

SUNNICA ENERGY FARM

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Volume 6

6.2 Appendix 8G: Report on surveys for reptiles

APFP Regulation 5(2)(a)

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Infrastructure Planning (Applications: Prescribed Forms and
Procedure) Regulations 2009



Planning Act 2008

**The Infrastructure Planning
(Applications: Prescribed Forms and
Procedure) Regulations 2009**

Sunnica Energy Farm

Appendix 8G: Report on surveys for reptiles

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Executive summary

In March 2019, AECOM (on behalf of Sunnica Limited), undertook a Preliminary Ecological Appraisal (PEA) (Ref 8-1) 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 and notable species, 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 Order limits)) (see Annex A **Figure 1**), to determine the presence or absence of reptiles.

Habitat within the Order limits consisted of arable farmland, grassland and woodland connected by hedgerows. The majority of the reptile survey areas across the Order limits were within arable field margins with limited, or no connectivity to more favourable reptile habitat outside the Order limits. 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.

A total of 11 areas (collectively referred to as the survey area) of suitable reptile habitat were identified across the Site (see Figure 2) and were subject to refugia surveys.

Two species of reptile, Common Lizard and Grass Snake, were recorded in the Sunnica West Site B during field surveys in autumn 2019. No reptiles were recorded within the Sunnica East Sites A and B, or the Sunnica West Site A.

Refugia surveys have not been undertaken within the Grid Connection Routes A2 and B2 or at the proposed location of the Burwell National Grid Substation Extension. However, a precautionary approach to construction will be adopted under the assumption that reptiles are present in these areas. No suitable reptile habitat exists within Grid Connection Routes A1 and B1.

Reptiles were recorded within the Sunnica West Site B and therefore development in this area has the potential to impact on reptile populations. In the absence of appropriate mitigation, these impacts would be:

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

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:

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

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

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1. Introduction

1.1.1 In March 2019, AECOM (on behalf of Sunnica Limited) undertook a Preliminary Ecological Appraisal (PEA) (Ref 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 and notable species¹, 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) (also referred to as the Order limits)) (see Annex A **Figure 1**), to determine the presence or absence of reptiles.

1.2 The Scheme

1.2.1 Sunnica Energy Farm (the Scheme) is a new solar energy farm proposal that will deliver electricity to the national electricity transmission network. Sunnica Limited is proposing to install ground mounted solar photovoltaic (PV) panel arrays to generate electrical energy from the sun and combine these with a Battery Energy Storage System (BESS) which will connect to Burwell National Grid Substation in Cambridgeshire.

1.2.2 Electricity will be generated at Sunnica East Site A, near Isleham in Cambridgeshire; Sunnica East Site B, near Worlington and Freckenham in Suffolk; Sunnica West Site A near Chippenham and Kennett in Cambridgeshire; and Sunnica West Site B, near Snailwell in Cambridgeshire. All locations will comprise ground mounted solar PV panel arrays, supporting electrical infrastructure and, with the exception of Sunnica West Site B, a BESS.

1.2.3 Supporting electrical infrastructure will include on-site substations on Sunnica East Site A and Sunnica East Site B and Sunnica West Site A, and on-site cabling between the different electrical elements across the Scheme. The generating equipment of the Scheme will be fenced and protected via security measures such as Closed Circuit Television. Inside the fenced areas, in addition to the generating equipment will be, internal access tracks, and drainage. It is not proposed for any area to be continuously lit.

1.2.4 Visual, ecological and archaeological mitigation is proposed which includes proposed grassland planting and new woodland; retention of existing woodland, wetlands and other vegetation; provision of replacement habitat; and offsetting areas, where there will be no development. The BESSs will consist of a compound and battery array to allow for the importation, storage and exportation of energy to the National Grid. There will also be areas at Sunnica East Site A and Sunnica East Site B for office and storage facilities for use during the Scheme's operation.

1.2.5 The Scheme will be connected to a new substation extension at the existing Burwell National Grid Substation, using 132 kilovolt (kV) cables buried underground. The cables will run between Sunnica East Site A, Sunnica East Site B and Sunnica West Site A (Grid Connection Route A), and then from Sunnica West Site A to Sunnica West B and onwards to the Burwell National Grid Substation (Grid Connection Route B). The Burwell National Grid Substation Extension will convert the 132kV to 400kV. The 400kV cables will be buried and

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

will connect the Scheme to the existing Burwell National Grid Substation to allow distribution to the national transmission network.

- 1.2.6 The Scheme will have two main access points, one north of Elms Road at Sunnica East Site B and one south of La Hogue Road at Sunnica West Site A. The main access route to Sunnica West Site A will be via the Chippenham junction of the A11, to the north of junction 38 of the A14. Sunnica East Site B will be accessed via the A11 and B1085. A number of secondary access points are proposed to access the individual land parcels through construction, operation, and decommissioning phases.
- 1.2.7 The Scheme is defined as a Nationally Significant Infrastructure Project (NSIP) and will require a Development Consent Order (DCO) from the Secretary of State for Business, Energy and Industrial Strategy (Secretary of State), due to its generating capacity exceeding 50 megawatts (MW).
- 1.2.8 The Scheme comprises the following key areas:
- a. Solar Farm Sites:
 - i. Sunnica East Site A;
 - ii. Sunnica East Site B;
 - iii. Sunnica West Site A; and
 - iv. Sunnica West Site B.
 - b. associated electrical infrastructure areas for connection to the national transmission system:
 - i. Grid Connection Route A ('A1' connecting the Sunnica East Site A with the Sunnica East Site B and then 'A2' connecting to the Sunnica West Site A);
 - ii. Grid Connection Route B ('B1' connecting the Sunnica West Site A and Sunnica West Site B and 'B2' connecting to the Burwell National Grid Substation); and
 - iii. Burwell National Grid Substation Extension.
- 1.2.9 **Figure 1** in Annex 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 four Sites (see section 1.2.1)) is provided below and a more detailed description of the habitats is provided in the PEA report (Ref 1). The extent of the Scheme is shown in Annex A, **Figure 1**.

Sunnica East Site

- 1.3.2 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 1km apart and are separated by agricultural fields. The Sunnica East Site A encompasses an area of approximately 224ha and includes land within the county of Suffolk and Cambridgeshire. Sunnica East Site B lies within Suffolk and encompasses an area of approximately 319ha (**Figure 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 7.5MW 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 3km north east of Newmarket and 6.5km 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 1km apart, separated by agricultural fields and Chippenham Road. The Sunnica West Site A encompasses an area of approximately 373ha 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 66ha and comprises 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 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 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 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 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 cable 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 1**).

1.4 Scope of the 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 Order limits.
- 1.4.2 This report includes the following information:
- a. relevant legislation and policy;
 - b. methods for desk and field-based assessments undertaken between 2018 and 2021;
 - c. limitations to the surveys undertaken and any assumptions made as a result of incomplete data;
 - d. survey results;
 - e. the approach for determining the nature conservation importance of reptile populations recorded during the assessments; and
 - f. conclusions and recommendations.
- 1.4.3 This report is a technical appendix to accompany the Environmental Statement (ES) for the DCO application.

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 (Ref 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 3), 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 (Ref 3), 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 4). Neither of these species has been recorded at or near to the Order limits
- 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 5) 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.

2.2 National and local planning policy

- 2.2.1 National and local planning policy relevant to nature conservation is provided in detail in the PEA report for the Scheme (Ref 1), which is also included as Appendix 8B of the ES [EN010106/APP/6.2].

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 6) 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 7). 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 8) and Suffolk Biodiversity Action Plan (Ref 9) 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 8) and the Suffolk Biodiversity Action Plan (Ref 9).

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 preceding ten years and within a 2km radius of the Order limits.
- 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

Habitat suitability assessment

- 3.2.1 Following the PEA (Ref 1), a habitat suitability assessment (HSA) for reptiles was undertaken using existing desk-based study data, which included a review of the Phase 1 habitat map (Ref 1) and aerial photographs. The HSA was subsequently updated in spring 2020 to confirm there had been no changes to habitats within the Order limits. The assessment considered the following characteristics for assessing the suitability of habitat for reptiles:
 - a. location in relation to species range;
 - b. vegetation structure;
 - c. insolation (sun exposure);
 - d. aspect;
 - e. topography;
 - f. connectivity to nearby good quality habitat;
 - g. refuge opportunity;
 - h. hibernation potential;
 - i. disturbance; and
 - j. egg-laying site potential (Grass Snake only).
- 3.2.2 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 3-1** shows the definitions used in the HSA and habitat grading.

Table 3-1: 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.
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.

Habitat Grading	Definition
Exceptional	Habitat which is favourable for reptiles based on most of the habitat assessment characters listed above.

Reptile presence / absence

3.2.3 The field surveys utilised two recognised methods to record reptile presence or absence within the Order limits:

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

3.2.4 These surveys, undertaken in suitable areas of habitat within Sunnica West Site A, Sunnica East Site A and Sunnica East Site B, were undertaken between 13 May and 5 June 2019 and 5 September and 4 October 2019, by suitably experienced AECOM ecologists.

Survey Area

3.2.5 The survey area included suitable terrestrial habitat for reptiles within the Order limits, 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 2**) and were subject to refugia surveys.

3.2.6 There is no suitable habitat for reptiles within the Grid Connection Routes A1 or B1 and therefore no reptile surveys were undertaken in these areas.

3.2.7 No reptile surveys were carried out within the Burwell National Grid Substation Extension area, or Grid Connection Routes A2 and B2 (see also section 3.6.3 and 5.2.14).

3.3 Refugia surveys

3.3.1 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 2) and Natural England's Standing Advice Sheet for Reptiles (Ref 10).

3.3.2 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.

3.3.3 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 3-2**. The density of sheets was based on guidance from Froglife (Ref 2). The locations of each survey area within the Order limits are detailed in Annex A **Figure 2**.

Table 3-2: Number of artificial refugia placed within each survey area

Site	Survey Area (see Figure 2)	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
	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

3.3.4 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 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.

3.3.5 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 2) and in hazy or intermittent sunshine with light winds (Ref 8-9). The optimal survey period for reptiles (as recommended in the Herpetofauna Worker's Manual (Ref 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 2).

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

3.3.7 The dates of reptile surveys and weather conditions during these surveys are shown in Annex B.

3.4 Visual inspection

3.4.1 Whilst carrying out other ecological surveys across the Order limits, 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 13). Once these sites are known, spotting can become a relatively successful method of lizard recording.

3.5 Population assessment

3.5.1 Where reptiles are present, estimating population sizes of reptiles can be undertaken using guidance within Froglife’s advice sheet Number 10 (Ref 2). 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 3-3**).

Table 3-3: Population estimates of reptile (taken from Froglife, 1999 (Ref 2))

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

3.5.2 This method of population size estimate uses the assumption of a reptile survey using a density of ten 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.

3.6 Assumptions and limitations

Desk study

3.6.1 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

3.6.2 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.

- 3.6.3 Due to the temporary nature of construction of the Grid Connection, no reptile surveys were carried out within Grid Connection Routes A2 and B2. The habitat within these areas is a mixture of ditches, isolated grassland areas and scrub, which is of limited value to reptiles. These areas could, however, support small, isolated populations of Grass Snake, Common Lizard and Slow Worm although no records of any of these species occurring within 2 km of the Order limits were returned during the desk study (see section 5.1.2). Adder is unlikely to occur in any of these areas, due to geographical range and the lack of woodland and bracken habitats favoured by this species. Whilst the presence or absence of reptiles was not 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.
- 3.6.4 The habitat within the Burwell National Grid Substation Extension area was not surveyed for reptiles as, although the habitat is grassland and scrub, this habitat is isolated with limited connectivity to other suitable reptile habitat. There are no records of reptiles occurring within the wider area (see section 5.1.2) and the predominant habitat type surrounding the Burwell National Grid Substation is intensively managed arable farmland, which is unsuitable for reptiles. However, it is acknowledged that the ditches around the Substation site may support low numbers of transient 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.
- 3.6.5 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.

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 2km of the Order limits and within the last ten years of the request date.

4.2 Habitat suitability assessment

4.2.1 Habitat within the Order limits consisted of arable farmland, grassland and woodland connected by hedgerows. The majority of the reptile survey areas across the Order limits were within arable field margins with limited, or no connectivity to more favourable reptile habitat outside the Order limits. 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 in **Table 4-1**.

Table 4-1: Reptile species recorded

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

4.4 Additional observations of reptiles

4.4.1 During an invertebrate survey, carried out on the 7 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 Order limits 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 Order limits or had records returned through the desk study.

5.2 Population size assessment

- 5.2.1 The population size assessment of reptiles within the Order limits was measured using guidance in **Table 3-3** 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 3-3**) 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 Sites A and B

- 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 Order limits) 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 Order limits. 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 3-3**, 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 3-3**, the population of Common Lizard is classified as low and of no more than local importance.

Grid Connection Routes and proposed Burwell National Grid Substation Extension

5.2.14 The habitat within these areas were not surveyed for reptiles, using presence or absence methods. The habitats within these areas are a mixture of ditches, grassland and scrub and could be suitable for small, isolated populations of 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.

6. Conclusions

- 6.1.1 The reptile surveys identified the presence of low numbers of two reptile species (Common Lizard and Grass Snake) within Sunnica West Site B.
- 6.1.2 Whilst formal surveys have not been undertaken within the Grid Connection Routes A2 and B2 or at the proposed location of the Burwell National Grid Substation Extension, a precautionary approach to construction will be adopted under the assumption that reptiles are present in these areas. No suitable reptile habitat exists within Grid Connection Routes A1 and B1.
- 6.1.3 Reptiles were recorded within the Sunnica West Site B and therefore development in this area has the potential to impact on reptile populations. In the absence of appropriate mitigation, these impacts would be:
- a. risk of incidental injury and mortality to Common Lizard and Grass Snake during the construction of the Scheme;
 - b. permanent loss of foraging habitat, used by two species of reptile; and
 - c. 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) (Ref 3), 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:
- a. ensure compliance with relevant legislation; and
 - b. avoid impacts that would give rise to a potential “significant effect”, therefore contrary to planning policy and biodiversity obligations of the NERC Act 2006 (Ref 5).
- 6.1.5 A significant negative effect is one which undermines nature conservation objectives or changes the conservation status of a species population.

7. References

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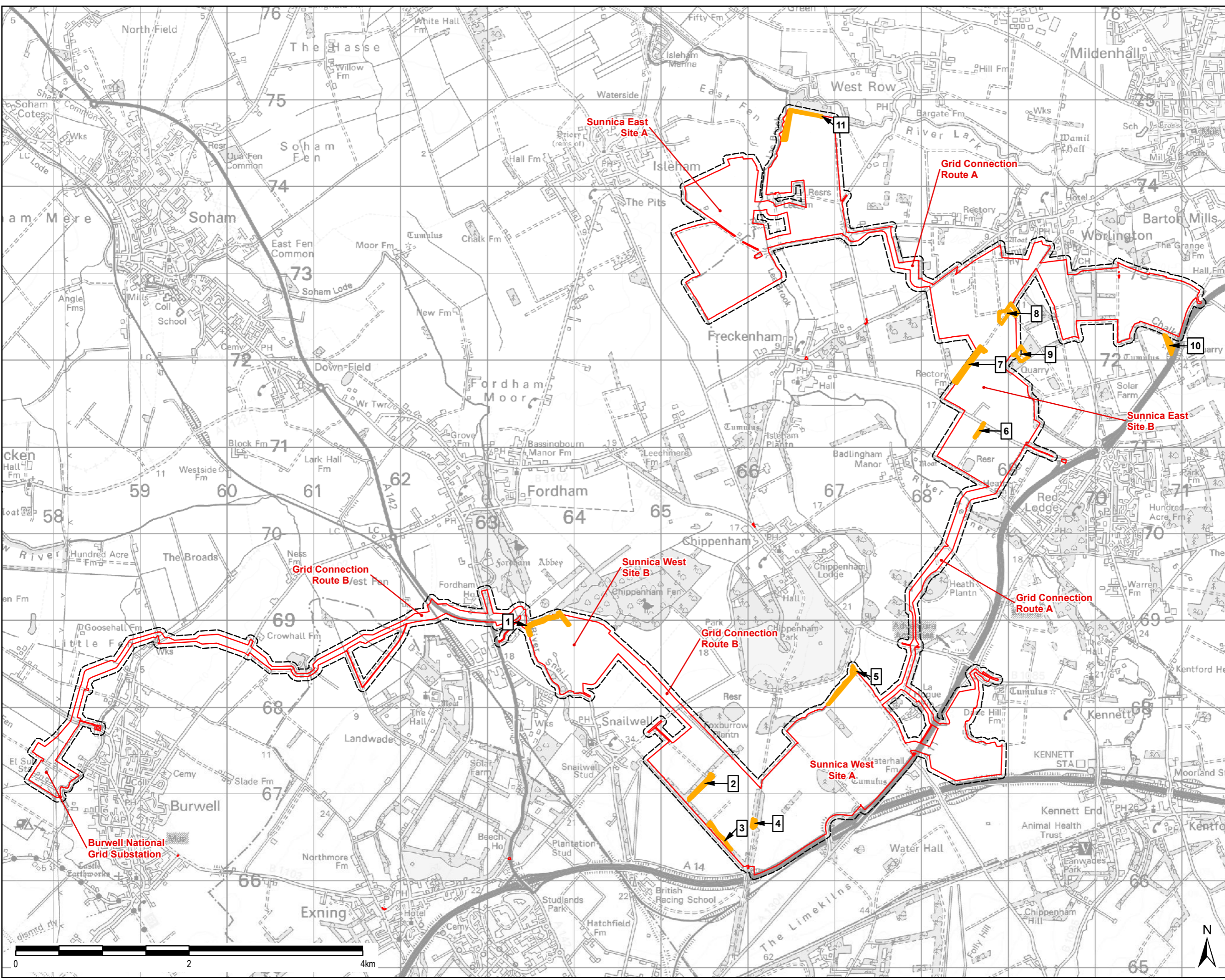
Annex A Figures

Figure 1 Order limits boundary

Figure 2 Location of reptile survey areas

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- LEGEND**
- The Order Limits
 - 50m survey buffer
 - Reptile survey area



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Drawing Title
**FIGURE 2
LOCATION OF REPTILE
SURVEY AREAS**

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Annex B Survey Details

Table B-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
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