Contract No: 1921/22/1

Herpetofauna Assessment

Land at Alsager Avenue, Queenborough, Kent

Survey Report to:
Snowdene Estates Ltd

24th October 2022

CALUMMA
Ecological Services

COPYRIGHT and LEGAL GUIDANCE

This report may contain sensitive information relating to the presence of protected species. Such information must not be disseminated without the prior consent of Calumma Ecological Services.

Information contained in this report does not represent legal opinion. If such advice is required, the opinion of a suitably qualified legal professional should be sought.

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

Calumma Ecological Services

info@calumma.co.uk
www.calumma.co.uk

Contents

1. Summary

Background

1.1 Land at Alsager Avernue has been proposed as the location of a new development project.

1.2 Calumma Ecological Services was commissioned to undertake a herpetofauna assessment of the site and advise on the need for additional survey work and mitigation.

Ponds

1.3 No ponds are located within the proposed development area.

1.4 Two ponds are located within 500 m of the site boundary.

Great Crested Newt

1.5 Land within the proposed development area is located within 500 m of two ponds. One of these ponds was found to be connected to the wider ditch network with brackish water and offers *below average* potential for breeding great crested newt.

1.6 The remaining pond was fully desiccated at the time of the survey assessment.

1.7 No other ponds suitable for breeding great crested newt are located within 250 m of the proposed development site.

1.8 The proposed development project will not impact on the local conservation status of great crested newt and further survey work is not considered necessary.

Other Amphibians

1.9 Common frog, common toad and smooth newt could occur in nearby ponds, including ponds found in residential gardens.

1.10 The proposed development project will not impact on the local conservation status of widespread amphibian species.

Reptiles

1.11 Survey work undertaken in 2019 confirmed the presence of viviparous lizard and slow-worm within the proposed development site.

1.12 Available information indicates that reptile populations present within the proposed development site are unlikely to qualify for any specific conservation designations. However, the site is connected to other habitat that offers good potential for reptiles.

1.13 Reptiles occupying land at Alsager Avenue are considered to form part of a larger population that also occupies adjacent land and may be of conservation interest.

1.14 **Proposed development works will result in the destruction and modified management of reptile habitat. Mitigation work will need to be undertaken to ensure that reptiles are not directly killed or injured by proposed works.**

2. Site Location and Assessment

Site Name:	Land at Alsager Avenue, Queenborough - *the site*; Fig. 2.1
Grid Reference:	TQ 906 714
County:	Kent
Planning Authority:	Swale Borough Council
Natural Area:	Greater Thames Estuary

Client:	Snowdene Estates Ltd
Proposed Disturbance:	Unspecified development
Survey Request:	Great crested newt risk assessment and reptile survey

Surveyor:	Lee Brady PhD, BSc (Hons), MCIEEM *For and on behalf of Calumma Ecological Services*

Assessment Period:	21st July to 23rd October 2022
Limitations:	The assessment was undertaken following best practice guidelines and expert opinion. Lack of observations does not necessarily confirm absence. 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 two years from the date of the report.

Fig. 2.1 Land at Alsager Avenue, Queenborough, Kent (TQ 906 714)

Location of study site.

drawing no:	**1920/22/1/2.1**

project:
Land at Alsager Avenue

title:
Site Location

scale: **N.T.S.**	date: **Oct 2019**

CALUMMA Ecological Services
13 Woodside Cottages,
Dunkirk,
Kent ME13 9NY
Tel/Fax: 01227 751408
info@calumma.co.uk
www.calumma.co.uk

3. Legal Protection

The legal protection of animals and plants in the United Kingdom is governed by several different regulations and conventions. Principally, these include:

- The Wildlife & Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000 and
- The Habitats and Species Directive (92/43/EC) enacted through the Conservation of Habitats and Species Regulations 2017. Development works affecting listed species are subject to a licence granted by an appropriate authority. This authority is currently Natural England.
- The Natural Environment and Rural Communities (NERC) Act 2006
- The Hedgerow Regulations 1997

Species and habitats receive legal protection that may prohibit sale, disturbance and/or killing/injury.

3.1 Amphibians

All native amphibians are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (WCA 1981). It is an offence for anyone to sell or offer for sale any native amphibian species without a licence.

The great crested newt and natterjack toad, their breeding sites (typically ponds) or resting places (typically a terrestrial habitat that offers refuge) are protected under Regulation 41 of The Conservation of Habitats and Species Regulations 2010. It is an offence for anyone to intentionally kill, injure or handle either of these two species, to possess an animal (whether live or dead), deliberately disturb a sheltering animal, or sell or offer an animal for sale without a licence. It is also an offence to damage, destroy or obstruct access to any place used by natterjack toads or great crested newts for shelter.

3.2 Reptiles

All native reptiles are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (WCA 1981). It is an offence for anyone to intentionally kill or injure a ‘widespread’ reptile species (viviparous lizard, slow-worm, grass snake or adder), or sell or offer for sale without a licence.

The sand lizard and smooth snake, their breeding sites or resting places (any structure that may offer refuge) are protected under Regulation 41 of The Conservation of Habitats and Species Regulations 2010. It is an offence for anyone intentionally to kill, injure or handle either of these two species, to possess an animal (whether live or dead), deliberately disturb a sheltering animal, or sell or offer an animal for sale without a licence. It is also an offence to damage, destroy or obstruct access to any place used by sand lizards and smooth snakes for shelter.

3.3 The National Planning Policy Framework

The National Planning Policy Framework (2018) (NPPF) has reformed the planning system, to make it less complex and more accessible, to protect the environment and to promote sustainable growth. Regarding 'Conserving and enhancing the natural environment', when determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying a number of principles.

3.4 Miscellaneous Planning Policy

Previous planning policy refers to UK Biodiversity Action Plan (BAP) habitats and species as being a material consideration in the planning process. Although such habitats and species remain material considerations in the planning process, they are now described as *Species and Habitats of Principal Importance for Conservation* in England, or simply priority habitats and priority species. The list of habitats and species is still derived from Section 41 of the Natural Environmental and Rural Communities (NERC) Act 2006.

4. Literature Review

4.1 Records Searches

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

Note that the availability of records is directly related to survey effort. A lack of records does not necessarily indicate the absence of protected species.

4.1.1 Kent Reptile and Amphibian Group (KRAG)

KRAG is the primary data holder for reptiles and amphibians in Kent. Information supplied by KRAG indicates that common frog and smooth newt have been recorded from the local area (Ref. CES/19/128, Appendix I). The closest great crested newt observation was recorded at Neatscourt Marshes (1.33 km to the east).

The closest reptile observation is for slow-worm observed at a private residence (adjacent to the proposed development site).

KRAG has prepared a summary risk assessment that describes the likely presence of herpetofauna (Table 4.1). The risk assessment is based on statistical analysis of available distribution data but does not take into consideration the quality of habitat available within the proposed development area.

4.2 Other Development Related Survey Results

4.2.1 Rushenden Road, Queenborough - 16/507298/FULL

Survey work undertaken by Ecology Solutions in 2016 confirmed the presence of slow-worm at a development site situated off Rushenden Road (TQ 908 715). Mitigation work that involved the capture and relocation of slow-worms to retained habitat along the northern boundary was subsequently undertaken in 2017.

Species	Likelihood of Presence
Amphibians	
Common Frog	**HIGH**
Common Toad	Possible
Natterjack	*n/a*
Smooth Newt	**HIGH**
Palmate Newt	Possible
Great Crested Newt	Possible
Reptiles	
Viviparous Lizard	**HIGH**
Slow-worm	**HIGH**
Sand Lizard	*unlikely*
Grass Snake	Possible
Adder	*unlikely*
Smooth Snake	*n/a*

Table 4.1. Herpetofauna risk assessment prepared by Kent Reptile and Amphibian Group.

5. Survey Methods

A walkover survey was undertaken on 6th June 2022 to assess the site's potential for supporting populations of different protected species and to identify areas within the site where such species were most likely to be found (Townsend, 2019).

5.1 Great Crested Newt

5.1.1 Habitat Suitability

Pond assessments were undertaken on 2nd and 23rd October 2022.

The likely presence of great crested newt was assessed by examination of aquatic variables such as presence of fish, waterfowl and water quality. For ponds, these data have been used to calculate a 'Habitat Suitability Index' (HSI; after Oldham *et. al.*, 2000). The HSI is represented by a number from 0 to 1, the higher the number the more likely each pond is to support breeding great crested newt. In order to facilitate interpretation of a waterbody's HSI, calculated scores are accompanied by a subjective description that reflects the likely presence of great crested newt.

5.2 Reptiles

The site was surveyed for reptiles on seven occasions between July and October 2022.

5.2.1 Reptile Presence/Likely Absence Assessment

Reptile survey work undertaken during 2019 included direct visual searching for basking animals and examination of available 'in-situ' refugia (e.g. discarded debris etc). Artificial cover objects (ACOs) were also deployed in suitable habitat throughout the proposed development site. ACOs consisted of 0.5 m^2 mats constructed from roofing felt that were placed in areas offering potential habitat for basking animals. A total of 30 ACOs were deployed.

The site was visited on a total of seven occasions to visually survey for reptiles and to allow the monitoring of all cover objects. See Table 5.1 for reptile survey dates.

Date	Survey Period (GMT)
July	
21/07/2019	11:00 - 12:00
August	
30/08/2019	09:00 - 10:00
September	
04/09/2019	14:00 - 15:00
11/09/2019	13:00 - 14:00
17/09/2019	13:00 - 14:00
October	
02/10/2019	12:00 - 13:00
23/10/2019	13:00 - 14:00

Table 5.1. Dates for reptile survey visits during 2019. Survey periods are ranked by hour.

5.2.2 Weather Conditions

Survey work was undertaken during appropriate survey conditions wherever possible. Meteorological data is summarised in Table 5.2.

Date	Max. Air Temperature (˚C)	Cloud Cover (%)	Wind Speed	Wind Direction	Precipitation	Ground Conditions
July						
21/07/2019	21.5	70	still	-	none	dry
August						
30/08/2019	20.0	75	light	SW	none	dry
September						
04/09/2019	22.0	20	fresh	W	none	dry
11/09/2019	22.0	100	fresh	SW	none	damp
17/09/2019	19.5	25	light	N	none	dry
October						
02/10/2019	13.5	20	light	NW	none	damp
23/10/2019	15.0	85	light	E	none	damp

Table 5.1. Meteorological data for terrestrial survey visits during 2019.

5.3 Personnel

All reptile survey work was undertaken by Dr. Lee Brady (PhD, BSc hons, MCIEEM), a qualified ecologist with over 30 years experience of field surveying.

5.4 Limitations of Survey Assessment

The assessment was undertaken following best practice guidelines and according to expert opinion. There was no disturbance to cover objects during the survey period and Calumma Ecological Services is confident that survey work was sufficient for determining the likely presence of reptiles that may forage or shelter within the study area.

6. Proposed Development and Summary Site Description

6.1 Site Location

Land at Alsager Avenue is located in Rushenden, Queenborough within the Greater Thames Estuary Natural Area (English Nature, 1998). The site is accessed directly from Alsager Avenue.

6.2 Proposed Development

The proposed development site is approximately 1.03 Ha.

The proposed development area is illustrated in Fig. 6.1.

6.3 Aquatic Habitat

Ponds located within the local area have been identified using the following sources:

Ordnance Survey (https://www.bing.com/maps)

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

KLIS (http://webapps.kent.gov.uk/KCC.KLIS.Web.Sites.Public/Default.aspx)

Google Earth

No ponds are located within the proposed development site. Available information indicates that two pond are located within 500 m of the proposed development site.

Other small ornamental ponds could occur in residential gardens within the local area.

The search area for waterbodies is illustrated in Fig. 6.2. See Table 6.1 for summary information of ponds located within 500 m. Available pond habitat is illustrated in Fig. 6.3.

6.4 Terrestrial Habitat

Townsend (2019) has described habitat within the proposed development area as follows:

"*The predominant habitat is a mosaic of tall, tussocky neutral grassland (with a semi-ruderal element) and scrub dominated by bramble, with Sloe, hawthorn, Bullace, willows, wild rose and Sycamore. There are no mature or tall trees on or near the site. The southwest boundary with the campsite has a line of small/medium Grey Poplar. Bramble and other scrub is tall, dense and extensive at the higher southwest end, especially in the western corner.*"

Available terrestrial habitat is illustrated in Fig. 6.3.

WB	Grid Reference	Distance (m)	Notes
1	TQ 90467 71152	287	Pond connected to wider ditch network. Water appears brackish. Pond area 223m^2.
2	TQ 90282 71174	369	Pond fully desiccated at time of survey assessment. Pond area 195m^2.

Table 6.1. Summary information for ponds (WB) located within 500 m of the proposed development site. The locations of ponds are illustrated in Fig. 6.2.

Fig. 6.1 Proposed Development Area

drawing no:	**1920/22/1/6.1**

project:
Land at Alsager Avenue

title:
Proposed Development Area

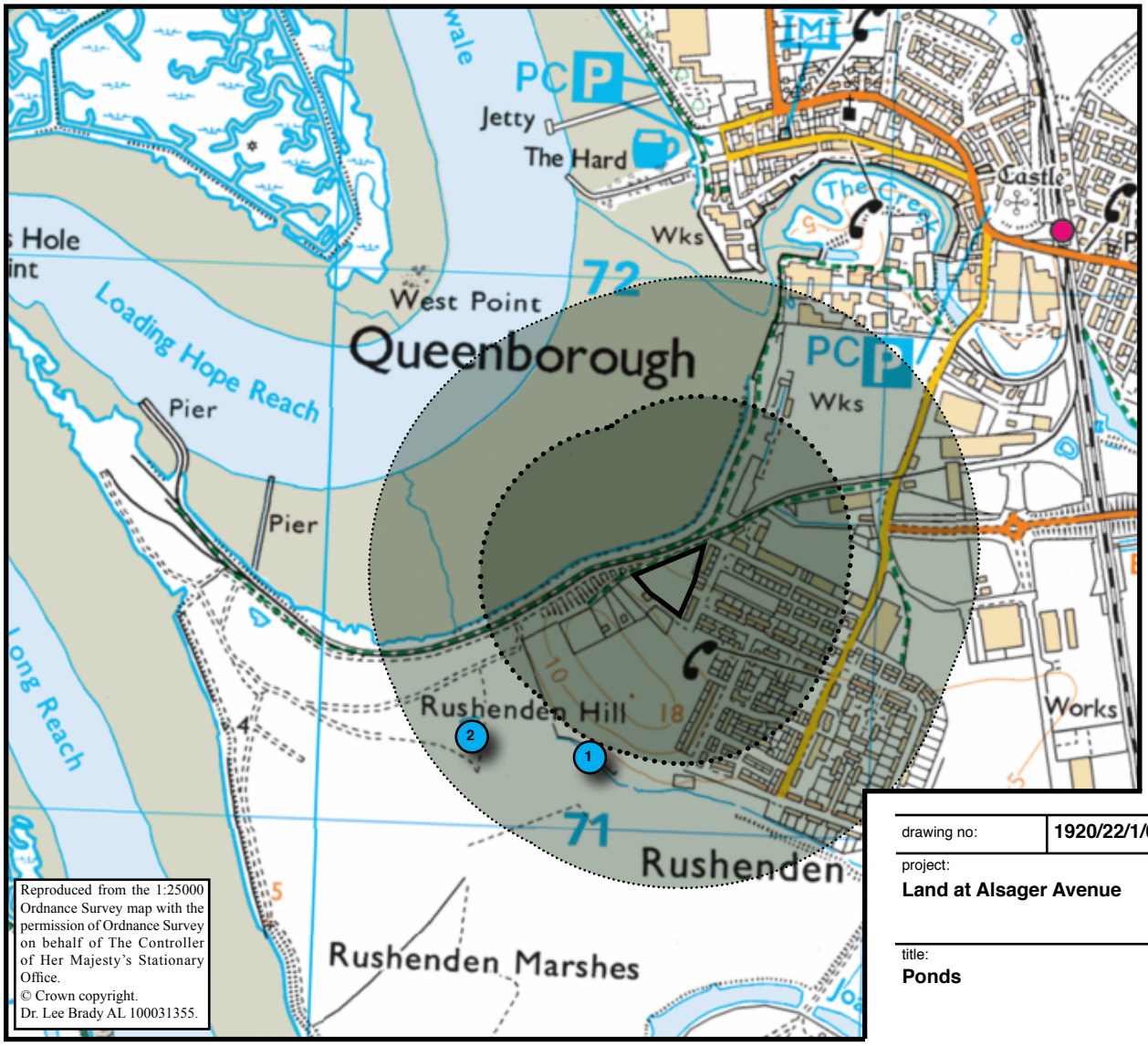
scale: **N.T.S.**	date: **Oct 2019**

CALUMMA
Ecological Services
13 Woodside Cottages,
Dunkirk,
Kent ME13 9NY
Tel/Fax: 01227 751408
info@calumma.co.uk
www.calumma.co.uk

Fig. 6.2 Ponds

Figure illustrates ponds known to occur within English Nature (2001) recommended area of search for great crested newt. Two ponds are known to be located within 500 m of the site boundary.

For ponds located more than 250 m from a proposed development, Natural England recommend that survey work is most appropriate when (a) the pond has the potential to support a large population, (b) the development includes particularly favourable habitat, (c) the development will have a significant impact on available habitat, (d) there is an absence of dispersal barriers.



drawing no:	**1920/22/1/6.2**

project:
Land at Alsager Avenue

title:
Ponds

scale: **N.T.S.**	date: **Oct 2022**

Key to Symbols

HSI surveyed pond | unsurveyed pond | filled/dry pond | 250/500 m radius

CALUMMA Ecological Services
13 Woodside Cottages,
Dunkirk,
Kent ME13 9NY
Tel/Fax: 01227 751408
info@calumma.co.uk
www.calumma.co.uk

The proposed development area includes neutral grassland and scrub with good connectivity to a larger expanse of habitat at Rushenden Hill.

Grassland within the proposed development area is structurally complex and offers good potential for foraging and sheltering reptiles.

Fig. 6.3 Site Photographs

Figure illustrates habitat features located within the study area.

WB1 is located more than 250 m away from the proposed development site and is connected to a wider ditch network with brackish water. The pond is unlikely to be used by breeding great crested newts (HSI = 0.52).

WB2 is located more than 250 m away from the proposed development and was fully desiccated at the time of the assessment. The pond could support breeding amphibians in wet years (HSI = 0.62).

drawing no:	**1920/22/1/6.3**

project:
Land at Alsager Avenue

title:
Available Habitat

scale: **N.T.S.**	date: **Oct 2022**

CALUMMA
Ecological Services

13 Woodside Cottages,
Dunkirk,
Kent ME13 9NY

Tel/Fax: 01227 751408
info@calumma.co.uk

www.calumma.co.uk

7. Herpetofauna Assessment

7.1 Great Crested Newt

7.1.1 Ponds

No ponds suitable for breeding great crested newt are located within the proposed development site.

Two ponds are located within 500 m of the proposed development site boundary.

7.1.2 Great Crested Newt Habitat Suitability Assessment

WB1 is a moderate sized pond that is connected to the wider ditch network and appears to be brackish. The pond was considered to offer *Below Average* potential for breeding great crested newt (HSI = 0.52).

WB2 is a moderate sized pond located amongst rough grassland. The pond was fully desiccated at the time of the survey assessment and in wet years the pond is considered to offer *Average* potential for breeding great crested newt (HSI = 0.62).

Previous survey work undertaken by Calumma Ecological Services has revealed that ponds in Kent with a HSI score of *Excellent* or *Good* are frequently occupied by great crested newts. Ponds with a HSI score of *Below Average* or *Poor* infrequently support breeding great crested newt.

HSI results are summarised in Table 7.1.

7.1.3 Great Crested Newt Survey

Although survey work of ponds located within 500 m can sometimes be necessary, Natural England now recommends a proportionate approach:

"In keeping with a proportionate and risk-based approach, surveys need reasonable boundaries. The Great crested newt mitigation guidelines explain that surveys of ponds up to around 500m from the development might need to be surveyed. The decision on whether to survey depends primarily on how likely it is that the development would affect newts using those ponds. For developments resulting in permanent or temporary habitat loss at distances over 250m from the nearest pond, carefully consider whether a survey is appropriate. Surveys of land at this distance from ponds are normally appropriate when all of the following conditions are met: (a) maps, aerial photos, walk-over surveys or other data indicate that the pond(s) has potential to support a large great crested newt population, (b) the footprint contains particularly favourable habitat, especially if it constitutes the majority available locally, (c) the development would have a substantial negative effect on that habitat, and (d) there is an absence of dispersal barriers."

The apparent low quality of ponds for breeding newts together with their distance from the proposed development site means that additional survey work is not considered necessary (Table 7.1).

WB	GCN HSI	Likely GCN Presence	NE Risk Zone	Survey Required?
1	0.52	Below Average	Amber	No
2	0.62	Average	Green	No

Table 7.1. Survey result summary for great crested newt (GCN) in accessible waterbodies (WB). Habitat Suitability Index (HSI) and predicted likely GCN presence adapted from Oldham *et. al*. (2001). The listed NE risk zones are for individual ponds rather than the proposed development site.

7.1.4 Great Crested Newt Risk Assessment

Natural England has published a risk map for Kent that predicts the likelihood of newts being present within a proposed development site. Proposed development land at Alsager Avenue is located in a *Green* risk zone.

"Red zones contain key populations of GCN, which are important on a regional, national or international scale and include designated Sites of Special Scientific Interest for GCN. Amber zones contain main population centres for GCN and comprise important connecting habitat that aids natural dispersal. Green zones contain sparsely distributed GCN and are less likely to contain important pathways of connecting habitat for this species. White zones contain no GCN."

Natural England has also published a risk assessment tool for determining whether development activities are likely to result in significant disturbance to great crested newt (Natural England, 2008). Natural England advise:

"This risk assessment tool has been developed as a general guide only, and it is inevitably rather simplistic. It has been generated by examining where impacts occurred in past mitigation projects, alongside recent research on newt ecology. It is not a substitute for a site-specific risk assessment informed by survey. In particular, the following factors are not included for sake of simplicity, though they will often have an important role in determining whether an offence would occur: population size, terrestrial habitat quality, presence of dispersal barriers, timing and duration of works, detailed layout of development in relation to newt resting and dispersal. The following factors could increase the risk of committing an offence: large population size, high pond density, good terrestrial habitat, low pre-existing habitat fragmentation, large development footprint, long construction period. The following factors could decrease the risk: small population size, low pond density, poor terrestrial habitat, substantial pre-existing dispersal barriers, small development footprint, short construction period. You should bear these mitigating and aggravating factors in mind when considering risk.."

The completed risk assessment assumes that the desiccated pond located within 500 m (WB2) could occasionally be occupied by great crested newt (e.g. during wet years). The risk assessment therefore represents the maximum potential impact:

Component	**Likely effect** (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	No effect	0
Land >250m from any breeding pond(s)	1 - 5 ha lost or damaged	0.04
Individual great crested newts	No effect	0
	Maximum:	0.04
Rapid risk assessment result:	**GREEN: OFFENCE HIGHLY UNLIKELY**	

*"**Green: offence highly unlikely**" indicates that the development activities are of such a type, scale and location that it is highly unlikely any offence would be committed should the development proceed. Therefore, no licence would be required. However, bearing in mind that this is a generic assessment, you should carefully examine your specific plans to ensure this is a sound conclusion, and take precautions (see Non-licensed avoidance measures tool) to avoid offences if appropriate. It is likely that any residual offences would have negligible impact on conservation status, and enforcement of such breaches is unlikely to be in the public interest.*

7.1.5 Great Crested Newt Mitigation Licence

The proposed development site is not considered likely to significantly impact on the local conservation status of great crested newt for the following reasons:

- The closest pond (WB1) is located more than 250 m from the proposed development site. The pond is brackish and considered to offer only *below average* potential for breeding great crested newt (HSI= 0.52).
- The pond offering *averag*e potential for breeding great crested newt (WB2; HSI = 0.62) was found to be fully desiccated and, if present, newts are only likely to successfully breed in wet years. The pond is also located more than 250 m from the proposed development site.

Five levels of licence are available for development projects (Table 7.2). The scale of impact means that the proposed development will not require a mitigation licence.

Note that the risk assessment may need to be updated if new information becomes available (e.g. new ponds located within 250 m of the site boundary).

Licence Level	Licence Type	Notes
1	No Licence	No or negligible impacts on gcn.
2	Non-Licensed Method Statement	Negligible or low impacts on gcn that can be prevented using avoidance measures.
3	Low Impact Class Licence	Low impacts on gcn in relatively small areas over short periods of time. No impacts on ponds.
4	Full EPS Licence	Impacts on gcn in larger areas or over longer periods of time.
5	District Level License	New licence recently introduced by NE that permits development without the need for survey and/or mitigation works.

Table 7.2. Available licence categories for development projects affecting great crested newt (gcn).

7.1.6 Other Widespread Amphibian Species

Common frog and smooth newt are likely to breed in nearby ponds, including those in residential gardens and ponds supporting fish.

The proposed development is not considered likely to negatively impact on the local conservation status of widespread amphibian species and additional survey work for is not considered necessary.

7.2 Reptile Survey Results

Survey work confirmed the presence of viviparous lizard and slow-worm throughout the proposed development site (Table 7.1, Appendix III).

7.2.1 Reptile Observations

Viviparous lizard: A total of 27 viviparous lizard observations were made during the 2019 survey period. The maximum number of adults observed on a single survey occasion was 6 and the population size within the survey area is considered *good*, with animals apparently distributed in suitable habitat across the whole site. Observations of immature lizards indicate the presence of a breeding population.

Slow-worm: A total of 3 slow-worm observations were made during the 2019 survey period. The maximum number of adults observed on a single survey occasion was one and the population size class of slow-worm within the survey area is considered *low*, with animals apparently distributed within suitable habitat across much of the proposed development site. Observations of immature slow-worms indicate the presence of a breeding population.

Grass snake: Not recorded within the proposed development site during the 2022 survey period, but a small number of individuals could use the site on an occasional basis.

Adder: Not recorded within the proposed development site during the 2019 survey period.

Year	Maximum Adult Count			
	Viviparous Lizard	Slow-worm	Grass Snake	Adder
2019	6	1	0	0
Population Size Class:	**Good**	**Low**	**not recorded**	**not recorded**
Population Score:	**2**	**1**	**-**	**-**
Total Key Reptile Site Score:	**3**			

Table 7.3. Reptile survey results for land at Alsager Avenue in 2019. Figures represent maximum number of adult observations within single survey session per year. Population size classes estimated using Froglife (1999) criteria.

7.2.2 Reptile Evaluation

7.2.2.1 SSSI Designations

Beebee and Grayson (1998) have summarised the criteria used to evaluate candidate Sites of Special Scientific Interest (SSSI).

All established populations of sand lizard and smooth snake should be selected. For the widespread reptile species, the best locality supporting at least three species should be selected. The presence of species that are locally rare or at the limits of their geographical range should count positively in the evaluation of sites.

Reptile survey results collected during 2019 are unlikely to influence SSSI designation and notification criteria for proposed development land at Alsager Avenue.

7.2.2.2 Key Reptile Site Status

Kent Reptile and Amphibian Group has developed criteria for the selection of Key Amphibian Sites in Kent (based on guidelines published by Froglife, 1999):

1. All sites with sand lizard.
2. The site supports three or more reptile species.
3. The site supports two snake species.
4. The site supports an *exceptional* population of one species.

5. The site supports an assemblage of species scoring at least four, based on the relative population scoring system described by Froglife (1999).
6. The site is of particular regional importance due to local rarity. In Kent, such sites will include (but not be exclusive to) any areas that support a *good* or *exceptional* population of adder, based on the population scoring system described by Froglife (1999).
7. The boundary of a Key Reptile Site may be defined as an area of land within a specified ownership.
8. The boundary of a Key Reptile Site may be defined as land within a specified Survey Region that may be owned and/or managed by one or more landowners.
9. Greater emphasis will be placed on promoting designated sites where available data indicates the presence of a breeding population. Breeding will be determined by the identification of eggs, neonates and/or juveniles.
10. Greater emphasis will be placed on promoting designated sites that include terrestrial habitat features that are deemed of particular importance to reptiles. Such features may include hibernation areas, nesting sites and foraging areas.

Proposed development land at Alsager Avenue appears to support a good population of viviparous lizard and low population of slow-worm. Available data suggests that the site does not meet the minimum requirements necessary to qualify as a Key Reptile Site.

7.2.2.3 Local Wildlife Sites

The Kent Wildlife Trust (KWT) has adopted the principles of the Key Reptile Site evaluation criteria in the selection of Local Wildlife Sites for reptiles (Kent Wildlife Trust, 2005). In addition to the general criteria for reptile assemblages, special consideration has been given to sites supporting adder. In Kent, adder is listed as a Red Data Book species (Brady, 1999). KWT has consulted with Kent Reptile and Amphibian Group and concluded that adder is sufficiently rare and threatened in Kent that 'good' or 'exceptional populations should be considered for selection as Wildlife Sites. Criteria used to determine Wildlife Sites for reptiles include the following:

1. The site supports three or more reptile species.
2. The site supports two snake species.
3. The site supports an *exceptional* population of one species.
4. The site supports an assemblage of species scoring at least four.
5. The site is supports a *good* or *exceptional* population of adder.

Proposed development land at Alsager Avenue appears to support a good population of viviparous lizard and a low population of slow-worm. Available data suggests that the site does not meet the minimum requirements necessary to qualify as a Local Wildlife Site for reptiles.

7.2.2.4 Reptile Evaluation Summary

Reptile populations occupying proposed development land at Alsager Avenue do not meet the minimum criteria necessary for conservation designations. However, the proposed development site is situated adjacent to a large expanse of neutral grassland at Rushenden Hill that appears to offer excellent habitat potential for reptiles. Reptile species present on development land at Alsager Avenue are therefore likely to form part of a larger population that could be of conservation interest.

8. Outline Mitigation Recommendations

8.1 Reptiles

8.1.1 Reptile Mitigation Overview

Proposed development works on land at Alsager Avenue will result in the destruction and modified management of reptile habitat. Mitigation work should be undertaken to ensure that reptiles are not directly killed or injured by proposed works.

Development based mitigation for herpetofauna normally includes the following elements (from English Nature, 2001, 2005):

Habitat creation, restoration or enhancement. A receptor area for displaced individuals must be identified and appropriate enhancement work undertaken to compensate for habitat lost to development. Wherever possible, receptor sites should be located close to the donor (development) site.

Avoidance of disturbance, killing or injury: taking all reasonable steps to ensure works do not harm individuals, by altering working methods or timing to avoid animals; capture and removal; exclusion to prevent animals entering development areas etc.

Long-term habitat management and maintenance: to ensure herpetofauna population(s) will persist after construction works are completed.

Post-development population monitoring: to assess the success of the scheme and to inform management or remedial operations.

8.1.2 Receptor Sites

A receptor site must be capable of supporting the species to be relocated, and finding such a site can involve a great deal of effort in terms of both the initial survey work (to determine status of extant population[s]) and costs associated with preparing the new site for the translocated animals.

English Nature (2005) has summarised the critical factors that should be taken into account when selecting a receptor site:

"You should take into account a number of factors when selecting sites, including agreement from the landowner and local interest groups, site safeguard, assurance of long-term favourable management, and access for monitoring. Locating a suitable release site can take many weeks of survey effort, fact-finding and liaison. If no suitable site can be found, then it is possible that the development will be prevented from proceeding in its original form. "

Calumma Ecological Services recommends that mitigation works within the proposed development area includes the capture and release of animals into suitably enhanced habitat located either within or close to the proposed development site.

8.1.3 Site Safeguard

Receptor sites should be safe from development, inappropriate disturbance and unsympathetic management for the foreseeable future. Site safeguards should extend beyond the monitoring period.

8.1.4 Assurance of Long-term Favourable Management

Land management issues on receptor sites must be addressed before mitigation works commence. The construction of habitat 'features' (e.g. hibernation areas, log piles etc) and vegetation management may conflict with future use of the land. Such conflicts must be resolved before a receptor site is adopted. Note that favourable management of the site will need to take place even after monitoring works have been completed.

Management work should aim to encourage a structurally complex grassland sward that is not shaded by trees/scrub.

8.1.5 Access for Monitoring

A monitoring programme should form part of the mitigation exercise. The period of monitoring is dependent upon the scale of impact of the development and the relative population size of the species affected by the works. Monitoring programmes for low impact developments typically run for 1 - 3 years. For larger developments, or impacts on important populations, monitoring may be required for 5 or more years.

Monitoring work for reptiles should be undertaken in order to meet the following objectives:

- Review habitat enhancement works and recommend remedial actions as appropriate.
- Determine whether the translocated species remains present within the receptor area.
- Determine whether the translocated species displays successful breeding.

For larger projects, monitoring should also include the following:

- Determine relative population sizes of translocated species.
- Determine whether translocated populations increase, decrease or stabilise.

8.1.6 Outline Reptile Mitigation Recommendations

Note that the following proposed actions are provided as a guide and dependent upon several factors (e.g. client agreement, planning officer approval etc).

1. Identify suitable receptor site.
2. Habitat enhancement work to create terrestrial sheltering places at strategic locations around the proposed receptor site (a minimum of 3 hibernacula and 10 log piles are recommended; specific requirements will depend on conditions within receptor site). Grassland areas should be managed to create a structurally complex sward.
3. Areas zoned for development must be cleared of animals in advance of construction activities. Translocation will involve the capture of individual animals and relocation to

previously prepared receptor areas that will not be disturbed by present or future construction activities. At the end of the capture period, a phased habitat clearance accompanied by watching brief should also be considered. Capture work must only take place during suitable weather conditions. All work should follow published best practice guidelines (HGBI, 1998) and may require the use of exclusion fencing and artificial cover objects. It is anticipated that 60 capture sessions will be required. Specific actions and total number of capture sessions are subject to review depending upon extent of proposed disturbance and number of animals encountered during capture works.

4. Implement reptile monitoring programme at receptor site (3 years minimum). Monitoring works should be undertaken to ensure that habitat remains favourable within receptor areas.

8.1.7 Mechanism for ensuring delivery

It is recommended that a reptile mitigation strategy is secured as a condition of any granted planning permission.

Suggested condition wording:

"*Prior to the start of the development hereby approved, a reptile mitigation method statement will be submitted to and approved in writing by the Local Planning Authority. This will confirm the location of the reptile receptor area and include full details of habitat enhancement works and follow-up management. The approved details will be implemented before any development activities are undertaken that could result in disturbance to reptiles*."

9. References and Further Reading

Beebee, T. and Grayson, R. (1998) Site Assessment and Protection. In: *Herpetofauna Workers' Manual*. Gent, A. H. & Gibson, S. D. (eds.), Joint Nature Conservation Committee, Peterborough, p. 97.

Ecology Solutions (2018) Rushenden Road, Queenborough, Kent. Reptile Mitigation Report.

English Nature (1998) Natural Areas. Nature Conservation in Context. English Nature, Peterborough.

English Nature (2001) Great crested newt mitigation guidelines. English Nature, Peterborough.

Froglife (1999) Reptile survey. An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.

Gent, T. and Howarth, W. (1998) Amphibians and reptiles and the law. In: Herpetofauna Workers' Manual. Gent, A. H. & Gibson, S. D. (eds.), Joint Nature Conservation Committee, Peterborough, pp. 75 - 93.

Griffiths, R. A. and Inns, H. (1998) Surveying. In: Herpetofauna Workers' Manual. Gent, A. H. & Gibson, S. D. (eds.), Joint Nature Conservation Committee, Peterborough, pp. 1 - 6.

Herpetofauna Groups of Britain and Ireland (1998) Evaluating local mitigation/translocation programmes: Maintaining Best Practice and lawful standards. HGBI advisory notes for Amphibian and Reptile Groups (ARGs). HGBI, c/o Froglife, Halesworth.

Oldham, R. S., Keeble, J., Swan, M. J. S. and Jeffcote, M. (2000) Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*). *Herpetological Journal*, **10**, 143-155.

Phillips, M. and Huggett, D. (2001) From Passive to Positive – the Countryside Act 2000 and British Wildlife. *British Wildlife*, **12**, 237 – 243.

Townsend, M. (2019) Preliminary Ecological Appraisal for a proposed residential development at Alsager Avenue, Rushenden, Queenborough, Kent ME11 5LA.

Appendix I: Herpetofauna Records

Source:

Kent Reptile and Amphibian Group (CES/19/128)

Kent Reptile and Amphibian Group

Herpetofauna Database Search Summary

Enquiry No: CES/19/128

On Behalf of: Calumma Ecological Services

Search Area: Alsager Avenue, Queenborough

Grid Reference: TQ 906 714

Search Radius (km): 2

Amphibians Recorded in Search Area:

Common Frog
Smooth Newt
Great Crested Newt
Marsh Frog

list excludes historical and confidential observations

The closest recorded Great Crested Newt observation is located at Neatscourt Marshes, 1.33 km to the E (record id: 18605).

Reptiles Recorded in Search Area:

Viviparous Lizard
Slow-worm
Grass Snake

list excludes historical and confidential observations

The closest recorded reptile observation is for Slow-worm, located at [Private Residence], 0 km to the n/a (record id: 41576).

The Kent Reptile and Amphibian Group is a non-profit making organisation that promotes the conservation of reptiles and amphibians. Although the KRAG recording database contains several thousands of records, the availability of information detailed within this search is directly related to survey effort. A lack of records does not necessarily indicate the absence of a species. KRAG recommends that a thorough herpetofauna survey is undertaken following the most recently published best practice guidelines.

KRAG welcomes the submission of additional records from those undertaking survey work in Kent.

Kent Reptile and Amphibian Group

Search Date: 16/8/2022

info@kentarg.org
www.kentarg.org

Database search prepared by Calumma Ecological Services on behalf of Kent Reptile and Amphibian Group.

Kent Reptile and Amphibian Group

Species Risk Assessment

Enquiry No: CES/19/128

On Behalf of: Calumma Ecological Services

Search Area: Alsager Avenue, Queenborough

Grid Reference: TQ 906 714

Amphibians

	Likelihood of Presence	
	Score	Dist (km)
Common Frog:	**HIGH**	**0.00**
Common Toad:	Possible	2.14
Natterjack:	n/a	44.07
Smooth Newt:	**HIGH**	**0.00**
Palmate Newt:	Possible	5.95
Great Crested Newt:	Possible	1.33
Marsh Frog:	Possible	0.92
Alpine Newt:	n/a	21.20

Amphibian survey effort in local area is considered to be above average.

Reptiles

	Likelihood of Presence	
	Score	Dist (km)
Viviparous Lizard:	**HIGH**	**0.00**
Slow-worm:	**HIGH**	**0.00**
Sand Lizard:	*unlikely*	*45.50*
Grass Snake:	Possible	0.91
Adder:	*unlikely*	*8.29*
Smooth Snake:	n/a	n/a

Reptile survey effort in local area is considered to be average.

 # ponds within 1 km: 6

distance to nearest pond (km): 0.19

This risk assessment is based on a nearest neighbour analysis of records available at the time of this search request. The assessment considers habitat characteristics for each species at the landscape level, but does not control for the suitability of available habitat at the specified grid reference. The risk assessment does not include historical records and may underestimate likely presence of a species in areas with limited survey effort. The risk assessment is provided for guidance only and should not be used in place of a full herpetofauna survey.

For sites with no waterbodies where the analysis suggests that amphibians are likely to be present, individual animals may use suitable terrestrial habitat for sheltering, foraging and/or dispersal.

Kent Reptile and Amphibian Group

Search Date: 16/8/2022

info@kentarg.org
www.kentarg.org

Database search prepared by Calumma Ecological Services on behalf of Kent Reptile and Amphibian Group.

Appendix II: HSI Survey Results

Source:

Calumma Ecological Services

WB1 HSI Summary 2019

Site Name	Grid Reference:	Vice County:	Natural Area:
Queenborough (area) WB1	TQ 90467 71152	East Kent	Greater Thames Estuary

Landowner:	Site Contact:	
		n/a

Summary Waterbody Description:

Pond connected to ditch network. Enteromorpha observed in water and

Other Information:

Species Observed in WB1 During 2019:

Great Crested Newt Habitat Suitability Index

Location:	A	1.00
Pond Area (m):	223	0.50
Pond Desiccation:	Never	0.90
Water Quality:	Brackish	0.01
Shade (%):	0	1.00
Fowl:	Absent	1.00
Fish:	Possible	0.67
#Ponds:	2	0.55
Terrestrial:	Good	1.00
Macrophyte (%):	85	0.95
HSI:		0.52
Likely Presence of GCN:		Below Average

Distance from Proposed Disturbance:

- ○ Within Site
- ○ < 50 m
- ○ < 100 m
- ○ < 250 m
- ◉ < 500 m
- ○ > 500 m

Follow-up Survey Recommended:

No

Recommended Survey Method:

- ☐ Visual
- ☐ Egg search
- ☐ Torching
- ☐ Bottle-trapping
- ☐ Netting

Access Permission for Survey:

Date Of Last Modification:	24/10/2022

Calumma Ecological Services Reference:	1920/22

CALUMMA Ecological Services

www.calummaecologicalservices.co.uk

WB2 HSI Summary 2019

Site Name	Grid Reference:	Vice County:	Natural Area:
Queenborough (area) WB2	TQ 90282 71174	East Kent	Greater Thames Estuary

Landowner:	Site Contact:	
		n/a

Summary Waterbody Description:

Fully desiccated at time of survey assessment.

Other Information:

Species Observed in WB2 During 2019:

Great Crested Newt Habitat Suitability Index

Location:	A	1.00
Pond Area (m):	195	0.40
Pond Desiccation:	Always	0.10
Water Quality:		
Shade (%):	0	1.00
Fowl:	Absent	1.00
Fish:	Absent	1.00
#Ponds:	2	0.55
Terrestrial:	Good	1.00
Macrophyte (%):		
HSI:		0.62
Likely Presence of GCN:		Average

Distance from Proposed Disturbance:

- ○ Within Site
- ○ < 50 m
- ○ < 100 m
- ○ < 250 m
- ◉ < 500 m
- ○ > 500 m

Follow-up Survey Recommended:

No

Recommended Survey Method:

- ☐ Visual
- ☐ Egg search
- ☐ Torching
- ☐ Bottle-trapping
- ☐ Netting

Access Permission for Survey:

Date Of Last Modification:	24/10/2022

Calumma Ecological Services Reference:	1920/22

CALUMMA Ecological Services

www.calummaecologicalservices.co.uk

Appendix III: Reptile Survey Results

Source:

Calumma Ecological Services

Land at Alsager Avenue, Queenborough Survey Results for Site [2019]

Site Name & Survey Area	Grid Reference:	Vice County:	Natural Area:
Land at Alsager Avenue, Queenborough Site	TQ 906 714	East Kent	Greater Thames Estuary

Species Observed in Site Terrestrial Habitat [2019]:

Slow-worm, Viviparous Lizard

Reptile Survey Summary:

	V. Lizard	Slow-worm	Grass Snake	Adder
Maximum Adult Count:	6	1		
Population Status:	Good	Present	Absent	Absent
Breeding Confirmed:	Yes	Yes		

Summary Terrestrial Habitat Description:

Area of derelict land that is dominated by a structurally complex grassland sward and scrub. Scrub includes bramble and shrubs.

Reptile Survey Results

Session	Date	Air Temp	Wind	Rain	V. Lizard			Slow-worm			Grass Snake			Adder		
					Adult	Imm	Neo	Adult	Imm	Neo	Adult	Imm	Neo	Adult	Imm	Neo
LB1	21/7/2019	21.5	Still	None												
LB2	30/8/2019	20.0	Light	None	2		3									
LB3	4/9/2019	22.0	Fresh	None	6		3									
LB4	11/9/2019	22.0	Fresh	None	2		7	1		1						
LB5	17/9/2019	19.5	Light	None	1		1		1							
LB6	2/10/2019	13.5	Light	None												
LB7	23/10/2019	15.0	Light	None	1		1									

Date Of Last Modification: 24/10/2022

Calumma Ecological Services Reference: 1920/22

CALUMMA Ecological Services

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 works towards the policy of 'best practice' advocated by ARG UK (formally known as Herpetofauna Groups of Britain and Ireland).

For more details please contact:

Dr. Lee Brady, *Calumma Ecological Services,*

13 Woodside Cottages, Dunkirk, Faversham, Kent ME13 9NY

Tel/Fax: 01227 751408

info@calumma.co.uk

www.calumma.co.uk

Printed by Calumma Ecological Services