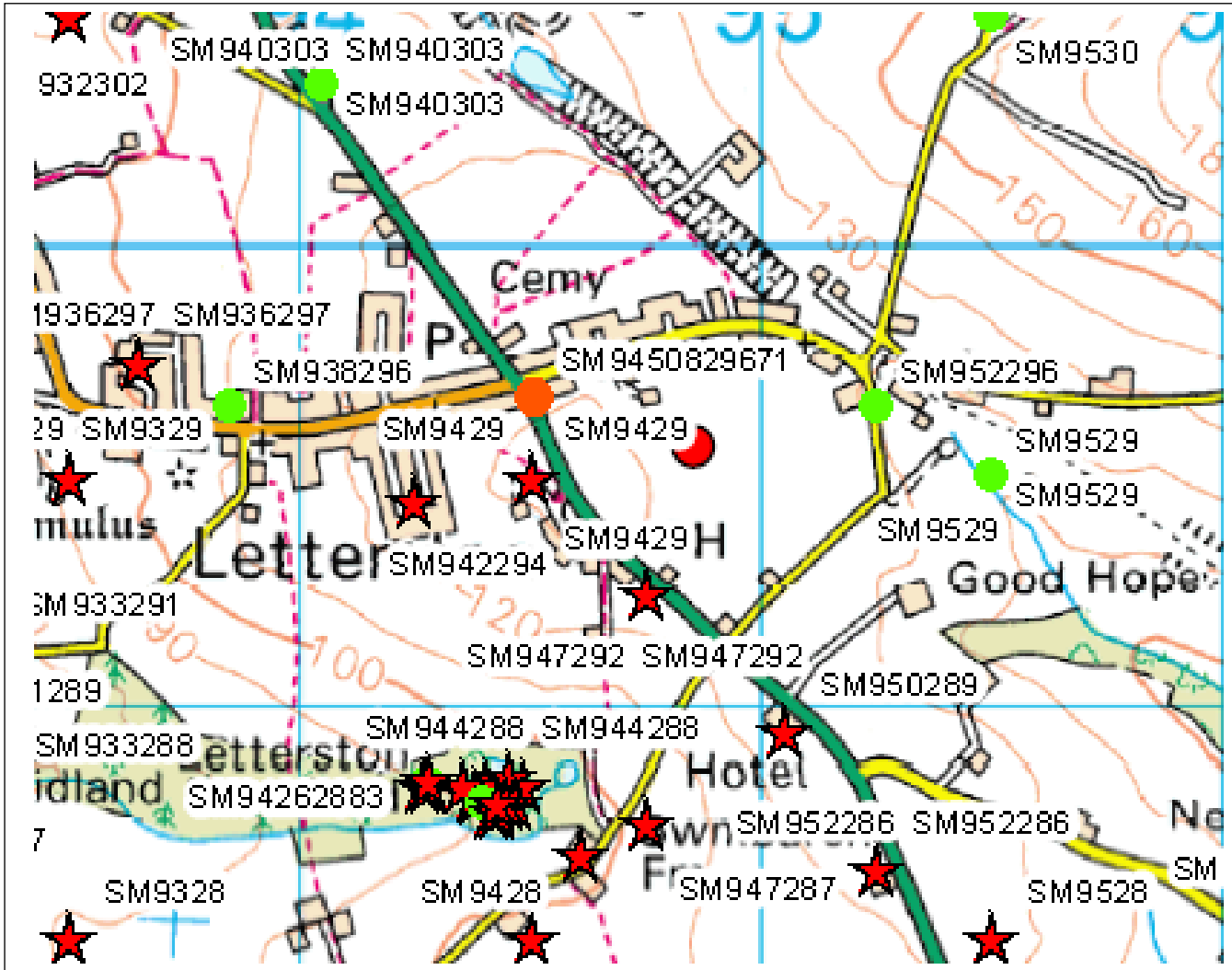


Figure 1d- section taken from a map in a 2Km radius around the site marked with a red spot. The key to symbols is seen below:
Red star=Protected and priority species; orange and pale green dots – other species of conservation concern and locally important species.
See Table 3

Figure 1e- land at Parc Maen Hir part 2 (PMH2) – red outline. Other land on the east side of PMH2is proposed as the site for the badger mitigation compensation sett – boundary= yellow.
The land edged in blue is not owned by ATEB

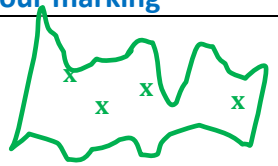
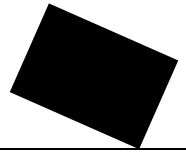
4.1 Limitations for Phase 1 survey – September is at the end of the summer in relation to doing an Ecology survey. Weather and season are not limiting factors in this survey. **Reasons for any departures from best practice methodology** – no departures from best practice guidelines.

4.2 PHASE 1 ECOLOGY HABITAT SURVEY MAP

4.2.1 PROPOSED DEVELOPMENT AREA

Figure 2 – Phase 1 survey map of the land at Plas Maen Hir – WITH 'B' FOR BADGER SETT HOLES- see separate badger survey report

KEY to figure 2

Phase 1 category	description	Colour marking	Target note
A.2 .1	Scattered scrub		TN1
B.2.2	Species poor semi –improved grassland		TN2
J.2.3.1	Species poor hedge with trees-intact		
J.2.1	Species rich hedge and bank – continuous and dotted line = interrupted and not intact by 20m gap=J2.7		TN3
Compacted bare ground with rushes – see TN			TN4
	Badger sett location		
Badger entrances to the hedge banks	Black arrows show badger access into scrub.		
J.3.6 Urban & fuel storage	Letterston village		

4.2.2 HABITATS ON SITE – compare the Phase 1 habitat types described below with the map and Target note species lists see Appendix B

TABLE 4 Phase 1 designation and Habitat name	Distribution in the habitat	Intrinsic Ecological value	Potential/confirmed value to protected species				
			Species	Breeding	Foraging	refuge	Dispersal
Hedges with semi-mature trees and bank: **TN3**	species in the native species hedges - **South boundary**	Important locally for all species both for biodiversity and also as a commuting route and place to nest, roost or burrow into	**Bats**	**no**	**yes**	**no**	no
			Birds	**yes**	**yes**	**yes**	**yes**
			Badgers	**yes**	**yes**	**yes**	**yes**
			Reptiles	**yes**	**yes**	**yes**	**yes**
A2.1 – open willow scrub **TN1**	All over the piles of soil mostly middle to west of the site	Medium ecological value	**Bats**	**no**	**yes**	**no**	**no**
			Birds	**yes**	**yes**	**yes**	**no**
			Badgers	**potential**	**yes**	**yes**	**yes**
			reptiles	**potential**	**yes**	**yes**	**yes**
Poor semi-improved grassland: B6 **TN2** **Includes Tall ruderal patches, rushes and rutted wet patches**	East and north of the area where the ground is disturbed	Medium to low ecological value	**Bats**	**no**	**yes**	**no**	**no**
			Birds	**yes**	**yes**	**yes**	**yes**
			Badgers	**yes**	**yes**	**yes**	**yes**
			Reptiles	**no**	**yes**	**yes**	**yes**
Tall ruderal in amongst the Semi improved species poor grassland	South of the access from Parc Maen Hir	Medium to low Ecological value	**Birds**	**yes**	**yes**	**yes**	**yes**
			Badgers	**yes**	**yes**	**yes**	**yes**
Wet land with rushes and sedges – 50% open ground	North of the piles of soil between the wooden fence at Parc Maen Hir and the open scrub	Medium to low ecological value	**Useful for drinking water in puddles only**				

4.2.3 Species [plants] lists per habitat as surveyed on 12th August and 9th September 2018 are in Appendix 1

4.2.4 Birds – species noted during the survey

- Wren [*Troglodytes troglodytes*]
- Blue tit [*Cyanistes caeruleus*]
- Great tit [*Parus major]*
- Dunnock [*Prunella modularis*]
- House sparrow [*Passer domesticus*]
- Barn Swallow [*Hirundo rustica*]
- Wood pigeon [*Columba palumbus*]
- Goldfinch [*C. cardeulis*]
- Chaffinch [*Fringilla coelebs*]
- Robin [*Erithacus rubecula*]
- Songthrush *[Turdus philomelos]-red listed species, protected whilst breeding but not once finished.*
- Chiffchaff *[Phylloscopus collybita]*
- *Blackbird [Turdus merula]*

This is not a complete list.

5. 0 INVASIVE SPECIE – NONE

6.0 EVALUATION: HABITAT LOSS AND POTENTIAL IMPACTS ON THE SITE

This is medium to low quality habitat that has developed over a bull dozed site with compacted soils and large soil dumps.

Without mitigation, during clearance, construction and operation the following potential impacts are anticipated:

- Habitat loss, severance and fragmentation e.g. loss of connecting hedges and banks
- Loss and/or disturbance of breeding and resting sites of protected species; trees and bushes in the hedges
- Disturbance, injury or killing of protected and priority species during site;

Clearance and construction works;

- Disturbance, injury or killing of protected and priority species during operation where protected species are retained within the Project Site;
- Disturbance from noise and vibration (if piling is required);
- Pollution to land and/or water as a result of run-off of sediments, chemicals, fuel Or oil;
- Degradation of habitats and designated site habitats due to increases in nutrients from operational emissions;

- Destruction of Pembrokeshire hedge and bank
- External lighting disturbance

The benefits of the hedges and trees are that they:

- Provide shelter from prevailing winds
- Provide a buffer between the housing and the surrounding habitat.
- Good foraging, shelter and nesting and resting places for birds, bats, badgers etc

7.0 RECOMMENDATIONS FOR FURTHER FIELD SURVEYS
Further surveys for protected species are recommended to inform the Extended Phase 1 survey that will support a planning application.

TIMING: The survey work needs to be done in good time so that the results inform the Project design and discussed with all parties before going for planning permission.

Certain species can only be surveyed for at certain times of year and without consideration this has potential to cause project delays.

These recommendations for further surveys are based on the current information available and will be subject to consultation with relevant consultees and local authority officers.

These surveys are recommended for the following species/habitat features:

7.2a Hedgerows
Hedgerows proposed to be removed as part of the development should be assessed by a suitably qualified ecologist to determine if they are classified as an Important hedgerow under the Hedgerow Regulations, 1997 (Ref. 1). The optimal times for hedgerow surveys are April – early June, whilst the woodland ground flora is still present. Whole hedgerows can be moved. There is a tried and tested Methodology in ''Translocating Wildlife Habitats – A guide for civil engineers,'' by John Box and Kate Stanhope.

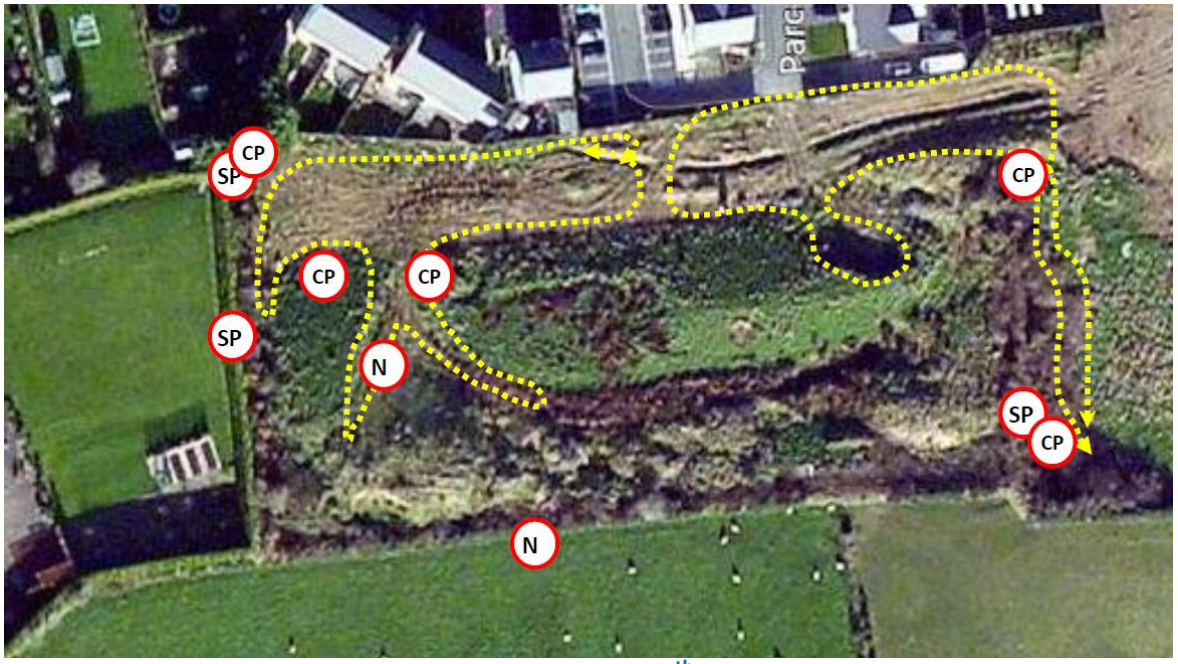
7.2b) Tree Preservation Orders and Ancient Woodland – NOT APPLICABLE
No trees have been found with TPO's. The trees are all stunted and low growing so were not surveyed for bats. BUT they must not be felled or removed or pruned during the bird breeding season, or if removal is needed in the season the hedge must be surveyed to confirm no breeding birds just before clearance.

7.3 Bat Surveys - the following surveys are required to assess the Project site use for foraging and commuting and for roost use of the hedgerow features on site. [See tables in Appendix E]- The survey was completed on the 6th July 2019 with two surveyors between 2130 and a quarter past midnight.

7.3.1 Buildings - no buildings on site.

7.3.2 Walked Bat Transect surveys

One survey over the whole site supported by automated bat detector surveys left on site for 5 continuous days and nights during good weather, in peak to late summer season.



7.3.2a – Summary of bat activity surveyed on the 6th July 2019 – the transect paths are shown in dotted yellow lines. Scrub restricted access.

RESULTS OF BAT TRANSECT

Numbers of surveyors: 2
Times of surveys: 2134 (sunset) to 2.5hours afterwards = 00:15hours
Length of survey = 2hours 45minutes
Bat species recorded:

Soprano pipistrelle bats – emerging from a roost relatively closeby as bats recorded passing & then feeding for a short period along the Leylandii hedge 19minutes after sunset. Single record at 2239 on the south east side 4 passes in the survey period.

Common pipistrelle bat 2 passes on the east side from two bats at 0011-0013hours. One pass on the north east and two passes on the south east transect.
West side - 2 passes 1 bat over the scrub and one bat at the north east end of Leylandii hedge**.**

Noctule – 2 passes one over the middle of the scrub and the other feeding in the sheep field to the south near the south hedge.

7.4 Bird surveys – breeding bird surveys will be required IF WORKS START IN THE PERIOD March to August in any year. The focus will on protected and priority species in areas of suitable habitat – red listed: house sparrow; yellowhammer and Songthrush.

The hedges and trees provide suitable nesting places for birds during the breeding year [March to August] these will be the subject of a bird survey. The area outlined in yellow represents the good habitat - elder trees, hawthorns and blackthorn scrub which potentially provide good breeding habitat. Thistles and tall ruderals provide seeds and fruits for birds also.

It is illegal [Wildlife and Countryside Act 1981] to disturb any bird that is making a nest, laying and incubating and feeding young to fledging. Once the nest is vacated then the tree/bush/hedge etc can be disturbed and cut so long as this is done immediately after the bird has vacated the nest and **this HAS TO BE confirmed by a bird surveyor at maximum 3 DAYS before vegetation removal**.
Historical surveys i.e. one week or more ago will not suitable.

Surveys will be required to ascertain the species breeding on site and if any clearance works are to take place during the bird breeding season then each section of vegetation will need to be surveyed before clearance can go ahead.

If clearance occurs in the period September to March then for birds this clearance can go ahead.

Timings: Clearance of vegetation once planning permission has been granted and all conditions fulfilled can be done between the months of September and early March.

7.5 UK Protected Species – badgers (*Meles meles*) have been found on the site and active 30m and beyond the site boundary. Badger setts were found:

- location of badger setts removed on NRW's advice - please request the information if required - CONFIDENTIAL

No site clearance or any works can take place 30m or less from a badger sett. So this site needs a full badger survey and a badger licence in order to progress to the development stages IF Natural Resources Wales grant the licence.

The definitive location of any current or disused setts has been provided by Badger Ecology Wales after a full badger survey with a location plan.

The protected species badger licence will be required to start work on the site and before any of that a compensatory badger sett must to be constructed and seen to be used by badgers before the badger sett holes are closed. The location will be in the field east of the Parc Maen Hir part 2 site. Please refer you to the badger survey and the method statement written by Badger Ecology Wales prior to any ground clearance works commencing on site.

Badgers are highly mobile and are active in the area even if badger holes are not used correctly then they may be occupied by the time the work starts on site so a badger sett check is needed and if badgers are in residence on the site then a licence will be required from natural resources Wales to cover the proposals.

Badger mitigation compensation sett location - Available on request

Start of site clearance work: cover open trenches/holes & provide a wildlife ladder for safe exit.

7.6 Otters - No survey work is required.

76.7 Hazel Dormice – No survey work is required.

7.8 Water voles - No survey work is required.

7.8 Other mammals – rabbit, polecat, stoat, weasel and hedgehog, the habitats on site are considered to be good for these species. Building works once started need to ensure that if large holes are dug and left [e.g. for installing the sewage system] that wildlife ladders allow them to exit without harm.

No survey work is required but survey checks during construction.

7.9 Amphibians and Reptiles

Pembrokeshire and this area have good records of common toad and common frog and slow worms and viviparous lizards are possible in the drier hedge banks.

Common reptiles receive partial protection from only part of sub-section 9(1) and all of sub-section 9(5) of the Wildlife and Countryside Act 1981. These prohibit the intentional killing and injuring and trade (i.e. sale, barter, exchange, transporting for sale and advertising to sell or to buy).

Longstone Farm was surveyed for reptiles 7 years ago the clearance of the hedge banks and spoil heaps will require a presence of an ecologist to deconstruct the bank as they can be used as refugia, hibernating sites and ofcourse for foraging and breeding.

A precautionary approach accompanied by a guiding method statement approved by the Planners will be sufficient when clearing the site ready for development. This must be a part of the planning application package.

N.B general comment: Start of works: important to cover open trenches and holes, provide a wildlife ladder plank to allow wildlife to exit unharmed. and check on the holes daily to ensure no animal is trapped.

7.10 OTHER SPECIES

Butterflies were noted in good numbers on this field. Meadow Brown, common blue, painted lady, ringlet, wall, large white, peacock and red admiral. Moths were also abundant, being disturbed as the field was surveyed.

There are records for a butterfly called the Grizzled Skipper

- Section 41 species of principal importance under the NERC Act in England
- Section 42 species of principal importance under the NERC Act in Wales
- UK BAP: Priority Species
- Butterfly Conservation priority: High

The butterfly occurs across southern England, commonly in small colonies, and has declined in several regions. In Wales it is restricted to the south coast and post-industrial sites in the north east.

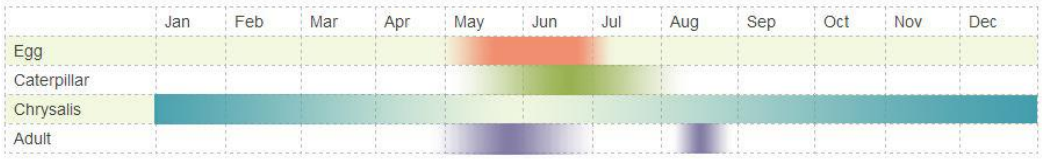
Caterpillar Food plants

A variety of plants from the Rosaceae family are used, mainly Agrimony (*Agrimonia eupatoria*), Creeping Cinquefoil (*Potentilla reptans*) and Wild Strawberry (*Fragaria vesca*). It may also use Barren Strawberry (*P. sterilis*), Tormentil (*P. erecta*), Salad Burnet (*Sanguisorba*

minor), Bramble (*Rubus fruticosus*), Dog-rose (*Rosa canina*), and Wood Avens (*Geum urbanum*). All present on or near the site

The grizzled skipper would need to be re-surveyed for its current status.

The surveys would need to be done in:



7.12 ADDITIONAL ISSUES TO CONSIDER

7.12a Run off issues – watershed drainage into the stream

i. **Sewage – pipe works and drainage** are an important consideration – there is little slope here so once the pipe runs for services are worked out then the impact can be calculated.

ii. **Foul water runoff** will also change the character of the stream and wooded valley. Currently it is quality damp woodland with dense cover. How these run off and sewage issues are dealt with will determine what surveys are needed in order to satisfy all the planning issues.

8.0 RECOMMENDATIONS FOR ENHANCEMENT IDEAS to be included on the land surrounding the houses to compensate for the loss of habitat and species diversity

Ideas for enhancements:

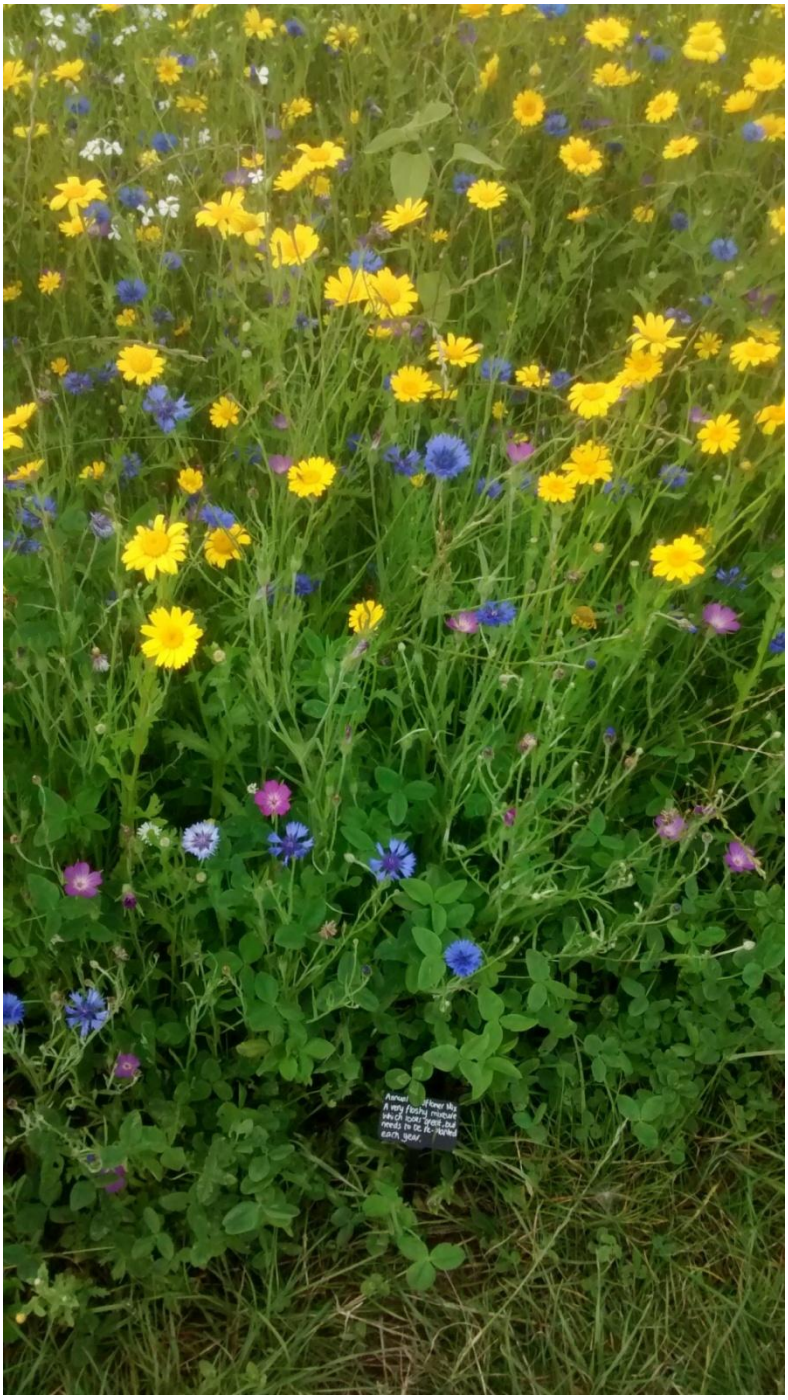
8.1 Grassland /herb rich area with mown paths but wildflowers between long vegetation

A. Plant plugs: different species matching the soil and drainage of the site can be bought and planted – see examples below.
E.g. yellow rattle, corn marigold, greater knapweed, Birdsfoot trefoil, vetches, Phycaelia,

Plant samples could be dug out and saved to replant in a mitigation area.

The example below is very similar to the field vegetation but the field has more grasses proportionately and more thistles for insects and bird food but fewer corn marigolds and corn flowers.

This is an example of what an enhancement area could look like in summer with a few plug plants of corn marigold [yellow flower] and cornflowers [blue flower] plus species from the pea family and clovers.



B. Nectar and fruit species - hedges

- Honeysuckle
- Foxgloves
- Ivy

Tree of bush	flowers	fruit
Apple trees	yes	yes
Blackthorn	White-April/May	Sloes – gin?
Beech	Delicate leaves early and great autumn colour	
Cherry , wild	flowers	fruit
Crab apple	Flowers and fruit	Crab apple jam and jelly
Damson	Flowers –early summer	Fruit - edible
Hawthorn	Flowers and	Fruit is edible but best left for birds
Hazel	catkins	Nuts - edible
Holly	Prevents invasion of neighbours!!!! Prickly slow growing but architectural	Berries on the female
Dog rose	Pretty flowers weaving in and out of the hedge – needs support	Berries
Dog wood	Winter stems are good colours to have in a garden, summer green leaves and flowers mid summer	Occasional black berries
Wayfaring tree	Flowers	berries
Willows – Salix spp	flowers	

Obtain plants from this website or locally – [contact your ecologist]

www. Woodlandtrust.org.uk

Salix species of willow are good for attracting insects and also for making dens, arches, and hideouts for children

C. Adding biodiversity on walls

Drought and salt tolerant plants could be added to the building in vertical bedding slits inserted into the house walls or dividing walls between gardens.

This example is using chives

FABRIKAAT bird and habitat
www.inhabitat

Species that would add colour and variety to the walls and be useful as herbs in the kitchen:

- Trailing rosemary
- Thyme
- Lemon thyme
- Sea pink
- Sea campion
- Sea lavender
- Curry plant

And stonecrops: English [white flower] and Biting stone crop [yellow flower].

D. Birds

Kestrel box – possibly a good place as rough grazing nearby to the north and north east.

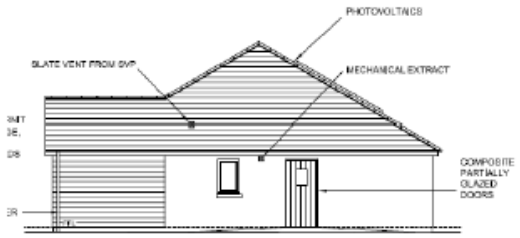
Houses
House sparrow terraces
Common swift boxes

A proportion of the houses could have eaves for house martins and swallows – see examples opposite.

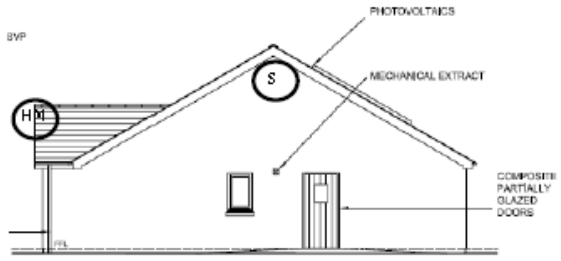
Websites to search for bird boxes suitable to your development:
www.nhbs
www.habibat and bird boxes
www.schwegler
www.inhabitat

Some examples of different locations where bat and bird boxes may be placed on the sides of the houses away from the busy parts of the gardens and away from lighting.

None of these boxes allow bats access to inside houses.



SIDE ELEVATION 1:100 (UNITS)



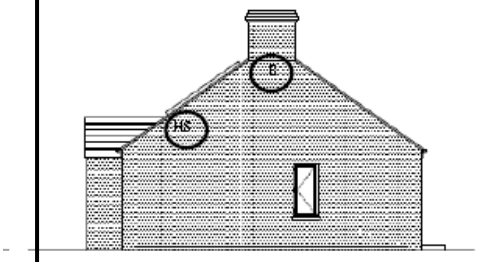
KEY to locations of these boxes and bricks for these species: Habibat or Schwegler makes

SWIFT – S

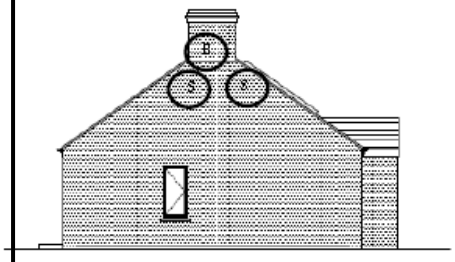
HOUSE MARTIN – HM

HOUSE SPARROW – HS

CREVICE BAT BRICKS – B



SIDE ELEVATION 1



SIDE ELEVATION 2

D.1 Bat and bird boxes/bricks in the walls

Bat Schwegler or Habibat bat boxes in the north and east gable end walls of the houses
www.schwegler.co.uk and www.habibat.co.uk

www.nhbs.com

Bird brick boxes in the north and east gable end walls of the houses
www.birdbrickhouses.co.uk

D.2 Bird boxes

www.nhbs.com and www.schwegler.co.uk

A different example of a bat and bird brick that can be incorporated in to the walls especially up near the roof line near the apex. [See below]

D.3 Bird and bat boxes in an unlit gable end


Aaron Dunkerton

E. Bug hotels

Stone walling if incorporated into the landscaping – include holes for bats, birds and insects:

Or brash piles:

Species that benefit:

- **Reptiles**
- **Birds**
- **Moths**
- **Hedgehogs**

BADGERS- see badger report from Badger Ecology Wales
Mitigation must be provided – badgers are a protected species.

F. LIGHTING

All lighting must be considered both for safety of humans but also for encouraging wildlife, Bats can be driven off by bright lights and as they eat alot of midges and biting insects, encourage them by soft lighting and not spilling lighting on to hedges, trees and roofs of houses.

Examples of some lighting styles that reduce up spill

9.0 CONCLUSIONS

The habitat on the site is of medium to low importance although the Pembrokeshire bank [clawdd/cloddiau] and native species hedge line is a feature of the area and must be kept wherever possible. Any clearance of the spoil on site must be done after the badger licence has been granted and that the badger sett built in compensation for closing the existing sett holes is in use. As far as birds are concerned vegetation clearance can go ahead in September or October.

With appropriate and sensitive mitigation and enhancement there will be no net loss of biodiversity in this field, provided the protected species surveys are carried out and the results are used to inform the final plans. This report is not considered finished until the plans have been viewed by the ecologist and enhancements have been discussed and added to the plans.

9.1 Mitigation and habitat area must be set aside to buffer against the environmental changes that will be enforced by the development both in the building stages and then the occupation of the housing.

9.2 DISCUSSION OF ECOLOGICAL IMPLICATIONS WITH PLANS AMENDED TO ENCOMPASS THE MITIGAITON AND ENHANCEMENT DESCRIBED IN THIS REPORT

10.0 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-ofsurvey-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* http://jncc.defra.gov.uk/page-4258 Joint Nature Conservation Committee (2005)

The Marine Habitat Classification for Britain and Ireland version 04, http://www.jncc.gov.uk/default.aspx?page=1584. Joint Nature Conservation Committee (2010)

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

Natural Environment and Rural Communities (NERC) Act (2006) (http://www.opsi.gov.uk/acts/acts2006/ukpga_20060016_en_1)

RSPB (2009) *Birds of Conservation Concern 3.* RSPB Sandy, Beds. http://www.rspb.org.uk/Images/BoCC_tcm9-217852. pdf

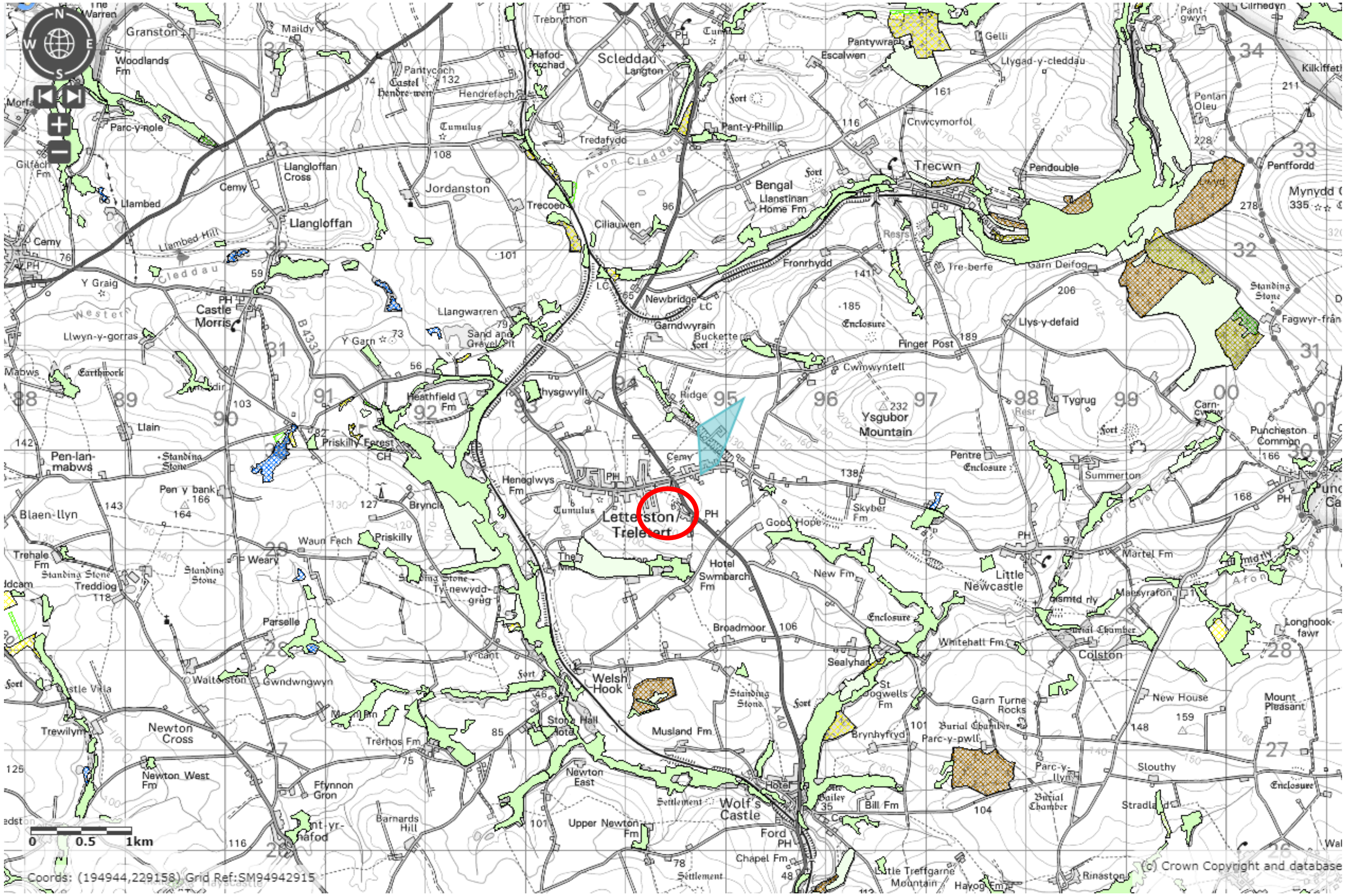
The National Planning Policy Framework http://www.communities.gov.uk/publications/planningandbuilding/nppf

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*

Appendix A – PLANS AND MAPS PLUS PROPOSED PLANS [A3]

A1 Google map of the site and surrounding field and the southern boundary of Letterston



A2MAGIC MAP OF HABITATS AND DESIGNATED SITES. RED CIRCLE SHOWS LOCATION OF THE SITE

A3 – PROPOSED PLANS

Appendix B – PLANT SPECIES LISTS AND TARGET NOTES

The Phase 1 habitat designations are presented here with a capital letter from the alphabet and then a number showing which general habitat the plants fit into. The Dominance is an approximation assessed by eye using what is called the DAFOR scale. D-dominant: A-abundant: F-frequent: O-occasional: R-rare occurrence. L is used for localised distribution or % estimation.

Plant species	**Latin name**	**Scattered Scrub A2.1** **TN1**	**Species Poor semi-improved grassland B2.2 with Tall ruderal C3.1** **TN2**	**Species Rich hedge J2.3.1** **TN3**	**Compacted bare ground with puddle water and clay**
Trees/bushes					
Blackthorn	*Prunus spinosa*	A/F		LD	
Bramble	*Rubus fruticosus agg*	A		LA	
Elder	*Sambucus nigra*	O		O	
Hawthorn	*Crataegus monogyna*	O		O/R	
Willow	*Salix cinerea*	A/D		A	
Gorse	*Ulex europaeus*	F/O		O	
Sycamore	*Acer psuedoplatanus*			O/R	
Herbs/low growing spp					
Agrimony	*Agrimonia eupatoria*	O	o		
Bedstraw, common	*Galium aparine*	F/O	F	F	
Bindweed, field	*Calystegia sepium*	F	LA/F	F/A	
Bryony spp	*Bryonia alba*			O	
Buttercup, creeping	*Ranunuculus arvensis*	F	*F/A*		
Catsear	*Hypochoeris radicata*	O	*O*		Related species
Clover, red	*Trifolium pratense*	O	*O*		

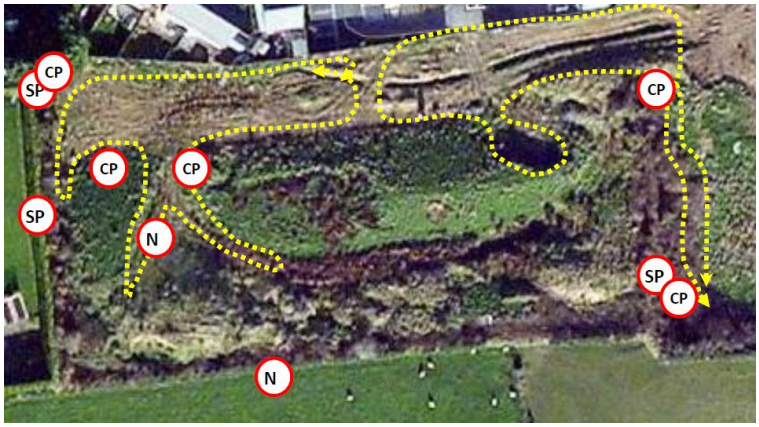
Plant species	Latin name	Scattered Scrub A2.1 TN1	Species Poor semi-improved grassland B2.2 with Tall ruderal C3.1 TN2	Species Rich hedge J2.3.1 TN3	Compacted bare ground with puddle water and clay
Clover, white	*Trifolium repens*			L	
Cows Parsley	*Anthriscus sylvaticum*		LF		
Dandelion	*Taraxacum officinales agg*	O/F	LF		o/f
Dog rose	*Rosa canina*				
Dock, common	*Rumex obtusifolius*	O	*LF*	O/F	o
Foxglove	*Digitalis purpurea*	O	O/F	LO	
Herb robert	*Geranium robertianum*	F	F/O	LF	
Hogweed	*Heraclium sphondylium*	O	*F*	O	
Honeysuckle	*Lonicera periclymenum*				
Ivy, Common	*Hedera helix*	O/F	*O*		
Knapweed, common	*Centaurea nigra*				
Nettle, common	*Urtica dioica*	F	F/A	LO	o
Plantain, Lanceolate	*Plantago lanceolata*	F	F		F
Purple Loosestrife	*Lythrum salicaria*	O	L	F/A	
Ragwort, common	*Senecio jacobaea*	F/O		O	o
Red Campion	*Silene dioica*	R			
Rosebay Willowherb	*Chamaenerion angustifolia*	O/F		O/F	
Selfheal	*Prunella vulgaris*				
Silver leaf	*Potentilla anserina*	O			F

Plant species	**Latin name**	**Scattered Scrub A2.1** **TN1**	**Species Poor semi-improved grassland B2.2 with Tall ruderal C3.1** **TN2**	**Species Rich hedge J2.3.1** **TN3**	**Compacted bare ground with puddle water and clay**
Sow thistle, common	*Sonchus asper*	R/O	O		o
Thistle, creeping	*Cirsium arvense*	LF			o
Trefoil, birds foot	*Lotus corniculatus*	O			
Vetch , purple	*Vicia spp*				
Vetch, yellow	*Vicia spp*				
Grasses:					
Bent common	*Agrostis spp*	F	O		
Cocksfoot	*Dactylis glomerata*	F/O	A	O	f
Fog grass, Yorkshire	*Holcus lanatus*		O		
Fescue, Red	*Festuca rubra*				
Oat grass, false	*Arrhenatherum elatius*				
Vernal grass, sweet	*Anthoxanthum odoratum*		F		
Rushes and sedges:					
Compact rush	*Juncus conglomeratus*				A
Rush Round Fruited	*Juncus rotundifolius*				o/r
Ferns					
Bracken	*Pteridium aquilinum*	O	F	O	

Appendix B continued with bat survey results:

Location: east transect

DATE: 2019	TIME	LOCATION	BAT SPECIES					NOTES
6th July	2130		Soprano pipistrelle SP	Common pipistrelle CP	Noctule			2134 sunset
	2239		1					1st bat-SE corner
7th July	0011-3			2				
	0015							End of survey



Location: West transect

DATE: 2019	TIME	LOCATION	BAT SPECIES					NOTES
6th July	2130		Soprano pipistrelle SP	Common pipistrelle CP	Noctule N			2134 sunset
	2153-2200	NW hedge	19(2153)					1st bat– 19minutes after sunset
	2201-2215		2	1(2204)				2nd bat species
	2216-2230							
	2231-2245		1					
	2246-2300				1			3rd bat hunting at a distance from roost. Middle of site at N
	2301-2315			1				
	2316-2330			1				
	2331-2345		1					
	2346-00:00							
	00:15				1			

Appendix C – 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. Technical Advice Note 5 (TAN5) Nature Conservation and Planning (2009)

3.2 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

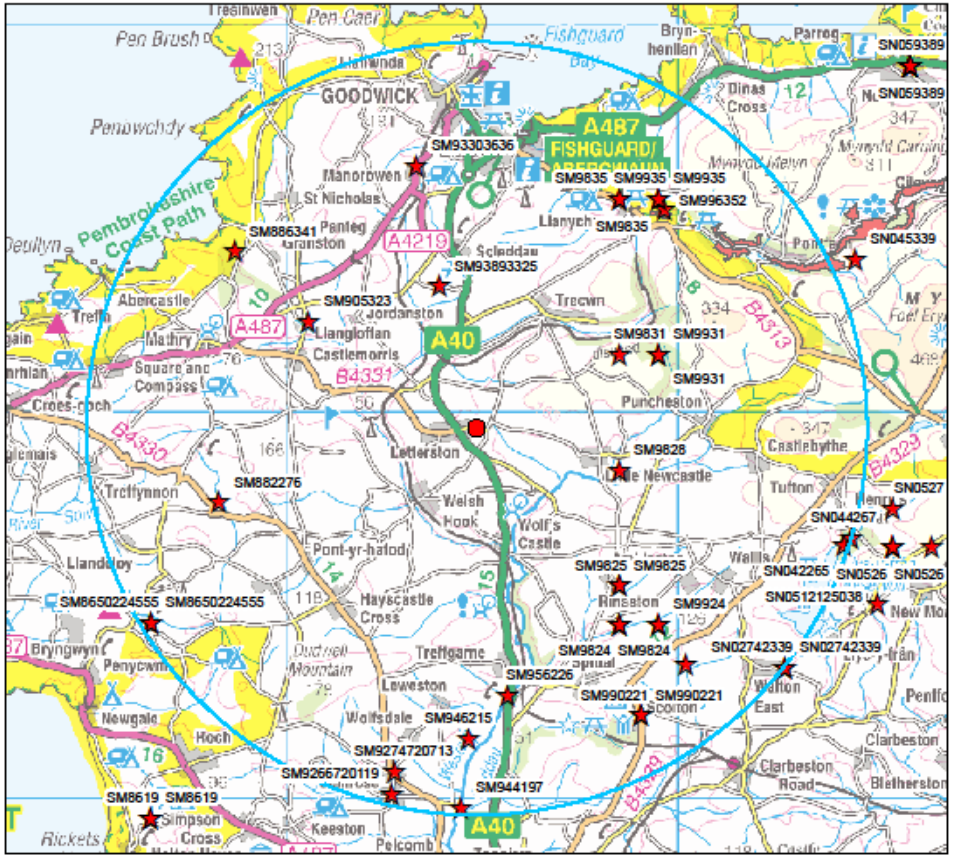
Local Development Plans (LDPs) must be produced by every Local Planning Authority in Wales.
Any development proposal will be tested against the policies within the LDP. The LDPs follow the planning guidance provide in PPW, including biodiversity and natural heritage policies. These include:

- 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 Pembrokeshire
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 D - Local Records centre information-See maps below

West Wales Biodiversity Information Centre



km
0 5 10

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Bat Records & Sites

Land South of Letterston
SM9485329565
10km Buffer

Report produced for Pembrokeshire Ecology & Biodivesity Solutions on the 5th June 2018 by West Wales Biodiversity Information Centre.

This is a data search for high risk bat species records and designated sites held within 10km of the site.

please see the species list for details of bat records.

The following site is within the buffer.

North Pembrokeshire Woodlands SAC

Legend

site
10km buffer

Designation

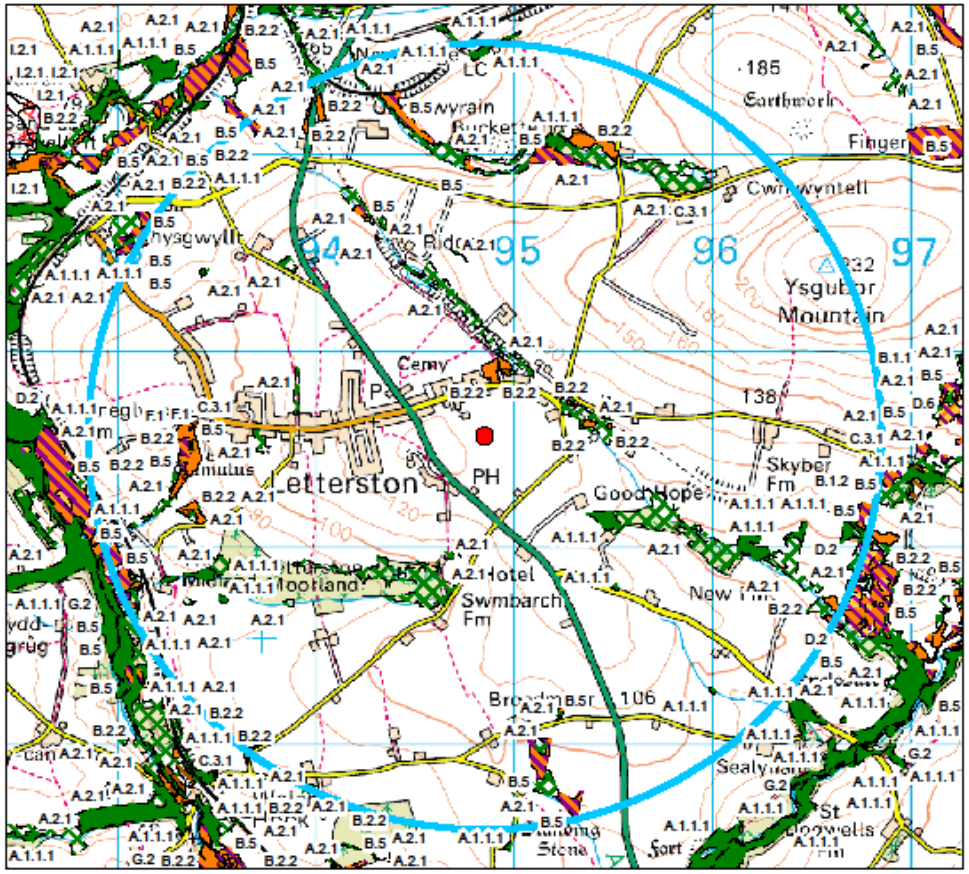
1 - Protected and priority species

Statutory Bat Sites

Designation

SAC

West Wales Biodiversity Information Centre



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Phase 1 Priority Habitats

Land South of Letterston
SM9485329565
2km Buffer

Report produced for Pembrokeshire Ecology & Biodivesity Solutions on the 5th June 2018 by West Wales Biodiversity Information Centre.

This is a data search for all phase 1 priority habitat features held within 2km of the site.

The following habitats are within the search area:

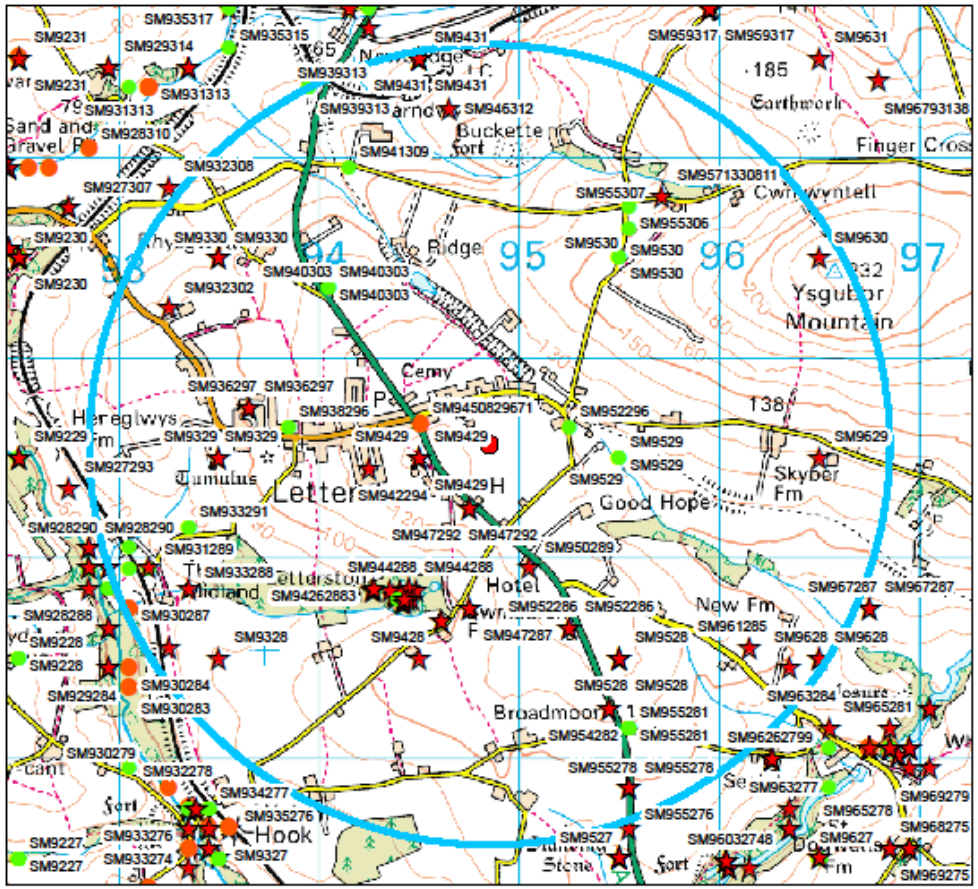
A.1.1.1	semi-natural broad leaved woodland
A.2.1	dense scrub
B.2.2	semi-improved neutral grassland
B.5	marshy grassland
C.3.1	tall ruderal herb
D.2	wet heath
F.1	swamp

Legend

site

2 km buffer

West Wales Biodiversity Information Centre



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Species Records

Land South of Letterston
SM9485329565
2km Buffer

Report produced for Pembrokeshire Ecology & Biodivesity Solutions on the 5th June 2018 by West Wales Biodiversity Information Centre.

This is a data search for all protected and priority species, other species of conservation concern and locally important species records held within 2km of the site.

Please see species list for details.

Legend

- site
- 2 km buffer

Species Records

Designation

- 1 - Protected and priority species
- 2 - Other species of conservation concern
- 3 - Locally important species

Appendix E– tables of information and 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 st[illegible] 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,	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

	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.	conservation status.
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 CONTACT NUMBERS AND USEFUL INFORMATION

a) Emergency contact numbers for bat help and advice

Anna Sutcliffe..... Tel: 01646 636754/07866 457 088
Natural Resources Wales (NRW) Tel: 0300 065 3000

b) Further reading for information about bats

The Bat Conservation Trust website (including the 'Roost' section): http://www.bats.org.uk/pages/about_bats.html

The Bats of Britain website: http://www.bio.bris.ac.uk

Eurobats website: www.eurobats.org

c) Bat box suppliers

Natural History Book Service: http://www.nhbs.com/

Habibat: http://www.habibat.co.uk/

Schwegler: www.schwegler.com

d) More technical information on incorporating wildlife features into buildings can be found in the following publication:

Gunnell, K., Murphy, B. & Williams, C. (2013). *Designing for Biodiversity: a Technical Guide for New and Existing Buildings (2nd edition)*. RIBA: London.