

SANDERLING WAY, IWADE, KENT

Ecological Overview and Mitigation Report

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1.0 INTRODUCTION

- 1.1 Corylus Ecology has been requested to provide an update ecology and mitigation report for land to the north of Sanderling Way, Iwade, Kent, hereinafter referred to as 'the Site'. The Site centre is located at OS grid reference TQ 89882 68138.
- 1.2 The Site is located on the northern edge of the village of Iwade and the survey area measures approximately 4.15ha in total. The survey area is dominated by fields of managed grassland, and horse grazing paddocks, with three onsite ponds and tree lines at some of the boundaries.
- 1.3 Ecological survey work has been undertaken for this Site since 2016. This report will summarise all previous ecology survey work that has been undertaken on Site and in the surrounding areas, as well as address the comments that have been provided by the KCC ecological advice service regarding mitigation and further survey information. The design of the scheme has also been updated and includes a new area of land to the east and access point, this report updates the ecology impacts for the scheme with the new area included.
- 1.4 The proposals for the Site are for the construction of up to 60 dwellings with access from Sheppey Way to the East
- 1.5 The KCC Ecology comments from 13th March 2024 are as follows:

We have reviewed the ecological information submitted as part of this application and we are satisfied that sufficient ecological surveys have been carried out to inform the application. The submitted information has detailed the following:

- 3 species of reptile are present within the site
- Small population of GCN
- Good potential for breeding birds – at least 7 species of breeding birds were recorded in the adjacent site therefore it is likely to be similar or better within this site.
- Semi improved grassland within the site.

An updated ecological impact assessment has been carried out and provided a detailed mitigation strategy. We have reviewed the ecological information and we highlight that the ecological mitigation strategy was not based on the current site plans. The submitted information has not taken into account the requirements of the drainage scheme and the fact that 3 swales are proposed to be created within the mitigation area. In the long term the swales will provide foraging opportunities for species present within the site but in the short term the construction of the swales and associated pipework may mean that the proposed receptor site is not sufficient to support the reptile

and GCN population. We advise that a plan is provided confirming the construction footprint of the proposed swales and pipe work and associated vegetation clearance. We can then consider if the works will mean that the proposed mitigation is not achievable and if an updated EcIA is required.

- 1.5 A review of all surveys completed for the Site is within Section 2 of this report and the evaluations and mitigation strategies are provided in Section 3. An update walkover survey and grassland assessment of the Site were undertaken by Corylus Ecology in June and July 2020 and update walkover of the Site in April 2022, December 2022, October 2023 and February 2024. All other survey work was undertaken by Ecosulis.

Scope of Report

- 1.6 The aims of this report are as follows:
- Review and evaluate the results of the ecological surveys undertaken by Ecosulis between 2017 and 2020;
 - Update the mitigation strategy for the new red line boundary and proposals;
 - Address the issues raised by the KCC ecological advice service regarding the ecology and protected species; and
 - Design a detailed mitigation strategy for identified protected species and habitats.
- 1.7 This report has been prepared for the exclusive use of Milton Studio. No part of this report should be considered as legal advice.
- 1.8 Survey data has a lifespan, please see Appendix 9 for guidance on the age range of survey data and advice on when update surveys would be required.

2.0 REVIEW OF PREVIOUS SURVEYS

2.1 Summary

- 2.1.1 A number of previous ecological surveys have been undertaken within the Site as well as the surrounding land: these surveys and their associated reports are listed below in date order. A summary of the results of these surveys has been collated in sections 2.2 to 2.5.

Surveys of the Site

- Preliminary Ecological Appraisal (PEA) - Ecosulis. Survey July 2017; Report issued August 2017
- Wintering Bird Survey - Ecosulis. Surveys November 2016 - March 2017; Report issued April 2017
- Update Preliminary Ecological Appraisal, Reptile Presence/Likely Absence and Great Crested Newt Population Monitoring Surveys - Ecosulis. Surveys May – June 2018; Report issued July 2018
- Overwintering Bird Habitat Suitability Assessment – Ecosulis. Survey December 2019; Report issued January 2020
- Update Site walkover and Grassland Assessment – Corylus Ecology June/July 2020
- Update Site walkover – Corylus Ecology April 2022
- Update Site walkover – Corylus Ecology December 2022
- Update Site walkover – Corylus Ecology October 2023
- Update Site walkover – Corylus Ecology February 2024

Surveys of new area to the East

- Land East of Iwade Ecology Overview Report - Corylus Ecology, February 2020
- Land East of Iwade Breeding Bird Surveys and Report - Corylus Ecology, June 2020
- Land East of Iwade Reptile Surveys and Report - Corylus Ecology, June 2020
- Land East of Iwade Bat Surveys and Report - Corylus Ecology, June 2020
- Update Site walkover– Corylus Ecology December 2022
- Update Site walkover– Corylus Ecology October 2023
- Update Site walkover – Corylus Ecology February 2024

2.2 Phase 1 Habitat Surveys and Grassland Assessments

- 2.2.1 The Phase 1 Habitat survey was undertaken of the Site in 2017 (Ecosulis 2017); an update habitat survey was undertaken in June 2018 (Ecosulis 2018). An update walkover assessment was undertaken by Corylus Ecology in June 2020, April 2022 and December 2022. The summary of these surveys are below. Figure 1 shows the field reference numbers and habitats.

Previous habitat survey work undertaken on the site by Ecosulis in 2017 (report reference: J006378) described all fields on site – except Field A – as being dominated by neutral semi-improved grassland. Field A was predominantly improved grassland. The western edge of the site and most of the southern

and northern edges were bordered by scattered scrub. Broadleaved parkland was also scattered around the on-site field boundaries.

The north-western corner of the site was bordered by species-poor hedgerow with trees. A drainage ditch with running water followed the northern border of the site.

Three ponds were located on site, two on the western boundary and one centrally located in a field comprising neutral semi-improved grassland. This third pond was surrounded by scattered scrubland. Three lengths of fencing ran north to south across the centre of the site.

An update habitat survey undertaken in June 2018 identified several changes to habitats within the site since the previous survey:

Grassland

Grazing was observed in semi-improved grassland on the eastern side of Field B in the previous 2017 survey. This grassland now appears to be ungrazed.

Fencing

Since the 2017 survey, one length of temporary electric fencing running north to south across the site has been removed. The easternmost length of removed fencing has been replaced by a temporary electric fence. An additional Heras fence has been installed 10m from the southern boundary of Field A and Field B.

Scrub Removal

An area of scrub has also been removed since the previous 2017 survey. The area removed is located off the southern boundary of Field A and Field B and is now improved grassland.

- 2.2.2 The update walkover assessment undertaken by Corylus Ecology in 2020 found that the Site conditions have remained unchanged. The grassland habitat appeared to be irregularly managed and grazing was only being undertaken of the far eastern field (Fields B and C) at the time of survey.
- 2.2.3 The update walkover assessment undertaken by Corylus Ecology in April 2022 found that the Site conditions have remained unchanged. The grassland habitat appeared to be irregularly managed, and grazing was only being undertaken of the far eastern fields (Fields C and D) at the time of survey. The newly included area to the east is being used for horse grazing and consist of short, grazed grassland.
- 2.2.4 The update walkover assessment undertaken by Corylus Ecology in December 2022 found that the grassland within the Site had been undergoing management and had been cut recently. Horse grazing within the Site had expanded with all of Field's C and D and the eastern half of Field B now surrounded by electric fencing and now consisting of short, grazed grassland.
- 2.2.5 The update walkover assessment undertaken by Corylus Ecology in September 2023 and February 2024 found that the grassland within the Site had still been undergoing management and had been cut recently. Horse grazing within the Site has continued with all of Field's C and D and the eastern and southern half of Field B now surrounded by electric fencing and now consisting of short, grazed grassland.

Neutral Grassland

- 2.2.6 Neutral semi-improved grassland was identified within the Site by Ecosulis in 2017, however no detailed species lists, analysis or comprehensive maps were provided within this report or in the update report in 2018. As such, an update condition assessment of the grassland using the Farm Environment Plan (FEP) Manual (Natural England, March 2010) was undertaken in July 2020 to assess this grassland in more detail and guide any impact assessment and mitigation measures that may be required. The results of the grassland assessment are provided within Corylus Ecology report: *20073 Sanderling Way, Iwade_Ecology_Overview_Report_Corylus_July2020_Final*.

2.3 **Great Crested Newt (GCN)**

- 2.3.1 Surveys for GCN *Triturus cristatus* have been undertaken for the Site, with the three onsite ponds and accessible ponds within a 250m-500m radius of the Site surveyed between 2016 and 2018. The surveys used a range of survey methods including Habitat Suitability Index (HSI) assessments and full population estimate surveys.
- 2.3.2 Ponds P1, P2 and P3 are onsite ponds. P4 and P5 are within 250m, but access to survey these ponds was not granted. Ponds P10 – P12 are also within a 250m radius of the Site. P6 – P9 and P13 – P16 are located to the south-east and are located within 500m of the Site boundary. Table 1 below summarises the ponds and surveys undertaken, and Figure 2 shows the locations of the ponds in relation to the Site. The likely impact zones from the on-site ponds are highlighted.

Table 1 – GCN Survey Summary

Pond No.	Distance from Site	Year of survey	Consultancy	Type of survey	Size of GCN Population Found
P1	Onsite	2016	Ecosulis	Population	Low
		2018	Ecosulis	Population	Low
P2	Onsite	2016	Ecosulis	Population	Low
		2018	Ecosulis	Population	Low
P3	Onsite	2016	Ecosulis	Population	Low
		2018	Ecosulis	Population	None
P4	62m	No access	No access	No access	No access
P5	98m	No access	No access	No access	No access
P6	414m	2016	Ecosulis	Population	Medium
P7	353m	2016	Ecosulis	Population	Medium
P8	335m	2016	Ecosulis	Population	Low
P9	450m	2016	Ecosulis	Population	Medium
P10	209m	2016	Ecosulis	Population	Low

P11	247m	2016	Ecosulis	Population	Medium
P12	185m	2016	Ecosulis	Population	Low
P13	577m	2016	Ecosulis	Population	Medium
P14	487m	2016	Ecosulis	Population	High
P15	518m	2016	Ecosulis	Population	High
P16	386m	2016	Ecosulis	Population	Medium

2.4 Reptile Presence/Likely Absence Survey

- 2.4.1 The Site was surveyed for the presence of reptiles by Ecosulis between May and June 2018. This reptile survey recorded a good population of slow worm *Anguis fragilis* and common lizard *Zootoca vivipara*, as well as a low population of grass snake *Natrix helvetica* across the Site. Figure 3 shows the location of the reptile survey heat traps, reptile records and suitable habitat.
- 2.4.2 Areas of scrub within and at the margins of the fields provide suitable habitat for reptiles. During the update walkover in 2018, some scrub clearance was noted on the southern edge of the Site, but the majority of the land previously deemed suitable for reptiles during the PEA in 2017 remained the same. The suitable habitats are the areas of scrub and semi-improved grassland. The update walkover assessment by Corylus Ecology in 2022 found the Site in a similar state as in 2018 and 2020.
- 2.4.3 Beyond the Site to the north, east, and west, there is suitable connected reptile habitat in the form of extensive grassland and hedgerow habitats.
- 2.4.4 The results of the reptile survey are provided in Table 2 below. The full results (including weather conditions) are shown in Appendix 5.

Table 2 – Reptile Presence/Absence Survey Results

Site Visit	Date	Date Peak Count (Adults)		
		Slow Worm	Common Lizard	Grass Snake
1	17 th May 2018	9	9	1
2	03 rd June 2018	3	1	3
3	04 th June 2018	4	0	1
4	09 th June 2018	1	2	2
5	10 th June 2018	7	3	1
6	12 th June 2018	2	0	3
7	13 th June 2018	10	1	0

- 2.4.5 Slow worm, common lizard and grass snake were all recorded as present on Site. Slow worms were recorded on each Site visit, with common lizards and grass snake being recorded on five visits and six visits respectively.
- 2.4.6 Juveniles of slow worm, common lizard, and grass snake were also recorded, indicating that the Site supports a breeding population of all three reptile species.
- 2.4.7 Extrapolating reptile counts into an indication of population size can be problematic for reptile surveys, due to the difficulties in surveying populations (Froglife, 1999). The number of reptiles available for survey varies with weather conditions and migration patterns, so each survey is likely to only reveal a small proportion of the number of reptiles on Site. However, it is considered that the peak count of ten adults indicates a 'good' population of slow worms, when accounting for the on-site refuge density of 15 mats per hectare (50 mats over 3.2ha). A peak count of nine adults indicates a 'good' population of common lizards. It is likely that there are <100 slow worm and <90 common lizard within the Site. A peak count of three adults indicates a 'low' population of grass snakes.

Eastern Site Surveys

- 2.4.8 The land included within the new Site boundary to the east has had reptile presence / likely absence surveys undertaken between April and May 2020 by Corylus Ecology. This survey recorded peak counts of nine slow worm, three common lizard and one grass snake. The suitable habitat for reptiles in the adjacent site is small in area (approximately 0.5ha), and the population densities of slow worm and common lizard are therefore high, indicating an 'exceptional' population of slow worm and common lizard are present. The grass snake population is considered 'low'.

2.5 Wintering Bird Surveys

- 2.5.1 Wintering bird surveys of the adjacent land were undertaken between November 2016 and March 2017 (Ecosulis, April 2017). Following the comments from KCC's ecological advice service, an Overwintering Bird Habitat Suitability Assessment was then undertaken by Ecosulis in December 2019 (Ecosulis, January 2020). The full details can be found within these reports.
- 2.5.2 These surveys have concluded that the Site and the proposed development area are considered to be of negligible importance to the functionality of the nearby SPA. No species or assemblages associated with the Swale Special Protection Area (SPA) have been seen within the survey area during any of the bird surveys or other protected species surveys. The Site does not support good quality habitat for overwintering bird species associated with the SPA. Given the extent of the suitable wintering bird habitats in the offsite surrounding area, the lack of suitable habitat on Site, and the absence of estuarine and water birds within the Site, it can be seen that the Site has little importance to wintering birds.

3.0 EVALUATION AND MITIGATION STRATEGIES

3.1 Grassland Assessment

- 3.1.1 The grassland within the Site has been assessed in June 2020 using the Farm Environment Plan (FEP) Manual (Natural England, March 2010) and the UK Habitat Classification definitions (UK Habitat Classification Working Group, 2018). The FEP method involves carrying out a series of ten 1m x 1m quadrats across the grassland, recording the presence of all species within each quadrat (Figure 4). The results of these quadrats are included in Appendix 1, with the key used to determine the grassland type from the FEP provided in Appendix 2.
- 3.1.2 The species assemblage of the grassland within the Site differs due to its current and past management, with the grassland in the western and central areas currently irregularly managed and the eastern field being heavily grazed by horses. It was therefore considered appropriate to split the grassland into two areas for the assessment; G1 comprised the western and central fields and G2 is the grazing field to the east.
- 3.1.3 Following the key, the grassland in G1 can be seen to be species-poor semi-improved grassland. The sward was found to be species-poor, with a maximum of seven species/m² and there is less than 10% cover of wildflowers. However, the cover of perennial rye-grass and white clover is less than 30%. A low number of undesirable species was recorded (creeping buttercup and creeping thistle) and these are species indicative of disturbance and agricultural improvement. If these species are excluded from the calculations, an average of only 4.1 species/m² was recorded. Appendix 1 shows the species recorded per quadrat.
- 3.1.4 Following the key, the grassland in G2 can be seen to be species-poor semi-improved grassland. The cover of perennial rye-grass and white clover is greater than 30%, with a maximum of seven species/m², and there is less than 10% cover of wildflowers. Like in G1, a low number of undesirable species, indicative of disturbance and improvement, were recorded (creeping buttercup, creeping thistle, white clover). If these species are excluded from the calculations, an average of only 4.4 species/m² was recorded.
- 3.1.5 As a result of the above assessment, both grassland areas have been classified as poor semi-improved grassland. This is classed as modified grassland (g4) under the UK Habitats Classification system. The description for this habitat type specifies that grass cover is usually greater than 75% (compared to herbs) with palatable grasses (such as rye grass, Timothy, Yorkshire fog and crested dog's-tail) dominating, herbs restricted and an average species richness of <9 species/m², as has been recorded here.

- 3.1.6 G1 has been given a condition score of 'fairly poor', comprising a higher diversity and richness of grass species. Sweet vernal grass was recorded in 70% of quadrats and meadow foxtail is occasional. Other grasses recorded in G1 include meadow barley, common bent, cocks-foot and false oat-grass. The only herb species recorded were creeping thistle and creeping buttercup.
- 3.1.7 It could be argued that G1 has affinities to g3c6 *Lolium - Cynosurus* neutral grassland, as the grass species present within the sward include target species such as crested dog's-tail, common bent and sweet vernal grass. However, undesirable species (creeping thistle and creeping buttercup) are present throughout, the total grass cover is above 75% and forbs have less than 10% cover. Target species such as ribwort plantain, common sorrel, meadow buttercup, self-heal, yarrow, silverweed, meadow thistle and lady's smock (*Cardamine pratensis*) have also not been identified within the grassland. In addition, it does not support a great enough diversity of species (9-15 m²) to be meet criteria to be classified as this grassland.
- 3.1.8 G2 has been scored as 'poor' condition, being species-poor and having a significant cover of undesirable species including white clover, creeping thistle and creeping buttercup (white clover and creeping buttercup are present in 9/10 quadrats).
- 3.1.9 The proposals will not result in the loss of any neutral grassland but in the loss of a 2ha area of species-poor semi-improved grassland. This existing grassland has low conservation value in its current form and its loss is considered to have a low to negligible impact on local wildlife.

Grassland Habitat Enhancement

- 3.1.10 An area at least 1.5ha in total size in the north of entire Site will be retained as a GCN and reptile receptor and mitigation area and there is therefore an opportunity to enhance this grassland towards neutral through management and enhancement.
- 3.1.11 The aim of the grassland enhancement in the receptor area R1 is to enhance areas of modified grassland and ruderal/scrub vegetation to create 'other neutral grassland' of a higher habitat quality and botanical diversity. This area is proposed as the GCN and reptile receptor area and log piles and hibernacula are to be installed to provide additional habitat enhancements.
- 3.1.12 The area of enhanced grassland will be managed on a three-year rotational basis. The grassland will be roughly divided into three (see Figure 5) and the three areas of grassland will be managed differently each year and to a range of sward heights: either not cut at all, cut once a year in late summer/autumn, or cut twice a year in spring and autumn. Once cut, the arisings will be removed. The regime will aim to increase the botanical diversity of the grassland whilst still providing a range of habitats year-round for invertebrates, reptiles and amphibians. The regime will be as follows:

Year 1

- area RG1 is cut twice (May and September are ideal times of year)
- area RG2 (two areas) are cut only in September
- area RG3 is not cut at all

Year 2

- area RG1 is cut only in September (once)
- area RG2 (two areas) are not cut at all
- area RG3 is cut twice (May and September)

Year 3

- area RG1 is not cut at all
- area RG2 (two areas) are cut twice
- area RG3 is cut in September only

3.2 Great Crested Newts

- 3.2.1 GCN presence/likely absence surveys have been undertaken of the onsite ponds and multiple ponds within a 250m-500m radius of the Site between 2016 and 2018.
- 3.2.2 Populations of GCN were recorded in all on-site ponds in 2016 (ponds P1-P3), but only in ponds P1 and P2 in 2018, with none recorded in pond P3. This was likely due to this pond becoming very shallow and drying out during the surveys in 2018. A low population was recorded in all three ponds in 2016 and in ponds P1 and P2 in 2018.
- 3.2.3 An additional three ponds within a 250m radius (P10 – P12) have been surveyed. Low populations of GCN were recorded in P10 and P12, with a medium population in P11. An additional cluster of ponds located between 250m and 500m to the south-east of the Site have also been surveyed. Pond P8 supported a low population of GCN. Ponds P6, P7, P9, P13 and P16 support medium populations of GCN, whilst ponds P14 and P15 contained high populations. All ponds containing GCN also contained GCN eggs, indicating these are breeding populations. Smooth newts were also recorded in all ponds apart from ponds P12 and P3.
- 3.2.4 The surveys have confirmed the presence of a low breeding population of GCN within the Site and a high population of GCN located between 250m and 500m to the south-east. All ponds containing GCN are likely to form a meta-population due to the distances and connectivity between them. Suitable terrestrial habitat for great crested newts surrounds these ponds, with open access to the semi-improved grassland fields, scrub and hedgerows, with only minor barriers to movement such as houses and B roads between them.

Onsite Terrestrial habitat

- 3.2.5 The Phase 1 habitat surveys and update walkover assessment have identified suitable terrestrial habitats for GCN throughout the Site. The majority of the Site is dominated by longer grassland that would be suitable for dispersal, foraging, rest and temporary shelter, whilst the denser scrub vegetation at the field margins would be suitable for year-round GCN terrestrial activity. The areas of shorter horse grazed grassland provided sub-optimal habitat for rest and shelter but is still suitable for dispersal.

Likely Impacts

- 3.2.6 The entire Site provides suitable terrestrial habitat for GCN, and the onsite ponds are used by GCN for breeding. The development would result in the loss of and/or damage to approximately 900m² of habitat within 50m of ponds P1 and P2 (classed as immediate terrestrial habitat by Natural England) and a further 5612m² between 50m to 100m from ponds P1 and P2. Some 15000m² would be lost beyond 100m. The total figure for lost and/or damaged habitat would be approximately 2.1ha.
- 3.2.7 There will also be a further 1900m² of temporary impacts from the creation of SUDS systems within the Site including drainage pipe installation.
- 3.2.8 Habitats to be retained and enhanced within the Site extend to approximately 1.4ha and include all three onsite ponds (P1-P3), the northern area of the Site, as well as the northern, eastern and western boundaries of the Site. A further 0.19ha area that includes the three SUDS systems will be incorporated into the mitigation area once completed. Figure 6 shows these areas in detail.

Great Crested Newt Legislation

- 3.2.9 GCN are fully protected under The Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2010. The protection afforded to GCN is such that the animals, their eggs and the habitats they use for rest or shelter are protected, including both aquatic and terrestrial habitats. This protection is applied, in part, due to rapidly declining populations associated with habitat loss and fragmentation of pond networks. Therefore, where development is likely to impact on areas known to support GCN, consideration must be given to the potential for death or injury of individual animals and the damage or destruction of GCN habitats.
- 3.2.10 The loss of and/or damage to approximately 2.1ha of terrestrial habitat would mean that either **a full European Protected Species (EPS) licence will be required** or a **District level licencing scheme to permit the development will be required.**
- 3.2.11 No ponds would be lost or directly impacted by the proposals, however, terrestrial habitat will be lost and there will likely be impacts on the ability of animals to disperse across the landscape between different

ponds and terrestrial habitats. Included in the full EPS licence application would be details on mitigation and times of year for when it is best practice to conduct works. The level of mitigation would follow recommendations set out by English Nature's Great Crested Newt Mitigation Guidelines (2001) and would be dependant on the type of licence that is applied for the scheme.

- 3.2.12 The Habitats Regulations 2010 (as amended) places an obligation on the Local Planning Authorities to consider the three European Protected Species licensing tests when considering a planning application which impacts on European Protected Species. The three licensing tests, which Natural England also has to apply later when considering a licence application, are (i) whether there are imperative reasons of overriding public interest for the planning application; (ii) whether there are any satisfactory alternatives; and (iii) whether the species' favourable conservation status has been maintained. In terms of the first two licensing tests, these are considered to be planning tests and are not dealt with in this report.
- 3.2.13 With regard to the third test, it is considered that, by carrying out the development following a detailed Mitigation Strategy and Method Statement (outlined below), the test can be met and the favourable conservation status can be maintained. The favourable conservation status test would involve designing mitigation which would need to be appropriate for the species concerned and would be in proportion to the nature and status of any population present. The mitigation for GCN if the development is covered by a EPS licence would involve providing compensatory habitat and habitat enhancements for the loss of terrestrial foraging habitat within the Site, and also mitigation for the potential fragmentation effects.

Outline Great Crested Newt Mitigation Strategy for a full EPS mitigation Licence

- 3.2.14 The mitigation strategies for both reptiles and GCN are similar and overlap in terms of habitat requirements and compensation. However, for clarity, the mitigation strategies for each species are kept separate in this report. With regard to GCN, a more detailed method statement will be required for the Natural England EPS licence, but the general principles of that licence will be based on recommendations made in this report. The recommendations given below should be sufficient for planning and can later be used as the basis for the EPS licence application.
- 3.2.15 The Site has been irregularly managed in the past, with both grazing and mechanical cutting taking place. In its current state it supports long grass and, to aid with the following mitigation measures, it is recommended that the grassland across the Site has a high meadow cut for at least 50% of the area in order to allow for trapping of both GCN and reptiles to take place, as well as aid the installation of herptile fencing. The sward height will not be cut lower than 150mm.
- 3.2.16 No work described in the following text can be undertaken until an EPS licence from Natural England has been approved. Under the licence, the following steps will be required.

Site Induction

- 3.2.17 All contractors working on the project will be briefed on the potential presence of newts by the Site manager prior to work commencing. A copy of the GCN ID card, Appendix 4, with the project ecologist's contact details will be left on site. Should any reptiles or amphibians including GCN be found, then the project ecologist will be contacted immediately.

Site Clearance and Ecological Supervision

- 3.2.18 Due to the proximity of the development area of the Site to GCN breeding ponds, mitigation will have to include a period of pitfall trapping and torch surveys to remove GCN from the development area. Amphibian exclusion fencing ('herptile' fencing) will need to be set up around the perimeter of the development area and additional drift fencing to create compartments within the Site may also be needed to aid trapping efforts. Due to the small population within the on-site ponds and the larger population located between 250m and 500m to the south-east, it is likely that a minimum of 45 trapping sessions with a density of 100 pitfall traps per hectare would be required during the appropriate time of year (outside of the hibernation period, generally Nov-Feb inclusive). These trapping sessions would be a mix of both pitfall trapping and night time torch surveys of the fence lines.
- 3.2.19 On completion of the pitfall trapping exercise, a destructive search would then need to be carried out to clear all remaining vegetation from the development area under ecological supervision. The drift fencing will be removed under ecological supervision, but the boundary exclusion fence will remain in situ until all groundworks are complete.

Receptor Area

- 3.2.20 The dedicated receptor area (R1) for both GCN and reptiles will be located in the northern section of the Site, linking ponds P1, P2 and P3 (see Figure 6). This area provides habitat links between all three onsite ponds to ensure connectivity to the local pond network. There will also be ecological buffers on the western and eastern boundaries of the Site that will provide habitat corridors around the Site and into the wider landscape. Native marginal planting is proposed around the onsite ponds.

Pond Restoration

- 3.2.21 Restoration and enhancements works will be required of Pond P3. The schedule 9 invasive species New Zealand Pygmy weed *Crassula helmsii* has been found present within this pond and strict management will be required to control this invasive species and prevent its spread. This pond also does not retain water and as such the viability for amphibian breeding is limited, drainage design considerations should be made in order to allow this pond to hold water for longer, either by dredging works or allowing additional clean excess water from the scheme into this pond. A detailed plan will be designed as part of the detailed design stage and EPS licence.

Monitoring

- 3.2.22 Post construction monitoring would be required under the terms of any EPS licence granted by Natural England. Guidance (English Nature, 2001) would suggest that, for a development of this nature, involving a medium level of impact, monitoring would involve a population size class estimate of relevant ponds, meaning all those found to support great crested newts during the current survey, for six years post construction. However, due to the partial destruction of a small amount of terrestrial habitat within 50m of the nearest breeding pond, it is considered that the development involves a low level of impact; guidance would suggest monitoring would involve a population size class estimate of relevant ponds for two years post construction. Therefore, on balance, for a development of this nature, monitoring would likely involve population size class estimate surveys of relevant ponds for four years post construction.

Hibernacula and Log Piles

- 3.2.23 A minimum of four hibernacula and four log piles would be created within the receptor area R1, distributed in suitable locations. Additional hibernacula and log piles would also be created around the retained ponds to provide additional shelter for amphibians, invertebrates and other wildlife. The hibernacula would need to follow the specifications described in the Design Manual for Roads and Bridges (DMRB, 2001) Volume 10, Section 4, Part 7. This entails building the hibernacula above ground level to prevent it from flooding. A hole will be dug out either by hand or by a mini digger to a depth of 500mm and back filled with a mix of clean rubble, timber logs and dead wood to a height of 500mm above ground. The hibernacula will then be covered with a terram membrane, capped with a 50mm – 100mm layer of soil and seeded with wildflower grass seed mix. Rubble and logs will be exposed at ground level to maintain gaps for reptile and GCN access. The hibernacula will be 1.5m wide by 2m long and will run along an east-west direction so there is a southerly facing slope to maximise basking habitat.

Design Considerations

- 3.2.24 It is suggested that species-rich grassland verges along the access roads, planting of shrubs and perennials in front of new dwellings and around the car parking spaces would soften the impact and aid the dispersal of GCN through the wider development landscape.
- 3.2.25 In consideration of the development of the access roads into the Site, as well as the internal road networks linking the development and introduction of vehicle traffic, newt mortality can be reduced through careful design. Small roads with low vehicle numbers are not thought to present major problems to newts (EN, 2001). The use of gully pots should be avoided across the majority of the Site by incorporating swale systems which allow the surface water to drain off the road. In areas where the use of gully pots cannot be avoided, they should be off-set from the kerbs by a minimum of 150mm or a specially designed kerb stone with a curved face (ACO kerb) should be used and/or sloped/dropped kerbs should be positioned adjacent

to the gulley pots. Where hydrologically possible, no gullies or drains will be used within 250m radius of GCN breeding pounds and semi-permeable surfaces should be used instead.

Habitat Management

- 3.2.26 The ecological buffer strips along the western and northern boundaries will be planted with hedgerows, trees and shrubs. The northern boundary feature will also be planted, and gaps filled. This will allow newts and reptiles to move through the landscape and forage through sheltered habitat.
- 3.2.27 These buffer corridors will provide suitable habitat in which GCN, other amphibians and reptiles can forage and shelter. The base of the hedgerows and dense vegetation would also have potential to support a range of other species including glow worm and small mammals.
- 3.2.28 Areas of long grass and wildflowers should be created in the areas of open space, outside of the residential gardens, to provide foraging habitat for newts and enhance connectivity around the Site. This will also enhance biodiversity on the Site. Either a native, wildflower seed mix or plug plants could be used to increase diversity, or alternatively the existing semi-improved grassland could be cut once a year in late summer to a height of 75mm to increase the proportion of existing wildflowers and grasses.

3.3 Reptiles

- 3.3.1 A reptile presence/likely absence survey was undertaken in May – June 2018. The entire Site provides suitable reptile habitat and reptiles were recorded under all felts and within all areas that were surveyed.
- 3.3.2 Three reptile species were recorded across the Site: slow worm, common lizard and grass snake. Juveniles of all three species were also recorded, which confirms that the Site supports a breeding population of all three species.
- 3.3.3 The surveys recorded peak counts of ten slow worm, three grass snake and nine common lizard. The Site therefore scores five points under the criteria and this, along with the presence of three reptile species, qualifies the Site as a Key Reptile Site under the Froglife Criteria.
- 3.3.4 The suitable habitats at the Site's boundaries have high levels of connectivity to further suitable habitat within the wider landscape, as well as other existing identified reptile populations. The Site has suitable reptile habitat adjacent to the north, east and west.
- 3.3.5 Within the eastern boundary of the Site, an exceptional population of slow worm and common lizard have been recorded, as well as a low population of grass snake.

Impact Assessment

- 3.3.6 The proposed development area covers approximately 2.1ha of the Site, including temporary impact areas such as the SUDS systems and connecting pipe works, the majority of these area is suitable reptile habitat.
- 3.3.7 However the general design of the scheme includes the retention and enhancement of the vegetated boundaries to the north, east and west with ecological buffers as well as the retention of all three on-site ponds. A dedicated receptor and mitigation area will be made to the north of the entire scheme that measures 1.4ha in size. A further 0.19ha area that includes the three SUDS systems will be incorporated into the mitigation area once completed. Figure 6 shows these areas in detail.
- 3.3.8 All common reptile species are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) against intentional death or injury. As habitat supporting reptiles will be lost to the proposals, a reptile mitigation strategy is required. This would follow best practice guidance and would need to tie in with the programme for the scheme. A mitigation strategy is set out below.

Reptile Mitigation Strategy

- 3.3.9 For clarity, from this point on the reptile habitat has been split into three separate areas, namely the 'Development Site' the 'Receptor Site' and the 'Ecological Buffers'.
- The 'Development Site' refers to the area to be developed including SUDS systems, where the reptiles be relocated from.
 - The 'Receptor Site' is the area of habitat in the north of the Site which will be retained and enhanced in order to take all translocated reptiles. This area has been allocated as a wildlife area and will be the area into which the reptile population will be relocated. It is hatched in pink on Figure 6.
 - The 'Ecological Buffers' are 5-10m wide buffers on the eastern and northern boundaries that will be planted as required vegetation screening for the scheme, but will also provide habitat corridors for sheltering, foraging and commuting reptiles. These areas are hatched in green on Figure 6.

Proposed On-Site Receptor Site

- 3.3.10 An area suitable for reptiles has been designated within the wider scheme as a receptor site (R1) measuring 1.4ha. This is to become a dedicated reptile and GCN receptor and mitigation area, which will be large enough to support a long-term, large reptile population. It will be important to ensure that it does not become isolated from populations within the wider countryside, by maintaining links to existing habitats to the north, west and east that are also known to support reptile populations, to support future dispersal.

A further 0.19ha area that includes the three SUDS systems will be incorporated into the mitigation area once completed. (see Figure 6).

- 3.3.11 In its current state the receptor site already contains a proportion of the existing reptile population and is therefore suitable for use as a receptor. However, this area will be enhanced to become high quality reptile habitat to ensure it is suitable to support the populations of slow worm, common lizard and grass snake throughout the year. Recommendations on how to enhance and manage this receptor site for reptiles have been provided below.
- 3.3.12 It is estimated that there are <90 common lizard and <100 slow worm within the Site as a whole (4.1ha), and the area to be lost to the development is 2.1ha. Estimates of common lizard population densities in good habitat range from 100 to 400-800 per hectare (Beebee and Griffiths, 2000) and slow worms can reach population densities in the region of 600 – 2,100 per ha (Smith, 1990; Riddell, 1996; Platenberg 1999). A maximum of 100 slow worm in a receptor area measuring 1.4ha equates to 71 individuals per hectare. It is therefore considered that the 1.4ha receptor site is of sufficient size and has the carrying capacity to support the slow worm population, as well as the common lizard and grass snake populations.
- 3.3.13 Taking into account the good connectivity of the receptor site it is considered that, once the 1.4ha receptor site is managed and enhanced for reptiles, it would be of a suitable size to mitigate for the loss of 2.1ha of good quality habitat and to maintain all species' favourable conservation status in the area.

Timings

- 3.3.14 The works should take place during the active season for reptiles, avoiding the hibernation period between November and February/March.
- 3.3.15 The reptile mitigation strategy will involve a translocation exercise to relocate reptiles from the development area into the receptor area and will include the following steps:
- 1) Receptor site enhancement / preparation
 - 2) Prepare development site for reptile translocation, erection of exclusion fencing
 - 3) Conduct trapping exercise within development site
 - 4) Conduct a destructive search of development site
 - 5) Monitoring and Management

1) *Proposed Receptor Site Creation*

The receptor site will need to be enhanced prior to the translocation exercise. This will involve the creation of a diverse structure of habitats, with open areas for reptiles to bask in, as well as the installation of four log piles and four hibernacula to provide shelter and hibernation habitat for the translocated reptiles. Wooden stake poles or stumps will also be installed to create foci for basking reptiles, specifically common

lizard. The creation of this habitat and the installation of log piles and hibernacula will be supervised by an ecologist.

The habitat creation and enhancements will be set out in a detailed Landscape and Ecological Mitigation and Monitoring Plan (LEMMP), but will be designed specifically to create habitats suitable for all recorded species: common lizard, slow worm and grass snake. The habitat enhancements for common lizard creation will be designed to provide undisturbed ground that is topographically diverse, with fairly dense but short vegetation less than 0.5 metres high, open to the sun and with at least a few exposed areas or promontories that could be used for basking (Beebee & Griffiths, 2000). The habitat enhancement for slow worms and grass snakes will be designed to create thick vegetation cover, through the enhancement of the existing long sward grassland, combined with sunny areas to allow basking. Scattered scrub and hedgerow planting will also be incorporated into the receptor area.

The layout of the receptor site and ecological buffers provides a link between the onsite receptor and the offsite reptile habitat in the wider local area.

2) *Prepare Development Site for Reptile Translocation*

Temporary 'herptile' plastic fencing will be installed along the boundaries of the development site to prevent animals from moving into the development area from the receptor site, as well as from beyond the Site boundaries from the wider local area.

The fencing contractor will be supervised by an ecologist during the installation of the fencing and any vegetation clearance required to facilitate the fencing installation. This fencing will be installed in conjunction with the required GCN EPS licence needed for the scheme.

Heat traps will be installed throughout the reptile habitat within the development site. The traps will consist of heavy gauge green mineral roofing felt cut into approximately 0.7m x 1m rectangles. The HGBI guidelines recommends a density of a minimum of 100 heat traps/ha.

3) *Conduct Trapping Exercise Within Development Site*

Heat traps will be allowed to 'bed in' for around five days. HGBI Guidance recommends a minimum of 70 trapping days for 'Good' populations of reptiles.

The translocation would involve capturing animals which are utilising the artificial refugia by hand. The relocation needs to be undertaken during the reptile active period during the spring, summer or autumn. After five consecutive visits during which no reptiles are caught or seen, the trapping exercise can finish,

even if the proposed maximum number of visits have not been carried out. A review will be made at 30 trapping sessions, and again at 45 and 60 sessions if animals are still being caught.

4) *Conduct A Destructive Search of the Development Site*

Once the trapping sessions have been completed, a destructive search would be undertaken within the development site. This would involve an ecologist supervising a 360° excavator machine with a toothed bucket to clear the development site, with any remaining reptiles which are found being moved to the receptor site. Other animals, such as amphibians or small mammals, will also be moved to safety. Once the development site has been destructively searched and cleared, development can commence. The herptile fencing will remain in place for the duration of the development works and will be inspected regularly to ensure its integrity is maintained. Where breaks or tears occur, these will be mended as quickly as possible.

5) *Monitoring*

Population monitoring will take place for two seasons post-translocation to monitor the success of the relocation exercise. This should cover spring and autumn periods to check that the mitigation has been successful and to ensure that the habitat enhancements have developed well enough for the reptile population to survive. Moreover, monitoring during the autumn will determine recruitment success and the viability of the translocated population. The monitoring would involve seven checks during the active reptile season from March – October.

6) *Management*

Vegetation management – The grassland and scrub in the receptor site will be cut once a year, in the autumn, to a minimum height of 150mm: a cutting regime for the grassland has been outlined in section 3.1.12. Cutting to this height ensures that reptiles at ground level are not harmed in the process. The log piles, hibernacula and stake poles will be left in situ in perpetuity.

Fencing and Information – the receptor site will be protected from accidental damage and public access and incursion in the future by a low chestnut post and rail fence, small picket fence or similar. A long term sensitive management plan will be required to ensure continued provision of suitable habitats for the reptile population and biodiversity in general. An information board should be installed to inform the new residents about the species present in the receptor area.

3.4 **Wintering Birds**

- 3.4.1 The wintering bird habitat suitability assessment, as well as bird surveys of adjacent areas, have concluded that the Site is of negligible importance to the functionality of the nearby SPA. No species or assemblages associated with the Swale as a Special Protection Area (SPA) were seen within the survey area during

any surveys and the Site supports low quality habitat for wintering birds. Given the extent of these types of habitats in the surrounding area and the low numbers of estuarine and water birds recorded within the Site the Site has little importance to wintering birds.

3.4.2 The following assessments have also been made:

- *The site supports little to no field margins, therefore limiting opportunities for breeding birds. The field is subject to regular management, and high levels of disturbance from the public and dog walkers, therefore provides low suitability for ground-nesting, migrant or overwintering birds.*
- *The site has a low suitability for overwintering/migratory birds; however, the adjacent fields to the north of the site, provide higher suitability for overwintering species in the area.*
- *A new tree belt has been proposed for the site, along the northern and western borders of the site. This will screen the proposed development and reduce the amount of disturbance to the adjacent fields. Planting should consider native, fruit-bearing trees and scrub, which will provide a food source for wildlife using the site.*

3.4.3 During the update site walkover in December 2022, it was recorded that the Site has not become any more suitable for use by wintering birds, with the habitats remaining the same as well as levels of public disturbance, however there has been an increase in horse grazing which further decreases the suitability of the Site.

3.4.4 No further surveys and no specific mitigation are recommended for wintering birds. However, there is potential to enhance the Site for species associated with the SPA. The retention and enhancement of the northern receptor area may encourage wintering bird species to utilise this irregularly managed grassland habitat. As mentioned above, the planting of native trees, hedgerows and shrubs will also provide additional food and nesting resources for a range of birds.

3.5 **Breeding Birds**

3.5.1 Due to the scale of the proposals, the habitats within the Site being of generally low quality for breeding birds and subject to frequent disturbance, no detailed breeding bird surveys have undertaken of the entire Site. However, Corylus Ecology have undertaken a full set of breeding bird surveys of eastern section of the Site (Fields C and D) in relation to another proposed development. The habitats here are interconnected and breeding birds recorded in the adjacent site are likely to be the same or similar across the Site due to the similarity in habitat types and proximity. The results of these surveys have been summarised below.

3.5.2 The results of the breeding bird surveys in 2020 indicate that the breeding bird community present within the Site is considered to be of Local Significance based on the Fuller criteria, with up to 26 species recorded

breeding, likely breeding or possibly breeding within or immediately adjacent to the Site. The species present and confirmed to be breeding are typical of the habitats present within the adjacent area, as well as the Site, which are dominated by arable with areas of open water with fringes of reeds and tree lines. Adjacent habitats include areas of dense scrub and open grassland.

3.5.3 The following species were recorded breeding within the Site;

- Cetti's warbler
- Dunnock
- Sedge warbler
- Robin
- Wren
- Lesser whitethroat
- Goldfinch

3.5.4 Skylarks were recorded using the arable fields to the east and north of the Site, however none were recorded within the boundaries of the Site.

3.5.5 The results of the breeding bird surveys of the wider area in 2020 indicate that the breeding bird community present within the Site is considered to be of **Local Significance** based on the Fuller criteria. Local Significance is based on at least 25 species breeding within the wider Iwade area.

3.5.6 At the Sanderling Way Site, seven species have been recorded likely breeding. The next threshold (County Level) for bird assemblage based on the Fuller criteria would be 50 or greater species breeding. Based on the criteria set out in the Kent Criteria for Local Wildlife Sites, the Site does not exceed the requirements based on Kent RDB species. The wider Site supports a total of four KRBD2 during the breeding season, the Kent Criteria threshold of KRBD2 species is 10 species.

3.5.7 The numbers of breeding territories recorded is likely to be an underestimate for some species because either they are quiet and elusive, due to the noise from the adjacent road or because the habitats within the Site make it difficult to accurately plot individuals, for example the dense scrub habitats adjacent to the Site where there is no access.

3.5.8 Based on the range of species of conservation importance recorded nearby, it is considered that the wider Iwade survey area should be considered as being of at least **Local Importance** for its breeding birds. The assemblage recorded in the adjacent site supported: -

- 1 Schedule 1 (WCA) species;

- 8 breeding species listed on either the BoCC Red List species or Species of Principal Importance; and
- 3 breeding species listed as Amber listed on the BoCC.

3.5.9 The adjacent site also supports a number of other scarce species which were recorded foraging but not breeding, including raptors (buzzard, kestrel, peregrine, hobby, barn owl and sparrowhawk) which are more closely associated with the high quality habitats of the nearby SSSI/SAC. However, it is noted that no species occur for which the SAC is specifically designated.

3.5.10 The habitats within the Site that breeding birds were recorded using, or would be expected to use (the ponds and denser boundary vegetation) are to be retained, protected and enhanced as part of the proposals. The retained waterbodies and the new tree and shrub planting nearby will provide enhanced suitable habitat that can be used by Cetti's warbler, sedge warbler and reed warbler.

3.5.11 Additional tree/shrub planting is proposed along the existing hedge and tree lines to thicken the vegetation: this will increase the nesting opportunities for the small species such as goldfinch, greenfinch and chaffinch. It is recommended that bird boxes are installed within the existing and newly proposed planting to create additional opportunities, particularly to replicate hollows and cavities in trees which are generally not present at the moment within the Site. A total of 10 bird boxes, with a mixture of 5 small hole bird boxes and 5 open fronted boxes, should be provided, along with some larger boxes for species such as stock dove.

Impacts upon the Swale SPA

3.5.12 This Site would be susceptible to a reduction in air quality and airborne pollutants during the construction phase. However, with standard measures for pollution control implemented during the construction period and the distance of the Site from the SPA, it is considered that there will be no direct or indirect effect on the SPA during the construction phase.

3.5.13 There is potential that increased recreational pressure could affect the wintering birds associated with the Swale SSSI and SPA. The proposals for new dwellings are within the zone of influence (6km) of The Swale Special Protection Area (SPA) and Wetland of International Importance under the Ramsar Convention (Ramsar Site). The proposals will need to fully adhere to the agreed approach within the North Kent Strategic Access Management and Monitoring Strategy (SAMM) to mitigate for additional recreational impacts on the designated sites and to ensure that adequate means are in place to secure the mitigation before first occupation.

- 3.5.14 There is potential for increased cat predation to affect birds associated with the SPA and SSSI as a result of the proposed development. At its closest point, the proposed development will be located approximately 600m from the designation to the north and 400m from the designation to the east across the Sheppey Way road. The maximum typical distance that most cats will travel is 400m.
- 3.5.15 There are a number of boundary features between the wider Site area and the SPA, such as a wet ditch network, Sheppey Way to the east and Raspberry Hill Lane to the north. These features, and the distance of the development from the SPA/SSSI, would likely provide significant barriers to prevent cats from gaining access into the wider SSSI and SPA area.

3.6 **Bats**

- 3.6.1 Due to the scale of the proposals and the habitats within the Site providing low quality bat habitat, no detailed bat activity surveys have undertaken. However, Corylus Ecology have undertaken a number of activity surveys of the eastern section of the Site and the land immediately adjacent to the Site to the east in 2020 in relation to another proposed development. The habitats here are interconnected and bat activity levels recorded for the adjacent site are likely to be the same across the Site due to the similarity in habitat types and their proximity.
- 3.6.2 The dominant species recorded was common pipistrelle bat *Pipistrellus pipistrellus*, followed by soprano pipistrelle *P. pygmaeus*. A lower number of passes by Nathusius' pipistrelle *P. nathusii*, noctule *Nyctalus noctula* and *Myotis species* were recorded. Only the three pipistrelle species used the adjacent site's habitats for any sustained period of time, with noctule and *Myotis* bats only recorded occasionally.
- 3.6.3 Bat activity across the adjacent site was widespread. Areas of denser vegetation and water appeared to be favoured, with sustained foraging recorded within these locations. The more open areas of grassland tended to have lower levels of activity. Evidence suggests the area is not used by large numbers of bats and activity tends to be by singleton bats.
- 3.6.4 Roosting habitat both within the survey area and the wider area is limited. The Site contains no structures and very few mature trees are present in the local area to provide a suitable roosting location. Within the wider landscape there is also very limited cover of mature trees or woodland, with the nearest area of significant mature trees and woodland being located 3.6km to the west of the Site. The village of Iwade also provides limited roosting habitat within its buildings, with the majority of the structures being built from the 1960's onwards with modern construction techniques that limit use by bats.
- 3.6.5 The survey results from the wider local area suggest that a moderate diversity of bat species are likely to use the Site for commuting and foraging.

Habitat Enhancements for bats

- 3.6.6 New roosting opportunities will be provided throughout the proposed development. This will include the provision of at least 10 bat boxes, tiles and/or roosting units on new residential buildings / garages. These will be located in proximity to retained boundary features, ponds, trees and hedgerows to maximise likelihood of discovery and occupation by bats. A mix of box designs will also be used to provide roosting opportunities for different bat species. These will be specified in an LEMMP.
- 3.6.7 In addition to the location and orientation of buildings, the proposed landscape treatment and the retention and enhancement of existing vegetation within the Site will further act as secondary mitigation to screen and soften the effects of installed artificial light sources. New shrub and tree planting will be provided to create screening against lighting from roads, residential areas and any needed floodlighting on the eastern, western and northern boundaries. The new planting will also provide foraging and commuting habitat for bats.

Lighting Impacts and Mitigation

- 3.6.8 There is potential for bats to be adversely affected and disturbed by temporary lighting during the development's construction phase. To mitigate such effects on bats, temporary lighting will be minimised wherever possible. Where required for health and safety, security or other reasons, it will be positioned so as to minimise light spill on to features identified as being of value to bats, such as the boundary features, hedgerows, waterbodies and trees located within the Site. Restrictions on working hours will mean that artificial lighting is unlikely to be utilised extensively and only in darker winter months when bats are less active. The best practice measures in Appendix 8 (as well as below) should also be followed.
- 3.6.9 Disturbance from noise during the construction phase would be minimised by the adoption of good working practices, while similarly any working after dark would be minimal.
- 3.6.10 A sensitive lighting strategy will also need to be designed with input from the project ecologist for the development. This will follow the general best practice measures set out below and in Appendix 8 (ILP and BCT, 2018).
- Do not provide excessive lighting. Use only the minimum amount of light needed for safety.
 - Avoid using reflective surfaces under lights.
 - Minimise the spread of light, particularly along boundary vegetation and grassland edge habitats. The spread of light should be kept near to or below the horizontal. Flat cut-off lanterns are best.
 - Eliminate any bare bulbs and upward pointing lighting.
 - Carefully consider the mounting height of luminaries and use a lighting professional to ensure that glare and light spill is minimised.

- Use temporary close-boarded fencing until planted vegetation matures, such as any new planting that is incorporated into the landscaping design and along the boundaries of the Site.

Technical specifications:

- Use narrow spectrum bulbs to lower the range of species affected by lighting. Use light sources that emit minimal ultra-violet light and avoid the white and blue wavelengths of the light spectrum to avoid attracting lots of insects. Lighting regimes that attract lots of insects result in a reduction of insects in other areas like parks and gardens that bats may be using for foraging.
- Lights should peak higher than 550nm or use glass lantern covers to filter UV light. White LED lights do not emit UV but have still been shown to disturb slow-flying bat species.

4.0 CONCLUSIONS

Grassland

- 4.1 The grassland within the Site has been assessed using the Farm Environment Plan (FEP) Manual (Natural England, March 2010) and the UK Habitat Classification definitions (UK Habitat Classification Working Group, 2018).
- 4.2 This assessment has classified both areas of grassland (G1 and G2) as species-poor semi-improved grassland. The impact of the proposals will therefore not result in the loss of any neutral grassland, but of areas of species-poor semi-improved grassland. The northern area of field G1 will be retained as a receptor and mitigation area and recommendations have been made to enhance this grassland towards neutral through management.

Great Crested Newts

- 4.3 A small population of great crested newt has been recorded in ponds within the Site, with a larger population located in ponds 250m to 500m to the south-east. As a result, an EPSM licence will be required from Natural England to permit the destruction and disturbance of habitat within the Site boundaries. A detailed mitigation strategy has been provided within this report.

Reptiles

- 4.4 Presence / likely absence surveys for reptiles have been undertaken 'Good' populations of common lizard and slow worm have been recorded, as well as a 'Low' population of grass snake within the main area of the Site with an 'Exceptional' population of common lizard and slow worm and a 'low' population of grass snake recorded within the eastern boundary of the Site.
- 4.5 A reptile mitigation strategy has been provided within this report, which includes the retention and enhancement of an appropriate onsite receptor site. The erection of herptile fencing, a period of trapping out reptiles from the development site, followed by a destructive search, needs to be undertaken, together with habitat enhancements and long-term management for the receptor site.

Wintering Birds

- 4.6 Wintering bird surveys have been undertaken of the adjacent land and no species that are linked with the SPA have been recorded using the Site. The Site supports low potential for wintering birds and no other species of conservation significance have been recorded.

Breeding Birds

- 4.7 Breeding bird surveys were undertaken of the adjacent land in 2020. The surveys recorded seven species confirmed or likely breeding. Raptor species were recorded using the area for feeding but not breeding.

A total of twelve species of conservation importance were found to be breeding or likely breeding within the wider survey area. The results of the breeding bird survey indicate that the breeding bird community present within the wider area, and likely the Site, is considered to be of **Local Importance** based on the Fuller criteria.

- 4.8 The proposals include large areas of habitat retention and enhancement. For most species there will be an overall increase in higher quality habitat. Recommendations have been made regarding planting and management to provide suitable habitat for some of the species of conservation concern recorded breeding or likely breeding in the local area.

Bats

- 4.9 Bat activity surveys have been undertaken of the wider Iwade area. The surveys have recorded low levels of bat activity, although a moderate diversity of bat species were recorded. A bat mitigation strategy and recommendations for habitat enhancements have been set out within this report.

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Land East of Iwade Reptile Surveys and Report - Corylus Ecology, June 2020

Land East of Iwade Bat Surveys and Report - Corylus Ecology, July 2020



- Key
- Site Survey Area
 - Tree
 - Dense Scrub
 - SI Species Poor Semi-Improved Grassland
 - Waterbody
 - Drain
 - Fence

revision	description	date	checked by

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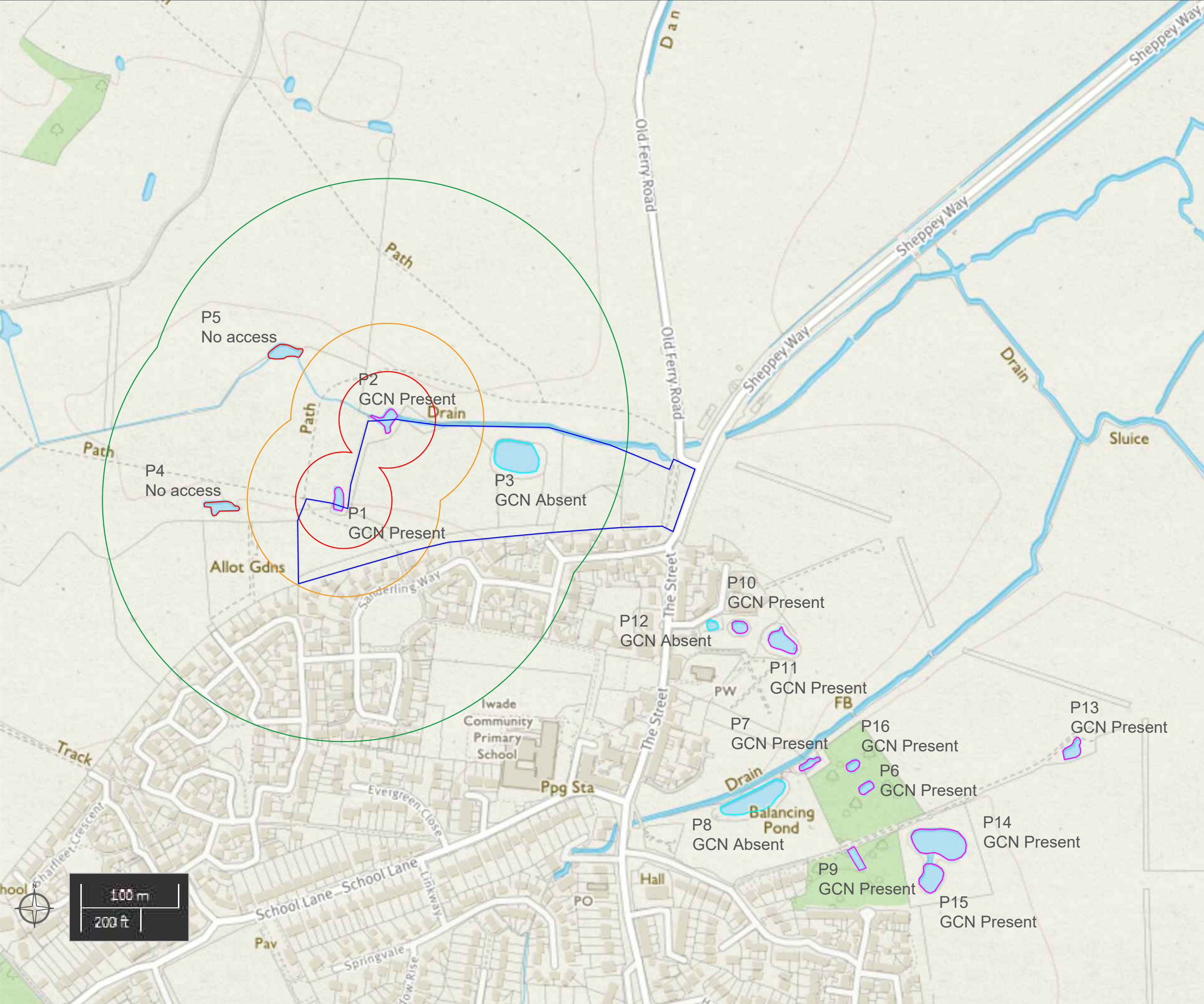
CORYLUS
ECOLOGY

Project:
20073 Sanderling Way, Iwade

Title:
Field Numbers and Habitats Plan

status		drawing no. Figure 1		
scale	size	date	drawn	checked
NTS	A3	28.04.2022	AW	HL

CAD filename
Figure_.dwg



- Key
- Site Boundary
 - Development Areas
 - GCN Present within Pond
 - GCN Not Present within Pond
 - No Access to Pond
 - 50m GCN Pond Radius
 - 100m GCN Pond Radius
 - 250m GCN Pond Radius

revision	description		date	checked by
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Project: 20073 Sanderling Way, Iwade				
Title: GCN Pond Location Plan				
status		drawing no. Figure 2		
scale	size	date	drawn	checked
NTS	A3	28.04.2022	AW	HL
CAD filename Figure_dwg				



Key

Site Boundary

Dense ScrubQ3

revision	description		date	checked by				
	Corylus Ecology Ltd, Unit A3, Speldhurst Business Park, Went Farm, Langton Road, Speldhurst, Kent TN3 0NR Corylus Ecology is the trading name of Corylus Ecology Ltd registered in England, No 5005553, Registered Office: Herwood House, Herwood, Ashford, Kent TN24 8DH		CORYLUS ECOLOGY					
Project:								
20073 Sanderling Way, Iwade								
Title:								
Grassland Assessment Plan								
status		drawing no. Figure 4						
scale	size	date	drawn	checked				
NTS	A3	28.04.2022	AW	HL				
CAD filename								
Figure_.dwg								

Grassland area R1 to be managed with 3 year rotational cutting regime:

- Year 1
- Section 1 - mown May and September
- Section 2 - mown once only September
- Section 3 - not mown in the current year
- Year 2
- Section 1 - not mown in the current year
- Section 2 - mown May and September
- Section 3 - mown once only September
- Year 3
- Section 1 - mown once only September
- Section 2 - not mown in the current year
- Section 3 - mown May and September



Key

Site Boundary

Mitigation Area R1

Areas to be incorporated into Mitigation Area R1 when works completed

Tree, Shrub and Scrub Planting

revision	description	date	checked by

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CORYLUS
ECOLOGY

Project:
20073 Sanderling Way, Iwade

Title:
Grassland Management Plan

status

drawing no.

Figure 5

scale

size

date

drawn

checked

NTS

A3

30.04.2024

AW

HL

CAD filename
Figure_.dwg

Figure 7 - Annotated Photographs December 2022



Looking south over Field A



Looking east over Field B



Looking south-east over Field B



Looking east over Field's C and D



Looking west over Fields C and D



Looking south over eastern edge of Site



Pond P1



Pond P2



Pond P3

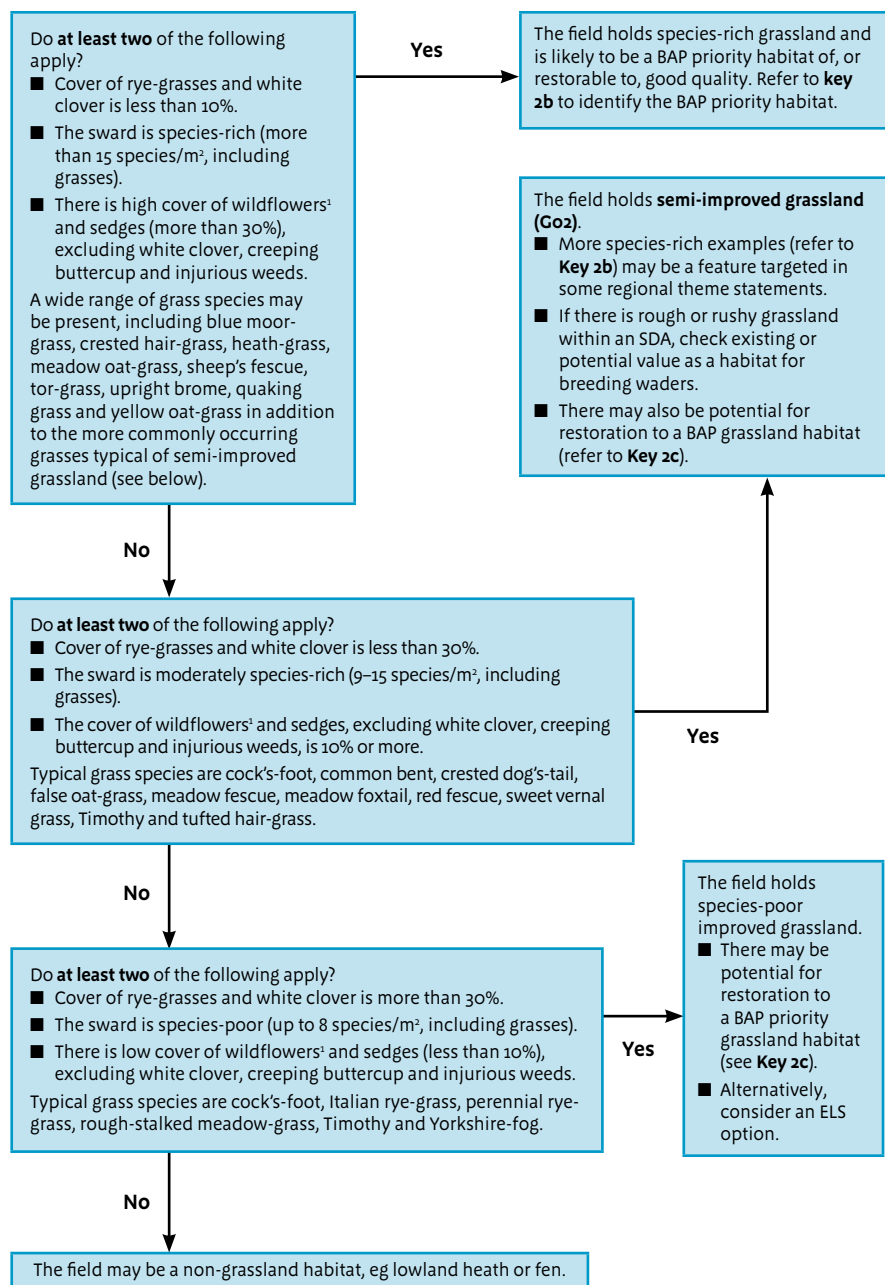
Appendix 1: Grassland assessment of field G1

Species	Quadrat number										Number of quadrats species is present in
	1	2	3	4	5	6	7	8	9	10	
Grass											
Perennial rye <i>Lolium perenne</i>		X								X	2 – Rare
Meadow barley <i>Hordeum secalinum</i>	X		X	X	X				X	X	6 - Frequent
Meadow foxtail <i>Alopecurus pratensis</i>	X		X		X	X					4 – Occasional
Yorkshire fog <i>Holcus lanatus</i>	X	X		X	X	X		X	X	X	8 - Frequent
Sweet vernal grass <i>Anthoxanthum odoratum</i>	X	X			X	X	X	X	X		7 - Frequent
False oat-grass <i>Arrhenatherum elatius</i>			X				X	X	X		4 – Occasional
Cock's-foot <i>Dactylis glomerata</i>			X								1 – Rare
Common bent <i>Agrostis capillaris</i>	X	X		X	X	X	X	X	X	X	9 - Frequent
Forbs											
Creeping thistle <i>Cirsium arvense</i>	X					X				X	3 – Occasional
Creeping buttercup <i>Ranunculus repens</i>	X			X						X	3 – Occasional
Total number of species per quadrat	7	4	4	4	5	5	3	4	5	6	

Appendix 1: Grassland assessment of field G2

Species	Quadrat number										Number of quadrats species is present in
	1	2	3	4	5	6	7	8	9	10	
Grass											
Perennial rye <i>Lolium perenne</i>		X	X	X	X	X		X	X		7 - Frequent
Meadow barley <i>Hordeum secalinum</i>	X										1 – Rare
Yorkshire fog <i>Holcus lanatus</i>	X	X		X	X						4 – Occasional
False oat-grass <i>Arrhenatherum elatius</i>	X				X						2 – Rare
Rough meadow grass <i>Poa trivialis</i>		X		X							2 – Rare
Cock's-foot <i>Dactylis glomerata</i>					X						1 – Rare
Common bent <i>Agrostis capillaris</i>	X	X	X			X	X			X	6 - Frequent
Timothy <i>Phleum pratense</i>	X						X				2 – Rare
Forbs											
White clover <i>Trifolium repens</i>		X	X	X	X	X	X	X	X	X	9 - Frequent
Creeping thistle <i>Cirsium arvense</i>	X	X	X		X			X		X	6 - Frequent
Common sorrel <i>Rumex acetosa</i>							X				1 – Rare
Creeping buttercup <i>Ranunculus repens</i>		X	X	X	X	X	X	X	X	X	9 - Frequent
Broad leaved dock <i>Rumex obtusifolius</i>	X					X			X		3 – Occasional
Total number of species per quadrat	7	7	5	5	7	5	5	4	4	4	

Key 2a – Key to identify semi-improved (Go2) and species-rich grasslands



¹ The term 'wildflowers' is used here to mean broadleaved herbs. Plants may not all be in flower at the time of the survey.

Appendix 3 – Amphibian Legislation

All British amphibian species receive legal protection in the United Kingdom though the degree to which different species are protected varies. The Wildlife and Countryside Act 1981 (WCA) (as amended) transposes into UK law the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention). The 1981 Act was recently amended by the Countryside and Rights of Way (CROW) Act 2000 and the more recent Conservation Regulations (2007). The great crested newt is listed under Schedule 5 of the 1981 Act, and is therefore subject to the provisions of Section 9, which make it an offence to:

- Intentionally kill, injure or take a great crested newt [Section 9(1)];
- Possess or control any live or dead specimen or anything derived from a great crested newt [Section 9(2)]
- Intentionally or recklessly disturb a great crested newt while it is occupying a structure or place which it uses for shelter or protection [Section 9(4)(b)];
- Intentionally or recklessly obstruct access to any structure or place which a great crested newt uses for shelter or protection [Section 9(4)(c)] Sell, offer for sale, possess or transport for the purpose of sale or publish advertisements to buy or sell a great crested newt [section 9(5)]

The other more common amphibian species are protected against sale (Section 9(5)) only. In all cases, the legislation applies to all life stages including spawn, eggs, juveniles and adults.

The great crested newt is also included on Annex IV of Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (known as the Habitats Directive). As a result of the UK ratifying this directive, the great crested newt is protected under The Conservation of Habitats and Species Regulations 2010 (The Conservation Regulations). Annex IV of the Habitats Directive requires member states to construct a system of protection as outlined in Article 12, this is done through Part 3 of the Regulations whereby Regulation 41 makes it an offence to:

- Deliberately capture or kill a great crested newt [Regulation 41(1)(a)];
- Deliberately disturb great crested newts in such a way as to be likely to significantly affect i) the ability of any significant group of animals of that species to survive, breed or rear or nurture their young, OR ii) the local distribution of that species. [Regulation 41(1)(b) and 41(2)];
- Damage or destroy a breeding site or resting place of a great crested newt [Regulation 41(1)(d)].

GREAT CRESTED NEWTS ARE IN THIS AREA

If you find a newt when working on Site, please leave it where you found it and report to the Site Manager or Project Ecologist



Great Crested Newt adults are approx. 17cm long.

Juveniles look very similar but are less than 10cm long.

If in doubt as to the species found please stop work and ask
Corylus Ecology for advice - 01892 861868



Appendix 5 - Full Reptile Results

Site Visit	Date	Temp (°C)	Weather	Count		
				Slow Worm	Common Lizard	Grass Snake
1	17 May 2018	13	90% Cloud, Dry	3♂ 3♀	8♂ 1♀ 4J	1♂ 1J
2	03 June 2018	19	50% Cloud, Dry	2♂ 1♀	1♂	2♂ 1♀
3	04 June 2018	17	80% Cloud, Dry	2♂ 2♀	0	1♀
4	09 June 2018	16	100% Cloud, Dry	1♂	2♂	2♂
5	10 June 2018	15	100% Cloud, Dry	3♂ 4♀ 2J	3♀	1♀ 3J
6	12 June 2018	14	90% Cloud, Dry	1♂ 1♀	0	1♂ 2♀
7	13 June 2018	16	40% Cloud, Dry	3♂ 7♀ 8J	1♂	0
<u>Key:</u> ♀ - Female ♂ - Male J - Juvenile						

Appendix 6 - Reptile Legislation

All British reptiles are afforded legal protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) largely as a consequence of a national decline in numbers due to habitat loss. Under the terms of the Act, it is an offence to intentionally kill or injure a reptile and accordingly in order to avoid committing an offence under the Act, appropriate mitigation techniques need to be incorporated for reptiles occurring within development sites. Mitigation methods for reptiles may include trapping and relocation of animals to a suitable receptor site, combined with the exclusion of the development site through the use of reptile fencing. Measures to enhance habitats for reptiles include the provision of hibernacula and appropriate management to improve foraging areas may also be required.

Mitigation for the more common British reptiles and amphibians does not require a licence from Natural England but would typically be agreed in consultation with the local planning authority.

Despite the range of their distribution and the diversity of habitats in which they may be found, the national status of the slow worm is not considered favourable. The slow worm is considered to have undergone a long term decline since the 1930's. Currently the largest threat has been identified as loss of habitat, in particular, due to a shift in planning policy towards the development of brown field sites (English Nature, 2004).

Appendix 7 – Bat Legislation

All British bat species receive legal protection in the United Kingdom. The Wildlife and Countryside Act 1981 (WCA) (as amended) transposes into UK law the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention). The 1981 Act was recently amended by the Countryside and Rights of Way (CROW) Act 2000 and the more recent Habitats Regulations amendments (2010). All British bat species are listed under Schedule 5 of the 1981 Act, and is therefore subject to the provisions of Section 9, which makes it an offence to:

- Intentionally kill, injure or take a bat [Section 9(1)];
- Possess or control any live or dead specimen or anything derived from a bat [Section 9(2)]
- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection [Section 9(4)(b)];
- Intentionally or recklessly obstructs access to any structure or place which a bat uses for shelter or protection [Section 9(4)(c)]
- Sell, offer for sale, possess or transport for the purpose of sale or publish advertisements to buy or sell a bat [section 9(5)]

Bats are also included on Annex IV of Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (known as the Habitats Directive). As a result of the UK ratifying this directive, all British bats are protected under The Conservation of Habitats and Species Regulations 2010 (The Conservation Regulations). Annex IV of the Habitats Directive requires member states to construct a system of protection as outlined in Article 12, this is done through Part 3 of the Regulations whereby Regulation 41 makes it an offence to:

- Deliberately capture, kill or injure a bat [Regulation 41(1)(a)];
- Deliberately disturb a bat in such a way as to be likely to significantly affect i) the ability of any significant group of animals of that species to survive, breed or rear or nurture their young, OR
ii) the local distribution of that species. [Regulation 41(1)(b) and 41(2)];
- Damage or destroy a breeding site or resting place of a bat [Regulation 41(1)(d)].

Under the law, a roost is any structure or place used for shelter or protection. This could be any structure, for example, any building or mature tree. Bats use many roost sites and feeding areas throughout the year. These vary according to bat age, condition, gender and species, as well as season and weather. Since bats tend to re-use the same roosts for generations, the roost is protected whether the bats are present or not.

In addition, four species, the two horseshoes, barbastelle and Bechstein's are included within Annex II of the Habitats Directive for which Member States are required to designate Special Areas for Conservation (SAC's) for their protection.

The UK is a signatory to the Agreement on the Conservation of Bats in Europe, established under the Bonn Convention. The Fundamental Obligations of Article III of this Agreement require the protection of all bats and their habitats, including the identification and protection from damage or disturbance of important feeding areas for bats.

Appendix 8 - Technical Guidance on Artificial Lighting and Bats

From: Institute of Lighting Professionals (ILP) and Bat Conservation Trust (BCT). 2018. *Guidance Note 8: Bats and Artificial Lighting*.

Luminaires come in a myriad of different styles, applications and specifications which a lighting professional can help to select. The following should be considered when choosing luminaires:

- All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used.
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white spectrum (ideally <2700 Kelvin) should be adopted to reduce blue light component.
- Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).
- Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill.
- Low level or bollard lighting can often cause unacceptable glare, poor illumination efficiency, a high upward light component and poor facial recognition. Therefore the use of specialist bollard or low-level downward directional luminaires should only be considered if their use is directed by a lighting professional.
- The height of columns should be carefully considered to minimise light spill.
- Only luminaires with an upward light ratio of 0% and with good optical control should be used – See ILP Guidance for the Reduction of Obtrusive Light.
- Luminaires should always be mounted on the horizontal, i.e. no upward tilt.
- Any external security lighting should be set on motion-sensors and short (1 minute) timers.
- As a last resort to minimise, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed.

Appendix 9 - CIEEM Advice Note on the Lifespan of Ecological Reports and Surveys (April 2019)

Age of Survey Data	Report/Survey Validity
Less than 12 months	Likely to be valid in most cases.
12-18 months	Likely to be valid in most cases with the following exceptions: • Where a site may offer existing or new features which could be utilised by a mobile species within a short timeframe (see scenario 1 example); • Where a mobile species is present on site or in the wider area, and can create new features of relevance to the assessment (see scenario 2 example); • Where country-specific or species-specific guidance dictates otherwise. Report authors should highlight where they consider it likely to be necessary to update surveys within a timeframe of less than 18 months.
18 months to 3 years	A professional ecologist will need to undertake a site visit and may also need to update desk study information (effectively updating the Preliminary Ecological Appraisal) and then review the validity of the report, based on the factors listed below. Some or all of the other ecological surveys may need to be updated. The professional ecologist will need to issue a clear statement, with appropriate justification, on: • The validity of the report; • Which, if any, of the surveys need to be updated; and • The appropriate scope, timing and methods for the update survey(s). The likelihood of surveys needing to be updated increases with time, and is greater for mobile species or in circumstances where the habitat or its management has changed significantly since the surveys were undertaken. Factors to be considered include (but are not limited to): • Whether the site supports, or may support, a mobile species which could have moved on to site, or changed its distribution within a site (see scenario 1&2 examples); • Whether there have been significant changes to the habitats present (and/or the ecological conditions/functions/ecosystem functioning upon which they are dependent) since the surveys were undertaken, including through changes to site management (see scenario 3 example); • Whether the local distribution of a species in the wider area around a site has changed (or knowledge of it increased), increasing the likelihood of its presence (see scenario 4 example).
More than 3 years	The report is unlikely to still be valid and most, if not all, of the surveys are likely to need to be updated (subject to an assessment by a professional ecologist, as described above).

Chartered Institute of Ecology and Environmental Management (2019). *Advice Note On the Lifespan of Ecological Reports and Surveys*