

LAND SOUTH OF BAY ROAD, GILLINGHAM

Illustrative masterplan
Option C

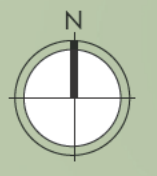
DATE: 16.01.18
SCALE: 1:1250 @ A2

0m 50m

DWG NO: 1217/ 03C

KEY

- Site boundary
- Existing buildings
- Proposed housing
- Proposed key building
- Existing planting
- Existing planting
- Existing public right of way
- New pedestrian links



New housing set back from Bay Road behind existing hedge

Low density housing on the edges of the site with additional landscape treatment and open spaces to protect setting of existing housing

Children's Play Area

Additional planting to soften edge of development

Existing trees and hedgerows retained

Additional planting to soften edge of development

Gillingham Town relocated football pitch

Existing school pitches

SuDS feature

SuDS feature

Existing school pitches

Footpath link to Hardings Lane



LINDSAY CARRINGTON
ECOLOGICAL SERVICES

ECOLOGICAL APPRAISAL AND PHASE 2 SURVEYS

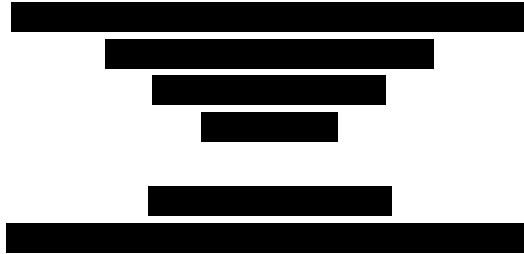
PLOT 1
LAND AT BAY ROAD, GILLINGHAM, DORSET

OCTOBER 2016
UPDATED NOVEMBER 2017
UPDATED JANUARY 2018

ON BEHALF OF PERSIMMON HOMES



LINDSAY CARRINGTON ECOLOGICAL SERVICES



Authorisation

	Name	Date	Signature
Report prepared by:	Amy Parsons	18.10.2016	
Report checked and authorised by:	Sophie Smith	18/10/2016	
Report updated by:	Alex Hannam	10/11/2017	
Report checked and authorised by:	Jenny Sutch	13/11/2017	
Report updated by:	Alex Hannam	05/01/2018	
Report checked and authorised by:	Jenny Sutch	05/01/2018	

The contents of this report were correct at the time of the last survey visit. The report is provided for the sole use of the named client and is confidential.

All rights in this report are reserved. No part of it may be reproduced or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, or stored in any retrieval system of any nature, without our written permission. Its content and format are for the exclusive use of the addressee in dealing with this. It may not be sold, lent, hired out or divulged to any third party not directly involved in this situation without our written consent.

It is company policy to share species records collected during our surveys with local biological records centres unless instructed otherwise by the client.

CONTENTS

SUMMARY	1
1.0 INTRODUCTION	3
2.0 RELEVANT POLICY AND LEGISLATION	4
2.1 Legislation.....	4
2.2 Policy	6
3.0 METHODOLOGY	7
3.1 Desk study.....	7
3.2 Field study.....	7
3.2.1 Vegetation	7
3.2.2 Hedgerow Regulations assessment	7
3.2.3 Protected species assessment	9
4.0 RESULTS	15
4.1 Desk study.....	15
4.2 Field study.....	19
4.2.1 Vegetation	19
4.2.2 Protected species assessment	25
5.0 CONCLUSIONS & RECOMMENDATIONS.....	35
5.1 River Lodden.....	35
5.2 Bats.....	36
5.2.1 Sumamry of survey findings	36
5.2.2 Implications of survey findings and recommendations for further action	36
5.3 Reptiles.....	37
5.3.1 Summary of survey findings	37
5.3.2 Implications of survey findings and recommendations for further action	37
5.4 Breeding birds	38
5.4.1 Summary of survey findings	38
5.4.2 Implications of survey findings and recommendations for further actions.....	38
5.5 Hedgerows.....	39
5.5.1 Summary of survey findings	39
5.5.2 Implications of survey findings and recommendations for further action	39
5.6 Ecological enhancement.....	40
6.0 REFERENCES	41
APPENDIX I: Location map	42
APPENDIX II: Phase 1 habitat map	43
APPENDIX III: Hedgerow Regulations assessment recording form	45
APPENDIX IV: Transect route	48
APPENDIX V: Transect results	49
APPENDIX VI: Bat tree survey.....	61
APPENDIX VII: Dormouse tube locations	62
APPENDIX VIII: Ponds within 500 metres and results of HSI survey.....	63
APPENDIX IX: Reptile mat locations.....	64
APPENDIX X: Site proposals and ecological enhancements.....	65

SUMMARY

1. Lindsay Carrington Ecological Services Ltd were appointed by Persimmon Homes to conduct an ecological appraisal and phase 1 bat survey on land at Bay Road, Gillingham, Dorset SP8 4EF. These surveys were required for a potential housing development area in consideration for inclusion in the North Dorset Local Plan (2011-2026).
2. A phase 1 habitat survey entails a walk-over survey conducted with the objective of identifying any ecological constraints associated with any development proposals such as the site's potential to support any legally protected species or habitats of high nature conservation value.
3. The site at Bay Road is approximately 18 hectares and consists of improved grassland fields with small areas of semi-improved grassland, scattered mature trees, tall ruderal and scattered scrub, bounded by native species-poor hedgerows. The south-eastern boundary of the site comprises Gillingham school playing fields, with Bay Road forming the north western boundary. The site is generally considered to be of low ecological value.
4. The hedgerows, improved and semi-improved grasslands may provide foraging areas and commuting routes for bats. The site was assessed as holding moderate potential to support foraging and commuting bats. Monthly transects were undertaken between April and October 2017. Low numbers of common pipistrelle, soprano pipistrelle, whiskered/brandt's, noctule, natterer's, serotine, leisler's, *myotis sp* and long-eared bats were recorded.
5. A total of four trees on site were noted to hold between low and high potential to support roosting bats.
6. Tree climbing surveys undertaken in April 2017 confirmed that the features identified on trees 3 and 4 were upwards facing cavities and unsuitable for roosting bats. Subsequently these were downgraded to negligible potential. Trees 1 and 2 were unsuitable for climbing, further recommendations have been made in section 5.2.
7. The site features habitat suitable for hazel dormice including the hedgerows, scrub and scattered trees. There is one historical record dated 2005 of a hazel dormouse within the vicinity of the site.
8. Dormouse tubes were set out in March 2017 and surveys were undertaken between April and September 2017. No dormice were recorded and are therefore considered not to be using the site. No further action is required.
9. There are recent records of great crested newts in close proximity to the site. The habitats present on the site provide suitable terrestrial habitat for great crested newts and five water bodies were recorded within 500metres of the proposed development.

10. The results of the eDNA analysis from SureScreen Scientific for the five ponds within 500metres of the development were negative indicating the absence of great crested newts from the ponds surveyed. No further action is required.
11. The site holds potential habitat for reptiles along the hedge bases, semi-improved grassland patches and tall ruderal/scrub areas. Reptile surveys were undertaken between April and May 2017. A small population of slow worms was recorded on site with a peak count of four males, four females and a juvenile. Further recommendations and mitigation strategy has been presented in section 5.3.
12. The hedgerows and grassland fields may provide habitat for breeding and overwintering birds. A tree with a large cavity and white splashing was noted in the south-west of the site with potential to support a barn owl roost. This tree was climbed and inspected in April 2017 and no evidence of roosting owls was recorded. Further recommendations have been made in section 5.4.
13. The large majority of the hedgerows on site qualify as UK BAP priority habitat and some of the hedgerows may be listed as 'Important' under the Hedgerows Regulations (1997). This is discussed further in section 5.5.
14. Recommendations for ecological enhancements to the site have been provided in section 5.6 including provision of habitat for birds and bats.
15. It is considered that the site is suitable for development and that all of the protected species issues on site could be sufficiently addressed via mitigation. The potential development of the site may be of ecological benefit as it would allow the correct management and enhancement of features such as the ponds and hedgerows on site going forward. With the proposed mitigation the tests outlined in the NPPF and Policy 4 of the North Dorset Local Plan will be met and there will be no significant effect on the biodiversity recorded on site.

1.0 INTRODUCTION

Lindsay Carrington Ecological Services Ltd was appointed by Persimmon Homes to conduct an ecological appraisal and phase 1 bat survey on land at Bay Road, Gillingham, Dorset SP8 4EF (Grid ordnance reference: ST 8162 2693). A plan showing the location of the site has been included as appendix I.

An ecological appraisal entails a multi-disciplinary walk-over survey and was conducted with the objective of identifying any ecological constraints associated with any future development proposals such as the site's potential to support any legally protected species or habitats of high nature conservation value.

Section 2 of the report provides some background information on legislative requirements and relevant policy. Section 3 details the methodologies adopted for the various ecological surveys that were conducted and section 4 provides an account of the survey results. Section 5 provides information on the relevance of the results to a proposed development and makes recommendations for measures to mitigate and compensate for the effects on a particular habitat or species.

2.0 RELEVANT POLICY AND LEGISLATION

2.1 Legislation

The following legislation may be of relevance to the proposed works. Full details of statutory obligations with respect to biodiversity and the planning system can be found in DCLG Circular 06/2005.

- **The Conservation of Habitats and Species Regulations 2017:** This transposes the EU Habitats Directive (Council Directive 92/43/EEC) into domestic law. The Regulations provide protection for a number of species including:
 - All species of bat;
 - Dormouse;
 - Otter; and
 - Great crested newt.

This legislation makes it an offence to deliberately capture, kill or injure individuals of these species listed on Schedule 2 and damage or destroy their breeding site or place of shelter. It is also illegal to deliberately disturb these species in such a way as to be likely to significantly affect: (i) the ability of any significant group of the species to survive, breed or rear or nurture their young; or (ii) the local distribution or abundance of the species¹;

This legal protection means that where development has the potential to impact on bats, or other European protected species, the results of a protected species survey must be submitted with a planning application.²

Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are also protected under this legislation. These are a network of sites designated for supporting habitats or species of high nature conservation importance in the European context. Any activity that has a detrimental effect on these European sites is made an offence under the Regulations. Where a development is likely to have a significant impact on a European site, the Regulations require a rigorous assessment of the impacts, known as an Appropriate Assessment.

¹ The Conservation of Habitats and Species Regulations 2010 consolidates the numerous amendments that were made to the Conservation (Natural Habitats, &c.) Regulations 1994. Of particular relevance are amendments made in August 2007 and January 2009 which increased the threshold of illegal levels of disturbance to European Protected Species (EPS). An offence is only committed if the deliberate disturbance would result in significant impacts to the EPS population. However, it should be noted that activities that cause low levels of disturbance to these species continue to constitute an offence under Section 9 of the Wildlife and Countryside Act (see below).

- **The Wildlife and Countryside Act 1981 (and amendments):** Protected fauna and flora are listed under Schedules 1, 5 & 8 of the Act. Species likely to be of relevance include:
 - All species of **bat**. It is an offence to intentionally or recklessly disturb any bat whilst it is occupying a roost or to intentionally or recklessly obstruct access to a bat roost;
 - All species of **British reptile** (in particular grass snake, common lizard, adder and slow-worm). It is illegal to kill or injure these species; and
 - **Great crested newt**. It is illegal to obstruct access to any structure or place which great crested newts use for shelter or protection or to disturb any great crested newt while it is using such a place.

This Act also makes it an offence to intentionally kill, injure or take any wild bird or to take, damage or destroy their eggs and nests (whilst in use or being built). In addition, it is an offence to disturb any nesting bird listed on Schedule 1 or their young, including kingfisher.

Schedule 9 of the Act lists those species for which it is an offence to plant or cause their spread. Species listed under Schedule 9 that are most likely to be encountered are Japanese knotweed (*Fallopia japonica*) and giant hogweed (*Heracleum mantegazzianum*).

Sites of Special Scientific Interest (SSSIs) are also protected under the Wildlife and Countryside Act 1981. These are a network of sites identified as being of national nature conservation importance and hence afforded legal protection.

- **The Countryside and Rights of Way Act 2000:** This Act strengthens nature conservation and wildlife protection through a number of mechanisms. It places a duty on Government Ministers and Departments to conserve biological diversity, provides police with stronger powers relating to wildlife crimes, and improves protection and management of SSSIs.
- **The Protection of Badgers Act 1992:** This Act makes it an offence to wilfully take, injure or kill a badger (*Meles meles*); cruelly mistreat a badger; interfere with badger setts, sell or possess a live badger; mark or ring a badger. A licence is required for work which may damage or disturb a sett.
- **Wild Mammals (Protection) Act 1996:** This Act provides protection for all wild animals from intentional Acts of cruelty.
- **Hedgerow Regulations 1997:** These Regulations establish a set of criteria for assessing the importance of hedgerows. Where a hedgerow is deemed to be 'Important' its removal is prohibited without consent from the local Planning Authority.

2.2 Policy

The following policy is of relevance to the proposed works:

- **National Planning Policy Framework (NPPF):** Paragraph 118 of the NPPF sets out the Government's vision for biodiversity in England with the broad aim that planning, construction, development and regeneration should maintain and enhance, restore or add to biodiversity and geological conservation interests. NPPF includes sections on legally protected species and sites (see section 2.1).
- **Local Sites (including Sites of Importance for Nature Conservation (SINCs), Local Nature Reserves (LNR), and Biological Notification Sites (BNSs)/County Wildlife Sites (CWSs):** These are a network of sites designated for their nature conservation importance in a local context. Although they are not afforded legal protection they contribute towards local and national biodiversity.
- **Biodiversity Action Plans (BAPs):** BAPs set out policy for protecting and restoring priority species and habitats as part of the UK's response as signatories to the Convention on Biological Diversity. BAPs operate at both a national and local level with priority species and habitats identified at a national level and a series of Local BAPs that identify ecological features of particular importance to a particular area of the country. The requirement to consider and contribute towards BAP targets was strengthened through the Countryside and Rights of Way Act 2000 and policy in NPPF. Habitat and Species Action Plans that are likely to be of relevance include:
 - Slow worm (UK BAP)
 - Soprano pipistrelle bat (*Pipistrellus pygmaeus*) (UK BAP)
 - Brown long-eared bat (*Plecotus auritus*) (UK BAP)
 - European hedgehog (*Erinaceus europaeus*) (UK BAP)
 - Otter (*Lutra lutra*) UK BAP
 - Great crested newt (*Triturus cristatus*) UK BAP
 - Hedgerow (UK BAP).
- **North Dorset Local Plan:** Policy 4 of the North Dorset Local Plan sets out that developers need to demonstrate that proposals will not have a significant adverse affect on the environment. The policy states that buffers should be provided to environmental assets to improve their biodiversity value and facilitate adaptation to climate change. In addition to this where opportunities exist, new habitats should be created to enhance this network further. Developments are expected to respect the natural environment including the designated sites, and valued landscapes. Furthermore, proposals which seek to conserve or enhance the natural environment should be permitted unless significant adverse social or environmental impacts are likely to arise as a result of the proposal.

3.0 METHODOLOGY

3.1 Desk study

The Multi-Agency Geographical Information for the Countryside (MAGIC) website was used to provide information on statutory sites within a five kilometre radius of the site. Additionally, Dorset Environmental Records Centre (DERC) was consulted to provide any information they may hold on non-statutory sites and protected species within a two kilometre radius of the land at Bay Road.

3.2 Field study

3.2.1 Vegetation

The standard phase 1 habitat survey methodology (JNCC, 2010) was adopted whereby habitats are mapped using colour codes. A detailed walkover survey was undertaken on the 11th October 2016 by Sophie Smith and Louisa Jones, directly searching for legally protected and invasive species of plant and categorising any habitats of ecological value that were encountered. A general description of the vegetation was also noted, listing species encountered and scoring their abundance using the DAFOR scale:

- D Dominant;
- A Abundant;
- F Frequent;
- O Occasional;
- R Rare;
- L Local (used as a prefix to any of the above).

3.2.2 Hedgerow Regulations assessment

The walkover field survey identified that the hedgerows on site qualified as UK BAP hedgerow habitat and could also potentially qualify as ‘Important’ under the Hedgerow Regulations 1997. A followup Hedgerow Regulations assessment was carried out by Andrew Heideman on 15th May 2017 in order to determine whether any of the hedgerows on site qualify as ‘Important’. The hedgerows on site were assessed in relation to the various qualifying features, stated within the Hedgerow Regulations 1997, used to classify ‘Important’ hedgerows. Essentially, ‘Important’ hedgerows are identified according to the number of woody species and additional features they comprise. A summary of qualifying hedgerows and additional features is presented in table 1. below.

Table 1. Hedgerows qualifying as ‘Important’ under the Hedgerow Regulations 1997 and a summary of additional features.

Summary of ‘Important’ hedgerows
<p><u>Hedgerow includes:</u></p> <p>(a) at least 7 woody species;</p> <p>(b) at least 6 woody species, and has associated with it at least 3 additional features.</p> <p>(c) at least 6 woody species, including one of the following— black-poplar tree (<i>Populus nigra sspbetulifolia</i>); large-leaved lime (<i>Tilia platyphyllos</i>); small-leaved lime (<i>Tilia cordata</i>); wild service-tree (<i>Sorbus torminalis</i>); or</p> <p>(d) at least 5 woody species, and has associated with it at least 4 additional features.</p> <p><u>Or hedgerow is:</u> adjacent to a bridleway or footpath, a road used as a public path, or a byway open to all traffic, and includes at least 4 woody species, and at least 2 additional features.</p>
Additional features
<ul style="list-style-type: none"> • a bank or wall which supports the hedgerow along at least one half of its length. • gaps which in aggregate do not exceed 10% of the length of the hedgerow. • where the length of the hedgerow does not exceed 50 metres, at least one standard tree. • where the length of the hedgerow exceeds 50 metres but does not exceed 100 metres, at least 2 standard trees. • where the length of the hedgerow exceeds 100 metres, such number of standard trees (within any part of its length) as would when averaged over its total length amount to at least one for each 50 metres. • at least 3 woodland species within one metre, in any direction, of the outermost edges of the hedgerow. • a ditch along at least one half of the length of the hedgerow. • hedgerow connections scoring 4 points or more (a connection with another hedgerow scores one point and a connection with a pond or a woodland in which the majority of trees are broad-leaved trees scores 2 points; and a hedgerow is connected with something not only if it meets it but also if it has a point within 10 metres of it and would meet it if the line of the hedgerow continued). • a parallel hedge within 15 metres of the hedgerow. • The hedgerow is adjacent to a bridleway or public footpath, or a byway open to all traffic.

For each individual hedgerow assessment, the length of the hedgerow was measured and the number of woody species and any additional features recorded. For woody species counts in the following guidelines were applied (as stated within the Hedgerow Regulations 1997):

(a) where the length of the hedgerow does not exceed 30 metres, count the number of woody species present in the hedgerow.

(b) where the length of the hedgerow exceeds 30 metres, but does not exceed 100 metres, count the number of woody species present in the central stretch of 30 metres.

(c) where the length of the hedgerow exceeds 100 metres, but does not exceed 200 metres, count the number of woody species present in the central stretch of 30 metres within each half of the hedgerow and divide the aggregate by two.

(d) where the length of the hedgerow exceeds 200 metres, count the number of woody species present in the central stretch of 30 metres within each third of the hedgerow and divide the aggregate by three.

An example of the recording form used for each individual hedgerow regulations assessment, which includes a list of accepted woody and woodland species, is provided in appendix III.

3.2.3 Protected species assessment

Habitats and features were assessed for their potential to support protected species (see section 2.0). In many cases determining the presence, distribution and population size of protected species will require additional, specialist surveys.

Badgers

A direct search was undertaken for signs of badger. Signs of badger may include setts, dung pits, latrines, paths or hairs on fences and vegetation. Any setts encountered were classified according to the number of entrances and the extent of their use.

Bats

Bat habitat

The habitat on the site was assessed for the quality of potential commuting and foraging habitat for the local bat populations. Bats navigate using linear features in the landscape, such as hedgerows and these can be important features for local roosts. The site itself may also provide important foraging habitat and support local bat roosts. Annex II species of bat may use the site for foraging and commuting. The assessment of the habitats on site will inform the requirement for further survey work.

Trees

Bats often roost in trees. Features such as old woodpecker holes, splits, cavities and rot holes, loose or flaking bark and ivy creepers will be exploited by bats to roost. Any trees present on site were therefore assessed for their potential to support roosting bats by searching for such features. The presence of roosting bats can be spotted through signs such as accumulations of moth or butterfly wings, staining, bat droppings, or bats themselves. The absence of these cannot, however, be treated as conclusive evidence that bats are not present, and therefore an assessment was made of the potential of the trees to support bats

based on the scale presented in table 2 below, adapted from the *Good Practice Guidelines* (Collins, 2016):

Table 2: Criteria for assessing bat roosting potential of trees

Confirmed Roost	Evidence of bat occupation found
High Roosting Potential	Trees with multiple, highly suitable features capable of supporting larger roosts or with evidence of bat occupation found
Moderate Roosting Potential	Trees with definite bat potential, supporting fewer suitable features than high roosting potential trees or with potential for use by single bats
Low or Negligible Roosting Potential	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 or trees with no potential to support bats

Phase 2 bat surveys

Tree climbing

In areas where potential roost features (PRF) are identified within trees and survey from the ground cannot be fully undertaken a tree climbing survey must be performed. This will involve a licenced bat worker with tree climbing certification climbing the tree to inspect and describe any unsurveyed PRF. The survey will assess the features potential to support roosting bats and describe the feature in accordance with industry standard guidelines (Andrews, 2013). The description of the feature will include its definition, size, condition and depth and any evidence of bat use. The survey will include the use of any endoscope to inspect the PRF.

The survey of a tree can be undertaken at any time of year. If any evidence of bats is recorded, the feature is considered suitable to support roosting bats or the tree is unsuitable to climb; further bat emergence survey will be required.

This survey was undertaken by Alex Hannam (Licence number: 2015-16181-CLS-CLS) on 12th April 2017.

Activity transects

A suite of bat activity surveys were undertaken in accordance with guidelines established by the Bat Conservation Trust (BCT) in their publication *Good Practice Guidelines* (Collins, 2016).

In general, bats are most active in the months March to September with the optimal months for undertaking transects being June to August. Seven activity transects were undertaken on the 13th April, 17th May, 15th June, 13th and 14th July, 16th August, 15th September and 12th October 2017. The dusk transect surveys began at or just before sunset and continued for approximately two hours afterwards in order to detect bats commuting from roost sites

to foraging sites. The dawn surveys commenced two hours before sunrise and continued until sunrise.

Bat transect surveys involve walking pre-defined routes which incorporate key areas that are likely to be important for foraging and/or commuting bats. Such areas include scrub and grassland and linear features such as hedgerows and woodland / scrub edge. In this case the transect routes were walked by a pair of surveyors. The routes were walked twice during any one survey at a steady speed and incorporated a number of listening station stops interspersed along the route. The surveyors paused at each listening stop for durations of five minutes. The transect routes for each survey are provided on the map in appendix III.

Bat activity was recorded by each pair of surveyors using a combination of Batbox Duet frequency division bat detector with Edirol-R recording devices, SM2 Song meter, EM3, Echometer touch and a heterodyne (Magenta MKII) bat detector. Visual observations were also used to record flight patterns and feeding behaviour. Notes on times, species and behaviour were also recorded to aid identification to species level. The recordings, which were analysed using BatScan 9 software and Analoook, were used to confirm where possible the species of bat observed during the survey.

Static monitoring

Two static monitoring devices were set up across the site for a period of five nights in April, May, June, July, August, September and October following the most recent BCT guidelines (Collins, 2016). The recording devices consisted of SM2, SM4 and Anabat expresses. The recording devices were set up at the same strategically selected locations around the site on each occasion. All analysis of the static recording device was conducted using Analoook software.

- Static Monitor 1 (ST 81167 26968) Positioned in the north-western corner of the site.
- Static Monitor 2 (ST 81535 26834), positioned in the south-eastern corner of the site beneath an oak tree.

Limitations

In August 2017 the static monitor only recorded for two nights and not record for the necessary five nights per session. This was due to battery failure or fault on the static monitors. However, this is not considered a significant constraint given the transect routes that ran near to the site identified for static monitoring. Recordings from these transects were considered sufficient to gauge local bat activity levels.

Barn Owl

A direct search for evidence of barn owl (*Tyto alba*) within buildings and trees on the site was conducted on 12th April 2017 by suitably qualified ecologists Alex Hannam and Louisa Jones. Signs may include droppings, pellets, feathers and suitable nest sites.

Droppings are most likely to be found under perch sites and appear as large white splashes on a hard surface or smaller white patches on old hay or straw.

Pellets are the regurgitated indigestible parts of the barn owl's prey. An accumulation of these can often be found around the preferred roosting sites of barn owls. Many birds produce these pellets, but the barn owls are particularly distinctive, being black and glossy when fresh, containing fur and small mammal bones and are often up to two inches long.

Barn owl feathers are variable but generally they are white grading to a pale, golden colour.

Dormice

The habitat on the site was assessed for the potential to support dormice (*Muscardinus avellanarius*), which are found in habitats such as woodlands, scrub and hedgerows with good connectivity and suitable food plants. Satellite images were used to assess the connectivity of any suitable habitat present on the site to other areas of woodland and hedgerow networks.

A total of 50 nest tubes were set out within the site on 24th March 2017. The nest tubes were spaced at intervals of approximately 10-20 metres and positioned on trees or shrubs between 1 to 2 metres from the ground (appendix VI). Nest tubes were suspended by cable ties underneath horizontal branches or wedged into crevices between branches or between branches and the tree trunk so that the entrance to the tubes pointed slightly downwards allowing water to drain away from the nest chamber area.

The nest tubes were inspected on a monthly basis between May and September 2017. Inspections were conducted by Andrew Heideman (Licence number: 2016-26785-CLS-CLS), Sarah Richardson, Emily Richmond, Fenja Squirrell, and Nikkii Hesketh- Roberts. Each nest tube was inspected for characteristic signs of dormice, including the following:

- Presence of dormice themselves.
- Presence of dormouse nests. Typically, these are grapefruit-sized and woven from strips of honeysuckle bark or similar material with whole fresh green leaves incorporated into the outer layers. The nests are spherical and lack an obvious entrance hole.
- Presence of droppings. Typically, these are larger and more crinkly compared to droppings of other small rodents. However, identification of faecal pellets is not fully reliable and should not be used to confirm presence or absence of dormice.

- Presence of characteristically gnawed nuts or other hard fruit. Dormice leave a smooth round hole with few tooth marks on the surface.

Any nests or dormice found within the tubes were recorded. Where possible all dormice found were sexed, and age, activity and breeding condition were recorded.

Great crested newts

Suitable breeding ponds are essential to support populations of great crested newt (*Triturus cristatus*) although they actually only spend a relatively short period of the year in the ponds during the spring for breeding. The remainder of the year is spent in suitable 'foraging' habitat such as tall grassland and woodland. During the winter the great crested newt hibernates, often amongst the roots of trees and scrub or in places such as piles of rubble, amongst foundations of buildings or under fallen trees and logs.

Great crested newts are known to forage up to at least five hundred metres from their breeding sites and suitable habitats that fall within two hundred and fifty metres must be considered even in situations where the breeding site itself will not be affected. Any ponds within a two hundred and fifty metre radius will therefore be identified during this survey and habitats within and immediately adjacent to the site were assessed in terms of their suitability as foraging habitat. Further specialist surveys will be recommended where appropriate.

Habitat Suitability Index

A Habitat Suitability Index (HSI) assessment was carried out to determine the suitability of the ponds within 500 metres of the site to support great crested newts. The assessment uses criteria and values as provided by Oldham et al. (2000, 2008). HSI cannot be used to predict the presence of great crested newts.

eDNA

A technique for surveying great crested newts known as environmental DNA testing (eDNA) was undertaken on 18th and 20th April 2017. This involves taking water samples from all waterbodies within 500 metres of the site where access was allowed for DNA analysis which can confirm presence or absence of great crested newt. Water samples were sent to SureScreen Scientific for analysis.

Reptiles

Reptiles are widespread in habitats that provide both cover, in the form of scrub or tall vegetation, and basking areas such as areas of hard standing or short grassland communities.

Reptiles are a notoriously difficult group to survey due to their secrecy. They do, however, have an affinity for hiding under debris exposed or partially exposed to the sun. This trait is exploited by adopting a methodology based upon placing artificial refuges around the survey site thus encouraging any reptiles present to use them.

Roofing felt was used in this case, with approximately 200 0.25m² pieces being laid out around the site's margins (appendix VIII). The reptile mats were distributed on the site on the 24th March 2017. Mats were left to 'settle' for a period of at least a week before the survey visits commenced. The 'reptile mats' were checked between 09:00 and 17:00 hours and/or during suitable weather conditions, cloudy and/or with sunny breaks with temperatures between ten and eighteen degrees centigrade, when the refuges provide greater heat than the open ground. A total of seven checks were conducted between the 3rd April and 15th May 2017 to determine presence or absence.

4.0 RESULTS

4.1 Desk study

Statutory and non-statutory sites

Table 3 below lists statutorily designated sites within five kilometre radius and non-statutory sites within a two kilometre radius of Bay Road, Gillingham.

Table 3: Designated sites within a five kilometre radius of land at Bay Road, Gillingham

Site	Status	Distance from site	Size (Ha)	Habitat
King's Court Wood	SNCI ¹	855 m south-east	22.22	A large oak (<i>Quercus sp</i>)/ash (<i>Fraxinus excelsior</i>) woodland not of ancient origin.
Palemead Coppice	SNCI	1.79 km south-east	4.12	Oak woodland on a heavy clay soil.
Oak sp.	GT ²	0.22 km north east	N/A	The oak sp. tree is located within a hedgerow north-east of the site.

The above sites are considered to be sufficiently remote from the application site and therefore no impacts on these sites as a result of development are anticipated.

Protected and notable species records

Table 4 below lists protected and notable species within a two kilometre radius of the site.

Table 4: Protected and notable species within a two kilometre radius of land at Bay Road, Gillingham

Common Name	Scientific name	Status	Location
<i>Reptiles and amphibians</i>			
Great crested newt	<i>Triturus cristatus</i>	Schedule 2, Habs, Regs ³ , Schedule 5, WCA ⁴ , UK BAP ⁵	16 records within a 2 km radius of the site, most recent dated 2012.

¹ SNCI: Site of Nature Conservation Interest

² GT: Ancient trees listed on the Dorset Greenwood Tree Project

³ Habs Regs: The Conservation of Habitats and Species Regulations (2010)

⁴ WCA: The Wildlife and Countryside Act 1981 (as amended)

⁵ UK BAP: UK Biodiversity Action Plan Species

Common Name	Scientific name	Status	Location
Adder	<i>Vipera berus</i>	Schedule 5, WCA, UK BAP	1 record within 2km of the site dated 2013.
Mammals			
European water vole	<i>Arvicola amphibius</i>	Schedule 5, WCA, UK BAP	23 records within a 2km radius of the site, most recent dated 2013.
Serotine bat	<i>Eptesicus serotinus</i>	Schedule 2, Habs Regs, Schedule 5, WCA	3 records within a 2km radius of the site, most recent dated 2013.
West European hedgehog	<i>Erinaceus europaeus</i>	UK BAP	1 record within a 2km radius of the site dated 2006.
Brown hare	<i>Lepus europaeus</i>	UK BAP	1 record within a 2km radius of the site dated 2007.
Eurasian otter	<i>Lutra lutra</i>	Schedule 5, WCA, Schedule 2, Habs regs, UK BAP	9 records within a 2km radius of the site, most recent dated 2013.
Eurasian badger	<i>Meles meles</i>	Protection of Badgers Act (1992)	4 records within a 2km radius of the site, most recent dated 2013.
Hazel dormouse	<i>Muscardinus avellanarius</i>	Schedule 5, WCA, Schedule 2, Habs regs, UK BAP	1 historical record within a 2km radius of the site dated 2005.
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Schedule 2, Habs Regs, Schedule 5, WCA	3 records within a 2km radius of the site, most recent dated 2009.
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	Schedule 2, Habs Regs, Schedule 5, WCA, UK BAP	1 records within a 2km radius of the site dated 2011.
Pipistrelle sp.	<i>Pipistrellus sp.</i>	Schedule 2, Habs Regs, Schedule 5, WCA	2 records within a 2km radius of the site, most recent dated 2009.
Brown long-eared bat	<i>Plecotus auritus</i>	Schedule 2, Habs Regs, Schedule 5, WCA, UK BAP	2 records within a 2km radius of the site, both dated 2009.
Long-eared bat	<i>Plecotus sp.</i>	Schedule 2, Habs Regs, Schedule 5, WCA	5 records within a 2km radius of the site, most recent dated 2013.
Birds			

Common Name	Scientific name	Status	Location
Kingfisher	<i>Alcedo atthis</i>	BD1 ¹ , Schedule 1, WCA	1 record within a 2km radius of the site dated 2012.
Mallard	<i>Anas platyrhynchos</i>	Amber List ²	1 record within a 2km radius of the site dated 2006.
Swift	<i>Apus apus</i>	Amber List	2 records within a 2km radius of the site, most recent dated 2008.
Cuckoo	<i>Cuculus canorus</i>	Red List ³	2 records within a 2 km radius of the site, most recent dated 2008.
House martin	<i>Delichon urbica</i>	Amber List	2 records within a 2km radius of the site, most recent dated 2008.
Little egret	<i>Egretta garzetta</i>	BD1	1 records within a 2km radius of the site dated 2008.
Reed bunting	<i>Emberiza schoeniclus</i>	Amber List, UK BAP	1 records within a 2km radius of the site dated 2008.
Peregrin falcon	<i>Falco peregrinus</i>	Schedule 1, WCA, BD1	5 records within a 2km radius of the site, most recent dated 2008.
Hobby	<i>Falco subbuteo</i>	Schedule 1, WCA	15 records within a 2km radius of the site, most recent dated 2008.
Kestrel	<i>Falco tinnunculus</i>	Amber List	1 record within a 2km radius of the site dated 2012.
Red kite	<i>Milvus milvus</i>	Schedule 1, WCA, BD1, Amber List	1 record within a 2km radius of the site dated 2007.
Grey wagtail	<i>Motacilla cinerea</i>	Red List	2 records within 2km radius of the site, most recent dated 2008.
Redstart	<i>Phoenicurus phoenicurus</i>	Amber List	1 record within a 2km radius of the site dated 2006.
Bullfinch	<i>Pyrrhula pyrrhula</i>	Amber List, UK BAP	1 record within a 2km radius of the site dated 2012.

¹ BD1: Birds Directive, Annex I

² Amber List: Birds listed under the Amber List of Birds of Conservation Concern

³ Red List: Birds listed under the Red List of Birds of Conservation Concern

Common Name	Scientific name	Status	Location
Willow warbler	<i>Phylloscopus trochilus</i>	Amber List	2 records within a 2km radius of the site both dated 2006.
Dunnock	<i>Prunella modularis</i>	Amber List, UK BAP	3 records within a 2km radius of the site all dated 2012.
Redwing	<i>Turdus iliacus</i>	Schedule 1, WCA, Red List	3 records made within a 4 km radius of the site between 2005 and 2008
Barn owl	<i>Tyto alba</i>	Schedule 1, WCA	1 record within a 2km radius of the site dated 2008.
<i>Invertebrates</i>			
Mottled rustic	<i>Caradrina morpheus</i>	UK BAP	1 record within a 2km radius of the site dated 2008.
Small heath	<i>Coenonympha pamphilus</i>	UK BAP	2 records within a 2km radius of the site, most recent dated 2011.
Small blue	<i>Cupido minimus</i>	Schedule 5, WCA, UK BAP	2 records within a 2km radius of the site, both dated 2011.
Dingy mocha	<i>Cyclophora pendularia</i>	UK BAP	1 record within a 2km radius of the site dated 2009.
September thorn	<i>Ennomos erosaria</i>	UK BAP	2 records within a 2km radius of the site, most recent dated 2009.
Marsh fritillary	<i>Euphydryas aurinia</i>	Habs Regs, Schedule 5, WCA, UK BAP	1 record within a 2km radius of the site dated 2011.
Small emerald	<i>Hemistola chrysoprasaria</i>	UK BAP	2 records within a 2km radius of the site, most recent dated 2006.
Wall	<i>Lasiommata megera</i>	UK BAP	5 records within a 2km radius of the site, most recent dated 2013.
White admiral	<i>Limenitis camilla</i>	UK BAP	1 record within a 2km radius of the site dated 2006.
Shaded broad-bar	<i>Scotopteryx chenopodiata</i>	UK BAP	1 record within a 2km radius of the site dated 2009.
Buff ermine	<i>Spilosoma luteum</i>	UK BAP	1 record within a 2km radius of the site dated 2008.

Common Name	Scientific name	Status	Location
Blood-vein	<i>Timandra comae</i>	UK BAP	1 record within a 2km radius of the site dated 2006.
Dusky-lemon sallow	<i>Xanthia gilvago</i>	UK BAP	2 records within a 2km radius of the site, both dated 2006.
Heath rustic	<i>Xestia agathina</i>	UK BAP	1 record within a 2km radius of the site dated 2006.
Plants			
English bluebell	<i>Hyacinthoides non-scripta</i>	Schedule 8, WCA	1 record within a 2km radius of the site dated 2010.

These records of protected and notable species in the vicinity of the site increase the likelihood of them being present where suitable habitat is identified in the field survey.

4.2 Field study

The survey was conducted on 11th October 2016.

4.2.1 Vegetation

The accompanying phase 1 habitat map provided as appendix II depicts the habitats encountered and highlights areas of particular interest with target notes. The site comprises areas of improved grassland fields, semi-improved grassland and tall ruderal areas, intact and defunct hedgerows and scattered scrub. Descriptions of habitats encountered are presented below.

Improved grassland (Target note 1):

Improved grassland is present throughout the site in the form of pastures. The improved grassland is long-sward in nature and is dominated by perennial rye-grass (*Lolium perenne*) with frequent Yorkshire-fog (*Holcus lanatus*), cock's-foot (*Dactylis glomerata*) and occasional timothy (*Phleum pratense*) and red clover (*Trifolium pratense*). A comprehensive species list is provided in table 5 below.

Table 5: Species recorded within the improved grassland

Common name	Latin name	Abundance	Status
Grasses, sedges, rushes and ferns			
Cock's-foot	<i>Dactylis glomerata</i>	O	Common & widespread
Red fescue	<i>Festuca rubra</i>	LO	Common & widespread
Barley sp.	<i>Hordeum sp.</i>	R	Common & widespread

Common name	Latin name	Abundance	Status
Yorkshire-fog	<i>Holcus lanatus</i>	O	Common & widespread
Perennial rye-grass	<i>Lolium perenne</i>	D	Common & widespread
Timothy	<i>Phleum pratense</i>	LO	Common on waysides & grasslands, often sown for fodder
<i>Herbaceous species</i>			
Common mouse-ear	<i>Cerastium fontanum</i>	O	Common & widespread
Ribwort plantain	<i>Plantago lanceolata</i>	O	Common & widespread
Creeping buttercup	<i>Ranunculus repens</i>	F	Common & widespread
Dandelion	<i>Taraxacum agg.</i>	O	Common & widespread
Red clover	<i>Trifolium pratense</i>	O	Common & widespread

The improved grassland provides suitable habitat for common reptiles, newts, ground nesting birds and may provide suitable foraging habitat for bats. This is discussed further in section 4.2.2.

Tall ruderal (Target note 2):

Small areas of tall ruderal vegetation are present throughout the site and species recorded within these areas include dominant common nettle (*Urtica dioica*) and rare bramble (*Rubus fruticosus agg.*), creeping thistle (*Cirsium arvense*), blackthorn (*Prunus spinosa*) and willowherb sp.

The tall ruderal provides suitable sheltering and foraging habitat for common reptiles and newts. This is discussed further in section 4.2.2.

Hedgerows

The site features both intact and defunct hedgerows on the field perimeters which have been managed in areas. Species present within the hedgerows include hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), and field maple (*Acer campestre*). Species present in the hedgerows are listed in the table 6 below.

Table 6: Species recorded in defunct and intact hedgerows

Hedgerow No. (See phase 1 map)	Woody species	Non-woody species	UKBAP (80% native species)	Intact/ Defunct
H1	Hawthorn (<i>Crataegus monogyna</i>)	Red campion (<i>Silene dioica</i>) Bramble (<i>Rubus fruticosus agg.</i>)	Yes	Intact – 1-2 m in height and is well managed – divides into two hedgerows with a dry ditch in between hedges.

	Field maple (<i>Acer campestre</i>) Ash (<i>Fraxinus Excelsior</i>) Blackthorn (<i>Prunus spinosa</i>)	Common nettle (<i>Urtica dioica</i>) Cow parsley (<i>Anthriscus sylvestris</i>) Creeping bent (<i>Agrostis stolonifera</i>)		
H2	Hawthorn Blackthorn	-	Yes	Intact – 1-2 m in height and managed.
H3	Blackthorn Hawthorn Ash English elm (<i>Ulmus procera</i>)	Bramble Ivy (<i>Hedera helix</i>) Common nettle	Yes	Intact – 1-2 m in height and managed.
H4	Dogwood (<i>Cornus sanguinea</i>) Hawthorn English elm Ash	Bramble	Yes	Intact – 1-2 m in height and managed.
H5	Blackthorn	Bramble	Yes	Intact – 1-2 m in height and managed.
H6	Field maple Blackthorn Hawthorn	Hedge bindweed (<i>Calystegia sepium</i>) Willowherb sp. (<i>Epilobium sp.</i>)	Yes	Intact – 1-3 m in height and unmanaged.
H7	Hawthorn Leyland cypress (<i>Cupressus × leylandii</i>)	Bramble	No	Intact – 1-3 m in height and unmanaged.

The hedgerows are species-poor, however, most qualify as UKBAP hedgerows with 80% coverage of native species and some potentially qualify as 'Important' under the Hedgerow Regulations 1997. Recommendations have therefore been made in section 5.5. This habitat also has potential to provide foraging habitat for bats, reptiles, dormice and amphibians and potential to support nesting birds. This is discussed further in section 4.2.2.

Hedgerow Regulations Assessment

The results of the hedgerow regulations assessment are presented in table 7 below, whilst the locations of the hedgerows are illustrated on the habitat map in appendix III.

Table 7: Results of the hedgerow regulations assessment

Hedge number	Hedge length (metres)	Woody species recorded in hedgerow	Average/total number of woody species recorded in surveyed sections	Additional features	Total number of additional features	Qualifies as 'Important' under the Hedgerow Regulations 1997 (Yes/No)
H1	67	Field maple (<i>Acer campestre</i>) Hawthorn (<i>Crataegus monogyna</i>) Ash (<i>Fraxinus excelsior</i>) Blackthorn (<i>Prunus spinosa</i>)	4	<ul style="list-style-type: none"> Gaps which in aggregate do not exceed 10% of the length of the hedgerow. Hedgerow is adjacent to a bridleway or public footpath, or a byway open to all traffic. At least 3 woodland species within one metre, in any direction, of the outermost edges of the hedgerow - moschatel (<i>Adoxa moschatellina</i>), lords & ladies (<i>Arum maculatum</i>) and herb Robert (<i>geranium robertianum</i>). 	3	Yes
H2	173	Field maple (<i>Acer campestre</i>) Hawthorn (<i>Crataegus monogyna</i>) Ash (<i>Fraxinus excelsior</i>) Blackthorn (<i>Prunus spinosa</i>) Pedunculate oak (<i>Quercus robur</i>) Field rose (<i>Rosa arvensis</i>) Dog rose (<i>Rosa canina</i> agg.) Elder (<i>Sambucus nigra</i>) English elm (<i>Ulmus procera</i>)	5	<ul style="list-style-type: none"> A ditch along at least one half of the length of the hedgerow. Hedgerow connections scoring 4 points or more. At least 3 woodland species within one metre, in any direction, of the outermost edges of the hedgerow - moschatel (<i>Adoxa moschatellina</i>), lords & ladies (<i>Arum maculatum</i>) and bluebell (<i>Hyacinthoides non-scripta</i>). 	3	No
H3	239	Hawthorn (<i>Crataegus monogyna</i>)	4	<ul style="list-style-type: none"> A parallel hedge within 15 metres of the hedgerow 	1	No

		Ash (<i>Fraxinus excelsior</i>) Wild privet (<i>Ligustrum vulgare</i>) Blackthorn (<i>Prunus spinosa</i>) Dog rose (<i>Rosa canina</i> agg.) Elder (<i>Sambucus nigra</i>) English elm (<i>Ulmus procera</i>)				
H4	87	Dogwood (<i>Cornus sanguinea</i>) Hazel (<i>Corylus avellana</i>) Hawthorn (<i>Crataegus monogyna</i>) Blackthorn (<i>Prunus spinosa</i>) Dog rose (<i>Rosa canina</i> agg.) Goat willow (<i>Salix caprea</i>)	6	<ul style="list-style-type: none"> Hedgerow is adjacent to a bridleway or public footpath, or a byway open to all traffic. 	1	No (borderline)
H5	127	Hawthorn (<i>Crataegus monogyna</i>) Blackthorn (<i>Prunus spinosa</i>) Dog rose (<i>Rosa canina</i> agg.) Grey willow (<i>Salix cinerea</i>) English elm (<i>Ulmus procera</i>)	3	<ul style="list-style-type: none"> A ditch along at least one half of the length of the hedgerow. 	1	No
H6	185	Hawthorn (<i>Crataegus monogyna</i>) Goat willow (<i>Salix caprea</i>) English elm (<i>Ulmus procera</i>)	3	<ul style="list-style-type: none"> A ditch along at least one half of the length of the hedgerow. 	1	No
H7	152	Hawthorn Dog rose	2	<ul style="list-style-type: none"> Hedgerow is adjacent to a bridleway or public footpath, or a byway open to all traffic. 	1	No

Hedgerow H1 was found to qualify as 'Important' under the hedgerow regulations 1997, none of the other assessed hedgerows on site qualified as 'Important'. Further recommendations are provided in section 5.5.

Scattered trees (Target note 6):

A number of scattered oak (*Quercus robur*) and ash trees are present within the site within the hedgerows. Along either side of the trackway on the southern boundary, rows of trees comprising oak, ash (*Fraxinus excelsior*), poplar (*Populus sp.*), willow (*Salix sp.*), purple beech (*Fagus sylvatica 'Purpurea'*), and cherry (*Prunus sp.*) were recorded.

Species present may provide habitat for roosting bats and nesting birds. This is discussed further in section 4.2.2.

Immediate surroundings

The southern boundary of the land abuts the River Lodden and the northern boundary is bordered by Bay Road and to the west is the town and civil parish of Gillingham. Arable pastures and fields are present within the wider vicinity of the site with the King's Court Wood SINC located to the south-east of the site.

Further information is provided in section 5.1 in relation to the River Lodden.

4.2.2 Protected species assessment

Badger

The habitat within the site boundary was considered to provide moderate potential for foraging badgers. DERC data showed four records of badger have been made within a 2 kilometre radius of the site. However, no signs of badger were recorded in the field survey and badgers are not considered present on site.

No further action is required.

Bats

Foraging habitat

The site comprises grassland, hedgerows and a river corridor which could be used by foraging bats in the local area. The improved grassland pastures may be high quality foraging for species such as horseshoe (*Rhinolophus sp.*) bats as the fields are grazed by cattle, if these cattle are kept organically then the dug offers habitat for the bats preferred food beetle. In addition, as the site is bordered by areas of higher quality habitat including the river corridor the area is considered to be of at least moderate quality, according to the BCT *Bat Surveys for Professional Ecologists Good Practice Guidelines* (Collins *et al.*, 2016). The farm buildings to the north and residential estate to the west directly adjacent to the site may also support bat roosts which may use the site as foraging habitat.

Transects

A summary of the transect results are provided below whilst full results are provided in appendix V. A location route is provided in appendix IV.

Dusk 13th April 2017

- Common pipistrelle (*Pipistrellus pipistrellus*) bats were recorded between 20:32 and 20:40 foraging along hedgerows on the southern, eastern and northern boundaries of the site.
- Soprano pipistrelle (*Pipistrellus pygmaeus*) bats were recorded at 20:37 and 20:38 along the hedgerow in the north eastern section of the site.

Dusk 17th May 2017

- A soprano pipistrelle bat was recorded at 21:30 foraging along the central hedge of the site.
- Common pipistrelle bats were recorded foraging and commuting between 21:36 and 22:33 across the whole site.

Dusk 15th June 2017

- Common pipistrelle bats were recorded between 22:34 and 23:22 foraging across the site.
- A soprano pipistrelle bat was recorded at 22:50 foraging along the central hedgerow through the site.
- A suspected whiskered/Brandt's bat (*Myotis mystacinus/Myotis brandti*) was recorded at 22:46 along a hedgerow on the southern boundary.
- A suspected natterer's (*Myotis nattereri*) bat was recorded at 23:29 in the north-western corner of the site.

Dusk 13th July 2017

- A noctule (*Nyctalus noctula*) bat was recorded at 21:56 and 22:01 foraging and commuting along the eastern boundary of the site.
- Common pipistrelle bats were recorded foraging and commuting between 22:20 and 23:18 across the whole site.
- A soprano pipistrelle bats were recorded at 22:36 along the south-western hedgerow.

Dawn 14th July 2017

- A suspected whiskered/Brandt's bat was recorded in the south-eastern corner of the site at 03:16.

- Common pipistrelle bats were recorded foraging and commuting across the site between 03:26 and 04:08.
- A long-eared (*Plecotus sp.*) bat species was recorded at 03:42 in the south-eastern corner of the site.

Dusk 16th August 2017

- Soprano pipistrelle bats were recorded between 20:56 and 22:00 in the south-western and south-eastern corners of the site.
- Common pipistrelle bats were recorded between 21:01 and 22:24 foraging and commuting across the whole site.
- A suspected whiskered/Brandt's bat was recorded at 21:57 in the south-eastern corner of the site.
- A noctule was recorded at 21:59 in the south-eastern corner of the site.

Dusk 14th September 2017

- Common pipistrelle bats were recorded foraging and commuting between 19:59 and 21:00 across the whole site.
- Suspected whiskered/Brandt's bats were recorded at 20:44 and 20:58 along the northern and southern site boundary.
- A Leisler (*Nyctalus leisleri*) bat was recorded in the south-western corner of the site.
- A serotine (*Eptesicus serotinus*) bat was recorded along the hedgerow through the centre of the site at 21:06.

Dusk 12th October 2017

- Noctule bats were recorded at 19:27 and 19:40 foraging along the southern boundary.
- Common pipistrelle bats were recorded foraging between 19:28 and 20:18 across the whole site.

Static analysis

The results of the static detectors are provided below whilst a map showing their location is provided in appendix IV.

April 2017

Low numbers of common pipistrelle, and soprano pipistrelle bats were recorded at static monitor 1. A peak count of 10 common pipistrelle bats was recorded. Despite recording for five nights no bats were recorded at static monitoring station 2.

May 2017

Low numbers of common pipistrelle, soprano pipistrelle, Leisler, noctule, serotine and whiskered/brandt's bats were recorded at static monitoring station 1. A peak count of 15 common pipistrelle passes were recorded. The same species were recorded at static monitoring station 2 with the addition of long-eared bats and absence of serotines. The peak counts were higher at station 2 with a peak count of 226 common pipistrelle passes.

June 2017

Low numbers of common pipistrelle, soprano pipistrelle, noctule and serotine bats were recorded at static monitoring station 1. A peak count of 28 noctule bats was recorded. The same species were recorded at static monitoring station 2 with the addition of whiskered/brandt's bats. Peak counts were generally higher at station 2 with a peak count of 695 common pipistrelle passes being recorded in a single night.

July 2017

Low numbers of common pipistrelle, soprano pipistrelle, Leisler, noctule, serotine and myotis sp. bats were recorded at static monitoring station 1. A peak count of 19 noctule passes were recorded. The same species were recorded at static monitoring station 2 with the addition of Daubenton's (*Myotis daubentonii*), natterers and whiskered/brandt's bats. A peak count of 200 common pipistrelle passes were recorded.

August 2017

Low numbers of common pipistrelle, soprano pipistrelle, noctule, serotine and whiskered/brandt's and myotis sp. bats were recorded at static monitoring station 1 with a peak count of 87 common pipistrelle and 67 serotine bat passes. Static 2 recorded for two nights before equipment failure. No bats were recorded on these two nights.

September 2017

Low numbers of common pipistrelle, soprano pipistrelle, brandt's, natterer's noctule and serotine bats were recorded at static monitoring station 1. A peak count of 16 common pipistrelle bat passes were recorded. The same species were recorded at static monitoring station 2 with the addition of Leisler's and *myotis sp.* bats. Again, common pipistrelle had the highest peak count of 49 bat passes. In addition to this a peak count of 45 natterer's bat passes were recorded.

October 2017

Low numbers of common pipistrelle, soprano pipistrelle, Leisler, noctule and whiskered bats were recorded at static monitoring station 1. The same species were recorded at static monitoring station 2 with the addition of serotine, whiskered/brandt's and *myotis sp.* bats.

Common pipistrelle bats were recorded in the highest frequency with a peak count of 160 bat passes at static monitoring station 2.

Trees

The tree survey was undertaken on the 11th October 2016. A total of three trees were identified as holding moderate potential to support roosting bats due to dead stems, limbs and voids and one tree held low potential to support roosting bats. A map has been provided in appendix VI indicating the locations of these trees. All other trees on site were noted to hold negligible potential to support roosting bats due to a lack of suitable features.

Two of the three trees assessed as holding moderate potential (tree 3 and 4) were climbed on 12th April 2017. The features were inspected with an endoscope and no evidence of bats was recorded. The cavities were also upwards facing only, which means they would be unsuitable for roosting bats. As a result, these have been downgraded to negligible potential. Tree 1 which was assessed as holding low potential was covered in ivy and so a tree climbing survey was not deemed appropriate. The potential roosting feature identified in tree 2 was at the end of a dead branch and was deemed unsafe to climb and inspect this feature.

Whilst undertaking the transect and static monitoring surveys low levels of activity were recorded across the site and no bats were recorded emerging from tree 1 or 2. These are considered not to support a bat roost.

The site was noted to be of moderate quality habitat for foraging and commuting bats due to the presence of the hedgerows and arable fields. Further recommendations have been made in section 5.2.

Dormice

A single record of a dormouse was returned by DERC and is located approximately 1.6 kilometres south-east of the application site and was dated 2005. There is adequate habitat connectivity between this record and the application site along the river corridor which runs underneath a series of roads and the railway line. The habitat within the application site is considered to be of sufficient quality for dormice with species present in the hedgerows such as hawthorn and bramble. No evidence of dormice such as nuts or nests were found during the initial walkover survey or targeted dormouse surveys. Therefore, dormice are considered not to be using the site.

Table 8: Dormouse survey results

Date	Time	Temperature (°C)	Weather	Results	Additional information
15.05.17	11.20	14	Overcast, 3-4/12, occasional drizzle	None	
20.06.17	11.30	24	Sunny, clear skies	None	

Date	Time	Temperature (°C)	Weather	Results	Additional information
17.07.17	11.00	20	Sunny, clear skies	None	Woodmouse nest found in tubed D7, D16, D13 and D14
15.08.17	10:30	24	Sunny, warm, clear skies	None	Woodmouse nests found in tubes C4 and D7
19.09.17	09.30	17	Sunny, warm, clear skies	None	Woodmouse nests recorded in tubes A3, C3, C11, D3, D4, D6, D9, D14, D15, D16, D17, E5 and E11

No evidence of dormouse was recorded therefore no further action is required.

Great crested newts

Terrestrial habitat

The grasslands, field margins and hedges provide potential foraging habitat for great crested newts, with the bases of hedges and dead wood and debris piles providing potential refuge sites.

Water bodies

A total of six ponds were identified within 500metres of the proposed development and the locations of these ponds are indicated on the plan provided as appendix VIII.

There are 16 records of great crested newts within a 2 kilometre radius of the site, with the most recent record dated 2012. The nearest record is located approximately 0.6 kilometres north-east of the site within a pond and is dated 2012.

Habitat Suitability Index (HSI)

A HSI assessment was conducted on the five ponds within 500metres where access was available. The results of the HSI are provided in table 9 below.

Table 9: Descriptions and HSI results for ponds

Pond Number	Grid Reference	Description	HSI Score	Pond Suitability
Pond 1 (off-site)	ST 81909 27403	Dries up annually, 10 m x 20 m with 50% shade, poor water quality. The pond is surrounded by ephemeral / short-perennial vegetation and willow (<i>Salix sp.</i>), crab apple (<i>Malus sylvestris</i>) and blackthorn. Low marginal vegetation is present and includes rare soft rush (<i>Juncus effusus</i>).	0.56	Below average
Pond 2 (off-site)	ST 81789 26824	20 m x 20 m triangle-shaped pond dries annually, good water quality, very small amount of macrophyte cover.	0.78	Good
Pond 3 (off-site)	ST 81699 27086	10 m x 10 m, 100% shaded, poor water quality, no macrophyte cover, dries annually, surrounded by scrub including blackthorn, bramble and common nettle.	0.54	Below average
Pond 4 (off-site)	ST 81509 27677	100% shaded, 5 m x 5 m pond, good water quality, 100% macrophyte (duckweed (<i>Lemna minor</i>)) cover and no fish or fowl were recorded, never dries.	0.60	Average
Pond 5 (off-site)	ST 81539 27694	Dry and vegetated over- not considered be a pond anymore	-	-

The HSI scores for the ponds on site suggest that ponds 1 and 3 have **below average** potential to support great crested newts. Pond 2 is considered to hold **good potential** and pond 4 is considered to have **average** potential to support great crested newts.

The ponds have good connectivity to the site, with hedgerows and arable pastures connecting the two areas. Bay Road segregates the ponds to the north of the site, however, the road is not considered large enough to act as a significant barrier to newt movement.

Due to the proximity of the known breeding ponds neighbouring the site and the presence of suitable terrestrial habitat and water bodies on site for great crested newts, the site is considered to hold high potential to support populations of great crested newts.

eDNA

The results of the eDNA analysis from SureScreen Scientific for ponds 2, 3 and 4 were negative indicating the absence of great crested newts from the ponds surveyed.

It is considered highly unlikely that terrestrial great crested newts are present on site and therefore no further action is required. However, should a great crested newt be found during the destructive search for reptiles (see section 5 below) works will cease and Natural England will be consulted.

Reptiles

A single record of an adder (*Vipera berus*) was recorded approximately 1.48 kilometres south-east of the site in 2013 and the site contains open areas of semi-improved and improved grassland which could be used by foraging reptiles. Basking opportunities are provided on the interface between tall and short-sward heights between semi-improved grassland / tall ruderal habitats and bases of hedges. Several dead wood and debris piles were noted on site offering potential sheltering and hibernacula features.

A targeted survey was undertaken and the results are provided in table 10 below.

Table 10: Reptile survey results

Date and number of visit	Time	Weather	Temp (°C)	Reptiles				Area recorded
				CL	SW	GS	A	
03/04/17 (Visit 1)	10:30	Sunny, 1/8 cloud cover, 1/12 wind	13		3 adult (males)			2 adult male near field boundary near open gardens on the western boundary. 1 adult male near the farm buildings in the northern corner.
13/04/17 (Visit 2)	19:00	Sunny 6/8 breezy 2-3/12	11					No reptiles found
25/04/17 (Visit 3)	13:15	Sunny spells, 5/8 cloud cover, 1/12 wind	10		8 slow worms.			1 adult male near the southern corner, 1 adult male & 1 adult female near the barns in the NW corner. 1 adult male in the western corner, 2 Adult males, 1 adult

							female and 1 juvenile all found in front of the houses on the western edge of the site
27/04/17 (Visit 4)	11:50	Sunny spells, 2/8 cloud cover, 1/12 wind	15		3 adult slow worms (2 female, 1 male)		1 adult female near barn in the NW corner, 1 adult female and 1 adult male were recorded near houses on the western edge of the site
04/05/17 (Visit 5)	11:15	Sunny spells, 6/8 cloud cover, 2/12 wind	15/16		5 adult slow worms (female), 2 juveniles		2 adult female slow worms next to the barn and along to the northern hedgerow (NE of the site), 1 adult female slow worm and 1 juvenile slow worm along to the northern hedgerow and near buildings (NW of the site), 2 adult female slow worms and 1 juvenile near buildings on the western edge of the site.
08/05/17 (Visit 6)	12:30	Sunny, 1/8 cloud cover, 1/12 wind	14		2 adult females		Found at the field boundary near open gardens on the western boundary.
15/05/17 (Visit 7)	13:10	Overcast, 8/8 cloud cover, rain in the morning	14		4 adult males, 4 adult females and 1 juvenile.		3 adult males along western site boundary next to houses/gardens; 2 adult females and 1 juvenile along north-western boundary next to hedgerow; 2 adult females along

5.0 CONCLUSIONS & RECOMMENDATIONS

The site overall was considered to be of low ecological value however supports habitats of ecological importance, including:

- The River Lodden is located approximately 219 metres south east of the proposed development.
- The site was assessed as holding moderate potential to support foraging and commuting bats. Low numbers of common pipistrelle, soprano pipistrelle, whiskered/brandt's, noctule, natterer's, serotine, leisler's, *myotis sp* and long-eared bats were recorded.
- The site supports a small population of slow worms with a peak count of four males, four females and a juvenile.
- The site supports a mosaic of mature hedgerows, improved grassland fields and semi-improved grassland which provide the capacity to support breeding birds.
- The large majority of the hedgerows on site qualify as UK BAP priority habitat and some of the hedgerows may be listed as 'Important' under the Hedgerows Regulations (1997).

Mitigation strategies for potential impacts on these habitats and species have therefore been made below. Measures to enhance the site for wildlife have also been made. With the proposed mitigation the tests outlined in the NPPF and Policy 4 of the North Dorset Local Plan will be met and there will be no significant effect on the biodiversity recorded on site.

5.1 River Lodden

The River Lodden qualifies as UKBAP and Local BAP priority habitat 'Rivers'. The river forms an important green corridor in the local area and should be preserved and enhanced where possible.

Due to the potential pollution and silt that could infiltrate through to nearby watercourses and groundwater during any proposed construction, a Construction Method Statement (CMS) would need to be prepared and implemented. This will set out detailed methods of construction to avoid impacts to the River Lodden.

The following matters would be addressed in a CMS:

- Details of how materials / chemicals will be stored and controlled on-site to avoid pollution and siltation (for example, all plant will be fitted with drip trays in order to avoid potential pollution incidents and no re-fuelling will take place on the site).
- Details on the proposed construction methodology including factors such as construction access, methods of construction, timing of work and working hours.

5.2 Bats

5.2.1 Sumamry of survey findings

Foraging habitat

Low numbers of common pipistrelle, soprano pipistrelle, whiskered/brandt's, noctule, natterer's, serotine, leisler's, myotis sp and long-eared bats were recorded during the monthly transects and static monitoring sessions. The highest number of bat passes were recorded in May, June and July.

Trees

The mature trees within the site boundaries should be retained as part of the landscape design of the development. A total of four trees were identified as holding potential to support roosting bats including one low and three moderate potential trees (as shown in appendix VI).

Tree 3 and 4 were climbed on 12th April 2017. The features were inspected with an endoscope and no evidence of bats was recorded. The cavities were also upwards facing only which means they would be unsuitable for roosting bats. As a result, these have been downgraded to negligible potential.

Tree 1 which was assessed as holding low potential was covered in ivy and so a tree climbing survey was not deemed appropriate. The potential roosting feature identified in tree 2 was at the end of a dead branch and was deemed unsafe to climb and inspect this feature.

Low levels of activity were recorded across the site and no bats were recorded emerging from the trees. These are considered not to support a bat roost.

All other trees on site were noted to hold negligible potential to support roosting bats due to a lack of suitable features.

5.2.2 Implications of survey findings and recommendations for further action

The site supports foraging habitat for low numbers of bats. The current proposals retain the linear features where bats have been recorded foraging and commuting along. A lighting scheme has been outlined below to ensure these foraging and commuting routes are maintained and the site continues to be used by bats.

- Low pressure sodium street lighting will be used and light levels should be kept as low as possible (between 1 and 3 lux). Where light spill onto boundary hedgerow/ tree line occurs, this should be no greater than 1 lux.
- Lighting will be directed to where it is needed (away from surrounding habitat) through the design of the luminaire and by using accessories such as cowls or hoods.
- The height of lighting columns will be kept as short as possible (at three metres or less).
- Security lighting for the properties will be fitted with motion triggers set around waist height and will be set on short timers ensuring dark corridors are present.
- Light sources should emit minimal ultra-violet light, peak higher than 550nm and be of a warm/neutral colour <4,200 kelvin.
- Any floodlights required on the playing fields will be turned off after use ensuring the area remains dark for the majority of the evening when bats are active. The use of floodlights will be required most in the winter when bats are least active, so the impact from these is considered too low.

5.3 Reptiles

5.3.1 Summary of survey findings

A small population of slow-worms have been recorded on site. As areas of suitable habitat for reptiles are due to be lost as part of the development, mitigation will need to be put in place to prevent injury or killing of animals during the works in accordance with their legal protection.

5.3.2 Implications of survey findings and recommendations for further action

The mitigation strategy will include a trim and push exercise as reptiles were recorded at the site boundaries, habitat enhancement and an ecological watching brief. Details of these are provided below.

Trim and push methodology

- To encourage reptiles on the site to move away from the works area naturally the habitat within the works area will be made unsuitable by strimming under the careful supervision of a suitably experienced reptile handler. This will be carried out in temperatures above 10°C when reptiles are more mobile. The strimming will be carried out in a two trim cycle with the first cut to 15cm and the second to

ground level. This cut will take place in one direction towards the suitable habitat being retained along the hedgerows in order to give any reptiles a chance to leave the area.

- Slow worms will sometimes freeze instead of moving off and these animals should be carefully moved to the suitable habitat within the hedgerows before works can proceed again.
- All arisings from the strimming and clearance will be immediately removed from the works area to prevent any reptiles sheltering within it.
- The habitat within the works area will then be maintained at a short sward height to discourage reptiles from entering the works area.
- Materials and any arisings, will be kept off the ground through the use of skips or pallets. This will negate any risk of reptiles sheltering within stock piled materials or arisings from site clearance.

Enhancement

The receptor site will be located on-site and will be enhanced to provide foraging, shelter and hibernation opportunities for reptiles. The following enhancements will be undertaken:

- The grassland around the hedgerow boundaries and will be over-sown with Germanial seed mix (WFG18 Butterfly and Honeybee and A19 All Purpose Landscaping mix).
- A hibernacula will be constructed in the south western corner of the site as shown in appendix X.
- Additional scrub planting will be included to provide cover for reptiles.

5.4 Breeding birds

5.4.1 Summary of survey findings

The site supports a mosaic of mature hedgerows, improved grassland fields and semi-improved grassland which provide the capacity to support breeding birds

5.4.2 Implications of survey findings and recommendations for further actions

If any vegetation clearance is necessary as part of the development the following will need to be adhered to:

- Initial ground clearance, tree removal and site preparation works will take place strictly outside of the bird nesting season which is considered to run between March and September.
- Where this is not possible a suitable qualified ecologist should check potential nesting habitat immediately prior to clearance.
- Where nesting birds are encountered clearance must be postponed until the chicks have fledged.

5.5 Hedgerows

5.5.1 Summary of survey findings

A number of the hedgerows on the site have been identified as qualifying as a UKBAP with 80% coverage of native species.

5.5.2 Implications of survey findings and recommendations for further action

The hedgerow regulations assessment identified that only hedgerow H1 qualifies as 'Important', with the other remaining hedgerows lacking a sufficient number of qualifying features. The current site proposals indicate that hedgerow H1 will be retained alongside the development and therefore no further action is necessary. If the proposals change and hedgerow H1 does need to be removed or altered in any way then written permission from the relevant local authority will need to be obtained beforehand.

If any hedgerow is removed, new hedgerow planting will be incorporated within the proposals with an aim of creating a length of species-rich native hedgerow of at least double the length lost as a result of the proposed works. Suitable species for the hedgerow planting are listed in table 11 below sourced from suppliers of local provenance.

Table 11: Hedgerow species and relative proportions to be included in hedgerow planting

English Name	Latin Name	Relative proportion
Field maple	<i>Acer campestre</i>	5%
Common hazel	<i>Corylus avellana</i>	10%
Hawthorn	<i>Crataegus monogyna</i>	20%
Spindle	<i>Euonymus europeaus</i>	5%
Spindle	<i>Euonymus europaeus</i>	5%
Wild privet	<i>Ligustrum vulgare</i>	5%
Crab apple	<i>Malus sylvestris</i>	5%

Blackthorn	<i>Prunus spinosa</i>	20%
Pedunculate oak	<i>Quercus robur</i>	5%
Elder	<i>Sambucus nigra</i>	5%
Wayfaring tree	<i>Viburnum lantana</i>	10%

5.6 Ecological enhancement

At the time of writing current proposals for the site are unknown. However, a few suggestions for incorporation within the design of the development have been made below:

- Provision of bat boxes and nest boxes for bird species such as swift (*Apus apus*), house martin (*Delichon urbica*) and house sparrow (*Passer domesticus*) on the walls of the buildings or trees. Bat boxes and tubes, and bird boxes can be purchased from websites such as Alana Ecology <http://www.alanaecology.com> and Jacobi Jayne www.jacobijayne.co.uk, and their provision on site would enhance the habitat for the local bat and bird population.
- Flowering grassland seed mixes from a supplier of seeds of local provenance can be used to seed any new lawns within the design of the development (such as Emorsgate EL1). Such grassland provides better nectar sources for invertebrates and hence is of greater value for foraging birds, reptiles and amphibians.
- Use of native shrubs and trees for landscaping schemes provides foraging habitat for a range of bird species. Suitable species include hazel (*Corylus avellana*), dog-rose, elder (*Sambucus nigra*), blackthorn, hawthorn and field maple.
- All hedgerows will be trimmed on a 2 to 3 year rotation in an “A” shape or a “topped A” shape: the aim is to create a tall bushy hedge which has maximum wildlife potential. Ideally cut in January and February, after most of the berries have been eaten by birds.
- To trim the hedge, it is best to use reciprocating bar cutters which slice through branches. These leave a neater cut, which has a better chance of healing without infection, than hedges cut by a mechanical flail, which damage branches.
- An attenuation pond should be created in the south of the site. When wet, the feature will provide a water source for amphibians, badgers and birds, and the planting of a wet grassland/pond edge seed mix (such as Emorsgate EP1) will increase the species diversity and encourage invertebrate species.

6.0 REFERENCES

Collins, J. (2016). *Bat Surveys for Professionals Ecologists: Good Practice Guidelines (3rd Edition)*. The Bat Conservation Trust, London.

Department for Communities and Local Government (2005). *Circular 06/2005: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System*.

Department for Communities and Local Government (2012). *National Planning Policy Framework*.

Dorset Environmental Records Centre (2016) *Data search*.

Bright P, Morris P and Mitchell-Jones T (2006) *The dormouse conservation handbook* 2nd ed, English Nature. Peterborough

Joint Nature Conservation Committee (2010). *Handbook for Phase I Habitat Survey*. JNCC.

Multi-Agency Geographical Information for the Countryside (MAGIC) Website at www.magic.gov.uk

North Dorset District Council (2016) *North Dorset local plan part 1 (LP1)*.

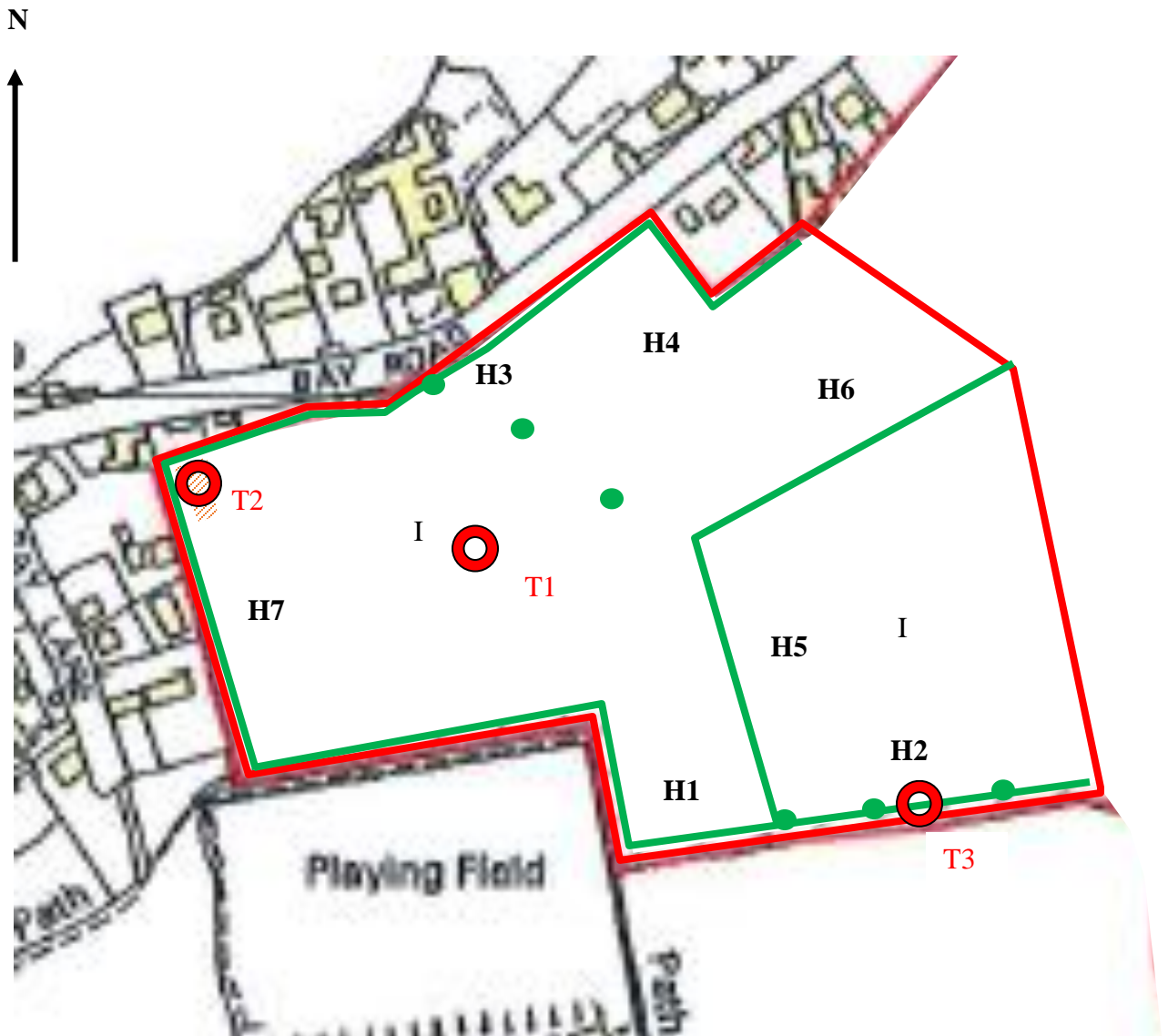
Oldham, R.S., Brady, L.D., Sewell, D.L. & Baker J.M.R. (2008). *ARG UK Advice Note 4: Great Crested Newt Habitat Suitability Index*. Amphibian and Reptile Groups of the United Kingdom.

Oldham, R.S., Keeble, J., Swan, M.J.S. & Jeffcote, M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10 (4), 143-155






APPENDIX I: Location map



APPENDIX II: Phase 1 habitat map



Phase 1 habitat key

	Improved grassland
	Tall ruderal
	Scattered trees
	Hedgerow
	Site boundary

Target notes to accompany Phase 1 Habitat map

Target note	Description
T1	Improved grassland is present throughout the site in the form of pastures. The improved grassland is long-sward in nature and is dominated by perennial rye-grass (<i>Lolium perenne</i>) with frequent Yorkshire-fog (<i>Holcus lanatus</i>), ribwort plantain (<i>Plantago lanceolata</i>) and cock's-foot (<i>Dactylis glomerata</i>) and occasional timothy (<i>Phleum pratense</i>), red fescue (<i>Festuca rubra</i>), barley sp. (<i>Hordeum sp.</i>), common mouse-ear (<i>Cerastium fontanum</i>), creeping buttercup (<i>Ranunculus repens</i>), dandelion (<i>Taraxacum agg.</i>) and red clover (<i>Trifolium pratense</i>).
T2	Areas of tall ruderal vegetation are present throughout the site and species recorded within these areas include dominant common nettle (<i>Urtica dioica</i>) and rare bramble (<i>Rubus fruticosus agg.</i>), creeping thistle (<i>Cirsium arvense</i>), blackthorn (<i>Prunus spinosa</i>) and willowherb sp.
T3	A number of scattered oak (<i>Quercus robur</i>) trees are present within the site within the hedgerows.

APPENDIX III: Hedgerow Regulations assessment recording form

Hedgerow survey

Project: _____ Date: _____
 Surveyor: _____ Site address: _____
 Hedge number: _____ Important or not Important: _____

Field Study:

Side Surveyed - Both Y/N

Side A	N	E	S	W
Side B	N	E	S	W

Hedge Length :

Number of standard trees (20cm diam. at 1.3m for single stemmed, 15cm diam. for multi stemmed):

Tally of standard trees	
-------------------------	--

Is there a bank or wall which supports the hedgerow along at least one half of its length?

Yes	No	
-----	----	--

Do any gaps present comprise less than 10% of the hedgerow?

Yes	No	
-----	----	--

Is there at least one standard tree per 50m of hedge?

Yes	No	
-----	----	--

Is there a ditch along at least one half of the length of the hedgerow?

Yes	No	
-----	----	--

Is a parallel hedge present within 15m?

Yes	No	
-----	----	--

Are there three or more woodland species?

Yes	No	
-----	----	--

Are there connections scoring at least 4 points in total? :

Yes	No	
-----	----	--

Connections to be scored as follows:

- Connections with another hedgerow score 1 point each
- Connections with a pond or woodland in which the majority of trees is broad-leaved scores 2 points – the woodland needs to be approximately 50m x 50m at least.
- A hedgerow is considered 'connected' not only if it meets it another hedgerow but also if it has a point within 10 metres of it and would meet it if the line of the hedgerow continued.

Total number of additional features =

Is the hedge either adjacent to bridleway or footway, a road used as a public footpath or a byway open to traffic?

Yes	No	
-----	----	--

For all woody species, undertake woody species counts as follows:

- For hedges up to 30m long, count total number of woody species and tick off the species in column 1.
- For hedges over 30m but not exceeding 100m long, count the number of woody species in the central 30m stretch of the hedge and the tick species off in column 1.
- For hedges over 100m but not exceeding 200m long, do two woody species counts: one in the central 30m stretch of each half of the hedge, tick the species off in columns 1 and 2, and calculate the mean count (i.e. divide the total count by two).
- For hedges exceeding 200m in length, do 3 woody species counts: one in the central 30m stretch of each third of the hedge, tick the species off in columns 1,2 and 3 and calculate the mean count (i.e. divide the total count by three).
- In addition, ring all woody species recorded in the hedge for a total species list.

Persimmon Homes

Ecological appraisal and phase 2 survey, Land at Bay Road, Gillingham, Dorset

Woody species in hedgerow:

Species		Section			Species		Section			Species		Section		
Common	Latin	1	2	3	Common	Latin	1	2	3	Common	Latin	1	2	3
Alder	<i>Alnus glutinosa</i>				Gorse	<i>Ulex europaeus</i>				Sea buckthorn	<i>Hippophae rhamnoides</i>			
Alder buckthorn	<i>Frangula alnus</i>				Grey willow	<i>Salix cinerea</i>				Service-tree	<i>Sorbus domestica</i>			
Almond willow	<i>Salix triandra</i>				Guelder rose	<i>Viburnum opulus</i>				Sessile oak	<i>Quercus petraea</i>			
Apple	<i>Malus domestica</i>				Hairy birch	<i>Betula pubescens</i>				Sherard's downy rose	<i>Rosa sherardii</i>			
Ash	<i>Fraxinus excelsior</i>				Hairy dog rose	<i>Rosa caesia</i>				Short-styled field rose	<i>Rosa stylosa</i>			
Aspen	<i>Populus tremula</i>				Harsh downy rose	<i>Rosa tomentosa</i>				Silver birch	<i>Betula pendula</i>			
Barberry	<i>Berberis vulgaris</i>				Hawthorn	<i>Crataegus monogyna</i>				Small-flowered sweet briar	<i>Rosa micrantha</i>			
Bay willow	<i>Salix pentandra</i>				Hazel	<i>Corylus avellana</i>				Small leaved lime	<i>Tilia cordata</i>			
Beech	<i>Fagus sylvatica</i>				Holly	<i>Ilex aquifolium</i>				Small-leaved sweet briar	<i>Rosa agrestis</i>			
Black poplar	<i>Populus nigra ssp betulifolia</i>				Hornbeam	<i>Carpinus betulus</i>				Smooth-leaved elm	<i>Ulmus minor</i>			
Box	<i>Buxus sempervirens</i>				Huntingdon elm	<i>Ulmus x vegeta</i>				Soft downy rose	<i>Rosa mollis agg.</i>			
Broadleaved whitebeam	<i>Sorbus latifolia agg</i>				Juniper	<i>Juniperus communis</i>				Sour cherry	<i>Prunus cerasus</i>			
Broom	<i>Cytisus scoparius</i>				Large-leaved lime	<i>Tilia platyphyllos</i>				Spindle	<i>Euonymus europaeus</i>			
Butcher's broom	<i>Ruscus aculeatus</i>				Medlar	<i>Mespilus germanica</i>				Spurge laurel	<i>Daphne laureola</i>			
Crab apple	<i>Malus sylvestris</i>				Mezereon	<i>Daphne mezereum</i>				Swedish whitebeam	<i>Sorbus intermedia agg</i>			
Common lime	<i>Tilia x europea</i>				Midland hawthorn	<i>Crataegus laevigata</i>				Sweet briar	<i>Rosa rubiginosa</i>			
Common osier	<i>Salix viminalis</i>				Mountain currant	<i>Ribes alpinum</i>				Sweet chestnut	<i>Castanea sativa</i>			
Crack willow	<i>Salix fragilis</i>				Pear	<i>Pyrus pyraeaster</i>				Tea-leaved willow	<i>Salix phylicifolia</i>			
Dark-leaved willow	<i>Salix myrsinifolia</i>				Pedunculate oak	<i>Quercus robur</i>				Wayfaring tree	<i>Viburnum lantana</i>			
Dogwood	<i>Cornus sanguinea</i>				Plot's elm	<i>Ulmus plotii</i>				Western gorse	<i>Ulex gallii</i>			
Dog rose	<i>Rosa canina agg.</i>				Plum	<i>Prunus domestica</i>				Wild cherry	<i>Prunus avium</i>			
Dutch elm	<i>Ulmus x hollandica</i>				Plymouth pear	<i>Pyrus cordata</i>				Wild service tree	<i>Sorbus torminalis</i>			
Dwarf gorse	<i>Ulex minor</i>				Privet	<i>Ligustrum vulgare</i>				Whitebeam	<i>Sorbus aria agg</i>			
Eared sallow	<i>Salix aurita</i>				Purging buckthorn	<i>Rhamnus cathartica</i>				Whitebeam & Rowan hybrid	<i>Sorbus x thuringiaca</i>			
Elder	<i>Sambucus nigra</i>				Purple osier	<i>Salix purpurea</i>				White willow	<i>Salix alba</i>			
English elm	<i>Ulmus procera</i>				Raspberry	<i>Rubus idaeus</i>				Willow sp.	<i>Salix sp.</i>			
Erect-spiked red-currant	<i>Ribes spicatum</i>				Red currant	<i>Ribes rubrum</i>				Wych elm	<i>Ulmus glabra</i>			
Field maple	<i>Acer campestre</i>				Round-leaved dog rose	<i>Rosa obtusifolia</i>				Yew	<i>Taxus baccata</i>			
Field rose	<i>Rosa arvensis</i>				Rowan	<i>Sorbus aucuparia</i>								
Goat willow	<i>Salix caprea</i>				Scot's pine	<i>Pinus sylvestris</i>								

Persimmon Homes
 Ecological appraisal and phase 2 survey, Land at Bay Road, Gillingham, Dorset

Desk Based Study:

Is the hedge known to any of the following categories of species?

Yes / No

- Those listed in Part 1 of Schedule 1 (birds protected by special penalties) of the Wildlife and Countryside Act 1981
- Those listed in Schedule 5 (animals which are protected) of the Wildlife and Countryside Act 1981
- Those listed in schedule 8 (plants which are protected) of the Wildlife and Countryside Act 1981
- Categorised as a declining breeder (category 3) in 'Red Data Birds in Britain'
- Categorised as 'endangered', 'extinct', 'rare' or 'vulnerable' in one of the Red data books (see regulations for details)

If yes state which:

Evaluation:

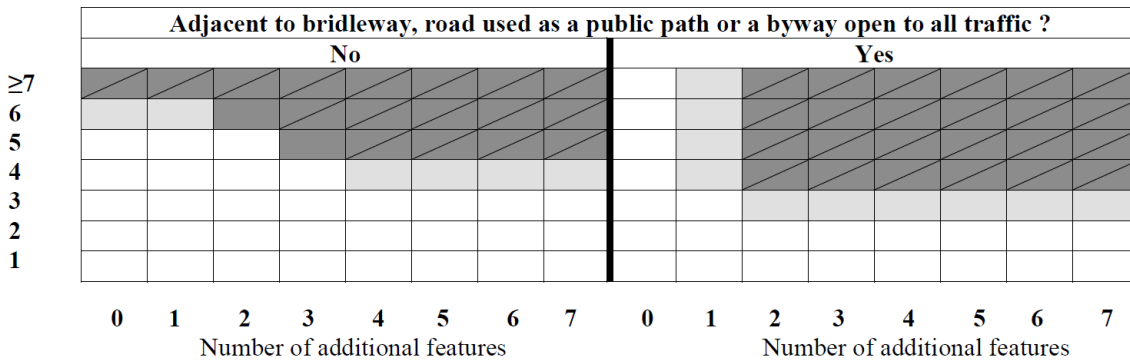


Table for identifying 'important' hedges not qualifying on the basis of the species listed in the 'desk based study' section above. Hedges falling within dark shaded and crossed boxes are important. Those falling within other shaded boxes would qualify as important if the number of additional features or woody species count were to increase by one. They are therefore considered to be borderline (in such cases there is a reasonable likelihood that a different surveyor or survey at a different season would result in the hedge being judged important).

The Y axis = the number of woody species. The X axis = number of additional features

Map / Notes:

Total Number of woodland species:

APPENDIX IV: Transect route



APPENDIX V: Transect results*Dusk transect- 13th April 2017*

BAT DETECTOR / EMERGENCE & ACTIVITY SURVEY					
SURVEY LOCATION:	Bay Road, Gillingham	SURVEYORS:	Sophie Smith and Sarah Richardson	DATE:	13/4/17
TEMP AT START:	11°C	SUNSET:	19:50	START TIME:	19:47
TEMP AT END:	9°C	CLOUD COVER (oktas):	2/8	END TIME:	21:47
WIND (bft):	2/12	RAINFALL:	0	WEATHER:	Sunny, cool, breezy
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
19:51	A				
20:02	B				
20:09	C				
20:20	D				
20:32	D-E	Common Pipistrelle	1	Heard not seen	
20:33	E				
20:33	E 7	Common Pipistrelle	1	Flew east behind barn	
20:33	E	Common Pipistrelle	1	Heard not seen – feeding buzz	
20:35	E	Common Pipistrelle	1	Heard not seen	
20:36	E 8	Common Pipistrelle	1	Flew around front of barn	
20:37	E	Soprano Pipistrelle	1	Heard not seen	
20:38	E	Soprano Pipistrelle	1	Heard not seen	

20:40	E-F	Common Pipistrelle	1	Heard not seen – feeding buzz
20:41	F			
20:48	G			
20:56	A			
21:05	B			
21:13	C			
21:23	D			
21:31	D-E	Common Pipistrelle	1	Heard not seen
21:39	F			
21:47	G			

Dusk transect - 17th May 2017

BAT DETECTOR / EMERGENCE & ACTIVITY SURVEY					
SURVEY LOCATION:	Bay Road, Gillingham	SURVEYORS:	Andrew Heideman and George Vann	DATE:	17/05/17
TEMP AT START:	10°C	SUNSET:	20:55	START TIME:	20:55
TEMP AT END:	10°C	CLOUD COVER (oktas):	8/8	END TIME:	22:55
WIND (bft):	3/12	RAINFALL:	None, some drizzle before survey	WEATHER:	Overcast, cool, breezy. Heavy rain earlier in the day.
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
21:30	Between C & D (1)	Soprano pipistrelle	1	Heard not seen foraging/commuting	

21:36 – 21:41	D	Common pipistrelle	1	Heard not seen foraging/commuting, 4 passes
21:51 – 21:54	E	Common pipistrelle	1	Heard not seen foraging around the farmyard
21:59	Between E & F (2)	Common pipistrelle	1	Heard not seen foraging/commuting
22:25	Between A & B (3)	<i>Myotis</i> species	1	Heard not seen foraging/commuting (1 pass, very brief call)
22:33	B (4)	Common pipistrelle	1	foraging/commuting

Dusk transect -15th June 2017

BAT DETECTOR / EMERGENCE & ACTIVITY SURVEY					
SURVEY LOCATION:	Bay Road, Gillingham	SURVEYORS:	William Davis, Irena Kania- Surowiec	DATE:	15.06.17
TEMP AT START:	17°C	SUNSET:	21.23	START TIME:	21.23
TEMP AT END:	9°C	CLOUD COVER (oktas):	8/8	END TIME:	21:47
WIND (bft):	1	RAINFALL:	0	WEATHER:	
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
21:28	A				
21:37	B				
21:44	C				
21:57	D				
22:09	E				
22:15	F				
22:24	F-G	Common pipistrelle	1	Heard not seen	

22:27	G			
22:34	A			
22:36	A	Common pipistrelle	1	Heard not seen- Faint
22:39	A	Common pipistrelle	1	Heard not seen- Faint
22:43	B			
22:45	B	Common pipistrelle	1	Heard not seen
22:46	B	Whiskered/ Brandts	1	Heard not seen
22:50	B-C, 1 on map	Soprano pipistrelle	1	Heard not seen
22:53	C			
23:03	D			
23:07	Near D, 2 on map	Common pipistrelle	1	Heard not seen
23:13	E			
23:19	Near F, 3 on map	Common pipistrelle	1	Foraging around the street light in adjacent road
23:21	F			
23:22	G	Common pipistrelle	1	Heard not seen – Irregular passes
23:28	G			
23:29	G	Natterers	1	

Dusk transect – 13th July 2017

BAT DETECTOR / EMERGENCE & ACTIVITY SURVEY					
SURVEY LOCATION:	Bay Road, Gillingham	SURVEYORS:	Sarah Richardson and Emily Richmond	DATE:	13/07/17
TEMP AT START:	16 °C	SUNSET:	21:20	START TIME:	21:20
TEMP AT END:	14 °C	CLOUD COVER (oktas):	5/8	END TIME:	23:20

WIND (bft):	1/12	RAINFALL:	Nil	WEATHER:	Calm and fairly overcast
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
21:20	A				
21:32	B				
21:39	C				
21:48	D				
21:56	D-E	Noctule	1	Heard not seen	
22:01	D-E	Noctule	1	Foraging then commuted north	
22:05	E				
22:13	F				
22:20	F-G	Common pipistrelle	1	Commuting north	
22:23	G				
22:24	G	Common pipistrelle	1	Commuting north along western hedge	
22:30	A				
22:30	A	Common pipistrelle	1	Heard not seen	
22:31	A	Common pipistrelle	1	Heard not seen	
22:36	A-B	Soprano pipistrelle	1	Heard not seen	
22:40	B				
22:41	B	Common pipistrelle	1	Heard not seen	
22:43	B	Common pipistrelle	1	Foraging along eastern hedgerow	
22:45	B	Common pipistrelle	2	Heard not seen	
22:48	C				
22:50	C	Common pipistrelle	1	Heard not seen	
22:56	D				
22:56-58	D	Common pipistrelle	1	Foraging around the oak tree	
23:10	E				

23:17	F			
23:18	F	Common pipistrelle	1	Heard not seen

Dawn transect -14th July 2017

BAT DETECTOR / EMERGENCE & ACTIVITY SURVEY					
SURVEY LOCATION:	Bay Road, Gillingham	SURVEYORS:	Sarah Richardson and Emily Richmond	DATE:	14/07/17
TEMP AT START:	13 °C	SUNRISE:	5:10	START TIME:	3:15
TEMP AT END:	12 °C	CLOUD COVER (oktas):	1/8	END TIME:	5:10
WIND (bft):	0/12	RAINFALL:	Nil	WEATHER:	Calm and clear
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
3:15	A				
3:16	A	Whiskered bat	1	Heard not seen	
3:24	B				
3:26	B	Common pipistrelle	1	Heard not seen	
3:32	C				
3:33	C	Common pipistrelle	1	Heard not seen	
3:42	D				
3:42	D	Long eared bat	1	Heard not seen	
3:46	D	Bechstein's bat	1	Heard not seen	
3:56	E				

4:01	E			
4:05	F			
4:08	F	Common pipistrelle		Heard not seen
4:11	F-G	Soprano pipistrelle		Heard not seen
4:14	G			
4:23	A			
4:34	B			
4:45	C			
4:54	E			
5:01	F			

Dusk transect – 16th August 2017

BAT DETECTOR / EMERGENCE & ACTIVITY SURVEY					
SURVEY LOCATION:	Bay Road, Gillingham	SURVEYORS:	Irena Kania-Surowiec and Fenja Squirrell	DATE:	16.8.17
TEMP AT START:	17°C	SUNSET:	20:29	START TIME:	20:29
TEMP AT END:	15°C	CLOUD COVER (oktas):	8/8	END TIME:	22:30
WIND (bft):	1/12	RAINFALL:	Rained on and off throughout, one heavy shower but bats throughout survey	WEATHER:	Cloudy, damp, slight breeze

TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.
20:31	A			
20:38	B			
20:46	C			
20:56	D	Soprano pipistrelle	1	Foraging around oak where static is
21:01	D	Common pipistrelle	1	wast to west and back along hedgerow, ongoing foraging
21:03	D	Common pipistrelle	2	Foraging along hedgerow east to west back and forth.
21:04	D	Soprano pipistrelle	1	East to west foraging along hedgerow
21:10	E	Rain		
21:13-21:14	E	Common pipistrelle	1	Heard not seen
21:16	F			
21:16-21:17	F	Common pipistrelle	1	Heard not seen
21:25-21:30	G	Common pipistrelle	1	Heard not seen
21:32-21:33	A	Soprano pipistrelle	1	Heard not seen
21:38-21:40	Near point A	Common pipistrelle	1-2	Heard not seen. Foraging and social calls
21:40		Common pipistrelle and soprano pipistrelle	2	Heard not seen
21:42	B			
21:44	B	Common pipistrelle	1	Heard not seen
21:48	C			
21:57	D	<i>Myotis</i> species- Whiskered/Brandt's	1	Heard not seen
21:59	D	Noctule	1	Heard not seen

22:00	D	Soprano pipistrelle	1	Heard not seen
22:10	E			
22:16	F			
22:17	F	Common pipistrelle	1	Heard not seen
22:21	Near point F	Common pipistrelle	1	Heard not seen
22:24		Common pipistrelle	1	Heard not seen
22:29	G			

Dusk transect- 14th September 2017

BAT DETECTOR / EMERGENCE & ACTIVITY SURVEY					
SURVEY LOCATION:	Bay Road, Gillingham	SURVEYORS:	Andrew Heideman and Aimee Cokayne	DATE:	14/9/17
TEMP AT START:	12°C	SUNSET:	19:26	START TIME:	19:26
TEMP AT END:	10°C	CLOUD COVER (oktas):	2/8	END TIME:	21:30
WIND (bft):	2/12	RAINFALL:	Drizzle at 20:18 - 20:50	WEATHER:	Cloudy, damp, slight breeze
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
19:28	A				
19:36	B				
19:49	C				
19:59	D	Common pipistrelle	1	Heard not seen	
20:00 - 20:02	D	Common pipistrelle	1	Heard not seen foraging	
20:04	D	Common pipistrelle	1	Heard not seen foraging and feeding buzzes	

20:05	D	Common pipistrelle	1	Heard not seen foraging and feeding buzzes
20:17	E	Common pipistrelle	1	Heard not seen
20:26	E-F	Common pipistrelle	1	Heard not seen
20:27	E-F	Common pipistrelle		Heard not seen
20:28	E-F	Common pipistrelle	1	Foraging up and down northern hedgerow
20:30	F	Common pipistrelle	1	Seen foraging for moths overhead, feeding buzzes
20:31	F	Common pipistrelle	1	Heard not seen foraging
20:32	F	Common pipistrelle	1	Heard not seen foraging
20:33	F	Common pipistrelle	1	Heard not seen foraging
20:34	F			Heard not seen
20:36-20:37	F-G	Common pipistrelle	1	Flying around street lamp
20:39-20:44	G			
20:44	G	Whiskered/Brandt's	1	Heard not seen
20:47	G-A	Common pipistrelle	1	Heard not seen
20:49	A			
20:52	A	Leisler's		Heard not seen
20:53	A	Common pipistrelle		Heard not seen
20:58	A-B	Whiskered/Brandt's	1	Heard not seen
21:00	B	Common pipistrelle	1	Heard not seen
21:06	B-C	Serotine	1	Heard not seen
21:10	C			
21:22	D			

Dusk transect – 11th October 2017

BAT DETECTOR / EMERGENCE & ACTIVITY SURVEY					
SURVEY LOCATION :	BAYROAD Gillingham	SURVEYORS:	Irena Kania- Surowiec, George Vann	DATE:	12.10.1 7

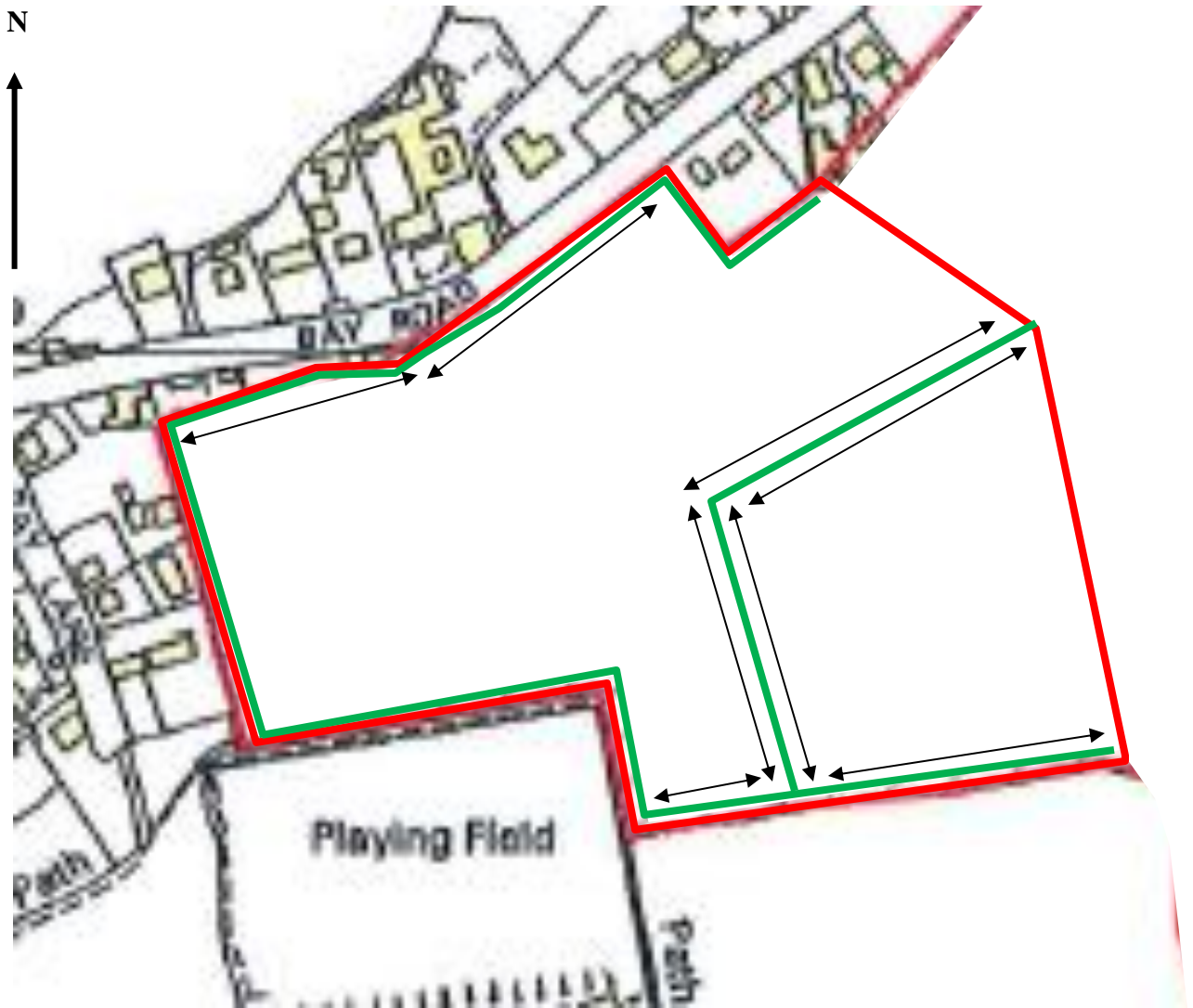
TEMP AT START:	14°C	SUNSET:	18:24	START TIME:	18:24
TEMP AT END:	13°C	CLOUD COVER (oktas):	1/8	END TIME:	20:24
WIND (bft):	0/12	RAINFALL:	nil	WEATHER:	Still, clear
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
18:24-18:29	A				
18:31-18:36	B				
18:38-18:43	C				
18:50-18:56	D				
19:02-19:07	E				
19:12-19:18	F				
19:20-19:25	G				
19:27-19:32	A				
19:27	A	Noctule	1	Foraging. Heard not seen	
19:28	A	Common pipistrelle	1	Social call. Heard not seen	
19:32	A	Common pipistrelle	1	Heard not seen	
19:35	A	Common pipistrelle	1	Heard not seen	
19:38-19:43	B				
19:40	B	Noctule	1	Foraging. Heard not seen	
19:44-19:50	C				
19:55	D				
20:01	D-E	Common pipistrelle	1	Foraging. Heard not seen	

Persimmon Homes

Ecological appraisal and phase 2 survey, Land at Bay Road, Gillingham, Dorset

20:07- 20:12	E			
20:15- 20:20	E			
20:18	F	Common pipistrelle	1	Foraging under street lamp

APPENDIX VII: Dormouse tube locations



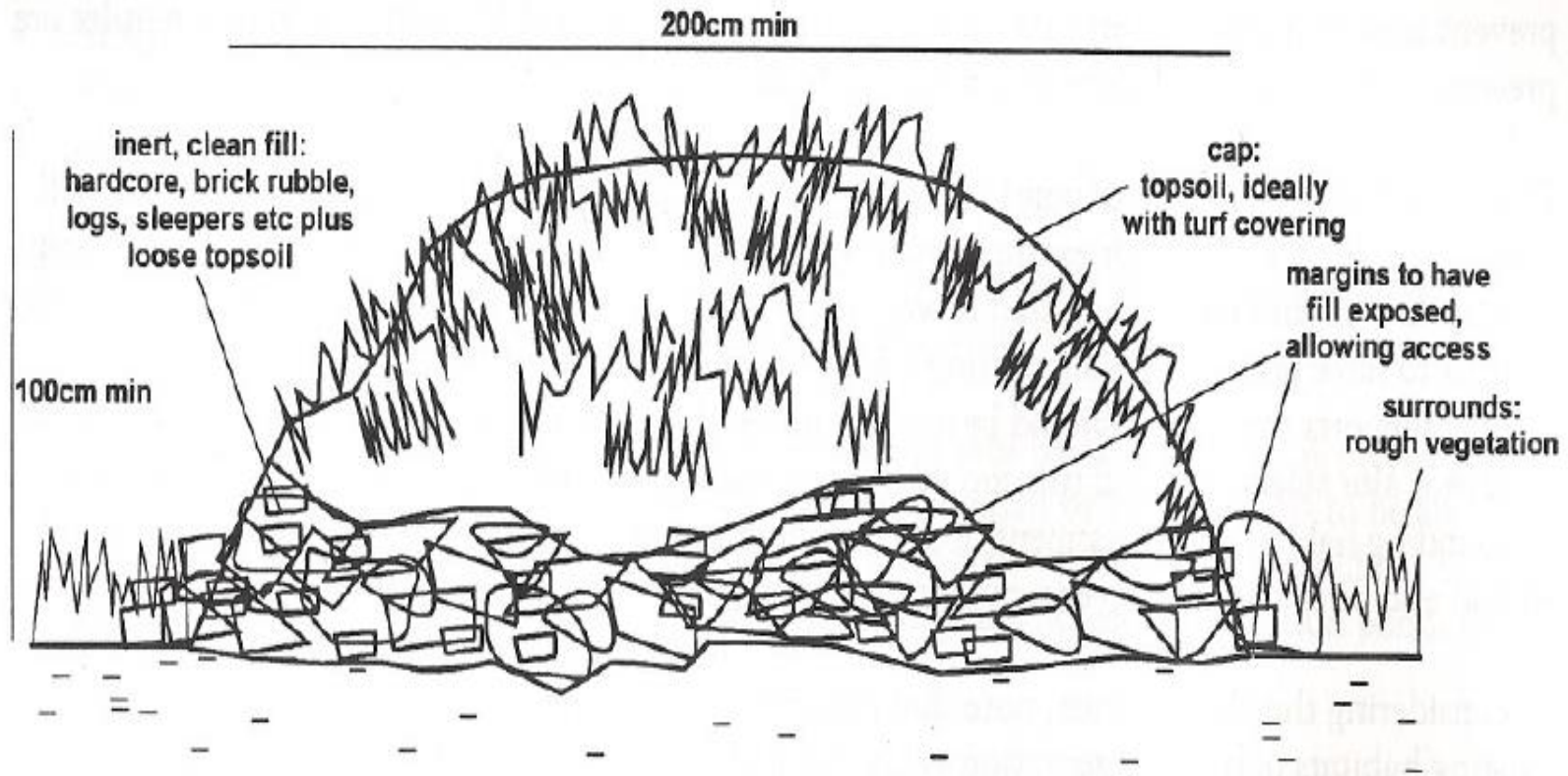
APPENDIX IX: Reptile mat locations



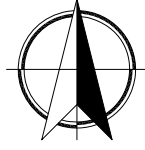
APPENDIX X: Site proposals and ecological enhancements



Reptile hibernacula design



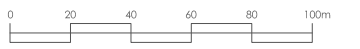
NORTH



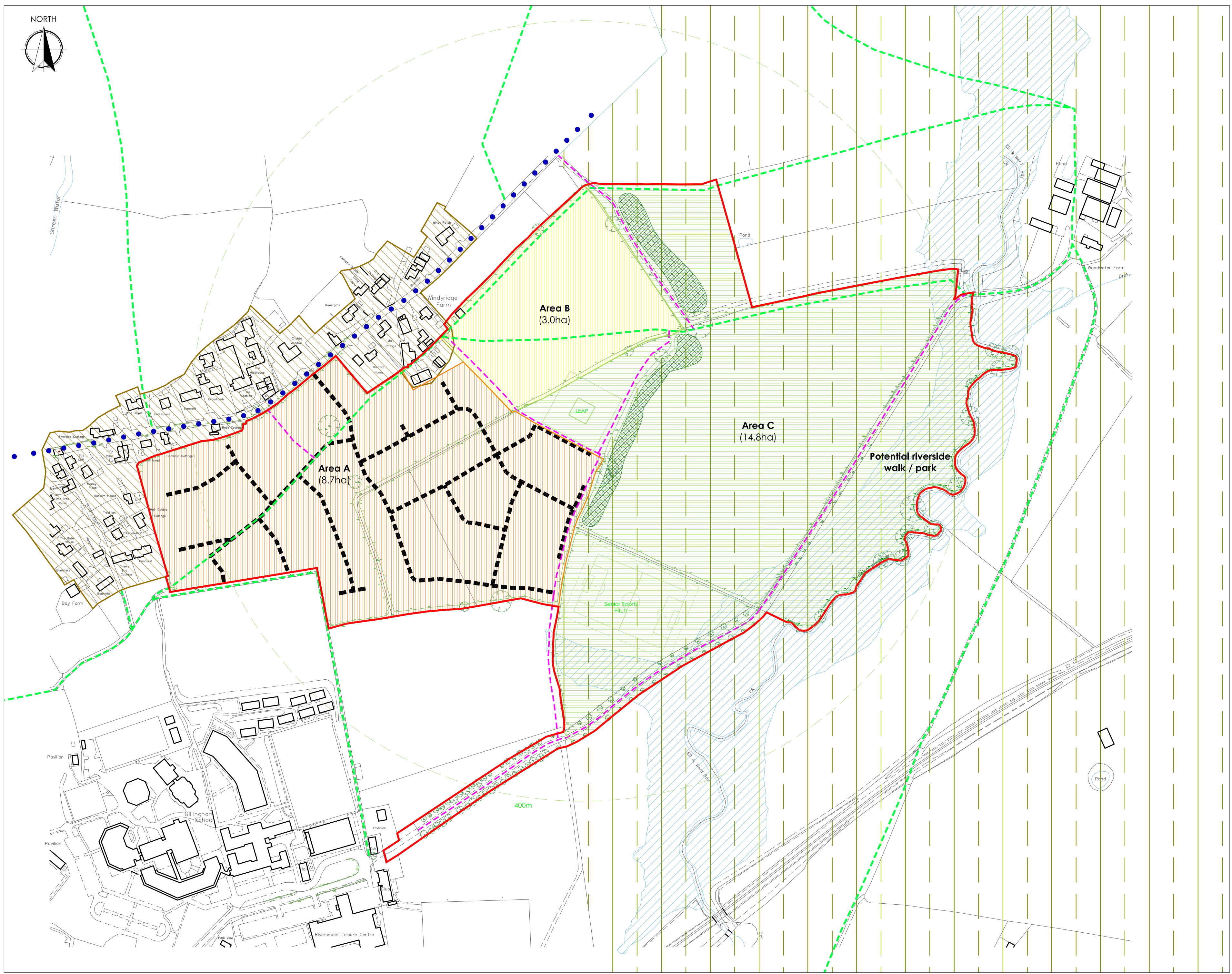
LAND SOUTH OF BAY LANE, GILLINGHAM, DORSET

Opportunities and Constraints plan
OPTION C

Date: 16.01.18 Scale: 1:2500@A2 Drawing ref: 1217.02C



- KEY**
- Site boundary
 - Existing planting
 - Public Right of Way
 - Floodplain
 - Gillingham Royal Forest Policy Area
 - Local Character Policy Area
 - North Dorset Strategic Cycle Route
 - Potential vehicle access
 - Potential new pedestrian / cycle links
 - Potential strategic planting
 - Potential Phase 1 housing area
 - Potential Phase 2 housing area
 - Green Infrastructure including landscape buffers, public open space, landscape planting and SuDS



Ordnance Survey (© Crown Copyright) 2013. All rights reserved. Licence number 100020449
This drawing is for planning purposes only.
Copyright of richards urban design ltd.

