

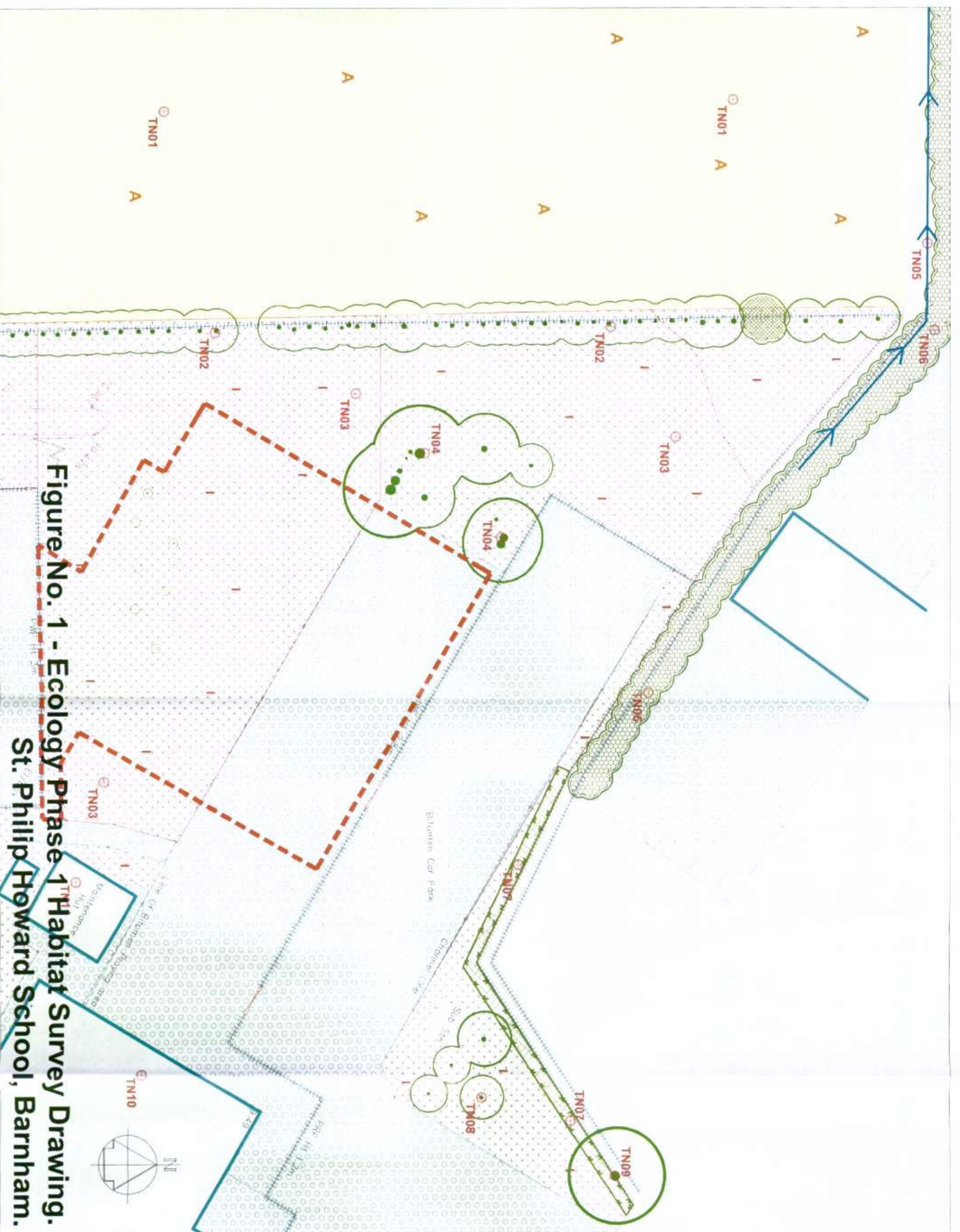


Figure No. 1 - Ecology Phase 1 Habitat Survey Drawing.
St. Philip Howard School, Barnham.

Legend

- Building Development Area
- Scattered Trees
- Treeline - Tree Group
- Shoreline Trees
- Semi - Natural Broadleaved Woodland
- Dense Scrub
- Intact Hedge Species Rich
- Ditch
- Improved Grassland
- Arid Land
- Rare Ground
- Fences
- Existing Building Footprints
- Botanical Target Notes

St Philip Howard School
 Barnham - Sports Hall

Ecology Phase 1 Habitat Survey
 Ecology Phase 1 Habitat Survey Drawing

Figure No. 1

Lizard Landscape Design

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23.02.10

St Philip Howard School
 Barnham - Sports Hall

Ecology Phase 1 Habitat Survey
 Ecology Phase 1 Habitat Survey Drawing

Figure No. 1

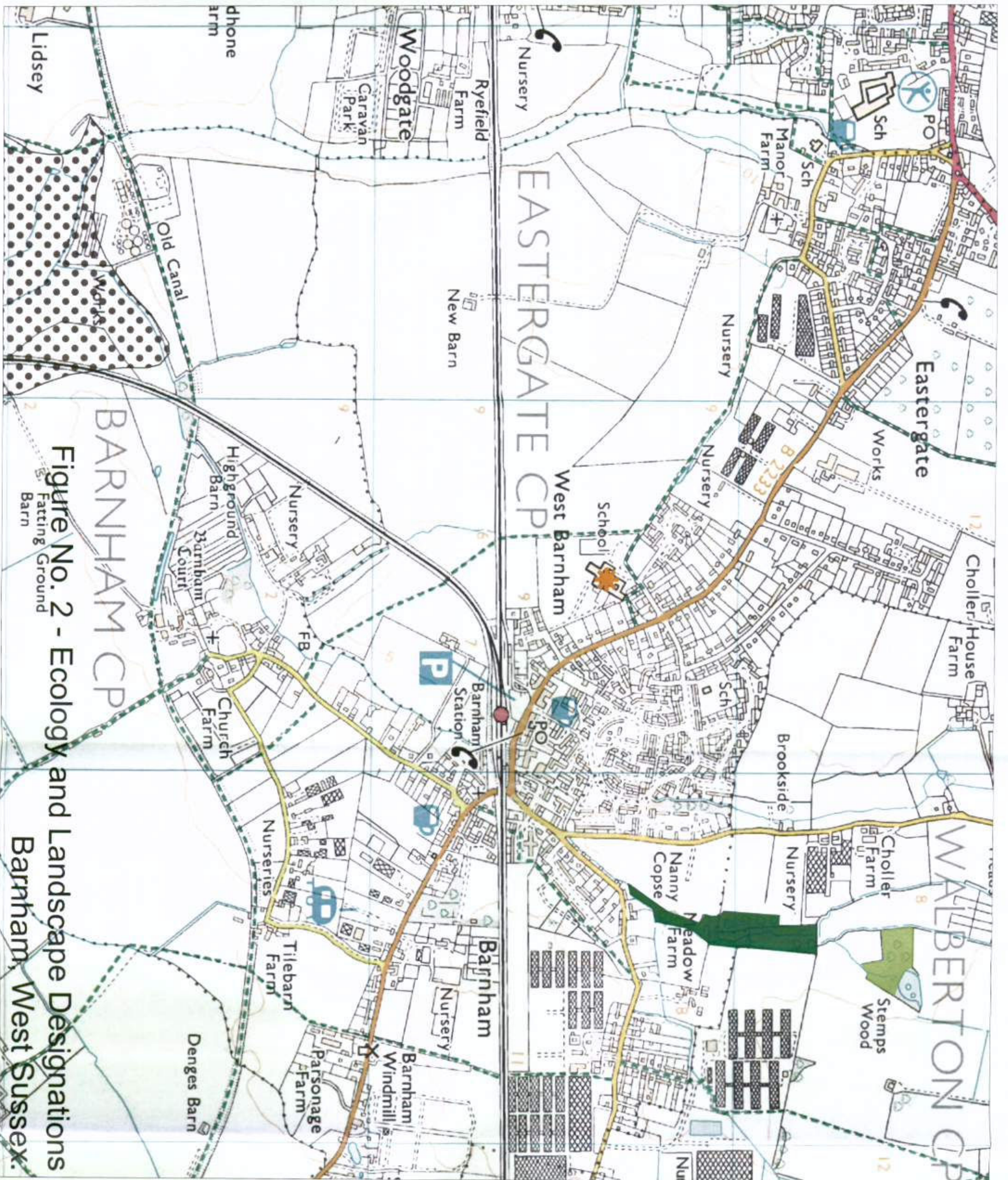


Figure No. 2 - Ecology and Landscape Designations
Barnham, West Sussex.

Rev	Description	Date	Initials
00	Planning Issue.	02/10	ET

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Project title
St Philip Howard School,
Barnham, West Sussex.

Drawing title
Ecology and Landscape
Designations

Scale	Drawn	Date
1:10,000@A3	ET	02/10

Drawing No **Figure No. 2**

Revision
00

Legend

-  Development Location Site
-  National Inventory of Woodland and Trees
-  Ancient and Semi Natural Woodland
-  Coastal and Floodplain Grazing Marsh

ST PHILIP HOWARD CATHOLIC SCHOOL

St Philip Howard Catholic School,
Barnham, West Sussex

ARUN DISTRICT COUNCIL				
No.	17	10		
Received				

Extended Ecology Phase 1 Habitat Survey Report

Approved By: Joe Jackson

Signed:

Position: Principal

Date: 26 February 2010

February 2010 – Planning Issue

LLD288 StPhilipHowardVCatholicSchool.Extended Ecology Phase 1 Habitat Survey Report.Rev00.02.10



Landscape Architecture



Environmental Design



Landscape Planning

Lizard Landscape Design

Lizard Landscape Design



CONTENTS

	PAGE
SUMMARY	1
1.0 INTRODUCTION	4
2.0 SCOPE OF SURVEY	4
3.0 METHODOLOGY	5
4.0 RESULTS	4
5.0 CONCLUSIONS AND RECOMMENDATIONS	16
6.0 REFERENCES	21

FIGURES

Figure No. 1 – Ecology Phase 1 Habitat Survey Drawing

Figure No. 2 – Ecology and Landscape Designations.

TABLES

Table No. 1 – Target Notes for the Phase 1 Habitat Plan – Figure No. 1

APPENDICES

Appendix 1 – Site Photographs

Appendix 2 – Summary of Protected Species Legislation

SUMMARY

The St Philip Howard Catholic School has commissioned Lizard Landscape Design to undertake an ecological appraisal of the St Philip Howard School; Sports Hall development site. As part of the proposed development site (*hereafter called the site*), an Extended Ecology Phase 1 Habitat Survey was undertaken to appraise the ecology within the site and its surroundings. This report outlines the results of the Extended Ecology Phase 1 Habitat Plan, undertaken on the 24 February 2010.

Habitats of interest within and adjacent to the development site include Scattered Trees; Shelterbelt Tree line; and Broadleaved Semi-Natural Woodland to the northern edge of the School site. A Ditch feature of shallow standing water exists to the northern edge of the School grounds.

Lizard Landscape Design has undertaken an Ecological and Phase 1 Habitat Survey of the Sports Hall development site. The existing ecological habitats and landscape features found within the site have been assessed against the development proposals. Lizard Landscape Design has concluded that the existing ecological habitats and landscape features contained within the site do not represent a significant constraint to the redevelopment of the site.

Improved Neutral Grassland surrounds the development area to the western edge of the School grounds. A group of Scattered Trees exists to the north-western edge of the development area. The tree group has '*low*' potential to support Bat roosts. A large mature Oak tree exists to the northern edge of the school grounds which has '*good*' potential for Bats to roost within dead wood and bough holes, within the mature tree canopy.

The western edge of the School grounds is edge with a Shelterbelt Tree line, which contains some dead wood within the tree canopies, which is probably used as a linear foraging feature for Bats to navigate along, which links northward to the Woodland / Hedgerow feature to the northern edge of the School grounds within the wider landscape.

Broad-Leaved Semi-Natural Woodland runs along the northern edge of the School grounds. The Woodland contains dead wood and bough holes, and Ivy clad trees which have the potential to support Bat roosts, providing a linear feature heading east / west along the northern edge of the School grounds within the wider landscape.

An Intact Species-Poor Hedgerow runs along the northern edge of the School car park area of Cypress trees. The trees have limited potential for Bats to roost within, but provide a good linear feature and foraging feature for Bats to navigate along.

A Ditch feature of shallow standing water runs along the southern edge of the Woodland / Hedgerow feature to the northern School boundary. The Ditch runs along the northern edge of the adjacent Arable field, edged with a narrow shallow standing water course, edged with Scrub, and Grassland vegetation. The Ditch links westward to a larger water body to the north of the adjacent Arable field.

The development area is bordered with large areas of hard standing to the east and north of the development area. The existing school buildings have '**low**' potential to support Bat roosts due to their tight modern construction.

A day-time Bat Roost Assessment Survey should be undertaken of the existing trees surrounding the development area; existing mature boundary tree groups and tree lines within and adjacent to the development site to determine the use of the existing site and development area by Bats prior to the commencement of development.

The habitats within and adjacent to the development site have limited potential and habitat connectivity to support nesting or foraging Dormouse.

There was no evidence of Badgers identified within or adjacent to the development area, nor was there any evidence of a Badger sett within 30.0 metres of the development area.

It is recommended that dead wood is kept on site to encourage Invertebrates, and increase the site's bio-diversity; within the Hedgerow boundaries and that Native Wildflower Grassland is created and maintained along the northern edges of the site area to enhance bio-diversity; species-richness; and interest for Invertebrates.

The existing mature Scattered Trees within the development area should be retained, protected, and buffered within the development plan in order to protect the potential foraging and roosting habitat for Bats within the vicinity of the development site. The Shelterbelt Tree line could also be reinforced, gapped up and enhanced along the western edge of the development site, with a new Species-Rich Hedgerow feature and Hedgerow Trees; in order to maintain and enhance the boundary Hedgerow habitat for Bats, and Birds.

A Phase 2 Habitat Survey for protected species of Bat is recommended to the existing mature tree groups and tree lines to the development site boundaries to ensure that mitigation can be included at the earliest stages of the development proposal.

1.0 INTRODUCTION

- 1.1 The St Philip Howard Catholic School, Barnham, West Sussex has commissioned Lizard Landscape Design to undertake an ecological appraisal of the St Philip Howard Catholic School; Sports Hall development site. The site area is proposed to be re-developed for educational facility; Sports Hall development (*hereafter referred to as the 'site'*).
- 1.2 As part of the proposed development for the St Philip Howard Catholic School; Sports Hall; an Extended Ecology Phase 1 Habitat Survey was undertaken to appraise the ecology within the site and its surroundings. The survey was specifically targeted to identify the habitats and also to identify potential for protected species within and adjacent to the site. This report sets out the results of the Ecology Phase 1 Habitat Survey. The Ecological Phase 1 Habitat Survey was undertaken on site by Sophie Miller, Ecologist (*IEEM*). This report has been prepared by Sophie Miller (*IEEM*) and Joe Jackson, Landscape Architect, (*BA (Hons) DipLA CLA*) for Lizard Landscape Design, Worthing.
- 1.3 This report establishes the potential ecological resource within the site and outlines where any ecological constraints may occur and makes recommendations for ecological mitigation, and enhancements based upon the proposed development for the site. Ecological mitigation measures and bio-diversity enhancements have been identified at Section 5.0.

2.0 SCOPE OF SURVEY

- 2.1 The development site area is located to the north-eastern corner of the existing St Philip Howard Catholic School, Barnham, West Sussex. The development area consists of Improved Neutral Grassland bordered with a group of deciduous broad-leaved Scattered Trees and a Shelterbelt Tree line of Lombardy Poplar trees to the western site boundary.
- 2.2 The development proposals consist of a Sports Hall with classroom / teaching accommodation. The existing mature Scattered Tree Groups; and boundary Shelterbelt Tree lines to the north-western and western edge of the development area are proposed to be retained and protected within the development scheme.

2.3 The aim of the Ecology walkover survey was:

- *To identify main habitat types and plant communities;*
- *To identify habitats with potential for protected species; and;*
- *To provide recommendations for surveys of protected species.*

2.4 In order to achieve the aims, a Survey Area was established including the margins of the site to include habitats within and adjacent to the site. The detailed survey methodology is set out in Section 3.0. Legislation for relevant protected species is outlined in Appendix No. 1.

3.0 METHODOLOGY

3.1 A walkover survey was undertaken by an experienced Ecologist on the 24 February 2009 (*Sophie Miller IEEM*) and the site subjected to an Ecology Phase 1 Habitat Survey using guidelines set out in the '*Handbook for Phase 1 Habitat Survey – a Technique for Environmental Audit*' (*JNCC, 2003*). This has resulted in a Phase 1 Habitat Plan (*Figure No. 1*) and Target Notes in Table 1.0. Habitats within the site were classified and the presence, or potential presence, of certain protected and/or notable species of flora and fauna were identified. Summary descriptions of habitat classifications following the Ecology Phase 1 Habitat Survey methodology are presented in Section 4.0.

3.2 Due to the field survey consisting of only one site visit certain species; particularly some of flowering plants, may not have been visible or may have been otherwise inconspicuous at the time of survey, and hence overlooked. These are accepted constraints associated with the standard Ecology Phase 1 Habitat Survey Method.

- 3.3 Habitats within and immediately adjacent to the site were assessed for their potential for uncommon and protected fauna including Mammals, Birds, Reptiles and Amphibians. This involved identifying features, which may be used by protected species, potential foraging areas and other signs of use. Stones, dead wood and rubble were turned over and any dug holes studied for recent activity by Mammals. Water bodies were recorded within 500.0 m of the proposed development. Trees were assessed in general for their overall Bat potential. Bats may use any crack or hole (*such as Woodpecker holes*), splits or flaking bark and Ivy (*Mitchell-Jones, 1999*). Bats will also use different roosts at different times of the year. It can therefore often be difficult to definitely locate Bat roosts in trees. Field signs to look for include dark streaking below holes, crevices, and droppings under access points. However, even when Bats are known to occur such signs are not always evident.
- 3.4 The Sussex and UK Biodiversity Action Plans (*BAP*), the New Flora of the British Isles and Ireland (*Preston et al., 2002*) and web sites of statutory bodies such as Natural England and Defra were all referred to, to enable consideration of the habitat and species interest within the site.
- 3.5 Records of protected species or habitats have been researched from the National Bio-diversity Network website (*nbn.org.uk*) due to the scope of existing habitats within the development area. Protected Species Records from the National Bio-diversity Network within 10.0 kilometres of the development area are described below within Section 4.0

4.0 RESULTS

4.1 Background information

Designated Sites and Habitats

- 4.1.1 The following section outlines the ecological context of the development site, describing the designated nature conservation sites in the vicinity of the development site. The following designated sites and habitats are not representative of the existing site's ecology, but are indicative of the ecological context of the surrounding area.

- 4.1.2 The site lies within the Natural Area of the 'South Coast Plain' (*Natural England*), which is highlighted for its low lying and mostly featureless plains, with harbours, estuaries and narrow inlets. Further inland the land is undulating with occasional Woodland set within a dominant arable landscape. Natural habitats include Saline Lagoons, Coastal Marsh, Sand Dunes and adjacent Neutral Grassland and Fen Meadows.
- 4.1.3 The Natural Area profile highlights biodiversity targets of maintaining and improving Neutral Grasslands and Coastal Habitats. NVC type **MG5 *Cynosurus cristatus* – *Centaurea nigra* grassland** is a Nationally Important Grassland habitat with associated species including Common Spotted Orchid (*Dactylorhiza fuchsia*), Meadow Vetchling (*Lathyrus pratensis*), Rough Hawkbit (*Leontodon hispidus*) and Meadow Buttercup (*Ranunculus acris*).
- 4.1.4 Ecology and Landscape designations have been indicated on the attached Figure; *Figure No.2 – Ecology and Landscape Designations*.

Habitats - Ancient Woodland

- 4.1.5 Ancient Woodland is Woodland defined by Natural England as a site that has had continuous Woodland cover since at least 1600 AD. An area of Ancient Woodland and Semi-Natural Woodland exists at Stemps Wood, east of Choller Farm to the northern edge Barnham within 1.0 kilometres of the site area to the north-east. Within the Sussex Biodiversity Action Plan (*BAP*) relevant Habitat Action Plans (*HAPs*) include Ancient and Semi-Natural Woodland, Hedgerows, Unimproved Neutral Grassland and Standing Water. Sussex is one of the most wooded parts of lowland Britain.

Habitats – National Inventory of Woodland and Trees

- 4.1.6 Woodland registered on the National Inventory of Woodland and Trees is located at Nanny Copse, Meadow Farm to the northern edge of Barnham within 1.0 kilometres of the development area. The National Inventory provides accurate, up-to-date information about the size, distribution, composition and condition of Britain's Woodlands which is considered essential for developing and monitoring policies and guidance for their sustainable management. The Inventory offers no statutory designation or protection.

Habitats – Coastal and Floodplain Grazing Marsh

- 4.1.7 Grazing Marsh exists to the south-west of Barnham, to the south of the Portsmouth to Chichester Canal, now disused within 1.0 kilometres. Grazing Marsh is defined as periodically inundated pasture, or meadow with ditches which maintain the water levels, containing standing brackish or fresh water. The ditches are especially rich in plants and Invertebrates. Almost all areas are grazed and some are cut for hay or silage. Sites may contain seasonal water-filled hollows and permanent ponds with emergent swamp communities, but not extensive areas of tall fen species like reeds; although they may abut with fen and reed swamp communities. Coastal and Floodplain Grazing Marsh is a UK Bio-diversity Action Plan Habitat.

Species

- 4.1.8 Species Action Plans (SAP's) that are relevant within Sussex include Bats such as the Pipistrelle Bat *Pipistrellus pipistrellus*, Song Thrush *Turdos philomelos* and Reptiles such as Slow Worm *Anguis fragilis*. Further species of interest include insects associated with deadwood found in Sussex such as the Stag Beetle *Lucanus cervus* that particularly needs dead wood in its breeding cycle and is a UK and Sussex BAP species. Dead wood also provides valuable nesting sites for Birds. Hedgehog *Erinaceus europaeus* is also a UK BAP species as its numbers have declined in recent years.

Protected Species Register

- 4.1.9 Protected Species Records have been obtained from the National Bio-diversity Network (nbn.org.uk) for a 10.0 kilometre radius from the development site. The Protected Species Register consists of Plants, Fungi, and Animals that are protected under Schedule 5, 6, and 8 of the Wildlife and Countryside Act 1981. The following Protected Species have been recorded within 10.0 kilometres of the St Philip Howard Catholic School Sports Hall development site.

Reptiles

- 4.1.10 Common Lizard (*Zootoca vivipara*) have been recorded within 4.0 kilometres to the north-east. Slow Worms (*Anguis fragilis*) have been recorded within the School site, and to the south east within 1.0 kilometres, and to the north east within 2.0 kilometres. Grass Snake (*Natrix natrix*) have been recorded to the south-east within 1.0 kilometres in Barnham. Adders (*Vipera berus*) have been recorded to the south-east within 1.0 kilometres in Barnham.

Amphibians

- 4.1.11 There are no protected species of Amphibian recorded within 10.0 kilometres of the development site. Smooth Newts (*Lissotriton vulgaris*) have been recorded to the north within 1.0 kilometres. Common Toads (*Bufo bufo*) have been recorded to the north within 2.0 kilometres. Common Frogs (*Rana temporaria*) have been recorded on the School site and to the south-east within 3.0 kilometres; the south-west within 4.5 kilometres; and the north within 1.0 kilometres.

Animals / Mammals – Hazelnut Dormouse (*Muscardinus avellanarius*)

- 4.1.12 Hazelnut Dormouse (*Muscardinus avellanarius*) are recorded within 5.0 kilometres to the north-east of the development site at Rewell Wood, and generally within 10.0 kilometres of the development area. There are no specific records of Dormouse in the vicinity or the surrounding area of the St Philip Howard Catholic School. There is no suitable habitat for Dormouse within the development area. The Broad-Leaved Semi-Natural Woodland to the northern edge of the school grounds offer some potential habitat for Dormouse, but with limited connectivity with larger areas of Dormouse habitat such as Woodland and Scrub habitat.

Animals / Mammals - European Water Vole (*Arvicola terrestris*)

- 4.1.13 European Water Voles (*Arvicola terrestris*) are recorded generally within 10.0 kilometres to the south of the development site. There are no specific records of Water Voles in the vicinity or the surrounding area of the St Philip Howard Catholic School. There is no watercourse habitat suited to Water Voles in close proximity to the development area. A ditch full of standing water exists to the northern edge, and to the north-west of the school site, south of the Semi-Natural Broad-leaved Woodland.

Animals / Mammals - Badger (*Meles meles*)

- 4.1.14 Badgers (*Meles meles*) are recorded generally within 10.0 kilometres of the development area.

UK Bio-Diversity Action Plan Species - Common Toad (*Bufo bufo*)

- 4.1.15 Common Toads (*Bufo bufo*) have been recorded to the north within 2.0 kilometres of the development site, but with no specific records within the vicinity or grounds of the St Philip Howard Catholic School.

UK Bio-Diversity Action Plan Species - West European Hedgehog (*Erinaceus europaeus*)

- 4.1.16 Hedgehogs are recorded within 5.5 kilometres of the development site to the north-east at Eartham, and Fairmile; and 5.0 kilometres to the south-west at Hawthorne, but with no specific records within the vicinity of the development site or the grounds of the St Philip Howard Catholic School site.

Sussex Bat Inventory - Bat Species

- 4.1.17 Bats and their roosts; Pipistrelle Bat (*Pipistrellus pipistrellus*) are recorded generally within 10.0 kilometres; and Long Eared Brown Bats (*Plecotus auritus*) are recorded generally within 5.0 kilometres to the north-east of the development site, and generally with 10.0 kilometres of the development area, Serotine Bat (*Eptesicus serotinus*) have been recorded generally with 10.0 kilometres; Noctule Bat (*Nyctalus noctula*) have been recorded generally within 10.0 kilometres; Western Barbastelle (*Barbastella barbastellus*) have been recorded generally within 10.0 kilometres but with no specific records within the vicinity of the development site or the grounds of the St Philip Howard Catholic School.

4.2 Description of Habitats

- 4.2.1 The following standard Ecology Phase 1 habitats and features were recorded within the development site area and the extended further survey area. Each habitat has been described in turn, along with dominant plant species, plants of high nature conservation value and a brief description of the habitat's physical characteristics. These are shown on the detailed Ecology Phase I Habitat Plan; Figure No. 1 with Target Notes listed Table No. 1;

- Improved Neutral Grassland;
- Scattered Trees;
- Tree Group; Shelterbelt Planting;
- Broad-Leaved Semi-Natural Woodland;
- Intact Hedgerow; Species-Poor;
- Ditch; Standing Water Course;
- Bare Ground / Paving and Tarmacadam Surface;
- Existing School Buildings;
- Arable.

- 4.2.2 The development site area is located to the western edge of the St Philip Howard Catholic School, bordered to the west by a Tree line Shelterbelt of Lombardy Poplars and Arable fields beyond. A handful of Scattered Trees are located to the northern edge of the development area. The existing school buildings are located to the eastern edge of the existing car park area / hard standing area.

Improved Neutral Grassland

- 4.2.3 Improved Grassland is permanent Grassland but is generally the result of reseeding. Natural England define Improved Grassland as having more than 30 % cover of Rye-Grass and White Clover, with less than 8 species per square metre and less than 10 % cover of Wildflowers and Sedges. The existing school sports field surrounding the development area is Species-Poor Grassland that has been cultivated and improved, fertilised and maintained as sports pitches (TN03). Grass seeded areas have been established to the western edge of the school grounds (Refer to Photograph No. 01, 02, and 03 – Appendix No. 1).

Scattered Trees

- 4.2.4 A group of deciduous broadleaved Scattered Trees are located in a tree group to the northern edge of the development area. The tree grouping includes Alder (*Alnus glutinosa*); Ash (*Fraxinus excelsior*); Cherry (*Prunus sp.*); Hornbeam (*Carpinus betulus*); Sycamore (*Acer pseudoplatanus*) and Sweet Chestnut (*Castanea sativa*) (TN04) (Refer to Photograph No. 01, and 03 – Appendix No. 1). The tree grouping is mature, but has '**low**' potential to support Bat roosts due to the lack of bough holes and dead wood. A group of Scattered Trees is located to the north-east of the development area adjacent to the northern school site boundary to the western edge of the school access road. The Scattered Tree group includes Hawthorn (*Crataegus monogyna*), Sycamore (*Acer pseudoplatanus*) and Oak (*Quercus robur*).
- 4.2.5 A single Scattered Tree of Oak (*Quercus robur*) is located within the Species-Poor Hedgerow to the western edge of the school access road. The tree is mature with plenty of bough holes, and dead wood suitable for Bats to roost within, and has '**good**' potential to support Bats. The tree forms a mature element within the northern boundary Hedgerow / Woodland feature running along the northern edge of the school grounds. (TN09) (Refer to Photograph No. 08 – Appendix No. 1).

Tree Group - Shelterbelt Planting

- 4.2.6 A mature line of Lombardy Poplars (*Populus nigra* var. *'Italica'*) runs along the western edge of the School site. The trees are tall, upright, and mature (TN02). The Tree line / Shelterbelt contains some dead wood within the tree canopies which have some potential to support Bat roosts, but the trees are more likely to be used as a linear foraging feature for Bats to navigate along linking with the mature Woodland / Hedgerow trees running along the ditch to the northern edge of the School site. (TN02) (Refer to Photograph No. 01, 03, and 05 – Appendix No.1).

Broad-Leaved Semi-Natural Woodland

- 4.2.7 A narrow strip of Broad-Leaved Semi-Natural Woodland / Hedgerow runs along the northern edge of the school site. The Woodland edge contains Birch (*Betula pendula*); Hawthorn (*Crataegus monogyna*); Hazel (*Corylus avellana*); Sycamore (*Acer pseudoplatnus*). The Woodland / Hedgerow edge is mature, and Ivy clad with plenty of dead wood, broken boughs, and bough holes. The Woodland boundary has **'good'** potential to support Bat roosts, and provides a linear feature heading east / west across the school site, and westward along the northern edge of the adjacent arable field, and bordering the standing water of the Ditch feature. There are a number of mature trees which have been cleared from the northern Woodland boundary. The Woodland / Hedgerow feature links westward into the wider landscape running along the northern edge of the arable field to the southern edge of Barnham. The linear feature provides a **'good'** foraging and roosting habitat feature for Bats. (TN06) (Refer to Photograph No. 04, 06, and 07 – Appendix No.1).

Intact Hedgerow; Species-Poor

- 4.2.8 The northern edge of the hard standing car park area is bordered with a Species-Poor Hedge line of Cypress trees (*Chamaecyparis* x *'Lawsoniana'*). The Hedgerow Trees are tall and mature, with crown-lifted trunks. The trees have **'low'** potential to support Bat roosts, but provide a linear feature and foraging corridor for Bats to navigate along the northern edge of the school site. The end of the Species-Poor Hedge line feature to the north is marked with a mature wide-spreading Oak tree which does have **'good'** habitat potential for Bats, containing holes, and dead wood, to the north-western edge of the school access road. (TN07) (Refer to Photograph No. 08 – Appendix No.1).

Ditch – Standing Water Course

- 4.2.9 The north edge of the school grounds and the adjacent Arable field to the western edge of the School grounds is edged with a narrow and shallow standing watercourse. The Ditch / Standing Watercourse is edged with Scrub and Woodland vegetation, edged with Grassland species. The Ditch feature links westward along the northern edge of the Arable field pattern. The OS map (OS Scale 1:25000) reveals that there is potentially a larger water body along the length of the ditch to the west within 500.0 metres of the development area. (TN07) (Refer to Photograph No. 06, and 07 – Appendix No.1).

Bare Ground / Hard standing Tarmacadam Surface Treatment

- 4.2.10 The access road into the school grounds is concrete hard standing. The car park area enclosed with boundary fence lines is tarmacadam surface treatment. A significant amount of hard standing surface treatment exists within the school grounds and to the northern and eastern edge of the development area. (Refer to Photograph No. 02 – Appendix No.1).

Existing School Buildings.

- 4.2.11 The existing St Philip Howard Catholic School buildings to the east of the development area are flat-roofed of modern construction. The buildings are modern, and well-built with well-sealed rooflines, eaves and soffits. The buildings have '**low**' potential to support Bat roosts due to the flat roofs and the modern tightly sealed construction. (TN10 and TN11) (Refer to Photograph No. 02 – Appendix No.1).

Arable – Agricultural Fields

- 4.2.12 The western edge of the school site is bordered with a large scale arable field pattern. The field is currently ploughed heavy clay soil edged with the Tree Shelterbelt to the eastern edge, and the boundary Woodland / Hedgerow feature, and ditch to the northern edge of the arable field. (Refer to Photograph No. 05 – Appendix No.1).

4.3 Protected and Uncommon Species

Bats

- 4.3.1 The site holds some potential for Bats. The Scattered Tree Group to the northern western edge of the development area has '**low**' potential to support Bat roosts due to their age and condition. The large mature Oak tree to the northern edge of the School grounds within the Species-Poor Hedge line has '**good**' potential to support Bat roosts due to its maturity, dead wood, and bough holes. The Tree Group Shelterbelt to the western edge of the School site contains some dead wood for Bats to roost within. The Shelterbelt Tree line is probably used by Bats as a linear foraging feature to navigate along, which is linked in the wider landscape with the Woodland / Hedgerow Feature to the northern edge of the School grounds.
- 4.3.2 The Woodland / Hedgerow feature runs along the northern edge of the School grounds. The Woodland contains dead wood and bough holes, and many Ivy clad trees which have '**good**' potential to support Bats roosts, providing a linear foraging and roosting feature running east to west along the northern edge of the School grounds, and within the wider landscape to the southern edge of Barnham.
- 4.3.3 The Species-Poor Hedge line to the northern edge of the hard standing car park area, have limited potential to support Bat roosts, but provides a linear foraging feature for Bats to navigate along the northern edge of the School site. The existing School buildings to the eastern edge of the School site have limited potential to support Bat roosts due to their tight and modern construction.

Dormouse

- 4.3.4 There is no suitable habitat within or adjacent to the development area which has the potential to support nesting or foraging Dormouse. The Woodland / Hedgerow feature running along the northern edge of the School site has some limited habitat suitable for Dormouse, but the Hedgerow corridor is narrow, edged by housing and agricultural fields, with limited habitat connectivity to other larger Woodland or Scrub areas, suited to Dormouse. There are no protected species records for Dormouse surrounding Barnham.

Badgers

- 4.3.5 There was no evidence of Badgers identified within or adjacent to the development area, nor was there any evidence of a Badger sett within 30.0 metres of the development area.

Reptiles

- 4.3.6 The development area has limited potential to support Reptiles, being maintained Improved Grassland edged with Scattered Tree Groups and Shelterbelt Tree line feature. The Woodland / Hedgerow feature to the northern edge of the School site has some potential to support hibernating protected species of Reptiles, within the understorey scrub vegetation.

Amphibians

- 4.3.7 The ditch feature of standing water to the northern edge of the School site; linking to a larger water body to the west in the wider landscape has the potential to support breeding Amphibians. The Scrub and Grassland vegetation edging the Woodland / Hedgerow boundary has the potential to support Terrestrial Amphibians. The development area of maintained Improved Grassland edged with Scattered Trees and Tree lines has no potential to support Terrestrial Amphibians.

Birds

- 4.3.8 The existing mature Scattered Trees and boundary Woodland / Hedgerow feature within and adjacent to the development area have '**Good**' habitat potential to support nesting and breeding Birds. The Hedgerow / Scrub vegetation has '**Good**' potential to support foraging Birds to the northern edge of the School site.

Invertebrates

- 4.3.9 There is a great deal of dead wood / dead tree stumps within the Woodland / Hedgerow boundary to the northern edge of the School site. The dead wood and tree stumps have the potential to support a range of Invertebrates, and in particular Stag Beetles which required rotting wood in their life cycle. Stag Beetles are a Sussex BAP Species with an associated Sussex Species Action Plan (SAP's). The Hedgerows to the northern edge of the School site have '**good**' habitat potential to support a variety of Terrestrial Invertebrates to the site boundary. The Grassland areas, Shrub / Scrub vegetation all have good potential to support a range of foraging Invertebrates.

5.0 CONCLUSIONS AND RECOMMENDATIONS

- 5.1 The St Philip Howard Catholic School has commissioned Lizard Landscape Design to undertake an ecological appraisal of the St Philip Howard School; Sports Hall development site. As part of the proposed development site (*hereafter called the site*), an Extended Ecology Phase 1 Habitat Survey was undertaken to appraise the ecology within the site and its surroundings. This report outlines the results of the Extended Ecology Phase 1 Habitat Plan, undertaken on the 24 February 2010.
- 5.2 Habitats of interest within and adjacent to the development site include Scattered Trees; Shelterbelt Tree line; and Broadleaved Semi-Natural Woodland to the northern edge of the School site. A Ditch feature of shallow standing water exists to the northern edge of the School grounds.
- 5.3 Lizard Landscape Design has undertaken an Ecological and Phase 1 Habitat Survey of the Sports Hall development site. The existing ecological habitats and landscape features found within the site have been assessed against the development proposals. Lizard Landscape Design has concluded that the existing ecological habitats and landscape features contained within the site do not represent a significant constraint to the redevelopment of the site.

Ecological Mitigation Measures – Bats

- 5.4 Bats and their roosts are recorded generally within 10.0 kilometres of the development area, but there are no specific records within the vicinity of the St Philip Howard Catholic School. The site area holds some potential for Bats. The Scattered Tree Group to the north-western edge of the development area has '**low**' potential to support Bat roosts due to their age and condition. The Tree Group Shelterbelt to the western edge of the School site contains some dead wood for Bats to roost within, and probably used by Bats as a linear foraging feature to navigate along, which is linked in the wider landscape with the Woodland / Hedgerow Feature to the northern edge of the School grounds. The large mature Oak tree to the northern edge of the School grounds within the Species-Poor Hedge line has '**good**' potential to support Bat roosts due to its maturity, dead wood, and bough holes.

- 5.5 A Woodland / Hedgerow feature runs along the northern edge of the School grounds; contains dead wood and bough holes, and many Ivy clad trees which have '**good**' potential to support Bats roosts, providing a linear foraging and roosting feature running east to west along the northern edge of the School grounds, and within the wider landscape to the southern edge of Barnham.
- 5.6 The Species-Poor Hedge line to the northern edge of the hard standing car park area, has limited potential to support Bat roosts, but provides a linear foraging feature for Bats to navigate along the northern edge of the School site. The existing School buildings to the eastern edge of the School site have limited potential to support Bat roosts due to their tight and modern construction.
- 5.7 A day-time Bat Roost Assessment Survey should be undertaken of the existing Sports Hall development area; the existing mature trees within and adjacent to the development site to determine the use of the existing site and development area by Bats prior to the commencement of development.

Ecological Mitigation Measures – Dormouse

- 5.8 Hazelnut Dormouse (*Muscardinus avellanarius*) are recorded within 5.0 kilometres to the north-east of the development site at Rewell Wood, and generally within 10.0 kilometres of the development area. There are no specific records of Dormouse in the vicinity of the St Philip Howard Catholic School.
- 5.9 There is no suitable habitat within or adjacent to the development area which has the potential to support nesting or foraging Dormouse. The Woodland / Hedgerow feature running along the northern edge of the School site has some limited habitat suitable for Dormouse, but the Hedgerow corridor is narrow, edged by housing and agricultural fields, with limited habitat connectivity to other larger Woodland or Scrub areas, suited to Dormouse.

Ecological Mitigation Measures – European Water Vole (*Arvicola terrestris*)

- 5.10 European Water Voles (*Arvicola terrestris*) are recorded generally within 10.0 kilometres to the south of the development site. There are no specific records of Water Voles in the vicinity or the surrounding area of the St Philip Howard Catholic School. There is no watercourse habitat suited to Water Voles within the development area. A ditch full of standing water exists to the northern edge, and to the north-west of the school site, south of the Semi-Natural Broad-leaved Woodland.

Ecological Mitigation Measures – Badgers

- 5.11 Badgers (*Meles meles*) are recorded generally within 10.0 kilometres of the development area. There was no evidence of Badgers identified within or adjacent to the development area, nor was there any evidence of a Badger sett within 30.0 metres of the development area.

Ecological Mitigation Measures – Reptiles

Reptiles

- 5.12 Slow Worms (*Anguis fragilis*) have been recorded within the School site. Common Lizard (*Zootoca vivipara*), Grass Snake (*Natrix natrix*), Adders (*Vipera berus*) have been recorded generally around Barnham. The development area has limited potential to support Reptiles, being maintained Improved Grassland edged with Scattered Tree Groups and Shelterbelt Tree line feature. The Woodland / Hedgerow feature to the northern edge of the School site has some potential to support hibernating protected species of Reptiles, within the understorey Scrub vegetation, but outside of the development area.

Ecological Mitigation Measures – Amphibians

- 5.13 There are no protected species of Amphibian recorded within 10.0 kilometres of the development site. Smooth Newts (*Lissotriton vulgaris*), Common Toads (*Bufo bufo*) have been recorded generally in and around Barnham but with no specific records within the vicinity or grounds of the St Philip Howard Catholic School. Common Frogs (*Rana temporaria*) have been recorded on the School site. The ditch feature of standing water to the northern edge of the School site; linking to a larger water body to the west has the potential to support breeding Amphibians. The Scrub and Grassland vegetation edging the Woodland / Hedgerow boundary has the potential to support Terrestrial Amphibians. The development area of maintained Improved Grassland edged with Scattered Trees and Tree lines has no potential to support Terrestrial Amphibians.

Ecological Mitigation Measures – Birds

- 5.14 The existing mature Scattered Trees and boundary Woodland / Hedgerow feature within and adjacent to the development area have '**Good**' habitat potential to support nesting and breeding Birds. The Hedgerow / Scrub vegetation has '**Good**' potential to support foraging Birds to the northern edge of the School site. All works relating to vegetation clearance should avoid the breeding Bird season that runs inclusively from mid-March to August of each year.

Ecological Mitigation Measures – Invertebrates

- 5.15 There is a great deal of dead wood / dead tree stumps within the Woodland / Hedgerow boundary to the northern edge of the School site. The dead wood and tree stumps have the potential to support a range of Invertebrates, and in particular Stag Beetles which required rotting wood in their life cycle. Stag Beetles are a Sussex BAP Species with an associated Sussex Species Action Plan (SAP's). The Woodland / Hedgerow to the northern edge of the School site has '**good**' habitat potential to support a variety of Terrestrial Invertebrates to the site boundary. It is recommended that dead wood is kept on site to encourage Invertebrates, and increase the site's bio-diversity; within the Hedgerow boundaries and that Native Wildflower Grassland is created and maintained along the northern edges of the site area.

Ecological Mitigation Measures – Landscape Scheme Proposals

- 5.16 The existing mature Scattered Trees and Tree line Shelterbelt should be retained, protected, and buffered within the development plan in order to protect the potential foraging and roosting habitat for Bats within the vicinity of the development site. The boundary planting to the north and western edges of the site could also be reinforced, gapped up and enhanced with new Hedgerow species; in order to maintain and habitat for Bats, and Birds. A Native understorey and flowering shrub planting edged with a species-rich wildflower grassland verge and fringe could be maintained to the northern site boundary.

Ecological Mitigation Measures – Additional Surveys

- 5.17 The following surveys for protected species are recommended to ensure that mitigation can be included at the earliest stages of the development proposal.

Survey

Timing

Day-Time Bat Roost Assessment Survey March 2010

6.0 REFERENCES

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Table No. 1 - Target Notes for Phase 1 Habitat Plan

Target Note	Phase I Description	Description	Species	Potential For Protected Species
01	Arable Field.	Arable Field Pattern; Ploughed Clay Soil.	--	Foraging Birds.
02	Tree line Shelterbelt / Tree Group.	Shelterbelt Tree line to the Western Site Boundary.	Lombardy Poplar; (<i>Populus nigra</i> var. 'Italica')	Bats, Birds.
03	Improved Grassland.	Sports Pitch; Species-Poor Grassland.	Grass Species.	Birds, Invertebrates.
04	Scattered Trees.	Scattered Tree Group North; Western Edge of the Development Area.	Ash (<i>Fraxinus excelsior</i>); Cherry (<i>Prunus</i> sp.); Sycamore (<i>Acer pseudoplatanus</i>); Alder (<i>Alnus glutinosa</i>); Hornbeam (<i>Carpinus betulus</i>).	Birds, Bats.
05	Ditch; Standing Water.	Ditch with some Standing Water.	Scrub, Hedgerow and Grassland.	Amphibians, Invertebrates.
06	Semi-Natural Broad-Leaved Woodland / Hedgerow.	Northern Boundary of School Grounds; Woodland and Hedgerow boundary feature.	Oak (<i>Quercus robur</i>); Sycamore (<i>Acer pseudoplatanus</i>); Alder (<i>Alnus glutinosa</i>); Birch (<i>Betula pubescens</i>); Hawthorn (<i>Crataegus monogyna</i>); and Ivy (<i>Hedera helix</i>).	Birds, Bats, Invertebrates.
07	Species-Poor Hedge line.	Coniferous Species-Poor Hedge line.	Lawson's Cypress (<i>Chamaecyparis</i> x 'Lawsoniana')	Foraging Bats.
08	Scattered Trees	School Access Road; Scattered Tree Group.	Hawthorn (<i>Crataegus monogyna</i>), Sycamore (<i>Acer pseudoplatanus</i>) and Oak (<i>Quercus robur</i>).	Bats.
09	Scattered Trees.	Mature Oak Tree; Northern Entrance to School Grounds.	Oak (<i>Quercus robur</i>)	Bats, Birds.
10	Existing School Building.	Modern Construction; School Building	--	No Bats.
11	Existing School Building.	Modern Construction; School Building	--	No Bats.

Appendix 1 – Site Photographs

APPENDIX NO. 1 - SITE PHOTOGRAPHS



Photograph No. 1 - Development Site Area; Treeline Shelterbelt and Scattered Tree Groups



Photograph No. 2 - Existing St Philip Howard Catholic School Buildings.

ST PHILIP HOWARD CATHOLIC SCHOOL
BARNHAM, WEST SUSSEX .
ECOLOGY PHASE 1 HABITAT SURVEY REPORT

LLD287_Phase1HabitatSurveyReport.02.10.Rev00

APPENDIX NO. 1 - SITE PHOTOGRAPHS



Photograph No. 3 - Development Site Area; Treeline Shelterbelt and Scattered Tree Groups ; Broad Leaved Woodland to Northern Boundary.



Photograph No. 4 - Northern Boundary; Broad Leaved Woodland/Hedgerow.

APPENDIX NO. 1 - SITE PHOTOGRAPHS



Photograph No. 5 - Western Boundary- Arable Landscape; Treeline Shelterbelt.



Photograph No. 6 - Northern Boundary Ditch Feature.

APPENDIX NO. 1 - SITE PHOTOGRAPHS



Photograph No. 7 - Northern Boundary; Broad Leaved Woodland/Hedgerow.



Photograph No. 8 - Northern Boundary ; Species Poor Hedgeline and Mature Scattered Scattered Oak Tree.

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Appendix 2 – Summary of Protected Species Legislation

APPENDIX No. 2 – SUMMARY OF PROTECTED SPECIES LEGISLATION

Bats

- A1 *All Bat species and their roosts in Britain are protected under the Wildlife and Countryside Act 1981, through inclusion on Schedule 5. They are also included on Annex IV of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (known as the Habitats Directive). As a result of the UK ratifying this directive, all British Bats are protected under The Conservation Regulations 1994 (the Habitat Regulations). These make it an offence to intentionally or deliberately kill, injure, capture or disturb Bats or obstruct access to, damage or destroy Bat roosts. Under the law, a roost is any structure or place used for shelter or protection. This could be any structure including any building or mature tree. The new amendments made by The Conservation Regulations 2007 (the Conservation (Natural Habitats & c., (Amendment) Regulations 2007 now also make it an offence if an act is made unintentionally thereby it will mean that those carrying out activities that may have the effect of killing, capturing or disturbing, or damaging or destroying a breeding site or resting place of Bats will now have to give greater consideration to whether the risk that their proposed activity may have such effects on these species can be avoided.*

Birds

- A2 *All wild Birds are protected primarily through the Wildlife and Countryside Act 1981, as amended. This makes it an offence to intentionally kill, injure or take any wild Bird; take, damage or destroy a nest (whilst in use or under construction); take, damage or destroy its eggs and possess wild Birds (dead or alive) or their eggs. Further restrictions are placed on any Schedule 1 species (listed in the WCA 1981) whereby 'the intentional or reckless disturbance of... whilst nest building, at a nest containing eggs or young, or disturbing dependent juveniles' is an offence and carries more serious penalties. The IUCN guidelines also highlight species through Red and Amber lists. Red list species are globally threatened or whose population or range has rapidly declined over recent years. Amber list species are less threatened although still of conservation concern.*

Dormouse

- A3 The Dormouse (*Muscardinus avellarius*), is one of the rarest members of the British rodent fauna. This is because much of its habitat has been lost. They are covered by the same legislation as that described above for Bats being listed on Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) and within Annex IV of the Habitats Directive. This makes it an offence to unintentionally, intentionally or deliberately kill or injure a Dormouse or to recklessly damage or destroy its nest.

Reptiles

- A4 Adders *Vipera berus*, Grass Snakes *Natrix natrix*, Common Lizards *Lacerta vivipara* and Slow Worms *Anguis fragilis* are protected against killing, injury or sale under the Wildlife and Countryside Act 1981 (following Statutory Instruments 1991 No. 367). Smooth Snakes (*Coronella austriaca*) and Sand Lizards (*Lacerta agilis*) are within Annex IV of the Habitats Directive and accorded full protection against reckless or intentional damage, destruction or obstruction of access to their place of shelter or protection, and against intentional killing or injuring of the Reptiles themselves, under the Wildlife and Countryside Act 1981, as amended and The Habitat Regulations 1994 and The Conservation Regulations 2007.

Amphibians

- A5 The Great Crested Newts *Triturus cristatus* is covered by the same level of protection as Bats and Dormice discussed above. It is therefore accorded full protection against unintentionally, reckless or intentional damage, destruction or obstruction of access to their place of shelter or protection, and against intentional killing or injuring of the Newts themselves, under the Wildlife and Countryside Act 1981, as amended and the Habitats Directive, as amended. Smooth Newts *Triturus helveticus*, Palmate Newts *T. vulgaris*, Common Frogs *Rana temporaria* and Common Toads *Bufo bufo* are protected only against sale under this Act. The Natterjack Toad *Bufo calamita* is fully protected but is very restricted in its distribution and would not occur in this study area (Gent, 1998).

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