



ECOLOGICAL IMPACT ASSESSMENT (ECIA)

REAR OF STARWOOD

PEAR TREE LANE, SHORNE

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Reference	Ref: 0920_R02_EcIA
Report status	Information
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1st issue date	22nd April 2022
Revised	-
Revision issue	-

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1. SUMMARY

- S.1 This report details an Ecological Impact Assessment (EcIA) undertaken in respect of proposed development at Rear of Starwood, Pear Tree Lane, Shorne, DA12 3JU.
- S.2 Proposals include the demolition of buildings B2-8, the renovation of B1 to provide a residential dwelling and construction of a new garage building
- S.3 A PEA site visit was undertaken by Native Ecology on 1st March 2022.
- S.4 Habitats within the Site comprise grazed modified grassland with scattered trees, areas of hardstanding and eight buildings.
- S.5 The Site lies closely adjacent to Court Wood Local Wildlife Site and Starmore Wood Ancient Woodland. Mitigation to avoid accidental damage to these sites is provided in Section 10.
- S.6 Mitigation, without the requirement for further survey work, is recommended for roosting bats, foraging and commuting bats, badger, hedgehog and nesting birds (detailed within Section 10).
- S.7 Section 11 includes recommended appropriate biodiversity enhancement measures which will be included within development proposals.
- S.8 Appendix 1 gives an overview of relevant legislation, which should be read in conjunction with this report.
- S.9 Appendix 2 provides a summary of the suitability assessment for roosting habitat in buildings and trees
- S.10 A habitat plan is provided in Appendix 3.
- S.11 A plan of designated sites within 500m of the Site is provided in Appendix 4.
- S.12 A plan of waterbodies within 250m of the Site is provided in Appendix 5.

2. INTRODUCTION

- 2.1 This report details an Ecological Impact Assessment (EcIA) undertaken in respect of proposed development at Rear of Starwood, Pear Tree Lane, Shorne, DA12 3JU (site centred TQ 69799 70574).
- 2.2 Figure 1, Section 3 provides a site location plan.

COMMISSION

- 2.3 Native Ecology was commissioned by Terry Russell in February 2022 to undertake a Preliminary Ecological Appraisal within the site with subsequent survey work for great crested newt, resulting in an Ecological Impact Assessment.

APPLICATION SITE

- 2.4 The application site, hereafter referred to as 'the Site', comprises a grazed field with scattered trees and an access road and parking area. There are eight buildings/structures within the Site including a barn, container storage, stables and a mobile building. The Site extends to approximately 0.4ha.
- 2.5 Figure 2, Section 4 provides an existing site plan.

PROPOSED WORKS

- 2.6 Proposals include the demolition of buildings B2-8, the renovation of B1 to provide a residential dwelling and construction of a new garage building.
- 2.7 Figure 3, Section 5 provides a proposed block plan. The plan is indicative and may be subject to change.

PURPOSE OF REPORT

- 2.8 This report aims to provide general advice on ecological constraints associated with proposed development within the site and includes recommendations for mitigation and further survey work, where required.
- 2.9 The objectives of the report are to:
- Describe the baseline ecological conditions present within the Site;
 - Identify and describe all potentially significant ecological effects associated with the proposed development;
 - Provide appropriate mitigation, allowing significant ecological effects to be avoided or minimised, ensuring no net loss of biodiversity value within the Site;
 - Identify how mitigation measures will be secured;
 - Identify appropriate enhancement measures; and
 - Set out the requirements for post-construction monitoring (if required).

3. SITE LOCATION PLAN



Figure 1. Location of development site. Reproduced from OS Explorer 148 1:25,000 Ordnance Survey © Crown copyright and database rights [2015] (Site centred TQ 69799 70574).

4. EXISTING SITE PLAN

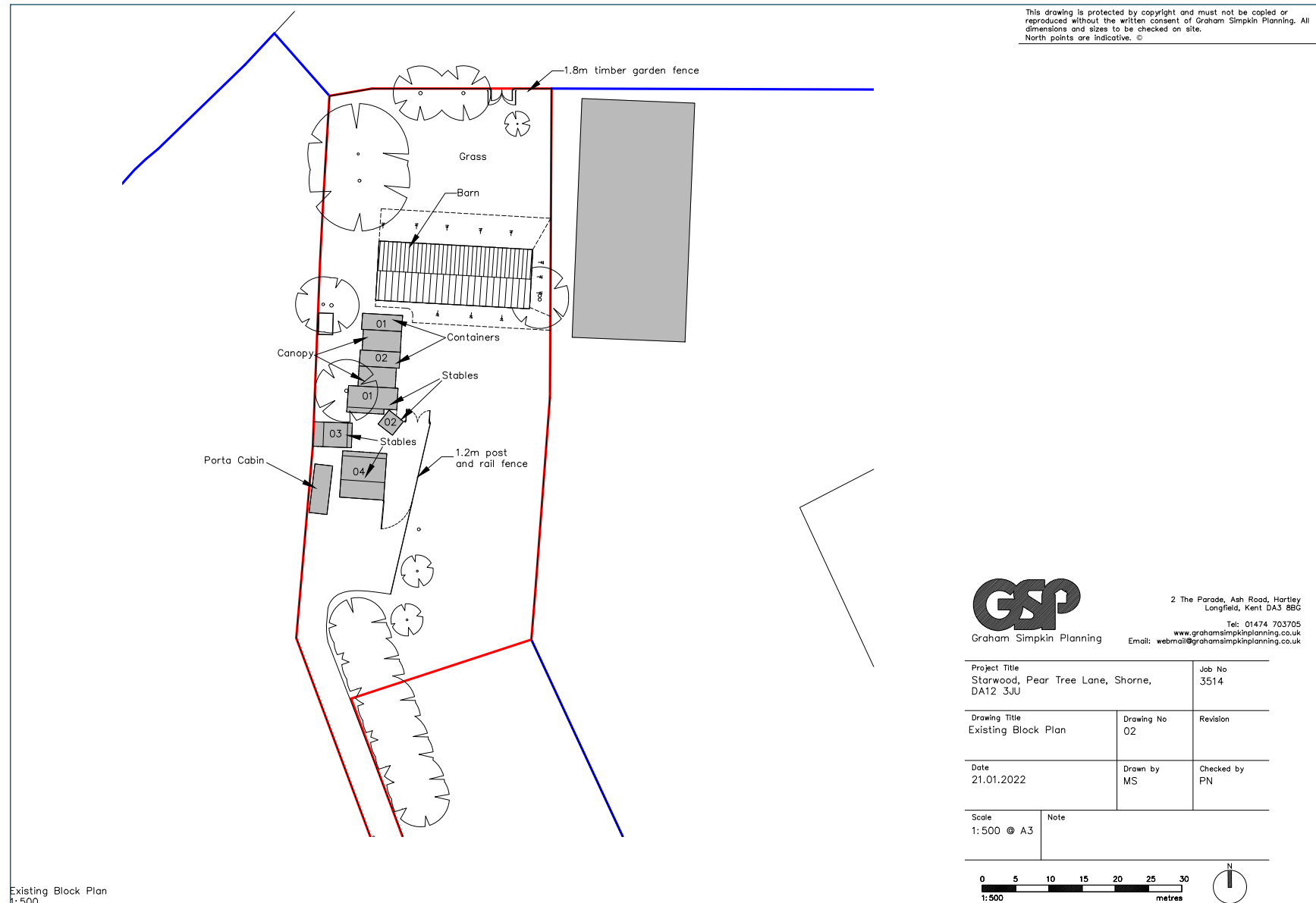


Figure 2. Existing site plan (Graham Simpkin Planning, Drawing No. 3514 02, dated January 2022).

5. PROPOSED SITE LAYOUT (INDICATIVE)

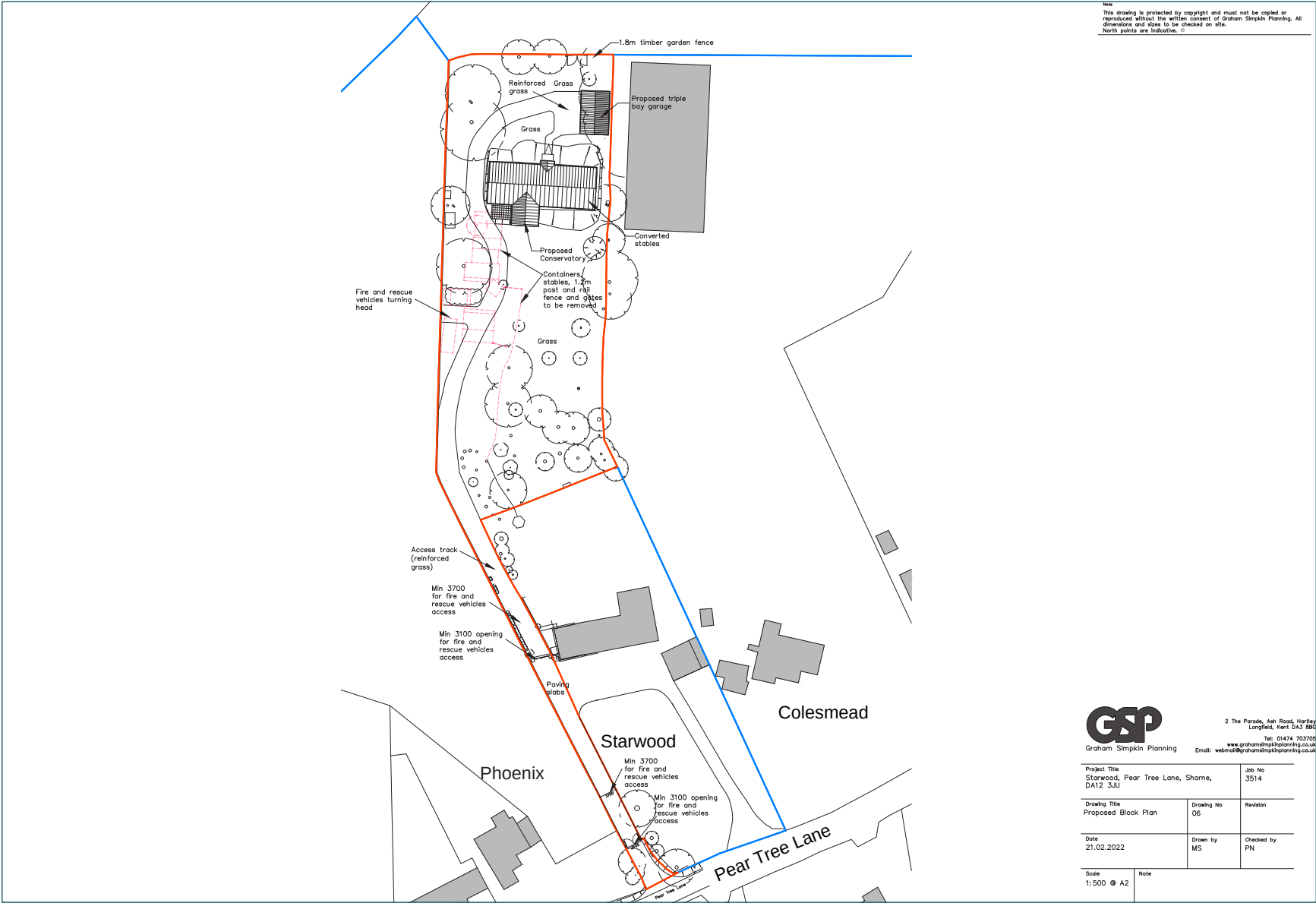


Figure 3. Proposed Block Plan. Plans are indicative and may be subject to change. (Graham Simpkin Planning, Drawing No. 3514 06, dated February2022).

6. METHODOLOGY

DESK STUDY

Zone of Influence

- 6.1 The 'zone of influence' for a project is the area over which ecological features may be subject to significant effects as a result of the proposed project and associated activities (CIEEM, 2017a).
- 6.2 This report provides an assessment of the effects of a proposed development on protected or ecologically valuable sites, habitats or species where these effects extend beyond the development boundary of the site.

Designated sites

- 6.3 Potential impacts to designated sites, including Natura sites and SSSIs, have been considered.
- 6.4 The Multi Agency Geographic Information for the Countryside (MAGIC) website was used to obtain information about statutory designated sites of international importance such as Special Protection Areas (SPA) within 7.2km of the Site.
- 6.5 Information was obtained about statutory designated sites of national importance such as Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR) within 2km of the Site and ancient woodland within 500m of the Site.
- 6.6 Kent Landscape Information System (KLIS) was used to identify Local Sites, such as Local Wildlife Sites (LWS), located within 1km of the Site.

Data search

- 6.7 Records were obtained from the Kent Reptile and Amphibian Group (KRAG) within 1km of the Site in March 2021.
- 6.8 Ordnance survey maps, the Multi Agency Geographic Information for the Countryside (MAGIC) website and aerial images were used to identify waterbodies within 250m of the Site boundary. MAGIC Map was also used to obtain information on locations where European Protected Species Mitigation (EPSM) Licences for great crested newt have been issued by Natural England within 1km of the Site.

PRELIMINARY ECOLOGICAL APPRAISAL

- 6.9 A Preliminary Ecological Appraisal site visit was undertaken by Calista Tardivel BSc MSc QCIEEM of Native Ecology on 1st March 2022.

Table 1. Survey details

Survey date	1st March 2022
Surveyor	Cali Tardivel BSc MSc QCIEEM
Time on site	13:00- 14:00
Weather	7°C, overcast, BF 0, mist, ground wet

UK Habitat Classification

- 6.10 Habitats within the Site were mapped and classified in accordance with the The Professional Edition of the UK Habitat Classification.
- 6.11 There are 5 levels of hierarchy, which provide an increasing level of detail. For the purpose of this assessment, habitats have been mapped for Primary Habitats up to Level 4.
- 6.12 Secondary codes have been assigned, where appropriate. These Secondary Codes allow recording of additional information, linked to the Primary Habitats. In some cases, habitat types are defined by a Secondary Code only, where Primary Habitats do not sufficiently represent the habitat present.

Protected species and habitats

- 6.13 During the survey the species and habitats identified within the Site were recorded. An assessment was also made as to the presence or potential presence of protected, important or Nationally Rare species.
- 6.14 Protected species and habitats considered include those listed under the Schedules of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and of the Wildlife and Countryside Act 1981.
- 6.15 In addition, an assessment has been made as to the possible impacts of the proposed development on nature conservation interests, in accordance with information relevant to the National Planning Policy Framework and Local Planning Policy.

Bats

Preliminary Roost Assessment (bats)

- 6.16 A systematic search of the exterior and interior of buildings within the site was undertaken to identify potential bat access points and roosting places and to locate any evidence of bats such as bat droppings, urine staining and fur-oil staining. The inspection included exterior features of the buildings, such as sills, window panes, walls and the ground beneath potential access points to look for signs of bats, such as droppings.
- 6.17 A preliminary ground level roost assessment of trees within the site was undertaken to determine whether trees possessed Potential Roost Features (PRFs) for bats. Where possible, trees were assessed as providing either negligible, low, moderate or high suitability for roosting bats.

- 6.18 The suitability of roosting habitat and foraging and commuting habitat within the site was assessed following recommendations provided within Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd edition, Bat Conservation Trust (Collins, 2016) (see Appendix 2 for suitability assessment and survey effort required for structures and trees).

Badger

- 6.19 During the site survey any badger field signs observed were recorded and mapped. These included; sett entrances, latrines, pathways, snuffle holes, footprints, and push-throughs.

Reptiles

- 6.20 The suitability of habitats within the Site to support reptiles was assessed during the Preliminary Ecological Appraisal site visit. Any incidental sightings were recorded.

Great crested newt

- 6.21 The level of survey effort and data collection required to support a Planning Application or European Protected Species Mitigation (EPSM) Licence for great crested newts is relative to the potential impact. For EPSM Licence applications, typically ponds within 250m of the construction zone are surveyed for the presence (and population assessment) of great crested newts.
- 6.22 Following the guidance of Natural England (2015) waterbodies located beyond 250m from the development are only surveyed if all of the following conditions are met:
- ponds have potential to support a large great crested newt population;
 - the development footprint contains particularly favourable habitat, especially if it constitutes the majority available locally;
 - the development would have a substantial negative effect on that habitat; and
 - there is an absence of dispersal barriers.
- 6.23 Based on the listed criteria above, a proportionate survey area for the Site includes the assessment of any ponds within 250m of the construction zone.

Habitats and Species of Principal Importance

- 6.24 An assessment was made as to the likely presence of Habitats and Species of Principal Importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 and birds on the Red and Amber lists of birds of conservation concern.

PROTECTED SPECIES SURVEYS

Great crested newt

Habitat Suitability Index (HSI) Assessment

- 6.25 A Habitat Suitability Index (HSI) assessment of waterbody 2 (WB2) for great crested newt was undertaken by Kari McSherry of Native Ecology on 14th April 2022.

- 6.26 The methods outlined by Oldham et al. (2000) and in the Amphibian and Reptile Groups (ARG) UK Advice Note 5 (2010) were used in the assessment.
- 6.27 The HSI assessment was used to provide an indication of the suitability of WB2 for great crested newts; thereby, providing an indication of the likelihood of great crested newts being present.
- 6.28 The HSI was undertaken to assess aquatic habitat quality and identify individual factors that influence great crested newt presence. The overall HSI score allows the waterbody to be placed into one of five categories which describe its suitability to support great crested newts, for example, a pond with a low HSI score (<0.5) typically provides low quality aquatic habitat, therefore great crested are unlikely to be present (Natural England, 2015).

Table 2. Categorisation of HSI scores (ARG UK, 2010)

HSI Score of waterbody	Categorisation / suitability
<0.5	Poor
0.5 - 0.59	Below average
0.6 - 0.69	Average
0.7 - 0.79	Good
>0.8	Excellent

LIMITATIONS

- 6.29 This report aims to provide general advice on ecological constraints associated with the development of the site, it does not include detailed information on particular species or species groups but instead makes recommendations for further, species-specific surveys required.
- 6.30 The PEA survey was conducted at a time of year where some breeding birds may not be present, and when some plant species may not be conspicuous.
- 6.31 In accordance with CIEEM guidance, consideration should be given to the validity of survey data after a period of 12 month from the date of the survey. This may require a site visit to assess whether ecological conditions within the site have changed and may require further ecological survey work due to the transient nature of some protected species.

7. CURRENT ECOLOGICAL CONDITIONS

DESIGNATED SITES

Statutory Sites of International Importance

- 7.1 There is one Ramsar one Special Area of Conservation (SAC) and one Special Protection Area (SPA) located within 7.2km of the Site.

Table 3. Details of Statutory Sites of International Importance within 7.2km of the site boundary.

Designation	Site name	Distance and direction from site	Qualifying features
Ramsar	Thames Estuary and Marshes	3.8km N	Qualifies under criterion 5 for supporting internationally important assemblages of waterfowl. Qualifies under criterion 6 for supporting internationally important numbers of breeding ringed plover (<i>Charadrius hiaticula</i>) and black-tailed godwit (<i>Limosa limosa islandica</i>) and over wintering grey plover (<i>Pluvialis squatarola</i>), red knot (<i>Calidris canutus islandica</i>), dunlin (<i>Calidris alpina alpina</i>) and common redshank (<i>Tringa totanus totanus</i>). (JNCC, 2000).
SAC	North Downs Woodlands	5.2km S	Qualifies under the Habitats Directive for supporting Annex I habitat that are a primary reason for selection of this site beech forests (<i>Asperulo-fagetum</i>) and English yew (<i>Taxus baccata</i>) woods of the British Isles. Qualifies under the Habitats Directive for supporting Annex I habitat present as a qualifying feature, but not a primary reason for selection of this site semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) -(important orchid site). (JNCC, 2015a)
SPA	Thames Estuary and Marshes	3.8km N	Article 4.1 of the Habitats Directive for supporting populations of European importance of over wintering hen harrier (<i>Circus cyaneus</i>) and breeding avocet (<i>Recurvirostra avosetta</i>). Article 4.2 of the Habitats Directive for supporting dunlin (<i>Calidris alpina alpina</i>), red knot (<i>Calidris canutus</i>), black-tailed godwit (<i>Limosa limosa islandica</i>), grey plover (<i>Pluvialis squatarola</i>) and redshank (<i>Tringa totanus</i>). The site regularly support on passage common ringed plover (<i>Charadrius hiaticula</i>). Article 4.2 of the Habitats Directive for supporting an internationally important assemblage of birds (JNCC, 2015b).

- 7.2 According to the Impact Risk Zones for Ramsar Sites, Special Areas of Protection (SPA), SACs and SSSIs shown on Natural England's MAGIC map application, the planning application type means there is no requirement for the Local Planning Authority to consult with Natural England during the planning process regarding statutory designated sites for residential developments fewer than 50 units.

7.3 The qualifying features associated with North Downs Woodland SAC and Thames Estuary and Marshes Ramsar and SPA are unlikely to be found within the Site. In addition, given the distance between the sites, it is unlikely that the proposed development will impact the designated sites either directly or indirectly.

7.4 No further survey work or mitigation is proposed for Statutory Sites of International Importance.

Statutory Sites of National Importance

7.5 There are three Sites of Special Scientific Interest (SSSI) located within 2km of the survey area.

Table 4. Details of Statutory Sites of National Importance within 2km of the site boundary.

Designation	Site name	Distance and direction from site	Qualifying features
SSSI	Great Crabbles Wood	0.1km SE	This site is representative of woods on North West Kent Tertiary sediments; these comprise a succession of strata over Upper Chalk ranging from Blackheath gravels to Woolwich loams and Thanet sands, which give rise to a range of soil types. Most of the woodland is mixed coppice under oak standards, with sweet chestnut as the dominant species. A number of scarce plants occur, including lady orchid (<i>Orchis purpurea</i>) and man orchid (<i>Aceras anthropophorum</i>) (Natural England, 1984a).
SSSI	Shorne and Ashenbank Woods	0.7km W	The site comprises a complex of ancient and plantation woodland, and include a variety of stand-types associated with Tertiary gravels, clays and sands. The site supports an important and diverse invertebrate fauna, especially its Coleoptera (beetles), Hemiptera (true bugs), and Odonata (dragonflies). Rare species include the beetles (<i>Mordella holomelaena</i>) and (<i>Peltodytes caesus</i>). The woodland breeding bird community includes hawfinch, marsh tit and all three British woodpeckers. Part of the site is owned and managed by the County Council as Shorne Country Park. Part is owned by the Woodland Trust (Natural England, 1988).
SSSI	Cobham Woods	1.6km S	This woodland and old parkland is representative of woods in North Kent which occur in part on acidic Thanet Sands and in part on chalk soils. One nationally rare plant species, rough marsh-mallow (<i>Althaea hirsuta</i>) occurs in the arable land close to the wood. An outstanding assemblage of plants is present at this site which is also of importance for its breeding birds (Natural England, 1984b).

7.6 The qualifying features of the SSSI sites at Great Crabbles Wood, Shorne and Ashenbank Woods or Cobham Woods are not present within the Site.

- 7.7 It is unlikely that the proposed development will impact the SSSI sites either directly or indirectly due to the small scale and nature of proposals.
- 7.8 No further survey work or mitigation is proposed for Statutory Sites of National Importance.

Non-statutory sites

Local Sites

- 7.9 There is one Local Wildlife Site (LWS) within 1km of the Site boundary:
- Court Wood lies approximately 15m N.

Ancient Woodland

- 7.10 There are four areas of Ancient Woodland within 500m of the Site boundary:
- Starmore Wood lies approximately 20m N
 - An un-named wood lies approximately 100m NE
 - Great Crabbles wood lies approximately 250 SE
 - Cole wood lies approximately 300m NE
- 7.11 Non-statutory sites are considered further in Section 9.

HABITATS WITHIN THE SITE

Habitats of Principal Importance

- 7.12 There are no Habitats of Principal Importance within the Site.

Other habitats

Buildings

- 7.13 There are 8 buildings present within the Site. Table 5 below provides photographs and building descriptions.

Table 5. Description of buildings within the Site.

Building no. & name	Description	Photograph
B1	An open concrete framed barn with a pitched felt roof.	

Building no. & name	Description	Photograph
B2 and B3	Metal storage containers	
B4	Wooden stable with a flat felt roof. The roof and upper portion of the walls are unlined. The lower section of the wall is lined internally with timber, with a large open cavity between the external and internal wall.	
B5	Wooden stable with a pitched felt roof. The roof and upper portion of the walls are unlined. The lower section of the wall is lined internally with timber, with a large open cavity between the external and internal wall.	
B6	Wooden stable with a brick base and pitched felt roof. The roof and upper portion of the walls are unlined. The lower section of the wall is lined internally with timber, with a large open cavity between the external and internal wall.	
B7	Brick building with a pitched felt roof. The roof and gable are unlined.	
B8	Mobile building.	

7.14 Table 6 below describes the habitats present within the Site in accordance with UK Habitat Classification.

Table 6. Habitat types present within the Site, including level (UKHab), size and description (continued overleaf).

HABITAT TYPE				DESCRIPTION
Level 2 label	Level 3 label	Level 4 label	Level 5 label / Secondary codes	
Grassland (g)	Modified grassland (g4)		Horse grazed (61) Scattered trees (11)	The majority of the Site comprises modified grassland which is grazed by horses. Species include perennial rye grass (<i>Lolium perenne</i>), daisy (<i>Bellis perennis</i>), creeping buttercup (<i>Ranunculus repens</i>), meadow thistle (<i>Cirsium dissectum</i>), green alkanet (<i>Pentaglottis sempervirens</i>), stinging nettle (<i>Urtica dioica</i>), cleavers (<i>Galium aparine</i>), germander speedwell (<i>Veronica chamaedrys</i>), ground ivy (<i>Glechoma hederacea</i>), groundsel (<i>Senecio vulgaris</i>), dogs mercury (<i>Mercurialis Perennis</i>) and bristly ox tongue (<i>Helminthotheca echiioides</i>). Scattered trees are present including oak (<i>Quercus sp.</i>), weeping willow (<i>Salix babylonica</i>), and leylandii (<i>Cupressus × leylandii</i>). A strip of modified grassland is also present along the driveway in the south of the Site.
Woodland and forest (w)	Broadleaved mixed and yew woodland (w1)	Lowland mixed deciduous woodland (w1f)	Line of trees (w1g6)	A leylandii and holly (<i>Ilex aquifolium</i>) tree line is present between the boundary of the driveway and the adjacent property, Starwood.
Urban (u)	Built-up areas and gardens (u1)	n/a	Introduced shrubs (1160)	A small area of ornamental planting is present on the eastern boundary of the driveway.
		Developed land; sealed surface (u1b)	Buildings (u1b5))	Buildings are described in Table 4.
			Other developed land (u1b6)	A driveway is present providing access between Pear Tree Lane and the Site.
		Artificial unvegetated, unsealed surface (u1c)	n/a	Areas of gravel hardstanding are present.

SURROUNDING HABITATS

7.15 The Site is situated in a rural area 1km SE of the village of Shorne and 5km NW of the town of Rochester.

7.16 Surrounding habitats comprise a mosaic of residential properties, woodland and pastoral farmland.

PROTECTED AND NOTABLE SPECIES

Bats - Roosting habitat

Buildings - Preliminary Roost Assessment

Table 7. Results of Preliminary Roost Assessment

Building	Potential roost features	Suitability for roosting bats
B1	No roost features were present on this large, open sided barn.	Negligible
B2+3	These metal storage containers are not suitable for roosting bats.	Negligible
B4-6	The majority of the stables are unlined, providing no voids, cracks or crevices suitable for roosting bats. The large cavity between the external wall and lower lining is open and exposed and unsuitable for roosting bats.	Negligible
B7	The brick stable building is unlined with a felt roof, providing no voids, cracks or crevices suitable for roosting bats.	Negligible
B8	The mobile building provides no cracks or crevices that could provide entry for roosting bats.	Negligible

7.17 No bats, or evidence of bats, was found during the internal inspection of the buildings. The buildings were found to provide negligible suitability for bats.

7.18 No further survey work or mitigation is required for roosting bats within the buildings.

Roosting bats - Trees

7.19 Table 8 below provides details of the ground level roost assessment for trees within the site.

Table 8. Results of ground level preliminary roost assessment of trees

Tree	Species	Potential roost features	Suitability for roosting bats
T1	Oak	A number of ramshorn features are present which could provide roosting opportunities for individual bats.	Low
T2	Sweet chestnut	The majority of this tree has been pruned away and only the main trunk remains. Areas of lifted bark could provide roosting opportunities for individual bats.	Low

Tree	Species	Potential roost features	Suitability for roosting bats
T3	Unknown	Standing dead tree with a number of small holes within the dead wood and lifted bark which could provide opportunities for individual bats.	Low
T4	Oak	A number of features including holes, lifted bark and ramshorns could provide opportunities for small groups of roosting bats but are unlikely to support a roost of high conservation status such as a maternity roost.	Moderate
T5	Weeping willow	A ramshorn feature is present which could provide roosting opportunities for individual bats.	Low

7.20 No bats, or evidence of bats was found during the PRA survey.

7.21 Roosting bats in trees are considered further in Section 9.

Foraging and commuting habitat

7.22 Habitats within the Site, including grazed modified grassland with scattered trees are assessed overall as providing moderate suitability for foraging and commuting bats.

7.23 Foraging and commuting bats are considered further in Section 9.

Hazel dormice

7.24 There is no habitat suitable for hazel dormice within, or in close proximity the site. No further survey work or mitigation is required for hazel dormice.

Otter

7.25 There is no habitat suitable for otter within, or in close proximity the site. No further survey work or mitigation is required for otter.

Badger

7.26 During the survey, no signs of badger were present within the Site and no badger setts were recorded within the accessible 30m of the Site boundary. Given its location within a rural area, badger may enter the Site on occasion whilst foraging.

7.27 Badger are considered further in Section 9.

Water vole

7.28 There is no habitat suitable for water vole within, or in close proximity to the site. No further survey work or mitigation is required for water vole.

Hedgehog

- 7.29 Habitats within the Site and surrounding area provide foraging opportunities for hedgehog, which may be present in the locality.
- 7.30 Hedgehog are considered further in Section 9.

Birds

- 7.31 Due to the habitats present, no Schedule 1 birds are expected to nest within the Site.
- 7.32 The trees within the Site provide suitable nesting habitat for a number of common bird species as well as red and amber listed birds such as song thrush (red) and wren (amber).
- 7.33 Evidence of nesting birds was also found within the stable buildings.
- 7.34 Birds are considered further in Section 9.

Reptiles

- 7.35 Data obtained from Krag include 1 record for grass snake, 0.92km SW of the Site in 2020. There are no further reptile records within 1km of the Site.
- 7.36 The short sward length, grazed modified grassland provides negligible suitability for reptiles.
- 7.37 Providing that the grassland is managed to maintain a short sward, no further survey work or mitigation is required for reptiles.

Great crested newt

- 7.38 Data obtained from Krag include one records of great crested newt within 1km of the Site, 0.64km NW of the Site in 2020.
- 7.39 Habitat within the Site, including grazed modified grassland with scattered trees, provides terrestrial habitat of low suitability for great crested newt.
- 7.40 There are no waterbodies within the Site. According to Krag pond records, OS maps, MAGIC map and aerial images there are four waterbodies within 250m of the Site:
- Waterbody 1 is a raised swimming pool in the adjacent property, Starwood. Waterbody 3 is a swimming pool located 50m S of the Site boundary. Waterbody 4 is a stream which runs through Starmore wood, 100m from the Site boundary. These waterbodies are unsuitable for great crested newts.
 - Waterbody 2 is a pond 80m W of the Site boundary. An HSI survey of this waterbody was carried out on the 14th April 2022.

- An additional waterbody (waterbody 5) is present just outside the 250m survey radius. A Habitat Suitability Assessment was carried out for this pond in May 2020 (Native Ecology, 2020). The pond was found to have a score of 0.72 and was therefore assessed to provide 'good' suitability for great crested newt. In isolation, given the distance of this pond, the low suitability of the site and the higher suitability of terrestrial habitat within the wider area, it is unlikely that any great crested newt associated with this pond would be impacted by works within the Site.

Habitat Suitability Index (HSI) assessment

7.41 Table 5 below provides the HSI scores for Waterbody 2.

Table 5: Detailed HSI results for Waterbody 2

Suitability indices	Indices	Score
Geographic location	South East England (Zone A)	1
Surface area (m ²)	~132	0.26
Dessication rate	Rarely dries	1.00
Water quality	Bad	0.01
Shade (%)	40	1.00
Waterfowl	Major	0.01
Fish	Absent	1.00
Pond count	4	1.00
Terrestrial habitat	Moderate	0.67
Macrophyte cover (%)	0	0.31
HSI Score	0.3	
Pond suitability	Poor	

7.42 The HSI score of 0.31 indicates that the pond is likely to be of poor suitability for great crested newt.

7.43 Given the lack of suitable aquatic habitat within 250m of the Site and the low quality of terrestrial habitat within the Site, great crested newt are unlikely to be present. No further survey work or mitigation is recommended for great crested newt.

Invertebrates

7.44 Vegetation within the Site, provides suitable habitat to support a range of common and widespread invertebrates. Protected or rare invertebrates are unlikely to be present.

7.45 No further survey work or mitigation is recommended for invertebrates.

Flora

7.46 Due to the past and present management of the Site, the areas of habitat are unlikely to support protected plant species. No evidence of Schedule 9 plants was found during the Site survey.

7.47 No further survey work or mitigation is recommended for flora.

8. PHOTOGRAPHS



Photograph 1. Grazed modified grassland, northern section.



Photograph 2. Grazed modified grassland, southern section.



Photograph 3. Gravel and concrete hardstanding.



Photograph 4. Waterbody 2.



Photograph 5. Tree T4.



Photograph 6. Access driveway.

9. ECOLOGICAL CONSTRAINTS

- 9.1 The potential impacts of the proposed development on those Ecological Features that have not been scoped out in Section 7 are considered below.

DESIGNATED SITES

Local Sites and Ancient Woodland

- 9.2 The development Site lies approximately 15m south of Court Wood Local Wildlife Site and 20m south of Starmore Wood Ancient Woodland.
- 9.3 No groundworks are proposed within 15m of the Ancient Woodland boundary.
- 9.4 Given the small scale of proposals, direct impact to the LWS and ancient woodland are unlikely. However accidental damage to these sensitive woodland sites may occur during construction works.
- 9.5 Mitigation to avoid accidental damage to the nearby LWS and Ancient Woodland is outlined in Section 10.

PROTECTED AND NOTABLE SPECIES

Roosting bats (trees)

- 9.6 Trees T1, T2, T3 and T5 are assessed to provide low suitability for roosting bats. Tree T4 is assessed to provide moderate suitability for roosting bats.
- 9.7 All trees will be retained by proposals. However, in the absence of mitigation accidental damage could occur to the trees during development works.
- 9.8 Mitigation to avoid accidental damage to the trees is detailed in Section 10.

Foraging and commuting bats

- 9.9 Habitats within the Site, including grazed modified grassland with scattered trees, provide moderate suitability for foraging and commuting bats.
- 9.10 Proposals do not include the severance of any potential foraging or commuting corridors, therefore direct impacts to foraging and commuting bats are unlikely and no further survey work is required.
- 9.11 Bats are nocturnal and rely on dark habitat corridors for foraging and commuting, therefore indirect impacts could occur through spillage of artificial lighting associated with parking and buildings within the Site post-construction.
- 9.12 Precautionary mitigation to avoid impacts through the careful design of lighting is recommended within Section 10. Enhancement measures, outlined within Section 11, have the potential to improve the value of habitats within the Site for foraging and commuting bats.

Badger

- 9.13 During the survey, no signs of badger were present within the Site or within the immediate adjacent land. Therefore, any impacts to a badger whilst it is occupying its sett is unlikely.
- 9.14 Given its location within a rural area, the occasional presence of badger within the construction area cannot be ruled out.
- 9.15 In the absence of appropriate precautionary measures, although unlikely, individual badger could be harmed during the construction phase.
- 9.16 Precautionary mitigation to minimise the risk of harming individual badgers during construction works is detailed in Section 10.

Hedgehog

- 9.17 Development proposals are unlikely to impact on local hedgehog populations and therefore no further survey work is required. However, in the absence of suitable mitigation, individual hedgehogs may be harmed during works.
- 9.18 Precautionary mitigation to reduce the risk of killing or injuring individual hedgehog is detailed within Section 10.

Nesting birds

- 9.19 The trees and stables (buildings 4-7) provide suitable habitat for nesting birds.
- 9.20 The buildings will be demolished as part of proposals.
- 9.21 Given the small area of suitable bird nesting habitat which will be removed, it is unlikely that development proposals will impact bird populations within the locality, therefore no further survey work for nesting birds is recommended.
- 9.22 Mitigation measures to avoid impacts to nesting birds through the timing of works are outlined within Section 10.
- 9.23 Enhancement measures, outlined within Section 11, have the potential to improve the value of habitats within the Site for birds.

10. MITIGATION MEASURES

LOCAL SITES AND ANCIENT WOODLAND

10.1 In order to avoid any possible accidental impacts to the adjacent and nearby LWS and Ancient Woodland the following precautionary measures will be adhered to during the construction phase:

- At least one site worker and/or ecologist will provide the roles of Ecological Clerk of Works (ECoW) and will work with the site manager and contractors to ensure that all precautionary avoidance measures are adhered to during works.
- All site contractors will be briefed by the ECoWs at the start of works as to the location of the Ancient Woodland and the importance of avoidance measures to be undertaken during construction works.
- No refuelling, repairs or maintenance to vehicles or machinery that include engine fuel, hydraulic or lubrication systems will be undertaken within 30m of the Ancient Woodland.
- If appropriate, dust suppression measures will be employed throughout works.
- A spill management plan will be in place throughout works.
- Any waste materials will be safely stored and removed from the Site as soon as possible.

10.2 Species which are invasive in woodland, such as rhododendron (*Rhododendron sp*), cherry laurel, creeping bell flower (*Campanula rapunculoides*) and Spanish blue-bell (*Hyacinthoides hispanica*), will not be included in the planting plan for any part of the Site.

PROTECTED AND NOTABLE SPECIES

Roosting bats

- Trees T1-5 will be retained.
- A toolbox talk to contractors will be undertaken to inform site workers of the location of the trees with potential roost features and the importance of avoiding accidental damage during construction works.
- Tree T2, which is adjacent to the construction area, will be protected by heras fencing (or similar) to prevent accidental damage during construction works.

Foraging and commuting bats

Habitat retention and enhancement

10.3 Measures will be implemented to enhance boundary habitat for foraging and commuting bats and increase connectivity within the surrounding habitat, including the planting of native species hedgerow (detailed in Section 11).

Careful lighting design

10.4 In order to reduce a low potential, indirect impact on foraging and commuting bats to negligible, mitigation to reduce any effects of artificial lighting will be implemented, as far as possible and where applicable, in accordance with guidance issued by the Bat Conservation Trust and Institute of Lighting Professionals (ILP, 2018).

- The boundary vegetation will not be illuminated so that dark flight corridors for bats are retained.
- Any external lighting will be operated with motion sensors, where health and safety allows.
- Metal halide and fluorescent sources will not be used.
- A warm white spectrum (ideally 2700Kelvin) will be adopted to reduce the blue light component.
- LED luminaries will be used which have a sharp cut off and lower intensity to avoid light trespass.
- Luminaries will feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Internal luminaries in close proximity to windows will be recessed, where possible, to reduce external glare and light spill.
- Column heights will be as low as possible to avoid unnecessary light spill.
- Luminaries will be mounted on the horizontal to avoid upward spill.

Badger

10.5 The following mitigation will be implemented during construction works to avoid harm to individual badgers:

- All holes and excavations will be covered over each night to prevent animals from being trapped or injured.
- If this is not possible, a structure/plank will be placed into the hole to enable animals to escape.

Hedgehog

10.6 The following mitigation will be implemented for hedgehog during the clearance of any vegetation or log piles within the Site in order to avoid harm to individual animals:

- A toolbox talk to contractors prior to the start of works will be undertaken to inform site workers of the potential presence of hedgehog within the Site.
- Care will be taken when clearing vegetation or log piles to avoid harming hedgehog that may be sheltering within the site:
- If a hedgehog is found (without young) within the site between April and October inclusive then it will be carefully relocated to an area outside the development site that offers immediate shelter.
- If a nesting hedgehog with young is found between May and October inclusive (breeding season) then an ecologist will be contacted immediately for advice.
- If a hibernating hedgehog is found between November and March inclusive (hibernation season) then an ecologist will be contacted immediately for advice.

10.7 The following mitigation will be implemented for hedgehog during the construction phase:

- All holes and excavations will be covered over each night to prevent animals from being trapped or injured.
- If this is not possible, a structure/plank will be placed into the hole to enable animals to escape.

- Any removal of building materials or other debris, will be undertaken with care to prevent harm to hedgehog.
- If any hedgehogs are found during the construction phase they will be carefully relocated to an area outside the development site that offers immediate shelter.

10.8 The following mitigation will be implemented for hedgehog post-development:

- Any close board fencing to be used will be fitted with small openings within gravel boards to allow hedgehogs access throughout the site. At least one entrance hole will be fitted into each boundary.

Nesting Birds

Habitat retention and enhancement

10.9 Measures, including the creation of native-species hedgerow, will be implemented to enhance habitat for nesting birds (detailed in Section 11).

Avoid impact to nesting birds

10.10 The following mitigation will be implemented to avoid impact to nesting birds:

- Demolition of the buildings and works to any vegetation (if required) will be undertaken outside of the bird nesting season where ever possible.

10.11 If impacts to the buildings are unavoidable between March and September, then the following mitigation will be undertaken:

- A nesting bird survey will be undertaken by a suitably experienced ecologist within at least 48hours prior to any impacts.
- A watching brief will be carried out by a suitably experienced ecologist during any works that impact suitable vegetation within the site.
- If nesting/nest-building birds are found, no works will commence/continue that are likely to damage or significantly disturb a nest until the young have fully fledged.

10.12 Works undertaken during the bird nesting season may result in significant delays to the development programme if activities need to cease due the presence of an active nest. It is important to note that some bird species, such as blackbirds and robins are multiple brooders and may therefore nest within the Site for a number of months.

10.13 In most cases, a nesting bird survey is not suitable for ruling out the presence of nesting birds in vegetation.

11. ENHANCEMENT MEASURES

- 11.1 The following ecological enhancement measures will be included within the proposals to improve the value of the site for wildlife.

TREE PLANTING

- 11.2 Additional tree planting around the boundaries of the Site will benefit nesting birds and foraging bats, amongst other species. Trees that produce fruits, such as *Prunus* and *Sorbus* species, will provide additional foraging habitat for birds within the locality.

HEDGEROW CREATION

- 11.3 Native species-rich hedgerows will be created along Site boundaries. Species could include hazel, hawthorn, spindle, holly, yew, privet, field rose, dog rose and guelder rose.
- 11.4 Flowering species, such as hawthorn, privet and rose will provide opportunities for nectar feeding invertebrates, such as bumblebees, hover flies and butterflies. Creation of this habitat feature will also benefit bats by providing additional foraging habitat and birds through additional nesting habitat.

NATIVE AND NECTAR RICH PLANTING PLAN

- 11.5 Planting plans around the new buildings will include native, flower rich species, including those that flower in the late and early seasons to enhance the biodiversity value of the site.
- 11.6 The inclusion of climbing plants will add sheltering opportunities for invertebrates and birds. They can also produce nectar rich flowers for butterflies, bees and hover flies and fruit for birds and small mammals.
- 11.7 The inclusion of herbs, such as lavender and sage, will provide nectar for an array of invertebrate species, including bees, butterflies and moths. Providing a range of herb plants will ensure flowering throughout the seasons. The inclusion of plants that produce scent at night will attract night flying invertebrates and as such would also provide foraging opportunities for bats.

BAT BOXES

- 11.8 2no. bat boxes will be installed within the Site to provide new opportunities for roosting bats. Bat boxes can be integrated within the new building (such as a 1FR Schwegler Bat Tube) or installed on mature trees within the Site (such as 2F Schwegler Bat Box).
- 11.9 Integrated bat boxes should be primarily located on the south and west facing aspects located at least 3m above the ground, but can also be installed on different elevations to provide a variety of different environmental roost conditions.
- 11.10 Boxes on trees should be located at least 3m above ground level (preferably over 4m).

BIRD BOXES

- 11.11 1no. terrace bird box suitable for house sparrow (such as Schwegler 1SP Sparrow Terrace or similar) will be installed on the new buildings.
- 11.12 2no. Bird boxes suitable for hole nesting species (such as Schwegler 1B or similar) will be installed on mature trees within the Site.
- 11.13 Bird boxes should be constructed from woodcrete to prevent predation and located 2-4 above ground level, on north or east elevations to avoid direct sunlight.

12. REFERENCES

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13. APPENDIX 1: SUMMARY OF PLANNING POLICY AND LEGISLATION

13.1 Species afforded protection under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 are also known as European Protected Species. European Protected Species include all species of bats, hazel dormice and great crested newt.

13.2 European Protected Species relate to those listed within the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and are afforded the highest level of protection. These species are also protected under the Wildlife and Countryside Act 1981. Taken together this level of protection makes it an offence to:

- deliberately capture, injure or kill any wild animal of a European protected species,
- deliberately disturb wild animals of any such species
- deliberately take or destroy the eggs of such an animal
- damage or destroy a breeding site or resting place of such an animal

13.3 Disturbance of animals includes in particular any disturbance which is likely:

- to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or
- in the case of animals of a hibernating or migratory species, impair their ability to hibernate or migrate
- to affect significantly the local distribution or abundance of the species to which they belong

13.4 The legislation requires that any derogation be dealt with by licencing through an appropriate licencing body (Natural England in England). In determining whether a licence can be granted the licencing body must apply the requirements of Regulation 53, and in particular, the three tests:

1. Regulation 55(2)(e) states: a licence can be granted for the purposes of “preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment”.

2. Regulation 55(9) states: The relevant licensing body must not grant a licence under this regulation unless it is satisfied—

- (a) that there is no satisfactory alternative; and
- (b) that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

PLANTS

13.5 A number of plant species are protected under Schedule 8 of the Wildlife and Countryside Act 1981. This Schedule lists plant species that are protected under Section 13, which protects from picking and sale of plants or parts of plants listed in Schedule 8.

BIRDS

13.6 All nesting birds are protected under the Wildlife and Countryside Act 1981. With certain exceptions, it is an offence to:

- Kill, injure or take wild birds;
- Take, damage or destroy the nest of wild birds while in use or being built;
- Take or destroy the eggs of wild birds;
- Intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

Birds of Conservation Concern

13.7 After reviewing the status of all bird species in the UK, the leading non-governmental bird conservation organisations agreed priorities for bird conservation. This led to the publication of a list of Birds of Conservation Concern. Bird species are either listed as red, amber or green, depending on their status and conservation objectives. Birds listed as red require urgent, effective conservation action.

BADGERS

13.8 Badgers are protected under the Protection of Badgers Act 1992. Under this legislation it is an offence to:

- Wilfully kill, injure or take a badger (or attempt to do so).
- Cruelly ill-treat a badger.
- Dig for a badger.
- Intentionally or recklessly damage or destroy a badger sett, or obstruct access to it.
- Cause a dog to enter a badger sett.
- Disturb a badger when it is occupying a sett.

COMMON REPTILES

13.9 All common and widespread reptiles, which include viviparous lizard, slow worm, grass snake and adder are protected under the Wildlife and Countryside Act 1981. This makes it an offence to:

- Intentionally or recklessly kill or injure reptiles
- Sell, offer for sale, possess or transport for the purpose of sale or publish advertisement to buy or sell any reptile.

INVERTEBRATES

13.10 A small number of invertebrates are protected under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, relating to the designation of SACs, including white-clawed crayfish and Desmoulin's whorl snail.

13.11 A number of invertebrate species also protected under the Wildlife and Countryside Act, such as the heath fritillary and fairy shrimp. Species listed under Schedule 5 are protected from one, some or all of the following:

- Intentional killing, injuring, taking
- Possession or control (live or dead animal, part or derivative)
- Damage to, destruction of, obstruction of access to any structure or place used by a scheduled animal for shelter or protection
- Disturbance of animal occupying such a structure or place
- Offering for sale, possessing or transporting for the purpose of sale (live or dead animal, part or derivative)
- Advertising for buying or selling live or dead animal, part or derivative

STATUTORY PROTECTED SITES

13.12 Special Protection Areas and Special Areas of Conservation are protected under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

13.13 Sites of special scientific interest (SSSIs) are protected under the Wildlife and Countryside Act 1981. Natural England is responsible for notifying SSSIs, ensuring they are managed appropriately and assessing and monitoring their condition.

13.14 National Nature reserves are created to protect important wildlife habitats, while also providing a resource for scientific research and recreation. Declared under the National Parks and Access to the Countryside and the Wildlife and Countryside Act 1981.

NON-STATUTORY PROTECTED SITES

Ancient Woodland

13.15 Land with continuous woodland cover since at least 1600AD. Ancient woods are recognised in UK planning policy, but do not have statutory protection.

NATURAL ENVIRONMENT AND RURAL COMMUNITIES (NERC) ACT 2006

13.16 Following consultation with Natural England, the Secretary of State identified species and habitats considered to be of principal importance for the conservation of biological diversity in England. These species and habitats are listed under Section 41 of the Act. The list is to be kept under review and revisions are made as necessary as part of the progress reports on the Biodiversity Strategy for England.

13.17 Following the Biological Diversity in Japan, 2012, a new initiative in England, 'Biodiversity 2020', replaced the former UK Biodiversity Action Plan Species aiming to reinforce the protection of Section 41 habitats and species.

THE NATIONAL PLANNING POLICY FRAMEWORK

13.18 The National Planning Policy Framework was revised in July 2021 and sets out the Government's planning policies for England and how these are expected to be applied. Within this document, Chapter 15 is titled Conserving and Enhancing the Natural Environment.

13.19 Of particular relevance within this chapter are the following statements:

Planning policies and decisions should contribute to and enhance the natural and local environment by:

- *minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.*

To protect and enhance biodiversity and geodiversity, plans should:

- *promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.*

When determining planning applications, local planning authorities should apply the following principles:

a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

14. APPENDIX 2: SUITABILITY ASSESSMENT OF ROOSTING HABITAT (STRUCTURES AND TREES)

Table 9. Assessing potential suitability of roosting habitat (structures and trees) for bats and survey effort required. Adapted from Bat Surveys for Professional Ecologists, Good Practice Guidelines 3rd Edition (Collins, 2016).

Suitability	Description of roosting habitat	Survey effort* and timing
Negligible	Negligible habitat features on site likely to be used by roosting bats.	None required.
Low	A structure or tree with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).	Buildings/structures: One survey visit. One dusk emergence or dawn re-entry survey. Timing: May to August. Trees: None required.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey. Surveys should be spaced a minimum of two weeks apart. Timing: May to September with at least one survey undertaken between May - August.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn. Surveys should be spaced a minimum of two weeks apart. Timing: May to September with at least two surveys undertaken between May - August.

* Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures and trees.

15. APPENDIX 3: HABITAT PLAN

See overleaf



Legend

 Site boundary

 g4 - modified grassland

 u1 - built-up areas and gardens (introduced shrubs)

 u1b - developed land, sealed surface

 u1b5 - buildings

 u1c - artificial unvegetated unsealed surface

 Line of trees

 Tree (with potential roost features)

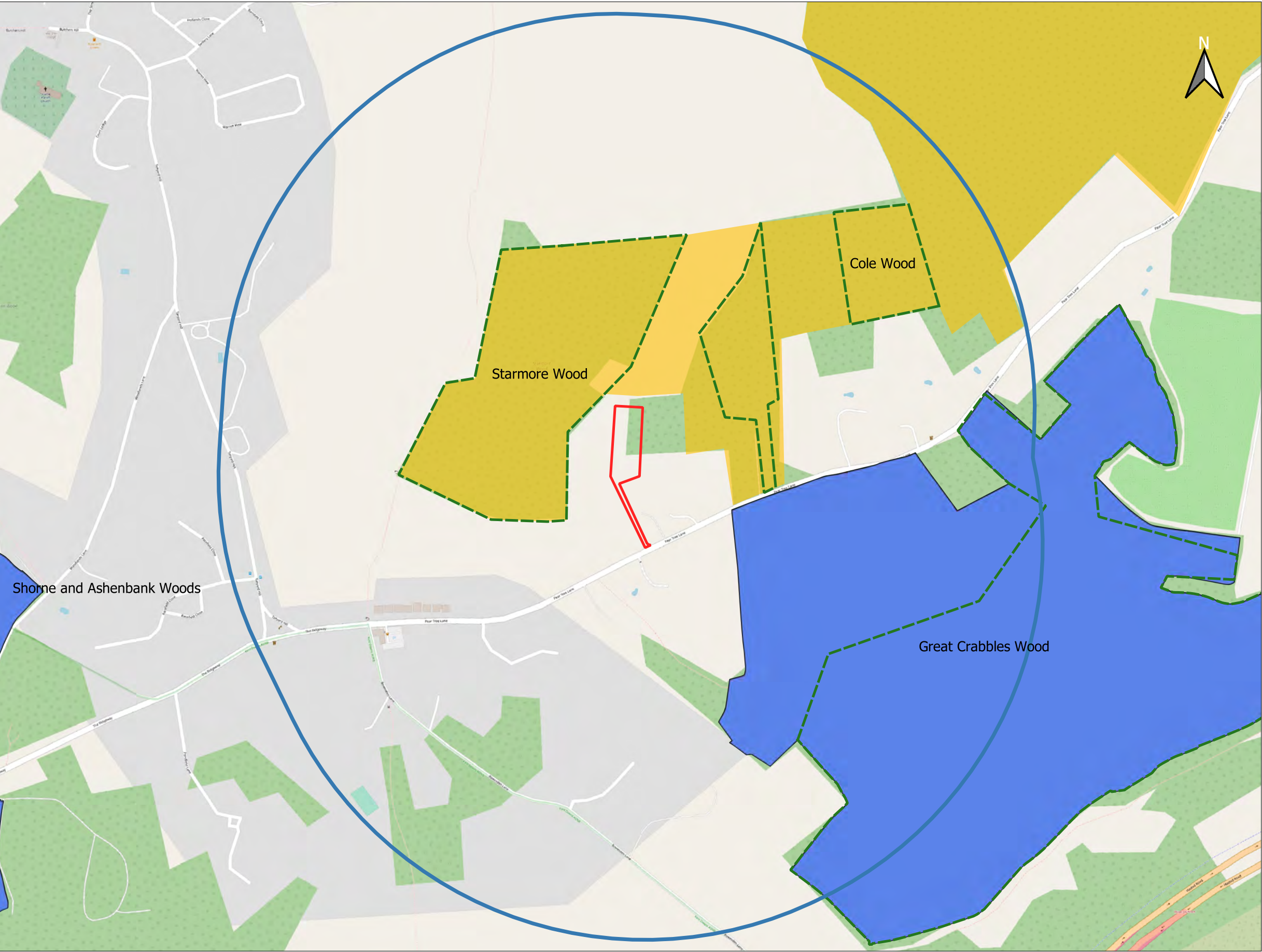
Note:

Habitats mapped by eye based on UK Habitat Classification following a site visit undertaken on 01/03/2022.

	
Habitat Plan	
Rear of Starwood Pear Tree Lane, Shorne Kent	
Drawing ref:	0920_DR01
Revision:	-
Date:	07/03/2022
Scale:	1:500
Paper size:	A3

16. APPENDIX 4: DESIGNATED SITES PLAN

See overleaf



Legend

SiteSurvey

Site boundary

500m buffer

Ancient woodland

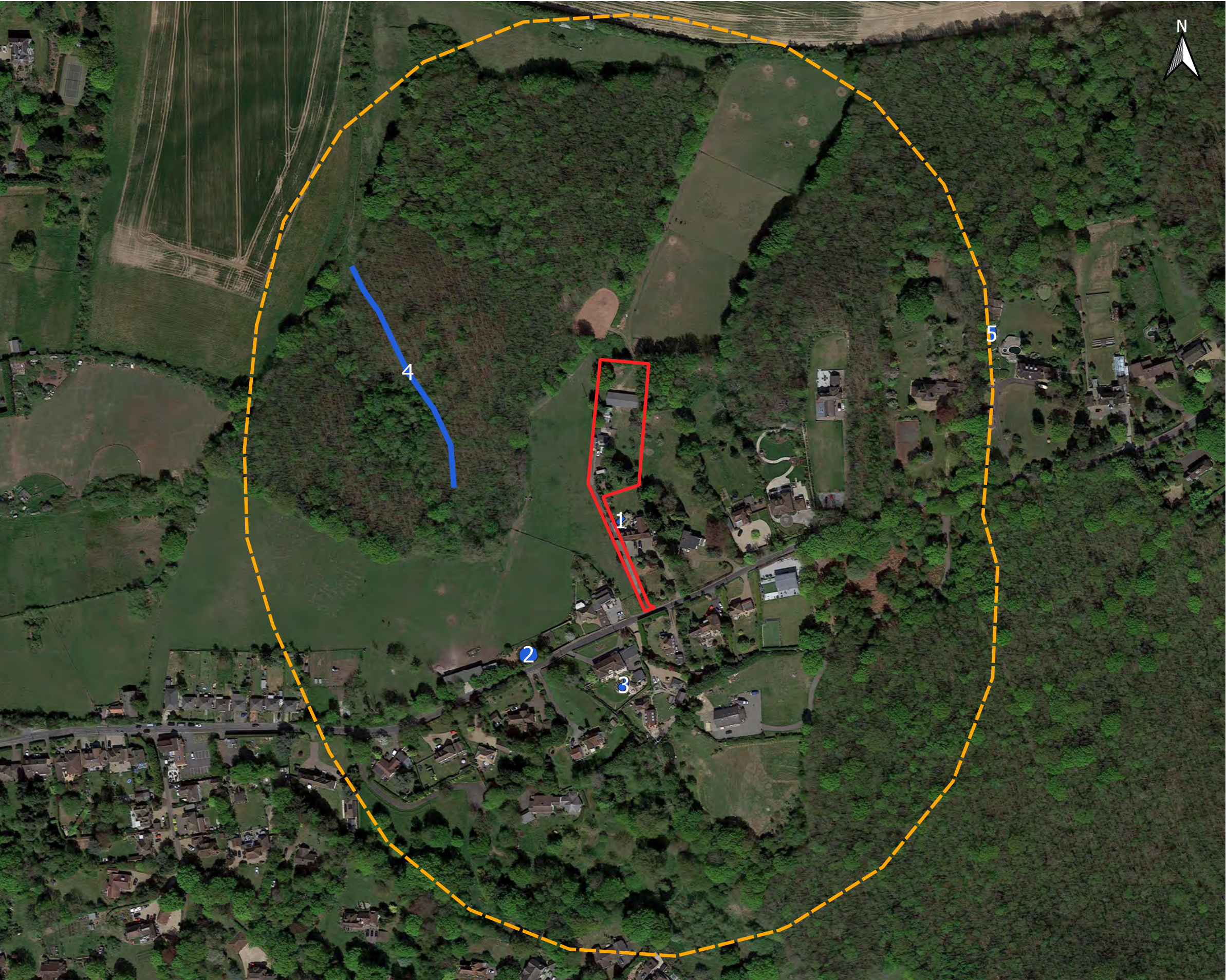
Sites of Special Scientific Interest (SSSI)

Local Wildlife Site (LWS)

 native ecology PROMOTING BIODIVERSITY INTEGRATION	
Designated Sites Plan	
Rear of Starwood Pear Tree Lane, Shorne Kent	
Drawing ref:	0920_DR02
Revision:	-
Date:	07/03/2022
Scale:	1:5000
Paper size:	A3

17. APPENDIX 5: WATERBODY PLAN

See overleaf



Legend

Site boundary

250m buffer

Waterbody

native ecology PROMOTING BIODIVERSITY INTEGRATION	
Waterbody Location Plan	
Rear of Starwood Pear Tree Lane, Shorne Kent	
Drawing ref:	0920_DR03
Revision:	-
Date:	07/03/2022
Scale:	1:4500
Paper size:	A3