Contract No: 2324/72/1

Herpetofauna Assessment

Proposed Kent Woods and Downs National Nature Reserve

Report to:
Kent Downs National Landscape
Kent County Council

22nd August 2024

CALUMMA
Ecological Services

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Information, including any survey data, contained within this report must only be relied upon for a maximum period of 18 months from the date of the report.

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Background

1.1 This report includes the findings of an ecological study conducted in North Kent, focusing on the importance of 15 sites for amphibians and reptiles.

1.2 The sites will be included within a proposed new National Nature Reserve.

1.3 This study aims to inform land managers and conservationists about key species and habitats, areas requiring further survey efforts, and potential habitat management and creation strategies.

Study Area

1.3 The study area is situated in the London Area Greenbelt between the River Thames to the north and the River Medway to the east and is bisected by the A2/M2 road that forms a major dispersal barrier to herpetofauna.

1.4 Physical characteristics of the study area that influence the occupancy of different herpetofauna species are defined by The North Kent Plain and The North Downs National Character Areas.

1.5 The study area includes several sites designated for their nature conservation interest.

1.6 A diverse range of habitats are present that include: woodland, grassland, scrub, hedgerows, agricultural land, ponds and lakes.

Amphibians

1.7 Five species of native amphibian are present within the study area: common frog, common toad, smooth newt, palmate newt and great crested newt.

1.8 Common toad and great crested newt have the highest level of conservation importance.

1.9 Sites supporting breeding common toad include Jeskyns Community Woodland. Toads are also likely to breed at Shorne Wood Country Park and Cobham Hall School.

1.10 Great crested newts are found in two main metapopulations that are separated by the A2/M2 road.

1.11 Metapopulation 1 is situated north of the A2/M2 and includes ponds located within Shorne Woods Country Park.

1.12 Metapopulation 2 is situated south of the A2/M2 and includes ponds located within Ashenbank Woods, West Park and Cobham Hall School.

1.13 The six most important sites for amphibians were found to be Shorne Wood Country Park, Jeskyns Community Woodland, Ashenbank Wood, Cobham Hall School, Ranscombe Farm and Holborough Woodlands.

1.14 Proposed follow-up survey work includes confirming common toad breeding ponds, establishing common toad population sizes, monitoring great crested newt in metapopulations 1 & 2 and identifying other ponds occupied by great crested newt.

1.15 Aquatic management actions should focus on invasive macrophyte control, shade reduction and creation of new breeding ponds. Terrestrial management around and between breeding ponds should aim to increase available cover and create hedgerows, scrub and woodland habitats to increase connectivity between ponds.

Reptiles

1.16 Four species of native reptile are present within the study area: viviparous lizard, slow-worm, grass snake and adder.

1.17 Adder has the highest level of conservation importance.

1.18 Sites with records for adder include: Cobham Wood, Ranscombe Farm, Silverhand Estate and Holborough Woodlands.

1.19 The five most important sites for reptiles were found to be Holborough Woodlands, Silverhand Estate, Ranscombe Farm, Jeskyns Community Woodland and Cobham Wood.

1.20 Proposed follow-up survey work includes updating records of adder, continued monitoring of reptiles at Silverhand Estate & Jeskyns Community Woodland and assessing status of translocated reptile population at Camer Park.

1.21 Management actions should focus on creating a mosaic of favourable habitats that include scrub, woodland and rough grassland that also provide good connectivity between sites.

2. Site Location and Assessment

Site Location:	North Kent (Fig. 2.1)
Grid Reference:	TQ 64-70 62-70
County:	Kent
National Character Areas:	North Kent Plain & North Downs

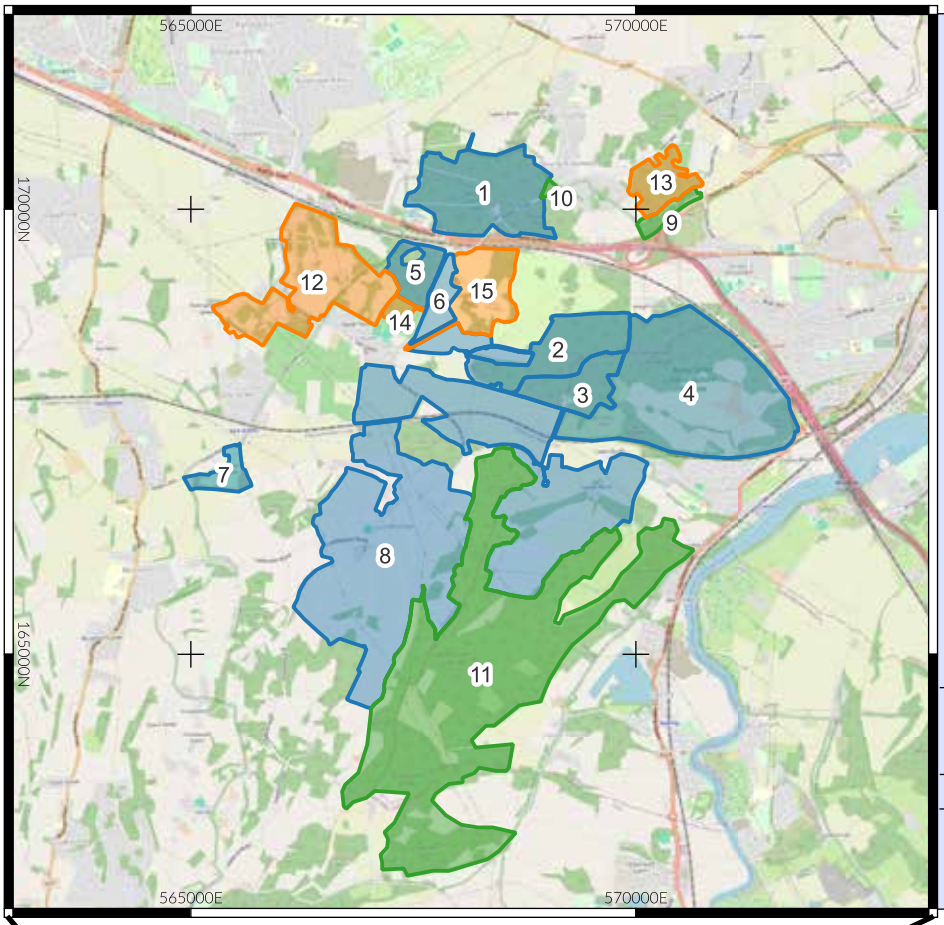
Client:	Kent Downs National Landscape, Kent County Council
Proposed Activity:	Designation of new national nature reserve
Survey Request:	Herpetofauna Assessment

Surveyor:	Lee Brady PhD, BSc (Hons), MCIEEM Great Crested Newt Class Licence: 2015-19076-CLS-CLS Accredited Under Level 2 Bat Licence: 2023-11064-CL18-BAT

Assessment Period:	24th March to 20th August 2024
Limitations:	This assessment did not include detailed surveys of protected species. The assessment used available historical information and daytime walkover surveys to determine the likely presence of species and recommend follow-up survey work and management as appropriate. This report may need to be updated if new information becomes available (e.g. ponds not previously known to be present).
Reliance:	Information, including any survey data, contained within this report must only be relied upon for a maximum period of 18 months from the date of the report.

Fig. 2.1 Proposed Kent Woods and Downs NNR

Location of study area.



Kent Woods and Downs 'super' NNR

Possible NNR sites

- Core
- Affiliate
- Possible affiliates

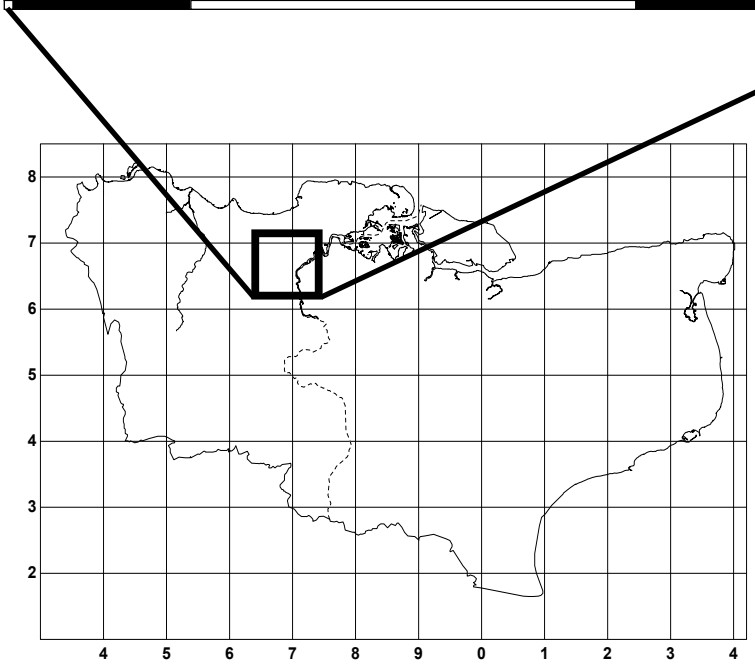
Site names

1. Shorne Woods Country Park
2. Cobham Wood
3. The 'Leisure Plots'
4. Ranscombe Farm
5. Ashenbank Wood
6. West Park
7. Camer Park
8. Silverhand Estate
9. Crabbles Bottom
10. Shorne Common Rough
11. Holborough Woodlands
12. Jeskyns Community Woodland
13. Great Crabbles Wood
14. South Ashenbank Wood
15. Cobham Hall School

0 1 2 3 km

Kent Downs National Landscape

White Horse Ecology



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project:
Kent Woods & Downland NNR

title:
Site Location

scale: **N.T.S.**	date: **Aug 2024**

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3. Introduction

3.1 Project Aim

The purpose of this report is to present the findings of an ecological study conducted in North Kent, focusing on the importance of 15 sites for amphibians and reptiles. This study aims to inform land managers and conservationists about key species and habitats, areas requiring further survey efforts, and potential habitat management and creation strategies. The overarching goal is to support the development of a landscape-scale framework for future management objectives, in line with the Lawton Principles of making space for nature by enhancing habitat connectivity and resilience.

3.2 Project Objectives

To achieve this aim, the study addresses the following key questions:

a) What are the most important species in the study area?
The study identifies the most important amphibian and reptile species based on three criteria: level of designation, local scarcity, and professional opinion. These criteria help prioritise species that are of significant conservation concern due to their protected status, rarity, or expert-identified ecological value.

b) Which are the key areas for herpetofauna?
This objective focuses on identifying the most crucial sites for herpetofauna. It evaluates existing records and professional opinions to determine areas with high ecological value or potential for supporting key species. Emphasis is placed on areas with robust historical data or those identified through ground truthing for their habitat quality.

c) Where is more survey work required?
The study highlights areas where further survey efforts are needed. These include sites with a paucity of recent records and locations identified by experts as likely habitats for target species based on their ecological characteristics. The aim is to fill data gaps and ensure comprehensive monitoring of the study area.

d) Habitat management/creation options
Recommendations for habitat management and creation are provided to enhance the conservation value of the study area. These suggestions include specific interventions for particular sites, general management advice, and potential habitat creation strategies. The recommendations are designed to improve habitat connectivity and resilience, supporting the long-term sustainability of amphibian and reptile populations in the region.

By addressing these objectives, this report aims to provide a clear, evidence-based framework for conserving amphibians and reptiles in the proposed National Nature Reserve. The findings will guide land managers in making informed decisions to protect and enhance biodiversity in the study area.

4. Study Area

The proposed NNR includes 15 individually owned/managed sites that are located in North Kent. Collectively, these 15 sites represent the study area (Fig. 4.1).

The study area is situated between the River Thames to the north and the River Medway to the east. The study area is bisected by the A2/M2 road that forms a major dispersal barrier to herpetofauna.

The study area has been described using information available from the MAGIC Geographic Information System, the Kent Landscape Information System and ground truthing.

http://magic.defra.gov.uk

https://webapps.kent.gov.uk/KCC.KLIS.Web.Sites.Public/Default.aspx

4.1 National Character Areas

Physical characteristics of the study area that influence the occupancy of different herpetofauna species are defined by two National Character Areas (NCAs). These include The North Kent Plain NCA to the north and The North Downs NCA to the south (Fig. 4.2).

4.1.1 North Kent Plain National Character Area

The North Kent Plan is characterised by an open, low and gently undulating landscape, with high- quality, fertile, loamy soils dominated by agricultural land uses. The area's geology is dominated by Palaeogene clays and sands, underlain by the chalk. The area includes a diverse coastline, made up of cliffs, intertidal sand and mud, salt marshes, sand dunes and shingle beaches. Much of the coastal hinterland has been built on, and the coast itself has been modified through the construction of sea walls, harbours and piers.

Large arable/horticultural fields with regular patterns and rectangular shapes predominate with a sparse hedgerow pattern. Orchards and horticultural crops characterise central and eastern areas, and are often enclosed by poplar or alder shelterbelts and scattered small woodlands. Woodland occurs on the higher ground around Blean and in smaller blocks to the west, much of it ancient and of high nature conservation interest. Other semi-natural habitats include ponds and fragments of neutral, calcareous and acid grassland.

The Stour and its tributaries are important features of the eastern part of the NCA, draining eastwards into the North Sea, with associated wetland habitats including areas of grazing marsh, reedbeds, lagoons and gravel pits. The River Medway cuts through the NCA as it flows into the Thames Estuary.

4.1.2 North Downs National Character Area

The North Downs is a chalk downland ridge with a steep scarp slope to the south, providing extensive views across Kent, Surrey, Sussex, and the Channel seascape to France. The broad dip slope gradually drops towards the Thames and the English Channel, affording extensive views across London and the Thames Estuary.

The area has a distinct topography, with dry valleys, ridges, and plateaus. Chalk soils are predominant, but the upper part of the dip slope is capped by extensive clay-with-flint deposits, and patches of clay and sandy soils also occur. The area ends at the White Cliffs of Dover, which support internationally important vegetation.

The region is cut by deep river valleys such as the Stour, Medway, Darent, Wey, and Mole, which provide distinct landscapes that contrast with the steep scarp slope. The south-facing scarp is incised by short, bowl-shaped dry valleys known as combes, cut by periglacial streams, and the undulating topography of the dip slope has been etched by streams and rivers that sometimes form dry valleys, carrying winterbournes depending on the level of the chalk aquifer. Pond density is relatively low across the NCA.

4.2 Site Designations

4.2.1 Statutory Designated Areas

Statutory designated areas are illustrated in Appendix I.

Land within the study area is located within the Kent Downs AONB. Other statutory designated sites that are wholly or partially included within the study area include:

- Shorne and Ashenbanks Woods SSSI
- Great Crabbles Wood SSSI
- Cobham Woods SSSI
- Halling to Trottiscliffe Escarpment SSSI
- North Downs Woodlands SAC

Available information indicates that none of the above sites include herpetofauna species within their designations.

4.2.2 Non-Statutory Designated Areas

Non-statutory designated areas are illustrated in Appendix I.

Land within the study area is located within the London Area Greenbelt.

4.2.3 Local Wildlife Sites

Designations are illustrated in Appendix II.

Local wildlife sites situated within the study area include:

- Henley Wood & Pasture LWS
- Pasture and Woods South of Luddesdown LWS
- Pasture (extra to SSSI), Great Buckland (LWS)
- South Hill and Houlder Quarries (LWS)
- Arable Field, Lad's Farm, Upper Halling LWS

4.3 Habitat Designations

Priority habitat designations are illustrated in Appendix III.

Information available through MAGIC indicates that habitats within the study area include:

- Ancient & semi-natural woodland
- Deciduous woodland

- Woodpasture and parkland
- Traditional orchard
- Good quality semi-improved grassland
- Lowland dry acid grassland
- Lowland calcareous grassland

Additional information available through MAGIC, KLIS and ground truthing also indicates that the following habitats are present:

- Scrub
- Hedgerows (and other boundary features)
- Improved (modified) grassland
- Neutral grassland
- Ponds and lakes
- Arable and horticulture
- Residential gardens
- Built-up areas (including buildings, roads and railway lines etc)

4.3.1 Waterbodies

The distribution of known ponds and lakes across the study area is detailed in Table 4.1 and illustrated in Figs. 4.3 – 4.12.

At least 33 waterbodies are known to occur across the 15 sites. Density is highest in the north with 12 waterbodies located in Shorne Woods Country Park. Other sites with important assemblages include Ashenbank Wood (5 waterbodies; including a pool formed from a flooded watercourse) and Jeskyns Community Woodland (5 ponds; one fully desiccated in March 2024).

To the south, the presence of ponds and other waterbodies is more constrained by the underlying geology.

4.4 Summary Site Information

Aerial imagery of each site together with photographs illustrating available habitats are detailed in Figs. 4.4 – 4.12

4.4.1 Shorne Woods Country Park

123.9 Ha. North of A2/M2. Coppiced deciduous woodland, managed through rotational cutting with rides and glades (Fig. 4.4). Wood pasture and acid grassland with management actions that include bracken control to promote grass and herb growth. Ancient woodland includes several veteran trees. A former clay pit is transitioning to semi-natural woodland. Ponds and wetlands support a range of aquatic flora and fauna. The site is known to support important breeding populations of amphibians including common toad and great crested newt.

4.4.2 Cobham Wood

79.67 Ha. South of A2/M2. An area of ancient wood pasture (Fig. 4.5). The site features open grassland and mature trees that is managed through grazing provided by Highland Cattle.

4.4.3 The 'Leisure Plots'

47.12 Ha. South of A2/M2. Area of deciduous woodland, coppice and plantation that was sold off into leisure plots in the 1970's (Fig. 4.5). The West Kent Downs Countryside Trust aims to trace plot owners and manage the area collectively to restore and sustain diverse habitats. An information board indicates that the site includes habitat suitable for viviparous lizard, grass snake and adder.

4.4.4 Ranscombe Farm

275.14 Ha. South of A2/M2. Nature reserve owned by Plantlife that has been designated a country park (Fig. 4.6). The site used to be an arable farm and includes arable fields, ancient woodland and chalk grassland. The farm is managed in partnership with Medway Council.

4.4.5 Ashenbank Wood

29.28 Ha. South of A2/M2. Ancient semi-natural woodland and wood pasture and parkland (Fig. 4.7). The site includes 135 ancient and veteran trees, with some trees up to 350 years old. The wood supports diverse invertebrates and fungi, particularly saproxylic beetles like the rare click and tanner beetles. The wood includes historical features like a Bronze Age barrow and medieval wood bank. Remains of WWII RAF bunkers also exist. Research indicates that, before the 19th century, the northern part was a mix of ancient fields, grazing land, heath, and wood pasture. The site is known to support breeding great crested newts.

4.4.6 West Park

21.25 Ha. South of A2/M2. Open parkland with veteran trees and organically grazed open pasture (Fig. 4.7). A single pond supports great crested newt.

4.4.7 Camer Park

26.35 Ha. South of A2/M2. Mature parkland with a small deciduous woodland and public facilities (Fig. 4.8). It offers walking trails set up by the Meopham Footpaths Group. The park is a reptile relocation site, with viviparous lizard and slow-worm translocated from a development site in 2014.

4.4.8 Silverhand Estate

633.36 Ha. South of A2/M2. The largest organic vineyard in the UK committed to protecting the landscape and prioritising the health of the soil (Fig. 4.9). Local sheep breeds are used to graze between the vines and English Longhorn cows are used to fertilise the land. The site is currently being surveyed by volunteers on behalf of Kent Reptile and Amphibian Group.

4.4.9 Crabbles Bottom

11.64 Ha. North of A2/M2. An area of meadow, traditional orchard and deciduous woodland that is owned by Shorne Parish Council (Fig. 4.10).

4.4.10 Shorne Common Rough

1.95 Ha. North of A2/M2. Area of deciduous woodland owned by Shorne Parish Council (Fig. 4.1). The site is subject to high recreational pressure by local bike riders.

4.4.11 Holborough Woodlands

595.73 Ha. South of A2/M2. Extensive area of ancient and deciduous woodland with rides and glades (Fig. 4.11). Several areas open up into grassland and arable fields.

4.4.12 Jeskyns Community Woodland

150.60 Ha. South of A2/M2. Created by the Forestry England this area includes newly planted deciduous woodland, scrub, orchards, meadows and ponds (Fig. 4.12). The site is subject to high recreational pressure. The site is currently being surveyed by volunteers on behalf of Kent Reptile and Amphibian Group. Unconfirmed reports of adder from members of the public. Supports breeding population of common toad.

4.4.13 Great Crabbles Wood

33.72 Ha. North of A2/M2. Area of ancient and deciduous woodland (Fig. 4.10). Most of the wood is mixed coppice, with sweet chestnut dominant and oak standards.

4.4.14 South Ashenbank Wood

7.84 Ha. South of A2/M2. Area of ancient woodland situated immediately to the south of Ashenbank Wood (Fig. 4.7).

4.4.15 Cobham Hall School

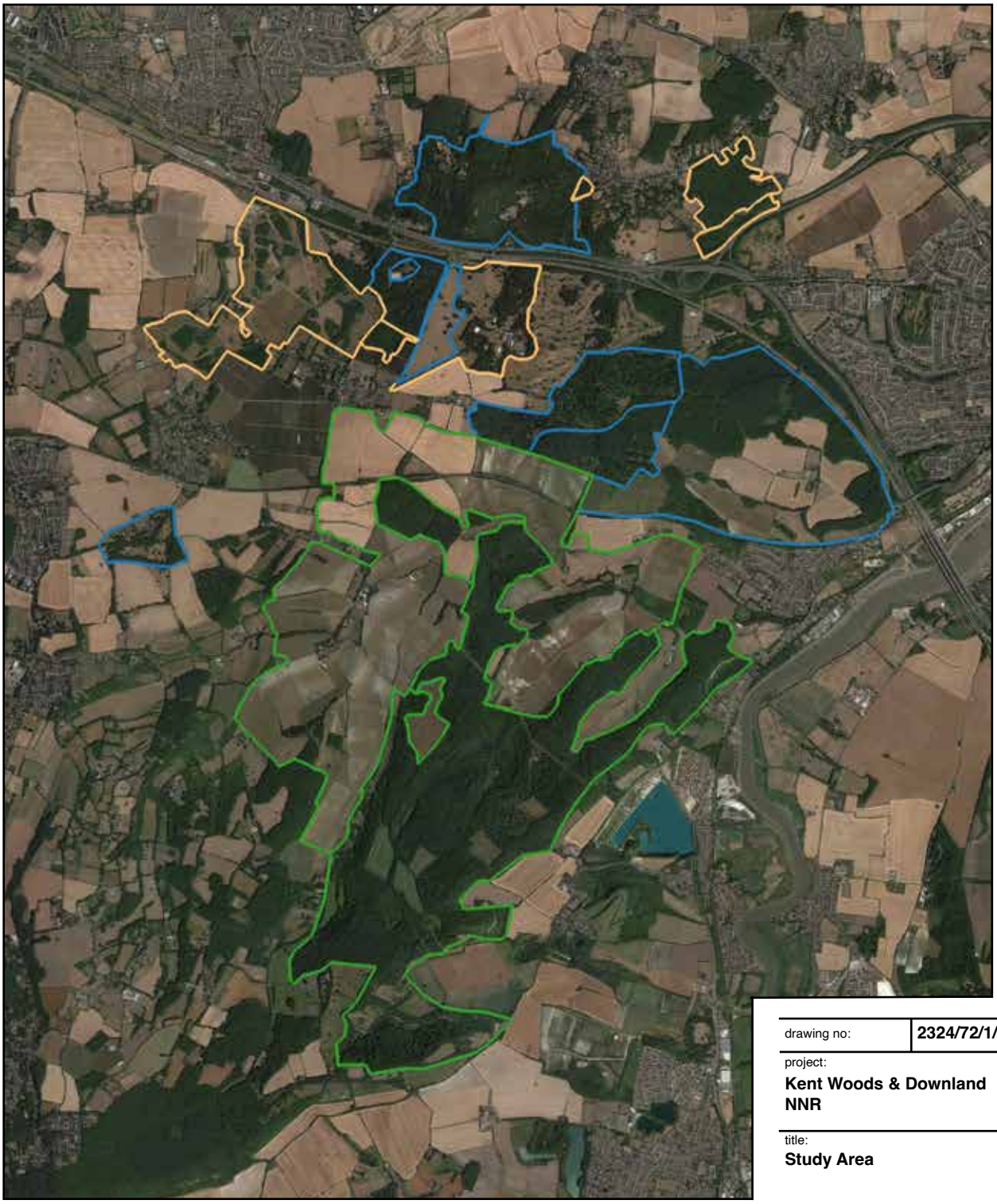
61.69 Ha. South of A2/M2. An independent boarding and day school for girls set in the grounds of a c1584 brick mansion and gardens (Fig. 4.7). The site includes yew hedges, an avenue of lime trees, woodpasture, deciduous woodland and ponds. Great crested newt introduced into at least one pond circa 1990.

Site Name	Pond ID	KRAG ID	Grid Reference	Pond Area (m^2)	Comments
Shorne Woods Country Park	P1.1 P1.2 P1.3 P1.4 P1.5 P1.6 P1.7 P1.8 P1.9 P1.10 P1.11 P1.12	WB701 WB694 WB697 WB692 WB693 WB688 WB72311 WB72312 WB18088 WB18086 WB18087 WB642	TQ 68052 69833 TQ 68154 69939 TQ 68287 69907 TQ 68277 69952 TQ 68379 69946 TQ 68329 70005 TQ 68239 70149 TQ 68245 70162 TQ 67841 70167 TQ 68578 70122 TQ 68573 70227 TQ 68730 70714	306 555 901 826 140 423 1938 80 630 1800 1554 114	GCN recorded. GCN recorded. HSI = 0.94. GCN recorded. GCN recorded. HSI = 0.82. GCN recorded. GCN & grass snake recorded. HSI = 0.92. GCN recorded. May merge with 1.8 GCN recorded. May merge with 1.7 GCN recorded.
Cobham Wood					No ponds found within site.
The 'Leisure Plots'					No ponds found within site. Water-filled wheel ruts offer potential for palmate newt.
Ranscombe Farm	P4.1	WB73550	TQ 69981 68359	80	Ephemeral pond. Fully desiccated August 2024. GCN recorded near this pond in 2008.
Ashenbank Wood	P5.1 P5.2 P5.3 P5.4 P5.5	WB758 WB73530 WB740 WB73529 WB728	TQ 67719 69163 TQ 67744 69225 TQ 67780 69443 TQ 67793 69458 TQ 67436 69551	82 175 163 75 155	HSI = 0.53. GCN recorded. HSI = 0.77 GCN recorded. HSI = 0.79. GCN recorded HSI = 0.74. GCN recorded. HSI = 0.62. Pool within flooded stream.
West Park	P6.1	WB750	TQ 67817 69235	315	HSI = 0.75. GCN recorded.
Camer Park					No ponds found within site.
Silverhand Estate	P8.1 P8.2	WB1020 WB1035	TQ 67294 66740 TQ 67122 66493	84 145	Garden pond. Roadside pond.
Crabble Bottom					No ponds found within site.
Shorne Common Rough					No ponds found within site.
Holborough Woodlands	P11.1 P11.2	WB1333 WB1329	TQ 67516 64154 TQ 67524 64169	95 47	Ephemeral pond. Fully desiccated June 2024. Ephemeral pond. Possibly merges with 11.1
Jeskyns Community Woodland	P12.1 P12.2 P12.3 P12.4 P12.5	WB72141 WB774 WB72140 WB72139 WB72138	TQ 67153 69203 TQ 67019 69039 TQ 66245 69183 TQ 66196 69234 TQ 66124 69895	675 128 153 2644 224	Defunct. Amphibians previously recorded. HSI = 0.48. Heavily shaded. Amphibians recorded. Common toad and grass snake recorded. HSI = 0.83. Amphibians recorded.
Great Crabbles Wood					No ponds found within site.
South Ashenbank Wood					No ponds found within site.
Cobham Hall School	P15.1 P15.2 P15.3 P15.4 P15.5	WB754 WB755 WB748 WB73551 WB73552	TQ 67997 69194 TQ 68045 69171 TQ 68435 69304 TQ 68421 69460 TQ 68455 69506	1166 1258 263 3128 2935	GCN recorded GCN recorded Lake Lake

Table 4.1. Ponds located within study area. Habitat suitability index (HSI) data supplied by Kent Reptile and Amphibian Group and Calumma Ecological Services. The recorded presence of great crested newt (GCN), common toad and grass snake is indicated as appropriate. HSI values calculated after ARG UK (2010).

Fig. 4.1 Study Area

Aerial photograph of study area (Google Earth imagery date 2024).



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project:
Kent Woods & Downland NNR

title:
Study Area

scale: **N.T.S.**	date: **Aug 2024**

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Fig. 4.2 National Character Areas

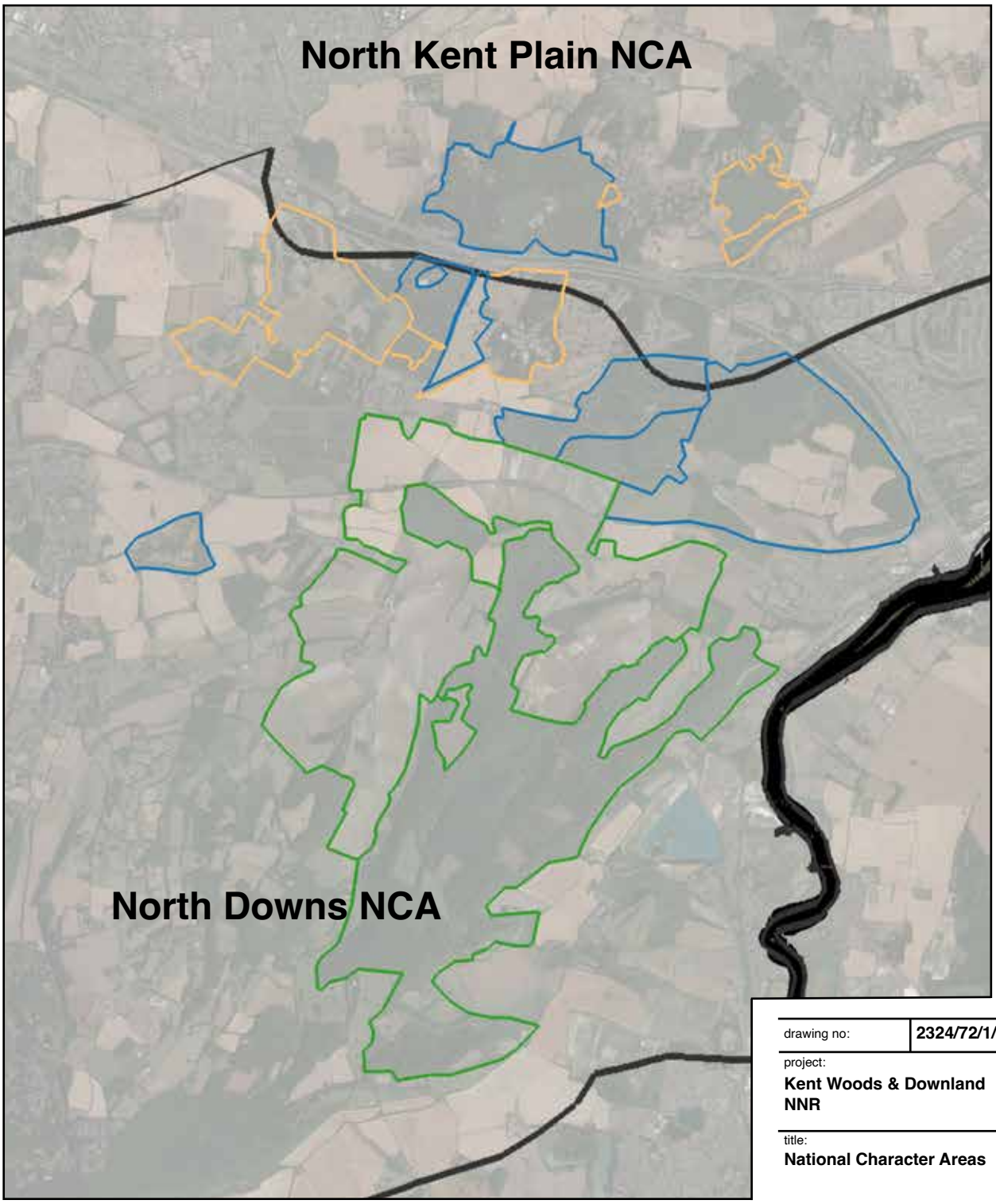

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Fig. 4.3 Ponds

Figure illustrates waterbodies known to occur within North Kent study area. Icon size indicates relative size of waterbody.

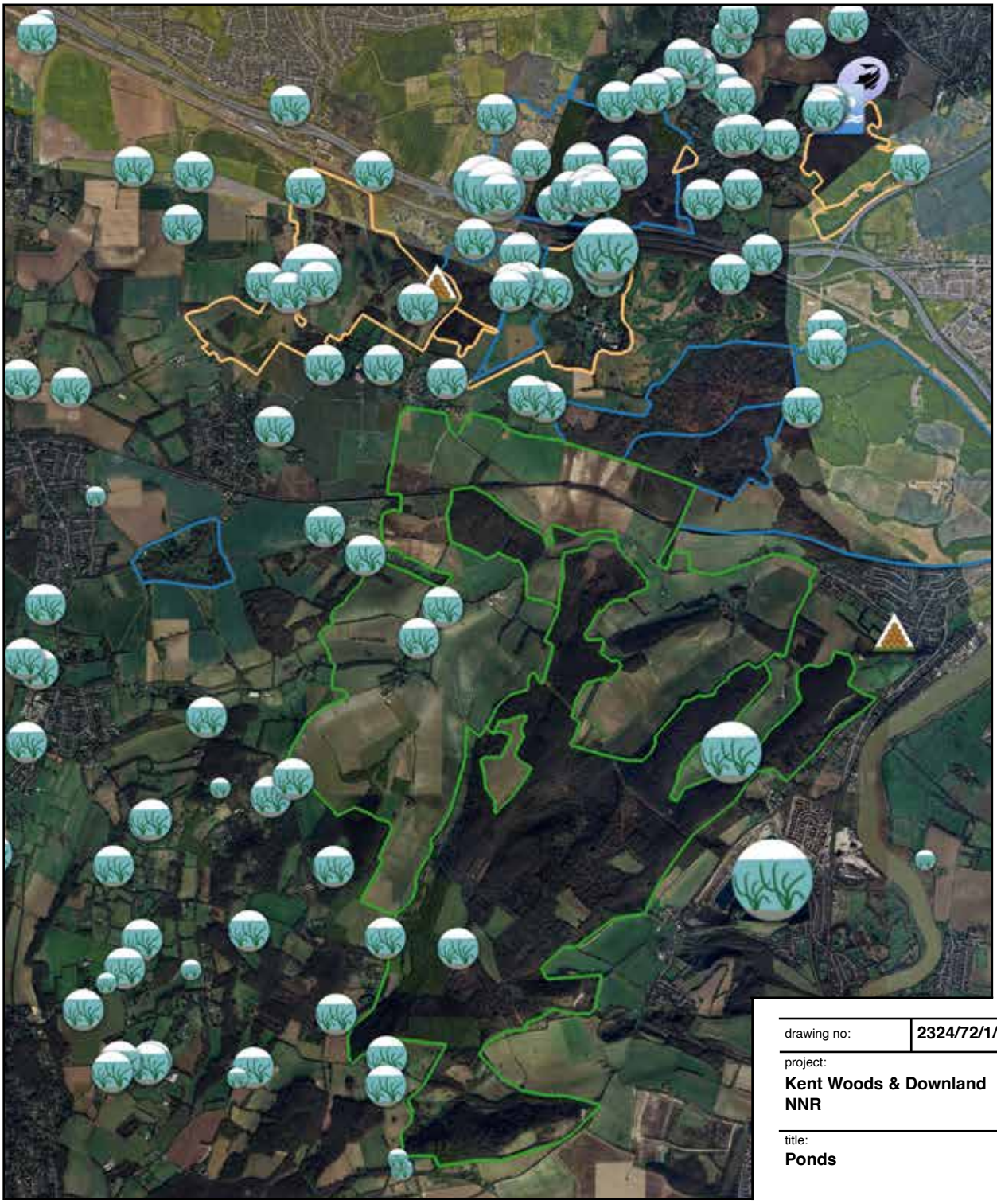

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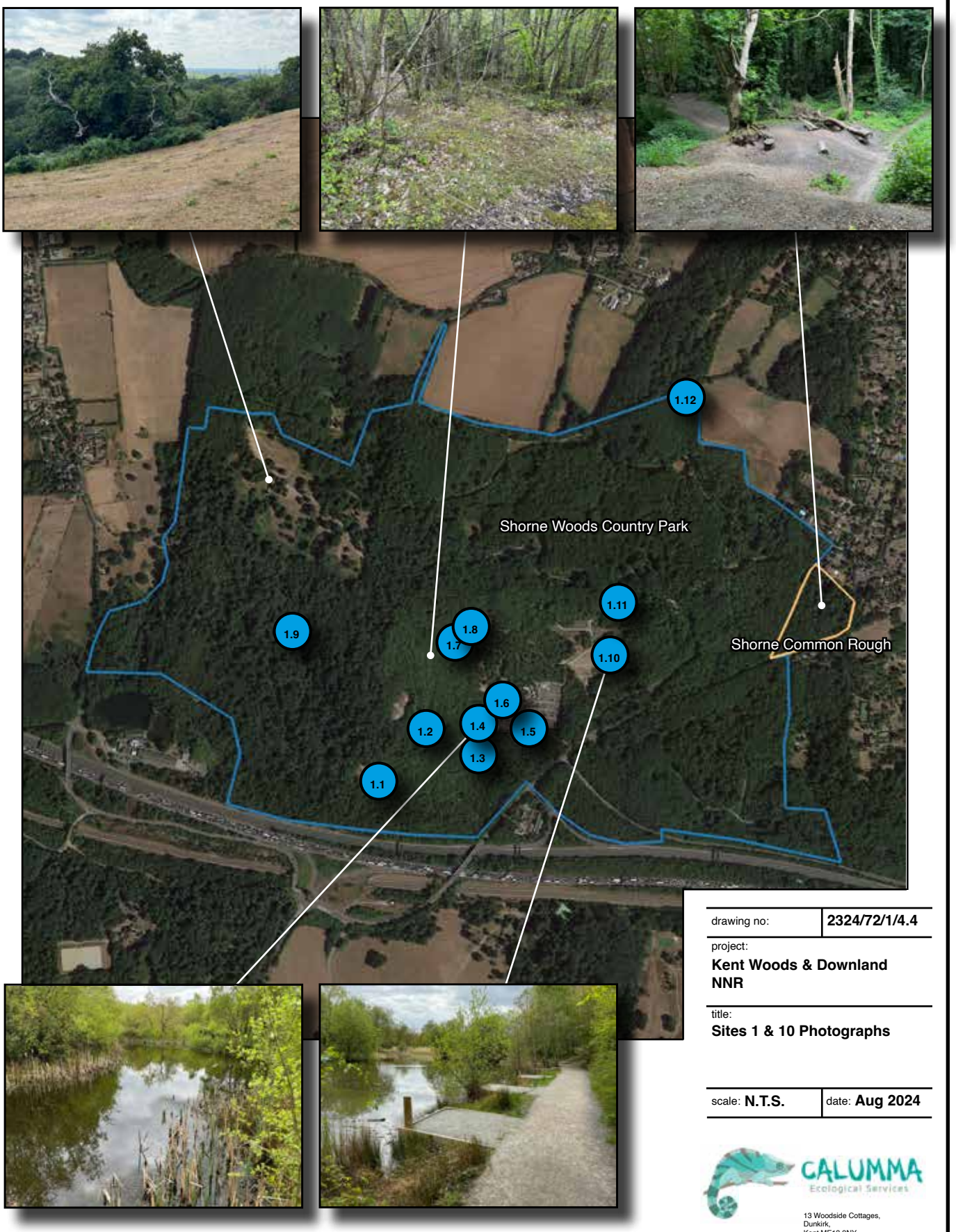
Fig. 4.4 Shorne Woods Country Park & Shorne Common Rough

Waterbodies are numbered based on site.



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Sites 1 & 10 Photographs

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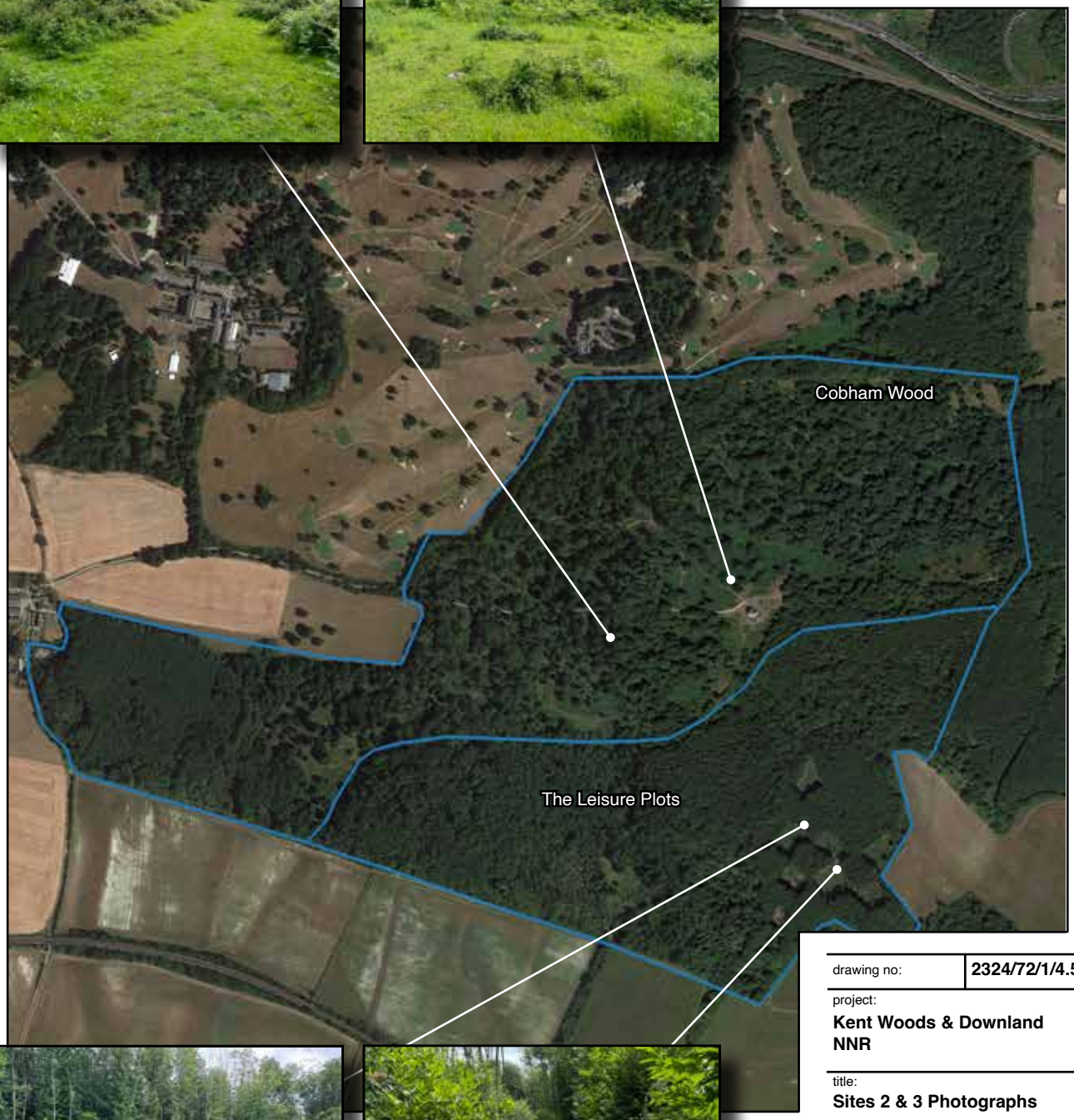
Fig. 4.5 Cobham Wood and The Leisure Plots



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Sites 2 & 3 Photographs

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Fig. 4.6 Ranscombe Farm

Waterbodies are numbered based on site.

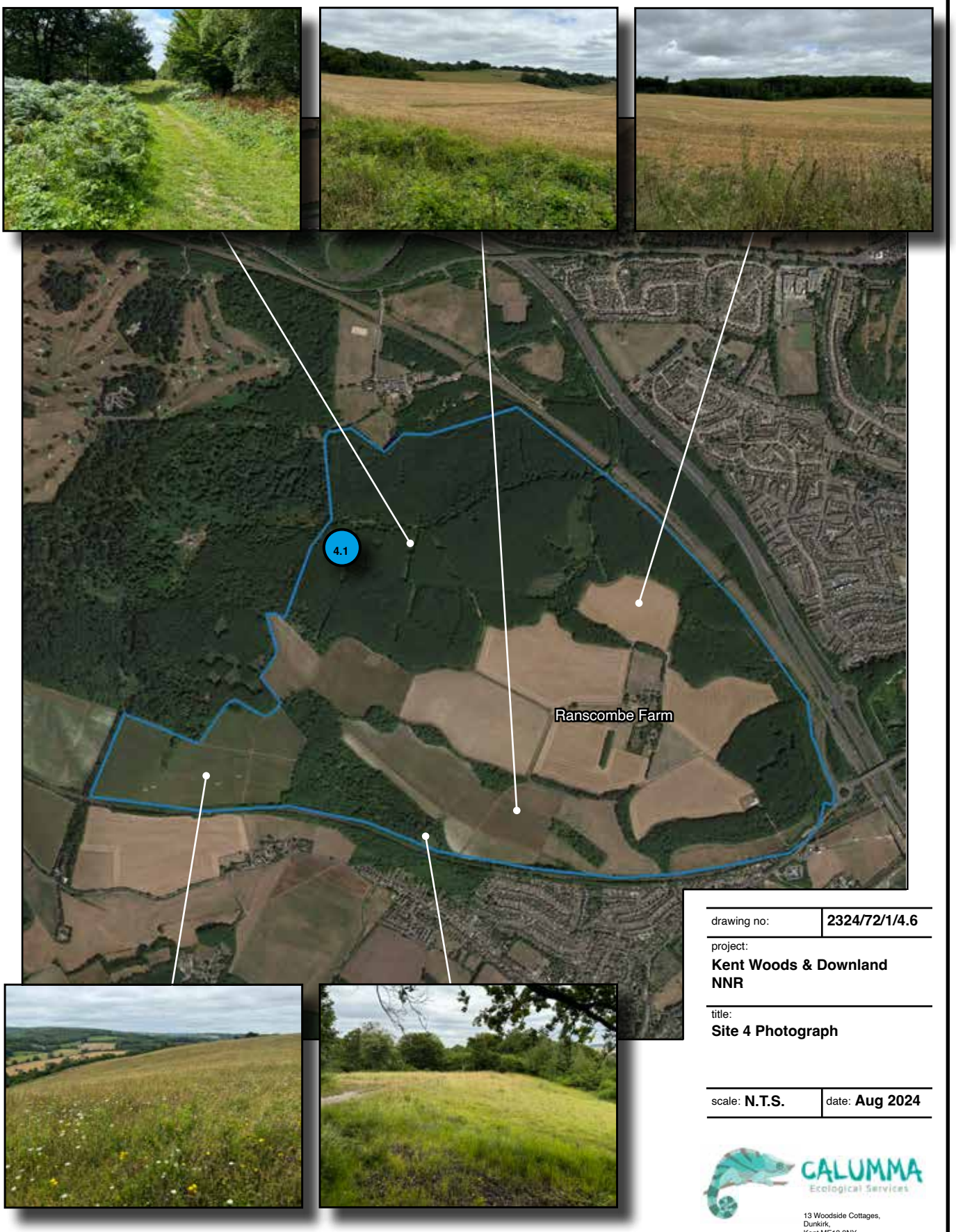

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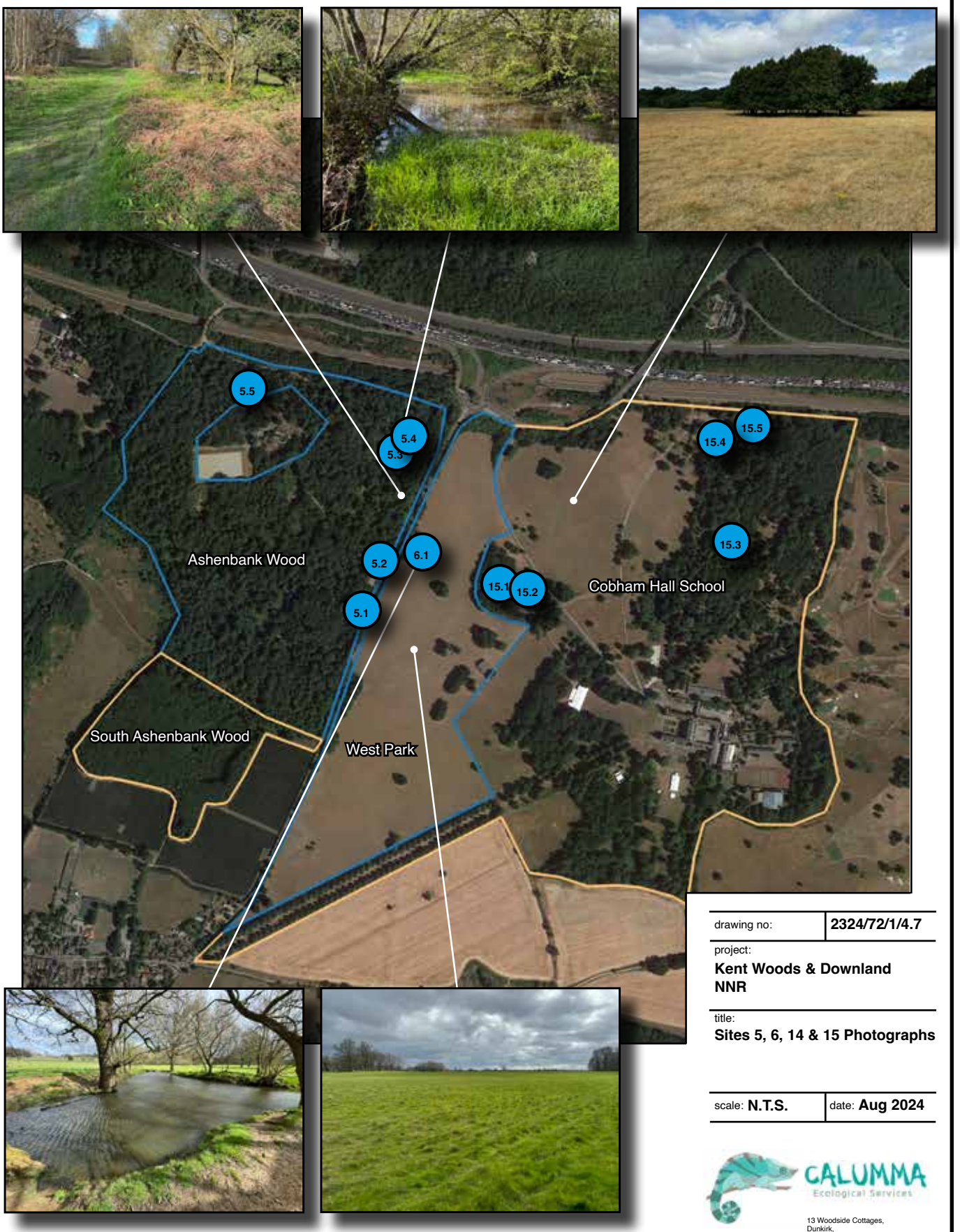
Fig. 4.7 Ashenbank Wood, West Park, South Ashenbank Wood and Cobham Hall School

Waterbodies are numbered based on site.



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title:
Sites 5, 6, 14 & 15 Photographs

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Fig. 4.8 Camer Park

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project:
Kent Woods & Downland NNR

title:
Site 7 Photograph

scale: **N.T.S.**	date: **Aug 2024**

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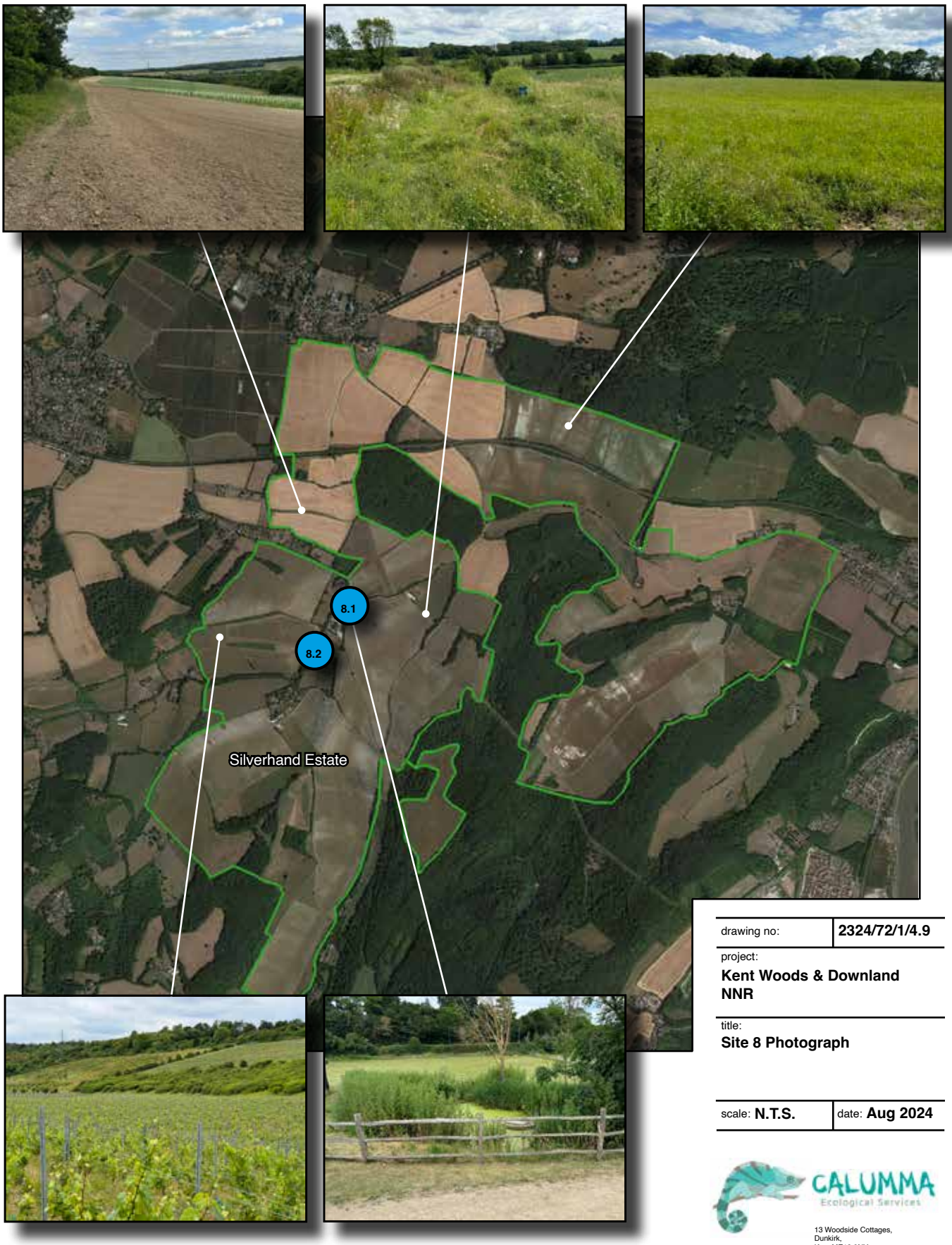
Fig. 4.9 Silverhand Estate

Waterbodies are numbered based on site.



drawing no:	**2324/72/1/4.9**

project:
Kent Woods & Downland NNR

title:
Site 8 Photograph

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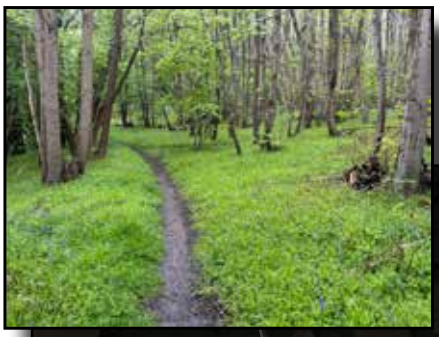
Fig. 4.10 Crabbles Bottom & Great Crabbles Wood



drawing no:	**2324/72/1/4.10**

project:
Kent Woods & Downland NNR

title:
Sites 9 & 13 Photographs

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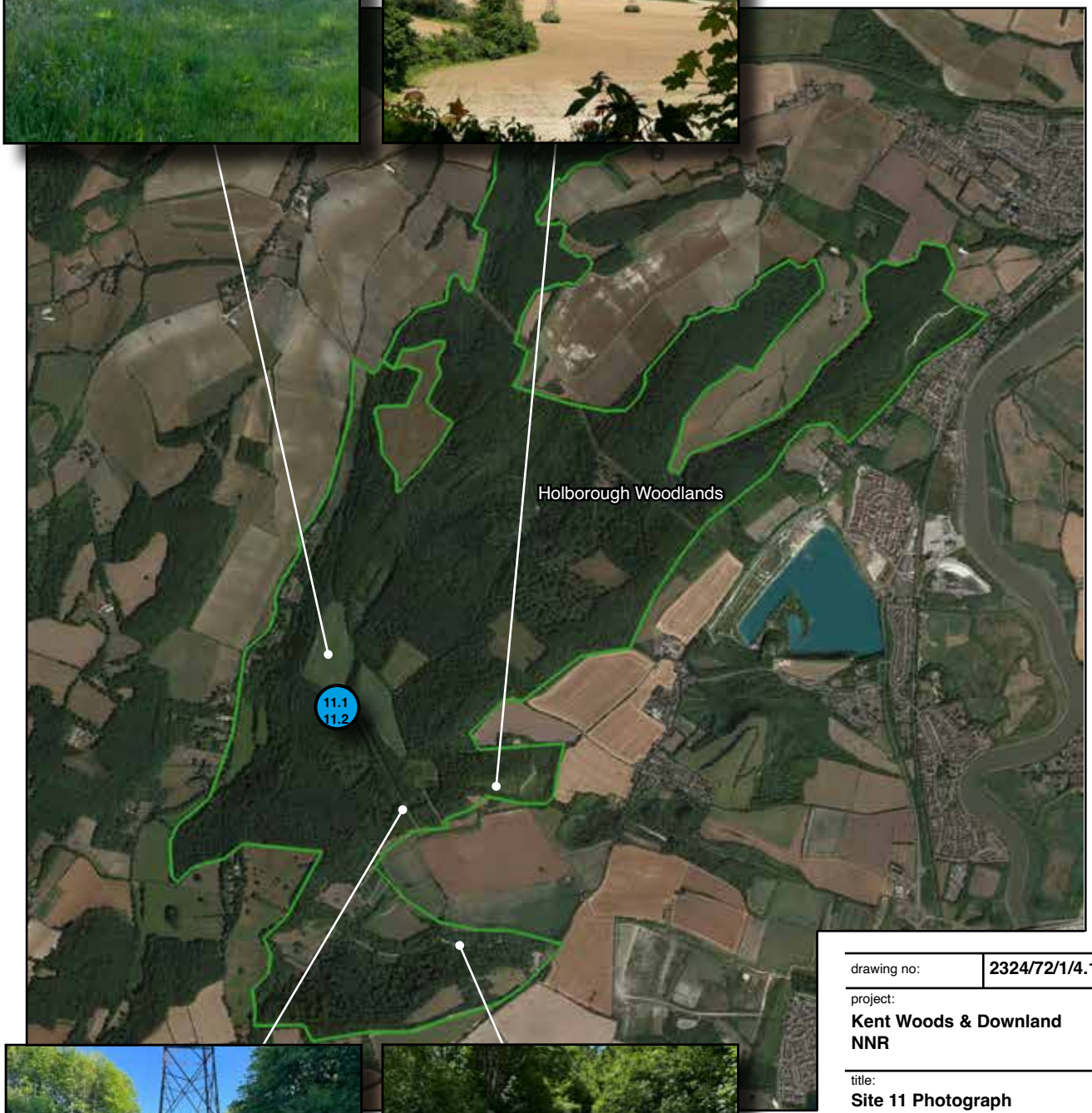
Fig. 4.11 Holborough Woodlands

Waterbodies are numbered based on site. Only two small ephemeral ponds are present that may merge into a single waterbody.



drawing no:	**2324/72/1/4.11**

project:
Kent Woods & Downland NNR

title:
Site 11 Photograph

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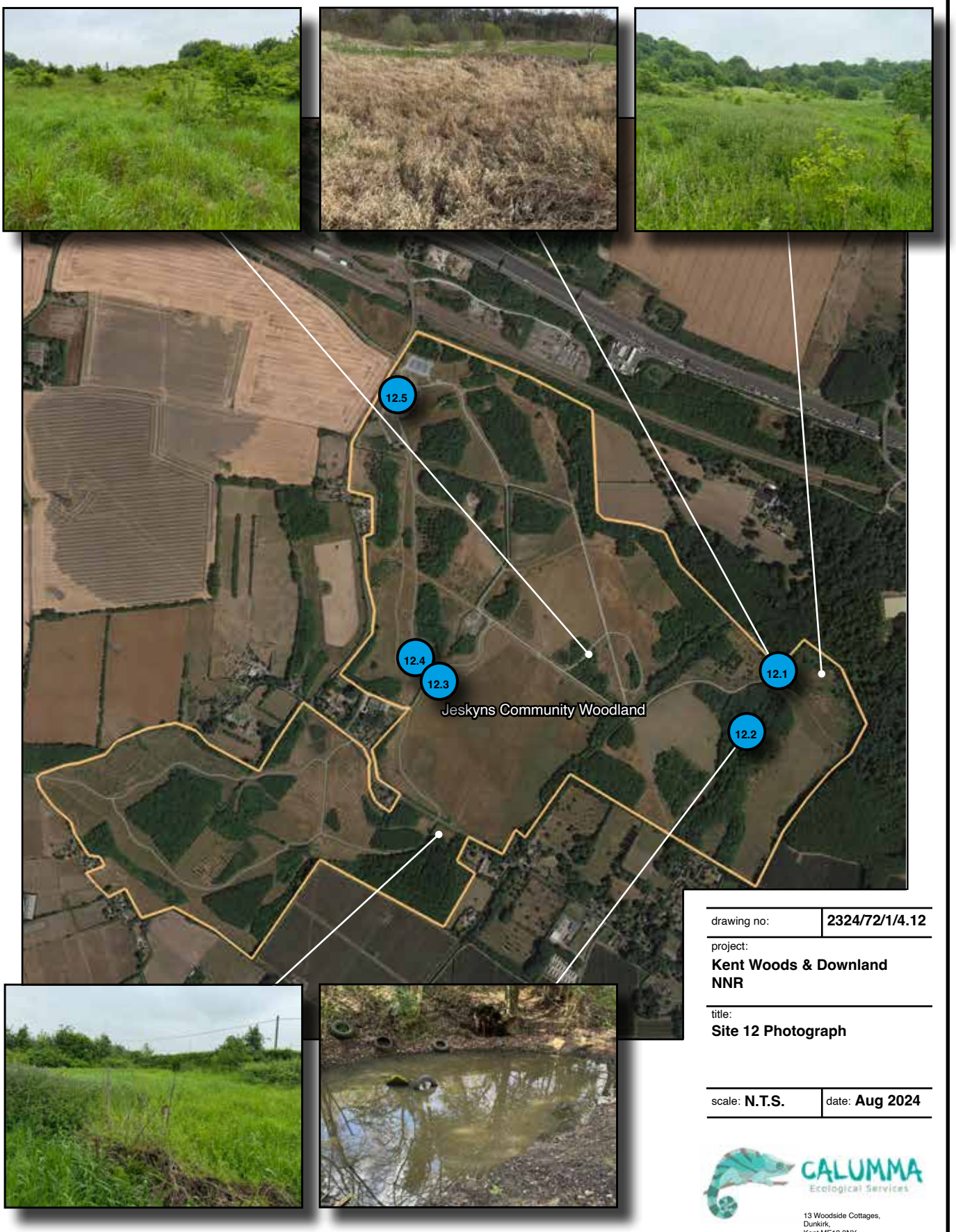
Fig. 4.12 Jeskyns Community Woodland



drawing no:	**2324/72/1/4.12**

project:
Kent Woods & Downland NNR

title:
Site 12 Photograph

scale: **N.T.S.**	date: **Aug 2024**

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5. Kent Herpetofauna

Available records have been obtained from Kent Reptile and Amphibian Group.

5.1 Amphibians

5.1.1 Distribution

Kent supports six native amphibian species, five of which have a relatively wide distribution and are present within the study area (Fig. 5.1):

- Common frog (*Rana temporaria*): Widely distributed. Frequently encountered in urban areas where it breeds in garden ponds.
- Common toad (*Bufo bufo*): Widely distributed. Often associated with larger and more permanent waterbodies that support fish.
- Smooth newt (*Lissotriton vulgaris*): Widely distributed. Frequently breeds in garden ponds.
- Palmate newt (*Lissotriton helveticus*): Widely distributed. Often associated with areas of current or former woodland.
- Great crested newt (*Triturus cristatus*): Widely distributed across the county. Usually associated with areas of relatively high pond density. Prefers to breed in fish free ponds.
- Natterjack toad (*Epidalea calamita*): Formally present in Kent but is believed to have become extinct sometime around the 1950's. An attempt to reintroduce the species to a site in east Kent took place in the early 2000's. Despite some initial breeding success, natterjack toads have not been recorded for several years and are once again considered extinct.

Non-native species present in the county include:

- Marsh frog (*Pelophylax ridibundus*): Introduced in the 1930s, has established and expanded its range significantly.
- Alpine newt (*Ichthyosaura alpestris*): Present in several locations where it has established robust breeding populations.
- American bullfrog (*Lithobates catesbeianus*): Occasionally recorded and in the 1990's it did establish a breeding population on the Sussex/Kent border. This population has now been eradicated.

Of the non-native species, only marsh frog has previously been recorded close to the study area (but not in any of the sites proposed for inclusion in the NNR).

5.1.2 Key Habitats

Breeding habitat is characterised by unpolluted ponds that are preferably fish-free. Larger waterbodies like lakes, canals, and ditches can also serve as breeding sites for species more tolerant of fish such as common toad. Aquatic features supporting breeding great crested newt and common toad are considered priority habitats.

Favourable terrestrial habitat surrounding and linking ponds is typically structurally complex, providing forage and shelter. Some species (e.g. common toad) can migrate one or more kilometres between breeding ponds and terrestrial sheltering places.

5.1.3 Conservation Status

All native amphibians in Kent are listed on Schedule 5 of the Wildlife and Countryside Act, making it illegal to sell or offer for sale any native amphibian species without a licence. The great crested newt and natterjack toad receive additional protection under Regulation 41 of the Conservation of Habitats and Species Regulations. This regulation makes it an offence to intentionally kill, injure, or handle these species, possess them (alive or dead), deliberately disturb them while they are sheltering, or sell or offer them for sale without a licence. Furthermore, it is also illegal to damage, destroy, or obstruct access to their breeding sites, which are typically ponds, or their resting places, which are usually terrestrial habitats offering refuge.

Great crested newt, natterjack toad and common toad are considered priorities for conservation due to their declining populations and the threats they face in their habitats.

In Kent, the most widely distributed species include common frog, common toad, smooth newt and palmate newt. Available information indicates that amphibian populations are generally stable, though significant declines are believed to have occurred in the 20th century due to the loss of breeding ponds.

The distribution of great crested newt appears to be highly dependent on pond density and the species is infrequently encountered in more densely populated urban areas. Conversely, common frog and smooth newt appear to be more resilient to urbanisation, possibly due to the popularity of garden ponds.

The Toad Patrol Project in Kent monitors toad numbers at specific sites in the county. Although the study has observed a decline in toad numbers at most sites over the past eight years, it is still too early to determine whether these declines are part of cyclical changes or indicate a more permanent loss (Phillips, 2021).

Major threats to amphibians include:

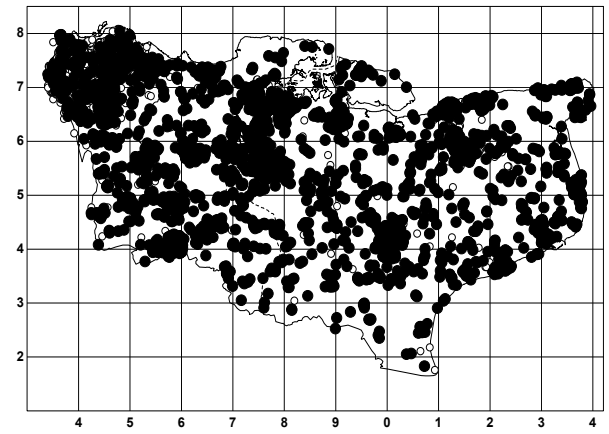
- Habitat Loss and Fragmentation: Loss of breeding ponds and terrestrial habitat has been the primary driver of decline.
- Habitat Degradation: Poor management practices, such as introducing fish to ponds or unsympathetic land management, negatively impact amphibians.
- Disease and Climate Change: Emerging diseases and changing climate conditions pose significant threats to amphibian populations.

5.1.4 Conservation Priorities

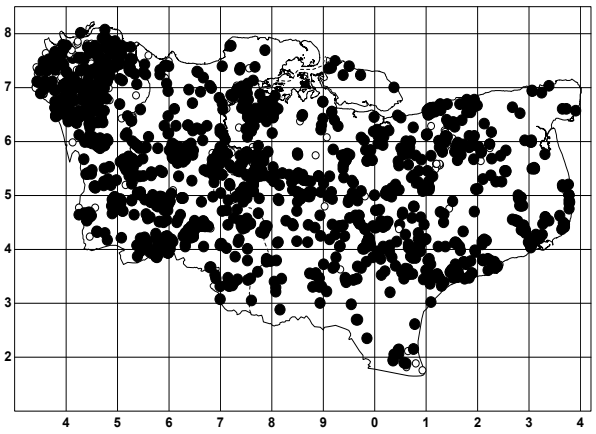
Conservation actions should focus on:

- Creation and management of high-quality breeding ponds.
- A connected landscape ensures amphibian populations are not isolated by creating corridors of suitable terrestrial habitat between breeding sites.
- Long-term monitoring to track population changes and habitat use.
- Promotion of wildlife ponds in gardens and community areas to support urban amphibian populations.

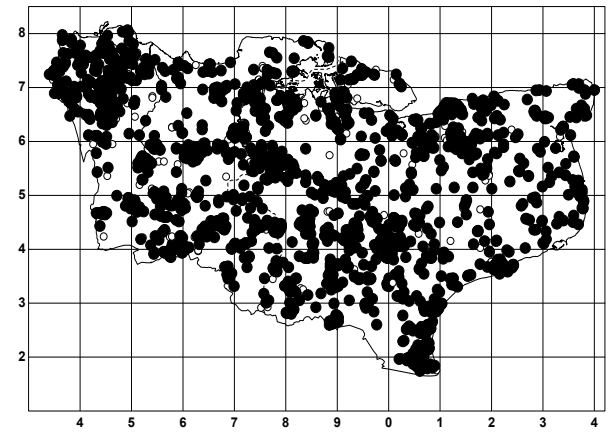
Fig. 5.1 Amphibian Distribution in Kent



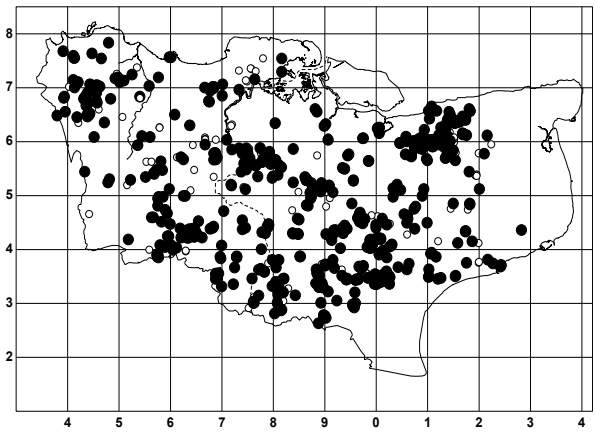
Common Frog



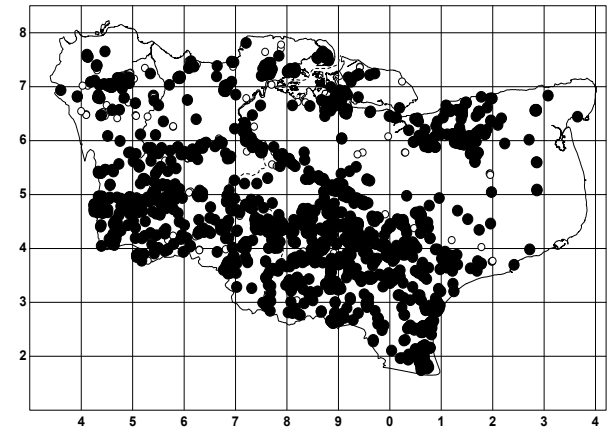
Common Toad



Smooth Newt



Palmate Newt



Great Crested Newt

drawing no:	**2324/72/1/5.1**

project:
Kent Woods & Downland NNR

title:
Amphibian Distribution

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5.2 Reptiles

5.2.1 Distribution

Kent supports five reptile species (Fig. 5.2). With the exception of sand lizard, all extant reptile species are present in the study area:

- Viviparous lizard (*Zootoca vivipara*): Widely distributed.
- Slow-worm (*Anguis fragilis*): Widely distributed. Frequently encountered in suburban gardens.
- Grass snake (*Natrix helvetica*): Widely distributed. Often associated with aquatic habitats.
- Adder (*Vipera berus*): Displays a relatively narrow distribution across the county with several populations associated with habitats along the North Downs.
- Sand lizard (*Lacerta agilis*): Was recorded in Kent until the late 1960s when it is believed to have become extinct. The species was subsequently reintroduced to a site in east Kent in the early 2000's. Ongoing monitoring work indicates that a breeding population remains present.

Non-native reptiles present in the county include:

- Wall lizard (*Podarcis muralis*): Found in several locations with populations that appear stable.
- Red-eared terrapins (*Trachemys scripta elegans*): Present in several waterbodies across the county but show no evidence of successful reproduction.

Both of these non-native species have previously been recorded close to the study area (but not in any of the sites proposed for inclusion in the NNR).

5.2.2 Key Habitats

Key habitats for reptiles include chalk, acid and neutral grasslands, deciduous woodland and scrub. Additionally, anthropogenic habitats like railway and roadside embankments, gardens, allotments, and brownfield sites provide important refuges for reptiles. Sand dunes and heathland also contribute to the habitat diversity, although they are less common in Kent. The diverse range of habitats in Kent is crucial for sustaining the region's reptile populations, with woodland/scrub and grassland being particularly significant due to their extensive use by multiple species.

Protecting these habitats involves several strategies. Effective habitat management practices, such as maintaining structurally complex swards and preventing habitat fragmentation, are essential. Creating and preserving habitat corridors can enhance connectivity between isolated populations, mitigating the impacts of habitat fragmentation. Additionally, appropriate land management practices, including controlled grazing and preventing the overgrowth of scrub in grassland areas, can maintain habitat quality. Conservation efforts must also focus on mitigating the effects of climate change by protecting and restoring key habitats to ensure they remain suitable for reptile species. Public awareness and engagement in conservation initiatives can further support the protection and preservation of these critical habitats in Kent.

5.2.3 Conservation Status

All native reptiles in Kent are protected under Schedule 5 of the Wildlife and Countryside Act. It is illegal to intentionally kill, injure, sell, or offer for sale widespread species such as the viviparous lizard, slow-worm, grass snake, and adder without a licence.

The sand lizard receives additional protection under Regulation 41 of The Conservation of Habitats and Species Regulations. It is illegal to intentionally kill, injure, handle, possess (alive or dead), disturb, sell, or offer for sale these species without a licence. Furthermore, damaging, destroying, or obstructing access to their breeding or resting sites is also prohibited.

All reptile species are in decline, with the adder being of particular concern in Kent where it is listed in the Kent Red Data Book (Brady, 2000). Adder populations have decreased significantly across the UK.

Major threats to reptiles include:

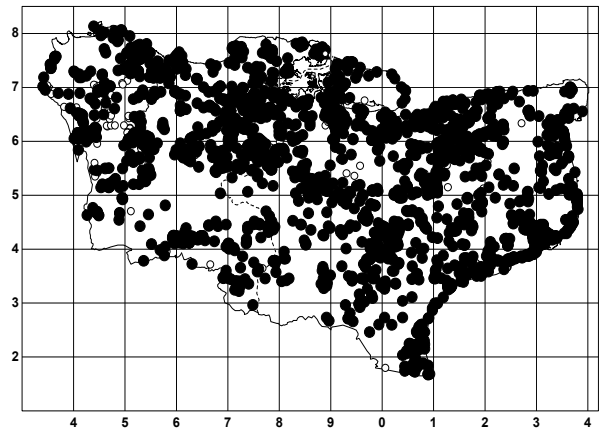
- Habitat Loss and Fragmentation: The primary threats are habitat destruction due to development and agriculture, leading to fragmented populations.
- Unsympathetic Management: Poor land management practices, such as intensive grazing and lack of habitat connectivity, exacerbate population declines.
- Climate Change: Emerging evidence suggests that climate change is negatively impacting reptile populations, particularly adder, through altered seasonal patterns and habitat conditions.

5.2.4 Conservation Priorities

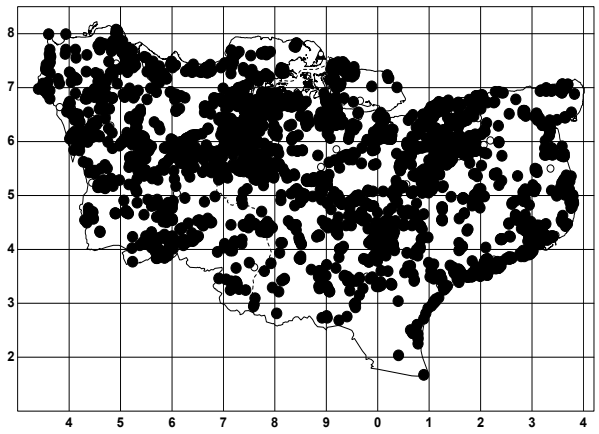
Conservation actions have recently been highlighted by Hodges (2021) and should focus on:

- Habitat Management: Enhanced habitat management practices that include creating/maintaining structurally diverse habitats and protecting key areas, are essential.
- Climate Resilience: Efforts to mitigate climate change impacts are crucial, focusing on species-specific requirements and enhancing habitat connectivity.

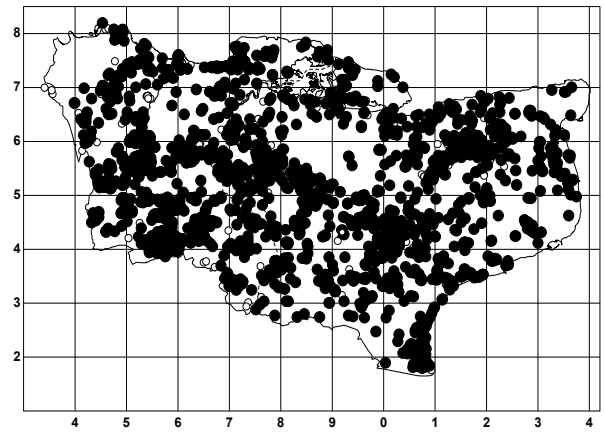
Fig. 5.2 Reptile Distribution in Kent



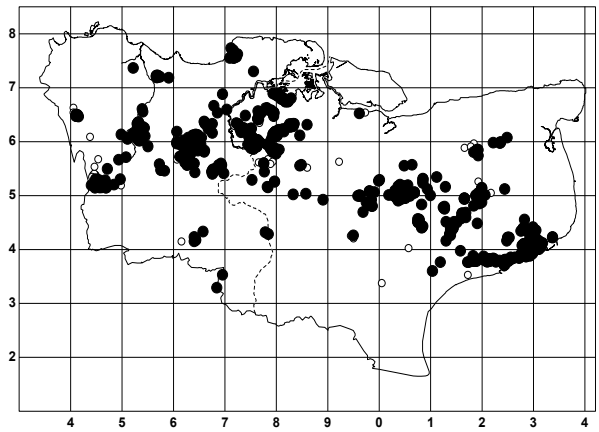
Viviparous Lizard



Slow-worm



Grass Snake



Adder

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project:
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6. Amphibian Assessment

6.1 Site Occupancy

Five native amphibian species have been recorded in the study area within the last 10 years (Table 6.1). Shorne Woods Country Park displays the highest recorded assemblage, supporting all 5 species. Other important amphibian sites include Ashenbank Wood (3 species) and Jeskyns Community Woodland (3 species).

Although some sites include no or few ponds, they may still be important due to the quality of available terrestrial habitat and proximity to other sites with breeding ponds. This includes several of the woodland sites such as Great Crabbles Wood, Cobham Woods and Holborough Woods. This is a particularly important consideration for common toad that can disperse one or more kilometres from breeding ponds. When reviewing available records, it is important to consider that finding amphibians is more challenging in terrestrial habitat and relatively few such observations are reported. This means that the importance of terrestrial habitat is significantly under-represented in available datasets. To control for the absence of records (particularly in terrestrial habitat), an assessment of predicted range has been undertaken for each species (after KRAG, 2012; Fig. 6.1). Predicted ranges have then been used to estimate likely occupancy in sites with no available records (Table 6.1).

The two amphibian species that are considered to have the highest level of conservation importance within the study area are common toad and great crested newt.

Sites that likely support breeding common toad include: Shorne Woods Country Park, Jeskyns Community Woodland and Cobham Hall School. Confirmed and possible breeding ponds are illustrated in Fig. 6.2.

Sites with known breeding populations of great crested newt are grouped into two metapopulations (Figs. 6.3 & 6.4). These metapopulations are separated by the A2 road that functions as a major dispersal barrier.

Metapopulation 1: Shorne Woods Country Park.

Metapopulation 2: Ashenbank Wood, West Park & Cobham Hall School.

6.2 Site Assessment

Habitat within each of the proposed sites was assessed during one or more daytime walkover surveys (Table 6.2).

The assessment considered the availability and apparent quality of potential breeding ponds, including the number of ponds within 1 km of each site. A low density of ponds within the local area will increase migration distance. This can reduce the suitability of sites that otherwise display favourable features for sheltering and foraging. Aquatic features considered important in predicting likely presence of amphibians included:

- Pond area
- Permanence
- Water quality
- Shade
- Presence of fish and/or waterfowl

The extent and apparent quality of available terrestrial habitat was also considered. Key features considered suitable for foraging and sheltering included:

- Moist/damp shaded ground and thick vegetation
- Vegetation structure
- Refugia such as deadwood, leaf litter and cracks/crevices
- Prey availability
- Site disturbance
- Connectivity

To determine the relative importance of each site for native breeding amphibians, the following data has been used to calculate a score for each site: pond density (both within the site and within 1 km), recorded occupancy (including older records and more recent observations), predicted occupancy (for sites with no records for a particular species), site area and terrestrial habitat suitability. Additional weighting has been applied to sites with common toad and great crested newt. Methodology and scores for individual sites are included in Appendix IV.

Based on this assessment, the six most important sites for amphibians within the study area ranked in order of relative importance are (with a tie for position 5):

1. Shorne Woods Country Park
2. Jeskyns Community Woodland
3. Ashenbank Wood
4. Cobham Hall School
5. Ranscombe Farm, Holborough Woodlands

Breeding opportunities are limited at Ranscombe Farm and Holborough Woodlands. These sites score well due to large areas of favourable terrestrial habitat.

6.3 Follow-up Survey Recommendations

Survey recommendations for each site are summarised in Table 6.3. Survey priorities include:

- Confirm ponds that support breeding common toad.
- Determine common toad population sizes in breeding ponds.
- Monitor gcn in metapopulations 1 & 2.
- Survey ponds likely to support gcn that are located within 500 m of an occupied pond.

6.4 Management Recommendations

Management actions for each site are summarised in Table 6.3. Management priorities include:

- Appropriate management of ponds supporting breeding common toad.
- Creation of large ponds suitable for common toad in appropriate locations.
- Review toad mortality along Thong Lane, Brewer Road/Woodland Lane, Henhurst Road and Pilgrims Road. Install tunnels/toad crossing sign(s) as appropriate.
- Appropriate management of ponds occupied by great crested newt, including control of *Crassula* where present, control of macrophytes and reduction in shade as needed.
- Creation of ponds suitable for great crested newt in appropriate locations within 500 m of occupied ponds. Ideally such ponds should have a minimum area of 200 m^2, be fish free and achieve a HSI score of 0.7 or above.
- Appropriate management and enhancement of existing terrestrial habitat around breeding ponds. Include features such as scrub, rough grassland and log piles.
- Avoid burning woody material during management works.
- Creation of ditches, hedgerows, rough grassland, scrub and woodland to increase connectivity between ponds.

Site Name	No. Ponds (site)	No. Ponds (1 km)	Species Occupancy (last recorded year) [Predicted occupancy if not previously recorded]						
			Common Frog	Common Toad	Marsh Frog	Smooth Newt	Palmate Newt	Great Crested Newt	Alpine Newt
Shorne Woods Country Park	13	19	**2022**	**2016**	[possible]	**2022**	**2022**	**2024**	-
Cobham Wood	0	13	[Likely]	[High]	[Possible]	[Likely]	[High]	[High]	-
The 'Leisure Plots'	0	5	[Likely]	**2017**	[Possible]	[Likely]	[High]	[High]	-
Ranscombe Farm	1	3	[High]	[High]	[Possible]	[High]	2008	2008	-
Ashenbank Wood	5	13	2007	[High]	[Possible]	**2020**	**2020**	**2024**	-
West Park	1	16	[High]	[High]	[Possible]	[High]	[High]	**2018**	-
Camer Park	0	4	[High]	[High]	[Possible]	[Possible]	[Likely]	[Possible]	-
Silverhand Estate	2	23	[High]	[High]	[Possible]	[High]	[High]	[Possible]	-
Crabble Bottom	0	11	[Likely]	[Possible]	[High]	[High]	[High]	[Possible]	-
Shorne Common Rough	0	26	[High]	[Likely]	[Likely]	[High]	[High]	[Likely]	-
Holborough Woodlands	2	14	[High]	**2016**	[Possible]	[High]	[Likely]	[Possible]	-
Jeskyns Community Woodland	5	19	**2017**	**2019**	[Possible]	**2020**	[High]	[Likely]	-
Great Crabbles Wood	0	15	[Likely]	[Possible]	[High]	[High]	[High]	[Likely]	-
South Ashenbank Wood	0	17	[High]	[High]	[Possible]	[High]	[High]	[High]	-
Cobham Hall School	5	13	[High]	[High]	[Possible]	[High]	[High]	**2014**	-
% Site Occupancy (corrected for High predicted occupancy)			**20 (73)**	**27 (80)**	**0 (13)**	**20 (80)**	**20 (87)**	**33 (53)**	**0 (0)**

Table 6.1. Summary of known ponds and amphibian occupancy in sites proposed for inclusion in NNR. Where a species has not been recorded its likely presence has been predicted based on nearest neighbour analysis of available records (*High* – core range, *Likely – predicted range*, *Possible* – maximum expected range).

Site Name	Aquatic Breeding Habitat	Terrestrial Sheltering Habitat	Comments
Shorne Woods Country Park	High	High	12 ponds with wide range of conditions suitable for different amphibian species. Large population of GCN previously recorded and eggs found during current assessment. Larger ponds offer good potential for breeding common toad. Woodland highly favourable to sheltering/foraging amphibians. *Crassula* noted in ponds near visitor centre. High pond density within 1 km.
Cobham Wood	None	High	No ponds. Woodland and grassland provide extensive sheltering/foraging habitat for amphibians. High pond density within 1 km.
The 'Leisure Plots'	None	High	No ponds. Woodland provides sheltering/foraging habitat for amphibians. Moderate pond density within 1 km.
Ranscombe Farm	Low	High	1 small ephemeral pond present in woodland that only holds water during wet winters. Woodland, arable margins and grassland habitats provide sheltering/foraging habitat for amphibians but pond density low within 1 km.
Ashenbank Wood	Moderate	High	5 ponds present (including flooded pool in stream). GCN previously recorded and eggs found during current assessment. Extensive area of woodland provides good sheltering/foraging habitat. High pond density within 1 km.
West Park	Low	Low	1 pond that appears favourable for gcn and previously found to be occupied, but no eggs observed during current assessment. Grassland grazed by sheep limiting potential for shelter. High pond density within 1 km.
Camer Park	None	Moderate	No ponds. Woodland and grassland habitats provide sheltering/foraging habitat for amphibians but many areas cut to short sward and pond density low within 1 km.
Silverhand Estate	Low	Moderate	1 garden pond and small roadside pond present. Extensive area of land within site that includes woodland and grassland. High pond density within 1 km. Sheltering and foraging is constrained in many areas by commercial management of vineyards and sheep grazing resulting in short swards.
Crabble Bottom	None	Moderate	No ponds. Woodland and grassland provide suitable terrestrial habitat but grass found to display short sward limiting available cover. Pond density high within 1 km.
Shorne Common Rough	None	Moderate	No ponds. Although woodland and grassland provide sheltering/foraging habitat and pond density is high, the site is limited in area and subject to heavy recreational use that has caused disturbance to ground flora.
Holborough Woodlands	Low	High	2 ponds in site (possibly connected and found to be fully desiccated). Extensive area of terrestrial habitats (including woodland and grassland) and high pond density within 1 km.
Jeskyns Community Woodland	Moderate	High	5 ponds in site (one found to be fully desiccated). High recreational pressure, but extensive areas of undisturbed terrestrial habitats (including woodland and grassland) and high pond density within 1 km.
Great Crabbles Wood	None	High	No ponds. Deciduous woodland provides good sheltering/foraging habitat. High pond density within 1 km.
South Ashenbank Wood	None	High	No ponds. Deciduous woodland provides good sheltering/foraging habitat. High pond density within 1 km.
Cobham Hall School	Moderate	High	3 ponds and 2 lakes in site. Wood pasture and deciduous woodland provides good sheltering/foraging habitat. High pond density within 1 km.

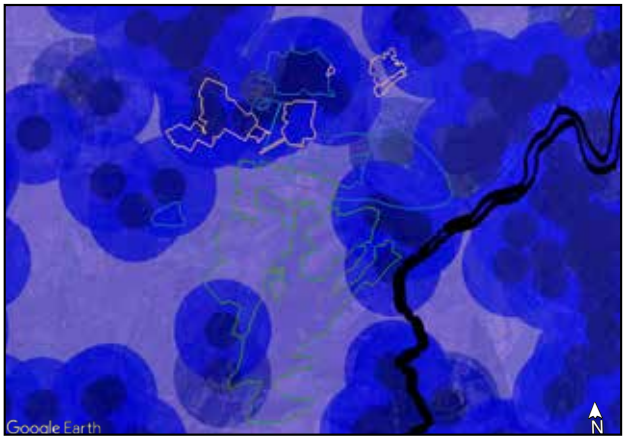
Table 6.2. Summary of habitat availability within each proposed site. For aquatic breeding habitat, availability is based on presence of ponds and categorised as follows: *None* – no ponds present, *Low* 1 – 3 ponds, *Moderate*. 4 – 9 ponds, *High* 10+ ponds. For terrestrial sheltering habitat: *None* – no suitable habitat present; *Negligible* – habitat present but very limited in area or poor quality; *Low* – habitat present but limited in area; *Moderate* – habitat present and favourable for species; *High* – extensive area of habitat that is highly favourable for species.

Site Name	Survey Recommendations	Management Recommendations
Shorne Woods Country Park	Continue to monitor gcn population. Survey larger ponds to determine common toad population size (e.g. P1.10 & P1.11).	Control *Crassula*. Ensure available habitat retains dead wood and other habitat piles for sheltering amphibians. Avoid burning cut woody material.
Cobham Wood		Ensure available habitat retains dead wood and other habitat piles for sheltering amphibians. Avoid burning cut woody material.
The 'Leisure Plots'		Creation of one or more ponds to expand gcn metapopulation 2. Ensure available habitat retains dead wood and other habitat piles for sheltering amphibians. Avoid burning cut woody material.
Ranscombe Farm	Assess condition of ephemeral pond P4.1 during spring. Determine likely presence of gcn.	Creation of one or more ponds suitable for common toad and/or gcn in appropriate areas that will not damage botanical interests. Ensure woodland and scrub habitats retain dead wood and consider creating other habitat piles for sheltering amphibians. Avoid burning cut woody material.
Ashenbank Wood	Continue to monitor gcn population.	Ensure available habitat retains dead wood and other habitat piles for sheltering amphibians. Avoid burning cut woody material.
West Park	Survey P6.1 to confirm presence of gcn.	Creation of one or more ponds to expand gcn metapopulation 2. Reduce grazing in to allow development of more structurally complex sward. Plant hedgerows/scrub/woodland to create dispersal corridor(s).
Camer Park		Creation of one or more ponds suitable for widespread amphibian species. Review management actions to allow development of more structurally complex swards in appropriate areas.
Silverhand Estate	Assess condition of ponds P8.1 & P8.2 and survey for widespread amphibians.	Creation of one or more large ponds suitable for breeding common toad. Ensure woodland and scrub habitats retain dead wood and consider creating other habitat piles for sheltering amphibians. Continue to review management actions to allow development of more structurally complex swards in appropriate areas.
Crabble Bottom		Review management actions to allow development of more structurally complex vegetation sward. Ensure available habitat retains dead wood and other habitat piles for sheltering amphibians. Avoid burning cut woody material.
Shorne Common Rough		Reduce recreational pressure to allow recovery of ground flora. Ensure available habitat retains dead wood and other habitat piles for sheltering amphibians. Avoid burning cut woody material.
Holborough Woodlands	Assess condition of ephemeral ponds P11.1 & P11.2.	Creation of one or more small woodland ponds and larger ponds in more open areas that are suitable for breeding common toad. Ensure woodland and scrub habitats retain dead wood and consider creating other habitat piles for sheltering amphibians. Where actions will not conflict with botanical interests, review management to allow development of more structurally complex swards in grassland areas.
Jeskyns Community Woodland	Survey larger ponds to determine common toad population size (e.g. P12.4). Survey smaller ponds to monitor possible colonisation by gcn.	Reinstate defunct pond (P12.1). Creation of one or more ponds near eastern boundary to expand gcn metapopulation 2. Ensure available habitat retains dead wood and other habitat piles for sheltering amphibians. Avoid burning cut woody material. Continue to review management actions to maintain structurally complex swards in appropriate areas.
Great Crabbles Wood		Ensure available habitat retains dead wood and other habitat piles for sheltering amphibians. Avoid burning cut woody material.
South Ashenbank Wood		Ensure available habitat retains dead wood and other habitat piles for sheltering amphibians. Avoid burning cut woody material.
Cobham Hall School	Survey all ponds to determine presence of common toad and update gcn records.	Ensure available habitat retains dead wood and other habitat piles for sheltering amphibians. Avoid burning cut woody material.

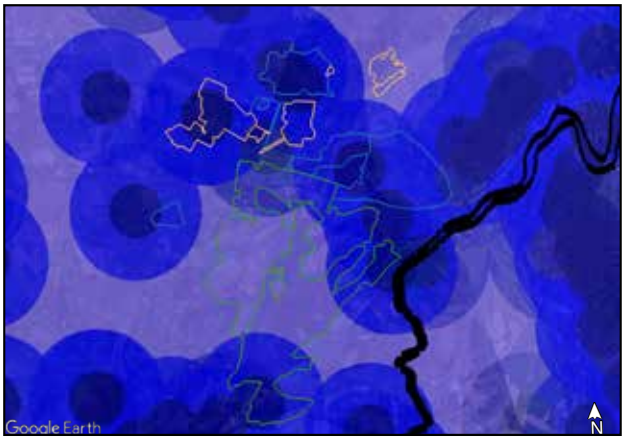
Table 6.3. Summary of amphibian survey and management recommendations for each proposed site.

Fig. 6.1 Predicted Amphibian Occupancy

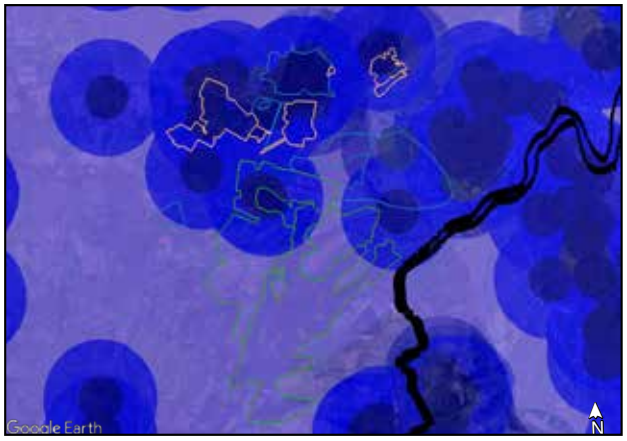
Core, predicted and maximum expected ranges across study area.



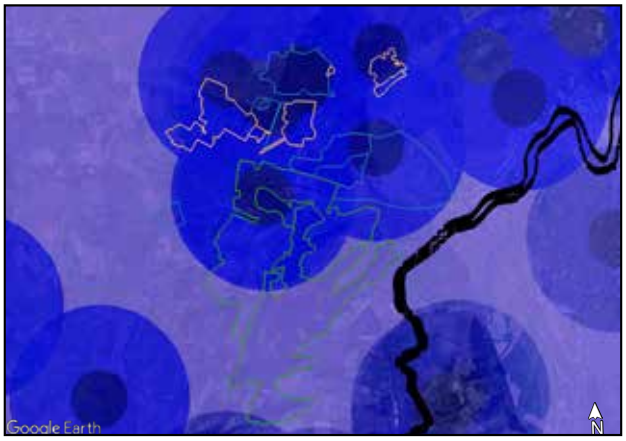
Common Frog



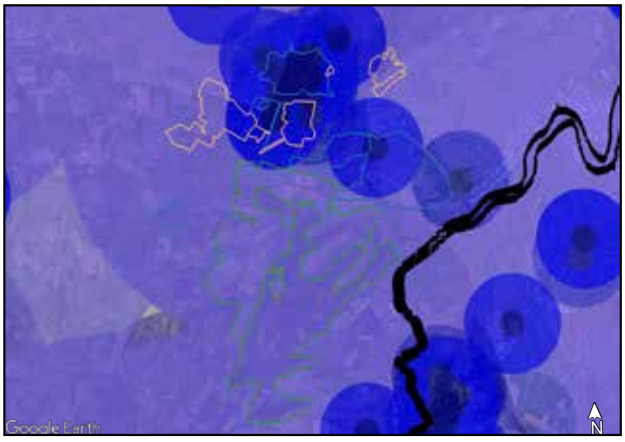
Common Toad



Smooth Newt



Palmate Newt



Great Crested Newt

drawing no:	**2324/72/1/6.1**

project:
Kent Woods & Downland NNR

title:
Predicted Amphibian Occupancy

scale: **N.T.S.**	date: **Aug 2024**

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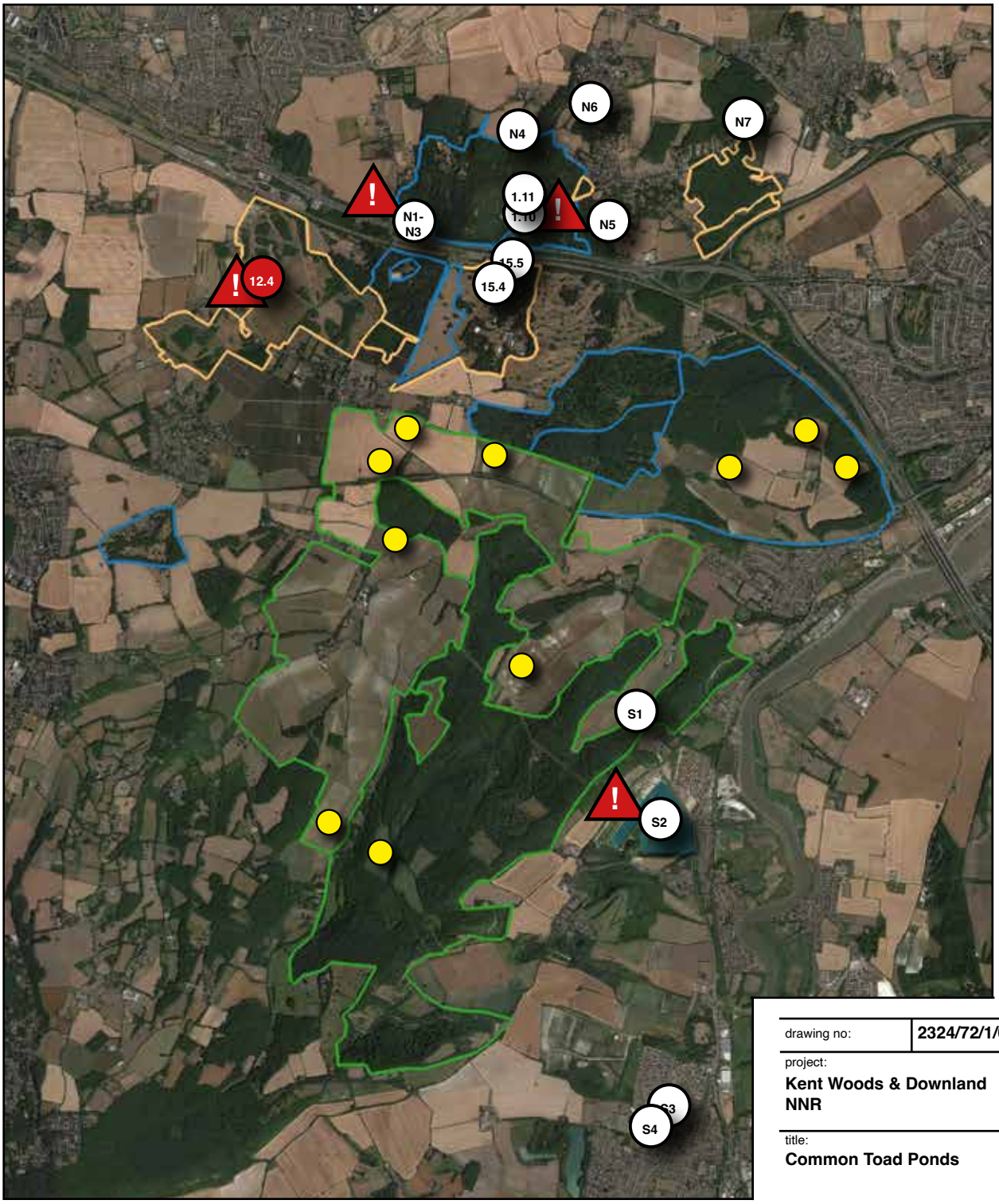
Fig. 6.2 Common Toad Ponds

Ponds known to support common toad and other ponds considered most likely to be occupied. Ponds labelled N or S are located outside of the study area sites. Possible locations of road mortality and new toad ponds are also shown.



drawing no:	**2324/72/1/6.2**
project:	**Kent Woods & Downland NNR**
title:	**Common Toad Ponds**
scale: **N.T.S.**	date: **Aug 2024**

Key to Symbols

occupied pond | other pond | new pond | road mortality

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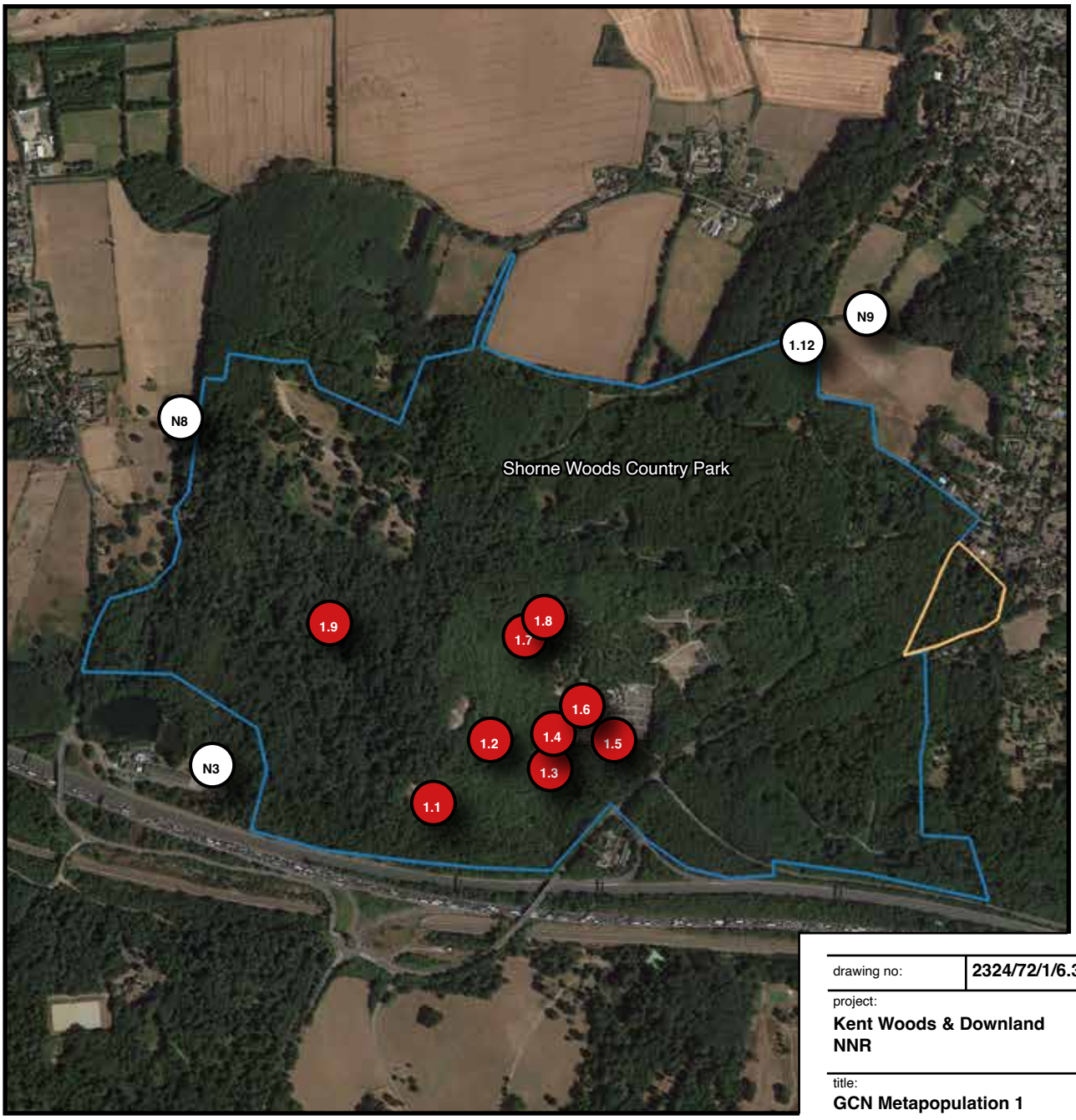
Fig. 6.3 Great Crested Newt Metapopulation 1

Ponds known to support great crested newt and other ponds considered most likely to be occupied. Ponds labelled N are located outside of the study area sites.



drawing no:	**2324/72/1/6.3**

project:
Kent Woods & Downland NNR

title:
GCN Metapopulation 1

scale: **N.T.S.**	date: **Aug 2024**

Key to Symbols

occupied pond

other pond

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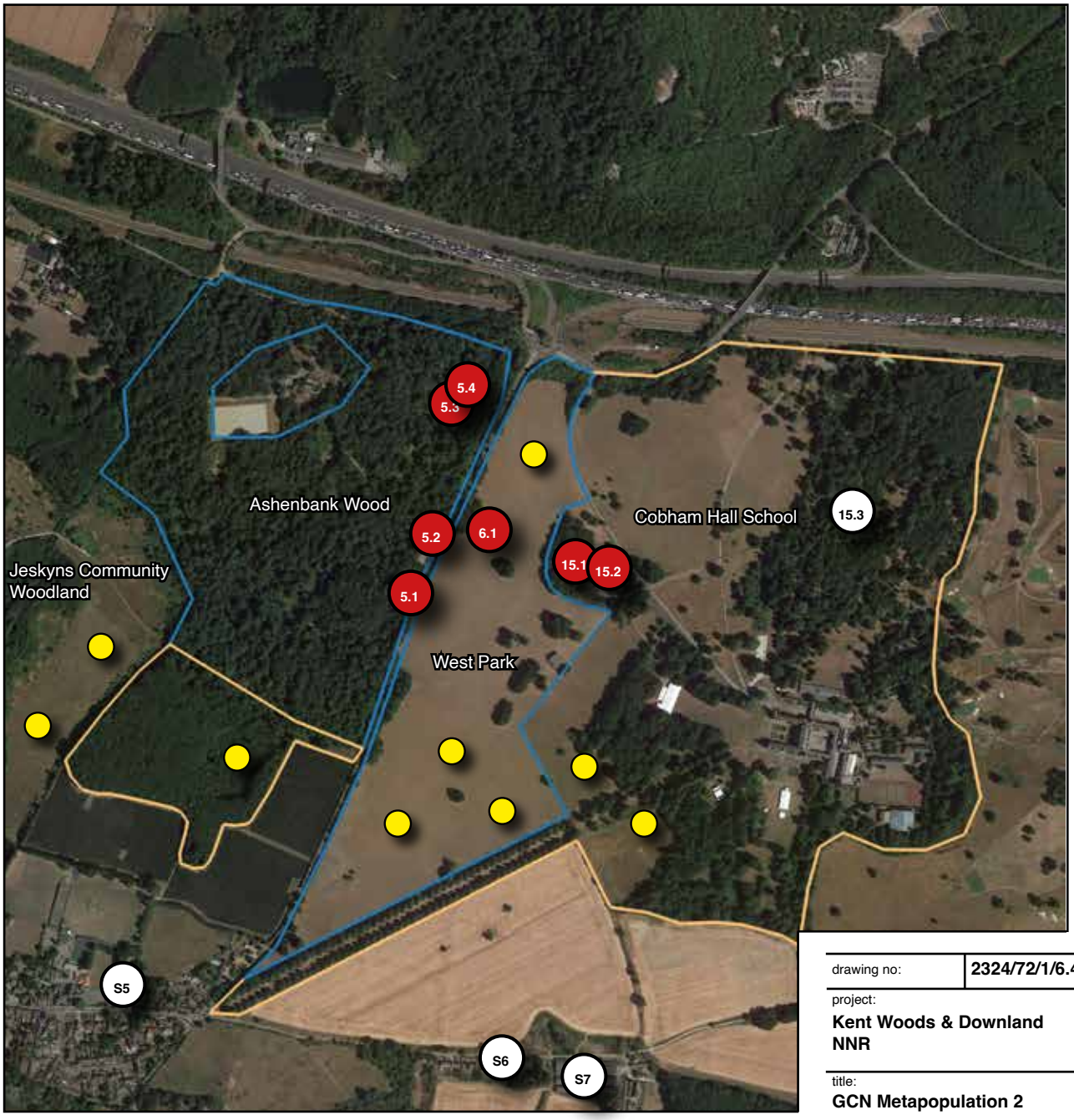
Fig. 6.4 Great Crested Newt Metapopulation 2.

Ponds known to support breeding populations of great crested newt and other ponds considered most likely to support breeding newts. Ponds labelled S are located outside of the study area sites. Possible locations for new gcn ponds are also shown.



drawing no:	**2324/72/1/6.4**
project:	**Kent Woods & Downland NNR**
title:	**GCN Metapopulation 2**
scale: **N.T.S.**	date: **Aug 2024**

Key to Symbols

occupied pond | other pond | new pond

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7. Reptile Assessment

7.1 Site Occupancy

Four native reptile species have been recorded in the study area within the last 10 years (Table 7.1). Viviparous lizard appears to be the most widely distributed species, with records from 8 sites.

Cobham Wood and Silverhand Estate display the highest recorded assemblages, with 3 species reported from each site in the last 10 years. Ranscombe Farm and Holborough Woodlands also have records for 3 species, but one species from each site is represented by a historical record. These include adder (2011) at Ranscombe Farm and grass snake (1998) at Holborough Woodlands.

Reptiles are cryptic and many species are difficult to find with some species requiring specialised survey methodologies (e.g. artificial cover objects). The availability of records is therefore constrained by survey effort. To control for this, an assessment of predicted range has been undertaken for each species (Brady & Phillips, 2012; Fig. 7.1). Predicted range has then been used to estimate likely occupancy in sites with no available records.

Adder is considered to have the highest level of conservation importance within the study area. Three sites have recent records of adder: Cobham Wood, Silverhand Estate and Holborough Woodlands. Recorded adder distribution within the study area is very limited and appears to be associated with chalk geology (Fig. 7.1).

In recent years, an increasing number of sites have been subject to reptile mitigation for development projects. Such mitigation can involve the capture and relocation of animals. Unfortunately, the locations of receptor sites are often poorly documented. Available information indicates that viviparous lizard and slow-worm were translocated to Camer Park in 2014. A review of available records reveals that both species had previously been recorded at this site in 2010.

7.2 Site Assessment

Habitat within each of the proposed sites was assessed during one or more daytime walkover surveys (Table 7.2). The assessment considered the availability and apparent quality of foraging/sheltering habitats suitable for all species. Features considered important for reptiles included the following:

- Vegetation structure
- Interface habitat
- Basking opportunities
- Available refugia for shelter
- Prey availability
- Site disturbance
- Connectivity

The assessment also considered these features specifically in relation to adder. Particular regard was given to the following:

- Vegetation with structurally complex swards.
- Habitat mosaics with a mix of sunny areas for basking combined with adjacent dense vegetation for sheltering and hunting.
- Hibernation opportunities.
- Prey availability.
- Site management.

To determine the relative importance of each site for native reptiles, the following data have been used to calculate a score for each site: recorded occupancy (including older records and more recent observations), predicted occupancy (for sites with no records for a particular species), chalk geology, site area and terrestrial habitat suitability. Additional weighting has been applied to sites with adder. Methodology and scores for individual sites are included in Appendix V.

Based on this assessment, the 5 most important sites for reptiles within the study area ranked in order of relative importance are:

1. Holborough Woodlands
2. Silverhand Estate
3. Ranscombe Farm
4. Jeskyns Community Woodland
5. Cobham Wood

7.3 Follow-up Survey Recommendations

Follow-up survey recommendations for each site are summarised in Table 7.3. Proposed survey areas are illustrated in Figs. 7.2 – 7.9. Figures also include other possible survey areas that appear to display favourable reptile habitat adjacent to the study area. Survey priorities include:

- Update records of adder in Cobham Wood, Ranscombe Farm, Silverhand Estate and Holborough Woodlands.
- For confirmed adder observations, identify and survey favourable reptile habitat within 500 m.
- Continue to monitor reptile populations at Silverhand Estate and Jeskyns Community Woodland.

For surveys targeting adder, visual surveys can be undertaken during late winter and early spring. (February to April). Surveys undertaken at this time can reveal adder emerging from hibernation. Adders are often easier to detect at this time with observations also identifying key hibernation sites.

Surveys undertaken later in the season may need to deploy artificial cover objects and this may be both time and cost prohibitive over such a large study area. Surveys undertaken from mid/late August onwards can be useful in confirming neonates which is important for assessing reproductive success and population health.

7.4 Management Recommendations

Management actions for each site are summarised in Table 7.3. Management priorities include:

- Management should aim to create a mosaic of habitats that offer sunny open areas for basking, scrub/woodland and rough grassland for foraging and sheltering.
- Corridors of suitable habitat should be created in appropriate areas to increase connectivity. Such corridors can include ditches, headlands, hedgerows, scrub and woodland edges with appropriately managed ground flora.
- Where appropriate, grassland and other ground flora can be managed using either grazing or rotational cutting but such management should aim to enhance the structural complexity of the sward to create areas of rough grassland.
- Where appropriate, headlands can be maintained/created around field margins.
- Woodland management should include maintenance and/or creation of open glades and rides.
- Avoid burning woody material during management works.
- Create features suitable for hibernation in appropriate areas. Such features can include log piles or artificial hibernacula.
- Ensure habitat areas retain dead wood and other habitat piles suitable for grass snake egg-laying.
- Reduce disturbance in sensitive areas.

Site Name	Chalk Geology (Ha)	Species Occupancy (last recorded year)					
		Viviparous Lizard	Sand Lizard	Slow-worm	Wall Lizard	Grass Snake	Adder
Shorne Woods Country Park	0	**2021**	-	[Likely]	[Possible]	**2021**	-
Cobham Wood	48	**2016**	-	**2023**	[Possible]	[High]	**2019**
The 'Leisure Plots'	44	**2019**	-	**2019**	[Possible]	[High]	[Likely]
Ranscombe Farm	239	**2024**	-	**2021**	[High]	[High]	2011
Ashenbank Wood	0	[High]	-	[Possible]	[Possible]	**2020**	[Possible]
West Park	1.5	[High}	-	[Likely]	[Possible]	[High]	[Possible]
Camer Park	26.35	**2014 (introduced)**	-	**2014 (introduced)**	[Possible]	[Likely]	[Possible]
Silverhand Estate	623	**2024**	-	**2024**	[Likely]	[High]	**2024**
Crabble Bottom	11.64	[High]	-	[High]	[Possible]	[High]	-
Shorne Common Rough	0	[High]	-	[Likely]	[Possible]	[High]	-
Holborough Woodlands	595.73	**2024**	-	[High]	[Likely]	1998	**2020**
Jeskyns Community Woodland	49	**2018**	-	[Possible]	[Possible]	**2024**	[Possible]
Great Crabbles Wood	3.5	[High]	-	[High]	[Possible]	[High]	-
South Ashenbank Wood	0	[High]	-	[Possible]	[Possible]	[High]	[Possible]
Cobham Hall School	6	[High]	-	[Likely]	[Possible]	2007	[Likely]
% Site Occupancy (corrected for High predicted occupancy)		**53 (100)**	**0 (0)**	**33 (53)**	**0 (7)**	**33 (93)**	**27 (27)**

Table 6.1. Summary of available chalk geology and reptile occupancy in sites proposed for inclusion in NNR. Where a species has not been recorded its likely presence has been predicted based on nearest neighbour analysis of available records (*High* – core range, *Likely – predicted range*, *Possible* – within maximum expected range).

Site Name	General Foraging/ Sheltering Habitat	Adder Habitat	Comments
Shorne Woods Country Park	Moderate	Low	Woodlands generally shaded but glades and areas of open grassland present. Large number of ponds means that site likely to be important for grass snake.
Cobham Wood	Moderate	Moderate	Woodlands generally shaded, but some areas of grassland and ruderals maintained by cattle grazing offer potential for foraging and sheltering.
The 'Leisure Plots'	Moderate	Low	Site mostly wooded and shaded. Some open glades offer potential for widespread reptiles.
Ranscombe Farm	Moderate	Moderate	Woodlands generally shaded but rides and glades offer habitat suitable for reptiles. Arable field margins known to support viviparous lizard and slow-worm. Adder reported from woodland adjacent to railway line. Management of arable and chalk grassland to maintain floristic interest conflicts with reptile habitat requirements.
Ashenbank Wood	Low	Low	Site wooded and shaded. More open areas include glades that offer potential for widespread reptiles.
West Park	Low	Negligible	Sheep grazed grassland. Some reptiles could occupy suitable habitat around boundaries.
Camer Park	Moderate	Low	Parkland with areas of managed grassland and woodland. Woodland generally shaded. Most grassland mown, with some areas allowed to develop a longer sward. Mitigation receptor site for viviparous lizard and slow-worm.
Silverhand Estate	Moderate	Moderate	Sheep grazed fields and vineyard with intensive management across many areas. Field margins in managed areas appear to offer more favourable habitat. Less intensively managed areas retain vegetation suitable for reptiles and ongoing survey work has confirmed presence of viviparous lizard, slow-worm and adder.
Crabble Bottom	Moderate	Low	Available grassland has limited structural complexity. Some widespread species likely present with viviparous lizard previously observed near site entrance.
Shorne Common Rough	Low	None	Woodland shaded and subject to high recreational pressure. Dog walking field offers limited potential for widespread reptile species.
Holborough Woodlands	High	High	Woodlands generally shaded but rides and glades offer habitat suitable for reptiles. Large areas of open grassland present within woodland. Several blocks of grassland appear favourable for reptiles including adder. Pheasant feeding stations observed and pheasants recorded in woodland. Large arable fields also present around woodlands. Adder previously reported from site.
Jeskyns Community Woodland	High	High	Relatively large site with open grassland areas several of which display high structural complexity offering good potential for reptiles. Unconfirmed reports of adder from public. Public pressure may impact on occupancy in some areas.
Great Crabbles Wood	Low	Low	Woodland shaded with limited number of open glades. Interface habitat along boundaries (particularly to west) offer potential.
South Ashenbank Wood	Low	Low	Woodland shaded with limited number of open glades. Interface habitat along southern boundary offer potential.
Cobham Hall School	Moderate	Low	Woodpasture and parkland with large areas of managed grassland.

Table 7.2. Summary of habitat availability within each proposed site. For general foraging/sheltering habitats features suitable for all reptile species were considered: *None* – no suitable habitat present; *Negligible* – habitat present but very limited in area or poor quality; *Low* – habitat present but limited in area; *Moderate* – habitat present and favourable for species; *High* – extensive area of habitat that is highly favourable for species. For adder habitat, features specific to this species were considered: *None* – no suitable adder habitat present; *Negligible* – adder habitat present but very limited in area or poor quality; *Low* – adder habitat present but limited in area; *Moderate* – adder habitat present and favourable for species; *High* – extensive area of adder habitat that is highly favourable for species.

Site Name	Survey Recommendations	Management Recommendations
Shorne Woods Country Park	Determine species present at Randall Heath (T1.1). Fig. 7.2.	Ensure available habitat retains dead wood and other habitat piles for grass snake egg-laying. Avoid burning cut woody material. Improve structural complexity of sward at Randall Heath. Consider rotational management to reduce impacts on reptiles.
Cobham Wood	Confirm presence of adder in open areas (T2.1 - T2.6). Assess distribution and status of other reptiles. Fig. 7.3.	Continue to manage vegetation using cattle. Ensure structural complexity of sward is maintained in open areas. Create log piles in appropriate areas.
The 'Leisure Plots'	Determine likely presence of adder in glades (T3.1 & T3.2) and along southern interface habitat (T3.3). Fig. 7.3.	Continue to manage woodland through maintenance /creation of glades and rides. Ensure structural complexity of sward in open areas is maintained. Avoid burning cut woody material. Create log piles in appropriate areas.
Ranscombe Farm	Confirm presence of adder along southern boundary with railway line (T4.1), woodland glades (T4.2 – T4.5) and interface habitats (e.g. T4.6 - T4.10). Assess distribution and status of other reptiles across site (e.g. T4.11). Fig. 7.4.	Continue to manage woodland through maintenance/creation of glades and rides. Continue to provide wide headlands around arable fields. Review management of headlands to improve structural complexity of sward. Avoid burning cut woody material. Create log piles in appropriate areas.
Ashenbank Wood	Determine presence of reptiles in glades (e.g. T5.1 & 5.2) and along western boundary (T5.3). Fig. 7.5.	Continue to manage woodland through maintenance/creation of glades and rides. Ensure structural complexity of sward in open areas is maintained. Avoid burning cut woody material. Create log piles in appropriate areas.
West Park	Determine presence of reptiles in suitable interface habitat (e.g. T6.1). Fig. 7.5.	Significantly reduce grazing pressure to improve structural complexity of sward. Plant hedgerows/scrub to create more interface habitat. Create log piles in appropriate areas.
Camer Park	Assess status of introduced reptiles.	Review management of grassland to enhance structural complexity of sward. Avoid burning cut woody material. Create log piles in appropriate areas.
Silverhand Estate	Continue to monitor existing survey plots. Confirm presence of adder (T8.1) and assess likely presence in other suitable habitat areas (e.g. T8.2 – T8.6), including along boundary of railway (T8.7). Fig. 7.6	Reduce grazing pressure to improve structural complexity of grassland swards. Increase size of headlands in appropriate areas. Avoid burning cut woody material. Create log piles in appropriate areas.
Crabbles Bottom	Determine presence of reptiles in grassland/orchard habitats (T9.1 - T9.4). Fig. 7.7.	Reduce mowing/grazing pressure to improve structural complexity of grassland sward. Avoid burning cut woody material. Create log piles in appropriate areas.
Shorne Common Rough	Determine presence of reptiles in grassland habitat (T10.1). Fig. 7.1	Reduce recreational pressure. Manage woodland through creation of glades and rides. Avoid burning cut woody material. Create log piles in appropriate areas.
Holborough Woodlands	Confirm presence of adder and other reptiles. Review distribution across grassland, glades and rides (e.g. T11.1 – T11.15). Fig. 7.8.	Cease pheasant rearing. Continue to manage woodland through maintenance/creation of glades and rides. Review management to increase structural complexity of sward in open areas. Avoid burning cut woody material. Create log piles in appropriate areas.
Jeskyns Community Woodland	Continue to monitor site and determine presence of adder. Suggested additional target areas include (T12.1 – T12.4). Fig. 7.9.	Continue to manage appropriate grassland areas to enhance structural complexity of sward. Avoid burning cut woody material. Create log piles in appropriate areas.
Great Crabbles Wood	Determine presence of reptiles along southwestern boundary (T13.1). Fig. 7.7.	Create open glades and rides.
South Ashenbank Wood	Determine presence of reptiles in glades (e.g. T14.1) along rides (e.g. 14.2) and along southern boundary (T14.3). Fig. 7.5.	Manage woodland through creation of glades and rides. Ensure available habitat retains dead wood and other habitat piles for grass snake egg-laying. Avoid burning cut woody material.
Cobham Hall School	Determine presence of reptiles in suitable areas (e.g. T15.1 – T15.3). Fig. 7.5.	Review management of grassland to enhance structural complexity of sward in appropriate areas. Avoid burning cut woody material. Create log piles in appropriate areas. Consider rotational grazing/cutting.

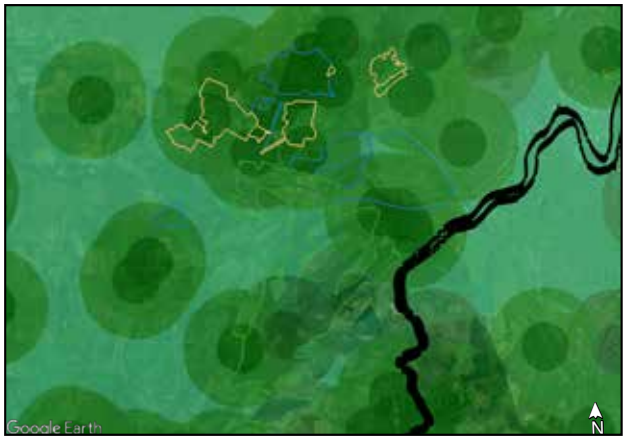
Table 7.3. Summary of reptile survey and management recommendations for each proposed site.

Fig. 7.1 Predicted Reptile Occupancy

Core, predicted and maximum expected ranges across study area.

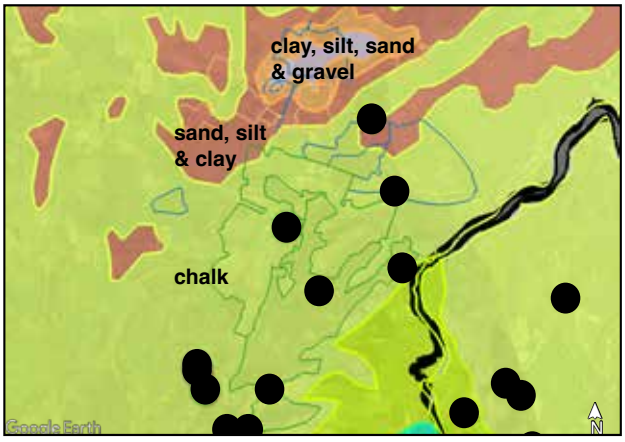
Viviparous Lizard

Slow-worm



Grass Snake

Adder



Adder Distribution and Chalk

drawing no:	**2324/72/1/7.1**
project: **Kent Woods & Downland NNR**	
title: **Predicted Reptile Occupancy**	
scale: **N.T.S.**	date: **Aug 2024**

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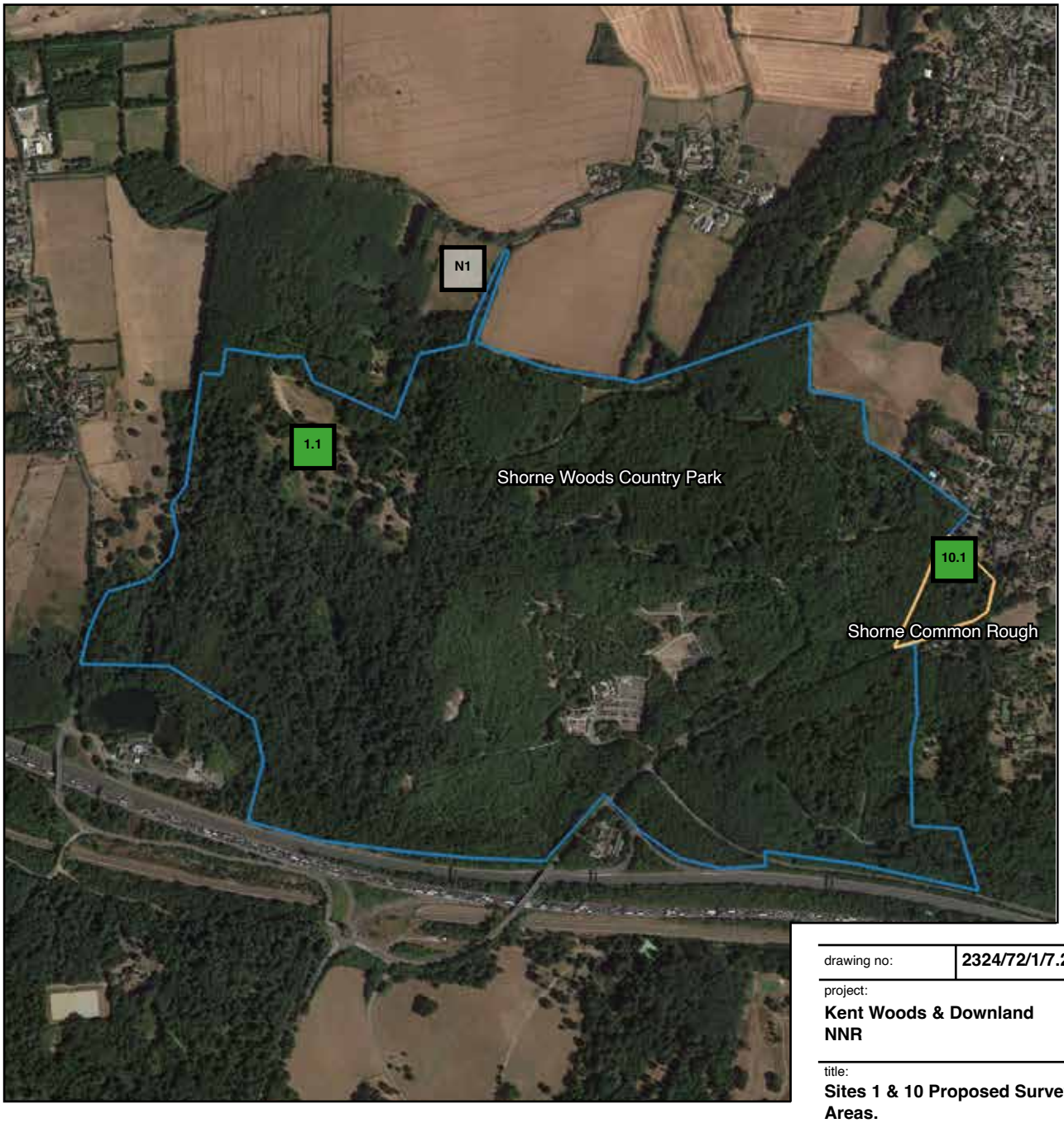
Fig. 7.2 Shorne Woods Country Park & Shorne Common Rough

Proposed survey areas. Areas labelled N are located outside of the study area sites.



drawing no:	**2324/72/1/7.2**

project:
Kent Woods & Downland NNR

title:
Sites 1 & 10 Proposed Survey Areas.

scale: **N.T.S.**	date: **Aug 2024**

Key to Symbols

1.1 survey area

other possible survey area

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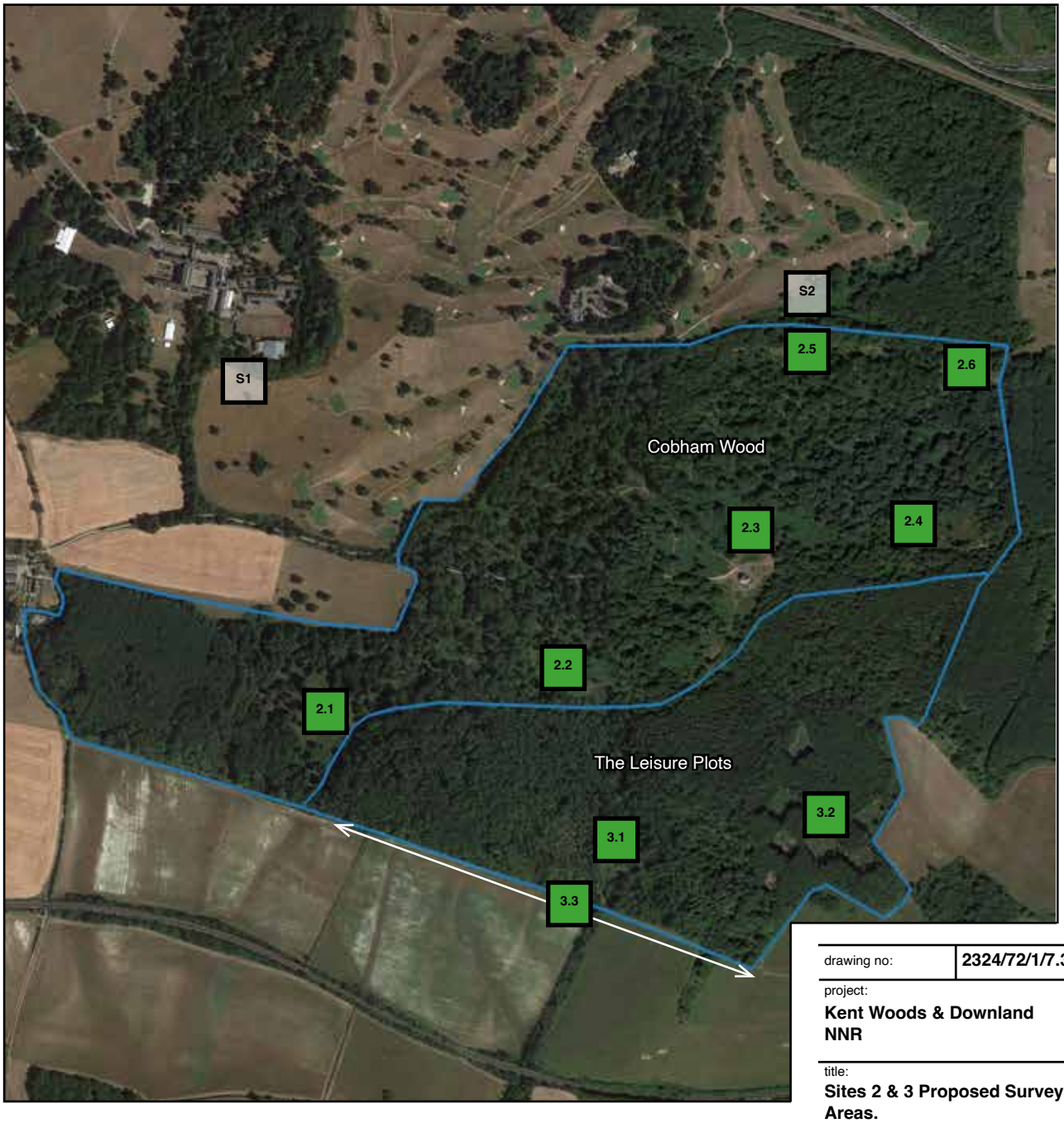
Fig. 7.3 Cobham Wood and The Leisure Plots

Proposed survey areas. Areas labelled S are located outside of the study area sites.



drawing no:	**2324/72/1/7.3**

project:
Kent Woods & Downland NNR

title:
Sites 2 & 3 Proposed Survey Areas.

scale: **N.T.S.**	date: **Aug 2024**

Key to Symbols

2.1 survey area

other possible survey area

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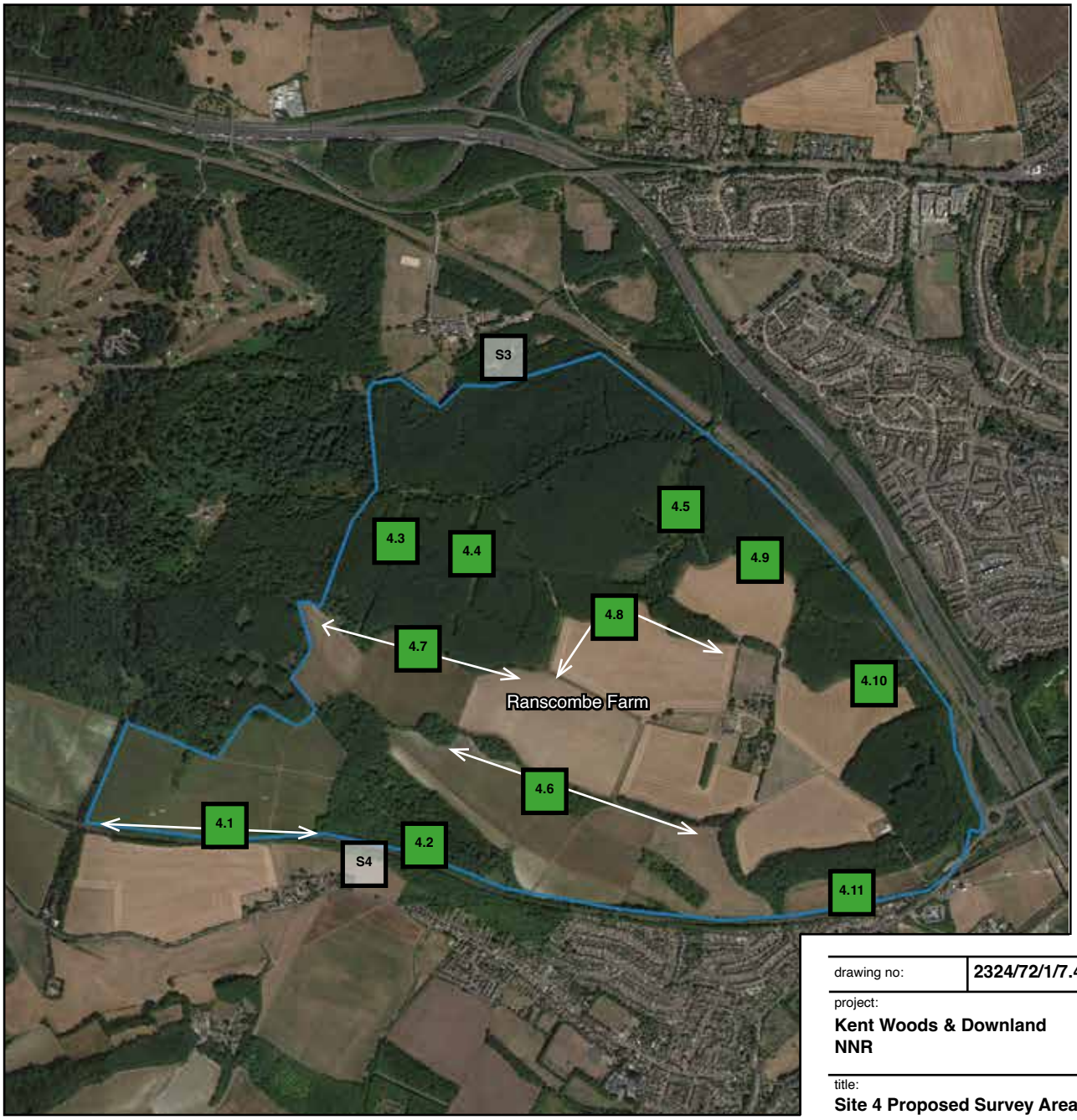
Fig. 7.4 Ranscombe Farm

Proposed survey areas. Areas labelled S are located outside of the study area sites.



drawing no:	**2324/72/1/7.4**

project:
Kent Woods & Downland NNR

title:
Site 4 Proposed Survey Areas.

scale: **N.T.S.**	date: **Aug 2024**

Key to Symbols

4.1 survey area

other possible survey area

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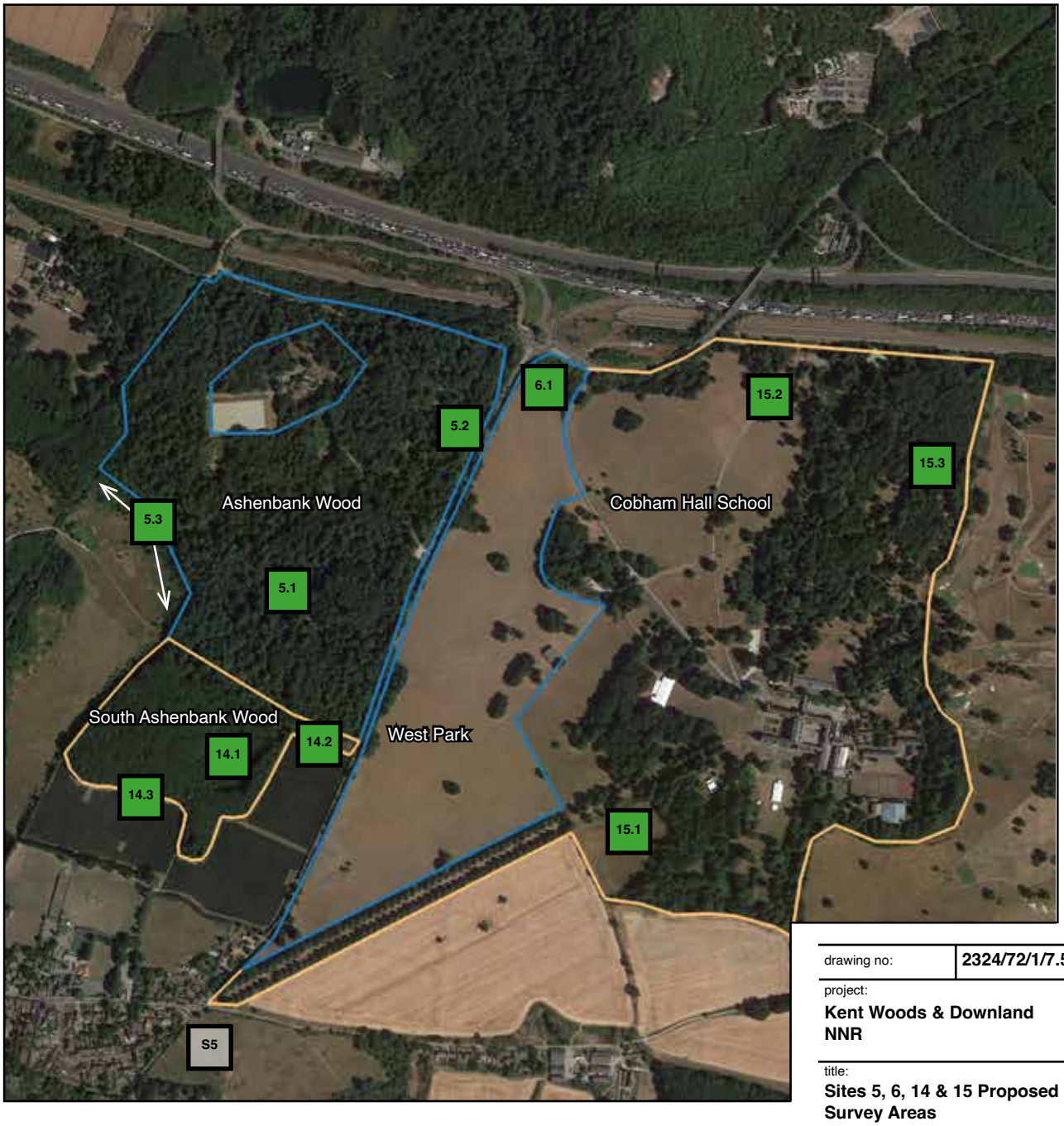
Fig. 7.5 Ashenbank Wood, West Park, South Ashenbank Wood and Cobham Hall School

Proposed survey areas. Areas labelled S are located outside of the study area sites.



drawing no:	**2324/72/1/7.5**
project:	**Kent Woods & Downland NNR**
title:	**Sites 5, 6, 14 & 15 Proposed Survey Areas**
scale: **N.T.S.**	date: **Aug 2024**

Key to Symbols

5.1 survey area

other possible survey area

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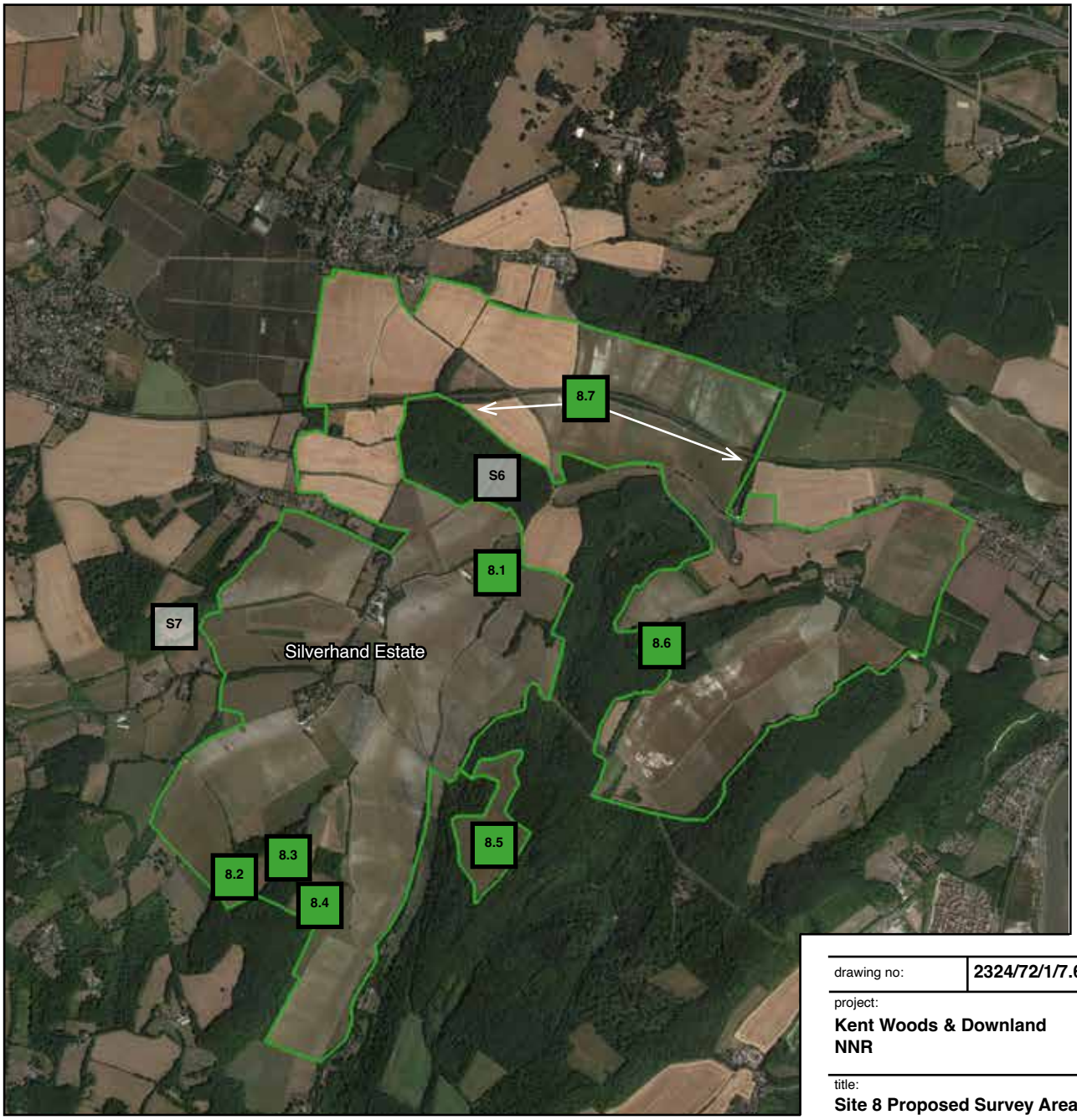
Fig. 7.6 Silverhand Estate

Proposed survey areas. Areas labelled S are located outside of the study area sites.



drawing no:	**2324/72/1/7.6**

project:
Kent Woods & Downland NNR

title:
Site 8 Proposed Survey Areas

scale: **N.T.S.**	date: **Aug 2024**

Key to Symbols

8.1 survey area

other possible survey area

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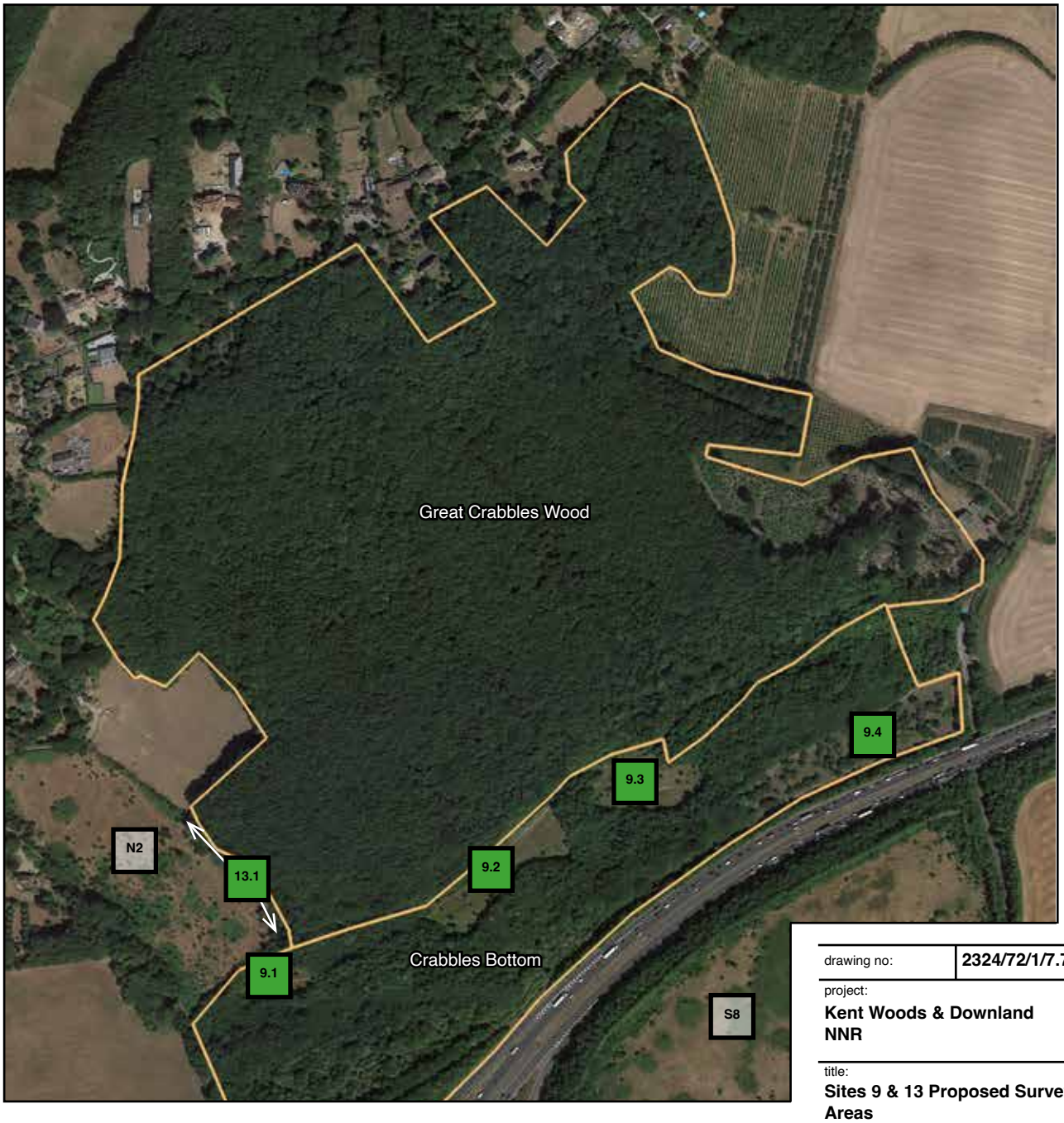
Fig. 7.7 Crabbles Bottom & Great Crabbles Wood

Proposed survey areas. Areas labelled N or S are located outside of the study area sites.



drawing no:	**2324/72/1/7.7**

project:
Kent Woods & Downland NNR

title:
Sites 9 & 13 Proposed Survey Areas

scale: **N.T.S.**	date: **Aug 2024**

Key to Symbols

9.1 survey area

other possible survey area

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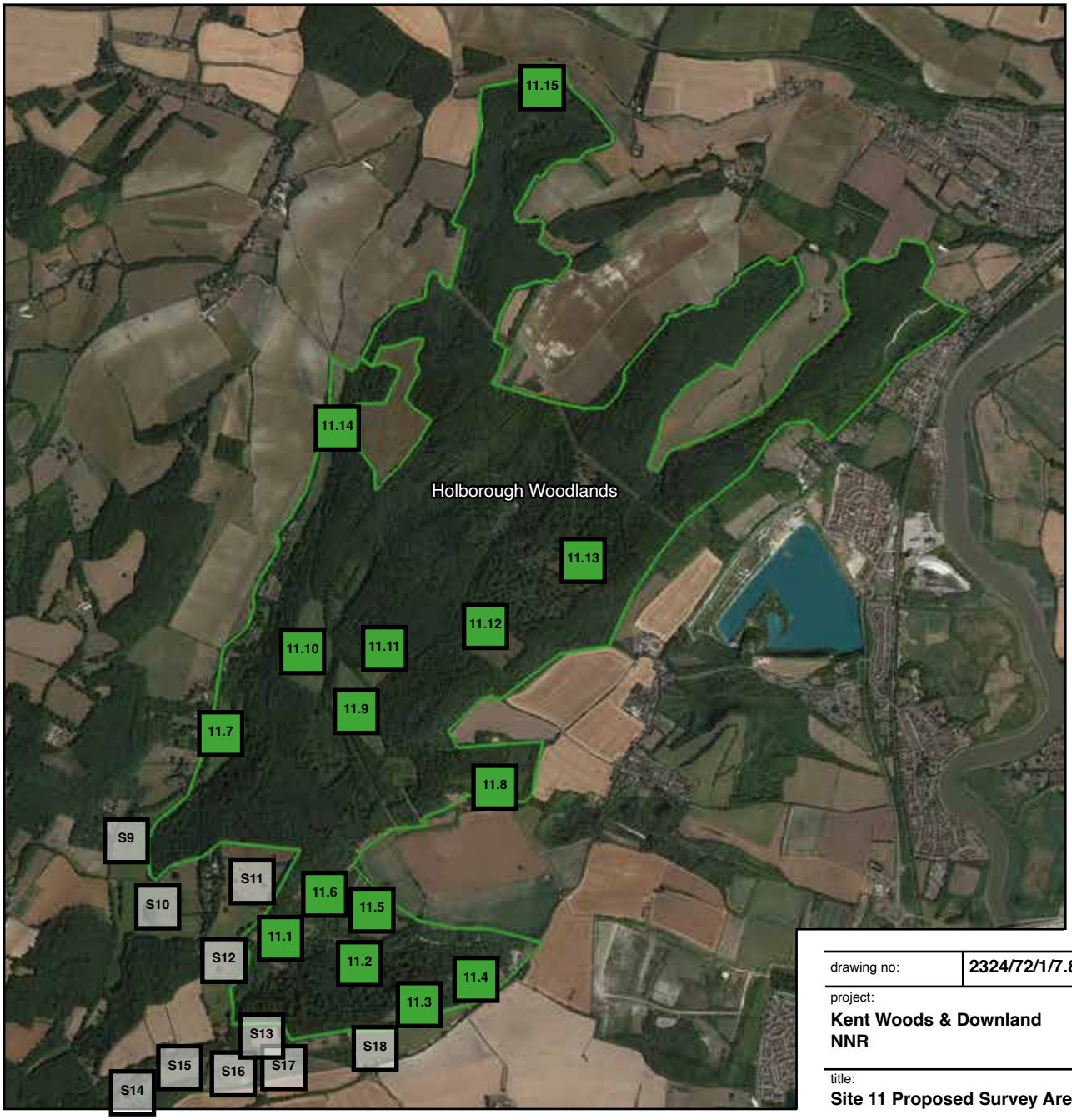
Fig. 7.8 Holborough Woodlands

Proposed survey areas. Areas labelled S are located outside of the study area sites.



drawing no:	**2324/72/1/7.8**
project:	**Kent Woods & Downland NNR**
title:	**Site 11 Proposed Survey Areas**
scale: **N.T.S.**	date: **Aug 2024**

Key to Symbols

11.1 survey area

other possible survey area

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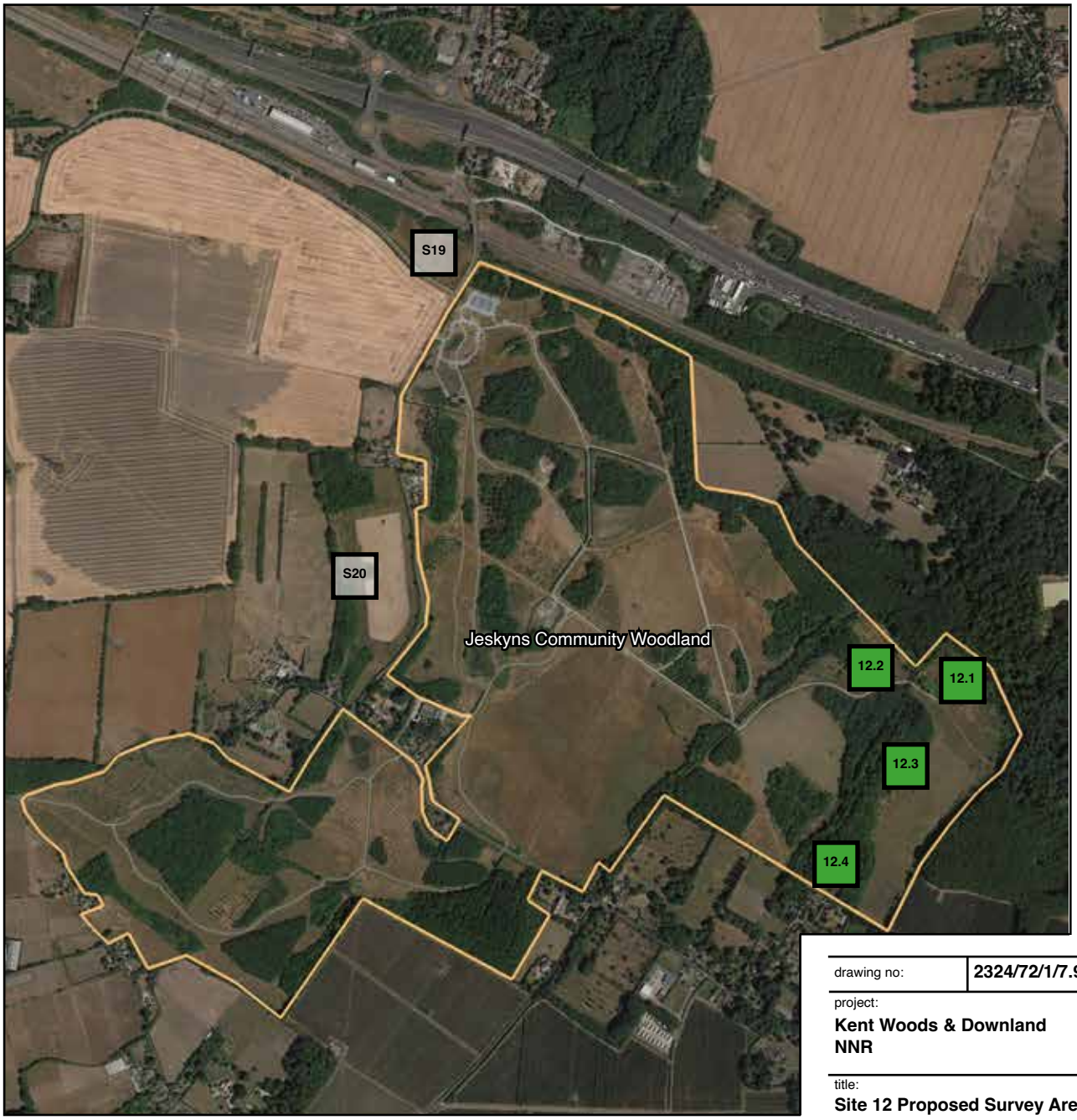
Fig. 7.9 Jeskyns Community Woodland

Proposed survey areas. Areas labelled S are located outside of the study area sites.



drawing no:	**2324/72/1/7.9**

project:
Kent Woods & Downland NNR

title:
Site 12 Proposed Survey Areas

scale: **N.T.S.**	date: **Aug 2024**

Key to Symbols

12.1 survey area

other possible survey area

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Appendix I: Land Designations

Source:

MAGIC (http://www.magic.gov.uk)

Statutory Designated Site Descriptions

Ramsar

Ramsar sites are designated under the Convention on Wetlands of International Importance especially as waterfowl habitat. Wetlands are designated, protected and promoted in order to stem progressive encroachment on and loss of wetlands, which are broadly defined to include marsh, fen, peatland and water.

Special Area of Conservation

A Special Area of Conservation (SAC) is a designation under the European Union's Habitats Directive, which aims to protect and conserve Europe's most valuable and threatened habitats and species. In the UK, SACs are designated by the government to protect important habitats and species in order to meet its obligations under the directive. These areas are chosen for their unique or rare wildlife, and may include habitats such as woodlands, heathlands, bogs, and rivers, as well as species such as otters, bats, and birds of prey. Once an area is designated as an SAC, certain activities that could harm the protected habitats or species are either prohibited or require special permits or permissions.

Special Protected Area

Special Protected Area (SPA) is a designation given to a specific site or area that has been identified as having significant conservation value for birds and their habitats. These areas are designated under the European Union's Birds Directive and are given special protection status to help safeguard the natural environment and promote biodiversity. SPAs can include a range of habitats such as wetlands, estuaries, forests, heaths, and moors, and are home to a variety of bird species. SPAs are managed by a range of organisations, including the government, non-governmental organisations, and landowners, who work together to ensure that the sites are protected and managed sustainably.

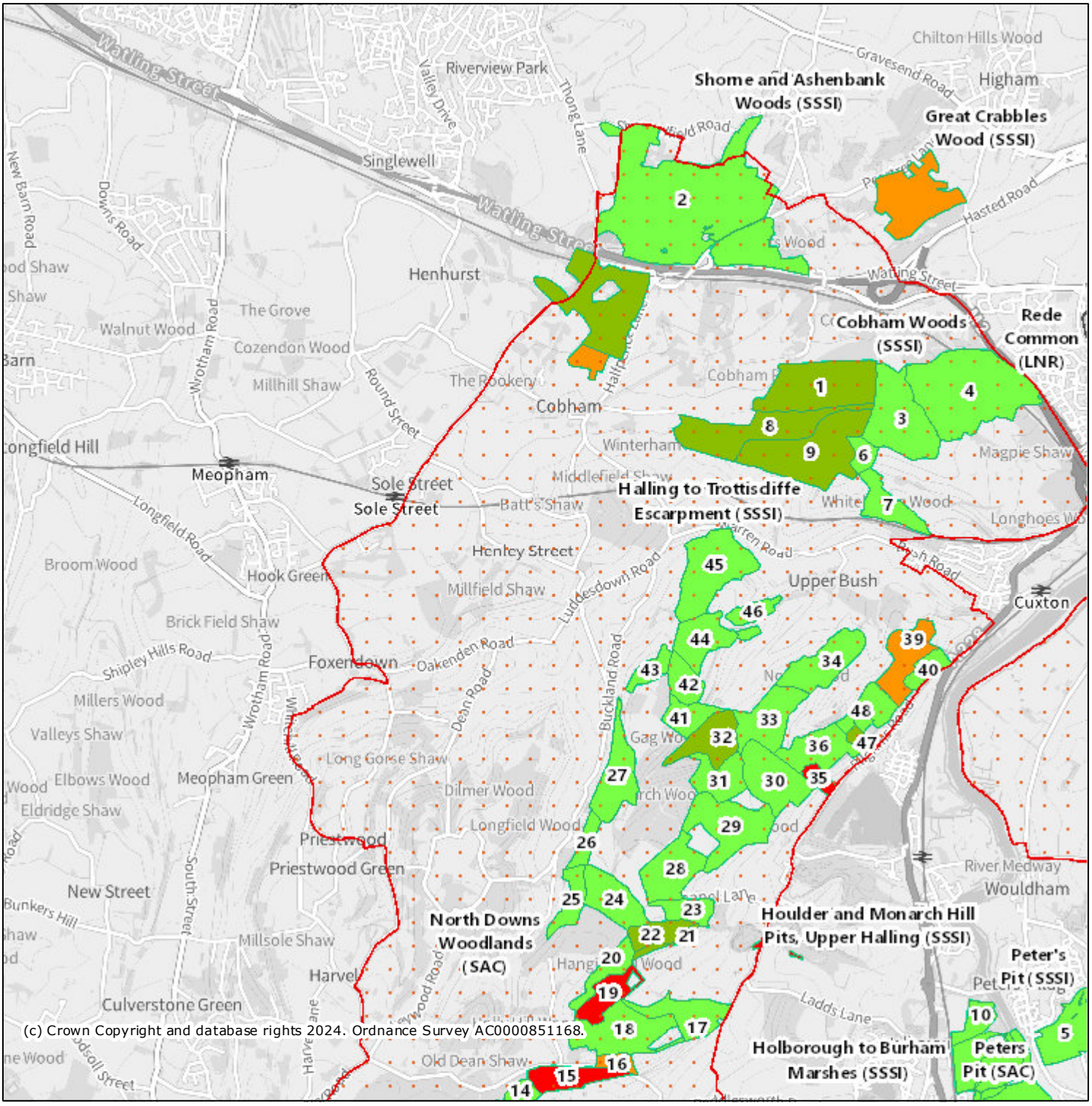
National Nature Reserves

A National Nature Reserve (NNR) is a protected area that has been designated by the UK government as a site of interest for its flora, fauna, and/or geological features. It is managed to ensure that the natural habitats and biodiversity are conserved and maintained. There are over 220 NNRs in the UK, covering over 94,000 hectares of land, and they provide important opportunities for scientific research, education, and recreation.

Site of Special Scientific Interest (SSSI)

Sites of Special Scientific Interest identify areas that have been identified as being of special interest for their wildlife or geological features. These sites are protected under the Wildlife and Countryside Act (1981) and are managed by Natural England, Scottish Natural Heritage, or Natural Resources Wales. The aim is to ensure that these areas are conserved and managed appropriately to safeguard their unique qualities.

Land Designations



Legend

- Areas of Outstanding Natural Beauty (England)
- Local Nature Reserves (England)
- National Nature Reserves (England)
- National Parks (England)
- Ramsar Sites (England)

0 1.5 3
km

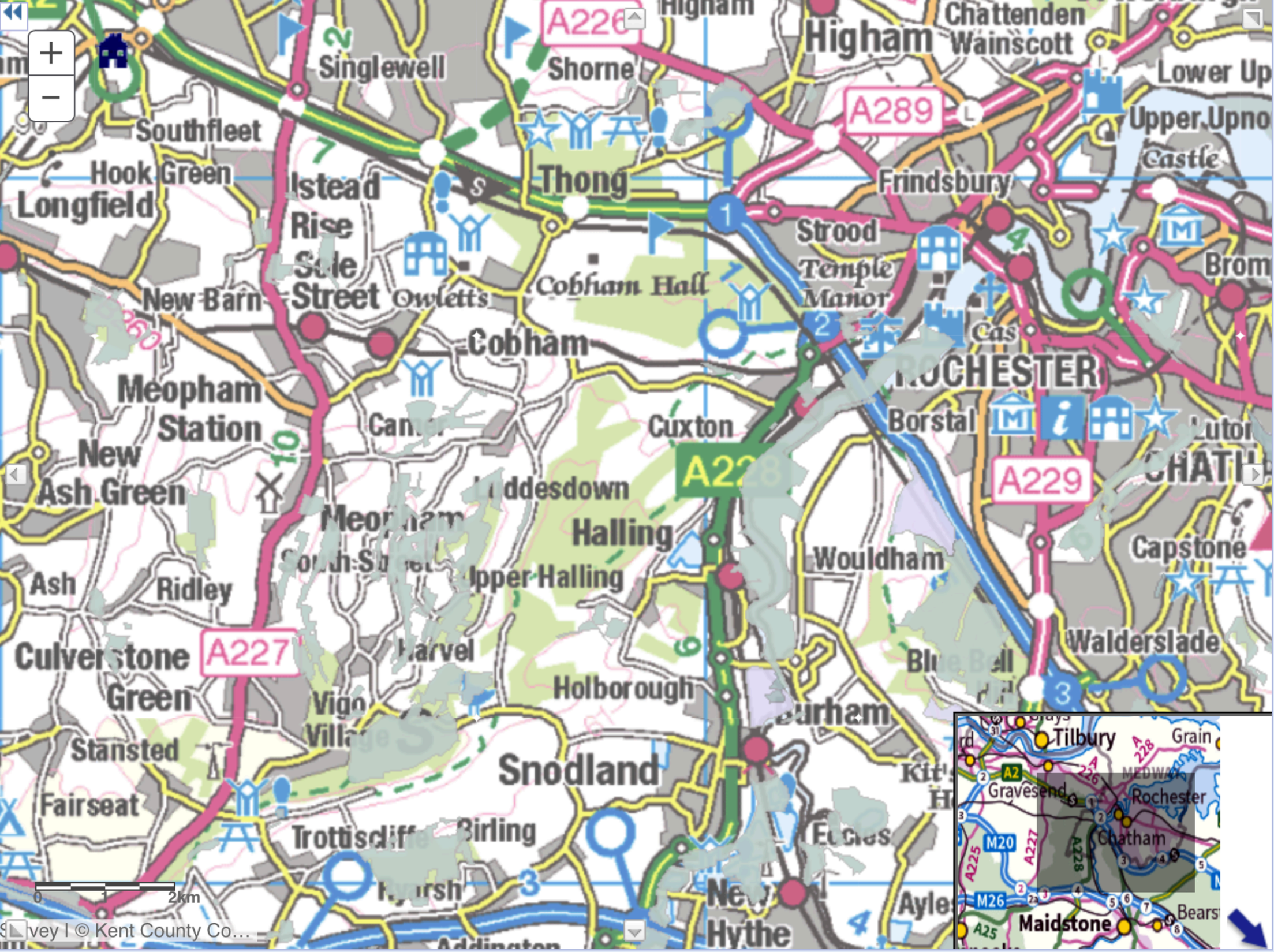
Projection = OSGB36
xmin = 559400
ymin = 160800
xmax = 574500
ymax = 173400

Map produced by MAGIC on 7 August, 2024.

Appendix II: Local Wildlife Sites

Source:

Kent Landscape Information Land System
(https://webapps.kent.gov.uk/KCC.KLIS.Web.Sites.Public/ViewMap.aspx)

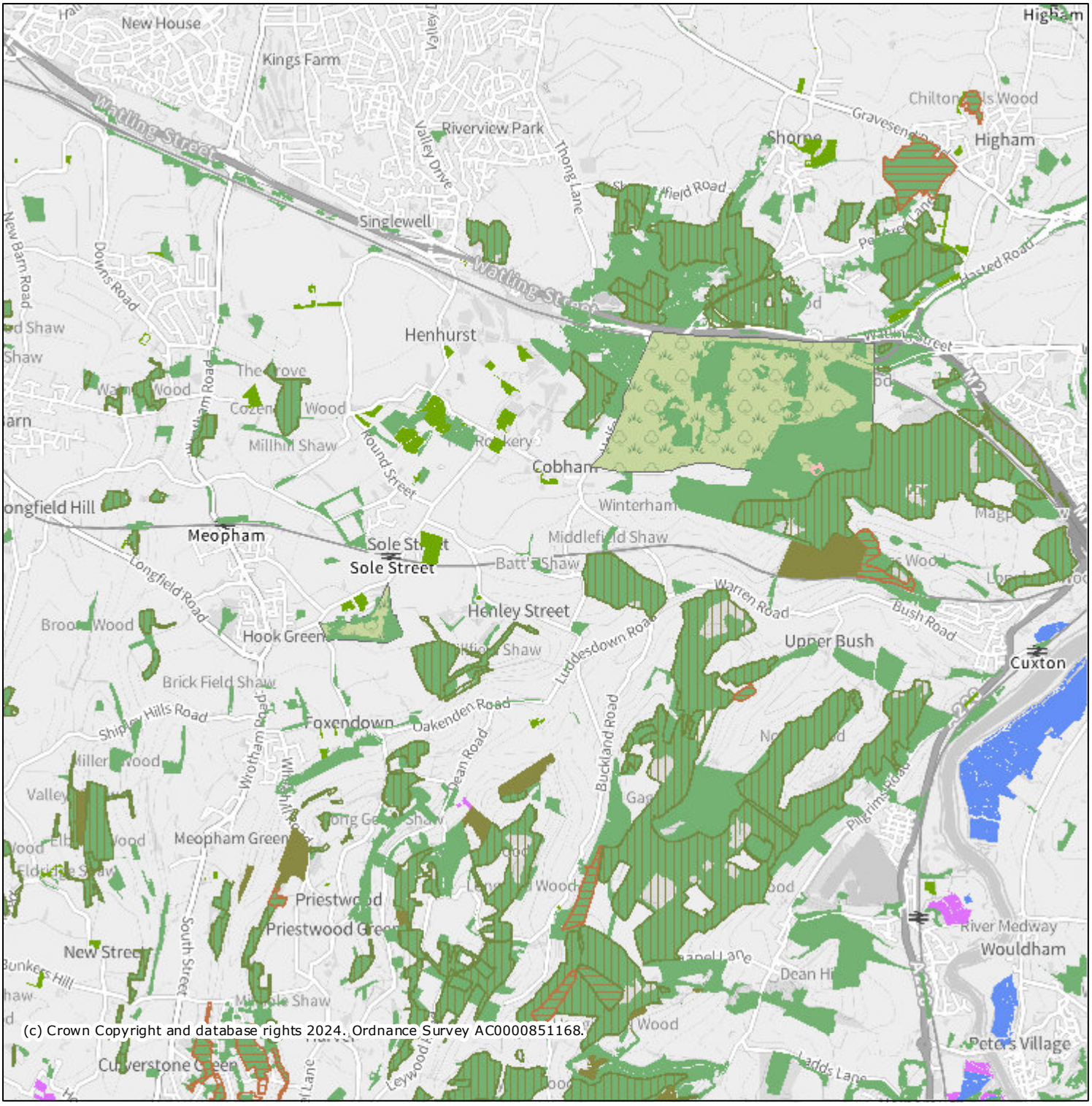

Higham
Chattenden
Wainscott
Singlewell
Shorne
A226
A289
Lower Upnor
Upper Upnor
Castle
Southfleet
Hook Green
Longfield
Istead Rise
Thong
Frindsbury
Strood
Temple Manor
Cobham Hall
Owletts
New Barn
Sole Street
Cobham
ROCHESTER
Meopham Station
New Ash Green
Cuxton
Borstal
A229
Halling
Wouldham
Capstone
Ash
Ridley
Upper Halling
Walderslade
Culverstone Green
A227
Harvel
Holborough
Vigo Village
Stansted
Snodland
Fairseat
Trottiscliffe
Birling
Hythe
Tilbury
Grain
Gravesend
Rochester
Chatham
M20
M26
Maidstone
0
1
2km
Survey | © Kent County Co…

Appendix III: Priority Habitat Designations

Source:

MAGIC (http://www.magic.gov.uk)

Priority Habitats



Legend

- Priority Habitat Inventory - Coastal and Floodplain Grazing Marsh (England)
- Priority Habitat Inventory - Good quality semi-improved grassland (Non Priority) (England)
- Priority Habitat Inventory - Lowland Calcareous Grassland (England)
- Priority Habitat Inventory - Lowland Dry Acid Grassland (England)

Ancient Woodland (England)

- Ancient and Semi-Natural Woodland
- Ancient Replanted Woodland
- Priority Habitat Inventory - Deciduous Woodland (England)

0 1.5 3
km

Projection = OSGB36
xmin = 559400
ymin = 161400
xmax = 574500
ymax = 173900

Appendix IV: Amphibian Site Scores

Source:

Calumma Ecological Services

Site Name	Pond Score (site)	Pond Score (1 km)	*Area Score*	*Terr Quality Score*	Avail Terr Score	Occupancy Score					Total Site Score
						Common Frog	Common Toad	Smooth Newt	Palmate Newt	Great Crested Newt	
Shorne Woods Country Park	3	3	*3*	*3*	9	4	5	4	4	5	**37**
Jeskyns Community Woodland	2	3	*3*	*3*	9	4	5	4	3	3	**33**
Ashenbank Wood	2	3	*2*	*3*	6	3	4	4	4	5	**31**
Cobham Hall School	2	3	*2*	*3*	6	3	4	3	3	5	**29**
Ranscombe Farm	1	1	*3*	*3*	9	3	4	3	3	4	**28**
Holborough Woodlands	1	3	*3*	*3*	9	3	5	3	2	2	**28**
Silverhand Estate	1	3	*3*	*2*	6	3	4	3	3	2	**25**
West Park	1	3	*2*	*1*	2	3	4	3	3	5	**24**
Cobham Wood	0	3	*2*	*3*	6	2	4	2	3	4	**24**
The 'Leisure Plots'	0	2	*2*	*3*	6	2	5	2	3	4	**24**
South Ashenbank Wood	0	3	*1*	*3*	3	3	4	3	3	4	**23**
Great Crabbles Wood	0	3	*2*	*3*	6	2	2	3	3	3	**22**
Shorne Common Rough	0	3	*1*	*2*	2	3	3	3	3	3	**20**
Crabble Bottom	0	3	*2*	*2*	4	2	2	3	3	2	**19**
Camer Park	0	2	*2*	*2*	4	3	4	1	2	2	**18**

Appendix IV. Relative importance of each site for native amphibians. Sites are ranked from most important to least important by Total Site Score. Scores are generated as follows:

Pond Score: None = 0, Low = 1, Medium = 2, High = 3

Area Score: < 10 Ha = 1, <100 Ha = 2, >100 Ha = 3
Terrestrial Scores: Low = 1, Moderate = 2, High = 3
Available Terrestrial Habitat Score (Avail Terr Score) = Area Score x Terrestrial Quality Score

Occupancy Scores:
Recorded Occupancy: Historical Record (>10 years old) = 3, Recent Record = 4 or
Predicted Occupancy: Possible = 1, Likely = 2, High = 3
+1 is added to occupancy scores for common toad and great crested newt

Total Site Score = Pond Score (site) + Pond Score (1 km) + Available Terrestrial Score + Occupancy Scores

Appendix V: Reptile Site Scores

Source:

Calumma Ecological Services

Site Name	*Chalk Score*	*Site Area Score*	*F/S Score*	*Adder Score*	Avail Terr Score	Occupancy Score				Total Site Score
						Viviparous Lizard	Slow-worm	Grass Snake	Adder	
Holborough Woodlands	*3*	*3*	*3*	*3*	15	4	3	3	5	**30**
Silverhand Estate	*3*	*3*	*2*	*2*	11	4	4	3	5	**27**
Ranscombe Farm	*3*	*3*	*2*	*2*	11	4	4	3	4	**26**
Jeskyns Community Woodland	*2*	*3*	*3*	*3*	14	4	1	4	2	**25**
Cobham Wood	*2*	*2*	*2*	*2*	8	4	4	3	5	**24**
The 'Leisure Plots'	*2*	*2*	*2*	*1*	7	4	4	3	3	**21**
Camer Park	*2*	*2*	*2*	*1*	7	4	4	2	2	**19**
Cobham Hall School	*1*	*2*	*2*	*1*	7	3	2	3	3	**17**
Crabble Bottom	*2*	*2*	*2*	*1*	7	3	3	3	0	**16**
Shorne Woods Country Park	*0*	*3*	*2*	*1*	7	4	2	1	0	**14**
Great Crabbles Wood	*1*	*2*	*1*	*1*	4	3	3	3	0	**13**
West Park	*1*	*2*	*1*	*0*	3	3	2	3	2	**13**
Ashenbank Wood	*0*	*2*	*1*	*1*	2	3	1	4	2	**13**
South Ashenbank Wood	*0*	*1*	*1*	*1*	2	3	1	3	2	**11**
Shorne Common Rough	*0*	*1*	*1*	*0*	1	3	2	3	0	**9**

Appendix IV. Relative importance of each site for native reptiles. Sites are ranked from most important to least important by Total Site Score. Scores are generated as follows:

Chalk Geology Score: < 10 Ha = 1, <100 Ha = 2, >100 Ha = 3
Site Area Score: 0 = 0, < 10 Ha = 1, <100 Ha = 2, >100 Ha = 3
Foraging/Sheltering Habitat (F/S) Score: None/Negligible = 0, Low = 1, Moderate = 2, High = 3
Adder Habitat Score: None/Negligible = 0, Low = 1, Moderate = 2, High = 3
Available Terrestrial Habitat Score (Avail Terr Score) = Chalk Score + (Area Score x F/S Score) + Adder Score

Occupancy Scores:
Recorded Occupancy: Historical Record (>10 years old) = 3, Recent Record = 4 or
Predicted Occupancy: Outside of Maximum Known Range = 0, Possible = 1, Likely = 2, High = 3
+1 is added to occupancy scores for adder

Total Site Score = Available Terrestrial Score + Occupancy Scores

Calumma Ecological Services is an independent wildlife consultancy specialising in the applied conservation of amphibians and reptiles. *Calumma Ecological Services* offers a full range of specialist services to private companies, local authorities, government agencies, wildlife organisations and members of the public.

Calumma Ecological Services always works to industry good practice

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