Lime Down
Solar Park

Habitat Regulations Assessment Report (Clean)

June 2026

Revision 2

Planning Inspectorate Reference: EN010168

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Schedule of Changes

Revision	Section Reference	Description of Changes	Reason for Revision
2	Table 2	Update with summary of meeting between the Applicant and NE on 18 May 2026	Update to reflect additional consultation relevant to the HRA Report
	Paragraph 5.2.8	Updates to details of lesser horseshoe bat activity at Lime Down C	Updates in response to Natural England's Written Representation.
	Paragraphs 6.5.11 to 6.5.16	Updates in relation to consideration of Lime Down C as potential functionally-linked land for lesser horseshoe bats of the Bats and Bradford-on-Avon Bats Special Area of Conservation.	Updates in response to Natural England's Written Representation.
	Paragraphs 6.5.19 to 6.5.20	Updates in relation to consideration of Lime Down C as potential functionally-linked land and consequent potential fragmentation impacts.	Updates in response to Natural England's Written Representation.
	Paragraphs 6.6.4 to 6.6.7	Updates in relation to consideration of Lime Down C as potential functionally-linked land for lesser horseshoe bats of the Bats and Bradford-on-Avon Bats Special Area of Conservation.	Updates in response to Natural England's Written Representation.
	Table 4	Updates in relation to consideration of Lime Down C as potential functionally-linked land for lesser horseshoe bats of the Bats and Bradford-on-Avon Bats Special Area of Conservation.	Updates in response to Natural England's Written Representation.
	Table 5	Updates in relation to consideration of Lime Down C as potential functionally-linked land for lesser horseshoe bats of the Bats and Bradford-on-Avon Bats Special Area of Conservation.	Updates in response to Natural England's Written Representation.
	Paragraph 7.1.2	Updates in relation to the Screening assessment conclusion	Updates in response to Natural England's Written Representation.
	Paragraphs 8.2.2 to 8.2.6	Updates in relation to Appropriate Assessment on the effects of loss/change of potentially functionally-linked land for lesser horseshoe bats at Lime Down C.	Updates in response to Natural England's Written Representation.
	Paragraphs 8.2.7 and 8.2.10 to 8.2.13	Updates in relation to Appropriate Assessment on the effects of fragmentation on lesser horseshoe bats at Lime Down C..	Updates in response to Natural England's Written Representation.

Revision	Section Reference	Description of Changes	Reason for Revision
	Paragraph 10.1.2	Updates in relation to Appropriate Assessment conclusion	Updates in response to Natural England's Written Representation.

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1 Introduction

1.1.1 Clarkson and Woods Ltd. has been commissioned by Lime Down Solar Park Ltd (the Applicant) to prepare a report to provide information to support an assessment under Regulation 63 of The Conservation of Habitats and Species Regulations 2017 (as amended) for an application for a Development Consent Order (DCO) for the proposed solar energy generation and battery energy storage development known as Lime Down Solar Park (hereafter referred to as 'the Scheme'). This process is known as a Habitats Regulations Assessment (HRA), and it examines any potential impacts from the Scheme upon sites statutorily designated for nature conservation under the above legislation.

1.1.2 The Scheme comprises a solar photovoltaic (PV) electricity generating station of over 50 megawatts (MW) and associated development comprising up to 500 MWh export capacity Battery Energy Storage System (BESS), grid connection infrastructure and other infrastructure integral to the construction, operation and maintenance, and decommissioning phases.

1.1.3 The Scheme constitutes a Nationally Significant Infrastructure Project (NSIP) under the criteria provided by the Planning Act 2008 (the Act). It is necessary, therefore, for the proposals to be applied for by way of a DCO application submitted to the Planning Inspectorate (PINS). The Scheme has received the PINS reference number **EN010168**. An Environmental Impact Assessment (EIA) has been undertaken for the Scheme and an **Environmental Statement (ES) (EN010168/APP/6.1 to 6.5)** has been prepared in accordance with the Infrastructure Planning (EIA) Regulations 2017 (EIA Regulations).

1.2 Scheme Description

1.2.1 The Order Limits for the Scheme includes all the land required for the components of the Scheme, which are described fully in the **ES Volume 1, Chapter 2: The Order Limits and Chapter 3: The Scheme (EN010168/APP/6.1)** but are summarised in this section.

Solar PV Sites

1.2.2 The Solar PV electricity generating station and BESS Area would be contained within five land parcels collectively referred to as the 'Solar PV Sites'. These will comprise the area of land for Solar PV Panels, BESS, substations, associated infrastructure, landscaping, heritage, surface water and biodiversity mitigation areas. The Solar PV Sites comprise the following five areas:

- Lime Down A;
- Lime Down B;
- Lime Down C;
- Lime Down D; and

- Lime Down E.

1.2.3 The BESS Area and associated infrastructure will also be included within the Solar PV Sites at Lime Down D.

Cable Route Corridor

1.2.4 The Cable Route Corridor is the area within which the export connection cables (hereafter referred to as the 'Grid Connection Cables') would be located to connect the Solar PV Sites to the National Grid at the existing Melksham Substation (hereafter referred to as the 'Existing National Grid Melksham Substation') and the area within which cables connecting the Solar PV Sites would be located (hereafter referred to as 'Interconnecting Cables').

1.2.5 The exact location of the Grid Connection Cables and Interconnecting Cables within the Cable Route Corridor will be determined post-consent. For assessment purposes, the placing of the cable anywhere within the Cable Route Corridor has been considered. The Cable Route Corridor is typically 50 m but in a number of locations such as utility or road and rail crossings it widens up to 600m wide, noting the construction working area will be typically 25m wide (see below).

1.2.6 The voltage of the Interconnecting Cables and the number of circuits would affect the width and number of cable trenches required.

1.2.7 The typical working area for the cable route installation is anticipated to be 25m wide. A wider area will be included in some locations such as utility or road and rail crossings. The width and spacing of the cable trenches will vary depending on environmental constraints, engineering requirements, or if crossing third party apparatus (e.g. railway lines). Temporary construction compounds along the Interconnecting Cables and the Grid Connection Cable would also be required. Following installation of the cable the construction working area would be fully reinstated back to its original condition, including re-creation of existing habitats.

Highway Improvement Areas

1.2.8 The Highway Improvement Areas comprise various sections of the existing highway network facilitating movement of vehicles to the Solar PV Sites and Cable Route Corridor. Works within these areas comprise improvements to the existing highway such as improvements to road edge where it is deteriorated, minor works to enable construction vehicle movements, and provision of visibility splays.

2 Methodology

2.1 Legislation

2.1.1 As part of the assessment of a plan or project, it is necessary to consider whether it is likely to result in 'significant' effects on areas that have been internationally designated for nature conservation purposes.

2.1.2 In accordance with the European Union Council Directive 92/43/EEC (the 'Habitats Directive'), Member States must adopt measures that maintain and restore habitats listed on Annex IVa and IVb and species listed in Annex II at a 'favourable conservation status' (as defined in Articles 1 and 2). Member States are also required to contribute to a coherent European ecological network (referred to as the 'Natura 2000 Network') by designating Special Areas of Conservation (SACs), Special Protection Areas (SPAs). Although Ramsar (international wetland) sites, are not part of the network of designated sites, paragraph 194 of the National Planning Policy Framework (NPPF) extends Ramsar sites the same level of protection as SACs and SPAs, as well as possible, potential or proposed iterations of these designations. This HRA refers to all such designated nature conservation sites as "European sites".

2.1.3 The UK left the European Union (EU) on 31 January 2020 under the terms set out in the European Union (Withdrawal Agreement) Act 2020 (termed the 'Withdrawal Act'). However, the most recent amendments to the 'Habitats Regulations', the Conservation of Habitats and Species Regulations 2017 (as amended), ensure that the habitat and species protection and standards derived from EU law, including the need for Habitats Regulations Assessment, continue to apply in the UK post-Brexit.

2.1.4 Regulation 63 of the Habitats Regulations requires a 'Competent Authority', in this case the Secretary of State (who is informed by recommendations of the Planning Inspectorate as the appointed Examining Authority), to undertake an 'Appropriate Assessment' (AA) of any plan or project (alone or in-combination with other plans and projects) which is likely to have a significant effect on a European Site unless the project is directly connected with the management of the site. Following the conclusions of the assessment, the Competent Authority may proceed with or consent to the plan or project only after having ascertained that it will not result in adverse effects on the integrity of a Habitats Site, or if it will adversely affect the integrity of a Habitats Site, that there are imperative reasons of overriding public interest (IROPI) for the project in accordance with Regulation 64.Section 2.2 provides further guidance on HRA stages.

2.1.5 In accordance with the mitigation hierarchy, all plans and projects should identify any potential likely significant effects early in the plan/project making process, either altering the plan/project to avoid such effects or introduce mitigation measures to the point where no adverse effects remain. In reaching its final conclusion, the Competent Authority must consult with the Statutory

Nature Conservation Body (in this case, Natural England) and take account of their comments. They may also consult the general public if considered appropriate.

2.2 Habitat Regulations Assessment Framework

2.2.1 There are five principal stages in the HRA Process (**Table 1**), this report and subsequent consultations will aid in any decision as to whether the next task is required.

Table 1: HRA Process for a Project or Plan

Stage	Description
1. Test of Likely Significant Effect (Screening)	Screening is the determination of whether the proposed plan or project would result in likely significant effects upon the relevant features of European sites. Screening begins with the identification of European sites within the Zone of Influence of the proposed plan or project. Following this, an assessment of the conservation objectives for each European site is then completed (based on the management plans or published conservation objectives as appropriate). Then, potential impact pathways between the proposals and the European sites are identified and examined to identify whether likely significant effects could occur. In-combination effects (identification of potential increased effects in combination with other plans and projects) are also considered. A significant effect on a European site is one which could undermine the integrity of the site. The likelihood of it occurring is judged on a case-by-case basis, taking account of the precautionary principle and the local circumstances of the site. Proposals to mitigate any significant effects (where effectiveness can be proven), are not considered as part of Stage 1 (refer to legal clarifications in paragraphs 2.2.2 - 2.2.7 below). If the screening process determines a likely significant effect without mitigation the assessment must proceed to Stage 2.
2. Appropriate Assessment	The Appropriate Assessment stage is a detailed assessment of the identified potential impacts on the integrity of European sites that are considered likely to result from the proposals, together with the action of any avoidance or mitigation measures proposed to reduce impacts. The Appropriate Assessment will look in detail at aspects such as habitat connectivity, fragmentation and species disturbance, and seek to understand the certainty of impacts and effects. In addition, it will examine how mitigation is to be secured and describe the likely level of confidence of its success. Again, the proposals are examined in combination with other relevant projects or plans. If at this point an adverse effect on the integrity of European sites cannot be ruled out, the proposal is said to be unacceptable in its current form and derogations would be necessary if this were to be overcome.
3. Derogation	In order for a project or plan to proceed if in an adverse effect on the on the integrity of European sites cannot be ruled out, even after mitigation is factored in, it must pass all three of the following legal tests for a derogation to be granted: Test 1: Consider Alternative Solutions If the further mitigation measures prescribed at Stage 2 cannot avoid adverse effects on the integrity of a European site, this process examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the European site. This stage also includes consideration of the effects

	of there being no scheme at all – the 'do nothing' approach, which serves to identify the likely future environmental baseline in the absence of the scheme. Test 2: Consider Imperative Reasons of Overriding Public Interest If no suitable alternative solutions are identified, the next test requires an assessment of compensatory measures where, in the light of an assessment of Imperative Reasons of Overriding Public Interest ("IROPI"), it is deemed that the project or plan should proceed. The IROPI justification may relate to either: • human health; • public safety; and • beneficial consequences of primary importance to the environment. Consultation with other competent authorities will be required. In making this assessment, it is important to recognise that it will be appropriate to the likely scale, importance and impact of the proposed plan or project. A key outcome of the Appropriate Assessment is to identify whether the integrity of the European site(s) is likely to be adversely affected by the plan/project and whether the conservation status of the primary interest features of the site could be impacted. If it is impossible to avoid or mitigate the adverse impact, it must be demonstrated that there is Imperative Reasons of Overriding Public Interest (IROPI). This is a last resort and should be avoided if possible. Test 3: Secure Compensatory Measures If there are no feasible alternative solutions and there are imperative reasons of overriding public interest, it is necessary to secure compensatory measures and the assessment of the effects of these measures. The compensatory measures themselves must not have a negative effect on the national network of European sites as a whole, despite the negative effects of the proposal on an individual European site. Compensation measures can include (for example and non-exhaustively): • The creation of or re-creation of a comparable habitat which can in time be designated as a European site (and in the meantime is protected as a matter of government policy as if it were a fully designated European site); or • The creation or re-creation of a comparable habitat as an extension to an existing European site. Evidence must be provided to ensure that the compensatory measures are sufficient to offset the likely harm caused by the proposed development.

2.3 Relevant Case Law

People Over Wind and Sweetman v Coillte Teoranta (CJEU Case C-323/17)

2.3.1 This judgment confirmed that a conclusion of no likely significant effect must be made prior to the consideration of measures to avoid or reduce harm, i.e. impacts must be assessed pre-mitigation.

Waddenzee (CJEU Case C-127/02)

2.3.2 This judgment confirmed that the Appropriate Assessment must be conducted using best scientific knowledge, and the Competent Authorities must be

satisfied that there is no reasonable doubt as to the absence of adverse effects on integrity).

Holohan and Others v An Bord Pleanála (CJEU Case C-461/17)

2.3.3 This judgment confirmed that consideration must be given to effects on qualifying habitats and/or species of a European Site, even when occurring outside the boundary of the European Site, if these are relevant to meeting its conservation objectives; and to effects on non-qualifying habitats/species on which the qualifying habitats/species depend which could result in adverse effects on integrity of the European Site).

T.C Briels and Others v Minister van Infrastructure Milieu (CJEU Case C-521/12)

2.3.4 This judgment confirmed that compensatory measures cannot be used to support a conclusion of no adverse effects on integrity.

Eco Advocacy CLG v An Bord Pleanála (CJEU Case C-721/21)

2.3.5 This confirms that any elements that are incorporated into the design of a project that are standard conditions required for all projects of a similar type and not specifically aimed at reducing impacts on a European site can be taken into account when determining any likely significant effect.

Methodological Clarifications from Case Law Relevant to Stage 1: Test of Likely Significant Effect (Screening)

2.3.6 The first stage (Stage 1) of an HRA is a Test of Likely Significant Effects (ToLSE) which is undertaken to screen for any likelihood of significant effects arising from the proposed Scheme upon any European Site. As per the Waddenzee case (C-127/02), the European Court of Justice (ECJ) clarified that “"Likely" should not be interpreted as meaning "probable" — instead, it should be understood as referring to a "risk" or "possibility" of significant effects, not necessarily a probability.” This established the precautionary principle at the ToLSE stage: if there is any reasonable doubt as to the absence of significant effects, an Appropriate Assessment (HRA Stage 2) is required.

2.3.7 A significant effect may be characterised in many ways depending on the sensitive receptors involved, but is generally taken to be an effect which undermines the integrity of, or maintenance of a favourable conservation status for, the designated site. This assessment process is undertaken both in isolation from and in combination with other plans or projects.

2.3.8 In accordance with case law (C-323/17 People Over Wind and Peter Sweetman v Coillte), specific mitigation measures which avoid or reduce harmful effects of the project to European Sites (including pathways to those sites) cannot be

taken into account at the screening stage, but they can be taken into account in an Appropriate Assessment.

2.3.9 This judgment has been moderated by a 2023 ruling (C-721/21 Eco Advocacy CLG v An Bord Pleanála), which confirms that any elements that are incorporated into the design of a project, that are standard measures required for all projects of a similar type and not specifically aimed at reducing impacts on a European Site, can be taken into account when determining any likely significant effect. For the purposes of this report, all such standard measures for the Scheme, which would be adopted regardless of whether any European Sites where under consideration and are therefore taken into account at the screening stage, are set out and described as Embedded Mitigation in Section 6.4 below.

2.3.10 Consequently, any measures specifically intended to avoid or reduce harmful effects to a European site cannot be considered at the screening stage. This means there is scope to consider whether an aspect of a plan or project, or an undertaking by a proponent, may be an essential element of the plan or project and not simply concerned with avoiding impacts to European sites.

2.3.11 This report therefore follows the approach directed by this case law.

3 Consultation

3.1.1 Consultation with relevant stakeholders on matters relating to European sites and likely significant effects has helped to inform the HRA Screening process. A summary of consultation activities pertinent to the HRA Screening is provided in **Table 2** below.

Table 2: Summary of consultation responses relevant to the HRA

Consultee and Date	Summary of Response	Consideration within HRA
Natural England (NE) Discretionary Advice Service (DAS) 12th July 2024	NE confirmed via email that the proposed survey methodology for bat activity surveys at the Solar PV Sites was appropriate in NE's opinion	Survey findings for relevant bat species summarised in Section 5.2. Additional details provided in **ES Volume 3, Appendix 9-3: Bat Survey Report [EN010168/APP/6.3]**
Planning Inspectorate Scoping Response August 2024	The Inspectorate agreed that the risk of electro-magnetic fields (EMFs) from cables within the sites and interconnecting cables resulting in significant impacts on ecology is unlikely and can be scoped out of further assessment	Impacts of EMFs on wildlife from On-Site cables and Interconnecting Cables remain scoped out.
Planning Inspectorate Scoping Response August 2024	The ES should include an assessment on the Severn Estuary SPA and Ramsar due to hydrological connectivity	The Severn Estuary SPA and Ramsar have been scoped into the ES and HRA Assessment
Planning Inspectorate Scoping Response August 2024	On the basis of the separation distance between the Scheme and Salisbury Plain, and given that the Order Limits consists of enclosed and largely arable farmland, the Inspectorate agreed that significant effects on the Salisbury Plain SPA are unlikely and can be scoped out of further assessment	Salisbury Plain SPA remains scoped out of further assessment
Environment Agency (EA) Scoping Response August 2024	Recommended that the applicant scopes in the Severn Estuary SAC, SPA and Ramsar as a potential ecological receptor due to hydrological connectivity with the Scheme	The Severn Estuary SAC, SPA and Ramsar are scoped into the ES and HRA Assessment
Environment Agency (EA) Scoping Response August 2024	Advised that watercourse crossings and culverts have the potential to impact sensitive fish species and should be avoided	Potential impacts on migratory fish (namely eels and sea trout - qualifying features of the Severn Estuary Ramsar) resulting from watercourse crossings are discussed within Section 6.5.

Consultee and Date	Summary of Response	Consideration within HRA
NE Scoping Response August 2024	Advised that Bath and Bradford-on-Avon Bats SAC could by potentially impacted by the Scheme	The Bath and Bradford-on-Avon Bats SAC remains scoped into the ES and HRA Assessment
Wiltshire Council Ecology Team (WCET) Online Meeting 17th September 2024	The preliminary Cable Route Search Corridor (CRSC) passes through sensitive bat consultation zones (for Bath and Bradford-on-Avon Bats SAC). WCET highlighted a recently added consultation zone south of Chippenham due the discovery of additional maternity roosts belonging to Bechstein's bat. Careful consideration of works within this area was advised, with particular attention given to isolated trees given the Bechstein's roost sites which were found in atypical sites for this species.	The refined Cable Route Corridor extent in relation to Core Areas for bats of the Bath and Bradford-on-Avon Bats SAC or otherwise known as 'Impact Zones for Bat Species' is discussed in Section 5.2
WCET Email 2nd October 2024	WCET provided further information on three Bechstein's roosts recently identified near Lackham to the south of Chippenham, and the approach to applying a 1.5km 'core area' around the roosts in consideration of the roosts being functionally and demographically linked to the Bath and Bradford on Avon Bats SAC	The refined Cable Route Corridor extent in relation to the 'Core Areas' is discussed in Section 5.2
EA Online Meeting 3rd October 2024	The EA advised that a higher risk of EMF impacts to fish from high voltage cables which can impact fish and their eggs on the river bed. Advised that methods for assessing significance of impacts to eel populations (and consequently the Severn Estuary Ramsar) would likely come down to professional judgement.	Potential impacts on migratory fish (namely eels - a qualifying feature of the Severn Estuary Ramsar) resulting from EMFs are discussed within Section 6.6.
NE Online Meeting 16th December 2024	NE advised that when deciding whether measures are for mitigation or are inherent within the design, the reasoning needs to be clearly demonstrated. Where there is uncertainty, include measures at appropriate assessment stage.	A description of measures considered as embedded mitigation or 'design' measures are provided in Section 6.4.
NE Statutory Consultation Response 19th March 2025	Advised that bat survey data indicate that land within Lime Down C could be functionally linked to the Bath and Bradford on Avon Bat SAC due to relative activity by lesser horseshoe bat, although the potential for adverse impacts to	Corresponding HRA Screening rationale is provided in Section 6.5.

Consultee and Date	Summary of Response	Consideration within HRA
	lesser horseshoe bats as a result of the Scheme at this location is limited.	
NE Statutory Consultation Response 19th March 2025	NE agreed that the development site is unlikely to be functionally linked to the Severn Estuary SAC & SPA. NE agreed that due to the distance between the designated site and the development site in addition to the embedded mitigation measures, adverse effects on the designated site as a result of pollution are unlikely.	Corresponding HRA Screening rationale is provided in Section 6.5
WCET Via email 6th May 2025	WCET confirmed that a previously identified Bath and Bradford on Avon 'Core Roost' for lesser horseshoe bats, lying south of Lime Down C, had been declassified as Core Roost in September due to it no longer having been found to meet the core roost criteria. The roost may be reclassified in future should it meet the criteria.	The Scheme's extent in relation to the 'core areas' or Impact Zones for Bat Species is discussed in section 5.2
Environment Agency Online Meeting 28th May 2025 and follow up email 29th May 2025	The Environment Agency identified fish species associated with the Severn Estuary should be included in the scope for assessment, due to being likely to be present in main watercourses within the Order Limits. These were European eel and sea trout	Impacts on populations of European eel and sea trout associated with the Severn Estuary Ramsar site are assessed within this document.
NE Online Meeting 18th May 2026	Following NE's Written Representations, NE and the Applicant further discussed NE's position that Lime Down C may represent functionally linked land for lesser horseshoe bats associated with the Bath and Bradford on Avon Bats SAC.	The Applicant has agreed to assess Lime Down C as potentially representing functionally-linked land for lesser horseshoe bats associated with the Bath and Bradford-on-Avon Bats SAC, and has updated the HRA Report accordingly.

4 Identification of Designated Sites for Consideration

4.1 Overview

4.1.1 Special Areas of Conservation seek to protect particular sites of high conservation importance due to the type of rare or otherwise threatened habitats and species they support. In particular, habitats listed on Annex I and species listed on Annex II of the Habitats Directive (European Council Directive 92/43/EEC) are capable of being reasons for designation.

4.1.2 Special Protection Areas seek to protect sites of particular importance to birds, according to the presence of significant assemblages of species or large populations of high conservation priority species, or a combination thereof.

4.1.3 Ramsar sites are wetland sites designated to be of international importance under the Ramsar Convention, also known as "The Convention on Wetlands". Criteria for selection include both habitat and species-based criteria.

4.1.4 SACs, SPAs and Ramsar sites are referred to collectively in this Report as 'European sites'.

4.2 Study Area

4.2.1 The Scheme has the potential to impact ecological features such as habitats and/or species beyond the Order Limits. When considering the physical scope of an HRA for a project in terms of which European sites are to be considered, this is guided by identification of where impact pathways (comprising source–pathway–receptor connection) have been identified. The HRA Screening's Study Area comprises the geographic area within which the Zone of Influence (ZoI) of the Scheme's individual potential impacts is likely to occur. A ZoI for a potential impact includes:

- Areas where there is physical disturbance to European sites;
- Areas where there will be land take and habitat removal which may have a direct or indirect impact on a key feature of a European site;
- Areas where there is a risk of an impact on a watercourse which may result in an impact on a key feature of a European site; and
- Areas where there is a risk of an increase in air, noise and light pollution which may have an impact on a key feature of on a European site.

4.2.2 A universal ZoI across all potential impacts has not been applied for the entire Order Limits due to distinctions in permanence, duration of activities, extent of land take and severity of impacts associated with the different components of the Scheme. Candidate statutorily designated sites were searched for within a standard radius of 10km from the Solar PV Sites, extending to up to 30km from Solar PV Sites for sites with migratory birds or bats listed as a qualifying

feature, as well as any site which has direct hydrological connectivity to land within the Solar PV Sites regardless of distance. The distances used in the search radii outlined above are industry standard (as has been used within other NSIP solar projects of similar scale) and are considered proportionate to the scale of protection and likely sensitivity of the features listed above, as well as typical home ranges of wildlife species supported by them. It is considered unlikely that the Scheme would give rise to impacts on designated sites beyond these ranges and so, are considered to include the ZoI of the Scheme.

4.2.3 A reduced ZoI has been applied for the Cable Route Corridor. Due to the nature of works associated with this element of the Scheme, with a relatively small working width, short duration of works, and the fact that habitats will be reinstated on completion of underground cabling works, the source-pathway-receptor connections are consequently restricted and there is a much reduced potential for, and severity of, likely impacts. The ZoI for the CRC is subsequently considered to be the Cable Route Corridor itself and a radius of up to 500 m beyond, plus any European sites with direct hydrological connectivity to land within the Cable Route Corridor.

4.2.4 Works in the Highway Improvement Areas will be highly localised and generally contained within the existing highways boundary. The ZoI for the Highway Improvement Areas is limited to the Highway Improvement Areas themselves (i.e. less than 1 m beyond).

4.2.5 There are no European sites within or directly adjacent the entire Order Limits.

4.2.6 With reference to the ZoIs outlined above, no international statutorily designated sites were identified within the 10 km search radius of the Solar PV Sites. However, four international designated sites with qualifying mobile species (bats /migratory birds) were identified within the wider search radius of 30 km for the Solar PV Sites. The search radius was extended for these sites due to the highly mobile nature and larger home ranges of these species which can extend any potential functional linkage with the Sites beyond 10 km. Two of these sites also had direct hydrological connectivity to the Solar PV Sites and the Cable Route Corridor. One additional site was identified solely on account of it being directly hydrologically connected to the Solar PV Sites and Cable Route Corridor. These five designated sites were:

- Bath and Bradford on Avon (BaBOA) Bats SAC – identified as supporting qualifying mobile species (bats);
- Severn Estuary SAC – identified as being hydrologically connected to both the Solar PV Sites and Cable Route Corridor;
- Severn Estuary SPA – identified as supporting qualifying mobile species (migratory birds) and also being hydrologically connected to both the Solar PV Sites and Cable Route Corridor;

- Severn Estuary Ramsar – identified as supporting qualifying mobile species (migratory birds) and being hydrologically connected to both the Solar PV Sites and Cable Route Corridor; and
- Salisbury Plain SPA – identified as supporting qualifying mobile species (migratory birds).

4.2.7 Salisbury Plain SPA was however scoped out of the assessment at Scoping stage due to both the considerable distance from the Solar PV Sites (circa 28 km away) and the fact that the habitats within the Order Limits are disparate to the expanses of open chalk grassland which characterises Salisbury Plain. Land within the Order Limits is not considered to represent functionally-linked habitat for the bird species of open downland for which Salisbury Plain SPA is designated. The home ranges and foraging grounds for the populations of bird species of open downland for which Salisbury Plain SPA is designated are highly unlikely to overlap with the land within the Order Limits. PINS agreed with this in their August 2024 Scoping Response (**Table 2** refers).

4.2.8 These European sites are described in more detail in **Table 3**. The locations of these European sites in relation to the Scheme are shown in **Figure 1**.

Table 3: Details of European Sites identified within the Scheme ZoIs

Site	Approx distance from Order Limits	Summary of Primary Reasons for Site Selection	Summary of Qualifying Features
Bath and Bradford on Avon Bats SAC	12.56 km south of Lime Down C. 3.77km west of Cable Route Corridor at the closest point.	Exceptionally large overwintering population of greater horseshoe bat, with hibernation sites associated with approximately 15% of UK population. Hibernation sites also support Bechstein's bat. Lesser horseshoe bat is also present as a qualifying feature, but not a primary reason for citation.	Annex II species that are a primary reason for selection of this site: • Greater horseshoe bat; • Bechstein's bat; • Annex II species present as a qualifying feature, but not a primary reason for site selection; and • Lesser horseshoe bat.
Severn Estuary SAC	23.71 km northwest of Lime Down A.	Supports important Annex I estuarine, intertidal and coastal habitats, as well as associated Annex II fish species.	Annex I habitats that are a primary reason for selection of this site: • Estuaries; • Sandbanks which are slightly covered by sea water all the time (subtidal sandbanks); and • Mudflats and sandflats not covered by seawater at low tide. Intertidal mudflats and sandflats). Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*); and • Reefs. Annex II species that are a primary reason for selection of this site: • Sea lamprey *Petromyzon marinusI*; • River lamprey *Lampetra fluviatilisI*; and • Twaite shad *Alosa fallax*.

Site	Approx distance from Order Limits	Summary of Primary Reasons for Site Selection	Summary of Qualifying Features
Severn Estuary SPA	23.71 km northwest of Lime Down A.	Internationally important wintering populations of Annex I Bewick's swan, and waterfowl species. Nationally important populations of wintering, passage and breeding wetland bird species.	The site qualifies under Article 4.1 of the EC Birds Directive (79/409/EEC) by regularly supporting an internationally important wintering population of Bewick's swan *Cygnus columbianus bewickii,* an Annex 1 species. The site qualifies under Article 4.2 as a wetland of international importance by regularly supporting in winter over 20,000 waterfowl. The site qualifies under Article 4.2 by regularly supporting in winter internationally important numbers of the following 5 species of migratory waterfowl: • Greater white-fronted goose *Anser albifrons*; • Shelduck *Tadorna tadorna*; • Gadwall *Anas strepera*; • Dunlin *Calidris alpina*; and • Redshank *Tringa tetanus.*
Severn Estuary Ramsar	23.71 km northwest of Lime Down A.	The Severn Estuary Ramsar site's qualifying interest features overlap with those of the Severn Estuary SPA and SAC. The site is of particular importance for hosting internationally important populations of several species of waterbird as well as its migrating fish species.	• Ramsar criterion 1. The immense tidal range affects both the physical environment and biological communities; • Ramsar criterion 3. Due to unusual estuarine communities, reduced diversity and high productivity; • Ramsar criterion 4. This site is important for the run of migratory fish between sea and river via estuary. Species include salmon *Salmo salar*, sea trout *Salmo trutta*, sea lamprey *Petromyzon marinus*, river lamprey *Lampetra fluviatilis,* allis shad *Alosa alosa*, twaite shad *Alosa fallax*, and eel *Anguilla anguilla*. It is also of particular importance for migratory birds during spring and autumn;

Site	Approx distance from Order Limits	Summary of Primary Reasons for Site Selection	Summary of Qualifying Features
			• Ramsar criterion 8. The fish of the whole estuarine and river system is one of the most diverse in Britain, with over 110 species recorded. Salmon, sea trout, sea lamprey, river lamprey, allis shad, twaite shad, and eel use the Severn Estuary as a key migration route to their spawning grounds in the many tributaries that flow into the estuary. The site is important as a feeding and nursery ground for many fish species particularly allis shad and twaite shad which feed on mysid shrimps in the salt wedge; • Ramsar criterion 5. Assemblages of international importance: Species with peak counts in winter: 70,919 waterfowl (5 year peak mean 1998/99-2002/2003); and • Ramsar criterion 6 – species/populations occurring at levels of international importance. Species with peak counts in winter: Tundra swan, *Cygnus columbianus bewickii,* NW Europe 229 individuals, representing an average of 2.8 % of the GB population (5 year peak mean 1998/9-2002/3). Greater white-fronted goose, *Anser albifrons*, NW Europe 2076 individuals, representing an average of 35.8% of the GB population (5 year peak mean for 1996/7- 2000/01). Common shelduck, *Tadorna tadorna*, NW Europe 3,223 individuals, representing an average of 1 % of the population (5 year peak mean 1998/9-2002/3). Gadwall, *Anas strepera*, NW Europe 241 individuals, representing an average of 1.4 % of the GB population (5 year peak mean 1998/9-2002/3). Dunlin, *Calidris alpina*, W Siberia/W Europe 25082 individuals, representing an average of 1.8 % of the population (5 year peak mean 1998/9- 2002/3). Common redshank, *Tringa totanus*, 2,616 individuals, representing an average of 1 % of the population (5 year peak mean 1998/9-2002/3).

Site	Approx distance from Order Limits	Summary of Primary Reasons for Site Selection	Summary of Qualifying Features
Salisbury Plain SPA	27.89 km southeast of Lime Down E. 14.95 km south of Cable Route Corridor at the closest point.	Nationally important populations of Annex I species; 10% of UK population of breeding stone curlew *Burhinus oedicnemus*, and 1% of UK population of wintering hen harrier *Circus cyaneus*. Further Annex I species are supported in small numbers. Nationally important breeding populations of quail *Coturnix coturnix* (20% UK population) and hobby *Falco subbuteo* (1% of UK population).	The site qualifies under Article 4.1 of the EC Birds Directive (79/409/EEC) by regularly supporting nationally important populations of breeding stone curlew and wintering hen harrier, both of which are Annex I species. Other Annex I species which occur in small numbers include merlin *Falco columbarius*, short-eared owl *Asio flammeus*, and Montagu's harrier *Circus pygargus*. The site qualifies under Article 4.2 by supporting nationally important breeding populations of quail and hobby.

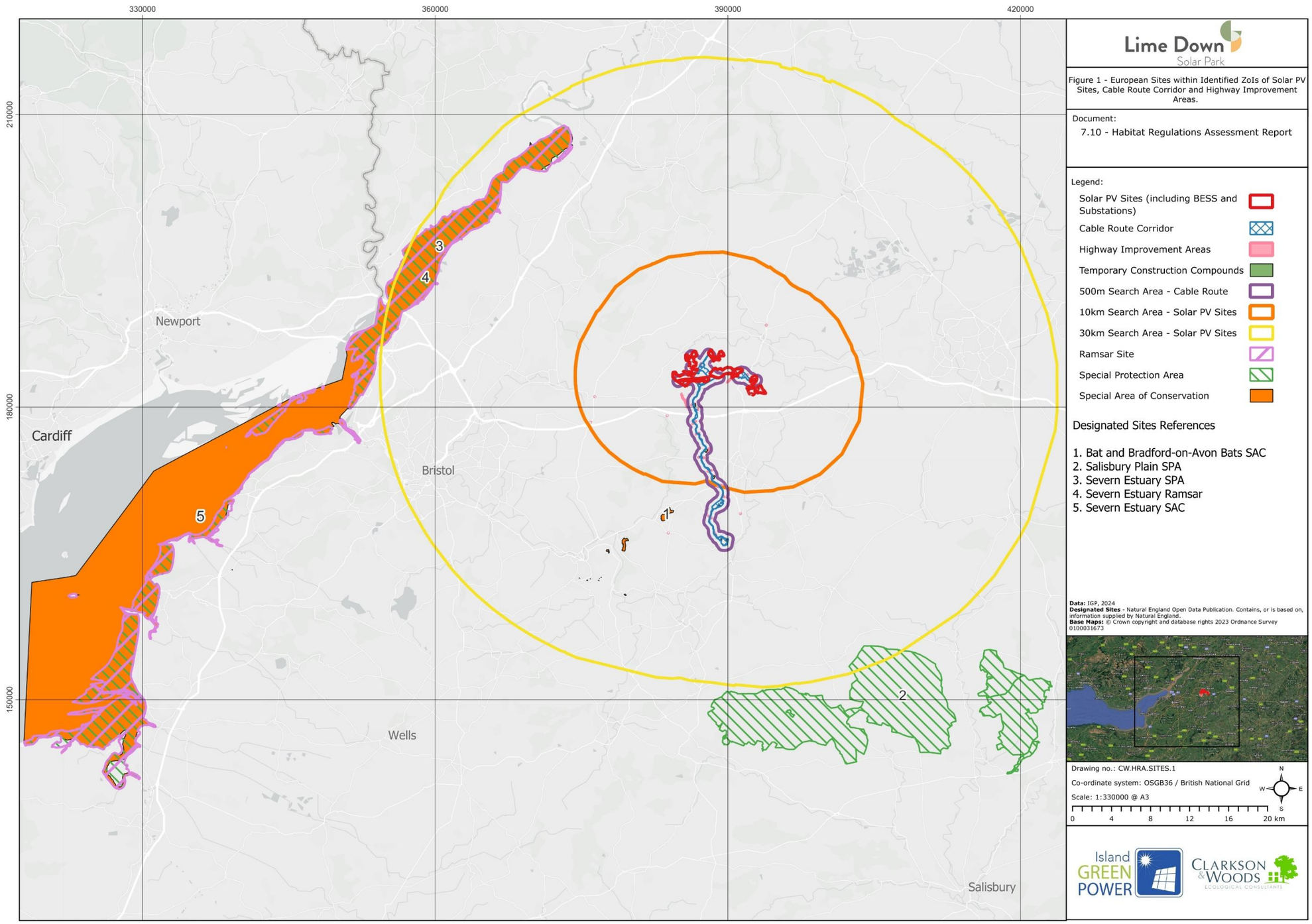

Figure 1: European Sites within ZoIs of Scheme

4.3 Conservation Objectives

4.3.1 In accordance with the HRA screening process the conservation objectives for each European site have been identified. Since their simplification in 2019, conservation objectives for designated sites now consist of a set of generic objectives applied to the relevant qualifying features for the individual site.

4.3.2 For each SAC the overarching conservation objective is to:

- Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the favourable conservation status of its Qualifying Features, by maintaining or restoring;
  - The extent and distribution of the habitats of qualifying species;
  - The structure and function of the habitats of qualifying species;
  - The supporting processes on which qualifying species rely;
  - The populations of qualifying species; and
  - The distribution of qualifying species within the site.

4.3.3 For each SPA the overarching conservation objective is to:

- Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;
  - The extent and distribution of the habitats of the qualifying features;
  - The structure and function of the habitats of the qualifying features;
  - The supporting processes on which the habitats of the qualifying features rely;
  - The population of each of the qualifying features; and
  - The distribution of the qualifying features within the site.

4.3.4 There are no overarching conservation objectives published for Ramsar sites.

4.3.5 Site Improvement Plans (SIPs) have been developed for each European Site (SACs and SPAs). The SIPs outline the priority measures needed to achieve and maintain the European species and habitats within a site in favourable condition and provide a high level overview of the issues affecting the condition of each site.

4.3.6 For the Bath and Bradford-on-Avon SAC, the 2015 SIP (Ref 1) lists the following as pressures/threats on the SAC:

- Planning permission (general) – difficulty in determining cumulative impacts of development across wide area and across local authority boundaries;
- Change in land management – land ownership is fragmented and management has lapsed in places;
- Direct impact from third party – particularly acts of vandalism or recreational pursuits;
- Feature location/ extent/ condition unknown – in particular there is a lack of knowledge about the population of Bechstein's bat within the SAC and within the wider landscape;
- Offsite habitat availability/ management – lack of knowledge as to usage of the wider landscape by the SAC species;
- Public access/ disturbance – pressure from visitors, in particular one-off recreational events or vandalism within underground sites or close to entrances;
- Change to site conditions – potential risk of collapse of underground sites; and
- Inappropriate designation boundary – several undesignated sites support important populations of SAC bats.

4.3.7 A combined SIP published in 2015 (Ref 2) lists the following as pressures/threats on the Severn Estuary SAC & SPA.

- Public access/ disturbance – public access, including a wide range of recreational activities, nay impact bird species sensitive to disturbance and cause damage to habitats;
- Physical modification - modification to watercourses and barriers to migratory fish, including existing structures and operations;
- Impacts of development – strategic planning and more rigorous assessment of cumulative impacts on sensitive species and habitats required;
- Coastal squeeze – man-made sea defences constraining the natural roll back of estuarine habitats, causing squeeze and loss of habitats;
- Change in land management – changes in ownership and management/ use of grassland and saltmarsh habitat which affects quality and availability of habitat. Land, and use of land for other activities which may cause damage or disturbance;
- Changes in species distributions – risk of significant changes in estuarine populations in parts of the Estuary due to climate change and other man-made modifications to on and off-site habitats;

- Water pollution – diffuse and direct pollution within the river basin catchment impacting water and sediment quality;
- Air pollution – in particular nitrogen deposition from a range of activities around the Estuary and shipping, impacting vegetation structure and diversity;
- Marine consents and permits (minerals and waste) – cumulative impacts of regulated aggregate extraction, maintenance dredging and disposal are not fully considered;
- Fisheries (recreational marine and estuarine) – unknown impacts from recreational fishing/ angling in the vicinity of potentially sensitive roosting and feeding areas, and on intertidal reed activities;
- Fisheries (commercial marine and estuarine) – commercial fishing activities; and
- Invasive species – marine invasive non-native species such as the Australian barnacle *Austrominius modestus*, Mitten crab *Eriocheir sinensis*, and the Pacific Oyster *Crassostrea gigas* could impact native species and habitats in the Estuary.

4.3.8 The Ramsar Information Sheet (Ref 3) for the Severn Estuary Ramsar site lists the following factors as potentially adversely affecting the ecological character of the Ramsar site:

- Dredging;
- Erosion; and
- Recreational/tourism disturbance (unspecified).

5 Existing Baseline Conditions within the Order Limits

5.1 Overview

5.1.1 This section summarises the existing baseline conditions within the Order Limits for relevant ecological features and qualifying species associated with the identified European sites. Baseline information has been obtained through a combination of desk studies and baseline ecological surveys. A full description of the methodologies and findings of baseline studies are provided in **ES Volume 1, Chapter 9: Ecology and Biodiversity [EN010168/APP/6.1] and supporting appendices 9-1, 9-3, 9-4 and 9-7 [EN010168/APP/6.3].**

5.2 Bats

5.2.1 Although the Order Limits do not include any land within the Bath and Bradford-on-Avon (BaBOA) Bats SAC, land within the Order Limits may nevertheless provide supporting habitat for populations of the greater and lesser horseshoe and Bechstein's bat species for which the SAC is designated, and thus may form functionally-linked land (FLL). FLL is land outside of a European site which is considered to be critical to, or necessary for, the ecological or behavioural functions in a relevant season of a qualifying feature for which a European site has been designated.

5.2.2 A 2015 guidance document provided by Wiltshire Council (Ref 1) details a network of sensitive features used by the bat populations of the BaBOA Bats SAC. These include 'Core Roosts', which are defined in the guidance but in summary are those roost sites where large numbers of the relevant bat species are known to regularly hibernate and breed, and which are judged to have a functional and demographic connection with the SAC population.

5.2.3 The guidance also highlights the landscape surrounding these Core Roosts are likely to be of particular importance for the associated populations for foraging and commuting, and are identified as 'Core Areas' which are likely to represent FLL for the SAC.

5.2.4 For the bats of the BaBOA Bats SAC, the Core Areas have been defined as:

- 4km surrounding greater horseshoe Core Roosts;
- 2km surrounding lesser horseshoe Core Roosts; and
- 1.5km surrounding Bechstein's Core Roosts.

5.2.5 Since the publication of this guidance the extent of the consultation zones has undergone amendments. A lesser horseshoe bat roost near the village of Grittleton (south of Lime Down C – the precise location is withheld) was declassified as a core roost in September 2020 due to it no longer having been found to meet the core roost criteria as set out in the guidance. In 2024 a new

Core Area of 1.5km was applied around three recently identified Bechstein's bat maternity roosts sites near Lackham, to the south of Chippenham.

5.2.6 An amalgamation of up-to-date Core Areas are presented within the 'Impact Zones for Bat Species' layer on the publicly available 'Wiltshire Planning Explorer' map (Ref 5). The land within the Impact Zones for Bat Species is considered to represent FLL for the SAC, containing habitats and features likely to be of particular importance for associated populations. A plan showing the extent of the Wiltshire Impact Zones for Bat Species in relation to the Order Limits is presented in **Figure 2** below.

5.2.7 Bat activity surveys have been conducted at Solar PV Sites and have recorded their use by qualifying species of the SAC. Details of bat activity surveys are provided in **ES Volume 3, Appendix 9-3: Bat Survey Report [EN010168/APP/6.3].**

Horseshoe Bats

5.2.8 Relatively low activity by lesser horseshoe bats has been recorded during these surveys, with a total of 3,045 passes at an average of 1.94 passes per night for the Solar PV Sites combined. Lesser horseshoe activity was notably concentrated at Lime Down C where approximately 74% of all lesser horseshoe activity was recorded, with the average passes recorded by each detector in this area rising to 3.20 passes per night. On further analysis of the timings of passes at Lime Down C, the data was indicative of the presence of a lesser horseshoe roost in close proximity to Lime Down C, although no suitable roosting structures were recorded within Lime Down C itself. Lesser horseshoe activity was also recorded at Lime Down C throughout the night at most detector locations, suggesting that habitats within Lime Down C are utilised by lesser horseshoe for both foraging and commuting between roosts and feeding grounds.

5.2.9 Very low activity by greater horseshoe bats has been recorded, with a total of 57 passes at an average of 0.04 passes per night. It is not known whether individuals of both species recorded at the Solar PV Sites are associated with the populations supported by the SAC.

5.2.10 Foraging and commuting habitats of highest importance for the two horseshoe species of bats are typically deciduous woodland, scrub, hedgerows, watercourses and permanent pasture. Arable fields, which form the majority of the Solar PV Sites, are typically not preferred for foraging (Ref 6). These species typically roost in caves and underground structures during the winter, and old buildings during the summer, both of which are lacking within the Solar PV Sites.

5.2.11 The Solar PV Sites do not intersect at any point with any of the Wiltshire Impact Zones for Bat Species designated for Bechstein's bat or either of the horseshoe bat species. These zones encompass a precautionary 2 km radius (for lesser

horseshoe bats) or 4 km (for greater horseshoe bats) around each of the core breeding roosts (a.k.a. Core Roosts) known to be critical in the support of the SAC population of horseshoe bats, within which, the majority of the sustenance for juvenile bats is sourced. Therefore, suitable habitats for foraging, roosting and dispersal within these 2 km/ 4 km zones are considered to be 'functionally linked' to the SAC and projects or plans which may impact them would require detailed consultation and assessment.

5.2.12 The Cable Route Corridor passes through the Impact Zones for Bat Species for approximately 1.5km in one location to the southeast of Corsham and west of Gastard. The area of Impact Zone intersected by the Cable Route Corridor is approximately 10.5ha. With reference to the 2015 Wiltshire Council guidance, it appears this area of Impact Zone is the eastern edge of a Greater Horseshoe Core Area extending 4km from the Box Mine component site of the SAC.

Bechstein's Bat

5.2.13 Surveys have recorded moderate activity by bat species belonging to the Myotis genus at the Solar PV Sites. This activity is likely to be an aggregation of several Myotis species, including more common and widespread species than Bechstein's such as Natterer's bat *Myotis nattereri*, whiskered bat *Myotis mystacinus*, Brandt's bat *Myotis brandtii* and Daubenton's bat *Myotis daubentonii*. However, Myotis calls are difficult to distinguish to species level and thus it is not known whether Bechstein's bat activity has been recorded so far, or whether any individuals associated with the populations supported by the SAC use the Solar PV Sites. Bechstein's bat is closely associated with ancient and mature deciduous woodland with dense understorey, which is not present within the Order Limits although is present in places immediately adjacent (i.e. within 10 m). This species typically does not use open farmland habitats (Ref 7), which forms the vast majority of habitat within the Order Limits, for foraging and commuting.

5.2.14 Bechstein's bat is closely associated with ancient and mature deciduous woodland, which is not present within the Solar PV Sites although is present in places immediately adjacent (within 10 m). However this species typically does not use open farmland habitats, which forms the vast majority of habitat at the Solar PV Sites, for foraging and commuting. Furthermore, apart from discrete and highly localised sections of the Highway Improvement Areas, there is no intersection between the Order Limits and any Wiltshire Impact Zone for Bat Species designated for Bechstein's bat. It is consequently considered that likely that majority of Myotis calls recorded during surveys are from the more common and widespread species. Nevertheless, it is assumed on a precautionary basis that a proportionately small component of the detected Myotis bat species assemblage derive from Bechstein's bat.

5.3 Birds

5.3.1 Breeding and wintering bird surveys have been conducted across the Solar PV Sites during 2023 to 2025, Full details of these surveys are provided in **ES Volume 3, Appendix 9-4: 'Breeding Bird Survey Report and Appendix 9-7: Wintering Bird Survey Report [EN010168/APP/6.3].** Neither survey has recorded any use of the Solar PV Sites by qualifying bird species of the Severn Estuary SPA or Ramsar site, namely Bewick's swan, greater white-fronted goose, shelduck, gadwall, dunlin, or redshank.

5.3.2 Two species included within the 'Waterbird' assemblage interest feature of the Severn Estuary SPA citation have been recorded using the Solar PV Sites, namely teal *Anas crecca* and whimbrel *Numenius phaeopus*. The Severn Estuary supports nationally important numbers of wintering teal, as well as whimbrel during the winter and when on passage.

5.3.3 A pair of teal were recorded on a pond in Lime Down D during a wintering bird visit in February 2024. An individual whimbrel was seen on one occasion at Lime Down D in April 2024. This was considered likely to be on spring passage to its breeding range further north (whimbrel breeding range is restricted to northern Scotland and the Shetland Islands in the UK). No other instances of whimbrel or teal using the Solar PV Sites have been noted during surveys and neither species showed a strong association with the Solar PV Sites.

5.3.4 Due to the distance of the Severn Estuary SPA and Ramsar site from the Order Limits as well as the overall lack of strong association of birds of these European sites with land at the Solar PV Sites, the Solar PV Sites are not considered to represent FLL for the bird component features of the European Sites. This is further discussed in section 6.5 below.

5.3.5 No detailed surveys have been conducted for breeding or wintering birds within the Cable Route Corridor. However, habitats within the Cable Route Corridor are of similar character to the Solar PV Sites, generally comprising mixed-use agricultural fields bounded by hedgerows and ditches, with occasional ponds, streams and blocks of woodland. The Cable Route Corridor does not comprise habitat of estuarine, intertidal and coastal habitats which characterise the Severn Estuary. The Cable Route Corridor is therefore considered to be of similar suitability and value for bird assemblages as the Solar PV Sites, including those species which are qualifying features of the Severn Estuary SPA and Ramsar site.

5.4 Aquatic Ecology

5.4.1 Watercourses within the Order Limits have a direct hydrological connection with the Severn Estuary SAC, SPA and Ramsar site however via the River Avon, a tributary of the Severn. The River Avon itself is not present within the Order Limits, although sections of several smaller tributaries of the River Avon lie

within the Solar PV Sites and the Cable Route Corridor. Following the course of the River Avon, the distance between the Order Limits and the Severn Estuary is substantial, with the Severn Estuary SAC. SPA, and Ramsar site being approximately 68 km downstream of the Order Limits at the closest point of the Cable Route Corridor. Watercourses at the Solar PV Sites are over 100 km from the Severn Estuary SAC, SPA, and Ramsar site following the course of the River Avon, as shown within **Figure 3**.

5.4.2 The National Fish Populations Database (NFPD), held by the EA and accessed through the EA's Ecology and Fish Data Explorer (Ref 8), was consulted for freshwater fish monitoring data within the relevant river catchment (Rural Bristol Avon).

5.4.3 Records of European eel, a qualifying species for the Severn Estuary Ramsar site (under Ramsar criteria 4 and 8) are present from several places along the River Avon and its tributaries downstream of the Solar PV Sites. Compared to other migratory fish species, eels are highly mobile and are typically better able to navigate past potential barriers to fish migration such as weirs, hatches and sluice gates, which are frequently found within the River Avon and its tributaries.

5.4.4 Brown trout is frequently recorded within the upper River Avon and its tributaries in the vicinity of the Order Limits. While this is the same species as sea trout (a qualifying species for the Ramsar) the two forms of trout *Salmo trutta* have different life strategies and sea trout are the anadromous (sea-run) form which migrate from freshwater to saltwater. An angler reported catching a sea trout in the middle River Avon near Chippenham in 2015, although this was considered a rare occurrence (Ref 9). The upper Avon and its tributaries are considered likely to primarily support brown trout *Salmo trutta* (which are ubiquitous along the River Avon and its tributaries) rather than sea trout, due to the numerous obstructions at the lower and middle reaches of the River Avon which are a considerable barrier to sea trout movement. However, correspondence with the EA has confirmed that Area Fisheries Officers have observed sea trout within the River Avon at Chippenham, downstream of the Order Limits. It is reasonable therefore to consider sea trout to be present at suitable watercourses within the Order Limits.

5.4.5 River lamprey (a qualifying species of the Ramsar) are closely related to brook lamprey *Lampetra planeri*, with river lamprey being anadromous and brook lamprey being non-migratory. Brook lamprey has been recorded in the upper River Avon and lamprey young (ammocoetes) are often recorded. Although it is difficult to distinguish between brook and river lamprey when in the ammocoete stage, these are typically considered to be brook lamprey in this location due to the considerable barriers to movement for migratory river lamprey along the lower and middle River Avon. It is reasonable to consider river lamprey populations associated with the Severn Estuary to be absent from the watercourses within the Order Limits.

5.4.6 No other migratory fish species cited as a qualifying feature for the Severn Estuary SAC or Ramsar site (namely salmon, sea lamprey, allis shad or twaite shad) have been recorded within watercourses within the Order Limits, or along the River Avon within 2km of the Order Limits, and it is believed the distribution of these populations associated with the Severn Estuary does not extend upstream of the River Avon as far as the watercourses present within the Order Limits, due to the distance and significant barriers to migration between them and the estuary.

5.4.7 No detailed surveys have been conducted for eels or other fish species which is considered proportionate on the basis that there is very little suitable habitat within the development footprint and this species group is assumed to be present in all suitable habitat applying a precautionary approach. However, all watercourses within the Order Limits have been appraised for their suitability for supporting migratory fish in their freshwater life stages. Four watercourses within the Order Limits, all of which are tributaries of the River Avon, are considered suitable to support eels. These comprise the following:

- Gauze Brook. This stream flows through Lime Down D and also within the Cable Route Corridor. This watercourse is known to support brown trout, and eels have been recorded at a monitoring station circa 3.5km downstream of the Order Limits east of Corston.
- Gabriel's Well. This stream flows through Lime Down E. No records of migratory fish exist from this watercourse.
- Pudding Brook. A section of this stream is present within the Cable Route Corridor. No records of migratory fish exist from this watercourse.
- Pudding Brook Tributary. A small stream to the north of Pudding Brook, converging with Pudding Brook just south of the A4 Bath Road. No records of migratory fish exist from this watercourse. A section of this stream is present within the Cable Route Corridor; and
- Byde Mill Brook. A section of this stream is present within the Cable Route Corridor. This watercourse is known to support brown trout, and eels have been recorded at a monitoring station at Arnold's Mill Farm, circa 3.3km downstream of the Order Limits.

5.4.8 A plan showing suitable watercourses for migratory fish species within the Order Limits is provided in **Figure 3**.

5.4.9 These watercourses are all directly connected to known populations of eels within the River Avon and, for the purposes of assessment, eels have been assumed to be present in all of the above watercourses.

5.4.10 Watercourses elsewhere within the Order Limits are considered unsuitable for migratory fish associated with the Severn Estuary, due to being heavily modified, frequently dry or with a low flow and/or being isolated from other

watercourses with poor connectivity to the River Avon and consequently the Severn Estuary.

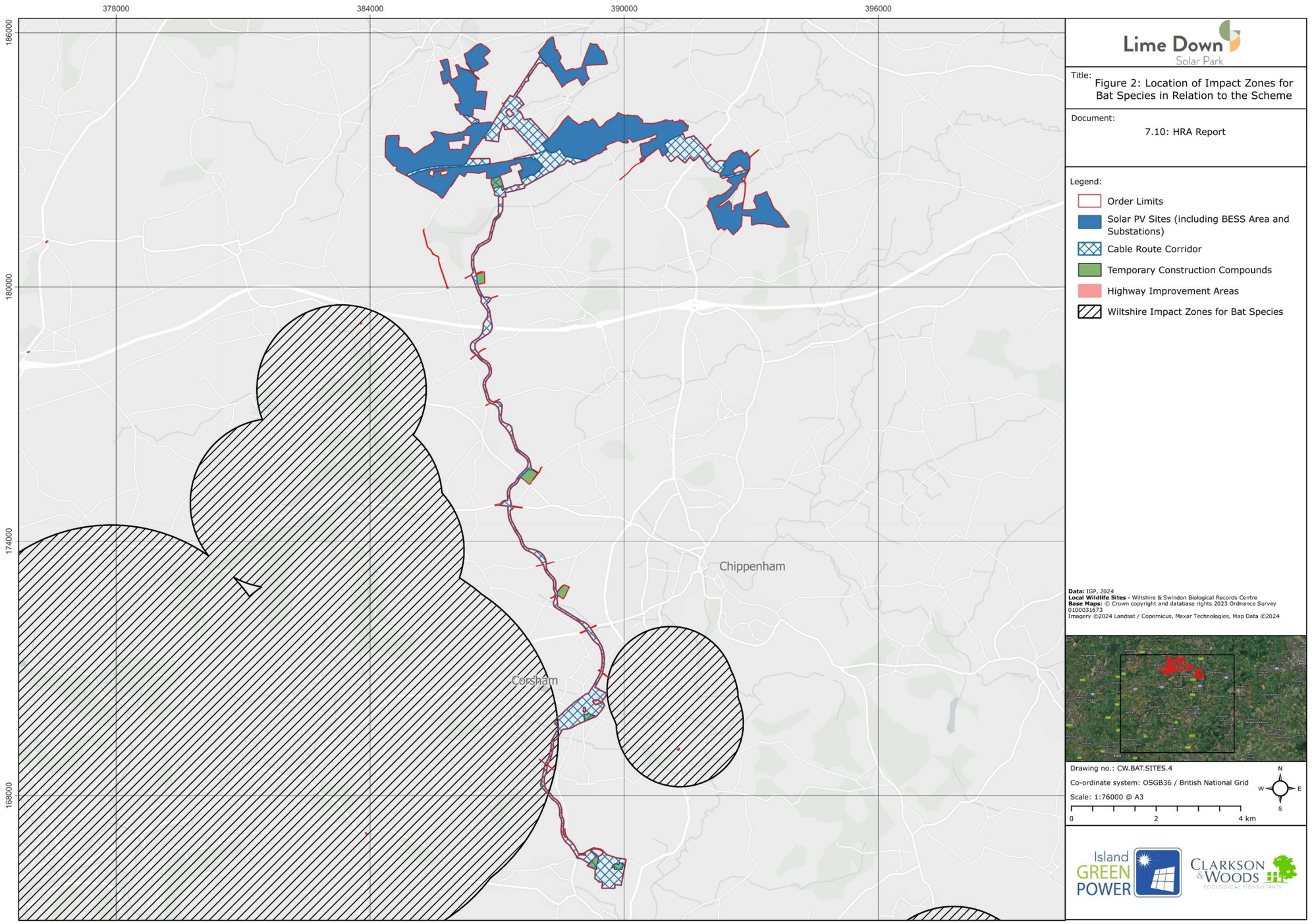

Figure 2: Location of Wiltshire Impact Zones for Bat Species in Relation to the Scheme

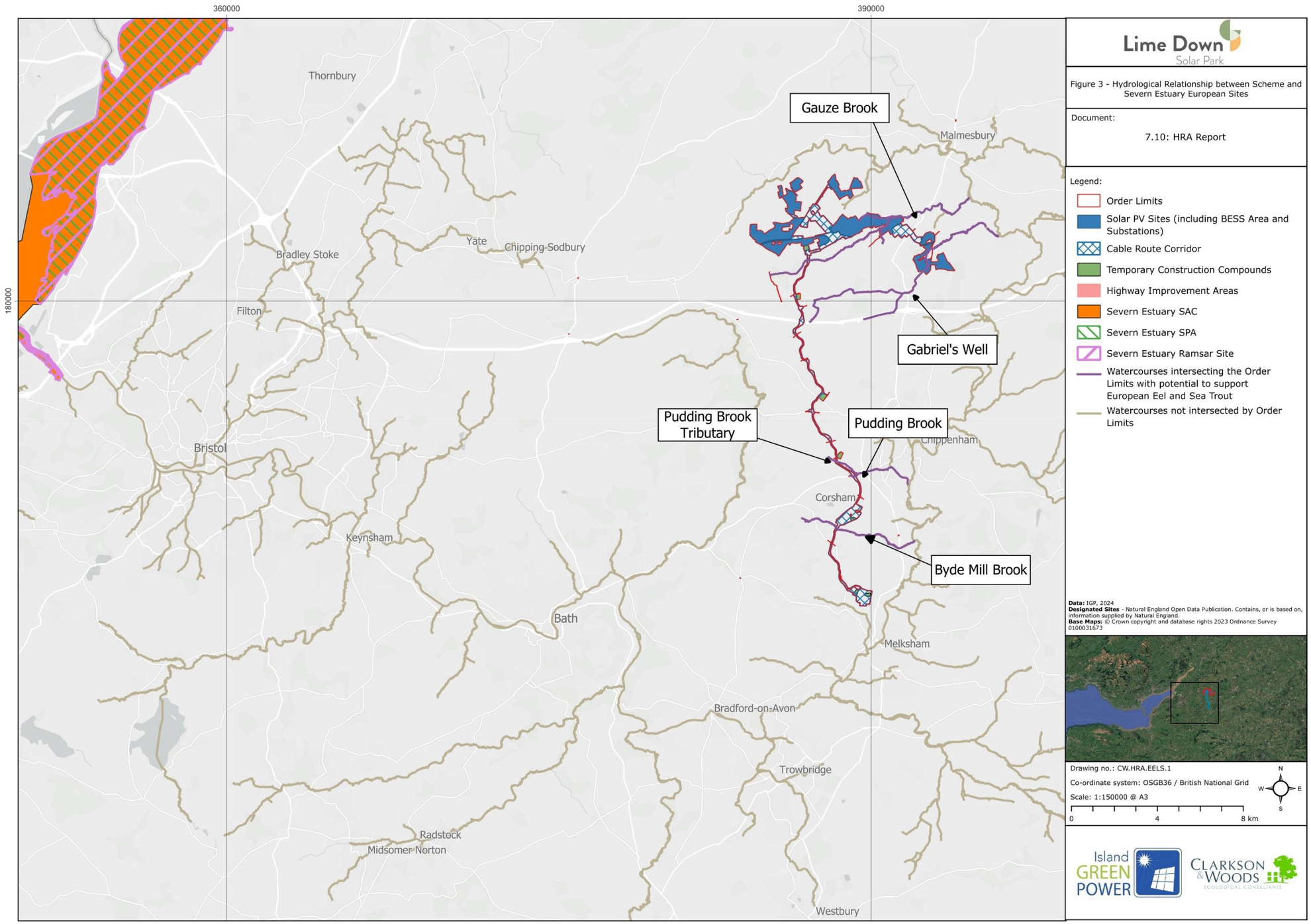

Figure 3: Hydrological Relationship between Scheme and Severn Estuary

6 Stage 1 – Test of Likely Significant Effects (Screening) on Identified Sites

6.1 Overview

6.1.1 This section examines the Likely Significant Effects of the Scheme for each development phase. Each European site and the qualifying features to which the source of impact applies is considered in Sections 6.5 and 6.6. Due to the reduced intensity of activities during the decommissioning phase, Likely Significant Effects are the same or less as those arising in the construction phase and are therefore not screened separately.

6.2 Identification of Potential Construction Impacts

6.2.1 Construction phase impacts pertinent to the HRA Screening include:

- Habitat Loss and Habitat Change (including Functionally Linked Land (FLL)): Limited habitat loss (for example at hedgerows) may occur where access for construction and operation is required, where existing field accesses cannot be used or need to be widened. Other examples include clearance to facilitate any permanent hardstanding such as foundations or footings. Temporary habitat loss would also occur for cable-trenching works and Temporary Construction Compounds along the Cable Route Corridor, although habitats will be reinstated following construction. Habitat change will principally be associated with the reversion of arable fields to grassland and other habitats through management, as well as habitat creation where valuable habitat creation opportunities are identified. Habitat loss or change can result in displacement, where populations of wildlife are forced to relocate from areas due to habitats no longer being suitable as a result of loss or change.
- Killing and Injury: Habitat clearance and the actions of vehicles and plant during construction has the potential to cause direct harm to species.
- Fragmentation: Described by the Chartered Institute of Ecological and Environmental Management (CIEEM) as, “The breaking up of a habitat, ecosystem or land-use type into smaller parcels with a consequent impairment of ecological function”. Potentially in combination with habitat loss and habitat change, fragmentation can reduce the function of a habitat as well as impede the ability of a species to disperse and maintain a viable population. Installation of fencing or culverting streams may also cause fragmentation, as well as through excessive light and noise disturbance.

- Disturbance: Pressures or changes in the environment acting on individuals of a species so as to alter their behaviour may arise through noise, movement and vibration during construction operations, as well as increased human presence.
- Pollution and Habitat Degradation: Release of chemical, sediment or dust pollution can interfere with the normal function of habitats and directly harm species, while processes such as erosion, compaction and alteration of soil/water chemical composition cause the degradation of habitat quality. The construction phase risks the release of pollutants through vehicle and plant movement/operation as well the introduction of new materials onto and into the soil.

6.3 Identification of Potential Operational and Maintenance Impacts

6.3.1 Operational and maintenance phase impacts pertinent to the HRA screening include:

- Ongoing Habitat Loss and Habitat Change (including FLL): Significant impacts from these are not anticipated as operation will be largely benign, unless major unexpected maintenance or repair events are required following damage to infrastructure. Replacement of panels and batteries at the end of their lifespan would not be expected to entail habitat loss or change, since the supporting infrastructure (panel frame and BESS compound) will already be in place and materials would be transported using established access routes, meaning no additional removal of grassland, hedgerows or other habitats would be required as a result of replacement activities. Ongoing habitat maintenance will seek to ensure favourable condition and enhancement of all newly created and retained habitat for the life of the Scheme.
- Killing and Injury: Operational works, including maintenance, repair and replacement activities are unlikely to give rise to these effects although there is the risk of direct harm to species from the movement of vehicles around the Sites (including during the replacement of panels and batteries during the lifetime of the Scheme), or the accidental trapping of certain species within the fencing or fenced area.
- Fragmentation: The presence of the Scheme is anticipated to be habituated to by most mobile species, especially with the creation of new, and enhancement of retained, habitats. However, such impacts will vary between species groups, for example perimeter security fencing around the Solar PV Sites is expected to be permeable to the majority of wildlife species, although can be expected to present a

barrier to movement of wild deer which would be prevented from using retained and created habitats inside of the fencing.

- Disturbance: Operational disturbance may occur through the movement of vehicles and personnel at the Solar PV Sites (including during the replacement and maintenance of panels and batteries during the lifetime of the Scheme), as well as the presence of low-level noise associated with BESS components, Conversion Units, and 132 kV and 400 kV Substations.

- Electro-magnetic Fields (EMFs): An assessment of effects of EMFs generated by the Scheme on human health is provided in **ES Volume 1, Chapter 20: Other Environmental Matters [EN010168/APP/6.1].** This focuses solely on human receptors, however, and not on ecological features. The potential for effects of anthropogenic EMFs on ecology is an emerging issue. It is feasible that EMFs emanating from electrical cables could impact certain species which utilise naturally generated EMFs (for instance for navigation), although to date there is mixed evidence of significant behavioural changes from EMFs generated by electric cables. The size of generated fields are highly contingent on geometry, voltage and current, and it is considered that EMFs associated with the higher voltage export cable are more likely to risk impacts than those potentially emanating from interconnecting cables across the Scheme. Impacts of EMFs on wildlife from On-Site cables and Interconnecting Cables were agreed to be scoped out in the Scoping Opinion (see **Table 2**). All electrical cables associated with the Scheme are expected to be buried underground; buried cables typically have their electric fields fully attenuated by cable sheathing and the substrate under which they are buried. However, magnetic fields and induced electric fields are not necessarily attenuated in this way, and there lies a risk of effects on receptive wildlife species, particularly on a number of fish or invertebrate species which are known to have evolved sensitivity to electric and/or magnetic fields. In terms of terrestrial species, it is important to note that there is no evidence to suggest that typical solar array infrastructure can cause impacts and, due to the burial, sheathing and relatively low voltage of cabling within generating stations, the overall risk of EMFs resulting in significant effects on terrestrial wildlife is considered highly unlikely. There is some risk of EMFs affecting fish in the vicinity of the 400-132kV cables (i.e. where the cable is required to cross beneath watercourses).

- Pollution and Habitat Degradation: The risk of these impacts during operation are overall very low, especially where good maintenance practice is followed to avoid pollution events or degradation of adjacent habitats. Pollution risks also extend to include impacts

resulting from fire management, in the unlikely event this were to occur. Risks are further increased around the BESS Area, as the water used on surrounding habitats to control fire may create a source of contaminated fire water runoff into surrounding water bodies, without appropriate drainage and pollution control allowed for at the design stage. Potential impacts relating to contaminated water are addressed specifically in **Volume 6, Chapter 11: Hydrology, Flood Risk and Drainage and Chapter 19: Ground Conditions [EN010168/APP/6.1]**.

6.4 Standard Embedded Mitigation

6.4.1 The standard Embedded Mitigation measures listed in this section relevant to the HRA Screening are considered in this report. These measures are considered to be standard for a project of this nature and size, are consistent with best practice and compliance with broader regulatory regimes, and are not designed specifically to avoid, minimise or mitigate harmful effects on European site features. These Embedded Mitigation measures would be adopted regardless of whether the European sites were a consideration. Accordingly, it is considered that these standard embedded mitigation measures form an integral or inherent part of the Scheme itself and can therefore be taken into account at Stage 1 ToLSE (Screening) of the HRA process in accordance with case law outlined in Section 2.2, and in particular the recent judgment of the Court of Justice of the European Union (CJEU) in C-721/21 *Eco Advocacy CLG v An Bord Pleanála*). The Applicant is aligned with Natural England on this being the correct approach.

6.4.2 However it is acknowledged that the decision in C-721/21 Eco Advocacy CLG v An Bord Pleanála was made by the CJEU in June 2023, and that the UK is, since 31 December 2020 (post-Brexit) no longer bound by the CJEU's interpretation of laws that originated in the European Union (such as the Habitats Regulations, which implement the Habitats Directive). Whilst the decisions of the CJEU may still be referred to by the UK Courts and may be persuasive in how retained law is interpreted, there remains the potential that the UK Courts may diverge from the approach taken by the European Courts. While, the project in the *Eco Advocacy* case has some differences to the Scheme, (being a housing development in Ireland and not a large-scale solar NSIP project in the UK) a large number of solar NSIPs have now been consented, with the list continuing to grow. The Scheme has drawn heavily on previously consented approaches for Solar NSIPs and proposes to implement a range of what are now considered to be standard mitigation measures that are well understood, and so for that reason considers that reinforces the appropriateness of taking such embedded mitigation measures into account at the Screening stage.

6.4.3 Whilst the Applicant considers that these standard Embedded Mitigation measures can be taken into account at Screening (ToLSE) stage, should the Secretary of State take the view that the measures listed cannot be considered at this stage, for completeness the Applicant has also undertaken an Appropriate Assessment (Stage 2).

6.4.4 Therefore, where a potential source of Likely Significant Effects has been screened out, but that screening decision requires and relies upon the Standard Embedded Mitigation measures (i.e. LSE could not be ruled out if the Standard Embedded Mitigation was excluded), a conclusion of "No Likely Significant Effects; progressed for assessment on a precautionary basis" has been made. An Appropriate Assessment has then been carried out, incorporating the Standard Embedded Mitigation measures. As explained further below, those Standard Embedded Mitigation measures are considered sufficient by themselves to avoid any adverse effects on integrity of the Site in question.

Outline Construction Environmental Management Plan

6.4.5 An **Outline Construction Environmental Management Plan (Outline CEMP) [EN010168/APP/7.12]** has been produced to accompany the ES The **Outline CEMP [EN010168/APP/7.12]** details measures and approaches to be adopted which will limit the likelihood of effects upon retained habitats through damage, pollution and disturbance during the construction phase in order to secure the mitigation measures set out in the ES. The **Outline CEMP [EN010168/APP/7.12]** is intended to be followed by those responsible for the construction of the Scheme. The **Outline CEMP [EN010168/APP/7.12]** contains (among others) the following standard good practices measures which are relevant to the HRA Screening report:

- Detail on the location and specification of temporary and permanent protective fencing to be installed prior to the onset of construction;
- Restrictions on the use of fuels and other contaminants in proximity to boundary features and other sensitive habitats;
- Measures to limit dust-generating activities, such as when working in dry conditions; and
- Measures to limit the mobilisation of sediments and run-off, such as when working in very wet conditions or the use of silt fencing when working in ditches.

6.4.6 These measures are considered to be standard good-practice industry measures adopted for a wide range of construction projects, including ground-mounted solar projects, and are not specifically included to address impacts on European sites.

6.4.7 Under the Environmental Damage (Prevention and Remediation) (England) Regulations 2015 and the Environmental Permitting (England and Wales) Regulations 2016, it is illegal to pollute watercourses irrespective of whether European Sites are present in the vicinity or not.

6.4.8 Such measures to be secured as part of the **Outline CEMP [EN010168/APP/7.12]** are therefore considered to be embedded and can be considered at the ToLSE (Screening) stage of the HRA as there is a mandatory legal obligation for construction projects to address water quality impacts.

Outline Battery Safety Management Plan

6.4.9 Embedded Mitigation measures to minimise the likelihood and severity of battery fire have been incorporated into the Scheme. The BESS Area will be served by sealed, lined SuDS-based drainage systems with gravel sub-bases and automatically actuating isolation valves at outfalls. These systems are designed to contain and isolate contaminated runoff during emergency events. In the event of a fire, valves would automatically close, retaining runoff on site for testing and appropriate disposal or treatment, in consultation with the Environment Agency and other regulators. The risk of a fire and additional fire suppression measures to mitigate impacts in the event of a fire are detailed in the **Outline Battery Safety Management Plan (Outline BSMP) [EN010168/APP/7.21]**.

6.4.10 Such measures to be secured as part of the Draft DCO are in accordance with National Fire Chiefs Council (NFCC) planning guidance for BESS (Ref 10) designed to manage potential risks posed to people, property and the environment irrespective of European sites, and are therefore considered to be embedded and can taken into account at the ToLSE (Screening) stage of the HRA.

6.5 Screening Assessment – Construction and Decommissioning Phase

6.5.1 This section considers each given source of potential impact associated with the construction and decommissioning phase on qualifying features of each identified European site sequentially. Where impacts sources and pathways are relevant for more than one feature associated with a European site, these are amalgamated for brevity. A summary of the outcome of this assessment is provided in **Table 4**.

Bath and Bradford-on-Avon Bats SAC

Greater Horseshoe Bats

Loss or Change of FLL

6.5.2 Based on the low detection rate and distance from the SAC and the nearest Wiltshire Impact Zone for Bat Species, the Solar PV Sites are not considered to represent FLL for populations of greater horseshoe bat associated with the BaBOA Bats SAC.

6.5.3 However, the Cable Route Corridor passes through an Impact Zone for approximately 1.5 km in one location to the southeast of Corsham and west of Gastard. The area of Impact Zone intersected by the Cable Route Corridor is approximately 10.5 ha, and is shown on **Figure 2**. It can be taken that this 10.5 ha of land within the Cable Route Corridor is FLL for the SAC, within which construction phase impacts resulting from the cable installation works can be expected to affect a smaller area of this land, given that a 25 m working width will be required within the existing typically 50 m wide Cable Route Corridor. Impacts associated with temporary loss of foraging habitat within the 25 m typical working width of the Cable Route Corridor would be unlikely to result in significant effects due to the relatively small land take over a linear area. Furthermore, all habitat within the Cable Route Corridor affected during the construction phase will be reinstated upon completion of the works.

6.5.4 However, impacts resulting from temporary loss of FLL would be exacerbated in locations used for Temporary Construction Compounds within the Impact Zone, due to the larger land take required for compounds. The land required for Temporary Construction Compounds are not known at this stage but will be considerably larger than the 25 m wide strip typically required for cable installation. Temporary Construction Compounds could require land take of more than 1 ha at which scale there is **a risk of Likely Significant Effects** from this pathway.

6.5.5 The Order Limits include various sections of existing highway within which localised improvements to the existing highway will be completed to facilitate access to the Scheme, such as road edge reinforcements or temporary removal of street signs/furniture. Five such Highway Improvement Areas are sited within the Wiltshire Impact Zones for Bat Species. However, in all cases, works to take place at these areas will be highly localised and take place within the existing highway boundary with minimal impacts on existing vegetation, and are thus expected have a negligible impact on bats using such areas for foraging or commuting.

Fragmentation

6.5.6 Fragmentation effects could occur through severance of flightlines and key commuting routes via habitat removal and through lighting.

6.5.7 Artificial lighting at night can dissuade bat activity, impact the behaviour of invertebrate prey, and potentially fragment commuting routes for particularly light-averse species including greater horseshoe bats.

Uncontrolled task and security lighting employed within FLL at the Cable Route Corridor could therefore impede the ability of greater horseshoe bats of the SAC to forage and commute between roosts and foraging grounds, even when used temporarily for construction-phase works. There is a **risk of Likely Significant Effects** from this pathway therefore.

6.5.8 Fragmentation impacts could also occur where hedgerows need to be removed for cabling works within the Cable Route Corridor. This would be a temporary impact as all hedgerows will be reinstated on completion of works. However, hedgerows are typically used by all UK bats species, including those associated within the SAC, for foraging and/or commuting around the landscape. Large gaps in hedgerows, even if temporary, could impede the ability of bats to move between roost sites and foraging areas and result in detrimental impacts on bat populations associated with the SAC. There is a **risk of Likely Significant Effects** from this pathway.

Loss or Damage to Roosts

6.5.9 Greater horseshoe bats typically roost in caves and underground structures during the winter, and old buildings during the summer, both of which are generally lacking within the Order Limits. No caves or underground structures are present within the Order Limits. Four agricultural buildings have been identified within the Solar PV Sites as well as four agricultural buildings within the Cable Route Corridor, details of which are provided in **ES Volume 3, Appendix 9-3: Bat Survey Report [EN010168/APP/6.3].** No detailed surveys of these building for the presence/likely absence of roosting bats have been undertaken as they are all expected to be retained as part of the Scheme with no direct impacts (such as demolition or other modification) occurring. **No Likely Significant Effects** are anticipated through this pathway.

Killing and Injury

6.5.10 Works impacting greater horseshoe bat roosts could result in mortality or injury to individual bats. However no roots sites are anticipated to be impacted by construction phase works and thus **No Likely Significant Effects** are anticipated through this pathway

Lesser Horseshoe Bats

Loss or Change of FLL

6.5.11 In their statutory consultation response of 19 March 2025 (**Table 2**), Natural England advised that Lime Down C was situated adjacent to an Impact Zone for lesser horseshoe bats and as such, may be considered, FLL, particularly given the relative levels of activity by lesser horseshoe recorded at Lime Down C. The Impact Zone referred to was de-listed by Wiltshire Council in 2020 owing to the change of status of the roost near

the village of Grittleton around which the Impact Zone centred. However, the Applicant acknowledges Natural England's view that the roost is still likely to be important for the population of lesser horseshoes associated with the BaBOA SAC despite no longer meeting the criteria for assigning Impact Zones. It is also considered likely that, given the relative activity levels and timing of passes recorded, Lime Down C is used by bats associated with the roost for foraging and commuting. The Applicant has therefore adopted Natural England's view that Lime Down C should be considered to potentially represent FLL on a precautionary basis for the purposes of this report.

6.5.12 As outlined in paragraph 5.2.10, deciduous woodland, scrub, hedgerows, watercourses and permanent pasture are the preferred habitats of foraging lesser horseshoe bats. Over 90 % of the land within Lime Down C is under arable production, equating to approximately 218 ha of the 241 ha total land present. The arable fields comprising the majority of Lime Down C likely provide sub-optimal habitat for foraging bats due to monoculture cropping regimes and routine application of agricultural pesticides, herbicides and fertilisers which are likely to limit the abundance and diversity of invertebrate prey.

6.5.13 There is no woodland present within Lime Down C, although the Order Limits do lie in close proximity to woodland, including Kingway Covert Local Wildlife Site (LWS) and Lords Wood LWS, both of which lie adjacent to the Lime Down C Order Limits. A wooded railway corridor also runs east-west bisecting Lime Down C. It is noted that the highest level of lesser horseshoe activity at the Solar PV Sites were recorded at detectors located close to the off-site woodland at Kingwat Covert and Lords Wood LWS, indicative of this habitat being preferred by foraging/commuting lesser horseshoe bats.

6.5.14 One field of permanent pasture lies within Lime Down C at Field C23. This is a cattle-grazed grassland field approximately 6.12 ha in size which can be expected to provide suitable habitat for foraging lesser horseshoe bats. However, given its relatively small area (comprising circa 2.5 % of land within Lime Down C) it is only likely to represent a relatively small proportion of the foraging grounds used to sustain the local population recorded at Lime Down C.

6.5.15 The most important habitat within Lime Down C itself for foraging lesser horseshoe bats is likely to be the network of hedgerows present at the field boundaries along the off-site but adjacent woodland. The network of hedgerows at Lime Down C measures a combined total length of approximately 21.53 km and can be expected to provide a key foraging resource for the local population of lesser horseshoe bats. The design of the Scheme has sought to retain hedgerows and woodland across the

Solar PV Sites and minimise any requirements for loss of hedgerow habitat by utilising existing hedgerow gaps and gateways for access points wherever possible. A number of new gaps need to be created however to facilitate access to particular fields/parts of the Solar PV Sites. At Lime Down C, it is expected that approximately 96 m of hedgerow may need to be removed to facilitate new access. In the context of the total length of hedgerow network (which is 21.53 km), this loss will be a very small proportion (less than 0.5 %) of the available hedgerow habitat, and would not be expected to result in a significant detrimental impact on the local lesser horseshoe bat population. No loss of woodland will occur.

6.5.16 Overall, as the likely key habitats for foraging lesser horseshoe bats will be predominantly retained as part of Scheme design, it is it is considered that the Scheme is unlikely to result in significant effects on the BoBAC Bats SAC as a result of loss of foraging habitat within potential FLL. Nevertheless, retained hedgerows and off-site woodland are however at risk of inadvertent damage or degradation as a result of construction activities (particularly the deployment of vehicles and machinery) taking place in close proximity to field boundary habitat. This in turn could result in a reduction in the value of hedgerows and woodland edges for foraging lesser horseshoe bats and the ability of this habitat to sustain the local population to the same level. Given the considerable extent of this habitat at Lime Down C and the immediately surrounding landscape, and considering Lime Down C may potentially represent FLL for the BaBOA Bats SAC, there is a **risk of Likely Significant Effects** from this pathway on the SAC.

6.5.17 Two Highway Improvement Area are sited within the Impact Zones for Bat Species relating to lesser horseshoe bat Core Areas according to the 2015 Wiltshire Council guidance. However, works in these areas will be highly localised and take place within the existing highway boundary with minimal impacts on existing vegetation, and are thus expected have a negligible impact on lesser horseshoe bats using these areas for foraging or commuting.

6.5.18 The Order Limits do not otherwise intersect any Impact Zone associated with lesser horseshoe bats, and **No Likely Significant Effects** are anticipated through this pathway.

Fragmentation

6.5.19 Fragmentation effects could occur through severance of flightlines and key commuting routes via habitat removal and through lighting.

6.5.20 Artificial lighting at night can dissuade bat activity, impact the behaviour of invertebrate prey, and potentially fragment commuting routes for particularly light-averse species including lesser horseshoe bats.

Uncontrolled task and security lighting employed within potential FLL at Lime Down C could therefore impede the ability of lesser horseshoe bats of the SAC to forage and commute between roosts and foraging grounds, even when used temporarily for construction-phase works. There is a **risk of Likely Significant Effects** from this pathway.

6.5.21 Fragmentation impacts could also occur where hedgerows need to be removed for new access within potential FLL at Lime Down C. Large gaps in hedgerows could impede the ability of bats to move between roost sites and foraging areas and result in detrimental impacts on bat populations associated with the SAC. There is a **risk of Likely Significant Effects** from this pathway.

Loss or Damage to Roosts

6.5.22 Lesser horseshoe bats typically roost in caves and underground structures during the winter, and old buildings during the summer, both of which are generally lacking within the Order Limits. No caves or underground structures are present within the Order Limits. Four agricultural buildings have been identified within the Solar PV Sites as well as four agricultural buildings within the Cable Route Corridor, details of which are provided in **ES Volume 3, Appendix 9-3: Bat Survey Report [EN010168/APP/6.3].** No detailed surveys of these building for the presence/likely absence of roosting bats have been undertaken as they are all expected to be retained as part of the Scheme with no direct impacts (such as demolition or other modification) occurring. **No Likely Significant Effects** are anticipated through this pathway.

Killing and Injury

6.5.23 Works impacting lesser horseshoe bat roosts could result in mortality or injury to individual bats. However, no roots sites are anticipated to be impacted by construction phase works and thus **No Likely Significant Effects** are anticipated through this pathway

Bechstein's Bat

Loss or Change of FLL

6.5.24 Bechstein's bat is closely associated with ancient and mature deciduous woodland, which is not present within the Solar PV Sites although is present in places immediately adjacent. However this species typically does not use open farmland habitats, which forms the vast majority of habitat at the Solar PV Sites, for foraging and commuting. Furthermore, apart a small number of highly localised Highway Improvement Areas (covered in more detail below), there is no intersection between the Order Limits and any Wiltshire Impact Zone for Bat Species designated for Bechstein's bat. It is consequently considered that the Order Limits are not

FLL on account of distance from Impact Zones, and the very low likelihood that a significant proportion of the SAC population (e.g. >1%) would utilise land within the Solar PV sites or Cable Route Corridor.

6.5.25 Two Highway Improvement Areas are sited within the Impact Zones for Bat Species relating to the Bechstein's roosts near Lackham, south of Chippenham, and one further Highways Improvement Area is sited with the Impact Zones for Bat Species relating to the Box Mine component site of the SAC, within a Core Area for all three bat species of the SAC according to the 2015 Wiltshire Council guidance. However, works in these areas will be highly localised and take place within the existing highway boundary with minimal impacts on existing vegetation, and are thus expected have a negligible impact on Bechstein's bats using these areas for foraging or commuting.

6.5.26 **No Likely Significant Effects** are anticipated through this pathway.

Fragmentation

6.5.27 Fragmentation effects could occur through severance of flightlines and key commuting routes via habitat removal and through lighting.

6.5.28 Fragmentation impacts could occur where hedgerows need to be removed for cabling works within the Cable Route Corridor. Although the Order Limits do not intersect and Core Areas designated for Bechstein's bat, a Core Area is applied for this species around three maternity roosts near Lackham, to the south of Chippenham (**Figure 2** refers) which are considered to be functionally and demographically connected with the Bechstein's population supported by the SAC. Although the Cable Route Corridor does not intersect this Core Area, it does run between the Core Area (which lies to the east of the Cable Route Corridor) and the SAC (which lies to the west). It is therefore possible that unmitigated works within the Cable Route Corridor could result in fragmentation impacts, by impeding populations of Bechstein's bat moving between the SAC and the identified maternity roosts within the Core Area. There is therefore a **risk of Likely Significant Effects** from this pathway.

6.5.1 Artificial lighting at night can dissuade bat activity, impact the behaviour of invertebrate prey, and potentially fragment commuting routes for particularly light-averse species including Bechstein's bat. Uncontrolled task and security lighting employed within the Cable Route Corridor could therefore impede the ability of Bechstein's bats of the SAC to move between the SAC and the identified maternity roosts within the Core Area, even when used temporarily for construction-phase works. There is a **risk of Likely Significant Effects** from this pathway therefore.

Loss or Damage to Roosts

6.5.2 Bechstein's bat are a predominantly tree-roosting species throughout the year, although will roost in underground sites such as caves and mines during the winter (Ref 16). No underground sites suitable for roosting Bechstein's bat are present with the Order Limits. However a large number of trees with varying levels of bat roosting potential have been identified through ground level tree assessments within both the Solar PV Sites and the Cable Route Corridor.

6.5.3 No trees with bat roost potential within the Solar PV Sites will be directly impacted through loss or modification. However, it is probable that some loss of trees within the Cable Route Corridor will be necessary for access/ installation of the cable route. A proportion of trees requiring removal may be suitable for roosting Bechstein's bat. Consequently, there remains a risk loss or damage of roost sites for Bechstein's bats during removal or modification of any suitable trees. Such impacts could detrimentally affect populations of Bechstein's supported by the SAC by reducing the availability of roost sites if no suitable alternative is provided. The significance of impact on the populations associated within the SAC would depend on the size and status of any roost affected, with significant effects more likely to occur should a roost of high conservation status (e.g. maternity roost) be impacted, but there is nevertheless a **risk of Likely Significant Effects** from this pathway.

Killing and Injury

6.5.4 It is possible that removal of trees with potential for roosting Bechstein's bat within the Cable Route Corridor could result in the inadvertent mortality or injury to any individual Bechstein's bats roosting within such trees. There is a lack of knowledge of the population size of Bechstein's bat associated with the SAC and therefore the significance of effects arising from killing or injuring individual bats on the SAC population as a whole is difficult to quantify. Adopting a precautionary approach, it can be assumed that there is a **risk of Likely Significant Effects** from this pathway.

Severn Estuary SAC

Annex I Habitats

6.5.5 Annex I habitats supported by the SAC comprise the following:

- Estuaries;
- Sandbanks which are slightly covered by sea water all the time (subtidal sandbanks);
- Mudflats and sandflats not covered by seawater at low tide;
- Intertidal mudflats and sandflats);

- Atlantic salt meadows; and
- Reefs.

Habitat Degradation

6.5.6 No loss of Annex I habitats supported by the SAC will occur as these are all contained within the SAC boundaries, which are a considerable distance from the Order Limits (circa 23.71 km at the nearest points).

6.5.7 However, watercourses within the Order Limits have some hydrological connection with the Severn Estuary SAC via the River Avon, a tributary of the Severn. The River Avon itself is not present within the Order Limits, although sections of several smaller tributaries of the River Avon lie within the Solar PV Sites and the Cable Route Corridor and thus the habitats within the SAC are potentially susceptible to degradation impacts during the construction and decommissioning phases, arising from discharge/deposition of sediments, dust and contaminants. Following the course of the River Avon, the SAC is located more than 68 km downstream of the Order Limits (over 100 km downstream of the Solar PV Sites) and it is likely that any such impacts of the scale which may potentially occur will be attenuated over such distances.

6.5.8 Standard embedded mitigation measures to minimise the likelihood and severity of pollution events, dust deposition and run-off arising during the construction phase, including the adoption of good practice measures prescribed within the **Outline CEMP [EN010168/APP/7.12]**, have been incorporated into the Scheme. These are considered to be embedded mitigation measures which are standard for projects of a similar type, and would be adopted for the Scheme regardless of the presence of European Sites, and it can therefore be taken into account at the ToLSE stage in accordance with case law outlined in Section 2.2 (particularly ruling C-721/21 Eco Advocacy CLG v An Bord Pleanála).

6.5.9 Given that standard embedded mitigation measures will minimise any potential impacts on the above designated sites during the construction and decommissioning phases and taking into account the considerable distance between the Order Limits and the Severn Estuary SAC, it is considered that reasonably practicable steps will be taken to ensure that that the magnitude of any degradation impact on Annex I habitats would be negligible even assuming a worst case scenario. Likely Significant Effects are not anticipated through this pathway. However, following the precautionary approach set out in paragraphs 6.4.2 to 6.4.4 above, a conclusion of "**No Likely Significant Effects; progressed for assessment on a precautionary basis**" has been made on the basis that the Secretary of State may take the view that the above standard embedded mitigation measures cannot be considered at ToLSE stage.

Annex II Species

6.5.10 Annex II species supported by the SAC comprise the following:

- Sea lamprey;
- River lamprey; and
- Twaite shad.

Loss or Change of FLL

6.5.11 The watercourses within the Order Limits are considered reasonably unlikely to support fish species of the SAC due to the distance from the Order Limits (minimum 68km) and numerous existing barriers to fish dispersal, as described in Section 5.4. FLL is not present within the Order Limits and thus **no Likely Significant Effects** are anticipated through this pathway.

Habitat Degradation

6.5.12 Watercourses within the Order Limits have some hydrological connection with the Severn Estuary SAC via the River Avon, a tributary of the Severn. The River Avon itself is not present within the Order Limits, although sections of several smaller tributaries of the River Avon lie within the Solar PV Sites and the Cable Route Corridor and thus the habitats the SAC are potentially susceptible to degradation impacts during the construction and decommissioning phases, arising from discharge/deposition of sediments, dust and contaminants. This could in turn impact the abilities of associated fish species to feed and reproduce. Following the course of the River Avon, the SAC is located more than 68 km downstream of the Order Limits (over 100 km downstream of the Solar PV Sites) and it is likely that any such impacts of the scale which may potentially occur will be attenuated over such distances.

6.5.13 Embedded mitigation measures to minimise the likelihood and severity of pollution events, dust deposition and run-off arising during the construction phase, including the adoption of good practice measures prescribed within a CEMP, have been incorporated into the Scheme. These are considered to be embedded mitigation measures which are standard for projects of a similar type, and would be adopted for the Scheme regardless of the presence of European Sites, and it can therefore be taken into account at the ToLSE stage in accordance with case law outlined in Section 2.2 (particularly ruling C-721/21 Eco Advocacy CLG v An Bord Pleanála).

6.5.14 Given that standard embedded mitigation measures will minimise any potential impacts on the above designated sites during the construction phase and taking into account the considerable distance between the Order Limits and the Severn Estuary SAC, it is considered that reasonably

practicable steps will be taken to ensure that that the magnitude of any degradation impact on habitats used by Annex II Species would be negligible even assuming a worst case scenario. Likely Significant Effects are not anticipated through this pathway. However, following the precautionary approach set out in paragraphs 6.4.2 to 6.4.4 above, a conclusion of "**No Likely Significant Effects; progressed for assessment on a precautionary basis**" has been made on the basis that the Secretary of State may take the view that the above standard embedded mitigation measures cannot be considered at ToLSE stage.

Fragmentation

6.5.15 The watercourses within the Order Limits are considered reasonably unlikely to support fish species of the SAC due to the distance from the Order Limits (minimum 68km) and numerous existing barriers to fish dispersal, as described in Section 5.4. Potential fragmentation impacts through severance of migration routes or introduction of new obstacles to migration are therefore highly unlikely to occur and **no Likely Significant Effects** are anticipated through this pathway.

Killing and Injury

6.5.16 The watercourses within the Order Limits are considered reasonably unlikely to support fish species of the SAC due to the distance from the Order Limits (minimum 68km) and numerous existing barriers to fish dispersal, as described in Section 5.4. Construction works taking place within watercourse at the Order Limits are therefore highly unlikely to result in mortality or injury to fish species associated with the SAC, and **no Likely Significant Effects** are anticipated through this pathway,

Severn Estuary SPA

Qualifying Bird Species

6.5.17 Qualifying bird species of the SPA comprise the following:

- Bewick's swan;
- Greater white-fronted goose;
- Shelduck; gadwall;
- Dunlin;
- Redshank; and
- Waterbird assemblage.

Loss or Change of FLL

6.5.18 This designated site lies 23.71 km from the Order Limits at the closest point. The Order Limits are sufficiently distant from the Severn Estuary that no direct impacts will occur.

6.5.19 Bird surveys completed at the Solar PV Sites have not recorded any use of the Solar PV Sites by qualifying bird species of the Severn Estuary SPA as described in Section 5.3. Two species included within the 'Waterbird' assemblage interest feature of the Severn Estuary SPA citation have been recorded using the Solar PV Sites, namely teal and whimbrel.

6.5.20 According to the Severn Estuary SPA Citation, the population of teal supported by the SPA during the winter months is 1,998. The population of whimbrel supported by the SPA is 246 when on spring passage. It is not known whether the small number of teal and whimbrel recorded at the Solar PV Sites are associated with the Severn Estuary populations, but surveys have recorded fewer than 0.5% of the populations cited for both species.

6.5.21 The habitats present within the Order Limits generally comprise lowland mixed farmland and woodland, which is disparate with the intertidal, estuarine and coastal grazing marsh habitats which are primarily used by bird species of the Severn Estuary species.

6.5.22 Overall, given the distance between the Severn Estuary SPA and the Order Limits, the dissimilar habitats between the Severn Estuary and the Order Limits, and the absence of records of qualifying bird species in survey data from the Solar PV Sites, it is concluded that the Order Limits do not represent FLL for the Severn Estuary SPA.

6.5.23 **No Likely Significant Effects** are therefore anticipated through this pathway.

Severn Estuary Ramsar

Ramsar Criteria 5 and 6 – Birds

6.5.24 The Severn Estuary Ramsar qualifies under Ramsar criteria 5 and 6 for supporting the following features:

- Wintering bird assemblage of international importance;
- Species/populations occurring at levels of international importance:
  - Bewick's swan;
  - Greater white-fronted goose;
  - Shelduck;
  - Gadwall;

- Dunlin; and
- Redshank.

Loss or Change of FLL

6.5.25 This designated site lies 23.71 km from the Order Limits at the closest point. The Order Limits are sufficiently distant from the Severn Estuary that no direct impacts will occur.

6.5.26 Bird surveys completed at the Solar PV Sites have not recorded any use of the Solar PV Sites by qualifying bird species of the Severn Estuary Ramsar as described in section 5.

6.5.27 The habitats present within the Order Limits generally comprise lowland mixed farmland and woodland, which is disparate with the intertidal, estuarine and coastal grazing marsh habitats which are primarily used by bird species of the Severn Estuary species.

6.5.28 Overall, given the distance between the Severn Estuary Ramsar and the Order Limits, the dissimilar habitats between the Severn Estuary and the Order Limits, and the absence of records of qualifying bird species in survey data from the Solar PV Sites, it is concluded that the Order Limits do not represent FLL for the Severn Estuary Ramsar.

6.5.29 **No Likely Significant Effects** are therefore anticipated through this pathway.

Ramsar Criteria 1 and 3 – Habitats

6.5.30 The Severn Estuary Ramsar qualifies under Ramsar criteria 1 and 3 for supporting the following features:

- Immense tidal range; and
- Estuarine communities

Habitat degradation

6.5.31 No direct loss of habitat supported by the Ramsar site will occur as these are all contained within the Ramsar site boundaries, which are a considerable distance from the Order Limits (circa 23.71 km at the nearest points.

6.5.32 However, watercourses within the Order Limits have some hydrological connection with the Severn Estuary Ramsar via the River Avon, a tributary of the Severn. The River Avon itself is not present within the Order Limits, although sections of several smaller tributaries of the River Avon lie within the Solar PV Sites and the Cable Route Corridor and thus the habitats within the Ramsar are potentially susceptible to degradation impacts during the construction and decommissioning phases, arising from

discharge/deposition of sediments, dust and contaminants. Following the course of the River Avon, the Ramsar is located more than 68 km downstream of the Order Limits (over 100 km downstream of the Solar PV Sites) and it is likely that any such impacts of the scale which may potentially occur will be attenuated over such distances.

6.5.33 Embedded mitigation measures to minimise the likelihood and severity of pollution events, dust deposition and run-off arising during the construction phase, including the implementation of protective buffer zones and the adoption of good practice measures prescribed within a CEMP, have been incorporated into the Scheme. These are considered to be embedded mitigation measures which are standard for projects of a similar type, and would be adopted for the Scheme regardless of the presence of European Sites, and it can therefore be taken into account at the ToLSE stage in accordance with case law outlined in Section 2.2 (particularly ruling C-721/21 Eco Advocacy CLG v An Bord Pleanála).

6.5.1 Given that standard embedded mitigation measures will minimise any potential impacts on the above designated sites during the construction phase and taking into account the considerable distance between the Order Limits and the Severn Estuary Ramsar, it is considered that reasonably practicable steps will be taken to ensure that that the magnitude of any degradation impact on qualifying habitats supported by the Ramsar site would be negligible even assuming a worst case scenario. Likely Significant Effects are not anticipated through this pathway. However, following the precautionary approach set out in paragraphs 6.4.2 to 6.4.4 above, a conclusion of "**No Likely Significant Effects; progressed for assessment on a precautionary basis**" has been made on the basis that the Secretary of State may take the view that the above standard embedded mitigation measures cannot be considered at ToLSE stage.

Ramsar Criteria 4 and 8 – Migratory Fish

6.5.2 The Severn Estuary Ramsar qualifies under Ramsar criteria 4 and 8 for supporting the following migratory fish species:

- Salmon;
- Sea trout;
- Sea lamprey;
- River lamprey;
- Allis shad;
- Twaite shad; and

- European eel.

Loss or Change of FLL

6.5.3 The watercourses within the Order Limits are considered reasonably unlikely to support salmon, sea lamprey, river lamprey, allis shad and twaite shad due to the distance from the Order Limits (minimum 68km) and numerous existing barriers to fish dispersal, as described in Section 5.4.

6.5.4 However several watercourses within the Order Limits could be used by European eel, and sea trout, both of which have been recorded within the River Avon, downstream but in close proximity to the Order Limits as described in Section 5.4. Eel and sea trout populations potentially present within these watercourses are considered to form part of the meta-population supported by the Severn Estuary Ramsar and thus the watercourses can be assumed to represent FLL.

6.5.5 Construction works involved with new permanent or temporary crossings for access or cables could result in loss or modification of watercourse habitat used by eels and sea trout within the Order Limits. Whereas new ditch crossings within the Solar PV Sites will result in a permanent culverted section, the trenching for the cable installation will be short term and any ditches/watercourses affected will be returned to a functional condition once the cabling has been installed. Consequently, such impacts are considered to be temporary and reversible. The relatively short width of any new permanent (up to 6 m wide) or temporary (up to 12 m wide) crossings required means these would be highly localised impacts, affecting a small extent of watercourse habitat relative to the total extent within the River Avon and its tributaries, which measure over 850 km in total length based on the Statutory Main River Map (Ref 11). As such, any loss of watercourse habitat would be negligible in the context of available FLL within the River Avon and its tributaries (less than 0.1%) and would not be expected to result in a significant effect on the population of eels or sea trout associated with the Severn Estuary Ramsar site. **No Likely Significant Effects** are anticipated through this pathway.

Habitat Degradation

6.5.6 Watercourses within the Order Limits have some hydrological connection with the Severn Estuary SAC via the River Avon, a tributary of the Severn. The River Avon itself is not present within the Order Limits, although sections of several smaller tributaries of the River Avon lie within the Solar PV Sites and the Cable Route Corridor and thus the habitats supported by the SAC are potentially susceptible to degradation impacts during the construction and decommissioning phases, arising from

discharge/deposition of sediments, dust and contaminants. This could in turn impact the abilities of associated fish species to feed and reproduce.

6.5.7 Embedded mitigation measures to minimise the likelihood and severity of pollution events, dust deposition and run-off arising during the construction phase, including the adoption of good practice measures prescribed within a CEMP, have been incorporated into the Scheme. These are considered to be embedded mitigation measures which are standard for projects of a similar type, and would be adopted for the Scheme regardless of the presence of European Sites, and it can therefore be taken into account at the ToLSE stage in accordance with case law outlined in Section 2.2 (particularly ruling C-721/21 Eco Advocacy CLG v An Bord Pleanála).

6.5.8 Given that standard embedded mitigation measures will minimise any potential impacts on the above designated sites during the construction phase, it is considered that reasonably practicable steps will be taken to ensure that that the magnitude of any degradation impact on watercourses within and downstream of the Order Limits would be negligible even assuming a worst case scenario. Likely Significant Effects are not anticipated through this pathway. However, following the precautionary approach set out in paragraphs 6.4.2 to 6.4.4 above, a conclusion of "**No Likely Significant Effects; progressed for assessment on a precautionary basis**" has been made on the basis that the Secretary of State may take the view that the above standard embedded mitigation measures cannot be considered at ToLSE stage.

Fragmentation

6.5.9 The watercourses within the Order Limits are considered reasonably unlikely to support salmon, sea lamprey, river lamprey, allis shad and twaite shad due to the distance from the Order Limits (minimum 68km) and numerous existing barriers to fish dispersal, as described in Section 5.4.

6.5.10 However several watercourses within the Order Limits could be used by European eel, and sea trout, both of which have been recorded within the River Avon, downstream but in close proximity to the Order Limits as described in Section 5.4. Any required new crossings, either permanent (for access) or temporary (for cables) which impact the channel or beds of watercourses have the potential to hinder or prevent migration of eels and sea trout. This could have detrimental impacts on populations of both species associated with the Severn Estuary and therefore could have an impact on the ecological integrity of the Ramsar site. There is a **risk of Likely Significant Effects** from this pathway therefore.

Killing and Injury

6.5.11 The watercourses within the Order Limits are considered reasonably unlikely to support salmon, sea lamprey, river lamprey, allis shad and twaite shad due to the distance from the Order Limits (minimum 68km) and numerous existing barriers to fish dispersal, as described in Section 5.4.

6.5.12 However several watercourses within the Order Limits could be used by European eel, and sea trout, both of which have been recorded within the River Avon, downstream but in close proximity to the Order Limits as described in Section 5.4. The construction of any required crossings (either for cables or access) within watercourses have the potential to harm or cause mortality to fish present within the working area.

6.5.13 Population sizes of eels and sea trout associated with the Severn Estuary Ramsar are difficult to quantify and therefore determining the significance of effects arising from killing or injuring individual fish on the Ramsar population as a whole is challenging, and would depend on the number impacted. Adopting a precautionary approach, it can be assumed that there is a **risk of Likely Significant Effects** from this pathway.

6.6 Screening Assessment– Operation and Maintenance Phase

6.6.1 This section considers each given source of potential impact associated with the operation and maintenance phase on qualifying features of each identified European site sequentially. Where impacts sources and pathways are relevant for more than one feature associated with a European site, these are amalgamated for brevity. A summary of the outcome of this assessment is provided in **Table 5**.

Bath and Bradford-on-Avon SAC

Greater Horseshoe Bat

Ongoing Loss or Change of FLL

6.6.2 Land at the Solar PV Sites is not considered to represent FLL for the SAC population of greater horseshoe bats.

6.6.3 All habitat within the Cable Route Corridor, including habitat within the Impact Zone/FLL where it intersects the Cable Route Corridor, will be reinstated on completion of construction. During the operation and maintenance phase, underground cables will remain undisturbed for the life of the Scheme unless they become damaged. Where damage occurs, cables can be replaced by opening the ground and pulling the cable through agreed extraction points which can be sited away from sensitive ecological features and would require considerably smaller working areas

than construction phase cable installation works. **No Likely Significant Effects** are thus anticipated through this pathway.

Lesser Horseshoe Bat

Ongoing Loss or Change of FLL

6.6.4 Land at Lime Down C is considered to represent potential FLL for the SAC population of lesser horseshoe bats. However, as described in Section 6.5, suitable habitat for foraging/commuting lesser horseshoe bats at the field boundaries of Lime Down C will be almost entirely retained. No impacts on these retained habitats are expected as result of Operation and Maintenance activities, with new access tracks created at Lime Down C during the Construction Phase to be continued to be used operationally, with no new access creation expected to be required.

6.6.5 As described in **ES Volume 1, Chapter 3: The Scheme [APP-055],** permanent external lighting is only to be installed at substations and battery storage facilities (no battery storage facilities are proposed for Lime Down C). Any such lighting will comprise motion sensitive security lighting primarily for maintaining safe working conditions in winter months for surety purposes and maintenance activities, and will only be used when necessary. Any adverse impacts associated with artificial lighting for the substation at Lime Down C during the operation and maintenance phase are therefore anticipated to be infrequent, short-term and non-significant in terms of inhibiting the ability of bats (including lesser horseshoe bats) continuing to forage and commute around Lime Down C.

6.6.6 **No Likely Significant Effects** are thus anticipated from this potential source of impact.

Bechstein's Bat

Ongoing Loss or Change of FLL

6.6.7 As described in Section 6.5, land within the Order Limits considered to represent FLL for Bechstein's bat populations of the BaBOA SAC is limited to discrete Highways Improvement Areas which intersect the Wiltshire Impact Zones for Bat Species. Minor works to the highways at these locations are only expected to occur during the construction phase and will not result in ongoing impacts to this species and **no Likely Significant Effects** are anticipated.

Severn Estuary SAC

Annex I Habitats

Habitat Degradation

6.6.8 Given the distance from the Solar PV Sites and the minimal requirements for operation and maintenance phase works which could result in watercourse contamination or sediment mobilisation, **no Likely Significant Effects** are anticipated to occur on the Severn Estuary SAC via this pathway during the operation and maintenance phase due to any impacts being of negligible magnitude.

6.6.9 As the proposed BESS Area is close to existing ditches, there is a risk of battery fire and potentially the subsequent discharge of chemicals and other diffuse pollutants into the local watercourse network and eventually into the Severn Estuary. This could potentially degrade the water quality of the SAC and habitats within.

6.6.10 Standard embedded mitigation measures to minimise the likelihood and severity of battery fire have been incorporated into the Scheme, such as systems to close off attenuated surface water at the BESS Area and isolate it from the wider environment. These mitigation measures will be secured as part of the **Outline BSMP [EN010168/APP/7.21].**

6.6.11 These are considered to be embedded mitigation measures which are standard for projects of a similar type, and would be adopted for the Scheme regardless of the presence of European Sites, and it can therefore be taken into account at the ToLSE stage in accordance with case law outlined in Section 2.2 (particularly ruling C-721/21 Eco Advocacy CLG v An Bord Pleanála).

6.6.12 Given that standard embedded mitigation measures will minimise any potential impacts on the above designated sites during the operation and maintenance phase, it is considered that reasonably practicable steps will be taken to ensure that that the magnitude of any degradation impact on Annex I habitats would be negligible even assuming a worst case scenario. Likely Significant Effects are not anticipated through this pathway. However, following the precautionary approach set out in paragraphs 6.4.2 to 6.4.4 above, a conclusion of "**No Likely Significant Effects; progressed for assessment on a precautionary basis**" has been made on the basis that the Secretary of State may take the view that the above standard embedded mitigation measures cannot be considered at ToLSE stage.

Annex II Species

Habitat Degradation

6.6.13 As described in Section 6.5, the Order Limits are not considered to represent habitat or FLL for any of the Annex II fish species associated with SAC.

6.6.14 Given the distance from the Solar PV Sites and the minimal requirements for operation and maintenance phase works which could result in watercourse contamination or sediment mobilisation, **no Likely Significant Effects** are anticipated to occur on the Severn Estuary SAC via this pathway during the operation and maintenance phase due to any impacts being of negligible magnitude.

6.6.15 As the proposed BESS Area is close to existing ditches, there is a risk of battery fire and potentially the subsequent discharge of chemicals and other diffuse pollutants into the local watercourse network and eventually into the Severn Estuary. This could potentially degrade the water quality of the SAC and habitats within. This could in turn impact the abilities of associated fish species to feed and reproduce.

6.6.16 Standard embedded mitigation measures to minimise the likelihood and severity of battery fire have been incorporated into the Scheme, such as systems to close off attenuated surface water at the BESS Area and isolate it from the wider environment. These mitigation measures will be secured as part of the **Outline BSMP [EN010168/APP/7.21].**

6.6.17 These are considered to be embedded mitigation measures which are standard for projects of a similar type, and would be adopted for the Scheme regardless of the presence of European Sites, and it can therefore be taken into account at the ToLSE stage in accordance with case law outlined in Section 2.2 (particularly ruling C-721/21 Eco Advocacy CLG v An Bord Pleanála).

6.6.18 Given that standard embedded mitigation measures will minimise any potential impacts on the above designated sites during the operation and maintenance phase, it is considered that reasonably practicable steps will be taken to ensure that that the magnitude of any degradation impact on habitats used by Annex II specie would be negligible even assuming a worst case scenario. Likely Significant Effects are not anticipated through this pathway. However, following the precautionary approach set out in paragraphs 6.4.2 to 6.4.4 above, a conclusion of "**No Likely Significant Effects; progressed for assessment on a precautionary basis**" has been made on the basis that the Secretary of State may take the view that the above standard embedded mitigation measures cannot be considered at ToLSE stage.

Severn Estuary SPA

Qualifying Bird Species

Ongoing Loss or Change of FLL

6.6.19 As described in Section 6.5, the Order Limits are not considered to represent FLL for the qualifying bird species of the SPA. **No Likely**

Significant Effects via this pathway during the operation and maintenance phase are anticipated.

Severn Estuary Ramsar

Ramsar Criteria 5 and 6 – Birds

Ongoing Loss or Change of FLL

6.6.20 As described in Section 6.5, the Order Limits are not considered to represent FLL for the qualifying bird species of the Severn Estuary Ramsar site. **No Likely Significant Effects** via this pathway during the operation and maintenance phase are anticipated.

Ramsar Criteria 1 and 3 – Habitats

Habitat Degradation

6.6.21 Given the distance from the Solar PV Sites and the minimal requirements for operation and maintenance phase works which could result in watercourse contamination or sediment mobilisation, **no Likely Significant Effects** are anticipated to occur on the Severn Estuary Ramsar via this pathway during the operation and maintenance phase due to any impacts being of negligible magnitude.

6.6.22 As the proposed BESS Area is close to existing ditches, there is a risk of battery fire and potentially the subsequent discharge of chemicals and other diffuse pollutants into the local watercourse network and eventually into the Severn Estuary. This could potentially degrade the water quality of the Ramsar site and habitats within.

6.6.23 Standard embedded mitigation measures to minimise the likelihood and severity of battery fire have been incorporated into the Scheme, such as systems to close off attenuated surface water at the BESS Area and isolate it from the wider environment. These mitigation measures will be secured as part of the **Outline BSMP [EN010168/APP/7.21].**

6.6.24 These are considered to be embedded mitigation measures which are standard for projects of a similar type, and would be adopted for the Scheme regardless of the presence of European Sites, and it can therefore be taken into account at the ToLSE stage in accordance with case law outlined in Section 2.2 (particularly ruling C-721/21 Eco Advocacy CLG v An Bord Pleanála).

6.6.25 Given that standard embedded mitigation measures will minimise any potential impacts on the above designated sites during the operation and maintenance phase, it is considered that reasonably practicable steps will be taken to ensure that that the magnitude of any degradation impact on qualifying habitats supported by the Ramsar site would be negligible even

assuming a worst case scenario. Likely Significant Effects are not anticipated through this pathway. However, following the precautionary approach set out in paragraphs 6.4.2 to 6.4.4 above, a conclusion of "**No Likely Significant Effects; progressed for assessment on a precautionary basis**" has been made on the basis that the Secretary of State may take the view that the above standard embedded mitigation measures cannot be considered at ToLSE stage.

Ramsar Criteria 4 and 8 – Migratory Fish

Habitat Degradation

6.6.26 As described in Section 6.5, the Order Limits are considered to represent habitat or FLL only for eels and sea trout of the migratory fish species associated with the SAC.

6.6.27 Given the minimal requirements for operation and maintenance phase works which could result in watercourse contamination or sediment mobilisation, **no Likely Significant Effects** are anticipated to occur, on either the Severn Estuary Ramsar itself or FLL for eels and sea trout, via this pathway during the operation and maintenance phase due to any impacts being of negligible magnitude.

6.6.28 As the proposed BESS Area is close to existing ditches, there is a risk of battery fire and potentially the subsequent discharge of chemicals and other diffuse pollutants into the local watercourse network and eventually into the Severn Estuary. This could potentially degrade the water quality of the Severn Estuary Ramsar or FLL for eels and sea trout. This could in turn impact the abilities of associated fish species to feed and reproduce.

6.6.29 Standard embedded mitigation measures to minimise the likelihood and severity of battery fire have been incorporated into the Scheme, such as systems to close off attenuated surface water at the BESS Area and isolate it from the wider environment. These mitigation measures will be secured as part of the **Outline BSMP [EN010168/APP/7.21].**

6.6.30 These are considered to be embedded mitigation measures which are standard for projects of a similar type, and would be adopted for the Scheme regardless of the presence of European Sites, and it can therefore be taken into account at the ToLSE stage in accordance with case law outlined in Section 2.2 (particularly ruling C-721/21 Eco Advocacy CLG v An Bord Pleanála).

6.6.31 Given that standard embedded mitigation measures will minimise any potential impacts on the above designated sites during the operation and maintenance phase, it is considered that reasonably practicable steps will be taken to ensure that that the magnitude of any degradation impact on watercourses within and downstream of the Order Limits would be

negligible even assuming a worst case scenario. Likely Significant Effects are not anticipated through this pathway. However, following the precautionary approach set out in paragraphs 6.4.2 to 6.4.4 above, a conclusion of "**No Likely Significant Effects; progressed for assessment on a precautionary basis**" has been made on the basis that the Secretary of State may take the view that the above standard embedded mitigation measures cannot be considered at ToLSE stage.

Fragmentation

6.6.32 It is feasible that EMFs emanating from electrical cables could impact eels and sea trout where the Cable Route Corridor crosses suitable watercourses for these species, which utilise naturally generated EMFs for navigation, although to date there is very little evidence of significant behavioural changes from EMFs generated by electric cables.

6.6.33 All electrical cables associated within the Scheme are expected to be buried underground; buried cables typically have their electric fields fully attenuated by cable sheathing and the substrate under which they are buried. However, magnetic fields and induced electric fields are not attenuated in this way, and there lies a risk of effects on fish species which are known to have evolved sensitivity to electric and/or magnetic fields, including eels.

6.6.34 There is therefore some risk of EMFs affecting migratory fish in the vicinity of the 400 kV Grid Connection Cables, where they are required to cross tributaries of the River Avon and lie close to channel bed (typical cable depths are up to 2 m), which could hinder or prevent migration and result in fragmentation effects.

6.6.35 The likely significance of effects arising from EMFs on migratory fish as a result of the Scheme are difficult to quantify. However, on a precautionary basis, it can be assumed that there is a **risk of Likely Significant Effects** from this pathway on the integrity of the Severn Estuary Ramsar

Table 4: Summary of Likely Significant Effects – Construction and Decommissioning Phase

Qualifying Feature	Potential Impact	Screening Rationale	Likely Significant Effect?
Bath and Bradford-on-Avon SAC			
Greater horseshoe bat	Loss or change of FLL	Land at the Solar PV Sites is not considered to represent FLL for the SAC population of greater horseshoe bats. However, where the Cable Route Corridor passes through the Impact Zone for Bat Species/Core Area, FLL could be temporarily lost within the working area, particularly at Temporary Construction Compounds.	Yes
	Fragmentation via severance of commuting routes due to direct habitat loss and/or lighting	Land at the Solar PV Sites is not considered to represent FLL for the SAC population of greater horseshoe bats. Survey data does not indicate FLL. However where the Cable Route Corridor passes through the Impact Zone for Bat Species, temporary removal of commuting features (such as hedgerows) and uncontrolled lighting could fragment important commuting routes.	Yes
	Loss/damage to roosts	No buildings with potential to support greater horseshoe roosts will be directly impacted by works.	No
	Killing and injury – during construction via impacts on roosts	No buildings with potential to support greater horseshoe roosts will be directly impacted by works.	No
Lesser horseshoe bat	Loss or change of FLL	. Land within Lime Down C is considered to represent potential FLL for the SAC population of lesser horseshoe bats. Although likely important habitat with	Yes

Qualifying Feature	Potential Impact	Screening Rationale	Likely Significant Effect?
		the potential FLL for foraging / commuting lesser horseshoes will be predominantly retained, there is a risk of detrimental impacts as a result of inadvertent damage/degradation due to construction activities (particularly the deployment of vehicles and machinery) taking place in close proximity to field boundary habitat. This could affect the ability of this habitat to support lesser horseshoe populations due to the considerable extent of this habitat present at Lime Down C.	
	Fragmentation via severance of commuting routes due to direct habitat loss	Land within Lime Down C is considered to represent potential FLL for the SAC population of lesser horseshoe bats. Removal of commuting features (such as hedgerows) and uncontrolled lighting could fragment important commuting routes.	Yes
	Loss/damage to roosts	No buildings with potential to support lesser horseshoe bat roosts will be directly impacted by works.	No
	Killing and injury – during construction via impacts on roosts	No buildings with potential to support lesser horseshoe bat roosts will be directly impacted by works.	No
Bechstein's Bat	Loss or change of FLL	Land within the Order Limits is not considered to represent FLL for the SAC population of Bechstein's bat.	No
	Fragmentation via severance of commuting routes due to direct habitat loss and/or lighting	Land within the Order Limits is not considered to represent FLL for the SAC population of Bechstein's bat. Although the Cable Route Corridor does not intersect a Core Area for this species, it does bisect the land between a Core Area and the SAC and fragmentation cannot be ruled out.	Yes
	Loss/damage to roosts	No trees within the Solar PV Sites with potential to support Bechstein's roosts will be directly impacted by	Yes

Qualifying Feature	Potential Impact	Screening Rationale	Likely Significant Effect?
		works. However, trees within the Cable Route Corridor may have potential to support Bechstein's roosts and could be directly impacted by works.	
	Killing and injury – during construction via impacts on roosts	Trees within the Cable Route Corridor may have potential to support Bechstein's roosts and could be directly impacted by works.	Yes
Severn Estuary SAC			
Annex I Habitats: • Estuaries • Sandbanks which are slightly covered by sea water all the time (subtidal sandbanks). • Mudflats and sandflats not covered by seawater at low tide. Intertidal mudflats and sandflats) • Atlantic salt meadows • Reefs	Habitat degradation due to construction run-off or pollution	There is hydrological connectivity between the estuarine habitats of the SAC and the Order Limits. However, the SAC is circa 68km downstream of the Order Limits at the closest point and any such pollution events would be expected to be attenuated over such distances. Good practice pollution prevention measures which are standard for a project of this type will be adopted and prescribed via the **Outline CEMP [EN010168/APP/7.12]** in order to minimise the likelihood and severity of pollution events	No; progressed for assessment on a precautionary basis.
Annex II Species • Sea Lamprey • River Lamprey • Twaite Shad	Loss or change of habitat/FLL	The watercourses within the Order Limits are considered reasonably unlikely to support fish species of the SAC due to the distance from the Order Limits (minimum 68km) and numerous existing barriers to fish dispersal, as described in Section 5.4.	No
	Habitat degradation due to construction run-off or pollution	The watercourses within the Order Limits are considered reasonably unlikely to support fish species of the SAC due to the distance from the Order Limits (minimum 68km) and numerous existing barriers to fish dispersal, as described in Section 5.4.	No; progressed for assessment on a

Qualifying Feature	Potential Impact	Screening Rationale	Likely Significant Effect?
		Good practice pollution prevention measures which are standard for a project of this type will be adopted and prescribed via the **Outline CEMP [EN010168/APP/7.12]** in order to minimise the likelihood and severity of pollution events	precautionary basis.
	Fragmentation due to severance of migration routes through direct habitat loss or introduction of new obstacles to migration	The watercourses within the Order Limits are considered reasonably unlikely to support fish species of the SAC due to the distance from the Order Limits (minimum 68km) and numerous existing barriers to fish dispersal.	No
	Killing and Injury	The watercourses within the Order Limits are considered reasonably unlikely to support fish species of the SAC due to the distance from the Order Limits (minimum 68km) and numerous existing barriers to fish dispersal.	No
Severn Estuary SPA			
SPA Qualifying Species: • Bewick's swan • Greater white-fronted goose • Shelduck • Gadwall • Dunlin • Redshank • Waterbird Assemblage	Loss or change of FLL	The land within the Order Limits are not considered to represent FLL for birds of the SPA due to the distance (23.71km) and markedly different habitats between the two. Results of bird surveys undertaken at the Solar PV Sites do not indicate FLL as described in section 5.3..	No
Severn Estuary Ramsar			

Qualifying Feature	Potential Impact	Screening Rationale	Likely Significant Effect?

Ramsar Criterion 5 and 6:
• Wintering bird assemblage of international importance
• Species/populations occurring at levels of international importance:
  ○ Bewick's swan
  ○ Greater white-fronted goose
  ○ Shelduck
  ○ Gadwall
  ○ Dunlin
  ○ Redshank
	Loss of change of FLL	The land within the Order Limits is not considered to represent FLL for birds of the Ramsar site due to the distance (23.71km) and markedly different habitats between the two.
		Results of bird surveys undertaken at the Solar PV Sites do not indicate FLL as described in section 5.3.
			No

Ramsar Criterion 1 and 3: • Immense tidal range • Estuarine communities	Habitat degradation due to construction run-off or pollution	There is hydrological connectivity between the estuarine habitats of the Ramsar site and the Order Limits. However, the Ramsar site circa 68km downstream of the Order Limits at the closest point and any such pollution events would be expected to be attenuated over such distances. Good practice pollution prevention measures which are standard for a project of this type will be adopted and prescribed via the **Outline CEMP [EN010168/APP/7.12]** in order to minimise the likelihood and severity of pollution events	No; progressed for assessment on a precautionary basis.
Ramsar criterion 4 and 8 – migratory fish: • Salmon • Sea lamprey	Loss or change of habitat/FLL	The watercourses within the Order Limits are considered reasonably unlikely to support fish species of the Ramsar site (with the exception of European eel) due to the distance from the Order Limits (minimum	No

Qualifying Feature	Potential Impact	Screening Rationale	Likely Significant Effect?
• River lamprey • Allis shad • Twaite shad		68km) and numerous existing barriers to fish dispersal, as described in Section 5.4.	
	Habitat degradation due to construction run-off or pollution	The watercourses within the Order Limits are considered reasonably unlikely to support fish species of the Ramsar site (with the exception of European eel and sea trout) due to the distance from the Order Limits (minimum 68km) and numerous existing barriers to fish dispersal, as described in Section 5.4 There is hydrological connectivity between the estuarine habitats of the Ramsar site and the Order Limits. However, the Ramsar site is circa 68km downstream of the Order Limits at the closest point and any such pollution events would be expected to be attenuated over such distances. Good practice pollution prevention measures which are standard for a project of this type will be adopted and prescribed via the **Outline CEMP [EN010168/APP/7.12]** in order to minimise the likelihood and severity of pollution events	No; progressed for assessment on a precautionary basis.
	Fragmentation due to severance of migration routes through direct habitat loss or introduction of new obstacles to migration	The watercourses within the Order Limits are considered reasonably unlikely to support fish species of the Ramsar site (with the exception of European eel) due to the distance from the Order Limits (minimum 68km) and numerous existing barriers to fish dispersal.	No
	Killing and Injury	The watercourses within the Order Limits are considered reasonably unlikely to support fish species of the Ramsar site (with the exception of European eel and sea trout) due to the distance from the Order Limits (minimum 68km) and numerous existing barriers to fish	No

Qualifying Feature	Potential Impact	Screening Rationale	Likely Significant Effect?
		dispersal. Construction works are not considered likely to result in killing or injury to the listed species.	
Ramsar criterion 4 and 8 – migratory fish: • European eel • Sea trout	Loss or change of habitat/FLL	Construction works involved with new permanent or temporary crossings for access or cables could result in loss or modification of watercourse habitat used by eels within the Order Limits. However these would be highly localised impacts, affecting a small extent of watercourse habitat relative to the total extent within the River Avon catchment, and would not be expected to result in a significant effect on the population of eels associated with the Severn Estuary Ramsar site.	No
	Habitat degradation due to construction run-off or pollution	Good practice pollution prevention measures which are standard for a project of this type will be adopted and prescribed via the **Outline CEMP [EN010168/APP/7.12]** in order to minimise the likelihood and severity of pollution events	No; progressed for assessment on a precautionary basis.
	Fragmentation	New permanent or temporary crossings for access and laying cables may impede eel migration if they impact the channel bed and bank faces within suitable watercourses within the Solar PV Sites and Cable Route Corridor.	Yes
	Killing and Injury	Construction works involved with new permanent or temporary crossings could result in the inadvertent killing or injury of eels. Although these would be highly localised impacts, affecting a small extent of watercourse habitat relative to the total extent within the Severn Estuary catchment, the severity of this impact	Yes

Qualifying Feature	Potential Impact	Screening Rationale	Likely Significant Effect?
		would be exacerbated during sensitive fish migration and spawning times.	

Table 5: Summary of Likely Significant Effects – Operation and Maintenance Phase

Qualifying Feature	Potential Impact	Screening Rationale	Likely Significant Effect?
Bath and Bradford-on-Avon SAC			
Greater horseshoe bat	Ongoing loss or change of FLL	Land at the Solar PV Sites is not considered to represent FLL for the SAC population of greater horseshoes. Habitat within the Cable Route Corridor will be reinstated on completion of construction.	No
Lesser horseshoe bat	Ongoing loss or change of FLL	Suitable retained habitat within potential FLL for lesser horseshoe bats at Lime Down C is not expected to be impacted during the Operation and Maintenance Phase.	No
Bechstein's Bat	Ongoing loss or change of FLL	Land within the Order Limits is not considered to represent FLL for the SAC population of Bechstein's bat.	No
Severn Estuary SAC			
Annex I Habitats: • Estuaries • Sandbanks which are slightly covered by sea water all the time (subtidal sandbanks).	Habitat degradation due to operational run-off or pollution	Given the distance from the Solar PV Sites and the minimal requirements for operation and maintenance phase works means there is very little risk of pollution except in the event of battery fire..	No; progressed for assessment on a

Qualifying Feature	Potential Impact	Screening Rationale	Likely Significant Effect?
• Mudflats and sandflats not covered by seawater at low tide. Intertidal mudflats and sandflats) • Atlantic salt meadows • Reefs		Good practice pollution prevention measures which are standard for a project of this type will be adopted and prescribed via the **Outline BSMP [EN010168/APP/7.21]** in order to minimise the likelihood and severity of pollution events.	precautionary basis.
Annex II Species • Sea Lamprey • River Lamprey • Twaite Shad	Habitat degradation due to operational run-off or pollution	The watercourses within the Order Limits are considered reasonably unlikely to support fish species of the SAC due to the distance from the Order Limits (minimum 68km) and numerous existing barriers to fish dispersal, as described in section 5. Given the distance from the Solar PV Sites and the minimal requirements for operation and maintenance phase works means there is very little risk of pollution except in the event of battery fire.. Good practice pollution prevention measures which are standard for a project of this type will be adopted and prescribed via the **Outline BSMP [EN010168/APP/7.21]** in order to minimise the likelihood and severity of pollution events.	No; progressed for assessment on a precautionary basis.
Severn Estuary SPA			
SPA Qualifying Species: • Bewick's swan • Greater white-fronted goose • Shelduck • Gadwall • Dunlin • Redshank	Ongoing loss or change of FLL	The land within the Order Limits are not considered to represent FLL for birds of the SPA due to the distance (23.71km) and markedly different habitats between the two. Results of bird surveys undertaken at the Solar PV Sites do not indicate FLL as described in Section 5.3.	No

Qualifying Feature	Potential Impact	Screening Rationale	Likely Significant Effect?
• Waterbird Assemblage			
Severn Estuary Ramsar			

Ramsar Criterion 5 and 6:
• Wintering bird assemblage of international importance
• Species/populations occurring at levels of international importance:
  ○ Bewick's swan
  ○ Greater white-fronted goose
  ○ Shelduck
  ○ Gadwall
  ○ Dunlin
  ○ Redshank
	Ongoing loss or change of FLL	The land within the Order Limits are not considered to represent FLL for birds of the Ramsar site due to the distance (23.71km) and markedly different habitats between the two.
		Results of bird surveys undertaken at the Solar PV Sites do not indicate FLL as described in Section 5.3.
			No

Ramsar Criterion 1 and 3: • Immense tidal range • Estuarine communities	Habitat degradation due to operational run-off or pollution	Given the distance from the Solar PV Sites and the minimal requirements for operation and maintenance phase works means there is very little risk of pollution except in the event of battery fire.. Good practice pollution prevention measures which are standard for a project of this type will be adopted and prescribed via the **Outline BSMP [EN010168/APP/7.21]** in order to minimise the likelihood and severity of pollution events.	No; progressed for assessment on a precautionary basis.
Ramsar criterion 4 and 8 – migratory fish: • Salmon • Sea lamprey • River lamprey	Habitat degradation due to operational run-off or pollution	The watercourses within the Order Limits are considered reasonably unlikely to support fish species of the Ramsar site(with the exception of European eel and sea trout) due to the distance from the Order Limits	No; progressed for assessment on a

Qualifying Feature	Potential Impact	Screening Rationale	Likely Significant Effect?
• Allis shad • Twaite shad		(minimum 68km) and numerous existing barriers to fish dispersal, as described in Section 5.4. Given the distance from the Solar PV Sites and the minimal requirements for operation and maintenance phase works means there is very little risk of pollution except in the event of battery fire.. Good practice pollution prevention measures which are standard for a project of this type will be adopted and prescribed via the **Outline BSMP [EN010168/APP/7.21]** in order to minimise the likelihood and severity of pollution events.	precautionary basis.
Ramsar criterion 4 and 8 – migratory fish: • European eel • Sea trout	Habitat degradation due to construction run-off or pollution	Good practice pollution prevention measures which are standard for a project of this type will be adopted and prescribed via the **Outline BSMP [EN010168/APP/7.21]** in order to minimise the likelihood and severity of pollution events.	No; progressed for assessment on a precautionary basis.
	Fragmentation via EMFs	The potential for effects of anthropogenic EMFs on ecology is an emerging issue Eels are known to have evolved sensitivity to electric and/or magnetic fields. There is therefore some risk of EMFs affecting eels in the vicinity of the Cable Route Corridor where 400kv Grid Connection Cable will cross tributaries of the River Avon within the Order Limits which could hinder or prevent migration.	Yes

7 Screening Assessment Conclusions

7.1.1 The HRA Screening exercise has identified no LSEs resulting from the Scheme on the Severn Estuary SPA.

7.1.2 However, in the absence of mitigation potential LSEs have been identified for the following European site features and phases of the Scheme:

Bath and Bradford on Avon Bats SAC

Construction Phase

- Loss/change of FLL for greater horseshoe bats as a result of temporary loss of habitat within the Impact Zone for Bat Species where it intersects the Cable Route Corridor;
- Loss/change of potential FLL for lesser horseshoe bats at Lime Down C, as result of inadvertent damage/degradation due to construction activities (particularly the deployment of vehicles and machinery) taking place in close proximity to field boundary habitat.
- Fragmentation via lighting and severance of commuting routes for lesser horseshoe bats at potential FLL within Lime Down C.
- Fragmentation via lighting and severance of commuting routes for greater horseshoes and Bechstein's bat, primarily as a result of temporary removal of commuting features within the Impact Zone for Bat Species where it intersects the Cable Route Corridor;
- Potential for loss of Bechstein's bat roost sites at trees within the Cable Route Corridor; and
- Potential for injury/mortality to Bechstein's bats during removal roost sites at trees within the Cable Route Corridor.

Severn Estuary SAC

Construction Phase

- Habitat degradation due to construction run-off or pollution (precautionary assessment).

Operation Phase

- Habitat degradation due to pollution in the event of a battery fire (precautionary assessment).

Severn Estuary Ramsar

Construction Phase

- Fragmentation resulting from temporary or permanent crossings for access and laying cables at suitable watercourses at the Solar PV Sites and Cable Route Corridor, potentially impeding eel and sea trout migration;
- Habitat degradation due to construction run-off or pollution (precautionary assessment); and
- Mortality and injury to eels and sea trout during works to construct new permanent or temporary crossings at tributaries of the River Avon.

Operation Phase

- Habitat degradation due to pollution in the event of a battery fire (precautionary assessment); and
- Fragmentation due to EMFs affecting eels where 400kV cables cross tributaries of the River Avon, potentially hindering or preventing migration.

7.1.3 These will be taken to HRA Stage 2, the Appropriate Assessment.

8 Appropriate Assessment

8.1.1 This section considers each identified potential impact pathway carried forward from Section 6 above, sequentially. This is done in isolation in this section, with Section 9 considering other relevant developments which could give rise to cumulative effects.

8.2 Assessment in Isolation – Construction and Decommissioning Phase

Bath and Bradford-on-Avon Bats SAC

Loss or Change of FLL

8.2.1 No permanent loss or change of FLL is anticipated for lesser horseshoe bat or Bechstein's bat which could result in Likely Significant Effects as the Order Limits do not contain FLL for either of these species, with the exception of a small number of discrete Highways Improvement Areas.

8.2.2 Potential for Likely Significant Effects due loss of foraging habitat within Lime Down C (which is considered to represent potential FLL for lesser horseshoe bats) has been identified as a result of inadvertent damage or degradation to the extensive network of retained hedgerows and off-site woodland present at Lime Down C as a result of construction activities (particularly the deployment of vehicles and machinery) taking place in close proximity to field boundary habitat. In order to minimise the risk of likely impacts and preserve key habitat for bats (including lesser horseshoe bats), a protective buffer of a minimum 15 m in width will be implemented from all hedgerows and woodland across the Solar PV Sites.

8.2.3 This buffer size will be applied regardless of the quality of habitat present at the boundaries for bats, and will ensure retained hedgerows and woodland will be protected from inadvertent damage during construction. The protection of the 15 m buffer zone is set out in the **Outline Ecological Protection and Mitigation Strategy (EPMS) [REP1-106]** which will be secured through DCO requirement. The proposed treatment of buffer zones at Lime Down C is set out within **ES Volume 2, Figure 3-4-3.1 to 3-4-3.2 Landscape and Ecology Mitigation Plan [REP1-029]** & **Outline Landscape and Ecological Management Plan (LEMP) [APP-283].** Generally it is proposed to provide habitat for bats of greater value than the existing largely arable land, through creation of habitats and features such as diverse tussocky grassland, scrub and tree planting where appropriate. For most interior hedgerows which do not form part of the boundary of Lime Down C, a resulting 30 m minimum naturally vegetated buffer will be in place (15 m on each side of the hedgerow). These buffer zones can be expected to deliver optimal foraging and commuting habitat

for lesser horseshoe bats, and will preserve the value of key foraging / commuting habitats at Lime Down C through all phases of the Scheme.

8.2.4 Although no permanent loss/change of FLL for greater horseshoe bats will occur, Likely Significant Effects have been identified where Temporary Construction Compounds required for the works taking place within Cable Route Corridor are sited within the Wiltshire Impact Zone for Bat Species, which is considered to represent FLL for greater horseshoes. Outside of Temporary Construction Compounds, temporary loss of habitat within a linear 25 m working area elsewhere along the Cable Route Corridor is not expected to result in Likely Significant Effects due to the relatively small and highly localised working area, and reinstatement of habitat on completion of works.

8.2.5 In order to avoid temporary loss of FLL for greater horseshoe bats, all Temporary Construction Compounds will be sited outside of the Wiltshire Impact Zones for Bat Species. This will be secured as part of the Works Plan **(ES Volume 2, 2.3 Works Plan [EN010168/APP/2.3]),** with the location of Temporary Construction Compounds in relation to the Wiltshire Impact Zones for Bat Species presented in **Figure 2**.

8.2.6 Taking into account retention and protection of habitat for lesser horseshoe bats at Lime Down C, and the siting of Temporary Construction Compounds outside of Impact Zones (which are considered to represent FLL for bats of the SAC) it is concluded that there will be **no adverse effects on the integrity** of the SAC through loss or change of FLL.

Fragmentation

8.2.7 As set out in Section 6, fragmentation effects could occur where hedgerows need to be permanently removed for new access within potential FLL for lesser horseshoe bats at Lime Down C. Fragmentation could also occur where hedgerows need to be removed for cabling works within the Cable Route Corridor, although this would be a temporary impact as all hedgerows will be reinstated on completion of works. However, hedgerows are typically used by all UK bat species, including those associated with the SAC, for foraging and/or commuting around the landscape. Large gaps in hedgerows, even if temporary, could impede the ability of bats to move between roost sites and foraging areas and result in detrimental impacts on bat populations associated with the SAC.

8.2.8 Similarly, uncontrolled construction-phase lighting could also impede the movement of bats between roost sites and foraging areas, this could result in detrimental impacts on bat populations of the SAC despite any such impact being temporary.

8.2.9 Although fragmentation impacts are most likely to be felt within FLL (and therefore where the Cable Route Corridor intersects the Impact Zones) it

is also possible that such impacts could occur outside of identified Impact Zones. This is primarily a consideration when taking account the 'Core Area' applied for Bechstein's bat around three maternity roosts near Lackham, to the south of Chippenham which are considered to be functionally and demographically connected with the Bechstein's population supported by the SAC. Although the Cable Route Corridor does not intersect this Core Area/Impact Zone, it does run between the Core Area/Impact Zone (which lies to the east of the Cable Route Corridor) and the SAC (which lies to the west). It is not possible to determine the exact relationship between Bechstein's bats of the SAC and the Core Roosts near Lackham (for example to what extent individual bats move between the SAC and the Core Area/Impact Zone) without detailed and advanced survey data (e.g. from radio-tracking individual bats). However, on a precautionary basis it is reasonable to assume Bechstein's bat could use habitats within the Cable Route Corridor to some extent when moving between the two. It is therefore possible that unmitigated works within the Cable Route Corridor could result in fragmentation impacts, by impeding populations of Bechstein's bat moving between the SAC and the identified maternity roosts within the Core Area.

8.2.10 In order to minimise fragmentation impacts at potential FLL for lesser horseshoe bats at Lime Down C, all new gaps in hedgerows (or where existing gaps will be widened) will be reduced as far as possible. While existing field access will be utilised wherever possible, any new hedgerow gaps required for internal access will measure a maximum of 10 m in width, although will typically measure 3.5 to 6 m wide. This is secured within the **Outline EPMS [EN010168/APP/7.19].** Sections of hedgerow to be removed to provide access to the Solar PV Sites from the existing high-way network, including for Abnormal Indivisible Loads (AIL) may require a maximum of 18 m of hedgerow loss at any one access point, although would typically be less than this at most access points. At Lime Down C one AIL Location is expected to comprise a gap of a maximum of 18 m in width (although is expected to in practice be up to 14 m in width), at Solar PV Access Location 19 **(ES Volume 2, Figure 13-11 Construction Access Locations: Solar PV Sites [APP-156]** refers)

8.2.11 In order to minimise fragmentation impacts within the Cable Route Corridor, the typical 25 m working width for the Cable Route Corridor will be narrowed to 12 m at all locations required for hedgerow breaches. For hedgerows lying within the Impact Zones for Bat Species, this will be a maximum of 10 m. This is secured in the **Outline EPMS [EN010168/APP/7.19]**.

8.2.12 In all cases, the relatively small sizes of these gaps are considered to be not uncommon between connective habitats within an agricultural landscape and ably crossed by bat species, including greater and lesser

horseshoes, without impeding the ability of individual bats to move around the landscape. Greater horseshoe bats have a short-range echolocation (believed to be up to 10 m (Ref 12)), with research by Pinaud et al. (Ref 13) recommending gaps of no more than 38 m between hedgerows and other landscape features to maintain connectivity for greater horseshoe bats. Similarly, while Bechstein's bats are believed to favour woodland canopies and dense hedgerows when commuting, they are known to cross open habitats when travelling from, or returning to, roost sites (Ref 14) with a number of studies showing evidence of Bechstein's bats crossing roads (Ref 15), including the A350 near Trowbridge (Ref 7).

8.2.13 It is therefore considered new gaps of up to 10 m (typically 3.5 -6 m) at Lime Down C (with a single slightly larger gap of a maximum of18 m at Access Point 19) would not significantly impede lesser horseshoe bats when commuting between roost sites and foraging grounds within the vicinity of Lime Down C. Similarly, temporary gaps of between 10-12 m within the Cable Route Corridor will not significantly impede bats of the SAC when moving between roost sites and foraging areas around the landscape.

8.2.14 Temporary site lighting during construction will be required to enable safe working during hours of darkness. As specified in **Volume 1, Chapter 3: The Scheme [EN010168/APP/6.1]** core construction working hours will be 07:00 to 18:00 (Monday to Friday) and 08:00 to 13:30 (Saturday), meaning working during hours of darkness are only likely to occur during the winter months only when bat activity is much reduced. Temporary construction lighting will be designed as far as reasonably practicable to minimise potential for light spillage outside the Solar PV Sites and Cable Route Corridor, particularly towards valuable ecological habitats including hedgerows, woodlands, and water courses. Standard good practice measures would be employed to minimise light spill, including glare, during construction including the use of LED lighting and focused directional fittings (e.g. hoods/cowls) to direct lighting to where it is needed only.

8.2.15 Temporary security lighting may be installed on temporary construction site compounds following consultation with the Ecological Clerk of Works (EcoCoW) to establish appropriate locations. Security lighting will be limited to the minimum number of luminaires required which will be defined through consultation with the EcoCoW and based on the sensitivity of the habitats potentially affected and baseline lux levels. Security luminaires will be motion-sensitive and set on a short (less than 2 minute) timer and oriented to reduce upward light spill as far as possible.

8.2.16 Control of construction phase lighting is prescribed within the **Outline CEMP [EN010168/APP/7.12]** and will serve to mitigate adverse impacts on ecological receptors such as bats.

8.2.17 Lighting is typically not required within for the operation and maintenance phase. Motion sensing security lighting will be provided within substations and at the BESS Area to be used only for maintenance and security purposes. The lighting strategy for the operation and maintenance phase is set out in the **Outline Operational Environmental Management Plan (Outline EMP) [EN010168/APP/7.13]**.

8.2.18 With the adoption of the mitigation measures described above, namely the minimisation of hedgerow gap sizes and the control of lighting secured via the **Outline EPMS [EN010168/APP/7.19]** and **Outline CEMP [EN010168/APP/7.12]** respectively, it is concluded that there will be **no adverse effects on the integrity** of the SAC through fragmentation,

Loss or Damage to Roosts

8.2.19 No potential impacts on the populations of either greater or lesser horseshoe bats associated with the SAC are anticipated from loss or damage of roosts. Both of these species almost exclusively roost in underground structures and buildings, with no such features expected to be impacted by the Scheme. However, Bechstein's bat primarily roosts in trees, and it is possible that trees within the Order Limits represent roost sites for this species.

8.2.20 As prescribed within the **Outline EPMS [EN010168/APP/7.19]**, all effort will be made to avoid impacts on any trees identified as having bat roosting potential, including through micro-siting of the final cable route within the Cable Route Corridor to avoid such features. However, it is probable that a relatively small proportion of trees within the Cable Route Corridor may be necessary for access/ installation of the cable route. Consequently, there remains a risk of loss or damage of roost sites for to Bechstein's bats during removal of any suitable trees.

8.2.21 Any trees with potential for roosting bats, for which removal or modification is unavoidable within the Cable Route Corridor, will be re-investigated closely prior to any works taking place, either through a climbing inspection and the use of video endoscopes (where practicable), or through the completion of emergence surveys, to determine the presence or likely absence of roosts. This measure is secured by the **Outline EPMS [EN010168/APP/7.19]**.

8.2.22 The loss of any identified roost will need to be legally permitted under a licence from Natural England, which can only be sought on receipt of a consented DCO decision, but all alternatives will be explored beforehand, for instance through micro-siting the cable route to avoid any trees, which

is generally feasible within the typically 50 m wide Cable Route Corridor, or via adopting trenchless solutions for installation of cables which avoids impacts on trees. However, in any such cases where the loss or damage of a roost is unavoidable, the provision of alternative roost sites under licence would be required to maintain the favourable conservation status of the species affected and ensure full legal compliance. This will also need to document how alternatives to impacting any roosts have been fully explored.

8.2.23 It is therefore expected that any Bechstein's roost site that could be impacted by construction of the Scheme will be identified, and any necessary avoidance measures, or (in the worst case scenario) provision of alternative roost sites, will be implemented as adequate mitigation. This will be secured under the **Outline EPMS [EN010168/APP/7.19]** and via Natural England licence (if necessary), resulting in no net loss of roost sites for Bechstein's bat.

8.2.24 Implementing the secured mitigation measures described, there would be no net loss of roost sites for Bechstein's bat and therefore it can be concluded that there will be **no adverse effects on the integrity** of the SAC through loss or damage to roosts.

Killing and Injury

8.2.25 No potential impacts through killing and injury to greater or lesser horseshoe bats associated with the SAC are anticipated. Both of these species almost exclusively roost in underground structures and buildings, with no such features expected to be impacted by the Scheme.

8.2.26 However, Bechstein's bat primarily roosts in trees, and it is possible that trees with the Order Limits represent roost sites for this species. All effort will be made to avoid impacts on any trees identified as having bat roosting potential, including through micro-siting of the final cable route within the Cable Route Corridor to avoid such features. However it is probable that a relatively small proportion of trees within the Cable Route Corridor may be necessary for access/ installation of the cable route. Consequently, there remains a risk of direct harm or disturbance to roosting bats during removal of any suitable trees.

8.2.27 Any trees with potential for roosting bats, for which removal or modification is unavoidable within the Cable Route Corridor, will be re-investigated closely prior to any works taking place, either through a climbing inspection and the use of video endoscopes (where practicable), or through the completion of emergence surveys, to determine the presence or likely absence of roosts. This requirement is secured by the **Outline EPMS [EN010168/APP/7.19]** .

8.2.28 The loss of any identified roost will need to be legally permitted under a licence from Natural England, but all alternatives will be explored beforehand, for instance through micro-siting the cable route to avoid any trees, which is generally feasible within the typically 50 m wide Cable Route Corridor, or via adopting trenchless solutions for installation of cables which avoids impacts on trees. However, in any such cases where the loss or damage of a roost is unavoidable, it will be necessary to take steps to ensure as far as reasonably possible that no bats are killed or injured and ensure full legal compliance. Such measures would typically consist of (but not be limited to) the following:

- Sensitive timing of works to remove trees when bats are less at risk from harm (e.g. during the spring and autumn, outside of the breeding and hibernation periods);
- The presence of a suitably qualified ecologist during works who holds the correct licence to handle bats, would inspect the tree for bats immediately prior to works commencing;
- Soft felling of trees to in a controlled manner, section by section, to minimise injury to any bats present, with sections of tree lowered by ropes to the ground with ropes; and
- Provision of alternative roost sites for any bats encountered.

8.2.29 It is therefore expected that any Bechstein's roost site that could be impacted by construction of the Scheme will be identified, and any necessary avoidance measures, or (in the worst case scenario) mitigation measures for removal of roosts, will be adopted. This will be secured under the **Outline EPMS [EN010168/APP/7.19]** and via Natural England licence (if necessary), resulting in minimal risks of harming individual Bechstein's bat.

8.2.30 Adopting the mitigation measures described above would result in minimal risks of harming individual bats, and therefore it can be concluded that there will be **no adverse effects on the integrity** of the SAC through killing and injury of individuals of qualifying species.

Severn Estuary SAC

Habitat Degradation

8.2.31 As described in section 6.5, watercourses within the Order Limits have a direct hydrological connection with the Severn Estuary SAC site via the River Avon, a tributary of the Severn, and thus the habitats within the SAC are potentially susceptible to degradation impacts during the construction phase, arising from discharge/deposition of sediments, dust and contaminants. This could also detrimentally impact qualifying species of

the SAC reliant on such habitats through impeding their ability to feed and reproduce. Following the course of the River Avon, the SAC is located more than 68 km downstream of the Order Limits (over 100 km downstream of the Solar PV Sites) and it is likely that any such impacts of the scale which may potentially occur will be attenuated over such distances.

8.2.32 Good practice measures to be implemented to minimise the likelihood and severity of pollution events, dust deposition and run-off arising during the construction phase are considered to be standard embedded mitigation measures and are set out in section 6.4, and will be secured via the **Outline CEMP [EN010168/APP/7.12]** and **Outline EPMS [EN010168/APP/7.19]**.

8.2.33 Furthermore, protective buffers from retained field boundary habitats and other ecological features have been applied according to a set of ecological importance criteria. Buffers are measured from the centre line of the hedgerow, root protection area of the tree canopy (in the case of woodland or individual trees) or the banktop of the watercourse. Protective construction-phase fencing will also observe these buffer distances and will help to ensure that areas of habitat within the buffers are not subject to damage during the construction phase. Buffers will be secured through implementation of the measures set out in the **Outline Ecological Protection and Mitigation Strategy (Outline EPMS) [EN010168/APP/7.19].** The relevant measurement criteria for the HRA assessment are as follows:

- 8m minimum from ditches;
- 10m minimum from ditches with signs of water vole and individual trees; and
- 15m minimum from all woodland, hedgerows, lines of trees, and Statutory/Non Statutory designated sites, as well as some minor watercourses depending on their ecological value.

8.2.34 In areas where two or more such features are present, the largest set minimum buffer will be applied. For instance, where a hedgerow is present alongside the top of a ditch bank, a minimum undeveloped buffer of 15m will be retained from the outer edge of the hedgerow which will also encompass the 8/10m applicable ditch buffer.

8.2.35 The implementation of such protective buffers from watercourses will further aid in minimising the likelihood and severity of any pollution events impacting aquatic habitats within and downstream of the Order Limits.

8.2.36 With the implementation of such measures, impacts arising from discharge/deposition of sediments, dust and contaminants can be avoided

and there would be **no adverse effects on the integrity** of the SAC through this impact pathway.

Severn Estuary Ramsar

Habitat Degradation

8.2.37 As described in section 6.5, watercourses within the Order Limits have a direct hydrological connection with the Severn Estuary Ramsar site via the River Avon, a tributary of the Severn, and thus the habitats within the Ramsar site are potentially susceptible to degradation impacts during the construction phase, arising from discharge/deposition of sediments, dust and contaminants. This could also detrimentally impact qualifying species of the Ramsar site reliant on such habitats through impeding their ability to feed and reproduce. Following the course of the River Avon, the Ramsar site is located more than 68 km downstream of the Order Limits (over 100 km downstream of the Solar PV Sites) and it is likely that any such impacts of the scale which may potentially occur will be attenuated over such distances.

8.2.38 Good practice measures to be implemented to minimise the likelihood and severity of pollution events, dust deposition and run-off arising during the construction phase are considered to be standard embedded mitigation measures and are set out in section 6.4, and will be secured via the **Outline CEMP [EN010168/APP/7.12]** and **Outline EPMS [EN010168/APP/7.19]**.

8.2.39 Furthermore, the implementation of protective buffers from watercourses (as set out under 'Severn Estuary Ramsar' subheading above) to be secured under the **Outline EPMS [EN010168/APP/7.19]** will further aid in minimising the likelihood and severity of any pollution events impacting aquatic habitats within and downstream of the Order Limits.

8.2.40 With the implementation of such measures, impacts arising from discharge/deposition of sediments, dust and contaminants can be avoided and there would be **no adverse effects on the integrity** of the Ramsar site through this impact pathway.

Fragmentation (Migratory Fish)

8.2.41 As described in Section 6.5, fragmentation effects could occur during construction by creation of new temporary or permanent watercourse crossings, which could impede or prevent eels or sea trout from migrating between the Severn Estuary and suitable watercourses within the Order Limits.

8.2.42 The Scheme will avoid and minimise direct impacts upon watercourses by utilising existing crossings for access wherever possible. No new

crossings for access are required at any of those watercourses identified as potentially suitable for eels or sea trout (Section 6.5 refers). A crossing schedule (within **ES Volume 3, Appendix 11.1 Flood Risk Assessment and Drainage Strategy Covering Report [EN010168/APP/6.3]**) has been prepared detailing the location and type of crossings proposed for both cables and access. It is possible that an existing vehicular crossing at Gabriel's Well may need to be improved to ensure it meets construction/operation and maintenance vehicle requirements (SM4 on the crossing schedule (**Appendix 11.1 [EN010168/APP/6.3]** refers)). Any new or improved crossing here will be an open-span structure, with no incursion into the channel ensuring no impediment to movement of fish (including eels and sea trout).

8.2.43 All crossings of watercourses suitable for migratory fish required for cable installation will adopt trenchless solutions (such as Horizontal Directional Drilling (HDD)) as specified in the crossing schedule (contained within **ES Volume 3, Appendix 11.1 Flood Risk Assessment and Drainage Strategy Covering Report [EN010168/APP/6.3])** which has been prepared detailing the location and type of crossings proposed for both cables and access. Adoption of trenchless solutions will avoid direct impacts and potential damning of watercourses to install cable trench and temporary access, which could prevent fish movement up and down stream.

8.2.44 The Scheme will therefore not result in any new permanent or temporary physical barriers to movement for migratory fish using suitable watercourses within the Order Limits, and as such it is concluded there will be **no adverse effect on integrity** of the Severn Estuary Ramsar through this pathway.

Killing and Injury

8.2.45 As described in Section 6.5, construction works impacting the channel or beds of watercourses (including creation of any new temporary or permanent crossings), could result in directly harm occurring to individual eels or sea trout associated with populations supported by the Severn Estuary Ramsar.

8.2.46 The Scheme will avoid and minimise direct impacts upon watercourses (and fish present therein) by utilising existing crossings for access wherever possible. No new crossings for access are required at any of those watercourses identified as potentially suitable for eels or sea trout, namely Gauze Brook, Gabriel's Well Brook, Pudding Brook, Pudding Brook Tributary and Byde Mill Brook (Section 5.4 refers). A crossing schedule (within **ES Volume 3, Appendix 11.1 Flood Risk Assessment and Drainage Strategy Covering Report [EN010168/APP/6.3]**) has been prepared detailing the location and type of crossings proposed for

both cables and access. It is possible that an existing vehicular crossing at Gabriel's Well may need to be improved to ensure it meets construction/operation and maintenance vehicle requirements (SM4 on the crossing schedule (**Appendix 11.1 [EN010168/APP/6.3]** refers)). Any new or improved crossing here will be an open-span structure, with no incursion into the channel ensuring minimal risks to any fish therein (including eels and sea trout).

8.2.47 All crossings of watercourses suitable for migratory fish required for cable installation will adopt trenchless solutions (such as HDD) as specified in the crossing schedule (**Appendix 11.1 [EN010168/APP/6.3]** refers). This will avoid direct impacts to suitable watercourses for cable trench and temporary access installation, which means risks of direct harm to fish therein would be avoided. It can therefore be concluded that **no adverse effects on integrity** of the Ramsar will occur through killing and injury of qualifying species.

8.3 Assessment in Isolation – Operation and Maintenance Phase

Severn Estuary SAC

Habitat Degradation

8.3.1 As described in section 6.5, as the proposed BESS Area is close to existing ditches, there is a risk of battery fire and potentially the subsequent discharge of chemicals and other diffuse pollutants into the local watercourse network and eventually into the Severn Estuary via the River Avon. This could potentially degrade the water quality of the SAC and habitats within. This could also detrimentally impact qualifying species of the SAC reliant on such habitats through impeding their ability to feed and reproduce. Following the course of the River Avon, the SAC is located more than 68 km downstream of the Order Limits (over 100 km downstream of the Solar PV Sites) and it is likely that any such impacts of the scale which may potentially occur will be attenuated over such distances.

8.3.2 Good practice BESS design and fire suppression measures are to be adopted to minimise the likelihood and severity of BESS fire and subsequent pollution events on the local watercourse network. These are considered to be standard embedded mitigation measures and are set out in section 6.4, and will be secured via the **Outline BSMP [EN010168/APP/7.21]**. With the implementation of such measures to minimise pollution risk and severity the event of a fire, impacts on the Severn Estuary SAC can be avoided and there would be **no adverse effects on the integrity** of the SAC through this impact pathway.

Severn Estuary Ramsar

Habitat Degradation

8.3.3 As described in section 6.5, as the proposed BESS Area is close to existing ditches, there is a risk of battery fire and potentially the subsequent discharge of chemicals and other diffuse pollutants into the local watercourse network and eventually into the Severn Estuary via the River Avon. This could potentially degrade the water quality of the Ramsar site and habitats within. This could also detrimentally impact qualifying species of the Ramsar site reliant on such habitats through impeding their ability to feed and reproduce. Following the course of the River Avon, the Ramsar site is located more than 68 km downstream of the Order Limits (over 100 km downstream of the Solar PV Sites) and it is likely that any such impacts of the scale which may potentially occur will be attenuated over such distances.

8.3.4 Good practice BESS design and fire suppression measures are to be adopted to minimise the likelihood and severity of BESS fire and subsequent pollution events on the local watercourse network. These are considered to be standard embedded mitigation measures and are set out in section 6.4, and will be secured via the **Outline BSMP [EN010168/APP/7.21]**. With the implementation of such measures to minimise pollution risk and severity the event of a fire, impacts on the Severn Estuary SAC can be avoided and there would be **no adverse effects on the integrity** of the Ramsar site through this impact pathway.

Fragmentation (Migratory Fish)

8.3.5 As described in Section 6.6, there is some risk of EMFs affecting migratory fish in the vicinity of the 400 kV Grid Connection Cables, where they cross those tributaries of the River Avon which are considered suitable for eels and sea trout, and where they lie close to channel bed (typical cable depths are up to 2 m), which could hinder or prevent migration.

8.3.6 Electric and magnetic fields are produced from electrical wiring and cables, with electric fields (E-fields, measured in volts per metre, V/m) being produced by voltage and magnetic fields (B-fields, measured in microTeslas, µT) being produced by current (Ref 17). Unlike overhead cables, cables that are buried underground have their electric fields eliminated by a combination of the cable sheathing and the substrate under which they are buried (Ref 18 & Ref 19). However, magnetic fields are not attenuated in this way, therefore there remains potential effects from magnetic fields. However, it should also be noted that comparatively weak electric fields can be induced by the movement of water or organisms through such magnetic fields although this is again proportionate to the distance from the source (cable) (Ref 20).

8.3.7 Most of the research conducted to date on the effect of EMFs on fish is based on subsea cables (laid on the seabed, rather than buried). A 2022 literature review of the subject was carried out by the Scottish Government (Ref 21) predominantly in relation to marine renewable energy generation and export. The review found that a range of responses to anthropogenic EMF have been observed in a range of fish (predominantly elasmobranchs) and marine invertebrates both in lab trials and field studies. However, it concludes that there is, to date, very little evidence to suggest significant real-world behavioural changes arising from EMF in relation to the installation of subsea cables, characterising potential impacts as likely to be "weak or moderate". One study highlighted the absence of responses in captive Atlantic salmon to a range of artificial magnetic fields (Ref 22), while another field study in Pacific salmon species observed a change in migration behaviour in response to subsea cables but no impact on overall migration success (Ref 23). However, the literature review notes the difficulty of applying the limited research findings in ecological impact assessment and as such identifies knowledge gaps to direct future research.

8.3.8 Cables will be installed via HDD (or other non-open-cut methods) to cross those watercourses deemed suitable to regularly support eels and sea trout, including Gauze Brook, Gabriel's Well Brook, Pudding Brook, Pudding Brook Tributary and Byde Mill Brook, as set out within the crossing schedule (within **ES Volume 3, Appendix 11.1 Flood Risk Assessment and Drainage Strategy Covering Report [EN010168/APP/6.3]**).

8.3.9 In all such cases cables will be buried to a minimum depth of 5 m below the channel bed, in order to maximise attenuation of electromagnetic fields and minimise the risk of any adverse impacts. This is prescribed within the **Outline EPMS [EN010168/APP/7.19]**. This depth is far greater than typical installation depths and will significantly reduce the EMF, particularly magnetic (B-field), exposures. In this way, the low risk of impacts on migratory eels and sea trout will be avoided.

8.3.10 Electric fields generated by the proposed cable are not likely to be perceived beyond the armouring of the cable itself, and certainly not beyond the 5m buried depth, therefore potential effects of electric fields on fish are not considered likely.

8.3.11 Magnetic fields likely produced by the cable are highly likely to be within permitted exposure limits and induced electric fields are likely to be minor. The burial depth is five times greater than that typically used elsewhere which is considered to significantly mitigate EMF risks.

8.3.12 On the balance of available evidence and mitigation proposed, it is considered that the risks to eels and sea trout associated with the

proposed cable are acceptable, and overall **no adverse effects on the integrity** of the Severn Estuary Ramsar will occur through this impact pathway.

9 In Combination Assessment

9.1.1 Potential for effects have been considered in combination with other projects with reference to the methodology and guidance set out in **Volume 1, Chapter 6: EIA Methodology [EN010168/APP/6.1]** of the Environmental Statement and list of cumulative plans and projects identified in **Volume 2, Appendix 21-1: Long List of Cumulative Developments [EN010168/APP/6.3]** of the Environmental Statement.

9.1.2 As set out within **Volume 1, Chapter 9: Ecology and Biodiversity[EN010168/APP/6.1]** the Study Area for assessing potential effects of the Scheme on internationally designated sites is set at 10km from the Solar PV Sites, although this has been extended to up to a maximum of 30km for internationally designated sites with qualifying mobile species of migratory birds or bats, as individuals of these species groups can regularly travel distances of greater than 10km when foraging or during seasonal movement. A reduced study area of a 500m radius from the Cable Route Corridor has been applied to take account of the temporary and limited nature of works to take place in this element of the Scheme.

9.1.3 For the assessment of cumulative impacts on ecological features, a 10km Zone of Influence (ZoI) from the Solar PV Sites (and 500m from the Cable Route Corridor for the same reasons as above, i.e. the temporary and limited nature of cable installation) has been applied within which other projects have been identified and considered for their potential to result in additional impacts and/or increase the magnitude of effect for impacts already identified as likely to result from the Scheme. There is no set distance in industry guidance for the size of ZoIs in the assessment of cumulative impacts. A 10km cumulative ZoI for ecological impacts is typically adopted as best practice for NSIP solar projects of a similar scale. This is because the primary direct and indirect effects of such projects rarely extend beyond 10 km from the source of impact in measurable or ecologically significant ways. 10 km also captures typical maximum foraging distances for most species of wildlife, including highly mobile species such as species of bats, birds, and large mammals.

9.1.4 Those plans and projects identified from **Appendix 21-1 [EN010168/APP/6.3**] which have been identified as having a potential for in-combination effects on the integrity of the Designated Sites are set out and assessed in **Table 6** below. The list of projects has been narrowed down to focus on those projects which have most potential to give rise to cumulative effects.

Table 6: Plans and Projects with the Potential for In-Combination Effects

ID	Reference and Description	Status of Project	Approx Distance from the Scheme	Assessment of Potential In-Combination Effects
3	PL/2024/00865. Residential development for 45 dwellings, vehicular and pedestrian access including a new footway to Sopworth Lane, associated parking, open space, landscaping, and associated infrastructure.	Pending Consideration (Validated 22/02/2024)	1.1 km	Potential for further (albeit minor) loss/fragmentation of habitat for Bats (general) has been identified. The Ecological Appraisal for this project indicates that although no bat activity surveys have been conducted, there will be no impact on the BaBOA Bats SAC due to the distance (16.2 km) between the project and the SAC. The Ecological Appraisal does not identify hydrological connectivity between this project and the Severn Estuary SAC, SPA and Ramsar site, or use of the site by qualifying species. There is considered to be no pathway for residual in-combination effects with this project.
57	19/01490/FUL. A Residential Development Comprising 31 Dwellings (Use Class C3), a New Vehicular Access, Public Open Space, Landscaping, Sustainable Urban Drainage and Other Associated Infrastructure Works (Persimmon Homes)	Approved (10/08/2021)	0.5 km	Potential for further (albeit minor) loss/fragmentation of habitat for lesser and greater horseshoe bats of the BaBOA Bats SAC has been identified. The Ecological Impact Assessment prepared for this project identifies relatively low levels of activity by greater horseshoe bat and lesser horseshoe bat, with retention and protection of habitats used by both species proposed. Loss of habitat is small-scale and therefore unlikely to have in-combination effects above the effect of the Scheme alone. The Ecological Impact Assessment does not identify hydrological connectivity between this project and the Severn Estuary SAC, SPA and Ramsar site, or use of the site by qualifying species. No potential for residual in-combination effects has been identified on adoption of mitigation.
58	20/10972/OUT. Outline Planning Application for up to 71 Dwellings, Community Car Park, Land Reserved for Future Expansion of Hullavington CofE Primary	Approved (07/02/2023)	0.1 km	Potential for further (albeit minor) loss/fragmentation of habitat for Bats (general) has been identified, although the Ecological Assessment prepared for this project identified no use of the site by greater or lesser horseshoe bats during repeated bat activity surveys.

ID	Reference and Description	Status of Project	Approx Distance from the Scheme	Assessment of Potential In-Combination Effects
	School, Access, Open Space, Surface Water Attenuation Basin, Landscaping and Associated Works.			The Ecological Assessment does not identify use of the site by qualifying species of the Severn Estuary SAC, SPA or Ramsar site. There is some hydrologically connectivity with this project and the Severn Estuary via a small stream which feeds into Gauze Brook downstream. Similar embedded mitigation measures to the Scheme designed to protect watercourses and avoid pollution events are proposed for this project. No adverse effects on integrity, arising cumulatively between the Scheme and this project associated with potential waterborne pollution events are anticipated to arise.
96	18/08271/OUT. Outline planning application for up to 44,150 sq.m. (GIA) of development, comprising a maximum of 20,000 sq.m. (GIA) of research and development/office floorspace (Class B1 (a) and (b)) and 24,150 sq.m. of ancillary development including test areas, an energy centre, a logistics/storage building, hangar building, staff and customer facilities, and gatehouse, and new access arrangements, comprising a re-aligned section of C1 road and new roundabouts at both the junction of the A429/C1 roads and on the C1 road (all matters reserved except for access).	Approved (23/08/2019)	1.2 km	An Ecological Assessment prepared for this project identified habitats on site to be of value to bats, with non-breeding roosts belonging to lesser horseshoe bats and greater horseshoe bats identified. This project is situated approximately 12.3 km from the BaBOA Bats SAC and 4.5 km from the nearest Core Area/Impact Zone however and is not considered to comprise FLL for the SAC at such a distance away. There appears to be some hydrologically connectivity with this project and the Severn Estuary via a ditch connects to Gabriel's Well brook downstream of the site. However it appears from the Ecological Assessment that this is regularly dry and the ditch will remain outside of any development area, meaning the potential for adverse impacts on the Severn Estuary SAC, SPA and Ramsar site (and associated aquatic species) is very limited. No potential for residual in-combination effects has been identified on adoption of the Scheme's mitigation.

ID	Reference and Description	Status of Project	Approx Distance from the Scheme	Assessment of Potential In-Combination Effects
221	PL/2021/06100. The installation of a solar farm of up to 49.9MW of generating capacity, comprising the installation of solar photovoltaic panels and associated infrastructure including customer cabin, customer substation, DNO substation and equipment, inverter and transformer substations, spare part container, associated battery storage, access tracks, fencing, security cameras, landscape planting and associated works.	Approved (11/08/2022)	1.3 km	Potential for further (albeit minor) loss/fragmentation of habitat for Bats (general) has been identified. An Ecological Assessment prepared for this project identified the use of the site by foraging/commuting lesser horseshoe bats, with no activity by greater horseshoe or Bechstein's recorded. This site appears to overlap with a Core Area/Impact Zone for lesser horseshoe bats associated with the SAC. The Ecological Assessment for this project concluded there would be no adverse impacts on bats of the SAC, with habitat found to be used by lesser horseshoe bats during surveys (namely hedgerows and mature trees) retained and protected. The Ecological Impact Assessment does not identify hydrological connectivity between this project and the Severn Estuary SAC, SPA and Ramsar site, or use of the site by qualifying species. No potential for residual in-combination effects has been identified on adoption of mitigation.
346	PL/2024/09410. Construction and operation of a solar farm together with all associated works, equipment and necessary infrastructure	Pending Consideration (Validated 29/10/2024)	0.1km	Potential for further (albeit minor) loss/fragmentation of habitat for Bats (general) has been identified. Bat activity surveys undertaken for this project are detailed within the Ecological Impact Assessment prepared for this project. These surveys identified use of the site by greater horseshoe bats, lesser horseshoe bats, and unidentified *Myotis* bats. This project is circa 7.2 km from the BaBOA Bats SAC (circa 2 km from the nearest Core Area/ Impact Zone) and the Ecological Impact Assessment concluded that greater horseshoe bats recorded using the site in low numbers were not associated with the BaBOA Bats SAC. It is considered highly likely that a proportion of the Order Limits forms part of the foraging/commuting habitat for the same populations of bats recorded using this site. Nevertheless, potential loss of habitat is small-scale and therefore unlikely to have in-combination effects above the effect of the Scheme alone.

ID	Reference and Description	Status of Project	Approx Distance from the Scheme	Assessment of Potential In-Combination Effects
				The Ecological Impact Assessment does not identify hydrological connectivity between this project and the Severn Estuary SAC, SPA and Ramsar site, or use of the site by qualifying species. No potential for residual in-combination effects has been identified on adoption of mitigation.

10 Conclusions

10.1.1 A Habitat Regulations Assessment, comprising screening (Test of Likely Significant Effect) and an Appropriate Assessment, has been undertaken for the Scheme. This has concluded that with the adoption of mitigation measures, no adverse effects on site integrity of the Bath and Bradford-on-Avon Bats SAC, Severn Estuary SAC, Severn Estuary SPA or the Severn Estuary Ramsar site are deemed likely, either in isolation or in combination with other projects.

10.1.2 Mitigation measures which are secured within the Draft DCO for avoiding identified potential significant effects on the Bath and Bradford-on-Avon Bats SAC include the sensitive siting of Temporary Construction Compounds outside of Core Areas/Impact Zones, the restriction on size of required new hedgerow gaps at the Solar PV Sites (including Lime Down C), and the narrowing of construction widths at field boundary habitats within the Cable Route Corridor to avoid fragmentation of habitat, control of lighting, and adequate mitigation for loss of potential bat roost sites to avoid killing/injury to individual bats and ensure no net loss of roost sites.

10.1.3 Mitigation measures which are secured within the Draft DCO for avoiding significant effects on the Severn Estuary Ramsar include the adoption of trenchless techniques (e.g. HDD) for cable installation crossing watercourses likely to be used by qualifying fish species, and the burial of cables under watercourses to sufficient depths to minimise potential risks of EMFs impacts sensitive fish species.

10.1.4 With the implementation of mitigation measures secured within the Draft DCO, it is concluded that the Scheme would not result in any adverse effects on the integrity of any European site.

11 References

Ref 1 Natural England (2015) Site Improvement Plan Bath & Bradford on Avon Bats (SIP011)

Ref 2 Natural England (2015) Site Improvement Plan: Severn Estuary Mor Hafren (SIP213)

Ref 3 Joint Nature Conservation Committee (2008) Information Sheet on Ramsar Wetlands (RIS). Severn Estuary

Ref 4 Natural England and Wiltshire Council (September 2015) Bat Special Areas of Conservation (SAC) – Planning Guidance for Wiltshire

Ref 5 Available at: [redacted]

Ref 6 North Somerset Council (2018) North Somerset and Mendip Bats Special Area of Conservation (SAC) Guidance on Development: Supplementary Planning Document

Ref 7 Johns Associates on behalf of Wiltshire Council (February 2020) Trowbridge Bat Mitigation Strategy SPD.

Ref 8 Available at: https://environment.data.gov.uk/ecology/explorer/

Ref 9 Available at: https://bristolavonriverstrust.org/surprise-landing-of-a-sea-trout-from-the-middle-bristol-avon/

Ref 10 National Fire Chiefs Council (2022) Grid Scale Battery Energy Storage System Planning Guidance. Available at: https://nfcc.org.uk/wp-content/uploads/2023/10/Grid-Scale-Battery-Energy-Storage-System-planning-Guidance-for-FRS.pdf

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Ref 14 Schofield, H. & Morris, C. (2000) Ranging behaviour and habitat preferences of female Bechsteins's bat, Myotis bechsteinii (Kuhl, 1818), in summer. Vincent Wildlife Trust

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Ref 17 [redacted]o/ - website operated by the National Grid's EMF Unit.

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Ref 19 [redacted]

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Ref 21 Xoubanova, S. and Lawrence, Z. (2022). Review of fish and fisheries research to inform ScotMER evidence gaps and future strategic research in the UK; Evidence Gap FF.07: Electromagnetic Fields. Marine Scotland Science.

Ref 22 Armstrong, J.D., Hunter, D-C, Fryer, R.J., Rycroft, P. and Orwood, J.E. (2015) Behavioural Responses of Atlantic Salmon to Mains Frequency Magnetic Fields. Scottish Marine and Freshwater Science Vol 6 No 9. Edinburgh: Scottish Government, 17pp.

Ref 23 Wyman, M. T., Peter Klimley, A., Battleson, R. D., Agosta, T. V., Chapman, E. D., Haverkamp, P. J., Kavet, R. (2018). Behavioral responses by migrating juvenile salmonids to a subsea high-voltage DC power cable. Marine Biology, 165(8).