

# Welsh Government Biodiversity Surveys Site Management Plan – Cosmeston Farm, Penarth



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#### Welsh Government Biodiversity Surveys

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Capabilities on project:  
Environment

# 1 Introduction

## 1.1 Introduction

AECOM was commissioned by Kier Services Ltd. to undertake Extended Phase I Habitat Surveys and produce Biodiversity Site Management Plans for Welsh Government owned sites across Wales. Biodiversity Site Management Plans provide a tool to enable appropriate management of a species, habitat or other ecological feature at a site.

This report provides an overall ecological description of Cosmeston Farm, identifies potential ecological constraints, outlines ecological objectives and actions for the management and conservation of the features identified during an initial site assessment stage to enhance and maintain biodiversity on site. The report includes a desk study and an extended Phase 1 Habitat Survey including a bat habitat assessment. This report is not designed to support a planning application.

## 1.2 Site Description

The site reference number is D68.A6215000. The site is located in Penarth, National Grid Reference (NGR) ST181688.

As shown in Figure 1 the site is agricultural land to the south of Penarth, adjacent to the Bristol Channel/Severn Estuary coast. The farm is mixed-use, with species-poor semi-improved grassland used for grazing, and arable fields. Other habitats on site include areas of tall ruderal vegetation, scrub, broadleaved and mixed woodland, and hedgerows. A complex of farm buildings, a house and associated hardstanding is located close to the western site boundary. A strip of woodland and tall ruderal vegetation extends for some distance to the west of the main site, south of the B4267. A vegetated disused railway line passes through the centre of the site.

## 1.3 Objectives

Objectives of this study were:

- To identify any designated nature conservation sites on or in the vicinity of the site;
- To record and map the main habitats and features of ecological interest;
- To highlight any potential for protected species constraints;
- To set well defined Management Objectives; and
- To set defined actions to help achieve the Management Objectives.

## 1.4 Legislation

There are several different acts of legislation and regulations which refer to the protection of wildlife. These are summarised in Appendix 1 AECOM, 2013 Site Biodiversity Management Prescriptions document. This is a brief summary of the legislation and is not to be regarded as a definitive legal opinion. When dealing with individual cases, the client is advised to consult the full texts of the relevant legislation and obtain further legal advice.

## 1.5 Quality Assurance

This survey and subsequent report was undertaken in line with AECOM's Integrated Management System (IMS). Our IMS places great emphasis on professionalism, technical excellence, quality, environmental and Health and Safety management. All staff members are committed to establishing and maintaining our accreditation to the international standards BS EN ISO 9001:2008 and 14001:2004 and BS OHSAS 18001:2007. In addition our IMS requires careful selection and monitoring of the performance of all sub consultants and contractors.

All AECOM Ecologists are members of (at the appropriate level) the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow their code of professional conduct when undertaking ecological work.

## 2 Methodology

### 2.1 Desk Study

The objectives of the desk study are to review the existing information available in the public domain concerning species and habitats to identify the following:

- Internationally, nationally and locally designated sites, up to 1 km from the site;
- Special Areas of Conservation (SACs) and Sites of Special Scientific Interest (SSSIs) designated for bats within a 5 km radius of the site;
- Priority habitats and priority species listed on Local Biodiversity Action Plans (LBAP); and
- Section 42 list of Species and Habitats of Principal Importance for Conservation of Biological Diversity in Wales.

Information relating to internationally and nationally designated sites within a 1 km radius was collated using the Multi Agency Geographic Information for the Countryside (MAGIC) website ([www.magic.gov.uk](http://www.magic.gov.uk)). In accordance with Bat Conservation Trust (2012) recommendations, SACs and SSSIs designated for known bat populations were included in a search of up to 5 km radius.

The Local Authority website and the Biodiversity Action Reporting System (BARS) website (<http://ukbars.defra.gov.uk/>) were reviewed to establish the Local Biodiversity Action Plan (LBAP) species and habitats. LBAP habitats and species present within the site have been highlighted.

The Section 42 List of Species and Habitats in Wales was reviewed via the Wales Biodiversity Partnership website (<http://www.biodiversitywales.org.uk/en-GB/Section-42-Lists>). The Section 42 list of habitats and species of principal importance in Wales is the definite list and is a key requirement of the NERC Act 2006 Biodiversity Duty. The list has been published as a reference for all statutory and non-statutory bodies involved in operations that affect biodiversity in Wales. The S42 list is designed to be used by decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006 “to have regard” to the conservation of biodiversity in all their activities. Section 42 habitats and species present within the site have been highlighted.

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

### 2.2 Extended Phase I Habitat Survey

An Extended Phase I Habitat Survey (JNCC 1990, revised reprint 2010) of the site was undertaken by AECOM on 30<sup>th</sup> September and 1<sup>st</sup> October 2013. All results were recorded using a handheld GIS device (Trimble Juno SD/SB) to aid accurate mapping of habitats and features.

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 I Habitat Survey methodology as described in the Handbook for Phase I Habitat Survey: A technique for Environmental Audit (JNCC, 2010). The plant species defining the habitat types on site were recorded. Evidence of any invasive plant species subject to legal controls was recorded.

The site was assessed for its potential to support protected species in order to identify potential ecological constraints and to guide recommendations for further Phase II survey requirements for these species.

### 2.3 Assessment of Bat Potential

During the extended Phase 1 Habitat Survey, trees and buildings throughout the site were classified into categories dependent on the presence of features suitable as bat roost habitat. This was conducted via an external appraisal from the ground using binoculars where necessary. The categories used for buildings include: Confirmed Roost, High, Moderate, Low and Negligible potential for use by bats. Table 2.1 provides descriptions of these categories. The categories used for trees include: Confirmed Roost, Category I\*, Category I, Category II and Category III. Table 2.2 provides descriptions of these categories.

Capabilities on project:  
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### 3 Baseline Conditions

**Table 2.1: Building Bat Roost Potential Categories**

*(Category descriptions drawn from BCT, 2012 and Mitchell-Jones, 2004)*

Roost Potential	Description
Known or Confirmed	Confirmed signs of bat presence/ occupation (droppings, oily staining around entry points, insect remains, odour, scratching) and actual bat presence.
High	Features present with high potential to support roosting bats. These include structures with points of access to the interior through degraded/missing mortar/brickwork/roof tiles/hanging tiles. Proximity to good foraging habitat such as woodland, good hedgerows and/or water.
Moderate	Features with some potential to support roosting bats. Access points into structures may include mortar cracks in brickwork or holes in soffits/fascias.
Low	Limited roosting potential. Structures in good condition with no access into structure visible with few features of bat interest.
Negligible	Negligible potential for roosting and bats very unlikely to be present. Includes structures constructed from unsuitable materials e.g. prefabricated with steel, draughty, light and cool buildings with no roosting opportunities.

**Table 2.2: Tree Bat Roost Potential Categories**

*(Category descriptions drawn from BCT, 2012)*

Roost Potential	Description
Known or confirmed	Confirmed signs of bat presence/ occupation (droppings, oily staining around entry points, insect remains, odour, scratching) and actual bat presence.
Category I*	Trees with multiple, highly suitable features capable of supporting larger roosts.
Category I	Trees with definite bat potential, supporting fewer suitable features than Category I* trees or with potential for use by single bats.
Category II	Trees with no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found; or the tree supports some features which may have limited potential to support bats.
Category III	Trees with no potential to support bats.

#### 2.4 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 survey, they can contribute to a robust ecological assessment of a site.

Certain areas of the site were inaccessible to the surveyor during the Extended Phase 1 survey. Two areas of woodland, one in the centre of the site and one to the south, were not accessible and trees in these areas were not fully assessed for bat potential. Three fields of species-poor semi-improved grassland, used for horse grazing, were not accessible. One area of amenity grassland to the north of the buildings was not accessible.

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### 3.1 Desk Study Results

The designated habitats, sites and features within proximity to the site are listed in Table 3.1 below.

**Table 3.1: Desk Study Results**

Designation / Feature	Description
Designated Sites within 1km	<p><b>Severn Estuary Ramsar, Special Area of Conservation, (SAC) Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI)</b> adjacent to the east site boundary.</p> <p>The Severn Estuary supports a wide range of nationally and internationally important habitats such as intertidal mudflats and sandflats, sandbanks, sabellaria reefs, saltmarsh, shingle and rocky shore, coastal grazing marsh and ditches.</p> <p>The Severn Estuary is an important wintering ground for a range of migratory waders and wildfowl. Key species of international significance are European white-fronted goose, Bewick's swan, shelduck, dunlin and redshank.</p> <p>The Severn Estuary is seen as nationally important for the assemblage of migratory fish.</p> <p>Annex I habitats that are a primary reason for selection of this site are Estuaries, Mudflats and sandflats not covered by seawater at low tide and Atlantic salt meadows.</p> <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site are Sandbanks which are slightly covered by sea water all the time and Reefs,</p> <p>Annex II species that are a primary reason for selection of this site are sea lamprey, river lamprey and twaite shad.</p> <p><b>Llynnoedd Cosmeston SSSI</b> - - 100 metres north of the site boundary.</p> <p>The lakes at Llynnoedd Cosmeston are the only site in Wales at which starry stonewort is found. For its size Llynnoedd Cosmeston is one of the most ecologically diverse sites in Wales.</p> <p><b>Penarth Coast SSSI</b> — 380 metres south of the site boundary.</p> <p>Penarth Coast is special for its geological and biological features. There are two geological features within Penarth coast; these are separate lengths of cliffs and foreshore that represent different geological periods. To the West of Lavernock Point are two cliff-top fields, which support a mixture of habitats in close association. They support scrub, secondary woodland and species-rich grassland within a relatively small area. These provide important habitats for migratory birds, passerines, insects and invertebrates. Immediately adjacent, on the south-facing cliff face, are some areas of softer rock and bare soil, this is habitat for specialist invertebrates.</p>
Designated Sites within 5km designated for bats	No sites designated for bats within 5 km.
Priority Habitats and Species - LBAP	The habitats and species listed on the Local Biodiversity Action Plan are listed in Appendix 2 AECOM (2013) Site Biodiversity Management Prescriptions document.

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Designation / Feature	Description
Priority Habitats and Species – Section 42 List	A full list of Section 42 Habitats and Species of Principle Importance in Wales which are found in the region are included in Appendix 3 AECOM (2013) Site Biodiversity Management Prescriptions document. 504 of the UK priority species occur in Wales and a further 53 species recognised as Welsh priorities go to make up a list of 557 species of principal importance in Wales with an additional 4 groups/assemblages of species. Of the UK's 65 priority habitats, 51 occur in Wales. An additional 3 marine habitats not on the UK list but identified as a priority in Wales are included on the Section 42 list, making a total of 54 priority habitats in Wales. The combined list of species and habitats is referred to as the Section 42 list for Wales. Those priority habitats present on site and priority species with potential to be on site are listed in Table 3.2.
Surrounding Habitats	The surrounding land use is residential and agricultural. There is residential land adjacent to the north of the site boundary. Adjacent to the east boundary of the site are sea cliffs. To the south of the site boundary there is agricultural land which is well connected to the site through hedgerows. 190 metres to the south of the site boundary is a camp site. The B4267 runs parallel with the east boundary and beyond that is agricultural land. A disused railway line passes through the site and extends into the residential area to the north.
Ponds within 500m	There is one pond within 500m of the site boundary which is located 130m south of the site boundary.



Capabilities on project:  
Environment

### 3.2 Extended Phase I Survey

#### 3.2.1 Habitats

The habitats present on site and their descriptions are shown in Table 3.2. A plan of the site showing the location and distribution of these habitats is shown in Figure 1.

**Table 3.2: Phase I Habitats and Descriptions**

Habitat	Description	LBAP Habitat	Section 42 Habitat
Broadleaved woodland – semi-natural	Broadleaved woodland is present mostly in association with the dismantled railway line. Some mature trees are present up to 15m in height. Species include herb Robert, nettle, bramble, rosebay willowherb, hemp agrimony, ivy, rose species, elder, hawthorn, blackthorn, field maple, crab apple, willow species, hornbeam, sycamore, pedunculate and sessile oak, and ash (Appendix B: Photographs 2, 5, 12).	Yes	Yes
Mixed woodland – semi-natural	One area forming a strip on a slope along a field boundary. Species include bramble, rose species, ivy, hawthorn, blackthorn and ash (Appendix B: Photograph 13).	Yes	Yes
Dense/continuous scrub	Mainly located in association with the dismantled railway line and the field boundaries. Species include hart's-tongue fern, nettle, bramble, rosebay willowherb, rose species, traveller's-joy, bindweed, ivy, buddleia, elder, crab apple, buckthorn, hawthorn, blackthorn, field maple, sycamore and ash (Appendix B: Photograph 6).	Yes	No
Scattered scrub	Two areas, one small section extending over a bridge above the dismantled railway line, and one area in the corner of a field along the northern site boundary. Species include buddleia, bramble, rose species and willow species.	Yes	No
Semi-improved neutral grassland	Semi improved neutral grassland is present mostly in association with the dismantled railway line. Some areas appear periodically grazed by horses. Species include perennial ryegrass, annual meadow grass, cocksfoot, Timothy, red clover, black medick, ribwort plantain, greater plantain, meadowsweet, hemp agrimony, selfheal, common sorrel, broad-leaved dock, knapweed, thistle species, oxeye daisy and hard rush (Appendix B: Photographs 5, 13).	No	No
Improved grassland	Two small areas on the northern site boundary, in between an arable field and residential gardens amongst sections of tall ruderal vegetation. Species include perennial ryegrass, annual meadow grass and false oat-grass.	No	No

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Habitat	Description	LBAP Habitat	Section 42 Habitat
Poor semi-improved grassland	Six fields, several used for horse grazing, with species including perennial ryegrass, annual meadow grass, greater plantain, Timothy, red clover, common sorrel, dandelion, thistle species and creeping buttercup (Appendix B: Photographs 8, 9, 14, 15).	No	No
Tall ruderal vegetation	Mainly located in association with the dismantled railway line and the field boundaries. Species include perennial ryegrass, cocksfoot, annual meadow grass, black medick, red clover, dandelion, nettle, broad-leaved dock, common sorrel, greater plantain, thistle species, hard rush, rosebay willowherb, rose species, bramble, traveller's joy, bindweed, buddleia, hawthorn and aspen (Appendix B: Photographs 1, 6, 7, 11).	No	No
Marginal vegetation	An area of vegetation growing in a ditch. The vegetation was too dense to discern if water was present in the ditch. Species including common reed and bulrush (Appendix B: Photograph 16).	No	No
Standing water	A small area covering a concrete path, in the north of the site, likely to be seasonal only.	No	No
Cultivated land - arable	Six arable fields, one recently cut and two ploughed, one of which has a small strip of improved grassland at the edge. Species include perennial ryegrass, annual meadow grass, cocksfoot, thistle species, greater plantain, common sorrel and clover (Appendix B: Photograph 3).	No	No
Amenity grassland	Two small areas, close to the buildings on site, with species including annual meadow grass, greater plantain and slender speedwell (Appendix B: Photograph 16).	No	No
Intact hedge – species-poor	Twelve hedgerows along site and field boundaries. Species in hedges and understorey include include nettle, rosebay willowherb, hart's-tongue fern, traveller's joy, bindweed, bramble, rose species, ivy, hawthorn, elder, blackthorn, buckthorn, crab apple, field maple, willow species, ash and fir species.	Yes	Yes
Defunct hedge – native species-rich	Two hedgerows, with species including bramble, hawthorn, blackthorn, buckthorn, rose, hazel, ash, elder, traveller's joy, bindweed and ivy.	Yes	Yes
Defunct hedge – species-poor	Eight hedgerows along site and field boundaries. Three along the northern site boundary backing on to residential housing, and several with only a few shrubs or woody species remaining. Species include nettle, bramble, elder, rose species, hawthorn, blackthorn, traveller's joy and ivy.	Yes	Yes

Capabilities on project:  
Environment

Habitat	Description	LBAP Habitat	Section 42 Habitat
Hedge with trees – native species-rich	Four hedgerows along site and field boundaries, one intact three defunct in places. Species include bramble, hawthorn, rose species, blackthorn, buckthorn, hazel, elder, field maple, crab apple, ivy, sycamore, pedunculate oak and ash.	Yes	Yes
Hedge with trees – species-poor	Three hedgerows, all defunct, one extending along a field boundary and two small areas along the southern site boundary. Species include hawthorn, rose species, blackthorn, bramble, crab apple, elder, aspen, ash and ivy.	Yes	Yes
Fence	Three fences along field boundaries.	No	No
Dry ditch	A ditch to the south-east of the buildings, 0.5m deep and bordered by a strip of vegetation, predominantly common sorrel. Other species include annual meadow grass, perennial ryegrass, curled dock and thistle species.	No	No
Earth bank	A grass pathway, which turns into a stone track further along its length, with tall ruderal vegetation growing at the sides and along parts of the track. Species include annual meadow grass, white clover, ribwort plantain, nettle and rosebay willowherb.	No	No
Buildings	Eight buildings, the majority of which are situated close to the centre of the site's western boundary. For building descriptions see Table 3.5 (Bat roost assessment) (Appendix B: Photographs 18-21).	No	No
Bare ground	Twelve areas including several farm access tracks, a concrete path, road and hard standing, a horse manège (menage) and an area being excavated by a machine. Species occurring alongside and in the centre of farm access tracks include annual meadow grass, cocksfoot, perennial ryegrass, white clover, ribwort plantain, greater plantain, thistle species and dock species (Appendix B: Photographs 4, 6, 10).	No	No

Capabilities on project:  
Environment

### 3.3 Protected or Priority Species

Details of protected and priority species recorded on site are shown in Table 3.3. A plan of the site showing the location and distribution of features with potential for protected or priority species is shown in Figure 1. Target notes of protected species evidence or features that have potential to support protected species are shown in Appendix A.

**Table 3.3: Protected and Priority Species on Site**

Species/ Species Group	Target Note	Associated habitat	Justification	LBAP Species	Section 42 Species
Invertebrates	N/A	Ditch, grazing land, tall ruderal vegetation, hedgerows, ditch with marginal vegetation, manure heap.	Areas which are wet or subject to periodic inundation such as the ditch with marginal vegetation, mosaics of tall ruderal vegetation and scrub, hedgerows, grazing land with manure and the manure heap area are likely support a diverse range of invertebrates.	N/A	Yes
Reptiles	N/A	Tall ruderal vegetation, scrub, hedgerow bases, field margins, woodland edges.	<p>Mosaics of tall ruderal vegetation and scrub, field margins, hedgerow bases and woodland edges and paths edges through scrub and woodland will provide good habitat for reptiles to bask, forage and shelter. Areas such as the manure heap, if undisturbed, may provide an egg-laying site for grass snake.</p> <p>The site is well-connected with the wider landscape of agricultural land, only being isolated slightly by minor roads to the north and west.</p>	N/A	Yes

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Species/ Species Group	Target Note	Associated habitat	Justification	LBAP Species	Section 42 Species
Birds	N/A	Woodland, scrub, hedgerows, grassland and arable fields.	<p>Scrub, trees, woodland and hedgerows have the potential to support nesting birds.</p> <p>Ground-nesting birds may nest in areas of long grass and tall ruderal vegetation, and certain species may nest in arable fields.</p> <p>The site is adjacent to the Severn Estuary Ramsar site and SPA; waterfowl and waders may use the open areas within the site for roosting and foraging, including during the winter period and spring and autumn migrations.</p>	N/A	Yes
Badgers	N/A	Woodland, scrub, hedgerows, grassland and arable fields.	Trees, woodland, hedgerows, scrub, arable fields and grassland provide good habitat for foraging and sett establishment. The site is well-connected with the wider landscape. No badger signs were seen, but potential habitat is present.	N/A	No
Bats	N/A	<p>Woodland, scrub, hedgerows, grassland.</p> <p>Buildings on site have been assessed as having some potential to support roosting bats, and trees on site may also have some potential (Table 3.5).</p>	Trees, woodland, hedgerows, scrub and grassland, particularly grazing land, will provide habitat for foraging bats. Well-connected hedgerows, tree lines and woodland edges provide flightlines for commuting bats. The site is well-connected with the wider landscape via the dismantled railway line and hedgerows. The vegetated dismantled railway line extends north into the residential development and could provide an important link between potential roosts in the urban area and foraging habitat to the south.	N/A	Yes

Capabilities on project:  
Environment

### 3.4 Invasive Species Subject to Legal Controls

The following plant species are listed on Schedule 9 of the Wildlife and Countryside Act 1981 making it an offence to cause the spread of these species in the wild. The locations of plants subject to legal controls are shown on Figure 1.

**Table 3.4: Invasive Species on Site**

Species	Invasive Species Point	Description
No invasive species were identified on site at the time of survey.		

### 3.5 Bat Roost Assessment

Features suitable for supporting roosting bats were assessed during the site visit and are shown in Table 3.5. The locations of potential roosts are shown on Figure 1.

**Table 3.5: Features Assessed as Having Potential to Support Roosting Bats**

Feature	Description	Bat Roost Potential Category
Building 1- House	Brick-built house with a pitched slate roof. Potential for with a large complicated roof void and large roof timbers/mortise joints. There are missing or cracked tiles. , including a missing roof slate near the chimney, providing potential entrances for bats to fly through. The building roof void is unlikely to be draughty. There is little to no external lighting. (Appendix B: Photographs 17 and 18). Anecdotal evidence from the house occupier that bats are often seen flying around the outside of the property.	High
Building 2	A brick-built arched railway bridge over the dismantled railway line. No obvious signs seen but further investigation could result in bat features being found. No lighting present. . Appendix B: Photograph 19.	Low
Building 3	A stone farm building with a pitched metal roof. Stone walls have holes and gaps through which bats could access or roost in crevices. Presence of original wooden roof beams is unknown. Building likely to be exposed to draughts (Appendix B: Photograph 21).	Moderate
Building 4	A stone farm building with a pitched metal roof. Stone walls have holes and gaps through which bats could access or roost in crevices. Presence of original wooden roof beams is unknown. Building likely to be exposed to draughts (Appendix B: Photograph 20).	Moderate
Building 5	A stone farm building with a pitched metal roof. Stone walls have holes and gaps through which bats could access or roost in crevices. Presence of original wooden roof beams is unknown. Building likely to be exposed to draughts (Appendix B: Photograph 20).	Moderate
Building 6	A stone farm building with a pitched metal roof. Stone walls have holes and gaps through which bats could access or roost in crevices. Presence of original wooden roof beams is unknown. Building likely to be exposed to draughts (Appendix B: Photograph 21).	Moderate

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Feature	Description	Bat Roost Potential Category
Building 7	A stone farm building with a pitched metal roof. Stone walls have holes and gaps through which bats could access or roost in crevices. Presence of original wooden roof beams is unknown Building likely to be exposed to draughts.	Moderate

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## 4 Biodiversity Management Objectives

### 4.1 Biodiversity Management Objectives

Based on the findings from the Extended Phase I Habitat survey the following Ecological Management Objectives (a maximum of five objectives will be given) have been created to manage the risk of protected species at the site, maintain current site biodiversity and enhance the conservation potential of the site where possible:

1. Maintain and enhance diversity of semi improved grassland and field margins for invertebrates.
2. Maintain and enhance suitable habitat for reptiles;
3. Maintain and enhance suitable habitat for breeding birds;
4. Maintain and enhance suitable habitat for badgers; and
5. Maintain and enhance foraging potential for bats.

### 4.2 Recommendations to Manage Compliance with Legislation

The following management actions and recommendations in Section 5 have been made to prevent an offence being committed in respect to the following species:

1. Reptiles;
2. Nesting birds;
3. Badgers; and
4. Bats



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## 5 Biodiversity Management Actions and Recommendations

### 5.1 Biodiversity Management Actions and Recommendations

In order to achieve the Ecological Management Objectives set out in Section 4, the following management actions have been recommended. Actions are given in brief, with the full prescription and methodology for these actions being specified in AECOM (2013) Site Biodiversity Management Prescriptions Report.

**Table 5.1: Recommended Management Actions for Objectives**

Objective	Actions and Recommendations	Prescription Details Reference AECOM (2013) Management Prescriptions Report
Objective 1: Maintain and enhance grasslands for invertebrates.	<p>Consider leaving a minimum 2m area of unploughed field margins at the base of hedgerows, woodland and scrub.</p> <p>In areas of improved grassland or short semi improved grassland, consider setting aside a section of grassland or a margin around the edge of the grassland to be left unmown or less frequently mown.</p> <p>Mow grassland a maximum of three times a year and at appropriate times to increase grassland flora, this will increase invertebrate diversity and have a positive impact on reptiles, amphibians, foraging bats, badgers and birds utilising the area.</p> <p>Avoid the use of pesticides where possible. Consider reducing the extent/coverage of application near to field boundaries.</p> <p>Prevent pollution of surface water runoff from vehicle fuel, oil, chemicals or silt. Prevent surface water runoff reaching water bodies and running water (i.e. ponds, ditches, streams and rivers).</p>	<p>Section 2.1</p> <p>Section 4.2</p>
Objective 2: Maintain and enhance suitable habitat for reptiles.	<p>Retain habitats such as vegetated ditches, semi improved grassland, scrub and woodland. Create a mosaic of habitats by creating new habitats and/or maintain existing habitats such as aquatic habitats (ponds and ditches), long grass, scrub, woodland edges, log piles, rubble piles and dry stone walls will benefit reptiles.</p> <p>In areas of improved grassland or short semi improved grassland adjacent to ditches consider setting aside a margin around the edge of the grassland to be left unmown or less frequently mown.</p> <p>Consider leaving a minimum 2m area of unploughed field margins at the base of hedgerows, woodland and scrub.</p>	<p>Section 8.2.7</p>

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Objective	Actions and Recommendations	Prescription Details Reference AECOM (2013) Management Prescriptions Report
Objectives 3 and 5: Maintain and enhance suitable habitat for breeding birds and foraging bats.	Implement a sympathetic management regime on trees, scrub and hedgerows. Avoid intensive management regimes, such as frequent heavy cutting on hedgerows to allow them to become taller and more diverse.  Retain and maintain the vegetated dismantled railway corridor. This may be an important landscape corridor.	Section 2.2.2 Section 9.2.5 Section 11.2.4
Objective 4: Maintain and enhance suitable habitat for badgers	Maintain areas of woodland, scrub and semi improved grassland.  Consider leaving a minimum 2m area of unploughed field margins at the base of hedgerows, woodland and scrub.	Section 10.2.6
Objectives 5: Maintain and enhance suitable habitat for foraging and commuting bats.	Manage lighting to benefit bats.  Avoid lighting of vegetated dismantled railway corridor. This may be an important landscape corridor for bats.	Section 11.2.7 – 11.2.11

## 5.2 Recommendations to Manage Compliance with Legislation

In order to reduce the risk of an offence being committed the recommendations in Table 5.2 have been made. Actions are given in brief, with the full prescription and methodology for these actions being specified in AECOM (2013) Site Biodiversity Management Prescriptions Report.

**Table 5.2: Recommended Actions to Manage Compliance with Legislation**

Objective	Actions and Recommendations	Prescription Details Reference AECOM (2013) Management Prescriptions Report
1: Reptiles	To prevent injury or harm to reptiles, cut grass to no less than c.150mm in height in areas identified as having reptile potential.  Avoid trampling of habitats by people or machinery in these areas.  Consult an ecologist before any development, ground breaking or soil stripping works commence in areas where reptiles may be present.	Section 8.2
2: Nesting birds	To prevent disturbance to nesting birds conduct any vegetation management on trees, scrub and hedgerows outside of nesting bird season (avoid March – September inclusive).  Avoid the removal or trampling (by vehicles/machinery or people) of habitats that have the potential to support ground-nesting birds during the breeding season. These include areas of post industrial brownfield sites, agricultural margins, gravel or green roofs,	Section 9.2.1 – 9.2.2

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Environment

Objective	Actions and Recommendations	Prescription Details Reference AECOM (2013) Management Prescriptions Report
	rushes/grassland adjacent to surface water bodies (ponds and ditches).	
3: Badgers	<p>Ground breaking works and vibration causing works should be avoided within 30m of a badger sett.</p> <p>If development, ground breaking works or vibration causing works are required within 30m of the woodland consult an ecologist for further advice - further surveys and licenses may be required.</p> <p>Any excavation on site, if left unfilled over night, should be covered to avoid badgers and other animals becoming trapped or fitted the excavation with a scaffolding board ramp to allow any trapped animals to exit.</p>	Section 10.2
4: Bats.	<p>Avoid the severance or removal of linear features such as vegetated dismantled railwayline, tree lines, hedgerows, vegetated ditches and woodland. . If severance or removal is required, consult an ecologist.</p> <p>Avoid external light spill onto adjacent habitats. If external lighting is required, consult an ecologist.</p> <p>Prior to any management works to the buildings and tree identified in Table 3.5 we recommend that a suitably qualified ecologist be consulted for further advice.</p> <p>Disturbance to trees can include de-limbing, crown lifting, complete felling, lighting. Disturbance to buildings or structures can include re-pointing stone work, re-roofing, loft conversion, building demolition, lighting etc.</p>	Section 11.2

Capabilities on project:  
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## 6 References

AECOM (2013) *Site Biodiversity Management Prescriptions Report* - Welsh Government Sites

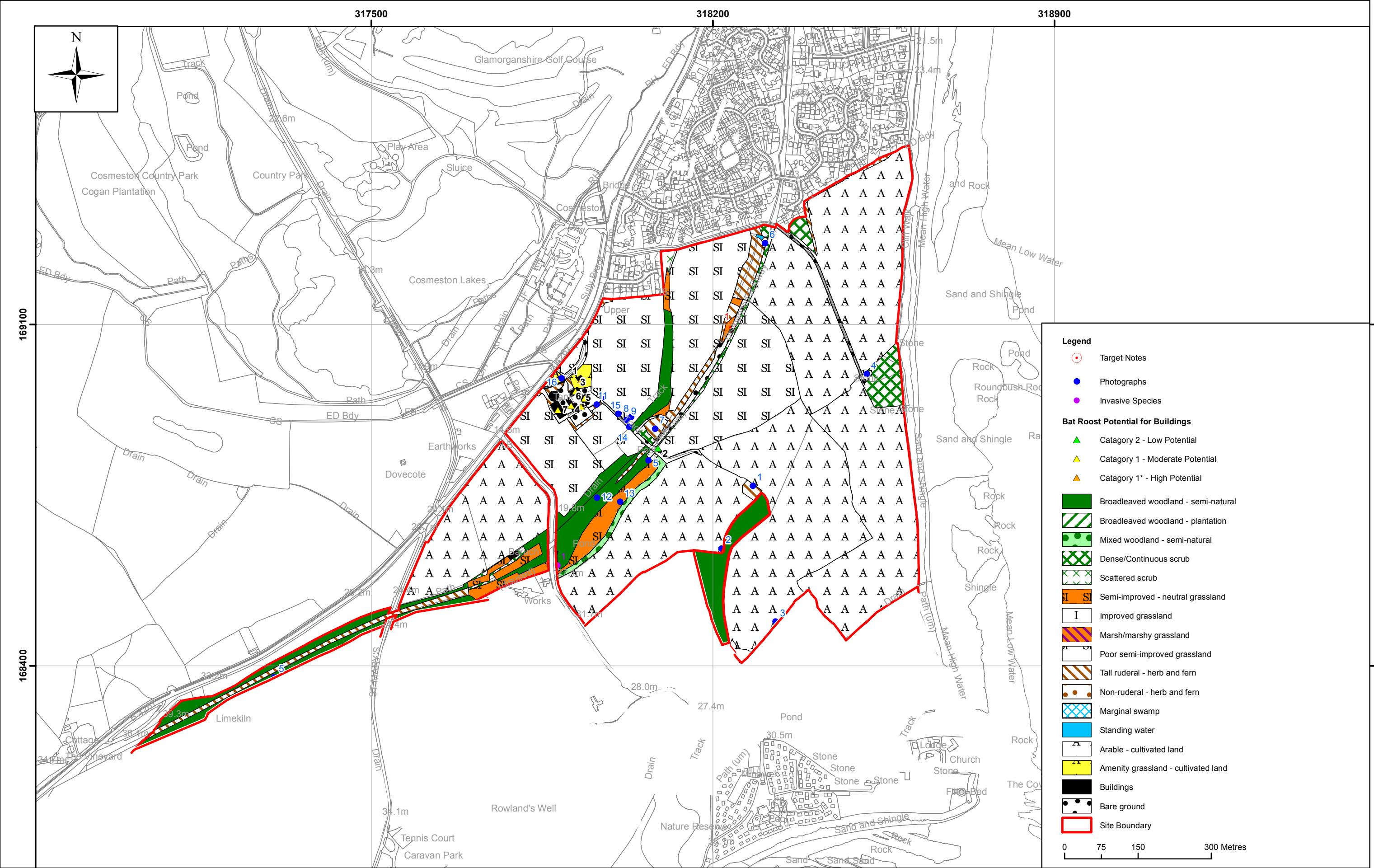
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Mitchell-Jones A.J. (2004) *Bat Workers Manual* (3rd edition). JNCC. Peterborough.

Joint Nature Conservation Committee (2010). *Handbook for Phase I Habitat Survey – A Technique for Environmental Audit*. JNCC. Peterborough.

Capabilities on project:  
Environment

## Figure 1: Phase 1 Habitat Map



Client:	KIER SERVICES LTD.	Title:	COSMESTON FARM PHASE 1 HABITAT MAP	<b>AECOM</b> 1 Callaghan Square Cardiff CF10 5BT	Tel +44 (0) 292 067 4600 Fax +44 (0) 292 067 4699 www.aecom.com	Drawn:	GM	Checked:	LN
						Verified:	CC	Approved:	KW
Project:	WELSH GOVERNMENT BIODIVERSITY SITE MANAGEMENT PLAN					Date:	20/11/2013	Scale at A3:	1:7,000
						SAP Reference: X.D68.A6215000			A3

Capabilities on project:  
Environment

## Appendix A: Target Notes for Figure 1 Phase 1 Map

Target Note	Description
1	Containers, road signs and other plastic material dumped here (Appendix B: Photograph 22).



Capabilities on project:  
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## Appendix B: Site Photographs



Photo 1: Tall ruderal vegetation, with old machinery and metal.



Photo 2: Broadleaved semi-natural woodland.



Photo 3: Arable field.



Photo 4: Bare ground, being excavated by digger.



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Photo 5: Semi-improved neutral grassland and broadleaved semi-natural woodland.



Photo 6: Concrete path, bordered by dense scrub and tall ruderal vegetation.



Photo 7: Tall ruderal vegetation with parked vehicles.



Photo 8: Poor semi-improved grassland.

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Photo 9: Poor semi-improved grassland.



Photo 10: Concrete yard with vehicles and farm storage.



Photo 11: Tall ruderal vegetation and horse manure (menage).



Photo 12: Broadleaved semi-natural woodland surrounding path.



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Photo 13: Mixed semi-natural woodland bordering neutral semi-improved grassland.



Photo 14: Poor semi-improved grassland.



Photo 15: Poor semi-improved grassland and track.



Photo 16: Amenity grassland with marginal vegetation in ditch.

Capabilities on project:  
Environment



Photo 17: Building 1.



Photo 18: Roof of Building 1 showing missing tile.



Photo 19: Railway bridge over path.



Photo 20: Farm buildings 4 and 5.



Capabilities on project:  
Environment



Photo 21: Farm buildings 6 and 3.



Photo 22: Containers, road signs and plastic materials.