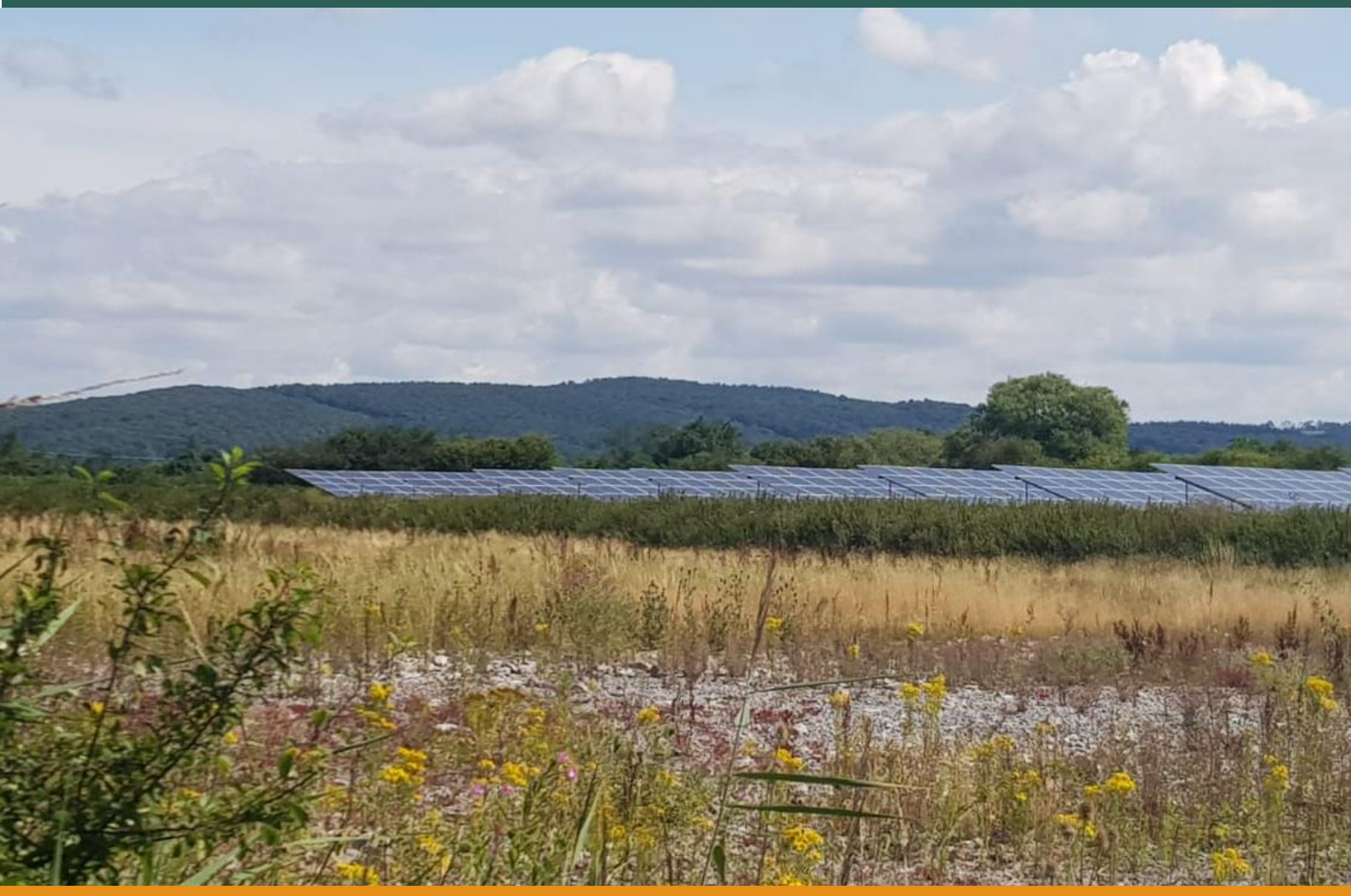
SUNNICA ENERGY FARM

Appendix 8F: Report on surveys for reptiles

Sunnica Ltd

August 2020



Quality information

Prepared by	Checked by	Verified by	Approved by
Phoebe Cox	*Alan Bull*	*Neal Gates*	
Phoebe Cox	Alan Bull	Neal Gates	Neil Titley
Graduate Ecologist	Principal Ecologist	Associate Director	Technical Director

Revision History

Revision	Revision date	Details	Authorized	Name	Position
1	August 2020	For Issue	August 2020	Neal Gates	Associate Director

Prepared for:

Sunnica Ltd

Prepared by:

AECOM Infrastructure & Environment UK Limited
Unit 1 Wellbrook Court
Girton
Cambridge CB3 0NA
United Kingdom

T: +44 1223 488 000
aecom.com

Contents

1. Introduction 3
1.2 The Scheme 3
1.3 Site Description 4
1.4 Scope of Report 6
2. Legislative and Policy Framework 7
2.1 Relevant Legislative Context 7
2.2 National and Local Planning Policy 8
2.3 Priority Species 8
2.4 Local Biodiversity Action Plan 8
3. Methods 10
3.1 Desk Study 10
3.2 Field Survey 10
3.3 Assumptions and Limitations 13
4. Results 15
4.1 Desk Study 15
4.2 Habitat Suitability Assessment 15
4.3 Reptile Presence / Absence 15
4.4 Additional Observation of Reptiles during Ecological Surveys 15
5. Evaluation 16
5.2 Population Size Assessment 16
6. Conclusions 19
7. Outline Mitigation Proposals 20
8. References 23
Sub-Appendix A Figures 24
Sub-Appendix B Survey Details 26

Tables

Table 8F-1 Habitat suitability assessment for reptiles 10
Table 8F-2 Number of artificial refugia placed within each survey area 11
Table 8F-3 Population estimates of reptile (taken from Froglife, 1999 (Ref 8F-9)) ... 13
Table 8F-4 Reptile species recorded within the Scheme boundary. 15
Figure 8F-1 DCO Site Boundary 24
Table A.1 Survey dates and weather conditions for reptile surveys carried out within the survey area 26

1. Introduction

1.1.1 In March 2019, AECOM (on behalf of Sunnica Limited), undertook a Preliminary Ecological Appraisal (PEA) (Ref 8F-1) for the proposed Sunnica Energy Farm (hereafter referred to as the Scheme). This PEA identified the need for follow-up surveys to determine the potential impacts of the Scheme on protected / notable species[1], including reptiles. Therefore, AECOM was instructed to undertake a reptile survey of the terrestrial habitat within the Scheme boundary (the Development Consent Order (DCO) Site) (the Site)) (see **Sub-Appendix A Figure 8F-1**) to determine the presence or absence of reptiles.

1.2 The Scheme

1.2.1 Sunnica Energy Farm is a new solar farm scheme proposal that would connect to the national electricity transmission network. Sunnica will use ground mounted solar photovoltaic (PV) panel arrays to generate electricity energy from the sun and combine these with a Battery Energy Storage System (BESS). The Scheme will be connected to the national electricity transmission network by an underground cable.

1.2.2 The BESSs will consist of a compound and battery array to allow for the storage, importation and exportation of energy to the National Grid. Details of the design of the BESS elements, including their power and energy ratings, and their dimensions and appearance, are currently in development.

1.2.3 Supporting electrical infrastructure will include an on-site substation and on-site cabling between the different electrical elements of the Scheme. The generating equipment of the Scheme will be fenced and be protected via security measures such as CCTV and lighting. Inside the fenced areas, in addition to the generating equipment will be, internal access tracks, landscaping and habitat management and drainage.

1.2.4 The Scheme will be connected to the existing Burwell National Grid Substation, most likely using 132kV cables buried underground. The cables will run between Sunnica West and Sunnica East (Grid Connection Route A), and then on from Sunnica West to the Burwell National Grid Substation (Grid Connection Route B). Details of the cable route, dimensions of the cables, the depth and method of burial, and numbers of joints required are currently in development.

1.2.5 The Scheme qualifies as a Nationally Significant Infrastructure Project (NSIP) and will require a DCO from national government, due to its generating capacity. It is expected to be an Environmental Impact Assessment (EIA) development.

1.2.6 The Scheme therefore comprises the following key areas:

- Solar Farm Sites:

[1] A notable species is a species with a conservation designation, but no legal protection.

  - Sunnica East Site A;
  - Sunnica East Site B;
  - Sunnica West Site A; and
  - Sunnica West Site B.
- associated electrical infrastructure for connection to the national transmission system comprise:
  - Grid Connection Route A (connecting the Sunnica East Site A with the Sunnica East Site B and then connecting to the Sunnica West Site A);
  - Grid Connection Route B (connecting the Sunnica West Site A and Sunnica West Site B and the Burwell National Grid Substation); and
  - Burwell National Grid Substation Extension.

1.2.7 **Figure 8F-1** in **Sub-Appendix A** shows the locations of these key areas.

1.3 Site Description

1.3.1 A summary description of the habitats within the Scheme boundary (made up of the three Sites) is provided below and a more detailed description of the habitats is provided in the Preliminary Ecological Appraisal (Ref 8F-1). The extent of the Scheme is shown in **Sub-Appendix A Figure 8F-1**.

Sunnica East Site

1.3.2 The Sunnica East is split into two sub-sites, one to the north of Freckenham (referred to as Sunnica East Site A) and the other to the south of Worlington (referred to as Sunnica East Site B). These two sites are approximately 1 km apart and are separated by agricultural fields. The Sunnica East Site A encompasses an area of approximately 231.7 ha and includes land within the county of Suffolk and Cambridgeshire. Sunnica East Site B lies within Suffolk and encompasses an area of approximately 323.1 ha (**Figure 8F-1**).

1.3.3 The landscape features within the Sunnica East Site A and Sunnica East Site B consist of arable agricultural fields interspersed with individual trees, hedgerows, linear tree belts, small woodland blocks, farm access tracks and local roads.

1.3.4 The landscape features immediately surrounding the Sunnica East Site A and Sunnica East Site B comprise small rural villages, including Worlington to the north, Barton Mills to the north-east, Red Lodge and Freckenham to the south and Isleham to the west. Industrial land uses adjoin the A11 to the south of the Sunnica East Site with an industrial installation of a 7.5 MW solar farm situated adjacent to the south-eastern extent of the Sunnica East Site and an anaerobic digestion (AD) plant located to the south of the Sunnica East Site.

Sunnica West Site

1.3.5 The Sunnica West Site is located within the East Cambridgeshire District Council administrative area, approximately 3 km north east of Newmarket and 6.5 km east of Burwell.

1.3.6 Sunnica West is split into two sub-sites, one to the south-east (referred to as Sunnica West Site A) and the other to the north-west of Snailwell (referred to as Sunnica West Site B). These two sites are approximately 1 km apart, separated by agricultural fields and Chippenham Road. The Sunnica West Site A encompasses an area of approximately 485.5 ha and includes land to the east and west of the A11, consisting of agricultural fields bounded by trees, managed hedgerows, linear tree shelter belts, small woodland and copses and farm access tracks. Sunnica West Site B encompasses an area of approximately 68.8 ha and comprise of agricultural fields, grassland, small woodland and copses, farm access tracks and irrigation ditches fed by the River Snail which runs along the western and northern boundaries of the Site (Figure **8F-1**).

1.3.7 The surrounding landscape comprises regularly shaped arable fields interspersed with managed hedgerows, tall shelter belts of trees and in the Chippenham Hall area, a parkland landscape with mature individual trees. Much of the area is also characterised by grazed paddocks, horse gallops and exercise tracks.

Cable Route Corridors

1.3.8 The Scheme will connect to the existing Burwell National Grid Substation via a cable route corridor. The cable route corridors under consideration are Grid Connection Route A, which connects the Sunnica East Site A with the Sunnica East Site B and then runs between the Sunnica West Site A and the Sunnica East Site B; and Grid Connection Route B, between the Sunnica West Site A and Sunnica West Site B and the Burwell National Grid Substation.

Grid Connection Route A

1.3.9 Grid Connection Route A connects the Sunnica East Site A with Sunnica East Site B and crosses two minor roads and arable farmland (**Figure 8F-1**).

1.3.10 Heading south from the Sunnica East Site B, the cable route corridor for Grid Connection Route A crosses the River Kennett, pastoral farmland, the Chippenham footpath 49/7 (a Public Right of Way (PRoW)) and B1085 (**Figure 8F-1**).

Grid Connection Route B

1.3.11 Heading east from the Burwell National Grid Substation, the cable route corridor for Grid Connection Route B crosses agricultural fields and a number of roads including the B1102 and A142. Grid Connection Route B also crosses a number of watercourses, including the Burwell Lode, New River, and the River Snail, as well as a number of drainage ditches associated with Burwell Fen, Little Fen, the Broads, and agricultural drains (**Figure 8F-1**).

1.3.12 The cable route corridor for Grid Connection Route B crosses a PRoW (footpath 92/19) before crossing the railway line and the A142 Newmarket / Fordham Road. The Route then runs alongside Snailwell Road and across the River Snail into Sunnica West Site B.

Burwell National Grid Substation Extension

1.3.13 The habitat within the Burwell National Grid Substation Extension (surrounding the existing substation) comprises small grassland fields to the east of the existing substation (bordered by hedgerows and mature trees) and arable land to the south and west of the existing substation (**Figure 8F-1**).

1.4 Scope of Report

1.4.1 The objective of the reptile survey, reported in this document, is to determine the presence or absence of reptiles in areas of suitable habitat located within the Scheme boundary.

1.4.2 This report includes the following information:

- relevant legislation and policy;
- methods for desk and field-based assessments undertaken in 2018 and 2019 respectively;
- limitations to the surveys undertaken and any assumptions made as a result of incomplete data;
- survey results;
- the approach for determining the nature conservation importance of reptile populations recorded during the assessments; and
- conclusions and recommendations.

1.4.3 This report is a technical appendix to accompany the Preliminary Environmental Information report, reporting on and evaluating the baseline data collected as of August 2020.

2. Legislative and Policy Framework

2.1 Relevant Legislative Context

2.1.1 The four reptile species that could be found within or in the neighbourhood of the Scheme are typically referred to as 'widespread' (despite the fact that all of Britain's native reptile species are declining to some degree[2]): Adder *Vipera berus*, Grass Snake *Natrix helvetica*, Common Lizard *Zootoca vivipara* and Slow Worm *Anguis fragilis*. These four species are afforded protection under Section 9(1) and (5) only, under Part 1 of the Wildlife and Countryside Act 1981 (as amended) (Ref 8F-2), which makes it an offence to:

- intentionally kill or injure a reptile;
- sell, offer or expose for sale, or to possess or transport for sale alive or dead reptile or any part of or anything derived from a reptile.
- publish or cause to be published any advertisement likely to be understood as conveying that a person buys or sells, or intends to buy or sell, any of those things.

2.1.2 In accordance with this legislation, care must be taken to ensure that reptiles are not killed or injured during project works. Sensitive timings and methods of vegetation clearance and construction works are essential to minimise the risk to reptiles and the risk of causing an offense under the legislation. Note, this information does not cover the Sand Lizard *Lacerta agilis* or the Smooth Snake *Coronella austriaca*, which are both fully protected under the Conservation of Habitats and Species Regulations 2017 (as amended) (Ref 8F-3). Neither of these species has been recorded at or near to the Site.

2.1.3 There are no licensing provisions within the Act for development activities affecting these species. However, developers are expected to take adequate precautions to avoid breaches of the legislation, including undertaking adequate surveys and mitigation to avoid or minimise the risk of killing or injuring reptiles.

2.1.4 Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 (Ref 8F-4) places a duty on all public bodies to have regard "*so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity*." Section 41 of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list has been drawn up in consultation with Natural England, as required by the Act, and all four species of reptile that could be found within or in the neighbourhood of the Scheme are listed as species of principal importance.

[2] Froglife (1999) Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth

2.2 National and Local Planning Policy

2.2.1 National and local planning policy relevant to nature conservation is provided in detail in the Preliminary Ecological Appraisal for the Scheme (Ref 8F-1).

2.3 Priority Species

2.3.1 The Natural Environment and Rural Communities (NERC) list of Species of Principal Importance is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act (2006); under Section 40 every public authority (*e.g.* a local authority or local planning authority) must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.

2.3.2 In addition, with regard to those species on the list of Species of Principal Importance listed under Section 41, the Secretary of State must:

"(a) take such steps as appear to the Secretary of State to be reasonably practicable to further the conservation of the living organisms and types of habitat included in any list published under this section, or

(b) promote the taking by others of such steps."

2.3.3 The UK Biodiversity Action Plan (UKBAP) (Ref 8F-5) was launched in 1994 and established a framework and criteria for identifying species and habitat types of conservation concern. From this list, action plans for priority habitats and species of conservation concern were published and have subsequently been succeeded by the UK Post-2010 Biodiversity Framework (July 2012) (Ref 8F-6). The UK Post 2010 Development Framework is relevant in the context of Section 40 of the NERC Act 2006, meaning that Priority Species and Habitats are material considerations in planning. These habitats and species are identified as those of conservation concern due to their rarity or a declining population trend.

2.3.4 Common Lizard, Grass Snake, Slow Worm and Adder were added to the UK Biodiversity Action Plan (UKBAP) as priority species in September 2007 and subsequently were included as Species of Principal Importance in England under Section 41 of the NERC Act (2006) (as well as Sand Lizard and Smooth Snake) meaning that they are of material consideration in planning.

2.4 Local Biodiversity Action Plan

2.4.1 The Scheme is located within two counties, Cambridgeshire and Suffolk. The Cambridgeshire and Peterborough Biodiversity Action Plan (Ref 8F-7) and Suffolk Biodiversity Action Plan (Ref 8F-8) provides the local nature conservation strategy for identifying threats to species within these counties and sets out the actions necessary to conserve them. The Biodiversity Action Plans provides context to inform identification of threatened / uncommon species within the district / county. The plans also identify priorities for conservation and enhancement but confers no particular legislative or policy protection to the species identified, however in some cases this is provided through related legislation and local planning policy.

2.4.2 Common Lizard, Grass Snake, Slow Worm and Adder are listed as Priority Species on both the Cambridgeshire and Peterborough Biodiversity Action Plan (Ref 8F-7) and the Suffolk Biodiversity Action Plan (Ref 8F-8).

3. Methods

3.1 Desk Study

3.1.1 A desk study was undertaken in December 2018 through Cambridgeshire & Peterborough Environmental Records Centre (CPERC) and Suffolk Biodiversity Information Service (SBIS), to obtain records of reptiles within the last ten years and within a 2 km radius of the Scheme boundary.

3.1.2 Only records up to ten years old were considered within the assessment, as any records older than ten years are unlikely to be still representative of reptile presence in the local area.

3.2 Field Survey

3.2.1 The reptile surveys were undertaken between 13th May and 5th June 2019 and 5th September and 4th October 2019, by suitably experienced AECOM ecologists.

Habitat Suitability Assessment

3.2.2 A Habitat Suitability Assessment (HSA) for reptiles was undertaken on the Site using existing desk-based study data, which included a review of the Phase One map and aerial photographs. The assessment considered the following characteristics for assessing the suitability of habitat for reptiles:

- location in relation to species range;
- vegetation structure;
- insolation (sun exposure);
- aspect;
- topography;
- connectivity to nearby good quality habitat;
- refuge opportunity;
- hibernation potential;
- disturbance; and
- egg-laying site potential (Grass Snake only).

3.2.3 For each habitat type or discrete area, the output of the HSA graded each habitat for its potential to support reptiles, based on the above factors. **Table 8F-1** shows the definitions used in the HSA and habitat grading.

Table 8F-1 Habitat suitability assessment for reptiles

Habitat Grading	*Definition*
Poor	Habitat which is unfavourable for reptiles based on most of the habitat assessment characters listed above or is limited in size and highly isolated from other areas of suitable habitat.

Habitat Grading	Definition
Good	Habitat which is favourable or sub-optimal for many of the habitat assessment characters listed above; or is sub-optimal for some of the characters and has good connectivity with areas of more suitable habitat.
Exceptional	Habitat which is favourable for reptiles based on most of the habitat assessment characters listed above.

Reptile presence / absence

3.2.4 The field surveys utilised two recognised methods to record reptile presence or absence within the Site boundary:

- refugia surveys; and
- visual observation of banks and, or other, suitable habitat within the Site boundary.

Survey Area

3.2.5 The survey area included suitable terrestrial habitat for reptiles within the Site, which included ephemeral / short perennial vegetation, scrub edges, semi-improved grassland and ditches. A total of 11 areas (collectively referred to as the survey area) of suitable reptile habitat were identified across the Site (see **Figure 8F-2**).

Refugia surveys

3.2.6 Refugia surveys were carried out in May and June 2019 (spring) and in September and October 2019 (autumn). All refugia surveys were carried out in accordance with Froglife's Advice Sheet 10 for Reptile Surveys (Ref 8F-9) and Natural England's Standing Advice Sheet for Reptiles (Ref 8F-10).

3.2.7 Artificial refugia, in the form of sheets of bitumen roofing felt, measuring approximately 0.5m² in area, were placed in likely basking spots for reptiles. These areas included un-shaded patches next to cover, suitable grassland and adjacent to potential hibernation sites such as piles of rubble, logs, rabbit burrows and near vegetation waste such as arisings from grass cuttings and wood chips.

3.2.8 A total of 250 refugia sheets were distributed across the survey area and the number of refugia sheets placed in each survey area are displayed in **Table 8F-2**.

Table 8F-2 Number of artificial refugia placed within each survey area

Site	Survey Area	Size (ha) of area	Number of artificial refugia sheets	Density of refugia per hectare
Sunnica East Site A	11	1.42	40	28.2
Sunnica East Site B	6	0.25	12	48.0
	7	1.86	30	16.1

Site	*Survey Area*	*Size (ha) of area*	*Number of artificial refugia sheets*	*Density of refugia per hectare*
	8	1.95	25	12.8
	9	1.43	12	8.4
	10	0.74	20	27.0
Sunnica West Site A	2	1.05	20	19.0
	3	0.36	20	55.6
	4	0.37	15	40.5
	5	1.13	20	17.7
Sunnica West Site B	1	1.48	36	24.3

3.2.9 The density of sheets was based on guidance from Froglife (Ref 8F-9). The locations of each survey area within the Scheme are detailed in **Sub-Appendix A Figure 8F-2**.

3.2.10 Following placement of sheets in each survey area, the artificial refugia were left *in situ* for two weeks to settle in and were then checked on seven separate occasions, being removed from the DCO Site on the seventh visit. Any existing hibernation sites within the survey area, such as rubble piles or wood piles, were, where possible, also searched for reptiles during checks of artificial refugia.

3.2.11 Reptile activity is greatly influenced by weather conditions, with reptiles most likely to use artificial refugia in temperatures of between 9°C and 18°C (Ref 8F-9) and in hazy or intermittent sunshine with light winds (Ref 8F-9). The optimal survey period for reptiles (as recommended in the Herpetofauna Worker's Manual (Ref 8F-11)) is April, May and September. Reptiles are also active in June, July and August; however, they will need to spend less time basking so may be more difficult to find (Ref 8F-9).

3.2.12 The age and sex of each reptile found was also recorded using the Amphibian and Reptile Conservation Trust (ARC) Reptile Identification Guide (Ref 8F-12).

3.2.13 The dates of reptile surveys and weather conditions during these surveys are shown in Table A.1 in **Sub-Appendix B**. All surveys were conducted by experienced AECOM ecologists.

Visual Inspections

3.2.14 Whilst carrying out other ecological surveys across the Scheme, any areas of suitable reptile habitat including areas with artificial refugia within the reptile survey areas were searched in order to 'spot' basking Common Lizards. This species will often sit on top of grass tussocks, debris and felts and will quickly move from sight upon disturbance. Consequently, spotting

this species can be more effective than searching under artificial refugia. Common Lizards are often very territorial and will often reuse favourite basking sites (Ref 8F-13). Once these sites are known, spotting can become a relatively successful method of lizard recording.

Population Assessment

3.2.15 Where reptiles are present, estimating population sizes of reptiles can be undertaken using guidance within Froglife's advice sheet Number 10 (Ref 8F-9). This advice sheet provides a simple means of evaluating a species population as 'low', 'good', or 'exceptional' on the basis of the maximum number of adult reptiles (of each species) recorded during a single visit (see **Table 8F-3** below).

Table 8F-3 Population estimates of reptile (taken from Froglife, 1999 (Ref 8F-9))

Species	*Low Population*	*Good Population*	*Exceptional Population*
Adder	<5	5 – 10	>10
Grass Snake	<5	5 – 10	>10
Common Lizard	<5	5 – 20	>20
Slow Worm	<5	5 – 20	>20

3.2.16 This method of population size estimate uses the assumption of a reptile survey using a density of 10 reptile sheets per hectare, although it can be difficult to determine a population size through interpretation of data using peak counts and densities. An average score across all survey visits will provide a more robust estimate of the population size of each reptile species present within suitable on-site habitat.

3.3 Assumptions and Limitations

Desk Study

3.3.1 The aim of a desk study was to help characterise the baseline context of the Scheme and provide valuable background information that would not be captured by site surveys alone. Information obtained during the course of a desk study was dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for a particular species does not necessarily mean that the species does not occur in the study area. Likewise, the presence of records for particular species does not automatically mean that these still occurred within the area of interest or were relevant in the context of the Scheme.

Field Survey

3.3.2 Surveys of the Sunnica West Site A and Sunnica West Site B were only undertaken six times, rather than the recommended seven as the refugia sheets were destroyed when the survey areas were mown. In Sunnica East

Site A, only four survey visits were undertaken as the refugia sheets were destroyed when the grassland habitat was mown. Whilst fewer surveys were undertaken within these areas than recommended, the reduction in survey effort is not a significant limitation as the survey areas are agriculturally managed and no reptiles were recorded during the surveys that were undertaken. Therefore, the likelihood of large numbers of reptiles being present within these areas is low. However, it is acknowledged that small numbers of reptiles (namely Grass Snake and Common Lizard, based on the quality of habitat within these areas) may occur in these areas and consideration of this will be taken forward when designing mitigation for the Scheme.

3.3.3 No access was granted for land within the cable route corridor, *i.e*. Grid Connection Route A (between the Sunnica West Site and the Sunnica East Site) and Grid Connection Route B (between the Sunnica West Site B and Burwell National Grid Substation Extension). Therefore, no reptile surveys were carried out within these areas. However, the habitat within these areas were viewed from PRoW, where possible and a review of aerial photography was made to appraise whether they are likely to support populations of reptiles. Whilst the presence or absence of reptiles cannot be confirmed within these areas, there will be no permanent removal of habitat during construction of the Cable Route Corridor and any disturbance to species and their habitat will be temporary as the Cable Route Corridor will be installed underground. Nevertheless, it is acknowledged that reptiles may be present within the Cable Route Corridor and consideration of this will be taken forward when designing the mitigation for the construction of the Scheme in consideration of legal compliance to avoid killing or injuring any reptiles that may be present.

3.3.4 The habitat surrounding the Burwell National Grid Substation comprises grassland and is mostly unsuitable for reptiles. However, no reptile surveys were carried out within this area. This is not a significant limitation as the area of grassland is agriculturally managed and so is unlikely to hold large numbers of reptiles. However, it is acknowledged that the ditches around the Substation site may support Grass Snake and consideration of this will be taken forward when designing the mitigation for the construction of the Burwell National Grid Substation Extension in consideration of legal compliance to avoid killing or injuring any reptiles that may be present

3.3.5 Despite the limitations detailed above, it is considered that sufficient information has been gathered during the assessment to provide a representative sample of the population of reptiles present within the Scheme boundary.

3.3.6 The reptile survey data are valid only for short periods due to the inherently transient nature of the subject (Ref 8F-10). On this basis, it is recommended that surveys for reptiles will need repeating in two years (*i.e*. in 2021).

4. Results

4.1 Desk Study

4.1.1 The desk study returned records of two reptile species (Common Lizard and Grass Snake) recorded within 2 km of the Site boundary and within the last ten years of the request date.

4.2 Habitat Suitability Assessment

4.2.1 Habitat within the Site consisted of arable farmland, grassland and woodland connected by hedgerows. The majority of the reptile survey areas across the Scheme boundary were within arable field margins with limited, or no connectivity to more favourable reptile habitat off Site. Therefore, these areas were graded as poor with sub optimal suitability for reptiles. However, better quality habitat for reptiles occurs within the survey areas and these were graded as good with optimal and sub-optimal suitability for reptiles and subject to presence/absence surveys.

4.3 Reptile Presence / Absence

4.3.1 Two species of reptile, Common Lizard and Grass Snake, were recorded in the Sunnica West Site B during field surveys in autumn 2019.

4.3.2 No reptiles were recorded within the Sunnica East Sites A and B, or the Sunnica West Site A. The species, date, age class, number of individuals and location of reptiles found in the Sunnica West Site B are detailed below in **Table 8F-1**.

Table 8F-1 Reptile species recorded within the Scheme boundary.

Date	*Species*	*Age Class*	*Number of individuals*	*Site*	*Compartment*	*Area*
20/09/2019	Common Lizard	Juvenile	1	Sunnica West Site B	F4	1
27/09/2019	Grass Snake	Adult	2	Sunnica West Site B	E4	1
27/09/2019	Common Lizard	Adult	1	Sunnica West Site B	F4	1

4.4 Additional Observation of Reptiles during Ecological Surveys

4.4.1 During an invertebrate survey carried out on the 7th May 2019 a Common Lizard was observed at the edge of a plantation block at approximate grid reference TL 674 720, c. 820 m west of Sunnica East Site B.

5. Evaluation

5.1.1 Two species of reptile, Common Lizard and Grass Snake, were recorded within the Site boundary during field surveys in 2019 and both were recorded within the Sunnica West Site B. Neither species was recorded within the Sunnica West Site A, or Sunnica East sites during the field surveys.

5.1.2 No other reptile species were recorded within the Site boundary or returned by the desk study.

5.2 Population Size Assessment

5.2.1 The population size assessment of reptiles within the Site boundary was measured using guidance in **Table 8F-3** and was used to obtain a basic evaluation of the size and importance of the population of reptiles within the Site boundary. When determining the population size of reptiles on a site, consideration must be made for other factors that may influence the assessment such as habitat quality and species ecology.

5.2.2 Estimating the population size of reptiles on a site (see **Table 8F-3**) is however difficult to achieve because each survey visit may only reveal a small sample of the population and the proportion of animals that may be detected during surveys will vary according to, for example, weather and migration patterns.

5.2.3 To allow for focussed estimation of the population size, relevant to the Scheme, only the maximum counts of each species on a single visit within the Scheme areas have been used.

Sunnica East Site

5.2.4 No reptile species were recorded within the Sunnica East Site A or Sunnica East Site B during the refugia surveys.

5.2.5 The Sunnica East Sites comprise a mixture of arable farmland and intensively managed pig farms, with limited areas of undisturbed grassland and are therefore unsuitable for reptiles owing to the limited extent and fragmented nature of suitable reptile habitat in these areas. Furthermore, the arable farmland is intensively managed, including the arable field margins. Therefore, if populations of reptiles do exist within the Sunnica East Sites, they persist in very low numbers in localised areas.

Sunnica West Site A

5.2.6 No reptile species were recorded within the Sunnica West Site A during the refugia surveys.

5.2.7 The surveyed areas of the Sunnica West Site A contained the most suitable habitat for reptiles, with limited available habitat that was suitable for reptiles present in any other areas. Whilst the survey effort on the Sunnica West Site A was below the recommended number of survey visits for detecting presence or absence of reptiles (six visits, rather than seven), no reptiles were recorded within any of the survey areas. Furthermore, the surveys were curtailed due to the management of the grassland areas on the Site (where

the reptile refugia were located), meaning that it is unlikely that populations of reptiles occur within this Site and if they do exist, they occur in very low numbers.

Sunnica West Site B

5.2.8 The northern and western section of the Sunnica West Site B (approximately 20% of the Site) is optimal reptile habitat, with large open areas of tussocky grassland adjacent to woodland, the River Snail and a network of ditches and scrub across the Site. The remaining habitat on the Sunnica West Site B (c. 80%) is intensively managed pastoral and arable farmland and unsuitable for reptiles.

5.2.9 Two species of reptile, Grass Snake and Common Lizard, were recorded on the Sunnica West Site B.

Grass Snake

5.2.10 Grass Snake is a transient species, hibernating during winter months and often travelling away from hibernation sites to lay eggs. Grass Snake was recorded close to the River Snail and the maximum count on a single survey visit was two animals. The average score for Grass Snake across all survey visits amounts to 0.29 Grass Snake per survey.

5.2.11 Therefore, when the maximum count of two animals is evaluated against the criteria in **Table 8F-3** of this report, the population of Grass Snake is classified as low and of no more than local importance.

Common Lizard

5.2.12 Common Lizard was recorded within tussocky grassland close to the River Snail and the maximum count on a single survey visit was one animal. The average score of Common Lizard across all survey visits amounts to 0.14 Common Lizard per survey.

5.2.13 Therefore, when the maximum count of one animal is evaluated against the criteria in **Table 8F-3**, the population of Common Lizard is classified as low and of no more than local importance.

Grid Connection Routes and proposed Burwell substation

5.2.14 The habitat within the Grid Connection Routes was not surveyed for reptiles, using presence or absence methods, due to difficulties with obtaining access. However, the habitat within these areas was reviewed from Public Rights of Way and aerial photography and, using professional judgement, this review concluded that the habitat within Grid Connection Route B, between Sunnica West Site B and the Burwell National Grid Substation Extension, is likely to support populations of reptiles. The habitats within this site is a mixture of ditches, grassland and scrub and could be suitable for Grass Snake, Common Lizard and Slow-worm. Adder is unlikely to occur in these areas, due to geographical range and the lack of woodland and bracken habitats, favoured by this species. The habitat within Grid Connection Route A is unlikely to support reptiles as the habitat within the corridor connecting the two Sunnica East Sites is intensively managed farmland, with limited suitable habitat for reptiles and therefore unlikely to support reptiles. The habitat

connecting the Sunnica East Site B and Sunnica West Site A is mostly pasture and arable farmland and is also unlikely to support a population of reptiles.

5.2.15 The land surrounding the Burwell National Grid Substation and outlined for the proposed Burwell National Grid Substation Extension is unlikely to support reptiles (namely Common Lizard and Slow-worm), due to the poor habitat quality to support these species and areas of grassland that are agriculturally managed or heavily grazed. However, it is acknowledged that small numbers of reptiles (namely Grass Snake) may be present in the ditches within this area and consideration for this will be taken forward when designing mitigation for the Scheme.

6. Conclusions

6.1.1 The reptile surveys undertaken in 2019 identified the presence of low numbers of two reptile species (Common Lizard and Grass Snake) within the Sunnica West Site B Scheme boundary.

6.1.2 Whilst formal surveys have not been undertaken within the cable route corridors or at the proposed location of the Burwell National Grid Substation Extension, a precautionary approach will be adopted under the assumption that reptiles are present in these areas.

6.1.3 Any development within the Sunnica West Site B has the potential to impact on reptile populations. In the absence of appropriate mitigation, these impacts would be:

- risk of incidental injury and mortality to Common Lizard and Grass Snake during the construction of the Scheme;
- permanent loss of foraging habitat, used by two species of reptile;
- temporary loss of habitat within the connecting cable corridors, potentially used by foraging or hibernating reptiles; and
- temporary disturbance of foraging reptiles, potentially using arable field margins, during construction of the Scheme.

6.1.4 Both Common Lizard and Grass Snake are listed under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended), which prohibits intentional injuring or killing of a reptile. Therefore, through the implementation of a mitigation strategy, formalised through a Construction and Environment Management Plan (CEMP), the potential for killing and injuring of reptiles will be avoided. Mitigation is required to:

- ensure compliance with relevant legislation; and
- avoid impacts that would give rise to a potential “significant effect”, therefore contrary to planning policy and biodiversity obligations of the NERC Act 2006.

6.1.5 A significant negative effect is one which undermines nature conservation objectives or changes the conservation status of a species population.

7. Outline Mitigation Proposals

7.1.1 This section presents outline mitigation proposals. Where recommendations are made, these will be taken forward as part of the EIA process and presented in the Environmental Statement supporting the DCO application.

7.1.2 To mitigate for potential incidental killing or injury of animals and for the loss of reptile habitat, the following outline mitigation is proposed:

- clearance of grassland vegetation, under ecological supervision, within the cable corridor to reduce the suitability of habitat for reptiles;
- clearance of grassland vegetation, under ecological supervision, within the Sunnica East Site A, Sunnica East Site B and Sunnica West Site A;
- retention of grassland habitat containing reptiles, within the Sunnica West Site B;
- inclusion of temporary fencing around grassland habitat containing reptiles within the Sunnica West Site B, to exclude reptiles from entering the construction areas from adjacent habitat;
- creation of habitat suitable for reptiles within the Scheme boundary on all Sites to mitigate for loss of reptile habitat and encourage potential future colonisation; and
- avoidance of construction through potential reptile hibernation areas on the Sunnica West Site B during periods when reptiles are hibernating (typically October to March), or removal of such features during the reptile 'active' periods (typically April to September).

Vegetation clearance to minimise potential for incidental injury or mortality to reptiles

7.1.3 The installation of the cable corridor will lead to temporary habitat loss, with the potential for incidental injury or mortality to reptiles. The construction within the Sunnica East Sites A and B; and Sunnica West Site A will lead to temporary loss of grassland habitat, potentially supporting very low numbers of reptiles. Therefore, the habitat within these areas will be managed, through vegetation clearance, to temporarily reduce the suitability of the habitat and encourage reptile dispersal away from the construction areas.

7.1.4 The exact prescription of works will be dependent on the time of year within which the construction works will be undertaken and in consideration of how reptiles will be affected during their life cycle.

7.1.5 Broadly, the vegetation management will comprise:

- strimming grassland vegetation within the cable corridor, Sunnica East and Sunnica West Site A; and
- removal of arisings from these areas.

7.1.6 The vegetation will be cleared to ground level, using hand strimmers, under the supervision of an Ecological Clerk of Work (ECoW). The vegetation will be cut in two passes, with the first cut of the vegetation cutting to no less than

0.3 m (1 foot) from above ground level. After a period of no less than 24 hours, a second cut of the vegetation will be made to ground level.

7.1.7 Vegetation strimming will be undertaken during suitable weather conditions, when the weather conditions are dry, with little to no wind and the temperature is between 9°C and 20°C.

7.1.8 All arisings will be raked by hand and removed from the cable corridor to prevent potential usage by reptiles.

7.1.9 Where possible, the vegetation clearance should be undertaken during September and October. This clearance is inside the active reptile season (March to October), but outside of the breeding bird season, which is typically March to August inclusive.

Sunnica West Site B – retention of habitat and Inclusion of temporary fencing around working areas

7.1.10 Where practicable, the majority of the tussocky grassland in the northern section of the Sunnica West Site B, should be retained. Where any such habitat will be removed, due to construction of the Scheme, then appropriate mitigation will be required (see Section 8.15.23) to avoid unintentional killing or injury to reptiles.

7.1.11 Prior to construction of the Scheme on the Sunnica West Site B (and on completion of any vegetation clearance within this Site), exclusion fencing will be installed around the Scheme areas to ensure that no reptiles move into the working areas during construction.

7.1.12 Fencing, as detailed within Gent and Gibson (1998) comprises a 1000 gauge polythene material, buried to a depth of 200 millimetres (mm) and with an above-ground height of 600 mm. The material is fastened to wooden stakes and set at a slight angle at the top, facing away from the Proposed Development area and is pulled tight so that reptiles (particularly Common Lizard) cannot climb up the fence.

7.1.13 Whilst fencing is being installed, a fingertip search will be undertaken within the Scheme areas to ensure that no reptiles are trapped within the construction areas.

7.1.14 Fencing will remain in place for the duration of construction and will only be removed on completion.

Habitat creation to mitigate for loss of reptile habitat

7.1.15 To mitigate for the loss of reptile foraging habitat, new habitat will need to be created to offset the loss of current habitat and should be formalised through the landscaping design. Any newly created habitat should be, minimally, like for like in terms of quality and area and should maintain connectivity across the wider area. To follow the principles set out in the NPPF to ensure biodiversity gain, additional habitat would also be created to allow for species population expansion. However, it should be acknowledged that although the footprint of the Scheme will lead to a loss of terrestrial habitat available to reptiles, the majority of this habitat does not contain reptiles or is of poor

quality to support reptiles. Therefore, the majority of habitat that will be lost is of no value for reptiles.

7.1.16 The mitigation habitat for foraging reptiles should include the creation of grassland habitat, which will be suitable as foraging habitat for Common Lizard, Grass Snake and Slow-worm.

7.1.17 Such habitat is likely to be created within the Scheme itself, underneath the panels.

Avoidance of Hibernating Reptiles

7.1.18 If construction works, including ground clearance works, are undertaken between November and early March, then these works are likely to affect reptiles during their hibernation period, when reptiles are typically below ground. Reptiles usually hibernate between October/November and March, although this can vary as reptile activity is highly influenced by weather conditions and hibernation is triggered by a response to temperature fluctuations above ground. Hibernation spots for reptiles includes rubble piles, log piles and under large rocks.

7.1.19 Therefore, supervision by an ECoW of intrusive ground works on the Sunnica West Site B will be undertaken to locate any areas of hibernacula, or potential hibernacula. Any such areas of hibernacula, or potential hibernacula, will be avoided, where construction occurs during winter months and when reptiles are hibernating. Reptile activity is highly influenced by weather conditions and hibernation is triggered by a response to decreasing temperatures above ground. Typically, the hibernation period for reptiles is October / November to March, although this can vary depending on the weather.

7.1.20 Alternatively, potential hibernation spots could be removed in advance of construction, within the reptile active period and replaced outside of the Scheme area (but within a suitable distance so that reptiles can find it). Removal would be under the supervision by an ECoW.

8. References

Ref 8F-1 AECOM, 2020. Sunnica Energy Farm Preliminary Ecological Appraisal.
Ref 8F-2 Anon, 1981. Wildlife & Countryside Act 1981. HMSO.
Ref 8F-3 HMSO (2018). Conservation of Habitats and Species Regulations 2017 (as amended). HMSO, London.
Ref 8F-4 Anon. (2006). The Natural Environment and Rural Communities Act. HMSO, London.
Ref 8F-5 Anon. (2008). UK Biodiversity Action Plan.
Ref 8F-6 JNCC, UK Post-2010 Biodiversity Framework, 2012, available at http://jncc.defra.gov.uk/page-6189 (Accessed July 2020)
Ref 8F-7 Cambridgeshire and Peterborough Biodiversity Group (2008). Priority Species and Habitats. Available from: http://www.cpbiodiversity.org.uk/biodiversity-action-plans/priority-species (Accessed July 2020).
Ref 8F-8 SBIS (2015). Priority species and habitats. Available from: http://www.suffolkbis.org.uk/biodiversity/speciesandhabitats#:~:text=The%20Suffolk%20Planning%20Biodiversity%20Action%20Plan%20%282012%29%20is,departments%20to%20meet%20their%20legal%20obligations%20towards%20biodiversity (Accessed July 2020).
Ref 8F-9 Froglife, 1999. Froglife Advice Sheet 10, Reptile Survey.
Ref 8F-10 Natural England, 2015. Reptiles: surveys and mitigation for development projects. Available at: https://www.gov.uk/guidance/reptiles-protection-surveys-and-licences [Accessed June 2020].
Ref 8F-11 Gent, T. and Gibson, S., 2003. Herpetofauna Workers' Manual. Joint Nature Conservation Committee.
Ref 8F-12 ARC, 2016. Reptile Identification Guide. Amphibian and Reptile Conservation Trust.
Ref 8F-13 Beebee, T. and Griffiths, R., 2000. Amphibians and Reptiles. Collins New Naturalist Library, Book 87.
Ref 8F-14 CIEEM: Advice Note on the lifespan of ecological surveys and reports. Available at https://cieem.net/wp-content/uploads/2019/04/Advice-Note.pdf [Accessed June 2020].

Sub-Appendix A Figures

Figure 8F-1 DCO Site Boundary

560000 565000 570000

275000

270000

265000

Sunnica East Site A

Sunnica East Site B

Sunnica West Site B

Sunnica West Site A

0 1,000 2,000 3,000 4,000 5,000m

N

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

- Scheme Boundary
- Not Included in the DCO Site
- Public Highway within Scheme

NOTE:
Public highways run through the Sunnica East Site, which are not part of the site boundary. These have been digitised based on the 1:1250 scale OS Mastermap.

Purpose of Issue
PEIR

Client
SUNNICA LTD

Project Title
sunnica energy farm

Drawing Title
FIGURE 8F-1
SCHEME BOUNDARY

Drawn	Checked	Approved	Date
AD	DW	NC	02/09/2020

AECOM Internal Project No.	Scale @ A3
60589004	1:50,000

AECOM
Unit 1 Wellbrook Court,
Girton,
Cambridge, CB3 0NA
United Kingdom
Telephone (01223) 488000
www.aecom.com

File Name:C:\Users\Anna.Diliello\AECOM Directory\Sunnica Energy Farm - GIS - General\Layout\PEIR\Chapter_2_Site_Description_Surrounds\200902_SunnicaEnergyFarm_Figure2-1_SchemeBoundary.mxd

Figure 8F-2 Location of reptile survey areas

560000

570000

270000

Sunnica East Area A

Cable Route A

Sunniva East Area B

Cable Route B

Sunnica West Area B

Cable Route A

Sunnica West Area A

SubStation

1

2

3

4

5

6

7

8

9

10

11

0 2 4km

N

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

- DCO Boundary
- 50m survey buffer
- Reptile survey area

Purpose of Issue

FOR INFORMATION

Client

SUNNICA LTD

Project Title

sunnica energy farm

Drawing Title

Figure 8F-2
REPTILE SURVEY AREAS

Drawn	Checked	Approved	Date
BF	AB	NG	20/08/2020

AECOM Internal Project No.: 60589004

Scale @ A3: 1:40,000

AECOM
Unit 1 Wellbrook Court,
Girton,
Cambridge, CB3 0NA
United Kingdom
Telephone (01223) 488000
www.aecom.com

Drawing Number

Rev

File Name:W:\Active Projects\Solar Associates\GIS\02_Maps\SEF_ReptileAreas.mxd

Sub-Appendix B Survey Details

Table A.1 Survey dates and weather conditions for reptile surveys carried out within the survey area

Survey Visit	*Date*	*Start and End times*	*Survey Area*	*Start and End Temperature (°C)*	*Start and End Wind (Beaufort)*	*Start and End Cloud Cover*	*Ground Conditions*
1	13/05/19	09:45 – 14:33	6, 7, 8, 9, 10	13 – 17	F2 – F2	0/8 – 0/8	Dry
2	16/05/19	8:00 – 11:30	6, 7, 8, 9	11 - 17	F2 – F3	2/8 – 2/8	Dry
3	20/05/19	11:51 – 14:41	6, 7, 8, 9, 10	14 - 16	F1 – F2	7/8 – 5/8	Damp
4	24/05/19	9:52 – 12:39	6, 7, 8, 9, 10	17 – 20	F2 - F2	1/8 – 3/8	Dry
5	28/05/19	10:52 – 13:37	6, 7, 8, 9, 10	13 – 13	F1 - F1	8/8 -8/8	Wet
6	03/06/19	10:46 – 12:22	6, 7, 8, 9, 10	17 - 18	F2 - 2	2/8 – 3/8	Dry
7	05/06/19	10:39 – 14:50	6, 7, 8, 9, 10	16 – 18	F1 – F1	8/8 – 8/8	Dry
1	05/09/19	10:45 – 14:56	1, 2, 3, 4, 5 &10	14 – 18	F1 – F3	2/8 – 1/8	Dry
2	09/09/19	9:00 – 11:00	1, 2, 3, 4, 5 &10	12 - 14	F2 – F3	6/8 – 7/8	Dry
3	10/09/19	9:10 – 13:40	1, 2, 3, 4, 5 &10	14 – 18	F2 - F2	4/8 – 6/8	Dry
4	13/09/19	7:10 – 11:16	1, 2, 3, 4, 5 &10	13 – 17	F2 - F1	3/8 -1/8	Dry

Survey Visit	*Date*	*Start and End times*	*Survey Area*	*Start and End Temperature (°C)*	*Start and End Wind (Beaufort)*	*Start and End Cloud Cover*	*Ground Conditions*
5	18/09/19	8:30 – 12:30	1, 2, 3, 4, 5 &10	10 - 14	F1 - 1	1/8 – 2/8	Dry
6	20/09/19	10:44 – 14:35	1, 2, 3, 4, 5 &10	17 – 19	F2 – F3	6/8 – 3/8	Dry
7	27/09/19	09:12 – 11:45	5, 1 & 10	17 – 18	F2 – F3	6/8 – 6/8	Dry
1	01/10/19	10:02-10:40	13	12 – 15	F3	2/8 – 2/8	Dry
2	02/10/19	14:40 -15:01	13	13 – 13	F2 – F2	0/0 – 0/8	Dry
3	03/10/19	09:00 – 09:45	13	15 – 17	F2- F2	8/8 – 8/8	Dry
4	04/10/19	14:07 – 14:53	13	12 - 15	F1 – F2	3/8 – 6/8	Dry